



**FCC 47 CFR PART 22H, 24E AND 90S
CERTIFICATION TEST REPORT**

FOR

CDMA 1XRTT BC0/BC1/BC10 SLIDER MOBILE PHONE WITH BT 2.1

Model: S3150

FCC ID: V65S3150

REPORT NUMBER: 13U16201-2

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Prepared for
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NVLAP LAB CODE 200065-0

Revision History

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: KYOCERA CORP
9520 TOWNE CENTRE DR
SAN DIEGO, CA 92121, U.S.A

EUT DESCRIPTION: CDMA 1xRTT BC10/BC0/BC1 Slider Mobile Phone with BT 2.1

MODEL: S3150

SERIAL NUMBER: 9211100168

DATE TESTED: OCTOBER 04 -10, 2013

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 22H, 24E and 90S	Pass

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

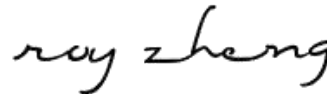
Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section.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

Approved & Released For
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Tested By:



THU CHAN
WiSE Operations Manager
UL Verification Services Inc.



ROY ZHENG
WiSE Lab Technician
UL Verification Services Inc.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA-603-C, FCC CFR 47 Part 2, Part 22, Part 24 and Part 90.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street
<input type="checkbox"/> Chamber A	<input checked="" type="checkbox"/> Chamber D
<input type="checkbox"/> Chamber B	<input checked="" type="checkbox"/> Chamber E
<input type="checkbox"/> Chamber C	<input type="checkbox"/> Chamber F

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ul.com>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned}\text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m}\end{aligned}$$

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.94 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a Tri-bands CDMA 1xRTT slider mobile phone with Bluetooth 2.1 feature.

5.2. MAXIMUM OUTPUT POWER

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

CDMA2000

Part 90/22/24 Bands						
Frequency range (MHz)	Band	Modulation	Conducted (Peak)		ERP/EIRP (Peak)	
			dBm	mW	dBm	mW
817.9-823.1	BC10	CDMA 2000 1xRTT	29.09	811.0	27.66	583.4
824.7-848.31	BC0		29.21	833.7	27.56	570.2
1851.25 - 1908.75	BC1		29.25	841.4	28.37	687.1

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a band gap type integral antenna with a maximum peak gain as followed:

Frequency (MHz)	Gain (dBi)
Cell band	-1.5
PCS Band	-1.0

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was Version 0.500DSP

The EUT is linked with Agilent 8960 Communication Test Set.

5.5. WORST-CASE CONFIGURATION AND MODE

The EUT is a portable device that has three orientations, Closed and Slide open; therefore, X (Lay down), Y (Landscape) and Z orientations (Standup) have been investigated with headset and AC/DC Charger, with EUT closed and slide open and the worst case was found to be at X position for Cell band and Z position for PCS band, closed position with EUT only.

5.6. DESCRIPTION OF TEST SETUP

I/O CABLES (RF CONDUCTED TEST)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC	1	DC	Un-Shielded	0.5m	NA
2	RF In/Out	1	Directional Coupler	Un-Shielded	0.2m	NA
3	RF In/Out	1	Spectrum Analyzer	Un-Shielded	1m	NA

I/O CABLES (RF RADIATED TEST)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC	1	DC	Un-Shielded	1.2m	NA
2	Jack	1	Headset	Un-Shielded	1m	NA

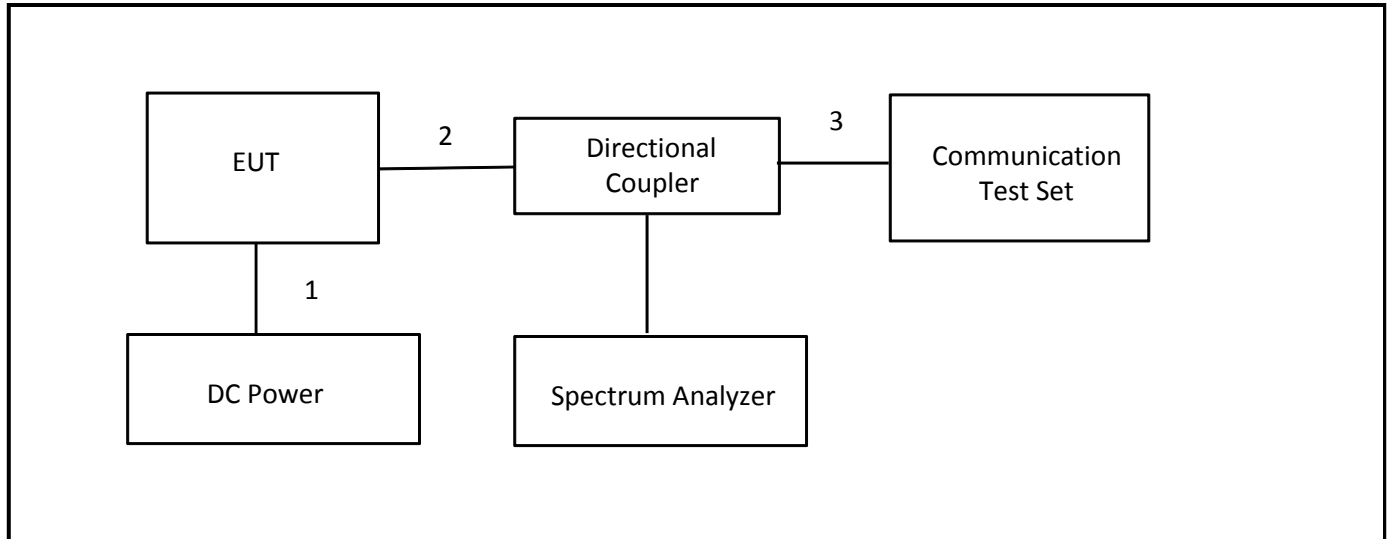
SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC/DC adapter	Kyocera	SCP-38ADT	5AAXAD040ULA	NA
DC Power Supply	Sorensen	XT 15-4	1319A02780	NA
Headset	NA	NA	NA	NA

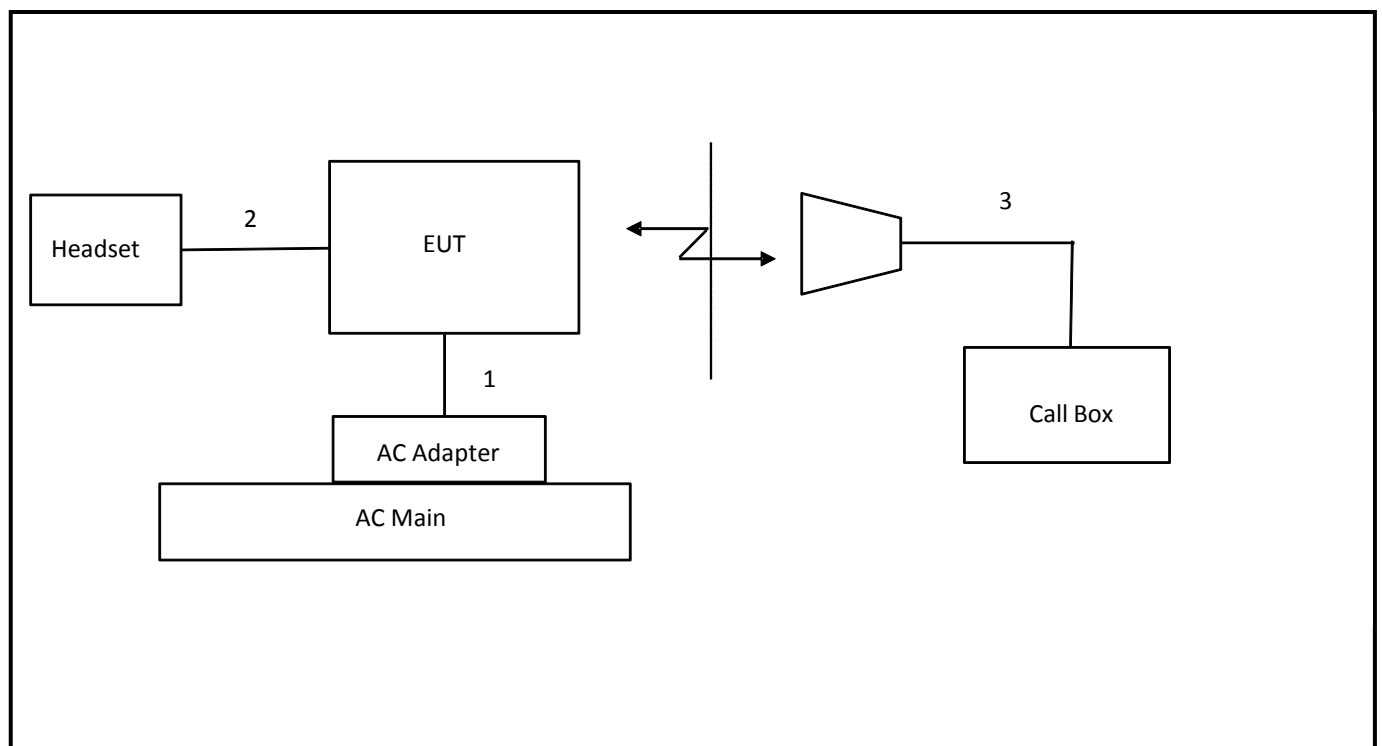
TEST SETUP

The EUT is a stand-alone device. The Communication test set linked with the EUT.

