



FCC Part22H&24E Test Report Industry Canada RSS-132/RSS-133

Product Name : Wireless Module
Model No. : GTM-3
FCC ID : N7NGTM2
IC : 2417C-GTM2

Applicant : Sierra Wireless Inc.

Address : 13811 Wireless Way Richmond, British Columbia,
Canada, V6V 3A4.

Date of Receipt : 26/10/2012
Test Date : 26/10/2012~29/10/2012
Issued Date : 30/10/2012
Report No. : 12AS035R-HP-US-P07V01
Report Version : V 3.0

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

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Test Report Certification

Issued Date : 30/10/2012

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Model No. : GTM-3

FCC ID : N7NGTM2

IC : 2417C-GTM2

EUT Voltage : DC 12V

Brand Name : Sierra Wireless

Applicable Standard : FCC CFR Title 47 Part 2,TIA/EIA 603-C
FCC Part22 Subpart H, FCC Part24 Subpart E
Industry Canada RSS-132, Issue 2 Clause 4.5&4.6
Industry Canada RSS-133, Issue 5 Clause 6.5&6.6

Test Result : Complied

Performed Location : Suzhou EMC Laboratory
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TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098
FCC Registration Number: 800392; IC Lab Code: 4075B

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Approved By : Marlinchen
(Manager: Marlin Chen)

Laboratory Information

We, **Quietek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted(audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scope:

Taiwan R.O.C.	:	BSMI, NCC, TAF
Germany	:	TUV Rheinland
Norway	:	Nemko, DNV
USA	:	FCC, NVLAP
Japan	:	VCCI
China	:	CNAS

The related certificate for our laboratories about the test site and management system can be downloaded from Quietek Corporation's Web Site :<http://www.quietek.com/tw/ctg/cts/accreditations.htm>

The address and introduction of Quietek Corporation's laboratories can be founded in our Web site :
<http://www.quietek.com/>

If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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1. General Information

1.1. EUT Description

Product Name	Wireless Module
Model No.	GTM-3
Device Category	Portable
RF Exposure Environment	Uncontrolled
CDMA	
Support Band	CDMA2000 1X BC0/BC1
Uplink	BC0: 824~849MHz BC1: 1850~1910MHz
Downlink	BC0: 869~894MHz BC1: 1930~1990MHz
Type of Modulation	QPSK
Components	
Adapter	M/N: GF18-US1215T Input: 100-240V~50/60Hz 0.45A Output: DC 12V, 1.5A

Auxiliary Antenna List

Antenna	Manufacturer	Model No.	Peak Gain
Antenna #1 (Topknot Antenna)	YOKOWO CO., LTD.	Antenna Base:86762-50031 Antenna rod:86761-50031	BC0: 4.53dBi BC1: 3.95dBi
Antenna #2 (980L Shark Fin)	NIPPON ANTENNA CO., LTD.	86760-980L0	BC0: 2.91dBi BC1: 4.32dBi

Note: Antenna use for Spurious Emission, Radiated power, Receiving Spurious emission testing.

1.2. Mode of Operation

Quietek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: CDMA 2000 1X BC0 Link
Mode 2: CDMA 2000 1X BC1 Link

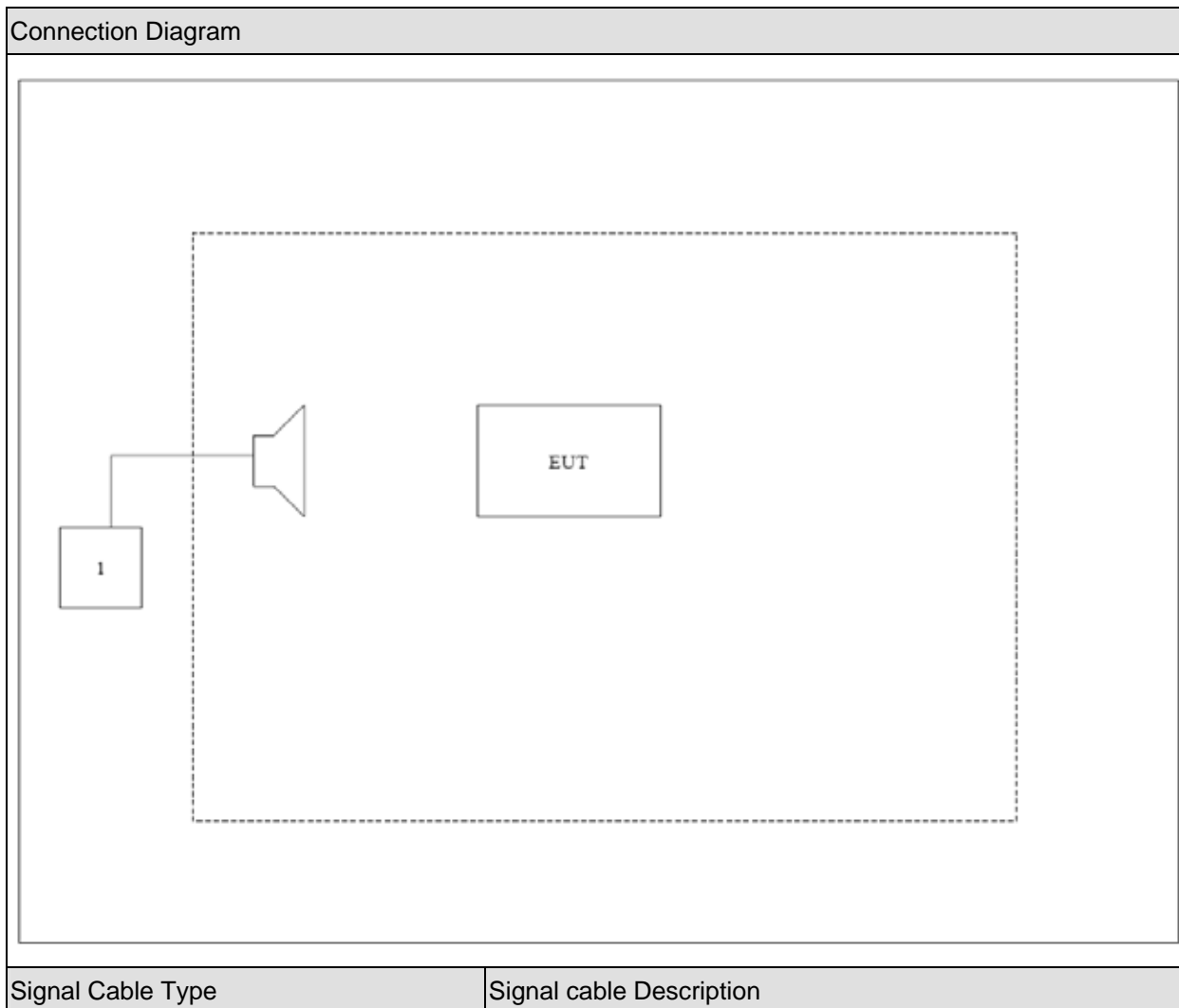
Note: Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.

