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Report On

Specific Absorption Rate Testing of the A2485

Covering FCC 47CFR 2.1093, RSS 102 Issue 5
and related documents

FCC ID: BCGA2485
IC: 579C-A2485

COMMERCIAL-IN-CONFIDENCE

Document 75952054 - Report 16 - Issue 3 **September 2021**

TÜV SÜD, Octagon House, Concorde Way, Segensworth North,
Fareham, Hampshire, United Kingdom, PO15 5RL
Tel: +44 (0) 1489 558100. Website: www.tuvsud.com

REPORT ON

Specific Absorption Rate Testing of the A2485

Document 75952054 - Report 16 - Issue 3

September 2021

PREPARED FOR

Apple Inc
One Apple Park Way
Cupertino
California 95014
USA

PREPARED BY

Stephen Dodd
Engineer (SAR)

APPROVED BY

Jon Kenny

Digitally signed by Jon Kenny
Date: 2021.10.14 15:41:38 +01'00'

Jon Kenny
Authorised Signatory

DATED

14 October 2021

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SECTION 1

REPORT SUMMARY

Specific Absorption Rate Testing of the
A2485

1.1 REPORT MODIFICATION RECORD

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

Issue	Description of Change	Date of Issue
1	First Issue	17 September 2021
2	Added ANNEX E (Time-Averaged SAR Verification)	30 September 2021
3	Updated ANNEX E (Time-Averaged SAR Verification)	14 October 2021

1.2 INTRODUCTION

The information contained in this report is intended to show verification of the Specific Absorption Rate Testing of the A2485 to the requirements of KDB 447498 D01 v06 General RF Exposure Guidance.

Objective	To perform Specific Absorption Rate Testing to determine the Equipment Under Test's (EUT's) compliance with the requirements specified of KDB 447498 D01 v06 General RF Exposure Guidance, for the series of tests carried out.
Applicant	Apple Inc
Manufacturer	Apple Inc
Manufacturing Description	Laptop Computer
Model Number	A2485
Serial/IMEI Number(s)	C02FQ01A0JYR (Radiated sample) C02FN00C0JYR (Conducted Sample)
Number of Samples Tested	2
Hardware Version	REV 1.0
Software Version	21A102280j
Test Specification/Issue/Date	KDB 447498 D01 v06 General RF Exposure Guidance
Order Number	0540211248
Date of Receipt	18-August-2021
Start of Test	20-August-2021
Finish of Test	05-September-2021
Related Document(s)	FCC 47CFR 2.1093: 2015 KDB 865664 – D01 v01r04 KDB 865664 – D02 v01r02 KDB 648474 – D04 v01r03 KDB 447498 – D01 v06 IEEE 1528-2013 KDB 248227 – D01 v02r02
Name of Engineer(s)	Stephen Dodd Ravish Foolchund Ahmad Javid

1.3 BRIEF SUMMARY OF RESULTS (FCC)

The measurements shown in this report were made in accordance with the requirements specified KDB 447498 D01 v06 General RF Exposure Guidance.

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

Max 1g SAR (W/kg) Body	0.734 (Measured)	0.941 (Scaled)
The maximum 1g volume averaged SAR level measured for all the tests performed did not exceed the limits for General Population/Uncontrolled Exposure (W/kg) Partial Body of 1.6 W/kg.		

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 GHz WLAN off)	2450 MHz	Body	0.340
Bluetooth (5 GHz WLAN on)	2450 MHz	Body	0.115
WLAN	2450 MHz	Body	0.580
WLAN	5200 / 5300 MHz	Body	0.941
WLAN	5500 / 5600 MHz	Body	0.670
WLAN	5800 MHz	Body	0.592
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.			

Simultaneous Transmission.

Position	5GHz WLAN-1g SAR (W/kg)	Bluetooth (5 GHz WLAN on) 1g SAR (W/kg)	Sum of 1g SAR (W/Kg)	Peak Location Separation Ratio required?	Peak Location Separation Ratio
Bottom	0.941	0.115	1.056	No	N/A

Each antenna is separated to the extend that the SAR distributions do not overlap, however Bluetooth and 5GHz WLAN can operate on the same antenna. Bluetooth operates at a lower power level when the 5 GHz WLAN is active. The highest overall 5GHz WLAN and Bluetooth (5 GHz WLAN on) results were used for a conservative estimate.

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.

1.4 BRIEF SUMMARY OF RESULTS (ISED)

The measurements shown in this report were made in accordance with the requirements specified KDB 447498 D01 v06 General RF Exposure Guidance.

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

Max 1g SAR (W/kg) Body	0.734 (Measured)	0.792 (Scaled)
The maximum 1g volume averaged SAR level measured for all the tests performed did not exceed the limits for General Population/Uncontrolled Exposure (W/kg) Partial Body of 1.6 W/kg.		

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 GHz WLAN off)	2450 MHz	Body	0.340
Bluetooth (5 GHz WLAN on)	2450 MHz	Body	0.115
WLAN	2450 MHz	Body	0.488
WLAN	5200 / 5300 MHz	Body	0.792
WLAN	5500 / 5600 MHz	Body	0.563
WLAN	5800 MHz	Body	0.498
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.			

Simultaneous Transmission.

Position	5GHz WLAN-1g SAR (W/kg)	Bluetooth (5 GHz WLAN on) 1g SAR (W/kg)	Sum of 1g SAR (W/Kg)	Peak Location Separation Ratio required?	Peak Location Separation Ratio
Bottom	0.792	0.115	0.907	No	N/A

Each antenna is separated to the extend that the SAR distributions do not overlap, however Bluetooth and 5GHz WLAN can operate on the same antenna. Bluetooth operates at a lower power level when the 5 GHz WLAN is active. The highest overall 5GHz WLAN and Bluetooth (5 GHz WLAN on) results were used for a conservative estimate.

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.

1.5 TEST RESULTS SUMMARY

1.5.1 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 published data in Standard IEEE 1528-2013. The following results were obtained: -

System performance / Validation results

Date	Frequency (MHz)	Fluid Type	Measured Max 1g SAR (W/kg) *	Max 1g SAR (W/kg) Target	Percentage Drift on Reference
20/08/2021	5200	HBBL	70.23	76.50	-8.20
20/08/2021	5500	HBBL	80.61	82.70	-2.53
20/08/2021	5600	HBBL	81.01	80.10	1.14
20/08/2021	5800	HBBL	82.40	78.00	5.64
23/08/2021	2450	HBBL	54.87	51.20	4.71
24/08/2021	5200	HBBL	70.23	76.50	-8.20
24/08/2021	5300	HBBL	74.02	78.30	-5.47
24/08/2021	5500	HBBL	79.81	82.70	-3.49
24/08/2021	5800	HBBL	83.20	78.00	6.67
26/08/2021	5300	HBBL	73.03	78.30	-6.73
03/09/2021	2450	HBBL	55.47	51.20	5.86
05/09/2021	2450	HBBL	53.27	51.20	1.66

*Normalised to a forward power of 1W

1.5.2 Results Summary Tables (FCC)

Bluetooth - EDR – 3-DH5 – SISO Core 0 (5GHz WIFI OFF) (ePA):
Body Specific Absorbtion Rate (Maximum 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	78	2480	16.27	16.50	Full	0.322	0.340	C.1
0mm Rear Of Display	78	2480	16.27	16.50	Full	0.100	0.105	-
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz Bluetooth opertates at lower power when the 5GHz WiFi is enabled.								

Bluetooth - EDR – 3-DH5 – SISO Core 1 (5GHz WIFI OFF) (ePA):
Body Specific Absorbtion Rate (Maximum 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	0	2402	16.31	16.50	Full	0.194	0.203	C.2
0mm Rear Of Display	0	2402	16.31	16.50	Full	0.054	0.057	-
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz. Bluetooth opertates at lower power when the 5GHz WiFi is enabled.								

Bluetooth - BDR – DH5 – SISO Core 2 (5GHz WIFI OFF) (iPA):
Body Specific Absorbtion Rate (Maximum 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	39	2441	12.82	13.00	Full	0.106	0.110	C.3
0mm Rear Of Display	39	2441	12.82	13.00	Full	0.033	0.034	-
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz Bluetooth opertates at lower power when the 5GHz WiFi is enabled.								

BT HDR SISO Core 0 (5GHz WIFI ON) (ePA):
Body Specific Absorbtion Rate (Maximum 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	2	2404	12.98	13.00	Full	0.114	0.115	C.4
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz As Bluetooth operates at a lower power level with 5Ghz WiFi on, the worst case position that was found for the Bluetooth WiFi Off testing was used.								

BT BDR – DH5 – SISO Core 1 (5GHz WIFI ON) (ePA):
Body Specific Absorbtion Rate (Maximum 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	78	2480	12.80	13.00	Full	0.085	0.089	C.5
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz As Bluetooth operates at a lower power level with 5Ghz WiFi on, the worst case position that was found for the Bluetooth WiFi Off testing was used.								

BT BDR – DH5 - Core 2 (5GHz WIFI ON) (iPA):
Body Specific Absorbtion Rate (Maximum 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	39	2441	12.82	13.00	Full	0.084	0.088	C.6
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz As Bluetooth operates at a lower power level with 5Ghz WiFi on, the worst case position that was found for the Bluetooth WiFi Off testing was used.								

WLAN - 2450 MHz - 802.11b - 20 MHz - 1 Mbps – SISO Core 0:
Body Specific Absorbtion Rate (Maximum 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	1	2412	17.25	18.00	Full	0.442	0.525	C.7
0mm Rear Of Display	1	2412	17.25	18.00	Full	0.146	0.174	-
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz								

WLAN - 2450 MHz - 802.11b - 20 MHz - 1 Mbps – SISO Core 1:
Body Specific Absorbtion Rate (Maximum 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	1	2412	17.01	18.00	Full	0.282	0.354	C.8
0mm Rear of Display	1	2412	17.01	18.00	Full	0.108	0.136	-
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz KDB 248227 D01 v02 - Testing was not required for OFDM as per Section 5.2.2								

WLAN - 2450 MHz - 802.11n - HT20– 2x2 MIMO Core 0 and Core 1:
Body Specific Absorbtion Rate (Maximum 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	7	2442	17.23	18.00	Full	0.486	0.580	C.9
0mm Bottom	7	2442	17.21	18.00	Full	0.389	0.467	
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz KDB 248227 D01 v02 - Testing was not required for OFDM as per Section 5.2.2								

WLAN - U-NII-1 - 802.11ac – VHT80- MCS0 - SISO Core 0:
Body Specific Absorption Rate (Maximum 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	42	5210	12.92	14.00	Full	0.734	0.941	C.10
0mm Rear Of Display	42	5210	12.92	14.00	Full	0.225	0.289	-
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz KDB 248227 D01 v02 - Testing was not required for OFDM as per Section 5.2.2								

WLAN - U-NII-1 - 802.11ac – VHT80- MCS0 - SISO Core 1
Body Specific Absorption Rate (Maximum 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	42	5210	13.17	14.00	Full	0.482	0.584	C.11
0mm Rear Of Display	42	5210	13.17	14.00	Full	0.203	0.246	-
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz								

WLAN - U-NII-1 - 802.11ac – VHT80- MCS0 – MIMO Core 0 and Core 1:
Specific Absorption Rate (Maximum 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	42	5210	13.64	14.00	Full	0.688	0.747	C.12.A*
0mm Bottom	42	5210	13.69	14.00	Full	0.426	0.458	
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz * U-NII-1 Band required testing for FCC, for Canada U-NII-2a Required testing (Plot C.12.B)								

WLAN - U-NII-2C - 802.11ac - 80 MHz - MCS0 – SISO Core 0:
Body Specific Absorbtion Rate (Maximum 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	106	5530	12.69	13.50	Full	0.540	0.651	-
0mm Rear Of Display	106	5530	12.69	13.50	Full	0.194	0.234	-
0mm Bottom	122	5610	12.55	13.50	Full	0.538	0.670	C.13
0mm Bottom	138	5690	12.61	13.50	Full	0.505	0.620	-
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz								

WLAN - U-NII-2C - 802.11ac - 80 MHz - MCS0 – SISO Core 1:
Body Specific Absorbtion Rate (Maximum 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	106	5530	12.64	13.50	Full	0.400	0.488	C.14
0mm Rear Of Display	106	5530	12.64	13.50	Full	0.189	0.230	-
0mm Bottom	122	5610	12.45	13.50	Full	0.340	0.433	-
0mm Bottom	138	5690	12.64	13.50	Full	0.323	0.394	-
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz								

WLAN - U-NII-2C - 802.11ac - 80 MHz - MCS0 – MIMO Core 0 and Core 1:
Body Specific Absorbtion Rate (Maximum 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	106	5530	12.52	13.50	Full	0.429	0.538	C.15
0mm Bottom	106	5530	12.75	13.50	Full	0.349	0.415	
0mm Bottom	122	5610	12.32	13.50	Full	0.396	0.520	-
0mm Bottom	122	5610	12.53	13.50	Full	0.279	0.349	
0mm Bottom	138	5690	12.31	13.50	Full	0.371	0.488	-
0mm Bottom	138	5690	12.33	13.50	Full	0.263	0.344	
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz								

WLAN - U-NII-3 - 802.11ac – VHT80- MCS0 - SISO Core 0:
Body Specific Absorption Rate (Maximum 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	155	5775	12.49	13.50	Full	0.469	0.592	C.16
0mm Rear Of Display	155	5775	12.49	13.50	Full	0.139	0.175	-
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz								

WLAN - U-NII-3 - 802.11ac – VHT80- MCS0 - SISO Core 1:
Body Specific Absorption Rate (Maximum 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	155	5775	12.47	13.50	Full	0.380	0.482	C.17
0mm Rear Of Display	155	5775	12.47	13.50	Full	0.165	0.209	-
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz								

WLAN - U-NII-3 - 802.11ac – VHT80- MCS0 - MIMO Core 0 and Core 1:
Body Specific Absorption Rate (Maximum 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	155	5775	12.30	13.50	Full	0.335	0.442	C.18
0mm Bottom	155	5775	12.61	13.50	Full	0.323	0.396	
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz								

1.5.3 Results Summary Tables (ISED)

Bluetooth - EDR – 3-DH5 – SISO Core 0 (5GHz WIFI OFF) (ePA):
Body Specific Absorbtion Rate (Maximum 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	78	2480	16.27	16.50	Full	0.322	0.340	C.1
0mm Rear Of Display	78	2480	16.27	16.50	Full	0.100	0.105	-
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz Bluetooth opertates at lower power when the 5GHz WiFi is enabled.								

Bluetooth - EDR – 3-DH5 – SISO Core 1 (5GHz WIFI OFF) (ePA):
Body Specific Absorbtion Rate (Maximum 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	0	2402	16.31	16.50	Full	0.194	0.203	C.2
0mm Rear Of Display	0	2402	16.31	16.50	Full	0.054	0.057	-
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz Bluetooth opertates at lower power when the 5GHz WiFi is enabled.								

Bluetooth - BDR – DH5 – SISO Core 2 (5GHz WIFI OFF) (iPA):
Body Specific Absorbtion Rate (Maximum 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	39	2441	12.82	13.00	Full	0.106	0.110	C.3
0mm Rear Of Display	39	2441	12.82	13.00	Full	0.033	0.034	-
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz Bluetooth opertates at lower power when the 5GHz WiFi is enabled.								

BT HDR SISO Core 0 (5GHz WIFI ON) (ePA):
Body Specific Absorbtion Rate (Maximum 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	2	2404	12.98	13.00	Full	0.114	0.115	C.4
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz As Bluetooth operates at a lower power level with 5Ghz WiFi on, the worst case position that was found for the Bluetooth WiFi Off testing was used.								

BT BDR – DH5 – SISO Core 1 (5GHz WIFI ON) (ePA):
Body Specific Absorbtion Rate (Maximum 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	78	2480	12.80	13.00	Full	0.085	0.089	C.5
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz As Bluetooth operates at a lower power level with 5Ghz WiFi on, the worst case position that was found for the Bluetooth WiFi Off testing was used.								

BT BDR – DH5 - Core 2 (5GHz WIFI ON) (iPA):
Body Specific Absorbtion Rate (Maximum 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	39	2441	12.82	13.00	Full	0.084	0.088	C.6
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz As Bluetooth operates at a lower power level with 5Ghz WiFi on, the worst case position that was found for the Bluetooth WiFi Off testing was used.								

