



**FCC CFR47 PART 22 SUBPART H
FCC CFR47 PART 24 SUBPART E
FCC CFR47 PART 27 SUBPART L**

CERTIFICATION TEST REPORT

FOR

GSM/WCDMA/LTE Tablet + Bluetooth, DTS/UNII a/b/g/n & ANT+

MODEL NUMBER : SM-P555M

FCC ID: A3LSMP555M

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.
EUT DESCRIPTION: GSM/WCDMA/LTE Tablet + Bluetooth, DTS/UNII a/b/g/n & ANT+
MODEL NUMBER: SM-P555M
SERIAL NUMBER: R32G201SC1H (RADIATED); R38G201SC1H (CONDUCTED)
DATE TESTED: FEBRUARY 23 - MARCH 07, 2015

| APPLICABLE STANDARDS | |
|------------------------|--------------|
| STANDARD | TEST RESULTS |
| FCC PART 22H, 24E, 27L | Pass |

UL Korea, Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Korea, Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Korea, Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Korea, Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by IAS, any agency of the Federal Government, or any agency of any government.

Approved & Released For
UL Korea, Ltd. By:



Ji Ho Choi
Suwon Lab Manager
UL Korea, Ltd.

Tested By:



CY Choi
Suwon Lab Engineer
UL Korea, Ltd.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA-603-C, FCC CFR 47 Part 22, FCC CFR Part 24 & FCC CFR Part 27.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea. Line conducted emissions are measured only at the 218 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

| 218 Maeyeong-ro | |
|-------------------------------------|-----------|
| <input checked="" type="checkbox"/> | Chamber 1 |
| <input type="checkbox"/> | Chamber 2 |

UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637. The full scope of accreditation can be viewed at <http://www.iasonline.org/PDF/TL/TL-637.pdf>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

EIRP = PSA reading with EUT worst orientation (dBm) + Path loss (dB) – cable loss(between the SG and substitution antenna) + Substitution Antenna Factor (dBi)

ERP = PSA reading with EUT worst orientation (dBm) + Path loss (dB) – cable loss(between the SG and substitution antenna)

(Path loss = Signal generator output – PSA reading with substitution antenna)

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

| PARAMETER | UNCERTAINTY |
|---------------------------------------|-------------|
| Conducted Disturbance, 0.15 to 30 MHz | 2.32 dB |
| Radiated Disturbance, Below 1GHz | 4.14 dB |
| Radiated Disturbance, Above 1 GHz | 5.97 dB |

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE Tablet + Bluetooth, DTS/UNII a/b/g/n & ANT+.

5.2. MAXIMUM OUTPUT POWER (GSM)

The transmitter has a maximum peak conducted and radiated ERP / EIRP output powers as follows:

| FCC Part 22/24 | | | | | | |
|----------------|----------------------|-----------------|-----------|----------|-----------|----------|
| Band | Frequency Range(MHz) | Modulation Peak | Conducted | | Radiated | |
| | | | Avg (dBm) | Avg (mW) | Avg (dBm) | Avg (mW) |
| GSM850 | 824~849 | GMSK | 33.5 | 2238.7 | | |
| | | GPRS | 33.5 | 2238.7 | 29.07 | 806.3 |
| | | EGPRS | 26.5 | 446.7 | 23.23 | 210.1 |
| GSM1900 | 1850~1910 | GMSK | 30.3 | 1071.5 | | |
| | | GPRS | 30.4 | 1096.5 | 31.03 | 1267.7 |
| | | EGPRS | 25.5 | 354.8 | 23.39 | 218.2 |

5.3. MAXIMUM OUTPUT POWER (WCDMA)

The transmitter has a maximum peak conducted and radiated ERP / EIRP output powers as follows:

| FCC Part 22/24 | | | | | | |
|----------------|----------------------|-----------------|-----------|----------|-----------|----------|
| Band | Frequency Range(MHz) | Modulation Peak | Conducted | | Radiated | |
| | | | Avg (dBm) | Avg (mW) | Avg (dBm) | Avg (mW) |
| Band 5 | 824~849 | REL99 | 22.6 | 182.0 | 18.28 | 67.2 |
| | | HSDPA | 22.0 | 158.5 | 17.32 | 53.9 |
| | | HSUPA | 22.0 | 158.5 | | |
| Band 4 | 1710~1755 | REL99 | 23.4 | 218.8 | 25.68 | 369.8 |
| | | HSDPA | 22.9 | 195.0 | 24.71 | 296.0 |
| | | HSUPA | 23.0 | 199.5 | | |
| Band 2 | 1850~1910 | REL99 | 22.0 | 158.5 | 30.24 | 1056.8 |
| | | HSDPA | 21.4 | 138.0 | 23.23 | 210.4 |
| | | HSUPA | 21.5 | 141.3 | | |

5.4. MAXIMUM OUTPUT POWER (LTE)

The transmitter has a maximum peak conducted and radiated ERP/EIRP output powers as follows:

| FCC Part 24/27 | | | | | | | | | |
|----------------|----------------------|-----------------|-----------------|-----------|---------|-----------|---------|-------|-------|
| Band | Frequency Range(MHz) | BandWidth (MHz) | Modulation Peak | Conducted | | Radiated | | | |
| | | | | Avg (dBm) | Avg(mW) | Avg (dBm) | Avg(mW) | | |
| Band 4 | 1710~1755 | 20MHz | QPSK | 23.5 | 223.9 | 23.53 | 225.2 | | |
| | | | 16QAM | 23.1 | 204.2 | 22.14 | 163.6 | | |
| | | 15MHz | QPSK | 23.3 | 213.8 | 23.11 | 204.5 | | |
| | | | 16QAM | 23.4 | 218.8 | 22.51 | 178.1 | | |
| | | 10MHz | QPSK | 23.4 | 218.8 | 20.75 | 118.7 | | |
| | | | 16QAM | 23.1 | 204.2 | 20.29 | 106.9 | | |
| | | 5MHz | QPSK | 23.5 | 223.9 | 23.06 | 202.1 | | |
| | | | 16QAM | 23.2 | 208.9 | 21.88 | 154.0 | | |
| | | 3MHz | QPSK | 23.6 | 229.1 | 22.67 | 184.8 | | |
| | | | 16QAM | 23.1 | 204.2 | 21.67 | 146.8 | | |
| | | 1.4MHz | QPSK | 23.3 | 213.8 | 19.46 | 88.2 | | |
| | | | 16QAM | 23.4 | 218.8 | 18.76 | 75.1 | | |
| | | Band 2 | 1850~1910 | 20MHz | QPSK | 22.9 | 195.0 | 24.13 | 258.6 |
| | | | | | 16QAM | 23.3 | 213.8 | 23.15 | 206.3 |
| 15MHz | QPSK | | | 22.7 | 186.2 | 24.13 | 258.6 | | |
| | 16QAM | | | 22.5 | 177.8 | 22.68 | 185.2 | | |
| 10MHz | QPSK | | | 22.8 | 190.5 | 24.58 | 286.8 | | |
| | 16QAM | | | 22.9 | 195.0 | 23.54 | 225.7 | | |
| 5MHz | QPSK | | | 23.5 | 223.9 | 23.64 | 231.0 | | |
| | 16QAM | | | 22.3 | 169.8 | 24.51 | 282.2 | | |
| 3MHz | QPSK | | | 23.0 | 199.5 | 24.64 | 290.8 | | |
| | 16QAM | | | 22.6 | 182.0 | 23.24 | 210.7 | | |
| 1.4MHz | QPSK | | | 22.9 | 195.0 | 21.39 | 137.6 | | |
| | 16QAM | | | 22.5 | 177.8 | 20.20 | 104.6 | | |

5.5. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PIFA antenna for the [List the bands supported] with a maximum peak gain as follow:

| Frequency (MHz) | Peak Gain (dBi) |
|---|-----------------|
| GSM 850 / WCDMA & LTE Band 5 824 ~ 849 MHz | -0.01 |
| GSM 1900 / WCDMA Band 2 1850 ~ 1910 MHz | -0.28 |
| WCDMA Band & LTE Band 4 1710 ~ 1755 MHz | -1.80 |

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

| Support Equipment List | | | | |
|------------------------|--------------|-------------|---------------|--------|
| Description | Manufacturer | Model | Serial Number | FCC ID |
| Charger | SAMSUNG | EP-TA12EWE | N/A | N/A |
| Data Cable | SAMSUNG | ECB-DU28WE | N/A | N/A |
| Earphone | SAMSUNG | GH59-11129H | N/A | N/A |

I/O CABLES (CONDUCTED SETUP)

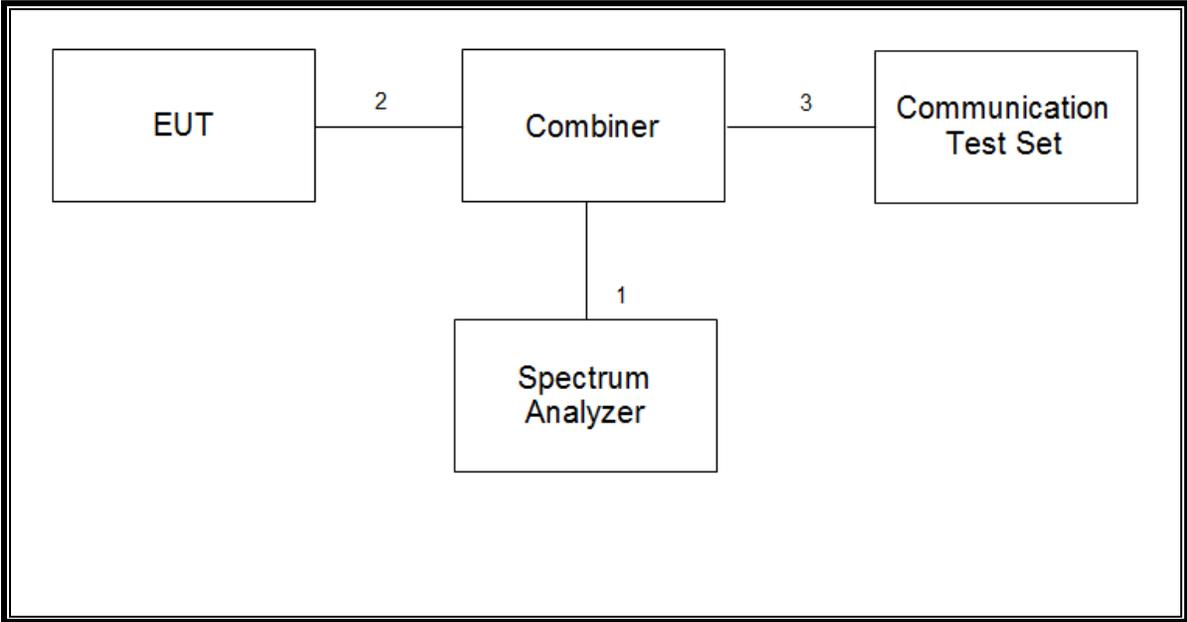
| I/O Cable List | | | | | | |
|----------------|--------------|----------------------|------------------------|------------|------------------|---------|
| Cable No | Port | # of identical ports | Connector Type | Cable Type | Cable Length (m) | Remarks |
| 1 | RF Out | 1 | Spectrum Analyzer | Shielded | 0.2m | NA |
| 2 | Antenna Port | 1 | EUT | Shielded | 0.5m | NA |
| 3 | RF In/Out | 1 | Communication Test Set | Shielded | 0.5m | NA |

I/O CABLES (RADIATED SETUP)

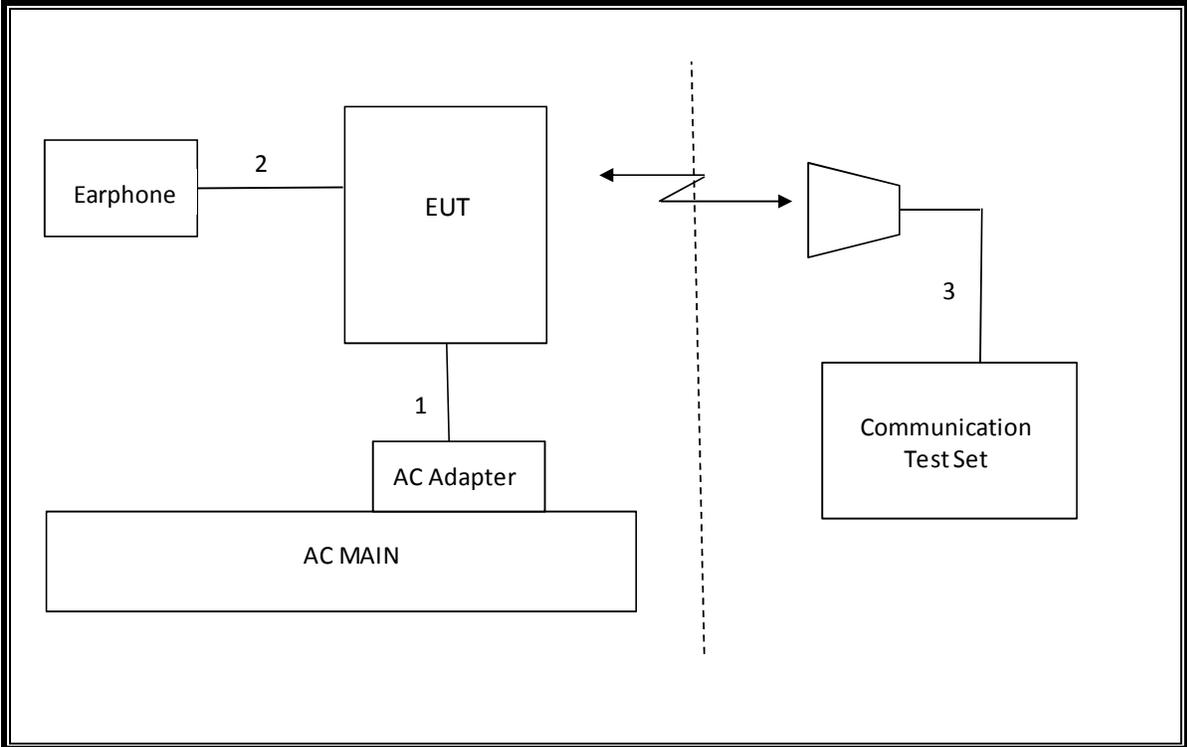
| I/O Cable List | | | | | | |
|----------------|-----------|----------------------|------------------------|-------------|------------------|---------|
| Cable No | Port | # of identical ports | Connector Type | Cable Type | Cable Length (m) | Remarks |
| 1 | USB | 1 | AC Adapter | Shielded | 0.8m | No |
| 2 | Jack | 1 | Headset | Un-shielded | 1.0m | No |
| 3 | RF In/out | 1 | Communication Test Set | Shielded | 2.0m | Yes |

The EUT is continuously communicated to the call box during the tests.

SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

| Test Equipment List | | | | |
|------------------------------------|---------------|------------------------|------------|----------|
| Description | Manufacturer | Model | S/N | Cal Due |
| Antenna, Tuned Dipole 400~1000 MHz | ETS | 3121D DB4 | 00164753 | 07-29-11 |
| Antenna, Bilog, 30MHz-1GHz | SCHWARZBECK | VULB9163 | 950 | 11-17-15 |
| Antenna, Horn, 18 GHz | ETS | 3115 | 00167211 | 09-20-15 |
| Antenna, Horn, 40 GHz | ETS | 3116C | 00166255 | 09-23-15 |
| Antenna, Horn, 40 GHz | ETS | 3116C-PA | 00168841 | 09-29-15 |
| Preamplifier, 1000 MHz | Sonoma | 310N | 341282 | 11-17-15 |
| Preamplifier, 18 GHz | Miteq | AFS42-00101800-25-S-42 | 1876511 | 11-18-15 |
| Spectrum Analyzer, 44 GHz | Agilent / HP | N9030A | MY54170614 | 09-23-15 |
| Communications Test Set | R&S | CMW500 | 150312 | 08-13-15 |
| Average Power Sensor | R&S | NRZ-Z91 | 102681 | 11-17-15 |
| Average Power Sensor | Agilent / HP | U2000 | MY54270007 | 09-23-15 |
| EMI Test Receive, 40 GHz | R&S | ESU40 | 100439 | 11-17-15 |
| EMI Test Receive, 3 GHz | R&S | ESR3 | 101832 | 11-17-15 |
| Attenuator / Switch driver | HP | 11713A | 3748A04272 | N/A |
| Low Pass Filter 3GHz | Micro-Tronics | LPS17541 | 009 | 11-17-15 |
| High Pass Filter 5GHz | Micro-Tronics | HPS17542 | 009 | 11-17-15 |
| High Pass Filter 6GHz | Micro-Tronics | HPM17543 | 010 | 11-17-15 |
| Combiner | WEINSCHEL | 1575 | 2153 | 11-17-15 |
| Temperature Chamber | ESPEC | SH-642 | 93001109 | 11-13-15 |
| DC Power Supply | Agilent / HP | E3640A | MY54226395 | 09-23-15 |

7. Summary Table

| FCC Part Section | Test Description | Test Limit | Test Condition | Test Result | Note |
|--|---|------------|----------------|-------------|------------|
| 2.1049 | Occupied Band width (99%) | N/A | Conducted | Pass | 17.922 MHz |
| 22.917(a) 24.238(a) 27.53(g) 90.691 | Band Edge / Conducted Spurious Emission | -13dBm | | Pass | -20.85 dBm |
| 2.1046 | Conducted output power | N/A | | Pass | 33.5 dBm |
| 22.355 24.235 27.54 90.213 | Frequency Stability | 2.5PPM | | Pass | 0.008PPM |
| 22.913(a)(2) | Effective Radiated Power | 38 dBm | Radiated | Pass | 29.07 dBm |
| 24.232(c) 27.50(h)(2) | Equivalent Isotropic Radiated Power | 33dBm | | Pass | 31.03 dBm |
| 27.50(d)(4) | | 30dBm | | Pass | 25.68 dBm |
| 22.917(a) 24.238(a) 27.53(g) | Radiated Spurious Emission | -13dBm | | Pass | -20.8 dBm |

8. RF POWER OUTPUT VERIFICATION

8.1. GSM/GPRS/EDGE

Function: Menu select > GSM Mobile Station > GSM 850/900/1800/1900
Press Connection control to choose the different menus
Press RESET > choose all to reset all settings
Connection Press Signal Off to turn off the signal and change settings
Network Support > GSM+GPRS or GSM+EGPRS
Main Service > Packet Data
Service selection > Test Mode A – Auto Slot Config. off
MS Signal Press Slot Config bottom on the right twice to select and change the number of time slots and power setting
 > Slot configuration > Uplink/Gamma
 > 33 dBm for GPRS 850/900
 > 30 dBm for GPRS1800/1900
BS Signal Enter the same channel number for TCH channel (test channel) and BCCH channel
Frequency Offset > + 0 Hz
Mode > BCCH and TCH
BCCH Level > -85 dBm (May need to adjust if link is not stable)
BCCH Channel > choose desire test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel]
Channel Type > Off
P0> 4 dB
Slot Config > Unchanged (if already set under MS Signal)
TCH > choose desired test channel
Hopping > Off
Main Timeslot > 3 (Default)
Network Coding Scheme > CS4 (GPRS) and MCS5 ~ MCS9 (EGPRS)
Bit Stream > 2E9-1PSR Bit Pattern
AF/RF Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input
Connection Press Signal On to turn on the signal and change settings

8.1.1. GSM OUTPUT POWER RESULT

GSM850 Measured Results

| Band | Mode | Coding Scheme | Time Slots | Ch No. | Freq. (MHz) | Max. Power | | |
|------|--------------|---------------|------------|--------|-------------|-----------------|-----------------|------|
| | | | | | | Burst Pwr (dBm) | Frame Pwr (dBm) | |
| 850 | GSM (Voice) | CS1 | 1 | 128 | 824.2 | 33.3 | 24.2 | |
| | | | | 190 | 836.6 | 33.4 | 24.4 | |
| | | | | 251 | 848.8 | 33.5 | 24.5 | |
| | GPRS (GMSK) | CS1 | 1 | 1 | 128 | 824.2 | 33.3 | 24.2 |
| | | | | | 190 | 836.6 | 33.4 | 24.4 |
| | | | | | 251 | 848.8 | 33.5 | 24.5 |
| | | | 2 | 1 | 128 | 824.2 | 29.7 | 23.7 |
| | | | | | 190 | 836.6 | 29.9 | 23.9 |
| | | | | | 251 | 848.8 | 30.0 | 24.0 |
| | | | 3 | 1 | 128 | 824.2 | 28.6 | 24.3 |
| | | | | | 190 | 836.6 | 28.7 | 24.5 |
| | | | | | 251 | 848.8 | 28.9 | 24.6 |
| | | | 4 | 1 | 128 | 824.2 | 26.2 | 23.2 |
| | | | | | 190 | 836.6 | 26.4 | 23.4 |
| | | | | | 251 | 848.8 | 26.3 | 23.3 |
| | EGPRS (8PSK) | MCS5 | 1 | 1 | 128 | 824.2 | 26.4 | 17.3 |
| | | | | | 190 | 836.6 | 26.4 | 17.4 |
| | | | | | 251 | 848.8 | 26.5 | 17.5 |
| | | | 2 | 1 | 128 | 824.2 | 25.1 | 19.1 |
| | | | | | 190 | 836.6 | 25.3 | 19.3 |
| | | | | | 251 | 848.8 | 25.4 | 19.4 |
| | | | 3 | 1 | 128 | 824.2 | 24.3 | 20.0 |
| | | | | | 190 | 836.6 | 24.3 | 20.1 |
| | | | | | 251 | 848.8 | 24.4 | 20.2 |
| 4 | | | 1 | 128 | 824.2 | 23.3 | 20.2 | |
| | | | | 190 | 836.6 | 23.3 | 20.3 | |
| | | | | 251 | 848.8 | 23.4 | 20.4 | |

GSM1900 Measured Results

| Band | Mode | Coding Scheme | Time Slots | Ch No. | Freq. (MHz) | Max. Power | |
|------|--------------|---------------|------------|--------|-------------|-----------------|-----------------|
| | | | | | | Burst Pwr (dBm) | Frame Pwr (dBm) |
| 1900 | GSM (Voice) | CS1 | 1 | 512 | 1850.2 | 30.1 | 21.1 |
| | | | | 661 | 1880.0 | 30.4 | 21.4 |
| | | | | 810 | 1909.8 | 30.3 | 21.3 |
| | GPRS (GMSK) | CS1 | 1 | 512 | 1850.2 | 29.9 | 20.9 |
| | | | | 661 | 1880.0 | 30.4 | 21.4 |
| | | | | 810 | 1909.8 | 30.3 | 21.3 |
| | | | 2 | 512 | 1850.2 | 27.8 | 21.8 |
| | | | | 661 | 1880.0 | 27.9 | 21.9 |
| | | | | 810 | 1909.8 | 28.0 | 22.0 |
| | | | 3 | 512 | 1850.2 | 25.6 | 21.3 |
| | | | | 661 | 1880.0 | 25.7 | 21.4 |
| | | | | 810 | 1909.8 | 25.8 | 21.5 |
| | | | 4 | 512 | 1850.2 | 24.3 | 21.3 |
| | | | | 661 | 1880.0 | 24.4 | 21.4 |
| | | | | 810 | 1909.8 | 24.5 | 21.5 |
| | EGPRS (8PSK) | MCS5 | 1 | 512 | 1850.2 | 25.2 | 16.2 |
| | | | | 661 | 1880.0 | 25.5 | 16.5 |
| | | | | 810 | 1909.8 | 25.5 | 16.5 |
| | | | 2 | 512 | 1850.2 | 24.2 | 18.2 |
| | | | | 661 | 1880.0 | 24.4 | 18.4 |
| | | | | 810 | 1909.8 | 24.5 | 18.5 |
| | | | 3 | 512 | 1850.2 | 23.2 | 18.9 |
| | | | | 661 | 1880.0 | 23.4 | 19.1 |
| | | | | 810 | 1909.8 | 23.3 | 19.0 |
| 4 | | | 512 | 1850.2 | 21.5 | 18.5 | |
| | | | 661 | 1880.0 | 21.7 | 18.7 | |
| | | | 810 | 1909.8 | 21.7 | 18.7 | |

8.2. UMTS REL 99

Release 99 Setup Procedures used to establish the test signals

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 specification. The DUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7).

| Mode | Subtest | Rel99 |
|------------------------|-------------------------|--------------|
| WCDMA General Settings | Loopback Mode | Test Mode 2 |
| | Rel99 RMC | 12.2kbps RMC |
| | Power Control Algorithm | Algorithm2 |
| | β_c/β_d | 8/15 |

HSDPA Setup Procedures used to establish the test signals

The following 4 Sub-tests were completed according to Release 7 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

| Mode | Subtest | HSDPA | HSDPA | HSDPA | HSDPA |
|-------------------------|--------------------------------------|--------------|-------|-------|-------|
| | | 1 | 2 | 3 | 4 |
| W-CDMA General Settings | Loopback Mode | Test Mode 1 | | | |
| | Rel99 RMC | 12.2kbps RMC | | | |
| | HSDPA FRC | H-Set 1 | | | |
| | Power Control Algorithm | Algorithm 2 | | | |
| | β_c | 2/15 | 11/15 | 15/15 | 15/15 |
| | β_d | 15/15 | 15/15 | 8/15 | 4/15 |
| | Bd (SF) | 64 | | | |
| | β_c/β_d | 2/15 | 12/15 | 15/8 | 15/4 |
| | β_{hs} | 4/15 | 24/15 | 30/15 | 30/15 |
| | MPR (dB) | 0 | 0 | 0.5 | 0.5 |
| HSDPA Specific Settings | D_{ACK} | 8 | | | |
| | D_{NAK} | 8 | | | |
| | DCQI | 8 | | | |
| | Ack-Nack repetition factor | 3 | | | |
| | CQI Feedback (Table 5.2B.4) | 4ms | | | |
| | CQI Repetition Factor (Table 5.2B.4) | 2 | | | |
| | $A_{hs}=\beta_{hs}/\beta_c$ | 30/15 | | | |

HSPA (HSDPA & HSUPA) Setup Procedures used to establish the test signals

The following 5 Sub-tests were completed according to Release 6 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

| Mode | HSPA | | | | | |
|-------------------------------|--------------------------------------|---------------|-------|-------|-------|-------------|
| | Subtest | 1 | 2 | 3 | 4 | 5 |
| WCDMA General Settings | Loopback Mode | Test Mode 1 | | | | |
| | Rel99 RMC | 12.2 kbps RMC | | | | |
| | HSDPA FRC | H-Set 1 | | | | |
| | HSUPA Test | HSPA | | | | |
| | Power Control Algorithm | Algorithm 2 | | | | Algorithm 1 |
| | β_c | 11/15 | 6/15 | 15/15 | 2/15 | 15/15 |
| | β_d | 15/15 | 15/15 | 9/15 | 15/15 | 0 |
| | β_{ec} | 209/225 | 12/15 | 30/15 | 2/15 | 5/15 |
| | β_c/β_d | 11/15 | 6/15 | 15/9 | 2/15 | 15/1 |
| | β_{hs} | 22/15 | 12/15 | 30/15 | 4/15 | 5/15 |
| | β_{ed} | 1309/225 | 94/75 | 47/15 | 56/75 | 47/15 |
| CM (dB) | 1 | 3 | 2 | 3 | 1 | |
| MPR (dB) | 0 | 2 | 1 | 2 | 0 | |
| HSDPA Specific Settings | DACK | 8 | | | | 0 |
| | DNAK | 8 | | | | 0 |
| | DCQI | 8 | | | | 0 |
| | Ack-Nack repetition factor | 3 | | | | |
| | CQI Feedback (Table 5.2B.4) | 4ms | | | | |
| | CQI Repetition Factor (Table 5.2B.4) | 2 | | | | |
| | $A_{hs} = \beta_{hs}/\beta_c$ | 30/15 | | | | |
| HSUPA Specific Settings | E-DPDCCH | 6 | 8 | 8 | 5 | 7 |
| | DHARQ | 0 | 0 | 0 | 0 | 0 |
| | AG Index | 20 | 12 | 15 | 17 | 21 |
| | ETFCI (from 34.121 Table C.11.1.3) | 75 | 67 | 92 | 71 | 81 |
| | Associated Max UL Data Rate kbps | 242.1 | 174.9 | 482.8 | 205.8 | 308.9 |
| | Reference E-TFCIs | 5 | 5 | 2 | 5 | 1 |
| | Reference E-TFCI | 11 | 11 | 11 | 11 | 67 |
| | Reference E-TFCI PO | 4 | 4 | 4 | 4 | 18 |
| | Reference E-TFCI | 67 | 67 | 92 | 67 | 67 |
| | Reference E-TFCI PO | 18 | 18 | 18 | 18 | 18 |
| | Reference E-TFCI | 71 | 71 | 71 | 71 | 71 |
| | Reference E-TFCI PO | 23 | 23 | 23 | 23 | 23 |
| | Reference E-TFCI | 75 | 75 | 75 | 75 | 75 |
| | Reference E-TFCI PO | 26 | 26 | 26 | 26 | 26 |
| | Reference E-TFCI | 81 | 81 | 81 | 81 | 81 |
| Reference E-TFCI PO | 27 | 27 | 27 | 27 | 27 | |
| Maximum Channelisation Codes | 2xSF2 | | | | SF4 | |

DC-HSDPA Setup Procedures used to establish the test signals

The following tests were completed according to procedures in section 7.3.13 of 3GPP TS34.108 v9.5.0. A summary of these settings are illustrated below:

Downlink Physical Channels are set as per 3GPP TS34.121-1 v9.0.0 E.5.0

Table E.5.0: Levels for HSDPA connection setup

| Parameter During Connection setup | Unit | Value |
|-----------------------------------|------|-------|
| P-CPICH_Ec/Ior | dB | -10 |
| P-CCPCH and SCH_Ec/Ior | dB | -12 |
| PICH_Ec/Ior | dB | -15 |
| HS-PDSCH | dB | off |
| HS-SCCH_1 | dB | off |
| DPCH_Ec/Ior | dB | -5 |
| OCNS_Ec/Ior | dB | -3.1 |

Call is set up as per 3GPP TS34.108 v9.5.0 sub clause 7.3.13

The configurations of the fixed reference channels for HSDPA RF tests are described in 3GPP TS 34.121, annex C for FDD and 3GPP TS 34.122.

Table C.8.1.12: Fixed Reference Channel H-Set 12

| Parameter | Unit | Value |
|--|-----------|-------|
| Nominal Avg. Inf. Bit Rate | kbps | 60 |
| inter-TTI Distance | TTI's | 1 |
| Number of HARQ Processes | Processes | 6 |
| Information Bit Payload (N_{INF}) | Bits | 120 |
| Number Code Blocks | Blocks | 1 |
| Binary Channel Bits Per TTI | Bits | 960 |
| Total Available SML's in UE | SML's | 19200 |
| Number of SML's per HARQ Proc. | SML's | 3200 |
| Coding Rate | | 0.15 |
| Number of Physical Channel Codes | Codes | 1 |
| Modulation | | QPSK |
| Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table. Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used. | | |

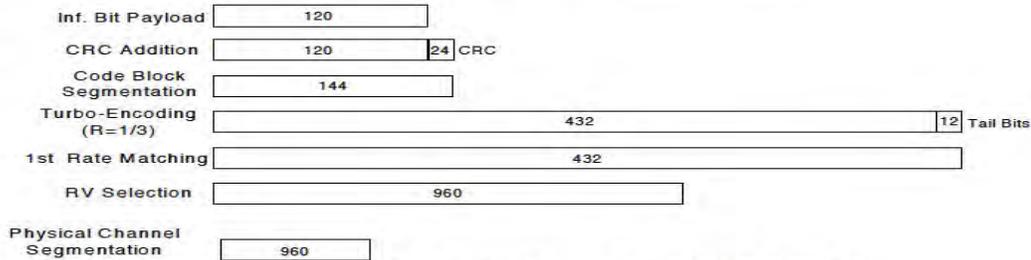


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

The following 4 Sub-tests for HSDPA were completed according to Release 8 procedures in section 5.2 of 3GPP TS34.121. A summary of subtest settings are illustrated below:

| Mode | HSDPA | HSDPA | HSDPA | HSDPA | |
|--|-------------------------|-------|-------|-------|-------|
| Subtest | 1 | 2 | 3 | 4 | |
| WCDMA General Settings | Loopback Mode | | | | |
| | Test Mode 1 | | | | |
| | Rel99 RMC | | | | |
| | 12.2kbps RMC | | | | |
| | HSDPA FRC | | | | |
| | H-Set 1 | | | | |
| | Power Control Algorithm | | | | |
| | Algorithm2 | | | | |
| | β_c | 2/15 | 11/15 | 15/15 | 15/15 |
| | β_d | 15/15 | 15/15 | 8/15 | 4/15 |
| HSDPA Specific Settings | β_d (SF) | | | | |
| | 64 | | | | |
| | β_c/β_d | 2/15 | 11/15 | 15/8 | 15/4 |
| | β_{hs} | 4/15 | 24/15 | 30/15 | 30/15 |
| | MPR (dB) | 0 | 0 | 0.5 | 0.5 |
| | DACK | | | | |
| | 8 | | | | |
| | DNAK | | | | |
| 8 | | | | | |
| DCQI | | | | | |
| 8 | | | | | |
| Ack-Nack Repetition factor | | | | | |
| 3 | | | | | |
| CQI Feedback | | | | | |
| 4ms | | | | | |
| CQI Repetition Factor | | | | | |
| 2 | | | | | |
| A _{hs} = β_{hs}/β_c | | | | | |
| 30/15 | | | | | |

HSPA+

Since 16QAM is not used for uplink, the uplink Category and release is same as HSUPA, i.e., CAT 6 Rel 6. Therefore, the RF conducted power is not measured.

Measured Results

| Band | Mode | | UL Ch No. | Freq. (MHz) | MPR (dB) | Avg Pwr (dBm) |
|----------------|---------|----------------|-----------|-------------|----------|---------------|
| | | | | | | Max |
| W-CDMA Band II | Rel 99 | RMC, 12.2 kbps | 9262 | 1852.4 | N/A | 22.0 |
| | | | 9400 | 1880.0 | N/A | 21.9 |
| | | | 9538 | 1907.6 | N/A | 21.8 |
| | HSDPA | Subtest 1 | 9262 | 1852.4 | 0 | 21.4 |
| | | | 9400 | 1880.0 | 0 | 21.4 |
| | | | 9538 | 1907.6 | 0 | 21.3 |
| | | Subtest 2 | 9262 | 1852.4 | 0 | 21.1 |
| | | | 9400 | 1880.0 | 0 | 20.9 |
| | | | 9538 | 1907.6 | 0 | 20.9 |
| | | Subtest 3 | 9262 | 1852.4 | 0.5 | 21.0 |
| | | | 9400 | 1880.0 | 0.5 | 20.8 |
| | | | 9538 | 1907.6 | 0.5 | 20.5 |
| | | Subtest 4 | 9262 | 1852.4 | 0.5 | 20.8 |
| | | | 9400 | 1880.0 | 0.5 | 20.8 |
| | | | 9538 | 1907.6 | 0.5 | 20.7 |
| | HSUPA | Subtest 1 | 9262 | 1852.4 | 0 | 21.4 |
| | | | 9400 | 1880.0 | 0 | 21.0 |
| | | | 9538 | 1907.6 | 0 | 20.5 |
| | | Subtest 2 | 9262 | 1852.4 | 2 | 19.4 |
| | | | 9400 | 1880.0 | 2 | 19.3 |
| | | | 9538 | 1907.6 | 2 | 19.2 |
| | | Subtest 3 | 9262 | 1852.4 | 1 | 19.5 |
| | | | 9400 | 1880.0 | 1 | 19.8 |
| | | | 9538 | 1907.6 | 1 | 19.6 |
| | | Subtest 4 | 9262 | 1852.4 | 2 | 19.9 |
| | | | 9400 | 1880.0 | 2 | 19.8 |
| | | | 9538 | 1907.6 | 2 | 19.6 |
| | | Subtest 5 | 9262 | 1852.4 | 0 | 21.5 |
| | | | 9400 | 1880.0 | 0 | 21.4 |
| | | | 9538 | 1907.6 | 0 | 21.3 |
| | DC-HSPA | Subtest 1 | 9262 | 1852.4 | 0 | 21.5 |
| | | | 9400 | 1880.0 | 0 | 21.3 |
| | | | 9538 | 1907.6 | 0 | 21.3 |
| | | Subtest 2 | 9262 | 1852.4 | 0 | 21.2 |
| | | | 9400 | 1880.0 | 0 | 20.9 |
| | | | 9538 | 1907.6 | 0 | 21.0 |
| | | Subtest 3 | 9262 | 1852.4 | 0.5 | 21.0 |
| | | | 9400 | 1880.0 | 0.5 | 20.9 |
| | | | 9538 | 1907.6 | 0.5 | 20.8 |
| | | Subtest 4 | 9262 | 1852.4 | 0.5 | 21.0 |
| | | | 9400 | 1880.0 | 0.5 | 20.9 |
| | | | 9538 | 1907.6 | 0.5 | 20.9 |

| Band | Mode | | UL Ch No. | Freq. (MHz) | MPR (dB) | Avg Pwr (dBm) | |
|-------------------|-----------|----------------|-----------|-------------|----------|---------------|------|
| | | | | | | Max | |
| W-CDMA Band IV | Rel 99 | RMC, 12.2 kbps | 1312 | 1712.4 | N/A | 23.2 | |
| | | | 1413 | 1732.6 | N/A | 23.2 | |
| | | | 1513 | 1752.6 | N/A | 23.4 | |
| | HSDPA | Subtest 1 | 1312 | 1712.4 | 0 | 22.8 | |
| | | | 1413 | 1732.6 | 0 | 22.8 | |
| | | | 1513 | 1752.6 | 0 | 22.9 | |
| | | Subtest 2 | 1312 | 1712.4 | 0 | 22.3 | |
| | | | 1413 | 1732.6 | 0 | 22.2 | |
| | | | 1513 | 1752.6 | 0 | 22.6 | |
| | | Subtest 3 | 1312 | 1712.4 | 0.5 | 22.3 | |
| | | | 1413 | 1732.6 | 0.5 | 22.2 | |
| | | | 1513 | 1752.6 | 0.5 | 22.4 | |
| | | Subtest 4 | 1312 | 1712.4 | 0.5 | 22.2 | |
| | | | 1413 | 1732.6 | 0.5 | 22.3 | |
| | | | 1513 | 1752.6 | 0.5 | 22.5 | |
| | | HSUPA | Subtest 1 | 1312 | 1712.4 | 0 | 22.1 |
| | | | | 1413 | 1732.6 | 0 | 22.6 |
| | | | | 1513 | 1752.6 | 0 | 22.7 |
| | Subtest 2 | | 1312 | 1712.4 | 1.5 | 20.7 | |
| | | | 1413 | 1732.6 | 1.5 | 21.3 | |
| | | | 1513 | 1752.6 | 1.5 | 21.5 | |
| | Subtest 3 | | 1312 | 1712.4 | 1 | 21.4 | |
| | | | 1413 | 1732.6 | 1 | 21.3 | |
| | | | 1513 | 1752.6 | 1 | 21.4 | |
| | Subtest 4 | | 1312 | 1712.4 | 1.5 | 21.7 | |
| | | | 1413 | 1732.6 | 1.5 | 21.3 | |
| | | | 1513 | 1752.6 | 1.5 | 22.1 | |
| | Subtest 5 | | 1312 | 1712.4 | 0 | 22.8 | |
| | | | 1413 | 1732.6 | 0 | 22.8 | |
| | | | 1513 | 1752.6 | 0 | 23.0 | |
| | DC-HSPA | Subtest 1 | 1312 | 1712.4 | 0 | 22.7 | |
| | | | 1413 | 1732.6 | 0 | 22.7 | |
| | | | 1513 | 1752.6 | 0 | 22.9 | |
| | | Subtest 2 | 1312 | 1712.4 | 0 | 22.4 | |
| | | | 1413 | 1732.6 | 0 | 22.4 | |
| | | | 1513 | 1752.6 | 0 | 22.6 | |
| | | Subtest 3 | 1312 | 1712.4 | 0.5 | 22.3 | |
| | | | 1413 | 1732.6 | 0.5 | 22.3 | |
| | | | 1513 | 1752.6 | 0.5 | 22.3 | |
| | | Subtest 4 | 1312 | 1712.4 | 0.5 | 22.3 | |
| | | | 1413 | 1732.6 | 0.5 | 22.3 | |
| | | | 1513 | 1752.6 | 0.5 | 22.5 | |

| Band | Mode | | UL Ch No. | Freq. (MHz) | MPR (dB) | Avg Pwr (dBm) | |
|------------------|-----------|----------------|-----------|-------------|----------|---------------|------|
| | | | | | | Max | |
| W-CDMA Band V | Rel 99 | RMC, 12.2 kbps | 4132 | 826.4 | N/A | 22.5 | |
| | | | 4183 | 836.6 | N/A | 22.6 | |
| | | | 4233 | 846.6 | N/A | 22.5 | |
| | HSDPA | Subtest 1 | 4132 | 826.4 | 0 | 22.0 | |
| | | | 4183 | 836.6 | 0 | 21.9 | |
| | | | 4233 | 846.6 | 0 | 22.0 | |
| | | Subtest 2 | 4132 | 826.4 | 0 | 21.5 | |
| | | | 4183 | 836.6 | 0 | 21.7 | |
| | | | 4233 | 846.6 | 0 | 21.7 | |
| | | Subtest 3 | 4132 | 826.4 | 0.5 | 21.4 | |
| | | | 4183 | 836.6 | 0.5 | 21.6 | |
| | | | 4233 | 846.6 | 0.5 | 21.5 | |
| | | Subtest 4 | 4132 | 826.4 | 0.5 | 21.4 | |
| | | | 4183 | 836.6 | 0.5 | 21.5 | |
| | | | 4233 | 846.6 | 0.5 | 21.4 | |
| | | HSUPA | Subtest 1 | 4132 | 826.4 | 0 | 21.3 |
| | | | | 4183 | 836.6 | 0 | 21.9 |
| | | | | 4233 | 846.6 | 0 | 21.9 |
| | Subtest 2 | | 4132 | 826.4 | 2 | 19.9 | |
| | | | 4183 | 836.6 | 2 | 19.9 | |
| | | | 4233 | 846.6 | 2 | 20.0 | |
| | Subtest 3 | | 4132 | 826.4 | 1 | 20.3 | |
| | | | 4183 | 836.6 | 1 | 20.0 | |
| | | | 4233 | 846.6 | 1 | 20.1 | |
| | Subtest 4 | | 4132 | 826.4 | 2 | 20.4 | |
| | | | 4183 | 836.6 | 2 | 20.5 | |
| | | | 4233 | 846.6 | 2 | 20.5 | |
| | Subtest 5 | | 4132 | 826.4 | 0 | 21.9 | |
| | | | 4183 | 836.6 | 0 | 22.0 | |
| | | | 4233 | 846.6 | 0 | 21.9 | |
| | DC-HSPA | | Subtest 1 | 4132 | 826.4 | 0 | 22.0 |
| | | | | 4183 | 836.6 | 0 | 21.8 |
| | | | | 4233 | 846.6 | 0 | 22.0 |
| | | Subtest 2 | 4132 | 826.4 | 0 | 21.6 | |
| | | | 4183 | 836.6 | 0 | 21.5 | |
| | | | 4233 | 846.6 | 0 | 21.6 | |
| | | Subtest 3 | 4132 | 826.4 | 0.5 | 21.4 | |
| | | | 4183 | 836.6 | 0.5 | 21.4 | |
| | | | 4233 | 846.6 | 0.5 | 21.5 | |
| | | Subtest 4 | 4132 | 826.4 | 0.5 | 21.4 | |
| | | | 4183 | 836.6 | 0.5 | 21.5 | |
| | | | 4233 | 846.6 | 0.5 | 21.5 | |

8.1. LTE OUTPUT VERIFICATION

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

| Modulation | Channel bandwidth / Transmission bandwidth (RB) | | | | | | MPR (dB) |
|------------|---|---------|-------|--------|--------|--------|----------|
| | 1.4 MHz | 3.0 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz | |
| QPSK | > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | ≤ 1 |
| 16 QAM | ≤ 5 | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | ≤ 1 |
| 16 QAM | > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | ≤ 2 |

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signalling Value of "NS_01".

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

| Network Signalling value | Requirements (sub-clause) | E-UTRA Band | Channel bandwidth (MHz) | Resources Blocks (N_{RB}) | A-MPR (dB) |
|--------------------------|---------------------------|--------------------------|-------------------------|-------------------------------|---------------|
| NS_01 | 6.6.2.1.1 | Table 5.5-1 | 1.4, 3, 5, 10, 15, 20 | Table 5.6-1 | NA |
| NS_03 | 6.6.2.2.1 | 2, 4, 10, 23, 25, 35, 36 | 3 | >5 | ≤ 1 |
| | | | 5 | >6 | ≤ 1 |
| | | | 10 | >6 | ≤ 1 |
| | | | 15 | >8 | ≤ 1 |
| | | | 20 | >10 | ≤ 1 |
| NS_04 | 6.6.2.2.2 | 41 | 5 | >6 | ≤ 1 |
| | | | 10, 15, 20 | See Table 6.2.4-4 | |
| NS_05 | 6.6.3.3.1 | 1 | 10,15,20 | ≥ 50 | ≤ 1 |
| NS_06 | 6.6.2.2.3 | 12, 13, 14, 17 | 1.4, 3, 5, 10 | Table 5.6-1 | n/a |
| NS_07 | 6.6.2.2.3 | 13 | 10 | Table 6.2.4-2 | Table 6.2.4-2 |
| | 6.6.3.3.2 | | | | |
| NS_08 | 6.6.3.3.3 | 19 | 10, 15 | > 44 | ≤ 3 |
| NS_09 | 6.6.3.3.4 | 21 | 10, 15 | > 40 | ≤ 1 |
| | | | | > 55 | ≤ 2 |
| | | | | Table 6.2.4-3 | |
| NS_10 | | 20 | 15, 20 | Table 6.2.4-3 | Table 6.2.4-3 |
| NS_11 | 6.6.2.2.1 | 23 ¹ | 1.4, 3, 5, 10 | Table 6.2.4-5 | Table 6.2.4-5 |
| NS_32 | - | - | - | - | - |

Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.

8.1.1. LTE OUTPUT RESULT

LTE Band 2 Measured Results

| Band | BW (MHz) | Mode | RB Allocation | RB offset | Target MPR | Meas. MPR | Avg Pwr (dBm) | | |
|------------|----------|-------|---------------|-----------|------------|-----------|---------------|----------|------------|
| | | | | | | | Max. Power | | |
| | | | | | | | 1860 MHz | 1880 MHz | 1900 MHz |
| LTE Band 2 | 20 | QPSK | 1 | 0 | 0 | 0 | 22.3 | 23.3 | 22.7 |
| | | | 1 | 50 | 0 | 0 | 22.3 | 22.9 | 22.6 |
| | | | 1 | 99 | 0 | 1 | 22.3 | 22.6 | 22.7 |
| | | | 50 | 0 | 1 | 2 | 21.6 | 21.6 | 21.7 |
| | | | 50 | 25 | 1 | 2 | 21.6 | 21.6 | 21.7 |
| | | | 50 | 50 | 1 | 2 | 21.5 | 21.5 | 21.7 |
| | | | 100 | 0 | 1 | 2 | 21.6 | 21.6 | 21.7 |
| | | 16QAM | 1 | 0 | 1 | 0 | 21.5 | 21.6 | 23.3 |
| | | | 1 | 50 | 1 | 0 | 21.7 | 21.6 | 23.3 |
| | | | 1 | 99 | 1 | 0 | 21.4 | 21.7 | 23.3 |
| | | | 50 | 0 | 2 | 3 | 20.5 | 20.7 | 20.6 |
| | | | 50 | 25 | 2 | 3 | 20.4 | 20.6 | 20.5 |
| | | | 50 | 50 | 2 | 3 | 20.5 | 20.5 | 20.5 |
| | | | 100 | 0 | 2 | 3 | 20.6 | 20.6 | 20.6 |
| Band | BW (MHz) | Mode | RB Allocation | RB offset | Target MPR | Meas. MPR | Avg Pwr (dBm) | | |
| | | | | | | | Max. Power | | |
| | | | | | | | 1857.5 MHz | 1880 MHz | 1902.5 MHz |
| LTE Band 2 | 15 | QPSK | 1 | 0 | 0 | 0 | 22.6 | 22.7 | 22.7 |
| | | | 1 | 36 | 0 | 0 | 22.6 | 22.7 | 22.5 |
| | | | 1 | 74 | 0 | 0 | 22.6 | 22.6 | 22.5 |
| | | | 36 | 0 | 1 | 1 | 21.5 | 21.7 | 21.7 |
| | | | 36 | 18 | 1 | 1 | 21.5 | 21.5 | 21.7 |
| | | | 36 | 37 | 1 | 1 | 21.5 | 21.5 | 21.7 |
| | | | 75 | 0 | 1 | 1 | 21.5 | 21.6 | 21.7 |
| | | 16QAM | 1 | 0 | 1 | 0 | 22.3 | 21.8 | 22.5 |
| | | | 1 | 36 | 1 | 0 | 21.8 | 21.7 | 22.3 |
| | | | 1 | 74 | 1 | 0 | 21.5 | 21.6 | 22.5 |
| | | | 36 | 0 | 2 | 2 | 20.5 | 20.9 | 20.6 |
| | | | 36 | 18 | 2 | 2 | 20.5 | 20.8 | 20.8 |
| | | | 36 | 37 | 2 | 2 | 20.7 | 20.8 | 20.9 |
| | | | 75 | 0 | 2 | 2 | 20.6 | 20.8 | 20.9 |
| Band | BW (MHz) | Mode | RB Allocation | RB offset | Target MPR | Meas. MPR | Avg Pwr (dBm) | | |
| | | | | | | | Max. Power | | |
| | | | | | | | 1855 MHz | 1880 MHz | 1905 MHz |
| LTE Band 2 | 10 | QPSK | 1 | 0 | 0 | 0 | 22.7 | 22.6 | 22.6 |
| | | | 1 | 25 | 0 | 0 | 22.5 | 22.5 | 22.7 |
| | | | 1 | 49 | 0 | 0 | 22.5 | 22.8 | 22.7 |
| | | | 25 | 0 | 1 | 1 | 21.5 | 21.6 | 21.7 |
| | | | 25 | 12 | 1 | 1 | 21.6 | 21.6 | 21.7 |
| | | | 25 | 25 | 1 | 1 | 21.5 | 21.6 | 21.8 |
| | | | 50 | 0 | 1 | 1 | 21.5 | 21.6 | 21.7 |
| | | 16QAM | 1 | 0 | 1 | 0 | 22.1 | 22.1 | 22.7 |
| | | | 1 | 25 | 1 | 0 | 22.0 | 21.8 | 22.9 |
| | | | 1 | 49 | 1 | 0 | 21.2 | 22.5 | 21.6 |
| | | | 25 | 0 | 2 | 2 | 20.4 | 20.8 | 20.9 |
| | | | 25 | 12 | 2 | 2 | 20.6 | 20.8 | 21.0 |
| | | | 25 | 25 | 2 | 2 | 20.5 | 20.8 | 20.9 |
| | | | 50 | 0 | 2 | 2 | 20.5 | 20.7 | 20.9 |

LTE Band 2 Measured Results (continued)

| Band | BW (MHz) | Mode | RB Allocation | RB offset | Target MPR | Meas. MPR | Avg Pwr (dBm) | | |
|------------|----------|-------|---------------|-----------|------------|-----------|---------------|----------|------------|
| | | | | | | | Max. Power | | |
| | | | | | | | 1860 MHz | 1880 MHz | 1900 MHz |
| LTE Band 2 | 5 | QPSK | 1 | 0 | 0 | 1 | 22.4 | 22.8 | 22.8 |
| | | | 1 | 12 | 0 | 0 | 22.9 | 23.0 | 23.5 |
| | | | 1 | 24 | 0 | 1 | 22.1 | 22.7 | 22.8 |
| | | | 12 | 0 | 1 | 2 | 21.4 | 21.5 | 21.6 |
| | | | 12 | 7 | 1 | 2 | 21.3 | 21.5 | 21.6 |
| | | | 12 | 13 | 1 | 2 | 21.4 | 21.5 | 21.7 |
| | | 16QAM | 25 | 0 | 1 | 2 | 21.4 | 21.6 | 21.6 |
| | | | 1 | 0 | 1 | 2 | 21.1 | 21.5 | 21.8 |
| | | | 1 | 12 | 1 | 1 | 21.1 | 22.1 | 22.1 |
| | | | 1 | 24 | 1 | 1 | 22.3 | 21.4 | 21.9 |
| | | | 12 | 0 | 2 | 3 | 20.4 | 20.8 | 20.5 |
| | | | 12 | 7 | 2 | 3 | 20.4 | 20.8 | 20.5 |
| | | | 12 | 13 | 2 | 3 | 20.2 | 20.5 | 20.8 |
| | | | 25 | 0 | 2 | 3 | 20.4 | 20.5 | 20.9 |
| Band | BW (MHz) | Mode | RB Allocation | RB offset | Target MPR | Meas. MPR | Avg Pwr (dBm) | | |
| | | | | | | | Max. Power | | |
| | | | | | | | 1857.5 MHz | 1880 MHz | 1902.5 MHz |
| LTE Band 2 | 3 | QPSK | 1 | 0 | 0 | 0 | 22.5 | 22.7 | 22.6 |
| | | | 1 | 8 | 0 | 0 | 22.5 | 23.0 | 22.5 |
| | | | 1 | 14 | 0 | 0 | 22.4 | 22.7 | 22.5 |
| | | | 8 | 0 | 1 | 1 | 21.5 | 21.5 | 21.6 |
| | | | 8 | 4 | 1 | 1 | 21.4 | 21.6 | 21.5 |
| | | | 8 | 7 | 1 | 1 | 21.4 | 21.6 | 21.8 |
| | | 16QAM | 15 | 0 | 1 | 1 | 21.4 | 21.6 | 21.7 |
| | | | 1 | 0 | 1 | 1 | 21.9 | 22.2 | 22.1 |
| | | | 1 | 8 | 1 | 0 | 21.1 | 21.9 | 22.6 |
| | | | 1 | 14 | 1 | 1 | 21.9 | 22.5 | 21.8 |
| | | | 8 | 0 | 2 | 2 | 20.6 | 20.5 | 20.7 |
| | | | 8 | 4 | 2 | 2 | 20.4 | 20.6 | 20.8 |
| | | | 8 | 7 | 2 | 2 | 20.4 | 20.5 | 21.0 |
| | | | 15 | 0 | 2 | 2 | 20.5 | 20.8 | 20.5 |
| Band | BW (MHz) | Mode | RB Allocation | RB offset | Target MPR | Meas. MPR | Avg Pwr (dBm) | | |
| | | | | | | | Max. Power | | |
| | | | | | | | 1855 MHz | 1880 MHz | 1905 MHz |
| LTE Band 2 | 1.4 | QPSK | 1 | 0 | 0 | 0 | 22.5 | 22.7 | 22.6 |
| | | | 1 | 3 | 0 | 0 | 22.4 | 22.8 | 22.6 |
| | | | 1 | 5 | 0 | 0 | 22.5 | 22.4 | 22.6 |
| | | | 3 | 0 | 0 | 0 | 22.5 | 22.6 | 22.8 |
| | | | 3 | 1 | 0 | 0 | 22.6 | 22.6 | 22.9 |
| | | | 3 | 3 | 0 | 0 | 22.5 | 22.7 | 22.8 |
| | | 16QAM | 6 | 0 | 1 | 1 | 21.5 | 21.5 | 21.7 |
| | | | 1 | 0 | 1 | 0 | 22.2 | 22.5 | 22.4 |
| | | | 1 | 3 | 1 | 1 | 22.1 | 21.8 | 22.0 |
| | | | 1 | 5 | 1 | 1 | 21.6 | 22.2 | 21.9 |
| | | | 3 | 0 | 1 | 1 | 21.5 | 21.4 | 21.5 |
| | | | 3 | 1 | 1 | 1 | 21.4 | 21.5 | 21.3 |
| | | | 3 | 3 | 1 | 1 | 21.6 | 22.1 | 21.8 |
| | | | 6 | 0 | 2 | 2 | 20.4 | 20.6 | 20.9 |

