**FCC 47 CFR PART 22**
**FCC 47 CFR PART 24**

# CERTIFICATION TEST REPORT

*For*

**WisePOS 4G**

**MODEL NUMBER: WisePOS 4G**

**FCC ID: 2AB7X-WISEPOS4G**

**REPORT NUMBER: 4788704908.1-4**

**ISSUE DATE: December 17, 2018**

*Prepared for*

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*Prepared by*

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Revision History

| Rev. | Issue Date | Revisions | Revised By |
|---|---|---|---|
| -- | 11/26/2018 | Initial Issue | |
| V1 | 12/17/2018 | Updated GSM Band-edge plots. | Jacky Jiang |

| Summary of Test Results | | | |
|---|---|---|---|
| Standard(s) Section FCC | Description | Requirements | Result |
| §22.913(a)(5) | Effective(Isotropic) Radiated Power of Transmitter | FCC: ERP ＜7 W | PASS |
| §24.232(c) | Effective(Isotropic) Radiated Power of Transmitter | EIRP ＜ 2 W | PASS |
| §24.232(d) | Peak to Average Radio | ＜13dB | PASS |
| §2.1049(h) | Occupied Bandwidth | OBW: No limit<br>EBW: No limit | PASS |
| §2.1051,<br>§22.917(a)<br>§24.238(a) | Band Edge Compliance | ≤ $43+10\log_{10}(P[W])/1\%*EBW$, in 1 MHz bands immediately outside and adjacent to the frequency block. | PASS |
| §2.1051,<br>§22.917(a)<br>§24.238(a) | Spurious Emission at Antenna Terminal | ≤ $43+10\log_{10}(P[W])$/100 kHz, from 9 kHz to 10th harmonics but outside authorized operating frequency ranges. | PASS |
| §2.1053,<br>§22.917(a)<br>§24.238(a) | Radiated Spurious Emissions | ≤ $43+10\log_{10}(P[W])$ | PASS |
| §2.1055,<br>§22.355,<br>§24.235, | Frequency Stability | ≤ ±2.5ppm(Part 22)<br>Emission must remain in band(Part 24,27) | PASS |

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# 1. ATTESTATION OF TEST RESULTS

**Applicant Information**

| | |
|---|---|
| Company Name: | BBPOS International Limited |
| Address: | Suite 1903-04, Tower 2, Nina Tower, 8 Yeung Uk Road, Tsuen Wan, NT, Hong Kong |

**Manufacturer Information**

| | |
|---|---|
| Company Name: | BBPOS International Limited |
| Address: | Suite 1903-04, Tower 2, Nina Tower, 8 Yeung Uk Road, Tsuen Wan, NT, Hong Kong |

**EUT Description**

| | |
|---|---|
| Product Name | WisePOS 4G |
| Brand Name | BBPOS |
| Model Name | WisePOS 4G |
| FCC ID | 2AB7X-WISEPOS4G |
| Date Tested | October 9, 2018~ November 6, 2018<br>December 17,2018 |

| APPLICABLE STANDARDS | |
|---|---|
| **STANDARD** | **TEST RESULTS** |
| FCC 47 CFR PART 22 Subpart H | PASS |
| FCC 47 CFR PART 24 Subpart E | PASS |

Tested By:

Jacky Jiang
Engineer Project Associate

Checked By:

Shawn Wen
Laboratory Leader

Approved By:

Stephen Guo

Laboratory Manager

# 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.26-2015 & KDB971168, FCC CFR 47 Part 2, Part 22, Part 24.

# 3. FACILITIES AND ACCREDITATIO

| | |
|---|---|
| Accreditation Certificate | **A2LA (Certificate No.: 4102.01)**<br>UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA.<br>**FCC (FCC Designation No.: CN1187)**<br>UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Delcaration of Conformity (DoC) and Certification rules<br>**IC(Company No.: 21320)**<br>UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with ISED. The Company Number is 21320.<br>**VCCI (Registration No.: G-20019, R-20004, C-20012 and T-20011)**<br>UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with VCCI, the Membership No. is 3793.<br>Facility Name:<br>Chamber D, the VCCI registration No. is G-20019 and R-20004<br>Shielding Room B , the VCCI registration No. is C-20012 and T-20011 |

Note 1: All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China

Note 2: The test anechoic chamber in UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch had been calibrated and compared to the open field sites and the test anechoic chamber is shown to be equivalent to or worst case from the open field site.

# 4. CALIBRATION AND UNCERTAINTY

## 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.

## MEASUREMENT UNCERTAINTY

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

| Test Item | Uncertainty |
|---|---|
| Uncertainty for Conduction emission test | 3.32dB (150KHz-30MHz) |
| | 3.72dB (9KHz-150KHz) |
| Uncertainty for Radiation Emission test(include Fundamental emission) (30MHz-1GHz) | 4.70 dB (Antenna Polarize: V) |
| | 4.84 dB (Antenna Polarize: H) |
| Uncertainty for Radiation Emission test (1GHz to 26GHz)( include Fundamental emission) | 4.10dB(1-6GHz) |
| | 4.40dB (6GHz-18Gz) |
| | 3.54dB (18GHz-26Gz) |
| Bandwidth | 1.1% |
| Stop Transmitting Time Test | 0.6% |
| Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2. | |

# 5. EQUIPMENT UNDER TEST

## 5.1 DESCRIPTION OF EUT

| | |
|---|---|
| Equipment | WisePOS 4G |
| Model Name | WisePOS 4G |
| Power Input | 5V/1A |
| Hardware Version | K960_MB_P2_V01 |
| Software Version | 960ABR9J1_BB_V001 |

## 5.2 TECHNICAL INFORMATION

| | | | | |
|---|---|---|---|---|
| Frequency Bands | ☐GSM 850 | 824 ~849MHz (Uplink) | ☐GSM 1900 | 1850 ~1910MHz (Uplink) |
| | ☒GPRS 850 | | ☒GPRS 1900 | |
| | ☒EGPRS 850 | 869~894MHz (Downlink) | ☒EGPRS 1900 | 1930~1990MHz (Downlink) |
| Modulation Mode | GPRS | | GMSK | |
| | EGPRS | | GMSK/8PSK | |
| Power Class | GSM 850 | 4 | GSM 1900 | 1 |
| GSM Release Version | GSM Release 99 | | | |
| Multislot Class | GPRS | 12 | EGPRS | 12 |
| HSCSD Multislot MS | ☐ Support | | ☒ Not Support | |
| R-GSM MS | ☐ Support | | ☒ Not Support | |

| | | | |
|---|---|---|---|
| | ☒ WCDMA Band II | 1850 MHz ~ 1910 MHz (Uplink) | |
| | | 1930 MHz ~ 1990 MHz (Downlink) | |
| | ☒ WCDMA Band V | 824 MHz ~ 849 MHz (Uplink) | |
| | | 869 MHz ~ 894 MHz (Downlink) | |
| Modulation Mode | QPSK | | |
| WCDMA Release Version | Release 99 | | |
| HSDPA Release Version | Release 5 | HSPA Release Version | 6 |
| DC-HSDPA Category | 24 | / | / |

## 5.3 MAXIMUM OUTPUT POWER

**ERP/EIRP RULE PART(S)**

FCC: §2.1046, §22.913, §24.232

**LIMITS**

22.913(a)(5) The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

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.

**ERP/EIRP TEST PROCEDURE**

ANSI C63.26:2015/ KDB 971168 D01 Section 5.6

ERP/ EIRP = PMeas + GT − LC
where:
ERP or EIRP = effective or equivalent isotropically radiated power, respectively (expressed in the same units as PMeas, typically dBW or dBm);
PMeas = measured transmitter output power or PSD, in dBm or dBW;
GT = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);
LC = signal attenuation in the connecting cable between the transmitter and antenna, in dB

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

| Mode | Modulation | Conducted(Average) (dBm) | Antenna Gain (dBi) | Limit (W) | ERP | |
|---|---|---|---|---|---|---|
| | | | | | (dBm) | (W) |
| GSM850 | GPRS | 31.41 | -3.2 | 7 | 28.21 | 0.404 |
| | EDGE | 21.17 | -3.2 | | 17.97 | 0.038 |
| WCDMA Band5 | REL99 | 22.20 | -3.2 | 7 | 19.00 | 0.048 |
| | HSDPA | 21.47 | -3.2 | | 18.27 | 0.041 |

| Mode | Modulation | Conducted(Average) (dBm) | Antenna Gain (dBi) | Limit (W) | EIRP | |
|---|---|---|---|---|---|---|
| | | | | | (dBm) | (W) |
| GSM1900 | GPRS | 28.97 | -1.0 | 2 | 27.97 | 0.627 |
| | EDGE | 26.21 | -1.0 | | 25.21 | 0.332 |
| WCDMA Band2 | REL99 | 22.57 | -1.0 | 2 | 21.57 | 0.144 |
| | HSDPA | 21.62 | -1.0 | | 20.62 | 0.115 |

## 5.4 OPERATING CONDITION OF EUT

During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission (Y plane).

Worst-case modes:

| Test Mode | Test Modes Description |
|---|---|
| GSM/TM1 | GSM/GPRS,GMSK Modulation |
| GSM/TM2 | EDGE,8PSK Modulation |
| UMTS/TM1 | WCDMA REL99 |
| UMTS/TM2 | WCDMA HSDPA |

Note: If no any other statement, UMTS/TM1 shall be used RCM 12.2K mode.
Note: For simultaneous transmission of multiple channels in the 2.4 / 5GHz and cellular bands, no noticeable emission was found.

## 5.5 TEST ENVIRONMENT

| Environment Parameter | Selected Values During Tests | |
|---|---|---|
| Relative Humidity | 52% | |
| Atmospheric Pressure: | 1025Pa | |
| Temperature | TN | 25 °C |
| Voltage : | VL | 3.23V |
| | VN | 3.8V |
| | VH | 4.35V |
| | End Voltage | 3.0V |

Note: VL= Lower Extreme Test Voltage
VN= Nominal Voltage
VH= Upper Extreme Test Voltage
TN= Normal Temperature

## 5.6 TEST CHANNEL LIST

| Bands | Channel | Frequency | |
|---|---|---|---|
| | | Channel Number | Frequency(MHz) |
| GPRS/EDGE 850 | Low | 128 | 824.2 |
| | Mid | 190 | 836.6 |
| | High | 251 | 848.8 |
| GPRS/EDGE1900 | Low | 512 | 1850.2 |
| | Mid | 661 | 1880.0 |
| | High | 810 | 1909.8 |
| WCDMA Band 2 | Low | 9262 | 1852.4 |
| | Mid | 9400 | 1880.0 |
| | High | 9538 | 1907.6 |
| WCDMA Band 5 | Low | 4132 | 826.4 |
| | Mid | 4182 | 836.4 |
| | High | 4233 | 846.6 |

## 5.7 DESCRIPTION OF AVAILABLE ANTENNAS

| Band | Antenna Type | Antenna Gain (dBi) |
|---|---|---|
| GPRS/EDGE 850 | PIFA | -3.2 |
| GPRS/EDGE1900 | PIFA | -1.0 |
| WCDMA Band 2 | PIFA | -1.0 |
| WCDMA Band 5 | PIFA | -3.2 |

## 5.8 DESCRIPTION OF TEST SETUP

**SUPPORT EQUIPMENT**

| Item | Equipment | Brand Name | Model Name | FCC ID |
|---|---|---|---|---|
| 1 | N/A | N/A | N/A | N/A |

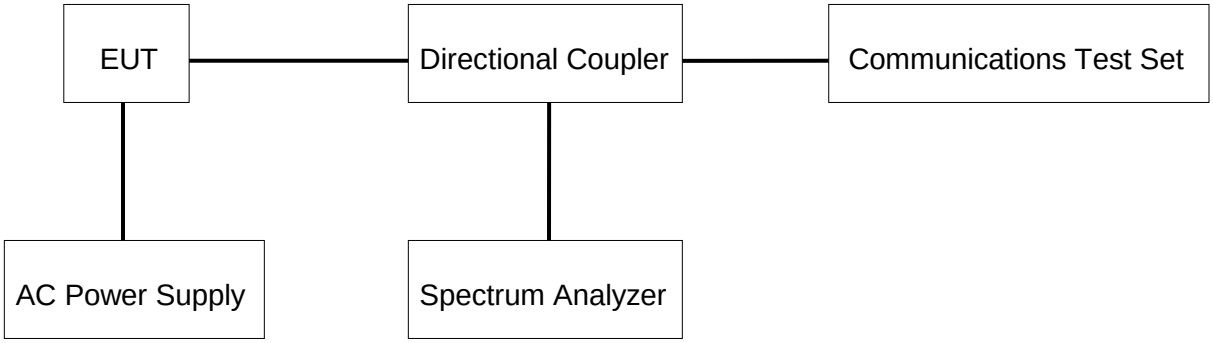
**I/O CABLES**

| Cable No | Port | Connector Type | Cable Type | Cable Length(m) | Remarks |
|---|---|---|---|---|---|
| 1 | USB | N/A | N/A | 0.5 | N/A |

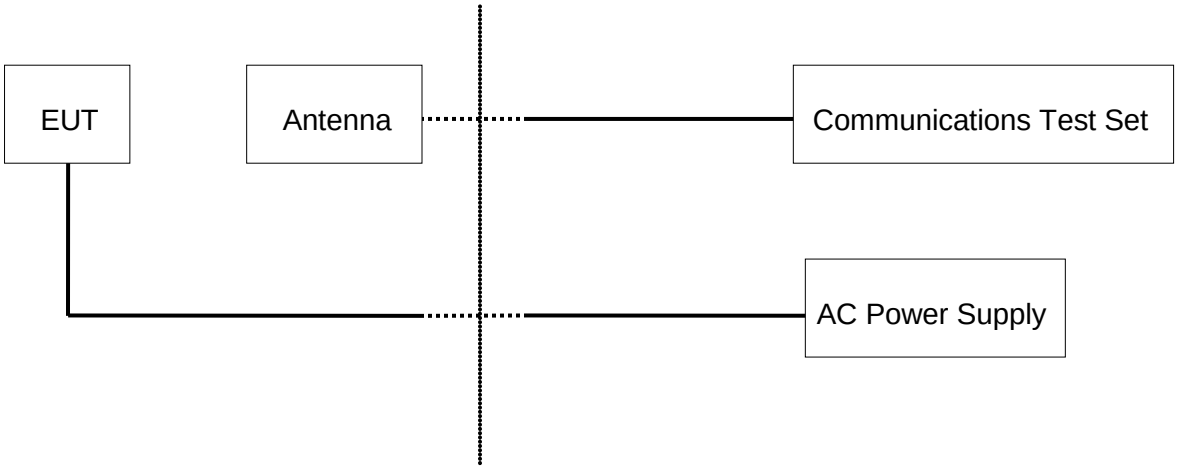
**ACCESSORY**

| Item | Accessory | Brand Name | Model Name | Description |
|---|---|---|---|---|
| 1 | Headphone | SONY | MDR-ZX310 | / |
| | Adapter | XIAOMI | MDY-08-EF | 5V/1A |

