FCC RF Test Report

APPLICANT	:	Advantech Co., Ltd.
EQUIPMENT	:	Computer
BRAND NAME	:	Advantech
MODEL NAME	:	DLT-V4108xxxxxxxxxx (where "x" may be any alphanumeric character, "-" or blank.)
FCC ID	:	M82-DLV4108
STANDARD	:	FCC 47 CFR Part 2, 22(H), 24(E), 27(L)
CLASSIFICATION	:	PCS Licensed Transmitter (PCB)

The product was received on Nov. 10, 2016 and testing was completed on Aug. 02, 2017. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA / EIA-603-D-2010 and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager

Testing Laboratory
1190

SPORTON INTERNATIONAL INC.
No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG6N1001A	Rev. 01	Initial issue of report	Mar. 30, 2017
FG6N1001A	Rev. 02	Update report of adding GSM 1900 RSE test result	Aug. 02, 2017

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	Reporting Only	PASS	-
	§22.913(a)(2)	Effective Radiated Power	< 7 Watts	PASS	-
	§24.232(c)	Equivalent Isotropic Radiated Power	< 2 Watts	PASS	-
	§27.50(d)(4)	Equivalent Isotropic Radiated Power	< 1 Watts	PASS	-
3.5	§24.232(d)	Peak-to-Average Ratio	< 13 dB	PASS	-
3.6	§2.1049 §22.917(b) §24.238(b) §27.53(g)	Occupied Bandwidth	Reporting Only	PASS	-
3.7	§2.1051 §22.917(a) §24.238(a) §27.53(h)	Band Edge Measurement	< 43+10log10(P[Watts])	PASS	-
3.8	§2.1051 §22.917(a) §24.238(a) §27.53(h)	Conducted Emission	< 43+10log10(P[Watts])	PASS	-
3.9	§2.1055 §22.355	Frequency Stability for Temperature & Voltage	< 2.5 ppm for Part 22	PASS	-
	§2.1055 §24.235 §27.54		Within Authorized Band		

Report Section	FCC Rule	Description	Limit	Result	Remark
4.4	§2.1053 §22.917(a) §24.238(a) §27.53(h)	Field Strength of Spurious Radiation	< 43+10log10(P[Watts])	PASS	Under limit 29.54 dB at 5556.000 MHz

1 General Description

1.1 Applicant

Advantech Co., Ltd.
No. 1, Alley 20, Lane 26, Rueiguang Rd., Neihu District,Taipei City, Taiwan, R.O.C.

1.2 Manufacturer

Advantech Co., Ltd.
No. 1, Alley 20, Lane 26, Rueiguang Rd., Neihu District,Taipei City, Taiwan, R.O.C.

1.3 Product Feature of Equipment Under Test

CDMA/GSM/WCDMA/LTE, Bluetooth, DTS/UNII a/b/g/n, and GPS

Product Specification subjective to this standard	
Antenna Type	WWAN: Monopole Antenna WLAN Main: PIFA Antenna WLAN Aux.: PCB Antenna Bluetooth: PIFA Antenna GPS: Patch Antenna

1.4 Modification of EUT

No modifications are made to the EUT during all test items.

1.5 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW1022 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	**Sporton Site No.**
	TH03-HY

Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd Rd. Guishan Dist, Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	**Sporton Site No.**
	03CH10-HY

1.6 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR Part 2, 22(H), 24(E), 27(L)
- ANSI / TIA / EIA-603-D-2010
- FCC KDB 971168 D01 Power Meas. License Digital Systems v02r02.
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01.

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

2.1 Test Mode

Antenna port conducted and radiated test items were performed according to KDB 971168 D01 Power Meas. License Digital Systems v02r02 with maximum output power.

Radiated measurements were performed with rotating EUT in different three orthogonal test planes to find the maximum emission.

Radiated emissions were investigated as following frequency range:

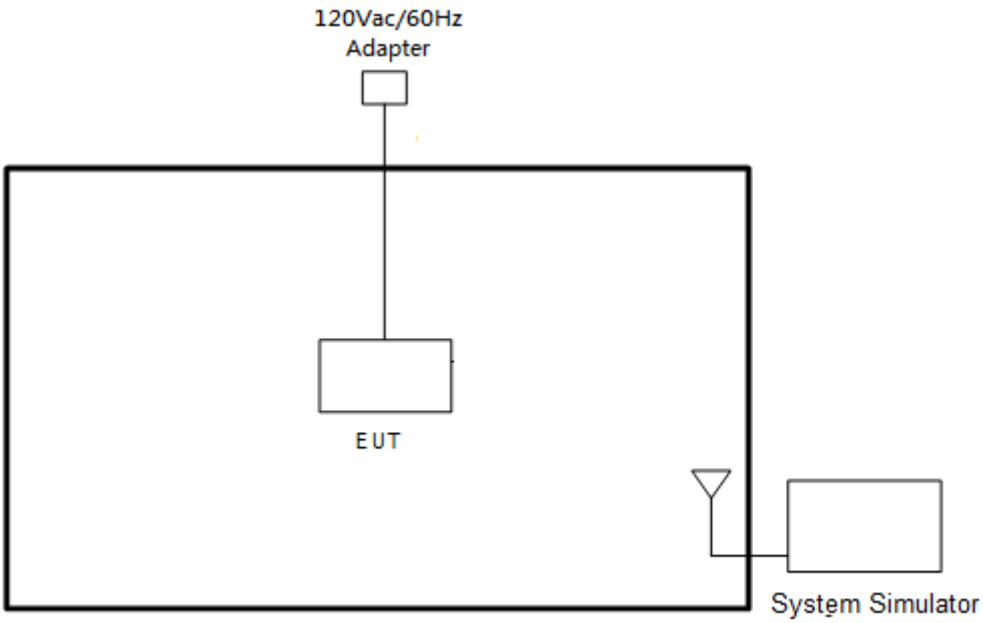
1. 30 MHz to 9000 MHz for GSM850 and WCDMA Band V and CDMA BC0.
2. 30 MHz to 18000 MHz for WCDMA Band IV.
3. 30 MHz to 19100 MHz for GSM1900 and WCDMA Band II and CDMA BC1.

All modes and data rates and positions were investigated.

Test modes are chosen to be reported as the worst case configuration below:

Test Modes		
Band	**Radiated TCs**	**Conducted TCs**
GSM 850	■ GPRS class 8 Link ■ EDGE class 8 Link	■ GPRS class 8 Link ■ EDGE class 8 Link
GSM 1900	■ GPRS class 8 Link ■ EDGE class 8 Link	■ GPRS class 8 Link ■ EDGE class 8 Link
WCDMA Band V	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
WCDMA Band II	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
WCDMA Band IV	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
CDMA BC0	■ 1xRTT Link	■ 1xRTT Link
CDMA BC1	■ 1xRTT Link	■ 1xRTT Link

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m

2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between RF conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level will be exactly the RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

The following shows an offset computation example with RF cable loss 4.2 dB and a 10dB attenuator.

Example :

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 4.2 + 10 = 14.2 (dB)

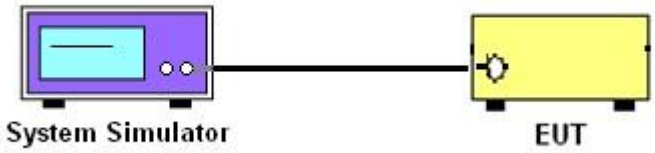
3 Conducted Test Result

3.1 Measuring Instruments

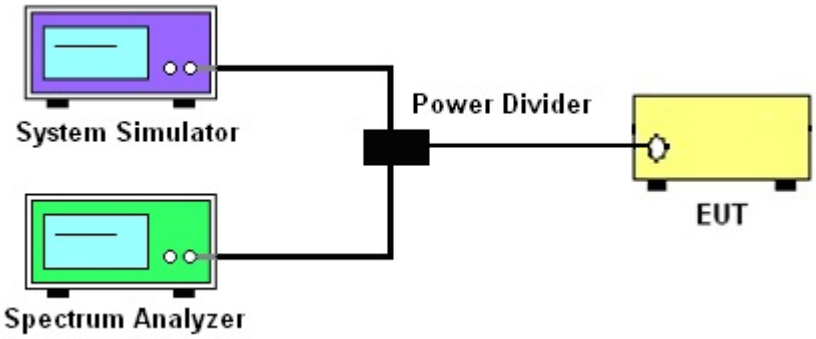
See list of measuring instruments of this test report.

3.2 Test Setup

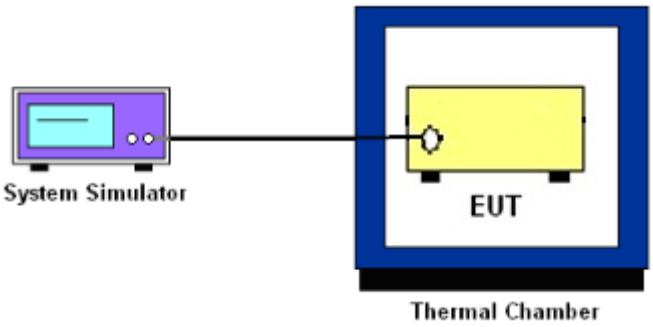
3.2.1 Conducted Output Power



3.2.2 Peak-to-Average Ratio, Occupied Bandwidth, Conducted Band-Edge and Conducted Spurious Emission



3.2.3 Frequency Stability



3.3 Test Result of Conducted Test

Please refer to Appendix A.

3.4 Conducted Output Power and ERP/EIRP

3.4.1 Description of the Conducted Output Power and ERP/EIRP

A system simulator was used to establish communication with the EUT. Its parameters were set to enforce EUT transmitting at the maximum power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The ERP of mobile transmitters must not exceed 7 Watts for GSM850 and WCDMA Band V and CDMA BC0.

The EIRP of mobile transmitters must not exceed 2 Watts for GSM1900 and WCDMA Band II and CDMA BC1.

The EIRP of mobile transmitters must not exceed 1 Watts for WCDMA Band IV.

According to KDB 412172 D01 Power Approach,

EIRP = $P_T + G_T – L_C$, ERP = EIRP -2.15, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

3.4.2 Test Procedures

1. The transmitter output port was connected to the system simulator.
2. Set EUT at maximum power through system simulator.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure the maximum burst average power for GSM and maximum average power for other modulation signal.

3.5 Peak-to-Average Ratio

3.5.1 Description of the PAR Measurement

The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

3.5.2 Test Procedures

1. The testing follows FCC KDB 971168 D01 v02r02 Section 5.7.1.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. Set EUT to transmit at maximum output power.
4. When the duty cycle is less than 98%, then signal gating will be implemented on the spectrum analyzer by triggering from the system simulator.
5. Set the CCDF (Complementary Cumulative Distribution Function) option of the spectrum analyzer.

Record the maximum PAPR level associated with a probability of 0.1%.

3.6 99% Occupied Bandwidth and 26dB Bandwidth Measurement

3.6.1 Description of 99% Occupied Bandwidth and 26dB Bandwidth Measurement

The occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

3.6.2 Test Procedures

1. The testing follows FCC KDB 971168 D01 v02r02 Section 4.2.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW.
4. The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
5. Set the detection mode to peak, and the trace mode to max hold.
6. Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace. (this is the reference value)
7. Determine the “-26 dB down amplitude” as equal to (Reference Value – X).
8. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “–X dB down amplitude” determined in step 6. If a marker is below this “-X dB down amplitude” value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.
9. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

3.7 Conducted Band Edge

3.7.1 Description of Conducted Band Edge Measurement

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.

3.7.2 Test Procedures

1. The testing follows FCC KDB 971168 D01 v02r02 Section 6.0.
2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The band edges of low and high channels for the highest RF powers were measured.
5. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
6. 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.

3.8 Conducted Spurious Emission

3.8.1 Description of Conducted Spurious Emission Measurement

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.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

3.8.2 Test Procedures

1. The testing follows FCC KDB 971168 D01 v02r02 Section 6.0.
2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The middle channel for the highest RF power within the transmitting frequency was measured.
5. The conducted spurious emission for the whole frequency range was taken.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
7. 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.

3.9 Frequency Stability

3.9.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency.

3.9.2 Test Procedures for Temperature Variation

1. The testing follows FCC KDB 971168 D01 v02r02 Section 9.0.
2. The EUT was set up in the thermal chamber and connected with the system simulator.
3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
4. With power OFF, the temperature was raised in 10°C steps up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

3.9.3 Test Procedures for Voltage Variation

1. The testing follows FCC KDB 971168 D01 v02r02 Section 9.0.
2. The EUT was placed in a temperature chamber at 20±5° C and connected with the system simulator.
3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
4. The variation in frequency was measured for the worst case.

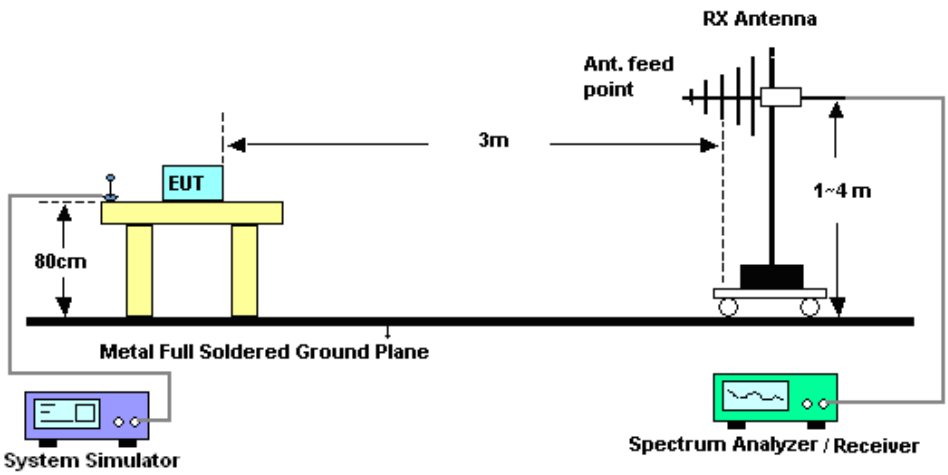
4 Radiated Test Items

4.1 Measuring Instruments

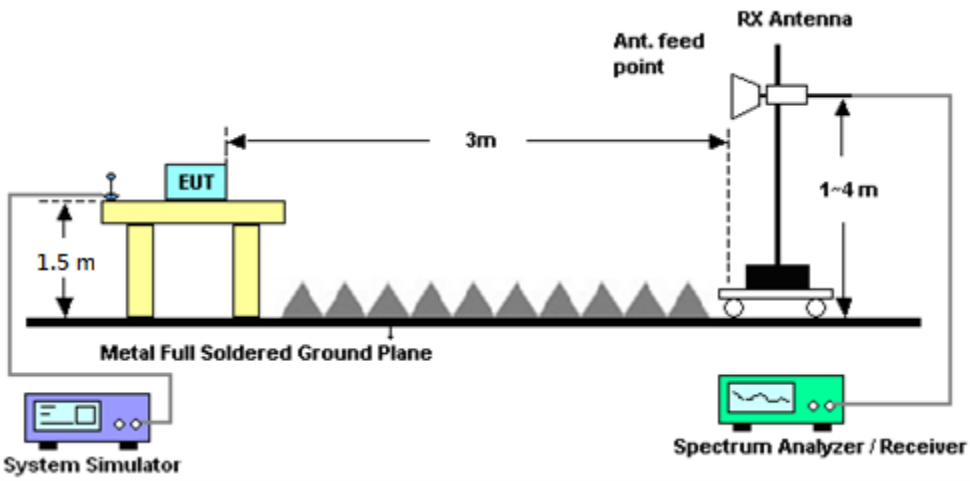
See list of measuring instruments of this test report.

4.2 Test Setup

4.2.1 For radiated test from 30MHz to 1GHz



4.2.2 For radiated test above 1GHz



4.3 Test Result of Radiated Test

Please refer to Appendix B.

4.4 Field Strength of Spurious Radiation Measurement

4.4.1 Description of Field Strength of Spurious Radiated Measurement

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.