LTE Band 4 Measured Results

| Band | BW (MHz) | Mode | RB Allocation | RB offset | Target MPR | Meas. MPR | Avg Pwr (dBm) | | |
|------------|----------|-------|---------------|-----------|------------|-----------|---------------|----------|------------|
| | | | | | | | Max. Power | | |
| | | | | | | | 1860 MHz | 1880 MHz | 1900 MHz |
| LTE Band 4 | 20 | QPSK | 1 | 0 | 0 | 0 | 23.0 | 23.2 | 23.3 |
| | | | 1 | 49 | 0 | 0 | 23.5 | 23.1 | 23.3 |
| | | | 1 | 99 | 0 | 0 | 23.2 | 23.1 | 23.3 |
| | | | 50 | 0 | 1 | 1 | 22.1 | 22.3 | 22.3 |
| | | | 50 | 24 | 1 | 1 | 22.1 | 22.2 | 22.3 |
| | | | 50 | 50 | 1 | 1 | 22.2 | 22.2 | 22.4 |
| | | 16QAM | 100 | 0 | 1 | 1 | 22.1 | 22.2 | 22.3 |
| | | | 1 | 0 | 1 | 0 | 22.1 | 23.1 | 22.9 |
| | | | 1 | 49 | 1 | 0 | 22.0 | 23.1 | 22.9 |
| | | | 1 | 99 | 1 | 0 | 21.9 | 23.1 | 22.9 |
| | | | 50 | 0 | 2 | 2 | 21.1 | 21.3 | 21.2 |
| | | | 50 | 24 | 2 | 2 | 21.0 | 21.2 | 21.2 |
| | | | 50 | 50 | 2 | 2 | 21.0 | 21.3 | 21.2 |
| | | | 100 | 0 | 2 | 2 | 21.1 | 21.1 | 21.3 |
| Band | BW (MHz) | Mode | RB Allocation | RB offset | Target MPR | Meas. MPR | Avg Pwr (dBm) | | |
| | | | | | | | Max. Power | | |
| | | | | | | | 1857.5 MHz | 1880 MHz | 1902.5 MHz |
| LTE Band 4 | 15 | QPSK | 1 | 0 | 0 | 0 | 23.0 | 23.3 | 23.2 |
| | | | 1 | 37 | 0 | 0 | 23.0 | 23.2 | 23.0 |
| | | | 1 | 74 | 0 | 0 | 23.0 | 23.2 | 23.2 |
| | | | 36 | 0 | 1 | 1 | 22.2 | 22.3 | 22.3 |
| | | | 36 | 20 | 1 | 1 | 22.2 | 22.2 | 22.3 |
| | | | 36 | 39 | 1 | 1 | 22.2 | 22.2 | 22.3 |
| | | 16QAM | 75 | 0 | 1 | 1 | 22.1 | 22.3 | 22.3 |
| | | | 1 | 0 | 1 | 0 | 22.7 | 22.5 | 23.4 |
| | | | 1 | 37 | 1 | 0 | 22.6 | 22.5 | 23.4 |
| | | | 1 | 74 | 1 | 0 | 22.7 | 22.3 | 23.3 |
| | | | 36 | 0 | 2 | 2 | 21.1 | 21.2 | 21.2 |
| | | | 36 | 20 | 2 | 2 | 21.0 | 21.1 | 21.2 |
| | | | 36 | 39 | 2 | 2 | 21.0 | 21.0 | 21.2 |
| | | | 75 | 0 | 2 | 2 | 21.1 | 21.3 | 21.1 |
| Band | BW (MHz) | Mode | RB Allocation | RB offset | Target MPR | Meas. MPR | Avg Pwr (dBm) | | |
| | | | | | | | Max. Power | | |
| | | | | | | | 1855 MHz | 1880 MHz | 1905 MHz |
| LTE Band 4 | 10 | QPSK | 1 | 0 | 0 | 0 | 23.3 | 23.4 | 23.2 |
| | | | 1 | 25 | 0 | 0 | 22.9 | 23.0 | 23.2 |
| | | | 1 | 49 | 0 | 0 | 23.1 | 23.0 | 23.3 |
| | | | 25 | 0 | 1 | 1 | 22.1 | 22.2 | 22.3 |
| | | | 25 | 12 | 1 | 1 | 22.2 | 22.2 | 22.3 |
| | | | 25 | 25 | 1 | 1 | 22.1 | 22.2 | 22.4 |
| | | 16QAM | 50 | 0 | 1 | 1 | 22.2 | 22.3 | 22.4 |
| | | | 1 | 0 | 1 | 0 | 22.4 | 23.1 | 22.2 |
| | | | 1 | 25 | 1 | 0 | 22.1 | 22.9 | 22.4 |
| | | | 1 | 49 | 1 | 1 | 21.9 | 22.6 | 21.7 |
| | | | 25 | 0 | 2 | 2 | 21.2 | 21.3 | 21.3 |
| | | | 25 | 12 | 2 | 2 | 21.1 | 21.3 | 21.6 |
| | | | 25 | 25 | 2 | 2 | 21.1 | 21.4 | 21.6 |
| | | | 50 | 0 | 2 | 2 | 21.0 | 21.2 | 21.3 |

LTE Band 4 Measured Results (continued)

| Band | BW (MHz) | Mode | RB Allocation | RB offset | Target MPR | Meas. MPR | Avg Pwr (dBm) | | |
|------------|----------|-------|---------------|-----------|------------|-----------|---------------|----------|------------|
| | | | | | | | Max. Power | | |
| | | | | | | | 1860 MHz | 1880 MHz | 1900 MHz |
| LTE Band 4 | 5 | QPSK | 1 | 0 | 0 | 0 | 23.1 | 23.1 | 23.2 |
| | | | 1 | 12 | 0 | 0 | 22.5 | 23.1 | 23.5 |
| | | | 1 | 24 | 0 | 0 | 22.8 | 23.0 | 23.1 |
| | | | 12 | 0 | 1 | 1 | 22.0 | 22.2 | 22.2 |
| | | | 12 | 7 | 1 | 1 | 22.0 | 22.2 | 22.2 |
| | | | 12 | 13 | 1 | 1 | 22.0 | 22.3 | 22.3 |
| | | 16QAM | 25 | 0 | 1 | 1 | 22.1 | 22.2 | 22.4 |
| | | | 1 | 0 | 1 | 0 | 21.7 | 21.8 | 23.2 |
| | | | 1 | 12 | 1 | 2 | 21.6 | 21.9 | 21.7 |
| | | | 1 | 24 | 1 | 1 | 21.9 | 22.0 | 22.8 |
| | | | 12 | 0 | 2 | 2 | 20.9 | 21.2 | 21.3 |
| | | | 12 | 7 | 2 | 2 | 20.8 | 21.2 | 21.3 |
| | | | 12 | 13 | 2 | 2 | 21.1 | 21.3 | 21.3 |
| | | | 25 | 0 | 2 | 2 | 21.1 | 21.1 | 21.3 |
| Band | BW (MHz) | Mode | RB Allocation | RB offset | Target MPR | Meas. MPR | Avg Pwr (dBm) | | |
| | | | | | | | Max. Power | | |
| | | | | | | | 1857.5 MHz | 1880 MHz | 1902.5 MHz |
| LTE Band 4 | 3 | QPSK | 1 | 0 | 0 | 0 | 23.1 | 23.1 | 23.1 |
| | | | 1 | 8 | 0 | 0 | 23.4 | 23.0 | 23.6 |
| | | | 1 | 14 | 0 | 0 | 23.1 | 23.2 | 23.1 |
| | | | 8 | 0 | 1 | 1 | 22.2 | 22.1 | 22.2 |
| | | | 8 | 4 | 1 | 1 | 22.2 | 22.1 | 22.3 |
| | | | 8 | 7 | 1 | 1 | 22.1 | 22.2 | 22.3 |
| | | 16QAM | 15 | 0 | 1 | 1 | 22.1 | 22.3 | 22.3 |
| | | | 1 | 0 | 1 | 1 | 22.4 | 22.5 | 22.0 |
| | | | 1 | 8 | 1 | 1 | 22.9 | 22.4 | 22.6 |
| | | | 1 | 14 | 1 | 1 | 22.8 | 23.1 | 22.5 |
| | | | 8 | 0 | 2 | 2 | 21.3 | 20.8 | 21.5 |
| | | | 8 | 4 | 2 | 2 | 21.0 | 21.1 | 21.5 |
| | | | 8 | 7 | 2 | 2 | 20.8 | 21.1 | 21.6 |
| | | | 15 | 0 | 2 | 2 | 21.1 | 21.0 | 21.2 |
| Band | BW (MHz) | Mode | RB Allocation | RB offset | Target MPR | Meas. MPR | Avg Pwr (dBm) | | |
| | | | | | | | Max. Power | | |
| | | | | | | | 1855 MHz | 1880 MHz | 1905 MHz |
| LTE Band 4 | 1.4 | QPSK | 1 | 0 | 0 | 0 | 23.2 | 23.1 | 23.2 |
| | | | 1 | 3 | 0 | 0 | 23.0 | 23.0 | 23.2 |
| | | | 1 | 5 | 0 | 0 | 23.0 | 23.0 | 23.0 |
| | | | 3 | 0 | 0 | 0 | 23.1 | 23.1 | 23.2 |
| | | | 3 | 1 | 0 | 0 | 23.1 | 23.3 | 23.3 |
| | | | 3 | 3 | 0 | 0 | 23.0 | 23.1 | 23.3 |
| | | 16QAM | 6 | 0 | 1 | 1 | 22.1 | 22.2 | 22.2 |
| | | | 1 | 0 | 1 | 0 | 22.5 | 22.3 | 23.4 |
| | | | 1 | 3 | 1 | 0 | 23.0 | 22.2 | 22.6 |
| | | | 1 | 5 | 1 | 0 | 22.8 | 22.2 | 23.3 |
| | | | 3 | 0 | 1 | 1 | 21.7 | 22.3 | 22.8 |
| | | | 3 | 1 | 1 | 1 | 22.5 | 22.1 | 22.5 |
| | | | 3 | 3 | 1 | 0 | 22.1 | 22.2 | 23.0 |
| | | | 6 | 0 | 2 | 2 | 21.3 | 20.9 | 21.2 |

LTE Band 5 Measured Results

| BW (MHz) | Mode | RB Allocation | RB offset | Target MPR | Meas. MPR | Avg Pwr (dBm) | | |
|-----------|-------|---------------|-----------|------------|-----------|---------------|-----------|---------|
| | | | | | | Max. Power | | |
| | | | | | | 829 MHz | 836.5 MHz | 844 MHz |
| 10 | QPSK | 1 | 0 | 0 | 0 | 23.2 | 23.5 | 23.2 |
| | | 1 | 25 | 0 | 0 | 23.3 | 23.0 | 23.3 |
| | | 1 | 49 | 0 | 0 | 23.3 | 23.5 | 23.2 |
| | | 25 | 0 | 1 | 1 | 22.2 | 22.4 | 22.5 |
| | | 25 | 12 | 1 | 1 | 22.2 | 22.3 | 22.4 |
| | | 25 | 25 | 1 | 1 | 22.3 | 22.2 | 22.4 |
| | 16QAM | 50 | 0 | 1 | 1 | 22.3 | 22.2 | 22.4 |
| | | 1 | 0 | 1 | 0 | 22.4 | 23.6 | 22.7 |
| | | 1 | 25 | 1 | 1 | 22.9 | 22.6 | 22.1 |
| | | 1 | 49 | 1 | 1 | 23.0 | 22.8 | 22.6 |
| | | 25 | 0 | 2 | 2 | 21.1 | 21.4 | 21.5 |
| | | 25 | 12 | 2 | 2 | 21.2 | 21.2 | 21.5 |
| 5 | QPSK | 25 | 25 | 2 | 2 | 21.1 | 21.2 | 21.3 |
| | | 50 | 0 | 2 | 2 | 21.1 | 21.2 | 21.3 |
| | | 1 | 0 | 0 | 0 | 22.9 | 23.2 | 23.2 |
| | | 1 | 12 | 0 | 0 | 23.4 | 23.2 | 23.5 |
| | | 1 | 24 | 0 | 0 | 23.1 | 23.0 | 23.1 |
| | | 12 | 0 | 1 | 1 | 22.2 | 22.3 | 22.3 |
| | 16QAM | 12 | 7 | 1 | 1 | 22.1 | 22.2 | 22.2 |
| | | 12 | 13 | 1 | 1 | 22.2 | 22.1 | 22.3 |
| | | 25 | 0 | 1 | 1 | 22.1 | 22.1 | 22.3 |
| | | 1 | 0 | 1 | 1 | 21.5 | 22.4 | 22.4 |
| | | 1 | 12 | 1 | 1 | 21.9 | 22.2 | 21.9 |
| | | 1 | 24 | 1 | 1 | 22.9 | 22.3 | 21.5 |
| 3 | QPSK | 12 | 0 | 2 | 2 | 21.1 | 21.3 | 21.0 |
| | | 12 | 7 | 2 | 2 | 21.1 | 21.1 | 21.1 |
| | | 12 | 13 | 2 | 2 | 21.2 | 21.1 | 21.2 |
| | | 25 | 0 | 2 | 2 | 21.1 | 21.1 | 21.3 |
| | | 1 | 0 | 0 | 0 | 23.1 | 23.5 | 23.2 |
| | | 1 | 8 | 0 | 0 | 23.1 | 23.3 | 23.2 |
| | 16QAM | 1 | 14 | 0 | 0 | 23.1 | 23.3 | 23.1 |
| | | 8 | 0 | 1 | 1 | 22.2 | 22.2 | 22.3 |
| | | 8 | 4 | 1 | 1 | 22.2 | 22.2 | 22.4 |
| | | 8 | 7 | 1 | 1 | 22.2 | 22.1 | 22.3 |
| | | 15 | 0 | 1 | 1 | 22.2 | 22.1 | 22.3 |
| | | 1 | 0 | 1 | 0 | 22.3 | 22.6 | 23.3 |
| 1.4 | QPSK | 1 | 8 | 1 | 0 | 22.3 | 22.5 | 23.1 |
| | | 1 | 14 | 1 | 0 | 22.3 | 23.1 | 23.2 |
| | | 8 | 0 | 2 | 2 | 21.1 | 20.8 | 21.3 |
| | | 8 | 4 | 2 | 2 | 21.2 | 20.8 | 21.2 |
| | | 8 | 7 | 2 | 2 | 21.3 | 20.6 | 21.2 |
| | | 15 | 0 | 2 | 2 | 21.1 | 21.3 | 21.1 |
| | 16QAM | 1 | 0 | 0 | 1 | 23.2 | 23.4 | 23.1 |
| | | 1 | 3 | 0 | 1 | 23.0 | 23.2 | 23.2 |
| | | 1 | 5 | 0 | 1 | 23.2 | 23.0 | 23.2 |
| | | 3 | 0 | 0 | 1 | 23.2 | 23.1 | 23.0 |
| | | 3 | 1 | 0 | 1 | 23.3 | 23.1 | 23.2 |
| | | 3 | 3 | 0 | 1 | 23.2 | 23.1 | 23.1 |
| 16QAM | 6 | 0 | 1 | 2 | 22.0 | 22.2 | 22.1 | |
| | 1 | 0 | 1 | 0 | 21.8 | 24.0 | 23.4 | |
| | 1 | 3 | 1 | 0 | 21.8 | 22.2 | 23.7 | |
| | 1 | 5 | 1 | 1 | 21.9 | 22.3 | 22.9 | |
| | 3 | 0 | 1 | 2 | 22.4 | 21.7 | 21.9 | |
| | 3 | 1 | 1 | 2 | 21.9 | 22.3 | 22.3 | |
| 825.5 MHz | QPSK | 3 | 3 | 1 | 2 | 22.2 | 21.7 | 22.4 |
| | | 3 | 3 | 1 | 2 | 22.2 | 21.7 | 22.4 |
| | | 6 | 0 | 2 | 3 | 20.8 | 20.6 | 20.8 |
| | | 825.5 MHz | 836.5 MHz | 847.5 MHz | | | | |
| | | 1 | 0 | 0 | 0 | 23.1 | 23.5 | 23.2 |
| | | 1 | 8 | 0 | 0 | 23.1 | 23.3 | 23.2 |
| | 16QAM | 1 | 14 | 0 | 0 | 23.1 | 23.3 | 23.1 |
| | | 8 | 0 | 1 | 1 | 22.2 | 22.2 | 22.3 |
| | | 8 | 4 | 1 | 1 | 22.2 | 22.2 | 22.4 |
| | | 8 | 7 | 1 | 1 | 22.2 | 22.1 | 22.3 |
| | | 15 | 0 | 1 | 1 | 22.2 | 22.1 | 22.3 |
| | | 1 | 0 | 1 | 0 | 22.3 | 22.6 | 23.3 |
| 824.7 MHz | QPSK | 1 | 8 | 1 | 0 | 22.3 | 22.5 | 23.1 |
| | | 1 | 14 | 1 | 0 | 22.3 | 23.1 | 23.2 |
| | | 8 | 0 | 2 | 2 | 21.1 | 20.8 | 21.3 |
| | | 8 | 4 | 2 | 2 | 21.2 | 20.8 | 21.2 |
| | | 8 | 7 | 2 | 2 | 21.3 | 20.6 | 21.2 |
| | | 15 | 0 | 2 | 2 | 21.1 | 21.3 | 21.1 |
| | 16QAM | 1 | 0 | 0 | 1 | 23.2 | 23.4 | 23.1 |
| | | 1 | 3 | 0 | 1 | 23.0 | 23.2 | 23.2 |
| | | 1 | 5 | 0 | 1 | 23.2 | 23.0 | 23.2 |
| | | 3 | 0 | 0 | 1 | 23.2 | 23.1 | 23.0 |
| | | 3 | 1 | 0 | 1 | 23.3 | 23.1 | 23.2 |
| | | 3 | 3 | 0 | 1 | 23.2 | 23.1 | 23.1 |
| 824.7 MHz | QPSK | 6 | 0 | 1 | 2 | 22.0 | 22.2 | 22.1 |
| | | 1 | 0 | 1 | 0 | 21.8 | 24.0 | 23.4 |
| | | 1 | 3 | 1 | 0 | 21.8 | 22.2 | 23.7 |
| | | 1 | 5 | 1 | 1 | 21.9 | 22.3 | 22.9 |
| | | 3 | 0 | 1 | 2 | 22.4 | 21.7 | 21.9 |
| | | 3 | 1 | 1 | 2 | 21.9 | 22.3 | 22.3 |
| | 16QAM | 3 | 3 | 1 | 2 | 22.2 | 21.7 | 22.4 |
| | | 6 | 0 | 2 | 3 | 20.8 | 20.6 | 20.8 |

LTE Band 17 Measured Results

| Band | BW (MHz) | Mode | RB Allocation | RB offset | Target MPR | Meas. MPR | Avg Pwr (dBm) |
|-------------|----------|-------|---------------|-----------|------------|-----------|---------------|
| | | | | | | | Max. Power |
| | | | | | | | 710 MHz |
| LTE Band 17 | 10 | QPSK | 1 | 0 | 0 | 0 | 22.9 |
| | | | 1 | 25 | 0 | 0 | 22.8 |
| | | | 1 | 49 | 0 | 0 | 22.7 |
| | | | 25 | 0 | 1 | 2 | 20.6 |
| | | | 25 | 12 | 1 | 2 | 20.5 |
| | | | 25 | 25 | 1 | 2 | 20.5 |
| | | 16QAM | 50 | 0 | 1 | 2 | 20.5 |
| | | | 1 | 0 | 1 | 0 | 22.5 |
| | | | 1 | 25 | 1 | 0 | 22.4 |
| | | | 1 | 49 | 1 | 0 | 22.5 |
| | | | 25 | 0 | 2 | 3 | 19.6 |
| | | | 25 | 12 | 2 | 3 | 19.6 |
| | | | 25 | 25 | 2 | 3 | 19.5 |
| | | | 50 | 0 | 2 | 3 | 19.4 |
| Band | BW (MHz) | Mode | RB Allocation | RB offset | Target MPR | Meas. MPR | Avg Pwr (dBm) |
| | | | | | | | Max. Power |
| | | | | | | | 710 MHz |
| LTE Band 17 | 5 | QPSK | 1 | 0 | 0 | 0 | 22.8 |
| | | | 1 | 12 | 0 | 0 | 22.8 |
| | | | 1 | 24 | 0 | 0 | 22.6 |
| | | | 12 | 0 | 1 | 1 | 22.0 |
| | | | 12 | 6 | 1 | 1 | 22.0 |
| | | | 12 | 11 | 1 | 1 | 22.0 |
| | | 16QAM | 25 | 0 | 1 | 1 | 22.0 |
| | | | 1 | 0 | 1 | 1 | 21.9 |
| | | | 1 | 12 | 1 | 1 | 22.0 |
| | | | 1 | 24 | 1 | 1 | 21.7 |
| | | | 12 | 0 | 2 | 2 | 21.1 |
| | | | 12 | 6 | 2 | 2 | 21.1 |
| | | | 12 | 11 | 2 | 2 | 21.1 |
| | | | 25 | 0 | 2 | 2 | 21.0 |

9. PEAK TO AVERAGE RATIO

Test Procedure

Per KDB 971168 D01 Power Meas License Digital Systems v02r02;

The transmitter output was connected to a CMW500 Test Set and configured to operate at maximum power. The PAR were measured on the Spectrum Analyzer.

Test Spec

In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13 dB.

9.1. CONDUCTED PEAK TO AVERAGE RESULT

GSM

| Band | Channel | f [MHz] | Mode | Ratio [dB] | Limit [dB] |
|---------|---------|---------|-------|------------|------------|
| GSM850 | 190 | 836.6 | GPRS | 2.78 | 13.00 |
| | | | EGPRS | 5.78 | |
| GSM1900 | 661 | 1880.0 | GPRS | 2.85 | |
| | | | EGPRS | 5.75 | |

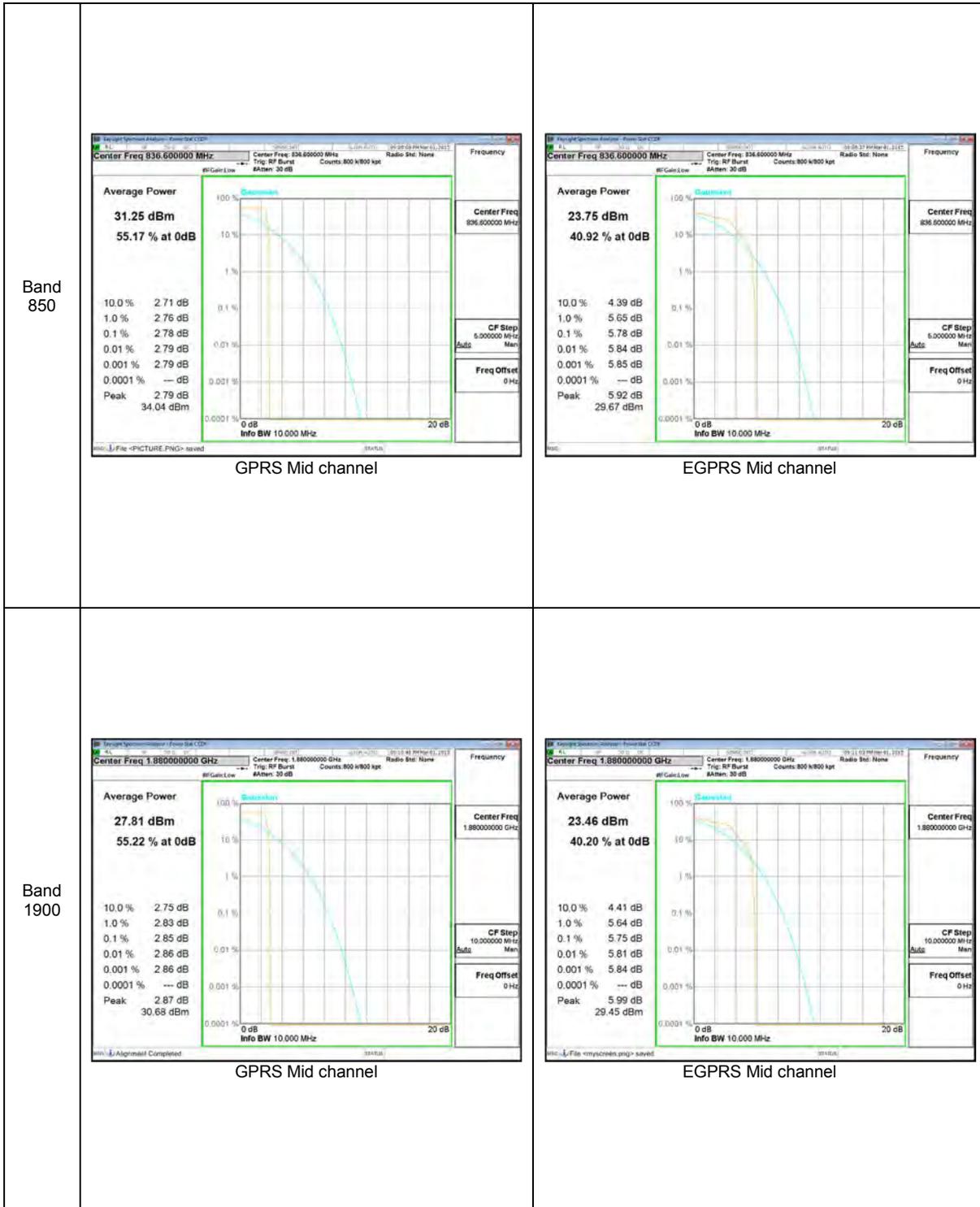
WCDMA

| Band | Channel | f [MHz] | Mode | Ratio [dB] | Limit [dB] |
|--------|---------|---------|-------|------------|------------|
| Band 5 | 4183 | 836.6 | REL99 | 2.75 | 13.00 |
| | | | HSDPA | 2.92 | |
| Band 2 | 9400 | 1880.0 | REL99 | 2.97 | |
| | | | HSDPA | 3.09 | |
| Band 4 | 1413 | 1732.6 | REL99 | 2.99 | |
| | | | HSDPA | 3.13 | |

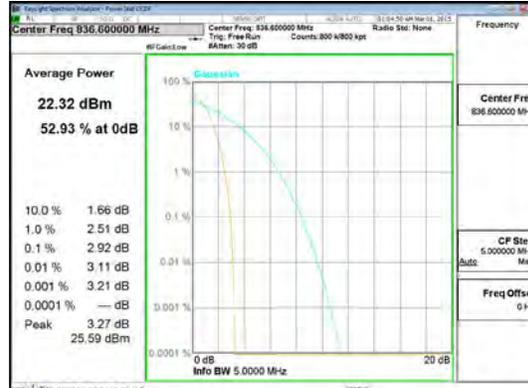
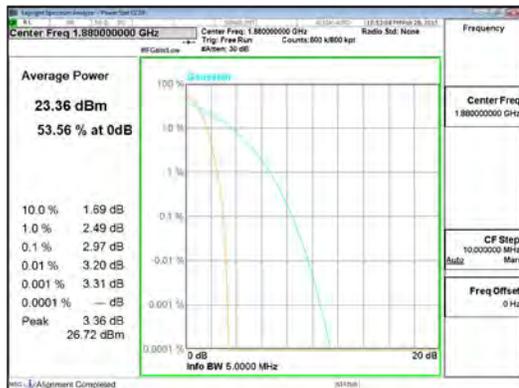
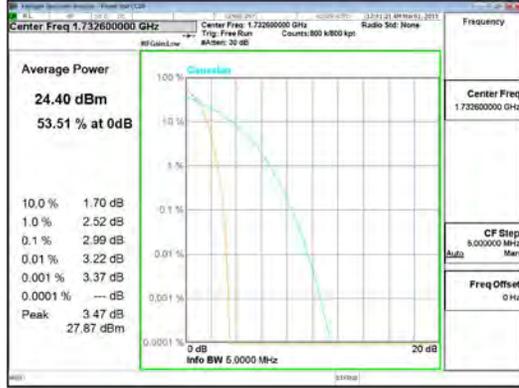
LTE

| Band | BW [MHz] | Channel | f [MHz] | Mode | Ratio [dB] | Limit [dB] |
|--------|----------|---------|---------|-------|------------|------------|
| Band 2 | 20 | 18900 | 1880.0 | QPSK | 6.04 | 13.00 |
| | | | | 16QAM | 6.91 | |
| | 15 | | | QPSK | 5.24 | |
| | | | | 16QAM | 6.36 | |
| | 10 | | | QPSK | 5.26 | |
| | | | | 16QAM | 5.93 | |
| | 5 | | | QPSK | 5.11 | |
| | | | | 16QAM | 5.87 | |
| | 3 | | | QPSK | 5.17 | |
| | | | | 16QAM | 6.07 | |
| 1.4 | QPSK | 4.55 | | | | |
| | 16QAM | 5.90 | | | | |
| Band 4 | 20 | 20174 | 1732.5 | QPSK | 6.02 | |
| | | | | 16QAM | 6.94 | |
| | 15 | | | QPSK | 5.25 | |
| | | | | 16QAM | 6.40 | |
| | 10 | | | QPSK | 5.21 | |
| | | | | 16QAM | 5.98 | |
| | 5 | | | QPSK | 5.15 | |
| | | | | 16QAM | 6.01 | |
| | 3 | | | QPSK | 5.09 | |
| | | | | 16QAM | 6.07 | |
| 1.4 | QPSK | 4.72 | | | | |
| | 16QAM | 5.92 | | | | |

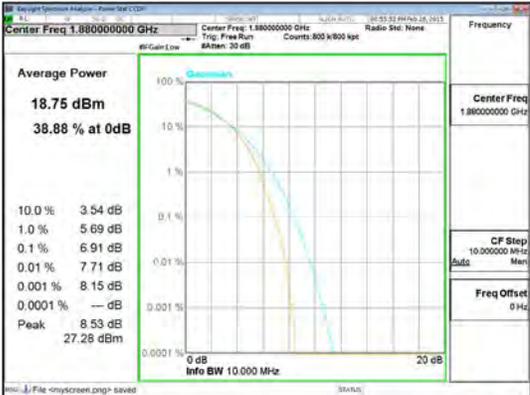
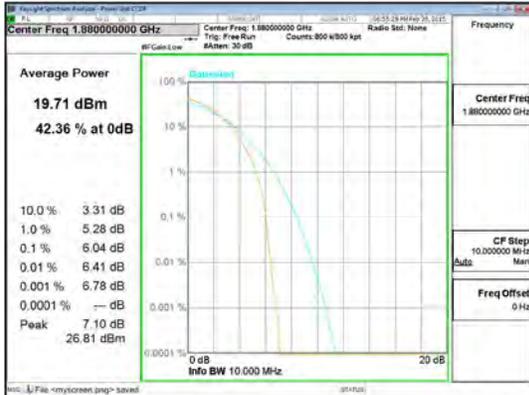
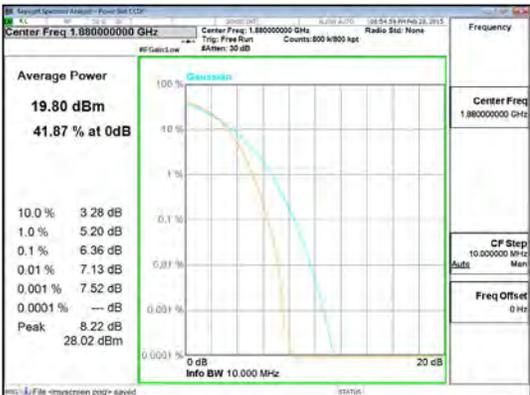
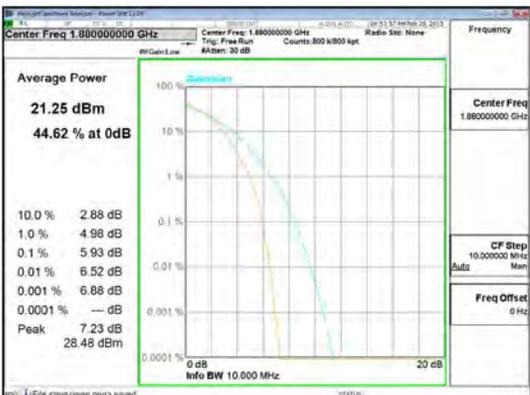
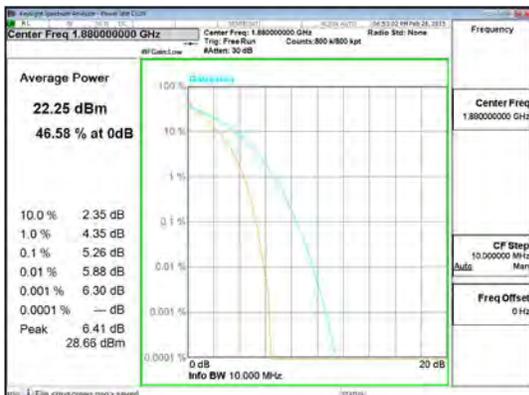
9.2. CONDUCTED PEAK TO AVERAGE PLOTS
GSM

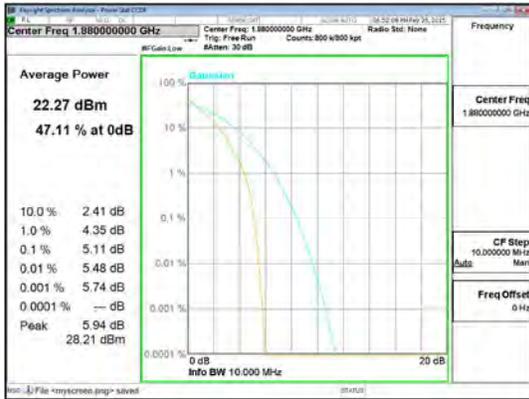
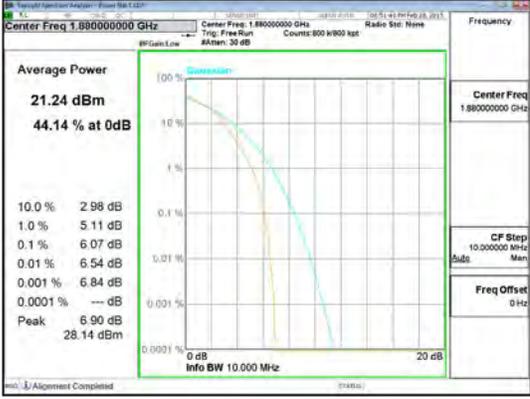
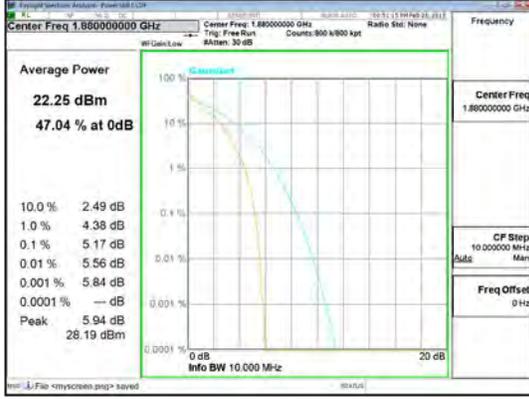
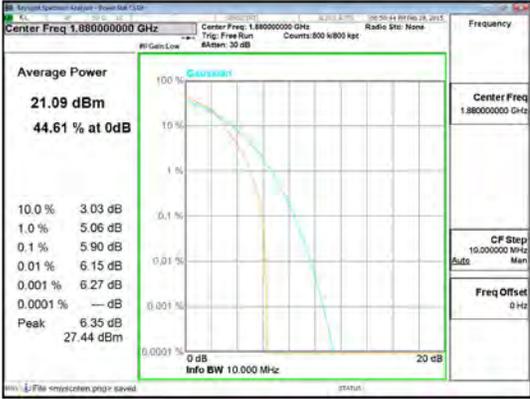
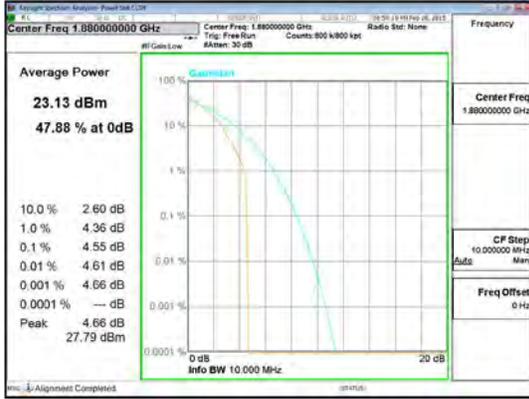


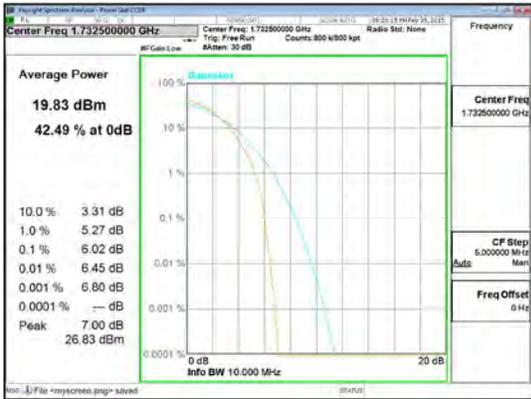
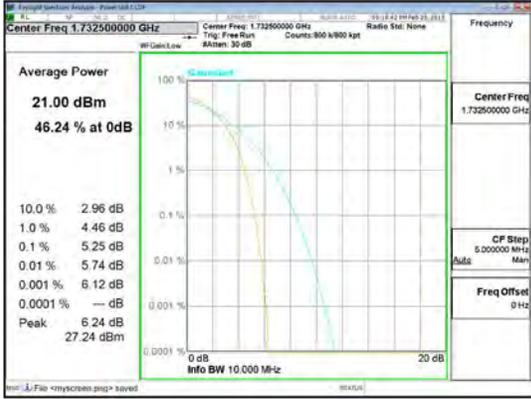
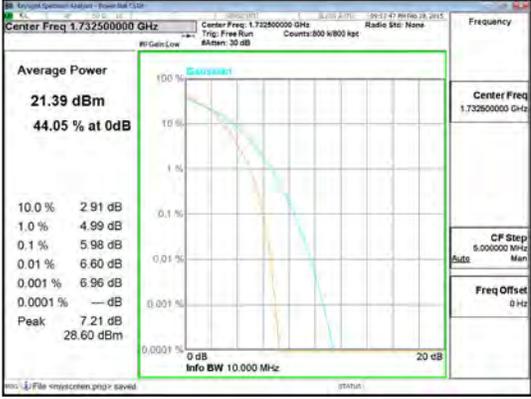
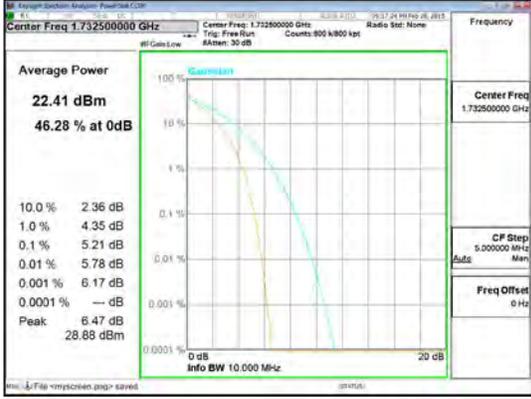
WCDMA

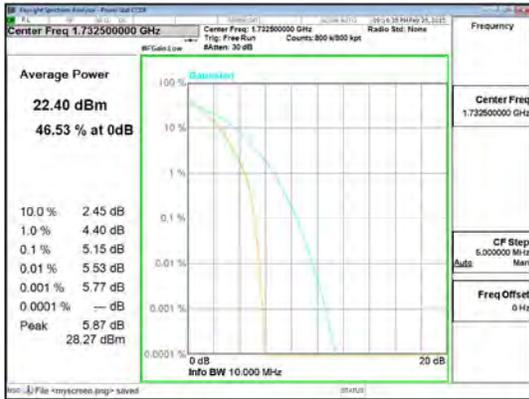
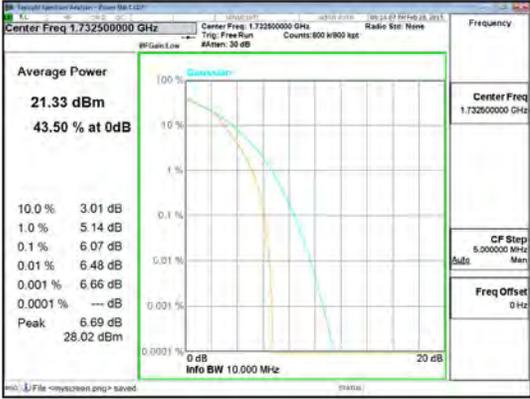
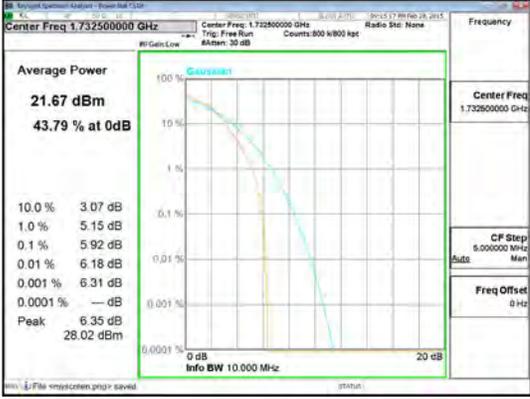
| | | |
|---------------|--|---|
| <p>Band 5</p> |  <p>REL99 Mid channel</p> |  <p>HSDPA Mid channel</p> |
| <p>Band 2</p> |  <p>REL99 Mid channel</p> |  <p>HSDPA Mid channel</p> |
| <p>Band 4</p> |  <p>REL99 Mid channel</p> |  <p>HSDPA Mid channel</p> |

LTE

| | | |
|--------------|--|--|
| <p>LTE 2</p> |  <p>20MHz 16QAM Mid channel</p> |  <p>20MHz QPSK Mid channel</p> |
| <p>LTE 2</p> |  <p>15MHz 16QAM Mid channel</p> |  <p>15MHz QPSK Mid channel</p> |
| <p>LTE 2</p> |  <p>10MHz 16QAM Mid channel</p> |  <p>10MHz QPSK Mid channel</p> |

| | | |
|--------------|---|---|
| <p>LTE 2</p> |  <p>5MHz 16QAM Mid channel</p> |  <p>5MHz QPSK Mid channel</p> |
| <p>LTE 2</p> |  <p>3MHz 16QAM Mid channel</p> |  <p>3MHz QPSK Mid channel</p> |
| <p>LTE 2</p> |  <p>1.4MHz 16QAM Mid channel</p> |  <p>1.4MHz QPSK Mid channel</p> |

| | | |
|--------------|--|---|
| <p>LTE 4</p> |  <p>Average Power 18.78 dBm 39.00 % at 0dB</p> <p>10.0 % 3.53 dB 1.0 % 5.69 dB 0.1 % 6.94 dB 0.01 % 7.75 dB 0.001 % 8.34 dB 0.0001 % — dB Peak 8.88 dB 27.66 dBm</p> <p>Center Freq 1.732500000 GHz</p> <p>CF Step 5.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p> <p>Info BW 10.000 MHz</p> |  <p>Average Power 19.83 dBm 42.49 % at 0dB</p> <p>10.0 % 3.31 dB 1.0 % 5.27 dB 0.1 % 6.02 dB 0.01 % 6.45 dB 0.001 % 6.80 dB 0.0001 % — dB Peak 7.00 dB 26.83 dBm</p> <p>Center Freq 1.732500000 GHz</p> <p>CF Step 5.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p> <p>Info BW 10.000 MHz</p> |
| <p>LTE 4</p> |  <p>Average Power 20.02 dBm 41.81 % at 0dB</p> <p>10.0 % 3.30 dB 1.0 % 5.23 dB 0.1 % 6.40 dB 0.01 % 7.09 dB 0.001 % 7.57 dB 0.0001 % — dB Peak 8.36 dB 28.38 dBm</p> <p>Center Freq 1.732500000 GHz</p> <p>CF Step 5.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p> <p>Info BW 10.000 MHz</p> |  <p>Average Power 21.00 dBm 46.24 % at 0dB</p> <p>10.0 % 2.96 dB 1.0 % 4.46 dB 0.1 % 5.25 dB 0.01 % 5.74 dB 0.001 % 6.12 dB 0.0001 % — dB Peak 6.24 dB 27.24 dBm</p> <p>Center Freq 1.732500000 GHz</p> <p>CF Step 5.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p> <p>Info BW 10.000 MHz</p> |
| <p>LTE 4</p> |  <p>Average Power 21.39 dBm 44.05 % at 0dB</p> <p>10.0 % 2.91 dB 1.0 % 4.99 dB 0.1 % 5.98 dB 0.01 % 6.60 dB 0.001 % 6.96 dB 0.0001 % — dB Peak 7.21 dB 28.60 dBm</p> <p>Center Freq 1.732500000 GHz</p> <p>CF Step 5.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p> <p>Info BW 10.000 MHz</p> |  <p>Average Power 22.41 dBm 46.28 % at 0dB</p> <p>10.0 % 2.36 dB 1.0 % 4.35 dB 0.1 % 5.21 dB 0.01 % 5.78 dB 0.001 % 6.17 dB 0.0001 % — dB Peak 6.47 dB 28.88 dBm</p> <p>Center Freq 1.732500000 GHz</p> <p>CF Step 5.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p> <p>Info BW 10.000 MHz</p> |

| | | |
|--------------|---|---|
| <p>LTE 4</p> |  <p>5MHz 16QAM Mid channel</p> |  <p>5MHz QPSK Mid channel</p> |
| <p>LTE 4</p> |  <p>3MHz 16QAM Mid channel</p> |  <p>3MHz QPSK Mid channel</p> |
| <p>LTE 4</p> |  <p>1.4MHz 16QAM Mid channel</p> |  <p>1.4MHz QPSK Mid channel</p> |

10. LIMITS AND CONDUCTED RESULTS

10.1. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The -26dB bandwidth was also measured and recorded.

