

RF TEST REPORT



Report No.: 15070897-FCC-R1

Supersede Report No.: N/A

| | | |
|--|---|--|
| Applicant | Verykool USA Inc | |
| Product Name | Mobile phone | |
| Model No. | SL5550 | |
| Serial No. | N/A | |
| Test Standard | FCC Part 22(H):2014 ;FCC Part 24(E):2014; FCC Part 27:2014; ANSI/TIAC603 D: 2010 | |
| Test Date | September 26 to October 15, 2015 | |
| Issue Date | October 15, 2015 | |
| Test Result | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail | |
| Equipment complied with the specification | <input checked="" type="checkbox"/> | |
| Equipment did not comply with the specification | <input type="checkbox"/> | |
| <i>Winnie Zhang</i> | <i>David Huang</i> | |
| Winnie Zhang Test Engineer | David Huang Checked By | |
| This test report may be reproduced in full only Test result presented in this test report is applicable to the tested sample only | | |

Issued by:

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Accreditations for Conformity Assessment

| Country/Region | Scope |
|----------------|------------------------------------|
| USA | EMC, RF/Wireless, SAR, Telecom |
| Canada | EMC, RF/Wireless, SAR, Telecom |
| Taiwan | EMC, RF, Telecom, SAR, Safety |
| Hong Kong | RF/Wireless, SAR, Telecom |
| Australia | EMC, RF, Telecom, SAR, Safety |
| Korea | EMI, EMS, RF, SAR, Telecom, Safety |
| Japan | EMI, RF/Wireless, SAR, Telecom |
| Singapore | EMC, RF, SAR, Telecom |
| Europe | EMC, RF, SAR, Telecom, Safety |

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1. Report Revision History

| Report No. | Report Version | Description | Issue Date |
|-----------------|----------------|-------------|------------------|
| 15070897-FCC-R1 | NONE | Original | October 15, 2015 |
| | | | |
| | | | |
| | | | |
| | | | |

2. Customer information

| | |
|------------------|--|
| Applicant Name | Verykool USA Inc |
| Applicant Add | 3636 Nobel Drive, Suite 325, San Diego, CA 92122 USA |
| Manufacturer | Zechin Communications Co.,Ltd. |
| Manufacturer Add | Unit804,8th Floor Desay Tech Building Gaoxin, Road South, Nanshan District Shenzhen,China |

3. Test site information

| | |
|----------------------|--|
| Lab performing tests | SIEMIC (Shenzhen-China) LABORATORIES |
| Lab Address | Zone A, Floor 1, Building 2 Wan Ye Long Technology Park South Side of Zhoushi Road, Bao' an District, Shenzhen, Guangdong China 518108 |
| FCC Test Site No. | 718246 |
| IC Test Site No. | 4842E-1 |
| Test Software | Radiated Emission Program-To Shenzhen v2.0 |

4. Equipment under Test (EUT) Information

| | |
|-------------------------------|---|
| Description of EUT: | Mobile phone |
| Main Model: | SL5550 |
| Serial Model: | N/A |
| Date EUT received: | September 25, 2015 |
| Test Date(s): | September 26 to October 15, 2015 |
| Equipment Category : | PCE |
| Antenna Gain: | GSM850: 1.6 dBi PCS1900: 3.8 dBi UMTS-FDD Band V: 1.7 dBi UMTS-FDD Band IV: 3.7 dBi UMTS-FDD Band II: 3.8 dBi Bluetooth/BLE: 3 dBi WIFI: 2.9 dBi LTE Band 2: 3.8 dBi LTE Band 4: 3.8 dBi LTE Band 5: 3.8 dBi LTE Band 7: 3.8 dBi LTE Band 12: 3.8 dBi LTE Band 17: 3.8 dBi GPS:1.6 dBi |
| Type of Modulation: | GSM / GPRS: GMSK EGPRS: GMSK UMTS-FDD: QPSK, 16QAM 802.11b/g/n: DSSS, OFDM Bluetooth: GFSK, π /4DQPSK, 8DPSK BLE: GFSK LTE Band: QPSK, 16QAM GPS:BPSK |
| RF Operating Frequency (ies): | GSM850 TX: 824.2 ~ 848.8 MHz; RX: 869.2 ~ 893.8 MHz |

Port: Power Port, Earphone Port, USB Port

Battery:
Model:355093PV
Spec:3.8V,2500mAh,9.5Wh
Limited Charging Voltage: 4.35V
Input Power:
Adapter:
Model:SC050100-US
Input: 100-240V; 50/60Hz; 0.4A
Output: DC 5.0V,1A

Trade Name : verykool

GPRS/EGPRS Multi-slot class 8/10/12

FCC ID: WA6SL5550

5. Test Summary

The product was tested in accordance with the following specifications.

All testing has been performed according to below product classification:

| FCC Rules | Description of Test | Result |
|--|--|------------|
| § 1.1307; § 2.1093 | RF Exposure (SAR) | Compliance |
| §2.1046; § 22.913(a); § 24.232(c); § 27.50(c.10) ; § 27.50(d.4) | RF Output Power | Compliance |
| § 24.232 (d) ; § 27.50(d) | Peak-Average Ratio | Compliance |
| § 2.1047 | Modulation Characteristics | N/A |
| § 2.1049; § 22.905; § 22.917; § 24.238; § 27.53(a.5) | 99% & -26 dB Occupied Bandwidth | Compliance |
| § 2.1051; § 22.917(a); § 24.238(a); § 27.53(h) | Spurious Emissions at Antenna Terminal | Compliance |
| § 2.1053; § 22.917(a); § 24.238(a); § 27.53(h) | Field Strength of Spurious Radiation | Compliance |
| § 22.917(a); § 24.238(a); § 27.53(h) | Out of band emission, Band Edge | Compliance |
| § 2.1055; § 22.355; § 24.235; § 27.5(h); § 27.54 | Frequency stability vs. temperature Frequency stability vs. voltage | Compliance |

Note: Testing was performed by configuring EUT to maximum output power status, the declared output power class for different

Measurement Uncertainty

| Emissions | | |
|--|---|---------------|
| Test Item | Description | Uncertainty |
| Band Edge and Radiated Spurious Emissions | Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m) | +5.6dB/-4.5dB |
| - | - | - |

6. MEASUREMENTS, EXAMINATION AND DERIVED RESULTS

6.1 RF Exposure (SAR)

Test Result: Pass

The EUT is a portable device, thus requires SAR evaluation;

Please refer to RF Exposure Evaluation Report: 15070897-FCC-H.

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| | |
|--------|--|
| | <p>generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.</p> <ul style="list-style-type: none"> - Spurious emissions in dB = 10 log (TX power in Watts/0.001) – the absolute level - Spurious attenuation limit in dB = 43 + 10 Log10 (power out in Watts). |
| Remark | |
| Result | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail |

Test Data Yes N/A

Test Plot Yes (See below) N/A

Conducted Power

GSM Mode:

| Burst Average Power (dBm); | | | | | | | | |
|--|--------------|-------|-------|------------------------|--------------|-------|--------|------------------------|
| Band | GSM850 | | | | PCS1900 | | | |
| Channel | 128 | 190 | 251 | Tune up Power tolerant | 512 | 661 | 810 | Tune up Power tolerant |
| Frequency (MHz) | 824.2 | 836.6 | 848.8 | / | 1850.2 | 1880 | 1909.8 | / |
| GSM Voice (1 uplink),GMSK | 33.90 | 33.70 | 33.74 | 33±1 | 30.19 | 29.90 | 29.31 | 30±1 |
| GPRS Multi-Slot Class 8 (1 uplink),GMSK | 33.68 | 33.68 | 33.70 | 33±1 | 29.30 | 29.88 | 30.17 | 30±1 |
| GPRS Multi-Slot Class 10 (2 uplink) GMSK | 33.24 | 33.29 | 33.30 | 33±1 | 28.72 | 29.33 | 29.73 | 29±1 |
| GPRS Multi-Slot Class 12 (4 uplink) GMSK | 30.91 | 30.95 | 30.94 | 30±1 | 26.15 | 26.82 | 26.73 | 26±1 |
| EGPRS Multi-Slot Class 8 (1 uplink) GMSK MCS1 | 33.82 | 33.87 | 33.71 | 33±1 | 29.29 | 29.87 | 30.17 | 30±1 |
| EGPRS Multi-Slot Class 10 (2 uplink) GMSK MCS1 | 33.28 | 33.34 | 33.38 | 33±1 | 28.73 | 29.35 | 29.74 | 29±1 |
| EGPRS Multi-Slot Class 12 (4 uplink) GMSK MCS1 | 29.45 | 29.51 | 29.55 | 29±1 | 26.10 | 26.73 | 26.72 | 26±1 |

Remark :

GPRS, CS1 coding scheme.

EGPRS, MCS1 coding scheme.

Multi-Slot Class 8 , Support Max 4 downlink, 1 uplink , 5 working link

Multi-Slot Class 10 , Support Max 4 downlink, 2 uplink , 5 working link

Multi-Slot Class 12 , Support Max 4 downlink, 4 uplink , 5 working link

Note: Since GSM mode has higher power, so the test items below were not performed to GPRS and EGPRS mode.

UMTS Mode:

UMTS-FDD Band V

| Band/ Time Slot configuration | Channel | Frequency | Average power (dBm) | Tune up Power tolerant |
|-------------------------------|---------|-----------|---------------------|------------------------|
| RMC 12.2kbps | 4132 | 826.4 | 23.83 | 23±1 |
| | 4175 | 835 | 23.92 | 23±1 |
| | 4233 | 846.6 | 23.95 | 23±1 |
| HSDPA Subtest1 | 4132 | 826.4 | 22.75 | 22±1 |
| | 4175 | 835 | 22.86 | 22±1 |
| | 4233 | 846.6 | 22.59 | 22±1 |
| HSDPA Subtest2 | 4132 | 826.4 | 22.75 | 22±1 |
| | 4175 | 835 | 22.73 | 22±1 |
| | 4233 | 846.6 | 22.76 | 22±1 |
| HSDPA Subtest3 | 4132 | 826.4 | 22.69 | 22±1 |
| | 4175 | 835 | 22.73 | 22±1 |
| | 4233 | 846.6 | 22.78 | 22±1 |
| HSDPA Subtest4 | 4132 | 826.4 | 22.77 | 22±1 |
| | 4175 | 835 | 22.81 | 22±1 |
| | 4233 | 846.6 | 22.80 | 22±1 |
| HSUPA Subtest1 | 4132 | 826.4 | 22.68 | 22±1 |
| | 4175 | 835 | 22.69 | 22±1 |
| | 4233 | 846.6 | 22.75 | 22±1 |
| HSUPA Subtest2 | 4132 | 826.4 | 22.74 | 22±1 |
| | 4175 | 835 | 22.79 | 22±1 |
| | 4233 | 846.6 | 22.82 | 22±1 |
| HSUPA Subtest3 | 4132 | 826.4 | 22.75 | 22±1 |
| | 4175 | 835 | 22.79 | 22±1 |
| | 4233 | 846.6 | 22.83 | 22±1 |
| HSUPA Subtest4 | 4132 | 826.4 | 22.71 | 22±1 |
| | 4175 | 835 | 22.78 | 22±1 |
| | 4233 | 846.6 | 22.76 | 22±1 |
| HSUPA Subtest5 | 4132 | 826.4 | 22.73 | 22±1 |
| | 4175 | 835 | 22.75 | 22±1 |
| | 4233 | 846.6 | 22.77 | 22±1 |

UMTS-FDD Band II

| Band/ Time Slot configuration | Channel | Frequency | Average power (dBm) | Tune up Power tolerant |
|-------------------------------|---------|-----------|---------------------|------------------------|
| RMC 12.2kbps | 9262 | 1852.4 | 22.28 | 22±1 |
| | 9400 | 1880 | 22.36 | 22±1 |
| | 9538 | 1907.6 | 22.48 | 22±1 |
| HSDPA Subtest1 | 9262 | 1852.4 | 21.16 | 22±1 |
| | 9400 | 1880 | 21.32 | 22±1 |
| | 9538 | 1907.6 | 21.25 | 22±1 |
| HSDPA Subtest2 | 9262 | 1852.4 | 21.19 | 22±1 |
| | 9400 | 1880 | 21.22 | 22±1 |
| | 9538 | 1907.6 | 21.31 | 22±1 |
| HSDPA Subtest3 | 9262 | 1852.4 | 21.20 | 22±1 |
| | 9400 | 1880 | 21.23 | 22±1 |
| | 9538 | 1907.6 | 21.22 | 22±1 |
| HSDPA Subtest4 | 9262 | 1852.4 | 21.14 | 22±1 |
| | 9400 | 1880 | 21.19 | 22±1 |
| | 9538 | 1907.6 | 21.23 | 22±1 |
| HSUPA Subtest1 | 9262 | 1852.4 | 21.15 | 22±1 |
| | 9400 | 1880 | 21.13 | 22±1 |
| | 9538 | 1907.6 | 21.19 | 22±1 |
| HSUPA Subtest2 | 9262 | 1852.4 | 21.14 | 22±1 |
| | 9400 | 1880 | 21.26 | 22±1 |
| | 9538 | 1907.6 | 21.23 | 22±1 |
| HSUPA Subtest3 | 9262 | 1852.4 | 21.22 | 22±1 |
| | 9400 | 1880 | 21.25 | 22±1 |
| | 9538 | 1907.6 | 21.29 | 22±1 |
| HSUPA Subtest4 | 9262 | 1852.4 | 21.18 | 22±1 |
| | 9400 | 1880 | 21.32 | 22±1 |
| | 9538 | 1907.6 | 21.29 | 22±1 |
| HSUPA Subtest5 | 9262 | 1852.4 | 21.16 | 22±1 |
| | 9400 | 1880 | 21.24 | 22±1 |
| | 9538 | 1907.6 | 21.26 | 22±1 |

UMTS-FDD Band IV

| Band/ Time Slot configuration | Channel | Frequency | Average power (dBm) | Tune up Power tolerant |
|-------------------------------|---------|-----------|---------------------|------------------------|
| RMC 12.2kbps | 1313 | 1712.6 | 22.96 | 22±1 |
| | 1413 | 1732.6 | 22.58 | 22±1 |
| | 1512 | 1752.4 | 22.33 | 22±1 |
| HSDPA Subtest1 | 1313 | 1712.6 | 21.46 | 22±1 |
| | 1413 | 1732.6 | 21.43 | 22±1 |
| | 1512 | 1752.4 | 21.26 | 22±1 |
| HSDPA Subtest2 | 1313 | 1712.6 | 21.46 | 22±1 |
| | 1413 | 1732.6 | 21.38 | 22±1 |
| | 1512 | 1752.4 | 21.15 | 22±1 |
| HSDPA Subtest3 | 1313 | 1712.6 | 21.44 | 22±1 |
| | 1413 | 1732.6 | 21.35 | 22±1 |
| | 1512 | 1752.4 | 21.13 | 22±1 |
| HSDPA Subtest4 | 1313 | 1712.6 | 21.48 | 22±1 |
| | 1413 | 1732.6 | 21.32 | 22±1 |
| | 1512 | 1752.4 | 21.12 | 22±1 |
| HSUPA Subtest1 | 1313 | 1712.6 | 21.51 | 22±1 |
| | 1413 | 1732.6 | 21.13 | 22±1 |
| | 1512 | 1752.4 | 21.08 | 22±1 |
| HSUPA Subtest2 | 1313 | 1712.6 | 21.36 | 22±1 |
| | 1413 | 1732.6 | 21.15 | 22±1 |
| | 1512 | 1752.4 | 21.11 | 22±1 |
| HSUPA Subtest3 | 1313 | 1712.6 | 21.28 | 22±1 |
| | 1413 | 1732.6 | 21.20 | 22±1 |
| | 1512 | 1752.4 | 21.15 | 22±1 |
| HSUPA Subtest4 | 1313 | 1712.6 | 21.33 | 22±1 |
| | 1413 | 1732.6 | 21.15 | 22±1 |
| | 1512 | 1752.4 | 21.24 | 22±1 |
| HSUPA Subtest5 | 1313 | 1712.6 | 21.16 | 22±1 |
| | 1413 | 1732.6 | 21.13 | 22±1 |
| | 1512 | 1752.4 | 21.09 | 22±1 |