**CONDUCTED TEST SETUP**




**RADIATED TEST SETUP**



## 5.9 MEASURING INSTRUMENT AND SOFTWARE USED

| **Conducted Emissions** | | | | | | | |
|---|---|---|---|---|---|---|---|
| Instrument | | | | | | | |
| Used | Equipment | Manufacturer | Model No. | Serial No. | Upper Last Cal. | Last Cal. | Next Cal. |
| ☑ | EMI Test Receiver | R&S | ESR3 | 101961 | Dec.20, 2016 | Dec.12, 2017 | Dec.11, 2018 |
| ☑ | Two-Line V-Network | R&S | ENV216 | 101983 | Dec.20, 2016 | Dec.12, 2017 | Dec.11, 2018 |
| ☑ | Artificial Mains Networks | Schwarzbeck | NSLK 8126 | 8126465 | Feb.10, 2017 | Dec.12, 2017 | Dec.11, 2018 |
| ☑ | Wideband Radio Communication Tester | R&S | CMW500 | 155523 | Dec.13, 2017 | Dec.11, 2018 | Dec.10, 2019 |
| Software | | | | | | | |
| Used | Description | | | Manufacturer | Name | Version | |
| ☑ | Test Software for Conducted disturbance | | | Farad | EZ-EMC | Ver. UL-3A1 | |
| **Radiated Emissions** | | | | | | | |
| Instrument | | | | | | | |
| Used | Equipment | Manufacturer | Model No. | Serial No. | Upper Last Cal. | Last Cal. | Next Cal. |
| ☑ | MXE EMI Receiver | KESIGHT | N9038A | MY56400036 | Feb. 24, 2017 | Dec.12, 2017 | Dec.11, 2018 |
| ☑ | Hybrid Log Periodic Antenna | TDK | HLP-3003C | 130960 | Jan.09, 2016 | Jan.09, 2016 | Jan.09, 2019 |
| ☑ | Preamplifier | HP | 8447D | 2944A09099 | Feb. 13, 2017 | Dec.12, 2017 | Dec.11, 2018 |
| ☑ | EMI Measurement Receiver | R&S | ESR26 | 101377 | Dec. 20, 2016 | Dec.12, 2017 | Dec.11, 2018 |
| ☑ | Horn Antenna | TDK | HRN-0118 | 130939 | Jan. 09, 2016 | Jan. 09, 2016 | Jan. 09, 2019 |
| ☑ | High Gain Horn Antenna | Schwarzbeck | BBHA-9170 | 691 | Jan.06, 2016 | Jan.06, 2016 | Jan.06, 2019 |
| ☑ | Preamplifier | TDK | PA-02-0118 | TRS-305-00066 | Jan. 14, 2017 | Dec.12, 2017 | Dec.11, 2018 |
| ☑ | Preamplifier | TDK | PA-02-2 | TRS-307-00003 | Dec. 20, 2016 | Dec.12, 2017 | Dec.11, 2018 |
| ☑ | Loop antenna | Schwarzbeck | 1519B | 00008 | Mar. 26, 2016 | Mar. 26, 2016 | Mar. 26, 2019 |
| Software | | | | | | | |
| Used | Description | | | Manufacturer | Name | Version | |
| ☑ | Test Software for Radiated disturbance | | | Farad | EZ-EMC | Ver. UL-3A1 | |
| **Other instruments** | | | | | | | |
| Used | Equipment | Manufacturer | Model No. | Serial No. | Upper Last Cal. | Last Cal. | Next Cal. |
| ☑ | Spectrum Analyzer | Keysight | N9030A | MY55410512 | Dec.12, 2017 | Dec.11, 2018 | Dec.10, 2019 |
| ☑ | Power Meter | Keysight | N9031A | MY55416024 | Dec.13, 2017 | Dec.11, 2018 | Dec.10, 2019 |
| ☑ | Thermostatic and Humidistatic Box | SANMOOD | SG-80-CC-2 | 2088 | Feb.14,2017 | Dec.22,2017 | Dec.22,2018 |

# 6. TEST RESULTS

## 6.1 OUTPUT POWER VERIFICATION

| GSM850 | | Max Burst Average Power (dBm) | | |
|---|---|---|---|---|
| | | 128CH | 190CH | 251CH |
| | | 824.2MHz | 836.6MHz | 848.8MHz |
| GPRS/EDGE (GMSK) | 1 Tx Slot | 31.38 | **31.41** | 31.33 |
| | 2 Tx Slot | 31.33 | 31.29 | 31.19 |
| | 3 Tx Slot | 30.53 | 30.77 | 30.66 |
| | 4 Tx Slot | 29.52 | 29.81 | 29.71 |
| EDGE (8PSK) | 1 Tx Slot | 26.96 | 27.06 | **27.17** |
| | 2 Tx Slot | 26.21 | 26.29 | 26.38 |
| | 3 Tx Slot | 24.54 | 24.62 | 24.72 |
| | 4 Tx Slot | 23.42 | 23.50 | 23.60 |
| GSM1900 | | Max Burst Average Power (dBm) | | |
| | | 512CH | 661CH | 810CH |
| | | 1850.2MHz | 1880MHz | 1909.8MHz |
| GPRS/EDGE (GMSK) | 1 Tx Slot | 28.77 | 28.89 | 28.57 |
| | 2 Tx Slot | **28.97** | 28.75 | 28.47 |
| | 3 Tx Slot | 27.42 | 27.59 | 27.87 |
| | 4 Tx Slot | 26.33 | 26.52 | 26.80 |
| EDGE (8PSK) | 1 Tx Slot | **26.21** | 26.02 | 25.89 |
| | 2 Tx Slot | 25.51 | 25.35 | 25.27 |
| | 3 Tx Slot | 23.93 | 23.78 | 23.79 |
| | 4 Tx Slot | 22.72 | 22.77 | 22.80 |

| **Band** | **WCDMA II** | | |
|---|---|---|---|
| **Tx Channel** | **9262** | **9400** | **9538** |
| **Frequency** | **1852.4** | **1880** | **1907.6** |
| **RMC 12.2K** | 22.56 | 22.55 | 22.50 |
| **RMC 64K** | 22.45 | 22.46 | 22.51 |
| **RMC 144K** | 22.41 | 22.39 | 22.57 |
| **RMC 384K** | 22.55 | 22.45 | 22.42 |
| **HSDPA Subtest-1** | 21.62 | 21.61 | 21.56 |
| **HSDPA Subtest-2** | 21.60 | 21.59 | 21.52 |
| **HSDPA Subtest-3** | 21.13 | 21.09 | 21.03 |
| **HSDPA Subtest-4** | 21.09 | 21.07 | 21.03 |
| **HSUPA Subtest-1** | 19.51 | 19.51 | 19.54 |
| **HSUPA Subtest-2** | 19.51 | 19.51 | 19.54 |
| **HSUPA Subtest-3** | 20.54 | 20.53 | 20.47 |
| **HSUPA Subtest-4** | 19.04 | 19.03 | 18.98 |
| **HSUPA Subtest-5** | 21.13 | 21.08 | 21.07 |
| **HSPA+ Subtest-1** | 21.53 | 21.52 | 21.40 |
| **DC-HSDPA Subtest-1** | 21.53 | 21.52 | 21.40 |

| | | | |
|---|---|---|---|
| **DC-HSDPA Subtest-2** | 21.27 | 21.27 | 21.05 |
| **DC-HSDPA Subtest-3** | 21.13 | 21.09 | 21.03 |
| **DC-HSDPA Subtest-4** | 21.10 | 21.07 | 21.03 |

| **Band** | **WCDMA V** | | |
|---|---|---|---|
| **Tx Channel** | **4132** | **4182** | **4233** |
| **Frequency** | **826.4** | **836.4** | **846.6** |
| **RMC 12.2K** | 22.14 | 22.01 | 22.07 |
| **RMC 64K** | 22.08 | 21.99 | 21.99 |
| **RMC 144K** | 22.20 | 21.99 | 21.87 |
| **RMC 384K** | 22.07 | 21.89 | 21.87 |
| **HSDPA Subtest-1** | 21.47 | 21.35 | 21.18 |
| **HSDPA Subtest-2** | 21.41 | 21.30 | 21.11 |
| **HSDPA Subtest-3** | 20.92 | 20.80 | 20.89 |
| **HSDPA Subtest-4** | 20.89 | 20.79 | 20.61 |
| **HSUPA Subtest-1** | 19.20 | 19.18 | 19.02 |
| **HSUPA Subtest-2** | 19.36 | 19.06 | 19.08 |
| **HSUPA Subtest-3** | 20.41 | 20.28 | 20.10 |
| **HSUPA Subtest-4** | 18.96 | 18.80 | 18.63 |
| **HSUPA Subtest-5** | 20.90 | 20.92 | 20.72 |
| **HSPA+ Subtest-1** | 21.33 | 20.18 | 20.03 |
| **DC-HSDPA Subtest-1** | 20.98 | 21.00 | 20.80 |
| **DC-HSDPA Subtest-2** | 20.69 | 20.80 | 20.39 |
| **DC-HSDPA Subtest-3** | 20.89 | 20.79 | 20.61 |
| **DC-HSDPA Subtest-4** | 22.14 | 22.01 | 22.07 |

## 6.2 PEAK TO AVERAGE RADIO

**Test Procedure**

Per KDB 971168 D01 Power Meas License Digital Systems v03r01;

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**

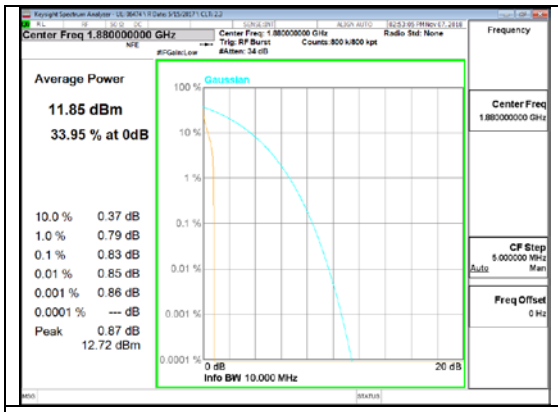
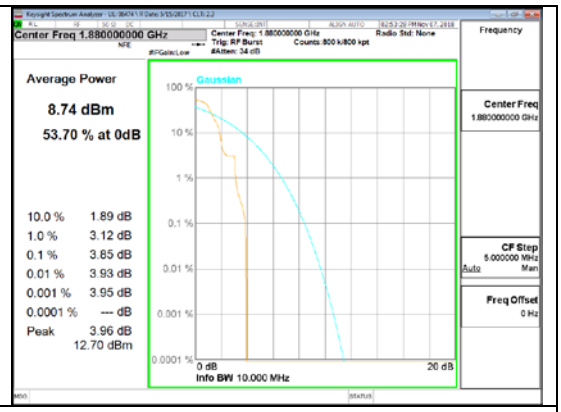
In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13 dB.

**RESULTS**

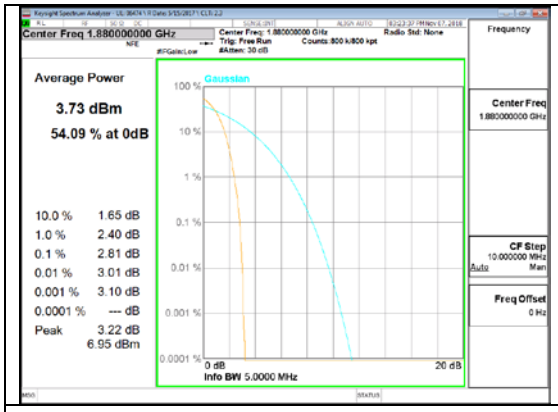
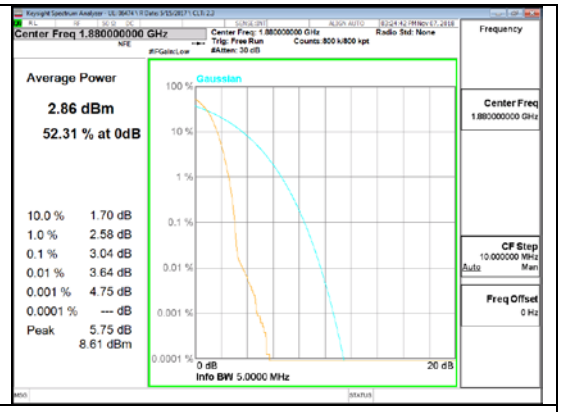
See the following pages.

| Mode | Channel | F (MHz) | Modulation | Measured (dB) | Limit (dB) | Verdict |
|---|---|---|---|---|---|---|
| GSM1900 | Mid | 1880 | GPRS | 0.87 | 13 | PASS |
| | | | EDGE | 3.96 | 13 | PASS |
| WCDMA Band 2 | Mid | 1880 | REL 99 | 3.22 | 13 | PASS |
| | | | HSDPA | 5.75 | 13 | PASS |

**GSM MODE**

| | |
|---|---|
|  |  |
| GPRS1900_PAR_1880 | EGPRS1900_PAR_1880 |

**WCDMA MODE**

| | |
|---|---|
|  |  |
| Rel99_B2_PAR_1880.0 | HSDPA_B2_PAR_1880.0 |

## 6.3 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 v03r01)

**RESULTS**

The table shows the worst case results, for the other results please See the following pages.

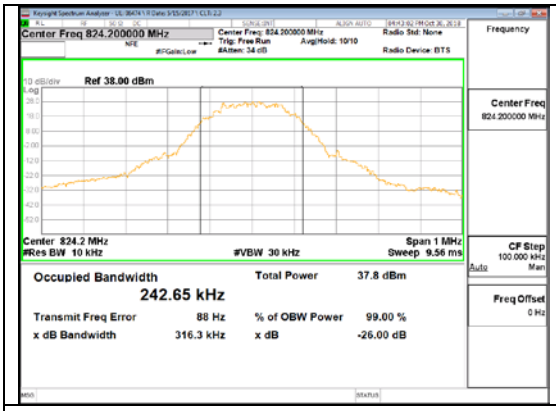
**GSM**

| Mode | Channel | f(MHz) | Modulation | -26dB BW (KHz) |
|---|---|---|---|---|
| GSM850 | High | 848.8 | GPRS | 317.6 |
| | | | EDGE | 328.7 |
| GSM1900 | Low | 1850.2 | GPRS | 318.1 |
| | High | 1909.8 | EDGE | 347.0 |

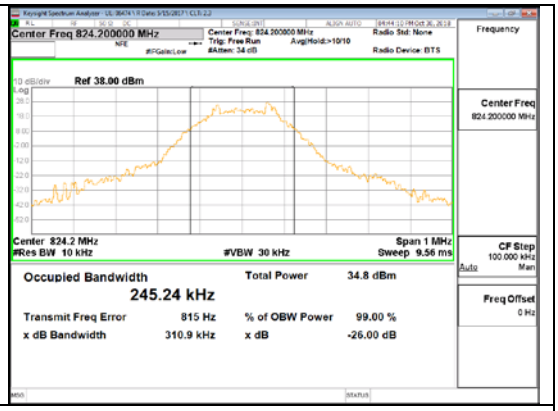
**WCDMA**

| Mode | Channel | f(MHz) | Modulation | -26dB BW (MHz) |
|---|---|---|---|---|
| BAND 2 | Mid | 1880.0 | REL 99 | 4.706 |
| | Low | 1852.4 | HSDPA | 4.685 |
| BAND 5 | Mid | 836.6 | REL 99 | 4.727 |
| | | | HSDPA | 4.695 |

