Celltech
Testing and Engineering Services Lab

| | |
|---|---|
| Test Report Serial Number: | 45461530 R4.0 |
| Test Report Date: | 03 December 2019 |
| Project Number: | 1443 |

# SAR Test Report - Class II Permissive Change

Applicant:

HARRIS

**Harris Corporation**
**221 Jefferson Ridge Parkway**
**Lynchburg, VA, 24501**
**USA**

| Maximum Reported 1g SAR | | | | |
|---|---|---|---|---|
| FCC | LMR | HEAD: | 1.84 | W/kg |
| | | BODY: | 3.78 | |
| | Simultaneous: | | 5.08 | |
| | Occupational Limit: | | 8.00 | |

FCC ID:
**OWDTR-0143-E**

Product Name / PMN
**XL-185P**

Product Name / PMN
**See Section 2.0**

In Accordance With:

**FCC 47 CFR §2.1093**
Radiofrequency Radiation Exposure Evaluation: Portable Devices

Approved By:

**Ben Hewson, President**
Celltech Labs Inc.
21-364 Lougheed Rd.
Kelowna, BC, V1X 7R8
Canada

ilac-MRA ACCREDITED
**Test Lab Certificate: 2470.01**

Industry Canada
**IC Registration 3874A-1**

FC
**FCC Registration: 714830**

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## 1.0 DOCUMENT CONTROL

| Revision History | | | | | |
|---|---|---|---|---|---|
| **Samples Tested By:** | Trevor Whillock | | **Date(s) of Evaluation:** | | 6 Aug- 8 Aug & 4 Oct - 23 Oct , 2019 |
| **Report Prepared By:** | Trevor Whillock, Art Voss, P.Eng. | | **Report Reviewed By:** | | Ben Hewson |
| **Report Revision** | **Description of Revision** | | **Revised Section** | **Revised By** | **Revision Date** |
| 0.0 | Draft Release | | n/a | Trevor Whillock | 23 October 2019 |
| 0.1 | Correction to Model and HVIN's | | 2.0 | Trevor Whillock | 01 November 2019 |
| 1.0 | Initial Release | | n/a | Art Voss | 01 November 2019 |
| 1.1 | Correction to Model and HVIN's | | 2.0 | Trevor Whillock | 01 November 2019 |
| 2.0 | Correction to PMN | | All | Trevor Whillock | 07 November 2019 |
| | Remove Reference to Talk Around (TX) 768-776MHz | | 2.0 | | |
| 3.0 | Reference to CH's revised to Bands | | 3.0 | Trevor Whillock | 26 November 2019 |
| | Added Reference to Antenna E75-0286-001 and Audio Accessories List | | 8.1 | | |
| | Revised Day Log Pressure Values | | 13.1 | | |
| | Revised System Validation Summary | | 19.0 | | |
| | Revised Measurement Table Values to Match Measurement Plot | | 9.8 | | |
| 4.0 | Revised Manufacturer's Accessory List for Antennas | | 8.1 | Trevor Whillock | 03 December 2019 |

## 2.0 CLIENT AND DEVICE INFORMATION

| Client Information | |
|---|---|
| **Applicant Name** | **Harris Corporation** |
| **Applicant Address** | 221 Jefferson Ridge Parkway |
| | Lynchburg, VA, 24501 |
| | USA |
| **DUT Information** | |
| **Device Identifier(s):** | **FCC ID:** **OWDTR-0143-E** |
| **Type of Equipment:** | Licensed Non-Broadcast Transmitter Held to Face (TNF) -LMRS (LMR) |
| | Licensed Non-Broadcast Station Transmitter (TNB) - LTE |
| | Digital Transmission System (DTS) - BLE / WiFi |
| | Digital Spread Spectrum (DSS) - BT |
| | Unlicensed National Information Infrastructure (NII) - WiFi |
| **Device Marketing Name / PMN:** | XL-185P |
| **Device Model(s) / HVIN:** | XS-PPM9M–L, XS-PFM9Y –L, XS-PFM9P –L |
| | XS-PPM9M-NA, XS-PFM9Y-NA, XS-PFM9P-NA |
| | XS-PFM9M –L, XS-PPM9Y –L, XS-PPM9P –L |
| | XS-PFM9M-NA, XS-PPM9Y-NA, XS-PPM9P-NA |
| **Test Sample Serial No.:** | XS-PFM9Y-NA: A40306001323 |
| | XS-PFM9Y-L: A40306000662 |

The above model numbers are electronically identical in all respects with the exception of color, keypad options, LTE configuration and field upgradability options. The –L suffix is not factory shipped with the LTE module subassembly, the –NA suffix is factory shipped with LTE module subassembly. Both of these variants were examined during the course of this evaluation.

| DUT Information (Cont.) | |
|---|---|
| | 700 Band: 799-805MHz |
| | 800 Band: 806-816MHz, 851-861MHz, 896-901MHz |
| | 900 Band: 935-940MHz, 941-944MHz |
| | BT/BLE: 2402-2480MHz |
| | WLAN 2.4G: 2412-2462MHz |
| | WLAN 5G: 5180-5240MHz, 5745-5825MHz |
| | LTE Uplink Bands: 2, 4, 5, 12, 13, 14, 17, 66 |
| **Number of Channels:** | Programmable |
| | 700 Band: 3W (34.8dBm) |
| | 800 Band: 3W (34.8dBm) |
| | 900 Band: 3W (34.8dBm) |
| | BT: 0.05W (17dBm) |
| | BLE: 0.0069W (8.4dBm) |
| | WLAN 2.4G: 0.234W (23.7dBm) |
| | WLAN 5G: 5180-5240MHz: 0.015W (11.8dBm) |
| | WLAN 5G: 5745-5825MHz: 0.008W (9.0dBm) |
| | LTE* Uplink, Bands 2, 5, 12, 13, 14, 17: 0.282W (24.5dBm) |
| | LTE* Uplink, Bands 4, 66: 0.200W (23dBm) |
| **Duty Cycle:** | LTE, BT/BLE, WLAN: 100%, LMR: 50% PTT Duty Cycle |
| **DUT Power Source:** | 7.2 VDC Li-Ion 3100mAh Rechargeable Battery (Typical) |
| **Deviation(s) from standard/procedure:** | None |
| **Modification of DUT:** | None |

* LTE: 3GPP Release 11
Carrier aggregation is supported for Downlink Only.

Note: Per KDB 941225 D05Av01r02(B), PAG is not required for Downlink only Carrier Aggregation.

## 3.0 SCOPE OF EVALUATION/DATA REUSE

This Certification Report was prepared on behalf of:

**Harris Corporation**

,(the '*Applicant*"), in accordance with the applicable Federal Communications Commission (FCC) CFR 47 and Innovation, Scientific and Economic Development (ISED) Canada rules parts and regulations (the '*Rules*'). The scope of this investigation was limited to only the equipment, devices and accessories (the '*Equipment*') supplied by the *Applicant*. The tests and measurements performed on this *Equipment* were only those set forth in the applicable *Rules* and/or the Test and Measurement Standards they reference. The *Rules* applied and the Test and Measurement Standards used during this evaluation appear in the Normative References section of this report. The limits set forth in the technical requirements of the applicable *Rules* were applied to the measurement results obtained during this evaluation and ,unless otherwise noted, these limits were used as the Pass/Fail criteria. The Pass/Fail statements made in this report apply to only the tests and measurements performed on only the *Equipment* tested during this evaluation. Where applicable and permissible, information including test and measurement data and/or results from previous evaluations of same or similar equipment, devices and/or accessories may be cited in this report.

As per FCC 47 CFR Part §2.1091 and §2.1093, an RF Exposure evaluation report is required for this *Equipment* and the results of the RF Exposure evaluation appear in this report.

The XL-185P, FCC ID: **OWDTR-0143-E**, IC ID: **3636B-0143**, is a 7/8/900 MHz Rebanded band Push-To-Talk (PTT), Licensed Mobile Radio Service (LMRS or LMR) transceiver intended for Occupational Use. This "host" employs LTE, WiFi and Bluetooth transceivers.

### Application:

This is an application for a Class II Permissive Change to replace the existing LTE transceiver module, FCC ID: **BV8BBPBM214** with LTE transceiver module FCC ID: **N7NEM75S,** IC ID: **2417C-EM75S**. The changes include relocation and redesign of the LTE antenna and modifications to the physical housing to accommodate such changes. The LMR, WiFi and Bluetooth transmitters including their antennas, output power, transmitter circuitry and PCB layout remain unchanged from the previous filings.

### Scope:

Due to the nature of the changes, the scope of this evaluation is to re-evaluate the SAR for the changes implemented. It will include an extensive evaluation of the LTE transmitter and all simultaneous transmission conditions that can occur with this host device. However since the LMR, WiFi and Bluetooth transmitters remain unchanged, ONLY the worst case configurations from previous evaluations of these transmitters will be considered for both Standalone and Simultaneous Transmission SAR. The analysis of the Standalone and Simultaneous Transmission SAR if found in Section 11.0 of this report.

The Test Plan developed for this evaluation leverages SAR test data from previous evaluations of the XL-185P and XL-200P System Variants and is based on LTE test bands, configurations and accessories which produced the highest worst case SAR. SAR was evaluated on the LTE bands supported by the host, and did not encompass the full range of bands supported by the LTE transceiver module. The LTE bands evaluated are per the information provided by the client and are LTE bands: 2, 4, 5, 12, 13, 14, 17 and 66. Any subsequent bands intended to be support by the host will require evaluation under a Class II Permissive Change.

## 4.0 NORMATIVE REFERENCES

| Normative References* | |
|---|---|
| ANSI / ISO 17025:2017 | General Requirements for competence of testing and calibration laboratories |
| FCC CFR Title 47 Part 2<br>Title 47:<br>Part 2.1093: | Code of Federal Regulations<br>Telecommunication<br>Radiofrequency Radiation Exposure Evaluation: Portable Devices |
| Health Canada<br>Safety Code 6 (2015) | Limits of Human Exposure to Radiofrequency Electromagnetic Energy in the Frequency Range from 3kHz to 300GHz |
| Industry Canada Spectrum Management & Telecommunications Policy<br>RSS-102 Issue 5: | Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands) |
| IEEE International Committee on Electromagnetic Safety<br>IEEE 1528-2013: | IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques |
| IEC International Standard<br>IEC 62209-2 2010 | Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Part 2 |
| FCC KDB<br>KDB 248227 D01v02r02 | SAR Guidance for IEEE 802.11 (WiFi) Transmitters |
| FCC KDB<br>KDB 447498 D01v06 | Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies |
| FCC KDB<br>KDB 643646 D01v01r03 | SAR Test Reduction Considerations for Occupational PTT Radios |
| FCC KDB<br>KDB 690783 D01v01r03 | SAR Listings on Equipment Authorization Grants |
| FCC KDB<br>KDB 865664 D01v01r04 | SAR Measurement Requirements for 100MHz to 6GHz |
| FCC KDB<br>KDB 941225 D05v02r05 | SAR Evaluation Considerations for LTE Devices |
| * When the issue number or issue date is omitted, the latest version is assumed. | |

## 5.0 STATEMENT OF COMPLIANCE

This measurement report demonstrates that samples of the product model(s) were evaluated for Specific Absorption Rate (SAR) on the date(s) shown, in accordance with the Measurement Procedures cited and were found to comply with the Standard(s) Applied based on the Exposure Limits of the Use Group indicated for which the product is intended to be used.

| Applicant: | Model Name / PMN: | |
|---|---|---|
| Harris Corporation | XL-185P | |
| **Standard(s) Applied:** | **Measurement Procedure(s):** | |
| FCC 47 CFR §2.1093<br>Health Canada's Safety Code 6 | FCC KDB 865664, FCC KDB 447498, FCC KDB 643646, FCC KDB 941225<br>Industry Canada RSS-102 Issue 5<br>IEEE Standard 1528-2013, IEC 62209-2 | |
| **Reason For Issue:** | **Use Group:** | **Limits Applied:** |
| ☐ New Certification<br>☐ Class I Permissive Change<br>☒ Class II Permissive Change | ☐ General Population / Uncontrolled<br>☒ Occupational / Controlled | ☐ 1.6W/kg - 1g Volume<br>☒ 8.0W/kg - 1g Volume<br>☐ 4.0W/kg - 10g Volume |
| **Reason for Change:** | | **Date(s) Evaluated:** |
| Replacement of LTE Transmitter Module | | 6 Aug- 8 Aug & 4 Oct - 23 Oct , 2019 |

The results of this investigation are based solely on the test sample(s) provided by the applicant which was not adjusted, modified or altered in any manner whatsoever except as required to carry out specific tests or measurements. A description of the device, operating configuration, detailed summary of the test results, methodologies and procedures used during this evaluation, the equipment used and the various provisions of the rules are included in this test report.

I attest that the data reported herein is true and accurate within the tolerance of the Measurement Instrument Uncertainty; that all tests and measurements were performed in accordance with accepted practices or procedures; and that all tests and measurements were performed by me or by trained personnel under my direct supervision. The results of this investigation are based solely on the test sample(s) provided by the client which were not adjusted, modified or altered in any manner whatsoever, except as required to carry out specific tests or measurements. This test report has been completed in accordance with ISO/IEC 17025.

Art Voss, P.Eng.
Technical Manager
Celltech Labs Inc.

01 November 2019
Date

## 6.0 RF CONDUCTED POWER MEASUREMENT, BASE STATION

**Conducted Power Overview:**
The conducted power measurements reported in this section are measured using the LTE Base Station Simulator (BSS) connected directly to the antenna port of a modified DUT (CP DUT) that is identical in all aspects to the DUT used for Over-The-Air (OTA) SAR evaluation (OTA DUT). The CP DUT was configured using the BSS to set the channel, channel bandwidth, number of resource blocks (RB) and RB offsets.

All DUTs used during the course of this evaluation have the capability of being directly configured through the DUT's serial port using AT commands (Command Line) to set the channel, channel bandwidth, number of RBs and RB offset. The manufacturer has stated however that the maximum output power cannot be achieved using the Command Line method for DUT configuration but rather can be achieved using the BSS for DUT configuration. Since the BSS cannot configure the DUT for all possible RB offsets and modulations, the Command Line method was used to configure the CP DUT for the purposes of measuring the conducted power for the configurations not achievable by the BSS, and ONLY for the purposes of determining if the other RB offset or modulation configurations require SAR evaluation. The Command Line conducted power measurements are found in Appendix H of this report.

**Table 6.1 Conducted Power Measurements – LTE Band 2, 20MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 2 | | | | | Channel Bandwidth: | | 20MHz |
| Lower Band Edge | | 1850(MHz) | | | | | Upper Band Edge: | | 1910(MHz) |
| Modulation | RB Size | RB Offset | Low 18700 1860(MHz) | | Mid 18900 1880(MHz) | | High 19100 1900(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 24.31 | -0.18 | 24.39 | -0.10 | 24.46 | -0.03 | Lower |
| | 1 | 50 | 24.24 | -0.25 | 24.32 | -0.17 | 24.48 | -0.01 | Mid |
| | 1 | 99 | 24.22 | -0.27 | 24.29 | -0.20 | 24.45 | -0.04 | Upper |
| | 50 | 0 | 24.20 | -0.29 | 24.45 | -0.04 | 24.43 | -0.06 | Lower |
| | 50 | 50 | 24.19 | -0.30 | 24.38 | -0.11 | 24.44 | -0.05 | Upper |
| | 100 | 0 | 24.13 | -0.36 | 24.40 | -0.09 | 24.39 | -0.10 | Mid |
| 16QAM | 1 | 0 | 24.10 | -0.39 | 24.47 | -0.02 | 24.31 | -0.18 | Lower |
| | 1 | 50 | 24.49 | 0.00 | 24.39 | -0.10 | 24.41 | -0.08 | Mid |
| | 1 | 99 | 24.49 | 0.00 | 24.40 | -0.09 | 24.33 | -0.16 | Upper |
| | 50 | 0 | 24.27 | -0.22 | 24.40 | -0.09 | 24.32 | -0.17 | Lower |
| | 50 | 50 | 24.23 | -0.26 | 24.31 | -0.18 | 24.16 | -0.33 | Upper |
| | 100 | 0 | 24.24 | -0.25 | 24.35 | -0.14 | 24.25 | -0.24 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 24.49 |

* Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.2 Conducted Power Measurements – LTE Band 2, 15MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 2 | | | | | Channel Bandwidth: | | 15MHz |
| Lower Band Edge | | 1850(MHz) | | | | | Upper Band Edge: | | 1910(MHz) |
| Modulation | RB Size | RB Offset | Low 18675 1857.5(MHz) | | Mid 18900 1880(MHz) | | High 19125 1902.5(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 24.40 | -0.06 | 24.39 | -0.07 | 24.41 | -0.05 | Lower |
| | 1 | 36 | 24.30 | -0.16 | 24.30 | -0.16 | 24.20 | -0.26 | Mid |
| | 1 | 74 | 24.33 | -0.13 | 24.30 | -0.16 | 24.16 | -0.30 | Upper |
| | 36 | 0 | 23.30 | -1.16 | 24.41 | -0.05 | 24.30 | -0.16 | Lower |
| | 36 | 37 | 23.38 | -1.08 | 24.40 | -0.06 | 24.22 | -0.24 | Upper |
| | 75 | 0 | 24.35 | -0.11 | 24.37 | -0.09 | 24.20 | -0.26 | Mid |
| 16QAM | 1 | 0 | 24.46 | 0.00 | 24.00 | -0.46 | 24.38 | -0.08 | Lower |
| | 1 | 36 | 24.36 | -0.10 | 24.40 | -0.06 | 24.36 | -0.10 | Mid |
| | 1 | 74 | 24.36 | -0.10 | 24.10 | -0.36 | 24.33 | -0.13 | Upper |
| | 36 | 0 | 23.02 | -1.44 | 24.45 | -0.01 | 24.37 | -0.09 | Lower |
| | 36 | 37 | 22.90 | -1.56 | 24.34 | -0.12 | 24.24 | -0.22 | Upper |
| | 75 | 0 | 23.94 | -0.52 | 24.42 | -0.04 | 24.28 | -0.18 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 24.46 |

* Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.3 Conducted Power Measurements – LTE Band 2, 10MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 2 | | | | | Channel Bandwidth: | | 10MHz |
| Lower Band Edge | | 1850(MHz) | | | | | Upper Band Edge: | | 1910(MHz) |
| Modulation | RB Size | RB Offset | Low 18650 1855(MHz) | | Mid 18900 1880(MHz) | | High 19150 1905(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 23.80 | -0.60 | 24.10 | -0.30 | 24.28 | -0.12 | Lower |
| | 1 | 25 | 23.70 | -0.70 | 24.03 | -0.37 | 24.05 | -0.35 | Mid |
| | 1 | 49 | 23.77 | -0.63 | 24.02 | -0.38 | 24.02 | -0.38 | Upper |
| | 25 | 0 | 23.83 | -0.57 | 24.07 | -0.33 | 24.15 | -0.25 | Lower |
| | 25 | 25 | 23.84 | -0.56 | 24.07 | -0.33 | 24.10 | -0.30 | Upper |
| | 50 | 0 | 23.83 | -0.57 | 24.04 | -0.36 | 24.10 | -0.30 | Mid |
| 16QAM | 1 | 0 | 23.76 | -0.64 | 24.04 | -0.36 | 24.25 | -0.15 | Lower |
| | 1 | 25 | 23.71 | -0.69 | 24.04 | -0.36 | 24.20 | -0.20 | Mid |
| | 1 | 49 | 23.71 | -0.69 | 24.00 | -0.40 | 24.40 | 0.00 | Upper |
| | 25 | 0 | 23.67 | -0.73 | 24.20 | -0.20 | 24.20 | -0.20 | Lower |
| | 25 | 25 | 23.67 | -0.73 | 24.19 | -0.21 | 24.19 | -0.21 | Upper |
| | 50 | 0 | 23.65 | -0.75 | 24.10 | -0.30 | 24.15 | -0.25 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 24.40 |

* Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.4 Conducted Power Measurements – LTE Band 2, 5MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 2 | | | | | Channel Bandwidth: | | 5MHz |
| Lower Band Edge | | 1850(MHz) | | | | | Upper Band Edge: | | 1910(MHz) |
| Modulation | RB Size | RB Offset | Low 18625 1852.5(MHz) | | Mid 18900 1880(MHz) | | High 19175 1907.5(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 24.45 | -0.04 | 24.10 | -0.39 | 24.19 | -0.30 | Lower |
| | 1 | 12 | 24.48 | -0.01 | 24.10 | -0.39 | 24.17 | -0.32 | Mid |
| | 1 | 24 | 24.43 | -0.06 | 24.03 | -0.46 | 24.17 | -0.32 | Upper |
| | 12 | 0 | 24.41 | -0.08 | 24.03 | -0.46 | 24.17 | -0.32 | Lower |
| | 12 | 13 | 24.44 | -0.05 | 24.04 | -0.45 | 24.16 | -0.33 | Upper |
| | 25 | 0 | 24.40 | -0.09 | 23.99 | -0.50 | 24.16 | -0.33 | Mid |
| 16QAM | 1 | 0 | 24.40 | -0.09 | 24.30 | -0.19 | 24.30 | -0.19 | Lower |
| | 1 | 12 | 24.44 | -0.05 | 24.38 | -0.11 | 24.33 | -0.16 | Mid |
| | 1 | 24 | 24.40 | -0.09 | 24.33 | -0.16 | 24.22 | -0.27 | Upper |
| | 12 | 0 | 24.49 | 0.00 | 24.05 | -0.44 | 24.15 | -0.34 | Lower |
| | 12 | 13 | 24.45 | -0.04 | 23.04 | -1.45 | 24.14 | -0.35 | Upper |
| | 25 | 0 | 24.43 | -0.06 | 24.03 | -0.46 | 24.20 | -0.29 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 24.49 |

* Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.5 Conducted Power Measurements – LTE Band 2, 3MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 2 | | | | | Channel Bandwidth: | | 3MHz |
| Lower Band Edge | | 1850(MHz) | | | | | Upper Band Edge: | | 1910(MHz) |
| Modulation | RB Size | RB Offset | Low 18615 1851.5(MHz) | | Mid 18900 1880(MHz) | | High 19185 1908.5(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 24.40 | -0.04 | 24.00 | -0.44 | 24.20 | -0.24 | Lower |
| | 1 | 8 | 24.39 | -0.05 | 23.98 | -0.46 | 24.15 | -0.29 | Mid |
| | 1 | 14 | 24.39 | -0.05 | 23.95 | -0.49 | 24.12 | -0.32 | Upper |
| | 8 | 0 | 24.43 | -0.01 | 24.03 | -0.41 | 24.23 | -0.21 | Lower |
| | 8 | 7 | 24.38 | -0.06 | 24.03 | -0.41 | 24.19 | -0.25 | Upper |
| | 15 | 0 | 24.44 | 0.00 | 24.03 | -0.41 | 24.15 | -0.29 | Mid |
| 16QAM | 1 | 0 | 23.78 | -0.66 | 24.10 | -0.34 | 24.34 | -0.10 | Lower |
| | 1 | 8 | 23.71 | -0.73 | 24.04 | -0.40 | 24.30 | -0.14 | Mid |
| | 1 | 14 | 23.74 | -0.70 | 24.05 | -0.39 | 24.24 | -0.20 | Upper |
| | 8 | 0 | 23.80 | -0.64 | 23.70 | -0.74 | 24.20 | -0.24 | Lower |
| | 8 | 7 | 23.83 | -0.61 | 23.73 | -0.71 | 24.20 | -0.24 | Upper |
| | 15 | 0 | 23.79 | -0.65 | 23.60 | -0.84 | 24.17 | -0.27 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 24.44 |

* Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.6 Conducted Power Measurements – LTE Band 2, 1.4MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 2 | | | | | Channel Bandwidth: | | 1.4MHz |
| Lower Band Edge | | 1850(MHz) | | | | | Upper Band Edge: | | 1910(MHz) |
| Modulation | RB Size | RB Offset | Low 18607 1850.7(MHz) | | Mid 18900 1880(MHz) | | High 19193 1909.3(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 24.37 | -0.08 | 23.90 | -0.55 | 24.05 | -0.40 | Lower |
| | 1 | 3 | 24.45 | 0.00 | 23.99 | -0.46 | 24.13 | -0.32 | Mid |
| | 1 | 6 | 24.38 | -0.07 | 23.94 | -0.51 | 24.07 | -0.38 | Upper |
| | 3 | 0 | 24.43 | -0.02 | 23.95 | -0.50 | 24.11 | -0.34 | Lower |
| | 3 | 4 | 24.40 | -0.05 | 23.98 | -0.47 | 24.11 | -0.34 | Upper |
| | 7 | 0 | 24.39 | -0.06 | 23.95 | -0.50 | 24.09 | -0.36 | Mid |
| 16QAM | 1 | 0 | 24.37 | -0.08 | 23.95 | -0.50 | 24.08 | -0.37 | Lower |
| | 1 | 3 | 24.45 | 0.00 | 24.02 | -0.43 | 24.09 | -0.36 | Mid |
| | 1 | 6 | 24.40 | -0.05 | 23.99 | -0.46 | 24.10 | -0.35 | Upper |
| | 3 | 0 | 24.32 | -0.13 | 24.01 | -0.44 | 24.30 | -0.15 | Lower |
| | 3 | 4 | 24.31 | -0.14 | 24.04 | -0.41 | 24.30 | -0.15 | Upper |
| | 7 | 0 | 24.35 | -0.10 | 23.90 | -0.55 | 24.17 | -0.28 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 24.45 |

* Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.7 Conducted Power Measurements – LTE Band 4, 20MHz BW**

| LTE Conducted Power Measurement - Command Line | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 4 | | | | | Channel Bandwidth: | | 20MHz |
| Lower Band Edge | | 1710(MHz) | | | | | Upper Band Edge: | | 1755(MHz) |
| Modulation | RB Size | RB Offset | Low 20050 1720(MHz) | | Mid 20175 1732.5(MHz) | | High 20300 1745(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 22.58 | -0.29 | 22.69 | -0.18 | 22.61 | -0.26 | Lower |
| | 1 | 50 | 22.52 | -0.35 | 22.70 | -0.17 | 22.72 | -0.15 | Mid |
| | 1 | 99 | 22.47 | -0.40 | 22.72 | -0.15 | 22.62 | -0.25 | Upper |
| | 50 | 0 | 22.81 | -0.06 | 22.51 | -0.36 | 22.63 | -0.24 | Lower |
| | 50 | 50 | 22.50 | -0.37 | 22.78 | -0.09 | 22.66 | -0.21 | Upper |
| | 100 | 0 | 22.56 | -0.31 | 22.63 | -0.24 | 22.83 | -0.04 | Mid |
| 16QAM | 1 | 0 | 22.54 | -0.33 | 22.68 | -0.19 | 22.43 | -0.44 | Lower |
| | 1 | 50 | 22.71 | -0.16 | 22.87 | 0.00 | 22.55 | -0.32 | Mid |
| | 1 | 99 | 22.71 | -0.16 | 22.72 | -0.15 | 22.48 | -0.39 | Upper |
| | 50 | 0 | 22.77 | -0.10 | 22.55 | -0.32 | 22.42 | -0.45 | Lower |
| | 50 | 50 | 22.53 | -0.34 | 22.81 | -0.06 | 22.64 | -0.23 | Upper |
| | 100 | 0 | 22.61 | -0.26 | 22.43 | -0.44 | 22.86 | -0.01 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 22.87 |

* Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.8 Conducted Power Measurements – LTE Band 4, 15MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 4 | | | | | Channel Bandwidth: | | 15MHz |
| Lower Band Edge | | 1710(MHz) | | | | | Upper Band Edge: | | 1755(MHz) |
| Modulation | RB Size | RB Offset | Low 20025 1717.5(MHz) | | Mid 20175 1732.5(MHz) | | High 20325 1747.5(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 22.88 | -0.07 | 22.91 | -0.04 | 22.90 | -0.05 | Lower |
| | 1 | 36 | 22.70 | -0.25 | 22.80 | -0.15 | 22.68 | -0.27 | Mid |
| | 1 | 74 | 22.56 | -0.39 | 22.85 | -0.10 | 22.55 | -0.40 | Upper |
| | 36 | 0 | 22.85 | -0.10 | 22.90 | -0.05 | 22.77 | -0.18 | Lower |
| | 36 | 37 | 22.68 | -0.27 | 22.72 | -0.23 | 22.70 | -0.25 | Upper |
| | 75 | 0 | 22.83 | -0.12 | 22.85 | -0.10 | 22.76 | -0.19 | Mid |
| 16QAM | 1 | 0 | 22.50 | -0.45 | 22.92 | -0.03 | 22.95 | 0.00 | Lower |
| | 1 | 36 | 22.76 | -0.19 | 22.67 | -0.28 | 22.70 | -0.25 | Mid |
| | 1 | 74 | 22.60 | -0.35 | 22.45 | -0.50 | 22.70 | -0.25 | Upper |
| | 36 | 0 | 22.47 | -0.48 | 22.17 | -0.78 | 22.68 | -0.27 | Lower |
| | 36 | 37 | 22.20 | -0.75 | 22.10 | -0.85 | 22.53 | -0.42 | Upper |
| | 75 | 0 | 22.37 | -0.58 | 22.12 | -0.83 | 22.65 | -0.30 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 22.95 |

* Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.9 Conducted Power Measurements – LTE Band 4, 10MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 4 | | | | | Channel Bandwidth: | | 10MHz |
| Lower Band Edge | | 1710(MHz) | | | | | Upper Band Edge: | | 1755(MHz) |
| Modulation | RB Size | RB Offset | Low 20000 1715(MHz) | | Mid 20175 1732.5(MHz) | | High 20350 1750(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 22.84 | -0.60 | 22.86 | -0.58 | 22.70 | -0.74 | Lower |
| | 1 | 25 | 22.75 | -0.69 | 22.72 | -0.72 | 22.50 | -0.94 | Mid |
| | 1 | 49 | 22.58 | -0.86 | 22.65 | -0.79 | 23.44 | 0.00 | Upper |
| | 25 | 0 | 22.82 | -0.62 | 22.82 | -0.62 | 22.66 | -0.78 | Lower |
| | 25 | 25 | 22.80 | -0.64 | 22.76 | -0.68 | 22.50 | -0.94 | Upper |
| | 50 | 0 | 22.80 | -0.64 | 22.80 | -0.64 | 22.55 | -0.89 | Mid |
| 16QAM | 1 | 0 | 22.64 | -0.80 | 22.33 | -1.11 | 22.95 | -0.49 | Lower |
| | 1 | 25 | 22.56 | -0.88 | 22.20 | -1.24 | 22.85 | -0.59 | Mid |
| | 1 | 49 | 22.42 | -1.02 | 22.10 | -1.34 | 22.90 | -0.54 | Upper |
| | 25 | 0 | 22.57 | -0.87 | 22.20 | -1.24 | 22.85 | -0.59 | Lower |
| | 25 | 25 | 22.46 | -0.98 | 22.08 | -1.36 | 22.82 | -0.62 | Upper |
| | 50 | 0 | 22.42 | -1.02 | 22.08 | -1.36 | 22.90 | -0.54 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 23.44 |

* Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.10 Conducted Power Measurements – LTE Band 4, 5MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 4 | | | | | Channel Bandwidth: | | 5MHz |
| Lower Band Edge | | 1710(MHz) | | | | | Upper Band Edge: | | 1755(MHz) |
| Modulation | RB Size | RB Offset | Low 19975 1712.5(MHz) | | Mid 20175 1732.5(MHz) | | High 20375 1752.5(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 22.91 | -0.04 | 22.94 | -0.01 | 22.81 | -0.14 | Lower |
| | 1 | 12 | 22.90 | -0.05 | 22.91 | -0.04 | 22.80 | -0.15 | Mid |
| | 1 | 24 | 22.88 | -0.07 | 22.85 | -0.10 | 22.73 | -0.22 | Upper |
| | 12 | 0 | 22.62 | -0.33 | 22.76 | -0.19 | 22.72 | -0.23 | Lower |
| | 12 | 13 | 22.60 | -0.35 | 22.75 | -0.20 | 22.70 | -0.25 | Upper |
| | 25 | 0 | 22.53 | -0.42 | 22.76 | -0.19 | 22.74 | -0.21 | Mid |
| 16QAM | 1 | 0 | 22.91 | -0.04 | 22.93 | -0.02 | 22.93 | -0.02 | Lower |
| | 1 | 12 | 22.91 | -0.04 | 22.88 | -0.07 | 22.85 | -0.10 | Mid |
| | 1 | 24 | 22.85 | -0.10 | 22.82 | -0.13 | 22.86 | -0.09 | Upper |
| | 12 | 0 | 22.60 | -0.35 | 22.76 | -0.19 | 22.90 | -0.05 | Lower |
| | 12 | 13 | 22.59 | -0.36 | 22.72 | -0.23 | 22.92 | -0.03 | Upper |
| | 25 | 0 | 22.56 | -0.39 | 22.79 | -0.16 | 22.95 | 0.00 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 22.95 |

* Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.11 Conducted Power Measurements – LTE Band 4, 3MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 4 | | | | | Channel Bandwidth: | | 3MHz |
| Lower Band Edge | | 1710(MHz) | | | | | Upper Band Edge: | | 1755(MHz) |
| Modulation | RB Size | RB Offset | Low 19965 1711.5(MHz) | | Mid 20175 1732.5(MHz) | | High 20385 1753.5(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 22.90 | -0.36 | 22.85 | -0.41 | 22.89 | -0.37 | Lower |
| | 1 | 8 | 22.83 | -0.43 | 22.80 | -0.46 | 22.86 | -0.40 | Mid |
| | 1 | 14 | 22.86 | -0.40 | 22.81 | -0.45 | 22.84 | -0.42 | Upper |
| | 8 | 0 | 22.86 | -0.40 | 22.80 | -0.46 | 22.95 | -0.31 | Lower |
| | 8 | 7 | 22.87 | -0.39 | 22.75 | -0.51 | 22.93 | -0.33 | Upper |
| | 15 | 0 | 22.86 | -0.40 | 22.75 | -0.51 | 22.90 | -0.36 | Mid |
| 16QAM | 1 | 0 | 22.70 | -0.56 | 22.78 | -0.48 | 23.26 | 0.00 | Lower |
| | 1 | 8 | 22.68 | -0.58 | 22.71 | -0.55 | 23.25 | -0.01 | Mid |
| | 1 | 14 | 22.64 | -0.62 | 22.71 | -0.55 | 23.25 | -0.01 | Upper |
| | 8 | 0 | 22.56 | -0.70 | 22.85 | -0.41 | 22.90 | -0.36 | Lower |
| | 8 | 7 | 22.53 | -0.73 | 22.80 | -0.46 | 22.88 | -0.38 | Upper |
| | 15 | 0 | 22.56 | -0.70 | 22.80 | -0.46 | 22.80 | -0.46 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 23.26 |

* Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.12 Conducted Power Measurements – LTE Band 4, 1.4MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 4 | | | | | Channel Bandwidth: | | 1.4MHz |
| Lower Band Edge | | 1710(MHz) | | | | | Upper Band Edge: | | 1755(MHz) |
| Modulation | RB Size | RB Offset | Low 19957 1710.7(MHz) | | Mid 20175 1732.5(MHz) | | High 20393 1754.3(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 22.80 | -0.18 | 22.81 | -0.17 | 22.86 | -0.12 | Lower |
| | 1 | 3 | 22.84 | -0.14 | 22.86 | -0.12 | 22.93 | -0.05 | Mid |
| | 1 | 6 | 22.80 | -0.18 | 22.82 | -0.16 | 22.86 | -0.12 | Upper |
| | 3 | 0 | 22.84 | -0.14 | 22.86 | -0.12 | 22.91 | -0.07 | Lower |
| | 3 | 4 | 22.84 | -0.14 | 22.86 | -0.12 | 22.92 | -0.06 | Upper |
| | 7 | 0 | 22.80 | -0.18 | 22.82 | -0.16 | 22.94 | -0.04 | Mid |
| 16QAM | 1 | 0 | 22.80 | -0.18 | 22.82 | -0.16 | 22.88 | -0.10 | Lower |
| | 1 | 3 | 22.85 | -0.13 | 22.90 | -0.08 | 22.98 | 0.00 | Mid |
| | 1 | 6 | 22.80 | -0.18 | 22.85 | -0.13 | 22.88 | -0.10 | Upper |
| | 3 | 0 | 22.83 | -0.15 | 22.77 | -0.21 | 22.95 | -0.03 | Lower |
| | 3 | 4 | 22.85 | -0.13 | 22.76 | -0.22 | 22.96 | -0.02 | Upper |
| | 7 | 0 | 22.90 | -0.08 | 22.78 | -0.20 | 22.80 | -0.18 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 22.98 |

* Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.13 Conducted Power Measurements – LTE Band 5, 10MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 5 | | | | | Channel Bandwidth: | | 10MHz |
| Lower Band Edge | | 824(MHz) | | | | | Upper Band Edge: | | 849(MHz) |
| Modulation | RB Size | RB Offset | Low 20450 829(MHz) | | Mid 20525 836.5(MHz) | | High 20600 844(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 24.02 | -0.35 | 24.26 | -0.11 | 24.06 | -0.31 | Lower |
| | 1 | 25 | 23.97 | -0.40 | 24.23 | -0.14 | 23.91 | -0.46 | Mid |
| | 1 | 49 | 23.92 | -0.45 | 24.16 | -0.21 | 23.81 | -0.56 | Upper |
| | 25 | 0 | 23.93 | -0.44 | 24.37 | 0.00 | 23.99 | -0.38 | Lower |
| | 25 | 25 | 23.96 | -0.41 | 24.25 | -0.12 | 23.92 | -0.45 | Upper |
| | 50 | 0 | 24.04 | -0.33 | 24.13 | -0.24 | 24.01 | -0.36 | Mid |
| 16QAM | 1 | 0 | 23.56 | -0.81 | 23.96 | -0.41 | 23.64 | -0.73 | Lower |
| | 1 | 25 | 23.60 | -0.77 | 23.91 | -0.46 | 23.64 | -0.73 | Mid |
| | 1 | 49 | 23.47 | -0.90 | 23.82 | -0.55 | 23.58 | -0.79 | Upper |
| | 25 | 0 | 23.02 | -1.35 | 23.87 | -0.50 | 23.70 | -0.67 | Lower |
| | 25 | 25 | 23.03 | -1.34 | 23.76 | -0.61 | 24.08 | -0.29 | Upper |
| | 50 | 0 | 24.03 | -0.34 | 23.83 | -0.54 | 24.02 | -0.35 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 24.37 |

* Δ = Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.14 Conducted Power Measurements – LTE Band 5, 5MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 5 | | | | | Channel Bandwidth: | | 5MHz |
| Lower Band Edge | | 824(MHz) | | | | | Upper Band Edge: | | 849(MHz) |
| Modulation | RB Size | RB Offset | Low 20425 826.5(MHz) | | Mid 20525 836.5(MHz) | | High 20625 846.5(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 23.92 | -0.25 | 24.14 | -0.03 | 24.01 | -0.16 | Lower |
| | 1 | 12 | 23.94 | -0.23 | 24.12 | -0.05 | 24.03 | -0.14 | Mid |
| | 1 | 24 | 23.91 | -0.26 | 24.13 | -0.04 | 24.13 | -0.04 | Upper |
| | 12 | 0 | 23.84 | -0.33 | 24.13 | -0.04 | 24.00 | -0.17 | Lower |
| | 12 | 13 | 23.92 | -0.25 | 24.09 | -0.08 | 23.92 | -0.25 | Upper |
| | 25 | 0 | 23.93 | -0.24 | 24.17 | 0.00 | 23.99 | -0.18 | Mid |
| 16QAM | 1 | 0 | 23.37 | -0.80 | 23.45 | -0.72 | 23.46 | -0.71 | Lower |
| | 1 | 12 | 23.31 | -0.86 | 23.44 | -0.73 | 23.42 | -0.75 | Mid |
| | 1 | 24 | 23.30 | -0.87 | 23.32 | -0.85 | 23.38 | -0.79 | Upper |
| | 12 | 0 | 23.38 | -0.79 | 23.68 | -0.49 | 23.99 | -0.18 | Lower |
| | 12 | 13 | 23.43 | -0.74 | 23.64 | -0.53 | 23.93 | -0.24 | Upper |
| | 25 | 0 | 23.02 | -1.15 | 23.67 | -0.50 | 23.70 | -0.47 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 24.17 |

