



PCTEST

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NEAR-FIELD POWER DENSITY EVALUATION REPORT

Applicant Name

LG Electronics U.S.A., Inc.
111 Sylvan Avenue, North Building
Englewood Cliffs, NJ 07632
United States

Date of Testing

08/24/2020 - 09/23/2020

Test Site/Location

PCTEST, Columbia, MD, USA

Document Serial No:

1M2007230114-01.ZNF

FCC ID: ZNFF100VM

APPLICANT: LG ELECTRONICS U.S.A., INC.

DUT Type:

Portable Handset

Application Type:

Class II Permissive Change

FCC Rule Part(s):

CFR §2.1093

Model:

LM-F100VM

Additional Model (s):

LMF100VM, F100VM, LM-F101V, LMF101V, F101V

| Band & Mode | Tx Frequency | Measured psPD | Reported psPD |
|-----------------------------|---------------|------------------|------------------|
| | MHz | W/m ² | W/m ² |
| 5G NR - n261 | 27500 - 28350 | 8.630 | 7.500 |
| 5G NR - n260 | 37000 - 40000 | 8.000 | 7.500 |
| Total Exposure Ratio | | 0.998 | |
| Verdict | | PASS | |

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them. Test results reported herein relate only to the item(s) tested.

Randy Ortanez
President



| | | | | |
|---|---|---|--------------|--|
| FCC ID: ZNFF100VM | | NEAR-FIELD POWER DENSITY EVALUATION REPORT | | Approved by: Quality Manager |
| Document S/N: 1M2007230114-01.ZNF | Test Dates: 08/24/2020 - 09/23/2020 | DUT Type: Portable Handset | Page 1 of 23 | |

TABLE OF CONTENTS

| | | |
|-----|--|----|
| 1 | DEVICE UNDER TEST | 3 |
| 1.1 | Device Overview | 3 |
| 1.2 | Time-Averaging Algorithm for RF Exposure Compliance | 3 |
| 1.3 | Mechanical Modes | 3 |
| 1.4 | Input Power Specifications | 4 |
| 1.5 | DUT Antenna Locations | 10 |
| 1.6 | Simultaneous Transmission Capabilities | 11 |
| 1.7 | Guidance Applied | 11 |
| 1.8 | Bibliography | 11 |
| 2 | MEASUREMENT SYSTEM | 12 |
| 2.1 | Measurement Setup | 12 |
| 2.2 | SPEAG EUmmWV3 Probe / E-Field 5G Probe | 12 |
| 2.3 | Peak Spatially Averaged Power Density Assessment Based on E-field Measurements | 13 |
| 2.4 | Reconstruction Algorithm | 13 |
| 3 | RF EXPOSURE LIMITS FOR POWER DENSITY | 14 |
| 3.1 | Uncontrolled Environment | 14 |
| 3.2 | Controlled Environment | 14 |
| 3.3 | RF Exposure Limits for Frequencies Above 6 GHz | 14 |
| 4 | SYSTEM VERIFICATION | 15 |
| 4.1 | Test System Verification | 15 |
| 5 | POWER DENSITY DATA @ INPUT.POWER.LIMIT | 17 |
| 5.1 | Power Density Results | 17 |
| 5.2 | Power Density Test Notes | 19 |
| 6 | EQUIPMENT LIST | 20 |
| 7 | MEASUREMENT UNCERTAINTIES | 21 |
| 8 | CONCLUSION | 22 |
| 8.1 | Measurement Conclusion | 22 |
| 9 | REFERENCES | 23 |

APPENDIX A: POWER DENSITY TEST PLOTS

APPENDIX B: SYSTEM VERIFICATION PLOTS

APPENDIX C: TOTAL EXPOSURE RATIO

APPENDIX D: DUT ANTENNA DIAGRAM AND TEST SETUP PHOTOGRAPHS

APPENDIX E: PROBE AND VERIFICATION SOURCE CALIBRATION CERTIFICATES

| | | | | |
|---|--|---|---|--|
| FCC ID: ZNFF100VM |  PCTEST <small>Proved to be part of Element</small> | NEAR-FIELD POWER DENSITY EVALUATION REPORT |  | Approved by: Quality Manager |
| Document S/N: 1M2007230114-01.ZNF | Test Dates: 08/24/2020 - 09/23/2020 | DUT Type: Portable Handset | Page 2 of 23 | |

1 DEVICE UNDER TEST

1.1 Device Overview

| NR FR2 Operations Information | | | | | | |
|---|-------------------------------|-----------------|---------|-----------------|---------|-----------------|
| Form Factor | Portable Handset | | | | | |
| Channel Bandwidths per NR Band | NR Band n261: 50MHz, 100MHz | | | | | |
| Channel Bandwidths per NR Band | NR Band n260: 50MHz, 100MHz | | | | | |
| Channel Numbers and Frequencies | Low | | Mid | | High | |
| | Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| NR Band n261: 50MHz BW | 2071249 | 27525.00 | 2077915 | 27924.96 | 2084581 | 28324.92 |
| NR Band n261: 100MHz BW | 2071665 | 27549.96 | 2077915 | 27924.96 | 2084165 | 28299.96 |
| NR Band n260: 50MHz BW | 2229599 | 37026.00 | 2254165 | 38499.96 | 2278749 | 39975.00 |
| NR Band n260: 100MHz BW | 2229999 | 37050.00 | 2254165 | 38499.96 | 2278315 | 39949.00 |
| Subcarrier Spacing (kHz) | 120 | | | | | |
| Total Number of Supported Uplink CCs (SISO) | 2 | | | | | |
| Total Number of Supported Uplink CCs (MIMO) | 2 (CP-OFDM only) | | | | | |
| Total Number of Supported DL CCs | 4 | | | | | |
| CP-OFDM Modulations Supported in UL | QPSK, 16QAM, 64QAM | | | | | |
| DFT-s-OFDM Modulations Supported in UL | PI/2 BPSK, QPSK, 16QAM, 64QAM | | | | | |
| LTE Anchor Bands (n261) | 2, 4, 5, 13, 48, 66 | | | | | |
| LTE Anchor Bands (n260) | 2, 4, 5, 13, 48, 66 | | | | | |
| Duplex Type (mmWave) | TDD | | | | | |

1.2 Time-Averaging Algorithm for RF Exposure Compliance

The equipment under test (EUT) contains Qualcomm® SM7250 modem supporting 2G/3G/4G/5G NR WWAN 5G technologies and is enabled with Qualcomm® Smart Transmit feature. This feature performs time averaging algorithm in real time to control and manage transmitting power and ensure the time-averaged RF exposure is in compliance with FCC requirements all the time. Refer to Compliance Summary document for detailed description of Qualcomm® Smart Transmit. Note that WLAN operations are not enabled with Smart Transmit.

The Smart Transmit algorithm maintains the time-averaged transmit power, in turn, time-averaged RF exposure of *SAR_design_target* or *PD_design_target*, below the predefined time-averaged power limit (i.e., P_{limit} for sub-6 radio, and *input.power.limit* for 5G mmW NR), for each characterized technology and band (see RF Exposure Part 0 Test Report).

Smart Transmit allows the device to transmit at higher power instantaneously when needed, but manages power limiting to maintain time-averaged transmit power to *input.power.limit*.

The purpose of this report (Part 1 test) is to demonstrate that the EUT meets FCC PD limits when transmitting in static transmission scenario at maximum allowable time-averaged power level given by *input.power.limit*.

1.3 Mechanical Modes

This device supports four different mechanical modes: normal mode, normal mode + pop up, swivel mode, swivel mode + pop up. The swivel display section of the device does not contain any transmitting antennas. Per FCC guidance, Power Density with the mechanical mode 3 was measured for the configurations with the highest Power Density from mechanical mode 1 for each frequency band. When the worst case was right edge or left edge, the second-worst case was considered for testing with mechanical mode 3. The overall worst case from mode 1 or 3 was then additionally evaluated with pop-up (mode 2 or 4). Swivel-display section does not contain any Tx Antennas. Appendix D contains positioning information for the various mechanical modes.

| | | | | |
|--------------------------------------|---|---|--|---------------------------------|
| FCC ID: ZNFF100VM |  PCTEST Proud to be part of  | NEAR-FIELD POWER DENSITY EVALUATION REPORT |  LG | Approved by: Quality Manager |
| Document S/N: 1M2007230114-01.ZNF | Test Dates: 08/24/2020 - 09/23/2020 | DUT Type: Portable Handset | Page 3 of 23 | |

1.4 Input Power Specifications

All power density measurements for this device were performed at the *input.power.limit* given in below tables. Input power is per antenna element and polarization for each antenna module. When input.power.limit is calculated to be above the maximum input power, the device is limited to the maximum input power.

Table 1-1
5G mmWave NR n261 QTM-0 patch

| Band | Beam ID 1 | Beam ID 2 | input.power.limit |
|------|-----------|-----------|-------------------|
| n261 | 1 | | 11.6 |
| n261 | 6 | | 9.5 |
| n261 | 7 | | 7.9 |
| n261 | 8 | | 8.8 |
| n261 | 14 | | 8.5 |
| n261 | 15 | | 7.9 |
| n261 | 23 | | 8.0 |
| n261 | 24 | | 6.5 |
| n261 | 25 | | 5.4 |
| n261 | 26 | | 5.6 |
| n261 | 27 | | 6.6 |
| n261 | 37 | | 7.3 |
| n261 | 38 | | 5.9 |
| n261 | 39 | | 5.3 |
| n261 | 40 | | 5.9 |
| n261 | - | 129 | 13.4 |
| n261 | - | 134 | 10.1 |
| n261 | - | 135 | 9.0 |
| n261 | - | 136 | 9.2 |
| n261 | - | 142 | 9.6 |
| n261 | - | 143 | 9.5 |
| n261 | - | 151 | 8.3 |
| n261 | - | 152 | 7.0 |
| n261 | - | 153 | 5.6 |
| n261 | - | 154 | 6.6 |
| n261 | - | 155 | 7.1 |
| n261 | - | 165 | 7.9 |
| n261 | - | 166 | 6.6 |
| n261 | - | 167 | 5.7 |
| n261 | - | 168 | 6.8 |
| n261 | 1 | 129 | 10.3 |
| n261 | 6 | 134 | 7.7 |
| n261 | 7 | 135 | 6.4 |
| n261 | 8 | 136 | 7.4 |
| n261 | 14 | 142 | 7.0 |
| n261 | 15 | 143 | 6.5 |
| n261 | 23 | 151 | 5.5 |
| n261 | 24 | 152 | 4.7 |
| n261 | 25 | 153 | 4.1 |
| n261 | 26 | 154 | 3.7 |
| n261 | 27 | 155 | 4.5 |
| n261 | 37 | 165 | 5.3 |
| n261 | 38 | 166 | 4.4 |
| n261 | 39 | 167 | 4.1 |
| n261 | 40 | 168 | 4.3 |

| | | | | |
|--------------------------------------|--|---|---|---------------------------------|
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| Document S/N: 1M2007230114-01.ZNF | Test Dates: 08/24/2020 - 09/23/2020 | DUT Type: Portable Handset | Page 4 of 23 | |

**Table 1-2
5G mmWave NR n261 QTM-1 patch**

| Band | Beam ID 1 | Beam ID 2 | input.power.limit |
|------|-----------|-----------|-------------------|
| n261 | 0 | | 9.2 |
| n261 | 3 | | 7.1 |
| n261 | 4 | | 6.2 |
| n261 | 5 | | 6.8 |
| n261 | 12 | | 6.3 |
| n261 | 13 | | 6.5 |
| n261 | 18 | | 5.8 |
| n261 | 19 | | 4.2 |
| n261 | 20 | | 4.3 |
| n261 | 21 | | 4.5 |
| n261 | 22 | | 6.1 |
| n261 | 33 | | 5.1 |
| n261 | 34 | | 4.1 |
| n261 | 35 | | 4.6 |
| n261 | 36 | | 4.6 |
| n261 | - | 128 | 9.1 |
| n261 | - | 131 | 7.1 |
| n261 | - | 132 | 6.2 |
| n261 | - | 133 | 7.4 |
| n261 | - | 140 | 6.4 |
| n261 | - | 141 | 6.7 |
| n261 | - | 146 | 6.4 |
| n261 | - | 147 | 4.2 |
| n261 | - | 148 | 4.2 |
| n261 | - | 149 | 3.8 |
| n261 | - | 150 | 4.4 |
| n261 | - | 161 | 6.5 |
| n261 | - | 162 | 4.1 |
| n261 | - | 163 | 3.7 |
| n261 | - | 164 | 4.0 |
| n261 | 0 | 128 | 6.8 |
| n261 | 3 | 131 | 3.7 |
| n261 | 4 | 132 | 3.9 |
| n261 | 5 | 133 | 5.1 |
| n261 | 12 | 140 | 3.6 |
| n261 | 13 | 141 | 4.3 |
| n261 | 18 | 146 | 2.5 |
| n261 | 19 | 147 | 1.3 |
| n261 | 20 | 148 | 1.1 |
| n261 | 21 | 149 | 1.2 |
| n261 | 22 | 150 | 2.1 |
| n261 | 33 | 161 | 2.2 |
| n261 | 34 | 162 | 1.3 |
| n261 | 35 | 163 | 1.1 |
| n261 | 36 | 164 | 1.7 |

| | | | | |
|---|--|---|---|--|
| FCC ID: ZNFF100VM |  PCTEST <small>Proved to be part of Element</small> | NEAR-FIELD POWER DENSITY EVALUATION REPORT |  | Approved by: Quality Manager |
| Document S/N: 1M2007230114-01.ZNF | Test Dates: 08/24/2020 - 09/23/2020 | DUT Type: Portable Handset | Page 5 of 23 | |

**Table 1-3
5G mmWave NR n261 QTM-2 patch**

| Band | Beam ID 1 | Beam ID 2 | input.power.limit |
|------|-----------|-----------|-------------------|
| n261 | 2 | | 11.6 |
| n261 | 9 | | 7.8 |
| n261 | 10 | | 7.2 |
| n261 | 11 | | 7.8 |
| n261 | 16 | | 7.5 |
| n261 | 17 | | 7.4 |
| n261 | 28 | | 5.2 |
| n261 | 29 | | 5.0 |
| n261 | 30 | | 5.1 |
| n261 | 31 | | 5.3 |
| n261 | 32 | | 5.7 |
| n261 | 41 | | 5.2 |
| n261 | 42 | | 4.9 |
| n261 | 43 | | 5.3 |
| n261 | 44 | | 5.1 |
| n261 | - | 130 | 11.2 |
| n261 | - | 137 | 8.7 |
| n261 | - | 138 | 7.2 |
| n261 | - | 139 | 8.9 |
| n261 | - | 144 | 8.0 |
| n261 | - | 145 | 8.5 |
| n261 | - | 156 | 6.0 |
| n261 | - | 157 | 5.0 |
| n261 | - | 158 | 5.1 |
| n261 | - | 159 | 5.0 |
| n261 | - | 160 | 6.2 |
| n261 | - | 169 | 5.5 |
| n261 | - | 170 | 5.6 |
| n261 | - | 171 | 5.0 |
| n261 | - | 172 | 5.3 |
| n261 | 2 | 130 | 10.8 |
| n261 | 9 | 137 | 6.6 |
| n261 | 10 | 138 | 5.6 |
| n261 | 11 | 139 | 5.5 |
| n261 | 16 | 144 | 5.4 |
| n261 | 17 | 145 | 5.2 |
| n261 | 28 | 156 | 3.2 |
| n261 | 29 | 157 | 2.8 |
| n261 | 30 | 158 | 2.7 |
| n261 | 31 | 159 | 2.5 |
| n261 | 32 | 160 | 3.2 |
| n261 | 41 | 169 | 3.0 |
| n261 | 42 | 170 | 2.7 |
| n261 | 43 | 171 | 2.6 |
| n261 | 44 | 172 | 2.7 |

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| Document S/N: 1M2007230114-01.ZNF | Test Dates: 08/24/2020 - 09/23/2020 | DUT Type: Portable Handset | Page 6 of 23 | |

**Table 1-4
5G mmWave NR n260 QTM-0 patch**

| Band | Beam ID 1 | Beam ID 2 | input.power.limit |
|------|-----------|-----------|-------------------|
| n260 | 1 | | 10.9 |
| n260 | 6 | | 8.0 |
| n260 | 7 | | 9.6 |
| n260 | 8 | | 7.9 |
| n260 | 14 | | 7.9 |
| n260 | 15 | | 8.6 |
| n260 | 23 | | 5.7 |
| n260 | 24 | | 5.9 |
| n260 | 25 | | 6.2 |
| n260 | 26 | | 6.8 |
| n260 | 27 | | 5.0 |
| n260 | 37 | | 5.4 |
| n260 | 38 | | 5.7 |
| n260 | 39 | | 6.5 |
| n260 | 40 | | 5.6 |
| n260 | - | 129 | 11.1 |
| n260 | - | 134 | 8.0 |
| n260 | - | 135 | 8.9 |
| n260 | - | 136 | 8.1 |
| n260 | - | 142 | 8.4 |
| n260 | - | 143 | 8.7 |
| n260 | - | 151 | 5.4 |
| n260 | - | 152 | 5.9 |
| n260 | - | 153 | 5.7 |
| n260 | - | 154 | 5.9 |
| n260 | - | 155 | 5.9 |
| n260 | - | 165 | 5.6 |
| n260 | - | 166 | 6.2 |
| n260 | - | 167 | 5.6 |
| n260 | - | 168 | 5.5 |
| n260 | 1 | 129 | 9.5 |
| n260 | 6 | 134 | 6.2 |
| n260 | 7 | 135 | 8.5 |
| n260 | 8 | 136 | 5.8 |
| n260 | 14 | 142 | 5.9 |
| n260 | 15 | 143 | 7.3 |
| n260 | 23 | 151 | 3.7 |
| n260 | 24 | 152 | 3.7 |
| n260 | 25 | 153 | 3.7 |
| n260 | 26 | 154 | 4.6 |
| n260 | 27 | 155 | 3.5 |
| n260 | 37 | 165 | 3.9 |
| n260 | 38 | 166 | 3.8 |
| n260 | 39 | 167 | 4.4 |
| n260 | 40 | 168 | 3.9 |

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| FCC ID: ZNFF100VM |  PCTEST <small>Provided to be part of a statement</small> | NEAR-FIELD POWER DENSITY EVALUATION REPORT |  | Approved by: Quality Manager |
| Document S/N: 1M2007230114-01.ZNF | Test Dates: 08/24/2020 - 09/23/2020 | DUT Type: Portable Handset | Page 7 of 23 | |

**Table 1-5
5G mmWave NR n260 QTM-1 patch**

| Band | Beam ID 1 | Beam ID 2 | input.power.limit |
|------|-----------|-----------|-------------------|
| n260 | 0 | | 11.2 |
| n260 | 3 | | 6.9 |
| n260 | 4 | | 8.2 |
| n260 | 5 | | 7.5 |
| n260 | 12 | | 7.8 |
| n260 | 13 | | 8.3 |
| n260 | 18 | | 4.9 |
| n260 | 19 | | 4.9 |
| n260 | 20 | | 6.1 |
| n260 | 21 | | 5.6 |
| n260 | 22 | | 4.8 |
| n260 | 33 | | 4.9 |
| n260 | 34 | | 5.3 |
| n260 | 35 | | 5.8 |
| n260 | 36 | | 4.9 |
| n260 | - | 128 | 11.3 |
| n260 | - | 131 | 8.1 |
| n260 | - | 132 | 8.7 |
| n260 | - | 133 | 8.3 |
| n260 | - | 140 | 8.4 |
| n260 | - | 141 | 9.2 |
| n260 | - | 146 | 5.8 |
| n260 | - | 147 | 5.5 |
| n260 | - | 148 | 7.2 |
| n260 | - | 149 | 6.0 |
| n260 | - | 150 | 5.4 |
| n260 | - | 161 | 5.4 |
| n260 | - | 162 | 6.1 |
| n260 | - | 163 | 7.7 |
| n260 | - | 164 | 5.5 |
| n260 | 0 | 128 | 10.1 |
| n260 | 3 | 131 | 5.8 |
| n260 | 4 | 132 | 7.1 |
| n260 | 5 | 133 | 5.9 |
| n260 | 12 | 140 | 6.1 |
| n260 | 13 | 141 | 6.6 |
| n260 | 18 | 146 | 3.4 |
| n260 | 19 | 147 | 3.4 |
| n260 | 20 | 148 | 4.4 |
| n260 | 21 | 149 | 4.3 |
| n260 | 22 | 150 | 3.3 |
| n260 | 33 | 161 | 3.3 |
| n260 | 34 | 162 | 3.8 |
| n260 | 35 | 163 | 4.5 |
| n260 | 36 | 164 | 3.3 |

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| FCC ID: ZNFF100VM |  PCTEST <small>Proved to be part of 5G element</small> | NEAR-FIELD POWER DENSITY EVALUATION REPORT |  LG | Approved by: Quality Manager |
| Document S/N: 1M2007230114-01.ZNF | Test Dates: 08/24/2020 - 09/23/2020 | DUT Type: Portable Handset | Page 8 of 23 | |

**Table 1-6
5G mmWave NR n260 QTM-2 patch**

| Band | Beam ID 1 | Beam ID 2 | input.power.limit |
|------|-----------|-----------|-------------------|
| n260 | 2 | | 10.1 |
| n260 | 9 | | 7.3 |
| n260 | 10 | | 7.0 |
| n260 | 11 | | 7.0 |
| n260 | 16 | | 7.3 |
| n260 | 17 | | 6.6 |
| n260 | 28 | | 4.6 |
| n260 | 29 | | 4.7 |
| n260 | 30 | | 4.8 |
| n260 | 31 | | 4.5 |
| n260 | 32 | | 4.6 |
| n260 | 41 | | 4.5 |
| n260 | 42 | | 4.6 |
| n260 | 43 | | 4.7 |
| n260 | 44 | | 4.3 |
| n260 | - | 130 | 10.4 |
| n260 | - | 137 | 6.9 |
| n260 | - | 138 | 8.5 |
| n260 | - | 139 | 8.0 |
| n260 | - | 144 | 6.9 |
| n260 | - | 145 | 7.5 |
| n260 | - | 156 | 4.7 |
| n260 | - | 157 | 4.5 |
| n260 | - | 158 | 5.7 |
| n260 | - | 159 | 4.8 |
| n260 | - | 160 | 4.5 |
| n260 | - | 169 | 4.5 |
| n260 | - | 170 | 5.4 |
| n260 | - | 171 | 5.3 |
| n260 | - | 172 | 4.6 |
| n260 | 2 | 130 | 8.2 |
| n260 | 9 | 137 | 4.7 |
| n260 | 10 | 138 | 5.6 |
| n260 | 11 | 139 | 5.3 |
| n260 | 16 | 144 | 5.1 |
| n260 | 17 | 145 | 5.0 |
| n260 | 28 | 156 | 2.2 |
| n260 | 29 | 157 | 2.8 |
| n260 | 30 | 158 | 3.2 |
| n260 | 31 | 159 | 2.7 |
| n260 | 32 | 160 | 2.8 |
| n260 | 41 | 169 | 2.3 |
| n260 | 42 | 170 | 3.1 |
| n260 | 43 | 171 | 3.0 |
| n260 | 44 | 172 | 2.2 |

| | | | | |
|---|--|---|---|--|
| FCC ID: ZNFF100VM |  PCTEST <small>Proved to be part of Element</small> | NEAR-FIELD POWER DENSITY EVALUATION REPORT |  LG | Approved by: Quality Manager |
| Document S/N: 1M2007230114-01.ZNF | Test Dates: 08/24/2020 - 09/23/2020 | DUT Type: Portable Handset | Page 9 of 23 | |

1.5 DUT Antenna Locations

The table below indicates the surfaces evaluated for near field power density (part 1) evaluation. Refer to RF Exposure Part 0 Test Report for justification of these worst-surfaces.

**Table 1-7
Device Surfaces**

| Band | Antenna | Antenna Type | Back | Front | Top | Bottom | Right | Left |
|------|---------|--------------|------|-------|-----|--------|-------|------|
| n261 | QTM-0 | patch | Yes | Yes | No | No | Yes | No |
| n261 | QTM-1 | patch | Yes | Yes | Yes | No | No | No |
| n261 | QTM-2 | patch | Yes | Yes | No | No | No | Yes |
| n260 | QTM-0 | patch | Yes | Yes | No | No | Yes | No |
| n260 | QTM-1 | patch | Yes | Yes | Yes | No | No | No |
| n260 | QTM-2 | patch | Yes | Yes | No | No | No | Yes |

| | | | | |
|--------------------------------------|--|---|---|---------------------------------|
| FCC ID: ZNFF100VM |  PCTEST <small>Proved to be part of Element</small> | NEAR-FIELD POWER DENSITY EVALUATION REPORT |  LG | Approved by: Quality Manager |
| Document S/N: 1M2007230114-01.ZNF | Test Dates: 08/24/2020 - 09/23/2020 | DUT Type: Portable Handset | Page 10 of 23 | |

1.6 Simultaneous Transmission Capabilities

According to FCC KDB Publication 447498 D01v06, transmitters are considered to be operating simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds.

This device contains multiple transmitters that may operate simultaneously, and therefore requires a simultaneous transmission analysis according to FCC KDB Publication 447498 D01v06 4.3.2 procedures.

**Table 1-8
Simultaneous Tx**

| Capable Transmit Configuration | Head | Body-worn | Wireless Router | Phablet | Notes |
|---|------|-----------|-----------------|---------|------------------------------------|
| LTE + 5G | Yes | Yes | N/A | Yes | |
| LTE + 2.4 GHz WI-FI + 5G NR | Yes | Yes | Yes | Yes | |
| LTE + 5 GHz WI-FI + 5G NR | Yes | Yes | Yes | Yes | |
| LTE + 2.4 GHz Bluetooth + 5G NR | Yes^ | Yes | Yes^ | Yes^ | ^Bluetooth Tethering is considered |
| LTE + 2.4 GHz Bluetooth + 5 GHz WI-FI + 5G NR | Yes^ | Yes | Yes^ | Yes^ | ^Bluetooth Tethering is considered |
| LTE + 2.4 GHz WI-FI MIMO + 5G NR | Yes | Yes | Yes | Yes | |
| LTE + 5 GHz WI-FI MIMO + 5G NR | Yes | Yes | Yes | Yes | |
| LTE + 2.4 GHz Bluetooth + 2.4 GHz WI-FI Ant 2+ 5G NR | Yes | Yes | Yes^ | Yes | ^Bluetooth Tethering is considered |
| LTE + 2.4 GHz WI-FI Ant 1 + 5 GHz WI-FI Ant 2 + 5G NR | Yes | Yes | Yes | Yes | |
| LTE + 2.4 GHz Bluetooth + 5 GHz WI-FI MIMO + 5G NR | Yes^ | Yes | Yes^ | Yes^ | ^Bluetooth Tethering is considered |

NOTE:

- 5G NR Operations are limited to Non-Standalone (EN-DC) operations only.
- NR antenna arrays cannot transmit simultaneously.
- LTE + 5G NR FR2 Scenarios are limited to EN-DC combinations with anchor bands as shown in the NR FR2 checklist.
- 2.4 GHz WLAN, and 2.4 GHz Bluetooth share the same antenna path and cannot transmit simultaneously.
- All non-5G NR licensed modes share the same antenna path and cannot transmit simultaneously.
- 5G NR bands cannot transmit simultaneously.
- This device supports time averaging smart transmit algorithm in WWAN. Smart transmit adds directly the time-averaged RF exposure from 4G and time-averaged RF exposure from 5G mmW NR to ensure that the normalized RF exposure from both 4G and 5G mmW NR does not exceed FCC limit.

1.7 Guidance Applied

- November 2017, October 2018, April 2019, November 2019 TCBC Workshop Notes
- SPEAG DASY6 System Handbook (September 2019)
- IEC TR 63170:2018
- FCC KDB 865664 D02 v01r04
- FCC KDB 447498 D01 v02r01

1.8 Bibliography

**Table 1-9
Bibliography**

| Report Type | Report Serial Number |
|---------------------------------------|----------------------|
| FCC SAR Evaluation Report (Part 1) | 1M2007230114-02.ZNF |
| Power Density Part 0 Test Report | RevB (Ver. 1.2) |
| RF Exposure Part 2 Test Report | 1M2007230114-03.ZNF |
| RF Exposure Compliance Summary Report | 1M2007230114-04.ZNF |
| Power Density Simulation Report | RevB (Ver. 1.2) |

| | | | | |
|--------------------------------------|--|---|---|---------------------------------|
| FCC ID: ZNFF100VM |  PCTEST <small>Provided to be part of Element</small> | NEAR-FIELD POWER DENSITY EVALUATION REPORT |  LG | Approved by: Quality Manager |
| Document S/N: 1M2007230114-01.ZNF | Test Dates: 08/24/2020 - 09/23/2020 | DUT Type: Portable Handset | Page 11 of 23 | |

2

MEASUREMENT SYSTEM

2.1 Measurement Setup

Peak spatially averaged power density (psPD) measurements for mmWave frequencies were performed using the DASY6 with cDASY6 5G module. The DASY6 is made by Schmid & Partner Engineering AG (SPEAG) in Zurich, Switzerland and consists of a high precision robotics system (Staubli), robot controller, desktop computer, near-field probe, probe alignment sensor, and the 5G phantom. The robot is a six-axis industrial robot, performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF).

