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# Report On

Specific Absorption Rate Testing of the A2992

In accordance with FCC 47CFR 2.1093  
FCC ID: BCGA2992

**COMMERCIAL-IN-CONFIDENCE**

Document 75958013 Report 9 Issue 1

October 2023





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COMMERCIAL-IN-CONFIDENCE

**REPORT ON**

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Document 75958013 Report 9 Issue 1

October 2023

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**Jon Kenny**  
Authorised Signatory

**DATED**

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11 October 2023



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## **SECTION 1**

### **REPORT SUMMARY**

Specific Absorption Rate Testing of the A2992



## 1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Specific Absorption Rate Testing of the A2992 to the requirements of FCC 47CFR 2.1093

|                               |                                                                                                                                                                                                                                                                                                  |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Objective                     | To perform Specific Absorption Rate Testing to determine the Equipment Under Test's (EUT's) compliance with the requirements specified of FCC 47CFR 2.1093 for the series of tests carried out.                                                                                                  |
| Applicant                     | Apple Inc                                                                                                                                                                                                                                                                                        |
| Manufacturer                  | Apple Inc                                                                                                                                                                                                                                                                                        |
| Manufacturing Description     | Laptop Computer                                                                                                                                                                                                                                                                                  |
| Model Number                  | A2992                                                                                                                                                                                                                                                                                            |
| Serial/IMEI Number(s)         | M6LGJJW42K (Conducted)<br>PYY4D46T97 (Radiated)                                                                                                                                                                                                                                                  |
| Number of Samples Tested      | 2                                                                                                                                                                                                                                                                                                |
| Hardware Version              | REV 1.0                                                                                                                                                                                                                                                                                          |
| Software Version              | 23A32391n (Conducted)<br>23A32391n (Radiated)                                                                                                                                                                                                                                                    |
| Test Specification/Issue/Date | FCC 47CFR 2.1093                                                                                                                                                                                                                                                                                 |
| Start of Test                 | 17-August-2023                                                                                                                                                                                                                                                                                   |
| Finish of Test                | 06-September-2023                                                                                                                                                                                                                                                                                |
| Related Document(s)           | KDB 865664 – D01 v01r04<br>KDB 447498 – D01 v06<br>IEC-IEEE 62209-1528-2020<br>KDB 248227 – D01 v02r02<br>IEC/IEEE 63195-1:2022<br>ICNIRP 2020<br>FCC 47 CFR 1.1310<br>SPEAG, DASY8 Application Note: SAR, APD & PD at 6 - 10 GHz (Version 6.0), August 2022<br>October 2020 TCBC Workshop Notes |
| Name of Engineer(s)           | Kamil Nawabzada<br>Gualberta Madeira<br>Valentinas Luza<br>Sruthy Sudevan<br>Umesh Kabbur                                                                                                                                                                                                        |



## 1.2 BRIEF SUMMARY OF RESULTS

The measurements shown in this report were made to the requirements of FCC 47CFR 2.1093

The maximum 1g volume averaged stand-alone SAR found during this Assessment:

|                                                                                                                                                                                                                               |                  |                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------|
| Max 1g SAR (W/kg) Body                                                                                                                                                                                                        | 0.812 (Measured) | 1.075 (Scaled) |
| The maximum 1g volume averaged SAR level measured for all the tests performed did not exceed the limits for FCC General Population/Uncontrolled Exposure (W/kg) Partial Body of 1.6 W/kg in accordance with FCC 47 CFR 1.1310 |                  |                |

The maximum iPD 4cm<sup>2</sup> found during this Assessment:

|                                                                                                                                                                                                                                           |                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Max iPD 4cm <sup>2</sup> (W/m <sup>2</sup> )                                                                                                                                                                                              | 6.14 (Measured) |
| The maximum iPD averaged over 4cm <sup>2</sup> measured for all the tests performed did not exceed the standalone limits for FCC General Population/Uncontrolled Exposure of 10.00 W/m <sup>2</sup> in accordance with FCC 47 CFR 1.1310. |                 |

The maximum 1g volume averaged stand-alone Reported SAR found during this Assessment for each supported mode:

| RAT                                                                                                                                                                                                                                          | Band                           | Test Configuration | Max Reported SAR (W/kg) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------|-------------------------|
| Bluetooth (5 or 6 GHz WLAN OFF)                                                                                                                                                                                                              | 2450 MHz                       | Body               | 0.413                   |
| Bluetooth (5 or 6 GHz WLAN ON)                                                                                                                                                                                                               | 2450 MHz                       | Body               | 0.328                   |
| Narrowband (2.4 GHz WLAN OFF)                                                                                                                                                                                                                | 5150-5250 MHz<br>5725-5850 MHz | Body               | 1.075                   |
| Narrowband (2.4 GHz WLAN ON)                                                                                                                                                                                                                 | 5150-5250 MHz<br>5725-5850 MHz | Body               | 0.480                   |
| Thread (5 or 6 GHz OFF)                                                                                                                                                                                                                      | 2450 MHz                       | Body               | 0.398*                  |
| Thread (5 or 6 GHz ON)                                                                                                                                                                                                                       | 2450 MHz                       | Body               | 0.220*                  |
| WLAN                                                                                                                                                                                                                                         | 2450 MHz                       | Body               | 0.841                   |
| WLAN                                                                                                                                                                                                                                         | 5200 / 5300 MHz                | Body               | 0.842                   |
| WLAN                                                                                                                                                                                                                                         | 5500 / 5600 MHz                | Body               | 0.781                   |
| WLAN                                                                                                                                                                                                                                         | 5800 MHz                       | Body               | 0.762                   |
| WLAN                                                                                                                                                                                                                                         | 6000MHz                        | Body               | 0.485                   |
| The maximum 1g volume averaged SAR level measured for all the tests performed (including simultaneous transmission analysis results) did not exceed the limits for General Population/Uncontrolled Exposure (W/kg) Partial Body of 1.6 W/kg. |                                |                    |                         |
| * Measured results for Thread RAT were scaled down from 100% duty cycle to 60.61%. Refer to Annex D                                                                                                                                          |                                |                    |                         |



### Simultaneous Transmission.

The combinations of simultaneous transmission this EUT can achieve are the following:

- 2.4 GHz WLAN + 5 GHz Narrowband
- 5 or 6 GHz WLAN + 2.4 GHz Bluetooth
- 5 or 6 GHz WLAN + 2.4 GHz Thread

| Position | 2.4 GHz WLAN<br>1g SAR (W/kg)<br>(Core 0) | Narrowband<br>(2.4 GHz WLAN<br>ON)<br>1g SAR(W/kg)<br>(Core 0) | Sum of 1g SAR<br>(W/Kg) | Peak Location<br>Separation<br>Ratio required? | Peak Location<br>Separation<br>Ratio |
|----------|-------------------------------------------|----------------------------------------------------------------|-------------------------|------------------------------------------------|--------------------------------------|
| Bottom   | 0.841                                     | 0.480                                                          | 1.321                   | No                                             | N/A                                  |

| Position | 5 or 6 GHz<br>WLAN -<br>1g SAR (W/kg)<br>(Core 0) | Bluetooth (5 or 6<br>GHz WLAN on)<br>1g SAR (W/kg)<br>(Core 0) | Sum of 1g SAR<br>(W/Kg) | Peak Location<br>Separation<br>Ratio required? | Peak Location<br>Separation<br>Ratio |
|----------|---------------------------------------------------|----------------------------------------------------------------|-------------------------|------------------------------------------------|--------------------------------------|
| Bottom   | 0.803                                             | 0.328                                                          | 1.131                   | No                                             | N/A                                  |

| Position | 5 or 6 GHz<br>WLAN -<br>1g SAR (W/kg)<br>(Core 0) | Thread (5 or 6<br>GHz on)<br>1g SAR (W/kg)<br>(Core 0) | Sum of 1g SAR<br>(W/Kg) | Peak Location<br>Separation<br>Ratio required? | Peak Location<br>Separation<br>Ratio |
|----------|---------------------------------------------------|--------------------------------------------------------|-------------------------|------------------------------------------------|--------------------------------------|
| Bottom   | 0.803                                             | 0.220                                                  | 1.023                   | No                                             | N/A                                  |

| Position | 6 GHz WLAN -<br>Exposure Ratio<br>(Core 1) | Bluetooth (5/6 GHz<br>WLAN on) Exposure<br>ratio<br>(Core 1) | Total Exposure Ratio | Total Exposure Ratio<br>less than 1.0 |
|----------|--------------------------------------------|--------------------------------------------------------------|----------------------|---------------------------------------|
| Bottom   | 0.614                                      | 0.205                                                        | 0.819                | Yes                                   |

Each antenna is separated to the extent that the SAR distributions do not overlap and only same core simultaneous transmission is considered.

Bluetooth/NB/Thread and 2.4/5/6 GHz WLAN can operate on the same antenna.

BT/Thread operates at a lower power when 5/6 GHz WLAN is active.

NB operates at a lower power when 2.4 GHz WLAN is active.

The highest overall reported SAR values of the same antenna of 2.4/5/6 GHz WLAN and Bluetooth/NB/Thread (2.4/5/6 GHz WLAN on) results were used for the summation of the simultaneous transmission as shown in the table above.

KDB 447498 D01 - Section 4.3.2: Simultaneous test exclusion is applicable as the sum of 1g SAR of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit or within the Peak Location Separation Ratio.



### 1.3 TEST RESULTS SUMMARY

#### 1.3.1 System Performance / Validation Check Results

Prior to formal testing being performed a System Check was performed in accordance with KDB 865664 and the results were compared against the calibration certificates of each corresponding system verification dipole. A system performance check in DASY6 Module mmWave was also performed with the Verification Source available at 10 GHz in accordance with IEC/IEEE 63195. The following results were obtained and within the  $\pm 10\%$  acceptance criteria : -

##### System performance / Validation results

| Date       | Frequency (MHz) | Fluid Type | Measured Max 1g SAR (W/kg) * | Max 1g SAR Target (W/kg) | Percentage Deviation from Target 1g (%) |
|------------|-----------------|------------|------------------------------|--------------------------|-----------------------------------------|
| 17/08/2023 | 2450            | HBBL/B1    | 49.08                        | 50.50                    | -2.81                                   |
| 18/08/2023 | 2450            | HBBL/B1    | 51.08                        | 50.50                    | 1.15                                    |
| 19/08/2023 | 2450            | HBBL/B1    | 51.08                        | 50.50                    | 1.15                                    |
| 29/08/2023 | 2450            | HBBL/B1    | 49.08                        | 50.50                    | -2.81                                   |
| 23/08/2023 | 5200            | HBBL/B1    | 72.23                        | 78.20                    | -7.64                                   |
| 29/08/2023 | 5200            | HBBL/B1    | 73.23                        | 78.20                    | -6.36                                   |
| 30/08/2023 | 5200            | HBBL/B1    | 72.23                        | 78.20                    | -7.64                                   |
| 01/09/2023 | 5200            | HBBL/B1    | 74.82                        | 78.20                    | -4.32                                   |
| 30/08/2023 | 5500            | HBBL/B1    | 76.82                        | 84.70                    | -9.31                                   |
| 31/08/2023 | 5500            | HBBL/B1    | 79.81                        | 84.70                    | -5.77                                   |
| 30/08/2023 | 5600            | HBBL/B1    | 83.20                        | 84.20                    | -1.18                                   |
| 31/08/2023 | 5600            | HBBL/B1    | 86.20                        | 84.20                    | 2.37                                    |
| 23/08/2023 | 5800            | HBBL/B1    | 72.23                        | 78.20                    | -7.64                                   |
| 25/08/2023 | 5800            | HBBL/B1    | 76.02                        | 80.50                    | -5.57                                   |
| 25/08/2023 | 6500            | HBBL/B1    | 289.00                       | 277.00                   | 4.33                                    |
| 01/09/2023 | 6500            | HBBL/B1    | 291.00                       | 277.00                   | 5.05                                    |
| 03/09/2023 | 6500            | HBBL/B1    | 276.00                       | 277.00                   | -0.36                                   |
| 04/09/2023 | 6500            | HBBL/B1    | 290.00                       | 277.00                   | 4.69                                    |
| 05/09/2023 | 6500            | HBBL/B1    | 290.00                       | 277.00                   | 4.69                                    |

| Date       | Frequency (MHz) | Fluid Type | Absorbed Power Density over 4cm <sup>2</sup> (W/m <sup>2</sup> )* | Absorbed Power Density Target over 4cm <sup>2</sup> (W/m <sup>2</sup> ) | Percentage Deviation from Target 4cm <sup>2</sup> (%) |
|------------|-----------------|------------|-------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------|
| 25/08/2023 | 6500            | HBBL/B1    | 1296                                                              | 1250                                                                    | 3.68                                                  |
| 01/09/2023 | 6500            | HBBL/B1    | 1314                                                              | 1250                                                                    | 5.12                                                  |
| 03/09/2023 | 6500            | HBBL/B1    | 1264                                                              | 1250                                                                    | 1.12                                                  |
| 04/09/2023 | 6500            | HBBL/B1    | 1320                                                              | 1250                                                                    | 5.60                                                  |
| 05/09/2023 | 6500            | HBBL/B1    | 1220                                                              | 1250                                                                    | -2.40                                                 |

| Date       | Frequency (MHz) | Medium | Measured psPDtot+ (W/m <sup>2</sup> ) | Target psPDtot+ (W/m <sup>2</sup> ) | Percentage Deviation from Target (%) |
|------------|-----------------|--------|---------------------------------------|-------------------------------------|--------------------------------------|
| 13/09/2023 | 10000           | Air    | 53.90                                 | 50.10                               | 7.58                                 |

\*Normalised to a forward power of 1W



### 1.3.2 Results Summary Tables

Bluetooth - EDR – 3-DH5 – SISO Core 0 (5 or 6 GHz WLAN OFF) (ePA):  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Rear of Display                                                | 39             | 2441            | 14.62                        | 16.50         | Full          | 0.080                  | 0.123                | -                  |
| 0mm Bottom                                                         | 0              | 2402            | 14.60                        | 16.50         | Full          | 0.223                  | 0.345                | -                  |
| 0mm Bottom                                                         | 39             | 2441            | 14.62                        | 16.50         | Full          | 0.268                  | 0.413                | C.1                |
| 0mm Bottom                                                         | 78             | 2480            | 14.50                        | 16.50         | Full          | 0.248                  | 0.393                | -                  |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |

Bluetooth - EDR – 3-DH5 – SISO Core 1 (5 or 6 GHz WLAN OFF) (ePA):  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Rear of Display                                                | 0              | 2402            | 15.10                        | 16.50         | Full          | 0.051                  | 0.070                | -                  |
| 0mm Bottom                                                         | 0              | 2402            | 15.10                        | 16.50         | Full          | 0.112                  | 0.155                | -                  |
| 0mm Bottom                                                         | 39             | 2441            | 14.55                        | 16.50         | Full          | 0.138                  | 0.216                | -                  |
| 0mm Bottom                                                         | 78             | 2480            | 14.59                        | 16.50         | Full          | 0.166                  | 0.258                | C.2                |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |

Bluetooth - BDR – DH5 – SISO Core 2 (5 or 6 GHz WLAN OFF and ON) (iPA):  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Rear of Display                                                | 78             | 2480            | 12.91                        | 13.00         | Full          | 0.033                  | 0.034                | -                  |
| 0mm Bottom                                                         | 0              | 2402            | 12.70                        | 13.00         | Full          | 0.082                  | 0.088                | -                  |
| 0mm Bottom                                                         | 39             | 2441            | 12.86                        | 13.00         | Full          | 0.098                  | 0.101                | C.3                |
| 0mm Bottom                                                         | 78             | 2480            | 12.91                        | 13.00         | Full          | 0.092                  | 0.094                | -                  |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |



Bluetooth - EDR – 3-DH5 – SISO Core 0 (5 or 6 GHz WLAN ON) (ePA):  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Rear of Display                                                | 39             | 2441            | 14.62                        | 15.50         | Full          | 0.080                  | 0.098                | -                  |
| 0mm Bottom                                                         | 0              | 2402            | 14.60                        | 15.50         | Full          | 0.223                  | 0.274                | -                  |
| 0mm Bottom                                                         | 39             | 2441            | 14.62                        | 15.50         | Full          | 0.268                  | 0.328                | C.1.               |
| 0mm Bottom                                                         | 78             | 2480            | 14.50                        | 15.50         | Full          | 0.248                  | 0.312                | -                  |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |

Bluetooth - EDR – 3-DH5 – SISO Core 1 (5 or 6 GHz WLAN ON) (ePA):  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Rear of Display                                                | 0              | 2402            | 15.10                        | 15.50         | Full          | 0.051                  | 0.056                | -                  |
| 0mm Bottom                                                         | 0              | 2402            | 15.10                        | 15.50         | Full          | 0.112                  | 0.123                | -                  |
| 0mm Bottom                                                         | 39             | 2441            | 14.55                        | 15.50         | Full          | 0.138                  | 0.172                | -                  |
| 0mm Bottom                                                         | 78             | 2480            | 14.59                        | 15.50         | Full          | 0.166                  | 0.205                | C.2                |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |



Narrowband - UNII-1 – HDR8 – SISO Core 0 (2.4 GHz WLAN OFF) (ePA):  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Rear of Display                                                | Top            | 5250            | 12.20                        | 12.50         | Full          | 0.122                  | 0.131                | -                  |
| 0mm Bottom                                                         | Bottom         | 5150            | 12.20                        | 12.50         | Full          | 0.262                  | 0.281                | -                  |
| 0mm Bottom                                                         | Middle         | 5200            | 11.95                        | 12.50         | Full          | 0.347                  | 0.394                | -                  |
| 0mm Bottom                                                         | Top            | 5250            | 12.20                        | 12.50         | Full          | 0.419                  | 0.449                | C.4                |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |

Narrowband - UNII-1 – HDR8 – SISO Core 1 (2.4 GHz WLAN OFF) (ePA):  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Rear of Display                                                | Top            | 5250            | 13.02                        | 13.50         | Full          | 0.253                  | 0.283                | -                  |
| 0mm Bottom                                                         | Bottom         | 5150            | 12.68                        | 13.50         | Full          | 0.468                  | 0.565                | -                  |
| 0mm Bottom                                                         | Middle         | 5200            | 12.98                        | 13.50         | Full          | 0.558                  | 0.629                | -                  |
| 0mm Bottom                                                         | Top            | 5250            | 13.02                        | 13.50         | Full          | 0.647                  | 0.723                | C.5                |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |

Narrowband - UNII-3– HDR4 – SISO Core 0 (2.4 GHz WLAN OFF) (ePA):  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Rear of Display                                                | Top            | 5850            | 14.51                        | 15.00         | Full          | 0.267                  | 0.299                | -                  |
| 0mm Bottom                                                         | Bottom         | 5725            | 14.55                        | 15.00         | Full          | 0.541                  | 0.600                | -                  |
| 0mm Bottom                                                         | Middle         | 5788            | 14.53                        | 15.00         | Full          | 0.584                  | 0.651                | -                  |
| 0mm Bottom                                                         | Top            | 5850            | 14.51                        | 15.00         | Full          | 0.659                  | 0.738                | C.6                |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |



Narrowband - UNII-3- HDR4 – SISO Core 1 (2.4 GHz WLAN OFF) (ePA):  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Rear of Display                                                | Bottom         | 5725            | 13.28                        | 14.50         | Full          | 0.389                  | 0.515                | -                  |
| 0mm Bottom                                                         | Bottom         | 5725            | 13.28                        | 14.50         | Full          | 0.812                  | 1.075                | C.7                |
| 0mm Bottom                                                         | Middle         | 5788            | 13.89                        | 14.50         | Full          | 0.844                  | 0.971                | -                  |
| 0mm Bottom                                                         | Top            | 5850            | 13.39                        | 14.50         | Full          | 0.760                  | 0.981                | -                  |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |

Narrowband - UNII-1 – HDR8 – SISO Core 0 (2.4 GHz WLAN ON) (ePA):  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Rear of Display                                                | Top            | 5250            | 10.20                        | 10.50         | Full          | 0.068                  | 0.073                | -                  |
| 0mm Bottom                                                         | Bottom         | 5150            | 10.38                        | 10.50         | Full          | 0.172                  | 0.177                | -                  |
| 0mm Bottom                                                         | Middle         | 5200            | 10.22                        | 10.50         | Full          | 0.216                  | 0.230                | -                  |
| 0mm Bottom                                                         | Top            | 5250            | 10.20                        | 10.50         | Full          | 0.259                  | 0.278                | C.8                |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |

Narrowband - UNII-1 – HDR4 – SISO Core 1 (2.4 GHz WLAN ON) (ePA):  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Rear of Display                                                | Bottom         | 5150            | 11.50                        | 10.00         | Full          | 0.118                  | 0.132                | -                  |
| 0mm Bottom                                                         | Bottom         | 5150            | 9.52                         | 10.00         | Full          | 0.205                  | 0.229                | -                  |
| 0mm Bottom                                                         | Middle         | 5200            | 9.30                         | 10.00         | Full          | 0.229                  | 0.269                | -                  |
| 0mm Bottom                                                         | Top            | 5250            | 9.50                         | 10.00         | Full          | 0.284                  | 0.319                | C.9                |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |



Narrowband - UNII-3– HDR8 – SISO Core 0 (2.4 GHz WLAN ON) (ePA):  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Rear of Display                                                | Top            | 5850            | 13.43                        | 13.50         | Full          | 0.193                  | 0.196                | -                  |
| 0mm Bottom                                                         | Bottom         | 5725            | 12.95                        | 13.50         | Full          | 0.341                  | 0.387                | -                  |
| 0mm Bottom                                                         | Middle         | 5788            | 12.92                        | 13.50         | Full          | 0.374                  | 0.427                | -                  |
| 0mm Bottom                                                         | Top            | 5850            | 13.43                        | 13.50         | Full          | 0.472                  | 0.480                | C.10               |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |

Narrowband - UNII-3– HDR4 – SISO Core 1 (2.4 GHz WLAN ON) (ePA):  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Rear of Display                                                | Top            | 5850            | 9.83                         | 10.00         | Full          | 0.138                  | 0.144                | -                  |
| 0mm Bottom                                                         | Bottom         | 5725            | 9.35                         | 10.00         | Full          | 0.298                  | 0.346                | C.11               |
| 0mm Bottom                                                         | Middle         | 5788            | 9.65                         | 10.00         | Full          | 0.302                  | 0.327                | -                  |
| 0mm Bottom                                                         | Top            | 5850            | 9.83                         | 10.00         | Full          | 0.321                  | 0.334                | -                  |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |



Thread – SISO Core 0 (5 or 6 GHz OFF) (ePA):  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                                                       | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg)* | Scan Figure Number |
|-----------------------------------------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|-----------------------|--------------------|
| 0mm Rear of Display                                                                                 | 26             | 2480            | 19.25                        | 20.00         | Full          | 0.148                  | 0.107                 | -                  |
| 0mm Bottom                                                                                          | 11             | 2405            | 19.45                        | 20.00         | Full          | 0.477                  | 0.328                 | -                  |
| 0mm Bottom                                                                                          | 18             | 2440            | 19.81                        | 20.00         | Full          | 0.540                  | 0.342                 | -                  |
| 0mm Bottom                                                                                          | 26             | 2480            | 19.25                        | 20.00         | Full          | 0.552                  | 0.398                 | C.12               |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)                                  |                |                 |                              |               |               |                        |                       |                    |
| * Measured results for Thread RAT were scaled down from 100% duty cycle to 60.61%. Refer to Annex D |                |                 |                              |               |               |                        |                       |                    |

Thread – SISO Core 1 (5 or 6 GHz OFF) (ePA):  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                                                       | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg)* | Scan Figure Number |
|-----------------------------------------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|-----------------------|--------------------|
| 0mm Rear of Display                                                                                 | 26             | 2480            | 19.50                        | 20.00         | Full          | 0.127                  | 0.086                 | -                  |
| 0mm Bottom                                                                                          | 11             | 2405            | 19.66                        | 20.00         | Full          | 0.276                  | 0.181                 | -                  |
| 0mm Bottom                                                                                          | 18             | 2440            | 19.80                        | 20.00         | Full          | 0.373                  | 0.237                 | -                  |
| 0mm Bottom                                                                                          | 26             | 2480            | 19.50                        | 20.00         | Full          | 0.457                  | 0.311                 | C.13               |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)                                  |                |                 |                              |               |               |                        |                       |                    |
| * Measured results for Thread RAT were scaled down from 100% duty cycle to 60.61%. Refer to Annex D |                |                 |                              |               |               |                        |                       |                    |

Thread – SISO Core 2 (5 or 6 GHz OFF and ON) (iPA):  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                                                       | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg)* | Scan Figure Number |
|-----------------------------------------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|-----------------------|--------------------|
| 0mm Rear of Display                                                                                 | 26             | 2480            | 12.25                        | 12.50         | Full          | 0.017                  | 0.011                 | -                  |
| 0mm Bottom                                                                                          | 11             | 2405            | 12.20                        | 12.50         | Full          | 0.065                  | 0.042                 | -                  |
| 0mm Bottom                                                                                          | 18             | 2440            | 12.25                        | 12.50         | Full          | 0.075                  | 0.048                 | -                  |
| 0mm Bottom                                                                                          | 26             | 2480            | 12.25                        | 12.50         | Full          | 0.077                  | 0.049                 | C.14               |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)                                  |                |                 |                              |               |               |                        |                       |                    |
| * Measured results for Thread RAT were scaled down from 100% duty cycle to 60.61%. Refer to Annex D |                |                 |                              |               |               |                        |                       |                    |



Thread – SISO Core 0 (5 or 6 GHz ON) (ePA):  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                                                       | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg)* | Scan Figure Number |
|-----------------------------------------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|-----------------------|--------------------|
| 0mm Rear of Display                                                                                 | 18             | 2440            | 14.55                        | 15.50         | Full          | 0.078                  | 0.059                 | -                  |
| 0mm Bottom                                                                                          | 11             | 2405            | 14.88                        | 15.50         | Full          | 0.273                  | 0.191                 | -                  |
| 0mm Bottom                                                                                          | 18             | 2440            | 14.55                        | 15.50         | Full          | 0.291                  | 0.220                 | C.15               |
| 0mm Bottom                                                                                          | 26             | 2480            | 14.63                        | 15.50         | Full          | 0.285                  | 0.211                 | -                  |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)                                  |                |                 |                              |               |               |                        |                       |                    |
| * Measured results for Thread RAT were scaled down from 100% duty cycle to 60.61%. Refer to Annex D |                |                 |                              |               |               |                        |                       |                    |

Thread - SISO Core 1 (5 or 6 GHz ON) (ePA):  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                                                       | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg)* | Scan Figure Number |
|-----------------------------------------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|-----------------------|--------------------|
| 0mm Rear of Display                                                                                 | 26             | 2480            | 15.38                        | 15.50         | Full          | 0.045                  | 0.028                 | -                  |
| 0mm Bottom                                                                                          | 11             | 2405            | 14.91                        | 15.50         | Full          | 0.094                  | 0.065                 | -                  |
| 0mm Bottom                                                                                          | 18             | 2440            | 14.62                        | 15.50         | Full          | 0.120                  | 0.089                 | -                  |
| 0mm Bottom                                                                                          | 26             | 2480            | 15.38                        | 15.50         | Full          | 0.174                  | 0.108                 | C.16               |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)                                  |                |                 |                              |               |               |                        |                       |                    |
| * Measured results for Thread RAT were scaled down from 100% duty cycle to 60.61%. Refer to Annex D |                |                 |                              |               |               |                        |                       |                    |



WLAN - 2450 MHz - 802.11g - 20 MHz - 1 Mbps - SISO Core 0:  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Rear of Display                                                | 6              | 2437            | 19.00                        | 19.25         | Full          | 0.191                  | 0.202                | -                  |
| 0mm Bottom                                                         | 2              | 2417            | 18.69                        | 19.25         | Full          | 0.557                  | 0.634                | -                  |
| 0mm Bottom                                                         | 6              | 2437            | 19.00                        | 19.25         | Full          | 0.622                  | 0.659                | -                  |
| 0mm Bottom                                                         | 10             | 2457            | 18.76                        | 19.25         | Full          | 0.629                  | 0.704                | C.17               |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |

WLAN - 2450 MHz - 802.11g - 20 MHz - 1 Mbps - SISO Core 1:  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Rear of Display                                                | 2              | 2417            | 18.92                        | 19.25         | Full          | 0.123                  | 0.133                | -                  |
| 0mm Bottom                                                         | 2              | 2417            | 18.92                        | 19.25         | Full          | 0.382                  | 0.412                | -                  |
| 0mm Bottom                                                         | 6              | 2437            | 18.90                        | 19.25         | Full          | 0.463                  | 0.502                | -                  |
| 0mm Bottom                                                         | 10             | 2457            | 18.88                        | 19.25         | Full          | 0.489                  | 0.532                | C.18               |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |



WLAN - 2450 MHz - 802.11n - HT20 - 2x2 MIMO Core 0 & Core 1:  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Rear of Display (Core 0)                                       | 6              | 2437            | 18.76                        | 19.25         | Full          | 0.181                  | 0.203                | -                  |
| 0mm Rear of Display (Core 1)                                       | 6              | 2437            | 18.58                        | 19.25         | Full          | 0.128                  | 0.149                |                    |
| 0mm Bottom (Core 0)                                                | 2              | 2417            | 18.51                        | 19.25         | Full          | 0.629                  | 0.746                | -                  |
| 0mm Bottom (Core 1)                                                | 2              | 2417            | 18.50                        | 19.25         | Full          | 0.394                  | 0.468                |                    |
| 0mm Bottom (Core 0)                                                | 6              | 2437            | 18.76                        | 19.25         | Full          | 0.711                  | 0.796                | -                  |
| 0mm Bottom (core 1)                                                | 6              | 2437            | 18.58                        | 19.25         | Full          | 0.481                  | 0.561                |                    |
| 0mm Bottom (Core 0)                                                | 10             | 2457            | 18.38                        | 19.25         | Full          | 0.688                  | 0.841                | C.19               |
| 0mm Bottom (Core 1)                                                | 10             | 2457            | 18.28                        | 19.25         | Full          | 0.485                  | 0.606                |                    |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |

WLAN - U-NII-1/2A - 802.11ac - VHT80 - SISO Core 0  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Rear of Display                                                | 42             | 5210            | 13.05                        | 13.75         | Full          | 0.155                  | 0.182                | -                  |
| 0mm Bottom                                                         | 42             | 5210            | 13.05                        | 13.75         | Full          | 0.517                  | 0.607                | -                  |
| 0mm Bottom                                                         | 58             | 5290            | 12.02                        | 12.50         | Full          | 0.572                  | 0.639                | C.20               |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |

WLAN - U-NII-1/2A - 802.11ac - VHT160 - SISO Core 0  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Bottom                                                         | 50             | 5250            | 11.78                        | 12.50         | Full          | 0.445                  | 0.525                | -                  |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |



WLAN - U-NII-1/2A - 802.11ac - VHT80 - SISO Core 1  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Rear of Display                                                | 42             | 5210            | 13.07                        | 13.50         | Full          | 0.205                  | 0.226                | -                  |
| 0mm Bottom                                                         | 42             | 5210            | 13.07                        | 13.50         | Full          | 0.673                  | 0.743                | C.21               |
| 0mm Bottom                                                         | 58             | 5290            | 12.65                        | 13.00         | Full          | 0.662                  | 0.718                | -                  |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |

WLAN - U-NII-1/2A - 802.11ac - VHT160 - SISO Core 1  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Bottom                                                         | 50             | 5250            | 12.33                        | 13.00         | Full          | 0.613                  | 0.715                | -                  |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |

WLAN - U-NII-1/2A - 802.11ac - VHT80 - MCS0 - MIMO Core 0 & Core 1:  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Rear of Display (Core 0)                                       | 58             | 5290            | 12.42                        | 12.50         | Full          | 0.158                  | 0.161                | -                  |
| 0mm Rear of Display (Core 1)                                       | 58             | 5290            | 12.07                        | 12.50         | Full          | 0.218                  | 0.241                |                    |
| 0mm Bottom (Core 0)                                                | 42             | 5210            | 12.92                        | 13.50         | Full          | 0.703                  | 0.803                | C.22               |
| 0mm Bottom (Core 1)                                                | 42             | 5210            | 13.08                        | 13.50         | Full          | 0.764                  | 0.842                |                    |
| 0mm Bottom (Core 0)                                                | 58             | 5290            | 12.42                        | 12.50         | Full          | 0.706                  | 0.719                | -                  |
| 0mm Bottom (core 1)                                                | 58             | 5290            | 12.07                        | 12.50         | Full          | 0.707                  | 0.781                |                    |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |



WLAN - U-NII-2C - 802.11ac - VHT80 - SISO Core 0  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Rear of Display                                                | 106            | 5530            | 13.39                        | 13.75         | Full          | 0.196                  | 0.213                | -                  |
| 0mm Bottom                                                         | 106            | 5530            | 13.39                        | 13.75         | Full          | 0.719                  | 0.781                | C.23               |
| 0mm Bottom                                                         | 122            | 5610            | 13.34                        | 13.75         | Full          | 0.563                  | 0.619                | -                  |
| 0mm Bottom                                                         | 138            | 5690            | 13.40                        | 13.75         | Full          | 0.570                  | 0.618                | -                  |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |

WLAN - U-NII-2C - 802.11ac - VHT80 - SISO Core 1  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Rear of Display                                                | 138            | 5690            | 12.50                        | 12.75         | Full          | 0.294                  | 0.311                | -                  |
| 0mm Bottom                                                         | 106            | 5530            | 12.14                        | 12.75         | Full          | 0.601                  | 0.692                | -                  |
| 0mm Bottom                                                         | 122            | 5610            | 12.38                        | 12.75         | Full          | 0.597                  | 0.650                | -                  |
| 0mm Bottom                                                         | 138            | 5690            | 12.50                        | 12.75         | Full          | 0.598                  | 0.633                | -                  |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |

WLAN - U-NII-2C - 802.11ac - VHT160 - SISO Core 1  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Bottom                                                         | 114            | 5570            | 12.14                        | 12.75         | Full          | 0.601                  | 0.692                | C.24               |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |



WLAN - U-NII-2C - 802.11ac - VHT80 - MCS0 - MIMO Core 0 & Core 1:  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Rear of Display (Core 0)                                       | 122            | 5610            | 12.47                        | 12.75         | Full          | 0.163                  | 0.174                | -                  |
| 0mm Rear of Display (Core 1)                                       | 122            | 5610            | 12.31                        | 12.75         | Full          | 0.303                  | 0.335                |                    |
| 0mm Bottom (Core 0)                                                | 106            | 5530            | 11.95                        | 12.75         | Full          | 0.391                  | 0.470                | C.25               |
| 0mm Bottom (Core 1)                                                | 106            | 5530            | 12.07                        | 12.75         | Full          | 0.541                  | 0.633                |                    |
| 0mm Bottom (Core 0)                                                | 122            | 5610            | 12.47                        | 12.75         | Full          | 0.382                  | 0.407                | -                  |
| 0mm Bottom (Core 1)                                                | 122            | 5610            | 12.31                        | 12.75         | Full          | 0.564                  | 0.624                |                    |
| 0mm Bottom (Core 0)                                                | 138            | 5690            | 12.32                        | 12.75         | Full          | 0.351                  | 0.388                | -                  |
| 0mm Bottom (Core 1)                                                | 138            | 5690            | 12.21                        | 12.75         | Full          | 0.539                  | 0.610                |                    |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |

WLAN - U-NII-3 - 802.11ac - VHT80 - SISO Core 0  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Rear of Display                                                | 155            | 5775            | 13.27                        | 13.75         | Full          | 0.246                  | 0.275                | -                  |
| 0mm Bottom                                                         | 155            | 5775            | 13.27                        | 13.75         | Full          | 0.588                  | 0.657                | C.26               |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |



WLAN - U-NII-3 - 802.11ac - VHT80 - SISO Core 1  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Rear of Display                                                | 155            | 5775            | 12.53                        | 13.25         | Full          | 0.329                  | 0.388                | -                  |
| 0mm Bottom                                                         | 155            | 5775            | 12.53                        | 13.25         | Full          | 0.595                  | 0.702                | C.27               |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |

WLAN - U-NII-3 – 802.11ac – VHT80 - MCS0 - MIMO Core 0 & Core 1:  
Body Specific Absorption Rate (SAR) 1g Results

| Test Position                                                      | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | SAR Scan Type | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scan Figure Number |
|--------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|---------------|------------------------|----------------------|--------------------|
| 0mm Rear of Display (Core 0)                                       | 155            | 5775            | 12.67                        | 13.25         | Full          | 0.314                  | 0.359                | -                  |
| 0mm Rear of Display (Core 1)                                       | 155            | 5775            | 12.83                        | 13.25         | Full          | 0.201                  | 0.221                |                    |
| 0mm Bottom (Core 0)                                                | 155            | 5775            | 12.67                        | 13.25         | Full          | 0.667                  | 0.762                | C.28               |
| 0mm Bottom (Core 1)                                                | 155            | 5775            | 12.83                        | 13.25         | Full          | 0.532                  | 0.586                |                    |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |               |                        |                      |                    |