(KDB 971168 D01 Power Meas License Digital Systems v02r02)

10.1.1. OCCUPIED BANDWIDTH RESULTS

GSM

| Band | Mode | Channel | f [MHz] | 99% BW [KHz] | 26dB BW [KHz] |
|---------|-------|---------|---------|--------------|---------------|
| GSM850 | GPRS | 128 | 824.2 | 244.2 | 308.4 |
| | | 190 | 836.6 | 248.6 | 317.4 |
| | | 251 | 848.8 | 242.3 | 315.9 |
| | EGPRS | 128 | 824.2 | 234.8 | 311.7 |
| | | 190 | 836.6 | 249.2 | 303.5 |
| | | 251 | 848.8 | 257.6 | 309.0 |
| GSM1900 | GPRS | 512 | 1850.2 | 243.6 | 318.8 |
| | | 661 | 1880.0 | 243.1 | 317.9 |
| | | 810 | 1909.8 | 242.2 | 321.3 |
| | EGPRS | 512 | 1850.2 | 239.3 | 301.2 |
| | | 661 | 1880.0 | 243.0 | 310.5 |
| | | 810 | 1909.8 | 255.3 | 314.6 |

WCDMA

| Band | Mode | Channel | f [MHz] | 99% BW [MHz] | 26dB BW [MHz] |
|--------|-------|---------|---------|--------------|---------------|
| Band 5 | REL99 | 4132 | 826.4 | 4.174 | 4.638 |
| | | 4183 | 836.6 | 4.154 | 4.655 |
| | | 4233 | 846.6 | 4.158 | 4.639 |
| | HSDPA | 4132 | 826.4 | 4.166 | 4.630 |
| | | 4183 | 836.6 | 4.160 | 4.640 |
| | | 4233 | 846.6 | 4.156 | 4.630 |
| Band 2 | REL99 | 9262 | 1852.4 | 4.176 | 4.656 |
| | | 9400 | 1880.0 | 4.167 | 4.655 |
| | | 9538 | 1907.6 | 4.177 | 4.647 |
| | HSDPA | 9262 | 1852.4 | 4.190 | 4.638 |
| | | 9400 | 1880.0 | 4.180 | 4.633 |
| | | 9538 | 1907.6 | 4.173 | 4.634 |
| Band 4 | REL99 | 1312 | 1712.4 | 4.171 | 4.641 |
| | | 1413 | 1732.6 | 4.163 | 4.641 |
| | | 1513 | 1752.6 | 4.173 | 4.646 |
| | HSDPA | 1312 | 1712.4 | 4.172 | 4.629 |
| | | 1413 | 1732.6 | 4.192 | 4.635 |
| | | 1513 | 1752.6 | 4.185 | 4.633 |

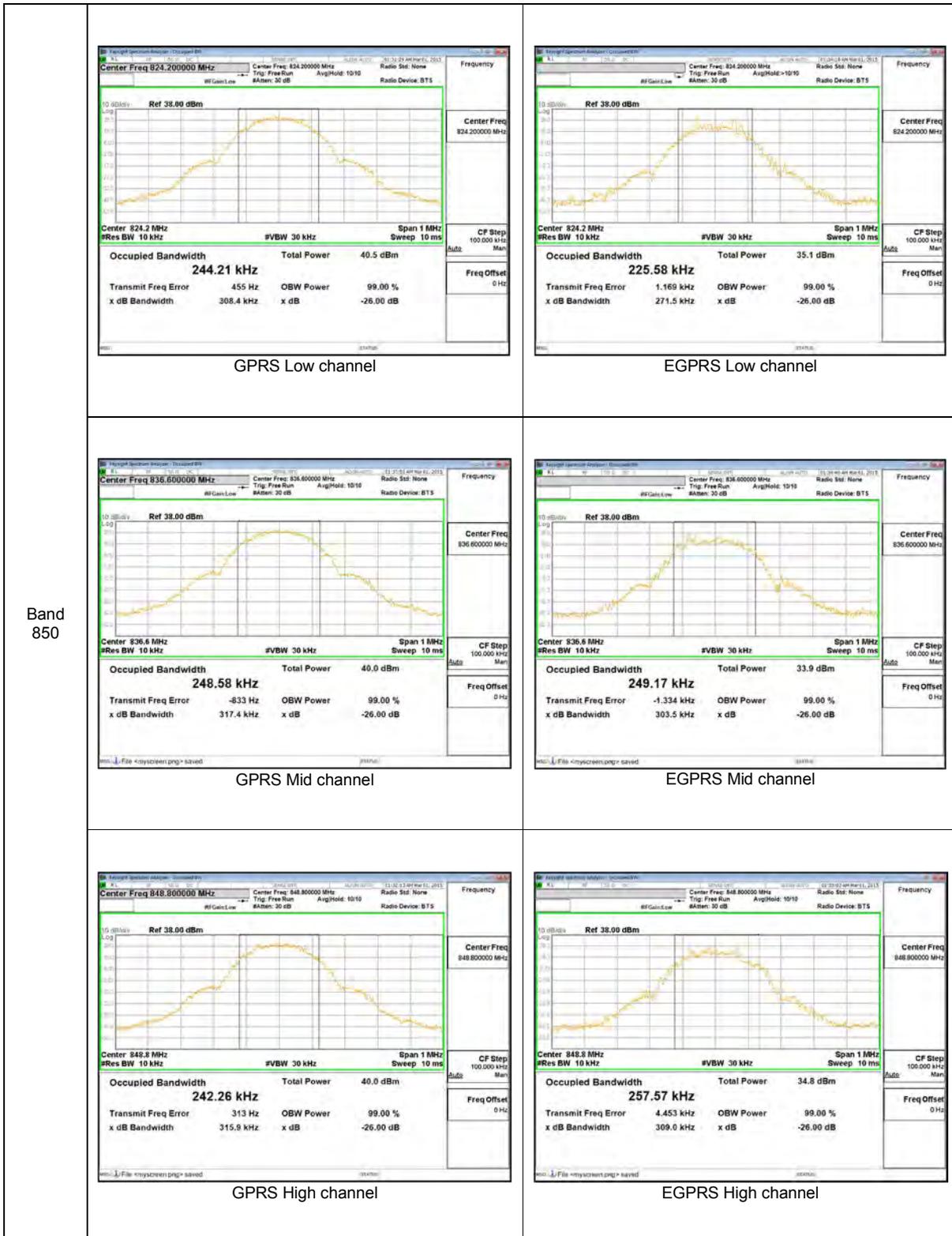
LTE

| Band | BW(MHz) | Channel | f [MHz] | Mode | 99% BW [MHz] | 26dB BW [MHz] |
|--------|---------|---------|---------|--------|--------------|---------------|
| Band 2 | 1.4 | 18607 | 1850.7 | QPSK | 1.086 | 1.278 |
| | | | | 16QAM | 1.084 | 1.287 |
| | | 18900 | 1880.0 | QPSK | 1.080 | 1.283 |
| | | | | 16QAM | 1.086 | 1.290 |
| | | 19192 | 1909.3 | QPSK | 1.087 | 1.289 |
| | | | | 16QAM | 1.093 | 1.294 |
| | 3 | 18615 | 1815.5 | QPSK | 2.698 | 2.992 |
| | | | | 16QAM | 2.692 | 2.990 |
| | | 18900 | 1880.0 | QPSK | 2.694 | 2.959 |
| | | | | 16QAM | 2.700 | 2.972 |
| | | 19184 | 1908.5 | QPSK | 2.695 | 2.973 |
| | | | | 16QAM | 2.695 | 2.967 |
| | 5 | 18625 | 1852.5 | QPSK | 4.495 | 4.944 |
| | | | | 16QAM | 4.499 | 4.976 |
| | | 18900 | 1880.0 | QPSK | 4.501 | 5.002 |
| | | | | 16QAM | 4.500 | 4.980 |
| | | 18175 | 1907.5 | QPSK | 4.496 | 4.937 |
| | | | | 16QAM | 4.499 | 4.975 |
| | 10 | 18650 | 1855.0 | QPSK | 8.968 | 9.914 |
| | | | | 16QAM | 8.974 | 9.880 |
| | | 18900 | 1880.0 | QPSK | 8.974 | 9.866 |
| | | | | 16QAM | 8.948 | 9.831 |
| | | 19149 | 1905.0 | QPSK | 8.949 | 9.868 |
| | | | | 16QAM | 8.964 | 9.888 |
| | 15 | 18675 | 1857.5 | QPSK | 13.415 | 14.616 |
| | | | | 16QAM | 13.424 | 14.562 |
| | | 18900 | 1880.0 | QPSK | 13.437 | 14.627 |
| | | | | 16QAM | 13.434 | 14.677 |
| | | 19124 | 1902.5 | QPSK | 13.421 | 14.641 |
| | | | | 16QAM | 13.430 | 14.623 |
| 20 | 18700 | 1860.0 | QPSK | 17.887 | 19.304 | |
| | | | 16QAM | 17.859 | 19.290 | |
| | 18900 | 1880.0 | QPSK | 17.913 | 19.377 | |
| | | | 16QAM | 17.907 | 19.330 | |
| | 19099 | 1900.0 | QPSK | 17.878 | 19.438 | |
| | | | 16QAM | 17.870 | 19.390 | |

| Band | BW(MHz) | Channel | f [MHz] | Mode | 99% BW [MHz] | 26dB BW [MHz] |
|--------|---------|---------|---------|--------|--------------|---------------|
| Band 4 | 1.4 | 19957 | 1710.7 | QPSK | 1.081 | 1.273 |
| | | | | 16QAM | 1.085 | 1.279 |
| | | 20174 | 1732.5 | QPSK | 1.085 | 1.276 |
| | | | | 16QAM | 1.096 | 1.298 |
| | | 20392 | 1754.3 | QPSK | 1.086 | 1.279 |
| | | | | 16QAM | 1.083 | 1.286 |
| | 3 | 19965 | 1711.5 | QPSK | 2.693 | 2.961 |
| | | | | 16QAM | 2.700 | 2.962 |
| | | 20174 | 1732.5 | QPSK | 2.696 | 2.981 |
| | | | | 16QAM | 2.694 | 2.980 |
| | | 20384 | 1753.5 | QPSK | 2.698 | 2.971 |
| | | | | 16QAM | 2.691 | 2.986 |
| | 5 | 19975 | 1712.5 | QPSK | 4.498 | 4.938 |
| | | | | 16QAM | 4.503 | 4.974 |
| | | 20174 | 1732.5 | QPSK | 4.499 | 5.006 |
| | | | | 16QAM | 4.499 | 4.982 |
| | | 20374 | 1752.5 | QPSK | 4.491 | 4.946 |
| | | | | 16QAM | 4.502 | 4.986 |
| | 10 | 20000 | 1715.0 | QPSK | 8.986 | 9.817 |
| | | | | 16QAM | 8.983 | 9.939 |
| | | 20174 | 1732.5 | QPSK | 8.982 | 9.803 |
| | | | | 16QAM | 8.943 | 9.804 |
| | | 20349 | 1750.0 | QPSK | 8.977 | 9.798 |
| | | | | 16QAM | 8.966 | 9.841 |
| | 15 | 20025 | 1717.5 | QPSK | 13.447 | 14.653 |
| | | | | 16QAM | 13.457 | 14.572 |
| | | 20174 | 1732.5 | QPSK | 13.446 | 14.658 |
| | | | | 16QAM | 13.443 | 14.471 |
| 20324 | | 1747.5 | QPSK | 13.420 | 14.524 | |
| | | | 16QAM | 13.406 | 14.600 | |
| 20 | 20050 | 1720.0 | QPSK | 17.902 | 19.236 | |
| | | | 16QAM | 17.922 | 19.333 | |
| | 20174 | 1732.5 | QPSK | 17.871 | 18.704 | |
| | | | 16QAM | 17.891 | 19.330 | |
| | 20299 | 1745.0 | QPSK | 17.861 | 19.342 | |
| | | | 16QAM | 17.843 | 19.312 | |

10.1.2. OCCUPIED BANDWIDTH PLOTS

GSM 850



GSM 1900



WCDMA Band 5



WCDMA Band 2



WCDMA Band 4



LTE Band 2













LTE Band 4













10.2. BAND EDGE EMISSIONS

RULE PART(S)

FCC: §22.359, §24.238

LIMITS

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

TEST PROCEDURE

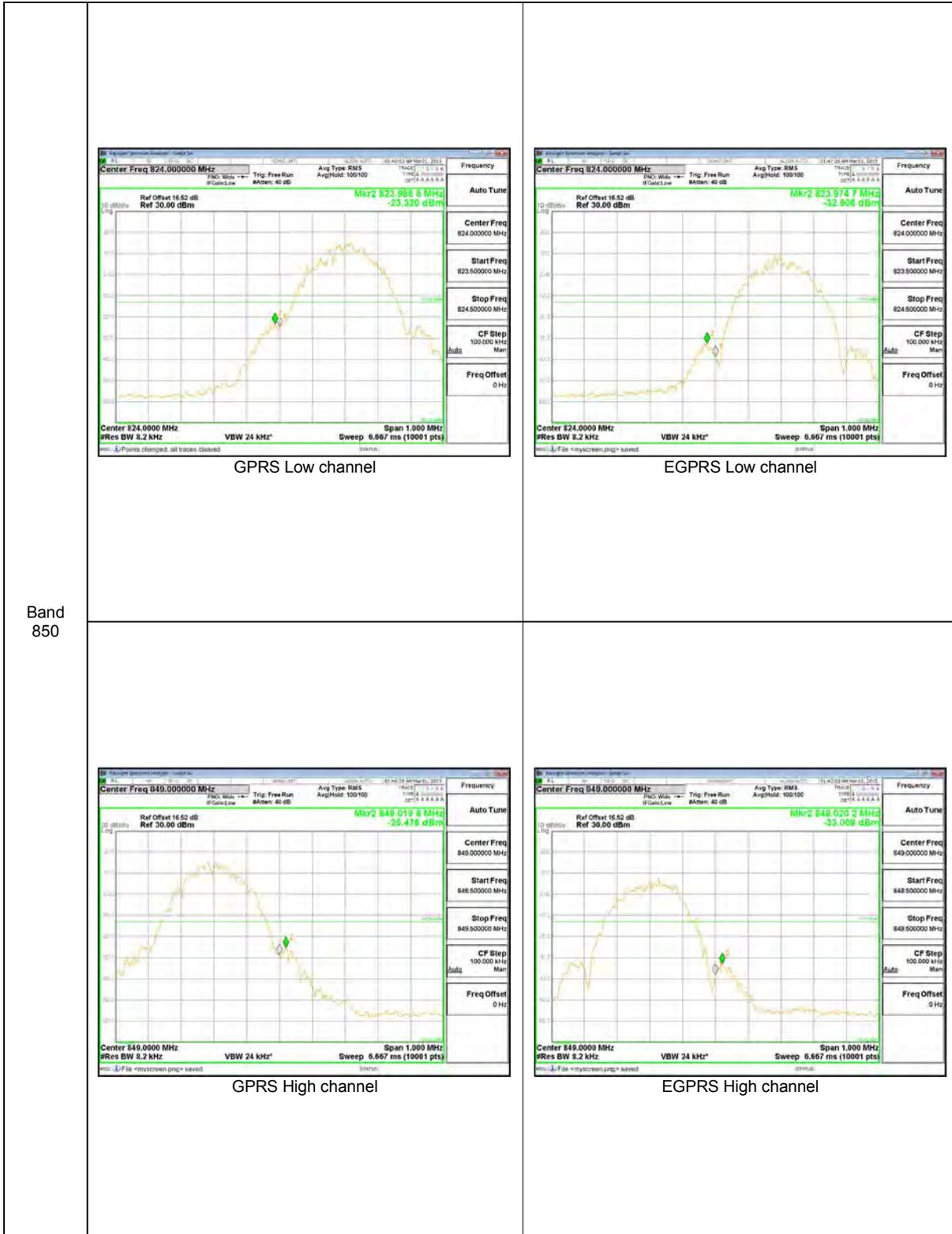
Per KDB 971168 D01 Power Meas License Digital Systems v02r02

The transmitter output was connected to a CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