WLAN - 2450 MHz - 802.11b - 20 MHz - 1 Mbps – SISO Core 0:
Body Specific Absorbtion Rate (Maximum 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	1	2412	17.25	17.25	Full	0.442	0.442	C.7
0mm Rear Of Display	1	2412	17.25	17.25	Full	0.146	0.146	-
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz								

WLAN - 2450 MHz - 802.11b - 20 MHz - 1 Mbps – SISO Core 1:
Body Specific Absorbtion Rate (Maximum 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	1	2412	17.01	17.25	Full	0.282	0.298	C.8
0mm Rear Of Display	1	2412	17.01	17.25	Full	0.108	0.114	-
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz KDB 248227 D01 v02 - Testing was not required for OFDM as per Section 5.2.2								

WLAN - 2450 MHz - 802.11n - HT20– 2x2 MIMO Core 0 and Core 1:
Body Specific Absorbtion Rate (Maximum 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 (Core 0)	7	2442	17.23	17.25	Full	0.486	0.488	C.9
0mm Bottom (Core 1)	7	2442	17.21	17.25	Full	0.389	0.393	
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz KDB 248227 D01 v02 - Testing was not required for OFDM as per Section 5.2.2								

WLAN - U-NII-1 - 802.11ac – VHT80- MCS0 - SISO Core 0:
Body Specific Absorption Rate (Maximum 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	42	5210	12.92	13.25	Full	0.734	0.792	C.10
0mm Rear Of Display	42	5210	12.92	13.25	Full	0.225	0.225	-
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz KDB 248227 D01 v02 - Testing was not required for OFDM as per Section 5.2.2								

WLAN - U-NII-1 - 802.11ac – VHT80- MCS0 - SISO Core 1
Body Specific Absorption Rate (Maximum 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	42	5210	13.17	13.25	Full	0.482	0.491	C.11
0mm Rear Of Display	42	5210	13.17	13.25	Full	0.203	0.207	-
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz								

WLAN - U-NII-2A - 802.11ac – VHT80- MCS0 – MIMO Core 0 and Core 1:
Specific Absorption Rate (Maximum 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 (Core 0)	58	5290	12.41	12.75	Full	0.510	0.552	C.12.B
0mm Bottom (Core 1)	58	5290	12.68	12.75	Full	0.395	0.401	
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz								

WLAN - U-NII-2C - 802.11ac - 80 MHz - MCS0 – SISO Core 0:
Body Specific Absorbtion Rate (Maximum 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	106	5530	12.69	12.75	Full	0.540	0.548	-
0mm Rear Of Display	106	5530	12.69	12.75	Full	0.194	0.197	-
0mm Bottom	122	5610	12.55	12.75	Full	0.538	0.563	C.13
0mm Bottom	138	5690	12.61	12.75	Full	0.505	0.522	-
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz								

WLAN - U-NII-2C - 802.11ac - 80 MHz - MCS0 – SISO Core 1:
Body Specific Absorbtion Rate (Maximum 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	106	5530	12.64	12.75	Full	0.400	0.410	C.14
0mm Rear Of Display	106	5530	12.64	12.75	Full	0.189	0.194	-
0mm Bottom	122	5610	12.45	12.75	Full	0.340	0.364	-
0mm Bottom	138	5690	12.64	12.75	Full	0.323	0.331	-
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz								

WLAN - U-NII-2C - 802.11ac - 80 MHz - MCS0 – MIMO Core 0 and Core 1:
Body Specific Absorbtion Rate (Maximum 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 (Core 0)	106	5530	12.52	12.75	Full	0.429	0.452	C.15
0mm Bottom (Core 1)	106	5530	12.75	12.75	Full	0.349	0.349	
0mm Bottom (Core 0)	122	5610	12.32	12.75	Full	0.396	0.437	-
0mm Bottom (Core 1)	122	5610	12.53	12.75	Full	0.279	0.293	
0mm Bottom (Core 0)	138	5690	12.31	12.75	Full	0.371	0.411	-
0mm Bottom (Core 1)	138	5690	12.33	12.75	Full	0.263	0.290	
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz								

WLAN - U-NII-3 - 802.11ac – VHT80- MCS0 - SISO Core 0:
Body Specific Absorption Rate (Maximum 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	155	5775	12.49	12.75	Full	0.469	0.498	C.16
0mm Rear Of Display	155	5775	12.49	12.75	Full	0.139	0.148	-
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz								

WLAN - U-NII-3 - 802.11ac – VHT80- MCS0 - SISO Core 1:
Body Specific Absorption Rate (Maximum 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	155	5775	12.47	12.75	Full	0.380	0.405	C.17
0mm Rear Of Display	155	5775	12.47	12.75	Full	0.165	0.176	-
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz								

WLAN - U-NII-3 - 802.11ac – VHT80- MCS0 - MIMO Core 0 and Core 1:
Body Specific Absorption Rate (Maximum 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 (Core 0)	155	5775	12.30	12.75	Full	0.335	0.372	C.18
0mm Bottom (Core 1)	155	5775	12.61	12.75	Full	0.323	0.334	
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is: ≤ 0.8W/kg when the transmission band is ≤ 100MHz ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz ≤ 0.4W/kg when the transmission band is ≥ 200MHz								

1.5.4 Technical Description

The equipment under test (EUT) was a A2485 Laptop Computer. A full technical description can be found in the manufacturer's documentation.

1.5.5 Test Configuration and Modes of Operation

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

Supported technologies are Bluetooth (BDR/EDR//HDR/LE-1M/LE-M2), 2.4 GHz WLAN (802.11b/g/n/ax) and 5 GHz WLAN (802.11a/n/ac/ax). 2x2 MIMO is supported for WLAN.

Bluetooth operates at lower power when the 5GHz WLAN is enabled. The report makes references to Bluetooth (5GHz Wi-Fi on) and Bluetooth (5GHz Wi-Fi off), for clarity testing was performed with the Bluetooth and Wi-Fi transmitter working independently, the references are pointing to Bluetooth power levels only.

Transmit Beamforming is supported for Bluetooth, however this is at lower power than the highest declared power SISO transmission mode, the antennas are spatially separated and were assessed in SISO modes only.

WLAN and Bluetooth testing were 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 maximum power. 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 ports) and the measured SAR results were power scaled to the maximum declared tune-up level.

For each antenna, the bottom surface and the rear of the EUT display were assessed for SAR. MIMO testing was carried out on the bottom surface of the EUT only. (Worst case position of SISO results)

2450 MHz 802.11g/n/ax OFDM configurations met the test exclusion requirements of KDB 248227 D01 section 5.2.2 as the highest reported SAR for DSSS was adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR was ≤ 1.2 W/kg.

For the 5GHz 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.

The U-NII-2A Band was not tested as this met the test exclusion requirements of KDB 248227 D01 section 5.3.1.

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 body simulant liquid. The dielectric properties were measured and found to be 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 for each test position along with photographs indicating the positioning of the EUT against the elliptical phantom as appropriate.

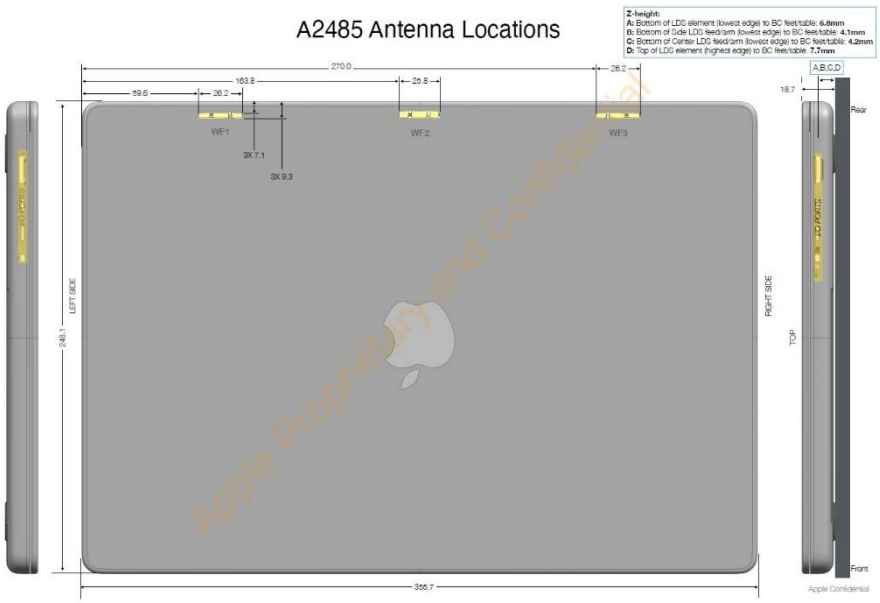


Figure 1 Antenna Location Diagram

1.5.6 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.

1.6 POWER TABLES (TUNE UP VALUES)

Note: All Values in dBm

Bluetooth (5GHz WiFi off) (FCC and ISED)

BT Core	PA	Channel	BDR	EDR	LE Data	LE ADV	HDR4	HDR8
0	iPA	All	13	9.5	13	13	6	6
0	ePA		13	16.5	13	13	15	15
1	iPA		13	9.5	13	13	6	6
1	ePA		13	16.5	13	13	15	15
2	iPA		13	9.5	5.5	5.5	6	6

Bluetooth – TXBF (5GHz WiFi off) (FCC and ISED)

BT Core	PA	Channel	BDR	EDR	LE Data	LE ADV	HDR4	HDR8
0	iPA	All	13	9.5	13	13	6	6
0	ePA		13	13.5	13	13	15	15
1	iPA		13	9.5	13	13	6	6
1	ePA		13	13.5	13	13	15	15
2	iPA		NS	NS	NS	NS	NS	NS

Bluetooth (5GHz WiFi on) (FCC and ISED)

BT Core	PA	Channel	BDR	EDR	LE Data	LE ADV	HDR4	HDR8
0	iPA	All	13	9.5	13	13	6	6
0	ePA		13	13	13	13	13	13
1	iPA		13	9.5	13	13	6	6
1	ePA		13	13	13	13	13	13
2	iPA		13	9.5	5.5	5.5	6	6

Bluetooth – TXBF (5GHz WiFi on) (FCC and ISED)

BT Core	PA	Channel	BDR	EDR	LE Data	LE ADV	HDR4	HDR8
0	iPA	All	13	9.5	13	13	6	6
0	ePA		13	13	13	13	13	13
1	iPA		13	9.5	13	13	6	6
1	ePA		13	13	13	13	13	13
2	iPA		NS	NS	NS	NS	NS	NS

NS = Not Supported

2.4GHz WiFi SISO Core 0/ Core 1 (FCC)

Channel	Center Frequency (MHz)	b (SISO)	g (SISO) Low Rate	11n/11ac HT20 (SISO) Low Rate	11ax HE20 (SISO) Low Rate	11n/11ac HT20 (2Tx, non TXBF) Low Rate	11ax HE20 (2Tx, non TXBF) Low Rate)
1	2412	18	17.5	16.75	16	15.75	15.25
2	2417	18	18	18	18	18	18
3	2422	18	18	18	18	18	18
4	2427	18	18	18	18	18	18
5	2432	18	18	18	18	18	18
6	2437	18	18	18	18	18	18
7	2442	18	18	18	18	18	18
8	2447	18	18	18	18	18	18
9	2452	18	18	18	18	18	18
10	2457	18	18	18	18	18	18
11	2462	18	18	18	18	18	18
12	2467	17.5	18	17.25	17	16.25	15.5
13	2472	15.75	8	7.5	6.75	7	6.25

5GHz WiFi- 20MHz BW – SISO Core 0/ Core1 (FCC)

Channel	Center Frequency (MHz)	a (SISO) Low Rate	11n/11ac HT20 (SISO) Low Rate	11ax HE20 (SISO) Low Rate
36	5180	14	14	14
40	5200	14	14	14
44	5220	14	14	14
48	5240	14	14	14
52	5260	13.5	13.5	13.5
56	5280	13.5	13.5	13.5
60	5300	13.5	13.5	13.5
64	5320	13.5	13.5	13.5
100	5500	13.5	13.5	13.5
104	5520	13.5	13.5	13.5
108	5540	13.5	13.5	13.5
112	5560	13.5	13.5	13.5
116	5580	13.5	13.5	13.5
120	5600	13.5	13.5	13.5
124	5620	13.5	13.5	13.5
128	5640	13.5	13.5	13.5
132	5660	13.5	13.5	13.5
136	5680	13.5	13.5	13.5
140	5700	13.5	13.5	13.5
144	5720	13.5	13.5	13.5
149	5745	13.5	13.5	13.5
153	5765	13.5	13.5	13.5
157	5785	13.5	13.5	13.5
161	5805	13.5	13.5	13.5
165	5825	13.5	13.5	13.5

5GHz WiFi- 20MHz BW – MIMO Core 0 and Core 1 (FCC)

Channel	Center Frequency (MHz)	11n/11ac HT20 (2Tx, CDD, non TXBF) Low Rate	11ax HE20 (2Tx, CDD, non TxBF) Low Rate	11n/11ac HT20 (2Tx, SDM, non TxBF) Low Rate	11ax HE20 (2Tx, SDM, non TXBF) Low Rate	11n/11ac HT20 (2Tx, TxBF) Low Rate
36	5180	13	12.75	14	14	13
40	5200	13	12.75	14	14	13
44	5220	13	12.75	14	14	13
48	5240	13	12.75	14	14	13
52	5260	13.25	13	13.5	13.5	13.25
56	5280	13.25	13	13.5	13.5	13.25
60	5300	13.25	13	13.5	13.5	13.25
64	5320	13.25	13	13.5	13.5	13.25
100	5500	13.5	13.5	13.5	13.5	13.5
104	5520	13.5	13.5	13.5	13.5	13.5
108	5540	13.5	13.5	13.5	13.5	13.5
112	5560	13.5	13.5	13.5	13.5	13.5
116	5580	13.5	13.5	13.5	13.5	13.5
120	5600	13.5	13.5	13.5	13.5	13.5
124	5620	13.5	13.5	13.5	13.5	13.5
128	5640	13.5	13.5	13.5	13.5	13.5
132	5660	13.5	13.5	13.5	13.5	13.5
136	5680	13.5	13.5	13.5	13.5	13.5
140	5700	13.5	13.5	13.5	13.5	13.5
144	5720	13.5	13.5	13.5	13.5	13.5
149	5745	13.5	13.5	13.5	13.5	13.5
153	5765	13.5	13.5	13.5	13.5	13.5
157	5785	13.5	13.5	13.5	13.5	13.5
161	5805	13.5	13.5	13.5	13.5	13.5
165	5825	13.5	13.5	13.5	13.5	13.5

5GHz WiFi- 40MHz BW – SISO Core 0/ Core1 (FCC)

Channel	Center Frequency (MHz)	11n/11ac HT40 (SISO) Low Rate	11ax HE40 (SISO) Low Rate
38	5190	14	14
46	5230	14	14
54	5270	13.5	13.5
62	5310	13.5	13.5
102	5510	13.5	13.5
110	5550	13.5	13.5
118	5590	13.5	13.5
126	5630	13.5	13.5
134	5670	13.5	13.5
142	5710	13.5	13.5
151	5755	13.5	13.5
159	5795	13.5	13.5

5GHz WiFi - 40MHz BW – MIMO Core 0 and Core 1 (FCC)

Channel	Center Frequency (MHz)	11n/11ac HT40 (2Tx, CDD, non TXBF) Low Rate	11ax HE40 (2Tx, CDD, non TxBF) Low Rate	11n/11ac HT40 (2Tx, SDM, non TxBF) Low Rate	11ax HE40 (2Tx, SDM, non TXBF) Low Rate	11n/11ac HT40 (2Tx, TxBF) Low Rate
38	5190	14	14	14	14	14
46	5230	14	14	14	14	14
54	5270	13.5	13.5	13.5	13.5	13.5
62	5310	13.5	13.25	13.5	13.5	13.5
102	5510	13.5	13.5	13.5	13.5	13.5
110	5550	13.5	13.5	13.5	13.5	13.5
118	5590	13.5	13.5	13.5	13.5	13.5
126	5630	13.5	13.5	13.5	13.5	13.5
134	5670	13.5	13.5	13.5	13.5	13.5
142	5710	13.5	13.5	13.5	13.5	13.5
151	5755	13.5	13.5	13.5	13.5	13.5
159	5795	13.5	13.5	13.5	13.5	13.5

5GHz - 80MHz BW SISO and MIMO (FCC)

Channel	Center Frequency (MHz)	11ac VHT80 (SISO) Low Rate	11ax HE80 (SISO) Low Rate	11ac VHT80 (2Tx, CDD, non TXBF) Low Rate	11ax HE80 (2Tx, CDD, non TXBF) Low Rate	11ac VHT80 (2Tx, SDM, non TXBF) Low Rate	11ax HE80 (2Tx, SDM, non TXBF) Low Rate	11ac VHT80 (2Tx, TxBF) Low Rate
42	5210	14	14	14	14	14	14	14
58	5290	13.5	13.5	12.5	12.5	12.75	13	11.25
106	5530	13.5	13.5	13.5	13.25	13.5	13.5	13.5
122	5610	13.5	13.5	13.5	13.5	13.5	13.5	13.5
138	5690	13.5	13.5	13.5	13.5	13.5	13.5	13.5
155	5775	13.5	13.5	13.5	13.5	13.5	13.5	13.5