## Specific Absorption Rate and Absorbed Power Density

6 GHz - 802.11ax - HE160 - MCS0 - Core 0:

Body Specific Absorption Rate (SAR) 1g and Absorbed Power Density (APD) 4cm<sup>2</sup> Results

| Test Position                                                                               | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Measured APD 4cm <sup>2</sup> (W/m <sup>2</sup> ) | Scaled APD 4cm <sup>2</sup> (W/m <sup>2</sup> ) | APD Exposure Ratio | Scan Figure Number |
|---------------------------------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|------------------------|----------------------|---------------------------------------------------|-------------------------------------------------|--------------------|--------------------|
| 0mm Rear of Display                                                                         | 47             | 6185            | 12.50                        | 12.50         | 0.164                  | 0.164                | 1.240                                             | 1.240                                           | 0.062              | -                  |
| 0mm Bottom                                                                                  | 15             | 6025            | 11.50                        | 11.50         | 0.338                  | 0.338                | 2.480                                             | 2.480                                           | 0.124              | -                  |
| 0mm Bottom                                                                                  | 47             | 6185            | 12.50                        | 12.50         | 0.399                  | 0.399                | 2.940                                             | 2.940                                           | 0.147              | C.29               |
| 0mm Bottom                                                                                  | 79             | 6345            | 12.01                        | 12.25         | 0.382                  | 0.404                | 2.780                                             | 2.938                                           | 0.147              | -                  |
| 0mm Bottom                                                                                  | 111            | 6505            | 10.07                        | 10.25         | 0.300                  | 0.313                | 2.160                                             | 2.251                                           | 0.113              | -                  |
| 0mm Bottom                                                                                  | 143            | 6665            | 10.00                        | 10.25         | 0.332                  | 0.352                | 2.360                                             | 2.500                                           | 0.125              | -                  |
| 0mm Bottom                                                                                  | 175            | 6825            | 9.94                         | 10.25         | 0.310                  | 0.333                | 2.180                                             | 2.341                                           | 0.117              | -                  |
| 0mm Bottom                                                                                  | 207            | 6985            | 11.95                        | 12.00         | 0.395                  | 0.400                | 2.840                                             | 2.873                                           | 0.144              |                    |
| Specific Absorption Rate limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |                        |                      |                                                   |                                                 |                    |                    |



## Specific Absorption Rate and Absorbed Power Density

6 GHz - 802.11ax - HE160 - MCS0 - Core 1:

Body Specific Absorption Rate (SAR) 1g and Absorbed Power Density (APD) 4cm<sup>2</sup> Results

| Test Position                                                                               | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Measured APD 4cm <sup>2</sup> (W/m <sup>2</sup> ) | Scaled APD 4cm <sup>2</sup> (W/m <sup>2</sup> ) | APD Exposure Ratio | Scan Figure Number |
|---------------------------------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|------------------------|----------------------|---------------------------------------------------|-------------------------------------------------|--------------------|--------------------|
| 0mm Rear of Display                                                                         | 47             | 6185            | 11.58                        | 12.00         | 0.258                  | 0.284                | 2.100                                             | 2.313                                           | 0.116              | -                  |
| 0mm Bottom                                                                                  | 15             | 6025            | 11.24                        | 11.25         | 0.419                  | 0.420                | 3.420                                             | 3.428                                           | 0.171              | -                  |
| 0mm Bottom                                                                                  | 47             | 6185            | 11.58                        | 12.00         | 0.427                  | 0.470                | 3.520                                             | 3.877                                           | 0.194              | C.30               |
| 0mm Bottom                                                                                  | 79             | 6345            | 11.74                        | 12.00         | 0.329                  | 0.349                | 2.780                                             | 2.952                                           | 0.148              | -                  |
| 0mm Bottom                                                                                  | 111            | 6505            | 10.41                        | 10.75         | 0.273                  | 0.295                | 2.340                                             | 2.531                                           | 0.127              | -                  |
| 0mm Bottom                                                                                  | 143            | 6665            | 10.67                        | 10.75         | 0.278                  | 0.283                | 2.320                                             | 2.363                                           | 0.118              | -                  |
| 0mm Bottom                                                                                  | 175            | 6825            | 10.45                        | 10.75         | 0.166                  | 0.178                | 1.320                                             | 1.414                                           | 0.071              | -                  |
| 0mm Bottom                                                                                  | 207            | 6985            | 12.20                        | 13.00         | 0.211                  | 0.254                | 1.640                                             | 1.972                                           | 0.099              | -                  |
| Specific Absorption Rate limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |                        |                      |                                                   |                                                 |                    |                    |



## Specific Absorption Rate and Absorbed Power Density

6 GHz - 802.11ax - HE160 - MCS0 - Core 0-1 (MIMO):

Body Specific Absorption Rate (SAR) 1g and Absorbed Power Density (APD) 4cm<sup>2</sup> Results

| Test Position                                                                               | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Measured APD 4cm <sup>2</sup> (W/m <sup>2</sup> ) | Scaled APD 4cm <sup>2</sup> (W/m <sup>2</sup> ) | APD Exposure Ratio | Scan Figure Number |
|---------------------------------------------------------------------------------------------|----------------|-----------------|------------------------------|---------------|------------------------|----------------------|---------------------------------------------------|-------------------------------------------------|--------------------|--------------------|
| 0mm Rear Of Display (Core 0)                                                                | 47             | 6185            | 10.23                        | 12.00         | 0.113                  | 0.170                | 0.760                                             | 1.142                                           | 0.057              | -                  |
| 0mm Rear Of Display (Core 1)                                                                | 47             | 6185            | 10.17                        | 12.00         | 0.183                  | 0.279                | 1.560                                             | 2.378                                           | 0.119              |                    |
| 0mm Bottom (Core 0)                                                                         | 15             | 6025            | 11.00                        | 11.25         | 0.430                  | 0.455                | 3.400                                             | 3.601                                           | 0.180              | -                  |
| 0mm Bottom (Core 1)                                                                         | 15             | 6025            | 10.70                        | 11.25         | 0.347                  | 0.394                | 2.560                                             | 2.906                                           | 0.145              |                    |
| 0mm Bottom (Core 0)                                                                         | 47             | 6185            | 10.23                        | 12.00         | 0.229                  | 0.344                | 1.700                                             | 2.555                                           | 0.128              | C.31               |
| 0mm Bottom (Core 1)                                                                         | 47             | 6185            | 10.17                        | 12.00         | 0.318                  | 0.485                | 2.600                                             | 3.963                                           | 0.198              |                    |
| 0mm Bottom (Core 0)                                                                         | 79             | 6345            | 11.70                        | 12.00         | 0.358                  | 0.384                | 2.660                                             | 2.850                                           | 0.143              | -                  |
| 0mm Bottom (Core 1)                                                                         | 79             | 6345            | 11.69                        | 12.00         | 0.363                  | 0.390                | 3.080                                             | 3.308                                           | 0.165              |                    |
| 0mm Bottom (Core 0)                                                                         | 111            | 6505            | 9.65                         | 9.75          | 0.272                  | 0.278                | 1.980                                             | 2.026                                           | 0.101              | -                  |
| 0mm Bottom (Core 1)                                                                         | 111            | 6505            | 9.48                         | 9.75          | 0.248                  | 0.264                | 1.980                                             | 2.107                                           | 0.105              |                    |
| 0mm Bottom (Core 0)                                                                         | 143            | 6665            | 9.60                         | 10.25         | 0.274                  | 0.318                | 1.940                                             | 2.253                                           | 0.113              | -                  |
| 0mm Bottom (Core 1)                                                                         | 143            | 6665            | 9.10                         | 10.25         | 0.228                  | 0.297                | 1.780                                             | 2.320                                           | 0.116              |                    |
| 0mm Bottom (Core 0)                                                                         | 175            | 6825            | 9.70                         | 9.75          | 0.275                  | 0.278                | 2.000                                             | 2.023                                           | 0.101              | -                  |
| 0mm Bottom (Core 1)                                                                         | 175            | 6825            | 9.50                         | 9.75          | 0.128                  | 0.136                | 1.060                                             | 1.123                                           | 0.056              |                    |
| 0mm Bottom (Core 0)                                                                         | 207            | 6985            | 10.99                        | 11.25         | 0.346                  | 0.367                | 2.340                                             | 2.484                                           | 0.124              | -                  |
| 0mm Bottom (Core 1)                                                                         | 207            | 6985            | 10.98                        | 11.25         | 0.162                  | 0.172                | 1.260                                             | 1.341                                           | 0.067              |                    |
| Specific Absorption Rate limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) |                |                 |                              |               |                        |                      |                                                   |                                                 |                    |                    |

## Incident Power Density (iPD) - 6000 MHz - 802.11ax - HE160 - MCS0 - Core 1

| Test Position                                                                          | Channel Number | Frequency (MHz) | Measured iPD 4cm <sup>2</sup> (W/m <sup>2</sup> ) | Standalone iPD limit (W/m <sup>2</sup> ) | Exposure Ratio | Scan Figure Number |
|----------------------------------------------------------------------------------------|----------------|-----------------|---------------------------------------------------|------------------------------------------|----------------|--------------------|
| 0mm Bottom                                                                             | 47             | 6185            | 6.14                                              | 10.00                                    | 0.614          | C.32               |
| The measured APD result of Core 1 was the highest value and was chosen for a iPD test. |                |                 |                                                   |                                          |                |                    |



### 1.3.3 Technical Description

The equipment under test (EUT) was a portable laptop computer.

### 1.3.4 Interim Procedures for FCC Radiofrequency Exposure Evaluations

The interim procedure for FCC radiofrequency (RF) exposure evaluations of U-NII 6–7 GHz band portable devices have been made available during the TCB workshop in October 2020. The procedure is summarized below:

- Evaluate SAR / APD with DASY Module SAR V16.0 or higher. The configurations to be tested are defined in the relevant Knowledge Database (KDB). The peak spatial averaged SAR (psSAR) and the peak spatial averaged absorbed Power Density (psAPD) are reported.
- For the configuration with the highest SAR / APD, evaluate the PD with DASY Module mmWave V3.0 or higher.

### 1.3.5 Test Configuration and Modes of Operation

The testing was performed with an integral battery supplied and manufactured by Apple Inc.

Supported technologies are Bluetooth (BDR/EDR//HDR/LE-1M/LE-M2), 2.4 GHz Thread, 5.0 GHz Narrowband (BDR/EDR//HDR), 2.4 GHz WLAN (802.11b/g/n/ax), 5.0 GHz WLAN (802.11a/n/ac/ax) and 6 GHz WLAN (802.11a/ax). 2x2 MIMO is supported for WLAN.

Bluetooth and Thread operates at lower power when the 5/6 GHz WLAN is enabled.

Narrowband operates at a lower power when the 2.4 GHz WLAN is enabled.

The report makes references to these (5/6 GHz WLAN ON/OFF) and (2.4 GHz WLAN ON/OFF) and similarly for Thread (5/6 GHz OFF/ON). Testing was performed with the Bluetooth, Thread, Narrowband and Wi-Fi transmitters working independently.

Testing was achieved using the device's internal software, scripts and settings supplied by the customer. For each scan, the device was configured into a continuous transmission test mode at a maximum power defined by the customer. Testing was performed in each position at the frequency that gave the highest output power for each band. Some SAR levels were found to be higher than the thresholds set in KDB 447498 D01 therefore additional testing was required at the relevant frequencies / channels of the bands.

Conducted power measurements were performed on a modified device (accessible conducted port) and the measured SAR results were power scaled to the maximum declared tune-up level. Power measurements were only performed for the test configurations, which were determined by the client.

For each antenna, the bottom surface, and the rear of the EUT display were assessed for SAR.

For the 5/6 GHz frequency bands the transmission mode used for testing was determined by the 802.11 configuration with the highest declared output power in each frequency band. Where multiple 802.11 configurations have the same specified output power, testing was performed using the mode with the largest channel bandwidth with the lowest order modulation and lowest data rate.

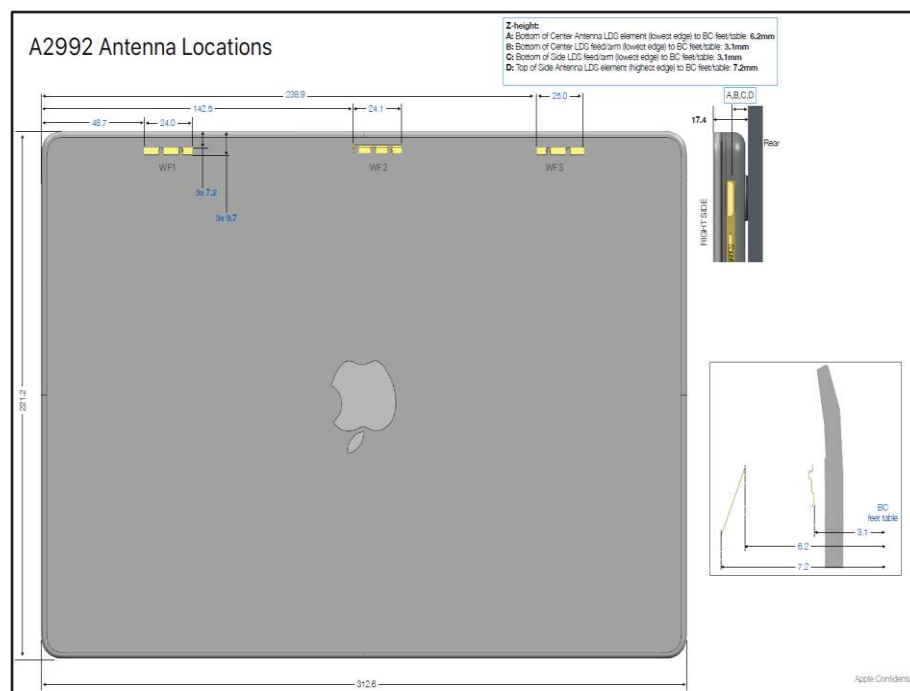


For SAR assessment, the relevant surfaces of the device were placed against an Elliptical phantom with a 0mm separation distance.

The Elliptical Flat Phantom dimensions are 600mm major axis and 400mm minor axis with a shell thickness of 2mm. The phantom was filled to a minimum depth of 150mm with the appropriate liquid. The dielectric properties were in accordance with the requirements specified in KDB 865665.

Included in this report are descriptions of the test method; the equipment used and an analysis of the test uncertainties applicable and diagrams indicating the locations of maximum SAR, APD and iPD for each relevant test position.

### 1.3.6 Antenna Location Diagram



**Figure 1**

WF1(Core 1) – supports 2.4GHz/ 5GHz / BT-Thread-NB

WF2(Core 0) – supports 2.4GHz/ 5GHz / BT-Thread-NB

WF3(Core 2) – supports only 2.4GHz BT-Thread

### 1.3.7 Deviations from Standard

Initially, area scans were completed covering the whole of the bottom surface of the EUT to determine that there were no other RF radiators (unintentional) other than the antennas. The actual SAR measurements were completed using smaller area scans covering the antenna locations only.



#### 1.4 POWER TABLES (TUNE UP VALUES)

Note: All values in dBm  
NS= Not Supported

##### 2.4 GHz Bluetooth (5.0 GHz WLAN off)

| BT Core | PA  | Channel | BDR   | EDR   | LE Data | HDR4  | HDR8  |
|---------|-----|---------|-------|-------|---------|-------|-------|
| 0       | iPA | All     | 13.00 | 9.50  | 7.50    | 6.00  | 6.00  |
| 0       | ePA |         | 13.00 | 16.50 | 15.00   | 15.00 | 13.00 |
| 1       | iPA |         | 13.00 | 9.50  | 7.50    | 6.00  | 6.00  |
| 1       | ePA |         | 13.00 | 16.50 | 15.00   | 15.00 | 13.00 |
| 2       | iPA |         | 13.00 | 9.50  | 7.50    | 6.00  | 6.00  |

##### 2.4 GHz Bluetooth (5.0 GHz WLAN on)

| BT Core | PA  | Channel | BDR   | EDR   | LE Data | HDR4  | HDR8  |
|---------|-----|---------|-------|-------|---------|-------|-------|
| 0       | iPA | All     | 13.00 | 9.50  | 7.50    | 6.00  | 6.00  |
| 0       | ePA |         | 13.00 | 15.50 | 15.00   | 15.00 | 13.00 |
| 1       | iPA |         | 13.00 | 9.50  | 7.50    | 6.00  | 6.00  |
| 1       | ePA |         | 13.00 | 15.50 | 15.00   | 15.00 | 13.00 |
| 2       | iPA |         | 13.00 | 9.50  | 7.50    | 6.00  | 6.00  |

##### 2.4 GHz Bluetooth (5.0 GHz WLAN off & on) - TXBF

| BT Core | PA  | Channel | BDR TXBF | EDR TXBF | LE TXBF | HDR4 TXBF | HDR8 TXBF |
|---------|-----|---------|----------|----------|---------|-----------|-----------|
| 0       | iPA | All     | 13.00    | 9.50     | 7.50    | 6.00      | 6.00      |
| 0       | ePA |         | 13.00    | 13.50    | 15.00   | 15.00     | 13.00     |
| 1       | iPA |         | 13.00    | 9.50     | 7.50    | 6.00      | 6.00      |
| 1       | ePA |         | 13.00    | 13.50    | 15.00   | 15.00     | 13.00     |
| 2       | iPA |         | NS       | NS       | NS      | NS        | NS        |

##### 5.0 GHz Narrowband UNII-1 - When 2.4 GHz WLAN OFF

| NB Core | PA  | Channel | BDR   | HDR4  | HDR8  | BDR TXBF | HDR4 TXBF | HDR8 TXBF |
|---------|-----|---------|-------|-------|-------|----------|-----------|-----------|
| 0       | iPA | All     | 7.50  | 4.50  | 4.50  | 2.50     | 4.50      | 4.50      |
| 0       | ePA |         | NS    | 9.50  | 12.50 | NS       | 4.50      | 7.50      |
| 1       | iPA |         | 10.00 | 4.50  | 4.50  | 2.50     | 4.50      | 4.50      |
| 1       | ePA |         | NS    | 12.00 | 13.50 | NS       | 4.50      | 7.50      |
| 2       | iPA |         | NS    | NS    | NS    | NS       | NS        | NS        |



### **5.0 GHz Narrowband UNII-1 - When 2.4 GHz WLAN ON**

| NB Core | PA  | Channel | BDR   | HDR4  | HDR8  | BDR TXBF | HDR4 TXBF | HDR8 TXBF |
|---------|-----|---------|-------|-------|-------|----------|-----------|-----------|
| 0       | iPA | All     | 7.50  | 4.50  | 4.50  | 2.50     | 4.50      | 4.50      |
| 0       | ePA |         | NS    | 9.50  | 10.50 | NS       | 4.50      | 7.50      |
| 1       | iPA |         | 10.00 | 4.50  | 4.50  | 2.50     | 4.50      | 4.50      |
| 1       | ePA |         | NS    | 10.00 | 10.00 | NS       | 4.50      | 7.50      |
| 2       | iPA |         | NS    | NS    | NS    | NS       | NS        | NS        |

### **5.0 GHz Narrowband UNII-3 - When 2.4 GHz WLAN OFF**

| NB Core | PA  | Channel | BDR   | HDR4  | HDR8  | BDR TXBF | HDR4 TXBF | HDR8 TXBF |
|---------|-----|---------|-------|-------|-------|----------|-----------|-----------|
| 0       | iPA | All     | 11.00 | 4.50  | 4.50  | 11.00    | 4.50      | 4.50      |
| 0       | ePA |         | NS    | 15.00 | 13.50 | NS       | 15.00     | 13.50     |
| 1       | iPA |         | 11.00 | 4.50  | 4.50  | 11.00    | 4.50      | 4.50      |
| 1       | ePA |         | NS    | 14.50 | 13.50 | NS       | 14.50     | 13.50     |
| 2       | iPA |         | NS    | NS    | NS    | NS       | NS        | NS        |

### **5.0 GHz Narrowband UNII-3 - When 2.4 GHz WLAN ON**

| NB Core | PA  | Channel | BDR   | HDR4  | HDR8  | BDR TXBF | HDR4 TXBF | HDR8 TXBF |
|---------|-----|---------|-------|-------|-------|----------|-----------|-----------|
| 0       | iPA | All     | 10.50 | 4.50  | 4.50  | 10.50    | 4.50      | 4.50      |
| 0       | ePA |         | NS    | 10.50 | 13.50 | NS       | 10.50     | 10.50     |
| 1       | iPA |         | 10.00 | 4.50  | 4.50  | 10.00    | 4.50      | 4.50      |
| 1       | ePA |         | NS    | 10.00 | 10.00 | NS       | 10.00     | 10.00     |
| 2       | iPA |         | NS    | NS    | NS    | NS       | NS        | NS        |

### **5.0 GHz Narrowband UNII-5**

| NB Core | PA  | Channel | BDR | HDR4 | HDR8 | BDR TXBF | HDR4 TXBF | HDR8 TXBF |
|---------|-----|---------|-----|------|------|----------|-----------|-----------|
| 0       | iPA | All     | NS  | NS   | NS   | NS       | NS        | NS        |
| 0       | ePA |         | NS  | NS   | NS   | NS       | NS        | NS        |
| 1       | iPA |         | NS  | NS   | NS   | NS       | NS        | NS        |
| 1       | ePA |         | NS  | NS   | NS   | NS       | NS        | NS        |
| 2       | iPA |         | NS  | NS   | NS   | NS       | NS        | NS        |



### **2.4 GHz Thread – When 5.0 GHz OFF**

| Core | PA  | Channel | Thread |
|------|-----|---------|--------|
| 0    | iPA | All     | 13.00  |
| 0    | ePA |         | 20.00  |
| 1    | iPA |         | 13.00  |
| 1    | ePA |         | 20.00  |
| 2    | iPA |         | 12.50  |

### **2.4 GHz Thread – When 5.0 GHz ON**

| Core | PA  | Channel | Thread |
|------|-----|---------|--------|
| 0    | iPA | All     | 13.00  |
| 0    | ePA |         | 15.50  |
| 1    | iPA |         | 13.00  |
| 1    | ePA |         | 15.50  |
| 2    | iPA |         | 12.50  |



### 2.4 GHz WLAN SISO Core 0 & Core 1

| Channel | Centre Frequency (MHz) | b (SISO) | g (SISO) Low Rate | 11n/11ac HT20 (SISO) Low Rate | 11ax HE20 (SISO) Low Rate | 11ax HE20 RU106 (SISO) | 11ax HE20 RU52 (SISO) | 11ax HE20 RU26 (SISO) |
|---------|------------------------|----------|-------------------|-------------------------------|---------------------------|------------------------|-----------------------|-----------------------|
| 1       | 2412                   | 19.00    | 18.00             | 17.00                         | 16.00                     | 17.25                  | 17.50                 | 14.50                 |
| 2       | 2417                   | 19.00    | 19.25             | 19.25                         | 19.25                     | 17.25                  | 17.50                 | 14.50                 |
| 3       | 2422                   | 19.00    | 19.25             | 19.25                         | 19.25                     | 18.75                  | 17.50                 | 14.50                 |
| 4       | 2427                   | 19.00    | 19.25             | 19.25                         | 19.25                     | 19.25                  | 17.50                 | 14.50                 |
| 5       | 2432                   | 19.00    | 19.25             | 19.25                         | 19.25                     | 19.25                  | 17.50                 | 14.50                 |
| 6       | 2437                   | 19.00    | 19.25             | 19.25                         | 19.25                     | 19.25                  | 17.50                 | 14.50                 |
| 7       | 2442                   | 19.00    | 19.25             | 19.25                         | 19.25                     | 19.25                  | 17.50                 | 14.50                 |
| 8       | 2447                   | 19.00    | 19.25             | 19.25                         | 19.25                     | 19.25                  | 17.50                 | 14.50                 |
| 9       | 2452                   | 19.00    | 19.25             | 19.25                         | 19.25                     | 19.25                  | 17.50                 | 14.50                 |
| 10      | 2457                   | 19.00    | 19.25             | 19.25                         | 19.25                     | 17.50                  | 17.50                 | 14.50                 |
| 11      | 2462                   | 19.00    | 18.75             | 18.50                         | 16.75                     | 17.00                  | 17.50                 | 14.50                 |
| 12      | 2467                   | 17.25    | 15.75             | 15.25                         | 14.25                     | 14.50                  | 17.50                 | 14.50                 |
| 13      | 2472                   | 15.50    | 7.00              | 6.25                          | 6.25                      | -1.00                  | -2.00                 | -5.00                 |

### 2.4 GHz WLAN MIMO Core 0 & Core 1

| Channel | Centre Frequency (MHz) | b (2Tx, DSSS) | 11n/11ac HT20 (2Tx, nonTXBF) | 11ax HE20 (2Tx, nonTXBF) | 11ax HE20 RU106 (2Tx, nonTXBF) | 11ax HE20 RU52 (2Tx, nonTXBF) | 11ax HE20 RU26 (2Tx, nonTXBF) | 11n/11ac HT20 (2Tx, TXBF) Low Rate |
|---------|------------------------|---------------|------------------------------|--------------------------|--------------------------------|-------------------------------|-------------------------------|------------------------------------|
| 1       | 2412                   | NS            | 15.50                        | 14.25                    | 15.50                          | 17.50                         | 14.50                         | NS                                 |
| 2       | 2417                   | NS            | 19.25                        | 18.00                    | 16.25                          | 17.50                         | 14.50                         | NS                                 |
| 3       | 2422                   | NS            | 19.25                        | 19.25                    | 18.75                          | 17.50                         | 14.50                         | NS                                 |
| 4       | 2427                   | NS            | 19.25                        | 19.25                    | 19.25                          | 17.50                         | 14.50                         | NS                                 |
| 5       | 2432                   | NS            | 19.25                        | 19.25                    | 19.25                          | 17.50                         | 14.50                         | NS                                 |
| 6       | 2437                   | NS            | 19.25                        | 19.25                    | 19.25                          | 17.50                         | 14.50                         | NS                                 |
| 7       | 2442                   | NS            | 19.25                        | 19.25                    | 19.25                          | 17.50                         | 14.50                         | NS                                 |
| 8       | 2447                   | NS            | 19.25                        | 19.25                    | 19.25                          | 17.50                         | 14.50                         | NS                                 |
| 9       | 2452                   | NS            | 19.25                        | 19.25                    | 19.25                          | 17.50                         | 14.50                         | NS                                 |
| 10      | 2457                   | NS            | 19.25                        | 18.75                    | 17.50                          | 17.50                         | 14.50                         | NS                                 |
| 11      | 2462                   | NS            | 17.00                        | 15.00                    | 17.50                          | 17.50                         | 14.50                         | NS                                 |
| 12      | 2467                   | NS            | 14.00                        | 12.50                    | 14.50                          | 16.75                         | 14.50                         | NS                                 |
| 13      | 2472                   | NS            | 6.00                         | 6.00                     | -5.00                          | -8.00                         | -8.50                         | NS                                 |



### 5.0 GHz WLAN - 20 MHz BW – SISO Core 0

| Channel | Centre Frequency (MHz) | a (SISO) Low Rate | 11n/11ac HT20 (SISO) Low Rate | 11ax HE20 (SISO) Low Rate | 11ax HE20 RU106 (SISO) | 11ax HE20 RU52 (SISO) | 11ax HE20 RU26 (SISO) |
|---------|------------------------|-------------------|-------------------------------|---------------------------|------------------------|-----------------------|-----------------------|
| 36      | 5180                   | 13.75             | 13.75                         | 13.75                     | 13.75                  | 12.00                 | 9.00                  |
| 40      | 5200                   | 13.75             | 13.75                         | 13.75                     | 13.75                  | 12.00                 | 9.00                  |
| 44      | 5220                   | 13.75             | 13.75                         | 13.75                     | 13.75                  | 12.00                 | 9.00                  |
| 48      | 5240                   | 13.75             | 13.75                         | 13.75                     | 13.75                  | 12.00                 | 9.00                  |
| 52      | 5260                   | 12.50             | 12.50                         | 12.50                     | 12.50                  | 11.25                 | NS                    |
| 56      | 5280                   | 12.50             | 12.50                         | 12.50                     | 12.50                  | 11.25                 | NS                    |
| 60      | 5300                   | 12.50             | 12.50                         | 12.50                     | 12.50                  | 11.25                 | NS                    |
| 64      | 5320                   | 12.50             | 12.50                         | 12.50                     | 12.50                  | 11.25                 | NS                    |
| 100     | 5500                   | 13.75             | 13.75                         | 13.75                     | 13.75                  | 13.75                 | NS                    |
| 104     | 5520                   | 13.75             | 13.75                         | 13.75                     | 13.75                  | 13.75                 | NS                    |
| 108     | 5540                   | 13.75             | 13.75                         | 13.75                     | 13.75                  | 13.75                 | NS                    |
| 112     | 5560                   | 13.75             | 13.75                         | 13.75                     | 13.75                  | 13.75                 | NS                    |
| 116     | 5580                   | 13.75             | 13.75                         | 13.75                     | 13.75                  | 13.75                 | NS                    |
| 120     | 5600                   | 13.75             | 13.75                         | 13.75                     | 13.75                  | 13.75                 | NS                    |
| 124     | 5620                   | 13.75             | 13.75                         | 13.75                     | 13.75                  | 13.75                 | NS                    |
| 128     | 5640                   | 13.75             | 13.75                         | 13.75                     | 13.75                  | 13.75                 | NS                    |
| 132     | 5660                   | 13.75             | 13.75                         | 13.75                     | 13.75                  | 13.75                 | NS                    |
| 136     | 5680                   | 13.75             | 13.75                         | 13.75                     | 13.75                  | 13.75                 | NS                    |
| 140     | 5700                   | 13.75             | 13.75                         | 13.75                     | 13.75                  | 9.00                  | NS                    |
| 144     | 5720                   | 13.75             | 13.75                         | 13.75                     | 13.75                  | 13.75                 | NS                    |
| 149     | 5745                   | 13.75             | 13.75                         | 13.75                     | 13.75                  | 13.75                 | 13.50                 |
| 153     | 5765                   | 13.75             | 13.75                         | 13.75                     | 13.75                  | 13.75                 | 13.50                 |
| 157     | 5785                   | 13.75             | 13.75                         | 13.75                     | 13.75                  | 13.75                 | 13.50                 |
| 161     | 5805                   | 13.75             | 13.75                         | 13.75                     | 13.75                  | 13.75                 | 13.50                 |
| 165     | 5825                   | 13.75             | 13.75                         | 13.75                     | 13.75                  | 13.75                 | 13.50                 |



### 5.0 GHz WLAN - 20 MHz BW – SISO Core 1

| Channel | Centre Frequency (MHz) | a (SISO) Low Rate | 11n/11ac HT20 (SISO) Low Rate | 11ax HE20 (SISO) Low Rate | 11ax HE20 RU106 (SISO) | 11ax HE20 RU52 (SISO) | 11ax HE20 RU26 (SISO) |
|---------|------------------------|-------------------|-------------------------------|---------------------------|------------------------|-----------------------|-----------------------|
| 36      | 5180                   | 13.50             | 13.50                         | 13.50                     | 13.50                  | 12.00                 | 9.00                  |
| 40      | 5200                   | 13.50             | 13.50                         | 13.50                     | 13.50                  | 12.00                 | 9.00                  |
| 44      | 5220                   | 13.50             | 13.50                         | 13.50                     | 13.50                  | 12.00                 | 9.00                  |
| 48      | 5240                   | 13.50             | 13.50                         | 13.50                     | 13.50                  | 12.00                 | 9.00                  |
| 52      | 5260                   | 13.00             | 13.00                         | 13.00                     | 13.00                  | 11.25                 | NS                    |
| 56      | 5280                   | 13.00             | 13.00                         | 13.00                     | 13.00                  | 11.25                 | NS                    |
| 60      | 5300                   | 13.00             | 13.00                         | 13.00                     | 13.00                  | 11.25                 | NS                    |
| 64      | 5320                   | 13.00             | 13.00                         | 13.00                     | 13.00                  | 11.25                 | NS                    |
| 100     | 5500                   | 12.75             | 12.75                         | 12.75                     | 12.75                  | 12.75                 | NS                    |
| 104     | 5520                   | 12.75             | 12.75                         | 12.75                     | 12.75                  | 12.75                 | NS                    |
| 108     | 5540                   | 12.75             | 12.75                         | 12.75                     | 12.75                  | 12.75                 | NS                    |
| 112     | 5560                   | 12.75             | 12.75                         | 12.75                     | 12.75                  | 12.75                 | NS                    |
| 116     | 5580                   | 12.75             | 12.75                         | 12.75                     | 12.75                  | 12.75                 | NS                    |
| 120     | 5600                   | 12.75             | 12.75                         | 12.75                     | 12.75                  | 12.75                 | NS                    |
| 124     | 5620                   | 12.75             | 12.75                         | 12.75                     | 12.75                  | 12.75                 | NS                    |
| 128     | 5640                   | 12.75             | 12.75                         | 12.75                     | 12.75                  | 12.75                 | NS                    |
| 132     | 5660                   | 12.75             | 12.75                         | 12.75                     | 12.75                  | 12.75                 | NS                    |
| 136     | 5680                   | 12.75             | 12.75                         | 12.75                     | 12.75                  | 12.75                 | NS                    |
| 140     | 5700                   | 12.75             | 12.75                         | 12.75                     | 12.75                  | 9.00                  | NS                    |
| 144     | 5720                   | 12.75             | 12.75                         | 12.75                     | 12.75                  | 12.75                 | NS                    |
| 149     | 5745                   | 13.25             | 13.25                         | 13.25                     | 13.25                  | 13.25                 | 13.25                 |
| 153     | 5765                   | 13.25             | 13.25                         | 13.25                     | 13.25                  | 13.25                 | 13.25                 |
| 157     | 5785                   | 13.25             | 13.25                         | 13.25                     | 13.25                  | 13.25                 | 13.25                 |
| 161     | 5805                   | 13.25             | 13.25                         | 13.25                     | 13.25                  | 13.25                 | 13.25                 |
| 165     | 5825                   | 13.25             | 13.25                         | 13.25                     | 13.25                  | 13.25                 | 13.25                 |



### 5.0 GHz WLAN - 20 MHz BW - MIMO Core 0 & Core 1 CDD

| Channel | Centre Frequency (MHz) | 11n/11ac HT20 (2Tx, CDD, nonTxBF) Low Rate | 11ax HE20 (2Tx, CDD, nonTxBF) | 11ax HE20 RU106 (2Tx, CDD, nonTxBF) | 11ax HE20 RU52 (2Tx, CDD, nonTxBF) | 11ax HE20 RU26 (2Tx, CDD, nonTxBF) |
|---------|------------------------|--------------------------------------------|-------------------------------|-------------------------------------|------------------------------------|------------------------------------|
| 36      | 5180                   | 12.25                                      | 12.25                         | 10.25                               | 7.25                               | 4.25                               |
| 40      | 5200                   | 12.25                                      | 12.25                         | 10.25                               | 7.25                               | 4.25                               |
| 44      | 5220                   | 12.25                                      | 12.25                         | 10.25                               | 7.25                               | 4.25                               |
| 48      | 5240                   | 12.25                                      | 12.25                         | 10.25                               | 7.25                               | 4.25                               |
| 52      | 5260                   | 11.75                                      | 11.75                         | 9.75                                | 6.75                               | NS                                 |
| 56      | 5280                   | 11.75                                      | 11.75                         | 9.75                                | 6.75                               | NS                                 |
| 60      | 5300                   | 11.75                                      | 11.75                         | 9.75                                | 6.75                               | NS                                 |
| 64      | 5320                   | 11.75                                      | 11.75                         | 9.75                                | 6.75                               | NS                                 |
| 100     | 5500                   | 12.75                                      | 12.75                         | 12.75                               | 9.75                               | NS                                 |
| 104     | 5520                   | 12.75                                      | 12.75                         | 12.75                               | 9.75                               | NS                                 |
| 108     | 5540                   | 12.75                                      | 12.75                         | 12.75                               | 9.75                               | NS                                 |
| 112     | 5560                   | 12.75                                      | 12.75                         | 12.75                               | 9.75                               | NS                                 |
| 116     | 5580                   | 12.75                                      | 12.75                         | 12.75                               | 9.75                               | NS                                 |
| 120     | 5600                   | 12.75                                      | 12.75                         | 12.75                               | 9.75                               | NS                                 |
| 124     | 5620                   | 12.75                                      | 12.75                         | 12.75                               | 9.75                               | NS                                 |
| 128     | 5640                   | 12.75                                      | 12.75                         | 12.75                               | 9.75                               | NS                                 |
| 132     | 5660                   | 12.75                                      | 12.75                         | 12.75                               | 9.75                               | NS                                 |
| 136     | 5680                   | 12.75                                      | 12.75                         | 12.75                               | 9.75                               | NS                                 |
| 140     | 5700                   | 12.75                                      | 12.75                         | 12.75                               | 9.00                               | NS                                 |
| 144     | 5720                   | 12.75                                      | 12.75                         | 12.75                               | 9.75                               | NS                                 |
| 149     | 5745                   | 13.25                                      | 13.25                         | 13.25                               | 13.25                              | 13.25                              |
| 153     | 5765                   | 13.25                                      | 13.25                         | 13.25                               | 13.25                              | 13.25                              |
| 157     | 5785                   | 13.25                                      | 13.25                         | 13.25                               | 13.25                              | 13.25                              |
| 161     | 5805                   | 13.25                                      | 13.25                         | 13.25                               | 13.25                              | 13.25                              |
| 165     | 5825                   | 13.25                                      | 13.25                         | 13.25                               | 13.25                              | 13.25                              |