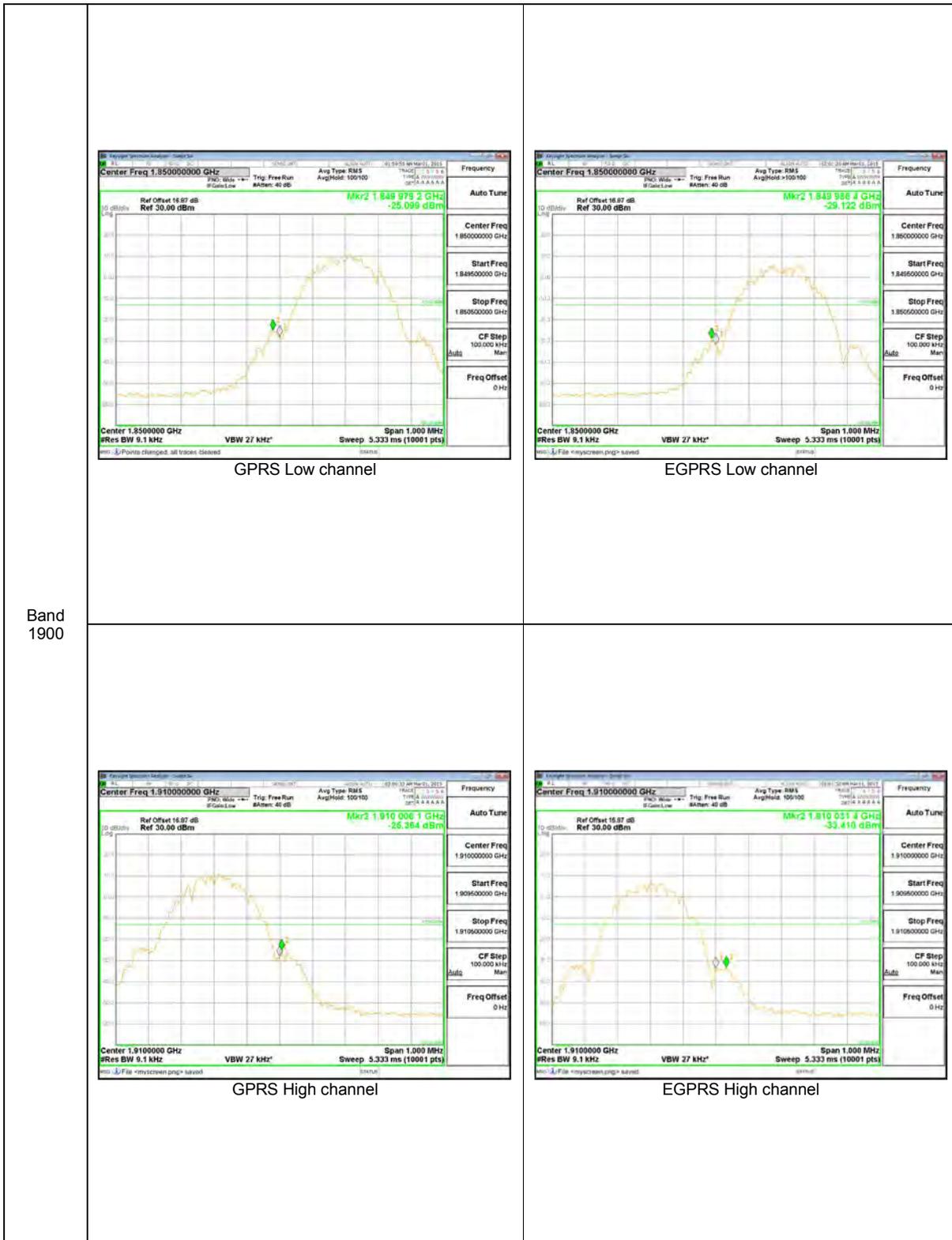
RESULTS

10.2.1. BAND EDGE PLOTS

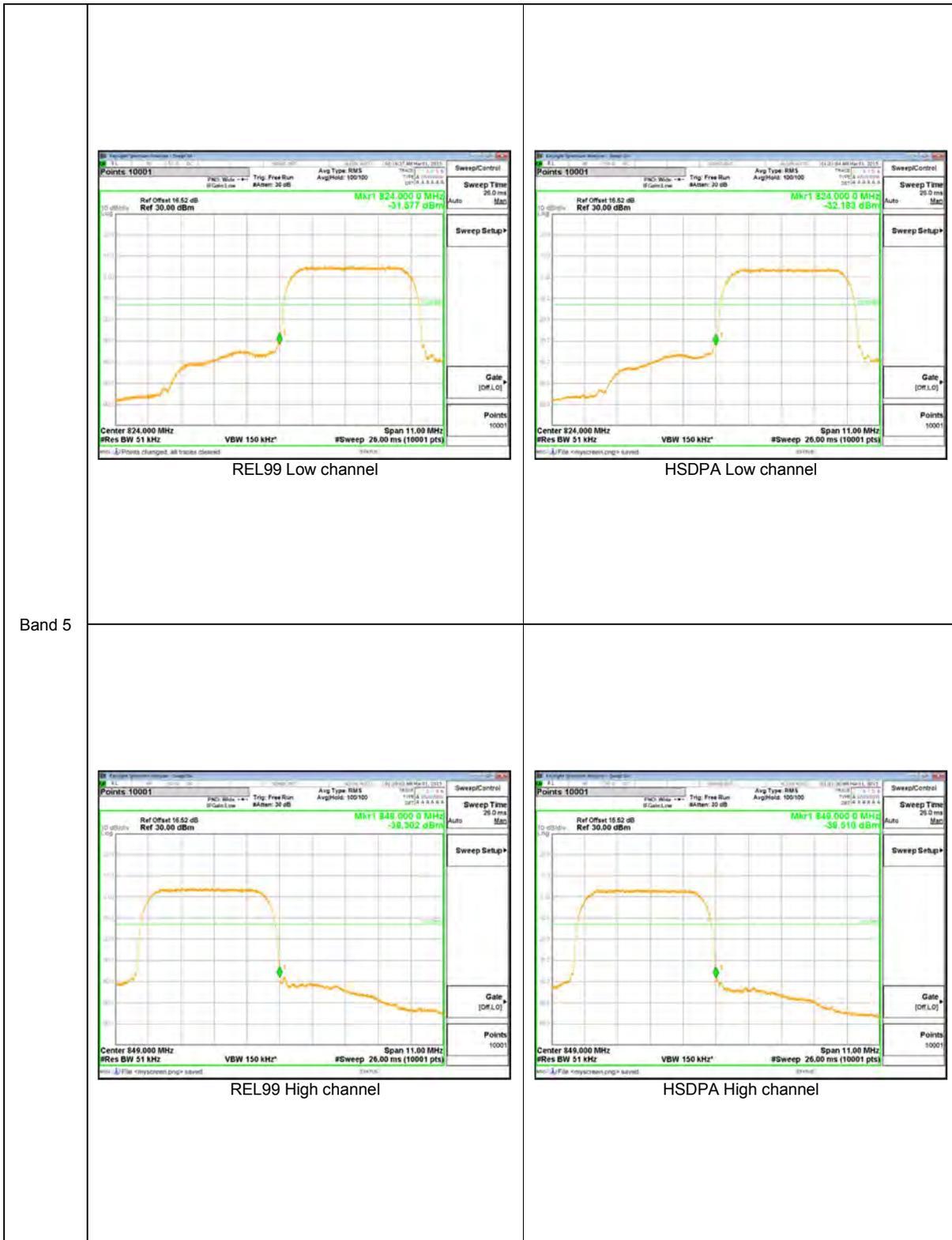
GSM 850



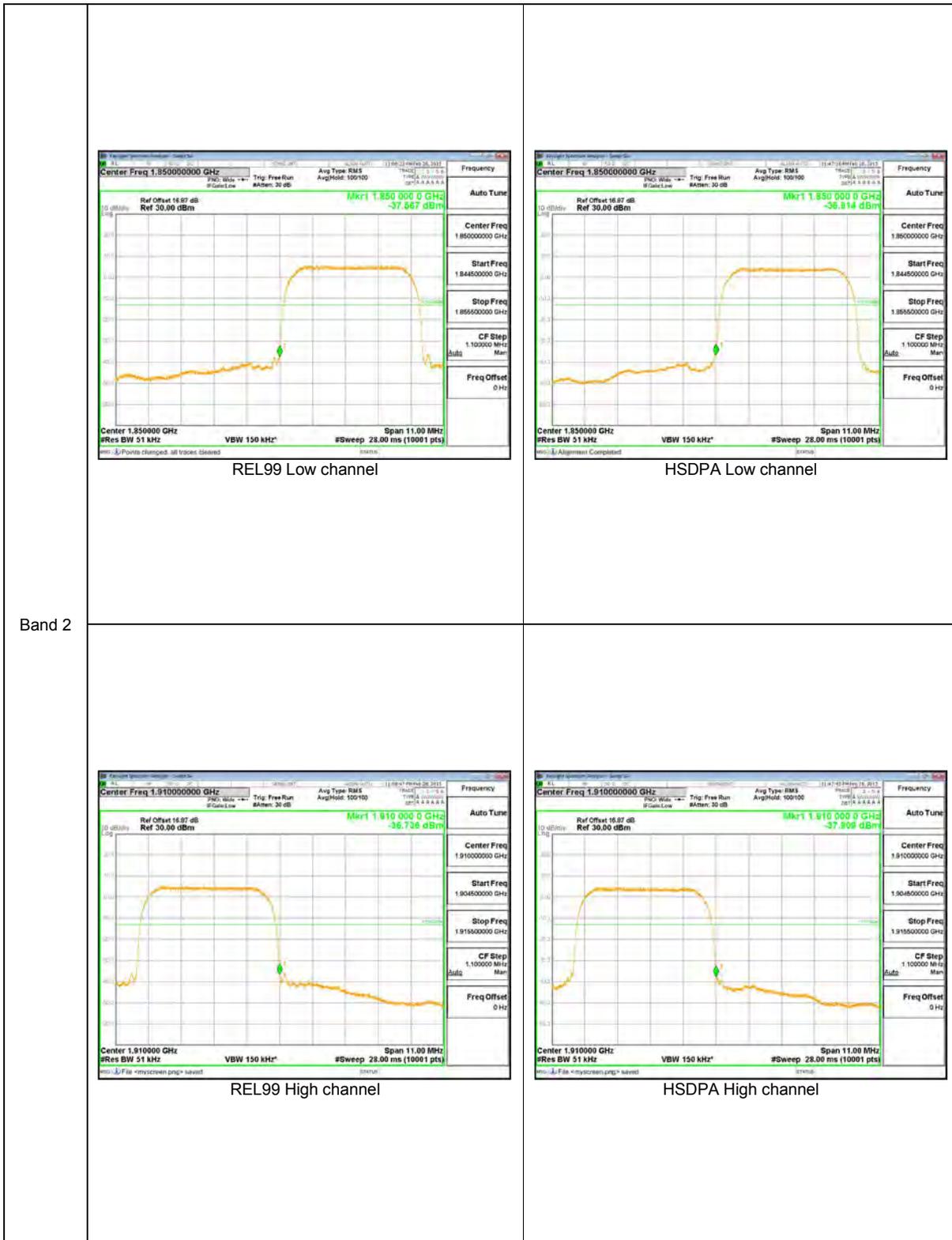
GSM 1900



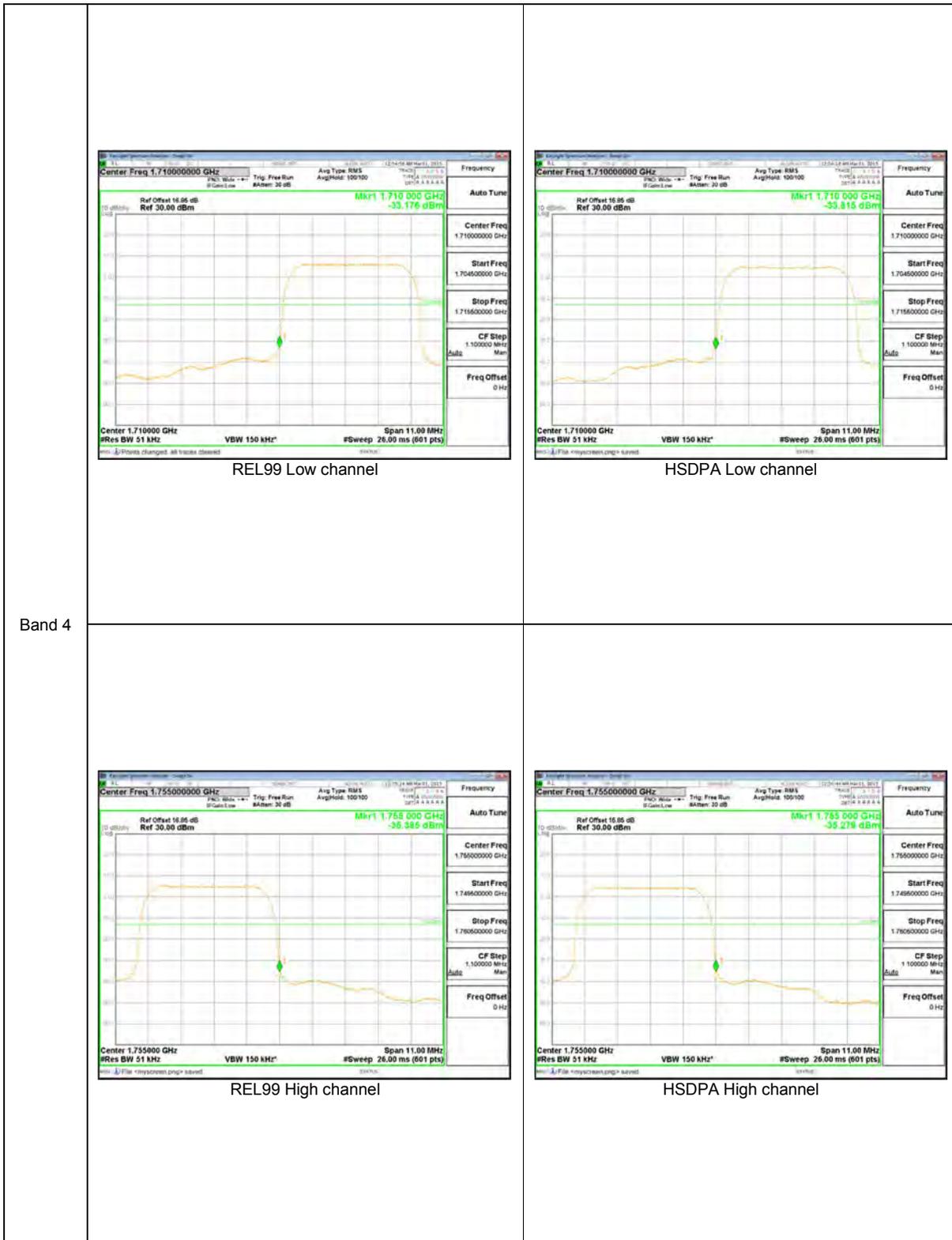
WCDMA Band 5



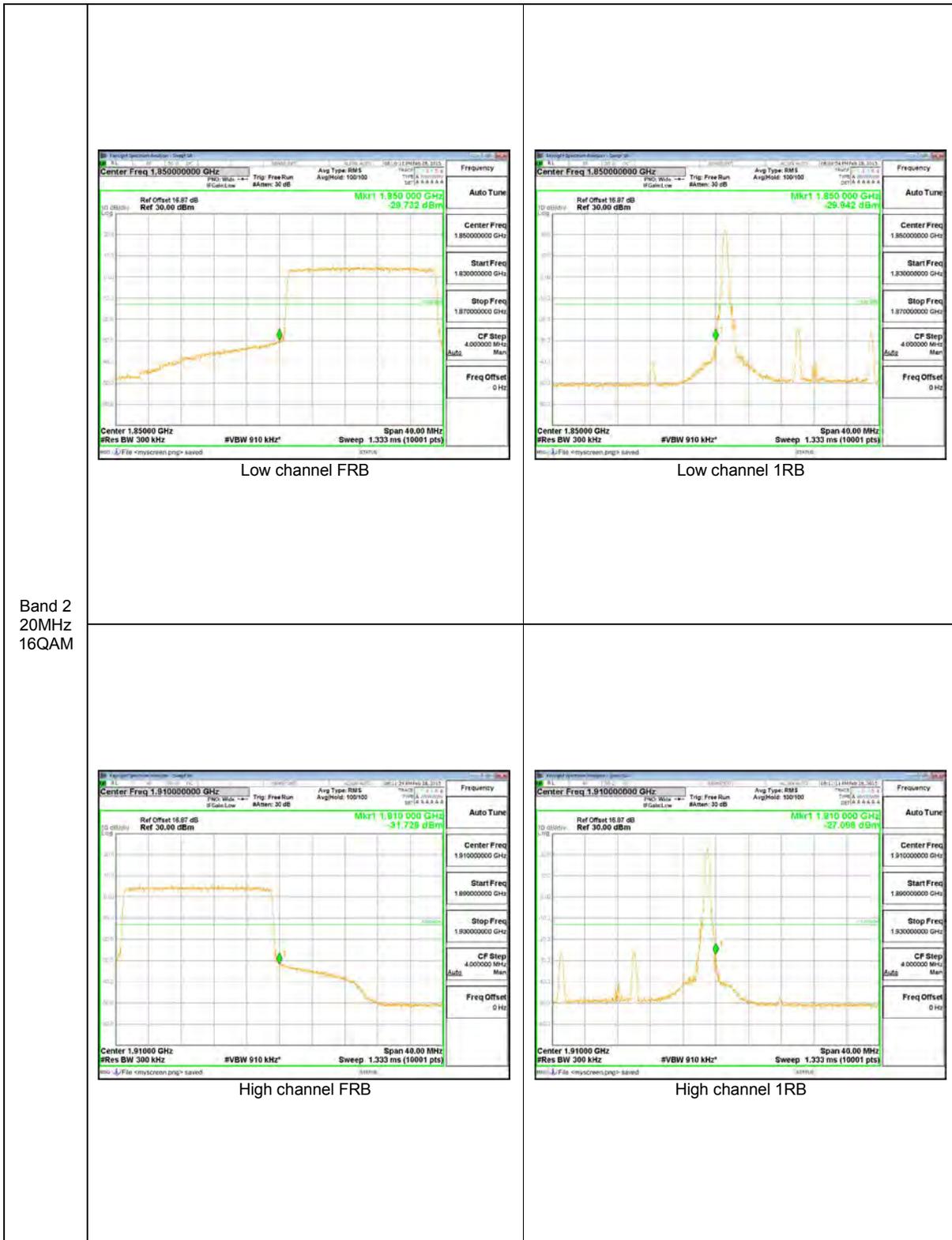
WCDMA Band 2

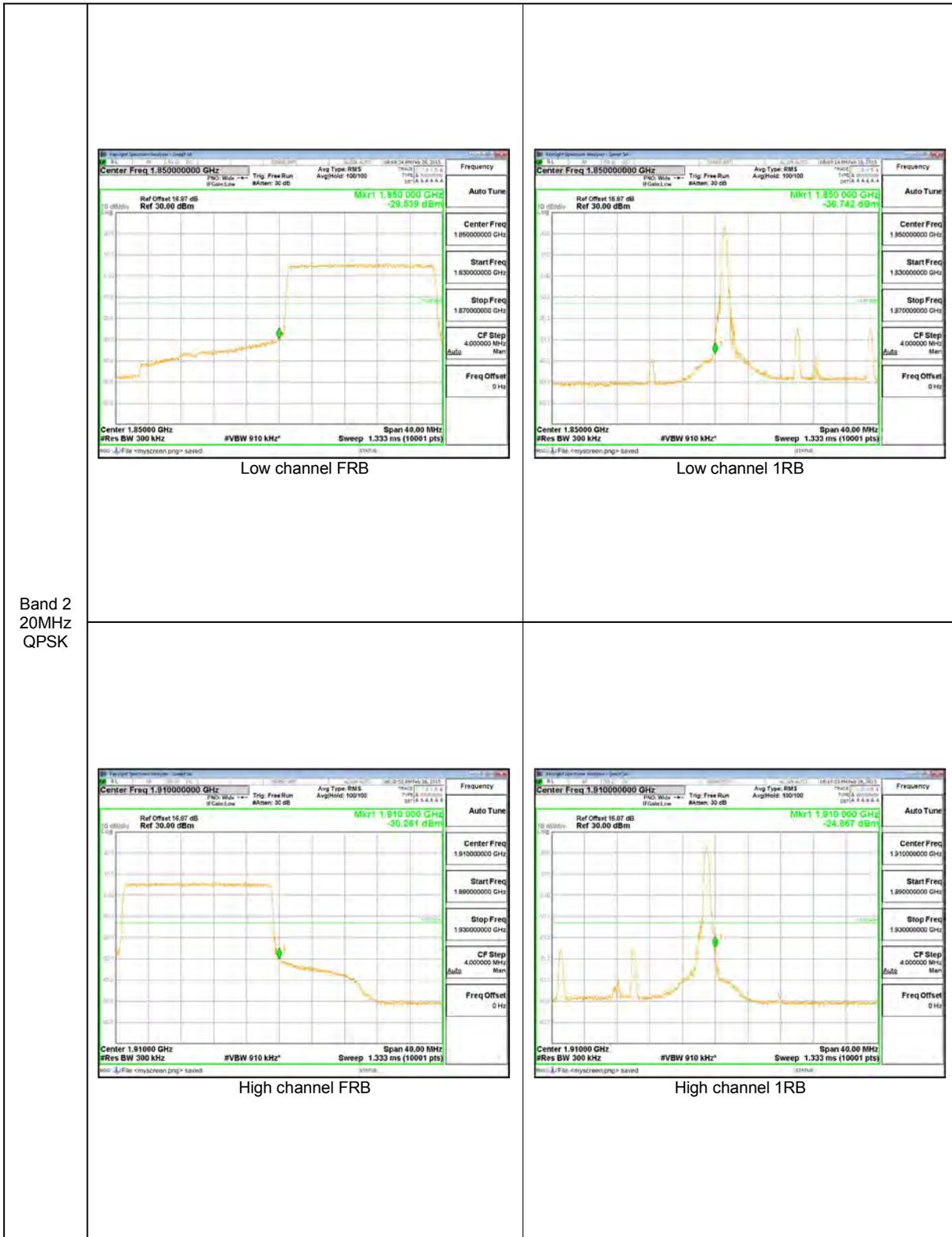


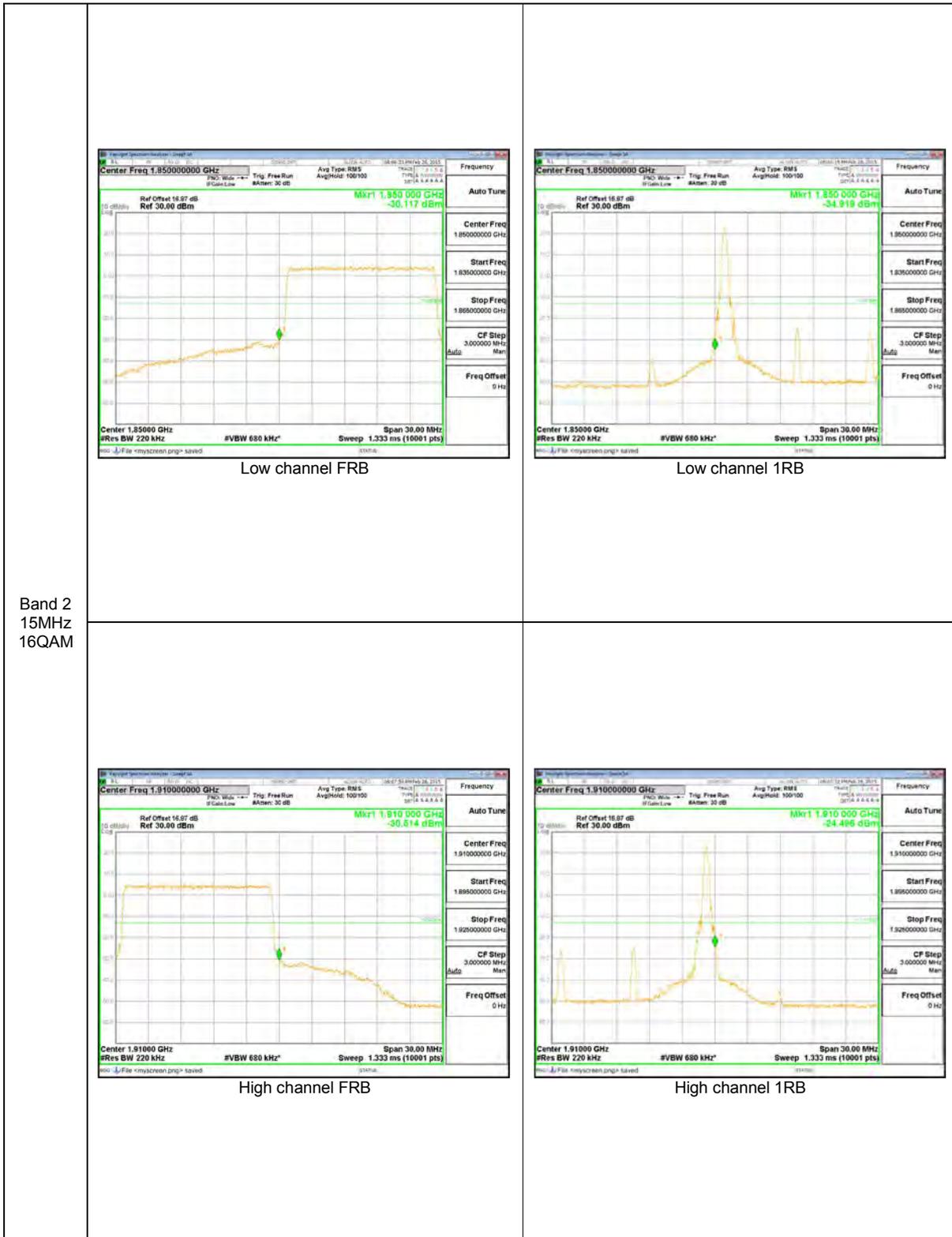
WCDMA Band 4

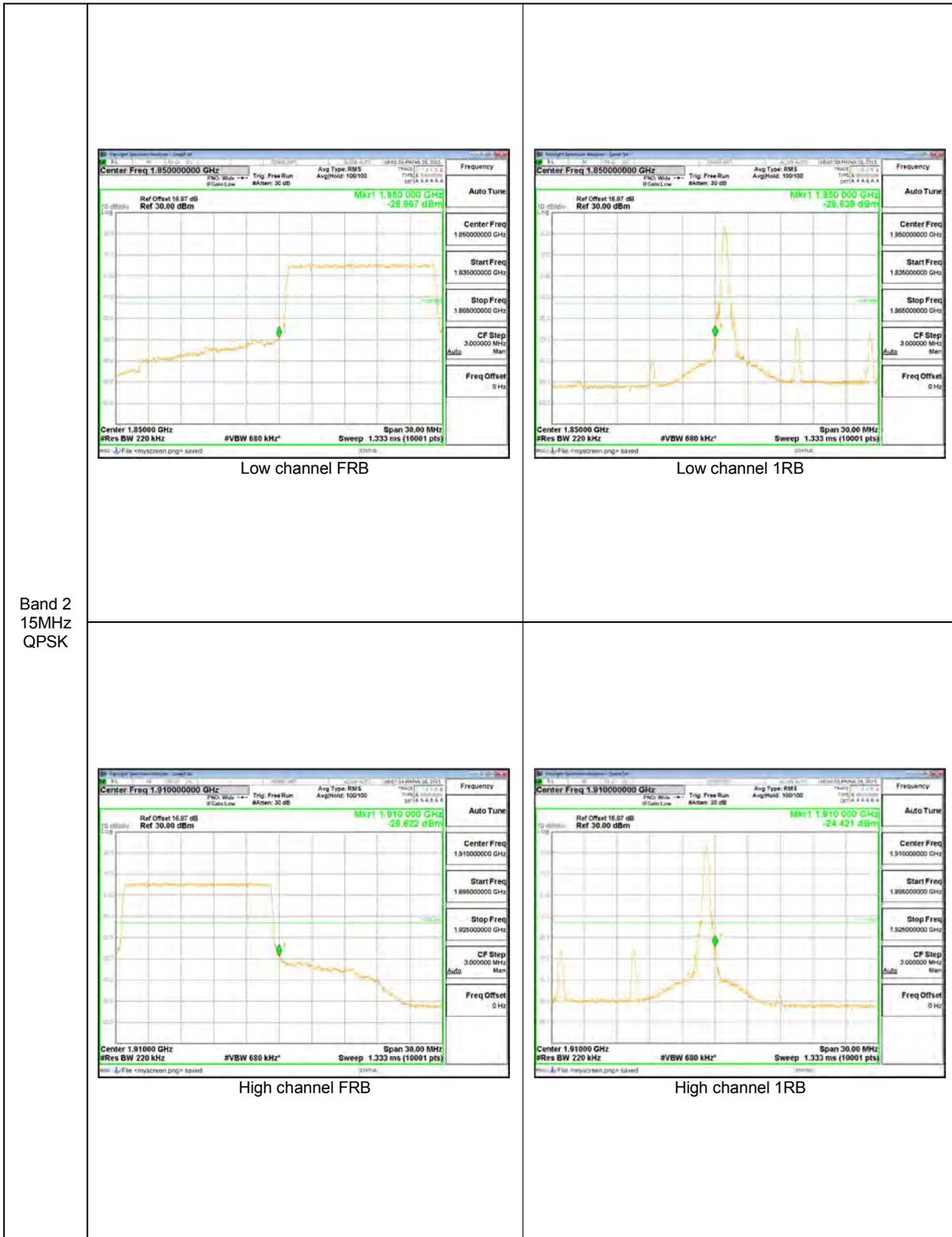


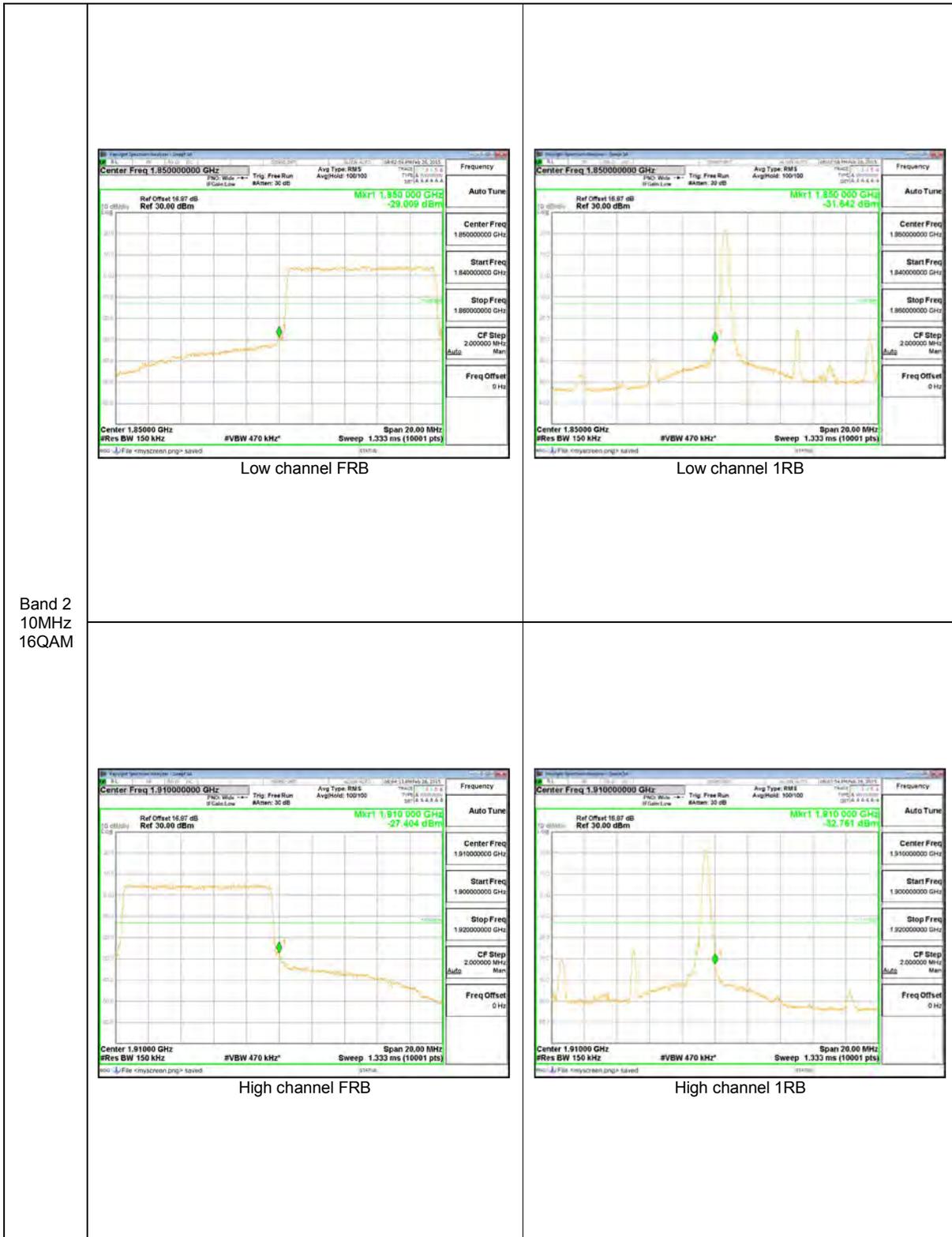
LTE Band 2

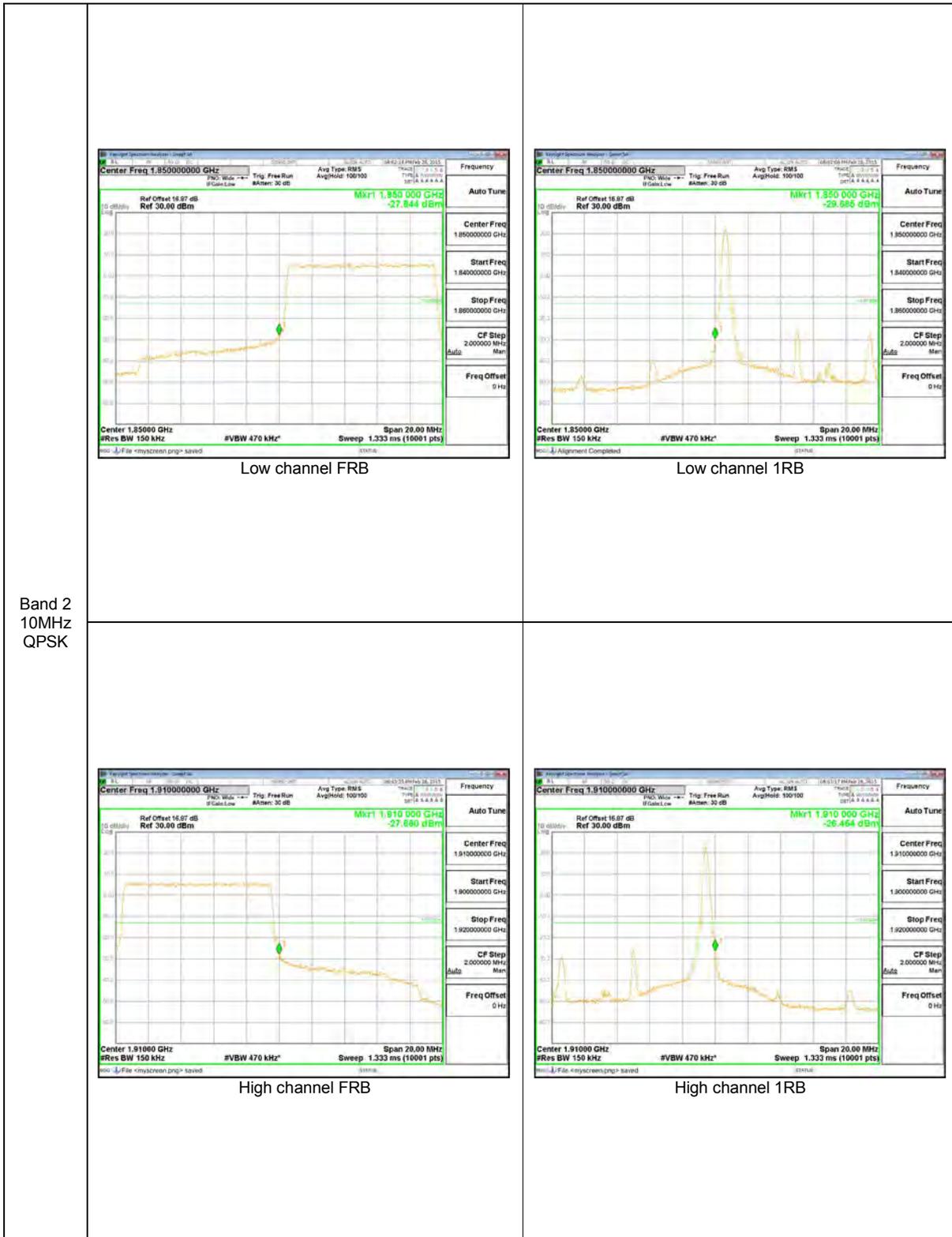


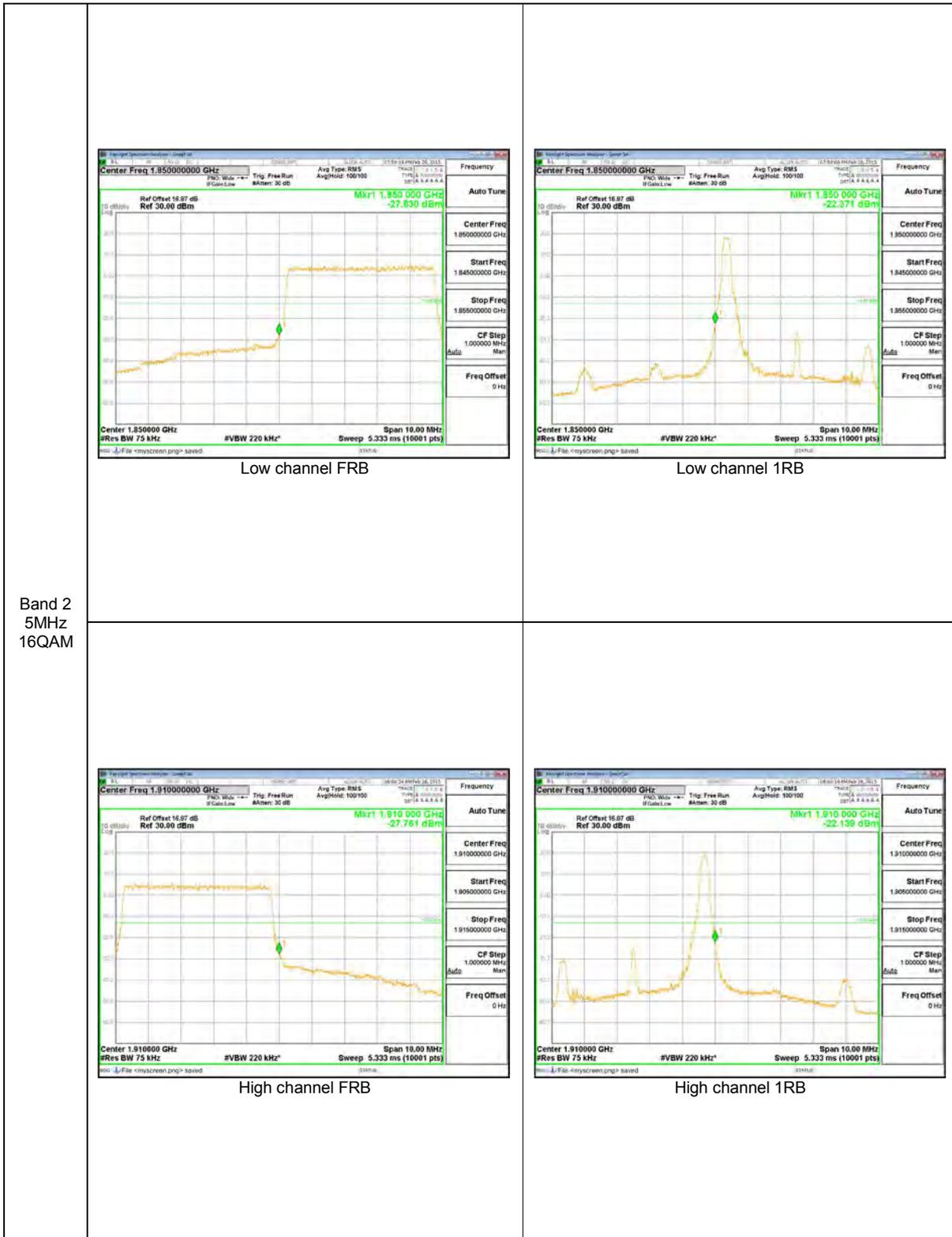


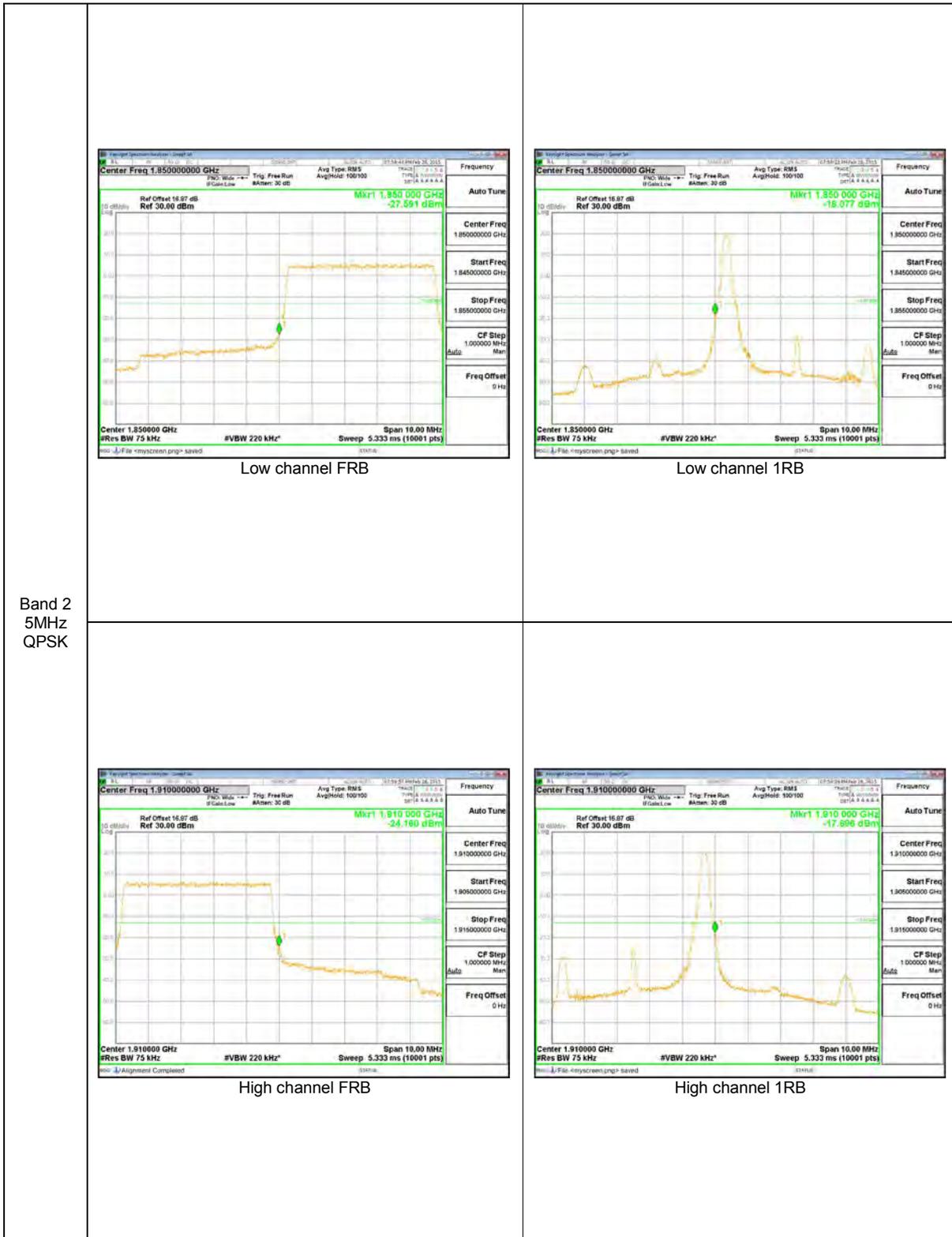


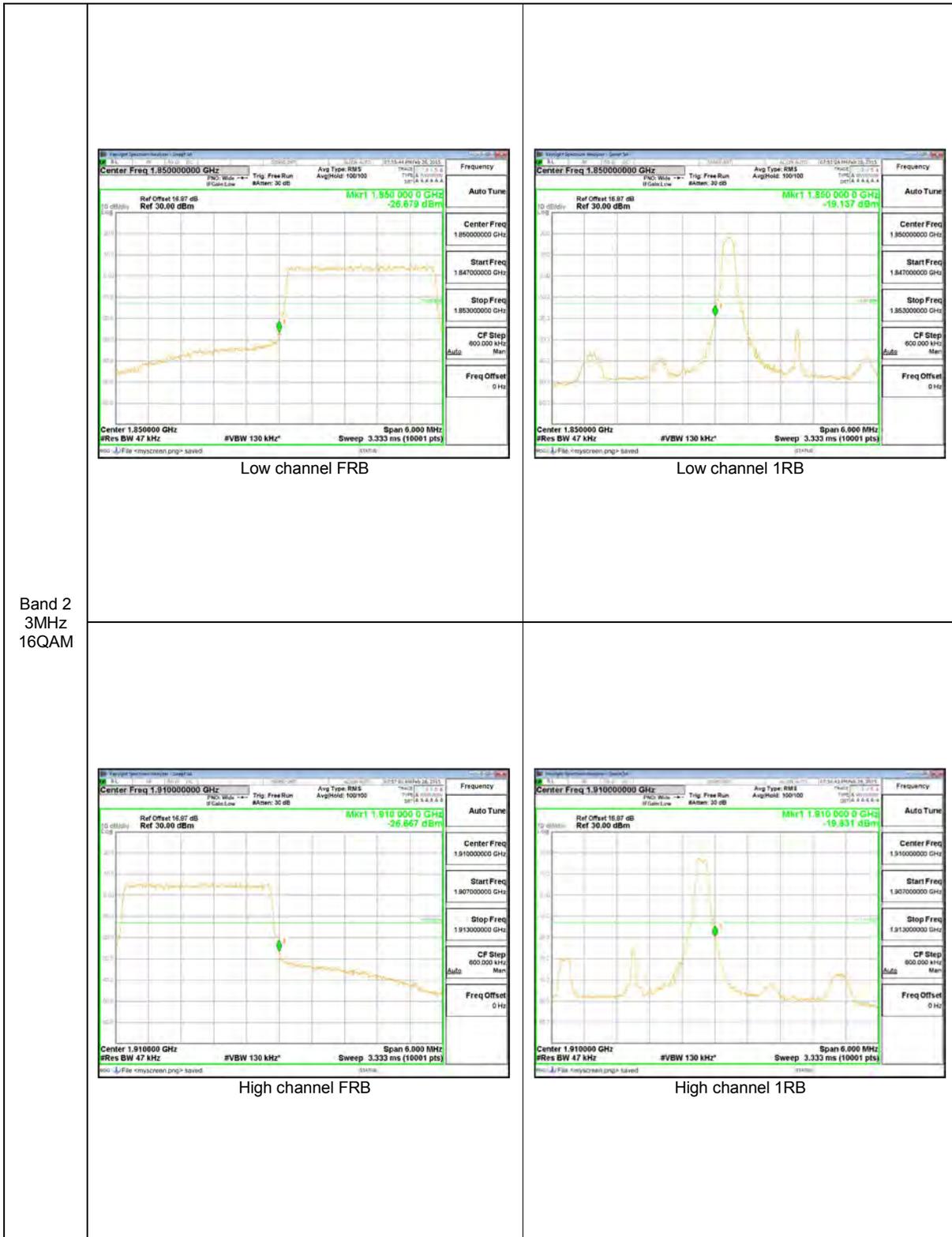


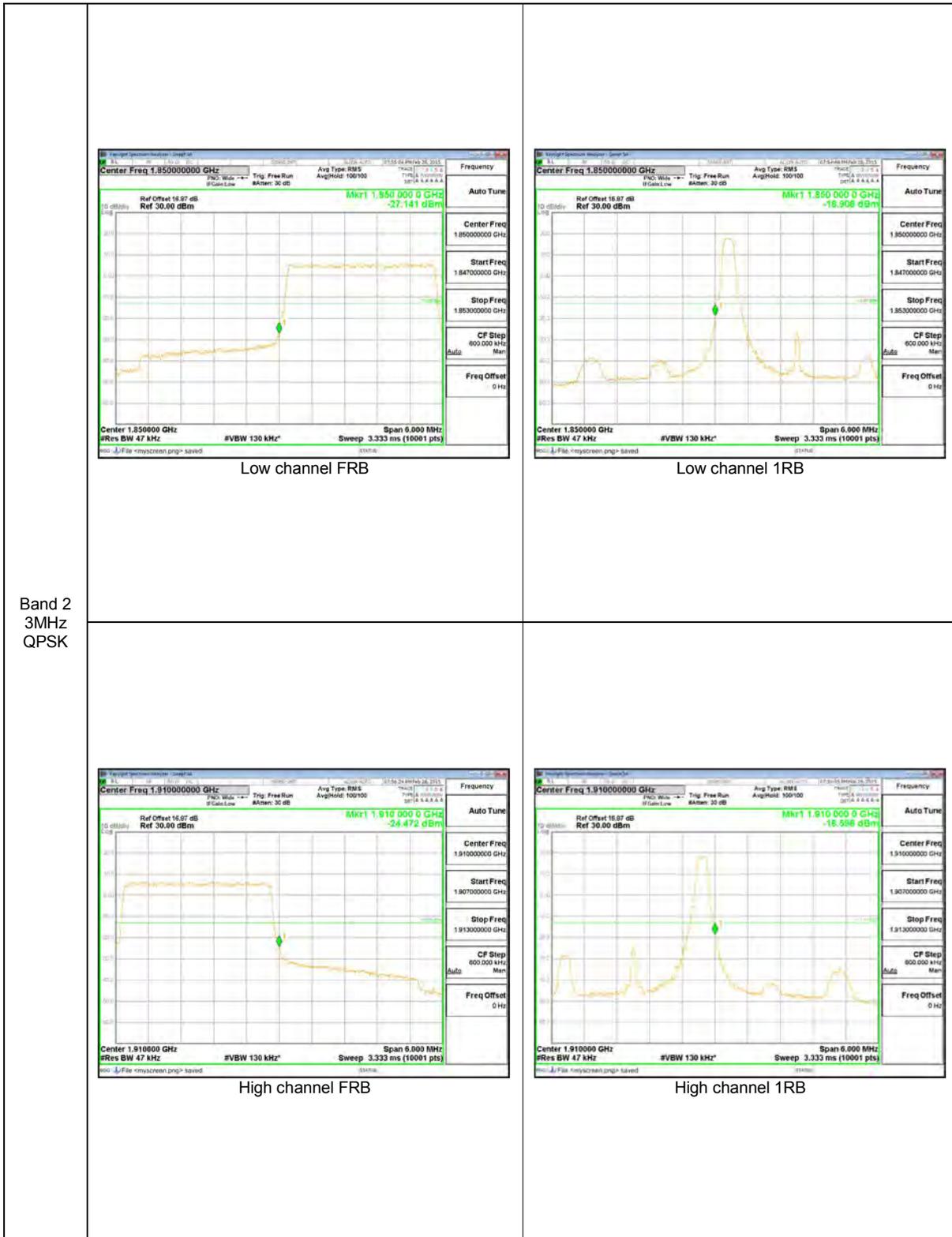


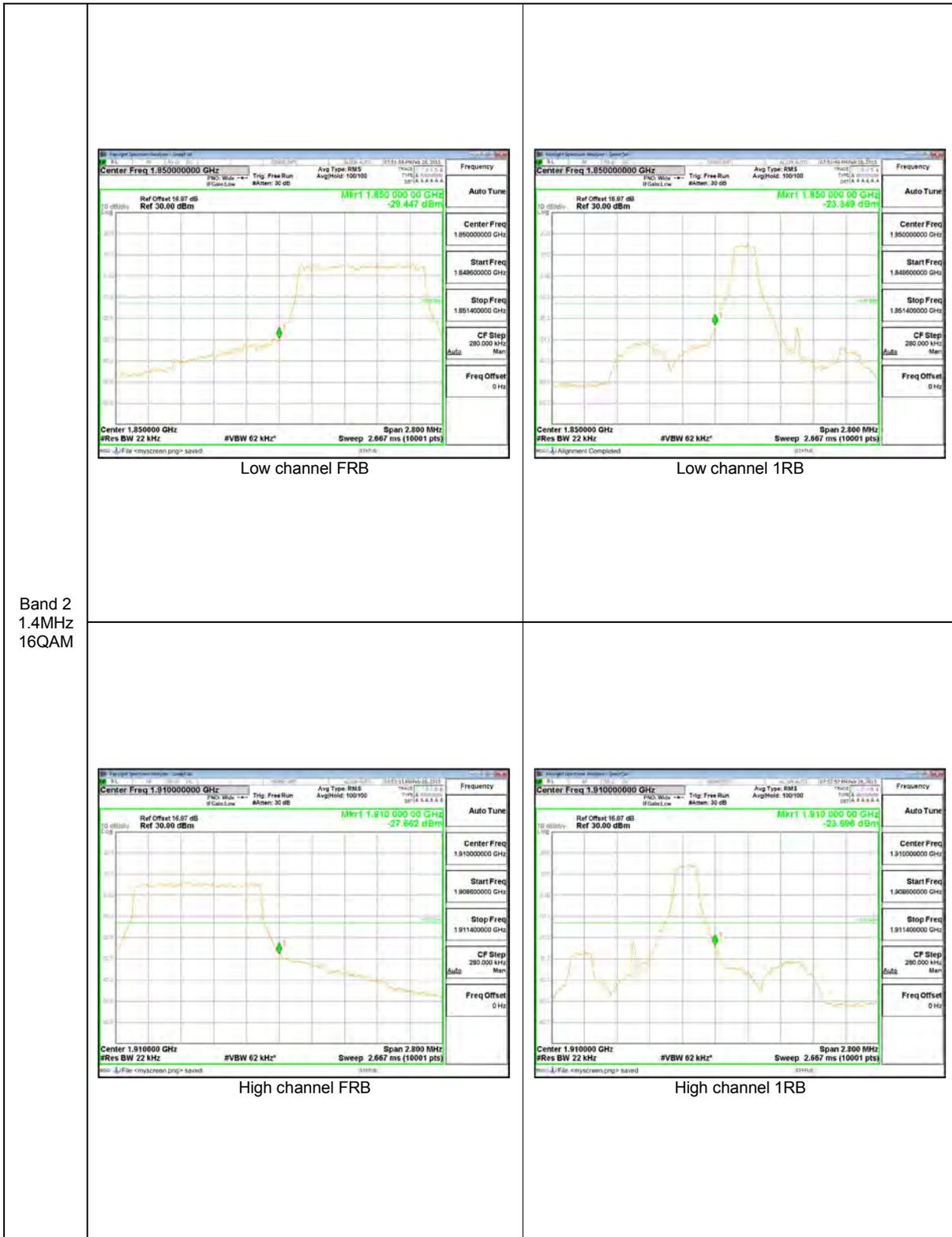


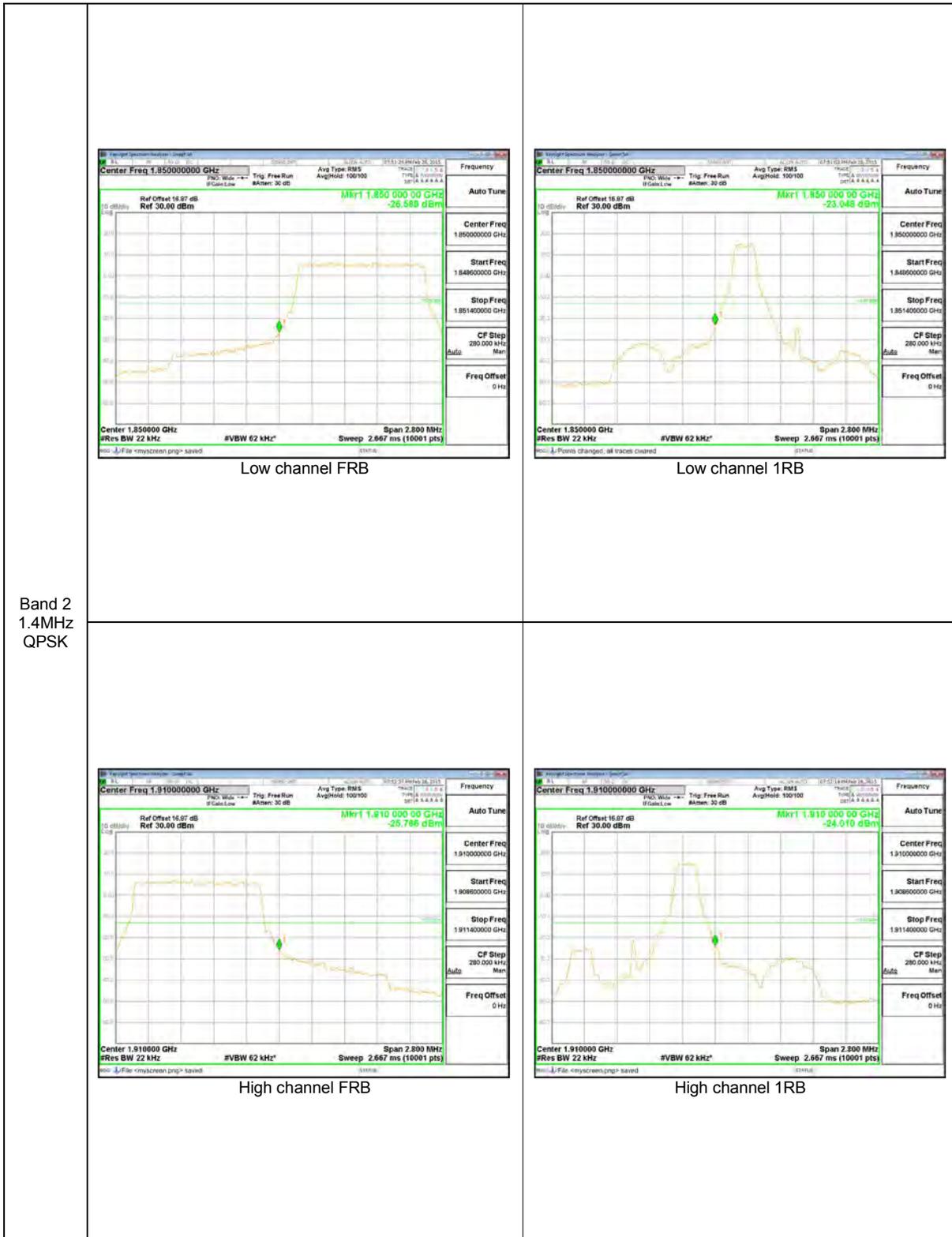




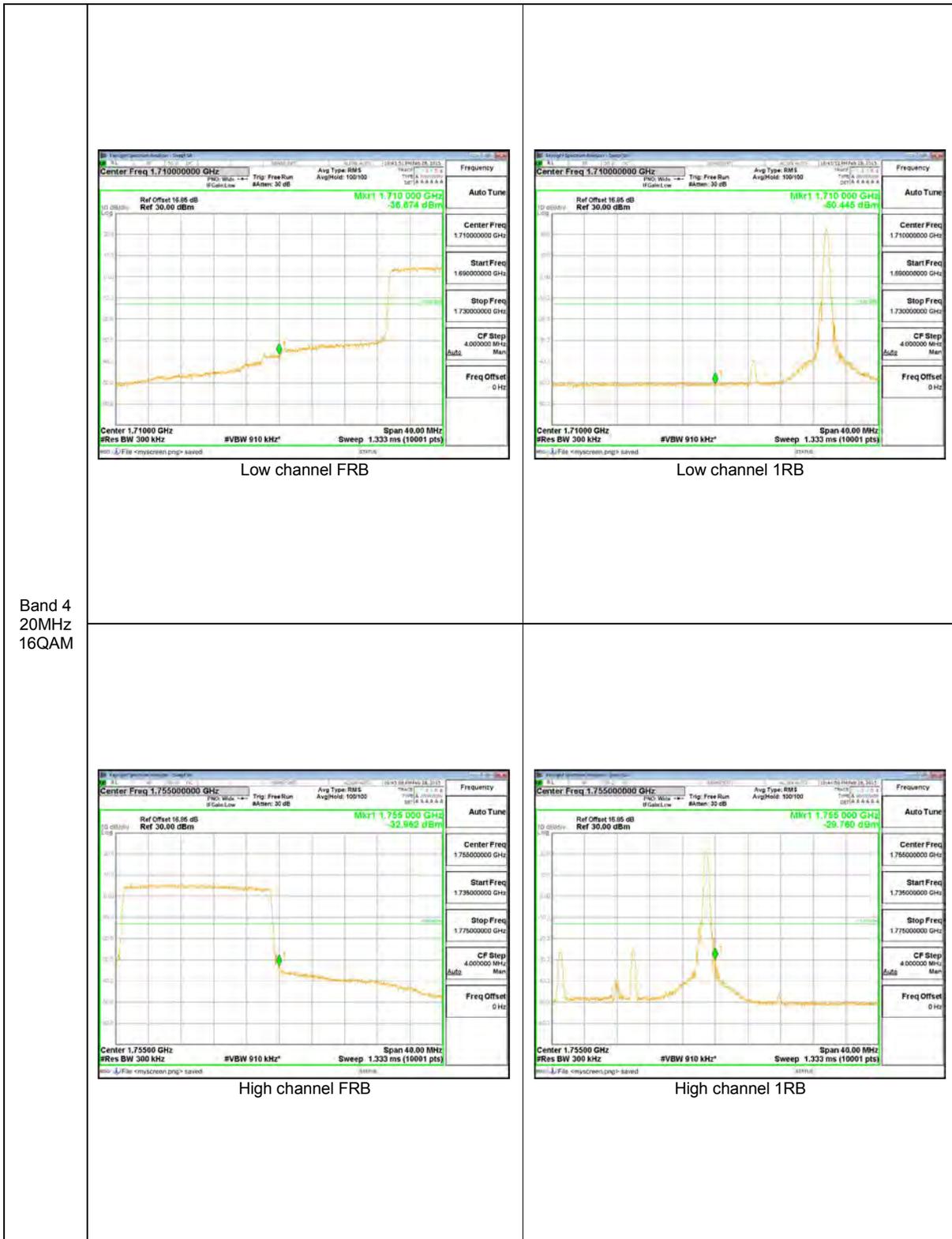


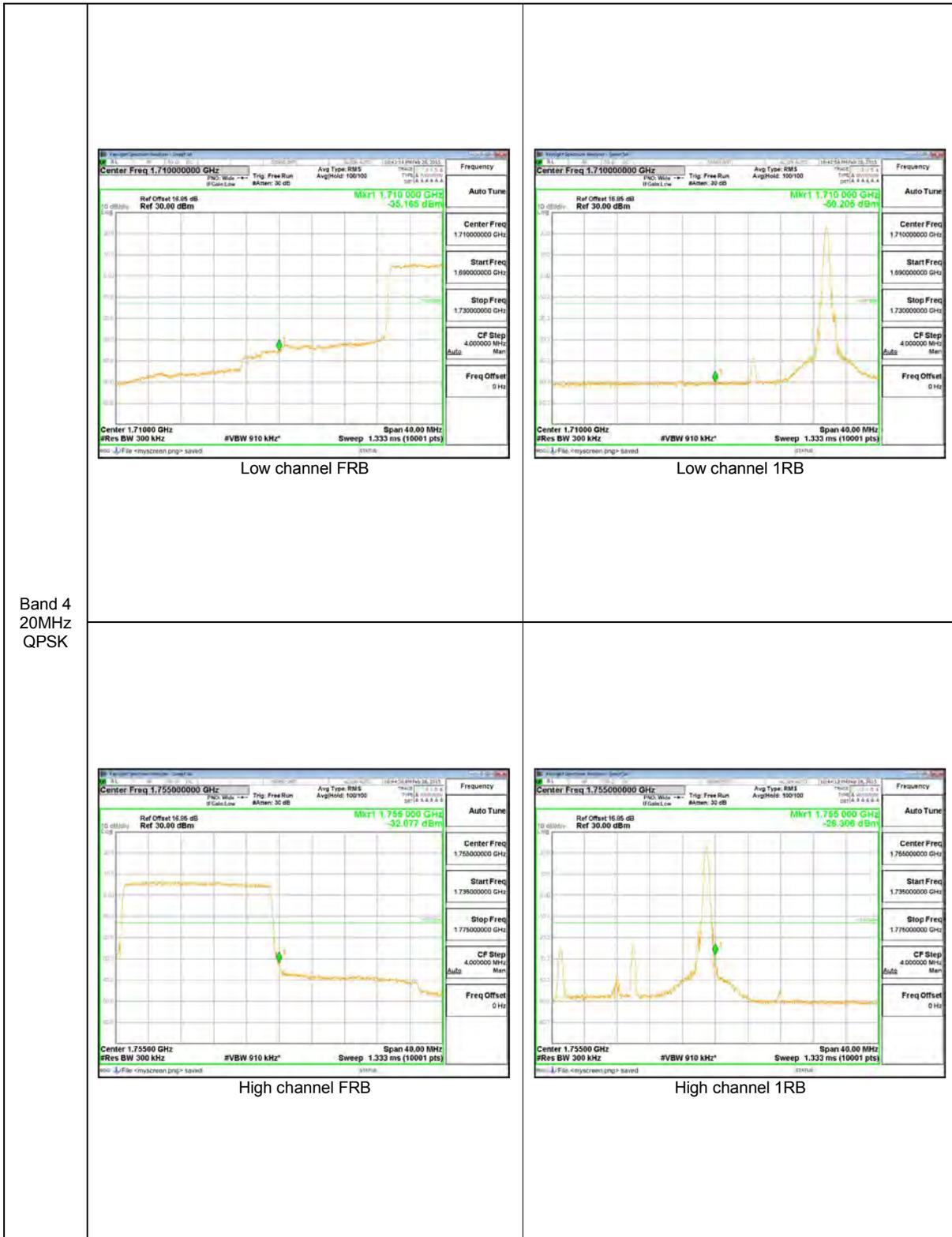


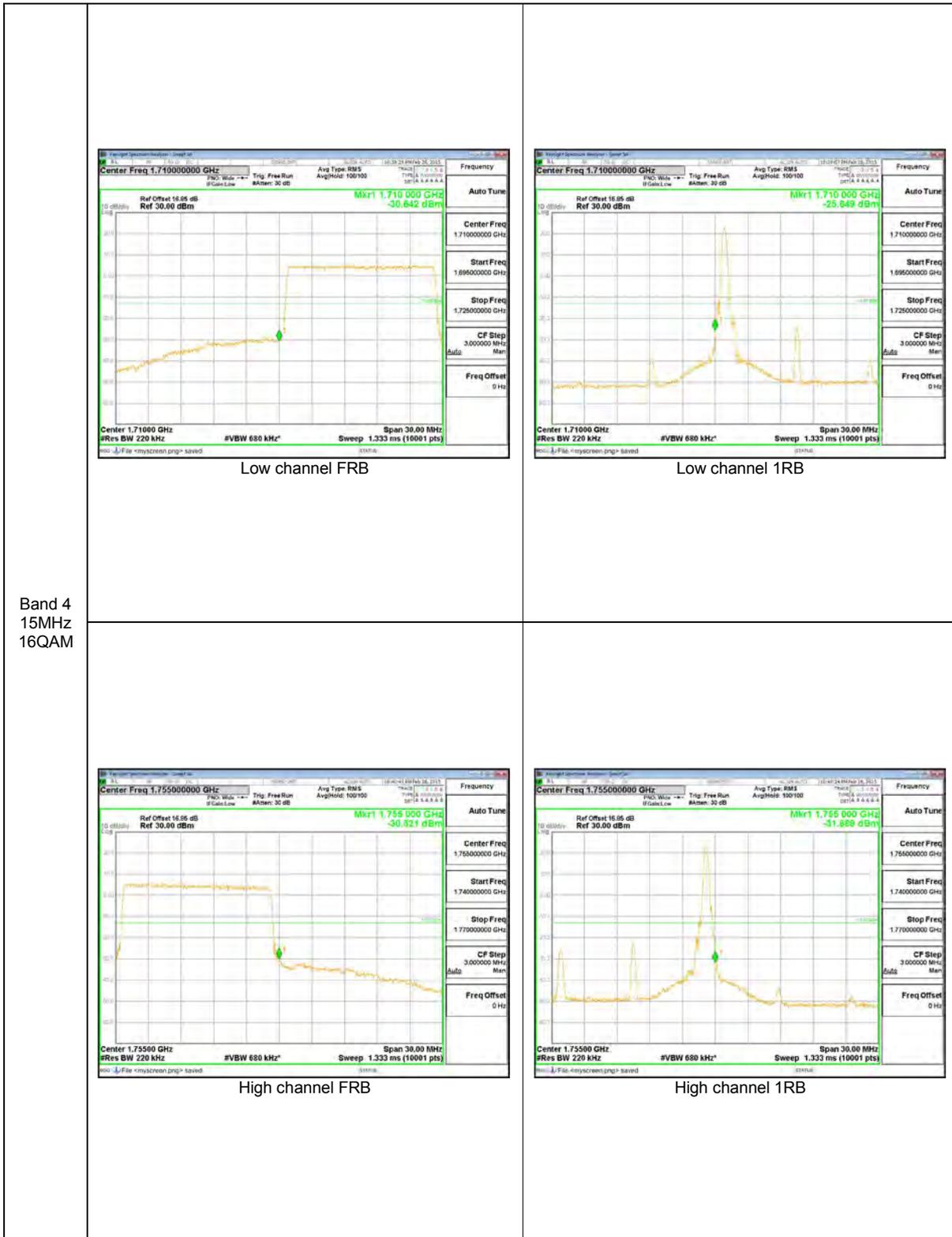


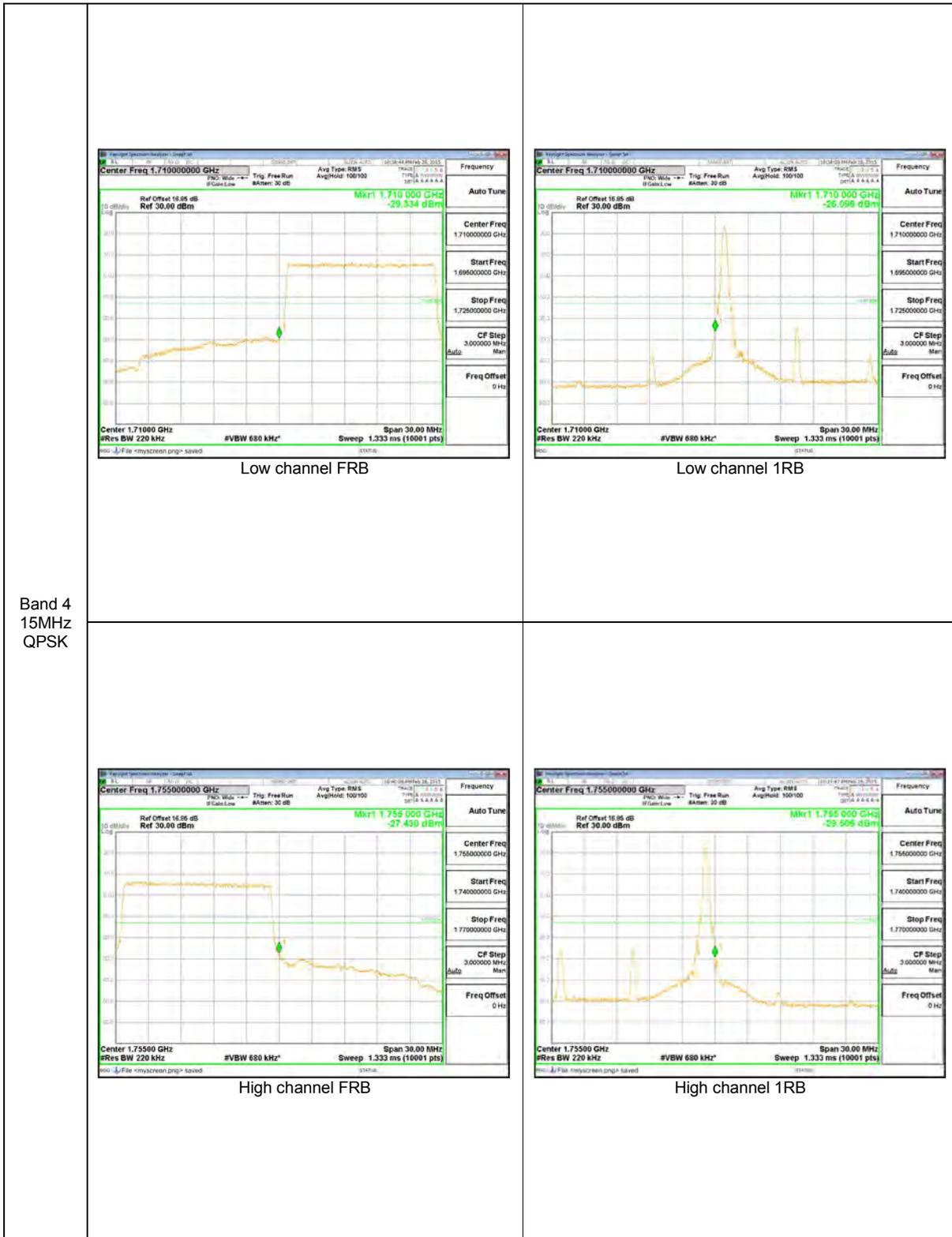


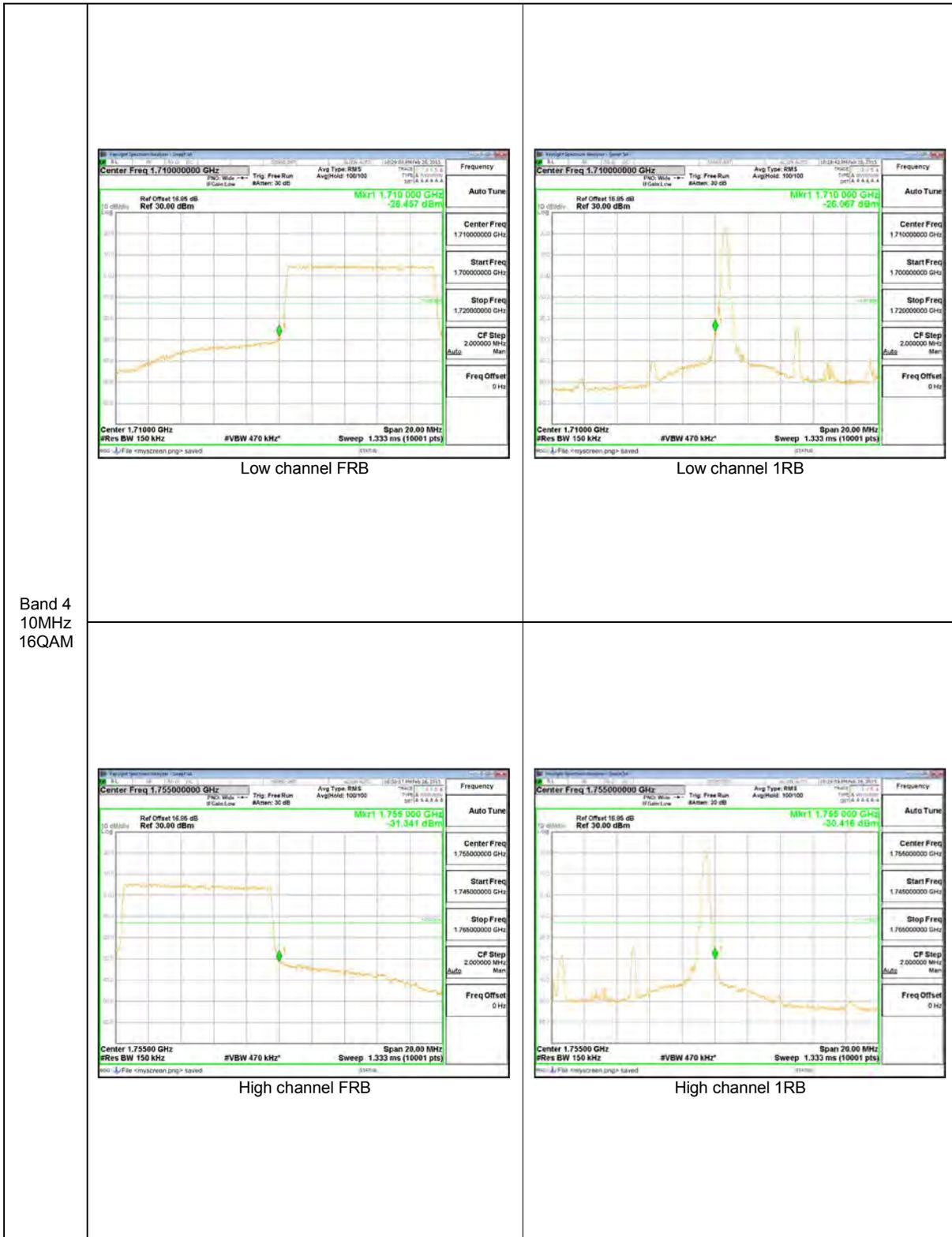
LTE Band 4

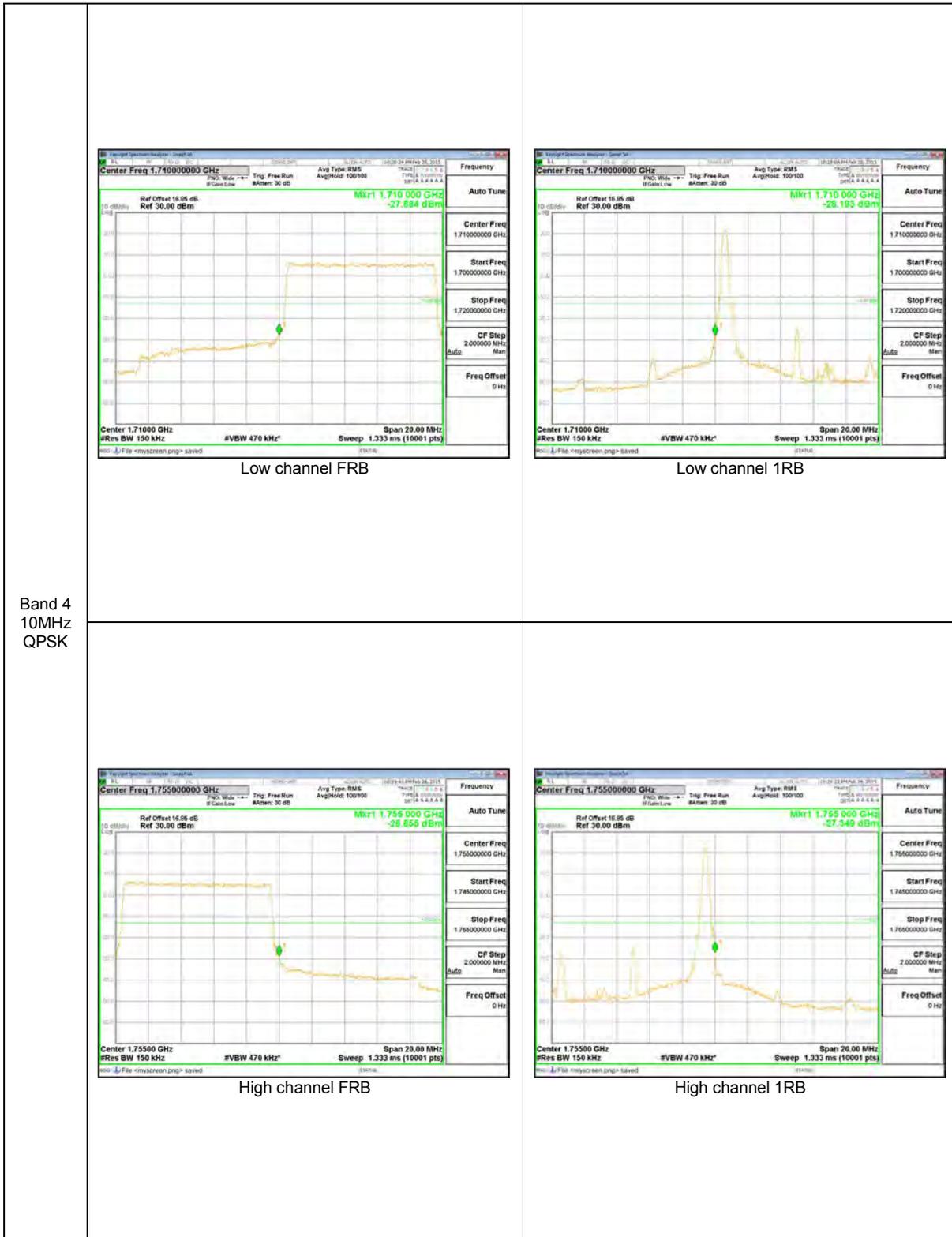


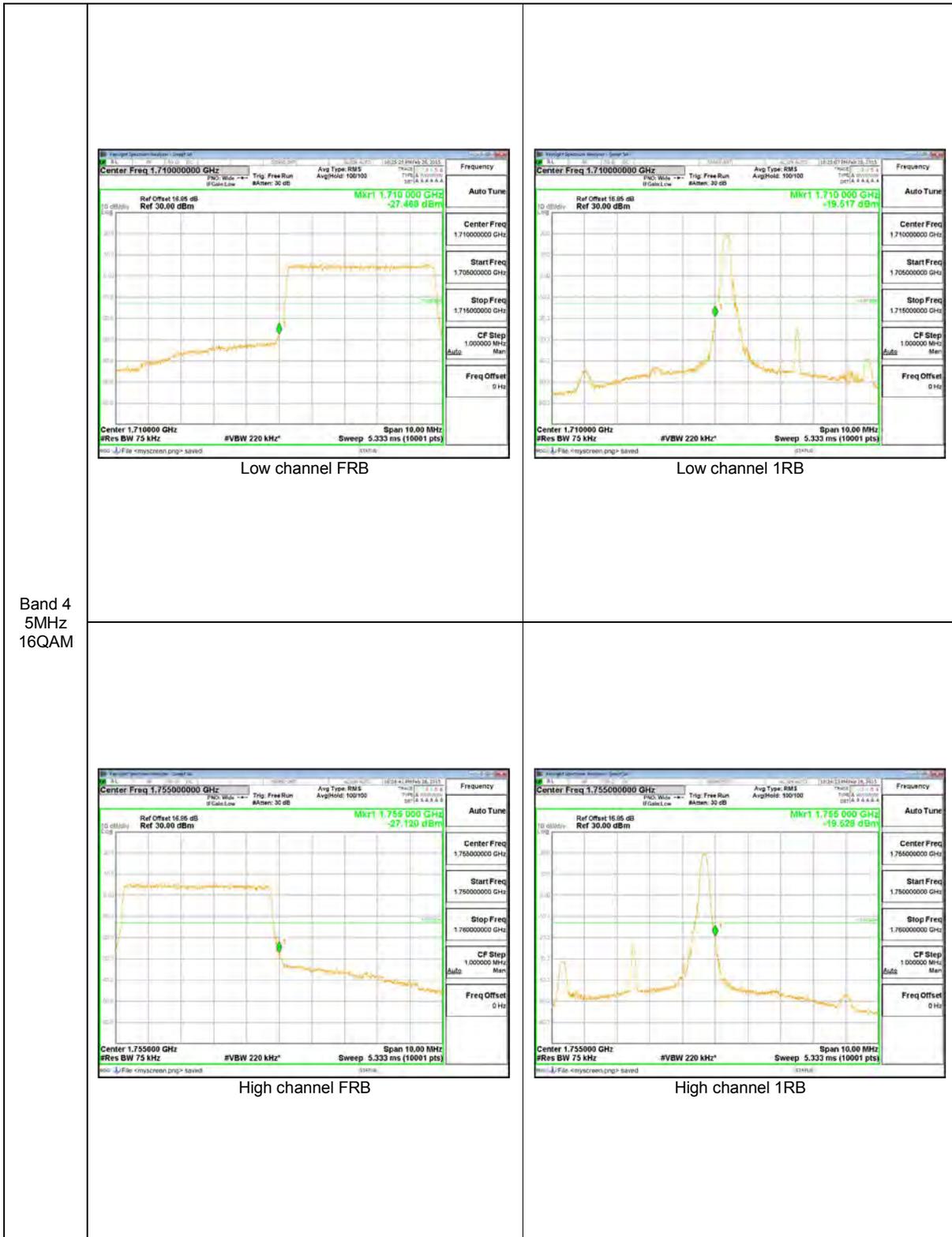


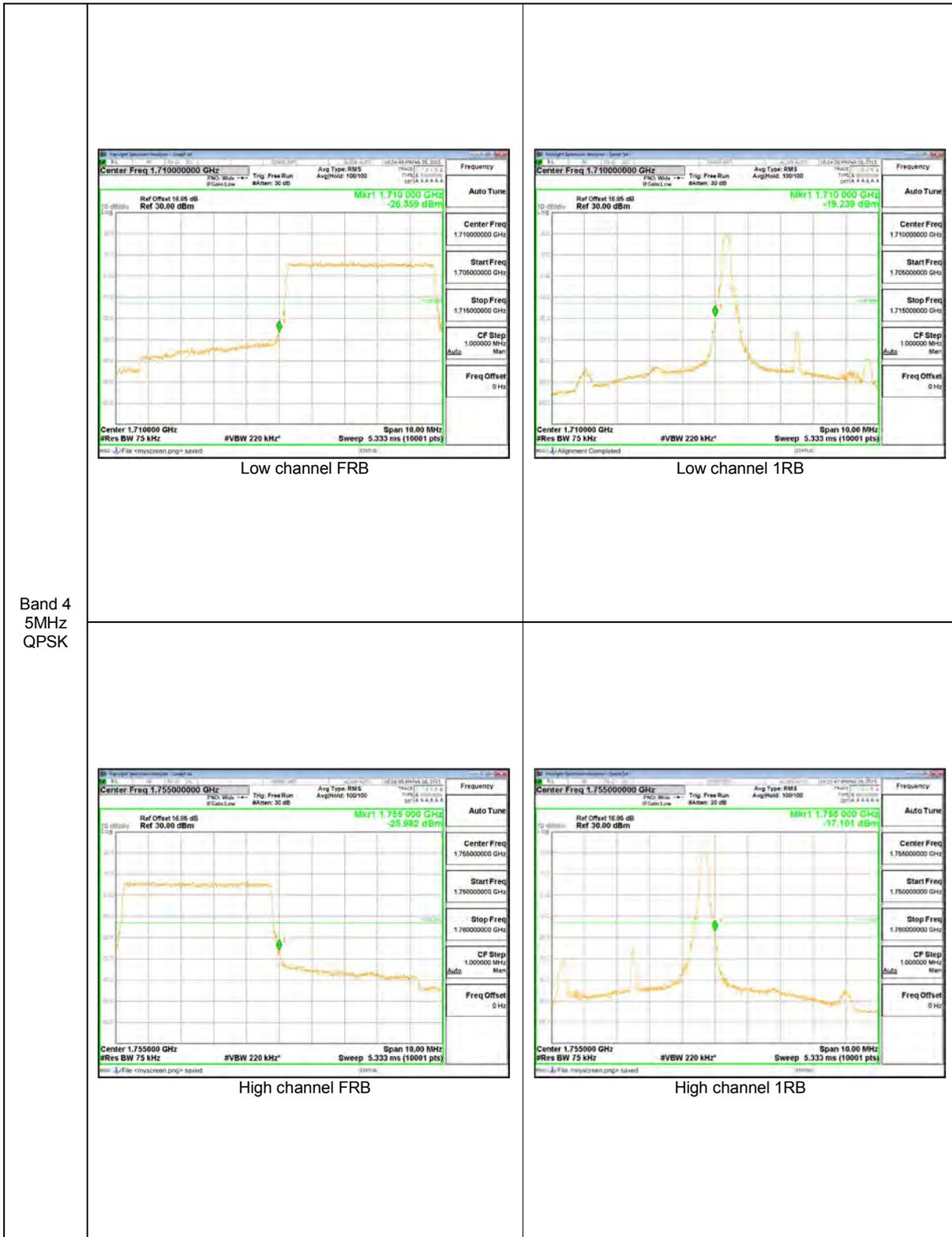












Band 4
 3MHz
 16QAM



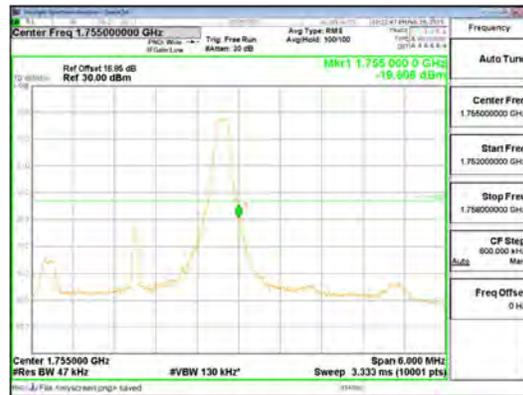
Low channel FRB



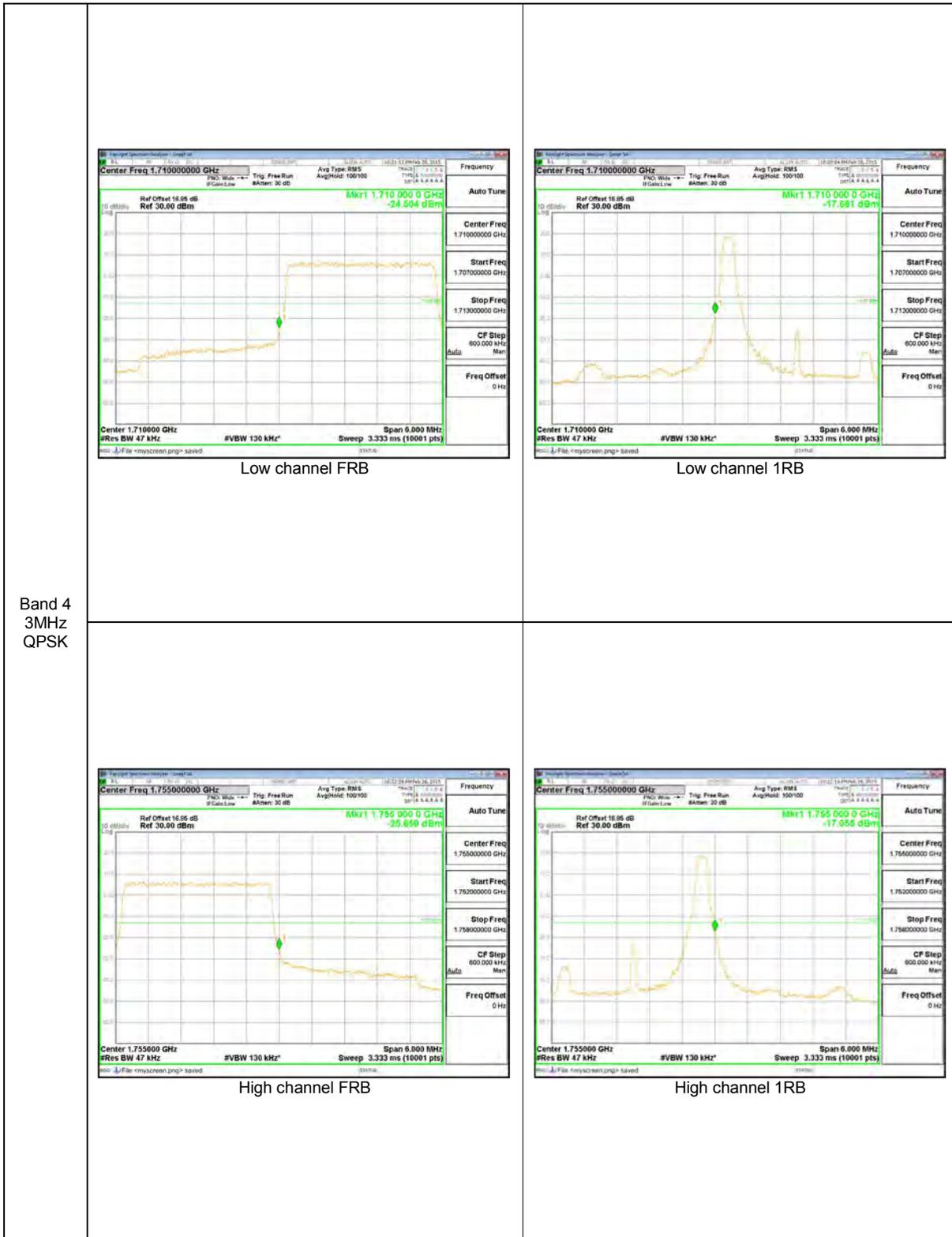
Low channel 1RB

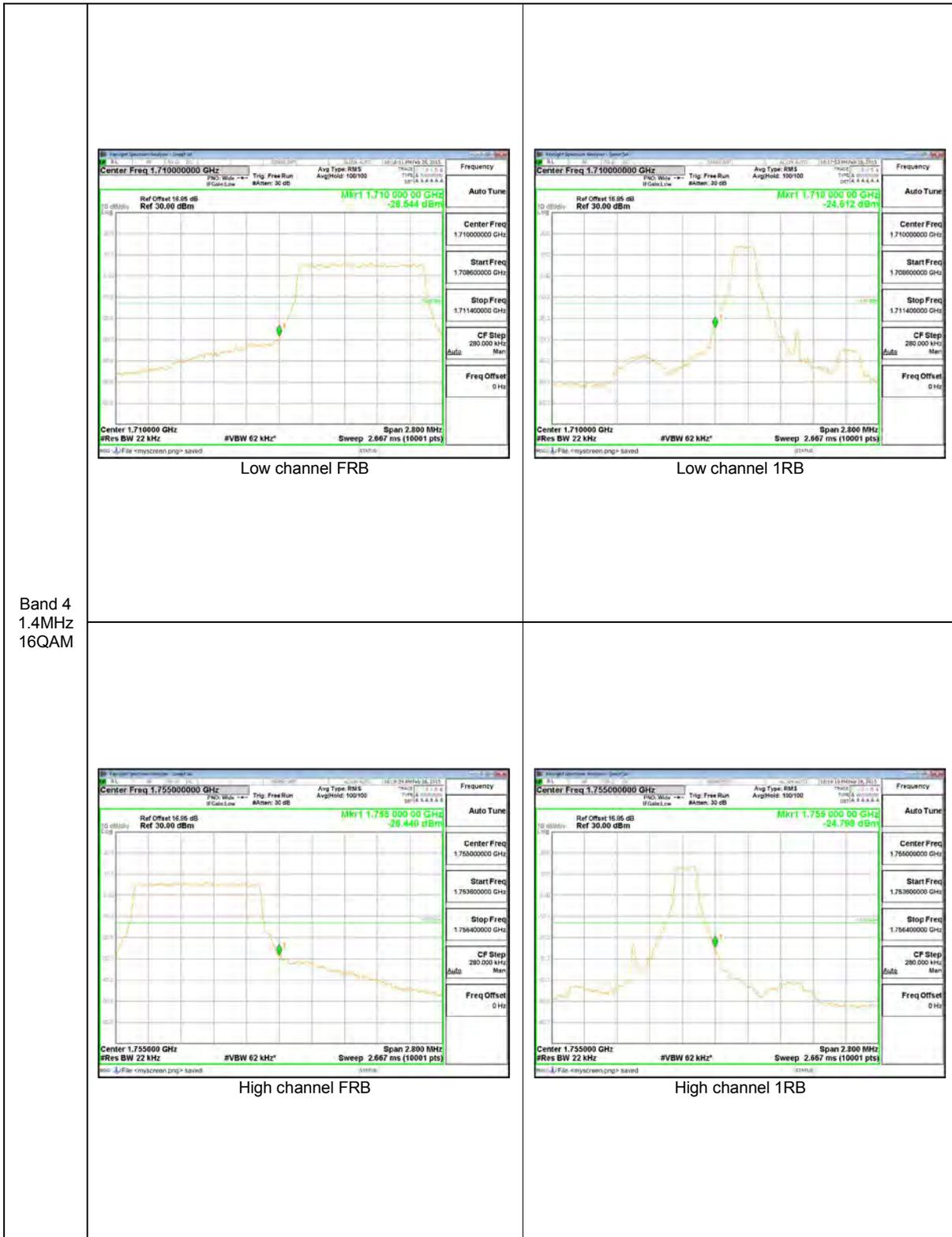


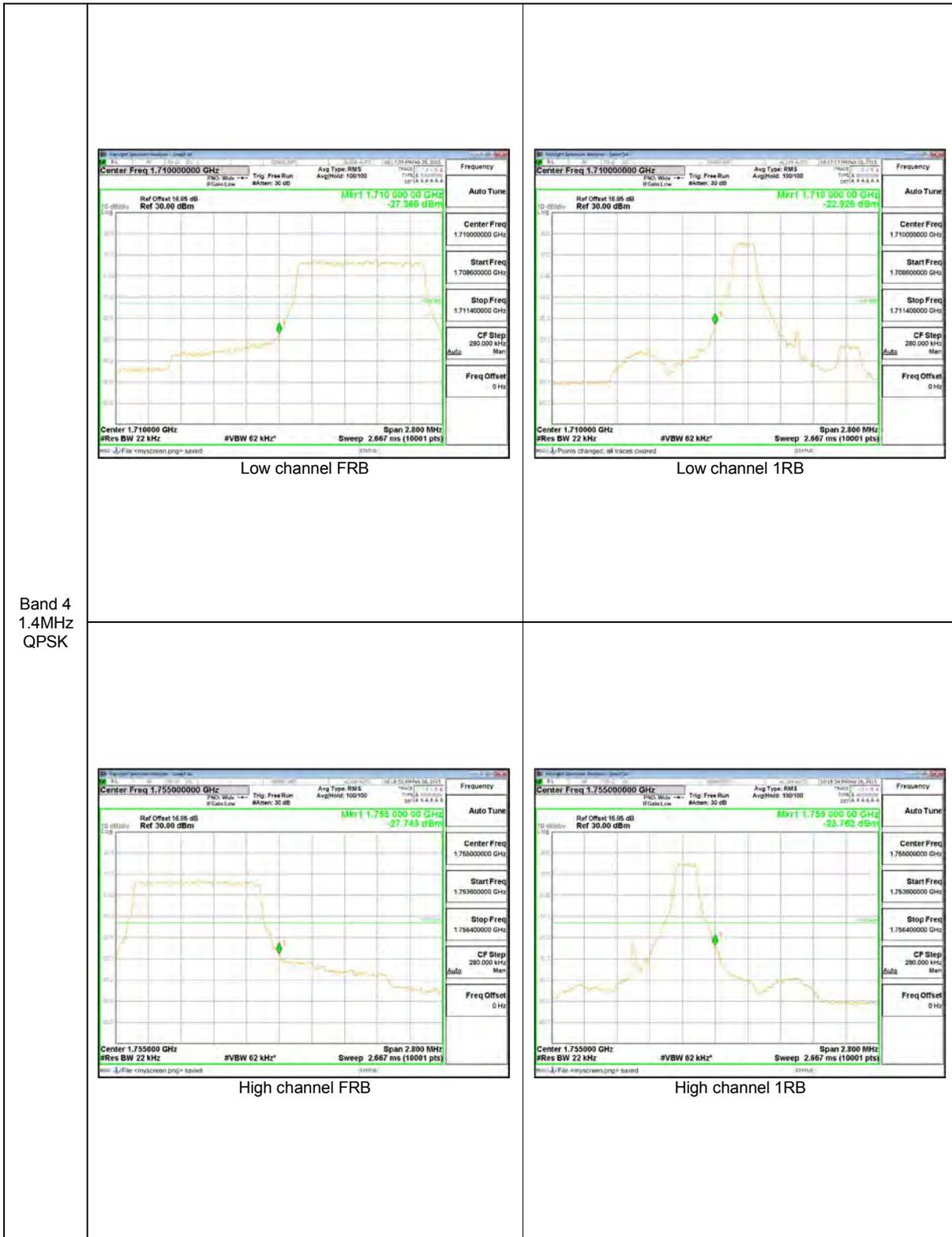
High channel FRB



High channel 1RB







10.3. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238

LIMITS

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

RESULTS

10.3.1. OUT OF BAND EMISSIONS RESULT

GSM

| Band | Mode | f [MHz] | Spurious [dBm] | Limit [dBm] | Margin [dB] |
|---------|-------|---------|----------------|-------------|-------------|
| GSM850 | GPRS | 824.2 | -23.80 | -13.00 | 10.80 |
| | | 836.6 | -23.49 | | 10.49 |
| | | 848.8 | -24.01 | | 11.01 |
| | EGPRS | 824.2 | -23.49 | | 10.49 |
| | | 836.6 | -23.23 | | 10.23 |
| | | 848.8 | -23.51 | | 10.51 |
| GSM1900 | GPRS | 1850.2 | -23.12 | | 10.12 |
| | | 1880.0 | -23.51 | | 10.51 |
| | | 1909.8 | -22.57 | | 9.57 |
| | EGPRS | 1850.2 | -23.97 | 10.97 | |
| | | 1880.0 | -23.10 | 10.10 | |
| | | 1909.8 | -23.29 | 10.29 | |

