

FCC RF Test Report

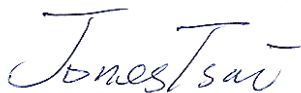
APPLICANT : Zebra Technologies Corporation
EQUIPMENT : Touch computer
BRAND NAME : Zebra
MODEL NAME : TC56CJ
FCC ID : UZ7TC56CJ
STANDARD : FCC 47 CFR Part 2, 22(H), 24(E), 27(L)
CLASSIFICATION : PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Oct. 13, 2016 and testing was completed on Dec. 12, 2016. 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



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG672014-10A	Rev. 01	Initial issue of report	Dec. 22, 2016

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	Reporting Only	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		
4.4	§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	-
4.5	§2.1053 §22.917(a) §24.238(a) §27.53(h)	Field Strength of Spurious Radiation	< 43+10log10(P[Watts])	PASS	Under limit 16.80 dB at 2472.000 MHz



1 General Description

1.1 Applicant

Zebra Technologies Corporation
1 Zebra Plaza Holtsville, NY 11742

1.2 Manufacturer

Wistron Corporation
21F, No. 88, Sec. 1, Hsin Tai Wu Rd., Hsichih Dist, New Taipei City 221, Taiwan R.O.C.

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Touch computer
Brand Name	Zebra
Model Name	TC56CJ
FCC ID	UZ7TC56CJ
EUT supports Radios application	CDMA/EV-DO/GSM/EGPRS/WCDMA/HSPA/LTE/NFC WLAN 11a/b/g/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE
HW Version	DV1
SW Version	91-12-04.4-MG-00
MFD	17OCT16
EUT Stage	Engineering sample

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

Specification of Accessories				
Adapter (5V/2.5A)	Brand Name	Zebra	Model Number	SAWA-65-20005A
Headset Jumper 1	Brand Name	Zebra	Part Number	CBL-TC51-HDST25-01
Headset Jumper 2	Brand Name	Zebra	Part Number	CBL-TC51-HDST35-01
Battery	Brand Name	Zebra	Model Number	BT-000314
2.5mm Earphone	Brand Name	Zebra	Part Number	HDST-25MM-PTVP-01
3.5mm Earphone	Brand Name	Zebra	Part Number	HDST-35MM-PTVP-01
Trigger Handle	Brand Name	Zebra	Part Number	TRG-TC51-SNP1-01
Rugged Charge/USB cable	Brand Name	Zebra	Part Number	CBL-TC51-USB1-01
Soft Holster	Brand Name	Zebra	Part Number	SG-TC51-HLSTR1-01
Exoskeleton	Brand Name	Zebra	Part Number	SG-TC51-EX01-01
Hand strap	Brand Name	Zebra	Part Number	SG-TC51-BHDSTP1-03

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	GSM/GPRS/EDGE: 850: 824.2 MHz ~ 848.8 MHz 1900: 1850.2 MHz ~ 1909.8MHz WCDMA: Band V: 826.4 MHz ~ 846.6 MHz Band II: 1852.4 MHz ~ 1907.6 MHz Band IV: 1712.4 MHz ~ 1752.6 MHz CDMA2000: BC0: 824.70 MHz ~ 848.31 MHz BC1: 1851.25 MHz ~ 1908.75 MHz
Rx Frequency	GSM/GPRS/EDGE: 850: 869.2 MHz ~ 893.8 MHz 1900: 1930.2 MHz ~ 1989.8 MHz WCDMA: Band V: 871.4 MHz ~ 891.6 MHz Band II: 1932.4 MHz ~ 1987.6 MHz Band IV: 2112.4 MHz ~ 2152.6 MHz CDMA2000: BC0: 869.70 MHz ~ 893.31 MHz BC1: 1931.25 MHz ~ 1988.75 MHz
Maximum Output Power to Antenna	GSM/GPRS/EDGE: 850: 33.32 dBm 1900: 30.26 dBm WCDMA: Band V: 23.97 dBm Band II: 24.37 dBm Band IV: 24.00 dBm CDMA2000: BC0: 24.88 dBm BC1: 24.94 dBm
Antenna Type	Mono-pole coupling Antenna
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE: GMSK / 8PSK WCDMA: QPSK (Uplink) HSDPA: QPSK (Uplink) HSUPA: QPSK (Uplink) CDMA2000 1xRTT: QPSK CDMA2000 1xEV-DO: QPSK/8PSK



1.5 Modification of EUT

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

1.6 Maximum ERP/EIRP Power, Frequency Tolerance, and Emission Designator

FCC Rule	System	Type of Modulation	Maximum ERP/EIRP (W)	Frequency Tolerance (ppm)	Emission Designator
Part 22	GSM850 GPRS class 8	GMSK	0.7621	0.0072 ppm	245KGXW
Part 22	GSM850 EDGE class 8	8PSK	0.2265	0.0024 ppm	238KG7W
Part 22	WCDMA Band V RMC 12.2Kbps	QPSK	0.1156	0.0155 ppm	4M12F9W
Part 22	CDMA2000 BC0 1xRTT	QPSK	0.1374	0.0024 ppm	1M27F9W
Part 22	CDMA2000 BC0 1xEV-DO Rev. 0	QPSK	0.1368	-	-
Part 24	GSM1900 GPRS class 8	GMSK	1.3213	0.0362 ppm	246KGXW
Part 24	GSM1900 EDGE class 8	8PSK	0.5483	0.0202 ppm	243KG7W
Part 24	WCDMA Band II RMC 12.2Kbps	QPSK	0.3963	0.0064 ppm	4M13F9W
Part 24	CDMA2000 BC1 1xRTT	QPSK	0.3873	0.0048 ppm	1M28F9W
Part 24	CDMA2000 BC1 1xEV-DO Rev. 0	QPSK	0.3954	-	-
Part 27	WCDMA Band IV RMC 12.2Kbps	QPSK	0.3428	0.0150 ppm	4M12F9W

1.7 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 1 st 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.
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Test Site No.	Sporton Site No.
	03CH10-HY

1.8 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

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. The worst cases (X plane for Cellular Band and AWS Band, Z Plane for PCS Band) were recorded in this report.

Radiated emissions were investigated as following frequency range:

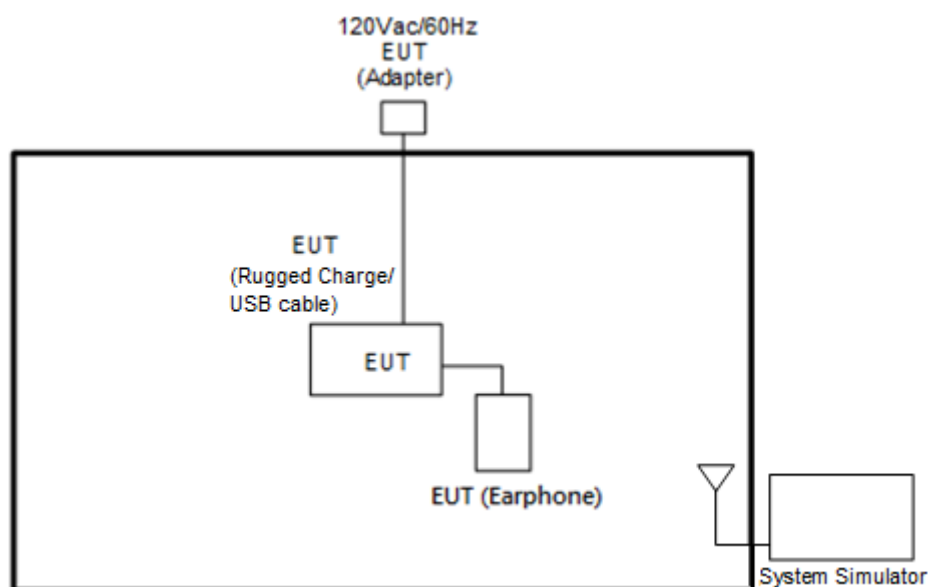
1. 30 MHz to 9000 MHz for GSM850 and WCDMA Band V and CDMA BC0.
2. 30 MHz to 18000 MHz for WCDMA Band IV.
3. 30 MHz to 19100 MHz for GSM1900 and WCDMA Band II and CDMA BC1.

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	<ul style="list-style-type: none"> ■ GPRS class 8 Link ■ EDGE class 8 Link 	<ul style="list-style-type: none"> ■ GPRS class 8 Link ■ EDGE class 8 Link
GSM 1900	<ul style="list-style-type: none"> ■ GPRS class 8 Link ■ EDGE class 8 Link 	<ul style="list-style-type: none"> ■ GPRS class 8 Link ■ EDGE class 8 Link
WCDMA Band V	<ul style="list-style-type: none"> ■ RMC 12.2Kbps Link 	<ul style="list-style-type: none"> ■ RMC 12.2Kbps Link
WCDMA Band II	<ul style="list-style-type: none"> ■ RMC 12.2Kbps Link 	<ul style="list-style-type: none"> ■ RMC 12.2Kbps Link
WCDMA Band IV	<ul style="list-style-type: none"> ■ RMC 12.2Kbps Link 	<ul style="list-style-type: none"> ■ RMC 12.2Kbps Link
CDMA BC0	<ul style="list-style-type: none"> ■ 1xRTT Link 	<ul style="list-style-type: none"> ■ 1xRTT Link
CDMA BC1	<ul style="list-style-type: none"> ■ 1xRTT Link 	<ul style="list-style-type: none"> ■ 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).

$$= 4.2 + 10 = 14.2 \text{ (dB)}$$

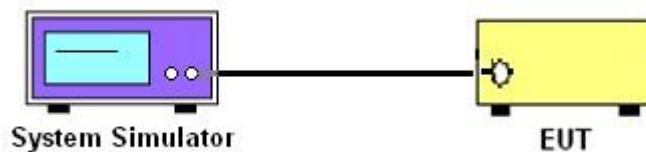
3 Conducted Test Result

3.1 Measuring Instruments

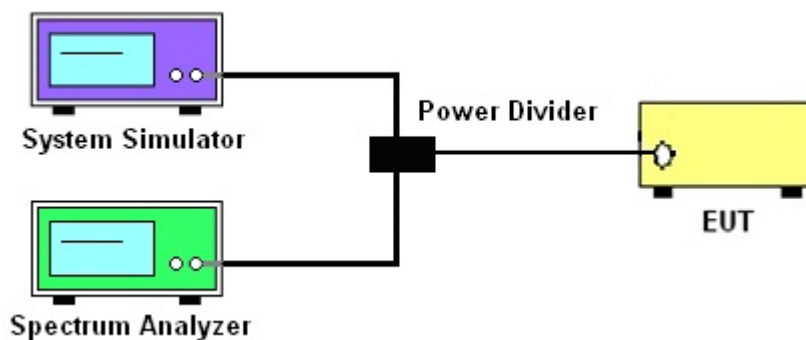
See list of measuring instruments of this test report.

3.2 Test Setup

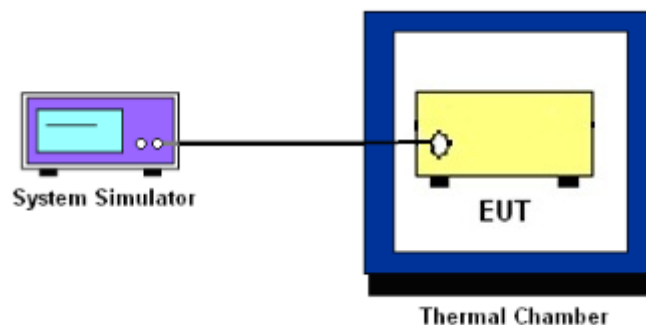
3.2.1 Conducted Output Power



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

3.4.1 Description of the Conducted Output Power

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.

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 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 $43 + 10\log(P)$ dB below the transmitter power P(Watts)
 $= P(W) - [43 + 10\log(P)]$ (dB)
 $= [30 + 10\log(P)]$ (dBm) - $[43 + 10\log(P)]$ (dB)
 $= -13\text{dBm}$.

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 $43 + 10\log(P)$ dB below the transmitter power P(Watts)
= $P(W) - [43 + 10\log(P)]$ (dB)
= $[30 + 10\log(P)]$ (dBm) - $[43 + 10\log(P)]$ (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 $\pm 0.00025\%$ ($\pm 2.5\text{ppm}$) 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 $20\pm 5^{\circ}\text{C}$ 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

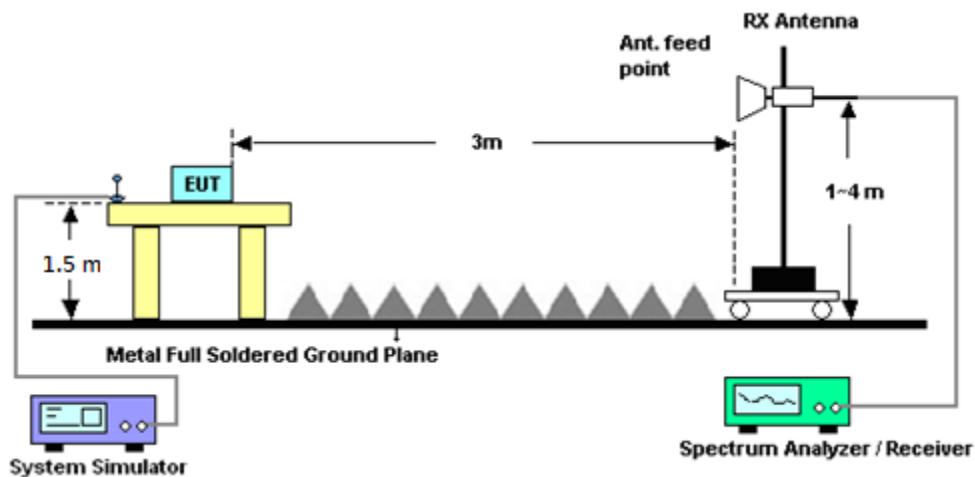
See list of measuring instruments of this test report.

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 Effective Radiated Power and Effective Isotropic Radiated Power Measurement

4.4.1 Description of the ERP/EIRP Measurement

The substitution method, in ANSI / TIA / EIA-603-D-2010, was used for ERP/EIRP measurement, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v02r02. The ERP of mobile transmitters must not exceed 7 Watts (Cellular Band) and the EIRP of mobile transmitters are limited to 2 Watts (PCS Band) and 1 Watts (AWS Band).

4.4.2 Test Procedures

1. The testing follows FCC KDB 971168 D01 v02r02 Section 5.2.1. (for CDMA/WCDMA), Section 5.2.2.2 (for GSM/GPRS/EDGE) and ANSI / TIA-603-D-2010 Section 2.2.17.
2. The EUT was placed on a non-conductive rotating platform (0.8 meters for frequency below 1GHz and 1.5 meter for frequency above 1GHz) in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with RMS detector per section 5. of KDB 971168 D01.
3. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power. The maximum emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna raised and lowered over a range from 1 to 4 meters in both horizontally and vertically polarized orientations.
4. Effective Isotropic Radiated Power (EIRP) was measured by substitution method according to TIA/EIA-603-D. The EUT was replaced by the substitution antenna at same location, and then a known power from S.G. was applied into the dipole antenna through a Tx cable, and then recorded the maximum Analyzer reading through raised and lowered the test antenna. The correction factor (in dB) = S.G. - Tx Cable loss + Substitution antenna gain - Analyzer reading. Then the EUT's EIRP was calculated with the correction factor, $EIRP = LVL + \text{Correction factor}$ and $ERP = EIRP - 2.15$. Take the record of the output power at substitution antenna.



	GSM/GPRS/EDGE	WCDMA/HSPA
SPAN	500kHz	10MHz
RBW	10kHz	100kHz
VBW	30kHz	300kHz
Detector	RMS	RMS
Trace	Average	Average
Average Type	Power	Power
Sweep Count	100	100

4.5 Field Strength of Spurious Radiation Measurement

4.5.1 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.

