

# SAR TEST REPORT



The following samples were submitted and identified on behalf of the client as:

| Product Name                         | GT78-V Rugged Android Tablet                       |  |  |  |  |  |
|--------------------------------------|--|--|--|--|--|--|
| Brand Name                           | AMobile  |  |  |  |  |  |
| Model No.                            | GT78-V8  |  |  |  |  |  |
| Series Model No.                     | GT78-V7  |  |  |  |  |  |
| Prepared for                         | Hong Kong AMobile Intelligent Corp. Limited Taiwan |  |  |  |  |  |
|                                      | Branch   |  |  |  |  |  |
|                                      | 8F1, No.700, Zhongzheng Rd., Zhonghe Dist., New    |  |  |  |  |  |
|                                      | Taipei City 235, Taiwan                            |  |  |  |  |  |
| Standards                            | IEEE/ANSI C95.1-1992, IEEE 1528-2013,              |  |  |  |  |  |
|                                      | KDB248227D01v02r02,KDB865664D01v01r04,             |  |  |  |  |  |
|                                      | KDB865664D02v01r02,KDB447498D01v06,                |  |  |  |  |  |
|                                      | KDB616217D04v01r02,                                |  |  |  |  |  |
| FCC ID                               | 2AQ5W-GT78V8                                       |  |  |  |  |  |
| Date of Receipt                      | Aug. 02, 2018                                      |  |  |  |  |  |
| Date of Test(s)                      | Dec. 17, 2018 ~ Dec. 19, 2018                      |  |  |  |  |  |
| Date of Issue                        | Jan. 16, 2019                                      |  |  |  |  |  |
| In the configuration tested, the EUT | Γ complied with the standards specified above.     |  |  |  |  |  |

Remarks:

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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#### Signed on behalf of SGS

| Clerk / Ruby Ou | Engineer / Bond Tsai | Asst. Manager / John Yeh |  |  |
|-----------------|----------------------|--------------------------|--|--|
| Kuby Ou         | Bonditsai            | John Teh                 |  |  |
|                 |                      | Date: Jan. 16, 2019      |  |  |

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## **Revision History**

| Report Number | Revision | Description                  | Issue Date    |
|---------------|----------|------------------------------|---------------|
| E5/2018/80006 | Rev.00   | Initial creation of document | Jan. 04, 2019 |
| E5/2018/80006 | Rev.01   | Modify ch 2/4                | Jan. 16, 2019 |
|               |          |                              |               |
|               |          |                              |               |
|               |          |                              |               |
|               |          |                              |               |
|               |          |                              |               |
|               |          |                              |               |
|               |          |                              |               |
|               |          |                              |               |

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## 1. General Information

#### 1.1 Testing Laboratory

| SGS Taiwan Ltd. Electronics & Communication Laboratory               |                        |  |  |  |  |
|--|------------------------|--|--|--|--|
| No. 2, Keji 1st Rd., Guishan Township, Taoyuan County, 33383, Taiwan |                        |  |  |  |  |
| Tel  | el +886-2-2299-3279    |  |  |  |  |
| Fax +886-2-2298-0488   |                        |  |  |  |  |
| Internet   | http://www.tw.sgs.com/ |  |  |  |  |

#### **1.2 Details of Applicant**

| Company Name    | Hong Kong AMobile Intelligent Corp. Limited Taiwan Branch                  |
|-----------------|--|
| Company Address | 8F1, No.700, Zhongzheng Rd., Zhonghe Dist., New Taipei<br>City 235, Taiwan |

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#### **1.3 Description of EUT**

| Equipment Under Test        | GT78-V Rugged Android Tablet               |      |   |      |  |  |  |  |  |
|-----------------------------|--|------|---|------|--|--|--|--|--|
| Brand Name                  | AMobile                                    |      |   |      |  |  |  |  |  |
| Model No.                   | GT78-V8                                    |      |   |      |  |  |  |  |  |
| Series Model No.            | GT78-V7                                    |      |   |      |  |  |  |  |  |
| FCC ID                      | 2AQ5W-GT78V8                               |      |   |      |  |  |  |  |  |
| Mode of Operation           | ⊠WLAN802.11 a/b/g/n(20M/40M)<br>⊠Bluetooth | -    |   |      |  |  |  |  |  |
|                             | WLAN802.11 a/b/g/n(20M/40M)                |      | 1 |      |  |  |  |  |  |
| Duty Cycle                  | Bluetooth                                  |      | 1 |      |  |  |  |  |  |
|                             | WLAN802.11 b/g/n(20M)                      | 2412 | _ | 2462 |  |  |  |  |  |
|                             | WLAN802.11 n(40M)                          | 2422 | _ | 2452 |  |  |  |  |  |
|                             | WLAN802.11 a/n(20M) 5.2G                   | 5180 | _ | 5240 |  |  |  |  |  |
| TX Frequency Range<br>(MHz) | WLAN802.11 n(40M) 5.2G                     | 5190 | _ | 5230 |  |  |  |  |  |
| (                           | WLAN802.11 a/n(20M) 5.8G                   | 5745 | _ | 5825 |  |  |  |  |  |
|                             | WLAN802.11 n(40M) 5.8G                     | 5755 | — | 5795 |  |  |  |  |  |
|                             | Bluetooth                                  | 2402 | _ | 2480 |  |  |  |  |  |
|                             | WLAN802.11 b/g/n(20M)                      | 1    | _ | 11   |  |  |  |  |  |
|                             | WLAN802.11 n(40M)                          | 3    | _ | 9    |  |  |  |  |  |
|                             | WLAN802.11 a/n(20M) 5.2G                   |      | _ | 48   |  |  |  |  |  |
| Channel Number<br>(ARFCN)   | WLAN802.11 n(40M) 5.2G                     | 38   | _ | 46   |  |  |  |  |  |
|                             | WLAN802.11 a/n(20M) 5.8G                   | 149  | _ | 165  |  |  |  |  |  |
|                             | WLAN802.11 n(40M) 5.8G                     | 151  | _ | 159  |  |  |  |  |  |
|                             | Bluetooth                                  | 0    | _ | 78   |  |  |  |  |  |

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| Max. SAR (1g) (Unit: W/Kg) |          |          |         |           |  |  |
|----------------------------|----------|----------|---------|-----------|--|--|
| Band                       | Measured | Reported | Channel | Position  |  |  |
| WLAN 802.11b               | 0.17     | 0.19     | 6       | Back side |  |  |
| Bluetooth(BLE)             | 0.00     | 0.01     | 39      | Back side |  |  |
| WLAN 802.11a 5.2G          | 1.23     | 1.23     | 44      | Back side |  |  |
| WLAN 802.11a 5.8           | 1.14     | 1.15     | 165     | Back side |  |  |

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| Main Antenna |               |         |                    |           |  |                           |  |
|--------------|---------------|---------|--------------------|-----------|--|---------------------------|--|
| Band         | Mode          | Channel | Frequency<br>(MHz) | Data Rate | Max. Rated<br>Avg. Power<br>+ Max.<br>Tolerance<br>(dBm) | Average<br>power<br>(dBm) |  |
|              |               | 1       | 2412               |           | 12.71  | 12.42                     |  |
|              | 802.11b       | 6       | 2437               | 1Mbps     | 13.65  | 13.35                     |  |
|              |               | 11      | 2462               |           | 12.36  | 12.35                     |  |
|              | 802.11g       | 1       | 2412               | 6Mbps     | 9.32   | 9.24                      |  |
|              |               | 6       | 2437               |           | 13.54  | 11.63                     |  |
| 2450 MHz     |               | 11      | 2462               |           | 9.00   | 8.89                      |  |
| 2400 1011 12 | 802.11n20-HT0 | 1       | 2412               |           | 9.60   | 9.50                      |  |
|              |               | 6       | 2437               | MCS0      | 10.73  | 10.71                     |  |
|              |               | 11      | 2462               |           | 9.52   | 9.49                      |  |
|              |               | 3       | 2422               |           | 10.36  | 10.31                     |  |
|              | 802.11n40-HT0 | 6       | 2437               | MCS0      | 10.65  | 10.64                     |  |
|              |               | 9       | 2452               |           | 9.85   | 9.62                      |  |
| Main Antenna |               |         |                    |           |  |                           |  |
| Max. Rated   |               |         |                    |           |  |                           |  |

Frequency

Data Rate

#### WLAN802.11 a/b/g/n(20M/40M) conducted power table:

|               |               |               |      | (11112) |       | Tolerance | (dBm)                                 |
|---------------|---------------|---------------|------|---------|-------|-----------|---------------------------------------|
|               |               |               |      |         |       | (dBm)     | , , , , , , , , , , , , , , , , , , , |
|               |               |               | 36   | 5180    |       | 8.01      | 7.83                                  |
|               |               | 802.11a       | 44   | 5220    | 6Mbps | 8.32      | 8.31                                  |
| 5.15-5.25 GHz |               |               | 48   | 5240    |       | 8.28      | 8.26                                  |
|               |               | 802.11n20-HT0 | 36   | 5180    | MCS0  | 7.95      | 7.93                                  |
|               | 0.10-0.20 GHZ |               | 44   | 5220    |       | 8.31      | 8.28                                  |
|               |               |               | 48   | 5240    |       | 8.26      | 8.19                                  |
|               | 802.11n40-HT0 | 38            | 5190 | MCS0    | 7.14  | 7.11      |                                       |
|               |               | 002.11140-010 | 46   | 5230    |       | 7.38      | 7.37                                  |

Channel

Mode

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Band

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Avg. Power

+ Max.

Average

power



|              | Main Antenna            |     |                    |           |  |                           |  |  |  |
|--------------|-------------------------|-----|--------------------|-----------|--|---------------------------|--|--|--|
| Mode         | Mode Mode               |     | Frequency<br>(MHz) | Data Rate | Max. Rated<br>Avg. Power<br>+ Max.<br>Tolerance<br>(dBm) | Average<br>power<br>(dBm) |  |  |  |
|              | 802.11a<br>802.11n-HT20 | 149 | 5745               | 6Mbps     | 9.04   | 9.02                      |  |  |  |
|              |                         | 157 | 5785               |           | 9.05   | 9.01                      |  |  |  |
|              |                         | 165 | 5825               |           | 9.13   | 9.08                      |  |  |  |
| 5800 MHz     |                         | 149 | 5745               |           | 7.85   | 7.71                      |  |  |  |
| 5000 IVIT IZ |                         | 157 | 5785               | MCS0      | 8.08   | 8.03                      |  |  |  |
|              |                         | 165 | 5825               |           | 8.21   | 8.12                      |  |  |  |
|              | 802.11n-HT40            | 151 | 5755               | MCS0      | 8.35   | 8.25                      |  |  |  |
|              | 002.111 <b>-H</b> 140   | 159 | 5795               | IVICSU    | 7.92   | 7.88                      |  |  |  |

#### Bluetooth conducted power table:

| Mode   | Channel | Frequency | Average     | Output Pow | ver (dBm) | Max. Rated Avg.<br>Power + Max. Tolerance (dBm) |
|--------|---------|-----------|-------------|------------|-----------|---|
|        |         | (10112)   | (MHz) 1Mbps |            | 3Mbps     |   |
|        | CH 00   | 2402      | -4.63       | -6.86      | -6.88     |   |
| BR/EDR | CH 39   | 2441      | -3.78       | -6.27      | -6.26     | -2.5  |
|        | CH 78   | 2480      | -2.68       | -5.37      | -5.37     |   |

| Mode | Channel | Frequency<br>(MHz) | Average Output Power (dBm) | Max. Rated Avg.              |  |  |
|------|---------|--------------------|----------------------------|------------------------------|--|--|
|      |         |                    | GFSK                       | Power + Max. Tolerance (dBm) |  |  |
|      | CH 00   | 2402               | -3.47                      |                              |  |  |
| LE   | CH 19   | 2440               | -2.75                      | -1.5                         |  |  |
|      | CH 39   | 2480               | -1.68                      |                              |  |  |

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#### **1.4 Test Environment**

Ambient Temperature: 22±2° C Tissue Simulating Liquid: 22±2° C

#### **1.5 Operation Description**

Use chipset specific software to control the EUT, and makes it transmit in maximum power. Measurements are performed respectively on the lowest, middle and highest channels of the operating band(s). The EUT is set to maximum power level during all tests, and at the beginning of each test the battery is fully charged.

EUT was tested as below,

Back/top/bottom/right/left sides 0mm.

Note:

802.11b DSSS SAR Test Requirements:

- 1. SAR is measured for 2.4 GHz 802.11b DSSS mode using the highest measured maximum output power channel, when the reported SAR of the highest measured maximum output power channel for the exposure configuration is  $\leq$ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.
- 2. When the reported SAR is > 0.8 W/kg, SAR is required for that exposure configuration using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

802.11g/n OFDM SAR Test Exclusion Requirements:

3. SAR is not required for 802.11g/n when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is  $\leq 1.2$  W/kg.

Initial Test Configuration:

4. An initial test configuration is determined for OFDM transmission modes according to the channel bandwidth, modulation and data rate combination(s) with the highest maximum output power specified for production units in each standalone and aggregated frequency band.

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- SAR is measured using the highest measured maximum output power channel. When the reported SAR of the initial test configuration is > 0.8 W/kg, SAR measurement is required for the subsequent next highest measured output power channel(s) in the initial test configuration until the reported SAR is  $\leq 1.2$ W/kg or all required channels are tested.
- 6. Since the highest reported SAR for the initial test configuration is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for subsequent test configuration.
- 7. BT and WLAN use the same antenna path, but they can't transmit at the same time.
- 8. According to KDB447498 D01, testing of other required channels is not required when the reported 1-g SAR for the highest output channel is  $\leq$  0.8 W/kg, when the transmission band is  $\leq$  100 MHz.
- 9. According to KDB865664 D01, SAR measurement variability must be assessed for each frequency band. When the original highest measured SAR is  $\geq 0.8$  W/kg, repeated that measurement once. Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is  $\geq$  1.45 W/kg (~10% from the 1-g SAR limit)

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#### 1.6 The SAR Measurement System

A block diagram of the SAR measurement System is given in Fig. a. This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY 5 professional system). The model EX3DV4 field probe is used to determine the internal electric fields. The SAR can be obtained from the equation SAR=  $\sigma$  (|Ei|<sup>2</sup>)/  $\rho$  where  $\sigma$  and  $\rho$  are the conductivity and mass density of the tissue-simulant.

The DASY 5 system for performing compliance tests consists of the following items:

- 1. A standard high precision 6-axis robot (Staubli RX family) with controller, teach pendant and software. An arm extension is for accommodating the data acquisition electronics (DAE).
- 2. A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage intissue simulating liquid. The probe is equipped with an optical surface detector system.
- 3. 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.

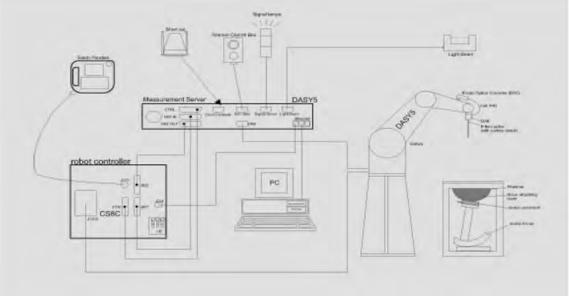


Fig. a The block diagram of SAR system

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- 4. The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to the DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.
- 5. 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.
- 6. A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- 7. A computer operating Windows 7.
- 8. DASY 5 software.
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- Tissue simulating liquid mixed according to the given recipes. 10.
- 11. Validation dipole kits allowing to validate the proper functioning of the system.

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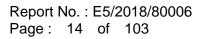
#### **1.7 System Components**

#### **EX3DV4 E-Field Probe**

| Construction | Symmetrical design with triangular core<br>Built-in shielding against static charges<br>PEEK enclosure material (resistant to<br>organic solvents, e.g., DGBE)   |  |  |  |  |  |  |
|--------------|--|--|--|--|--|--|--|
| Calibration  | Basic Broad Band Calibration in air<br>Conversion Factors (CF) for HSL<br>2450/5200/5800 MHz Additional CF for<br>other liquids and frequencies upon<br>request  |  |  |  |  |  |  |
| Frequency    | 10 MHz to > 6 GHz  |  |  |  |  |  |  |
| Directivity  | ± 0.3 dB in HSL (rotation around probe axis)<br>± 0.5 dB in tissue material (rotation normal to probe axis)  |  |  |  |  |  |  |
| Dynamic      | $10 \mu\text{W/g}$ to > 100 mW/g   |  |  |  |  |  |  |
| Range        | Linearity: $\pm 0.2$ dB (noise: typically < 1 $\mu$ W/g)   |  |  |  |  |  |  |
| Dimensions   | Tip diameter: 2.5 mm   |  |  |  |  |  |  |
| Application  | High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%. |  |  |  |  |  |  |

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#### PHANTOM

| Model          | ELI  |
|----------------|--|
| Construction   | The ELI phantom is used for compliance testing of handheld and<br>body-mounted wireless devices in the frequency range of 30 MHz<br>to 6 GHz. ELI is fully compatible with the IEC 62209-2<br>standard and all known tissue simulating liquids. ELI has been<br>optimized regarding its performance and can be integrated into<br>our standard phantom tables. A cover prevents evaporation of the<br>liquid. Reference markings on the phantom allow installation of<br>the complete setup, including all predefined phantom positions<br>and measurement grids, by teaching three points. The phantom<br>is compatible with all SPEAG dosimetric probes and dipoles. |
| Shell          | 2 ± 0.2 mm   |
| Thickness      |  |
| Filling Volume | Approx. 30 liters  |
| Dimensions     | Major axis: 600 mm   |
|                | Minor axis: 400 mm   |

#### **DEVICE HOLDER**

| Construction | The device holder (Supporter)<br>for Notebook is made by POM<br>(polyoxymethylene resin ) ,<br>which is non-metal and<br>non-conductive. The height<br>can be adjusted to fit varies<br>kind of notebooks. |               |
|--------------|--|---------------|
|              |  | Device Holder |

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#### **1.8 SAR System Verification**

The microwave circuit arrangement for system verification is sketched in Fig. b. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within +/- 10% from the target SAR values. These tests were done at 2450/5200/5800 MHz. The tests were conducted on the same days as the measurement of the DUT. The obtained results from the system accuracy verification are displayed in the table 1 (SAR values are normalized to 1W forward power delivered to the dipole). During the tests, the liquid depth above the ear reference points was  $\geq$  15 cm  $\pm$  5 mm (frequency  $\leq$  3 GHz) or  $\geq$  10 cm  $\pm$  5 mm (frequency > 3 G Hz) in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.

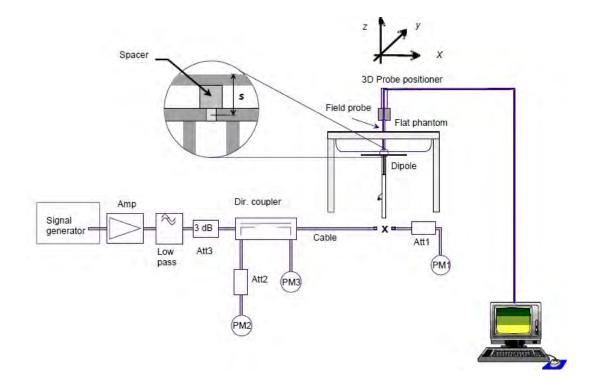


Fig. b The block diagram of system verification

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| Validation<br>Kit | S/N | Frequ<br>(Mł | 5    | 1W Target<br>SAR-1g<br>(mW/g) | (Pin=250mW)<br>Measured<br>SAR-1g<br>(mW/g) | Measured<br>SAR-1g<br>normalized to<br>1W (mW/g) | Deviation<br>(%) | Measured<br>Date |
|-------------------|-----|--------------|------|-------------------------------|---|--|------------------|------------------|
| D2450V2           | 727 | 2450         | Body | 50.8                          | 12.1  | 48.4   | -4.72%           | Dec. 17, 2018    |

| Validation<br>Kit | S/N  | Frequency<br>(MHz) |      | 1W Target<br>SAR-1g<br>(mW/g) | (Pin=100mW)<br>Measured<br>SAR-1g<br>(mW/g) | Measured<br>SAR-1g<br>normalized to<br>1W (mW/g) | Deviation<br>(%) | Measured<br>Date |
|-------------------|------|--------------------|------|-------------------------------|---|--|------------------|------------------|
| D5GHzV2           | 1023 | 5200               | Body | 70.9                          | 7.09  | 70.9   | 0.00%            | Dec. 18, 2018    |
| DOGHZVZ           | 1023 | 5800               | Body | 74.1                          | 7.49  | 74.9   | 1.08%            | Dec. 19, 2018    |

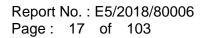
Table 1. Results of system validation

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#### 1.9 Tissue Simulant Fluid for the Frequency Band

The dielectric properties for this body-simulant fluid were measured by using the Agilent Model 85070E Dielectric Probe (rates frequency band 200 MHz to 20 GHz) in conjunction with Network Analyzer. All dielectric parameters of tissue simulates were measured within 24 hours of SAR measurements. The measured conductivity and permittivity are all within  $\pm 5\%$  of the target values.

The depth of the tissue simulant in the flat section of the phantom was  $\geq 15$  cm  $\pm 5$ mm (Frequency  $\leq$ 3G) or  $\geq$  10 cm  $\pm$  5 mm (Frequency >3G) during all tests. (Fig. 2)

| Tissue<br>Type | Measurement<br>Date | Measured<br>Frequency<br>(MHz) | Target<br>Dielectric<br>Constant,<br>εr | Target<br>Conductivity,<br>σ (S/m) | Measured<br>Dielectric<br>Constant,<br>εr | Measured<br>Conductivity,<br>σ (S/m) | % dev ɛr | % dev σ |
|----------------|---------------------|--------------------------------|---|------------------------------------|---|--------------------------------------|----------|---------|
|                |                     | 2402                           | 52.764                                  | 1.904                              | 53.909                                    | 1.846                                | -2.17%   | 3.05%   |
|                |                     | 2412                           | 52.751                                  | 1.914                              | 53.895                                    | 1.854                                | -2.17%   | 3.12%   |
|                |                     | 2437                           | 52.717                                  | 1.938                              | 53.859                                    | 1.877                                | -2.17%   | 3.13%   |
|                | Dec, 17. 2018       | 2441                           | 52.712                                  | 1.941                              | 53.856                                    | 1.882                                | -2.17%   | 3.06%   |
|                |                     | 2450                           | 52.700                                  | 1.950                              | 53.851                                    | 1.889                                | -2.18%   | 3.13%   |
|                |                     | 2462                           | 52.685                                  | 1.967                              | 53.828                                    | 1.906                                | -2.17%   | 3.10%   |
|                |                     | 2480                           | 52.662                                  | 1.993                              | 53.794                                    | 1.930                                | -2.15%   | 3.14%   |
| Body           |                     | 5180                           | 49.041                                  | 5.276                              | 50.032                                    | 5.120                                | -2.02%   | 2.96%   |
|                | Dec, 18. 2018       | 5200                           | 49.014                                  | 5.299                              | 49.970                                    | 5.139                                | -1.95%   | 3.02%   |
|                | Dec, 16. 2016       | 5220                           | 48.987                                  | 5.323                              | 49.962                                    | 5.166                                | -1.99%   | 2.94%   |
|                |                     | 5240                           | 48.960                                  | 5.346                              | 49.954                                    | 5.188                                | -2.03%   | 2.96%   |
|                |                     | 5745                           | 48.275                                  | 5.936                              | 47.082                                    | 5.848                                | 2.47%    | 1.48%   |
|                | Dec, 19. 2018       | 5785                           | 48.220                                  | 5.982                              | 47.020                                    | 5.892                                | 2.49%    | 1.51%   |
|                | Dec, 19. 2016       | 5800                           | 48.200                                  | 6.000                              | 46.971                                    | 5.911                                | 2.55%    | 1.48%   |
|                |                     | 5825                           | 48.166                                  | 6.029                              | 46.962                                    | 5.941                                | 2.50%    | 1.46%   |

Table 2. Dielectric Parameters of Tissue Simulant Fluid

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#### The composition of the tissue simulating liquid:

|                    |      |         | Tetal   |      |                  |           |       |                 |
|--------------------|------|---------|---------|------|------------------|-----------|-------|-----------------|
| Frequency<br>(MHz) | Mode | DGMBE   | Water   | Salt | Preventol<br>D-7 | Cellulose | Sugar | Total<br>amount |
| 2450M              | Body | 301.7ml | 698.3ml |      | _                | _         | _     | 1.0L(Kg)        |

#### Body Simulating Liquids for 5 GHz. Manufactured by SPEAG:

| Ingredients   | Water | Esters, Emulsifiers, Inhibitors | Sodium and Salt |
|---------------|-------|---------------------------------|-----------------|
| (% by weight) | 60-80 | 20-40                           | 0-1.5           |

Table 3. Recipes for Tissue Simulating Liquid

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#### 1.10 Evaluation Procedures

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

The probe is calibrated at the center of the dipole sensors that 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. The angle between the probe axis and the surface normal line is less than 30 degree.

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

The maximum search is automatically performed after each area scan measurement. It is based on splines in two or three dimensions. The procedure can find the maximum for most SAR distributions even with relatively large grid spacing. After the area scanning measurement, the probe is automatically moved to a position at the interpolated maximum. The following scan can directly use this position for reference, e.g., for a finer resolution grid or the cube evaluations. The 1g and 10g peak evaluations are only available for the predefined cube 7x7x7 scans. The routines are verified and optimized for the grid dimensions used in these cube measurements.

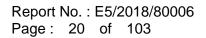
The measured volume of 30x30x30mm contains about 30g of tissue.

The first procedure is an extrapolation (incl. Boundary correction) to get the points between the lowest measured plane and the surface. The next step uses 3D

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interpolation to get all points within the measured volume. In the last step, a 1g cube is placed numerically into the volume and its averaged SAR is calculated. This cube is the moved around until the highest averaged SAR is found. If the highest SAR is found at the edge of the measured volume, the system will issue a warning: higher SAR values might be found outside of the measured volume. In that case the cube measurement can be repeated, using the new interpolated maximum as the center.

#### 1.11 Probe Calibration Procedures

For the calibration of E-field probes in lossy liquids, an electric field with an accurately known field strength must be produced within the measured liquid. For standardization purposes it would be desirable if all measurements which are necessary to assess the correct field strength would be traceable to standardized measurement procedures. In the following two different calibration techniques are summarized:

#### 1.11.1 Transfer Calibration with Temperature Probes

In lossy liquids the specific absorption rate (SAR) is related both to the electric field (E) and the temperature gradient ( $\delta T / \delta t$ ) in the liquid.

$$SAR = C \frac{\delta T}{\delta t}$$

whereby  $\sigma$  is the conductivity,  $\rho$  the density and c the heat capacity of the liquid.

Hence, the electric field in lossy liquid can be measured indirectly by measuring the temperature gradient in the liquid. Non-disturbing temperature probes (optical probes or thermistor probes with resistive lines) with high spatial resolution (<1-2 mm) and fast reaction time (<1 s) are available and can be easily calibrated with high precision [1]. The setup and the exciting source have no influence on the calibration; only the relative positioning uncertainties of the standard temperature probe and the E-field probe to be calibrated must be considered. However, several problems limit the available accuracy of probe calibrations with temperature probes:

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- The temperature gradient is not directly measurable but must be evaluated from temperature measurements at different time steps. Special precaution is necessary to avoid measurement errors caused by temperature gradients due to energy equalizing effects or convection currents in the liquid. Such effects cannot be completely avoided, as the measured field itself destroys the thermal equilibrium in the liquid. With a careful setup these errors can be kept small.
- The measured volume around the temperature probe is not well defined. It is difficult to calculate the energy transfer from a surrounding gradient temperature field into the probe. These effects must be considered, since temperature probes are calibrated in liquid with homogeneous temperatures. There is no traceable standard for temperature rise measurements.
- The calibration depends on the assessment of the specific density, the heat capacity and the conductivity of the medium. While the specific density and heat capacity can be measured accurately with standardized procedures (~ 2% for c; much better for  $\rho$ ), there is no standard for the measurement of the conductivity. Depending on the method and liquid, the error can well exceed  $\pm 5\%$ .
- Temperature rise measurements are not very sensitive and therefore are often performed at a higher power level than the E-field measurements. The nonlinearities in the system (e.g., power measurements, different components, etc.) must be considered.

Considering these problems, the possible accuracy of the calibration of E-field probes with temperature gradient measurements in a carefully designed setup is about ±10% (RSS) [2]. Recently, a setup which is a combination of the waveguide techniques and the thermal measurements was presented in [3]. The estimated uncertainty of the setup is  $\pm 5\%$  (RSS) when the same liquid is used for the calibration and for actual measurements and ±7-9% (RSS) when not, which is in good agreement with the estimates given in [2].

#### 1.11.2 Calibration with Analytical Fields

In this method a technical setup is used in which the field can be calculated analytically from measurements of other physical magnitudes (e.g., input power). This corresponds to the standard field method for probe calibration in air; however, there is no standard defined for fields in lossy liquids.

When using calculated fields in lossy liquids for probe calibration, several points must be considered in the assessment of the uncertainty:

- The setup must enable accurate determination of the incident power.
- The accuracy of the calculated field strength will depend on the assessment of the dielectric parameters of the liquid.
- Due to the small wavelength in liquids with high permittivity, even small

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setups might be above the resonant cutoff frequencies. The field distribution in the setup must be carefully checked for conformity with the theoretical field distribution.

#### References

- 1. N. Kuster, Q. Balzano, and J.C. Lin, Eds., Mobile Communications Safety, Chapman & Hall, London, 1997.
- 2. K. Meier, M. Burkhardt, T. Schmid, and N. Kuster, \Broadband calibration of E-field probes in lossy media", IEEE Transactions on Microwave Theory and Techniques, vol. 44, no. 10, pp. 1954{1962, Oct. 1996.
- 3. K. Jokela, P. Hyysalo, and L. Puranen, \Calibration of specific absorption rate (SAR) probes in waveguide at 900 MHz", IEEE Transactions on Instrumentation and Measurements, vol. 47, no. 2, pp. 432{438, Apr. 1998.

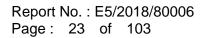
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#### **1.12 Test Standards and Limits**

According to FCC 47CFR §2.1093(d) The limits to be used for evaluation are based generally on criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate ("SAR") in Section 4.2 of "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz," ANSI/IEEE C95.1, By the Institute of Electrical and Electronics Engineers, Inc., New York, New York 10017. These criteria for SAR evaluation are similar to those recommended by the National Council on Radiation Protection and Measurements (NCRP) in "Biological Effects and Exposure Criteria for Radio frequency Electromagnetic Fields," NCRP Report No. 86, Section 17.4.5. Copyright NCRP, 1986, Bethesda, Maryland 20814. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards. The criteria to be used are specified in paragraphs (d)(1) and (d)(2) of this section and shall apply for portable devices transmitting in the frequency range from 100 kHz to 6 GHz. Portable devices that transmit at frequencies above 6 GHz are to be evaluated in terms of the MPE limits specified in § 1.1310 of this chapter. Measurements and calculations to demonstrate compliance with MPE field strength or power density limits for devices operating above 6 GHz should be made at a minimum distance of 5 cm from the radiating source.

- Limits for Occupational/Controlled exposure: 0.4 W/kg as averaged over the (1) whole-body and spatial peak SAR not exceeding 8 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 20 W/kg, as averaged over an 10 grams of tissue (defined as a tissue volume in the shape of a cube).
- Occupational/Controlled limits apply when persons are exposed as a (2) consequence of their employment provided these persons are fully aware of and exercise control over their exposure. Awareness of exposure can be accomplished by use of warning labels or by specific training or education through appropriate means, such as an RF safety program in a work environment.
- Limits for General Population/Uncontrolled exposure: 0.08 W/kg as (3) averaged over the whole-body and spatial peak SAR not exceeding 1.6 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 4 W/kg, as averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). General Population/Uncontrolled limits apply when the general public may be exposed, or when persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or do not

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exercise control over their exposure. Warning labels placed on consumer devices such as cellular telephones will not be sufficient reason to allow these devices to be evaluated subject to limits for occupational/controlled exposure in paragraph (d)(1) of this section. (Table 4.)

| Human Exposure                               | Uncontrolled<br>Environment<br>General Population | Controlled Environment<br>Occupational |  |  |
|--|---|--|--|--|
| Spatial Peak SAR<br>(Brain)                  | 1.60 W/kg   | 8.00 W/kg                              |  |  |
| Spatial Average SAR<br>(Whole Body)          | 0.08 W/kg   | 0.40 W/kg                              |  |  |
| Spatial Peak SAR<br>(Hands/Feet/Ankle/Wrist) | 4.00 W/kg   | 20.00 W/kg                             |  |  |

Table 4. RF exposure limits

Notes:

- 1. Uncontrolled environments are defined as locations where there is potential exposure of individuals who have no knowledge or control of their potential exposure.
- 2. Controlled environments are defined as locations where there is potential exposure of individuals who have knowledge of their potential exposure and can exercise control over their exposure.

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### 2. Summary of Results

#### WLAN Antenna

| Mode               | Position    | Distance<br>(mm) | СН  | Freq.<br>(MHz) | Max. Rated Avg.<br>Power + Max. | Measured<br>Avg. Power | Scaling |          | SAR over 1g<br>/kg) | Plot<br>page |
|--------------------|-------------|------------------|-----|----------------|---------------------------------|------------------------|---------|----------|---------------------|--------------|
|                    |             | ()               |     | (1011 12)      | Tolerance (dBm)                 | (dBm)                  |         | Measured | Reported            | . page       |
|                    | Back side   | 0                | 6   | 2437           | 13.65                           | 13.35                  | 107.15% | 0.173    | 0.185               | 27           |
|                    | Top side    | 0                | 6   | 2437           | 13.65                           | 13.35                  | 107.15% | 0.018    | 0.019               | -            |
| WLAN 802.11b       | Bottom side | 0                | 6   | 2437           | 13.65                           | 13.35                  | 107.15% | 0.012    | 0.013               | -            |
|                    | Right side  | 0                | 6   | 2437           | 13.65                           | 13.35                  | 107.15% | 0.039    | 0.042               | -            |
|                    | Left side   | 0                | 6   | 2437           | 13.65                           | 13.35                  | 107.15% | 0.011    | 0.012               | -            |
|                    | Back side   | 0                | 39  | 2480           | -1.50                           | -1.68                  | 104.23% | 0.004    | 0.005               | 28           |
|                    | Top side    | 0                | 39  | 2480           | -1.50                           | -1.68                  | 104.23% | 0.000    | 0.000               | -            |
| Bluetooth<br>(BLE) | Bottom side | 0                | 39  | 2480           | -1.50                           | -1.68                  | 104.23% | 0.000    | 0.000               | -            |
| (DLL)              | Right side  | 0                | 39  | 2480           | -1.50                           | -1.68                  | 104.23% | 0.001    | 0.001               | -            |
|                    | Left side   | 0                | 39  | 2480           | -1.50                           | -1.68                  | 104.23% | 0.000    | 0.000               | -            |
|                    | Back side   | 0                | 36  | 5180           | 8.01                            | 7.83                   | 104.23% | 1.050    | 1.094               | -            |
|                    | Back side   | 0                | 44  | 5220           | 8.32                            | 8.31                   | 100.23% | 1.230    | 1.233               | 29           |
|                    | Back side*  | 0                | 44  | 5220           | 8.32                            | 8.31                   | 100.23% | 1.210    | 1.213               | -            |
| WII AN 000 44 5 00 | Back side   | 0                | 48  | 5240           | 8.28                            | 8.26                   | 100.46% | 1.140    | 1.145               | -            |
| WLAN 802.11a 5.2G  | Top side    | 0                | 44  | 5220           | 8.32                            | 8.31                   | 100.23% | 0.133    | 0.133               | -            |
|                    | Bottom side | 0                | 44  | 5220           | 8.32                            | 8.31                   | 100.23% | 0.000    | 0.000               | -            |
|                    | Right side  | 0                | 44  | 5220           | 8.32                            | 8.31                   | 100.23% | 0.069    | 0.069               | -            |
|                    | Left side   | 0                | 44  | 5220           | 8.32                            | 8.31                   | 100.23% | 0.000    | 0.000               | -            |
|                    | Back side   | 0                | 149 | 5745           | 9.04                            | 9.02                   | 100.46% | 0.994    | 0.999               | -            |
|                    | Back side   | 0                | 157 | 5785           | 9.05                            | 9.01                   | 100.93% | 1.030    | 1.040               | -            |
|                    | Back side   | 0                | 165 | 5825           | 9.13                            | 9.08                   | 101.16% | 1.140    | 1.153               | 30           |
|                    | Back side*  | 0                | 165 | 5825           | 9.13                            | 9.08                   | 101.16% | 1.090    | 1.103               | -            |
| WLAN 802.11a 5.8G  | Top side    | 0                | 165 | 5825           | 9.13                            | 9.08                   | 101.16% | 0.084    | 0.085               | -            |
|                    | Bottom side | 0                | 165 | 5825           | 9.13                            | 9.08                   | 101.16% | 0.000    | 0.000               | -            |
|                    | Right side  | 0                | 165 | 5825           | 9.13                            | 9.08                   | 101.16% | 0.042    | 0.042               | -            |
|                    | Left side   | 0                | 165 | 5825           | 9.13                            | 9.08                   | 101.16% | 0.000    | 0.000               | -            |
| ropostod at        | مانه اما م  | -+ 0 ^           | D   |                |                                 |                        |         |          | 00004               | 50           |

\* - repeated at the highest SAR measurement according to the KDB 865664 D01

Note:

Scaling =  $\frac{\text{reported SAR}}{\text{measured SAR}} = \frac{P2(mW)}{P1(mW)} = 10^{\left(\frac{P2-P1}{10}\right)(dBm)}$ Reported SAR = measured SAR \* (scaling)

Where P2 is maximum specified power, P1 is measured conducted power

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### 3. Instruments List

| Manufacturer | Device                          | Туре               | Serial<br>number | Date of last calibration | Date of next calibration    |
|--------------|---------------------------------|--------------------|------------------|--------------------------|-----------------------------|
| SPEAG        | Dosimetric<br>E-Field<br>Probe  | EX3DV4             | 3938             | Oct.24,2018              | Oct.23,2019                 |
| SPEAG        | System<br>Validation            | D2450V2            | 727              | Apr.24,2018              | Apr.23,2019                 |
| SFEAG        | Dipole                          | D5GHzV2            | 1023             | Jan.25,2018              | Jan.24,2019                 |
| SPEAG        | Data acquisition<br>Electronics | DAE4               | 1336             | Aug.06,2018              | Aug.05,2019                 |
| SPEAG        | Software                        | DASY 52<br>V52.8.8 | N/A              | Calibration not required | Calibration<br>not required |
| SPEAG        | Phantom                         | ELI                | N/A              | Calibration not required | Calibration<br>not required |
| Agilent      | Network<br>Analyzer             | E5071C             | MY46107530       | Feb.26,2018              | Feb.25,2019                 |
| Agilent      | Dielectric<br>Probe Kit         | 85070E             | MY44300677       | Calibration not required | Calibration<br>not required |
| Agilent      | Dual-directional                | 772D               | MY52180142       | Jul.04,2018              | Jul.03,2019                 |
| Aglient      | coupler                         | 778D               | MY52180302       | Jul.05,2018              | Jul.04,2019                 |
| Agilent      | RF Signal<br>Generator          | N5181A             | MY50144143       | Mar.15,2018              | Mar.14,2019                 |
| Agilent      | Power Meter                     | E4417A             | MY52240003       | Dec.21,2017              | Dec.20,2018                 |
| Agilent      | Power Sensor                    | E9301H             | MY52200003       | Dec.21,2017              | Dec.20,2018                 |
| TECPEL       | Digital<br>thermometer          | DTM-303A           | TP130074         | Mar.09,2018              | Mar.08,2019                 |

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### 4. Measurements

Date: 2018/12/17

#### WLAN802.11b\_Body\_Back side\_CH 6\_0mm

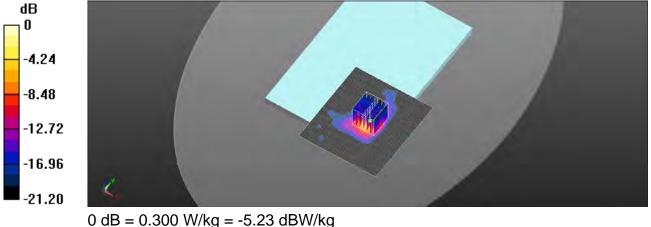
Communication System: WLAN 2.45G; Frequency: 2437 MHz; Duty Cycle: 1:1 Medium parameters used: f = 2437 MHz;  $\sigma$  = 1.877 S/m;  $\epsilon_r$  = 53.859;  $\rho$  = 1000 kg/m<sup>3</sup> Phantom section: Flat Section Ambient temperature: 22.1°C; Liquid temperature: 21.3°C

DASY5 Configuration:

- Probe: EX3DV4 SN3938; ConvF(7.3, 7.3, 7.3); Calibrated: 2018/10/24;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6 •
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.10(7373)

Area Scan (91x101x1): Interpolated grid: dx=12 mm, dy=12 mm Maximum value of SAR (interpolated) = 0.313 W/kg

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 0 V/m; Power Drift = 0.04 dB Peak SAR (extrapolated) = 0.457 W/kg SAR(1 g) = 0.173 W/kg; SAR(10 g) = 0.062 W/kgMaximum value of SAR (measured) = 0.300 W/kg



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Date: 2018/12/17

#### Bluetooth(BLE)\_Body\_Back side\_CH 39\_0mm

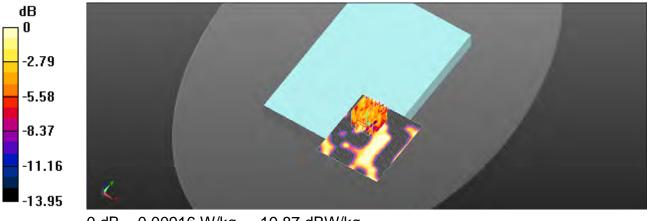
Communication System: Bluetooth; Frequency: 2480 MHz; Duty Cycle: 1:1 Medium parameters used: f = 2480 MHz;  $\sigma$  = 1.93 S/m;  $\epsilon_r$  = 53.794;  $\rho$  = 1000 kg/m<sup>3</sup> Phantom section: Flat Section Ambient temperature: 22.1°C; Liquid temperature: 21.3°C

**DASY5** Configuration:

- Probe: EX3DV4 SN3938; ConvF(7.3, 7.3, 7.3); Calibrated: 2018/10/24;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.10(7373)

Area Scan (71x81x1): Interpolated grid: dx=12 mm, dy=12 mm Maximum value of SAR (interpolated) = 0.0259 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 0 V/m: Power Drift = 0.03 dB Peak SAR (extrapolated) = 0.0140 W/kg SAR(1 g) = 0.00433 W/kg; SAR(10 g) = 0.00088 W/kg Maximum value of SAR (measured) = 0.00916 W/kg



0 dB = 0.00916 W/kg = -19.87 dBW/kg

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Date: 2018/12/18

#### WLAN802.11a 5.2G\_ Body\_Back side\_CH 44\_0mm

Communication System: WLAN 5G; Frequency: 5220 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5220 MHz;  $\sigma$  = 5.166 S/m;  $\epsilon_r$  = 49.962;  $\rho$  = 1000 kg/m<sup>3</sup> Phantom section: Flat Section Ambient temperature: 22.4°C; Liquid temperature: 21.8°C

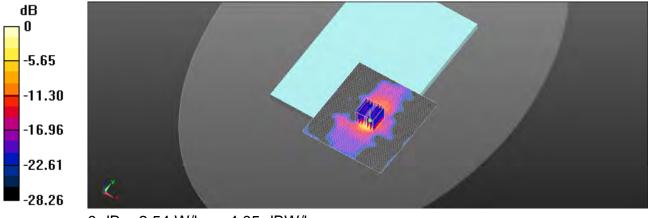
**DASY5** Configuration:

- Probe: EX3DV4 SN3938; ConvF(4.23, 4.23, 4.23); Calibrated: 2018/10/24;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.10(7373)

Area Scan (111x121x1): Interpolated grid: dx=10 mm, dy=10 mm Maximum value of SAR (interpolated) = 2.91 W/kg

Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm Reference Value = 1.218 V/m: Power Drift = -0.08 dB Peak SAR (extrapolated) = 4.96 W/kg SAR(1 g) = 1.23 W/kg; SAR(10 g) = 0.313 W/kg

Maximum value of SAR (measured) = 2.54 W/kg



0 dB = 2.54 W/kg = 4.05 dBW/kg

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Date: 2018/12/19

#### WLAN802.11a 5.8G\_ Body\_Back side\_CH 165\_0mm

Communication System: WLAN 5G; Frequency: 5825 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5825 MHz;  $\sigma$  = 5.941 S/m;  $\epsilon_r$  = 46.962;  $\rho$  = 1000 kg/m<sup>3</sup> Phantom section: Flat Section Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

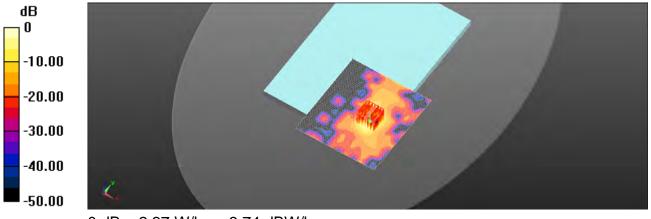
**DASY5** Configuration:

- Probe: EX3DV4 SN3938; ConvF(4, 4, 4); Calibrated: 2018/10/24;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.10(7373)

Area Scan (111x121x1): Interpolated grid: dx=10 mm, dy=10 mm Maximum value of SAR (interpolated) = 2.67 W/kg

Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm Reference Value = 1.564 V/m: Power Drift = 0.05 dB Peak SAR (extrapolated) = 4.94 W/kg SAR(1 g) = 1.14 W/kg; SAR(10 g) = 0.326 W/kg

Maximum value of SAR (measured) = 2.37 W/kg



0 dB = 2.37 W/kg = 3.74 dBW/kg

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## 5. SAR System Performance Verification

Date: 2018/12/17

### Dipole 2450 MHz SN:727

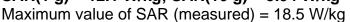
Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1 Medium parameters used: f = 2450 MHz;  $\sigma$  = 1.889 S/m;  $\epsilon_r$  = 53.851;  $\rho$  = 1000 kg/m<sup>3</sup> Phantom section: Flat Section Ambient temperature: 22.1°C; Liquid temperature: 21.3°C

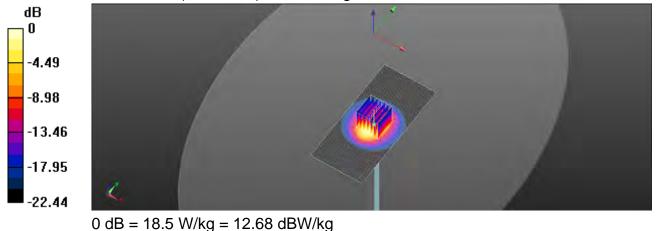
DASY5 Configuration:

- Probe: EX3DV4 SN3938; ConvF(7.3, 7.3, 7.3); Calibrated: 2018/10/24;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6 •
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.10(7373)

Area Scan (61x131x1): Interpolated grid: dx=12 mm, dy=12 mm Maximum value of SAR (interpolated) = 19.5 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 99.32 V/m; Power Drift = -0.03 dB Peak SAR (extrapolated) = 25.1 W/kg SAR(1 g) = 12.1 W/kg; SAR(10 g) = 5.94 W/kg





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Date: 2018/12/18

### Dipole 5200 MHz SN:1023

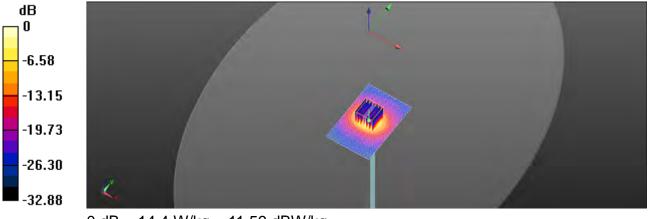
Communication System: CW; Frequency: 5200 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5200 MHz;  $\sigma$  = 5.139 S/m;  $\epsilon_r$  = 49.97;  $\rho$  = 1000 kg/m<sup>3</sup> Phantom section: Flat Section Ambient temperature: 22.4°C; Liquid temperature: 21.8°C

**DASY5** Configuration:

- Probe: EX3DV4 SN3938; ConvF(4.23, 4.23, 4.23); Calibrated: 2018/10/24;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.10(7373)

Area Scan (61x91x1): Interpolated grid: dx=10 mm, dy=10 mm Maximum value of SAR (interpolated) = 14.8 W/kg

Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm Reference Value = 56.12 V/m; Power Drift = -0.07 dB Peak SAR (extrapolated) = 27.5 W/kg SAR(1 g) = 7.09 W/kg; SAR(10 g) = 1.95 W/kg Maximum value of SAR (measured) = 14.4 W/kg



0 dB = 14.4 W/kg = 11.59 dBW/kg

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Date: 2018/12/19

### Dipole 5800 MHz SN:1023

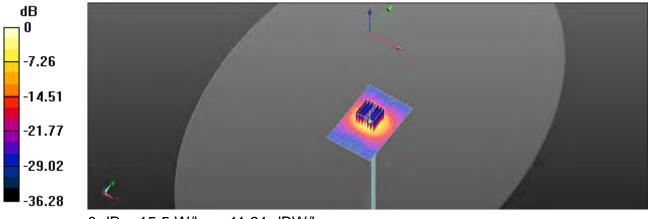
Communication System: CW; Frequency: 5800 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5800 MHz;  $\sigma$  = 5.911 S/m;  $\epsilon_r$  = 46.971;  $\rho$  = 1000 kg/m<sup>3</sup> Phantom section: Flat Section Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

**DASY5** Configuration:

- Probe: EX3DV4 SN3938; ConvF(4, 4, 4); Calibrated: 2018/10/24;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.10(7373)

Area Scan (61x91x1): Interpolated grid: dx=10 mm, dy=10 mm Maximum value of SAR (interpolated) = 15.4 W/kg

Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm Reference Value = 53.97 V/m; Power Drift = -0.08 dB Peak SAR (extrapolated) = 31.5 W/kg SAR(1 g) = 7.49 W/kg; SAR(10 g) = 2.01 W/kg Maximum value of SAR (measured) = 15.5 W/kg



0 dB = 15.5 W/kg = 11.91 dBW/kg

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### 6. DAE & Probe Calibration Certificate

|   | h, Switzerland   | Kal s   | Swiss Calibration Service  |
|---|--|---|--|
| ocredited by the Swiss Accredit<br>he Swiss Accreditation Servic<br>witilateral Agreement for the r   | e is one of the signatories  | to the EA   | No.: SCS 0108  |
| lient SGS-TW (Aude  | en)  | Certificate to  | : DAE4-1336_Aug18  |
| CALIBRATION O   | CERTIFICATE  |   |  |
| Xject   | DAE4 - SD 000 D  | 04 BM - SN: 1336  |  |
| Celibration procedure(s)  | OA CAL-05.v29<br>Calibration procedure for the data acquisition electronics (DAE)  |   |  |
| Calibration date:   | August 06, 2018  |   |  |
| The measurements and the unce   | etainties with confidence pr   | nal standards, which realize the physical un<br>obability are given on the following pages ar<br>flacisity; environment temperature ( $22 \pm 3$ ) <sup>4</sup>   | id are part of the certificate   |
| The measurements and the unce<br>All calibrations have been condu<br>Calibration Equipment used (M&   | etainties with confidence pr<br>cled in the closed laboratory<br>TE critical for calibration)  | shability are given on the following pages at lacility; environment temperature (22 $\pm$ 3)*   | id are part of the certificate.<br>C and numidity < 70%.   |
| The measurements and the units<br>All calibrations have been condu-<br>Calibration Equipment used (M&<br>Primary Standards  | etainties with confidence prices of the closed laboratory  | obability are given on the following pages ar   | id are part of the certificate   |
| The measurements and the unor<br>All culturations have been condu<br>Calibration Equipment used (M&<br>Primary Standards<br>Kethley Multimeter Type 2001  | etainlies with confidence pro-<br>cted in the closed laboratory<br>TE orifical for calibration)<br>ED 4<br>SN: 0810278   | clability are given on the following pages ar<br>facility: environment temperature (22 ± 3)*<br>Cal Date (Centificate No.)<br>31-Aug-17 (No:21002)  | id are part of the certificate<br>C and humidity < 70%.<br>Scheduled Calibration<br>Aug-18   |
| The measurements and the units<br>All calibrations have been condu<br>Calibration Equipment used (M&<br>Primary Standards<br>Kerthley Multimeter Type 2001<br>Secondary Standards   | International states of the state of the sta | chability are given on the following pages at<br>facility: environment temperature (22 ± 3)*<br>Cal Date (Centificate No.)<br>31-Aug-17 (No:21092)<br>Check Date (in house)   | id are part of the certificate.<br>C and numidity < 70%.<br>Scheduled Californition<br>Aug-18<br>Scheduled Check   |
| The measurements and the unce<br>All calibrations have been condu-<br>Calibration Equipment used (M&<br>Primary Standards<br>Kerthley Multimeter Type 2001<br>Secondary Standards<br>Auto DAE Calibration Unit                      | Internities with confidence pro-<br>cited in the closed laboratory<br>TE ortical for calibration<br>I D 4<br>I SN: 0810278<br>I D 4<br>I SE UWS 053 AA 1001  | clability are given on the following pages ar<br>facility: environment temperature (22 ± 3)*<br>Cal Date (Centificate No.)<br>31-Aug-17 (No:21002)  | id are part of the certificate<br>C and humidity < 70%.<br>Scheduled Calibration<br>Aug-18   |
| The measurements and the unce<br>All calibrations have been condu-<br>Calibration Equipment used (M&<br>Primary Standards<br>Kerthley Multimeter Type 2001<br>Secondary Standards<br>Auto DAE Calibration Unit                      | Internities with confidence pro-<br>cited in the closed laboratory<br>TE ortical for calibration<br>I D 4<br>I SN: 0810278<br>I D 4<br>I SE UWS 053 AA 1001  | clability are given on the following pages at<br>facility; environment temperature (22 ± 3)*<br><u>Cal Date (Centilicate No.)</u><br>31-Aug-17 (No:21082)<br><u>Check Date (In house)</u><br>04-Jan-18 (In house check)   | nd are part of the certificate.<br>C and humidity < 70%.<br>Screeduled Califoration<br>Aug-18<br>Scheduled Check<br>in house check: Jan-19                         |
| The measurements and the unce<br>All calibrations have been condu<br>Calibration Equipment used (M&<br>Primary Standards<br>Kethley Multimeter Type 2001<br>Secondary Blandards<br>Auto DAE Calibration Unit<br>Calibrator Box V2.1 | etainlies with confidence on<br>cited in the closed laboratory<br>TE ortical for calibration)<br>D 4<br>SN: 0810278<br>D 4<br>SE UWS 053 AA 1001<br>SE UWS 055 AA 1002   | sbability are given on the following pages at<br>( laciily: environment temperature (22 ± 3)*<br>Cal Date (CentReate No.)<br>31-Aug-17 (No:21002)<br>Check Data (in house)<br>04-Jan-18 (in house check)<br>(04-Jan-18 (in house check)   | nd are part of the certificate.<br>C and humidity < 70%.<br>Scheduled Calibration<br>Aug-18<br>Scheduled Check<br>In house check: Jan-19<br>In house check: Jan-19 |
| The measurements and the unce<br>All calibrations have been condu<br>Calibration Equipment used (M&<br>Primary Standards<br>Kerthley Multimeter Type 2001<br>Secondary Standards<br>Auto DAE Calibraton Unit<br>Calibrator Box V2.1 | International Sector Se | Shability are given on the following pages at<br>(lacility: environment temperature (22 ± 3)*<br>Cal Date (CentReate No.)<br>31-Aug-17 (No:21002)<br>Check Date (in house)<br>04-Jan-18 (in house check)<br>04-Jan-18 (in house check)<br>04-Jan-18 (in house check)  | nd are part of the certificate.<br>C and humidity < 70%.<br>Scheduled Calibration<br>Aug-18<br>Scheduled Check<br>In house check: Jan-19<br>In house check: Jan-19 |
| The measurements and the unce   | Internities with confidence pro-<br>cited in the closed laboratory<br>TE ortical for calibration<br>D A<br>SN: 0810278<br>D A<br>SE UWS 053 AA 1001<br>SE UWS 005 AA 1002<br>Name<br>Dominique Statler   | Sability are given on the following pages at<br>(lacility: environment temperature (22 ± d)*<br>Cal Date (Centilicate No.)<br>31-Aug-17 (No:21092)<br>Check Date (in house)<br>04-Jan-18 (in house)<br>04-Jan-18 (in house check)<br>04-Jan-18 (in house check)<br>04-Jan-18 (in house check)<br>04-Jan-18 (in house check) | nd are part of the certificate.<br>C and humidity < 70%.<br>Scheduled Calibration<br>Aug-18<br>Scheduled Check<br>In house check: Jan-19<br>In house check: Jan-19 |

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Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland



Schweizenscher Kallbrierdienet s Service suisse d'étalonnage C Servizio svizzero di taratura s Swiss Calibration Service

Accordination No.: SCS 0108

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#### Glossary

DAF Connector angle

data acquisition electronics

information used in DASY system to align probe sensor X to the robot coordinate system.

#### Methods Applied and Interpretation of Parameters.

- DC Voltage Measurement: Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- · Connector angle. The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty
  - DC Voltage Measurement Linearity. Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
  - Common mode sensitivity: Influence of a positive or negative common mode voltage on . the differential measurement.
  - Channel separation: Influence of a voltage on the neighbor channels not subject to an ٠ input voltage.
  - AD Converter Values with inputs shorted: Values on the internal AD converter . corresponding to zero input voltage
  - Input Offset Measurement: Output voltage and statistical results over a large number of . zero voltage measurements.
  - Input Offset Current: Typical value for information; Maximum channel input offset ٠ current, not considering the input resistance.
  - Input resistance: Typical value for information: DAE input resistance at the connector, during internal auto-zeroing and during measurement.
  - Low Battery Alarm Voltage: Typical value for information. Below this voltage, a battery alarm signal is generated.
  - Power consumption: Typical value for information. Supply currents in various operating modes.

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### DC Voltage Measurement A/D - Converter Resolution nominal

High Flange: 1LSB full range = -100...+300 mV full range = -1.....+3mV 6.1µV. Low Range 1LSB = SINV DASY measurement parameters; Auto Zero Time: 3 sec; Measuring time: 3 sec

| <b>Calibration Factors</b> | X                     | Y                     | z                     |
|----------------------------|-----------------------|-----------------------|-----------------------|
| High Range                 | 403.344 ± 0.02% (k=2) | 403.624 ± 0.02% (k=2) | 403.107 ± 0.02% (k=2) |
| Low Range                  | 3.95102 ± 1.50% (k=2) | 3,98703 ± 1,50% (k=2) | 3.99683 ± 1.50% (k=2) |

#### **Connector Angle**

| Connector Angle to be used in DASY system | 287.0°±1° |
|---|-----------|
|---|-----------|

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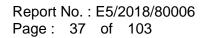
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## Appendix (Additional assessments outside the scope of SCS0108)

## 1. DC Voltage Linearity

| High Range        | Reading (µV)  | Difference (µV) | Error (%) |
|-------------------|---------------|-----------------|-----------|
| Channel X + Input | 200042.98     | 8.65            | 0.00      |
| Channel X + Input | 20006.34      | 1.71            | 0.01      |
| Channel X - Input | -20005.65     | -0.58           | 0.00      |
| Channel Y + Input | 200034.32     | 0.12            | 0.00      |
| Channel Y + Input | 20003.47      | -1:57           | 0.01      |
| Channel Y - Input | 20008.39      | -1.21           | 0,01      |
| Channel Z + Input | 200032.22     | -2.05           | -0.00     |
| Channel Z + Input | 20002.78      | -2.14           | -0.01     |
| Channel Z - Input | -20007.34     | -2.09           | 0.01      |
| Low Range         | Reading (jsV) | Difference (µV) | Error (%) |
| Channel X + Input | 2001.47       | 0.30            | 0,01      |
| Channel X + Input | 201.92        | 0.79            | 0.39      |
| Channel X - Input | -198.26       | 0.59            | -0.30     |
| Channel Y + Input | 2001,55       | 0.37            | 50.0      |
| Channel Y + Input | 200.97        | -0.11           | -0.05     |
| Channel Y - Input | -199.34       | -0.43           | 0,22      |
| Channel Z + Input | 2001.12       | 0.04            | 0.00      |
| Channel Z + Input | 200.15        | -0.89           | -0.44     |
| Channel Z - Input | -200.14       | 1.05            | 0.58      |

## 2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec. Measuring time: 3 sec

|           | Common mode<br>Input Voltage (mV) | High Range<br>Average Reading (µV) | Low Range<br>Average Reading (µV) |
|-----------|-----------------------------------|------------------------------------|-----------------------------------|
| Channel X | 200                               | B:04                               | 4.72                              |
|           | - 200                             | 4.13                               | -4.79                             |
| Channel Y | 200                               | -3,65                              | -3,78                             |
|           | 200                               | 2.68                               | 2.45                              |
| Channel Z | 200                               | 22,40                              | 22.16                             |
|           | - 200                             | -24.83                             | -25.10                            |

## 3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

|           | Input Voltage (mV) | Channel X (µV) | Channel Y (µV) | Channel Z (µV) |
|-----------|--------------------|----------------|----------------|----------------|
| Channel X | 200                | +1             | 6.12           | +1,64          |
| Channel Y | 200                | 9.19           |                | 6.46           |
| Channel Z | 200                | 8.44           | 6.31           |                |

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## 4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec. Measuring time: 3 sec.

|           | High Range (LSB) | Low Range (LSB) |
|-----------|------------------|-----------------|
| Channel X | 15666            | 16509           |
| Channel Y | 15907            | 15587           |
| Channel Z | - 15855          | 15507           |

## 5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec: Measuring time: 3 sec OM01 funit

|           | Average (µV) | min. Offset (µV) | max. Offset (µV) | Std. Deviation<br>(µV) |
|-----------|--------------|------------------|------------------|------------------------|
| Channel X | 0.87         | -0.00            | 2.62             | 0.36                   |
| Channel Y | 3.53         | 2.87             | 4.59             | 0.34                   |
| Channel Z | -0.18        | -1.34            | 1.53             | 0.54                   |

## 6. Input Offset Current

Nominal Input circuitry offset current on all channels <25fA

### 7. Input Resistance (Typical values for information)

|           | Zeroing (kOhm) | Measuring (MOhm) |
|-----------|----------------|------------------|
| Channel X | 200            | 200              |
| Channel Y | 200            | 200              |
| Channel Z | 200            | 200              |

## 8. Low Battery Alarm Voltage (Typical values for information)

| Typical values | Alarm Level (VDC) |  |
|----------------|-------------------|--|
| Supply (+ Vcc) | 47.9              |  |
| Supply (- Vcc) | -7.6              |  |

## 9. Power Consumption (Typical values for information)

| Typical values | Switched off (mA) | Stand by (mA) | Transmitting (mA) |
|----------------|-------------------|---------------|-------------------|
| Supply (+ Vcc) | +0.01             | 36            | +14               |
| Supply (- Vcc) | -0.01             | В             | -9                |

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| ctredited by the Swiss Accrec<br>he Swiss Accreditation Serv<br>fulfilateral Agreement for the  | Itation Service (SAS)<br>rice is one of the signatories<br>e recognition of calibration o  | to the EA  | creditation No.: SCS 0108  |
| Ilient SGS-TW (Au   | dan)   | Carriente No.  | EX3-3938_Oct18   |
| CALIBRATION   | CERTIFICATE  |  |  |
| Object  | EX3DV4 - SN:393  | и  |  |
| Coliferation procession(in)   | CAL-25.V6  | A GAL 12:v9: OA CAL-14:v4, QA<br>lure for dosimetric E-lieta probes  |  |
| Calibration date  | October 24, 2018   |  |  |
| This calibration certificate docu<br>The measurements and the un  | ments the traceability to nation<br>containting with confidence pro  | tal standards, which realize the physical units<br>bability are given on the following pages and   | of measurements (SI),<br>are part of the certificate   |
| All calibrations have been conc   | lucied in the closed laboratory  | facility anvironment temperature (22 = 3/°C =  | and humidity < 70%   |
| Saibrahan Espajonern used (M  | 875 ortical for calibration)   | facility: anxironment temperature (22 $\pm$ 3)*C s $C_{\rm eff}(22) = 0.0000000000000000000000000000000000$  |  |
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| Calibration Explorment used (M<br>Permany Standards<br>Power meller NRP   | 187E ortical for calibration)  | Cal Deta (Certificate No.)<br>08-Apr-18 (No. 217-02672)(2673)  | Scheduled Calibration<br>Apr-19  |
| Calibration Espaipment used (M<br>Permany Standards<br>Power meter NRP<br>Power sensor NRP-281  | ID SN: 104778  | Gal Date (Dentificate No.)<br>08-Apri-18 (No. 217-03672/02673)<br>08-Apri-18 (No. 217-02672)   | Scheduled Calibration<br>Apr-16<br>Apr-19  |
| Caldrukon Espiorment used (M<br>Pentery Standards<br>Power meter NRP<br>Power sensor NRP-291<br>Power sensor NRP-291  | ID<br>SN: 104778<br>SN: 104244   | Cal Dete (Centificate No.)<br>08-Apr-18 (No. 217-0267202673)<br>08-Apr-16 (No. 217-02672)<br>08-Apr-18 (No. 217-02673)   | Scheduled Calibration<br>Apr-19<br>Apr-19<br>Apr-19  |
| Caldoulion Espionent used (M<br>Pertery Standards<br>Power meter NRP<br>Power sensor NRP-281<br>Reference 20 dB Attenuator  | ID<br>SN: 104778<br>SN: 104778<br>SN: 103244<br>SN: 103245   | Gal Date (Dentificate No.)<br>08-Apri-18 (No. 217-03672/02673)<br>08-Apri-18 (No. 217-02672)   | Scheduled Calibration<br>Apr-16<br>Apr-19  |
| Caldwalion Explorment used (M<br>Permany Standards<br>Powers metier NRP-<br>Power sensor NRP-ZB1<br>Power sensor NRP-ZB1<br>Reference 20 dB Attentiator<br>Reference 20 dB Attentiator  | ID<br>SN: 104778<br>SN: 103244<br>SN: 103245<br>SN: 103245<br>SN: 55277 (20x)  | Cal Data (Centificate No.)<br>08-Apr-18 (No. 217-02672)02673)<br>09-Apr-18 (No. 217-02672)<br>08-Apr-18 (No. 217-02673)<br>09-Apr-18 (No. 217-02682)   | Scheduled Calibration<br>Apr-18<br>Apr-19<br>Apr-19<br>Apr-19  |
| Caldration Explorment used (M<br>Permany Standards<br>Power meter NRSP<br>Power sensor NRSP-ZB1<br>Power sensor NRSP-ZB1<br>Reference 20 dB Attenuator<br>Reference Probe ES3CM2<br>DAE4  | ID<br>SN: 104778<br>SN: 104778<br>SN: 103244<br>SN: 103245<br>SN: 55277 (206)<br>SN: 3013  | Cal Dete (Centificate No.)<br>08-April 8 (No. 217-02672/02673)<br>08-April 8 (No. 217-02672)<br>08-April 8 (No. 217-02673)<br>08-April 8 (No. 217-02673)<br>08-April 8 (No. 217-02682)<br>30-Dec-17 (No. ES3-3013_Dec17)   | Scheduled Calibration<br>Apr-19<br>Apr-19<br>Apr-19<br>Apr-19<br>Dec-18<br>Dec-18  |
| Calibration Explorment used (M<br>Permany Standards<br>Powers encore NRP-<br>Powers encore NRP-291<br>Power sencor NRP-291<br>Reference 20 dB Attenuator<br>Reference 20 dB Attenuator<br>Reference Probe ESSOV2<br>DAE4<br>Secondary Standards   | ID<br>SN: 104778<br>SN: 104778<br>SN: 103244<br>SN: 103245<br>SN: 55277 (20x)<br>SN: 55277<br>SN: 5527   | Cal Dete (Certificate No.)<br>00-Apr-18 (No. 217-02672)02673)<br>04-Apr-16 (No. 217-02672)<br>04-Apr-16 (No. 217-02673)<br>04-Apr-18 (No. 217-02673)<br>20-Dec-17 (No. ES3-3013_Dec17)<br>21-Dec-17 (No. CAE4-660_Dec17)   | Scheduled Calibration<br>Apr-19<br>Apr-19<br>Apr-19<br>Apr-19<br>Dec-18  |
| Caldwalican Employment used (M<br>Primary Standards<br>Powes meter NRP<br>Power sensor NRP-281<br>Reference 20 dB Attenuator<br>Reference 20 dB | ID<br>SN: 104778<br>SN: 104778<br>SN: 103244<br>SN: 103245<br>SN: 103245<br>SN: 55277 (20x)<br>SN: 55277<br>SN: 560<br>ID  | Cal Deta (Certificate No.)<br>08-Apr-18 (No. 217-0267202673)<br>D8-Apr-18 (No. 217-02672)<br>D8-Apr-18 (No. 217-02673)<br>D8-Apr-18 (No. 217-02682)<br>30-Dec-17 (No. ES3-3013, Dec17)<br>21-Dec-17 (No. CAE4-660, Dec17)<br>Check Date (In house)   | Scheduled Calibration<br>Apr-18<br>Apr-19<br>Apr-19<br>Apr-19<br>Dec-18<br>Dec-18<br>Dec-18<br>Scheduled Check   |
| Saidralion Explorent used (M<br>Perwer sensor NRP<br>Power sensor NRP-281<br>Power sensor NRP-291<br>Reference 20 dB Attenuator<br>Reference Probe ES305/2<br>DAE1<br>Secondary Standards<br>Prever saler E44198<br>Power salers E44198   | ID<br>SN: 104778<br>SN: 104778<br>SN: 103244<br>SN: 103245<br>SN: 55277 (20x)<br>SN: 5513<br>SN: 560<br>ID<br>SN: 66841253674  | Cal Dete (CentRicate No.)<br>08-Apr-16 (No. 217-02672)02673)<br>09-Apr-16 (No. 217-02672)<br>09-Apr-18 (No. 217-02672)<br>09-Apr-18 (No. 217-02673)<br>09-Apr-18 (No. 217-02682)<br>20-Dec-17 (No. ES3-3013, Dec17)<br>21-Dec-17 (No. CAE4-660, Dec17)<br>Check Date (In house)<br>06-Apr-16 (In house)  | Scheduled Calibration<br>Apr-18<br>Apr-19<br>Apr-19<br>Apr-19<br>Dec-18<br>Dec-18<br>Dec-18<br>Scheduled Check<br>In house check: Jun 20   |
| Calibration Explorment used (M<br>Pentary Standards<br>Powers motion NRP-291<br>Power sensor NRP-291<br>Reference 20 dB Attentiator<br>Reference 20 dB Attentiator<br>Power sensor E44152A<br>Power sensor E44152A<br>Ref generator HP 8648C  | 875 or Boat for calibration)<br>ID<br>SN: 104778<br>SN: 103244<br>SN: 103245<br>SN: 55277 (20x)<br>SN: 55013<br>SN: 560<br>ID<br>SN: GB41253674<br>SN: (GB41253674<br>SN: MY41485087   | Cal Data (Certificate No.)<br>08-April 8 (No. 217-0267202873)<br>09-April 8 (No. 217-02672)<br>04-April 8 (No. 217-02673)<br>04-April 8 (No. 217-02673)<br>20-Dec-17 (No. E33-3013, Dec17)<br>21-Dec-17 (No. E33-3013, Dec17)<br>21-Dec-17 (No. E33-3013, Dec17)<br>Check Date (in house)<br>05-April 6 (in house)<br>05-April 6 (in house check Jun-13)<br>05-April 6 (in house check Jun-13)   | Scheduled Calibration<br>Apr-19<br>Apr-19<br>Apr-19<br>Dec-18<br>Dec-18<br>Dec-18<br>Scheduled Check<br>In house check: Jun-20<br>In house check: Jun-20   |
| Calibration Explorment used (M<br>Permany Standards<br>Powers motion NRP-291<br>Powers remove NRP-291<br>Power sensor NRP-291<br>Reference 20 dB Attennator<br>Reference 20 dB Attennator<br>Reference 20 dB Attennator<br>DAE4<br>Secondary Standards<br>Power mater E44198<br>Power tenstre E44198<br>Power tenstre E44198<br>Power tenstre E44198  | 875 onlice for calibration)<br>ID<br>SN: 104778<br>SN: 103244<br>SN: 103245<br>SN: 55277 (20x)<br>SN: 550<br>ID<br>SN: 560<br>ID<br>SN: 560<br>SN: 560<br>SN: 5041253674<br>SN: 409110210  | Call Deta (Certificate No.)<br>08-Apri-18 (No. 217-02672/02873)<br>09-Apri-16 (No. 217-02672)<br>09-Apri-16 (No. 217-02673)<br>09-Apri-18 (No. 217-02673)<br>20-Dec-17 (No. 237-02682)<br>30-Dec-17 (No. 238-4-660 Dec17)<br>21-Dec-17 (No. CARE4-660 Dec17)<br>21-Dec-17 (No. CARE4-660 Dec17)<br>Check Date (in house)<br>06-Apri-16 (in house)<br>06-Apri-18 (in house check Jun-18)<br>06-Apri-18 (in house check Jun-18)  | Scheduled Calibration<br>Apr-18<br>Apr-19<br>Apr-19<br>Apr-19<br>Dec-18<br>Dec-18<br>Scheduled Check<br>In house check: Jun-20<br>In house check: Jun-20<br>In house check: Jun-20   |
| Calibration Explorment used (M<br>Permany Standards<br>Powers moder NRP<br>Powers renson NRP-281<br>Power senson NRP-281<br>Reference 20 dB Attenuator<br>Reference 20 dB Attenuator<br>Power sensor E44102A<br>Prover sensor E44102A<br>Prover sensor E44102A<br>Reference Analyzer 28368A   | ID<br>SN: 104778<br>SN: 104778<br>SN: 103244<br>SN: 103245<br>SN: 58277 (20x)<br>SN: 58277 (20x)<br>SN: 580<br>ID<br>SN: 6841250674<br>SN: 6841250674<br>SN: 60110210<br>SN: 00110210<br>SN: 00110<br>SN: 00110 | Cal Deta (Certificate No.)<br>08-Apr-18 (No. 217-0267202673)<br>D8-Apr-18 (No. 217-02672)<br>D8-Apr-18 (No. 217-02672)<br>D9-Apr-18 (No. 217-02682)<br>30-Dec-17 (No. ES3-3013, Dec17)<br>21-Dec-17 (No. CAE4-660_Dec17)<br>Check Date (in house)<br>06-Apr-16 (in house check Jun-18)<br>06-Apr-16 (in house check Jun-18)<br>06-Apr-16 (in house check Jun-18)<br>06-Apr-16 (in house check Jun-18)  | Scheduled Calibration<br>Apr-16<br>Apr-19<br>Apr-19<br>Dec-18<br>Dec-18<br>Dec-18<br>Dec-18<br>Scheduled Check<br>In house check: Jun-20<br>In house check: Jun-20<br>In house check: Jun-20<br>In house check: Jun-20   |
| Calibration Explorment used (M<br>Permany Standards<br>Powers moder NRP<br>Powers renson NRP-281<br>Power senson NRP-281<br>Reference 20 dB Attenuator<br>Reference 20 dB Attenuator<br>Power sensor E44102A<br>Prover sensor E44102A<br>Prover sensor E44102A<br>Reference Analyzer 28368A   | ID           SN: 104778           SN: 103244           SN: 103245           SN: 35277 (20x)           SN: 35277 (20x)           SN: 355           SN: 360           ID           SN: 660           SN: 66041253674           SN: 600110210           SN: 000110210           SN: 000110210           SN: UB8421201700           SN: UB41260477   | Carl Deta (Certificate No.)<br>00-Apri-16 (No. 217-02672/02673)<br>00-Apri-16 (No. 217-02672)<br>00-Apri-16 (No. 217-02673)<br>00-Apri-16 (No. 217-02673)<br>00-Dec-17 (No. ES3-3013_Dec17)<br>21-Dec-17 (No. ES3-3013_Dec17)<br>21-Dec17 (No. ES3-30 | Scheduled Calibration<br>Apr-19<br>Apr-19<br>Apr-19<br>Apr-19<br>Dec-18<br>Dec-18<br>Dec-18<br>Scheduled Check<br>In house check: Jun-20<br>In house check: Oct-19 |
| Salbrahon Explorem used (M<br>Permary Standards<br>Power meter NRP<br>Power sensor NRP-281<br>Power sensor NRP-291<br>Reference 20 dB Attenuator<br>Reference 20 dB Attenuator<br>Reference Probe ES30/2<br>DAE4<br>Secondary Blandards<br>Power mater E4410A<br>Power sensor E4410A<br>Prower sensor E4410A<br>Prower kensor E4410A<br>Reference HP 8040C<br>Network Analyzer E8368A<br>Salbrated by:  | ID<br>SN: 104778<br>SN: 104778<br>SN: 103244<br>SN: 103245<br>SN: 58277 (20x)<br>SN: 58277 (20x)<br>SN: 580<br>ID<br>SN: 6841250674<br>SN: 6841250674<br>SN: 60110210<br>SN: 00110210<br>SN: 00110<br>SN: 00110 | Cal Dete (Certificate No.)<br>08-Apr-18 (No. 217-02672002673)<br>08-Apr-16 (No. 217-02672002673)<br>08-Apr-16 (No. 217-02673)<br>08-Apr-18 (No. 217-02673)<br>20-Dec-17 (No. ES3-3013_Dec17)<br>21-Dec-17 (No. ES3-3013_Dec17)<br>21-Dec17 (No. ES3-3013_Dec17)<br>21-Dec17 (No. ES3-3013_Dec17)<br>21-Dec17 (No | Scheduled Calibration<br>Apr-19<br>Apr-19<br>Apr-19<br>Apr-19<br>Dec-18<br>Dec-18<br>Dec-18<br>Scheduled Check<br>In house check: Jun-20<br>In house check: Oct-19 |
| Calibration Explorment used (M<br>Permany Standards<br>Power meter NRP<br>Power sensor NRP-281<br>Power sensor NRP-291<br>Reference 20 dB Attenuator<br>Reference Probe ES30V2<br>DAE4<br>Secondary Blandards<br>Power mater EA4108<br>Power sensor EA412A<br>Reference C4412A<br>Reference C441      | 875 ortical for calibration)<br>10<br>5%:104778<br>5%:103244<br>5%:103245<br>5%:35277 (20x)<br>5%:350<br>5%:360<br>10<br>5%:360<br>10<br>5%:36041253674<br>5%:30110210<br>3%:000110210<br>3%:000110210<br>3%:000110210<br>3%:000110210<br>3%:000110210<br>3%:000110210<br>3%:000110210<br>3%:000110210<br>3%:000110210<br>3%:000110210<br>3%:000110210<br>3%:000110210<br>3%:000110210<br>3%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:000110210<br>5%:0001100<br>5%:000110000<br>5%:0001000000000000000000000000000000000   | Carl Dete (Certificate No.)           00-Apri-16 (No. 217-02672002673)           04-Apri-16 (No. 217-02672)           04-Apri-16 (No. 217-02672)           05-Apri-16 (No. 217-02673)           04-Apri-16 (No. 217-02673)           05-Apri-16 (No. 217-02673)           05-Apri-16 (No. 217-02673)           05-Apri-17 (No. ES3-3013_Dec17)           21-Darc-17 (No. ES3-3013_Dec17)           21-Darc-17 (No. ES4-660_Dec17)           Check Date (in house)           05-Apri-16 (in house)           05-Apri-16 (in house)           06-Apri-18 (in house check Aun-18)           06-Apri-14 (in house check Aun-18)           Function           Laberatery Timchricant  | Scheduled Calibration<br>Apr-19<br>Apr-19<br>Apr-19<br>Apr-19<br>Dec-18<br>Dec-18<br>Dec-18<br>Scheduled Check<br>In house check: Jun-20<br>In house check: Jun-20<br>In house check: Jun-20<br>In house check: Jun-20<br>In house check: Oct-19                           |

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# Report No. : E5/2018/80006 Page: 40 of 103

**Callbration Laboratory of** Sohweizurtschur Kalimienti \$ Schmid & Partner Service suisse d'étalormade BC-MR C Engineering AG Zoughtusstrasse 43, 8004 Zunch, Switzerland Servizio svizzero di Arramani S Swine Calibration Sorvice Ascrimited by the Swiss Accreditation Service (SAS) Accorditation No.: SCS 0108 The Swiss Accorditation Service is one of the signatories to the EA Multitateral Agreement for the recugnition of calibvalion currilicans Glossary: TSU tissue simulating liquid NORMK, y.z sensitivity in free space ConVE sensitivity in TSL / NORMx, y.z. DCP dicide compression point creat factor (1/duty, cycle) of the RF signal modulation dependent lineerization parameters CF A, B, C, D Poistization o protation around probe axis Polanization II. Is relation around an exis that is in the plane normal to probe axis (a) measurement center). i.e., S = 0 is normal to probe exis Connector Angle information used in DASY system to align proce sensel X to the robot coordinalin-system Calibration is Performed According to the Following Standards: IEEE Str 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial Averaged Spectry: Absorption Rate (SAR) in the Human Head from Witeless Communications Devices: Measurement Techniques: Jump 2013 IEC 62209-1, 1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from handb) neld and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
 EC 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 U) KDB 865684, "SAR Measurement Requirements for 100 MHz to 6 GHz" Methods Applied and Interpretation of Parameters: NORMx, y.z. Assessed for E-field polarization # = 0 (f < 900 MHz in TEM-cell, / = 1800 MHz; R22 wavegode). NORMx, y.z. are only intermediate values, i.e., the uncertainties of NORMx, y.z. does not affect the E<sup>2</sup>-field uncertainty inside TSL (see below ConvF). NORM(()x,y,z = NORMx,y,z \* frequency\_response (see Frequency Response Chart), This Ineanzation is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF. DCPs, y/z: DCP are numerical insenzation parameters assessed based on the data of power sweep with CW signal (no unsurtainty required): DCP does not depend on frequency nor motion, PAR: PAR is the Real: 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 insanization parameters assessed beend on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nar-media. VR is the maximum calibration range expressed in RMS voltage across the diade.
- media, Wris the maximum caloration range expressed in MMS votage across the diade. 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 outupe 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 closes to the boundary. The aerolishing in TSL corresponds to NORMX, y, z \* ConvF whereby the uncertainty corresponds to fifth given for ConvF. A frequency dependent GowyF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz
- Schwincel isotropy (3D cieviation from Isotropy): In a field of low gradients realized using a flat pirantom exclosed by a patch antenna.
- Sensor Offset: The sensor offset corresponds to the offset of wildual measurement center from the probe to (on probe axe). No tolerance required:
- Connector Angle: The angle is assessed using the information gained by determining the NORMs (no . uncertainty required).

Certificate No: EX3-3938\_Oct18

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EX3DVA - SM:3508

Report No. : E5/2018/80006 Page: 41 of 103

Christer 24, 2848

# Probe EX3DV4

# SN:3938

Manufactured: Calibrated:

May 2, 2013 October 24, 2018

Calibrated for DASY/EASY Systems (Note: non-compatible with DASY2 system!)

Certificate No: EK3 3558/ DVHB

Page 3 of 30

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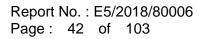
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台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488

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EXIDV4-SN adda

Optaber 24, 2018

# DASY/EASY - Parameters of Probe: EX3DV4 - SN:3938

## **Basic Calibration Parameters**

|                       | Sensor X | Sensor Y | Sensor Z | Unc (k=2) |
|-----------------------|----------|----------|----------|-----------|
| Norm [uV/(V/m)*)*     | 0.51     | 0.57     | 0.33     | ± 10.7 %  |
| DCP (mV) <sup>E</sup> | 103.2    | 100.5    | 107.8    | 2 16-1 10 |

## Modulation Calibration Parameters

| UID | Communication System Name |   | A<br>dB | B<br>dBõV | c   | D<br>dB | VR<br>mV | Unc <sup>c</sup><br>(k=2) |
|-----|---------------------------|---|---------|-----------|-----|---------|----------|---------------------------|
| 0   | CW                        | X | 0.0     | 0,0       | 1.0 | 0.00    | 164.0    | ±3:5 %                    |
|     |                           | Y | 0.0     | 0.0       | 1.0 |         | 1742     | -                         |
| 1   |                           | Z | 0.0     | 0.0       | 1.0 |         | 176.3    |                           |

Note: For details on UID parameters see Appendix.

#### Sensor Model Parameters

|   | G1<br>fF | C2<br>IF | a<br>V 1 | T1<br>ms.V-2 | T2<br>ms.V <sup>-1</sup> | T1<br>ms | T4<br>V1 | 75<br>V" | Tê    |
|---|----------|----------|----------|--------------|--------------------------|----------|----------|----------|-------|
| X | 59.09    | 436.9    | 35.15    | 26.09        | 1.205                    | 5,10     | 1.012    | 0.575    | 1.009 |
| ¥ | 53.22    | 40B.3    | 37.24    | 24.25        | 1.457                    | 5.10     | 0.000    | 0.766    | 1.013 |
| Z | 46.65    | 332.5    | 32.92    | 15.26        | 1.153                    | 4.98     | 2.000    | 0.225    | 1.005 |

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%.