1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	CMU200	R&S	CMU200	N/A	N/A

1.4. Configuration of Tested System



1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of all equipment.
3	EUT Communicate with CMU200, then select channel to test.

2. Technical Test

2.1. Summary of Test Result

- No deviations from the test standards
- Deviations from the test standards as below description:

For CDMA 2000 1X BC0 (FCC Part 22H & Part 2)

Emission			
Performed Item	Normative References	Test Performed	Deviation
Peak Output Power	FCC Part 22.913(a)(2) and Part 2.1046	Yes	No
Spurious Emission	FCC Part 22.917(a) and Part 2.1051, 2.1053 Industry Canada RSS-132, Issue 5 Clause 4.5&4.6	Yes	No

For CDMA 2000 1X BC1 (FCC Part 24E & Part 2)

Emission			
Performed Item	Normative References	Test Performed	Deviation
Peak Output Power	FCC Part 24.232(c) and Part 2.1046	Yes	No
Spurious Emission	FCC Part 24.238(a) and Part 2.1051, 2.1053 Industry Canada RSS-133, Issue 5 Clause 6.5&6.6	Yes	No

2.2. Test Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	23
Humidity (%RH)	25-75	52
Barometric pressure (mbar)	860-1060	950-1000

3. Peak Output Power

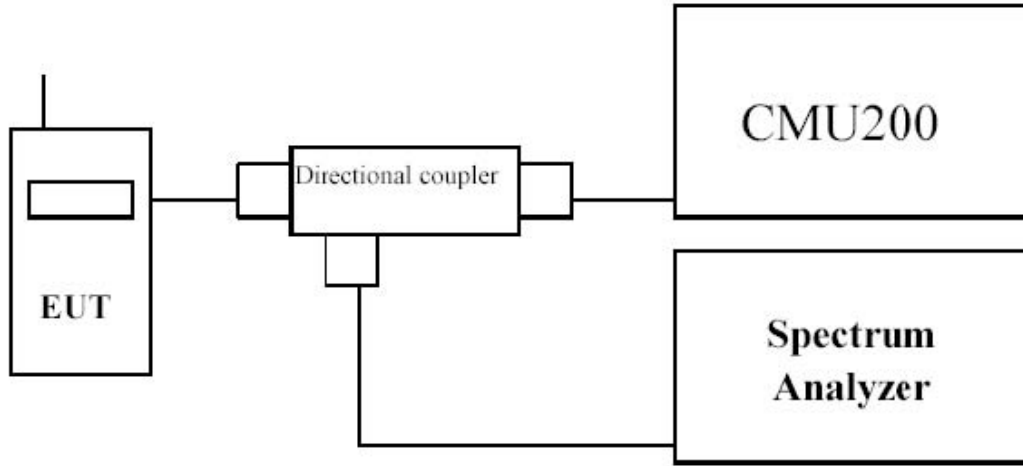
3.1. Test Equipment

Spurious Emission / AC-5

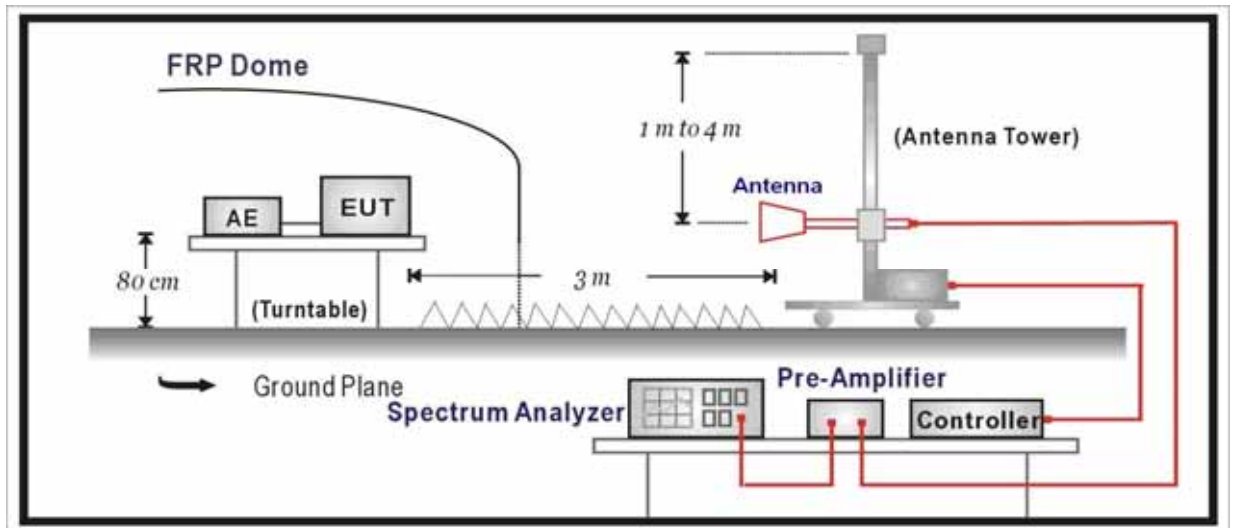
Instrument	Manufacturer	Type No.	Serial No	Cali. Due Date
PSA Series Spectrum Analyzer	Agilent	E4440A	MY49420184	2013.04.10
Radio Communication Tester	R&S	CMU 200	117088	2013.04.18
Dual Directional Coupler	Agilent	778D	20160	2013.04.18
10dB Coaxial Coupler	Agilent	87300C	MY44300299	2013.04.18
PSG Analog Signal Generator	Agilent	E8257D	MY44321116	2013.04.18
Preamplifier	QuieTek	AP-025C	CHM-0503006	2013.05.04
Preamplifier	Miteq	NSP1800-25	1364185	2013.05.04
Bilog Antenna	Teseq GmbH	CBL6112D	27612	2013.10.15
Half Wave Tuned Dipole Antenna	COM-POWER	AD-100	40137	2013.11.24
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	737	2013.11.24
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	499	2014.06.08
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC5-TH	2013.01.10