2.4GHz WiFi SISO Core 0/ Core 1 (ISED)

Channel	Center Frequency (MHz)	b (SISO)	g (SISO) Low Rate	11n/11ac HT20 (SISO) Low Rate	11ax HE20 (SISO) Low Rate	11n/11ac HT20 (2Tx, non TXBF) Low Rate	11ax HE20 (2Tx, non TXBF) Low Rate)
1	2412	17.25	17.25	16.75	16	15.75	15.25
2	2417	17.25	17.25	17.25	17.25	17.25	17.25
3	2422	17.25	17.25	17.25	17.25	17.25	17.25
4	2427	17.25	17.25	17.25	17.25	17.25	17.25
5	2432	17.25	17.25	17.25	17.25	17.25	17.25
6	2437	17.25	17.25	17.25	17.25	17.25	17.25
7	2442	17.25	17.25	17.25	17.25	17.25	17.25
8	2447	17.25	17.25	17.25	17.25	17.25	17.25
9	2452	17.25	17.25	17.25	17.25	17.25	17.25
10	2457	17.25	17.25	17.25	17.25	17.25	17.25
11	2462	17.25	17.25	17.25	17.25	17.25	17.25
12	2467	17.25	17.25	17.25	17	16.25	15.5
13	2472	15.75	8	7.5	6.75	7	6.25

5GHz WiFi- 20MHz BW – SISO Core 0/ Core1 (ISED)

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

5GHz WiFi- 20MHz BW – MIMO Core 0 and Core 1 (ISED)

Channel	Center Frequency (MHz)	11n/11ac HT20 (2Tx, CDD, non TXBF) Low Rate	11ax HE20 (2Tx, CDD, non TxBF) Low Rate	11n/11ac HT20 (2Tx, SDM, non TxBF) Low Rate	11ax HE20 (2Tx, SDM, non TXBF) Low Rate	11n/11ac HT20 (2Tx, TxBF) Low Rate
36	5180	6	5.75	9	8.75	6
40	5200	6	5.75	9	8.75	6
44	5220	6	5.75	9	8.75	6
48	5240	6	5.75	9	8.75	6
52	5260	12.75	12.75	12.75	12.75	12.75
56	5280	12.75	12.75	12.75	12.75	12.75
60	5300	12.75	12.75	12.75	12.75	12.75
64	5320	12.75	12.75	12.75	12.75	12.75
100	5500	12.75	12.75	12.75	12.75	12.75
104	5520	12.75	12.75	12.75	12.75	12.75
108	5540	12.75	12.75	12.75	12.75	12.75
112	5560	12.75	12.75	12.75	12.75	12.75
116	5580	12.75	12.75	12.75	12.75	12.75
120	5600	12.75	12.75	12.75	12.75	12.75
124	5620	12.75	12.75	12.75	12.75	12.75
128	5640	12.75	12.75	12.75	12.75	12.75
132	5660	12.75	12.75	12.75	12.75	12.75
136	5680	12.75	12.75	12.75	12.75	12.75
140	5700	12.75	12.75	12.75	12.75	12.75
144	5720	12.75	12.75	12.75	12.75	12.75
149	5745	12.75	12.75	12.75	12.75	12.75
153	5765	12.75	12.75	12.75	12.75	12.75
157	5785	12.75	12.75	12.75	12.75	12.75
161	5805	12.75	12.75	12.75	12.75	12.75
165	5825	12.75	12.75	12.75	12.75	12.75

5GHz WiFi- 40MHz BW – SISO Core 0/ Core1 (ISED)

Channel	Center Frequency (MHz)	11n/11ac HT40 (SISO) Low Rate	11ax HE40 (SISO) Low Rate
38	5190	13.25	13.25
46	5230	13.25	13.25
54	5270	12.75	12.75
62	5310	12.75	12.75
102	5510	12.75	12.75
110	5550	12.75	12.75
118	5590	12.75	12.75
126	5630	12.75	12.75
134	5670	12.75	12.75
142	5710	12.75	12.75
151	5755	12.75	12.75
159	5795	12.75	12.75

5GHz WiFi - 40MHz BW – MIMO Core 0 and Core 1 (ISED)

Channel	Center Frequency (MHz)	11n/11ac HT40 (2Tx, CDD, non TXBF) Low Rate	11ax HE40 (2Tx, CDD, non TxBF) Low Rate	11n/11ac HT40 (2Tx, SDM, non TxBF) Low Rate	11ax HE40 (2Tx, SDM, non TXBF) Low Rate	11n/11ac HT40 (2Tx, TxBF) Low Rate
38	5190	8.5	8.25	11.5	11.25	8.5
46	5230	8.5	8.25	11.5	11.25	8.5
54	5270	12.75	12.75	12.75	12.75	12.75
62	5310	12.75	12.75	12.75	12.75	12.75
102	5510	12.75	12.75	12.75	12.75	12.75
110	5550	12.75	12.75	12.75	12.75	12.75
118	5590	12.75	12.75	12.75	12.75	12.75
126	5630	12.75	12.75	12.75	12.75	12.75
134	5670	12.75	12.75	12.75	12.75	12.75
142	5710	12.75	12.75	12.75	12.75	12.75
151	5755	12.75	12.75	12.75	12.75	12.75
159	5795	12.75	12.75	12.75	12.75	12.75

1.7 POWER MEASUREMENTS

1.7.1 Method

Conducted power measurements were made using a spectrum analyser

1.7.2 Conducted Power Measurements

Bluetooth (5GHz Wifi Off)

EDR

(BT Core 0 - ePA)

Technology	Channel	Modulation	Packet Type	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
EDR	0	PSK	3-DH5	2402	16.17	16.50	16.50
EDR	39	PSK	3-DH5	2441	16.14	16.50	16.50
EDR	78	PSK	3-DH5	2480	16.27	16.50	16.50

(BT Core 1 - ePA)

Technology	Channel	Modulation	Packet Type	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
EDR	0	PSK	3-DH5	2402	16.31	16.50	16.50
EDR	39	PSK	3-DH5	2441	16.23	16.50	16.50
EDR	78	PSK	3-DH5	2480	16.26	16.50	16.50

BDR

(BT Core 2 - iPA)

Technology	Channel	Modulation	Packet Type	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
BDR	0	GFSK	DH5	2402	12.80	13.00	13.00
BDR	39	GFSK	DH5	2441	12.82	13.00	13.00
BDR	78	GFSK	DH5	2480	12.66	13.00	13.00

Bluetooth (5GHz Wifi On)

BDR

(BT Core 0 - iPA)

Technology	Channel	Modulation	Packet Type	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
BDR	0	GFSK	DH5	2402	12.47	13.00	13.00
BDR	39	GFSK	DH5	2441	12.61	13.00	13.00
BDR	78	GFSK	DH5	2480	12.63	13.00	13.00

(BT Core 0 - ePA)

Technology	Channel	Modulation	Packet Type	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
BDR	0	GFSK	DH5	2402	12.48	13.00	13.00
BDR	39	GFSK	DH5	2441	12.62	13.00	13.00
BDR	78	GFSK	DH5	2480	12.64	13.00	13.00

(BT Core 1 - iPA)

Technology	Channel	Modulation	Packet Type	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
BDR	0	GFSK	DH5	2402	12.62	13.00	13.00
BDR	39	GFSK	DH5	2441	12.45	13.00	13.00
BDR	78	GFSK	DH5	2480	12.79	13.00	13.00

(BT Core 1 - ePA)

Technology	Channel	Modulation	Packet Type	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
BDR	0	GFSK	DH5	2402	12.62	13.00	13.00
BDR	39	GFSK	DH5	2441	12.57	13.00	13.00
BDR	78	GFSK	DH5	2480	12.80	13.00	13.00

(BT Core 2 - iPA)

Technology	Channel	Modulation	Packet Type	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
BDR	0	GFSK	DH5	2402	12.78	13.00	13.00
BDR	39	GFSK	DH5	2441	12.82	13.00	13.00
BDR	78	GFSK	DH5	2480	12.65	13.00	13.00

EDR

(BT Core 0 - ePA)

Technology	Channel	Modulation	Packet Type	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
EDR	0	PSK	3-DH5	2402	12.75	13.00	13.00
EDR	39	PSK	3-DH5	2441	12.61	13.00	13.00
EDR	78	PSK	3-DH5	2480	12.82	13.00	13.00

(BT Core 1 - ePA)

Technology	Channel	Modulation	Packet Type	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
EDR	0	PSK	3-DH5	2402	12.78	13.00	13.00
EDR	39	PSK	3-DH5	2441	12.72	13.00	13.00
EDR	78	PSK	3-DH5	2480	12.78	13.00	13.00

HDR

(BT Core 0 - ePA)

Technology	Channel	Modulation	Packet Type	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
HDR	2	PSK	8-DH5	2404	12.98	13.00	13.00
HDR	39	PSK	8-DH5	2441	12.45	13.00	13.00
HDR	74	PSK	8-DH5	2476	12.58	13.00	13.00

(BT Core 1 - ePA)

Technology	Channel	Modulation	Packet Type	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
HDR	2	PSK	8-DH5	2404	12.70	13.00	13.00
HDR	39	PSK	8-DH5	2441	12.61	13.00	13.00
HDR	74	PSK	8-DH5	2476	12.73	13.00	13.00

WLAN 2450 MHz - SISO

(2.4 GHz Core 0)

Technology	Channel	Modulation	Duty Cycle (%)	Rate (Mbps)	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
802.11b	1	BPSK	100	1	2412	17.25	18.00	17.25
802.11b	7	BPSK	100	1	2442	17.03	18.00	17.25
802.11b	11	BPSK	100	1	2462	16.90	18.00	17.25
802.11b	12	BPSK	100	1	2467	17.07	17.50	17.25

- Power measurements were not performed for OFDM modes, OFDM configurations met the test exclusion requirements of KDB 248227 D01 section 5.2.2.

(2.4 GHz Core 1)

Technology	Channel	Modulation	Duty Cycle (%)	Rate (Mbps)	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
802.11b	1	BPSK	100	1	2412	17.01	18.00	17.25
802.11b	7	BPSK	100	1	2442	16.97	18.00	17.25
802.11b	11	BPSK	100	1	2462	16.92	18.00	17.25
802.11b	12	BPSK	100	1	2467	16.90	17.50	17.25

- Power measurements were not performed for OFDM modes OFDM configurations met the test exclusion requirements of KDB 248227 D01 section 5.2.2.

WLAN 2450 MHz - 2x2 MIMO

(2.4 GHz Core 0)

Technology	Channel	Modulation	Duty Cycle (%)	Rate (Mbps)	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
802.11n	2	BPSK	100	6.5	2417	16.90	18.00	17.25
802.11n	7	BPSK	100	6.5	2442	17.23	18.00	17.25
802.11n	11	BPSK	100	6.5	2462	17.08	18.00	17.25

(2.4 GHz Core 1)

Technology	Channel	Modulation	Duty Cycle (%)	Rate (Mbps)	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
802.11n	2	BPSK	100	6.5	2417	16.98	18.00	17.25
802.11n	7	BPSK	100	6.5	2442	17.21	18.00	17.25
802.11n	11	BPSK	100	6.5	2462	17.10	18.00	17.25

WLAN U-NII 1 - SISO

(5 GHz Core 0)

Technology	Channel	Modulation	Duty Cycle (%)	Rate (Mbps)	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
802.11ac VHT80	42	BPSK	100	29.3	5210	12.92	14.00	13.25

(5GHz Core 1)

Technology	Channel	Modulation	Duty Cycle (%)	Rate (Mbps)	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
802.11ac VHT80	42	BPSK	100	29.3	5210	13.17	14.00	13.25

WLAN U-NII 1 - 2x2 MIMO CDD

(5 GHz Core 0)

Technology	Channel	Modulation	Duty Cycle (%)	Rate (Mbps)	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
802.11ac VHT80 - SDM	42	BPSK	100	29.3	5210	13.64*	14.00	12.25

***** Tested at FCC Power setting , therefore measured power is greater than ISED Tune Up, Channel 42 did not require testing for ISED.

(5 GHz Core 1)

Technology	Channel	Modulation	Duty Cycle (%)	Rate (Mbps)	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
802.11ac VHT80 SDM	42	BPSK	100	29.3	5210	13.69*	14.00	12.25

***** Tested at FCC Power setting , therefore measured power is greater than ISED Tune Up, Channel 42 did not require testing for ISED.

WLAN U-NII 1 - 2x2 MIMO SDM

(5 GHz Core 0)

Technology	Channel	Modulation	Duty Cycle (%)	Rate (Mbps)	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
802.11ac VHT80 - SDM	42	BPSK	100	29.3	5210	13.65*	14.00	12.25

***** Tested at FCC Power setting , therefore measured power is greater than ISED Tune Up, Channel 42 did not require testing for ISED.

(5 GHz Core 1)

Technology	Channel	Modulation	Duty Cycle (%)	Rate (Mbps)	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
802.11ac VHT80 SDM	42	BPSK	100	29.3	5210	13.71*	14.00	12.25

***** Tested at FCC Power setting , therefore measured power is greater than ISED Tune Up, Channel 42 did not require testing for ISED.

WLAN U-NII 2A - 2x2 MIMO CDD

(5 GHz Core 0)

Technology	Channel	Modulation	Duty Cycle (%)	Rate (Mbps)	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
802.11ac VHT80 - SDM	58	BPSK	100	29.3	5290	12.41	12.75	12.75

(5 GHz Core 1)

Technology	Channel	Modulation	Duty Cycle (%)	Rate (Mbps)	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
802.11ac VHT80 SDM	58	BPSK	100	29.3	5290	12.68	12.75	12.75

WLAN U-NII 2C - SISO

(5 GHz Core 0)

Technology	Channel	Modulation	Duty Cycle (%)	Rate (Mbps)	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
802.11ac VHT80	106	BPSK	100	29.3	5530	12.69	13.50	12.75
802.11ac VHT80	122	BPSK	100	29.3	5610	12.55	13.50	12.75
802.11ac VHT80	138	BPSK	100	29.3	5690	12.61	13.50	12.75

(5 GHz Core 1

Technology	Channel	Modulation	Duty Cycle (%)	Rate (Mbps)	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
802.11ac VHT80	106	BPSK	100	29.3	5530	12.64	13.50	12.75
802.11ac VHT80	122	BPSK	100	29.3	5610	12.45	13.50	12.75
802.11ac VHT80	138	BPSK	100	29.3	5690	12.64	13.50	12.75

WLAN U-NII 2C - 2x2 MIMO

(5 GHz Core 0)

Technology	Channel	Modulation	Duty Cycle (%)	Rate (Mbps)	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
802.11ac VHT80 -CDD	106	BPSK	100	29.3	5530	12.52	13.50	12.75
802.11ac VHT80 -CDD	122	BPSK	100	29.3	5610	12.32	13.50	12.75
802.11ac VHT80 -CDD	138	BPSK	100	29.3	5690	12.31	13.50	12.75

(5 GHz Core 1)

Technology	Channel	Modulation	Duty Cycle (%)	Rate (Mbps)	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
802.11ac VHT80 -CDD	106	BPSK	100	29.3	5530	12.75	13.50	12.75
802.11ac VHT80 -CDD	122	BPSK	100	29.3	5610	12.53	13.50	12.75
802.11ac VHT80 -CDD	138	BPSK	100	29.3	5690	12.33	13.50	12.75

(5 GHz Core 0)

Technology	Channel	Modulation	Duty Cycle (%)	Rate (Mbps)	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
802.11ac VHT80 -SDM	106	BPSK	100	29.3	5530	12.47	13.50	12.75
802.11ac VHT80-SDM	122	BPSK	100	29.3	5610	12.32	13.50	12.75
802.11ac VHT80-SDM	138	BPSK	100	29.3	5690	12.37	13.50	12.75

(5 GHz Core 1)

Technology	Channel	Modulation	Duty Cycle (%)	Rate (Mbps)	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
802.11ac VHT80 -SDM	106	BPSK	100	29.3	5530	12.44	13.50	12.75
802.11ac VHT80-SDM	122	BPSK	100	29.3	5610	12.53	13.50	12.75
802.11ac VHT80-SDM	138	BPSK	100	29.3	5690	12.41	13.50	12.75

WLAN U-NII 3 - SISO

(5 GHz Core 0)

Technology	Channel	Modulation	Duty Cycle (%)	Rate (Mbps)	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
802.11ac VHT80	155	BPSK	100	29.3	5775	12.49	13.50	12.75