ERP & EIRP

ERP for Cellular Band (Part 22H)

| Frequency (MHz) | Substituted level (dBm) | Antenna Polarization | Antenna Gain correction (dBi) | Cable Loss (dB) | Absolute Level (dBm) | Limit (dBm) |
|-----------------|-------------------------|----------------------|-------------------------------|-----------------|----------------------|-------------|
| 824.2 | 25.90 | V | 6.8 | 0.53 | 32.17 | 38.45 |
| 824.2 | 26.18 | H | 6.8 | 0.53 | 32.45 | 38.45 |
| 836.6 | 26.51 | V | 6.8 | 0.53 | 32.78 | 38.45 |
| 836.6 | 26.18 | H | 6.8 | 0.53 | 32.45 | 38.45 |
| 848.8 | 25.84 | V | 6.9 | 0.53 | 32.21 | 38.45 |
| 848.8 | 26.18 | H | 6.9 | 0.53 | 32.55 | 38.45 |

EIRP for PCS Band (Part 24E)

| Frequency (MHz) | Substituted level (dBm) | Antenna Polarization | Antenna Gain correction (dBi) | Cable Loss (dB) | Absolute Level (dBm) | Limit (dBm) |
|-----------------|-------------------------|----------------------|-------------------------------|-----------------|----------------------|-------------|
| 1850.2 | 25.42 | V | 7.88 | 0.85 | 32.45 | 33 |
| 1850.2 | 25.38 | H | 7.88 | 0.85 | 32.41 | 33 |
| 1880 | 25.14 | V | 7.88 | 0.85 | 32.17 | 33 |
| 1880 | 25.45 | H | 7.88 | 0.85 | 32.48 | 33 |
| 1909.8 | 25.50 | V | 7.86 | 0.85 | 32.51 | 33 |
| 1909.8 | 25.13 | H | 7.86 | 0.85 | 32.14 | 33 |

ERP for UMTS-FDD Band V (Part 22H)

| Frequency (MHz) | Substituted level (dBm) | Antenna Polarization | Antenna Gain correction (dBi) | Cable Loss (dB) | Absolute Level (dBm) | Limit (dBm) |
|-----------------|-------------------------|----------------------|-------------------------------|-----------------|----------------------|-------------|
| 826.4 | 17.85 | V | 6.8 | 0.53 | 24.12 | 38.45 |
| 826.4 | 18.27 | H | 6.8 | 0.53 | 24.54 | 38.45 |
| 835 | 18.09 | V | 6.8 | 0.53 | 24.36 | 38.45 |
| 835 | 17.86 | H | 6.8 | 0.53 | 24.13 | 38.45 |
| 846.6 | 18.14 | V | 6.9 | 0.53 | 24.51 | 38.45 |
| 846.6 | 18.41 | H | 6.9 | 0.53 | 24.78 | 38.45 |

EIRP for UMTS-FDD Band II (Part 24E)

| Frequency (MHz) | Substituted level (dBm) | Antenna Polarization | Antenna Gain correction (dBi) | Cable Loss (dB) | Absolute Level (dBm) | Limit (dBm) |
|-----------------|-------------------------|----------------------|-------------------------------|-----------------|----------------------|-------------|
| 1852.4 | 19.42 | V | 7.88 | 0.85 | 26.45 | 33 |
| 1852.4 | 19.11 | H | 7.88 | 0.85 | 26.14 | 33 |
| 1880 | 19.42 | V | 7.88 | 0.85 | 26.45 | 33 |
| 1880 | 19.29 | H | 7.88 | 0.85 | 26.32 | 33 |
| 1907.6 | 19.11 | V | 7.86 | 0.85 | 26.12 | 33 |
| 1907.6 | 19.53 | H | 7.86 | 0.85 | 26.54 | 33 |

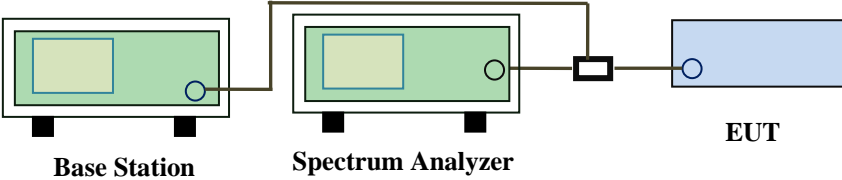
EIRP for UMTS-FDD Band IV (Part 27H)

| Frequency (MHz) | Substituted level (dBm) | Antenna Polarization | Antenna Gain correction (dBi) | Cable Loss (dB) | Absolute Level (dBm) | Limit (dBm) |
|-----------------|-------------------------|----------------------|-------------------------------|-----------------|----------------------|-------------|
| 1712.4 | 18.94 | V | 7.76 | 0.82 | 25.88 | 30 |
| 1712.4 | 18.51 | H | 7.76 | 0.82 | 25.45 | 30 |
| 1740 | 18.18 | V | 7.76 | 0.82 | 25.12 | 30 |
| 1740 | 18.19 | H | 7.76 | 0.82 | 25.13 | 30 |
| 1752.6 | 18.53 | V | 7.74 | 0.82 | 25.45 | 30 |
| 1752.6 | 19.04 | H | 7.74 | 0.82 | 25.96 | 30 |

6.3 Peak-Average Ratio

| | |
|----------------------|------------------|
| Temperature | 24°C |
| Relative Humidity | 52% |
| Atmospheric Pressure | 1006mbar |
| Test date : | October 08, 2015 |
| Tested By : | Winnie Zhang |

Requirement(s):

| Spec | Item | Requirement | Applicable |
|--------------------------|--|---|-------------------------------------|
| §24.232(d) § 27.50(d) | a) | The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB. | <input checked="" type="checkbox"/> |
| Test Setup |  <p style="text-align: center;">Base Station Spectrum Analyzer EUT</p> | | |
| Test Procedure | <p>According with KDB 971168</p> <ol style="list-style-type: none"> 1. The signal analyzer' s CCDF measurement profile is enabled 2. Frequency = carrier center frequency 3. Measurement BW > Emission bandwidth of signal 4. The signal analyzer was set to collect one million samples to generate the CCDF curve 5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal " RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the " on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power | | |
| Remark | | | |
| Result | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail | | |

Test Data Yes N/A

Test Plot Yes (See below) N/A

GSM 1900 PK-AV POWER(PART 24E)

| Frequency (MHz) | Conducted power(dBm) | | Peak-Average Ratio(PAR) |
|--------------------|----------------------|---------|----------------------------|
| | Peak | Average | |
| 1850.2 | 31.53 | 29.31 | 2.22 |
| 1880 | 31.45 | 29.9 | 1.55 |
| 1909.8 | 31.36 | 30.19 | 1.17 |

UMTS-FDD BandII PK-AV POWER(PART 24E)

| Frequency (MHz) | Conducted power(dBm) | | Peak-Average Ratio(PAR) |
|--------------------|----------------------|---------|----------------------------|
| | Peak | Average | |
| 1852.4 | 25.23 | 22.28 | 2.95 |
| 1880 | 25.3 | 22.36 | 2.94 |
| 1907.6 | 25.21 | 22.48 | 2.73 |

UMTS-FDD BandIV PK-AV POWER (PART 27)

| Frequency (MHz) | Conducted power(dBm) | | Peak-Average Ratio(PAR) |
|--------------------|----------------------|---------|----------------------------|
| | Peak | Average | |
| 1712.6 | 25.52 | 22.96 | 2.56 |
| 1732.6 | 25.13 | 22.58 | 2.55 |
| 1752.4 | 24.89 | 22.33 | 2.56 |

| | |
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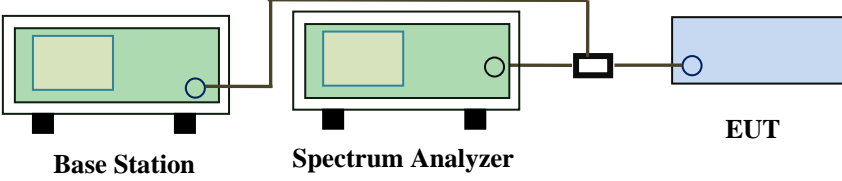
6.4 Modulation Characteristic

According to FCC § 2.1047(d), Part 22H, 24E& Part 27 there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

6.5 Occupied Bandwidth

| | |
|----------------------|------------------|
| Temperature | 24°C |
| Relative Humidity | 52% |
| Atmospheric Pressure | 1006mbar |
| Test date : | October 08, 2015 |
| Tested By : | Winnie Zhang |

Requirement(s):

| Spec | Item | Requirement | Applicable |
|---|--|-----------------------------|-------------------------------------|
| §2.1049, §22.917, §22.905 §24.238 §27.53(a) | a) | 99% Occupied Bandwidth(kHz) | <input checked="" type="checkbox"/> |
| | b) | 26 dB Bandwidth(kHz) | <input checked="" type="checkbox"/> |
| Test Setup |  <p style="text-align: center;"> Base Station Spectrum Analyzer EUT </p> | | |
| Test Procedure | <ul style="list-style-type: none"> - The EUT was connected to Spectrum Analyzer and Base Station via power divider. - The 99% and 26 dB occupied bandwidth (BW) of the middle channel for the highest RF powers. | | |
| Remark | | | |
| Result | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail | | |

Test Data Yes N/A

Test Plot Yes (See below) N/A

Cellular Band (Part 22H) result

| Channel | Frequency (MHz) | 99% Occupied Bandwidth (kHz) | 26 dB Bandwidth (kHz) |
|---------|-----------------|------------------------------|-----------------------|
| 128 | 824.2 | 246.9940 | 314.589 |
| 190 | 836.6 | 246.0024 | 319.941 |
| 251 | 848.8 | 249.9971 | 324.966 |

PCS Band (Part 24E) result

| Channel | Frequency (MHz) | 99% Occupied Bandwidth (kHz) | 26 dB Bandwidth (kHz) |
|---------|-----------------|------------------------------|-----------------------|
| 512 | 1850.2 | 247.0133 | 320.351 |
| 661 | 1880.0 | 247.1740 | 321.592 |
| 810 | 1909.8 | 247.8071 | 314.582 |

UMTS-FDD Band V (Part 22H)

| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | 26 dB Bandwidth (MHz) |
|---------|-----------------|------------------------------|-----------------------|
| 4132 | 826.4 | 4.2291 | 4.882 |
| 4175 | 835.0 | 4.2237 | 4.882 |
| 4233 | 846.6 | 4.2019 | 4.926 |

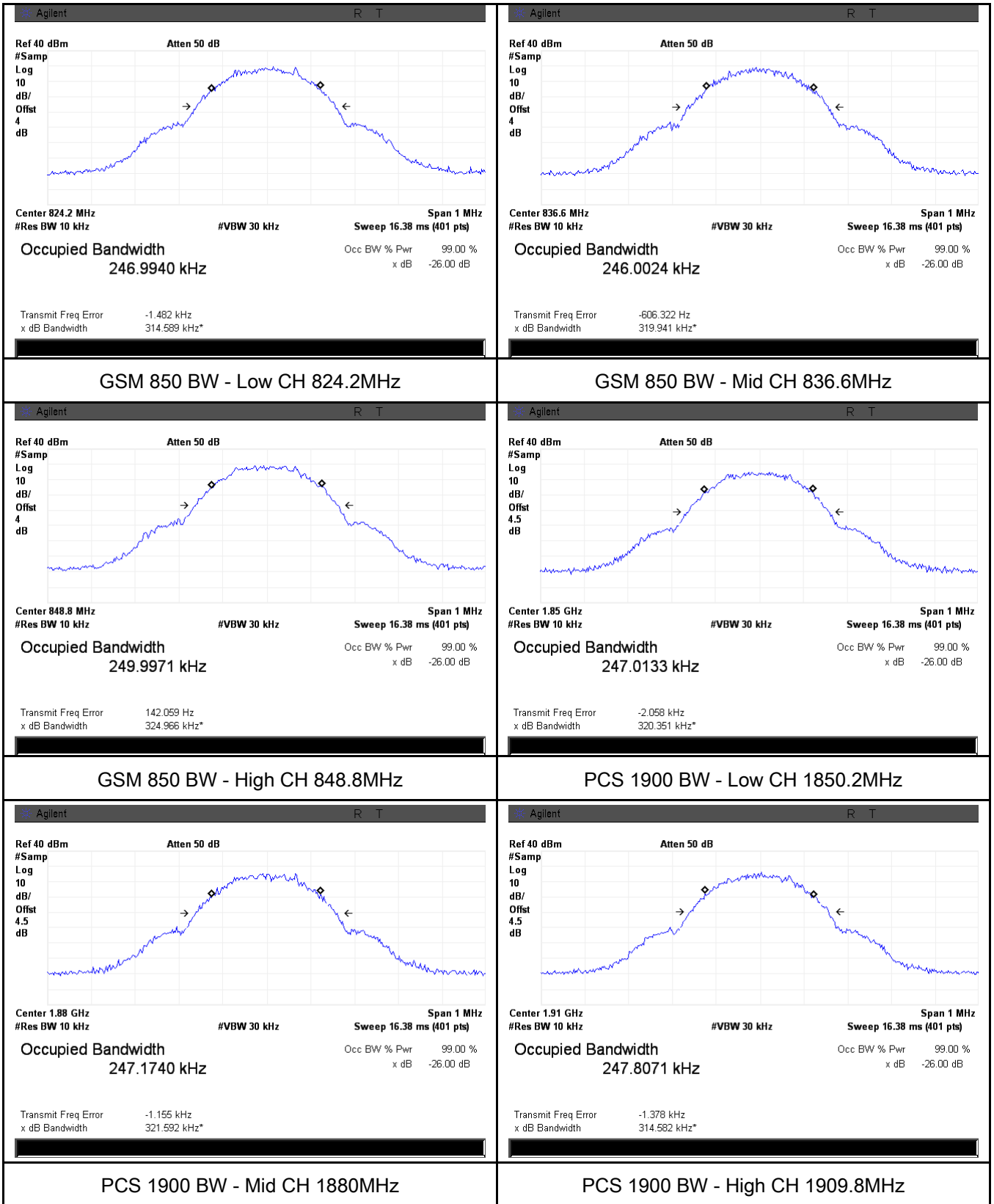
UMTS-FDD Band II (Part 24E)