3.2. Test Setup

Conducted Power Measurement:



Radiated Power Measurement:



3.3. Limit

For FCC Part 22.913(a)(2):

The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

For FCC Part 24.232(c):

The EIRP of mobile transmitters and auxiliary test transmitters must not exceed 2 Watts.

3.4. Test Procedure

Conducted Power Measurement:

- a) Place the EUT on a bench and set it in transmitting mode.
- b) Connect a low loss RF cable from the antenna port to a spectrum analyzer and CMU200 by a Directional Couple.
- c) EUT Communicate with CMU200, then selects a channel for testing.
- d) Add a correction factor to the display of spectrum, and then test.

Radiated Power Measurement:

- e) The EUT shall be placed at the specified height on a support, and in the position closest to normal use as declared by provider.
- f) The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter
- g) The output of the test antenna shall be connected to the measuring receiver.
- h) The transmitter shall be switched on and the measuring receiver shall be tuned to the frequency of the transmitter under test.
- i) The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
- j) The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- k) The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.
- l) The maximum signal level detected by the measuring receiver shall be noted.
- m) The transmitter shall be replaced by a substitution antenna.
- n) The substitution antenna shall be orientated for vertical polarization and the length of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.
- o) The substitution antenna shall be connected to a calibrated signal generator.
- p) If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
- q) The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
- r) The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
- s) The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.
- t) The measure of the effective radiated power is the larger of the two levels recorded at the input to the substitution antenna, corrected for gain of the substitution antenna if

necessary.

- u) Test site anechoic chamber refer to ANSI C63.4: 2009.

Base station simulator settings for each test mode:

1. For 1xRTT

Use CDMA2000 Rev 6 protocol in R&S CMU200.

1) Test for Reverse/Forward TCH RC1, Reverse/Forward TCH RC2, and RC3 Reverse FCH and demodulation of RC 3, 4 and 5.

a. Set up a call using Fundamental Channel Test Mode 1 (RC1, SO 2) with 9600 bps data rate only.

b. As per C.S0011 or TIA/EIA-98-F Table 4.4.5.2-1, set the test parameters as shown in Table 4-1.

c. Send continuously '0' power control bits to the Gobi2000 Module.

d. Measure the output power at Gobi2000 Module antenna connector as recorded on the power meter with values corrected for cables losses.

e. Repeat step b through d for Fundamental Channel Test Mode:

i. RC1, SO55

ii. RC2, SO9

iii. RC2, SO55

iv. RC3, SO55

2) Test for RC 3 Reverse FCH, RC3 Reverse SCH0 and demodulation of RC 3, 4 and 5.

a. Set up a call using Supplemental Channel Test Mode 3 (RC 3, SO 32) with 9600 bps Fundamental Channel and 9600 bps SCH0 data rate.

b. As per C.S0011 or TIA/EIA-98-F Table 4.4.5.2-2, set the test parameters as shown in Table 4-2.

c. Send alternating '0' and '1' power control bit to the Gobi2000 Module

d. Determine the active channel configuration. If the desired channel configuration is not the active channel configuration, increase \hat{I}_or by 1 dB and repeat the verification. Repeat this step until the desired channel configuration becomes active.

e. Measure the output power at the Gobi2000 Module antenna connector.

f. Decrease \hat{I}_or by 0.5 dB.

g. Determine the active channel configuration. If the active channel configuration is the desired channel configuration, measure the output power at the Gobi2000 Module antenna connector.

h. Repeat step f and g until the output power no longer increases or the desired channel configuration is no longer active. Record the highest output power achieved with the desired channel configuration active.

- i. Repeat step a through h ten times and average the result.

Table 4-1 Parameters for Max. Power with a single traffic code channel, SR1

Parameter	Units	Value
\hat{I}_{or}	dBm/1.23 MHz	-104
(Pilot E_c) / I_{or}	dB	-7
(Traffic E_c) / I_{or}	dB	-7.4

Table 4-2 Parameters for Max. Power with multiple traffic code channel, SR1

Parameter	Units	Value
(Pilot E_c) / I_{or}	dB	-7
(Traffic E_c) / I_{or}	dB	-7.4

3.5. Uncertainty

The measurement uncertainty is defined as for Conducted Power Measurement ± 1.2 dB, for Radiated Power Measurement ± 3.2 dB

3.6. Test Result

Peak Output Power(RMS)

CDMA 2000 1X BC0 Link

Mode	Test Case			BC0 (800MHz) Channel					
	Num.	FWD RC/TAP	REV RC/TAP	Conducted Power (dBm)			ERP (dBm)		
				1013	384	777	1013	384	777
1x	1	RC1	RC1 (SO2)	23.51	23.54	23.48	---	---	---
	2	RC1	RC1 (SO55)	23.64	23.75	23.59	27.05	27.52	27.56
	3	RC2	RC2 (SO9)	23.41	23.51	23.36	---	---	---
	4	RC2	RC2 (SO55)	23.52	23.61	23.49	---	---	---
	5	RC3	RC3 (SO55)	23.52	23.59	23.41	---	---	---
	6	RC3	RC3 (SO32)	23.43	23.52	23.47	---	---	---