SETUP DIAGRAM FOR RF CONDUCTED TESTS



RADIATED SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Asset	Cal Due
Spectrum Analyzer	Agilent	N9030A	F00127	02/21/14
N9030A PXA Signal Analyzer	Agilent	N9030A	F00112	01/22/14
Spectrum Analyzer	Agilent	N9030A	F00128	02/22/14
Communication Test Set	Agilent / HP	E5515C	C01164	11/10/14
Communication Test Set	R & S	CMW500	F00014	02/21/14
Temperature / Humidity Chamber	Thermotron	SE 600-10-10	C00930	01/09/14
Vector signal generator, 6 GHz	Agilent / HP	E4438C	F00037	07/06/14
Highpass Filter, 2.7 GHz	Micro-Tronics	HPM13194	N02686	CNR
Highpass Filter, 1.5 GHz	Micro-Tronics	HPM13193	N02688	CNR
Bilog, 30-1GHz	Sunol Science	A0222813-1	F00168	03/07/14
Horn Antenna	ETS Lindgren	3117	C00872	02/19/14
Antenna, Tuned Dipole 400~1000 MHz	ETS Lindgren	3121C DB4	C00994	07/12/14
PreAmp 1-18GHz	Agilent/HP	8449B	F0018	03/18/14
PreAmp 30-1000MHz	Sonoma	310	F0009	11/06/13
Directional Coupler	Krytar	1851	N02656	CNR

BC0 CELL BAND

Radio Configuration (RC)	Service Option (SO)	Conducted Output Power (dBm)					
		Ch.1013/824.7 MHz		Ch384/836.52 MHz		Ch.777/848.31 MHz	
		Peak	Average	Peak	Average	Peak	Average
RC1	2 (Loopback)	29.15	24.71	29.02	24.59	28.93	24.72
	55 (Loopback)	29.10	24.75	29.14	24.68	28.94	24.75
RC2	9 (Loopback)	29.21	24.65	29.11	24.62	28.94	24.85
	55 (Loopback)	29.15	24.71	29.10	24.70	28.94	24.84
RC3	2 (Loopback)	29.14	24.51	28.88	24.52	28.78	24.51
	55 (Loopback)	29.05	24.54	28.98	24.47	28.76	24.50
	32 (+ F-SCH)	29.09	24.54	28.96	24.61	28.69	24.53
	32 (+ SCH)	29.05	24.51	28.96	24.57	28.68	24.53
RC4	2 (Loopback)	29.08	24.48	28.92	24.59	28.68	24.50
	55 (Loopback)	29.10	24.48	28.92	24.60	28.57	24.46
	32 (+ F-SCH)	29.17	24.50	28.93	24.61	28.69	24.53
	32 (+ SCH)	29.05	24.54	28.82	24.60	28.66	24.51
RC5	9 (Loopback)	29.10	24.47	28.95	24.56	28.70	24.47
	55 (Loopback)	29.10	24.48	28.98	24.57	28.62	24.56
RC11	2 (Loopback)	29.12	24.55	28.91	24.63	28.79	24.56
	75 (Loopback)	29.10	24.55	28.99	24.64	28.62	24.54
	32 (+ F-SCH)	29.06	24.48	28.90	24.59	28.68	24.52
	32 (+ SCH)	29.11	24.57	28.93	24.59	28.73	24.56

BC1 PCS BAND

Radio Configuration (RC)	Service Option (SO)	Conducted Output Power (dBm)					
		Ch. 25 / 1851.25 MHz		Ch. 600 / 1880 MHz		Ch. 1175/ 1908.75MHz	
		Peak	Average	Peak	Average	Peak	Average
RC1	2 (Loopback)	29.14	24.74	29.16	24.70	29.20	24.70
	55 (Loopback)	29.22	24.70	29.20	24.73	29.20	24.66
RC2	9 (Loopback)	29.21	24.70	29.25	24.70	29.22	24.67
	55 (Loopback)	29.14	24.76	29.22	24.67	29.20	24.70
RC3	2 (Loopback)	28.90	24.61	29.16	24.63	29.10	24.66
	55 (Loopback)	28.80	24.63	29.19	24.66	29.06	24.69
	32 (+ F-SCH)	28.87	24.52	29.14	24.52	29.04	24.57
	32 (+ SCH)	28.75	24.58	29.15	24.53	29.02	24.54
RC4	2 (Loopback)	28.87	24.64	29.20	24.63	29.07	24.58
	55 (Loopback)	28.82	24.60	29.15	24.63	29.03	24.61
	32 (+ F-SCH)	28.85	24.59	29.15	24.56	29.04	24.54
	32 (+ SCH)	28.80	24.55	29.12	24.59	29.00	24.56
RC5	9 (Loopback)	28.89	24.63	29.14	24.61	28.92	24.68
	55 (Loopback)	28.79	24.64	29.13	24.60	29.02	24.62
RC11	2 (Loopback)	28.80	24.65	29.15	24.62	29.10	24.66
	75 (Loopback)	28.70	24.65	29.10	24.66	29.16	24.63
	32 (+ F-SCH)	28.78	24.57	29.15	24.60	29.05	24.50
	32 (+ SCH)	28.71	24.56	29.18	24.52	29.00	24.53

8. CONDUCTED TEST RESULTS

8.1. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

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

MODES TESTED

CDMA2000 1xRTT (RC2-SO9)

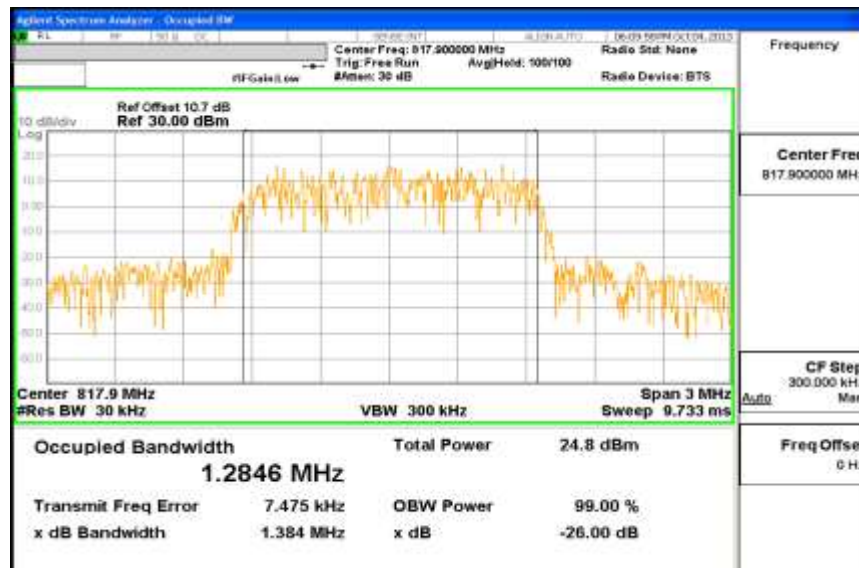
BC10, BC0 and BC1

RESULTS

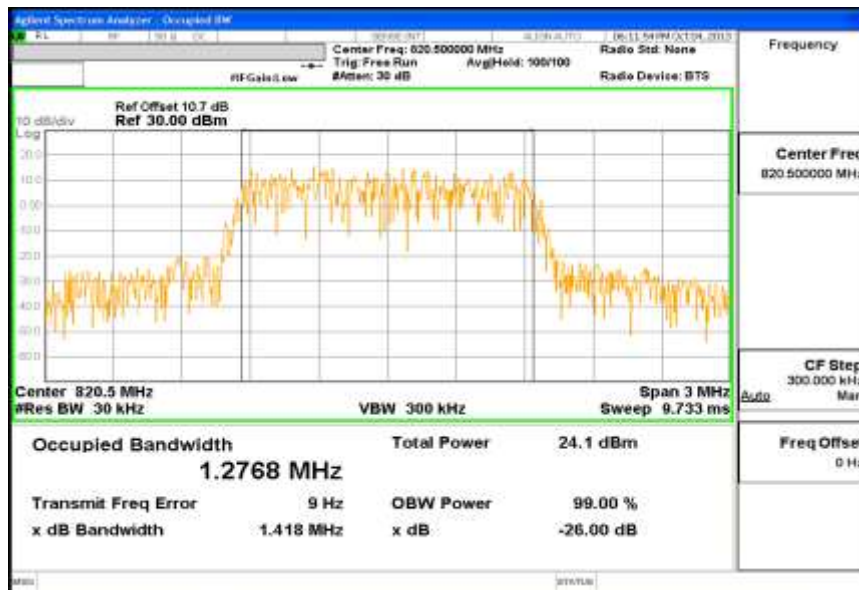
Band	Mode	Channel	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
BC10	1xRTT	476	817.90	1.2846	1.384
		526	820.50	1.2768	1.418
		684	823.10	1.2737	1.404
BC0		1013	824.70	1.2793	1.400
		384	836.52	1.2681	1.415
		777	848.31	1.2745	1.360
BC1		25	1851.25	1.2813	1.395
		600	1880.00	1.2839	1.390
		1175	1908.75	1.2876	1.382