The uncertainties of Norm X,Y,Z do republied the E<sup>4</sup>-fault uncertainty minute TSL (see Plages 5 and 6)

Numerical Insurication parameter: widentamy nonrequired. Uncenterny is determined using Therman, dentation from imper response wideying widentative dents to and is expressed for the source of the

Certificate No: Ex3-3938 Oct18

Page & of 30

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EX3DV4--EN:3908

October 24, 2018

# DASY/EASY - Parameters of Probe: EX3DV4 - SN:3938

| f (MHz) <sup>G</sup> | Relative<br>Permittivity | Conductivity<br>(S(m) | ConvF X | ConvF Y | ConvF Z | Alpha <sup>G</sup> | Depth <sup>a</sup><br>(mm) | Unc-<br>(k=2) |
|----------------------|--------------------------|-----------------------|---------|---------|---------|--------------------|----------------------------|---------------|
| 750                  | 41.9                     | 0.89                  | 9.82    | 9.82    | 9,62    | 0.45               | 0.80                       | ± 12.0 %      |
| 835                  | 41,5                     | 0.90                  | 9.50    | 9.50    | 9.50    | 0.50               | 0.85                       | ± 12.0 %      |
| 900                  | 41,5                     | 0.97                  | 9.25    | 9.25    | 9.25    | 0.33               | 1:04                       | +12.0%        |
| 1450                 | 40.5                     | 1.20                  | 8.53    | 8.53    | 8.53    | 0.30               | 0,88                       | ± 12.0 %      |
| 1750                 | 40:1                     | 1.37                  | 8.32    | 8.32    | 8.32    | 0.36               | 0,90                       | ± 12.0 %      |
| 1900                 | 40.0                     | 1.40                  | 7.85    | 7.95    | 7 95    | 0.29               | 0,90                       | ±12.0%        |
| 2000                 | 40.0                     | 1.40                  | 7.93    | 7.93    | 7:93    | 0.35               | 0.80                       | ± 12.0 %      |
| 2300                 | 39.5                     | 1.67                  | 7.69    | 7.59    | 7.53    | 0.37               | 0.80                       | 112.0%        |
| 2450                 | 39.2                     | 1.80                  | 7.47    | 7,17    | 7.17    | 0.39               | Ö.83                       | ±12.0%        |
| 2603                 | 39.0                     | 1.96                  | 7.11    | 7.11    | 7.11    | 0.38               | 0.87                       | ± 12.0 %      |
| 5250                 | 35.9                     | 4.71                  | 5.00    | 5.00    | 5.00    | 0.40               | 1,80                       | £ 13.1 %      |
| 5600                 | 35.5                     | 6.07                  | 4.65    | 4.65    | 4.65    | 0,40               | 1.80                       | ± 13.1 %      |
| 5750                 | 35.4                     | 6.22                  | 4.76    | 4.76    | 4.76    | 0,40               | 1.80                       | ±13.1 %       |

## Calibration Parameter Determined in Head Tissue Simulating Media

<sup>6</sup> Enclaimely which a box 300 MHz of ± 100 MHz anly applies for DASY v4.4 and ingles (see Page 2), each is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvE uncertainty at calibration frequency and the uncertainty for the initiational lequency tend. If requency and the uncertainty for the analysis of the ConvE uncertainty at calibration frequency and the uncertainty for the initiational lequency tend. If requency which is a standard to ± 50 MHz. The uncertainty is the RSS of the ConvE uncertainty at calibration frequency and the uncertainty for the initiational lequency tend. If requency which is a standard to ± 100 MHz.
<sup>6</sup> A trade particular to ±

Certificate No: EX3-3938\_Oct18-

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EX3DV4- SN:3935

October 24, 2018

# DASY/EASY - Parameters of Probe: EX3DV4 - SN:3938

| Calibration Paramete | r Determined in Bod | y Tissue Simulating Media |
|----------------------|---------------------|---------------------------|
|----------------------|---------------------|---------------------------|

| F(MHz) <sup>12</sup> | Relative<br>Permittivity | Conductivity<br>(\$/m) | ConvF X | ConvF Y | ConvF Z | Alpha <sup>0</sup> | Depth <sup>is</sup><br>(mm) | Une<br>(k=2) |
|----------------------|--------------------------|------------------------|---------|---------|---------|--------------------|-----------------------------|--------------|
| 750                  | 55.5                     | 0,96                   | 9.72    | 9.72    | 9.72    | 0.46               | 0.87                        | ± 12.0 %     |
| 835                  | 55.2                     | 0.97                   | 9.56    | 9.56    | 9.55    | 0.41               | 0.92                        | ± 12.0 %     |
| 5000                 | 55.0                     | 1,05                   | 9.33    | 8.33    | 9.33    | 0.48               | 0.87                        | ±12.0 %      |
| 1450                 | 54.0                     | 1,30                   | 7,98    | 7,98    | 7.98    | 0.32               | 0.90                        | ± 12.0 %     |
| 1760                 | 53.4                     | 1.49                   | 7.83    | 7.83    | 7.83    | 0.43               | 0.90                        | + 12.0 %     |
| 1900                 | 53.3                     | 1.52                   | 7.52    | 7.52    | 7.52    | 0.33               | 0.96                        | ± 12.0 %     |
| 2000                 | 53.3                     | 1.52                   | 7.62    | 7,62    | 7:62    | 0,36               | 0.89                        | ± 12.0 %     |
| 2300                 | 52.9                     | 1.81                   | 7.35    | 7.33    | 7.33    | 0.42               | 11.87                       | = 12.0 %     |
| 2450                 | 62.7                     | 1.95                   | 7.30    | 7.30    | 7.30    | 0.35               | 0.87                        | = 12.0 %     |
| 2600                 | 52.5                     | 2.16                   | 7.15    | 7.15    | 7.15    | 0.33               | 0.95                        | ± 12.0 %     |
| 5250                 | 48,9                     | 5,36                   | 4.23    | 4.23    | 4,23    | 0.50               | 1.90                        | ± 13.1.%     |
| 5600                 | 48.5                     | 5.77                   | 3.77    | 3.77    | 3.77    | 0.50               | 1.90                        | ±13.1%       |
| 5800                 | 48.2                     | 6.00                   | 4.00    | 4.00    | 4,00    | 0.50               | 1.90                        | ± 13.1 %     |

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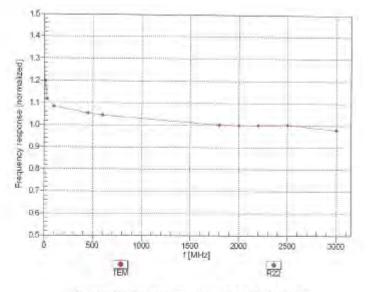


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EX3DV4- SN 3938

October 24, 2019

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



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

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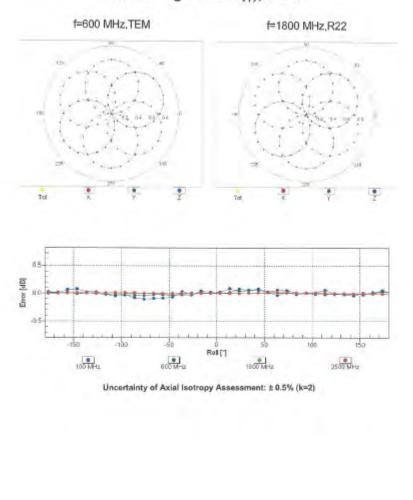
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EX3DV4- SN:3938

October 24, 2018



Receiving Pattern (\$), 9 = 0°

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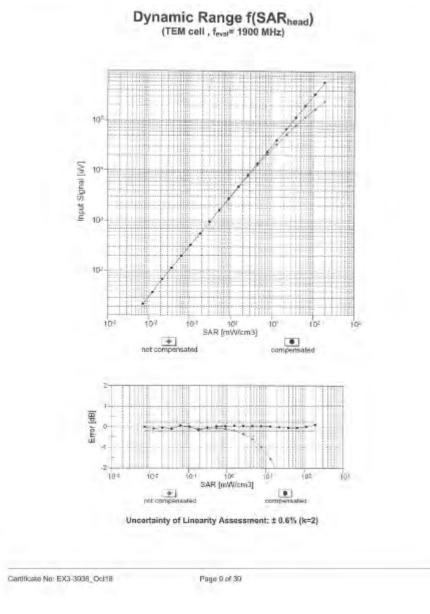
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EX3DV4- 5N.3938

October 24, 2018



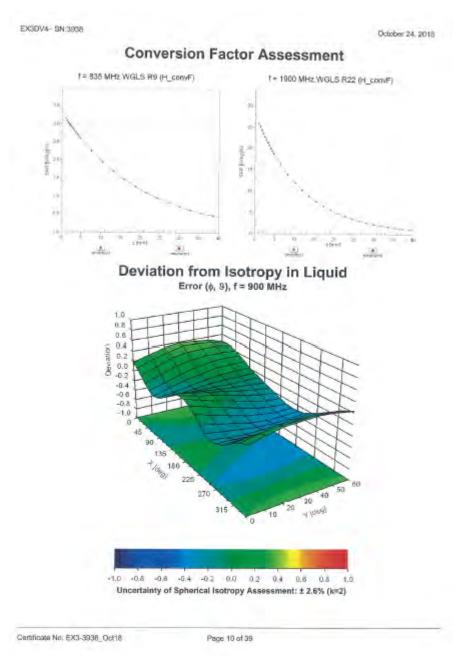
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EX3DV4--SN:3838

Onicher 24, 2018

# DASY/EASY - Parameters of Probe: EX3DV4 - SN:3938

## Other Probe Parameters

| Sensor Amangement                             | Trlangular |
|---|------------|
| Connector Angle (*)                           | -26.4      |
| 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 Diamater                                  | 2.5 mm     |
| Proba 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 Massurement Distance from Surface | 1.4 mm     |
|   |            |

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EX3DV4-SN:3935

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Ordnber 24, 2018

| UID           | Communication System Name  |        | dB           | dB iyV  | c     | tB     | WR<br>mV      | Max<br>Unc*<br>(k=Z) |
|---------------|--|--------|--------------|---------|-------|--------|---------------|----------------------|
| 0             | CW   | X      | 0.00         | 0.00    | 1.00  | 0.00   | 164.0         | ± 3.5 %              |
|               | 1  | Y      | 0.00         | 0.00    | 1.00  |        | 174,2         |                      |
|               |  | Z      | 0.00         | 0.00    | 1.00  |        | 176.3         |                      |
| 10010-<br>CAA | SAR Validation (Square, 100ms, 10ms)   | x      | 11.84        | 84.28   | 19.03 | 10.00  | 20.0          | 29.8%                |
| 1.0           |  | Y      | 4.75         | 72.52   | 14.55 | _      | 20.0          |                      |
| -             |  | 7<br>X | 2.70         | 65.86   | 10.62 | ·      | 20.0          |                      |
| 10011-<br>CAB | UNITS-FED (WCDMA)  | 1.2    | 1,25         | 71.04   | 17.46 | 0,00   | 150,0         | 主导反称                 |
|               |  | Y      | 0.87         | 65.19   | 13,50 |        | 150.0         | _                    |
|               |  | Z      | 1 10         | 69.84   | 16,56 |        | 150.0         |                      |
| 10012-<br>CÁB | IEEE 802,11b WIFI 2.4 GHz (DSSS, 1<br>Wbps)  | x      | 1.29         | 65.77   | 16.62 | 0.43   | 100.0         | 3.9,6 %              |
|               |  | Y<br>Z | 113          | 63,57   | 14.74 |        | 150.0         | -                    |
| 10000         | and an excitation of an inclusion  |        | 1.17         | 64.77   | 15.66 | 1.20   | 100.0         | 1007                 |
| 10013-<br>CAB | IEEE 802.11g WIFI 2.4 GHz (DSSS-<br>OFDM, 6 Mbps)  | x      | 5.06         | 87.01   | 17.40 | 1.46   | 150.0         | ±9.6 %               |
|               |  | Y      | 4.93         | 66,63   | 17.09 | _      | 100.0         |                      |
|               | Stored & Burght of States, and apply 1   | Z      | 4.79         | 66.72   | 16.84 | 20.000 | 150.0         | 1000                 |
| 10021-<br>DAC | GBM-FOD (TDMA, GMSK)   | ×      | 100.00       | 118.51  | 30,68 | 9,39   | 50,0          | 19.8%                |
|               |  | Y      | 100.00       | 117.47  | 30.14 |        | 50.0          | _                    |
| -             | second while there of the second state   | Z      | 9,68         | 81.65   | 18.25 | 0.04   | 50.0          | 2.0000.00            |
| 10023-<br>DAC | CPRS-FDD (TDMA, GMSK, TN 0)  | ×      | 100.00       | 118,45  | 30.70 | 9.57   | 50.0          | ± 9.6 %              |
|               |  | Y.     | 100.00       | 117.42  | 30.17 |        | 50.0          |                      |
|               |  | Z      | 8.28         | 79.56   | 17.55 |        | 50.0          |                      |
| 10024-<br>DAC | GPRS-FDD (TDMA; GMSK, TN 0-1)  | ×      | 100.00       | 116.27  | 28.62 | 6,56   | 60,0          | ± 9,6 %              |
|               |  | Y      | 100.00       | 113.88  | 27.38 |        | 60.0          |                      |
|               | The second second second second second   | Z      | 17.36        | 88.43   | 18.89 |        | 60.0          |                      |
| 10025-<br>DAC | EDGE-FDD (TDMA, IIPSK, TN U  | ×      | 14.85        | 105,19  | 41,16 | 12.57  | 50.0          | #96%                 |
|               |  | Y      | 6.69         | 80.08   | 30.32 |        | 50.0          | _                    |
|               |  | Z      | 5,13         | 73.32   | 26.13 |        | 50.0          |                      |
| 10026-<br>DAC | EDGE-FDD (TDMA, 8PSK, TN 0-1)  | ×      | 28.61        | 116.31  | 40,38 | 9.56   | 60/0          | 20.6 %               |
|               |  | Ŷ      | 17.18        | 103.12  | 35.82 | _      | 60.0          |                      |
|               |  | Z      | 10.76        | 82.22   | 31,22 | 1 100  | ED.D          | 1000                 |
| 10027-<br>DAC | GPRS-FDD (TDMA, GMSK, TN 0-1-2)  | ×      | 100,00       | 116.23  | 27.82 | 4,80   | 80.0          | ± 9.6 %              |
|               |  | Ŷ      | 100.00       | 112.20  | 25.80 |        | 80.0          |                      |
|               | and the second sec | Z      | 100.00       | 105.42  | 22.06 | 3.55   | B0.0<br>100.0 | ±9.8%                |
| 10028-<br>DAC | GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)  | X      | 100.00       | 117.56  | 27.68 | 3.00   | 100.0         | ± 9.0 %              |
| _             |  | Y<br>Z | 100.00       | 111.19  | 24.62 | -      | 100.0         |                      |
| 400.00        | PROPERTY INC.  |        | 14.44        | 99.44   | 33.73 | 7.80   | 80.0          | ±9.6%                |
| 10029-<br>DAC | EDGE-FDD (TDMA, BPSK, TN 0-1-2)  | ×      | 10.38        | 91.48   | 30.62 | 7.38d  | 80.0          | 1 8.0 %              |
| _             |  |        | 6.98         | 83.31   | 26.90 | -      | 0.06          |                      |
| (nada)        | House non all 4 bit sources (ODOM, Parta)  | 2      | 100.00       | 115.12  | 20.80 | 5.30   | 70.0          | 19.6%                |
| 10030-<br>CAA | IEEE B02.15.1 Bluesonth (GFSK, DH1)  | 8      | 100.00       | 119.12  | 25.93 | 3,30   | 70.0          | 200.0                |
|               |  |        |              | 85.08   | 17.21 | -      | 70.0          |                      |
| 1.0.001       | 100 million and the state of the state of the  | Z      | 13 15 100.00 | 120.41  | 27.44 | 1.88   | 100.0         | ± 9.6.N              |
| 10031-<br>CAA | IBEE 802.15.1 Bluelooth (GFSK, DH3)  | X      |              | 105.85  | 20.93 | Citta  | 100.0         | 2 3.4 7              |
| _             |  |        | 100.00       | 103.85  | 18.50 | -      | 100.0         | -                    |
|               |  | Z      | 1 100.00     | 1012-30 | 10.93 | -      | 100.0         |                      |

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| 10032-        | IEEE 802:15 1 Bluetooth (GESK, DH5)   | T X  | 100.00        | 129.17 | 29.93          | 1.17  | 100.0          | 1 10 6 %    |
|---------------|---|------|---------------|--------|----------------|-------|----------------|-------------|
| CA4           | Gran Crist States (Concerned)   | 1.11 |               |        | 1.22           |       |                | a state of  |
| _             |   | N.   | 100.00        | 101.34 | 18.33          | -     | 100-0          |             |
| 10033-        | WER and it i thought the state in the   | Z    | 100.00        | 104.25 | 18.92          | 1     | 100.0          | -           |
| CAA           | IEEE 802.15.1 Blueibath (PIM-DQPSK.<br>DH1)   | ×    | 100.00        | 128.01 | 35,11          | 5.30  | 70,0           | 19.6 W      |
| _             |   | Y    | 30.26         | 106.06 | 28.70          |       | 70.0           | -           |
| 10034-        | IEEE 802 15 1 Bluelooth (FW4-DOPSK  | X    | 7.06          | 82.85  | 20.38          | 1.88  | 70,0           | 1000        |
| GAA           | DH3   |      | 4.94          | 81.70  |                | 1.88  | 100.0          | = 9.6 %     |
|               |   | Z    | 3.36          | 77.14  | 15.61          |       | 100,0          |             |
| 10035-        | IEEE 802151 Bluelogth (PI/4-DOPSK   | X    | 8.75          | 93.74  | 24.54          | 1.17  | 100.U<br>100.0 | 19.0%       |
| CAA           | DH5)  | Ŷ    | 2.68          | 74.38  | 16.81          | 1.00  |                | 2 9.0 %     |
|               |   | 2    | 2.45          | 74.78  | 16.51          | -     | 100.0          |             |
| 10035-        | IEEE 802.15.1 Blueworth (B-DPSK, DH1)   | x    | 100.00        | 128.23 | 35.27          | 5.30  | 70.0           | 19.8%       |
| CAA           | in the first second provide second second   | ×    | 49.55         | 114.02 | 30.85          | 0.00  | 1.000          | 1 3 1 7     |
| -             |   | Z    | 8,81          | 35.86  | 21.44          | -     | 70.0           |             |
| 10037-<br>CAA | IEEE BIZ 15.1 Bilelooth (B-DPSK, DH3)   | X    | 28.47         | 109:85 | 29.14          | 1,88  | 100.0          | ± 9.6 %     |
|               | -   | Y    | 4.63          | 80.65  | 15.28          | -     | 100.0          | -           |
|               |   | Z    | 3.10          | 76:20  | 17.05          | -     | 100.0          |             |
| 10038-<br>CAA | IEEE 802 16 1 Bluniooth (R-DPSK, DH5)   | X    | 0.40          | 95,18  | 25.08          | 1.07  | 100.0          | 29.6%       |
|               |   | Y    | 2.66          | 74.97  | 16.94          | -     | 100.0          |             |
| 1000          | in all and in the fact of the   | Z    | 2.52          | 75.38  | 16.85          |       | 100.0          | -           |
| 10039<br>CAB  | CDMA2000 (1xRTT, RC1)   | 8    | 2.91          | 79.68  | 19,30          | 0.00  | 158.0          | +96%        |
|               |   | Y    | 1.40          | 87.94  | 13.51          |       | 150.0          | -           |
|               | Contraction of the second s   | 2    | 2.58          | 79.60  | 18.81          |       | 150.0          |             |
| 10042-<br>CAB | IS-54 / IS-136 FOD (TDMA/FDM, PI/4-<br>DQPSK, Halirate)   | ×    | 100.00        | 114.29 | 27.89          | 7.78  | 50.0           | ±96%        |
|               |   | Y.   | 100.00        | 112.24 | 26.83          |       | 50.0           | -           |
|               | a second s   | Z    | 7.08          | 77.79  | 15.66          |       | 50.0           |             |
| 10044-<br>CAA | ds-B1/EIA/TIA-553 FOD (FDMA, FMI  | ×    | 0.00          | 111.10 | 2.98           | 0.00  | 150.0          | 19,6%       |
|               |   | Y    | 0.12          | 121.97 | 13.25          |       | 150.0          |             |
| 10046-        | Participation and the state of | Z    | 0.02          | 124.98 | 11.44          |       | 150.0          | 1           |
| CAA           | DECT (TDD, TDMA/FDM, GFSK, Full<br>Skit 24)   | x    | 100.00        | 120.31 | 32.96          | 13.60 | 25.0           | 19,8%       |
| -             |   | Y    | 26.80         | 98.60  | 27,12          |       | 25.0           |             |
| 10045-        | DECT (TDD. TDMA/FDM, GFSK, Double   | Z    | 6.10          | 73.04  | 16.88          |       | 25.0           | 1000        |
| TAA .         | Slot 12   | X    | 100.00        | 118.79 | 31,19          | 10.79 | 40.0           | 498%        |
|               |   | Ŷ    | 42.73         | 105.35 | 27.59          |       | 40,0           |             |
| 10058-        | UMTS-TOD (7D-SCDMA, 1-28 Mops)  | X    | 6.52<br>59.92 | 75.70  | 16,44<br>32,89 | 9.03  | 40.0           | ± 9.8%      |
| 10 10         |   | Y    | 20.27         | 96.61  | 126.04         | -     |                | 1.1.1       |
| -             |   | T.   | 8,72          | 96.61  | 26.81          | -     | 50.0           | -           |
| DAC.          | EDGE-FDO (TDMA, BPSK, TN 0-1-2-3)   | ×.   | 3.95          | 90.34  | 29,75          | 6.55  | 30.0<br>100.0  | 19.6%       |
|               |   | Y    | 7.41          | 84.68  | 27.34          | -     | 100.0          | -           |
|               | Loop Transmission   | Z    | 5.31          | 78.46  | 24.34          |       | 100.0          | -           |
| 10059-<br>CAB | IEEE 802 11b WIFI 2.4 GHz (DSSS, 2<br>Mbps)   | x    | 1.45          | 68,16  | 17.83          | 0.67  | 118.0          | 28.6.1      |
|               |   | Y    | 1.24          | 65.28  | 15,64          |       | 110.0          | -           |
| (hann)        | I PROPER AND A 1 COMPANY OF THE OWNER AND   | 2    | 1.24          | 66,08  | 15.24          |       | 110.0          |             |
| CAB           | IEEE 802.11b WIFI 2.4 GHz (DSSS, 5.5<br>Mbps)   | ×    | 100.00        | 136.52 | 35.86          | 1,30  | 110.0          | <b>#86%</b> |
|               |   | Y    | 100.00        | 127.82 | 31.55          |       | 110.0          |             |
|               | the second se   | Z    | 75.11         | 127.04 | 31.74          |       | 110.0          |             |

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| 10061-        | IEEE 802 11b WIFI 2 4 GHz (DSSS. 11  | X   | 37.93 | 122.29           | 34.76 | 2.04                                  | T10.0 | ±9.6 K                                   |
|---------------|--|-----|-------|------------------|-------|---------------------------------------|-------|--|
| CAB           | Mbps)  | 111 |       | Trapecoulous and |       | -                                     |       |  |
|               |  | Y   | 7.04  | 91.70            | 25,29 | _                                     | 110,0 |  |
|               |  | Z   | 3.71  | 82.53            | 21.92 | -                                     | 110.0 |  |
| 0062-<br>AC   | IEEE 802.11a/h WIFI 5 GHz (OFDM, 6<br>Mbps)  | x   | 4.83  | 66.93            | 16.78 | 0.49                                  | 100.0 | #96%                                     |
|               |  | Y   | 4.68  | 66.44            | 16.40 | -                                     | 100.0 |  |
| 0000          | THE AND MALE INTER OUR INCOME IN   | Z   | 4.61  | 66.82            | 16.41 |                                       | 100.0 |  |
| 0063-<br>CAC  | IEEE 802,11a/h WIFI 5 GH2 (OFDM, 9<br>Mops)  | x   | 4.86  | 87.07            | 16.91 | 0.72                                  | 100.0 | ⇒9.8.%                                   |
| _             |  | Y   | 4.71  | 66.58            | 16.52 | -                                     | 100.0 | _  |
|               |  | Z   | 4.62  | 86.89            | 16.47 |                                       | 100.0 |  |
| 0054-<br>CAC  | IEEE 802.11a/h WIFI 5 GH2 (OFDM, 12<br>Mops)   | ×   | 5.19  | 67.38            | 17,15 | 0.86                                  | 100.0 | ±9.6%                                    |
|               |  | Y.  | 5.02  | 66.91            | 16.79 |                                       | 100.0 |  |
|               |  | Z   | 4:90  | 67 10            | 16.66 | _                                     | 100.0 |  |
| DOE5-         | IEEE 802 11am WIFI 5 GHz (OFDM, 18<br>Mops)  | x   | 5.07  | 67.37            | 17,30 | 1.21                                  | 100.0 | ± 9,8 %                                  |
| _             |  | Y   | 4.91  | 66.89            | 16.94 |                                       | 100.0 |  |
|               |  | Z   | 4.77  | 66.99            | 96.73 |                                       | 100.0 |  |
| 10086-<br>SAC | IEEE 802.11a/n WiFi 5 GHz (OFDM, 24<br>Mbps)   | ×   | 5.11  | 67 44            | 17.51 | 1.48                                  | 100.0 | ±9.6 %                                   |
|               |  | Y.  | 4.95  | 66.98            | 17.15 |                                       | 100.0 |  |
|               | The second s   | Z   | 4,78  | 66.99            | 16.85 | -                                     | 100.0 |  |
| 10067-<br>SAC | (EEE 802 11a/h WiFI 5 GHz (OFDM, 36<br>Mbps)   | ×   | 5,40  | 67.52            | 17.91 | 204                                   | 100.0 | 主用目标                                     |
|               |  | Y.  | 5.26  | 67.17            | 17.62 |                                       | 100.0 |  |
|               |  | Z   | 5,06  | 67.09            | 17.23 |                                       | 100.0 |  |
| 10068-<br>DAC | IEEE 802.11a/h WIFI 5 GHz (OFDM, 48<br>Mbps)   | X   | 5,51  | 67.80            | 18.25 | 2.55                                  | 100.0 | ± 9.6 %                                  |
|               |  | 4   | 5.36  | 87.40            | 17.94 |                                       | 100,0 | 1. |
|               |  | Z   | 5.11  | 67.14            | 17.41 |                                       | 100.0 |  |
| 10069-<br>CAC | IEEE 802 11a/h WIFI 5 GHz (OFDM, 54<br>Mbps)   | x   | 5.58  | 67.69            | 18.40 | 2.67                                  | 100.0 | 19.0%                                    |
|               |  | Y   | 5.44  | 67.37            | 18.13 |                                       | 100.0 |  |
|               | how were and it was  | 7   | 5.19  | 67.11            | 17.58 |                                       | 100.0 | -  |
| 10071-<br>CAB | EEE 802 11g W/FI 2.4 GHz<br>(DSSS/OFDM, 9 Mops)  | ×   | 5.17  | 67.17            | 17.75 | 1.99                                  | 100.0 | ±9.6 %                                   |
|               |  | Y   | 5.05  | 66.81            | 17.46 |                                       | 100.0 |  |
|               |  | Z   | 4.88  | 66.78            | 17.09 |                                       | 100.D | 1.1.1.1.1                                |
| 10072-<br>CAB | (EEE 802.11g WFi 2.4 GHz<br>(DSSS/OFDM, 12 Mbps)   | ×   | 521   | 67.68            | 18.06 | 2.30                                  | 100,0 | ±9.6 %                                   |
|               |  | Y   | 5.08  | 67,27            | 17.74 | · · · · · · · · · · · · · · · · · · · | 100.0 | -  |
| 1             | Constant of the local sector of the local sect | Z   | 4.87  | 莳.11             | 17.28 |                                       | 100.0 |  |
| 10073-<br>CAB | (EEE 802.11g WiFi 2.4 GHz<br>(DSSS/OFOM, 18 Mbps)  | ×   | 5.30  | 67.92            | 18.44 | 2.83                                  | 100.0 | 298%                                     |
|               |  | 1 Y | 5.18  | 67.55            | 18:13 |                                       | 100.0 | -  |
|               |  | Z   | 4.94  | 57.26            | 17.56 |                                       | 100.0 |  |
| 10074-<br>CAB | IEEE 802 11g WIFI 2.4 GHz<br>(DSSS/OFDM, 24 Mbps)  | x   | 5.29  | 67,90            | 18.65 | 3.30                                  | 100.0 | ±96%                                     |
|               |  | ٠Y  | 5.19  | 67.54            | 18,34 | -                                     | 100.0 |  |
|               | I HARRY DATE OF THE OWNER.   | Z   | 4.93  | 67.18            | 17.70 | 10.000                                | 100.0 | 1010                                     |
| 10075-<br>CAB | (EEE 802 11g WIFI 2.4 GHz<br>(DSSS/OFDM, 36 Mbps)  | ×   | 5.40  | 68.28            | 19.10 | 3.82                                  | ACCA. | 7.0 F.W                                  |
| 100           | and a second second  | Y   | 5.28  | 67.86            | 18,77 |                                       | 90.0  | -  |
|               |  | Z   | 4.98  | 67.33            | 17.99 |                                       | 90.0  |  |
| 10076-<br>CAB | (DSSS/OFDM, 48 Mbps)   | X   | 5,38  | 67,97            | 19,17 | 4.15                                  | .00.0 | ±96%                                     |
|               |  | Y   | 5.29  | 67.64            | 18.88 |                                       | 90.0  |  |
|               |  | 2   | 5.00  | 87.13            | 18,10 | -                                     | 0.08  | -  |
| 10077-<br>CAB | (DSSS/OFDM, 54 Mbps)   | x   | 5.A1  | 68.03            | 19.26 | 4,30                                  | 90.0  | ±9.6%                                    |
|               |  | ¥.  | 5.32  | 67.72            | 18.96 | -                                     | 90.0  |  |
|               |  | 2   | 5.93  | 67.21            | 18.19 |                                       | 80.0  |  |

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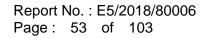
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| 10081-          | CDMA2000 (1xRTT, BC3)                                  | X     | 1.20   | 70.94          | 15.87   | 0,00  | 1 150.0        | 19.5%   |
|-----------------|--|-------|--------|----------------|---------|-------|----------------|---------|
| CAE             |  | Y     | 0.66   | 63.33          | 10.59   |       | 1000           |         |
|                 |  | Z     | 0.97   | 69.12          | 14.01   |       | 150.0          |         |
| 10082-<br>CAB   | IS-547 IS-138 FDD. (TDMA/FDM. PV4.<br>DQPSK, Fulirate) | X     | 1.85   | 61,30          | 6.54    | 4.77  | 80.0           | 1 8.6 % |
| Correct Correct | Liner on, Hamaio)                                      | Y     | 1.15   | 60.10          | 5.56    |       | 80.0           |         |
|                 |  | Z     | 0.90   | 60.00          | 4.82    |       | 80.0           |         |
| 10890-          | GPRS-FED (TDMA, GMSK, TN 0-4)                          | X     | 100.00 | 116.34         | 28.67   | 6.56  | 60.0           | 19.65   |
| DAC             | the state of the state of the state of the state       | N     |        | and the second | 1224    | 0.00  | 020            | 2.9,0 % |
|                 |  |       | 100.00 | 113.98         | 27.45   |       | 60.0           | -       |
| 10097           | UMTS-EDD (HSDPA)                                       | ZX    | 16,90  | 88.08<br>69.10 | 18.81   | 1.00  | 80.0           |         |
| CAB             | Ginto i De (mater re)                                  | v     |        |                |         | 0.00  | 150.0          | 19.6%   |
|                 |  | Z     | 1.88   | 66.14          | 14.64   |       | \$50.0         |         |
| 10098-          | UMTS-FDD (HSUPA, Subleat 2)                            |       | 1.92   | 60.38          | 16.52   | 0.05  | 180.0          | -       |
| CAB             | divite FOD (Hadra, dablies) 2,                         | ×     | 1.94   | 69.09          | 16.77   | 0.00  | 150,0          | 196%    |
|                 |  | ¥     | 182    | 66,08          | 14,59   |       | 150.0          |         |
| 10099-          | EDGE-FOD (TDMA, 8PSK, TN 0-41                          | 2     | 1.87   | 69.33          | 16.49   |       | 150.0          | in the  |
| DAC             | EADE-FUD (TDRM. 8-SK. ) N.0-4)                         | ×     | 28.67  | 116,31         | 40,37   | 9.56  | 0.00           | ±9.6%   |
|                 |  | Y     | 17:22  | 103.14         | 35.83   |       | 60.0           | -       |
| 10100-          | LTE-FOD (SC-FDWA- 100% RB- 20                          | 2     | 10.80  | 92.24          | 31.22   |       | 60.0           | -       |
| CAE             | MHz, QPSK)   | X     | 3.51   | 72.21          | 17.62   | 0.00  | 159,0          | ±9.6 %  |
|                 |  | Y     | 2.94   | 69.12          | 15,85   | 1     | 150.0          |         |
| 10101-          | LTE-FDD (SIC-FDMA, 100% RB, 20                         | 2     | 3.29   | 71.84          | 17.33   | 1.00  | 150.0          |         |
| CAE             | MH2_16-CIAMI   | ×     | 3,42   | 68.37          | 16.44   | 0.00  | 159/3          | ±96%    |
| _               |  | ¥.    | 1.15   | 66.88          | 15.45   |       | 150.0          |         |
| Toins"          | Law rate of a cost to come of                          | 1Z    | 3.26   | 58 19          | 16.19   |       | 150.0          | 1       |
| TOTOZ-<br>CAE   | L7E-FDD (8C-FDMA, 100% RB, 20<br>MHz, 64-DAM)          | ×     | 3.51   | 68.25          | 16.50   | 0,00  | 150.0          | 186%    |
|                 |  | 1 Y 1 | 3.25   | 55.87          | 15.57   | 1     | 158.0          | -       |
|                 |  | Z     | 3:35   | 88.16          | 18.28   |       | 150.0          |         |
| 10103-<br>GAG   | LTE-TOD (SC-FDMA, 100% RB, 20<br>MHz, OPSK)            | ×     | 9.10   | 80,51          | 22.32   | 3:98  | 85.0           | 196%    |
|                 |  | Y.    | 7.71   | 77.60          | 21.05   | -     | 65.0           | -       |
|                 |  | 2     | 6.72   | 75.88          | 19.85   |       | 65.0           |         |
| 10108-<br>CAG   | LTE-TOD (SC-EDMA, 100% RE, 20<br>MH2_10-QAM)           | X     | 8,36   | 77.67          | 22.08   | 3.98  | 85/0           | +9.6%   |
|                 |  | ¥ .   | 7,66   | 75.78          | 21.18   |       | 65.0           |         |
|                 |  | Z     | 6.54   | 73.78          | 19,84   |       | 65.0           |         |
| 10105-<br>CAG   | LTE-TOD (SC-FOMA, 100% RB, 20<br>MH2, F4-QAM)          | ×     | 8.22   | 77.35          | .22.27. | 3.98  | 65.0           | ± 9,8 % |
|                 |  | Y.    | 7.00   | 74.28          | 20.84   |       | 65.0           |         |
| lan a la        |  | Z     | E.41   | 73.36          | 19.96   | -     | 65.0           |         |
| ianne-<br>Cag   | LTE-FDD (SC-FDMA, 100% RB, 17<br>MHz, QP5K)            | 3     | 3/17   | 71.32          | 17,44   | 0.00  | 150.0          | ±9.6 %  |
|                 |  | Y     | 2.58   | 68.37          | 15.67   |       | 150.0          | -       |
|                 |  | - 2.  | 2.85   | 71.00          | 17.15   | -     | 130.0          | -       |
| 10109-<br>CAG   | LTE-FDD (SG-FDMA, 100% RE, 10<br>MHz, 16-QAM)          | .X.   | 3.09   | 68,24          | 16,43   | 9.00  | 150.0          | ±86%    |
|                 |  | Y     | 2.80   | 65.64          | 15.30   |       | 150.0          |         |
|                 |  | Z     | 2.62   | 68.15          | 16.17   |       | 150.0          | -       |
| 10110-<br>CAG   | LTE-FDD (SC-FDMA, 100% RB, 5 MHz.<br>DPSK)             | X     | 2.51   | 70.39          | 17,18   | 0.00  | 150.0          | ± 9/6 % |
|                 |  | Y     | 2.08   | 67.38          | 15.21   |       | 150.0          | -       |
|                 | States and the second second                           | Z     | 2.30   | 70.10          | 16.80   |       | 150.0          |         |
| 10111-<br>DAG   | LTE-FDD (SC-FDMA, 100% RB, 5 MHz,<br>16-OAM)           | X     | 2.83   | 69,15          | 16,90   | 11.00 | 150.0          | ±9.6%   |
|                 |  | Y I   | 2.49   | 67.13          | 15.44   |       | 100.0          |         |
|                 |  | z     | 271    | 69.56          | 16.7E   |       | 150,0<br>750.0 |         |
|                 |  |       |        |                |         |       |                |         |

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|               |  |     |        |       |       |            |       | be: 24, 20 |
|---------------|--|-----|--------|-------|-------|------------|-------|------------|
| 10112-<br>DAG | LTE-FOD (SC-FDMA, 100% RB, 10<br>MH2, 64-QAM)  | ×   | 3.20   | 88.93 | 16.43 | 0.00       | 150,0 | 主导剧系       |
|               |  | Y   | 2.93   | 80.85 | 15.39 | -          | 150.0 | _          |
| 10113-        | A new possible based and and a strength from the based   | Z   | 3.04   | 68 13 | 16.21 | 2010       | 150.0 |            |
| CAG           | LTE-FIDD (SC-FIDMA: 100% RB, 5 MHz:<br>54-DAMI   | x   | 2.58   | 69.16 | 16.96 | a.ab       | 150,0 | 196%       |
| -             |  | Y   | 8.64   | 87.31 | 15,61 |            | 150.0 |            |
|               |  | Z   | 2.87   | 69.6f | 16.87 |            | 150.0 |            |
| 10114-<br>CAC | EEE B02-11n (HT Greentiald, 13.5<br>Mbps: BPSK)  | х   | 5.21   | 87.32 | 16.54 | u uu       | 150,0 | 1984       |
|               |  | Y   | 5.08   | 66.85 | 16 21 |            | 150.0 |            |
|               |  | Ź   | 5,00   | 67.43 | 16.43 | -          | 150.0 |            |
| 10115-<br>CAC | IEEE 802.11n (HT Grownfield, 81 Mbps,<br>16-QAM)   | x   | 5.96   | 67.60 | 16.68 | 0.00       | 150.0 | =9.8-N     |
|               |  | Y   | 5.42   | 67.15 | 16.37 |            | 150.0 |            |
| A             | Province and an and and  | Z   | 5:34   | 67.52 | 18.48 |            | 150.0 |            |
| 10116-<br>CAC | IEEE 802.11 n (HT Greenbeld, #35 Mope<br>64-QAM)   | X   | 5,33   | 67.58 | 16.60 | 0.00       | 150.0 | +48 e      |
|               |  | Y   | 5.19   | 67.09 | 16.26 |            | 150.0 |            |
| 12.00         |  | -Z  | 5.15   | 67.61 | 16.44 | the second | 150,0 | 302.7      |
| 10117-<br>GAG | IEEE 802 110 (HT Mixed, 13.5 Mbbs,<br>BPSK)  | x   | 5.21   | 67.33 | 15.56 | 0,00       | 150.0 | ±9.6 ≤     |
| Y             |  | 4   | 5,06   | 66,76 | 16.10 |            | 150.0 |            |
|               |  | Z   | 5/03   | 67.31 | 15.39 |            | 150.0 | 1          |
| 10116-<br>CAC | (EEE 802, 11n (HT Mored, 81 Mbps, 18-<br>GAM)  | ×   | 5.63   | 67.75 | 16.76 | 0.00       | 150.0 | \$9E =     |
|               |  | Y   | 5.56   | 07.54 | 15.45 |            | 150.0 |            |
|               |  | Z   | B.41   | 67.68 | 15.55 |            | 150.0 |            |
| 10119-<br>DAG | IEEE 802.11n (HT Mixed, 135 Mbpt, 64-<br>QAM)  | X   | 6,26   | 87,52 | 16.58 | 0,00       | 150,0 | 19.6%      |
|               |  | Y   | 5,16   | 67.02 | 16.24 |            | 150.0 |            |
|               | La carra demanda   | Z   | 0.13   | 87.55 | 16.43 |            | 150.0 |            |
| 10140-<br>CAE | LTE-FDD (SC-FDMA, 100% RB, 15<br>MHz, 10-QAM)  | ×   | 3.55   | 60.24 | 16.42 | 0.00       | 150.0 | 296%       |
|               | Construction of the second sec | ¥   | 5.29   | 60.88 | 15.49 |            | 150.0 |            |
| 5.00 Mar.     | and the second sec   | Z   | 1.39   | 08.15 | 10.19 |            | 150.0 |            |
| 10141-<br>CAE | LTE-FDD (5C-FDMA, 100%-RB, 15<br>MHz, 64-QAM)  | ×   | 3.66   | 68,26 | 18.55 | 00,0       | 150.0 | :0.5%      |
|               |  | .Y. | 3.42   | 66.98 | 15.00 |            | 160.0 |            |
|               | Concernance of the second seco | Z   | 3.52   | 68.25 | 16.36 | - 1 M      | 150.0 | 1.000      |
| 10142-<br>CAE | LTE-FDD (EC-FDMA, 100% RB, 3 MHz,<br>DPSK)   | x   | 2.31   | 70.61 | 17.10 | 0,00       | 150 0 | 196%       |
|               | 12.11  | ×.  | 1 84   | 67.11 | 14.76 |            | 150.0 |            |
|               |  | 2   | 2.12   | 70.48 | 16.85 | 2.2.2.     | 150.0 | 1          |
| 10140-<br>CAE | LTE-FOD (SC FOMA, 100% RB, 3 MHz,<br>16-DAM)   | ×   | 211    | 70.28 | 18.99 | 0.00       | 150.0 | 49.6 %     |
|               |  | X.  | 2.81   | 37.48 | 15.00 | -          | 150.0 | -          |
| A             |  | Z.  | 2.08   | 70.99 | 16.78 |            | 150.0 | -          |
| 10144-<br>GAE | LTE-FDD (SC-FDM), 100% RB, 3 MHz,<br>64-GAMI   | X   | 2.51   | 67.88 | 15.37 | 0.00       | 150.0 | ± 9.6 %    |
|               |  | Y   | 234    | 85,60 | 13.59 |            | 150.0 |            |
|               |  | .2  | 2.29   | 17,85 | 14 87 |            | 150.0 |            |
| 10145-<br>CAF | LTE-FED (SD-FDMA, 100% RB, 1.4<br>MHz, GPSK)   | x   | 1.73   | 10.80 | 16.10 | .0.50      | 160,0 | ±06%       |
|               |  | Y   | . 1.11 | 03.06 | 10,90 | 100.0      | 150.0 |            |
|               | a state of the second stat | 2   | 133.   | 67.08 | 12 73 |            | 100.0 |            |
| 10146-<br>CAF | LTE FDD (SC-FUNA, 100% RE, 1.4<br>MHz, 16-QAM)   | ×   | 4.28   | 75,96 |       | 0.00       | 160.0 | 1945       |
|               |  | Y.  | 2.48   | 68.71 | 13.45 |            | 150.0 |            |
|               |  | 2   | 2.38   | 66.35 | 12.25 | 100        | 150.0 | 1.000      |
| 10147-<br>DAF | LTE-FDD (SC-FDMA, 100% RB; 1.4<br>MHz, 64-QAM)   | X   | 6,46   | 81,86 | 19,47 | 0.00       | 150.0 | 19,8 9     |
|               |  | Y.  | 0.10   | 7179  | 14.97 |            | 100.0 | 1          |
|               |  | Z   | 3.29   | 74.21 | 14.01 |            | 1000  |            |

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| ± 9.6 % | 150.0          | 0.00    | 16.47          | 68.31          | 3,10         | × 1    | LTE FDD (SC-FDMA, 50% RB, 20 MHz,   | 10149=        |
|---------|----------------|---------|----------------|----------------|--------------|--------|---|---------------|
| ± 9,6 5 | 150.0          | 0.00    | 10.47          | 00.91          | Partin       | 0      | 16-DAM)   | DAE           |
| -       | 150.0          |         | 15.35          | 66.69          | 2,81         | Y.     |   |               |
|         | 150.0          |         | 16.22          | 68.23          | 2.93         | . Z    |   |               |
| 29.65   | 150.0          | 0,00    | 18,48          | 68,18          | 3.21         | x      | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 84-QAM)   | 10150-<br>CAE |
|         | 150.0          |         | 15.43          | 66.70          | 2.94         | Y.     |   | _             |
| 1       | 150.0          |         | 16.26          | 68,20          | 3.05         | Z      |   |               |
| 29.65   | 85.0           | 3.98    | 23.67          | 83.77          | 10.13        | ×      | LTE-TOD (SC-FDMA, 50% RB, 20 MHz,<br>QPSK)  | CAG           |
| -       | 65.0           |         | 22.26          | 80.52          | 8.42<br>6.89 | Y<br>Z |   |               |
|         | 65.0           | 3.96    | 20.59          | 77.61          | 0.04         | X      | LTE-TED ISC-FDMA 50% R8 20 MHz  | 10152-        |
| \$9.63  | 65.0           | -0,90   | 22.05          | 75.91          | 7 13         | Y      | 16-QAM  | CAG           |
| _       | 65.0           |         | 19.44          | 73.58          | 6.04         | Z      |   |               |
| 19.6 9  | 85.0           | 3.98    | 22.75          | 78.92          | 8.44         | X      | LTE-TED (SC-FDMA, 50% RB, 20 MHz)   | 10153         |
| 1 3.0 9 | 00.0           | 3.00    |                | College.       | Mr. 1.1      | 1.0    | 64-QAMJ   | CAG           |
|         | 65.0           | 1.00    | 21.74          | 76.89          | 7.56         | Y      |   |               |
|         | 65.0           | and the | 20.30          | 74.70          | 6.48         | Z      | The set of the later of the set   | 201224        |
| ± 9.6 % | 150.0          | 0.00    | 17.50          | 70.97          | 2.59         | x      | LTE-FDD (SC-FDMA, 50% RB, 10 MHz,<br>QPSK)  | 10154-<br>CAE |
| -       | 160.0          |         | 15:47          | 67.77          | 2.12         | Y.     |   | _             |
|         | 150.0          | -       | 17,16          | 70.74          | 2.38         | Z      | LTE-FDD (SC-FDMA, 50% RB) 10 MHz.   | 10155-        |
| +9,6 S  | 150.0          | 0.00    | 16.90          | 69.15          | 2,83         | ×      | 16-QANU   | CAG           |
|         | 150,0          |         | 15.45          | 67.14          | 2.49         | Y      |   | _             |
| ±96%    | 160.0<br>150,0 | 0.00    | 16.78<br>17.23 | 89.67<br>71.19 | 2.71<br>2.21 | Z<br>X | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, OPSK)  | 10158-<br>CAG |
|         | 1000           | 1       | 14.46          | 67.01          | 1.65         | Y      | Gran  | UNC.          |
| _       | 150.0          | -       | 14.46          | 71.01          | 2.01         | Z      |   |               |
| ±96%    | 150.0<br>150.0 | 0.00    | 15.72          | 88.89          | 2.40         | ×      | LTE-FDD (SC-FDMA, 50%, RB, 5 MHz<br>16-QAM)   | 10157-<br>CAG |
| -       | 150.0          | -       | 13.48          | 65.89          | 1.95         | Y      |   |               |
| -       | 150.0          |         | 14.94          | 68.70          | 2.19         | 2      |   |               |
| 1983    | 150.0          | 0.00    | 17.01          | 69.22          | 2.98         | x      | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 54-QAM)   | 10158-<br>GAG |
|         | 150.0          |         | 15.65          | 67.36          | 2.65         | Y.     |   | _             |
|         | 150.0          |         | 16.93          | 69.75          | 2.88         | 2      | 1 WE POOR SHOP POLICE PART OF THE   | 10159-        |
| ±06%    | 150.0          | 0.00    | 16.05          | 69.44          | 2.54         | x      | LTE-FOD (5C-FDMA, 50% RB, 5 MHz,<br>54-QAM)   | CAG           |
|         | 150.0          |         | 13.77          | 66.31          | 2.05         | Y      |   |               |
|         | 150.0          | -       | 15.34          | 69.42          | 2.34         | X      | LTE-FOD (SC-FDMA, 50% RB, 18 MHz)   | 10160-        |
| 196%    | 150.0          | 0,00    | 18.97          | 69.71          | 2.95         | Y      | OPSK)   | CAE           |
|         | 150.0          |         | 15.60          | 69.58          | 2.78         | Z      |   | 1.1.1         |
| 土日,6 %  | 150.0          | 0.00    | 16.72<br>16:44 | 69,58          | 3.11         | X      | LTE-FDO (SC-FDMA: 50% RB, 15 MHz;<br>16-GAM)  | ID161.<br>CAE |
|         | 150.0          |         | 15:34          | 66.60          | 2.83         | Y      |   |               |
|         | 150.0          | -       | 16/22          | 68,19          | 2.95         | 2      | Les and the second s |               |
| ±26%    | 150.0          | 0.00    | 16.50          | 68.15          | 3.21         | x      | LTE FDD (SC-FDMA, 50% RB, 15 MHz, 64-OAW)   | 10162-<br>CAE |
|         | 150.0          | 1.00    | 10.46          | 66.74          | 2.94         | 9      |   |               |
|         | 150.0          |         | 16.32          | 68.32          | 3.08         | 2      | TE EDD (20 DoktA BOD DO LOUGH   | 10198-        |
| ÷96%    | 150.0          | 3.01    | 19.91          | 71.03          | 4.07         | X      | LTE-FDD (SC-PDMA, 50% RB, 1.4 MHz,<br>OPSK)   | LAF           |
|         | 150.0          |         | 19.36          | 69.95          | 3.79         | Y      |   | -             |
|         | 150.0          | -       | 19.76          | 71.38          | 3.83         | 7      | LTE-FDD (SC-FDMA, 50% RE, 1 4 MHz   | 10187-        |
| 土印石物    | 150.0          | 3.01    | 20.07          | 74.80          | 5.42         | X      | TR-OAM)   | CAF           |
|         | 150.0          |         | 19.75          | 72.79          | 4.77         | YZ     |   |               |
|         | 150.0          |         | 20.77          | 76.01          | 5.29         | 4      |   |               |