### 5.0 GHz WLAN - 20 MHz BW - MIMO Core 0 & Core 1 SDM

| Channel | Centre Frequency (MHz) | 11n/11ac HT20 (2Tx, SDM, nonTxBF) Low Rate | 11ax HE20 (2Tx, SDM, nonTxBF) Low Rate | 11ax HE20 RU106 (2Tx, SDM, nonTxBF) | 11ax HE20 RU52 (2Tx, SDM, nonTxBF) | 11ax HE20 RU26 (2Tx, SDM, nonTxBF) | 11n/11ac VHT20 (2Tx, TxBF) Low Rate |
|---------|------------------------|--------------------------------------------|----------------------------------------|-------------------------------------|------------------------------------|------------------------------------|-------------------------------------|
| 36      | 5180                   | 13.50                                      | 13.50                                  | 13.25                               | 10.25                              | 7.25                               | 12.25                               |
| 40      | 5200                   | 13.50                                      | 13.50                                  | 13.25                               | 10.25                              | 7.25                               | 12.25                               |
| 44      | 5220                   | 13.50                                      | 13.50                                  | 13.25                               | 10.25                              | 7.25                               | 12.25                               |
| 48      | 5240                   | 13.50                                      | 13.50                                  | 13.25                               | 10.25                              | 7.25                               | 12.25                               |
| 52      | 5260                   | 12.50                                      | 12.50                                  | 12.50                               | 9.50                               | NS                                 | 11.75                               |
| 56      | 5280                   | 12.50                                      | 12.50                                  | 12.50                               | 9.50                               | NS                                 | 11.75                               |
| 60      | 5300                   | 12.50                                      | 12.50                                  | 12.50                               | 9.50                               | NS                                 | 11.75                               |
| 64      | 5320                   | 12.50                                      | 12.50                                  | 12.50                               | 9.50                               | NS                                 | 11.75                               |
| 100     | 5500                   | 12.75                                      | 12.75                                  | 12.75                               | 11.50                              | NS                                 | 12.75                               |
| 104     | 5520                   | 12.75                                      | 12.75                                  | 12.75                               | 11.50                              | NS                                 | 12.75                               |
| 108     | 5540                   | 12.75                                      | 12.75                                  | 12.75                               | 11.50                              | NS                                 | 12.75                               |
| 112     | 5560                   | 12.75                                      | 12.75                                  | 12.75                               | 11.50                              | NS                                 | 12.75                               |
| 116     | 5580                   | 12.75                                      | 12.75                                  | 12.75                               | 11.50                              | NS                                 | 12.75                               |
| 120     | 5600                   | 12.75                                      | 12.75                                  | 12.75                               | 11.50                              | NS                                 | 12.75                               |
| 124     | 5620                   | 12.75                                      | 12.75                                  | 12.75                               | 11.50                              | NS                                 | 12.75                               |
| 128     | 5640                   | 12.75                                      | 12.75                                  | 12.75                               | 11.50                              | NS                                 | 12.75                               |
| 132     | 5660                   | 12.75                                      | 12.75                                  | 12.75                               | 11.50                              | NS                                 | 12.75                               |
| 136     | 5680                   | 12.75                                      | 12.75                                  | 12.75                               | 11.50                              | NS                                 | 12.75                               |
| 140     | 5700                   | 12.75                                      | 12.75                                  | 12.75                               | 9.00                               | NS                                 | 12.75                               |
| 144     | 5720                   | 12.75                                      | 12.75                                  | 12.75                               | 11.50                              | NS                                 | 12.75                               |
| 149     | 5745                   | 13.25                                      | 13.25                                  | 13.25                               | 13.25                              | 13.25                              | 13.25                               |
| 153     | 5765                   | 13.25                                      | 13.25                                  | 13.25                               | 13.25                              | 13.25                              | 13.25                               |
| 157     | 5785                   | 13.25                                      | 13.25                                  | 13.25                               | 13.25                              | 13.25                              | 13.25                               |
| 161     | 5805                   | 13.25                                      | 13.25                                  | 13.25                               | 13.25                              | 13.25                              | 13.25                               |
| 165     | 5825                   | 13.25                                      | 13.25                                  | 13.25                               | 13.25                              | 13.25                              | 13.25                               |

**5.0 GHz WLAN - 40 MHz - SISO Core 0**

| Channel | Centre Frequency (MHz) | 11n/11ac HT40 (SISO) Low Rate | 11ax HE40 (SISO) Low Rate | 11ax HE40 RU106 (SISO) | 11ax HE40 RU52 (SISO) | 11ax HE40 RU26 (SISO) |
|---------|------------------------|-------------------------------|---------------------------|------------------------|-----------------------|-----------------------|
| 38      | 5190                   | 13.75                         | 13.75                     | 13.75                  | 12.00                 | 9.00                  |
| 46      | 5230                   | 13.75                         | 13.75                     | 13.75                  | 12.00                 | 9.00                  |
| 54      | 5270                   | 12.50                         | 12.50                     | 12.50                  | 11.25                 | NS                    |
| 62      | 5310                   | 12.50                         | 12.50                     | 12.50                  | 10.00                 | NS                    |
| 102     | 5510                   | 13.75                         | 13.75                     | 13.75                  | 13.50                 | NS                    |
| 110     | 5550                   | 13.75                         | 13.75                     | 13.75                  | 13.50                 | NS                    |
| 118     | 5590                   | 13.75                         | 13.75                     | 13.75                  | 13.50                 | NS                    |
| 126     | 5630                   | 13.75                         | 13.75                     | 13.75                  | 13.50                 | NS                    |
| 134     | 5670                   | 13.75                         | 13.75                     | 13.75                  | 13.50                 | NS                    |
| 142     | 5710                   | 13.75                         | 13.75                     | 13.75                  | 13.50                 | NS                    |
| 151     | 5755                   | 13.75                         | 13.75                     | 13.75                  | 13.50                 | 10.50                 |
| 159     | 5795                   | 13.75                         | 13.75                     | 13.75                  | 13.50                 | 10.50                 |

**5.0 GHz WLAN - 40 MHz - SISO Core 1**

| Channel | Centre Frequency (MHz) | 11n/11ac HT40 (SISO) Low Rate | 11ax HE40 (SISO) Low Rate | 11ax HE40 RU106 (SISO) | 11ax HE40 RU52 (SISO) | 11ax HE40 RU26 (SISO) |
|---------|------------------------|-------------------------------|---------------------------|------------------------|-----------------------|-----------------------|
| 38      | 5190                   | 13.50                         | 13.50                     | 13.50                  | 12.00                 | 9.00                  |
| 46      | 5230                   | 13.50                         | 13.50                     | 13.50                  | 12.00                 | 9.00                  |
| 54      | 5270                   | 13.00                         | 13.00                     | 13.00                  | 11.25                 | NS                    |
| 62      | 5310                   | 13.00                         | 13.00                     | 13.00                  | 10.00                 | NS                    |
| 102     | 5510                   | 12.75                         | 12.75                     | 12.75                  | 12.75                 | NS                    |
| 110     | 5550                   | 12.75                         | 12.75                     | 12.75                  | 12.75                 | NS                    |
| 118     | 5590                   | 12.75                         | 12.75                     | 12.75                  | 12.75                 | NS                    |
| 126     | 5630                   | 12.75                         | 12.75                     | 12.75                  | 12.75                 | NS                    |
| 134     | 5670                   | 12.75                         | 12.75                     | 12.75                  | 12.75                 | NS                    |
| 142     | 5710                   | 12.75                         | 12.75                     | 12.75                  | 12.75                 | NS                    |
| 151     | 5755                   | 13.25                         | 13.25                     | 13.25                  | 13.25                 | 10.50                 |
| 159     | 5795                   | 13.25                         | 13.25                     | 13.25                  | 13.25                 | 10.50                 |



### 5.0 GHz WLAN - 40 MHz - MIMO Core 0 & Core 1 CDD

| Channel | 11n/11ac HT40<br>(2Tx, CDD,<br>nonTxBF) Low<br>Rate | 11ax HE40 (2Tx,<br>CDD, nonTxBF)<br>Low Rate | 11ax HE40 RU106<br>(2Tx, CDD,<br>nonTxBF) | 11ax HE40 RU52<br>(2Tx, CDD,<br>nonTxBF) | 11ax HE40 RU26<br>(2Tx, CDD,<br>nonTxBF) |
|---------|-----------------------------------------------------|----------------------------------------------|-------------------------------------------|------------------------------------------|------------------------------------------|
| 38      | 14.00                                               | 14.00                                        | 11.75                                     | 8.75                                     | 5.75                                     |
| 46      | 14.00                                               | 14.00                                        | 11.75                                     | 8.75                                     | 5.75                                     |
| 54      | 13.25                                               | 13.25                                        | 10.25                                     | 7.25                                     | NS                                       |
| 62      | 13.25                                               | 13.25                                        | 10.00                                     | 7.00                                     | NS                                       |
| 102     | 13.25                                               | 13.25                                        | 12.00                                     | 9.00                                     | NS                                       |
| 110     | 13.25                                               | 13.25                                        | 12.00                                     | 9.00                                     | NS                                       |
| 118     | 13.25                                               | 13.25                                        | 12.25                                     | 9.25                                     | NS                                       |
| 126     | 13.25                                               | 13.25                                        | 12.25                                     | 9.25                                     | NS                                       |
| 134     | 13.25                                               | 13.25                                        | 12.00                                     | 9.00                                     | NS                                       |
| 142     | 13.25                                               | 13.25                                        | 12.25                                     | 9.25                                     | NS                                       |
| 151     | 13.75                                               | 13.75                                        | 13.75                                     | 13.50                                    | 10.50                                    |
| 159     | 13.75                                               | 13.75                                        | 13.75                                     | 13.50                                    | 10.50                                    |

### 5.0 GHz WLAN - 40 MHz - MIMO Core 0 & Core 1 SDM

| Channel | 11n/11ac HT40<br>(2Tx, SDM,<br>nonTxBF) Low<br>Rate | 11ax HE40<br>(2Tx, SDM,<br>nonTxBF) Low<br>Rate | 11ax HE40<br>RU106 (2Tx,<br>SDM,<br>nonTxBF) | 11ax HE40<br>RU52 (2Tx,<br>SDM,<br>nonTxBF) | 11ax HE40<br>RU26 (2Tx,<br>SDM,<br>nonTxBF) | 11n/11ac<br>VHT40 (2Tx,<br>TxBF) Low<br>Rate |
|---------|-----------------------------------------------------|-------------------------------------------------|----------------------------------------------|---------------------------------------------|---------------------------------------------|----------------------------------------------|
| 38      | 14.00                                               | 13.50                                           | 13.50                                        | 12.00                                       | 10.25                                       | 7.25                                         |
| 46      | 14.00                                               | 13.50                                           | 13.50                                        | 13.25                                       | 10.25                                       | 7.25                                         |
| 54      | 13.25                                               | 12.50                                           | 12.50                                        | 12.50                                       | 9.50                                        | NS                                           |
| 62      | 13.00                                               | 12.50                                           | 12.50                                        | 10.00                                       | 7.00                                        | NS                                           |
| 102     | 13.25                                               | 12.75                                           | 12.75                                        | 12.75                                       | 11.00                                       | NS                                           |
| 110     | 13.25                                               | 12.75                                           | 12.75                                        | 12.75                                       | 11.50                                       | NS                                           |
| 118     | 13.25                                               | 12.75                                           | 12.75                                        | 12.75                                       | 11.50                                       | NS                                           |
| 126     | 13.25                                               | 12.75                                           | 12.75                                        | 12.75                                       | 11.50                                       | NS                                           |
| 134     | 13.25                                               | 12.75                                           | 12.75                                        | 12.75                                       | 11.50                                       | NS                                           |
| 142     | 13.25                                               | 12.75                                           | 12.75                                        | 12.75                                       | 11.50                                       | NS                                           |
| 151     | 13.75                                               | 13.25                                           | 13.25                                        | 13.25                                       | 13.25                                       | 10.50                                        |
| 159     | 13.75                                               | 13.25                                           | 13.25                                        | 13.25                                       | 13.25                                       | 10.50                                        |



### **5.0 GHz WLAN - 80 MHz - SISO Core 0**

| Channel | Centre Frequency (MHz) | 11ac VHT80 (SISO) Low Rate | 11ax HE80 (SISO) Low Rate | 11ax HE80 RU106 (SISO) | 11ax HE80 RU52 (SISO) | 11ax HE80 RU26 (SISO) |
|---------|------------------------|----------------------------|---------------------------|------------------------|-----------------------|-----------------------|
| 42      | 5210                   | 13.75                      | 13.75                     | 13.50                  | 10.50                 | 7.50                  |
| 58      | 5290                   | 12.50                      | 12.50                     | 12.00                  | 10.00                 | NS                    |
| 106     | 5530                   | 13.75                      | 13.75                     | 12.75                  | 10.00                 | NS                    |
| 122     | 5610                   | 13.75                      | 13.75                     | 13.50                  | 10.50                 | NS                    |
| 138     | 5690                   | 13.75                      | 13.75                     | 13.50                  | 10.50                 | NS                    |
| 155     | 5775                   | 13.75                      | 13.75                     | 13.50                  | 10.50                 | 7.50                  |

### **5.0 GHz WLAN - 80 MHz - SISO Core 1**

| Channel | 11ac VHT80 (SISO) Low Rate | 11ax HE80 (SISO) Low Rate | 11ax HE80 RU106 (SISO) | 11ax HE80 RU52 (SISO) | 11ax HE80 RU26 (SISO) | 11ac VHT80 (SISO) Low Rate |
|---------|----------------------------|---------------------------|------------------------|-----------------------|-----------------------|----------------------------|
| 42      | 5210                       | 13.50                     | 13.50                  | 13.50                 | 10.50                 | 7.50                       |
| 58      | 5290                       | 13.00                     | 13.00                  | 12.00                 | 10.00                 | NS                         |
| 106     | 5530                       | 12.75                     | 12.75                  | 12.75                 | 10.00                 | NS                         |
| 122     | 5610                       | 12.75                     | 12.75                  | 12.75                 | 10.50                 | NS                         |
| 138     | 5690                       | 12.75                     | 12.75                  | 12.75                 | 10.50                 | NS                         |
| 155     | 5775                       | 13.25                     | 13.25                  | 13.25                 | 10.50                 | 7.50                       |

### **5.0 GHz WLAN - 80 MHz - MIMO Core 0 & Core 1 CDD**

| Channel | Centre Frequency (MHz) | 11ac VHT80 (2Tx, CDD, nonTxBF) Low Rate | 11ax HE80 (2Tx, CDD, nonTxBF) Low Rate | 11ax HE80 RU106 (2Tx, CDD, nonTxBF) | 11ax HE80 RU52 (2Tx, CDD, nonTxBF) | 11ax HE80 RU26 (2Tx, CDD, nonTxBF) |
|---------|------------------------|-----------------------------------------|----------------------------------------|-------------------------------------|------------------------------------|------------------------------------|
| 42      | 5210                   | 13.50                                   | 13.50                                  | 10.25                               | 7.25                               | 4.25                               |
| 58      | 5290                   | 12.50                                   | 12.50                                  | 9.00                                | 6.75                               | NS                                 |
| 106     | 5530                   | 12.75                                   | 12.75                                  | 10.00                               | 6.00                               | NS                                 |
| 122     | 5610                   | 12.75                                   | 12.75                                  | 12.75                               | 9.75                               | NS                                 |
| 138     | 5690                   | 12.75                                   | 12.75                                  | 12.75                               | 9.75                               | NS                                 |
| 155     | 5775                   | 13.25                                   | 13.25                                  | 13.25                               | 10.50                              | 7.50                               |



### **5.0 GHz WLAN - 80 MHz - MIMO Core 0 & Core 1 SDM**

| Channel | Centre Frequency (MHz) | 11ac VHT80 (2Tx, SDM, nonTxBF) Low Rate | 11ax HE80 (2Tx, SDM, nonTxBF) Low Rate | 11ax HE80 RU106 (2Tx, SDM, nonTxBF) | 11ax HE80 RU52 (2Tx, SDM, nonTxBF) | 11ax HE80 RU26 (2Tx, SDM, nonTxBF) | 11ac VHT80 (2Tx, TxBF) Low Rate |
|---------|------------------------|-----------------------------------------|----------------------------------------|-------------------------------------|------------------------------------|------------------------------------|---------------------------------|
| 42      | 5210                   | 13.50                                   | 13.50                                  | 11.50                               | 8.00                               | 6.00                               | 13.50                           |
| 58      | 5290                   | 12.50                                   | 12.50                                  | 9.00                                | 7.50                               | NS                                 | 11.50                           |
| 106     | 5530                   | 12.75                                   | 12.75                                  | 10.00                               | 6.00                               | NS                                 | 12.75                           |
| 122     | 5610                   | 12.75                                   | 12.75                                  | 12.75                               | 10.50                              | NS                                 | 12.75                           |
| 138     | 5690                   | 12.75                                   | 12.75                                  | 12.75                               | 10.50                              | NS                                 | 12.75                           |
| 155     | 5775                   | 13.25                                   | 13.25                                  | 13.25                               | 10.50                              | 7.50                               | 13.25                           |

### **5.0 GHz WLAN - 160 MHz - SISO Core 0**

| Channel | Centre Frequency (MHz) | 11ac VHT160 (SISO) Low Rate | 11ax HE160 (SISO) Low Rate | 11ax HE160 RU106 (SISO) | 11ax HE160 RU52 (SISO) | 11ax HE160 RU26 (SISO) |
|---------|------------------------|-----------------------------|----------------------------|-------------------------|------------------------|------------------------|
| 50      | 5250                   | 12.50                       | 12.50                      | 10.50                   | 7.50                   | NS                     |
| 114     | 5570                   | 13.00                       | 13.00                      | 10.50                   | 7.50                   | NS                     |

### **5.0 GHz WLAN - 160 MHz - SISO Core 1**

| Channel | Centre Frequency (MHz) | 11ac VHT160 (SISO) Low Rate | 11ax HE160 (SISO) Low Rate | 11ax HE160 RU106 (SISO) | 11ax HE160 RU52 (SISO) | 11ax HE160 RU26 (SISO) |
|---------|------------------------|-----------------------------|----------------------------|-------------------------|------------------------|------------------------|
| 50      | 5250                   | 13.00                       | 13.00                      | 10.50                   | 7.50                   | NS                     |
| 114     | 5570                   | 12.75                       | 12.75                      | 10.50                   | 7.50                   | NS                     |

### **5.0 GHz WLAN - 160 MHz - MIMO Core 0 & Core 1 CDD**

| Channel | Centre Frequency (MHz) | 11ac VHT160 (2Tx, CDD, nonTxBF) Low Rate | 11ax HE160 (2Tx, CDD, nonTxBF) Low Rate | 11ax HE160 RU106 (2Tx, CDD, nonTxBF) | 11ax HE160 RU52 (2Tx, CDD, nonTxBF) | 11ax HE160 RU26 (2Tx, CDD, nonTxBF) |
|---------|------------------------|------------------------------------------|-----------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|
| 50      | 5250                   | 10.25                                    | 10.25                                   | 9.75                                 | 6.75                                | NS                                  |
| 114     | 5570                   | 9.50                                     | 10.00                                   | 10.00                                | 6.00                                | NS                                  |

### **5.0 GHz WLAN - 160 MHz - MIMO Core 0 & Core 1 SDM**

| Channel | Centre Frequency (MHz) | 11ac VHT160 (2Tx, SDM, nonTxBF) Low Rate | 11ax HE160 (2Tx, SDM, nonTxBF) Low Rate | 11ax HE160 RU106 (2Tx, SDM, nonTxBF) | 11ax HE160 RU52 (2Tx, SDM, nonTxBF) | 11ax HE160 RU26 (2Tx, SDM, nonTxBF) | 11ac VHT160 (2Tx, TxBF) Low Rate |
|---------|------------------------|------------------------------------------|-----------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|----------------------------------|
| 50      | 5250                   | 10.25                                    | 10.25                                   | 10.00                                | 7.50                                | NS                                  | NS                               |
| 114     | 5570                   | 9.50                                     | 10.00                                   | 10.00                                | 6.00                                | NS                                  | NS                               |



### **6 GHz WLAN - 20 MHz - SISO Core 0 & Core 1**

| Channel | Centre Frequency (MHz) | a (SISO) Low Rate | 11ax HE20 (SISO) Low Rate | 11ax HE20 RU106 (SISO) | 11ax HE20 RU52 (SISO) | 11ax HE20 RU26 (SISO) |
|---------|------------------------|-------------------|---------------------------|------------------------|-----------------------|-----------------------|
| 2       | 5935                   | NS                | NS                        | NS                     | NS                    | NS                    |
| 1       | 5955                   | 3.25              | 3.25                      | 0.25                   | -3.00                 | -6.00                 |
| 5       | 5975                   | 3.25              | 3.25                      | 0.25                   | -3.00                 | -6.00                 |
| 9-29    | 5945                   | 3.25              | 3.25                      | 0.25                   | -3.00                 | -6.00                 |
| 33-61   | 6185                   | 4.50              | 4.50                      | 1.50                   | -1.50                 | -4.50                 |
| 65-85   | 6325                   | 3.75              | 3.75                      | 0.75                   | -2.50                 | -5.50                 |
| 89      | 6395                   | 3.75              | 3.75                      | 0.75                   | -2.50                 | -5.50                 |
| 93      | 6415                   | 3.75              | 3.75                      | 0.75                   | -2.50                 | -5.50                 |
| 97-113  | 6475                   | 4.00              | 4.00                      | 1.00                   | -2.00                 | -5.00                 |
| 117-181 | 6695                   | 3.75              | 3.75                      | 0.75                   | -2.50                 | -5.50                 |
| 185     | 6875                   | 3.75              | 3.75                      | 0.75                   | -2.50                 | -5.50                 |
| 189-225 | 6985                   | 4.50              | 4.50                      | 1.50                   | -1.50                 | -4.50                 |
| 229     | 7095                   | 4.50              | 4.50                      | 1.50                   | -1.50                 | -4.50                 |
| 233     | 7115                   | 3.00              | NS                        | NS                     | NS                    | NS                    |

### **6 GHz WLAN - 20 MHz - MIMO Core 0 & Core 1 CDD**

| Channel | Centre Frequency (MHz) | 11ax HE20 (2Tx, CDD, nonTxBF) Low Rate | 11ax HE20 RU106 (2Tx, CDD, nonTxBF) | 11ax HE20 RU52 (2Tx, CDD, nonTxBF) | 11ax HE20 RU26 (2Tx, CDD, nonTxBF) |
|---------|------------------------|----------------------------------------|-------------------------------------|------------------------------------|------------------------------------|
| 2       | 5935                   | NS                                     | NS                                  | NS                                 | NS                                 |
| 1       | 5955                   | -2.50                                  | -5.50                               | -8.50                              | NS                                 |
| 5       | 5975                   | -2.50                                  | -5.50                               | -8.50                              | NS                                 |
| 9-29    | 5945                   | -2.50                                  | -5.50                               | -8.50                              | NS                                 |
| 33-61   | 6185                   | -1.00                                  | -4.00                               | -7.00                              | NS                                 |
| 65-85   | 6325                   | -1.00                                  | -4.00                               | -7.00                              | NS                                 |
| 89      | 6395                   | -1.00                                  | -4.00                               | -7.00                              | NS                                 |
| 93      | 6415                   | -1.00                                  | -4.00                               | -7.00                              | NS                                 |
| 97-113  | 6475                   | -1.00                                  | -4.00                               | -7.00                              | NS                                 |
| 117-181 | 6695                   | -2.00                                  | -5.00                               | -8.00                              | NS                                 |
| 185     | 6875                   | -2.00                                  | -5.00                               | -8.00                              | NS                                 |
| 189-225 | 6985                   | -0.50                                  | -3.50                               | -6.50                              | NS                                 |
| 229     | 7095                   | -0.50                                  | -3.50                               | -6.50                              | NS                                 |
| 233     | 7115                   | NS                                     | NS                                  | NS                                 | NS                                 |



### 6 GHz WLAN - 20 MHz - MIMO Core 0 & Core 1 SDM

| Channel | Centre Frequency (MHz) | 11ax HE20 (2Tx, CDD, nonTxBF) Low Rate | 11ax HE20 RU106 (2Tx, CDD, nonTxBF) | 11ax HE20 RU52 (2Tx, CDD, nonTxBF) | 11ax HE20 RU26 (2Tx, CDD, nonTxBF) | 11ax HE20 (2Tx, TxBF) Low Rate |
|---------|------------------------|----------------------------------------|-------------------------------------|------------------------------------|------------------------------------|--------------------------------|
| 2       | 5935                   | NS                                     | NS                                  | NS                                 | NS                                 | NS                             |
| 1       | 5955                   | 0.75                                   | -2.50                               | -5.50                              | -8.50                              | NS                             |
| 5       | 5975                   | 0.75                                   | -2.50                               | -5.50                              | -8.50                              | NS                             |
| 9-29    | 5945                   | 0.75                                   | -2.50                               | -5.50                              | -8.50                              | NS                             |
| 33-61   | 6185                   | 2.00                                   | -1.00                               | -4.00                              | -7.00                              | NS                             |
| 65-85   | 6325                   | 1.75                                   | -1.50                               | -4.50                              | -7.50                              | NS                             |
| 89      | 6395                   | 1.75                                   | -1.50                               | -4.50                              | -7.50                              | NS                             |
| 93      | 6415                   | 1.75                                   | -1.50                               | -4.50                              | -7.50                              | NS                             |
| 97-113  | 6475                   | 2.00                                   | -1.00                               | -4.00                              | -7.00                              | NS                             |
| 117-181 | 6695                   | 1.25                                   | -2.00                               | -5.00                              | -8.00                              | NS                             |
| 185     | 6875                   | 1.25                                   | -2.00                               | -5.00                              | -8.00                              | NS                             |
| 189-225 | 6985                   | 2.75                                   | -0.50                               | -3.50                              | -6.50                              | NS                             |
| 229     | 7095                   | 2.75                                   | -0.50                               | -3.50                              | -6.50                              | NS                             |
| 233     | 7115                   | NS                                     | NS                                  | NS                                 | NS                                 | NS                             |

### 6 GHz WLAN - 40 MHz - SISO Core 0 & Core 1

| Channel | Centre Frequency (MHz) | 11ax HE40 (SISO) Low Rate | 11ax HE40 RU106 (SISO) | 11ax HE40 RU52 (SISO) | 11ax HE40 RU26 (SISO) |
|---------|------------------------|---------------------------|------------------------|-----------------------|-----------------------|
| 3       | 5965                   | 5.75                      | 0.25                   | -3.00                 | -6.00                 |
| 11      | 6005                   | 5.75                      | 0.25                   | -3.00                 | -6.00                 |
| 19-27   | 6065                   | 5.75                      | 0.25                   | -3.00                 | -6.00                 |
| 35-59   | 6185                   | 7.00                      | 1.50                   | -1.50                 | -4.50                 |
| 67-75   | 6305                   | 6.25                      | 0.75                   | -2.50                 | -5.50                 |
| 83      | 6365                   | 6.25                      | 0.75                   | -2.50                 | -5.50                 |
| 91      | 6405                   | 6.25                      | 0.75                   | -2.50                 | -5.50                 |
| 99-107  | 6465                   | 6.50                      | 1.00                   | -2.00                 | -5.00                 |
| 115     | 6525                   | 6.25                      | 0.75                   | -2.50                 | -5.50                 |
| 123-179 | 6705                   | 6.25                      | 0.75                   | -2.50                 | -5.50                 |
| 187     | 6885                   | 6.25                      | 0.75                   | -2.50                 | -5.50                 |
| 195-219 | 6985                   | 7.00                      | 1.50                   | -1.50                 | -4.50                 |
| 227     | 7085                   | 7.00                      | 1.50                   | -1.50                 | -4.50                 |



### **6 GHz WLAN - 40 MHz - MIMO Core 0 & Core 1 CDD**

| Channel | Centre Frequency (MHz) | 11ax HE40 (2Tx, CDD, nonTxBF) Low Rate | 11ax HE40 RU106 (2Tx, CDD, nonTxBF) | 11ax HE40 RU52 (2Tx, CDD, nonTxBF) | 11ax HE40 RU26 (2Tx, CDD, nonTxBF) |
|---------|------------------------|----------------------------------------|-------------------------------------|------------------------------------|------------------------------------|
| 3       | 5965                   | 0.25                                   | -5.50                               | -8.50                              | NS                                 |
| 11      | 6005                   | 0.25                                   | -5.50                               | -8.50                              | NS                                 |
| 19-27   | 6065                   | 0.25                                   | -5.50                               | -8.50                              | NS                                 |
| 35-59   | 6185                   | 1.50                                   | -4.00                               | -7.00                              | NS                                 |
| 67-75   | 6305                   | 1.50                                   | -4.00                               | -7.00                              | NS                                 |
| 83      | 6365                   | 1.50                                   | -4.00                               | -7.00                              | NS                                 |
| 91      | 6405                   | 1.50                                   | -4.00                               | -7.00                              | NS                                 |
| 99-107  | 6465                   | 1.50                                   | -4.00                               | -7.00                              | NS                                 |
| 115     | 6525                   | 0.75                                   | -5.00                               | -8.00                              | NS                                 |
| 123-179 | 6705                   | 0.75                                   | -5.00                               | -8.00                              | NS                                 |
| 187     | 6885                   | 0.75                                   | -5.00                               | -8.00                              | NS                                 |
| 195-219 | 6985                   | 2.25                                   | -3.50                               | -6.50                              | NS                                 |
| 227     | 7085                   | 2.25                                   | -3.50                               | -6.50                              | NS                                 |

### **6 GHz WLAN - 40 MHz - MIMO Core 0 & Core 1 SDM**

| Channel | Centre Frequency (MHz) | 11ax HE40 (2Tx, CDD, nonTxBF) Low Rate | 11ax HE40 RU106 (2Tx, CDD, nonTxBF) | 11ax HE40 RU52 (2Tx, CDD, nonTxBF) | 11ax HE40 RU26 (2Tx, CDD, nonTxBF) | 11ax HE40 (2Tx, TxBF) Low Rate |
|---------|------------------------|----------------------------------------|-------------------------------------|------------------------------------|------------------------------------|--------------------------------|
| 3       | 5965                   | 3.25                                   | -2.50                               | -5.50                              | -8.50                              | NS                             |
| 11      | 6005                   | 3.25                                   | -2.50                               | -5.50                              | -8.50                              | NS                             |
| 19-27   | 6065                   | 3.25                                   | -2.50                               | -5.50                              | -8.50                              | NS                             |
| 35-59   | 6185                   | 4.50                                   | -1.00                               | -4.00                              | -7.00                              | 1.50                           |
| 67-75   | 6305                   | 4.25                                   | -1.50                               | -4.50                              | -7.50                              | 1.50                           |
| 83      | 6365                   | 4.25                                   | -1.50                               | -4.50                              | -7.50                              | 1.50                           |
| 91      | 6405                   | 4.25                                   | -1.50                               | -4.50                              | -7.50                              | 1.50                           |
| 99-107  | 6465                   | 4.50                                   | -1.00                               | -4.00                              | -7.00                              | 1.50                           |
| 115     | 6525                   | 3.75                                   | -2.00                               | -5.00                              | -8.00                              | NS                             |
| 123-179 | 6705                   | 3.75                                   | -2.00                               | -5.00                              | -8.00                              | NS                             |
| 187     | 6885                   | 3.75                                   | -2.00                               | -5.00                              | -8.00                              | NS                             |
| 195-219 | 6985                   | 5.25                                   | -0.50                               | -3.50                              | -6.50                              | 2.25                           |
| 227     | 7085                   | 5.25                                   | -0.50                               | -3.50                              | -6.50                              | 2.25                           |



### **6 GHz WLAN - 80 MHz - SISO Core 0 & Core 1**

| Channel | Centre Frequency (MHz) | 11ax HE80 (SISO) Low Rate | 11ax HE80 RU106 (SISO) | 11ax HE80 RU52 (SISO) | 11ax HE80 RU26 (SISO) |
|---------|------------------------|---------------------------|------------------------|-----------------------|-----------------------|
| 7       | 5985                   | 8.75                      | 0.25                   | -3.00                 | -6.00                 |
| 23      | 6065                   | 8.75                      | 0.25                   | -3.00                 | -6.00                 |
| 39-55   | 6185                   | 10.00                     | 1.50                   | -1.50                 | -4.50                 |
| 71      | 6305                   | 9.25                      | 0.75                   | -2.50                 | -5.50                 |
| 87      | 6385                   | 9.25                      | 0.75                   | -2.50                 | -5.50                 |
| 103     | 6465                   | 9.50                      | 1.00                   | -2.00                 | -5.00                 |
| 119     | 6545                   | 9.25                      | 0.75                   | -2.50                 | -5.50                 |
| 135-167 | 6705                   | 9.25                      | 0.75                   | -2.50                 | -5.50                 |
| 183     | 6865                   | 9.25                      | 0.75                   | -2.50                 | -5.50                 |
| 199     | 6945                   | 10.00                     | 1.50                   | -1.50                 | -4.50                 |
| 215     | 7025                   | 10.00                     | 1.50                   | -1.50                 | -4.50                 |

### **6 GHz WLAN - 80 MHz - MIMO Core 0 & Core 1 CDD**

| Channel | Centre Frequency (MHz) | 11ax HE80 (2Tx, CDD, non TxBF) Low Rate | 11ax HE160 RU106 (2Tx, CDD, nonTxBF) | 11ax HE160 RU52 (2Tx, CDD, nonTxBF) | 11ax HE160 RU26 (2Tx, CDD, nonTxBF) |
|---------|------------------------|-----------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|
| 7       | 5985                   | 3.25                                    | -5.50                                | -8.50                               | NS                                  |
| 23      | 6065                   | 3.25                                    | -5.50                                | -8.50                               | NS                                  |
| 39-55   | 6185                   | 4.50                                    | -4.00                                | -7.00                               | NS                                  |
| 71      | 6305                   | 4.50                                    | -4.00                                | -7.00                               | NS                                  |
| 87      | 6385                   | 4.50                                    | -4.00                                | -7.00                               | NS                                  |
| 103     | 6465                   | 4.50                                    | -4.00                                | -7.00                               | NS                                  |
| 119     | 6545                   | 3.75                                    | -5.00                                | -8.00                               | NS                                  |
| 135-167 | 6705                   | 3.75                                    | -5.00                                | -8.00                               | NS                                  |
| 183     | 6865                   | 3.75                                    | -5.00                                | -8.00                               | NS                                  |
| 199     | 6945                   | 5.25                                    | -3.50                                | -6.50                               | NS                                  |
| 215     | 7025                   | 5.25                                    | -3.50                                | -6.50                               | NS                                  |



### **6 GHz WLAN - 80 MHz - MIMO Core 0 & Core 1 SDM**

| Channel | Centre Frequency (MHz) | 11ax HE80 (2Tx, SDM, nonTxBF) Low Rate | 11ax HE80 RU106 (2Tx, SDM, nonTxBF) | 11ax HE80 RU52 (2Tx, SDM, nonTxBF) | 11ax HE80 RU26 (2Tx, SDM, nonTxBF) | 11ax HE80 (2Tx, TxBF) Low Rate |
|---------|------------------------|----------------------------------------|-------------------------------------|------------------------------------|------------------------------------|--------------------------------|
| 7       | 5985                   | 6.25                                   | -2.50                               | -5.50                              | -8.50                              | 3.25                           |
| 23      | 6065                   | 6.25                                   | -2.50                               | -5.50                              | -8.50                              | 3.25                           |
| 39-55   | 6185                   | 7.50                                   | -1.00                               | -4.00                              | -7.00                              | 4.50                           |
| 71      | 6305                   | 7.25                                   | -1.50                               | -4.50                              | -7.50                              | 4.50                           |
| 87      | 6385                   | 7.25                                   | -1.50                               | -4.50                              | -7.50                              | 4.50                           |
| 103     | 6465                   | 7.50                                   | -1.00                               | -4.00                              | -7.00                              | 4.50                           |
| 119     | 6545                   | 6.75                                   | -2.00                               | -5.00                              | -8.00                              | 3.75                           |
| 135-167 | 6705                   | 6.75                                   | -2.00                               | -5.00                              | -8.00                              | 3.75                           |
| 183     | 6865                   | 6.75                                   | -2.00                               | -5.00                              | -8.00                              | 3.75                           |
| 199     | 6945                   | 8.25                                   | -0.50                               | -3.50                              | -6.50                              | 5.25                           |
| 215     | 7025                   | 8.25                                   | -0.50                               | -3.50                              | -6.50                              | 5.25                           |

### **6 GHz WLAN - 160 MHz - SISO Core 0**

| Channel | Centre Frequency (MHz) | 11ax HE160 (SISO) Low Rate | 11ax HE160 RU106 (SISO) | 11ax HE160 RU52 (SISO) | 11ax HE160 RU26 (SISO) |
|---------|------------------------|----------------------------|-------------------------|------------------------|------------------------|
| 15      | 6025                   | 11.50                      | 0.25                    | -3.00                  | -6.00                  |
| 47      | 6185                   | 12.50                      | 1.50                    | -1.50                  | -4.50                  |
| 79      | 6345                   | 12.25                      | 0.75                    | -2.50                  | -5.50                  |
| 111     | 6505                   | 10.25                      | 0.75                    | -2.50                  | -5.50                  |
| 143     | 6665                   | 10.25                      | 0.75                    | -2.50                  | -5.50                  |
| 175     | 6825                   | 10.25                      | 0.75                    | -2.50                  | -5.50                  |
| 207     | 6985                   | 12.00                      | 1.50                    | -1.50                  | -4.50                  |

### **6 GHz WLAN - 160 MHz - SISO Core 1**

| Channel | Centre Frequency (MHz) | 11ax HE160 (SISO) Low Rate | 11ax HE160 RU106 (SISO) | 11ax HE160 RU52 (SISO) | 11ax HE160 RU26 (SISO) |
|---------|------------------------|----------------------------|-------------------------|------------------------|------------------------|
| 15      | 6025                   | 11.25                      | 0.25                    | -3.00                  | -6.00                  |
| 47      | 6185                   | 12.00                      | 1.50                    | -1.50                  | -4.50                  |
| 79      | 6345                   | 12.00                      | 0.75                    | -2.50                  | -5.50                  |
| 111     | 6505                   | 10.75                      | 0.75                    | -2.50                  | -5.50                  |
| 143     | 6665                   | 10.75                      | 0.75                    | -2.50                  | -5.50                  |
| 175     | 6825                   | 10.75                      | 0.75                    | -2.50                  | -5.50                  |
| 207     | 6985                   | 13.00                      | 1.50                    | -1.50                  | -4.50                  |