8.1.1. CDMA2000 1xRTT, BC10

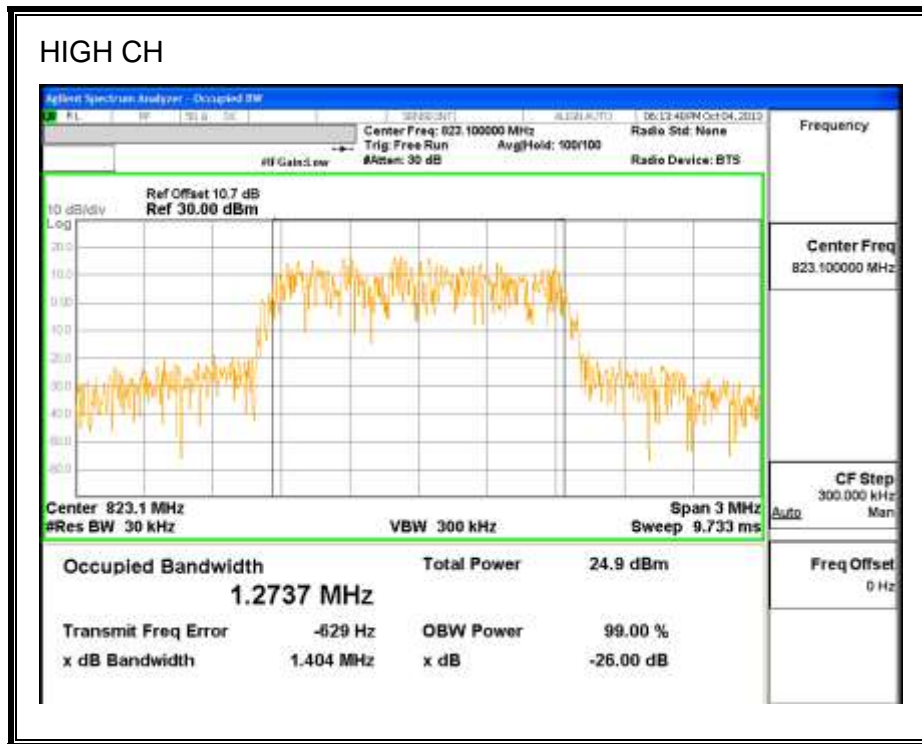
LOW CH



MID CH

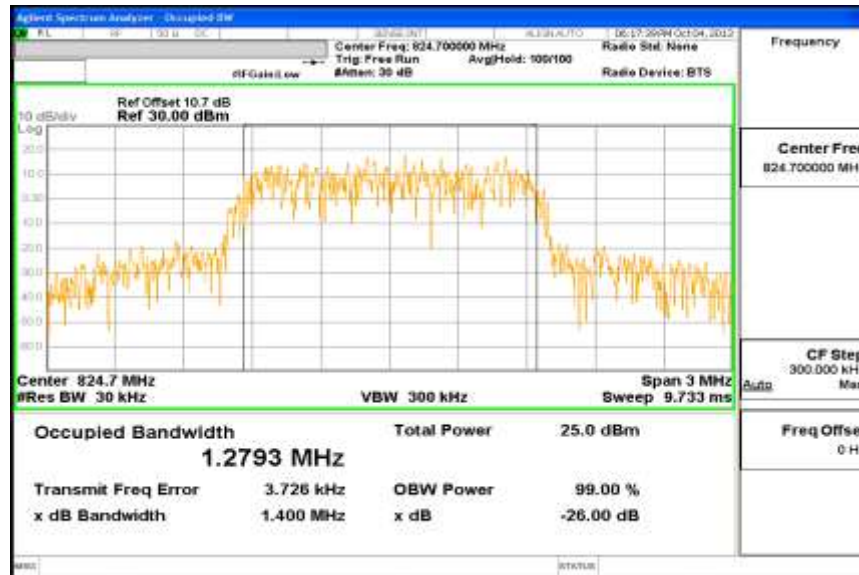


HIGH CH

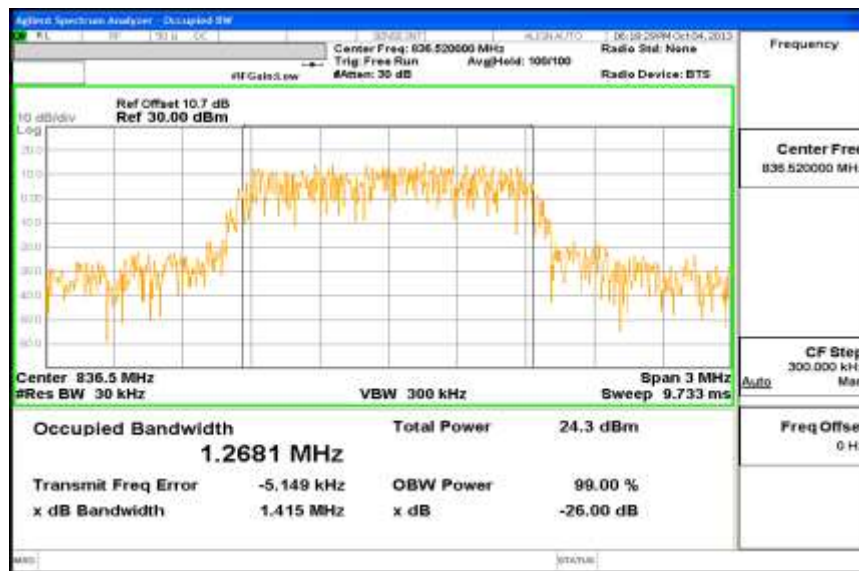


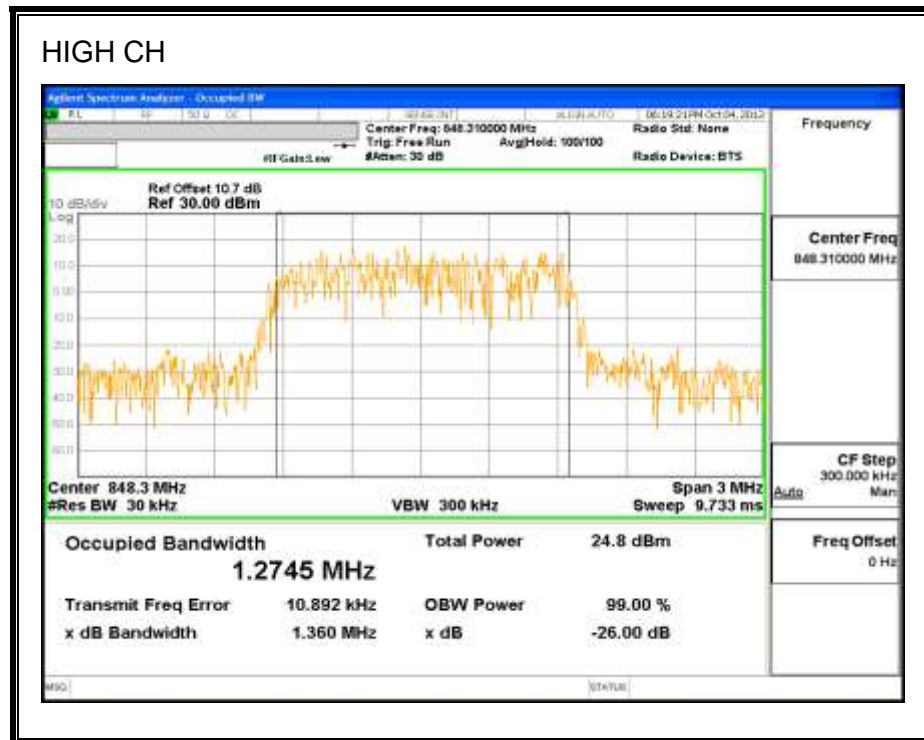
8.1.2. CDMA2000 1xRTT, BC0

LOW CH



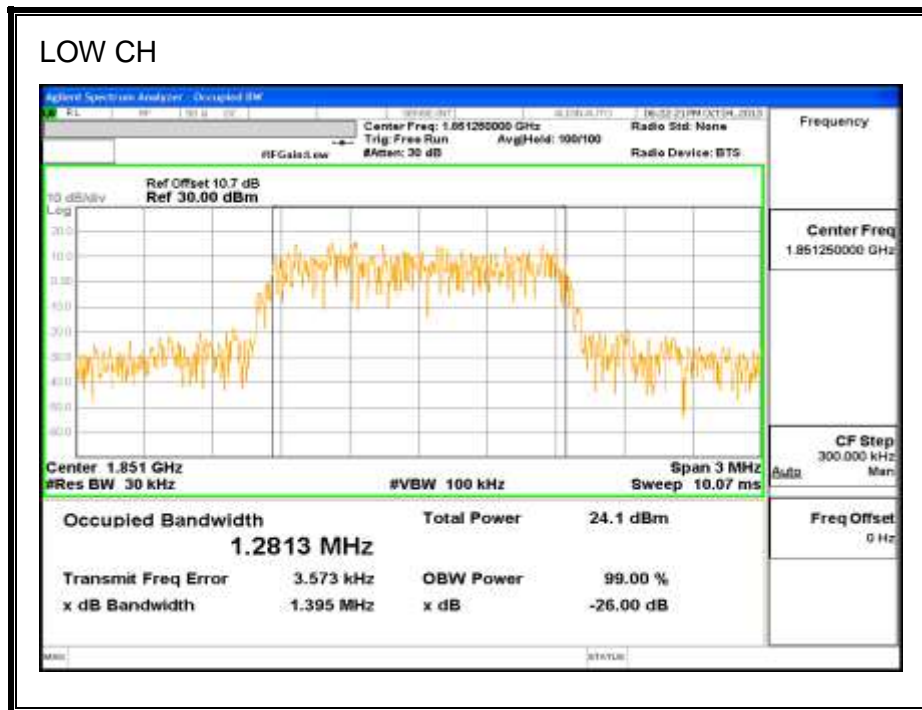
MID CH



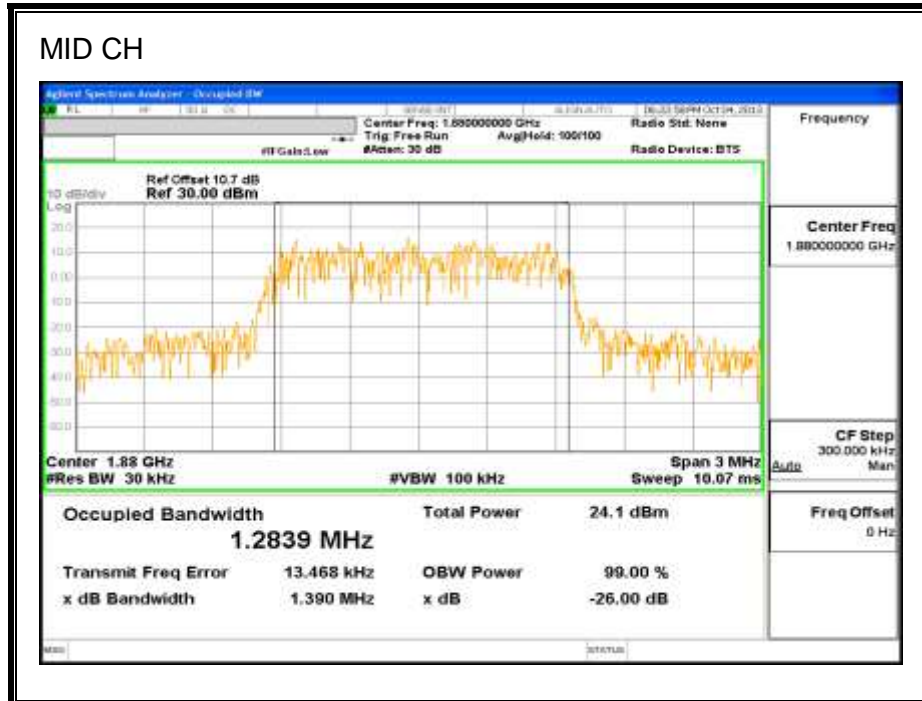


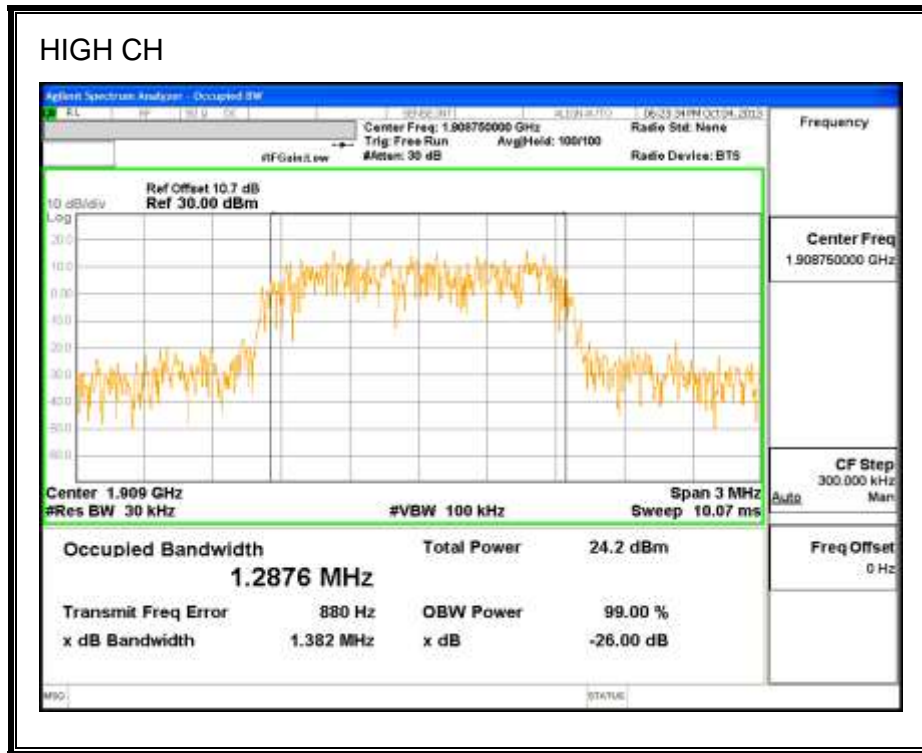
8.1.3. CDMA2000 1xRTT, BC1

LOW CH



MID CH





8.2. BAND EDGE

RULE PART(S)

FCC: §22.359, 24.238, and 90.691

LIMITS

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

TEST PROCEDURE

The transmitter output was connected to a Agilent 8960 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

For each band edge measurement:

- Set the spectrum analyzer span to include the block edge frequency (817, 824, 849, 1850 and 1910MHz)
- Set a marker to point the corresponding band edge frequency in each test case.
- Set display line at -13 dBm
- Set resolution bandwidth to at least 1% of emission bandwidth.