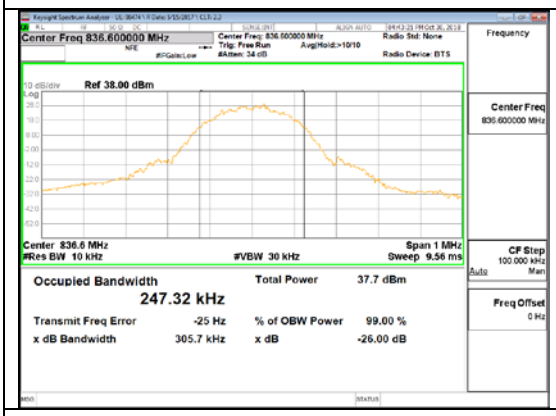
**GSM MODE**



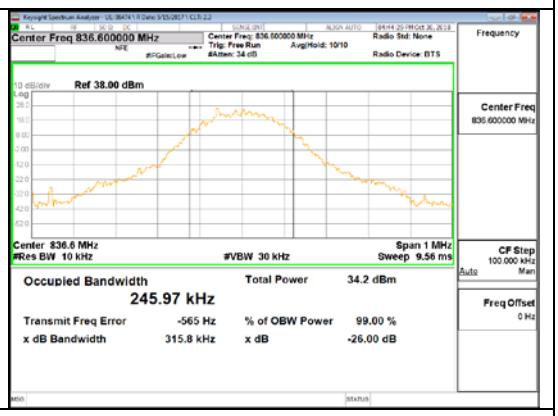

GPRS850_OBW_824.2



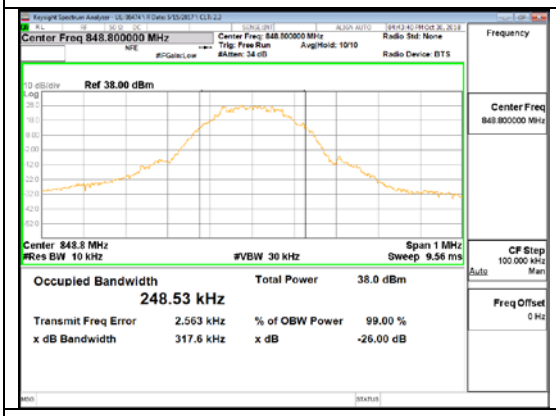

EGPRS850_OBW_824.2



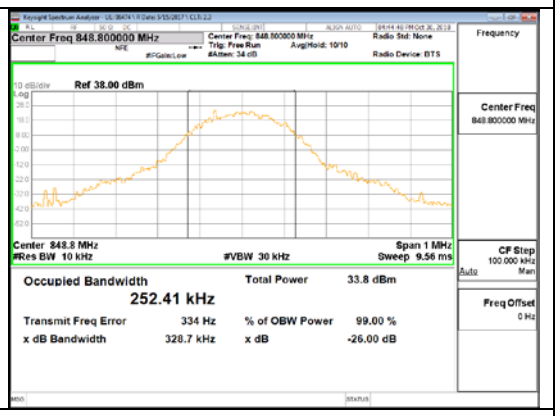

GPRS850_OBW_836.6



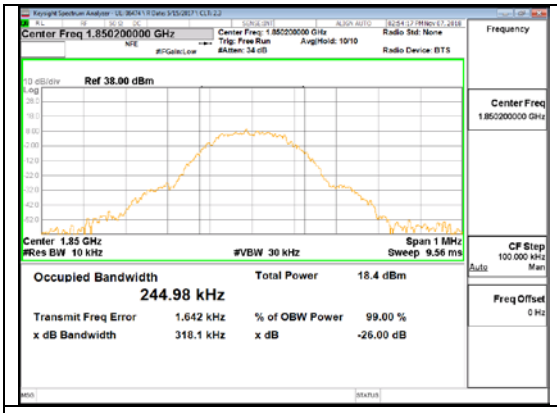

EGPRS850_OBW_836.6



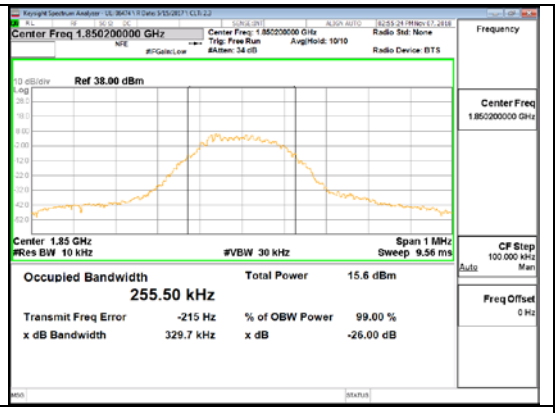

GPRS850_OBW_848.8



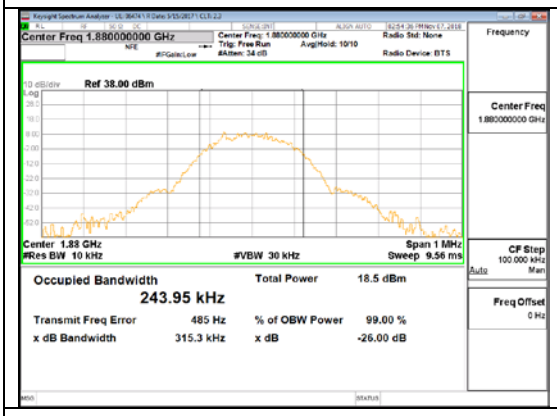

EGPRS850_OBW_848.8



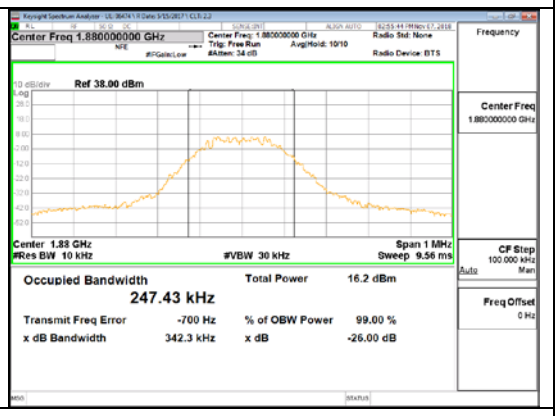

GPRS1900_OBW_1850.2



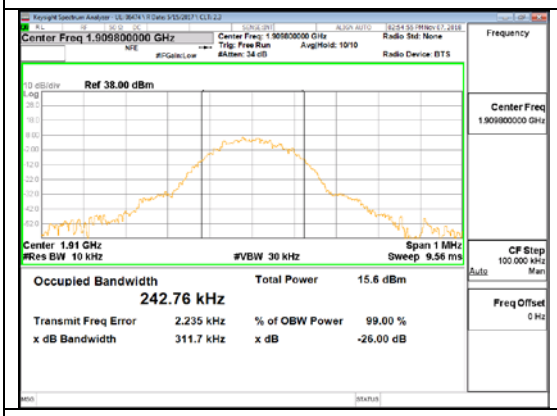

EGPRS1900_OBW_1850.2



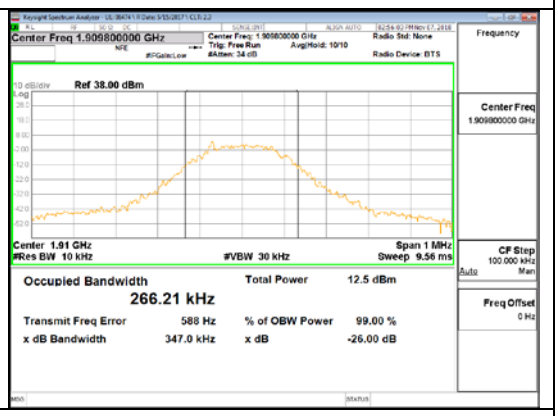

GPRS1900_OBW_1880




EGPRS1900_OBW_1880

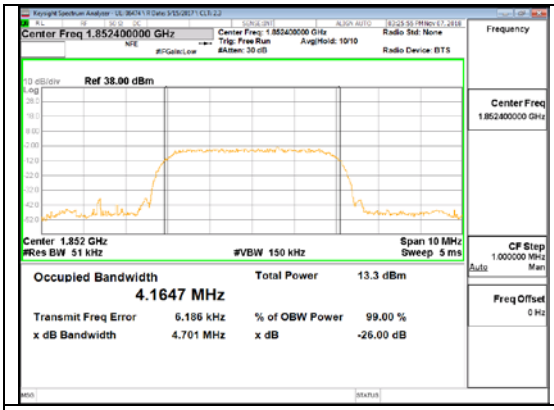



GPRS1900_OBW_1909.8

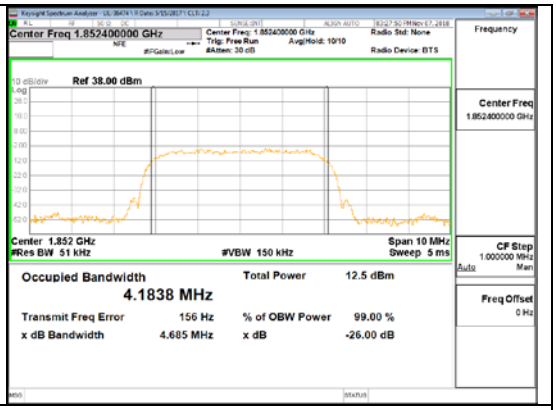



EGPRS1900_OBW_1909.8

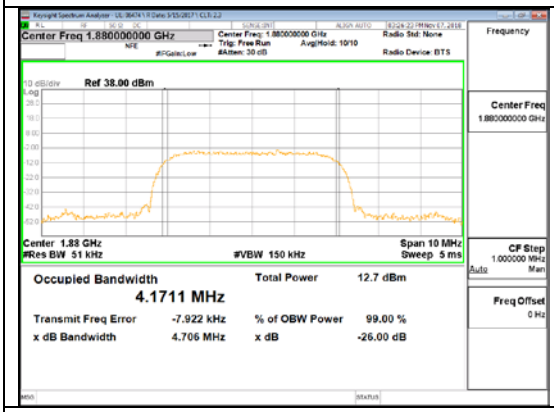
**WCDMA MODE**



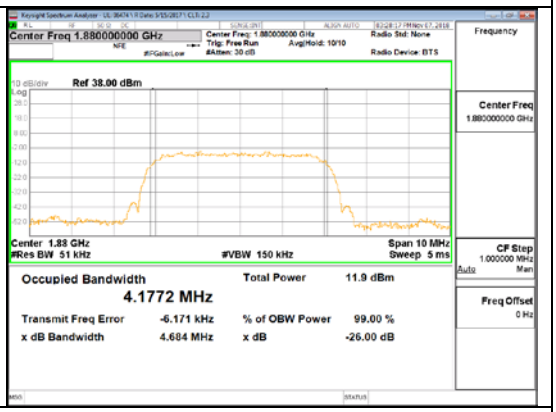

Rel99_B2_OBW_1852.4



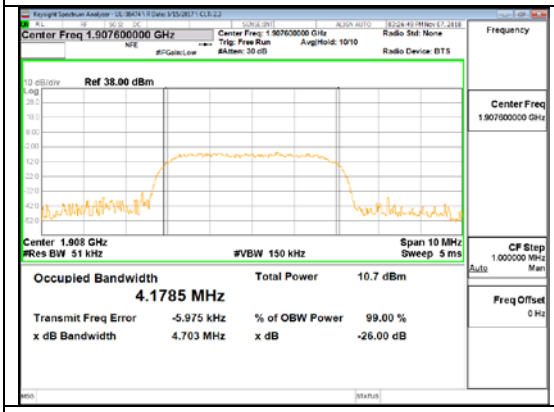

HSDPA_B2_OBW_1852.4



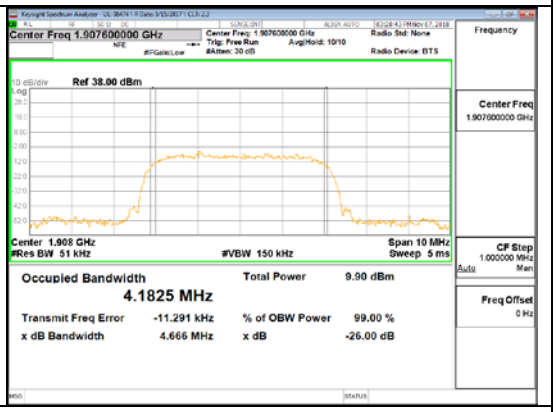

Rel99_B2_OBW_1880.0



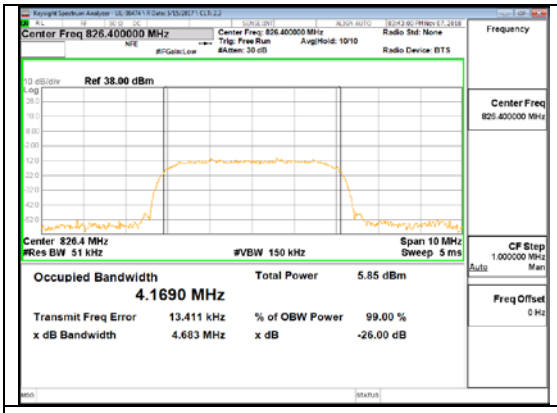

HSDPA_B2_OBW_1880.0



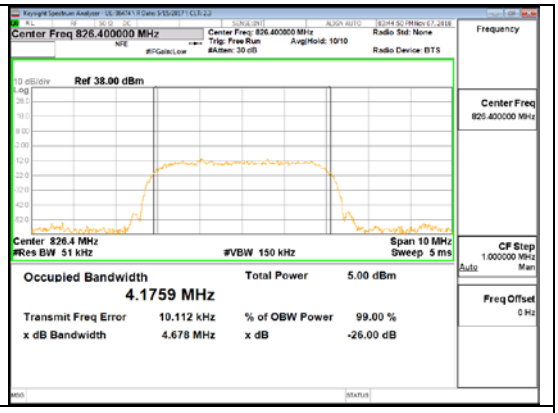

Rel99_B2_OBW_1907.6



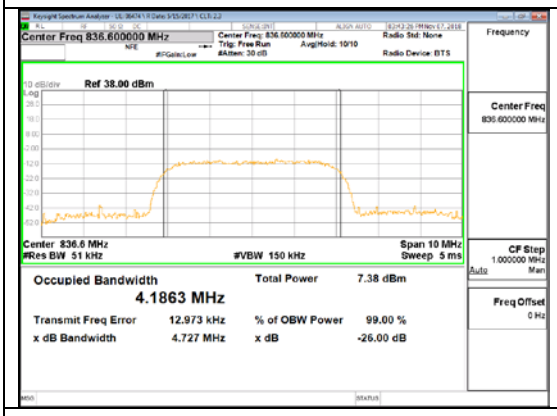

HSDPA_B2_OBW_1907.6



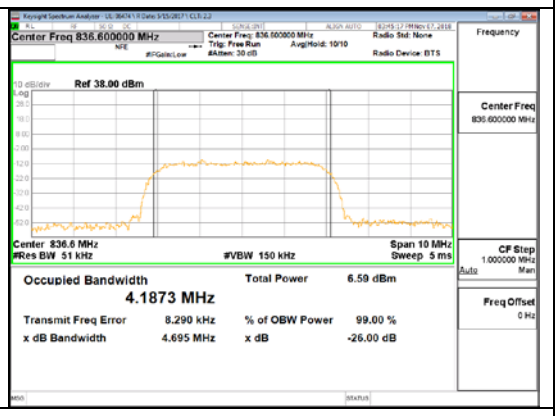

Rel99_B5_OBW_826.4



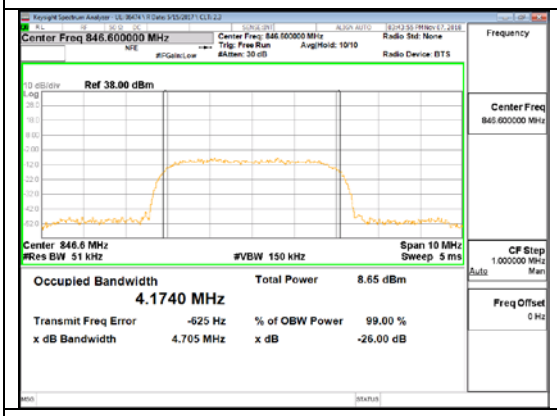

HSDPA_B5_OBW_826.4



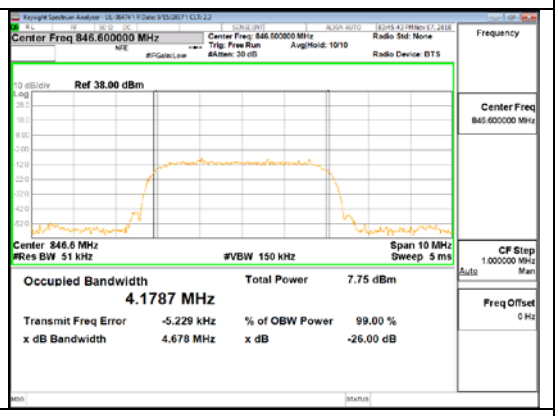

Rel99_B5_OBW_836.6




HSDPA_B5_OBW_836.6




Rel99_B5_OBW_846.6




HSDPA_B5_OBW_846.6

## 6.4 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 emissions stay within the authorized bands of operation.

**TEST PROCEDURE**

Per KDB 971168 D01 Power Meas License Digital Systems v03r01

**RESULTS**

See the following pages.