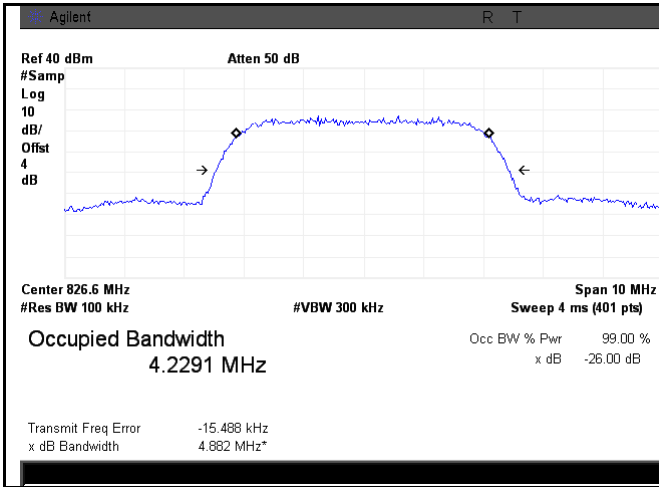
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | 26 dB Bandwidth (MHz) |
|---------|-----------------|------------------------------|-----------------------|
| 9262 | 1852.4 | 4.2277 | 4.929 |
| 9400 | 1880.0 | 4.2188 | 4.904 |
| 9538 | 1907.6 | 4.2185 | 4.963 |

UMTS-FDD Band IV (Part 27)

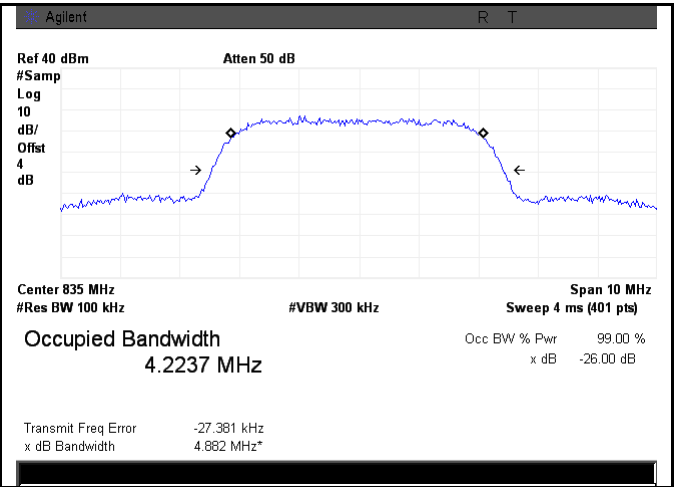
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | 26 dB Bandwidth (MHz) |
|---------|-----------------|------------------------------|-----------------------|
| 9262 | 1852.4 | 4.2100 | 4.874 |
| 9400 | 1880.0 | 4.2126 | 4.912 |
| 9538 | 1907.6 | 4.2548 | 4.919 |

Test Plots

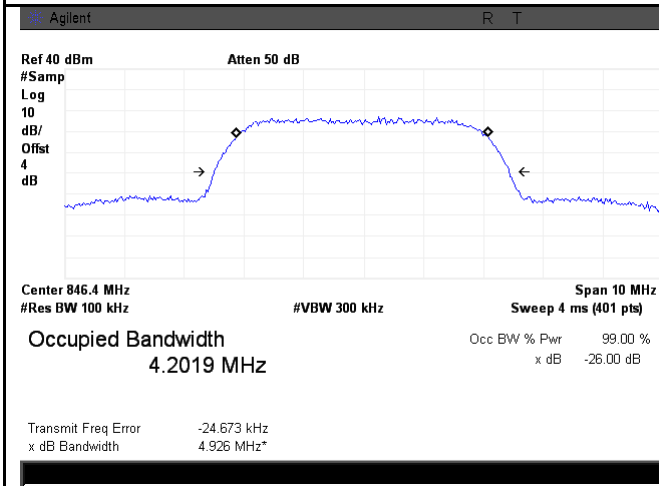




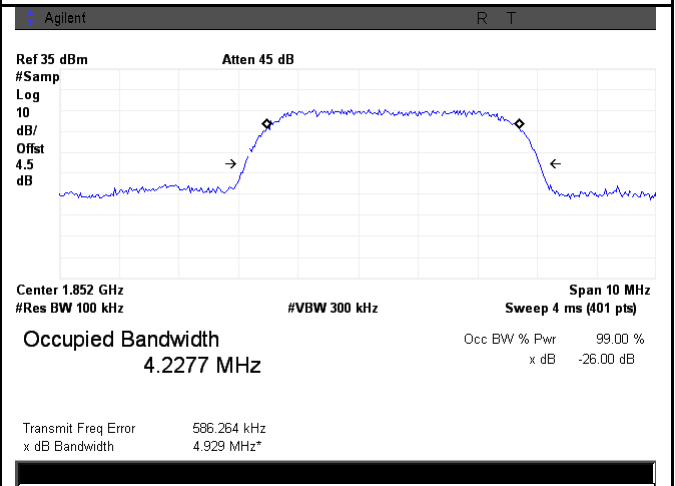
Band V BW - Low CH 826.6 MHz



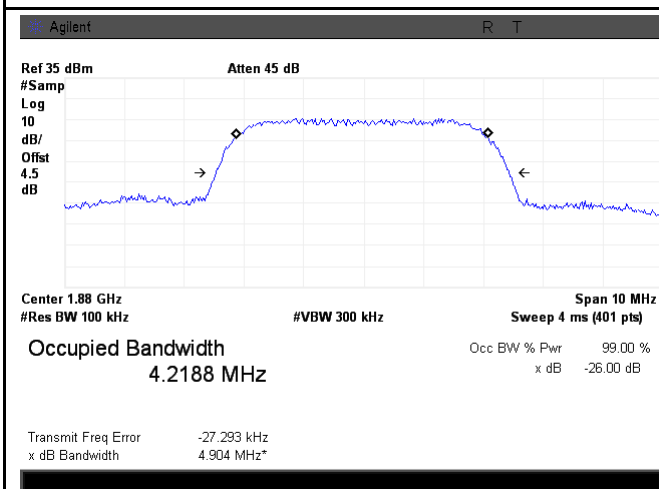
Band V BW - Mid CH 835.0 MHz



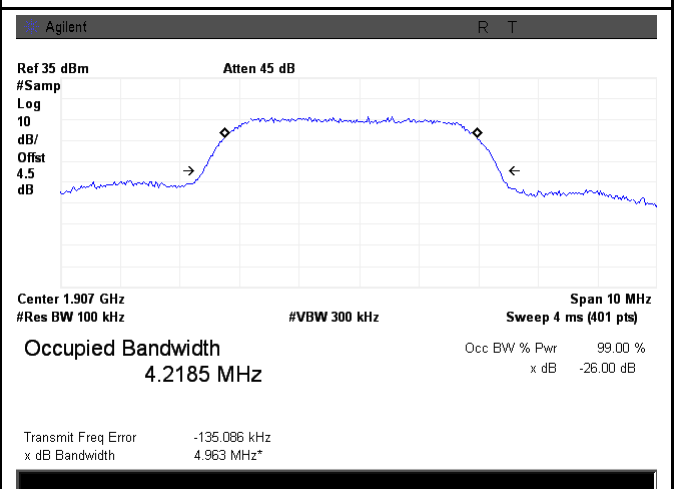
Band V BW - High CH 846.4 MHz



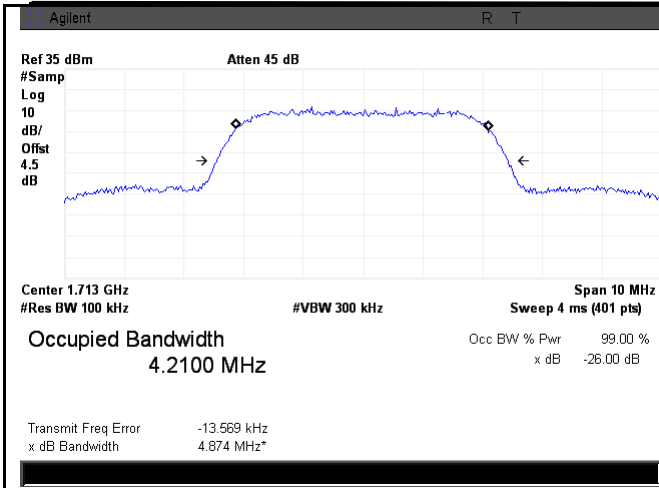
Band II BW - Low CH 1852.4 MHz



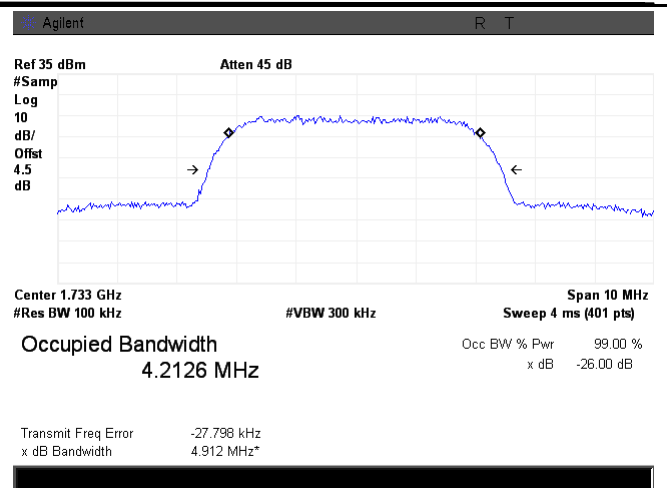
Band II BW - Mid CH 1880 MHz



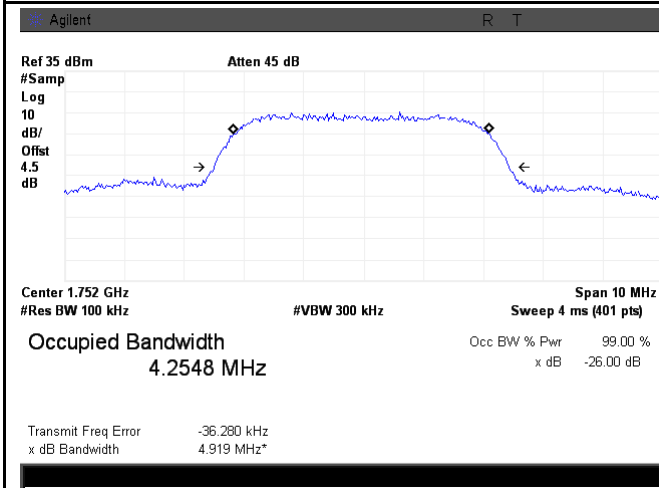
Band II BW - High CH 1907.6 MHz



Band IV BW - Low CH 1852.4MHz



Band IVBW - Mid CH 1880MHz

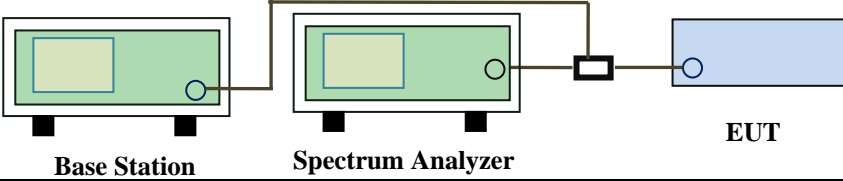


Band IV BW - High CH 1907.6MHz

6.6 Spurious Emissions at Antenna Terminals

| | |
|----------------------|------------------|
| Temperature | 24°C |
| Relative Humidity | 52% |
| Atmospheric Pressure | 1006mbar |
| Test date : | October 08, 2015 |
| Tested By : | Winnie Zhang |

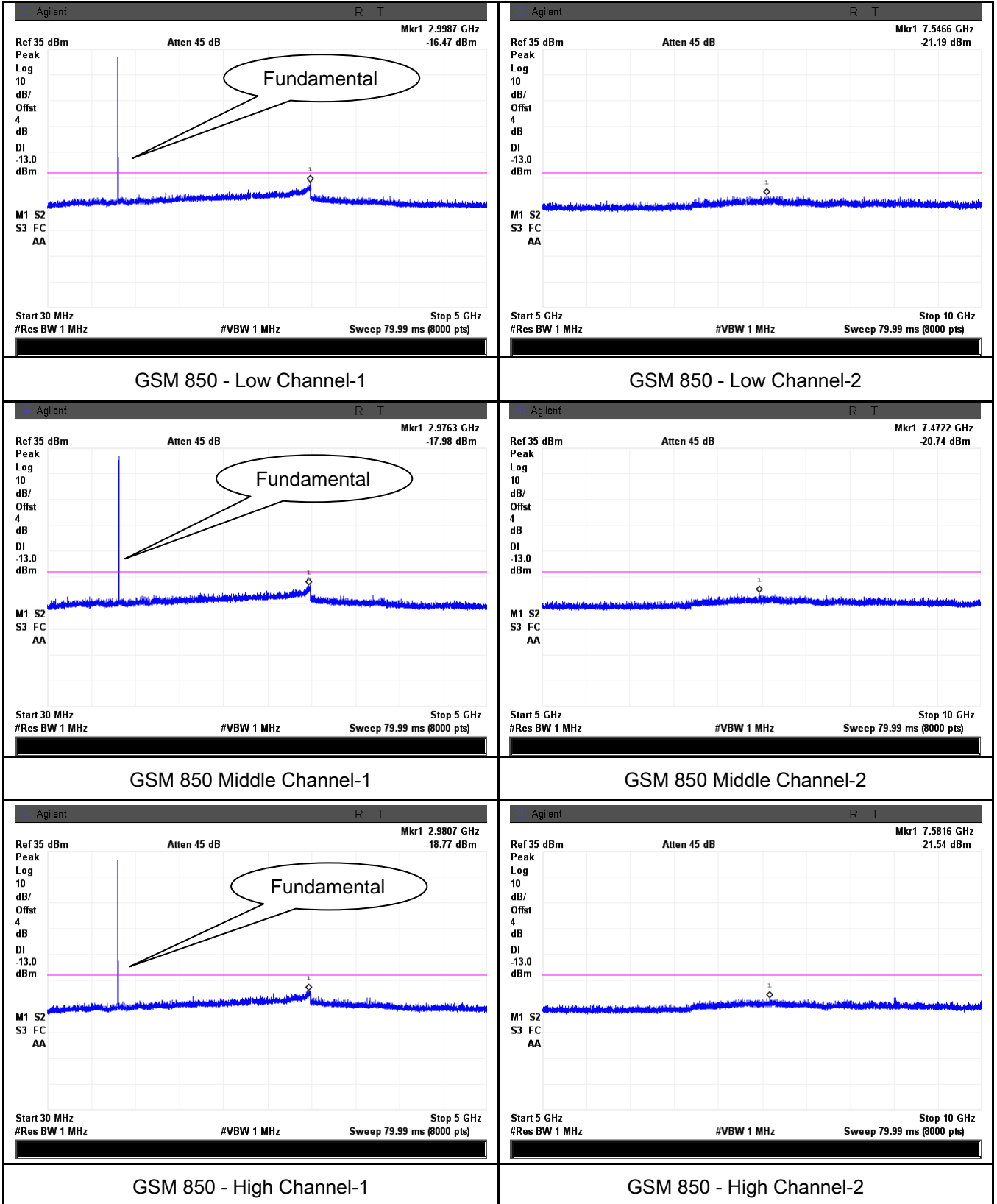
Requirement(s):

| Spec | Item | Requirement | Applicable |
|---|--|---|-------------------------------------|
| §2.1051, §22.917(a)& §24.238(a) § 27.53(h) | a) | The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB | <input checked="" type="checkbox"/> |
| Test Setup |  <p style="text-align: center;">Base Station Spectrum Analyzer EUT</p> | | |
| Test Procedure | <ul style="list-style-type: none"> - The EUT was connected to Spectrum Analyzer and Base Station via power divider. - The Band Edges of low and high channels for the highest RF powers were measured. - Setting RBW as roughly BW/100. | | |
| Remark | | | |
| Result | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail | | |

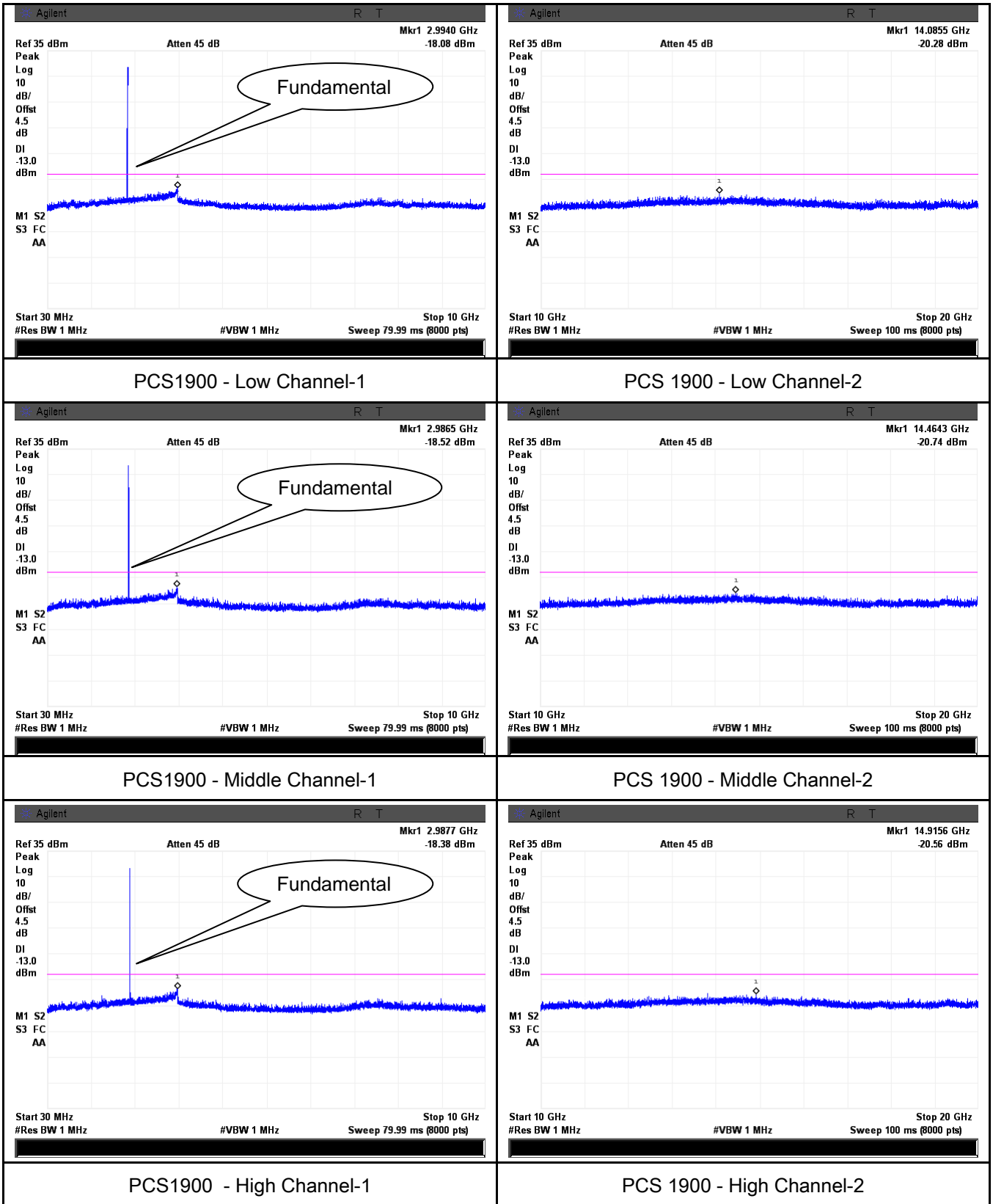
Test Data Yes N/A
 Test Plot Yes (See below) N/A

Test Plots

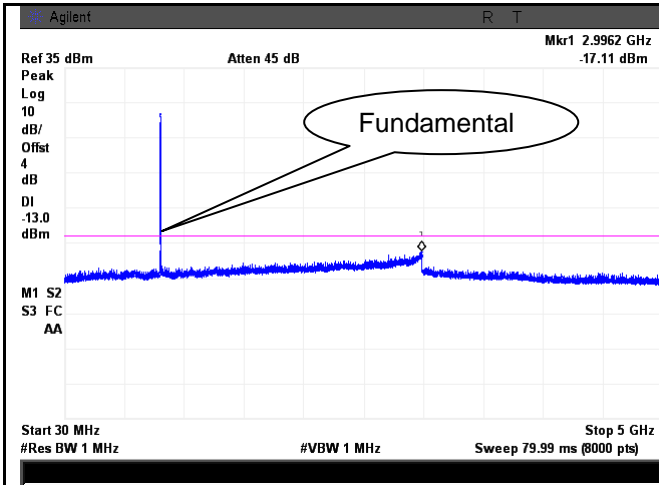
Cellular Band (Part 22H) result



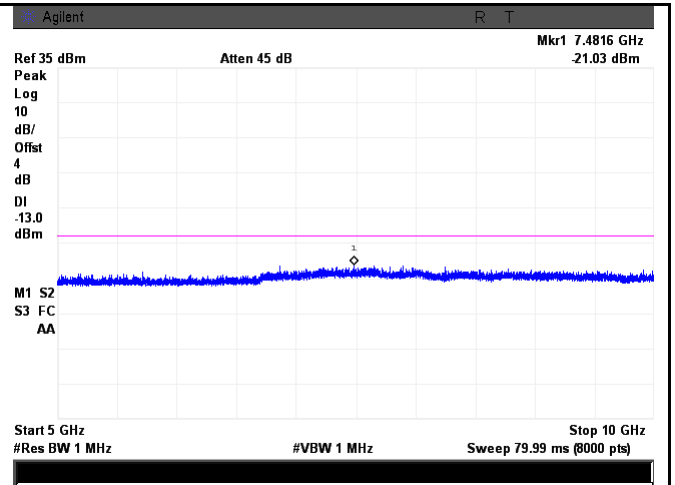
PCS Band (Part24E) result



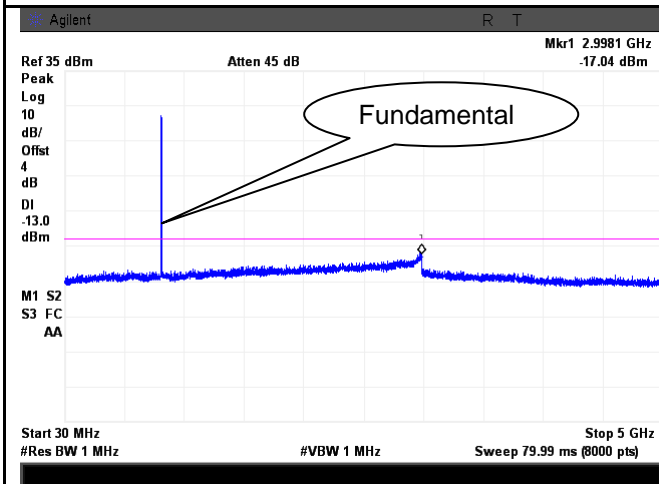
UMTS-FDD Band V (Part 22H)



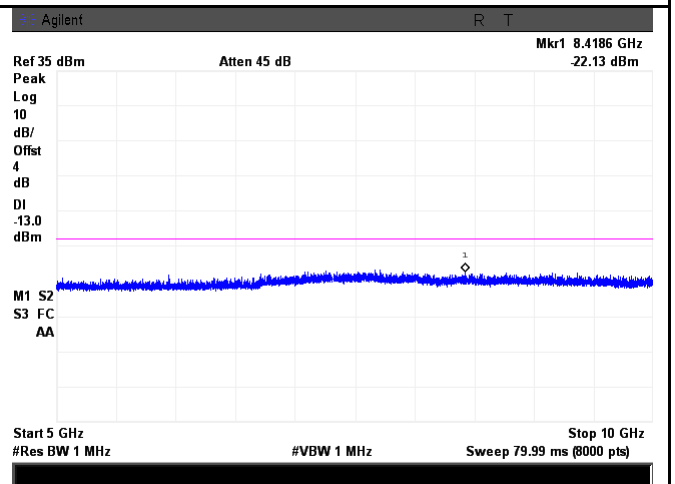
Band V - Low Channel-1



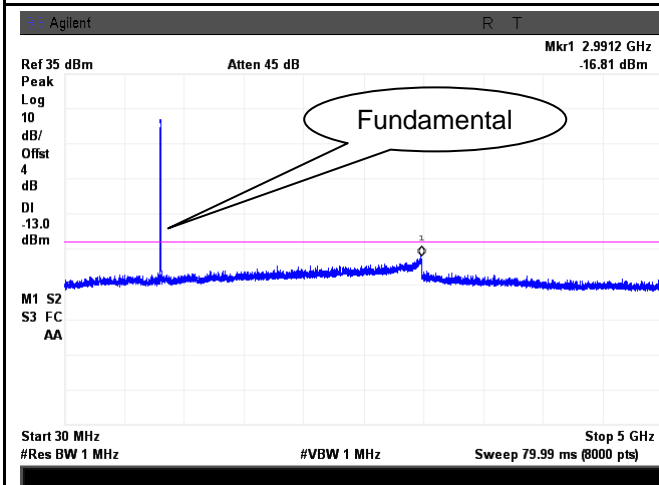
Band V - Low Channel-2



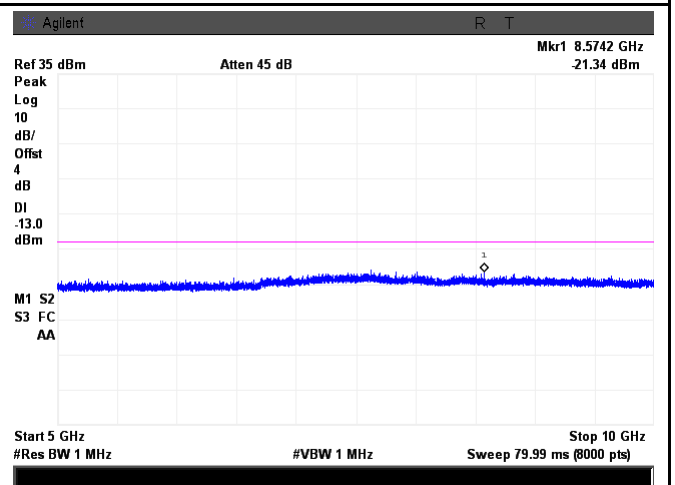
Band V - Middle Channel-1



Band V - Middle Channel-2

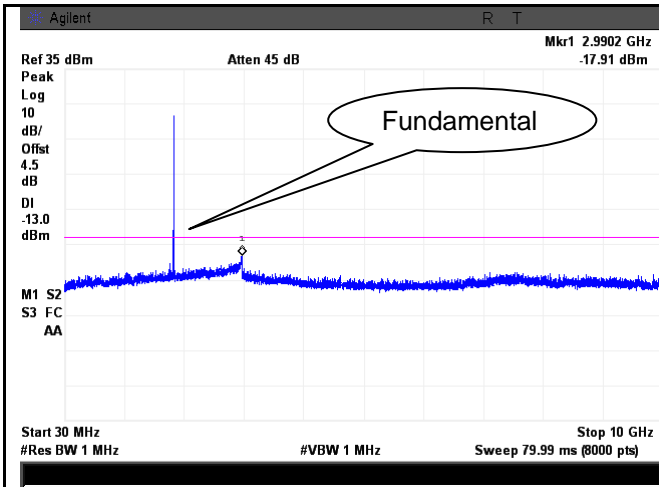


Band V - High Channel-1

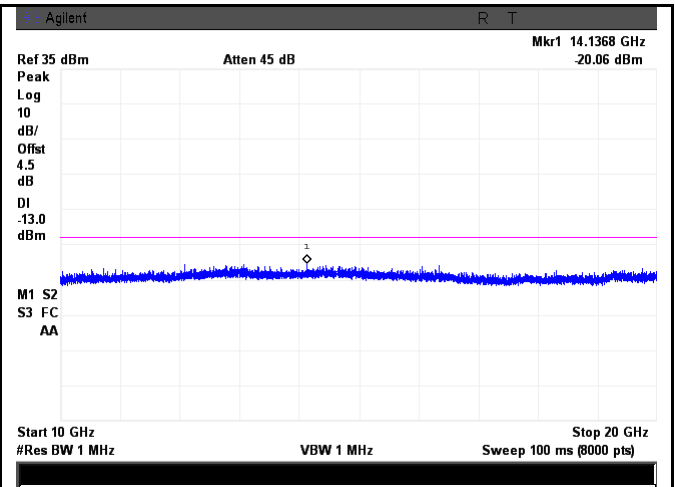


Band V - High Channel-2

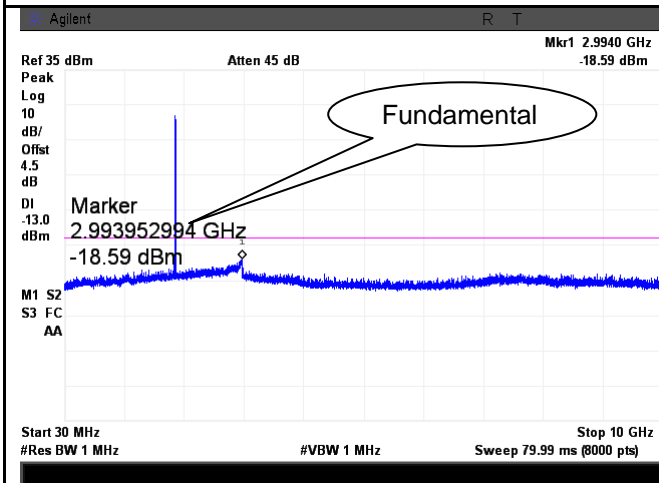
UMTS-FDD Band II (Part 24E)