* Δ = Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.15 Conducted Power Measurements – LTE Band 5, 3MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 5 | | | | | Channel Bandwidth: | | 3MHz |
| Lower Band Edge | | 824(MHz) | | | | | Upper Band Edge: | | 849(MHz) |
| Modulation | RB Size | RB Offset | Low 20415 825.5(MHz) | | Mid 20525 836.5(MHz) | | High 20635 847.5(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 24.03 | -0.23 | 24.09 | -0.17 | 23.96 | -0.30 | Lower |
| | 1 | 8 | 23.97 | -0.29 | 24.02 | -0.24 | 23.88 | -0.38 | Mid |
| | 1 | 14 | 23.95 | -0.31 | 24.00 | -0.26 | 23.87 | -0.39 | Upper |
| | 8 | 0 | 24.03 | -0.23 | 24.09 | -0.17 | 23.94 | -0.32 | Lower |
| | 8 | 7 | 24.01 | -0.25 | 24.08 | -0.18 | 23.90 | -0.36 | Upper |
| | 15 | 0 | 24.02 | -0.24 | 24.08 | -0.18 | 23.93 | -0.33 | Mid |
| 16QAM | 1 | 0 | 23.69 | -0.57 | 23.75 | -0.51 | 23.50 | -0.76 | Lower |
| | 1 | 8 | 23.67 | -0.59 | 23.69 | -0.57 | 23.45 | -0.81 | Mid |
| | 1 | 14 | 23.62 | -0.64 | 23.65 | -0.61 | 23.41 | -0.85 | Upper |
| | 8 | 0 | 24.03 | -0.23 | 24.26 | 0.00 | 23.99 | -0.27 | Lower |
| | 8 | 7 | 24.00 | -0.26 | 24.25 | -0.01 | 23.96 | -0.30 | Upper |
| | 15 | 0 | 24.00 | -0.26 | 24.13 | -0.13 | 23.98 | -0.28 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 24.26 |

* Δ = Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.16 Conducted Power Measurements – LTE Band 5, 1.4MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 5 | | | | | Channel Bandwidth: | | 1.4MHz |
| Lower Band Edge | | 824(MHz) | | | | | Upper Band Edge: | | 849(MHz) |
| Modulation | RB Size | RB Offset | Low 20407 824.7(MHz) | | Mid 20525 836.5(MHz) | | High 20643 848.3(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 23.86 | -0.18 | 23.91 | -0.13 | 23.76 | -0.28 | Lower |
| | 1 | 3 | 23.88 | -0.16 | 23.97 | -0.07 | 23.78 | -0.26 | Mid |
| | 1 | 6 | 23.85 | -0.19 | 23.92 | -0.12 | 23.73 | -0.31 | Upper |
| | 3 | 0 | 23.84 | -0.20 | 23.93 | -0.11 | 23.73 | -0.31 | Lower |
| | 3 | 4 | 23.81 | -0.23 | 23.94 | -0.10 | 23.68 | -0.36 | Upper |
| | 7 | 0 | 23.81 | -0.23 | 23.98 | -0.06 | 23.74 | -0.30 | Mid |
| 16QAM | 1 | 0 | 23.93 | -0.11 | 23.54 | -0.50 | 23.35 | -0.69 | Lower |
| | 1 | 3 | 23.93 | -0.11 | 23.53 | -0.51 | 23.37 | -0.67 | Mid |
| | 1 | 6 | 23.95 | -0.09 | 23.54 | -0.50 | 23.38 | -0.66 | Upper |
| | 3 | 0 | 24.03 | -0.01 | 23.91 | -0.13 | 23.95 | -0.09 | Lower |
| | 3 | 4 | 24.04 | 0.00 | 23.90 | -0.14 | 23.97 | -0.07 | Upper |
| | 7 | 0 | 23.89 | -0.15 | 24.02 | -0.02 | 23.84 | -0.20 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 24.04 |

* Δ = Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.17 Conducted Power Measurements – LTE Band 12, 10MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 12 | | | | | Channel Bandwidth: | | 10MHz |
| Lower Band Edge | | 699(MHz) | | | | | Upper Band Edge: | | 716(MHz) |
| Modulation | RB Size | RB Offset | Low 23060 704(MHz) | | Mid 23095 707.5(MHz) | | High 23130 711(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 24.37 | -0.12 | 24.38 | -0.11 | 24.33 | -0.16 | Lower |
| | 1 | 25 | 24.30 | -0.19 | 24.38 | -0.11 | 24.34 | -0.15 | Mid |
| | 1 | 49 | 24.28 | -0.21 | 24.40 | -0.09 | 24.34 | -0.15 | Upper |
| | 25 | 0 | 24.40 | -0.09 | 24.39 | -0.10 | 24.33 | -0.16 | Lower |
| | 25 | 25 | 24.49 | 0.00 | 24.45 | -0.04 | 24.33 | -0.16 | Upper |
| | 50 | 0 | 24.40 | -0.09 | 24.38 | -0.11 | 24.38 | -0.11 | Mid |
| 16QAM | 1 | 0 | 24.38 | -0.11 | 24.35 | -0.14 | 24.25 | -0.24 | Lower |
| | 1 | 25 | 24.35 | -0.14 | 24.35 | -0.14 | 24.22 | -0.27 | Mid |
| | 1 | 49 | 24.38 | -0.11 | 24.40 | -0.09 | 24.28 | -0.21 | Upper |
| | 25 | 0 | 24.35 | -0.14 | 24.25 | -0.24 | 24.25 | -0.24 | Lower |
| | 25 | 25 | 24.25 | -0.24 | 24.35 | -0.14 | 24.26 | -0.23 | Upper |
| | 50 | 0 | 24.28 | -0.21 | 24.25 | -0.24 | 24.25 | -0.24 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 24.49 |

* Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.18 Conducted Power Measurements – LTE Band 12, 5MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 12 | | | | | Channel Bandwidth: | | 5MHz |
| Lower Band Edge | | 699(MHz) | | | | | Upper Band Edge: | | 716(MHz) |
| Modulation | RB Size | RB Offset | Low 23035 701.5(MHz) | | Mid 23095 707.5(MHz) | | High 23155 713.5(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 24.34 | -0.12 | 24.37 | -0.09 | 24.36 | -0.10 | Lower |
| | 1 | 12 | 24.32 | -0.14 | 24.43 | -0.03 | 24.37 | -0.09 | Mid |
| | 1 | 24 | 24.25 | -0.21 | 24.45 | -0.01 | 24.40 | -0.06 | Upper |
| | 12 | 0 | 24.32 | -0.14 | 24.44 | -0.02 | 24.42 | -0.04 | Lower |
| | 12 | 13 | 24.25 | -0.21 | 24.40 | -0.06 | 24.40 | -0.06 | Upper |
| | 25 | 0 | 24.28 | -0.18 | 24.42 | -0.04 | 24.36 | -0.10 | Mid |
| 16QAM | 1 | 0 | 24.43 | -0.03 | 24.33 | -0.13 | 24.44 | -0.02 | Lower |
| | 1 | 12 | 24.46 | 0.00 | 24.43 | -0.03 | 24.42 | -0.04 | Mid |
| | 1 | 24 | 24.38 | -0.08 | 24.45 | -0.01 | 24.45 | -0.01 | Upper |
| | 12 | 0 | 24.24 | -0.22 | 24.17 | -0.29 | 24.32 | -0.14 | Lower |
| | 12 | 13 | 24.18 | -0.28 | 24.15 | -0.31 | 24.42 | -0.04 | Upper |
| | 25 | 0 | 24.14 | -0.32 | 24.10 | -0.36 | 24.31 | -0.15 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 24.46 |

* Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.19 Conducted Power Measurements – LTE Band 12, 3MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 12 | | | | | Channel Bandwidth: | | 3MHz |
| Lower Band Edge | | 699(MHz) | | | | | Upper Band Edge: | | 716(MHz) |
| Modulation | RB Size | RB Offset | Low 23025 700.5(MHz) | | Mid 23095 707.5(MHz) | | High 23165 714.5(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 24.37 | -0.11 | 24.31 | -0.17 | 24.33 | -0.15 | Lower |
| | 1 | 8 | 24.35 | -0.13 | 24.34 | -0.14 | 24.37 | -0.11 | Mid |
| | 1 | 14 | 24.31 | -0.17 | 24.33 | -0.15 | 24.35 | -0.13 | Upper |
| | 8 | 0 | 24.43 | -0.05 | 24.41 | -0.07 | 24.43 | -0.05 | Lower |
| | 8 | 7 | 24.34 | -0.14 | 24.38 | -0.10 | 24.46 | -0.02 | Upper |
| | 15 | 0 | 24.37 | -0.11 | 24.38 | -0.10 | 24.48 | 0.00 | Mid |
| 16QAM | 1 | 0 | 24.39 | -0.09 | 24.38 | -0.10 | 24.36 | -0.12 | Lower |
| | 1 | 8 | 24.33 | -0.15 | 24.42 | -0.06 | 24.44 | -0.04 | Mid |
| | 1 | 14 | 24.30 | -0.18 | 24.37 | -0.11 | 24.38 | -0.10 | Upper |
| | 8 | 0 | 24.34 | -0.14 | 24.11 | -0.37 | 24.33 | -0.15 | Lower |
| | 8 | 7 | 24.26 | -0.22 | 23.97 | -0.51 | 24.31 | -0.17 | Upper |
| | 15 | 0 | 24.32 | -0.16 | 23.86 | -0.62 | 24.31 | -0.17 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 24.48 |

* Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.20 Conducted Power Measurements – LTE Band 12, 1.4MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 12 | | | | | Channel Bandwidth: | | 1.4MHz |
| Lower Band Edge | | 699(MHz) | | | | | Upper Band Edge: | | 716(MHz) |
| Modulation | RB Size | RB Offset | Low 23017 699.7(MHz) | | Mid 23095 707.5(MHz) | | High 23173 715.3(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 24.38 | -0.11 | 24.39 | -0.10 | 24.40 | -0.09 | Lower |
| | 1 | 3 | 24.41 | -0.08 | 24.43 | -0.06 | 24.45 | -0.04 | Mid |
| | 1 | 6 | 24.38 | -0.11 | 24.41 | -0.08 | 24.39 | -0.10 | Upper |
| | 3 | 0 | 24.38 | -0.11 | 24.43 | -0.06 | 24.44 | -0.05 | Lower |
| | 3 | 4 | 24.41 | -0.08 | 24.38 | -0.11 | 24.47 | -0.02 | Upper |
| | 7 | 0 | 24.43 | -0.06 | 24.38 | -0.11 | 24.41 | -0.08 | Mid |
| 16QAM | 1 | 0 | 24.33 | -0.16 | 24.35 | -0.14 | 24.45 | -0.04 | Lower |
| | 1 | 3 | 24.33 | -0.16 | 24.39 | -0.10 | 24.49 | 0.00 | Mid |
| | 1 | 6 | 24.41 | -0.08 | 24.33 | -0.16 | 24.44 | -0.05 | Upper |
| | 3 | 0 | 24.37 | -0.12 | 24.45 | -0.04 | 24.32 | -0.17 | Lower |
| | 3 | 4 | 24.43 | -0.06 | 24.46 | -0.03 | 24.28 | -0.21 | Upper |
| | 7 | 0 | 24.34 | -0.15 | 24.30 | -0.19 | 24.41 | -0.08 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 24.49 |

* Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.21 Conducted Power Measurements – LTE Band 13, 10MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 13 | | | | Channel Bandwidth: | | 10MHz |
| Lower Band Edge | | 777(MHz) | | | | Upper Band Edge: | | 787(MHz) |
| Modulation | RB Size | RB Offset | Low 23230 782(MHz) | | Mid 23230 782(MHz) | | High 23230 782(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | | | 24.29 | -0.13 | | | Lower |
| | 1 | 25 | | | 24.32 | -0.10 | | | Mid |
| | 1 | 49 | | | 24.25 | -0.17 | | | Upper |
| | 25 | 0 | | | 24.42 | 0.00 | | | Lower |
| | 25 | 25 | | | 24.35 | -0.07 | | | Upper |
| | 50 | 0 | | | 24.40 | -0.02 | | | Mid |
| 16QAM | 1 | 0 | | | 24.37 | -0.05 | | | Lower |
| | 1 | 25 | | | 24.40 | -0.02 | | | Mid |
| | 1 | 49 | | | 24.29 | -0.13 | | | Upper |
| | 25 | 0 | | | 24.00 | -0.42 | | | Lower |
| | 25 | 25 | | | 23.96 | -0.46 | | | Upper |
| | 50 | 0 | | | 23.94 | -0.48 | | | Mid |
| | | | | | | Maximum Conducted Power Measured: | | | 24.42 |

* Δ = Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.22 Conducted Power Measurements – LTE Band 13, 5MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 13 | | | | | Channel Bandwidth: | | 5MHz |
| Lower Band Edge | | 777(MHz) | | | | | Upper Band Edge: | | 787(MHz) |
| Modulation | RB Size | RB Offset | Low 23205 779.5(MHz) | | Mid 23230 782(MHz) | | High 23255 784.5(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 23.56 | -0.46 | 23.97 | -0.05 | 23.73 | -0.29 | Lower |
| | 1 | 12 | 23.41 | -0.61 | 23.99 | -0.03 | 23.58 | -0.44 | Mid |
| | 1 | 24 | 23.61 | -0.41 | 23.87 | -0.15 | 23.54 | -0.48 | Upper |
| | 12 | 0 | 23.38 | -0.64 | 24.00 | -0.02 | 23.44 | -0.58 | Lower |
| | 12 | 13 | 23.42 | -0.60 | 23.98 | -0.04 | 23.74 | -0.28 | Upper |
| | 25 | 0 | 23.36 | -0.66 | 24.02 | 0.00 | 23.58 | -0.44 | Mid |
| 16QAM | 1 | 0 | 23.15 | -0.87 | 23.42 | -0.60 | 23.36 | -0.66 | Lower |
| | 1 | 12 | 23.31 | -0.71 | 23.45 | -0.57 | 23.22 | -0.80 | Mid |
| | 1 | 24 | 23.27 | -0.75 | 23.36 | -0.66 | 23.24 | -0.78 | Upper |
| | 12 | 0 | 23.31 | -0.71 | 23.52 | -0.50 | 23.29 | -0.73 | Lower |
| | 12 | 13 | 23.30 | -0.72 | 23.44 | -0.58 | 23.31 | -0.71 | Upper |
| | 25 | 0 | 23.16 | -0.86 | 23.60 | -0.42 | 23.50 | -0.52 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 24.02 |

* Δ = Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.23 Conducted Power Measurements – LTE Band 14, 10MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 14 | | | | Channel Bandwidth: | | 10MHz |
| Lower Band Edge | | 788(MHz) | | | | Upper Band Edge: | | 798(MHz) |
| Modulation | RB Size | RB Offset | Low 23330 793(MHz) | | Mid 23330 793(MHz) | | High 23330 793(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | | | 24.32 | -0.12 | | | Lower |
| | 1 | 25 | | | 24.27 | -0.17 | | | Mid |
| | 1 | 49 | | | 24.34 | -0.10 | | | Upper |
| | 25 | 0 | | | 24.35 | -0.09 | | | Lower |
| | 25 | 25 | | | 24.44 | 0.00 | | | Upper |
| | 50 | 0 | | | 24.33 | -0.11 | | | Mid |
| 16QAM | 1 | 0 | | | 23.91 | -0.53 | | | Lower |
| | 1 | 25 | | | 23.90 | -0.54 | | | Mid |
| | 1 | 49 | | | 23.95 | -0.49 | | | Upper |
| | 25 | 0 | | | 23.99 | -0.45 | | | Lower |
| | 25 | 25 | | | 24.06 | -0.38 | | | Upper |
| | 50 | 0 | | | 24.38 | -0.06 | | | Mid |
| | | | | | | Maximum Conducted Power Measured: | | | 24.44 |

* Δ = Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.24 Conducted Power Measurements – LTE Band 14, 5MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 14 | | | | | Channel Bandwidth: | | 5MHz |
| Lower Band Edge | | 788(MHz) | | | | | Upper Band Edge: | | 798(MHz) |
| Modulation | RB Size | RB Offset | Low 23305 790.5(MHz) | | Mid 23330 793(MHz) | | High 23355 795.5(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 23.87 | -0.32 | 24.12 | -0.07 | 23.61 | -0.58 | Lower |
| | 1 | 12 | 23.78 | -0.41 | 24.13 | -0.06 | 23.87 | -0.32 | Mid |
| | 1 | 24 | 23.90 | -0.29 | 24.05 | -0.14 | 23.94 | -0.25 | Upper |
| | 12 | 0 | 24.09 | -0.10 | 24.19 | 0.00 | 24.02 | -0.17 | Lower |
| | 12 | 13 | 24.02 | -0.17 | 24.18 | -0.01 | 24.05 | -0.14 | Upper |
| | 25 | 0 | 24.03 | -0.16 | 24.15 | -0.04 | 24.05 | -0.14 | Mid |
| 16QAM | 1 | 0 | 23.67 | -0.52 | 23.08 | -1.11 | 23.92 | -0.27 | Lower |
| | 1 | 12 | 23.68 | -0.51 | 23.11 | -1.08 | 23.75 | -0.44 | Mid |
| | 1 | 24 | 23.76 | -0.43 | 23.04 | -1.15 | 23.91 | -0.28 | Upper |
| | 12 | 0 | 23.56 | -0.63 | 23.69 | -0.50 | 23.78 | -0.41 | Lower |
| | 12 | 13 | 23.81 | -0.38 | 23.67 | -0.52 | 23.81 | -0.38 | Upper |
| | 25 | 0 | 23.85 | -0.34 | 23.79 | -0.40 | 23.96 | -0.23 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 24.19 |

* Δ = Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.25 Conducted Power Measurements – LTE Band 66, 20MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 66 | | | | | Channel Bandwidth: | | 20MHz |
| Lower Band Edge | | 1710(MHz) | | | | | Upper Band Edge: | | 1780(MHz) |
| Modulation | RB Size | RB Offset | Low 132072 1720(MHz) | | Mid 132322 1745(MHz) | | High 132572 1770(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 22.82 | -0.11 | 22.70 | -0.23 | 22.93 | 0.00 | Lower |
| | 1 | 50 | 22.77 | -0.16 | 22.71 | -0.22 | 22.72 | -0.21 | Mid |
| | 1 | 99 | 22.84 | -0.09 | 22.71 | -0.22 | 22.89 | -0.04 | Upper |
| | 50 | 0 | 22.85 | -0.08 | 22.86 | -0.07 | 22.85 | -0.09 | Lower |
| | 50 | 50 | 22.84 | -0.09 | 22.62 | -0.31 | 22.77 | -0.16 | Upper |
| | 100 | 0 | 22.83 | -0.10 | 22.81 | -0.12 | 22.75 | -0.18 | Mid |
| 16QAM | 1 | 0 | 22.71 | -0.22 | 22.74 | -0.19 | 22.61 | -0.32 | Lower |
| | 1 | 50 | 22.70 | -0.23 | 22.40 | -0.53 | 22.40 | -0.53 | Mid |
| | 1 | 99 | 22.75 | -0.18 | 22.31 | -0.62 | 22.65 | -0.28 | Upper |
| | 50 | 0 | 22.79 | -0.14 | 22.81 | -0.12 | 22.86 | -0.07 | Lower |
| | 50 | 50 | 22.86 | -0.07 | 22.57 | -0.36 | 22.75 | -0.18 | Upper |
| | 100 | 0 | 22.88 | -0.05 | 22.83 | -0.10 | 22.76 | -0.17 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 22.93 |

* Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.26 Conducted Power Measurements – LTE Band 66, 15MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 66 | | | | | Channel Bandwidth: | | 15MHz |
| Lower Band Edge | | 1710(MHz) | | | | | Upper Band Edge: | | 1780(MHz) |
| Modulation | RB Size | RB Offset | Low 132047 1717.5(MHz) | | Mid 132322 1745(MHz) | | High 132597 1772.5(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 22.40 | -0.14 | 22.04 | -0.50 | 22.04 | -0.50 | Lower |
| | 1 | 36 | 22.20 | -0.34 | 21.91 | -0.63 | 21.91 | -0.63 | Mid |
| | 1 | 74 | 22.10 | -0.44 | 21.81 | -0.73 | 21.98 | -0.56 | Upper |
| | 36 | 0 | 22.37 | -0.17 | 21.99 | -0.55 | 21.95 | -0.59 | Lower |
| | 36 | 37 | 22.17 | -0.37 | 21.98 | -0.56 | 21.99 | -0.55 | Upper |
| | 75 | 0 | 22.33 | -0.21 | 21.96 | -0.58 | 21.99 | -0.55 | Mid |
| 16QAM | 1 | 0 | 22.39 | -0.15 | 22.25 | -0.29 | 22.54 | 0.00 | Lower |
| | 1 | 36 | 22.30 | -0.24 | 22.04 | -0.50 | 22.34 | -0.20 | Mid |
| | 1 | 74 | 22.38 | -0.16 | 21.95 | -0.59 | 22.40 | -0.14 | Upper |
| | 36 | 0 | 22.42 | -0.12 | 22.06 | -0.48 | 21.99 | -0.55 | Lower |
| | 36 | 37 | 22.25 | -0.29 | 21.95 | -0.59 | 22.01 | -0.53 | Upper |
| | 75 | 0 | 22.25 | -0.29 | 22.04 | -0.50 | 21.96 | -0.58 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 22.54 |

* Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.27 Conducted Power Measurements – LTE Band 66, 10MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 66 | | | | | Channel Bandwidth: | | 10MHz |
| Lower Band Edge | | 1710(MHz) | | | | | Upper Band Edge: | | 1780(MHz) |
| Modulation | RB Size | RB Offset | Low 132022 1715(MHz) | | Mid 132322 1745(MHz) | | High 132622 1775(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 22.58 | -0.41 | 22.85 | -0.14 | 22.90 | -0.09 | Lower |
| | 1 | 25 | 22.54 | -0.45 | 22.75 | -0.24 | 22.92 | -0.07 | Mid |
| | 1 | 49 | 22.41 | -0.58 | 22.66 | -0.33 | 22.92 | -0.07 | Upper |
| | 25 | 0 | 22.73 | -0.26 | 22.85 | -0.14 | 22.95 | -0.04 | Lower |
| | 25 | 25 | 22.65 | -0.34 | 22.85 | -0.14 | 22.96 | -0.03 | Upper |
| | 50 | 0 | 22.68 | -0.31 | 22.83 | -0.16 | 22.94 | -0.05 | Mid |
| 16QAM | 1 | 0 | 22.92 | -0.07 | 22.90 | -0.09 | 22.90 | -0.09 | Lower |
| | 1 | 25 | 22.90 | -0.09 | 22.91 | -0.08 | 22.95 | -0.04 | Mid |
| | 1 | 49 | 22.91 | -0.08 | 22.81 | -0.18 | 22.96 | -0.03 | Upper |
| | 25 | 0 | 22.80 | -0.19 | 22.92 | -0.07 | 22.95 | -0.04 | Lower |
| | 25 | 25 | 22.72 | -0.27 | 22.85 | -0.14 | 22.91 | -0.08 | Upper |
| | 50 | 0 | 22.69 | -0.30 | 22.75 | -0.24 | 22.99 | 0.00 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 22.99 |

* Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.28 Conducted Power Measurements – LTE Band 66, 5MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 66 | | | | | Channel Bandwidth: | | 5MHz |
| Lower Band Edge | | 1710(MHz) | | | | | Upper Band Edge: | | 1780(MHz) |
| Modulation | RB Size | RB Offset | Low 131997 1712.5(MHz) | | Mid 132322 1745(MHz) | | High 132647 1777.5(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 22.81 | -0.17 | 22.85 | -0.13 | 22.93 | -0.05 | Lower |
| | 1 | 12 | 22.83 | -0.15 | 22.75 | -0.23 | 22.98 | 0.00 | Mid |
| | 1 | 24 | 22.77 | -0.21 | 22.66 | -0.32 | 22.97 | -0.01 | Upper |
| | 12 | 0 | 22.77 | -0.21 | 22.85 | -0.13 | 22.95 | -0.03 | Lower |
| | 12 | 13 | 22.76 | -0.22 | 22.85 | -0.13 | 22.90 | -0.08 | Upper |
| | 25 | 0 | 22.78 | -0.20 | 22.83 | -0.15 | 22.95 | -0.03 | Mid |
| 16QAM | 1 | 0 | 22.78 | -0.20 | 22.90 | -0.08 | 22.94 | -0.04 | Lower |
| | 1 | 12 | 22.78 | -0.20 | 22.91 | -0.07 | 22.92 | -0.06 | Mid |
| | 1 | 24 | 22.75 | -0.23 | 22.81 | -0.17 | 22.95 | -0.03 | Upper |
| | 12 | 0 | 22.78 | -0.20 | 22.92 | -0.06 | 22.90 | -0.08 | Lower |
| | 12 | 13 | 22.80 | -0.18 | 22.85 | -0.13 | 22.94 | -0.04 | Upper |
| | 25 | 0 | 22.87 | -0.11 | 22.75 | -0.23 | 22.98 | 0.00 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 22.98 |

* Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.29 Conducted Power Measurements – LTE Band 66, 3MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 66 | | | | | Channel Bandwidth: | | 3MHz |
| Lower Band Edge | | 1710(MHz) | | | | | Upper Band Edge: | | 1780(MHz) |
| Modulation | RB Size | RB Offset | Low 131987 1711.5(MHz) | | Mid 132322 1745(MHz) | | High 132657 1778.5(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 21.90 | -1.08 | 22.83 | -0.15 | 22.93 | -0.05 | Lower |
| | 1 | 8 | 22.87 | -0.11 | 22.81 | -0.17 | 22.89 | -0.09 | Mid |
| | 1 | 14 | 22.88 | -0.10 | 22.80 | -0.18 | 22.90 | -0.08 | Upper |
| | 8 | 0 | 22.87 | -0.11 | 22.80 | -0.18 | 22.92 | -0.06 | Lower |
| | 8 | 7 | 22.91 | -0.07 | 22.85 | -0.13 | 22.95 | -0.03 | Upper |
| | 15 | 0 | 22.89 | -0.09 | 22.83 | -0.15 | 22.92 | -0.06 | Mid |
| 16QAM | 1 | 0 | 22.98 | 0.00 | 22.85 | -0.13 | 22.88 | -0.10 | Lower |
| | 1 | 8 | 22.88 | -0.10 | 22.80 | -0.18 | 22.86 | -0.12 | Mid |
| | 1 | 14 | 22.98 | 0.00 | 22.81 | -0.17 | 22.88 | -0.10 | Upper |
| | 8 | 0 | 22.90 | -0.08 | 22.92 | -0.06 | 22.79 | -0.19 | Lower |
| | 8 | 7 | 22.88 | -0.10 | 22.91 | -0.07 | 22.87 | -0.11 | Upper |
| | 15 | 0 | 22.90 | -0.08 | 22.89 | -0.09 | 22.89 | -0.09 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 22.98 |

* Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

**Table 6.30 Conducted Power Measurements – LTE Band 66, 1.4MHz BW**

| LTE Conducted Power Measurement - Base Station | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LTE Band: | | 66 | | | | | Channel Bandwidth: | | 1.4MHz |
| Lower Band Edge | | 1710(MHz) | | | | | Upper Band Edge: | | 1780(MHz) |
| Modulation | RB Size | RB Offset | Low 131979 1710.7(MHz) | | Mid 132322 1745(MHz) | | High 132665 1779.3(MHz) | | Chan Pos EARFCN Chan Freq |
| | | | Conducted Power (dBm)* | | | | | | RB Pos |
| | | | Meas. | Δ | Meas. | Δ | Meas. | Δ | |
| QPSK | 1 | 0 | 22.82 | -0.16 | 22.72 | -0.26 | 22.86 | -0.12 | Lower |
| | 1 | 3 | 22.87 | -0.11 | 22.80 | -0.18 | 22.92 | -0.06 | Mid |
| | 1 | 6 | 22.82 | -0.16 | 22.72 | -0.26 | 22.87 | -0.11 | Upper |
| | 3 | 0 | 22.87 | -0.11 | 22.74 | -0.24 | 22.90 | -0.08 | Lower |
| | 3 | 4 | 22.82 | -0.16 | 22.76 | -0.22 | 22.89 | -0.09 | Upper |
| | 7 | 0 | 22.73 | -0.25 | 22.75 | -0.23 | 22.88 | -0.10 | Mid |
| 16QAM | 1 | 0 | 22.90 | -0.08 | 22.75 | -0.23 | 22.80 | -0.18 | Lower |
| | 1 | 3 | 22.98 | 0.00 | 22.81 | -0.17 | 22.91 | -0.07 | Mid |
| | 1 | 6 | 22.90 | -0.08 | 22.78 | -0.20 | 22.85 | -0.13 | Upper |
| | 3 | 0 | 22.86 | -0.12 | 22.84 | -0.14 | 22.91 | -0.07 | Lower |
| | 3 | 4 | 22.87 | -0.11 | 22.83 | -0.15 | 22.89 | -0.09 | Upper |
| | 7 | 0 | 22.88 | -0.10 | 22.70 | -0.28 | 22.86 | -0.12 | Mid |
| | | | | | | | Maximum Conducted Power Measured: | | 22.98 |

* Relative to the maximum measured conducted power for this BW, across all channels, RBs, RB Offsets and modulations.

## 7.0 NUMBER OF TEST CHANNELS ($N_C$)

**LTE *Required Test Channels*:**

As per FCC KDB 941225, the *required test channels* are:
- 100% RB Allocation (1)
- 50% RB Allocation offset to the lower, middle and upper edge of the channel bandwidth (3)
- 1RB Allocation offset to the lower, middle and upper edge of the channel bandwidth (3)
- For each of the Low, Mid and High channels (3)
  AND
- For each of the QPSK, 16QAM and 64QAM modulations (3)
  AND
- For each of the channel bandwidths (n).

For each channel bandwidth there are a total of:
**63** *required test channels* when the channel bandwidth is less than the width of the LTE band
**21** *required test channels* when the channel bandwidth is equal to the width of the LTE band

**Test Reduction:**

For QPSK, 1RB & Offset w/ highest output power:
- Testing of all other 1RB & Offset not required when: *reported* SAR ≤ **0.8W/kg**
- Testing of only 1RB & Offset with highest output power for each other channel when: **0.8W/kg** < *reported* SAR ≤ **1.45W/kg**
- No test reduction when: *reported* SAR > **1.45W/kg**

For QPSK, 50%RB & Offset w/ highest output power:
- Testing of all other 50%RB & Offset not required when: *reported* SAR ≤ **0.8W/kg**
- Testing of only 50%RB & Offset with highest output power for each other channel when: **0.8W/kg** < *reported* SAR ≤ **1.45W/kg**
- No test reduction when: *reported* SAR > **1.45W/kg**

For QPSK, 100%RB w/ highest output power:
- Testing of 100%RB w/ highest output power not required when the 100%RB output power is less than the 1RB & Offset w/ highest output power AND the 50%RB & Offset w/ highest output power and the *reported* SAR from above is ≤ **0.8W/kg**
- Testing of only 100%RB w/ highest output power when the 100%RB output power is greater than the 1RB & Offset w/ highest output power OR the 50%RB & Offset w/ highest output power AND the *reported* SAR from 1RB AND 50%RB is:
**0.8W/kg** < *reported* SAR ≤ **1.45W/kg**
- No test reduction when the 1RB OR 50%RB *reported* SAR > **1.45W/kg**

For 16QAM or 64QAM:
- Testing not required when the QAM highest output power is ≤ **0.5dB** for the same QPSK configuration and the *reported* SAR from above is ≤ **1.45W/kg.**
- Test only QAM configuration when QAM highest output power is > **1/2dB** greater than the output power of the QAM configuration.
- Test the QAM configuration when the SAR of the same QPSK configuration is > **1.45W/kg.**

For other Channel Bandwidths.
- Testing not required when the highest output power of the smaller bandwidth is ≤ **0.5dB** of the output power of the similar configuration in the larger bandwidth and the *reported* SAR from above is ≤ **1.45W/kg.**
- Test only the configuration when the highest output power of the smaller bandwidth is > **1/2dB** of the output power of the similar configuration in the larger bandwidth.
- Test the configuration in the smaller bandwidth when the SAR of the similar configuration in the larger bandwidth is > 1.45W/kg.

**Overlapping Channels:**

Per TCB Council Workshop – April 2015, overlapping channels may be exclude provided:

*"The maximum output power, including tolerance, for the smaller band must be ≤ the larger band to qualify for the SAR test exclusion. The channel bandwidth and other operating parameters for the smaller band must be fully supported by the larger band "*

LTE Band 66 includes all of LTE Band 4, Band 4 is excluded.
LTE Band 12 includes all of LTE Band 17, Band 17 is excluded.

**LMR, WiFi, BlueTooth *Required Channels*:**

Since the circuitry, layout, power amplifiers, etc. of these transmitters have not been modified, only the worst case configurations from previous SAR evaluations will be considered for Standalone and Simultaneous Transmission SAR evaluation.

## 8.0 ACCESSORIES EVALUATED

**Table 8.1 Manufacturer's Accessory List**

| Change History | | | | |
|---|---|---|---|---|
| Change ID | Date | Change Type | Description of Change | Test Report Serial Number |
| 8 | 23 Mar 2017 | New Cert | Initial Filing w /LTE | 45461375 |
| 9 | 24 Mar 2017 | New Cert | Feature w /o LTE LTE | 45461374 |
| 12 | 9 Aug 2017 | C1PC | Added 14035-4045-01 Battery | 45461392 |
| 17 | 15 Aug 2017 | C2PC | Added E75-0286-001 Antenna | 45461397 |
| 22 | 16 Oct 2017 | C1PC | Added 14036-4001-01, -02, -4002-01, -02, -03 Body Accessories | 45461404 |
| 23 | 9 Dec 2017 | C1PC | Added Fema Green Variants | n/a |
| 24 | 15 May 2018 | C1PC | Added 14036-4003-01, -02 Body Accessories | 45461441 |
| 24 | 15 May 2018 | C1PC | Added 14036-4020-01, -02 Battery | 45461441 |
| 25 | 12 June 2018 | C1PC | Replace IF SAW filters -0143-E, dropped 768-776 band | n/a |
| 26 | 2 Aug 2018 | C1PC | Revised Change ID 25 to include Black and Yellow LTE Variants - FCC Only | n/a |
| 27 | 17 Oct 2018 | C1PC | Added 14035-4700-01,14035-4700-02 Audio Accessories | 45461465 |
| 29 | 11 April 2019 | C1PC | Added 14035-4750-01 Audio Accessories to ALL Splits | 45461495 |
| 30 | 4 July 2019 | C1PC | Added 14035-5050-01, -02 High Capacity Battery | 45461519 |
| 31 | 23 July 2019 | C2PC | Added Global LTE Option, -0133, -0143, -0145 | 45461519 |
| 32 | 23 July 2019 | C2PC | Added 12082-3234-01 D-Sw ivel | 45461519 |
| 33 | 23 July 2019 | C2PC | Added 14036-4003-03 Body Accessory | 45461531 |
| 34 | 23 July 2019 | C2PC | Added 14036-4003-04 Body Accessory | 45461531 |

| Manufacturer's Accessory List | | | | | | | |
|---|---|---|---|---|---|---|---|
| Test Report ID Number | Manufacturer's Part Number | Description | Change ID[1] | UDC Group[2] | Type II Group[3] | SAR[4] Evaluated | SAR[5] Tested |
| **Antenna** | | | | | | | |
| T4 | 14035-4000-01 | Full Spectrum Antenna (136-870 MHz) | 1 | | | Y | Y |
| T5 | 14035-4420-01 | Wideband Whip Antenna (378-520MHz, 762-870 MHz) | 5 | | | Y | Y |
| T6 | 14035-4440-01 | 1/2 Wave Whip Antenna (762-870 MHz) | 4 | | | Y | Y |
| T7 | 14035-4440-02 | 1/4 Wave Whip Antenna (762-870 MHz) | 4 | | | Y | Y |
| T8 | 14035-4450-01 | 1/2 Wave Whip Antenna (762-944 MHz) | 8 | | | Y | Y |
| T9 | 14035-4450-02 | 1/4 Wave Whip Antenna (762-944 MHz) | 8 | | | Y | Y |
| T11 | E75-0286-001 | 1/2 Wave Whip Antenna (890-960 MHz) | 17 | | | Y | Y |

| Manufacturer's Accessory List | | | | | | | |
|---|---|---|---|---|---|---|---|
| Test Report ID Number | Manufacturer's Part Number | Description | Change ID[1] | UDC Group[2] | Type II Group[3] | SAR[4] Evaluated | SAR[5] Tested |
| **Battery** | | | | | | | |
| P1 | 14035-4010-01 | Li-Ion Battery 7.2VDC, 3300mAh | 1 | | | Y | Y |
| P2 | 14035-4010-04 | Li-Ion Battery 7.2VDC, 3100mAh, 22Wh | 7 | | | Y | Y |
| P4 | 14035-4010-05 | Li-Ion Battery 7.2VDC, 3100mAh, 22Wh UL | 12 | | | Y | Y |
| P5 | 14036-4020-01 | Li-Ion Battery 7.2VDC, 3100mAh, 22Wh, LTE | 24 | | | Y | Y |
| P6 | 14036-4020-02 | Li-Ion Battery 7.2VDC, 3100mAh, 22Wh, LTE, UL, C1D2 | 24 | | | Y | Y |
| P7 | 14035-5050-01 | Li-Ion Battery 7.2VDC, 4700mAh, 24Wh Standard | 30 | | | Y | Y |
| P8 | 14035-5050-02 | Li-Ion Battery 7.2VDC, 4700mAh, 24Wh, C1D2 | 30 | | | Y | Y |

| Manufacturer's Accessory List | | | | | | | |
|---|---|---|---|---|---|---|---|
| Test Report ID Number | Manufacturer's Part Number | Description | Change ID(1) | UDC Group(2) | Type II Group(3) | SAR(4) Evaluated | SAR(5) Tested |
| **Audio Accessory** | | | | | | | |
| A1 | 12082-0600-01 | Standard Speaker Microphone | 1 | 7A | PB | Y | Y |
| A2 | 12082-0600-02 | Storm Speaker Microphone | 1 | 7A | PB | Y | Y |
| A3 | 12150-1000-01 | Premium Speaker MIC, Fire, NC | 1 | 9 | PB | Y | Y |
| A4 | 12082-0650-01 | Microphone, Palm, 2-Wire Black | 1 | 7A | IL | Y | Y |
| A5 | 12082-0650-02 | Microphone, Palm, 2-Wire Beige | 3 | 7A | IL | Y | N |
| A6 | 12082-0650-03 | Microphone, Mini Lapel, 3-Wire Black | 1 | 7A | IL | Y | Y |
| A7 | 12082-0650-04 | Microphone, Mini Lapel, 3-Wire Beige | 3 | 7A | IL | Y | N |
| A8 | 12082-0650-05 | Earphone Kit, Black, XG-100P | ** | 7A | IL | Y | N |
| A9 | 12082-0650-06 | Earphone Kit, Beige, XG-100P | ** | 7A | IL | Y | N |
| A10 | 12082-0650-07 | Headset, In-Ear, Boom MIC, In-Line PTT | 3 | 7A | IL | Y | N |
| A11 | 12082-0650-08 | Headset, LTWT, OTH, Single Ear, IN-Line PTT | 3 | 7A | IL | Y | N |
| A12 | 12082-0650-09 | Headset, LTWT, BTH, Dual Ear, In_Line PTT | 3 | 7A | IL | Y | N |
| A13 | 12082-0650-10 | Headset, LTWT, BTH, Dual Ear, Pig Tail PTT | 3 | 7A | PT | Y | Y |
| A14 | 12082-0650-11 | Headset, LTWT, BTH, Dual In-Ear, In_Line PTT | 3 | 7A | IL | Y | N |
| A15 | 12082-0650-12 | Headset, LTWT, BTH, Dual In-Ear, Pig Tail PTT | 3 | 7A | PT | Y | Y |
| A16 | 12082-0650-13 | Headset, Heavy Duty, BTH, w/PTT, XG-100P | 3 | 7A | IL | Y | Y |
| A17 | 12082-0650-14 | Headset, Heavy Duty, OTH, w/PTT, XG-100P | 3 | 7A | IL | Y | N |
| A18 | 12082-0650-15 | Headset, BTH, Boom MIC, Earpiece, w/PTT | ** | 7A | IL | Y | N |
| A19 | 12082-0650-16 | Headset, Tactical, Boom MIC, Earpiece, w/PTT | 3 | 7A | PT | Y | N |
| A20 | 12082-0650-17 | Skull MIC, w/Body PTT, Earcup, XG-100P | 3 | 9 | BB | Y | Y |
| A21 | 12082-0650-18 | Throat MIC, w/Acoustic Tube, Body PTT | 3 | 9 | BB | Y | N |
| A22 | 12082-0650-19 | Throat MIC, w/Acoustic Tube, Body & Ring PTT | 3 | 9 | RB | Y | N |
| A23 | 12082-0681-01 | Speaker MIC, Wireless Bluetooth | 3 | BT | PB | Y | N |
| A24 | 12082-0684-01 | BlueTooth, Covert, Earpiece, MIC, PTT | 3 | BT | n/a | Y | N |
| A25 | 14002-0197-01 | Hirose to Unity Adapter | 1 | 7B | n/a | Y | Y |
| A26 | LS103239V1 | Earphone, Lapel MIC, 2.5mm | 3 | n/a | n/a | Y | Y |
| A27 | LS103239V2 | Earphone, Lapel MIC, 2.5mm, Right Angle | 4 | n/a | n/a | Y | N |
| A28 | 12082-0600-03 | Storm Speaker Microphone 18" | 6 | 7A | PB | Y | Y |
| A29 | 12082-0600-04 | Storm Speaker Microphone 25.6" | 6 | 7A | PB | Y | Y |
| A30 | 12082-0600-05 | Storm Speaker Microphone 30" | 6 | 7A | PB | Y | Y |
| A31 | 12150-1000-05 | Premium Speaker MIC, Fire, NC, Hi Vis Yellow | 1 | 9 | PB | Y | Y |
| A32 | 14035-4700-01 | SPEAKER MIC, REVO NC2, C1D2 LMR | 27 | 7A | PB | Y | Y |
| A33 | 14035-4700-02 | SPEAKER MIC, REVO NC2 | 27 | 7A | PB | Y | Y |
| A34 | 14035-4750-01 | SPEAKER MIC, 500F, C1D1 LMR | 29 | 9 | PB | Y | N |

(1) From the Change History Table - Indicates which change the item was introduced or tested. A "**" in this column indicates these accessories were evaluated on similar product and are deemed compliant.