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| 10168-         | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz,         | X  | 6.05   | 77.17  | 21.98 | 3.01      | 150.0 | ±9.6%              |
|----------------|--|----|--------|--------|-------|-----------|-------|--------------------|
| CAF            | 64-QAM)                                    |    | 1.121  |        | 1000  | 3.01      | 1000  | 19.0 %             |
|                |  | Y  | 5.30   | 75.09  | 21.09 | -         | 150.0 |                    |
|                |  | Z  | 6.36   | 79.86  | 22.71 |           | 150.0 |                    |
| 0169-<br>XAE   | LTE-FDD (SC-FDMA, 1 RB, 20 MHz,<br>QPSK)   | ×  | 3.85   | 72.93  | 20.70 | 3.01      | 150.0 | ± 9.6 %            |
|                |  | Y  | 3.33   | 70.15  | 19.41 |           | 150.0 | _                  |
|                |  | Z  | 3.47   | 72.51  | 20.23 |           | 150.0 |                    |
| 10170-<br>CAE  | LTE-FDD (SC-FDMA, 1 RB, 20 MHz,<br>16-QAM) | x  | 6.37   | 81.48  | 23.72 | 3.01      | 150.0 | ±9.6 %             |
| 2002 ( <u></u> |  | Y  | 4.75   | 78.10  | 21.63 |           | 150.0 |                    |
| MARCH 1        | Contraction and the second second second   | Z  | 7.01   | 85.04  | 24.72 |           | 150.0 | 0.22               |
| 10171-<br>VAE  | LTE-FDD (SC-FDMA, 1 RB, 20 MHz,<br>64-QAM) | x  | 4,87   | 75.76  | 20.53 | 3.01      | 150.0 | ±9.6 %             |
|                |  | Y  | 3.87   | 71.72  | 18.83 |           | 150.0 |                    |
|                |  | Z  | 4.54   | 76.13  | 20.23 |           | 150.0 |                    |
| 0172-<br>CAG   | LTE-TDD (SC-FDMA, 1 RB, 20 MHz,<br>QPSK)   | X  | 80.41  | 131,60 | 39.78 | 6.02      | 65.0  | ± 9.6 %            |
|                |  | Y. | 18.51  | 103.18 | 32.14 |           | 65.0  |                    |
|                |  | Z  | 14.22  | 97.99  | 29.18 |           | 65.0  |                    |
| 10173-<br>CAG  | LTE-TDD (SC-FDMA, 1 RB, 20 MHz,<br>18-QAM) | ×  | 100.00 | 127.75 | 36.65 | 6.02      | 65.0  | ±9.6 %             |
| 22.05          | 20000 C 10                                 | Y  | 30,31  | 107.15 | 31.45 | -         | 65.0  |                    |
| 0.007-2        | THE STREET STREET STREET STREET STREET     | Z  | 25.08  | 102.02 | 28.13 | and south | 65.0  | 1.6027             |
| 10174-<br>CAG  | LTE-TDD (SC-FDMA, 1 RB, 20 MHz,<br>54-QAM) | ×  | 60.73  | 116.92 | 33.35 | 8.02      | 65.0  | ± 9.6 %            |
|                |  | Y  | 21.73  | 99.84  | 28.80 |           | 65.0  |                    |
|                |  | Z  | 17.08  | 94.57  | 25.40 |           | 65.0  |                    |
| 0175-<br>IAG   | LTE-FDD (SC-FDMA, 1 RB, 10 MHz,<br>OPSK)   | X  | 3.78   | 72.50  | 20.41 | 3.01      | 150.0 | ± 9.6 %            |
| and            | ar arg                                     | Y  | 3.29   | 69.80  | 19.15 | _         | 150.0 |                    |
|                | -  | Z  | 3.40   | 71.98  | 19.88 |           | 150.0 |                    |
| 10176-<br>CAG  | LTE-FDD (SC-FDMA, 1 RB, 10 MHz,<br>16-QAM) | X  | 6.38   | 81.51  | 23.73 | 3,01      | 150.0 | ± 9.6 %            |
| unu            | 10.0010                                    | Y  | 4.76   | 76.12  | 21.65 | -         | 150.0 |                    |
|                |  | ż  | 7.03   | 85.08  | 24,74 |           | 150.0 |                    |
| 10177-<br>CAL  | LTE-FDD (SC-FDMA, 1 RB, 5 MHz,<br>QPSK)    | X  | 3.82   | 72.71  | 20.53 | 3.01      | 150.0 | ± 9.6 %            |
| wrs.           | (ar dis)                                   | Y  | 3.32   | 69.97  | 19.25 |           | 150.0 |                    |
| _              |  | Z  | 3.44   | 72.23  | 20.02 | -         | 150.0 | -                  |
| 10178-<br>CAG  | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-<br>QAM) | X  | 6.26   | 81.12  | 23.55 | 3.04      | 150.0 | ± 9.6 %            |
|                | (aver)                                     | Y  | 4.70   | 75.86  | 21.51 |           | 150.0 | -                  |
|                |  | Z  | 6.85   | 84.54  | 24.51 |           | 150.0 | 100 million (1990) |
| 10179-<br>CAG  | LTE-FDD (SC-FDMA, 1 RE, 10 MHz,<br>64-QAM) | X  | 5.53   | 78.38  | 21.95 | 3.01      | 150.0 | ± 9.6 %            |
| 440            | an an and                                  | X  | 4.28   | 73,73  | 20.08 |           | 150.0 |                    |
|                |  | Z  | 5.53   | 80.03  | 22.20 |           | 150.0 |                    |
| 10180-<br>CAG  | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-<br>QAM) | X  | 4.85   | 75.63  | 20.45 | 3.01      | 150.0 | ± 9.6 %            |
| and            | saring                                     | Y  | 3.85   | 71.63  | 18.78 |           | 150.0 |                    |
|                |  | Z  | 4.51   | 75.97  | 20.14 |           | 150.0 |                    |
| 10181-<br>CAE  | LTE-FDD (SC-FDMA, 1 RB, 15 MHz,<br>QPSK)   | X  | 3.82   | 72.60  | 20.52 | 3.01      | 150.0 | ± 9.6 %            |
| 122            | 10000000                                   | Y  | 3.31   | 69.95  | 19.24 |           | 150.0 |                    |
|                | Contraction and a second second            | Z  | 3.44   | 72.20  | 20.01 | 10000     | 150.0 | all the second     |
| 10182-<br>CAE  | LTE-FDD (SC-FDMA, 1 RB, 15 MHz,<br>16-QAM) | X  | 6.25   | 81.09  | 23.54 | 3.01      | 150.0 | ±9,6 %             |
|                |  | Y  | 4.70   | 75.84  | 21.50 |           | 150.0 |                    |
|                |  | Z  | 6.83   | 84.50  | 24.49 |           | 150.0 |                    |
| 10183-<br>AAD  | LTE-FDD (SC-FDMA, 1 RB, 15 MHz,<br>64-QAM) | X  | 4.84   | 75.60  | 20.44 | 3.01      | 150.0 | ± 9.6 %            |
|                | and an only                                | Y  | 3.85   | 71.61  | 18.77 |           | 150.0 |                    |
|                |  | ź  | 4.50   | 75.94  | 20.13 |           | 150.0 |                    |

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| 150.0 1 ± 9  | .01     | 3.0  | 20.54 | 72.70  | 3.83 | 8  | LTE-FDD (SC-FDMA, 1 RB. 3 MHz,   | 10184-        |
|--------------|---------|------|-------|--------|------|----|--|---------------|
|              |         |      | -     |        |      |    | QPSK)  | GAE           |
| 150.0        |         |      | 19.27 | 70.00  | 3.82 | Y  |  |               |
| 150.0        |         |      | 20.04 | 72.28  | 3.45 | Z  | LTE-FDD (SIC-FDMA, 1 RB. 3 MHz 16-   | 10185-        |
| 150.0 ±8     | -       | 30   | 23,58 | 81.18  | 6.29 | ×  | QAM)   | CAE           |
| 150.0        |         | _    | 21.53 | 75.91  | 4.72 | Y  |  |               |
| 150.0        |         | -    | 24.55 | 84.63  | 6.88 | Z  | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-   | -01103-       |
| 150.0 2.9    |         | :3.0 | 20,48 | 75.68  | 4.86 | x  | QAMI   | AAE           |
| 150.0        |         | -    | 18.80 | 71.68  | 3.87 | Y  |  | _             |
| 150.0        |         | -    | 20.17 | 76.04  | 4.53 | Z  | LTE-FDD ISC-FDMA, 1 RB. 1.4 MHz  | 10187-        |
| 1000 ±9      | -       | 3.0  | 20.60 | 72.79  | 3.84 | ×  | QPSK)  | CAF           |
| 150.0        |         | -    | 19.38 | 70.05  | 3,33 | Y  |  | _             |
| 160.0        |         |      | 20.11 | 72.24  | 3.46 | Z  | LTE-FOD (SC-FOMA, 1 RB, 1.4 MHz,   | 10188-        |
| 150.0 = 9    |         | 3.0  | 24,08 | 82.17  | 6.59 | 8  | 16-CAM)  | IZAF          |
| 150,0        |         |      | 21.93 | 76.63  | 4.88 | Y. |  |               |
| 150.0        |         | -    | 25.23 | 86.21  | 7.44 | 2  | THE EDITING FRAME A DR. A A PR   | 10199         |
| 150.0 ±9     |         | 3.0  | 20.81 | 76.28  | 5,01 | x  | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz,<br>54-QAM)  | AAF           |
| 150.0        |         | _    | 19.08 | 72.12  | 3.96 | Y  |  | _             |
| 150.0        |         |      | 20.60 | 76.84  | 4,72 | 2  | IEEE B0211n (HT Greenfield, 6.5 Mbps.  | 10193-        |
| 150.0 ± 3    | 91      | 0,0  | 16.35 | 66.78  | 4.64 | X  | BPSK)  | GAE           |
| 150.0        |         |      | 15.91 | 65.22  | 4,48 | Y  |  |               |
| 150.0        |         | 2.2  | 16,19 | 66.93  | 4.48 | Z  | IECE ON ALL MAR PLANE PORT   | 10194-        |
| 150.0 ± 9    | 00      | 0.0  | 16.46 | 67.15  | 4.84 | x  | IESE 802 11n (HT Greenfield 39 Mops:<br>16-QAM)  | CAC           |
| 160.0        |         |      | 15.03 | 66 55  | 4.66 | Y  |  |               |
| 150.0        |         |      | 16.31 | 67.23  | 4.65 | 2  | THERE BAR ALL HUR A  | 10195-        |
| 150.0 ± 9.   | 00      | 0,0  | 16.47 | 67.16  | 4.88 | X  | IEEE 802 11n (HT Grounbeld, 55 Mbps,<br>64-QAM)  | DAC:          |
| 150.0        |         |      | 18.05 | 66.68  | 4.70 | Y  |  | _             |
| 158.0        |         |      | 16.32 | 87.26  | 4.69 | 2  | The second se  | 10404         |
| 150.0 ±9     | 00      | 0.0  | 15.38 | 88.88  | 4.66 | 8  | IEEE 802 11n (HT Mixed, 5.5 Mbps,<br>BRSK)   | 10190<br>CAC  |
| 150.0        |         |      | 15.93 | 66.29  | 4.49 | Y  |  |               |
| 150.0        | 1 1 1 1 | 1    | 16.21 | 66.99  | 4.48 | Z  |  | and the       |
| 150.0 ± 9:   | 00      | 0.0  | 16.47 | 57.17  | 4,85 | X  | EFE 802 11n HIT Model 30 Mbps. 16-<br>GAM)   | D1971<br>DAC  |
| 150.0        |         | 12   | 36.04 | 68.58  | 4,67 | W. |  |               |
| 150.0        |         | -    | 16.32 | 67.25  | 4.86 | Z  | WERE AND ALL AND   | and other     |
| 150,0 ±92    |         | 0.00 | 16.48 | 67 18  | 4.89 | X  | IEEE 802.11n (HT Mixed, 86 Mbps, 64-<br>QAMI   | 10196-<br>DAC |
| 150.0        |         |      | 16.06 | 66.60  | 4.70 | Y  |  | -             |
| 150.0        |         |      | 16.33 | 67.27  | 4.68 | Z  | IFTE ODD AN WHEN A DESCRIPTION   | 10219         |
| 150.0 ± 9.0  | 10 1    | 0,01 | 18,35 | 66.90  | 4.81 | x  | IEEE 802.11n (HT Maxed, 7.2 Mbps,<br>BPSK)   | CACI          |
| 150,0        | 1       |      | 15.89 | fi6.30 | 4.43 | Ŷ  |  |               |
| 100.0        |         |      | 16.10 | 67.01  | 4.42 | 2  | FFF 000 11. UN 11  | 0220-         |
| 150,0. ± 9.0 | 20 1    | 0.00 | 16.47 | a7,15  | 4,86 | ×  | EEE 802.11n (HT Maxed 43.3 Mopt, 16-<br>GAM)   | CAC           |
| 150.0        | 1       | -    | 16.04 | 66,56  | 4.67 | Y  |  | -             |
| 150.0        |         | -    | 16.31 | 67.22  | 4,65 | 2  | IFFE DOG AND HAT ADDRESS THE ADDRESS   | 0221          |
| 150.0 ±94    | 20 7    | 0.00 | 16.46 | 67:10  | 4,89 | x  | IEEE R02.11n (HT Mixed) 72.2 Mbps, 64-<br>QAM)   | CAG           |
| 160.0        | 1       |      | 16.05 | 66.53  | 4.71 | 4  |  | _             |
| 150.0        |         | -    | 18.31 | 67.20  | 4.70 | Z  | INCOMPANY AND A DESCRIPTION OF A DESCRIP | 0222-         |
| 150.0 ± 6.6  |         | 0.00 | 16.57 | 67.35  | 5,19 | ×  | IEEE 302.11n (HT Mixed, 15 Mbps)<br>BPSK)  | 0222-<br>CAC  |
| 150.0        | 11      | -    | 18.1# | 06,77  | 5.03 | Y  |  | _             |
| 150.0        |         |      | 16.30 | 67.33  | 5.01 | Z  |  | _             |

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| 0223-          | IEEE 802.11n (HT Mixed, 90 Mb/xs. 16-  | X  | 5,54   | 67.61  | 16.71 | 0.00        | 150.0 | 土田市      |
|----------------|--|----|--------|--------|-------|-------------|-------|----------|
| CAC            | QAMI   | Y. | 6.35   | 66.99  | 16.32 |             | 150.0 |          |
| _              |  | Z  | 5,29   | 67.45  | 16.47 |             | 150.0 | -        |
| 0224-<br>CAC   | JEEE 802.11n (HT Make: 150 Mops, 64-<br>DAM)   | x  | 5.24   | 67,46  | 16,55 | 0.00        | 150.0 | 1965     |
|                |  | Y  | 5.08   | 66.87  | 16.16 |             | 150.0 | -        |
|                |  | 2  | 5.06   | 87,45  | 16.38 |             | 150.0 |          |
| 0225-<br>2AB   | UMTS-FDO (HSPA+)   | x  | 2,94   | 66.61  | 15,90 | 0.00        | 150.0 | 594%     |
| -              |  | ¥. | 2.72   | 65.45  | 14.90 |             | 150.0 |          |
|                |  | Z  | 2,80   | 66.78  | 15.59 |             | 150.0 |          |
| 10226-<br>CAA  | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz,<br>18-QAM)  | ×  | 100.00 | 127.97 | 36.79 | 6.02        | 65.0  | #9.6%    |
|                |  | Y  | 33.01  | 106.86 | 32.02 |             | 65.0  |          |
|                |  | Z  | 28.60  | 104.35 | 28.88 |             | 65.0  |          |
| 10227-<br>CAA  | LTE-TOD (SC-FDMA, 1 RB, 1.4 MHz,<br>64-QAM)  | x  | 71.84  | 120.02 | 34.24 | 6.02        | 65.0  | #90's    |
|                |  | Y  | 27.56  | 104.08 | 30,11 |             | 65.0  |          |
|                |  | Z  | 21.67  | .98.19 | 25.50 | the second  | 85 D  |          |
| 10228-<br>CAA  | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz,<br>OPSK)  | ×  | 83,78  | 133,19 | 40,33 | 0.02        | 65.0  | ±9.6 %   |
|                | Marca and a second s  | Y. | 27.23  | 111,37 | 34.65 | · · · · · · | 65.0  | -        |
| 11 m           | Contraction of the second seco | Z  | 14,92  | 99.20  | 29.65 |             | 65.0  |          |
| 10229-<br>CAC  | LTE-TOD (SC-FDMA, 1 FIB, 3 MHz, 16-<br>QAM)  | x  | 100.00 | 127.75 | 36.66 | 6.02        | 65.0  | 19.0%    |
|                |  | Y  | 30.45  | 107.22 | 31.48 |             | 65.0  |          |
|                |  | 7  | 25.36  | 102.20 | 28.19 | 1 Summer 1  | 65.0  |          |
| 10230-<br>DAC  | UTE-TOD (SC-FDMA, 1 RB.3 MHz. 64-<br>GAM)  | x  | 64.64  | 118.06 | 33.66 | 6.02        | 65.0  | ± 9,6%   |
|                |  | Y. | 25,67  | 102,71 | 29.64 | (           | 65,0  |          |
|                |  | Z  | 19.55  | 96.45  | 25.91 | 11.01       | 55.0  |          |
| 10231-<br>CAC  | LTE-TDD (SC-FDMA, 1 RB, 3 MHz,<br>CPSK)  | ×  | 74.78  | 130.72 | 39.63 | 6.02        | 65.0  | 296%     |
| -              |  | Y  | 25.26  | 109.74 | 34.10 |             | 65.0  |          |
| · · · · ·      | the second state of the second state of the  | Z  | 13.84  | 97.69  | 29.10 |             | 65.0  | 1        |
| 10232-<br>CAF  | LTE-TOD (SC-FDMA, 1 RB, 5 MHz, 16-<br>DAM)   | x  | 100.00 | 127.76 | 36.66 | 8.02        | 65.0  | 296 W    |
|                |  | Y. | 30.44  | 107.22 | 31.48 | -           | 85.0  |          |
|                |  | Z  | 25.32  | 102.18 | 28.18 | 1           | 85.0  | Carrow   |
| 10233-<br>CAF  | LTE-TOD (SC-FDMA, 1 RE, 5 MHz, 54-<br>DAM)   | ×  | 64.74  | 118.10 | 33.67 | 6,02        | 65.0  | 法自在制     |
|                |  | 1  | 25.80  | 102.71 | 29.64 | -           | 85.0  | i        |
|                | Second a land of the second  | Z. | 19.51  | 96.43  | 25.91 |             | 65.0  |          |
| 1023-1-<br>CAF | LTE-TOD (SC-FDMA, 1 RB, 5 MHz.<br>GPSK)  | x  | 68.79  | 128.16 | 38.87 | 6.02        | 65.0  | ± 9,6 %, |
|                |  | Y  | 23.59  | 108.16 | 33.53 |             | 65,0  | -        |
| -              |  | Z  | 12.92  | 98.23  | 28.52 |             | 65.0  |          |
| 10235-<br>CAF  | LTE-TOD (SC-FDMA, 1 RE, 10 MHz,<br>16-QAM)   | ×  | 100,00 | 127 77 | 36,66 | 6.02        | 65.0  | 196%     |
| -              |  | Y  | 30.53  | 107.29 | 31.50 | -           | 65.0  | -        |
|                | and some task work of the second second  | 2  | 25.37  | 102.23 | 28.19 | 12.01       | 65.0  | 1        |
| 10238-<br>CAF  | LTE-TDD (SC-FDMA, 1 RE, 18 MHz,<br>84-QAM)   | x  | 65.78  | 118.34 | 33.37 | 0.02        | 05.0  | 196S     |
| 1.000          |  | Y  | 25.93  | 102.87 | 29,68 | -           | 65.D  |          |
|                |  | Z  | 19.72  | 96.57  | 25.94 | 10.00       | 65.0  | 1000     |
| 10237-<br>CAF  | LTE-TOD (SC-FDMA, 1 RB, 10 MHz,<br>QPSK)   | ×  | 78.22  | 131.13 | 39 74 | 6.02        | 85.0  | 19.6%    |
|                |  | Y. | 25.46  | 109.93 | 34.16 | -           | 65.0  |          |
|                | and the second sec   | Z  | 13.89  | 97.78  | 29.12 | -           | E5.0  |          |
| 10238-<br>CAF  | LTE-TDB (SC-FDMA, 1 RB, 15 MHz,<br>16-DAM)   | ×  | 100.00 | 127.76 | 36,65 | 6.02        | 65.0  | ± 9.6 %  |
|                |  | Y  | 30.42  | 107.23 | 31,48 | -           | 65.0  |          |
|                |  | 2  | 25.26  | 102.15 | 28.17 |             | 65.0  | 1        |

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| 10/2394       | LTE-TDD (SE-FDMA, 1 RB, 15 MHz.  | X     | 64.82 | 118:13 | 33.68  | 6.02  | 65.0 | 1 19.6%      |
|---------------|--|-------|-------|--------|--------|-------|------|--------------|
| CAF           | 64-CIAM)   |       |       |        |        |       | 1000 | 1.4.4.1      |
| _             |  | Y     | 25.62 | 102.71 | .29.64 |       | 65.0 |              |
| DOM: NO       | I AN OTHER THAT THE A TOWN IN AND  | Z     | 19.45 | 196,40 | 35.90  | -     | 65.0 |              |
| 10240:<br>CAF | LTE-TOD (SC-FDMA, 1 RE, 15 MHz,<br>QP5K)   | ×     | 75.84 | 131.04 | 39,71  | 6.02  | 65.0 | ± 9.6 %      |
| _             |  | Y     | 25.37 | 109.88 | 34.14  | 6     | 65.0 | -            |
| 10241-        | I WE WERE SONT FRAME AND DO IN THE R.  | 2     | 13.84 | 97.74  | 29.11  |       | 65.0 |              |
| GAA           | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz,<br>16-QAM)  | x     | 12.34 | 87.77  | 28.09  | 6.98  | 65,0 | ± 9.8%       |
|               |  | Y     | 10.07 | 84,69  | 26.80  |       | 65.0 |              |
| 10242-        | LTE-TOD (SC-FDMA, 50% RB, 1.4 MHz,   | Z     | 9.45  | E3.27  | 25.34  | 1.000 | 65.0 |              |
| CAA           | 54-QANI  | x     | 11.90 | 66.96  | 27.68  | 6.98  | 65.0 | 2 9/6 %      |
|               |  | X     | 948   | 62.13  | 25.70  |       | 65.0 |              |
| 10243         | LTE-TOD (SC-FDMA, 50% RB, 1.4 MHz)   | Z     | 8.88  | 82.07  | 24.81  | -     | 66.0 |              |
| CAA           | UPSK)  | *     | 9,29  | B3.62  | 27 37  | 6.96  | 85.0 | =9.6 %       |
|               |  | 4     | 7.60  | 79 19  | 25,41  |       | 65.0 | 1            |
| 10244         | LTE-TOD (SC-FDMA, 50% R8, 3 MHz  | Z     | 6.90  | 78.25  | 24:23  | 1.00  | 85.0 |              |
| CAC           | 16-QAM)  | ×     | 11.62 | 86.25  | 22.95  | 3,98  | 65.0 | 2.0.6 %      |
|               |  | Y.    | 9.05  | 81.02  | 21.07  |       | 85.0 |              |
| 10:245-       | LTE-TDD (SC-FDMA, 50% R9, 3 MHz  | Z     | 5.90  | 74.19  | 17.01  |       | 65.0 |              |
| CAC           | 64-GAM)  | ×     | 11,21 | 84.37  | 22.59  | 3.98  | 85.0 | 19,6 %       |
|               |  | Y     | 8.74  | 80.23  | 20.72  |       | 85,0 |              |
| 10246-        | THE TRACTOR CONTRACTOR OF A DESCRIPTION  | Z     | 5.76  | 73.60  | 16.72  | A     | 65.0 | 11           |
| CAC           | LTE-TOD (SC-FDMA, 50% RB, 3 MHz,<br>QPSK)  | ×     | 13,76 | 91.33  | 25.01  | 3.98  | 65.0 | ‡ 8.8 %      |
|               |  | Y     | 8.27  | 82.50  | 21.35  |       | 65.0 |              |
|               |  | Z     | 5 24  | 75.79  | 17.95  |       | 65.0 |              |
| 10247-<br>1AF | LTE-TOD (SC-FDMA, 50%, RB; 5 MHz,<br>16-QAM)   | ×     | 8.45  | 80.38  | 21.81  | 3.98  | 65.0 | 29.6%        |
|               |  | Y.    | 6.57  | 78.53  | 15,78  |       | 66.0 |              |
|               | hand the second s  | . Z   | 5.10  | 72.95  | 17.62  | 200   | 85.0 | 1.1          |
| 10248+<br>DAF | LTE-TDD (SC-FDMA, 50% RB, 5 MHz,<br>64-DAM)  | 8     | 7.96  | 79,46  | 21,43  | 3.98  | 65.0 | 1965         |
|               |  | Y.    | 6.50  | 75.86  | 19.49  | -     | 85.0 |              |
| CONTRA A      |  | Z     | 5.09  | 72.45  | 17.30  | -     | 65.0 |              |
| 10249-<br>CAF | LTE-TOD (SC-FDWA 50% FIB 5 MHZ<br>OPSK)  | ×     | 14.67 | 92.89  | 20.21  | 3.98  | 65,0 | 195%         |
|               | And the second s | Y     | 9.72  | 85.51  | 23.23  |       | 65.0 | -            |
|               |  | 2     | 8.59  | 79.52  | 20.29  |       | 65.0 |              |
| 10250-<br>CAF | LTE-TOD (SC-FDMA, SO% FB, 10 MHz,<br>15 QAM)   | x     | 8.79  | 81.74  | 23.60  | 3.98  | 65.0 | 196%         |
| -             |  | 1 Y . | 7.53  | 78.89  | 22.19  |       | 65.0 | -            |
| 0254-         | 1 THE MENT CONTRACTOR  | 2     | 6.20  | 76.02  | 20.42  |       | 65.0 |              |
| DAF           | LTE-TOD (SC-FDMA, 50% RB, 19 MHz,<br>84-QAM)   | ×     | 8,02  | 78.77  | 22.12  | 3.98  | 65.0 | <b>186</b> # |
|               |  | X     | 7.01  | 78.38  | 20.84  |       | 65.0 |              |
| 0252          | Last store loss while a  | 2     | 5.03  | 78.77  | 19.14  |       | 05.0 |              |
| CAF           | LTE-TOD (SC-FDMA, 50% RB, 10 MHz,<br>OPSK)   | ×     | 12:21 | 89.16  | 25,66  | 3.96  | 65.0 | 19.6%        |
| -             |  | Y     | 8.34  | 84.33  | 23.66  |       | 85.0 | -            |
| 0000          | 175 755 105 5545   | Z     | 7.06  | 50.06  | 21.48  |       | 65.0 |              |
| 0253-<br>AF   | LTE-TDD (SC-FDMA, 50% RB, 15 MHz,<br>18-DAM)   | ×     | 7.75  | 17.29  | 21.77  | 3.98  | 85,0 | 19,61%       |
|               |  | Y     | 6.93  | 75.28  | 20.72  |       | E5.0 | -            |
| 0254          | 1 TE TER UND PROM PAGE AND   | Z     | 5.92  | 73,10  | 19.25  |       | 65.0 | -            |
| 0254-<br>CAF  | LTE-TOD (SC-FDMA; 50% RB; 15 MHz;<br>04-DAM)   | ×     | 9.1B  | 78.13  | 22.42  | 3,98  | 65.0 | ±9.6 %       |
| _             |  | N.    | 7.34  | 76.22  | 21.42  | 1.000 | 85.0 | -            |
|               |  | Z     | 6.32  | 74:11  | 19.09  |       | 65.0 |              |

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.....

| 10255+         | LTE-TDD (SIC-FOMA, SOR RE. 15 MHz.   | XI | 9.52       | 62.95   | 21.60     | 3.58   | 65.0        | +9.6%   |
|----------------|--|----|------------|---------|-----------|--------|-------------|---------|
| AF             | QPSK)  | ×  |            | Lass.   | - <u></u> |        | 1.1.1.1.1.1 |         |
| _              |  | Z  | 6.80       | 79 93   | 22.27     |        | 65,0        |         |
| 0255-          | LTE-TDD ISC-FDMA. 100% RB, 1.4   | X  | 10.25      | 77.07   | 20.60     | 399    | 65,0        | Inco    |
| SAA            | MHz, 16-DAM  | -  |            |         | -         | 3.90   | 05.0        | 土田市市    |
| _              |  |    | 7,42       | 77.45   | 18.77     |        | 65.0        |         |
| 0257-          | LTE-TOD (SC-FOMA, 100%) RB, 1.4  | Z  | 4.27       | 69.75   | 14.06     | 10.000 | 65 0        | C H and |
| CAA            | MHz, 64-GAM  | 8  | 11.67      | 81.35   | 20.00     | 3.98   | 65.0        | ±86%    |
| _              |  | Y. | 7.07       | 76.38   | 13.24     |        | 65.0        |         |
| 10258-         | LEFTER INCOMING INCOME   | Z  | -4.27      | 69.13   | 13.71     | 10.00  | 65.0        |         |
| GAA.           | LTE-TOD (SC-FDIMA: 100% RB, 1.4<br>MH2, GPSK)  | x  | 11.24      | 87 41   | 23 95     | 3.90   | 65.0        | 1965    |
|                |  | Y  | 0.32       | 77,82   | 18.86     | _      | 65,0        | _       |
|                | 175 155 (55 55) 4 4055 55 1445   | Z  | 3.88       | 71,16   | 15.20     | 2.55   | 65.0        | 1000    |
| 10258-<br>CAC  | LTE-TDD (SC-FDMA, 100% R8, 3 MHz,<br>10-DAM)   | x  | 8:37       | 80,75   | 22.38     | 3,98   | 65.0        | 188.6%  |
|                |  | 4  | 11.95      | 11:37   | 20.63     | -      | 55.0        |         |
| Det C          | L'ET THE IDA PRIME MAIL THE SALE   | Z  | 5.55       | 74,09   | 18.58     | 10.00  | 65.0        | Lord    |
| 10260-<br>CAC  | CTE-TDD (SC-FDMA, 100% RB 3 MHz<br>64-DAM)   | ×  | 8.81       | 80.29   | 22.23     | 3.88   | 65,0        | 196%    |
|                |  | Y  | 6.94       | 27.04   | 20.51     |        | 65.0        | -       |
|                |  | 2  | 5.55       | 73.86   | 18.49     | 100    | 65.0        | 1000    |
| 10261-<br>CAC  | LTE-TOD (SC-FDMA_100% R8_3 MHz<br>OPSK)  | ×  | 12.47      | 89,95   | 25.58     | 3,98   | 65.0        | 286%    |
|                |  | Y  | 0.00       | 84.05   | -23.10    |        | 85.0        | -       |
| 100.00         |  | Z  | 6,47       | 78.99   | 20.51     | -      | 45.0        | 222.0   |
| 10262-<br>LIAE | LTE-TOD (SC-FDMA, 100% RB, 5 MHz<br>16-QAM)  | ×  | 678        | 81,89   | 23.56     | 3.98   | 65.0        | 68.6 W  |
|                | - Carlos and Carl   | Y  | 7.52       | 78.83   | 22.15     | -      | 65.0        |         |
|                | Contraction Commentation   | Z  | 有恆         | 75.95   | 20.38     | -      | 65.0        |         |
| 10263-<br>CAF  | LTE-TOD (SC-FDMA: 100% RB, 5 MHz)<br>64-GAM)   | x  | 6.01       | 78.76   | 22.12     | 3.88   | 65.0        | ±9.6 %  |
|                |  | Y. | 1.00       | 76.35   | 20.65     |        | 65.0        |         |
|                | and the first state of the second state of the | Z. | 5.12       | 73.75   | 12.13     |        | 65.0        |         |
| 10264-<br>CAF  | LTE-TOD (SC-FDMA, 100%) RB, 5 MHz,<br>QPSK)  | 3. | 12.07      | 88.92   | 32,56     | 1.98   | 650         | 1985    |
|                |  | Y. | 8.25       | 8411    | 23.56     |        | 65.0        |         |
|                |  | Z  | 7,01       | 79.85   | 21.36     |        | 65.0        |         |
| 10266-<br>CAF  | LIE-TOD (SC FDMA, 102% RE 10<br>MHZ 16-DAM)  | X  | 8.7.4      | 77.00   | 22.05     | 3.93   | 65.0        | ± 9.0 % |
|                | A CONTRACTOR OF A CONTRACTOR OFTA CONT   | Y  | 7.13       | 75.81   | 20.97     | 1      | 65.0        |         |
|                |  | Ż  | 6.04       | 73.58   | 19.44     |        | 0.619       |         |
| 10205<br>CAF   | LTE-TOD (SC-EDMA, 1005 RB 10<br>MHz, 54 QAM)   | x  | 8.44       | 79.91   | 22.74     | 3.90   | 65.0        | 1963    |
|                |  | Y  | 7.55       | 76.88   | 21,73     | 1      | 85.0        |         |
|                |  | Z  | E.47       | 74.68   | 20.29     | -      | 66.0        |         |
| 10267-<br>DAF  | LTE-TDD (SC-FDMA: 100% RS 10<br>MHz QPSK)  | ×  | 10.11      | 02.13   | 23,66     | -3,98  | 85,0        | 10.6.9  |
|                |  | ¥  | <b>前井1</b> | 1111.47 | 22.26     | -      | 85.0        | -       |
| -              | Las has much as  | Z  | 0.67       | 17.07   | 20.67     | 1.00   | 85.0        | -       |
| 10268-<br>CAF  | L15-TOO (SIGFLIMA, TUTE HB, 15)<br>MHz, 10-DAM)  | 2  | 8.39       | 77.18   | 22.02     | 3.96   | 88.0        | 292.0   |
|                | and a second second second   | Y  | 7.65       | 75.61   | 21,20     | -      | 85.0        | -       |
| 1000           |  | 2  | 8.70       | 73.87   | 18.92     | 1.44   | 85.0        | 1000    |
| 10289-<br>CAF  | LITE-TOD (SC-FDMA, 100% RB, 15<br>MHz; 84-DAW)   | ×  | 0.26       | 76.65   | 21.88     | 3.98   | 85.0        | + 8,0 % |
|                |  | V  | 7,58       | 75.05   | 21.07     | -      | 66.0        |         |
| _              | and a second statement of the state  | Z  | 6.67       | 73,30   | 19.83     |        | 65/0        | 1000    |
| 10270-<br>CAE  | LITE-TEID (SC-FEIMA, 100% RB: 15<br>MHE (IPSK)   | ×  | 88.6       | 79.53   | 22.20     | 8.98   | 05:0        | ± 9.6 % |
|                |  | Y  | 7.84       | 77.34   | 21,20     |        | 76H U       |         |
|                |  | 2  | 6.74       | 75,30   | 19.85     |        | · 55.0      |         |

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| 10274-           | UMTS FDD (HSUPA Subtest 5, 30PP  | 8     | 2.69  | 67.00  | 15.83 | 0.00  | 150.0 | E 8.0 % |
|------------------|--|-------|-------|--------|-------|-------|-------|---------|
| CAB              | Rel8.10  | -     |       |        | 1     |       |       |         |
| _                |  | Y     | 2.47  | 65.81  | 14.87 | -     | 150.0 | -       |
| 10275-           | UMTS-FDD (HSUPA, Subtest 5, 3GPP   | Z     | 2.60  | 67.27  | 15.58 | 10.00 | 150.0 |         |
| CAB              | RelE 4   |       | 1.83  | 70.14  | 16.98 | 0.00  | 150.0 | = B.6 % |
|                  |  | Y     | 1,44  | 66.20  | 14.31 |       | 150.0 | 1.00    |
| 10277-           | DIS IODAU  | Z     | 1,70  | 69.74  | 16.44 |       | 150.0 | 1.000   |
| CAA              | PHS (OPSK)   | x     | 3,83  | 66.44  | 11.35 | 9.03  | 50.0  | 1.9,0 % |
|                  |  | Y     | 3.47  | 64.75  | 10.20 |       | 50.0  |         |
| 10278.           | Plan append the shake in a distant   | 2     | 2.82  | 62.17  | 7.82  | -     | 50.0  |         |
| CAA              | PHS (QPSK, BW 884MHz, Rolloff 0.5)   | ×     | 14,82 | 89.25  | 23.47 | \$.03 | 50.0  | 19.8%   |
|                  |  | 9     | 7.61  | 78.00  | 18.87 | -     | 50.0  | -       |
| 10279            | PLUS COMPLET POLY OF VEHICLE POLY OF A SUL   | Z     | 4.20  | 69.20  | 13.7B |       | 50.0  |         |
| CAA              | PHS (OPSK: BW 684MHz, Rolloff 0.38)  | x     | 14,85 | 89.41  | 23.56 | 5.03  | 50.0  | 29.6%   |
| _                |  | 2     | 7.77  | 76.24  | 18.99 |       | 50.0  |         |
| 10290-           | COM40000 001 001   |       | 4.39  | 69.44  | 13.93 | -     | 50.0  | ·       |
| 10290-<br>AAB    | CDMA2000, RC1 SOS5, Full Rinkir  | x     | 2.10  | 73.72  | 17.06 | 0.00  | 150,0 | ±9.6%   |
| _                |  | 7     | 1.20  | 65.83  | 12.24 |       | 150.0 |         |
| in the local day | Laboration and states and  | Z     | 1.79  | 72:49  | 15.56 | 1     | 150.0 |         |
| IEQ11-           | CD4W2000, RC3, SO55, Full Rine   | ×     | 1 16  | 70.51  | 15.66 | 0.00  | 150.0 | 2.9.6 % |
|                  |  | Y     | 0.67  | 63.17  | 10.48 | 2     | 150.0 |         |
|                  |  | Z     | 0.94  | 38.71  | 13.80 |       | 158.0 |         |
| 10252-<br>AAB    | CDMA2000, RC3, SO32, Full Rale   | ×     | 1.93  | 79.24  | 19.72 | 0.00  | 150/0 | ± 9.6 % |
| 6 P - 4          |  | Υ.    | 0.76  | 65.41  | 12.01 |       | 150.0 | -       |
|                  | Canto  | Z     | 2.01  | B0.04  | 18.65 |       | 150.0 |         |
| 11293-<br>\AB    | COMA2000, RC3, SO3, Full Rate  | ×     | 4.24  | 91.88  | 24,62 | 0.00  | 150.0 | 2.9.8%  |
| _                |  | · ¥ · | 0.99  | 68.94  | 14.19 | -     | 150.0 |         |
|                  | and the second s | 2     | 16.88 | 110.82 | 28.51 |       | 150.0 | -       |
| 10295-<br>AAB    | CDMA2000, RC1, SO3, 1/8th Role 25 h;   | X     | 12.27 | 89,65  | 26,50 | 9,08  | SD.C  | ÷06%    |
|                  | 1  | Y     | 10.84 | 85.72  | 24.40 |       | 50.0  |         |
|                  | New York State State Street Street   | Z     | 6.99  | 77.74  | 20,11 |       | 50.0  |         |
| AD               | LTE-FDD (SC-FDMA, 50% RB 20 MHz.<br>DPSK)  | 8     | 3.09  | ¥1.44  | 17.51 | 0.00  | 150.0 | ± 9.6 % |
|                  |  | Y     | 2.59  | 58.47  | 15.73 |       | 158.0 |         |
| _                | the second second second   | Z     | 2.87  | 71.14  | 17.24 |       | 150.0 |         |
| 10298-<br>4AD    | LTE-FDD (SC-FDMA, 50% RB, 3 MHz,<br>OPSK)  | x     | 2.03  | 71.15  | 16.52 | 0,00  | 150.0 | 18.6%   |
| -                |  | Y.    | 1.39  | 65.75  | 12.91 | -     | 150.0 | 1       |
| ab de            | 100000000000000000000000000000000000000  | Z     | 1.75  | 70.22  | 15.26 |       | 150.0 | -       |
| 10299-<br>VAD    | LTE-FOD (SC-FDMA, 50% RB. 3 MHz,<br>16-QAM)  | x     | 4,86  | 77,12  | 18.36 | 0.00  | 150.0 | 19.8%   |
| _                |  | Y.    | 3.14  | 71.60  | 15.64 | -     | 150.0 |         |
| COLUMN OF        | I BE AND THE PROPERTY AND THE  | 6     | 8,75  | 74.00  | 15.70 |       | 150.0 | -       |
| 0300-<br>AD      | LTE/FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)   | ·X-   | 2.97  | 69.65  | 14.52 | 0.00  | 150.0 | ±9.6.%  |
| _                |  | Y     | 2.26  | 66.29  | 12.48 |       | 150.0 |         |
| 8304             | Internet could any strength of the second second   | 2     | 2.17  | 06.32  | 11.62 |       | 150.0 |         |
| 0301-<br>AA      | IEEE 802 16n WWAX (29:10, 5ms, 10MHz, DPSK, PUSC)  | X     | 6.32  | 86.98  | 15.36 | 4.17  | 50,0  | 土乐8%    |
| _                |  | Y.    | 8.22  | 66.88  | 18.11 |       | 50.0  |         |
| 0000             |  | 2     | 4.67  | 65.61  | 17.38 |       | 50.0  | -       |
| 0302-<br>AAA     | IEEE 802 IBe WIMAX (29:18, 5ms,<br>10MHz: OPSK, PUSC, 3 CTRL aymbols)  | x     | 5,74  | 67.34  | 16.93 | 4:90  | 50.0  | ± 9.8 % |
|                  |  | Y     | 5,58  | 66.87  | 18.46 | -     | 50.0  |         |
|                  |  | Z     | 5.16  | 68:25  | 18.09 |       | 50.0  |         |