4.5.2 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. $EIRP \text{ (dBm)} = S.G. \text{ Power} - Tx \text{ Cable Loss} + Tx \text{ Antenna Gain}$
12. $ERP \text{ (dBm)} = EIRP - 2.15$
13. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
14. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)
 $= P(W) - [43 + 10\log(P)] \text{ (dB)}$
 $= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$
 $= -13\text{dBm}.$



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	Oct. 28 2016~ Dec. 12 2016	Jun. 26, 2017	Conducted (TH03-HY)
Temperature Chamber	ESPEC	SU-641	92013721	-30℃ ~70℃	Nov. 20, 2015	Oct. 28 2016~ Oct. 29 2016	Nov. 19, 2016	Conducted (TH03-HY)
Temperature Chamber	ESPEC	SU-641	92013721	-30℃ ~70℃	Nov. 16, 2016	Nov. 23 2016~ Dec. 12 2016	Nov. 15, 2017	Conducted (TH03-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL883644	Voltage:0~20V;Current:0~5A	Nov. 26, 2015	Oct. 28 2016~ Oct. 29 2016	Nov. 25, 2016	Conducted (TH03-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL883644	Voltage:0~20V;Current:0~5A	Nov. 22, 2016	Nov. 23 2016~ Dec. 12 2016	Nov. 21, 2017	Conducted (TH03-HY)
Base Station (Measure)	Rohde & Schwarz	CMU200	117995	GSM / GPRS / WCDMA / CDMA	Aug. 03, 2016	Oct. 28 2016~ Dec. 12 2016	Aug.04, 2017	Conducted (TH03-HY)
Amplifier	SONOMA	310N	187311	9kHz~1GHz	Oct. 26, 2016	Nov. 11, 2016~ Nov. 26, 2016	Oct. 25, 2017	Radiation (03CH10-HY)
Bilog Antenna	TESEQ	CBL 6111D&00800N	35413&02	30MHz~1GHz	Jan. 13, 2016	Nov. 11, 2016~ Nov. 26, 2016	Jan. 12, 2017	Radiation (03CH10-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1325	1GHz ~ 18GHz	Sep. 30, 2016	Nov. 11, 2016~ Nov. 26, 2016	Sep. 29, 2017	Radiation (03CH10-HY)
Preamplifier	Keysight	83017A	MY53270078	1GHz~26.5GHz	Oct. 26, 2016	Nov. 11, 2016~ Nov. 26, 2016	Oct. 25, 2017	Radiation (03CH10-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200485	10Hz ~ 44GHz	Oct. 17, 2016	Nov. 11, 2016~ Nov. 26, 2016	Oct. 16, 2017	Radiation (03CH10-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Nov. 11, 2016~ Nov. 26, 2016	N/A	Radiation (03CH10-HY)
Turn Table	EMEC	TT 2200	N/A	0~360 Degree	N/A	Nov. 11, 2016~ Nov. 26, 2016	N/A	Radiation (03CH10-HY)
Preamplifier	MITEQ	AMF-7D-00101 800-30-10P	1590074	1GHz~18GHz	Jun. 27, 2016	Nov. 11, 2016~ Nov. 26, 2016	Jun. 26, 2017	Radiation (03CH10-HY)
Preamplifier	MITEQ	JS44-18004000 -33-8P	1840917	18GHz ~ 40GHz	Jun. 14, 2016	Nov. 11, 2016~ Nov. 26, 2016	Jun. 13, 2017	Radiation (03CH10-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1522	1G~18GHz	Mar. 31, 2016	Nov. 11, 2016~ Nov. 26, 2016	Mar. 30, 2017	Radiation (03CH10-HY)
Signal Generator	Anritsu	MG3694C	163401	0.1Hz~40GHz	Aug. 19, 2016	Nov. 11, 2016~ Nov. 26, 2016	Aug. 18, 2017	Radiation (03CH10-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170584	18GHz- 40GHz	Nov. 08, 2016	Nov. 11, 2016~ Nov. 26, 2016	Nov. 07, 2017	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% ($U = 2Uc(y)$)	5.6
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Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.9
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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	1880.0	1909.8
GSM	32.86	33.14	33.28	29.61	30.20	29.86
GPRS class 8	32.87	33.15	33.32	29.63	30.26	29.88
GPRS class 10	30.35	30.58	30.73	27.78	28.19	27.86
GPRS class 11	28.00	28.16	28.13	25.19	25.52	25.39
GPRS class 12	27.13	27.15	27.17	24.14	24.48	24.40
EGPRS class 8	26.70	26.80	26.85	25.28	25.61	25.59
EGPRS class 10	24.55	24.66	24.71	23.27	23.52	23.48
EGPRS class 11	22.43	22.54	22.58	21.17	21.43	21.40
EGPRS class 12	21.36	21.57	21.58	20.07	20.33	20.30

Conducted Power (*Unit: dBm)									
Band	WCDMA Band II			WCDMA Band IV			WCDMA Band V		
Channel	9262	9400	9538	1312	1413	1513	4132	4182	4233
Frequency	1852.4	1880	1907.6	1712.4	1732.6	1752.6	826.4	836.4	846.6
AMR 12.2Kbps	24.20	24.05	24.30	23.98	23.92	23.96	23.96	23.92	23.76
RMC 12.2K	24.22	24.07	24.37	23.99	24.00	23.96	23.97	23.93	23.80
HSDPA Subtest-1	23.40	23.15	23.39	23.12	23.03	23.11	23.05	22.97	22.86
HSDPA Subtest-2	23.29	23.16	23.43	23.04	22.97	23.10	22.99	22.95	22.91
HSDPA Subtest-3	22.84	22.66	22.84	22.62	22.47	22.54	22.40	22.49	22.36
HSDPA Subtest-4	22.86	22.59	22.89	22.62	22.43	22.57	22.44	22.46	22.28
DC-HSDPA Subtest-1	23.22	23.05	23.38	22.97	22.95	23.02	22.92	22.83	22.84
DC-HSDPA Subtest-2	23.18	23.03	23.27	22.98	22.85	23.03	22.89	22.86	22.79
DC-HSDPA Subtest-3	22.75	22.60	22.71	22.44	22.39	22.52	22.37	22.35	22.30
DC-HSDPA Subtest-4	22.63	22.57	22.69	22.45	22.30	22.50	22.27	22.31	22.25
HSUPA Subtest-1	23.34	23.08	23.39	23.07	23.00	23.05	22.99	22.85	22.81
HSUPA Subtest-2	21.46	21.29	21.46	21.03	21.08	21.19	21.12	21.01	20.91
HSUPA Subtest-3	22.38	22.19	22.45	22.02	22.03	22.13	22.11	21.93	21.92
HSUPA Subtest-4	21.40	21.29	21.48	20.96	21.09	21.17	21.08	21.05	20.93
HSUPA Subtest-5	23.29	23.16	23.41	23.03	22.98	23.10	22.99	22.91	22.86



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	24.82	24.76	24.61	24.83	24.72	24.85
1xRTT RC3 SO55	24.88	24.74	24.66	24.85	24.61	24.94
1xRTT RC3 SO32 (+ F-SCH)	24.70	24.62	24.50	24.86	24.65	24.85
1xRTT RC3 SO32 (+SCH)	24.78	24.65	24.63	24.85	24.63	24.76
1xEVDO RTAP 153.6Kbps	24.74	24.68	24.75	24.90	24.71	24.76
1xEVDO RETAP 4096Bits	24.65	24.52	24.44	24.88	24.72	24.75



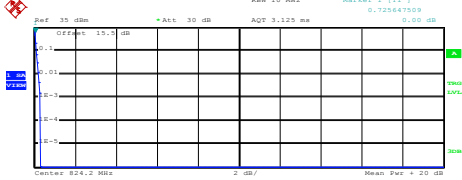
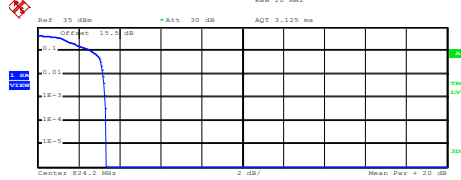
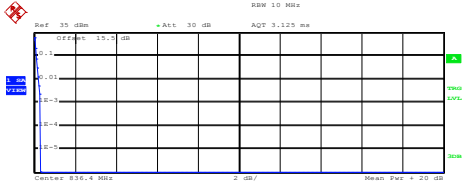
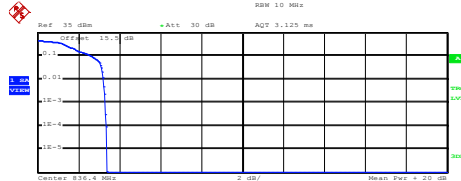
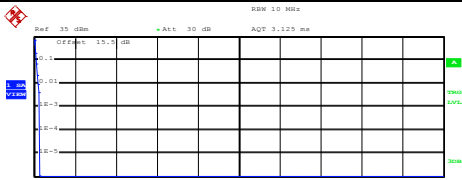
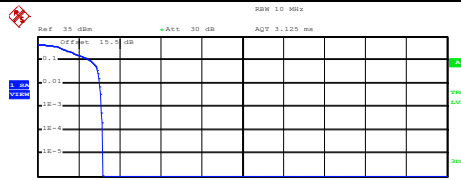
A1. GSM

Peak-to-Average Ratio

Mode	GSM850		Limit: 13dB
Mod.	GPRS class 8	EDGE class 8	Result
Lowest CH	0.28	3.28	PASS
Middle CH	0.32	3.32	
Highest CH	0.28	3.12	

Mode	GSM1900		Limit: 13dB
Mod.	GPRS class 8	EDGE class 8	Result
Lowest CH	0.20	3.20	PASS
Middle CH	0.20	3.28	
Highest CH	0.20	3.28	



GSM850 (GPRS class 8)		GSM850 (EDGE class 8)	
Lowest Channel		Lowest Channel	
 <p>Ref: 35 dBm Att: 30 dB AGT: 3.125 ms</p> <p>Center: 824.2 MHz</p> <p>Mean: 32.19 dBm Peak: 32.50 dBm Crest: 0.32 dB</p> <p>10 % 0.12 dB 1 % 0.20 dB .1 % 0.28 dB .01 % 0.32 dB</p> <p>Date: 28.OCT.2016 09:05:19</p>		 <p>Ref: 35 dBm Att: 30 dB AGT: 3.125 ms</p> <p>Center: 824.2 MHz</p> <p>Mean: 25.86 dBm Peak: 29.19 dBm Crest: 3.33 dB</p> <p>10 % 2.64 dB 1 % 3.20 dB .1 % 3.28 dB .01 % 3.36 dB</p> <p>Date: 28.OCT.2016 09:24:08</p>	
Middle Channel		Middle Channel	
 <p>Ref: 35 dBm Att: 30 dB AGT: 3.125 ms</p> <p>Center: 836.4 MHz</p> <p>Mean: 32.54 dBm Peak: 32.85 dBm Crest: 0.31 dB</p> <p>10 % 0.12 dB 1 % 0.20 dB .1 % 0.32 dB .01 % 0.32 dB</p> <p>Date: 28.OCT.2016 09:06:14</p>		 <p>Ref: 35 dBm Att: 30 dB AGT: 3.125 ms</p> <p>Center: 836.4 MHz</p> <p>Mean: 26.03 dBm Peak: 29.40 dBm Crest: 3.37 dB</p> <p>10 % 2.64 dB 1 % 3.20 dB .1 % 3.32 dB .01 % 3.36 dB</p> <p>Date: 28.OCT.2016 09:24:53</p>	
Highest Channel		Highest Channel	
 <p>Ref: 35 dBm Att: 30 dB AGT: 3.125 ms</p> <p>Center: 848.8 MHz</p> <p>Mean: 32.37 dBm Peak: 32.64 dBm Crest: 0.27 dB</p> <p>10 % 0.12 dB 1 % 0.20 dB .1 % 0.28 dB .01 % 0.28 dB</p> <p>Date: 28.OCT.2016 09:07:02</p>		 <p>Ref: 35 dBm Att: 30 dB AGT: 3.125 ms</p> <p>Center: 848.8 MHz</p> <p>Mean: 26.22 dBm Peak: 29.40 dBm Crest: 3.18 dB</p> <p>10 % 2.56 dB 1 % 3.04 dB .1 % 3.12 dB .01 % 3.20 dB</p> <p>Date: 28.OCT.2016 09:25:43</p>	



GSM1900 (GPRS class 8)		GSM1900 (EDGE class 8)	
Lowest Channel		Lowest Channel	
<p>Ref: 35 dBm +Att: 30 dB AQT: 3.125 ms</p> <p>Center 1.8502 GHz 2 dB/ Mean Pwr: +20 dB</p> <p>Complementary Cumulative Distribution Function (100000 samples)</p> <p>Trace 1</p> <p>Mean 28.84 dBm Peak 29.04 dBm Crest 0.20 dB</p> <p>10 % 0.08 dB 1 % 0.16 dB .1 % 0.20 dB .01 % 0.20 dB</p> <p>Date: 28.OCT.2016 09:40:30</p>		<p>Ref: 35 dBm +Att: 30 dB AQT: 3.125 ms</p> <p>Center 1.8502 GHz 2 dB/ Mean Pwr: +20 dB</p> <p>Complementary Cumulative Distribution Function (100000 samples)</p> <p>Trace 1</p> <p>Mean 24.42 dBm Peak 27.70 dBm Crest 3.29 dB</p> <p>10 % 2.56 dB 1 % 3.12 dB .1 % 3.20 dB .01 % 3.24 dB</p> <p>Date: 28.OCT.2016 09:54:53</p>	
Middle Channel		Middle Channel	
<p>Ref: 35 dBm +Att: 30 dB AQT: 3.125 ms</p> <p>Center 1.88 GHz 2 dB/ Mean Pwr: +20 dB</p> <p>Complementary Cumulative Distribution Function (100000 samples)</p> <p>Trace 1</p> <p>Mean 28.91 dBm Peak 29.12 dBm Crest 0.20 dB</p> <p>10 % 0.08 dB 1 % 0.16 dB .1 % 0.20 dB .01 % 0.20 dB</p> <p>Date: 28.OCT.2016 09:41:13</p>		<p>Ref: 35 dBm +Att: 30 dB AQT: 3.125 ms</p> <p>Center 1.88 GHz 2 dB/ Mean Pwr: +20 dB</p> <p>Complementary Cumulative Distribution Function (100000 samples)</p> <p>Trace 1</p> <p>Mean 24.48 dBm Peak 27.85 dBm Crest 3.36 dB</p> <p>10 % 2.56 dB 1 % 3.20 dB .1 % 3.28 dB .01 % 3.32 dB</p> <p>Date: 28.OCT.2016 09:56:29</p>	
Highest Channel		Highest Channel	
<p>Ref: 35 dBm +Att: 30 dB AQT: 3.125 ms</p> <p>Center 1.9098 GHz 2 dB/ Mean Pwr: +20 dB</p> <p>Complementary Cumulative Distribution Function (100000 samples)</p> <p>Trace 1</p> <p>Mean 29.08 dBm Peak 29.33 dBm Crest 0.25 dB</p> <p>10 % 0.12 dB 1 % 0.16 dB .1 % 0.20 dB .01 % 0.20 dB</p> <p>Date: 28.OCT.2016 09:41:52</p>		<p>Ref: 35 dBm +Att: 30 dB AQT: 3.125 ms</p> <p>Center 1.9098 GHz 2 dB/ Mean Pwr: +20 dB</p> <p>Complementary Cumulative Distribution Function (100000 samples)</p> <p>Trace 1</p> <p>Mean 24.39 dBm Peak 27.77 dBm Crest 3.39 dB</p> <p>10 % 2.60 dB 1 % 3.20 dB .1 % 3.28 dB .01 % 3.36 dB</p> <p>Date: 28.OCT.2016 09:57:54</p>	

**26dB Bandwidth**

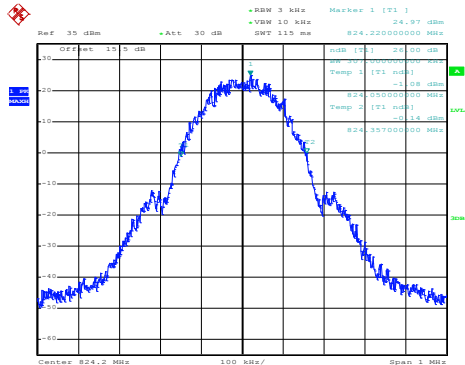
Mode	GSM850	
Mod.	GPRS class 8	EDGE class 8
Lowest CH	0.307	0.284
Middle CH	0.304	0.301
Highest CH	0.297	0.284

Mode	GSM1900	
Mod.	GPRS class 8	EDGE class 8
Lowest CH	0.309	0.300
Middle CH	0.308	0.288
Highest CH	0.311	0.288