(2) UDC Group: 9 = 9 Pin, 7A = 7 Pin, 7B = 7 Pin Modified

(3) Type II Group: PB = Palm Button, IL = In-Line Pushbutton, PT = Pigtail Pushbutton, RB = Ring Pushbutton, BB = Body Button, BT = BlueTooth

(4) Accessories are categorized into groups of similar design and construction. Samples of individual groups are SAR Tested and the SAR results apply to ALL members of the Accessory Group. A "Y" in this column indicates the accessory is deemed acceptable.

(5) Accessories and/or Accessory Group members SAR Tested.

| Manufacturer's Accessory List | | | | | | | |
|---|---|---|---|---|---|---|---|
| Test Report ID Number | Manufacturer's Part Number | Description | Change ID[1] | UDC Group[2] | Type II Group[3] | SAR[4] Evaluated | SAR[5] Tested |
| | | **Body-Worn Accessory** | | | | | |
| B1 | 12082-1290-01 | Metal Belt Clip, 0mm | 1 | | | Y | Y |
| B2 | 12082-3230-01 | D-Swivel (Used w/ 14002-0218-01 and KRY 1011609/1 ) | 1 | | | Y | Y |
| B3 | 14002-0218-01 | Premium Belt Loop | 1 | | | Y | Y |
| B4 | 14035-4200-01 | Holster, Leather, Radio, Premium | 3 | | | Y | Y |
| B5 | 14035-4200-02 | Holster, Leather w/Rings for Shoulder Strap, Radio, Premium | 3 | | | Y | Y |
| B6 | 14035-4200-03 | Holster, Nylon, Black, Radio, Premium | ** | | | Y | N |
| B7 | 14035-4200-04 | Holster, Ring, Leather, Radio, Premium | ** | | | Y | N |
| B8 | 14035-4201-01 | Case, Leather, Premium, Shoulder Strap | ** | | | Y | N |
| B9 | 14035-4201-02 | Case, Leather, Premium, Shoulder Strap | ** | | | Y | N |
| B10 | 14035-4202-01 | Holster, Leather, Radio, Standard | ** | | | Y | N |
| B11 | 14035-4202-02 | Holster, Leather w/Rings for Shoulder Strap, Radio, Standard | ** | | | Y | N |
| B12 | 14035-4202-03 | Holster, Nylon, Black, Radio, Standard | ** | | | Y | N |
| B13 | 14035-4202-04 | Holster, Ring, Leather, Radio, Standard | ** | | | Y | N |
| B14 | CC103333V1 | Shoulder Strap | 1 | | | Y | Y |
| B15 | KRY 1011609/1 | Leather Belt Loop | 1 | | | Y | Y |
| B16 | 12082-1398-01 | Side Connector Cover | 1 | | | Y | Y |
| B17 | 14036-4000-01 | Holster, Leather, Premium | ** | | | Y | N |
| B18 | 14036-4000-02 | Holster, Leather, Premium, Rings | ** | | | Y | N |
| B19 | 14036-4001-01 | Case, Nylon, Black, Molle Strap | 22 | | | Y | Y |
| B20 | 14036-4001-02 | Case, Nylon, Black, Belt Loop, D-Swivel | 22 | | | Y | Y |
| B21 | 14036-4002-01 | Case, Leather, W/ Belt Loop, BLK HDW | 22 | | | Y | N |
| B22 | 14036-4002-02 | Case, Leather, Belt Loop, D-Swivel | 22 | | | Y | N |
| B23 | 14036-4001-03 | Case, Nylon, W/ Belt Loop, D-Swivel, BLK HDW | 22 | | | Y | N |
| B24 | 14036-4002-03 | Case, Leather, Belt Loop, D-Swivel, BLK HDW | 22 | | | Y | N |
| B25 | 14036-4003-01 | Case, Leather, Belt Loop, D-Swivel | 24 | | | Y | Y |
| B26 | 14036-4003-02 | Case, Leather, 3" Belt Loop | 24 | | | Y | Y |
| B1-02 | 12082-1290-02 | Metal Belt Clip, 5mm - Prototype | 1 | | | Y | Y |
| B1-03 | 12082-1290-03 | Metal Belt Clip, 10mm - Prototype | 1 | | | Y | Y |
| B1-04 | 12082-1290-04 | Metal Belt Clip, 15mm - Prototype | 1 | | | Y | Y |
| B27 | 14036-4003-03 | Case, Leather, Belt Loop, D-Swivel | 33 | | | Y | Y |
| B28 | 14036-4003-04 | Case, Leather, 3" Belt Loop | 34 | | | Y | Y |

## 9.0 SAR MEASUREMENT SUMMARY

**Table 9.1: Measured Results LTE Band 2 – BODY**

| Measured SAR Results (1g) - BODY Configuration - LTE Band 2 | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Plot ID | DUT | | Test Frequency (*MHz*) | Modulation | Accessories | | | | DUT Power Setting (*dBm*) | Conducted Power (*dBm*) | Measured SAR (1g) | | SAR Drift (*dB*) | DUT Spacing | |
| | | M/N | Type | | | Antenna ID | Battery ID | Body ID | Audio ID | | | 100% DC (*W/kg*) | [redacted] | | DUT (*mm*) | Antenna* (*mm*) |
| 18 Oct 2019 | B177 | XL-PFM9Y-NA | LTE | 1900 | LTE-QPSK, RB1, RB Offset M, BW=20MHz | T9 | P7 | B1 | A1 | 24.5 | 24.48 | 1.390 | | -0.310 | <5mm | 13 |
| SAR Limit | | | | | | | Spatial Peak | | | Head/Body | RF Exposure Category | | | | | |
| FCC 47 CFR 2.1093 | | | | Health Canada Safety Code 6 | | | 1 Gram Average | | | 1.6 W/kg | General Population | | | | | |

* Approximate spacing to LTE Antenna

**Table 9.2: Measured Results LTE Band 2 – FACE**

| Measured SAR Results (1g) - FACE Configuration - LTE Band 2 | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Plot ID | DUT | | Test Frequency (*MHz*) | Modulation | Accessories | | | | DUT Power Setting (*dBm*) | Conducted Power (*dBm*) | Measured SAR (1g) | | SAR Drift (*dB*) | DUT Spacing | |
| | | M/N | Type | | | Antenna ID | Battery ID | Body ID | Audio ID | | | 100% DC (*W/kg*) | [redacted] | | DUT (*mm*) | Antenna* (*mm*) |
| 18 Oct 2019 | F65 | XL-PFM9Y-NA | LTE | 1900 | LTE-QPSK, RB1, RB Offset M, BW=20MHz | T9 | P7 | n/a | n/a | 24.5 | 24.48 | 0.002 | | 2.190 | 25.4 | 75 |
| SAR Limit | | | | | | | Spatial Peak | | | Head/Body | RF Exposure Category | | | | | |
| FCC 47 CFR 2.1093 | | | | Health Canada Safety Code 6 | | | 1 Gram Average | | | 1.6 W/kg | General Population | | | | | |

* Approximate spacing to LTE Antenna

**Table 9.3: Measured Results LTE Band 5 – BODY**

| Measured SAR Results (1g) - BODY Configuration - LTE Band 5 | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Plot ID | DUT | | Test Frequency (*MHz*) | Modulation | Accessories | | | | DUT Power Setting (*dBm*) | Conducted Power (*dBm*) | Measured SAR (1g) | | SAR Drift (*dB*) | DUT Spacing | |
| | | M/N | Type | | | Antenna ID | Battery ID | Body ID | Audio ID | | | 100% DC (*W/kg*) | [redacted] | | DUT (*mm*) | Antenna* (*mm*) |
| 04 Oct2019 | B174 | XL-PFM9Y-NA | LTE | 836.5 | LTE-QPSK, RB 1, RB Offset L, BW=10MHz | T9 | P2 | B26/Strap | A1 | 24.5 | 24.26 | 0.327 | | **-4.27 | <5mm | 15 |
| SAR Limit | | | | | | Spatial Peak | | | | Head/Body | RF Exposure Category | | | | | |
| FCC 47 CFR 2.1093 | | | | Health Canada Safety Code 6 | | 1 Gram Average | | | | 1.6 W/kg | General Population | | | | | |

* Approximate spacing to LTE Antenna
**Due to the low measured SAR and location of the Phantom Reference Point, drift measurements were not indicative of the actual power drift.

**Table 9.4: Measured Results LTE Band 5 – FACE**

| Measured SAR Results (1g) - FACE Configuration - LTE Band 5 | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Plot ID | DUT | | Test Frequency (*MHz*) | Modulation | Accessories | | | | DUT Power Setting (*dBm*) | Conducted Power (*dBm*) | Measured SAR (1g) | | SAR Drift (*dB*) | DUT Spacing | |
| | | M/N | Type | | | Antenna ID | Battery ID | Body ID | Audio ID | | | 100% DC (*W/kg*) | [redacted] | | DUT (*mm*) | Antenna* (*mm*) |
| 04 Oct 2019 | F62 | XL-PFM9Y-NA | LTE | 836.5 | LTE-QPSK, RB 1, RB Offset L, BW=10MHz | T9 | P2 | n/a | n/a | 24.5 | 24.26 | 0.004 | | 0.480 | 25.4 | 75 |
| SAR Limit | | | | | | Spatial Peak | | | | Head/Body | RF Exposure Category | | | | | |
| FCC 47 CFR 2.1093 | | | | Health Canada Safety Code 6 | | 1 Gram Average | | | | 1.6 W/kg | General Population | | | | | |

* Approximate spacing to LTE Antenna

**Table 9.5: Measured Results LTE Band 12 – BODY**

| Measured SAR Results (1g) - BODY Configuration - LTE Band 12 | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Plot ID | DUT | | Test Frequency (MHz) | Modulation | Accessories | | | | DUT Power Setting (dBm) | Conducted Power (dBm) | Measured SAR (1g) | | SAR Drift (dB) | DUT Spacing | |
| | | M/N | Type | | | Antenna ID | Battery ID | Body ID | Audio ID | | | 100% DC (W/kg) | [redacted] | | DUT (mm) | Antenna* (mm) |
| 16 Oct 2019 | B177 | XL-PFM9Y-NA | LTE | 707.5 | LTE-QPSK, RB 1, RB Offset H, BW=10MHz | T9 | P7 | B26/Strap | A1 | 24.5 | 24.40 | 0.033 | | -0.003 | <5mm | 22 |
| SAR Limit | | | | | | | Spatial Peak | | | Head/Body | RF Exposure Category | | | | | |
| FCC 47 CFR 2.1093 | | | | Health Canada Safety Code 6 | | | 1 Gram Average | | | 1.6 W/kg | General Population | | | | | |

* Approximate spacing to LTE Antenna

**Table 9.6: Measured Results LTE Band 12 – FACE**

| Measured SAR Results (1g) - FACE Configuration - LTE Band 12 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Plot ID | DUT | | Test Frequency (MHz) | Modulation | Accessories | | | | DUT Power Setting (dBm) | Conducted Power (dBm) | Measured SAR (1g) | |
| | | M/N | Type | | | Antenna ID | Battery ID | Body ID | Audio ID | | | 100% DC (W/kg) | [redacted] |
| 16 Oct 2019 | F67 | XL-PFM9Y-NA | LTE | 707.5 | LTE-QPSK, RB 1, RB Offset H, BW=10MHz | T9 | P2 | n/a | n/a | 24.5 | 24.40 | 0.015 | |
| SAR Limit | | | | | | | Spatial Peak | | | Head/Body | RF Exposure | | |
| FCC 47 CFR 2.1093 | | | | Health Canada Safety Code 6 | | | 1 Gram Average | | | 1.6 W/kg | General Pop | | |

* Approximate spacing to LTE Antenna

**Table 9.7: Measured Results LTE Band 13 – BODY**

| Measured SAR Results (1g) - BODY Configuration - LTE Band 13 | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Plot ID | DUT | | Test Frequency (*MHz*) | Modulation | Accessories | | | | DUT Power Setting (*dBm*) | Conducted Power (*dBm*) | Measured SAR (1g) | | SAR Drift (*dB*) | DUT Spacing | |
| | | M/N | Type | | | Antenna ID | Battery ID | Body ID | Audio ID | | | 100% DC (*W/kg*) | [redacted] | | DUT (*mm*) | Antenna* (*mm*) |
| 04 Oct 2019 | B175 | XL-PFM9Y-NA | LTE | 782 | LTE-QPSK, RB 25, RB Offset L, BW=10MHz | T9 | P7 | B26/Strap | A1 | 24.5 | 24.42 | 0.208 | | -0.510 | <5mm | 22 |
| SAR Limit | | | | | | | Spatial Peak | | | Head/Body | RF Exposure Category | | | | | |
| FCC 47 CFR 2.1093 | | | | Health Canada Safety Code 6 | | | 1 Gram Average | | | 1.6 W/kg | General Population | | | | | |

* Approximate spacing to LTE Antenna

**Table 9.8: Measured Results LTE Band 13 – FACE**

| Measured SAR Results (1g) - FACE Configuration - LTE Band 13 | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Plot ID | DUT | | Test Frequency (*MHz*) | Modulation | Accessories | | | | DUT Power Setting (*dBm*) | Conducted Power (*dBm*) | Measured SAR (1g) | | SAR Drift (*dB*) | DUT Spacing | |
| | | M/N | Type | | | Antenna ID | Battery ID | Body ID | Audio ID | | | 100% DC (*W/kg*) | [redacted] | | DUT (*mm*) | Antenna* (*mm*) |
| 07 Oct 2019 | F63 | XL-PFM9Y-NA | LTE | 782 | LTE-QPSK, RB 1, RB Offset M, BW=10MHz | T9 | P2 | n/a | n/a | 24.5 | 24.32 | 0.016 | | **-0.99 | 25.4 | 75 |
| SAR Limit | | | | | | | Spatial Peak | | | Head/Body | RF Exposure Category | | | | | |
| FCC 47 CFR 2.1093 | | | | Health Canada Safety Code 6 | | | 1 Gram Average | | | 1.6 W/kg | General Population | | | | | |

* Approximate spacing to LTE Antenna

*Due to the low measured SAR and location of the Phantom Reference Point, drift measurements were not indicative of the actual power drift.

**Table 9.9: Measured Results LTE Band 14 – BODY**

| Measured SAR Results (1g) - BODY Configuration - LTE Band 14 | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Plot ID | DUT | | Test Frequency (MHz) | Modulation | Accessories | | | | DUT Power Setting (dBm) | Conducted Power (dBm) | Measured SAR (1g) | | SAR Drift (dB) | DUT Spacing | |
| | | M/N | Type | | | Antenna ID | Battery ID | Body ID | Audio ID | | | 100% DC (W/kg) | [redacted] | | DUT (mm) | Antenna* (mm) |
| 07 Oct 2019 | B176 | XL-PFM9Y-NA | LTE | 793 | LTE-QPSK, RB 1, RB Offset H, BW=10MHz | T9 | P2 | B1-02 | A1 | 24.5 | 24.34 | 0.042 | | ** | <5mm | 18 |
| SAR Limit | | | | | | | Spatial Peak | | | Head/Body | RF Exposure Category | | | | | |
| FCC 47 CFR 2.1093 | | | | Health Canada Safety Code 6 | | | 1 Gram Average | | | 1.6 W/kg | General Population | | | | | |

* Approximate spacing to LTE Antenna
*Due to the low measured SAR and location of the Phantom Reference Point, drift measurements were not indicative of the actual power drift.

**Table 9.10: Measured Results LTE Band 14 – FACE**

| Measured SAR Results (1g) - FACE Configuration - LTE Band 14 | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Plot ID | DUT | | Test Frequency (MHz) | Modulation | Accessories | | | | DUT Power Setting (dBm) | Conducted Power (dBm) | Measured SAR (1g) | | SAR Drift (dB) | DUT Spacing | |
| | | M/N | Type | | | Antenna ID | Battery ID | Body ID | Audio ID | | | 100% DC (W/kg) | [redacted] | | DUT (mm) | Antenna* (mm) |
| 07 Oct 2019 | F64 | XL-PFM9Y-NA | LTE | 793 | LTE-QPSK, RB 1, RB Offset H, BW=10MHz | T9 | P7 | n/a | n/a | 24.5 | 24.34 | 0.030 | | -0.040 | 25.4 | 75 |
| SAR Limit | | | | | | | Spatial Peak | | | Head/Body | RF Exposure Category | | | | | |
| FCC 47 CFR 2.1093 | | | | Health Canada Safety Code 6 | | | 1 Gram Average | | | 1.6 W/kg | General Population | | | | | |

* Approximate spacing to LTE Antenna

**Table 9.11: Measured Results LTE Band 66 – BODY**

| Measured SAR Results (1g) - BODY Configuration - LTE Band 66 | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Plot ID | DUT | | Test Frequency (*MHz*) | Modulation | Accessories | | | | DUT Power** Setting (*dBm*) | Conducted Power (*dBm*) | Measured SAR (1g) | | SAR Drift (*dB*) | DUT Spacing | |
| | | M/N | Type | | | Antenna ID | Battery ID | Body ID | Audio ID | | | 100% DC (*W/kg*) | [redacted] | | DUT (*mm*) | Antenna* (*mm*) |
| 18 Oct 20019 | B178 | XL-PFM9Y-NA | LTE | 1770 | LTE-QPSK, RB 1, RB Offset L, BW=20MHz | T9 | P2 | B1-02 | A1 | 23 | 22.93 | 1.020 | | 0.080 | <5mm | 18 |
| SAR Limit | | | | | | | Spatial Peak | | | Head/Body | RF Exposure Category | | | | | |
| FCC 47 CFR 2.1093 | | | | Health Canada Safety Code 6 | | | 1 Gram Average | | | 1.6 W/kg | General Population | | | | | |

* Approximate spacing to LTE Antenna
** Due to PTCRB requirements, this device can only transmit at 23dBm in LTE Bands 66 and 4.

**Table 9.12: Measured Results LTE Band 66 – FACE**

| Measured SAR Results (1g) - FACE Configuration - LTE Band 66 | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Plot ID | DUT | | Test Frequency (*MHz*) | Modulation | Accessories | | | | DUT Power** Setting (*dBm*) | Conducted Power (*dBm*) | Measured SAR (1g) | | SAR Drift (*dB*) | DUT Spacing | |
| | | M/N | Type | | | Antenna ID | Battery ID | Body ID | Audio ID | | | 100% DC (*W/kg*) | [redacted] | | DUT (*mm*) | Antenna* (*mm*) |
| 18 Oct 2019 | F66 | XL-PFM9Y-NA | LTE | 1770 | LTE-QPSK, RB 1, RB Offset L, BW=20MHz | T9 | P2 | n/a | n/a | 23 | 22.93 | 0.024 | | 0.020 | 25.4 | 75 |
| SAR Limit | | | | | | | Spatial Peak | | | Head/Body | RF Exposure Category | | | | | |
| FCC 47 CFR 2.1093 | | | | Health Canada Safety Code 6 | | | 1 Gram Average | | | 1.6 W/kg | General Population | | | | | |

* Approximate spacing to LTE Antenna
** Due to PTCRB requirements, this device can only transmit at 23dBm in LTE Bands 66 and 4.

**Table 9.13: Measured Results LMR 7/800 Band – BODY**

| Measured SAR Results (1g) - BODY Configuration - LMR 7/800 Band | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Plot ID | DUT | | Test Frequency (*MHz*) | Modulation | Accessories | | | | DUT Spacing | | Conducted Power (*dBm*) | Measured SAR (1g) | | SAR Drift (*dB*) |
| | | M/N | Type | | | Antenna ID | Battery ID | Body ID | Audio ID | DUT (*mm*) | Antenna* (*mm*) | | 100% DC (*W/kg*) | 50% DC (*W/kg*) | |
| 08 Aug 2019 | B160 | XL-PFM9Y-NA | LTE | 806 | LMR-CW | T9 | P7 | B1-02 | A1 | <5mm | 42 | 35.000 | 7.260 | 3.630 | -0.320 |
| 07 Oct 2019 | B155 | XS-PFM9Y-L | LUE+ | 806 | LMR-CW | T9 | P7 | B1-02 | A1 | <5mm | 42 | 35.03 | 7.550 | **3.775 | -0.150 |
| SAR Limit | | | | | | | Spatial Peak | | | Head/Body | | RF Exposure Category | | | |
| FCC 47 CFR 2.1093 | | | | Health Canada Safety Code 6 | | | 1 Gram Average | | | 8.0 W/kg | | Occupational | | | |

* Approximate spacing to center of LMR Antenna
** The LUE+ is not LTE Equipped and this SAR is not used for simultaneous evaluation but will be for reporting Max SAR for FACE Configuration

**Table 9.14: Measured Results LMR 7/800 Band – FACE**

| Measured SAR Results (1g) - FACE Configuration - LMR 7/800 Band | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Plot ID | DUT | | Test Frequency (*MHz*) | Modulation | Accessories | | | | DUT Spacing | | Conducted Power (*dBm*) | Measured SAR (1g) | | SAR Drift (*dB*) |
| | | M/N | Type | | | Antenna ID | Battery ID | Body ID | Audio ID | DUT (*mm*) | Antenna* (*mm*) | | 100% DC (*W/kg*) | 50% DC (*W/kg*) | |
| 08 Aug 2019 | F54 | XL-PFM9Y-NA | LTE | 806 | LMR-CW | T9 | P7 | n/a | n/a | 25.4 | 55 | 35.00 | 2.710 | 1.355 | -0.240 |
| 07 Oct 2019 | F48 | XS-PFM9Y-L | LUE+ | 806 | LMR-CW | T9 | P7 | n/a | n/a | 25.4 | 55 | 35.03 | 3.680 | **1.840 | -0.280 |
| SAR Limit | | | | | | | Spatial Peak | | | Head/Body | | RF Exposure Category | | | |
| FCC 47 CFR 2.1093 | | | | Health Canada Safety Code 6 | | | 1 Gram Average | | | 8.0 W/kg | | Occupational | | | |

* Approximate spacing to center of LMR Antenna
** The LUE+ is not LTE Equipped and this SAR is not used for simultaneous evaluation but will be for reporting Max SAR for FACE Configuration

**Table 9.15: Measured Results WLAN 2.4G & BT Band – BODY**

| Measured SAR Results (1g) - BODY Configuration - WLAN 2.4G & BT | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Plot ID | DUT | | Test Frequency (MHz) | Modulation | Accessories | | | | DUT Spacing | | Conducted Power (dBm) | Measured SAR (1g) | | SAR Drift (dB) |
| | | M/N | Type | | | Antenna ID | Battery ID | Body ID | Audio ID | DUT (mm) | Antenna* (mm) | | 100% DC (W/kg) | 50% DC (W/kg) | |
| 26 July 2019 | B144 | XL-PFM1M-NA | LTE | 2412 | WLAN 2.4G | P7 | T9 | B1 | A1 | <5mm | ≥30mm | 23.7 | 0.002 | | |
| 29 July 2019 | B145 | XL-PFM1M-NA | LTE | 2480 | BT | P7 | T9 | B1 | A1 | <5mm | ≥30mm | 17.00 | 0.001 | | |
| 29 July 2019 | B146 | XL-PFM1M-NA | LTE | 2412 | WLAN 2.4G | P2 | T9 | B1 | A1 | <5mm | ≥30mm | 23.7 | 0.002 | | |
| 30 July 2019 | B150 | XL-PFM1M-L | LUE + | 2412 | WLAN 2.4G | P7 | T9 | B1 | A1 | <5mm | ≥30mm | 23.7 | 0.00004 | | |
| 30 July 2019 | B151 | XL-PFM1M-L | LUE + | 2480 | BT | P7 | T9 | B1 | A1 | <5mm | ≥30mm | 17.00 | 0.00002 | | |
| SAR Limit | | | | | | | Spatial Peak | | | Head/Body | | RF Exposure Category | | | |
| FCC 47 CFR 2.1093 | | | | Health Canada Safety Code 6 | | | 1 Gram Average | | | 1.6 W/kg | | General Population | | | |

* Approximate spacing to center of WLAN 2.4G/BT Antenna
Note: Data for Reference Only. See Page 62 for additional details.

**Table 9.16: Measured Results WLAN 2.4G & BT Band – FACE**

| Measured SAR Results (1g) - FACE Configuration - WLAN 2.4G | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Plot ID | DUT | | Test Frequency (MHz) | Modulation | Accessories | | | | DUT Spacing | | Conducted Power (dBm) | Measured SAR (1g) | | SAR Drift (dB) |
| | | M/N | Type | | | Antenna ID | Battery ID | Body ID | Audio ID | DUT (mm) | Antenna* (mm) | | 100% DC (W/kg) | 50% DC (W/kg) | |
| 29 July 2019 | F147 | XL-PFM1M-NA | LTE | 2412 | WLAN 2.4G | P7 | T9 | n/a | n/a | 25.4 | ≥30mm | 23.7 | 0.001 | | |
| 29 July 2019 | F148 | XL-PFM1M-NA | LTE | 2480 | BT | P7 | T9 | n/a | n/a | 25.4 | ≥30mm | 17 | 0.0005 | | |
| 30 July 2019 | F42 | XL-PFM1M-L | LUE + | 2412 | WLAN 2.4G | P7 | T9 | n/a | n/a | 25.4 | ≥30mm | 23.7 | 0.0001 | | |
| 30 July 2019 | F43 | XL-PFM1M-L | LUE + | 2480 | BT | P7 | T9 | n/a | n/a | 25.4 | ≥30mm | 17 | 0.0001 | | |
| SAR Limit | | | | | | | Spatial Peak | | | Head/Body | | RF Exposure Category | | | |
| FCC 47 CFR 2.1093 | | | | Health Canada Safety Code 6 | | | 1 Gram Average | | | 1.6 W/kg | | General Population | | | |

* Approximate spacing to center of WLAN 2.4G/BT Antenna
Note: Data for Reference Only. See Page 62 for additional details.

## 10.0 SCALING OF MAXIMUM MEASURE SAR

**Table 10.1 SAR Scaling – LTE**

| Scaling of Maximum Measured SAR (1g) | | | | | |
|---|---|---|---|---|---|
| Measured Parameters | | Configuration | | | |
| | | Face | Body | Head | |
| Plot ID | | F64 | B177 | | |
| Maximum Measured $SAR_M$ | | 0.030 | 1.390 | | (W/kg) |
| Frequency | | 793 | 1900 | | (MHz) |
| Power Drift | | 3.200 (1) | -0.310 | | (dB) |
| Conducted Power | | 24.340 | 24.480 | | (dBm) |
| Fluid Deviation from Target | | | | | |
| Δe | Permitivity | -0.54% (2) | -4.10% (2) | | |
| Δσ | Conductivity | -3.56% (2) | 2.86% (2) | | |

Note(1): Power Drift is Positive, Drift Adjustment not Required.

Note(2): Fluid Dielectric Parameters are Within 5% of Targets. SAR Adjustment for Fluid Sensitivity is not Required.

| Fluid Sensitivity Calculation (1g) | | | IEC 62209-2 Annex F | | |
|---|---|---|---|---|---|
| Delta SAR = Ce * Δe + Cσ * Δσ | | | | | (F.1) |
| $Ce = (-0.0007854*f^3) + (0.009402*f^2) - (0.02742*f) - 0.2026$ | | | | | (F.2) |
| $Cσ = (0.009804*f^3) - (0.08661*f^2) + (0.02981*f) + 0.7829$ | | | | | (F.3) |
| f | Frequency (GHz) | n/a (2) | n/a (2) | | |
| Ce | | n/a (2) | n/a (2) | | |
| Cσ | | n/a (2) | n/a (2) | | |
| Ce * Δe | | n/a (2) | n/a (2) | | |
| Cσ * Δσ | | n/a (2) | n/a (2) | | |
| ΔSAR | | n/a (2) | n/a (2) | | (%) |

Note(3): Delta SAR is negative, SAR Adjustment for Fluid Sensitivity is not Required.

| Manufacturer's Tuneup Tolerance | | | | |
|---|---|---|---|---|
| Measured Conducted Power | 24.340 | 24.480 | | (dBm) |
| Rated Conducted Power | 24.500 | 24.500 | | (dBm) |
| ΔP | -0.160 | -0.020 | | (dB) |

Note(4): SAR was Evaluated at the Maximum Tuneup Tolerance. SAR Adjustment is not Required.

| SAR Adjustment for Fluid Sensitivity | | | | |
|---|---|---|---|---|
| $SAR_1 = SAR_M * ΔSAR$ | 0.030 (2) | 1.390 (2) | | (W/kg) |

| SAR Adjustment for Tuneup Tolerance | | | | |
|---|---|---|---|---|
| $SAR_2 = SAR_1 + [ΔP]$ | 0.031 | 1.400 | | (W/kg) |

| SAR Adjustment for Drift | | | | |
|---|---|---|---|---|
| $SAR_3 = SAR_2 + Drift$ | | | | (W/kg) |

| *reported* SAR | | | | |
|---|---|---|---|---|
| $FCC = SAR_2$ | 0.03 | 1.40 | | (W/kg) |
| $ISED = SAR_3$ | 30.00 | 1.17 | | (W/kg) |

**Table 10.2 SAR Scaling – LMR**

| Scaling of Maximum Measured SAR (1g) | | | | | |
|---|---|---|---|---|---|
| Measured Parameters | | Configuration | | | |
| | | Face | Body | Head | |
| Plot ID | | F48* | B155* | | |
| Maximum Measured $SAR_M$ | | 1.840 | 3.775 | | (W/kg) |
| Frequency | | 806 | 806 | | (MHz) |
| Power Drift | | -0.280 | -0.150 | | (dB) |
| Conducted Power | | 35.030 | 35.030 | | (dBm) |
| Fluid Deviation from Target | | | | | |
| Δe | Permitivity | -3.92% (2) | -3.92% (2) | | |
| Δσ | Conductivity | -2.00% (2) | -2.00% (2) | | |

Note(1): Power Drift is Positive, Drift Adjustment not Required.

Note(2): Fluid Dielectric Parameters are Within 5% of Targets. SAR Adjustment for Fluid Sensitivity is not Required.

| Fluid Sensitivity Calculation (1g) | | | IEC 62209-2 Annex F | | |
|---|---|---|---|---|---|
| Delta SAR = Ce * Δe + Cσ * Δσ | | | | | (F.1) |
| $Ce = (-0.0007854*f^3) + (0.009402*f^2) - (0.02742*f) - 0.2026$ | | | | | (F.2) |
| $C\sigma = (0.009804*f^3) - (0.08661*f^2) + (0.02981*f) + 0.7829$ | | | | | (F.3) |
| f | Frequency (GHz) | n/a (2) | n/a (2) | | |
| Ce | | n/a (2) | n/a (2) | | |
| Cσ | | n/a (2) | n/a (2) | | |
| Ce * Δe | | n/a (2) | n/a (2) | | |
| Cσ * Δσ | | n/a (2) | n/a (2) | | |
| ΔSAR | | n/a (2) | n/a (2) | | (%) |

Note(3): Delta SAR is negative, SAR Adjustment for Fluid Sensitivity is not Required.

| Manufacturer's Tuneup Tolerance | | | | |
|---|---|---|---|---|
| Measured Conducted Power | 35.030 | 35.030 | | (dBm) |
| Rated Conducted Power | 34.770 | 34.770 | | (dBm) |
| ΔP | 0.260 (4) | 0.260 (4) | | (dB) |

Note(4): SAR was Evaluated at the Maximum Tuneup Tolerance. SAR Adjustment is not Required.

| SAR Adjustment for Fluid Sensitivity | | | | |
|---|---|---|---|---|
| $SAR_1 = SAR_M * \Delta SAR$ | 1.840 (2) | 3.775 (2) | | (W/kg) |

| SAR Adjustment for Tuneup Tolerance | | | | |
|---|---|---|---|---|
| $SAR_2 = SAR_1 + [\Delta P]$ | 1.840 (4) | 3.775 (4) | | (W/kg) |

| SAR Adjustment for Drift | | | | |
|---|---|---|---|---|
| $SAR_3 = SAR_2 + Drift$ | | | | (W/kg) |

| ***reported*** SAR | | | | |
|---|---|---|---|---|
| FCC = $SAR_2$ | 1.84 | 3.78 | | (W/kg) |
| ISED = $SAR_3$ | 1.96 | 3.91 | | (W/kg) |

* The LUE+ is not LTE Equipped and this SAR is not used for Simultaneous. Plots B155 and F48 will be utilized for reporting of Max SAR for BODY and FACE Configuration

**Table 10.3 SAR Scaling – LMR**

Note(1): Power Drift is Positive, Drift Adjustment not Required.
Note(2): Fluid Dielectric Parameters are Within 5% of Targets. SAR Adjustment for Fluid Sensitivity is not Required.

| Fluid Sensitivity Calculation (1g) | | | IEC 62209-2 Annex F | | |
|---|---|---|---|---|---|
| Delta SAR = Ce * Δe + Cσ * Δσ | | | | | (F.1) |
| Ce = (-0.0007854*$f^3$) + (0.009402*$f^2$) - (0.02742*f) - 0.2026 | | | | | (F.2) |
| Cσ = (0.009804*$f^3$) - (0.08661*$f^2$) + (0.02981*f) + 0.7829 | | | | | (F.3) |
| f | Frequency (GHz) | n/a (2) | n/a (2) | | |
| | Ce | n/a (2) | n/a (2) | | |
| | Cσ | n/a (2) | n/a (2) | | |
| | Ce * Δe | n/a (2) | n/a (2) | | |
| | Cσ * Δσ | n/a (2) | n/a (2) | | |
| | ΔSAR | n/a (2) | n/a (2) | | (%) |

Note(3): Delta SAR is negative, SAR Adjustment for Fluid Sensitivity is not Required.

| Manufacturer's Tuneup Tolerance | | | | |
|---|---|---|---|---|
| Measured Conducted Power | 35.000 | 35.000 | | (dBm) |
| Rated Conducted Power | 34.770 | 34.770 | | (dBm) |
| ΔP | 0.230 (4) | 0.230 (4) | | (dB) |

Note(4): SAR was Evaluated at the Maximum Tuneup Tolerance. SAR Adjustment is not Required.

| SAR Adjustment for Fluid Sensitivity | | | | |
|---|---|---|---|---|
| $SAR_1 = SAR_M$ * ΔSAR | 1.355 (2) | 3.630 (2) | | (W/kg) |

| SAR Adjustment for Tuneup Tolerance | | | | |
|---|---|---|---|---|
| $SAR_2 = SAR_1$ + [ΔP] | 1.355 (4) | 3.630 (4) | | (W/kg) |

| SAR Adjustment for Drift | | | | |
|---|---|---|---|---|
| $SAR_3 = SAR_2$ + Drift | | 3.910 | | (W/kg) |

| ***reported*** SAR | | | | |
|---|---|---|---|---|
| FCC = $SAR_2$ | 1.36 | 3.63 | | (W/kg) |
| ISED = $SAR_3$ | 1.43 | 3.91 | | (W/kg) |

## 11.0 ANALYSIS OF SIMULTANEOUS TRANSMISSION

### Simultaneous Transmission Analysis

The XL-185P employs Wi-Fi, BlueTooth and LTE transmitters capable of simultaneously transmitting with the LMR transmitter. The Wi-Fi and BlueTooth transmitters share the same antenna and the transmissions are interleaved such that only one transmitter is transmitting at a time. As per FCC KDB 447498, simultaneous transmission analysis is required for devices capable of simultaneous transmission. The Wi-Fi, BT and LTE SAR are subject to General Population limits of 1.6W/kg. The LMR SAR is subject to Occupational limits of 8.0W/kg. To determine Simultaneous Transmission SAR Test Exclusion when different SAR limits are applied to the different transmit modes, the Sum-of-the-Ratios of the SAR to the respective SAR limit is applied. When the Sum-of-the-Ratios is ≤ 1.0, Simultaneous Transmission SAR Test Exclusion may be applied.

When the Sum-of-the-Ratios exceeds 1.0, the SAR to Peak Location Separation Ration (SPLSR) may be used to determine simultaneous transmission SAR test exclusion. However, the equation for determining this exclusion applies to General Population limits only. Reference Operation Description Part 2. When mixed Occupational and General Population exposure limits are used, the SAR of the Occupational configuration is normalize to the General Population limit. For example if $SAR_{Occupational}$ = 6.4W/kg and $SAR_{GenPop}$ = 0.65W/kg, normalizing the Occupational SAR to General Population limits yields $SAR_{OccNorm}$ = 1.28W/kg. The SPLSR equation of KDB 447498 4.3.2 c) becomes

$$(SAR_1 + SAR_2)^{1.5}/R_i \leq 0.04 = (SAR_{OccNorm} + SAR_{GenPop})^{1.5}/R_i = (1.28 + 0.65)^{1.5}/R_i \leq 0.04$$

SAR for each transmission band, transmission mode and/or equipment class was evaluated with Body-Worn and Audio Accessories in the BODY configuration and with no Accessories in the HEAD configurations. The DUT was configured with the maximum Transmit Time Invertal (TTI) at 100% trasmit duty cycle. Only the Maximum *reported* SAR for BODY and HEAD configuration is used in the Sum-of-the-Ratios or SPLSR calculation and the worst case of all possible combinations is considered.