2.2 SPEAG EUmmWV3 Probe / E-Field 5G Probe

The EUmmWV3 probe consists of two dipoles optimally arranged to obtain pseudo-vector information.

| | |
|---------------------------|--|
| Frequency Range | 750 MHz – 110 GHz |
| Dynamic Range | < 20 V/m – 10,000 V/m with PRE-10 (min < 50 V/m – 3,000 V/m) |
| Position Precision | < 0.2 mm (cDASY6) |
| Dimensions | Probe Overall Length: 320 mm Probe Body Diameter: 8 mm Probe Tip Length: 23 mm Probe Tip Diameter: Encapsulation 8 mm Distance from Probe Tip to Sensor X Calibration Point: 1.5 mm Distance from Probe Tip to Sensor Y Calibration Point: 1.5 mm |
| Applications | E-field measurements of 5G devices and other mm-wave transmitters operating above 10 GHz in < 2 mm distance from device (free-space) Power density, H-field and far-field analysis using total field reconstruction |
| Compatibility | cDASY6 + 5G-Module SW 2.0.2.34 |

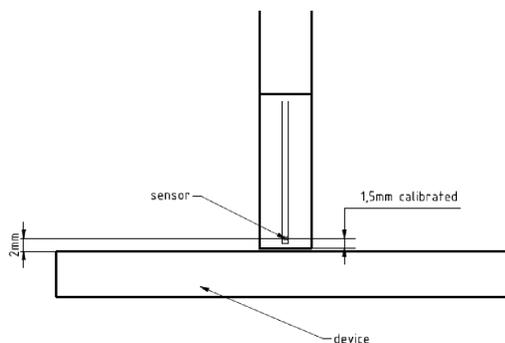
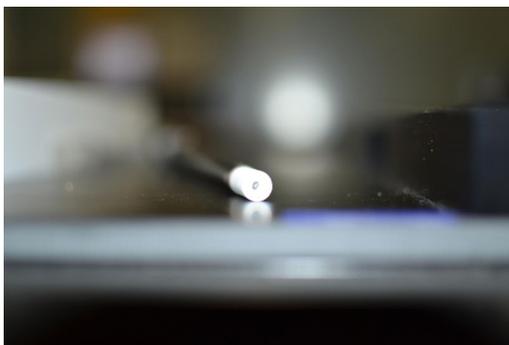


Figure 2-1
EUmmWV3 Probe

| | | | | |
|---|--|---|---|--|
| FCC ID: ZNFF100VM |  PCTEST Proud to be part of  | NEAR-FIELD POWER DENSITY EVALUATION REPORT |  LG | Approved by: Quality Manager |
| Document S/N: 1M2007230114-01.ZNF | Test Dates: 08/24/2020 - 09/23/2020 | DUT Type: Portable Handset | Page 12 of 23 | |

2.3 Peak Spatially Averaged Power Density Assessment Based on E-field Measurements

Within a short distance from the transmitting source, power density was determined based on both electric and magnetic fields. Generally, the magnitude and phase of two components of either the E-field or H-field were needed on a sufficiently large surface to fully characterize the total E-field and H-field distributions. Nevertheless, solutions based on direct measurement of E-field and H-field can be used to compute power density. The general measurement approach used for this device was:

- a) The local E field on the measurement surface was measured at a reference location where the field is well above the noise level. This reference level was used at the end of this procedure to assess output power drift of the DUT during the measurement.
- b) The electric field on the measurement surface was scanned. Measurements are conducted according to the instructions provided by the measurement system manufacturer. Measurement spatial resolution can depend on the measured field characteristic and measurement methodology used by the system. The planar scan step size was configured at $\lambda/4$.
- c) For cDASY6, H-field was calculated from the measured E-field using a reconstruction algorithm. As the power density calculation requires knowledge of both amplitude and phase, reconstruction algorithms can also be used to obtain field information from the measured E-field data (e.g. the phase from the amplitude if only the amplitude is measured). H-field and phase data was reconstructed from repeated measurements (three per measurement point) on two measurement planes separated by $\lambda/4$.
- d) The total Peak spatially averaged power density (psPD) distribution on the evaluation surface is determined per the below equation. The spatial averaging area, A , is specified by the applicable exposure limits or regulatory requirements. A circular shape was used.

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

- e) The maximum spatial-average on the evaluation surface is the final quantity to determine compliance against applicable limits.
- f) The local E field reference value, at the same location as step 2, was re-measured after the scan was complete to calculate the power drift. If the drift deviated by more than 5%, the power density test and drift measurements were repeated.

2.4 Reconstruction Algorithm

Computation of the power density in general requires measurement information from the both E-field and H-field amplitudes and phases in the plane of incidence. Reconstruction of these quantities from pseudo-vector E-field measurements is feasible according to the manufacturer, as they are determined via Maxwell's equations. As such, the SPEAG reconstruction approach was based on the Gerchberg-Saxton algorithm, which benefits from the availability of the E-field polarization ellipse information obtained with the EUmmWV3 probe.

| | | | | |
|--------------------------------------|--|---|---|---------------------------------|
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| Document S/N: 1M2007230114-01.ZNF | Test Dates: 08/24/2020 - 09/23/2020 | DUT Type: Portable Handset | Page 13 of 23 | |

3

RF EXPOSURE LIMITS FOR POWER DENSITY

3.1 Uncontrolled Environment

UNCONTROLLED ENVIRONMENTS are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

3.2 Controlled Environment

CONTROLLED ENVIRONMENTS are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

3.3 RF Exposure Limits for Frequencies Above 6 GHz

Per §1.1310 (d)(3), the MPE limits are applied for frequencies above 6 GHz. Power Density is expressed in units of W/m² or mW/cm².

Peak Spatially Averaged Power Density was evaluated over a circular area of 4 cm² per interim FCC Guidance for near-field power density evaluations per October 2018 TCB Workshop notes.

**Table 3-1
Human Exposure Limits Specified in FCC 47 CFR §1.1310**

| Human Exposure to Radiofrequency (RF) Radiation Limits | | |
|---|--|---------------------------|
| Frequency Range [MHz] | Power Density [mW/cm ²] | Average Time [Minutes] |
| (A) Limits For Occupational / Controlled Environments | | |
| 1,500 – 100,000 | 5.0 | 6 |
| (B) Limits For General Population / Uncontrolled Environments | | |
| 1,500 – 100,000 | 1.0 | 30 |

Note: 1.0 mW/cm² is 10 W/m²

| | | | | |
|--------------------------------------|--|---|---|---------------------------------|
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| Document S/N: 1M2007230114-01.ZNF | Test Dates: 08/24/2020 - 09/23/2020 | DUT Type: Portable Handset | Page 14 of 23 | |

4 SYSTEM VERIFICATION

4.1 Test System Verification

The system was verified to be within ± 0.66 dB of the power density targets on the calibration certificate according to the test system specification in the user's manual and calibration facility recommendation. The 0.66 dB deviation threshold represents the expanded uncertainty for system performance checks using SPEAG's mmWave verification sources. The same spatial resolution and measurement region used in the source calibration was applied during the system check.

The measured power density distribution of verification source was also confirmed through visual inspection to have no noticeable differences, both spatially (shape) and numerically (level) from the distribution provided by the manufacturer, per November 2017 TCBC Workshop Notes.

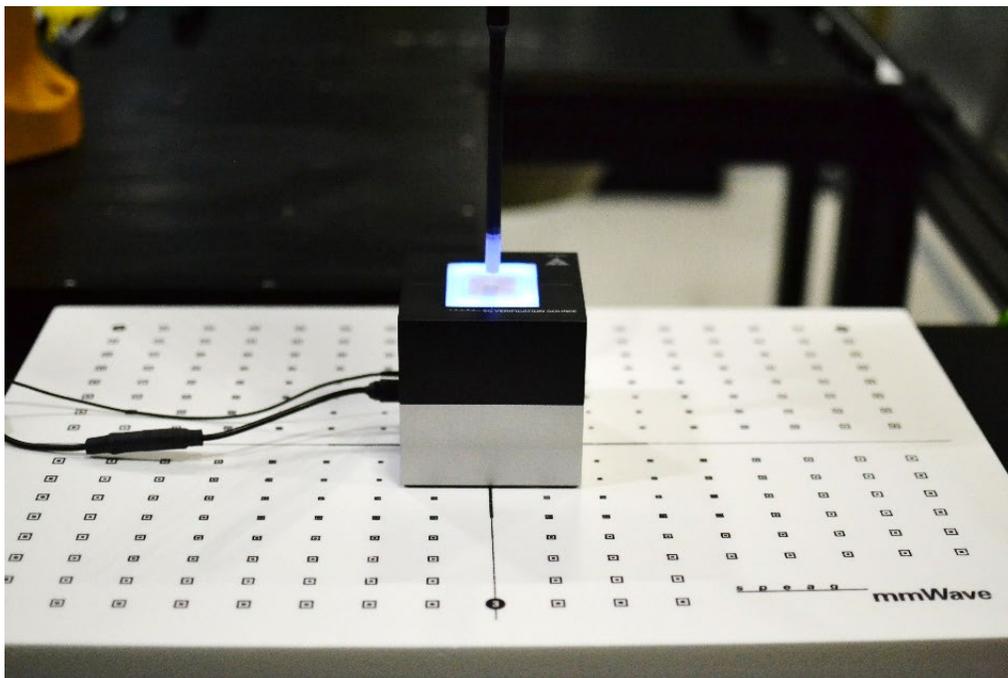


Figure 4-1
System Verification Setup Photo

| | | | |
|---|--|---|---|
| FCC ID: ZNFF100VM |  PCTEST <small>Proved to be part of Element</small> | NEAR-FIELD POWER DENSITY EVALUATION REPORT |  LG Approved by: Quality Manager |
| Document S/N: 1M2007230114-01.ZNF | | | |

**Table 4-1
30 GHz Verifications**

| System Verification | | | | | | | | | | |
|---------------------|-----------|----------|------------|-----------|--|--------|----------------|---|--------|----------------|
| System | Frequency | Date | Source S/N | Probe S/N | Normal psPD (W/m ² over 4 cm ²) | | Deviation (dB) | Total psPD (W/m ² over 4 cm ²) | | Deviation (dB) |
| | | | | | Measured | Target | | Measured | Target | |
| Q | 30 | 08/24/20 | 1035 | 9415 | 28.10 | 32.10 | -0.58 | 28.60 | 32.50 | -0.56 |
| Q | 30 | 08/26/20 | 1035 | 9415 | 27.90 | 32.10 | -0.61 | 28.30 | 32.50 | -0.60 |
| R | 30 | 08/26/20 | 1044 | 9407 | 31.40 | 34.70 | -0.43 | 31.90 | 35.00 | -0.40 |
| R | 30 | 08/27/20 | 1044 | 9407 | 31.20 | 34.70 | -0.46 | 31.80 | 35.00 | -0.42 |
| Q | 30 | 08/28/20 | 1035 | 9415 | 27.60 | 32.10 | -0.66 | 28.10 | 32.50 | -0.63 |
| Q | 30 | 08/31/20 | 1035 | 9415 | 28.00 | 32.10 | -0.59 | 28.40 | 32.50 | -0.59 |
| R | 30 | 08/31/20 | 1044 | 9407 | 31.60 | 34.70 | -0.41 | 32.00 | 35.00 | -0.39 |
| Q | 30 | 09/03/20 | 1035 | 9415 | 28.00 | 32.10 | -0.59 | 28.40 | 32.50 | -0.59 |
| Q | 30 | 09/23/20 | 1035 | 9415 | 28.30 | 32.10 | -0.55 | 28.80 | 32.50 | -0.52 |

Note: A **10 mm distance spacing** was used from the reference horn antenna aperture to the probe element. This includes 4.45 mm from the reference antenna horn aperture to the surface of the verification source plus 5.55 mm from the surface to the probe. The SPEAG software requires a setting of "5.55 mm" for the correct set up.

| | | | | |
|--------------------------------------|--|---|---|---------------------------------|
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| Document S/N: 1M2007230114-01.ZNF | Test Dates: 08/24/2020 - 09/23/2020 | DUT Type: Portable Handset | Page 16 of 23 | |

5

POWER DENSITY DATA @ INPUT.POWER.LIMIT

5.1 Power Density Results

Power density measurements were performed with DUT transmitting at *input.power.limit* for one single beam for each polarization (H & V) and one beam-pair, for each antenna on each worst-surface.

**Table 5-1
5G mmWave NR Band n261**

| MEASUREMENT RESULTS | | | | | | | | | | | | | | | |
|--|--------|--------------|-----------|---------|-----------|-----------|-------------------|-------------|---|-------------|----------|-------------|-------------|------------------|--------|
| Band | Module | Antenna Type | Frequency | Channel | Beam ID 1 | Beam ID 2 | input.power.limit | Signal Type | DUT S/N | Power Drift | Distance | DUT Surface | Normal psPD | Total psPD | Plot # |
| | | | MHz | | V | H | | | | dB | | | mm | W/m ² | |
| n261 | QTM-0 | patch | 27924.96 | Mid | 39 | - | 5.3 | CW | 04213 | 0.13 | 2 | Right | 5.400 | 6.460 | |
| n261 | QTM-0 | patch | 27549.96 | Low | - | 153 | 5.6 | CW | 04213 | -0.09 | 2 | Right | 4.750 | 5.890 | |
| n261 | QTM-0 | patch | 27549.96 | Low | 26 | 154 | 3.7 | CW | 04247 | 0.01 | 2 | Back | 4.000 | 5.980 | |
| n261 | QTM-0 | patch | 27549.96 | Low | 25 | 153 | 4.1 | CW | 04213 | 0.08 | 2 | Front | 1.030 | 1.250 | |
| n261 | QTM-0 | patch | 27549.96 | Low | 26 | 154 | 3.7 | CW | 04213 | 0.10 | 2 | Right | 5.460 | 7.540 | A1 |
| n261 | QTM-1 | patch | 27549.96 | Low | 34 | - | 4.1 | CW | 04247 | -0.10 | 2 | Back | 7.630 | 8.520 | |
| n261 | QTM-1 | patch | 27549.96 | Low | 34 | - | 4.1 | CW | 04247 | -0.14 | 2 | Back | 7.590 | 8.630 | A2 |
| n261 | QTM-1 | patch | 27549.96 | Low | 34 | - | 4.1 | CW | 04247 | 0.20 | 2 | Back | 7.460 | 8.310 | |
| n261 | QTM-1 | patch | 27549.96 | Low | - | 163 | 3.7 | CW | 04247 | -0.17 | 2 | Back | 6.700 | 8.060 | |
| n261 | QTM-1 | patch | 27549.96 | Low | 35 | 163 | 1.1 | CW | 04247 | 0.00 | 2 | Back | 6.460 | 8.030 | |
| n261 | QTM-1 | patch | 27549.96 | Low | 18 | 146 | 2.5 | CW | 04213 | 0.20 | 2 | Front | 0.083 | 0.098 | |
| n261 | QTM-1 | patch | 27924.96 | Mid | 22 | 150 | 2.1 | CW | 04213 | -0.13 | 2 | Top | 1.500 | 1.820 | |
| n261 | QTM-2 | patch | 27549.96 | Low | 42 | - | 4.9 | CW | 04247 | -0.09 | 2 | Back | 5.280 | 6.440 | |
| n261 | QTM-2 | patch | 27549.96 | Low | - | 157 | 5.0 | CW | 04247 | -0.01 | 2 | Back | 4.570 | 5.920 | |
| n261 | QTM-2 | patch | 27549.96 | Low | 31 | 159 | 2.5 | CW | 04247 | -0.14 | 2 | Back | 6.350 | 8.010 | A3 |
| n261 | QTM-2 | patch | 27549.96 | Low | 29 | 157 | 2.8 | CW | 04213 | -0.03 | 2 | Front | 0.310 | 0.469 | |
| n261 | QTM-2 | patch | 27549.96 | Low | 29 | 157 | 2.8 | CW | 04247 | 0.03 | 2 | Left | 4.330 | 5.440 | |
| 47 CFR §1.1310 - SAFETY LIMIT Spatial Average Uncontrolled Exposure / General Population | | | | | | | | | Power Density 10 W/m ² averaged over 4 cm ² | | | | | | |

Yellow entries represent Power Density Mechanical Mode #3. Blue entries represent Power Density Mechanical Mode #4.

| | | | | |
|--------------------------------------|---|---|---|---------------------------------|
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**Table 5-2
5G mmWave NR Band n260**

| MEASUREMENT RESULTS | | | | | | | | | | | | | | | |
|--|--------|--------------|-----------|---------|-----------|-----------|-------------------|-------------|---|-------------|----------|-------------|-------------|------------------|--------|
| Band | Module | Antenna Type | Frequency | Channel | Beam ID 1 | Beam ID 2 | input.power.limit | Signal Type | DUT S/N | Power Drift | Distance | DUT Surface | Normal psPD | Total psPD | Plot # |
| | | | MHz | | V | H | dBm | | | dB | | | mm | W/m ² | |
| n260 | QTM-0 | patch | 37050.00 | Low | 27 | - | 5.0 | CW | 04213 | -0.07 | 2 | Right | 3.270 | 4.620 | |
| n260 | QTM-0 | patch | 37050.00 | Low | - | 151 | 5.4 | CW | 04213 | -0.04 | 2 | Right | 3.360 | 4.460 | |
| n260 | QTM-0 | patch | 38499.96 | Mid | 24 | 152 | 3.7 | CW | 04247 | 0.09 | 2 | Back | 3.700 | 4.280 | |
| n260 | QTM-0 | patch | 38499.96 | Mid | 25 | 153 | 3.7 | CW | 04213 | 0.17 | 2 | Front | 1.100 | 1.640 | |
| n260 | QTM-0 | patch | 38499.96 | Mid | 27 | 155 | 3.5 | CW | 04213 | 0.15 | 2 | Right | 4.640 | 5.750 | A4 |
| n260 | QTM-1 | patch | 38499.96 | Mid | 22 | - | 4.8 | CW | 04247 | 0.04 | 2 | Back | 4.430 | 5.430 | |
| n260 | QTM-1 | patch | 38499.96 | Mid | - | 161 | 5.4 | CW | 04247 | -0.11 | 2 | Back | 4.250 | 5.280 | |
| n260 | QTM-1 | patch | 37050.00 | Low | 22 | 150 | 3.3 | CW | 04247 | 0.16 | 2 | Back | 5.030 | 7.310 | |
| n260 | QTM-1 | patch | 37050.00 | Low | 22 | 150 | 3.3 | CW | 04247 | 0.04 | 2 | Back | 5.540 | 8.000 | A5 |
| n260 | QTM-1 | patch | 37050.00 | Low | 35 | 163 | 4.5 | CW | 04213 | 0.17 | 2 | Front | 0.139 | 0.166 | |
| n260 | QTM-1 | patch | 38499.96 | Mid | 33 | 161 | 3.3 | CW | 04213 | -0.20 | 2 | Top | 1.510 | 1.570 | |
| n260 | QTM-2 | patch | 38499.96 | Mid | 44 | - | 4.3 | CW | 04247 | 0.15 | 2 | Back | 3.810 | 4.920 | |
| n260 | QTM-2 | patch | 38499.96 | Mid | - | 169 | 4.5 | CW | 04247 | -0.19 | 2 | Back | 4.270 | 5.380 | A6 |
| n260 | QTM-2 | patch | 38499.96 | Mid | 28 | 156 | 2.2 | CW | 04247 | -0.21 | 2 | Back | 3.950 | 5.310 | |
| n260 | QTM-2 | patch | 38499.96 | Mid | 44 | 172 | 2.2 | CW | 04213 | 0.20 | 2 | Front | 0.479 | 0.568 | |
| n260 | QTM-2 | patch | 38499.96 | Mid | 44 | 172 | 2.2 | CW | 04247 | 0.13 | 2 | Left | 2.710 | 3.530 | |
| 47 CFR §1.1310 - SAFETY LIMIT Spatial Average Uncontrolled Exposure / General Population | | | | | | | | | Power Density 10 W/m ² averaged over 4 cm ² | | | | | | |

Yellow entries represent Power Density Mechanical Mode #3.

| | | |
|--------------------------------------|---|---------------------------------|
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| Document S/N: 1M2007230114-01.ZNF | Test Dates: 08/24/2020 - 09/23/2020 | DUT Type: Portable Handset |
| | | Page 18 of 23 |

5.2 Power Density Test Notes

General Notes:

1. The manufacturer has confirmed that the devices tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
2. Batteries are fully charged at the beginning of the measurements. The DUT was connected to a wall charger for some measurements due to the test duration. It was confirmed that the charger plugged into this DUT did not impact the near-field PD test results.
3. Power density was calculated by repeated E-field measurements on two measurement planes separated by $\lambda/4$.
4. DUT was configured to transmit with a manufacturer provided test software to control specific antenna(s), Beam ID(s), and signal type to ensure the test configurations constant for the entire evaluation.
5. This device utilizes power reduction for some WLAN wireless modes and technologies for simultaneous transmission compliance. These mechanisms are assessed in the SAR Test Report.
6. *PD_design_target* of 6.166 W/m² was used with mmW device design related uncertainty of 2.1 dB.
7. *Input.power.limit* parameter for 5G mmW NR radio was calculated in RF Exposure Part 0 test report.
8. This device is enabled with Qualcomm® Smart Transmit feature to control and manage transmitting power in real time and to ensure that the time-averaged RF exposure from WWAN is in compliance with FCC requirements. Per FCC guidance for devices enabled with Qualcomm® Smart Transmit feature, 4G LTE and 5G mmW NR simultaneous transmission scenario does not need to be evaluated under Total Exposure Ratio (TER). The validation of the time-averaging algorithm and compliance under the Tx varying transmission scenario for WWAN technologies are reported in Part 2 report.
9. Per FCC guidance for devices enabled with Qualcomm® Smart Transmit feature, simultaneous transmission analysis is evaluated by combining the exposure from each WWAN and WLAN antenna. 5G mmW NR and WLAN simultaneous transmission scenario is evaluated under the Total Exposure Ratio (TER) in Appendix C.
10. The Beam IDs with one of the highest initial simulated power density for that surface and distance was selected for Part 1 Power Density measurements.
11. The device was configured to transmit CW wave signal for testing. Per FCC guidance for devices enabled with Qualcomm® Smart Transmit feature, additional testing was not required for different modulations (CP-OFDM: QPSK, 16QAM, 64QAM, DFT-s-OFDM: PI/2 BPSK, QPSK, 16QAM, 64QAM), RB configurations, component carriers, channel configurations (low channel, mid channel, high channel) since the smart transmit algorithm monitors powers on a per symbol basis, which is independent of these signal characteristics.
12. The device was configured to MIMO configuration with H and V polarization beams transmitting together.
13. This device supports four different mechanical modes: normal mode, normal mode + pop up, swivel mode, swivel mode + pop up. Per FCC guidance, Power Density with the mechanical mode 3 was measured for the configurations with the highest Power Density from mechanical mode 1 for each frequency band. When the worst case was right edge or left edge, the second-worst case was considered for testing with mechanical mode 3. The overall worst case from mode 1 or 3 was then additionally evaluated with pop-up (mode 2 or 4). Swivel-display section does not contain any Tx Antennas. Appendix D contains positioning information for the various mechanical modes.

| | | | |
|---|--|--|---|
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| Document S/N: 1M2007230114-01.ZNF | Test Dates: 08/24/2020 - 09/23/2020 | DUT Type: Portable Handset | Page 19 of 23 |

**Table 6-1
5G mmWave NR Equipment List**

| Manufacturer | Model | Description | Cal Date | Cal Interval | Cal Due | Serial Number |
|---------------------|---------------|---|----------|--------------|----------|---------------|
| - | WL25-1 | Conducted Cable Set (25GHz) | 10/30/19 | Annual | 10/30/20 | WL25-1 |
| - | WL40-1 | Conducted Cable Set (40GHz) | 10/30/19 | Annual | 10/30/20 | WL40-1 |
| Emco | 3116 | Horn Antenna (18 - 40GHz) | 06/07/18 | Triennial | 06/07/21 | 9203-2178 |
| Rohde & Schwarz | ESU40 | EMI Test Receiver (40GHz) | 09/23/19 | Annual | 09/23/20 | 100348 |
| SPEAG | EUmmWV3 | EUmmWV3 Probe | 02/14/20 | Annual | 02/14/21 | 9415 |
| SPEAG | EUmmWV3 | EUmmWV3 Probe | 12/10/19 | Annual | 12/10/20 | 9407 |
| SPEAG | SM 003 100 AA | 30GHz System Verification Ka- Band Source Antenna | 02/12/20 | Annual | 02/12/21 | 1035 |
| SPEAG | SM 003 100 AA | 30GHz System Verification Ka- Band Source Antenna | 05/14/20 | Annual | 05/14/21 | 1044 |
| SPEAG | DAE4 | Dasy Data Acquisition Electronics | 03/12/20 | Annual | 03/12/21 | 1415 |
| SPEAG | DAE4 | Dasy Data Acquisition Electronics | 02/20/20 | Annual | 02/20/21 | 1272 |
| Virginia Diodes Inc | SAX252 | Spectrum Analyzer Extension Module | 09/30/19 | Annual | 09/30/20 | SAX252 |
| Virginia Diodes Inc | SAX253 | Spectrum Analyzer Extension Module | 09/30/19 | Annual | 09/30/20 | SAX253 |
| Virginia Diodes Inc | SAX254 | Spectrum Analyzer Extension Module | 09/30/19 | Annual | 09/30/20 | SAX254 |

Note:

1. Each equipment item was used solely within its respective calibration period.

| | | | | |
|---|--|---|---|--|
| FCC ID: ZNFF100VM |  PCTEST <small>Proved to be part of Element</small> | NEAR-FIELD POWER DENSITY EVALUATION REPORT |  LG | Approved by: Quality Manager |
| Document S/N: 1M2007230114-01.ZNF | Test Dates: 08/24/2020 - 09/23/2020 | DUT Type: Portable Handset | Page 20 of 23 | |

7

MEASUREMENT UNCERTAINTIES

| a Uncertainty Component | b | c | d | e | f = b x e/d | g |
|--|----------------|----------------|------|-----|----------------|----|
| | Unc. (± dB) | Prob. Dist. | Div. | ci | ui (± dB) | vi |
| Calibration | 0.49 | N | 1 | 1.0 | 0.49 | ∞ |
| Probe correction | 0 | R | 1.73 | 1.0 | 0.00 | ∞ |
| Frequency Response (BW ≤ 1 GHz) | 0.20 | R | 1.73 | 1.0 | 0.12 | ∞ |
| Sensor cross coupling | 0 | R | 1.73 | 1.0 | 0.00 | ∞ |
| Isotropy | 0.50 | R | 1.73 | 1.0 | 0.29 | ∞ |
| Linearity | 0.20 | R | 1.73 | 1.0 | 0.12 | ∞ |
| Probe Scattering | 0 | R | 1.73 | 1.0 | 0 | ∞ |
| Probe Positioning Offset | 0.30 | R | 1.73 | 1.0 | 0.17 | ∞ |
| Probe Positioning Repeatability | 0.04 | R | 1.73 | 1.0 | 0.02 | ∞ |
| Sensor Mechanical Offset | 0 | R | 1.73 | 1.0 | 0 | ∞ |
| Probe Spatial Resolution | 0 | R | 1.73 | 1.0 | 0 | ∞ |
| Field Impedance Dependence | 0 | R | 1.73 | 1.0 | 0 | ∞ |
| Amplitude and phase drift | 0 | R | 1.73 | 1.0 | 0 | ∞ |
| Amplitude and phase noise | 0.04 | R | 1.73 | 1.0 | 0.02 | ∞ |
| Measurement area truncation | 0 | R | 1.73 | 1.0 | 0 | ∞ |
| Data acquisition | 0.03 | N | 1 | 1.0 | 0.03 | ∞ |
| Sampling | 0 | R | 1.73 | 1.0 | 0 | ∞ |
| Field Reconstruction | 0.60 | R | 1.73 | 1.0 | 0.35 | ∞ |
| Forward Transformation | 0 | R | 1.73 | 1.0 | 0 | ∞ |
| Power Density Scaling | - | R | 1.73 | 1.0 | - | ∞ |
| Spatial Averaging | 0.10 | R | 1.73 | 1.0 | 0.06 | ∞ |
| System Detection Limit | 0.04 | R | 1.73 | 1.0 | 0.02 | ∞ |
| Test Sample and Environmental Factors | | | | | | |
| Probe Coupling with DUT | 0 | R | 1.73 | 1.0 | 0 | ∞ |
| Modulation Response | 0.40 | R | 1.73 | 1.0 | 0.23 | ∞ |
| Integration Time | 0 | R | 1.73 | 1.0 | 0 | ∞ |
| Response Time | 0 | R | 1.73 | 1.0 | 0 | ∞ |
| Device Holder Influence | 0.10 | R | 1.73 | 1.0 | 0.06 | ∞ |
| DUT Alignment | 0 | R | 1.73 | 1.0 | 0 | ∞ |
| RF Ambient Conditions | 0.04 | R | 1.73 | 1.0 | 0.02 | ∞ |
| Ambient Reflections | 0.04 | R | 1.73 | 1.0 | 0.02 | ∞ |
| Immunity / Secondary Reception | 0 | R | 1.73 | 1.0 | 0 | ∞ |
| Drift of the DUT | 0.22 | R | 1.73 | 1.0 | 0.13 | ∞ |
| Combined Standard Uncertainty (k=1) | | RSS | | | 0.76 | ∞ |
| (95% CONFIDENCE LEVEL) | k=2 | | | | 1.53 | |

| | | | | |
|--------------------------------------|--|---|---|---------------------------------|
| FCC ID: ZNFF100VM |  PCTEST Proud to be part of  | NEAR-FIELD POWER DENSITY EVALUATION REPORT |  LG | Approved by: Quality Manager |
| Document S/N: 1M2007230114-01.ZNF | Test Dates: 08/24/2020 - 09/23/2020 | DUT Type: Portable Handset | Page 21 of 23 | |

8.1 Measurement Conclusion

The power density measurements and total exposure ratio analysis indicate that the DUT complies with the RF radiation exposure limits of the FCC, with respect to all parameters subject to this test. These measurements were taken to simulate the RF effects of RF exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The results and statements relate only to the item(s) tested.