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| -E0601        | IEEE 802.16e WiMAX (31:15, 5ms,<br>10MHz, 64QAM, PUSC)   | X      | 5.54  | 67.22          | 18.91          | 4.95      | 50.0         | ±9.6 %  |
|---------------|--|--------|-------|----------------|----------------|-----------|--------------|---------|
| ~~~           | Tomate, organi, Polocy   | Y      | 5.37  | 66.70          | 18.39          | _         | 50.0         |         |
|               |  | Z      | 4.93  | 65.95          | 17.95          |           | 50.0         |         |
| 10304-<br>AAA | IEEE 802.16e WIMAX (29:18, 5ms, 10MHz, 64CAM, PUSC)  | x      | 5.28  | 66.83          | 18.25          | 4.17      | 50.0         | ±9.6 %  |
|               |  | Y      | 5.10  | 66.29          | 17.74          |           | 50.0         |         |
|               |  | Z      | 4.73  | 65.82          | 17.46          |           | 50.0         |         |
| 10305-<br>NAA | IEEE 802.16e WIMAX (31:15, 10ms,<br>10MHz, 64QAM, PUSC, 15 symbols)  | x      | 5.67  | 72.27          | 22.34          | 6.02      | 35.0         | ±9.6 %  |
|               | Second Statements (Second Statements) (Second Statements)  | Y      | 5.72  | 72.48          | 21.90          |           | 35.0         |         |
| 10306-        | INTER BOD ARE MINING YOR AR ADDR   | ZX     | 4.00  | 68.90<br>68.37 | 20.05          | 6.02      | 35.0<br>35.0 | 10000   |
| AAA           | IEEE 802.16s WIMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)   | 1.13   |       | CONTROL .      | 07088770       | 6.02      | 40,000       | ±9.5 %  |
|               |  | Y<br>Z | 5.52  | 69.50<br>67.24 | 20.64          |           | 35.0<br>35.0 |         |
| 10307-        | IEEE 802.16e WIMAX (29:18, 10ms,   | X      | 5.58  | 70.12          | 21.19          | 6.02      | 35.0         | ±9.6 %  |
| AAA           | 10MHz, QPSK, PUSC, 18 symbols)   |        |       |                |                | 511 51 61 |              |         |
|               |  | Y      | 5.54  | 70.11          | 20.79          |           | 35.0         |         |
|               | in the second  | Z      | 4.75  | 67.57          | 19.37          |           | 35.0         |         |
| 10308-<br>AAA | IEEE 802.16e WIMAX (29:18, 10ms,<br>10MHz, 16QAM, PUSC)  | ×      | 5,58  | 70.46          | 21.39          | 6,02      | 35.0         | ± 9.8 % |
|               | and the second s | Y      | 5.56  | 70.49          | 21.00          |           | 35.0         |         |
|               |  | Z      | 4.74  | 67.84          | 19.54          | 0.00      | 35.0         |         |
| 10309-<br>AAA | IEEE 802.16e WIMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols)  | x      | 5.56  | 68,68          | 20.38          | 6.02      | 35.0         | ±9,6%   |
|               |  | Y      | 5.61  | 69.80<br>67.43 | 20.81          |           | 35.0<br>35.0 |         |
| 10310-<br>AAA | IEEE 802.16e WIMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)   | X      | 4.87  | 69.67          | 21.04          | 6.02      | 35.0         | ± 9.6 % |
| nnn           | TONE IC, G. ON, PIMO 200, TO SYMDODS)  | Y      | 5.51  | 69.73          | 20.68          |           | 35.0         |         |
|               |  | Z      | 4.78  | 67.38          | 19.33          |           | 35.0         |         |
| 10311-<br>AAD | LTE-FDD (SC-FDMA, 100% RB, 15<br>MHz, QPSK)  | ×      | 3.47  | 70.67          | 17.10          | 0.00      | 150.0        | ± 9.5 % |
|               |  | Y      | 2.93  | 67.81          | 15.46          |           | 150.0        |         |
|               |  | Z      | 3.26  | 70.40          | 16.86          |           | 150.0        |         |
| 10313-<br>AAA | IDEN 1:3   | X      | 10.55 | 84.71          | 20.54          | 6.99      | 70.0         | ±9.6 %  |
|               |  | Y      | 5.52  | 75.51          | 16.93          | _         | 70.0         |         |
|               | Constant of the second s  | Z      | 3.35  | 69.99          | 14,11          |           | 70.0         | 1000    |
| 10314-<br>AAA | IDEN 1:6   | ×      | 24.93 | 102.67         | 28.79          | 10.00     | 30.0         | ±9.6 %  |
|               |  | Y      | 8.40  | 84.46          | 22.81          |           | 30.0         |         |
| 10315-<br>AAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1<br>Mbps, 96pc duty cycle)   | X      | 4.59  | 75.67<br>65.40 | 18.98<br>16.44 | 0.17      | 150.0        | ± 9.6 % |
| 140           | mups, sope only ejenst   | Y      | 1.01  | 63.11          | 14.44          |           | 150.0        |         |
|               |  | Z      | 1.08  | 64.77          | 15.73          |           | 150.0        | 1       |
| 10316-<br>AAB | IEEE 802.11g WiFi 2.4 GHz (ERP-<br>OFDM, 6 Mbps, 96pc duty cycle)  | X      | 4.72  | 66.92          | 16.53          | 0.17      | 150.0        | ± 9.6 % |
| Sec. 1        |  | Y      | 4.56  | 66.38          | 16.12          |           | 150.0        |         |
| 18855.01      | and the second s | Z      | 4.51  | 66.86          | 16.22          |           | 150.0        |         |
| 10317-<br>AAC | IEEE 802.11a WiFi 5 GHz (OFDM, 6<br>Mbps, 96pc duty cycle)   | ×      | 4.72  | 66.92          | 16.53          | 0.17      | 150.0        | ±9.6%   |
|               |  | Y.     | 4.56  | 66.38          | 16.12          |           | 150.0        | -       |
| 10175         | WERE AND ALCOHOF MARKING AN AVAIL  | Z      | 4.51  | 66.86 87.20    | 16.22          | 0.00      | 150.0        | ±9.6 %  |
| 10400-<br>AAD | IEEE 802.11ac WiFi (20MHz, 64-QAM,<br>99pc duty cycle)   | ×      | 4.84  | 67.20          | 16.45          | 0.00      | 150.0        | 23.6%   |
| _             |  | Z      | 4.63  | 66.61          | 16.02          | -         | 150.0        | -       |
| 10401-        | IEEE 802,11ac WiFi (40MHz, 64-QAM,   | X      | 4.03  | 67.20          | 16.49          | 0.00      | 150.0        | +9.6%   |
| 10401-<br>AAD | 99pc duty cycle)   | Ŷ      | 5.35  | 66.85          | 16.49          | 0.00      | 150.0        |         |
|               |  |        |       |                |                |           |              |         |

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| TUMPT         | TEEE BUZ THAC WIFT (SOMH), 64-CIAM,  | 8      | 0.76   | 67.76  | 16.60 | 0.00   | 150.0 | I make a |
|---------------|--|--------|--------|--------|-------|--|-------|----------|
| AAD           | stopo duty cycle)  | 0      | 11.16  | ev.va  | 10.0U | 9.00   | 150.0 | # 9,6 %  |
|               |  | Y      | 5.61   | 67.21  | 16.26 |  | 150.0 | 1        |
|               |  | Z      | 5.57   | 67.70  | 16.42 |  | 150 0 | 1        |
| 10403-<br>AAB | CDMA2000 (IXEV-DD, Fiev. 0)  | X      | 2.10   | 73.72  | 17.08 | 0.00   | 115.0 | 2 9.6    |
|               |  | ·Y     | 1.20   | 65.83  | 12.24 |  | 115.0 |          |
| inter         |  | Z      | 1.79   | 72.49  | 15,56 | in the second se | 115.0 |          |
| 10404-<br>AAS | CDMA2000 (1xEY-DD, Rev. A)   | ×      | 2:10   | 73.72  | 17.06 | 0.00   | 115.0 | 2.9.8    |
| _             |  | ¥.,    | 1.20   | 65.83  | 12.24 |  | 115.0 |          |
| IDANG-        | CBMA2000, RC3, SO32, SCH0, Full  | Z      | 1.79   | 72.49  | 15.56 |  | 115.0 |          |
| AAE           | Rate   | ×      | 100.00 | 122.19 | 31,29 | 0.00   | 100.0 | 19.61    |
|               |  | Ŷ      | 29.24  | 105.80 | 27.50 |  | 100.0 |          |
| 10410-        | LTE-TOD (SC-FDMA, 1 RB, 10 MHz)  | Z      | 100.00 | 114.73 | 27.11 |  | 100.0 |          |
| AAF           | OPSK, UI. Subkame=2.3,4,7,8,9,<br>Subframe Conf=4)   | ×      | 100.00 | 121.06 | 30.81 | 3.23   | 90.0  | 1969     |
|               |  | Ŷ      | 100.00 | 121.88 | 31.03 |  | 80.0  |          |
|               |  | Z      | 83,71  | 111.58 | 25.89 |  | 30.0  | -        |
| 10415-<br>AAA | IEEE 802.116 W Fr 2.4 GHz (DSS5. 1<br>Mbps, 99pc duty cycla)   | ×      | 1,63   | 63.90  | 15.54 | 0.00   | 150.0 | ±9.6-9   |
| _             |  | Y      | 0.91   | 61.92  | 13.65 | -  | 150.0 | -        |
|               | When you are a state of the sta | 2      | 0.99   | 63.88  | 15.24 | 1.000  | 150.0 |          |
| 10416-<br>AAA | IEEE 802 11g WIFI 2.4 GHz (ERP<br>OFDM, 8 Mbps, 99pc duty cyce)  | ×      | 4,84   | 06.82  | 18.39 | 0.00   | 150.0 | ±9.6 %   |
|               |  | ×.     | 4.48   | 65.28  | 15.67 |  | 150.0 |          |
| 10417-        | HEFE BOARD & GREEP PROVIDENCE  | 2      | -0,48  | 86.96  | 16.25 |  | 150.0 |          |
| AAB           | IEEE 802.11 wh WIFI 5 GHz (OFDM; 6<br>Mbps, 99pc duty cycle)   | ×      | 4.84   | 66.82  | 16,39 | 0,00   | 150.0 | 29.65    |
|               |  | Y      | 4,48   | 66.26  | 15.97 | 1  | 150.0 |          |
| 10418         | IEEE 802 11g WIFI 2.4 GHz (DSSS-   | ZX     | 4.48   | 66.9E  | 10,25 |  | 150.0 |          |
| AAA           | OFDM, 6 Maps, PRoc (Way cycle, Long<br>prosmoule)  |        | 4.63   | 68.97  | 10.41 | 0,00   | 150.0 | ±9.69    |
|               |  | Y      | 4.47   | 66.40  | 15.97 |  | 150.0 | -        |
|               |  | Z      | 4.47   | 97.14  | 10.29 |  | 150.0 | -        |
| 10419<br>AAA  | EEE 802,11g WFI 2.4 GHz (DSSS<br>OFDM, 6 Mitps, 99pc duty cycle, Short,<br>greambule)  | x      | 4,65   | 96.92  | 16.41 | 0.00   | 150.0 | ± 9.6 %  |
| _             |  | Y.     | 4.49   | 66.36  | 15.96 |  | 150.0 | -        |
|               | Total And March 199  | Z. 1   | 4,49   | 67.08  | 16.28 |  | 150.0 |          |
| 10422-<br>NAE | IEEE 802.11/1 (HT Greenfield, 7.2 Mbps-<br>BPSK)   | ×      | 4 78   | 86.82  | 16.42 | 0.00   | 160.0 | 190%     |
|               |  | Y      | 4.51   | 68.37  | 16,01 |  | 150.0 |          |
| 11423-        | IFFE SOO HAND IN PROVIDE AND AND   | Z      | 4.51   | 07,05  | 16.28 |  | 150.0 | 1.000    |
| MAR           | IEEE 802.11n UHT Greewfeld, 43.3<br>Mbos: 16-GAMI  | x      | 4.98   | 67.29  | 16.55 | 0.00   | 150.0 | ± 9.8 %  |
|               |  | Y      | 4.79   | 08.71  | 16.13 |  | 150.0 |          |
| 0424-         | IEEE 802.11n (NT Greenfield, 72.2  | - 5    | 0,77   | 67.36  | 16.39 |  | 150.0 | 10.00    |
| VAB           | Mbps; 64-QAM   | X      | 4, 95  | 67.34  | 18.52 | 0.00   | 150.0 | 18/0 %   |
| -             |  | X      | 4.70   | 66.65  | 16.10 |  | 150.0 |          |
| 0420-         | IEEE 802.11n (HT Greenfield, 15 Mbps.  | 2      | 4.69   | 67.32  | 16.37 | _  | 150.0 |          |
| UAB           | BPSK)  |        | 1.1    | -67.47 | 16.62 | 0,00   | 180,0 | :9,9%    |
|               |  | Y<br>Z | 5.32   | 67.05  | 16.33 |  | 150.0 |          |
| 0426          | IEEE 802.11n (HT Grownfeld, 90 Milaus.   | X      |        | 67.48  | 16,46 | 10   | 150.0 |          |
| AB            | 16-QAM)  | 1.     | 5.45   | 67,50  | 16.63 | 0.00   | 150.0 | 19.0 ¥   |
| -             |  | Y      | 5.32   | 87.06  | 16.33 |  | 150.0 |          |
|               |  | Z      | 5.26   | 67,50  | 16.46 |  | 150.0 |          |

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| 0427-         | IEEE 802 11n (HT Greenheld, 150 Mbps,  | X      | 5.47   | 87.62          | 16.61 | 00.0    | 150 0 | 7985               |
|---------------|--|--------|--------|----------------|-------|---------|-------|--------------------|
| 445           | 64-QAAN  | -      |        |                | 1000  | _       |       |                    |
|               |  | Y<br>Z | 533    | 87.64          | 15.31 | _       | 150.0 | 1                  |
| D430-         | LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)   | 8      | 4.44   | 70.94          | 18.69 | 11.00   | 150.0 | ±0.6%              |
| AD            | LIEPDO (OPDIAN, a MHZ; E/ M 3:1)   | a<br>V | 4.14   | 19.17          | 10.00 | 100     |       | 5.9.6.2            |
|               |  | Z      | 4.53   | 70.00          | 15.04 |         | 150.0 |                    |
| 10231-        | LTE-FOD (OFDMA, to MHz, E-TM 3.1)  | X      | 4.03   | 72.71          | 16.50 | 0.00    | 150.0 | ± 9.6 %            |
| AD            | LIE-FUD (OFDMIC TO MHZ, BITM X.()  | v      | 4,17   | 05.74          | 15.93 | 0.00    | 150.0 | a no ye            |
| _             |  | Z      | 4.17   | 67.60          | 16.51 |         | 150.0 |                    |
| 0432-         | LIE-FOD IOFDMA, 15 MHz, E-TM 211   | X      | 4.87   | 87.30          | 16.51 | 0.00    | 150.0 | 29.0%              |
| AAC           | LIETED (OCDMR, ID MRS, C-1M 2-1)   | Ŷ      | 4.47   | 06.55          | 10.03 | 0.00    | 150.0 | ± 9,0 m            |
|               |  | 2      | 4.47   | 67.41          | 16:54 |         | 150.0 |                    |
| 10433-        | LTE FOD (OFDMA, 20 MHz E-TN 3 I)   | X      | 4.90   | 67.28          | 16.55 | 0.00    | 150.0 | 196%               |
| AAC           | LIEFOU (OF DAM, 20 WHE IF THE & T  | 1.1    | 1000   |                |       | 0,00    |       | 196.0              |
|               |  | -Y     | 4.72   | 66.69          | 16,12 | _       | 150,0 | -                  |
| 10434-        | W-CDMA (BS Test Model 1, 64 DPCH)  | 2      | 4 71   | 67.36<br>71.86 | 16.34 | 0.00    | 150.0 | +06%               |
| 10434-<br>AAA | AL-COUNTES LEER MODEL #, 04 DPCH)  | x      | 4.06   | A1.00          | 16.63 | 0.00    | 150.0 | 200.0              |
|               |  | Y.     | 4.21   | 70.69          | 17.87 | -       | 150.0 |                    |
|               |  | Z      | 4.78   | 74.00          | 19.21 |         | 150.0 | 1                  |
| 10435         | LTE-TOD (SC-FDMA, 1 RB, 20 MHz,<br>QPSK, UL Subtrame=2 3,4,7,8,9)  | ×      | 100.00 | 120.88         | 30.73 | 3.53    | 80.0  | 39.6%              |
|               | Contraction of the second second second  | Y.     | 100.00 | (21.69         | 30.95 | 1000    | 80.0  |                    |
|               |  | Z.     | 66.38  | 108.66         | 25.18 | 1000    | 80.0  |                    |
| 10447-<br>AAD | L1E-FDD (OFDMA: 5 MHz, E-TM 3.1.<br>Globing 44%)   | ×      | 3,72   | 67.65          | 48,50 | 0.00    | 150.0 | =0.6%              |
| -             | and the second s | Y.     | 3.44   | 66.58          | 15.18 |         | 150.0 |                    |
|               |  | 2      | 3.50   | 67.81          | 15.74 | - SC    | 150 D |                    |
| ID440-        | LTE-FDD (OFDMA: 10 MHz; E-TM 3.1,<br>Clippin 44%)  | ×      | 4.21   | 67.23          | 16.37 | 0.00    | 150.0 | ± 9.6 %            |
|               |  | N.     | 6.00   | 66.50          | 15.77 | 1000    | 150.0 |                    |
|               |  | Z      | 4.02   | .67.40         | 1E.18 |         | 150.0 | 1.000              |
| 10448-<br>AAC | LTE-FDD (OFDMA: 15 MHz, E-TM 3-1<br>Cliping 44%)   | ×      | 4,46   | 67.14          | 16.42 | 0.00    | 150.0 | ±9.6 %             |
| 1,00          |  | Y      | 4.27   | 66.49          | 15.91 |         | 150.0 | -                  |
|               |  | Z      | 4.28   | 67.27          | 16.29 |         | 150.0 |                    |
| 10450-<br>AAG | LTE-FDD (OFDMA, 20 MHz E-TM 3.1<br>Clipping 44%)   | ×      | 4.64   | 67.06          | 16.42 | 0.00    | 150.0 | 19.6 %             |
|               | Seddord Aler   | Y      | 4.47   | 66,43          | 10.90 |         | 150.0 | 1.0                |
|               |  | Z      | 4.47   | 67.16          | 15.26 |         | 150.0 |                    |
| 10451-<br>AAA | W-CDMA (BS Teal Model 1, 64 DPCH,<br>Clipping 44%)   | X      | 3.06   | 68.00          | 15,09 | 0.00    | 158.0 | 196%               |
|               |  | · . W  | 3.33   | 66,69          | 14.77 | -       | 150.0 |                    |
|               | and the second second second   | Z      | 3.40   | 68.00          | 15,28 | 1.1.1   | 150.0 |                    |
| 10458-<br>AAB | IEEE 802.11ac W/O (160MHz 64-DAM<br>99pc duty cycle)   | ×      | 8.29   | 68.08          | 16.78 | 0.00    | 150.0 | 293%               |
|               |  | ×      | 6.17   | 67.03          | 15.50 | -       | 150.0 | 1                  |
|               | A Test - end of a second second  | XX     | 6.51   | E8.01          | 16.58 | 1 1 1 1 | 150.0 |                    |
| 10457-<br>AAA | UMTS-FDD (DC-HSOPA)  | 1      | 3.63   | 66,43          | 10.13 | 0.60    | 150.0 | ±0.£%              |
|               |  | Y.     | 3.72   | 64.49          | 15.67 | -       | 150.0 |                    |
|               | 1 commences and the  | Z      | 3.74   | 65,60          | 15.95 | 1       | 150.0 | -                  |
| 10458-<br>AAA | CDMA2000 (1xEV-DO, Rev B, 2<br>carries)  | x      | 4.16   | 70.93          | 18,07 | 0.00    | 150.0 | ± 9.6 %            |
|               |  | Y      | 3.85   | 69.00          | 17.01 |         | 150.0 |                    |
|               |  | Z      | 4,20   | 73.12          | 18.40 |         | 150.0 |                    |
| 10459-<br>AAA | CDMA2060 (1aEV-DO, Rev. B. 3<br>camera)  | ×      | 5.20   | 68.00          | 18:25 | 0.00    | 150.0 | +5 <sup>0</sup> /4 |
|               |  | ¥.     | 501    | 67.77          | 17.91 |         | 150.0 |                    |
|               |  | z.     | 0.25   | 09.00          | 18.70 |         | 150 D | 1                  |

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| 10460-   | LIMTS-FOD (WCOMA, AMR)   | X   | 1.12   | 72.77  | 16.83      | 0.00 | 150.0        | 19.6%    |
|--|--|-----|--------|--------|------------|------|--------------|----------|
| AAA  | and set and the protocol and   | - 2 | 1.16   | TELL   | 10.02      | 0.00 | 190.0        | 23.0.7   |
|  |  | Y   | 0.73   | 85.44  | 13.95      | -    | 150.0        | 1.000    |
| in lat   | Column and the second of the little                                  | 15  | 1.01   | 71.76  | 19.00      |      | 150.0        | 1.000    |
| 10461-<br>AAA  | LTE-TDD/ (SC-FDMA: 1 RB; 1.4 MHz,<br>OPSK, UL Subtrame=2.3,4,7,8,9)  | x   | 100.00 | 126,43 | 33,93      | 3.29 | 80.0         | 29.6%    |
|  |  | Ŷ   | 100.00 | 125.87 | 32.93      |      | 80,0         | -        |
| 104872-  | LTE-TOD (SC-FDMA, 1'R5, 1.4 MHz.                                     | ZX  | 90.37  | 116.03 | 27.82      | 1000 | 80.0         | 1000     |
| MAA  | 15-GAM, UL Subframe=2.3,4,7,8,9)                                     |     |        | 1      | 25.58      | 3.23 | 80,0         | 主要医吗     |
| _  |  | 2   | 100,00 | 109.45 | 25.28      |      | 80.0         |          |
| 10463-   | LTE-TOD (SC-FDMA, 1 RS, 1.4 MHz.                                     | X   | 100.00 | 106.70 | 24.02      | 3.23 | 30.0         | + 9.6 %  |
| AAA  | 64 QAM, UL Subframe=2.3.4,7.8.9)                                     | N   | 49.13  | 98.79  | 22.03      | 62.6 |              | 3.8'0.8' |
|  |  | Z   | 49.13  | 80.00  | 7.05       |      | 80.0<br>80.0 | _        |
| 10464-   | LTE-TDD (SC-FDMA, 1 RE, 3 MHz  | X   | 100.00 | 124.44 | 32.24      | 3.23 | 80.0         | +06%     |
| AAB  | DPSK, UL Subtrame=2.3,4,7,8,9)                                       | 1   | 100.00 | 123.71 | 1.2.5      | 9.40 |              | 100%     |
|  |  | Z   | 25.98  | 98.94  | 23.07      |      | 80.0         | 1        |
| IGA60-   | LTS-TOD (SC-FDMA, 1 RB, 3 MHz; 16-<br>IGAM, UL Subframe=2.3,4,7,8,9) | X   | 100.00 | 109.41 | 25.30      | 3,23 | 80.0<br>80.0 | = 0.6 %  |
| and the second s | Second DE Contraine-E.S.T. (A.B.)                                    | 9   | 100.00 | 108.89 | 24:99      |      | 80.0         |          |
|  |  | Z   | 1.05   | 80.34  | 7.60       |      | 80.0         | -        |
| 10466-<br>AAB  | LTE-TDD (SC-FDMA, 1 RB, 3 MHz; 84<br>GAM, UL Subframe=2,3,4,7,8,9)   | ×   | 100.00 | 106,17 | 23.77      | 3.23 | 80.0         | 698%     |
| C  |  | Y   | 17.42  | 87.73  | 19.16      |      | 80.0         |          |
|  |  | Z   | 1.03   | 60.00  | 7.00       |      | 80.0         |          |
| DAUT<br>SAE  | LTE-TDD (SC-FDWA, 1 RB, 5 MHz,<br>OPSK, UL Subframe=2,3,4,7,9,9)     | 8   | 100.00 | 124.87 | 32.33      | 3.23 | 80.0         | ± 9,8 %  |
|  |  | Y   | 100.00 | 123.85 | 31.88      | 1    | 80.0         |          |
|  |  | Z   | 34.96  | 102.47 | 23.96      |      | 0.06         |          |
| 1040E-<br>VAE  | LTE-TOD (SC-FDMA, THE S MHz 16-<br>OAM, UL Subtrame-2,3,4,7,8,9)     | x   | 100,00 | 109.58 | 26.38      | 3.23 | 80.0         | #98%     |
| _  |  | Y.  | 108.00 | 109.05 | 25.07      |      | 0.08         | -        |
| and the second   |  | Z   | 1.06   | 60.45  | 7.67       | 1    | 80.0         | -        |
| NAE  | LTE-TOD (SC-FDMA, 1 RB, 5 MHz, 64-<br>QAM, UL Subframe=2.34 7.8;9)   | ×   | 100.00 | 106.18 | 23.77      | 3.23 | 80.0         | ±98.8    |
| _  |  | Y   | 18,04  | 88.11  | 19,26      | -    | 80.0         |          |
| CMEWIG-  | LTE-TED ISC-FDMA: 1 RB. 18 MHz                                       | 2   | 1.03   | 60.00  | 7.00       | 1.00 | 80.D         | 1.0      |
| UNE  | DPSK, UL Suktramo=2,3,4,7,8,0)                                       | -8  | 100.00 | 124.71 | 32.35      | 3.23 | 90.0         | ⇒9.6%    |
|  |  | X   | 100.00 | 123.98 | 31,88      | j    | 80.0         | 1000     |
| 0471-  | LTE-TDD (SC #DMA, 1 RB, 10 MHz, 16-                                  | X   | 35,24  | 102-56 | 23.97      |      | 50.0         | _        |
| AE   | QAM, UL Subtramo=2,3,4,7,8,9)  | Ŷ   |        | 109.53 | 25,35      | 3.23 | 80.0         | 19.8%    |
|  |  | Z   | 100.00 | 109.01 | 25.04      | _    | 86.0         |          |
| 0472+<br>AE  | LTE-TOD (SC FDMA, 1 HB, 10 MHz, 64-<br>QAM, UL Subframe-2.3.4,7 8,9) | *   | 100,00 | 106/13 | 7.64 23.74 | 3,23 | 80.0<br>80:0 | 土民在特     |
| -  |  | ¥.  | 17.90  | 88.00  | 19,24      | -    | 00.0         |          |
|  |  | Z   | 1.03   | 60.00  | 8.09       | -    | 80.0         | _        |
| 0473<br>AE   | LTE-TDO (SC-FDMA, 1 RB, 15 MHz,<br>OPSK, UL SUbtrame=2,3,4,7,8,9)    | x   | 100.00 | 124.67 | 32.34      | 3.23 | 86.0         | :26%     |
|  |  | Y   | 100.00 | 123.95 | 31,87      |      | 380.0        |          |
|  |  | Z   | 34.67  | 102:54 | 23.91      |      | 90,9         |          |
| 0474-<br>AE  | LTE-TDD (SC-FDMA, 1 RE: 15 MHz, 16-<br>QAM, UL Subframe=2.3,4,7,0,8) | x   | 100.00 | 103.54 | 25.35      | 3.23 | 80,0         | +9.6%    |
|  |  | Y   | 100.00 | 109.01 | 25.04      |      | 80.0         | 1.       |
| 1475-  | I BE BEAR AND PERMIT A LINE OF STREET                                | Z   | 1.05   | 60.39  | 7.63       | 2.00 | 0,08         |          |
| AE   | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-<br>GAM, UL Subframe=2.3,4,7,8,9) | ×   | 100.00 | 106,14 | 23,74      | 3,23 | 80.0         | 196%     |
| -  |  | W.  | 17.52  | 67.78  | 19.16      |      | 80.0         |          |
|  |  | Z   | 1.03   | 60.00  | 6,00       | -    | 80.0         |          |

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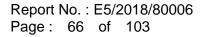
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| 0877-         | LTE-TOD (SC-FDMA, 1 R6 20 MHz 10-  | 8     | 100.00 | 109.37         | 25.27 | 3.23  | 80.0         | ± 9.6 %   |
|---------------|--|-------|--------|----------------|-------|-------|--------------|-----------|
| VAF.          | QAM, UL Subhame=2,3,4,7,8,9)   | Y     | 100.00 | *DE 64         | 24.96 |       | BD 0         |           |
| -             |  | 1     | 1.00   | 80.28          | 7.55  |       | 80.0         | -         |
| 111178-<br>MF | LTE-TDD (SC-FDWA_LRE, 20 MHz, ed-<br>QAM, UL Subtrame=2,3,4,7,8,9)   | 8     | 100,00 | 108,29         | 23.12 | 1.22  | 80.0         | #9,8%     |
|               | the second second second   | Y.    | 17:03  | 67.46          | 19.06 |       | 80.0         | -         |
|               | and the second sec   | Z     | 1.03   | 80.00          | 99.0  |       | BDD          |           |
| 10479-<br>MA  | LTE-TOD (SC-FDMA, 50% RB, 1.4 MHz<br>OPSK, UL Subtrame=2,2,4,7,8,9)  | 3     | 32.A7  | 108.40         | 30.35 | 3.23  | 80.0         | ÷9.8 %    |
|               |  | · ¥.  | 23.42  | 102.56         | 26.35 |       | 80.0         |           |
|               |  | 2     | 8,33   | 85.84          | 29.97 |       | BD.0         | 1.000     |
| 10480-<br>AAA | LTE-TOD (SC-FDMA, 90% FB, 1.4 MHz,<br>18-GAM, UL Subframe=2,3,4,7,0,9)   | x     | 42.90  | 105.02         | 27.50 | 3.25  | 80.0         | 39,8%     |
| 2             |  | P.,   | 20,70  | 94.12          | 24.14 |       | 80.0         |           |
|               | have been and the second secon | 7     | 6/08   | 7674           | 17.00 | A     | 80.0         | in an is  |
| 10481-<br>AAA | LTE-TOD (SC-FOMA 505, RB, 1.4 MHz, 04-QAM, UL Subframe=2,3,4,7,8,9)  | ×     | 33,63  | 100.01         | 25.80 | 3.23  | 80.0         | 10,6%     |
|               |  |       | 15.07  | 39.36          | 22.38 |       | 80.0         |           |
|               |  | Z     | 4.46   | 72.49          | 15.13 |       | 80.0         |           |
| 10482-<br>人A白 | LTE-TOD (SC-FDMA, 50% RB, 3 MHz,<br>OPSA, UL Subframe=2,3,4,7,6,9)   | x     | 0.20   | 87 36          | 23.04 | 2.23  | \$0.0        | 10.6%     |
| 1000          |  | Y.    | 3.94   | 74.35          | 17.85 |       | 60,0         |           |
|               | A Description of a Description   | Z.    | 2 70   | 20.00          | 15.33 | -     | 30.0         | 1.000     |
| 10483-<br>AAE | LTE-TOD (SC-FDMA, 50% RB, 3 MHz<br>16-CAM, UL Subframe=2.3.4,7.5(9)  | *     | 15.24  | 90,75          | 23,81 | 2.23  | 80.0         | 10.6%     |
|               |  | - Y . | 8.75   | 83.78          | 21:08 |       | B0-0         |           |
| -             |  | 7     | 387    | 71,04          | 15.18 |       | 80.0         |           |
| 10484-<br>AAB | LTE-TDD (SC-FDMA, 50% RB, 3 MH)<br>64-DAM, UL Subfrante=2,3,4,7,8,9)   | ×     | 12.87  | 88.08          | 25.00 | 2.23  | 80.0         | ene%      |
|               |  | Y.    | 8.49   | 81,59          | 20.35 | -     | - Đ0,0       | _         |
|               | and the second  | Z.    | 3.68   | 70,14          | 14.84 |       | 90.0         |           |
| 10185-<br>AAE | LTE-TOD (SC-FOMA 50% RB, 5 MHz<br>QPSK, UL Subframe=2.3,4,7,8,9)   | ×     | 7.98   | 25.70          | 23.26 | 2.23  | 80.0         | ±9.0%     |
|               |  | W.    | 4.36   | 76,94          | 規格    |       | 80.0         | -         |
|               | I have a serie of the day of the   | 2     | 3.55   | 12.55          | 17.26 | -     | 80.0         |           |
| 10498-<br>AAE | LTE-TDD (SC-FOMA, 50% RB, 5 MHz)<br>15-GAM, UL Subirame#2,3,4,7,8,9)   | 8     | 5.38   | 76.17          | 19.55 | 2.23  | 80.0         | ±9.6%     |
|               |  | 1     | 3.78   | 70.74          | 1E.72 | 2     | 80.0         | -         |
|               |  | 1     | 3.08   | 68.57          | 15.26 |       | 80.0         | 1000      |
| 10407-<br>AAE | LTE-TOD (SC-FDMA, 50% RB, 5 MHz.<br>64-DAM, UL Subframe=2,3,4,7,6,9)   | ×     | 5.22   | 75.40          | 19.25 | 2.23  | 80.0         | ± 9:0.%   |
|               |  | Y     | 11.6   | 70.31          | 16.54 | 1     | 80.0         | -         |
|               | A CONTRACTOR OF A CONTRACTOR OFTA CONTRACTOR O | 2.8   | 3.08   | 68.23          | 15.40 | 1     | 80.0         | -         |
| 10488-<br>AAE | LTE-TOD (SC-FDIMA, 50% RB, 10 MHz,<br>GPSK, UL Sobhame=2:3.4,7.6,91  | 12.   | 6.58   | 81.08          | 22.14 | 2.23  | 60.0         | ±.D.E %   |
| _             |  | Υ.    | 4.43   | 74.73          | 19.31 | -     | BOUL         | -         |
| 10489-        | LTE-TDD (SC-FDMA, 50% HB. 10 MHz.  | X     | 1.88   | 72.12<br>73.47 | 17.94 | 2.23  | 80.0<br>90,0 | ±9.6%     |
| AAE           | 16-QAM, UL Subframe=2.3,4,7,8,0)   | Y     | 4.01   | 70.32          | 17.71 | -     | 80.0         | 1         |
|               | -  | 2     | 3.48   | 08.92          | 16.70 | -     | 50.0         |           |
| 10490-        | LTE-TDD (SC-FDMA, 50% F78, 19 MHz  | 12    | 430    | 72.95          | 10.70 | 2.25  | 80.0         | +0.6%     |
| AAE           | 64-QAM, UL Sobiramer2.3,4,7,8,8)   | v     | 4.10   | 72.95          | 18.23 | 6.6.4 | 80.0         | a goal in |
| -             |  | I     | 4,10   | 68.77          | 16.66 |       | 60.0         | -         |
| 10491-<br>AAE | LTE-TOD ISC-FDMA, 50% RB, 15 MHz,<br>OPSK, UL Subhamer(2,3,4,7,8,9)  | X     | 5.95   | 76.95          | 20.70 | 2.25  | 80.0         | ±9.6 %    |
| AV4E          | Gran, Gradunan (Prz. A.A. (192)  | 1.Y   | 4.52   | 72.00          | 18.69 |       | 80.0         |           |
|               |  | ź     | 3.62   | 70.84          | 17.60 |       | 80.0         |           |
| 10482-<br>AAE | LTE-TOD (SC-FDMA, 50% RE, 15 MHz;<br>16-DAM, UL Subframe=2,3,4,7,8,0)  | X     | 4.04   | 71/68          | 18.90 | 2.23  | 30,0         | 1.8,61    |
| ANE.          | to which of onnicitions of the little  | 1 Y   | 4.21   | 09.40          | 17.83 |       | 0.05         |           |
|               |  | Z     | 3.83   | 68.32          | 18.75 | -     | -80.0        | -         |

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| 10493-         | LTE-TOD (SC-FDMA SD'S RE 15 MHz  | 8    | 4.97  | 71.38  | 18.79 | 2.23 | 80.0 | 1 29/65 |
|----------------|--|------|-------|--------|-------|------|------|---------|
| AAE            | 84-QAM, LL Subframe=2.3,4,T,8,9)   | 1.1  |       | 1.1.66 |       | -    |      |         |
|                |  | X    | 4.37  | 69.24  | 17.58 | -    | 80,0 | _       |
| 10494-         | ITT THE OF CTARS AND OF COMME  | Z    | 3.90  | 68.20  | 16.76 |      | 80.0 |         |
| AAF            | LTE-TDD (SC-FDMA, 50%, F08, 20 MHz,<br>QPSR, UL Subhame=2,3,4,7,8,9)   | ×    | 6.95  | 79.86  | 21.50 | 2.23 | 80,0 | 196     |
|                |  | Y    | 4.99  | 74.37  | 19,18 | _    | 80.0 | _       |
| 10495          | LTE-TOD (SC-FDMA: S0% RB: 20 Miltz   | Z    | 4.13  | 72.26  | 18.02 |      | 80.0 |         |
| AAF            | 16-QAM, UL Subframe=2,3.4,7,8,3)   | ×    | 6.07  | 72,39  | 19,10 | 2.23 | 0.08 | ±969    |
| _              |  | Y    | 4.37  | 89.87  | 17-84 |      | 80.0 |         |
| 10496-         | LTE-TDD (SC #DMA, 50% RB; 20 MHz.  | Z    | 3.87  | 88.70  | 16.98 |      | 80.0 |         |
| AAF            | 64-QAM, UL Subframer 2,3,4,7 8.9)  | X    | 5.07  | 71.80  | 18,98 | 2.23 | 30.0 | ±969    |
| _              |  | Y    | 4,43  | 69.53  | 17.74 |      | 80.0 | -       |
| 10497-         | LTE-TOD (SC-FDMA, 100%, RB, 1.4  | Z    | 3.96  | 68.45  | 16.92 | 2.00 | 80.0 |         |
| AAA            | MHz, OPSK, UL Subframe=2.3,4,7,6,8   |      | 1 77  | 64.28  | 21.25 | 2.23 | 80.0 | 1963    |
|                |  | Y    | 2.76  | 69.51  | 14.83 | -    | 80.0 | -       |
| 10498-         | LTE-TDD (SC-FDMA, 100% RB, 1.4   | 2    | 1.93  | 65.26  | 12.27 |      | 80.0 | -       |
| AAA            | MHz, 16-QAM, UL<br>Subframo=2,3,4,7,8,9)   | ×    | -4.50 | 15.22  | 15:94 | 2.23 | 80.0 | #86%    |
|                |  | Y    | 2:08  | 63.53  | 11.20 | -    | 80.0 | -       |
|                | and the second s | Z    | 1.49  | 60.84  | 9.11  | -    | 80.0 | -       |
| 10499<br>AAA   | 1TE-TDD (SC-FDMA, 100%, RB, 1.4<br>MHz, 64-QAM, LT,<br>Skolrame=2,3,4,7,8,9)   | ×    | 3.86  | 73,30  | 15.38 | 2.23 | 80.0 | 196%    |
|                |  | N.   | 2.02  | 52.98  | 10.80 |      | 0.08 | -       |
| A 14           | Contraction of States a  | Z    | 1.45  | 60.40  | 8.75  | -    | 80.0 | -       |
| -00ENE         | LTE-TDD (SC-FDMA: 100% RB, 3 MHz,<br>QPBK, UL Subframe=2.3,4,7,8,9)  | x    | 6.85  | \$2.59 | Z2.44 | 2.23 | 0.08 | +8.6%   |
| _              |  | Y    | 4.50  | 75.01  | 19.09 |      | 0.06 |         |
| 1017           |  | Z    | 3 32  | 71.99  | 17.48 | -    | 80.0 | 1       |
| 10001-<br>AAB  | LTE-TOD (SC-FDMA, 100% RB, 3 MHz,<br>16-QAM, UL Subfinime=2,3,4,7,8,9)   | 8    | 5.08  | 74.80  | 19.39 | 2.23 | 0.08 | ± 9.6 % |
| _              |  | Y    | 3,90  | 70.59  | 17.11 | 2    | 88.6 |         |
|                | and a second second second second  | 2    | 3.27  | 68.63  | 15.87 |      | 0.08 | 1       |
| 10502-<br>AAB  | L/E-TOD (SC-FDMA, 100% RB, 3 MHz,<br>B4-DAM, UL Subframa=2,3,4,7,8,9)  | 8    | 5,08  | 74.42  | 10,19 | 2.23 | 80.0 | ±9,6 M  |
| _              |  | Y.   | 3.94  | 70.38  | 16.98 | -    | 80.0 |         |
| inene .        | 1 Performance in the second seco   | Z    | 3.32  | 56.58  | 15.78 |      | 80.0 |         |
| 10503-<br>AAE  | LTE-TOD (SC-FDMA, 100% RB, 5 MHz<br>QPSK, UL Subframe=2,3,4,7,8,9)   | X    | 6.47  | 80.7E  | 22.03 | 2.23 | 80,0 | ± 9.8 % |
|                |  | Y    | W.42  | 74,51  | 19.24 | _    | 50.0 |         |
| and the second | - Wet Minds Tools and the  | Z .  | 3,53  | 71.90  | 17.84 | 5.00 | 80,0 |         |
| AAE            | LTE-TDD (SC-FDMA, 100% RB.5 MHz<br>16-QAM, UL Subireme=2.3 4.7.8.9)  | X    | 4 84  | 73.36  | 19.37 | 2.23 | 30,0 | ±9.6%   |
|                |  | 8    | 3.59  | 70.22  | 17.65 |      | 60.0 | -       |
| 10505-         | TE TOD ANT COMA MADA DE A MA   | Z    | 3.46  | 68.82  | 10.64 | -    | 80.0 |         |
| AAE            | LTE-TDD (SC-FDMA, 100% RB, 5 MHz,<br>84-QAM, UL Subirame=2,3,4,7,8,9)  | *    | 4 85  | 72.84  | 19,17 | 2.23 | 0,08 | ± 8/6 % |
|                |  | · Y. | 4.07  | 69.98  | 17.58 |      | 80.0 | 1       |
| 10506          | LTE-TOO ISC-FDMA, 100% R8, 10  | 2    | 3.55  | 68.67  | 16.80 |      | 80.0 | 100000  |
| MAE            | MHz QPSK UL Suvermer 2,3,4,7,8,5)  | x    | 6.87  | 79.65  | 21.49 | 2,23 | 90.0 | +98%    |
|                |  | Y    | 0.94  | 74.20  | 19.10 |      | 80.0 |         |
| 0507-          | LTE-TOD (SC-FDMA, 100% RB, 10  | Z    | 4.10  | 72.10  | 17.94 |      | 80.0 |         |
| AAE            | MHz, 16-QAM, UL<br>Subframe=2.3.4 7,8,9)   | ×    | 5,05  | 72.32  | 19.14 | 2.23 | 80.0 | 工用。任当   |
|                |  | Y    | 4.35  | 69.81  | 17.80 | _    | 60.0 |         |
|                |  | 2    |       |        |       |      |      |         |

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| 10508-<br>AAE | LTE-TDD (SC-FDMA, 100% RB, 10   | X   | 5.05 | 71.72          | 18.93 | 2.23      | 80.0   | ±9.6 %    |
|---------------|---|-----|------|----------------|-------|-----------|--------|-----------|
| WE.           | MHz, 64-QAM, UL<br>Subframe=2,3,4,7,8,9)                                  |     |      |                |       |           |        |           |
|               |   | Y.  | 4.41 | 69.46          | 17.70 |           | 80.0   |           |
|               |   | Z   | 3.93 | 68.38          | 16.87 | 2,418,624 | 80.0   | -1312022  |
| 0609-<br>VAE  | LTE-TDD (SC-FDMA, 100% RB, 15<br>MHz, QPSK, UL Subframe=2,3,4,7,8,9)      | ×   | 6.42 | 76.31          | 20.23 | 2.23      | 80.0   | ±9.6%     |
|               |   | Y   | 5.10 | 72.45          | 18.45 |           | 80.0   |           |
|               |   | Z   | 4,44 | 71.04          | 17.56 |           | 80.0   |           |
| 10510-<br>VAE | LTE-TDD (SC-FDMA, 100% RB, 15<br>MHz, 16-QAM, UL<br>Subframe=2,3,4,7,8,9) | X   | 5.41 | 71.43          | 18.82 | 2.23      | 80.0   | ± 9.6 %   |
|               |   | Y.  | 4.81 | 69.39          | 17.73 |           | 80.0   |           |
|               |   | Z   | 4.34 | 68.44          | 16.99 | - ware    | 80.0   | Sec. Sec. |
| 10511-<br>VAE | LTE-TDD (SC-FDMA, 100% RB, 15<br>MHz, 64-QAM, UL<br>Subframe=2,3,4,7,8,9) | ×   | 5.40 | 70.96          | 18.67 | 2.23      | 80.0   | ± 9.6 %   |
|               |   | Y   | 4.84 | 69.09          | 17.65 |           | 80.0   |           |
|               |   | Z   | 4.39 | 68.21          | 16.94 |           | 80.0   |           |
| 10512-<br>VAF | LTE-TDD (SC-FDMA, 100% RB, 20<br>MHz, QPSK, UL Subframe=2,3,4,7,8,9)      | ×   | 7,47 | 79.47          | 21.24 | 2.23      | 80.0   | ±9.6 %    |
|               |   | Y   | 5.46 | 74.25          | 18.99 |           | 80.0   |           |
|               |   | Z   | 4.64 | 72.47          | 17.97 |           | 80.0   |           |
| 10513-<br>AAF | LTE-TDD (SC-FDMA, 100% R8, 20<br>MHz, 16-QAM, UL<br>Subframe=2,3,4,7,8,9) | x   | 5.39 | 72.08          | 19.07 | 2.23      | 80,0   | ±9.6 %    |
|               | a second the fraction of 2 looks  | Y   | 4.72 | 69.76          | 17.86 |           | 80.0   |           |
| 102007-       |   | Z   | 4.23 | 68.69          | 17.07 |           | 80.0   | 1000.000  |
| 10514-<br>NAF | LTE-TDD (SC-FDMA, 100% RB, 20<br>MHz, 64-QAM, UL<br>Subframe=2,3,4,7,8,9) | x   | 5.30 | 71.34          | 18.83 | 2.23      | 80.0   | ±9.6 %    |
|               |   | Y   | 4.71 | 69.27          | 17.73 |           | 80.0   |           |
|               |   | Z   | 4.25 | 68.30          | 16.97 |           | 80.0   |           |
| 10515-<br>AAA | IEEE 802.11b WIFI 2.4 GHz (DSSS, 2<br>Mbps, 99pc duly cycle)              | x   | 0.99 | 64.18          | 15.67 | 0.00      | 150.0  | ± 9.6 %   |
| 102408        |   | Y   | 0.87 | 62.03          | 13.65 |           | 150.0  | -         |
| 00.01         |   | Z   | 0.96 | 64.13          | 15.35 | - unait   | 150.0  | 10000000  |
| 10516-<br>AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5<br>Mbps, 99pc duty cycle)            | ×   | 1.07 | 82.62          | 23.29 | 0.00      | 150.0  | ± 9.6 %   |
|               |   | Y   | 0.42 | 66.18          | 13.67 |           | 150.0  |           |
|               |   | Z   | 0.79 | 78.03          | 21.08 |           | 150.0  |           |
| 10517-<br>AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11<br>Mbps, 99pc duty cycle)             | X   | 0.89 | 67.34          | 17.01 | 0.00      | 150.0  | ± 9.6 %   |
|               |   | Y   | 0.70 | 63,35          | 13.75 |           | 150.0  | -         |
|               | IEEE 802 11ah WIFi 5 GHz (OFDM, 9   | X   | 0.83 | 66.82<br>66.90 | 16.43 | 0.00      | 150.0  | ±9.6%     |
| 10518-<br>AAB | Mbps, 99pc duty cycle)  | 1.0 | 4.64 | 66.33          | 15.94 | 0.00      | 150.0  | 1 9.0 %   |
|               |   | YZ  | 4.47 | 67.04          | 16.24 |           | 150.0  |           |
| 10519-<br>AAB | IEEE 802.11a/h WIFi 5 GHz (OFDM, 12<br>Mbps, 99pc duty cycle)             | X   | 4.85 | 67.18          | 16.51 | 0.00      | 150.0  | ± 9.6 %   |
|               | ways, opposing strant   | Y   | 4.67 | 66.59          | 16.08 |           | 150.0  |           |
| _             |   | L   | 4.65 | 67.25          | 16.34 |           | 150.0  |           |
| 10520-<br>AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18<br>Mbps, 99pc duty cycle)             | ×   | 4.71 | 67.17          | 16.45 | 0.00      | 150.0  | ±9.6 %    |
|               |   | Y   | 4.52 | 66.54          | 15.99 |           | 150.0  | -         |
|               |   | Z   | 4.51 | 67.23          | 16.28 |           | 150.0  |           |
| 10521-<br>AAB | IEEE 802.11e/h WIFI 5 GHz (OFDM, 24<br>Mbps, 99pc duty cycle)             | ×   | 4.64 | 67.19          | 16.44 | 0.00      | 150.0  | ± 9.6 %   |
|               |   | Y   | 4.45 | 66.53          | 15.97 |           | 150.0  |           |
|               |   | Z   | 4.44 | 67.24          | 16.27 | 0.00      | 150.0  | ± 9.6 %   |
| 10522-<br>AAB | IEEE 802.11a/h WIFI 5 GHz (OFDM, 36<br>Mbps, 99pc duty cycle)             | X   | 4.69 | 67.17          | 16.48 | 0.00      | 150.0  | 20.0%     |
|               |   | Y   | 4.51 | 66.60          |       |           | 150.0  | -         |
|               |   | Z   | 4.50 | 67.33          | 16.35 |           | 1.00.0 |           |