**Table 11.1 List of Possible Transmitters**

| List of Possible Transmitters | | | | |
|---|---|---|---|---|
| Type | Class | Frequency Range | | Rated Output Power (dBm) |
| | | Lower (MHz) | Upper (MHz) | |
| 7/8/900 | TNF | 799.0 | 944.0 | 34.8 |
| BlueTooth | DSS | 2402.0 | 2480.0 | 17.0 |
| BLE | DTS | 2402.0 | 2480.0 | 8.4 |
| WiFi 2.4 | DTS | 2412.0 | 2462.0 | 23.7 |
| WiFi 5 | NII | 5150.0 | 5240.0 | 11.8 |
| WiFi 5 | NII | 5745.0 | 5825.0 | 9.0 |
| LTE | TNB | Bands 2,5,12,13,14,17 | | 24.5 |
| LTE | TNB | Bands 4,66 | | 23.0 |

**Table 11.2 List of Possible Transmitters Combinations**

| Simultaneous Transmitter Combinations | | | | | | |
|---|---|---|---|---|---|---|
| Configuration Number | Transmitter | | | | | |
| | LMR 7/8/900 | BlueTooth | BLE | WiFi 2.4 | WiFi 5 | LTE |
| 1 | X | X | | | | X |
| 2 | X | | X | | | X |
| 3 | X | | | X | | X |
| 4 | X | | | | X | X |
| 5 | X | | | | | X |

Indicates this configuration is not supported

**Table 11.3 Analysis of Sum-of-the-Ratios**

## Analysis of Sum-of-the-Ratios
### For All Transmitters and Configurations

| Configuration Number | Configuration | Transmitter Type | | | | | | | | | | | | Sum of Ratios | Sum of SARs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | LMR Band | | BlueTooth | | BLE | | WiFi 2.4 | | WiFi 5 | | LTE | | | |
| | | *stand-alone* SAR (W/kg) | Ratio to Limit | *stand-alone* SAR (W/kg) | Ratio to Limit | *stand-alone* SAR (W/kg) | Ratio to Limit | *stand-alone* SAR (W/kg) | Ratio to Limit | *stand-alone* SAR (W/kg) | Ratio to Limit | *stand-alone* SAR (W/kg) | Ratio to Limit | | |
| | | *SAR Limit = 8.0W/kg (Occupational)* | | *SAR Limit = 1.6W/kg (General Population)* | | | | | | | | | | | (W/kg) |
| 1 | HEAD | 1.360 | 0.170 | 0.006 | 0.004 | | | | | | | 0.030 | 0.019 | 0.193 | 1.396 |
| 2 | | | | | | 0.048 | 0.030 | | | | | | | 0.219 | **1.438** |
| 3 | | | | | | | | 0.040 | 0.025 | | | | | 0.214 | 1.430 |
| 4 | | | | | | | | | | 0.031 | 0.019 | | | 0.208 | 1.421 |
| 1 | BODY | 3.630 | 0.454 | 0.006 | 0.004 | | | | | | | 1.400 | 0.875 | 1.333 | 5.036 |
| 2 | | | | | | 0.048 | 0.030 | | | | | | | 1.359 | **5.078** |
| 3 | | | | | | | | 0.040 | 0.025 | | | | | 1.354 | 5.070 |
| 4 | | | | | | | | | | 0.031 | 0.019 | | | 1.348 | 5.061 |

Indicates this combination is not supported

Simultaneous Transmission SAR Test Exclusion may be determined by applying the Sum-of-the-Ratios for the worst case combinations of all simultaneously transmitting transmitters. From the above table, none of the stand-alone transmitters exceed their respective limit. Additionally, the Sum-of-the-Ratios for the worst case combinations of the transmitters with General Population limits do not exceed 1.0. However the Sum-of-the-Ratios for the worst case combinations of transmitters with both General Population and Occupational limits do exceed 1.0. When the Sum-of-the-Ratios exceeds 1.0, Simultaneous Transmission SAR Test Exclusion may be determined the SAR to Peak Location Separation Ratio (SPLSR) as described above. The SAR Peak Location separation distance was determined to be less than 1cm between the LMR and LTE transmitters in most cases. From the above table, the worst case LMR SAR is 3.63W/kg and the LTE SAR is 1.40W/kg. Normalizing the Occupational SAR to General Population Limits gives: LMR SAR = 0.726. Applying the equation from FCC KDB 447498 D01v06 4.3.2 c) and the guidance by the FCC, the following yields:

$(SAR_1 + SAR_2)^{1.5}/_{Ri} \leq 0.04 = (SAR_{OccNorm} + SAR_{GenPop})^{1.5}/R_i = (0.726 + 1.40)^{1.5}/10 = 0.31$

The above results are greater than 0.04 therefore Simultaneous Transmission SAR Test Exclusion cannot be applied. As per the guidance provided by the FCC, when the Simultaneous Transmission SAR is evaluated, as indicated above, the sum of the SAR is applied to Occupational Limits.

Test Exclusion of the BlueTooth Low Energy (BLE) transmitter is evaluated using Max Power = 8.4dBm (7mW), Separation Distance = 30mm*, Transmit Frequency = 2.480GHz.

Per KDB 447498, SAR Test Exclusion is given by:

[(Max Power, mW) / (Separation Distance, mm)] * [$\sqrt{}$f, GHz] ≤ 3.0 for 1g SAR
[(7)/(30)] * [($\sqrt{}$2.480)] = 0.362 ≤ 3.0

Therefore the BlueTooth transmitter meets the SAR Test Exclusion criteria.

For reference only, per KDB 447498, the estimated BlueTooth SAR is given by:

[(Max Power, mW) / (Separation Distance, mm)] * [($\sqrt{}$f, GHz) / (x)], where x = 7.5 for 1g SAR
[(7)/(30)] * [($\sqrt{}$2.480) / (7.5)] = 0.048W/kg

Note: The WiFi and BlueTooth SAR values shown in this table are the highest *worst case* SAR values from all configurations and transmission modes from all variants of the and XL-200P and XL-185P series of radios. They are applied in this table to illustrate the most conservative ratio. WIFI and BT evaluated during the course of this evaluation were conducted on a spot check basis and data was found to not degrade previously reported SAR levels. The measured WIFI and BT SAR data included in this report is for reference only and was not included in the calculations above or a contributing factor in the simultaneous transmission analysis. Since the WiFi and BlueTooth transmitters and antenna location have not changed they would not be influenced by the addition of the LTE Transmitter/antenna.

* Due to the location of the BlueTooth and WiFi antennas, the minimum phantom separation distance in the BODY or FACE configurations that could be achieved is greater than 30mm.

| | |
|---|---|
| I attest that the data reported herein is true and accurate within the tolerance of the Measurement Instrument Uncertainty; that all tests and measurements were performed in accordance with accepted practices or procedures; and that all tests and measurements were performed by me or by trained personnel under my direct supervision. The results of this investigation are based solely on the test sample(s) provided by the client which were not adjusted, modified or altered in any manner whatsoever, except as required to carry out specific tests or measurements. This test report has been completed in accordance with ISO/IEC 17025. | Trevor Whillock<br>Test Lab Engineer<br>Celltech Labs Inc.<br>01 November 2019<br>Date |

## 12.0 SAR EXPOSURE LIMITS

**Table 12.1 Exposure Limits**

| SAR RF EXPOSURE LIMITS | | | |
|---|---|---|---|
| **FCC 47 CFR§2.1093** | **Health Canada Safety Code 6** | **General Population / Uncontrolled Exposure(4)** | **Occupational / Controlled Exposure(5)** |
| **Spatial Average(1) (averaged over the whole body)** | | 0.08 W/kg | 0.4 W/kg |
| **Spatial Peak(2) (Head and Trunk averaged over any 1 g of tissue)** | | 1.6 W/kg | **8.0 W/kg** |
| **Spatial Peak(3) (Hands/Wrists/Feet/Ankles averaged over 10 g)** | | 4.0 W/kg | 20.0 W/kg |
| (1) The Spatial Average value of the SAR averaged over the whole body. | | | |
| (2) The Spatial Peak value of the SAR averaged over any 1 gram of tissue, defined as a tissue volume in the shape of a cube and over the appropriate averaging time. | | | |
| (3) The Spatial Peak value of the SAR averaged over any 10 grams of tissue, defined as a tissue volume in the shape of a cube and over the appropriate averaging time. | | | |
| (4) Uncontrolled environments are defined as locations where there is potential exposure to individuals who have no knowledge or control of their potential exposure. | | | |
| (5) Controlled environments are defined as locations where there is potential exposure to individuals who have knowledge of their potential exposure and can exercise control over their exposure. | | | |

## 13.0 DETAILS OF SAR EVALUATION

**Table 13.1 Day Log**

| DAY LOG-U13,U43 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Date | Ambient Temp °C | Fluid Temp °C | Pressure Kpa | Humidity | Fluid Dielectr | SPC | Test | |
| 06 Aug 2019 | 22 | 22.9 | 101.5 | 35% | X | X | X | LMR 7/8/900 Eval & Fluids/SPC |
| 08 Aug 2019 | 23 | 23.1 | 101.1 | 32% | | | X | LMR 7/8/900 Eval -U43 |
| 08 Aug 2019 | 24 | 23.3 | 100.7 | 27% | X | | | Fluids Per IEEE 1528 |
| 04 Oct 2019 | 23 | 21.6 | 101.9 | 28% | X | X | X | LTE Band 5,13,14 Eval & Fluids/SPC-U13 |
| 07 Oct 2019 | 22 | 21.9 | 101.2 | 30% | | | X | LTE Band 5,13,14 Eval-U13 |
| 08 Oct 2019 | 22 | 21.6 | 100.8 | 29% | X | | X | Fluids Per IEEE 1528 |
| 15 Oct 2019 | 21 | 20.5 | 101.8 | 27% | X | X | | LTE Band 12 Fluids/SPC |
| 16 Oct 2019 | 20 | 20.8 | 100.2 | 28% | | | X | LTE Band 12 Eval |
| 18 Oct 2019 | 22 | 21.3 | 100.7 | 29% | X | X | X | LTE Band 66,2 Eval & Fluids/SPC |

**Table 13.2 DUT Positioning**

| DUT Positioning |
|---|
| **Positioning** |
| The DUT Positioner was securely fastened to the Phantom Platform. Registration marks were placed on the DUT and the Positioner to ensure consistent positioning of the DUT for each test evaluation. |
| **FACE Configuration** |
| The DUT was securely clamped into the device holder with the surface of the DUT normally held to the user's face facing the phantom. The device holder was adjusted to ensure that the horizontal axis of the DUT was parallel to the bottom of the phantom. A 25mm spacer block was used to set the separation distance between the DUT and the phantom to 25mm. When applicable and unless by design, the antenna of the DUT was prevented from sagging away from the phantom. The spacer block was removed before testing. |
| **BODY Configuration** |
| Body-Worn and Audio Accessories were affixed to the DUT in the manner in which they are intended to be used. The DUT, with its accessories, were securely clamped into the device holder with the surface of the DUT normally in contact with the body in direct contact with the bottom of the phantom, or 0mm separation from the DUT's accessory to the phantom. Body-Worn Accessory straps, linkages, etc. were positioned in a fashion resembling that for which they were intended to be used. Audio Accessory cables, etc., were positioned in a fashion resembling that for which they were intended to be used. |
| **HEAD Configuration** |
| This device is not intended to be held to the ear and was not tested in the HEAD configuration. |

**Table 13.3 General Procedures and Report**

| General Procedures and Reporting |
|---|
| **General Procedures** |
| The fluid dielectric parameters of the Active Tissue Simulating Liquid (TSL) were measured as described in this Section, recorded and entered into the DASY Measurement Server. Active meaning the TSL used during the SAR evaluation of the DUT. The temperature of the Active TSL was measured and recorded prior to performing a System Performance Check (SPC). An SPC was performed with the Active TSL prior to the start of the test series. The temperature of the Active TSL was measured throughout the day and the Active TSL temperature was maintained to $\pm$ 0.5°C. The Active TSL temperature was maintained to within ±1.0°C throughout the test series. TSL analysis and SPC were repeated when the Active TSL use exceeded 84 hours.<br><br>An Area Scan exceeding the length and width of the DUT projection was performed and the locations of all maximas within 2dB of the Peak SAR recorded. A Zoom Scan centered over the Peak SAR location(s) was performed and the 1g and 10g SAR values recorded. The resolutions of the Area Scan and Zoom Scan are described in the Scan Resolution table(s) in this Section. A Power Reference Measurement was taken at the phantom reference point immediately prior to the Area Scan. A Power Drift measurement was taken at the phantom reference point immediately following the Zoom Scan to determine the power drift. A Z-Scan from the *Maximum Distance to Phantom Surface* to the fluid surface was performed following the power drift measurement. |
| **Reporting** |
| The 1g SAR, 10g SAR and power drift measurements are recorded in the SAR Measurement Summary tables in the SAR Measurement Summary Section of this report. The SAR values shown in the 100% DC (Duty Cycle) column are the SAR values reported by the SAR Measurement Server with the DUT operating at 100% transmit duty cycle. The SAR values in the 50% DC column have been scaled by 50% for 50% Push-To-Talk duty cycle compensation. These tables also include other information such as transmit channel and frequency, modulation, accessories tested and DUT-phantom separation distance.<br><br>In the Scaling of Maximum Measured SAR Section of this report, the highest measured SAR in the BODY and FACE configurations, within the entire scope of this assessment, are, when applicable, scaled for Fluid Sensitivity, Manufacturer's Tune-Up Tolerance, Simultaneous Transmission and Drift. With the exception of Duty Cycle correction/compensation, SAR values are ONLY scaled up, not down. The final results of this scaling is the *reported SAR* which appears on the Cover Page of this report. |

**Table 13.4 Fluid Dielectric and Systems Performance Check**

| Fluid Dielectric and Systems Performance Check |
|---|
| **Fluid Dielectric Measurement Procedure** |
| The fluid dielectric parameters of the Tissue Simulating Liquid (TSL) are measured using the Open-Ended Coax Method connected to an Agilent 8753ET Network Analyzer connected to a measurement server running Aprel Dielectric Property Measurement System. A frequency range of ± 100MHz for frequencies > 300MHz and ± 50MHz for frequencies ≤ 300MHz with frequency step size of 10MHz is used. The center frequency is centered around the SAR measurement probe's calibration point for that TSL frequency range. A calibration of the setup is performed using a short-open-deionized water (at 23°C in a 300ml beaker) method. A sample of the TSL is placed in a 300ml beaker and the open-ended coax is submerged approximately 8mm below the fluid surface in the approximate center of the beaker. A check of the setup is made to ensure no air is trapped under the open-ended coax. The sample of TSL is measured and compared to the FCC OET Bulletin 65 Supplement C targets for HEAD or BODY for the entire fluid measurement range. Fluid adjustment are made if the dielectric parameters are > 5% in range that the DUT is to be tested. If the adjustments fail to bring the parameters to ≤ 5% but are < 10%, the SAR Fluid Sensitivity as per IEC 62201-1 and FCC KDB 865664 are applied to the highest measured SAR. A TSL with dielectric parameters > 10% in the DUT test frequency range are not used. |
| **Systems Performance Check** |
| The fluid dielectric parameters of the Active TSL are entered into the DASY Measurement Server at each of the 10MHz step size intervals. Active meaning the TSL used during the SAR evaluation of the DUT. The DASY Measurement System will automatically interpolate the dielectric parameters for DUT test frequencies that fall between the 10MHz step intervals.<br>A Systems Performance Check (SPC) is performed in accordance with IEEE 1528 "System Check" and FCC KDB 865664 "System Verification". A validation source, dipole or Confined Loop Antenna (CLA), is placed under the geometric center of the phantom and separated from the phantom in accordance to the validation source's Calibration Certificate data. A CW signal set to the frequency of the validate source's and SAR measurement probe's calibration frequency with a forward power set to the validation source's Calibration Certificate data power setting is applied to the validation source. An Area Scan is centered over the projection of the validation source's feed point and an Area Scan is taken. A Zoom Scan centered over the Peak SAR measurement of the Area Scan and the 1g and 10g SAR is measured. The measured 1g and 10g SAR is compared to the 1g and 10g SAR measurements from the validation source's Calibration Certificate. When required, the measured SAR is normalized to 1.0W and compared to the normalized SAR indicated on the validation source's Calibration Certificate. The SPC is considered valid when the measured and normalized SAR is ≤ 10% of the measured and normalize SAR of the validation source's Calibration Certificate.<br>The fluid dielectric parameters of the Active TSL and SPC are repeated when the Active TSL has been in use for greater than 84 hours or if the Active TSL temperature has exceed ± 1°C of the initial fluid analysis. |

**Table 13.5 Scan Resolution 100MHz to 2GHz**

| Scan Resolution 100MHz to 2GHz | |
|---|---|
| **Maximum distance from the closest measurement point to phantom surface: (Geometric Center of Probe Center)** | **4 ± 1 mm** |
| **Maximum probe angle normal to phantom surface. (Flat Section ELI Phantom)** | **5° ± 1°** |
| **Area Scan Spatial Resolution ΔX, ΔY** | **15 mm** |
| **Zoom Scan Spatial Resolution ΔX, ΔY** | **7.5 mm** |
| **Zoom Scan Spatial Resolution ΔZ (Uniform Grid)** | **5 mm** |
| **Zoom Scan Volume X, Y, Z** | **30 mm** |
| **Phantom** | **ELI** |
| **Fluid Depth** | **150 ± 5 mm** |
| An Area Scan with an area extending beyond the device was used to locate the candidate maximas within 2dB of the global maxima. | |
| A Zoom Scan centered over the peak SAR location(s) determined by the Area Scan was used to determine the 1-gram and 10-gram peak spatial-average SAR | |

**Table 13.6 Scan Resolution 2GHz to 3GHz**

| Scan Resolution 2GHz to 3GHz | |
|---|---|
| **Maximum distance from the closest measurement point to phantom surface: (Geometric Center of Probe Center)** | **4 ± 1 mm** |
| **Maximum probe angle normal to phantom surface. (Flat Section ELI Phantom)** | **5° ± 1°** |
| **Area Scan Spatial Resolution ΔX, ΔY** | **12 mm** |
| **Zoom Scan Spatial Resolution ΔX, ΔY** | **5 mm** |
| **Zoom Scan Spatial Resolution ΔZ (Uniform Grid)** | **5 mm** |
| **Zoom Scan Volume X, Y, Z** | **30 mm** |
| **Phantom** | **ELI** |
| **Fluid Depth** | **150 ± 5 mm** |
| An Area Scan with an area extending beyond the device was used to locate the candidate maximas within 2dB of the global maxima. | |
| A Zoom Scan centered over the peak SAR location(s) determined by the Area Scan was used to determine the 1-gram and 10-gram peak spatial-average SAR | |

**Table 13.7 Scan Resolution 5GHz to 6GHz**

| Scan Resolution 5GHz to 6GHz | |
|---|---|
| **Maximum distance from the closest measurement point to phantom surface: (Geometric Center of Probe Center)** | **4 ± 1 mm** |
| **Maximum probe angle normal to phantom surface. (Flat Section ELI Phantom)** | **5° ± 1°** |
| **Area Scan Spatial Resolution ΔX, ΔY** | **10 mm** |
| **Zoom Scan Spatial Resolution ΔX, ΔY** | **4 mm** |
| **Zoom Scan Spatial Resolution ΔZ (Uniform Grid)** | **2 mm** |
| **Zoom Scan Volume X, Y, Z** | **22 mm** |
| **Phantom** | **ELI** |
| **Fluid Depth** | **100 ± 5 mm** |
| An Area Scan with an area extending beyond the device was used to locate the candidate maximas within 2dB of the global maxima. | |
| A Zoom Scan centered over the peak SAR location(s) determined by the Area Scan was used to determine the 1-gram and 10-gram peak spatial-average SAR | |

## 14.0 MEASUREMENT UNCERTAINTIES

**Table 14.1 Measurement Uncertainty**

**IEEE 1528 Table E.9**

**UNCERTAINTY BUDGET FOR DEVICE EVALUATION (IEEE 1528-2013 Table 9)**

| Source of Uncertainty | IEEE 1528 Section | Toler ±% | Prob Dist | Div | Div | $c_i$ | $c_i$ | Stand Unct ±% | Stand Unct ±% | $V_i$ or $V_{eff}$ |
|---|---|---|---|---|---|---|---|---|---|---|
| **Measurement System** | | | | | | (1g) | (10g) | (1g) | (10g) | |
| EX3DV4 Probe Calibration** (*k*=1) | E.2.1 | 6.7 | N | 1.00 | 1 | 1 | 1 | **6.7** | **6.7** | ∞ |
| Axial Isotropy** (*k*=1) | E.2.2 | 0.6 | R | 1.73 | √3 | 0.7 | 0.7 | **0.2** | **0.2** | ∞ |
| Hemispherical Isotropy** (*k*=1) | E.2.2 | 3.2 | R | 1.73 | √3 | 0.7 | 0.7 | **1.3** | **1.3** | ∞ |
| Boundary Effect* | E.2.3 | 1.0 | R | 1.73 | √3 | 1 | 1 | 0.6 | 0.6 | ∞ |
| Linearity** (*k*=1) | E.2.4 | **0.5** | R | 1.73 | √3 | 1 | 1 | **0.3** | **0.3** | ∞ |
| System Detection Limits* | E.2.4 | 1.0 | R | 1.73 | √3 | 1 | 1 | 0.6 | 0.6 | ∞ |
| Modulation Response** (*k*=1) | E.2.5 | **8.3** | R | 1.73 | √3 | 1 | 1 | **4.8** | **4.8** | ∞ |
| Readout Electronics* | E.2.6 | 0.3 | N | 1.00 | 1 | 1 | 1 | 0.3 | 0.3 | ∞ |
| Response Time* | E.2.7 | 0.8 | R | 1.73 | √3 | 1 | 1 | 0.5 | 0.5 | ∞ |
| Integration Time* | E.2.8 | 2.6 | R | 1.73 | √3 | 1 | 1 | 1.5 | 1.5 | ∞ |
| RF Ambient Conditions - Noise | E.6.1 | **0.0** | R | 1.73 | √3 | 1 | 1 | 0.0 | 0.0 | **10** |
| RF Ambient Conditions - Reflection | E.6.1 | **0.0** | R | 1.73 | √3 | 1 | 1 | 0.0 | 0.0 | **10** |
| Probe Positioner Mechanical Tolerance* | E.6.2 | 0.0 | R | 1.73 | √3 | 1 | 1 | 0.0 | 0.0 | ∞ |
| Probe Positioning wrt Phantom Shell* | E.6.3 | 0.4 | R | 1.73 | √3 | 1 | 1 | 0.2 | 0.2 | ∞ |
| Post-processing* | E.5 | 2.0 | R | 1.73 | √3 | 1 | 1 | 1.2 | 1.2 | ∞ |
| **Test Sample Related** | | | | | | | | | | |
| Test Sample Positioning | E.4.2 | **2.2** | N | 1.00 | 1 | 1 | 1 | 2.2 | 2.2 | **5** |
| Device Holder Uncertainty* | E.4.1 | 3.6 | N | 1.00 | 1 | 1 | 1 | 3.6 | 3.6 | ∞ |
| SAR Drift Measurement[2] | E.2.9 | 0.0 | R | 1.73 | √3 | 1 | 1 | 0.0 | 0.0 | ∞ |
| SAR Power Scaling[3] | E.6.5 | 0.0 | R | 1.73 | √3 | 1 | 1 | 0.0 | 0.0 | ∞ |
| **Phantom and Tissue Parameters** | | | | | | | | | | |
| Phantom Uncertainty* | E.3.1 | 6.1 | R | 1.73 | √3 | 1 | 1 | 3.5 | 3.5 | ∞ |
| SAR Correction Uncertainty | E.3.2 | **1.6** | N | 1.00 | 1 | 1 | 0.84 | 1.6 | 1.3 | ∞ |
| Liquid Conductivity (measurement) | E.3.3 | **5.0** | N | 1.00 | 1 | 0.78 | 0.71 | 3.9 | 3.6 | **10** |
| Liquid Permittivity (measurement) | E.3.3 | **5.0** | N | 1.00 | 1 | 0.23 | 0.26 | 1.2 | 1.3 | **10** |
| Liquid Conductivity (Temperature) | E.3.2 | **0.4** | R | 1.73 | √3 | 0.78 | 0.71 | 0.2 | 0.2 | **10** |
| Liquid Permittivity Temperature) | E.3.2 | **0.2** | R | 1.73 | √3 | 0.23 | 0.26 | 0.0 | 0.0 | **10** |
| **Effective Degrees of Freedom[1]** | | | | | | | | | $V_{eff}$ = | **1141** |
| **Combined Standard Uncertainty** | | | **RSS** | | | | | **11.1** | **11.0** | |
| **Expanded Uncertainty (95% Confidence Interval)** | | | **k=2** | | | | | **22.2** | **21.9** | |

**Measurement Uncertainty Table in accordance with IEEE Standard 1528-2003**

(1) The Effective Degrees of Freedom is > 30

Therefore a coverage factor of k=2 represents an approximate confidence level of 95%.

(2) The SAR Value is compensated for Drift

(3) SAR Power Scaling not Required

* Provided by SPEAG for DASY4

** Standard Uncertainty Calibration Data Provided by SPEAG for EX3DEV4 Probe

**Table 14.2 Calculation of Degrees of Freedom**

| Table 13.1 | |
|---|---|
| **Calculation of the Degrees and Effective Degrees of Freedom** | |
| $v_i = n - 1$ | $v_{eff} = \dfrac{u_c^4}{\dfrac{m}{\sum_{i=1} \dfrac{c_i^4 u_i^4}{v_i}}}$ |

## 15.0 FLUID DIELECTRIC PARAMETERS

Note: Effective February 19, 2019 TCB Workshop: FCC has permitted the use of single head-tissue simulating liquid specified in IEC 62209-1 for all SAR tests.TSL can be changed in a Permissive Change. If SAR increased and Original SAR > 1.2W/kg, additional SAR measurements will be required.

**Table 15.1 Fluid Dielectric Parameters 835MHz HEAD TSL, 6 August 2019**

**********
Aprel Laboratory
Test Result for UIM Dielectric Parameter
Tue 06/Aug/2019 09:32:46
Freq Frequency(GHz)
FCC_eH FCC OET 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC OET 65 Supplement C (June 2001) Limits for Head Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM
**********

| Freq | FCC_eH | FCC_sH | Test_e | Test_s |
|---|---|---|---|---|
| 0.7350 | 42.02 | 0.89 | 42.35 | 0.81 |
| 0.7450 | 41.97 | 0.89 | 42.03 | 0.80 |
| 0.7550 | 41.92 | 0.89 | 42.30 | 0.81 |
| 0.7650 | 41.86 | 0.89 | 41.64 | 0.83 |
| 0.7750 | 41.81 | 0.90 | 41.81 | 0.84 |
| 0.7850 | 41.76 | 0.90 | 41.84 | 0.86 |
| 0.7950 | 41.71 | 0.90 | 41.55 | 0.86 |
| 0.8050 | 41.66 | 0.90 | 41.65 | 0.88 |
| 0.8150 | 41.60 | 0.90 | 41.34 | 0.88 |
| 0.8250 | 41.55 | 0.90 | 41.11 | 0.90 |
| 0.8350 | 41.50 | 0.90 | 40.91 | 0.89 |
| 0.8450 | 41.50 | 0.91 | 40.39 | 0.91 |
| 0.8550 | 41.50 | 0.92 | 40.58 | 0.91 |
| 0.8650 | 41.50 | 0.93 | 40.46 | 0.92 |
| 0.8750 | 41.50 | 0.94 | 40.45 | 0.92 |
| 0.8850 | 41.50 | 0.95 | 40.41 | 0.95 |
| 0.8950 | 41.50 | 0.96 | 40.27 | 0.95 |
| 0.9050 | 41.50 | 0.97 | 39.83 | 0.96 |
| 0.9150 | 41.50 | 0.98 | 40.08 | 0.97 |
| 0.9250 | 41.48 | 0.98 | 39.89 | 0.98 |
| 0.9350 | 41.46 | 0.99 | 39.64 | 0.99 |

## FLUID DIELECTRIC PARAMETERS

| Date: | 6 Aug 2019 | Fluid Temp: | 22.9 | Frequency: | 835MHz | Tissue: | Head |
|---|---|---|---|---|---|---|---|

| Freq (MHz) | | Test_e | Test_s | Target_e | Target_s | Deviation Permittivity | Deviation Conductivity |
|---|---|---|---|---|---|---|---|
| 735.0000 | | 42.3500 | 0.8100 | 42.0200 | 0.89 | 0.79% | -8.99% |
| 745.0000 | | 42.0300 | 0.8000 | 41.9700 | 0.89 | 0.14% | -10.11% |
| 755.0000 | | 42.3000 | 0.8100 | 41.9200 | 0.89 | 0.91% | -8.99% |
| 765.0000 | | 41.6400 | 0.8300 | 41.8600 | 0.89 | -0.53% | -6.74% |
| 775.0000 | | 41.8100 | 0.8400 | 41.8100 | 0.90 | 0.00% | -6.67% |
| 782.0000 | | 41.8310 | 0.8540 | 41.7750 | 0.90 | 0.13% | -5.11% |
| 785.0000 | | 41.8400 | 0.8600 | 41.7600 | 0.90 | 0.19% | -4.44% |
| 795.0000 | | 41.5500 | 0.8600 | 41.7100 | 0.90 | -0.38% | -4.44% |
| 805.0000 | | 41.6500 | 0.8800 | 41.6600 | 0.90 | -0.02% | -2.22% |
| 806.0000 | * | 41.6190 | 0.8800 | 41.6540 | 0.90 | -0.08% | -2.22% |
| 815.0000 | | 41.3400 | 0.8800 | 41.6000 | 0.90 | -0.62% | -2.22% |
| 825.0000 | | 41.1100 | 0.9000 | 41.5500 | 0.90 | -1.06% | 0.00% |
| 835.0000 | | 40.9100 | 0.8900 | 41.5000 | 0.90 | -1.42% | -1.11% |
| 845.0000 | | 40.3900 | 0.9100 | 41.5000 | 0.91 | -2.67% | 0.00% |
| 855.0000 | | 40.5800 | 0.9100 | 41.5000 | 0.92 | -2.22% | -1.09% |
| 861.0000 | | 40.5080 | 0.9160 | 41.5000 | 0.93 | -2.39% | -1.08% |
| 865.0000 | | 40.4600 | 0.9200 | 41.5000 | 0.93 | -2.51% | -1.08% |
| 875.0000 | | 40.4500 | 0.9200 | 41.5000 | 0.94 | -2.53% | -2.13% |
| 885.0000 | | 40.4100 | 0.9500 | 41.5000 | 0.95 | -2.63% | 0.00% |
| 895.0000 | | 40.2700 | 0.9500 | 41.5000 | 0.96 | -2.96% | -1.04% |
| 896.0000 | | 40.2260 | 0.9510 | 41.5000 | 0.96 | -3.07% | -1.04% |
| 905.0000 | | 39.8300 | 0.9600 | 41.5000 | 0.97 | -4.02% | -1.03% |
| 915.0000 | | 40.0800 | 0.9700 | 41.5000 | 0.98 | -3.42% | -1.02% |
| 925.0000 | | 39.8900 | 0.9800 | 41.4800 | 0.98 | -3.83% | 0.00% |
| 935.0000 | | 39.6400 | 0.9900 | 41.4600 | 0.99 | -4.39% | 0.00% |

*Channel Frequency Tested

**Table 15.2 Fluid Dielectric Parameters 835MHz HEAD TSL, 8 August 2019**

**********
Aprel Laboratory
Test Result for UIM Dielectric Parameter
Thu 08/Aug/2019 16:02:46
Freq Frequency(GHz)
FCC_eH FCC OET 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC OET 65 Supplement C (June 2001) Limits for Head Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM
**********

| Freq | FCC_eH | FCC_sH | Test_e | Test_s |
|---|---|---|---|---|
| 0.7350 | 42.02 | 0.89 | 40.98 | 0.78 |
| 0.7450 | 41.97 | 0.89 | 40.77 | 0.80 |
| 0.7550 | 41.92 | 0.89 | 40.74 | 0.79 |
| 0.7650 | 41.86 | 0.89 | 40.47 | 0.80 |
| 0.7750 | 41.81 | 0.90 | 40.72 | 0.82 |
| 0.7850 | 41.76 | 0.90 | 40.41 | 0.84 |
| 0.7950 | 41.71 | 0.90 | 40.28 | 0.84 |
| 0.8050 | 41.66 | 0.90 | 40.29 | 0.85 |
| 0.8150 | 41.60 | 0.90 | 40.18 | 0.85 |
| 0.8250 | 41.55 | 0.90 | 40.17 | 0.87 |
| 0.8350 | 41.50 | 0.90 | 40.02 | 0.87 |
| 0.8450 | 41.50 | 0.91 | 39.67 | 0.88 |
| 0.8550 | 41.50 | 0.92 | 39.73 | 0.88 |
| 0.8650 | 41.50 | 0.93 | 39.40 | 0.89 |
| 0.8750 | 41.50 | 0.94 | 39.36 | 0.90 |
| 0.8850 | 41.50 | 0.95 | 39.31 | 0.92 |
| 0.8950 | 41.50 | 0.96 | 39.27 | 0.92 |
| 0.9050 | 41.50 | 0.97 | 39.35 | 0.94 |
| 0.9150 | 41.50 | 0.98 | 39.02 | 0.95 |
| 0.9250 | 41.48 | 0.98 | 39.00 | 0.96 |
| 0.9350 | 41.46 | 0.99 | 38.77 | 0.96 |

Per IEEE 1528 Fluid Parameters measured at end of test series

## FLUID DIELECTRIC PARAMETERS

| Date: | 8 Aug 2019 | Fluid Temp: | 23.3 | Frequency: | 835MHz | Tissue: | Head |
|---|---|---|---|---|---|---|---|

| Freq (MHz) | | Test_e | Test_s | Target_e | Target_s | Deviation Permittivity | Deviation Conductivity |
|---|---|---|---|---|---|---|---|
| 735.0000 | | 40.9800 | 0.7800 | 42.0200 | 0.89 | -2.48% | -12.36% |
| 745.0000 | | 40.7700 | 0.8000 | 41.9700 | 0.89 | -2.86% | -10.11% |
| 755.0000 | | 40.7400 | 0.7900 | 41.9200 | 0.89 | -2.81% | -11.24% |
| 765.0000 | | 40.4700 | 0.8000 | 41.8600 | 0.89 | -3.32% | -10.11% |
| 775.0000 | | 40.7200 | 0.8200 | 41.8100 | 0.90 | -2.61% | -8.89% |
| 785.0000 | | 40.4100 | 0.8400 | 41.7600 | 0.90 | -3.23% | -6.67% |
| 795.0000 | | 40.2800 | 0.8400 | 41.7100 | 0.90 | -3.43% | -6.67% |
| 805.0000 | | 40.2900 | 0.8500 | 41.6600 | 0.90 | -3.29% | -5.56% |
| 806.0000 | * | 40.2790 | 0.8500 | 41.6540 | 0.90 | -3.30% | -5.56% |
| 815.0000 | | 40.1800 | 0.8500 | 41.6000 | 0.90 | -3.41% | -5.56% |
| 825.0000 | | 40.1700 | 0.8700 | 41.5500 | 0.90 | -3.32% | -3.33% |
| 835.0000 | | 40.0200 | 0.8700 | 41.5000 | 0.90 | -3.57% | -3.33% |
| 845.0000 | | 39.6700 | 0.8800 | 41.5000 | 0.91 | -4.41% | -3.30% |
| 855.0000 | | 39.7300 | 0.8800 | 41.5000 | 0.92 | -4.27% | -4.35% |
| 861.0000 | | 39.5320 | 0.8860 | 41.5000 | 0.93 | -4.74% | -4.32% |
| 865.0000 | | 39.4000 | 0.8900 | 41.5000 | 0.93 | -5.06% | -4.30% |
| 875.0000 | | 39.3600 | 0.9000 | 41.5000 | 0.94 | -5.16% | -4.26% |
| 885.0000 | | 39.3100 | 0.9200 | 41.5000 | 0.95 | -5.28% | -3.16% |
| 895.0000 | | 39.2700 | 0.9200 | 41.5000 | 0.96 | -5.37% | -4.17% |
| 896.0000 | | 39.2780 | 0.9220 | 41.5000 | 0.96 | -5.35% | -4.06% |
| 905.0000 | | 39.3500 | 0.9400 | 41.5000 | 0.97 | -5.18% | -3.09% |
| 915.0000 | | 39.0200 | 0.9500 | 41.5000 | 0.98 | -5.98% | -3.06% |
| 925.0000 | | 39.0000 | 0.9600 | 41.4800 | 0.98 | -5.98% | -2.04% |
| 935.0000 | | 38.7700 | 0.9600 | 41.4600 | 0.99 | -6.49% | -3.03% |

*Channel Frequency Tested

**Table 15.3 Fluid Dielectric Parameters 835MHz HEAD TSL, 4 October 2019**

**********
Aprel Laboratory
Test Result for UIM Dielectric Parameter
Fri 04/Oct/2019 10:06:54
Freq Frequency(GHz)
FCC_eH FCC OET 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC OET 65 Supplement C (June 2001) Limits for Head Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM
**********

| Freq | FCC_eH | FCC_sH | Test_e | Test_s |
|---|---|---|---|---|
| 0.7350 | 42.02 | 0.89 | 42.57 | 0.81 |
| 0.7450 | 41.97 | 0.89 | 42.34 | 0.83 |
| 0.7550 | 41.92 | 0.89 | 42.47 | 0.83 |
| 0.7650 | 41.86 | 0.89 | 42.22 | 0.84 |
| 0.7750 | 41.81 | 0.90 | 41.98 | 0.84 |
| 0.7850 | 41.76 | 0.90 | 41.87 | 0.86 |
| 0.7950 | 41.71 | 0.90 | 41.40 | 0.87 |
| 0.8050 | 41.66 | 0.90 | 41.56 | 0.88 |
| 0.8150 | 41.60 | 0.90 | 41.16 | 0.89 |
| 0.8250 | 41.55 | 0.90 | 41.34 | 0.90 |
| 0.8350 | 41.50 | 0.90 | 41.00 | 0.90 |
| 0.8450 | 41.50 | 0.91 | 40.92 | 0.91 |
| 0.8550 | 41.50 | 0.92 | 40.60 | 0.91 |
| 0.8650 | 41.50 | 0.93 | 40.59 | 0.93 |
| 0.8750 | 41.50 | 0.94 | 40.62 | 0.94 |
| 0.8850 | 41.50 | 0.95 | 40.66 | 0.97 |
| 0.8950 | 41.50 | 0.96 | 39.99 | 0.97 |
| 0.9050 | 41.50 | 0.97 | 39.95 | 0.98 |
| 0.9150 | 41.50 | 0.98 | 39.91 | 0.99 |
| 0.9250 | 41.48 | 0.98 | 39.94 | 0.99 |
| 0.9350 | 41.46 | 0.99 | 39.76 | 1.01 |

## FLUID DIELECTRIC PARAMETERS

| Date: | 4 Oct 2019 | Fluid Temp: | 21.6 | Frequency: | 835MHz | Tissue: | Head |
|---|---|---|---|---|---|---|---|

| Freq (MHz) | | Test_e | Test_s | Target_e | Target_s | Deviation Permittivity | Deviation Conductivity |
|---|---|---|---|---|---|---|---|
| 735.0000 | | 42.5700 | 0.8100 | 42.0200 | 0.89 | 1.31% | -8.99% |
| 745.0000 | | 42.3400 | 0.8300 | 41.9700 | 0.89 | 0.88% | -6.74% |
| 755.0000 | | 42.4700 | 0.8300 | 41.9200 | 0.89 | 1.31% | -6.74% |
| 765.0000 | | 42.2200 | 0.8400 | 41.8600 | 0.89 | 0.86% | -5.62% |
| 775.0000 | | 41.9800 | 0.8400 | 41.8100 | 0.90 | 0.41% | -6.67% |
| 782.0000 | * | 41.9030 | 0.8540 | 41.7750 | 0.90 | 0.31% | -5.11% |
| 785.0000 | | 41.8700 | 0.8600 | 41.7600 | 0.90 | 0.26% | -4.44% |
| 793.0000 | * | 41.4940 | 0.8680 | 41.7200 | 0.90 | -0.54% | -3.56% |
| 795.0000 | | 41.4000 | 0.8700 | 41.7100 | 0.90 | -0.74% | -3.33% |
| 805.0000 | | 41.5600 | 0.8800 | 41.6600 | 0.90 | -0.24% | -2.22% |
| 806.0000 | * | 41.5200 | 0.8810 | 41.6540 | 0.90 | -0.32% | -2.11% |
| 815.0000 | | 41.1600 | 0.8900 | 41.6000 | 0.90 | -1.06% | -1.11% |
| 825.0000 | | 41.3400 | 0.9000 | 41.5500 | 0.90 | -0.51% | 0.00% |
| 835.0000 | | 41.0000 | 0.9000 | 41.5000 | 0.90 | -1.20% | 0.00% |
| 836.5000 | * | 40.9880 | 0.9015 | 41.5000 | 0.90 | -1.23% | 0.00% |
| 845.0000 | | 40.9200 | 0.9100 | 41.5000 | 0.91 | -1.40% | 0.00% |
| 855.0000 | | 40.6000 | 0.9100 | 41.5000 | 0.92 | -2.17% | -1.09% |
| 865.0000 | | 40.5900 | 0.9300 | 41.5000 | 0.93 | -2.19% | 0.00% |
| 875.0000 | | 40.6200 | 0.9400 | 41.5000 | 0.94 | -2.12% | 0.00% |
| 885.0000 | | 40.6600 | 0.9700 | 41.5000 | 0.95 | -2.02% | 2.11% |
| 895.0000 | | 39.9900 | 0.9700 | 41.5000 | 0.96 | -3.64% | 1.04% |
| 905.0000 | | 39.9500 | 0.9800 | 41.5000 | 0.97 | -3.73% | 1.03% |
| 915.0000 | | 39.9100 | 0.9900 | 41.5000 | 0.98 | -3.83% | 1.02% |
| 925.0000 | | 39.9400 | 0.9900 | 41.4800 | 0.98 | -3.71% | 1.02% |
| 935.0000 | | 39.7600 | 1.0100 | 41.4600 | 0.99 | -4.10% | 2.02% |