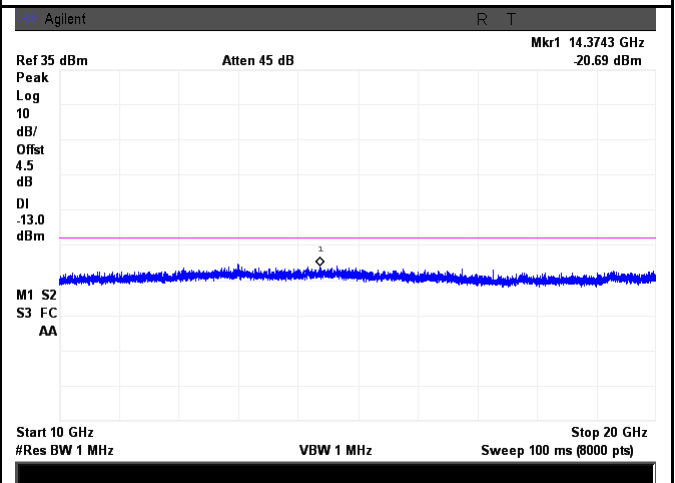
Band II - Low Channel-1



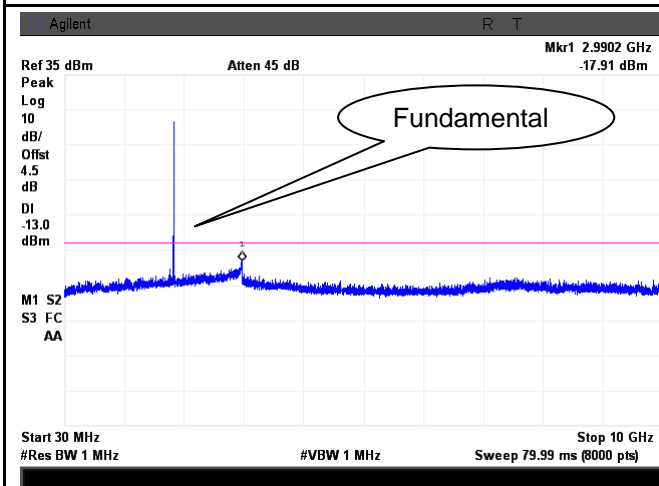
Band II - Low Channel-2



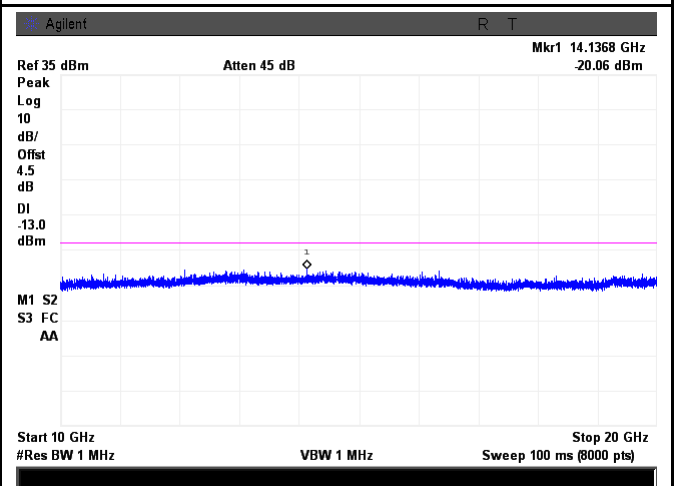
Band II - Middle Channel-1



Band II - Middle Channel-2

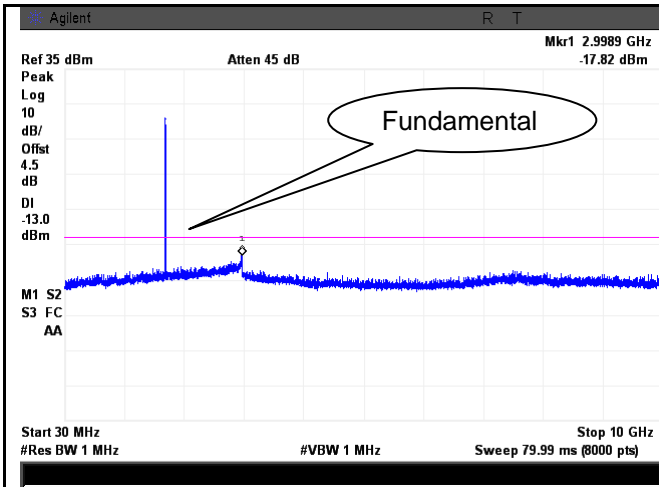


Band II - High Channel-1

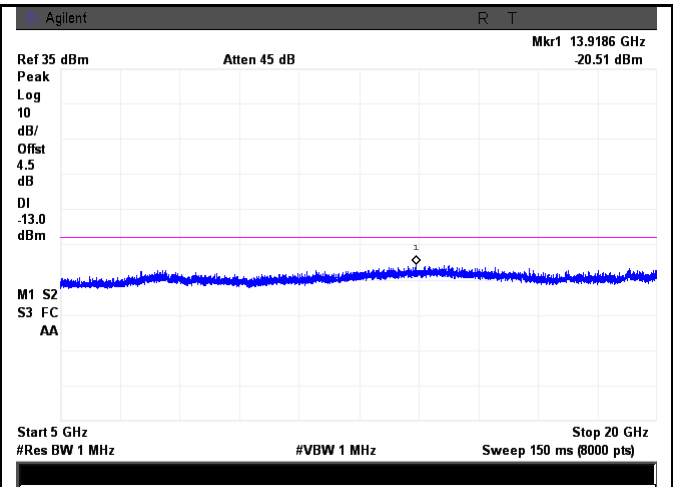


Band II - High Channel-2

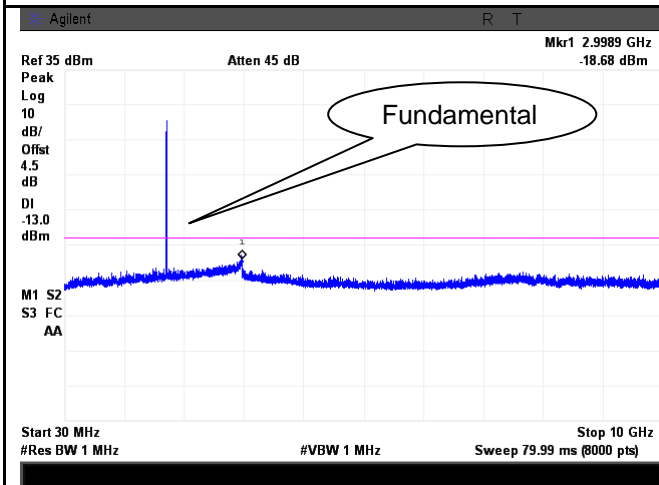
UMTS-FDD Band IV (Part 27)



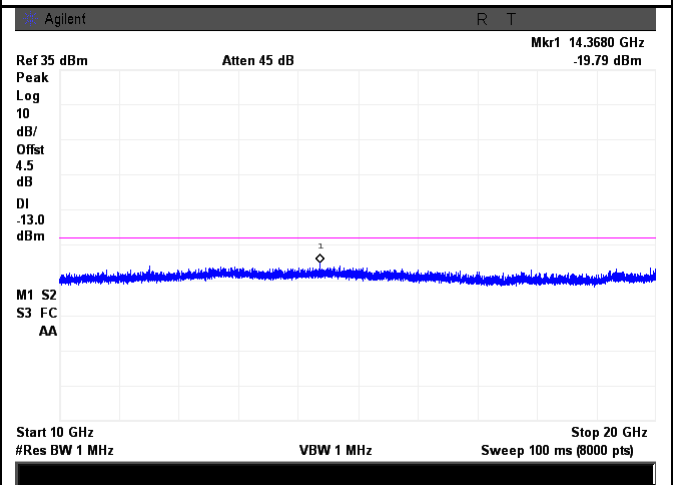
Band IV - Low Channel-1



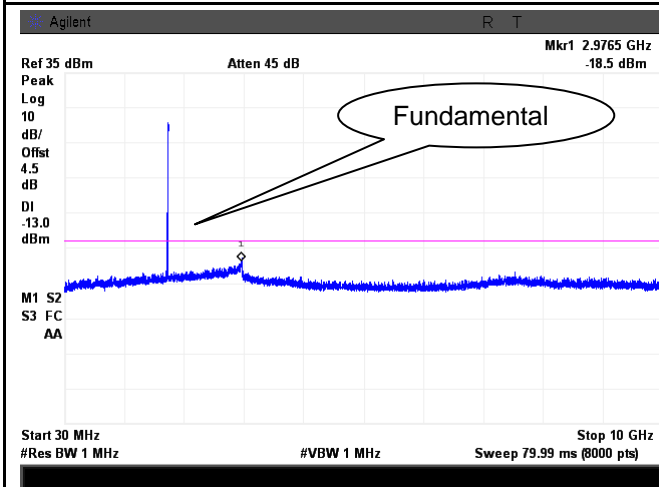
Band IV - Low Channel-2



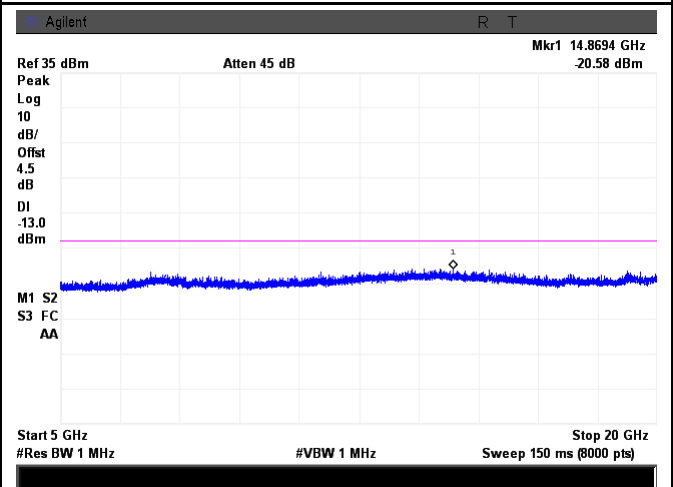
Band IV - Middle Channel-1



Band IV - Middle Channel-2



Band IV - High Channel-1



Band IV - High Channel-2

6.7 Spurious Radiated Emissions

| | |
|----------------------|------------------|
| Temperature | 24°C |
| Relative Humidity | 52% |
| Atmospheric Pressure | 1006mbar |
| Test date : | October 08, 2015 |
| Tested By : | Winnie Zhang |

Requirement(s):

| Spec | Item | Requirement | Applicable |
|--|------|---|-------------------------------------|
| §2.1053, §22.917 & §24.238 § 27.53(h) | a) | The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic. | <input checked="" type="checkbox"/> |

| | |
|------------|--|
| Test setup | |
|------------|--|

| | |
|----------------|---|
| Test Procedure | <ol style="list-style-type: none"> The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution. Sample Calculation: EUT Field Strength = Raw Amplitude (dBμV/m) – Amplifier Gain (dB) + Antenna Factor (dB) + Cable Loss (dB) + Filter Attenuation (dB, if used) |
|----------------|---|

| | |
|--------|--|
| Remark | |
| Result | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail |

Test Data Yes N/A

Test Plot Yes (See below) N/A

Cellular Band (Part 22H) result

Low channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------|----------------|------------------------------|-----------------|-------------------------|-------------|-------------|
| 1648.4 | -49.63 | V | 7.95 | 0.78 | -42.46 | -13 | -29.46 |
| 1648.4 | -49.97 | H | 7.95 | 0.78 | -42.80 | -13 | -29.80 |
| 218.3 | -53.41 | V | 6.4 | 0.2 | -47.21 | -13 | -34.21 |
| 643.7 | -54.15 | H | 6.5 | 0.38 | -48.03 | -13 | -35.03 |

Middle channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------|----------------|------------------------------|-----------------|-------------------------|-------------|-------------|
| 1673.2 | -49.72 | V | 7.95 | 0.78 | -42.55 | -13 | -29.55 |
| 1673.2 | -49.88 | H | 7.95 | 0.78 | -42.71 | -13 | -29.71 |
| 218.9 | -53.45 | V | 6.4 | 0.2 | -47.25 | -13 | -34.25 |
| 643.5 | -54.09 | H | 6.5 | 0.38 | -47.97 | -13 | -34.97 |

High channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------|----------------|------------------------------|-----------------|-------------------------|-------------|-------------|
| 1697.6 | -49.85 | V | 7.95 | 0.78 | -42.68 | -13 | -29.68 |
| 1697.6 | -49.96 | H | 7.95 | 0.78 | -42.79 | -13 | -29.79 |
| 218.2 | -53.51 | V | 6.4 | 0.2 | -47.31 | -13 | -34.31 |
| 643.9 | -54.17 | H | 6.5 | 0.38 | -48.05 | -13 | -35.05 |

PCS Band (Part24E) result

Low channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------|----------------|------------------------------|-----------------|-------------------------|-------------|-------------|
| 3700.4 | -50.86 | V | 10.25 | 2.73 | -43.34 | -13 | -30.34 |
| 3700.4 | -51.42 | H | 10.25 | 2.73 | -43.90 | -13 | -30.90 |
| 216.3 | -52.75 | V | 6.4 | 0.2 | -46.55 | -13 | -33.55 |
| 645.8 | -53.89 | H | 6.5 | 0.38 | -47.77 | -13 | -34.77 |

Middle channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------|----------------|------------------------------|-----------------|-------------------------|-------------|-------------|
| 3760 | -50.95 | V | 10.25 | 2.73 | -43.43 | -13 | -30.43 |
| 3760 | -51.56 | H | 10.25 | 2.73 | -44.04 | -13 | -31.04 |
| 216.7 | -52.81 | V | 6.4 | 0.2 | -46.61 | -13 | -33.61 |
| 645.2 | -53.94 | H | 6.5 | 0.38 | -47.82 | -13 | -34.82 |

High channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------|----------------|------------------------------|-----------------|-------------------------|-------------|-------------|
| 3819.6 | -50.93 | V | 10.36 | 2.73 | -43.3 | -13 | -30.3 |
| 3819.6 | -51.67 | H | 10.36 | 2.73 | -44.04 | -13 | -31.04 |
| 216.1 | -52.77 | V | 6.4 | 0.2 | -46.57 | -13 | -33.57 |
| 645.9 | -53.82 | H | 6.5 | 0.38 | -47.7 | -13 | -34.7 |

UMTS-FDD Band V (Part 22H)

Low channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------|----------------|------------------------------|-----------------|-------------------------|-------------|-------------|
| 1652.8 | -49.38 | V | 7.95 | 0.78 | -42.21 | -13 | -29.21 |
| 1652.8 | -49.82 | H | 7.95 | 0.78 | -42.65 | -13 | -29.65 |
| 217.3 | -53.66 | V | 6.4 | 0.2 | -47.46 | -13 | -34.46 |
| 644.9 | -54.13 | H | 6.5 | 0.38 | -48.01 | -13 | -35.01 |

Middle channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------|----------------|------------------------------|-----------------|-------------------------|-------------|-------------|
| 1670 | -49.41 | V | 7.95 | 0.78 | -42.24 | -13 | -29.24 |
| 1670 | -49.99 | H | 7.95 | 0.78 | -42.82 | -13 | -29.82 |
| 217.8 | -53.57 | V | 6.4 | 0.2 | -47.37 | -13 | -34.37 |
| 644.5 | -54.12 | H | 6.5 | 0.38 | -48.00 | -13 | -35.00 |

High channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------|----------------|------------------------------|-----------------|-------------------------|-------------|-------------|
| 1693.2 | -49.37 | V | 7.95 | 0.78 | -42.20 | -13 | -29.20 |
| 1693.2 | -49.92 | H | 7.95 | 0.78 | -42.75 | -13 | -29.75 |
| 217.6 | -53.61 | V | 6.4 | 0.2 | -47.41 | -13 | -34.41 |
| 644.3 | -54.08 | H | 6.5 | 0.38 | -47.96 | -13 | -34.96 |

UMTS-FDD Band II (Part 24E)