GSM850 (GPRS class 8)

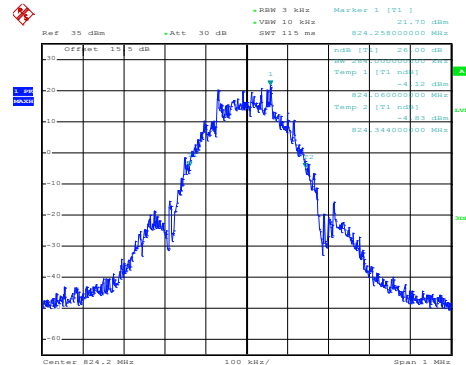
Lowest Channel



Date: 28.OCT.2016 08:53:11

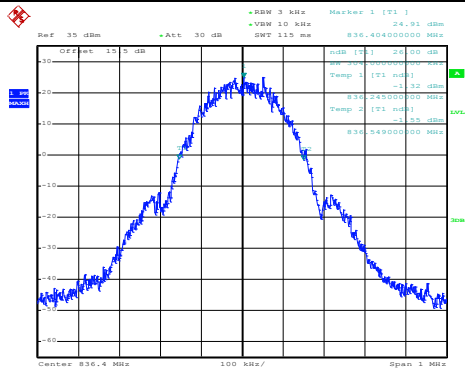
GSM850 (EDGE class 8)

Lowest Channel



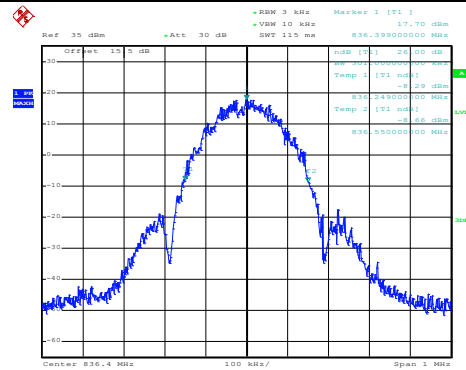
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Middle Channel



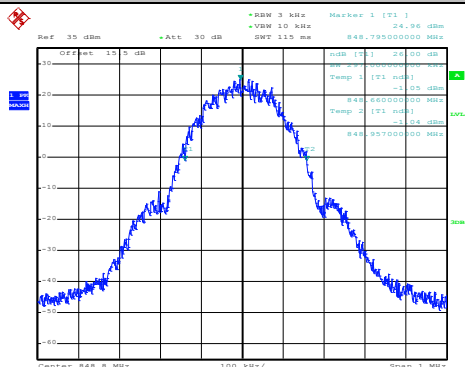
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Middle Channel



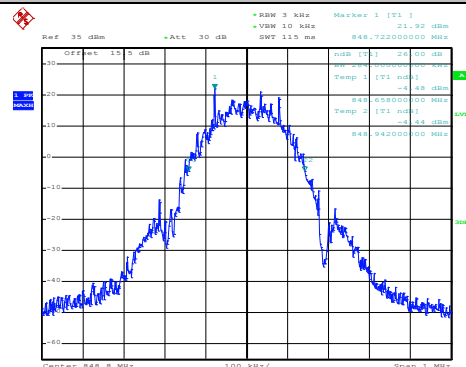
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Highest Channel

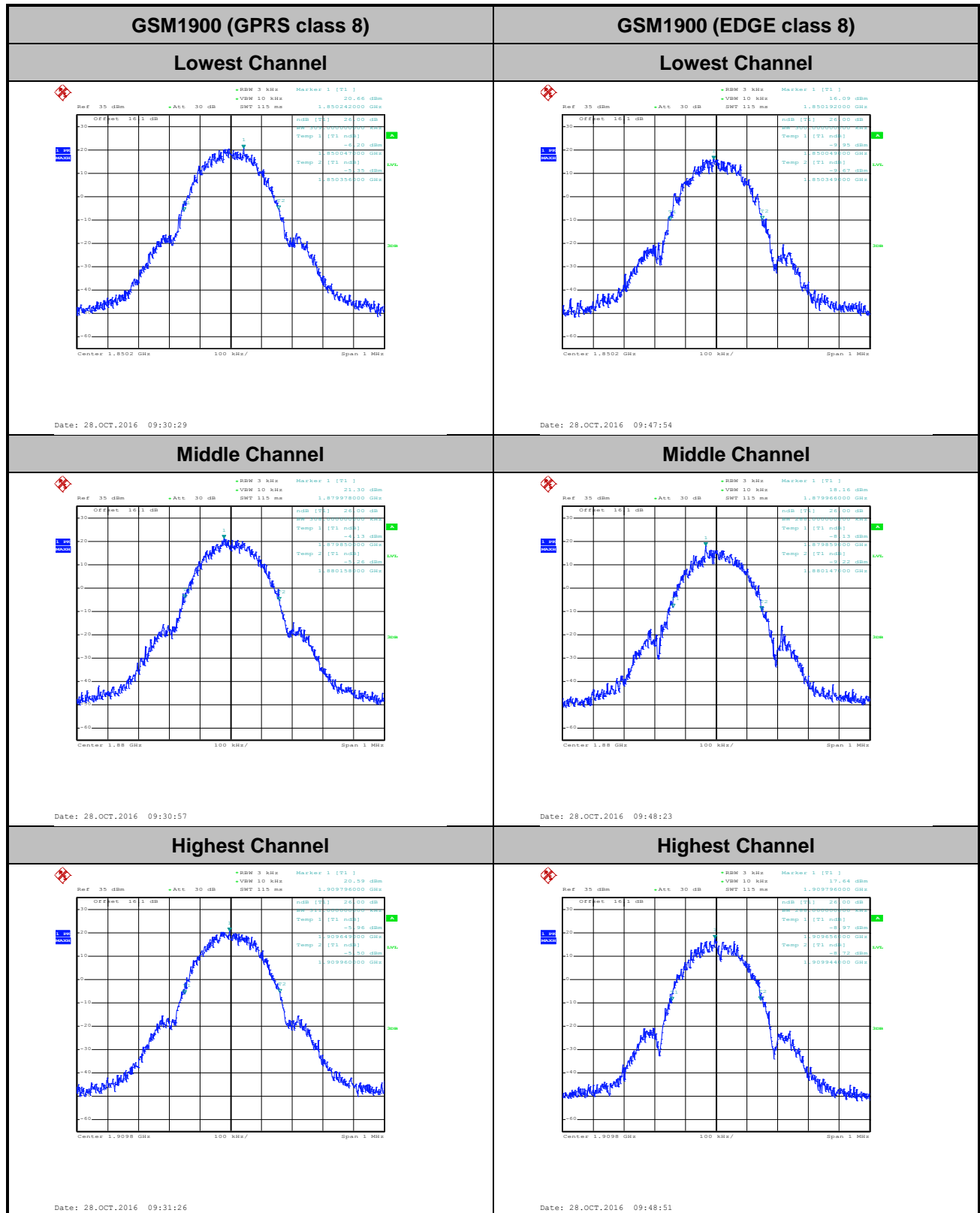


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Highest Channel



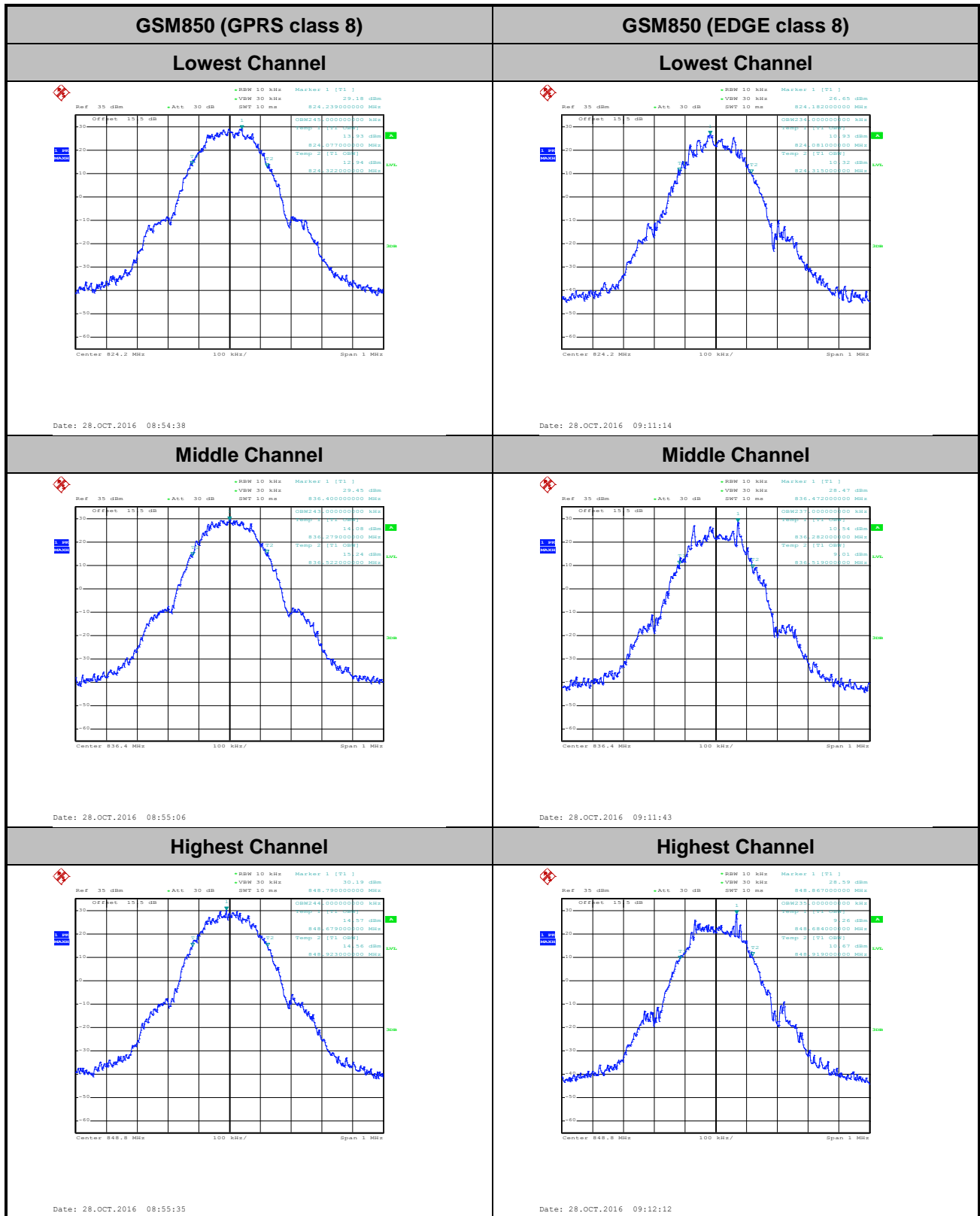
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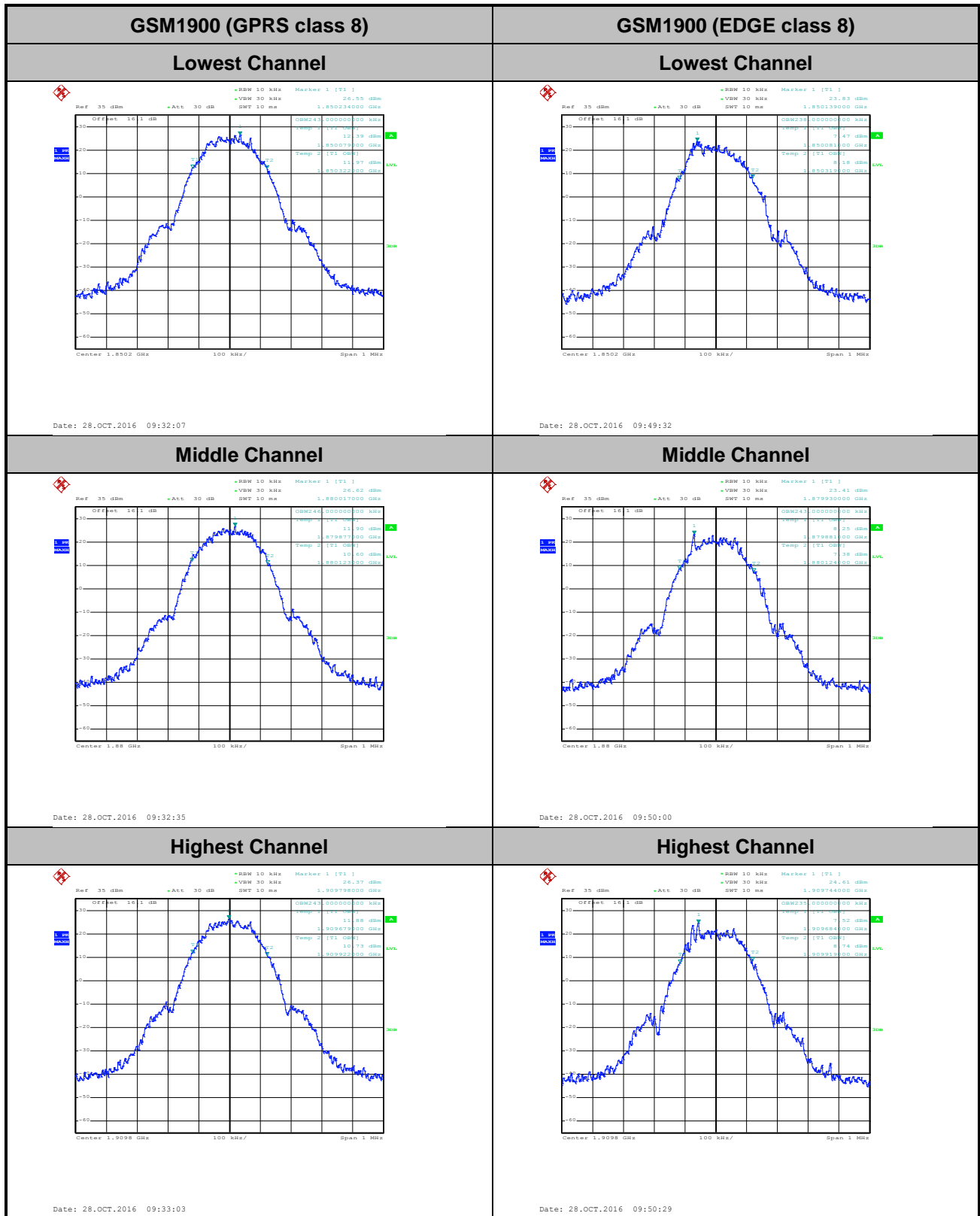


**Occupied Bandwidth**

Mode	GSM850	
Mod.	GPRS class 8	EDGE class 8
Lowest CH	0.245	0.234
Middle CH	0.243	0.238
Highest CH	0.244	0.235

Mode	GSM1900	
Mod.	GPRS class 8	EDGE class 8
Lowest CH	0.243	0.238
Middle CH	0.246	0.243
Highest CH	0.243	0.235



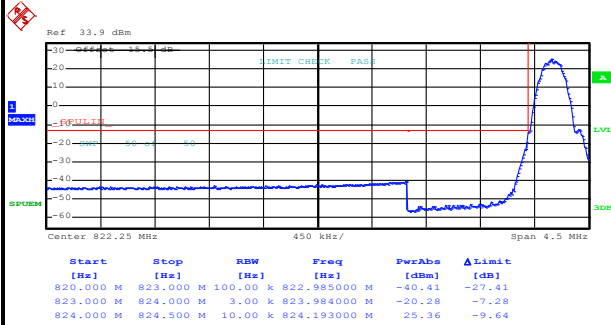




Conducted Band Edge

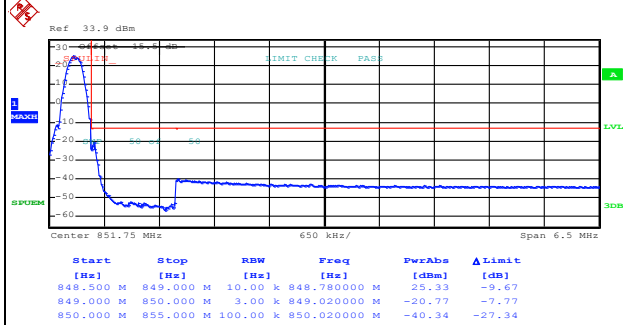
GSM850 (GPRS class 8)