WCDMA

| Band | Mode | f [MHz] | Spurious [dBm] | Limit [dBm] | Margin [dB] |
|--------|-------|---------|----------------|-------------|-------------|
| Band 5 | REL99 | 826.4 | -27.49 | -13.00 | 14.49 |
| | | 836.6 | -27.78 | | 14.78 |
| | | 846.6 | -28.04 | | 15.04 |
| | HSDPA | 826.4 | -27.07 | | 14.07 |
| | | 836.6 | -27.66 | | 14.66 |
| | | 846.6 | -27.21 | | 14.21 |
| Band 2 | REL99 | 1852.4 | -26.36 | | 13.36 |
| | | 1880.0 | -27.50 | | 14.50 |
| | | 1907.6 | -27.45 | | 14.45 |
| | HSDPA | 1852.4 | -26.62 | | 13.62 |
| | | 1880.0 | -27.11 | | 14.11 |
| | | 1907.6 | -27.21 | | 14.21 |
| Band 4 | REL99 | 1712.4 | -27.09 | 14.09 | |
| | | 1732.6 | -27.83 | 14.83 | |
| | | 1752.6 | -27.29 | 14.29 | |
| | HSDPA | 1712.4 | -27.47 | 14.47 | |
| | | 1732.6 | -27.57 | 14.57 | |
| | | 1752.6 | -27.25 | 14.25 | |

LTE 2

| Band | BW(MHz) | Mode | f [MHz] | Spurious [dBm] | Limit [dBm] | Margin [dB] |
|--------|---------|--------|---------|----------------|-------------|-------------|
| Band 2 | 20 | QPSK | 1860.0 | -21.70 | -13.00 | 8.70 |
| | | | 1880.0 | -21.50 | | 8.50 |
| | | | 1900.0 | -22.14 | | 9.14 |
| | | 16QAM | 1860.0 | -21.64 | | 8.64 |
| | | | 1880.0 | -21.88 | | 8.88 |
| | | | 1900.0 | -21.60 | | 8.60 |
| | 15 | QPSK | 1857.5 | -22.11 | | 9.11 |
| | | | 1880.0 | -22.42 | | 9.42 |
| | | | 1902.5 | -21.64 | | 8.64 |
| | | 16QAM | 1857.5 | -22.18 | | 9.18 |
| | | | 1880.0 | -21.92 | | 8.92 |
| | | | 1902.5 | -22.32 | | 9.32 |
| | 10 | QPSK | 1955.0 | -21.47 | | 8.47 |
| | | | 1880.0 | -21.63 | | 8.63 |
| | | | 1905.0 | -22.06 | | 9.06 |
| | | 16QAM | 1955.0 | -21.66 | | 8.66 |
| | | | 1880.0 | -21.80 | | 8.80 |
| | | | 1905.0 | -22.50 | | 9.50 |
| | 5 | QPSK | 1852.5 | -21.12 | | 8.12 |
| | | | 1880.0 | -22.12 | | 9.12 |
| | | | 1907.5 | -22.08 | | 9.08 |
| | | 16QAM | 1852.5 | -21.57 | | 8.57 |
| | | | 1880.0 | -22.01 | | 9.01 |
| | | | 1907.5 | -22.06 | | 9.06 |
| | 3 | QPSK | 1815.5 | -21.32 | | 8.32 |
| | | | 1880.0 | -21.27 | | 8.27 |
| | | | 1908.5 | -22.23 | | 9.23 |
| | | 16QAM | 1815.5 | -21.63 | | 8.63 |
| | | | 1880.0 | -21.60 | | 8.60 |
| | | | 1908.5 | -22.26 | | 9.26 |
| 1.4 | QPSK | 1850.7 | -21.90 | 8.90 | | |
| | | 1880.0 | -21.33 | 8.33 | | |
| | | 1909.3 | -21.92 | 8.92 | | |
| | 16QAM | 1850.7 | -22.04 | 9.04 | | |
| | | 1880.0 | -21.45 | 8.45 | | |
| | | 1909.3 | -21.89 | 8.89 | | |

LTE 4

| Band | BW(MHz) | Mode | f [MHz] | Spurious [dBm] | Limit [dBm] | Margin [dB] |
|--------|---------|--------|---------|----------------|-------------|-------------|
| Band 4 | 20 | QPSK | 1720.0 | -21.37 | -13.00 | 8.37 |
| | | | 1732.5 | -21.84 | | 8.84 |
| | | | 1745.0 | -21.52 | | 8.52 |
| | | 16QAM | 1720.0 | -21.81 | | 8.81 |
| | | | 1732.5 | -20.85 | | 7.85 |
| | | | 1745.0 | -22.10 | | 8.10 |
| | 15 | QPSK | 1717.5 | -22.09 | | 9.09 |
| | | | 1732.5 | -21.38 | | 8.38 |
| | | | 1747.5 | -21.15 | | 8.15 |
| | | 16QAM | 1717.5 | -21.90 | | 8.90 |
| | | | 1732.5 | -21.76 | | 8.76 |
| | | | 1747.5 | -21.68 | | 8.68 |
| | 10 | QPSK | 1715.0 | -21.68 | | 8.68 |
| | | | 1732.5 | -21.50 | | 8.50 |
| | | | 1750.0 | -21.87 | | 8.87 |
| | | 16QAM | 1715.0 | -20.92 | | 7.92 |
| | | | 1732.5 | -20.90 | | 7.90 |
| | | | 1750.0 | -21.89 | | 8.89 |
| | 5 | QPSK | 1712.5 | -21.33 | | 8.33 |
| | | | 1732.5 | -22.07 | | 9.07 |
| | | | 1752.5 | -21.57 | | 8.57 |
| | | 16QAM | 1712.5 | -21.74 | | 8.74 |
| | | | 1732.5 | -21.72 | | 8.72 |
| | | | 1752.5 | -21.10 | | 8.10 |
| | 3 | QPSK | 1711.5 | -21.49 | | 8.49 |
| | | | 1732.5 | -21.58 | | 8.58 |
| | | | 1753.5 | -22.09 | | 9.09 |
| | | 16QAM | 1711.5 | -21.40 | | 8.40 |
| | | | 1732.5 | -21.68 | | 8.68 |
| | | | 1753.5 | -22.22 | | 9.22 |
| 1.4 | QPSK | 1710.7 | -21.46 | 8.46 | | |
| | | 1732.5 | -21.03 | 8.03 | | |
| | | 1754.3 | -21.48 | 8.48 | | |
| | 16QAM | 1710.7 | -20.94 | 7.94 | | |
| | | 1732.5 | -21.58 | 8.58 | | |
| | | 1754.3 | -21.43 | 8.43 | | |

10.3.2. OUT OF BAND EMISSIONS PLOTS

GSM 850



Band 850

GSM 1900



WCDMA Band 5



WCDMA Band 2



Band 2

WCDMA Band 4



LTE Band 2













LTE Band 4













10.1. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §24.235

LIMITS

§22.355 - The carrier frequency shall not depart from the reference frequency in excess of ± 2.5 ppm for mobile stations.

§24.235 - The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

RESULTS

See the following pages.

10.1.1. FREQUENCY STABILITY RESULTS

WCDMA Band 5, Channel 4183, Frequency 836.6 MHz

| Reference Frequency: WCDMA Band 5 Mid Channel 836.6 MHz @ 20°C | | | | |
|--|------------------------------|---|-------------|-------------|
| Limit: +/- 2.5 ppm = 2091.500 Hz | | | | |
| Power Supply (Vdc) | Environment Temperature (*C) | Frequency Deviation Measured with Time Elapse | | |
| | | (MHz) | Delta (ppm) | Limit (ppm) |
| 3.80 | 50 | 836.59999794 | -0.001 | 2.5 |
| 3.80 | 40 | 836.60000240 | -0.007 | 2.5 |
| 3.80 | 30 | 836.59999762 | -0.001 | 2.5 |
| 3.80 | 20 | 836.59999691 | 0 | 2.5 |
| 3.80 | 10 | 836.60000358 | -0.008 | 2.5 |
| 3.80 | 0 | 836.59999618 | 0.001 | 2.5 |
| 3.80 | -10 | 836.59999786 | -0.001 | 2.5 |
| 3.80 | -20 | 836.60000191 | -0.006 | 2.5 |
| 3.80 | -30 | 836.59999629 | 0.001 | 2.5 |

| Reference Frequency: WCDMA Band 5 Mid Channel 836.6 MHz @ 20°C | | | | |
|--|------------------------------|---|-------------|-------------|
| Limit: +/- 2.5 ppm = 2091.250 Hz | | | | |
| Power Supply (Vdc) | Environment Temperature (*C) | Frequency Deviation Measured with Time Elapse | | |
| | | (MHz) | Delta (ppm) | Limit (ppm) |
| 3.80 | 20 | 836.59999691 | 0 | 2.5 |
| 4.20 | 20 | 836.60000240 | -0.007 | 2.5 |
| 3.40 | 20 | 836.60000207 | -0.006 | 2.5 |

WCDMA Band 2, Channel 9400, Frequency 1880 MHz

| Reference Frequency: WCDMA Band 2 Mid Channel 1880 MHz @ 20°C | | | | |
|---|------------------------------|---|-------------|-------------|
| Limit: +/- 2.5 ppm = 4700.000 Hz | | | | |
| Power Supply (Vdc) | Environment Temperature (*C) | Frequency Deviation Measured with Time Elapse | | |
| | | (MHz) | Delta (ppm) | Limit (ppm) |
| 3.80 | 50 | 1880.0000388 | -0.005 | 2.5 |
| 3.80 | 40 | 1879.99999479 | 0.000 | 2.5 |
| 3.80 | 30 | 1879.99999613 | -0.001 | 2.5 |
| 3.80 | 20 | 1879.99999477 | 0 | 2.5 |
| 3.80 | 10 | 1879.99999559 | 0.000 | 2.5 |
| 3.80 | 0 | 1879.99999668 | -0.001 | 2.5 |
| 3.80 | -10 | 1880.0000411 | -0.005 | 2.5 |
| 3.80 | -20 | 1879.99999554 | 0.000 | 2.5 |
| 3.80 | -30 | 1879.99999391 | 0.000 | 2.5 |

| Reference Frequency: WCDMA Band 2 Mid Channel 1880 MHz @ 20°C | | | | |
|---|------------------------------|---|-------------|-------------|
| Limit: +/- 2.5 ppm = 4700.000 Hz | | | | |
| Power Supply (Vdc) | Environment Temperature (*C) | Frequency Deviation Measured with Time Elapse | | |
| | | (MHz) | Delta (ppm) | Limit (ppm) |
| 3.80 | 20 | 1879.99999477 | 0 | 2.5 |
| 4.20 | 20 | 1880.0000325 | -0.005 | 2.5 |
| 3.40 | 20 | 1879.99999592 | -0.001 | 2.5 |

WCDMA Band 4, Channel 1413, Frequency 1732.6 MHz

| Reference Frequency: WCDMA Band 4 Mid Channel 1732.6 MHz @ 20°C | | | | |
|---|------------------------------|---|-------------|-------------|
| Limit: +/- 2.5 ppm = 4331.500 Hz | | | | |
| Power Supply (Vdc) | Environment Temperature (*C) | Frequency Deviation Measured with Time Elapse | | |
| | | (MHz) | Delta (ppm) | Limit (ppm) |
| 3.80 | 50 | 1732.60000343 | 0.000 | 2.5 |
| 3.80 | 40 | 1732.59999707 | 0.004 | 2.5 |
| 3.80 | 30 | 1732.60000412 | 0.000 | 2.5 |
| 3.80 | 20 | 1732.60000358 | 0 | 2.5 |
| 3.80 | 10 | 1732.60000319 | 0.000 | 2.5 |
| 3.80 | 0 | 1732.59999429 | 0.005 | 2.5 |
| 3.80 | -10 | 1732.60000282 | 0.000 | 2.5 |
| 3.80 | -20 | 1732.59999608 | 0.004 | 2.5 |
| 3.80 | -30 | 1732.60000491 | -0.001 | 2.5 |

| Reference Frequency: WCDMA Band 4 Mid Channel 1732.6 MHz @ 20°C | | | | |
|---|------------------------------|---|-------------|-------------|
| Limit: +/- 2.5 ppm = 4331.500 Hz | | | | |
| Power Supply (Vdc) | Environment Temperature (*C) | Frequency Deviation Measured with Time Elapse | | |
| | | (MHz) | Delta (ppm) | Limit (ppm) |
| 3.80 | 20 | 1732.60000358 | 0 | 2.5 |
| 4.20 | 20 | 1732.59999614 | 0.004 | 2.5 |
| 3.40 | 20 | 1732.60000434 | 0.000 | 2.5 |

11. RADIATED TEST RESULTS

11.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913, §24.232

LIMITS

22.913(a) - The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

24.232(c) - Mobile/portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13dB.

TEST PROCEDURE

ANSI / TIA / EIA 603C Clause 2.2.17; MXA setting reference to 971168 D01 v02r02

For peak power measurement with a PSA:

a) Set the RBW \geq OBW; b) Set VBW $\geq 3 \times$ RBW; c) Set span $\geq 2 \times$ RBW; d) Sweep time = auto couple; e) Detector = peak; f) Ensure that the number of measurement points \geq span/RBW; g) Trace mode = max hold;

For average power measurement with a PSA:

a) Set span to at least 1.5 times the OBW; b) Set RBW = 1-5% of the OBW, not to exceed 1 MHz; c) Set VBW $\geq 3 \times$ RBW; d) Set number of points in sweep $\geq 2 \times$ span / RBW; e) Sweep time = auto-couple; f) Detector = RMS (power averaging); g) Use free run trigger If burst duty cycle ≥ 98 ; h) Use trigger to capture bursts If burst duty cycle < 98 ; i) Trace average at least 100 traces in power averaging (*i.e.*, RMS) mode. j) Compute the power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function.

TEST RESULTS

11.1.1. ERP/EIRP Results

GSM

| Band | Mode | Channel | f [MHz] | ERP / EIRP | |
|---------|-------|---------|---------|------------|--------|
| | | | | [dBm] | [mW] |
| GSM850 | GPRS | 512 | 824.2 | 27.34 | 541.4 |
| | | 661 | 836.6 | 29.07 | 806.3 |
| | | 810 | 848.8 | 26.98 | 498.5 |
| | EGPRS | 512 | 824.2 | 23.23 | 210.1 |
| | | 661 | 836.6 | 23.05 | 201.6 |
| | | 810 | 848.8 | 22.50 | 177.7 |
| GSM1900 | GPRS | 512 | 1850.2 | 29.34 | 858.6 |
| | | 661 | 1880.0 | 31.03 | 1267.7 |
| | | 810 | 1909.8 | 30.10 | 1024.0 |
| | EGPRS | 512 | 1850.2 | 23.39 | 218.2 |
| | | 661 | 1880.0 | 22.71 | 186.6 |
| | | 810 | 1909.8 | 21.55 | 143.0 |

WCDMA

| Band | Mode | Channel | f [MHz] | ERP / EIRP | |
|--------|-------|---------|---------|------------|--------|
| | | | | [dBm] | [mW] |
| Band 5 | REL99 | 4132 | 826.4 | 18.28 | 67.2 |
| | | 4183 | 836.6 | 17.65 | 58.1 |
| | | 4233 | 846.6 | 17.28 | 53.4 |
| | HSDPA | 4132 | 826.4 | 16.38 | 43.4 |
| | | 4183 | 836.6 | 16.15 | 41.2 |
| | | 4233 | 846.6 | 17.32 | 53.9 |
| Band 2 | REL99 | 9262 | 1852.4 | 29.14 | 820.0 |
| | | 9400 | 1880.0 | 30.24 | 1056.8 |
| | | 9538 | 1907.6 | 27.88 | 614.2 |
| | HSDPA | 9262 | 1852.4 | 19.97 | 99.3 |
| | | 9400 | 1880.0 | 23.23 | 210.4 |
| | | 9538 | 1907.6 | 21.54 | 142.7 |
| Band 4 | REL99 | 1312 | 1712.4 | 25.59 | 362.1 |
| | | 1413 | 1732.6 | 25.68 | 369.8 |
| | | 1513 | 1752.6 | 24.88 | 307.8 |
| | HSDPA | 1312 | 1712.4 | 23.67 | 232.7 |
| | | 1413 | 1732.6 | 24.53 | 283.8 |
| | | 1513 | 1752.6 | 24.71 | 296.0 |

LTE 2

| Band | BW (MHz) | Mode | RB/RB Size | f [MHz] | ERP / EIRP | |
|--------|----------|-------|------------|---------|------------|-------|
| | | | Full RB | | [dBm] | [mW] |
| Band 2 | 20 | QPSK | 100/0 | 1860.0 | 23.81 | 240.3 |
| | | | 100/0 | 1880.0 | 23.47 | 222.3 |
| | | | 100/0 | 1900.0 | 24.13 | 258.6 |
| | | 16QAM | 100/0 | 1860.0 | 22.78 | 189.6 |
| | | | 100/0 | 1880.0 | 22.44 | 175.3 |
| | | | 100/0 | 1900.0 | 23.15 | 206.3 |
| | 15 | QPSK | 75/0 | 1857.5 | 23.01 | 199.9 |
| | | | 75/0 | 1880.0 | 23.47 | 222.3 |
| | | | 75/0 | 1902.5 | 24.13 | 258.6 |
| | | 16QAM | 75/0 | 1857.5 | 21.58 | 143.8 |
| | | | 75/0 | 1880.0 | 22.34 | 171.4 |
| | | | 75/0 | 1902.5 | 22.68 | 185.2 |
| | 10 | QPSK | 50/0 | 1955.0 | 23.07 | 202.7 |
| | | | 50/0 | 1880.0 | 23.47 | 222.3 |
| | | | 50/0 | 1905.0 | 24.58 | 286.8 |
| | | 16QAM | 50/0 | 1955.0 | 21.60 | 144.5 |
| | | | 50/0 | 1880.0 | 22.45 | 175.8 |
| | | | 50/0 | 1905.0 | 23.54 | 225.7 |
| | 5 | QPSK | 25/0 | 1852.5 | 23.13 | 205.5 |
| | | | 25/0 | 1880.0 | 22.30 | 169.8 |
| | | | 25/0 | 1907.5 | 23.64 | 231.0 |
| | | 16QAM | 25/0 | 1852.5 | 19.50 | 89.1 |
| | | | 25/0 | 1880.0 | 22.57 | 180.7 |
| | | | 25/0 | 1907.5 | 24.51 | 282.2 |
| | 3 | QPSK | 15/0 | 1815.5 | 18.55 | 71.6 |
| | | | 15/0 | 1880.0 | 20.67 | 116.7 |
| | | | 15/0 | 1908.5 | 24.64 | 290.8 |
| | | 16QAM | 15/0 | 1815.5 | 18.98 | 79.0 |
| | | | 15/0 | 1880.0 | 20.00 | 100.0 |
| | | | 15/0 | 1908.5 | 23.24 | 210.7 |
| 1.4 | QPSK | 6/0 | 1850.7 | 17.41 | 55.1 | |
| | | 6/0 | 1880.0 | 19.00 | 79.4 | |
| | | 6/0 | 1909.3 | 21.39 | 137.6 | |
| | 16QAM | 6/0 | 1850.7 | 17.30 | 53.7 | |
| | | 6/0 | 1880.0 | 18.10 | 64.6 | |
| | | 6/0 | 1909.3 | 20.20 | 104.6 | |

LTE 4

| Band | BW (MHz) | Mode | RB/RB Size | f [MHz] | ERP / EIRP | |
|--------|----------|-------|------------|---------|------------|-------|
| | | | Full RB | | [dBm] | [mW] |
| Band 4 | 20 | QPSK | 100/0 | 1720.0 | 22.31 | 170.1 |
| | | | 100/0 | 1732.5 | 23.03 | 200.9 |
| | | | 100/0 | 1745.0 | 23.53 | 225.2 |
| | | 16QAM | 100/0 | 1720.0 | 21.06 | 127.6 |
| | | | 100/0 | 1732.5 | 22.14 | 163.6 |
| | | | 100/0 | 1745.0 | 22.05 | 160.2 |
| | 15 | QPSK | 75/0 | 1717.5 | 22.74 | 187.8 |
| | | | 75/0 | 1732.5 | 22.13 | 163.3 |
| | | | 75/0 | 1747.5 | 23.11 | 204.5 |
| | | 16QAM | 75/0 | 1717.5 | 21.24 | 133.0 |
| | | | 75/0 | 1732.5 | 21.45 | 139.6 |
| | | | 75/0 | 1747.5 | 22.51 | 178.1 |
| | 10 | QPSK | 50/0 | 1715.0 | 21.09 | 128.5 |
| | | | 50/0 | 1732.5 | 20.63 | 115.6 |
| | | | 50/0 | 1750.0 | 20.75 | 118.7 |
| | | 16QAM | 50/0 | 1715.0 | 20.29 | 106.9 |
| | | | 50/0 | 1732.5 | 19.97 | 99.3 |
| | | | 50/0 | 1750.0 | 20.00 | 99.9 |
| | 5 | QPSK | 25/0 | 1712.5 | 20.74 | 118.5 |
| | | | 25/0 | 1732.5 | 20.97 | 125.0 |
| | | | 25/0 | 1752.5 | 23.06 | 202.1 |
| | | 16QAM | 25/0 | 1712.5 | 19.75 | 94.4 |
| | | | 25/0 | 1732.5 | 20.17 | 104.0 |
| | | | 25/0 | 1752.5 | 21.88 | 154.0 |
| | 3 | QPSK | 15/0 | 1711.5 | 21.97 | 157.3 |
| | | | 15/0 | 1732.5 | 22.33 | 171.0 |
| | | | 15/0 | 1753.5 | 22.67 | 184.8 |
| | | 16QAM | 15/0 | 1711.5 | 21.01 | 126.1 |
| | | | 15/0 | 1732.5 | 21.35 | 136.4 |
| | | | 15/0 | 1753.5 | 21.67 | 146.8 |
| 1.4 | QPSK | 6/0 | 1710.7 | 17.63 | 57.9 | |
| | | 6/0 | 1732.5 | 19.01 | 79.6 | |
| | | 6/0 | 1754.3 | 19.46 | 88.2 | |
| | 16QAM | 6/0 | 1710.7 | 16.31 | 42.7 | |
| | | 6/0 | 1732.5 | 18.03 | 63.5 | |
| | | 6/0 | 1754.3 | 18.76 | 75.1 | |

11.1.2. ERP/EIRP DATA

| GSM Band GSM850 GPRS | High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------|--|--------------------|---------------------|-----------------------|--------------------|-----------------------|----------------|----------------|----------------|-------|--------|--|--|--|--|--|--|--|--|--------|-------|---|-----|------|-------|------|-------|--|--------|-------|---|-----|------|-------|------|-------|--|--------|--|--|--|--|--|--|--|--|--------|-------|---|-----|------|-------|------|-------|--|--------|-------|---|-----|------|-------|------|-------|--|---------|--|--|--|--|--|--|--|--|--------|-------|---|-----|------|-------|------|-------|--|--------|-------|---|-----|------|-------|------|-------|
| | <p> Company: Samsung Project #: 15K20096 Date: 02-27-15 Test Engineer: Steven.Kim Configuration: EUT ONLY, X Position Mode: GPRS 850 MHz </p> <p> Test Equipment: Receiving: VULB9163-750, and 3m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse. </p> <table border="1"> <thead> <tr> <th>f MHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBd)</th> <th>ERP (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>824.20</td> <td>27.43</td> <td>V</td> <td>1.1</td> <td>-1.6</td> <td>24.81</td> <td>38.5</td> <td>-13.6</td> <td></td> </tr> <tr> <td>824.20</td> <td>29.96</td> <td>H</td> <td>1.1</td> <td>-1.6</td> <td>27.34</td> <td>38.5</td> <td>-11.1</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>836.60</td> <td>25.61</td> <td>V</td> <td>1.1</td> <td>-1.4</td> <td>23.12</td> <td>38.5</td> <td>-15.3</td> <td></td> </tr> <tr> <td>836.60</td> <td>31.56</td> <td>H</td> <td>1.1</td> <td>-1.4</td> <td>29.07</td> <td>38.5</td> <td>-9.4</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>848.80</td> <td>25.66</td> <td>V</td> <td>1.1</td> <td>-1.3</td> <td>23.30</td> <td>38.5</td> <td>-15.2</td> <td></td> </tr> <tr> <td>848.80</td> <td>29.34</td> <td>H</td> <td>1.1</td> <td>-1.3</td> <td>26.98</td> <td>38.5</td> <td>-11.5</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm</p> | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBd) | ERP (dBm) | Limit (dBm) | Margin (dB) | Notes | Low Ch | | | | | | | | | 824.20 | 27.43 | V | 1.1 | -1.6 | 24.81 | 38.5 | -13.6 | | 824.20 | 29.96 | H | 1.1 | -1.6 | 27.34 | 38.5 | -11.1 | | Mid Ch | | | | | | | | | 836.60 | 25.61 | V | 1.1 | -1.4 | 23.12 | 38.5 | -15.3 | | 836.60 | 31.56 | H | 1.1 | -1.4 | 29.07 | 38.5 | -9.4 | | High Ch | | | | | | | | | 848.80 | 25.66 | V | 1.1 | -1.3 | 23.30 | 38.5 | -15.2 | | 848.80 | 29.34 | H | 1.1 | -1.3 | 26.98 | 38.5 | -11.5 |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBd) | ERP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 824.20 | 27.43 | V | 1.1 | -1.6 | 24.81 | 38.5 | -13.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 824.20 | 29.96 | H | 1.1 | -1.6 | 27.34 | 38.5 | -11.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 836.60 | 25.61 | V | 1.1 | -1.4 | 23.12 | 38.5 | -15.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 836.60 | 31.56 | H | 1.1 | -1.4 | 29.07 | 38.5 | -9.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 848.80 | 25.66 | V | 1.1 | -1.3 | 23.30 | 38.5 | -15.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 848.80 | 29.34 | H | 1.1 | -1.3 | 26.98 | 38.5 | -11.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GSM Band GSM850 EGPRS | High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <p> Company: Samsung Project #: 15K20096 Date: 02-27-15 Test Engineer: Steven.Kim Configuration: EUT ONLY, X Position Mode: GPRS 850 MHz </p> <p> Test Equipment: Receiving: VULB9163-750, and 3m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse. </p> <table border="1"> <thead> <tr> <th>f MHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBd)</th> <th>ERP (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>824.20</td> <td>16.99</td> <td>V</td> <td>1.1</td> <td>-1.6</td> <td>14.37</td> <td>38.5</td> <td>-24.1</td> <td></td> </tr> <tr> <td>824.20</td> <td>25.85</td> <td>H</td> <td>1.1</td> <td>-1.6</td> <td>23.23</td> <td>38.5</td> <td>-15.2</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>836.60</td> <td>18.68</td> <td>V</td> <td>1.1</td> <td>-1.4</td> <td>16.19</td> <td>38.5</td> <td>-22.3</td> <td></td> </tr> <tr> <td>836.60</td> <td>25.54</td> <td>H</td> <td>1.1</td> <td>-1.4</td> <td>23.05</td> <td>38.5</td> <td>-15.4</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>848.80</td> <td>20.33</td> <td>V</td> <td>1.1</td> <td>-1.3</td> <td>17.97</td> <td>38.5</td> <td>-20.5</td> <td></td> </tr> <tr> <td>848.80</td> <td>24.86</td> <td>H</td> <td>1.1</td> <td>-1.3</td> <td>22.50</td> <td>38.5</td> <td>-16.0</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm</p> | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBd) | ERP (dBm) | Limit (dBm) | Margin (dB) | Notes | Low Ch | | | | | | | | | 824.20 | 16.99 | V | 1.1 | -1.6 | 14.37 | 38.5 | -24.1 | | 824.20 | 25.85 | H | 1.1 | -1.6 | 23.23 | 38.5 | -15.2 | | Mid Ch | | | | | | | | | 836.60 | 18.68 | V | 1.1 | -1.4 | 16.19 | 38.5 | -22.3 | | 836.60 | 25.54 | H | 1.1 | -1.4 | 23.05 | 38.5 | -15.4 | | High Ch | | | | | | | | | 848.80 | 20.33 | V | 1.1 | -1.3 | 17.97 | 38.5 | -20.5 | | 848.80 | 24.86 | H | 1.1 | -1.3 | 22.50 | 38.5 | -16.0 |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBd) | ERP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 824.20 | 16.99 | V | 1.1 | -1.6 | 14.37 | 38.5 | -24.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 824.20 | 25.85 | H | 1.1 | -1.6 | 23.23 | 38.5 | -15.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 836.60 | 18.68 | V | 1.1 | -1.4 | 16.19 | 38.5 | -22.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 836.60 | 25.54 | H | 1.1 | -1.4 | 23.05 | 38.5 | -15.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 848.80 | 20.33 | V | 1.1 | -1.3 | 17.97 | 38.5 | -20.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 848.80 | 24.86 | H | 1.1 | -1.3 | 22.50 | 38.5 | -16.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| GSM Band GSM1900 GPRS | High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------------|---|-----------------|------------------|--------------------|-----------------|--------------------|------------|-------------|------------|-------|---------------|--|--|--|--|--|--|--|--|---------|-----|---|------|------|-------|------|-------|--|---------|------|---|------|------|-------|------|------|--|---------------|--|--|--|--|--|--|--|--|---------|------|---|------|------|-------|------|-------|--|---------|------|---|------|------|-------|------|-------|--|----------------|--|--|--|--|--|--|--|--|---------|------|---|------|------|-------|------|-------|--|---------|------|---|------|------|-------|------|-------|
| | <p> Company: Samsung Project #: 15K20096 Date: 02-27-15 Test Engineer: Steven.Kim Configuration: EUT ONLY, X Position Mode: GPRS 1900MHz </p> <p> Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse </p> <table border="1"> <thead> <tr> <th>f GHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBi)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Delta (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>1850.20</td> <td>8.0</td> <td>V</td> <td>1.60</td> <td>9.12</td> <td>15.48</td> <td>33.0</td> <td>-17.5</td> <td></td> </tr> <tr> <td>1850.20</td> <td>21.8</td> <td>H</td> <td>1.60</td> <td>9.12</td> <td>29.34</td> <td>33.0</td> <td>-3.7</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1880.00</td> <td>17.9</td> <td>V</td> <td>1.62</td> <td>8.98</td> <td>25.23</td> <td>33.0</td> <td>-7.8</td> <td></td> </tr> <tr> <td>1880.00</td> <td>23.7</td> <td>H</td> <td>1.62</td> <td>8.98</td> <td>31.03</td> <td>33.0</td> <td>-2.0</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1909.80</td> <td>13.6</td> <td>V</td> <td>1.63</td> <td>8.83</td> <td>20.75</td> <td>33.0</td> <td>-12.2</td> <td></td> </tr> <tr> <td>1909.80</td> <td>22.9</td> <td>H</td> <td>1.63</td> <td>8.83</td> <td>30.10</td> <td>33.0</td> <td>-2.9</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11</p> | f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes | Low Ch | | | | | | | | | 1850.20 | 8.0 | V | 1.60 | 9.12 | 15.48 | 33.0 | -17.5 | | 1850.20 | 21.8 | H | 1.60 | 9.12 | 29.34 | 33.0 | -3.7 | | Mid Ch | | | | | | | | | 1880.00 | 17.9 | V | 1.62 | 8.98 | 25.23 | 33.0 | -7.8 | | 1880.00 | 23.7 | H | 1.62 | 8.98 | 31.03 | 33.0 | -2.0 | | High Ch | | | | | | | | | 1909.80 | 13.6 | V | 1.63 | 8.83 | 20.75 | 33.0 | -12.2 | | 1909.80 | 22.9 | H | 1.63 | 8.83 | 30.10 | 33.0 | -2.9 |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1850.20 | 8.0 | V | 1.60 | 9.12 | 15.48 | 33.0 | -17.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1850.20 | 21.8 | H | 1.60 | 9.12 | 29.34 | 33.0 | -3.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1880.00 | 17.9 | V | 1.62 | 8.98 | 25.23 | 33.0 | -7.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1880.00 | 23.7 | H | 1.62 | 8.98 | 31.03 | 33.0 | -2.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1909.80 | 13.6 | V | 1.63 | 8.83 | 20.75 | 33.0 | -12.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1909.80 | 22.9 | H | 1.63 | 8.83 | 30.10 | 33.0 | -2.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GSM Band GSM1900 EGPRS | High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <p> Company: Samsung Project #: 15K20096 Date: 02-27-15 Test Engineer: Steven.Kim Configuration: EUT ONLY, X Position Mode: EGPRS 1900MHz </p> <p> Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse </p> <table border="1"> <thead> <tr> <th>f GHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBi)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Delta (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>1850.20</td> <td>5.0</td> <td>V</td> <td>1.60</td> <td>9.12</td> <td>12.54</td> <td>33.0</td> <td>-20.5</td> <td></td> </tr> <tr> <td>1850.20</td> <td>15.9</td> <td>H</td> <td>1.60</td> <td>9.12</td> <td>23.39</td> <td>33.0</td> <td>-9.6</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1880.00</td> <td>11.2</td> <td>V</td> <td>1.62</td> <td>8.98</td> <td>18.58</td> <td>33.0</td> <td>-14.4</td> <td></td> </tr> <tr> <td>1880.00</td> <td>15.4</td> <td>H</td> <td>1.62</td> <td>8.98</td> <td>22.71</td> <td>33.0</td> <td>-10.3</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1909.80</td> <td>9.6</td> <td>V</td> <td>1.63</td> <td>8.83</td> <td>16.79</td> <td>33.0</td> <td>-16.2</td> <td></td> </tr> <tr> <td>1909.80</td> <td>14.4</td> <td>H</td> <td>1.63</td> <td>8.83</td> <td>21.55</td> <td>33.0</td> <td>-11.4</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11</p> | f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes | Low Ch | | | | | | | | | 1850.20 | 5.0 | V | 1.60 | 9.12 | 12.54 | 33.0 | -20.5 | | 1850.20 | 15.9 | H | 1.60 | 9.12 | 23.39 | 33.0 | -9.6 | | Mid Ch | | | | | | | | | 1880.00 | 11.2 | V | 1.62 | 8.98 | 18.58 | 33.0 | -14.4 | | 1880.00 | 15.4 | H | 1.62 | 8.98 | 22.71 | 33.0 | -10.3 | | High Ch | | | | | | | | | 1909.80 | 9.6 | V | 1.63 | 8.83 | 16.79 | 33.0 | -16.2 | | 1909.80 | 14.4 | H | 1.63 | 8.83 | 21.55 | 33.0 | -11.4 |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1850.20 | 5.0 | V | 1.60 | 9.12 | 12.54 | 33.0 | -20.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1850.20 | 15.9 | H | 1.60 | 9.12 | 23.39 | 33.0 | -9.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1880.00 | 11.2 | V | 1.62 | 8.98 | 18.58 | 33.0 | -14.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1880.00 | 15.4 | H | 1.62 | 8.98 | 22.71 | 33.0 | -10.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1909.80 | 9.6 | V | 1.63 | 8.83 | 16.79 | 33.0 | -16.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1909.80 | 14.4 | H | 1.63 | 8.83 | 21.55 | 33.0 | -11.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| WCDMA Band 5 REL99 | High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------|---|--------------------|---------------------|-----------------------|--------------------|-----------------------|----------------|----------------|----------------|-------|---------------|--|--|--|--|--|--|--|--|--------|-------|---|-----|------|-------|------|-------|--|--------|-------|---|-----|------|-------|------|-------|--|---------------|--|--|--|--|--|--|--|--|--------|-------|---|-----|------|-------|------|-------|--|--------|-------|---|-----|------|-------|------|-------|--|----------------|--|--|--|--|--|--|--|--|--------|-------|---|-----|------|-------|------|-------|--|--------|-------|---|-----|------|-------|------|-------|
| | <p> Company: Samsung Project #: 15K20096 Date: 02-27-15 Test Engineer: Steven.Kim Configuration: EUT ONLY, X Position Mode: Rel 99_850 MHz </p> <p> Test Equipment: Receiving: VULB9163-750, and 3m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse. </p> <table border="1"> <thead> <tr> <th>f MHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBd)</th> <th>ERP (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>826.40</td> <td>14.70</td> <td>V</td> <td>1.1</td> <td>-1.5</td> <td>12.09</td> <td>38.5</td> <td>-26.4</td> <td></td> </tr> <tr> <td>826.40</td> <td>20.89</td> <td>H</td> <td>1.1</td> <td>-1.5</td> <td>18.28</td> <td>38.5</td> <td>-20.2</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>836.60</td> <td>14.76</td> <td>V</td> <td>1.1</td> <td>-1.4</td> <td>12.27</td> <td>38.5</td> <td>-26.2</td> <td></td> </tr> <tr> <td>836.60</td> <td>20.14</td> <td>H</td> <td>1.1</td> <td>-1.4</td> <td>17.65</td> <td>38.5</td> <td>-20.8</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>846.60</td> <td>15.10</td> <td>V</td> <td>1.1</td> <td>-1.3</td> <td>12.72</td> <td>38.5</td> <td>-25.7</td> <td></td> </tr> <tr> <td>846.60</td> <td>19.66</td> <td>H</td> <td>1.1</td> <td>-1.3</td> <td>17.28</td> <td>38.5</td> <td>-21.2</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11</p> | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBd) | ERP (dBm) | Limit (dBm) | Margin (dB) | Notes | Low Ch | | | | | | | | | 826.40 | 14.70 | V | 1.1 | -1.5 | 12.09 | 38.5 | -26.4 | | 826.40 | 20.89 | H | 1.1 | -1.5 | 18.28 | 38.5 | -20.2 | | Mid Ch | | | | | | | | | 836.60 | 14.76 | V | 1.1 | -1.4 | 12.27 | 38.5 | -26.2 | | 836.60 | 20.14 | H | 1.1 | -1.4 | 17.65 | 38.5 | -20.8 | | High Ch | | | | | | | | | 846.60 | 15.10 | V | 1.1 | -1.3 | 12.72 | 38.5 | -25.7 | | 846.60 | 19.66 | H | 1.1 | -1.3 | 17.28 | 38.5 | -21.2 |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBd) | ERP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 826.40 | 14.70 | V | 1.1 | -1.5 | 12.09 | 38.5 | -26.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 826.40 | 20.89 | H | 1.1 | -1.5 | 18.28 | 38.5 | -20.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 836.60 | 14.76 | V | 1.1 | -1.4 | 12.27 | 38.5 | -26.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 836.60 | 20.14 | H | 1.1 | -1.4 | 17.65 | 38.5 | -20.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 846.60 | 15.10 | V | 1.1 | -1.3 | 12.72 | 38.5 | -25.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 846.60 | 19.66 | H | 1.1 | -1.3 | 17.28 | 38.5 | -21.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WCDMA Band 5 HSDPA | High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <p> Company: Samsung Project #: 15K20096 Date: 02-27-15 Test Engineer: Steven.Kim Configuration: EUT ONLY, X Position Mode: HSDPA_850 MHz </p> <p> Test Equipment: Receiving: VULB9163-750, and 3m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse. </p> <table border="1"> <thead> <tr> <th>f MHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBd)</th> <th>ERP (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>826.40</td> <td>14.33</td> <td>V</td> <td>1.1</td> <td>-1.5</td> <td>11.72</td> <td>38.5</td> <td>-26.7</td> <td></td> </tr> <tr> <td>826.40</td> <td>18.99</td> <td>H</td> <td>1.1</td> <td>-1.5</td> <td>16.38</td> <td>38.5</td> <td>-22.1</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>836.60</td> <td>14.81</td> <td>V</td> <td>1.1</td> <td>-1.4</td> <td>12.32</td> <td>38.5</td> <td>-26.1</td> <td></td> </tr> <tr> <td>836.60</td> <td>18.64</td> <td>H</td> <td>1.1</td> <td>-1.4</td> <td>16.15</td> <td>38.5</td> <td>-22.3</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>846.60</td> <td>14.69</td> <td>V</td> <td>1.1</td> <td>-1.3</td> <td>12.31</td> <td>38.5</td> <td>-26.1</td> <td></td> </tr> <tr> <td>846.60</td> <td>19.70</td> <td>H</td> <td>1.1</td> <td>-1.3</td> <td>17.32</td> <td>38.5</td> <td>-21.1</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11</p> | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBd) | ERP (dBm) | Limit (dBm) | Margin (dB) | Notes | Low Ch | | | | | | | | | 826.40 | 14.33 | V | 1.1 | -1.5 | 11.72 | 38.5 | -26.7 | | 826.40 | 18.99 | H | 1.1 | -1.5 | 16.38 | 38.5 | -22.1 | | Mid Ch | | | | | | | | | 836.60 | 14.81 | V | 1.1 | -1.4 | 12.32 | 38.5 | -26.1 | | 836.60 | 18.64 | H | 1.1 | -1.4 | 16.15 | 38.5 | -22.3 | | High Ch | | | | | | | | | 846.60 | 14.69 | V | 1.1 | -1.3 | 12.31 | 38.5 | -26.1 | | 846.60 | 19.70 | H | 1.1 | -1.3 | 17.32 | 38.5 | -21.1 |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBd) | ERP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 826.40 | 14.33 | V | 1.1 | -1.5 | 11.72 | 38.5 | -26.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 826.40 | 18.99 | H | 1.1 | -1.5 | 16.38 | 38.5 | -22.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 836.60 | 14.81 | V | 1.1 | -1.4 | 12.32 | 38.5 | -26.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 836.60 | 18.64 | H | 1.1 | -1.4 | 16.15 | 38.5 | -22.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 846.60 | 14.69 | V | 1.1 | -1.3 | 12.31 | 38.5 | -26.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 846.60 | 19.70 | H | 1.1 | -1.3 | 17.32 | 38.5 | -21.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | | | | | | | | | |
|------------------------------|---|------------|-----------|------------|--------------|-------|-------|--------|-------|
| WCDMA Band 2 REL99 | High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1 | | | | | | | | |
| | Company: Samsung Project #: 15K20096 Date: 02-27-15 Test Engineer: Steven.Kim Configuration: EUT ONLY, X Position Mode: REL99_1900 MHz Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse | | | | | | | | |
| | f | SG reading | Ant. Pol. | Cable Loss | Antenna Gain | EIRP | Limit | Margin | Notes |
| | MHz | (dBm) | (H/V) | (dB) | (dBi) | (dBm) | (dBm) | (dB) | |
| | Low Ch | | | | | | | | |
| | 1852.40 | 9.64 | V | 1.60 | 9.12 | 17.16 | 33.0 | -15.8 | |
| | 1852.40 | 12.67 | H | 1.60 | 9.12 | 20.19 | 33.0 | -12.8 | |
| | Mid Ch | | | | | | | | |
| | 1880.00 | 11.58 | V | 1.62 | 8.98 | 18.94 | 33.0 | -14.1 | |
| | 1880.00 | 15.87 | H | 1.62 | 8.98 | 23.23 | 33.0 | -9.8 | |
| | High Ch | | | | | | | | |
| | 1907.60 | 7.85 | V | 1.63 | 8.83 | 15.05 | 33.0 | -17.9 | |
| | 1907.60 | 14.48 | H | 1.63 | 8.83 | 21.68 | 33.0 | -11.3 | |
| | Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm | | | | | | | | |
| WCDMA Band 2 HSDPA | High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1 | | | | | | | | |
| | Company: Samsung Project #: 15K20096 Date: 02-27-15 Test Engineer: Steven.Kim Configuration: EUT ONLY, X Position Mode: HSDPA_1900 MHz Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse | | | | | | | | |
| | f | SG reading | Ant. Pol. | Cable Loss | Antenna Gain | EIRP | Limit | Margin | Notes |
| | MHz | (dBm) | (H/V) | (dB) | (dBi) | (dBm) | (dBm) | (dB) | |
| | Low Ch | | | | | | | | |
| | 1852.40 | 3.78 | V | 1.60 | 9.12 | 11.30 | 33.0 | -21.7 | |
| | 1852.40 | 12.45 | H | 1.60 | 9.12 | 19.97 | 33.0 | -13.0 | |
| | Mid Ch | | | | | | | | |
| | 1880.00 | 11.58 | V | 1.62 | 8.98 | 18.94 | 33.0 | -14.1 | |
| | 1880.00 | 15.87 | H | 1.62 | 8.98 | 23.23 | 33.0 | -9.8 | |
| | High Ch | | | | | | | | |
| | 1907.60 | 7.31 | V | 1.63 | 8.83 | 14.51 | 33.0 | -18.5 | |
| | 1907.60 | 14.34 | H | 1.63 | 8.83 | 21.54 | 33.0 | -11.5 | |
| | Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm | | | | | | | | |

| WCDMA Band 4 REL99 | <p style="text-align: center;">High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1</p> <p>Company: Samsung Project #: 15K20096 Date: 02-27-15 Test Engineer: Steven.Kim Configuration: EUT ONLY, Z Position Mode: Rel 99_1700 MHz</p> <p>Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse</p> <table border="1"> <thead> <tr> <th>f MHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBi)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>1712.40</td> <td>16.82</td> <td>V</td> <td>1.60</td> <td>9.12</td> <td>24.34</td> <td>33.0</td> <td>-8.7</td> <td></td> </tr> <tr> <td>1712.40</td> <td>18.07</td> <td>H</td> <td>1.60</td> <td>9.12</td> <td>25.59</td> <td>33.0</td> <td>-7.4</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1732.60</td> <td>16.67</td> <td>V</td> <td>1.62</td> <td>8.98</td> <td>24.03</td> <td>33.0</td> <td>-9.0</td> <td></td> </tr> <tr> <td>1732.60</td> <td>18.32</td> <td>H</td> <td>1.62</td> <td>8.98</td> <td>25.68</td> <td>33.0</td> <td>-7.3</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1752.60</td> <td>16.63</td> <td>V</td> <td>1.63</td> <td>8.83</td> <td>23.83</td> <td>33.0</td> <td>-9.2</td> <td></td> </tr> <tr> <td>1752.60</td> <td>17.68</td> <td>H</td> <td>1.63</td> <td>8.83</td> <td>24.88</td> <td>33.0</td> <td>-8.1</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm</p> | | | | | | | | | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | Low Ch | | | | | | | | | 1712.40 | 16.82 | V | 1.60 | 9.12 | 24.34 | 33.0 | -8.7 | | 1712.40 | 18.07 | H | 1.60 | 9.12 | 25.59 | 33.0 | -7.4 | | Mid Ch | | | | | | | | | 1732.60 | 16.67 | V | 1.62 | 8.98 | 24.03 | 33.0 | -9.0 | | 1732.60 | 18.32 | H | 1.62 | 8.98 | 25.68 | 33.0 | -7.3 | | High Ch | | | | | | | | | 1752.60 | 16.63 | V | 1.63 | 8.83 | 23.83 | 33.0 | -9.2 | | 1752.60 | 17.68 | H | 1.63 | 8.83 | 24.88 | 33.0 | -8.1 | |
|------------------------------|---|---------------------|--------------------|-----------------------|-----------------------|----------------|----------------|----------------|-------|----------|---------------------|--------------------|--------------------|-----------------------|---------------|----------------|----------------|-------|---------------|--|--|--|--|--|--|--|--|---------|-------|---|------|------|-------|------|------|--|---------|-------|---|------|------|-------|------|------|--|---------------|--|--|--|--|--|--|--|--|---------|-------|---|------|------|-------|------|------|--|---------|-------|---|------|------|-------|------|-------|--|----------------|--|--|--|--|--|--|--|--|---------|-------|---|------|------|-------|------|------|--|---------|-------|---|------|------|-------|------|------|--|
| | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1712.40 | 16.82 | V | 1.60 | 9.12 | 24.34 | 33.0 | -8.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1712.40 | 18.07 | H | 1.60 | 9.12 | 25.59 | 33.0 | -7.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.60 | 16.67 | V | 1.62 | 8.98 | 24.03 | 33.0 | -9.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.60 | 18.32 | H | 1.62 | 8.98 | 25.68 | 33.0 | -7.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1752.60 | 16.63 | V | 1.63 | 8.83 | 23.83 | 33.0 | -9.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1752.60 | 17.68 | H | 1.63 | 8.83 | 24.88 | 33.0 | -8.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WCDMA Band 4 HSDPA | <p style="text-align: center;">High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1</p> <p>Company: Samsung Project #: 15K20096 Date: 02-27-15 Test Engineer: Steven.Kim Configuration: EUT ONLY, Z Position Mode: HSDPA_1700 MHz</p> <p>Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse</p> <table border="1"> <thead> <tr> <th>f MHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBi)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>1712.40</td> <td>16.15</td> <td>V</td> <td>1.60</td> <td>9.12</td> <td>23.67</td> <td>33.0</td> <td>-9.3</td> <td></td> </tr> <tr> <td>1712.40</td> <td>16.11</td> <td>H</td> <td>1.60</td> <td>9.12</td> <td>23.63</td> <td>33.0</td> <td>-9.4</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1732.60</td> <td>17.17</td> <td>V</td> <td>1.62</td> <td>8.98</td> <td>24.53</td> <td>33.0</td> <td>-8.5</td> <td></td> </tr> <tr> <td>1732.60</td> <td>14.39</td> <td>H</td> <td>1.62</td> <td>8.98</td> <td>21.75</td> <td>33.0</td> <td>-11.3</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1752.60</td> <td>17.35</td> <td>V</td> <td>1.63</td> <td>8.83</td> <td>24.55</td> <td>33.0</td> <td>-8.4</td> <td></td> </tr> <tr> <td>1752.60</td> <td>17.51</td> <td>H</td> <td>1.63</td> <td>8.83</td> <td>24.71</td> <td>33.0</td> <td>-8.3</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm</p> | | | | | | | | | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | Low Ch | | | | | | | | | 1712.40 | 16.15 | V | 1.60 | 9.12 | 23.67 | 33.0 | -9.3 | | 1712.40 | 16.11 | H | 1.60 | 9.12 | 23.63 | 33.0 | -9.4 | | Mid Ch | | | | | | | | | 1732.60 | 17.17 | V | 1.62 | 8.98 | 24.53 | 33.0 | -8.5 | | 1732.60 | 14.39 | H | 1.62 | 8.98 | 21.75 | 33.0 | -11.3 | | High Ch | | | | | | | | | 1752.60 | 17.35 | V | 1.63 | 8.83 | 24.55 | 33.0 | -8.4 | | 1752.60 | 17.51 | H | 1.63 | 8.83 | 24.71 | 33.0 | -8.3 | |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1712.40 | 16.15 | V | 1.60 | 9.12 | 23.67 | 33.0 | -9.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1712.40 | 16.11 | H | 1.60 | 9.12 | 23.63 | 33.0 | -9.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.60 | 17.17 | V | 1.62 | 8.98 | 24.53 | 33.0 | -8.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.60 | 14.39 | H | 1.62 | 8.98 | 21.75 | 33.0 | -11.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1752.60 | 17.35 | V | 1.63 | 8.83 | 24.55 | 33.0 | -8.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1752.60 | 17.51 | H | 1.63 | 8.83 | 24.71 | 33.0 | -8.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| LTE Band 2 20MHz QPSK | <p style="text-align: center;">High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1</p> <p>Company: Samsung Project #: 15K20096 Date: 02-28-15 Test Engineer: Steven.Kim Configuration: EUT / X-Position Mode: LTE Band 2 QPSK, 20MHz</p> <p>Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse</p> <table border="1"> <thead> <tr> <th>f MHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBi)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>1860.00</td> <td>14.87</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>22.81</td> <td>33.0</td> <td>-10.2</td> <td></td> </tr> <tr> <td>1860.00</td> <td>15.87</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>23.81</td> <td>33.0</td> <td>-9.2</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1880.00</td> <td>15.56</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>23.47</td> <td>33.0</td> <td>-9.5</td> <td></td> </tr> <tr> <td>1880.00</td> <td>14.69</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>22.60</td> <td>33.0</td> <td>-10.4</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1900.00</td> <td>16.24</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>24.13</td> <td>33.0</td> <td>-8.9</td> <td></td> </tr> <tr> <td>1900.00</td> <td>15.20</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>23.09</td> <td>33.0</td> <td>-9.9</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm</p> | | | | | | | | | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | Low Ch | | | | | | | | | 1860.00 | 14.87 | V | 1.9 | 9.8 | 22.81 | 33.0 | -10.2 | | 1860.00 | 15.87 | H | 1.9 | 9.8 | 23.81 | 33.0 | -9.2 | | Mid Ch | | | | | | | | | 1880.00 | 15.56 | V | 1.9 | 9.8 | 23.47 | 33.0 | -9.5 | | 1880.00 | 14.69 | H | 1.9 | 9.8 | 22.60 | 33.0 | -10.4 | | High Ch | | | | | | | | | 1900.00 | 16.24 | V | 1.9 | 9.8 | 24.13 | 33.0 | -8.9 | | 1900.00 | 15.20 | H | 1.9 | 9.8 | 23.09 | 33.0 | -9.9 | |
|-------------------------------------|---|------------------|-----------------|--------------------|--------------------|-------------|-------------|-------------|-------|-------|------------------|-----------------|-----------------|--------------------|------------|-------------|-------------|-------|---------------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|-------|--|---------|-------|---|-----|-----|-------|------|-------|--|---------------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|-------|--|---------|-------|---|-----|-----|-------|------|-------|--|----------------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|------|--|---------|-------|---|-----|-----|-------|------|-------|--|
| | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1860.00 | 14.87 | V | 1.9 | 9.8 | 22.81 | 33.0 | -10.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1860.00 | 15.87 | H | 1.9 | 9.8 | 23.81 | 33.0 | -9.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1880.00 | 15.56 | V | 1.9 | 9.8 | 23.47 | 33.0 | -9.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1880.00 | 14.69 | H | 1.9 | 9.8 | 22.60 | 33.0 | -10.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1900.00 | 16.24 | V | 1.9 | 9.8 | 24.13 | 33.0 | -8.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1900.00 | 15.20 | H | 1.9 | 9.8 | 23.09 | 33.0 | -9.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LTE Band 2 20MHz 16QAM | <p style="text-align: center;">High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1</p> <p>Company: Samsung Project #: 15K20096 Date: 02-28-15 Test Engineer: Steven.Kim Configuration: EUT / X-Position Mode: LTE Band 2 16QAM, 20MHz</p> <p>Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse</p> <table border="1"> <thead> <tr> <th>f MHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBi)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>1860.00</td> <td>13.88</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>21.82</td> <td>33.0</td> <td>-11.2</td> <td></td> </tr> <tr> <td>1860.00</td> <td>14.84</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>22.78</td> <td>33.0</td> <td>-10.2</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1880.00</td> <td>14.53</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>22.44</td> <td>33.0</td> <td>-10.6</td> <td></td> </tr> <tr> <td>1880.00</td> <td>13.69</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>21.60</td> <td>33.0</td> <td>-11.4</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1900.00</td> <td>15.26</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>23.15</td> <td>33.0</td> <td>-9.9</td> <td></td> </tr> <tr> <td>1900.00</td> <td>14.15</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>22.04</td> <td>33.0</td> <td>-11.0</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm</p> | | | | | | | | | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | Low Ch | | | | | | | | | 1860.00 | 13.88 | V | 1.9 | 9.8 | 21.82 | 33.0 | -11.2 | | 1860.00 | 14.84 | H | 1.9 | 9.8 | 22.78 | 33.0 | -10.2 | | Mid Ch | | | | | | | | | 1880.00 | 14.53 | V | 1.9 | 9.8 | 22.44 | 33.0 | -10.6 | | 1880.00 | 13.69 | H | 1.9 | 9.8 | 21.60 | 33.0 | -11.4 | | High Ch | | | | | | | | | 1900.00 | 15.26 | V | 1.9 | 9.8 | 23.15 | 33.0 | -9.9 | | 1900.00 | 14.15 | H | 1.9 | 9.8 | 22.04 | 33.0 | -11.0 | |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1860.00 | 13.88 | V | 1.9 | 9.8 | 21.82 | 33.0 | -11.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1860.00 | 14.84 | H | 1.9 | 9.8 | 22.78 | 33.0 | -10.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1880.00 | 14.53 | V | 1.9 | 9.8 | 22.44 | 33.0 | -10.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1880.00 | 13.69 | H | 1.9 | 9.8 | 21.60 | 33.0 | -11.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1900.00 | 15.26 | V | 1.9 | 9.8 | 23.15 | 33.0 | -9.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1900.00 | 14.15 | H | 1.9 | 9.8 | 22.04 | 33.0 | -11.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| LTE Band 2 15MHz QPSK | <p style="text-align: center;">High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1</p> <p>Company: Samsung Project #: 15K20096 Date: 02-28-15 Test Engineer: Steven.Kim Configuration: EUT / X-Position Mode: LTE Band 2 QPSK, 15MHz</p> <p>Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse</p> <table border="1"> <thead> <tr> <th>f MHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBi)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>1857.50</td> <td>14.96</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>22.90</td> <td>33.0</td> <td>-10.1</td> <td></td> </tr> <tr> <td>1857.50</td> <td>15.07</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>23.01</td> <td>33.0</td> <td>-10.0</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1880.00</td> <td>15.39</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>23.30</td> <td>33.0</td> <td>-9.7</td> <td></td> </tr> <tr> <td>1880.00</td> <td>15.56</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>23.47</td> <td>33.0</td> <td>-9.5</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1902.50</td> <td>16.02</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>23.91</td> <td>33.0</td> <td>-9.1</td> <td></td> </tr> <tr> <td>1902.50</td> <td>16.24</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>24.13</td> <td>33.0</td> <td>-8.9</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm</p> | | | | | | | | | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | Low Ch | | | | | | | | | 1857.50 | 14.96 | V | 1.9 | 9.8 | 22.90 | 33.0 | -10.1 | | 1857.50 | 15.07 | H | 1.9 | 9.8 | 23.01 | 33.0 | -10.0 | | Mid Ch | | | | | | | | | 1880.00 | 15.39 | V | 1.9 | 9.8 | 23.30 | 33.0 | -9.7 | | 1880.00 | 15.56 | H | 1.9 | 9.8 | 23.47 | 33.0 | -9.5 | | High Ch | | | | | | | | | 1902.50 | 16.02 | V | 1.9 | 9.8 | 23.91 | 33.0 | -9.1 | | 1902.50 | 16.24 | H | 1.9 | 9.8 | 24.13 | 33.0 | -8.9 | |
|-------------------------------------|---|------------------|-----------------|--------------------|--------------------|-------------|-------------|-------------|-------|-------|------------------|-----------------|-----------------|--------------------|------------|-------------|-------------|-------|---------------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|-------|--|---------|-------|---|-----|-----|-------|------|-------|--|---------------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|-------|--|---------|-------|---|-----|-----|-------|------|-------|--|----------------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|-------|--|---------|-------|---|-----|-----|-------|------|-------|--|
| | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1857.50 | 14.96 | V | 1.9 | 9.8 | 22.90 | 33.0 | -10.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1857.50 | 15.07 | H | 1.9 | 9.8 | 23.01 | 33.0 | -10.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1880.00 | 15.39 | V | 1.9 | 9.8 | 23.30 | 33.0 | -9.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1880.00 | 15.56 | H | 1.9 | 9.8 | 23.47 | 33.0 | -9.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1902.50 | 16.02 | V | 1.9 | 9.8 | 23.91 | 33.0 | -9.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1902.50 | 16.24 | H | 1.9 | 9.8 | 24.13 | 33.0 | -8.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1857.50 | 13.62 | V | 1.9 | 9.8 | 21.56 | 33.0 | -11.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1857.50 | 13.64 | H | 1.9 | 9.8 | 21.58 | 33.0 | -11.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1880.00 | 14.11 | V | 1.9 | 9.8 | 22.02 | 33.0 | -11.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1880.00 | 14.43 | H | 1.9 | 9.8 | 22.34 | 33.0 | -10.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1902.50 | 14.55 | V | 1.9 | 9.8 | 22.44 | 33.0 | -10.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1902.50 | 14.79 | H | 1.9 | 9.8 | 22.68 | 33.0 | -10.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| LTE Band 2 10MHz QPSK | <p style="text-align: center;">High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1</p> <p>Company: Samsung Project #: 15K20096 Date: 02-28-15 Test Engineer: Steven.Kim Configuration: EUT / X-Position Mode: LTE Band 2 QPSK, 10MHz</p> <p>Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse</p> <table border="1"> <thead> <tr> <th>f MHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBi)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>1855.00</td> <td>14.46</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>22.40</td> <td>33.0</td> <td>-10.6</td> <td></td> </tr> <tr> <td>1855.00</td> <td>15.13</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>23.07</td> <td>33.0</td> <td>-9.9</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1880.00</td> <td>14.72</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>22.63</td> <td>33.0</td> <td>-10.4</td> <td></td> </tr> <tr> <td>1880.00</td> <td>15.56</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>23.47</td> <td>33.0</td> <td>-9.5</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1905.00</td> <td>16.23</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>24.12</td> <td>33.0</td> <td>-8.9</td> <td></td> </tr> <tr> <td>1905.00</td> <td>16.69</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>24.58</td> <td>33.0</td> <td>-8.4</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm</p> | | | | | | | | | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | Low Ch | | | | | | | | | 1855.00 | 14.46 | V | 1.9 | 9.8 | 22.40 | 33.0 | -10.6 | | 1855.00 | 15.13 | H | 1.9 | 9.8 | 23.07 | 33.0 | -9.9 | | Mid Ch | | | | | | | | | 1880.00 | 14.72 | V | 1.9 | 9.8 | 22.63 | 33.0 | -10.4 | | 1880.00 | 15.56 | H | 1.9 | 9.8 | 23.47 | 33.0 | -9.5 | | High Ch | | | | | | | | | 1905.00 | 16.23 | V | 1.9 | 9.8 | 24.12 | 33.0 | -8.9 | | 1905.00 | 16.69 | H | 1.9 | 9.8 | 24.58 | 33.0 | -8.4 | |
|-------------------------------------|--|------------------|-----------------|--------------------|--------------------|-------------|-------------|-------------|-------|-------|------------------|-----------------|-----------------|--------------------|------------|-------------|-------------|-------|---------------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|-------|--|---------|-------|---|-----|-----|-------|------|-------|--|---------------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|-------|--|---------|-------|---|-----|-----|-------|------|-------|--|----------------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|-------|--|---------|-------|---|-----|-----|-------|------|------|--|
| | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1855.00 | 14.46 | V | 1.9 | 9.8 | 22.40 | 33.0 | -10.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1855.00 | 15.13 | H | 1.9 | 9.8 | 23.07 | 33.0 | -9.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1880.00 | 14.72 | V | 1.9 | 9.8 | 22.63 | 33.0 | -10.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1880.00 | 15.56 | H | 1.9 | 9.8 | 23.47 | 33.0 | -9.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1905.00 | 16.23 | V | 1.9 | 9.8 | 24.12 | 33.0 | -8.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1905.00 | 16.69 | H | 1.9 | 9.8 | 24.58 | 33.0 | -8.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LTE Band 2 10MHz 16QAM | <p style="text-align: center;">High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1</p> <p>Company: Samsung Project #: 15K20096 Date: 02-28-15 Test Engineer: Steven.Kim Configuration: EUT / X-Position Mode: LTE Band 2 16QAM, 10MHz</p> <p>Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse</p> <table border="1"> <thead> <tr> <th>f MHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBi)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>1855.00</td> <td>13.25</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>21.19</td> <td>33.0</td> <td>-11.8</td> <td></td> </tr> <tr> <td>1855.00</td> <td>13.66</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>21.60</td> <td>33.0</td> <td>-11.4</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1880.00</td> <td>13.29</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>21.20</td> <td>33.0</td> <td>-11.8</td> <td></td> </tr> <tr> <td>1880.00</td> <td>14.54</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>22.45</td> <td>33.0</td> <td>-10.6</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1905.00</td> <td>15.13</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>23.02</td> <td>33.0</td> <td>-10.0</td> <td></td> </tr> <tr> <td>1905.00</td> <td>15.65</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>23.54</td> <td>33.0</td> <td>-9.5</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm</p> | | | | | | | | | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | Low Ch | | | | | | | | | 1855.00 | 13.25 | V | 1.9 | 9.8 | 21.19 | 33.0 | -11.8 | | 1855.00 | 13.66 | H | 1.9 | 9.8 | 21.60 | 33.0 | -11.4 | | Mid Ch | | | | | | | | | 1880.00 | 13.29 | V | 1.9 | 9.8 | 21.20 | 33.0 | -11.8 | | 1880.00 | 14.54 | H | 1.9 | 9.8 | 22.45 | 33.0 | -10.6 | | High Ch | | | | | | | | | 1905.00 | 15.13 | V | 1.9 | 9.8 | 23.02 | 33.0 | -10.0 | | 1905.00 | 15.65 | H | 1.9 | 9.8 | 23.54 | 33.0 | -9.5 | |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1855.00 | 13.25 | V | 1.9 | 9.8 | 21.19 | 33.0 | -11.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1855.00 | 13.66 | H | 1.9 | 9.8 | 21.60 | 33.0 | -11.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1880.00 | 13.29 | V | 1.9 | 9.8 | 21.20 | 33.0 | -11.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1880.00 | 14.54 | H | 1.9 | 9.8 | 22.45 | 33.0 | -10.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1905.00 | 15.13 | V | 1.9 | 9.8 | 23.02 | 33.0 | -10.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1905.00 | 15.65 | H | 1.9 | 9.8 | 23.54 | 33.0 | -9.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | | | | | | | | | |
|------------------------------------|---|------------|-----------|------------|--------------|-------|-------|--------|-------|
| LTE Band 2 5MHz QPSK | High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1 | | | | | | | | |
| | Company: Samsung Project #: 15K20096 Date: 02-28-15 Test Engineer: Steven.Kim Configuration: EUT / X-Position Mode: LTE Band 2 QPSK, 5MHz Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse | | | | | | | | |
| | f | SG reading | Ant. Pol. | Cable Loss | Antenna Gain | EIRP | Limit | Margin | Notes |
| | MHz | (dBm) | (H/V) | (dB) | (dBi) | (dBm) | (dBm) | (dB) | |
| | Low Ch | | | | | | | | |
| | 1852.50 | 10.61 | V | 1.9 | 9.8 | 18.55 | 33.0 | -14.5 | |
| | 1852.50 | 15.19 | H | 1.9 | 9.8 | 23.13 | 33.0 | -9.9 | |
| | Mid Ch | | | | | | | | |
| | 1880.00 | 13.73 | V | 1.9 | 9.8 | 21.64 | 33.0 | -11.4 | |
| | 1880.00 | 14.39 | H | 1.9 | 9.8 | 22.30 | 33.0 | -10.7 | |
| | High Ch | | | | | | | | |
| | 1907.50 | 15.75 | V | 1.9 | 9.8 | 23.64 | 33.0 | -9.4 | |
| | 1907.50 | 14.72 | H | 1.9 | 9.8 | 22.61 | 33.0 | -10.4 | |
| | Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm | | | | | | | | |
| LTE Band 2 5MHz 16QAM | High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1 | | | | | | | | |
| | Company: Samsung Project #: 15K20096 Date: 02-28-15 Test Engineer: Steven.Kim Configuration: EUT / X-Position Mode: LTE Band 2 16QAM, 5MHz Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse | | | | | | | | |
| | f | SG reading | Ant. Pol. | Cable Loss | Antenna Gain | EIRP | Limit | Margin | Notes |
| | MHz | (dBm) | (H/V) | (dB) | (dBi) | (dBm) | (dBm) | (dB) | |
| | Low Ch | | | | | | | | |
| | 1852.50 | 11.56 | V | 1.9 | 9.8 | 19.50 | 33.0 | -13.5 | |
| | 1852.50 | 16.18 | H | 1.9 | 9.8 | 24.12 | 33.0 | -8.9 | |
| | Mid Ch | | | | | | | | |
| | 1880.00 | 14.66 | V | 1.9 | 9.8 | 22.57 | 33.0 | -10.4 | |
| | 1880.00 | 15.15 | H | 1.9 | 9.8 | 23.06 | 33.0 | -9.9 | |
| | High Ch | | | | | | | | |
| | 1907.50 | 16.62 | V | 1.9 | 9.8 | 24.51 | 33.0 | -8.5 | |
| | 1907.50 | 15.58 | H | 1.9 | 9.8 | 23.47 | 33.0 | -9.5 | |
| | Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm | | | | | | | | |

| LTE Band 2 3MHz QPSK | <p style="text-align: center;">High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1</p> <p>Company: Samsung Project #: 15K20096 Date: 02-28-15 Test Engineer: Steven.Kim Configuration: EUT / X-Position Mode: LTE Band 2 QPSK, 3MHz</p> <p>Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse</p> <table border="1"> <thead> <tr> <th>f MHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBi)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>1815.50</td> <td>10.61</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>18.55</td> <td>33.0</td> <td>-14.5</td> <td></td> </tr> <tr> <td>1815.50</td> <td>11.25</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>19.19</td> <td>33.0</td> <td>-13.8</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1880.00</td> <td>12.76</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>20.67</td> <td>33.0</td> <td>-12.3</td> <td></td> </tr> <tr> <td>1880.00</td> <td>13.20</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>21.11</td> <td>33.0</td> <td>-11.9</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1908.50</td> <td>16.75</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>24.64</td> <td>33.0</td> <td>-8.4</td> <td></td> </tr> <tr> <td>1908.50</td> <td>14.56</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>22.45</td> <td>33.0</td> <td>-10.6</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm</p> | | | | | | | | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | Low Ch | | | | | | | | | 1815.50 | 10.61 | V | 1.9 | 9.8 | 18.55 | 33.0 | -14.5 | | 1815.50 | 11.25 | H | 1.9 | 9.8 | 19.19 | 33.0 | -13.8 | | Mid Ch | | | | | | | | | 1880.00 | 12.76 | V | 1.9 | 9.8 | 20.67 | 33.0 | -12.3 | | 1880.00 | 13.20 | H | 1.9 | 9.8 | 21.11 | 33.0 | -11.9 | | High Ch | | | | | | | | | 1908.50 | 16.75 | V | 1.9 | 9.8 | 24.64 | 33.0 | -8.4 | | 1908.50 | 14.56 | H | 1.9 | 9.8 | 22.45 | 33.0 | -10.6 | |
|------------------------------------|---|---------------------|--------------------|-----------------------|-----------------------|----------------|----------------|----------------|----------|---------------------|--------------------|--------------------|-----------------------|---------------|----------------|----------------|-------|---------------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|-------|--|---------|-------|---|-----|-----|-------|------|-------|--|---------------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|-------|--|---------|-------|---|-----|-----|-------|------|-------|--|----------------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|------|--|---------|-------|---|-----|-----|-------|------|-------|--|
| | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1815.50 | 10.61 | V | 1.9 | 9.8 | 18.55 | 33.0 | -14.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1815.50 | 11.25 | H | 1.9 | 9.8 | 19.19 | 33.0 | -13.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1880.00 | 12.76 | V | 1.9 | 9.8 | 20.67 | 33.0 | -12.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1880.00 | 13.20 | H | 1.9 | 9.8 | 21.11 | 33.0 | -11.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1908.50 | 16.75 | V | 1.9 | 9.8 | 24.64 | 33.0 | -8.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1908.50 | 14.56 | H | 1.9 | 9.8 | 22.45 | 33.0 | -10.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LTE Band 2 3MHz 16QAM | <p style="text-align: center;">High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1</p> <p>Company: Samsung Project #: 15K20096 Date: 02-28-15 Test Engineer: Steven.Kim Configuration: EUT / X-Position Mode: LTE Band 2 16QAM, 3MHz</p> <p>Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse</p> <table border="1"> <thead> <tr> <th>f MHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBi)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>1851.50</td> <td>10.44</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>18.38</td> <td>33.0</td> <td>-14.6</td> <td></td> </tr> <tr> <td>1851.50</td> <td>11.04</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>18.98</td> <td>33.0</td> <td>-14.0</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1880.00</td> <td>12.09</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>20.00</td> <td>33.0</td> <td>-13.0</td> <td></td> </tr> <tr> <td>1880.00</td> <td>12.09</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>20.00</td> <td>33.0</td> <td>-13.0</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1908.50</td> <td>15.35</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>23.24</td> <td>33.0</td> <td>-9.8</td> <td></td> </tr> <tr> <td>1908.50</td> <td>13.48</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>21.37</td> <td>33.0</td> <td>-11.6</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm</p> | | | | | | | | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | Low Ch | | | | | | | | | 1851.50 | 10.44 | V | 1.9 | 9.8 | 18.38 | 33.0 | -14.6 | | 1851.50 | 11.04 | H | 1.9 | 9.8 | 18.98 | 33.0 | -14.0 | | Mid Ch | | | | | | | | | 1880.00 | 12.09 | V | 1.9 | 9.8 | 20.00 | 33.0 | -13.0 | | 1880.00 | 12.09 | H | 1.9 | 9.8 | 20.00 | 33.0 | -13.0 | | High Ch | | | | | | | | | 1908.50 | 15.35 | V | 1.9 | 9.8 | 23.24 | 33.0 | -9.8 | | 1908.50 | 13.48 | H | 1.9 | 9.8 | 21.37 | 33.0 | -11.6 | |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1851.50 | 10.44 | V | 1.9 | 9.8 | 18.38 | 33.0 | -14.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1851.50 | 11.04 | H | 1.9 | 9.8 | 18.98 | 33.0 | -14.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1880.00 | 12.09 | V | 1.9 | 9.8 | 20.00 | 33.0 | -13.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1880.00 | 12.09 | H | 1.9 | 9.8 | 20.00 | 33.0 | -13.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1908.50 | 15.35 | V | 1.9 | 9.8 | 23.24 | 33.0 | -9.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1908.50 | 13.48 | H | 1.9 | 9.8 | 21.37 | 33.0 | -11.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| LTE Band 2 1.4MHz QPSK | <p style="text-align: center;">High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1</p> <p>Company: Samsung Project #: 15K20096 Date: 02-28-15 Test Engineer: Steven.Kim Configuration: EUT / X-Position Mode: LTE Band 2 QPSK, 1.4MHz</p> <p>Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse</p> <table border="1"> <thead> <tr> <th>f MHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBi)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>1850.70</td> <td>6.46</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>14.40</td> <td>33.0</td> <td>-18.6</td> <td></td> </tr> <tr> <td>1850.70</td> <td>9.47</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>17.41</td> <td>33.0</td> <td>-15.6</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1880.00</td> <td>7.13</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>15.04</td> <td>33.0</td> <td>-18.0</td> <td></td> </tr> <tr> <td>1880.00</td> <td>11.09</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>19.00</td> <td>33.0</td> <td>-14.0</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1909.30</td> <td>13.50</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>21.39</td> <td>33.0</td> <td>-11.6</td> <td></td> </tr> <tr> <td>1909.30</td> <td>13.04</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>20.93</td> <td>33.0</td> <td>-12.1</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm</p> | | | | | | | | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | Low Ch | | | | | | | | | 1850.70 | 6.46 | V | 1.9 | 9.8 | 14.40 | 33.0 | -18.6 | | 1850.70 | 9.47 | H | 1.9 | 9.8 | 17.41 | 33.0 | -15.6 | | Mid Ch | | | | | | | | | 1880.00 | 7.13 | V | 1.9 | 9.8 | 15.04 | 33.0 | -18.0 | | 1880.00 | 11.09 | H | 1.9 | 9.8 | 19.00 | 33.0 | -14.0 | | High Ch | | | | | | | | | 1909.30 | 13.50 | V | 1.9 | 9.8 | 21.39 | 33.0 | -11.6 | | 1909.30 | 13.04 | H | 1.9 | 9.8 | 20.93 | 33.0 | -12.1 | |
|--------------------------------------|---|------------------|-----------------|--------------------|--------------------|-------------|-------------|-------------|-------|------------------|-----------------|-----------------|--------------------|------------|-------------|-------------|-------|--------|--|--|--|--|--|--|--|--|---------|------|---|-----|-----|-------|------|-------|--|---------|------|---|-----|-----|-------|------|-------|--|--------|--|--|--|--|--|--|--|--|---------|------|---|-----|-----|-------|------|-------|--|---------|-------|---|-----|-----|-------|------|-------|--|---------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|-------|--|---------|-------|---|-----|-----|-------|------|-------|--|
| | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1850.70 | 6.46 | V | 1.9 | 9.8 | 14.40 | 33.0 | -18.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1850.70 | 9.47 | H | 1.9 | 9.8 | 17.41 | 33.0 | -15.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1880.00 | 7.13 | V | 1.9 | 9.8 | 15.04 | 33.0 | -18.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1880.00 | 11.09 | H | 1.9 | 9.8 | 19.00 | 33.0 | -14.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1909.30 | 13.50 | V | 1.9 | 9.8 | 21.39 | 33.0 | -11.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1909.30 | 13.04 | H | 1.9 | 9.8 | 20.93 | 33.0 | -12.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1850.70 | 6.34 | V | 1.9 | 9.8 | 14.28 | 33.0 | -18.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1850.70 | 9.36 | H | 1.9 | 9.8 | 17.30 | 33.0 | -15.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1880.00 | 6.08 | V | 1.9 | 9.8 | 13.99 | 33.0 | -19.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1880.00 | 10.19 | H | 1.9 | 9.8 | 18.10 | 33.0 | -14.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1909.30 | 12.31 | V | 1.9 | 9.8 | 20.20 | 33.0 | -12.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1909.30 | 11.94 | H | 1.9 | 9.8 | 19.83 | 33.0 | -13.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| LTE Band 4 20MHz QPSK | High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------------|---|-----------------|------------------|--------------------|-----------------|--------------------|-------------|-------------|-------------|-------|--------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|------|--|---------|-------|---|-----|-----|-------|------|------|--|--------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|------|--|---------|-------|---|-----|-----|-------|------|------|--|---------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|------|--|---------|-------|---|-----|-----|-------|------|------|
| | <p> Company: Samsung Project #: 15K20096 Date: 03-06-15 Test Engineer: Steven.Kim Configuration: EUT / Z-Position Mode: LTE Band 4, QPSK, 20MHz </p> <p> Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse </p> <table border="1"> <thead> <tr> <th>f MHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBi)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>1720.00</td> <td>13.99</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>21.93</td> <td>30.0</td> <td>-8.1</td> <td></td> </tr> <tr> <td>1720.00</td> <td>14.37</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>22.31</td> <td>30.0</td> <td>-7.7</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1732.50</td> <td>14.46</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>22.37</td> <td>30.0</td> <td>-7.6</td> <td></td> </tr> <tr> <td>1732.50</td> <td>15.12</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>23.03</td> <td>30.0</td> <td>-7.0</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1745.00</td> <td>13.67</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>21.56</td> <td>30.0</td> <td>-8.4</td> <td></td> </tr> <tr> <td>1745.00</td> <td>15.64</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>23.53</td> <td>30.0</td> <td>-6.5</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm</p> | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | Low Ch | | | | | | | | | 1720.00 | 13.99 | V | 1.9 | 9.8 | 21.93 | 30.0 | -8.1 | | 1720.00 | 14.37 | H | 1.9 | 9.8 | 22.31 | 30.0 | -7.7 | | Mid Ch | | | | | | | | | 1732.50 | 14.46 | V | 1.9 | 9.8 | 22.37 | 30.0 | -7.6 | | 1732.50 | 15.12 | H | 1.9 | 9.8 | 23.03 | 30.0 | -7.0 | | High Ch | | | | | | | | | 1745.00 | 13.67 | V | 1.9 | 9.8 | 21.56 | 30.0 | -8.4 | | 1745.00 | 15.64 | H | 1.9 | 9.8 | 23.53 | 30.0 | -6.5 |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1720.00 | 13.99 | V | 1.9 | 9.8 | 21.93 | 30.0 | -8.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1720.00 | 14.37 | H | 1.9 | 9.8 | 22.31 | 30.0 | -7.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.50 | 14.46 | V | 1.9 | 9.8 | 22.37 | 30.0 | -7.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.50 | 15.12 | H | 1.9 | 9.8 | 23.03 | 30.0 | -7.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1745.00 | 13.67 | V | 1.9 | 9.8 | 21.56 | 30.0 | -8.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1745.00 | 15.64 | H | 1.9 | 9.8 | 23.53 | 30.0 | -6.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LTE Band 4 20MHz 16QAM | High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <p> Company: Samsung Project #: 15K20096 Date: 03-06-15 Test Engineer: Steven.Kim Configuration: EUT / Z-Position Mode: LTE Band 4, 16QAM, 20MHz </p> <p> Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse </p> <table border="1"> <thead> <tr> <th>f MHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBi)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>1720.00</td> <td>13.09</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>21.03</td> <td>30.0</td> <td>-9.0</td> <td></td> </tr> <tr> <td>1720.00</td> <td>13.12</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>21.06</td> <td>30.0</td> <td>-8.9</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1732.50</td> <td>12.66</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>20.57</td> <td>30.0</td> <td>-9.4</td> <td></td> </tr> <tr> <td>1732.50</td> <td>14.23</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>22.14</td> <td>30.0</td> <td>-7.9</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1745.00</td> <td>12.67</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>20.56</td> <td>30.0</td> <td>-9.4</td> <td></td> </tr> <tr> <td>1745.00</td> <td>14.16</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>22.05</td> <td>30.0</td> <td>-8.0</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm</p> | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | Low Ch | | | | | | | | | 1720.00 | 13.09 | V | 1.9 | 9.8 | 21.03 | 30.0 | -9.0 | | 1720.00 | 13.12 | H | 1.9 | 9.8 | 21.06 | 30.0 | -8.9 | | Mid Ch | | | | | | | | | 1732.50 | 12.66 | V | 1.9 | 9.8 | 20.57 | 30.0 | -9.4 | | 1732.50 | 14.23 | H | 1.9 | 9.8 | 22.14 | 30.0 | -7.9 | | High Ch | | | | | | | | | 1745.00 | 12.67 | V | 1.9 | 9.8 | 20.56 | 30.0 | -9.4 | | 1745.00 | 14.16 | H | 1.9 | 9.8 | 22.05 | 30.0 | -8.0 |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1720.00 | 13.09 | V | 1.9 | 9.8 | 21.03 | 30.0 | -9.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1720.00 | 13.12 | H | 1.9 | 9.8 | 21.06 | 30.0 | -8.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.50 | 12.66 | V | 1.9 | 9.8 | 20.57 | 30.0 | -9.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.50 | 14.23 | H | 1.9 | 9.8 | 22.14 | 30.0 | -7.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1745.00 | 12.67 | V | 1.9 | 9.8 | 20.56 | 30.0 | -9.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1745.00 | 14.16 | H | 1.9 | 9.8 | 22.05 | 30.0 | -8.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| LTE Band 4 15MHz QPSK | High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------------|--|-----------------|------------------|--------------------|-----------------|--------------------|-------------|-------------|-------------|-------|--------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|------|--|---------|-------|---|-----|-----|-------|------|------|--|--------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|-------|--|---------|-------|---|-----|-----|-------|------|------|--|---------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|------|--|---------|-------|---|-----|-----|-------|------|------|
| | <p> Company: Samsung Project #: 15K20096 Date: 03-06-15 Test Engineer: Steven.Kim Configuration: EUT / Z-Position Mode: LTE Band 4, QPSK, 15MHz </p> <p> Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse </p> <table border="1"> <thead> <tr> <th>f MHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBi)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>1717.50</td> <td>13.47</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>21.41</td> <td>30.0</td> <td>-8.6</td> <td></td> </tr> <tr> <td>1717.50</td> <td>14.80</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>22.74</td> <td>30.0</td> <td>-7.3</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1732.50</td> <td>13.16</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>21.07</td> <td>30.0</td> <td>-8.9</td> <td></td> </tr> <tr> <td>1732.50</td> <td>14.22</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>22.13</td> <td>30.0</td> <td>-7.9</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1747.50</td> <td>13.62</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>21.51</td> <td>30.0</td> <td>-8.5</td> <td></td> </tr> <tr> <td>1747.50</td> <td>15.22</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>23.11</td> <td>30.0</td> <td>-6.9</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm</p> | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | Low Ch | | | | | | | | | 1717.50 | 13.47 | V | 1.9 | 9.8 | 21.41 | 30.0 | -8.6 | | 1717.50 | 14.80 | H | 1.9 | 9.8 | 22.74 | 30.0 | -7.3 | | Mid Ch | | | | | | | | | 1732.50 | 13.16 | V | 1.9 | 9.8 | 21.07 | 30.0 | -8.9 | | 1732.50 | 14.22 | H | 1.9 | 9.8 | 22.13 | 30.0 | -7.9 | | High Ch | | | | | | | | | 1747.50 | 13.62 | V | 1.9 | 9.8 | 21.51 | 30.0 | -8.5 | | 1747.50 | 15.22 | H | 1.9 | 9.8 | 23.11 | 30.0 | -6.9 |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1717.50 | 13.47 | V | 1.9 | 9.8 | 21.41 | 30.0 | -8.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1717.50 | 14.80 | H | 1.9 | 9.8 | 22.74 | 30.0 | -7.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.50 | 13.16 | V | 1.9 | 9.8 | 21.07 | 30.0 | -8.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.50 | 14.22 | H | 1.9 | 9.8 | 22.13 | 30.0 | -7.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1747.50 | 13.62 | V | 1.9 | 9.8 | 21.51 | 30.0 | -8.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1747.50 | 15.22 | H | 1.9 | 9.8 | 23.11 | 30.0 | -6.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LTE Band 4 15MHz 16QAM | High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <p> Company: Samsung Project #: 15K20096 Date: 03-06-15 Test Engineer: Steven.Kim Configuration: EUT / Z-Position Mode: LTE Band 4, 16QAM, 15MHz </p> <p> Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse </p> <table border="1"> <thead> <tr> <th>f MHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBi)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>1717.50</td> <td>12.47</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>20.41</td> <td>30.0</td> <td>-9.6</td> <td></td> </tr> <tr> <td>1717.50</td> <td>13.30</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>21.24</td> <td>30.0</td> <td>-8.8</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1732.50</td> <td>11.76</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>19.67</td> <td>30.0</td> <td>-10.3</td> <td></td> </tr> <tr> <td>1732.50</td> <td>13.54</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>21.45</td> <td>30.0</td> <td>-8.6</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1747.50</td> <td>12.72</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>20.61</td> <td>30.0</td> <td>-9.4</td> <td></td> </tr> <tr> <td>1747.50</td> <td>14.62</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>22.51</td> <td>30.0</td> <td>-7.5</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm</p> | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | Low Ch | | | | | | | | | 1717.50 | 12.47 | V | 1.9 | 9.8 | 20.41 | 30.0 | -9.6 | | 1717.50 | 13.30 | H | 1.9 | 9.8 | 21.24 | 30.0 | -8.8 | | Mid Ch | | | | | | | | | 1732.50 | 11.76 | V | 1.9 | 9.8 | 19.67 | 30.0 | -10.3 | | 1732.50 | 13.54 | H | 1.9 | 9.8 | 21.45 | 30.0 | -8.6 | | High Ch | | | | | | | | | 1747.50 | 12.72 | V | 1.9 | 9.8 | 20.61 | 30.0 | -9.4 | | 1747.50 | 14.62 | H | 1.9 | 9.8 | 22.51 | 30.0 | -7.5 |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1717.50 | 12.47 | V | 1.9 | 9.8 | 20.41 | 30.0 | -9.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1717.50 | 13.30 | H | 1.9 | 9.8 | 21.24 | 30.0 | -8.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.50 | 11.76 | V | 1.9 | 9.8 | 19.67 | 30.0 | -10.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.50 | 13.54 | H | 1.9 | 9.8 | 21.45 | 30.0 | -8.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1747.50 | 12.72 | V | 1.9 | 9.8 | 20.61 | 30.0 | -9.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1747.50 | 14.62 | H | 1.9 | 9.8 | 22.51 | 30.0 | -7.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| LTE Band 4 10MHz QPSK | High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------------|--|-----------------|------------------|--------------------|-----------------|--------------------|-------------|-------------|-------------|-------|--------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|-------|--|---------|-------|---|-----|-----|-------|------|------|--|--------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|-------|--|---------|-------|---|-----|-----|-------|------|-------|--|---------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|-------|--|---------|-------|---|-----|-----|-------|------|-------|
| | <p> Company: Samsung Project #: 15K20096 Date: 03-06-15 Test Engineer: Steven.Kim Configuration: EUT / Z-Position Mode: LTE Band 4, QPSK, 10MHz </p> <p> Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse </p> <table border="1"> <thead> <tr> <th>f MHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBi)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>1715.00</td> <td>12.05</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>19.99</td> <td>30.0</td> <td>-10.0</td> <td></td> </tr> <tr> <td>1715.00</td> <td>13.15</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>21.09</td> <td>30.0</td> <td>-8.9</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1732.50</td> <td>11.16</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>19.07</td> <td>30.0</td> <td>-10.9</td> <td></td> </tr> <tr> <td>1732.50</td> <td>12.72</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>20.63</td> <td>30.0</td> <td>-9.4</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1750.00</td> <td>11.66</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>19.55</td> <td>30.0</td> <td>-10.5</td> <td></td> </tr> <tr> <td>1750.00</td> <td>12.86</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>20.75</td> <td>30.0</td> <td>-9.3</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm</p> | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | Low Ch | | | | | | | | | 1715.00 | 12.05 | V | 1.9 | 9.8 | 19.99 | 30.0 | -10.0 | | 1715.00 | 13.15 | H | 1.9 | 9.8 | 21.09 | 30.0 | -8.9 | | Mid Ch | | | | | | | | | 1732.50 | 11.16 | V | 1.9 | 9.8 | 19.07 | 30.0 | -10.9 | | 1732.50 | 12.72 | H | 1.9 | 9.8 | 20.63 | 30.0 | -9.4 | | High Ch | | | | | | | | | 1750.00 | 11.66 | V | 1.9 | 9.8 | 19.55 | 30.0 | -10.5 | | 1750.00 | 12.86 | H | 1.9 | 9.8 | 20.75 | 30.0 | -9.3 |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1715.00 | 12.05 | V | 1.9 | 9.8 | 19.99 | 30.0 | -10.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1715.00 | 13.15 | H | 1.9 | 9.8 | 21.09 | 30.0 | -8.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.50 | 11.16 | V | 1.9 | 9.8 | 19.07 | 30.0 | -10.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.50 | 12.72 | H | 1.9 | 9.8 | 20.63 | 30.0 | -9.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1750.00 | 11.66 | V | 1.9 | 9.8 | 19.55 | 30.0 | -10.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1750.00 | 12.86 | H | 1.9 | 9.8 | 20.75 | 30.0 | -9.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LTE Band 4 10MHz 16QAM | High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <p> Company: Samsung Project #: 15K20096 Date: 03-06-15 Test Engineer: Steven.Kim Configuration: EUT / Z-Position Mode: LTE Band 4 16QAM, 10MHz </p> <p> Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse </p> <table border="1"> <thead> <tr> <th>f MHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBi)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>1715.00</td> <td>10.95</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>18.89</td> <td>30.0</td> <td>-11.1</td> <td></td> </tr> <tr> <td>1715.00</td> <td>12.35</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>20.29</td> <td>30.0</td> <td>-9.7</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1732.50</td> <td>9.96</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>17.87</td> <td>30.0</td> <td>-12.1</td> <td></td> </tr> <tr> <td>1732.50</td> <td>12.06</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>19.97</td> <td>30.0</td> <td>-10.0</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1750.00</td> <td>11.26</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>19.15</td> <td>30.0</td> <td>-10.9</td> <td></td> </tr> <tr> <td>1750.00</td> <td>12.11</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>20.00</td> <td>30.0</td> <td>-10.0</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm</p> | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | Low Ch | | | | | | | | | 1715.00 | 10.95 | V | 1.9 | 9.8 | 18.89 | 30.0 | -11.1 | | 1715.00 | 12.35 | H | 1.9 | 9.8 | 20.29 | 30.0 | -9.7 | | Mid Ch | | | | | | | | | 1732.50 | 9.96 | V | 1.9 | 9.8 | 17.87 | 30.0 | -12.1 | | 1732.50 | 12.06 | H | 1.9 | 9.8 | 19.97 | 30.0 | -10.0 | | High Ch | | | | | | | | | 1750.00 | 11.26 | V | 1.9 | 9.8 | 19.15 | 30.0 | -10.9 | | 1750.00 | 12.11 | H | 1.9 | 9.8 | 20.00 | 30.0 | -10.0 |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1715.00 | 10.95 | V | 1.9 | 9.8 | 18.89 | 30.0 | -11.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1715.00 | 12.35 | H | 1.9 | 9.8 | 20.29 | 30.0 | -9.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.50 | 9.96 | V | 1.9 | 9.8 | 17.87 | 30.0 | -12.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.50 | 12.06 | H | 1.9 | 9.8 | 19.97 | 30.0 | -10.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1750.00 | 11.26 | V | 1.9 | 9.8 | 19.15 | 30.0 | -10.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1750.00 | 12.11 | H | 1.9 | 9.8 | 20.00 | 30.0 | -10.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| LTE Band 4 5MHz QPSK | High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------|---|-----------------|------------------|--------------------|-----------------|--------------------|-------------|-------------|-------------|-------|--------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|-------|--|---------|-------|---|-----|-----|-------|------|-------|--|--------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|------|--|---------|-------|---|-----|-----|-------|------|-------|--|---------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|------|--|---------|-------|---|-----|-----|-------|------|------|
| | <p> Company: Samsung Project #: 15K20096 Date: 03-06-15 Test Engineer: Steven.Kim Configuration: EUT / Z-Position Mode: LTE Band 4, QPSK , 5MHz </p> <p> Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse </p> <table border="1"> <thead> <tr> <th>f MHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBi)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>1712.50</td> <td>10.97</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>18.91</td> <td>30.0</td> <td>-11.1</td> <td></td> </tr> <tr> <td>1712.50</td> <td>12.80</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>20.74</td> <td>30.0</td> <td>-9.3</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1732.50</td> <td>13.06</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>20.97</td> <td>30.0</td> <td>-9.0</td> <td></td> </tr> <tr> <td>1732.50</td> <td>12.92</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>20.83</td> <td>30.0</td> <td>-9.2</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1752.50</td> <td>12.90</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>20.79</td> <td>30.0</td> <td>-9.2</td> <td></td> </tr> <tr> <td>1752.50</td> <td>15.17</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>23.06</td> <td>30.0</td> <td>-6.9</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm</p> | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | Low Ch | | | | | | | | | 1712.50 | 10.97 | V | 1.9 | 9.8 | 18.91 | 30.0 | -11.1 | | 1712.50 | 12.80 | H | 1.9 | 9.8 | 20.74 | 30.0 | -9.3 | | Mid Ch | | | | | | | | | 1732.50 | 13.06 | V | 1.9 | 9.8 | 20.97 | 30.0 | -9.0 | | 1732.50 | 12.92 | H | 1.9 | 9.8 | 20.83 | 30.0 | -9.2 | | High Ch | | | | | | | | | 1752.50 | 12.90 | V | 1.9 | 9.8 | 20.79 | 30.0 | -9.2 | | 1752.50 | 15.17 | H | 1.9 | 9.8 | 23.06 | 30.0 | -6.9 |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1712.50 | 10.97 | V | 1.9 | 9.8 | 18.91 | 30.0 | -11.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1712.50 | 12.80 | H | 1.9 | 9.8 | 20.74 | 30.0 | -9.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.50 | 13.06 | V | 1.9 | 9.8 | 20.97 | 30.0 | -9.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.50 | 12.92 | H | 1.9 | 9.8 | 20.83 | 30.0 | -9.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1752.50 | 12.90 | V | 1.9 | 9.8 | 20.79 | 30.0 | -9.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1752.50 | 15.17 | H | 1.9 | 9.8 | 23.06 | 30.0 | -6.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LTE Band 4 5MHz 16QAM | High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <p> Company: Samsung Project #: 15K20096 Date: 03-06-15 Test Engineer: Steven.Kim Configuration: EUT / Z-Position Mode: LTE Band 4 16QAM, 5MHz </p> <p> Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse </p> <table border="1"> <thead> <tr> <th>f MHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBi)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>1712.50</td> <td>9.97</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>17.91</td> <td>30.0</td> <td>-12.1</td> <td></td> </tr> <tr> <td>1712.50</td> <td>11.81</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>19.75</td> <td>30.0</td> <td>-10.3</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1732.50</td> <td>12.26</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>20.17</td> <td>30.0</td> <td>-9.8</td> <td></td> </tr> <tr> <td>1732.50</td> <td>11.66</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>19.57</td> <td>30.0</td> <td>-10.4</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1752.50</td> <td>12.20</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>20.09</td> <td>30.0</td> <td>-9.9</td> <td></td> </tr> <tr> <td>1752.50</td> <td>13.99</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>21.88</td> <td>30.0</td> <td>-8.1</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm</p> | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | Low Ch | | | | | | | | | 1712.50 | 9.97 | V | 1.9 | 9.8 | 17.91 | 30.0 | -12.1 | | 1712.50 | 11.81 | H | 1.9 | 9.8 | 19.75 | 30.0 | -10.3 | | Mid Ch | | | | | | | | | 1732.50 | 12.26 | V | 1.9 | 9.8 | 20.17 | 30.0 | -9.8 | | 1732.50 | 11.66 | H | 1.9 | 9.8 | 19.57 | 30.0 | -10.4 | | High Ch | | | | | | | | | 1752.50 | 12.20 | V | 1.9 | 9.8 | 20.09 | 30.0 | -9.9 | | 1752.50 | 13.99 | H | 1.9 | 9.8 | 21.88 | 30.0 | -8.1 |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1712.50 | 9.97 | V | 1.9 | 9.8 | 17.91 | 30.0 | -12.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1712.50 | 11.81 | H | 1.9 | 9.8 | 19.75 | 30.0 | -10.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.50 | 12.26 | V | 1.9 | 9.8 | 20.17 | 30.0 | -9.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.50 | 11.66 | H | 1.9 | 9.8 | 19.57 | 30.0 | -10.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1752.50 | 12.20 | V | 1.9 | 9.8 | 20.09 | 30.0 | -9.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1752.50 | 13.99 | H | 1.9 | 9.8 | 21.88 | 30.0 | -8.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| LTE Band 4 3MHz QPSK | High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------|--|-----------------|------------------|--------------------|-----------------|--------------------|-------------|-------------|-------------|-------|--------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|------|--|---------|-------|---|-----|-----|-------|------|-------|--|--------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|-------|--|---------|-------|---|-----|-----|-------|------|------|--|---------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|------|--|---------|-------|---|-----|-----|-------|------|------|
| | <p> Company: Samsung Project #: 15K20096 Date: 03-06-15 Test Engineer: Steven.Kim Configuration: EUT / Z-Position Mode: LTE Band 4, QPSK , 3MHz </p> <p> Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse </p> <table border="1"> <thead> <tr> <th>f MHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBi)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>1711.50</td> <td>14.03</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>21.97</td> <td>30.0</td> <td>-8.0</td> <td></td> </tr> <tr> <td>1711.50</td> <td>3.98</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>11.92</td> <td>30.0</td> <td>-18.1</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1732.50</td> <td>13.06</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>20.97</td> <td>30.0</td> <td>-9.0</td> <td></td> </tr> <tr> <td>1732.50</td> <td>14.42</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>22.33</td> <td>30.0</td> <td>-7.7</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1753.50</td> <td>13.39</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>21.28</td> <td>30.0</td> <td>-8.7</td> <td></td> </tr> <tr> <td>1753.50</td> <td>14.78</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>22.67</td> <td>30.0</td> <td>-7.3</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm</p> | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | Low Ch | | | | | | | | | 1711.50 | 14.03 | V | 1.9 | 9.8 | 21.97 | 30.0 | -8.0 | | 1711.50 | 3.98 | H | 1.9 | 9.8 | 11.92 | 30.0 | -18.1 | | Mid Ch | | | | | | | | | 1732.50 | 13.06 | V | 1.9 | 9.8 | 20.97 | 30.0 | -9.0 | | 1732.50 | 14.42 | H | 1.9 | 9.8 | 22.33 | 30.0 | -7.7 | | High Ch | | | | | | | | | 1753.50 | 13.39 | V | 1.9 | 9.8 | 21.28 | 30.0 | -8.7 | | 1753.50 | 14.78 | H | 1.9 | 9.8 | 22.67 | 30.0 | -7.3 |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1711.50 | 14.03 | V | 1.9 | 9.8 | 21.97 | 30.0 | -8.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1711.50 | 3.98 | H | 1.9 | 9.8 | 11.92 | 30.0 | -18.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.50 | 13.06 | V | 1.9 | 9.8 | 20.97 | 30.0 | -9.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.50 | 14.42 | H | 1.9 | 9.8 | 22.33 | 30.0 | -7.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1753.50 | 13.39 | V | 1.9 | 9.8 | 21.28 | 30.0 | -8.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1753.50 | 14.78 | H | 1.9 | 9.8 | 22.67 | 30.0 | -7.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LTE Band 4 3MHz 16QAM | High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <p> Company: Samsung Project #: 15K20096 Date: 03-06-15 Test Engineer: Steven.Kim Configuration: EUT / Z-Position Mode: LTE Band 4 16QAM, 3MHz </p> <p> Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse </p> <table border="1"> <thead> <tr> <th>f MHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBi)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>1711.50</td> <td>13.07</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>21.01</td> <td>30.0</td> <td>-9.0</td> <td></td> </tr> <tr> <td>1711.50</td> <td>12.98</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>20.92</td> <td>30.0</td> <td>-9.1</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1732.50</td> <td>12.06</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>19.97</td> <td>30.0</td> <td>-10.0</td> <td></td> </tr> <tr> <td>1732.50</td> <td>13.44</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>21.35</td> <td>30.0</td> <td>-8.7</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1753.50</td> <td>12.39</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>20.28</td> <td>30.0</td> <td>-9.7</td> <td></td> </tr> <tr> <td>1753.50</td> <td>13.78</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>21.67</td> <td>30.0</td> <td>-8.3</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm</p> | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | Low Ch | | | | | | | | | 1711.50 | 13.07 | V | 1.9 | 9.8 | 21.01 | 30.0 | -9.0 | | 1711.50 | 12.98 | H | 1.9 | 9.8 | 20.92 | 30.0 | -9.1 | | Mid Ch | | | | | | | | | 1732.50 | 12.06 | V | 1.9 | 9.8 | 19.97 | 30.0 | -10.0 | | 1732.50 | 13.44 | H | 1.9 | 9.8 | 21.35 | 30.0 | -8.7 | | High Ch | | | | | | | | | 1753.50 | 12.39 | V | 1.9 | 9.8 | 20.28 | 30.0 | -9.7 | | 1753.50 | 13.78 | H | 1.9 | 9.8 | 21.67 | 30.0 | -8.3 |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1711.50 | 13.07 | V | 1.9 | 9.8 | 21.01 | 30.0 | -9.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1711.50 | 12.98 | H | 1.9 | 9.8 | 20.92 | 30.0 | -9.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.50 | 12.06 | V | 1.9 | 9.8 | 19.97 | 30.0 | -10.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.50 | 13.44 | H | 1.9 | 9.8 | 21.35 | 30.0 | -8.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1753.50 | 12.39 | V | 1.9 | 9.8 | 20.28 | 30.0 | -9.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1753.50 | 13.78 | H | 1.9 | 9.8 | 21.67 | 30.0 | -8.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| LTE Band 4 1.4MHz QPSK | High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------------------|--|-----------------|------------------|--------------------|-----------------|--------------------|-------------|-------------|-------------|-------|--------|--|--|--|--|--|--|--|--|---------|------|---|-----|-----|-------|------|-------|--|---------|------|---|-----|-----|-------|------|-------|--|--------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|-------|--|---------|-------|---|-----|-----|-------|------|-------|--|---------|--|--|--|--|--|--|--|--|---------|-------|---|-----|-----|-------|------|-------|--|---------|-------|---|-----|-----|-------|------|-------|
| | <p> Company: Samsung Project #: 15K20096 Date: 03-06-15 Test Engineer: Steven.Kim Configuration: EUT / Z-Position Mode: LTE Band 4 QPSK, 1.4MHz </p> <p> Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse </p> <table border="1"> <thead> <tr> <th>f MHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBi)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>1710.70</td> <td>9.69</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>17.63</td> <td>30.0</td> <td>-12.4</td> <td></td> </tr> <tr> <td>1710.70</td> <td>9.39</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>17.33</td> <td>30.0</td> <td>-12.7</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1732.50</td> <td>10.36</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>18.27</td> <td>30.0</td> <td>-11.7</td> <td></td> </tr> <tr> <td>1732.50</td> <td>11.10</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>19.01</td> <td>30.0</td> <td>-11.0</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1754.30</td> <td>10.90</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>18.79</td> <td>30.0</td> <td>-11.2</td> <td></td> </tr> <tr> <td>1754.30</td> <td>11.57</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>19.46</td> <td>30.0</td> <td>-10.5</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm</p> | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | Low Ch | | | | | | | | | 1710.70 | 9.69 | V | 1.9 | 9.8 | 17.63 | 30.0 | -12.4 | | 1710.70 | 9.39 | H | 1.9 | 9.8 | 17.33 | 30.0 | -12.7 | | Mid Ch | | | | | | | | | 1732.50 | 10.36 | V | 1.9 | 9.8 | 18.27 | 30.0 | -11.7 | | 1732.50 | 11.10 | H | 1.9 | 9.8 | 19.01 | 30.0 | -11.0 | | High Ch | | | | | | | | | 1754.30 | 10.90 | V | 1.9 | 9.8 | 18.79 | 30.0 | -11.2 | | 1754.30 | 11.57 | H | 1.9 | 9.8 | 19.46 | 30.0 | -10.5 |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1710.70 | 9.69 | V | 1.9 | 9.8 | 17.63 | 30.0 | -12.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1710.70 | 9.39 | H | 1.9 | 9.8 | 17.33 | 30.0 | -12.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.50 | 10.36 | V | 1.9 | 9.8 | 18.27 | 30.0 | -11.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.50 | 11.10 | H | 1.9 | 9.8 | 19.01 | 30.0 | -11.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1754.30 | 10.90 | V | 1.9 | 9.8 | 18.79 | 30.0 | -11.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1754.30 | 11.57 | H | 1.9 | 9.8 | 19.46 | 30.0 | -10.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LTE Band 4 1.4MHz 16QAM | High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <p> Company: Samsung Project #: 15K20096 Date: 03-06-15 Test Engineer: Steven.Kim Configuration: EUT / Z-Position Mode: LTE Band 4 16QAM, 1.4MHz </p> <p> Test Equipment: Receiving: 3117, and Chamber 1 SMA Cables Substitution: 3115 Substitution, 3m SMA Cable Warehouse </p> <table border="1"> <thead> <tr> <th>f MHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBi)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>1710.70</td> <td>7.69</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>15.63</td> <td>30.0</td> <td>-14.4</td> <td></td> </tr> <tr> <td>1710.70</td> <td>8.37</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>16.31</td> <td>30.0</td> <td>-13.7</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1732.50</td> <td>9.36</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>17.27</td> <td>30.0</td> <td>-12.7</td> <td></td> </tr> <tr> <td>1732.50</td> <td>10.12</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>18.03</td> <td>30.0</td> <td>-12.0</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1754.30</td> <td>9.90</td> <td>V</td> <td>1.9</td> <td>9.8</td> <td>17.79</td> <td>30.0</td> <td>-12.2</td> <td></td> </tr> <tr> <td>1754.30</td> <td>10.87</td> <td>H</td> <td>1.9</td> <td>9.8</td> <td>18.76</td> <td>30.0</td> <td>-11.2</td> <td></td> </tr> </tbody> </table> <p>Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm</p> | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | Low Ch | | | | | | | | | 1710.70 | 7.69 | V | 1.9 | 9.8 | 15.63 | 30.0 | -14.4 | | 1710.70 | 8.37 | H | 1.9 | 9.8 | 16.31 | 30.0 | -13.7 | | Mid Ch | | | | | | | | | 1732.50 | 9.36 | V | 1.9 | 9.8 | 17.27 | 30.0 | -12.7 | | 1732.50 | 10.12 | H | 1.9 | 9.8 | 18.03 | 30.0 | -12.0 | | High Ch | | | | | | | | | 1754.30 | 9.90 | V | 1.9 | 9.8 | 17.79 | 30.0 | -12.2 | | 1754.30 | 10.87 | H | 1.9 | 9.8 | 18.76 | 30.0 | -11.2 |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1710.70 | 7.69 | V | 1.9 | 9.8 | 15.63 | 30.0 | -14.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1710.70 | 8.37 | H | 1.9 | 9.8 | 16.31 | 30.0 | -13.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mid Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.50 | 9.36 | V | 1.9 | 9.8 | 17.27 | 30.0 | -12.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1732.50 | 10.12 | H | 1.9 | 9.8 | 18.03 | 30.0 | -12.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Ch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1754.30 | 9.90 | V | 1.9 | 9.8 | 17.79 | 30.0 | -12.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1754.30 | 10.87 | H | 1.9 | 9.8 | 18.76 | 30.0 | -11.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

11.2. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238

LIMIT

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

TEST PROCEDURE

For Cellular equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

For PCS equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

RESULTS

11.2.1. SPURIOUS RADIATION PLOTS

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|---|------------------|---|--------------|-------------|-------------|------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 15K20096 | | | | | | | |
| Date: | | 02-27-15 | | | | | | | |
| Test Engineer: | | Steven Kim | | | | | | | |
| Configuration: | | EUT / AC Adapter / Earphone, X Position | | | | | | | |
| Mode: | | GPRS 850 MHz | | | | | | | |
| Chamber | | Pre-amplifier | | Filter | | Limit | | | |
| Chamber 1 | | AFS42 | | Filter 1 | | Part 22 | | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Ch, 824.2MHz | | | | | | | | | |
| 1.648 | -9.1 | V | 3.0 | 40.2 | 1.0 | -48.3 | -13.0 | -35.3 | |
| 2.473 | -2.2 | V | 3.0 | 40.1 | 1.0 | -41.2 | -13.0 | -28.2 | |
| 3.297 | -22.4 | V | 3.0 | 39.6 | 1.0 | -61.0 | -13.0 | -48.0 | |
| 1.648 | 3.0 | H | 3.0 | 40.2 | 1.0 | -36.2 | -13.0 | -23.2 | |
| 2.473 | -5.2 | H | 3.0 | 40.1 | 1.0 | -44.2 | -13.0 | -31.2 | |
| 3.297 | -20.1 | H | 3.0 | 39.6 | 1.0 | -58.7 | -13.0 | -45.7 | |
| Mid Ch, 836.6MHz | | | | | | | | | |
| 1.673 | -7.7 | V | 3.0 | 40.2 | 1.0 | -46.8 | -13.0 | -33.8 | |
| 2.510 | 0.2 | V | 3.0 | 40.1 | 1.0 | -38.9 | -13.0 | -25.9 | |
| 3.346 | -22.1 | V | 3.0 | 39.6 | 1.0 | -60.6 | -13.0 | -47.6 | |
| 1.673 | 3.9 | H | 3.0 | 40.2 | 1.0 | -35.3 | -13.0 | -22.3 | |
| 2.510 | -2.6 | H | 3.0 | 40.1 | 1.0 | -41.7 | -13.0 | -28.7 | |
| 3.346 | -18.9 | H | 3.0 | 39.6 | 1.0 | -57.4 | -13.0 | -44.4 | |
| High Ch, 848.8MHz | | | | | | | | | |
| 1.698 | -9.7 | V | 3.0 | 40.2 | 1.0 | -48.9 | -13.0 | -35.9 | |
| 2.547 | -6.8 | V | 3.0 | 40.1 | 1.0 | -45.9 | -13.0 | -32.9 | |
| 3.395 | -21.0 | V | 3.0 | 39.5 | 1.0 | -59.5 | -13.0 | -46.5 | |
| 1.698 | -1.5 | H | 3.0 | 40.2 | 1.0 | -40.7 | -13.0 | -27.7 | |
| 2.547 | -6.4 | H | 3.0 | 40.1 | 1.0 | -45.5 | -13.0 | -32.5 | |
| 3.395 | -18.4 | H | 3.0 | 39.5 | 1.0 | -56.9 | -13.0 | -43.9 | |
| Rev. 03.03.09 Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

GSM
Band
GSM850
GPRS

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15K20096
Date: 02-27-15
Test Engineer: Steven.Kim
Configuration: EUT / AC Adapter / Earphone, X Position
Mode: EGPRS 850 MHz

Chamber

Pre-amplifier

Filter

Limit

Chamber 1

AFS42

Filter 1

Part 22

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|--------------------------|------------------|-----------------|--------------|-------------|-------------|------------|-------------|------------|-------|
| Low Ch, 824.2MHz | | | | | | | | | |
| 1.648 | -17.2 | V | 3.0 | 40.2 | 1.0 | -56.3 | -13.0 | -43.3 | |
| 2.473 | -10.1 | V | 3.0 | 40.1 | 1.0 | -49.2 | -13.0 | -36.2 | |
| 3.297 | -24.3 | V | 3.0 | 39.6 | 1.0 | -62.9 | -13.0 | -49.9 | |
| 1.648 | -5.1 | H | 3.0 | 40.2 | 1.0 | -44.3 | -13.0 | -31.3 | |
| 2.473 | -13.2 | H | 3.0 | 40.1 | 1.0 | -52.3 | -13.0 | -39.3 | |
| 3.297 | -24.6 | H | 3.0 | 39.6 | 1.0 | -63.2 | -13.0 | -50.2 | |
| Mid Ch, 836.6MHz | | | | | | | | | |
| 1.673 | -15.7 | V | 3.0 | 40.2 | 1.0 | -54.9 | -13.0 | -41.9 | |
| 2.510 | -7.8 | V | 3.0 | 40.1 | 1.0 | -46.9 | -13.0 | -33.9 | |
| 3.346 | -23.6 | V | 3.0 | 39.6 | 1.0 | -62.2 | -13.0 | -49.2 | |
| 1.673 | -4.1 | H | 3.0 | 40.2 | 1.0 | -43.3 | -13.0 | -30.3 | |
| 2.510 | -10.6 | H | 3.0 | 40.1 | 1.0 | -49.7 | -13.0 | -36.7 | |
| 3.346 | -23.7 | H | 3.0 | 39.6 | 1.0 | -62.2 | -13.0 | -49.2 | |
| High Ch, 848.8MHz | | | | | | | | | |
| 1.698 | -17.7 | V | 3.0 | 40.2 | 1.0 | -56.9 | -13.0 | -43.9 | |
| 2.547 | -14.9 | V | 3.0 | 40.1 | 1.0 | -53.9 | -13.0 | -40.9 | |
| 3.395 | -22.8 | V | 3.0 | 39.5 | 1.0 | -61.3 | -13.0 | -48.3 | |
| 1.698 | -9.6 | H | 3.0 | 40.2 | 1.0 | -48.8 | -13.0 | -35.8 | |
| 2.547 | -14.4 | H | 3.0 | 40.1 | 1.0 | -53.4 | -13.0 | -40.4 | |
| 3.395 | -23.8 | H | 3.0 | 39.5 | 1.0 | -62.3 | -13.0 | -49.3 | |

Rev. 03.03.09
 Note: No other emissions were detected above the system noise floor.