| Test Mode | Test Conditions | | Frequency Deviation Middle Channel | | |
|---|---|---|---|---|---|
| | Power (VDC) | Temperature (°C) | Frequency Error | Frequency Error | Limit |
| | | | Hz | ppm | ppm |
| GPRS 850MHz | VN | -30 | 4.55 | 0.0054 | 2.5 |
| | | -20 | 1.08 | 0.0013 | |
| | | -10 | -2.70 | -0.0032 | |
| | | 0 | 1.56 | 0.0018 | |
| | | +10 | 3.92 | 0.0046 | |
| | | +20 | 1.21 | 0.0014 | |
| | | +30 | 3.75 | 0.0044 | |
| | | +40 | -1.85 | -0.0022 | |
| | | +50 | 0.49 | 0.0006 | |
| | VL | TN | 1.43 | 0.0017 | |
| | VH | | -2.00 | -0.0024 | |
| | End Point | | 5.49 | 0.066 | |

| Test Mode | Test Conditions | | Frequency Deviation Middle Channel | | |
|---|---|---|---|---|---|
| | Power (VDC) | Temperature (°C) | Frequency Error | Frequency Error | Limit |
| | | | Hz | ppm | ppm |
| GPRS 1900MHz | VN | -30 | 5.89 | 0.0031 | 2.5 |
| | | -20 | -2.05 | -0.0011 | |
| | | -10 | 1.01 | 0.0005 | |
| | | 0 | 2.11 | 0.0011 | |
| | | +10 | 2.98 | 0.0016 | |
| | | +20 | 0.56 | 0.0003 | |
| | | +30 | 3.75 | 0.0020 | |
| | | +40 | -1.46 | -0.0008 | |
| | | +50 | 0.52 | 0.0003 | |
| | VL | TN | 1.22 | 0.0006 | |
| | VH | | -1.19 | -0.0006 | |
| | End Point | | 3.76 | 0.0020 | |

| Test Mode | Test Conditions | | Frequency Deviation Middle Channel | | |
|---|---|---|---|---|---|
| | Power (VDC) | Temperature (°C) | Frequency Error | Frequency Error | Limit |
| | | | Hz | ppm | ppm |
| WCDMA Band 2 REL99 | VN | -30 | 2.01 | 0.0011 | 2.5 |
| | | -20 | 1.33 | 0.0007 | |
| | | -10 | -1.08 | -0.0006 | |
| | | 0 | -2.16 | -0.0011 | |
| | | +10 | -5.90 | -0.0031 | |
| | | +20 | 7.02 | 0.0037 | |
| | | +30 | -3.50 | -0.0019 | |
| | | +40 | 9.00 | 0.0048 | |
| | | +50 | -6.52 | -0.0035 | |
| | VL | TN | 3.42 | 0.0018 | |
| | VH | | 5.58 | 0.0030 | |
| | End Point | | 5.01 | 0.0027 | |

| Test Mode | Test Conditions | | Frequency Deviation Middle Channel | | |
|---|---|---|---|---|---|
| | Power (VDC) | Temperature (°C) | Frequency Error | Frequency Error | Limit |
| | | | Hz | ppm | ppm |
| WCDMA Band5 REL99 | VN | -30 | 5.01 | 0.0060 | 2.5 |
| | | -20 | -4.71 | -0.0056 | |
| | | -10 | -1.19 | -0.0014 | |
| | | 0 | 2.33 | 0.0028 | |
| | | +10 | -4.31 | -0.0052 | |
| | | +20 | -7.09 | -0.0085 | |
| | | +30 | 3.88 | 0.0046 | |
| | | +40 | 2.64 | 0.0032 | |
| | | +50 | -7.33 | -0.0088 | |
| | VL | TN | 4.66 | 0.0056 | |
| | VH | | -5.21 | -0.0062 | |
| | End Point | | 6.12 | 0.0073 | |

## 6.5 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 v03r01
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.

**GSM/WCDMA**

a) Set the RBW = 1 ~ 1.5 % of OBW(Typically limited to a minimum RBW of 1% of the OBW)

b) Set VBW ≥ 3 × RBW;

c) Set span ≥ 1.5 times the OBW;

d) Sweep time = Auto;

e) Detector = RMS;

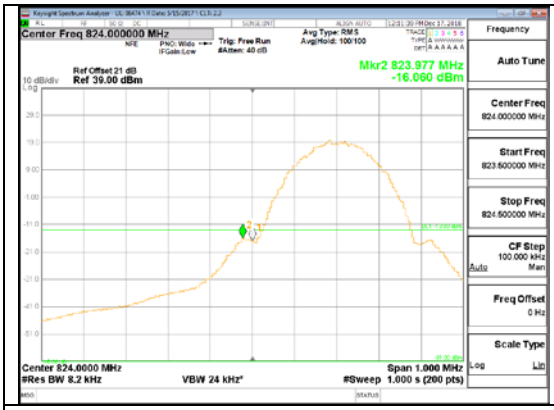
f) Ensure that the number of measurement points ≥ 2*Span/RBW;

g) Trace mode = Average (100);

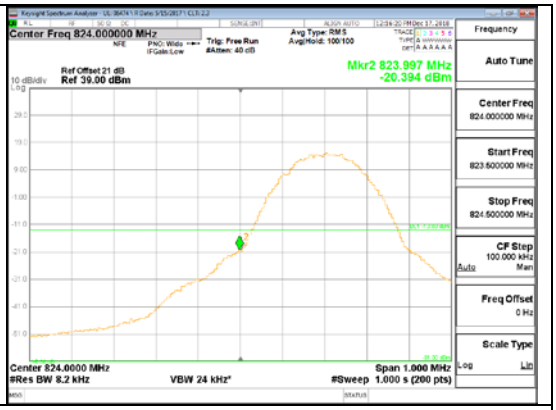
**RESULTS**

See the following pages.

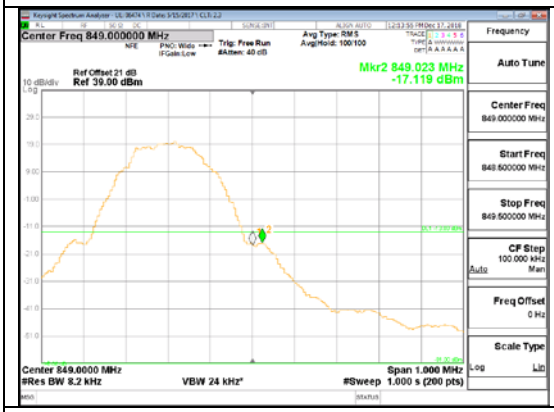
**GSM MODE**



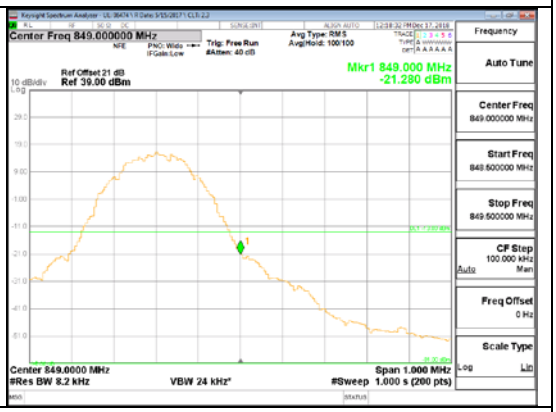

GPRS850_CBE_824.2



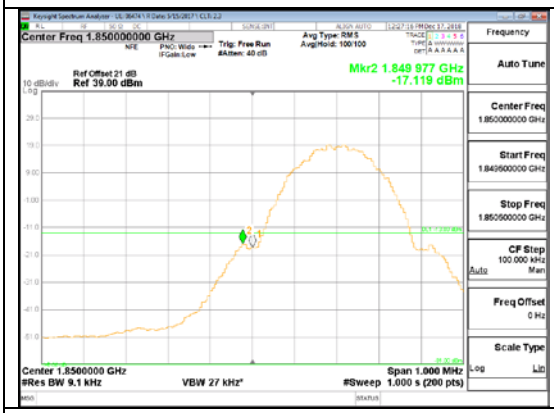

EGPRS850_CBE_824.2



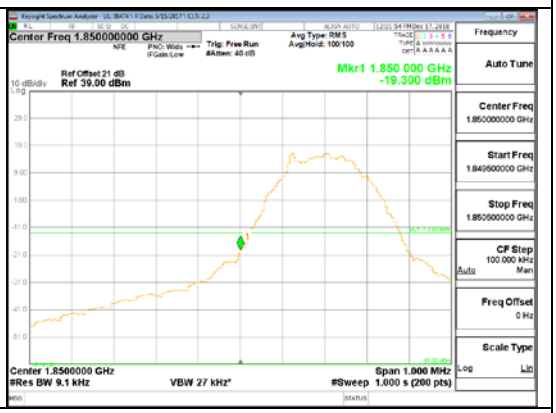

GPRS850_CBE_848.8



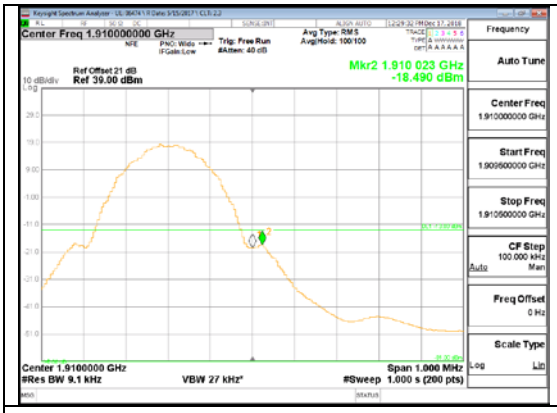
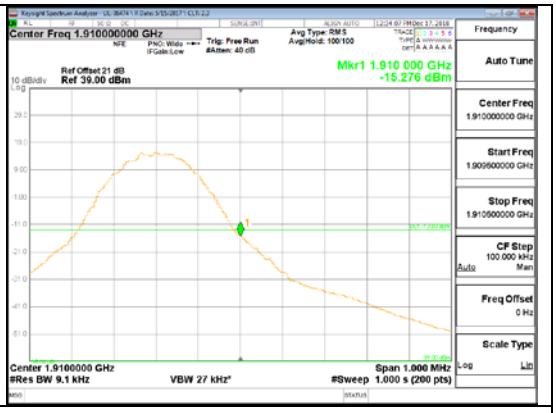

EGPRS850_CBE_848.8



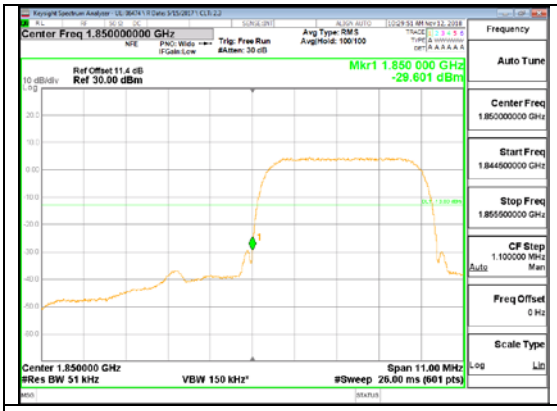
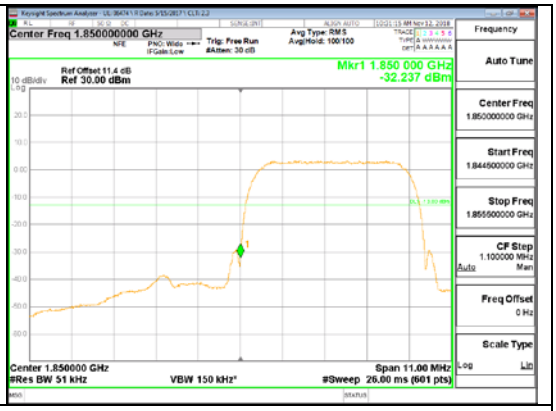
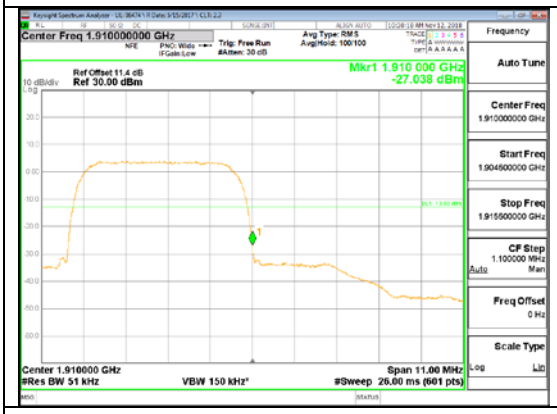
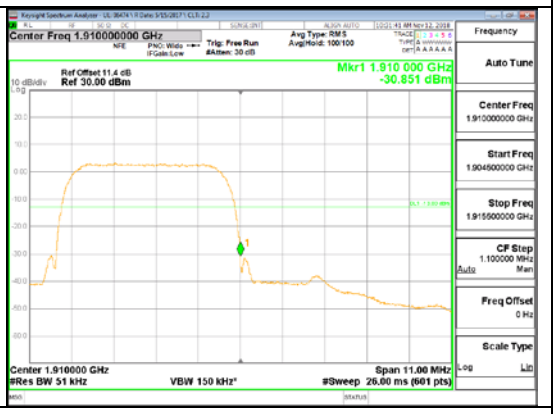

GPRS1900_CBE_1850.2

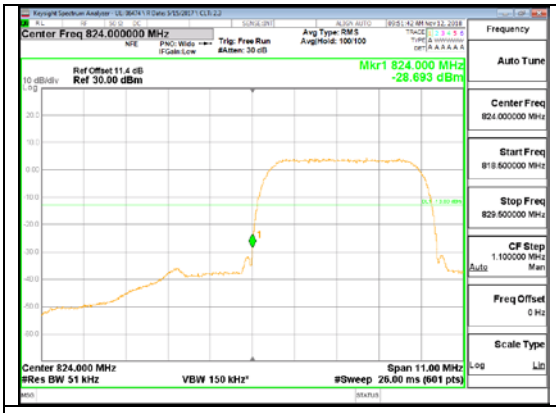



EGPRS1900_CBE_1850.2

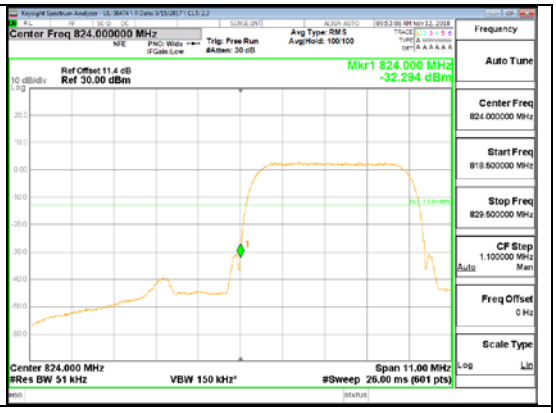
| | |
|---|---|
|  |  |
| GPRS1900_CBE_1909.8 | EGPRS1900_CBE_1909.8 |

**WCDMA MODE**

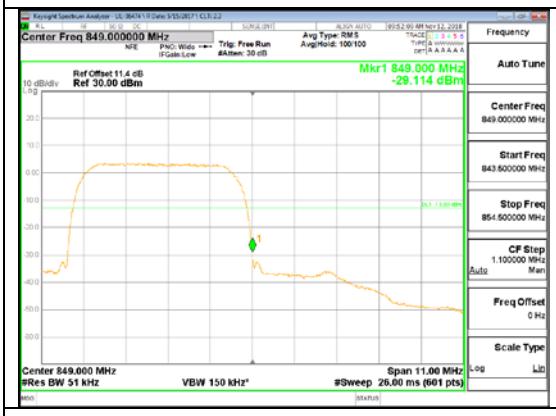
| | |
|---|---|
|  |  |
| Rel99_B2_CBE_1852.4 | HSDPA_B2_CBE_1852.4 |
|  |  |
| Rel99_B2_CBE_1907.6 | HSDPA_B2_CBE_1907.6 |



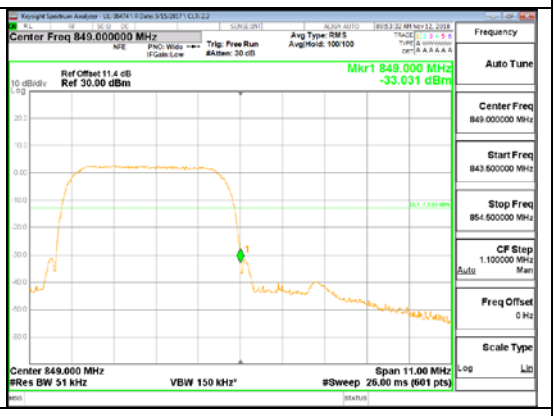

Rel99_B5_CBE_826.4




HSDPA_B5_CBE_826.4




Rel99_B5_CBE_846.6




HSDPA_B5_CBE_846.6

## 6.6 CONDUCTED OUT OF BAND EMISSIONS

**RULE PART(S)**

FCC: §2.1051, §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 v03r01
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.

a) Set the RBW = 100KHz for emission below 1GHz and 1MHz for emissions above 1GHz (Tests were performed 1MHz [Worst case], to sweep 1 time for all frequency range)

b) Set VBW ≥ 3 × RBW;

c) Set span ≥ 1.5 times the OBW;

d) Sweep time = auto couple;

e) Detector = rms;

f) Ensure that the number of measurement points = Max (40001);

g) Trace mode = average(LTE 5), Maxhold(LTE Band41);

Note : Please refer to section 5.4 for bandwidth and RB setting about LTE bands.