Low channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------|----------------|------------------------------|-----------------|-------------------------|-------------|-------------|
| 3704.8 | -50.37 | V | 10.25 | 2.73 | -42.85 | -13 | -29.85 |
| 3704.8 | -51.22 | H | 10.25 | 2.73 | -43.70 | -13 | -30.70 |
| 215.9 | -53.19 | V | 6.4 | 0.2 | -46.99 | -13 | -33.99 |
| 642.3 | -53.85 | H | 6.5 | 0.38 | -47.73 | -13 | -34.73 |

Middle channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------|----------------|------------------------------|-----------------|-------------------------|-------------|-------------|
| 3760 | -50.42 | V | 10.25 | 2.73 | -42.90 | -13 | -29.90 |
| 3760 | -51.38 | H | 10.25 | 2.73 | -43.86 | -13 | -30.86 |
| 215.5 | -53.27 | V | 6.4 | 0.2 | -47.07 | -13 | -34.07 |
| 642.9 | -53.91 | H | 6.5 | 0.38 | -47.79 | -13 | -34.79 |

High channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------|----------------|------------------------------|-----------------|-------------------------|-------------|-------------|
| 3815.2 | -50.39 | V | 10.36 | 2.73 | -42.76 | -13 | -29.76 |
| 3815.2 | -51.24 | H | 10.36 | 2.73 | -43.61 | -13 | -30.61 |
| 215.6 | -53.13 | V | 6.4 | 0.2 | -46.93 | -13 | -33.93 |
| 642.5 | -53.86 | H | 6.5 | 0.38 | -47.74 | -13 | -34.74 |

UMTS-FDD Band IV (Part 27)

Low channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------|----------------|------------------------------|-----------------|-------------------------|-------------|-------------|
| 3424.8 | -50.29 | V | 10.07 | 2.52 | -42.74 | -13 | -29.74 |
| 3424.8 | -50.93 | H | 10.07 | 2.52 | -43.38 | -13 | -30.38 |
| 219.3 | -53.43 | V | 6.4 | 0.2 | -47.23 | -13 | -34.23 |
| 647.5 | -54.11 | H | 6.5 | 0.38 | -47.99 | -13 | -34.99 |

Middle channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------|----------------|------------------------------|-----------------|-------------------------|-------------|-------------|
| 3480 | -50.31 | V | 10.09 | 2.52 | -42.74 | -13 | -29.74 |
| 3480 | -51.07 | H | 10.09 | 2.52 | -43.5 | -13 | -30.50 |
| 219.7 | -53.52 | V | 6.4 | 0.2 | -47.32 | -13 | -34.32 |
| 647.3 | -54.08 | H | 6.5 | 0.38 | -47.96 | -13 | -34.96 |

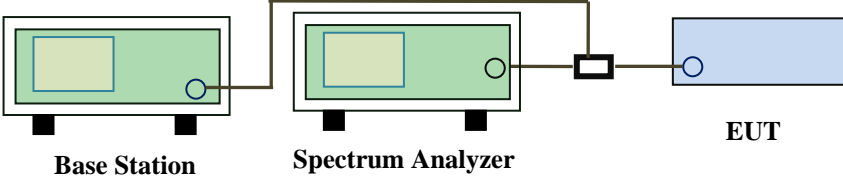
High channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------|----------------|------------------------------|-----------------|-------------------------|-------------|-------------|
| 3505.2 | -45.88 | V | 10.09 | 2.52 | -38.31 | -13 | -25.31 |
| 3505.2 | -45.27 | H | 10.09 | 2.52 | -37.70 | -13 | -24.70 |
| 219.8 | -53.43 | V | 6.4 | 0.2 | -47.23 | -13 | -34.23 |
| 647.2 | -54.16 | H | 6.5 | 0.38 | -48.04 | -13 | -35.04 |

6.8 Band Edge

| | |
|----------------------|------------------|
| Temperature | 24°C |
| Relative Humidity | 52% |
| Atmospheric Pressure | 1006mbar |
| Test date : | October 08, 2015 |
| Tested By : | Winnie Zhang |

Requirement(s):

| Spec | Item | Requirement | Applicable |
|--|--|--|-------------------------------------|
| §22.917(a) §24.238(a) § 27.53(h) | a) | The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB. | <input checked="" type="checkbox"/> |
| Test setup |  <p>The diagram shows a Base Station (green box) connected to a Spectrum Analyzer (green box) and an EUT (blue box) through a power divider (black box). The Base Station and Spectrum Analyzer are connected to each other, and the Spectrum Analyzer is connected to the power divider, which then splits the signal to the EUT.</p> | | |
| Procedure | <ul style="list-style-type: none"> - The EUT was connected to Spectrum Analyzer and Base Station via power divider. - The Band Edges of low and high channels for the highest RF powers were measured. Setting RBW as roughly BW/100. | | |
| Remark | | | |
| Result | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail | | |

Test Data Yes N/A
 Test Plot Yes (See below) N/A

Cellular Band (Part 22H) result

| Frequency (MHz) | Emission (dBm) | Limit (dBm) |
|-----------------|----------------|-------------|
| 823.9950 | -17.13 | -13 |
| 849.0175 | -15.59 | -13 |

PCS Band (Part24E) result

| Frequency (MHz) | Emission (dBm) | Limit (dBm) |
|-----------------|----------------|-------------|
| 1849.9950 | -14.33 | -13 |
| 1910.0175 | -15.07 | -13 |

UMTS-FDD Band V (Part 22H)

| Frequency (MHz) | Emission (dBm) | Limit (dBm) |
|-----------------|----------------|-------------|
| 823.9000 | -24.03 | -13 |
| 849.2000 | -24.08 | -13 |

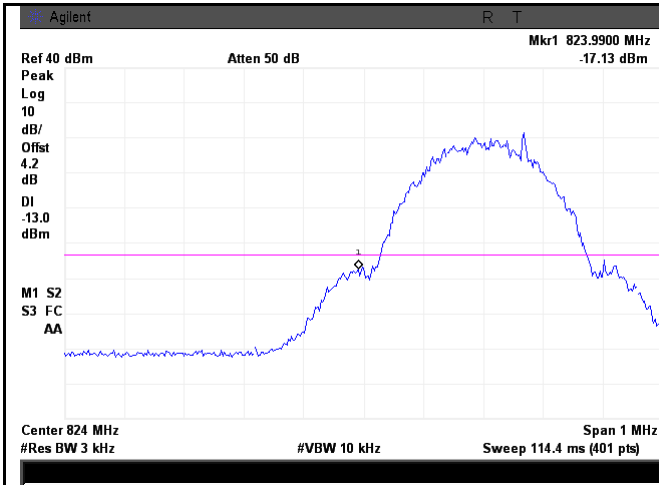
UMTS-FDD Band IV (Part 27)

| Frequency (MHz) | Emission (dBm) | Limit (dBm) |
|-----------------|----------------|-------------|
| 1849.8500 | -22.79 | -13 |
| 1910.0500 | -22.07 | -13 |

UMTS-FDD Band II (Part 24E)

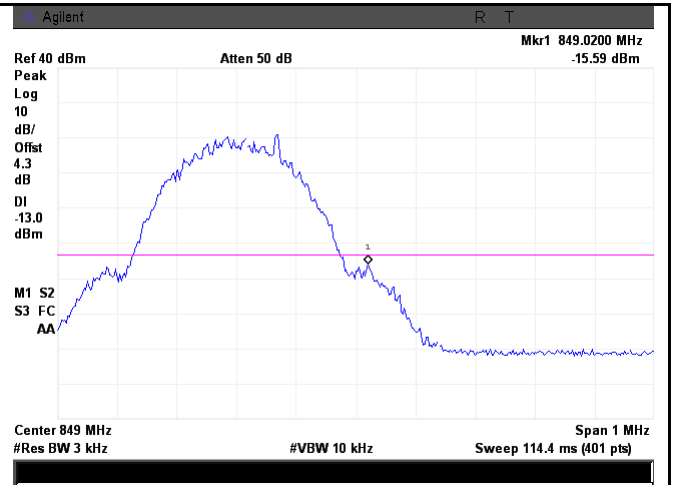
| Frequency (MHz) | Emission (dBm) | Limit (dBm) |
|-----------------|----------------|-------------|
| 1849.8500 | -21.83 | -13 |
| 1910.0500 | -20.96 | -13 |