4.4.2 Test Procedures

1. The testing follows FCC KDB 971168 D01 v02r02 Section 5.8 and ANSI / TIA-603-D-2010 Section 2.2.12.
2. The EUT was placed on a rotatable wooden table 0.8 meters for frequency below 1GHz and 1.5 meter for frequency above 1GHz above the ground.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between one meter and four meters to search for the maximum spurious emission for both horizontal and vertical polarizations.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking record of maximum spurious emission.
7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
9. Taking the record of output power at antenna port.
10. Repeat step 7 to step 8 for another polarization.
11. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
12. ERP (dBm) = EIRP - 2.15
13. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
14. 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.

5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	Rohde & Schwarz	FSP30	101329	9kHz~30GHz	Jun. 27, 2016	Dec. 23, 2016	Jun. 26, 2017	Conducted (TH03-HY)
Temperature Chamber	ESPEC	SU-641	92013721	-30℃ ~70℃	Nov. 16, 2016	Dec. 23, 2016	Nov. 15, 2017	Conducted (TH03-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL883644	Voltage:0~20V;Current:0~5A	Nov. 22, 2016	Dec. 23, 2016	Nov. 21, 2017	Conducted (TH03-HY)
Base Station(Measu	Rohde & Schwarz	CMU200	117995	GSM / GPRS / WCDMA / CDMA	Aug. 03, 2016	Dec. 23, 2016	Aug. 04, 2017	Conducted (TH03-HY)
Amplifier	SONOMA	310N	187311	9kHz~1GHz	Oct. 26, 2016	Dec. 19, 2016 ~ Aug. 02, 2017	Oct. 25, 2017	Radiation (03CH10-HY)
Bilog Antenna	TESEQ	CBL 6111D&008	35413&02	30MHz~1GHz	Jan. 13, 2016	Dec. 19, 2016 ~ Dec. 22, 2016	Jan. 12, 2017	Radiation (03CH10-HY)
Bilog Antenna	TESEQ	CBL 11D&00800	35413&02	30MHz~1GHz	Jan. 07, 2017	Jul. 08, 2017 ~ Aug. 02, 2017	Jan. 06, 2018	Radiation (03CH10-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1325	1GHz ~ 18GHz	Sep. 30, 2016	Dec. 19, 2016 ~ Aug. 02, 2017	Sep. 29, 2017	Radiation (03CH10-HY)
Preamplifier	Keysight	83017A	MY53270078	1GHz~26.5GHz	Oct. 26, 2016	Dec. 19, 2016 ~ Aug. 02, 2017	Oct. 25, 2017	Radiation (03CH10-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200485	10Hz ~ 44GHz	Oct. 17, 2016	Dec. 19, 2016 ~ Aug. 02, 2017	Oct. 16, 2017	Radiation (03CH10-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Dec. 19, 2016 ~ Aug. 02, 2017	N/A	Radiation (03CH10-HY)
Turn Table	EMEC	TT 2200	N/A	0~360 Degree	N/A	Dec. 19, 2016 ~ Aug. 02, 2017	N/A	Radiation (03CH10-HY)
Preamplifier	MITEQ	JS44-18004000-33-8P	1840917	18GHz ~ 40GHz	Jun. 14, 2016	Dec. 19, 2016 ~ Dec. 22, 2016	Jun. 13, 2017	Radiation (03CH10-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1522	1G~18GHz	Mar. 31, 2016	Dec. 19, 2016 ~ Dec. 22, 2016	Mar. 30, 2017	Radiation (03CH10-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1522	1G~18GHz	Mar. 17, 2017	Jul. 08, 2017 ~ Aug. 02, 2017	Mar. 16, 2018	Radiation (03CH10-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170584	18GHz- 40GHz	Nov. 08, 2016	Dec. 19, 2016 ~ Aug. 02, 2017	Nov. 07, 2017	Radiation (03CH10-HY)
Signal Generator	Rohde & Schwarz	SMF100A	101107	100kHz~40GHz	May 19, 2016	Dec. 19, 2016 ~ Dec. 22, 2016	May 18, 2017	Radiation (03CH10-HY)
Signal Generator	Rohde & Schwarz	SMF100A	101107	100kHz~40GHz	May. 22, 2017	Jul. 08, 2017 ~ Aug. 02, 2017	May. 21, 2018	Radiation (03CH10-HY)

6 Uncertainty of Evaluation

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.60

Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.90

Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.20

Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power)

Conducted Power (*Unit: dBm)						
Band	GSM850			GSM1900		
Channel	128	189	251	512	661	810
Frequency	824.2	836.4	848.8	1850.2	1880	1909.8
GSM	-	-	-	-	-	-
GPRS class 8	33.42	33.23	33.17	29.47	29.45	29.4
GPRS class 10	32.7	32.64	32.57	28.7	28.88	28.81
GPRS class 11	-	-	-	-	-	-
GPRS class 12	-	-	-	-	-	-
EGPRS class 8	26.08	26.08	26.09	24.6	24.6	24.51
EGPRS class 10	26.01	26.01	26.04	24.52	24.52	24.4
EGPRS class 11	25.92	25.9	25.87	24.45	24.44	24.33
EGPRS class 12	25.83	25.87	25.79	24.41	24.31	24.24

Conducted Power (*Unit: dBm)						
Band	WCDMA Band V			WCDMA Band II		
Channel	4132	4182	4233	9262	9400	9538
Frequency	826.4	836.4	846.6	1852.4	1880	1907.6
RMC 12.2K	22.39	22.35	22.41	22.51	22.42	22.5
HSDPA Subtest-1	21.88	21.98	22.03	21.97	21.91	21.96
HSDPA Subtest-2	21.83	21.89	22.04	21.93	21.83	21.98
HSDPA Subtest-3	21.22	21.3	21.32	21.45	21.28	21.45
HSDPA Subtest-4	21.19	21.28	21.34	21.41	21.26	21.43
HSUPA Subtest-1	21.21	21.24	21.39	21.71	21.65	21.88
HSUPA Subtest-2	20.38	20.41	20.56	20.47	20.43	20.39
HSUPA Subtest-3	20.67	20.83	20.9	20.41	20.43	20.31
HSUPA Subtest-4	20.61	20.74	20.83	20.74	20.61	20.66
HSUPA Subtest-5	21.84	21.86	21.88	21.94	21.72	21.88

Conducted Power (*Unit: dBm)			
Band	WCDMA Band V		
Channel	1312	1413	1513
Frequency	1712.4	1732.6	1752.6
RMC 12.2K	22.51	22.45	22.56
HSDPA Subtest-1	22.11	22.17	22.04
HSDPA Subtest-2	22.01	22.02	22
HSDPA Subtest-3	21.55	21.42	21.5
HSDPA Subtest-4	21.55	21.46	21.52
HSUPA Subtest-1	22.04	21.7	21.96
HSUPA Subtest-2	20.88	20.55	20.71
HSUPA Subtest-3	20.72	20.941	20.8
HSUPA Subtest-4	20.7	20.57	20.72
HSUPA Subtest-5	22.16	21.9	22.06

Conducted Power (*Unit: dBm)						
Band	CDMA 2000 BC0			CDMA 2000 BC1		
Channel	1013	384	777	25	600	1175
Frequency	824.7	836.52	848.31	1851.25	1880	1908.75
1xRTT RC1 SO55	22.68	22.64	22.66	22.77	22.58	22.56
1xRTT RC3 SO55	22.9	22.74	22.68	22.81	22.64	22.68
1xRTT RC3 SO32 (+ F-SCH)	22.81	22.69	22.66	22.81	22.6	22.7
1xRTT RC3 SO32 (+SCH)	22.8	22.73	22.69	22.8	22.65	22.68
1xEVDO RTAP 153.6Kbps	22.67	22.73	22.68	22.74	22.57	22.62
1xEVDO RETAP 4096Bits	22.65	22.71	22.66	22.72	22.55	22.6

A1. GSM

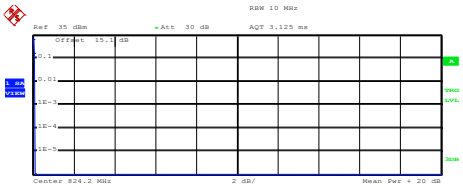
Peak-to-Average Ratio

Mode	GSM850		Limit: 13dB
Mod.	GPRS class 8	EDGE class 8	Result
Lowest CH	0.12	3.16	PASS
Middle CH	0.12	3.44	
Highest CH	0.12	3.36	

Mode	GSM1900		Limit: 13dB
Mod.	GPRS class 8	EDGE class 8	Result
Lowest CH	0.16	3.44	PASS
Middle CH	0.16	3.52	
Highest CH	0.16	3.12	

GSM850 (GPRS class 8)

Lowest Channel



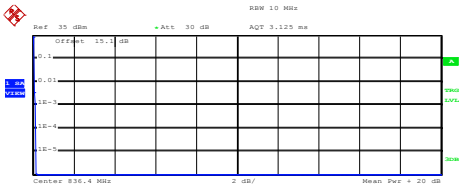
Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 32.59 dBm
Peak 32.71 dBm
Crest 0.12 dB

10 % 0.08 dB
1 % 0.12 dB
.1 % 0.12 dB
.01 % 0.12 dB

Date: 23.DEC.2016 11:36:21

Middle Channel



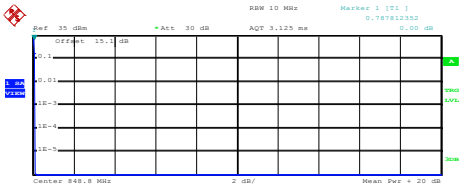
Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 32.71 dBm
Peak 32.85 dBm
Crest 0.14 dB

10 % 0.08 dB
1 % 0.08 dB
.1 % 0.12 dB
.01 % 0.16 dB

Date: 23.DEC.2016 11:36:45

Highest Channel



Complementary Cumulative Distribution Function (100000 samples)

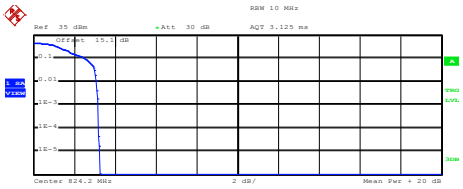
Trace 1
Mean 32.73 dBm
Peak 32.85 dBm
Crest 0.12 dB

10 % 0.08 dB
1 % 0.12 dB
.1 % 0.12 dB
.01 % 0.12 dB

Date: 23.DEC.2016 11:37:09

GSM850 (EDGE class 8)

Lowest Channel



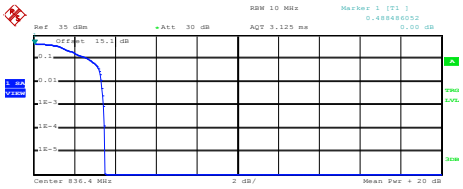
Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 25.64 dBm
Peak 28.90 dBm
Crest 3.26 dB

10 % 2.52 dB
1 % 3.08 dB
.1 % 3.16 dB
.01 % 3.20 dB

Date: 23.DEC.2016 11:22:05

Middle Channel



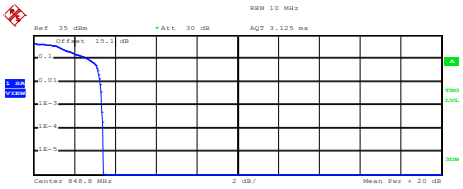
Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 25.28 dBm
Peak 28.76 dBm
Crest 3.48 dB

10 % 2.68 dB
1 % 3.32 dB
.1 % 3.44 dB
.01 % 3.48 dB

Date: 23.DEC.2016 11:22:38

Highest Channel



Complementary Cumulative Distribution Function (100000 samples)

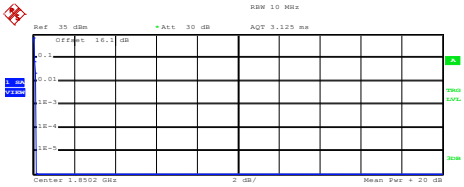
Trace 1
Mean 25.34 dBm
Peak 28.76 dBm
Crest 3.42 dB

10 % 2.68 dB
1 % 3.28 dB
.1 % 3.36 dB
.01 % 3.40 dB

Date: 23.DEC.2016 11:23:10

GSM1900 (GPRS class 8)

Lowest Channel



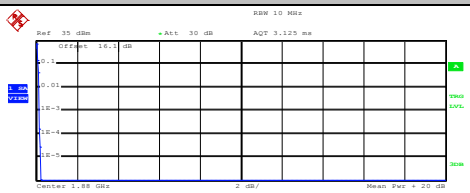
Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 28.82 dBm
Peak 28.97 dBm
Crest 0.15 dB

10 % 0.08 dB
1 % 0.16 dB
.1 % 0.16 dB
.01 % 0.16 dB

Date: 23.DEC.2016 13:37:54

Middle Channel



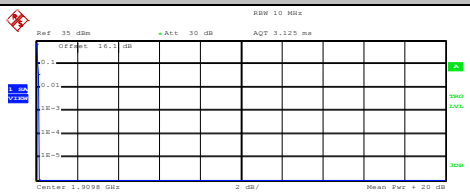
Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 28.98 dBm
Peak 29.18 dBm
Crest 0.21 dB

10 % 0.08 dB
1 % 0.16 dB
.1 % 0.16 dB
.01 % 0.16 dB

Date: 23.DEC.2016 13:38:22

Highest Channel



Complementary Cumulative Distribution Function (100000 samples)

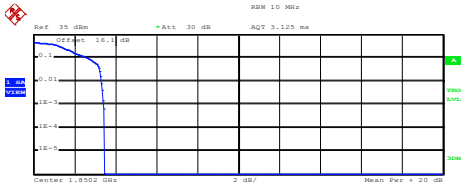
Trace 1
Mean 28.96 dBm
Peak 29.11 dBm
Crest 0.16 dB

10 % 0.08 dB
1 % 0.16 dB
.1 % 0.16 dB
.01 % 0.16 dB

Date: 23.DEC.2016 13:38:58

GSM1900 (EDGE class 8)

Lowest Channel



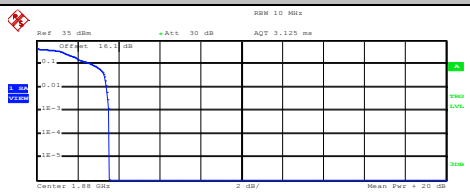
Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 23.96 dBm
Peak 27.42 dBm
Crest 3.46 dB

10 % 2.68 dB
1 % 3.32 dB
.1 % 3.44 dB
.01 % 3.48 dB

Date: 23.DEC.2016 11:53:37

Middle Channel



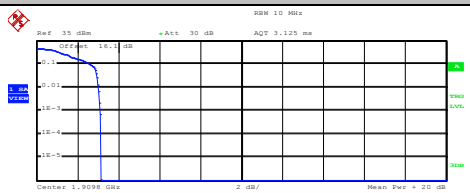
Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 23.87 dBm
Peak 27.42 dBm
Crest 3.55 dB

10 % 2.72 dB
1 % 3.40 dB
.1 % 3.52 dB
.01 % 3.56 dB

Date: 23.DEC.2016 11:54:59

Highest Channel



Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 24.29 dBm
Peak 27.42 dBm
Crest 3.13 dB