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| 18.6%  | 150.0 | 0.00               | 16.34 | 67.08 | 4.56 | X    | JEEE 802 11am WHFI 5 GHz (OFDM, 48  | 10523-        |
|--|-------|--------------------|-------|-------|------|------|---|---------------|
|  |       | Suga               |       |       | -    | -    | Mops, 98ac duty cycla)  | A/AB.         |
|  | 150.0 |                    | 15.88 | 66.45 | 4.28 | 9    | -   |               |
| _  | 150.0 |                    | 16.22 | 67.23 | 4.39 | 2    | IPPP and as a little of site operation of   | 10524-        |
| +9.6 %   | 150.0 | 0.00               | 16.48 | 67.13 | 4.64 | 8    | IEEE 802 11a/n WiFi & GHz (OFDM, 54<br>Mbps, B8pc duby cycle)   | AAEI          |
| in the second se | 150.0 |                    | 16.01 | 66.57 | 4.45 | Y    |   |               |
|  | 150.0 | 1000               | 16.32 | 67.24 | 4.44 | 2 8  | IEEE 802,11ac WiFi (20MHz, MCSO)  | 10525-        |
| ± 9,8 %  | 150.0 | 0.00               | 16.06 | 06.17 | 4.60 |      | Water Boz, Trac Wiler (20WHz, MCSO)<br>Water outy cycle)  | AAE           |
|  | 150.0 | -                  | 15.60 | 65.55 | 4,43 | Y    |   |               |
| _  | 150.0 |                    | 15.94 | 66.33 | 4.80 | X    | IEEE 802.11ac WHI (20MHz, MCS1.   | 10526-        |
| 396.2  | 150.0 | 0.00               | 10.20 | 06.57 |      | 12.1 | Selac that rytie)   | AAE           |
| -  | 150.0 |                    | 15.75 | 85.93 | 19/1 | Y    |   |               |
| 1000   | 150.0 |                    | 16.07 | 86.68 | 4.61 |      | IEEE 802.11ac WFi (20MHz, MCS2)   | 10527-        |
| 398%   | 150.0 | 0.00               | 16.16 | 66.55 | 4.72 | ×.   | 99pc duty dyola)  | AAB           |
|  | 150.0 | 100 million (1990) | 15,69 | 65.88 | 4.52 | Ŷ    |   | _             |
|  | 150.0 |                    | 16.02 | 96.66 | 4.53 | 2    | JEET SPI 11 - LAIF MARKET LINE  | 10528-        |
| 1 B.B.S  | 150.0 | CL.00              | 16,19 | 66,57 | 4.73 | ×    | (EEE 802.11ac WIF (20MHz, MOS3,<br>99pc duty cycle)   | AAB           |
|  | 150,0 |                    | 15.72 | B5.90 | 4 54 | Y    |   | _             |
|  | 150.0 | -                  | 16.05 | 88.87 | 4.55 | Z    | VERT DOV AN ALL MARY THREE CARD   | 10529-        |
| ± 9,8 %  | 150.0 | 0.00               | 16.19 | 66.57 | 4.73 | X    | IEEE 802.11ac WIFI (20MHz, MCS4,<br>99bc dudy cycle).   | AAB           |
|  | 150.0 |                    | 15.72 | 05.90 | 4.54 | X    |   | _             |
|  | 150.0 | 100                | 16.05 | 66.67 | 4.55 | 2    |   |               |
| 19.6%  | 150.0 | 0,00               | 16,22 | 66.72 | 4.74 | ×    | (EEE 802 11ac W/FI (20MHz, MC56,<br>90pc duty cycle)  | 10631-<br>AAB |
|  | 150.0 |                    | 15.73 | 68.01 | 4.53 | Y    |   |               |
|  | 150.0 |                    | 18.0E | 66.77 | 4.53 | Z    |   |               |
| 296%   | 156.0 | 0,00               | 16.17 | 66.59 | # 60 | ×    | IEEE 802.11ac WFI (20MHz, MCS7,<br>99pc duty cycle)   | 10532+<br>AAB |
| -  | 150.0 |                    | 15.88 | 65.86 | 4.39 | Y    |   |               |
|  | 150.0 |                    | 16.01 | 66.64 | 4,40 | 2    |   |               |
| ±9.6%  | 150.0 | 0.00               | 16.17 | 66,60 | 4.75 | ×    | (EEE 802.11ac WFr (20MHz, MCS8,<br>98pc duty cycla)   | 10533-<br>AAB |
|  | 150.0 |                    | 15.70 | 65.94 | 4.55 | Y    |   | 1             |
|  | 150.0 |                    | 18.05 | 66.73 | 4.56 | 2    | and the second se |               |
| 19.6%  | 150.0 | 0.00               | 16.21 | 66.67 | 5.24 | ×    | EEE 802,11ac WiFI (40MHz, MCS0,<br>99bc duty cycle)   | 10634<br>AAB  |
| -  | 150.0 |                    | 15.82 | 66.08 | 5.08 | Y    |   |               |
|  | 150.0 |                    | 16.06 | 66.70 | 5.06 | Z    |   |               |
| 19.8 %   | 150.0 | 0.00               | 18.26 | 66.61 | 5.31 | x    | IEEE 802 11sc WiFr (4DMHz, MCS1,<br>99pc duly cycle)  | 10535-<br>AAB |
|  | 150.0 |                    | 15.89 | 66.24 | 5.14 | Y    |   |               |
|  | 150.0 | 1000               | 16.13 | 66.85 | 5.12 | Z    | Tento   |               |
| 19,8%  | 150.0 | 0.00               | 16.25 | 66.81 | 5.18 | ×    | IEEE 802.11ec WiFr (4DMHz, MCS2,<br>99pc duly cycle)  | 10536-<br>AAB |
| -  | 150.0 |                    | 15.84 | 66.19 | 5,01 | Y    | N   |               |
|  | 130.0 |                    | 1011  | 96.34 | 0.00 | 2    |   |               |
| 主動情報   | 150.0 | 0.00               | 16.23 | 68,77 | 5.24 | x    | IEEE 802.11ac WiFi (40MHz, MCS3,<br>S9pc duty cycle)  | 10637+<br>AAB |
|  | 150.0 |                    | 15.84 | 66.17 | 5.07 | Y    |   | -             |
|  | 150.0 |                    | 16.08 | 66.79 | 5.08 | Z.   | 1000 0 000 0 0 00000 0 00000 0 00000000   | 0835          |
| 19.6%  | 150.0 | 0,00               | 16.29 | 66.82 | 6.35 | ×    | IEEE 002.11ac WIFI (40MHz, MCS4,<br>BBps duty cycle)  | AAB           |
|  | 150.0 |                    | 15.90 | 86,21 | 5.17 | YI   |   | _             |
| _  | 150.0 |                    | 16.12 | 66.79 | 8.14 | 2    | In the same same same same same same same sam   | Infest        |
| 196W   | 150.0 | 0.00               | 16.29 | 56,78 | 5.25 | x    | IEEE S02.11ac WIFI (40MH)z, MCSB,<br>99pc duty cycle)   | 10540<br>AAE  |
| -  | 150.0 | -                  | 15.91 | 66.21 | 5.09 | Y    |   |               |
|  | 150.0 | _                  | 16.13 | 66.78 | 5.07 | Z    |   |               |

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| 10541-        | IEEE 802.11ec WIFi (40MHz, MCS7,   | TXI | 5.24 | 66.69  | 16.24 | 0.00  | 150.0 | 1.9.8 %  |
|---------------|--|-----|------|--------|-------|-------|-------|----------|
| AB            | 99ps duty cycle)   | 1.1 | 1000 | 10.000 |       | a.mp. |       | 1-910.10 |
|               |  | Y   | 5.06 | 66.05  | 15.84 |       | 150.0 | -        |
| aria          |  | Z   | 5.05 | 66.69  | 16.08 | 10.00 | 150.0 |          |
| 10542-<br>AAB | (EEE 802,11ac.WFI (40MHz, MCS8,<br>99pc duty cycle)  | ×   | 5.30 | 66.72  | 16.27 | 0.00  | 150.0 | ±9.8 %   |
|               |  | Y   | 5.22 | 86.16  | 15.50 |       | 150.0 |          |
| Colo.         |  | Z   | 5.20 | 66.74  | 16:12 | -     | 150.0 |          |
| 10543-<br>AAB | IEEE 802.11ac WiFi (40MHz, MCS9)<br>99pc duty cycle)   | x   | 5.47 | 66.74  | 16.29 | 0.00  | 150.0 | ±9.6 %   |
|               |  | Y   | 5.30 | 66.21  | 15.95 | _     | 150.0 |          |
|               | and the second second second second  | Z   | 5.27 | 66.76  | 16.14 |       | 150.0 |          |
| 10544-<br>\A田 | IEEE 802.11ec WIFI (80MH≥ MCS),<br>99pc duty cycle)  | X   | 5.52 | 66,77  | 16.19 | 0.00  | 150.0 | 19.6%    |
|               |  | Y   | 5.38 | 56.20  | 15.82 | 1     | 750.0 |          |
|               |  | Z   | 5.37 | 66.80  | 16.04 |       | 150.0 |          |
| 10545-<br>AAB | IEEE 802.11ac WIFI (80MHz, MCS1<br>99pc duty cycle)  | X   | 5.72 | 67.14  | 16,31 | 0.00  | 150.0 | 主要政治     |
|               |  | Y   | 5.58 | 66.63  | 15.99 | i     | 150,0 |          |
|               |  | Z   | 5.53 | 67.12  | 16.15 |       | 150.0 |          |
| 10546-<br>AAB | IEEE 802.11ec WiFi (80MHz, MC62,<br>99pc duty syste)   | ×   | 5.61 | 67,04  | 16.28 | 0.00  | 150/0 | ±9.6%    |
| -             |  | Y   | 5.45 | 66.44  | 15.91 |       | 150.0 |          |
|               | the second s   | 2   | 5,43 | 66.99  | 16.10 |       | 150,0 | -        |
| 10547-<br>AAB | IEEE 802.11ac WiFi (80MHz, MCB3,<br>99pc duty cycle)   | x   | 5.70 | 67.12  | 16,31 | 0.00  | 150.0 | ± 9.6 %  |
|               |  | Y   | 5.53 | 66.49  | 15.92 |       | 150,0 |          |
|               | and the state of the second  | Z   | 5.50 | 67/02  | 16.11 |       | 150.0 |          |
| 10548-<br>AAB | IEEE 802 11ac WiFi (89MHz, MD84,<br>99pc duty cycle)   | X   | 5.93 | 67.90  | 16.70 | 0.00  | 150.0 | £9.6 %   |
|               |  | Y   | 5.82 | 87.53  | 16.41 |       | 150.0 |          |
|               | P  | 2   | 5.64 | 67.E3  | 16.39 |       | 150.0 | 1.000    |
| 10550-<br>AAB | IEEE 802 11ac WIFI (B0MHz, MCB6,<br>99pc duty cycla)   | X   | 3.63 | 67.00  | 16.27 | 0,00  | 150.0 | ±9.6 %   |
|               |  | 8   | 5.47 | 66.43  | 15.91 |       | 150.0 |          |
|               |  | 2   | 5,45 | 67.00  | 16.12 |       | 150.0 |          |
| 10551-<br>AAB | IEEE 802,11ac WIFI (BOMHz, MCS7,<br>99pc duty cycle)   | x   | 5,65 | 67.07  | 18.26 | 0,00  | 150.0 | ± 9.6 %  |
| 1.0           | aspe and officer   | 1 Y | 5,48 | 65.43  | 15.89 |       | 150.0 |          |
|               |  | 2   | 5.46 | 67.04  | 18.10 |       | 150.0 |          |
| 10552-<br>AAB | IEEE 802 11ac WIFI (80MHz, MCS8<br>99pc duty c)icle)   | x   | 9.50 | 66.66  | 18.18 | 0.00  | 150.0 | 19.8%    |
|               | nabe and item  | Y   | 5.39 | 66.26  | 15.80 |       | 150.0 |          |
|               |  | Z   | 5.39 | 65.89  | 16.04 | -     | 150.0 | 1.0      |
| 10553-<br>AAB | IEEE 802 T1ac WIFI (80MHz, MCS9,<br>99pc duty pycle)   | X   | 5.00 | 66.91  | 16.22 | 0.00  | 150,0 | ± 9.6 %  |
| -             | and a first strengt  | Y   | 5.48 | 58.32  | 15.86 |       | 100.0 |          |
|               |  | Z   | 5.47 | 66.91  | 16.07 |       | 150.0 | 1.1.1.1  |
| 10554-<br>AAC | IEEE 802 11ac WIFI (100MHz, MCS0,<br>99bc duty cycle)  | X   | 6.92 | 67.13  | 16.27 | 0.00  | 150.0 | ±9.6%    |
|               | and and a strength   | Y   | 5.78 | 68.58  | 15.93 |       | 150,0 |          |
|               | the survey of the second se  | Z   | 5.77 | 87.13  | 16.11 |       | 150.0 |          |
| 10555-<br>AAC | IEEE 802 11ac WiFi (100MHz, MCS1, 90pc duty upde)  | х   | 6.06 | 67,44  | 16,39 | 0.00  | 150,0 | ± 8.6 %  |
|               | 7.51.51  | Y   | 5.92 | 66 89  | 16.06 |       | 150.0 | 1        |
|               | the second se  | - 2 | 5.88 | 67.38  | 18.21 | 1000  | 150.0 |          |
| 10006+<br>AAC | IEEE 502.11ac WiFi (180MHz, MCS2.<br>99pc duty cycle)  | X   | 6,07 | 67.47  | 16.40 | 0.00  | 150,D | ±0.6.%   |
|               |  | Y   | 5,94 | 66.94  | 16.07 |       | 150.D |          |
|               | and the second s | Z   | 5.90 | 67.42  | 16.23 |       | 150.0 |          |
| 10557-<br>AAC | IEEE 502.11ac WFT (160MHz, MCS3,-<br>99pc duty cycle)  | ×   | 8.08 | 67.43  | 16,40 | 0.00  | 150.0 | ±9.6 %   |
|               | and a first state  | Y.  | 5.91 | 68.85  | 16.05 |       | 150.0 |          |
|               |  | Z   | 5.87 | 67.38  | 16.22 |       | 150.0 |          |

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| 19.6%   | 150.0 | 0.00      | 16.50 | 67.60  | 6.11   | X   | IEEE BIZ 11ac WIFI (180MHz, MCS4,  | 10558           |
|---------|-------|-----------|-------|--------|--------|-----|--|-----------------|
| 19/03   | 100   | 0.00      | 10.50 | -      |        | 1.1 | 99pc duty syste)   | AAC             |
|         | 150.0 | 1         | 16.15 | 67.02  | 5.96   | γ   |  |                 |
|         | 150.0 | 1000      | 16.30 | 67.50  | E-91   | 2   |  | TARA            |
| ± 9.6 % | 150.0 | 0.00      | 16,47 | 67.48  | 6.97   | ×   | IEEE 802.11ab WIFI (160MHz, MCS8,<br>990croup cycle)   | 10560-<br>AAG   |
|         | 150.0 | 1         | 18,11 | 66.87  | 5.95   | Υ.  |  |                 |
|         | 150.0 |           | 16.28 | 67.38  | 5.92   | 2   |  |                 |
| ±9.6%   | 150.0 | 0.00      | 16.48 | 67.40  | 8.02   | ×   | IEEE 802.11ad WIFI (160MHz MCS7,<br>Stop duty cycle)   | 10581<br>AAC    |
| _       | 150.0 |           | 16:13 | EE BA  | 5.87   | 8   |  |                 |
| -       | 150.0 | 1.000     | 15.29 | 67.33  | 5.84   | 2   | IEEE 802 11sc WIFT 1100MHz, MCSB.  | 10562-          |
| 29,0%   | 150.0 | 0.00      | 16.69 | 67.82  | 6.16   | х   | 99pc duty cycle)   | AAS             |
|         | 150,0 |           | 16.35 | 67.25  | 6.01   | 26  |  |                 |
|         | 150.0 | -         | *6.44 | 67.63  | 5.03   | 2   | IEEE 802.11/0: WIFI (160MHz, MCS3  | 10563-          |
| 2985    | 150.0 | 0.00      | 16,80 | 68,29  | 0,47   | *   | Bépic duty syste)  | AAC:            |
|         | 150.0 |           | 15.58 | 67.82  | 6.34   | Y   |  | _               |
|         | 150.0 | inter the | 16.43 | 87.70  | 6.09   | 2   | IN THE DOMESTIC A DOMESTIC AND ADDRESS   | 10564-          |
| 136 #   | 150.0 | 0,46      | 16.53 | 88.98  | 4.97   | ×   | IEEE 802.11g WiFi 2.4 GHz (DSSS-<br>DFDM, 9 Mops, 98pc duty cycle)   | AAA             |
|         | 150.0 |           | 15.14 | 66,45  | 4.81   | Y   |  | -               |
|         | 150.0 |           | 信.32  | 67.02  | 4.78   | 2   | IET and the milting of the second  | 10565-          |
| 196%    | 150.0 | 0.46      | 16.85 | B7.46  | 5,23   | 8   | IEEE 802.11g WIFi 2.4 GHz (DSSS-<br>OFDM, 12 Mops, 38pc duty cycle)  | AAA             |
|         | 150.0 |           | 16.47 | 86.93  | 5,05   | Y.  |  |                 |
|         | 150.0 |           | 16.65 | 67.49  | 5.01   | 2   | APPE AND HALLING A ROOM AND AND  | 10566-          |
| 19.6%   | 150,0 | 0.46      | 16 89 | 67.34  | 5.00   | ×   | IEEE 802.11g Wi+i 2.4 GHz (DS85-<br>OFDM, 18 Mbps, 90pc () (y cycle)   | AAA             |
| 1       | 150.0 |           | 16.28 | 96.77  | 4.88   | Ϋ́  |  |                 |
|         | 150.0 |           | 16.46 | 87.32  | 4,84   | Z   |  | 10567           |
| 19.6%   | 150.0 | 0.46      | 17.04 | 67.74  | 90.0   | ×   | GEE 802.11g WF/ 2.4 GHz (DSSS-<br>OFDM, 24 Mbps, 56pc duty cycle)  | 10567.<br>AAA   |
|         | 150.0 |           | 16.63 | 87.15  | 4,91   | N.  |  |                 |
|         | 150.0 | 11000     | 16:37 | 87.80  | 4.85   | Z   | Name of the other states o | Jak ed.         |
| 19.6 %  | 150.0 | 0.46      | 16,45 | 67 07  | 4.97)  | ×   | IEEE 802 11g WIF 2.4 GHz (DSSS-<br>OFDM, 38 Mbps, 95pc duly cycle)   | 10568-<br>AAA   |
|         | 150.0 |           | 16.05 | 68.54  | 4.80   | Y   |  |                 |
|         | 150.0 | 1         | 10.19 | 67.03  | 4.74   | Z   |  |                 |
| ± 9,8 % | 150,0 | 0.46      | 17.08 | 67.78  | 5.03   | 8   | IEEE 802 11g WiFi 2.4 GHz (DSSS-<br>OFDM 48 Mbps: 39pc date cycle)   | 10589+<br>AAA   |
|         | t50.0 | -         | 18.68 | 67.22  | 4.86   | Y I | -  |                 |
|         | 150.0 |           | 10.95 | 67.93  | 4.85   | Z.  | Inter and a long strength  | (Participation) |
| 196 5   | 150.0 | 0.46      | 17,01 | 87 62  | 5.08   | x   | IEEE 802 11g WIFI 2.4 GHz (DSSS-<br>OFDM, 54 Mpp), 39b5 duty cyclej  | 10570-<br>AAA   |
|         | 150.0 |           | 16.62 | 67.08  | 4.90   | Ŷ   |  |                 |
| 1.000   | 150.0 |           | 16.86 | 67.73  | 4,88   | 2   | many loop and the same of the same   | 10571-          |
| ± 0.8 % | 130.0 | 0.46      | 17 12 | 66.77  | 1.32   | ×   | IEEE 802,11b W/Fi 2:4 GHz (D588, 1<br>Mbpe: 90pc duty sycle)   | 10571-<br>AAA   |
| _       | 130.0 |           | 15.06 | 64.23  | 1.14   | Y.  |  | _               |
|         | 130.0 |           | 15.80 | 05:20  | 1,17   | - 2 | INTER AND AND ADD & COLUMN   | A DECIMAL       |
| ± 9.6 % | 130.0 | D.46      | 17.59 | 67.60  | 1,36   | x   | IEEE 802.11E WIFI 2.4 GHz (DSSS, 2<br>Mbps, 90pc duty cycle)   | 10572-<br>AAA   |
|         | 120.0 |           | 15.38 | 64.80  | 1.16   | Y   |  |                 |
|         | 130.0 | 1.11      | 18.20 | 65.98  | 1.19   | 2   | OTTO AND ANT INCOME AND AND AND  | 10573           |
| ± 0.6 % | 130.0 | 0.46      | 40.35 | 100.25 | 100,00 | ×   | IEEE 802.11b WIFI 2.4 GHz (DSSS, 5.6<br>/ Mops, 90pc duty cycle)   | AAR             |
|         | 138.0 | _         | 20.21 | 61,80  | 1.94   | Y   |  |                 |
|         | 130.0 | 2.12      | 27.76 | 101.40 | 5.37   | Z   | these and the talks of the same first  | 11574           |
| ±9.6%   | 130.0 | 0,46      | 22:17 | 77.53  | 1.88   | x   | IEEE 802,116 WIF12.4 GHz (DSSS, 11<br>Minos, 90pp duty cycle)  | NVA.            |
|         | 130.0 |           | 17.98 | 70.31  | 1,28   | Y   |  | _               |
|         | 130.0 |           | 20.12 | 73.83  | 1,45   | Z   |  |                 |

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| 10575-        | IEEE 802.11g WFi 2.4 GHz (DSSS-   | X     | 4,77    | 66.82                                    | 16.63          | 0.46 | 130.0   | ± 9.6 % |
|---------------|---|-------|---------|--|----------------|------|---------|---------|
| AAA           | OFDM, 6 Mbps, 90pc duty cycle)  | Y     | 4.62    | 66.32                                    | 16.23          |      | 130.0   |         |
|               |   | Z     | 4.56    | 66.75                                    | 16.29          |      | 130.0   |         |
| 10576-        | IEEE 802.11g WIFI 2.4 GHz (DSSS-  | X     | 4.80    | 66.99                                    | 16.69          | 0.46 | 130.0   | ± 9.6 % |
| AAA           | OFDM, 9 Mbps, 90pc duty cycle)  |       | - House |  |                |      | 100.0   |         |
|               | and the second | Y     | 4.64    | 66.47                                    | 16.29          | -    | 130.0   |         |
|               |   | Z     | 4.59    | 66.94                                    | 16.38          |      | 130.0   |         |
| 10577-<br>AAA | IEEE 802.11g WIFI 2.4 GHz (DSSS-  | X     | 5.03    | 67.31                                    | 16.86          | 0.46 | 130.0   | ±9.6 %  |
|               | OFDM, 12 Mbps, 90pc duty cycle)   |       | 1.00    |  | 10.10          |      | 122.0   |         |
|               |   | YZ    | 4.85    | 66.78<br>67.21                           | 16.47<br>16.54 | _    | 130.0   |         |
| 10578-        | IEEE 802.11g WiFi 2.4 GHz (DSSS-  | X     | 4,93    | 67.50                                    | 16.96          | 0.46 | 130.0   | ±9.6 %  |
| AAA           | OFDM, 18 Mbps, 90pc duty cycle)   | 1 ^ I | 4.83    | 01.00                                    | 10,90          | 0.40 | 130.0   | 19.0 3  |
|               | a and is under over any street  | Y     | 4.75    | 66.94                                    | 16.57          |      | 130.0   |         |
|               |   | Z     | 4.69    | 67.42                                    | 16.68          |      | 130.0   |         |
| 10579-        | IEEE 802.11g WiFi 2.4 GHz (DSSS-  | X     | 4.69    | 66.84                                    | 16.33          | 0.46 | 130.0   | ±9.6 %  |
| a,a,a         | OFDM, 24 Mbps, 90pc duty cycle)   | 1.0   | 1.00    | 22.01                                    | 48.65          |      | 100.2   |         |
| -             |   | Y     | 4.52    | 66.24                                    | 15.89          |      | 130.0   |         |
| 10580-        | IEEE 802.11g WIFi 2.4 GHz (DSSS-  | X     | 4.43    | 66.61                                    | 15.89          | 0.46 | 130.0   | ± 9.6 % |
| AAA           | OFDM, 36 Mbps, 90pc duty cycla)   | 1     | 4.14    | 00.01                                    | 10.32          | 0.40 | 1.50.00 | 2 8 6 2 |
|               | of and of maper only only of any  | Y     | 4.57    | 66.26                                    | 15.90          |      | 130.0   |         |
| Sectors - C   |   | Z     | 4.47    | 66.59                                    | 15.90          |      | 130.0   |         |
| 10581-<br>AAA | IEEE 802.11g WIFi 2.4 GHz (DSSS-  | Х     | 4.83    | 67.59                                    | 16.95          | 0.46 | 130.0   | ±9.6 %  |
|               | OFDM, 48 Mbps, 90pc duty cycla)   | Y     | 4.65    | 86.98                                    | 16.51          |      | 130.0   |         |
|               |   | Z     | 4.59    | 67.47                                    | 16.62          | -    | 130.0   |         |
| 10682-<br>AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-<br>OFDM, 54 Mbps, 90pc duty cycle)   | X     | 4,64    | 66.58                                    | 16.12          | 0.46 | 130.0   | ±9.6 %  |
|               | of the of maps, supposing speak   | Y     | 4.47    | 66.00                                    | 15.67          |      | 130.0   |         |
|               |   | Z     | 4.36    | 66.28                                    | 15.65          |      | 130.0   |         |
| 10583-<br>AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6<br>Mbps, 90pc duty cycle)  | ×     | 4.77    | 66.82                                    | 16.63          | 0.46 | 130.0   | ±9.6 %  |
|               |   | Y     | 4.62    | 66.32                                    | 16.23          |      | 130.0   |         |
|               |   | Z.    | 4.56    | 66.75                                    | 16.29          |      | 130.0   |         |
| 10584-<br>AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9<br>Mbps, 90pc duty cycle)  | x     | 4.80    | 66.99                                    | 16.69          | 0.46 | 130.0   | ± 9.6 % |
| _             |   | Y.    | 4.64    | 66.47                                    | 16.29          |      | 130.0   |         |
|               |   | Z     | 4.59    | 66.94                                    | 16.38          | 0.10 | 130.0   |         |
| 10585-<br>AAB | IEEE 802.11a/h WIFi 5 GHz (OFDM, 12<br>Mbps, 90pc duty cycle)   | x     | 5.03    | 67.31                                    | 16.86          | 0.46 | 130.0   | ± 9.6 % |
|               |   | Y     | 4.85    | 66.78                                    | 16.47          | -    | 130.0   |         |
| 10000         | WERE AND THE MUST P ONLY INTERNAL OF  | ZX    | 4.78    | 67.21                                    | 16.54          | 0.46 | 130.0   | +9.6%   |
| 10586-<br>AAB | IEEE 802.11a/h WIFi 5 GHz (OFDM, 18<br>Mbps, 90pc duty cycle)   | 1.02  | - 752   | 1. | 1807           | 0.40 |         | 23.0.3  |
|               |   | Y     | 4.75    | 66.94                                    | 16.57          | -    | 130.0   |         |
| 10.5.5.2      | WERE AND ALCO MODIFIED ON A DOPEND OF   | X     | 4.69    | 67.42<br>66.84                           | 16.68          | 0.46 | 130.0   | ±9.6%   |
| 10587-<br>AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24<br>Mbps, 90pc duty cycle)   | ~     | 4.99    | 00.84                                    |                | 0.40 |         | 2 3 0 7 |
|               |   | Y     | 4.52    | 66.24                                    | 15.89          |      | 130.0   |         |
|               |   | Z     | 4.43    | 66.57                                    | 15.89          |      | 130.0   | 12      |
| 10588-<br>AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM. 36<br>Mbps, 90pc duty cycle)   | X     | 4.74    | 66.81                                    | 18.32          | 0.46 | 130.0   | ± 9.8 % |
|               | - Process California (1996) Description   | Y     | 4.57    | 66.26                                    | 15.90          | -    | 130.0   |         |
| 1.1.1         |   | Z     | 4.47    | 66.59                                    | 15,90          | 0.45 | 130.0   | 1000    |
| 10589-<br>AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48<br>Mbps, 90pc duty cycle)   | 1.00  | 4.83    | 67.59                                    | 16.95          | 0.46 | 130.0   | ± 9.6 % |
|               |   | Y     | 4.65    | 66.98                                    | 16.51          |      | 130.0   | 1.1     |
|               |   | Z     | 4.59    | 67.47                                    | 16.62          |      | 130.0   |         |
| 10590-<br>AAB | IEEE 802.11a/h WIFi 5 GHz (OFDM, 54<br>Mbps, 90pc duty cycle)   | ×     | 4.64    | 66.58                                    | 16.12          | 0.46 | 130.0   | ± 9.6 9 |
|               |   | Y     | 4.47    | 66.00                                    | 15.67          |      | 130.0   | -       |
|               |   | Z     | 4.36    | 66.28                                    | 15.65          |      | 130.0   |         |

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| 19.6.9  | 130.0 | 0.46  | 16.71  | 66.87                                 | 4,02 | X      | IEEE 802 #1n (HT Mound, 20MHz   | 10591-          |
|---------|-------|-------|--------|---------------------------------------|------|--------|---|-----------------|
| 120.3   |       | u. Tu | 1.11.1 | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | -14  | 1.1    | MCSE, stiss duty cycle)   | AAB             |
|         | 130.0 |       | 16.34  | EE 38                                 | 4.11 | 4      |   |                 |
|         | 130.0 |       | 16.40  | 66.82                                 | 4,71 | - Z    | ATTENDED AND AND AND A MARKED   | 10592-          |
| 19.6 %  | 130.0 | 0.46  | 16.84  | 67.22                                 | 5.09 | 8      | IEEE 802.11h (HT Mixed, 20MHz,<br>MCB1.90pt duty cycle)   | AAB             |
| 1.1.1.  | 130.0 |       | 16.47  | 6672                                  | 4.93 | · 9    |   | _               |
|         | 130.0 |       | 16.53  | 87.15                                 | 4.86 | 2      | IEEE 802.11n (HT Missel, 20MHz)   | 10583-          |
| 29.6%   | 130.0 | 0.46  | 16,74  | 67.17                                 | 5,02 |        | MCS2, 90pc duty cycle)  | AAE             |
|         | 130.0 |       | 16.36  | 88.64                                 | 4.85 | Y      |   |                 |
|         | 120.0 |       | 16.40  | 87.04                                 | 4.77 | 2      | IFT data by a second second   | 10594-          |
| 19.64   | 130.0 | 0.46  | 16.89  | 67.32                                 | 5.07 |        | IEEE 802.11n (HT Mixed, 20MHz,<br>MCS3, 90pc duty cycle)  | AVB.            |
|         | 130,0 |       | 16,51  | 66.80                                 | 4.90 | Y<br>Z | -   |                 |
| -       | 130.0 | 1     | 16.57  | 67.23                                 | 4.83 |        | APPENDENT AND AND ADDRESS OF MANAGEMENT   | 10695-          |
| 1963    | 130.0 | 0.46  | 16.79  | 67.29                                 | 5,05 | ×      | IEEE 802.11n (HT Mosid, 20MHz,<br>MCS4, 90pc duty cycle)  | AAB             |
| -       | 130.0 | ii    | 16.40  | 66.75                                 | 4.87 | Y      |   | _               |
| See     | 150.0 |       | 16.45  | 67.17                                 | 4.80 | 2      | THE BOARD AND A THE REAL  | Inner           |
| ± 9,8 % | 130.0 | 0.46  | 16.80  | 67 29                                 | 4,58 | ×      | IEEE BO2:11n (HT Mixed, 20MHz<br>MCS5, 90pc duty cycle)   | 10596-<br>AAB   |
| -       | 130.0 | 1     | 16,40  | 88.75                                 | 4.81 | Y      |   |                 |
|         | 130.0 |       | 16.45  | 57.16                                 | 4.73 | Z      | THE CONTRACTOR OF A   | 1010            |
| 196%    | 130.0 | 0.46  | 16,70  | 67.23                                 | 4.94 | ×      | IEEE 802.11n (HT Mixed, 20MHz,<br>MCSS, 900¢ (Ldy cycle)  | 10597-<br>AAB   |
|         | 130.0 |       | 16.29  | 66.66                                 | 4:76 | Y      |   | 1.11.1          |
|         | 130.0 | 1000  | 15.33  | 67.05                                 | 4,68 | Z      |   |                 |
| 198%    | 130.0 | 0.46  | 18.98  | 67.49                                 | 4.82 | *      | IEEE 802.11n (HT Mixed, 26Miliz,<br>MCS7, 90pc duty cycle)  |                 |
|         | 130.0 |       | 18,55  | 86.90                                 | 4.74 | 14     |   |                 |
|         | 130.0 |       | 16.63  | 67.34                                 | 4.68 | Z I    | And the second se |                 |
| ±98%    | 130.0 | 0.46  | 19,88  | 67.43                                 | 5.58 | x      | IEEE 802.11n (HT Mixed, 40MHz,<br>MOSO, 90pc duty cycle)  | 10599-<br>AAB   |
|         | 130.0 |       | 16.56  | 66.96                                 | 5.44 | Y      |   |                 |
|         | 130.0 |       | 16.55  | 67.25                                 | 5.34 | Z      |   |                 |
| ±98%    | 130,0 | 0.46  | 17.07  | 67.88                                 | 5.74 | x      | IEEE 802.11n (HT Mixed, 40MHz<br>MCS1, 90pc duty cycle)   | AAB             |
|         | 130.0 | -     | 16.79  | 57.47                                 | 5,60 | 8      |   | 100 C           |
|         | 130.0 |       | 16.64  | 67.51                                 | 5.43 | 2      | A CONTRACT OF THE OWNER OF THE OWNER  |                 |
| ±10,8 % | 130.0 | 0.46  | 16.95  | 67.61                                 | 5,81 | *      | IEEE 802.11n (HT Mixed, 40MHz;<br>MCS2, 90pc duty cycle)  | 1060 II.<br>NAB |
|         | 130.0 |       | 15.66  | 87.17                                 | 5.48 | Y      |   |                 |
|         | 130.0 |       | 15.60  | 67.37                                 | 5.35 | 2      |   |                 |
| +86%    | 130.0 | 0.46  | TEBE   | 87.58                                 | 5,70 | X      | IEEE 802 71h (HT Mixed, 40MHz, MCS3, 90pc duty cycle)   | 10602-<br>NAB   |
|         | 130.0 |       | 18.58  | 67.17                                 | 5.58 | Y      |   |                 |
|         | 130.0 |       | 16.52  | 67.40                                 | 5.45 | Z      |   |                 |
| ± 9,6 % | 130.0 | 9.46  | 17.16  | 67.83                                 | 5.BO | X      | EEE 802 11n (HT Mixed, 40MHz,<br>MCS4, 90pc duty cycle)   | 10603-<br>4AB   |
|         | 130.0 |       | 16.87  | 87.48                                 | 5,65 | Y      |   |                 |
|         | 130.0 |       | 10.01  | 67.69                                 | 5.62 | 2      |   |                 |
| ±96%    | 130.0 | 0.46  | 36,87  | 67.37                                 | 5.58 | ×      | IEEE 902.11n (HT Mised, 30MHz,<br>MCS6, 90pc duty cycle)  | 0504-<br>¥48    |
| -       | 130.0 |       | 16.57  | 86.52                                 | 5.44 | Y      |   |                 |
|         | 130.0 | -     | 16.58  | 67.27                                 | 5.37 | 2'     |   | A.440           |
| 19.6%   | 130.0 | 0.46  | 17.00  | 67.64                                 | E.68 | 8      | IEEE 302.11n (HT Mixed, MMHz,,<br>MCSB, 90pc duty cycle)  | 0005-<br>VAB    |
|         | 130.0 | _     | 16.75  | 67,28                                 | 5,56 | Y      |   |                 |
|         | 130.0 |       | 16.88  | 67.44                                 | 5.48 | Z      | Instal and 1.5 county of the local  | 8444            |
| ± 9.6 % | 150,0 | 0.46  | 16,84  | 57.15                                 | 5,46 | x      | IEEE B02 11n (HT Moved, 40MHz,<br>MCS7, 90pc duty cycle)  | DEOB-           |
|         | 130.0 | -     | 16.32  | 66.89                                 | 5.33 | Y      |   | _               |
|         | 130.0 | -     | 16.23  | 68.87                                 | 5.20 | Z      |   | _               |

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| 1507-   | TEEE 902 Thac WIFI (20MHz, MCS),                             | X   | 4.76 | 65.21          | 16.35 | 17.40 | 130.0 | 19.6%   |
|---|--|-----|------|----------------|-------|-------|-------|---------|
| AB.   | BOpe duty cycle)   |     |      |                |       |       | 1000  | 1 80.0  |
| _   |  | 8   | 4.60 | 35.66          | 15.94 |       | 130.0 | -       |
| 008-  | IEEE 802 11ac WIFI (20MHz MCS1)                              | 7   | 435  | 56.17<br>55.64 | 16.05 | 0.46  | 130.0 |         |
| 18  | 90pc duty cycley   | x   | 4.97 |                | 0.000 | U-40  | 130,0 | 796%    |
| _   |  | Y   | 4.79 | 65.07          | 16.11 |       | 130.0 |         |
| 0005  | REE BOS 11ac WIFE COMHz, MICS2.                              | Z   | 4.73 | 86.56<br>88.62 | 16.21 | 0.46  | 130.0 |         |
| AB  | BOD a gold ( 100 A) ( 50 MHZ, ML32,<br>BOD a gold ( 200 HZ ) | X   | 100  |                |       | 0.46  | 130.0 | 393 %   |
| _   |  | Y   | 4.63 | 65.92          | 15,94 | _     | 130.0 | _       |
| 610-  | and the second and states to the states of the               | 2   | 4,62 | 06.40          | 10.04 |       | 130.0 |         |
| AB  | IEEE 802 11ac WFI (20MHz, MCSS,<br>90pt duty cycle)          | 100 |      | 88,68          | T6.54 | 0.48  | 130.0 | 3966    |
| -   |  | Y   | 4.73 | 66.68          | 16:11 | _     | 130.0 |         |
| -   |  | 2   | \$47 | 86.58          | 16:22 |       | 130.0 |         |
| 10611 IEEE 802,11ac WFP (20<br>AAB 900c duty cyclo) | IEEE 802,11ac WEI (20MHz, MCS4,<br>90pc duty cycla)          | ×   | 4 93 | 88.50          | 16,39 | 0.46  | 130.0 | 1988    |
| -   |  | Y   | 4,65 | 65.89          | 15.96 |       | 130,0 | -       |
|   |  | Z   | 4.59 | 86.38          | 16.65 |       | 130.D |         |
|   | IEEE 802.11ac WIFI (20MHz, MCS5:<br>90pc duty cycle)         | ×   | 4.85 | 96.66          | 16.44 | 0.48  | 130.0 | ± 9.6 % |
|   |  | Y   | 4.66 | 65.04          | 16.00 | 1     | 130.0 | -       |
|   |  | Z   | 4.59 | 66.49          | 16.08 | 100.1 | 130.0 |         |
| AB  | TEEE 802 11ac WIFI (20MHz, MCS6)<br>90pc duty cycla)         | ×   | 4,00 | 66.57          | 16.33 | D.46  | 130.0 | ± 9.6 % |
|   |  | TY. | 4.67 | 65.94          | 15.89 |       | 750.0 | 1       |
|   |  | Z   | 4,69 | 65.36          | 15,95 |       | 130,0 | -       |
| 1614-<br>AE   | (EEE 802.11ac WIFI (20MHz, MCS7,<br>90ac duty cycle)         | x   | 4.80 | 68.77          | 16.57 | 0.48  | 130.0 | ±0.6 %  |
|   | 2001200120030  | Ť   | 4.00 | 66.11          | 18.11 | 1     | 130.0 | 1       |
|   |  | Z   | 4.55 | 66:63          | 18.24 |       | 130.0 |         |
| AB  | TEEE BOZ 11mc WiF) (20MHz, MCS8,<br>90pc duty cycle)         | ×   | 4/83 | 66,31          | 16.17 | 0,48  | 130.0 | ±0,8%   |
| -   |  | 4   | 4.65 | 65.72          | 15.74 |       | 130.0 | -       |
|   |  | Z   | 4.57 | 66.14          | 15,79 |       | 130.0 | -       |
| AE  | IEEE 302.1 (as WIFI (40MHz, MCSD,<br>90pc duly cyce)         | 8   | 5.40 | 66.72          | 16.51 | 0,46  | 130.0 | = 9.6 % |
| <u></u>   | Bolie and evices   | -V  | 5.25 | 86:20          | 10.17 | -     | 130.0 | -       |
|   |  | 2   | 5.18 | 66.58          | 16.21 |       | 136.0 |         |
| 0617-   | IEEE 902 that WiFI (30MHz, MCS1.                             | X   | 5.46 | 66.82          | 16.52 | 0.46  | 120.0 | 39.6%   |
| AB  | BOpc duty cycki)   | Y   | 5.32 | 66.35          | 16.21 |       | 1300  |         |
|   |  | 2   | 5.23 | 68.70          | 1E.24 |       | 130.0 |         |
| AB AB   | IEEE 802 11ac WiFi M0Miltz, MCS2, 90pc duty cycle)           | X   | 5.36 | 66.91          | 16.59 | 0.46  | 130.0 | 19.6%   |
|   | Sector (and them)  | Y   | 5.20 | 66.37          | 16.23 |       | 130.0 |         |
|   |  | - 3 | E.13 | 66.77          | 16.30 |       | 130.0 |         |
| AB  | IEEE BUZ 11as WIFI (40MP12, MCS3, 900c duty cycle)           | X   | E.38 | 65.73          | 16.44 | 0,48  | 130.0 | 19.6%   |
| 140   | come and chieft  | Y   | 5.23 | 86.21          | 16.09 | -     | 130.0 |         |
|   |  | 12  | 5.14 | 86.53          | 16.10 |       | 130.0 |         |
| 0620-<br>AB   | IEEE 602,11ac WiFr (400Hz; MCS4,<br>90pc duty cycle)         | X   | 540  | 66.81          | 16.52 | 11-48 | 130.0 | 主草植物    |
|   | and along  | Y-  | 5.33 | 66.26          | 18.17 |       | 130.0 |         |
| _   |  | 2   | 5.23 | 66.56          | 16.17 |       | 130.0 |         |
| AB  | TEEE 602.11ac WFs (40MHz; MCS5,<br>D0pc doty civels)         | ×   | 5,47 | 66.89          | 18.68 | 0.46  | 130/0 | 198 N   |
|   | THE PART OF STREET   | 4   | 5.31 | 66.35          | 16.33 |       | 130.0 |         |
|   |  | Z   | 5.24 | 66.76          | 16.40 |       | 130.0 |         |
| 0622-<br>AEI  | IEEE 802.11ac WiFi (40MHz, MG56, 50pc mJy cycle)             | ×   | 5.47 | 67.00          | 18 72 | 0.46  | 130.0 | ±9.6 %  |
| 190   | and a new ritrant  | Y   | 5.33 | 66.52          | 16.41 | -     | 130.0 | -       |
|   |  | 2   | 5.25 | 66.89          | 16.45 | -     | 130.0 |         |