5 GHz Core 1)

Technology	Channel	Modulation	Duty Cycle (%)	Rate (Mbps)	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
802.11ac VHT80	155	BPSK	100	29.3	5775	12.47	13.50	12.75

WLAN U-NII 3 - 2x2 MIMO

(5 GHz Core 0)

Technology	Channel	Modulation	Duty Cycle (%)	Rate (Mbps)	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
802.11ac VHT80 - CDD	155	BPSK	100	29.3	5775	12.30	13.50	12.75

(5 GHz Core 1)

Technology	Channel	Modulation	Duty Cycle (%)	Rate (Mbps)	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
802.11ac VHT80 –CDD	155	BPSK	100	29.3	5775	12.61	13.50	12.75

(5 GHz Core 0)

Technology	Channel	Modulation	Duty Cycle (%)	Rate (Mbps)	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
802.11ac VHT80 -SDM	155	BPSK	100	29.3	5775	12.29	13.50	12.75

(5 GHz Core 1)

Technology	Channel	Modulation	Duty Cycle (%)	Rate (Mbps)	Frequency (MHz)	Measured Power (dBm)	FCC Tune Up (dBm)	ISED Tune Up (dBm)
802.11ac VHT80 –SDM	155	BPSK	100	29.3	5775	12.61	13.50	12.75

SECTION 2

TEST DETAILS

Specific Absorption Rate Testing of the
A2485

2.1 DASY5 MEASUREMENT SYSTEM

2.1.1 System Description

The DASY5 system for performing compliance tests consists of the following items:

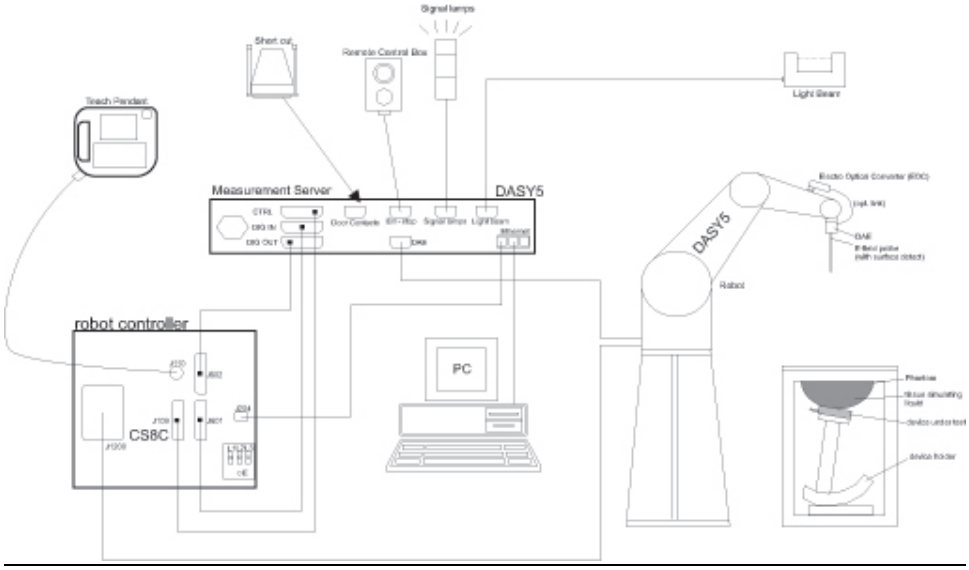


Figure 2 System Description Diagram

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 DASY5 software.

Remote control and 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 permittivities. 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 200MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

2.1.4 SAR Evaluation Description

The DASY5 software includes all numerical procedures necessary to evaluate the spatial peak SAR values.

Based on the IEEE 1528 standard, a new algorithm has been implemented. The spatial-peak SAR can be computed over any required mass.

The base for the evaluation is a "cube" measurement in a volume of 30mm3 (7x7x7 points). The measured volume must include the 1 g and 10 g cubes with the highest averaged SAR values. For that purpose, the centre of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan. If the 10g cube or both cubes are not entirely inside the measured volumes, the system issues a warning regarding the evaluated spatial peak values within the Post processing engine (SEMCAD X). This means that if the measured volume is shifted, higher values might be possible. To get the correct values you can use a finer measurement grid for the area scan. In complicated field distributions, a large grid spacing for the area scan might miss some details and give an incorrectly interpolated peak location.

The entire evaluation of the spatial peak values is performed within the Post-processing engine (SEMCAD X). The system always gives the maximum values for the 1 g and 10 g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

1. extraction of the measured data (grid and values) from the Zoom Scan
2. calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
3. generation of a high-resolution mesh within the measured volume
4. interpolation of all measured values from the measurement grid to the high-resolution grid
5. extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
6. calculation of the averaged SAR within masses of 1 g and 10 g

2.1.5 Interpolation, Extrapolation and Detection of Maxima

The probe is calibrated at the centre of the dipole sensors which is located 1 to 2.7mm away from the probe tip. During measurements, the probe stops shortly above the phantom surface, depending on the probe and the surface detecting system. Both distances are included as parameters in the probe configuration file. The software always knows exactly how far away the measured point is from the surface. As the probe cannot directly measure at the surface, the values between the deepest measured point and the surface must be extrapolated.

In DASY5, the choice of the coordinate system defining the location of the measurement points has no influence on the uncertainty of the interpolation, Maxima Search and extrapolation routines. The interpolation, extrapolation and maximum search routines are all based on the modified Quadratic Shepard's method. Thereby, the interpolation scheme combines a least-square fitted function method and a weighted average method which are the two basic types of computational interpolation and approximation. The DASY5 routines construct a once-continuously differentiable function that interpolates the measurement values as follows:

For each measurement point a trivariate (3-D) / bivariate (2-D) quadratic is computed.
It interpolates the measurement values at the data point and forms a least-square fit to neighbouring measurement values. The spatial location of the quadratic with respect to the measurement values is attenuated by an inverse distance weighting. This is performed since the calculated quadratic will fit measurement values at nearby points more accurate than at points located further away.

After the quadratics are calculated for at all measurement points, the interpolating function is calculated as a weighted average of the quadratics.

There are two control parameters that govern the behaviour of the interpolation method. One specifies the number of measurement points to be used in computing the least-square fits for the local quadratics. These measurement points are the ones nearest the input point for which the quadratic is being computed. The second parameter specifies the number of measurement points that will be used in calculating the weights for the quadratics to produce the final function. The input data points used there are the ones nearest the point at which the interpolation is desired. Appropriate defaults are chosen for each of the control parameters

The trivariate quadratics that have been previously computed for the 3-D interpolation and whose input data are at the closest distance from the phantom surface, are used in order to extrapolate the fields to the surface of the phantom.

In order to determine all the field maxima in 2-D (Area Scan) and 3-D (Zoom Scan), the measurement grid is refined by a default factor of 10 and the interpolation function is used to evaluate all field values between corresponding measurement points. Subsequently, a linear search is applied to find all the candidate maxima. In a last step, non-physical maxima are removed and only those maxima which are within 2 dB of the global maximum value are retained.

In the Area Scan, the gradient of the interpolation function is evaluated to find all the extrema of the SAR distribution. The uncertainty on the locations of the extrema is less than 1/20 of the grid size. Only local maxima within 2 dB of the global maximum are searched and passed for the Zoom Scan measurement.

In the Zoom Scan, the interpolation function is used to extrapolate the Peak SAR from the lowest measurement points to the inner phantom surface (the extrapolation distance). The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1 g and 10 g cubes, the extrapolation distance should not be larger than 5mm.

2.1.6 Averaging and Determination of Spatial Peak SAR

The interpolated data is used to average the SAR over the 1g and 10g cubes by spatially discretising the entire measured volume. The resolution of this spatial grid used to calculate the averaged SAR is 1mm or about 42875 interpolated points. The resulting volumes are defined as cubical volumes containing the appropriate tissue parameters that are cantered at the location. The location is defined as the centre of the incremental volume (voxel).

The spatial-peak SAR must be evaluated in cubical volumes containing a mass that is within 5%of the required mass. The cubical volume centred at each location, as defined above, should be expanded in all directions until the desired value for the mass is reached, with no surface boundaries of the averaging volume extending beyond the outermost surface of the considered region. In addition, the cubical volume should not consist of more than 10% of air. If these conditions are not satisfied, then the centre of the averaging volume is moved to the next location. Otherwise, the exact size of the final sampling cube is found using an inverse polynomial approximation algorithm, leading to results with improved accuracy. If one boundary of the averaging volume reaches the boundary of the measured volume during its expansion, it will not be evaluated at all. Reference is kept of all locations used and those not used for averaging the SAR. All average SAR values are finally assigned to the centred location in each valid averaging volume.

All locations included in an averaging volume are marked to indicate that they have been used at least once. If a location has been marked as used but has never been assigned to the centre of a cube, the highest averaged SAR value of all other cubical volumes which have used this location for averaging is assigned to this location. Only those locations that are not part of any valid averaging volume should be marked as unused. For the case of an unused location, a new averaging volume must be constructed which will have the unused location centred at one surface of the cube. The remaining five surfaces are expanded evenly in all directions until the required mass is enclosed, regardless of the amount of included air. Of the six possible cubes with one surface centred on the unused location, the smallest cube is used, which still contains the required mass.

If the final cube containing the highest averaged SAR touches the surface of the measured volume, an appropriate warning is issued within the Post-processing engine.

SECTION 3

TEST EQUIPMENT USED

3.1 TEST EQUIPMENT USED

The following test equipment was used at TÜV SÜD:

Instrument Description	Manufacturer	Model Type	TE Number	Cal Period (months)	Calibration Due Date
Thermometer	Digitron	T208	64	12	29-Oct-2021
Thermocouple (Type K)	TUV SUD	TYPE K	65	12	29-Oct-2021
Multimeter	Iso-tech	IDM101	2421	12	30-Oct-2021
Hygrometer	Rotronic	I-1000	3068	12	10-Aug-2022
SAR 5GHz Dipole	Speag	D5GHzV2	4309	12	17-Dec-2021
Dielectric Assessment Kit	Speag	DAK 200MHz to 20GHz	4690	-	TU
Dielectric Probe Stand	Speag	Stand	4691	-	TU
Laptop Device Holder	Speag	MDA4LAP	4693	-	TU
Network Analyser	Keysight	E5063A	5018	12	30-Jul-2022
AC Programmable Power Supply	iTech	IT7324	5226	-	O/P Mon
Data Acquisition Electronics	Speag	DAE 4 - SD 000 D04 BN	5327	12	09-Jun-2022
Validation Dipole (2450MHz)	Speag	D2450V2	5329	12	03-Jun-2022
Dosimetric SAR Probe	Speag	EX3DV4	5330	12	18-Jun-2022
Body Phantom	Speag	Oval Flat Phantom ELI v8.0	5332	-	TU
Measurement server	Speag	DASY 6 Measurement Server	5337	-	TU
Robot	Speag	TX90 XL Stäubli Robot	5340	-	TU
Power Source for SAR system validation	Speag	POWERSOURCE1-SE UMS 160 BA	5371	12	16-Dec-2021
MXA Signal Analyser	Keysight	N9020B	5529	24	04-Mar-2022
Signal Commissioning Unit	TUV SUD	SCU002	5759	12	30-Jun-2022
USB Power Sensor	Boonton	RTP5008	5830	12	10-May-2022
USB Power Sensor	Boonton	RTP5008	5832	12	10-May-2022
USB Power Sensor	Boonton	RTP5008	5833	12	10-May-2022
Modular Power System Mainframe	Keysight	N6701C	5835	-	TU
DC Power Module 60V 20A 300W	Keysight	N6754A	5836	-	O/P Mon
Tissue Simulant Liquid	Speag	HBBL 600 -6000	Batch 1	Weekly	06-Sept -2021

TU - Traceability Unscheduled
O/P Mon - Output Monitored using calibrated equipment

3.2 TEST SOFTWARE

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

Instrument	Version Number
DASY system	DASY52 52.10.2(1495)

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 865665.

The dielectric properties of the tissue simulant liquids used for the SAR testing at TÜV SÜD are as follows:-

Fluid Type and Frequency	Relative Permittivity Target	Relative Permittivity Measured	Conductivity Target (S/m)	Conductivity Measured (S/m)	Date	Fluid Temperature °C
HBBL @ 2450 MHz	39.20	39.75	1.80	1.83	16/08/2021	22.0
HBBL @ 5200 MHz	35.99	34.87	4.66	4.54	16/08/2021	22.0
HBBL @ 5300 MHz	35.87	34.68	4.76	4.65	16/08/2021	22.0
HBBL @ 5500 MHz	35.64	34.30	4.96	4.87	16/08/2021	22.0
HBBL @ 5600 MHz	35.53	34.13	5.07	4.98	16/08/2021	22.0
HBBL @ 5800 MHz	35.30	33.78	5.27	5.21	16/08/2021	22.0
HBBL @ 2450 MHz	39.20	39.86	1.80	1.86	23/08/2021	22.0
HBBL @ 5200 MHz	35.99	34.76	4.66	4.55	23/08/2021	22.0
HBBL @ 5300 MHz	35.87	34.56	4.76	4.65	23/08/2021	22.0
HBBL @ 5500 MHz	35.64	34.18	4.96	4.87	23/08/2021	22.0
HBBL @ 5600 MHz	35.53	34.01	5.07	4.97	23/08/2021	22.0
HBBL @ 5800 MHz	35.30	33.66	5.27	5.20	23/08/2021	22.0
HBBL @ 2450 MHz	39.20	40.48	1.80	1.85	26/08/2021	21.9
HBBL @ 5200 MHz	35.99	35.56	4.66	4.63	26/08/2021	21.9
HBBL @ 5300 MHz	35.87	35.36	4.76	4.74	26/08/2021	21.9
HBBL @ 5500 MHz	35.64	34.96	4.96	4.97	26/08/2021	21.9
HBBL @ 5600 MHz	35.53	34.79	5.07	5.08	26/08/2021	21.9
HBBL @ 5800 MHz	35.30	34.43	5.27	5.32	26/08/2021	21.9
HBBL @ 2450 MHz	39.20	40.32	1.80	1.88	31/08/2021	21.9
HBBL @ 5200 MHz	35.99	35.28	4.66	4.63	31/08/2021	21.9
HBBL @ 5300 MHz	35.87	35.08	4.76	4.74	31/08/2021	21.9
HBBL @ 5500 MHz	35.64	34.69	4.96	4.96	31/08/2021	21.9
HBBL @ 5600 MHz	35.53	34.51	5.07	5.07	31/08/2021	21.9
HBBL @ 5800 MHz	35.30	34.17	5.27	5.30	31/08/2021	21.9

3.4 TEST CONDITIONS

3.4.1 Test Laboratory Conditions

Ambient temperature: Within +15°C to +35°C.
The actual temperature during the testing ranged from 21.9°C to 22.4°C.
The actual humidity during the testing ranged from 52.5% to 69.8% RH.

3.4.2 Test Fluid Temperature Range

Frequency	Body / Head Fluid	Min Temperature °C	Max Temperature °C
2450 MHz	Head	21.3	22.0
5200 MHz	Head	21.1	21.8
5500 MHz	Head	21.8	22.0
5800 MHz	Head	21.9	22.0

3.4.3 SAR Drift

The SAR Drift was within acceptable limits during scans. The maximum SAR Drift was recorded as 0.17 dB. The measurement uncertainty budget for this assessment includes the maximum SAR Drift figures.