Lowest Band Edge



Date: 28.OCT.2016 08:57:03

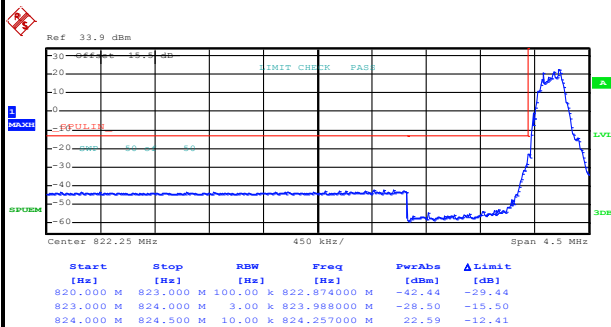
Highest Band Edge



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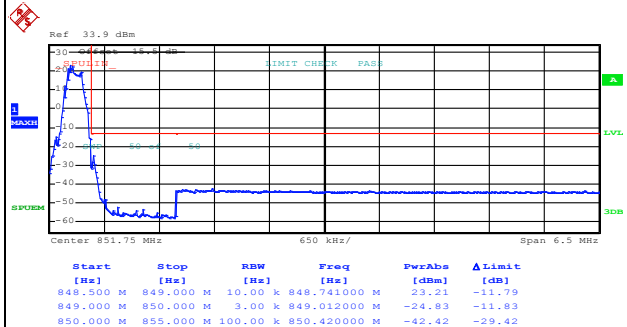
GSM850 (EDGE class 8)

Lowest Band Edge



Date: 28.OCT.2016 09:14:04

Highest Band Edge

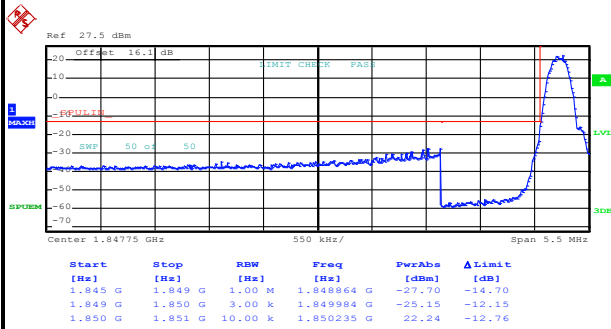


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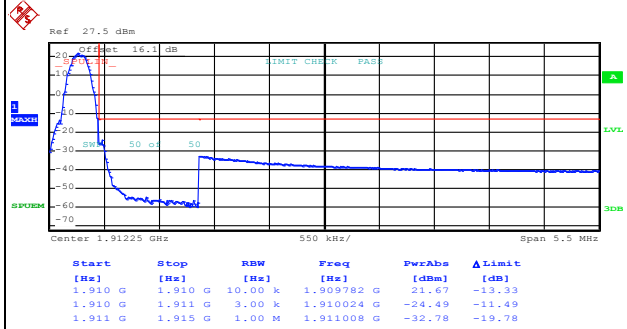
GSM1900 (GPRS class 8)

Lowest Band Edge



Date: 28.OCT.2016 09:34:39

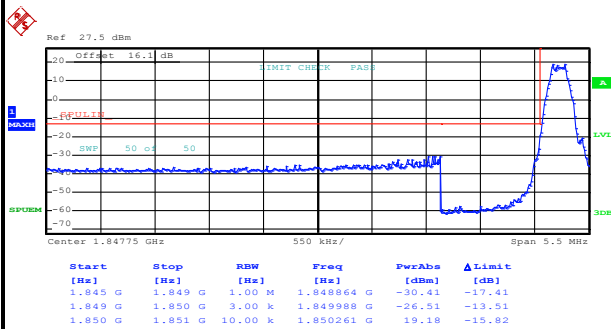
Highest Band Edge



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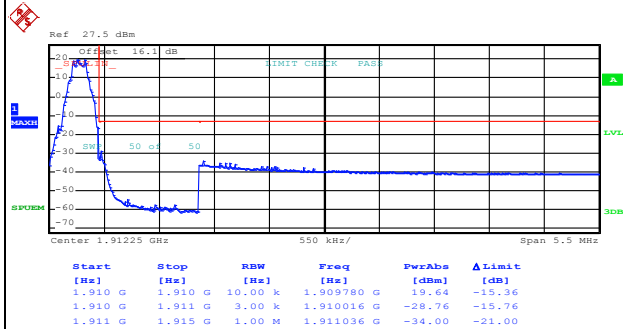
GSM1900 (EDGE class 8)

Lowest Band Edge



Date: 28.OCT.2016 09:51:59

Highest Band Edge

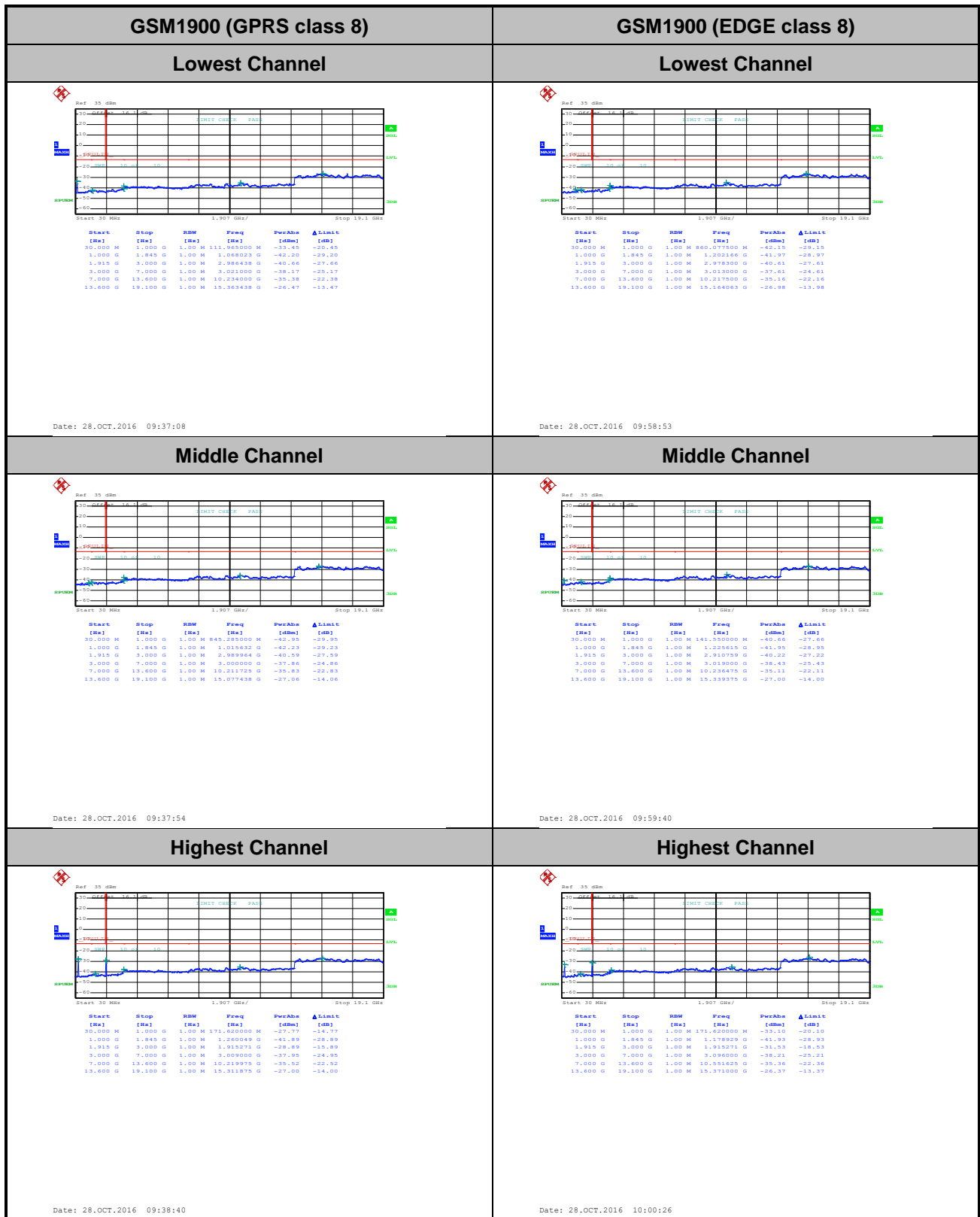


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Conducted Spurious Emission

GSM850 (GPRS class 8)		GSM850 (EDGE class 8)	
Lowest Channel		Lowest Channel	
<div><div><div>Ref: 35 dBm</div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><di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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	0.0024	0.0024	PASS
40	Normal Voltage	0.0036	0.0000	
30	Normal Voltage	0.0072	0.0000	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0036	0.0024	
0	Normal Voltage	0.0036	0.0012	
-10	Normal Voltage	0.0024	0.0012	
-20	Normal Voltage	0.0048	0.0012	
-30	Normal Voltage	0.0036	0.0024	
20	Maximum Voltage	0.0012	0.0024	
20	Normal Voltage	0.0000	0.0000	
20	Battery End Point	0.0012	0.0012	

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	0.0011	0.0021	PASS
40	Normal Voltage	0.0005	0.0032	
30	Normal Voltage	0.0021	0.0000	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0016	0.0027	
0	Normal Voltage	0.0027	0.0011	
-10	Normal Voltage	0.0324	0.0181	
-20	Normal Voltage	0.0362	0.0197	
-30	Normal Voltage	0.0351	0.0202	
20	Maximum Voltage	0.0000	0.0000	
20	Normal Voltage	0.0000	0.0000	
20	Battery End Point	0.0011	0.0005	

Note:

1. Normal Voltage = 3.6V. ; Battery End Point (BEP) = 3.45 V. ; Maximum Voltage =4.2 V
2. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

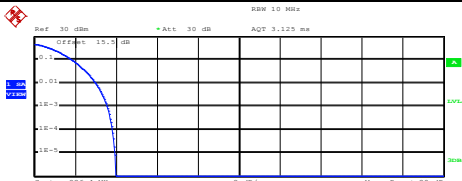
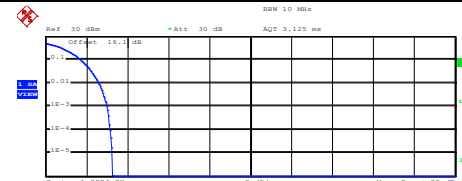
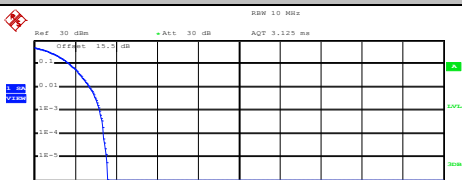
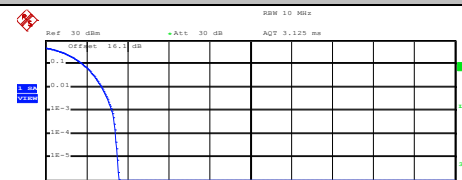
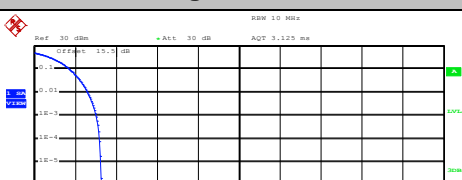
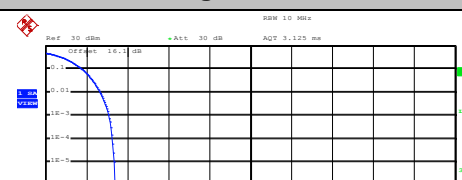


A2. WCDMA

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	3.56	3.00	3.00	PASS
Middle CH	3.20	3.24	2.92	
Highest CH	3.04	3.08	2.88	

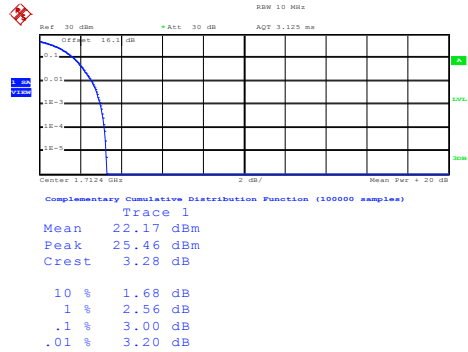


WCDMA Band V (RMC 12.2Kbps)		WCDMA Band II (RMC 12.2Kbps)	
Lowest Channel		Lowest Channel	
 <p>Center 826.4 MHz</p> <p>Trace 1</p> <p>Mean 23.45 dBm</p> <p>Peak 27.43 dBm</p> <p>Crest 3.98 dB</p> <p>10 % 1.88 dB</p> <p>1 % 3.00 dB</p> <p>.1 % 3.56 dB</p> <p>.01 % 3.84 dB</p> <p>Date: 29.OCT.2016 02:02:12</p>		 <p>Center 1.8524 GHz</p> <p>Trace 1</p> <p>Mean 22.20 dBm</p> <p>Peak 25.46 dBm</p> <p>Crest 3.26 dB</p> <p>10 % 1.72 dB</p> <p>1 % 2.60 dB</p> <p>.1 % 3.00 dB</p> <p>.01 % 3.16 dB</p> <p>Date: 29.OCT.2016 01:35:52</p>	
Middle Channel		Middle Channel	
 <p>Center 830.4 MHz</p> <p>Trace 1</p> <p>Mean 23.34 dBm</p> <p>Peak 26.94 dBm</p> <p>Crest 3.60 dB</p> <p>10 % 1.72 dB</p> <p>1 % 2.72 dB</p> <p>.1 % 3.20 dB</p> <p>.01 % 3.40 dB</p> <p>Date: 29.OCT.2016 02:02:25</p>		 <p>Center 1.85 GHz</p> <p>Trace 1</p> <p>Mean 22.24 dBm</p> <p>Peak 25.81 dBm</p> <p>Crest 3.57 dB</p> <p>10 % 1.80 dB</p> <p>1 % 2.76 dB</p> <p>.1 % 3.24 dB</p> <p>.01 % 3.40 dB</p> <p>Date: 29.OCT.2016 01:36:05</p>	
Highest Channel		Highest Channel	
 <p>Center 846.6 MHz</p> <p>Trace 1</p> <p>Mean 23.10 dBm</p> <p>Peak 26.37 dBm</p> <p>Crest 3.28 dB</p> <p>10 % 1.72 dB</p> <p>1 % 2.60 dB</p> <p>.1 % 3.04 dB</p> <p>.01 % 3.20 dB</p> <p>Date: 29.OCT.2016 02:02:37</p>		 <p>Center 1.9076 GHz</p> <p>Trace 1</p> <p>Mean 22.70 dBm</p> <p>Peak 26.09 dBm</p> <p>Crest 3.39 dB</p> <p>10 % 1.80 dB</p> <p>1 % 2.68 dB</p> <p>.1 % 3.08 dB</p> <p>.01 % 3.28 dB</p> <p>Date: 29.OCT.2016 01:36:20</p>	



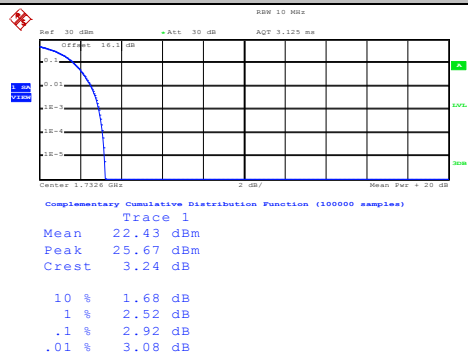
WCDMA Band IV (RMC 12.2Kbps)

Lowest Channel



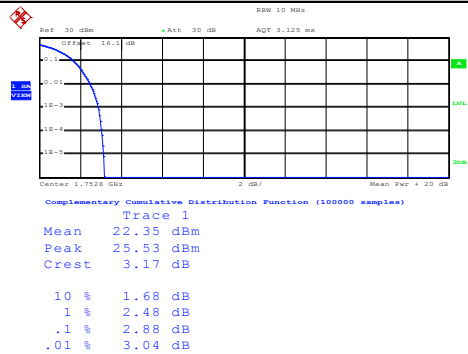
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Middle Channel