### **6 GHz WLAN - 160 MHz - MIMO Core 0 & Core 1 CDD**

| Channel | Centre Frequency (MHz) | 11ax HE160 (2Tx, CDD, nonTxBF)<br>Low Rate | 11ax HE160 RU106 (2Tx, CDD, nonTxBF) | 11ax HE160 RU52 (2Tx, CDD, nonTxBF) | 11ax HE160 RU26 (2Tx, CDD, nonTxBF) |
|---------|------------------------|--------------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|
| 15      | 6025                   | 6.25                                       | -5.50                                | -8.50                               | NS                                  |
| 47      | 6185                   | 7.50                                       | -4.00                                | -7.00                               | NS                                  |
| 79      | 6345                   | 7.50                                       | -4.00                                | -7.00                               | NS                                  |
| 111     | 6505                   | 6.75                                       | -5.00                                | -8.00                               | NS                                  |
| 143     | 6665                   | 6.75                                       | -5.00                                | -8.00                               | NS                                  |
| 175     | 6825                   | 6.75                                       | -5.00                                | -8.00                               | NS                                  |
| 207     | 6985                   | 8.25                                       | -3.50                                | -6.50                               | NS                                  |

### **6 GHz WLAN - 160 MHz - MIMO Core 0 & Core 1 SDM**

| Channel | Centre Frequency (MHz) | 11ax HE160 (2Tx, SDM, nonTxBF)<br>Low Rate | 11ax HE160 RU106 (2Tx, SDM, nonTxBF) | 11ax HE160 RU52 (2Tx, SDM, nonTxBF) | 11ax HE160 RU26 (2Tx, SDM, nonTxBF) |
|---------|------------------------|--------------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|
| 15      | 6025                   | 9.25                                       | -2.50                                | -5.50                               | -8.50                               |
| 47      | 6185                   | 10.50                                      | -1.00                                | -4.00                               | -7.00                               |
| 79      | 6345                   | 10.25                                      | -1.50                                | -4.50                               | -7.50                               |
| 111     | 6505                   | 9.75                                       | -2.00                                | -5.00                               | -8.00                               |
| 143     | 6665                   | 9.75                                       | -2.00                                | -5.00                               | -8.00                               |
| 175     | 6825                   | 9.75                                       | -2.00                                | -5.00                               | -8.00                               |
| 207     | 6985                   | 11.25                                      | -0.50                                | -3.50                               | -6.50                               |



### **6 GHz WLAN - 20 MHz - SISO Core 0 - SP**

| Channel | Centre Frequency (MHz) | a (SISO) Low Rate | 11ax HE20 (SISO) Low Rate | 11ax HE20 RU106 (SISO) | 11ax HE20 RU52 (SISO) | 11ax HE20 RU26 (SISO) |
|---------|------------------------|-------------------|---------------------------|------------------------|-----------------------|-----------------------|
| 2       | 5935                   | NS                | NS                        | NS                     | NS                    | NS                    |
| 1       | 5955                   | 11.50             | 11.50                     | 11.50                  | 11.50                 | 11.50                 |
| 5       | 5975                   | 11.50             | 11.50                     | 11.50                  | 11.50                 | 11.50                 |
| 9-29    | 5945                   | 11.50             | 11.50                     | 11.50                  | 11.50                 | 11.50                 |
| 33-61   | 6185                   | 11.50             | 11.50                     | 11.50                  | 11.50                 | 11.50                 |
| 65-85   | 6325                   | 12.50             | 12.50                     | 12.50                  | 12.50                 | 12.50                 |
| 89      | 6395                   | 12.50             | 12.50                     | 12.50                  | 12.50                 | 12.25                 |
| 93      | 6415                   | 12.50             | 12.50                     | 12.50                  | 12.50                 | 12.25                 |
| 97-113  | 6475                   | 12.50             | 12.50                     | 12.50                  | 12.50                 | 12.25                 |
| 117-181 | 6695                   | NS                | NS                        | NS                     | NS                    | NS                    |
| 185     | 6875                   | 10.25             | 10.25                     | 10.25                  | 10.25                 | 10.25                 |
| 189-225 | 6985                   | NS                | NS                        | NS                     | NS                    | NS                    |
| 229     | 7095                   | NS                | NS                        | NS                     | NS                    | NS                    |
| 233     | 7115                   | NS                | NS                        | NS                     | NS                    | NS                    |

### **6 GHz WLAN - 20 MHz - SISO Core 1 - SP**

| Channel | Centre Frequency (MHz) | a (SISO) Low Rate | 11ax HE20 (SISO) Low Rate | 11ax HE20 RU106 (SISO) | 11ax HE20 RU52 (SISO) | 11ax HE20 RU26 (SISO) |
|---------|------------------------|-------------------|---------------------------|------------------------|-----------------------|-----------------------|
| 2       | 5935                   | NS                | NS                        | NS                     | NS                    | NS                    |
| 1       | 5955                   | 11.25             | 11.25                     | 11.25                  | 11.25                 | 11.25                 |
| 5       | 5975                   | 11.25             | 11.25                     | 11.25                  | 11.25                 | 11.25                 |
| 9-29    | 5945                   | 11.25             | 11.25                     | 11.25                  | 11.25                 | 11.25                 |
| 33-61   | 6185                   | 11.25             | 11.25                     | 11.25                  | 11.25                 | 11.25                 |
| 65-85   | 6325                   | 12.00             | 12.00                     | 12.00                  | 12.00                 | 12.00                 |
| 89      | 6395                   | 12.00             | 12.00                     | 12.00                  | 12.00                 | 12.00                 |
| 93      | 6415                   | 12.00             | 12.00                     | 12.00                  | 12.00                 | 12.00                 |
| 97-113  | 6475                   | 12.00             | 12.00                     | 12.00                  | 12.00                 | 12.00                 |
| 117-181 | 6695                   | NS                | NS                        | NS                     | NS                    | NS                    |
| 185     | 6875                   | 10.75             | 10.75                     | 10.75                  | 10.75                 | 10.75                 |
| 189-225 | 6985                   | NS                | NS                        | NS                     | NS                    | NS                    |
| 229     | 7095                   | NS                | NS                        | NS                     | NS                    | NS                    |
| 233     | 7115                   | NS                | NS                        | NS                     | NS                    | NS                    |



### **6 GHz WLAN - 20 MHz - MIMO Core 0 & Core 1 CDD - SP**

| Channel | Centre Frequency (MHz) | 11ax HE20 (2Tx, CDD, nonTxBF) Low Rate | 11ax HE20 RU106 (2Tx, CDD, nonTxBF) | 11ax HE20 RU52 (2Tx, CDD, nonTxBF) | 11ax HE20 RU26 (2Tx, CDD, nonTxBF) |
|---------|------------------------|----------------------------------------|-------------------------------------|------------------------------------|------------------------------------|
| 2       | 5935                   | NS                                     | NS                                  | NS                                 | NS                                 |
| 1       | 5955                   | 11.25                                  | 11.25                               | 9.25                               | 6.25                               |
| 5       | 5975                   | 11.25                                  | 11.25                               | 9.25                               | 6.25                               |
| 9-29    | 5945                   | 11.25                                  | 11.25                               | 9.25                               | 6.25                               |
| 33-61   | 6185                   | 11.25                                  | 11.25                               | 10.50                              | 7.50                               |
| 65-85   | 6325                   | 12.00                                  | 12.00                               | 10.50                              | 7.50                               |
| 89      | 6395                   | 12.00                                  | 12.00                               | 10.50                              | 7.50                               |
| 93      | 6415                   | 12.00                                  | 12.00                               | 10.50                              | 7.50                               |
| 97-113  | 6475                   | 12.00                                  | 12.00                               | 10.50                              | 7.50                               |
| 117-181 | 6695                   | NS                                     | NS                                  | NS                                 | NS                                 |
| 185     | 6875                   | 10.25                                  | 10.25                               | 9.75                               | 6.75                               |
| 189-225 | 6985                   | NS                                     | NS                                  | NS                                 | NS                                 |
| 229     | 7095                   | NS                                     | NS                                  | NS                                 | NS                                 |
| 233     | 7115                   | NS                                     | NS                                  | NS                                 | NS                                 |

### **6 GHz WLAN - 20 MHz - MIMO Core 0 & Core 1 SDM - SP**

| Channel | Centre Frequency (MHz) | 11ax HE20 (2Tx, CDD, nonTxBF) Low Rate | 11ax HE20 RU106 (2Tx, CDD, nonTxBF) | 11ax HE20 RU52 (2Tx, CDD, nonTxBF) | 11ax HE20 RU26 (2Tx, CDD, nonTxBF) | 11ax HE20 (2Tx, TxBF) Low Rate |
|---------|------------------------|----------------------------------------|-------------------------------------|------------------------------------|------------------------------------|--------------------------------|
| 2       | 5935                   | NS                                     | NS                                  | NS                                 | NS                                 | NS                             |
| 1       | 5955                   | 11.25                                  | 11.25                               | 11.25                              | 9.25                               | 11.25                          |
| 5       | 5975                   | 11.25                                  | 11.25                               | 11.25                              | 9.25                               | 11.25                          |
| 9-29    | 5945                   | 11.25                                  | 11.25                               | 11.25                              | 9.25                               | 11.25                          |
| 33-61   | 6185                   | 11.25                                  | 11.25                               | 11.25                              | 10.50                              | 11.25                          |
| 65-85   | 6325                   | 12.00                                  | 12.00                               | 12.00                              | 10.50                              | 12.00                          |
| 89      | 6395                   | 12.00                                  | 12.00                               | 12.00                              | 10.25                              | 12.00                          |
| 93      | 6415                   | 12.00                                  | 12.00                               | 12.00                              | 10.25                              | 12.00                          |
| 97-113  | 6475                   | 12.00                                  | 12.00                               | 12.00                              | 10.25                              | 12.00                          |
| 117-181 | 6695                   | NS                                     | NS                                  | NS                                 | NS                                 | NS                             |
| 185     | 6875                   | 10.25                                  | 10.25                               | 10.25                              | 9.75                               | 10.25                          |
| 189-225 | 6985                   | NS                                     | NS                                  | NS                                 | NS                                 | NS                             |
| 229     | 7095                   | NS                                     | NS                                  | NS                                 | NS                                 | NS                             |
| 233     | 7115                   | NS                                     | NS                                  | NS                                 | NS                                 | NS                             |

**6 GHz WLAN - 40 MHz - SISO Core 0 - SP**

| Channel | Centre Frequency (MHz) | 11ax HE40 (SISO) Low Rate | 11ax HE40 RU106 (SISO) | 11ax HE40 RU52 (SISO) | 11ax HE40 RU26 (SISO) |
|---------|------------------------|---------------------------|------------------------|-----------------------|-----------------------|
| 3       | 5965                   | 11.50                     | 11.50                  | 11.50                 | 10.50                 |
| 11      | 6005                   | 11.50                     | 11.50                  | 11.50                 | 10.50                 |
| 19-27   | 6065                   | 11.50                     | 11.50                  | 11.50                 | 10.50                 |
| 35-59   | 6185                   | 11.50                     | 11.50                  | 11.50                 | 10.50                 |
| 67-75   | 6305                   | 12.50                     | 12.50                  | 12.50                 | 10.50                 |
| 83      | 6365                   | 12.50                     | 12.50                  | 12.50                 | 10.50                 |
| 91      | 6405                   | 12.50                     | 12.50                  | 12.50                 | 10.50                 |
| 99-107  | 6465                   | 12.50                     | 12.50                  | 12.50                 | 10.50                 |
| 115     | 6525                   | NS                        | NS                     | NS                    | NS                    |
| 123-179 | 6705                   | NS                        | NS                     | NS                    | NS                    |
| 187     | 6885                   | 10.25                     | 10.25                  | 10.25                 | 10.25                 |
| 195-219 | 6985                   | NS                        | NS                     | NS                    | NS                    |
| 227     | 7085                   | NS                        | NS                     | NS                    | NS                    |

**6 GHz WLAN - 40 MHz - SISO Core 1 - SP**

| Channel | Centre Frequency (MHz) | 11ax HE40 (SISO) Low Rate | 11ax HE40 RU106 (SISO) | 11ax HE40 RU52 (SISO) | 11ax HE40 RU26 (SISO) |
|---------|------------------------|---------------------------|------------------------|-----------------------|-----------------------|
| 3       | 5965                   | 11.25                     | 11.25                  | 11.25                 | 10.50                 |
| 11      | 6005                   | 11.25                     | 11.25                  | 11.25                 | 10.50                 |
| 19-27   | 6065                   | 11.25                     | 11.25                  | 11.25                 | 10.50                 |
| 35-59   | 6185                   | 11.25                     | 11.25                  | 11.25                 | 10.50                 |
| 67-75   | 6305                   | 12.00                     | 12.00                  | 12.00                 | 10.50                 |
| 83      | 6365                   | 12.00                     | 12.00                  | 12.00                 | 10.50                 |
| 91      | 6405                   | 12.00                     | 12.00                  | 12.00                 | 10.50                 |
| 99-107  | 6465                   | 12.00                     | 12.00                  | 12.00                 | 10.50                 |
| 115     | 6525                   | NS                        | NS                     | NS                    | NS                    |
| 123-179 | 6705                   | NS                        | NS                     | NS                    | NS                    |
| 187     | 6885                   | 10.75                     | 10.75                  | 10.75                 | 10.50                 |
| 195-219 | 6985                   | NS                        | NS                     | NS                    | NS                    |
| 227     | 7085                   | NS                        | NS                     | NS                    | NS                    |


**6 GHz WLAN - 40 MHz - MIMO Core 0 & Core 1 CDD - SP**

| Channel | Centre Frequency (MHz) | 11ax HE40 (2Tx, CDD, nonTxBF) Low Rate | 11ax HE40 RU106 (2Tx, CDD, nonTxBF) | 11ax HE40 RU52 (2Tx, CDD, nonTxBF) | 11ax HE40 RU26 (2Tx, CDD, nonTxBF) |
|---------|------------------------|----------------------------------------|-------------------------------------|------------------------------------|------------------------------------|
| 3       | 5965                   | 11.25                                  | 11.25                               | 9.25                               | 6.25                               |
| 11      | 6005                   | 11.25                                  | 11.25                               | 9.25                               | 6.25                               |
| 19-27   | 6065                   | 11.25                                  | 11.25                               | 9.25                               | 6.25                               |
| 35-59   | 6185                   | 11.25                                  | 11.25                               | 10.50                              | 7.50                               |
| 67-75   | 6305                   | 12.00                                  | 12.00                               | 10.50                              | 7.50                               |
| 83      | 6365                   | 12.00                                  | 12.00                               | 10.50                              | 7.50                               |
| 91      | 6405                   | 12.00                                  | 12.00                               | 10.50                              | 7.50                               |
| 99-107  | 6465                   | 12.00                                  | 12.00                               | 10.50                              | 7.50                               |
| 115     | 6525                   | NS                                     | NS                                  | NS                                 | NS                                 |
| 123-179 | 6705                   | NS                                     | NS                                  | NS                                 | NS                                 |
| 187     | 6885                   | 10.25                                  | 10.25                               | 9.75                               | 6.75                               |
| 195-219 | 6985                   | NS                                     | NS                                  | NS                                 | NS                                 |
| 227     | 7085                   | NS                                     | NS                                  | NS                                 | NS                                 |

**6 GHz WLAN - 40 MHz - MIMO Core 0 & Core 1 SDM - SP**

| Channel | Centre Frequency (MHz) | 11ax HE40 (2Tx, SDM, nonTxBF) Low Rate | 11ax HE40 RU106 (2Tx, SDM, nonTxBF) | 11ax HE40 RU52 (2Tx, SDM, nonTxBF) | 11ax HE40 RU26 (2Tx, SDM, nonTxBF) | 11ax HE40 (2Tx, TxBF) Low Rate |
|---------|------------------------|----------------------------------------|-------------------------------------|------------------------------------|------------------------------------|--------------------------------|
| 3       | 5965                   | 11.25                                  | 11.25                               | 11.25                              | 9.25                               | 11.25                          |
| 11      | 6005                   | 11.25                                  | 11.25                               | 11.25                              | 9.25                               | 11.25                          |
| 19-27   | 6065                   | 11.25                                  | 11.25                               | 11.25                              | 9.25                               | 11.25                          |
| 35-59   | 6185                   | 11.25                                  | 11.25                               | 11.25                              | 10.50                              | 11.25                          |
| 67-75   | 6305                   | 12.00                                  | 12.00                               | 12.00                              | 10.50                              | 12.00                          |
| 83      | 6365                   | 12.00                                  | 12.00                               | 12.00                              | 10.25                              | 12.00                          |
| 91      | 6405                   | 12.00                                  | 12.00                               | 12.00                              | 10.25                              | 12.00                          |
| 99-107  | 6465                   | 12.00                                  | 12.00                               | 12.00                              | 10.25                              | 12.00                          |
| 115     | 6525                   | NS                                     | NS                                  | NS                                 | NS                                 | NS                             |
| 123-179 | 6705                   | NS                                     | NS                                  | NS                                 | NS                                 | NS                             |
| 187     | 6885                   | 10.25                                  | 10.25                               | 10.25                              | 9.75                               | 10.25                          |
| 195-219 | 6985                   | NS                                     | NS                                  | NS                                 | NS                                 | NS                             |
| 227     | 7085                   | NS                                     | NS                                  | NS                                 | NS                                 | NS                             |

**6 GHz WLAN - 80 MHz - SISO Core 0 - SP**

| Channel | Centre Frequency (MHz) | 11ax HE80 (SISO) Low Rate | 11ax HE80 RU106 (SISO) | 11ax HE80 RU52 (SISO) | 11ax HE80 RU26 (SISO) |
|---------|------------------------|---------------------------|------------------------|-----------------------|-----------------------|
| 7       | 5985                   | 11.50                     | 11.50                  | 10.50                 | 7.50                  |
| 23      | 6065                   | 11.50                     | 11.50                  | 10.50                 | 7.50                  |
| 39-55   | 6185                   | 11.50                     | 11.50                  | 10.50                 | 7.50                  |
| 71      | 6305                   | 12.50                     | 12.50                  | 10.50                 | 7.50                  |
| 87      | 6385                   | 12.50                     | 12.50                  | 10.50                 | 7.50                  |
| 103     | 6465                   | 12.50                     | 12.50                  | 10.50                 | 7.50                  |
| 119     | 6545                   | NS                        | NS                     | NS                    | NS                    |
| 135-167 | 6705                   | NS                        | NS                     | NS                    | NS                    |
| 183     | 6865                   | 10.25                     | 10.25                  | 10.25                 | 7.50                  |
| 199     | 6945                   | NS                        | NS                     | NS                    | NS                    |
| 215     | 7025                   | NS                        | NS                     | NS                    | NS                    |

**6 GHz WLAN - 80 MHz - SISO Core 1 - SP**

| Channel | Centre Frequency (MHz) | 11ax HE80 (SISO) Low Rate | 11ax HE80 RU106 (SISO) | 11ax HE80 RU52 (SISO) | 11ax HE80 RU26 (SISO) |
|---------|------------------------|---------------------------|------------------------|-----------------------|-----------------------|
| 7       | 5985                   | 11.25                     | 11.25                  | 10.50                 | 7.50                  |
| 23      | 6065                   | 11.25                     | 11.25                  | 10.50                 | 7.50                  |
| 39-55   | 6185                   | 11.25                     | 11.25                  | 10.50                 | 7.50                  |
| 71      | 6305                   | 12.00                     | 12.00                  | 10.50                 | 7.50                  |
| 87      | 6385                   | 12.00                     | 12.00                  | 10.50                 | 7.50                  |
| 103     | 6465                   | 12.00                     | 12.00                  | 10.50                 | 7.50                  |
| 119     | 6545                   | NS                        | NS                     | NS                    | NS                    |
| 135-167 | 6705                   | NS                        | NS                     | NS                    | NS                    |
| 183     | 6865                   | 10.75                     | 10.75                  | 10.50                 | 7.50                  |
| 199     | 6945                   | NS                        | NS                     | NS                    | NS                    |
| 215     | 7025                   | NS                        | NS                     | NS                    | NS                    |



### **6 GHz WLAN - 80 MHz - MIMO Core 0 & Core 1 CDD - SP**

| Channel | Centre Frequency (MHz) | 11ax HE80 (2Tx, CDD, nonTxBF) Low Rate | 11ax HE80 RU106 (2Tx, CDD, nonTxBF) | 11ax HE80 RU52 (2Tx, CDD, nonTxBF) | 11ax HE80 RU26 (2Tx, CDD, nonTxBF) |
|---------|------------------------|----------------------------------------|-------------------------------------|------------------------------------|------------------------------------|
| 7       | 5985                   | 11.25                                  | 11.25                               | 9.25                               | 6.25                               |
| 23      | 6065                   | 11.25                                  | 11.25                               | 9.25                               | 6.25                               |
| 39-55   | 6185                   | 11.25                                  | 11.25                               | 10.50                              | 7.50                               |
| 71      | 6305                   | 12.00                                  | 12.00                               | 10.50                              | 7.50                               |
| 87      | 6385                   | 12.00                                  | 12.00                               | 10.50                              | 7.50                               |
| 103     | 6465                   | 12.00                                  | 12.00                               | 10.50                              | 7.50                               |
| 119     | 6545                   | NS                                     | NS                                  | NS                                 | NS                                 |
| 135-167 | 6705                   | NS                                     | NS                                  | NS                                 | NS                                 |
| 183     | 6865                   | 10.25                                  | 10.25                               | 9.75                               | 6.75                               |
| 199     | 6945                   | NS                                     | NS                                  | NS                                 | NS                                 |
| 215     | 7025                   | NS                                     | NS                                  | NS                                 | NS                                 |

### **6 GHz WLAN - 80 MHz - MIMO Core 0 & Core 1 SDM - SP**

| Channel | Centre Frequency (MHz) | 11ax HE80 (2Tx, SDM, nonTxBF) Low Rate | 11ax HE80 RU106 (2Tx, SDM, nonTxBF) | 11ax HE80 RU52 (2Tx, SDM, nonTxBF) | 11ax HE80 RU26 (2Tx, SDM, nonTxBF) | 11ax HE80 (2Tx, TxBF) Low Rate |
|---------|------------------------|----------------------------------------|-------------------------------------|------------------------------------|------------------------------------|--------------------------------|
| 7       | 5985                   | 11.25                                  | 11.25                               | 10.50                              | 7.50                               | 11.25                          |
| 23      | 6065                   | 11.25                                  | 11.25                               | 10.50                              | 7.50                               | 11.25                          |
| 39-55   | 6185                   | 11.25                                  | 11.25                               | 10.50                              | 7.50                               | 11.25                          |
| 71      | 6305                   | 12.00                                  | 12.00                               | 10.50                              | 7.50                               | 12.00                          |
| 87      | 6385                   | 12.00                                  | 12.00                               | 10.50                              | 7.50                               | 12.00                          |
| 103     | 6465                   | 12.00                                  | 12.00                               | 10.50                              | 7.50                               | 12.00                          |
| 119     | 6545                   | NS                                     | NS                                  | NS                                 | NS                                 | NS                             |
| 135-167 | 6705                   | NS                                     | NS                                  | NS                                 | NS                                 | NS                             |
| 183     | 6865                   | 10.25                                  | 13.50                               | 10.25                              | 7.50                               | 10.25                          |
| 199     | 6945                   | NS                                     | NS                                  | NS                                 | NS                                 | NS                             |
| 215     | 7025                   | NS                                     | NS                                  | NS                                 | NS                                 | NS                             |


**6 GHz WLAN - 160 MHz - SISO Core 0 - SP**

| Channel | Centre Frequency (MHz) | 11ax HE160 (SISO) Low Rate | 11ax HE160 RU106 (SISO) | 11ax HE160 RU52 (SISO) | 11ax HE160 RU26 (SISO) |
|---------|------------------------|----------------------------|-------------------------|------------------------|------------------------|
| 15      | 6025                   | 11.50                      | 10.50                   | 7.50                   | 4.50                   |
| 47      | 6185                   | 12.50                      | 10.50                   | 7.50                   | 4.50                   |
| 79      | 6345                   | 12.50                      | 10.50                   | 7.50                   | 4.50                   |
| 111     | 6505                   | NS                         | NS                      | NS                     | NS                     |
| 143     | 6665                   | 10.25                      | 10.25                   | 7.50                   | 4.50                   |
| 175     | 6825                   | NS                         | NS                      | NS                     | NS                     |
| 207     | 6985                   | NS                         | NS                      | NS                     | NS                     |

**6 GHz WLAN - 160 MHz - SISO Core 1 - SP**

| Channel | Centre Frequency (MHz) | 11ax HE160 (SISO) Low Rate | 11ax HE160 RU106 (SISO) | 11ax HE160 RU52 (SISO) | 11ax HE160 RU26 (SISO) |
|---------|------------------------|----------------------------|-------------------------|------------------------|------------------------|
| 15      | 6025                   | 11.25                      | 10.50                   | 7.50                   | 4.50                   |
| 47      | 6185                   | 12.00                      | 10.50                   | 7.50                   | 4.50                   |
| 79      | 6345                   | 12.00                      | 10.50                   | 7.50                   | 4.50                   |
| 111     | 6505                   | NS                         | NS                      | NS                     | NS                     |
| 143     | 6665                   | 10.75                      | 10.50                   | 7.50                   | 4.50                   |
| 175     | 6825                   | NS                         | NS                      | NS                     | NS                     |
| 207     | 6985                   | NS                         | NS                      | NS                     | NS                     |

**6 GHz WLAN - 160 MHz - MIMO Core 0 & Core 1 CDD - SP**

| Channel | Centre Frequency (MHz) | 11ax HE160 (2Tx, CDD, nonTxBF) Low Rate | 11ax HE160 RU106 (2Tx, CDD, nonTxBF) | 11ax HE160 RU52 (2Tx, CDD, nonTxBF) | 11ax HE160 RU26 (2Tx, CDD, nonTxBF) |
|---------|------------------------|-----------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|
| 15      | 6025                   | 11.25                                   | 10.50                                | 7.50                                | 4.50                                |
| 47      | 6185                   | 12.00                                   | 10.50                                | 7.50                                | 4.50                                |
| 79      | 6345                   | 12.00                                   | 10.50                                | 7.50                                | 4.50                                |
| 111     | 6505                   | NS                                      | NS                                   | NS                                  | NS                                  |
| 143     | 6665                   | 10.25                                   | 10.25                                | 7.50                                | 4.50                                |
| 175     | 6825                   | NS                                      | NS                                   | NS                                  | NS                                  |
| 207     | 6985                   | NS                                      | NS                                   | NS                                  | NS                                  |


**6 GHz WLAN - 160 MHz - MIMO Core 0 & Core 1 SDM - SP**

| Channel | Centre Frequency (MHz) | 11ax HE160 (2Tx, SDM, nonTxBF)<br>Low Rate | 11ax HE160 RU106 (2Tx, SDM, nonTxBF) | 11ax HE160 RU52 (2Tx, SDM, nonTxBF) | 11ax HE160 RU26 (2Tx, SDM, nonTxBF) |
|---------|------------------------|--------------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|
| 15      | 6025                   | 11.25                                      | 10.50                                | 7.50                                | 4.50                                |
| 47      | 6185                   | 12.00                                      | 10.50                                | 7.50                                | 4.50                                |
| 79      | 6345                   | 12.00                                      | 10.50                                | 7.50                                | 4.50                                |
| 111     | 6505                   | NS                                         | NS                                   | NS                                  | NS                                  |
| 143     | 6665                   | 10.25                                      | 10.25                                | 7.50                                | 4.50                                |
| 175     | 6825                   | NS                                         | NS                                   | NS                                  | NS                                  |
| 207     | 6985                   | NS                                         | NS                                   | NS                                  | NS                                  |



## 1.5 CONDUCTED POWER MEASUREMENTS

### 1.5.1 Method

Conducted power measurements were made using a power meter.

### 1.5.2 Measured Results

#### Bluetooth (When 5.0 GHz WLAN OFF) - EDR

(BT Core 0 - ePA)

| Technology | Channel | Modulation | Duty Cycle (%) | Packet Type | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| EDR        | 0       | 8-DPSK     | 77             | 3-DH5       | 2402            | 14.60                | 16.50         |
| EDR        | 39      | 8-DPSK     | 77             | 3-DH5       | 2441            | 14.62                | 16.50         |
| EDR        | 78      | 8-DPSK     | 77             | 3-DH5       | 2480            | 14.50                | 16.50         |

(BT Core 1 - ePA)

| Technology | Channel | Modulation | Duty Cycle (%) | Packet Type | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| EDR        | 0       | 8-DPSK     | 77             | 3-DH5       | 2402            | 15.10                | 16.50         |
| EDR        | 39      | 8-DPSK     | 77             | 3-DH5       | 2441            | 14.55                | 16.50         |
| EDR        | 78      | 8-DPSK     | 77             | 3-DH5       | 2480            | 14.59                | 16.50         |

#### **BDR**

(BT Core 2 - IPA)

| Technology | Channel | Modulation | Duty Cycle (%) | Packet Type | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| BDR        | 0       | 8-DPSK     | 77             | DH5         | 2402            | 12.70                | 13.00         |
| BDR        | 39      | 8-DPSK     | 77             | DH5         | 2441            | 12.86                | 13.00         |
| BDR        | 78      | 8-DPSK     | 77             | DH5         | 2480            | 12.91                | 13.00         |



### **Bluetooth (When 5.0 GHz WLAN ON) - EDR**

#### **(BT Core 0 - ePA)**

| Technology | Channel | Modulation | Duty Cycle (%) | Packet Type | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| EDR        | 0       | 8-DPSK     | 77             | 3-DH5       | 2402            | 14.60                | 15.50         |
| EDR        | 39      | 8-DPSK     | 77             | 3-DH5       | 2441            | 14.62                | 15.50         |
| EDR        | 78      | 8-DPSK     | 77             | 3-DH5       | 2480            | 14.50                | 15.50         |

#### **(BT Core 1 - ePA)**

| Technology | Channel | Modulation | Duty Cycle (%) | Packet Type | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| EDR        | 0       | 8-DPSK     | 77             | 3-DH5       | 2402            | 15.10                | 15.50         |
| EDR        | 39      | 8-DPSK     | 77             | 3-DH5       | 2441            | 14.55                | 15.50         |
| EDR        | 78      | 8-DPSK     | 77             | 3-DH5       | 2480            | 14.59                | 15.50         |

### **BDR**

#### **(BT Core 2 - IPA)**

| Technology | Channel | Modulation | Duty Cycle (%) | Packet Type | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| BDR        | 0       | 8-DPSK     | 77             | DH5         | 2402            | 12.70                | 13.00         |
| BDR        | 39      | 8-DPSK     | 77             | DH5         | 2441            | 12.86                | 13.00         |
| BDR        | 78      | 8-DPSK     | 77             | DH5         | 2480            | 12.91                | 13.00         |



### **Narrowband UNII-1 - When 2.4 GHz WLAN OFF**

#### **(UNII-1 - Core 0)**

| Technology | Channel | Modulation | Duty Cycle (%) | Packet Type | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| HDR8       | Bottom  | 8-DPSK     | 78             | 8DH5        | 5150            | 12.20                | 12.50         |
| HDR8       | Middle  | 8-DPSK     | 78             | 8DH5        | 5200            | 11.95                | 12.50         |
| HDR8       | Top     | 8-DPSK     | 78             | 8DH5        | 5250            | 12.20                | 12.50         |

#### **(UNII-1 - Core 1)**

| Technology | Channel | Modulation | Duty Cycle (%) | Packet Type | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| HDR8       | Bottom  | 8-DPSK     | 78             | 8DH5        | 5150            | 12.68                | 13.50         |
| HDR8       | Middle  | 8-DPSK     | 78             | 8DH5        | 5200            | 12.98                | 13.50         |
| HDR8       | Top     | 8-DPSK     | 78             | 8DH5        | 5250            | 13.02                | 13.50         |

### **Narrowband UNII-1 - When 2.4 GHz WLAN ON**

#### **(UNII-1 - Core 0)**

| Technology | Channel | Modulation | Duty Cycle (%) | Packet Type | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| HDR8       | Bottom  | 8-DPSK     | 78             | 8DH5        | 5150            | 10.38                | 10.50         |
| HDR8       | Middle  | 8-DPSK     | 78             | 8DH5        | 5200            | 10.22                | 10.50         |
| HDR8       | Top     | 8-DPSK     | 78             | 8DH5        | 5250            | 10.20                | 10.50         |

#### **(UNII-1 - Core 1)**

| Technology | Channel | Modulation | Duty Cycle (%) | Packet Type | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| HDR4       | Bottom  | 8-DPSK     | 78             | 4DH5        | 5150            | 9.52                 | 10.00         |
| HDR4       | Middle  | 8-DPSK     | 78             | 4DH5        | 5200            | 9.30                 | 10.00         |
| HDR4       | Top     | 8-DPSK     | 78             | 4DH5        | 5250            | 9.50                 | 10.00         |



### **Narrowband UNII-3- When 2.4 GHz WLAN OFF**

#### **(UNII-3 - Core 0)**

| Technology | Channel | Modulation | Duty Cycle (%) | Packet Type | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| HDR4       | Bottom  | 8-DPSK     | 78             | 4DH5        | 5725            | 14.55                | 15.00         |
| HDR4       | Middle  | 8-DPSK     | 78             | 4DH5        | 5788            | 14.53                | 15.00         |
| HDR4       | Top     | 8-DPSK     | 78             | 4DH5        | 5850            | 14.51                | 15.00         |

#### **(UNII-3 - Core 1)**

| Technology | Channel | Modulation | Duty Cycle (%) | Packet Type | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| HDR4       | Bottom  | 8-DPSK     | 78             | 4DH5        | 5725            | 14.42                | 14.50         |
| HDR4       | Middle  | 8-DPSK     | 78             | 4DH5        | 5788            | 14.10                | 14.50         |
| HDR4       | Top     | 8-DPSK     | 78             | 4DH5        | 5850            | 14.20                | 14.50         |

### **Narrowband UNII-3- When 2.4 GHz WLAN ON**

#### **(UNII-3 - Core 0)**

| Technology | Channel | Modulation | Duty Cycle (%) | Packet Type | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| HDR8       | Bottom  | 8-DPSK     | 78             | 8DH5        | 5725            | 12.95                | 13.50         |
| HDR8       | Middle  | 8-DPSK     | 78             | 8DH5        | 5788            | 12.92                | 13.50         |
| HDR8       | Top     | 8-DPSK     | 78             | 8DH5        | 5850            | 13.43                | 13.50         |

#### **(UNII-3 - Core 1)**

| Technology | Channel | Modulation | Duty Cycle (%) | Packet Type | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| HDR4       | Bottom  | 8-DPSK     | 78             | 4DH5        | 5725            | 9.35                 | 10.00         |
| HDR4       | Middle  | 8-DPSK     | 78             | 4DH5        | 5788            | 9.65                 | 10.00         |
| HDR4       | Top     | 8-DPSK     | 78             | 4DH5        | 5850            | 9.83                 | 10.00         |



### Thread (When 5.0 GHz WLAN OFF)

#### (Core 0 - ePA)

| Technology | Channel | Modulation | Duty Cycle (%) | Packet Type | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| Thread     | 11      | OQPSK      | 60             | N/A         | 2405            | 19.45                | 20.00         |
| Thread     | 18      | OQPSK      | 60             | N/A         | 2440            | 19.81                | 20.00         |
| Thread     | 26      | OQPSK      | 60             | N/A         | 2480            | 19.25                | 20.00         |

#### (Core 1 - ePA)

| Technology | Channel | Modulation | Duty Cycle (%) | Packet Type | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| Thread     | 11      | OQPSK      | 60             | N/A         | 2405            | 19.66                | 20.00         |
| Thread     | 18      | OQPSK      | 60             | N/A         | 2440            | 19.80                | 20.00         |
| Thread     | 26      | OQPSK      | 60             | N/A         | 2480            | 19.50                | 20.00         |

#### (Core 2 - iPA)

| Technology | Channel | Modulation | Duty Cycle (%) | Packet Type | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| Thread     | 11      | OQPSK      | 60             | N/A         | 2405            | 12.20                | 12.50         |
| Thread     | 18      | OQPSK      | 60             | N/A         | 2440            | 12.25                | 12.50         |
| Thread     | 26      | OQPSK      | 60             | N/A         | 2480            | 12.25                | 12.50         |



### Thread (When 5.0 GHz WLAN ON)

#### (Core 0 - ePA)

| Technology | Channel | Modulation | Duty Cycle (%) | Packet Type | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| Thread     | 11      | OQPSK      | 60             | N/A         | 2405            | 14.88                | 15.50         |
| Thread     | 18      | OQPSK      | 60             | N/A         | 2440            | 14.55                | 15.50         |
| Thread     | 26      | OQPSK      | 60             | N/A         | 2480            | 14.63                | 15.50         |

#### (Core 1 - ePA)

| Technology | Channel | Modulation | Duty Cycle (%) | Packet Type | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| Thread     | 11      | OQPSK      | 60             | N/A         | 2405            | 14.91                | 15.50         |
| Thread     | 18      | OQPSK      | 60             | N/A         | 2440            | 14.62                | 15.50         |
| Thread     | 26      | OQPSK      | 60             | N/A         | 2480            | 15.38                | 15.50         |

#### (Core 2 - iPA)

| Technology | Channel | Modulation | Duty Cycle (%) | Packet Type | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| Thread     | 11      | OQPSK      | 60             | N/A         | 2405            | 12.20                | 12.50         |
| Thread     | 18      | OQPSK      | 60             | N/A         | 2440            | 12.25                | 12.50         |
| Thread     | 26      | OQPSK      | 60             | N/A         | 2480            | 12.25                | 12.50         |