Test Plots



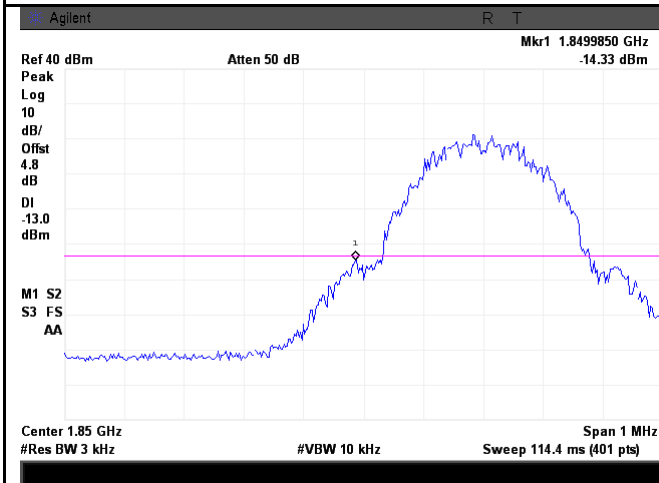
Cellular Band - Low Channel

Note: Offset=Cable loss (4.0) + 10log
 (3.14/3)=4.0+0.2=4.2dB



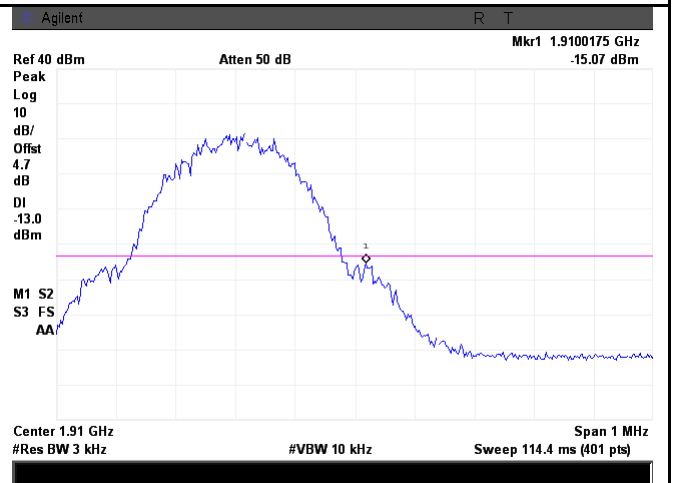
Cellular Band - High Channel

Note: Offset=Cable loss (4.0) + 10log
 (3.24/3)=4.0+0.3=4.3dB



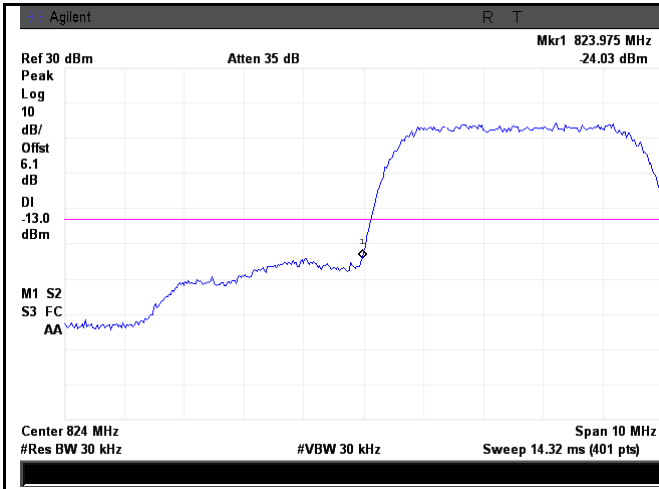
PCS Band - Low Channel

Note: Offset=Cable loss (4.5) + 10log
 (3.20/3)=4.5+0.3=4.8dB



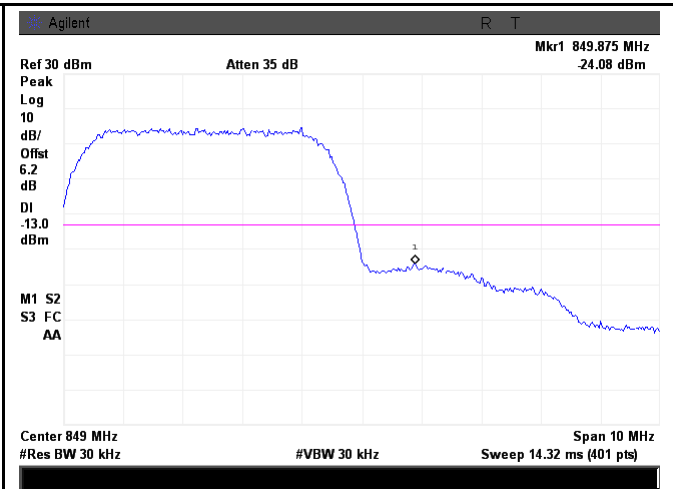
PCS Band - High Channel

Note: Offset=Cable loss (4.5) + 10log
 (3.14/3)=4.5+0.2=4.7dB



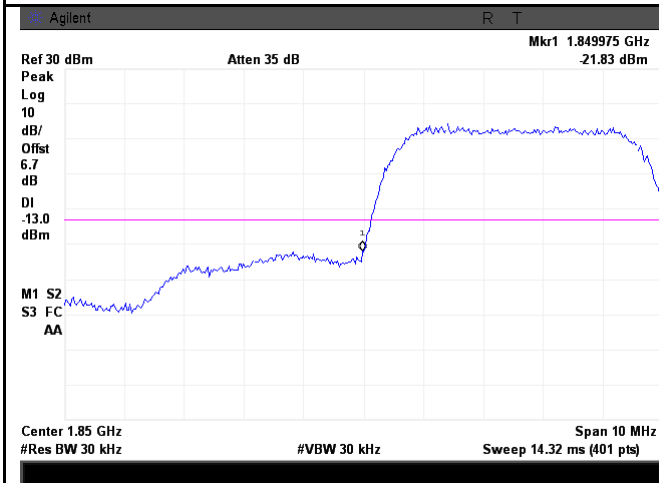
UMTS-FDD Band V - Low Channel

Note: Offset=Cable loss (4.0) + 10log
(48.82/30)=4.0+2.1=6.1 dB



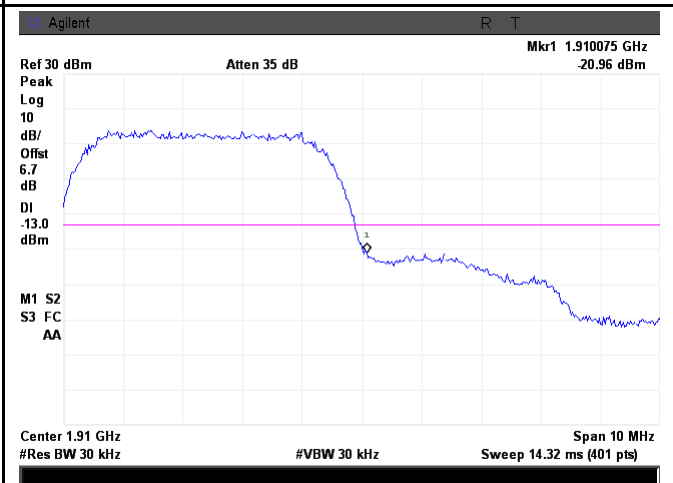
UMTS-FDD Band V - High Channel

Note: Offset=Cable loss (4.0) + 10log
(49.26/30)=4.0+2.2=6.2 dB



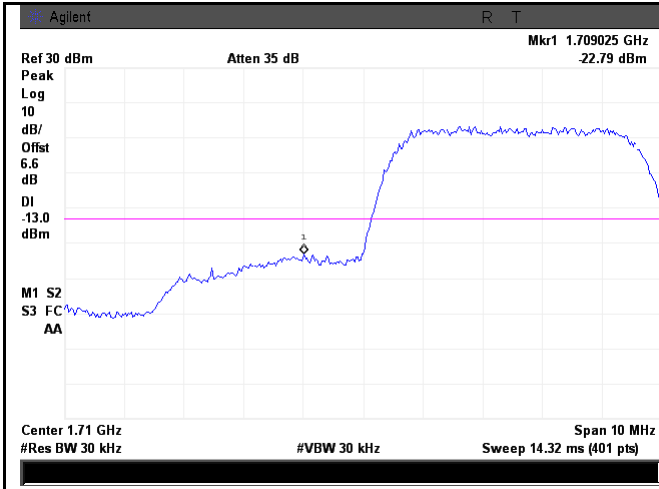
UMTS-FDD Band II - Low Channel

Note: Offset=Cable loss (4.5) + 10log
(49.29/30)=4.5+2.2=6.7 dB



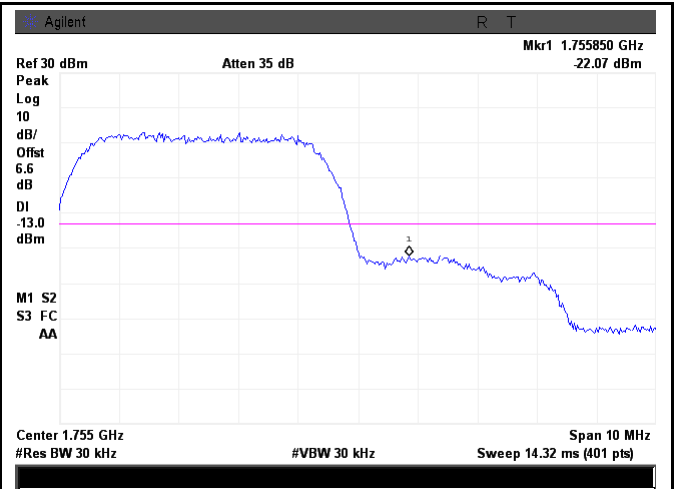
UMTS-FDD Band II - High Channel

Note: Offset=Cable loss (4.5) + 10log
(49.63/30)=4.5+2.2=6.7 dB



UMTS-FDD Band IV - Low Channel

Note: Offset=Cable loss (4.5) + 10log
 (48.74/30)=4.5+2.1=6.6 dB



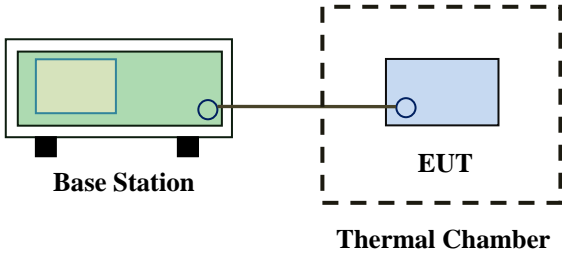
UMTS-FDD Band IV - High Channel

Note: Offset=Cable loss (4.5) + 10log
 (49.19/30)=4.5+2.1=6.6 dB

6.9 Frequency Stability

| | |
|----------------------|------------------|
| Temperature | 24°C |
| Relative Humidity | 52% |
| Atmospheric Pressure | 1006mbar |
| Test date : | October 08, 2015 |
| Tested By : | Winnie Zhang |

Requirement(s):

| Spec | Item | Requirement | Applicable | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|------|---|-------------------------------------|-----------------------|------------------------|------------------------|------------------------|----------|------|------|------|-----------|-----|-----|------|-----------|-----|-----|----|------------|-----|-----|-----|------------|-----|-----|-----|-------------|-----|-----|-----|--------------|------|-----|-----|
| §2.1055, §22.355 & §24.235 § 27.5(h); § 27.54 | a) | According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table below: Frequency Tolerance for Transmitters in the Public Mobile Services | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | <table border="1"> <thead> <tr> <th>Frequency Range (MHz)</th> <th>Base, fixed (ppm)</th> <th>Mobile ≤ 3 watts (ppm)</th> <th>Mobile ≤ 3 watts (ppm)</th> </tr> </thead> <tbody> <tr> <td>25 to 50</td> <td>20.0</td> <td>20.0</td> <td>50.0</td> </tr> <tr> <td>50 to 450</td> <td>5.0</td> <td>5.0</td> <td>50.0</td> </tr> <tr> <td>45 to 512</td> <td>2.5</td> <td>5.0</td> <td>.0</td> </tr> <tr> <td>821 to 896</td> <td>1.5</td> <td>2.5</td> <td>2.5</td> </tr> <tr> <td>928 to 29.</td> <td>5.0</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>929 to 960.</td> <td>1.5</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>2110 to 2220</td> <td>10.0</td> <td>N/A</td> <td>N/A</td> </tr> </tbody> </table> | | Frequency Range (MHz) | Base, fixed (ppm) | Mobile ≤ 3 watts (ppm) | Mobile ≤ 3 watts (ppm) | 25 to 50 | 20.0 | 20.0 | 50.0 | 50 to 450 | 5.0 | 5.0 | 50.0 | 45 to 512 | 2.5 | 5.0 | .0 | 821 to 896 | 1.5 | 2.5 | 2.5 | 928 to 29. | 5.0 | N/A | N/A | 929 to 960. | 1.5 | N/A | N/A | 2110 to 2220 | 10.0 | N/A | N/A |
| | | Frequency Range (MHz) | | Base, fixed (ppm) | Mobile ≤ 3 watts (ppm) | Mobile ≤ 3 watts (ppm) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 25 to 50 | | 20.0 | 20.0 | 50.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 50 to 450 | | 5.0 | 5.0 | 50.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 45 to 512 | | 2.5 | 5.0 | .0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 821 to 896 | | 1.5 | 2.5 | 2.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 928 to 29. | | 5.0 | N/A | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 929 to 960. | 1.5 | N/A | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2110 to 2220 | 10.0 | N/A | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized frequency block. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  <p style="text-align: center;"> Base Station EUT Thermal Chamber </p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | |
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| | |
|-----------|--|
| Procedure | A communication link was established between EUT and base station. The frequency error was monitored and measured by base station under variation of ambient temperature and variation of primary supply voltage. Limit: The frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ ($\pm 2.5\text{ppm}$) of the center frequency. |
| Remark | |
| Result | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail |

Test Data Yes N/A

Test Plot Yes (See below) N/A

Cellular Band (Part 22H) result

| Middle Channel, $f_0 = 836.6$ MHz | | | | |
|-----------------------------------|-----------------------------------|----------------------|-----------------------|-------------|
| Temperature (°C) | Power Supplied (V _{DC}) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| -10 | 3.7 | 21 | 0.0251 | 2.5 |
| 0 | | 22 | 0.0263 | 2.5 |
| 10 | | 23 | 0.0275 | 2.5 |
| 20 | | 16 | 0.0191 | 2.5 |
| 30 | | 17 | 0.0203 | 2.5 |
| 40 | | 21 | 0.0251 | 2.5 |
| 50 | | 17 | 0.0203 | 2.5 |
| 55 | | 25 | 0.0299 | 2.5 |
| 25 | 4.2 | 24 | 0.0287 | 2.5 |
| | 3.5 | 20 | 0.0239 | 2.5 |

PCS Band (Part 24E) result

| Middle Channel, $f_0 = 1880$ MHz | | | | |
|----------------------------------|-----------------------------------|----------------------|-----------------------|-------------|
| Temperature (°C) | Power Supplied (V _{DC}) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| -10 | 3.7 | 21 | 0.0112 | 2.5 |
| 0 | | 22 | 0.0117 | 2.5 |
| 10 | | 19 | 0.0101 | 2.5 |
| 20 | | 15 | 0.0080 | 2.5 |
| 30 | | 16 | 0.0085 | 2.5 |
| 40 | | 20 | 0.0106 | 2.5 |
| 50 | | 22 | 0.0117 | 2.5 |
| 55 | | 24 | 0.0128 | 2.5 |
| 25 | 4.2 | 22 | 0.0117 | 2.5 |
| | 3.5 | 22 | 0.0117 | 2.5 |

UMTS-FDD Band V (Part 22H)

| Middle Channel, $f_0 = 835$ MHz | | | | |
|---------------------------------|-----------------------------------|----------------------|-----------------------|-------------|
| Temperature (°C) | Power Supplied (V _{DC}) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| -10 | 3.7 | 21 | 0.0251 | 2.5 |
| 0 | | 17 | 0.0204 | 2.5 |
| 10 | | 16 | 0.0192 | 2.5 |
| 20 | | 16 | 0.0192 | 2.5 |
| 30 | | 14 | 0.0168 | 2.5 |
| 40 | | 15 | 0.0180 | 2.5 |
| 50 | | 18 | 0.0216 | 2.5 |
| 55 | | 21 | 0.0251 | 2.5 |
| 25 | 4.2 | 20 | 0.0240 | 2.5 |
| | 3.5 | 21 | 0.0251 | 2.5 |

UMTS-FDD Band II (Part 24E)

| Middle Channel, $f_0 = 1880$ MHz | | | | |
|----------------------------------|-----------------------------------|----------------------|-----------------------|-------------|
| Temperature (°C) | Power Supplied (V _{DC}) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| -10 | 3.7 | 16 | 0.0085 | 2.5 |
| 0 | | 15 | 0.0080 | 2.5 |
| 10 | | 12 | 0.0064 | 2.5 |
| 20 | | 11 | 0.0059 | 2.5 |
| 30 | | 10 | 0.0053 | 2.5 |
| 40 | | 13 | 0.0069 | 2.5 |
| 50 | | 16 | 0.0085 | 2.5 |
| 55 | | 19 | 0.0101 | 2.5 |
| 25 | 4.2 | 12 | 0.0064 | 2.5 |
| | 3.5 | 15 | 0.0080 | 2.5 |

UMTS-FDD Band IV (Part 27)

| Middle Channel, $f_0 = 1880$ MHz | | | | |
|----------------------------------|-----------------------------------|----------------------|-----------------------|-------------|
| Temperature (°C) | Power Supplied (V _{DC}) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| -10 | 3.7 | 12 | 0.0064 | 2.5 |
| 0 | | 13 | 0.0069 | 2.5 |
| 10 | | 10 | 0.0053 | 2.5 |
| 20 | | 9 | 0.0048 | 2.5 |
| 30 | | 10 | 0.0053 | 2.5 |
| 40 | | 11 | 0.0059 | 2.5 |
| 50 | | 12 | 0.0064 | 2.5 |
| 55 | | 9 | 0.0048 | 2.5 |
| 25 | 4.2 | 12 | 0.0064 | 2.5 |
| | 3.5 | 15 | 0.0080 | 2.5 |

Annex A. TEST INSTRUMENT

| Instrument | Model | Serial # | Cal Date | Cal Due | In use |
|--|-----------------|------------|------------|------------|-------------------------------------|
| RF Conducted Test | | | | | |
| Agilent ESA-E SERIES SPECTRUM ANALYZER | E4407B | MY45108319 | 09/16/2015 | 09/15/2016 | <input checked="" type="checkbox"/> |
| Power Splitter | 1# | 1# | 09/01/2015 | 08/31/2016 | <input checked="" type="checkbox"/> |
| Universal Radio Communication Tester | CMU200 | 121393 | 09/25/2015 | 09/24/2016 | <input checked="" type="checkbox"/> |
| Temperature/Humidity Chamber | UHL-270 | 001 | 10/10/2014 | 10/09/2015 | <input checked="" type="checkbox"/> |
| DC Power Supply | E3640A | MY40004013 | 09/17/2015 | 09/16/2016 | <input checked="" type="checkbox"/> |
| Radiated Emissions | | | | | |
| EMI test receiver | ESL6 | 100262 | 09/17/2015 | 09/16/2016 | <input checked="" type="checkbox"/> |
| OPT 010 AMPLIFIER (0.1-1300MHz) | 8447E | 2727A02430 | 09/01/2015 | 08/31/2016 | <input checked="" type="checkbox"/> |
| Microwave Preamplifier (1 ~ 26.5GHz) | 8449B | 3008A02402 | 03/25/2015 | 03/24/2016 | <input checked="" type="checkbox"/> |
| Bilog Antenna (30MHz~6GHz) | JB6 | A110712 | 09/21/2015 | 09/20/2016 | <input checked="" type="checkbox"/> |
| Bilog Antenna (30MHz~2GHz) | JB1 | A112017 | 09/21/2015 | 09/20/2016 | <input checked="" type="checkbox"/> |
| Double Ridge Horn Antenna (1 ~18GHz) | AH-118 | 71259 | 09/24/2015 | 09/23/2016 | <input checked="" type="checkbox"/> |
| Double Ridge Horn Antenna (1 ~18GHz) | AH-118 | 71283 | 09/24/2015 | 09/23/2016 | <input checked="" type="checkbox"/> |
| SYNTHESIZED SIGNAL GENERATOR | 8665B | 3744A01293 | 09/17/2015 | 09/16/2016 | <input checked="" type="checkbox"/> |
| Tunable Notch Filter | 3NF-800/1000-S | AA4 | 09/01/2015 | 08/31/2016 | <input checked="" type="checkbox"/> |
| Tunable Notch Filter | 3NF-1000/2000-S | AM 4 | 09/01/2015 | 08/31/2016 | <input checked="" type="checkbox"/> |