Please note that the RF Exposure and distribution of electromagnetic energy in the body are very complex phenomena that depend on the mass, shape, and size of the body, the orientation of the body with respect to the field vectors, and the electrical properties of both the body and the environment. Other variables that may play a substantial role in possible biological effects are those that characterize the environment (e.g. ambient temperature, air velocity, relative humidity, and body insulation) and those that characterize the individual (e.g. age, gender, activity level, debilitation, or disease). Because various factors may interact with one another to vary the specific biological outcome of an exposure to electromagnetic fields, any protection guide should consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables.

| | | | |
|---|---|--------------------------------------|--|
| FCC ID: ZNFF100VM |  NEAR-FIELD POWER DENSITY EVALUATION REPORT  | | Approved by: Quality Manager |
| Document S/N: 1M2007230114-01.ZNF | Test Dates: 08/24/2020 - 09/23/2020 | DUT Type: Portable Handset | Page 22 of 23 |

- [1] ANSI/IEEE C95.1-1992, American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 3kHz to 300GHz, New York: IEEE, Sept. 1992.
- [2] IEC TR 63170:2018, Measurement Procedure for the Evaluation of Power Density Related to Human Exposure to Radiofrequency Fields from Wireless Communication Devices Operating between 6 GHz and 100 GHz
- [3] IEC TR 62630 : 2010, Guidance for Evaluating Exposure from Multiple Electromagnetic Sources
- [4] K. Pokovic, T. Schmid, J. Frohlich, and N. Kuster. Novel Probes and Evaluation Procedures to Assess Field Magnitude and Polarization. IEEE Transactions on Electromagnetic Compatibility 42(2): 240 -244, 2000
- [5] R. W. Gerchberg and W. O. Saxton. A Practical Algorithm for the Determination of Phase from Image and Diffraction Plane Pictures. Optik 35(2): 237 – 246, 1972
- [6] A. P. Anderson and S. Sali. New Possibilities for Phaseless Microwave Diagnostics. Part 1: Error Reduction Techniques. IEE Proceedings H – Microwaves, Antennas and Propagation 132(5): 290 – 298, 1985
- [7] FCC KDB 865664 D02 v01r04: SAR Measurement Requirements for 100 MHz to 6 GHz. Federal Communications Commission – Office of Engineering and Technology, Laboratory Division.
- [8] FCC KDB 447498 D01 v02r01: RF Exposure Procedures and Equipment Authorization Policies for Mobile and Portable Devices. Federal Communications Commission – Office of Engineering and Technology, Laboratory Division.
- [9] November 2017 Telecommunications Certification Body Council (TCBC) Workshop Notes
- [10] October 2018 Telecommunications Certification Body Council (TCBC) Workshop Notes
- [11] April 2019 Telecommunications Certification Body Council (TCBC) Workshop Notes
- [12] November 2019 Telecommunications Certification Body Council (TCBC) Workshop Notes
- [13] SPEAG DASY6 System Handbook (September 2019)

| | | | | |
|---|--|---|---|--|
| FCC ID: ZNFF100VM |  PCTEST <small>Proved to be part of</small> | NEAR-FIELD POWER DENSITY EVALUATION REPORT |  LG | Approved by: Quality Manager |
| Document S/N: 1M2007230114-01.ZNF | Test Dates: 08/24/2020 - 09/23/2020 | DUT Type: Portable Handset | Page 23 of 23 | |

APPENDIX A: POWER DENSITY TEST PLOTS

PCTEST

Date: 08/24/20

Antenna QTM-0; Beam 26/154; MIMO; Low Ch.; CW

Device Under Test Properties

| DUT | Serial Number | DUT Type |
|-----------|---------------|------------------|
| ZNFF100VM | 04213 | Portable Handset |

Exposure Conditions

| Phantom Section | Position | Test Distance [mm] | Band | Frequency [MHz] |
|-----------------|----------|--------------------|------|-----------------|
| 5G | RIGHT | 2.00 | n261 | 27550.00 |

Hardware Setup

| Probe, Calibration Date | DAE, Calibration Date |
|----------------------------|-----------------------|
| EUmmWV3 - SN9415, 02/14/20 | DAE4 SN1415, 03/12/20 |

Software Setup

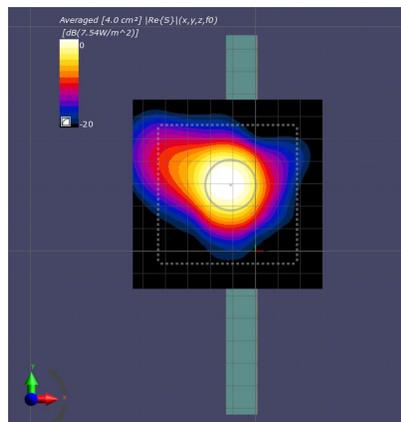
| Software | Software Version |
|----------------------|------------------|
| cDASY6 Module mmWave | 2.0.2.34 |

Scans Setup

| | |
|---------------------|-------------|
| Scan Type | 5G Scan |
| Grid Extents [mm] | 80x80 |
| Grid Steps [lambda] | 0.25 x 0.25 |
| Sensor Surface [mm] | 2.0 |

Measurement Results

| | |
|---|---------|
| Scan Type | 5G Scan |
| Avg. Area [cm ²] | 4.00 |
| pS _{tot} avg [W/m ²] | 7.54 |
| pS _n avg [W/m ²] | 5.46 |
| E _{peak} [V/m] | 102 |
| Power Drift [dB] | 0.10 |



PCTEST

Date: 08/31/20

Antenna QTM-1; Beam 34; V; Low Ch.; CW; Mechanical Mode #3

Device Under Test Properties

| DUT | Serial Number | DUT Type |
|-----------|---------------|------------------|
| ZNFF100VM | 04247 | Portable Handset |

Exposure Conditions

| Phantom Section | Position | Test Distance [mm] | Band | Frequency [MHz] |
|-----------------|----------|--------------------|------|-----------------|
| 5G | BACK | 2.00 | n261 | 27550.00 |

Hardware Setup

| Probe, Calibration Date | DAE, Calibration Date |
|---------------------------|-----------------------|
| EUmWV3 - SN9407, 12/10/19 | DAE4 SN1272, 02/20/20 |

Software Setup

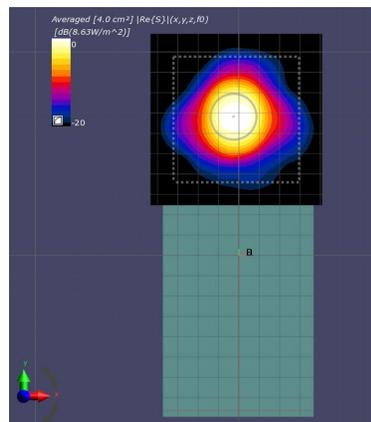
| Software | Software Version |
|----------------------|------------------|
| cDASY6 Module mmWave | 2.0.2.34 |

Scans Setup

| | |
|---------------------|-------------|
| Scan Type | 5G Scan |
| Grid Extents [mm] | 80x80 |
| Grid Steps [lambda] | 0.25 x 0.25 |
| Sensor Surface [mm] | 2.0 |

Measurement Results

| | |
|---|---------|
| Scan Type | 5G Scan |
| Avg. Area [cm ²] | 4.00 |
| pS _{tot} avg [W/m ²] | 8.63 |
| pS _n avg [W/m ²] | 7.59 |
| E _{peak} [V/m] | 103 |
| Power Drift [dB] | -0.14 |



PCTEST

Date: 08/27/20

Antenna QTM-2; Beam 31/159; MIMO; Low Ch.; CW

Device Under Test Properties

| DUT | Serial Number | DUT Type |
|-----------|---------------|------------------|
| ZNFF100VM | 04247 | Portable Handset |

Exposure Conditions

| Phantom Section | Position | Test Distance [mm] | Band | Frequency [MHz] |
|-----------------|----------|--------------------|------|-----------------|
| 5G | BACK | 2.00 | n261 | 27550.00 |

Hardware Setup

| Probe, Calibration Date | DAE, Calibration Date |
|---------------------------|-----------------------|
| EUmWV3 - SN9407, 12/10/19 | DAE4 SN1272, 02/20/20 |

Software Setup

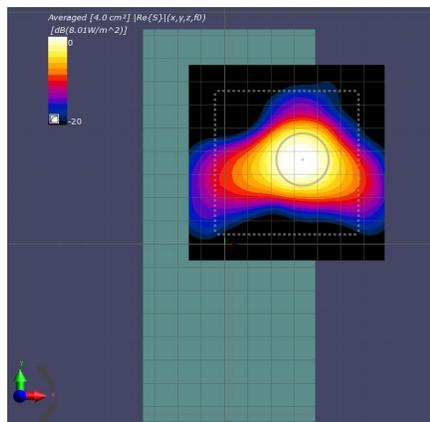
| Software | Software Version |
|----------------------|------------------|
| cDASY6 Module mmWave | 2.0.2.34 |

Scans Setup

| | |
|---------------------|-------------|
| Scan Type | 5G Scan |
| Grid Extents [mm] | 80x80 |
| Grid Steps [lambda] | 0.25 x 0.25 |
| Sensor Surface [mm] | 2.0 |

Measurement Results

| | |
|---|---------|
| Scan Type | 5G Scan |
| Avg. Area [cm ²] | 4.00 |
| pS _{tot} avg [W/m ²] | 8.01 |
| pS _n avg [W/m ²] | 6.35 |
| E _{peak} [V/m] | 90.2 |
| Power Drift [dB] | -0.14 |



PCTEST

Date: 08/24/20

Antenna QTM-0; Beam 27/155; MIMO; Mid Ch.; CW

Device Under Test Properties

| DUT | Serial Number | DUT Type |
|-----------|---------------|------------------|
| ZNFF100VM | 04213 | Portable Handset |

Exposure Conditions

| Phantom Section | Position | Test Distance [mm] | Band | Frequency [MHz] |
|-----------------|----------|--------------------|------|-----------------|
| 5G | RIGHT | 2.00 | n260 | 38500.00 |

Hardware Setup

| Probe, Calibration Date | DAE, Calibration Date |
|----------------------------|-----------------------|
| EUmmWV3 - SN9415, 02/14/20 | DAE4 SN1415, 03/12/20 |

Software Setup

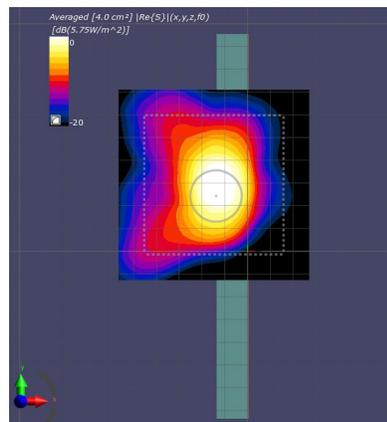
| Software | Software Version |
|----------------------|------------------|
| cDASY6 Module mmWave | 2.0.2.34 |

Scans Setup

| | |
|---------------------|-------------|
| Scan Type | 5G Scan |
| Grid Extents [mm] | 80x80 |
| Grid Steps [lambda] | 0.25 x 0.25 |
| Sensor Surface [mm] | 2.0 |

Measurement Results

| | |
|---|---------|
| Scan Type | 5G Scan |
| Avg. Area [cm ²] | 4.00 |
| pS _{tot} avg [W/m ²] | 5.75 |
| pS _n avg [W/m ²] | 4.64 |
| E _{peak} [V/m] | 111 |
| Power Drift [dB] | 0.15 |



PCTEST

Date: 08/31/20

Antenna QTM-1; Beam 22/150; MIMO; Low Ch.; CW; Mechanical Mode #3

Device Under Test Properties

| DUT | Serial Number | DUT Type |
|-----------|---------------|------------------|
| ZNFF100VM | 04247 | Portable Handset |

Exposure Conditions

| Phantom Section | Position | Test Distance [mm] | Band | Frequency [MHz] |
|-----------------|----------|--------------------|------|-----------------|
| 5G | BACK | 2.00 | n260 | 37050.00 |

Hardware Setup

| Probe, Calibration Date | DAE, Calibration Date |
|---------------------------|-----------------------|
| EUmWV3 - SN9407, 12/10/19 | DAE4 SN1272, 02/20/20 |

Software Setup

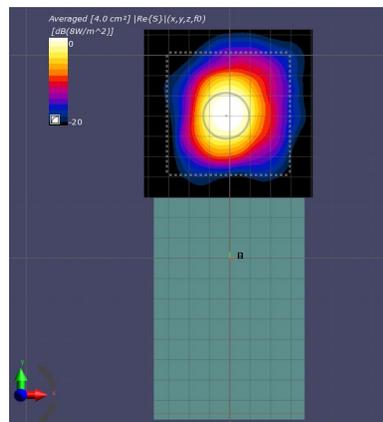
| Software | Software Version |
|----------------------|------------------|
| cDASY6 Module mmWave | 2.0.2.34 |

Scans Setup

| | |
|---------------------|-------------|
| Scan Type | 5G Scan |
| Grid Extents [mm] | 80x80 |
| Grid Steps [lambda] | 0.25 x 0.25 |
| Sensor Surface [mm] | 2.0 |

Measurement Results

| | |
|---|---------|
| Scan Type | 5G Scan |
| Avg. Area [cm ²] | 4.00 |
| pS _{tot} avg [W/m ²] | 8 |
| pS _n avg [W/m ²] | 5.54 |
| E _{peak} [V/m] | 119 |
| Power Drift [dB] | 0.04 |



PCTEST

Date: 08/26/20

Antenna QTM-2; Beam 169; H; Mid Ch.; CW

Device Under Test Properties

| DUT | Serial Number | DUT Type |
|-----------|---------------|------------------|
| ZNFF100VM | 04247 | Portable Handset |

Exposure Conditions

| Phantom Section | Position | Test Distance [mm] | Band | Frequency [MHz] |
|-----------------|----------|--------------------|------|-----------------|
| 5G | BACK | 2.00 | n260 | 38500.00 |

Hardware Setup

| Probe, Calibration Date | DAE, Calibration Date |
|---------------------------|-----------------------|
| EUmWV3 - SN9407, 12/10/19 | DAE4 SN1272, 02/20/20 |

Software Setup

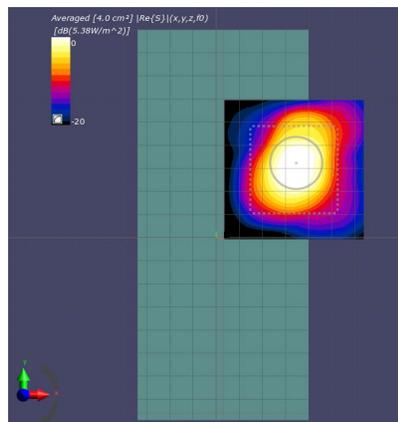
| Software | Software Version |
|----------------------|------------------|
| cDASY6 Module mmWave | 2.0.2.34 |

Scans Setup

| | |
|---------------------|-------------|
| Scan Type | 5G Scan |
| Grid Extents [mm] | 60x60 |
| Grid Steps [lambda] | 0.25 x 0.25 |
| Sensor Surface [mm] | 2.0 |

Measurement Results

| | |
|---|---------|
| Scan Type | 5G Scan |
| Avg. Area [cm ²] | 4.00 |
| pS _{tot} avg [W/m ²] | 5.38 |
| pS _n avg [W/m ²] | 4.27 |
| E _{peak} [V/m] | 105 |
| Power Drift [dB] | -0.19 |



APPENDIX B: POWER DENSITY SYSTEM VERIFICATION PLOTS

PCTEST

Date: 08/28/20

30 GHz System Verification

Device Under Test Properties

| | |
|----------------------------|----------------------|
| DUT | Serial Number |
| 30 GHz Verification Source | 1035 |

Exposure Conditions

| | | | | |
|------------------------|-----------------|---------------------------|-----------------|------------------------|
| Phantom Section | Position | Test Distance [mm] | Band | Frequency [MHz] |
| 5G | FRONT | 5.55 | Validation band | 30000.00 |

Hardware Setup

| | |
|--------------------------------|------------------------------|
| Probe, Calibration Date | DAE, Calibration Date |
| EUmmWV3 - SN9415, 02/14/20 | DAE4 SN1415, 03/12/20 |

Software Setup

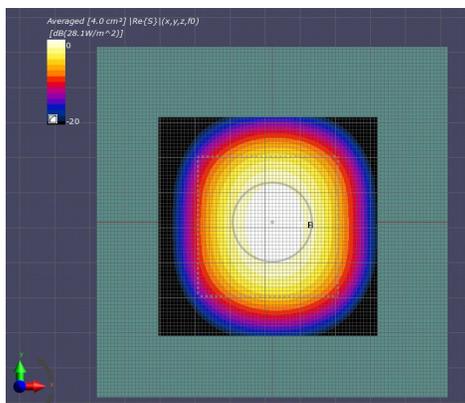
| | |
|----------------------|-------------------------|
| Software | Software Version |
| cDASY6 Module mmWave | 2.0.2.34 |

Scans Setup

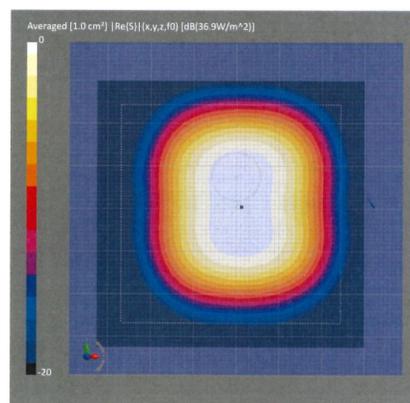
| | |
|----------------------------|-------------|
| Scan Type | 5G Scan |
| Grid Extents [mm] | 60.0 x 60.0 |
| Grid Steps [lambda] | 0.25 x 0.25 |
| Sensor Surface [mm] | 5.55 |

Measurement Results

| | |
|---|---------|
| Scan Type | 5G Scan |
| Avg. Area [cm²] | 4.00 |
| pS_{tot} avg [W/m²] | 28.1 |
| pS_n avg [W/m²] | 27.6 |
| E_{peak} [V/m] | 122 |
| Deviation (dB) | -0.63 |



30GHz System Verification



Calibration Certificate

PCTEST

Date: 08/27/20

30 GHz System Verification

Device Under Test Properties

| | |
|----------------------------|---------------|
| DUT | Serial Number |
| 30 GHz Verification Source | 1044 |

Exposure Conditions

| Phantom Section | Position | Test Distance [mm] | Band | Frequency [MHz] |
|-----------------|----------|--------------------|-----------------|-----------------|
| 5G | FRONT | 5.55 | Validation band | 30000.00 |

Hardware Setup

| | |
|----------------------------|-----------------------|
| Probe, Calibration Date | DAE, Calibration Date |
| EUmmWV3 - SN9407, 12/10/19 | DAE4 SN1272, 02/20/20 |

Software Setup

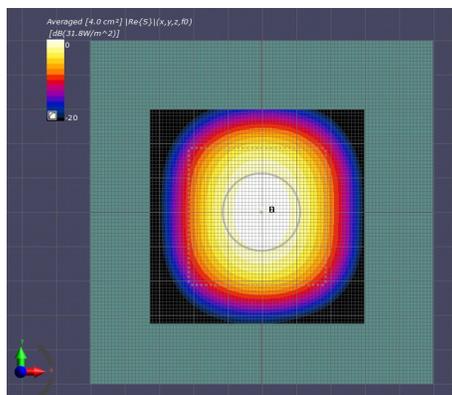
| | |
|----------------------|------------------|
| Software | Software Version |
| cDASY6 Module mmWave | 2.0.2.34 |

Scans Setup

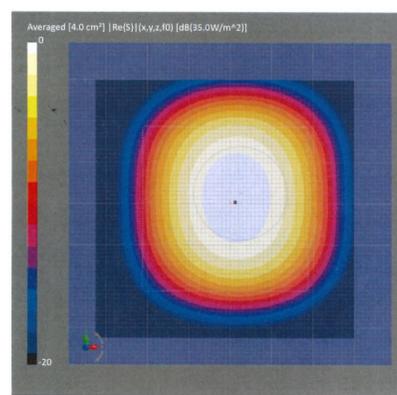
| | |
|---------------------|-------------|
| Scan Type | 5G Scan |
| Grid Extents [mm] | 60.0 x 60.0 |
| Grid Steps [lambda] | 0.25 x 0.25 |
| Sensor Surface [mm] | 5.55 |

Measurement Results

| | |
|---|---------|
| Scan Type | 5G Scan |
| Avg. Area [cm ²] | 4.00 |
| pS _{tot} avg [W/m ²] | 31.8 |
| pS _n avg [W/m ²] | 31.2 |
| E _{peak} [V/m] | 130 |
| Deviation (dB) | -0.42 |



30GHz System Verification



Calibration Certificate

APPENDIX E: PROBE AND VERIFICATION SOURCE CALIBRATION CERTIFICATES



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

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **EUmmWV3-9415_Feb20**

CALIBRATION CERTIFICATE

Object: **EUmmWV3 - SN:9415**

Calibration procedure(s): **QA CAL-02.v9, QA CAL-25.v7, QA CAL-42.v2**
Calibration procedure for E-field probes optimized for close near field evaluations in air

Calibration date: **February 14, 2020**

*MAB
4/8/20*

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

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards | ID | Cal Date (Certificate No.) | Scheduled Calibration |
|----------------------------|------------------|-----------------------------------|------------------------|
| Power meter NRP | SN: 104778 | 03-Apr-19 (No. 217-02892/02893) | Apr-20 |
| Power sensor NRP-Z91 | SN: 103244 | 03-Apr-19 (No. 217-02892) | Apr-20 |
| Power sensor NRP-Z91 | SN: 103245 | 03-Apr-19 (No. 217-02893) | Apr-20 |
| Reference 20 dB Attenuator | SN: S5277 (20x) | 04-Apr-19 (No. 217-02894) | Apr-20 |
| Reference Probe ER3DV6 | SN: 2328 | 05-Oct-19 (No. ER3-2328_Oct19) | Oct-20 |
| DAE4 | SN: 789 | 27-Dec-19 (No. DAE4-789_Dec19) | Dec-20 |
| Secondary Standards | ID | Check Date (in house) | Scheduled Check |
| Power meter E4419B | SN: GB41293874 | 06-Apr-16 (in house check Jun-18) | In house check: Jun-20 |
| Power sensor E4412A | SN: MY41498087 | 06-Apr-16 (in house check Jun-18) | In house check: Jun-20 |
| Power sensor E4412A | SN: 000110210 | 06-Apr-16 (in house check Jun-18) | In house check: Jun-20 |
| RF generator HP 8648C | SN: US3642U01700 | 04-Aug-99 (in house check Jun-18) | In house check: Jun-20 |
| Network Analyzer HP 8753E | SN: US37390585 | 18-Oct-01 (in house check Oct-19) | In house check: Oct-20 |

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

Issued: February 15, 2020

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 0108**

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

Glossary:

| | |
|--------------------------|--|
| NORM _{x,y,z} | sensitivity in free space |
| DCP | diode compression point |
| CF | crest factor (1/duty_cycle) of the RF signal |
| A, B, C, D | modulation dependent linearization parameters |
| Polarization φ | φ rotation around probe axis |
| Polarization ϑ | ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis |
| Connector Angle | information used in DASY system to align probe sensor X to the robot coordinate system |
| Sensor Angles | sensor deviation from the probe axis, used to calculate the field orientation and polarization |
| k | is the wave propagation direction |

Calibration is Performed According to the Following Standards:

- IEEE Std 1309-2005, "IEEE Standard for calibration of electromagnetic field sensors and probes, excluding antennas, from 9 kHz to 40 GHz", December 2005

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\vartheta = 0$ for XY sensors and $\vartheta = 90$ for Z sensor ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). For frequencies > 6 GHz, the far field in front of waveguide horn antennas is measured for a set of frequencies in various waveguide bands up to 110 GHz.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- The frequency sensor model parameters are determined prior to calibration based on a frequency sweep (sensor model involving resistors R, R_p, inductance L and capacitors C, C_p).
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; D_{x,y,z}; VR_{x,y,z}; A, B, C, D** are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- Sensor Offset**: The sensor offset corresponds to the mechanical from the probe tip (on probe axis). No tolerance required.
- Connector Angle**: The angle is assessed using the information gained by determining the NORM_x (no uncertainty required).
- Equivalent Sensor Angle**: The two probe sensors are mounted in the same plane at different angles. The angles are assessed using the information gained by determining the NORM_x (no uncertainty required).
- Spherical isotropy (3D deviation from isotropy)**: in a locally homogeneous field realized using an open waveguide / horn setup.

DASY - Parameters of Probe: EUmmWV3 - SN:9415

Basic Calibration Parameters

| | Sensor X | Sensor Y | Unc (k=2) |
|--------------------------|----------|----------|---------------|
| Norm ($\mu V/(V/m)^2$) | 0.02252 | 0.02610 | $\pm 10.1 \%$ |
| DCP (mV) ^B | 100.0 | 113.0 | |
| Equivalent Sensor Angle | -60.2 | 34.7 | |

Calibration results for Frequency Response (750 MHz – 110 GHz)

| Frequency GHz | Target E-Field V/m | Deviation Sensor X dB | Deviation Sensor Y dB | Unc (k=2) dB |
|---------------|--------------------|-----------------------|-----------------------|---------------|
| 0.75 | 77.2 | 0.01 | 0.12 | ± 0.43 dB |
| 1.8 | 140.4 | 0.09 | 0.12 | ± 0.43 dB |
| 2 | 133.0 | 0.04 | 0.07 | ± 0.43 dB |
| 2.2 | 124.8 | 0.04 | 0.04 | ± 0.43 dB |
| 2.5 | 123.0 | -0.06 | -0.08 | ± 0.43 dB |
| 3.5 | 256.2 | 0.07 | -0.02 | ± 0.43 dB |
| 3.7 | 249.8 | 0.12 | 0.04 | ± 0.43 dB |
| | | | | |
| 6.6 | 41.8 | 0.57 | 0.29 | ± 0.98 dB |
| 8 | 48.4 | 0.12 | -0.21 | ± 0.98 dB |
| 10 | 54.4 | -0.05 | -0.01 | ± 0.98 dB |
| 15 | 71.5 | -0.13 | -0.31 | ± 0.98 dB |
| 18 | 85.3 | 0.03 | 0.23 | ± 0.98 dB |
| | | | | |
| 26.6 | 96.9 | -0.04 | 0.11 | ± 0.98 dB |
| 30 | 92.6 | 0.12 | 0.12 | ± 0.98 dB |
| 35 | 93.7 | -0.40 | -0.14 | ± 0.98 dB |
| 40 | 91.5 | -0.48 | -0.49 | ± 0.98 dB |
| | | | | |
| 50 | 19.6 | -0.21 | -0.42 | ± 0.98 dB |
| 55 | 22.4 | 0.75 | 0.21 | ± 0.98 dB |
| 60 | 23.0 | 0.02 | -0.01 | ± 0.98 dB |
| 65 | 27.4 | -0.31 | 0.05 | ± 0.98 dB |
| 70 | 23.9 | 0.13 | 0.07 | ± 0.98 dB |
| 75 | 20.0 | -0.07 | 0.07 | ± 0.98 dB |
| | | | | |
| 75 | 14.8 | -0.06 | -0.08 | ± 0.98 dB |
| 80 | 22.5 | 0.04 | 0.18 | ± 0.98 dB |
| 85 | 22.8 | 0.01 | -0.05 | ± 0.98 dB |
| 90 | 23.8 | 0.03 | 0.06 | ± 0.98 dB |
| 92 | 23.9 | -0.09 | -0.16 | ± 0.98 dB |
| 95 | 20.5 | -0.10 | -0.17 | ± 0.98 dB |
| 97 | 24.4 | 0.02 | -0.07 | ± 0.98 dB |
| 100 | 22.6 | -0.04 | -0.04 | ± 0.98 dB |
| 105 | 22.7 | -0.08 | 0.00 | ± 0.98 dB |
| 110 | 19.7 | 0.14 | 0.14 | ± 0.98 dB |

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

^B Numerical linearization parameter: uncertainty not required.