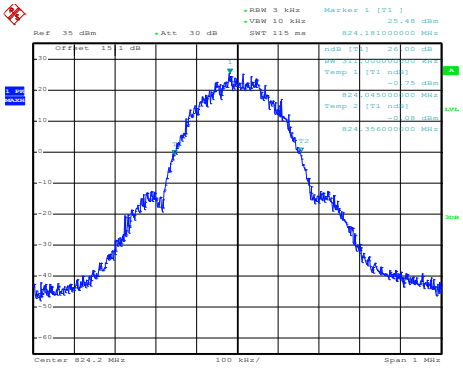
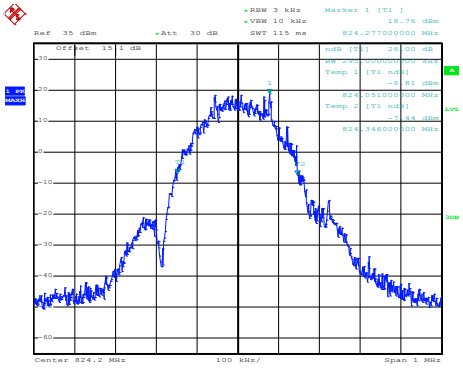
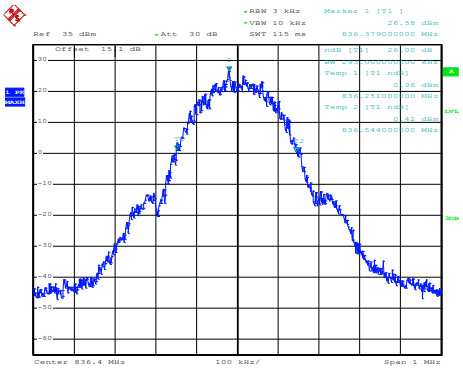
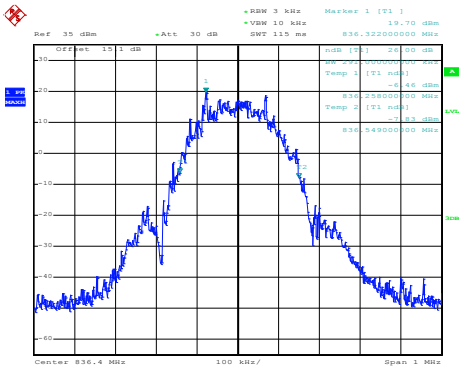
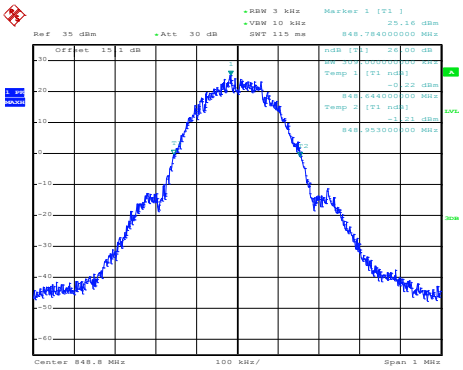
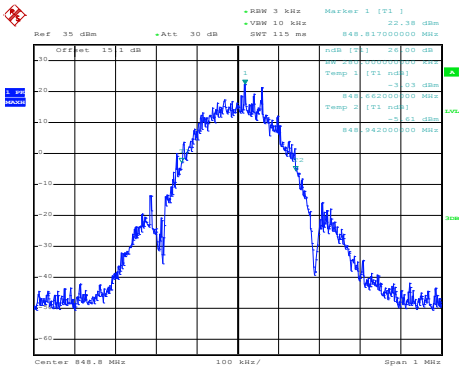
10 % 2.64 dB
1 % 3.04 dB
.1 % 3.12 dB
.01 % 3.16 dB

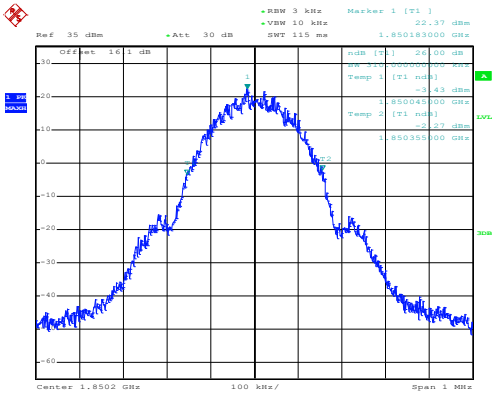
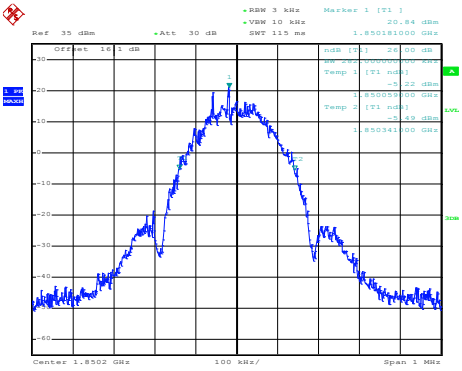
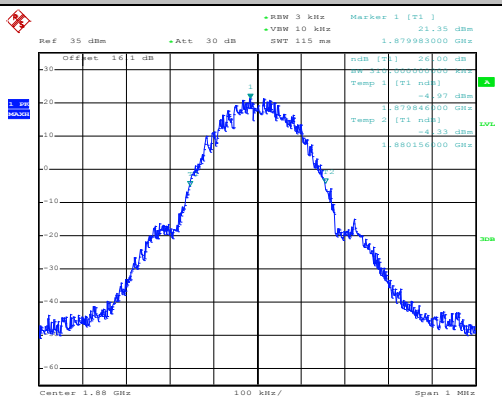
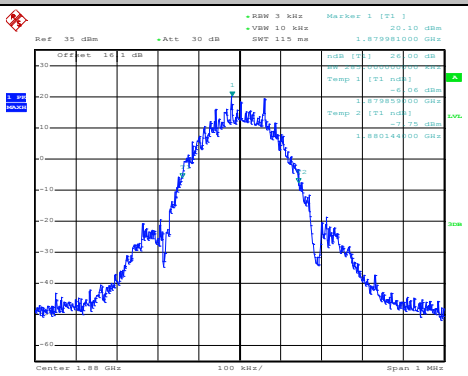
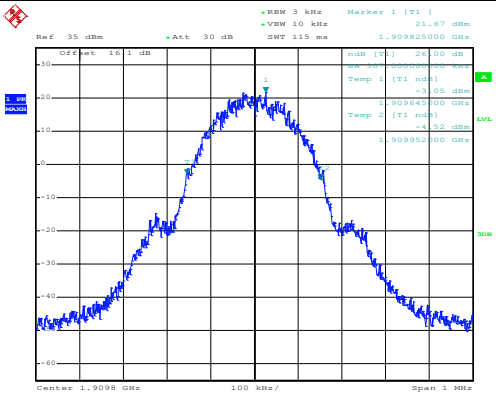
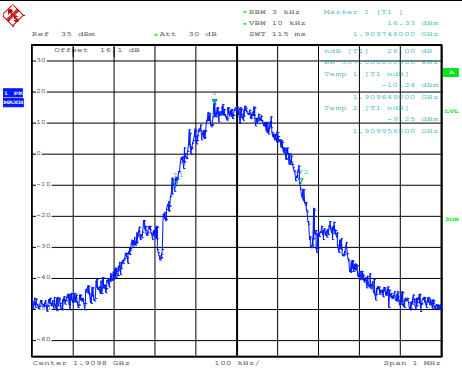
Date: 23.DEC.2016 11:55:32

26dB Bandwidth

Mode	GSM850	
Mod.	GPRS class 8	EDGE class 8
Lowest CH	0.311	0.295
Middle CH	0.293	0.291
Highest CH	0.309	0.280

Mode	GSM1900	
Mod.	GPRS class 8	EDGE class 8
Lowest CH	0.310	0.282
Middle CH	0.310	0.285
Highest CH	0.307	0.307

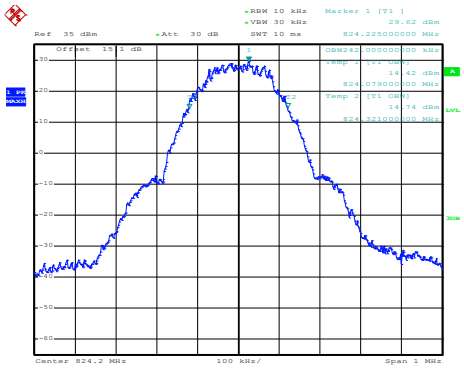
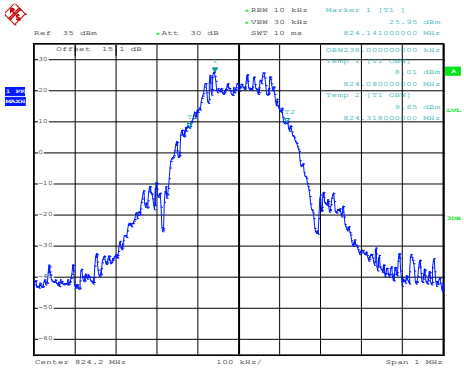
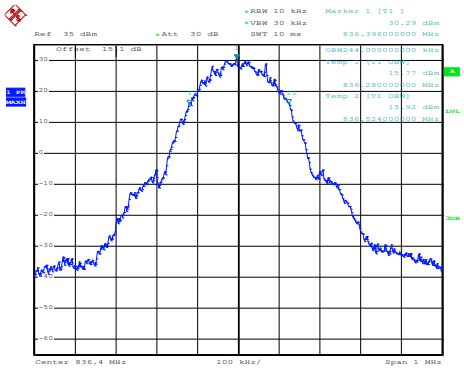
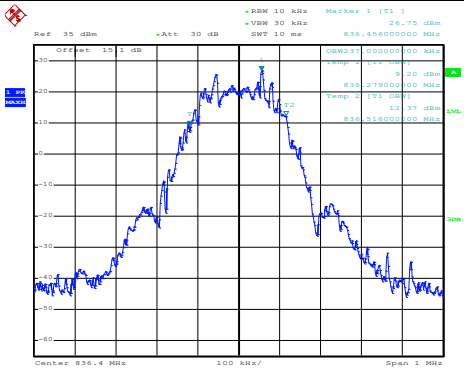
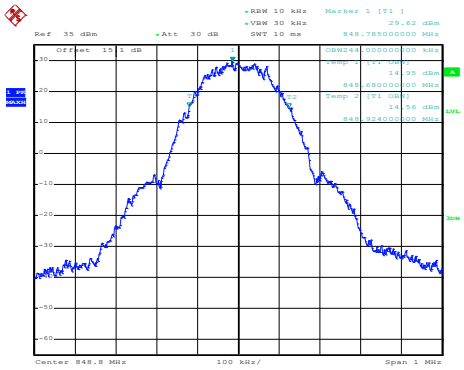
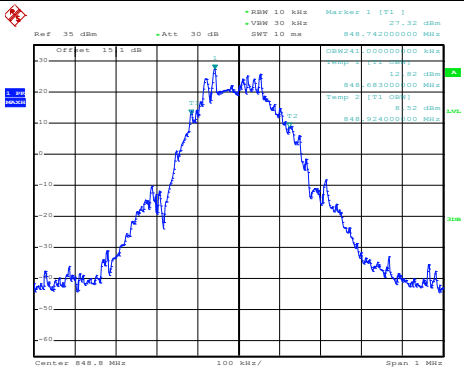
GSM850 (GPRS class 8)	GSM850 (EDGE class 8)
Lowest Channel	**Lowest Channel**
 Date: 23.DEC.2016 11:27:48	 Date: 23.DEC.2016 11:10:18
Middle Channel	**Middle Channel**
 Date: 23.DEC.2016 11:28:17	 Date: 23.DEC.2016 11:10:47
Highest Channel	**Highest Channel**
 Date: 23.DEC.2016 11:28:45	 Date: 23.DEC.2016 11:11:15

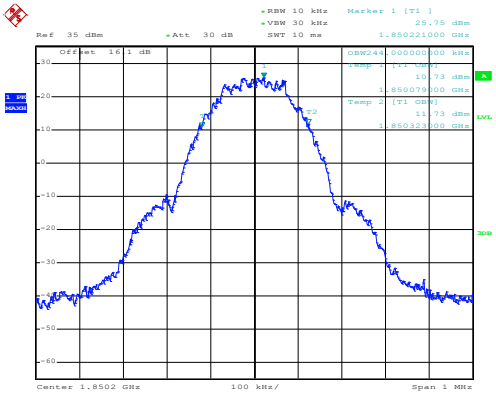
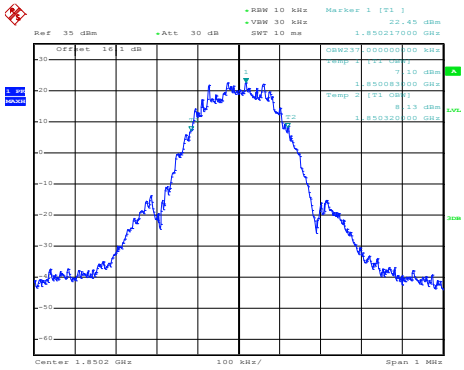
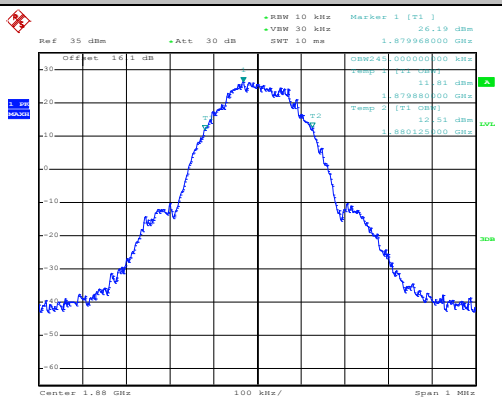
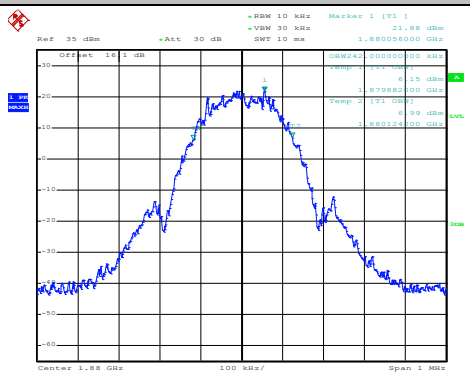
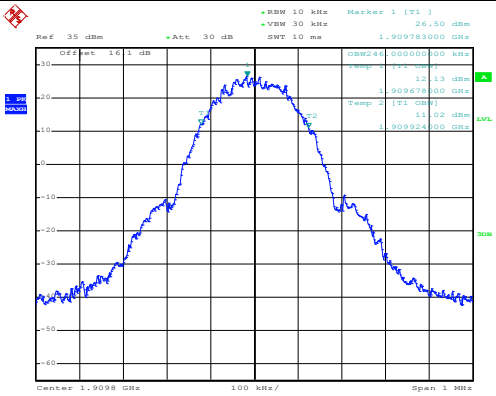
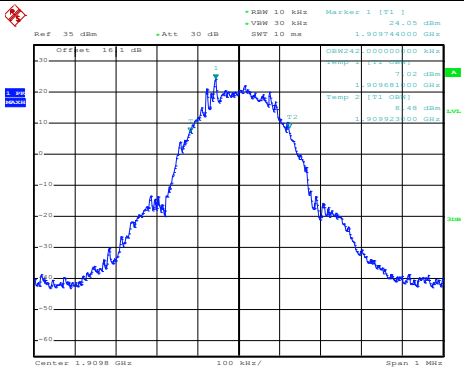
GSM1900 (GPRS class 8)	GSM1900 (EDGE class 8)
Lowest Channel	**Lowest Channel**
 Date: 23.DEC.2016 13:32:01	 Date: 23.DEC.2016 11:41:15
Middle Channel	**Middle Channel**
 Date: 23.DEC.2016 13:32:29	 Date: 23.DEC.2016 11:41:43
Highest Channel	**Highest Channel**
 Date: 23.DEC.2016 13:32:58	 Date: 23.DEC.2016 11:42:11

Occupied Bandwidth

Mode	GSM850	
Mod.	GPRS class 8	EDGE class 8
Lowest CH	0.242	0.238
Middle CH	0.244	0.237
Highest CH	0.244	0.241

Mode	GSM1900	
Mod.	GPRS class 8	EDGE class 8
Lowest CH	0.244	0.237
Middle CH	0.245	0.242
Highest CH	0.246	0.242

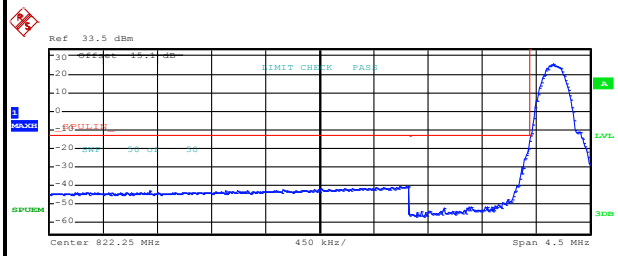
GSM850 (GPRS class 8)	GSM850 (EDGE class 8)
Lowest Channel	**Lowest Channel**
 Date: 23.DEC.2016 11:29:17	 Date: 23.DEC.2016 11:13:51
Middle Channel	**Middle Channel**
 Date: 23.DEC.2016 11:29:46	 Date: 23.DEC.2016 11:14:19
Highest Channel	**Highest Channel**
 Date: 23.DEC.2016 11:30:14	 Date: 23.DEC.2016 11:14:47