Annex B. EUT And Test Setup Photographs

Annex B.i. Photograph: EUT External Photo



Whole Package - Top View



Adapter - Front View



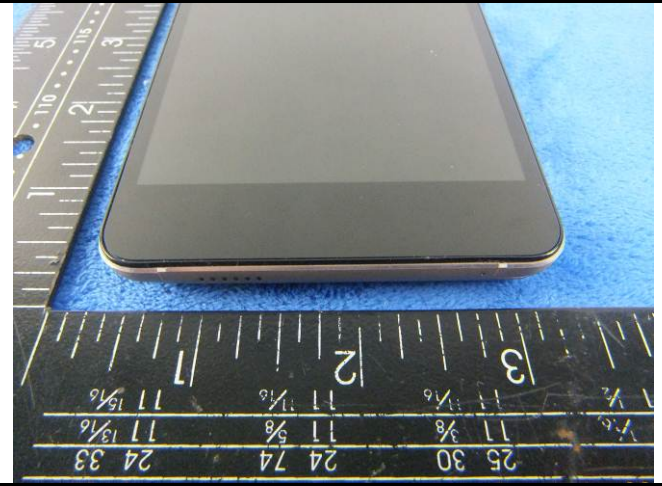
EUT - Front View



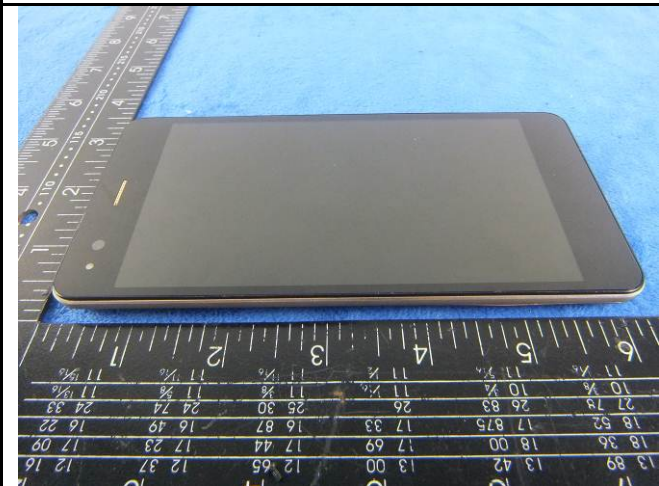
EUT - Rear View



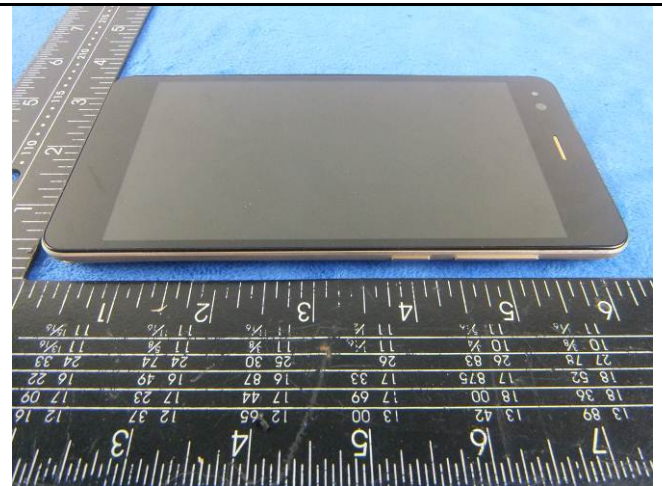
EUT - Top View



EUT - Bottom View



EUT - Left View



EUT - Right View

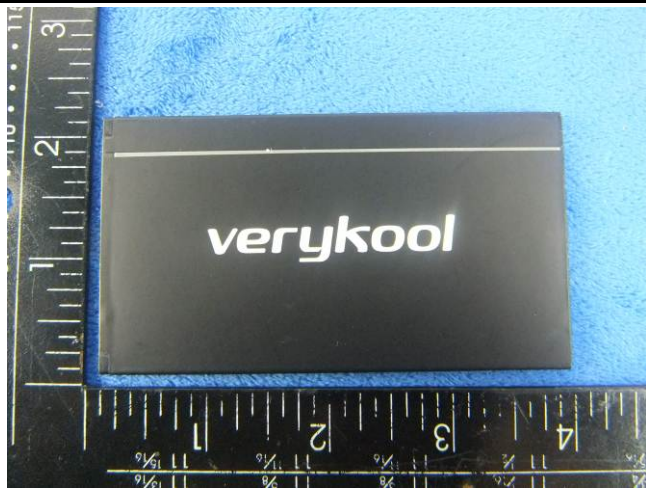
Annex B.ii. Photograph: EUT Internal Photo



Cover Off - Top View 1



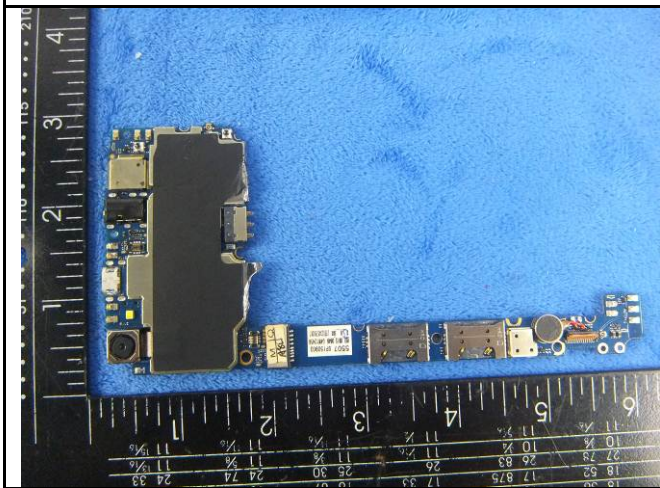
Cover Off - Top View 2



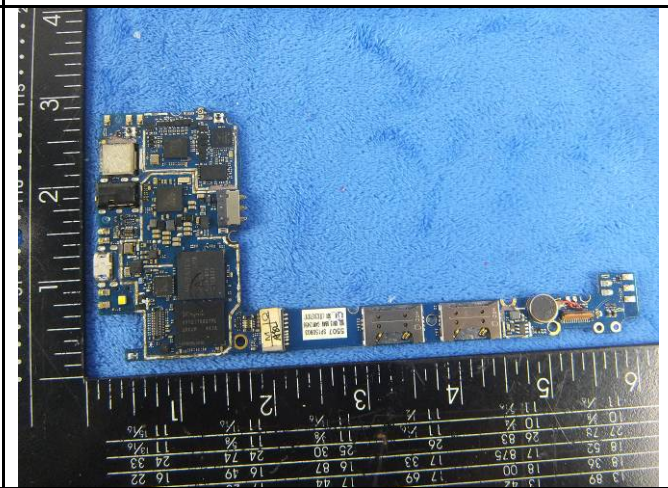
Battery - Front View



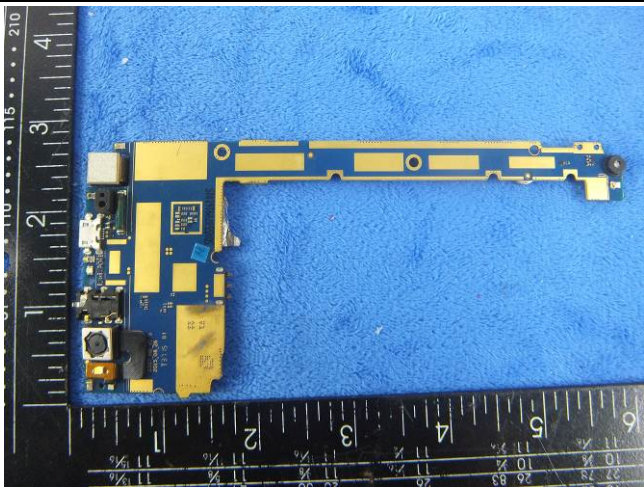
Battery - Rear View



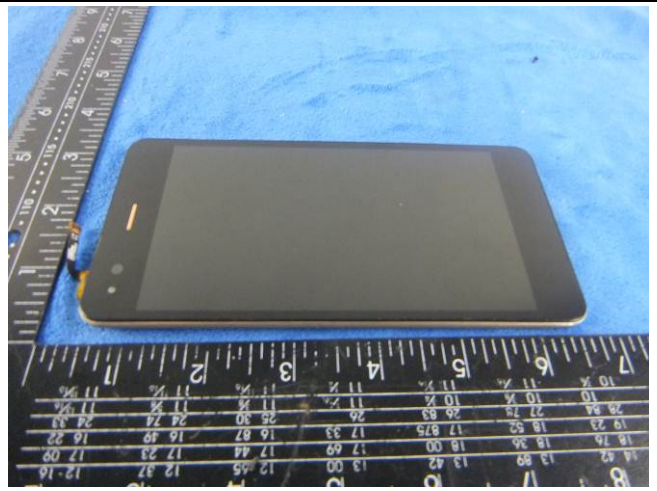
Mainboard with Shielding - Front View



Mainboard without Shielding - Front View



Mainboard - Rear View



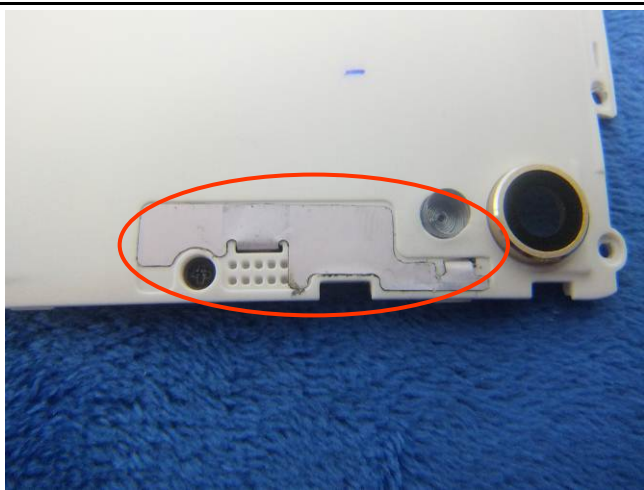
LCD – Front View



LCD – Rear View



GSM/PCS/UMTS-FDD/LTE Antenna View

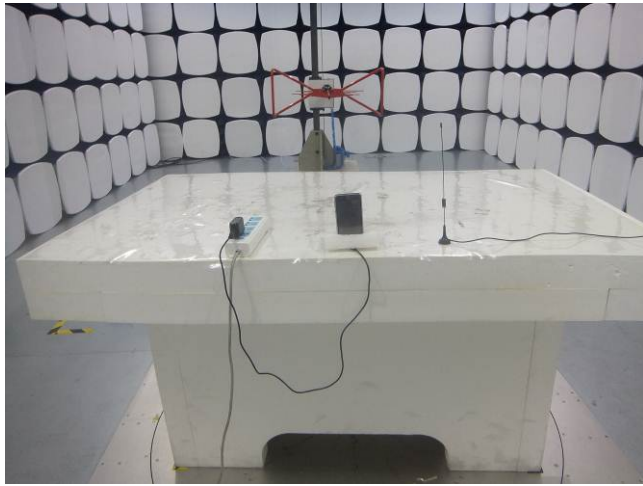


WIFI/BT/BLE - Antenna View

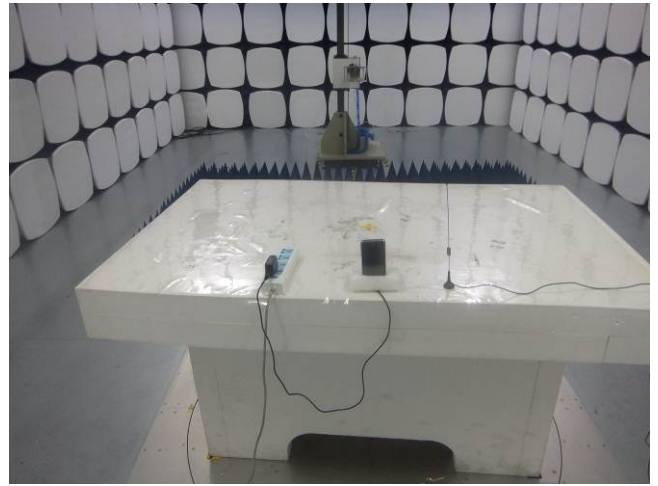


GPS - Antenna View

Annex B.iii. Photograph: Test Setup Photo



Radiated Spurious Emissions Test Setup Below 1GHz

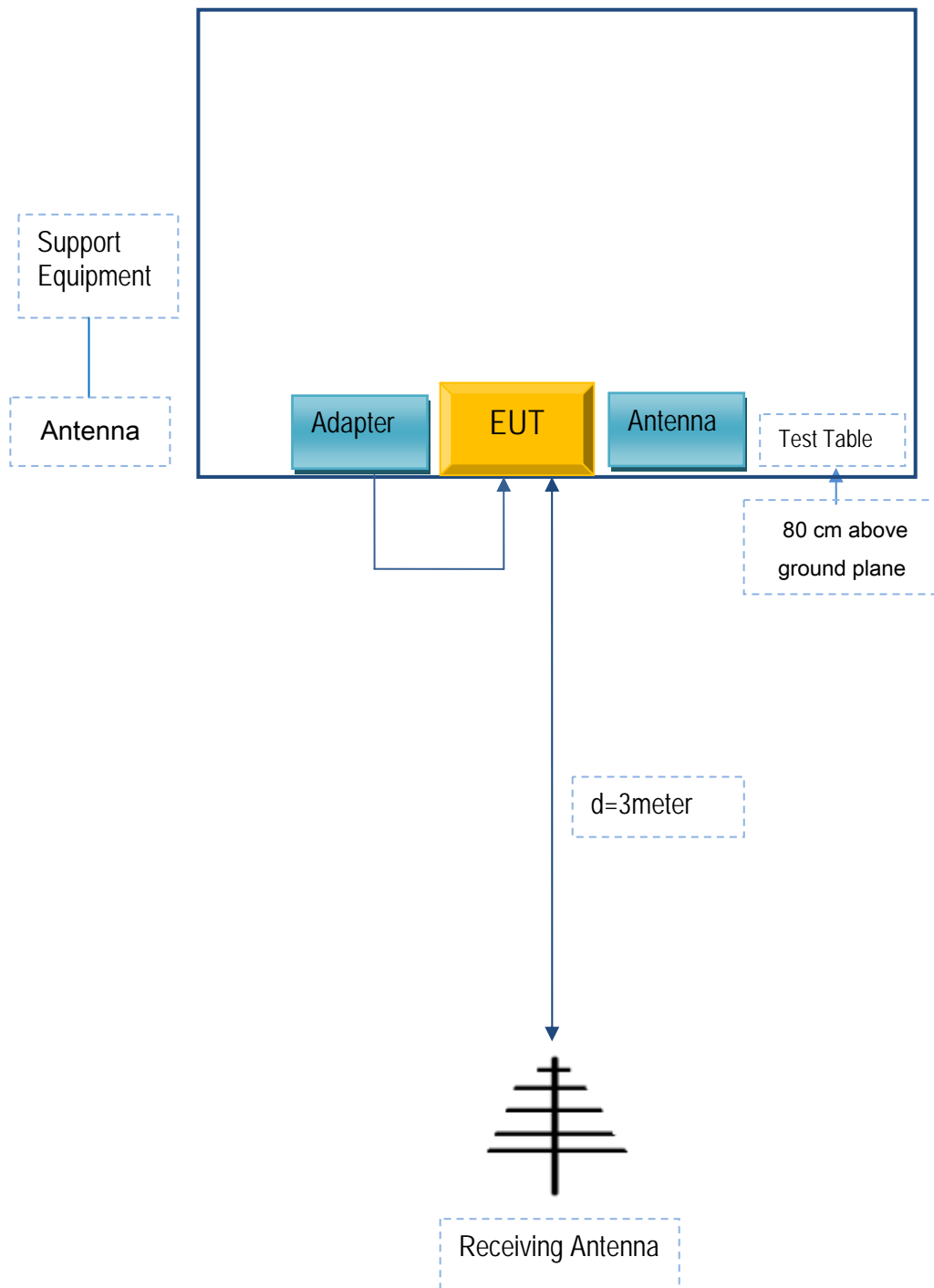


Radiated Spurious Emissions Test Setup Above
1GHz

Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

Annex C.ii. TEST SET UP BLOCK

Block Configuration Diagram for Radiated Emissions



Annex C. ii. SUPPORTING EQUIPMENT DESCRIPTION

The following is a description of supporting equipment and details of cables used with the EUT.

| Manufacturer | Equipment Description | Model | Calibration Date | Calibration Due Date |
|---------------------|------------------------------|--------------|-------------------------|-----------------------------|
| N/A | N/A | N/A | N/A | N/A |

| | |
|-------------|-----------------|
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Annex C.ii. EUT OPERATING CONKITIONS

N/A

| | |
|-------------|-----------------|
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Annex D. User Manual / Block Diagram / Schematics / Partlist

Please see attachment

| | |
|-------------|-----------------|
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Annex E. DECLARATION OF SIMILARITY

N/A