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

DASY - Parameters of Probe: EUmmWV3 - SN:9415

Calibration Results for Modulation Response

| UID | Communication System Name | | A dB | B dB $\sqrt{\mu V}$ | C | D dB | VR mV | Max dev. | Max Unc ^E (k=2) |
|-----------|-----------------------------|---|---------|------------------------|-------|---------|----------|-------------|----------------------------------|
| 0 | CW | X | 0.00 | 0.00 | 1.00 | 0.00 | 110.9 | $\pm 3.8\%$ | $\pm 4.7\%$ |
| | | Y | 0.00 | 0.00 | 1.00 | | 95.6 | | |
| 10352-AAA | Pulse Waveform (200Hz, 10%) | X | 2.49 | 60.00 | 13.67 | 10.00 | 6.0 | $\pm 1.2\%$ | $\pm 9.6\%$ |
| | | Y | 2.06 | 60.00 | 14.31 | | 6.0 | | |
| 10353-AAA | Pulse Waveform (200Hz, 20%) | X | 1.63 | 60.00 | 12.61 | 6.99 | 12.0 | $\pm 0.8\%$ | $\pm 9.6\%$ |
| | | Y | 1.36 | 60.00 | 13.35 | | 12.0 | | |
| 10354-AAA | Pulse Waveform (200Hz, 40%) | X | 0.92 | 60.00 | 11.37 | 3.98 | 23.0 | $\pm 0.9\%$ | $\pm 9.6\%$ |
| | | Y | 0.79 | 60.00 | 12.22 | | 23.0 | | |
| 10355-AAA | Pulse Waveform (200Hz, 60%) | X | 0.56 | 60.00 | 10.42 | 2.22 | 27.0 | $\pm 0.8\%$ | $\pm 9.6\%$ |
| | | Y | 0.50 | 60.00 | 11.35 | | 27.0 | | |
| 10387-AAA | QPSK Waveform, 1 MHz | X | 1.00 | 60.00 | 11.30 | 1.00 | 22.0 | $\pm 2.1\%$ | $\pm 9.6\%$ |
| | | Y | 0.99 | 60.00 | 11.63 | | 22.0 | | |
| 10388-AAA | QPSK Waveform, 10 MHz | X | 1.26 | 60.00 | 11.64 | 0.00 | 22.0 | $\pm 0.7\%$ | $\pm 9.6\%$ |
| | | Y | 1.22 | 60.00 | 11.83 | | 22.0 | | |
| 10396-AAA | 64-QAM Waveform, 100 kHz | X | 2.61 | 62.98 | 15.02 | 3.01 | 17.0 | $\pm 0.6\%$ | $\pm 9.6\%$ |
| | | Y | 2.18 | 61.08 | 14.03 | | 17.0 | | |
| 10399-AAA | 64-QAM Waveform, 40 MHz | X | 2.12 | 60.00 | 12.25 | 0.00 | 19.0 | $\pm 0.7\%$ | $\pm 9.6\%$ |
| | | Y | 2.00 | 60.00 | 12.36 | | 19.0 | | |
| 10414-AAA | WLAN CCDF, 64-QAM, 40MHz | X | 3.22 | 60.00 | 12.72 | 0.00 | 12.0 | $\pm 0.9\%$ | $\pm 9.6\%$ |
| | | Y | 3.01 | 60.00 | 12.79 | | 12.0 | | |

Note: For details on all calibrated UID parameters see Appendix

Calibration Results for Linearity Response

| Frequency GHz | Target E-Field V/m | Deviation Sensor X dB | Deviation Sensor Y dB | Unc (k=2) dB |
|------------------|-----------------------|-----------------------|-----------------------|-----------------|
| 0.9 | 50.0 | -0.14 | -0.14 | ± 0.2 dB |
| 0.9 | 100.0 | -0.11 | -0.02 | ± 0.2 dB |
| 0.9 | 500.0 | 0.02 | 0.01 | ± 0.2 dB |
| 0.9 | 1000.0 | 0.05 | 0.03 | ± 0.2 dB |
| 0.9 | 1500.0 | 0.04 | 0.03 | ± 0.2 dB |
| 0.9 | 2000.0 | 0.00 | 0.01 | ± 0.2 dB |

Sensor Frequency Model Parameters (750 MHz – 78 GHz)

| | Sensor X | Sensor Y |
|-----------------------------|----------|----------|
| R (Ω) | 41.29 | 47.24 |
| R _p (Ω) | 94.83 | 89.63 |
| L (nH) | 0.03642 | 0.04028 |
| C (pF) | 0.2073 | 0.2715 |
| C _p (pF) | 0.1227 | 0.1167 |

Sensor Frequency Model Parameters (55 GHz – 110 GHz)

| | Sensor X | Sensor Y |
|-----------------------------|----------|----------|
| R (Ω) | 29.45 | 32.76 |
| R _p (Ω) | 99.11 | 94.92 |
| L (nH) | 0.03900 | 0.03350 |
| C (pF) | 0.1315 | 0.1918 |
| C _p (pF) | 0.1283 | 0.1320 |

DASY - Parameters of Probe: EUmmWV3 - SN:9415

Sensor Model Parameters

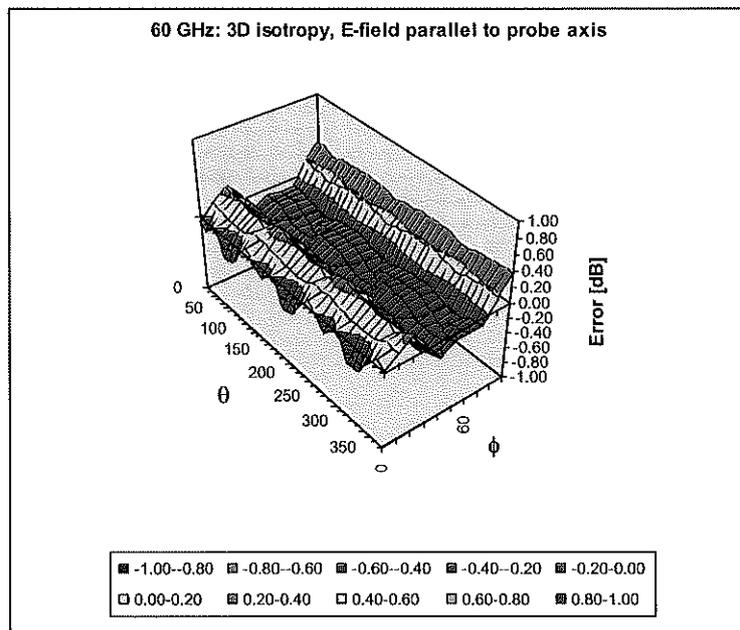
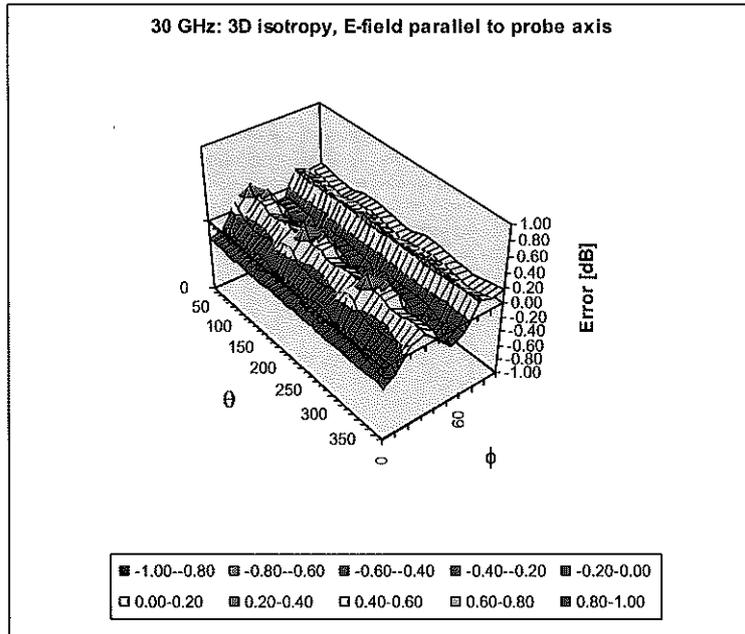
| | C1 fF | C2 fF | α V ⁻¹ | T1 ms.V ⁻² | T2 ms.V ⁻¹ | T3 ms | T4 V ⁻² | T5 V ⁻¹ | T6 |
|---|----------|----------|-----------------------------|--------------------------|--------------------------|----------|-----------------------|-----------------------|------|
| X | 34.6 | 259.81 | 35.60 | 0.92 | 5.09 | 4.98 | 0.00 | 1.54 | 1.01 |
| Y | 34.5 | 242.14 | 31.75 | 0.92 | 4.21 | 5.00 | 0.00 | 1.45 | 1.01 |

Other Probe Parameters

| | |
|---|-------------|
| Sensor Arrangement | Rectangular |
| Connector Angle (°) | 185.2 |
| Mechanical Surface Detection Mode | enabled |
| Optical Surface Detection Mode | disabled |
| Probe Overall Length | 320 mm |
| Probe Body Diameter | 8 mm |
| Tip Length | 23 mm |
| Tip Diameter | 8.0 mm |
| Probe Tip to Sensor X Calibration Point | 1.5 mm |
| Probe Tip to Sensor Y Calibration Point | 1.5 mm |

Deviation from Isotropy in Air

f = 30, 60 GHz



Probe isotropy for E_{tot} : probe rotated $\phi = 0^\circ$ to 360° , tilted from field propagation direction \vec{k}
 Parallel to the field propagation ($\psi = 0^\circ - 90^\circ$) at 30 GHz: deviation within ± 0.34 dB
 Parallel to the field propagation ($\psi = 0^\circ - 90^\circ$) at 60 GHz: deviation within ± 0.37 dB

Appendix: Modulation Calibration Parameters

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

| | | | | | |
|-------|-----|--|---------|-------|---------|
| 10109 | CAG | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM) | LTE-FDD | 6.43 | ± 9.6 % |
| 10110 | CAG | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK) | LTE-FDD | 5.75 | ± 9.6 % |
| 10111 | CAG | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM) | LTE-FDD | 6.44 | ± 9.6 % |
| 10112 | CAG | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM) | LTE-FDD | 6.59 | ± 9.6 % |
| 10113 | CAG | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM) | LTE-FDD | 6.62 | ± 9.6 % |
| 10114 | CAC | IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK) | WLAN | 8.10 | ± 9.6 % |
| 10115 | CAC | IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM) | WLAN | 8.46 | ± 9.6 % |
| 10116 | CAC | IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM) | WLAN | 8.15 | ± 9.6 % |
| 10117 | CAC | IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK) | WLAN | 8.07 | ± 9.6 % |
| 10118 | CAC | IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM) | WLAN | 8.59 | ± 9.6 % |
| 10119 | CAC | IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM) | WLAN | 8.13 | ± 9.6 % |
| 10140 | CAE | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM) | LTE-FDD | 6.49 | ± 9.6 % |
| 10141 | CAE | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM) | LTE-FDD | 6.53 | ± 9.6 % |
| 10142 | CAE | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK) | LTE-FDD | 5.73 | ± 9.6 % |
| 10143 | CAE | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM) | LTE-FDD | 6.35 | ± 9.6 % |
| 10144 | CAE | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM) | LTE-FDD | 6.65 | ± 9.6 % |
| 10145 | CAF | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK) | LTE-FDD | 5.76 | ± 9.6 % |
| 10146 | CAF | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM) | LTE-FDD | 6.41 | ± 9.6 % |
| 10147 | CAF | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM) | LTE-FDD | 6.72 | ± 9.6 % |
| 10149 | CAE | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM) | LTE-FDD | 6.42 | ± 9.6 % |
| 10150 | CAE | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM) | LTE-FDD | 6.60 | ± 9.6 % |
| 10151 | CAG | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK) | LTE-TDD | 9.28 | ± 9.6 % |
| 10152 | CAG | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM) | LTE-TDD | 9.92 | ± 9.6 % |
| 10153 | CAG | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM) | LTE-TDD | 10.05 | ± 9.6 % |
| 10154 | CAG | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK) | LTE-FDD | 5.75 | ± 9.6 % |
| 10155 | CAG | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM) | LTE-FDD | 6.43 | ± 9.6 % |
| 10156 | CAG | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK) | LTE-FDD | 5.79 | ± 9.6 % |
| 10157 | CAG | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM) | LTE-FDD | 6.49 | ± 9.6 % |
| 10158 | CAG | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM) | LTE-FDD | 6.62 | ± 9.6 % |
| 10159 | CAG | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM) | LTE-FDD | 6.56 | ± 9.6 % |
| 10160 | CAE | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK) | LTE-FDD | 5.82 | ± 9.6 % |
| 10161 | CAE | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM) | LTE-FDD | 6.43 | ± 9.6 % |
| 10162 | CAE | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM) | LTE-FDD | 6.58 | ± 9.6 % |
| 10166 | CAF | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK) | LTE-FDD | 5.46 | ± 9.6 % |
| 10167 | CAF | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM) | LTE-FDD | 6.21 | ± 9.6 % |
| 10168 | CAF | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM) | LTE-FDD | 6.79 | ± 9.6 % |
| 10169 | CAE | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK) | LTE-FDD | 5.73 | ± 9.6 % |
| 10170 | CAE | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM) | LTE-FDD | 6.52 | ± 9.6 % |
| 10171 | AAE | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM) | LTE-FDD | 6.49 | ± 9.6 % |
| 10172 | CAG | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK) | LTE-TDD | 9.21 | ± 9.6 % |
| 10173 | CAG | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM) | LTE-TDD | 9.48 | ± 9.6 % |
| 10174 | CAG | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM) | LTE-TDD | 10.25 | ± 9.6 % |
| 10175 | CAG | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK) | LTE-FDD | 5.72 | ± 9.6 % |
| 10176 | CAG | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM) | LTE-FDD | 6.52 | ± 9.6 % |
| 10177 | CAI | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK) | LTE-FDD | 5.73 | ± 9.6 % |
| 10178 | CAG | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM) | LTE-FDD | 6.52 | ± 9.6 % |
| 10179 | CAG | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM) | LTE-FDD | 6.50 | ± 9.6 % |
| 10180 | CAG | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM) | LTE-FDD | 6.50 | ± 9.6 % |
| 10181 | CAE | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK) | LTE-FDD | 5.72 | ± 9.6 % |
| 10182 | CAE | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM) | LTE-FDD | 6.52 | ± 9.6 % |
| 10183 | AAD | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM) | LTE-FDD | 6.50 | ± 9.6 % |
| 10184 | CAE | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK) | LTE-FDD | 5.73 | ± 9.6 % |
| 10185 | CAE | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM) | LTE-FDD | 6.51 | ± 9.6 % |
| 10186 | AAE | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM) | LTE-FDD | 6.50 | ± 9.6 % |
| 10187 | CAF | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK) | LTE-FDD | 5.73 | ± 9.6 % |
| 10188 | CAF | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM) | LTE-FDD | 6.52 | ± 9.6 % |
| 10189 | AAF | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM) | LTE-FDD | 6.50 | ± 9.6 % |
| 10193 | CAC | IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK) | WLAN | 8.09 | ± 9.6 % |
| 10194 | CAC | IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM) | WLAN | 8.12 | ± 9.6 % |
| 10195 | CAC | IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM) | WLAN | 8.21 | ± 9.6 % |
| 10196 | CAC | IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK) | WLAN | 8.10 | ± 9.6 % |
| 10197 | CAC | IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM) | WLAN | 8.13 | ± 9.6 % |
| 10198 | CAC | IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM) | WLAN | 8.27 | ± 9.6 % |
| 10219 | CAC | IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK) | WLAN | 8.03 | ± 9.6 % |

| | | | | | |
|-------|-----|---|----------|-------|---------|
| 10220 | CAC | IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM) | WLAN | 8.13 | ± 9.6 % |
| 10221 | CAC | IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM) | WLAN | 8.27 | ± 9.6 % |
| 10222 | CAC | IEEE 802.11n (HT Mixed, 15 Mbps, BPSK) | WLAN | 8.06 | ± 9.6 % |
| 10223 | CAC | IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM) | WLAN | 8.48 | ± 9.6 % |
| 10224 | CAC | IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM) | WLAN | 8.08 | ± 9.6 % |
| 10225 | CAB | UMTS-FDD (HSPA+) | WCDMA | 5.97 | ± 9.6 % |
| 10226 | CAB | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM) | LTE-TDD | 9.49 | ± 9.6 % |
| 10227 | CAB | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM) | LTE-TDD | 10.26 | ± 9.6 % |
| 10228 | CAB | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK) | LTE-TDD | 9.22 | ± 9.6 % |
| 10229 | CAD | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM) | LTE-TDD | 9.48 | ± 9.6 % |
| 10230 | CAD | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM) | LTE-TDD | 10.25 | ± 9.6 % |
| 10231 | CAD | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK) | LTE-TDD | 9.19 | ± 9.6 % |
| 10232 | CAG | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM) | LTE-TDD | 9.48 | ± 9.6 % |
| 10233 | CAG | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM) | LTE-TDD | 10.25 | ± 9.6 % |
| 10234 | CAG | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK) | LTE-TDD | 9.21 | ± 9.6 % |
| 10235 | CAG | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM) | LTE-TDD | 9.48 | ± 9.6 % |
| 10236 | CAG | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM) | LTE-TDD | 10.25 | ± 9.6 % |
| 10237 | CAG | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK) | LTE-TDD | 9.21 | ± 9.6 % |
| 10238 | CAF | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM) | LTE-TDD | 9.48 | ± 9.6 % |
| 10239 | CAF | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM) | LTE-TDD | 10.25 | ± 9.6 % |
| 10240 | CAF | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK) | LTE-TDD | 9.21 | ± 9.6 % |
| 10241 | CAB | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM) | LTE-TDD | 9.82 | ± 9.6 % |
| 10242 | CAB | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM) | LTE-TDD | 9.86 | ± 9.6 % |
| 10243 | CAB | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK) | LTE-TDD | 9.46 | ± 9.6 % |
| 10244 | CAD | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM) | LTE-TDD | 10.06 | ± 9.6 % |
| 10245 | CAD | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM) | LTE-TDD | 10.06 | ± 9.6 % |
| 10246 | CAD | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK) | LTE-TDD | 9.30 | ± 9.6 % |
| 10247 | CAG | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM) | LTE-TDD | 9.91 | ± 9.6 % |
| 10248 | CAG | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM) | LTE-TDD | 10.09 | ± 9.6 % |
| 10249 | CAG | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK) | LTE-TDD | 9.29 | ± 9.6 % |
| 10250 | CAG | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM) | LTE-TDD | 9.81 | ± 9.6 % |
| 10251 | CAG | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM) | LTE-TDD | 10.17 | ± 9.6 % |
| 10252 | CAG | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK) | LTE-TDD | 9.24 | ± 9.6 % |
| 10253 | CAF | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM) | LTE-TDD | 9.90 | ± 9.6 % |
| 10254 | CAF | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM) | LTE-TDD | 10.14 | ± 9.6 % |
| 10255 | CAF | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK) | LTE-TDD | 9.20 | ± 9.6 % |
| 10256 | CAB | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM) | LTE-TDD | 9.96 | ± 9.6 % |
| 10257 | CAB | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM) | LTE-TDD | 10.08 | ± 9.6 % |
| 10258 | CAB | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK) | LTE-TDD | 9.34 | ± 9.6 % |
| 10259 | CAD | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM) | LTE-TDD | 9.98 | ± 9.6 % |
| 10260 | CAD | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM) | LTE-TDD | 9.97 | ± 9.6 % |
| 10261 | CAD | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK) | LTE-TDD | 9.24 | ± 9.6 % |
| 10262 | CAG | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM) | LTE-TDD | 9.83 | ± 9.6 % |
| 10263 | CAG | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM) | LTE-TDD | 10.16 | ± 9.6 % |
| 10264 | CAG | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK) | LTE-TDD | 9.23 | ± 9.6 % |
| 10265 | CAG | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM) | LTE-TDD | 9.92 | ± 9.6 % |
| 10266 | CAG | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM) | LTE-TDD | 10.07 | ± 9.6 % |
| 10267 | CAG | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK) | LTE-TDD | 9.30 | ± 9.6 % |
| 10268 | CAF | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM) | LTE-TDD | 10.06 | ± 9.6 % |
| 10269 | CAF | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM) | LTE-TDD | 10.13 | ± 9.6 % |
| 10270 | CAF | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK) | LTE-TDD | 9.58 | ± 9.6 % |
| 10274 | CAB | UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10) | WCDMA | 4.87 | ± 9.6 % |
| 10275 | CAB | UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4) | WCDMA | 3.96 | ± 9.6 % |
| 10277 | CAA | PHS (QPSK) | PHS | 11.81 | ± 9.6 % |
| 10278 | CAA | PHS (QPSK, BW 884MHz, Rolloff 0.5) | PHS | 11.81 | ± 9.6 % |
| 10279 | CAA | PHS (QPSK, BW 884MHz, Rolloff 0.38) | PHS | 12.18 | ± 9.6 % |
| 10290 | AAB | CDMA2000, RC1, SO55, Full Rate | CDMA2000 | 3.91 | ± 9.6 % |
| 10291 | AAB | CDMA2000, RC3, SO55, Full Rate | CDMA2000 | 3.46 | ± 9.6 % |
| 10292 | AAB | CDMA2000, RC3, SO32, Full Rate | CDMA2000 | 3.39 | ± 9.6 % |
| 10293 | AAB | CDMA2000, RC3, SO3, Full Rate | CDMA2000 | 3.50 | ± 9.6 % |
| 10295 | AAB | CDMA2000, RC1, SO3, 1/8th Rate 25 fr. | CDMA2000 | 12.49 | ± 9.6 % |
| 10297 | AAD | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK) | LTE-FDD | 5.81 | ± 9.6 % |
| 10298 | AAD | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK) | LTE-FDD | 5.72 | ± 9.6 % |
| 10299 | AAD | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM) | LTE-FDD | 6.39 | ± 9.6 % |

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|-------|-----|---|----------|-------|---------|
| 10300 | AAD | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM) | LTE-FDD | 6.60 | ± 9.6 % |
| 10301 | AAA | IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC) | WiMAX | 12.03 | ± 9.6 % |
| 10302 | AAA | IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols) | WiMAX | 12.57 | ± 9.6 % |
| 10303 | AAA | IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC) | WiMAX | 12.52 | ± 9.6 % |
| 10304 | AAA | IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC) | WiMAX | 11.86 | ± 9.6 % |
| 10305 | AAA | IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols) | WiMAX | 15.24 | ± 9.6 % |
| 10306 | AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols) | WiMAX | 14.67 | ± 9.6 % |
| 10307 | AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols) | WiMAX | 14.49 | ± 9.6 % |
| 10308 | AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC) | WiMAX | 14.46 | ± 9.6 % |
| 10309 | AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols) | WiMAX | 14.58 | ± 9.6 % |
| 10310 | AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols) | WiMAX | 14.57 | ± 9.6 % |
| 10311 | AAD | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK) | LTE-FDD | 6.06 | ± 9.6 % |
| 10313 | AAA | iDEN 1:3 | iDEN | 10.51 | ± 9.6 % |
| 10314 | AAA | iDEN 1:6 | iDEN | 13.48 | ± 9.6 % |
| 10315 | AAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle) | WLAN | 1.71 | ± 9.6 % |
| 10316 | AAB | IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle) | WLAN | 8.36 | ± 9.6 % |
| 10317 | AAC | IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle) | WLAN | 8.36 | ± 9.6 % |
| 10352 | AAA | Pulse Waveform (200Hz, 10%) | Generic | 10.00 | ± 9.6 % |
| 10353 | AAA | Pulse Waveform (200Hz, 20%) | Generic | 6.99 | ± 9.6 % |
| 10354 | AAA | Pulse Waveform (200Hz, 40%) | Generic | 3.98 | ± 9.6 % |
| 10355 | AAA | Pulse Waveform (200Hz, 60%) | Generic | 2.22 | ± 9.6 % |
| 10356 | AAA | Pulse Waveform (200Hz, 80%) | Generic | 0.97 | ± 9.6 % |
| 10387 | AAA | QPSK Waveform, 1 MHz | Generic | 5.10 | ± 9.6 % |
| 10388 | AAA | QPSK Waveform, 10 MHz | Generic | 5.22 | ± 9.6 % |
| 10396 | AAA | 64-QAM Waveform, 100 kHz | Generic | 6.27 | ± 9.6 % |
| 10399 | AAA | 64-QAM Waveform, 40 MHz | Generic | 6.27 | ± 9.6 % |
| 10400 | AAD | IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle) | WLAN | 8.37 | ± 9.6 % |
| 10401 | AAD | IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle) | WLAN | 8.60 | ± 9.6 % |
| 10402 | AAD | IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc duty cycle) | WLAN | 8.53 | ± 9.6 % |
| 10403 | AAB | CDMA2000 (1xEV-DO, Rev. 0) | CDMA2000 | 3.76 | ± 9.6 % |
| 10404 | AAB | CDMA2000 (1xEV-DO, Rev. A) | CDMA2000 | 3.77 | ± 9.6 % |
| 10406 | AAB | CDMA2000, RC3, SO32, SCH0, Full Rate | CDMA2000 | 5.22 | ± 9.6 % |
| 10410 | AAG | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9, Subframe Conf=4) | LTE-TDD | 7.82 | ± 9.6 % |
| 10414 | AAA | WLAN CCDF, 64-QAM, 40MHz | Generic | 8.54 | ± 9.6 % |
| 10415 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle) | WLAN | 1.54 | ± 9.6 % |
| 10416 | AAA | IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle) | WLAN | 8.23 | ± 9.6 % |
| 10417 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle) | WLAN | 8.23 | ± 9.6 % |
| 10418 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preamble) | WLAN | 8.14 | ± 9.6 % |
| 10419 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preamble) | WLAN | 8.19 | ± 9.6 % |
| 10422 | AAB | IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK) | WLAN | 8.32 | ± 9.6 % |
| 10423 | AAB | IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM) | WLAN | 8.47 | ± 9.6 % |
| 10424 | AAB | IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM) | WLAN | 8.40 | ± 9.6 % |
| 10425 | AAB | IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK) | WLAN | 8.41 | ± 9.6 % |
| 10426 | AAB | IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM) | WLAN | 8.45 | ± 9.6 % |
| 10427 | AAB | IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM) | WLAN | 8.41 | ± 9.6 % |
| 10430 | AAD | LTE-FDD (OFDMA, 5 MHz, E-TM 3.1) | LTE-FDD | 8.28 | ± 9.6 % |
| 10431 | AAD | LTE-FDD (OFDMA, 10 MHz, E-TM 3.1) | LTE-FDD | 8.38 | ± 9.6 % |
| 10432 | AAC | LTE-FDD (OFDMA, 15 MHz, E-TM 3.1) | LTE-FDD | 8.34 | ± 9.6 % |
| 10433 | AAC | LTE-FDD (OFDMA, 20 MHz, E-TM 3.1) | LTE-FDD | 8.34 | ± 9.6 % |
| 10434 | AAA | W-CDMA (BS Test Model 1, 64 DPCH) | WCDMA | 8.60 | ± 9.6 % |
| 10435 | AAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.82 | ± 9.6 % |
| 10447 | AAD | LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%) | LTE-FDD | 7.56 | ± 9.6 % |
| 10448 | AAD | LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%) | LTE-FDD | 7.53 | ± 9.6 % |
| 10449 | AAC | LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%) | LTE-FDD | 7.51 | ± 9.6 % |

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|-------|-----|---|----------|-------|---------|
| 10450 | AAC | LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%) | LTE-FDD | 7.48 | ± 9.6 % |
| 10451 | AAA | W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%) | WCDMA | 7.59 | ± 9.6 % |
| 10453 | AAD | Validation (Square, 10ms, 1ms) | Test | 10.00 | ± 9.6 % |
| 10456 | AAB | IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle) | WLAN | 8.63 | ± 9.6 % |
| 10457 | AAA | UMTS-FDD (DC-HSDPA) | WCDMA | 6.62 | ± 9.6 % |
| 10458 | AAA | CDMA2000 (1xEV-DO, Rev. B, 2 carriers) | CDMA2000 | 6.55 | ± 9.6 % |
| 10459 | AAA | CDMA2000 (1xEV-DO, Rev. B, 3 carriers) | CDMA2000 | 8.25 | ± 9.6 % |
| 10460 | AAA | UMTS-FDD (WCDMA, AMR) | WCDMA | 2.39 | ± 9.6 % |
| 10461 | AAB | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.82 | ± 9.6 % |
| 10462 | AAB | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.30 | ± 9.6 % |
| 10463 | AAB | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.56 | ± 9.6 % |
| 10464 | AAC | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.82 | ± 9.6 % |
| 10465 | AAC | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.32 | ± 9.6 % |
| 10466 | AAC | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.57 | ± 9.6 % |
| 10467 | AAF | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.82 | ± 9.6 % |
| 10468 | AAF | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.32 | ± 9.6 % |
| 10469 | AAF | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.56 | ± 9.6 % |
| 10470 | AAF | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.82 | ± 9.6 % |
| 10471 | AAF | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.32 | ± 9.6 % |
| 10472 | AAF | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.57 | ± 9.6 % |
| 10473 | AAE | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.82 | ± 9.6 % |
| 10474 | AAE | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.32 | ± 9.6 % |
| 10475 | AAE | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.57 | ± 9.6 % |
| 10477 | AAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.32 | ± 9.6 % |
| 10478 | AAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.57 | ± 9.6 % |
| 10479 | AAB | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.74 | ± 9.6 % |
| 10480 | AAB | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.18 | ± 9.6 % |
| 10481 | AAB | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.45 | ± 9.6 % |
| 10482 | AAC | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.71 | ± 9.6 % |
| 10483 | AAC | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.39 | ± 9.6 % |
| 10484 | AAC | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.47 | ± 9.6 % |
| 10485 | AAF | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.59 | ± 9.6 % |
| 10486 | AAF | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.38 | ± 9.6 % |
| 10487 | AAF | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.60 | ± 9.6 % |
| 10488 | AAF | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.70 | ± 9.6 % |
| 10489 | AAF | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.31 | ± 9.6 % |
| 10490 | AAF | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.54 | ± 9.6 % |

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|-------|-----|--|---------|------|---------|
| 10491 | AAE | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.74 | ± 9.6 % |
| 10492 | AAE | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.41 | ± 9.6 % |
| 10493 | AAE | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.55 | ± 9.6 % |
| 10494 | AAF | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.74 | ± 9.6 % |
| 10495 | AAF | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.37 | ± 9.6 % |
| 10496 | AAF | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.54 | ± 9.6 % |
| 10497 | AAB | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.67 | ± 9.6 % |
| 10498 | AAB | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.40 | ± 9.6 % |
| 10499 | AAB | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.68 | ± 9.6 % |
| 10500 | AAC | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.67 | ± 9.6 % |
| 10501 | AAC | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.44 | ± 9.6 % |
| 10502 | AAC | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.52 | ± 9.6 % |
| 10503 | AAF | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.72 | ± 9.6 % |
| 10504 | AAF | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.31 | ± 9.6 % |
| 10505 | AAF | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.54 | ± 9.6 % |
| 10506 | AAF | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.74 | ± 9.6 % |
| 10507 | AAF | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.36 | ± 9.6 % |
| 10508 | AAF | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.55 | ± 9.6 % |
| 10509 | AAE | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.99 | ± 9.6 % |
| 10510 | AAE | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.49 | ± 9.6 % |
| 10511 | AAE | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.51 | ± 9.6 % |
| 10512 | AAF | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.74 | ± 9.6 % |
| 10513 | AAF | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.42 | ± 9.6 % |
| 10514 | AAF | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.45 | ± 9.6 % |
| 10515 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle) | WLAN | 1.58 | ± 9.6 % |
| 10516 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle) | WLAN | 1.57 | ± 9.6 % |
| 10517 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle) | WLAN | 1.58 | ± 9.6 % |
| 10518 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle) | WLAN | 8.23 | ± 9.6 % |
| 10519 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle) | WLAN | 8.39 | ± 9.6 % |
| 10520 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle) | WLAN | 8.12 | ± 9.6 % |
| 10521 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle) | WLAN | 7.97 | ± 9.6 % |
| 10522 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle) | WLAN | 8.45 | ± 9.6 % |
| 10523 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle) | WLAN | 8.08 | ± 9.6 % |
| 10524 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle) | WLAN | 8.27 | ± 9.6 % |
| 10525 | AAB | IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle) | WLAN | 8.36 | ± 9.6 % |
| 10526 | AAB | IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle) | WLAN | 8.42 | ± 9.6 % |
| 10527 | AAB | IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle) | WLAN | 8.21 | ± 9.6 % |
| 10528 | AAB | IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle) | WLAN | 8.36 | ± 9.6 % |
| 10529 | AAB | IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle) | WLAN | 8.36 | ± 9.6 % |
| 10531 | AAB | IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle) | WLAN | 8.43 | ± 9.6 % |
| 10532 | AAB | IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle) | WLAN | 8.29 | ± 9.6 % |
| 10533 | AAB | IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle) | WLAN | 8.38 | ± 9.6 % |