CDMA 2000 1X BC1 Link

Mode	Test Case			BC1 (1900MHz) Channel					
	Num.	FWD RC/TAP	REV RC/TAP	Conducted Power (dBm)			EIRP (dBm)		
				25	600	1175	25	600	1175
1x	1	RC1	RC1 (SO2)	23.45	23.74	23.29	---	---	---
	2	RC1	RC1 (SO55)	23.50	23.95	23.36	---	---	---
	3	RC2	RC2 (SO9)	23.61	23.82	23.48	---	---	---
	4	RC2	RC2 (SO55)	23.66	23.84	23.45	---	---	---
	5	RC3	RC3 (SO55)	23.68	24.01	23.47	26.78	27.02	26.54
	6	RC3	RC3 (SO32)	23.65	24.00	23.42	---	---	---

Peak Output Power

CDMA 2000 1X BC0 Link

Mode	Test Case			BC0 (800MHz) Channel					
	Num.	FWD RC/TAP	REV RC/TAP	Conducted Power (dBm)			ERP (dBm)		
				1013	384	777	1013	384	777
1x	1	RC1	RC1 (SO2)	28.13	28.24	28.21	---	---	---
	2	RC1	RC1 (SO55)	28.39	28.49	28.35	27.05	27.52	27.56
	3	RC2	RC2 (SO9)	28.11	28.19	28.16	---	---	---
	4	RC2	RC2 (SO55)	28.16	28.28	28.26	---	---	---
	5	RC3	RC3 (SO55)	23.17	28.27	28.19	---	---	---
	6	RC3	RC3 (SO32)	28.12	28.21	28.25	---	---	---

CDMA 2000 1X BC1 Link

Mode	Test Case			BC1 (1900MHz) Channel					
	Num.	FWD RC/TAP	REV RC/TAP	Conducted Power (dBm)			EIRP (dBm)		
				25	600	1175	25	600	1175
1x	1	RC1	RC1 (SO2)	27.89	28.49	28.11	---	---	---
	2	RC1	RC1 (SO55)	27.91	28.59	28.13	---	---	---
	3	RC2	RC2 (SO9)	27.93	28.51	28.18S	---	---	---
	4	RC2	RC2 (SO55)	27.97	28.56	28.16	---	---	---
	5	RC3	RC3 (SO55)	28.02	28.68	28.19	26.78	27.02	26.54
	6	RC3	RC3 (SO32)	27.99	28.60	28.15	---	---	---

Note1: The maximum PAR for CDMA2000 1X BC1 is 6.7dB less than 13 dB.

Note2: Radiated Power(ERP/EIRP) in the table are maximum of two Antennas

CDMA 2000 1X BC0 Link with Antenna #1

Frequency (MHz)	SA Reading (dBm)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 1013 (824.7MHz)								
824.70	-11.89	H	22.67	2.56	-0.02	20.09	38.50	-18.41
824.70	-5.67	V	29.63	2.56	-0.02	27.05	38.50	-11.45
Middle Channel 384 (836.52MHz)								
836.52	-12.04	H	22.68	2.59	0.10	20.19	38.50	-18.31
836.52	-5.62	V	30.01	2.59	0.10	27.52	38.50	-10.98
High Channel 777 (848.31MHz)								
848.31	-10.77	H	23.98	2.54	0.13	21.57	38.50	-16.93
848.31	-5.40	V	29.97	2.54	0.13	27.56	38.50	-10.94

CDMA 2000 1X BC1 Link with Antenna #1

Frequency (MHz)	SA Reading (dBm)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 25(1851.25MHz)								
1851.25	9.53	H	8.12	2.67	10.40	15.85	33.00	-17.15
1851.25	16.79	V	15.18	2.67	10.40	22.91	33.00	-10.09
Middle Channel 600 (1880MHz)								
1880.00	9.79	H	8.29	2.68	10.43	16.04	33.00	-16.96
1880.00	16.92	V	15.08	2.68	10.43	22.83	33.00	-10.17
High Channel 1175 (1908.75MHz)								
1908.75	9.98	H	8.59	2.69	10.44	16.34	33.00	-16.66
1908.75	17.53	V	15.70	2.69	10.44	23.45	33.00	-9.55

CDMA 2000 1X BC0 Link with Antenna #2

Frequency (MHz)	SA Reading (dBm)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 1013 (824.7MHz)								
824.70	-8.13	H	26.42	2.56	-0.02	23.84	38.50	-14.66
824.70	-8.14	V	27.16	2.56	-0.02	24.58	38.50	-13.92
Middle Channel 384 (836.52MHz)								
836.52	-9.75	H	24.97	2.59	0.10	22.48	38.50	-16.02
836.52	-8.69	V	26.90	2.59	0.10	24.41	38.50	-14.09
High Channel 777 (848.31MHz)								
848.31	-10.18	H	24.58	2.54	0.13	22.17	38.50	-16.33
848.31	-8.26	V	27.11	2.54	0.13	24.70	38.50	-13.80

CDMA 2000 1X BC1 Link with Antenna #2

Frequency (MHz)	SA Reading (dBm)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 25(1851.25MHz)								
1851.25	13.02	H	11.08	2.67	10.40	18.81	33.00	-14.19
1851.25	21.19	V	19.05	2.67	10.40	26.78	33.00	-6.22
Middle Channel 600 (1880MHz)								
1880.00	13.90	H	11.95	2.68	10.43	19.70	33.00	-13.30
1880.00	21.56	V	19.27	2.68	10.43	27.02	33.00	-5.98
High Channel 1175 (1908.75MHz)								
1908.75	11.91	H	10.10	2.69	10.44	17.85	33.00	-15.15
1908.75	21.03	V	18.79	2.69	10.44	26.54	33.00	-6.46