**WLAN 2.4 GHz - SISO****(Core 0)**

| Technology | Channel | Modulation | Duty Cycle (%) | Rate (Mbps) | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| 802.11g    | 2       | BPSK       | 100            | 6.0         | 2417            | 18.69                | 19.25         |
| 802.11g    | 6       | BPSK       | 100            | 6.0         | 2437            | 19.00                | 19.25         |
| 802.11g    | 10      | BPSK       | 100            | 6.0         | 2457            | 18.76                | 19.25         |

**(Core 1)**

| Technology | Channel | Modulation | Duty Cycle (%) | Rate (Mbps) | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| 802.11g    | 2       | BPSK       | 100            | 6.0         | 2417            | 18.92                | 19.25         |
| 802.11g    | 6       | BPSK       | 100            | 6.0         | 2437            | 18.90                | 19.25         |
| 802.11g    | 10      | BPSK       | 100            | 6.0         | 2457            | 18.88                | 19.25         |

**WLAN 2.4 GHz - 2x2 MIMO****(Core 0)**

| Technology                       | Channel | Modulation | Duty Cycle (%) | Rate (Mbps) | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|----------------------------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| 11n HT20 (2Tx, nonTXBF) (Core 0) | 2       | BPSK       | 100            | 6.5         | 2417            | 18.51                | 19.25         |
| 11n HT20 (2Tx, nonTXBF) (Core 1) | 2       | BPSK       | 100            | 6.5         | 2417            | 18.50                | 19.25         |
| 11n HT20 (2Tx, nonTXBF) (Core 0) | 6       | BPSK       | 100            | 6.5         | 2437            | 18.76                | 19.25         |
| 11n HT20 (2Tx, nonTXBF) (Core 1) | 6       | BPSK       | 100            | 6.5         | 2437            | 18.58                | 19.25         |
| 11n HT20 (2Tx, nonTXBF) (Core 0) | 10      | BPSK       | 100            | 6.5         | 2457            | 18.38                | 19.25         |
| 11n HT20 (2Tx, nonTXBF) (Core 1) | 10      | BPSK       | 100            | 6.5         | 2457            | 18.28                | 19.25         |

**WLAN U-NII 1/2A – 5.2/3 GHz SISO****(Core 0)**

| Technology      | Channel | Modulation | Duty Cycle (%) | Rate (Mbps) | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|-----------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| 802.11ac VHT80  | 42      | BPSK       | 100            | 29.3        | 5210            | 13.05                | 13.75         |
| 802.11ac VHT160 | 50      | BPSK       | 100            | 58.5        | 5250            | 11.78                | 12.50         |
| 802.11ac VHT80  | 58      | BPSK       | 100            | 29.3        | 5290            | 12.02                | 12.50         |

**(Core 1)**

| Technology      | Channel | Modulation | Duty Cycle (%) | Rate (Mbps) | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|-----------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| 802.11ac VHT80  | 42      | BPSK       | 100            | 29.3        | 5210            | 13.07                | 13.50         |
| 802.11ac VHT160 | 50      | BPSK       | 100            | 58.5        | 5250            | 12.33                | 13.00         |
| 802.11ac VHT80  | 58      | BPSK       | 100            | 29.3        | 5290            | 12.65                | 13.00         |

**MIMO**

| Technology                                       | Channel | Modulation | Duty Cycle (%) | Rate (Mbps) | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|--------------------------------------------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| 11ac VHT80 (2Tx, SDM, nonTxBF) Low Rate (Core 0) | 42      | BPSK       | 100            | 29.3        | 5210            | 12.92                | 13.50         |
| 11ac VHT80 (2Tx, SDM, nonTxBF) Low Rate (Core 1) | 42      | BPSK       | 100            | 29.3        | 5210            | 13.08                | 13.50         |
| 11ac VHT80 (2Tx, SDM, nonTxBF) Low Rate (Core 0) | 58      | BPSK       | 100            | 29.3        | 5290            | 12.42                | 12.50         |
| 11ac VHT80 (2Tx, SDM, nonTxBF) Low Rate (Core 1) | 58      | BPSK       | 100            | 29.3        | 5290            | 12.07                | 12.50         |

**WLAN U-NII 2C - 5.5.0 GHz SISO****(Core 0)**

| Technology     | Channel | Modulation | Duty Cycle (%) | Rate (Mbps) | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|----------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| 802.11ac VHT80 | 106     | BPSK       | 100            | 29.3        | 5530            | 13.39                | 13.75         |
| 802.11ac VHT80 | 122     | BPSK       | 100            | 29.3        | 5610            | 13.34                | 13.75         |
| 802.11ac VHT80 | 138     | BPSK       | 100            | 29.3        | 5690            | 13.40                | 13.75         |

**(Core 1)**

| Technology      | Channel | Modulation | Duty Cycle (%) | Rate (Mbps) | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|-----------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| 802.11ac VHT80  | 106     | BPSK       | 100            | 29.3        | 5530            | 12.14                | 12.75         |
| 802.11ac VHT160 | 114     | BPSK       | 100            | 58.5        | 5570            | 12.14                | 12.75         |
| 802.11ac VHT80  | 122     | BPSK       | 100            | 29.3        | 5610            | 12.38                | 12.75         |
| 802.11ac VHT80  | 138     | BPSK       | 100            | 29.3        | 5690            | 12.50                | 12.75         |

**MIMO**

| Technology                                       | Channel | Modulation | Duty Cycle (%) | Rate (Mbps) | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|--------------------------------------------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| 11ac VHT80 (2Tx, SDM, nonTXBF) Low Rate (Core 0) | 106     | BPSK       | 100            | 29.3        | 5530            | 11.95                | 12.75         |
| 11ac VHT80 (2Tx, SDM, nonTXBF) Low Rate (Core 1) | 106     | BPSK       | 100            | 29.3        | 5530            | 12.07                | 12.75         |
| 11ac VHT80 (2Tx, SDM, nonTXBF) Low Rate (Core 0) | 122     | BPSK       | 100            | 29.3        | 5610            | 12.47                | 12.75         |
| 11ac VHT80 (2Tx, SDM, nonTXBF) Low Rate (Core 1) | 122     | BPSK       | 100            | 29.3        | 5610            | 12.31                | 12.75         |
| 11ac VHT80 (2Tx, SDM, nonTXBF) Low Rate (Core 0) | 138     | BPSK       | 100            | 29.3        | 5690            | 12.32                | 12.75         |
| 11ac VHT80 (2Tx, SDM, nonTXBF) Low Rate (Core 1) | 138     | BPSK       | 100            | 29.3        | 5690            | 12.21                | 12.75         |

**WLAN U-NII 3 – 5.8 GHz SISO****(Core 0)**

| Technology                 | Channel | Modulation | Duty Cycle (%) | Rate (Mbps) | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|----------------------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| 11ac VHT80 (SISO) Low Rate | 155     | BPSK       | 100            | 29.3        | 5775            | 13.27                | 13.75         |

**(Core 1)**

| Technology                 | Channel | Modulation | Duty Cycle (%) | Rate (Mbps) | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|----------------------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| 11ac VHT80 (SISO) Low Rate | 155     | BPSK       | 100            | 29.3        | 5775            | 12.53                | 13.25         |

**MIMO**

| Technology                                       | Channel | Modulation | Duty Cycle (%) | Rate (Mbps) | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|--------------------------------------------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| 11ac VHT80 (2Tx, SDM, nonTXBF) Low Rate (Core 0) | 155     | BPSK       | 100            | 29.3        | 5775            | 12.67                | 13.25         |
| 11ac VHT80 (2Tx, SDM, nonTXBF) Low Rate (Core 1) | 155     | BPSK       | 100            | 29.3        | 5775            | 12.83                | 13.25         |

**WLAN 6 GHz SISO****(Core 0)**

| Technology                 | Channel | Modulation | Duty Cycle (%) | Rate (Mbps) | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|----------------------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| 11ax HE160 (SISO) Low Rate | 15      | BPSK       | 100            | 58.5        | 6025            | 11.50                | 11.50         |
| 11ax HE160 (SISO) Low Rate | 47      | BPSK       | 100            | 58.5        | 6185            | 12.50                | 12.50         |
| 11ax HE160 (SISO) Low Rate | 79      | BPSK       | 100            | 58.5        | 6345            | 12.01                | 12.25         |
| 11ax HE160 (SISO) Low Rate | 111     | BPSK       | 100            | 58.5        | 6505            | 10.07                | 10.25         |
| 11ax HE160 (SISO) Low Rate | 143     | BPSK       | 100            | 58.5        | 6665            | 10.00                | 10.25         |
| 11ax HE160 (SISO) Low Rate | 175     | BPSK       | 100            | 58.5        | 6825            | 9.94                 | 10.25         |
| 11ax HE160 (SISO) Low Rate | 207     | BPSK       | 100            | 58.5        | 6985            | 11.95                | 12.00         |

**(Core 1)**

| Technology                 | Channel | Modulation | Duty Cycle (%) | Rate (Mbps) | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|----------------------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| 11ax HE160 (SISO) Low Rate | 15      | BPSK       | 100            | 58.5        | 6025            | 11.24                | 11.25         |
| 11ax HE160 (SISO) Low Rate | 47      | BPSK       | 100            | 58.5        | 6185            | 11.58                | 12.00         |
| 11ax HE160 (SISO) Low Rate | 79      | BPSK       | 100            | 58.5        | 6345            | 11.74                | 12.00         |
| 11ax HE160 (SISO) Low Rate | 111     | BPSK       | 100            | 58.5        | 6505            | 10.41                | 10.75         |
| 11ax HE160 (SISO) Low Rate | 143     | BPSK       | 100            | 58.5        | 6665            | 10.67                | 10.75         |
| 11ax HE160 (SISO) Low Rate | 175     | BPSK       | 100            | 58.5        | 6825            | 10.45                | 10.75         |
| 11ax HE160 (SISO) Low Rate | 207     | BPSK       | 100            | 58.5        | 6985            | 12.20                | 13.00         |

**MIMO**

| Technology                          | Channel | Modulation | Duty Cycle (%) | Rate (Mbps) | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|-------------------------------------|---------|------------|----------------|-------------|-----------------|----------------------|---------------|
| 11ax HE160 (SISO) Low Rate (Core 0) | 15      | BPSK       | 100            | 58.5        | 6025            | 11.00                | 11.25         |
| 11ax HE160 (SISO) Low Rate (Core 1) | 15      | BPSK       | 100            | 58.5        | 6025            | 10.70                | 11.25         |
| 11ax HE160 (SISO) Low Rate (Core 0) | 47      | BPSK       | 100            | 58.5        | 6185            | 10.23                | 12.00         |
| 11ax HE160 (SISO) Low Rate (Core 1) | 47      | BPSK       | 100            | 58.5        | 6185            | 10.17                | 12.00         |
| 11ax HE160 (SISO) Low Rate (Core 0) | 79      | BPSK       | 100            | 58.5        | 6345            | 11.70                | 12.00         |
| 11ax HE160 (SISO) Low Rate (Core 1) | 79      | BPSK       | 100            | 58.5        | 6345            | 11.69                | 12.00         |
| 11ax HE160 (SISO) Low Rate (Core 0) | 111     | BPSK       | 100            | 58.5        | 6505            | 9.65                 | 9.75          |
| 11ax HE160 (SISO) Low Rate (Core 1) | 111     | BPSK       | 100            | 58.5        | 6505            | 9.48                 | 9.75          |
| 11ax HE160 (SISO) Low Rate (Core 0) | 143     | BPSK       | 100            | 58.5        | 6665            | 9.60                 | 10.25         |
| 11ax HE160 (SISO) Low Rate (Core 1) | 143     | BPSK       | 100            | 58.5        | 6665            | 9.10                 | 10.25         |
| 11ax HE160 (SISO) Low Rate (Core 0) | 175     | BPSK       | 100            | 58.5        | 6825            | 9.70                 | 9.75          |
| 11ax HE160 (SISO) Low Rate (Core 1) | 175     | BPSK       | 100            | 58.5        | 6825            | 9.50                 | 9.75          |
| 11ax HE160 (SISO) Low Rate (Core 0) | 207     | BPSK       | 100            | 58.5        | 6985            | 10.99                | 11.25         |
| 11ax HE160 (SISO) Low Rate (Core 1) | 207     | BPSK       | 100            | 58.5        | 6985            | 10.98                | 11.25         |



## **SECTION 2**

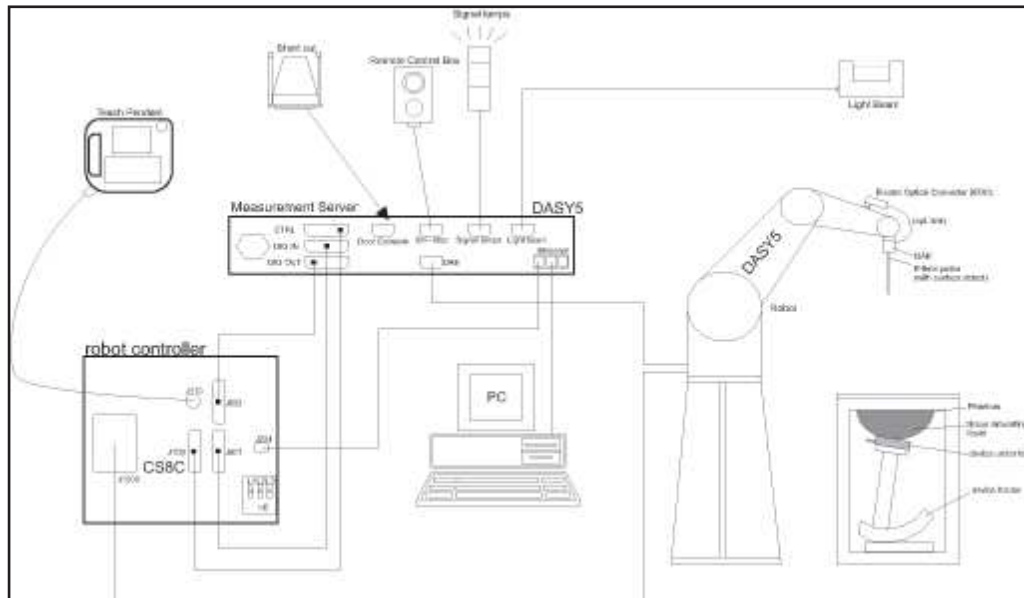
### **TEST DETAILS**

Specific Absorption Rate Testing of the A2992

## 2.1 DASY6 MEASUREMENT SYSTEM

### 2.1.1 System Description

The DASY6 system for performing compliance tests consists of the following items:



### Figure 2 System Description Diagram

A standard high precision 6-axis robot (Stäubli TX=RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).

An isotropic field probe optimized and calibrated for the targeted measurement.

A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.

The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.

The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.

The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.

A computer running the DASY6 software to display and interact with the robot and information.

There is a remote control and a teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.

The phantom, the device holder and other accessories according to the targeted measurement.



### 2.1.2 Probe Specification

The probes used by the DASY system are isotropic E-field probes, constructed with a symmetric design and a triangular core. The probes have built-in shielding against static charges and are contained within a PEEK enclosure material. These probes are specially designed and calibrated for use in liquids with high permittivity. The frequency range of the probes are from 6 MHz to 6 GHz.

### 2.1.3 Data Acquisition Electronics

The data acquisition electronics (DAE4 or DAE3) consist of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder with a control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information, as well as an optical uplink for commands and the clock.

The mechanical probe mounting device includes two different sensor systems for frontal and sideways probe contacts. They are used for mechanical surface detection and probe collision detection. The input impedance of both the DAE4 as well as of the DAE3 box is 200M $\Omega$ ; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

### 2.1.4 SAR Evaluation Description

The cDASY6 software includes all numerical procedures necessary to evaluate the spatial peak SAR values.

#### Fast Area Scan:

The Fast Area Scan provides an easy, time efficient and accurate way to define the optimal power reference location. The location of the power reference and power drift measurements for the subsequent Area, Fast Volume and Zoom Scans will be automatically set at the maximum of the Fast Area Scan.

#### Area Scan:

Area Scans are used to determine the peak location of the measured field before doing a finer measurement around the hotspot. Peak location can be found accurately even on coarse grids using the advanced interpolation routines implemented in cDASY6 Module SAR. Area Scans measure a two dimensional volume covering the full device under test area. cDASY6 Module SAR uses Fast Averaged SAR algorithm to compute the 1g and 10g of simulated tissue from the Area Scan.

#### Fast Volume Scans:

Fast Volume Scans are 3D scans used to assess the peak spatial SAR values within an averaging volume containing 1g and 10g of simulated tissue. It is compatible with any phantom. For regular phantoms, the measurement grid is generated by projecting a plane onto the phantom surface as for Area and Zoom scans. For specific phantoms, the measurement grid is generated by a conformal offset to the phantom surface at the desired distances. The grid extents can be set by the end user to cover the DUT dimensions or the whole measurable area of the phantom.

**Zoom Scan:**

Zoom scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1g and 10g of simulated tissue. Zoom scans measure a three dimensional volume (cube). The bottom face of the cube is Centreed on the maximum of the preceding Area Scan in the same measurement group. For maxima at border of the phantom, the zoom scan can be enabled to automatically extend in order to ensure correct evaluation of peak spatial SAR.

Zoom Scans can be performed in two different modes:

Smart Mode: the grid settings are adjusted on the fly based on the distribution being measured to fulfill to the IEC 62209-2 Amendment 1 criteria on grid resolution.

Custom Mode: the user specifies the grid settings to be used. In both modes, Zoom Scans are always anchored to the peak location of the preceding Fast Area / Area / Fast Volume Scan.

**2.1.5 DASY 6 Absorbed Power Density evaluation.**

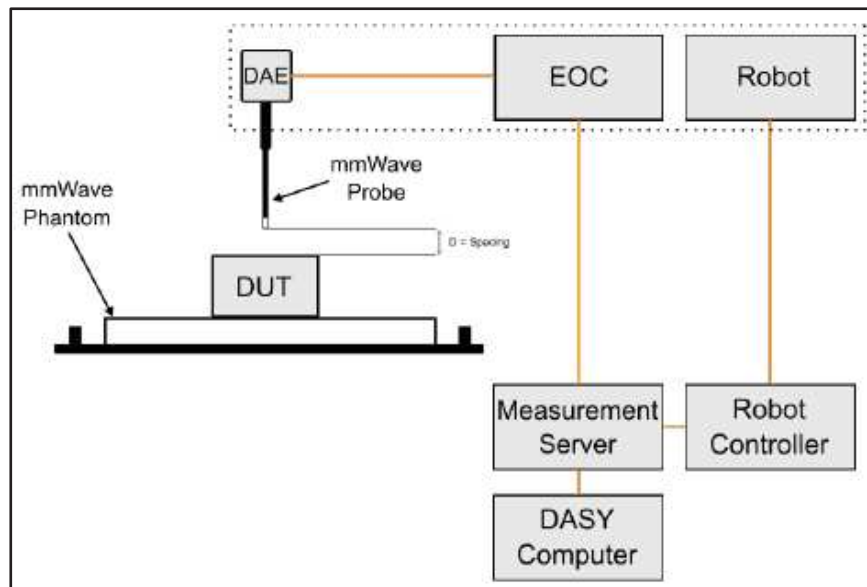
The DASY 6 measurement system will output the absorbed power density result values by default from version 16.0 of DASY software onwards. All the measurement details described in this section are utilised to collect the required data which is the converted automatically within the software and displayed for frequencies above 5.9 GHz.



## 2.2 DASY 6 mmWave PD Module

### 2.2.1 Measurement system

A DASY 6 measurement system equipped with the DASY 6 mmWave module was used to carry out the peak spatially averaged power density (psPD) measurements. It consists of a 6-axis industrial robot and controller that provides a highly accurate positioning system, a PC for the system control software, a near field probe (EUmmWVx), a probe alignment sensor and the 5G phantom. The high accuracy positioning system places the near field probe at the key location points of the maximum electromagnetic field.



Typical measurement setup for PD measurement with DASY 6



2.2.2 EUmWVx E-field probe details

The EUmWVx probe utilises two dipole elements that are specifically arranged to allow for the generation of pseudo-vector data.

|                    |                                                                                                                                                                                                                         |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Frequency Range    | 750 MHz – 110 GHz                                                                                                                                                                                                       |
| Dynamic Range      | <20 V/m – 10'000 V/m with PRE-10 (min <20 V/m – 2000 V/m)                                                                                                                                                               |
| Position Precision | <0.2 mm (DASY6)                                                                                                                                                                                                         |
| Dimensions         | Overall length: 320 mm (tip: 20 mm)<br>Tip and body diameter: encapsulation 8 mm (internal sensor <1mm)<br>Distance from probe tip to sensor Y cal point:1.5 mm<br>Distance from probe tip to sensor X cal point:1.5 mm |
| Applications       | E-field measurements of 5G devices and other mm-wave transmitters operating above 10GHz in <2 mm distance from device (free-space)<br>Power density, H-field, and far-field analysis using total field reconstruction.  |
| Compatibility      | cDASY6 + 5G-Module SW1.0 and higher                                                                                                                                                                                     |

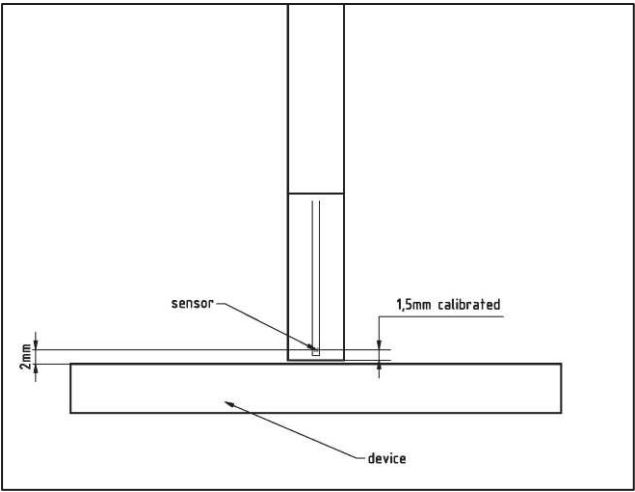


Diagram of the distance sensor to the EUT surface



### 2.2.3 Peak spatially averaged power density assessment based on E-field measurements

Power density was determined for both the electric and magnetic fields within a small distance from the transmitting source. In general, the magnitude and phase of two components of either E-field or H-field are needed on a sufficiently large surface to characterise their total distributions. Despite this being the case, a solution based on the direct measurement of the E and H field can be used to compute power density. The measurement approach to achieve this is given below.

- a) The local E-field is measured at a reference point on the measurement surface where the field is well above the system noise floor. This reference point is re-visited at the end of the measurement routine and re-measured to determine and assess the power drift of the EUT.
- b) The electric field on the measurement surface was scanned using instructions provided by the test system manufacturer. The spatial resolution of the measurement can depend on the measured field characteristic and measurement methodology used by the test system. The planar scan step size is configured to be  $\lambda/4$ .
- c) DASY6 uses a reconstruction algorithm to calculate the H-field from the measured E-field. As the power density calculation requires amplitude and phase, reconstruction algorithms can also be used to obtain field information from the measured E-field data, for example phase information from the amplitude if only the amplitude is measured. Three measurements per point on two measurement planes separated by  $\lambda/4$  are carried out in order for the H-field and phase data to be reconstructed.
- d) Using the equation below the total peak spatially averaged power density (psPD) distribution on the evaluation surface can be determined. The applicable regulatory requirements specify the spatial averaging area A. A circular shape is used.

$$psPD = \frac{1}{2A_{av}} \iint_{A_{av}} ||\text{Re}\{E \times H^*\}|| dA$$

- e) The final quantity used to determine compliance against the applicable limits is the maximum spatial average on the evaluation.
- f) Following the measurement of the power drift as described in step a) the drift was assessed. If the drift deviated by more than 5% then the power density test and drift measurements shall be repeated.



#### 2.2.4 Reconstruction Algorithm

Computation of the PD in general requires knowledge of the electric (E-) and magnetic (H-) field amplitudes and phases in the plane of incidence. Reconstruction of these quantities from pseudo-vector E-field measurements is feasible, as they are constrained by Maxwell's equations.

The test system utilises a reconstruction approach based on the Gerchberg-Saxton algorithm which benefits from the availability of the E-field polarization ellipse information obtained with the EUmmWVx probe. This reconstruction algorithm, together with the ability of the probe to measure extremely close to the source without perturbing the field, permits reconstruction of the E- and H-fields and the PD on measurement planes located as near as  $\lambda/2\pi$ .

#### 2.2.5 Standalone PD limit

The following formula provides the reference levels for local exposure to electromagnetic fields from >6 GHz to 300GHz for general public as referenced in ICNIRP 2020:

$$55/f_G^{0.177}$$

The FCC Oct 2020 TCB workshop states their own incident power density limit of 1mW/cm<sup>2</sup> plane-wave equivalent, averaged over 4 cm<sup>2</sup> as reflected in FCC 47 CFR 1.1310.

#### 2.2.6 Exposure Ratio

The following formulas used to calculate the exposure ratio of SAR, APD and iPD respectively as referenced in ICNIRP 2020:

$$\begin{aligned} \text{SAR} \quad & \sum_{i=100 \text{ kHz}}^{300 \text{ GHz}} \frac{\text{SAR}_i}{\text{SAR}_{\text{BR}}} \leq 1 \\ \text{APD} \quad & \sum_{i>6 \text{ GHz}}^{30 \text{ GHz}} \frac{S_{\text{ab},4\text{cm},i}}{S_{\text{ab},4\text{cm},\text{BR}}} \leq 1 \\ \text{iPD} \quad & \sum_{i>6 \text{ GHz}}^{30 \text{ GHz}} \left( \frac{S_{\text{inc},4\text{cm},i}}{S_{\text{inc},4\text{cm},\text{RL},i}} \right) \leq 1 \end{aligned}$$



### 2.2.7 Total Exposure Ratio (TER)

The total exposure ratio is the sum of local specific absorption rate (SAR), local absorbed power density (APD) and local incident power density (iPD) referenced in ICNIRP 2020:

where,  $SAR_i$  and  $SAR_{BR}$  are the local SAR level at frequency  $i$  and the local SAR basic restriction given in ICNIRP 2020.  $S_{ab,4cm,i}$  and  $S_{ab,4cm,BR}$  are the  $4cm^2$  absorbed power density level at frequency  $i$  and the  $4cm^2$  absorbed power density basic restriction given in ICNIRP 2020.  $S_{inc,4cm,i}$  and  $S_{inc,4cm,RL,i}$  are the local  $4cm^2$  incident power density at frequency  $i$  and the local  $4cm^2$  incident power density reference level at frequency  $i$  given in ICNIRP 2020.

$$\begin{aligned} & \sum_{i=100 \text{ kHz}}^{6 \text{ GHz}} \frac{SAR_i}{SAR_{BR}} \\ & + \sum_{i>6 \text{ GHz}}^{30 \text{ GHz}} \frac{S_{ab,4cm,i}}{S_{ab,4cm,BR}} \\ & + \sum_{i>6 \text{ GHz}}^{30 \text{ GHz}} \left( \frac{S_{inc,4cm,i}}{S_{inc,4cm,RL,i}} \right) \leq 1 \end{aligned}$$

TER is applied when simultaneous transmission of the different types of measurement is tested, and basic restriction limits cannot be applied. The TER of the applicable measurements is calculated and summed up to not exceed 1.



### **SECTION 3**

#### **TEST EQUIPMENT USED**



### 3.1 TEST EQUIPMENT USED

The following test equipment was used at TÜV SÜD Product Service:

| Instrument Description                 | Manufacturer          | Model Type                             | TE Number | Cal Period (months) | Calibration Due Date |
|----------------------------------------|-----------------------|----------------------------------------|-----------|---------------------|----------------------|
| Thermometer                            | Fluke                 | -                                      | 2267      | 12                  | 20-Feb-2024          |
| Thermohygrometer                       | R.S Components        | 1364                                   | 6352      | 12                  | 11-Jan-2024          |
| Laptop Device Holder                   | Speag                 | MDA4LAP                                | 4693      | -                   | TU                   |
| Measurement server                     | Speag                 | DASY 6 Measurement Server              | 4692      | -                   | TU                   |
| Mounting Platform                      | Speag                 | MP6C-TX90XL Mounting Platform Extended | 4702      | -                   | TU                   |
| Robot                                  | Speag                 | TX90 XL Stäubli Robot                  | 5340      | -                   | TU                   |
| Measurement server                     | Speag                 | DASY 6 Measurement Server              | 5337      | -                   | TU                   |
| Mounting Platform                      | Speag                 | MP6C-TX90XL Mounting Platform Extended | 5338      | -                   | TU                   |
| Robot                                  | Speag                 | TX90 XL Stäubli Robot                  | 4704      | -                   | TU                   |
| Power Source for SAR system validation | Speag                 | POWERSOURCE1-SE UMS 160 BA             | 5371      | 12                  | 12-Dec-2023          |
| Body Phantom                           | Speag                 | ELI V8.0                               | 4833      | -                   | TU                   |
| Dielectric Assessment Kit              | Speag                 | DAK 200MHz to 20GHz                    | 4690      | -                   | TU                   |
| Dielectric Probe Stand                 | Speag                 | Stand                                  | 4691      | -                   | TU                   |
| Validation Dipole 2450MHz              | Speag                 | D2450V2                                | 3875      | 12                  | 08-Dec-2023          |
| Validation Dipole 5000MHz              | Speag                 | D5.0 GHzV2                             | 4309      | 12                  | 14-Dec-2023          |
| Validation Dipole 6500MHz              | Speag                 | D6.5.0 GHzV2                           | 6157      | 12                  | 06-July-2024         |
| 10GHz Verification Source              | Speag                 | 5G Verification Source 10GHz           | 6449      | 12                  | 27-Oct-2023          |
| Signal Generator: 10MHz to 20GHz       | Rohde & Schwarz       | SMR20                                  | 3745      | 12                  | 29-Jun-2024          |
| Directional Coupler                    | Hewlett Packard       | 11692D                                 | 452       | -                   | TU                   |
| Directional Coupler                    | Mini-Circuits         | ZUDC20-06183-S+                        | 6484      | -                   | TU                   |
| ENA Series network analyser            | Keysight Technologies | E5063A                                 | 5018      | 12                  | 29-Sep-2023          |
| EXA Signal Analyser                    | Keysight Technologies | N9010B                                 | 4968      | 12                  | 19-Jan-2024          |



| Instrument Description | Manufacturer    | Model Type            | TE Number | Cal Period (months) | Calibration Due Date |
|------------------------|-----------------|-----------------------|-----------|---------------------|----------------------|
| Attenuator (30dB)      | Weinschel       | 46-30-34              | 2776      | 12                  | 09-Aug-2024          |
| Attenuator (10dB)      | Aaren           | AT40A-4041-D18-10     | 5493      | 12                  | 18-Apr-2024          |
| Amplifier              | Mini-Circuits   | ZVE-3W-183+           | 6540      | -                   | TU                   |
| Power Sensor           | Rohde & Schwarz | NRP-Z81               | 3492      | 12                  | 13-Jan-2024          |
| Power Meter            | Rohde & Schwarz | NRP                   | 3491      | 12                  | 13-Jan-2024          |
| Power Meter            | Rohde & Schwarz | NRX                   | 6535      | 12                  | 05-Apr-2024          |
| Power Sensor           | Rohde & Schwarz | NRP18S                | 6534      | 12                  | 17-Apr-2025          |
| Power Sensor           | Rohde & Schwarz | NRP18S                | 6533      | 12                  | 17-Apr-2025          |
| Data Acquisition       | Speag           | DAE4ip                | 6500      | 12                  | 03-Apr-2024          |
| Data Acquisition       | Speag           | DAE 4 - SD 000 D04 BM | 4689      | 12                  | 13-Dec-2023          |
| Dosimetric SAR Probe   | Speag           | EX3DV4                | 4700      | 12                  | 15-Dec-2023          |
| PD probe               | Speag           | EUmmWV4               | 6353      | 12                  | 25-Oct-2023          |
| Tissue Simulant Liquid | Speag           | HBBL 600-10000        | Batch 1   | -                   | Note 1               |

#### TU - Traceability Unscheduled

Note 1, the calibration dates for the relevant batches of TSL can be found in the fluid parameter tables within this report.



### 3.2 TEST SOFTWARE

The following software was used to control the TÜV SÜD Product Service DASY System.

| Instrument  | Version Number                   |
|-------------|----------------------------------|
| DASY system | cDASY6 Module SAR V16.2.2.1588   |
| DASY system | cDASY6 Module mmWave V3.2.0.1840 |



### 3.3 DIELECTRIC PROPERTIES OF SIMULANT LIQUIDS

The fluid properties of the simulant fluids used during routine SAR evaluation meet the dielectric properties required KDB 865664.

The dielectric properties of the tissue simulant liquids used are within the  $\pm 10\%$  acceptance criteria for the SAR testing at TÜV SÜD Product Service and are as follows :-

| Fluid Type and Frequency | Relative Permittivity Measured | Relative Permittivity Target | Conductivity Measured (S/m) | Conductivity Target (S/m) | Date       | Fluid Temperature °C |
|--------------------------|--------------------------------|------------------------------|-----------------------------|---------------------------|------------|----------------------|
| HBBL/B1 - 2450MHz        | 39.52                          | 39.20                        | 1.82                        | 1.80                      | 16/08/2023 | 21.00                |
| HBBL/B1 - 2450MHz        | 41.53                          | 39.20                        | 1.99                        | 1.80                      | 18/08/2023 | 19.00                |
| HBBL/B1 - 2450MHz        | 42.15                          | 39.20                        | 1.89                        | 1.80                      | 18/08/2023 | 19.00                |
| HBBL/B1 - 2450MHz        | 41.19                          | 39.20                        | 1.83                        | 1.80                      | 29/08/2023 | 21.40                |
| HBBL/B1 - 5200MHz        | 36.25                          | 35.98                        | 4.66                        | 4.65                      | 23/08/2023 | 20.70                |
| HBBL/B1 - 5200MHz        | 36.56                          | 35.98                        | 4.51                        | 4.65                      | 29/08/2023 | 21.40                |
| HBBL/B1 - 5200MHz        | 36.38                          | 35.98                        | 4.60                        | 4.65                      | 31/08/2023 | 20.90                |
| HBBL/B1 - 5500MHz        | 36.04                          | 35.64                        | 4.84                        | 4.96                      | 29/08/2023 | 21.40                |
| HBBL/B1 - 5500MHz        | 35.82                          | 35.64                        | 4.93                        | 4.96                      | 31/08/2023 | 20.90                |
| HBBL/B1 - 5600MHz        | 35.87                          | 35.52                        | 4.95                        | 5.06                      | 29/08/2023 | 21.40                |
| HBBL/B1 - 5600MHz        | 35.64                          | 35.52                        | 5.05                        | 5.06                      | 31/08/2023 | 20.90                |
| HBBL/B1 - 5800MHz        | 35.12                          | 35.30                        | 5.35                        | 5.27                      | 23/08/2023 | 20.70                |
| HBBL/B1 - 5800MHz        | 34.95                          | 35.30                        | 5.30                        | 5.27                      | 25/08/2023 | 20.20                |
| HBBL/B1 - 6500MHz        | 33.71                          | 34.46                        | 6.14                        | 6.07                      | 25/08/2023 | 20.20                |
| HBBL/B1 - 6500MHz        | 34.91                          | 35.07                        | 5.53                        | 5.47                      | 31/09/2023 | 20.90                |
| HBBL/B1 - 6500MHz        | 34.48                          | 35.07                        | 5.56                        | 5.47                      | 04/09/2023 | 19.90                |



### 3.4 TEST CONDITIONS

#### 3.4.1 Test Laboratory Conditions

Ambient temperature: Within +18°C to +25°C.

The actual temperature during the testing ranged from 21.80°C to 20.00°C.

The actual humidity during the testing ranged from 38.40% to 68.70% RH.

The temperature of the fluid during testing does not deviate by more than 2°C for each set of tests.