*Channel Frequency Tested

**Table 15.4 Fluid Dielectric Parameters 835MHz HEAD TSL, 8 October 2019**

**********
Aprel Laboratory
Test Result for UIM Dielectric Parameter
Tue 08/Oct/2019 08:48:10
Freq Frequency(GHz)
FCC_eH FCC OET 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC OET 65 Supplement C (June 2001) Limits for Head Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM
**********

| Freq | FCC_eH | FCC_sH | Test_e | Test_s |
|---|---|---|---|---|
| 0.7350 | 42.02 | 0.89 | 41.23 | 0.80 |
| 0.7450 | 41.97 | 0.89 | 40.68 | 0.83 |
| 0.7550 | 41.92 | 0.89 | 41.22 | 0.83 |
| 0.7650 | 41.86 | 0.89 | 40.67 | 0.85 |
| 0.7750 | 41.81 | 0.90 | 40.72 | 0.83 |
| 0.7850 | 41.76 | 0.90 | 40.30 | 0.86 |
| 0.7950 | 41.71 | 0.90 | 39.95 | 0.88 |
| 0.8050 | 41.66 | 0.90 | 40.04 | 0.88 |
| 0.8150 | 41.60 | 0.90 | 39.86 | 0.90 |
| 0.8250 | 41.55 | 0.90 | 39.40 | 0.90 |
| 0.8350 | 41.50 | 0.90 | 39.35 | 0.91 |
| 0.8450 | 41.50 | 0.91 | 39.52 | 0.91 |
| 0.8550 | 41.50 | 0.92 | 39.52 | 0.91 |
| 0.8650 | 41.50 | 0.93 | 39.14 | 0.93 |
| 0.8750 | 41.50 | 0.94 | 38.76 | 0.92 |
| 0.8850 | 41.50 | 0.95 | 38.83 | 0.95 |
| 0.8950 | 41.50 | 0.96 | 38.59 | 0.97 |
| 0.9050 | 41.50 | 0.97 | 38.11 | 0.97 |
| 0.9150 | 41.50 | 0.98 | 38.40 | 0.99 |
| 0.9250 | 41.48 | 0.98 | 38.13 | 1.00 |
| 0.9350 | 41.46 | 0.99 | 38.18 | 1.02 |

Per IEEE 1528 Fluid Parameters measured at end of test series

## FLUID DIELECTRIC PARAMETERS

| Date: | 8 Oct 2019 | Fluid Temp: | 21.6 | Frequency: | 835MHz | Tissue: | Head |
|---|---|---|---|---|---|---|---|

| Freq (MHz) | | Test_e | Test_s | Target_e | Target_s | Deviation Permittivity | Deviation Conductivity |
|---|---|---|---|---|---|---|---|
| 735.0000 | | 41.2300 | 0.8000 | 42.0200 | 0.89 | -1.88% | -10.11% |
| 745.0000 | | 40.6800 | 0.8300 | 41.9700 | 0.89 | -3.07% | -6.74% |
| 755.0000 | | 41.2200 | 0.8300 | 41.9200 | 0.89 | -1.67% | -6.74% |
| 765.0000 | | 40.6700 | 0.8500 | 41.8600 | 0.89 | -2.84% | -4.49% |
| 775.0000 | | 40.7200 | 0.8300 | 41.8100 | 0.90 | -2.61% | -7.78% |
| 782.0000 | * | 40.4260 | 0.8510 | 41.7750 | 0.90 | -3.23% | -5.44% |
| 785.0000 | | 40.3000 | 0.8600 | 41.7600 | 0.90 | -3.50% | -4.44% |
| 793.0000 | * | 40.0200 | 0.8760 | 41.7200 | 0.90 | -4.07% | -2.67% |
| 795.0000 | | 39.9500 | 0.8800 | 41.7100 | 0.90 | -4.22% | -2.22% |
| 805.0000 | | 40.0400 | 0.8800 | 41.6600 | 0.90 | -3.89% | -2.22% |
| 806.0000 | * | 40.0220 | 0.8820 | 41.6540 | 0.90 | -3.92% | -2.00% |
| 815.0000 | | 39.8600 | 0.9000 | 41.6000 | 0.90 | -4.18% | 0.00% |
| 825.0000 | | 39.4000 | 0.9000 | 41.5500 | 0.90 | -5.17% | 0.00% |
| 835.0000 | | 39.3500 | 0.9100 | 41.5000 | 0.90 | -5.18% | 1.11% |
| 836.5000 | * | 39.3755 | 0.9100 | 41.5000 | 0.90 | -5.12% | 0.94% |
| 845.0000 | | 39.5200 | 0.9100 | 41.5000 | 0.91 | -4.77% | 0.00% |
| 855.0000 | | 39.5200 | 0.9100 | 41.5000 | 0.92 | -4.77% | -1.09% |
| 865.0000 | | 39.1400 | 0.9300 | 41.5000 | 0.93 | -5.69% | 0.00% |
| 875.0000 | | 38.7600 | 0.9200 | 41.5000 | 0.94 | -6.60% | -2.13% |
| 885.0000 | | 38.8300 | 0.9500 | 41.5000 | 0.95 | -6.43% | 0.00% |
| 895.0000 | | 38.5900 | 0.9700 | 41.5000 | 0.96 | -7.01% | 1.04% |
| 905.0000 | | 38.1100 | 0.9700 | 41.5000 | 0.97 | -8.17% | 0.00% |
| 915.0000 | | 38.4000 | 0.9900 | 41.5000 | 0.98 | -7.47% | 1.02% |
| 925.0000 | | 38.1300 | 1.0000 | 41.4800 | 0.98 | -8.08% | 2.04% |
| 935.0000 | | 38.1800 | 1.0200 | 41.4600 | 0.99 | -7.91% | 3.03% |

*Channel Frequency Tested

**Table 15.5 Fluid Dielectric Parameters 750MHz HEAD TSL, 15 October 2019**

**********
Aprel Laboratory
Test Result for UIM Dielectric Parameter
Tue 15/Oct/2019 12:32:04
Freq Frequency(GHz)
FCC_eH FCC OET 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC OET 65 Supplement C (June 2001) Limits for Head Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM
**********

| Freq | FCC_eH | FCC_sH | Test_e | Test_s |
|---|---|---|---|---|
| 0.6500 | 42.46 | 0.89 | 45.79 | 0.75 |
| 0.6600 | 42.41 | 0.89 | 45.59 | 0.76 |
| 0.6700 | 42.36 | 0.89 | 45.42 | 0.76 |
| 0.6800 | 42.31 | 0.89 | 45.18 | 0.79 |
| 0.6900 | 42.25 | 0.89 | 44.97 | 0.79 |
| 0.7000 | 42.20 | 0.89 | 44.97 | 0.80 |
| 0.7100 | 42.15 | 0.89 | 44.93 | 0.81 |
| 0.7200 | 42.10 | 0.89 | 44.25 | 0.81 |
| 0.7300 | 42.05 | 0.89 | 44.24 | 0.82 |
| 0.7400 | 41.99 | 0.89 | 44.32 | 0.84 |
| 0.7500 | 41.94 | 0.89 | 44.06 | 0.84 |
| 0.7600 | 41.89 | 0.89 | 43.68 | 0.86 |
| 0.7700 | 41.84 | 0.89 | 43.28 | 0.87 |
| 0.7800 | 41.79 | 0.90 | 43.59 | 0.89 |
| 0.7900 | 41.73 | 0.90 | 43.49 | 0.89 |
| 0.8000 | 41.68 | 0.90 | 43.36 | 0.90 |
| 0.8100 | 41.63 | 0.90 | 43.39 | 0.91 |
| 0.8200 | 41.58 | 0.90 | 43.10 | 0.92 |
| 0.8300 | 41.53 | 0.90 | 42.67 | 0.92 |
| 0.8400 | 41.50 | 0.91 | 42.95 | 0.95 |
| 0.8500 | 41.50 | 0.92 | 42.69 | 0.94 |

## FLUID DIELECTRIC PARAMETERS

| Date: | 15 Oct 2019 | Fluid Temp: | 20.5 | Frequency: | 750MHz | Tissue: | Head |
|---|---|---|---|---|---|---|---|

| Freq (MHz) | | Test_e | Test_s | Target_e | Target_s | Deviation Permittivity | Deviation Conductivity |
|---|---|---|---|---|---|---|---|
| 650.0000 | | 45.7900 | 0.7500 | 42.4600 | 0.89 | 7.84% | -15.73% |
| 660.0000 | | 45.5900 | 0.7600 | 42.4100 | 0.89 | 7.50% | -14.61% |
| 670.0000 | | 45.4200 | 0.7600 | 42.3600 | 0.89 | 7.22% | -14.61% |
| 680.0000 | | 45.1800 | 0.7900 | 42.3100 | 0.89 | 6.78% | -11.24% |
| 690.0000 | | 44.9700 | 0.7900 | 42.2500 | 0.89 | 6.44% | -11.24% |
| 700.0000 | | 44.9700 | 0.8000 | 42.2000 | 0.89 | 6.56% | -10.11% |
| 707.5000 | * | 44.9400 | 0.8075 | 42.1625 | 0.89 | 6.59% | -9.27% |
| 710.0000 | | 44.9300 | 0.8100 | 42.1500 | 0.89 | 6.60% | -8.99% |
| 713.0000 | | 44.7260 | 0.8100 | 42.1350 | 0.89 | 6.15% | -8.99% |
| 720.0000 | | 44.2500 | 0.8100 | 42.1000 | 0.89 | 5.11% | -8.99% |
| 725.5000 | | 44.2445 | 0.8155 | 42.0725 | 0.89 | 5.16% | -8.37% |
| 730.0000 | | 44.2400 | 0.8200 | 42.0500 | 0.89 | 5.21% | -7.87% |
| 738.0000 | | 44.3040 | 0.8360 | 42.0020 | 0.89 | 5.48% | -6.07% |
| 740.0000 | | 44.3200 | 0.8400 | 41.9900 | 0.89 | 5.55% | -5.62% |
| 750.0000 | | 44.0600 | 0.8400 | 41.9400 | 0.89 | 5.05% | -5.62% |
| 760.0000 | | 43.6800 | 0.8600 | 41.8900 | 0.89 | 4.27% | -3.37% |
| 770.0000 | | 43.2800 | 0.8700 | 41.8400 | 0.89 | 3.44% | -2.25% |
| 780.0000 | | 43.5900 | 0.8900 | 41.7900 | 0.90 | 4.31% | -1.11% |
| 790.0000 | | 43.4900 | 0.8900 | 41.7300 | 0.90 | 4.22% | -1.11% |
| 800.0000 | | 43.3600 | 0.9000 | 41.6800 | 0.90 | 4.03% | 0.00% |
| 806.0000 | | 43.3780 | 0.9060 | 41.6500 | 0.90 | 4.15% | 0.67% |
| 810.0000 | | 43.3900 | 0.9100 | 41.6300 | 0.90 | 4.23% | 1.11% |
| 820.0000 | | 43.1000 | 0.9200 | 41.5800 | 0.90 | 3.66% | 2.22% |
| 830.0000 | | 42.6700 | 0.9200 | 41.5300 | 0.90 | 2.75% | 2.22% |
| 840.0000 | | 42.9500 | 0.9500 | 41.5000 | 0.91 | 3.49% | 4.40% |
| 850.0000 | | 42.6900 | 0.9400 | 41.5000 | 0.92 | 2.87% | 2.17% |

*Channel Frequency Tested

**Table 15.6 Fluid Dielectric Parameters 1800MHz HEAD TSL, 18 October 2019**

**********
Aprel Laboratory
Test Result for UIM Dielectric Parameter
Fri 18/Oct/2019 09:44:50
Freq Frequency(GHz)
FCC_eH FCC OET 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC OET 65 Supplement C (June 2001) Limits for Head Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM
**********

| Freq | FCC_eH | FCC_sH | Test_e | Test_s |
|---|---|---|---|---|
| 1.7000 | 40.16 | 1.34 | 39.18 | 1.26 |
| 1.7100 | 40.14 | 1.35 | 39.20 | 1.27 |
| 1.7200 | 40.13 | 1.35 | 39.03 | 1.28 |
| 1.7300 | 40.11 | 1.36 | 38.96 | 1.29 |
| 1.7400 | 40.09 | 1.37 | 38.99 | 1.29 |
| 1.7500 | 40.08 | 1.37 | 39.06 | 1.31 |
| 1.7600 | 40.06 | 1.38 | 38.89 | 1.31 |
| 1.7700 | 40.05 | 1.38 | 38.89 | 1.33 |
| 1.7800 | 40.03 | 1.39 | 38.72 | 1.33 |
| 1.7900 | 40.02 | 1.39 | 38.70 | 1.34 |
| 1.8000 | 40.00 | 1.40 | 38.83 | 1.35 |
| 1.8100 | 40.00 | 1.40 | 38.59 | 1.36 |
| 1.8200 | 40.00 | 1.40 | 38.68 | 1.38 |
| 1.8300 | 40.00 | 1.40 | 38.55 | 1.37 |
| 1.8400 | 40.00 | 1.40 | 38.58 | 1.40 |
| 1.8500 | 40.00 | 1.40 | 38.61 | 1.40 |
| 1.8600 | 40.00 | 1.40 | 38.37 | 1.41 |
| 1.8700 | 40.00 | 1.40 | 38.25 | 1.42 |
| 1.8800 | 40.00 | 1.40 | 38.42 | 1.43 |
| 1.8900 | 40.00 | 1.40 | 38.17 | 1.44 |
| 1.9000 | 40.00 | 1.40 | 38.36 | 1.44 |

## FLUID DIELECTRIC PARAMETERS

| Date: | 18 Oct 2019 | Fluid Temp: | 21.3 | Frequency: | 1800MHz | Tissue: | Head |
|---|---|---|---|---|---|---|---|

| Freq (MHz) | | Test_e | Test_s | Target_e | Target_s | Deviation Permittivity | Deviation Conductivity |
|---|---|---|---|---|---|---|---|
| 1700.0000 | | 39.1800 | 1.2600 | 40.1600 | 1.34 | -2.44% | -5.97% |
| 1710.0000 | | 39.2000 | 1.2700 | 40.1400 | 1.35 | -2.34% | -5.93% |
| 1720.0000 | | 39.0300 | 1.2800 | 40.1300 | 1.35 | -2.74% | -5.19% |
| 1730.0000 | | 38.9600 | 1.2900 | 40.1100 | 1.36 | -2.87% | -5.15% |
| 1740.0000 | | 38.9900 | 1.2900 | 40.0900 | 1.37 | -2.74% | -5.84% |
| 1747.5000 | | 39.0425 | 1.3050 | 40.0825 | 1.37 | -2.59% | -4.74% |
| 1750.0000 | | 39.0600 | 1.3100 | 40.0800 | 1.37 | -2.54% | -4.38% |
| 1760.0000 | | 38.8900 | 1.3100 | 40.0600 | 1.38 | -2.92% | -5.07% |
| 1770.0000 | | 38.8900 | 1.3300 | 40.0500 | 1.38 | -2.90% | -3.62% |
| 1775.0000 | | 38.8050 | 1.3300 | 40.0400 | 1.39 | -3.08% | -3.97% |
| 1780.0000 | | 38.7200 | 1.3300 | 40.0300 | 1.39 | -3.27% | -4.32% |
| 1790.0000 | | 38.7000 | 1.3400 | 40.0200 | 1.39 | -3.30% | -3.60% |
| 1800.0000 | | 38.8300 | 1.3500 | 40.0000 | 1.40 | -2.93% | -3.57% |
| 1810.0000 | | 38.5900 | 1.3600 | 40.0000 | 1.40 | -3.52% | -2.86% |
| 1820.0000 | | 38.6800 | 1.3800 | 40.0000 | 1.40 | -3.30% | -1.43% |
| 1830.0000 | | 38.5500 | 1.3700 | 40.0000 | 1.40 | -3.63% | -2.14% |
| 1840.0000 | | 38.5800 | 1.4000 | 40.0000 | 1.40 | -3.55% | 0.00% |
| 1850.0000 | | 38.6100 | 1.4000 | 40.0000 | 1.40 | -3.48% | 0.00% |
| 1860.0000 | | 38.3700 | 1.4100 | 40.0000 | 1.40 | -4.08% | 0.71% |
| 1870.0000 | | 38.2500 | 1.4200 | 40.0000 | 1.40 | -4.38% | 1.43% |
| 1880.0000 | | 38.4200 | 1.4300 | 40.0000 | 1.40 | -3.95% | 2.14% |
| 1890.0000 | | 38.1700 | 1.4400 | 40.0000 | 1.40 | -4.58% | 2.86% |
| 1900.0000 | | 38.3600 | 1.4400 | 40.0000 | 1.40 | -4.10% | 2.86% |

*Channel Frequency Tested

## 16.0 SYSTEM VERIFICATION TEST RESULTS

**Table 16.1 System Verification Results 835MHz HEAD TSL, 6 Aug 2019**

### System Verification Test Results

| Date | | Frequency (MHz) | Validation Source | | |
|---|---|---|---|---|---|
| | | | P/N | | S/N |
| 06 July 2019 | | 835 | D835V2 | | 4d075 |
| **Fluid Type** | **Fluid Temp °C** | **Ambient Temp °C** | **Ambient Humidity (%)** | **Forward Power (mW)** | **Source Spacing (mm)** |
| Head | 22.1 | 22 | 39% | 250 | 15 |
| **Fluid Parameters** | | | | | |
| Permittivity | | | Conductivity | | |
| Measured | Target | Deviation | Measured | Target | Deviation |
| 40.91 | 41.50 | -1.42% | 0.89 | 0.90 | -1.11% |
| **Measured SAR** | | | | | |
| 1 gram | | | 10 gram | | |
| Measured | Target | Deviation | Measured | Target | Deviation |
| 2.46 | 2.41 | 2.07% | 1.60 | 1.55 | 2.56% |
| **Measured SAR Normalized to 1.0W** | | | | | |
| 1 gram | | | 10 gram | | |
| Normalized | Target | Deviation | Normalized | Target | Deviation |
| 9.84 | 9.45 | 3.96% | 6.40 | 6.11 | 4.53% |

Prior to the SAR evaluations, system checks were performed on the planar section of the phantom and a SPEAG validation dipole in accordance with the procedures described in IEEE 1528-2013, FCC KDB 846224 and IEC 62209-1.

The dielectric parameters of the simulated tissue mixture were measured prior to the system performance check using a Dielectric Probe Kit and a Network Analyzer.

The forward power was applied to the dipole and the system was verified to a tolerance of +10% from the system manufacturer's dipole calibration target SAR value.

The forward power applied was same forward power applied by the calibration lab during the calibration of this validation source.

**Table 16.2 System Verification Results 835MHz HEAD TSL, 4 Oct 2019**

## System Verification Test Results

| Date | | Frequency (MHz) | Validation Source | | |
|---|---|---|---|---|---|
| | | | P/N | | S/N |
| 04 Oct 2019 | | 835 | D835V2 | | 4d075 |
| Fluid Type | Fluid Temp °C | Ambient Temp °C | Ambient Humidity (%) | Forward Power (mW) | Source Spacing (mm) |
| Head | 21.6 | 23 | 28% | 250 | 15 |

| Fluid Parameters | | | | | |
|---|---|---|---|---|---|
| Permittivity | | | Conductivity | | |
| Measured | Target | Deviation | Measured | Target | Deviation |
| 41.00 | 41.50 | -1.20% | 0.90 | 0.90 | 0.00% |

| Measured SAR | | | | | |
|---|---|---|---|---|---|
| 1 gram | | | 10 gram | | |
| Measured | Target | Deviation | Measured | Target | Deviation |
| 2.50 | 2.41 | 3.73% | 1.62 | 1.55 | 4.52% |

| Measured SAR Normalized to 1.0W | | | | | |
|---|---|---|---|---|---|
| 1 gram | | | 10 gram | | |
| Normalized | Target | Deviation | Normalized | Target | Deviation |
| 10.00 | 9.45 | 5.82% | 6.48 | 6.11 | 6.06% |

Prior to the SAR evaluations, system checks were performed on the planar section of the phantom and a SPEAG validation dipole in accordance with the procedures described in IEEE 1528-2013, FCC KDB 846224 and IEC 62209-1.

The dielectric parameters of the simulated tissue mixture were measured prior to the system performance check using a Dielectric Probe Kit and a Network Analyzer.

The forward power was applied to the dipole and the system was verified to a tolerance of +10% from the system manufacturer's dipole calibration target SAR value.

The forward power applied was same forward power applied by the calibration lab during the calibration of this validation source.

**Table 16.3 System Verification Results 750MHz HEAD TSL, 15 Oct 2019**

## System Verification Test Results

| Date | | Frequency (MHz) | Validation Source | | |
|---|---|---|---|---|---|
| | | | P/N | | S/N |
| 15 Oct 2019 | | 750 | D750V3 | | 1061 |
| Fluid Type | Fluid Temp °C | Ambient Temp °C | Ambient Humidity (%) | Forward Power (mW) | Source Spacing (mm) |
| Head | 20.5 | 21 | 27% | 250 | 15 |
| **Fluid Parameters** | | | | | |
| Permittivity | | | Conductivity | | |
| Measured | Target | Deviation | Measured | Target | Deviation |
| 44.06 | 41.94 | 5.05% | 0.84 | 0.89 | -5.62% |
| **Measured SAR** | | | | | |
| 1 gram | | | 10 gram | | |
| Measured | Target | Deviation | Measured | Target | Deviation |
| 2.08 | 2.08 | 0.00% | 1.38 | 1.37 | 0.73% |
| **Measured SAR Normalized to 1.0W** | | | | | |
| 1 gram | | | 10 gram | | |
| Normalized | Target | Deviation | Normalized | Target | Deviation |
| 8.32 | 8.33 | -0.12% | 5.52 | 5.48 | 0.73% |

Prior to the SAR evaluations, system checks were performed on the planar section of the phantom and a SPEAG validation dipole in accordance with the procedures described in IEEE 1528-2013, FCC KDB 846224 and IEC 62209-1.

The dielectric parameters of the simulated tissue mixture were measured prior to the system performance check using a Dielectric Probe Kit and a Network Analyzer.

The forward power was applied to the dipole and the system was verified to a tolerance of +10% from the system manufacturer's dipole calibration target SAR value.

The forward power applied was same forward power applied by the calibration lab during the calibration of this validation source.

**Table 16.4 System Verification Results 1800MHz HEAD TSL, 18 Oct 2019**

## System Verification Test Results

| Date | | Frequency (MHz) | Validation Source | | |
|---|---|---|---|---|---|
| | | | P/N | | S/N |
| 18 Oct 2019 | | 1800 | D1800V2 | | 247 |
| Fluid Type | Fluid Temp °C | Ambient Temp °C | Ambient Humidity (%) | Forward Power (mW) | Source Spacing (mm) |
| Head | 21.3 | 22 | 29% | 250 | 10 |

| Fluid Parameters | | | | | |
|---|---|---|---|---|---|
| Permittivity | | | Conductivity | | |
| Measured | Target | Deviation | Measured | Target | Deviation |
| 38.83 | 40.00 | -2.93% | 1.35 | 1.40 | -3.57% |

| Measured SAR | | | | | |
|---|---|---|---|---|---|
| 1 gram | | | 10 gram | | |
| Measured | Target | Deviation | Measured | Target | Deviation |
| 9.86 | 9.63 | 2.39% | 5.17 | 5.03 | 2.78% |

| Measured SAR Normalized to 1.0W | | | | | |
|---|---|---|---|---|---|
| 1 gram | | | 10 gram | | |
| Normalized | Target | Deviation | Normalized | Target | Deviation |
| 39.44 | 38.50 | 2.44% | 20.68 | 20.10 | 2.89% |

Prior to the SAR evaluations, system checks were performed on the planar section of the phantom and a SPEAG validation dipole in accordance with the procedures described in IEEE 1528-2013, FCC KDB 846224 and IEC 62209-1.

The dielectric parameters of the simulated tissue mixture were measured prior to the system performance check using a Dielectric Probe Kit and a Network Analyzer.

The forward power was applied to the dipole and the system was verified to a tolerance of +10% from the system manufacturer's dipole calibration target SAR value.

The forward power applied was same forward power applied by the calibration lab during the calibration of this validation source.

## 17.0 MEASUREMENT SYSTEM SPECIFICATIONS

**Table 17.1 Measurement System**

| SAR Measurement System |
|---|
| Celltech Labs Inc. SAR measurement facility employs a Dosimetric Assessment System (DASY™) manufactured by Schmid & Partner Engineering AG (SPEAG™) of Zurich, Switzerland. The DASY6 measurement system is comprised of the measurement server, a robot controller, a computer, a near-field probe, a probe alignment sensor, an Elliptical Planar Phantom (ELI) phantom and a specific anthropomorphic mannequin (SAM) phantom for Head and/or Body SAR evaluations. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF). A cell controller system contains the power supply, robot controller and a teach pendant (Joystick) to control the robot's servo motors. The Staubli robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical form the DAE to digital electronic signal and transfers data to the DASY6 measurement server. The DAE4 utilizes a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16-bit AD-converter, a command decoder and a control logic unit. Transmission to the DASY6 measurement server is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe-mounting device includes two different sensor systems for frontal and sidewise probe contacts. The sensor systems are also used for mechanical surface detection and probe collision detection. The robot utilizes a controller with built in VME-bus computer. |
|  |
| DASY 6 SAR System with SAM Phantom |

| DASY 6 Measurement Controller |
|---|
|  |

**Table 17.2 Measurement System Specifications**

| Measurement System Specification | |
|---|---|
| **Specifications** | |
| **Positioner** | Stäubli Unimation Corp. Robot Model: TX90XL |
| **Repeatability** | +/- 0.035 mm |
| **No. of axis** | 6.0 |
| **Data Acquisition Electronic (DAE) System** | |
| **Cell Controller** | |
| **Processor** | Intel(R) Core(TM) i7-7700 |
| **Clock Speed** | 3.60 GHz |
| **Operating System** | Windows 10 Professional |
| **Data Converter** | |
| **Features** | Signal Amplifier, multiplexer, A/D converter, and control logic |
| **Software** | Measurement Software: DASY6, V 6.4.0.12171 / DASY52 V10.2(1504) |
| | Postprocessing Software: SEMCAD X, V14.6.12(7470) |
| **Connecting Lines** | Optical downlink for data and status info., Optical uplink for commands and clock |
| **DASY Measurement Server** | |
| **Function** | Real-time data evaluation for field measurements and surface detection |
| **Hardware** | Intel ULV Celeron CPU 400 MHz; 128 MB chip disk; 128 MB RAM |
| **Connections** | COM1, COM2, DAE, Robot, Ethernet, Service Interface |
| **E-Field Probe** | |
| **Model** | EX3DV4 |
| **Serial No.** | 3600 |
| **Construction** | Triangular core fiber optic detection system |
| **Frequency** | 10 MHz to 6 GHz |
| **Linearity** | ±0.2 dB (30 MHz to 3 GHz) |
| **Phantom** | |
| **Type** | ELI Elliptical Planar Phantom |
| **Shell Material** | Fiberglass |
| **Thickness** | 2mm +/- .2mm |
| **Volume** | > 30 Liter |

## Measurement System Specification

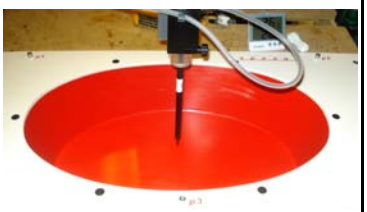
### Probe Specification

| | |
|---|---|
| Construction: | Symmetrical design with triangular core;<br>Built-in shielding against static charges<br>PEEK enclosure material (resistant to organic solvents, glycol) |
| Calibration: | In air from 10 MHz to 2.5 GHz<br>In head simulating tissue at frequencies of 900 MHz<br>and 1.8 GHz (accuracy ± 8%) |
| Frequency: | 10 MHz to > 6 GHz; Linearity: ± 0.2 dB (30 MHz to 3 GHz) |
| Directivity: | ± 0.2 dB in head tissue (rotation around probe axis)<br>± 0.4 dB in head tissue (rotation normal to probe axis) |
| Dynamic Range: | 5 μW/g to > 100 mW/g; Linearity: ± 0.2 dB |
| Surface Detect: | ± 0.2 mm repeatability in air and clear liquids over diffuse reflecting surfaces |
| Dimensions: | Overall length: 330 mm; Tip length: 16 mm;<br>Body diameter: 12 mm; Tip diameter: 6.8 mm<br>Distance from probe tip to dipole centers: 2.7 mm |
| Application: | General dosimetry up to 3 GHz; Compliance tests of mobile phone |

**EX3DV4 E-Field Probe**

### Phantom Specification

The SAM V5.0 phantom is an elliptical planar fiberglass shell phantom with a shell thickness of 2.0mm +/- .2mm at the planar area. This phantom conforms to OET Bulletin 65, Supplement C, IEEE 1528-2013, IEC 62209-1 and IEC 62209-2.



**ELI Phantom**

### Device Positioner Specification

The DASY4 device positioner has two scales for device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear openings). The plane between the ear openings and the mouth tip has a rotation angle of $65^{O}$. The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections.

**Device Positioner**

## 18.0 TEST EQUIPMENT LIST

### Table 18.1 Equipment List and Calibration

| Test Equipment List | | | | |
|---|---|---|---|---|
| **DESCRIPTION** | **ASSET NO.** | **SERIAL NO.** | **DATE CALIBRATED** | **CALIBRATION DUE** |
| Schmid & Partner DASY 6 System | - | - | - | - |
| -DASY Measurement Server | 00158 | 1078 | CNR | CNR |
| -Robot | 00046 | 599396-01 | CNR | CNR |
| -DAE4 | 00019 | 353 | 19-Mar-19 | 19-Mar-20 |
| -EX3DV4 E-Field Probe | 00213 | 3600 | 26-Mar-19 | 26-Mar-20 |
| -CLA 30 Validation Dipole | 00300 | 1005 | 23-Nov-17 | 23-Nov-20 |
| -CLA150 Validation Dipole | 00251 | 4007 | 27-Apr-17 | 27-Apr-20 |
| -D450V3 Validation Dipole | 00221 | 1068 | 23-Apr-18 | 23-Apr-21 |
| -D750V3 Validation Dipole | 00238 | 1061 | 19-Mar-19 | 19-Mar-22 |
| -D835V2 Validation Dipole | 00217 | 4D075 | 20-Apr-18 | 20-Apr-21 |
| -D900V2 Validation Dipole | 00020 | 54 | 24-Apr-17 | 24-Apr-20 |
| -D1640/1620-S-2 Validation Dipole | 00299 | 207-00102 | 07-Nov-17 | 07-Nov-20 |
| -D2450V2 Validation Dipole* | 00219 | 825 | 24-Apr-18 | 24-Apr-21 |
| -D5GHzV2 Validation Dipole | 00126 | 1031 | 26-Apr-18 | 26-Apr-21 |
| ELI Phantom | 00247 | 1234 | CNR | CNR |
| SAM Phantom | 00154 | 1033 | CNR | CNR |
| HP 85070C Dielectric Probe Kit | 00033 | none | CNR | CNR |
| Gigatronics 8652A Power Meter | 00007 | 1835801 | 26-Mar-19 | 26-Mar-22 |
| Gigatronics 80701A Power Sensor | 00186 | 1837002 | COU | COU |
| Gigatronics 80334A Power Sensor | 00237 | 1837001 | 26-Mar-19 | 26-Mar-22 |
| HP 8753ET Network Analyzer | 00134 | US39170292 | 29-Dec-17 | 29-Dec-20 |
| Rohde & Schwarz SMR20 Signal Generator | 00006 | 100104 | 29-May-17 | 29-May-20 |
| Amplifier Research 10W1000C Power Amplifier | 00041 | 27887 | CNR | CNR |
| Amplifier Research 5S1G4 Power Amplifier | 00106 | 26235 | CNR | CNR |
| Narda Directional Coupler 3020A | 00064 | - | CNR | CNR |
| Traceable VWR Thermometer | 00291 | - | 19-Nov-16 | 19-Nov-19 |
| Traceable VWR Jumbo Humidity/Thermometer | 00295 | 170120555 | 17-Feb-17 | 17-Feb-20 |
| Digital Multi Meter DMR-1800 | 00250 | TE182 | 6-22-17 | 6-22-20 |
| Bipolar Power Supply 6299A | 00086 | 1144A02155 | CNR | CNR |
| DC-18G 10W 30db Attenuator | 00102 | - | COU | COU |
| R&S FSP40 Spectrum Analyzer | 00241 | 100500 | 15-May-18 | 15-May-21 |
| RF Cable-SMA | 00311 | - | CNR | CNR |
| HP Calibration Kit | 00145 | - | 10-Feb-17 | 10-Feb-20 |
| **Rental Equipment** | | | | |
| R&S Base Station (Mobile Phone) | n/a | 153128 | 08-Apr-19 | 08-Apr-20 |

CNR = Calibration Not Required

SB=Stand By

COU = Calibrate on Use

* Per KDB 865664 3.2.2; Supporting documentation is included in the report for validation dipoles exceeding the recommended anual calibration cycle.
When applicable, reference Appendix F

Note: Per KDB 865664, Dipoles are evaluated annually for return loss and impedance. The dipole's SAR target can only be assessed by the SAR equipment manufacturer and remains the target until the dipole is recalibrated by the manufacturer. The dipole's SAR is evaluated and compared to this target during each and every System Verification which is performed prior to and/or during each DUT SAR evaluation. The results of these verifications are shown in Section 16.

## 19.0 SYSTEM VALIDATION SUMMARY

| System Validation Summary | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Frequency (MHz) | Validation Date | Probe Model | Probe S/N | Validation Source | Source S/N | Tissue | Tissue Dielectrics | | Validation Results | | |
| | | | | | | | Permitivity | Conductivity | Sensitivity | Linearity | Isotropy |
| 750 | 20-Jun-19 | EX3DV4 | 3600 | D750V3 | 1061 | Head | 44.27 | 0.83 | Pass | Pass | Pass |
| 835 | 15-Aug-19 | EX3DV4 | 3600 | D835V2 | 4d075 | Head | 42.01 | 0.89 | Pass | Pass | Pass |
| 1640 | 07-May-18 | EX3DV4 | 3600 | 1620-S-2 | 207-00102 | Head | 39.87 | 1.27 | Pass | Pass | Pass |
| 1800 | 18-Jun-19 | EX3DV4 | 3600 | D1800V2 | 247 | Head | 41.20 | 1.39 | Pass | Pass | Pass |
| 2450 | 02-Apr-19 | EX3DV4 | 3600 | D2450V2 | 825 | Head | 36.58 | 1.85 | Pass | Pass | Pass |

## 20.0 FLUID COMPOSITION

**Table 20.1 Fluid Composition 750MHz HEAD TSL**

| 750 | | | 750MHz Head | |
|---|---|---|---|---|
| Tissue Simulating Liquid (TSL) Composition | | | | |
| Component by Percent Weight | | | | |
| Water | Sugar | Salt(1) | HEC(2) | Bacteriacide(3) |
| 40.71 | 56.63 | 1.48 | 0.99 | 0.19 |

(1) Non-Iodinized
(2) **H**ydroxy**E**thyl-**C**ellulose: Sigma-Aldrich P/N 54290-500g
(3) Dow Chemical Dowicil 75 Antimicrobial Perservative

**Table 20.2 Fluid Composition 835MHz HEAD TSL**

| 835 | | | 835MHz Head | |
|---|---|---|---|---|
| Tissue Simulating Liquid (TSL) Composition | | | | |
| Component by Percent Weight | | | | |
| Water | Sugar | Salt(1) | HEC(2) | Bacteriacide(3) |
| 40.71 | 56.63 | 1.48 | 0.99 | 0.19 |

(1) Non-Iodinized
(2) **H**ydroxy**E**thyl-**C**ellulose: Sigma-Aldrich P/N 54290-500g
(3) Dow Chemical Dowicil 75 Antimicrobial Perservative

**Table 20.3 Fluid Composition 1800MHz HEAD TSL**

| 1800MHz Head | | | | |
|---|---|---|---|---|
| Tissue Simulating Liquid (TSL) Composition | | | | |
| Component by Percent Weight | | | | |
| Water | Glycol | Salt(1) | HEC(2) | Bacteriacide(3) |
| 54.8 | 44.9 | 0.3 | 0.0 | 0.0 |

(1) Non-Iodinized
(2) **H**ydroxy**E**thyl-**C**ellulose: Sigma-Aldrich P/N 54290-500g
(3) Dow Chemical Dowicil 75 Antimicrobial Perservative

**Table 20.4 Fluid Composition 2450MHz HEAD TSL**

| 2450 | | | 2450MHz Head | |
|---|---|---|---|---|
| **Tissue Simulating Liquid (TSL) Composition** | | | | |
| **Component by Percent Weight** | | | | |
| **Water** | **Glycol** | **Salt(1)** | **HEC(2)** | **Bacteriacide(3)** |
| 52.0 | 48.0 | 0.0 | 0.0 | 0.0 |

(1) Non-Iodinized
(2) **H**ydroxy**E**thyl-**C**ellulose: Sigma-Aldrich P/N 54290-500g
(3) Dow Chemical Dowicil 75 Antimicrobial Perservative

**Table 20.5 Fluid Composition 5250MHz BODY TSL**

This is a proprietary composition by SPEAG.