3.5 MEASUREMENT UNCERTAINTY

Body, Full SAR Measurements, 300 MHz to 3 GHz -

Source of Uncertainty	Uncertainty ± %	Probability distribution	Div	c_i (1g)	Standard Uncertainty ± % (1g)	v_i (v_{eff})
Measurement System						
Probe calibration	6.0	N	1.00	1.00	6.0	Infinity
Axial Isotropy	4.7	R	1.73	0.70	1.9	Infinity
Hemispherical Isotropy	9.6	R	1.73	0.70	3.9	Infinity
Boundary effect	1.0	R	1.73	1.00	0.6	Infinity
Linearity	4.7	R	1.73	1.00	2.7	Infinity
System Detection limits	1.0	R	1.73	1.00	0.6	Infinity
Modulation response	2.4	R	1.73	1.00	1.4	Infinity
Readout electronics	0.3	N	1.00	1.00	0.3	Infinity
Response time	0.8	R	1.73	1.00	0.5	Infinity
Integration time	2.6	R	1.73	1.00	1.5	Infinity
RF ambient noise	3.0	R	1.73	1.00	1.7	Infinity
RF ambient reflections	3.0	R	1.73	1.00	1.7	Infinity
Probe positioner	0.4	R	1.73	1.00	0.2	Infinity
Probe positioning	2.9	R	1.73	1.00	1.7	Infinity
Max SAR Evaluation	2.0	R	1.73	1.00	1.2	Infinity
Test sample related						
Device Positioning	2.9	N	1.00	1.00	2.9	145
Device Holder	3.6	N	1.00	1.00	3.6	5
Input Power and SAR Drift	5.0	R	1.73	1.00	2.9	Infinity
Phantom and Setup						
Phantom uncertainty	6.1	R	1.73	1.00	3.5	Infinity
SAR Correction	1.9	R	1.73	1.00	1.1	Infinity
Liquid conductivity Meas.	2.5	R	1.73	0.78	1.1	Infinity
Liquid Permittivity Meas.	2.5	R	1.73	0.23	0.3	Infinity
Temp. Unc. Conductivity	3.4	R	1.73	0.78	1.5	Infinity
Temp. Unc. Permittivity	0.4	R	1.73	0.23	0.1	Infinity
Combined Standard Uncertainty		**RSS**			11.2	361
Expanded Standard Uncertainty		**K=2**			22.3	

Body, Full SAR Measurements, 3 GHz to 6 GHz

Source of Uncertainty	Uncertainty ± %	Probability distribution	Div	c_i (1g)	Standard Uncertainty ± % (1g)	v_i (v_{eff})
Measurement System						
Probe calibration	6.6	N	1.00	1.00	6.6	Infinity
Axial Isotropy	4.7	R	1.73	0.70	1.9	Infinity
Hemispherical Isotropy	9.6	R	1.73	0.70	3.9	Infinity
Boundary effect	2.0	R	1.73	1.00	1.2	Infinity
Linearity	4.7	R	1.73	1.00	2.7	Infinity
System Detection limits	1.0	R	1.73	1.00	0.6	Infinity
Modulation response	2.4	R	1.73	1.00	1.4	Infinity
Readout electronics	0.3	N	1.00	1.00	0.3	Infinity
Response time	0.8	R	1.73	1.00	0.5	Infinity
Integration time	2.6	R	1.73	1.00	1.5	Infinity
RF ambient noise	3.0	R	1.73	1.00	1.7	Infinity
RF ambient reflections	3.0	R	1.73	1.00	1.7	Infinity
Probe positioner	0.8	R	1.73	1.00	0.5	Infinity
Probe positioning	6.7	R	1.73	1.00	3.9	Infinity
Max SAR Evaluation	4.0	R	1.73	1.00	2.3	Infinity
Test sample related						
Device Positioning	2.9	N	1.00	1.00	2.9	145
Device Holder	3.6	N	1.00	1.00	3.6	5
Input Power and SAR Drift	5.0	R	1.73	1.00	2.9	Infinity
Phantom and Setup						
Phantom uncertainty	6.6	R	1.73	1.00	3.8	Infinity
SAR Correction	1.9	R	1.73	1.00	1.1	Infinity
Liquid conductivity Meas.	2.5	R	1.73	0.78	1.1	Infinity
Liquid Permittivity Meas.	2.5	R	1.73	0.23	0.3	Infinity
Temp. Unc. Conductivity	3.4	R	1.73	0.78	1.5	Infinity
Temp. Unc. Permittivity	0.4	R	1.73	0.23	0.1	Infinity
Combined Standard Uncertainty		**RSS**			12.3	748
Expanded Standard Uncertainty		**K=2**			24.6	

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).

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: EX3-7536_Jun21

CALIBRATION CERTIFICATE

Object EX3DV4 - SN:7536

Calibration procedure(s) QA CAL-01.v9, QA CAL-14.v6, QA CAL-23.v5, QA CAL-25.v7
Calibration procedure for dosimetric E-field probes

Calibration date: June 18, 2021

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 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	09-Apr-21 (No. 217-03291/03292)	Apr-22
Power sensor NRP-Z91	SN: 103244	09-Apr-21 (No. 217-03291)	Apr-22
Power sensor NRP-Z91	SN: 103245	09-Apr-21 (No. 217-03292)	Apr-22
Reference 20 dB Attenuator	SN: CC2552 (20x)	09-Apr-21 (No. 217-03343)	Apr-22
DAE4	SN: 660	23-Dec-20 (No. DAE4-660_Dec20)	Dec-21
Reference Probe ES3DV2	SN: 3013	30-Dec-20 (No. ES3-3013_Dec20)	Dec-21
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-20)	In house check: Jun-22
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-20)	In house check: Jun-22
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-20)	In house check: Jun-22
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-20)	In house check: Jun-22
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-20)	In house check: Oct-21

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: June 21, 2021

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
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**

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 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:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, ", "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * 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*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). 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
- *Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z: 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 ≤ 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 *NORMx,y,z * 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 ± 50 MHz to ± 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 *NORMx* (no uncertainty required).

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7536

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.56	0.62	0.65	± 10.1 %
DCP (mV)[B]	93.7	99.7	97.6	

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB√µV	C	D dB	VR mV	Max dev.	Max Unc[E] (k=2)
0	CW	X	0.00	0.00	1.00	0.00	135.0	± 2.5 %	± 4.7 %
		Y	0.00	0.00	1.00		140.4		
		Z	0.00	0.00	1.00		128.5		
10352-AAA	Pulse Waveform (200Hz, 10%)	X	2.03	64.57	9.42	10.00	60.0	± 4.8 %	± 9.6 %
		Y	20.00	90.60	19.90		60.0		
		Z	2.89	67.95	11.11		60.0		
10353-AAA	Pulse Waveform (200Hz, 20%)	X	1.38	63.65	8.27	6.99	80.0	± 3.4 %	± 9.6 %
		Y	20.00	92.61	19.76		80.0		
		Z	2.68	69.17	10.84		80.0		
10354-AAA	Pulse Waveform (200Hz, 40%)	X	1.20	65.62	8.54	3.98	95.0	± 1.8 %	± 9.6 %
		Y	20.00	97.59	20.87		95.0		
		Z	20.00	86.87	15.41		95.0		
10355-AAA	Pulse Waveform (200Hz, 60%)	X	15.56	85.19	14.00	2.22	120.0	± 1.0 %	± 9.6 %
		Y	20.00	103.77	22.60		120.0		
		Z	20.00	92.50	17.20		120.0		
10387-AAA	QPSK Waveform, 1 MHz	X	1.72	65.73	15.00	1.00	150.0	± 1.8 %	± 9.6 %
		Y	1.61	64.67	14.16		150.0		
		Z	1.83	67.12	15.78		150.0		
10388-AAA	QPSK Waveform, 10 MHz	X	2.27	67.78	15.69	0.00	150.0	± 1.0 %	± 9.6 %
		Y	2.09	66.35	14.82		150.0		
		Z	2.43	69.12	16.47		150.0		
10396-AAA	64-QAM Waveform, 100 kHz	X	2.85	70.35	18.91	3.01	150.0	± 0.8 %	± 9.6 %
		Y	2.71	69.16	18.19		150.0		
		Z	2.94	70.91	19.35		150.0		
10399-AAA	64-QAM Waveform, 40 MHz	X	3.56	67.04	15.79	0.00	150.0	± 0.8 %	± 9.6 %
		Y	3.47	66.50	15.37		150.0		
		Z	3.52	67.01	15.87		150.0		
10414-AAA	WLAN CCDF, 64-QAM, 40MHz	X	4.94	65.60	15.56	0.00	150.0	± 1.9 %	± 9.6 %
		Y	4.88	65.42	15.35		150.0		
		Z	4.84	65.39	15.50		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%.

[A] The uncertainties of Norm X,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7536

Sensor Model Parameters

	C1 fF	C2 fF	α V^{-1}	T1 $ms.V^{-2}$	T2 $ms.V^{-1}$	T3 ms	T4 V^{-2}	T5 V^{-1}	T6
X	49.5	372.25	35.96	11.39	0.00	4.96	1.51	0.14	1.01
Y	45.9	342.63	35.35	9.76	0.00	5.03	1.46	0.14	1.01
Z	46.7	349.47	35.68	12.24	0.00	4.97	1.08	0.21	1.01

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	-143.4
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.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7536

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
450	43.5	0.87	11.78	11.78	11.78	0.16	1.30	± 13.3 %
750	41.9	0.89	11.00	11.00	11.00	0.48	0.98	± 12.0 %
835	41.5	0.90	10.60	10.60	10.60	0.40	1.01	± 12.0 %
900	41.5	0.97	10.41	10.41	10.41	0.58	0.80	± 12.0 %
1450	40.5	1.20	9.20	9.20	9.20	0.42	0.80	± 12.0 %
1640	40.2	1.31	9.02	9.02	9.02	0.32	0.86	± 12.0 %
1750	40.1	1.37	8.98	8.98	8.98	0.31	0.86	± 12.0 %
1900	40.0	1.40	8.58	8.58	8.58	0.34	0.86	± 12.0 %
2100	39.8	1.49	8.49	8.49	8.49	0.35	0.86	± 12.0 %
2300	39.5	1.67	8.21	8.21	8.21	0.33	0.90	± 12.0 %
2450	39.2	1.80	7.82	7.82	7.82	0.34	0.90	± 12.0 %
2600	39.0	1.96	7.63	7.63	7.63	0.37	0.90	± 12.0 %
5200	36.0	4.66	5.48	5.48	5.48	0.40	1.80	± 13.1 %
5300	35.9	4.76	5.37	5.37	5.37	0.40	1.80	± 13.1 %
5500	35.6	4.96	4.90	4.90	4.90	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.85	4.85	4.85	0.40	1.80	± 13.1 %
5800	35.3	5.27	4.80	4.80	4.80	0.40	1.80	± 13.1 %

[C] 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.

[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) 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 (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] 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.

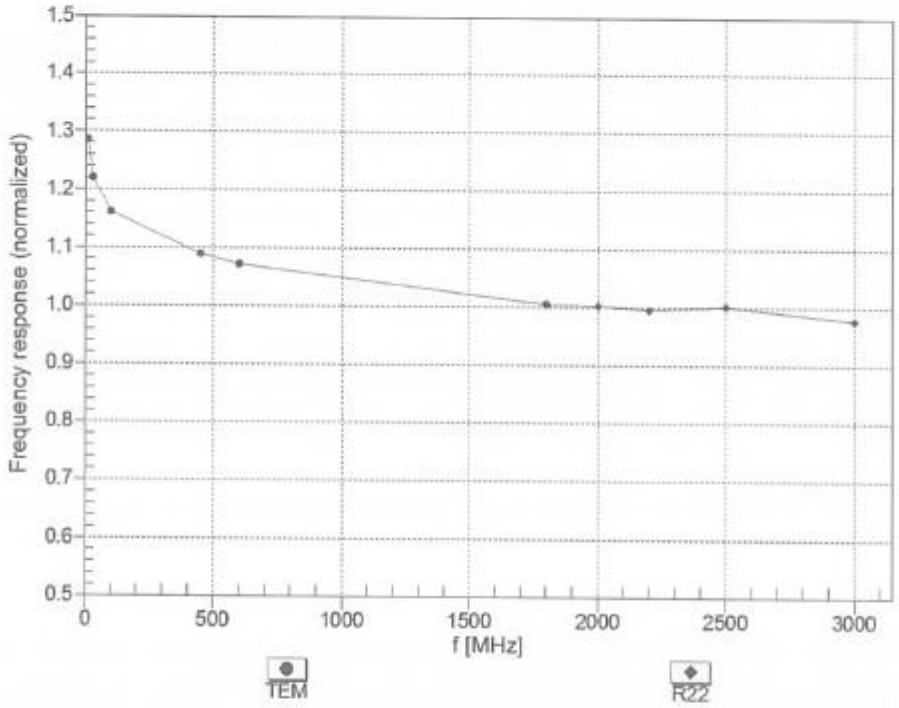
DASY/EASY - Parameters of Probe: EX3DV4 - SN:7536

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
2450	52.7	1.95	7.80	7.80	7.80	0.39	0.90	± 12.0 %
5200	49.0	5.30	4.95	4.95	4.95	0.50	1.90	± 13.1 %
5300	48.9	5.42	4.85	4.85	4.85	0.50	1.90	± 13.1 %
5500	48.6	5.65	4.50	4.50	4.50	0.50	1.90	± 13.1 %
5600	48.5	5.77	4.41	4.41	4.41	0.50	1.90	± 13.1 %
5800	48.2	6.00	4.40	4.40	4.40	0.50	1.90	± 13.1 %

[C] 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.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) 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 (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.
[G] 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.

Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)

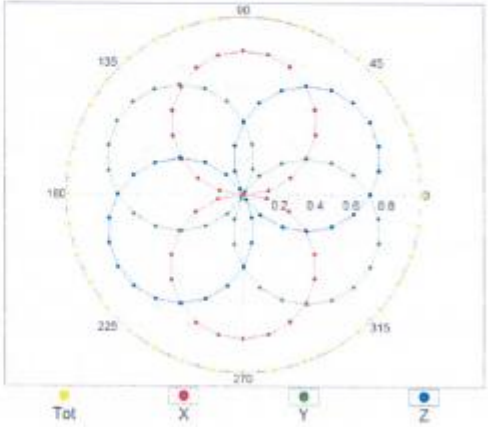


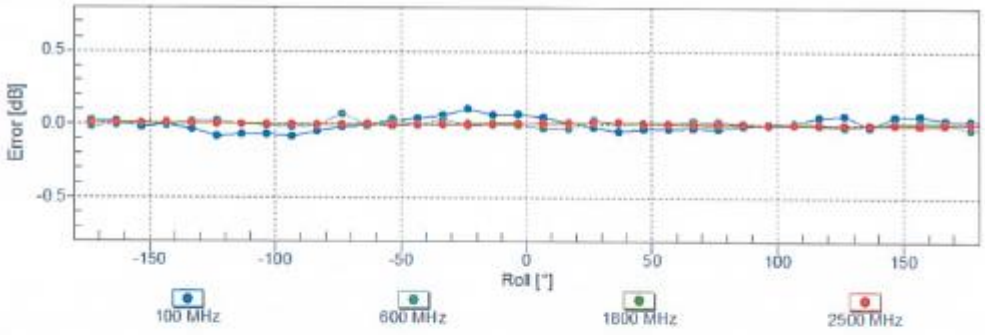
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM

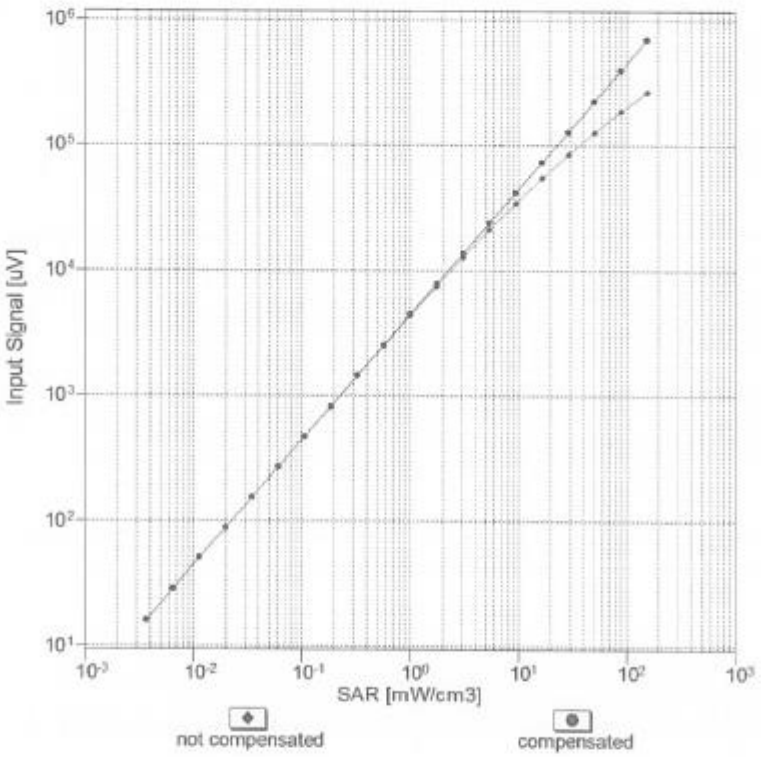
f=1800 MHz,R22

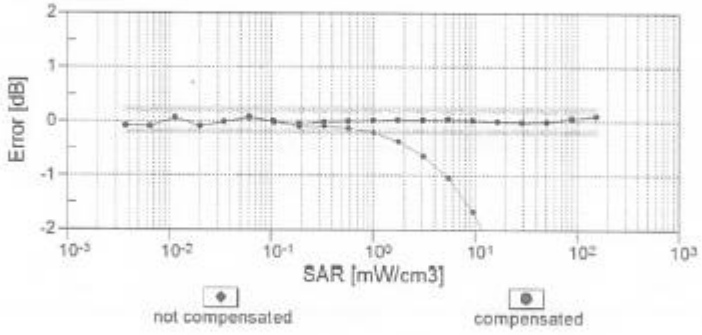




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})
(TEM cell , f_{eval}= 1900 MHz)