Date: 29.OCT.2016 01:48:23

Highest Channel



Date: 29.OCT.2016 01:48:35

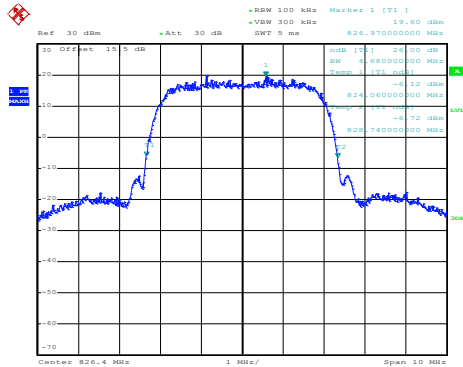
**26dB Bandwidth**

Mode	WCDMA Band V	WCDMA Band II	WCDMA Band IV
Mod.	RMC 12.2Kbps	RMC 12.2Kbps	RMC 12.2Kbps
Lowest CH	4.68	4.68	4.72
Middle CH	4.68	4.68	4.73
Highest CH	4.69	4.67	4.70



WCDMA Band V (RMC 12.2Kbps)

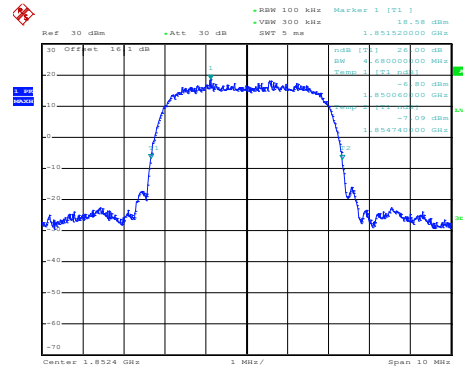
Lowest Channel



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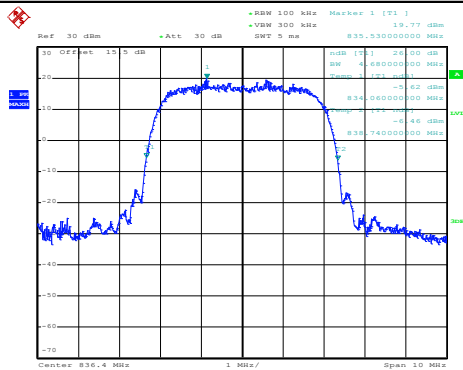
WCDMA Band II (RMC 12.2Kbps)

Lowest Channel



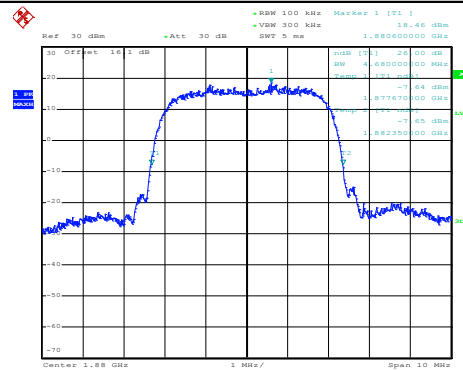
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Middle Channel



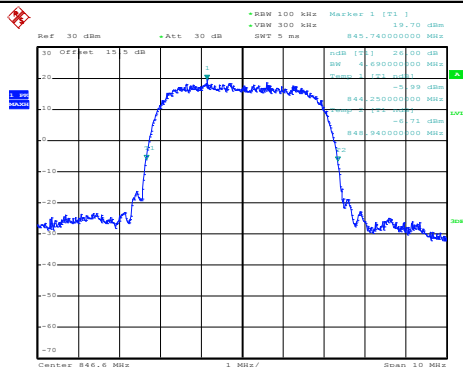
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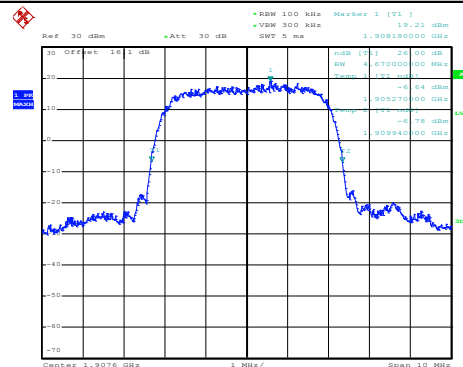
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Highest Channel

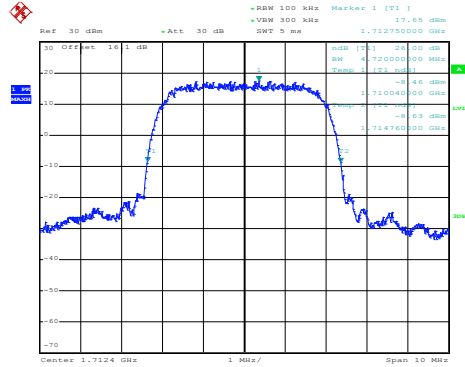


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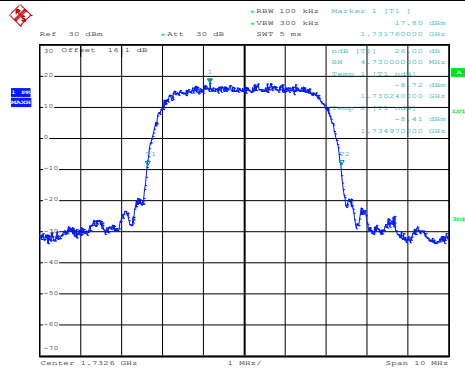
Highest Channel



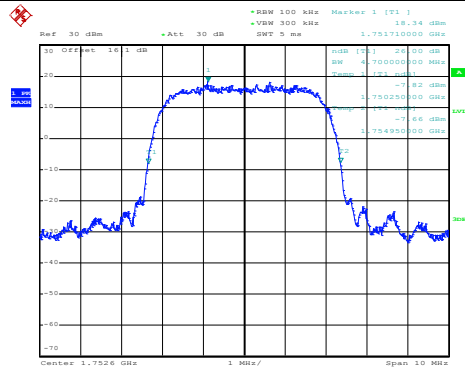
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WCDMA Band IV (RMC 12.2Kbps)
Lowest Channel


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Middle Channel


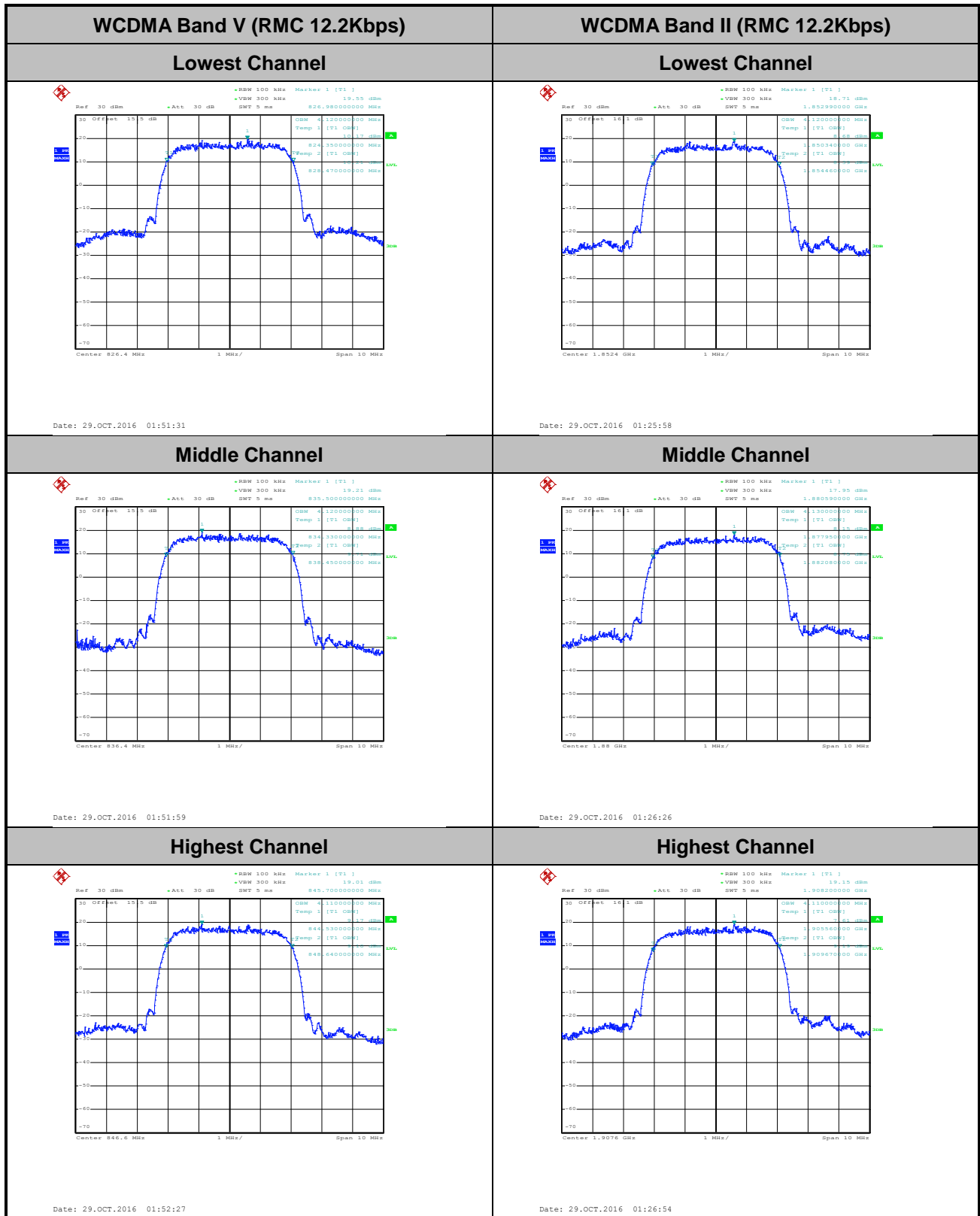
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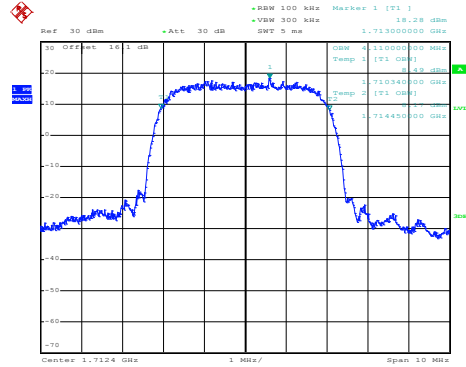
Highest Channel


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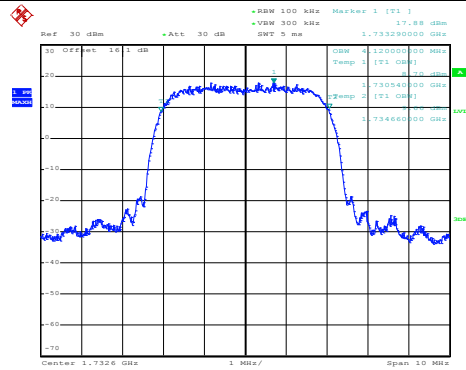
**Occupied Bandwidth**

Mode	WCDMA Band V	WCDMA Band II	WCDMA Band IV
Mod.	RMC 12.2Kbps	RMC 12.2Kbps	RMC 12.2Kbps
Lowest CH	4.12	4.12	4.11
Middle CH	4.12	4.13	4.12
Highest CH	4.11	4.11	4.12

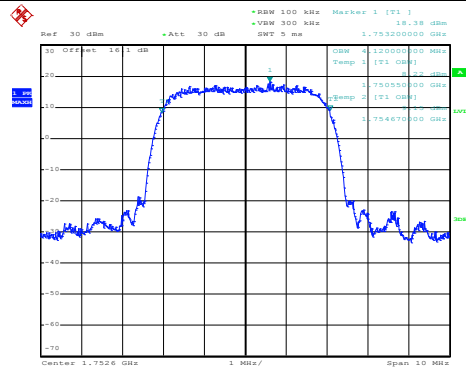


WCDMA Band IV (RMC 12.2Kbps)
Lowest Channel


Date: 29.OCT.2016 01:38:58

Middle Channel


Date: 29.OCT.2016 01:39:26

Highest Channel


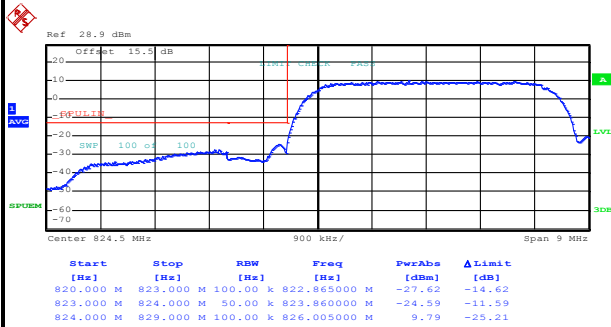
Date: 29.OCT.2016 01:39:54



Conducted Band Edge

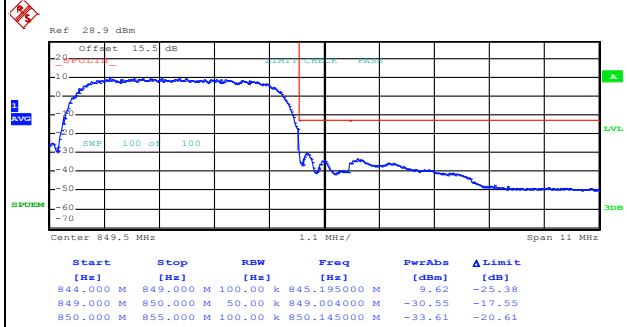
WCDMA Band V (RMC 12.2Kbps)

Lowest Band Edge



Date: 29.OCT.2016 01:55:33

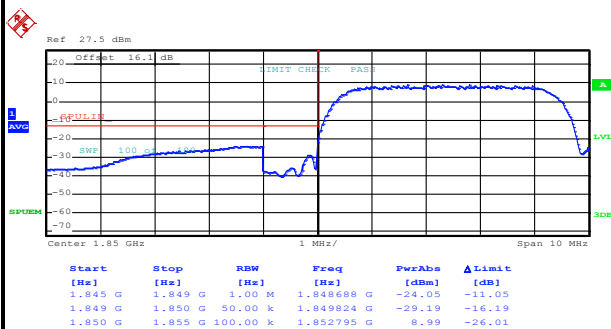
Highest Band Edge



Date: 29.OCT.2016 01:58:15

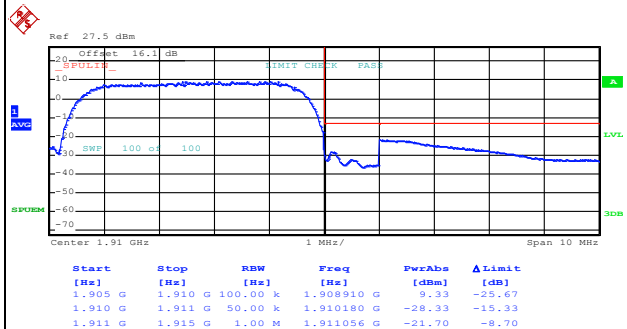
WCDMA Band II (RMC 12.2Kbps)

Lowest Band Edge



Date: 29.OCT.2016 01:29:37

Highest Band Edge

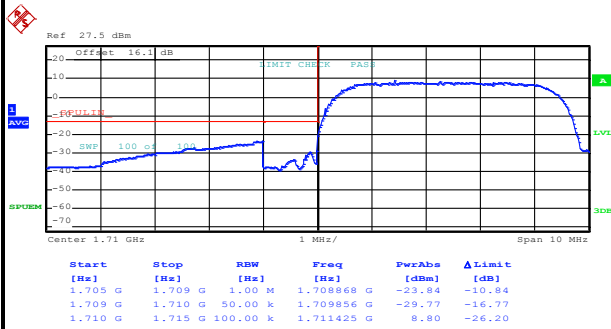


Date: 29.OCT.2016 01:32:19



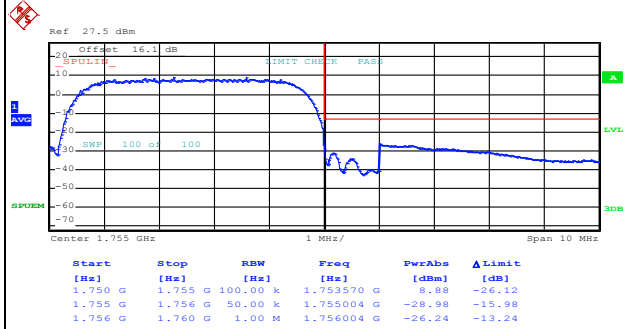
WCDMA Band IV (RMC 12.2Kbps)