#### 3.4.2 Test Fluid Temperature Range

| Frequency | Body / Head Fluid | Min Temperature °C | Max Temperature °C |
|-----------|-------------------|--------------------|--------------------|
| 2450 MHz  | Head              | 19.30              | 21.50              |
| 5200 MHz  | Head              | 19.90              | 21.40              |
| 5500 MHz  | Head              | 19.00              | 21.40              |
| 5600 MHz  | Head              | 20.03              | 21.40              |
| 5800 MHz  | Head              | 19.90              | 21.20              |
| 6500 MHz  | Head              | 19.60              | 20.70              |



### 3.5 MEASUREMENT UNCERTAINTY

Body, Full SAR Measurements, 300 MHz to 3 GHz

| Source of Uncertainty                     | Uncertainty $\pm$ % | Probability distribution | Div  | $c_i$ (1g) | Standard Uncertainty $\pm$ % (1g) |
|-------------------------------------------|---------------------|--------------------------|------|------------|-----------------------------------|
| <b>Measurement System Errors</b>          |                     |                          |      |            |                                   |
| Probe Calibration                         | 12.0                | Normal                   | 2.00 | 1.00       | 6.0                               |
| Probe Calibration Drift                   | 1.7                 | Rectangular              | 1.73 | 1.00       | 1.0                               |
| Probe Linearity                           | 4.7                 | Rectangular              | 1.73 | 1.00       | 2.7                               |
| Broadband Signal                          | 3.0                 | Rectangular              | 1.73 | 1.00       | 1.7                               |
| Probe Isotropy                            | 7.6                 | Rectangular              | 1.73 | 1.00       | 4.4                               |
| Data Acquisition                          | 0.3                 | Normal                   | 1.00 | 1.00       | 0.3                               |
| RF Ambient                                | 1.8                 | Normal                   | 1.00 | 1.00       | 1.8                               |
| Probe Positioning                         | 0.2                 | Normal                   | 1.00 | 0.14       | 0.0                               |
| Data Processing                           | 1.2                 | Normal                   | 1.00 | 1.00       | 1.2                               |
| <b>Phantom and Device errors</b>          |                     |                          |      |            |                                   |
| Liquid Conductivity Meas.                 | 2.5                 | Normal                   | 1.00 | 0.78       | 2.0                               |
| Liquid Conductivity Temp                  | 3.3                 | Rectangular              | 1.73 | 0.78       | 1.5                               |
| Phantom Permittivity                      | 14.0                | Rectangular              | 1.73 | 0.00       | 0.0                               |
| Distance DUT - TSL                        | 2.0                 | Normal                   | 1.00 | 2.00       | 4.0                               |
| Device Positioning ( $\pm 0.5\text{mm}$ ) | 1.0                 | Normal                   | 1.00 | 1.00       | 1.0                               |
| Device Holder                             | 3.6                 | Normal                   | 1.00 | 1.00       | 3.6                               |
| Device Modulation                         | 2.4                 | Rectangular              | 1.73 | 1.00       | 1.4                               |
| Time-average SAR                          | 2.6                 | Rectangular              | 1.73 | 1.00       | 1.5                               |
| DUT Drift                                 | 5.0                 | Normal                   | 1.00 | 1.00       | 5.0                               |
| <b>Correction to the SAR results</b>      |                     |                          |      |            |                                   |
| Deviation to Target                       | 1.9                 | Normal                   | 1.00 | 1.00       | 1.9                               |
| SAR Scaling                               | 0.0                 | Rectangular              | 1.73 | 1.00       | 0.0                               |
| <b>Combined Standard Uncertainty</b>      |                     | <b>RSS</b>               |      |            | 11.8                              |
| <b>Expanded Standard Uncertainty</b>      |                     | <b>K=2</b>               |      |            | 23.7                              |



## Body, Full SAR Measurements, 3 GHz to 6 GHz

| Source of Uncertainty                     | Uncertainty $\pm$ % | Probability distribution | Div  | $c_i$ (1g) | Standard Uncertainty $\pm$ % (1g) |
|-------------------------------------------|---------------------|--------------------------|------|------------|-----------------------------------|
| <b>Measurement System Errors</b>          |                     |                          |      |            |                                   |
| Probe Calibration                         | 14.0                | Normal                   | 2.00 | 1.00       | 7.0                               |
| Probe Calibration Drift                   | 1.7                 | Rectangular              | 1.73 | 1.00       | 1.0                               |
| Probe Linearity                           | 4.7                 | Rectangular              | 1.73 | 1.00       | 2.7                               |
| Broadband Signal                          | 2.6                 | Rectangular              | 1.73 | 1.00       | 1.5                               |
| Probe Isotropy                            | 7.6                 | Rectangular              | 1.73 | 1.00       | 4.4                               |
| Data Acquisition                          | 0.3                 | Normal                   | 1.00 | 1.00       | 0.3                               |
| RF Ambient                                | 1.8                 | Normal                   | 1.00 | 1.00       | 1.8                               |
| Probe Positioning                         | 0.2                 | Normal                   | 1.00 | 0.33       | 0.1                               |
| Data Processing                           | 2.3                 | Normal                   | 1.00 | 1.00       | 2.3                               |
| <b>Phantom and Device errors</b>          |                     |                          |      |            |                                   |
| Liquid Conductivity Meas.                 | 2.5                 | Normal                   | 1.00 | 0.78       | 2.0                               |
| Liquid Conductivity Temp                  | 3.4                 | Rectangular              | 1.73 | 0.78       | 1.5                               |
| Phantom Permittivity                      | 14.0                | Rectangular              | 1.73 | 0.25       | 2.0                               |
| Distance DUT - TSL                        | 2.0                 | Normal                   | 1.00 | 2.00       | 4.0                               |
| Device Positioning ( $\pm 0.5\text{mm}$ ) | 1.0                 | Normal                   | 1.00 | 1.00       | 1.0                               |
| Device Holder                             | 3.6                 | Normal                   | 1.00 | 1.00       | 3.6                               |
| Device Modulation                         | 2.4                 | Rectangular              | 1.73 | 1.00       | 1.4                               |
| Time-average SAR                          | 2.6                 | Rectangular              | 1.73 | 1.00       | 1.5                               |
| DUT Drift                                 | 5.0                 | Normal                   | 1.00 | 1.00       | 5.0                               |
| <b>Correction to the SAR results</b>      |                     |                          |      |            |                                   |
| Deviation to Target                       | 1.9                 | Normal                   | 1.00 | 1.00       | 1.9                               |
| SAR Scaling                               | 0.0                 | Rectangular              | 1.73 | 1.00       | 0.0                               |
| <b>Combined Standard Uncertainty</b>      |                     | <b>RSS</b>               |      |            | 12.7                              |
| <b>Expanded Standard Uncertainty</b>      |                     | <b>K=2</b>               |      |            | 25.3                              |



## Body, Full SAR Measurements, 6 GHz to 10 GHz

| Source of Uncertainty                     | Uncertainty $\pm$ % | Probability distribution | Div  | $c_i$ (1g) | Standard Uncertainty $\pm$ % (1g) |
|-------------------------------------------|---------------------|--------------------------|------|------------|-----------------------------------|
| <b>Measurement System Errors</b>          |                     |                          |      |            |                                   |
| Probe Calibration                         | 18.6                | Normal                   | 2.00 | 1.00       | 9.3                               |
| Probe Calibration Drift                   | 1.7                 | Rectangular              | 1.73 | 1.00       | 1.0                               |
| Probe Linearity                           | 4.7                 | Rectangular              | 1.73 | 1.00       | 2.7                               |
| Broadband Signal                          | 2.8                 | Rectangular              | 1.73 | 1.00       | 1.6                               |
| Probe Isotropy                            | 7.6                 | Rectangular              | 1.73 | 1.00       | 4.4                               |
| Data Acquisition                          | 0.3                 | Normal                   | 1.00 | 1.00       | 0.3                               |
| RF Ambient                                | 1.8                 | Normal                   | 1.00 | 1.00       | 1.8                               |
| Probe Positioning                         | 0.2                 | Normal                   | 1.00 | 0.67       | 0.1                               |
| Data Processing                           | 3.5                 | Normal                   | 1.00 | 1.00       | 3.5                               |
| <b>Phantom and Device errors</b>          |                     |                          |      |            |                                   |
| Liquid Conductivity Meas.                 | 2.5                 | Normal                   | 1.00 | 0.78       | 2.0                               |
| Liquid Conductivity Temp                  | 2.4                 | Rectangular              | 1.73 | 0.78       | 1.1                               |
| Phantom Permittivity                      | 14.0                | Rectangular              | 1.73 | 0.50       | 4.0                               |
| Distance DUT - TSL                        | 2.0                 | Normal                   | 1.00 | 2.00       | 4.0                               |
| Device Positioning ( $\pm 0.5\text{mm}$ ) | 1.0                 | Normal                   | 1.00 | 1.00       | 1.0                               |
| Device Holder                             | 3.6                 | Normal                   | 1.00 | 1.00       | 3.6                               |
| Device Modulation                         | 2.4                 | Rectangular              | 1.73 | 1.00       | 1.4                               |
| Time-average SAR                          | 2.6                 | Rectangular              | 1.73 | 1.00       | 1.5                               |
| DUT Drift                                 | 5.0                 | Normal                   | 1.00 | 1.00       | 5.0                               |
| <b>Correction to the SAR results</b>      |                     |                          |      |            |                                   |
| Deviation to Target                       | 1.9                 | Normal                   | 1.00 | 1.00       | 1.9                               |
| SAR Scaling                               | 0.0                 | Rectangular              | 1.73 | 1.00       | 0.0                               |
| <b>Combined Standard Uncertainty</b>      |                     | <b>RSS</b>               |      |            | 14.7                              |
| <b>Expanded Standard Uncertainty</b>      |                     | <b>K=2</b>               |      |            | 29.4                              |



## Body, Full APD Measurements, 6 GHz to 10 GHz

| Symbol                                  | Error Description                  | Value % | Probability distribution | Divisor | $c_i$ (1 g) | Std Uncertainty (1 g) | $c_i$ (10 g) | Std Uncertainty (10 g) |
|-----------------------------------------|------------------------------------|---------|--------------------------|---------|-------------|-----------------------|--------------|------------------------|
| <b>Measurement System Errors</b>        |                                    |         |                          |         |             |                       |              |                        |
| <i>CF</i>                               | Probe Calibration                  | 18.60   | normal 2                 | 2.000   | 1           | 9.30                  | 1            | 9.30                   |
| <i>CF<sub>DRIFT</sub></i>               | Probe Calibration Drift            | 1.70    | rectangular              | 1.732   | 1           | 0.98                  | 1            | 0.98                   |
| <i>LIN</i>                              | Probe Linearity                    | 4.70    | rectangular              | 1.732   | 1           | 2.71                  | 1            | 2.71                   |
| <i>BBS</i>                              | Broadband Signal                   | 2.80    | rectangular              | 1.732   | 1           | 1.62                  | 1            | 1.62                   |
| <i>ISO</i>                              | Probe Isotropy                     | 7.60    | rectangular              | 1.732   | 1           | 4.39                  | 1            | 4.39                   |
| <i>DAE</i>                              | Other Probe+Electronic             | 0.30    | normal 1                 | 1.000   | 1           | 0.30                  | 1            | 0.30                   |
| <i>DAE</i>                              | Boundary Effects + Corrections     | 4.00    | rectangular              | 1.732   | 1           | 2.31                  | 1            | 2.31                   |
| <i>DAE</i>                              | Sensor Offset & Uncertainty        | 0.10    | normal 1                 | 1.000   | 1           | 0.10                  | 1            | 0.10                   |
| <i>AMB</i>                              | RF Ambient                         | 3.00    | normal 1                 | 1.000   | 1           | 3.00                  | 1            | 3.00                   |
| $\Delta_{sys}$                          | Probe Positioning                  | 0.01    | normal 1                 | 1.000   | 0.5         | 0.00                  | 0.5          | 0.00                   |
| <i>DAT</i>                              | Data Processing                    | 1.00    | rectangular              | 1.732   | 1           | 0.58                  | 1            | 0.58                   |
| <b>Phantom and Device Errors</b>        |                                    |         |                          |         |             |                       |              |                        |
| <i>LIQ(<math>\sigma</math>)</i>         | Conductivity (meas) <sup>DAK</sup> | 2.50    | normal 1                 | 1.000   | 0.78        | 1.95                  | 0.71         | 1.78                   |
| <i>LIQ(<math>T\sigma</math>)</i>        | Conductivity (temp) <sup>BB</sup>  | 2.40    | rectangular              | 1.732   | 0.78        | 1.08                  | 0.71         | 0.98                   |
| <i>EPS</i>                              | Phantom Permittivity               | 14.00   | rectangular              | 1.732   | 0.5         | 4.04                  | 0.5          | 4.04                   |
| <i>DIS</i>                              | Distance DUT – TSL                 | 2.00    | normal 1                 | 1.000   | 2           | 4.00                  | 2            | 4.00                   |
| <i>Dxyz</i>                             | Device Positioning                 | 1.00    | normal 1                 | 1.000   | 1           | 1.00                  | 1            | 1.00                   |
| <i>H</i>                                | Device Holder                      | 3.60    | normal 1                 | 1.000   | 1           | 3.60                  | 1            | 3.60                   |
| <i>MOD</i>                              | DUT Modulation <sup>m</sup>        | 2.40    | rectangular              | 1.732   | 1           | 1.39                  | 1            | 1.39                   |
| <i>TAS</i>                              | Time-average SAR                   | 1.70    | rectangular              | 1.732   | 1           | 0.98                  | 1            | 0.98                   |
| <i>R<sub>f</sub>drift</i>               | DUT drift                          | 5.00    | normal 1                 | 1.000   | 1           | 5.00                  | 1            | 5.00                   |
| <i>VAL</i>                              | Val Antenna Unc. <sup>val</sup>    | 0.00    | normal 1                 | 1.000   | 1           | 0.00                  | 1            | 0.00                   |
| <i>R<sub>fin</sub></i>                  | Unc. Input Power <sup>val</sup>    | 0.00    | normal 1                 | 1.000   | 1           | 0.00                  | 1            | 0.00                   |
| <b>Correction To The SAR Results</b>    |                                    |         |                          |         |             |                       |              |                        |
| <i>C(<math>\epsilon, \sigma</math>)</i> | Deviation to Target                | 1.90    | normal 1                 | 1.000   | 1           | 1.90                  | 0.84         | 1.60                   |
| <i>C(R)</i>                             | SAR scaling                        | 0.00    | rectangular              | 1.732   | 1           | 0.00                  | 1            | 0.00                   |
| <b>APD</b>                              |                                    |         |                          |         |             |                       |              |                        |
| <i>PDC</i>                              | Power Density Conversion           | 13.50   | rectangular              | 1.732   | 1           | 7.79                  | 1            | 7.79                   |
| <i>u(<math>\Delta</math>SAR)</i>        | Combined Standard Uncertainty      | -       | normal                   | -       | -           | 16.58                 | -            | 16.52                  |
| <i>U</i>                                | Expanded Uncertainty               | -       | normal k =               | 2.00    | -           | 33.2                  | -            | 33                     |



## DASY6 Uncertainty Budget for iPD

| Symbol                                                                  | Error Description                          | Value dB | Probability distribution | Divisor | $c_i$ | $u_i(y)$ dB | $(u_i(y))^2$ | $v_i$ or $v_{eff}$ | $u_i^4(y)$ |
|-------------------------------------------------------------------------|--------------------------------------------|----------|--------------------------|---------|-------|-------------|--------------|--------------------|------------|
| <b>Uncertainty terms dependent on the measurement system</b>            |                                            |          |                          |         |       |             |              |                    |            |
| CAL                                                                     | Calibration                                | 0.49     | normal 1                 | 1.000   | 1     | 0.49        | 0.240        | $\infty$           | 0          |
| COR                                                                     | Probe correction                           | 0.00     | rectangular              | 1.732   | 1     | 0.00        | 0.000        | $\infty$           | 0          |
| FRS                                                                     | Frequency response (BW $\leq$ 1 GHz)       | 0.20     | rectangular              | 1.732   | 1     | 0.12        | 0.013        | $\infty$           | 0          |
| SCC                                                                     | Sensor cross coupling                      | 0.00     | rectangular              | 1.732   | 1     | 0.00        | 0.000        | $\infty$           | 0          |
| ISO                                                                     | Isotropy                                   | 0.50     | rectangular              | 1.732   | 1     | 0.29        | 0.083        | $\infty$           | 0          |
| LIN                                                                     | Linearity                                  | 0.20     | rectangular              | 1.732   | 1     | 0.12        | 0.013        | $\infty$           | 0          |
| PSC                                                                     | Probe scattering                           | 0.00     | rectangular              | 1.732   | 1     | 0.00        | 0.000        | $\infty$           | 0          |
| PPO                                                                     | Probe positioning offset                   | 0.30     | rectangular              | 1.732   | 1     | 0.17        | 0.030        | $\infty$           | 0          |
| PPR                                                                     | Probe positioning repeatability            | 0.04     | rectangular              | 1.732   | 1     | 0.02        | 0.001        | $\infty$           | 0          |
| SMO                                                                     | Sensor mechanical offset                   | 0.00     | rectangular              | 1.732   | 1     | 0.00        | 0.000        | $\infty$           | 0          |
| PSR                                                                     | Probe spatial resolution                   | 0.00     | rectangular              | 1.732   | 1     | 0.00        | 0.000        | $\infty$           | 0          |
| FLD                                                                     | Field impedance dependence                 | 0.00     | rectangular              | 1.732   | 1     | 0.00        | 0.000        | $\infty$           | 0          |
| APD                                                                     | Amplitude and phase drift                  | 0.00     | rectangular              | 1.732   | 1     | 0.00        | 0.000        | $\infty$           | 0          |
| APN                                                                     | Amplitude and phase noise                  | 0.04     | rectangular              | 1.732   | 1     | 0.02        | 0.001        | $\infty$           | 0          |
| TR                                                                      | Measurement area truncation                | 0.00     | rectangular              | 1.732   | 1     | 0.00        | 0.000        | $\infty$           | 0          |
| DAQ                                                                     | Data acquisition                           | 0.03     | normal 1                 | 1.000   | 1     | 0.03        | 0.001        | $\infty$           | 0          |
| SMP                                                                     | Sampling                                   | 0.00     | rectangular              | 1.732   | 1     | 0.00        | 0.000        | $\infty$           | 0          |
| REC                                                                     | Field reconstruction                       | 0.60     | rectangular              | 1.732   | 1     | 0.35        | 0.120        | $\infty$           | 0          |
| TRA                                                                     | FTE/MEO                                    | 0.70     | rectangular              | 1.732   | 1     | 0.40        | 0.163        | $\infty$           | 0          |
| SCA                                                                     | Power density scaling                      | 0.00     | rectangular              | 1.732   | 1     | 0.00        | 0.000        | $\infty$           | 0          |
| SAV                                                                     | Spatial averaging                          | 0.10     | rectangular              | 1.732   | 1     | 0.06        | 0.003        | $\infty$           | 0          |
| SDL                                                                     | System detection limit                     | 0.04     | rectangular              | 1.732   | 1     | 0.02        | 0.001        | $\infty$           | 0          |
| <b>Uncertainty terms dependent on the DUT and environmental factors</b> |                                            |          |                          |         |       |             |              |                    |            |
| PC                                                                      | Probe coupling with DUT                    | 0.00     | rectangular              | 1.732   | 1     | 0.00        | 0.000        | $\infty$           | 0          |
| MOD                                                                     | Modulation response                        | 0.40     | rectangular              | 1.732   | 1     | 0.23        | 0.053        | $\infty$           | 0          |
| IT                                                                      | Integration time                           | 0.00     | rectangular              | 1.732   | 1     | 0.00        | 0.000        | $\infty$           | 0          |
| RT                                                                      | Response time                              | 0.00     | rectangular              | 1.732   | 1     | 0.00        | 0.000        | $\infty$           | 0          |
| DH                                                                      | Device holder influence                    | 0.10     | rectangular              | 1.732   | 1     | 0.06        | 0.003        | $\infty$           | 0          |
| DA                                                                      | DUT alignment                              | 0.00     | rectangular              | 1.732   | 1     | 0.00        | 0.000        | $\infty$           | 0          |
| REF                                                                     | Reflections in laboratory                  | 0.10     | rectangular              | 1.732   | 1     | 0.06        | 0.003        | $\infty$           | 0          |
| TEM                                                                     | Laboratory temperature                     | 0.10     | rectangular              | 1.732   | 1     | 0.06        | 0.003        | $\infty$           | 0          |
| AC                                                                      | RF ambient conditions                      | 0.04     | rectangular              | 1.732   | 1     | 0.02        | 0.001        | $\infty$           | 0          |
| AR                                                                      | Ambient reflections                        | 0.04     | rectangular              | 1.732   | 1     | 0.02        | 0.001        | $\infty$           | 0          |
| MSI                                                                     | Immunity / secondary reception             | 0.00     | rectangular              | 1.732   | 1     | 0.00        | 0.000        | $\infty$           | 0          |
| DRI                                                                     | Drift of the DUT                           | 0.00     | rectangular              | 1.732   | 1     | 0.00        | 0.000        | $\infty$           | 0          |
| $u_c(F_s)$                                                              | Combined Standard Uncertainty (w/ FTE/MEO) | -        | normal                   | -       | -     | 0.86        | 0.734        | $\infty$           | 0          |
| $U(F_s)$                                                                | Expanded Uncertainty (w/ FTE/MEO)          | -        | normal k =               | 2.00    | -     | 1.7         | -            | $\infty$           | -          |



## DASY6 mmWave Uncertainty Budget - System Performance Check

| Symbol                                                                  | Error Description                          | Value<br>dB | Probability<br>distribution | Divisor | $c_i$ | $u_i(y)$<br>dB | $(u_i(y))^2$<br>dB | $v_i$ or<br>$v_{eff}$ | $u_i^4(y)$ |
|-------------------------------------------------------------------------|--------------------------------------------|-------------|-----------------------------|---------|-------|----------------|--------------------|-----------------------|------------|
| <b>Uncertainty terms dependent on the measurement system</b>            |                                            |             |                             |         |       |                |                    |                       |            |
| CAL                                                                     | Calibration Repeatability                  | 0.21        | normal 1                    | 1.000   | 1     | 0.21           | 0.044              | $\infty$              | 0          |
| COR                                                                     | Probe correction                           | 0.00        | rectangular                 | 1.732   | 1     | 0.00           | 0.000              | $\infty$              | 0          |
| FRS                                                                     | Frequency response ( $BW \leq 1$ GHz)      | 0.20        | rectangular                 | 1.732   | 0     | 0.00           | 0.000              | $\infty$              | 0          |
| SCC                                                                     | Sensor cross coupling                      | 0.00        | rectangular                 | 1.732   | 1     | 0.00           | 0.000              | $\infty$              | 0          |
| ISO                                                                     | Isotropy                                   | 0.30        | rectangular                 | 1.732   | 1     | 0.17           | 0.030              | $\infty$              | 0          |
| LIN                                                                     | Linearity                                  | 0.20        | rectangular                 | 1.732   | 1     | 0.12           | 0.013              | $\infty$              | 0          |
| PSC                                                                     | Probe scattering                           | 0.00        | rectangular                 | 1.732   | 1     | 0.00           | 0.000              | $\infty$              | 0          |
| PPO                                                                     | Probe positioning offset                   | 0.11        | rectangular                 | 1.732   | 1     | 0.06           | 0.004              | $\infty$              | 0          |
| PPR                                                                     | Probe positioning repeatability            | 0.04        | rectangular                 | 1.732   | 1     | 0.02           | 0.001              | $\infty$              | 0          |
| SMO                                                                     | Sensor mechanical offset                   | 0.00        | rectangular                 | 1.732   | 1     | 0.00           | 0.000              | $\infty$              | 0          |
| PSR                                                                     | Probe spatial resolution                   | 0.00        | rectangular                 | 1.732   | 1     | 0.00           | 0.000              | $\infty$              | 0          |
| FLD                                                                     | Field impedance dependence                 | 0.00        | rectangular                 | 1.732   | 1     | 0.00           | 0.000              | $\infty$              | 0          |
| APD                                                                     | Amplitude and phase drift                  | 0.00        | rectangular                 | 1.732   | 1     | 0.00           | 0.000              | $\infty$              | 0          |
| APN                                                                     | Amplitude and phase noise                  | 0.04        | rectangular                 | 1.732   | 0     | 0.00           | 0.000              | $\infty$              | 0          |
| TR                                                                      | Measurement area truncation                | 0.00        | rectangular                 | 1.732   | 1     | 0.00           | 0.000              | $\infty$              | 0          |
| DAQ                                                                     | Data acquisition                           | 0.03        | normal 1                    | 1.000   | 1     | 0.03           | 0.001              | $\infty$              | 0          |
| SMP                                                                     | Sampling                                   | 0.00        | rectangular                 | 1.732   | 1     | 0.00           | 0.000              | $\infty$              | 0          |
| REC                                                                     | Field reconstruction                       | 0.60        | rectangular                 | 1.732   | 0.3   | 0.10           | 0.011              | $\infty$              | 0          |
| TRA                                                                     | Forward transformation                     | 0.00        | rectangular                 | 1.732   | 1     | 0.00           | 0.000              | $\infty$              | 0          |
| SCA                                                                     | Power density scaling                      | 0.00        | rectangular                 | 1.732   | 1     | 0.00           | 0.000              | $\infty$              | 0          |
| SAV                                                                     | Spatial averaging                          | 0.10        | rectangular                 | 1.732   | 0     | 0.00           | 0.000              | $\infty$              | 0          |
| SDL                                                                     | System detection limit                     | 0.04        | rectangular                 | 1.732   | 1     | 0.02           | 0.001              | $\infty$              | 0          |
| <b>Uncertainty terms dependent on the DUT and environmental factors</b> |                                            |             |                             |         |       |                |                    |                       |            |
| PC                                                                      | Probe coupling with DUT                    | 0.00        | rectangular                 | 1.732   | 1     | 0.00           | 0.000              | $\infty$              | 0          |
| MOD                                                                     | Modulation response                        | 0.40        | rectangular                 | 1.732   | 0     | 0.00           | 0.000              | $\infty$              | 0          |
| IT                                                                      | Integration time                           | 0.00        | rectangular                 | 1.732   | 1     | 0.00           | 0.000              | $\infty$              | 0          |
| RT                                                                      | Response time                              | 0.00        | rectangular                 | 1.732   | 1     | 0.00           | 0.000              | $\infty$              | 0          |
| DH                                                                      | Device holder influence                    | 0.10        | rectangular                 | 1.732   | 0     | 0.00           | 0.000              | $\infty$              | 0          |
| REF                                                                     | Reflections in laboratory                  | 0.10        | rectangular                 | 1.732   | 1     | 0.06           | 0.003              | $\infty$              | 0          |
| TEM                                                                     | Laboratory temperature                     | 0.10        | rectangular                 | 1.732   | 1     | 0.06           | 0.003              | $\infty$              | 0          |
| DA                                                                      | DUT alignment                              | 0.00        | rectangular                 | 1.732   | 1     | 0.00           | 0.000              | $\infty$              | 0          |
| AC                                                                      | RF ambient conditions                      | 0.04        | rectangular                 | 1.732   | 1     | 0.02           | 0.001              | $\infty$              | 0          |
| AR                                                                      | Ambient reflections                        | 0.04        | rectangular                 | 1.732   | 1     | 0.02           | 0.001              | $\infty$              | 0          |
| MSI                                                                     | Immunity / secondary reception             | 0.00        | rectangular                 | 1.732   | 0     | 0.00           | 0.000              | $\infty$              | 0          |
| DRI                                                                     | Drift of the DUT                           | 0.10        | rectangular                 | 1.732   | 1     | 0.06           | 0.003              | $\infty$              | 0          |
| $u_c(F_s)$                                                              | Combined Standard Uncertainty (w/ FTE/MEO) | -           | normal                      | -       | -     | 0.34           | 0.115              | $\infty$              | 0          |
| $U(F_s)$                                                                | Expanded Uncertainty (w/ FTE/MEO)          | -           | normal k =                  | 2.00    | -     | 0.7            |                    | $\infty$              | -          |



#### Decision Rule - Accuracy Method

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115:2007, Clause 4.4.3 and 4.5.1. (Procedure 2). The measurement results are directly compared with the test limit to determine conformance with the requirements of the standard.

Risk: The uncertainty of measurement about the measured result is negligible with regard to the final pass/fail decision. The measurement result can be directly compared with the test limit to determine conformance with the requirement (compare IEC Guide 115). The level of risk to falsely accept and falsely reject items is further described in ILAC-G8.”



## **SECTION 4**

### **ACCREDITATION, DISCLAIMERS AND COPYRIGHT**



#### 4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT



This report relates only to the actual item/items tested.

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation.

Results of tests not covered by our UKAS Accreditation Schedule are marked NUA (Not UKAS Accredited).

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## **ANNEX A**

### **PROBE CALIBRATION REPORT**


**Calibration Laboratory of**  
**Schmid & Partner**  
**Engineering AG**

Zeughausstrasse 43, 8004 Zurich, Switzerland


 S Schweizerischer Kalibrierdienst  
 C Service suisse d'étalonnage  
 S Servizio svizzero di taratura  
 S Swiss Calibration Service

 Accredited by the Swiss Accreditation Service (SAS)  
 The Swiss Accreditation Service is one of the signatories to the EA  
 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

 Client **TÜV SÜD UK**

 Certificate No **EX-3759\_Dec22**
**CALIBRATION CERTIFICATE**

 Object **EX3DV4 - SN:3759**

 Calibration procedure(s) **QA CAL-01.v10, QA CAL-12.v10, QA CAL-14.v7, QA CAL-23.v6,  
QA CAL-25.v8  
Calibration procedure for dosimetric E-field probes**

 Calibration date **December 15, 2022**

 This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
 The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

 All calibrations have been conducted in the closed laboratory facility: environment temperature  $(22 \pm 3)^\circ\text{C}$  and humidity  $< 70\%$ .

Calibration Equipment used (M&amp;TE critical for calibration)

| Primary Standards          | ID               | Cal Date (Certificate No.)        | Scheduled Calibration |
|----------------------------|------------------|-----------------------------------|-----------------------|
| Power meter NRP            | SN: 104778       | 04-Apr-22 (No. 217-03525/03524)   | Apr-23                |
| Power sensor NRP-Z91       | SN: 103244       | 04-Apr-22 (No. 217-03524)         | Apr-23                |
| OCF DAK-3.5 (weighted)     | SN: 1249         | 20-Oct-22 (OCF-DAK3.5-1249_Oct22) | Oct-23                |
| OCF DAK-12                 | SN: 1016         | 20-Oct-22 (OCF-DAK12-1016_Oct22)  | Oct-23                |
| Reference 20 dB Attenuator | SN: CC2552 (20x) | 04-Apr-22 (No. 217-03527)         | Apr-23                |
| DAE4                       | SN: 660          | 10-Oct-22 (No. DAE4-660_Oct22)    | Oct-23                |
| Reference Probe ES3DV2     | SN: 3013         | 27-Dec-21 (No. ES3-3013_Dec21)    | Dec-22                |

| Secondary Standards     | ID               | Check Date (in house)             | Scheduled Check        |
|-------------------------|------------------|-----------------------------------|------------------------|
| Power meter E4419B      | SN: GB41293874   | 06-Apr-16 (in house check Jun-22) | In house check: Jun-24 |
| Power sensor E4412A     | SN: MY41498087   | 06-Apr-16 (in house check Jun-22) | In house check: Jun-24 |
| Power sensor E4412A     | SN: 000110210    | 06-Apr-16 (in house check Jun-22) | In house check: Jun-24 |
| RF generator HP 8648C   | SN: US3642U01700 | 04-Aug-99 (in house check Jun-22) | In house check: Jun-24 |
| Network Analyzer E8358A | SN: US41080477   | 31-Mar-14 (in house check Oct-22) | In house check: Oct-24 |

|                                                                                                                 | Name           | Function              | Signature |
|-----------------------------------------------------------------------------------------------------------------|----------------|-----------------------|-----------|
| Calibrated by                                                                                                   | Jeton Kastrati | Laboratory Technician |           |
| Approved by                                                                                                     | Sven Kühn      | Technical Manager     |           |
| This calibration certificate shall not be reproduced except in full without written approval of the laboratory. |                |                       |           |
| Issued: December 16, 2022                                                                                       |                |                       |           |

Certificate No: EX-3759\_Dec22

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### Calibration Laboratory of

Schmid & Partner  
Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst  
C Service suisse d'étalonnage  
S Servizio svizzero di taratura  
S Swiss Calibration Service

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The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

### Glossary

|                        |                                                                                                                                                |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| TSL                    | tissue simulating liquid                                                                                                                       |
| NORM <sub>x,y,z</sub>  | sensitivity in free space                                                                                                                      |
| ConvF                  | sensitivity in TSL / NORM <sub>x,y,z</sub>                                                                                                     |
| DCP                    | diode compression point                                                                                                                        |
| CF                     | crest factor (1/duty_cycle) of the RF signal                                                                                                   |
| A, B, C, D             | modulation dependent linearization parameters                                                                                                  |
| Polarization $\varphi$ | $\varphi$ rotation around probe axis                                                                                                           |
| Polarization $\theta$  | $\theta$ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\theta = 0$ is normal to probe axis |
| Connector Angle        | information used in DASY system to align probe sensor X to the robot coordinate system                                                         |

### Calibration is Performed According to the Following Standards:

- IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices – Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

### Methods Applied and Interpretation of Parameters:

- NORM<sub>x,y,z</sub>**: Assessed for E-field polarization  $\theta = 0$  ( $f \leq 900$  MHz in TEM-cell;  $f > 1800$  MHz: R22 waveguide). NORM<sub>x,y,z</sub> are only intermediate values, i.e., the uncertainties of NORM<sub>x,y,z</sub> does not affect the E<sup>2</sup>-field uncertainty inside TSL (see below ConvF).
- NORM(f)<sub>x,y,z</sub> = NORM<sub>x,y,z</sub> \* frequency\_response** (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP<sub>x,y,z</sub>**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal. DCP does not depend on frequency nor media.
- PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- A<sub>x,y,z</sub>; B<sub>x,y,z</sub>; C<sub>x,y,z</sub>; D<sub>x,y,z</sub>; VR<sub>x,y,z</sub>**: A, B, C, D are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for  $f \leq 800$  MHz) and inside waveguide using analytical field distributions based on power measurements for  $f > 800$  MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM<sub>x,y,z</sub> \* ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from  $\pm 50$  MHz to  $\pm 100$  MHz.
- Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle**: The angle is assessed using the information gained by determining the NORM<sub>x</sub> (no uncertainty required).



EX3DV4 - SN:3759

December 15, 2022

## Parameters of Probe: EX3DV4 - SN:3759

## Basic Calibration Parameters

|                                                           | Sensor X | Sensor Y | Sensor Z | Unc (k = 2)  |
|-----------------------------------------------------------|----------|----------|----------|--------------|
| Norm ( $\mu\text{V}/(\text{V}/\text{m})^2$ ) <sup>A</sup> | 0.51     | 0.47     | 0.51     | $\pm 10.1\%$ |
| DCP (mV) <sup>B</sup>                                     | 98.8     | 99.9     | 100.7    | $\pm 4.7\%$  |

## Calibration Results for Modulation Response

| UID   | Communication System Name   |   | A<br>dB | B<br>dB $\sqrt{\mu\text{V}}$ | C     | D<br>dB | VR<br>mV | Max<br>dev. | Max<br>Unc <sup>E</sup><br>k = 2 |
|-------|-----------------------------|---|---------|------------------------------|-------|---------|----------|-------------|----------------------------------|
| 0     | CW                          | X | 0.00    | 0.00                         | 1.00  | 0.00    | 162.5    | $\pm 2.7\%$ | $\pm 4.7\%$                      |
|       |                             | Y | 0.00    | 0.00                         | 1.00  |         | 155.7    |             |                                  |
|       |                             | Z | 0.00    | 0.00                         | 1.00  |         | 156.6    |             |                                  |
| 10352 | Pulse Waveform (200Hz, 10%) | X | 60.00   | 106.00                       | 25.00 | 10.00   | 60.0     | $\pm 3.1\%$ | $\pm 9.6\%$                      |
|       |                             | Y | 20.00   | 90.79                        | 20.60 |         | 60.0     |             |                                  |
|       |                             | Z | 20.00   | 92.14                        | 21.63 |         | 60.0     |             |                                  |
| 10353 | Pulse Waveform (200Hz, 20%) | X | 20.00   | 93.93                        | 20.98 | 6.99    | 80.0     | $\pm 1.8\%$ | $\pm 9.6\%$                      |
|       |                             | Y | 20.00   | 91.80                        | 20.19 |         | 80.0     |             |                                  |
|       |                             | Z | 20.00   | 93.65                        | 21.18 |         | 80.0     |             |                                  |
| 10354 | Pulse Waveform (200Hz, 40%) | X | 20.00   | 96.67                        | 20.80 | 3.98    | 95.0     | $\pm 1.0\%$ | $\pm 9.6\%$                      |
|       |                             | Y | 20.00   | 94.72                        | 20.39 |         | 95.0     |             |                                  |
|       |                             | Z | 20.00   | 97.08                        | 21.27 |         | 95.0     |             |                                  |
| 10355 | Pulse Waveform (200Hz, 60%) | X | 20.00   | 96.83                        | 19.43 | 2.22    | 120.0    | $\pm 1.1\%$ | $\pm 9.6\%$                      |
|       |                             | Y | 20.00   | 97.70                        | 20.53 |         | 120.0    |             |                                  |
|       |                             | Z | 20.00   | 99.49                        | 20.80 |         | 120.0    |             |                                  |
| 10387 | QPSK Waveform, 1 MHz        | X | 1.47    | 64.12                        | 13.54 | 1.00    | 150.0    | $\pm 2.9\%$ | $\pm 9.6\%$                      |
|       |                             | Y | 1.57    | 64.74                        | 14.09 |         | 150.0    |             |                                  |
|       |                             | Z | 1.66    | 66.53                        | 15.01 |         | 150.0    |             |                                  |
| 10388 | QPSK Waveform, 10 MHz       | X | 1.95    | 65.80                        | 14.33 | 0.00    | 150.0    | $\pm 1.1\%$ | $\pm 9.6\%$                      |
|       |                             | Y | 2.06    | 66.52                        | 14.80 |         | 150.0    |             |                                  |
|       |                             | Z | 2.25    | 68.56                        | 15.86 |         | 150.0    |             |                                  |
| 10396 | 64-QAM Waveform, 100 kHz    | X | 2.81    | 69.07                        | 17.97 | 3.01    | 150.0    | $\pm 0.8\%$ | $\pm 9.6\%$                      |
|       |                             | Y | 3.08    | 71.15                        | 19.10 |         | 150.0    |             |                                  |
|       |                             | Z | 2.86    | 69.56                        | 18.45 |         | 150.0    |             |                                  |
| 10399 | 64-QAM Waveform, 40 MHz     | X | 3.31    | 66.06                        | 15.06 | 0.00    | 150.0    | $\pm 2.4\%$ | $\pm 9.6\%$                      |
|       |                             | Y | 3.40    | 66.45                        | 15.31 |         | 150.0    |             |                                  |
|       |                             | Z | 3.54    | 67.47                        | 15.91 |         | 150.0    |             |                                  |
| 10414 | WLAN CCDF, 64-QAM, 40 MHz   | X | 4.73    | 65.09                        | 15.14 | 0.00    | 150.0    | $\pm 4.1\%$ | $\pm 9.6\%$                      |
|       |                             | Y | 4.80    | 65.28                        | 15.26 |         | 150.0    |             |                                  |
|       |                             | Z | 4.92    | 65.97                        | 15.70 |         | 150.0    |             |                                  |

Note: For details on UID parameters see Appendix

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%.