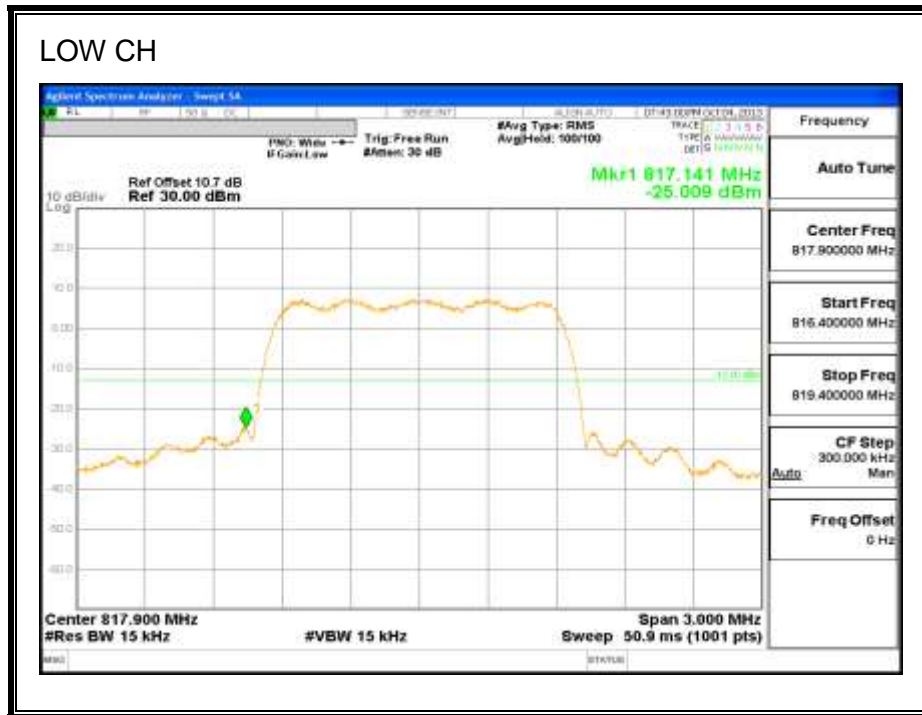
MODES TESTED

CDMA2000 1xRTT (RC2-SO9)
BC10, BC0 and BC1

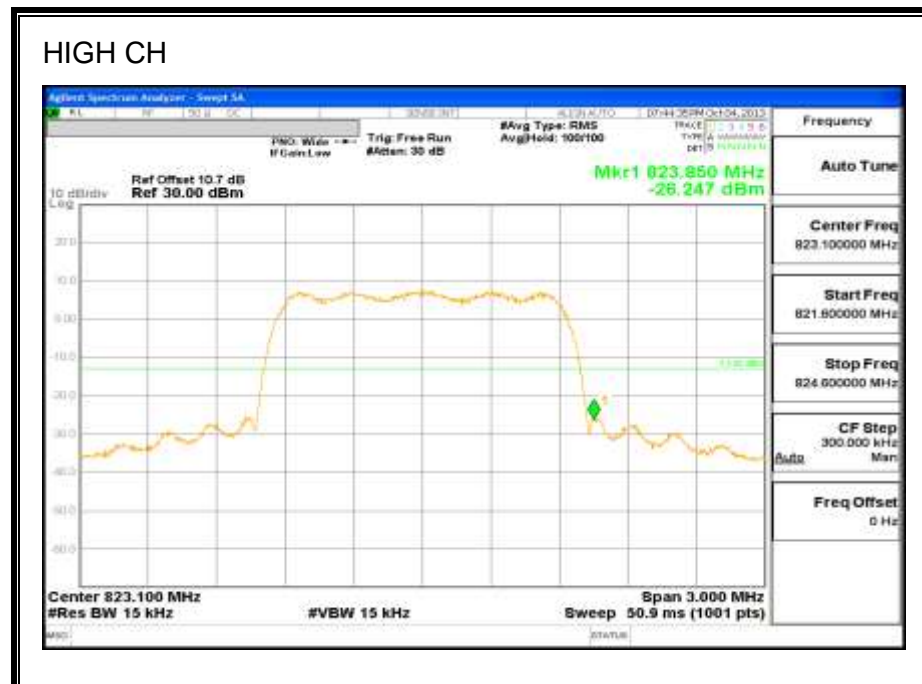
RESULTS

8.2.1. CDMA2000 1xRTT, BC10

LOW CH

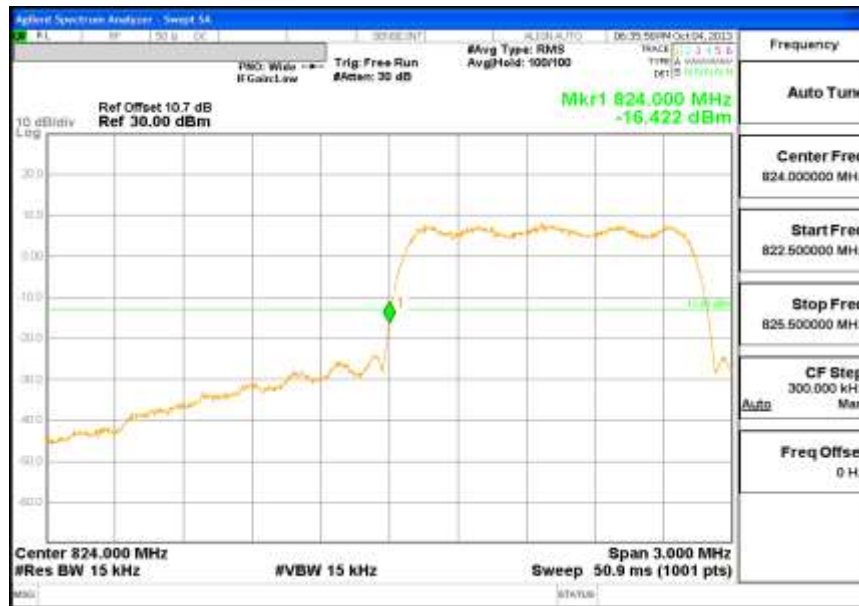


HIGH CH

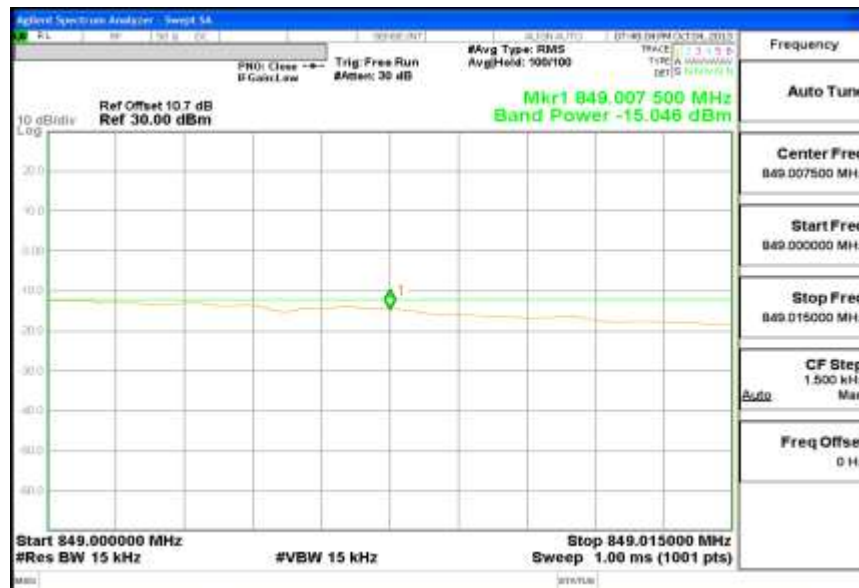


8.2.2. CDMA2000 1xRTT, BC0

LOW CH

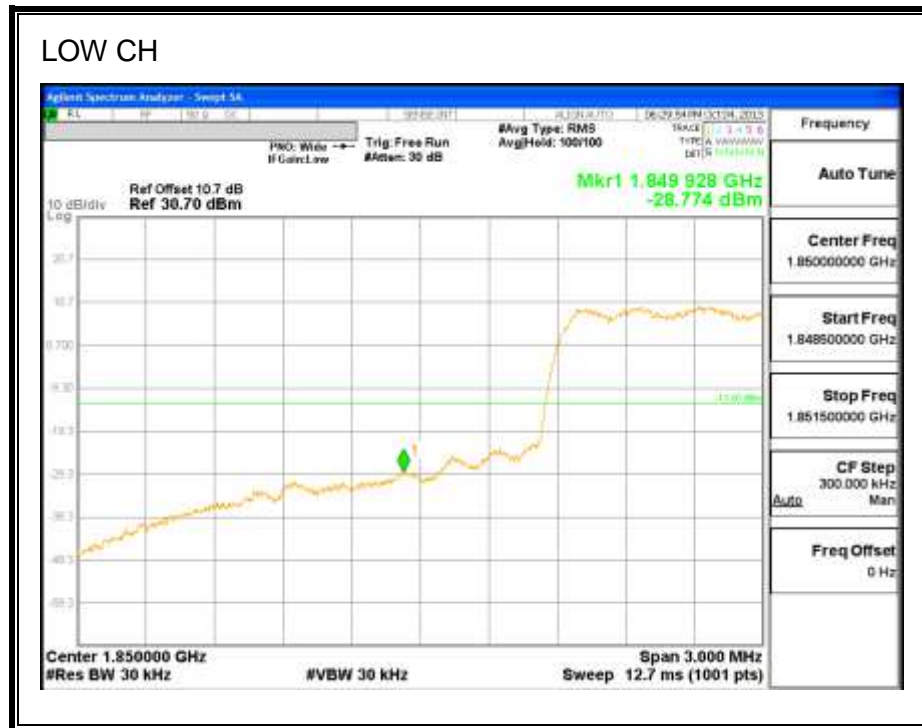


HIGH CH

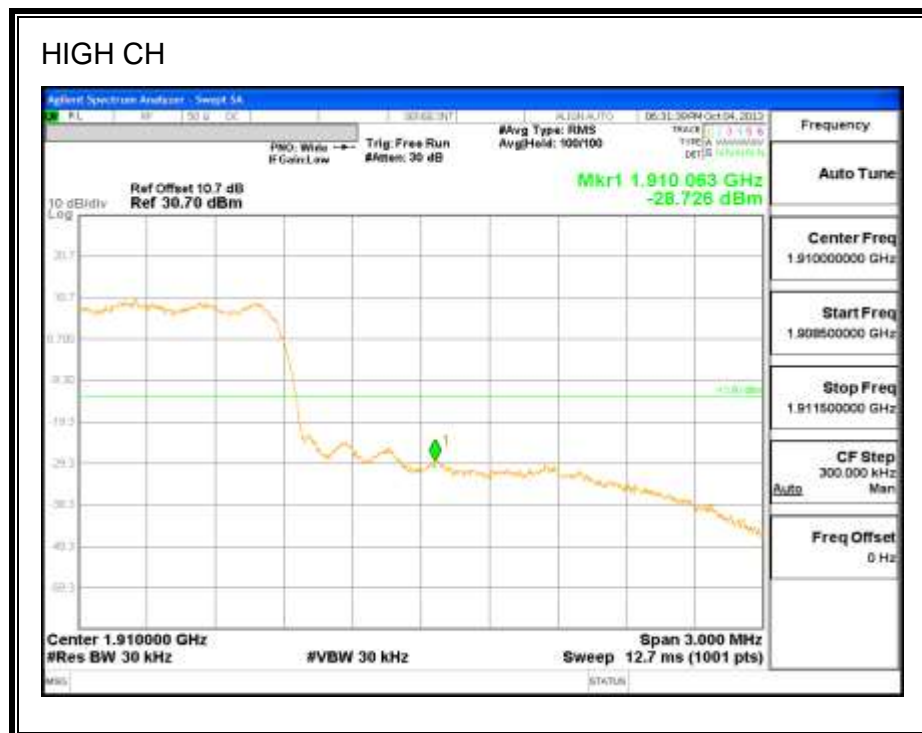


8.2.3. CDMA2000 1xRTT, BC1