GSM1900 (GPRS class 8)	GSM1900 (EDGE class 8)
Lowest Channel	**Lowest Channel**
 Date: 23.DEC.2016 13:33:39	 Date: 23.DEC.2016 11:42:42
Middle Channel	**Middle Channel**
 Date: 23.DEC.2016 13:34:07	 Date: 23.DEC.2016 11:43:10
Highest Channel	**Highest Channel**
 Date: 23.DEC.2016 13:34:35	 Date: 23.DEC.2016 11:43:39

Conducted Band Edge

GSM850 (GPRS class 8)

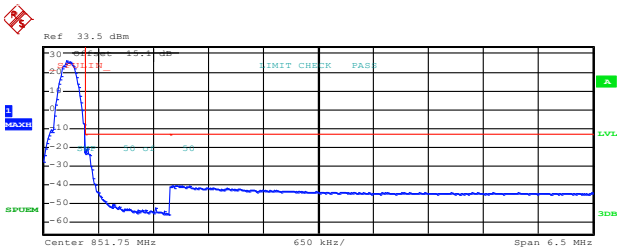
Lowest Band Edge



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
820.000 M	823.000 M	100.00 k	822.991000 M	-40.32	-27.32
823.000 M	824.000 M	3.00 k	823.984000 M	-20.10	-7.10
824.000 M	824.500 M	10.00 k	824.197000 M	25.45	-9.55

Date: 23.DEC.2016 11:31:44

Highest Band Edge

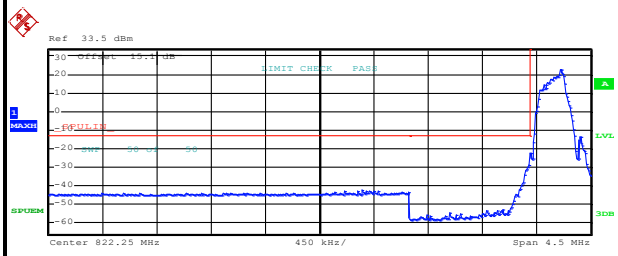


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
848.500 M	849.000 M	10.00 k	848.773500 M	26.09	-8.91
849.000 M	850.000 M	3.00 k	849.020000 M	-20.41	-7.41
850.000 M	855.000 M	100.00 k	850.060000 M	-40.39	-27.39

Date: 23.DEC.2016 11:33:12

GSM850 (EDGE class 8)

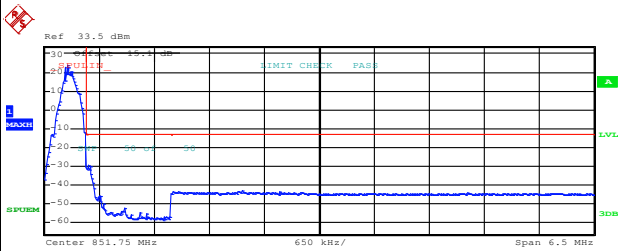
Lowest Band Edge



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
820.000 M	823.000 M	100.00 k	822.598000 M	-41.99	-28.99
823.000 M	824.000 M	3.00 k	823.996000 M	-28.81	-15.81
824.000 M	824.500 M	10.00 k	824.258000 M	22.67	-12.33

Date: 23.DEC.2016 11:17:18

Highest Band Edge

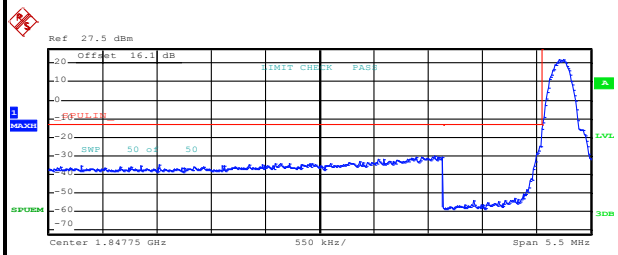


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
848.500 M	849.000 M	10.00 k	848.779000 M	23.74	-11.26
849.000 M	850.000 M	3.00 k	849.020000 M	-29.51	-16.51
850.000 M	855.000 M	100.00 k	850.840000 M	-42.65	-29.65

Date: 23.DEC.2016 11:18:45

GSM1900 (GPRS class 8)

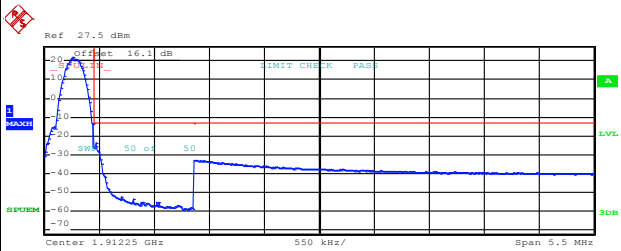
Lowest Band Edge



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.845 G	1.849 G	1.00 M	1.848912 G	-30.20	-17.20
1.849 G	1.850 G	3.00 k	1.849980 G	-24.59	-11.59
1.850 G	1.851 G	10.00 k	1.850219 G	22.06	-12.94

Date: 23.DEC.2016 11:58:11

Highest Band Edge

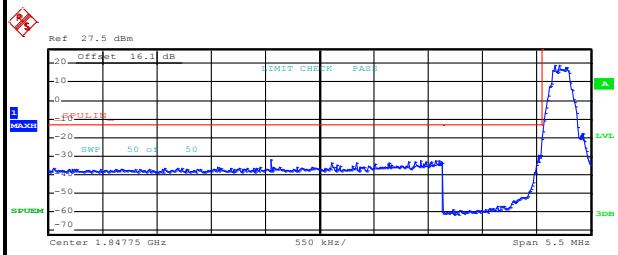


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.910 G	1.910 G	10.00 k	1.909784 G	21.69	-13.31
1.910 G	1.911 G	3.00 k	1.910012 G	-23.60	-10.60
1.911 G	1.915 G	1.00 M	1.911020 G	-32.89	-19.89

Date: 23.DEC.2016 11:59:39

GSM1900 (EDGE class 8)

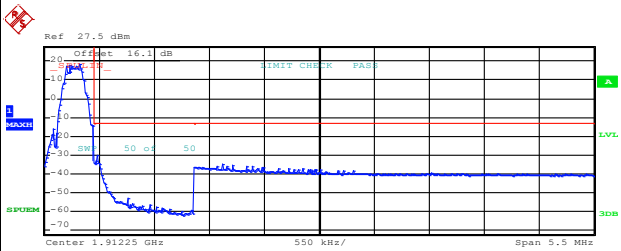
Lowest Band Edge



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.845 G	1.849 G	1.00 M	1.847248 G	-32.03	-19.03
1.849 G	1.850 G	3.00 k	1.849964 G	-29.44	-16.44
1.850 G	1.851 G	10.00 k	1.850176 G	19.09	-15.91

Date: 23.DEC.2016 11:45:43

Highest Band Edge



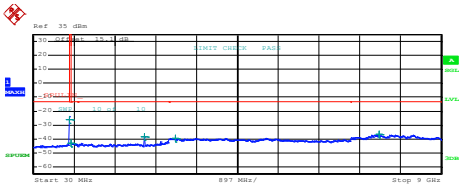
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.910 G	1.910 G	10.00 k	1.909850 G	18.52	-16.48
1.910 G	1.911 G	3.00 k	1.910020 G	-30.37	-17.37
1.911 G	1.915 G	1.00 M	1.911276 G	-34.52	-21.52

Date: 23.DEC.2016 11:47:10

Conducted Spurious Emission

GSM850 (GPRS class 8)

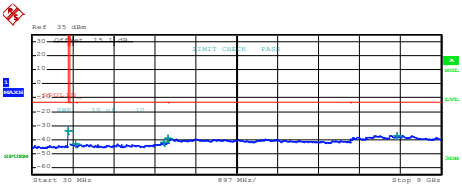
Lowest Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	819.802500 M	-26.38	-13.38
855.000 M	1.000 G	1.00 M	859.821250 M	-42.99	-29.99
1.000 G	3.000 G	1.00 M	2.472500 G	-38.67	-25.67
3.000 G	7.000 G	1.00 M	3.149000 G	-39.58	-26.58
7.000 G	9.000 G	1.00 M	7.641000 G	-36.75	-23.75

Date: 23.DEC.2016 11:34:19

Lowest Channel

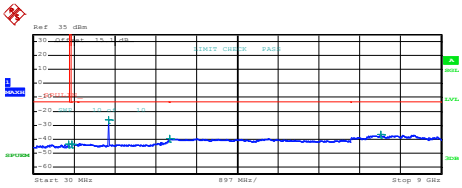


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	819.802500 M	-34.00	-21.00
855.000 M	1.000 G	1.00 M	982.310009 M	-43.12	-30.12
1.000 G	3.000 G	1.00 M	2.912000 G	-42.09	-29.09
3.000 G	7.000 G	1.00 M	3.004000 G	-39.21	-26.21
7.000 G	9.000 G	1.00 M	8.037500 G	-37.04	-24.04

Date: 23.DEC.2016 11:19:41

GSM850 (EDGE class 8)

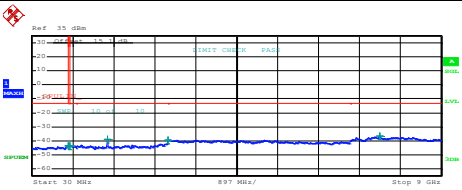
Middle Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	803.015000 M	-43.93	-30.93
855.000 M	1.000 G	1.00 M	873.487501 M	-43.38	-30.38
1.000 G	3.000 G	1.00 M	1.673000 G	-25.86	-12.86
3.000 G	7.000 G	1.00 M	3.032000 G	-39.65	-26.65
7.000 G	9.000 G	1.00 M	7.670000 G	-36.70	-23.70

Date: 23.DEC.2016 11:35:05

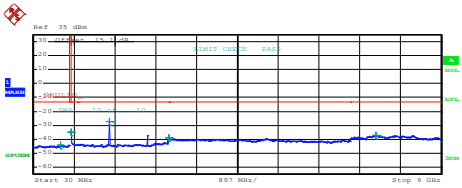
Middle Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	815.062500 M	-43.68	-30.68
855.000 M	1.000 G	1.00 M	858.298750 M	-43.66	-30.66
1.000 G	3.000 G	1.00 M	1.673500 G	-38.98	-25.98
3.000 G	7.000 G	1.00 M	3.003000 G	-39.52	-26.52
7.000 G	9.000 G	1.00 M	7.653000 G	-36.62	-23.62

Date: 23.DEC.2016 11:20:27

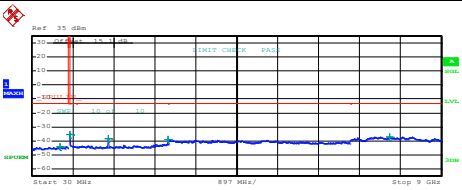
Highest Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	628.622500 M	-44.02	-31.02
855.000 M	1.000 G	1.00 M	855.036250 M	-34.68	-21.68
1.000 G	3.000 G	1.00 M	1.697500 G	-27.31	-14.31
3.000 G	7.000 G	1.00 M	3.003000 G	-39.18	-26.18
7.000 G	9.000 G	1.00 M	7.558000 G	-37.06	-24.06

Date: 23.DEC.2016 11:35:51

Highest Channel

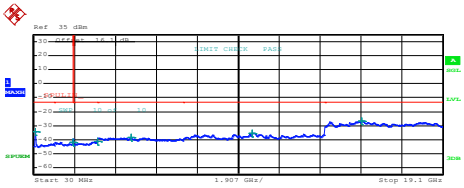


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	641.065000 M	-44.42	-31.42
855.000 M	1.000 G	1.00 M	855.108750 M	-35.41	-22.41
1.000 G	3.000 G	1.00 M	1.697500 G	-38.68	-25.68
3.000 G	7.000 G	1.00 M	3.000000 G	-38.99	-25.99
7.000 G	9.000 G	1.00 M	7.867000 G	-37.34	-24.34

Date: 23.DEC.2016 11:21:13

GSM1900 (GPRS class 8)

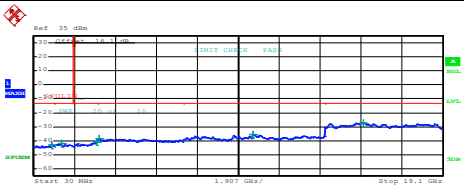
Lowest Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	111.965000 M	-34.43	-21.43
1.000 G	1.845 G	1.00 M	1.844155 G	-41.69	-28.69
1.915 G	3.000 G	1.00 M	2.990235 G	-41.28	-28.28
3.000 G	7.000 G	1.00 M	4.566000 G	-38.66	-25.66
7.000 G	13.600 G	1.00 M	10.210900 G	-35.32	-22.32
13.600 G	19.100 G	1.00 M	15.316688 G	-26.49	-13.49

Date: 23.DEC.2016 13:35:31

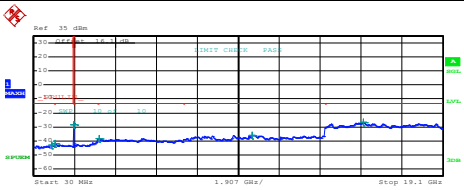
Middle Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	879.477500 M	-43.21	-30.21
1.000 G	1.845 G	1.00 M	1.314129 G	-41.86	-28.86
1.915 G	3.000 G	1.00 M	2.983996 G	-40.68	-27.68
3.000 G	7.000 G	1.00 M	3.099000 G	-38.45	-25.45
7.000 G	13.600 G	1.00 M	10.243900 G	-35.51	-22.51
13.600 G	19.100 G	1.00 M	15.395063 G	-27.10	-14.10

Date: 23.DEC.2016 13:36:17

Highest Channel

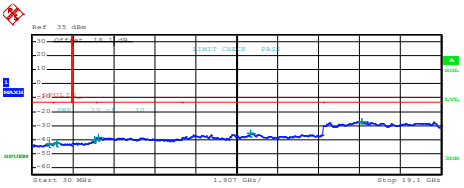


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	866.625000 M	-43.21	-30.21
1.000 G	1.845 G	1.00 M	1.015632 G	-42.12	-29.12
1.915 G	3.000 G	1.00 M	1.915271 G	-28.67	-15.67
3.000 G	7.000 G	1.00 M	3.091000 G	-38.23	-25.23
7.000 G	13.600 G	1.00 M	10.219150 G	-35.86	-22.86
13.600 G	19.100 G	1.00 M	15.395750 G	-26.62	-13.62

Date: 23.DEC.2016 13:37:03

GSM1900 (EDGE class 8)

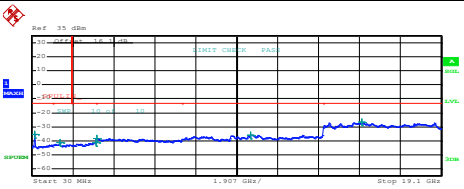
Lowest Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	840.677500 M	-42.81	-29.81
1.000 G	1.845 G	1.00 M	1.189069 G	-42.29	-29.29
1.915 G	3.000 G	1.00 M	2.911844 G	-40.16	-27.16
3.000 G	7.000 G	1.00 M	3.118000 G	-38.60	-25.60
7.000 G	13.600 G	1.00 M	10.210075 G	-35.43	-22.43
13.600 G	19.100 G	1.00 M	15.388188 G	-27.20	-14.20

Date: 23.DEC.2016 11:48:07

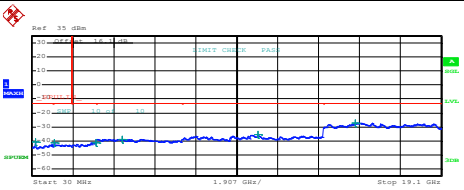
Middle Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	141.792500 M	-35.74	-22.74
1.000 G	1.845 G	1.00 M	1.315819 G	-41.38	-28.38
1.915 G	3.000 G	1.00 M	2.996474 G	-41.09	-28.09
3.000 G	7.000 G	1.00 M	3.038000 G	-38.66	-25.66
7.000 G	13.600 G	1.00 M	10.218325 G	-35.81	-22.81
13.600 G	19.100 G	1.00 M	15.392312 G	-26.46	-13.46

Date: 23.DEC.2016 11:48:52

Highest Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	171.862500 M	-40.65	-27.65
1.000 G	1.845 G	1.00 M	1.069290 G	-41.13	-28.13
1.915 G	3.000 G	1.00 M	2.986438 G	-41.03	-28.03
3.000 G	7.000 G	1.00 M	4.224000 G	-38.71	-25.71
7.000 G	13.600 G	1.00 M	10.542550 G	-35.71	-22.71
13.600 G	19.100 G	1.00 M	15.088438 G	-27.12	-14.12