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|-------|-----|---|------|------|---------|
| 10534 | AAB | IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle) | WLAN | 8.45 | ± 9.6 % |
| 10535 | AAB | IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle) | WLAN | 8.45 | ± 9.6 % |
| 10536 | AAB | IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle) | WLAN | 8.32 | ± 9.6 % |
| 10537 | AAB | IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle) | WLAN | 8.44 | ± 9.6 % |
| 10538 | AAB | IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle) | WLAN | 8.54 | ± 9.6 % |
| 10540 | AAB | IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle) | WLAN | 8.39 | ± 9.6 % |
| 10541 | AAB | IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle) | WLAN | 8.46 | ± 9.6 % |
| 10542 | AAB | IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle) | WLAN | 8.65 | ± 9.6 % |
| 10543 | AAB | IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle) | WLAN | 8.65 | ± 9.6 % |
| 10544 | AAB | IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle) | WLAN | 8.47 | ± 9.6 % |
| 10545 | AAB | IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle) | WLAN | 8.55 | ± 9.6 % |
| 10546 | AAB | IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle) | WLAN | 8.35 | ± 9.6 % |
| 10547 | AAB | IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle) | WLAN | 8.49 | ± 9.6 % |
| 10548 | AAB | IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle) | WLAN | 8.37 | ± 9.6 % |
| 10550 | AAB | IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle) | WLAN | 8.38 | ± 9.6 % |
| 10551 | AAB | IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle) | WLAN | 8.50 | ± 9.6 % |
| 10552 | AAB | IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle) | WLAN | 8.42 | ± 9.6 % |
| 10553 | AAB | IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle) | WLAN | 8.45 | ± 9.6 % |
| 10554 | AAC | IEEE 802.11ac WiFi (160MHz, MCS0, 99pc duty cycle) | WLAN | 8.48 | ± 9.6 % |
| 10555 | AAC | IEEE 802.11ac WiFi (160MHz, MCS1, 99pc duty cycle) | WLAN | 8.47 | ± 9.6 % |
| 10556 | AAC | IEEE 802.11ac WiFi (160MHz, MCS2, 99pc duty cycle) | WLAN | 8.50 | ± 9.6 % |
| 10557 | AAC | IEEE 802.11ac WiFi (160MHz, MCS3, 99pc duty cycle) | WLAN | 8.52 | ± 9.6 % |
| 10558 | AAC | IEEE 802.11ac WiFi (160MHz, MCS4, 99pc duty cycle) | WLAN | 8.61 | ± 9.6 % |
| 10560 | AAC | IEEE 802.11ac WiFi (160MHz, MCS6, 99pc duty cycle) | WLAN | 8.73 | ± 9.6 % |
| 10561 | AAC | IEEE 802.11ac WiFi (160MHz, MCS7, 99pc duty cycle) | WLAN | 8.56 | ± 9.6 % |
| 10562 | AAC | IEEE 802.11ac WiFi (160MHz, MCS8, 99pc duty cycle) | WLAN | 8.69 | ± 9.6 % |
| 10563 | AAC | IEEE 802.11ac WiFi (160MHz, MCS9, 99pc duty cycle) | WLAN | 8.77 | ± 9.6 % |
| 10564 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle) | WLAN | 8.25 | ± 9.6 % |
| 10565 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle) | WLAN | 8.45 | ± 9.6 % |
| 10566 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle) | WLAN | 8.13 | ± 9.6 % |
| 10567 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle) | WLAN | 8.00 | ± 9.6 % |
| 10568 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle) | WLAN | 8.37 | ± 9.6 % |
| 10569 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle) | WLAN | 8.10 | ± 9.6 % |
| 10570 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle) | WLAN | 8.30 | ± 9.6 % |
| 10571 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle) | WLAN | 1.99 | ± 9.6 % |
| 10572 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle) | WLAN | 1.99 | ± 9.6 % |
| 10573 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle) | WLAN | 1.98 | ± 9.6 % |
| 10574 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle) | WLAN | 1.98 | ± 9.6 % |
| 10575 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle) | WLAN | 8.59 | ± 9.6 % |
| 10576 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle) | WLAN | 8.60 | ± 9.6 % |
| 10577 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle) | WLAN | 8.70 | ± 9.6 % |
| 10578 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle) | WLAN | 8.49 | ± 9.6 % |
| 10579 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle) | WLAN | 8.36 | ± 9.6 % |
| 10580 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle) | WLAN | 8.76 | ± 9.6 % |
| 10581 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle) | WLAN | 8.35 | ± 9.6 % |
| 10582 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle) | WLAN | 8.67 | ± 9.6 % |
| 10583 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle) | WLAN | 8.59 | ± 9.6 % |
| 10584 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle) | WLAN | 8.60 | ± 9.6 % |
| 10585 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle) | WLAN | 8.70 | ± 9.6 % |
| 10586 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle) | WLAN | 8.49 | ± 9.6 % |

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|-------|-----|--|----------|-------|---------|
| 10587 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle) | WLAN | 8.36 | ± 9.6 % |
| 10588 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle) | WLAN | 8.76 | ± 9.6 % |
| 10589 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle) | WLAN | 8.35 | ± 9.6 % |
| 10590 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle) | WLAN | 8.67 | ± 9.6 % |
| 10591 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle) | WLAN | 8.63 | ± 9.6 % |
| 10592 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle) | WLAN | 8.79 | ± 9.6 % |
| 10593 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle) | WLAN | 8.64 | ± 9.6 % |
| 10594 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle) | WLAN | 8.74 | ± 9.6 % |
| 10595 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle) | WLAN | 8.74 | ± 9.6 % |
| 10596 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle) | WLAN | 8.71 | ± 9.6 % |
| 10597 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle) | WLAN | 8.72 | ± 9.6 % |
| 10598 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle) | WLAN | 8.50 | ± 9.6 % |
| 10599 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle) | WLAN | 8.79 | ± 9.6 % |
| 10600 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle) | WLAN | 8.88 | ± 9.6 % |
| 10601 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle) | WLAN | 8.82 | ± 9.6 % |
| 10602 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle) | WLAN | 8.94 | ± 9.6 % |
| 10603 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle) | WLAN | 9.03 | ± 9.6 % |
| 10604 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle) | WLAN | 8.76 | ± 9.6 % |
| 10605 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle) | WLAN | 8.97 | ± 9.6 % |
| 10606 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle) | WLAN | 8.82 | ± 9.6 % |
| 10607 | AAB | IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle) | WLAN | 8.64 | ± 9.6 % |
| 10608 | AAB | IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle) | WLAN | 8.77 | ± 9.6 % |
| 10609 | AAB | IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle) | WLAN | 8.57 | ± 9.6 % |
| 10610 | AAB | IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle) | WLAN | 8.78 | ± 9.6 % |
| 10611 | AAB | IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle) | WLAN | 8.70 | ± 9.6 % |
| 10612 | AAB | IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle) | WLAN | 8.77 | ± 9.6 % |
| 10613 | AAB | IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle) | WLAN | 8.94 | ± 9.6 % |
| 10614 | AAB | IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle) | WLAN | 8.59 | ± 9.6 % |
| 10615 | AAB | IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle) | WLAN | 8.82 | ± 9.6 % |
| 10616 | AAB | IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle) | WLAN | 8.82 | ± 9.6 % |
| 10617 | AAB | IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle) | WLAN | 8.81 | ± 9.6 % |
| 10618 | AAB | IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle) | WLAN | 8.58 | ± 9.6 % |
| 10619 | AAB | IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle) | WLAN | 8.86 | ± 9.6 % |
| 10620 | AAB | IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle) | WLAN | 8.87 | ± 9.6 % |
| 10621 | AAB | IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle) | WLAN | 8.77 | ± 9.6 % |
| 10622 | AAB | IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle) | WLAN | 8.68 | ± 9.6 % |
| 10623 | AAB | IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle) | WLAN | 8.82 | ± 9.6 % |
| 10624 | AAB | IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle) | WLAN | 8.96 | ± 9.6 % |
| 10625 | AAB | IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle) | WLAN | 8.96 | ± 9.6 % |
| 10626 | AAB | IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle) | WLAN | 8.83 | ± 9.6 % |
| 10627 | AAB | IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle) | WLAN | 8.88 | ± 9.6 % |
| 10628 | AAB | IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle) | WLAN | 8.71 | ± 9.6 % |
| 10629 | AAB | IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle) | WLAN | 8.85 | ± 9.6 % |
| 10630 | AAB | IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle) | WLAN | 8.72 | ± 9.6 % |
| 10631 | AAB | IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle) | WLAN | 8.81 | ± 9.6 % |
| 10632 | AAB | IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle) | WLAN | 8.74 | ± 9.6 % |
| 10633 | AAB | IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle) | WLAN | 8.83 | ± 9.6 % |
| 10634 | AAB | IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle) | WLAN | 8.80 | ± 9.6 % |
| 10635 | AAB | IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle) | WLAN | 8.81 | ± 9.6 % |
| 10636 | AAC | IEEE 802.11ac WiFi (160MHz, MCS0, 90pc duty cycle) | WLAN | 8.83 | ± 9.6 % |
| 10637 | AAC | IEEE 802.11ac WiFi (160MHz, MCS1, 90pc duty cycle) | WLAN | 8.79 | ± 9.6 % |
| 10638 | AAC | IEEE 802.11ac WiFi (160MHz, MCS2, 90pc duty cycle) | WLAN | 8.86 | ± 9.6 % |
| 10639 | AAC | IEEE 802.11ac WiFi (160MHz, MCS3, 90pc duty cycle) | WLAN | 8.85 | ± 9.6 % |
| 10640 | AAC | IEEE 802.11ac WiFi (160MHz, MCS4, 90pc duty cycle) | WLAN | 8.98 | ± 9.6 % |
| 10641 | AAC | IEEE 802.11ac WiFi (160MHz, MCS5, 90pc duty cycle) | WLAN | 9.06 | ± 9.6 % |
| 10642 | AAC | IEEE 802.11ac WiFi (160MHz, MCS6, 90pc duty cycle) | WLAN | 9.06 | ± 9.6 % |
| 10643 | AAC | IEEE 802.11ac WiFi (160MHz, MCS7, 90pc duty cycle) | WLAN | 8.89 | ± 9.6 % |
| 10644 | AAC | IEEE 802.11ac WiFi (160MHz, MCS8, 90pc duty cycle) | WLAN | 9.05 | ± 9.6 % |
| 10645 | AAC | IEEE 802.11ac WiFi (160MHz, MCS9, 90pc duty cycle) | WLAN | 9.11 | ± 9.6 % |
| 10646 | AAG | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7) | LTE-TDD | 11.96 | ± 9.6 % |
| 10647 | AAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7) | LTE-TDD | 11.96 | ± 9.6 % |
| 10648 | AAA | CDMA2000 (1x Advanced) | CDMA2000 | 3.45 | ± 9.6 % |
| 10652 | AAE | LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%) | LTE-TDD | 6.91 | ± 9.6 % |
| 10653 | AAE | LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%) | LTE-TDD | 7.42 | ± 9.6 % |

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|-------|-----|---|-----------|-------|---------|
| 10654 | AAD | LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%) | LTE-TDD | 6.96 | ± 9.6 % |
| 10655 | AAE | LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%) | LTE-TDD | 7.21 | ± 9.6 % |
| 10658 | AAA | Pulse Waveform (200Hz, 10%) | Test | 10.00 | ± 9.6 % |
| 10659 | AAA | Pulse Waveform (200Hz, 20%) | Test | 6.99 | ± 9.6 % |
| 10660 | AAA | Pulse Waveform (200Hz, 40%) | Test | 3.98 | ± 9.6 % |
| 10661 | AAA | Pulse Waveform (200Hz, 60%) | Test | 2.22 | ± 9.6 % |
| 10662 | AAA | Pulse Waveform (200Hz, 80%) | Test | 0.97 | ± 9.6 % |
| 10670 | AAA | Bluetooth Low Energy | Bluetooth | 2.19 | ± 9.6 % |
| 10671 | AAA | IEEE 802.11ax (20MHz, MCS0, 90pc duty cycle) | WLAN | 9.09 | ± 9.6 % |
| 10672 | AAA | IEEE 802.11ax (20MHz, MCS1, 90pc duty cycle) | WLAN | 8.57 | ± 9.6 % |
| 10673 | AAA | IEEE 802.11ax (20MHz, MCS2, 90pc duty cycle) | WLAN | 8.78 | ± 9.6 % |
| 10674 | AAA | IEEE 802.11ax (20MHz, MCS3, 90pc duty cycle) | WLAN | 8.74 | ± 9.6 % |
| 10675 | AAA | IEEE 802.11ax (20MHz, MCS4, 90pc duty cycle) | WLAN | 8.90 | ± 9.6 % |
| 10676 | AAA | IEEE 802.11ax (20MHz, MCS5, 90pc duty cycle) | WLAN | 8.77 | ± 9.6 % |
| 10677 | AAA | IEEE 802.11ax (20MHz, MCS6, 90pc duty cycle) | WLAN | 8.73 | ± 9.6 % |
| 10678 | AAA | IEEE 802.11ax (20MHz, MCS7, 90pc duty cycle) | WLAN | 8.78 | ± 9.6 % |
| 10679 | AAA | IEEE 802.11ax (20MHz, MCS8, 90pc duty cycle) | WLAN | 8.89 | ± 9.6 % |
| 10680 | AAA | IEEE 802.11ax (20MHz, MCS9, 90pc duty cycle) | WLAN | 8.80 | ± 9.6 % |
| 10681 | AAA | IEEE 802.11ax (20MHz, MCS10, 90pc duty cycle) | WLAN | 8.62 | ± 9.6 % |
| 10682 | AAA | IEEE 802.11ax (20MHz, MCS11, 90pc duty cycle) | WLAN | 8.83 | ± 9.6 % |
| 10683 | AAA | IEEE 802.11ax (20MHz, MCS0, 99pc duty cycle) | WLAN | 8.42 | ± 9.6 % |
| 10684 | AAA | IEEE 802.11ax (20MHz, MCS1, 99pc duty cycle) | WLAN | 8.26 | ± 9.6 % |
| 10685 | AAA | IEEE 802.11ax (20MHz, MCS2, 99pc duty cycle) | WLAN | 8.33 | ± 9.6 % |
| 10686 | AAA | IEEE 802.11ax (20MHz, MCS3, 99pc duty cycle) | WLAN | 8.28 | ± 9.6 % |
| 10687 | AAA | IEEE 802.11ax (20MHz, MCS4, 99pc duty cycle) | WLAN | 8.45 | ± 9.6 % |
| 10688 | AAA | IEEE 802.11ax (20MHz, MCS5, 99pc duty cycle) | WLAN | 8.29 | ± 9.6 % |
| 10689 | AAA | IEEE 802.11ax (20MHz, MCS6, 99pc duty cycle) | WLAN | 8.55 | ± 9.6 % |
| 10690 | AAA | IEEE 802.11ax (20MHz, MCS7, 99pc duty cycle) | WLAN | 8.29 | ± 9.6 % |
| 10691 | AAA | IEEE 802.11ax (20MHz, MCS8, 99pc duty cycle) | WLAN | 8.25 | ± 9.6 % |
| 10692 | AAA | IEEE 802.11ax (20MHz, MCS9, 99pc duty cycle) | WLAN | 8.29 | ± 9.6 % |
| 10693 | AAA | IEEE 802.11ax (20MHz, MCS10, 99pc duty cycle) | WLAN | 8.25 | ± 9.6 % |
| 10694 | AAA | IEEE 802.11ax (20MHz, MCS11, 99pc duty cycle) | WLAN | 8.57 | ± 9.6 % |
| 10695 | AAA | IEEE 802.11ax (40MHz, MCS0, 90pc duty cycle) | WLAN | 8.78 | ± 9.6 % |
| 10696 | AAA | IEEE 802.11ax (40MHz, MCS1, 90pc duty cycle) | WLAN | 8.91 | ± 9.6 % |
| 10697 | AAA | IEEE 802.11ax (40MHz, MCS2, 90pc duty cycle) | WLAN | 8.61 | ± 9.6 % |
| 10698 | AAA | IEEE 802.11ax (40MHz, MCS3, 90pc duty cycle) | WLAN | 8.89 | ± 9.6 % |
| 10699 | AAA | IEEE 802.11ax (40MHz, MCS4, 90pc duty cycle) | WLAN | 8.82 | ± 9.6 % |
| 10700 | AAA | IEEE 802.11ax (40MHz, MCS5, 90pc duty cycle) | WLAN | 8.73 | ± 9.6 % |
| 10701 | AAA | IEEE 802.11ax (40MHz, MCS6, 90pc duty cycle) | WLAN | 8.86 | ± 9.6 % |
| 10702 | AAA | IEEE 802.11ax (40MHz, MCS7, 90pc duty cycle) | WLAN | 8.70 | ± 9.6 % |
| 10703 | AAA | IEEE 802.11ax (40MHz, MCS8, 90pc duty cycle) | WLAN | 8.82 | ± 9.6 % |
| 10704 | AAA | IEEE 802.11ax (40MHz, MCS9, 90pc duty cycle) | WLAN | 8.56 | ± 9.6 % |
| 10705 | AAA | IEEE 802.11ax (40MHz, MCS10, 90pc duty cycle) | WLAN | 8.69 | ± 9.6 % |
| 10706 | AAA | IEEE 802.11ax (40MHz, MCS11, 90pc duty cycle) | WLAN | 8.66 | ± 9.6 % |
| 10707 | AAA | IEEE 802.11ax (40MHz, MCS0, 99pc duty cycle) | WLAN | 8.32 | ± 9.6 % |
| 10708 | AAA | IEEE 802.11ax (40MHz, MCS1, 99pc duty cycle) | WLAN | 8.55 | ± 9.6 % |
| 10709 | AAA | IEEE 802.11ax (40MHz, MCS2, 99pc duty cycle) | WLAN | 8.33 | ± 9.6 % |
| 10710 | AAA | IEEE 802.11ax (40MHz, MCS3, 99pc duty cycle) | WLAN | 8.29 | ± 9.6 % |
| 10711 | AAA | IEEE 802.11ax (40MHz, MCS4, 99pc duty cycle) | WLAN | 8.39 | ± 9.6 % |
| 10712 | AAA | IEEE 802.11ax (40MHz, MCS5, 99pc duty cycle) | WLAN | 8.67 | ± 9.6 % |
| 10713 | AAA | IEEE 802.11ax (40MHz, MCS6, 99pc duty cycle) | WLAN | 8.33 | ± 9.6 % |
| 10714 | AAA | IEEE 802.11ax (40MHz, MCS7, 99pc duty cycle) | WLAN | 8.26 | ± 9.6 % |
| 10715 | AAA | IEEE 802.11ax (40MHz, MCS8, 99pc duty cycle) | WLAN | 8.45 | ± 9.6 % |
| 10716 | AAA | IEEE 802.11ax (40MHz, MCS9, 99pc duty cycle) | WLAN | 8.30 | ± 9.6 % |
| 10717 | AAA | IEEE 802.11ax (40MHz, MCS10, 99pc duty cycle) | WLAN | 8.48 | ± 9.6 % |
| 10718 | AAA | IEEE 802.11ax (40MHz, MCS11, 99pc duty cycle) | WLAN | 8.24 | ± 9.6 % |
| 10719 | AAA | IEEE 802.11ax (80MHz, MCS0, 90pc duty cycle) | WLAN | 8.81 | ± 9.6 % |
| 10720 | AAA | IEEE 802.11ax (80MHz, MCS1, 90pc duty cycle) | WLAN | 8.87 | ± 9.6 % |
| 10721 | AAA | IEEE 802.11ax (80MHz, MCS2, 90pc duty cycle) | WLAN | 8.76 | ± 9.6 % |
| 10722 | AAA | IEEE 802.11ax (80MHz, MCS3, 90pc duty cycle) | WLAN | 8.55 | ± 9.6 % |
| 10723 | AAA | IEEE 802.11ax (80MHz, MCS4, 90pc duty cycle) | WLAN | 8.70 | ± 9.6 % |
| 10724 | AAA | IEEE 802.11ax (80MHz, MCS5, 90pc duty cycle) | WLAN | 8.90 | ± 9.6 % |
| 10725 | AAA | IEEE 802.11ax (80MHz, MCS6, 90pc duty cycle) | WLAN | 8.74 | ± 9.6 % |
| 10726 | AAA | IEEE 802.11ax (80MHz, MCS7, 90pc duty cycle) | WLAN | 8.72 | ± 9.6 % |

| | | | | | |
|-------|-----|--|---------------|------|---------|
| 10727 | AAA | IEEE 802.11ax (80MHz, MCS8, 90pc duty cycle) | WLAN | 8.66 | ± 9.6 % |
| 10728 | AAA | IEEE 802.11ax (80MHz, MCS9, 90pc duty cycle) | WLAN | 8.65 | ± 9.6 % |
| 10729 | AAA | IEEE 802.11ax (80MHz, MCS10, 90pc duty cycle) | WLAN | 8.64 | ± 9.6 % |
| 10730 | AAA | IEEE 802.11ax (80MHz, MCS11, 90pc duty cycle) | WLAN | 8.67 | ± 9.6 % |
| 10731 | AAA | IEEE 802.11ax (80MHz, MCS0, 99pc duty cycle) | WLAN | 8.42 | ± 9.6 % |
| 10732 | AAA | IEEE 802.11ax (80MHz, MCS1, 99pc duty cycle) | WLAN | 8.46 | ± 9.6 % |
| 10733 | AAA | IEEE 802.11ax (80MHz, MCS2, 99pc duty cycle) | WLAN | 8.40 | ± 9.6 % |
| 10734 | AAA | IEEE 802.11ax (80MHz, MCS3, 99pc duty cycle) | WLAN | 8.25 | ± 9.6 % |
| 10735 | AAA | IEEE 802.11ax (80MHz, MCS4, 99pc duty cycle) | WLAN | 8.33 | ± 9.6 % |
| 10736 | AAA | IEEE 802.11ax (80MHz, MCS5, 99pc duty cycle) | WLAN | 8.27 | ± 9.6 % |
| 10737 | AAA | IEEE 802.11ax (80MHz, MCS6, 99pc duty cycle) | WLAN | 8.36 | ± 9.6 % |
| 10738 | AAA | IEEE 802.11ax (80MHz, MCS7, 99pc duty cycle) | WLAN | 8.42 | ± 9.6 % |
| 10739 | AAA | IEEE 802.11ax (80MHz, MCS8, 99pc duty cycle) | WLAN | 8.29 | ± 9.6 % |
| 10740 | AAA | IEEE 802.11ax (80MHz, MCS9, 99pc duty cycle) | WLAN | 8.48 | ± 9.6 % |
| 10741 | AAA | IEEE 802.11ax (80MHz, MCS10, 99pc duty cycle) | WLAN | 8.40 | ± 9.6 % |
| 10742 | AAA | IEEE 802.11ax (80MHz, MCS11, 99pc duty cycle) | WLAN | 8.43 | ± 9.6 % |
| 10743 | AAA | IEEE 802.11ax (160MHz, MCS0, 90pc duty cycle) | WLAN | 8.94 | ± 9.6 % |
| 10744 | AAA | IEEE 802.11ax (160MHz, MCS1, 90pc duty cycle) | WLAN | 9.16 | ± 9.6 % |
| 10745 | AAA | IEEE 802.11ax (160MHz, MCS2, 90pc duty cycle) | WLAN | 8.93 | ± 9.6 % |
| 10746 | AAA | IEEE 802.11ax (160MHz, MCS3, 90pc duty cycle) | WLAN | 9.11 | ± 9.6 % |
| 10747 | AAA | IEEE 802.11ax (160MHz, MCS4, 90pc duty cycle) | WLAN | 9.04 | ± 9.6 % |
| 10748 | AAA | IEEE 802.11ax (160MHz, MCS5, 90pc duty cycle) | WLAN | 8.93 | ± 9.6 % |
| 10749 | AAA | IEEE 802.11ax (160MHz, MCS6, 90pc duty cycle) | WLAN | 8.90 | ± 9.6 % |
| 10750 | AAA | IEEE 802.11ax (160MHz, MCS7, 90pc duty cycle) | WLAN | 8.79 | ± 9.6 % |
| 10751 | AAA | IEEE 802.11ax (160MHz, MCS8, 90pc duty cycle) | WLAN | 8.82 | ± 9.6 % |
| 10752 | AAA | IEEE 802.11ax (160MHz, MCS9, 90pc duty cycle) | WLAN | 8.81 | ± 9.6 % |
| 10753 | AAA | IEEE 802.11ax (160MHz, MCS10, 90pc duty cycle) | WLAN | 9.00 | ± 9.6 % |
| 10754 | AAA | IEEE 802.11ax (160MHz, MCS11, 90pc duty cycle) | WLAN | 8.94 | ± 9.6 % |
| 10755 | AAA | IEEE 802.11ax (160MHz, MCS0, 99pc duty cycle) | WLAN | 8.64 | ± 9.6 % |
| 10756 | AAA | IEEE 802.11ax (160MHz, MCS1, 99pc duty cycle) | WLAN | 8.77 | ± 9.6 % |
| 10757 | AAA | IEEE 802.11ax (160MHz, MCS2, 99pc duty cycle) | WLAN | 8.77 | ± 9.6 % |
| 10758 | AAA | IEEE 802.11ax (160MHz, MCS3, 99pc duty cycle) | WLAN | 8.69 | ± 9.6 % |
| 10759 | AAA | IEEE 802.11ax (160MHz, MCS4, 99pc duty cycle) | WLAN | 8.58 | ± 9.6 % |
| 10760 | AAA | IEEE 802.11ax (160MHz, MCS5, 99pc duty cycle) | WLAN | 8.49 | ± 9.6 % |
| 10761 | AAA | IEEE 802.11ax (160MHz, MCS6, 99pc duty cycle) | WLAN | 8.58 | ± 9.6 % |
| 10762 | AAA | IEEE 802.11ax (160MHz, MCS7, 99pc duty cycle) | WLAN | 8.49 | ± 9.6 % |
| 10763 | AAA | IEEE 802.11ax (160MHz, MCS8, 99pc duty cycle) | WLAN | 8.53 | ± 9.6 % |
| 10764 | AAA | IEEE 802.11ax (160MHz, MCS9, 99pc duty cycle) | WLAN | 8.54 | ± 9.6 % |
| 10765 | AAA | IEEE 802.11ax (160MHz, MCS10, 99pc duty cycle) | WLAN | 8.54 | ± 9.6 % |
| 10766 | AAA | IEEE 802.11ax (160MHz, MCS11, 99pc duty cycle) | WLAN | 8.51 | ± 9.6 % |
| 10767 | AAB | 5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 7.99 | ± 9.6 % |
| 10768 | AAB | 5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.01 | ± 9.6 % |
| 10769 | AAB | 5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.01 | ± 9.6 % |
| 10770 | AAB | 5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.02 | ± 9.6 % |
| 10771 | AAB | 5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.02 | ± 9.6 % |
| 10772 | AAB | 5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.23 | ± 9.6 % |
| 10773 | AAB | 5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.03 | ± 9.6 % |
| 10774 | AAB | 5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.02 | ± 9.6 % |
| 10776 | AAB | 5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.30 | ± 9.6 % |
| 10778 | AAB | 5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.34 | ± 9.6 % |
| 10780 | AAB | 5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.38 | ± 9.6 % |
| 10781 | AAB | 5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.38 | ± 9.6 % |

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|-------|-----|--|---------------|------|---------|
| 10782 | AAB | 5G NR (CP-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.43 | ± 9.6 % |
| 10783 | AAB | 5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.31 | ± 9.6 % |
| 10784 | AAB | 5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.29 | ± 9.6 % |
| 10785 | AAB | 5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.40 | ± 9.6 % |
| 10786 | AAB | 5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.35 | ± 9.6 % |
| 10787 | AAB | 5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.44 | ± 9.6 % |
| 10788 | AAB | 5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.39 | ± 9.6 % |
| 10789 | AAB | 5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.37 | ± 9.6 % |
| 10790 | AAB | 5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.39 | ± 9.6 % |
| 10791 | AAB | 5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.83 | ± 9.6 % |
| 10792 | AAB | 5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.92 | ± 9.6 % |
| 10793 | AAB | 5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.95 | ± 9.6 % |
| 10794 | AAB | 5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.82 | ± 9.6 % |
| 10795 | AAB | 5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.84 | ± 9.6 % |
| 10796 | AAB | 5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.82 | ± 9.6 % |
| 10797 | AAB | 5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.01 | ± 9.6 % |
| 10798 | AAB | 5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.89 | ± 9.6 % |
| 10799 | AAB | 5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.93 | ± 9.6 % |
| 10801 | AAB | 5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.89 | ± 9.6 % |
| 10802 | AAB | 5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.87 | ± 9.6 % |
| 10803 | AAB | 5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.93 | ± 9.6 % |
| 10805 | AAB | 5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.34 | ± 9.6 % |
| 10806 | AAB | 5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.37 | ± 9.6 % |
| 10809 | AAB | 5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.34 | ± 9.6 % |
| 10810 | AAB | 5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.34 | ± 9.6 % |
| 10812 | AAB | 5G NR (CP-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.35 | ± 9.6 % |
| 10817 | AAB | 5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.35 | ± 9.6 % |
| 10818 | AAB | 5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.34 | ± 9.6 % |
| 10819 | AAB | 5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.33 | ± 9.6 % |
| 10820 | AAB | 5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.30 | ± 9.6 % |
| 10821 | AAB | 5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.41 | ± 9.6 % |
| 10822 | AAB | 5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.41 | ± 9.6 % |
| 10823 | AAB | 5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.36 | ± 9.6 % |