LOW CH



HIGH CH



8.3. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238, §90.691

LIMITS

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

TEST PROCEDURE

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

For each out of band emissions measurement:

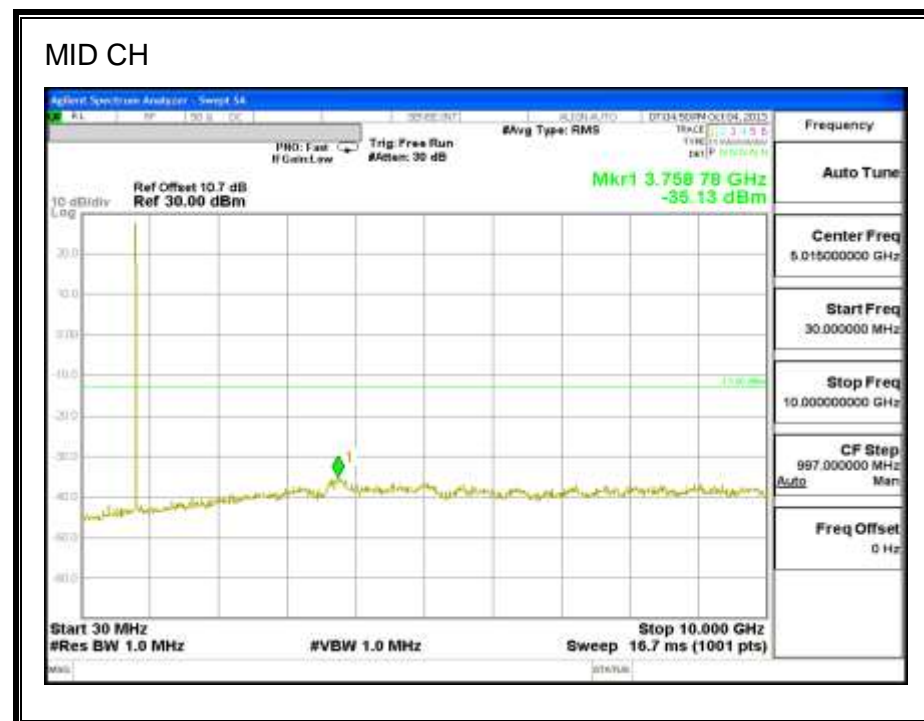
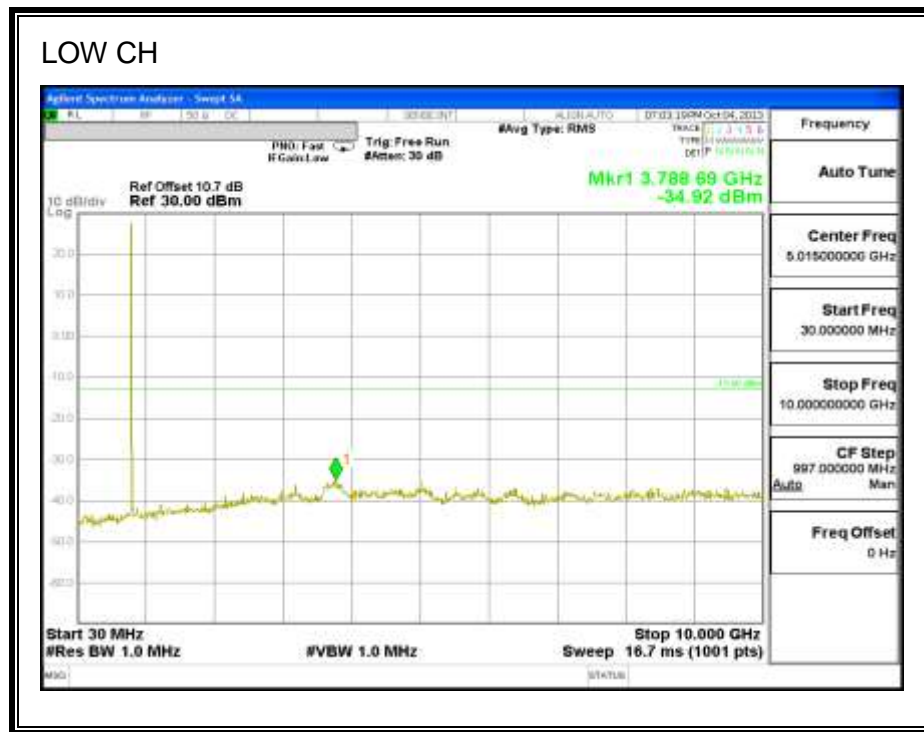
- Set display line at -13 dBm
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.