Lowest Band Edge



Date: 29.OCT.2016 01:42:48

Highest Band Edge



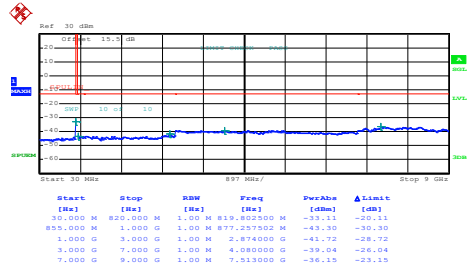
Date: 29.OCT.2016 01:45:30



Conducted Spurious Emission

WCDMA Band V (RMC 12.2Kbps)

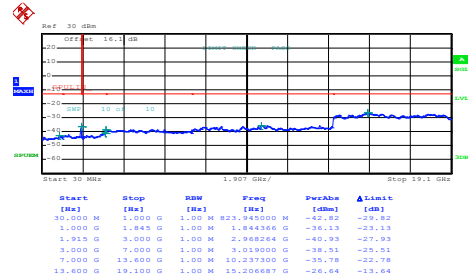
Lowest Channel



Date: 29.OCT.2016 01:59:05

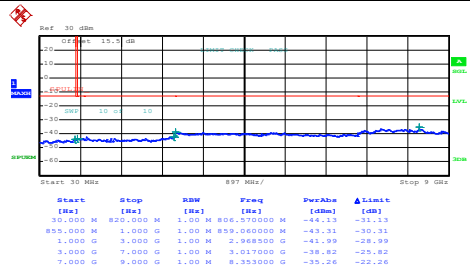
WCDMA Band II (RMC 12.2Kbps)

Lowest Channel



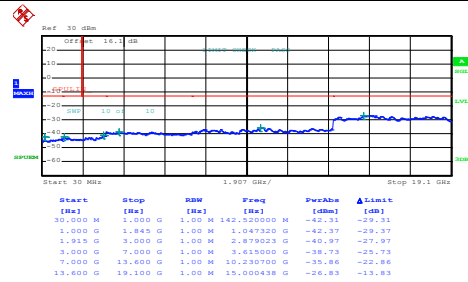
Date: 29.OCT.2016 01:33:32

Middle Channel



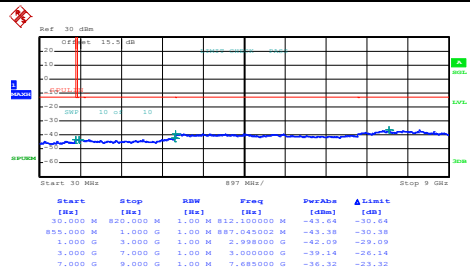
Date: 29.OCT.2016 01:59:50

Middle Channel



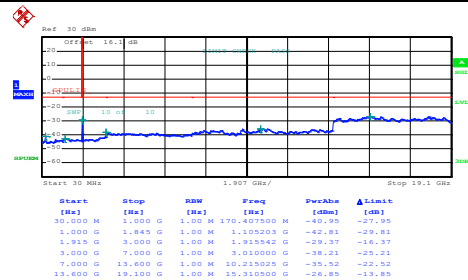
Date: 29.OCT.2016 01:34:17

Highest Channel



Date: 29.OCT.2016 02:00:36

Highest Channel

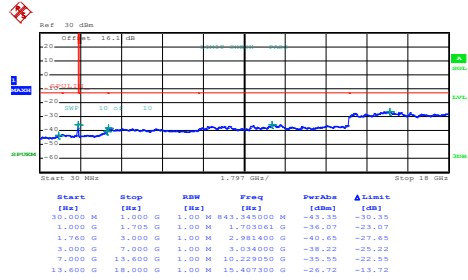


Date: 29.OCT.2016 01:35:03



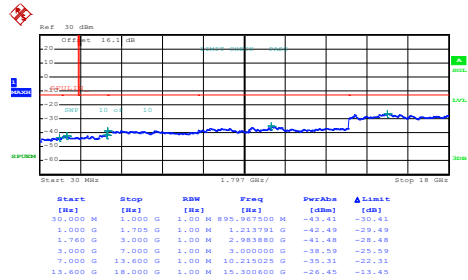
WCDMA Band IV (RMC 12.2Kbps)

Lowest Channel



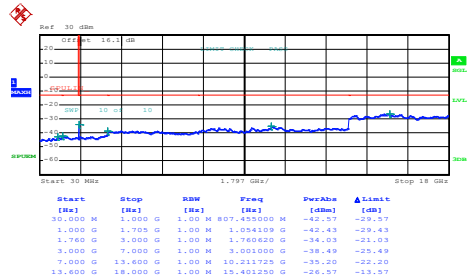
Date: 29.OCT.2016 01:46:23

Middle Channel



Date: 29.OCT.2016 01:47:08

Highest Channel



Date: 29.OCT.2016 01:47:54

**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	0.0155	PASS
40	Normal Voltage	0.0132	
30	Normal Voltage	0.0012	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0132	
0	Normal Voltage	0.0000	
-10	Normal Voltage	0.0012	
-20	Normal Voltage	0.0012	
-30	Normal Voltage	0.0000	
20	Maximum Voltage	0.0012	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0000	

Test Conditions	Middle Channel	WCDMA Band II (RMC 12.2Kbps)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0027	PASS
40	Normal Voltage	0.0011	
30	Normal Voltage	0.0021	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0005	
0	Normal Voltage	0.0059	
-10	Normal Voltage	0.0053	
-20	Normal Voltage	0.0064	
-30	Normal Voltage	0.0005	
20	Maximum Voltage	0.0005	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0000	



Test Conditions	Middle Channel	WCDMA Band IV (RMC 12.2Kbps)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0150	PASS
40	Normal Voltage	0.0144	
30	Normal Voltage	0.0127	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0006	
0	Normal Voltage	0.0035	
-10	Normal Voltage	0.0017	
-20	Normal Voltage	0.0012	
-30	Normal Voltage	0.0023	
20	Maximum Voltage	0.0006	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0000	

Note:

1. Normal Voltage = 3.6V. ; Battery End Point (BEP) = 3.45 V. ; Maximum Voltage =4.2 V
2. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

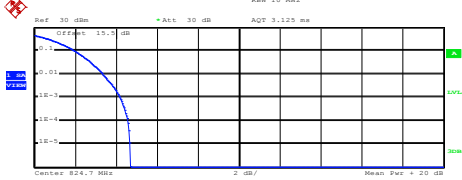
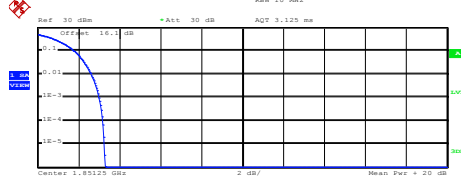
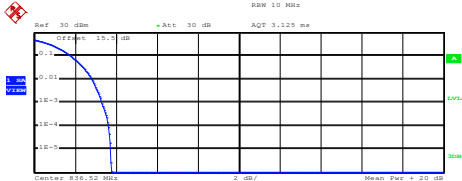
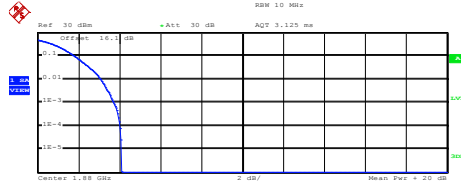
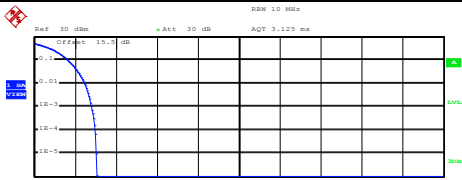
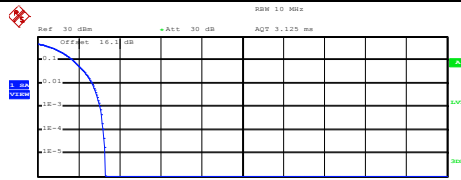


A3. CDMA

Peak-to-Average Ratio

Mode	CDMA BC0	CDMA BC1	Limit: 13dB
Mod.	1xRTT	1xRTT	Result
Lowest CH	4.20	3.00	PASS
Middle CH	3.32	3.72	
Highest CH	2.80	3.04	



CDMA BC0 (1xRTT)	CDMA BC1 (1xRTT)																												
Lowest Channel	Lowest Channel																												
 <p>Ref: 30 dBm, Att: 30 dB, AQT: 3.125 ms, RSW: 10 MHz, Center: 824.7 MHz, Mean: 24.01 dBm, Peak: 28.70 dBm, Crest: 4.69 dB</p> <p>Complementary Cumulative Distribution Function (100000 samples)</p> <p>Trace 1</p> <table><tr><td>Mean</td><td>24.01 dBm</td></tr><tr><td>Peak</td><td>28.70 dBm</td></tr><tr><td>Crest</td><td>4.69 dB</td></tr></table> <table><tr><td>10 %</td><td>2.00 dB</td></tr><tr><td>1 %</td><td>3.36 dB</td></tr><tr><td>.1 %</td><td>4.20 dB</td></tr><tr><td>.01 %</td><td>4.60 dB</td></tr></table> <p>Date: 29.OCT.2016 02:40:59</p>	Mean	24.01 dBm	Peak	28.70 dBm	Crest	4.69 dB	10 %	2.00 dB	1 %	3.36 dB	.1 %	4.20 dB	.01 %	4.60 dB	 <p>Ref: 30 dBm, Att: 30 dB, AQT: 3.125 ms, RSW: 10 MHz, Center: 1.85125 GHz, Mean: 23.37 dBm, Peak: 26.66 dBm, Crest: 3.28 dB</p> <p>Complementary Cumulative Distribution Function (100000 samples)</p> <p>Trace 1</p> <table><tr><td>Mean</td><td>23.37 dBm</td></tr><tr><td>Peak</td><td>26.66 dBm</td></tr><tr><td>Crest</td><td>3.28 dB</td></tr></table> <table><tr><td>10 %</td><td>1.80 dB</td></tr><tr><td>1 %</td><td>2.60 dB</td></tr><tr><td>.1 %</td><td>3.00 dB</td></tr><tr><td>.01 %</td><td>3.20 dB</td></tr></table> <p>Date: 29.OCT.2016 03:03:28</p>	Mean	23.37 dBm	Peak	26.66 dBm	Crest	3.28 dB	10 %	1.80 dB	1 %	2.60 dB	.1 %	3.00 dB	.01 %	3.20 dB
Mean	24.01 dBm																												
Peak	28.70 dBm																												
Crest	4.69 dB																												
10 %	2.00 dB																												
1 %	3.36 dB																												
.1 %	4.20 dB																												
.01 %	4.60 dB																												
Mean	23.37 dBm																												
Peak	26.66 dBm																												
Crest	3.28 dB																												
10 %	1.80 dB																												
1 %	2.60 dB																												
.1 %	3.00 dB																												
.01 %	3.20 dB																												
Middle Channel	Middle Channel																												
 <p>Ref: 30 dBm, Att: 30 dB, AQT: 3.125 ms, RSW: 10 MHz, Center: 835.52 MHz, Mean: 24.03 dBm, Peak: 27.79 dBm, Crest: 3.76 dB</p> <p>Complementary Cumulative Distribution Function (100000 samples)</p> <p>Trace 1</p> <table><tr><td>Mean</td><td>24.03 dBm</td></tr><tr><td>Peak</td><td>27.79 dBm</td></tr><tr><td>Crest</td><td>3.76 dB</td></tr></table> <table><tr><td>10 %</td><td>1.80 dB</td></tr><tr><td>1 %</td><td>2.80 dB</td></tr><tr><td>.1 %</td><td>3.32 dB</td></tr><tr><td>.01 %</td><td>3.64 dB</td></tr></table> <p>Date: 29.OCT.2016 02:41:13</p>	Mean	24.03 dBm	Peak	27.79 dBm	Crest	3.76 dB	10 %	1.80 dB	1 %	2.80 dB	.1 %	3.32 dB	.01 %	3.64 dB	 <p>Ref: 30 dBm, Att: 30 dB, AQT: 3.125 ms, RSW: 10 MHz, Center: 1.88 GHz, Mean: 23.20 dBm, Peak: 27.29 dBm, Crest: 4.09 dB</p> <p>Complementary Cumulative Distribution Function (100000 samples)</p> <p>Trace 1</p> <table><tr><td>Mean</td><td>23.20 dBm</td></tr><tr><td>Peak</td><td>27.29 dBm</td></tr><tr><td>Crest</td><td>4.09 dB</td></tr></table> <table><tr><td>10 %</td><td>1.80 dB</td></tr><tr><td>1 %</td><td>3.08 dB</td></tr><tr><td>.1 %</td><td>3.72 dB</td></tr><tr><td>.01 %</td><td>4.04 dB</td></tr></table> <p>Date: 29.OCT.2016 03:03:41</p>	Mean	23.20 dBm	Peak	27.29 dBm	Crest	4.09 dB	10 %	1.80 dB	1 %	3.08 dB	.1 %	3.72 dB	.01 %	4.04 dB
Mean	24.03 dBm																												
Peak	27.79 dBm																												
Crest	3.76 dB																												
10 %	1.80 dB																												
1 %	2.80 dB																												
.1 %	3.32 dB																												
.01 %	3.64 dB																												
Mean	23.20 dBm																												
Peak	27.29 dBm																												
Crest	4.09 dB																												
10 %	1.80 dB																												
1 %	3.08 dB																												
.1 %	3.72 dB																												
.01 %	4.04 dB																												
Highest Channel	Highest Channel																												
 <p>Ref: 30 dBm, Att: 30 dB, AQT: 3.125 ms, RSW: 10 MHz, Center: 848.31 MHz, Mean: 24.18 dBm, Peak: 27.22 dBm, Crest: 3.04 dB</p> <p>Complementary Cumulative Distribution Function (100000 samples)</p> <p>Trace 1</p> <table><tr><td>Mean</td><td>24.18 dBm</td></tr><tr><td>Peak</td><td>27.22 dBm</td></tr><tr><td>Crest</td><td>3.04 dB</td></tr></table> <table><tr><td>10 %</td><td>1.64 dB</td></tr><tr><td>1 %</td><td>2.48 dB</td></tr><tr><td>.1 %</td><td>2.80 dB</td></tr><tr><td>.01 %</td><td>3.00 dB</td></tr></table> <p>Date: 29.OCT.2016 02:41:27</p>	Mean	24.18 dBm	Peak	27.22 dBm	Crest	3.04 dB	10 %	1.64 dB	1 %	2.48 dB	.1 %	2.80 dB	.01 %	3.00 dB	 <p>Ref: 30 dBm, Att: 30 dB, AQT: 3.125 ms, RSW: 10 MHz, Center: 1.90875 GHz, Mean: 23.57 dBm, Peak: 26.87 dBm, Crest: 3.30 dB</p> <p>Complementary Cumulative Distribution Function (100000 samples)</p> <p>Trace 1</p> <table><tr><td>Mean</td><td>23.57 dBm</td></tr><tr><td>Peak</td><td>26.87 dBm</td></tr><tr><td>Crest</td><td>3.30 dB</td></tr></table> <table><tr><td>10 %</td><td>1.72 dB</td></tr><tr><td>1 %</td><td>2.68 dB</td></tr><tr><td>.1 %</td><td>3.04 dB</td></tr><tr><td>.01 %</td><td>3.20 dB</td></tr></table> <p>Date: 29.OCT.2016 03:03:53</p>	Mean	23.57 dBm	Peak	26.87 dBm	Crest	3.30 dB	10 %	1.72 dB	1 %	2.68 dB	.1 %	3.04 dB	.01 %	3.20 dB
Mean	24.18 dBm																												
Peak	27.22 dBm																												
Crest	3.04 dB																												
10 %	1.64 dB																												
1 %	2.48 dB																												
.1 %	2.80 dB																												
.01 %	3.00 dB																												
Mean	23.57 dBm																												
Peak	26.87 dBm																												
Crest	3.30 dB																												
10 %	1.72 dB																												
1 %	2.68 dB																												
.1 %	3.04 dB																												
.01 %	3.20 dB																												