## APPENDIX A – SYSTEM VERIFICATION PLOTS

Date/Time: 8/6/2019 10:14:02 AM

Test Laboratory: Celltech Labs

**SPC-835H Aug 06 2019**

**DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: D835V2 - SN:4d075**

Communication System: UID 0, CW (0); Communication System Band: FullSpan (0.0 - 6000.0 MHz); Frequency: 835 MHz;Communication System PAR: 0 dB; PMF: 1

Medium: TSL_835H[06AU19]
Medium parameters used: f = 835 MHz; $\sigma$ = 0.89 S/m; $\varepsilon_r$ = 40.91; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: EX3DV4 - SN3600; ConvF(7.96, 7.96, 7.96); Calibrated: 3/26/2019, ConvF(7.96, 7.96, 7.96); Calibrated: 3/26/2019, ConvF(7.96, 7.96, 7.96); Calibrated: 3/26/2019;
  - Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = -1.5, 31.0, 151.0
- Electronics: DAE4 Sn353; Calibrated: 3/19/2019
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 Ax;
- DASY52 52.10.1(1476);

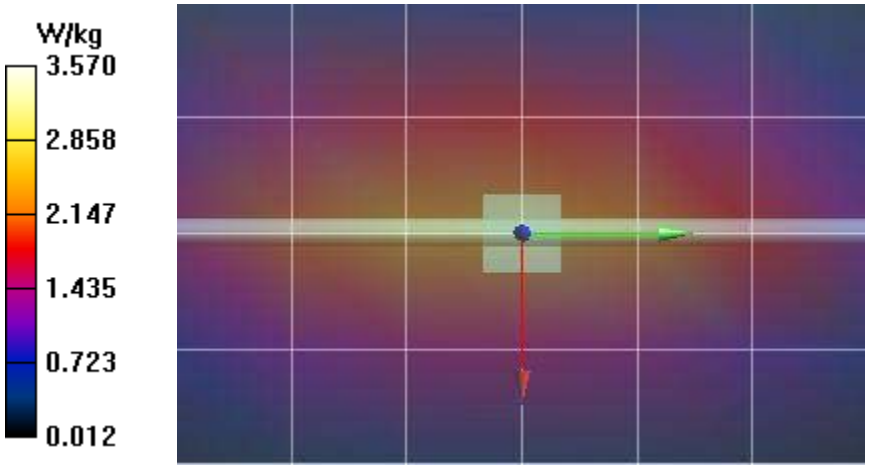
**Frequency: 835 MHz**

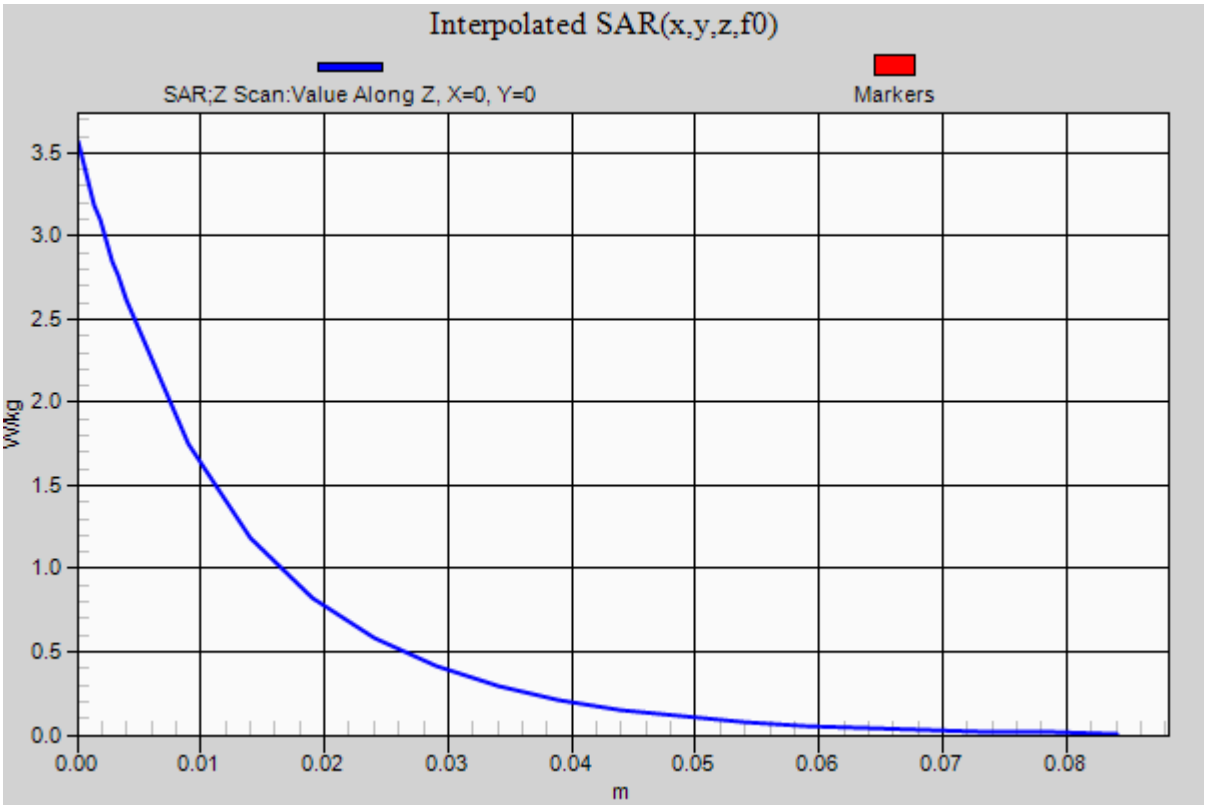
**SPC/SPC 835B,Target=2.41W/kg,1.55W/kg,Input 250mW/Area Scan (5x7x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.62 W/kg

**SPC/SPC 835B,Target=2.41W/kg,1.55W/kg,Input 250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 54.45 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 3.72 W/kg
**SAR(1 g) = 2.46 W/kg; SAR(10 g) = 1.6 W/kg**
Maximum value of SAR (measured) = 2.66 W/kg

**SPC/SPC 835B,Target=2.41W/kg,1.55W/kg,Input 250mW/Z Scan (1x1x28):** Measurement grid: dx=20mm, dy=20mm, dz=5mm
Penetration depth = 12.98 (12.41, 13.71) [mm]
Maximum value of SAR (interpolated) = 3.57 W/kg



Date/Time: 10/4/2019 11:41:36 AM

Test Laboratory: Celltech Labs

**SPC-835H Oct 04 2019**

**DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: D835V2 - SN:4d075**

Communication System: UID 0, CW (0); Communication System Band: FullSpan (0.0 - 6000.0 MHz); Frequency: 835 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 835 MHz; $\sigma$ = 0.9 S/m; $\varepsilon_r$ = 41; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

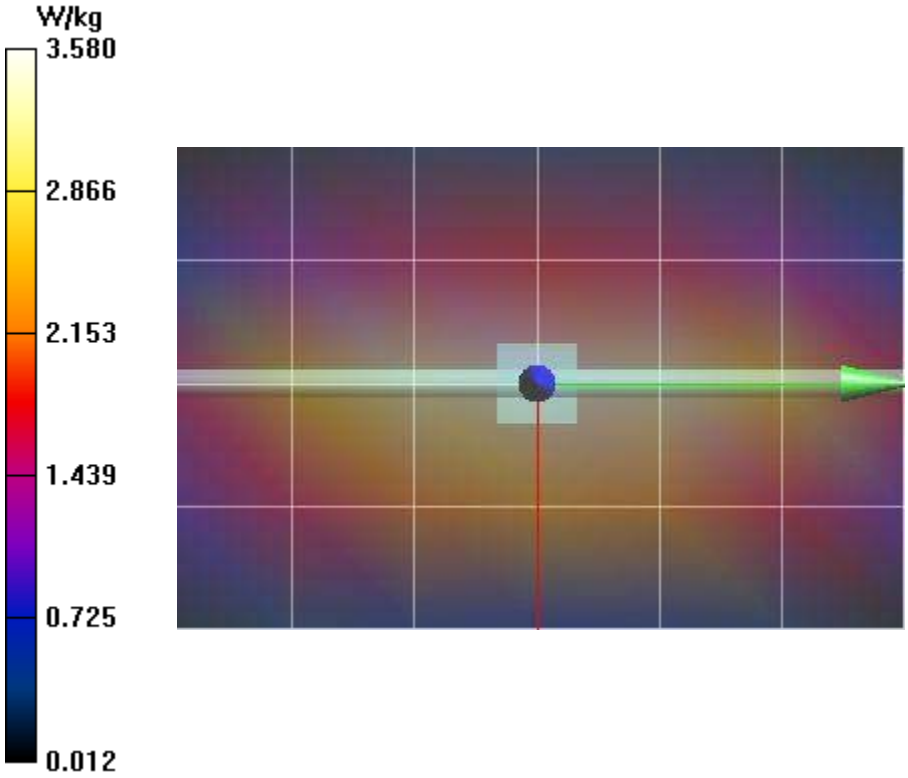
- Probe: EX3DV4 - SN3600; ConvF(7.96, 7.96, 7.96) @ 835 MHz; Calibrated: 3/26/2019
  - Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = -1.5, 31.0, 151.0
- Electronics: DAE4 Sn353; Calibrated: 3/19/2019
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 Ax; Serial: 1234
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

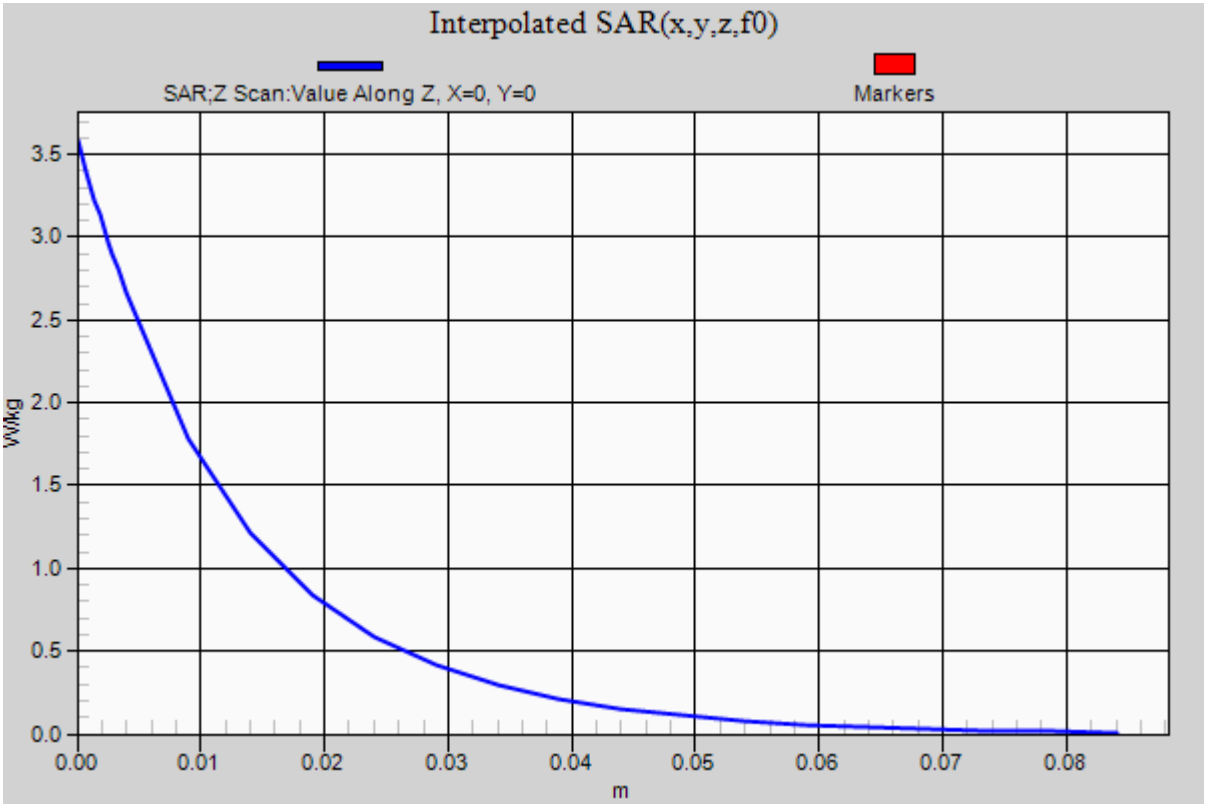
**SPC/SPC 835B,Target=2.41W/kg,1.55W/kg,Input 250mW/Area Scan (5x7x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.67 W/kg

**SPC/SPC 835B,Target=2.41W/kg,1.55W/kg,Input 250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 54.60 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 3.76 W/kg
**SAR(1 g) = 2.5 W/kg; SAR(10 g) = 1.62 W/kg**
Maximum value of SAR (measured) = 2.69 W/kg

**SPC/SPC 835B,Target=2.41W/kg,1.55W/kg,Input 250mW/Z Scan (1x1x28):** Measurement grid: dx=20mm, dy=20mm, dz=5mm
Penetration depth = 12.96 (12.37, 13.59) [mm]
Maximum value of SAR (interpolated) = 3.58 W/kg



Date/Time: 10/15/2019 1:29:42 PM

Test Laboratory: Celltech Labs

**SPC-750H Oct 15 2019**

**DUT: Dipole 750 MHz D750V3; Type: D750V3; Serial: D750V3 - SN:1061**

Communication System: UID 0, CW (0); Communication System Band: FullSpan (0.0 - 6000.0 MHz); Frequency: 750 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 750 MHz; $\sigma$ = 0.84 S/m; $\varepsilon_r$ = 44.06; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

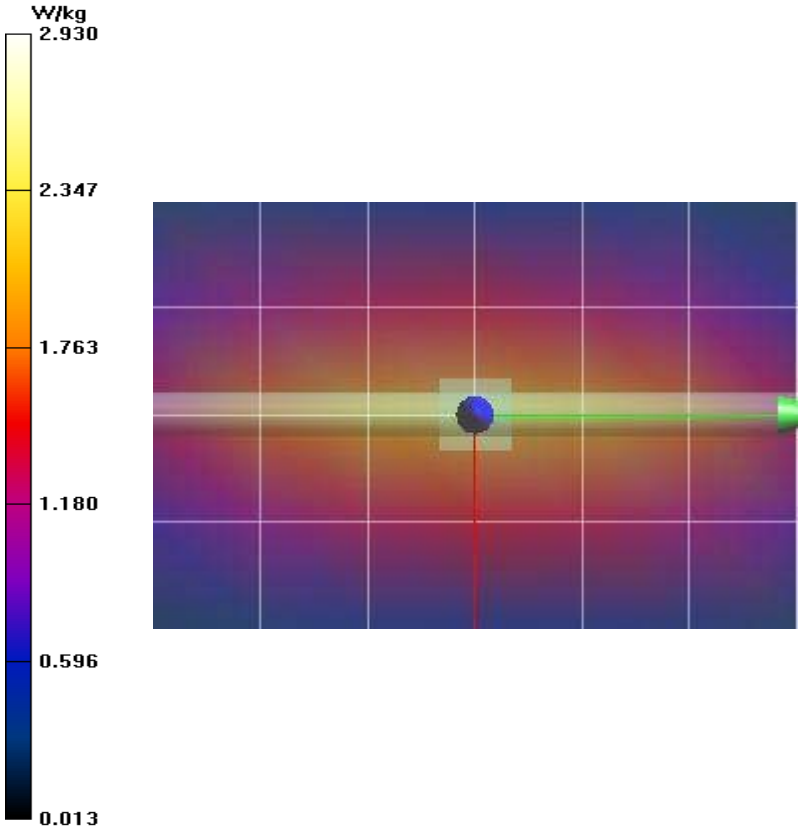
- Probe: EX3DV4 - SN3600; ConvF(8.13, 8.13, 8.13) @ 750 MHz; Calibrated: 3/26/2019
  - Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = -1.5, 31.0, 151.0
- Electronics: DAE4 Sn353; Calibrated: 3/19/2019
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 Ax; Serial: 1234
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

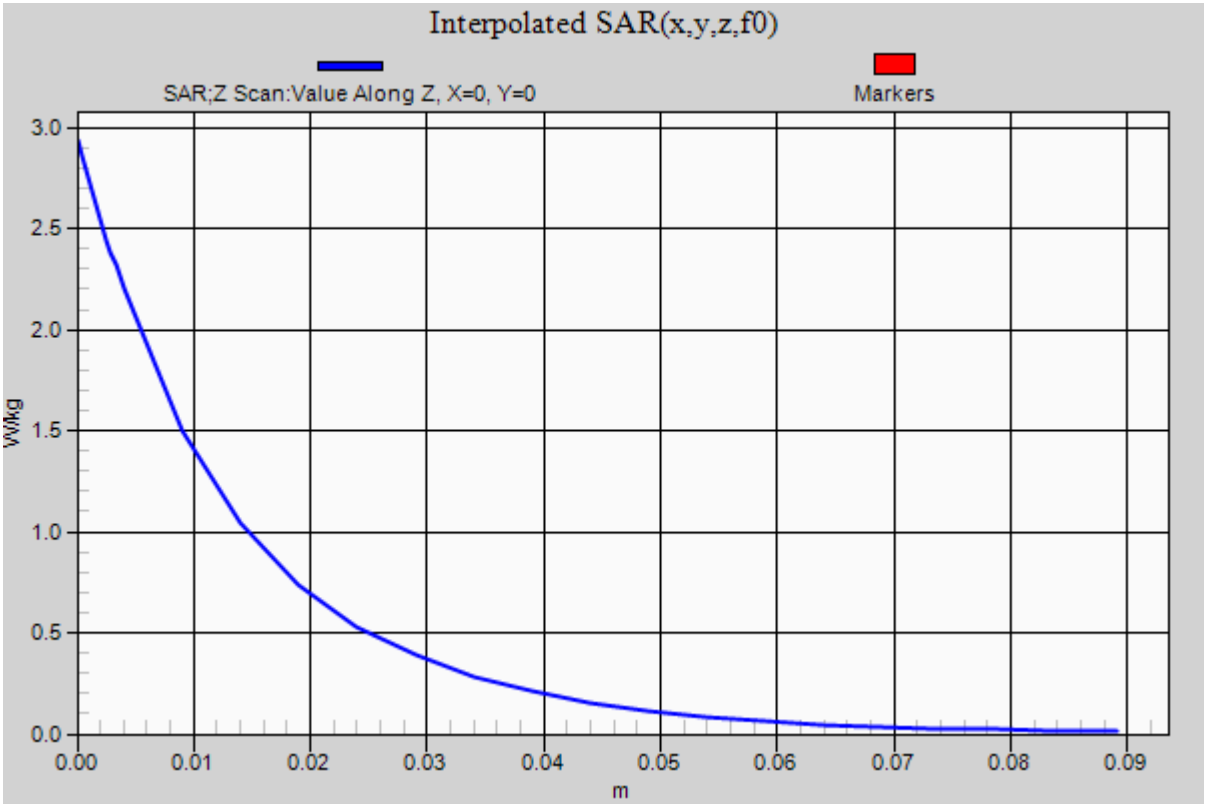
**SPC/SPC 750H,Target=[2.08] [1.37] W/kg,Input 250mW/Area Scan (5x7x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.23 W/kg

**SPC/SPC 750H,Target=[2.08] [1.37] W/kg,Input 250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 51.49 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 3.07 W/kg
**SAR(1 g) = 2.08 W/kg; SAR(10 g) = 1.38 W/kg**
Maximum value of SAR (measured) = 2.24 W/kg

**SPC/SPC 750H,Target=[2.08] [1.37] W/kg,Input 250mW/Z Scan (1x1x29):** Measurement grid: dx=20mm, dy=20mm, dz=5mm
Penetration depth = 13.87 (12.96, 14.60) [mm]
Maximum value of SAR (interpolated) = 2.93 W/kg



Date/Time: 10/18/2019 10:45:52 AM

Test Laboratory: Celltech Labs

**SPC-1800H Oct 18 2019**

**DUT: Dipole 1800 MHz D1800V2; Type: D1800V2; Serial: D1800V2 - SN:247**

Communication System: UID 0, CW (0); Communication System Band: FullSpan (0.0 - 6000.0 MHz); Frequency: 1800 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1800 MHz; $\sigma$ = 1.35 S/m; $\varepsilon_r$ = 38.83; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

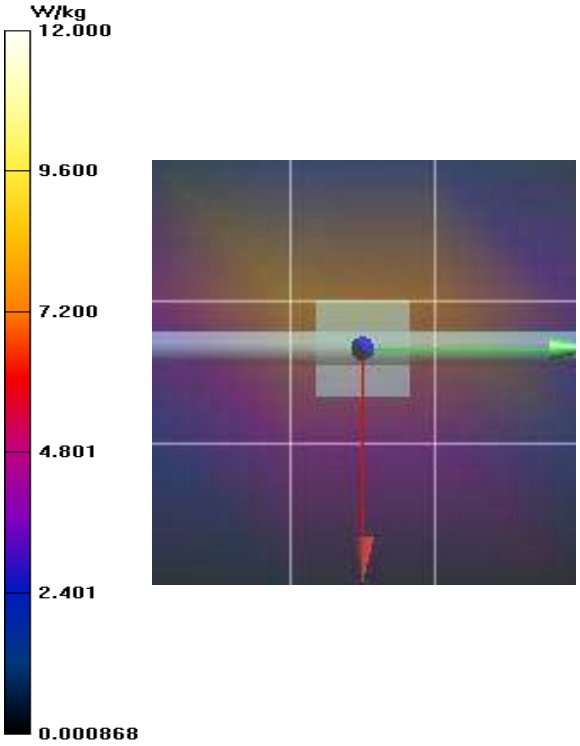
- Probe: EX3DV4 - SN3600; ConvF(7.22, 7.22, 7.22) @ 1800 MHz; Calibrated: 3/26/2019
  - Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 16.0, 31.0, 151.0
- Electronics: DAE4 Sn353; Calibrated: 3/19/2019
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 Ax; Serial: 1234
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

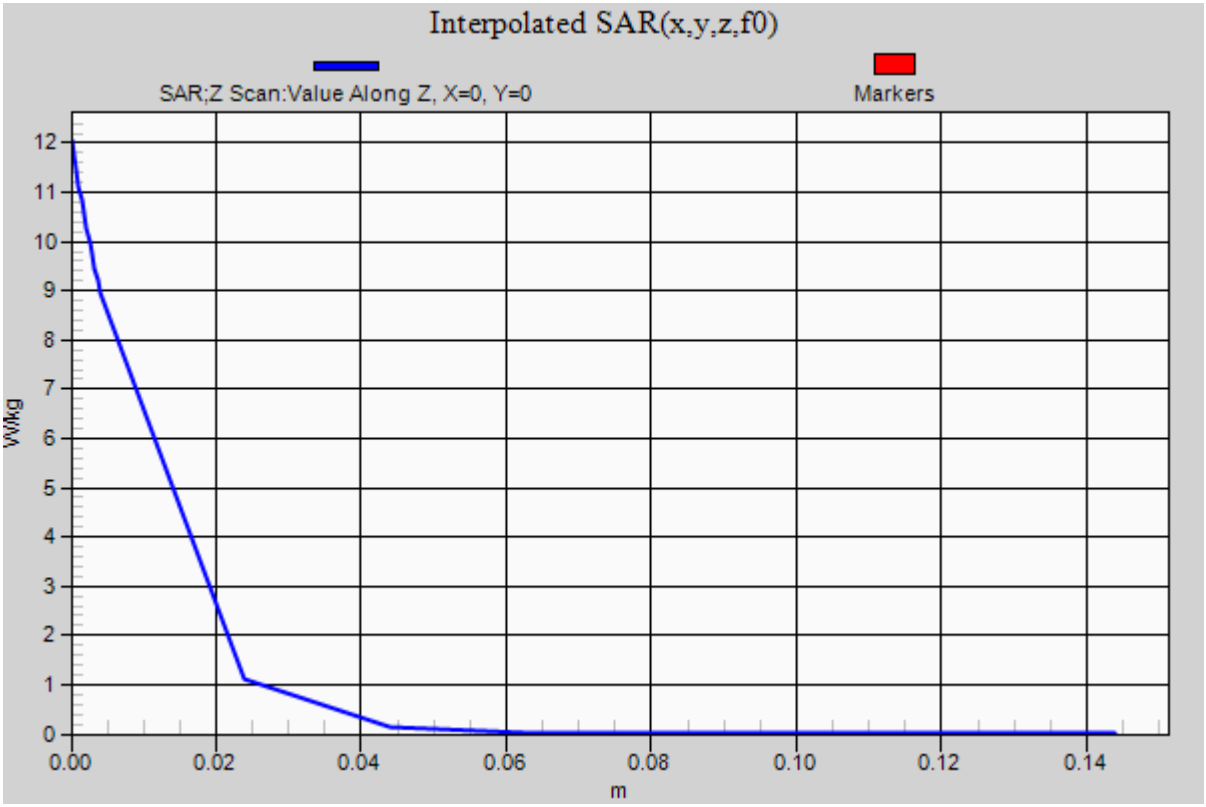
**SPC/SPC 1800H Input=250mW, Target=[9.63][5.03]W/kg/Area Scan (4x4x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 10.8 W/kg

**SPC/SPC 1800H Input=250mW, Target=[9.63][5.03]W/kg/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 81.55 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 18.0 W/kg
**SAR(1 g) = 9.86 W/kg; SAR(10 g) = 5.17 W/kg**
Maximum value of SAR (measured) = 11.1 W/kg

**SPC/SPC 1800H Input=250mW, Target=[9.63][5.03]W/kg/Z Scan (1x1x19):** Measurement grid: dx=20mm, dy=20mm, dz=20mm
Penetration depth = n/a (n/a, 9.616) [mm]
Maximum value of SAR (interpolated) = 12.0 W/kg



## APPENDIX B – MEASUREMENT PLOTS OF MAXIMUM MEASURED SAR

**B177**

Date/Time: 10/18/2019 3:03:00 PM

Test Laboratory: Celltech Labs

**Harris EVM3-U15 Compliance Band 4&66&2 LTE EVAL- Oct 18 2019**

**DUT: EVM3-U13; Type: PTT;** Communication System: UID 10169 - CAE, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Communication System Band: Band 2, E-UTRA/FDD (1850.0 - 1910.0 MHz); Frequency: 1900 MHz;Communication System PAR: 5.73 dB; PMF: 1.13894
Medium parameters used: f = 1900 MHz; $\sigma$ = 1.44 S/m; $\varepsilon_r$ = 38.36; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

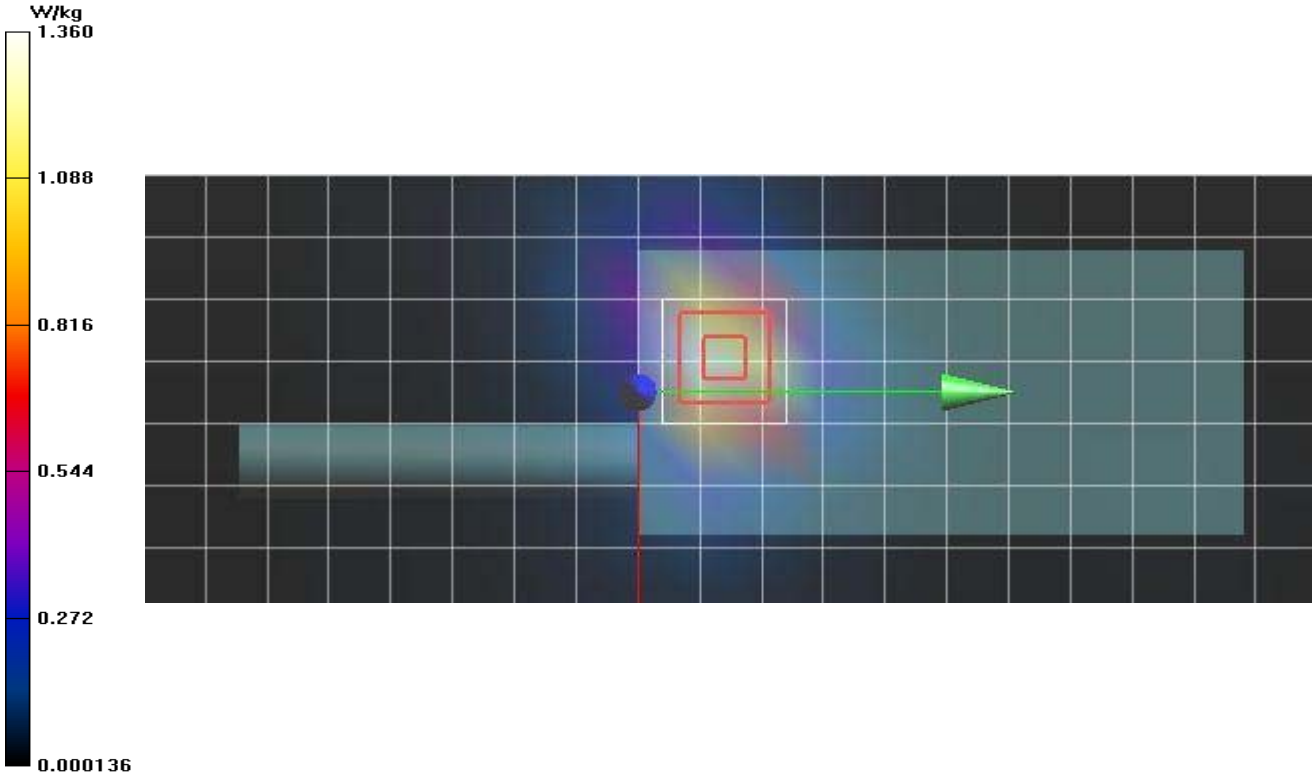
DASY Configuration:

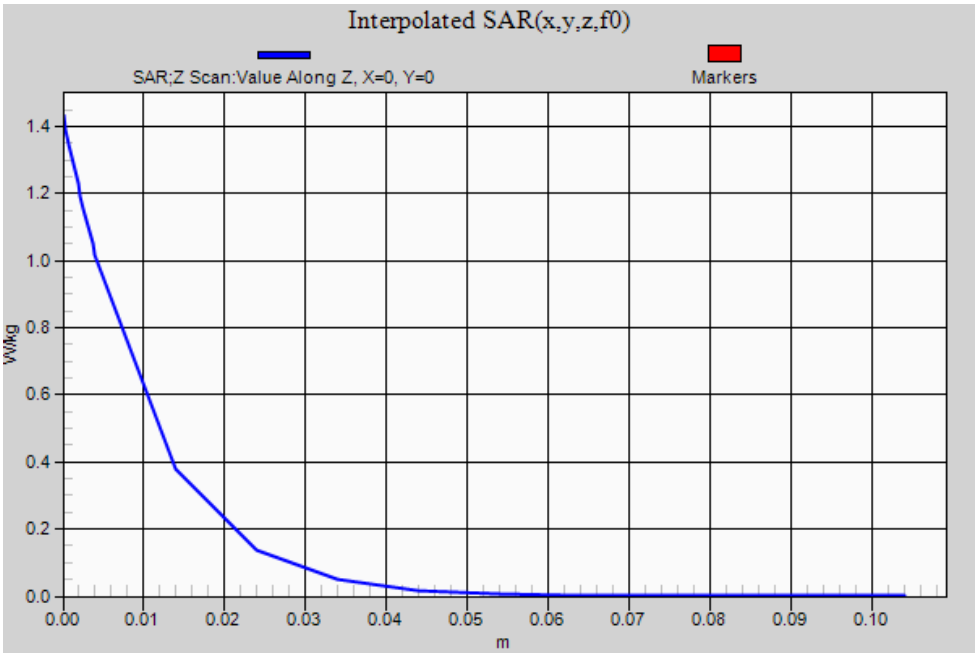
- Probe: EX3DV4 - SN3600; ConvF(7.22, 7.22, 7.22) @ 1900 MHz; Calibrated: 3/26/2019
  - Modulation Compensation: PMR for UID 10169 - CAE, Calibrated: 3/26/2019
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = -1.5, 31.0, 151.0
- Electronics: DAE4 Sn353; Calibrated: 3/19/2019
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 Ax; Serial: 1234
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

**1800H/B177 - BODY, Harris EVM3 U13, P7, T9,B1, LTE B2, BW-20, CH-H, RB1-M, 1900 MHz 2 2/Area Scan (8x20x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.36 W/kg

**1800H/B177 - BODY, Harris EVM3 U13, P7, T9,B1, LTE B2, BW-20, CH-H, RB1-M, 1900 MHz 2 2/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 13.41 V/m; Power Drift = -0.31 dB
Peak SAR (extrapolated) = 2.38 W/kg
**SAR(1 g) = 1.39 W/kg; SAR(10 g) = 0.754 W/kg**
Maximum value of SAR (measured) = 1.55 W/kg

**1800H/B177 - BODY, Harris EVM3 U13, P7, T9,B1, LTE B2, BW-20, CH-H, RB1-M, 1900 MHz 2 2/Z Scan (1x1x22):** Measurement grid: dx=20mm, dy=20mm, dz=10mm
Penetration depth = 10.15 (n/a, 9.931) [mm]
Maximum value of SAR (interpolated) = 1.43 W/kg



**Plot F65**

Date/Time: 10/18/2019 12:49:20 PM

Test Laboratory: Celltech Labs

**Harris EVM3-U15 Compliance Band 4&66&2 LTE EVAL- Oct 18 2019**

**DUT: EVM3-U13; Type: PTT;** Communication System: UID 10169 - CAE, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Communication System Band: Band 2, E-UTRA/FDD (1850.0 - 1910.0 MHz); Frequency: 1900 MHz;Communication System PAR: 5.73 dB; PMF: 1.13894
Medium parameters used: f = 1900 MHz; $\sigma$ = 1.44 S/m; $\varepsilon_r$ = 38.36; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

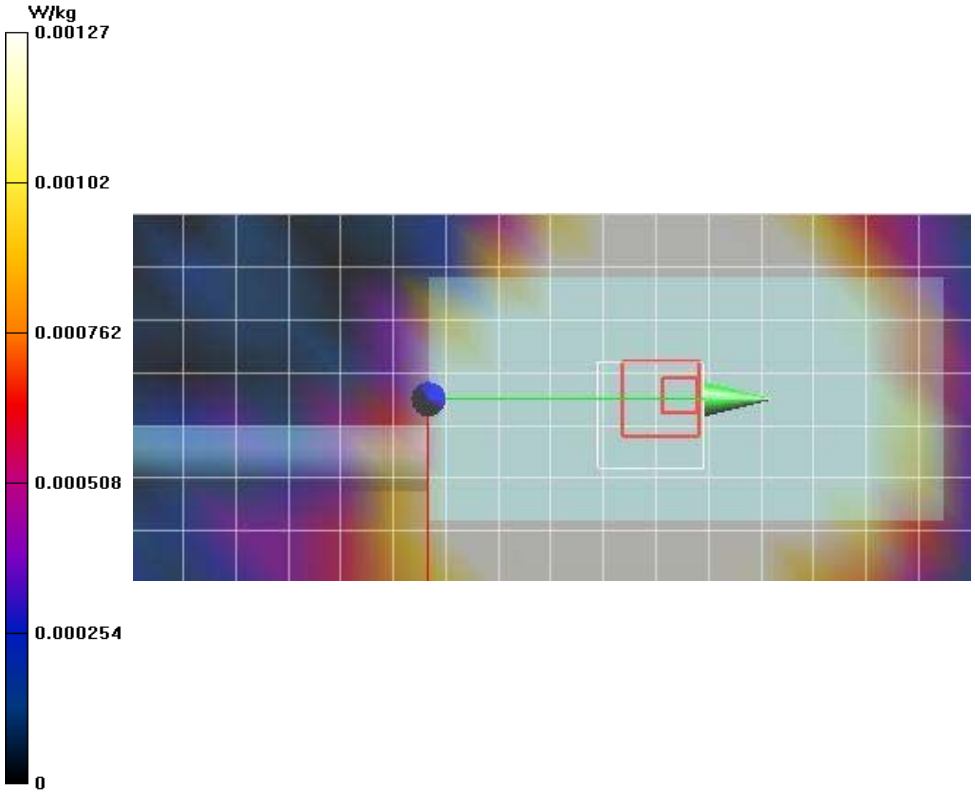
- Probe: EX3DV4 - SN3600; ConvF(7.22, 7.22, 7.22) @ 1900 MHz; Calibrated: 3/26/2019
  - Modulation Compensation: PMR for UID 10169 - CAE, Calibrated: 3/26/2019
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = -1.5, 31.0, 151.0
- Electronics: DAE4 Sn353; Calibrated: 3/19/2019
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 Ax; Serial: 1234
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

**1800H/F65 - FACE, Harris EVM3 U13, P7, T9, LTE B2, BW-20, CH-H, RB1-M, 1900 MHz/Area Scan (8x20x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.00689 W/kg

**1800H/F65 - FACE, Harris EVM3 U13, P7, T9, LTE B2, BW-20, CH-H, RB1-M, 1900 MHz/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 1.440 V/m; Power Drift = 2.19 dB
Peak SAR (extrapolated) = 0.00645 W/kg
**SAR(1 g) = 0.00165 W/kg; SAR(10 g) = 0.000581 W/kg**

Maximum value of SAR (measured) = 0.00199 W/kg

**1800H/F65 - FACE, Harris EVM3 U13, P7, T9, LTE B2, BW-20, CH-H, RB1-M, 1900 MHz/Z Scan (1x1x22):** Measurement grid: dx=20mm, dy=20mm, dz=10mm
Penetration depth = 83.66 (n/a, 163.8) [mm]
Maximum value of SAR (interpolated) = 0.00127 W/kg



**B174**

Date/Time: 10/4/2019 2:06:02 PM

Test Laboratory: Celltech Labs

**Harris EVM3- Compliance Band 5,13,14 LTE EVAL- Oct 04 2019**

**DUT: EVM3-U13; Type: PTT;**

Communication System: UID 10175 - CAG, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK); Communication System Band: Band 5, E-UTRA/FDD (824.0 - 849.0 MHz); Frequency: 836.5 MHz;Communication System PAR: 5.72 dB; PMF: 1.13894
Medium parameters used (interpolated): f = 836.5 MHz; $\sigma$ = 0.902 S/m; $\varepsilon_r$ = 40.988; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: EX3DV4 - SN3600; ConvF(7.96, 7.96, 7.96) @ 836.5 MHz; Calibrated: 3/26/2019
  - Modulation Compensation: PMR for UID 10175 - CAG, Calibrated: 3/26/2019
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = -1.5, 31.0, 151.0
- Electronics: DAE4 Sn353; Calibrated: 3/19/2019
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 Ax; Serial: 1234
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

**835H/B174-BODY, Harris EVM3 U13, P2, T9, B28/STRAP, LTE B5, BW-10, CH-M, RB1-L, 836.5 MHz 2/Area Scan (7x20x1):** Measurement grid: dx=15mm, dy=15mm

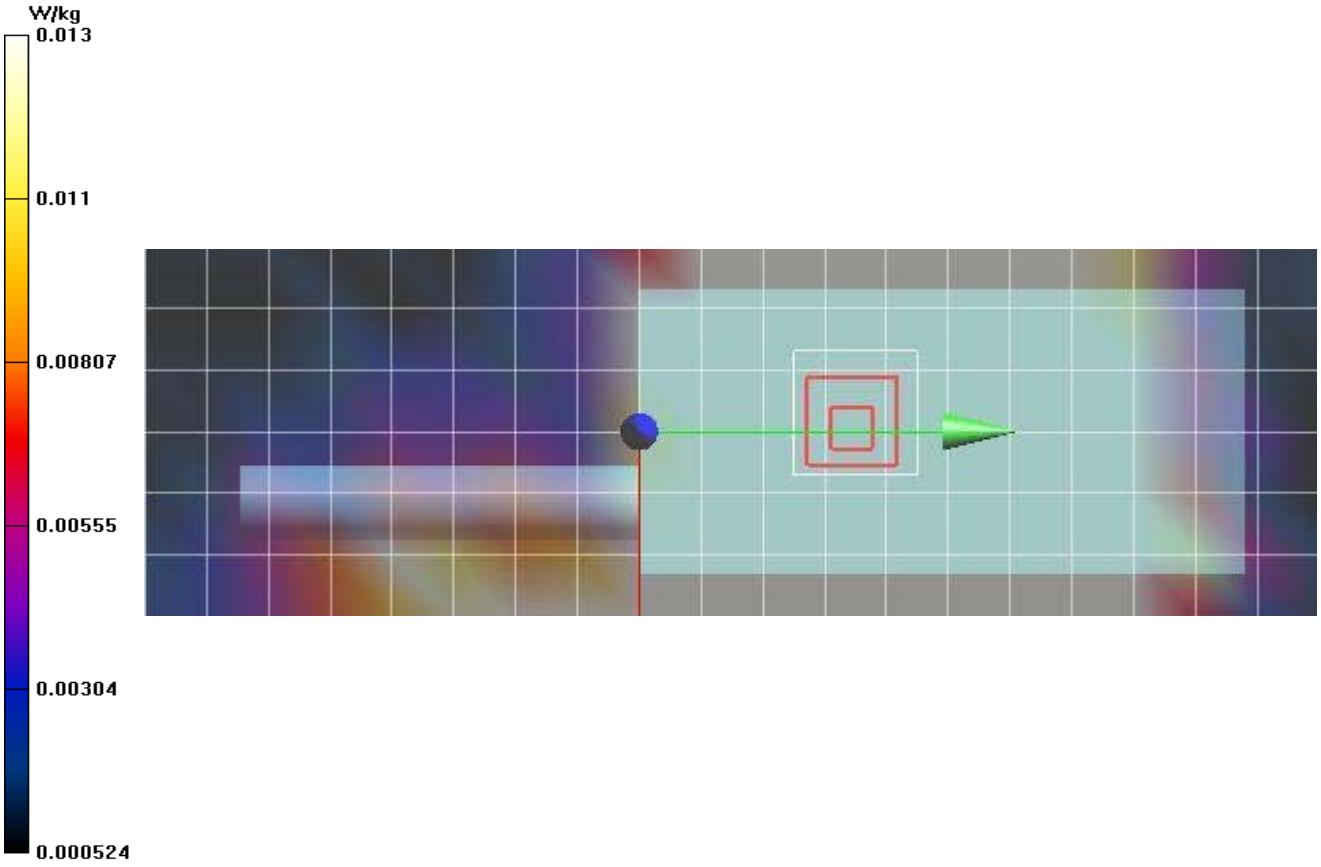
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.308 W/kg