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|-------|-----|--|---------------|------|---------|
| 10824 | AAB | 5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.39 | ± 9.6 % |
| 10825 | AAB | 5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.41 | ± 9.6 % |
| 10827 | AAB | 5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.42 | ± 9.6 % |
| 10828 | AAB | 5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.43 | ± 9.6 % |
| 10829 | AAB | 5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.40 | ± 9.6 % |
| 10830 | AAB | 5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.63 | ± 9.6 % |
| 10831 | AAB | 5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.73 | ± 9.6 % |
| 10832 | AAB | 5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.74 | ± 9.6 % |
| 10833 | AAB | 5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.70 | ± 9.6 % |
| 10834 | AAB | 5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.75 | ± 9.6 % |
| 10835 | AAB | 5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.70 | ± 9.6 % |
| 10836 | AAB | 5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.66 | ± 9.6 % |
| 10837 | AAB | 5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.68 | ± 9.6 % |
| 10839 | AAB | 5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.70 | ± 9.6 % |
| 10840 | AAB | 5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.67 | ± 9.6 % |
| 10841 | AAB | 5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.71 | ± 9.6 % |
| 10843 | AAB | 5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.49 | ± 9.6 % |
| 10844 | AAB | 5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.34 | ± 9.6 % |
| 10846 | AAB | 5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.41 | ± 9.6 % |
| 10854 | AAB | 5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.34 | ± 9.6 % |
| 10855 | AAB | 5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.36 | ± 9.6 % |
| 10856 | AAB | 5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.37 | ± 9.6 % |
| 10857 | AAB | 5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.35 | ± 9.6 % |
| 10858 | AAB | 5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.36 | ± 9.6 % |
| 10859 | AAB | 5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.34 | ± 9.6 % |
| 10860 | AAB | 5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.41 | ± 9.6 % |
| 10861 | AAB | 5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.40 | ± 9.6 % |
| 10863 | AAB | 5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.41 | ± 9.6 % |
| 10864 | AAB | 5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.37 | ± 9.6 % |
| 10865 | AAB | 5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.41 | ± 9.6 % |
| 10866 | AAB | 5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.68 | ± 9.6 % |
| 10868 | AAB | 5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.89 | ± 9.6 % |
| 10869 | AAC | 5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz) | 5G NR FR2 TDD | 5.75 | ± 9.6 % |

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|-------|-----|--|---------------|------|---------|
| 10870 | AAC | 5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz) | 5G NR FR2 TDD | 5.86 | ± 9.6 % |
| 10871 | AAC | 5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz) | 5G NR FR2 TDD | 5.75 | ± 9.6 % |
| 10872 | AAC | 5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz) | 5G NR FR2 TDD | 6.52 | ± 9.6 % |
| 10873 | AAC | 5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz) | 5G NR FR2 TDD | 6.61 | ± 9.6 % |
| 10874 | AAC | 5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz) | 5G NR FR2 TDD | 6.65 | ± 9.6 % |
| 10875 | AAC | 5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz) | 5G NR FR2 TDD | 7.78 | ± 9.6 % |
| 10876 | AAC | 5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz) | 5G NR FR2 TDD | 8.39 | ± 9.6 % |
| 10877 | AAC | 5G NR (CP-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz) | 5G NR FR2 TDD | 7.95 | ± 9.6 % |
| 10878 | AAC | 5G NR (CP-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz) | 5G NR FR2 TDD | 8.41 | ± 9.6 % |
| 10879 | AAC | 5G NR (CP-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz) | 5G NR FR2 TDD | 8.12 | ± 9.6 % |
| 10880 | AAC | 5G NR (CP-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz) | 5G NR FR2 TDD | 8.38 | ± 9.6 % |
| 10881 | AAC | 5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz) | 5G NR FR2 TDD | 5.75 | ± 9.6 % |
| 10882 | AAC | 5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz) | 5G NR FR2 TDD | 5.96 | ± 9.6 % |
| 10883 | AAC | 5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz) | 5G NR FR2 TDD | 6.57 | ± 9.6 % |
| 10884 | AAC | 5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz) | 5G NR FR2 TDD | 6.53 | ± 9.6 % |
| 10885 | AAC | 5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz) | 5G NR FR2 TDD | 6.61 | ± 9.6 % |
| 10886 | AAC | 5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz) | 5G NR FR2 TDD | 6.65 | ± 9.6 % |
| 10887 | AAC | 5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz) | 5G NR FR2 TDD | 7.78 | ± 9.6 % |
| 10888 | AAC | 5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz) | 5G NR FR2 TDD | 8.35 | ± 9.6 % |
| 10889 | AAC | 5G NR (CP-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz) | 5G NR FR2 TDD | 8.02 | ± 9.6 % |
| 10890 | AAC | 5G NR (CP-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz) | 5G NR FR2 TDD | 8.40 | ± 9.6 % |
| 10891 | AAC | 5G NR (CP-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz) | 5G NR FR2 TDD | 8.13 | ± 9.6 % |
| 10892 | AAC | 5G NR (CP-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz) | 5G NR FR2 TDD | 8.41 | ± 9.6 % |

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



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

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **EUmmWV3-9407_Dec19**

CALIBRATION CERTIFICATE

Object: **EUmmWV3 - SN:9407**

Calibration procedure(s): **QA CAL-02.v9, QA CAL-25.v7, QA CAL-42.v2**
Calibration procedure for E-field probes optimized for close near field evaluations in air

Calibration date: **December 10, 2019**

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

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

*MAS
4/10/20*

| Primary Standards | ID | Cal Date (Certificate No.) | Scheduled Calibration |
|----------------------------|------------------|-----------------------------------|------------------------|
| Power meter NRP | SN: 104778 | 03-Apr-19 (No. 217-02892/02893) | Apr-20 |
| Power sensor NRP-Z91 | SN: 103244 | 03-Apr-19 (No. 217-02892) | Apr-20 |
| Power sensor NRP-Z91 | SN: 103245 | 03-Apr-19 (No. 217-02893) | Apr-20 |
| Reference 20 dB Attenuator | SN: S5277 (20x) | 04-Apr-19 (No. 217-02894) | Apr-20 |
| Reference Probe ER3DV6 | SN: 2328 | 05-Oct-19 (No. ER3-2328_Oct19) | Oct-20 |
| DAE4 | SN: 789 | 14-Jan-19 (No. DAE4-789_Jan19) | Jan-20 |
| Secondary Standards | ID | Check Date (in house) | Scheduled Check |
| Power meter E4419B | SN: GB41293874 | 06-Apr-16 (in house check Jun-18) | In house check: Jun-20 |
| Power sensor E4412A | SN: MY41498087 | 06-Apr-16 (in house check Jun-18) | In house check: Jun-20 |
| Power sensor E4412A | SN: 000110210 | 06-Apr-16 (in house check Jun-18) | In house check: Jun-20 |
| RF generator HP 8648C | SN: US3642U01700 | 04-Aug-99 (in house check Jun-18) | In house check: Jun-20 |
| Network Analyzer HP 8753E | SN: US37390585 | 18-Oct-01 (in house check Oct-19) | In house check: Oct-20 |

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

Issued: December 17, 2019

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 0108**

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

Glossary:

| | |
|--------------------------|---|
| NORM _{x,y,z} | sensitivity in free space |
| DCP | diode compression point |
| CF | crest factor (1/duty_cycle) of the RF signal |
| A, B, C, D | modulation dependent linearization parameters |
| Polarization φ | φ rotation around probe axis |
| Polarization ϑ | ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis |
| Connector Angle | information used in DASY system to align probe sensor X to the robot coordinate system |
| Sensor Angles | sensor deviation from the probe axis, used to calculate the field orientation and polarization |
| k | is the wave propagation direction |

Calibration is Performed According to the Following Standards:

- a) IEEE Std 1309-2005, "IEEE Standard for calibration of electromagnetic field sensors and probes, excluding antennas, from 9 kHz to 40 GHz", December 2005

Methods Applied and Interpretation of Parameters:

- *NORM_{x,y,z}*: Assessed for E-field polarization $\vartheta = 0$ for XY sensors and $\vartheta = 90$ for Z sensor ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). For frequencies > 6 GHz, the far field in front of waveguide horn antennas is measured for a set of frequencies in various waveguide bands up to 110 GHz.
- *DCP_{x,y,z}*: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR*: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- The frequency sensor model parameters are determined prior to calibration based on a frequency sweep (sensor model involving resistors R, R_p, inductance L and capacitors C, C_p).
- *A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; D_{x,y,z}; VR_{x,y,z}*: A, B, C, D are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- *Sensor Offset*: The sensor offset corresponds to the mechanical from the probe tip (on probe axis). No tolerance required.
- *Connector Angle*: The angle is assessed using the information gained by determining the *NORM_x* (no uncertainty required).
- *Equivalent Sensor Angle*: The two probe sensors are mounted in the same plane at different angles. The angles are assessed using the information gained by determining the *NORM_x* (no uncertainty required).
- *Spherical isotropy (3D deviation from isotropy)*: in a locally homogeneous field realized using an open waveguide / horn setup.

DASY - Parameters of Probe: EUmmWV3 - SN:9407

Basic Calibration Parameters

| | Sensor X | Sensor Y | Unc (k=2) |
|--|----------|----------|---------------|
| Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) | 0.02290 | 0.02745 | $\pm 10.1 \%$ |
| DCP (mV) ^B | 102.0 | 113.0 | |
| Equivalent Sensor Angle | -58.6 | 31.2 | |

Calibration results for Frequency Response (750 MHz – 110 GHz)

| Frequency GHz | Target E-Field V/m | Deviation Sensor X dB | Deviation Sensor Y dB | Unc (k=2) dB |
|---------------|--------------------|-----------------------|-----------------------|---------------|
| 0.75 | 77.2 | -0.15 | 0.33 | ± 0.43 dB |
| 1.8 | 140.4 | 0.13 | 0.23 | ± 0.43 dB |
| 2 | 133.0 | 0.07 | 0.13 | ± 0.43 dB |
| 2.2 | 124.8 | 0.05 | 0.04 | ± 0.43 dB |
| 2.5 | 123.0 | -0.07 | -0.19 | ± 0.43 dB |
| 3.5 | 256.2 | 0.02 | -0.32 | ± 0.43 dB |
| 3.7 | 249.8 | 0.08 | -0.30 | ± 0.43 dB |
| 6.6 | 41.8 | 0.47 | 0.49 | ± 0.98 dB |
| 8 | 48.4 | -0.03 | -0.20 | ± 0.98 dB |
| 10 | 54.4 | -0.04 | 0.00 | ± 0.98 dB |
| 15 | 71.5 | 0.36 | -0.21 | ± 0.98 dB |
| 18 | 85.3 | -0.36 | 0.03 | ± 0.98 dB |
| 26.6 | 96.9 | -0.14 | 0.03 | ± 0.98 dB |
| 30 | 92.6 | 0.12 | 0.08 | ± 0.98 dB |
| 35 | 93.7 | -0.37 | -0.21 | ± 0.98 dB |
| 40 | 91.5 | -0.62 | -0.59 | ± 0.98 dB |
| 50 | 19.6 | -0.07 | 0.01 | ± 0.98 dB |
| 55 | 22.4 | 0.68 | 0.42 | ± 0.98 dB |
| 60 | 23.0 | 0.06 | 0.02 | ± 0.98 dB |
| 65 | 27.4 | -0.38 | -0.09 | ± 0.98 dB |
| 70 | 23.9 | -0.15 | -0.23 | ± 0.98 dB |
| 75 | 20.0 | -0.09 | -0.06 | ± 0.98 dB |
| 75 | 14.8 | 0.10 | 0.21 | ± 0.98 dB |
| 80 | 22.5 | 0.38 | 0.35 | ± 0.98 dB |
| 85 | 22.8 | 0.13 | 0.09 | ± 0.98 dB |
| 90 | 23.8 | -0.03 | 0.04 | ± 0.98 dB |
| 92 | 23.9 | 0.12 | -0.08 | ± 0.98 dB |
| 95 | 20.5 | -0.03 | -0.19 | ± 0.98 dB |
| 97 | 24.4 | -0.06 | -0.15 | ± 0.98 dB |
| 100 | 22.6 | 0.09 | -0.07 | ± 0.98 dB |
| 105 | 22.7 | -0.08 | 0.00 | ± 0.98 dB |
| 110 | 19.7 | 0.08 | 0.23 | ± 0.98 dB |

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

^B Numerical linearization parameter: uncertainty not required.

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

DASY - Parameters of Probe: EUmmWV3 - SN:9407

Calibration Results for Modulation Response

| UID | Communication System Name | | A dB | B dB/√μV | C | D dB | VR mV | Max dev. | Max Unc ^E (k=2) |
|-----------|-----------------------------|---|---------|-------------|-------|---------|----------|-------------|----------------------------------|
| 0 | CW | X | 0.00 | 0.00 | 1.00 | 0.00 | 109.4 | ± 2.7 % | ± 4.7 % |
| | | Y | 0.00 | 0.00 | 1.00 | | 86.2 | | |
| 10352-AAA | Pulse Waveform (200Hz, 10%) | X | 2.12 | 60.00 | 13.39 | 10.00 | 6.0 | ± 1.3 % | ± 9.6 % |
| | | Y | 1.41 | 60.00 | 14.71 | | 6.0 | | |
| 10353-AAA | Pulse Waveform (200Hz, 20%) | X | 1.37 | 60.00 | 12.36 | 6.99 | 12.0 | ± 0.8 % | ± 9.6 % |
| | | Y | 0.94 | 60.00 | 13.81 | | 12.0 | | |
| 10354-AAA | Pulse Waveform (200Hz, 40%) | X | 0.78 | 60.00 | 11.17 | 3.98 | 23.0 | ± 1.0 % | ± 9.6 % |
| | | Y | 0.56 | 60.00 | 12.74 | | 23.0 | | |
| 10355-AAA | Pulse Waveform (200Hz, 60%) | X | 0.48 | 60.00 | 10.18 | 2.22 | 27.0 | ± 0.9 % | ± 9.6 % |
| | | Y | 0.38 | 60.00 | 11.82 | | 27.0 | | |
| 10387-AAA | QPSK Waveform, 1 MHz | X | 1.19 | 117.15 | 13.96 | 0.00 | 22.0 | ± 1.1 % | ± 9.6 % |
| | | Y | 3.79 | 84.56 | 1.83 | | 22.0 | | |
| 10388-AAA | QPSK Waveform, 10 MHz | X | 1.27 | 60.00 | 11.50 | 0.00 | 22.0 | ± 0.6 % | ± 9.6 % |
| | | Y | 1.17 | 60.00 | 11.99 | | 22.0 | | |
| 10396-AAA | 64-QAM Waveform, 100 kHz | X | 1.93 | 60.00 | 13.68 | 3.01 | 17.0 | ± 0.6 % | ± 9.6 % |
| | | Y | 1.90 | 60.00 | 13.43 | | 17.0 | | |
| 10399-AAA | 64-QAM Waveform, 40 MHz | X | 2.13 | 60.00 | 12.16 | 0.00 | 19.0 | ± 0.7 % | ± 9.6 % |
| | | Y | 1.93 | 60.00 | 12.50 | | 19.0 | | |
| 10414-AAA | WLAN CCDF, 64-QAM, 40MHz | X | 3.20 | 60.00 | 12.63 | 0.00 | 12.0 | ± 0.8 % | ± 9.6 % |
| | | Y | 2.86 | 60.00 | 12.92 | | 12.0 | | |

Note: For details on all calibrated UID parameters see Appendix

Calibration Results for Linearity Response

| Frequency GHz | Target E-Field V/m | Deviation Sensor X dB | Deviation Sensor Y dB | Unc (k=2) dB |
|------------------|-----------------------|-----------------------|-----------------------|-----------------|
| 0.9 | 50.0 | 0.10 | -0.02 | ± 0.2 dB |
| 0.9 | 100.0 | 0.01 | 0.02 | ± 0.2 dB |
| 0.9 | 500.0 | 0.00 | -0.02 | ± 0.2 dB |
| 0.9 | 1000.0 | 0.03 | 0.01 | ± 0.2 dB |
| 0.9 | 1500.0 | 0.00 | 0.00 | ± 0.2 dB |
| 0.9 | 2000.0 | -0.04 | 0.01 | ± 0.2 dB |

Sensor Frequency Model Parameters (750 MHz – 78 GHz)

| | Sensor X | Sensor Y |
|---------------------|----------|----------|
| R (Ω) | 47.82 | 49.82 |
| R _p (Ω) | 92.12 | 88.50 |
| L (nH) | 0.03674 | 0.04042 |
| C (pF) | 0.2744 | 0.2956 |
| C _p (pF) | 0.1087 | 0.1004 |

Sensor Frequency Model Parameters (55 GHz – 110 GHz)

| | Sensor X | Sensor Y |
|---------------------|----------|----------|
| R (Ω) | 34.05 | 43.37 |
| R _p (Ω) | 97.85 | 91.31 |
| L (nH) | 0.03646 | 0.02927 |
| C (pF) | 0.1587 | 0.3237 |
| C _p (pF) | 0.1222 | 0.1221 |

DASY - Parameters of Probe: EUmmWV3 - SN:9407

Sensor Model Parameters

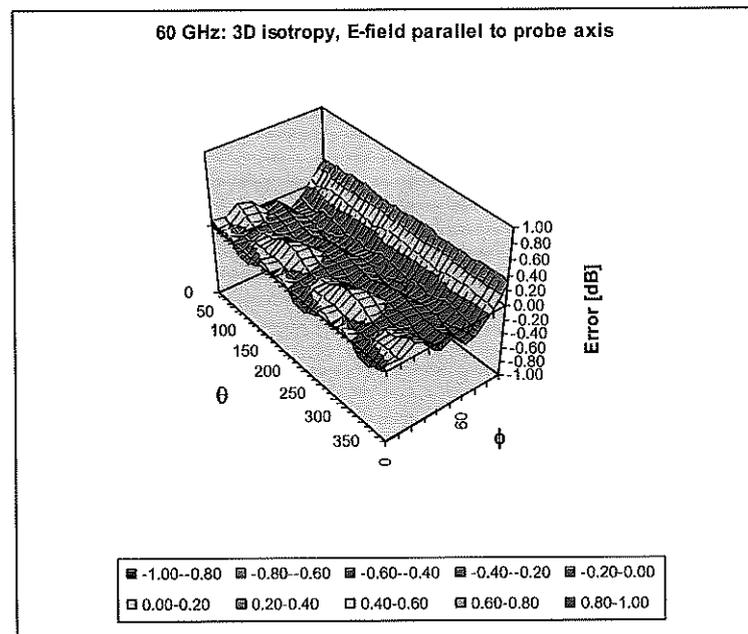
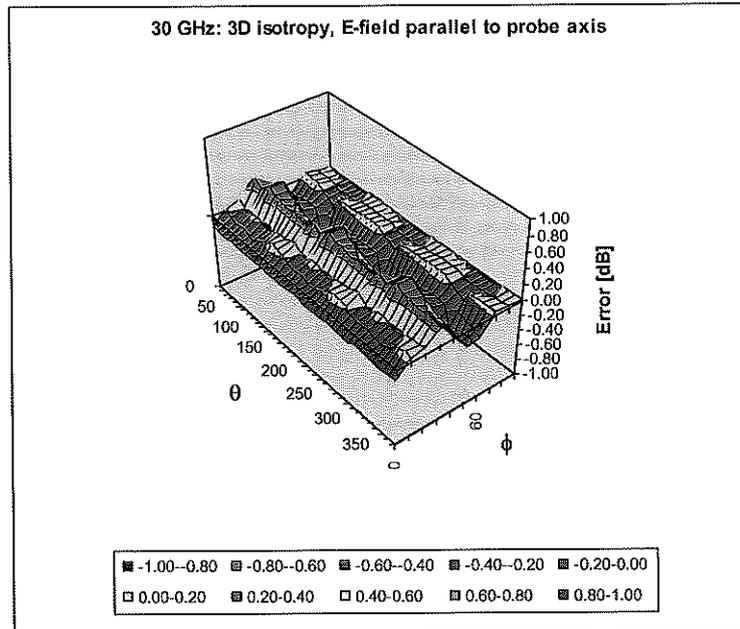
| | C1 fF | C2 fF | α V ⁻¹ | T1 ms.V ⁻² | T2 ms.V ⁻¹ | T3 ms | T4 V ⁻² | T5 V ⁻¹ | T6 |
|---|----------|----------|-----------------------------|--------------------------|--------------------------|----------|-----------------------|-----------------------|------|
| X | 28.4 | 213.34 | 35.57 | 0.92 | 3.76 | 4.99 | 0.00 | 1.13 | 1.01 |
| Y | 28.5 | 198.32 | 31.35 | 0.92 | 2.68 | 5.01 | 0.00 | 1.20 | 1.00 |

Other Probe Parameters

| | |
|---|-------------|
| Sensor Arrangement | Rectangular |
| Connector Angle (°) | 201.2 |
| Mechanical Surface Detection Mode | enabled |
| Optical Surface Detection Mode | disabled |
| Probe Overall Length | 320 mm |
| Probe Body Diameter | 8 mm |
| Tip Length | 23 mm |
| Tip Diameter | 8.0 mm |
| Probe Tip to Sensor X Calibration Point | 1.5 mm |
| Probe Tip to Sensor Y Calibration Point | 1.5 mm |

Deviation from Isotropy in Air

f = 30, 60 GHz



Probe isotropy for E_{tot} : probe rotated $\phi = 0^\circ$ to 360° , tilted from field propagation direction \vec{k}
 Parallel to the field propagation ($\psi = 0^\circ - 90^\circ$) at 30 GHz: deviation within ± 0.39 dB
 Parallel to the field propagation ($\psi = 0^\circ - 90^\circ$) at 60 GHz: deviation within ± 0.30 dB

Appendix: Modulation Calibration Parameters

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

| | | | | | |
|-------|-----|--|---------|-------|---------|
| 10109 | CAG | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM) | LTE-FDD | 6.43 | ± 9.6 % |
| 10110 | CAG | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK) | LTE-FDD | 5.75 | ± 9.6 % |
| 10111 | CAG | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM) | LTE-FDD | 6.44 | ± 9.6 % |
| 10112 | CAG | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM) | LTE-FDD | 6.59 | ± 9.6 % |
| 10113 | CAG | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM) | LTE-FDD | 6.62 | ± 9.6 % |
| 10114 | CAC | IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK) | WLAN | 8.10 | ± 9.6 % |
| 10115 | CAC | IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM) | WLAN | 8.46 | ± 9.6 % |
| 10116 | CAC | IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM) | WLAN | 8.15 | ± 9.6 % |
| 10117 | CAC | IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK) | WLAN | 8.07 | ± 9.6 % |
| 10118 | CAC | IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM) | WLAN | 8.59 | ± 9.6 % |
| 10119 | CAC | IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM) | WLAN | 8.13 | ± 9.6 % |
| 10140 | CAE | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM) | LTE-FDD | 6.49 | ± 9.6 % |
| 10141 | CAE | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM) | LTE-FDD | 6.53 | ± 9.6 % |
| 10142 | CAE | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK) | LTE-FDD | 5.73 | ± 9.6 % |
| 10143 | CAE | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM) | LTE-FDD | 6.35 | ± 9.6 % |
| 10144 | CAE | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM) | LTE-FDD | 6.65 | ± 9.6 % |
| 10145 | CAF | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK) | LTE-FDD | 5.76 | ± 9.6 % |
| 10146 | CAF | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM) | LTE-FDD | 6.41 | ± 9.6 % |
| 10147 | CAF | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM) | LTE-FDD | 6.72 | ± 9.6 % |
| 10149 | CAE | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM) | LTE-FDD | 6.42 | ± 9.6 % |
| 10150 | CAE | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM) | LTE-FDD | 6.60 | ± 9.6 % |
| 10151 | CAG | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK) | LTE-TDD | 9.28 | ± 9.6 % |
| 10152 | CAG | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM) | LTE-TDD | 9.92 | ± 9.6 % |
| 10153 | CAG | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM) | LTE-TDD | 10.05 | ± 9.6 % |
| 10154 | CAG | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK) | LTE-FDD | 5.75 | ± 9.6 % |
| 10155 | CAG | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM) | LTE-FDD | 6.43 | ± 9.6 % |
| 10156 | CAG | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK) | LTE-FDD | 5.79 | ± 9.6 % |
| 10157 | CAG | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM) | LTE-FDD | 6.49 | ± 9.6 % |
| 10158 | CAG | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM) | LTE-FDD | 6.62 | ± 9.6 % |
| 10159 | CAG | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM) | LTE-FDD | 6.56 | ± 9.6 % |
| 10160 | CAE | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK) | LTE-FDD | 5.82 | ± 9.6 % |
| 10161 | CAE | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM) | LTE-FDD | 6.43 | ± 9.6 % |
| 10162 | CAE | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM) | LTE-FDD | 6.58 | ± 9.6 % |
| 10166 | CAF | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK) | LTE-FDD | 5.46 | ± 9.6 % |
| 10167 | CAF | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM) | LTE-FDD | 6.21 | ± 9.6 % |
| 10168 | CAF | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM) | LTE-FDD | 6.79 | ± 9.6 % |
| 10169 | CAE | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK) | LTE-FDD | 5.73 | ± 9.6 % |
| 10170 | CAE | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM) | LTE-FDD | 6.52 | ± 9.6 % |
| 10171 | AAE | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM) | LTE-FDD | 6.49 | ± 9.6 % |
| 10172 | CAG | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK) | LTE-TDD | 9.21 | ± 9.6 % |
| 10173 | CAG | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM) | LTE-TDD | 9.48 | ± 9.6 % |
| 10174 | CAG | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM) | LTE-TDD | 10.25 | ± 9.6 % |
| 10175 | CAG | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK) | LTE-FDD | 5.72 | ± 9.6 % |
| 10176 | CAG | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM) | LTE-FDD | 6.52 | ± 9.6 % |
| 10177 | CAI | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK) | LTE-FDD | 5.73 | ± 9.6 % |
| 10178 | CAG | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM) | LTE-FDD | 6.52 | ± 9.6 % |
| 10179 | CAG | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM) | LTE-FDD | 6.50 | ± 9.6 % |
| 10180 | CAG | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM) | LTE-FDD | 6.50 | ± 9.6 % |
| 10181 | CAE | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK) | LTE-FDD | 5.72 | ± 9.6 % |
| 10182 | CAE | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM) | LTE-FDD | 6.52 | ± 9.6 % |
| 10183 | AAD | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM) | LTE-FDD | 6.50 | ± 9.6 % |
| 10184 | CAE | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK) | LTE-FDD | 5.73 | ± 9.6 % |
| 10185 | CAE | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM) | LTE-FDD | 6.51 | ± 9.6 % |
| 10186 | AAE | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM) | LTE-FDD | 6.50 | ± 9.6 % |
| 10187 | CAF | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK) | LTE-FDD | 5.73 | ± 9.6 % |
| 10188 | CAF | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM) | LTE-FDD | 6.52 | ± 9.6 % |
| 10189 | AAF | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM) | LTE-FDD | 6.50 | ± 9.6 % |
| 10193 | CAC | IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK) | WLAN | 8.09 | ± 9.6 % |
| 10194 | CAC | IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM) | WLAN | 8.12 | ± 9.6 % |
| 10195 | CAC | IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM) | WLAN | 8.21 | ± 9.6 % |
| 10196 | CAC | IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK) | WLAN | 8.10 | ± 9.6 % |
| 10197 | CAC | IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM) | WLAN | 8.13 | ± 9.6 % |
| 10198 | CAC | IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM) | WLAN | 8.27 | ± 9.6 % |
| 10219 | CAC | IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK) | WLAN | 8.03 | ± 9.6 % |