<sup>A</sup> The uncertainties of Norm X,Y,Z do not affect the  $E^2$ -field uncertainty inside TSL (see Pages 5 to 7).

<sup>B</sup> Linearization parameter uncertainty for maximum specified field strength.

<sup>E</sup> Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.



EX3DV4 - SN:3759

December 15, 2022

**Parameters of Probe: EX3DV4 - SN:3759****Sensor Model Parameters**

|   | C1<br>fF | C2<br>fF | $\alpha$<br>$V^{-1}$ | T1<br>$ms V^{-2}$ | T2<br>$ms V^{-1}$ | T3<br>ms | T4<br>$V^{-2}$ | T5<br>$V^{-1}$ | T6   |
|---|----------|----------|----------------------|-------------------|-------------------|----------|----------------|----------------|------|
| x | 45.1     | 340.04   | 35.95                | 13.08             | 0.22              | 5.10     | 0.78           | 0.38           | 1.01 |
| y | 46.9     | 350.37   | 35.41                | 20.47             | 0.00              | 5.10     | 1.51           | 0.23           | 1.01 |
| z | 46.0     | 344.77   | 35.86                | 15.05             | 0.48              | 5.10     | 0.17           | 0.51           | 1.01 |

**Other Probe Parameters**

|                                               |            |
|-----------------------------------------------|------------|
| Sensor Arrangement                            | Triangular |
| Connector Angle                               | -70.2°     |
| Mechanical Surface Detection Mode             | enabled    |
| Optical Surface Detection Mode                | disabled   |
| Probe Overall Length                          | 337 mm     |
| Probe Body Diameter                           | 10 mm      |
| Tip Length                                    | 9 mm       |
| Tip Diameter                                  | 2.5 mm     |
| Probe Tip to Sensor X Calibration Point       | 1 mm       |
| Probe Tip to Sensor Y Calibration Point       | 1 mm       |
| Probe Tip to Sensor Z Calibration Point       | 1 mm       |
| Recommended Measurement Distance from Surface | 1.4 mm     |

**Note:** Measurement distance from surface can be increased to 3–4 mm for an *Area Scan* job.



EX3DV4 - SN:3759

December 15, 2022

**Parameters of Probe: EX3DV4 - SN:3759****Calibration Parameter Determined in Head Tissue Simulating Media**

| f (MHz) <sup>C</sup> | Relative Permittivity <sup>F</sup> | Conductivity <sup>F</sup> (S/m) | ConvF X | ConvF Y | ConvF Z | Alpha <sup>G</sup> | Depth <sup>G</sup> (mm) | Unc (k = 2) |
|----------------------|------------------------------------|---------------------------------|---------|---------|---------|--------------------|-------------------------|-------------|
| 30                   | 55.0                               | 0.75                            | 15.75   | 15.75   | 15.75   | 0.00               | 1.00                    | ±13.3%      |
| 64                   | 54.2                               | 0.75                            | 13.77   | 13.77   | 13.77   | 0.00               | 1.00                    | ±13.3%      |
| 128                  | 52.8                               | 0.76                            | 12.39   | 12.39   | 12.39   | 0.00               | 1.00                    | ±13.3%      |
| 150                  | 52.3                               | 0.76                            | 12.13   | 12.13   | 12.13   | 0.00               | 1.00                    | ±13.3%      |
| 220                  | 49.0                               | 0.81                            | 11.74   | 11.74   | 11.74   | 0.00               | 1.00                    | ±13.3%      |
| 300                  | 45.3                               | 0.87                            | 11.57   | 11.57   | 11.57   | 0.09               | 1.00                    | ±13.3%      |
| 450                  | 43.5                               | 0.87                            | 10.83   | 10.83   | 10.83   | 0.16               | 1.30                    | ±13.3%      |
| 750                  | 41.9                               | 0.89                            | 9.64    | 9.64    | 9.64    | 0.58               | 0.91                    | ±12.0%      |
| 835                  | 41.5                               | 0.90                            | 9.50    | 9.50    | 9.50    | 0.33               | 1.10                    | ±12.0%      |
| 900                  | 41.5                               | 0.97                            | 9.25    | 9.25    | 9.25    | 0.53               | 0.80                    | ±12.0%      |
| 1300                 | 40.8                               | 1.14                            | 8.99    | 8.99    | 8.99    | 0.36               | 1.09                    | ±12.0%      |
| 1450                 | 40.5                               | 1.20                            | 8.84    | 8.84    | 8.84    | 0.42               | 0.80                    | ±12.0%      |
| 1640                 | 40.2                               | 1.31                            | 8.73    | 8.73    | 8.73    | 0.32               | 0.86                    | ±12.0%      |
| 1750                 | 40.1                               | 1.37                            | 8.67    | 8.67    | 8.67    | 0.36               | 0.86                    | ±12.0%      |
| 1810                 | 40.0                               | 1.40                            | 8.51    | 8.51    | 8.51    | 0.35               | 0.86                    | ±12.0%      |
| 1900                 | 40.0                               | 1.40                            | 8.24    | 8.24    | 8.24    | 0.39               | 0.86                    | ±12.0%      |
| 1950                 | 40.0                               | 1.40                            | 8.23    | 8.23    | 8.23    | 0.35               | 0.86                    | ±12.0%      |
| 2000                 | 40.0                               | 1.40                            | 8.20    | 8.20    | 8.20    | 0.34               | 0.86                    | ±12.0%      |
| 2100                 | 39.8                               | 1.49                            | 8.16    | 8.16    | 8.16    | 0.40               | 0.86                    | ±12.0%      |
| 2300                 | 39.5                               | 1.67                            | 8.10    | 8.10    | 8.10    | 0.30               | 0.90                    | ±12.0%      |
| 2450                 | 39.2                               | 1.80                            | 7.76    | 7.76    | 7.76    | 0.35               | 0.90                    | ±12.0%      |
| 2550                 | 39.1                               | 1.91                            | 7.60    | 7.60    | 7.60    | 0.34               | 0.90                    | ±12.0%      |
| 2600                 | 39.0                               | 1.96                            | 7.50    | 7.50    | 7.50    | 0.34               | 0.90                    | ±12.0%      |
| 3300                 | 38.2                               | 2.71                            | 7.18    | 7.18    | 7.18    | 0.35               | 1.30                    | ±13.1%      |
| 3500                 | 37.9                               | 2.91                            | 7.15    | 7.15    | 7.15    | 0.35               | 1.35                    | ±13.1%      |
| 3700                 | 37.7                               | 3.12                            | 6.90    | 6.90    | 6.90    | 0.35               | 1.35                    | ±13.1%      |
| 4100                 | 37.2                               | 3.53                            | 6.63    | 6.63    | 6.63    | 0.40               | 1.60                    | ±13.1%      |
| 5200                 | 36.0                               | 4.66                            | 5.75    | 5.75    | 5.75    | 0.40               | 1.80                    | ±13.1%      |

<sup>C</sup> Frequency validity above 300 MHz of ±100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ±50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ±10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4–9 MHz, and ConvF assessed at 13 MHz is 9–19 MHz. Above 5 GHz frequency validity can be extended to ±110 MHz.

<sup>F</sup> At frequencies below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

<sup>G</sup> Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ±1% for frequencies below 3 GHz and below ±2% for frequencies between 3–6 GHz at any distance larger than half the probe tip diameter from the boundary.



EX3DV4 - SN:3759

December 15, 2022

## Parameters of Probe: EX3DV4 - SN:3759

### Calibration Parameter Determined in Head Tissue Simulating Media

| f (MHz) <sup>C</sup> | Relative Permittivity <sup>F</sup> | Conductivity <sup>F</sup> (S/m) | ConvF X | ConvF Y | ConvF Z | Alpha <sup>G</sup> | Depth <sup>G</sup> (mm) | Unc (k = 2) |
|----------------------|------------------------------------|---------------------------------|---------|---------|---------|--------------------|-------------------------|-------------|
| 5300                 | 35.9                               | 4.76                            | 5.58    | 5.58    | 5.58    | 0.40               | 1.80                    | ±13.1%      |
| 5500                 | 35.6                               | 4.96                            | 5.20    | 5.20    | 5.20    | 0.40               | 1.80                    | ±13.1%      |
| 5600                 | 35.5                               | 5.07                            | 5.10    | 5.10    | 5.10    | 0.40               | 1.80                    | ±13.1%      |
| 5800                 | 35.3                               | 5.27                            | 5.12    | 5.12    | 5.12    | 0.40               | 1.80                    | ±13.1%      |

<sup>C</sup> Frequency validity above 300 MHz of ±100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ±50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ±10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4–9 MHz, and ConvF assessed at 13 MHz is 9–19 MHz. Above 5 GHz frequency validity can be extended to ±110 MHz.

<sup>F</sup> At frequencies below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

<sup>G</sup> Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ±1% for frequencies below 3 GHz and below ±2% for frequencies between 3–6 GHz at any distance larger than half the probe tip diameter from the boundary.



EX3DV4 - SN:3759

December 15, 2022

**Parameters of Probe: EX3DV4 - SN:3759****Calibration Parameter Determined in Head Tissue Simulating Media**

| f (MHz) <sup>C</sup> | Relative Permittivity <sup>F</sup> | Conductivity <sup>F</sup> (S/m) | ConvF X | ConvF Y | ConvF Z | Alpha <sup>G</sup> | Depth <sup>G</sup> (mm) | Unc (k = 2) |
|----------------------|------------------------------------|---------------------------------|---------|---------|---------|--------------------|-------------------------|-------------|
| 6500                 | 34.5                               | 6.07                            | 5.50    | 5.50    | 5.50    | 0.20               | 2.50                    | ±18.6%      |

<sup>C</sup> Frequency validity at 6.5 GHz is -600/+700 MHz, and ±700 MHz at or above 7 GHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

<sup>F</sup> At frequencies 6–10 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

<sup>G</sup> Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ±1% for frequencies below 3 GHz; below ±2% for frequencies between 3–6 GHz; and below ±4% for frequencies between 6–10 GHz at any distance larger than half the probe tip diameter from the boundary.

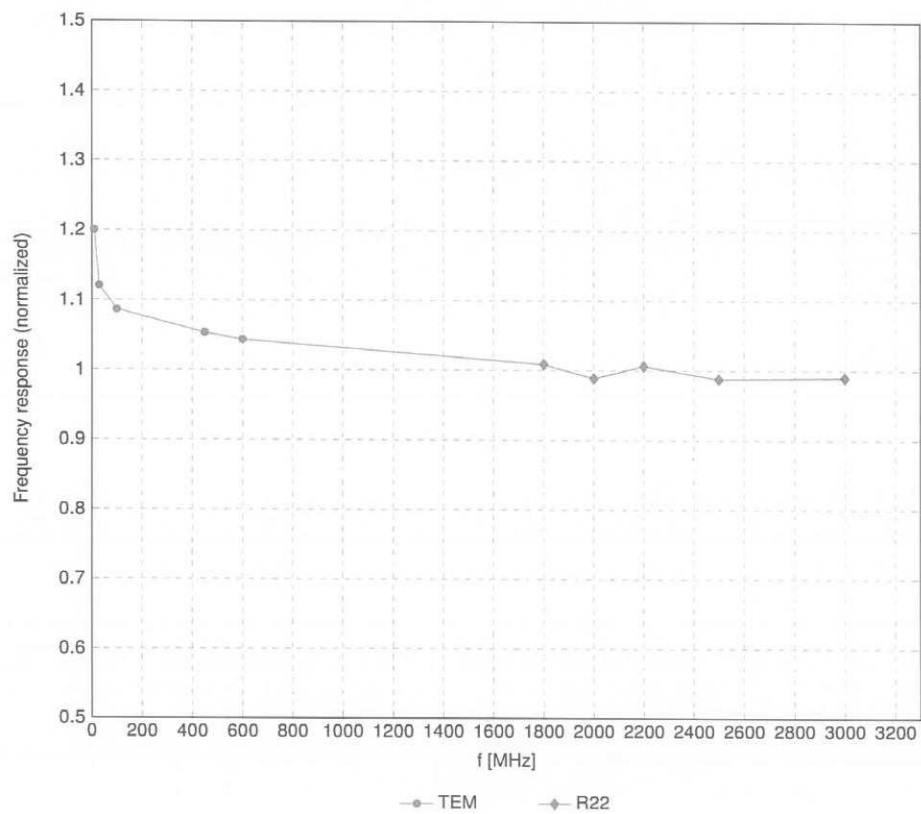


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**Frequency Response of E-Field**

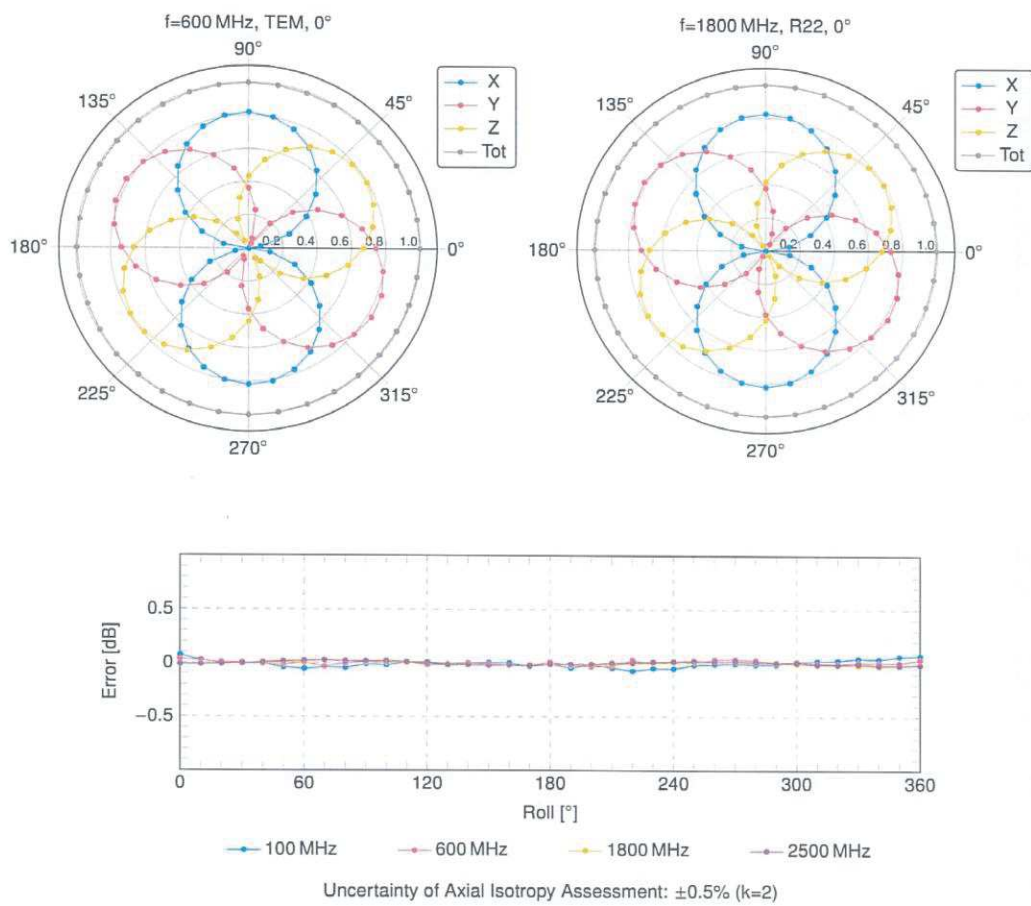
(TEM-Cell:ifi110 EXX, Waveguide:R22)

Uncertainty of Frequency Response of E-field:  $\pm 6.3\%$  ( $k=2$ )



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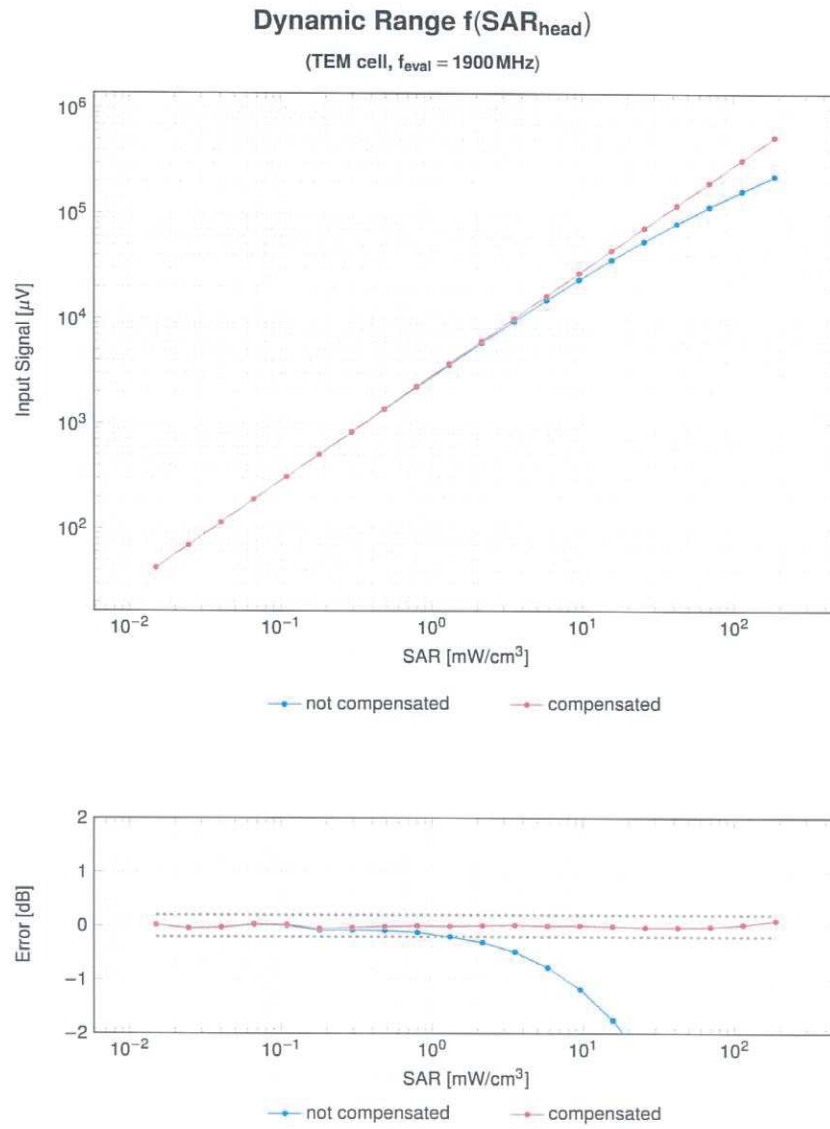
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Receiving Pattern ( $\phi$ ),  $\vartheta = 0^\circ$ 



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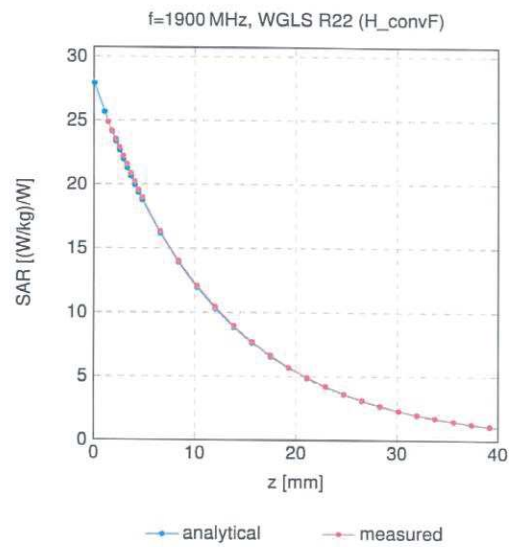




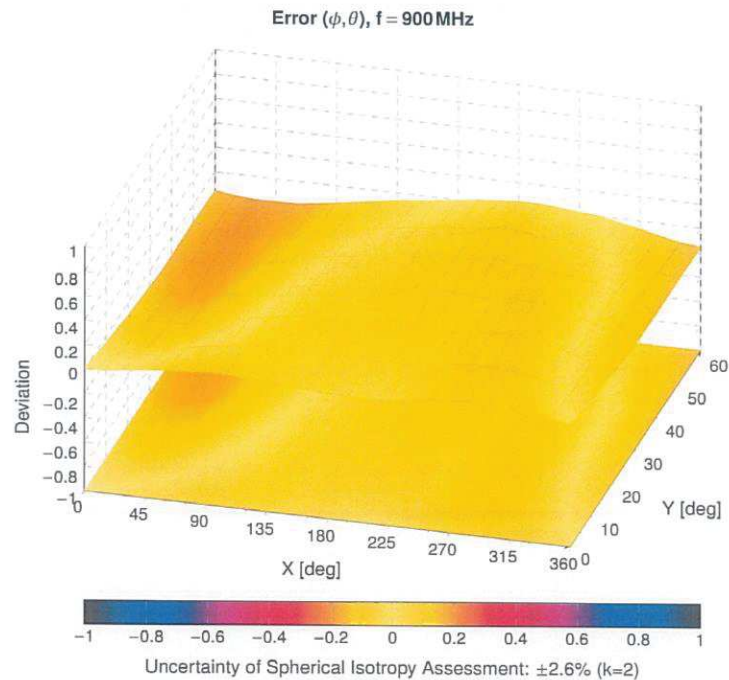
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### Conversion Factor Assessment



### Deviation from Isotropy in Liquid





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## Appendix: Modulation Calibration Parameters

| UID   | Rev | Communication System Name                           | Group     | PAR (dB) | Unc <sup>E</sup> k = 2 |
|-------|-----|-----------------------------------------------------|-----------|----------|------------------------|
| 0     |     | CW                                                  | CW        | 0.00     | ±4.7                   |
| 10010 | CAB | SAR Validation (Square, 100 ms, 10 ms)              | Test      | 10.00    | ±9.6                   |
| 10011 | CAC | UMTS-FDD (WCDMA)                                    | WCDMA     | 2.91     | ±9.6                   |
| 10012 | CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)            | WLAN      | 1.87     | ±9.6                   |
| 10013 | CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)       | WLAN      | 9.46     | ±9.6                   |
| 10021 | DAC | GSM-FDD (TDMA, GMSK)                                | GSM       | 9.39     | ±9.6                   |
| 10023 | DAC | GPRS-FDD (TDMA, GMSK, TN 0)                         | GSM       | 9.57     | ±9.6                   |
| 10024 | DAC | GPRS-FDD (TDMA, GMSK, TN 0-1)                       | GSM       | 6.56     | ±9.6                   |
| 10025 | DAC | EDGE-FDD (TDMA, 8PSK, TN 0)                         | GSM       | 12.62    | ±9.6                   |
| 10026 | DAC | EDGE-FDD (TDMA, 8PSK, TN 0-1)                       | GSM       | 9.55     | ±9.6                   |
| 10027 | DAC | GPRS-FDD (TDMA, GMSK, TN 0-1-2)                     | GSM       | 4.80     | ±9.6                   |
| 10028 | DAC | GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)                   | GSM       | 3.55     | ±9.6                   |
| 10029 | DAC | EDGE-FDD (TDMA, 8PSK, TN 0-1-2)                     | GSM       | 7.78     | ±9.6                   |
| 10030 | CAA | IEEE 802.15.1 Bluetooth (GFSK, DH1)                 | Bluetooth | 5.30     | ±9.6                   |
| 10031 | CAA | IEEE 802.15.1 Bluetooth (GFSK, DH3)                 | Bluetooth | 1.87     | ±9.6                   |
| 10032 | CAA | IEEE 802.15.1 Bluetooth (GFSK, DH5)                 | Bluetooth | 1.16     | ±9.6                   |
| 10033 | CAA | IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)           | Bluetooth | 7.74     | ±9.6                   |
| 10034 | CAA | IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)           | Bluetooth | 4.53     | ±9.6                   |
| 10035 | CAA | IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)           | Bluetooth | 3.83     | ±9.6                   |
| 10036 | CAA | IEEE 802.15.1 Bluetooth (8-DPSK, DH1)               | Bluetooth | 8.01     | ±9.6                   |
| 10037 | CAA | IEEE 802.15.1 Bluetooth (8-DPSK, DH3)               | Bluetooth | 4.77     | ±9.6                   |
| 10038 | CAA | IEEE 802.15.1 Bluetooth (8-DPSK, DH5)               | Bluetooth | 4.10     | ±9.6                   |
| 10039 | CAB | CDMA2000 (1xRTT, RC1)                               | CDMA2000  | 4.57     | ±9.6                   |
| 10042 | CAB | IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, HalfRate) | AMPS      | 7.78     | ±9.6                   |
| 10044 | CAA | IS-91/EIA/TIA-553 FDD (FDMA, FM)                    | AMPS      | 0.00     | ±9.6                   |
| 10048 | CAA | DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)           | DECT      | 13.80    | ±9.6                   |
| 10049 | CAA | DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)         | DECT      | 10.79    | ±9.6                   |
| 10056 | CAA | UMTS-TDD (TD-SCDMA, 1.28 Mcps)                      | TD-SCDMA  | 11.01    | ±9.6                   |
| 10058 | DAC | EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)                   | GSM       | 6.52     | ±9.6                   |
| 10059 | CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)            | WLAN      | 2.12     | ±9.6                   |
| 10060 | CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)          | WLAN      | 2.83     | ±9.6                   |
| 10061 | CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)           | WLAN      | 3.60     | ±9.6                   |
| 10062 | CAD | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)            | WLAN      | 8.68     | ±9.6                   |
| 10063 | CAD | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)            | WLAN      | 8.63     | ±9.6                   |
| 10064 | CAD | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)           | WLAN      | 9.09     | ±9.6                   |
| 10065 | CAD | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)           | WLAN      | 9.00     | ±9.6                   |
| 10066 | CAD | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)           | WLAN      | 9.38     | ±9.6                   |
| 10067 | CAD | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)           | WLAN      | 10.12    | ±9.6                   |
| 10068 | CAD | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)           | WLAN      | 10.24    | ±9.6                   |
| 10069 | CAD | IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)           | WLAN      | 10.56    | ±9.6                   |
| 10071 | CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)       | WLAN      | 9.83     | ±9.6                   |
| 10072 | CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)      | WLAN      | 9.62     | ±9.6                   |
| 10073 | CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)      | WLAN      | 9.94     | ±9.6                   |
| 10074 | CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)      | WLAN      | 10.30    | ±9.6                   |
| 10075 | CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)      | WLAN      | 10.77    | ±9.6                   |
| 10076 | CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)      | WLAN      | 10.94    | ±9.6                   |
| 10077 | CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)      | WLAN      | 11.00    | ±9.6                   |
| 10081 | CAB | CDMA2000 (1xRTT, RC3)                               | CDMA2000  | 3.97     | ±9.6                   |
| 10082 | CAB | IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, FullRate) | AMPS      | 4.77     | ±9.6                   |
| 10090 | DAC | GPRS-FDD (TDMA, GMSK, TN 0-4)                       | GSM       | 6.56     | ±9.6                   |
| 10097 | CAC | UMTS-FDD (HSDPA)                                    | WCDMA     | 3.98     | ±9.6                   |
| 10098 | CAC | UMTS-FDD (HSUPA, Subtest 2)                         | WCDMA     | 3.98     | ±9.6                   |
| 10099 | DAC | EDGE-FDD (TDMA, 8PSK, TN 0-4)                       | GSM       | 9.55     | ±9.6                   |
| 10100 | CAF | LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)            | LTE-FDD   | 5.67     | ±9.6                   |
| 10101 | CAF | LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)          | LTE-FDD   | 6.42     | ±9.6                   |
| 10102 | CAF | LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)          | LTE-FDD   | 6.60     | ±9.6                   |
| 10103 | CAH | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)            | LTE-TDD   | 9.29     | ±9.6                   |
| 10104 | CAH | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)          | LTE-TDD   | 9.97     | ±9.6                   |
| 10105 | CAH | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)          | LTE-TDD   | 10.01    | ±9.6                   |
| 10108 | CAH | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)            | LTE-FDD   | 5.80     | ±9.6                   |
| 10109 | CAH | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)          | LTE-FDD   | 6.43     | ±9.6                   |
| 10110 | CAH | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)             | LTE-FDD   | 5.75     | ±9.6                   |
| 10111 | CAH | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)           | LTE-FDD   | 6.44     | ±9.6                   |

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| UID   | Rev | Communication System Name                      | Group   | PAR (dB) | Unc <sup>E</sup> $k = 2$ |
|-------|-----|------------------------------------------------|---------|----------|--------------------------|
| 10112 | CAH | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)     | LTE-FDD | 6.59     | ±9.6                     |
| 10113 | CAH | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)      | LTE-FDD | 6.62     | ±9.6                     |
| 10114 | CAD | IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)  | WLAN    | 8.10     | ±9.6                     |
| 10115 | CAD | IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)  | WLAN    | 8.46     | ±9.6                     |
| 10116 | CAD | IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM) | WLAN    | 8.15     | ±9.6                     |
| 10117 | CAD | IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)       | WLAN    | 8.07     | ±9.6                     |
| 10118 | CAD | IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)       | WLAN    | 8.59     | ±9.6                     |
| 10119 | CAD | IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)      | WLAN    | 8.13     | ±9.6                     |
| 10140 | CAF | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)     | LTE-FDD | 6.49     | ±9.6                     |
| 10141 | CAF | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)     | LTE-FDD | 6.53     | ±9.6                     |
| 10142 | CAF | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)        | LTE-FDD | 5.73     | ±9.6                     |
| 10143 | CAF | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)      | LTE-FDD | 6.35     | ±9.6                     |
| 10144 | CAF | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)      | LTE-FDD | 6.65     | ±9.6                     |
| 10145 | CAG | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)      | LTE-FDD | 5.76     | ±9.6                     |
| 10146 | CAG | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)    | LTE-FDD | 6.41     | ±9.6                     |
| 10147 | CAG | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)    | LTE-FDD | 6.72     | ±9.6                     |
| 10149 | CAF | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)      | LTE-FDD | 6.42     | ±9.6                     |
| 10150 | CAF | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)      | LTE-FDD | 6.60     | ±9.6                     |
| 10151 | CAH | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)        | LTE-TDD | 9.28     | ±9.6                     |
| 10152 | CAH | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)      | LTE-TDD | 9.92     | ±9.6                     |
| 10153 | CAH | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)      | LTE-TDD | 10.05    | ±9.6                     |
| 10154 | CAH | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)        | LTE-FDD | 5.75     | ±9.6                     |
| 10155 | CAH | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)      | LTE-FDD | 6.43     | ±9.6                     |
| 10156 | CAH | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)         | LTE-FDD | 5.79     | ±9.6                     |
| 10157 | CAH | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)       | LTE-FDD | 6.49     | ±9.6                     |
| 10158 | CAH | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)      | LTE-FDD | 6.62     | ±9.6                     |
| 10159 | CAH | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)       | LTE-FDD | 6.56     | ±9.6                     |
| 10160 | CAF | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)        | LTE-FDD | 5.82     | ±9.6                     |
| 10161 | CAF | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)      | LTE-FDD | 6.43     | ±9.6                     |
| 10162 | CAF | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)      | LTE-FDD | 6.58     | ±9.6                     |
| 10166 | CAG | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)       | LTE-FDD | 5.46     | ±9.6                     |
| 10167 | CAG | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)     | LTE-FDD | 6.21     | ±9.6                     |
| 10168 | CAG | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)     | LTE-FDD | 6.79     | ±9.6                     |
| 10169 | CAF | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)          | LTE-FDD | 5.73     | ±9.6                     |
| 10170 | CAF | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)        | LTE-FDD | 6.52     | ±9.6                     |
| 10171 | AAF | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)        | LTE-FDD | 6.49     | ±9.6                     |
| 10172 | CAH | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)          | LTE-TDD | 9.21     | ±9.6                     |
| 10173 | CAH | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)        | LTE-TDD | 9.48     | ±9.6                     |
| 10174 | CAH | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)        | LTE-TDD | 10.25    | ±9.6                     |
| 10175 | CAH | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)          | LTE-FDD | 5.72     | ±9.6                     |
| 10176 | CAH | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)        | LTE-FDD | 6.52     | ±9.6                     |
| 10177 | CAJ | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)           | LTE-FDD | 5.73     | ±9.6                     |
| 10178 | CAH | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)         | LTE-FDD | 6.52     | ±9.6                     |
| 10179 | CAH | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)        | LTE-FDD | 6.50     | ±9.6                     |
| 10180 | CAH | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)         | LTE-FDD | 6.50     | ±9.6                     |
| 10181 | CAF | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)          | LTE-FDD | 5.72     | ±9.6                     |
| 10182 | CAF | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)        | LTE-FDD | 6.52     | ±9.6                     |
| 10183 | AAE | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)        | LTE-FDD | 6.50     | ±9.6                     |
| 10184 | CAF | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)           | LTE-FDD | 5.73     | ±9.6                     |
| 10185 | CAF | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)         | LTE-FDD | 6.51     | ±9.6                     |
| 10186 | AAF | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)         | LTE-FDD | 6.50     | ±9.6                     |
| 10187 | CAG | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)         | LTE-FDD | 5.73     | ±9.6                     |
| 10188 | CAG | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)       | LTE-FDD | 6.52     | ±9.6                     |
| 10189 | AAG | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)       | LTE-FDD | 6.50     | ±9.6                     |
| 10193 | CAD | IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)   | WLAN    | 8.09     | ±9.6                     |
| 10194 | CAD | IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)  | WLAN    | 8.12     | ±9.6                     |
| 10195 | CAD | IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)  | WLAN    | 8.21     | ±9.6                     |
| 10196 | CAD | IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)        | WLAN    | 8.10     | ±9.6                     |
| 10197 | CAD | IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)       | WLAN    | 8.13     | ±9.6                     |
| 10198 | CAD | IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)       | WLAN    | 8.27     | ±9.6                     |
| 10219 | CAD | IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)        | WLAN    | 8.03     | ±9.6                     |
| 10220 | CAD | IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)     | WLAN    | 8.13     | ±9.6                     |
| 10221 | CAD | IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)     | WLAN    | 8.27     | ±9.6                     |
| 10222 | CAD | IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)         | WLAN    | 8.06     | ±9.6                     |
| 10223 | CAD | IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)       | WLAN    | 8.48     | ±9.6                     |
| 10224 | CAD | IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)      | WLAN    | 8.08     | ±9.6                     |