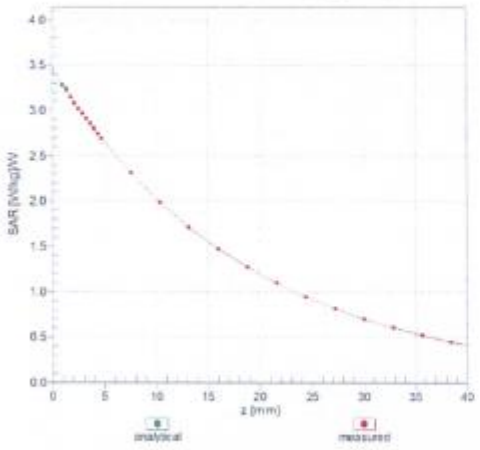




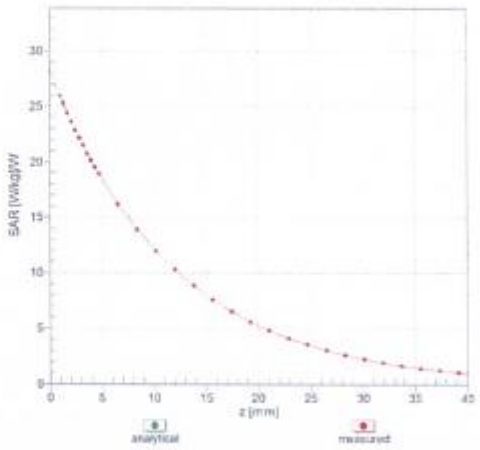
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

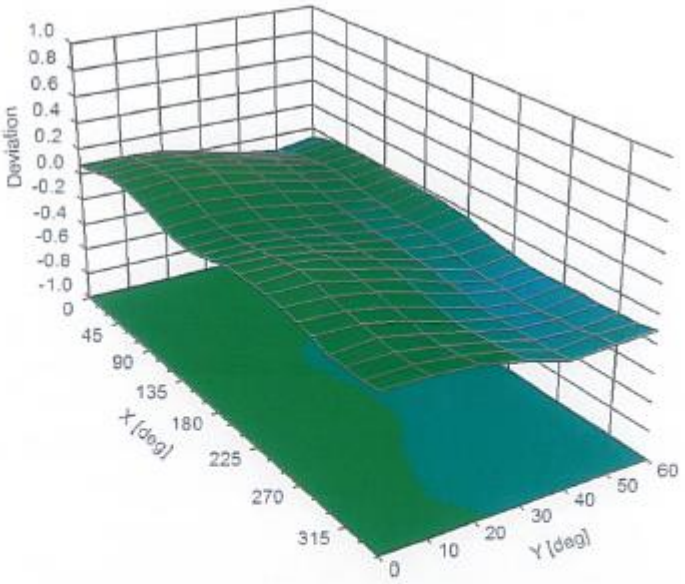


f = 1900 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

Appendix: Modulation Calibration Parameters

UID	Rev	Communication System Name	Group	PAR (dB)	Unc[E] (k=2)
0		CW	CW	0.00	± 4.7 %
10010	CAA	SAR Validation (Square, 100ms, 10ms)	Test	10.00	± 9.6 %
10011	CAB	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	DAC	UMTS-FDD (HSUPA, Subtest 2)	WCDMA	3.98	± 9.6 %

10099	CAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	GSM	9.55	± 9.6 %
10100	CAC	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-FDD	5.67	± 9.6 %
10101	CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	± 9.6 %
10102	CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10103	DAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-TDD	9.29	± 9.6 %
10104	CAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-TDD	9.97	± 9.6 %
10105	CAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-TDD	10.01	± 9.6 %
10108	CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-FDD	5.80	± 9.6 %
10109	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10110	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-FDD	5.75	± 9.6 %
10111	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-FDD	6.44	± 9.6 %
10112	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-FDD	6.59	± 9.6 %
10113	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-FDD	6.62	± 9.6 %
10114	CAG	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	WLAN	8.10	± 9.6 %
10115	CAG	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	WLAN	8.46	± 9.6 %
10116	CAG	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	WLAN	8.15	± 9.6 %
10117	CAG	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	CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-FDD	6.49	± 9.6 %
10141	CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-FDD	6.53	± 9.6 %
10142	CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10143	CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-FDD	6.35	± 9.6 %
10144	CAC	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-FDD	6.65	± 9.6 %
10145	CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-FDD	5.76	± 9.6 %
10146	CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.41	± 9.6 %
10147	CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.72	± 9.6 %
10149	CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	± 9.6 %
10150	CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10151	CAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-TDD	9.28	± 9.6 %
10152	CAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-TDD	9.92	± 9.6 %
10153	CAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-TDD	10.05	± 9.6 %
10154	CAF	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-FDD	5.75	± 9.6 %
10155	CAF	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10156	CAF	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-FDD	5.79	± 9.6 %
10157	CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-FDD	6.49	± 9.6 %
10158	CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-FDD	6.62	± 9.6 %
10159	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-FDD	6.56	± 9.6 %
10160	CAG	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-FDD	5.82	± 9.6 %
10161	CAG	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10162	CAG	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	CAG	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10170	CAG	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10171	CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-FDD	6.49	± 9.6 %
10172	CAE	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10173	CAE	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10174	CAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10175	CAF	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10176	CAF	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10177	CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10178	CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10179	AAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10180	CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %

10181	CAG	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10182	CAG	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10183	CAG	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10184	CAG	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10185	CAI	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-FDD	6.51	± 9.6 %
10186	CAG	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	CAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10193	CAE	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	WLAN	8.09	± 9.6 %
10194	AAD	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	WLAN	8.12	± 9.6 %
10195	CAE	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	WLAN	8.21	± 9.6 %
10196	CAE	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	WLAN	8.10	± 9.6 %
10197	AAE	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	WLAN	8.13	± 9.6 %
10198	CAF	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	WLAN	8.27	± 9.6 %
10219	CAF	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	WLAN	8.03	± 9.6 %
10220	AAF	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	WLAN	8.13	± 9.6 %
10221	CAC	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	WLAN	8.27	± 9.6 %
10222	CAC	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 %
10225	CAD	UMTS-FDD (HSPA+)	WCDMA	5.97	± 9.6 %
10226	CAD	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.49	± 9.6 %
10227	CAD	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.26	± 9.6 %
10228	CAD	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-TDD	9.22	± 9.6 %
10229	DAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10230	CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10231	CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-TDD	9.19	± 9.6 %
10232	CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10233	CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10234	CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10235	CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10236	CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10237	CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10238	CAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10239	CAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10240	CAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10241	CAB	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.82	± 9.6 %
10242	CAD	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-TDD	9.86	± 9.6 %
10243	CAD	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-TDD	9.46	± 9.6 %
10244	CAD	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-TDD	10.06	± 9.6 %
10245	CAG	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-TDD	10.06	± 9.6 %
10246	CAG	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-TDD	9.30	± 9.6 %
10247	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-TDD	9.91	± 9.6 %
10248	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-TDD	10.09	± 9.6 %
10249	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-TDD	9.29	± 9.6 %
10250	CAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-TDD	9.81	± 9.6 %
10251	CAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-TDD	10.17	± 9.6 %
10252	CAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-TDD	9.24	± 9.6 %
10253	CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-TDD	9.90	± 9.6 %
10254	CAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-TDD	10.14	± 9.6 %
10255	CAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-TDD	9.20	± 9.6 %
10256	CAB	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.96	± 9.6 %
10257	CAD	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.08	± 9.6 %
10258	CAD	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-TDD	9.34	± 9.6 %
10259	CAD	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-TDD	9.98	± 9.6 %

10260	CAG	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-TDD	9.97	± 9.6 %
10261	CAG	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-TDD	9.24	± 9.6 %
10262	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-TDD	9.83	± 9.6 %
10263	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-TDD	10.16	± 9.6 %
10264	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-TDD	9.23	± 9.6 %
10265	CAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-TDD	9.92	± 9.6 %
10266	CAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-TDD	10.07	± 9.6 %
10267	CAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-TDD	9.30	± 9.6 %
10268	CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-TDD	10.06	± 9.6 %
10269	CAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-TDD	10.13	± 9.6 %
10270	CAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-TDD	9.58	± 9.6 %
10274	CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	WCDMA	4.87	± 9.6 %
10275	CAD	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	WCDMA	3.96	± 9.6 %
10277	CAD	PHS (QPSK)	PHS	11.81	± 9.6 %
10278	CAD	PHS (QPSK, BW 884MHz, Rolloff 0.5)	PHS	11.81	± 9.6 %
10279	CAG	PHS (QPSK, BW 884MHz, Rolloff 0.38)	PHS	12.18	± 9.6 %
10290	CAG	CDMA2000, RC1, SO55, Full Rate	CDMA2000	3.91	± 9.6 %
10291	CAG	CDMA2000, RC3, SO55, Full Rate	CDMA2000	3.46	± 9.6 %
10292	CAG	CDMA2000, RC3, SO32, Full Rate	CDMA2000	3.39	± 9.6 %
10293	CAG	CDMA2000, RC3, SO3, Full Rate	CDMA2000	3.50	± 9.6 %
10295	CAG	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	CDMA2000	12.49	± 9.6 %
10297	CAF	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-FDD	5.81	± 9.6 %
10298	CAF	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10299	CAF	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-FDD	6.39	± 9.6 %
10300	CAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10301	CAC	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	WiMAX	12.03	± 9.6 %
10302	CAB	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3CTRL)	WiMAX	12.57	± 9.6 %
10303	CAB	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	WiMAX	12.52	± 9.6 %
10304	CAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	WiMAX	11.86	± 9.6 %
10305	CAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC)	WiMAX	15.24	± 9.6 %
10306	CAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC)	WiMAX	14.67	± 9.6 %
10307	AAB	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC)	WiMAX	14.49	± 9.6 %
10308	AAB	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	WiMAX	14.46	± 9.6 %
10309	AAB	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM,AMC 2x3)	WiMAX	14.58	± 9.6 %
10310	AAB	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3	WiMAX	14.57	± 9.6 %
10311	AAB	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-FDD	6.06	± 9.6 %
10313	AAD	iDEN 1:3	iDEN	10.51	± 9.6 %
10314	AAD	iDEN 1:6	iDEN	13.48	± 9.6 %
10315	AAD	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc dc)	WLAN	1.71	± 9.6 %
10316	AAD	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc dc)	WLAN	8.36	± 9.6 %
10317	AAA	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc dc)	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	AAD	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc dc)	WLAN	8.37	± 9.6 %
10401	AAA	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc dc)	WLAN	8.60	± 9.6 %
10402	AAA	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc dc)	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	AAD	CDMA2000, RC3, SO32, SCH0, Full Rate	CDMA2000	5.22	± 9.6 %

10410	AAA	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Sub=2,3,4,7,8,9)	LTE-TDD	7.82	± 9.6 %
10414	AAA	WLAN CCDF, 64-QAM, 40MHz	Generic	8.54	± 9.6 %
10415	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc dc)	WLAN	1.54	± 9.6 %
10416	AAA	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc dc)	WLAN	8.23	± 9.6 %
10417	AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc dc)	WLAN	8.23	± 9.6 %
10418	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc, Long)	WLAN	8.14	± 9.6 %
10419	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc, Short)	WLAN	8.19	± 9.6 %
10422	AAA	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	WLAN	8.32	± 9.6 %
10423	AAA	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	WLAN	8.47	± 9.6 %
10424	AAE	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	WLAN	8.40	± 9.6 %
10425	AAE	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	WLAN	8.41	± 9.6 %
10426	AAE	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	WLAN	8.45	± 9.6 %
10427	AAB	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	WLAN	8.41	± 9.6 %
10430	AAB	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	LTE-FDD	8.28	± 9.6 %
10431	AAC	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	LTE-FDD	8.38	± 9.6 %
10432	AAB	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	LTE-FDD	8.34	± 9.6 %
10433	AAC	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	LTE-FDD	8.34	± 9.6 %
10434	AAG	W-CDMA (BS Test Model 1, 64 DPCH)	WCDMA	8.60	± 9.6 %
10435	AAA	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10447	AAA	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.56	± 9.6 %
10448	AAA	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clippin 44%)	LTE-FDD	7.53	± 9.6 %
10449	AAC	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Cliping 44%)	LTE-FDD	7.51	± 9.6 %
10450	AAA	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.48	± 9.6 %
10451	AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	WCDMA	7.59	± 9.6 %
10453	AAC	Validation (Square, 10ms, 1ms)	Test	10.00	± 9.6 %
10456	AAC	IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc dc)	WLAN	8.63	± 9.6 %
10457	AAC	UMTS-FDD (DC-HSDPA)	WCDMA	6.62	± 9.6 %
10458	AAC	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	CDMA2000	6.55	± 9.6 %
10459	AAC	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	CDMA2000	8.25	± 9.6 %
10460	AAC	UMTS-FDD (WCDMA, AMR)	WCDMA	2.39	± 9.6 %
10461	AAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10462	AAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.30	± 9.6 %
10463	AAD	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TDD	8.56	± 9.6 %
10464	AAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10465	AAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10466	AAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10467	AAA	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10468	AAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10469	AAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Sub)	LTE-TDD	8.56	± 9.6 %
10470	AAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10471	AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10472	AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10473	AAA	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10474	AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10475	AAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10477	AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10478	AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10479	AAC	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10480	AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.18	± 9.6 %
10481	AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TDD	8.45	± 9.6 %
10482	AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Sub)	LTE-TDD	7.71	± 9.6 %
10483	AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, Sub)	LTE-TDD	8.39	± 9.6 %
10484	AAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Sub)	LTE-TDD	8.47	± 9.6 %
10485	AAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Sub)	LTE-TDD	7.59	± 9.6 %
10486	AAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Sub)	LTE-TDD	8.38	± 9.6 %
10487	AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Sub)	LTE-TDD	8.60	± 9.6 %

10488	AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Sub)	LTE-TDD	7.70	± 9.6 %
10489	AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Sub)	LTE-TDD	8.31	± 9.6 %
10490	AAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Sub)	LTE-TDD	8.54	± 9.6 %
10491	AAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10492	AAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Sub)	LTE-TDD	8.41	± 9.6 %
10493	AAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Sub)	LTE-TDD	8.55	± 9.6 %
10494	AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10495	AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Sub)	LTE-TDD	8.37	± 9.6 %
10496	AAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Sub)	LTE-TDD	8.54	± 9.6 %
10497	AAE	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.67	± 9.6 %
10498	AAE	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.40	± 9.6 %
10499	AAC	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TDD	8.68	± 9.6 %
10500	AAF	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Sub)	LTE-TDD	7.67	± 9.6 %
10501	AAF	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Sub)	LTE-TDD	8.44	± 9.6 %
10502	AAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Sub)	LTE-TDD	8.52	± 9.6 %
10503	AAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Sub)	LTE-TDD	7.72	± 9.6 %
10504	AAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Sub)	LTE-TDD	8.31	± 9.6 %
10505	AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Sub)	LTE-TDD	8.54	± 9.6 %
10506	AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10507	AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Sub)	LTE-TDD	8.36	± 9.6 %
10508	AAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Sub)	LTE-TDD	8.55	± 9.6 %
10509	AAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Sub)	LTE-TDD	7.99	± 9.6 %
10510	AAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Sub)	LTE-TDD	8.49	± 9.6 %
10511	AAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Sub)	LTE-TDD	8.51	± 9.6 %
10512	AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10513	AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Sub)	LTE-TDD	8.42	± 9.6 %
10514	AAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Sub)	LTE-TDD	8.45	± 9.6 %
10515	AAE	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc dc)	WLAN	1.58	± 9.6 %
10516	AAE	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc dc)	WLAN	1.57	± 9.6 %
10517	AAF	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc dc)	WLAN	1.58	± 9.6 %
10518	AAF	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc dc)	WLAN	8.23	± 9.6 %
10519	AAF	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc dc)	WLAN	8.39	± 9.6 %
10520	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc dc)	WLAN	8.12	± 9.6 %
10521	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc dc)	WLAN	7.97	± 9.6 %
10522	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc dc)	WLAN	8.45	± 9.6 %
10523	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc dc)	WLAN	8.08	± 9.6 %
10524	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc dc)	WLAN	8.27	± 9.6 %
10525	AAC	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc dc)	WLAN	8.36	± 9.6 %
10526	AAF	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc dc)	WLAN	8.42	± 9.6 %
10527	AAF	IEEE 802.11ac WiFi (20MHz, MCS2, 99pc dc)	WLAN	8.21	± 9.6 %
10528	AAF	IEEE 802.11ac WiFi (20MHz, MCS3, 99pc dc)	WLAN	8.36	± 9.6 %
10529	AAF	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc dc)	WLAN	8.36	± 9.6 %
10531	AAF	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc dc)	WLAN	8.43	± 9.6 %
10532	AAF	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc dc)	WLAN	8.29	± 9.6 %
10533	AAE	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc dc)	WLAN	8.38	± 9.6 %
10534	AAE	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc dc)	WLAN	8.45	± 9.6 %
10535	AAE	IEEE 802.11ac WiFi (40MHz, MCS1, 99pc dc)	WLAN	8.45	± 9.6 %
10536	AAF	IEEE 802.11ac WiFi (40MHz, MCS2, 99pc dc)	WLAN	8.32	± 9.6 %
10537	AAF	IEEE 802.11ac WiFi (40MHz, MCS3, 99pc dc)	WLAN	8.44	± 9.6 %
10538	AAF	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc dc)	WLAN	8.54	± 9.6 %
10540	AAA	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc dc)	WLAN	8.39	± 9.6 %
10541	AAA	IEEE 802.11ac WiFi (40MHz, MCS7, 99pc dc)	WLAN	8.46	± 9.6 %
10542	AAA	IEEE 802.11ac WiFi (40MHz, MCS8, 99pc dc)	WLAN	8.65	± 9.6 %
10543	AAC	IEEE 802.11ac WiFi (40MHz, MCS9, 99pc dc)	WLAN	8.65	± 9.6 %
10544	AAC	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc dc)	WLAN	8.47	± 9.6 %
10545	AAC	IEEE 802.11ac WiFi (80MHz, MCS1, 99pc dc)	WLAN	8.55	± 9.6 %