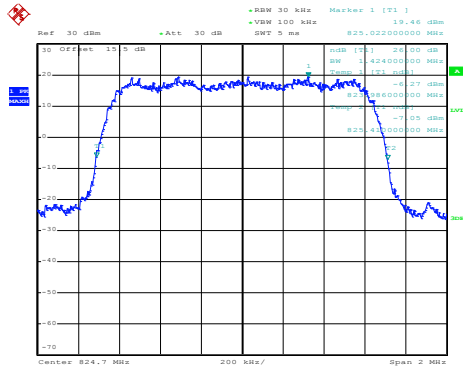
**26dB Bandwidth**

Mode	CDMA BC0	CDMA BC1
Mod.	1xRTT	1xRTT
Lowest CH	1.42	1.43
Middle CH	1.42	1.42
Highest CH	1.44	1.43



CDMA BC0 (1xRTT)

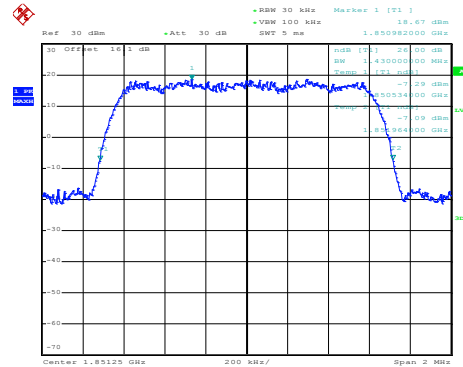
Lowest Channel



Date: 29.OCT.2016 02:24:38

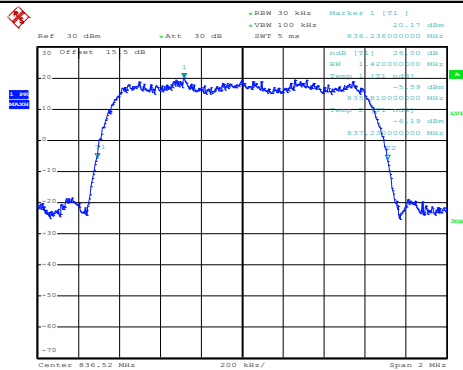
CDMA BC1 (1xRTT)

Lowest Channel



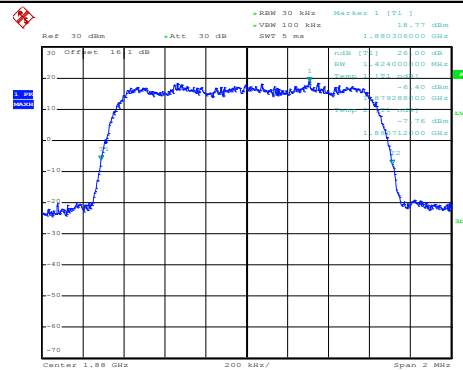
Date: 29.OCT.2016 02:51:21

Middle Channel



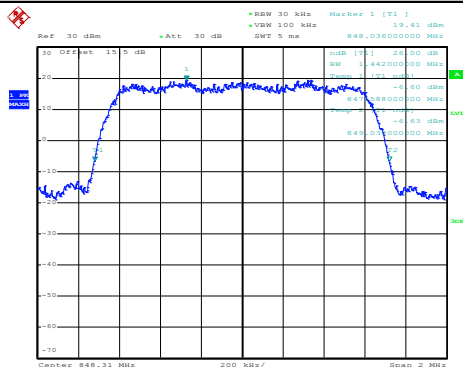
Date: 29.OCT.2016 02:25:06

Middle Channel



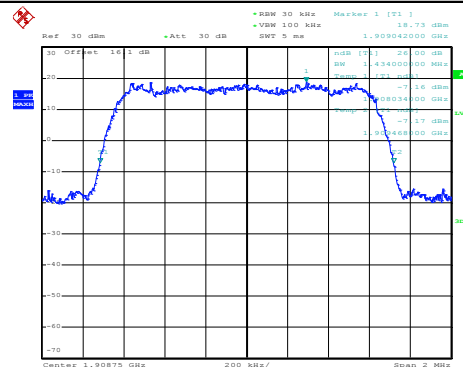
Date: 29.OCT.2016 02:51:49

Highest Channel



Date: 29.OCT.2016 02:25:34

Highest Channel

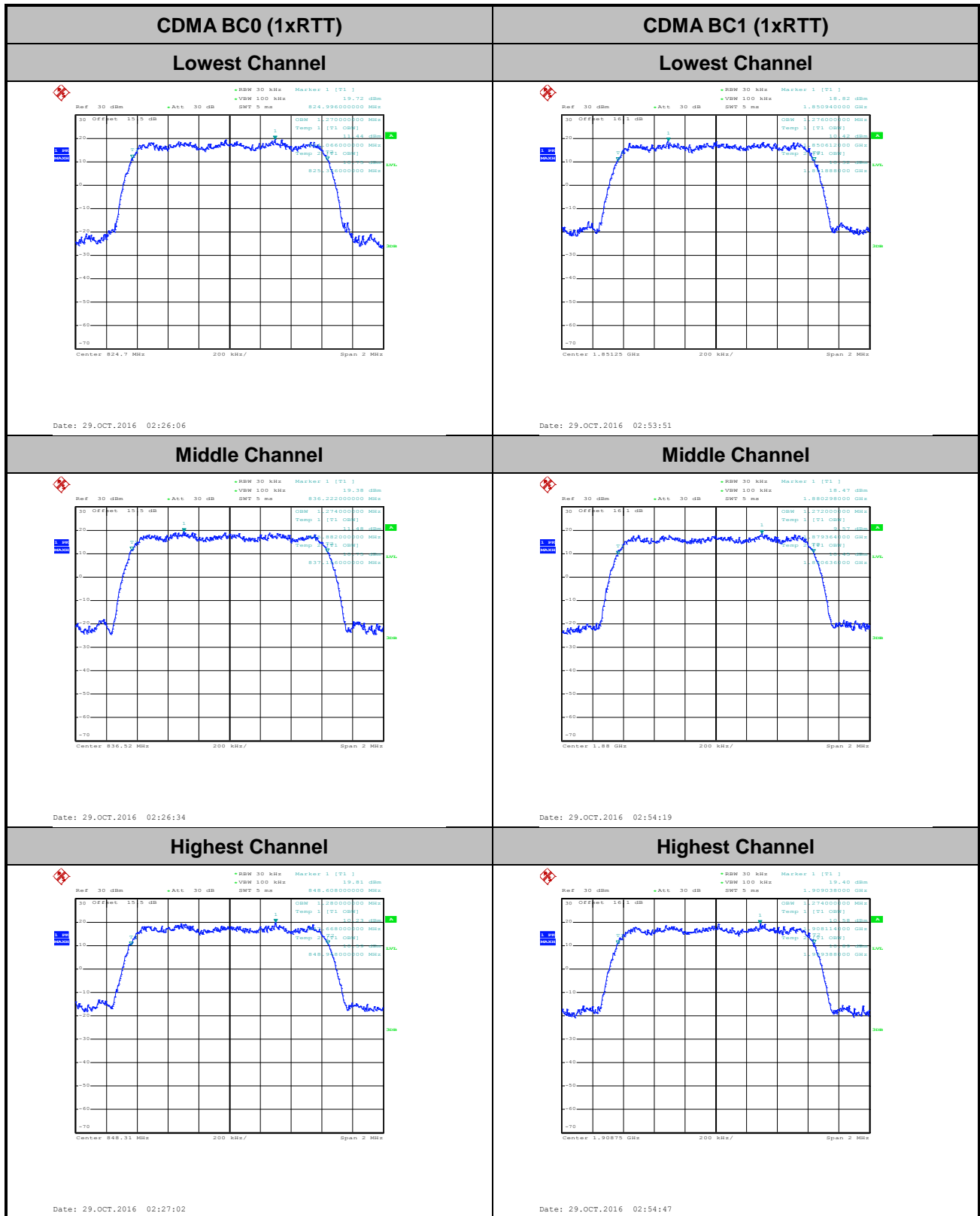


Date: 29.OCT.2016 02:52:17



Occupied Bandwidth

Mode	CDMA BC0	CDMA BC1
Mod.	1xRTT	1xRTT
Lowest CH	1.27	1.28
Middle CH	1.27	1.27

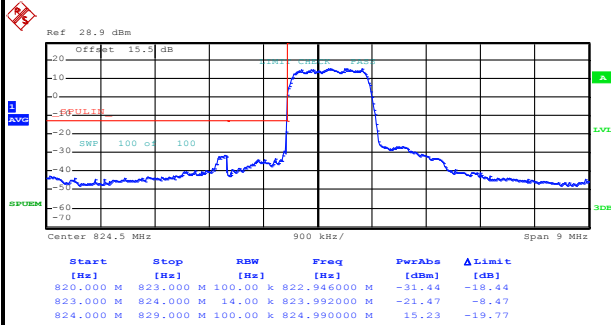




Conducted Band Edge

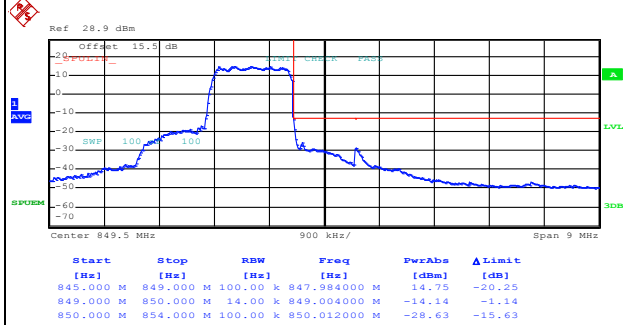
CDMA BC0 (1xRTT)

Lowest Band Edge



Date: 29.OCT.2016 02:35:32

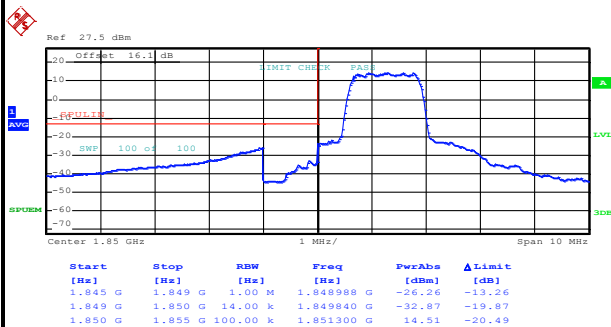
Highest Band Edge



Date: 29.OCT.2016 02:38:14

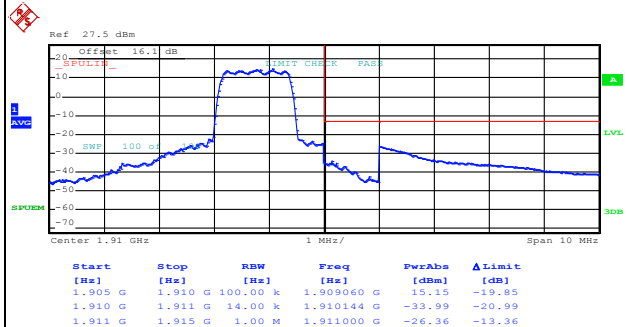
CDMA BC1 (1xRTT)

Lowest Band Edge



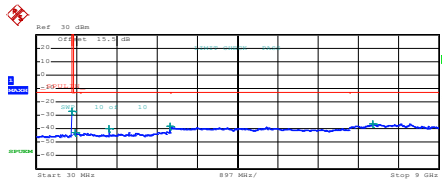
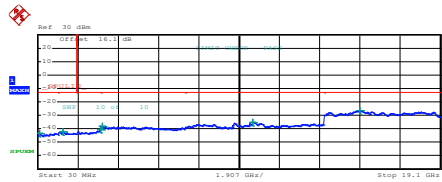
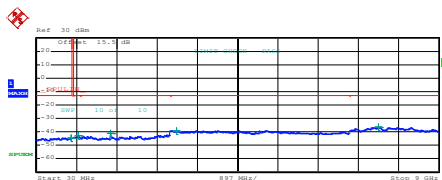
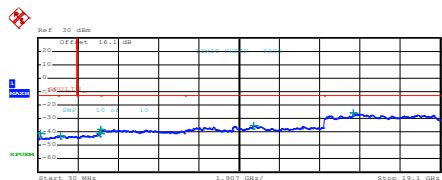
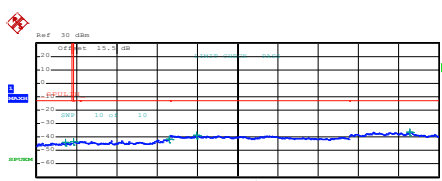
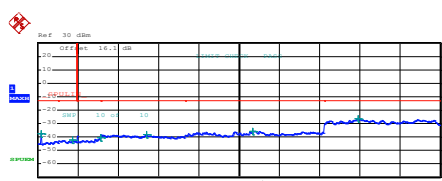
Date: 29.OCT.2016 02:57:34

Highest Band Edge



Date: 29.OCT.2016 03:00:16

**Conducted Spurious Emission**

CDMA BC0 (1xRTT)	CDMA BC1 (1xRTT)																																																																														
Lowest Channel	Lowest Channel																																																																														
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Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PerAbn [dBm]	ΔLimit [dB]																																																																										
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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	0.0012	
30	Normal Voltage	0.0024	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0012	
0	Normal Voltage	0.0012	
-10	Normal Voltage	0.0024	
-20	Normal Voltage	0.0024	
-30	Normal Voltage	0.0024	
20	Maximum Voltage	0.0000	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0012	

Test Conditions	Middle Channel	CDMA BC1 (1xRTT)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0043	PASS
40	Normal Voltage	0.0037	
30	Normal Voltage	0.0005	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0048	
0	Normal Voltage	0.0005	
-10	Normal Voltage	0.0005	
-20	Normal Voltage	0.0043	
-30	Normal Voltage	0.0000	
20	Maximum Voltage	0.0005	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0000	

Note:

1. Normal Voltage = 3.6V. ; Battery End Point (BEP) = 3.45 V. ; Maximum Voltage =4.2 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 Radiated Test

ERP/EIRP

Channel	Mode	Horizontal		Vertical	
		ERP(dBm)	ERP(W)	ERP(dBm)	ERP(W)
Lowest	GSM850 GPRS class 8	17.35	0.0543	28.82	0.7621
Middle		18.53	0.0713	28.08	0.6427
Highest		19.42	0.0875	27.92	0.6194
Lowest	GSM850 EDGE class 8	11.89	0.0155	23.55	0.2265
Middle		12.70	0.0186	22.60	0.1820
Highest		13.11	0.0205	21.75	0.1496
Lowest	WCDMA Band V RMC 12.2Kbps	10.26	0.0106	20.63	0.1156
Middle		11.20	0.0132	20.07	0.1016
Highest		11.83	0.0152	19.68	0.0929
Lowest	CDMA BC0 1xRTT	9.87	0.0097	20.55	0.1135
Middle		8.39	0.0069	21.00	0.1259
Highest		8.54	0.0071	21.38	0.1374
Lowest	CDMA BC0 1xEV-DO	10.11	0.0103	20.83	0.1211
Middle		9.43	0.0088	21.12	0.1294
Highest		9.06	0.0081	21.36	0.1368
Limit	ERP < 7W	Result		PASS	

Channel	Mode	Horizontal		Vertical	
		EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	GSM1900 GPRS class 8	28.80	0.7586	30.68	1.1695
Middle		29.34	0.8590	31.16	1.3062
Highest		28.65	0.7328	31.21	1.3213
Lowest	GSM1900 EDGE class 8	23.81	0.2404	25.88	0.3873
Middle		24.76	0.2992	26.71	0.4688
Highest		24.49	0.2812	27.39	0.5483
Lowest	WCDMA Band II RMC 12.2Kbps	23.18	0.2080	25.19	0.3304
Middle		23.49	0.2234	25.68	0.3698
Highest		23.39	0.2183	25.98	0.3963
Lowest	CDMA BC1 1xRTT	23.18	0.2080	25.25	0.3350
Middle		23.10	0.2042	25.75	0.3758
Highest		23.72	0.2355	25.88	0.3873
Lowest	CDMA BC1 1xEV-DO	23.89	0.2449	25.61	0.3639
Middle		23.68	0.2333	25.77	0.3776
Highest		23.56	0.2270	25.97	0.3954
Limit	EIRP < 2W	Result		PASS	