4. Spurious Emission

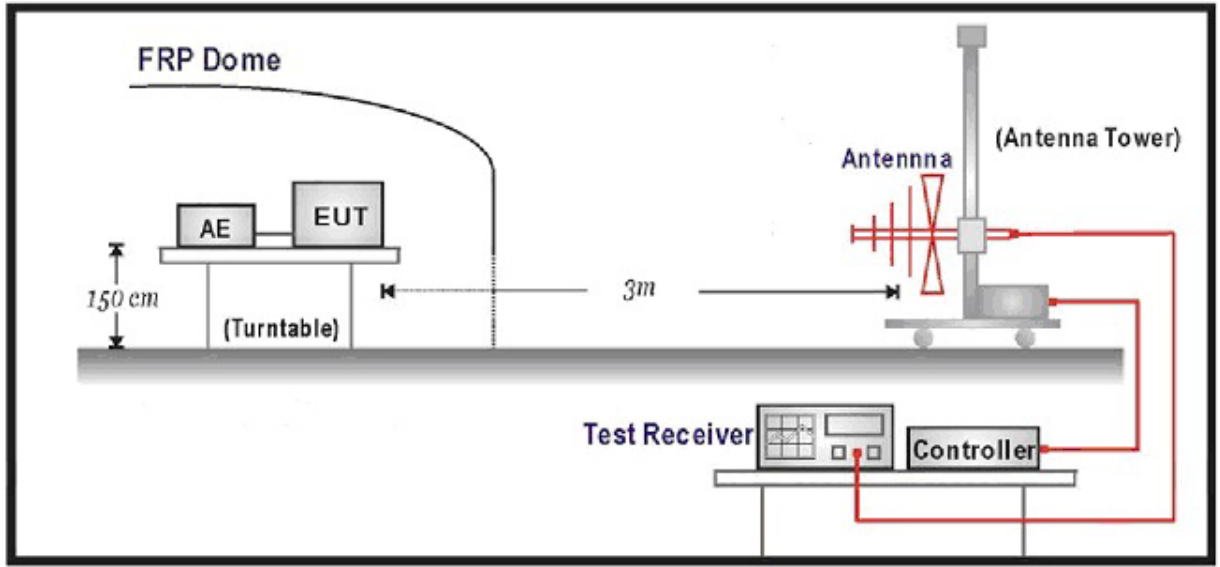
4.1. Test Equipment

Spurious Emission / AC-5

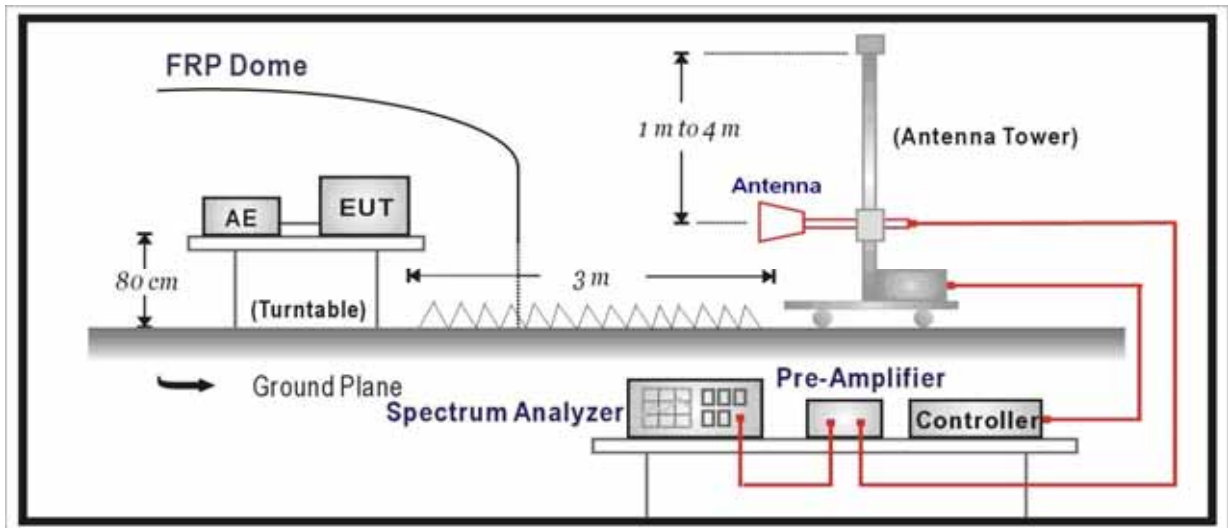
Instrument	Manufacturer	Type No.	Serial No	Cali. Due Date
PSA Series Spectrum Analyzer	Agilent	E4440A	MY49420184	2013.04.10
Radio Communication Tester	R&S	CMU 200	117088	2013.04.18
Dual Directional Coupler	Agilent	778D	20160	2013.04.18
10dB Coaxial Coupler	Agilent	87300C	MY44300299	2013.04.18
PSG Analog Signal Generator	Agilent	E8257D	MY44321116	2013.04.18
Preamplifier	QuieTek	AP-025C	CHM-0503006	2013.05.04
Preamplifier	Miteq	NSP1800-25	1364185	2013.05.04
Bilog Antenna	Teseq GmbH	CBL6112D	27612	2013.10.15
Half Wave Tuned Dipole Antenna	COM-POWER	AD-100	40137	2013.11.24
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	737	2013.11.24
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	499	2014.06.08
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC5-TH	2013.01.10

4.2. Test Setup

Radiated Spurious Measurement: below 1GHz



Radiated Spurious Measurement: above 1GHz



4.3. Limit

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.