**RESULTS**

See the following pages.

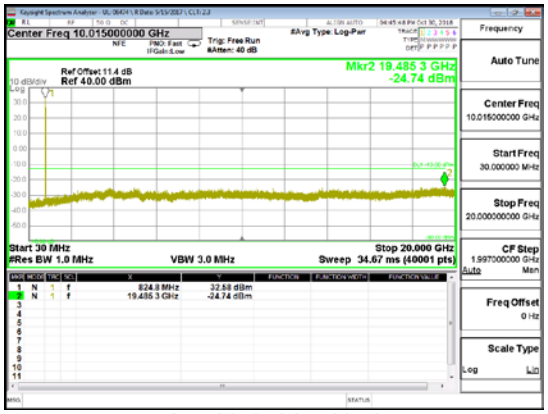
**GSM**

| Mode | Channel | F (MHz) | Modulation | The maximum Emissions (dBm) | Limit (dBm) | Verdict |
|---|---|---|---|---|---|---|
| GSM850 | High | 848.8 | GPRS | -23.09 | -13 | PASS |
| | | | EDGE | -23.84 | -13 | PASS |
| GSM1900 | High | 1909.8 | GPRS | -24.32 | -13 | PASS |
| | High | 1909.8 | EDGE | -24.18 | -13 | PASS |

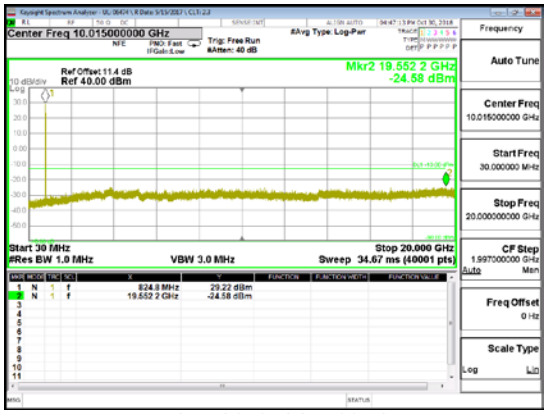
**WCDMA**

| Mode | Channel | F (MHz) | Modulation | The maximum Emissions (dBm) | Limit (dBm) | Verdict |
|---|---|---|---|---|---|---|
| Band 2 | Mid | 1880.0 | REL 99 | -34.41 | -13 | PASS |
| | High | 1907.6 | HSDPA | -34.73 | -13 | PASS |
| Band 5 | Low | 826.4 | REL 99 | -34.05 | -13 | PASS |
| | High | 846.6 | HSDPA | -34.11 | -13 | PASS |

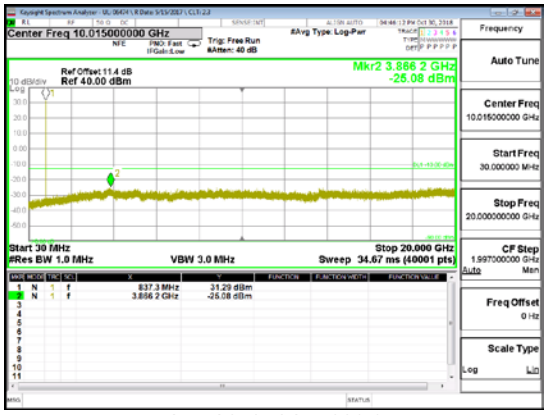
**GSM Mode**



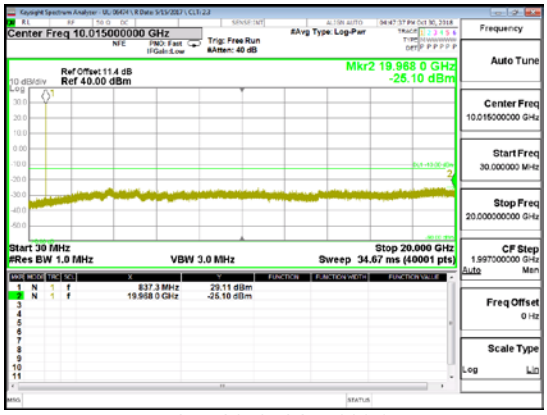

GPRS850_CSE_824.2



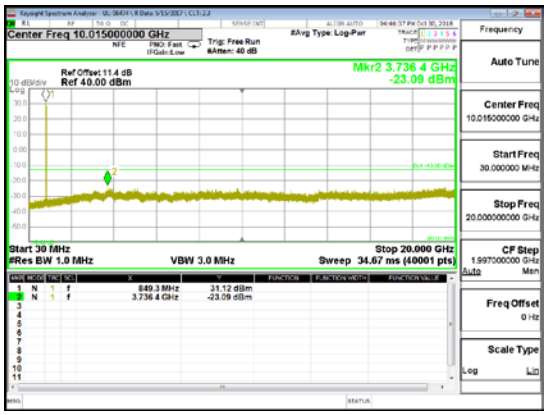

EGPRS850_CSE_824.2



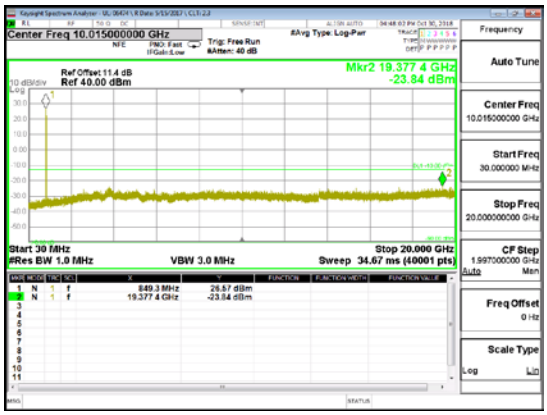

GPRS850_CSE_836.6




EGPRS850_CSE_836.6




GPRS850_CSE_848.8

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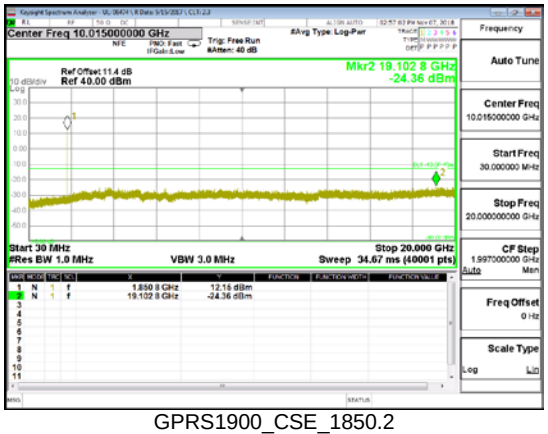
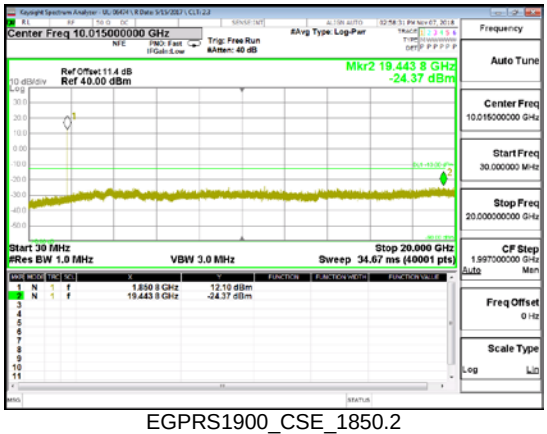



GPRS1900_CSE_1850.2

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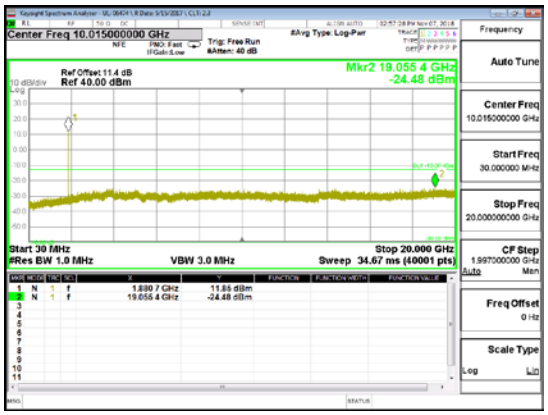
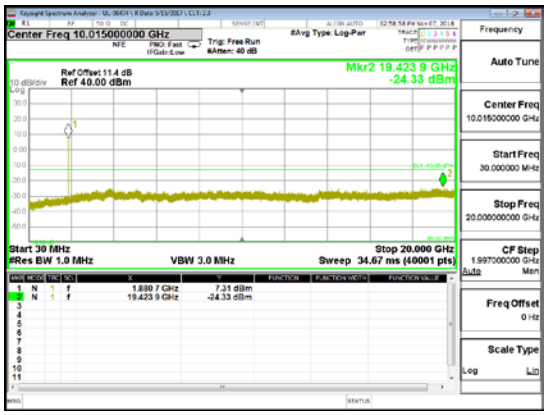
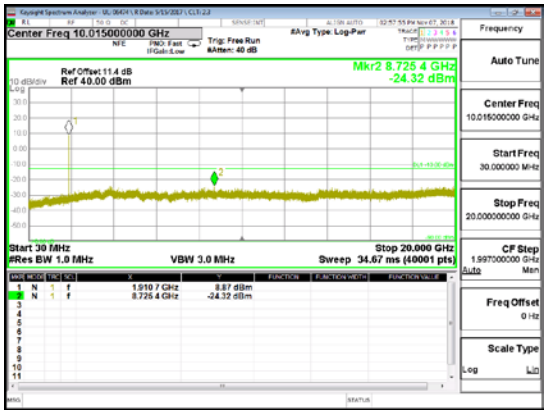


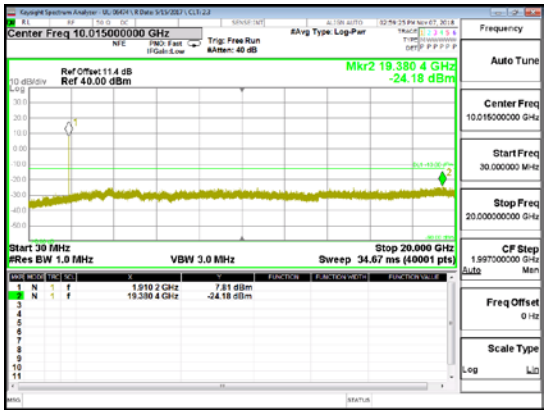

GPRS1900_CSE_1880




EGPRS1900_CSE_1880

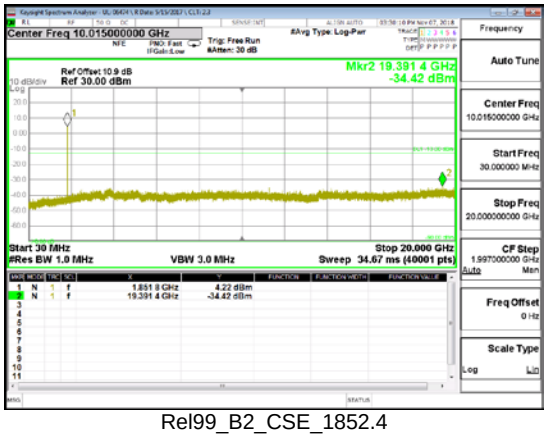



GPRS1900_CSE_1909.8

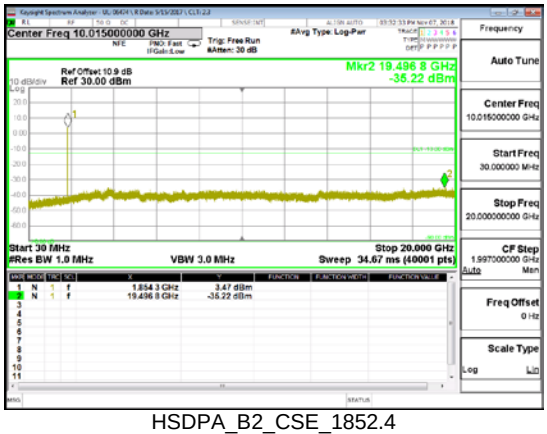



EGPRS1900_CSE_1909.8

**WCDMA Mode**




Rel99_B2_CSE_1852.4

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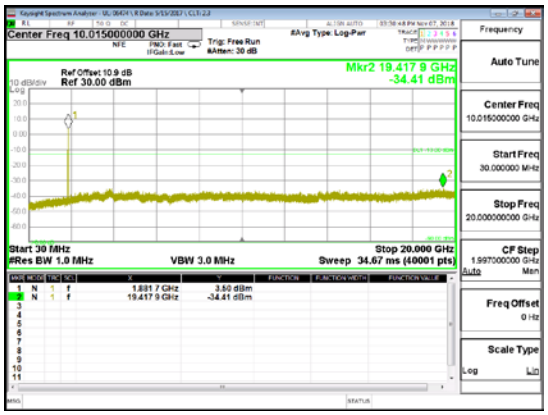


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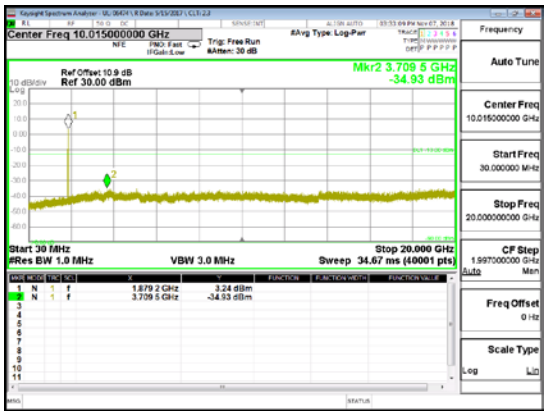


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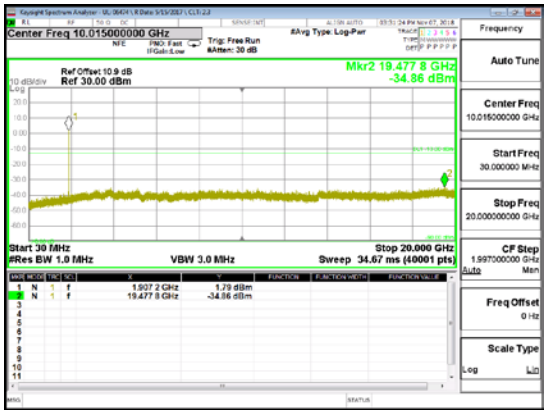


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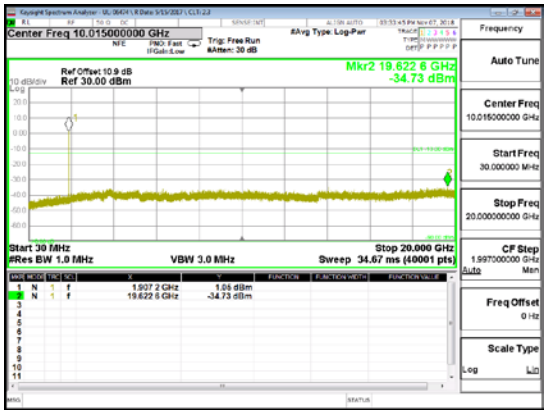