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|-------|-----|---|----------|-------|---------|
| 10220 | CAC | IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM) | WLAN | 8.13 | ± 9.6 % |
| 10221 | CAC | IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM) | WLAN | 8.27 | ± 9.6 % |
| 10222 | CAC | IEEE 802.11n (HT Mixed, 15 Mbps, BPSK) | WLAN | 8.06 | ± 9.6 % |
| 10223 | CAC | IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM) | WLAN | 8.48 | ± 9.6 % |
| 10224 | CAC | IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM) | WLAN | 8.08 | ± 9.6 % |
| 10225 | CAB | UMTS-FDD (HSPA+) | WCDMA | 5.97 | ± 9.6 % |
| 10226 | CAB | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM) | LTE-TDD | 9.49 | ± 9.6 % |
| 10227 | CAB | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM) | LTE-TDD | 10.26 | ± 9.6 % |
| 10228 | CAB | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK) | LTE-TDD | 9.22 | ± 9.6 % |
| 10229 | CAD | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM) | LTE-TDD | 9.48 | ± 9.6 % |
| 10230 | CAD | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM) | LTE-TDD | 10.25 | ± 9.6 % |
| 10231 | CAD | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK) | LTE-TDD | 9.19 | ± 9.6 % |
| 10232 | CAG | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM) | LTE-TDD | 9.48 | ± 9.6 % |
| 10233 | CAG | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM) | LTE-TDD | 10.25 | ± 9.6 % |
| 10234 | CAG | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK) | LTE-TDD | 9.21 | ± 9.6 % |
| 10235 | CAG | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM) | LTE-TDD | 9.48 | ± 9.6 % |
| 10236 | CAG | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM) | LTE-TDD | 10.25 | ± 9.6 % |
| 10237 | CAG | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK) | LTE-TDD | 9.21 | ± 9.6 % |
| 10238 | CAF | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM) | LTE-TDD | 9.48 | ± 9.6 % |
| 10239 | CAF | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM) | LTE-TDD | 10.25 | ± 9.6 % |
| 10240 | CAF | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK) | LTE-TDD | 9.21 | ± 9.6 % |
| 10241 | CAB | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM) | LTE-TDD | 9.82 | ± 9.6 % |
| 10242 | CAB | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM) | LTE-TDD | 9.86 | ± 9.6 % |
| 10243 | CAB | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK) | LTE-TDD | 9.46 | ± 9.6 % |
| 10244 | CAD | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM) | LTE-TDD | 10.06 | ± 9.6 % |
| 10245 | CAD | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM) | LTE-TDD | 10.06 | ± 9.6 % |
| 10246 | CAD | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK) | LTE-TDD | 9.30 | ± 9.6 % |
| 10247 | CAG | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM) | LTE-TDD | 9.91 | ± 9.6 % |
| 10248 | CAG | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM) | LTE-TDD | 10.09 | ± 9.6 % |
| 10249 | CAG | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK) | LTE-TDD | 9.29 | ± 9.6 % |
| 10250 | CAG | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM) | LTE-TDD | 9.81 | ± 9.6 % |
| 10251 | CAG | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM) | LTE-TDD | 10.17 | ± 9.6 % |
| 10252 | CAG | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK) | LTE-TDD | 9.24 | ± 9.6 % |
| 10253 | CAF | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM) | LTE-TDD | 9.90 | ± 9.6 % |
| 10254 | CAF | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM) | LTE-TDD | 10.14 | ± 9.6 % |
| 10255 | CAF | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK) | LTE-TDD | 9.20 | ± 9.6 % |
| 10256 | CAB | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM) | LTE-TDD | 9.96 | ± 9.6 % |
| 10257 | CAB | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM) | LTE-TDD | 10.08 | ± 9.6 % |
| 10258 | CAB | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK) | LTE-TDD | 9.34 | ± 9.6 % |
| 10259 | CAD | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM) | LTE-TDD | 9.98 | ± 9.6 % |
| 10260 | CAD | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM) | LTE-TDD | 9.97 | ± 9.6 % |
| 10261 | CAD | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK) | LTE-TDD | 9.24 | ± 9.6 % |
| 10262 | CAG | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM) | LTE-TDD | 9.83 | ± 9.6 % |
| 10263 | CAG | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM) | LTE-TDD | 10.16 | ± 9.6 % |
| 10264 | CAG | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK) | LTE-TDD | 9.23 | ± 9.6 % |
| 10265 | CAG | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM) | LTE-TDD | 9.92 | ± 9.6 % |
| 10266 | CAG | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM) | LTE-TDD | 10.07 | ± 9.6 % |
| 10267 | CAG | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK) | LTE-TDD | 9.30 | ± 9.6 % |
| 10268 | CAF | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM) | LTE-TDD | 10.06 | ± 9.6 % |
| 10269 | CAF | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM) | LTE-TDD | 10.13 | ± 9.6 % |
| 10270 | CAF | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK) | LTE-TDD | 9.58 | ± 9.6 % |
| 10274 | CAB | UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10) | WCDMA | 4.87 | ± 9.6 % |
| 10275 | CAB | UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4) | WCDMA | 3.96 | ± 9.6 % |
| 10277 | CAA | PHS (QPSK) | PHS | 11.81 | ± 9.6 % |
| 10278 | CAA | PHS (QPSK, BW 884MHz, Rolloff 0.5) | PHS | 11.81 | ± 9.6 % |
| 10279 | CAA | PHS (QPSK, BW 884MHz, Rolloff 0.38) | PHS | 12.18 | ± 9.6 % |
| 10290 | AAB | CDMA2000, RC1, SO55, Full Rate | CDMA2000 | 3.91 | ± 9.6 % |
| 10291 | AAB | CDMA2000, RC3, SO55, Full Rate | CDMA2000 | 3.46 | ± 9.6 % |
| 10292 | AAB | CDMA2000, RC3, SO32, Full Rate | CDMA2000 | 3.39 | ± 9.6 % |
| 10293 | AAB | CDMA2000, RC3, SO3, Full Rate | CDMA2000 | 3.50 | ± 9.6 % |
| 10295 | AAB | CDMA2000, RC1, SO3, 1/8th Rate 25 fr. | CDMA2000 | 12.49 | ± 9.6 % |
| 10297 | AAD | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK) | LTE-FDD | 5.81 | ± 9.6 % |
| 10298 | AAD | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK) | LTE-FDD | 5.72 | ± 9.6 % |
| 10299 | AAD | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM) | LTE-FDD | 6.39 | ± 9.6 % |

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|-------|-----|---|----------|-------|---------|
| 10300 | AAD | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM) | LTE-FDD | 6.60 | ± 9.6 % |
| 10301 | AAA | IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC) | WiMAX | 12.03 | ± 9.6 % |
| 10302 | AAA | IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols) | WiMAX | 12.57 | ± 9.6 % |
| 10303 | AAA | IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC) | WiMAX | 12.52 | ± 9.6 % |
| 10304 | AAA | IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC) | WiMAX | 11.86 | ± 9.6 % |
| 10305 | AAA | IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols) | WiMAX | 15.24 | ± 9.6 % |
| 10306 | AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols) | WiMAX | 14.67 | ± 9.6 % |
| 10307 | AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols) | WiMAX | 14.49 | ± 9.6 % |
| 10308 | AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC) | WiMAX | 14.46 | ± 9.6 % |
| 10309 | AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols) | WiMAX | 14.58 | ± 9.6 % |
| 10310 | AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols) | WiMAX | 14.57 | ± 9.6 % |
| 10311 | AAD | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK) | LTE-FDD | 6.06 | ± 9.6 % |
| 10313 | AAA | IDEN 1:3 | IDEN | 10.51 | ± 9.6 % |
| 10314 | AAA | IDEN 1:6 | IDEN | 13.48 | ± 9.6 % |
| 10315 | AAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle) | WLAN | 1.71 | ± 9.6 % |
| 10316 | AAB | IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle) | WLAN | 8.36 | ± 9.6 % |
| 10317 | AAC | IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle) | WLAN | 8.36 | ± 9.6 % |
| 10352 | AAA | Pulse Waveform (200Hz, 10%) | Generic | 10.00 | ± 9.6 % |
| 10353 | AAA | Pulse Waveform (200Hz, 20%) | Generic | 6.99 | ± 9.6 % |
| 10354 | AAA | Pulse Waveform (200Hz, 40%) | Generic | 3.98 | ± 9.6 % |
| 10355 | AAA | Pulse Waveform (200Hz, 60%) | Generic | 2.22 | ± 9.6 % |
| 10356 | AAA | Pulse Waveform (200Hz, 80%) | Generic | 0.97 | ± 9.6 % |
| 10387 | AAA | QPSK Waveform, 1 MHz | Generic | 5.10 | ± 9.6 % |
| 10388 | AAA | QPSK Waveform, 10 MHz | Generic | 5.22 | ± 9.6 % |
| 10396 | AAA | 64-QAM Waveform, 100 kHz | Generic | 6.27 | ± 9.6 % |
| 10399 | AAA | 64-QAM Waveform, 40 MHz | Generic | 6.27 | ± 9.6 % |
| 10400 | AAD | IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle) | WLAN | 8.37 | ± 9.6 % |
| 10401 | AAD | IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle) | WLAN | 8.60 | ± 9.6 % |
| 10402 | AAD | IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc duty cycle) | WLAN | 8.53 | ± 9.6 % |
| 10403 | AAB | CDMA2000 (1xEV-DO, Rev. 0) | CDMA2000 | 3.76 | ± 9.6 % |
| 10404 | AAB | CDMA2000 (1xEV-DO, Rev. A) | CDMA2000 | 3.77 | ± 9.6 % |
| 10406 | AAB | CDMA2000, RC3, SO32, SCH0, Full Rate | CDMA2000 | 5.22 | ± 9.6 % |
| 10410 | AAG | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9, Subframe Conf=4) | LTE-TDD | 7.82 | ± 9.6 % |
| 10414 | AAA | WLAN CCDF, 64-QAM, 40MHz | Generic | 8.54 | ± 9.6 % |
| 10415 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle) | WLAN | 1.54 | ± 9.6 % |
| 10416 | AAA | IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle) | WLAN | 8.23 | ± 9.6 % |
| 10417 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle) | WLAN | 8.23 | ± 9.6 % |
| 10418 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preamble) | WLAN | 8.14 | ± 9.6 % |
| 10419 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preamble) | WLAN | 8.19 | ± 9.6 % |
| 10422 | AAB | IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK) | WLAN | 8.32 | ± 9.6 % |
| 10423 | AAB | IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM) | WLAN | 8.47 | ± 9.6 % |
| 10424 | AAB | IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM) | WLAN | 8.40 | ± 9.6 % |
| 10425 | AAB | IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK) | WLAN | 8.41 | ± 9.6 % |
| 10426 | AAB | IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM) | WLAN | 8.45 | ± 9.6 % |
| 10427 | AAB | IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM) | WLAN | 8.41 | ± 9.6 % |
| 10430 | AAD | LTE-FDD (OFDMA, 5 MHz, E-TM 3.1) | LTE-FDD | 8.28 | ± 9.6 % |
| 10431 | AAD | LTE-FDD (OFDMA, 10 MHz, E-TM 3.1) | LTE-FDD | 8.38 | ± 9.6 % |
| 10432 | AAC | LTE-FDD (OFDMA, 15 MHz, E-TM 3.1) | LTE-FDD | 8.34 | ± 9.6 % |
| 10433 | AAC | LTE-FDD (OFDMA, 20 MHz, E-TM 3.1) | LTE-FDD | 8.34 | ± 9.6 % |
| 10434 | AAA | W-CDMA (BS Test Model 1, 64 DPCH) | WCDMA | 8.60 | ± 9.6 % |
| 10435 | AAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.82 | ± 9.6 % |
| 10447 | AAD | LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%) | LTE-FDD | 7.56 | ± 9.6 % |
| 10448 | AAD | LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%) | LTE-FDD | 7.53 | ± 9.6 % |
| 10449 | AAC | LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%) | LTE-FDD | 7.51 | ± 9.6 % |
| 10450 | AAC | LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%) | LTE-FDD | 7.48 | ± 9.6 % |

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|-------|-----|---|----------|------|---------|
| 10451 | AAA | W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%) | WCDMA | 7.59 | ± 9.6 % |
| 10456 | AAB | IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle) | WLAN | 8.63 | ± 9.6 % |
| 10457 | AAA | UMTS-FDD (DC-HSDPA) | WCDMA | 6.62 | ± 9.6 % |
| 10458 | AAA | CDMA2000 (1xEV-DO, Rev. B, 2 carriers) | CDMA2000 | 6.55 | ± 9.6 % |
| 10459 | AAA | CDMA2000 (1xEV-DO, Rev. B, 3 carriers) | CDMA2000 | 8.25 | ± 9.6 % |
| 10460 | AAA | UMTS-FDD (WCDMA, AMR) | WCDMA | 2.39 | ± 9.6 % |
| 10461 | AAB | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.82 | ± 9.6 % |
| 10462 | AAB | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.30 | ± 9.6 % |
| 10463 | AAB | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.56 | ± 9.6 % |
| 10464 | AAC | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.82 | ± 9.6 % |
| 10465 | AAC | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.32 | ± 9.6 % |
| 10466 | AAC | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.57 | ± 9.6 % |
| 10467 | AAF | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.82 | ± 9.6 % |
| 10468 | AAF | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.32 | ± 9.6 % |
| 10469 | AAF | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.56 | ± 9.6 % |
| 10470 | AAF | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.82 | ± 9.6 % |
| 10471 | AAF | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.32 | ± 9.6 % |
| 10472 | AAF | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.57 | ± 9.6 % |
| 10473 | AAE | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.82 | ± 9.6 % |
| 10474 | AAE | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.32 | ± 9.6 % |
| 10475 | AAE | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.57 | ± 9.6 % |
| 10477 | AAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.32 | ± 9.6 % |
| 10478 | AAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.57 | ± 9.6 % |
| 10479 | AAB | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.74 | ± 9.6 % |
| 10480 | AAB | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.18 | ± 9.6 % |
| 10481 | AAB | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.45 | ± 9.6 % |
| 10482 | AAC | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.71 | ± 9.6 % |
| 10483 | AAC | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.39 | ± 9.6 % |
| 10484 | AAC | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.47 | ± 9.6 % |
| 10485 | AAF | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.59 | ± 9.6 % |
| 10486 | AAF | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.38 | ± 9.6 % |
| 10487 | AAF | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.60 | ± 9.6 % |
| 10488 | AAF | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.70 | ± 9.6 % |
| 10489 | AAF | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.31 | ± 9.6 % |
| 10490 | AAF | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.54 | ± 9.6 % |
| 10491 | AAE | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.74 | ± 9.6 % |

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|-------|-----|--|---------|------|---------|
| 10492 | AAE | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.41 | ± 9.6 % |
| 10493 | AAE | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.55 | ± 9.6 % |
| 10494 | AAF | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.74 | ± 9.6 % |
| 10495 | AAF | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.37 | ± 9.6 % |
| 10496 | AAF | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.54 | ± 9.6 % |
| 10497 | AAB | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.67 | ± 9.6 % |
| 10498 | AAB | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.40 | ± 9.6 % |
| 10499 | AAB | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.68 | ± 9.6 % |
| 10500 | AAC | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.67 | ± 9.6 % |
| 10501 | AAC | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.44 | ± 9.6 % |
| 10502 | AAC | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.52 | ± 9.6 % |
| 10503 | AAF | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.72 | ± 9.6 % |
| 10504 | AAF | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.31 | ± 9.6 % |
| 10505 | AAF | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.54 | ± 9.6 % |
| 10506 | AAF | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.74 | ± 9.6 % |
| 10507 | AAF | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.36 | ± 9.6 % |
| 10508 | AAF | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.55 | ± 9.6 % |
| 10509 | AAE | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.99 | ± 9.6 % |
| 10510 | AAE | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.49 | ± 9.6 % |
| 10511 | AAE | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.51 | ± 9.6 % |
| 10512 | AAF | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.74 | ± 9.6 % |
| 10513 | AAF | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.42 | ± 9.6 % |
| 10514 | AAF | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.45 | ± 9.6 % |
| 10515 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle) | WLAN | 1.58 | ± 9.6 % |
| 10516 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle) | WLAN | 1.57 | ± 9.6 % |
| 10517 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle) | WLAN | 1.58 | ± 9.6 % |
| 10518 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle) | WLAN | 8.23 | ± 9.6 % |
| 10519 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle) | WLAN | 8.39 | ± 9.6 % |
| 10520 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle) | WLAN | 8.12 | ± 9.6 % |
| 10521 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle) | WLAN | 7.97 | ± 9.6 % |
| 10522 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle) | WLAN | 8.45 | ± 9.6 % |
| 10523 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle) | WLAN | 8.08 | ± 9.6 % |
| 10524 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle) | WLAN | 8.27 | ± 9.6 % |
| 10525 | AAB | IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle) | WLAN | 8.36 | ± 9.6 % |
| 10526 | AAB | IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle) | WLAN | 8.42 | ± 9.6 % |
| 10527 | AAB | IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle) | WLAN | 8.21 | ± 9.6 % |
| 10528 | AAB | IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle) | WLAN | 8.36 | ± 9.6 % |
| 10529 | AAB | IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle) | WLAN | 8.36 | ± 9.6 % |
| 10531 | AAB | IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle) | WLAN | 8.43 | ± 9.6 % |
| 10532 | AAB | IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle) | WLAN | 8.29 | ± 9.6 % |
| 10533 | AAB | IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle) | WLAN | 8.38 | ± 9.6 % |
| 10534 | AAB | IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle) | WLAN | 8.45 | ± 9.6 % |

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|-------|-----|---|------|------|---------|
| 10535 | AAB | IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle) | WLAN | 8.45 | ± 9.6 % |
| 10536 | AAB | IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle) | WLAN | 8.32 | ± 9.6 % |
| 10537 | AAB | IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle) | WLAN | 8.44 | ± 9.6 % |
| 10538 | AAB | IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle) | WLAN | 8.54 | ± 9.6 % |
| 10540 | AAB | IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle) | WLAN | 8.39 | ± 9.6 % |
| 10541 | AAB | IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle) | WLAN | 8.46 | ± 9.6 % |
| 10542 | AAB | IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle) | WLAN | 8.65 | ± 9.6 % |
| 10543 | AAB | IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle) | WLAN | 8.65 | ± 9.6 % |
| 10544 | AAB | IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle) | WLAN | 8.47 | ± 9.6 % |
| 10545 | AAB | IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle) | WLAN | 8.55 | ± 9.6 % |
| 10546 | AAB | IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle) | WLAN | 8.35 | ± 9.6 % |
| 10547 | AAB | IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle) | WLAN | 8.49 | ± 9.6 % |
| 10548 | AAB | IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle) | WLAN | 8.37 | ± 9.6 % |
| 10550 | AAB | IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle) | WLAN | 8.38 | ± 9.6 % |
| 10551 | AAB | IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle) | WLAN | 8.50 | ± 9.6 % |
| 10552 | AAB | IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle) | WLAN | 8.42 | ± 9.6 % |
| 10553 | AAB | IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle) | WLAN | 8.45 | ± 9.6 % |
| 10554 | AAC | IEEE 802.11ac WiFi (160MHz, MCS0, 99pc duty cycle) | WLAN | 8.48 | ± 9.6 % |
| 10555 | AAC | IEEE 802.11ac WiFi (160MHz, MCS1, 99pc duty cycle) | WLAN | 8.47 | ± 9.6 % |
| 10556 | AAC | IEEE 802.11ac WiFi (160MHz, MCS2, 99pc duty cycle) | WLAN | 8.50 | ± 9.6 % |
| 10557 | AAC | IEEE 802.11ac WiFi (160MHz, MCS3, 99pc duty cycle) | WLAN | 8.52 | ± 9.6 % |
| 10558 | AAC | IEEE 802.11ac WiFi (160MHz, MCS4, 99pc duty cycle) | WLAN | 8.61 | ± 9.6 % |
| 10560 | AAC | IEEE 802.11ac WiFi (160MHz, MCS6, 99pc duty cycle) | WLAN | 8.73 | ± 9.6 % |
| 10561 | AAC | IEEE 802.11ac WiFi (160MHz, MCS7, 99pc duty cycle) | WLAN | 8.56 | ± 9.6 % |
| 10562 | AAC | IEEE 802.11ac WiFi (160MHz, MCS8, 99pc duty cycle) | WLAN | 8.69 | ± 9.6 % |
| 10563 | AAC | IEEE 802.11ac WiFi (160MHz, MCS9, 99pc duty cycle) | WLAN | 8.77 | ± 9.6 % |
| 10564 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle) | WLAN | 8.25 | ± 9.6 % |
| 10565 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle) | WLAN | 8.45 | ± 9.6 % |
| 10566 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle) | WLAN | 8.13 | ± 9.6 % |
| 10567 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle) | WLAN | 8.00 | ± 9.6 % |
| 10568 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle) | WLAN | 8.37 | ± 9.6 % |
| 10569 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle) | WLAN | 8.10 | ± 9.6 % |
| 10570 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle) | WLAN | 8.30 | ± 9.6 % |
| 10571 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle) | WLAN | 1.99 | ± 9.6 % |
| 10572 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle) | WLAN | 1.99 | ± 9.6 % |
| 10573 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle) | WLAN | 1.98 | ± 9.6 % |
| 10574 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle) | WLAN | 1.98 | ± 9.6 % |
| 10575 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle) | WLAN | 8.59 | ± 9.6 % |
| 10576 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle) | WLAN | 8.60 | ± 9.6 % |
| 10577 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle) | WLAN | 8.70 | ± 9.6 % |
| 10578 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle) | WLAN | 8.49 | ± 9.6 % |
| 10579 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle) | WLAN | 8.36 | ± 9.6 % |
| 10580 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle) | WLAN | 8.76 | ± 9.6 % |
| 10581 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle) | WLAN | 8.35 | ± 9.6 % |
| 10582 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle) | WLAN | 8.67 | ± 9.6 % |
| 10583 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle) | WLAN | 8.59 | ± 9.6 % |
| 10584 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle) | WLAN | 8.60 | ± 9.6 % |
| 10585 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle) | WLAN | 8.70 | ± 9.6 % |
| 10586 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle) | WLAN | 8.49 | ± 9.6 % |
| 10587 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle) | WLAN | 8.36 | ± 9.6 % |

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|-------|-----|--|----------|-------|---------|
| 10588 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle) | WLAN | 8.76 | ± 9.6 % |
| 10589 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle) | WLAN | 8.35 | ± 9.6 % |
| 10590 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle) | WLAN | 8.67 | ± 9.6 % |
| 10591 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle) | WLAN | 8.63 | ± 9.6 % |
| 10592 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle) | WLAN | 8.79 | ± 9.6 % |
| 10593 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle) | WLAN | 8.64 | ± 9.6 % |
| 10594 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle) | WLAN | 8.74 | ± 9.6 % |
| 10595 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle) | WLAN | 8.74 | ± 9.6 % |
| 10596 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle) | WLAN | 8.71 | ± 9.6 % |
| 10597 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle) | WLAN | 8.72 | ± 9.6 % |
| 10598 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle) | WLAN | 8.50 | ± 9.6 % |
| 10599 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle) | WLAN | 8.79 | ± 9.6 % |
| 10600 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle) | WLAN | 8.88 | ± 9.6 % |
| 10601 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle) | WLAN | 8.82 | ± 9.6 % |
| 10602 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle) | WLAN | 8.94 | ± 9.6 % |
| 10603 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle) | WLAN | 9.03 | ± 9.6 % |
| 10604 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle) | WLAN | 8.76 | ± 9.6 % |
| 10605 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle) | WLAN | 8.97 | ± 9.6 % |
| 10606 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle) | WLAN | 8.82 | ± 9.6 % |
| 10607 | AAB | IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle) | WLAN | 8.64 | ± 9.6 % |
| 10608 | AAB | IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle) | WLAN | 8.77 | ± 9.6 % |
| 10609 | AAB | IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle) | WLAN | 8.57 | ± 9.6 % |
| 10610 | AAB | IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle) | WLAN | 8.78 | ± 9.6 % |
| 10611 | AAB | IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle) | WLAN | 8.70 | ± 9.6 % |
| 10612 | AAB | IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle) | WLAN | 8.77 | ± 9.6 % |
| 10613 | AAB | IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle) | WLAN | 8.94 | ± 9.6 % |
| 10614 | AAB | IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle) | WLAN | 8.59 | ± 9.6 % |
| 10615 | AAB | IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle) | WLAN | 8.82 | ± 9.6 % |
| 10616 | AAB | IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle) | WLAN | 8.82 | ± 9.6 % |
| 10617 | AAB | IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle) | WLAN | 8.81 | ± 9.6 % |
| 10618 | AAB | IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle) | WLAN | 8.58 | ± 9.6 % |
| 10619 | AAB | IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle) | WLAN | 8.86 | ± 9.6 % |
| 10620 | AAB | IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle) | WLAN | 8.87 | ± 9.6 % |
| 10621 | AAB | IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle) | WLAN | 8.77 | ± 9.6 % |
| 10622 | AAB | IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle) | WLAN | 8.68 | ± 9.6 % |
| 10623 | AAB | IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle) | WLAN | 8.82 | ± 9.6 % |
| 10624 | AAB | IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle) | WLAN | 8.96 | ± 9.6 % |
| 10625 | AAB | IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle) | WLAN | 8.96 | ± 9.6 % |
| 10626 | AAB | IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle) | WLAN | 8.83 | ± 9.6 % |
| 10627 | AAB | IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle) | WLAN | 8.88 | ± 9.6 % |
| 10628 | AAB | IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle) | WLAN | 8.71 | ± 9.6 % |
| 10629 | AAB | IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle) | WLAN | 8.85 | ± 9.6 % |
| 10630 | AAB | IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle) | WLAN | 8.72 | ± 9.6 % |
| 10631 | AAB | IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle) | WLAN | 8.81 | ± 9.6 % |
| 10632 | AAB | IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle) | WLAN | 8.74 | ± 9.6 % |
| 10633 | AAB | IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle) | WLAN | 8.83 | ± 9.6 % |
| 10634 | AAB | IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle) | WLAN | 8.80 | ± 9.6 % |
| 10635 | AAB | IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle) | WLAN | 8.81 | ± 9.6 % |
| 10636 | AAC | IEEE 802.11ac WiFi (160MHz, MCS0, 90pc duty cycle) | WLAN | 8.83 | ± 9.6 % |
| 10637 | AAC | IEEE 802.11ac WiFi (160MHz, MCS1, 90pc duty cycle) | WLAN | 8.79 | ± 9.6 % |
| 10638 | AAC | IEEE 802.11ac WiFi (160MHz, MCS2, 90pc duty cycle) | WLAN | 8.86 | ± 9.6 % |
| 10639 | AAC | IEEE 802.11ac WiFi (160MHz, MCS3, 90pc duty cycle) | WLAN | 8.85 | ± 9.6 % |
| 10640 | AAC | IEEE 802.11ac WiFi (160MHz, MCS4, 90pc duty cycle) | WLAN | 8.98 | ± 9.6 % |
| 10641 | AAC | IEEE 802.11ac WiFi (160MHz, MCS5, 90pc duty cycle) | WLAN | 9.06 | ± 9.6 % |
| 10642 | AAC | IEEE 802.11ac WiFi (160MHz, MCS6, 90pc duty cycle) | WLAN | 9.06 | ± 9.6 % |
| 10643 | AAC | IEEE 802.11ac WiFi (160MHz, MCS7, 90pc duty cycle) | WLAN | 8.89 | ± 9.6 % |
| 10644 | AAC | IEEE 802.11ac WiFi (160MHz, MCS8, 90pc duty cycle) | WLAN | 9.05 | ± 9.6 % |
| 10645 | AAC | IEEE 802.11ac WiFi (160MHz, MCS9, 90pc duty cycle) | WLAN | 9.11 | ± 9.6 % |
| 10646 | AAG | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7) | LTE-TDD | 11.96 | ± 9.6 % |
| 10647 | AAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7) | LTE-TDD | 11.96 | ± 9.6 % |
| 10648 | AAA | CDMA2000 (1x Advanced) | CDMA2000 | 3.45 | ± 9.6 % |
| 10652 | AAE | LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%) | LTE-TDD | 6.91 | ± 9.6 % |
| 10653 | AAE | LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%) | LTE-TDD | 7.42 | ± 9.6 % |
| 10654 | AAD | LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%) | LTE-TDD | 6.96 | ± 9.6 % |