4.4. Test Procedure

Radiated Spurious Measurement:

- a) The EUT shall be placed at the specified height on a support, and in the position closest to normal use as declared by provider.
- b) The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter
- c) The output of the test antenna shall be connected to the measuring receiver.
- d) The transmitter shall be switched on and the measuring receiver shall be tuned to the frequency of the transmitter under test.
- e) The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
- f) The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- g) The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.
- v) The maximum signal level detected by the measuring receiver shall be noted.
- h) The transmitter shall be replaced by a substitution antenna.
- i) The substitution antenna shall be orientated for vertical polarization and the length of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.
- j) The substitution antenna shall be connected to a calibrated signal generator.
- k) If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
- l) The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
- m) The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
- n) The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.
- o) The measure of the effective radiated power is the larger of the two levels recorded at the input to the substitution antenna, corrected for gain of the substitution antenna if necessary.
- p) The frequency range was checked up to 10th harmonic.
- q) Test site anechoic chamber refer to ANSI C63.4: 2009

4.5. Uncertainty

The measurement uncertainty is defined as 3.2 dB for Radiated Power Measurement.

4.6. Test Result

Product	GTM-3		
Test Item	Radiated Spurious Emission		
Test Mode	Mode 1: CDMA 2000 1X BC0 Link with Antenna #1		
Date of Test	2012/10/28	Test Site	AC-5

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 1013 (824.70MHz)								
1649.40	-57.86	V	-60.46	2.50	9.78	-53.18	-13.00	-40.18
2474.10	-64.20	V	-63.31	3.12	10.49	-55.94	-13.00	-42.94
1649.40	-61.01	H	-63.65	2.50	9.78	-56.37	-13.00	-43.37
2474.10	-63.66	H	-62.60	3.12	10.49	-55.23	-13.00	-42.23
Middle Channel 384 (836.52MHz)								
1672.64	-54.36	V	-57.02	2.51	9.94	-49.59	-13.00	-36.59
2508.96	-63.28	V	-62.65	3.18	10.61	-55.22	-13.00	-42.22
1672.64	-58.45	H	-60.87	2.51	9.94	-53.44	-13.00	-40.44
2508.96	-64.42	H	-63.40	3.18	10.61	-55.97	-13.00	-42.97
High Channel 777 (848.31MHz)								
1696.62	-55.00	V	-57.78	2.53	10.10	-50.21	-13.00	-37.21
2544.93	-62.33	V	-60.80	3.15	10.67	-53.28	-13.00	-40.28
1696.62	-58.95	H	-61.01	2.53	10.10	-53.44	-13.00	-40.44
2544.93	-64.45	H	-62.66	3.15	10.67	-55.14	-13.00	-42.14

Product	GTM-3		
Test Item	Radiated Spurious Emission		
Test Mode	Mode 2: CDMA 2000 1X BC1 Link with Antenna #1		
Date of Test	2012/10/28	Test Site	AC-5

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 25 (1851.25MHz)								
3702.50	-49.20	V	-45.75	3.83	12.69	-36.89	-13.00	-23.89
5553.75	-66.79	V	-58.27	4.82	13.14	-49.95	-13.00	-36.95
3702.50	-56.27	H	-52.91	3.83	12.69	-44.05	-13.00	-31.05
5553.75	-66.87	H	-58.98	4.82	13.14	-50.66	-13.00	-37.66
Middle Channel 600 (1880MHz)								
3760.00	-47.33	V	-44.11	3.73	12.72	-35.12	-13.00	-22.12
5640.00	-66.73	V	-58.79	4.92	13.13	-50.58	-13.00	-37.58
3760.00	-50.96	H	-47.66	3.73	12.72	-38.67	-13.00	-25.67
5640.00	-66.66	H	-59.04	4.92	13.13	-50.83	-13.00	-37.83
High Channel 1175 (1908.75MHz)								
3817.50	-45.25	V	-41.56	3.98	12.73	-32.81	-13.00	-19.81
5726.25	-63.30	V	-54.69	4.86	13.11	-46.44	-13.00	-33.44
3817.50	-47.31	H	-43.46	3.98	12.73	-34.71	-13.00	-21.71
5726.25	-66.61	H	-58.38	4.86	13.11	-50.13	-13.00	-37.13

Product	GTM-3		
Test Item	Radiated Spurious Emission		
Test Mode	Mode 1: CDMA 2000 1X BC0 Link with Antenna #2		
Date of Test	2012/10/28	Test Site	AC-5

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 1013 (824.70MHz)								
1649.40	-59.14	V	-61.74	2.50	9.78	-54.46	-13.00	-41.46
2474.10	-62.84	V	-61.71	3.12	10.49	-54.34	-13.00	-41.34
1649.40	-60.41	H	-62.97	2.50	9.78	-55.69	-13.00	-42.69
2474.10	-63.90	H	-62.83	3.12	10.49	-55.46	-13.00	-42.46
Middle Channel 384 (836.52MHz)								
1672.64	-57.24	V	-59.91	2.51	9.94	-52.48	-13.00	-39.48
2508.96	-57.36	V	-56.29	3.18	10.61	-48.86	-13.00	-35.86
1672.64	-59.97	H	-62.39	2.51	9.94	-54.96	-13.00	-41.96
2508.96	-54.41	H	-53.29	3.18	10.61	-45.86	-13.00	-32.86
High Channel 777 (848.31MHz)								
1696.62	-55.52	V	-58.31	2.53	10.10	-50.74	-13.00	-37.74
2544.93	-64.47	V	-62.94	3.15	10.67	-55.42	-13.00	-42.42
1696.62	-60.55	H	-62.60	2.53	10.10	-55.03	-13.00	-42.03
2544.93	-63.93	H	-62.14	3.15	10.67	-54.62	-13.00	-41.62

Product	GTM-3		
Test Item	Radiated Spurious Emission		
Test Mode	Mode 2: CDMA 2000 1X BC1 Link with Antenna #2		
Date of Test	2012/10/28	Test Site	AC-5