GSM
 Band
 GSM850
 EGPRS

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|---------------|-------------|--------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 15K20096 | | | | | | | |
| Date: | | 03-06-15 | | | | | | | |
| Test Engineer: | | Steven.Kim | | | | | | | |
| Configuration: | | EUT / AC Adapter / Earphone, X Position | | | | | | | |
| Mode: | | EGPRS 1900 MHz | | | | | | | |
| Chamber | | Pre-amplifier | | Filter | | Limit | | | |
| Chamber 1 | | AFS42 | | Filter 1 | | Part 24 | | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Ch, 1850.2MHz | | | | | | | | | |
| 3.700 | 4.1 | V | 3.0 | 39.2 | 1.0 | -34.0 | -13.0 | -21.0 | |
| 5.551 | -3.9 | V | 3.0 | 40.0 | 1.0 | -42.9 | -13.0 | -29.9 | |
| 7.401 | -12.6 | V | 3.0 | 39.2 | 1.0 | -50.8 | -13.0 | -37.8 | |
| 3.700 | 4.7 | H | 3.0 | 39.2 | 1.0 | -33.4 | -13.0 | -20.4 | |
| 5.550 | -12.3 | H | 3.0 | 40.0 | 1.0 | -51.2 | -13.0 | -38.2 | |
| 7.400 | -12.1 | H | 3.0 | 39.2 | 1.0 | -50.3 | -13.0 | -37.3 | |
| Mid Ch, 1880.0MHz | | | | | | | | | |
| 3.760 | 0.6 | V | 3.0 | 39.1 | 1.0 | -37.5 | -13.0 | -24.5 | |
| 5.640 | -10.4 | V | 3.0 | 39.9 | 1.0 | -49.4 | -13.0 | -36.4 | |
| 7.520 | -12.6 | V | 3.0 | 39.1 | 1.0 | -50.8 | -13.0 | -37.8 | |
| 3.760 | -0.5 | H | 3.0 | 39.1 | 1.0 | -38.6 | -13.0 | -25.6 | |
| 5.640 | -10.5 | H | 3.0 | 39.9 | 1.0 | -49.4 | -13.0 | -36.4 | |
| 7.520 | -12.1 | H | 3.0 | 39.1 | 1.0 | -50.2 | -13.0 | -37.2 | |
| High Ch, 1909.8 MHz | | | | | | | | | |
| 3.820 | -6.2 | V | 3.0 | 39.0 | 1.0 | -44.2 | -13.0 | -31.2 | |
| 5.729 | -13.8 | V | 3.0 | 39.9 | 1.0 | -52.7 | -13.0 | -39.7 | |
| 7.639 | -12.2 | V | 3.0 | 39.1 | 1.0 | -50.3 | -13.0 | -37.3 | |
| 3.820 | 4.2 | H | 3.0 | 39.0 | 1.0 | -33.8 | -13.0 | -20.8 | |
| 5.729 | -10.1 | H | 3.0 | 39.9 | 1.0 | -49.0 | -13.0 | -36.0 | |
| 7.639 | -12.0 | H | 3.0 | 39.1 | 1.0 | -50.1 | -13.0 | -37.1 | |
| Rev. 03.03.09 | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

GSM
 Band
 GSM1900
 GPRS

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|---------------|------------|--------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 15K20096 | | | | | | | |
| Date: | | 03-06-15 | | | | | | | |
| Test Engineer: | | Steven.Kim | | | | | | | |
| Configuration: | | EUT / AC Adapter / Earphone, X Position | | | | | | | |
| Mode: | | GPRS 1900 | | | | | | | |
| Chamber | | Pre-amplifier | | | Filter | | Limit | | |
| Chamber 1 | | AFS42 | | | Filter 1 | | Part 24 | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Ch, 1850.2MHz | | | | | | | | | |
| 3.7004 | 11.2 | V | 3.0 | 39.2 | 1.0 | -26.9 | -13.0 | -13.9 | |
| 5.5506 | -6.1 | V | 3.0 | 40.0 | 1.0 | -45.1 | -13.0 | -32.1 | |
| 7.4008 | -9.7 | V | 3.0 | 39.2 | 1.0 | -47.9 | -13.0 | -34.9 | |
| 3.7000 | 17.3 | H | 3.0 | 39.2 | 1.0 | -20.8 | -13.0 | -7.8 | |
| 5.5506 | -3.2 | H | 3.0 | 40.0 | 1.0 | -42.1 | -13.0 | -29.1 | |
| 7.4008 | -11.3 | H | 3.0 | 39.2 | 1.0 | -49.5 | -13.0 | -36.5 | |
| Mid Ch, 1880.0MHz | | | | | | | | | |
| 3.7600 | 9.8 | V | 3.0 | 39.1 | 1.0 | -28.3 | -13.0 | -15.3 | |
| 5.6400 | -2.4 | V | 3.0 | 39.9 | 1.0 | -41.4 | -13.0 | -28.4 | |
| 7.5200 | -6.0 | V | 3.0 | 39.1 | 1.0 | -44.2 | -13.0 | -31.2 | |
| 3.7600 | 14.6 | H | 3.0 | 39.1 | 1.0 | -23.5 | -13.0 | -10.5 | |
| 5.6400 | 2.2 | H | 3.0 | 39.9 | 1.0 | -36.7 | -13.0 | -23.7 | |
| 7.5200 | -9.9 | H | 3.0 | 39.1 | 1.0 | -48.0 | -13.0 | -35.0 | |
| High Ch, 1909.8 MHz | | | | | | | | | |
| 3.8196 | 8.4 | V | 3.0 | 39.0 | 1.0 | -29.7 | -13.0 | -16.7 | |
| 5.7294 | 0.5 | V | 3.0 | 39.9 | 1.0 | -38.4 | -13.0 | -25.4 | |
| 7.6392 | -11.5 | V | 3.0 | 39.1 | 1.0 | -49.6 | -13.0 | -36.6 | |
| 3.8196 | 14.4 | H | 3.0 | 39.0 | 1.0 | -23.6 | -13.0 | -10.6 | |
| 5.7294 | -2.6 | H | 3.0 | 39.9 | 1.0 | -41.5 | -13.0 | -28.5 | |
| 7.6392 | -4.1 | H | 3.0 | 39.1 | 1.0 | -42.2 | -13.0 | -29.2 | |
| Rev. 03.03.09 | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

GSM
 Band
 GSM1900
 EGPRS

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|---------------------|--|-----------------|----------------|----------------|---------------|----------------|---------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 15K20096 | | | | | | | |
| Date: | | 02-27-15 | | | | | | | |
| Test Engineer: | | Steven.Kim | | | | | | | |
| Configuration: | | EUT / AC Adapter / Earphone / X Position | | | | | | | |
| Mode: | | Tx, REL99,850MHz | | | | | | | |
| Chamber | | Pre-amplifier | | Filter | | Limit | | | |
| Chamber 1 | | AFS42 | | Filter 1 | | Part 24 | | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Ch, 826.40MHz | | | | | | | | | |
| 1.652 | -21.5 | V | 3.0 | 40.2 | 1.0 | -60.7 | -13.0 | -47.7 | |
| 2.479 | -20.2 | V | 3.0 | 40.1 | 1.0 | -59.2 | -13.0 | -46.2 | |
| 3.306 | -23.0 | V | 3.0 | 39.6 | 1.0 | -61.6 | -13.0 | -48.6 | |
| 1.652 | -18.7 | H | 3.0 | 40.2 | 1.0 | -57.9 | -13.0 | -44.9 | |
| 2.479 | -20.8 | H | 3.0 | 40.1 | 1.0 | -59.8 | -13.0 | -46.8 | |
| 3.306 | -23.0 | H | 3.0 | 39.6 | 1.0 | -61.6 | -13.0 | -48.6 | |
| Mid Ch, 836.6MHz | | | | | | | | | |
| 1.673 | -21.5 | V | 3.0 | 40.2 | 1.0 | -60.7 | -13.0 | -47.7 | |
| 2.510 | -19.5 | V | 3.0 | 40.1 | 1.0 | -58.6 | -13.0 | -45.6 | |
| 3.346 | -22.3 | V | 3.0 | 39.6 | 1.0 | -60.8 | -13.0 | -47.8 | |
| 1.673 | -19.5 | H | 3.0 | 40.2 | 1.0 | -58.7 | -13.0 | -45.7 | |
| 2.510 | -20.3 | H | 3.0 | 40.1 | 1.0 | -59.4 | -13.0 | -46.4 | |
| 3.346 | -22.4 | H | 3.0 | 39.6 | 1.0 | -60.9 | -13.0 | -47.9 | |
| High Ch, 846.6MHz | | | | | | | | | |
| 1.693 | -22.2 | V | 3.0 | 40.2 | 1.0 | -61.3 | -13.0 | -48.3 | |
| 2.539 | -20.6 | V | 3.0 | 40.1 | 1.0 | -59.7 | -13.0 | -46.7 | |
| 3.386 | -21.0 | V | 3.0 | 39.5 | 1.0 | -59.5 | -13.0 | -46.5 | |
| 1.693 | -18.8 | H | 3.0 | 40.2 | 1.0 | -58.0 | -13.0 | -45.0 | |
| 2.539 | -21.5 | H | 3.0 | 40.1 | 1.0 | -60.5 | -13.0 | -47.5 | |
| 3.386 | -21.0 | H | 3.0 | 39.5 | 1.0 | -59.5 | -13.0 | -46.5 | |
| Rev. 03.03.09 | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

WCDMA
 Band 5
 REL99

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|---|---------------------|--|-----------------|----------------|----------------|---------------|----------------|---------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 15K20096 | | | | | | | |
| Date: | | 02-28-15 | | | | | | | |
| Test Engineer: | | Steven.Kim | | | | | | | |
| Configuration: | | EUT / AC Adapter / Earphone / X Position | | | | | | | |
| Mode: | | Tx, HSDPA, 850MHz | | | | | | | |
| Chamber | | Pre-amplifier | | Filter | | Limit | | | |
| Chamber 1 | | AFS42 | | Filter 1 | | Part 24 | | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Ch, 826.40MHz | | | | | | | | | |
| 1.652 | -21.8 | V | 3.0 | 40.2 | 1.0 | -61.0 | -13.0 | -48.0 | |
| 2.479 | -20.2 | V | 3.0 | 40.1 | 1.0 | -59.2 | -13.0 | -46.2 | |
| 3.306 | -23.0 | V | 3.0 | 39.6 | 1.0 | -61.6 | -13.0 | -48.6 | |
| 1.652 | -19.1 | H | 3.0 | 40.2 | 1.0 | -58.3 | -13.0 | -45.3 | |
| 2.479 | -20.8 | H | 3.0 | 40.1 | 1.0 | -59.8 | -13.0 | -46.8 | |
| 3.306 | -23.0 | H | 3.0 | 39.6 | 1.0 | -61.6 | -13.0 | -48.6 | |
| Mid Ch, 836.6MHz | | | | | | | | | |
| 1.673 | -21.7 | V | 3.0 | 40.2 | 1.0 | -60.9 | -13.0 | -47.9 | |
| 2.510 | -19.5 | V | 3.0 | 40.1 | 1.0 | -58.6 | -13.0 | -45.6 | |
| 3.346 | -22.3 | V | 3.0 | 39.6 | 1.0 | -60.8 | -13.0 | -47.8 | |
| 1.673 | -20.2 | H | 3.0 | 40.2 | 1.0 | -59.4 | -13.0 | -46.4 | |
| 2.510 | -20.3 | H | 3.0 | 40.1 | 1.0 | -59.4 | -13.0 | -46.4 | |
| 3.346 | -22.4 | H | 3.0 | 39.6 | 1.0 | -60.9 | -13.0 | -47.9 | |
| High Ch, 846.6MHz | | | | | | | | | |
| 1.693 | -22.3 | V | 3.0 | 40.2 | 1.0 | -61.5 | -13.0 | -48.5 | |
| 2.539 | -20.6 | V | 3.0 | 40.1 | 1.0 | -59.7 | -13.0 | -46.7 | |
| 3.386 | -21.0 | V | 3.0 | 39.5 | 1.0 | -59.5 | -13.0 | -46.5 | |
| 1.693 | -19.9 | H | 3.0 | 40.2 | 1.0 | -59.1 | -13.0 | -46.1 | |
| 2.539 | -21.5 | H | 3.0 | 40.1 | 1.0 | -60.5 | -13.0 | -47.5 | |
| 3.386 | -21.0 | H | 3.0 | 39.5 | 1.0 | -59.5 | -13.0 | -46.5 | |
| Rev. 03.03.09 Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

WCDMA
 Band 5
 HSDPA

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|---|------------------|---|--------------|---|-------------|---|-------------|------------|-------|
| Company: Samsung | | | | | | | | | |
| Project #: 15K20096 | | | | | | | | | |
| Date: 03-02-15 | | | | | | | | | |
| Test Engineer: Steven.Kim | | | | | | | | | |
| Configuration: EUT / AC Adapter / Earphone / X Position | | | | | | | | | |
| Mode: Tx, REL99, 1900MHz | | | | | | | | | |
| <div style="border: 1px solid black; padding: 2px; display: inline-block;">Chamber</div> Chamber 1 | | <div style="border: 1px solid black; padding: 2px; display: inline-block;">Pre-amplifier</div> AFS42 | | <div style="border: 1px solid black; padding: 2px; display: inline-block;">Filter</div> Filter 1 | | <div style="border: 1px solid black; padding: 2px; display: inline-block;">Limit</div> Part 24 | | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Ch, 1852.4MHz | | | | | | | | | |
| 3.705 | -3.8 | V | 3.0 | 39.2 | 1.0 | -41.9 | -13.0 | -28.9 | |
| 5.557 | -12.6 | V | 3.0 | 40.0 | 1.0 | -51.6 | -13.0 | -38.6 | |
| 7.409 | -10.2 | V | 3.0 | 39.2 | 1.0 | -48.4 | -13.0 | -35.4 | |
| 3.705 | 0.5 | H | 3.0 | 39.2 | 1.0 | -37.7 | -13.0 | -24.7 | |
| 5.557 | -12.5 | H | 3.0 | 40.0 | 1.0 | -51.5 | -13.0 | -38.5 | |
| 7.409 | -10.7 | H | 3.0 | 39.2 | 1.0 | -48.8 | -13.0 | -35.8 | |
| Mid Ch, 1880MHz | | | | | | | | | |
| 3.760 | -7.0 | V | 3.0 | 39.1 | 1.0 | -45.1 | -13.0 | -32.1 | |
| 5.640 | -12.2 | V | 3.0 | 39.9 | 1.0 | -51.1 | -13.0 | -38.1 | |
| 7.520 | -9.4 | V | 3.0 | 39.1 | 1.0 | -47.6 | -13.0 | -34.6 | |
| 3.760 | -3.8 | H | 3.0 | 39.1 | 1.0 | -41.9 | -13.0 | -28.9 | |
| 5.640 | -12.5 | H | 3.0 | 39.9 | 1.0 | -51.4 | -13.0 | -38.4 | |
| 7.520 | -10.6 | H | 3.0 | 39.1 | 1.0 | -48.7 | -13.0 | -35.7 | |
| High Ch, 1907.6MHz | | | | | | | | | |
| 3.815 | -7.6 | V | 3.0 | 39.0 | 1.0 | -45.7 | -13.0 | -32.7 | |
| 5.723 | -8.2 | V | 3.0 | 39.9 | 1.0 | -47.0 | -13.0 | -34.0 | |
| 7.630 | -8.9 | V | 3.0 | 39.1 | 1.0 | -47.0 | -13.0 | -34.0 | |
| 3.815 | -4.5 | H | 3.0 | 39.0 | 1.0 | -42.6 | -13.0 | -29.6 | |
| 5.723 | -8.3 | H | 3.0 | 39.9 | 1.0 | -47.2 | -13.0 | -34.2 | |
| 7.630 | -9.9 | H | 3.0 | 39.1 | 1.0 | -48.0 | -13.0 | -35.0 | |
| Rev. 03.03.09 | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

WCDMA
 Band 2
 REL99

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|--|--------------|---------------|-------------|--------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 15K20096 | | | | | | | |
| Date: | | 03-02-15 | | | | | | | |
| Test Engineer: | | Steven.Kim | | | | | | | |
| Configuration: | | EUT / AC Adapter / Earphone / X Position | | | | | | | |
| Mode: | | Tx, HSDPA, 1900MHz | | | | | | | |
| Chamber | | Pre-amplifier | | Filter | | Limit | | | |
| Chamber 1 | | AFS42 | | Filter 1 | | Part 24 | | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Ch, 1852.4MHz | | | | | | | | | |
| 3.705 | -14.4 | V | 3.0 | 39.2 | 1.0 | -52.6 | -13.0 | -39.6 | |
| 5.557 | -12.9 | V | 3.0 | 40.0 | 1.0 | -51.9 | -13.0 | -38.9 | |
| 7.409 | -10.5 | V | 3.0 | 39.2 | 1.0 | -48.7 | -13.0 | -35.7 | |
| 3.705 | -4.7 | H | 3.0 | 39.2 | 1.0 | -42.9 | -13.0 | -29.9 | |
| 5.557 | -13.2 | H | 3.0 | 40.0 | 1.0 | -52.2 | -13.0 | -39.2 | |
| 7.409 | -10.7 | H | 3.0 | 39.2 | 1.0 | -48.8 | -13.0 | -35.8 | |
| Mid Ch, 1880MHz | | | | | | | | | |
| 3.760 | -11.5 | V | 3.0 | 39.1 | 1.0 | -49.6 | -13.0 | -36.6 | |
| 5.640 | -12.5 | V | 3.0 | 39.9 | 1.0 | -51.4 | -13.0 | -38.4 | |
| 7.520 | -10.5 | V | 3.0 | 39.1 | 1.0 | -48.7 | -13.0 | -35.7 | |
| 3.760 | -8.3 | H | 3.0 | 39.1 | 1.0 | -46.4 | -13.0 | -33.4 | |
| 5.640 | -12.5 | H | 3.0 | 39.9 | 1.0 | -51.4 | -13.0 | -38.4 | |
| 7.520 | -10.6 | H | 3.0 | 39.1 | 1.0 | -48.7 | -13.0 | -35.7 | |
| High Ch, 1907.6MHz | | | | | | | | | |
| 3.815 | -11.6 | V | 3.0 | 39.0 | 1.0 | -49.7 | -13.0 | -36.7 | |
| 5.723 | -12.7 | V | 3.0 | 39.9 | 1.0 | -51.6 | -13.0 | -38.6 | |
| 7.630 | -10.1 | V | 3.0 | 39.1 | 1.0 | -48.2 | -13.0 | -35.2 | |
| 3.815 | -8.3 | H | 3.0 | 39.0 | 1.0 | -46.4 | -13.0 | -33.4 | |
| 5.723 | -12.9 | H | 3.0 | 39.9 | 1.0 | -51.8 | -13.0 | -38.8 | |
| 7.630 | -9.9 | H | 3.0 | 39.1 | 1.0 | -48.0 | -13.0 | -35.0 | |
| Rev. 03.03.09 | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

WCDMA
 Band 2
 HSDPA

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|---------------------|--|-----------------|----------------|----------------|---------------|----------------|---------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 15K20096 | | | | | | | |
| Date: | | 02-27-15 | | | | | | | |
| Test Engineer: | | Steven.Kim | | | | | | | |
| Configuration: | | EUT / AC Adapter / Earphone / Z Position | | | | | | | |
| Mode: | | Tx, REL99,1700MHz | | | | | | | |
| Chamber | | Pre-amplifier | | Filter | | Limit | | | |
| Chamber 1 | | AFS42 | | Filter 1 | | Part 24 | | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Ch, 1712.4MHz | | | | | | | | | |
| 3.425 | -17.7 | V | 3.0 | 39.5 | 1.0 | -56.2 | -13.0 | -43.2 | |
| 5.137 | -9.5 | V | 3.0 | 40.1 | 1.0 | -48.5 | -13.0 | -35.5 | |
| 6.850 | -8.7 | V | 3.0 | 39.4 | 1.0 | -47.1 | -13.0 | -34.1 | |
| 3.425 | -16.0 | H | 3.0 | 39.5 | 1.0 | -54.4 | -13.0 | -41.4 | |
| 5.137 | -8.2 | H | 3.0 | 40.1 | 1.0 | -47.3 | -13.0 | -34.3 | |
| 6.850 | -1.1 | H | 3.0 | 39.4 | 1.0 | -39.5 | -13.0 | -26.5 | |
| Mid Ch, 1732.6MHz | | | | | | | | | |
| 3.465 | -17.9 | V | 3.0 | 39.4 | 1.0 | -56.3 | -13.0 | -43.3 | |
| 5.198 | -10.0 | V | 3.0 | 40.1 | 1.0 | -49.1 | -13.0 | -36.1 | |
| 6.930 | -8.8 | V | 3.0 | 39.4 | 1.0 | -47.2 | -13.0 | -34.2 | |
| 3.465 | -15.1 | H | 3.0 | 39.4 | 1.0 | -53.5 | -13.0 | -40.5 | |
| 5.198 | -10.1 | H | 3.0 | 40.1 | 1.0 | -49.3 | -13.0 | -36.3 | |
| 6.930 | -1.9 | H | 3.0 | 39.4 | 1.0 | -40.3 | -13.0 | -27.3 | |
| High Ch, 1752.6MHz | | | | | | | | | |
| 3.505 | -17.3 | V | 3.0 | 39.4 | 1.0 | -55.7 | -13.0 | -42.7 | |
| 5.258 | -10.5 | V | 3.0 | 40.1 | 1.0 | -49.6 | -13.0 | -36.6 | |
| 7.010 | -8.2 | V | 3.0 | 39.3 | 1.0 | -46.6 | -13.0 | -33.6 | |
| 3.505 | -15.4 | H | 3.0 | 39.4 | 1.0 | -53.8 | -13.0 | -40.8 | |
| 5.258 | -7.9 | H | 3.0 | 40.1 | 1.0 | -47.0 | -13.0 | -34.0 | |
| 7.010 | -1.6 | H | 3.0 | 39.3 | 1.0 | -40.0 | -13.0 | -27.0 | |
| Rev. 03.03.09 | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

WCDMA
 Band 4
 REL99

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|---------------------|--|-----------------|----------------|----------------|---------------|----------------|---------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 15K20096 | | | | | | | |
| Date: | | 02-28-15 | | | | | | | |
| Test Engineer: | | Steven.Kim | | | | | | | |
| Configuration: | | EUT / AC Adapter / Earphone / Z Position | | | | | | | |
| Mode: | | Tx, HSDPA, 1700MHz | | | | | | | |
| Chamber | | Pre-amplifier | | Filter | | Limit | | | |
| Chamber 1 | | AFS42 | | Filter 1 | | Part 24 | | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Ch, 1712.4MHz | | | | | | | | | |
| 3.425 | -18.7 | V | 3.0 | 39.5 | 1.0 | -57.1 | -13.0 | -44.1 | |
| 5.137 | -10.2 | V | 3.0 | 40.1 | 1.0 | -49.3 | -13.0 | -36.3 | |
| 6.850 | | | | | | | | | |
| 3.425 | -16.5 | H | 3.0 | 39.5 | 1.0 | -55.0 | -13.0 | -42.0 | |
| 5.137 | -9.9 | H | 3.0 | 40.1 | 1.0 | -48.9 | -13.0 | -35.9 | |
| 6.850 | -2.1 | H | 3.0 | 39.4 | 1.0 | -40.5 | -13.0 | -27.5 | |
| Mid Ch, 1732.6MHz | | | | | | | | | |
| 3.465 | -18.9 | V | 3.0 | 39.4 | 1.0 | -57.3 | -13.0 | -44.3 | |
| 5.198 | -11.2 | V | 3.0 | 40.1 | 1.0 | -50.3 | -13.0 | -37.3 | |
| 6.930 | -9.6 | V | 3.0 | 39.4 | 1.0 | -47.9 | -13.0 | -34.9 | |
| 3.465 | -16.3 | H | 3.0 | 39.4 | 1.0 | -54.8 | -13.0 | -41.8 | |
| 5.198 | -11.8 | H | 3.0 | 40.1 | 1.0 | -50.9 | -13.0 | -37.9 | |
| 6.930 | -3.7 | H | 3.0 | 39.4 | 1.0 | -42.1 | -13.0 | -29.1 | |
| High Ch, 1752.6MHz | | | | | | | | | |
| 3.505 | -18.6 | V | 3.0 | 39.4 | 1.0 | -57.0 | -13.0 | -44.0 | |
| 5.258 | -10.9 | V | 3.0 | 40.1 | 1.0 | -50.0 | -13.0 | -37.0 | |
| 7.010 | -9.9 | V | 3.0 | 39.3 | 1.0 | -48.2 | -13.0 | -35.2 | |
| 3.505 | -17.1 | H | 3.0 | 39.4 | 1.0 | -55.4 | -13.0 | -42.4 | |
| 5.258 | -9.9 | H | 3.0 | 40.1 | 1.0 | -49.0 | -13.0 | -36.0 | |
| 7.010 | -3.0 | H | 3.0 | 39.3 | 1.0 | -41.3 | -13.0 | -28.3 | |
| Rev. 03.03.09 | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

WCDMA
 Band 4
 HSDPA

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|-------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 15K20096 | | | | | | | |
| Date: | | 03-01-15 | | | | | | | |
| Test Engineer: | | Steven Kim | | | | | | | |
| Configuration: | | EUT / AC Adapter / Ear Phone / X-Position | | | | | | | |
| Mode: | | TX, LTE BAND 2, 20MHz BW, QPSK | | | | | | | |
| Chamber | | Pre-amplifier | | Filter | | Limit | | | |
| Chamber 1 | | AFS42 | | Filter 1 | | FCC Part 27 | | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Channel (1860MHz) | | | | | | | | | |
| 3.720 | -6.0 | V | 3.0 | 39.1 | 1.0 | -44.1 | -13.0 | -31.1 | |
| 5.580 | -7.6 | V | 3.0 | 40.0 | 1.0 | -46.6 | -13.0 | -33.6 | |
| 7.440 | -6.1 | V | 3.0 | 39.2 | 1.0 | -44.3 | -13.0 | -31.3 | |
| 3.720 | -3.0 | H | 3.0 | 39.1 | 1.0 | -41.1 | -13.0 | -28.1 | |
| 5.580 | -7.7 | H | 3.0 | 40.0 | 1.0 | -46.7 | -13.0 | -33.7 | |
| 7.440 | -5.8 | H | 3.0 | 39.2 | 1.0 | -43.9 | -13.0 | -30.9 | |
| Mid Channel (1880MHz) | | | | | | | | | |
| 3.760 | -8.8 | V | 3.0 | 39.1 | 1.0 | -46.9 | -13.0 | -33.9 | |
| 5.640 | -8.9 | V | 3.0 | 39.9 | 1.0 | -47.9 | -13.0 | -34.9 | |
| 7.520 | -5.6 | V | 3.0 | 39.1 | 1.0 | -43.7 | -13.0 | -30.7 | |
| 3.760 | -6.4 | H | 3.0 | 39.1 | 1.0 | -44.5 | -13.0 | -31.5 | |
| 5.640 | -9.0 | H | 3.0 | 39.9 | 1.0 | -47.9 | -13.0 | -34.9 | |
| 7.520 | -5.2 | H | 3.0 | 39.1 | 1.0 | -43.4 | -13.0 | -30.4 | |
| High Channel (1900MHz) | | | | | | | | | |
| 3.800 | -10.7 | V | 3.0 | 39.1 | 1.0 | -48.7 | -13.0 | -35.7 | |
| 5.700 | -6.7 | V | 3.0 | 39.9 | 1.0 | -45.6 | -13.0 | -32.6 | |
| 7.600 | -3.6 | V | 3.0 | 39.1 | 1.0 | -41.7 | -13.0 | -28.7 | |
| 3.800 | -5.4 | H | 3.0 | 39.1 | 1.0 | -43.5 | -13.0 | -30.5 | |
| 5.700 | -7.1 | H | 3.0 | 39.9 | 1.0 | -46.0 | -13.0 | -33.0 | |
| 7.600 | -3.2 | H | 3.0 | 39.1 | 1.0 | -41.4 | -13.0 | -28.4 | |
| Rev. 03.03.09 | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

LTE
 Band 2
 20MHz
 QPSK

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|-------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 15K20096 | | | | | | | |
| Date: | | 03-01-15 | | | | | | | |
| Test Engineer: | | Steven Kim | | | | | | | |
| Configuration: | | EUT / AC Adapter / Ear Phone / X-Position | | | | | | | |
| Mode: | | TX, LTE BAND 2, 20MHz BW, 16QAM | | | | | | | |
| Chamber | | Pre-amplifier | | Filter | | Limit | | | |
| Chamber 1 | | AFS42 | | Filter 1 | | FCC Part 27 | | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Channel (1860MHz) | | | | | | | | | |
| 3.720 | -7.0 | V | 3.0 | 39.1 | 1.0 | -45.1 | -13.0 | -32.1 | |
| 5.580 | -7.6 | V | 3.0 | 40.0 | 1.0 | -46.6 | -13.0 | -33.6 | |
| 7.440 | -6.1 | V | 3.0 | 39.2 | 1.0 | -44.3 | -13.0 | -31.3 | |
| 3.720 | -4.0 | H | 3.0 | 39.1 | 1.0 | -42.1 | -13.0 | -29.1 | |
| 5.580 | -7.7 | H | 3.0 | 40.0 | 1.0 | -46.7 | -13.0 | -33.7 | |
| 7.440 | -5.8 | H | 3.0 | 39.2 | 1.0 | -43.9 | -13.0 | -30.9 | |
| Mid Channel (1880MHz) | | | | | | | | | |
| 3.760 | -10.1 | V | 3.0 | 39.1 | 1.0 | -48.2 | -13.0 | -35.2 | |
| 5.640 | -8.9 | V | 3.0 | 39.9 | 1.0 | -47.9 | -13.0 | -34.9 | |
| 7.520 | -5.6 | V | 3.0 | 39.1 | 1.0 | -43.7 | -13.0 | -30.7 | |
| 3.760 | -7.2 | H | 3.0 | 39.1 | 1.0 | -45.3 | -13.0 | -32.3 | |
| 5.640 | -9.0 | H | 3.0 | 39.9 | 1.0 | -47.9 | -13.0 | -34.9 | |
| 7.520 | -5.2 | H | 3.0 | 39.1 | 1.0 | -43.4 | -13.0 | -30.4 | |
| High Channel (1900MHz) | | | | | | | | | |
| 3.800 | -12.0 | V | 3.0 | 39.1 | 1.0 | -50.0 | -13.0 | -37.0 | |
| 5.700 | -6.7 | V | 3.0 | 39.9 | 1.0 | -45.6 | -13.0 | -32.6 | |
| 7.600 | -3.6 | V | 3.0 | 39.1 | 1.0 | -41.7 | -13.0 | -28.7 | |
| 3.800 | -6.7 | H | 3.0 | 39.1 | 1.0 | -44.7 | -13.0 | -31.7 | |
| 5.700 | -7.1 | H | 3.0 | 39.9 | 1.0 | -46.0 | -13.0 | -33.0 | |
| 7.600 | -3.2 | H | 3.0 | 39.1 | 1.0 | -41.4 | -13.0 | -28.4 | |
| Rev. 03.03.09 | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

LTE
 Band 2
 20MHz
 16QAM

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|-------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 15K20096 | | | | | | | |
| Date: | | 03-01-15 | | | | | | | |
| Test Engineer: | | Steven.Kim | | | | | | | |
| Configuration: | | EUT / AC Adapter / Ear Phone / X-Position | | | | | | | |
| Mode: | | TX, LTE BAND 2, 15MHz BW, QPSK | | | | | | | |
| Chamber | | Pre-amplifier | | Filter | | Limit | | | |
| Chamber 1 | | AFS42 | | Filter 1 | | FCC Part 27 | | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Channel (1857.5MHz) | | | | | | | | | |
| 3.715 | -3.9 | V | 3.0 | 39.1 | 1.0 | -42.1 | -13.0 | -29.1 | |
| 5.573 | -8.7 | V | 3.0 | 40.0 | 1.0 | -47.7 | -13.0 | -34.7 | |
| 7.430 | -7.3 | V | 3.0 | 39.2 | 1.0 | -45.5 | -13.0 | -32.5 | |
| 3.715 | -1.1 | H | 3.0 | 39.1 | 1.0 | -39.2 | -13.0 | -26.2 | |
| 5.573 | -8.8 | H | 3.0 | 40.0 | 1.0 | -47.8 | -13.0 | -34.8 | |
| 7.430 | -7.0 | H | 3.0 | 39.2 | 1.0 | -45.2 | -13.0 | -32.2 | |
| Mid Channel (1880MHz) | | | | | | | | | |
| 3.760 | -9.5 | V | 3.0 | 39.1 | 1.0 | -47.6 | -13.0 | -34.6 | |
| 5.640 | -10.1 | V | 3.0 | 39.9 | 1.0 | -49.0 | -13.0 | -36.0 | |
| 7.520 | -6.8 | V | 3.0 | 39.1 | 1.0 | -44.9 | -13.0 | -31.9 | |
| 3.760 | -6.4 | H | 3.0 | 39.1 | 1.0 | -44.5 | -13.0 | -31.5 | |
| 5.640 | -10.2 | H | 3.0 | 39.9 | 1.0 | -49.1 | -13.0 | -36.1 | |
| 7.520 | -6.5 | H | 3.0 | 39.1 | 1.0 | -44.6 | -13.0 | -31.6 | |
| High Channel (1902.5MHz) | | | | | | | | | |
| 3.805 | -11.8 | V | 3.0 | 39.0 | 1.0 | -49.8 | -13.0 | -36.8 | |
| 5.708 | -7.9 | V | 3.0 | 39.9 | 1.0 | -46.8 | -13.0 | -33.8 | |
| 7.610 | -4.9 | V | 3.0 | 39.1 | 1.0 | -43.0 | -13.0 | -30.0 | |
| 3.805 | -6.3 | H | 3.0 | 39.0 | 1.0 | -44.3 | -13.0 | -31.3 | |
| 5.708 | -8.5 | H | 3.0 | 39.9 | 1.0 | -47.4 | -13.0 | -34.4 | |
| 7.610 | -4.5 | H | 3.0 | 39.1 | 1.0 | -42.7 | -13.0 | -29.7 | |
| Rev. 03.03.09 | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

LTE
 Band 2
 15MHz
 QPSK

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|-----------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 15K20096 | | | | | | | |
| Date: | | 03-01-15 | | | | | | | |
| Test Engineer: | | Steven Kim | | | | | | | |
| Configuration: | | EUT / AC Adapter / Ear Phone / X-Position | | | | | | | |
| Mode: | | TX, LTE BAND 2, 15MHz BW, 16QAM | | | | | | | |
| Chamber | | Pre-amplifier | | | Filter | | Limit | | |
| Chamber 1 | | AFS42 | | | Filter 1 | | FCC Part 27 | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Channel (1857.5MHz) | | | | | | | | | |
| 3.715 | -4.9 | V | 3.0 | 39.1 | 1.0 | -43.1 | -13.0 | -30.1 | |
| 5.573 | -9.6 | V | 3.0 | 40.0 | 1.0 | -48.6 | -13.0 | -35.6 | |
| 7.430 | -7.3 | V | 3.0 | 39.2 | 1.0 | -45.5 | -13.0 | -32.5 | |
| 3.715 | -2.0 | H | 3.0 | 39.1 | 1.0 | -40.2 | -13.0 | -27.2 | |
| 5.573 | -9.9 | H | 3.0 | 40.0 | 1.0 | -48.9 | -13.0 | -35.9 | |
| 7.430 | -7.0 | H | 3.0 | 39.2 | 1.0 | -45.2 | -13.0 | -32.2 | |
| Mid Channel (1880MHz) | | | | | | | | | |
| 3.760 | -10.5 | V | 3.0 | 39.1 | 1.0 | -48.6 | -13.0 | -35.6 | |
| 5.640 | -10.7 | V | 3.0 | 39.9 | 1.0 | -49.7 | -13.0 | -36.7 | |
| 7.520 | -6.8 | V | 3.0 | 39.1 | 1.0 | -44.9 | -13.0 | -31.9 | |
| 3.760 | -7.5 | H | 3.0 | 39.1 | 1.0 | -45.6 | -13.0 | -32.6 | |
| 5.640 | -10.5 | H | 3.0 | 39.9 | 1.0 | -49.4 | -13.0 | -36.4 | |
| 7.520 | -6.5 | H | 3.0 | 39.1 | 1.0 | -44.6 | -13.0 | -31.6 | |
| High Channel (1902.5MHz) | | | | | | | | | |
| 3.805 | -12.9 | V | 3.0 | 39.0 | 1.0 | -50.9 | -13.0 | -37.9 | |
| 5.708 | -8.2 | V | 3.0 | 39.9 | 1.0 | -47.1 | -13.0 | -34.1 | |
| 7.610 | -4.9 | V | 3.0 | 39.1 | 1.0 | -43.0 | -13.0 | -30.0 | |
| 3.805 | -7.6 | H | 3.0 | 39.0 | 1.0 | -45.6 | -13.0 | -32.6 | |
| 5.708 | -9.6 | H | 3.0 | 39.9 | 1.0 | -48.5 | -13.0 | -35.5 | |
| 7.610 | -4.5 | H | 3.0 | 39.1 | 1.0 | -42.7 | -13.0 | -29.7 | |
| Rev. 03.03.09 | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

LTE
 Band 2
 15MHz
 16QAM

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|-------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 15K20096 | | | | | | | |
| Date: | | 03-01-15 | | | | | | | |
| Test Engineer: | | Steven Kim | | | | | | | |
| Configuration: | | EUT / AC Adapter / Ear Phone / X-Position | | | | | | | |
| Mode: | | TX, LTE BAND 2, 10MHz BW,QPSK | | | | | | | |
| Chamber | | Pre-amplifier | | Filter | | Limit | | | |
| Chamber 1 | | AFS42 | | Filter 1 | | FCC Part 27 | | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| LTE | | | | | | | | | |
| Band 2 | | | | | | | | | |
| 10MHz | | | | | | | | | |
| QPSK | | | | | | | | | |
| Low Channel (1855MHz) | | | | | | | | | |
| 3.710 | -5.9 | V | 3.0 | 39.2 | 1.0 | -44.0 | -13.0 | -31.0 | |
| 5.565 | -10.6 | V | 3.0 | 40.0 | 1.0 | -49.6 | -13.0 | -36.6 | |
| 7.445 | -9.0 | V | 3.0 | 39.2 | 1.0 | -47.2 | -13.0 | -34.2 | |
| 3.710 | -1.2 | H | 3.0 | 39.2 | 1.0 | -39.4 | -13.0 | -26.4 | |
| 5.565 | -10.7 | H | 3.0 | 40.0 | 1.0 | -49.7 | -13.0 | -36.7 | |
| 7.445 | -8.6 | H | 3.0 | 39.2 | 1.0 | -46.8 | -13.0 | -33.8 | |
| Mid Channel (1880MHz) | | | | | | | | | |
| 3.760 | -10.2 | V | 3.0 | 39.1 | 1.0 | -48.3 | -13.0 | -35.3 | |
| 5.640 | -11.2 | V | 3.0 | 39.9 | 1.0 | -50.2 | -13.0 | -37.2 | |
| 7.520 | -8.5 | V | 3.0 | 39.1 | 1.0 | -46.7 | -13.0 | -33.7 | |
| 3.760 | -7.0 | H | 3.0 | 39.1 | 1.0 | -45.1 | -13.0 | -32.1 | |
| 5.640 | -11.8 | H | 3.0 | 39.9 | 1.0 | -50.7 | -13.0 | -37.7 | |
| 7.520 | -8.2 | H | 3.0 | 39.1 | 1.0 | -46.3 | -13.0 | -33.3 | |
| High Channel (1905MHz) | | | | | | | | | |
| 3.810 | -9.5 | V | 3.0 | 39.0 | 1.0 | -47.5 | -13.0 | -34.5 | |
| 5.715 | -9.7 | V | 3.0 | 39.9 | 1.0 | -48.6 | -13.0 | -35.6 | |
| 7.620 | -7.0 | V | 3.0 | 39.1 | 1.0 | -45.2 | -13.0 | -32.2 | |
| 3.810 | -6.0 | H | 3.0 | 39.0 | 1.0 | -44.1 | -13.0 | -31.1 | |
| 5.715 | -10.4 | H | 3.0 | 39.9 | 1.0 | -49.3 | -13.0 | -36.3 | |
| 7.620 | -6.8 | H | 3.0 | 39.1 | 1.0 | -44.9 | -13.0 | -31.9 | |
| Rev. 03.03.09 | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|-------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 15K20096 | | | | | | | |
| Date: | | 03-01-15 | | | | | | | |
| Test Engineer: | | Steven Kim | | | | | | | |
| Configuration: | | EUT / AC Adapter / Ear Phone / X-Position | | | | | | | |
| Mode: | | TX, LTE BAND 2, 10MHz BW, 16QAM | | | | | | | |
| Chamber | | Pre-amplifier | | Filter | | Limit | | | |
| Chamber 1 | | AFS42 | | Filter 1 | | FCC Part 27 | | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| LTE | | | | | | | | | |
| Band 2 | | | | | | | | | |
| 10MHz | | | | | | | | | |
| 16QAM | | | | | | | | | |
| Low Channel (1855MHz) | | | | | | | | | |
| 3.710 | -7.2 | V | 3.0 | 39.2 | 1.0 | -45.4 | -13.0 | -32.4 | |
| 5.565 | -10.6 | V | 3.0 | 40.0 | 1.0 | -49.6 | -13.0 | -36.6 | |
| 7.445 | -9.0 | V | 3.0 | 39.2 | 1.0 | -47.2 | -13.0 | -34.2 | |
| 3.710 | -2.5 | H | 3.0 | 39.2 | 1.0 | -40.7 | -13.0 | -27.7 | |
| 5.565 | -10.7 | H | 3.0 | 40.0 | 1.0 | -49.7 | -13.0 | -36.7 | |
| 7.445 | -8.6 | H | 3.0 | 39.2 | 1.0 | -46.8 | -13.0 | -33.8 | |
| Mid Channel (1880MHz) | | | | | | | | | |
| 3.760 | -11.2 | V | 3.0 | 39.1 | 1.0 | -49.3 | -13.0 | -36.3 | |
| 5.640 | -11.2 | V | 3.0 | 39.9 | 1.0 | -50.2 | -13.0 | -37.2 | |
| 7.520 | -8.5 | V | 3.0 | 39.1 | 1.0 | -46.7 | -13.0 | -33.7 | |
| 3.760 | -8.5 | H | 3.0 | 39.1 | 1.0 | -46.6 | -13.0 | -33.6 | |
| 5.640 | -11.8 | H | 3.0 | 39.9 | 1.0 | -50.7 | -13.0 | -37.7 | |
| 7.520 | -8.2 | H | 3.0 | 39.1 | 1.0 | -46.3 | -13.0 | -33.3 | |
| High Channel (1905MHz) | | | | | | | | | |
| 3.810 | -10.6 | V | 3.0 | 39.0 | 1.0 | -48.7 | -13.0 | -35.7 | |
| 5.715 | -9.7 | V | 3.0 | 39.9 | 1.0 | -48.6 | -13.0 | -35.6 | |
| 7.620 | -7.0 | V | 3.0 | 39.1 | 1.0 | -45.2 | -13.0 | -32.2 | |
| 3.810 | -7.1 | H | 3.0 | 39.0 | 1.0 | -45.2 | -13.0 | -32.2 | |
| 5.715 | -10.4 | H | 3.0 | 39.9 | 1.0 | -49.3 | -13.0 | -36.3 | |
| 7.620 | -6.8 | H | 3.0 | 39.1 | 1.0 | -44.9 | -13.0 | -31.9 | |
| Rev. 03.03.09 | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|-------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 15K20096 | | | | | | | |
| Date: | | 03-01-15 | | | | | | | |
| Test Engineer: | | Steven Kim | | | | | | | |
| Configuration: | | EUT / AC Adapter / Ear Phone / X-Position | | | | | | | |
| Mode: | | TX, LTE BAND 2, 5MHz BW, QPSK | | | | | | | |
| Chamber | | Pre-amplifier | | Filter | | Limit | | | |
| Chamber 1 | | AFS42 | | Filter 1 | | FCC Part 27 | | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Channel (1852.5MHz) | | | | | | | | | |
| 3.705 | -5.1 | V | 3.0 | 39.2 | 1.0 | -43.3 | -13.0 | -30.3 | |
| 5.558 | -9.4 | V | 3.0 | 40.0 | 1.0 | -48.4 | -13.0 | -35.4 | |
| 7.410 | -8.0 | V | 3.0 | 39.2 | 1.0 | -46.2 | -13.0 | -33.2 | |
| 3.705 | -1.3 | H | 3.0 | 39.2 | 1.0 | -39.4 | -13.0 | -26.4 | |
| 5.558 | -9.7 | H | 3.0 | 40.0 | 1.0 | -48.6 | -13.0 | -35.6 | |
| 7.410 | -7.8 | H | 3.0 | 39.2 | 1.0 | -45.9 | -13.0 | -32.9 | |
| Mid Channel (1880MHz) | | | | | | | | | |
| 3.760 | -6.8 | V | 3.0 | 39.1 | 1.0 | -44.9 | -13.0 | -31.9 | |
| 5.640 | -10.5 | V | 3.0 | 39.9 | 1.0 | -49.4 | -13.0 | -36.4 | |
| 7.520 | -7.9 | V | 3.0 | 39.1 | 1.0 | -46.1 | -13.0 | -33.1 | |
| 3.760 | -1.9 | H | 3.0 | 39.1 | 1.0 | -40.0 | -13.0 | -27.0 | |
| 5.640 | -10.8 | H | 3.0 | 39.9 | 1.0 | -49.7 | -13.0 | -36.7 | |
| 7.520 | -7.6 | H | 3.0 | 39.1 | 1.0 | -45.7 | -13.0 | -32.7 | |
| High Channel (1907.5MHz) | | | | | | | | | |
| 3.815 | -8.2 | V | 3.0 | 39.0 | 1.0 | -46.2 | -13.0 | -33.2 | |
| 5.723 | -8.7 | V | 3.0 | 39.9 | 1.0 | -47.6 | -13.0 | -34.6 | |
| 7.630 | -7.2 | V | 3.0 | 39.1 | 1.0 | -45.3 | -13.0 | -32.3 | |
| 3.815 | -2.4 | H | 3.0 | 39.0 | 1.0 | -40.4 | -13.0 | -27.4 | |
| 5.723 | -9.9 | H | 3.0 | 39.9 | 1.0 | -48.8 | -13.0 | -35.8 | |
| 7.630 | -7.4 | H | 3.0 | 39.1 | 1.0 | -45.5 | -13.0 | -32.5 | |
| Rev. 03.03.09 | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