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

10604	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc dc)	WLAN	8.76	± 9.6 %
10605	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc dc)	WLAN	8.97	± 9.6 %
10606	AAC	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc dc)	WLAN	8.82	± 9.6 %
10607	AAC	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc dc)	WLAN	8.64	± 9.6 %
10608	AAC	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc dc)	WLAN	8.77	± 9.6 %
10609	AAC	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc dc)	WLAN	8.57	± 9.6 %
10610	AAC	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc dc)	WLAN	8.78	± 9.6 %
10611	AAC	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc dc)	WLAN	8.70	± 9.6 %
10612	AAC	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc dc)	WLAN	8.77	± 9.6 %
10613	AAC	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc dc)	WLAN	8.94	± 9.6 %
10614	AAC	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc dc)	WLAN	8.59	± 9.6 %
10615	AAC	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc dc)	WLAN	8.82	± 9.6 %
10616	AAC	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc dc)	WLAN	8.82	± 9.6 %
10617	AAC	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc dc)	WLAN	8.81	± 9.6 %
10618	AAC	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc dc)	WLAN	8.58	± 9.6 %
10619	AAC	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc dc)	WLAN	8.86	± 9.6 %
10620	AAC	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc dc)	WLAN	8.87	± 9.6 %
10621	AAC	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc dc)	WLAN	8.77	± 9.6 %
10622	AAC	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc dc)	WLAN	8.68	± 9.6 %
10623	AAC	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc dc)	WLAN	8.82	± 9.6 %
10624	AAC	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc dc)	WLAN	8.96	± 9.6 %
10625	AAC	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc dc)	WLAN	8.96	± 9.6 %
10626	AAC	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc dc)	WLAN	8.83	± 9.6 %
10627	AAC	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc dc)	WLAN	8.88	± 9.6 %
10628	AAC	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc dc)	WLAN	8.71	± 9.6 %
10629	AAC	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc dc)	WLAN	8.85	± 9.6 %
10630	AAC	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc dc)	WLAN	8.72	± 9.6 %
10631	AAC	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc dc)	WLAN	8.81	± 9.6 %
10632	AAC	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc dc)	WLAN	8.74	± 9.6 %
10633	AAC	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc dc)	WLAN	8.83	± 9.6 %
10634	AAC	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc dc)	WLAN	8.80	± 9.6 %
10635	AAC	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc dc)	WLAN	8.81	± 9.6 %
10636	AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 90pc dc)	WLAN	8.83	± 9.6 %
10637	AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 90pc dc)	WLAN	8.79	± 9.6 %
10638	AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 90pc dc)	WLAN	8.86	± 9.6 %
10639	AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 90pc dc)	WLAN	8.85	± 9.6 %
10640	AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 90pc dc)	WLAN	8.98	± 9.6 %
10641	AAC	IEEE 802.11ac WiFi (160MHz, MCS5, 90pc dc)	WLAN	9.06	± 9.6 %
10642	AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 90pc dc)	WLAN	9.06	± 9.6 %
10643	AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 90pc dc)	WLAN	8.89	± 9.6 %
10644	AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 90pc dc)	WLAN	9.05	± 9.6 %
10645	AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 90pc dc)	WLAN	9.11	± 9.6 %
10646	AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Sub=2,7)	LTE-TDD	11.96	± 9.6 %
10647	AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Sub=2,7)	LTE-TDD	11.96	± 9.6 %
10648	AAC	CDMA2000 (1x Advanced)	CDMA2000	3.45	± 9.6 %
10652	AAC	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.91	± 9.6 %
10653	AAC	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7.42	± 9.6 %
10654	AAC	LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.96	± 9.6 %
10655	AAC	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7.21	± 9.6 %
10658	AAC	Pulse Waveform (200Hz, 10%)	Test	10.00	± 9.6 %
10659	AAC	Pulse Waveform (200Hz, 20%)	Test	6.99	± 9.6 %
10660	AAC	Pulse Waveform (200Hz, 40%)	Test	3.98	± 9.6 %
10661	AAC	Pulse Waveform (200Hz, 60%)	Test	2.22	± 9.6 %
10662	AAC	Pulse Waveform (200Hz, 80%)	Test	0.97	± 9.6 %
10670	AAC	Bluetooth Low Energy	Bluetooth	2.19	± 9.6 %
10671	AAD	IEEE 802.11ax (20MHz, MCS0, 90pc dc)	WLAN	9.09	± 9.6 %

10672	AAD	IEEE 802.11ax (20MHz, MCS1, 90pc dc)	WLAN	8.57	± 9.6 %
10673	AAD	IEEE 802.11ax (20MHz, MCS2, 90pc dc)	WLAN	8.78	± 9.6 %
10674	AAD	IEEE 802.11ax (20MHz, MCS3, 90pc dc)	WLAN	8.74	± 9.6 %
10675	AAD	IEEE 802.11ax (20MHz, MCS4, 90pc dc)	WLAN	8.90	± 9.6 %
10676	AAD	IEEE 802.11ax (20MHz, MCS5, 90pc dc)	WLAN	8.77	± 9.6 %
10677	AAD	IEEE 802.11ax (20MHz, MCS6, 90pc dc)	WLAN	8.73	± 9.6 %
10678	AAD	IEEE 802.11ax (20MHz, MCS7, 90pc dc)	WLAN	8.78	± 9.6 %
10679	AAD	IEEE 802.11ax (20MHz, MCS8, 90pc dc)	WLAN	8.89	± 9.6 %
10680	AAD	IEEE 802.11ax (20MHz, MCS9, 90pc dc)	WLAN	8.80	± 9.6 %
10681	AAG	IEEE 802.11ax (20MHz, MCS10, 90pc dc)	WLAN	8.62	± 9.6 %
10682	AAF	IEEE 802.11ax (20MHz, MCS11, 90pc dc)	WLAN	8.83	± 9.6 %
10683	AAA	IEEE 802.11ax (20MHz, MCS0, 99pc dc)	WLAN	8.42	± 9.6 %
10684	AAC	IEEE 802.11ax (20MHz, MCS1, 99pc dc)	WLAN	8.26	± 9.6 %
10685	AAC	IEEE 802.11ax (20MHz, MCS2, 99pc dc)	WLAN	8.33	± 9.6 %
10686	AAC	IEEE 802.11ax (20MHz, MCS3, 99pc dc)	WLAN	8.28	± 9.6 %
10687	AAE	IEEE 802.11ax (20MHz, MCS4, 99pc dc)	WLAN	8.45	± 9.6 %
10688	AAE	IEEE 802.11ax (20MHz, MCS5, 99pc dc)	WLAN	8.29	± 9.6 %
10689	AAD	IEEE 802.11ax (20MHz, MCS6, 99pc dc)	WLAN	8.55	± 9.6 %
10690	AAE	IEEE 802.11ax (20MHz, MCS7, 99pc dc)	WLAN	8.29	± 9.6 %
10691	AAB	IEEE 802.11ax (20MHz, MCS8, 99pc dc)	WLAN	8.25	± 9.6 %
10692	AAA	IEEE 802.11ax (20MHz, MCS9, 99pc dc)	WLAN	8.29	± 9.6 %
10693	AAA	IEEE 802.11ax (20MHz, MCS10, 99pc dc)	WLAN	8.25	± 9.6 %
10694	AAA	IEEE 802.11ax (20MHz, MCS11, 99pc dc)	WLAN	8.57	± 9.6 %
10695	AAA	IEEE 802.11ax (40MHz, MCS0, 90pc dc)	WLAN	8.78	± 9.6 %
10696	AAA	IEEE 802.11ax (40MHz, MCS1, 90pc dc)	WLAN	8.91	± 9.6 %
10697	AAA	IEEE 802.11ax (40MHz, MCS2, 90pc dc)	WLAN	8.61	± 9.6 %
10698	AAA	IEEE 802.11ax (40MHz, MCS3, 90pc dc)	WLAN	8.89	± 9.6 %
10699	AAA	IEEE 802.11ax (40MHz, MCS4, 90pc dc)	WLAN	8.82	± 9.6 %
10700	AAA	IEEE 802.11ax (40MHz, MCS5, 90pc dc)	WLAN	8.73	± 9.6 %
10701	AAA	IEEE 802.11ax (40MHz, MCS6, 90pc dc)	WLAN	8.86	± 9.6 %
10702	AAA	IEEE 802.11ax (40MHz, MCS7, 90pc dc)	WLAN	8.70	± 9.6 %
10703	AAA	IEEE 802.11ax (40MHz, MCS8, 90pc dc)	WLAN	8.82	± 9.6 %
10704	AAA	IEEE 802.11ax (40MHz, MCS9, 90pc dc)	WLAN	8.56	± 9.6 %
10705	AAA	IEEE 802.11ax (40MHz, MCS10, 90pc dc)	WLAN	8.69	± 9.6 %
10706	AAC	IEEE 802.11ax (40MHz, MCS11, 90pc dc)	WLAN	8.66	± 9.6 %
10707	AAC	IEEE 802.11ax (40MHz, MCS0, 99pc dc)	WLAN	8.32	± 9.6 %
10708	AAC	IEEE 802.11ax (40MHz, MCS1, 99pc dc)	WLAN	8.55	± 9.6 %
10709	AAC	IEEE 802.11ax (40MHz, MCS2, 99pc dc)	WLAN	8.33	± 9.6 %
10710	AAC	IEEE 802.11ax (40MHz, MCS3, 99pc dc)	WLAN	8.29	± 9.6 %
10711	AAC	IEEE 802.11ax (40MHz, MCS4, 99pc dc)	WLAN	8.39	± 9.6 %
10712	AAC	IEEE 802.11ax (40MHz, MCS5, 99pc dc)	WLAN	8.67	± 9.6 %
10713	AAC	IEEE 802.11ax (40MHz, MCS6, 99pc dc)	WLAN	8.33	± 9.6 %
10714	AAC	IEEE 802.11ax (40MHz, MCS7, 99pc dc)	WLAN	8.26	± 9.6 %
10715	AAC	IEEE 802.11ax (40MHz, MCS8, 99pc dc)	WLAN	8.45	± 9.6 %
10716	AAC	IEEE 802.11ax (40MHz, MCS9, 99pc dc)	WLAN	8.30	± 9.6 %
10717	AAC	IEEE 802.11ax (40MHz, MCS10, 99pc dc)	WLAN	8.48	± 9.6 %
10718	AAC	IEEE 802.11ax (40MHz, MCS11, 99pc dc)	WLAN	8.24	± 9.6 %
10719	AAC	IEEE 802.11ax (80MHz, MCS0, 90pc dc)	WLAN	8.81	± 9.6 %
10720	AAC	IEEE 802.11ax (80MHz, MCS1, 90pc dc)	WLAN	8.87	± 9.6 %
10721	AAC	IEEE 802.11ax (80MHz, MCS2, 90pc dc)	WLAN	8.76	± 9.6 %
10722	AAC	IEEE 802.11ax (80MHz, MCS3, 90pc dc)	WLAN	8.55	± 9.6 %
10723	AAC	IEEE 802.11ax (80MHz, MCS4, 90pc dc)	WLAN	8.70	± 9.6 %
10724	AAC	IEEE 802.11ax (80MHz, MCS5, 90pc dc)	WLAN	8.90	± 9.6 %
10725	AAC	IEEE 802.11ax (80MHz, MCS6, 90pc dc)	WLAN	8.74	± 9.6 %
10726	AAC	IEEE 802.11ax (80MHz, MCS7, 90pc dc)	WLAN	8.72	± 9.6 %
10727	AAC	IEEE 802.11ax (80MHz, MCS8, 90pc dc)	WLAN	8.66	± 9.6 %

10728	AAC	IEEE 802.11ax (80MHz, MCS9, 90pc dc)	WLAN	8.65	± 9.6 %
10729	AAC	IEEE 802.11ax (80MHz, MCS10, 90pc dc)	WLAN	8.64	± 9.6 %
10730	AAC	IEEE 802.11ax (80MHz, MCS11, 90pc dc)	WLAN	8.67	± 9.6 %
10731	AAC	IEEE 802.11ax (80MHz, MCS0, 99pc dc)	WLAN	8.42	± 9.6 %
10732	AAC	IEEE 802.11ax (80MHz, MCS1, 99pc dc)	WLAN	8.46	± 9.6 %
10733	AAC	IEEE 802.11ax (80MHz, MCS2, 99pc dc)	WLAN	8.40	± 9.6 %
10734	AAC	IEEE 802.11ax (80MHz, MCS3, 99pc dc)	WLAN	8.25	± 9.6 %
10735	AAC	IEEE 802.11ax (80MHz, MCS4, 99pc dc)	WLAN	8.33	± 9.6 %
10736	AAC	IEEE 802.11ax (80MHz, MCS5, 99pc dc)	WLAN	8.27	± 9.6 %
10737	AAC	IEEE 802.11ax (80MHz, MCS6, 99pc dc)	WLAN	8.36	± 9.6 %
10738	AAC	IEEE 802.11ax (80MHz, MCS7, 99pc dc)	WLAN	8.42	± 9.6 %
10739	AAC	IEEE 802.11ax (80MHz, MCS8, 99pc dc)	WLAN	8.29	± 9.6 %
10740	AAC	IEEE 802.11ax (80MHz, MCS9, 99pc dc)	WLAN	8.48	± 9.6 %
10741	AAC	IEEE 802.11ax (80MHz, MCS10, 99pc dc)	WLAN	8.40	± 9.6 %
10742	AAC	IEEE 802.11ax (80MHz, MCS11, 99pc dc)	WLAN	8.43	± 9.6 %
10743	AAC	IEEE 802.11ax (160MHz, MCS0, 90pc dc)	WLAN	8.94	± 9.6 %
10744	AAC	IEEE 802.11ax (160MHz, MCS1, 90pc dc)	WLAN	9.16	± 9.6 %
10745	AAC	IEEE 802.11ax (160MHz, MCS2, 90pc dc)	WLAN	8.93	± 9.6 %
10746	AAC	IEEE 802.11ax (160MHz, MCS3, 90pc dc)	WLAN	9.11	± 9.6 %
10747	AAC	IEEE 802.11ax (160MHz, MCS4, 90pc dc)	WLAN	9.04	± 9.6 %
10748	AAC	IEEE 802.11ax (160MHz, MCS5, 90pc dc)	WLAN	8.93	± 9.6 %
10749	AAC	IEEE 802.11ax (160MHz, MCS6, 90pc dc)	WLAN	8.90	± 9.6 %
10750	AAC	IEEE 802.11ax (160MHz, MCS7, 90pc dc)	WLAN	8.79	± 9.6 %
10751	AAC	IEEE 802.11ax (160MHz, MCS8, 90pc dc)	WLAN	8.82	± 9.6 %
10752	AAC	IEEE 802.11ax (160MHz, MCS9, 90pc dc)	WLAN	8.81	± 9.6 %
10753	AAC	IEEE 802.11ax (160MHz, MCS10, 90pc dc)	WLAN	9.00	± 9.6 %
10754	AAC	IEEE 802.11ax (160MHz, MCS11, 90pc dc)	WLAN	8.94	± 9.6 %
10755	AAC	IEEE 802.11ax (160MHz, MCS0, 99pc dc)	WLAN	8.64	± 9.6 %
10756	AAC	IEEE 802.11ax (160MHz, MCS1, 99pc dc)	WLAN	8.77	± 9.6 %
10757	AAC	IEEE 802.11ax (160MHz, MCS2, 99pc dc)	WLAN	8.77	± 9.6 %
10758	AAC	IEEE 802.11ax (160MHz, MCS3, 99pc dc)	WLAN	8.69	± 9.6 %
10759	AAC	IEEE 802.11ax (160MHz, MCS4, 99pc dc)	WLAN	8.58	± 9.6 %
10760	AAC	IEEE 802.11ax (160MHz, MCS5, 99pc dc)	WLAN	8.49	± 9.6 %
10761	AAC	IEEE 802.11ax (160MHz, MCS6, 99pc dc)	WLAN	8.58	± 9.6 %
10762	AAC	IEEE 802.11ax (160MHz, MCS7, 99pc dc)	WLAN	8.49	± 9.6 %
10763	AAC	IEEE 802.11ax (160MHz, MCS8, 99pc dc)	WLAN	8.53	± 9.6 %
10764	AAC	IEEE 802.11ax (160MHz, MCS9, 99pc dc)	WLAN	8.54	± 9.6 %
10765	AAC	IEEE 802.11ax (160MHz, MCS10, 99pc dc)	WLAN	8.54	± 9.6 %
10766	AAC	IEEE 802.11ax (160MHz, MCS11, 99pc dc)	WLAN	8.51	± 9.6 %
10767	AAC	5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	7.99	± 9.6 %
10768	AAC	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.01	± 9.6 %
10769	AAC	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.01	± 9.6 %
10770	AAC	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	± 9.6 %
10771	AAC	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	± 9.6 %
10772	AAC	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.23	± 9.6 %
10773	AAC	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.03	± 9.6 %
10774	AAC	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	± 9.6 %
10775	AAC	5G NR (CP-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.31	± 9.6 %
10776	AAC	5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.30	± 9.6 %
10777	AAC	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.30	± 9.6 %
10778	AAC	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10779	AAC	5G NR (CP-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.42	± 9.6 %
10780	AAC	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	± 9.6 %
10781	AAC	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	± 9.6 %
10782	AAC	5G NR (CP-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.43	± 9.6 %
10783	AAC	5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.31	± 9.6 %