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 25 (1851.25MHz)								
3702.50	-38.94	V	-35.49	3.83	12.69	-26.63	-13.00	-13.63
5553.75	-63.07	V	-54.55	4.82	13.14	-46.23	-13.00	-33.23
3702.50	-44.68	H	-41.31	3.83	12.69	-32.45	-13.00	-19.45
5553.75	-62.88	H	-55.00	4.82	13.14	-46.68	-13.00	-33.68
Middle Channel 600 (1880MHz)								
3760.00	-41.81	V	-38.59	3.73	12.72	-29.60	-13.00	-16.60
5640.00	-59.97	V	-52.03	4.92	13.13	-43.82	-13.00	-30.82
3760.00	-45.90	H	-42.60	3.73	12.72	-33.61	-13.00	-20.61
5640.00	-62.42	H	-54.81	4.92	13.13	-46.60	-13.00	-33.60
High Channel 1175 (1908.75MHz)								
3817.50	-40.50	V	-36.81	3.98	12.73	-28.06	-13.00	-15.06
5726.25	-58.65	V	-50.04	4.86	13.11	-41.79	-13.00	-28.79
3817.50	-44.80	H	-40.95	3.98	12.73	-32.20	-13.00	-19.20
5726.25	-58.10	H	-49.87	4.86	13.11	-41.62	-13.00	-28.62

5. Receiver Spurious Emission for RSS 132/133

5.1. Test Equipment

Radiated Emission / AC-2

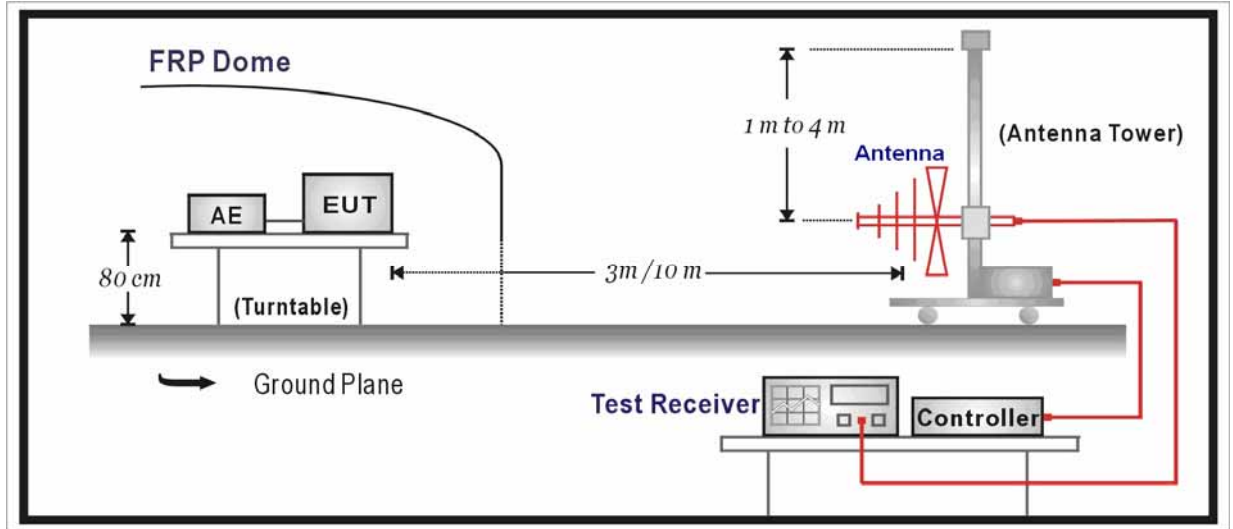
Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100573	2013/04/18
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2013/10/15
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2013/03/02
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC2-TH	2013/01/10
Radio Communication Tester	R&S	CMU 200	117088	2013.04.18

Spurious Emission / AC-5

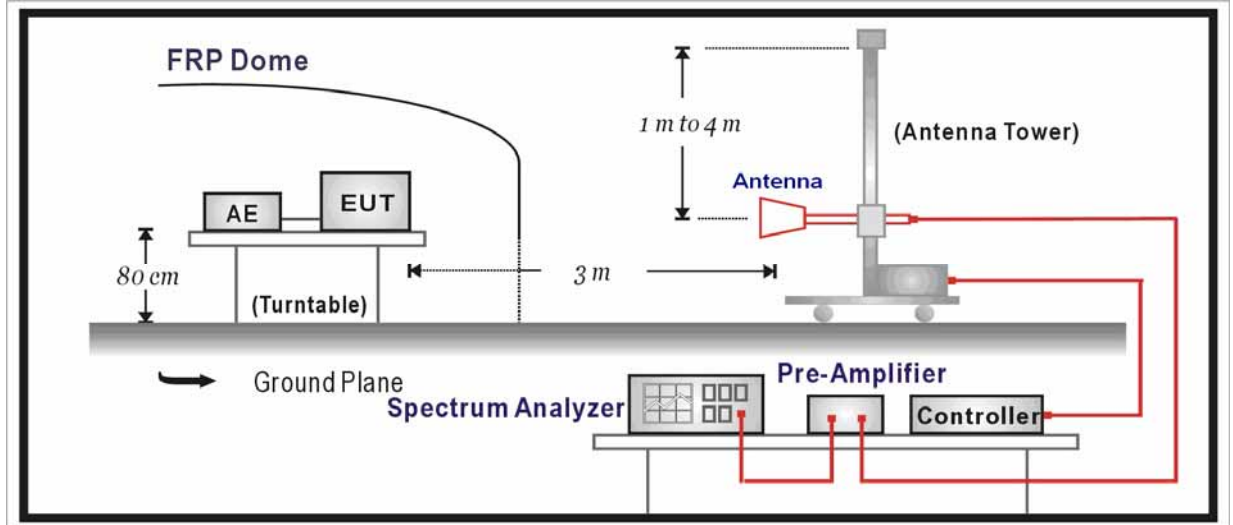
Instrument	Manufacturer	Type No.	Serial No	Cali. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2013.04.18
Radio Communication Tester	R&S	CMU 200	117088	2013.04.18
Preamplifier	Miteq	NSP1800-25	1364185	2013.05.04
DRG Horn	ETS-Lindgren	3117	00123988	2013.01.10
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2013.03.02
Temperature/Humidity Meter	zhicheng	ZC1-2	AC5-TH	2013.01.10
Spectrum Analyzer	Agilent	N9010A	MY48030494	2013.04.18

5.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



5.3. Limit

According to Standard RSS132/133 refer to RSS-Gen Issue 2.