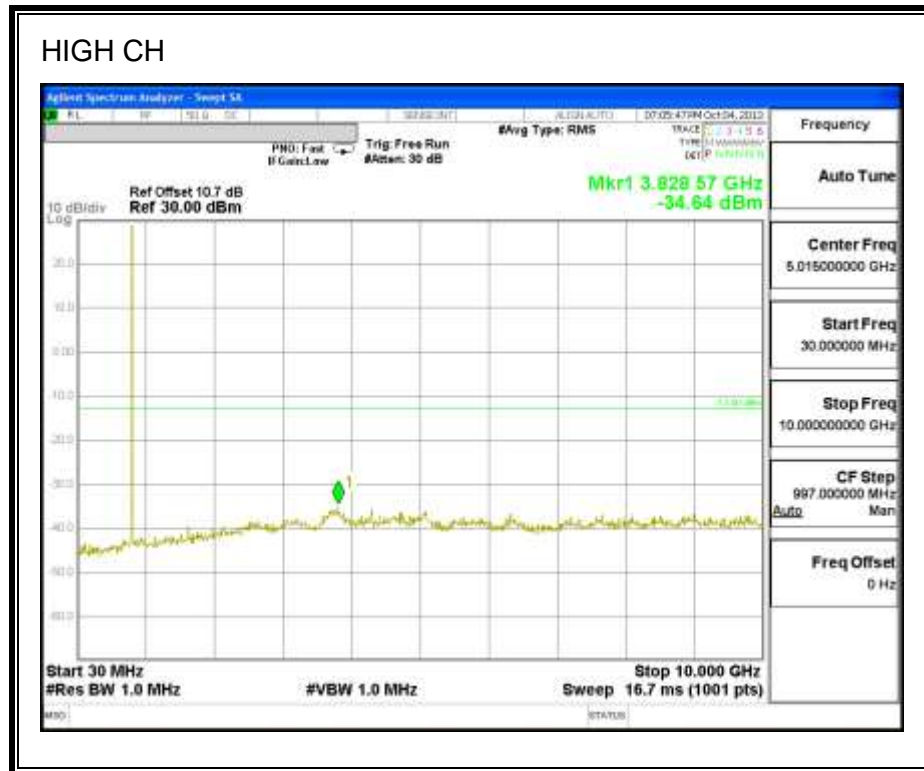
MODES TESTED

CDMA2000 1xRTT (RC2-SO9)
BC10, BC0 and BC1

RESULTS

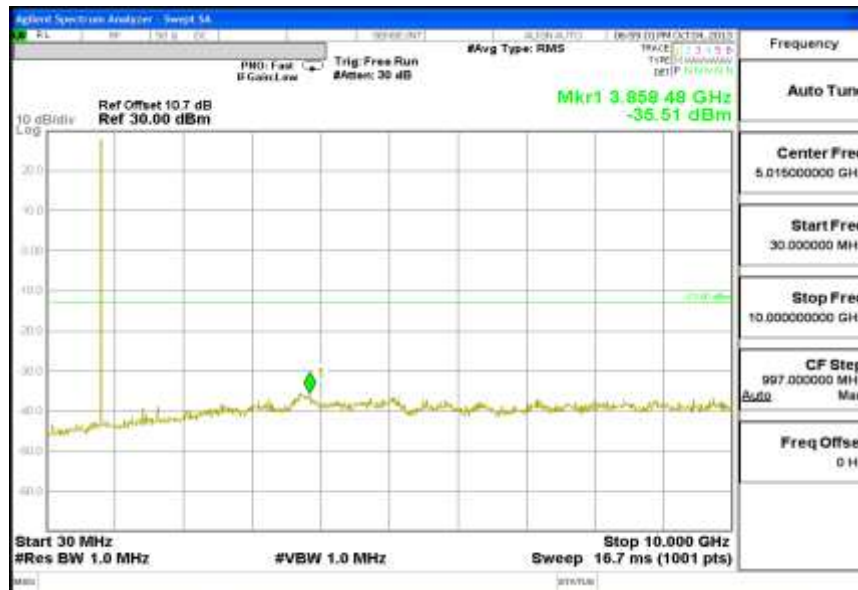
8.3.1. CDMA2000 1xRTT, BC10



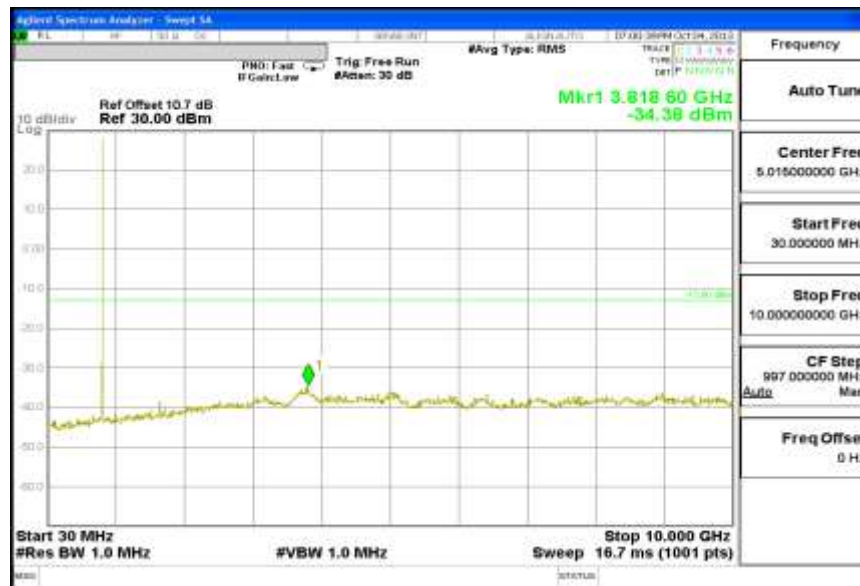


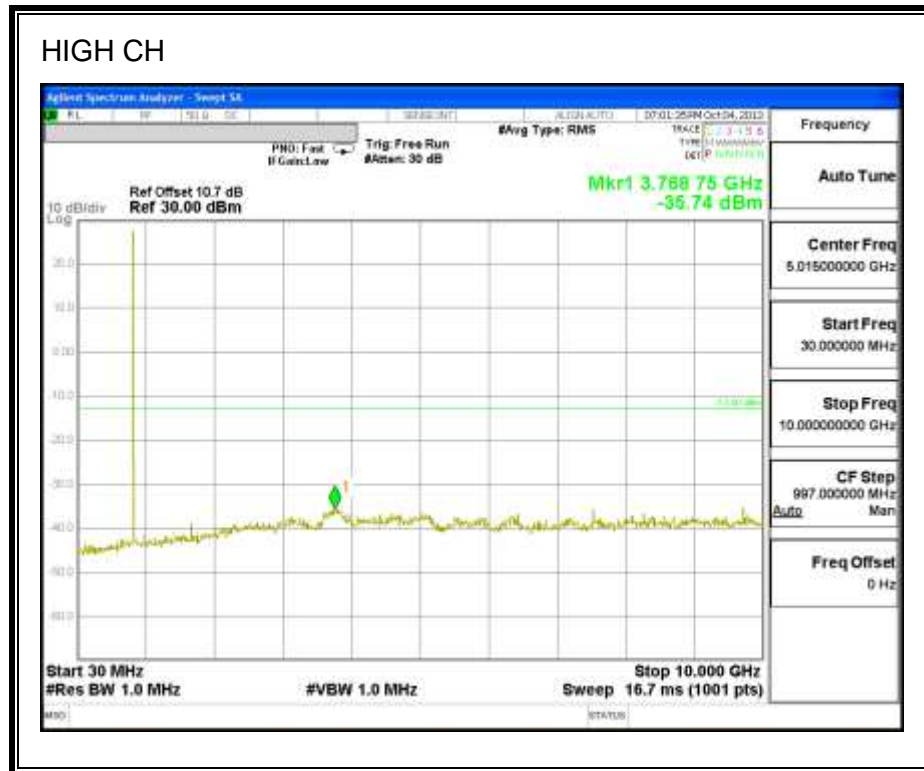
8.3.2. CDMA2000 1xRTT, BC0

LOW CH



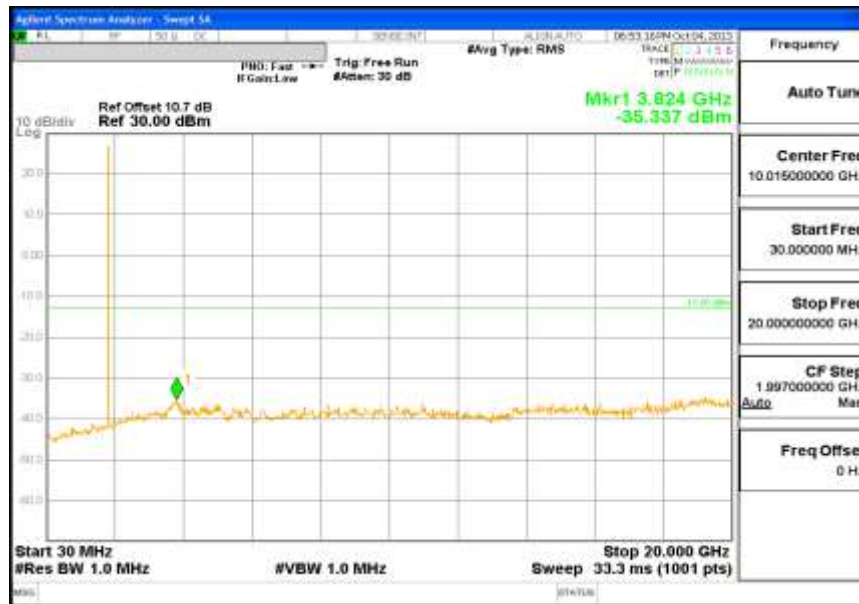
MID CH



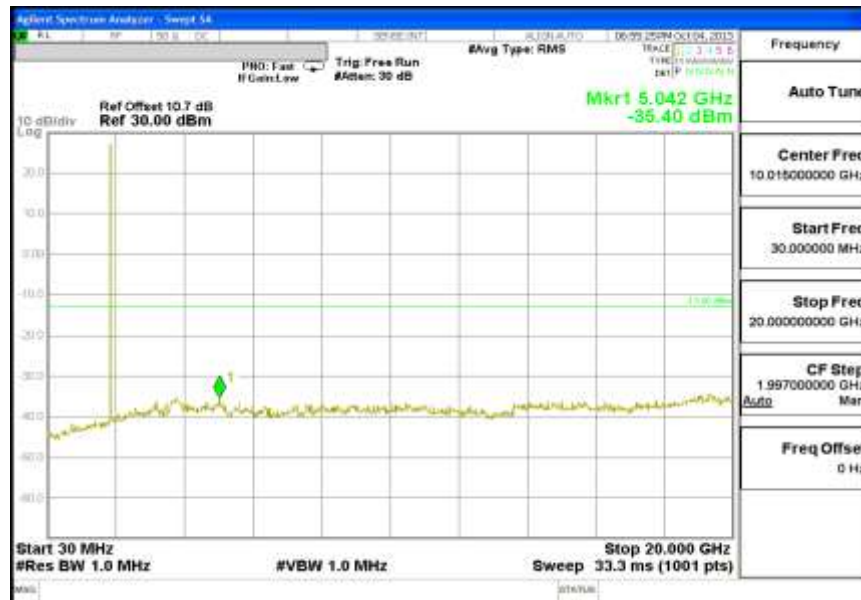


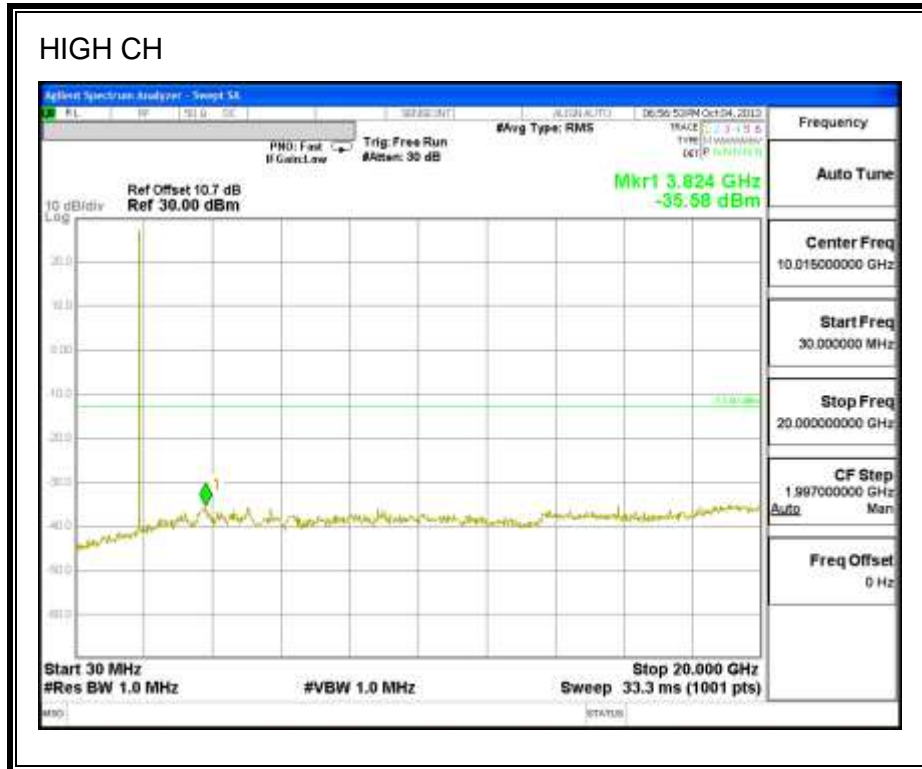
8.3.3. CDMA2000 1xRTT, BC1

LOW CH



MID CH





8.4. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §24.235

LIMITS

- §22.355 - The carrier frequency shall not depart from the reference frequency in excess of ± 2.5 ppm for mobile stations.
- §24.235 - The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.
- §90.213(a) - The carrier frequency shall not depart from the reference frequency in excess of ± 2.5 ppm for mobile stations.

TEST PROCEDURE

Use Agilent 8960 and CMW 500 with Frequency Error measurement capability.

- Temp. = -30° to $+50^{\circ}\text{C}$
- Voltage = (85% - 115%)

Frequency Stability vs Temperature:

The EUT is placed inside a temperature chamber. The temperature is set to 20°C and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until $+50^{\circ}\text{C}$ is reached.

Frequency Stability vs Voltage:

The peak frequency error is recorded (worst-case).

MODES TESTED

CDMA2000 1xRTT (RC2-SO9)
BC10, BC0 and BC1

RESULTS

See the following pages.

CDMA2000 1xRTT, BC10

Reference Frequency: Cellular Mid Channel 820.499999 MHz @ 20°C				
Limit: to stay +/- 2.5 ppm = 2051.250 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.70	50	820.500002	-0.005	2.5
3.70	40	820.500002	-0.005	2.5
3.70	30	820.499998	0.000	2.5
3.70	20	820.499999	0	2.5
3.70	10	820.499997	0.002	2.5
3.70	0	820.499997	0.002	2.5
3.70	-10	820.499996	0.003	2.5
3.70	-20	820.499996	0.003	2.5
3.70	-30	820.499997	0.001	2.5
Reference Frequency: Cellular Mid Channel 820.499999 MHz @ 20°C				
Limit: to stay +/- 2.5 ppm = 2051.250 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.70	20	820.499999	0	2.5
4.26	20	820.500002	-0.004	2.5
3.14	20	820.500000	-0.002	2.5
End Voltage(3.0V)	20	820.499982	0.020	2.5

CDMA2000 1xRTT, BC0

Reference Frequency: Cellular Mid Channel 836.519998 MHz @ 20°C				
Limit: to stay +/- 2.5 ppm = 2091.300 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.70	50	836.520003	-0.006	2.5
3.70	40	836.520003	-0.005	2.5
3.70	30	836.520002	-0.005	2.5
3.70	20	836.519998	0	2.5