Channel	Mode	Horizontal		Vertical	
		EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	WCDMA Band IV RMC 12.2Kbps	25.35	0.3428	24.80	0.3020
Middle		25.09	0.3228	24.86	0.3062
Highest		23.48	0.2228	23.97	0.2495
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	-30.89	-13	-17.89	-40.59	-32.65	0.98	4.89	H
	2472	-29.80	-13	-16.80	-43.57	-31.68	1.28	5.32	H
	3296	-42.54	-13	-29.54	-58.44	-45.95	1.54	7.10	H
	4120	-45.24	-13	-32.24	-63.33	-49.88	1.83	8.62	H
									H
									H
	1648	-38.25	-13	-25.25	-47.92	-40.01	0.98	4.89	V
	2472	-33.88	-13	-20.88	-47.7	-35.76	1.28	5.32	V
	3296	-45.18	-13	-32.18	-61.05	-48.59	1.54	7.10	V
	4120	-49.42	-13	-36.42	-67.45	-54.06	1.83	8.62	V
									V
									V
Middle	1672	-34.51	-13	-21.51	-44.4	-36.19	0.99	4.82	H
	2512	-34.80	-13	-21.80	-48.61	-36.77	1.29	5.41	H
	3344	-41.88	-13	-28.88	-57.84	-45.49	1.56	7.31	H
									H
									H
									H
	1672	-38.14	-13	-25.14	-47.89	-39.82	0.99	4.82	V
	2512	-36.82	-13	-23.82	-50.65	-38.79	1.29	5.41	V
	3344	-48.41	-13	-35.41	-64.45	-52.02	1.56	7.31	V
									V
									V
									V
Highest	1696	-40.86	-13	-27.86	-50.85	-42.46	1.00	4.75	H
	2544	-33.63	-13	-20.63	-47.58	-35.61	1.30	5.44	H
	3392	-45.42	-13	-32.42	-61.5	-49.22	1.57	7.52	H
									H
									H
									H
	1696	-44.04	-13	-31.04	-53.97	-45.64	1.00	4.75	V
	2544	-33.94	-13	-20.94	-47.88	-35.92	1.30	5.44	V
	3392	-52.20	-13	-39.20	-68.31	-56	1.57	7.52	V
									V
									V
									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)
Lowest	1648	-36.78	-13	-23.78	-46.56	-38.54	0.98	4.89	H
	2472	-37.20	-13	-24.20	-50.91	-39.08	1.28	5.32	H
	3296	-50.18	-13	-37.18	-66.04	-53.59	1.54	7.10	H
									H
									H
									H
	1648	-42.77	-13	-29.77	-52.49	-44.53	0.98	4.89	V
	2472	-40.81	-13	-27.81	-54.7	-42.69	1.28	5.32	V
	3296	-53.45	-13	-40.45	-69.15	-56.86	1.54	7.10	V
									V
									V
									V
Middle	1672	-43.70	-13	-30.70	-53.65	-45.38	0.99	4.82	H
	2512	-43.43	-13	-30.43	-57.25	-45.4	1.29	5.41	H
	3344	-52.25	-13	-39.25	-68.27	-55.86	1.56	7.31	H
									H
									H
									H
	1672	-47.98	-13	-34.98	-57.77	-49.66	0.99	4.82	V
	2512	-46.34	-13	-33.34	-60.18	-48.31	1.29	5.41	V
	3344	-54.49	-13	-41.49	-70.53	-58.1	1.56	7.31	V
									V
									V
									V
Highest	1696	-46.42	-13	-33.42	-56.41	-48.02	1.00	4.75	H
	2544	-47.25	-13	-34.25	-61.2	-49.23	1.30	5.44	H
	3392	-53.56	-13	-40.56	-69.64	-57.36	1.57	7.52	H
									H
									H
									H
	1696	-48.14	-13	-35.14	-58.06	-49.74	1.00	4.75	V
	2544	-44.64	-13	-31.64	-58.6	-46.62	1.30	5.44	V
	3392	-54.33	-13	-41.33	-70.51	-58.13	1.57	7.52	V
									V
									V
									V

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



GSM1900 (GPRS class 8)									
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	-42.86	-13	-29.86	-59.71	-49.43	1.67	8.24	H
	5550	-37.30	-13	-24.30	-60.03	-44.37	2.65	9.72	H
	7398	-50.54	-13	-37.54	-77.63	-59.67	2.46	11.60	H
									H
									H
									H
	3702	-39.75	-13	-26.75	-56.77	-46.32	1.67	8.24	V
	5550	-37.24	-13	-24.24	-59.75	-44.31	2.65	9.72	V
	7398	-50.74	-13	-37.74	-77.71	-59.87	2.46	11.60	V
									V
									V
									V
Middle	3762	-41.24	-13	-28.24	-58.24	-47.87	1.69	8.31	H
	5640	-36.50	-13	-23.50	-59.27	-43.55	2.71	9.76	H
	7518	-49.94	-13	-36.94	-77.24	-59.33	2.42	11.81	H
									H
									H
									H
	3762	-42.15	-13	-29.15	-59.2	-48.78	1.69	8.31	V
	5640	-36.90	-13	-23.90	-59.46	-43.95	2.71	9.76	V
	7518	-49.97	-13	-36.97	-77.29	-59.36	2.42	11.81	V
									V
									V
									V
Highest	3822	-42.21	-13	-29.21	-59.44	-48.89	1.71	8.39	H
	5730	-34.24	-13	-21.24	-57.13	-41.27	2.76	9.79	H
	7638	-49.92	-13	-36.92	-77.32	-59.42	2.38	11.88	H
									H
									H
									H
	3822	-45.68	-13	-32.68	-62.97	-52.36	1.71	8.39	V
	5730	-35.85	-13	-22.85	-58.68	-42.88	2.76	9.79	V
	7638	-49.79	-13	-36.79	-77.22	-59.29	2.38	11.88	V
									V
									V
									V

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



GSM1900 (EDGE class 8)									
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	-46.54	-13	-33.54	-63.4	-53.11	1.67	8.24	H
	5550	-45.59	-13	-32.59	-68.29	-52.66	2.65	9.72	H
	7398	-50.66	-13	-37.66	-77.66	-59.79	2.46	11.60	H
									H
									H
									H
	3702	-48.58	-13	-35.58	-65.55	-55.15	1.67	8.24	V
	5550	-45.18	-13	-32.18	-67.68	-52.25	2.65	9.72	V
	7398	-50.06	-13	-37.06	-77.14	-59.19	2.46	11.60	V
									V
									V
									V
Middle	3762	-48.19	-13	-35.19	-65.15	-54.82	1.69	8.31	H
	5640	-38.40	-13	-25.40	-61.15	-45.45	2.71	9.76	H
	7518	-50.49	-13	-37.49	-77.61	-59.88	2.42	11.81	H
									H
									H
									H
	3762	-51.91	-13	-38.91	-68.97	-58.54	1.69	8.31	V
	5640	-43.18	-13	-30.18	-65.79	-50.23	2.71	9.76	V
	7518	-50.10	-13	-37.10	-77.43	-59.49	2.42	11.81	V
									V
									V
									V
Highest	3822	-51.61	-13	-38.61	-68.74	-58.29	1.71	8.39	H
	5730	-41.65	-13	-28.65	-64.62	-48.68	2.76	9.79	H
	7638	-49.74	-13	-36.74	-77.14	-59.24	2.38	11.88	H
									H
									H
									H
	3822	-51.44	-13	-38.44	-68.74	-58.12	1.71	8.39	V
	5730	-44.62	-13	-31.62	-67.45	-51.65	2.76	9.79	V
	7638	-49.78	-13	-36.78	-77.22	-59.28	2.38	11.88	V
									V
									V
									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)
Lowest	1648	-50.50	-13	-37.50	-60.36	-52.26	0.98	4.89	H
	2472	-56.15	-13	-43.15	-69.73	-58.03	1.28	5.32	H
	3296	-54.20	-13	-41.20	-70.11	-57.61	1.54	7.10	H
									H
									H
									H
	1648	-55.46	-13	-42.46	-65.17	-57.22	0.98	4.89	V
	2472	-55.86	-13	-42.86	-69.67	-57.74	1.28	5.32	V
	3296	-53.82	-13	-40.82	-69.68	-57.23	1.54	7.10	V
									V
									V
									V
Middle	1672	-54.13	-13	-41.13	-64.09	-55.81	0.99	4.82	H
	2504	-53.52	-13	-40.52	-67.47	-55.48	1.29	5.40	H
	3344	-53.46	-13	-40.46	-69.46	-57.07	1.56	7.31	H
									H
									H
									H
	1672	-55.18	-13	-42.18	-65	-56.86	0.99	4.82	V
	2504	-55.33	-13	-42.33	-69.12	-57.29	1.29	5.40	V
	3344	-53.71	-13	-40.71	-69.69	-57.32	1.56	7.31	V
									V
									V
									V
Highest	1696	-54.09	-13	-41.09	-64.08	-55.69	1.00	4.75	H
	2536	-52.92	-13	-39.92	-66.81	-54.9	1.30	5.43	H
	3384	-54.38	-13	-41.38	-70.41	-58.15	1.57	7.49	H
									H
									H
									H
	1696	-57.05	-13	-44.05	-66.98	-58.65	1.00	4.75	V
	2536	-54.34	-13	-41.34	-68.24	-56.32	1.30	5.43	V
	3384	-53.85	-13	-40.85	-70.12	-57.62	1.57	7.49	V
									V
									V
									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	-54.48	-13	-41.48	-71.33	-61.06	1.67	8.25	H
	5562	-46.28	-13	-33.28	-68.86	-53.34	2.66	9.72	H
	7410	-50.29	-13	-37.29	-77.26	-59.45	2.46	11.62	H
									H
									H
									H
	3708	-55.31	-13	-42.31	-72.29	-61.89	1.67	8.25	V
	5562	-49.32	-13	-36.32	-71.86	-56.38	2.66	9.72	V
	7410	-50.30	-13	-37.30	-77.35	-59.46	2.46	11.62	V
									V
									V
									V
Middle	3762	-53.05	-13	-40.05	-70.01	-59.68	1.69	8.31	H
	5640	-43.99	-13	-30.99	-66.75	-51.04	2.71	9.76	H
	7518	-50.07	-13	-37.07	-77.34	-59.46	2.42	11.81	H
									H
									H
									H
	3762	-55.08	-13	-42.08	-72.14	-61.71	1.69	8.31	V
	5640	-48.70	-13	-35.70	-71.34	-55.75	2.71	9.76	V
	7518	-49.91	-13	-36.91	-77.32	-59.3	2.42	11.81	V
									V
									V
									V
Highest	3816	-56.94	-13	-43.94	-74.13	-63.62	1.70	8.38	H
	5724	-46.49	-13	-33.49	-69.42	-53.53	2.75	9.79	H
	7632	-49.72	-13	-36.72	-77.14	-59.21	2.39	11.88	H
									H
									H
									H
	3816	-55.45	-13	-42.45	-72.77	-62.13	1.70	8.38	V
	5724	-50.94	-13	-37.94	-73.66	-57.98	2.75	9.79	V
	7632	-49.54	-13	-36.54	-77.02	-59.03	2.39	11.88	V
									V
									V
									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)
Lowest	3426	-55.47	-13	-42.47	-71.68	-61.56	1.58	7.67	H
	5136	-56.08	-13	-43.08	-77.51	-63.36	2.42	9.70	H
	6852	-51.99	-13	-38.99	-77.67	-59.97	2.64	10.62	H
									H
									H
									H
	3426	-56.16	-13	-43.16	-72.44	-62.25	1.58	7.67	V
	5136	-55.69	-13	-42.69	-77.22	-62.97	2.42	9.70	V
	6852	-51.88	-13	-38.88	-77.46	-59.86	2.64	10.62	V
									V
									V
									V
Middle	3468	-54.99	-13	-41.99	-71.15	-61.25	1.59	7.86	H
	5202	-54.62	-13	-41.62	-76.35	-61.87	2.45	9.70	H
	6936	-51.44	-13	-38.44	-77.34	-59.55	2.61	10.72	H
									H
									H
									H
	3468	-56.60	-13	-43.60	-73.04	-62.86	1.59	7.86	V
	5202	-48.50	-13	-35.50	-70.11	-55.75	2.45	9.70	V
	6936	-51.56	-13	-38.56	-77.27	-59.67	2.61	10.72	V
									V
									V
									V
Highest	3504	-52.36	-13	-39.36	-68.49	-58.76	1.61	8.00	H
	5256	-54.56	-13	-41.56	-76.46	-61.78	2.48	9.70	H
	7008	-51.44	-13	-38.44	-77.55	-59.67	2.59	10.82	H
									H
									H
									H
	3504	-55.80	-13	-42.80	-72.26	-62.2	1.61	8.00	V
	5256	-53.44	-13	-40.44	-75.3	-60.66	2.48	9.70	V
	7008	-51.78	-13	-38.78	-77.69	-60.01	2.59	10.82	V
									V
									V
									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	-46.11	-13	-33.11	-55.95	-47.87	0.98	4.89	H
	2472	-52.64	-13	-39.64	-66.39	-54.52	1.28	5.32	H
	3296	-54.18	-13	-41.18	-70	-57.59	1.54	7.10	H
									H
									H
									H
	1648	-49.24	-13	-36.24	-58.93	-51	0.98	4.89	V
	2472	-55.86	-13	-42.86	-69.64	-57.74	1.28	5.32	V
	3296	-54.61	-13	-41.61	-70.45	-58.02	1.54	7.10	V
									V
									V
									V
Middle	1672	-50.58	-13	-37.58	-60.48	-52.26	0.99	4.82	H
	2512	-55.44	-13	-42.44	-69.26	-57.41	1.29	5.41	H
	3344	-54.40	-13	-41.40	-70.43	-58.01	1.56	7.31	H
									H
									H
									H
	1672	-49.46	-13	-36.46	-59.42	-51.14	0.99	4.82	V
	2512	-55.99	-13	-42.99	-69.83	-57.96	1.29	5.41	V
	3344	-53.42	-13	-40.42	-69.47	-57.03	1.56	7.31	V
									V
									V
									V
Highest	1696	-52.43	-13	-39.43	-62.42	-54.03	1.00	4.75	H
	2544	-51.72	-13	-38.72	-65.67	-53.7	1.30	5.44	H
	3392	-54.01	-13	-41.01	-70.09	-57.81	1.57	7.52	H
									H
									H
									H
	1696	-54.58	-13	-41.58	-64.51	-56.18	1.00	4.75	V
	2544	-53.22	-13	-40.22	-67.18	-55.2	1.30	5.44	V
	3392	-53.74	-13	-40.74	-69.96	-57.54	1.57	7.52	V
									V
									V
									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	-53.39	-13	-40.39	-70.23	-59.96	1.67	8.24	H
	5556	-47.82	-13	-34.82	-70.47	-54.89	2.66	9.72	H
	7404	-50.81	-13	-37.81	-77.89	-59.96	2.46	11.61	H
									H
									H
									H
	3702	-53.74	-13	-40.74	-70.74	-60.31	1.67	8.24	V
	5556	-52.00	-13	-39.00	-74.48	-59.07	2.66	9.72	V
	7404	-50.81	-13	-37.81	-77.94	-59.96	2.46	11.61	V
									V
									V
									V
Middle	3762	-48.53	-13	-35.53	-65.51	-55.16	1.69	8.31	H
	5640	-49.42	-13	-36.42	-72.27	-56.47	2.71	9.76	H
	7518	-50.22	-13	-37.22	-77.53	-59.61	2.42	11.81	H
									H
									H
									H
	3762	-49.51	-13	-36.51	-66.62	-56.14	1.69	8.31	V
	5640	-49.99	-13	-36.99	-72.63	-57.04	2.71	9.76	V
	7518	-50.35	-13	-37.35	-77.73	-59.74	2.42	11.81	V
									V
									V
									V
Highest	3816	-53.18	-13	-40.18	-70.36	-59.86	1.70	8.38	H
	5724	-47.24	-13	-34.24	-70.12	-54.28	2.75	9.79	H
	7632	-50.02	-13	-37.02	-77.48	-59.51	2.39	11.88	H
									H
									H
									H
	3816	-51.18	-13	-38.18	-68.4	-57.86	1.70	8.38	V
	5724	-47.39	-13	-34.39	-70.14	-54.43	2.75	9.79	V
	7632	-50.25	-13	-37.25	-77.74	-59.74	2.39	11.88	V
									V
									V
									V

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