Date: 23.DEC.2016 11:49:38

Frequency Stability

Test Conditions	Middle Channel	GSM850 (GPRS class 8)	GSM850 (EDGE class 8)	Limit 2.5ppm
Temperature (°C)	Voltage (Volt)	Deviation (ppm)		Result
50	Normal Voltage	0.0012	0.0048	PASS
40	Normal Voltage	0.0024	0.0048	
30	Normal Voltage	0.0024	0.0024	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0036	0.0036	
0	Normal Voltage	0.0036	0.0012	
-10	Normal Voltage	0.0072	0.0012	
-20	Normal Voltage	0.0048	0.0024	
-30	Normal Voltage	0.0060	0.0012	
20	Maximum Voltage	0.0012	0.0024	
20	Normal Voltage	0.0000	0.0000	
20	Battery End Point	0.0036	0.0036	

Test Conditions	Middle Channel	GSM1900 (GPRS class 8)	GSM1900 (EDGE class 8)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)		Result
50	Normal Voltage	0.0021	0.0245	PASS
40	Normal Voltage	0.0027	0.0106	
30	Normal Voltage	0.0011	0.0096	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0005	0.0059	
0	Normal Voltage	0.0096	0.0074	
-10	Normal Voltage	0.0074	0.0197	
-20	Normal Voltage	0.0090	0.0154	
-30	Normal Voltage	0.0090	0.0207	
20	Maximum Voltage	0.0005	0.0048	
20	Normal Voltage	0.0000	0.0000	
20	Battery End Point	0.0096	0.0021	

Note:

1. Normal Voltage = 24 V. ；Battery End Point (BEP) = 12 V.；Maximum Voltage =48 V
2. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

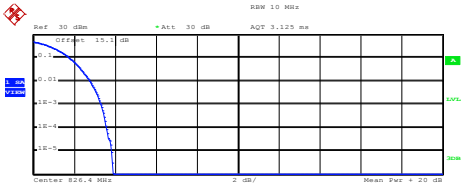
A2. WCDMA

Peak-to-Average Ratio

Mode	WCDMA Band V	WCDMA Band II	WCDMA Band IV	Limit: 13dB
Mod.	RMC 12.2Kbps	RMC 12.2Kbps	RMC 12.2Kbps	Result
Lowest CH	3.32	3.32	3.36	PASS
Middle CH	3.32	3.24	3.44	
Highest CH	3.32	3.28	3.44	

WCDMA Band V (RMC 12.2Kbps)

Lowest Channel

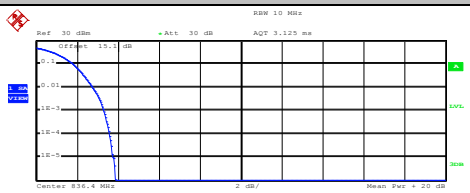


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	21.49 dBm
Peak	25.38 dBm
Crest	3.90 dB
10 %	1.76 dB
1 %	2.76 dB
.1 %	3.32 dB
.01 %	3.60 dB

Date: 23.DEC.2016 11:07:27

Middle Channel

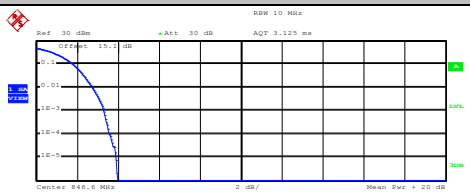


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	21.87 dBm
Peak	25.73 dBm
Crest	3.86 dB
10 %	1.80 dB
1 %	2.76 dB
.1 %	3.32 dB
.01 %	3.60 dB

Date: 23.DEC.2016 11:07:38

Highest Channel



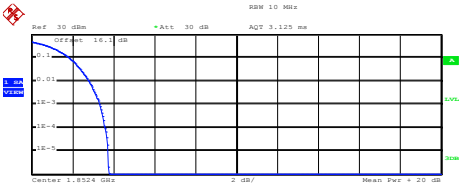
Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	21.56 dBm
Peak	25.52 dBm
Crest	3.97 dB
10 %	1.80 dB
1 %	2.72 dB
.1 %	3.32 dB
.01 %	3.60 dB

Date: 23.DEC.2016 11:07:47

WCDMA Band II (RMC 12.2Kbps)

Lowest Channel

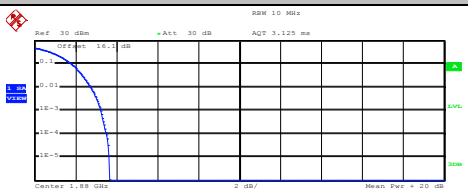


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	21.62 dBm
Peak	25.38 dBm
Crest	3.76 dB
10 %	1.84 dB
1 %	2.80 dB
.1 %	3.32 dB
.01 %	3.60 dB

Date: 23.DEC.2016 10:36:40

Middle Channel

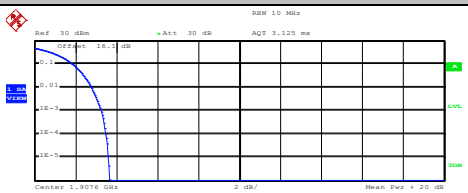


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	21.52 dBm
Peak	25.17 dBm
Crest	3.65 dB
10 %	1.80 dB
1 %	2.76 dB
.1 %	3.24 dB
.01 %	3.52 dB

Date: 23.DEC.2016 10:36:48

Highest Channel



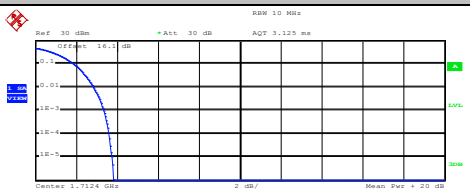
Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	21.65 dBm
Peak	25.31 dBm
Crest	3.67 dB
10 %	1.88 dB
1 %	2.80 dB
.1 %	3.28 dB
.01 %	3.48 dB

Date: 23.DEC.2016 10:36:57

WCDMA Band IV (RMC 12.2Kbps)

Lowest Channel



Complementary Cumulative Distribution Function (100000 samples)

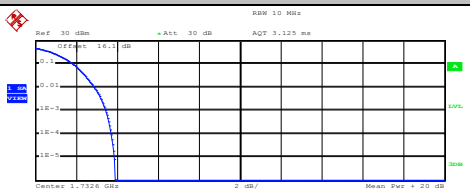
Trace 1

Mean 21.70 dBm
Peak 25.52 dBm
Crest 3.83 dB

10 % 1.88 dB
1 % 2.84 dB
.1 % 3.36 dB
.01 % 3.60 dB

Date: 23.DEC.2016 10:52:23

Middle Channel



Complementary Cumulative Distribution Function (100000 samples)

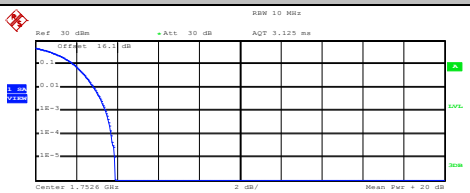
Trace 1

Mean 21.76 dBm
Peak 25.66 dBm
Crest 3.90 dB

10 % 1.88 dB
1 % 2.88 dB
.1 % 3.44 dB
.01 % 3.72 dB

Date: 23.DEC.2016 10:52:33

Highest Channel



Complementary Cumulative Distribution Function (100000 samples)

Trace 1

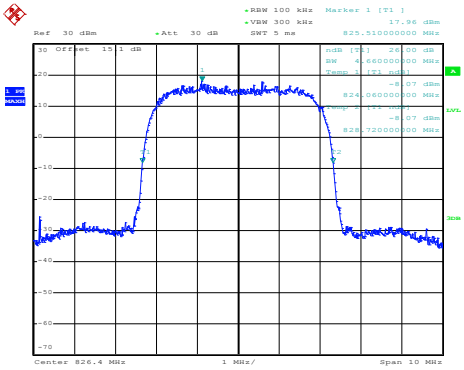
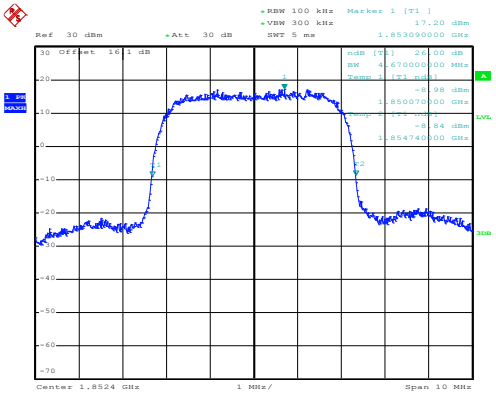
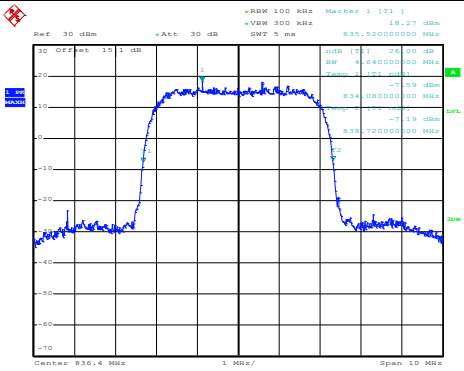
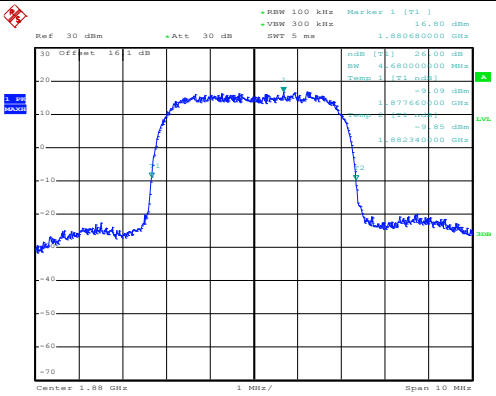
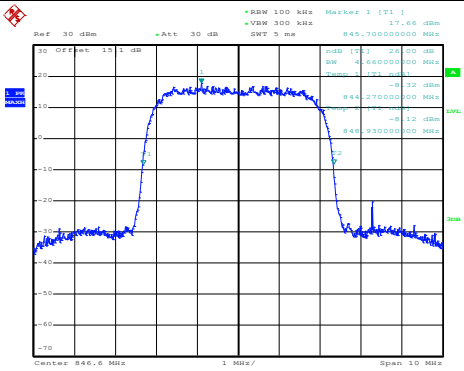
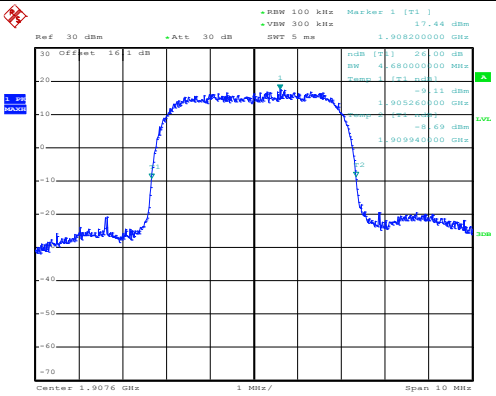
Mean 21.70 dBm
Peak 25.59 dBm
Crest 3.90 dB

10 % 1.88 dB
1 % 2.84 dB
.1 % 3.44 dB
.01 % 3.72 dB

Date: 23.DEC.2016 10:52:44

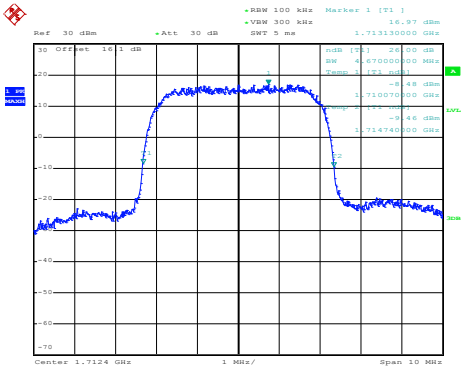
26dB Bandwidth

Mode	WCDMA Band V	WCDMA Band II	WCDMA Band IV
Mod.	RMC 12.2Kbps	RMC 12.2Kbps	RMC 12.2Kbps
Lowest CH	4.66	4.67	4.67
Middle CH	4.64	4.68	4.65
Highest CH	4.66	4.68	4.66

WCDMA Band V (RMC 12.2Kbps)	WCDMA Band II (RMC 12.2Kbps)
Lowest Channel	**Lowest Channel**
	
Date: 23.DEC.2016 10:53:34	Date: 23.DEC.2016 10:12:16
Middle Channel	**Middle Channel**
	
Date: 23.DEC.2016 10:54:02	Date: 23.DEC.2016 10:12:44
Highest Channel	**Highest Channel**
	
Date: 23.DEC.2016 10:54:30	Date: 23.DEC.2016 10:13:12

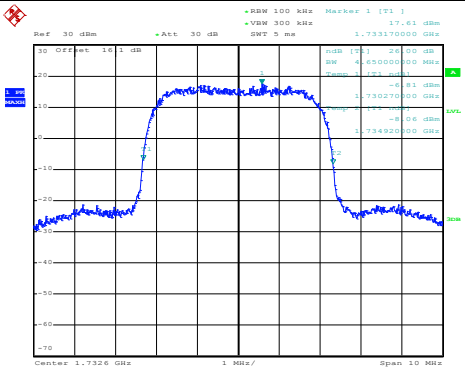
WCDMA Band IV (RMC 12.2Kbps)

Lowest Channel



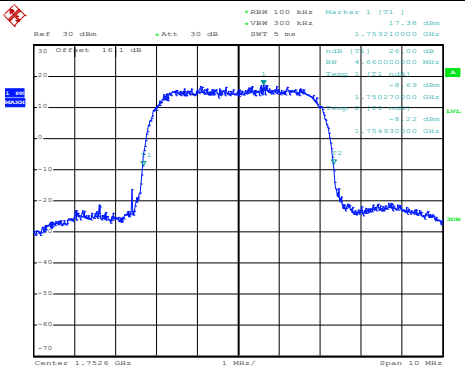
Date: 23.DEC.2016 10:37:42

Middle Channel



Date: 23.DEC.2016 10:38:10

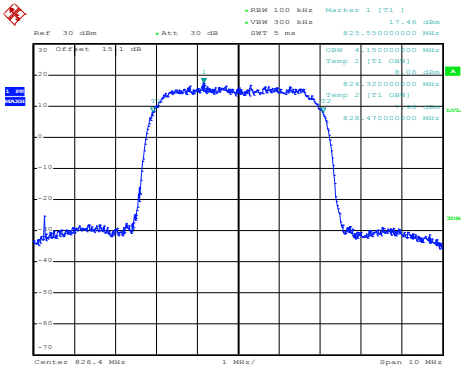
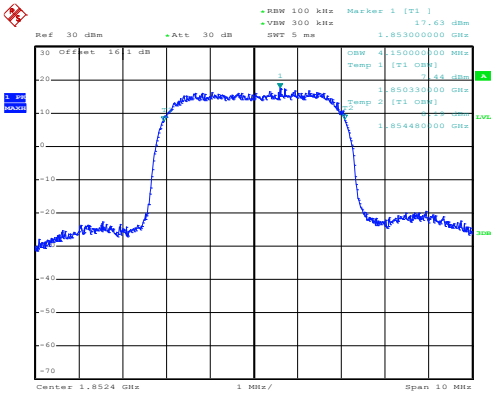
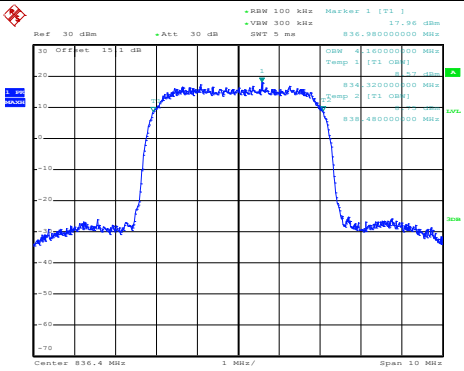
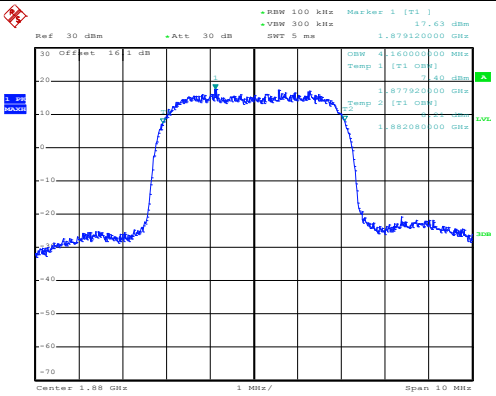
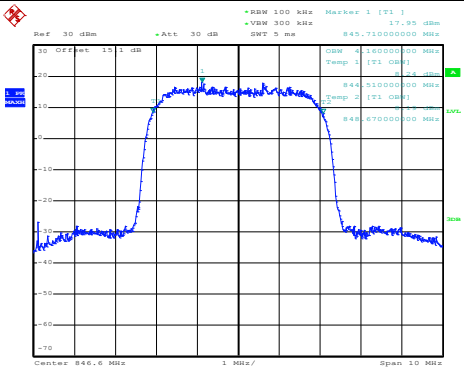
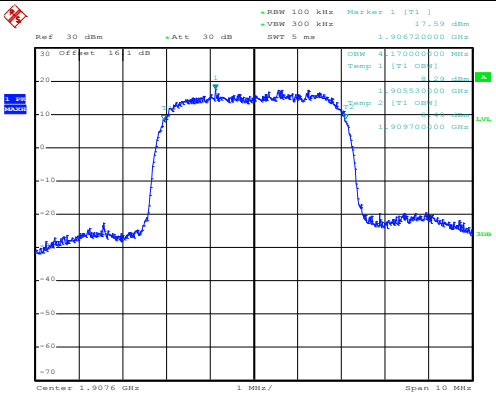
Highest Channel