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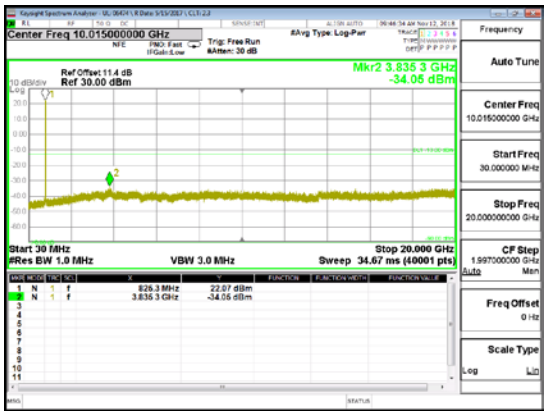


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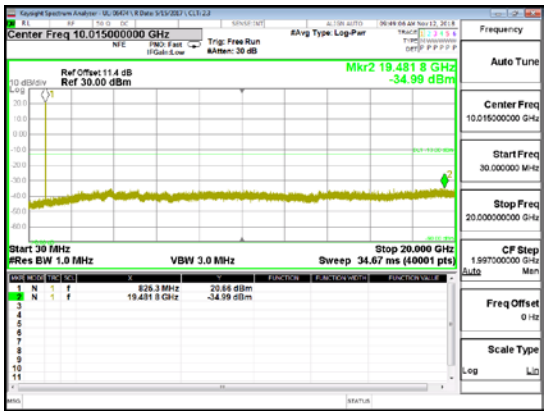


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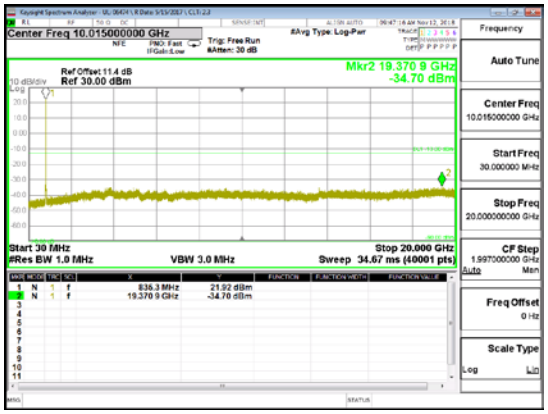


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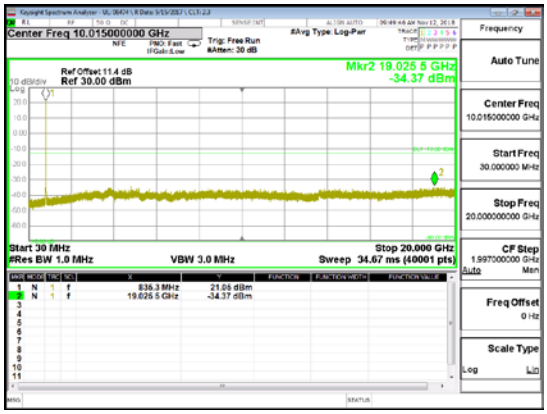


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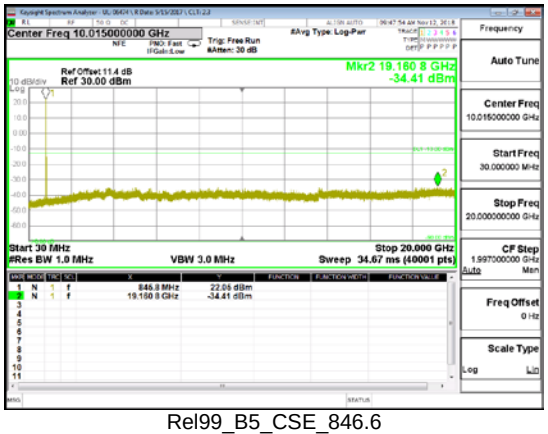


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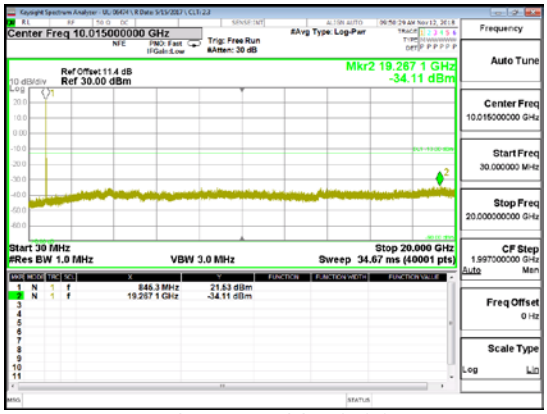



HSDPA_B5_CSE_846.6

## 6.7 FIELD STRENGTH OF SPURIOUS RADIATION

**RULE PART(S)**

FCC: §2.1053, §22.917, §24.238

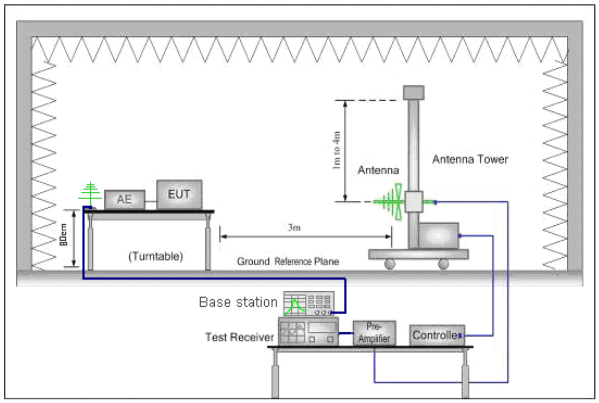
**LIMIT**

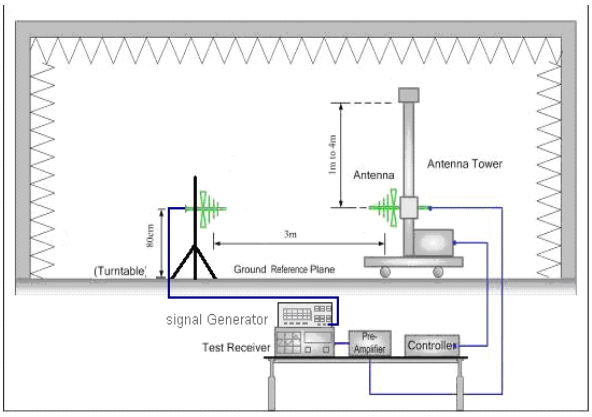
Part 22.917(a) ,§24.238(a)

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.

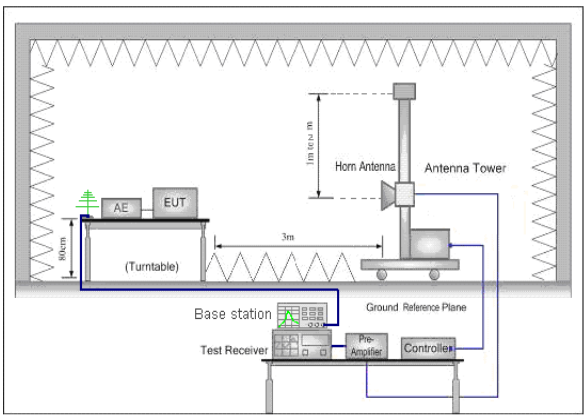
**TEST SETUP**

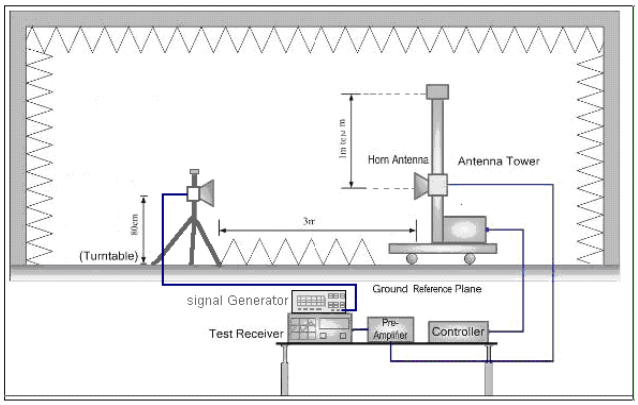
Test Setup for Below 1G




Test Setup for Above 1G




**TEST PROCEDURE**

KDB 971168 D01 Section 7

Below 1GHz test procedure as below:

1. The EUT was placed on a rotatable wooden table with 0.8 meter above ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.

4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
5. Taking the record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. Calculate power in dBm by the following formula:
ERP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBd)

Where:

Pd is the dipole equivalent power, Pg is the generator output into the substitution antenna, and the antenna gain is the gain of the substitute antenna used relative to either a half-wave dipole (dBd) or an isotropic source (dBi). The substitute level is equal to Pg [dBm] – cable loss [dB]. The calculated Pd levels are then compared to the absolute spurious emission limit of -13dBm which is equivalent to the required minimum attenuation of 43 + 10log10(Power [Watts]).

Above 1GHz test procedure as below:

1. The EUT was placed on a rotatable wooden table with 0.8 meter above ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
5. Taking the record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. Calculate power in dBm by the following formula:
EIRP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBi)
EIRP=ERP+2.15dB
Where: Pg is the generator output power into the substitution antenna.
11. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
= P(W)- [43 + 10log(P)] (dB)
= [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
= -13dBm.

NOTE 1: Radiated spurious emissions were investigated below 30MHz, 30MHz – 1GHz and above 1GHz. There were no emissions found on below 30MHz.

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open are test site.
Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the one of tests made in an open field based on KDB 414788.

**RESULTS**

See the following pages.

### 6.7.1 Radiated spurious emissions 30MHz to 1GHz

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 121.18 | -40.61 | -13.00 | -27.61 | Horizontal |
| 171.62 | -34.28 | -13.00 | -21.28 | Horizontal |
| 281.23 | -35.92 | -13.00 | -22.92 | Horizontal |
| 393.75 | -32.63 | -13.00 | -19.63 | Horizontal |
| 570.29 | -29.83 | -13.00 | -16.83 | Horizontal |
| 691.54 | -26.32 | -13.00 | -13.32 | Horizontal |
| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
| 157.07 | -36.62 | -13.00 | -23.62 | Vertical |
| 187.14 | -34.63 | -13.00 | -21.63 | Vertical |
| 320.03 | -35.72 | -13.00 | -22.72 | Vertical |
| 430.61 | -32.64 | -13.00 | -19.64 | Vertical |
| 618.79 | -26.84 | -13.00 | -13.84 | Vertical |
| 773.99 | -24.90 | -13.00 | -11.90 | Vertical |

GPRS850

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 30 | -73.00 | -13.00 | -60.00 | Horizontal |
| 57.16 | -76.70 | -13.00 | -63.70 | Horizontal |
| 74.62 | -81.06 | -13.00 | -68.06 | Horizontal |
| 104.69 | -83.14 | -13.00 | -70.14 | Horizontal |
| 185.2 | -79.04 | -13.00 | -66.04 | Horizontal |
| 570.29 | -47.02 | -13.00 | -34.02 | Horizontal |
| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
| 31.94 | -72.59 | -13.00 | -59.59 | Vertical |
| 88.2 | -84.27 | -13.00 | -71.27 | Vertical |
| 167.74 | -77.50 | -13.00 | -64.50 | Vertical |
| 375.32 | -74.07 | -13.00 | -61.07 | Vertical |
| 544.1 | -53.62 | -13.00 | -40.62 | Vertical |
| 582.9 | -62.42 | -13.00 | -49.42 | Vertical |

GPRS1900

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 31.94 | -73.44 | -13.00 | -60.44 | Horizontal |
| 57.16 | -77.41 | -13.00 | -64.41 | Horizontal |
| 72.68 | -81.44 | -13.00 | -68.44 | Horizontal |
| 186.17 | -79.13 | -13.00 | -66.13 | Horizontal |
| 250.19 | -78.85 | -13.00 | -65.85 | Horizontal |
| 417.03 | -76.07 | -13.00 | -63.07 | Horizontal |
| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
| 30.97 | -72.36 | -13.00 | -59.36 | Vertical |
| 39.70 | -79.27 | -13.00 | -66.27 | Vertical |
| 169.68 | -78.11 | -13.00 | -65.11 | Vertical |
| 290.93 | -79.70 | -13.00 | -66.70 | Vertical |
| 375.32 | -74.08 | -13.00 | -61.08 | Vertical |
| 626.55 | -71.63 | -13.00 | -58.63 | Vertical |

WCDMA Band 2

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 55.22 | -76.34 | -13.00 | -63.34 | Horizontal |
| 185.20 | -70.37 | -13.00 | -57.37 | Horizontal |
| 294.81 | -70.92 | -13.00 | -57.92 | Horizontal |
| 490.75 | -66.92 | -13.00 | -53.92 | Horizontal |
| 686.69 | -62.17 | -13.00 | -49.17 | Horizontal |
| 881.66 | -42.76 | -13.00 | -29.76 | Horizontal |
| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
| 123.12 | -75.00 | -13.00 | -62.00 | Vertical |
| 196.84 | -69.61 | -13.00 | -56.61 | Vertical |
| 280.26 | -70.44 | -13.00 | -57.44 | Vertical |
| 396.66 | -67.52 | -13.00 | -54.52 | Vertical |
| 675.05 | -62.19 | -13.00 | -49.19 | Vertical |
| 881.66 | -35.81 | -13.00 | -22.81 | Vertical |

WCDMA Band 5

### 6.7.2 Radiated spurious emissions above 1GHz

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1648.00 | -27.69 | -13.00 | -14.69 | Horizontal |
| 2467.00 | -23.97 | -13.00 | -10.97 | Horizontal |
| 3295.00 | -46.47 | -13.00 | -33.47 | Horizontal |
| 4123.00 | -36.10 | -13.00 | -23.10 | Horizontal |
| 4942.00 | -41.93 | -13.00 | -28.93 | Horizontal |
| 5770.00 | -41.83 | -13.00 | -28.83 | Horizontal |
| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
| 1648.00 | -34.43 | -13.00 | -21.43 | Vertical |
| 2467.00 | -30.29 | -13.00 | -17.29 | Vertical |
| 3295.00 | -45.24 | -13.00 | -32.24 | Vertical |
| 4123.00 | -41.47 | -13.00 | -28.47 | Vertical |
| 4942.00 | -45.72 | -13.00 | -32.72 | Vertical |
| 5770.00 | -43.31 | -13.00 | -30.31 | Vertical |

GPRS850 Low Channel

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1666.00 | -32.34 | -13.00 | -19.34 | Horizontal |
| 2503.00 | -23.44 | -13.00 | -10.44 | Horizontal |
| 3349.00 | -42.37 | -13.00 | -29.37 | Horizontal |
| 4186.00 | -38.30 | -13.00 | -25.30 | Horizontal |
| 5023.00 | -42.16 | -13.00 | -29.16 | Horizontal |
| 5860.00 | -42.36 | -13.00 | -29.36 | Horizontal |
| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
| 1666.00 | -32.93 | -13.00 | -19.93 | Vertical |
| 2503.00 | -27.89 | -13.00 | -14.89 | Vertical |
| 3340.00 | -44.35 | -13.00 | -31.35 | Vertical |
| 4186.00 | -40.76 | -13.00 | -27.76 | Vertical |
| 5023.00 | -46.50 | -13.00 | -33.50 | Vertical |
| 7534.00 | -47.79 | -13.00 | -34.79 | Vertical |

GPRS850 Mid Channel

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1693.00 | -35.06 | -13.00 | -22.06 | Horizontal |
| 2548.00 | -25.21 | -13.00 | -12.21 | Horizontal |
| 3394.00 | -44.74 | -13.00 | -31.74 | Horizontal |
| 4240.00 | -45.61 | -13.00 | -32.61 | Horizontal |
| 5095.00 | -45.74 | -13.00 | -32.74 | Horizontal |
| 5941.00 | -44.89 | -13.00 | -31.89 | Horizontal |
| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
| 1693.00 | -31.03 | -13.00 | -18.03 | Vertical |
| 2548.00 | -29.67 | -13.00 | -16.67 | Vertical |
| 3394.00 | -48.80 | -13.00 | -35.80 | Vertical |
| 4240.00 | -45.97 | -13.00 | -32.97 | Vertical |
| 5095.00 | -46.84 | -13.00 | -33.84 | Vertical |
| 5941.00 | -47.99 | -13.00 | -34.99 | Vertical |