10784	AAC	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.29	± 9.6 %
10785	AAC	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.40	± 9.6 %
10786	AAC	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10787	AAC	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.44	± 9.6 %
10788	AAC	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.39	± 9.6 %
10789	AAC	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.37	± 9.6 %
10790	AAC	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.39	± 9.6 %
10791	AAC	5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.83	± 9.6 %
10792	AAC	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.92	± 9.6 %
10793	AAC	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.95	± 9.6 %
10794	AAC	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.82	± 9.6 %
10795	AAC	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.84	± 9.6 %
10796	AAC	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.82	± 9.6 %
10797	AAC	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.01	± 9.6 %
10798	AAC	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.89	± 9.6 %
10799	AAC	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.93	± 9.6 %
10801	AAC	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.89	± 9.6 %
10802	AAC	5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.87	± 9.6 %
10803	AAE	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.93	± 9.6 %
10805	AAD	5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10806	AAD	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.37	± 9.6 %
10809	AAD	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10810	AAD	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10812	AAD	5G NR (CP-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10817	AAD	5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10818	AAD	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10819	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.33	± 9.6 %
10820	AAD	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.30	± 9.6 %
10821	AAC	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10822	AAD	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10823	AAC	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.36	± 9.6 %
10824	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.39	± 9.6 %
10825	AAD	5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10827	AAD	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.42	± 9.6 %
10828	AAE	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.43	± 9.6 %
10829	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.40	± 9.6 %
10830	AAD	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.63	± 9.6 %
10831	AAD	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.73	± 9.6 %
10832	AAD	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.74	± 9.6 %
10833	AAD	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	± 9.6 %
10834	AAD	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.75	± 9.6 %
10835	AAD	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	± 9.6 %
10836	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.66	± 9.6 %
10837	AAD	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.68	± 9.6 %
10839	AAD	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	± 9.6 %
10840	AAD	5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.67	± 9.6 %
10841	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.71	± 9.6 %
10843	AAD	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.49	± 9.6 %
10844	AAD	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10846	AAD	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10854	AAD	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10855	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	± 9.6 %
10856	AAD	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	± 9.6 %
10857	AAD	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10858	AAD	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	± 9.6 %
10859	AAD	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	± 9.6 %

10860	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10861	AAD	5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.40	± 9.6 %
10863	AAD	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10864	AAE	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	± 9.6 %
10865	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10866	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10868	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.89	± 9.6 %
10869	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	± 9.6 %
10870	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.86	± 9.6 %
10871	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	5.75	± 9.6 %
10872	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.52	± 9.6 %
10873	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	± 9.6 %
10874	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	± 9.6 %
10875	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	± 9.6 %
10876	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.39	± 9.6 %
10877	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	7.95	± 9.6 %
10878	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.41	± 9.6 %
10879	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.12	± 9.6 %
10880	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.38	± 9.6 %
10881	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	± 9.6 %
10882	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.96	± 9.6 %
10883	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.57	± 9.6 %
10884	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.53	± 9.6 %
10885	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	± 9.6 %
10886	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	± 9.6 %
10887	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	± 9.6 %
10888	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.35	± 9.6 %
10889	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.02	± 9.6 %
10890	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.40	± 9.6 %
10891	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.13	± 9.6 %
10892	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.41	± 9.6 %
10897	AAD	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.66	± 9.6 %
10898	AAD	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	± 9.6 %
10899	AAD	5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	± 9.6 %
10900	AAD	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10901	AAD	5G NR (DFT-s-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10902	AAD	5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10903	AAD	5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10904	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10905	AAD	5G NR (DFT-s-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10906	AAD	5G NR (DFT-s-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10907	AAD	5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.78	± 9.6 %
10908	AAD	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	± 9.6 %
10909	AAD	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.96	± 9.6 %
10910	AAD	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.83	± 9.6 %
10911	AAD	5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	± 9.6 %
10912	AAD	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10913	AAD	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10914	AAD	5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.85	± 9.6 %
10915	AAD	5G NR (DFT-s-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.83	± 9.6 %
10916	AAD	5G NR (DFT-s-OFDM, 50% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	± 9.6 %
10917	AAD	5G NR (DFT-s-OFDM, 50% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	± 9.6 %
10918	AAD	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	± 9.6 %
10919	AAD	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	± 9.6 %
10920	AAD	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	± 9.6 %
10921	AAD	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %

10922	AAD	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.82	± 9.6 %
10923	AAD	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10924	AAD	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10925	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.95	± 9.6 %
10926	AAD	5G NR (DFT-s-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10927	AAD	5G NR (DFT-s-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	± 9.6 %
10928	AAD	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	± 9.6 %
10929	AAD	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	± 9.6 %
10930	AAD	5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	± 9.6 %
10931	AAD	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10932	AAB	5G NR (DFT-s-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10933	AAA	5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10934	AAA	5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10935	AAA	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10936	AAC	5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.90	± 9.6 %
10937	AAB	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.77	± 9.6 %
10938	AAB	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.90	± 9.6 %
10939	AAB	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.82	± 9.6 %
10940	AAB	5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.89	± 9.6 %
10941	AAB	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.83	± 9.6 %
10942	AAB	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.85	± 9.6 %
10943	AAB	5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.95	± 9.6 %
10944	AAB	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.81	± 9.6 %
10945	AAB	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.85	± 9.6 %
10946	AAC	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.83	± 9.6 %
10947	AAB	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.87	± 9.6 %
10948	AAB	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.94	± 9.6 %
10949	AAB	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.87	± 9.6 %
10950	AAB	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.94	± 9.6 %
10951	AAB	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.92	± 9.6 %
10952	AAB	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.25	± 9.6 %
10953	AAB	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.15	± 9.6 %
10954	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.23	± 9.6 %
10955	AAB	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.42	± 9.6 %
10956	AAB	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.14	± 9.6 %
10957	AAC	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.31	± 9.6 %
10958	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.61	± 9.6 %
10959	AAB	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.33	± 9.6 %
10960	AAB	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.32	± 9.6 %
10961	AAB	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.36	± 9.6 %
10962	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.40	± 9.6 %
10963	AAB	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.55	± 9.6 %
10964	AAB	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.29	± 9.6 %
10965	AAB	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.37	± 9.6 %
10966	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.55	± 9.6 %
10967	AAB	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.42	± 9.6 %
10968	AAB	5G NR DL (CP-OFDM, TM 3.1, 100 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.49	± 9.6 %
10972	AAB	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	11.59	± 9.6 %
10973	AAB	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	9.06	± 9.6 %
10974	AAB	5G NR (CP-OFDM, 100% RB, 100 MHz, 256-QAM, 30 kHz)	5G NR FR1 TDD	10.28	± 9.6 %

[F] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

ANNEX B

DIPOLE CALIBRATION REPORTS

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: D2450V2-715_Dec20**

CALIBRATION CERTIFICATE

Object	D2450V2 - SN:715
Calibration procedure(s)	QA CAL-05.v11 Calibration Procedure for SAR Validation Sources between 0.7-3 GHz
Calibration date:	December 10, 2020

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 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	01-Apr-20 (No. 217-03100/03101)	Apr-21
Power sensor NRP-Z91	SN: 103244	01-Apr-20 (No. 217-03100)	Apr-21
Power sensor NRP-Z91	SN: 103245	01-Apr-20 (No. 217-03101)	Apr-21
Reference 20 dB Attenuator	SN: BH9394 (20k)	31-Mar-20 (No. 217-03106)	Apr-21
Type-N mismatch combination	SN: 310982 / 06327	31-Mar-20 (No. 217-03104)	Apr-21
Reference Probe EX3DV4	SN: 7405	29-Jun-20 (No. EX3-7405_Jun20)	Jun-21
DAE4	SN: 601	02-Nov-20 (No. DAE4-601_Nov20)	Nov-21

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-20)	In house check: Oct-22
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-20)	In house check: Oct-21

	Name	Function	Signature
Calibrated by:	Leif Klysner	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: December 10, 2020

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

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

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%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.0 ± 6 %	1.87 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.4 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**52.3 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.16 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**24.3 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.3 ± 6 %	2.04 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.6 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**52.9 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.26 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**24.6 W/kg ± 16.5 % (k=2)**

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.9 Ω + 0.4 jΩ
Return Loss	- 30.8 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	49.0 Ω + 3.3 jΩ
Return Loss	- 29.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.156 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG

DASY5 Validation Report for Head TSL

Date: 10.12.2020

Test Laboratory: SPEAG, Zurich, Switzerland

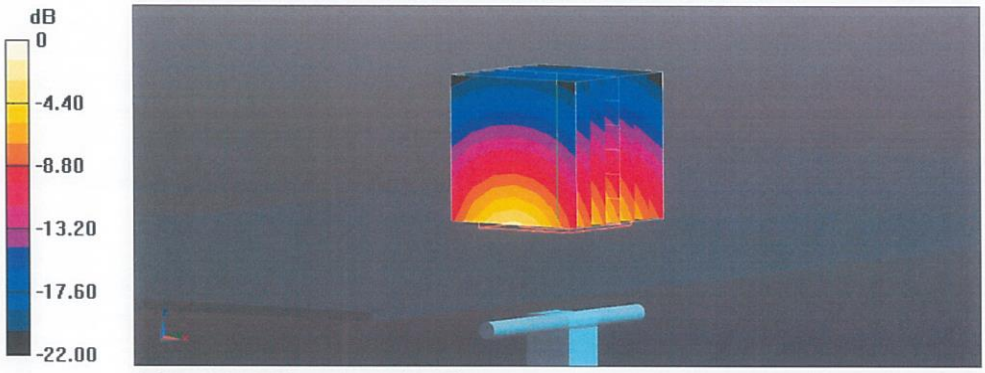
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:715

Communication System: UID 0 - CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.87 S/m; ε_r = 38; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

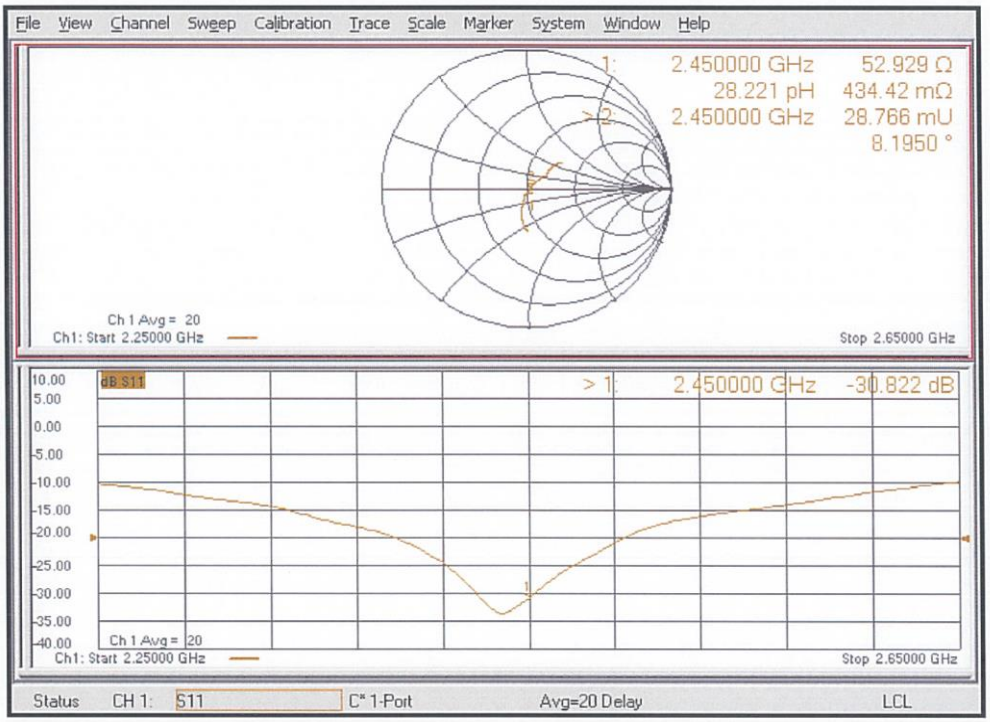
- Probe: EX3DV4 - SN7405; ConvF(7.81, 7.81, 7.81) @ 2450 MHz; Calibrated: 29.06.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.11.2020
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 114.9 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 27.5 W/kg
SAR(1 g) = 13.4 W/kg; SAR(10 g) = 6.16 W/kg
Smallest distance from peaks to all points 3 dB below = 9 mm
Ratio of SAR at M2 to SAR at M1 = 48.7%
Maximum value of SAR (measured) = 22.5 W/kg



0 dB = 22.5 W/kg = 13.52 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 10.12.2020

Test Laboratory: SPEAG, Zurich, Switzerland

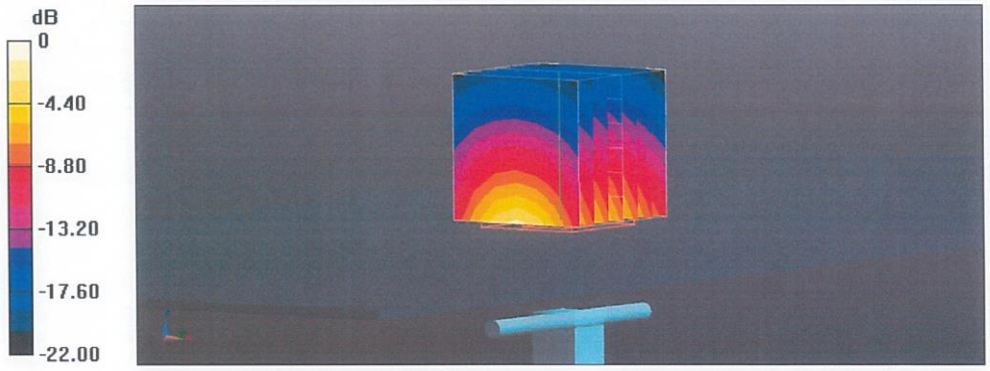
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:715

Communication System: UID 0 - CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 2.04 S/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7405; ConvF(7.75, 7.75, 7.75) @ 2450 MHz; Calibrated: 29.06.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.11.2020
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 110.1 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 27.7 W/kg
SAR(1 g) = 13.6 W/kg; SAR(10 g) = 6.26 W/kg
Smallest distance from peaks to all points 3 dB below = 9 mm
Ratio of SAR at M2 to SAR at M1 = 49.7%
Maximum value of SAR (measured) = 22.6 W/kg



0 dB = 22.6 W/kg = 13.54 dBW/kg

Impedance Measurement Plot for Body TSL