Date: 23.DEC.2016 10:38:38

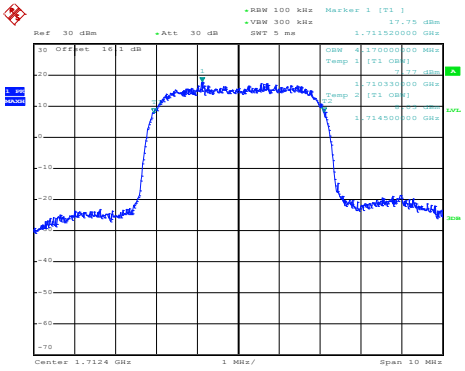
Occupied Bandwidth

Mode	WCDMA Band V	WCDMA Band II	WCDMA Band IV
Mod.	RMC 12.2Kbps	RMC 12.2Kbps	RMC 12.2Kbps
Lowest CH	4.15	4.15	4.17
Middle CH	4.16	4.16	4.15
Highest CH	4.16	4.17	4.17

WCDMA Band V (RMC 12.2Kbps)	WCDMA Band II (RMC 12.2Kbps)
Lowest Channel	**Lowest Channel**
 Date: 23.DEC.2016 10:55:56	 Date: 23.DEC.2016 10:21:02
Middle Channel	**Middle Channel**
 Date: 23.DEC.2016 10:56:23	 Date: 23.DEC.2016 10:21:30
Highest Channel	**Highest Channel**
 Date: 23.DEC.2016 10:56:51	 Date: 23.DEC.2016 10:21:58

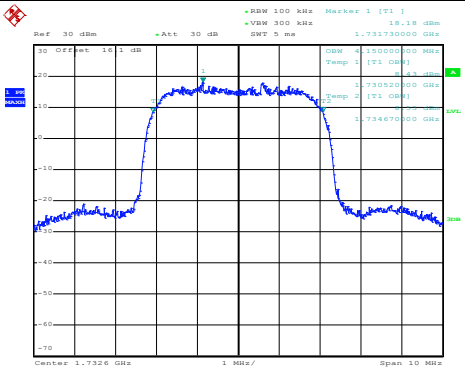
WCDMA Band IV (RMC 12.2Kbps)

Lowest Channel



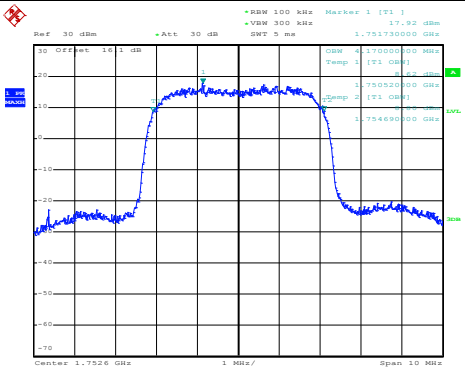
Date: 23.DEC.2016 10:39:54

Middle Channel



Date: 23.DEC.2016 10:40:22

Highest Channel

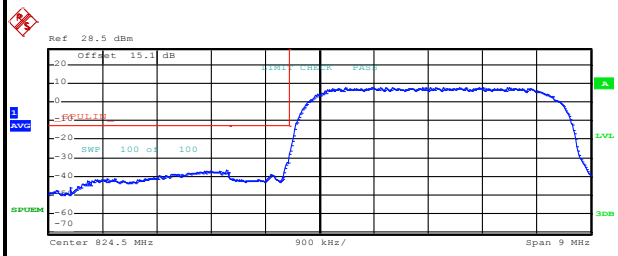


Date: 23.DEC.2016 10:40:50

Conducted Band Edge

WCDMA Band V (RMC 12.2Kbps)

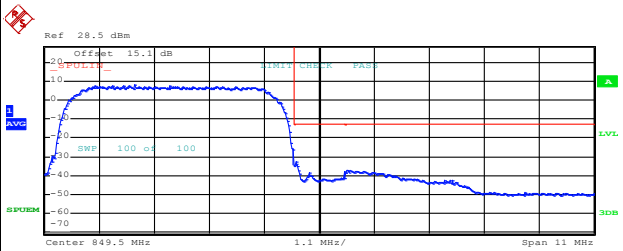
Lowest Band Edge



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
820.000 M	823.000 M	100.00 k	822.949000 M	-36.44	-23.44
823.000 M	824.000 M	50.00 k	823.984000 M	-32.70	-19.70
824.000 M	829.000 M	100.00 k	825.595000 M	7.94	-27.06

Date: 23.DEC.2016 10:59:37

Highest Band Edge

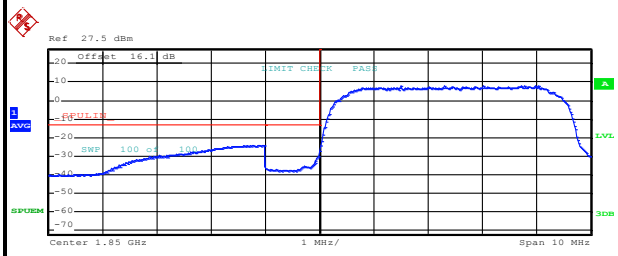


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
844.000 M	849.000 M	100.00 k	845.790000 M	8.36	-26.64
849.000 M	850.000 M	50.00 k	849.040000 M	-32.55	-19.55
850.000 M	855.000 M	100.00 k	850.075000 M	-37.55	-24.55

Date: 23.DEC.2016 11:02:19

WCDMA Band II (RMC 12.2Kbps)

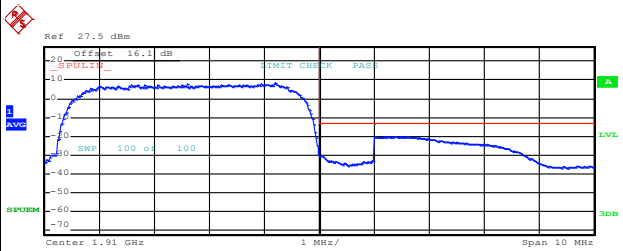
Lowest Band Edge



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.845 G	1.849 G	1.00 M	1.848772 G	-24.27	-11.27
1.849 G	1.850 G	50.00 k	1.849976 G	-30.11	-17.11
1.850 G	1.855 G	100.00 k	1.853770 G	8.12	-26.88

Date: 23.DEC.2016 10:27:30

Highest Band Edge

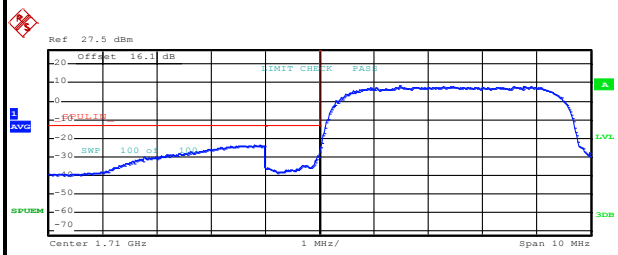


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.905 G	1.910 G	100.00 k	1.909190 G	8.61	-26.39
1.910 G	1.911 G	50.00 k	1.910028 G	-29.53	-16.53
1.911 G	1.915 G	1.00 M	1.911392 G	-19.96	-6.96

Date: 23.DEC.2016 10:30:12

WCDMA Band IV (RMC 12.2Kbps)

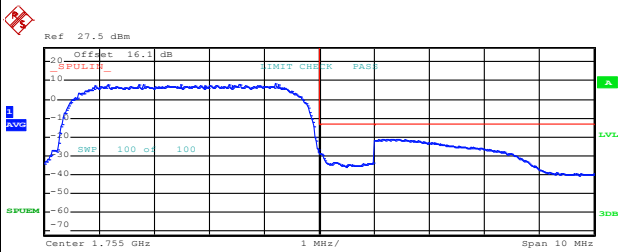
Lowest Band Edge



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
1.705 G	1.709 G	1.00 M	1.708888 G	-23.71	-10.71
1.709 G	1.710 G	50.00 k	1.709948 G	-29.61	-16.61
1.710 G	1.715 G	100.00 k	1.711475 G	8.67	-26.33

Date: 23.DEC.2016 10:44:09

Highest Band Edge



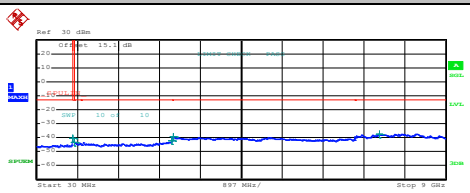
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
1.750 G	1.755 G	100.00 k	1.754200 G	8.40	-26.60
1.755 G	1.756 G	50.00 k	1.755020 G	-28.67	-15.67
1.756 G	1.760 G	1.00 M	1.756184 G	-21.13	-8.13

Date: 23.DEC.2016 10:46:51

Conducted Spurious Emission

WCDMA Band V (RMC 12.2Kbps)

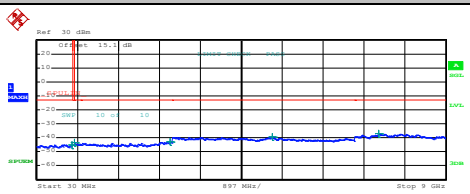
Lowest Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	819.802500 M	-40.51	-27.51
855.000 M	1.000 G	1.00 M	855.688750 M	-43.28	-30.28
1.000 G	3.000 G	1.00 M	2.989500 G	-42.37	-29.37
3.000 G	7.000 G	1.00 M	3.019000 G	-39.57	-26.57
7.000 G	9.000 G	1.00 M	7.555000 G	-37.37	-24.37

Date: 23.DEC.2016 11:03:59

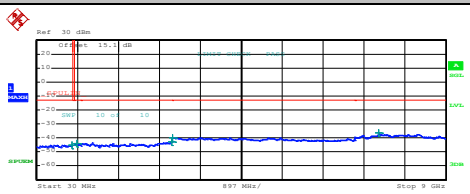
Middle Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	802.225000 M	-44.86	-31.86
855.000 M	1.000 G	1.00 M	858.298750 M	-43.67	-30.67
1.000 G	3.000 G	1.00 M	2.955000 G	-43.02	-30.02
3.000 G	7.000 G	1.00 M	5.193000 G	-39.51	-26.51
7.000 G	9.000 G	1.00 M	7.534500 G	-37.16	-24.16

Date: 23.DEC.2016 11:04:45

Highest Channel

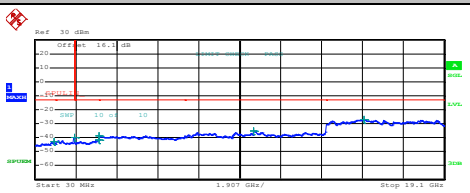


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	806.570000 M	-44.94	-31.94
855.000 M	1.000 G	1.00 M	903.502503 M	-44.00	-31.00
1.000 G	3.000 G	1.00 M	2.982000 G	-42.66	-29.66
3.000 G	7.000 G	1.00 M	3.005000 G	-39.64	-26.64
7.000 G	9.000 G	1.00 M	7.535500 G	-36.61	-23.61

Date: 23.DEC.2016 11:05:30

WCDMA Band II (RMC 12.2Kbps)

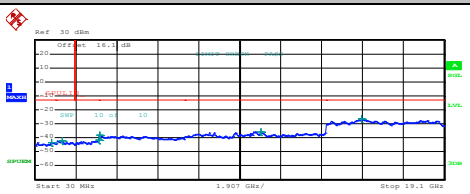
Lowest Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	890.632500 M	-43.07	-30.07
1.000 G	1.845 G	1.00 M	1.843944 G	-39.60	-26.60
1.915 G	3.000 G	1.00 M	2.997559 G	-41.53	-28.53
3.000 G	7.000 G	1.00 M	3.011000 G	-38.80	-25.80
7.000 G	13.600 G	1.00 M	10.227400 G	-35.43	-22.43
13.600 G	19.100 G	1.00 M	15.357938 G	-26.99	-13.99

Date: 23.DEC.2016 10:34:24

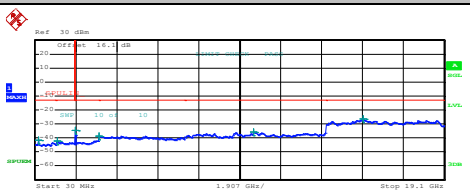
Middle Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	811.335000 M	-43.39	-30.39
1.000 G	1.845 G	1.00 M	1.287089 G	-42.18	-29.18
1.915 G	3.000 G	1.00 M	2.998372 G	-41.52	-28.52
3.000 G	7.000 G	1.00 M	3.045000 G	-37.96	-24.96
7.000 G	13.600 G	1.00 M	10.549975 G	-35.89	-22.89
13.600 G	19.100 G	1.00 M	15.254813 G	-26.51	-13.51

Date: 23.DEC.2016 10:35:10

Highest Channel

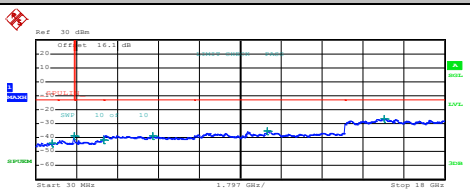


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	170.165000 M	-41.90	-28.90
1.000 G	1.845 G	1.00 M	1.073304 G	-42.02	-29.02
1.915 G	3.000 G	1.00 M	1.915542 G	-34.70	-21.70
3.000 G	7.000 G	1.00 M	3.003000 G	-38.47	-25.47
7.000 G	13.600 G	1.00 M	10.224925 G	-35.67	-22.67
13.600 G	19.100 G	1.00 M	15.320813 G	-26.65	-13.65

Date: 23.DEC.2016 10:35:56

WCDMA Band IV (RMC 12.2Kbps)

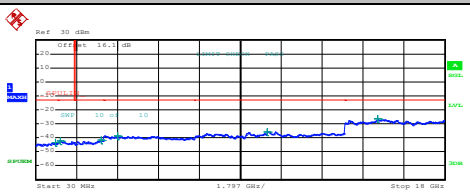
Lowest Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Limit [dB]
30.000 M	1.000 G	1.00 M	754.590000 M	-43.70	-30.70
1.000 G	1.705 G	1.00 M	1.702885 G	-38.83	-25.83
1.760 G	3.000 G	1.00 M	2.998760 G	-41.67	-28.67
3.000 G	7.000 G	1.00 M	5.181000 G	-38.80	-25.80
7.000 G	13.600 G	1.00 M	10.210075 G	-35.29	-22.29
13.600 G	18.000 G	1.00 M	15.325900 G	-26.53	-13.53