GPRS850 High Channel

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1648.00 | -28.42 | -13.00 | -15.42 | Horizontal |
| 2467.00 | -23.86 | -13.00 | -10.86 | Horizontal |
| 3295.00 | -50.81 | -13.00 | -37.81 | Horizontal |
| 4123.00 | -39.77 | -13.00 | -26.77 | Horizontal |
| 4942.00 | -43.16 | -13.00 | -30.16 | Horizontal |
| 5770.00 | -43.86 | -13.00 | -30.86 | Horizontal |
| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
| 1648.00 | -25.95 | -13.00 | -12.95 | Vertical |
| 2467.00 | -31.67 | -13.00 | -18.67 | Vertical |
| 3295.00 | -46.52 | -13.00 | -33.52 | Vertical |
| 4123.00 | -42.92 | -13.00 | -29.92 | Vertical |
| 4942.00 | -48.05 | -13.00 | -35.05 | Vertical |
| 5770.00 | -45.07 | -13.00 | -32.07 | Vertical |

EGPRS850 Low Channel

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1666.00 | -33.84 | -13.00 | -20.84 | Horizontal |
| 2503.00 | -26.39 | -13.00 | -13.39 | Horizontal |
| 3349.00 | -49.40 | -13.00 | -36.40 | Horizontal |
| 4186.00 | -43.48 | -13.00 | -30.48 | Horizontal |
| 5023.00 | -45.16 | -13.00 | -32.16 | Horizontal |
| 5860.00 | -44.39 | -13.00 | -31.39 | Horizontal |
| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
| 1666 | -31.00 | -13.00 | -18.00 | Vertical |
| 2503 | -27.42 | -13.00 | -14.42 | Vertical |
| 3340 | -49.43 | -13.00 | -36.43 | Vertical |
| 4186 | -46.12 | -13.00 | -33.12 | Vertical |
| 5023 | -47.46 | -13.00 | -34.46 | Vertical |
| 5860 | -46.51 | -13.00 | -33.51 | Vertical |

EGPRS850 Mid Channel

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1693.00 | -35.06 | -13.00 | -22.06 | Horizontal |
| 2548.00 | -25.21 | -13.00 | -12.21 | Horizontal |
| 3394.00 | -44.74 | -13.00 | -31.74 | Horizontal |
| 4240.00 | -45.61 | -13.00 | -32.61 | Horizontal |
| 5095.00 | -45.74 | -13.00 | -32.74 | Horizontal |
| 5941.00 | -44.89 | -13.00 | -31.89 | Horizontal |
| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
| 1693.00 | -31.03 | -13.00 | -18.03 | Vertical |
| 2548.00 | -29.67 | -13.00 | -16.67 | Vertical |
| 3394.00 | -48.80 | -13.00 | -35.80 | Vertical |
| 4240.00 | -45.97 | -13.00 | -32.97 | Vertical |
| 5095.00 | -46.84 | -13.00 | -33.84 | Vertical |
| 5941.00 | -47.99 | -13.00 | -34.99 | Vertical |

EGPRS850 High Channel

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1326.00 | -43.74 | -13.00 | -30.74 | Horizontal |
| 1748.00 | -33.78 | -13.00 | -20.78 | Horizontal |
| 1850.00 | 23.94 | -13.00 | / | Horizontal |
| 1930.00 | -29.61 | -13.00 | -16.61 | Horizontal |
| 2522.00 | -35.16 | -13.00 | -22.16 | Horizontal |
| 2828.00 | -32.63 | -13.00 | -19.63 | Horizontal |
| 3690.00 | -27.28 | -13.00 | -14.28 | Horizontal |
| 5550.00 | -39.82 | -13.00 | -26.82 | Horizontal |
| 7395.00 | -46.31 | -13.00 | -33.31 | Horizontal |
| 9255.00 | -40.08 | -13.00 | -27.08 | Horizontal |
| 12300.00 | -45.33 | -13.00 | -32.33 | Horizontal |
| 14445.00 | -43.93 | -13.00 | -30.93 | Horizontal |

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1602.00 | -41.98 | -13.00 | -28.98 | Vertical |
| 1764.00 | -33.55 | -13.00 | -20.55 | Vertical |
| 1850.00 | 24.20 | -13.00 | / | Vertical |
| 1948.00 | -27.00 | -13.00 | -14.00 | Vertical |
| 2286.00 | -37.07 | -13.00 | -24.07 | Vertical |
| 2854.00 | -33.25 | -13.00 | -20.25 | Vertical |
| 3690.00 | -27.15 | -13.00 | -14.15 | Vertical |
| 5550.00 | -42.86 | -13.00 | -29.86 | Vertical |
| 7395.00 | -47.11 | -13.00 | -34.11 | Vertical |
| 9255.00 | -41.14 | -13.00 | -28.14 | Vertical |
| 13785.00 | -45.25 | -13.00 | -32.25 | Vertical |
| 16920.00 | -43.47 | -13.00 | -30.47 | Vertical |

GPRS1900 Low Channel

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1256.00 | -42.58 | -13.00 | -29.58 | Horizontal |
| 1760.00 | -22.55 | -13.00 | -9.55 | Horizontal |
| 1880.00 | 25.65 | -13.00 | / | Horizontal |
| 1948.00 | -30.13 | -13.00 | -17.13 | Horizontal |
| 2452.00 | -35.73 | -13.00 | -22.73 | Horizontal |
| 2866.00 | -32.66 | -13.00 | -19.66 | Horizontal |
| 3750.00 | -28.03 | -13.00 | -15.03 | Horizontal |
| 5640.00 | -44.75 | -13.00 | -31.75 | Horizontal |
| 7515.00 | -44.16 | -13.00 | -31.16 | Horizontal |
| 9405.00 | -39.81 | -13.00 | -26.81 | Horizontal |
| 11685.00 | -45.86 | -13.00 | -32.86 | Horizontal |
| 15195.00 | -44.97 | -13.00 | -31.97 | Horizontal |

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1516.00 | -42.27 | -13.00 | -29.27 | Vertical |
| 1764.00 | -26.85 | -13.00 | -13.85 | Vertical |
| 1880.00 | 26.09 | -13.00 | / | Vertical |
| 1948.00 | -22.64 | -13.00 | -9.64 | Vertical |
| 2468.00 | -35.70 | -13.00 | -22.70 | Vertical |
| 2832.00 | -32.54 | -13.00 | -19.54 | Vertical |
| 3750.00 | -27.91 | -13.00 | -14.91 | Vertical |
| 5640.00 | -45.31 | -13.00 | -32.31 | Vertical |
| 7515.00 | -43.46 | -13.00 | -30.46 | Vertical |
| 9405.00 | -39.27 | -13.00 | -26.27 | Vertical |
| 13110.00 | -44.32 | -13.00 | -31.32 | Vertical |
| 17715.00 | -42.74 | -13.00 | -29.74 | Vertical |

GPRS1900 Mid Channel

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1758.00 | -25.94 | -13.00 | -12.94 | Horizontal |
| 1910.00 | 25.54 | -13.00 | / | Horizontal |
| 1948.00 | -29.92 | -13.00 | -16.92 | Horizontal |
| 1990.00 | -31.92 | -13.00 | -18.92 | Horizontal |
| 2314.00 | -36.65 | -13.00 | -23.65 | Horizontal |
| 2756.00 | -32.13 | -13.00 | -19.13 | Horizontal |
| 3810.00 | -26.06 | -13.00 | -13.06 | Horizontal |
| 5730.00 | -39.19 | -13.00 | -26.19 | Horizontal |
| 7635.00 | -39.48 | -13.00 | -26.48 | Horizontal |
| 9555.00 | -41.19 | -13.00 | -28.19 | Horizontal |
| 14400.00 | -44.40 | -13.00 | -31.40 | Horizontal |
| 16860.00 | -42.98 | -13.00 | -29.98 | Horizontal |

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1764.00 | -28.68 | -13.00 | -15.68 | Vertical |
| 1910.00 | 24.55 | -13.00 | / | Vertical |
| 1948.00 | -22.67 | -13.00 | -9.67 | Vertical |
| 1990.00 | -22.92 | -13.00 | -9.92 | Vertical |
| 2408.00 | -36.24 | -13.00 | -23.24 | Vertical |
| 2856.00 | -32.69 | -13.00 | -19.69 | Vertical |
| 3810.00 | -26.26 | -13.00 | -13.26 | Vertical |
| 5730.00 | -42.72 | -13.00 | -29.72 | Vertical |
| 7635.00 | -42.60 | -13.00 | -29.60 | Vertical |
| 9540.00 | -42.31 | -13.00 | -29.31 | Vertical |
| 12225.00 | -45.57 | -13.00 | -32.57 | Vertical |
| 16890.00 | -42.87 | -13.00 | -29.87 | Vertical |

GPRS1900 High Channel

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1418.00 | -42.31 | -13.00 | -29.31 | Horizontal |
| 1746.00 | -29.30 | -13.00 | -16.30 | Horizontal |
| 1850.00 | 22.74 | -13.00 | / | Horizontal |
| 1948.00 | -29.25 | -13.00 | -16.25 | Horizontal |
| 2348.00 | -35.30 | -13.00 | -22.30 | Horizontal |
| 2866.00 | -33.06 | -13.00 | -20.06 | Horizontal |
| 3690.00 | -29.87 | -13.00 | -16.87 | Horizontal |
| 5550.00 | -43.76 | -13.00 | -30.76 | Horizontal |
| 7215.00 | -48.12 | -13.00 | -35.12 | Horizontal |
| 9255.00 | -41.75 | -13.00 | -28.75 | Horizontal |
| 12300.00 | -45.08 | -13.00 | -32.08 | Horizontal |
| 14655.00 | -43.40 | -13.00 | -30.40 | Horizontal |

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1748.00 | -25.78 | -13.00 | -12.78 | Vertical |
| 1850.00 | 24.84 | -13.00 | / | Vertical |
| 1930.00 | -22.70 | -13.00 | -9.70 | Vertical |
| 2362.00 | -36.54 | -13.00 | -23.54 | Vertical |
| 2424.00 | -34.64 | -13.00 | -21.64 | Vertical |
| 2714.00 | -33.32 | -13.00 | -20.32 | Vertical |
| 3690.00 | -29.93 | -13.00 | -16.93 | Vertical |
| 5550.00 | -46.85 | -13.00 | -33.85 | Vertical |
| 7170.00 | -47.84 | -13.00 | -34.84 | Vertical |
| 10470.00 | -46.25 | -13.00 | -33.25 | Vertical |
| 14010.00 | -44.25 | -13.00 | -31.25 | Vertical |
| 17805.00 | -41.93 | -13.00 | -28.93 | Vertical |

EGPRS1900 Low Channel

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1760.00 | -22.84 | -13.00 | -9.84 | Horizontal |
| 1880.00 | 24.17 | -13.00 | / | Horizontal |
| 1948.00 | -29.72 | -13.00 | -16.72 | Horizontal |
| 2382.00 | -36.02 | -13.00 | -23.02 | Horizontal |
| 2680.00 | -34.44 | -13.00 | -21.44 | Horizontal |
| 2862.00 | -32.64 | -13.00 | -19.64 | Horizontal |
| 3750.00 | -31.87 | -13.00 | -18.87 | Horizontal |
| 5640.00 | -47.42 | -13.00 | -34.42 | Horizontal |
| 7455.00 | -47.74 | -13.00 | -34.74 | Horizontal |
| 10260.00 | -46.95 | -13.00 | -33.95 | Horizontal |
| 14130.00 | -43.29 | -13.00 | -30.29 | Horizontal |
| 17775.00 | -42.87 | -13.00 | -29.87 | Horizontal |

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1748.00 | -26.86 | -13.00 | -13.86 | Vertical |
| 1836.00 | -30.74 | -13.00 | -17.74 | Vertical |
| 1880.00 | 25.13 | -13.00 | / | Vertical |
| 1948.00 | -22.81 | -13.00 | -9.81 | Vertical |
| 2490.00 | -35.81 | -13.00 | -22.81 | Vertical |
| 2864.00 | -32.21 | -13.00 | -19.21 | Vertical |
| 3750.00 | -30.73 | -13.00 | -17.73 | Vertical |
| 5640.00 | -46.10 | -13.00 | -33.10 | Vertical |
| 7515.00 | -47.99 | -13.00 | -34.99 | Vertical |
| 11505.00 | -45.33 | -13.00 | -32.33 | Vertical |
| 14415.00 | -44.07 | -13.00 | -31.07 | Vertical |
| 17820.00 | -42.46 | -13.00 | -29.46 | Vertical |

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1358.00 | -43.14 | -13.00 | -30.14 | Horizontal |
| 1756.00 | -24.59 | -13.00 | -11.59 | Horizontal |
| 1910.00 | 23.40 | -13.00 | / | Horizontal |
| 1990.00 | -31.12 | -13.00 | -18.12 | Horizontal |
| 2626.00 | -34.39 | -13.00 | -21.39 | Horizontal |
| 2862.00 | -32.82 | -13.00 | -19.82 | Horizontal |
| 3810.00 | -32.65 | -13.00 | -19.65 | Horizontal |
| 5730.00 | -47.28 | -13.00 | -34.28 | Horizontal |
| 7635.00 | -43.72 | -13.00 | -30.72 | Horizontal |
| 11340.00 | -46.23 | -13.00 | -33.23 | Horizontal |
| 13995.00 | -44.08 | -13.00 | -31.08 | Horizontal |
| 16875.00 | -43.66 | -13.00 | -30.66 | Horizontal |

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1758.00 | -23.52 | -13.00 | -10.52 | Vertical |
| 1884.00 | -24.98 | -13.00 | -11.98 | Vertical |
| 1910.00 | 24.53 | -13.00 | / | Vertical |
| 1948.00 | -22.92 | -13.00 | -9.92 | Vertical |
| 1990.00 | -22.39 | -13.00 | -9.39 | Vertical |
| 2840.00 | -32.74 | -13.00 | -19.74 | Vertical |
| 3810.00 | -29.92 | -13.00 | -16.92 | Vertical |
| 5730.00 | -48.78 | -13.00 | -35.78 | Vertical |
| 7635.00 | -44.99 | -13.00 | -31.99 | Vertical |
| 11295.00 | -45.60 | -13.00 | -32.60 | Vertical |
| 13920.00 | -43.77 | -13.00 | -30.77 | Vertical |
| 16980.00 | -42.93 | -13.00 | -29.93 | Vertical |

GPRS1900 Mid Channel

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1250.00 | -43.54 | -13.00 | -30.54 | Horizontal |
| 1746.00 | -30.96 | -13.00 | -17.96 | Horizontal |
| 1760.00 | -30.39 | -13.00 | -17.39 | Horizontal |
| 1850.00 | 20.86 | -13.00 | / | Horizontal |
| 2334.00 | -36.48 | -13.00 | -23.48 | Horizontal |
| 2854.00 | -32.89 | -13.00 | -19.89 | Horizontal |
| 3690.00 | -32.61 | -13.00 | -19.61 | Horizontal |
| 7395.00 | -47.41 | -13.00 | -34.41 | Horizontal |
| 10560.00 | -47.17 | -13.00 | -34.17 | Horizontal |
| 13950.00 | -42.46 | -13.00 | -29.46 | Horizontal |
| 15150.00 | -44.63 | -13.00 | -31.63 | Horizontal |
| 16890.00 | -43.66 | -13.00 | -30.66 | Horizontal |

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1748.00 | -27.88 | -13.00 | -14.88 | Vertical |
| 1852.00 | 23.50 | -13.00 | / | Vertical |
| 1932.00 | -36.47 | -13.00 | -23.47 | Vertical |
| 2162.00 | -37.57 | -13.00 | -24.57 | Vertical |
| 2374.00 | -35.65 | -13.00 | -22.65 | Vertical |
| 2822.00 | -32.67 | -13.00 | -19.67 | Vertical |
| 3705.00 | -31.84 | -13.00 | -18.84 | Vertical |
| 7275.00 | -48.66 | -13.00 | -35.66 | Vertical |
| 10410.00 | -45.95 | -13.00 | -32.95 | Vertical |
| 12195.00 | -45.49 | -13.00 | -32.49 | Vertical |
| 14715.00 | -43.56 | -13.00 | -30.56 | Vertical |
| 17730.00 | -42.91 | -13.00 | -29.91 | Vertical |