| | | | | | |
|-------|-----|---|-----------|-------|---------|
| 10655 | AAE | LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%) | LTE-TDD | 7.21 | ± 9.6 % |
| 10658 | AAA | Pulse Waveform (200Hz, 10%) | Test | 10.00 | ± 9.6 % |
| 10659 | AAA | Pulse Waveform (200Hz, 20%) | Test | 6.99 | ± 9.6 % |
| 10660 | AAA | Pulse Waveform (200Hz, 40%) | Test | 3.98 | ± 9.6 % |
| 10661 | AAA | Pulse Waveform (200Hz, 60%) | Test | 2.22 | ± 9.6 % |
| 10662 | AAA | Pulse Waveform (200Hz, 80%) | Test | 0.97 | ± 9.6 % |
| 10670 | AAA | Bluetooth Low Energy | Bluetooth | 2.19 | ± 9.6 % |
| 10671 | AAA | IEEE 802.11ax (20MHz, MCS0, 90pc duty cycle) | WLAN | 9.09 | ± 9.6 % |
| 10672 | AAA | IEEE 802.11ax (20MHz, MCS1, 90pc duty cycle) | WLAN | 8.57 | ± 9.6 % |
| 10673 | AAA | IEEE 802.11ax (20MHz, MCS2, 90pc duty cycle) | WLAN | 8.78 | ± 9.6 % |
| 10674 | AAA | IEEE 802.11ax (20MHz, MCS3, 90pc duty cycle) | WLAN | 8.74 | ± 9.6 % |
| 10675 | AAA | IEEE 802.11ax (20MHz, MCS4, 90pc duty cycle) | WLAN | 8.90 | ± 9.6 % |
| 10676 | AAA | IEEE 802.11ax (20MHz, MCS5, 90pc duty cycle) | WLAN | 8.77 | ± 9.6 % |
| 10677 | AAA | IEEE 802.11ax (20MHz, MCS6, 90pc duty cycle) | WLAN | 8.73 | ± 9.6 % |
| 10678 | AAA | IEEE 802.11ax (20MHz, MCS7, 90pc duty cycle) | WLAN | 8.78 | ± 9.6 % |
| 10679 | AAA | IEEE 802.11ax (20MHz, MCS8, 90pc duty cycle) | WLAN | 8.89 | ± 9.6 % |
| 10680 | AAA | IEEE 802.11ax (20MHz, MCS9, 90pc duty cycle) | WLAN | 8.80 | ± 9.6 % |
| 10681 | AAA | IEEE 802.11ax (20MHz, MCS10, 90pc duty cycle) | WLAN | 8.62 | ± 9.6 % |
| 10682 | AAA | IEEE 802.11ax (20MHz, MCS11, 90pc duty cycle) | WLAN | 8.83 | ± 9.6 % |
| 10683 | AAA | IEEE 802.11ax (20MHz, MCS0, 99pc duty cycle) | WLAN | 8.42 | ± 9.6 % |
| 10684 | AAA | IEEE 802.11ax (20MHz, MCS1, 99pc duty cycle) | WLAN | 8.26 | ± 9.6 % |
| 10685 | AAA | IEEE 802.11ax (20MHz, MCS2, 99pc duty cycle) | WLAN | 8.33 | ± 9.6 % |
| 10686 | AAA | IEEE 802.11ax (20MHz, MCS3, 99pc duty cycle) | WLAN | 8.28 | ± 9.6 % |
| 10687 | AAA | IEEE 802.11ax (20MHz, MCS4, 99pc duty cycle) | WLAN | 8.45 | ± 9.6 % |
| 10688 | AAA | IEEE 802.11ax (20MHz, MCS5, 99pc duty cycle) | WLAN | 8.29 | ± 9.6 % |
| 10689 | AAA | IEEE 802.11ax (20MHz, MCS6, 99pc duty cycle) | WLAN | 8.55 | ± 9.6 % |
| 10690 | AAA | IEEE 802.11ax (20MHz, MCS7, 99pc duty cycle) | WLAN | 8.29 | ± 9.6 % |
| 10691 | AAA | IEEE 802.11ax (20MHz, MCS8, 99pc duty cycle) | WLAN | 8.25 | ± 9.6 % |
| 10692 | AAA | IEEE 802.11ax (20MHz, MCS9, 99pc duty cycle) | WLAN | 8.29 | ± 9.6 % |
| 10693 | AAA | IEEE 802.11ax (20MHz, MCS10, 99pc duty cycle) | WLAN | 8.25 | ± 9.6 % |
| 10694 | AAA | IEEE 802.11ax (20MHz, MCS11, 99pc duty cycle) | WLAN | 8.57 | ± 9.6 % |
| 10695 | AAA | IEEE 802.11ax (40MHz, MCS0, 90pc duty cycle) | WLAN | 8.78 | ± 9.6 % |
| 10696 | AAA | IEEE 802.11ax (40MHz, MCS1, 90pc duty cycle) | WLAN | 8.91 | ± 9.6 % |
| 10697 | AAA | IEEE 802.11ax (40MHz, MCS2, 90pc duty cycle) | WLAN | 8.61 | ± 9.6 % |
| 10698 | AAA | IEEE 802.11ax (40MHz, MCS3, 90pc duty cycle) | WLAN | 8.89 | ± 9.6 % |
| 10699 | AAA | IEEE 802.11ax (40MHz, MCS4, 90pc duty cycle) | WLAN | 8.82 | ± 9.6 % |
| 10700 | AAA | IEEE 802.11ax (40MHz, MCS5, 90pc duty cycle) | WLAN | 8.73 | ± 9.6 % |
| 10701 | AAA | IEEE 802.11ax (40MHz, MCS6, 90pc duty cycle) | WLAN | 8.86 | ± 9.6 % |
| 10702 | AAA | IEEE 802.11ax (40MHz, MCS7, 90pc duty cycle) | WLAN | 8.70 | ± 9.6 % |
| 10703 | AAA | IEEE 802.11ax (40MHz, MCS8, 90pc duty cycle) | WLAN | 8.82 | ± 9.6 % |
| 10704 | AAA | IEEE 802.11ax (40MHz, MCS9, 90pc duty cycle) | WLAN | 8.56 | ± 9.6 % |
| 10705 | AAA | IEEE 802.11ax (40MHz, MCS10, 90pc duty cycle) | WLAN | 8.69 | ± 9.6 % |
| 10706 | AAA | IEEE 802.11ax (40MHz, MCS11, 90pc duty cycle) | WLAN | 8.66 | ± 9.6 % |
| 10707 | AAA | IEEE 802.11ax (40MHz, MCS0, 99pc duty cycle) | WLAN | 8.32 | ± 9.6 % |
| 10708 | AAA | IEEE 802.11ax (40MHz, MCS1, 99pc duty cycle) | WLAN | 8.55 | ± 9.6 % |
| 10709 | AAA | IEEE 802.11ax (40MHz, MCS2, 99pc duty cycle) | WLAN | 8.33 | ± 9.6 % |
| 10710 | AAA | IEEE 802.11ax (40MHz, MCS3, 99pc duty cycle) | WLAN | 8.29 | ± 9.6 % |
| 10711 | AAA | IEEE 802.11ax (40MHz, MCS4, 99pc duty cycle) | WLAN | 8.39 | ± 9.6 % |
| 10712 | AAA | IEEE 802.11ax (40MHz, MCS5, 99pc duty cycle) | WLAN | 8.67 | ± 9.6 % |
| 10713 | AAA | IEEE 802.11ax (40MHz, MCS6, 99pc duty cycle) | WLAN | 8.33 | ± 9.6 % |
| 10714 | AAA | IEEE 802.11ax (40MHz, MCS7, 99pc duty cycle) | WLAN | 8.26 | ± 9.6 % |
| 10715 | AAA | IEEE 802.11ax (40MHz, MCS8, 99pc duty cycle) | WLAN | 8.45 | ± 9.6 % |
| 10716 | AAA | IEEE 802.11ax (40MHz, MCS9, 99pc duty cycle) | WLAN | 8.30 | ± 9.6 % |
| 10717 | AAA | IEEE 802.11ax (40MHz, MCS10, 99pc duty cycle) | WLAN | 8.48 | ± 9.6 % |
| 10718 | AAA | IEEE 802.11ax (40MHz, MCS11, 99pc duty cycle) | WLAN | 8.24 | ± 9.6 % |
| 10719 | AAA | IEEE 802.11ax (80MHz, MCS0, 90pc duty cycle) | WLAN | 8.81 | ± 9.6 % |
| 10720 | AAA | IEEE 802.11ax (80MHz, MCS1, 90pc duty cycle) | WLAN | 8.87 | ± 9.6 % |
| 10721 | AAA | IEEE 802.11ax (80MHz, MCS2, 90pc duty cycle) | WLAN | 8.76 | ± 9.6 % |
| 10722 | AAA | IEEE 802.11ax (80MHz, MCS3, 90pc duty cycle) | WLAN | 8.55 | ± 9.6 % |
| 10723 | AAA | IEEE 802.11ax (80MHz, MCS4, 90pc duty cycle) | WLAN | 8.70 | ± 9.6 % |
| 10724 | AAA | IEEE 802.11ax (80MHz, MCS5, 90pc duty cycle) | WLAN | 8.90 | ± 9.6 % |
| 10725 | AAA | IEEE 802.11ax (80MHz, MCS6, 90pc duty cycle) | WLAN | 8.74 | ± 9.6 % |
| 10726 | AAA | IEEE 802.11ax (80MHz, MCS7, 90pc duty cycle) | WLAN | 8.72 | ± 9.6 % |
| 10727 | AAA | IEEE 802.11ax (80MHz, MCS8, 90pc duty cycle) | WLAN | 8.66 | ± 9.6 % |

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

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|-------|-----|--|---------------|------|---------|
| 10783 | AAA | 5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.31 | ± 9.6 % |
| 10784 | AAA | 5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.29 | ± 9.6 % |
| 10785 | AAA | 5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.40 | ± 9.6 % |
| 10786 | AAA | 5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.35 | ± 9.6 % |
| 10787 | AAA | 5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.44 | ± 9.6 % |
| 10788 | AAA | 5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.39 | ± 9.6 % |
| 10789 | AAA | 5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.37 | ± 9.6 % |
| 10790 | AAA | 5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.39 | ± 9.6 % |
| 10791 | AAA | 5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.83 | ± 9.6 % |
| 10792 | AAA | 5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.92 | ± 9.6 % |
| 10793 | AAA | 5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.95 | ± 9.6 % |
| 10794 | AAA | 5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.82 | ± 9.6 % |
| 10795 | AAA | 5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.84 | ± 9.6 % |
| 10796 | AAA | 5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.82 | ± 9.6 % |
| 10797 | AAA | 5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.01 | ± 9.6 % |
| 10798 | AAA | 5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.89 | ± 9.6 % |
| 10799 | AAA | 5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.93 | ± 9.6 % |
| 10801 | AAA | 5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.89 | ± 9.6 % |
| 10802 | AAA | 5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.87 | ± 9.6 % |
| 10803 | AAA | 5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.93 | ± 9.6 % |
| 10805 | AAA | 5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.34 | ± 9.6 % |
| 10806 | AAA | 5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.37 | ± 9.6 % |
| 10809 | AAA | 5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.34 | ± 9.6 % |
| 10810 | AAA | 5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.34 | ± 9.6 % |
| 10812 | AAA | 5G NR (CP-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.35 | ± 9.6 % |
| 10817 | AAA | 5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.35 | ± 9.6 % |
| 10818 | AAA | 5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.34 | ± 9.6 % |
| 10819 | AAA | 5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.33 | ± 9.6 % |
| 10820 | AAA | 5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.30 | ± 9.6 % |
| 10821 | AAA | 5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.41 | ± 9.6 % |
| 10822 | AAA | 5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.41 | ± 9.6 % |
| 10823 | AAA | 5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.36 | ± 9.6 % |
| 10824 | AAA | 5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.39 | ± 9.6 % |

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|-------|-----|---|---------------|------|---------|
| 10825 | AAA | 5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.41 | ± 9.6 % |
| 10827 | AAA | 5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.42 | ± 9.6 % |
| 10828 | AAA | 5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.43 | ± 9.6 % |
| 10829 | AAA | 5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.40 | ± 9.6 % |
| 10830 | AAA | 5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.63 | ± 9.6 % |
| 10831 | AAA | 5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.73 | ± 9.6 % |
| 10832 | AAA | 5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.74 | ± 9.6 % |
| 10833 | AAA | 5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.70 | ± 9.6 % |
| 10834 | AAA | 5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.75 | ± 9.6 % |
| 10835 | AAA | 5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.70 | ± 9.6 % |
| 10836 | AAA | 5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.66 | ± 9.6 % |
| 10837 | AAA | 5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.68 | ± 9.6 % |
| 10839 | AAA | 5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.70 | ± 9.6 % |
| 10840 | AAA | 5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.67 | ± 9.6 % |
| 10841 | AAA | 5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.71 | ± 9.6 % |
| 10843 | AAA | 5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.49 | ± 9.6 % |
| 10844 | AAA | 5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.34 | ± 9.6 % |
| 10846 | AAA | 5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.41 | ± 9.6 % |
| 10854 | AAA | 5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.34 | ± 9.6 % |
| 10855 | AAA | 5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.36 | ± 9.6 % |
| 10856 | AAA | 5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.37 | ± 9.6 % |
| 10857 | AAA | 5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.35 | ± 9.6 % |
| 10858 | AAA | 5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.36 | ± 9.6 % |
| 10859 | AAA | 5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.34 | ± 9.6 % |
| 10860 | AAA | 5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.41 | ± 9.6 % |
| 10861 | AAA | 5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.40 | ± 9.6 % |
| 10863 | AAA | 5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.41 | ± 9.6 % |
| 10864 | AAA | 5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.37 | ± 9.6 % |
| 10865 | AAA | 5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.41 | ± 9.6 % |
| 10866 | AAA | 5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.68 | ± 9.6 % |
| 10868 | AAA | 5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.89 | ± 9.6 % |
| 10869 | AAA | 5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz) | 5G NR FR2 TDD | 5.75 | ± 9.6 % |
| 10870 | AAA | 5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz) | 5G NR FR2 TDD | 5.86 | ± 9.6 % |

| | | | | | |
|-------|-----|--|---------------|------|---------|
| 10871 | AAA | 5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz) | 5G NR FR2 TDD | 5.75 | ± 9.6 % |
| 10872 | AAA | 5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz) | 5G NR FR2 TDD | 6.52 | ± 9.6 % |
| 10873 | AAA | 5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz) | 5G NR FR2 TDD | 6.61 | ± 9.6 % |
| 10874 | AAA | 5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz) | 5G NR FR2 TDD | 6.65 | ± 9.6 % |
| 10875 | AAA | 5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz) | 5G NR FR2 TDD | 7.78 | ± 9.6 % |
| 10876 | AAA | 5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz) | 5G NR FR2 TDD | 8.39 | ± 9.6 % |
| 10877 | AAA | 5G NR (CP-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz) | 5G NR FR2 TDD | 7.95 | ± 9.6 % |
| 10878 | AAA | 5G NR (CP-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz) | 5G NR FR2 TDD | 8.41 | ± 9.6 % |
| 10879 | AAA | 5G NR (CP-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz) | 5G NR FR2 TDD | 8.12 | ± 9.6 % |
| 10880 | AAA | 5G NR (CP-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz) | 5G NR FR2 TDD | 8.38 | ± 9.6 % |
| 10881 | AAA | 5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz) | 5G NR FR2 TDD | 5.75 | ± 9.6 % |
| 10882 | AAA | 5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz) | 5G NR FR2 TDD | 5.96 | ± 9.6 % |
| 10883 | AAA | 5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz) | 5G NR FR2 TDD | 6.57 | ± 9.6 % |
| 10884 | AAA | 5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz) | 5G NR FR2 TDD | 6.53 | ± 9.6 % |
| 10885 | AAA | 5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz) | 5G NR FR2 TDD | 6.61 | ± 9.6 % |
| 10886 | AAA | 5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz) | 5G NR FR2 TDD | 6.65 | ± 9.6 % |
| 10887 | AAA | 5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz) | 5G NR FR2 TDD | 7.78 | ± 9.6 % |
| 10888 | AAA | 5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz) | 5G NR FR2 TDD | 8.35 | ± 9.6 % |
| 10889 | AAA | 5G NR (CP-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz) | 5G NR FR2 TDD | 8.02 | ± 9.6 % |
| 10890 | AAA | 5G NR (CP-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz) | 5G NR FR2 TDD | 8.40 | ± 9.6 % |
| 10891 | AAA | 5G NR (CP-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz) | 5G NR FR2 TDD | 8.13 | ± 9.6 % |
| 10892 | AAA | 5G NR (CP-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz) | 5G NR FR2 TDD | 8.41 | ± 9.6 % |

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



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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **5G-Veri30-1035_Feb20**

CALIBRATION CERTIFICATE

Object **5G Verification Source 30 GHz - SN: 1035**

Calibration procedure(s) **QA CAL-45.v2
Calibration procedure for sources in air above 6 GHz**

Calibration date: **February 12, 2020**

*MAS
4/8/20*

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

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards | ID # | Cal Date (Certificate No.) | Scheduled Calibration |
|-------------------------|----------|------------------------------------|-----------------------|
| Reference Probe EUmmWV3 | SN: 9374 | 31-Dec-19 (No. EUmmWV3-9374_Dec19) | Dec-20 |
| DAE4ip | SN: 1602 | 01-Oct-19 (No. DAE4ip-1602_Oct19) | Oct-20 |

| Secondary Standards | ID # | Check Date (in house) | Scheduled Check |
|---------------------|------|-----------------------|-----------------|
| | | | |

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

Issued: February 18, 2020

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Accreditation No.: **SCS 0108**

Glossary

CW Continuous wave

Calibration is Performed According to the Following Standards

- Internal procedure QA CAL-45-5Gsources
- IEC TR 63170 ED1, "Measurement procedure for the evaluation of power density related to human exposure to radio frequency fields from wireless communication devices operating between 6 GHz and 100 GHz", January 2018

Methods Applied and Interpretation of Parameters

- *Coordinate System:* z-axis in the waveguide horn boresight, x-axis is in the direction of the E-field, y-axis normal to the others in the field scanning plane parallel to the horn flare and horn flange.
- *Measurement Conditions:* (1) 10 GHz: The forward power to the horn antenna is measured prior and after the measurement with a power sensor. During the measurements, the horn is directly connected to the cable and the antenna ohmic and mismatch losses are determined by far-field measurements. (2) 30, 45, 60 and 90 GHz: The verification sources are switched on for at least 30 minutes. Absorbers are used around the probe cub and at the ceiling to minimize reflections.
- *Horn Positioning:* The waveguide horn is mounted vertically on the flange of the waveguide source to allow vertical positioning of the EUmmW probe during the scan. The plane is parallel to the phantom surface. Probe distance is verified using mechanical gauges positioned on the flare of the horn.
- *E- field distribution:* E field is measured in two x-y-plane (10mm, 10mm + $\lambda/4$) with a vectorial E-field probe. The E-field value stated as calibration value represents the E-field-maxima and the averaged (1cm² and 4cm²) power density values at 10mm in front of the horn.
- *Field polarization:* Above the open horn, linear polarization of the field is expected. This is verified graphically in the field representation.

Calibrated Quantity

- Local peak E-field (V/m) and peak values of the total and normal component of the poynting vector $|\text{Re}\{S\}|$ and $n \cdot \text{Re}\{S\}$ averaged over the surface area of 1 cm² ($pS_{\text{tot,avg}1\text{cm}^2}$ and $pS_{\text{n,avg}1\text{cm}^2}$) and 4cm² ($pS_{\text{tot,avg}4\text{cm}^2}$ and $pS_{\text{n,avg}4\text{cm}^2}$) at the nominal operational frequency of the verification source.

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

Measurement Conditions

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

| | | |
|---------------------------------------|-------------------------------|------|
| DASY Version | cDASY6 Module mmWave | V2.0 |
| Phantom | 5G Phantom | |
| Distance Horn Aperture - plane | 10 mm | |
| XY Scan Resolution | dx, dy = 2.5 mm | |
| Number of measured planes | 2 (10mm, 10mm + $\lambda/4$) | |
| Frequency | 30 GHz \pm 10 MHz | |

Calibration Parameters, 30 GHz

| Distance Horn Aperture to Measured Plane | <i>Prad</i> ¹ (mW) | Max E-field (V/m) | Uncertainty (k = 2) | Avg Power Density n.Re{S}, Re{S} (W/m ²) | | Uncertainty (k = 2) |
|--|-------------------------------|-------------------|---------------------|--|-------------------|---------------------|
| | | | | 1 cm ² | 4 cm ² | |
| 10 mm | 29.0 | 126 | 1.27 dB | 36.5, 36.9 | 32.1, 32.5 | 1.28 dB |

¹ derived from far-field data

DASY Report

Measurement Report for 5G Verification Source 30 GHz, UID 0 -, Channel 30000 (30000.0MHz)

Device under Test Properties

| Name, Manufacturer | Dimensions [mm] | IMEI | DUT Type |
|-------------------------------|-----------------------|----------|----------|
| 5G Verification Source 30 GHz | 100.0 x 100.0 x 100.0 | SN: 1035 | - |

Exposure Conditions

| Phantom Section | Position, Test Distance [mm] | Band | Group, | Frequency [MHz], Channel Number | Conversion Factor |
|-----------------|------------------------------|-----------------|--------|---------------------------------|-------------------|
| 5G - | 5.55 mm | Validation band | CW | 30000.0, 30000 | 1.0 |

Hardware Setup

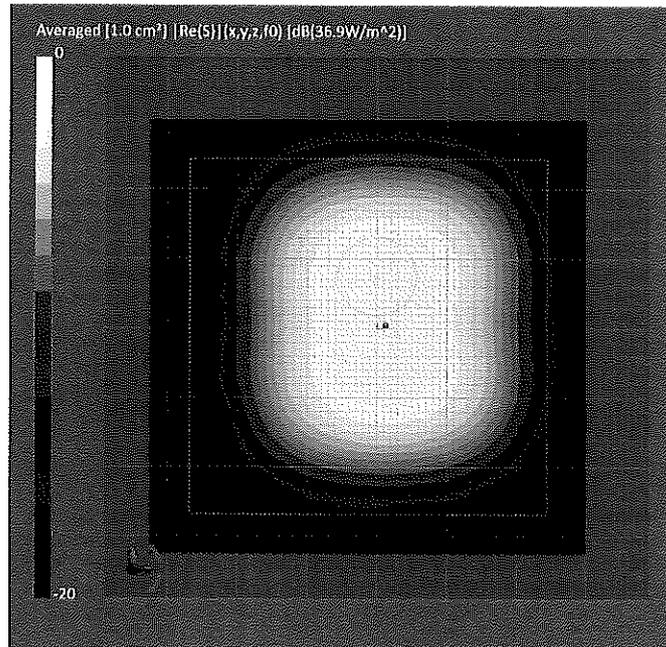
| Phantom | Medium | Probe, Calibration Date | DAE, Calibration Date |
|-----------------------|--------|---------------------------------------|---------------------------|
| mmWave Phantom - 1002 | Air | EUmmWV3 - SN9374_F1-78GHz, 2019-12-31 | DAE4ip Sn1602, 2019-10-01 |

Scan Setup

| | 5G Scan |
|---------------------|---------------|
| Grid Extents [mm] | 60.0 x 60.0 |
| Grid Steps [lambda] | 0.25 x 0.25 |
| Sensor Surface [mm] | 5.55 |
| MAIA | MAIA not used |

Measurement Results

| | 5G Scan |
|---|-------------------|
| Date | 2020-02-12, 08:14 |
| Avg. Area [cm ²] | 1.00 |
| p _{Stot} avg [W/m ²] | 36.9 |
| p _{Sn} avg [W/m ²] | 36.5 |
| E _{peak} [V/m] | 126 |
| Power Drift [dB] | -0.05 |





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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **5G-Veri30-1044_May20**

CALIBRATION CERTIFICATE

Object **5G Verification Source 30 GHz - SN: 1044**

Calibration procedure(s) **QA CAL-45.v3
Calibration procedure for sources in air above 6 GHz**

*MAB
6/2/20*

Calibration date: **May 14, 2020**

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

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards | ID # | Cal Date (Certificate No.) | Scheduled Calibration |
|-------------------------|----------|------------------------------------|-----------------------|
| Reference Probe EUmmWV3 | SN: 9374 | 31-Dec-19 (No. EUmmWV3-9374_Dec19) | Dec-20 |
| DAE4ip | SN: 1602 | 01-Oct-19 (No. DAE4ip-1602_Oct19) | Oct-20 |

| Secondary Standards | ID # | Check Date (in house) | Scheduled Check |
|---------------------|------|-----------------------|-----------------|
| | | | |

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

Issued: May 18, 2020

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Accreditation No.: **SCS 0108**

Glossary

CW Continuous wave

Calibration is Performed According to the Following Standards

- Internal procedure QA CAL-45-5Gsources
- IEC TR 63170 ED1, "Measurement procedure for the evaluation of power density related to human exposure to radio frequency fields from wireless communication devices operating between 6 GHz and 100 GHz", January 2018

Methods Applied and Interpretation of Parameters

- *Coordinate System:* z-axis in the waveguide horn boresight, x-axis is in the direction of the E-field, y-axis normal to the others in the field scanning plane parallel to the horn flare and horn flange.
- *Measurement Conditions:* (1) 10 GHz: The forward power to the horn antenna is measured prior and after the measurement with a power sensor. During the measurements, the horn is directly connected to the cable and the antenna ohmic and mismatch losses are determined by far-field measurements. (2) 30, 45, 60 and 90 GHz: The verification sources are switched on for at least 30 minutes. Absorbers are used around the probe cub and at the ceiling to minimize reflections.
- *Horn Positioning:* The waveguide horn is mounted vertically on the flange of the waveguide source to allow vertical positioning of the EUmmW probe during the scan. The plane is parallel to the phantom surface. Probe distance is verified using mechanical gauges positioned on the flare of the horn.
- *E- field distribution:* E field is measured in two x-y-plane (10mm, 10mm + $\lambda/4$) with a vectorial E-field probe. The E-field value stated as calibration value represents the E-field-maxima and the averaged (1cm² and 4cm²) power density values at 10mm in front of the horn.
- *Field polarization:* Above the open horn, linear polarization of the field is expected. This is verified graphically in the field representation.

Calibrated Quantity

- Local peak E-field (V/m) and peak values of the total and normal component of the poynting vector $|\text{Re}\{S\}|$ and $n \cdot \text{Re}\{S\}$ averaged over the surface area of 1 cm² ($pS_{\text{tot}}\text{avg}1\text{cm}^2$ and $pS_{\text{n}}\text{avg}1\text{cm}^2$) and 4cm² ($pS_{\text{tot}}\text{avg}4\text{cm}^2$ and $pS_{\text{n}}\text{avg}4\text{cm}^2$) at the nominal operational frequency of the verification source.

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

Measurement Conditions

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

| | | |
|---------------------------------------|-------------------------------|------|
| DASY Version | cDASY6 Module mmWave | V2.0 |
| Phantom | 5G Phantom | |
| Distance Horn Aperture - plane | 10 mm | |
| XY Scan Resolution | dx, dy = 2.5 mm | |
| Number of measured planes | 2 (10mm, 10mm + $\lambda/4$) | |
| Frequency | 30 GHz \pm 10 MHz | |

Calibration Parameters, 30 GHz

| Distance Horn Aperture to Measured Plane | <i>Prad</i> ¹ (mW) | Max E-field (V/m) | Uncertainty (k = 2) | Avg Power Density n.Re{S}, Re{S} (W/m ²) | | Uncertainty (k = 2) |
|--|-------------------------------|-------------------|---------------------|--|-------------------|---------------------|
| | | | | 1 cm ² | 4 cm ² | |
| 10 mm | 32.5 | 131 | 1.27 dB | 39.3, 39.8 | 34.7, 35.0 | 1.28 dB |

¹ derived from far-field data

DASY Report

Measurement Report for 5G Verification Source 30 GHz, UID 0 -, Channel 30000 (30000.0MHz)

Device under Test Properties

| Name, Manufacturer | Dimensions [mm] | IMEI | DUT Type |
|-------------------------------|-----------------------|----------|----------|
| 5G Verification Source 30 GHz | 100.0 x 100.0 x 100.0 | SN: 1044 | - |

Exposure Conditions

| Phantom Section | Position, Test Distance [mm] | Band | Group, | Frequency [MHz], Channel Number | Conversion Factor |
|-----------------|------------------------------|-----------------|--------|---------------------------------|-------------------|
| 5G - | 5.55 mm | Validation band | CW | 30000.0, 30000 | 1.0 |

Hardware Setup

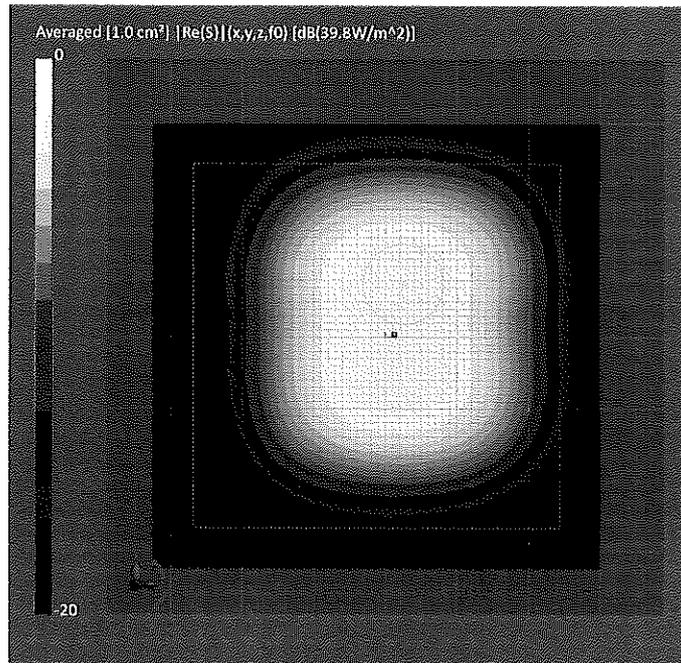
| Phantom | Medium | Probe, Calibration Date | DAE, Calibration Date |
|-----------------------|--------|---------------------------------------|---------------------------|
| mmWave Phantom - 1002 | Air | EUmmWV3 - SN9374_F1-78GHz, 2019-12-31 | DAE4ip Sn1602, 2019-10-01 |

Scan Setup

| | 5G Scan |
|---------------------|---------------|
| Grid Extents [mm] | 60.0 x 60.0 |
| Grid Steps [lambda] | 0.25 x 0.25 |
| Sensor Surface [mm] | 5.55 |
| MAIA | MAIA not used |

Measurement Results

| | 5G Scan |
|---|-------------------|
| Date | 2020-05-14, 16:40 |
| Avg. Area [cm ²] | 1.00 |
| pS _{tot} avg [W/m ²] | 39.8 |
| pS _n avg [W/m ²] | 39.3 |
| E _{peak} [V/m] | 131 |
| Power Drift [dB] | -0.02 |



DASY Report

Measurement Report for 5G Verification Source 30 GHz, UID 0 -, Channel 30000 (30000.0MHz)

Device under Test Properties

| Name, Manufacturer | Dimensions [mm] | IMEI | DUT Type |
|-------------------------------|-----------------------|----------|----------|
| 5G Verification Source 30 GHz | 100.0 x 100.0 x 100.0 | SN: 1044 | - |

Exposure Conditions

| Phantom Section | Position, Test Distance [mm] | Band | Group, | Frequency [MHz], Channel Number | Conversion Factor |
|-----------------|------------------------------|-----------------|--------|---------------------------------|-------------------|
| 5G - | 5.55 mm | Validation band | CW | 30000.0, 30000 | 1.0 |

Hardware Setup

| Phantom | Medium | Probe, Calibration Date | DAE, Calibration Date |
|-----------------------|--------|---------------------------------------|---------------------------|
| mmWave Phantom - 1002 | Air | EUmmWV3 - SN9374_F1-78GHz, 2019-12-31 | DAE4ip Sn1602, 2019-10-01 |

Scan Setup

| | 5G Scan |
|---------------------|---------------|
| Grid Extents [mm] | 60.0 x 60.0 |
| Grid Steps [lambda] | 0.25 x 0.25 |
| Sensor Surface [mm] | 5.55 |
| MAIA | MAIA not used |

Measurement Results

| | 5G Scan |
|---|-------------------|
| Date | 2020-05-14, 16:40 |
| Avg. Area [cm ²] | 4.00 |
| pS _{tot} avg [W/m ²] | 35.0 |
| pS _n avg [W/m ²] | 34.7 |
| E _{peak} [V/m] | 131 |
| Power Drift [dB] | -0.02 |