LTE
 Band 2
 5MHz
 QPSK

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|-------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 15K20096 | | | | | | | |
| Date: | | 03-01-15 | | | | | | | |
| Test Engineer: | | Steven Kim | | | | | | | |
| Configuration: | | EUT / AC Adapter / Ear Phone / X-Position | | | | | | | |
| Mode: | | TX, LTE BAND 2, 5MHz BW, 16QAM | | | | | | | |
| Chamber | | Pre-amplifier | | Filter | | Limit | | | |
| Chamber 1 | | AFS42 | | Filter 1 | | FCC Part 27 | | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Channel (1852.5MHz) | | | | | | | | | |
| 3.705 | -6.0 | V | 3.0 | 39.2 | 1.0 | -44.2 | -13.0 | -31.2 | |
| 5.558 | -10.1 | V | 3.0 | 40.0 | 1.0 | -49.1 | -13.0 | -36.1 | |
| 7.410 | -8.0 | V | 3.0 | 39.2 | 1.0 | -46.2 | -13.0 | -33.2 | |
| 3.705 | -2.3 | H | 3.0 | 39.2 | 1.0 | -40.5 | -13.0 | -27.5 | |
| 5.558 | -11.0 | H | 3.0 | 40.0 | 1.0 | -50.0 | -13.0 | -37.0 | |
| 7.410 | -7.8 | H | 3.0 | 39.2 | 1.0 | -45.9 | -13.0 | -32.9 | |
| Mid Channel (1880MHz) | | | | | | | | | |
| 3.760 | -7.7 | V | 3.0 | 39.1 | 1.0 | -45.8 | -13.0 | -32.8 | |
| 5.640 | -10.5 | V | 3.0 | 39.9 | 1.0 | -49.4 | -13.0 | -36.4 | |
| 7.520 | -7.9 | V | 3.0 | 39.1 | 1.0 | -46.1 | -13.0 | -33.1 | |
| 3.760 | -2.9 | H | 3.0 | 39.1 | 1.0 | -41.0 | -13.0 | -28.0 | |
| 5.640 | -10.8 | H | 3.0 | 39.9 | 1.0 | -49.7 | -13.0 | -36.7 | |
| 7.520 | -7.6 | H | 3.0 | 39.1 | 1.0 | -45.7 | -13.0 | -32.7 | |
| High Channel (1907.5MHz) | | | | | | | | | |
| 3.815 | -9.2 | V | 3.0 | 39.0 | 1.0 | -47.2 | -13.0 | -34.2 | |
| 5.723 | -9.2 | V | 3.0 | 39.9 | 1.0 | -48.1 | -13.0 | -35.1 | |
| 7.630 | -7.2 | V | 3.0 | 39.1 | 1.0 | -45.3 | -13.0 | -32.3 | |
| 3.815 | -3.5 | H | 3.0 | 39.0 | 1.0 | -41.5 | -13.0 | -28.5 | |
| 5.723 | -9.9 | H | 3.0 | 39.9 | 1.0 | -48.8 | -13.0 | -35.8 | |
| 7.630 | -7.4 | H | 3.0 | 39.1 | 1.0 | -45.5 | -13.0 | -32.5 | |
| Rev. 03.03.09 | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

LTE
 Band 2
 5MHz
 16QAM

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|-------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 15K20096 | | | | | | | |
| Date: | | 03-01-15 | | | | | | | |
| Test Engineer: | | Steven.Kim | | | | | | | |
| Configuration: | | EUT / AC Adapter / Ear Phone / X-Position | | | | | | | |
| Mode: | | TX, LTE BAND 2, 3MHz BW,QPSK | | | | | | | |
| Chamber | | Pre-amplifier | | Filter | | Limit | | | |
| Chamber 1 | | AFS42 | | Filter 1 | | FCC Part 27 | | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Channel (1851.5MHz) | | | | | | | | | |
| 3.703 | -5.2 | V | 3.0 | 39.2 | 1.0 | -43.3 | -13.0 | -30.3 | |
| 5.555 | -15.5 | V | 3.0 | 40.0 | 1.0 | -54.5 | -13.0 | -41.5 | |
| 7.406 | -13.2 | V | 3.0 | 39.2 | 1.0 | -51.4 | -13.0 | -38.4 | |
| 3.703 | -1.2 | H | 3.0 | 39.2 | 1.0 | -39.4 | -13.0 | -26.4 | |
| 5.555 | -15.6 | H | 3.0 | 40.0 | 1.0 | -54.5 | -13.0 | -41.5 | |
| 7.406 | -12.9 | H | 3.0 | 39.2 | 1.0 | -51.1 | -13.0 | -38.1 | |
| Mid Channel (1880MHz) | | | | | | | | | |
| 3.760 | -8.9 | V | 3.0 | 39.1 | 1.0 | -47.0 | -13.0 | -34.0 | |
| 5.640 | -14.9 | V | 3.0 | 39.9 | 1.0 | -53.8 | -13.0 | -40.8 | |
| 7.520 | -13.1 | V | 3.0 | 39.1 | 1.0 | -51.3 | -13.0 | -38.3 | |
| 3.760 | -5.5 | H | 3.0 | 39.1 | 1.0 | -43.6 | -13.0 | -30.6 | |
| 5.640 | -16.6 | H | 3.0 | 39.9 | 1.0 | -55.5 | -13.0 | -42.5 | |
| 7.520 | -12.6 | H | 3.0 | 39.1 | 1.0 | -50.8 | -13.0 | -37.8 | |
| High Channel (1908.5MHz) | | | | | | | | | |
| 3.817 | -10.3 | V | 3.0 | 39.0 | 1.0 | -48.4 | -13.0 | -35.4 | |
| 5.726 | -15.2 | V | 3.0 | 39.9 | 1.0 | -54.1 | -13.0 | -41.1 | |
| 7.634 | -12.9 | V | 3.0 | 39.1 | 1.0 | -51.0 | -13.0 | -38.0 | |
| 3.817 | -5.3 | H | 3.0 | 39.0 | 1.0 | -43.3 | -13.0 | -30.3 | |
| 5.726 | -13.9 | H | 3.0 | 39.9 | 1.0 | -52.7 | -13.0 | -39.7 | |
| 7.634 | -12.5 | H | 3.0 | 39.1 | 1.0 | -50.6 | -13.0 | -37.6 | |
| Rev. 03.03.09 | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

LTE
 Band 2
 3MHz
 QPSK

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|-------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 15K20096 | | | | | | | |
| Date: | | 03-01-15 | | | | | | | |
| Test Engineer: | | Steven.Kim | | | | | | | |
| Configuration: | | EUT / AC Adapter / Ear Phone / X-Position | | | | | | | |
| Mode: | | TX, LTE BAND 2, 3MHz BW, 16QAM | | | | | | | |
| Chamber | | Pre-amplifier | | Filter | | Limit | | | |
| Chamber 1 | | AFS42 | | Filter 1 | | FCC Part 27 | | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| LTE | | | | | | | | | |
| Band 2 | | | | | | | | | |
| 3MHz | | | | | | | | | |
| 16QAM | | | | | | | | | |
| Low Channel (1851.5MHz) | | | | | | | | | |
| 3.703 | -6.1 | V | 3.0 | 39.2 | 1.0 | -44.2 | -13.0 | -31.2 | |
| 5.555 | -15.4 | V | 3.0 | 40.0 | 1.0 | -54.4 | -13.0 | -41.4 | |
| 7.406 | -13.2 | V | 3.0 | 39.2 | 1.0 | -51.4 | -13.0 | -38.4 | |
| 3.703 | -2.3 | H | 3.0 | 39.2 | 1.0 | -40.4 | -13.0 | -27.4 | |
| 5.555 | -15.6 | H | 3.0 | 40.0 | 1.0 | -54.5 | -13.0 | -41.5 | |
| 7.406 | -12.9 | H | 3.0 | 39.2 | 1.0 | -51.1 | -13.0 | -38.1 | |
| Mid Channel (1880MHz) | | | | | | | | | |
| 3.760 | -10.0 | V | 3.0 | 39.1 | 1.0 | -48.1 | -13.0 | -35.1 | |
| 5.640 | -14.9 | V | 3.0 | 39.9 | 1.0 | -53.8 | -13.0 | -40.8 | |
| 7.520 | -13.1 | V | 3.0 | 39.1 | 1.0 | -51.3 | -13.0 | -38.3 | |
| 3.760 | -6.6 | H | 3.0 | 39.1 | 1.0 | -44.7 | -13.0 | -31.7 | |
| 5.640 | -16.6 | H | 3.0 | 39.9 | 1.0 | -55.5 | -13.0 | -42.5 | |
| 7.520 | -12.6 | H | 3.0 | 39.1 | 1.0 | -50.8 | -13.0 | -37.8 | |
| High Channel (1908.5MHz) | | | | | | | | | |
| 3.817 | -11.4 | V | 3.0 | 39.0 | 1.0 | -49.4 | -13.0 | -36.4 | |
| 5.726 | -15.2 | V | 3.0 | 39.9 | 1.0 | -54.1 | -13.0 | -41.1 | |
| 7.634 | -12.9 | V | 3.0 | 39.1 | 1.0 | -51.0 | -13.0 | -38.0 | |
| 3.817 | -6.4 | H | 3.0 | 39.0 | 1.0 | -44.4 | -13.0 | -31.4 | |
| 5.726 | -13.9 | H | 3.0 | 39.9 | 1.0 | -52.7 | -13.0 | -39.7 | |
| 7.634 | -12.5 | H | 3.0 | 39.1 | 1.0 | -50.6 | -13.0 | -37.6 | |
| Rev. 03.03.09 | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|-------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 15K20096 | | | | | | | |
| Date: | | 03-01-15 | | | | | | | |
| Test Engineer: | | Steven Kim | | | | | | | |
| Configuration: | | EUT / AC Adapter / Ear Phone / X-Position | | | | | | | |
| Mode: | | TX, LTE BAND 2, 1.4MHz BW, QPSK | | | | | | | |
| Chamber | | Pre-amplifier | | Filter | | Limit | | | |
| Chamber 1 | | AFS42 | | Filter 1 | | FCC Part 27 | | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| LTE | | | | | | | | | |
| Band 2 | | | | | | | | | |
| 1.4MHz | | | | | | | | | |
| QPSK | | | | | | | | | |
| Low Channel (1850.7MHz) | | | | | | | | | |
| 3.7014 | -4.7 | V | 3.0 | 39.2 | 1.0 | -42.9 | -13.0 | -29.9 | |
| 5.5071 | -19.3 | V | 3.0 | 40.0 | 1.0 | -58.3 | -13.0 | -45.3 | |
| 7.3578 | -16.1 | V | 3.0 | 39.2 | 1.0 | -54.4 | -13.0 | -41.4 | |
| 3.7014 | -0.2 | H | 3.0 | 39.2 | 1.0 | -38.4 | -13.0 | -25.4 | |
| 5.5071 | -19.4 | H | 3.0 | 40.0 | 1.0 | -58.4 | -13.0 | -45.4 | |
| 7.3578 | -15.8 | H | 3.0 | 39.2 | 1.0 | -54.0 | -13.0 | -41.0 | |
| Mid Channel (1880MHz) | | | | | | | | | |
| 3.7600 | -8.3 | V | 3.0 | 39.1 | 1.0 | -46.4 | -13.0 | -33.4 | |
| 5.6400 | -15.2 | V | 3.0 | 39.9 | 1.0 | -54.1 | -13.0 | -41.1 | |
| 7.5200 | -16.8 | V | 3.0 | 39.1 | 1.0 | -54.9 | -13.0 | -41.9 | |
| 3.7600 | -8.8 | H | 3.0 | 39.1 | 1.0 | -46.9 | -13.0 | -33.9 | |
| 5.6400 | -19.3 | H | 3.0 | 39.9 | 1.0 | -58.2 | -13.0 | -45.2 | |
| 7.5200 | -15.5 | H | 3.0 | 39.1 | 1.0 | -53.6 | -13.0 | -40.6 | |
| High Channel (1909.3MHz) | | | | | | | | | |
| 3.8186 | -9.1 | V | 3.0 | 39.0 | 1.0 | -47.2 | -13.0 | -34.2 | |
| 5.7279 | -16.1 | V | 3.0 | 39.9 | 1.0 | -55.0 | -13.0 | -42.0 | |
| 7.6732 | -17.2 | V | 3.0 | 39.1 | 1.0 | -55.3 | -13.0 | -42.3 | |
| 3.8186 | -7.8 | H | 3.0 | 39.0 | 1.0 | -45.8 | -13.0 | -32.8 | |
| 5.7279 | -17.1 | H | 3.0 | 39.9 | 1.0 | -56.0 | -13.0 | -43.0 | |
| 7.6732 | -16.8 | H | 3.0 | 39.1 | 1.0 | -54.9 | -13.0 | -41.9 | |
| Rev. 03.03.09 | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|-------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 15K20096 | | | | | | | |
| Date: | | 03-01-15 | | | | | | | |
| Test Engineer: | | Steven Kim | | | | | | | |
| Configuration: | | EUT / AC Adapter / Ear Phone / X-Position | | | | | | | |
| Mode: | | TX, LTE BAND 2, 1.4MHz BW, 16QAM | | | | | | | |
| Chamber | | Pre-amplifier | | Filter | | Limit | | | |
| Chamber 1 | | AFS42 | | Filter 1 | | FCC Part 27 | | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| LTE | | | | | | | | | |
| Band 2 | | | | | | | | | |
| 1.4MHz | | | | | | | | | |
| 16QAM | | | | | | | | | |
| Low Channel (1850.7MHz) | | | | | | | | | |
| 3.701 | -5.7 | V | 3.0 | 39.2 | 1.0 | -43.8 | -13.0 | -30.8 | |
| 5.507 | -19.3 | V | 3.0 | 40.0 | 1.0 | -58.3 | -13.0 | -45.3 | |
| 7.358 | -16.1 | V | 3.0 | 39.2 | 1.0 | -54.4 | -13.0 | -41.4 | |
| 3.701 | -1.3 | H | 3.0 | 39.2 | 1.0 | -39.4 | -13.0 | -26.4 | |
| 5.507 | -19.4 | H | 3.0 | 40.0 | 1.0 | -58.4 | -13.0 | -45.4 | |
| 7.358 | -15.8 | H | 3.0 | 39.2 | 1.0 | -54.0 | -13.0 | -41.0 | |
| Mid Channel (1880MHz) | | | | | | | | | |
| 3.760 | -9.2 | V | 3.0 | 39.1 | 1.0 | -47.3 | -13.0 | -34.3 | |
| 5.640 | -15.4 | V | 3.0 | 39.9 | 1.0 | -54.3 | -13.0 | -41.3 | |
| 7.520 | -16.8 | V | 3.0 | 39.1 | 1.0 | -54.9 | -13.0 | -41.9 | |
| 3.760 | -9.9 | H | 3.0 | 39.1 | 1.0 | -48.0 | -13.0 | -35.0 | |
| 5.640 | -19.3 | H | 3.0 | 39.9 | 1.0 | -58.2 | -13.0 | -45.2 | |
| 7.520 | -15.5 | H | 3.0 | 39.1 | 1.0 | -53.6 | -13.0 | -40.6 | |
| High Channel (1909.3MHz) | | | | | | | | | |
| 3.819 | -10.3 | V | 3.0 | 39.0 | 1.0 | -48.3 | -13.0 | -35.3 | |
| 5.728 | -17.3 | V | 3.0 | 39.9 | 1.0 | -56.2 | -13.0 | -43.2 | |
| 7.673 | -17.2 | V | 3.0 | 39.1 | 1.0 | -55.3 | -13.0 | -42.3 | |
| 3.819 | -8.6 | H | 3.0 | 39.0 | 1.0 | -46.6 | -13.0 | -33.6 | |
| 5.728 | -18.2 | H | 3.0 | 39.9 | 1.0 | -57.1 | -13.0 | -44.1 | |
| 7.673 | -16.8 | H | 3.0 | 39.1 | 1.0 | -54.9 | -13.0 | -41.9 | |
| Rev. 03.03.09 | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|-------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 15K20096 | | | | | | | |
| Date: | | 03-06-15 | | | | | | | |
| Test Engineer: | | Steven Kim | | | | | | | |
| Configuration: | | EUT / AC Adapter / Ear Phone / Z-Position | | | | | | | |
| Mode: | | TX, LTE BAND 4, 20MHz BW, QPSK | | | | | | | |
| Chamber | | Pre-amplifier | | Filter | | Limit | | | |
| Chamber 1 | | AFS42 | | Filter 1 | | FCC Part 27 | | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Channel (1720MHz) | | | | | | | | | |
| 3.4400 | -15.9 | V | 3.0 | 39.5 | 1.0 | -54.4 | -13.0 | -41.4 | |
| 5.1600 | -8.8 | V | 3.0 | 40.1 | 1.0 | -47.9 | -13.0 | -34.9 | |
| 6.8800 | -7.2 | V | 3.0 | 39.4 | 1.0 | -45.6 | -13.0 | -32.6 | |
| 3.4400 | -16.0 | H | 3.0 | 39.5 | 1.0 | -54.5 | -13.0 | -41.5 | |
| 5.1600 | -9.0 | H | 3.0 | 40.1 | 1.0 | -48.1 | -13.0 | -35.1 | |
| 6.8800 | -6.8 | H | 3.0 | 39.4 | 1.0 | -45.2 | -13.0 | -32.2 | |
| Mid Channel (1732.5MHz) | | | | | | | | | |
| 3.4650 | -15.9 | V | 3.0 | 39.4 | 1.0 | -54.3 | -13.0 | -41.3 | |
| 5.1975 | -9.3 | V | 3.0 | 40.1 | 1.0 | -48.4 | -13.0 | -35.4 | |
| 6.9300 | -4.9 | V | 3.0 | 39.4 | 1.0 | -43.2 | -13.0 | -30.2 | |
| 3.4650 | -16.0 | H | 3.0 | 39.4 | 1.0 | -54.5 | -13.0 | -41.5 | |
| 5.1975 | -9.3 | H | 3.0 | 40.1 | 1.0 | -48.4 | -13.0 | -35.4 | |
| 6.9300 | -4.5 | H | 3.0 | 39.4 | 1.0 | -42.9 | -13.0 | -29.9 | |
| High Channel (1745MHz) | | | | | | | | | |
| 3.4900 | -15.0 | V | 3.0 | 39.4 | 1.0 | -53.4 | -13.0 | -40.4 | |
| 5.2350 | -7.9 | V | 3.0 | 40.1 | 1.0 | -47.0 | -13.0 | -34.0 | |
| 6.9800 | -6.7 | V | 3.0 | 39.3 | 1.0 | -45.0 | -13.0 | -32.0 | |
| 3.4900 | -15.1 | H | 3.0 | 39.4 | 1.0 | -53.5 | -13.0 | -40.5 | |
| 5.2350 | -8.1 | H | 3.0 | 40.1 | 1.0 | -47.2 | -13.0 | -34.2 | |
| 6.9800 | -6.3 | H | 3.0 | 39.3 | 1.0 | -44.6 | -13.0 | -31.6 | |
| Rev. 03.03.09 | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

LTE
 Band 4
 20MHz
 QPSK

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|-------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 15K20096 | | | | | | | |
| Date: | | 03-06-15 | | | | | | | |
| Test Engineer: | | Steven.Kim | | | | | | | |
| Configuration: | | EUT / AC Adapter / Ear Phone / Z-Position | | | | | | | |
| Mode: | | TX, LTE BAND 4, 20MHz BW, 16QAM | | | | | | | |
| Chamber | | Pre-amplifier | | Filter | | Limit | | | |
| Chamber 1 | | AFS42 | | Filter 1 | | FCC Part 27 | | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Channel (1720MHz) | | | | | | | | | |
| 3.4400 | -15.9 | V | 3.0 | 39.5 | 1.0 | -54.4 | -13.0 | -41.4 | |
| 5.1600 | -8.8 | V | 3.0 | 40.1 | 1.0 | -47.9 | -13.0 | -34.9 | |
| 6.8800 | -7.2 | V | 3.0 | 39.4 | 1.0 | -45.6 | -13.0 | -32.6 | |
| 3.4400 | -16.0 | H | 3.0 | 39.5 | 1.0 | -54.5 | -13.0 | -41.5 | |
| 5.1600 | -9.0 | H | 3.0 | 40.1 | 1.0 | -48.1 | -13.0 | -35.1 | |
| 6.8800 | -6.8 | H | 3.0 | 39.4 | 1.0 | -45.2 | -13.0 | -32.2 | |
| Mid Channel (1732.5MHz) | | | | | | | | | |
| 3.4650 | -15.9 | V | 3.0 | 39.4 | 1.0 | -54.3 | -13.0 | -41.3 | |
| 5.1975 | -9.3 | V | 3.0 | 40.1 | 1.0 | -48.4 | -13.0 | -35.4 | |
| 6.9300 | -4.9 | V | 3.0 | 39.4 | 1.0 | -43.2 | -13.0 | -30.2 | |
| 3.4650 | -16.0 | H | 3.0 | 39.4 | 1.0 | -54.5 | -13.0 | -41.5 | |
| 5.1975 | -9.3 | H | 3.0 | 40.1 | 1.0 | -48.4 | -13.0 | -35.4 | |
| 6.9300 | -4.5 | H | 3.0 | 39.4 | 1.0 | -42.9 | -13.0 | -29.9 | |
| High Channel (1745MHz) | | | | | | | | | |
| 3.4900 | -15.0 | V | 3.0 | 39.4 | 1.0 | -53.4 | -13.0 | -40.4 | |
| 5.2350 | -7.9 | V | 3.0 | 40.1 | 1.0 | -47.0 | -13.0 | -34.0 | |
| 6.9800 | -6.7 | V | 3.0 | 39.3 | 1.0 | -45.0 | -13.0 | -32.0 | |
| 3.4900 | -15.1 | H | 3.0 | 39.4 | 1.0 | -53.5 | -13.0 | -40.5 | |
| 5.2350 | -8.1 | H | 3.0 | 40.1 | 1.0 | -47.2 | -13.0 | -34.2 | |
| 6.9800 | -6.3 | H | 3.0 | 39.3 | 1.0 | -44.6 | -13.0 | -31.6 | |
| Rev. 03.03.09 | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

LTE
 Band 4
 20MHz
 16QAM

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|-------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 15K20096 | | | | | | | |
| Date: | | 03-06-15 | | | | | | | |
| Test Engineer: | | Steven.Kim | | | | | | | |
| Configuration: | | EUT / AC Adapter / Ear Phone / Z-Position | | | | | | | |
| Mode: | | TX, LTE BAND 4, 15MHz BW,QPSK | | | | | | | |
| Chamber | | Pre-amplifier | | Filter | | Limit | | | |
| Chamber 1 | | AFS42 | | Filter 1 | | FCC Part 27 | | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Channel (1717.5MHz) | | | | | | | | | |
| 3.4350 | -18.8 | V | 3.0 | 39.5 | 1.0 | -57.3 | -13.0 | -44.3 | |
| 5.1525 | -11.4 | V | 3.0 | 40.1 | 1.0 | -50.4 | -13.0 | -37.4 | |
| 6.8700 | -10.2 | V | 3.0 | 39.4 | 1.0 | -48.6 | -13.0 | -35.6 | |
| 3.4350 | -18.9 | H | 3.0 | 39.5 | 1.0 | -57.3 | -13.0 | -44.3 | |
| 5.1525 | -11.4 | H | 3.0 | 40.1 | 1.0 | -50.5 | -13.0 | -37.5 | |
| 6.8700 | -9.9 | H | 3.0 | 39.4 | 1.0 | -48.3 | -13.0 | -35.3 | |
| Mid Channel (1732.5MHz) | | | | | | | | | |
| 3.4650 | -18.9 | V | 3.0 | 39.4 | 1.0 | -57.3 | -13.0 | -44.3 | |
| 5.1975 | -12.2 | V | 3.0 | 40.1 | 1.0 | -51.3 | -13.0 | -38.3 | |
| 6.9300 | -7.8 | V | 3.0 | 39.4 | 1.0 | -46.1 | -13.0 | -33.1 | |
| 3.4650 | -19.1 | H | 3.0 | 39.4 | 1.0 | -57.5 | -13.0 | -44.5 | |
| 5.1975 | -12.2 | H | 3.0 | 40.1 | 1.0 | -51.4 | -13.0 | -38.4 | |
| 6.9300 | -7.4 | H | 3.0 | 39.4 | 1.0 | -45.8 | -13.0 | -32.8 | |
| High Channel (1747.5MHz) | | | | | | | | | |
| 3.4950 | -17.8 | V | 3.0 | 39.4 | 1.0 | -56.2 | -13.0 | -43.2 | |
| 5.2425 | -10.6 | V | 3.0 | 40.1 | 1.0 | -49.7 | -13.0 | -36.7 | |
| 6.9900 | -9.4 | V | 3.0 | 39.3 | 1.0 | -47.8 | -13.0 | -34.8 | |
| 3.4950 | -17.9 | H | 3.0 | 39.4 | 1.0 | -56.3 | -13.0 | -43.3 | |
| 5.2425 | -12.7 | H | 3.0 | 40.1 | 1.0 | -51.8 | -13.0 | -38.8 | |
| 6.9900 | -9.1 | H | 3.0 | 39.3 | 1.0 | -47.4 | -13.0 | -34.4 | |
| Rev. 03.03.09 | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

LTE
 Band 4
 15MHz
 QPSK

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|-------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 15K20096 | | | | | | | |
| Date: | | 03-06-15 | | | | | | | |
| Test Engineer: | | Steven Kim | | | | | | | |
| Configuration: | | EUT / AC Adapter / Ear Phone / Z-Position | | | | | | | |
| Mode: | | TX, LTE BAND 4, 15MHz BW, 16QAM | | | | | | | |
| Chamber | | Pre-amplifier | | Filter | | Limit | | | |
| Chamber 1 | | AFS42 | | Filter 1 | | FCC Part 27 | | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Channel (1717.5MHz) | | | | | | | | | |
| 3.4350 | -18.8 | V | 3.0 | 39.5 | 1.0 | -57.3 | -13.0 | -44.3 | |
| 5.1525 | -11.4 | V | 3.0 | 40.1 | 1.0 | -50.4 | -13.0 | -37.4 | |
| 6.8700 | -10.2 | V | 3.0 | 39.4 | 1.0 | -48.6 | -13.0 | -35.6 | |
| 3.4350 | -18.9 | H | 3.0 | 39.5 | 1.0 | -57.3 | -13.0 | -44.3 | |
| 5.1525 | -11.4 | H | 3.0 | 40.1 | 1.0 | -50.5 | -13.0 | -37.5 | |
| 6.8700 | -9.9 | H | 3.0 | 39.4 | 1.0 | -48.3 | -13.0 | -35.3 | |
| Mid Channel (1732.5MHz) | | | | | | | | | |
| 3.4650 | -18.9 | V | 3.0 | 39.4 | 1.0 | -57.3 | -13.0 | -44.3 | |
| 5.1975 | -12.2 | V | 3.0 | 40.1 | 1.0 | -51.3 | -13.0 | -38.3 | |
| 6.9300 | -7.8 | V | 3.0 | 39.4 | 1.0 | -46.1 | -13.0 | -33.1 | |
| 3.4650 | -19.1 | H | 3.0 | 39.4 | 1.0 | -57.5 | -13.0 | -44.5 | |
| 5.1975 | -12.2 | H | 3.0 | 40.1 | 1.0 | -51.4 | -13.0 | -38.4 | |
| 6.9300 | -7.4 | H | 3.0 | 39.4 | 1.0 | -45.8 | -13.0 | -32.8 | |
| High Channel (1747.5MHz) | | | | | | | | | |
| 3.4950 | -17.8 | V | 3.0 | 39.4 | 1.0 | -56.2 | -13.0 | -43.2 | |
| 5.2425 | -10.6 | V | 3.0 | 40.1 | 1.0 | -49.7 | -13.0 | -36.7 | |
| 6.9900 | -9.4 | V | 3.0 | 39.3 | 1.0 | -47.8 | -13.0 | -34.8 | |
| 3.4950 | -17.9 | H | 3.0 | 39.4 | 1.0 | -56.3 | -13.0 | -43.3 | |
| 5.2425 | -12.7 | H | 3.0 | 40.1 | 1.0 | -51.8 | -13.0 | -38.8 | |
| 6.9900 | -9.1 | H | 3.0 | 39.3 | 1.0 | -47.4 | -13.0 | -34.4 | |
| Rev. 03.03.09 | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

LTE
 Band 4
 15MHz
 16QAM

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|-----------|-------------|-------------|-------|--|
| Company: | | Samsung | | | | | | | | |
| Project #: | | 15K20096 | | | | | | | | |
| Date: | | 03-06-15 | | | | | | | | |
| Test Engineer: | | Steven.Kim | | | | | | | | |
| Configuration: | | EUT / AC Adapter / Ear Phone / Z-Position | | | | | | | | |
| Mode: | | TX, LTE BAND 4, 10MHz BW, QPSK | | | | | | | | |
| Chamber | | Pre-amplifier | | | Filter | | | Limit | | |
| Chamber 1 | | AFS42 | | | Filter 1 | | | FCC Part 27 | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes | |
| Low Channel (1715MHz) | | | | | | | | | | |
| 3.4300 | -18.6 | V | 3.0 | 39.5 | 1.0 | -57.0 | -13.0 | -44.0 | | |
| 5.1450 | -11.1 | V | 3.0 | 40.1 | 1.0 | -50.1 | -13.0 | -37.1 | | |
| 6.8600 | -10.2 | V | 3.0 | 39.4 | 1.0 | -48.6 | -13.0 | -35.6 | | |
| 3.4300 | -18.7 | H | 3.0 | 39.5 | 1.0 | -57.2 | -13.0 | -44.2 | | |
| 5.1450 | -11.1 | H | 3.0 | 40.1 | 1.0 | -50.1 | -13.0 | -37.1 | | |
| 6.8600 | -9.8 | H | 3.0 | 39.4 | 1.0 | -48.2 | -13.0 | -35.2 | | |
| Mid Channel (1732.5MHz) | | | | | | | | | | |
| 3.4650 | -19.0 | V | 3.0 | 39.4 | 1.0 | -57.4 | -13.0 | -44.4 | | |
| 5.1975 | -12.2 | V | 3.0 | 40.1 | 1.0 | -51.3 | -13.0 | -38.3 | | |
| 6.9300 | -7.8 | V | 3.0 | 39.4 | 1.0 | -46.2 | -13.0 | -33.2 | | |
| 3.4650 | -19.1 | H | 3.0 | 39.4 | 1.0 | -57.5 | -13.0 | -44.5 | | |
| 5.1975 | -12.1 | H | 3.0 | 40.1 | 1.0 | -51.2 | -13.0 | -38.2 | | |
| 6.9300 | -7.4 | H | 3.0 | 39.4 | 1.0 | -45.8 | -13.0 | -32.8 | | |
| High Channel (1750MHz) | | | | | | | | | | |
| 3.5000 | -17.5 | V | 3.0 | 39.4 | 1.0 | -55.9 | -13.0 | -42.9 | | |
| 5.2500 | -10.6 | V | 3.0 | 40.1 | 1.0 | -49.7 | -13.0 | -36.7 | | |
| 7.0000 | -9.1 | V | 3.0 | 39.3 | 1.0 | -47.4 | -13.0 | -34.4 | | |
| 3.5000 | -17.7 | H | 3.0 | 39.4 | 1.0 | -56.0 | -13.0 | -43.0 | | |
| 5.2500 | -10.2 | H | 3.0 | 40.1 | 1.0 | -49.3 | -13.0 | -36.3 | | |
| 7.0000 | -8.7 | H | 3.0 | 39.3 | 1.0 | -47.1 | -13.0 | -34.1 | | |
| Rev. 03.03.09 | | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | | |

LTE
 Band 4
 10MHz
 QPSK

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|-----------|-------------|-------------|-------|--|
| Company: | | Samsung | | | | | | | | |
| Project #: | | 15K20096 | | | | | | | | |
| Date: | | 03-06-15 | | | | | | | | |
| Test Engineer: | | Steven.Kim | | | | | | | | |
| Configuration: | | EUT / AC Adapter / Ear Phone / Z-Position | | | | | | | | |
| Mode: | | TX, LTE BAND 4, 10MHz BW, 16QAM | | | | | | | | |
| Chamber | | Pre-amplifier | | | Filter | | | Limit | | |
| Chamber 1 | | AFS42 | | | Filter 1 | | | FCC Part 27 | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes | |
| Low Channel (1715MHz) | | | | | | | | | | |
| 3.4300 | -18.6 | V | 3.0 | 39.5 | 1.0 | -57.0 | -13.0 | -44.0 | | |
| 5.1450 | -11.1 | V | 3.0 | 40.1 | 1.0 | -50.1 | -13.0 | -37.1 | | |
| 6.8600 | -10.2 | V | 3.0 | 39.4 | 1.0 | -48.6 | -13.0 | -35.6 | | |
| 3.4300 | -18.7 | H | 3.0 | 39.5 | 1.0 | -57.2 | -13.0 | -44.2 | | |
| 5.1450 | -11.1 | H | 3.0 | 40.1 | 1.0 | -50.1 | -13.0 | -37.1 | | |
| 6.8600 | -9.8 | H | 3.0 | 39.4 | 1.0 | -48.2 | -13.0 | -35.2 | | |
| Mid Channel (1732.5MHz) | | | | | | | | | | |
| 3.4650 | -19.0 | V | 3.0 | 39.4 | 1.0 | -57.4 | -13.0 | -44.4 | | |
| 5.1975 | -12.2 | V | 3.0 | 40.1 | 1.0 | -51.3 | -13.0 | -38.3 | | |
| 6.9300 | -7.8 | V | 3.0 | 39.4 | 1.0 | -46.2 | -13.0 | -33.2 | | |
| 3.4650 | -19.1 | H | 3.0 | 39.4 | 1.0 | -57.5 | -13.0 | -44.5 | | |
| 5.1975 | -12.1 | H | 3.0 | 40.1 | 1.0 | -51.2 | -13.0 | -38.2 | | |
| 6.9300 | -7.4 | H | 3.0 | 39.4 | 1.0 | -45.8 | -13.0 | -32.8 | | |
| High Channel (1750MHz) | | | | | | | | | | |
| 3.5000 | -17.5 | V | 3.0 | 39.4 | 1.0 | -55.9 | -13.0 | -42.9 | | |
| 5.2500 | -10.6 | V | 3.0 | 40.1 | 1.0 | -49.7 | -13.0 | -36.7 | | |
| 7.0000 | -9.1 | V | 3.0 | 39.3 | 1.0 | -47.4 | -13.0 | -34.4 | | |
| 3.5000 | -17.7 | H | 3.0 | 39.4 | 1.0 | -56.0 | -13.0 | -43.0 | | |
| 5.2500 | -10.2 | H | 3.0 | 40.1 | 1.0 | -49.3 | -13.0 | -36.3 | | |
| 7.0000 | -8.7 | H | 3.0 | 39.3 | 1.0 | -47.1 | -13.0 | -34.1 | | |
| Rev. 03.03.09 | | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | | |

LTE
 Band 4
 10MHz
 16QAM

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|-------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 15K20096 | | | | | | | |
| Date: | | 03-06-15 | | | | | | | |
| Test Engineer: | | Steven Kim | | | | | | | |
| Configuration: | | EUT / AC Adapter / Ear Phone / Z-Position | | | | | | | |
| Mode: | | TX, LTE BAND 4, 5MHz BW, QPSK | | | | | | | |
| Chamber | | Pre-amplifier | | Filter | | Limit | | | |
| Chamber 1 | | AFS42 | | Filter 1 | | FCC Part 27 | | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Channel (1712.5MHz) | | | | | | | | | |
| 3.4250 | -21.2 | V | 3.0 | 39.5 | 1.0 | -59.7 | -13.0 | -46.7 | |
| 5.1375 | -13.9 | V | 3.0 | 40.1 | 1.0 | -53.0 | -13.0 | -40.0 | |
| 6.5800 | -11.5 | V | 3.0 | 39.5 | 1.0 | -50.1 | -13.0 | -37.1 | |
| 3.4250 | -21.3 | H | 3.0 | 39.5 | 1.0 | -59.8 | -13.0 | -46.8 | |
| 5.1375 | -13.7 | H | 3.0 | 40.1 | 1.0 | -52.8 | -13.0 | -39.8 | |
| 6.5800 | -11.3 | H | 3.0 | 39.5 | 1.0 | -49.8 | -13.0 | -36.8 | |
| Mid Channel (1732.5MHz) | | | | | | | | | |
| 3.4650 | -21.8 | V | 3.0 | 39.4 | 1.0 | -60.2 | -13.0 | -47.2 | |
| 5.1975 | -14.9 | V | 3.0 | 40.1 | 1.0 | -54.0 | -13.0 | -41.0 | |
| 6.9300 | -10.6 | V | 3.0 | 39.4 | 1.0 | -48.9 | -13.0 | -35.9 | |
| 3.4650 | -21.9 | H | 3.0 | 39.4 | 1.0 | -60.3 | -13.0 | -47.3 | |
| 5.1975 | -15.1 | H | 3.0 | 40.1 | 1.0 | -54.2 | -13.0 | -41.2 | |
| 6.9300 | -10.3 | H | 3.0 | 39.4 | 1.0 | -48.6 | -13.0 | -35.6 | |
| High Channel (1752.5MHz) | | | | | | | | | |
| 3.5050 | -20.2 | V | 3.0 | 39.4 | 1.0 | -58.6 | -13.0 | -45.6 | |
| 5.2575 | -12.8 | V | 3.0 | 40.1 | 1.0 | -51.9 | -13.0 | -38.9 | |
| 7.0100 | -11.6 | V | 3.0 | 39.3 | 1.0 | -49.9 | -13.0 | -36.9 | |
| 3.5050 | -20.2 | H | 3.0 | 39.4 | 1.0 | -58.6 | -13.0 | -45.6 | |
| 5.2575 | -13.9 | H | 3.0 | 40.1 | 1.0 | -53.0 | -13.0 | -40.0 | |
| 7.0100 | -11.2 | H | 3.0 | 39.3 | 1.0 | -49.6 | -13.0 | -36.6 | |
| Rev. 03.03.09 | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

LTE
 Band 4
 5MHz
 QPSK

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|-------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 15K20096 | | | | | | | |
| Date: | | 03-06-15 | | | | | | | |
| Test Engineer: | | Steven Kim | | | | | | | |
| Configuration: | | EUT / AC Adapter / Ear Phone / Z-Position | | | | | | | |
| Mode: | | TX, LTE BAND 7, 5MHz BW, 16QAM | | | | | | | |
| Chamber | | Pre-amplifier | | Filter | | Limit | | | |
| Chamber 1 | | AFS42 | | Filter 1 | | FCC Part 27 | | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Channel (1712.5MHz) | | | | | | | | | |
| 3.4250 | -21.2 | V | 3.0 | 39.5 | 1.0 | -59.7 | -13.0 | -46.7 | |
| 5.1375 | -13.9 | V | 3.0 | 40.1 | 1.0 | -53.0 | -13.0 | -40.0 | |
| 6.5800 | -11.5 | V | 3.0 | 39.5 | 1.0 | -50.1 | -13.0 | -37.1 | |
| 3.4250 | -21.3 | H | 3.0 | 39.5 | 1.0 | -59.8 | -13.0 | -46.8 | |
| 5.1375 | -13.7 | H | 3.0 | 40.1 | 1.0 | -52.8 | -13.0 | -39.8 | |
| 6.5800 | -11.3 | H | 3.0 | 39.5 | 1.0 | -49.8 | -13.0 | -36.8 | |
| Mid Channel (1732.5MHz) | | | | | | | | | |
| 3.4650 | -21.8 | V | 3.0 | 39.4 | 1.0 | -60.2 | -13.0 | -47.2 | |
| 5.1975 | -14.9 | V | 3.0 | 40.1 | 1.0 | -54.0 | -13.0 | -41.0 | |
| 6.9300 | -10.6 | V | 3.0 | 39.4 | 1.0 | -48.9 | -13.0 | -35.9 | |
| 3.4650 | -21.9 | H | 3.0 | 39.4 | 1.0 | -60.3 | -13.0 | -47.3 | |
| 5.1975 | -15.1 | H | 3.0 | 40.1 | 1.0 | -54.2 | -13.0 | -41.2 | |
| 6.9300 | -10.3 | H | 3.0 | 39.4 | 1.0 | -48.6 | -13.0 | -35.6 | |
| High Channel (1752.5MHz) | | | | | | | | | |
| 3.5050 | -20.2 | V | 3.0 | 39.4 | 1.0 | -58.6 | -13.0 | -45.6 | |
| 5.2575 | -12.8 | V | 3.0 | 40.1 | 1.0 | -51.9 | -13.0 | -38.9 | |
| 7.0100 | -11.6 | V | 3.0 | 39.3 | 1.0 | -49.9 | -13.0 | -36.9 | |
| 3.5050 | -20.2 | H | 3.0 | 39.4 | 1.0 | -58.6 | -13.0 | -45.6 | |
| 5.2575 | -13.9 | H | 3.0 | 40.1 | 1.0 | -53.0 | -13.0 | -40.0 | |
| 7.0100 | -11.2 | H | 3.0 | 39.3 | 1.0 | -49.6 | -13.0 | -36.6 | |
| Rev. 03.03.09 | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

LTE
 Band 4
 5MHz
 16QAM

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|-------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 15K20096 | | | | | | | |
| Date: | | 03-06-15 | | | | | | | |
| Test Engineer: | | Steven Kim | | | | | | | |
| Configuration: | | EUT / AC Adapter / Ear Phone / Z-Position | | | | | | | |
| Mode: | | TX, LTE BAND 4, 3MHz BW,QPSK | | | | | | | |
| Chamber | | Pre-amplifier | | Filter | | Limit | | | |
| Chamber 1 | | AFS42 | | Filter 1 | | FCC Part 27 | | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Channel (1711.5MHz) | | | | | | | | | |
| 3.4230 | -23.3 | V | 3.0 | 39.5 | 1.0 | -61.7 | -13.0 | -48.7 | |
| 5.1345 | -16.2 | V | 3.0 | 40.0 | 1.0 | -55.2 | -13.0 | -42.2 | |
| 6.8460 | -14.6 | V | 3.0 | 39.4 | 1.0 | -53.0 | -13.0 | -40.0 | |
| 3.4230 | -23.3 | H | 3.0 | 39.5 | 1.0 | -61.8 | -13.0 | -48.8 | |
| 5.1345 | -16.1 | H | 3.0 | 40.0 | 1.0 | -55.1 | -13.0 | -42.1 | |
| 6.8460 | -14.3 | H | 3.0 | 39.4 | 1.0 | -52.7 | -13.0 | -39.7 | |
| Mid Channel (1732.5MHz) | | | | | | | | | |
| 3.4650 | -23.7 | V | 3.0 | 39.4 | 1.0 | -62.1 | -13.0 | -49.1 | |
| 5.1975 | -17.1 | V | 3.0 | 40.1 | 1.0 | -56.2 | -13.0 | -43.2 | |
| 6.9300 | -12.7 | V | 3.0 | 39.4 | 1.0 | -51.1 | -13.0 | -38.1 | |
| 3.4650 | -24.2 | H | 3.0 | 39.4 | 1.0 | -62.6 | -13.0 | -49.6 | |
| 5.1975 | -17.4 | H | 3.0 | 40.1 | 1.0 | -56.5 | -13.0 | -43.5 | |
| 6.9300 | -12.4 | H | 3.0 | 39.4 | 1.0 | -50.7 | -13.0 | -37.7 | |
| High Channel (1753.5MHz) | | | | | | | | | |
| 3.5070 | -22.3 | V | 3.0 | 39.4 | 1.0 | -60.7 | -13.0 | -47.7 | |
| 5.2605 | -14.3 | V | 3.0 | 40.1 | 1.0 | -53.4 | -13.0 | -40.4 | |
| 7.0140 | -13.8 | V | 3.0 | 39.3 | 1.0 | -52.1 | -13.0 | -39.1 | |
| 3.5070 | -22.4 | H | 3.0 | 39.4 | 1.0 | -60.8 | -13.0 | -47.8 | |
| 5.2605 | -15.9 | H | 3.0 | 40.1 | 1.0 | -55.0 | -13.0 | -42.0 | |
| 7.0140 | -13.5 | H | 3.0 | 39.3 | 1.0 | -51.8 | -13.0 | -38.8 | |
| Rev. 03.03.09 | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | |

LTE
 Band 4
 3MHz
 QPSK

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|-----------|-------------|-------------|-------|--|
| Company: | | Samsung | | | | | | | | |
| Project #: | | 15K20096 | | | | | | | | |
| Date: | | 03-06-15 | | | | | | | | |
| Test Engineer: | | Steven.Kim | | | | | | | | |
| Configuration: | | EUT / AC Adapter / Ear Phone / Z-Position | | | | | | | | |
| Mode: | | TX, LTE BAND 4, 3MHz BW, 16QAM | | | | | | | | |
| Chamber | | Pre-amplifier | | | Filter | | | Limit | | |
| Chamber 1 | | AFS42 | | | Filter 1 | | | FCC Part 27 | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes | |
| LTE | | | | | | | | | | |
| Band 4 | | | | | | | | | | |
| 3MHz | | | | | | | | | | |
| 16QAM | | | | | | | | | | |
| Low Channel (1711.5MHz) | | | | | | | | | | |
| 3.4230 | -23.3 | V | 3.0 | 39.5 | 1.0 | -61.7 | -13.0 | -48.7 | | |
| 5.1345 | -16.2 | V | 3.0 | 40.0 | 1.0 | -55.2 | -13.0 | -42.2 | | |
| 6.8460 | -14.6 | V | 3.0 | 39.4 | 1.0 | -53.0 | -13.0 | -40.0 | | |
| 3.4230 | -23.3 | H | 3.0 | 39.5 | 1.0 | -61.8 | -13.0 | -48.8 | | |
| 5.1345 | -16.1 | H | 3.0 | 40.0 | 1.0 | -55.1 | -13.0 | -42.1 | | |
| 6.8460 | -14.3 | H | 3.0 | 39.4 | 1.0 | -52.7 | -13.0 | -39.7 | | |
| Mid Channel (1732.5MHz) | | | | | | | | | | |
| 3.4650 | -23.7 | V | 3.0 | 39.4 | 1.0 | -62.1 | -13.0 | -49.1 | | |
| 5.1975 | -17.1 | V | 3.0 | 40.1 | 1.0 | -56.2 | -13.0 | -43.2 | | |
| 6.9300 | -12.7 | V | 3.0 | 39.4 | 1.0 | -51.1 | -13.0 | -38.1 | | |
| 3.4650 | -24.2 | H | 3.0 | 39.4 | 1.0 | -62.6 | -13.0 | -49.6 | | |
| 5.1975 | -17.4 | H | 3.0 | 40.1 | 1.0 | -56.5 | -13.0 | -43.5 | | |
| 6.9300 | -12.4 | H | 3.0 | 39.4 | 1.0 | -50.7 | -13.0 | -37.7 | | |
| High Channel (1752.5MHz) | | | | | | | | | | |
| 3.5070 | -22.3 | V | 3.0 | 39.4 | 1.0 | -60.7 | -13.0 | -47.7 | | |
| 5.2605 | -14.3 | V | 3.0 | 40.1 | 1.0 | -53.4 | -13.0 | -40.4 | | |
| 7.0140 | -13.8 | V | 3.0 | 39.3 | 1.0 | -52.1 | -13.0 | -39.1 | | |
| 3.5070 | -22.4 | H | 3.0 | 39.4 | 1.0 | -60.8 | -13.0 | -47.8 | | |
| 5.2605 | -15.9 | H | 3.0 | 40.1 | 1.0 | -55.0 | -13.0 | -42.0 | | |
| 7.0140 | -13.5 | H | 3.0 | 39.3 | 1.0 | -51.8 | -13.0 | -38.8 | | |
| Rev. 03.03.09 | | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | | |

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|-----------|-------------|-------------|-------|--|
| Company: | | Samsung | | | | | | | | |
| Project #: | | 15K20096 | | | | | | | | |
| Date: | | 03-06-15 | | | | | | | | |
| Test Engineer: | | Steven.Kim | | | | | | | | |
| Configuration: | | EUT / AC Adapter / Ear Phone / Z-Position | | | | | | | | |
| Mode: | | TX, LTE BAND 4, 1.4MHz BW, QPSK | | | | | | | | |
| Chamber | | Pre-amplifier | | | Filter | | | Limit | | |
| Chamber 1 | | AFS42 | | | Filter 1 | | | FCC Part 27 | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes | |
| LTE | | | | | | | | | | |
| Band 4 | | | | | | | | | | |
| 1.4MHz | | | | | | | | | | |
| QPSK | | | | | | | | | | |
| Low Channel (1710.7MHz) | | | | | | | | | | |
| 3.4214 | -24.2 | V | 3.0 | 39.5 | 1.0 | -62.7 | -13.0 | -49.7 | | |
| 5.1321 | -19.6 | V | 3.0 | 40.0 | 1.0 | -58.7 | -13.0 | -45.7 | | |
| 6.8428 | -18.1 | V | 3.0 | 39.4 | 1.0 | -56.5 | -13.0 | -43.5 | | |
| 3.4214 | -24.0 | H | 3.0 | 39.5 | 1.0 | -62.5 | -13.0 | -49.5 | | |
| 5.1321 | -19.8 | H | 3.0 | 40.0 | 1.0 | -58.9 | -13.0 | -45.9 | | |
| 6.8428 | -17.9 | H | 3.0 | 39.4 | 1.0 | -56.3 | -13.0 | -43.3 | | |
| Mid Channel (1732.5MHz) | | | | | | | | | | |
| 3.4650 | -12.0 | V | 3.0 | 39.4 | 1.0 | -50.4 | -13.0 | -37.4 | | |
| 5.1975 | -20.5 | V | 3.0 | 40.1 | 1.0 | -59.6 | -13.0 | -46.6 | | |
| 6.9300 | -16.1 | V | 3.0 | 39.4 | 1.0 | -54.5 | -13.0 | -41.5 | | |
| 3.4650 | -26.0 | H | 3.0 | 39.4 | 1.0 | -64.4 | -13.0 | -51.4 | | |
| 5.1975 | -20.5 | H | 3.0 | 40.1 | 1.0 | -59.7 | -13.0 | -46.7 | | |
| 6.9300 | -15.7 | H | 3.0 | 39.4 | 1.0 | -54.0 | -13.0 | -41.0 | | |
| High Channel (1754.3MHz) | | | | | | | | | | |
| 3.5086 | -26.8 | V | 3.0 | 39.4 | 1.0 | -65.2 | -13.0 | -52.2 | | |
| 5.2629 | -20.0 | V | 3.0 | 40.1 | 1.0 | -59.1 | -13.0 | -46.1 | | |
| 7.0172 | -16.7 | V | 3.0 | 39.3 | 1.0 | -55.0 | -13.0 | -42.0 | | |
| 3.5086 | -25.7 | H | 3.0 | 39.4 | 1.0 | -64.1 | -13.0 | -51.1 | | |
| 5.2629 | -20.1 | H | 3.0 | 40.1 | 1.0 | -59.2 | -13.0 | -46.2 | | |
| 7.0172 | -16.0 | H | 3.0 | 39.3 | 1.0 | -54.3 | -13.0 | -41.3 | | |
| Rev. 03.03.09 | | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | | |

| UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement | | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|-----------|-------------|------------|-------|--|
| Company: | | Samsung | | | | | | | | |
| Project #: | | 15K20096 | | | | | | | | |
| Date: | | 03-06-15 | | | | | | | | |
| Test Engineer: | | Steven.Kim | | | | | | | | |
| Configuration: | | EUT / AC Adapter / Ear Phone / Z-Position | | | | | | | | |
| Mode: | | TX, LTE BAND 4, 1.4MHz BW, 16QAM | | | | | | | | |
| Chamber | | Pre-amplifier | | | Filter | | Limit | | | |
| Chamber 1 | | AFS42 | | | Filter 1 | | FCC Part 27 | | | |
| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes | |
| Low Channel (1710.7MHz) | | | | | | | | | | |
| 3.4214 | -26.3 | V | 3.0 | 39.5 | 1.0 | -64.8 | -13.0 | -51.8 | | |
| 5.1321 | -19.6 | V | 3.0 | 40.0 | 1.0 | -58.7 | -13.0 | -45.7 | | |
| 6.8428 | -18.1 | V | 3.0 | 39.4 | 1.0 | -56.5 | -13.0 | -43.5 | | |
| 3.4214 | -27.5 | H | 3.0 | 39.5 | 1.0 | -66.0 | -13.0 | -53.0 | | |
| 5.1321 | -19.8 | H | 3.0 | 40.0 | 1.0 | -58.9 | -13.0 | -45.9 | | |
| 6.8428 | -17.9 | H | 3.0 | 39.4 | 1.0 | -56.3 | -13.0 | -43.3 | | |
| Mid Channel (1732.5MHz) | | | | | | | | | | |
| 3.4650 | -26.6 | V | 3.0 | 39.4 | 1.0 | -65.0 | -13.0 | -52.0 | | |
| 5.1975 | -20.5 | V | 3.0 | 40.1 | 1.0 | -59.6 | -13.0 | -46.6 | | |
| 6.9300 | -16.1 | V | 3.0 | 39.4 | 1.0 | -54.5 | -13.0 | -41.5 | | |
| 3.4650 | -27.3 | H | 3.0 | 39.4 | 1.0 | -65.7 | -13.0 | -52.7 | | |
| 5.1975 | -20.5 | H | 3.0 | 40.1 | 1.0 | -59.7 | -13.0 | -46.7 | | |
| 6.9300 | -15.7 | H | 3.0 | 39.4 | 1.0 | -54.0 | -13.0 | -41.0 | | |
| High Channel (1754.3MHz) | | | | | | | | | | |
| 3.5086 | -26.8 | V | 3.0 | 39.4 | 1.0 | -65.2 | -13.0 | -52.2 | | |
| 5.2629 | -20.0 | V | 3.0 | 40.1 | 1.0 | -59.1 | -13.0 | -46.1 | | |
| 7.0172 | -16.7 | V | 3.0 | 39.3 | 1.0 | -55.0 | -13.0 | -42.0 | | |
| 3.5086 | -25.7 | H | 3.0 | 39.4 | 1.0 | -64.1 | -13.0 | -51.1 | | |
| 5.2629 | -20.1 | H | 3.0 | 40.1 | 1.0 | -59.2 | -13.0 | -46.2 | | |
| 7.0172 | -16.0 | H | 3.0 | 39.3 | 1.0 | -54.3 | -13.0 | -41.3 | | |
| Rev. 03.03.09 | | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | | |

LTE
 Band 4
 1.4MHz
 16QAM