**835H/B174-BODY, Harris EVM3 U13, P2, T9, B28/STRAP, LTE B5, BW-10, CH-M, RB1-L, 836.5 MHz 2/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 5.921 V/m; Power Drift = -4.27 dB
Peak SAR (extrapolated) = 0.588 W/kg
**SAR(1 g) = 0.327 W/kg; SAR(10 g) = 0.187 W/kg**

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.357 W/kg

**835H/B174-BODY, Harris EVM3 U13, P2, T9, B28/STRAP, LTE B5, BW-10, CH-M, RB1-L, 836.5 MHz 2/Z Scan (1x1x28):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Penetration depth = 68.14 (42.59, 88.98) [mm]
Maximum value of SAR (interpolated) = 0.0131 W/kg



**F62**

Date/Time: 10/4/2019 2:37:25 PM

Test Laboratory: Celltech Labs

**Harris EVM3- Compliance Band 5,13,14 LTE EVAL- Oct 04 2019**

**DUT: EVM3-U13; Type: PTT;**

Communication System: UID 10175 - CAG, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK); Communication System Band: Band 5, E-UTRA/FDD (824.0 - 849.0 MHz); Frequency: 836.5 MHz;Communication System PAR: 5.72 dB; PMF: 1.13894
Medium parameters used (interpolated): f = 836.5 MHz; $\sigma$ = 0.902 S/m; $\varepsilon_r$ = 40.988; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: EX3DV4 - SN3600; ConvF(7.96, 7.96, 7.96) @ 836.5 MHz; Calibrated: 3/26/2019
  - Modulation Compensation: PMR for UID 10175 - CAG, Calibrated: 3/26/2019
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = -1.5, 31.0, 151.0
- Electronics: DAE4 Sn353; Calibrated: 3/19/2019
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 Ax; Serial: 1234
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

**835H/F62-FACE, Harris EVM3 U13, P2, T9, LTE B5, BW-10, CH-M, RB1-L, 836.5 MHz/Area Scan (7x13x1):** Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.00389 W/kg

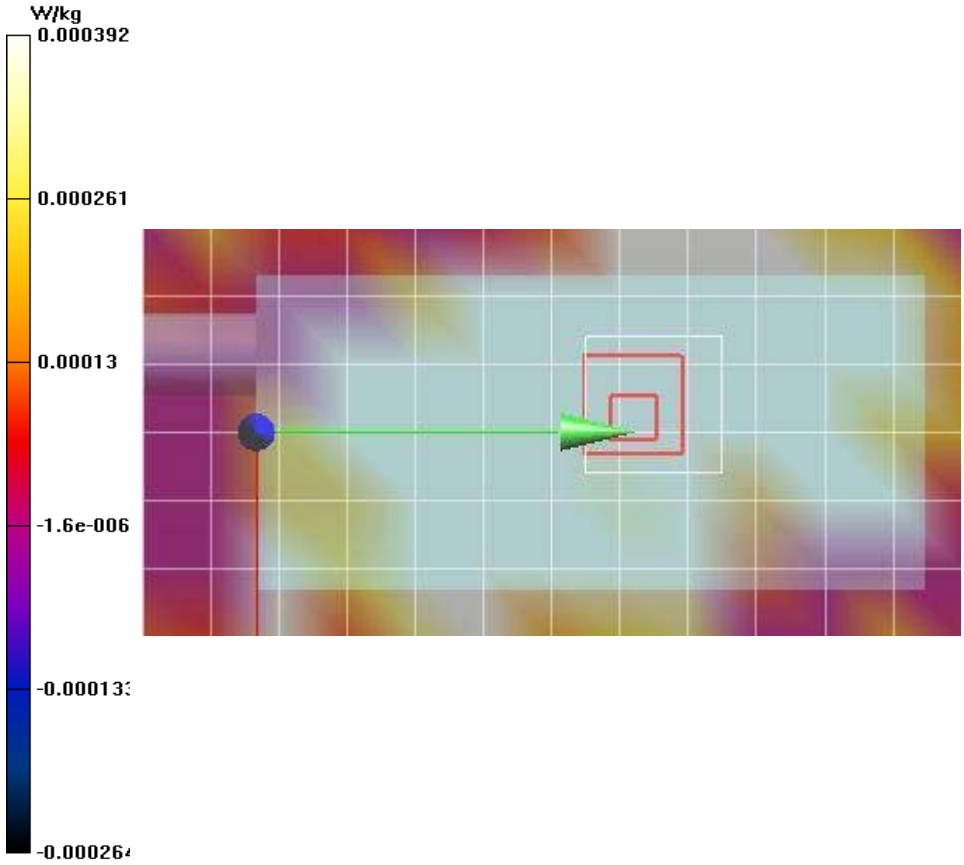
**835H/F62-FACE, Harris EVM3 U13, P2, T9, LTE B5, BW-10, CH-M, RB1-L, 836.5 MHz/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 0.7420 V/m; Power Drift = 0.48 dB
Peak SAR (extrapolated) = 0.00551 W/kg
**SAR(1 g) = 0.00387 W/kg; SAR(10 g) = 0.00279 W/kg**

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.00427 W/kg

**835H/F62-FACE, Harris EVM3 U13, P2, T9, LTE B5, BW-10, CH-M, RB1-L, 836.5 MHz/Z Scan (1x1x28):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Penetration depth = 0 (0, 32.41) [mm]
Maximum value of SAR (interpolated) = 0.000392 W/kg



**Plot B177**

Date/Time: 10/16/2019 12:20:37 PM

Test Laboratory: Celltech Labs

**Harris EVM3- Compliance Band 12 LTE EVAL- Oct 16 2019**

**DUT: EVM3-U13; Type: PTT;**

Communication System: UID 10175 - CAG, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK); Communication System Band: Band 12, E-UTRA/FDD (699.0 - 716.0 MHz); Frequency: 707.5 MHz;Communication System PAR: 5.72 dB; PMF: 1.13894
Medium parameters used (interpolated): f = 707.5 MHz; $\sigma$ = 0.807 S/m; $\varepsilon_r$ = 44.94; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: EX3DV4 - SN3600; ConvF(8.13, 8.13, 8.13) @ 707.5 MHz; Calibrated: 3/26/2019
  - Modulation Compensation: PMR for UID 10175 - CAG, Calibrated: 3/26/2019
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = -1.5, 31.0, 151.0
- Electronics: DAE4 Sn353; Calibrated: 3/19/2019
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 Ax; Serial: 1234
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

**750H/B177-BODY, Harris EVM3 U13, P7, T9, B28/Strap, LTE B12, BW-10, CH-M, RB1-H, 707.5 MHz/Area Scan (8x17x1):** Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.0298 W/kg

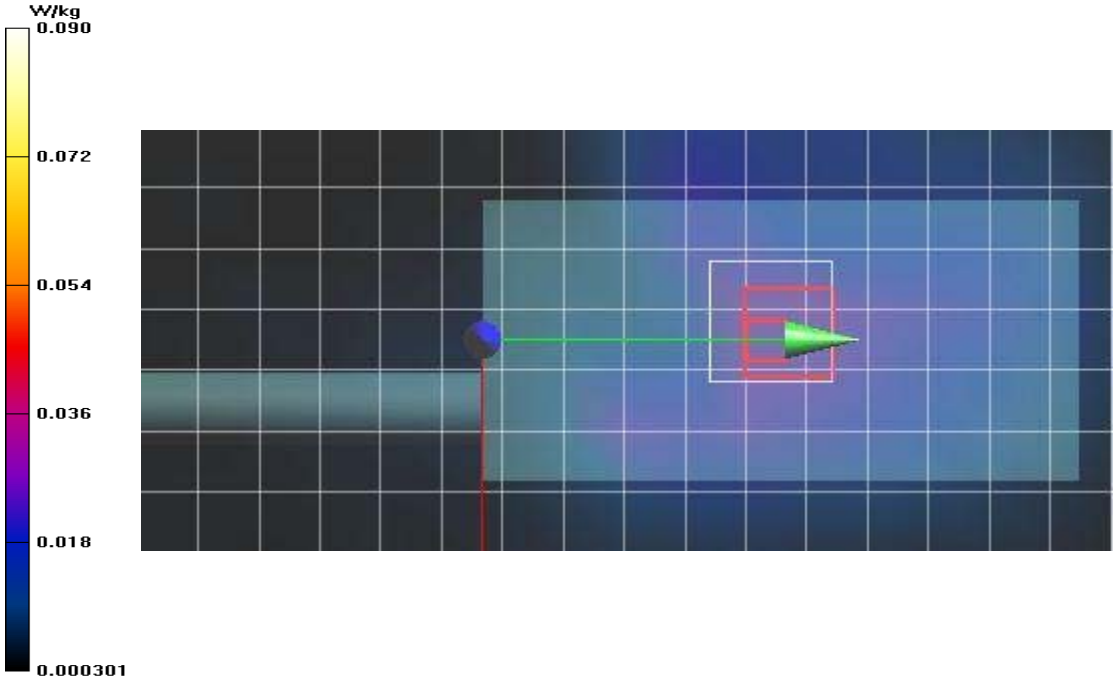
**750H/B177-BODY, Harris EVM3 U13, P7, T9, B28/Strap, LTE B12, BW-10, CH-M, RB1-H, 707.5 MHz/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 2.137 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.0490 W/kg
**SAR(1 g) = 0.033 W/kg; SAR(10 g) = 0.023 W/kg**

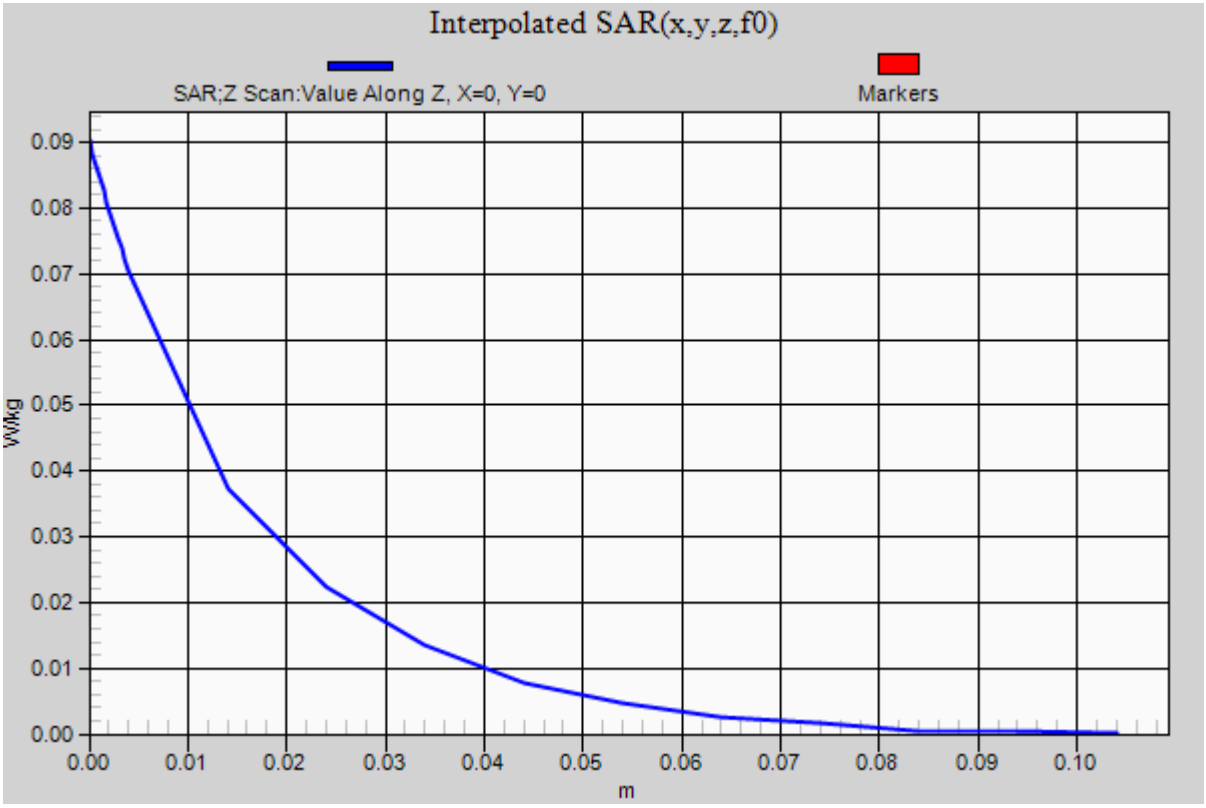
Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.0345 W/kg

**750H/B177-BODY, Harris EVM3 U13, P7, T9, B28/Strap, LTE B12, BW-10, CH-M, RB1-H, 707.5 MHz/Z Scan (1x1x22):** Measurement grid: dx=20mm, dy=20mm, dz=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Penetration depth = 15.57 (n/a, 19.94) [mm]
Maximum value of SAR (interpolated) = 0.0902 W/kg



**Plot F67**

Date/Time: 10/16/2019 12:49:59 PM

Test Laboratory: Celltech Labs

**Harris EVM3- Compliance Band 12 LTE EVAL- Oct 16 2019**

**DUT: EVM3-U13; Type: PTT;**

Communication System: UID 10175 - CAG, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK); Communication System Band: Band 12, E-UTRA/FDD (699.0 - 716.0 MHz); Frequency: 707.5 MHz;Communication System PAR: 5.72 dB; PMF: 1.13894
Medium parameters used (interpolated): f = 707.5 MHz; $\sigma$ = 0.807 S/m; $\varepsilon_r$ = 44.94; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: EX3DV4 - SN3600; ConvF(8.13, 8.13, 8.13) @ 707.5 MHz; Calibrated: 3/26/2019
  - Modulation Compensation: PMR for UID 10175 - CAG, Calibrated: 3/26/2019
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = -1.5, 31.0, 151.0
- Electronics: DAE4 Sn353; Calibrated: 3/19/2019
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 Ax; Serial: 1234
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

**750H/F67-FACE, Harris EVM3 U13, P2, T9, LTE B12, CH-M, RB1-H, 707.5 MHz/Area Scan (8x17x1):** Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.0166 W/kg

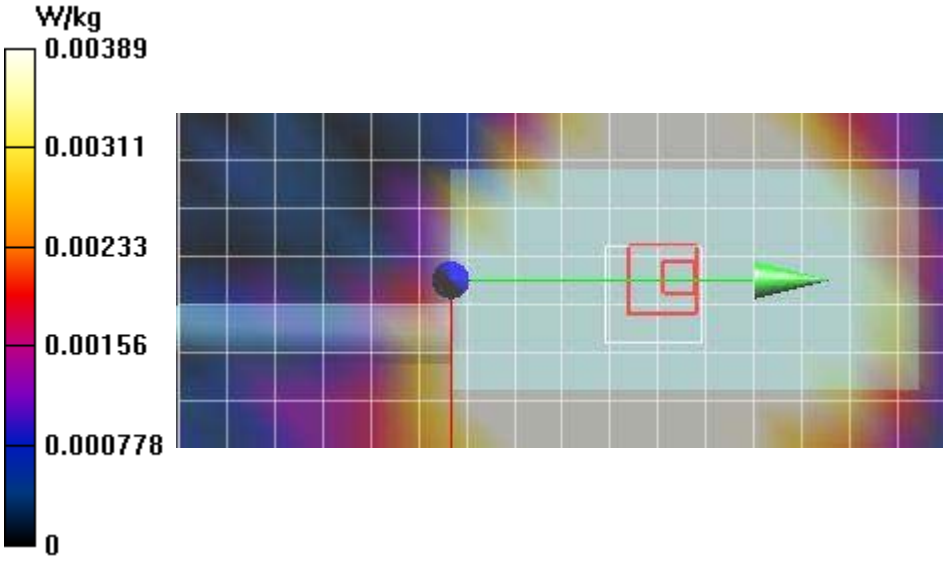
**750H/F67-FACE, Harris EVM3 U13, P2, T9, LTE B12, CH-M, RB1-H, 707.5 MHz/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 1.929 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.0200 W/kg
**SAR(1 g) = 0.015 W/kg; SAR(10 g) = 0.011 W/kg**

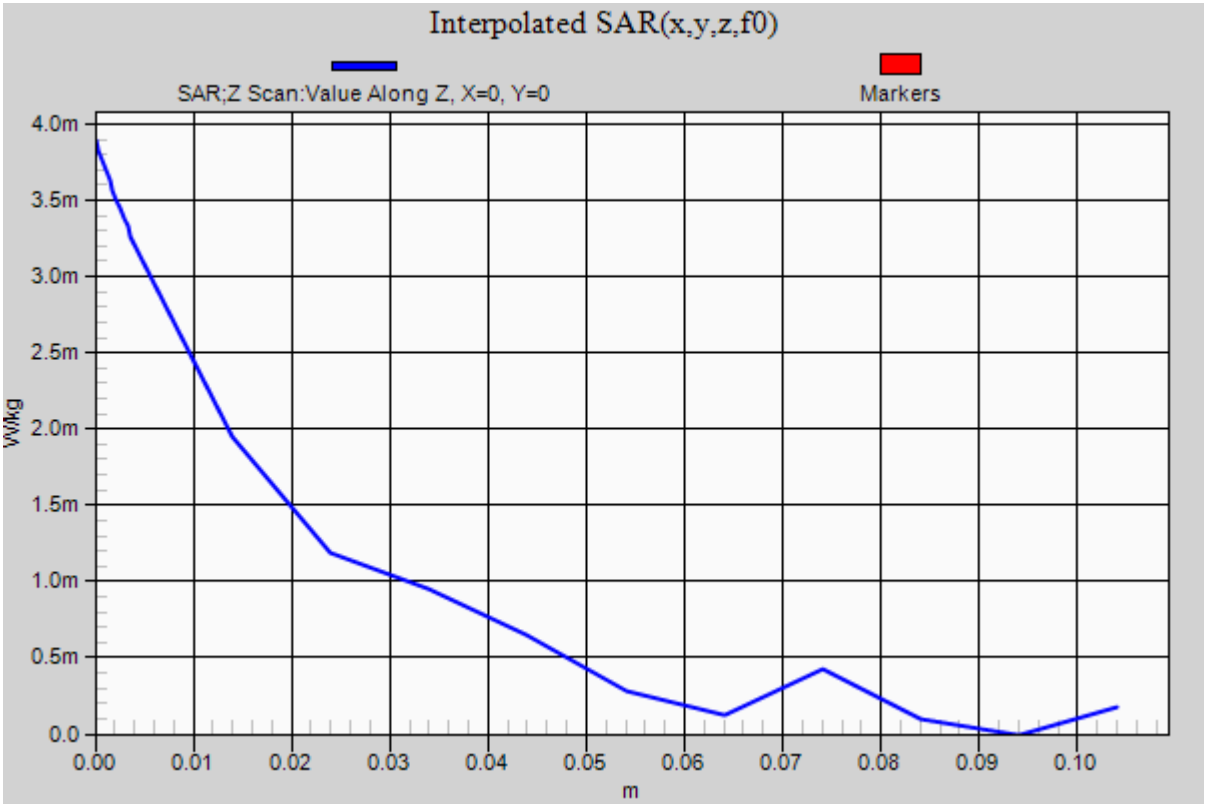
Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.0157 W/kg

**750H/F67-FACE, Harris EVM3 U13, P2, T9, LTE B12, CH-M, RB1-H, 707.5 MHz/Z Scan (1x1x22):** Measurement grid: dx=20mm, dy=20mm, dz=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Penetration depth = 20.06 (n/a, 20.10) [mm]
Maximum value of SAR (interpolated) = 0.00389 W/kg



**Plot B175**

Date/Time: 10/4/2019 3:18:10 PM

Test Laboratory: Celltech Labs

**Harris EVM3- Compliance Band 5,13,14 LTE EVAL- Oct 04 2019**

**DUT: EVM3-U13; Type: PTT;**

Communication System: UID 10154 - CAG, LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK); Communication System Band: Band 13, E-UTRA/FDD (777.0 - 787.0 MHz); Frequency: 782 MHz;Communication System PAR: 5.75 dB; PMF: 1.01391
Medium parameters used (interpolated): f = 782 MHz; $\sigma$ = 0.854 S/m; $\varepsilon_r$ = 41.903; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: EX3DV4 - SN3600; ConvF(8.13, 8.13, 8.13) @ 782 MHz; Calibrated: 3/26/2019
  - Modulation Compensation: PMR for UID 10154 - CAG, Calibrated: 3/26/2019
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = -1.5, 31.0, 151.0
- Electronics: DAE4 Sn353; Calibrated: 3/19/2019
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 Ax; Serial: 1234
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

**835H/B175-BODY, Harris EVM3 U13, P7, T9, B28/STRAP, LTE B13, BW-10, CH-M, RB25-L, 782 MHz/Area Scan (7x13x1):** Measurement grid: dx=15mm, dy=15mm

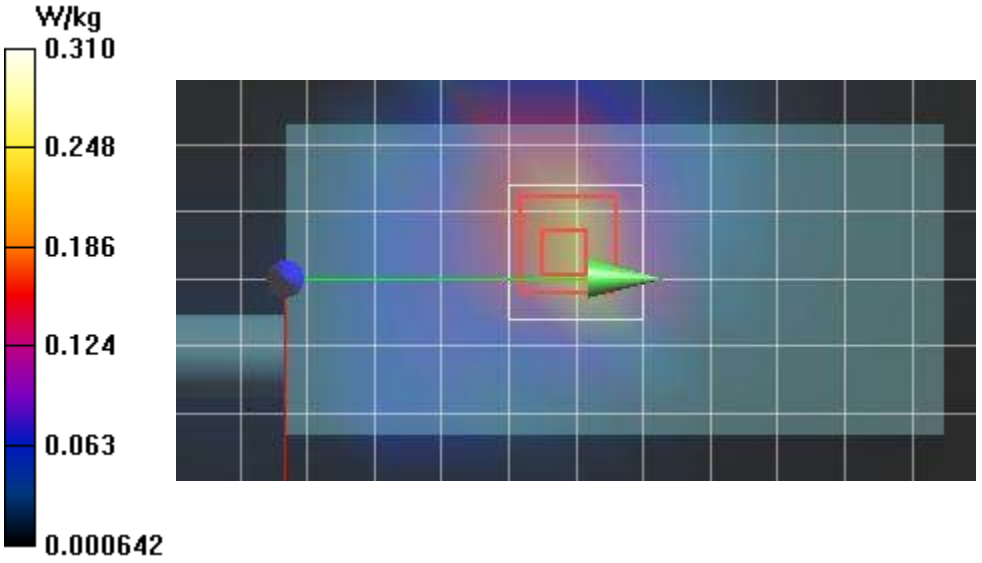
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.213 W/kg

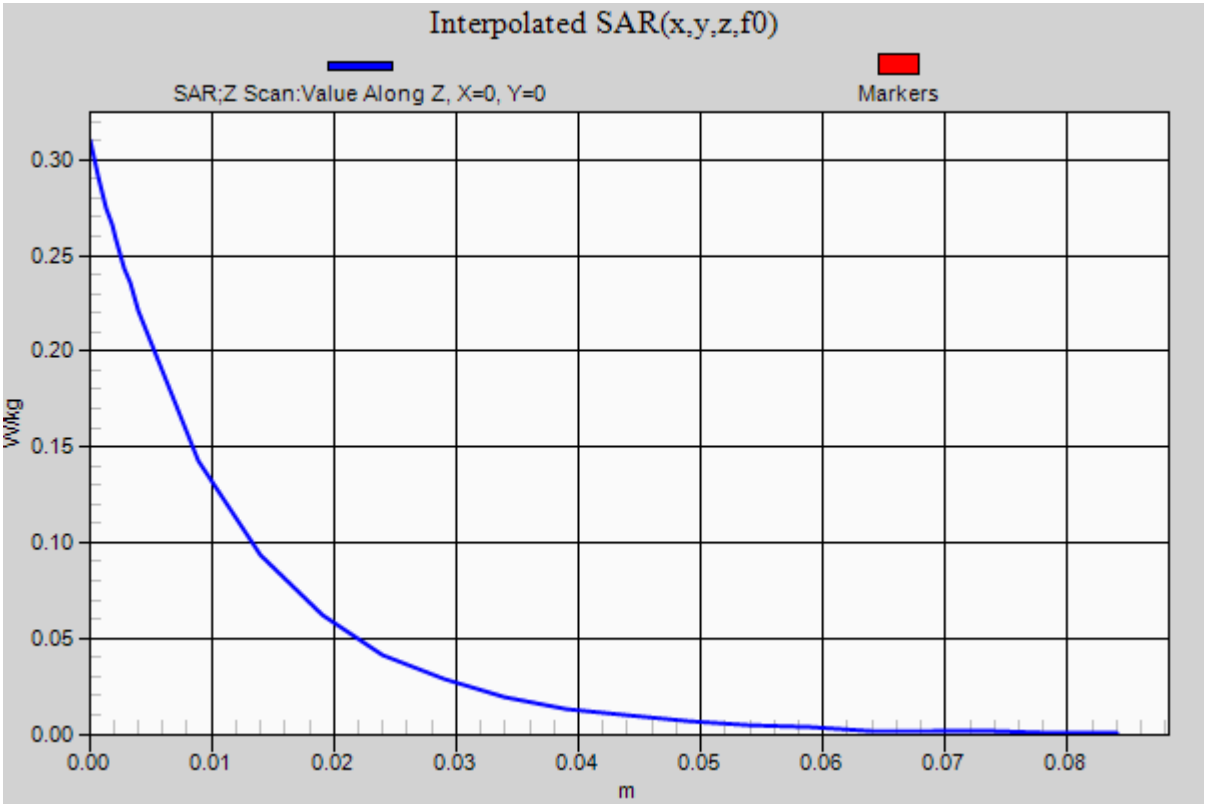
**835H/B175-BODY, Harris EVM3 U13, P7, T9, B28/STRAP, LTE B13, BW-10, CH-M, RB25-L, 782 MHz/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 3.952 V/m; Power Drift = -0.51 dB
Peak SAR (extrapolated) = 0.334 W/kg
**SAR(1 g) = 0.208 W/kg; SAR(10 g) = 0.128 W/kg**

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.223 W/kg

**835H/B175-BODY, Harris EVM3 U13, P7, T9, B28/STRAP, LTE B13, BW-10, CH-M, RB25-L, 782 MHz/Z Scan (1x1x28):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Penetration depth = 11.97 (11.33, 12.17) [mm]
Maximum value of SAR (interpolated) = 0.310 W/kg



**Plot F63**

Date/Time: 10/7/2019 11:22:57 AM

Test Laboratory: Celltech Labs

**Harris EVM3- Compliance Band 5,13,14 LTE EVAL- Oct 07 2019**

**DUT: EVM3-U13; Type: PTT;**

Communication System: UID 10175 - CAG, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK); Communication System Band: Band 13, E-UTRA/FDD (777.0 - 787.0 MHz); Frequency: 782 MHz;Communication System PAR: 5.72 dB; PMF: 1.13894
Medium parameters used (interpolated): f = 782 MHz; $\sigma$ = 0.854 S/m; $\varepsilon_r$ = 41.903; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: EX3DV4 - SN3600; ConvF(8.13, 8.13, 8.13) @ 782 MHz; Calibrated: 3/26/2019
  - Modulation Compensation: PMR for UID 10175 - CAG, Calibrated: 3/26/2019
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = -1.5, 31.0, 151.0
- Electronics: DAE4 Sn353; Calibrated: 3/19/2019
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 Ax; Serial: 1234
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

**835H/F63-FACE, Harris EVM3 U13, P2, T9, LTE B13, BW-10, CH-M, RB1-M, 782 MHz/Area Scan (7x13x1):** Measurement grid: dx=15mm, dy=15mm

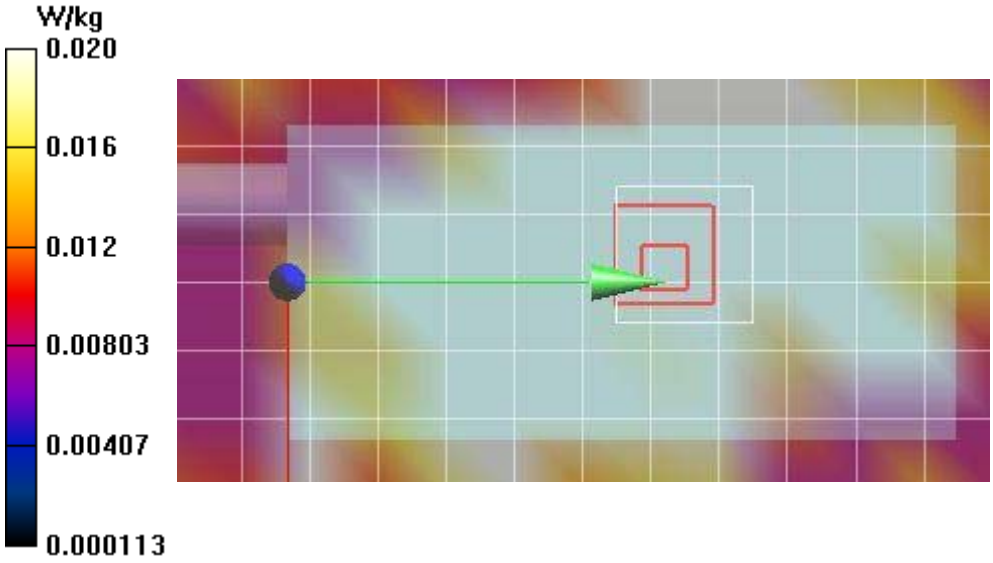
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.0164 W/kg

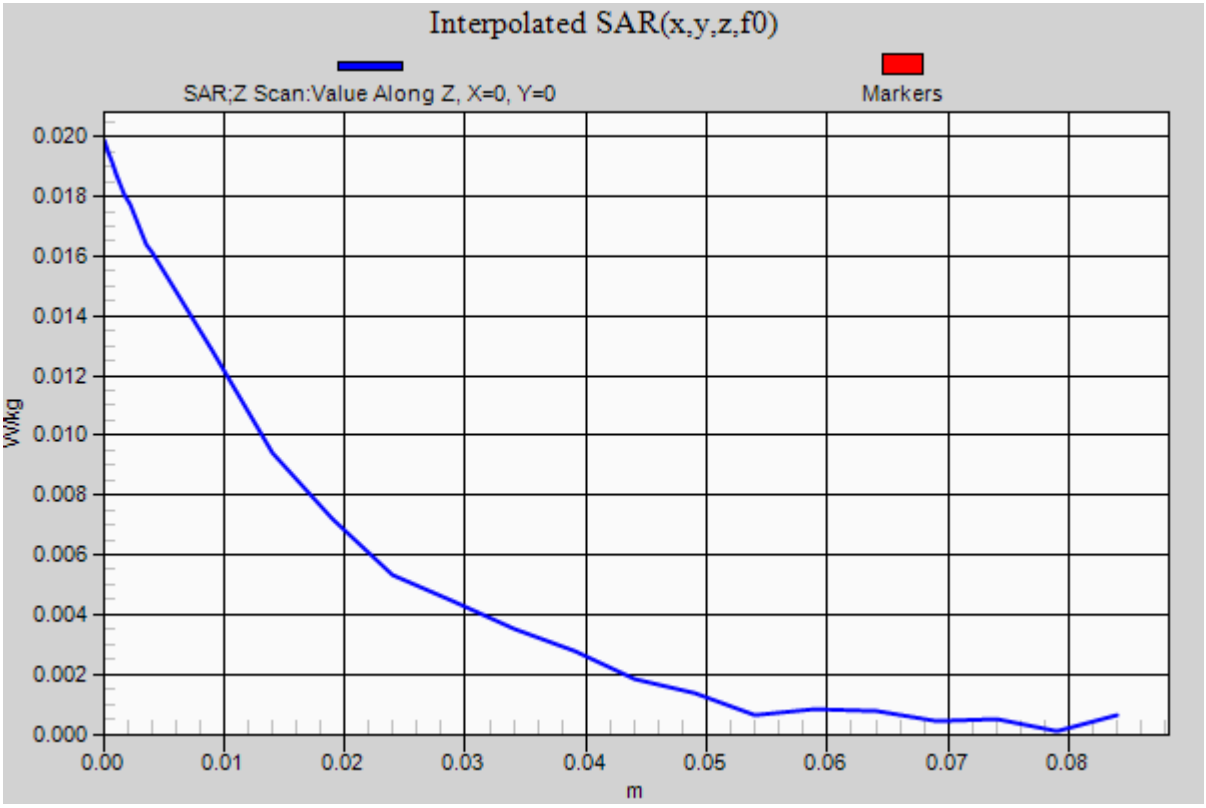
**835H/F63-FACE, Harris EVM3 U13, P2, T9, LTE B13, BW-10, CH-M, RB1-M, 782 MHz/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 4.505 V/m; Power Drift = -0.99 dB
Peak SAR (extrapolated) = 0.0210 W/kg
**SAR(1 g) = 0.016 W/kg; SAR(10 g) = 0.011 W/kg**

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.0163 W/kg

**835H/F63-FACE, Harris EVM3 U13, P2, T9, LTE B13, BW-10, CH-M, RB1-M, 782 MHz/Z Scan (1x1x28):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Penetration depth = 16.24 (22.10, 18.83) [mm]
Maximum value of SAR (interpolated) = 0.0199 W/kg



**Plot B176**

Date/Time: 10/7/2019 1:13:55 PM

Test Laboratory: Celltech Labs

**Harris EVM3- Compliance Band 5,13,14 LTE EVAL- Oct 07 2019**

**DUT: EVM3-U13; Type: PTT;**

Communication System: UID 10175 - CAG, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK); Communication System Band: Band 14, E-UTRA/FDD (788.0 - 798.0 MHz); Frequency: 793 MHz;Communication System PAR: 5.72 dB; PMF: 1.13894
Medium parameters used (interpolated): f = 793 MHz; $\sigma$ = 0.868 S/m; $\varepsilon_r$ = 41.494; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: EX3DV4 - SN3600; ConvF(8.13, 8.13, 8.13) @ 793 MHz; Calibrated: 3/26/2019
  - Modulation Compensation: PMR for UID 10175 - CAG, Calibrated: 3/26/2019
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = -1.5, 31.0, 151.0
- Electronics: DAE4 Sn353; Calibrated: 3/19/2019
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 Ax; Serial: 1234
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

**835H/B176-BODY, Harris EVM3 U13, P2, T9, B1-02, LTE B14, BW-10, CH-M, RB1-H, 793 MHz/Area Scan (7x20x1):** Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.0534 W/kg

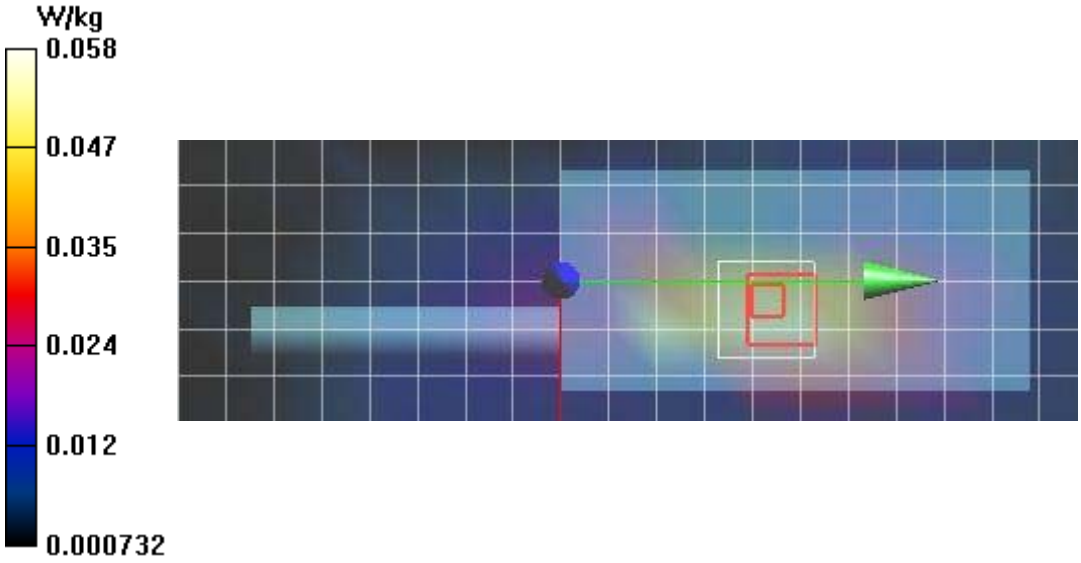
**835H/B176-BODY, Harris EVM3 U13, P2, T9, B1-02, LTE B14, BW-10, CH-M, RB1-H, 793 MHz/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 4.961 V/m; Power Drift = -1.20 dB
Peak SAR (extrapolated) = 0.0590 W/kg
**SAR(1 g) = 0.042 W/kg; SAR(10 g) = 0.029 W/kg**

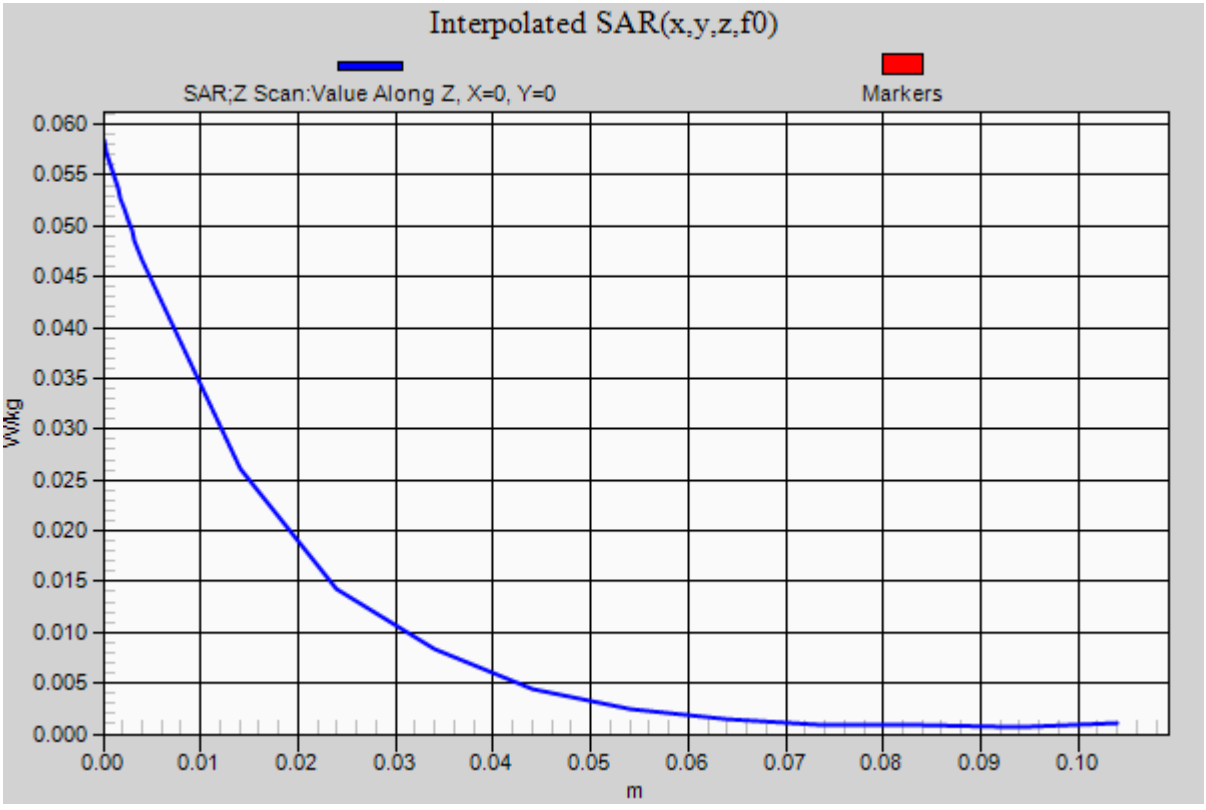
Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.0467 W/kg