3.70	10	836.519997	0.001	2.5
3.70	0	836.519997	0.001	2.5
3.70	-10	836.519996	0.002	2.5
3.70	-20	836.519997	0.001	2.5
3.70	-30	836.519998	0.000	2.5
Reference Frequency: Cellular Mid Channel 836.519998MHz @ 20°C				
Limit: to stay +/- 2.5 ppm = 2091.300 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.70	20	836.519998	0	2.5
4.26	20	836.520003	-0.005	2.5
3.14	20	836.520000	-0.002	2.5
End Voltage(3.0V)	20	836.519997	0.001	2.5

CDMA2000 1xRTT, BC1

Reference Frequency: PCS Mid Channel 1879.999997 MHz @ 20°C Limit: to stay +/- 2.5 ppm = 4700.000 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.70	50	1879.999996	0.001	2.5
3.70	40	1879.999996	0.000	2.5
3.70	30	1879.999997	0.000	2.5
3.70	20	1879.999997	0	2.5
3.70	10	1880.000004	-0.004	2.5
3.70	0	1880.000005	-0.004	2.5
3.70	-10	1880.000004	-0.004	2.5
3.70	-20	1880.000005	-0.004	2.5
3.70	-30	1880.000004	-0.004	2.5
Reference Frequency: PCS Mid Channel 1879.999997 MHz @ 20°C Limit: to stay +/- 2.5 ppm = 4700.000 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.70	20	1879.999997	0	2.5
4.26	20	1879.999996	0.001	2.5
3.14	20	1880.000000	-0.001	2.5
End Voltage(3.0V)	20	1879.999986	0.006	2.5

9. RADIATED TEST RESULTS

9.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913, §24.232, § 90.635.

LIMITS

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

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

§ 90.635 Limitations on power and antenna height.

(a) The effective radiated power and antenna height for base stations may not exceed 1 kilowatt (30 dBw) and 304 m. (1,000 ft.) above average terrain (AAT), respectively, or the equivalent thereof as determined from the Table. These are maximum values, and applicants will be required to justify power levels and antenna heights requested.

(b) The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).

Table—Equivalent Power and Antenna Heights for Base Stations in the 851–869 MHz and 935–940 MHz Bands Which Have a Requirement for a 32 km (20 mi) Service Area Radius

Antenna height (ATT) meters (feet)	Effective radiated power (watts) ^{1,2,4}
Above 1,372 (4,500)	65
Above 1,220 (4,000) to 1,372 (4,500)	70
Above 1,067 (3,500) to 1,220 (4,000)	75
Above 915 (3,000) to 1,067 (3,500)	100
Above 763 (2,500) to 915 (3,000)	140
Above 610 (2,000) to 763 (2,500)	200
Above 458 (1,500) to 610 (2,000)	350
Above 305 (1,000) to 458 (1,500)	600
Up to 305 (1,000)	31,000

1Power is given in terms of effective radiated power (ERP).