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| 19.8%   | 130.0  | 6.46       | 16.41   | 68.59  | 5.38 | TX I | IEEE 802.1 1ac WIFI (40//Hz, MCS7.   | 10823-        |
|---------|--------|------------|---------|--------|------|------|--|---------------|
| 4.9.4.8 |        | ACCESS.    |         |        | 4.44 | 1    | 90pc tluty cynlej  | AAB.          |
|         | 130.0  |            | 18.05   | 66.04  | 5.20 | Y.   |  |               |
|         | \$30.0 |            | 16.07   | 68.39  | 512  | Z    | IEEE 802 That WEI ROMHE MCSS   | 10634-        |
| ± 9.6 % | 130.0  | 0,46       | 16.54   | 66,74  | 5.54 | 2    | 90pc duty syste)   | AAB           |
|         | 130.0  |            | 16.22   | 66.26  | 5,40 | Y    |  | _             |
|         | 130.0  |            | 18.23   | 66.69  | 5.31 | Z    |  |               |
| 19.6%   | 130.0  | 1),46      | 17.05   | 67.68  | 5.91 | x    | IEEE S02 11ec WE( (AUMHz; MCSB,<br>30pc duty cycle)  | TEH25-<br>AAE |
|         | 130.0  |            | 16.82   | 67.35  | 5.81 | Y    |  |               |
| _       | 130.0  | 1000       | 16.65   | 87.33  | 5.60 | Z    |  |               |
| 19.6%   | 130.0  | 0.46       | 16.44   | 86.70  | 5,66 | x    | IEEE 502.11 as W.Fr (50MHz, MCS0, 900c duty cycle)   |               |
|         | 130.0  |            | 16.12   | 68.25  | 6.54 | Y    |  |               |
|         | 130.0  |            | 16.16   | 86.64  | 5.47 | Z    |  |               |
| ±96%    | 130.0  | 0.46       | 16,64   | 57.20  | 5.90 | X    | JEEE 802.11ab WIFI (80MHz, MCS1,<br>90bc duty cycle)   | 10627-<br>AAB |
|         | 130.0  |            | 16.38   | 135.84 | 5.79 | Y    | 1.   |               |
| -       | 130.0  | -          | 16.34   | 67.08  | 5.67 | 2    | A A A STATE OF A A A A A A A A A A A A A A A A A A   |               |
| ±96%    | 130.0  | 0,46       | 16.42   | 66.91  | 5.73 | X    | IEEE 802 1136 W/ITI (80MHz, MCS2,<br>9066 duty cycle)  | 10628-<br>AAB |
| _       | 130.0  |            | 16.08   | 86.38  | 5.58 | · ·  | a straight s |               |
|         | 130.0  |            | 18.06   | 68.66  | 6.49 | Z    |  |               |
| 主要剧情    | 130.0  | 0.46       | 18.43   | 68.97  | 5.81 | X    | IEEE 802.11ac WIFI (BOMH2, MCS3,<br>BOpc daty cycle)   | 10629-<br>AAB |
|         | 130.0  |            | 18.13   | 66.48  | 5.67 | 1    | and an   | 1.000         |
|         | 130.0  | -          | 16.07   | 66.69  | 5.56 | Ż    | and the second second  |               |
| ± 9.6 % | 130.0  | 0,46       | 17.18   | 68,50  | 6.26 | 18   | (EEE 882.11a); W/F) (80MHz, MCE4.<br>90pc duty cycle)  |               |
| _       | 130.0  |            | 18,98   | 88 17  | 6.18 | Y    | 1001000/27002  | + 1 Children  |
| _       | 130.0  | -          | 18.58   | 67.70  | 5.63 | Z    | -  |               |
| +9.8 %  | 130.0  | 0.46       | 17.32   | 68.38  | 6.19 | X    | IEEE 802.11ac WFi (80MHz, MCS5,<br>30pt duty cycle)  | 10631-<br>AAB |
|         | 130.0  |            | 18.99   | 67.83  | 8.03 | Y    | and the state of t |               |
| -       | 130.0  |            | 15.89   | 67.92  | 5.86 | Z    |  |               |
| 1969    | 130.0  | 0.46       | 16,63   | 67:37  | 5,89 | x    | EEE 802 11ac WiFi (80MHz MCS6, 900c outy cycla)  | 10682<br>AAB  |
|         | 130.0  |            | 16.63   | B6.88  | 5.75 | 14   |  |               |
| -       | 130.0  |            | 16.67   | 67.23  | 5.87 | 12   | and the second se  |               |
| ±9/8 %  | 130.0  | 0,48       | 18.55   | 67.14  | 5.81 | X    | IEEE 802 11ac WiFi (SDMHz, MCS7<br>80pc duty cycla)  | AAE           |
| _       | 130.0  |            | 18.18   | 86.53  | 5.84 | 1.16 |  |               |
|         | 130.0  | -          | 18.21 / | 66.89  | 5.57 | Z    | have a second second   |               |
| 主题图纸    | 130.0  | 0.48       | 16.62   | 67.15  | 5 79 | x    | IEEE 802,11ac WFI (80MHz, MCS8,<br>90pc duty cycle)  | 10834-<br>AAE |
|         | 130.0  |            | 16.26   | 66.56  | 5.63 | Y    |  |               |
| -       | 130.0  |            | 16.31   | 66.95  | 5.56 | Z    |  |               |
| 主导原始    | 130,0  | 800        | 16.03   | 86.48  | 0.68 | х    | IEEE 202.11ac WiFi (88MHz, MC89,<br>90pc duty cycle)   | 10635-<br>AAB |
| -       | 130.0  |            | 15.67   | 65.92  | 5.52 | Y    |  |               |
|         | 130.0  |            | 15.07   | 66.16  | 6.41 | 2    |  |               |
| +98%    | 130.0  | <u>946</u> | 18.52   | 67.13  | 6.07 | X    | IEEE 802, TLac WIFI (160WHz: MCSO,<br>90pc duty cycle)   | 10836-<br>AAC |
|         | 130.0  |            | 16.23   | 86.65  | 5.85 | Y.   |  |               |
|         | 130.0  |            | 16.23   | 68.97  | 5.87 | 21   |  |               |
| ÷9.6%   | 130.0  | 9,46       | 16.68   | 67.50  | 6.23 | X    | IEEE.802.11ac/WIFI (160MHz, MCS1,<br>90pc daty cycle)  | 10037-<br>AAC |
| _       | 130.0  |            | 15.40   | 67.04  | 6.11 | Y    |  |               |
| -       | 130.0  |            | 16.35   | 57.28  | 6.00 | Z    |  |               |
| ±0.6%   | 130.0  | 0.46       | 16.65   | 67,47  | 6.23 | X    | IEEE 802.11ac WiFI (160MHz, MCS2, 90pc dulty cycle)  | AAG           |
| _       | 130.0  |            | 16.38   | 67.00  | 5.11 | Y    |  | -             |
|         | 12011  |            | 16.34   | 67.28  | 8.01 | Z    |  |               |

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| 10639-  | JEEE 802 T1ac WIFI (160MHz, MCS3.  | X    | 6.25   | 67.49  | 18.70  | 0.46        | 1000  | #96%        |
|---|--|------|--------|--------|--------|-------------|-------|-------------|
| AAC-  | 90pc duty cycla)   |      |        |        | 100    | chieft.     | 2008  | 5949.74     |
| _   |  | Y    | 6.09   | 66.87  | 16.39  |             | 130.0 | 1           |
| 0640  | IEEE 802 11# WIFT (160MHz, MCS4,   | Z    | 6.00   | 87.25  | 16.37  |             | 130.0 |             |
| W/C   | Sobe enty cycle)   | ×    | 6.25   | 87.53  | 16.67  | 0.46        | 130.0 | 20.6%       |
|   |  | ٧.   | 6.11   | 67,01  | 16.35  | _           | 130.0 |             |
| 10641-  | PER NOT THE MAD WORKING MOOF   | 2    | 6.99   | 87.21  | 16.25  | W 200       | 130.0 |             |
| AAC   | EEE BO2 11ad WiFi (160MHz, MCS5,<br>90pcrouty cycle)   | 8    | 6.25   | 87.31  | 16.67  | 0,46        | 100 0 | +88%        |
|   |  | Y    | 0.13   | 66.85  | 16,30  |             | 130.0 | -           |
| 1064.2-   | and and the submitted by the second  | Z    | 6,03   | 87.11  | 16.26  |             | 1000  |             |
| MC:   | IEEE 802,11ec WFI (160MHz, MCS6,<br>90pc duty cycle)   | ×    | 6.53   | 67.65  | 18,91  | 11.46       | 120.0 | 4 9.6 %     |
|   |  | Y    | 0.10   | 67 13  | 10.00  | -           | 130,0 | -           |
| 10643-  | and the second s | Z    | 6,10   | 67.47  | 16.62  | 20.400      | 120.0 |             |
| AAC B0pc duty cycles                              | IEEE 802 11ac WFI (160MHz, MCS7<br>90pc duty cycle)  | ×    | 6.15   | 67.31  | 18:65  | 0.46        | 130.0 | 49.6%       |
| _   |  | · 9  | 0.02   | 05.62  | 10.04  |             | 120.0 | -           |
|   |  | Z    | 5.91   | 67.08  | 16:30  |             | 130.0 |             |
| 10644- IEEE 802,11ee WIFI<br>AAC 90pc duty cycle) | IEEE 802,11ec WIFI (160MHz, MCSS,<br>90pc duty cycla)  | ×    | 8,35   | 67.93  | 16,98  | <u>0,46</u> | 135.0 | 19.0 M      |
|   |  | ¥.   | 6.21   | 87.40  | 15.65  |             | 139.0 |             |
| CROTE   |  | Z    | 6.05   | 67.49  | 16.53  | -           | 136.0 |             |
| 10645-<br>AAC-                                    | IEEE 802 11ac WFI (160MHz, MCS9,<br>80pc duly cycle)   | ×    | 8.71   | 88.51  | 17.21  | 11.46       | 130.0 | 土 9 倍 55    |
|   | - Charles  | 18   | 6.68   | -68,36 | 17129  |             | 15010 |             |
| -   | and the second second second   | Z    | 6.29   | 67.70  | 16.50  | 20.00       | 130.0 | 1000        |
| 10646- LTE-TDD (SC-FDMA,<br>AAF OPSK, UL Subframe | LTE-TDD (SC-FDMA, 1 RB, 5 MHz,<br>OPSK, UL Subframe=2,7)   | x    | 86.17  | 140.32 | 45.40  | 5.30        | 60,0  | 土和新物        |
|   |  | Y.   | 39.64  | 122.44 | 40.63  |             | 60.0  |             |
|   |  | .7.  | 18,19  | 104.43 | -33/83 | · · · · · · | 60.0  | 1           |
| 10647-<br>AAF                                     | LTE-TOD (SG-FDMA, 1 RB, 20 MHz.<br>DPSK, UL Subframe=2.7)  | X    | 80.45  | 139.77 | 45.45  | 9.30        | 60.0  | 1 8.F.%     |
|   |  | N.   | 36.72  | 121.04 | 40.86  |             | 63.0  |             |
|   | Construction of the second sec | 2    | 16.41  | 102.96 | 33.52  |             | 60.0  | how we have |
| 10648-<br>AAA                                     | COMA2000 (1# Advinishd)  | X    | 15.87  | 66.51  | 13.20  | 0.00        | 150.0 | 1005        |
|   |  | Y -  | 0.58   | 81.72  | 9.15   |             | 150.0 | 1           |
|   | And the second sec   | Z    | 0.69   | 64.HU  | 11.24  | -           | 150.0 | 1           |
| 10652-<br>AAD                                     | ( TE-TDB (OFDMA, E MHz, E-TM 3.1,<br>Clipping 44%)   | X    | 431    | 69.00  | 17.78  | 2.23        | 0,0,6 | =96%        |
|   |  | Y    | 3.89   | 67.20  | 10.71  |             | 90.0  | -           |
|   |  | Z    | 3.64   | 67,40  | 16,29  | -           | 80,0  |             |
| 10653-<br>AAD                                     | ETE-TDO (OFDMA, 10 MHz, E-TM 3.1,<br>Dipping 44%)  | ×    | 4.72   | 07.91  | 17.64  | 2.22        | 80,0  | 398%        |
|   |  | Y    | 4.40   | BE 72  | 16.87  | 1.000       | ED D  |             |
|   | and the second sec   | Z.   | 4.16   | 66.48  | 10.48  | 1.5         | 80,0  | 1000        |
| 10654-<br>AAD                                     | LTE-TDD (OFDMA: 15 MHz E-TM-3.1<br>Clipping 44%)   | x    | 4,64   | 67.52  | 17,60  | 2.25        | 80,0  | 19.6 %      |
|   |  | Y.   | 4.35   | 60.39  | 18.88  |             | 80.0  |             |
|   | Contraction and the second   | L    | 6.16   | 65.16  | 76.60  |             | 80.0  | 1.7.47      |
| 10855-<br>AAE                                     | LTE-TDO (GFOMA, 20 MHz, E-TM 3.1,<br>Oligonig 44%)   | ×    | 4.69   | 67.54  | 17.64  | 2,23        | 60.0  | 3.0,6 %     |
|   |  | - Ý  | 4.42   | 66.40  | 16.92  |             | 80.0  |             |
|   |  | 7.   | 4.19   | 66.14  | 16.53  |             | 0.08  |             |
| 10658-<br>AAA                                     | Pulso Weveform (200Hz, 10%)  | 8    | 100.00 | 116,82 | 30.15  | 10.00       | 50.0  | +9.6 %      |
|   |  | Y    | 27.27  | 97.34  | 24.81  |             | 50,0  |             |
|   |  | 12   | 5.41   | 78.00  | 11.99  | 1000        | 60.0  |             |
| 10ffflis-   | False Waveform (200Hz, 20%)  | 8    | 100.00 | 114,08 | 97 78  | 6.90        | 60,0  | ÷D'e.4      |
|   |  | Y    | 100.00 | 111.99 | 26.70  |             | 0.00  | -           |
|   | Z  | 5.06 | 74.98  | 14.50  |        | eu u        | -     |             |

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| 10660-<br>AAA               | Pulse Waveform (200Hz, 40%)  | ×  | 100.00 | 113.57 | 26.20 | 3.98 | 80.0  | ± 9.6 % |
|-----------------------------|--|----|--------|--------|-------|------|-------|---------|
|                             |  | Y  | 100.00 | 108.48 | 23.71 |      | 80.0  |         |
|                             |  | Z  | 17,55  | 86.88  | 16.64 |      | 0.06  |         |
| 10661- Pulse Wavefor<br>AAA | Pulse Waveform (200Hz, 60%)  | X  | 100.00 | 116.76 | 26.28 | 2.22 | 100.0 | ± 9.6 % |
|                             |  | Y  | 100.00 | 105.43 | 21.11 | -    | 100.0 |         |
| _                           |  | Z  | 100.00 | 100.82 | 18.62 |      | 100.0 |         |
| 10662- Pule<br>AAA          | Pulse Waveform (200Hz, 80%)  | ×  | 100.00 | 127.89 | 28.96 | 0.97 | 120.0 | ± 9.6 % |
|                             |  | Y  | 3.43   | 74.94  | 10.68 | -    | 120.0 |         |
| and the second              | The second s | Z. | 100.00 | 98.67  | 16.42 |      | 120.0 |         |
| 10670-<br>AAA               | Bluetooth Low Energy   | ×  | 100.00 | 117.22 | 26.83 | 2.19 | 100.0 | ± 9.6 % |
|                             |  | Y. | 100.00 | 107.88 | 22.47 |      | 100.0 |         |
| _                           |  | Z  | 100.00 | 104.58 | 20.49 |      | 100.0 |         |

<sup>6</sup> Uncertainty is determined using the max, deviation from linear response applying rectangular distribution and is expressed for the square of the field value

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# 7. Uncertainty Budget

| A  | с           | D           | е   |           | f        | g        | h=c * f / e | i=c*g∕e     | k           |
|--|-------------|-------------|-----|-----------|----------|----------|-------------|-------------|-------------|
| Source of Lineartainty                             | Tolerance/  | Probability | Div |           | oi (1 a) |          | Standard    | Standard    | vi, or Veff |
| Source of Uncertainty                              | Uncertainty | Distributio | Div | Div Value | ci (1g)  | ci (10g) | uncertainty | uncertainty | vi, or veir |
| Measurement system                                 |             |             |     |           |          |          |             |             |             |
| Probe calibration                                  | 6.55%       | N           | 1   | 1         | 1        | 1        | 6.55%       | 6.55%       | 00          |
| lsotropy , Axial                                   | 3.50%       | R           | √3  | 1.732     | 1        | 1        | 2.02%       | 2.02%       | 00          |
| lsotropy, Hemispherical                            | 9.60%       | R           | √3  | 1.732     | 1        | 1        | 5.54%       | 5.54%       | 00          |
| Modulation Response                                | 2.40%       | R           | √3  | 1.732     | 1        | 1        | 1.40%       | 1.40%       | $\infty$    |
| Boundary Effect                                    | 1.00%       | R           | √3  | 1.732     | 1        | 1        | 0.58%       | 0.58%       | 00          |
| Linearity  | 4.70%       | R           | √3  | 1.732     | 1        | 1        | 2.71%       | 2.71%       | 00          |
| Detection Limits                                   | 1.00%       | R           | √3  | 1.732     | 1        | 1        | 0.58%       | 0.58%       | 00          |
| Readout Electronics                                | 0.30%       | N           | 1   | 1         | 1        | 1        | 0.30%       | 0.30%       | 00          |
| Response time                                      | 0.80%       | R           | √3  | 1.732     | 1        | 1        | 0.46%       | 0.46%       | 00          |
| Integration Time                                   | 2.60%       | R           | √3  | 1.732     | 1        | 1        | 1.50%       | 1.50%       | 00          |
| Measurement drift<br>(class A evaluation)          | 1.75%       | R           | √3  | 1.732     | 1        | 1        | 1.01%       | 1.01%       | 00          |
| RF ambient condition -<br>noise                    | 3.00%       | R           | √3  | 1.732     | 1        | 1        | 1.73%       | 1.73%       | 00          |
| RF ambient conditions -<br>reflections             | 3.00%       | R           | √3  | 1.732     | 1        | 1        | 1.73%       | 1.73%       | 00          |
| Probe positioner<br>Mechanical restrictions        | 0.40%       | R           | √3  | 1.732     | 1        | 1        | 0.23%       | 0.23%       | 00          |
| Probe Positioning with<br>respect to phantom shell | 2.90%       | R           | √3  | 1.732     | 1        | 1        | 1.67%       | 1.67%       | œ           |
| Post-processing                                    | 1.00%       | R           | √3  | 1.732     | 1        | 1        | 0.58%       | 0.58%       | 00          |
| Max SAR Eval                                       | 1.00%       | R           | √3  | 1.732     | 1        | 1        | 0.58%       | 0.58%       | 00          |
| Test Sample related                                |             |             |     |           |          |          |             |             |             |
| Test sample positioning                            | 2.90%       | N           | 1   | 1         | 1        | 1        | 2.90%       | 2.90%       | M-1         |
| Device Holder Uncertainty                          | 3.60%       | N           | 1   | 1         | 1        | 1        | 3.60%       | 3.60%       | M-1         |
| Drift of output power                              | 5.00%       | R           | √3  | 1.732     | 1        | 1        | 2.89%       | 2.89%       | œ           |
| Phantom and Setup                                  |             |             |     |           |          |          |             |             |             |
| Phantom Uncertainty                                | 4.00%       | R           | √3  | 1.732     | 1        | 1        | 2.31%       | 2.31%       | 00          |
| Liquid permittivity (mea.)                         | 2.55%       | N           | 1   | 1         | 0.64     | 0.43     | 1.63%       | 1.10%       | м           |
| Liquid Conductivity (mea.)                         | 3.02%       | N           | 1   | 1         | 0.6      | 0.49     | 1.81%       | 1.48%       | М           |
| Combined standard uncertainty                      |             | RSS         |     |           |          |          | 11.97%      | 11.85%      |             |
| Expant uncertainty (95% confidence interval), K=2  |             |             |     |           |          |          | 23.93%      | 23.70%      |             |

Measurement Uncertainty evaluation template for DUT SAR test (3-6G)

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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| A  | с                         | D                          | е   |           | f       | g        | h=c * f / e             | i=c * g / e             | k                                       |
|--|---------------------------|----------------------------|-----|-----------|---------|----------|-------------------------|-------------------------|---|
| Source of Uncertainty                              | Tolerance/<br>Uncertainty | Probability<br>Distributio | Div | Div Value | ci (1g) | ci (10g) | Standard<br>uncertainty | Standard<br>uncertainty | vi, or Veff                             |
| Measurement system                                 |                           |                            |     |           |         |          |                         |                         |   |
| Probe calibration                                  | 6.00%                     | Ν                          | 1   | 1         | 1       | 1        | 6.00%                   | 6.00%                   | 8                                       |
| lsotropy , Axial                                   | 3.50%                     | R                          | √3  | 1.732     | 1       | 1        | 2.02%                   | 2.02%                   | ~                                       |
| lsotropy, Hemispherical                            | 9.60%                     | R                          | √3  | 1.732     | 1       | 1        | 5.54%                   | 5.54%                   | 8                                       |
| Modulation Response                                | 2.40%                     | R                          | √3  | 1.732     | 1       | 1        | 1.40%                   | 1.40%                   | 8                                       |
| Boundary Effect                                    | 1.00%                     | R                          | √3  | 1.732     | 1       | 1        | 0.58%                   | 0.58%                   | 8                                       |
| Linearity  | 4.70%                     | R                          | √3  | 1.732     | 1       | 1        | 2.71%                   | 2.71%                   | 8                                       |
| Detection Limits                                   | 1.00%                     | R                          | √3  | 1.732     | 1       | 1        | 0.58%                   | 0.58%                   | 8                                       |
| Readout Electronics                                | 0.30%                     | N                          | 1   | 1         | 1       | 1        | 0.30%                   | 0.30%                   | 8                                       |
| Response time                                      | 0.80%                     | R                          | √3  | 1.732     | 1       | 1        | 0.46%                   | 0.46%                   | 8                                       |
| Integration Time                                   | 2.60%                     | R                          | √3  | 1.732     | 1       | 1        | 1.50%                   | 1.50%                   | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ |
| Measurement drift<br>(class A evaluation)          | 1.75%                     | R                          | √3  | 1.732     | 1       | 1        | 1.01%                   | 1.01%                   | 8                                       |
| RF ambient condition -<br>noise                    | 3.00%                     | R                          | √3  | 1.732     | 1       | 1        | 1.73%                   | 1.73%                   | ~                                       |
| RF ambient conditions -<br>reflections             | 3.00%                     | R                          | √3  | 1.732     | 1       | 1        | 1.73%                   | 1.73%                   | ~                                       |
| Probe positioner<br>Mechanical restrictions        | 0.40%                     | R                          | √3  | 1.732     | 1       | 1        | 0.23%                   | 0.23%                   | ~                                       |
| Probe Positioning with<br>respect to phantom shell | 2.90%                     | R                          | √3  | 1.732     | 1       | 1        | 1.67%                   | 1.67%                   | 8                                       |
| Post-processing                                    | 1.00%                     | R                          | √3  | 1.732     | 1       | 1        | 0.58%                   | 0.58%                   | 8                                       |
| Max SAR Eval                                       | 1.00%                     | R                          | √3  | 1.732     | 1       | 1        | 0.58%                   | 0.58%                   | 8                                       |
| Test Sample related                                |                           |                            |     |           |         |          |                         |                         |   |
| Test sample positioning                            | 2.90%                     | Ν                          | 1   | 1         | 1       | 1        | 2.90%                   | 2.90%                   | M-1                                     |
| Device Holder Uncertainty                          | 3.60%                     | Ν                          | 1   | 1         | 1       | 1        | 3.60%                   | 3.60%                   | M-1                                     |
| Drift of output power                              | 5.00%                     | R                          | √3  | 1.732     | 1       | 1        | 2.89%                   | 2.89%                   | 8                                       |
| Phantom and Setup                                  |                           |                            |     |           |         |          |                         |                         |   |
| Phantom Uncertainty                                | 4.00%                     | R                          | √3  | 1.732     | 1       | 1        | 2.31%                   | 2.31%                   | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ |
| Liquid permittivity (mea.)                         | 2.18%                     | N                          | 1   | 1         | 0.64    | 0.43     | 1.40%                   | 0.94%                   | М                                       |
| Liquid Conductivity (mea.)                         | 3.14%                     | N                          | 1   | 1         | 0.6     | 0.49     | 1.88%                   | 1.54%                   | М                                       |
| Combined standard<br>uncertainty                   |                           | RSS                        |     |           |         |          | 11.66%                  | 11.55%                  |   |
| Expant uncertainty (95% confidence interval), K=2  |                           |                            |     |           |         |          | 23.31%                  | 23.10%                  |   |

Measurement Uncertainty evaluation template for DUT SAR test (0.3-3G)

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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## 8. Phantom Description

Schmid & Partner Engineering AG

s e а D a

Zeughausstrasse 43, 8004 Zurich, Switzerland Phone +41 44 245 9700, Fax +41 44 245 9779 info@speag.com, http://www.speag.com

#### Certificate of Conformity / First Article Inspection

| Item         | Oval Flat Phantom ELI 5.0   |  |
|--------------|---|--|
| Type No      | QD OVA 002 A  |  |
| Series No    | 1108 and higher   |  |
| Manufacturer | Untersee Composites<br>Knebelstrasse 8, CH-8268 Mannenbach, Switzerland |  |

Tests

Complete tests were made on the prototype units QD OVA 001 A, pre-series units QD OVA 001 B as well as on some series units QD OVA 001 B. Some tests are made on all series units QD OVA 002 A.

| Test                    | Requirement   | Details   | Units tested                    |
|-------------------------|---|---|---------------------------------|
| Shape                   | Internal dimensions, depth and<br>sagging are compatible with<br>standards                | Bottom elliptical 600 x 400<br>mm, Depth 190 mm,<br>dimension compliant with [1]<br>for f > 375 MHz | Prototypes                      |
| Material thickness      | Bottom:<br>2.0mm +/- 0.2mm  | dimension compliant with<br>[3] for f > 800 MHz   | all                             |
| Material<br>parameters  | rel. permittivity $2 - 5$ ,<br>loss tangent $\leq 0.05$ , at $f \leq 6$<br>GHz            | rel. permittivity 3.5 +/- 0.5<br>loss tangent ≤ 0.05  | Material samples                |
| Material<br>resistivity | Compatibility with tissue<br>simulating liquids .   | Compatible with SPEAG<br>liquids. **  | Phantoms,<br>Material<br>sample |
| Sagging                 | Sagging of the flat section in<br>tolerance when filled with<br>tissue simulating liquid. | within tolerance for filling<br>height up to 155 mm   | Prototypes,<br>samples          |

Note: Compatibility restrictions apply certain liquid components mentioned in the standard, containing e.g. DGBE, DGMHE or Triton X-100. Observe technical note on material compatibility.

#### Standards

\*\*

- OET Bulletin 65, Supplement C, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields", Edition 01-01
   IEEE 1528-2003, "Recommended Practice for Determining the Peak Spatial-Average Specific
- Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques, December 2003
- [3] IEC 62209-1 ed1.0, "Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close
- proximity to the ear (frequency range of 300 MHz to 3 GHz)\*, 2005-02-18 [4] IEC 62209-2 ed1.0, "Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 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)", 2010-03-30

Conformity

Based on the sample tests above, we certify that this item is in compliance with the uncertainty requirements of body-worn SAR measurements and system performance checks as specified in [1-4] and further standards

Date 25.7.2011

Signature / Stamp

eag s Schmid & Bertrier Engineering AG Zeugbarestrassa 43, 8004 Zuich, Schmitten Phone:441 44/25 9708, Fext-46, 645 9779

Doc No 881 - QD OVA 002 A - A

Page 1(1)

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## 9. System Validation from Original Equipment Supplier

| Engineering AG<br>ghausstrassa 43, 8004 Zurich  | n, Switzerland   |   | C Service suisse d'étaionnage<br>Servizio svizzero di taratura<br>S Swiss Calibration Service   |  |  |
|---|--|---|---|--|--|
| credited by the Swise Accredita<br>le Swise Accreditation Service<br>ultilateral Agreement for the re   | is one of the signatorie   |   | Accreditation No.: SCS 0108   |  |  |
| Int SGS-TW (Aude  | ~ *  | - 10 M. P.  | ne No: D2450V2-727_Apr18  |  |  |
| CALIBRATION C   | ERTIFICATE   |   |   |  |  |
| 06jext  | D2450V2 - SN:73  | 27  |   |  |  |
| arbanion procedure(s)   | QA CAL-05.v10<br>Calibration proce   | dure for dipole validation kits   | above 700 MHz   |  |  |
| Calibration date:   | April 24, 2018   |   |   |  |  |
| All calibrations have been conduc   | cled in the closed laborato  | robability are given on the following pag<br>ry tacility: environment temperature (22 :   |   |  |  |
|   |  |   |   |  |  |
| Calibration Equipment used (M&)   | 1  |   | Surviva Politication  |  |  |
| mmary Standards   | ID#  | Cal Data (Certificate No.)  | Scheduled Calibration   |  |  |
| Inmery Standards<br>Power meter NRP   | ID #<br>SN: 104778   | 04-Apr-18 (No. 217-02672/02673)   | Apr-19  |  |  |
| Inmary Standards<br>Powar mater NRP<br>Powar senace NRP-23h   | ID #<br>SN: 104778<br>SN: 103244   | 04-Apr-18 (No. 217-02672/02673)<br>04-Apr-18 (No. 217-02672)  | Apr-19<br>Apr-19  |  |  |
| Primery Standards<br>Power meter NRP<br>Power sensor NRP-291<br>Power sensor NRP-291  | ID #<br>SN: 104778<br>SN: 103244<br>SN: 103245   | 04-Apr-18 (No. 217-02672/02673)<br>04-Apr-18 (No. 217-02672)<br>04-Apr-18 (No. 217-02672)   | Apr-19<br>Apr-19<br>Apr-19  |  |  |
| Primary Standards<br>Power maior /NRP<br>Power searacr /NRP-Z3/1<br>Power seriescr /NRP-Z9/1<br>Reference 20 dB Attenuator  | ID #<br>SN: 104778<br>SN: 103244<br>SN: 103245<br>SN: 5058 (20k)   | 04-Apr-18 (No. 217-02672/02673)<br>04-Apr-18 (No. 217-02672)<br>04-Apr-18 (No. 217-02673)<br>04-Apr-18 (No. 217-02673)<br>04-Apr-18 (No. 217-02682)   | Арс-19<br>Арс-19<br>Арг-19<br>Арг-19<br>Арг-19  |  |  |
| hmary Standards<br>hower mater NRP <sup>2</sup><br>hower sensor NRP-2011<br>hower sensor NRP-2011<br>eleference 20 dB Attenuator<br>Type-N mismatch combination   | ID #<br>SN: 104778<br>SN: 103244<br>SN: 103245<br>SN: 5058 (20k)<br>SN: 5047.2 / 06327   | 04-Apr-18 (No. 217-02672/02673)<br>04-Apr-18 (No. 217-02672)<br>04-Apr-18 (No. 217-02673)<br>04-Apr-18 (No. 217-02632)<br>04-Apr-18 (No. 217-02862)   | Арт-19<br>Арт-19<br>Арт-19<br>Арт-19<br>Арт-19  |  |  |
| Primary Standards<br>Power mater NRP<br>Power sensor NRP-291<br>Power sensor NRP-291<br>Reference 20 dB Attenuator<br>Type-N mismatch combination<br>Reference Probe EX30V4   | ID #<br>SN: 104778<br>SN: 103244<br>SN: 103245<br>SN: 5058 (20k)   | 04-Apr-18 (No. 217-02672/02673)<br>04-Apr-18 (No. 217-02672)<br>04-Apr-18 (No. 217-02673)<br>04-Apr-18 (No. 217-02673)<br>04-Apr-18 (No. 217-02682)   | Арс-19<br>Арк-19<br>Арк-19<br>Арк-19<br>Арк-19  |  |  |
| Immery Standards<br>Dower sector NRP -<br>Power sector NRP-291<br>Power sector NRP-291<br>Reference 20 dB Attenuator<br>Type-N mismatch combination<br>Taterance Probe EX30V4<br>DAE4<br>Secondary Standards  | ID #<br>SN: 104778<br>SN: 103244<br>SN: 103245<br>SN: 5058 (20k)<br>SN: 5047.2 / 06327<br>SN: 7349<br>SN: 501<br>ID #  | 04-Apr-16 (No. 217-02672X02673)<br>04-Apr-16 (No. 217-02672)<br>04-Apr-18 (No. 217-02673)<br>04-Apr-18 (No. 217-02682)<br>04-Apr-16 (No. 217-02682)<br>30-Dec-17 (No. EX3-7344_Dec17)<br>28-Oc-17 (No. DAE4-601_Dc117)<br>Check Date (in bouse)   | Apr-19<br>Apr-19<br>Apr-19<br>Apr-19<br>Apr-19<br>Disc-18<br>Oct-18<br>Scheduled Check  |  |  |
| hmany Standards<br>hower mater NHP<br>hower sensor NHP-2011<br>hower sensor NHP-2011<br>hower sensor NHP-2011<br>hower mismatch combination<br>haterance Probe EX30V4<br>JAE4<br>Secondary Standards<br>hower mater EPM-4424  | ID #<br>SN: 104778<br>SN: 103244<br>SN: 103245<br>SN: 5047.2 / 06327<br>SN: 7349<br>SN: 501<br>ID #<br>SN: GB37450704  | 04-Apr-16 (No. 217-02672/02673)<br>04-Apr-18 (No. 217-02672)<br>04-Apr-18 (No. 217-02673)<br>04-Apr-18 (No. 217-02632)<br>04-Apr-18 (No. 217-02632)<br>30-Dec-17 (No. EX3-7349_Dec17)<br>25-Oct-17 (No. DAE4-601_Dc17)<br>Dheos Date (in house)<br>07-Oct-15 (in house check Oct-16)  | Apr-19<br>Apr-19<br>Apr-19<br>Apr-19<br>Dec-18<br>Oct-18<br>Scheduled Check<br>In ficuse check: Oct-18  |  |  |
| Primery Standards<br>Power motor NRP<br>Power sensor NRP-291<br>Reference 20 dB Attenuistor<br>Type-Primer NRP-291<br>Reference 20 dB Attenuistor<br>Tableance Probe EX3DV4<br>DAE4<br>Secondary Standards<br>Power meter EPM-442A<br>Yower sensor HP 0401A   | ID #<br>SN: 104778<br>SN: 103244<br>SN: 103245<br>SN: 5055 (20k)<br>SN: 5047.2 / 06327<br>SN: 5047<br>SN: 501<br>ID #<br>SN: GB37450704<br>SN: UB372102783   | 04-Apr-16 (No. 217-02672/02673)<br>04-Apr-18 (No. 217-02672)<br>04-Apr-18 (No. 217-02673)<br>04-Apr-18 (No. 217-02683)<br>04-Apr-18 (No. 217-02683)<br>30-Dec-17 (No. EX3-7349_Dec17)<br>25-Oct-17 (No. DAE4-601_Dct17)<br>Dhecs. Date (n: house)<br>07-Oct-15 (n: house check. Oct-16)<br>07-Oct-15 (n: house check. Oct-16)   | Apr-19<br>Apr-19<br>Apr-19<br>Apr-19<br>Dec-18<br>Oct-18<br>Scheduled Check<br>In focuse check: Oct-18<br>In focuse check: Oct-18   |  |  |
| Primary Standards<br>Power sensor NRP-Z91<br>Power sensor NRP-Z91<br>Power sensor NRP-Z91<br>Reference 20 dB Atterustor<br>ype-N mismatch combination<br>Paterance Probe EX30V4<br>JAE4<br>Secondary Standards<br>Power metar EPM-442A<br>Power sensor HP 0481A<br>Power sensor HP 0481A  | ID #<br>SN: 104778<br>SN: 103244<br>SN: 103245<br>SN: 5053 (20K)<br>SN: 5047.2 / 06327<br>SN: 5047.2 / 0637<br>SN: 5047.2 / 0637<br>SN: 5047.2 / 0637<br>SN: 5047<br>SN: 5047<br>S | 04-Apr-16 (No. 217-02672/02673)<br>04-Apr-18 (No. 217-02672)<br>04-Apr-18 (No. 217-02672)<br>04-Apr-18 (No. 217-02682)<br>04-Apr-18 (No. 217-02682)<br>04-Apr-18 (No. 217-02682)<br>04-Apr-18 (No. 217-02682)<br>05-Det-17 (No. DAE4-601_Det17)<br>25-Oct-17 (No. DAE4-601_Det17)<br>Dhack Bate (pr-house)<br>07-Oct-15 (in house check Det-16)<br>07-Oct-15 (in house check Det-16)<br>07-Oct-15 (in house check Det-16)   | Apr-19<br>Apr-19<br>Apr-19<br>Apr-19<br>Dac-18<br>Oct-18<br>Scheduled Check<br>In focuse check: Oct-18<br>In focuse check: Oct-18<br>In focuse check: Oct-18<br>In focuse check: Oct-18   |  |  |
| Immery Standards<br>Power sensor NRP-201<br>Power sensor NRP-201<br>Power sensor NRP-201<br>Reterence 20 dB Attenuator<br>Type-N mismatch combination<br>Tateance Probe EX30V4<br>DAE4<br>Secondary Saindards<br>Power sensor HP 8401A<br>Power sensor HP 8401A<br>RF generator R&S SMT-06  | ID #<br>SN: 104778<br>SN: 103244<br>SN: 103245<br>SN: 5055 (20k)<br>SN: 5047.2 / 06327<br>SN: 5047<br>SN: 501<br>ID #<br>SN: GB37450704<br>SN: UB372102783   | 04-Apr-16 (No. 217-02672/02673)<br>04-Apr-18 (No. 217-02672)<br>04-Apr-18 (No. 217-02673)<br>04-Apr-18 (No. 217-02683)<br>04-Apr-18 (No. 217-02683)<br>30-Dec-17 (No. EX3-7349_Dec17)<br>25-Oct-17 (No. DAE4-601_Dct17)<br>Dhecs. Date (n: house)<br>07-Oct-15 (n: house check. Oct-16)<br>07-Oct-15 (n: house check. Oct-16)   | Apr-19<br>Apr-19<br>Apr-19<br>Apr-19<br>Dec-18<br>Oct-18<br>Scheduled Check<br>In focuse check: Oct-18<br>In focuse check: Oct-18   |  |  |
| Primery Standards<br>Power mater NRP<br>Power senaior NRP-Z91<br>Power senaior NRP-Z91  | ID #<br>SN: 104778<br>SN: 103244<br>SN: 103245<br>SN: 5055 (20k)<br>SN: 5047.2 / 06327<br>SN: 501<br>ID #<br>SN: GB37450704<br>SN: GB37450704<br>SN: US3720285<br>SN: 100072<br>SN: 100072<br>SN: 103726085  | 04-Apr-16 (No. 217-02672/02673)<br>04-Apr-18 (No. 217-02672)<br>04-Apr-18 (No. 217-02673)<br>04-Apr-18 (No. 217-02633)<br>04-Apr-18 (No. 217-02632)<br>04-Apr-18 (No. 217-02632)<br>30-Dec-17 (No. DAE4-601, Der17)<br>25-Oct-17 (No. DAE4-601, Der17)<br>Dheck Bate (in flouse)<br>07-Oct-15 (in flouse check Oct-16)<br>07-Oct-15 (in flouse check Oct-16)<br>07-Oct-15 (in flouse check Oct-16)<br>15-Jun-15 (in flouse check Oct-16)<br>18-Oct-01 (in flouse check Oct-17)  | Apr-19<br>Apr-19<br>Apr-19<br>Apr-19<br>Dec-18<br>Oct-18<br>Scheduled Check<br>In house check: Oct-18<br>In house check: Oct-18   |  |  |
| Primary Standards<br>Power sensor NRP-Z91<br>Power sensor NRP-Z91<br>Reference 20 dB Atterustor<br>type-N mismatch combination<br>Reference Probe EX30V4<br>JAE4<br>Secondary Standards<br>Power meter EPM-442A<br>Power sensor HP 9481A<br>Power sensor HP 9481A                       | ID #<br>SN: 104778<br>SN: 103244<br>SN: 103245<br>SN: 5053 (20K)<br>SN: 5047.2 / 06327<br>SN: 5047.2 / 06327<br>SN: 5047.2 / 06327<br>SN: 501<br>ID #<br>SN: 5037450704<br>SN: US37282783<br>SN: MY41082517<br>SN: 10537380585<br>Name   | 04-Apr-16 (No. 217-02672/02673)<br>04-Apr-18 (No. 217-02672)<br>04-Apr-18 (No. 217-02672)<br>04-Apr-18 (No. 217-02682)<br>04-Apr-18 (No. 217-02682)<br>04-Apr-18 (No. 217-02682)<br>04-Apr-18 (No. 217-02682)<br>05-Det-17 (No. DAE4-601_Det17)<br>25-Oct-17 (No. DAE4-601_Det17)<br>Dhack Bate (pr house)<br>07-Oct-15 (in house check Oct-16)<br>07-Oct-15 (in house check Oct-16)<br>15-Jun-15 (in house check Oct-17)<br>Fünction   | Apr-19<br>Apr-19<br>Apr-19<br>Apr-19<br>Disc-18<br>Oct-18<br>Scheduled Check<br>In focuse check: Oct-18<br>In focuse check: Oct-18<br>In focuse check: Oct-18<br>In focuse check: Oct-18<br>In focuse check: Oct-18   |  |  |
| Primary Standards<br>Power sensor NRP-Z91<br>Power sensor NRP-Z91<br>Reference 20 dB Atterustor<br>type-N mismatch combination<br>Reference Probe EX30V4<br>JAE4<br>Secondary Standards<br>Power meter EPM-442A<br>Power sensor HP 9481A<br>Power sensor HP 9481A                       | ID #<br>SN: 104778<br>SN: 103244<br>SN: 103245<br>SN: 5055 (20k)<br>SN: 5047.2 / 06327<br>SN: 501<br>ID #<br>SN: GB37450704<br>SN: GB37450704<br>SN: US3720253<br>SN: 100072<br>SN: 100072<br>SN: 103726055  | 04-Apr-16 (No. 217-02672/02673)<br>04-Apr-18 (No. 217-02672)<br>04-Apr-18 (No. 217-02673)<br>04-Apr-18 (No. 217-02633)<br>04-Apr-18 (No. 217-02632)<br>04-Apr-18 (No. 217-02632)<br>30-Dec-17 (No. DAE4-601, Der17)<br>25-Oct-17 (No. DAE4-601, Der17)<br>Dheck Bate (in flouse)<br>07-Oct-15 (in flouse check Oct-16)<br>07-Oct-15 (in flouse check Oct-16)<br>07-Oct-15 (in flouse check Oct-16)<br>15-Jun-15 (in flouse check Oct-16)<br>18-Oct-01 (in flouse check Oct-17)  | Apr-19<br>Apr-19<br>Apr-19<br>Apr-19<br>Dec-18<br>Oct-18<br>Scheduled Check<br>In house check: Oct-18<br>In house check: Oct-18   |  |  |
| Primary Standards<br>Power sensor NRP-201<br>Power sensor NRP-201<br>Power sensor NRP-201<br>Reference 20 dB Attenuator<br>Type-N mismatch combination<br>haterence Probe EX30V4<br>DAE4<br>Secondary Saindards<br>Power sensor HP 0401A<br>Power sensor HP 0401A<br>RF generator R&S SMT-06  | ID #<br>SN: 104778<br>SN: 103244<br>SN: 103245<br>SN: 5053 (20K)<br>SN: 5047.2 / 06327<br>SN: 5047.2 / 06327<br>SN: 5047.2 / 06327<br>SN: 501<br>ID #<br>SN: 5037450704<br>SN: US37282783<br>SN: MY41082517<br>SN: 10537380585<br>Name   | 04-Apr-16 (No. 217-02672/02673)<br>04-Apr-18 (No. 217-02672)<br>04-Apr-18 (No. 217-02672)<br>04-Apr-18 (No. 217-02682)<br>04-Apr-18 (No. 217-02682)<br>04-Apr-18 (No. 217-02682)<br>04-Apr-18 (No. 217-02682)<br>05-Det-17 (No. DAE4-601_Det17)<br>25-Oct-17 (No. DAE4-601_Det17)<br>Dhack Bate (pr house)<br>07-Oct-15 (in house check Oct-16)<br>07-Oct-15 (in house check Oct-16)<br>15-Jun-15 (in house check Oct-17)<br>Fünction   | Apr-19<br>Apr-19<br>Apr-19<br>Apr-19<br>Dec-18<br>Oct-18<br>Scheduled Check<br>In fouse check: Oct-18<br>In fouse check: Oct-18   |  |  |
| Primisry Standards<br>Power mater NRP<br>Power senisor NRP-291<br>Reterence 20:46 Attenuator<br>Reterence 20:46 Attenuator<br>Reterence Probe EX30V4<br>DAE4<br>Secondary Standards<br>Power mater EPM-442A<br>Power senisor HP 9481A<br>Power senisor HP 9481A<br>RF genator P&S SMT-06<br>Network Anaryzen HP 8753E<br>Calibrated by  | ID #<br>SN: 104778<br>SN: 103244<br>SN: 103245<br>SN: 5055 (20k)<br>SN: 5047.2 / 08327<br>SN: 501<br>ID #<br>SN: GB37450704<br>SN: GB372102783<br>SN: US372102783<br>SN: WY41002517<br>SN: 400972<br>SN: US37390585<br>Nome<br>Jacon Kastmil   | 04-Apr-16 (No. 217-02672/02673)<br>04-Apr-18 (No. 217-02672)<br>04-Apr-18 (No. 217-02673)<br>04-Apr-18 (No. 217-02633)<br>04-Apr-18 (No. 217-02633)<br>30-Dec-17 (No. EX3-7349_Dec17)<br>25-Oct-17 (No. DAE4-601_Dec17)<br>25-Oct-17 (No. DAE4-601_Dec17)<br>D7-Oct-15 (in house check Dc1-16)<br>07-Oct-15 (in house check Dc1-16)<br>07-Oct-15 (in house check Dc1-16)<br>15-Jun-15 (in house check Dc1-16)<br>18-Dot-01 (in house check Dc1-17)<br>Fünction | Apr-19<br>Apr-19<br>Apr-19<br>Apr-19<br>Apr-19<br>Dac-18<br>Oct-18<br>Scheduled Check<br>In fouse check: Oct-18<br>In fouse check: Oct-18   |  |  |
| Ammany Standards<br>Power senisor NRP-291<br>Power senisor NRP-291<br>Reference 20:06 Attenuator<br>Type-N mismatch combination<br>Reference 20:06 Attenuator<br>Paterance Probe EX30V4<br>DAE4<br>Secondary Standards<br>Power meter EPM-442A<br>Power senisor HP 9481A<br>Power senisor HP 9481A<br>RP generator PAS SMT-06<br>Vetwork Analyzer HP 8753E<br>Calibrated by<br>Approved by: | ID #<br>SN: 104778<br>SN: 103244<br>SN: 103245<br>SN: 5055 (20k)<br>SN: 5047.2 / 08327<br>SN: 501<br>ID #<br>SN: GB37450704<br>SN: U6372512783<br>SN: W441082517<br>SN: U037260595<br>Nome<br>Jecor Kastinui<br>Katga Pokovic  | 04-Apr-16 (No. 217-02672/02673)<br>04-Apr-18 (No. 217-02672)<br>04-Apr-18 (No. 217-02673)<br>04-Apr-18 (No. 217-02633)<br>04-Apr-18 (No. 217-02633)<br>30-Dec-17 (No. EX3-7349_Dec17)<br>25-Oct-17 (No. DAE4-601_Dec17)<br>25-Oct-17 (No. DAE4-601_Dec17)<br>D7-Oct-15 (in house check Dc1-16)<br>07-Oct-15 (in house check Dc1-16)<br>07-Oct-15 (in house check Dc1-16)<br>15-Jun-15 (in house check Dc1-16)<br>18-Dot-01 (in house check Dc1-17)<br>Fünction | Apr-19<br>Apr-19<br>Apr-19<br>Apr-19<br>Apr-19<br>Dac-18<br>Oct-18<br>Scheduled Check<br>In fouse check: Oct-18<br>In fouse check: Oct-18 |  |  |

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Sanweizerischer Kallbrierdi

Service suisse d'étalormagé

Servizio evizzoro di tarabura

Swiss Calibration Service

Accreditation No.: SCS 0108

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Calibration Laboratory of Schmid & Partner



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 caliberation coefficience Glossary:

tissue simulating liquid TSL sensitivity in TSL / NORM x,y,z ConvF 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

ac-MR/

- 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%.