**835H/B176-BODY, Harris EVM3 U13, P2, T9, B1-02, LTE B14, BW-10, CH-M, RB1-H, 793 MHz/Z Scan (1x1x22):** Measurement grid: dx=20mm, dy=20mm, dz=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Penetration depth = 17.24 (n/a, 16.73) [mm]
Maximum value of SAR (interpolated) = 0.0584 W/kg



**Plot F64**

Date/Time: 10/7/2019 1:40:15 PM

Test Laboratory: Celltech Labs

**Harris EVM3- Compliance Band 5,13,14 LTE EVAL- Oct 07 2019**

**DUT: EVM3-U13; Type: PTT;**

Communication System: UID 10175 - CAG, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK); Communication System Band: Band 14, E-UTRA/FDD (788.0 - 798.0 MHz); Frequency: 793 MHz;Communication System PAR: 5.72 dB; PMF: 1.13894
Medium parameters used (interpolated): f = 793 MHz; $\sigma$ = 0.868 S/m; $\varepsilon_r$ = 41.494; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: EX3DV4 - SN3600; ConvF(8.13, 8.13, 8.13) @ 793 MHz; Calibrated: 3/26/2019
  - Modulation Compensation: PMR for UID 10175 - CAG, Calibrated: 3/26/2019
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = -1.5, 31.0, 151.0
- Electronics: DAE4 Sn353; Calibrated: 3/19/2019
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 Ax; Serial: 1234
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

**835H/F64-FACE, Harris EVM3 U13, P7, T9, LTE B14, BW-10, CH-M, RB1-H, 793 MHz/Area Scan (7x20x1):** Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.0332 W/kg

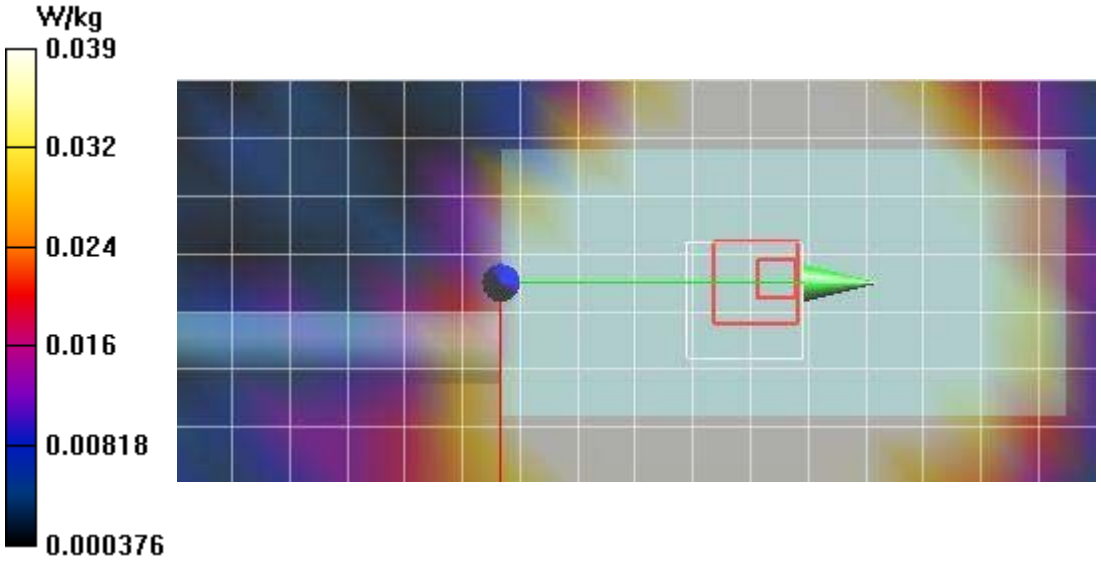
**835H/F64-FACE, Harris EVM3 U13, P7, T9, LTE B14, BW-10, CH-M, RB1-H, 793 MHz/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 2.497 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.0380 W/kg
**SAR(1 g) = 0.030 W/kg; SAR(10 g) = 0.022 W/kg**

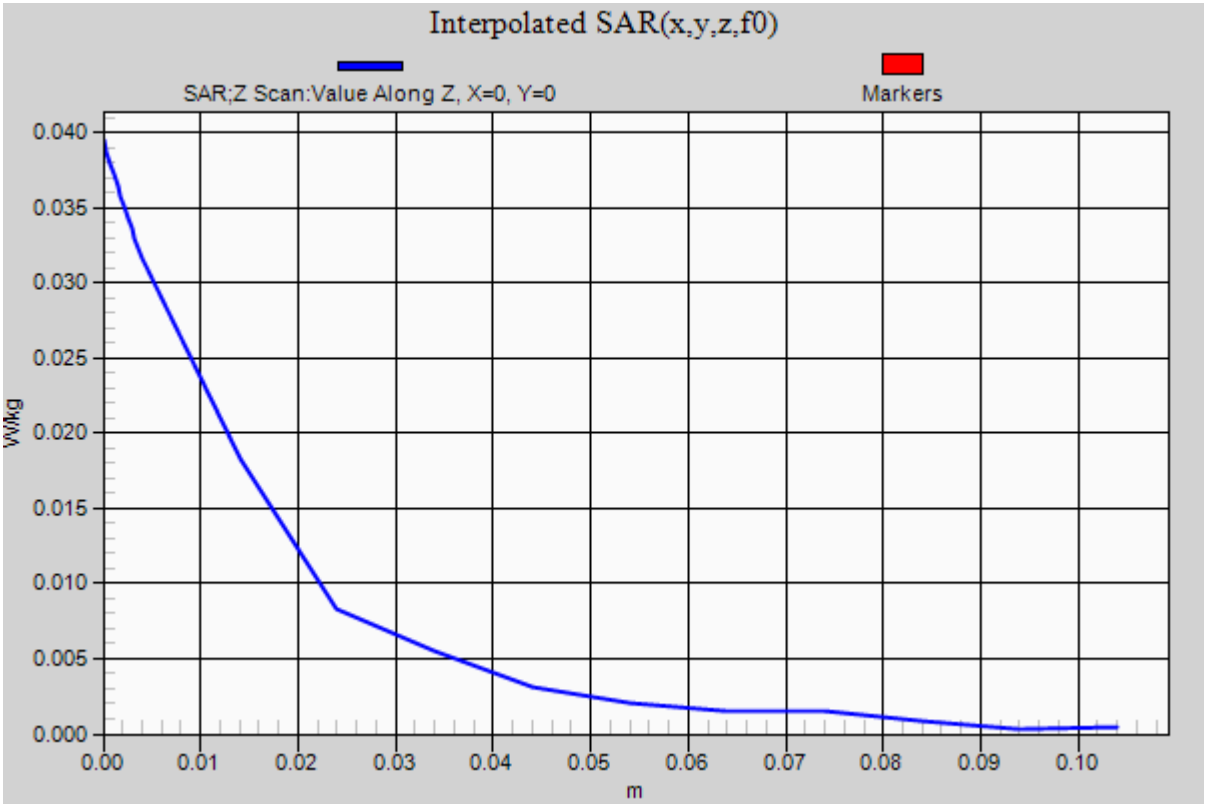
Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.0319 W/kg

**835H/F64-FACE, Harris EVM3 U13, P7, T9, LTE B14, BW-10, CH-M, RB1-H, 793 MHz/Z Scan (1x1x22):** Measurement grid: dx=20mm, dy=20mm, dz=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Penetration depth = 18.35 (n/a, 12.59) [mm]
Maximum value of SAR (interpolated) = 0.0394 W/kg



**Plot B178**

Date/Time: 10/18/2019 1:51:23 PM

Test Laboratory: Celltech Labs

**Harris EVM3-U15 Compliance Band 4&66&2 LTE EVAL- Oct 18 2019**

**DUT: EVM3-U13; Type: PTT;**

Communication System: UID 10169 - CAE, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Communication System Band: Band 66, E-UTRA/FDD (1710.0 - 1780.0 MHz); Frequency: 1770 MHz;Communication System PAR: 5.73 dB; PMF: 1.13894
Medium parameters used: f = 1770 MHz; $\sigma$ = 1.33 S/m; $\varepsilon_r$ = 38.89; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

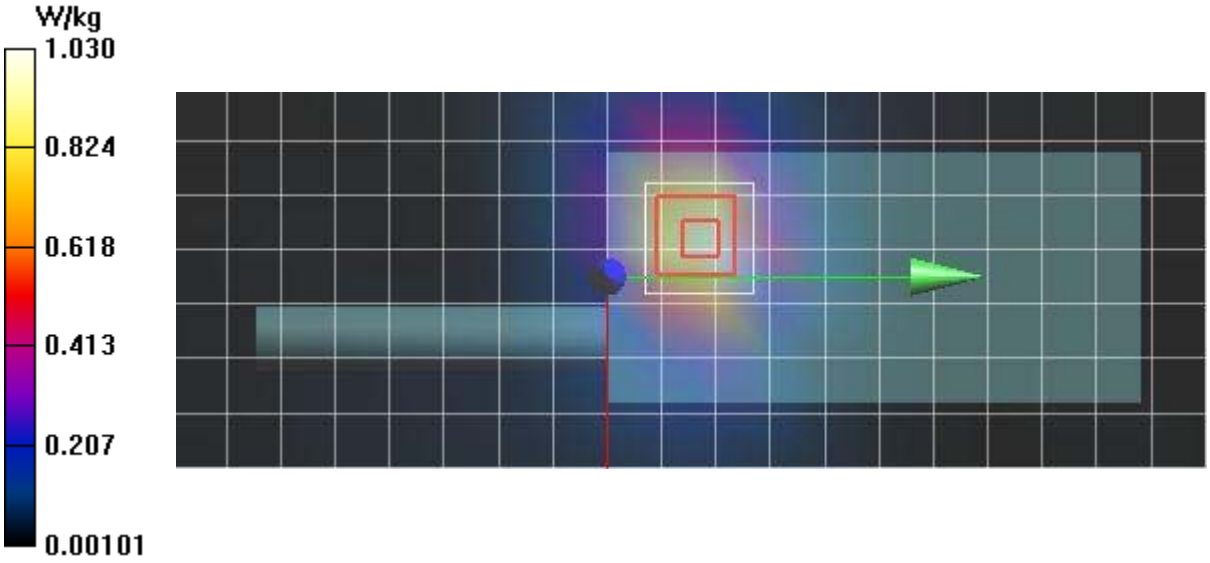
DASY Configuration:

- Probe: EX3DV4 - SN3600; ConvF(7.22, 7.22, 7.22) @ 1770 MHz; Calibrated: 3/26/2019
  - Modulation Compensation: PMR for UID 10169 - CAE, Calibrated: 3/26/2019
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = -1.5, 31.0, 151.0
- Electronics: DAE4 Sn353; Calibrated: 3/19/2019
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 Ax; Serial: 1234
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

**1800H/B178 - BODY, Harris EVM3 U13, P2, T9,B1-02, LTE B66, BW-20, CH-H, RB1-L, 1770 MHz 2/Area Scan (8x20x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.03 W/kg

**1800H/B178 - BODY, Harris EVM3 U13, P2, T9,B1-02, LTE B66, BW-20, CH-H, RB1-L, 1770 MHz 2/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 12.95 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 1.62 W/kg
**SAR(1 g) = 1.02 W/kg; SAR(10 g) = 0.601 W/kg**
Maximum value of SAR (measured) = 1.13 W/kg

**1800H/B178 - BODY, Harris EVM3 U13, P2, T9,B1-02, LTE B66, BW-20, CH-H, RB1-L, 1770 MHz 2/Z Scan (1x1x22):** Measurement grid: dx=20mm, dy=20mm, dz=10mm
Penetration depth = 0 (n/a, 0) [mm]
Maximum value of SAR (interpolated) = 0.000871 W/kg



**Plot F66**

Date/Time: 10/18/2019 2:36:30 PM

Test Laboratory: Celltech Labs

**Harris EVM3-U15 Compliance Band 4&66&2 LTE EVAL- Oct 18 2019**

**DUT: EVM3-U13; Type: PTT;**

Communication System: UID 10169 - CAE, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Communication System Band: Band 66, E-UTRA/FDD (1710.0 - 1780.0 MHz); Frequency: 1770 MHz;Communication System PAR: 5.73 dB; PMF: 1.13894
Medium parameters used: f = 1770 MHz; $\sigma$ = 1.33 S/m; $\varepsilon_r$ = 38.89; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

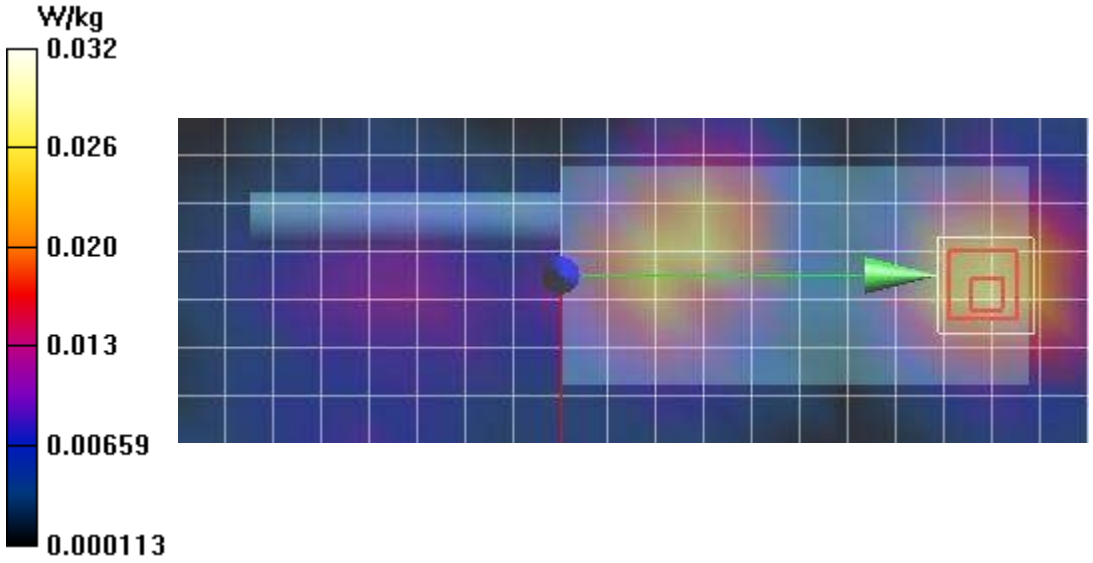
DASY Configuration:

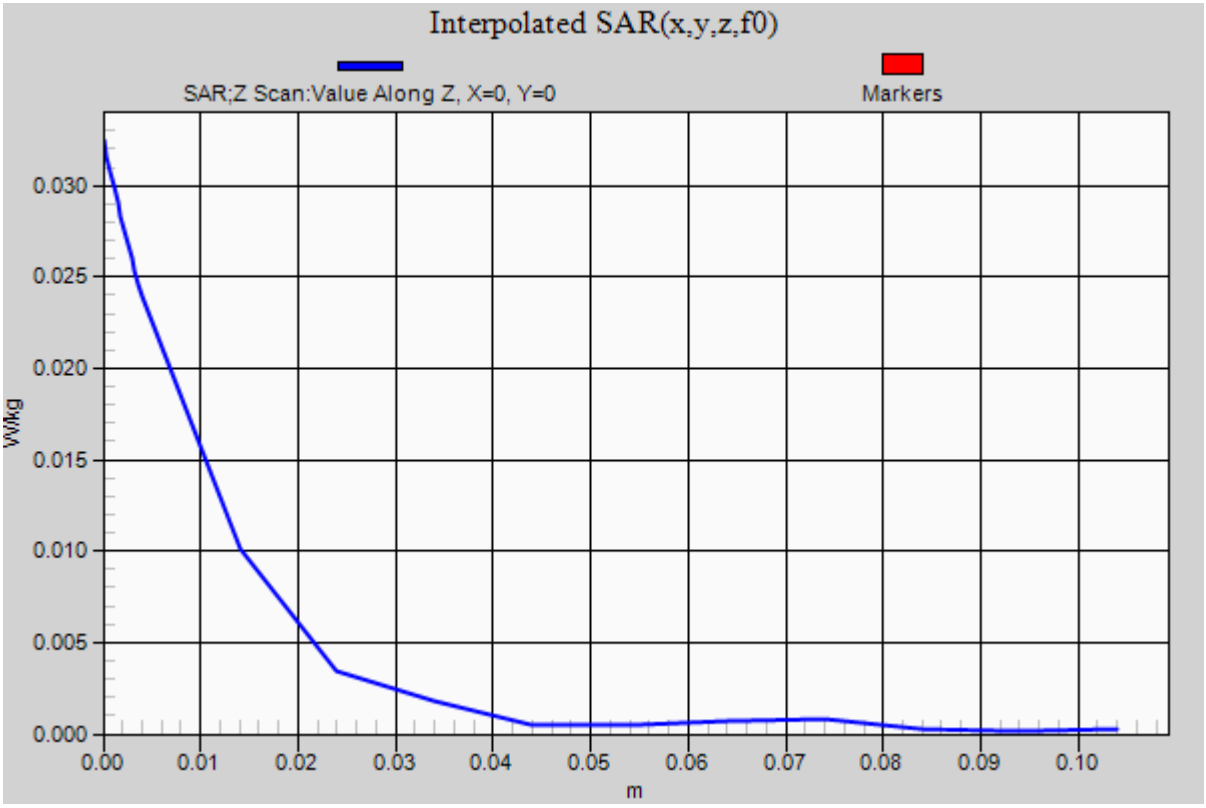
- Probe: EX3DV4 - SN3600; ConvF(7.22, 7.22, 7.22) @ 1770 MHz; Calibrated: 3/26/2019
  - Modulation Compensation: PMR for UID 10169 - CAE, Calibrated: 3/26/2019
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = -1.5, 31.0, 151.0
- Electronics: DAE4 Sn353; Calibrated: 3/19/2019
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 Ax; Serial: 1234
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

**1800H/F66 - FACE, Harris EVM3 U13, P2, T9, LTE B66, BW-20, CH-H, RB1-L, 1770 MHz/Area Scan (8x20x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0262 W/kg

**1800H/F66 - FACE, Harris EVM3 U13, P2, T9, LTE B66, BW-20, CH-H, RB1-L, 1770 MHz/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 2.794 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.0380 W/kg
**SAR(1 g) = 0.024 W/kg; SAR(10 g) = 0.016 W/kg**
Maximum value of SAR (measured) = 0.0251 W/kg

**1800H/F66 - FACE, Harris EVM3 U13, P2, T9, LTE B66, BW-20, CH-H, RB1-L, 1770 MHz/Z Scan (1x1x22):** Measurement grid: dx=20mm, dy=20mm, dz=10mm
Penetration depth = 11.59 (n/a, 9.451) [mm]
Maximum value of SAR (interpolated) = 0.0325 W/kg



**Plot B160**

Date/Time: 8/8/2019 12:27:57 PM

Test Laboratory: Celltech Labs

**Harris EVM3 U15,U44,U43- Compliance LMR 7-8-900 EVAL- Aug 08 2019**

**DUT: EVM3-U13; Type: PTT;**

Communication System: UID 0, CW (0); Communication System Band: 7/8/900; Frequency: 806 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 806 MHz; $\sigma$ = 0.88 S/m; $\varepsilon_r$ = 41.619; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: EX3DV4 - SN3600; ConvF(8.13, 8.13, 8.13) @ 806 MHz; Calibrated: 3/26/2019
  - Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = -1.5, 31.0, 151.0
- Electronics: DAE4 Sn353; Calibrated: 3/19/2019
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 Ax; Serial: 1234
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

**835H/B160 BODY, Harris EVM3 U43, P7, T9, B1-02,A1 LMR, CW, 806MHz/Area Scan (8x18x1):** Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 7.46 W/kg

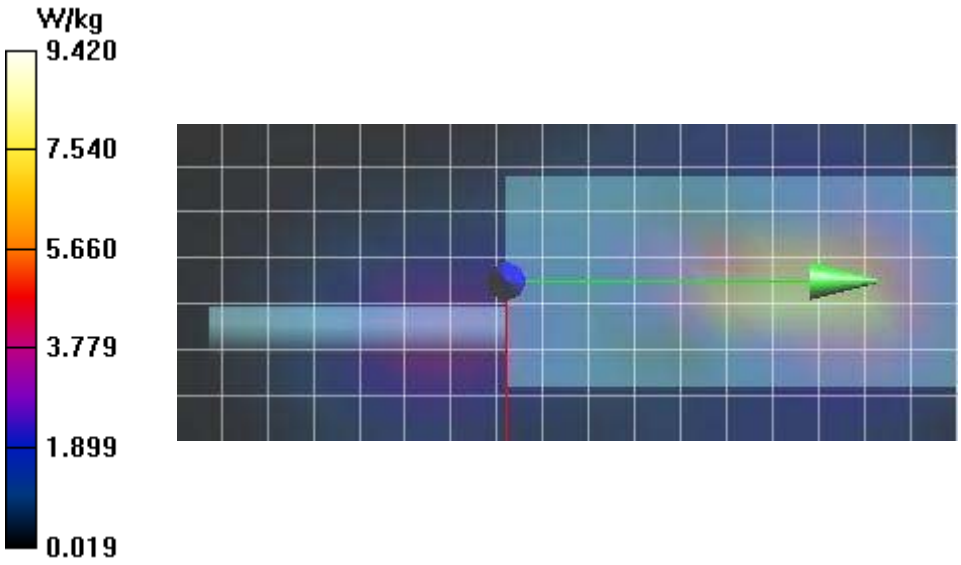
**835H/B160 BODY, Harris EVM3 U43, P7, T9, B1-02,A1 LMR, CW, 806MHz/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 50.50 V/m; Power Drift = -0.32 dB
Peak SAR (extrapolated) = 9.89 W/kg
**SAR(1 g) = 7.26 W/kg; SAR(10 g) = 4.89 W/kg**

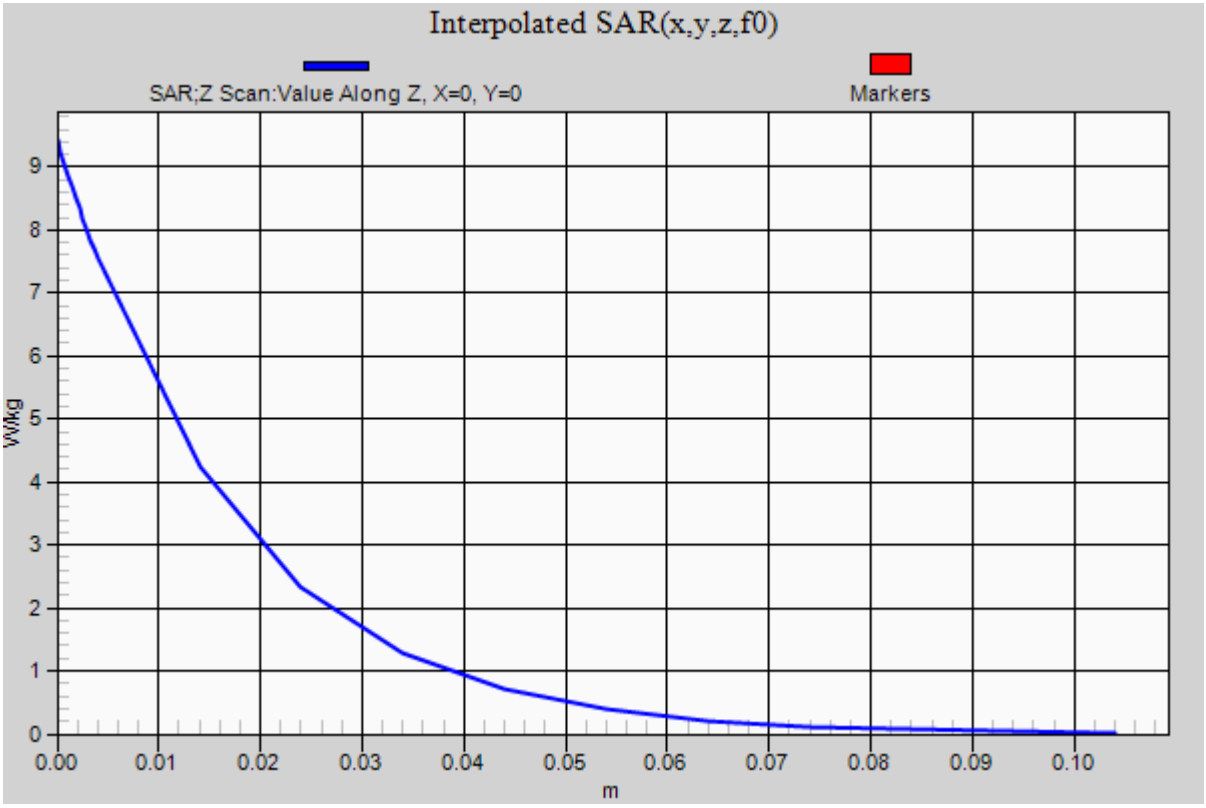
Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 7.59 W/kg

**835H/B160 BODY, Harris EVM3 U43, P7, T9, B1-02,A1 LMR, CW, 806MHz/Z Scan (1x1x22):** Measurement grid: dx=20mm, dy=20mm, dz=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Penetration depth = 17.30 (n/a, 16.75) [mm]
Maximum value of SAR (interpolated) = 9.42 W/kg



**Plot B155**

Date/Time: 10/7/2019 3:02:54 PM

Test Laboratory: Celltech Labs

**Harris EVM3 U15,U44,U43- Compliance LMR 7-8-900 EVAL- Oct 07 2019**

**DUT: EVM3-U43; Type: PTT;**

Communication System: UID 0, CW (0); Communication System Band: 7/8/900; Frequency: 806 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 806 MHz; $\sigma$ = 0.881 S/m; $\varepsilon_r$ = 41.52; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: EX3DV4 - SN3600; ConvF(8.13, 8.13, 8.13) @ 806 MHz; Calibrated: 3/26/2019
  - Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = -1.5, 31.0, 151.0
- Electronics: DAE4 Sn353; Calibrated: 3/19/2019
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 Ax; Serial: 1234
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

**835H/B155 BODY, Harris EVM3 U43, P7, T9, B1-02,A1 LMR, CW, 806MHz/Area Scan (8x20x1):** Measurement grid: dx=15mm, dy=15mm

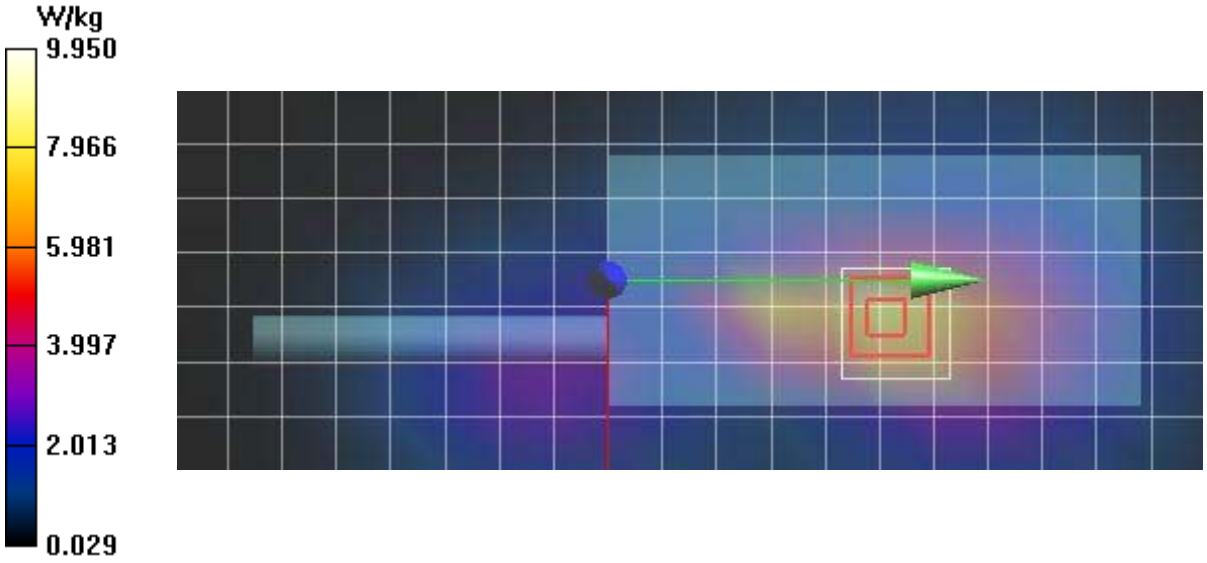
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 7.71 W/kg

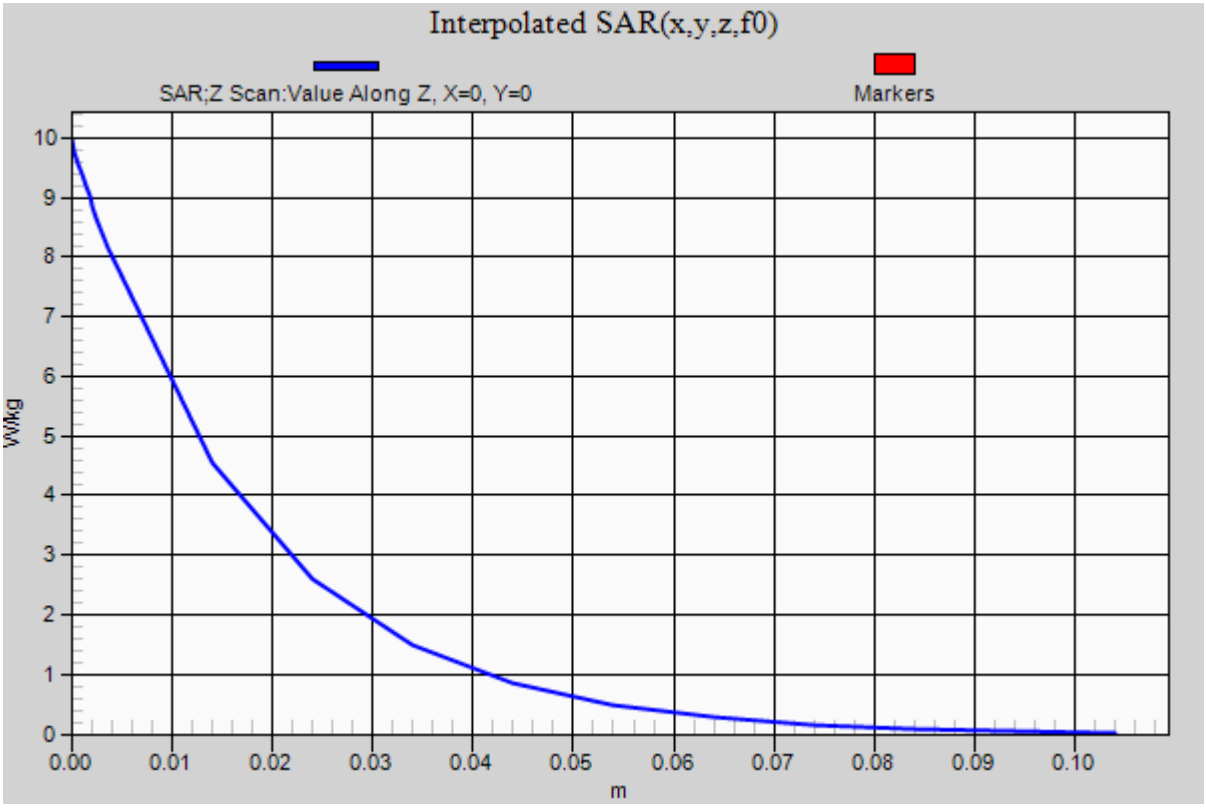
**835H/B155 BODY, Harris EVM3 U43, P7, T9, B1-02,A1 LMR, CW, 806MHz/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 48.05 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 10.1 W/kg
**SAR(1 g) = 7.55 W/kg; SAR(10 g) = 5.33 W/kg**

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 7.98 W/kg

**835H/B155 BODY, Harris EVM3 U43, P7, T9, B1-02,A1 LMR, CW, 806MHz/Z Scan (1x1x22):** Measurement grid: dx=20mm, dy=20mm, dz=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Penetration depth = 17.73 (n/a, 17.91) [mm]
Maximum value of SAR (interpolated) = 9.95 W/kg



**Plot F54**

Date/Time: 8/8/2019 1:31:38 PM

Test Laboratory: Celltech Labs

**Harris EVM3 U15,U44,U43- Compliance LMR 7-8-900 EVAL- Aug 08 2019**

**DUT: EVM3-U13; Type: PTT;**

Communication System: UID 0, CW (0); Communication System Band: 7/8/900; Frequency: 806 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 806 MHz; $\sigma$ = 0.88 S/m; $\varepsilon_r$ = 41.619; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: EX3DV4 - SN3600; ConvF(8.13, 8.13, 8.13) @ 806 MHz; Calibrated: 3/26/2019
  - Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = -1.5, 31.0, 151.0
- Electronics: DAE4 Sn353; Calibrated: 3/19/2019
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 Ax; Serial: 1234
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

**835H/F54-FACE, Harris EVM3 U43, P7, T9, LMR, CW, 806MHz/Area Scan (8x18x1):** Measurement grid: dx=15mm, dy=15mm

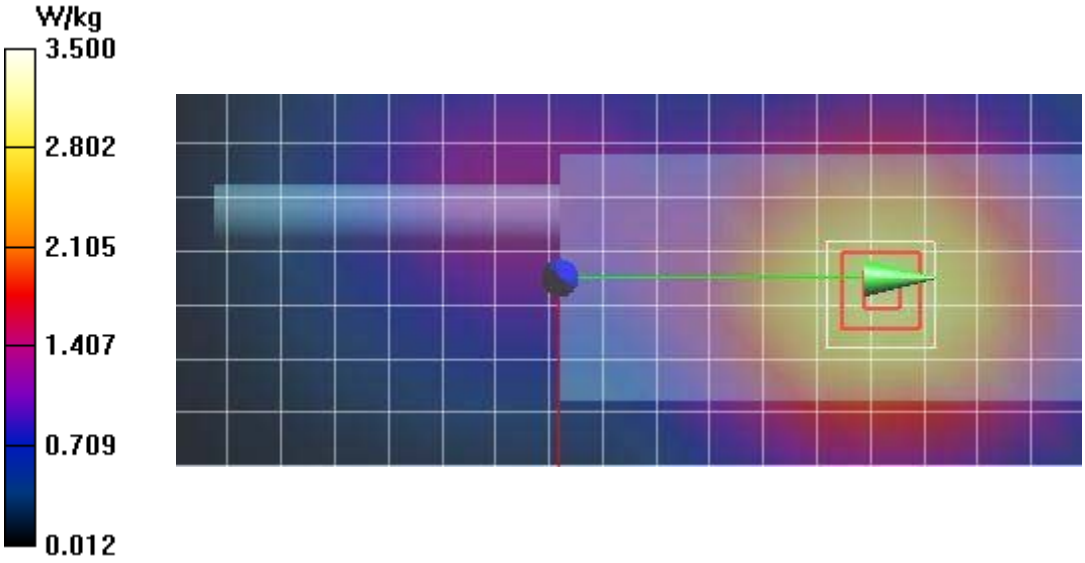
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 2.84 W/kg

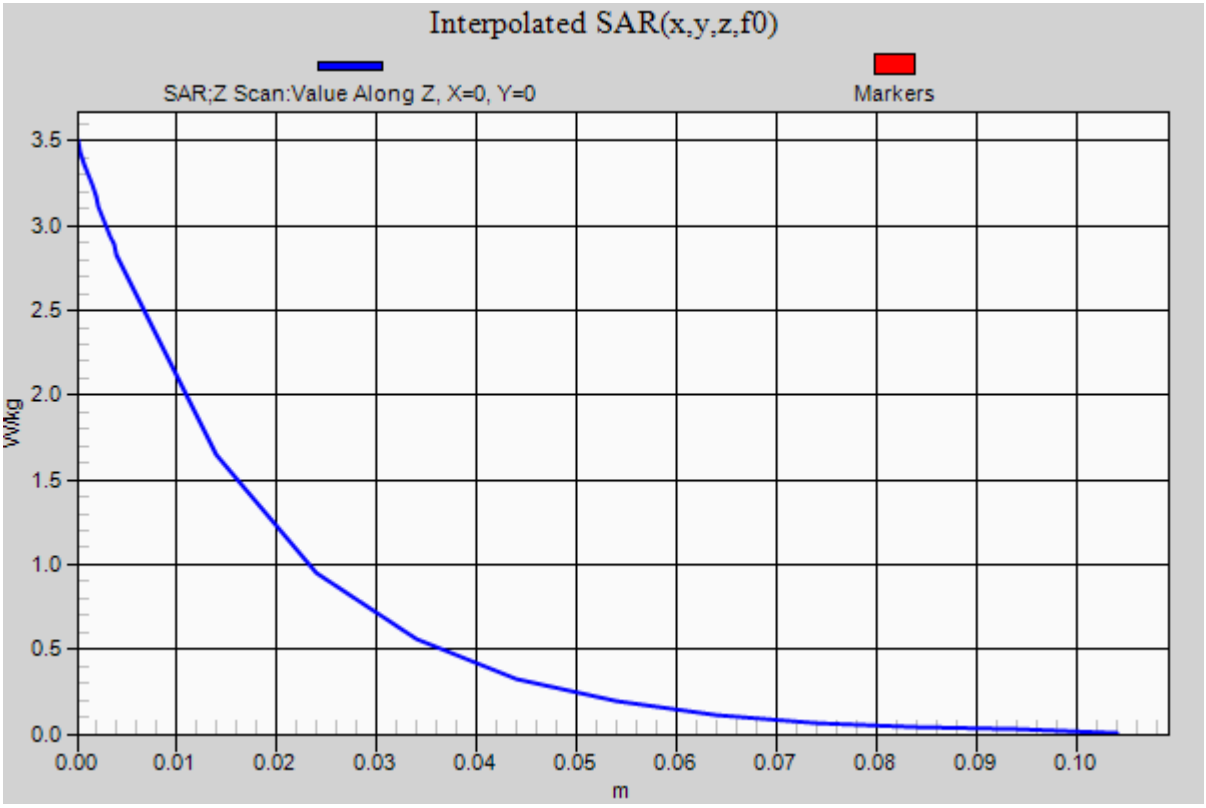
**835H/F54-FACE, Harris EVM3 U43, P7, T9, LMR, CW, 806MHz/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 35.42 V/m; Power Drift = -0.24 dB
Peak SAR (extrapolated) = 3.48 W/kg
**SAR(1 g) = 2.71 W/kg; SAR(10 g) = 2.03 W/kg**

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 2.85 W/kg

**835H/F54-FACE, Harris EVM3 U43, P7, T9, LMR, CW, 806MHz/Z Scan (1x1x22):** Measure0143-Ement grid: dx=20mm, dy=20mm, dz=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Penetration depth = 18.42 (n/a, 18.50) [mm]
Maximum value of SAR (interpolated) = 3.50 W/kg



**Plot F48**

Date/Time: 10/7/2019 3:30:15 PM

Test Laboratory: Celltech Labs

**Harris EVM3 U15,U44,U43- Compliance LMR 7-8-900 EVAL- Oct 07 2019**

**DUT: EVM3-U43; Type: PTT;**

Communication System: UID 0, CW (0); Communication System Band: 7/8/900; Frequency: 806 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 806 MHz; $\sigma$ = 0.881 S/m; $\varepsilon_r$ = 41.52; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: EX3DV4 - SN3600; ConvF(8.13, 8.13, 8.13) @ 806 MHz; Calibrated: 3/26/2019
  - Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = -1.5, 31.0, 151.0
- Electronics: DAE4 Sn353; Calibrated: 3/19/2019
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 Ax; Serial: 1234
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

**835H/F48-FACE, Harris EVM3 U43, P7, T9, LMR, CW, 806MHz/Area Scan (8x20x1):** Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 3.91 W/kg

**835H/F48-FACE, Harris EVM3 U43, P7, T9, LMR, CW, 806MHz/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 30.62 V/m; Power Drift = -0.28 dB
Peak SAR (extrapolated) = 4.76 W/kg
**SAR(1 g) = 3.68 W/kg; SAR(10 g) = 2.74 W/kg**

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 3.87 W/kg

**835H/F48-FACE, Harris EVM3 U43, P7, T9, LMR, CW, 806MHz/Z Scan (1x1x22):** Measurement grid: dx=20mm, dy=20mm, dz=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Penetration depth = 18.03 (n/a, 18.45) [mm]
Maximum value of SAR (interpolated) = 4.77 W/kg