Date: 23.DEC.2016 10:49:20

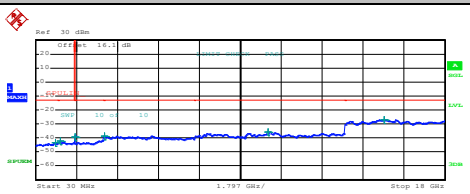
Middle Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Limit [dB]
30.000 M	1.000 G	1.00 M	887.965000 M	-43.10	-30.10
1.000 G	1.705 G	1.00 M	1.092179 G	-42.14	-29.14
1.760 G	3.000 G	1.00 M	2.915990 G	-41.35	-28.35
3.000 G	7.000 G	1.00 M	3.616000 G	-38.69	-25.69
7.000 G	13.600 G	1.00 M	10.212550 G	-35.80	-22.80
13.600 G	18.000 G	1.00 M	15.037700 G	-26.53	-13.53

Date: 23.DEC.2016 10:50:06

Highest Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Limit [dB]
30.000 M	1.000 G	1.00 M	895.240000 M	-43.33	-30.33
1.000 G	1.705 G	1.00 M	1.092884 G	-42.00	-29.00
1.760 G	3.000 G	1.00 M	1.760620 G	-39.35	-26.35
3.000 G	7.000 G	1.00 M	3.038000 G	-38.78	-25.78
7.000 G	13.600 G	1.00 M	10.220800 G	-35.77	-22.77
13.600 G	18.000 G	1.00 M	15.356150 G	-26.85	-13.85

Date: 23.DEC.2016 10:50:52

Frequency Stability

Test Conditions	Middle Channel	WCDMA Band V (RMC 12.2Kbps)	Limit 2.5ppm
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0012	PASS
40	Normal Voltage	0.0036	
30	Normal Voltage	0.0132	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0108	
0	Normal Voltage	0.0155	
-10	Normal Voltage	0.0179	
-20	Normal Voltage	0.0167	
-30	Normal Voltage	0.0167	
20	Maximum Voltage	0.0143	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0155	

Test Conditions	Middle Channel	WCDMA Band II (RMC 12.2Kbps)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0138	PASS
40	Normal Voltage	0.0122	
30	Normal Voltage	0.0112	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0021	
0	Normal Voltage	0.0000	
-10	Normal Voltage	0.0021	
-20	Normal Voltage	0.0005	
-30	Normal Voltage	0.0016	
20	Maximum Voltage	0.0011	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0032	

Test Conditions	Middle Channel	WCDMA Band IV (RMC 12.2Kbps)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0323	PASS
40	Normal Voltage	0.0300	
30	Normal Voltage	0.0040	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0035	
0	Normal Voltage	0.0017	
-10	Normal Voltage	0.0023	
-20	Normal Voltage	0.0006	
-30	Normal Voltage	0.0017	
20	Maximum Voltage	0.0029	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0040	

Note:

1. Normal Voltage = 24 V. ；Battery End Point (BEP) = 12 V.；Maximum Voltage =48 V
2. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

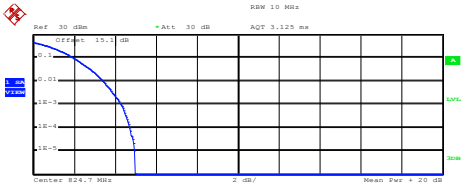
A3. CDMA

Peak-to-Average Ratio

Mode	CDMA BC0	CDMA BC1	Limit: 13dB
Mod.	1xRTT	1xRTT	Result
Lowest CH	4.32	4.12	PASS
Middle CH	4.16	4.00	
Highest CH	4.16	3.80	

CDMA BC0 (1xRTT)

Lowest Channel

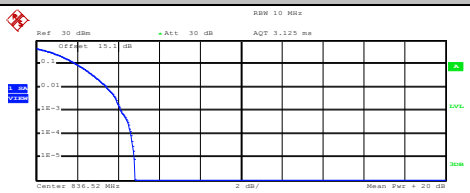


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	22.09 dBm
Peak	27.08 dBm
Crest	4.99 dB
10 %	2.00 dB
1 %	3.40 dB
.1 %	4.32 dB
.01 %	4.72 dB

Date: 23.DEC.2016 09:44:19

Middle Channel

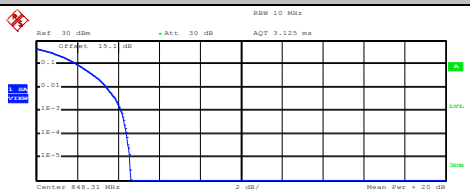


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	22.04 dBm
Peak	26.86 dBm
Crest	4.82 dB
10 %	1.96 dB
1 %	3.44 dB
.1 %	4.16 dB
.01 %	4.64 dB

Date: 23.DEC.2016 09:44:53

Highest Channel



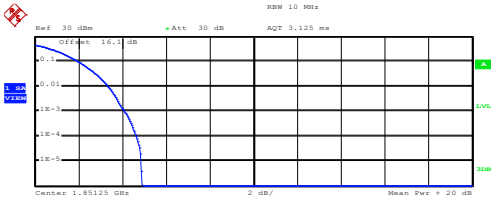
Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	21.91 dBm
Peak	26.51 dBm
Crest	4.60 dB
10 %	2.00 dB
1 %	3.44 dB
.1 %	4.16 dB
.01 %	4.40 dB

Date: 23.DEC.2016 09:45:10

CDMA BC1 (1xRTT)

Lowest Channel

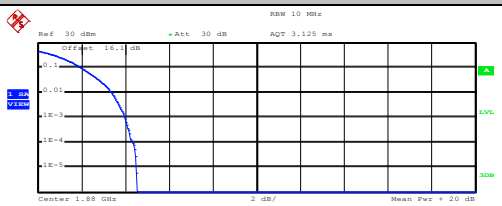


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	21.91 dBm
Peak	26.79 dBm
Crest	4.88 dB
10 %	2.00 dB
1 %	3.36 dB
.1 %	4.12 dB
.01 %	4.64 dB

Date: 23.DEC.2016 10:01:48

Middle Channel

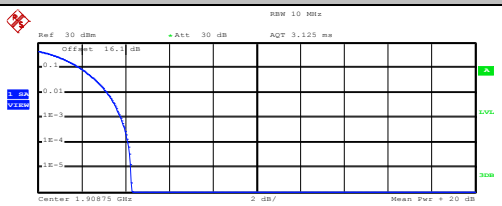


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	21.85 dBm
Peak	26.37 dBm
Crest	4.52 dB
10 %	2.00 dB
1 %	3.36 dB
.1 %	4.00 dB
.01 %	4.36 dB

Date: 23.DEC.2016 10:02:24

Highest Channel



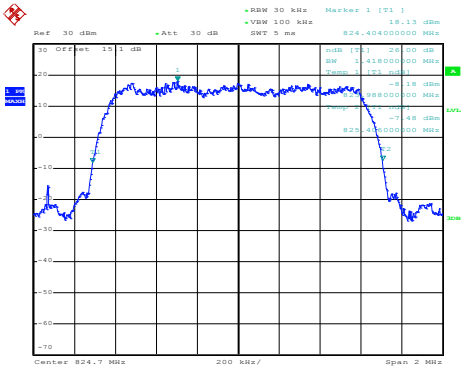
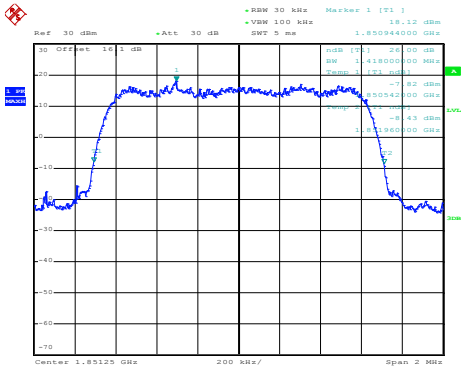
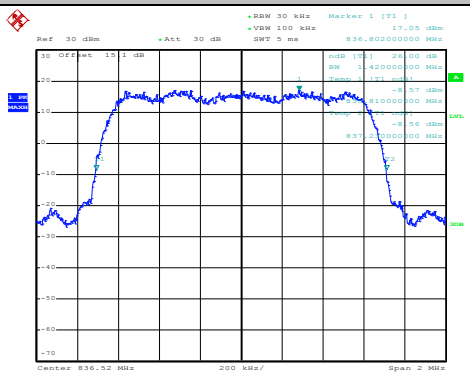
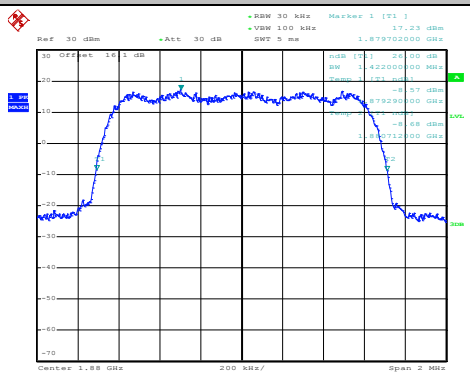
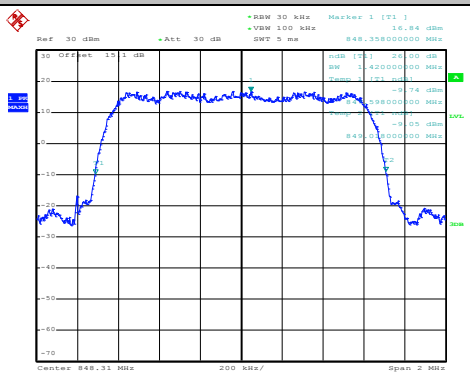
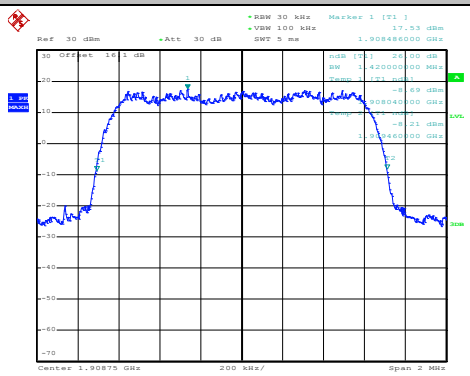
Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	21.88 dBm
Peak	26.16 dBm
Crest	4.28 dB
10 %	1.92 dB
1 %	3.16 dB
.1 %	3.80 dB
.01 %	4.12 dB

Date: 23.DEC.2016 10:03:13

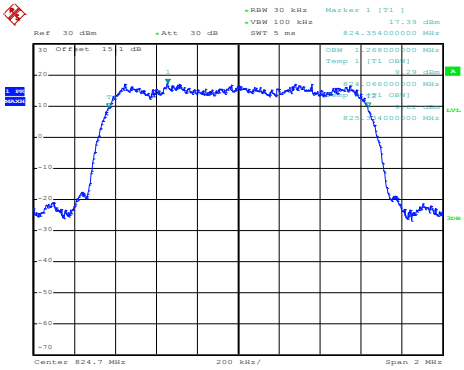
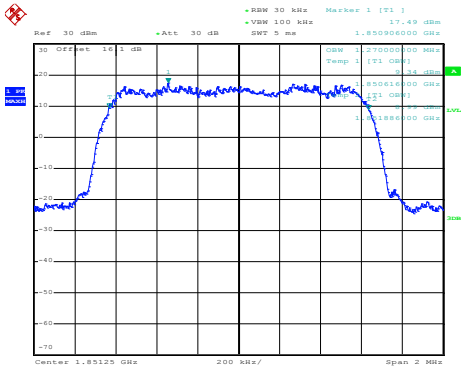
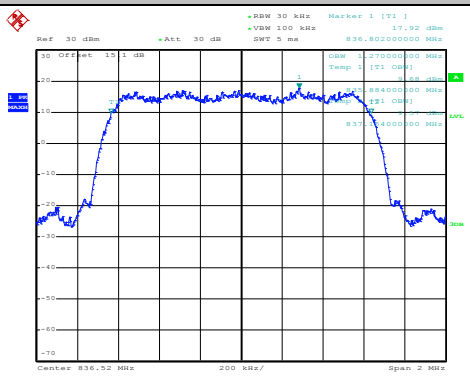
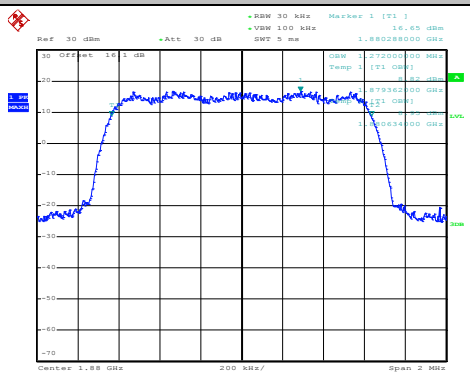
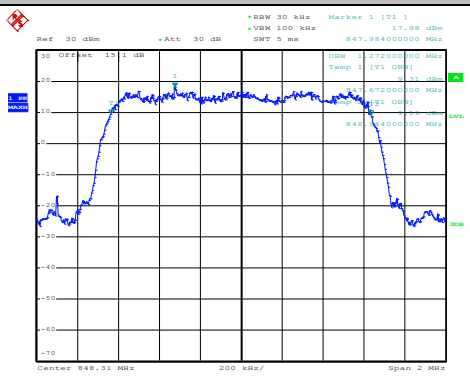
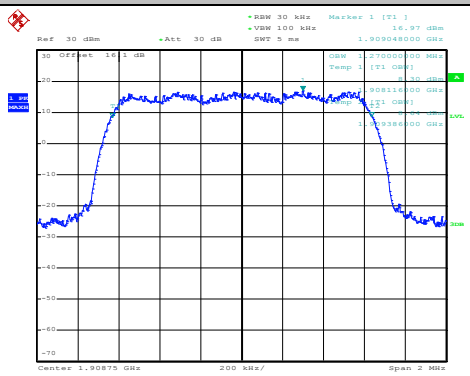
26dB Bandwidth

Mode	CDMA BC0	CDMA BC1
Mod.	1xRTT	1xRTT
Lowest CH	1.42	1.42
Middle CH	1.42	1.42
Highest CH	1.42	1.42

CDMA BC0 (1xRTT)	CDMA BC1 (1xRTT)
Lowest Channel	**Lowest Channel**
 Date: 23.DEC.2016 09:32:15	 Date: 23.DEC.2016 09:50:50
Middle Channel	**Middle Channel**
 Date: 23.DEC.2016 09:32:43	 Date: 23.DEC.2016 09:51:18
Highest Channel	**Highest Channel**
 Date: 23.DEC.2016 09:33:11	 Date: 23.DEC.2016 09:51:46

Occupied Bandwidth

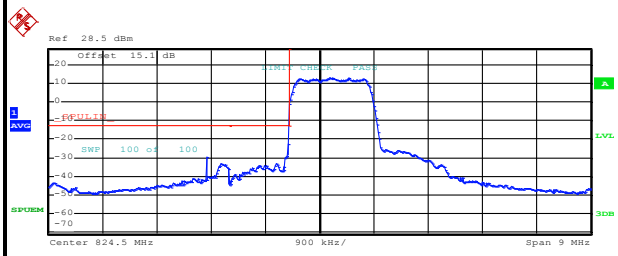
Mode	CDMA BC0	CDMA BC1
Mod.	1xRTT	1xRTT
Lowest CH	1.27	1.27
Middle CH	1.27	1.27
Highest CH	1.27	1.27

CDMA BC0 (1xRTT)	CDMA BC1 (1xRTT)
Lowest Channel	**Lowest Channel**
 Date: 23.DEC.2016 09:33:54	 Date: 23.DEC.2016 09:52:31
Middle Channel	**Middle Channel**
 Date: 23.DEC.2016 09:34:22	 Date: 23.DEC.2016 09:52:59
Highest Channel	**Highest Channel**
 Date: 23.DEC.2016 09:34:50	 Date: 23.DEC.2016 09:53:27

Conducted Band Edge

CDMA BC0 (1xRTT)

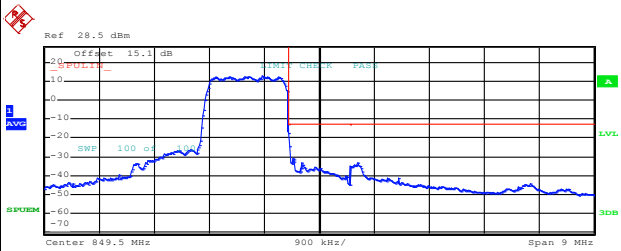
Lowest Band Edge



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
820.000 M	823.000 M	100.00 k	822.622000 M	-29.87	-16.87
823.000 M	824.000 M	14.00 k	823.996000 M	-22.89	-9.89
824.000 M	829.000 M	100.00 k	824.975000 M	13.18	-21.82