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| UID   | Rev | Communication System Name                                            | Group    | PAR (dB) | Unc <sup>E</sup> k = 2 |
|-------|-----|----------------------------------------------------------------------|----------|----------|------------------------|
| 10225 | CAC | UMTS-FDD (HSPA+)                                                     | WCDMA    | 5.97     | ±9.6                   |
| 10226 | CAC | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)                             | LTE-TDD  | 9.49     | ±9.6                   |
| 10227 | CAC | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)                             | LTE-TDD  | 10.26    | ±9.6                   |
| 10228 | CAC | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)                               | LTE-TDD  | 9.22     | ±9.6                   |
| 10229 | CAE | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)                               | LTE-TDD  | 9.48     | ±9.6                   |
| 10230 | CAE | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)                               | LTE-TDD  | 10.25    | ±9.6                   |
| 10231 | CAE | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)                                 | LTE-TDD  | 9.19     | ±9.6                   |
| 10232 | CAH | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)                               | LTE-TDD  | 9.48     | ±9.6                   |
| 10233 | CAH | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)                               | LTE-TDD  | 10.25    | ±9.6                   |
| 10234 | CAH | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)                                 | LTE-TDD  | 9.21     | ±9.6                   |
| 10235 | CAH | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)                              | LTE-TDD  | 9.48     | ±9.6                   |
| 10236 | CAH | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)                              | LTE-TDD  | 10.25    | ±9.6                   |
| 10237 | CAH | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)                                | LTE-TDD  | 9.21     | ±9.6                   |
| 10238 | CAG | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)                              | LTE-TDD  | 9.48     | ±9.6                   |
| 10239 | CAG | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)                              | LTE-TDD  | 10.25    | ±9.6                   |
| 10240 | CAG | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)                                | LTE-TDD  | 9.21     | ±9.6                   |
| 10241 | CAC | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)                           | LTE-TDD  | 9.82     | ±9.6                   |
| 10242 | CAC | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)                           | LTE-TDD  | 9.86     | ±9.6                   |
| 10243 | CAC | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)                             | LTE-TDD  | 9.46     | ±9.6                   |
| 10244 | CAE | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)                             | LTE-TDD  | 10.06    | ±9.6                   |
| 10245 | CAE | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)                             | LTE-TDD  | 10.06    | ±9.6                   |
| 10246 | CAE | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)                               | LTE-TDD  | 9.30     | ±9.6                   |
| 10247 | CAH | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)                             | LTE-TDD  | 9.91     | ±9.6                   |
| 10248 | CAH | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)                             | LTE-TDD  | 10.09    | ±9.6                   |
| 10249 | CAH | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)                               | LTE-TDD  | 9.29     | ±9.6                   |
| 10250 | CAH | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)                            | LTE-TDD  | 9.81     | ±9.6                   |
| 10251 | CAH | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)                            | LTE-TDD  | 10.17    | ±9.6                   |
| 10252 | CAH | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)                              | LTE-TDD  | 9.24     | ±9.6                   |
| 10253 | CAG | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)                            | LTE-TDD  | 9.90     | ±9.6                   |
| 10254 | CAG | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)                            | LTE-TDD  | 10.14    | ±9.6                   |
| 10255 | CAG | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)                              | LTE-TDD  | 9.20     | ±9.6                   |
| 10256 | CAC | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)                          | LTE-TDD  | 9.96     | ±9.6                   |
| 10257 | CAC | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)                          | LTE-TDD  | 10.08    | ±9.6                   |
| 10258 | CAC | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)                            | LTE-TDD  | 9.34     | ±9.6                   |
| 10259 | CAE | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)                            | LTE-TDD  | 9.98     | ±9.6                   |
| 10260 | CAE | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)                            | LTE-TDD  | 9.97     | ±9.6                   |
| 10261 | CAE | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)                              | LTE-TDD  | 9.24     | ±9.6                   |
| 10262 | CAH | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)                            | LTE-TDD  | 9.83     | ±9.6                   |
| 10263 | CAH | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)                            | LTE-TDD  | 10.16    | ±9.6                   |
| 10264 | CAH | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)                              | LTE-TDD  | 9.23     | ±9.6                   |
| 10265 | CAH | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)                           | LTE-TDD  | 9.92     | ±9.6                   |
| 10266 | CAH | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)                           | LTE-TDD  | 10.07    | ±9.6                   |
| 10267 | CAH | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)                             | LTE-TDD  | 9.30     | ±9.6                   |
| 10268 | CAG | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)                           | LTE-TDD  | 10.06    | ±9.6                   |
| 10269 | CAG | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)                           | LTE-TDD  | 10.13    | ±9.6                   |
| 10270 | CAG | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)                             | LTE-TDD  | 9.58     | ±9.6                   |
| 10274 | CAC | UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)                            | WCDMA    | 4.87     | ±9.6                   |
| 10275 | CAC | UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)                             | WCDMA    | 3.96     | ±9.6                   |
| 10277 | CAA | PHS (QPSK)                                                           | PHS      | 11.81    | ±9.6                   |
| 10278 | CAA | PHS (QPSK, BW 884 MHz, Rolloff 0.5)                                  | PHS      | 11.81    | ±9.6                   |
| 10279 | CAA | PHS (QPSK, BW 884 MHz, Rolloff 0.38)                                 | PHS      | 12.18    | ±9.6                   |
| 10290 | AAB | CDMA2000, RC1, SO55, Full Rate                                       | CDMA2000 | 3.91     | ±9.6                   |
| 10291 | AAB | CDMA2000, RC3, SO55, Full Rate                                       | CDMA2000 | 3.46     | ±9.6                   |
| 10292 | AAB | CDMA2000, RC3, SO32, Full Rate                                       | CDMA2000 | 3.39     | ±9.6                   |
| 10293 | AAB | CDMA2000, RC3, SO3, Full Rate                                        | CDMA2000 | 3.50     | ±9.6                   |
| 10295 | AAB | CDMA2000, RC1, SO3, 1/8th Rate 25 fr.                                | CDMA2000 | 12.49    | ±9.6                   |
| 10297 | AAE | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)                              | LTE-FDD  | 5.81     | ±9.6                   |
| 10298 | AAE | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)                               | LTE-FDD  | 5.72     | ±9.6                   |
| 10299 | AAE | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)                             | LTE-FDD  | 6.39     | ±9.6                   |
| 10300 | AAE | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)                             | LTE-FDD  | 6.60     | ±9.6                   |
| 10301 | AAA | IEEE 802.16e WiMAX (29:18, 5 ms, 10 MHz, QPSK, PUSC)                 | WiMAX    | 12.03    | ±9.6                   |
| 10302 | AAA | IEEE 802.16e WiMAX (29:18, 5 ms, 10 MHz, QPSK, PUSC, 3 CTRL symbols) | WiMAX    | 12.57    | ±9.6                   |
| 10303 | AAA | IEEE 802.16e WiMAX (31:15, 5 ms, 10 MHz, 64QAM, PUSC)                | WiMAX    | 12.52    | ±9.6                   |
| 10304 | AAA | IEEE 802.16e WiMAX (29:18, 5 ms, 10 MHz, 64QAM, PUSC)                | WiMAX    | 11.86    | ±9.6                   |
| 10305 | AAA | IEEE 802.16e WiMAX (31:15, 10 ms, 10 MHz, 64QAM, PUSC, 15 symbols)   | WiMAX    | 15.24    | ±9.6                   |
| 10306 | AAA | IEEE 802.16e WiMAX (29:18, 10 ms, 10 MHz, 64QAM, PUSC, 18 symbols)   | WiMAX    | 14.67    | ±9.6                   |

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| UID   | Rev | Communication System Name                                                       | Group    | PAR (dB) | Unc <sup>F</sup> k = 2 |
|-------|-----|---------------------------------------------------------------------------------|----------|----------|------------------------|
| 10307 | AAA | IEEE 802.16e WiMAX (29:18, 10 ms, 10 MHz, QPSK, PUSC, 18 symbols)               | WiMAX    | 14.49    | ±9.6                   |
| 10308 | AAA | IEEE 802.16e WiMAX (29:18, 10 ms, 10 MHz, 16QAM, PUSC)                          | WiMAX    | 14.46    | ±9.6                   |
| 10309 | AAA | IEEE 802.16e WiMAX (29:18, 10 ms, 10 MHz, 16QAM, AMC 2x3, 18 symbols)           | WiMAX    | 14.58    | ±9.6                   |
| 10310 | AAA | IEEE 802.16e WiMAX (29:18, 10 ms, 10 MHz, QPSK, AMC 2x3, 18 symbols)            | WiMAX    | 14.57    | ±9.6                   |
| 10311 | AAE | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)                                        | LTE-FDD  | 6.06     | ±9.6                   |
| 10313 | AAA | iDEN 1:3                                                                        | iDEN     | 10.51    | ±9.6                   |
| 10314 | AAA | iDEN 1:6                                                                        | iDEN     | 13.48    | ±9.6                   |
| 10315 | AAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)                       | WLAN     | 1.71     | ±9.6                   |
| 10316 | AAB | IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)                   | WLAN     | 8.36     | ±9.6                   |
| 10317 | AAD | IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)                         | WLAN     | 8.36     | ±9.6                   |
| 10352 | AAA | Pulse Waveform (200Hz, 10%)                                                     | Generic  | 10.00    | ±9.6                   |
| 10353 | AAA | Pulse Waveform (200Hz, 20%)                                                     | Generic  | 6.99     | ±9.6                   |
| 10354 | AAA | Pulse Waveform (200Hz, 40%)                                                     | Generic  | 3.98     | ±9.6                   |
| 10355 | AAA | Pulse Waveform (200Hz, 60%)                                                     | Generic  | 2.22     | ±9.6                   |
| 10356 | AAA | Pulse Waveform (200Hz, 80%)                                                     | Generic  | 0.97     | ±9.6                   |
| 10387 | AAA | QPSK Waveform, 1 MHz                                                            | Generic  | 5.10     | ±9.6                   |
| 10388 | AAA | QPSK Waveform, 10 MHz                                                           | Generic  | 5.22     | ±9.6                   |
| 10396 | AAA | 64-QAM Waveform, 100 kHz                                                        | Generic  | 6.27     | ±9.6                   |
| 10399 | AAA | 64-QAM Waveform, 40 MHz                                                         | Generic  | 6.27     | ±9.6                   |
| 10400 | AAE | IEEE 802.11ac WiFi (20 MHz, 64-QAM, 99pc duty cycle)                            | WLAN     | 8.37     | ±9.6                   |
| 10401 | AAE | IEEE 802.11ac WiFi (40 MHz, 64-QAM, 99pc duty cycle)                            | WLAN     | 8.60     | ±9.6                   |
| 10402 | AAE | IEEE 802.11ac WiFi (80 MHz, 64-QAM, 99pc duty cycle)                            | WLAN     | 8.53     | ±9.6                   |
| 10403 | AAB | CDMA2000 (1xEV-DO, Rev. 0)                                                      | CDMA2000 | 3.76     | ±9.6                   |
| 10404 | AAB | CDMA2000 (1xEV-DO, Rev. A)                                                      | CDMA2000 | 3.77     | ±9.6                   |
| 10406 | AAB | CDMA2000, RC3, SC32, SCH0, Full Rate                                            | CDMA2000 | 5.22     | ±9.6                   |
| 10410 | AAH | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9, Subframe Conf=4) | LTE-TDD  | 7.82     | ±9.6                   |
| 10414 | AAA | WLAN CCDF, 64-QAM, 40 MHz                                                       | Generic  | 8.54     | ±9.6                   |
| 10415 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)                       | WLAN     | 1.54     | ±9.6                   |
| 10416 | AAA | IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)                   | WLAN     | 8.23     | ±9.6                   |
| 10417 | AAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)                       | WLAN     | 8.23     | ±9.6                   |
| 10418 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preamble)   | WLAN     | 8.14     | ±9.6                   |
| 10419 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preamble)  | WLAN     | 8.19     | ±9.6                   |
| 10422 | AAC | IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)                                    | WLAN     | 8.32     | ±9.6                   |
| 10423 | AAC | IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)                                 | WLAN     | 8.47     | ±9.6                   |
| 10424 | AAC | IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)                                 | WLAN     | 8.40     | ±9.6                   |
| 10425 | AAC | IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)                                     | WLAN     | 8.41     | ±9.6                   |
| 10426 | AAC | IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)                                   | WLAN     | 8.45     | ±9.6                   |
| 10427 | AAC | IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)                                  | WLAN     | 8.41     | ±9.6                   |
| 10430 | AAE | LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)                                                | LTE-FDD  | 8.28     | ±9.6                   |
| 10431 | AAE | LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)                                               | LTE-FDD  | 8.38     | ±9.6                   |
| 10432 | AAD | LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)                                               | LTE-FDD  | 8.34     | ±9.6                   |
| 10433 | AAD | LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)                                               | LTE-FDD  | 8.34     | ±9.6                   |
| 10434 | AAB | W-CDMA (BS Test Model 1, 64 DPCH)                                               | WCDMA    | 8.60     | ±9.6                   |
| 10435 | AAG | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)                  | LTE-TDD  | 7.82     | ±9.6                   |
| 10447 | AAE | LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)                                  | LTE-FDD  | 7.56     | ±9.6                   |
| 10448 | AAE | LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)                                 | LTE-FDD  | 7.53     | ±9.6                   |
| 10449 | AAD | LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)                                 | LTE-FDD  | 7.51     | ±9.6                   |
| 10450 | AAD | LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)                                 | LTE-FDD  | 7.48     | ±9.6                   |
| 10451 | AAB | W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)                                 | WCDMA    | 7.59     | ±9.6                   |
| 10453 | AAE | Validation (Square, 10 ms, 1 ms)                                                | Test     | 10.00    | ±9.6                   |
| 10456 | AAC | IEEE 802.11ac WiFi (160 MHz, 64-QAM, 99pc duty cycle)                           | WLAN     | 8.63     | ±9.6                   |
| 10457 | AAB | UMTS-FDD (DC-HSDPA)                                                             | WCDMA    | 6.62     | ±9.6                   |
| 10458 | AAA | CDMA2000 (1xEV-DO, Rev. B, 2 carriers)                                          | CDMA2000 | 6.55     | ±9.6                   |
| 10459 | AAA | CDMA2000 (1xEV-DO, Rev. B, 3 carriers)                                          | CDMA2000 | 8.25     | ±9.6                   |
| 10460 | AAB | UMTS-FDD (WCDMA, AMR)                                                           | WCDMA    | 2.39     | ±9.6                   |
| 10461 | AAC | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)                 | LTE-TDD  | 7.82     | ±9.6                   |
| 10462 | AAC | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)               | LTE-TDD  | 8.30     | ±9.6                   |
| 10463 | AAC | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)               | LTE-TDD  | 8.56     | ±9.6                   |
| 10464 | AAD | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)                   | LTE-TDD  | 7.82     | ±9.6                   |
| 10465 | AAD | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)                 | LTE-TDD  | 8.32     | ±9.6                   |
| 10466 | AAD | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)                 | LTE-TDD  | 8.57     | ±9.6                   |
| 10467 | AAG | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)                   | LTE-TDD  | 7.82     | ±9.6                   |
| 10468 | AAG | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)                 | LTE-TDD  | 8.32     | ±9.6                   |
| 10469 | AAG | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)                 | LTE-TDD  | 8.56     | ±9.6                   |
| 10470 | AAG | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)                  | LTE-TDD  | 7.82     | ±9.6                   |
| 10471 | AAG | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)                | LTE-TDD  | 8.32     | ±9.6                   |

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| UID   | Rev | Communication System Name                                            | Group   | PAR (dB) | Unc <sup>E</sup> k = 2 |
|-------|-----|----------------------------------------------------------------------|---------|----------|------------------------|
| 10472 | AAG | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)     | LTE-TDD | 8.57     | ±9.6                   |
| 10473 | AAF | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)       | LTE-TDD | 7.82     | ±9.6                   |
| 10474 | AAF | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)     | LTE-TDD | 8.32     | ±9.6                   |
| 10475 | AAF | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)     | LTE-TDD | 8.57     | ±9.6                   |
| 10477 | AAG | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)     | LTE-TDD | 8.32     | ±9.6                   |
| 10478 | AAG | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)     | LTE-TDD | 8.57     | ±9.6                   |
| 10479 | AAC | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)    | LTE-TDD | 7.74     | ±9.6                   |
| 10480 | AAC | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)  | LTE-TDD | 8.18     | ±9.6                   |
| 10481 | AAC | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)  | LTE-TDD | 8.45     | ±9.6                   |
| 10482 | AAD | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)      | LTE-TDD | 7.71     | ±9.6                   |
| 10483 | AAD | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)    | LTE-TDD | 8.39     | ±9.6                   |
| 10484 | AAD | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)    | LTE-TDD | 8.47     | ±9.6                   |
| 10485 | AAG | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)      | LTE-TDD | 7.59     | ±9.6                   |
| 10486 | AAG | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)    | LTE-TDD | 8.38     | ±9.6                   |
| 10487 | AAG | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)    | LTE-TDD | 8.60     | ±9.6                   |
| 10488 | AAG | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | LTE-TDD | 7.70     | ±9.6                   |
| 10489 | AAG | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 8.31     | ±9.6                   |
| 10490 | AAG | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 8.54     | ±9.6                   |
| 10491 | AAF | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | LTE-TDD | 7.74     | ±9.6                   |
| 10492 | AAF | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 8.41     | ±9.6                   |
| 10493 | AAF | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 8.55     | ±9.6                   |
| 10494 | AAG | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | LTE-TDD | 7.74     | ±9.6                   |
| 10495 | AAG | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 8.37     | ±9.6                   |
| 10496 | AAG | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 8.54     | ±9.6                   |
| 10497 | AAC | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 7.67     | ±9.6                   |
| 10498 | AAC | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.40     | ±9.6                   |
| 10499 | AAC | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.68     | ±9.6                   |
| 10500 | AAD | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | LTE-TDD | 7.67     | ±9.6                   |
| 10501 | AAD | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 8.44     | ±9.6                   |
| 10502 | AAD | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 8.52     | ±9.6                   |
| 10503 | AAG | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | LTE-TDD | 7.72     | ±9.6                   |
| 10504 | AAG | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 8.31     | ±9.6                   |
| 10505 | AAG | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 8.54     | ±9.6                   |
| 10506 | AAG | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)    | LTE-TDD | 7.74     | ±9.6                   |
| 10507 | AAG | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)  | LTE-TDD | 8.36     | ±9.6                   |
| 10508 | AAG | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)  | LTE-TDD | 8.55     | ±9.6                   |
| 10509 | AAF | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)    | LTE-TDD | 7.99     | ±9.6                   |
| 10510 | AAF | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)  | LTE-TDD | 8.49     | ±9.6                   |
| 10511 | AAF | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)  | LTE-TDD | 8.51     | ±9.6                   |
| 10512 | AAG | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)    | LTE-TDD | 7.74     | ±9.6                   |
| 10513 | AAG | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)  | LTE-TDD | 8.42     | ±9.6                   |
| 10514 | AAG | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)  | LTE-TDD | 8.45     | ±9.6                   |
| 10515 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)            | WLAN    | 1.58     | ±9.6                   |
| 10516 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)          | WLAN    | 1.57     | ±9.6                   |
| 10517 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)           | WLAN    | 1.58     | ±9.6                   |
| 10518 | AAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)            | WLAN    | 8.23     | ±9.6                   |
| 10519 | AAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)           | WLAN    | 8.39     | ±9.6                   |
| 10520 | AAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)           | WLAN    | 8.12     | ±9.6                   |
| 10521 | AAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)           | WLAN    | 7.97     | ±9.6                   |
| 10522 | AAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)           | WLAN    | 8.45     | ±9.6                   |
| 10523 | AAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)           | WLAN    | 8.08     | ±9.6                   |
| 10524 | AAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle)           | WLAN    | 8.27     | ±9.6                   |
| 10525 | AAC | IEEE 802.11ac WiFi (20 MHz, MCS0, 99pc duty cycle)                   | WLAN    | 8.36     | ±9.6                   |
| 10526 | AAC | IEEE 802.11ac WiFi (20 MHz, MCS1, 99pc duty cycle)                   | WLAN    | 8.42     | ±9.6                   |
| 10527 | AAC | IEEE 802.11ac WiFi (20 MHz, MCS2, 99pc duty cycle)                   | WLAN    | 8.21     | ±9.6                   |
| 10528 | AAC | IEEE 802.11ac WiFi (20 MHz, MCS3, 99pc duty cycle)                   | WLAN    | 8.36     | ±9.6                   |
| 10529 | AAC | IEEE 802.11ac WiFi (20 MHz, MCS4, 99pc duty cycle)                   | WLAN    | 8.36     | ±9.6                   |
| 10531 | AAC | IEEE 802.11ac WiFi (20 MHz, MCS6, 99pc duty cycle)                   | WLAN    | 8.43     | ±9.6                   |
| 10532 | AAC | IEEE 802.11ac WiFi (20 MHz, MCS7, 99pc duty cycle)                   | WLAN    | 8.29     | ±9.6                   |
| 10533 | AAC | IEEE 802.11ac WiFi (20 MHz, MCS8, 99pc duty cycle)                   | WLAN    | 8.38     | ±9.6                   |
| 10534 | AAC | IEEE 802.11ac WiFi (40 MHz, MCS0, 99pc duty cycle)                   | WLAN    | 8.45     | ±9.6                   |
| 10535 | AAC | IEEE 802.11ac WiFi (40 MHz, MCS1, 99pc duty cycle)                   | WLAN    | 8.45     | ±9.6                   |
| 10536 | AAC | IEEE 802.11ac WiFi (40 MHz, MCS2, 99pc duty cycle)                   | WLAN    | 8.32     | ±9.6                   |
| 10537 | AAC | IEEE 802.11ac WiFi (40 MHz, MCS3, 99pc duty cycle)                   | WLAN    | 8.44     | ±9.6                   |
| 10538 | AAC | IEEE 802.11ac WiFi (40 MHz, MCS4, 99pc duty cycle)                   | WLAN    | 8.54     | ±9.6                   |
| 10540 | AAC | IEEE 802.11ac WiFi (40 MHz, MCS6, 99pc duty cycle)                   | WLAN    | 8.39     | ±9.6                   |

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| UID   | Rev | Communication System Name                                       | Group | PAR (dB) | Unc <sup>E</sup> k = 2 |
|-------|-----|-----------------------------------------------------------------|-------|----------|------------------------|
| 10541 | AAC | IEEE 802.11ac WiFi (40 MHz, MCS7, 99pc duty cycle)              | WLAN  | 8.46     | ±9.6                   |
| 10542 | AAC | IEEE 802.11ac WiFi (40 MHz, MCS8, 99pc duty cycle)              | WLAN  | 8.65     | ±9.6                   |
| 10543 | AAC | IEEE 802.11ac WiFi (40 MHz, MCS9, 99pc duty cycle)              | WLAN  | 8.65     | ±9.6                   |
| 10544 | AAC | IEEE 802.11ac WiFi (80 MHz, MCS0, 99pc duty cycle)              | WLAN  | 8.47     | ±9.6                   |
| 10545 | AAC | IEEE 802.11ac WiFi (80 MHz, MCS1, 99pc duty cycle)              | WLAN  | 8.55     | ±9.6                   |
| 10546 | AAC | IEEE 802.11ac WiFi (80 MHz, MCS2, 99pc duty cycle)              | WLAN  | 8.35     | ±9.6                   |
| 10547 | AAC | IEEE 802.11ac WiFi (80 MHz, MCS3, 99pc duty cycle)              | WLAN  | 8.49     | ±9.6                   |
| 10548 | AAC | IEEE 802.11ac WiFi (80 MHz, MCS4, 99pc duty cycle)              | WLAN  | 8.37     | ±9.6                   |
| 10550 | AAC | IEEE 802.11ac WiFi (80 MHz, MCS6, 99pc duty cycle)              | WLAN  | 8.38     | ±9.6                   |
| 10551 | AAC | IEEE 802.11ac WiFi (80 MHz, MCS7, 99pc duty cycle)              | WLAN  | 8.50     | ±9.6                   |
| 10552 | AAC | IEEE 802.11ac WiFi (80 MHz, MCS8, 99pc duty cycle)              | WLAN  | 8.42     | ±9.6                   |
| 10553 | AAC | IEEE 802.11ac WiFi (80 MHz, MCS9, 99pc duty cycle)              | WLAN  | 8.45     | ±9.6                   |
| 10554 | AAD | IEEE 802.11ac WiFi (160 MHz, MCS0, 99pc duty cycle)             | WLAN  | 8.48     | ±9.6                   |
| 10555 | AAD | IEEE 802.11ac WiFi (160 MHz, MCS1, 99pc duty cycle)             | WLAN  | 8.47     | ±9.6                   |
| 10556 | AAD | IEEE 802.11ac WiFi (160 MHz, MCS2, 99pc duty cycle)             | WLAN  | 8.50     | ±9.6                   |
| 10557 | AAD | IEEE 802.11ac WiFi (160 MHz, MCS3, 99pc duty cycle)             | WLAN  | 8.52     | ±9.6                   |
| 10558 | AAD | IEEE 802.11ac WiFi (160 MHz, MCS4, 99pc duty cycle)             | WLAN  | 8.61     | ±9.6                   |
| 10560 | AAD | IEEE 802.11ac WiFi (160 MHz, MCS6, 99pc duty cycle)             | WLAN  | 8.73     | ±9.6                   |
| 10561 | AAD | IEEE 802.11ac WiFi (160 MHz, MCS7, 99pc duty cycle)             | WLAN  | 8.56     | ±9.6                   |
| 10562 | AAD | IEEE 802.11ac WiFi (160 MHz, MCS8, 99pc duty cycle)             | WLAN  | 8.69     | ±9.6                   |
| 10563 | AAD | IEEE 802.11ac WiFi (160 MHz, MCS9, 99pc duty cycle)             | WLAN  | 8.77     | ±9.6                   |
| 10564 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)  | WLAN  | 8.25     | ±9.6                   |
| 10565 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle) | WLAN  | 8.45     | ±9.6                   |
| 10566 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle) | WLAN  | 8.13     | ±9.6                   |
| 10567 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle) | WLAN  | 8.00     | ±9.6                   |
| 10568 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle) | WLAN  | 8.37     | ±9.6                   |
| 10569 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle) | WLAN  | 8.10     | ±9.6                   |
| 10570 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle) | WLAN  | 8.30     | ±9.6                   |
| 10571 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)       | WLAN  | 1.99     | ±9.6                   |
| 10572 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)       | WLAN  | 1.99     | ±9.6                   |
| 10573 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)     | WLAN  | 1.98     | ±9.6                   |
| 10574 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)      | WLAN  | 1.98     | ±9.6                   |
| 10575 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)  | WLAN  | 8.59     | ±9.6                   |
| 10576 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)  | WLAN  | 8.60     | ±9.6                   |
| 10577 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle) | WLAN  | 8.70     | ±9.6                   |
| 10578 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle) | WLAN  | 8.49     | ±9.6                   |
| 10579 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle) | WLAN  | 8.36     | ±9.6                   |
| 10580 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle) | WLAN  | 8.76     | ±9.6                   |
| 10581 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle) | WLAN  | 8.35     | ±9.6                   |
| 10582 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle) | WLAN  | 8.67     | ±9.6                   |
| 10583 | AAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)       | WLAN  | 8.59     | ±9.6                   |
| 10584 | AAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)       | WLAN  | 8.60     | ±9.6                   |
| 10585 | AAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)      | WLAN  | 8.70     | ±9.6                   |
| 10586 | AAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)      | WLAN  | 8.49     | ±9.6                   |
| 10587 | AAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)      | WLAN  | 8.36     | ±9.6                   |
| 10588 | AAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)      | WLAN  | 8.76     | ±9.6                   |
| 10589 | AAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)      | WLAN  | 8.35     | ±9.6                   |
| 10590 | AAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)      | WLAN  | 8.67     | ±9.6                   |
| 10591 | AAC | IEEE 802.11n (HT Mixed, 20 MHz, MCS0, 90pc duty cycle)          | WLAN  | 8.63     | ±9.6                   |
| 10592 | AAC | IEEE 802.11n (HT Mixed, 20 MHz, MCS1, 90pc duty cycle)          | WLAN  | 8.79     | ±9.6                   |
| 10593 | AAC | IEEE 802.11n (HT Mixed, 20 MHz, MCS2, 90pc duty cycle)          | WLAN  | 8.64     | ±9.6                   |
| 10594 | AAC | IEEE 802.11n (HT Mixed, 20 MHz, MCS3, 90pc duty cycle)          | WLAN  | 8.74     | ±9.6                   |
| 10595 | AAC | IEEE 802.11n (HT Mixed, 20 MHz, MCS4, 90pc duty cycle)          | WLAN  | 8.74     | ±9.6                   |
| 10596 | AAC | IEEE 802.11n (HT Mixed, 20 MHz, MCS5, 90pc duty cycle)          | WLAN  | 8.71     | ±9.6                   |
| 10597 | AAC | IEEE 802.11n (HT Mixed, 20 MHz, MCS6, 90pc duty cycle)          | WLAN  | 8.72     | ±9.6                   |
| 10598 | AAC | IEEE 802.11n (HT Mixed, 20 MHz, MCS7, 90pc duty cycle)          | WLAN  | 8.50     | ±9.6                   |
| 10599 | AAC | IEEE 802.11n (HT Mixed, 40 MHz, MCS0, 90pc duty cycle)          | WLAN  | 8.79     | ±9.6                   |
| 10600 | AAC | IEEE 802.11n (HT Mixed, 40 MHz, MCS1, 90pc duty cycle)          | WLAN  | 8.88     | ±9.6                   |
| 10601 | AAC | IEEE 802.11n (HT Mixed, 40 MHz, MCS2, 90pc duty cycle)          | WLAN  | 8.82     | ±9.6                   |
| 10602 | AAC | IEEE 802.11n (HT Mixed, 40 MHz, MCS3, 90pc duty cycle)          | WLAN  | 8.94     | ±9.6                   |
| 10603 | AAC | IEEE 802.11n (HT Mixed, 40 MHz, MCS4, 90pc duty cycle)          | WLAN  | 9.03     | ±9.6                   |
| 10604 | AAC | IEEE 802.11n (HT Mixed, 40 MHz, MCS5, 90pc duty cycle)          | WLAN  | 8.76     | ±9.6                   |
| 10605 | AAC | IEEE 802.11n (HT Mixed, 40 MHz, MCS6, 90pc duty cycle)          | WLAN  | 8.97     | ±9.6                   |
| 10606 | AAC | IEEE 802.11n (HT Mixed, 40 MHz, MCS7, 90pc duty cycle)          | WLAN  | 8.82     | ±9.6                   |
| 10607 | AAC | IEEE 802.11ac WiFi (20 MHz, MCS0, 90pc duty cycle)              | WLAN  | 8.64     | ±9.6                   |
| 10608 | AAC | IEEE 802.11ac WiFi (20 MHz, MCS1, 90pc duty cycle)              | WLAN  | 8.77     | ±9.6                   |

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| UID   | Rev | Communication System Name                              | Group     | PAR (dB) | Unc <sup>E</sup> k = 2 |
|-------|-----|--------------------------------------------------------|-----------|----------|------------------------|
| 10609 | AAC | IEEE 802.11ac WiFi (20 MHz, MCS2, 90pc duty cycle)     | WLAN      | 8.57     | ±9.6                   |
| 10610 | AAC | IEEE 802.11ac WiFi (20 MHz, MCS3, 90pc duty cycle)     | WLAN      | 8.78     | ±9.6                   |
| 10611 | AAC | IEEE 802.11ac WiFi (20 MHz, MCS4, 90pc duty cycle)     | WLAN      | 8.70     | ±9.6                   |
| 10612 | AAC | IEEE 802.11ac WiFi (20 MHz, MCS5, 90pc duty cycle)     | WLAN      | 8.77     | ±9.6                   |
| 10613 | AAC | IEEE 802.11ac WiFi (20 MHz, MCS6, 90pc duty cycle)     | WLAN      | 8.94     | ±9.6                   |
| 10614 | AAC | IEEE 802.11ac WiFi (20 MHz, MCS7, 90pc duty cycle)     | WLAN      | 8.59     | ±9.6                   |
| 10615 | AAC | IEEE 802.11ac WiFi (20 MHz, MCS8, 90pc duty cycle)     | WLAN      | 8.82     | ±9.6                   |
| 10616 | AAC | IEEE 802.11ac WiFi (40 MHz, MCS0, 90pc duty cycle)     | WLAN      | 8.82     | ±9.6                   |
| 10617 | AAC | IEEE 802.11ac WiFi (40 MHz, MCS1, 90pc duty cycle)     | WLAN      | 8.81     | ±9.6                   |
| 10618 | AAC | IEEE 802.11ac WiFi (40 MHz, MCS2, 90pc duty cycle)     | WLAN      | 8.58     | ±9.6                   |
| 10619 | AAC | IEEE 802.11ac WiFi (40 MHz, MCS3, 90pc duty cycle)     | WLAN      | 8.86     | ±9.6                   |
| 10620 | AAC | IEEE 802.11ac WiFi (40 MHz, MCS4, 90pc duty cycle)     | WLAN      | 8.87     | ±9.6                   |
| 10621 | AAC | IEEE 802.11ac WiFi (40 MHz, MCS5, 90pc duty cycle)     | WLAN      | 8.77     | ±9.6                   |
| 10622 | AAC | IEEE 802.11ac WiFi (40 MHz, MCS6, 90pc duty cycle)     | WLAN      | 8.68     | ±9.6                   |
| 10623 | AAC | IEEE 802.11ac WiFi (40 MHz, MCS7, 90pc duty cycle)     | WLAN      | 8.82     | ±9.6                   |
| 10624 | AAC | IEEE 802.11ac WiFi (40 MHz, MCS8, 90pc duty cycle)     | WLAN      | 8.96     | ±9.6                   |
| 10625 | AAC | IEEE 802.11ac WiFi (40 MHz, MCS9, 90pc duty cycle)     | WLAN      | 8.96     | ±9.6                   |
| 10626 | AAC | IEEE 802.11ac WiFi (80 MHz, MCS0, 90pc duty cycle)     | WLAN      | 8.83     | ±9.6                   |
| 10627 | AAC | IEEE 802.11ac WiFi (80 MHz, MCS1, 90pc duty cycle)     | WLAN      | 8.88     | ±9.6                   |
| 10628 | AAC | IEEE 802.11ac WiFi (80 MHz, MCS2, 90pc duty cycle)     | WLAN      | 8.71     | ±9.6                   |
| 10629 | AAC | IEEE 802.11ac WiFi (80 MHz, MCS3, 90pc duty cycle)     | WLAN      | 8.85     | ±9.6                   |
| 10630 | AAC | IEEE 802.11ac WiFi (80 MHz, MCS4, 90pc duty cycle)     | WLAN      | 8.72     | ±9.6                   |
| 10631 | AAC | IEEE 802.11ac WiFi (80 MHz, MCS5, 90pc duty cycle)     | WLAN      | 8.81     | ±9.6                   |
| 10632 | AAC | IEEE 802.11ac WiFi (80 MHz, MCS6, 90pc duty cycle)     | WLAN      | 8.74     | ±9.6                   |
| 10633 | AAC | IEEE 802.11ac WiFi (80 MHz, MCS7, 90pc duty cycle)     | WLAN      | 8.83     | ±9.6                   |
| 10634 | AAC | IEEE 802.11ac WiFi (80 MHz, MCS8, 90pc duty cycle)     | WLAN      | 8.80     | ±9.6                   |
| 10635 | AAC | IEEE 802.11ac WiFi (80 MHz, MCS9, 90pc duty cycle)     | WLAN      | 8.81     | ±9.6                   |
| 10636 | AAD | IEEE 802.11ac WiFi (160 MHz, MCS0, 90pc duty cycle)    | WLAN      | 8.83     | ±9.6                   |
| 10637 | AAD | IEEE 802.11ac WiFi (160 MHz, MCS1, 90pc duty cycle)    | WLAN      | 8.79     | ±9.6                   |
| 10638 | AAD | IEEE 802.11ac WiFi (160 MHz, MCS2, 90pc duty cycle)    | WLAN      | 8.86     | ±9.6                   |
| 10639 | AAD | IEEE 802.11ac WiFi (160 MHz, MCS3, 90pc duty cycle)    | WLAN      | 8.85     | ±9.6                   |
| 10640 | AAD | IEEE 802.11ac WiFi (160 MHz, MCS4, 90pc duty cycle)    | WLAN      | 8.98     | ±9.6                   |
| 10641 | AAD | IEEE 802.11ac WiFi (160 MHz, MCS5, 90pc duty cycle)    | WLAN      | 9.06     | ±9.6                   |
| 10642 | AAD | IEEE 802.11ac WiFi (160 MHz, MCS6, 90pc duty cycle)    | WLAN      | 9.06     | ±9.6                   |
| 10643 | AAD | IEEE 802.11ac WiFi (160 MHz, MCS7, 90pc duty cycle)    | WLAN      | 8.89     | ±9.6                   |
| 10644 | AAD | IEEE 802.11ac WiFi (160 MHz, MCS8, 90pc duty cycle)    | WLAN      | 9.05     | ±9.6                   |
| 10645 | AAD | IEEE 802.11ac WiFi (160 MHz, MCS9, 90pc duty cycle)    | WLAN      | 9.11     | ±9.6                   |
| 10646 | AAH | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)  | LTE-TDD   | 11.96    | ±9.6                   |
| 10647 | AAG | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7) | LTE-TDD   | 11.96    | ±9.6                   |
| 10648 | AAA | CDMA2000 (1x Advanced)                                 | CDMA2000  | 3.45     | ±9.6                   |
| 10652 | AAF | LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)         | LTE-TDD   | 6.91     | ±9.6                   |
| 10653 | AAF | LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)        | LTE-TDD   | 7.42     | ±9.6                   |
| 10654 | AAE | LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)        | LTE-TDD   | 6.96     | ±9.6                   |
| 10655 | AAF | LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)        | LTE-TDD   | 7.21     | ±9.6                   |
| 10658 | AAB | Pulse Waveform (200Hz, 10%)                            | Test      | 10.00    | ±9.6                   |
| 10659 | AAB | Pulse Waveform (200Hz, 20%)                            | Test      | 6.99     | ±9.6                   |
| 10660 | AAB | Pulse Waveform (200Hz, 40%)                            | Test      | 3.98     | ±9.6                   |
| 10661 | AAB | Pulse Waveform (200Hz, 60%)                            | Test      | 2.22     | ±9.6                   |
| 10662 | AAB | Pulse Waveform (200Hz, 80%)                            | Test      | 0.97     | ±9.6                   |
| 10670 | AAA | Bluetooth Low Energy                                   | Bluetooth | 2.19     | ±9.6                   |
| 10671 | AAC | IEEE 802.11ax (20 MHz, MCS0, 90pc duty cycle)          | WLAN      | 9.09     | ±9.6                   |
| 10672 | AAC | IEEE 802.11ax (20 MHz, MCS1, 90pc duty cycle)          | WLAN      | 8.57     | ±9.6                   |
| 10673 | AAC | IEEE 802.11ax (20 MHz, MCS2, 90pc duty cycle)          | WLAN      | 8.78     | ±9.6                   |
| 10674 | AAC | IEEE 802.11ax (20 MHz, MCS3, 90pc duty cycle)          | WLAN      | 8.74     | ±9.6                   |
| 10675 | AAC | IEEE 802.11ax (20 MHz, MCS4, 90pc duty cycle)          | WLAN      | 8.90     | ±9.6                   |
| 10676 | AAC | IEEE 802.11ax (20 MHz, MCS5, 90pc duty cycle)          | WLAN      | 8.77     | ±9.6                   |
| 10677 | AAC | IEEE 802.11ax (20 MHz, MCS6, 90pc duty cycle)          | WLAN      | 8.73     | ±9.6                   |
| 10678 | AAC | IEEE 802.11ax (20 MHz, MCS7, 90pc duty cycle)          | WLAN      | 8.78     | ±9.6                   |
| 10679 | AAC | IEEE 802.11ax (20 MHz, MCS8, 90pc duty cycle)          | WLAN      | 8.89     | ±9.6                   |
| 10680 | AAC | IEEE 802.11ax (20 MHz, MCS9, 90pc duty cycle)          | WLAN      | 8.80     | ±9.6                   |
| 10681 | AAC | IEEE 802.11ax (20 MHz, MCS10, 90pc duty cycle)         | WLAN      | 8.62     | ±9.6                   |
| 10682 | AAC | IEEE 802.11ax (20 MHz, MCS11, 90pc duty cycle)         | WLAN      | 8.83     | ±9.6                   |
| 10683 | AAC | IEEE 802.11ax (20 MHz, MCS0, 99pc duty cycle)          | WLAN      | 8.42     | ±9.6                   |
| 10684 | AAC | IEEE 802.11ax (20 MHz, MCS1, 99pc duty cycle)          | WLAN      | 8.26     | ±9.6                   |
| 10685 | AAC | IEEE 802.11ax (20 MHz, MCS2, 99pc duty cycle)          | WLAN      | 8.33     | ±9.6                   |
| 10686 | AAC | IEEE 802.11ax (20 MHz, MCS3, 99pc duty cycle)          | WLAN      | 8.28     | ±9.6                   |

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