Certificate No: D2450V2-727\_Apr18

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#### Measurement Conditions

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

| DASY Version                 | DASYS                  | V52.10.0    |
|------------------------------|------------------------|-------------|
| Extrapolation                | Advanced Extrapolation |             |
| Phantom                      | Modular Flat Phantom   |             |
| Distance Dipole Center - TSL | 10 mm                  | with Spacer |
| Zoom Scan Resolution         | da, 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 | 38.3 ± 6 %   | 1.86 mho/m ± 6 % |
| Head TSL temperature change during test | < 0.5 °C        |              |                  |

#### SAR result with Head TSL

| SAR averaged over 1 cm <sup>5</sup> (1 g) of Head TSL                   | Condition                       |                          |
|---|---------------------------------|--------------------------|
| SAR measured  | 250 m/W input power             | 13,3 W/kg.               |
| SAR for nominal Head TSL parameters                                     | hormalized to 1W                | 52.1 W/kg ± 17.0 % (k=2) |
|   |                                 |                          |
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL                 | condition                       |                          |
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL<br>SAR measured | condition<br>250 mW input power | 8.16 W/kg                |

#### **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 | 52.5 ± 6 %   | 2.01 mhc/m = 6 %. |
| Body TSL temperature change during test | < 0,5 °C        | _            |                   |

#### SAR result with Body TSL

| SAR sveraged over 1 cm <sup>2</sup> (1 g) of Body TSL                   | Condition                       |                          |
|---|---------------------------------|--------------------------|
| SAR measured  | 250 mW input power              | 12.9 W/kg                |
| SAR for nominal Body TSL parameters                                     | normalized to 1W                | 50.8 W/kg ± 17.0 % (k=2) |
|   |                                 |                          |
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL                 | condition                       |                          |
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Bbdy TSL<br>SAR measured | condition<br>250 mW input power | 6.00 W/kg                |

Certificale No: D2450V2-727\_Apr18

Page B of II

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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#### Appendix (Additional assessments outside the scope of SCS 0108)

#### Antenna Parameters with Head TSL

| Impedance, transformed to feed point | 55.2 Ω + 2.7 JΩ |  |
|--------------------------------------|-----------------|--|
| Return Loss                          | = 25.1 dB       |  |

#### Antenna Parameters with Body TSL

| Impiedance, transformed to lead point | 51.2 Q + 5.8 Q |
|---------------------------------------|----------------|
| Fietum Loss                           | - 25.0 dB      |

#### General Antenna Parameters and Design

| Electrical Delay (one direction) | 1.149 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 semingid 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 capaare 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 emits, because they might bend or the soldered connections near the feedpoint may be damaged.

#### Additional EUT Data

| Manufactured by | SPEAG            |  |
|-----------------|------------------|--|
| Manufactured on | January 09, 2003 |  |

Certificate No: D2450V2+727\_Apr18

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#### **DASY5 Validation Report for Head TSL**

Date: 24.04.2018

Test Laboratory: SPEAG, Zurich, Switzerland

#### DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:727

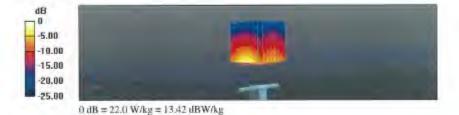
Communication System: UID 0 - CW; Frequency: 2450 MHz Medium parameters used: f = 2450 MHz;  $\sigma = 1.86 \text{ S/m}$ ;  $\epsilon_t = 38.3$ ;  $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN7349; ConvF(7.88, 7.88, 7.88); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017 .
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001 ٠
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

#### 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 = 116.0 V/m; Power Drift = -0.06 dB Peak SAR (extrapolated) = 26.7 W/kg SAR(1 g) = 13.3 W/kg; SAR(10 g) = 6.16 W/kg Maximum value of SAR (measured) = 22.0 W/kg



Centificate No: D2450V2-727\_April8

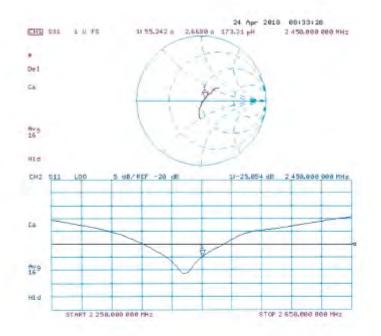
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#### Impedance Measurement Plot for Head TSL



Certificate No: D2450V2-727\_Apr18

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t (886-2) 2299-3279 台灣檢驗科技股份有限公司

f (886-2) 2298-0488

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#### **DASY5 Validation Report for Body TSL**

Date: 24.04.2018

Test Laboratory: SPEAG, Zurich, Switzerland

#### DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:727

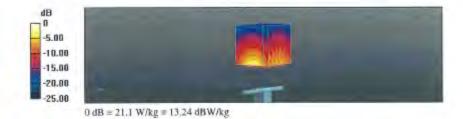
Communication System: UID 0 - CW; Frequency: 2450 MHz Medium parameters used: f = 2450 MHz;  $\sigma = 2.01$  S/m;  $v_r = 52.5$ ;  $\rho = 1000$  kg/m<sup>3</sup> Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN7349; ConvF(8.01, 8.01, 8.01); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

#### 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 = 108.4 V/m; Power Drift = -0.07 dB Peak SAR (extrapolated) = 25.5 W/kg

SAR(1 g) = 12.9 W/kg; SAR(10 g) = 6 W/kg Maximum value of SAR (measured) = 21.1 W/kg



Certificate No: D2450V2-727 April8

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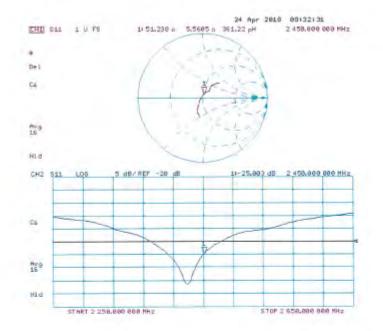
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#### Impedance Measurement Plot for Body TSL



Certificate No: D2450V2-727\_Apr18

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| coredited by the Swiss Accreditation Service<br>with a swiss Accreditation Service<br>ultilateral Agreement for the re   | is one of the signatories  | s to the EA<br>certificates  | creditation No.: SCS 0108   |
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| ient SGS-TW (Audo  | n)   | Certificate No   | D5GHzV2-1023_Jan18  |
| ALIBRATION C   | ERTIFICATE   |  |   |
| ibjed  | D5GHzV2 - SN:1   | 023  |   |
| Celibration procedure(5)   | QA CAL-22.V2   |  |   |
|  | Calibration proce  | dure for dipole validation kits bet  | ween 3-6 GHz  |
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| The measurements and the unce<br>W calibrations have been conduc<br>Calibration Equipment used (M&T<br>Primery Standards<br>Power meter NRP  | teinities with confidence p<br>ted in the closed laborator<br>TE critical for calibration<br>ID #<br>EN: 104776  | robability are given on the following pages at<br>ry (acting, environment temperature (22 ± 3)*<br>Cal Date (Certificate No.)<br>04-Apr 17 (No. 217-02521/02522)   | d and humidity < 70%.<br>E and humidity < 70%.<br>Scheduled Calibration<br>Apr-18   |
| The measurements and the unce<br>Ni calibrations have been conduc<br>Calibration Equipment used (M&T<br>Primary Standards<br>Tower mater NRP<br>Tower setsor NRP<br>20wer setsor NRP   | teinilies with confidence p<br>ted in the closed laborator<br>TE critical for calibration<br>ID a<br>EN: 104778<br>EN: 104778<br>EN: 105254  | robability are given on the following pages at<br>ry (actity, environment temperature (22 ± 3)*<br>Gal Date (Certificate No.)<br>04-Apr-17 (No. 217-02521(02522)<br>04-Apr-17 (No. 217-02521)  | d and purp of the certificate<br>G and trumkity < 70%.<br>Scheduled Calibration<br>Apr-18<br>Apr-18   |
| The measurements and the unce<br>NI calibrations have been conduc<br>Calibration Equipment used (M&T<br>Primary Standards<br>Primer mater NRP<br>Priver sensor NRP-2291<br>Priver sensor NRP-2291  | ted in the closed laborator<br>Te critical for calibration()<br>1D a<br>SN: 104778<br>SN: 105244<br>SN: 105245   | robability are given on the following pages at<br>ry (actity, environment temperature (22 ± 3)*<br>Cal Date (Certificate No.)<br>04-Apr-17 (No. 217-02521(02522)<br>04-Apr-17 (No. 217-02521)<br>04-Apr-17 (No. 217-02522)   | d ere pert of the certificate<br>C and trumcity < 70%.<br>Scheduled Calibration<br>Apr-18<br>Apr-18<br>Apr-18<br>Apr-18   |
| The measurements and the uncer<br>W calibrations have been conduct<br>Calibration Equipment used (M&T<br>Primary Standards<br>Primary S | teinities with confidence p<br>ted in the closed laborator<br>TE entical for calibration)<br>ID a<br>BN: 104778<br>SN: 105245<br>SN: 105245<br>SN: 5058 (20k)  | robability are given on the following pages at<br>ry facility, environment temperature (22 ± 3)*<br>Gal Date (Certificate No.)<br>04-Apr-17 (No. 217-02521)<br>04-Apr-17 (No. 217-02521)<br>04-Apr-17 (No. 217-02522)<br>07-Apr-17 (No. 217-02528)   | It are pert of the certificate<br>C and humidity < 70%.<br><u>Boheduled Calibration</u><br>Apr-18<br>Apr-18<br>Apr-18<br>Apr-18   |
| The measurements and the unce<br>W calibrations have been conduct<br>Calibration Equipment used (M&T<br>Primary Standards<br>Primary St | teinities with confidence p<br>ted in the closed laborator<br>TE critical for calibration<br>ID #<br>EN: 104778<br>EN: 105244<br>EN: 103246<br>EN: 103246<br>EN: 10368 (20k)<br>EN: 5047.2 / 06327   | robability are given on the following pages at<br>ry facility, environment temperature (22 ± 3)*1<br>Cal Date (Certificate No.)<br>D4-Apr-17 (No. 217-02521(02522)<br>O4-Apr-17 (No. 217-02521)<br>07-Apr-17 (No. 217-02528)<br>07-Apr-17 (No. 217-02528)  | 5 and trunktly < 70%.<br>E and trunktly < 70%.<br>Scheduled Calibration<br>Apr-18<br>Apr-18<br>Apr-18   |
| The measurements and the unce<br>All calibrations have been conduct<br>Calibration Equipment used (M&T<br>Primery Standards<br>Primer meter NRP<br>Primer sensor NRP-291<br>Primer sensor NRP-291<br>Primer sensor NRP-291<br>Reference 20 dB Attenuator<br>Type-N mismatch combination<br>Reference Probe EX3DV4  | teinities with confidence p<br>ted in the closed laborator<br>TE entical for calibration)<br>ID a<br>BN: 104778<br>SN: 105245<br>SN: 105245<br>SN: 5058 (20k)  | robability are given on the following pages at<br>ry facility, environment temperature (22 ± 3)*<br>Gal Date (Certificate No.)<br>04-Apr-17 (No. 217-02521)<br>04-Apr-17 (No. 217-02521)<br>04-Apr-17 (No. 217-02522)<br>07-Apr-17 (No. 217-02528)   | It ere pert of the certificate<br>C and trumidity < 70%.<br>Scheduled Calibration<br>Apr-18<br>Apr-18<br>Apr-18<br>Apr-18<br>Apr-18<br>Apr-18   |
| The measurements and the uncert<br>Saltbrations have been conduct<br>Calibration Equipment used (M&T<br>Primary Standards<br>Primary Standards<br>Primary Standards<br>Primary Standards<br>Primary Standards<br>Primary Standards<br>Secondary Standards  | teinities with confidence p<br>ted in the closed laborator<br>TE entical for calibration)<br>ID #<br>EN: 104778<br>EN: 105246<br>SN: 105246<br>SN: 5058 (20k)<br>SN: 5058 (20k)<br>SN: 5057 2 / 06327<br>SN: 507<br>SN: 601<br>ID #  | robability are given on the following pages at<br>ry facility, environment temperature (22 ± 3)*1<br>Cal Date (Certificate No.)<br>04-Apr-17 (No. 217-02521)(02522)<br>04-Apr-17 (No. 217-02521)<br>04-Apr-17 (No. 217-02521)<br>07-Apr-17 (No. 217-02528)<br>07-Apr-17 (No. 217-02529)<br>30-Dec-17 (No. 217-02529)<br>30-Dec-17 (No. 217-02529)<br>30-Dec-17 (No. 2X3-3503_Dec17)<br>25-Oct-17 (No. DAE4-601_Oct17)<br>Check Date (in house)   | It and purp of the certificate<br>C and humidity < 70%.<br>Scheduled Calibration<br>Apr-18<br>Apr-18<br>Apr-18<br>Apr-18<br>Apr-18<br>Dec-18<br>Dec-18<br>Cod-18<br>Scheduled Check   |
| the measurements and the unce<br>W calibrations have been conduct<br>Calibration Equipment used (M&T<br>Primary Standards<br>Primer meter NRP<br>Primer sensor NRP-201<br>Prover meter Probe EX3DV4<br>DAE4<br>Secondary Standards<br>Prover meter EPM-442A  | teinities with confidence p<br>ted in the closed laboratory<br>TE critical for calibrationy<br>ID #<br>EN: 104778<br>EN: 105244<br>SN: 105246<br>EN: 103246<br>SN: 0568 (20k)<br>SN: 5047 2 / 06377<br>SN: 5047 2 / 06377<br>SN: 601<br>ID #<br>SN: 6837480704   | robability are given on the following peges at<br>(acity, environment temperature (22 ± 3)/1<br>04-Apr-17 (No. 217-02521)(02522)<br>04-Apr-17 (No. 217-02521)<br>04-Apr-17 (No. 217-02521)<br>07-Apr-17 (No. 217-02529)<br>07-Apr-17 (No. 217-02529)<br>00-Dec-17 (No. 217-02529)<br>00- | It are part of the certificate<br>C and trumidity < 70%.<br>Scheduled Calibration<br>Apr-18<br>Apr-18<br>Apr-18<br>Apr-18<br>Apr-18<br>Dec-18<br>Dec-18<br>Dec-18<br>Cxd-18<br>Scheduled Check<br>In house check: Oct-18  |
| the measurements and the unce<br>will calibrations have been conduct<br>Calibration Equipment used (M&T<br>Primery Standards<br>Primer meter NRP<br>Primer meter NRP<br>Primer sensor NRP-291<br>Primer meter EPM-442A<br>Primer meter EPM-442A<br>Primer sensor NRP 8481A  | Initial with confidence p           ted in the closed laborator           TD #           BN: 104778           BN: 103244           SN: 103245           SN: 5035 (20k)           SN: 5047 2 / 08327           SN: 505 (20k)           SN: 5047 2 / 08327           SN: 5057 2 / 08327   | Instability are given on the following peges at<br>(acial bate (Certificate No.)<br>D4-Apr-17 (No. 217-02521/02522)<br>04-Apr-17 (No. 217-02521/02522)<br>04-Apr-17 (No. 217-02521)<br>04-Apr-17 (No. 217-02522)<br>07-Apr-17 (No. 217-02528)<br>07-Apr-17 (No. 217-02528)<br>07-Apr-17 (No. 217-02528)<br>00-Dec-17 (No. 217-02529)<br>00-Dec-17  | It are pert of the certificate<br>C and trumidity < 70%.<br><u>Boheduled Calibration</u><br>Apr-18<br>Apr-18<br>Apr-18<br>Apr-18<br>Dec-18<br>Dec-18<br>Dec-18<br>Cid-18<br><u>Scheduled Check</u><br>In house check: Oct-18<br>In house check: Oct-18  |
| the measurements and the unce<br>III calibrations have been conduct<br>Calibration Equipment used (M&T<br>Primary Standards<br>Power meter NRP<br>Power sensor NRP-291<br>Prevention NRP-291<br>Preventi           | tainlikes with confidence p           ted in the closed laboration           TD #           EN: 104778           EN: 103244           SN: 103245           SN: 5058 (20k)   | robability are given on the following pages at<br>(acting environment temperature (22 ± 3)**<br>Cal Date (Certificate Na.)<br>04-Apr-17 (No. 217-02521(02522)<br>04-Apr-17 (No. 217-02521)<br>04-Apr-17 (No. 217-02528)<br>07-Apr-17 (No. 217-02528)<br>07-Apr-18 (No. 217-0258)<br>07-Apr-19 (No. 2 | It ere pert of the certificate<br>C and formidity < 70%.<br>Echeduled Calibration<br>Apr-18<br>Apr-18<br>Apr-18<br>Apr-18<br>Dec-18<br>Dec-18<br>Dec-18<br>Cct-18<br>Scheduled Check<br>In house check: Occ-18<br>In house check: Occ-18<br>In house check: Occ-18  |
| the measurements and the uncal<br>satisfrations have been conduct<br>satisfrations Equipment used (M&T<br>Primary Standards<br>"Went median NRP-291<br>Power sensor NRP-291<br>Power sensor NRP-291<br>Retenoice 20 dB Attenuator<br>Type-N misimatich combination<br>aderence Probe EX3DV4<br>DAE4<br>Secondary Standards<br>Power motor EPM-442A<br>Power motor EPM-442A<br>Power sensor HIP 0401A<br>Power sensor HIP 0401A<br>Projects ensor HIP 0401A   | Initial with confidence p           ted in the closed laborator           TD #           BN: 104778           BN: 103244           SN: 103245           SN: 5035 (20k)           SN: 5047 2 / 08327           SN: 505 (20k)           SN: 5047 2 / 08327  | Instability are given on the following peges at<br>(acial bate (Certificate No.)<br>D4-Apr-17 (No. 217-02521/02522)<br>04-Apr-17 (No. 217-02521/02522)<br>04-Apr-17 (No. 217-02521)<br>04-Apr-17 (No. 217-02522)<br>07-Apr-17 (No. 217-02528)<br>07-Apr-17 (No. 217-02528)<br>07-Apr-17 (No. 217-02528)<br>00-Dec-17 (No. 217-02529)<br>00-Dec-17  | It are pert of the certificate<br>C and trumidity < 70%.<br><u>Boheduled Calibration</u><br>Apr-18<br>Apr-18<br>Apr-18<br>Apr-18<br>Dec-18<br>Dec-18<br>Dec-18<br>Cid-18<br><u>Scheduled Check</u><br>In house check: Oct-18<br>In house check: Oct-18  |
| The measurements and the unca<br>Saltbrations have been conduct<br>Saltbration Equipment used (M&T<br>Primary Standards<br>Primary Stan | tainlike with confidence p<br>ted in the closed laborator<br>TE official for calibration)<br>ID a<br>EN: 104778<br>EN: 103245<br>SN: 5058 (20k)<br>SN: 5058 (20k)<br>SN: 5058 (20k)<br>SN: 5058 (20k)<br>SN: 5058 (20k)<br>SN: 5058 (20k)<br>SN: 5057 (20k)<br>SN: 601<br>ID #<br>SN: G837460704<br>SN: US37282783<br>SN: 100972   | Instability are given on the following pages at<br>(acity facility, environment temperature (22 ± 3)*1<br>Cal Date (Certificate No.)<br>D4-Apr-17 (No. 217-02521/02522)<br>04-Apr-17 (No. 217-02521)<br>04-Apr-17 (No. 217-02522)<br>07-Apr-17 (No. 217-02528)<br>07-Apr-17 (No. 217-02528)<br>07-Apr-17 (No. 217-02529)<br>30-Dec-17 (No. 217-0   | It are pert of the certificate<br>C and humidity < 70%.<br><u>Scheduled Calibration</u><br>Apr-18<br>Apr-18<br>Apr-18<br>Apr-18<br>Apr-18<br>Col-18<br><u>Scheduled Check</u><br>In house check: Oct-18<br>In house check: Oct-18<br>In house check: Oct-18<br>In house check: Oct-18   |
| The measurements and the uncel<br>All calibrations have been conduct<br>Calibration Equipment used (M&T<br>Primery Standards<br>Power meter NRP<br>Power sensor NRP-291<br>Power sensor NRP-291<br>Power sensor NRP-291<br>Power sensor NRP-291<br>Power sensor NRP-291<br>Power meter EPM-442A<br>Power meter EPM-442A<br>Power meter EPM-442A<br>Power meter EPM-442A<br>Power sensor HP 8481A<br>Power sensor HP 8481A<br>Power sensor HP 9461A<br>Power sensor HP 9461A<br>Power sensor HP 9461A<br>Power sensor HP 9461A  | Ibi Picker         Ibi Picker           Ibi Picker         Ibi Picker <t< td=""><td>robability are given on the following pages at           Cal Date (Certificate Na,)           D4-Apr-17 (No. 217-02521)(02522)           D4-Apr-17 (No. 217-02521)           D4-Apr-17 (No. 217-02521)           D4-Apr-17 (No. 217-02521)           D7-Apr-17 (No. 217-02529)           D7-Apr-17 (No. 217-02529)           D9-Dec-17 (No. 217-02529)           D9-Dec-15 (in house check Cd-16)           D7-Dch 15 (in house check Cd-16)</td><td>It ere pert of the certificate<br/>C and humidity &lt; 70%.<br/>Scheduled Calibration<br/>Apr-18<br/>Apr-18<br/>Apr-18<br/>Apr-18<br/>Apr-18<br/>Dec-18<br/>Dec-18<br/>Cot-18<br/>Scheduled Check<br/>In house check: Oct-18<br/>In house check: Oct-18</td></t<> | robability are given on the following pages at           Cal Date (Certificate Na,)           D4-Apr-17 (No. 217-02521)(02522)           D4-Apr-17 (No. 217-02521)           D4-Apr-17 (No. 217-02521)           D4-Apr-17 (No. 217-02521)           D7-Apr-17 (No. 217-02529)           D7-Apr-17 (No. 217-02529)           D9-Dec-17 (No. 217-02529)           D9-Dec-15 (in house check Cd-16)           D7-Dch 15 (in house check Cd-16)   | It ere pert of the certificate<br>C and humidity < 70%.<br>Scheduled Calibration<br>Apr-18<br>Apr-18<br>Apr-18<br>Apr-18<br>Apr-18<br>Dec-18<br>Dec-18<br>Cot-18<br>Scheduled Check<br>In house check: Oct-18<br>In house check: Oct-18 |
| The measurements and the unce<br>W calibrations have been conduc<br>Calibration Equipment used (M&1  | Ibi R         closed laborator           ID R         BN: 104778           BN: 104778         BN: 103244           SN: 103245         SN: 5058 (20k)           SN: 5058 (20k)         SN: 5058 (20k)           SN: 5058 (20k)         SN: 5047 2 / 08327           SN: 5047 2 / 08327         SN: 5047 2 / 08327           SN: 5047 2 / 08327         SN: 5047 2 / 08327           SN: 5047 2 / 08327         SN: 5047 2 / 08327           SN: 5047 2 / 083748070M         SN: 0837282783           SN: 0837282783         SN: MY41192317           SN: 106972         SN: 106972           SN: 106973806865         Name  | Instability are given on the following pages at<br>(acity facility, environment temperature (22 ± 3)*1<br>Cal Date (Certificate No.)<br>D4-Apr-17 (No. 217-02521/02522)<br>04-Apr-17 (No. 217-02521)<br>04-Apr-17 (No. 217-02522)<br>07-Apr-17 (No. 217-02528)<br>07-Apr-17 (No. 217-02528)<br>07-Apr-17 (No. 217-02529)<br>30-Dec-17 (No. 217-0   | It ere pert of the certificate<br>C and humidity < 70%.<br>Scheduled Calibration<br>Apr-18<br>Apr-18<br>Apr-18<br>Apr-18<br>Apr-18<br>Dec-18<br>Dec-18<br>Cot-18<br>Scheduled Check<br>In house check: Oct-18<br>In house check: Oct-18 |

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Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich. Switzerland



Schweizerischer Kelibriertienst Service subse d'ataionnage Servizio evizzero di taratura Swiss Calibration Service

Accreditation No.: SCS 0108

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Accretized 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 Gloseon

| 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%

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#### Measurement Conditions

DARV

| DASY Version                 | DASY5  | V52,10.0                         |
|------------------------------|--|----------------------------------|
| Extrapolation                | Advanced Extrapolation   |                                  |
| Phantom                      | Modular Flat Phantom V5.0  |                                  |
| Distance Dipole Center - TSL | T0 mm  | with Spacer                      |
| Zoom Scan Resolution         | dx. dy = 4.0 mm, dz = 1,4 mm   | Graded Ratio = 1.4 (Z direction) |
| Frequency                    | 5200 MHz ± 1 MHz<br>5300 MHz ± 1 MHz<br>5600 MHz ± 1 MHz<br>5800 MHz ± 1 MHz |                                  |

#### Head TSL parameters at 5200 MHz

The following parameters and calculations were applied.

|   | Temperature     | Permittivity | Conductivity     |
|---|-----------------|--------------|------------------|
| Nominal Head TSL parameters             | 22.0 °C         | 38.0         | 4.68 mho/m       |
| Measured Head TSL parameters            | (22.0 ± 0.2) °C | 36.3 ± 6 %   | 4.50 mha/m ± 6 % |
| Head TSL temperature change during lest | <0.5 ℃          | -            | -                |

#### SAR result with Head TSL at 5200 MHz

| SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL                   | Condition                        |                          |
|---|----------------------------------|--------------------------|
| SAR measured  | 100 mW input power               | 7:72 W/kg                |
| SAR for nominal Head TSL parameters                                     | normalized to 1W                 | 77.3 W/kg ± 19.9 % (k=2) |
|   |                                  |                          |
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL                 | condition                        |                          |
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL<br>SAR measured | constition<br>100 mW input power | 2.22 W/kg                |

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#### Head TSL parameters at 5300 MHz

The following parameters and calculations were applied

| Temperature     | Permittivity               | Conductivity                               |
|-----------------|----------------------------|--|
| 22.0 °C         | 35.9                       | 4.76 mho/m                                 |
| (22.0 ± 0.2) °C | 35.2 ± 6 %                 | 4.60 mho/m ± 6 %                           |
| < 0.5 °C        | -                          | -  |
|                 | 22.0 °C<br>(22.0 ± 0.2) °C | 22.0 °C 35.9<br>(22.0 ± 0.2) °C 35.2 ± 6 % |

#### SAR result with Head TSL at 5300 MHz

| SAR averaged over 1 cm <sup>o</sup> (1 g) of Head TSL                   | Condition                       |                            |
|---|---------------------------------|----------------------------|
| SAR measured  | 100 mW input power              | 8.09 W/kg                  |
| SAR for nominal Head TSL parameters                                     | normalized to 1W                | 80.9 W / kg ± 19.9 % (k=2) |
|   |                                 |                            |
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL                 | condition                       |                            |
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL<br>SAR measured | condition<br>100 mW input power | 2.32 W/kg                  |

## Head TSL parameters at 5600 MHz

|   | Temperature     | Permittivity | Conductivity     |
|---|-----------------|--------------|------------------|
| Nominal Head TSL parameters             | 22.0 °C         | 35.5         | 5.07 mho/m       |
| Measured Head TSL parameters            | (22.0 ± 0.2) °C | 35.8 ± 6 %   | 4.90 mhaim ± 6 % |
| Head TSL temperature change during test | < 0.5 °C        | +            | +                |

#### SAR result with Head TSL at 5600 MHz

| SAR averaged over 1 cm <sup>2</sup> (1 g) of Head TSL                   | Condition          |                          |
|---|--------------------|--------------------------|
| SAR measured  | 100 mW input power | 8.19 W/kg                |
| SAR for nominal Head TSL parameters                                     | normalized to 1W   | 81.9 W/kg ± 19.9 % (k=2) |
|   |                    |                          |
| SAR averaged over 10 cm <sup>2</sup> (10 g) of Head TSL                 | condition          |                          |
| SAR averaged over 10 cm <sup>2</sup> (10 g) of Head TSL<br>SAR measured | condition          | 2.34 W/kg                |

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#### Head TSL parameters at 5800 MHz

|   | Temperature     | Permittivity | Conductivity   |
|---|-----------------|--------------|----------------|
| Nominal Head TSL parameters             | 22.0 °C         | 35.3         | 5.27 mho/m     |
| Measured Head TSL parameters            | (22.0 ± 0.2) °C | 35.5±6%      | 5.11 mho/m ±⊚≋ |
| Head TSL temperature change during test | < 0.5 °C        | (text)       | -              |

SAR result with Head TSL at 5800 MHz

| SAR averaged over 1 cm <sup>2</sup> (1 g) of Head TSL                   | Condition                       |                          |
|---|---------------------------------|--------------------------|
| SAR measured  | 100 mW Input power              | 7.90 W/kg                |
| SAR for nominal Head TSL parameters                                     | WI of besilemon                 | 79.0 W/kg ± 19.9 % (k=2) |
|   |                                 |                          |
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL                 | condition                       |                          |
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL<br>SAR measured | condition<br>100 mW input power | 2,25 W/kg                |

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#### Body TSL parameters at 5200 MHz

|   | Temperature     | Permittivity | Conductivity     |
|---|-----------------|--------------|------------------|
| Nominal Body TSL parameters             | 22.0 °C         | 49.0         | 5.30 mho/m       |
| Measured Body TSL parameters            | (22.0 ± 0.2) °C | 47.3±6%      | 5.41 mho/m ± 6 % |
| Body TSL temperature change during test | < 0.5 °C        |              | -                |

#### SAR result with Body TSL at 5200 MHz

| SAR averaged over 1 cm <sup>2</sup> (1 g) of Body TSL                   | Condition                       |                          |
|---|---------------------------------|--------------------------|
| SAR measured  | 100 mW input power              | 7.14 W/kg                |
| SAR for nominal Body TSL parameters                                     | normalized to 1W                | 70.9 W/kg ± 19.9 % (k=2) |
|   |                                 |                          |
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL                 | condition                       |                          |
| SAR averaged over 10 cm <sup>2</sup> (10 g) of Body TSL<br>SAR measured | condition<br>100 mW input power | 2.00 W/kg                |

#### Body TSL parameters at 5300 MHz

|   | Temperature     | Permittivity | Conductivity     |
|---|-----------------|--------------|------------------|
| Nominal Body TSL parameters             | 22.0 °C         | 48.9         | 5.42 mho/m       |
| Measured Body TSL parameters            | (22.0 ± 0.2) °C | 47 1 ± 6 %   | 5.54 mho/m = 6 % |
| Body TSL temperature change during test | < 0.5 °C        | -            |                  |

#### SAR result with Body TSL at 5300 MHz

| SAR averaged over 1 cm <sup>2</sup> (1 g) of Body TSL                   | Condition                       |                          |
|---|---------------------------------|--------------------------|
| SAR measured  | 100 mW input power              | 7.34 W/kg                |
| SAR for nominal Body TSL parameters                                     | normalized to 1W                | 72.9 W/kg ± 19.9 % (k=2) |
|   |                                 |                          |
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL                 | condition                       |                          |
| SAR averaged over 10 cm <sup>2</sup> (10 g) of Body TSL<br>SAR messured | condition<br>100 mW input power | 2.06 W/kg                |

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#### Body TSL parameters at 5600 MHz

|   | Temperature     | Permittivity | Conductivity     |
|---|-----------------|--------------|------------------|
| Nominal Body TSL parameters             | 22.0 °C         | 48.5         | 5.77 mho/m       |
| Measured Body TSL parameters            | (22.0 ± 0.2) °C | 46.6±6%      | 5.94 mha/m ± 6 % |
| Body TSL temperature change during test | < 0.5 °C        | -mark        |                  |

#### SAR result with Body TSL at 5600 MHz

| SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL                   | Condition                       |                          |
|---|---------------------------------|--------------------------|
| SAR measured  | 100 mW input power              | 7.81 W/kg                |
| SAR for nominal Body TSL parameters                                     | normalized to 1W                | 77.6 W/kg ± 19.9 % (k=2) |
| Contraction transmission and some processing                            |                                 |                          |
|   | condition                       |                          |
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL<br>SAR measured | condition<br>100 mW input power | 2.19 W/kg                |

#### Body TSL parameters at 5800 MHz

|   | Temperature     | Permittivity | Conductivity     |
|---|-----------------|--------------|------------------|
| Nominal Body TSL parameters             | 22.0 °C         | 48.2         | 6.00 mhoim       |
| Measured Body TSL parameters            | (22.0 ± 0.2) °C | 48.2 ± 6 %   | 6.22 mha/m ± 6 % |
| Body TSL temperature change during test | < 0.5 °C        | -            |                  |

#### SAR result with Body TSL at 5800 MHz

| SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL                   | Condition                       |                          |
|---|---------------------------------|--------------------------|
| SAR measured  | 100 mW input power              | 7.46 W/kg                |
| SAR for nominal Body TSL parameters                                     | normalized to 1W                | 74.1 W/kg ± 19.9 % (k=2) |
|   |                                 |                          |
| and the share the share the top   | -                               |                          |
| SAR averaged over 10 cm <sup>2</sup> (10 g) of Body TSL                 | condition                       | s anna -                 |
| SAR averaged over 10 cm <sup>2</sup> (10 g) of Body TSL<br>SAR measured | condition<br>100 mW input power | 2.07 W/kg                |

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## Appendix (Additional assessments outside the scope of SCS 0108)

## Antenna Parameters with Head TSL at 5200 MHz

| Impedance, transformed to feed point | 50.1 Ω - 8.1 jΩ |  |
|--------------------------------------|-----------------|--|
| Return Loss                          | - 21.9 dB       |  |

Antenna Parameters with Head TSL at 5300 MHz

| Impedance, transformed to feed point | 50.5 Ω - 2,3 βλ |
|--------------------------------------|-----------------|
| Return Loss                          | - 32.7 dB       |

Antenna Parameters with Head TSL at 5600 MHz

| Impedance, transformed to feed point | 53.9 Ω - 0.7 jΩ |
|--------------------------------------|-----------------|
| Return Loss                          | - 28.4 dB       |

Antenna Parameters with Head TSL at 5800 MHz

| Impedance, transformed to feed point | 55.3 Ω + 2.6 jΩ |
|--------------------------------------|-----------------|
| Return Loss                          | - 25.1 dB       |

## Antenna Parameters with Body TSL at 5200 MHz

| Impedance, transformed to feed point | 49.8 Ω - 6.9 jΩ. |
|--------------------------------------|------------------|
| Return Loss                          | - 23.2 dB        |

## Antenna Parameters with Body TSL at 5300 MHz

| Impedance, transformed to leed point | 50.9 Ω - 0.9 jΩ |
|--------------------------------------|-----------------|
| Return Loss                          | - 37.9 dB       |

## Antenna Parameters with Body TSL at 5600 MHz

| Impedance, transformed to feed point | 56.0 Ω + 0.5 jΩ |
|--------------------------------------|-----------------|
| Return Loss                          | - 24,9 dB       |

## Antenna Parameters with Body TSL at 5800 MHz

| Impedance, transformed to leed point | 56.6 Ω + 2.3 μΩ |
|--------------------------------------|-----------------|
| Return Loss                          | - 23.7 dB       |

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#### General Antenna Parameters and Design

| Electrical Delay (one direction) | 1.199 ns |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.10211a |

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             |
|-----------------|-------------------|
| Manufactured on | February 05, 2004 |

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#### **DASY5 Validation Report for Head TSL**

Date: 25.01.2018

Test Laboratory; SPEAG, Zurich, Switzerland

## DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1023

Communication System: UID 0 - CW/ Frequency: 5200 MHz, Frequency: 5300 MHz, Frequency: 5600 MHz, Frequency: 5800 MHz Medium parameters used: f = 5200 MHz;  $\sigma = 4.5$  S/m;  $\epsilon_c = 36.3$ ; p = 1000 kg/m<sup>2</sup>. Medium parameters used: f = 5300 MHz; o = 4.6 S/m; z, = 36.2; p = 1000 kg/m<sup>2</sup> Medium parameters used: f = 5600 MHz; o = 4.9 S/m; c, = 35.8; p = 1000 kg/m Medium parameters used: f = 5800 MHz;  $\sigma = 5.11$  S/m;  $e_r = 35.5$ ;  $\rho = 1000$  kg/m<sup>2</sup> Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN3503; ConvF(5.75, 5.75, 5.75); Calibrated: 30.12,2017, . ConvF(5.5, 5.5, 5.5); Calibraud: 30.12.2017; ConvF(5.05, 5.05, 5.05); Calibrated: 30.12.2017. ConvF(4.96, 4,96, 4,96); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electromics: DAE4 Sn601; Calibrated: 26.10.2017.
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm Reference Value = 70.47 V/m; Power Drift = -0.04 dB Peak SAR (estrapolated) = 27.5 W/kg SAR(1 g) = 7.72 W/kg; SAR(10 g) = 2.22 W/kg Maximum value of SAR (measured) = 17.7 W/kg.

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5300 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm\_dz=1.4mm Reference Value = 74.63 V/m; Power Drift = 40.06 dB Peak SAR (extrapolated) = 29.6 W/kg SAR(1 g) = 8.09 W/kg; SAR(10 g) = 2.32 W/kg Maximum value of SAR (measured) = 18.6 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4rum, dy=4mm, dz=1.4mm Reference Value = 70.79 V/m; Power Drift = -0.05 dB Peak SAR (extrapolated) = 31,5 W/kg SAR(1 g) = 8.19 W/kg; SAR(10 g) = 2.34 W/kg Maximum value of SAR (measured) = 19.6 W/kg

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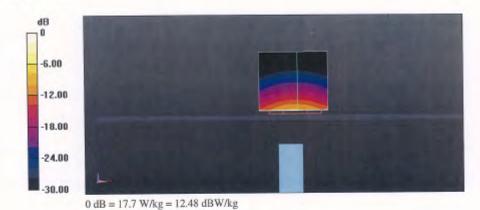
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Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm Reference Value = 69.22 V/m; Power Drift = -0.05 dB Peak SAR (extrapolated) = 31.2 W/kg SAR(1 g) = 7.9 W/kg; SAR(10 g) = 2.25 W/kg Maximum value of SAR (measured) = 19.0 W/kg



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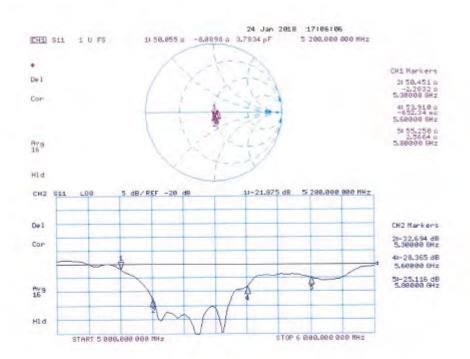
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#### Impedance Measurement Plot for Head TSL



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#### **DASY5 Validation Report for Body TSL**

Date: 23.01.2018

Test Laboratory: SPEAG, Zurich, Switzerland

## DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1023

Communication System: UID 0 - CW; Frequency: 5200 MHz, Frequency: 5300 MHz, Frequency: 5600 MHz, Frequency: 5800 MHz Medium parameters used: f = 5200 MHz;  $\sigma = 5.41 \text{ S/m}$ ;  $\epsilon_c = 47.3$ ;  $\rho = 1000 \text{ kg/m}^3$ . Medium parameters used: f = 5300 MHz;  $\sigma = 5.54$  S/m;  $v_r = 47.1$ ; p = 1000 kg/m<sup>2</sup>. Medium parameters used: f = 5600 MHz;  $\sigma = 5.94 \text{ S/m}$ ;  $e_r = 46.6$ ;  $p = 1000 \text{ kg/m}^3$ . Medium parameters used: f = 5800 MHz; σ = 6.22 S/m; ε<sub>r</sub> = 46.2; ρ = 1000 kg/m<sup>3</sup> Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN3503; ConvF(5,35, 5.35, 5.35); Calibrated: 30.12.2017. ConvF(5.15, 5.15, 5.15); Calibrated: 30.12.2017, ConvF(4.65, 4.65, 4.65); Calibrated: 30.12.2017, ConvF(4.53, 4.53, 4.53); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52,10.0(1446); SEMCAD X 14.6.10(7417)

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm Reference Value = 66.00 V/m; Power Drift = -0.05 dB Peak SAR (extrapolated) = 26.4 W/kg SAR(1 g) = 7.14 W/kg; SAR(10 g) = 2 W/kg Maximum value of SAR (measured) = 16.8 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5300 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1,4mm Reference Value = 65:19 V/m; Power Drift = -0.06 dB Peak SAR (extrapolated) = 28.4 W/kg SAR(1 g) - 7.34 W/kg; SAR(10 g) = 2.06 W/kg Maximum value of SAR (measured) = 17.6 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm Reference Value = 66.21 V/m; Power Drift = -0.09 dB Peak SAR (extrapolated) = 32.8 W/kg SAR(1 g) = 7.81 W/kg; SAR(10 g) = 2.19 W/kg Maximum value of SAR (measured) = 19.1 W/kg

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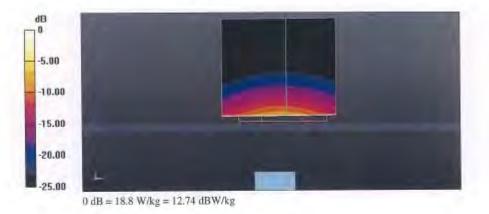
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Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm Reference Value = 64.05 V/m; Power Drift = -0.05 dB Peak SAR (extrapolated) = 32.3 W/kg SAR(1 g) = 7.46 W/kg; SAR(10 g) = 2.07 W/kg Maximum value of SAR (measured) = 18.8 W/kg



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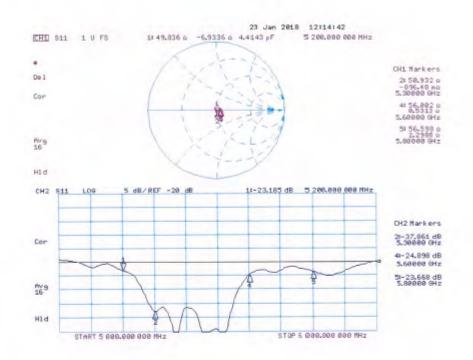
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#### Impedance Measurement Plot for Body TSL



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## - End of report -

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