2Applicants in the Los Angeles, CA, area who demonstrate a need to serve both the downtown and fringe areas will be permitted to utilize an ERP of 1 kw at the following mountaintop sites: Santiago Park, Sierra Peak, Mount Lukens, and Mount Wilson.

3Stations with antennas below 305 m (1,000 ft) (AAT) will be restricted to a maximum power of 1 kw (ERP).

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

TEST PROCEDURE

ANSI / TIA / EIA 603C Clause 2.2.17

KDB 971168 v02r01 RF Power output using broadband peak and average power meter method

MODES TESTED

CDMA2000 1xRTT (RC2-SO9)
BC10, BC0 and BC1

Mode	Channel	f (MHz)	ERP	
			dBm	mW
BC10, 1xRTT	476	817.9	27.66	583.45
	526	820.5	27.36	544.50
	684	823.1	27.20	524.81

Mode	Channel	f (MHz)	ERP	
			dBm	mW
BC 0, 1xRTT	1013	824.70	27.56	570.16
	384	836.52	27.06	508.16
	777	848.31	26.60	457.09

Mode	Channel	f (MHz)	EIRP	
			dBm	mW
BC1, 1xRTT	25	1851.25	28.00	630.96
	600	1880.00	28.21	662.22
	1175	1908.75	28.37	687.07

CDMA2000 1xRTT, BC10

**High Frequency Substitution Measurement
Compliance Certification Services Chamber E**

Company: Kyocera
Project #: 13U16201
Date: 10/07/13
Test Engineer: R.Zheng
Configuration: EUT ONLY
Mode: Cell Band BC 10 Peak

Test Equipment:

Receiving: Sunoi T407, and Chamber E Cable

Substitution: Dipole S/N: 00022117, 8ft SMA Cable (SN # 245185004) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
817.90	18.50	V	0.5	0.0	18.00	38.5	-20.4	
817.90	28.16	H	0.5	0.0	27.66	38.5	-10.8	
Mid Ch								
819.15	18.70	V	0.5	0.0	18.20	38.5	-20.2	
819.15	27.86	H	0.5	0.0	27.36	38.5	-11.1	
High Ch								
823.10	18.85	V	0.5	0.0	18.35	38.5	-20.1	
823.10	27.70	H	0.5	0.0	27.20	38.5	-11.2	

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CDMA2000 1xRTT, BC0

**High Frequency Substitution Measurement
Compliance Certification Services Chamber E**

Company: Kyocera
Project #: 13U16201
Date: 10/07/13
Test Engineer: R.Zheng
Configuration: EUT ONLY
Mode: Cell Band BC 0 Peak

Test Equipment:

Receiving: Sunol T407, and Chamber E Cable

Substitution: Dipole S/N: 00022117, 8ft SMA Cable (SN # 245185004) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.70	19.60	V	0.5	0.0	19.10	38.5	-19.3	
824.70	28.06	H	0.5	0.0	27.56	38.5	-10.9	
Mid Ch								
836.52	19.40	V	0.5	0.0	18.90	38.5	-19.5	
836.52	27.56	H	0.5	0.0	27.06	38.5	-11.4	
High Ch								
848.31	19.15	V	0.5	0.0	18.65	38.5	-19.8	
848.31	27.10	H	0.5	0.0	26.60	38.5	-11.8	

Rev. 3.17.11

CDMA2000 1xRTT, BC1

High Frequency Fundamental Measurement Compliance Certification Services Chamber D								
Company:		Kyocera						
Project #:		13U16201						
Date:		10/10/13						
Test Engineer:		R.Zheng						
Configuration:		EUT only						
Mode:		CDMA BC 1 PCS						
Test Equipment:								
Receiving: Horn T334, and Chamber D SMA Cables								
Substitution: Horn T60 Substitution, 8ft SMA Cable (244639001) Warehouse								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1.852	19.5	V	0.70	7.94	26.77	33.0	-6.2	
1.852	19.9	H	0.70	8.80	28.00	33.0	-5.0	
Mid Ch								
1.880	19.6	V	0.70	7.95	26.85	33.0	-6.2	
1.880	20.2	H	0.70	8.68	28.21	33.0	-4.8	
High Ch								
1.909	19.9	V	0.70	7.97	27.17	33.0	-5.8	
1.909	20.5	H	0.70	8.57	28.37	33.0	-4.6	
Rev. 3.17.11								

9.2. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238 & § 90.691

LIMIT

§22.917 (e) and §24.238 (a): Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

§ 90.691 Emission mask requirements for EA-based systems.

(a) Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $116 \log_{10} (f/6.1)$ decibels or $50 + 10 \log_{10} (P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10} (P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

(b) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

TEST PROCEDURE

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

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

MODES TESTED:

CDMA2000 1xRTT (RC2-SO9)

BC10, BC0 and BC1

RESULTS

CDMA2000 1xRTT, BC10

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement									
Company:		Kyocera							
Project #:		13U16201							
Date:		10/09/13							
Test Engineer:		R.Zheng							
Configuration:		EUT only							
Mode:		CDMA 2000, 1xRTT, BC10							
Chamber		Pre-amplifier		Filter		Limit			
3m Chamber D		T145 8449B		Filter 1		Part 90			
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (817.9MHz)									
1.636	-21.1	V	3.0	32.7	1.0	-52.8	-13.0	-39.8	
2.454	-21.2	V	3.0	31.3	1.0	-51.5	-13.0	-38.5	
1.636	-22.9	H	3.0	32.7	1.0	-54.6	-13.0	-41.6	
2.454	-22.8	H	3.0	31.3	1.0	-53.0	-13.0	-40.0	
Mid Ch, (819.15MHz)									
1.638	-20.7	V	3.0	32.7	1.0	-52.4	-13.0	-39.4	
2.457	-19.7	V	3.0	31.3	1.0	-50.0	-13.0	-37.0	
1.638	-24.1	H	3.0	32.7	1.0	-55.8	-13.0	-42.8	
2.457	-22.2	H	3.0	31.3	1.0	-52.5	-13.0	-39.5	
High Ch, (823.1MHz)									
1.646	-22.4	V	3.0	32.7	1.0	-54.1	-13.0	-41.1	
2.469	-20.5	V	3.0	31.3	1.0	-50.8	-13.0	-37.8	
1.646	-25.5	H	3.0	32.7	1.0	-57.2	-13.0	-44.2	
2.469	-22.4	H	3.0	31.3	1.0	-52.7	-13.0	-39.7	
Rev. 03.03.09									
Note: No other emissions were detected above the system noise floor.									

CDMA2000 1xRTT, BC0

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement									
Company:		Kyocera							
Project #:		13U16201							
Date:		10/09/13							
Test Engineer:		R.Zheng							
Configuration:		EUT only							
Mode:		CDMA 2000, 1xRTT, BC0							
Chamber		Pre-amplifier		Filter		Limit			
3m Chamber D		T145 8449B		Filter 1		Part 22			
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (824.7MHz)									
1.649	-23.4	V	3.0	32.7	1.0	-55.1	-13.0	-42.1	
2.474	-20.5	V	3.0	31.4	1.0	-50.9	-13.0	-37.9	
1.649	-24.3	H	3.0	32.7	1.0	-56.0	-13.0	-43.0	
2.474	-22.3	H	3.0	31.4	1.0	-52.7	-13.0	-39.7	
Mid Ch, (836.52MHz)									
1.673	-22.5	V	3.0	32.6	1.0	-54.1	-13.0	-41.1	
2.510	-20.2	V	3.0	31.5	1.0	-50.7	-13.0	-37.7	
1.673	-24.9	H	3.0	32.6	1.0	-56.5	-13.0	-43.5	
2.510	-22.5	H	3.0	31.5	1.0	-53.0	-13.0	-40.0	
High Ch, (848.31MHz)									
1.697	-23.0	V	3.0	32.6	1.0	-54.5	-13.0	-41.5	
2.545	-20.8	V	3.0	31.4	1.0	-51.3	-13.0	-38.3	
1.697	-24.8	H	3.0	32.6	1.0	-56.3	-13.0	-43.3	
2.545	-22.4	H	3.0	31.4	1.0	-52.8	-13.0	-39.8	
Rev. 03.03.09									
Note: No other emissions were detected above the system noise floor.									

CDMA2000 1xRTT, BC1

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement									
Company:		Kyocera							
Project #:		13U16201							
Date:		10/09/13							
Test Engineer:		R.Zheng							
Configuration:		EUT only							
Mode:		CDMA 2000, 1xRTT, BC1							
Chamber		Pre-amplifier		Filter		Limit			
3m Chamber D		T145 8449B		Filter 1		Part 24			
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (1851.25MHz)									
3.703	-21.5	V	3.0	30.2	1.0	-50.7	-13.0	-37.7	
5.554	-24.9	V	3.0	28.4	1.0	-52.3	-13.0	-39.3	
3.703	-21.5	H	3.0	30.2	1.0	-50.6	-13.0	-37.6	
5.554	-23.7	H	3.0	28.4	1.0	-51.1	-13.0	-38.1	
Mid Ch, (1880MHz)									
3.760	-21.4	V	3.0	30.1	1.0	-50.5	-13.0	-37.5	
5.640	-24.7	V	3.0	28.3	1.0	-52.0	-13.0	-39.0	
3.760	-20.5	H	3.0	30.1	1.0	-49.6	-13.0	-36.6	
5.640	-24.0	H	3.0	28.3	1.0	-51.3	-13.0	-38.3	
High Ch, (1908.75MHz)									
3.818	-21.0	V	3.0	30.1	1.0	-50.1	-13.0	-37.1	
5.726	-24.8	V	3.0	28.2	1.0	-52.0	-13.0	-39.0	
3.818	-20.5	H	3.0	30.1	1.0	-49.6	-13.0	-36.6	
5.726	-23.8	H	3.0	28.2	1.0	-51.0	-13.0	-38.0	
Rev. 03.03.09									
Note: No other emissions were detected above the system noise floor.									