EGPRS1900 High Channel

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1424.00 | -41.88 | -13.00 | -28.88 | Horizontal |
| 1758.00 | -27.12 | -13.00 | -14.12 | Horizontal |
| 1878.00 | 22.18 | -13.00 | / | Horizontal |
| 2178.00 | -37.68 | -13.00 | -24.68 | Horizontal |
| 2690.00 | -34.35 | -13.00 | -21.35 | Horizontal |
| 2846.00 | -32.91 | -13.00 | -19.91 | Horizontal |
| 3750.00 | -35.73 | -13.00 | -22.73 | Horizontal |
| 6870.00 | -50.41 | -13.00 | -37.41 | Horizontal |
| 9420.00 | -48.44 | -13.00 | -35.44 | Horizontal |
| 12195.00 | -45.92 | -13.00 | -32.92 | Horizontal |
| 14445.00 | -44.47 | -13.00 | -31.47 | Horizontal |
| 17775.00 | -42.91 | -13.00 | -29.91 | Horizontal |

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1216.00 | -44.00 | -13.00 | -31.00 | Vertical |
| 1540.00 | -42.53 | -13.00 | -29.53 | Vertical |
| 1878.00 | 22.96 | -13.00 | / | Vertical |
| 1960.00 | -36.41 | -13.00 | -23.41 | Vertical |
| 2664.00 | -33.58 | -13.00 | -20.58 | Vertical |
| 2856.00 | -32.74 | -13.00 | -19.74 | Vertical |
| 3750.00 | -32.77 | -13.00 | -19.77 | Vertical |
| 10455.00 | -46.56 | -13.00 | -33.56 | Vertical |
| 13785.00 | -45.19 | -13.00 | -32.19 | Vertical |
| 15000.00 | -43.00 | -13.00 | -30.00 | Vertical |
| 16905.00 | -43.20 | -13.00 | -30.20 | Vertical |
| 17790.00 | -43.18 | -13.00 | -30.18 | Vertical |

WCDMA Band2 REL99 Low Channel

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1410.00 | -43.55 | -13.00 | -30.55 | Horizontal |
| 1748.00 | -30.66 | -13.00 | -17.66 | Horizontal |
| 1906.00 | 21.89 | -13.00 | / | Horizontal |
| 2160.00 | -37.77 | -13.00 | -24.77 | Horizontal |
| 2290.00 | -36.40 | -13.00 | -23.40 | Horizontal |
| 2860.00 | -32.83 | -13.00 | -19.83 | Horizontal |
| 3810.00 | -32.68 | -13.00 | -19.68 | Horizontal |
| 6570.00 | -50.95 | -13.00 | -37.95 | Horizontal |
| 9225.00 | -47.43 | -13.00 | -34.43 | Horizontal |
| 11355.00 | -46.17 | -13.00 | -33.17 | Horizontal |
| 13770.00 | -45.02 | -13.00 | -32.02 | Horizontal |
| 16755.00 | -43.24 | -13.00 | -30.24 | Horizontal |

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1504.00 | -42.50 | -13.00 | -29.50 | Vertical |
| 1764.00 | -29.81 | -13.00 | -16.81 | Vertical |
| 1906.00 | 22.11 | -13.00 | / | Vertical |
| 2146.00 | -37.13 | -13.00 | -24.13 | Vertical |
| 2698.00 | -33.74 | -13.00 | -20.74 | Vertical |
| 2862.00 | -33.18 | -13.00 | -20.18 | Vertical |
| 3810.00 | -32.98 | -13.00 | -19.98 | Vertical |
| 6345.00 | -50.08 | -13.00 | -37.08 | Vertical |
| 9300.00 | -47.51 | -13.00 | -34.51 | Vertical |
| 12270.00 | -45.83 | -13.00 | -32.83 | Vertical |
| 14400.00 | -44.01 | -13.00 | -31.01 | Vertical |
| 16875.00 | -43.43 | -13.00 | -30.43 | Vertical |

WCDMA Band2 REL99 Mid Channel

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1406.00 | -43.54 | -13.00 | -30.54 | Horizontal |
| 1606.00 | -41.73 | -13.00 | -28.73 | Horizontal |
| 1748.00 | -35.60 | -13.00 | -22.60 | Horizontal |
| 1854.00 | 18.80 | -13.00 | / | Horizontal |
| 2162.00 | -36.50 | -13.00 | -23.50 | Horizontal |
| 2856.00 | -32.44 | -13.00 | -19.44 | Horizontal |
| 3690.00 | -34.62 | -13.00 | -21.62 | Horizontal |
| 6420.00 | -50.56 | -13.00 | -37.56 | Horizontal |
| 8175.00 | -48.20 | -13.00 | -35.20 | Horizontal |
| 12225.00 | -45.33 | -13.00 | -32.33 | Horizontal |
| 14445.00 | -43.85 | -13.00 | -30.85 | Horizontal |
| 17055.00 | -43.04 | -13.00 | -30.04 | Horizontal |

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1434.00 | -42.79 | -13.00 | -29.79 | Vertical |
| 1750.00 | -27.70 | -13.00 | -14.70 | Vertical |
| 1854.00 | 21.50 | -13.00 | / | Vertical |
| 2120.00 | -37.49 | -13.00 | -24.49 | Vertical |
| 2484.00 | -34.73 | -13.00 | -21.73 | Vertical |
| 2850.00 | -32.82 | -13.00 | -19.82 | Vertical |
| 3705.00 | -33.05 | -13.00 | -20.05 | Vertical |
| 7530.00 | -48.28 | -13.00 | -35.28 | Vertical |
| 11520.00 | -46.22 | -13.00 | -33.22 | Vertical |
| 13830.00 | -44.72 | -13.00 | -31.72 | Vertical |
| 16905.00 | -43.12 | -13.00 | -30.12 | Vertical |
| 17805.00 | -42.68 | -13.00 | -29.68 | Vertical |

WCDMA Band2 REL99 High Channel

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1374.00 | -43.05 | -13.00 | -30.05 | Horizontal |
| 1762.00 | -28.45 | -13.00 | -15.45 | Horizontal |
| 1880.00 | 20.39 | -13.00 | / | Horizontal |
| 2158.00 | -37.55 | -13.00 | -24.55 | Horizontal |
| 2424.00 | -35.73 | -13.00 | -22.73 | Horizontal |
| 2842.00 | -32.50 | -13.00 | -19.50 | Horizontal |
| 3750.00 | -37.74 | -13.00 | -24.74 | Horizontal |
| 7425.00 | -48.43 | -13.00 | -35.43 | Horizontal |
| 10410.00 | -46.94 | -13.00 | -33.94 | Horizontal |
| 13845.00 | -44.50 | -13.00 | -31.50 | Horizontal |
| 16080.00 | -44.95 | -13.00 | -31.95 | Horizontal |
| 17715.00 | -42.78 | -13.00 | -29.78 | Horizontal |

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1764.00 | -27.27 | -13.00 | -14.27 | Vertical |
| 1878.00 | 22.27 | -13.00 | / | Vertical |
| 1960.00 | -35.49 | -13.00 | -22.49 | Vertical |
| 2284.00 | -36.70 | -13.00 | -23.70 | Vertical |
| 2688.00 | -34.50 | -13.00 | -21.50 | Vertical |
| 2856.00 | -32.81 | -13.00 | -19.81 | Vertical |
| 3750.00 | -34.12 | -13.00 | -21.12 | Vertical |
| 8310.00 | -48.06 | -13.00 | -35.06 | Vertical |
| 11145.00 | -46.95 | -13.00 | -33.95 | Vertical |
| 13545.00 | -45.64 | -13.00 | -32.64 | Vertical |
| 16035.00 | -44.79 | -13.00 | -31.79 | Vertical |
| 17235.00 | -43.28 | -13.00 | -30.28 | Vertical |

WCDMA Band2 HSDPA Low Channel

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1528.00 | -42.16 | -13.00 | -29.16 | Horizontal |
| 1764.00 | -33.25 | -13.00 | -20.25 | Horizontal |
| 1906.00 | 19.52 | -13.00 | / | Horizontal |
| 2220.00 | -36.68 | -13.00 | -23.68 | Horizontal |
| 2522.00 | -35.13 | -13.00 | -22.13 | Horizontal |
| 2760.00 | -33.50 | -13.00 | -20.50 | Horizontal |
| 3810.00 | -34.82 | -13.00 | -21.82 | Horizontal |
| 6585.00 | -50.90 | -13.00 | -37.90 | Horizontal |
| 9270.00 | -48.50 | -13.00 | -35.50 | Horizontal |
| 12345.00 | -45.96 | -13.00 | -32.96 | Horizontal |
| 14460.00 | -44.52 | -13.00 | -31.52 | Horizontal |
| 16980.00 | -43.26 | -13.00 | -30.26 | Horizontal |

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1482.00 | -42.54 | -13.00 | -29.54 | Vertical |
| 1764.00 | -27.72 | -13.00 | -14.72 | Vertical |
| 1908.00 | 21.05 | -13.00 | / | Vertical |
| 2152.00 | -37.08 | -13.00 | -24.08 | Vertical |
| 2602.00 | -34.39 | -13.00 | -21.39 | Vertical |
| 2852.00 | -32.10 | -13.00 | -19.10 | Vertical |
| 3810.00 | -36.12 | -13.00 | -23.12 | Vertical |
| 7350.00 | -48.90 | -13.00 | -35.90 | Vertical |
| 9255.00 | -47.86 | -13.00 | -34.86 | Vertical |
| 11505.00 | -45.80 | -13.00 | -32.80 | Vertical |
| 13890.00 | -44.40 | -13.00 | -31.40 | Vertical |
| 16875.00 | -43.43 | -13.00 | -30.43 | Vertical |

WCDMA Band2 HSDPA Mid Channel

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1648.00 | -42.88 | -13.00 | -29.88 | Horizontal |
| 3637.00 | -56.53 | -13.00 | -43.53 | Horizontal |
| 5482.00 | -53.18 | -13.00 | -40.18 | Horizontal |
| 7300.00 | -49.61 | -13.00 | -36.61 | Horizontal |
| 8461.00 | -50.17 | -13.00 | -37.17 | Horizontal |
| 9415.00 | -48.77 | -13.00 | -35.77 | Horizontal |
| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
| 1648.00 | -43.02 | -13.00 | -30.02 | Vertical |
| 2476.00 | -52.87 | -13.00 | -39.87 | Vertical |
| 3304.00 | -55.96 | -13.00 | -42.96 | Vertical |
| 4996.00 | -52.94 | -13.00 | -39.94 | Vertical |
| 7255.00 | -49.21 | -13.00 | -36.21 | Vertical |
| 9271.00 | -48.93 | -13.00 | -35.93 | Vertical |

WCDMA Band2 HSDPA High Channel

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1675.00 | -44.74 | -13.00 | -31.74 | Horizontal |
| 4177.00 | -53.79 | -13.00 | -40.79 | Horizontal |
| 5167.00 | -54.40 | -13.00 | -41.40 | Horizontal |
| 7264.00 | -49.77 | -13.00 | -36.77 | Horizontal |
| 8236.00 | -50.55 | -13.00 | -37.55 | Horizontal |
| 9217.00 | -50.11 | -13.00 | -37.11 | Horizontal |
| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
| 1675.00 | -43.22 | -13.00 | -30.22 | Vertical |
| 2494.00 | -53.86 | -13.00 | -40.86 | Vertical |
| 4177.00 | -53.07 | -13.00 | -40.07 | Vertical |
| 7300.00 | -49.79 | -13.00 | -36.79 | Vertical |
| 8452.00 | -50.07 | -13.00 | -37.07 | Vertical |
| 9388.00 | -48.84 | -13.00 | -35.84 | Vertical |

WCDMA Band5 REL99 Low Channel

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1684.00 | -42.70 | -13.00 | -29.70 | Horizontal |
| 2530.00 | -47.49 | -13.00 | -34.49 | Horizontal |
| 4222.00 | -53.73 | -13.00 | -40.73 | Horizontal |
| 6571.00 | -52.33 | -13.00 | -39.33 | Horizontal |
| 7453.00 | -49.87 | -13.00 | -36.87 | Horizontal |
| 9379.00 | -49.22 | -13.00 | -36.22 | Horizontal |
| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
| 1684.00 | -43.34 | -13.00 | -30.34 | Vertical |
| 2530.00 | -53.95 | -13.00 | -40.95 | Vertical |
| 3376.00 | -55.18 | -13.00 | -42.18 | Vertical |
| 4996.00 | -53.21 | -13.00 | -40.21 | Vertical |
| 7309.00 | -49.96 | -13.00 | -36.96 | Vertical |
| 9370.00 | -49.65 | -13.00 | -36.65 | Vertical |

WCDMA Band5 REL99 Mid Channel

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1648.00 | -43.48 | -13.00 | -30.48 | Horizontal |
| 2494.00 | -56.20 | -13.00 | -43.20 | Horizontal |
| 5401.00 | -53.27 | -13.00 | -40.27 | Horizontal |
| 7264.00 | -49.68 | -13.00 | -36.68 | Horizontal |
| 8506.00 | -50.37 | -13.00 | -37.37 | Horizontal |
| 9550.00 | -49.85 | -13.00 | -36.85 | Horizontal |
| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
| 1648.00 | -44.40 | -13.00 | -31.40 | Vertical |
| 2494.00 | -54.86 | -13.00 | -41.86 | Vertical |
| 5527.00 | -53.58 | -13.00 | -40.58 | Vertical |
| 7255.00 | -49.71 | -13.00 | -36.71 | Vertical |
| 8290.00 | -50.37 | -13.00 | -37.37 | Vertical |
| 9379.00 | -49.78 | -13.00 | -36.78 | Vertical |

WCDMA Band5 REL99 High Channel

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1675.00 | -46.64 | -13.00 | -33.64 | Horizontal |
| 2503.00 | -55.82 | -13.00 | -42.82 | Horizontal |
| 5671.00 | -53.09 | -13.00 | -40.09 | Horizontal |
| 7354.00 | -50.13 | -13.00 | -37.13 | Horizontal |
| 8299.00 | -50.47 | -13.00 | -37.47 | Horizontal |
| 9514.00 | -49.54 | -13.00 | -36.54 | Horizontal |
| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
| 1666.00 | -43.61 | -13.00 | -30.61 | Vertical |
| 2494.00 | -54.42 | -13.00 | -41.42 | Vertical |
| 4996.00 | -53.15 | -13.00 | -40.15 | Vertical |
| 7185.00 | -49.16 | -13.00 | -36.16 | Vertical |
| 8245.00 | -50.42 | -13.00 | -37.42 | Vertical |
| 9235.00 | -49.60 | -13.00 | -36.60 | Vertical |

WCDMA Band5 HSDPA Low Channel

| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 1684.00 | -46.07 | -13.00 | -33.07 | Horizontal |
| 2530.00 | -50.26 | -13.00 | -37.26 | Horizontal |
| 5644.00 | -52.89 | -13.00 | -39.89 | Horizontal |
| 7480.00 | -49.40 | -13.00 | -36.40 | Horizontal |
| 8407.00 | -50.27 | -13.00 | -37.27 | Horizontal |
| 9478.00 | -48.39 | -13.00 | -35.39 | Horizontal |
| Frequency (MHz) | Level (dB) | Limit Line (dB) | Over Limit (dB) | Polarization |
| 1684.00 | -39.69 | -13.00 | -26.69 | Vertical |
| 2539.00 | -47.70 | -13.00 | -34.70 | Vertical |
| 4699.00 | -54.85 | -13.00 | -41.85 | Vertical |
| 4996.00 | -52.44 | -13.00 | -39.44 | Vertical |
| 7273.00 | -49.37 | -13.00 | -36.37 | Vertical |
| 9325.00 | -49.70 | -13.00 | -36.70 | Vertical |

WCDMA Band5 HSDPA Mid Channel

WCDMA Band5 HSDPA High Channel

## END OF REPORT