Date: 23.DEC.2016 09:37:33

Highest Band Edge

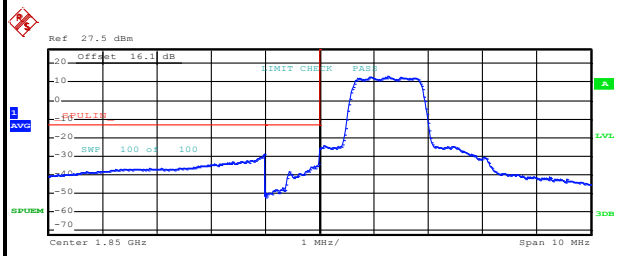


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
845.000 M	849.000 M	100.00 k	848.552000 M	12.72	-22.28
849.000 M	850.000 M	14.00 k	849.004000 M	-17.96	-4.96
850.000 M	854.000 M	100.00 k	850.132000 M	-33.09	-20.09

Date: 23.DEC.2016 09:40:15

CDMA BC1 (1xRTT)

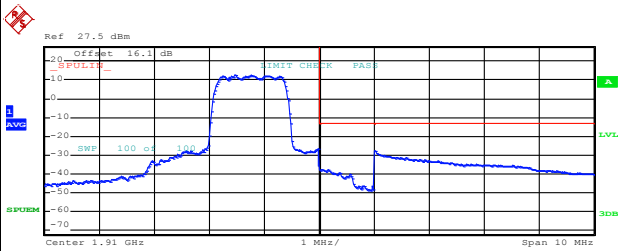
Lowest Band Edge



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.845 G	1.849 G	1.00 M	1.848988 G	-28.98	-15.98
1.849 G	1.850 G	14.00 k	1.849992 G	-34.16	-21.16
1.850 G	1.855 G	100.00 k	1.851260 G	13.26	-21.74

Date: 23.DEC.2016 09:56:44

Highest Band Edge



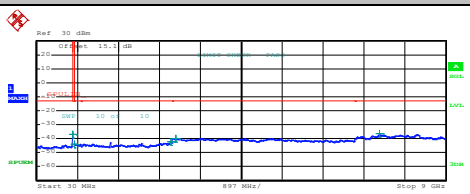
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.905 G	1.910 G	100.00 k	1.908470 G	12.85	-22.15
1.910 G	1.911 G	14.00 k	1.910056 G	-37.06	-24.06
1.911 G	1.915 G	1.00 M	1.911000 G	-27.93	-14.93

Date: 23.DEC.2016 09:59:26

Conducted Spurious Emission

CDMA BC0 (1xRTT)

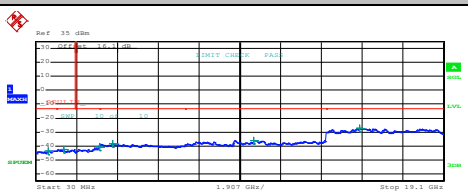
Lowest Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	819.802500 M	-36.76	-23.76
855.000 M	1.000 G	1.00 M	860.038750 M	-44.06	-31.06
1.000 G	3.000 G	1.00 M	2.980500 G	-42.49	-29.49
3.000 G	7.000 G	1.00 M	3.074000 G	-39.60	-26.60
7.000 G	9.000 G	1.00 M	7.544000 G	-36.67	-23.67

Date: 23.DEC.2016 09:41:51

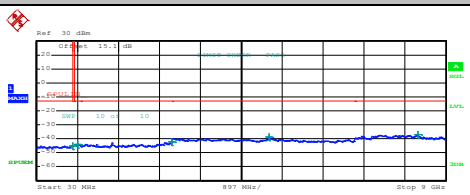
Lowest Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	607.877500 M	-43.36	-30.36
1.000 G	1.845 G	1.00 M	1.309481 G	-42.33	-29.33
1.915 G	3.000 G	1.00 M	2.998915 G	-40.81	-27.81
3.000 G	7.000 G	1.00 M	3.608000 G	-38.45	-25.45
7.000 G	13.600 G	1.00 M	10.231525 G	-35.92	-22.92
13.600 G	19.100 G	1.00 M	15.159250 G	-27.33	-14.33

Date: 23.DEC.2016 15:20:26

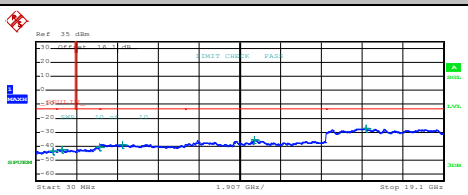
Middle Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	814.470000 M	-44.87	-31.87
855.000 M	1.000 G	1.00 M	928.623755 M	-43.97	-30.97
1.000 G	3.000 G	1.00 M	2.997000 G	-42.31	-29.31
3.000 G	7.000 G	1.00 M	5.128000 G	-38.84	-25.84
7.000 G	9.000 G	1.00 M	8.387000 G	-37.18	-24.18

Date: 23.DEC.2016 09:42:36

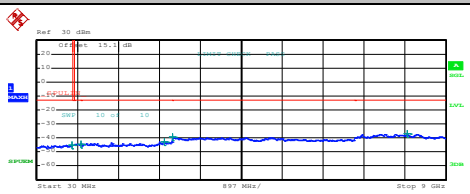
Middle Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	840.435000 M	-43.43	-30.43
1.000 G	1.845 G	1.00 M	1.248852 G	-42.25	-29.25
1.915 G	3.000 G	1.00 M	2.987522 G	-40.86	-27.86
3.000 G	7.000 G	1.00 M	4.080000 G	-38.88	-25.88
7.000 G	13.600 G	1.00 M	10.248025 G	-35.39	-22.39
13.600 G	19.100 G	1.00 M	15.461063 G	-27.08	-14.08

Date: 23.DEC.2016 15:21:12

Highest Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	804.595000 M	-45.33	-32.33
855.000 M	1.000 G	1.00 M	996.520010 M	-44.31	-31.31
1.000 G	3.000 G	1.00 M	2.836000 G	-42.77	-29.77
3.000 G	7.000 G	1.00 M	3.011000 G	-39.30	-26.30
7.000 G	9.000 G	1.00 M	8.160500 G	-37.13	-24.13

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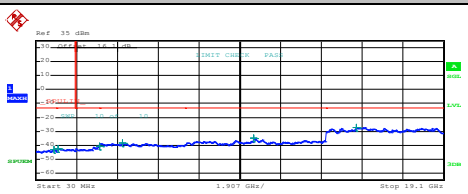
Highest Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	871.475000 M	-43.12	-30.12
1.000 G	1.845 G	1.00 M	1.056193 G	-42.65	-29.65
1.915 G	3.000 G	1.00 M	2.998915 G	-40.62	-27.62
3.000 G	7.000 G	1.00 M	4.087000 G	-38.58	-25.58
7.000 G	13.600 G	1.00 M	10.222450 G	-34.77	-21.77
13.600 G	19.100 G	1.00 M	15.007312 G	-27.41	-14.41

Date: 23.DEC.2016 15:21:57

Frequency Stability

Test Conditions	Middle Channel	CDMA BC0 (1xRTT)	Limit 2.5ppm
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0024	PASS
40	Normal Voltage	0.0036	
30	Normal Voltage	0.0024	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0000	
0	Normal Voltage	0.0036	
-10	Normal Voltage	0.0024	
-20	Normal Voltage	0.0048	
-30	Normal Voltage	0.0036	
20	Maximum Voltage	0.0036	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0024	

Test Conditions	Middle Channel	CDMA BC1 (1xRTT)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0011	PASS
40	Normal Voltage	0.0016	
30	Normal Voltage	0.0005	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0016	
0	Normal Voltage	0.0059	
-10	Normal Voltage	0.0037	
-20	Normal Voltage	0.0053	
-30	Normal Voltage	0.0053	
20	Maximum Voltage	0.0027	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0005	

Note:

1. Normal Voltage = 24V. ；Battery End Point (BEP) = 12 V.；Maximum Voltage =48 V
2. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

Appendix B. Test Results of ERP/EIRP

ERP/EIRP

Channel	Mode	Conducted		ERP	
		Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	GSM850	33.42	2.1979	34.31	2.6977
Middle	GPRS class 8	33.23	2.1038	34.12	2.5823
Highest	(GT - LC = 3.04 dB)	33.17	2.0749	34.06	2.5468
Lowest	GSM850	26.08	0.4055	26.97	0.4977
Middle	EDGE class 8	26.08	0.4055	26.97	0.4977
Highest	(GT - LC = 3.04 dB)	26.09	0.4064	26.98	0.4989
Lowest	WCDMA Band V	22.39	0.1734	23.28	0.2128
Middle	RMC 12.2Kbps	22.35	0.1718	23.24	0.2109
Highest	(GT - LC = 3.04 dB)	22.41	0.1742	23.30	0.2138
Lowest	CDMA BC0	22.90	0.1950	23.79	0.2393
Middle	1xRTT	22.74	0.1879	23.63	0.2307
Highest	(GT - LC = 3.04 dB)	22.68	0.1854	23.57	0.2275
Lowest	CDMA BC0	22.67	0.1849	23.56	0.2270
Middle	1xEV-DO	22.73	0.1875	23.62	0.2301
Highest	(GT - LC = 3.04 dB)	22.68	0.1854	23.57	0.2275
Limit	ERP < 7W	Result		PASS	

Channel	Mode	Conducted		EIRP	
		Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	GSM1900	29.47	0.8851	32.95	1.9724
Middle	GPRS class 8	29.45	0.8810	32.93	1.9634
Highest	(GT - LC = 3.48 dB)	29.40	0.8710	32.88	1.9409
Lowest	GSM1900	24.60	0.2884	28.08	0.6427
Middle	EDGE class 8	24.60	0.2884	28.08	0.6427
Highest	(GT - LC = 3.48 dB)	24.51	0.2825	27.99	0.6295
Lowest	WCDMA Band II	22.51	0.1782	25.99	0.3972
Middle	RMC 12.2Kbps	22.42	0.1746	25.90	0.3890
Highest	(GT - LC = 3.48 dB)	22.50	0.1778	25.98	0.3963
Lowest	CDMA BC1	22.81	0.1910	26.29	0.4256
Middle	1xRTT	22.64	0.1837	26.12	0.4093
Highest	(GT - LC = 3.48 dB)	22.68	0.1854	26.16	0.4130
Lowest	CDMA BC1	22.74	0.1879	26.22	0.4188
Middle	1xEV-DO	22.57	0.1807	26.05	0.4027
Highest	(GT - LC = 3.48 dB)	22.62	0.1828	26.10	0.4074
Limit	EIRP < 2W	Result		PASS	

Channel	Mode	Conducted		EIRP	
		Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	WCDMA Band IV	22.51	0.1782	25.99	0.3972
Middle	RMC 12.2Kbps	22.45	0.1758	25.93	0.3917
Highest	(GT - LC = 3.48 dB)	22.56	0.1803	26.04	0.4018
Limit	EIRP < 1W	Result		PASS	

Radiated Spurious Emission

GSM850 (GPRS class 8)									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	1648	-56.78	-13	-43.78	-66.56	-58.54	0.98	4.89	H
	2472	-51.06	-13	-38.06	-64.73	-52.94	1.28	5.32	H
	3296	-52.45	-13	-39.45	-68.37	-55.86	1.54	7.10	H
	1648	-58.12	-13	-45.12	-67.88	-59.88	0.98	4.89	V
	2472	-51.17	-13	-38.17	-64.91	-53.05	1.28	5.32	V
	3296	-53.59	-13	-40.59	-69.43	-57	1.54	7.10	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

GSM850 (EDGE class 8)									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Highest	1696	-58.31	-13	-45.31	-68.29	-59.91	1.00	4.75	H
	2544	-55.91	-13	-42.91	-69.89	-57.89	1.30	5.44	H
	3392	-54.01	-13	-41.01	-70.17	-57.81	1.57	7.52	H
	1696	-58.41	-13	-45.41	-68.34	-60.01	1.00	4.75	V
	2544	-55.64	-13	-42.64	-69.58	-57.62	1.30	5.44	V
	3392	-54.66	-13	-41.66	-70.82	-58.46	1.57	7.52	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

GSM1900 (GPRS class 8)									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3702	-51.34	-13	-38.34	-67.4	-63.13	0.72	12.52	H
	5550	-50.08	-13	-37.08	-69.32	-62.25	1.00	13.17	H
	7398	-47.24	-13	-34.24	-68.99	-56.64	1.18	10.58	H
	3702	-52.96	-13	-39.96	-69.18	-64.75	0.72	12.52	V
	5550	-49.46	-13	-36.46	-69.11	-61.63	1.00	13.17	V
	7398	-46.30	-13	-33.30	-68.24	-55.7	1.18	10.58	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

GSM GSM1900 (GPRS class 8)									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3702	-52.94	-13	-39.94	-69	-64.73	0.72	12.52	H
	5550	-49.84	-13	-36.84	-69.08	-62.01	1.00	13.17	H
	7398	-47.54	-13	-34.54	-69.29	-56.94	1.18	10.58	H
	3702	-52.41	-13	-39.41	-68.63	-64.2	0.72	12.52	V
	5550	-48.23	-13	-35.23	-67.88	-60.4	1.00	13.17	V
	7398	-47.67	-13	-34.67	-69.54	-57.07	1.18	10.58	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

WCDMA Band V (RMC 12.2Kbps)									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Highest	1696	-56.27	-13	-43.27	-66.19	-57.87	1.00	4.75	H
	2536	-56.37	-13	-43.37	-70.26	-58.35	1.30	5.43	H
	3384	-54.17	-13	-41.17	-70.15	-57.94	1.57	7.49	H
	1696	-55.86	-13	-42.86	-65.85	-57.46	1.00	4.75	V
	2536	-55.55	-13	-42.55	-69.45	-57.53	1.30	5.43	V
	3384	-53.77	-13	-40.77	-69.93	-57.54	1.57	7.49	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

WCDMA Band II (RMC 12.2Kbps)									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3708	-57.64	-13	-44.64	-74.48	-64.22	1.67	8.25	H
	5562	-49.16	-13	-36.16	-71.81	-56.22	2.66	9.72	H
	7410	-50.42	-13	-37.42	-77.5	-59.58	2.46	11.62	H
	3708	-56.36	-13	-43.36	-73.36	-62.94	1.67	8.25	V
	5562	-44.92	-13	-31.92	-67.4	-51.98	2.66	9.72	V
	7409	-50.37	-13	-37.37	-77.5	-59.53	2.46	11.62	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

WCDMA Band IV (RMC 12.2Kbps)									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Highest	3510	-43.18	-13	-30.18	-59.44	-49.58	1.61	8.01	H
	5258	-55.38	-13	-42.38	-77.21	-62.59	2.49	9.70	H
	7010	-51.30	-13	-38.30	-77.56	-59.53	2.59	10.82	H
	3510	-48.65	-13	-35.65	-65.15	-55.05	1.61	8.01	V
	5258	-55.75	-13	-42.75	-77.61	-62.96	2.49	9.70	V
	7010	-51.64	-13	-38.64	-77.61	-59.87	2.59	10.82	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

CDMA BC0 (1xRTT)									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	1648	-56.71	-13	-43.71	-66.4	-58.47	0.98	4.89	H
	2472	-55.28	-13	-42.28	-69.02	-57.16	1.28	5.32	H
	3296	-53.73	-13	-40.73	-69.71	-57.14	1.54	7.10	H
	1648	-55.70	-13	-42.70	-65.44	-57.46	0.98	4.89	V
	2472	-55.84	-13	-42.84	-69.58	-57.72	1.28	5.32	V
	3296	-54.00	-13	-41.00	-69.85	-57.41	1.54	7.10	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

CDMA BC1 (1xRTT)									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3702	-55.56	-13	-42.56	-72.38	-62.13	1.67	8.24	H
	5556	-46.39	-13	-33.39	-68.95	-53.46	2.66	9.72	H
	7404	-49.26	-13	-36.26	-76.31	-58.41	2.46	11.61	H
	3702	-53.86	-13	-40.86	-70.96	-60.43	1.67	8.24	V
	5556	-42.54	-13	-29.54	-65.09	-49.61	2.66	9.72	V
	7404	-50.14	-13	-37.14	-77.14	-59.29	2.46	11.61	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.