Field Strength micro-volts/m at 3 meters		
Frequency (MHz)	Distance (m)	Level (dBuV/m)
30 - 88	3	40
88 - 216	3	43.5
216 - 960	3	46
Above 960	3	54

Note 1: The lower limit shall apply at the transition frequency.

Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

Note 3: E field strength (dBuV/m) = 20 log E field strength (uV/m)

5.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 10 meters. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated on radiated measurement.

On any frequency or frequencies below or equal to 1000 MHz, the radiated limits shown are based on measuring equipment employing a quasi-peak detector function and above 1000 MHz, the radiated limits shown are based measuring equipment employing an average detector function.

When average radiated emission measurement are included emission measurement Above 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

For class A, the measurement distance between the EUT and antenna is 10 meters for under

1GHz and above 1GHz.

For class B, the measurement distance between the EUT and antenna is 10 meters for under 1GHz and 3 meters for above 1GHz.

The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCI) is 120 kHz and above 1GHz is 1MHz.

Note: When measurement above 1GHz, the horn antenna will bend down a little (as horn antenna have the narrow beamwidth) in order to find the maximum emission of EUT

5.5. Uncertainty

The measurement uncertainty is defined as 3.2 dB for Radiated Power Measurement.

5.6. Test Result

Mode 1: CDMA 2000 1X BC0 Link Link with Antenna #1

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1013	H	32.1	4.8	22.9	27.7	40.0	-12.3	QP
	V	34.6	5.5	21.5	27.0	40.0	-13.0	QP
	H	1731.0	50.8	-12.7	38.1	54(Note)	-15.9	PK
	V	1790.5	50.6	-12.6	38.0	54(Note)	-16.0	PK
384	H	59.5	6.2	12.1	18.3	40.0	-21.7	QP
	V	64.0	4.6	11.7	16.3	40.0	-23.7	QP
	H	1858.5	50.2	-12.9	37.3	54(Note)	-16.7	PK
	V	1943.5	50.8	-13.4	37.4	54(Note)	-16.6	PK
777	H	115.7	4.2	18.6	22.8	43.5	-20.7	QP
	V	124.8	4.2	18.6	22.8	43.5	-20.7	QP
	H	2011.5	51.6	-13.7	37.9	54(Note)	-16.1	PK
	V	2054.0	51.4	-13.4	38.0	54(Note)	-16.0	PK

Mode 2: CDMA 2000 1X BC1 Link with Antenna #1

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
25	H	273.7	4.6	19.8	24.4	46.0	-21.6	QP
	V	293.5	5.7	20.2	25.9	46.0	-20.1	QP
	H	2113.5	50.6	-13.0	37.6	54(Note)	-16.4	PK
	V	2198.5	50.5	-12.4	38.1	54(Note)	-15.9	PK
600	H	473.0	5.1	25.0	30.1	46.0	-15.9	QP
	V	512.5	5.0	25.5	30.5	46.0	-15.5	QP
	H	2292.0	49.7	-11.6	38.1	54(Note)	-15.9	PK
	V	2360.0	50.2	-11.1	39.1	54(Note)	-14.9	PK
1175	H	802.4	4.5	28.6	33.1	46.0	-12.9	QP
	V	856.2	5.4	29.0	34.4	46.0	-11.6	QP
	H	2411.0	53.6	-10.7	42.9	54(Note)	-11.1	PK
	V	2496.0	49.5	-9.9	39.6	54(Note)	-14.4	PK

Mode 1: CDMA 2000 1X BC0 Link Link with Antenna #2

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1013	H	31.3	7.4	23.4	30.8	40.0	-9.2	QP
	V	34.2	5.0	21.7	26.7	40.0	-13.3	QP
	H	1850.0	50.6	-13.5	37.1	54(Note)	-16.9	PK
	V	1901.0	50.5	-13.2	37.3	54(Note)	-16.7	PK
384	H	70.0	6.9	11.8	18.7	40.0	-21.3	QP
	V	73.7	9.5	12.3	21.8	40.0	-18.2	QP
	H	1943.5	50.9	-12.8	38.1	54(Note)	-15.9	PK
	V	2003.0	51.4	-12.5	38.9	54(Note)	-15.1	PK
777	H	151.3	5.4	16.7	22.1	43.5	-21.4	QP
	V	161.3	4.4	16.5	20.9	43.5	-22.6	QP
	H	2045.5	50.5	-12.4	38.1	54(Note)	-15.9	PK
	V	2079.5	50.4	-12.4	38.0	54(Note)	-16.0	PK

Mode 2: CDMA 2000 1X BC1 Link with Antenna #2

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
25	H	371.0	5.3	22.5	27.8	46.0	-18.2	QP
	V	391.7	4.1	23.3	27.4	46.0	-18.6	QP
	H	2156.0	51.1	-12.3	38.8	54(Note)	-15.2	PK
	V	2241.0	51.0	-12.2	38.8	54(Note)	-15.2	PK
600	H	605.1	5.3	26.9	32.2	46.0	-13.8	QP
	V	635.0	4.8	27.3	32.1	46.0	-13.9	QP
	H	2283.5	51.1	-12.0	39.1	54(Note)	-14.9	PK
	V	2385.5	50.4	-11.6	38.8	54(Note)	-15.2	PK
1175	H	885.3	5.1	29.1	34.2	46.0	-11.8	QP
	V	950.7	5.7	29.7	35.4	46.0	-10.6	QP
	H	2453.5	50.9	-11.3	39.6	54(Note)	-14.4	PK
	V	2564.0	50.0	-10.8	39.2	54(Note)	-14.8	PK

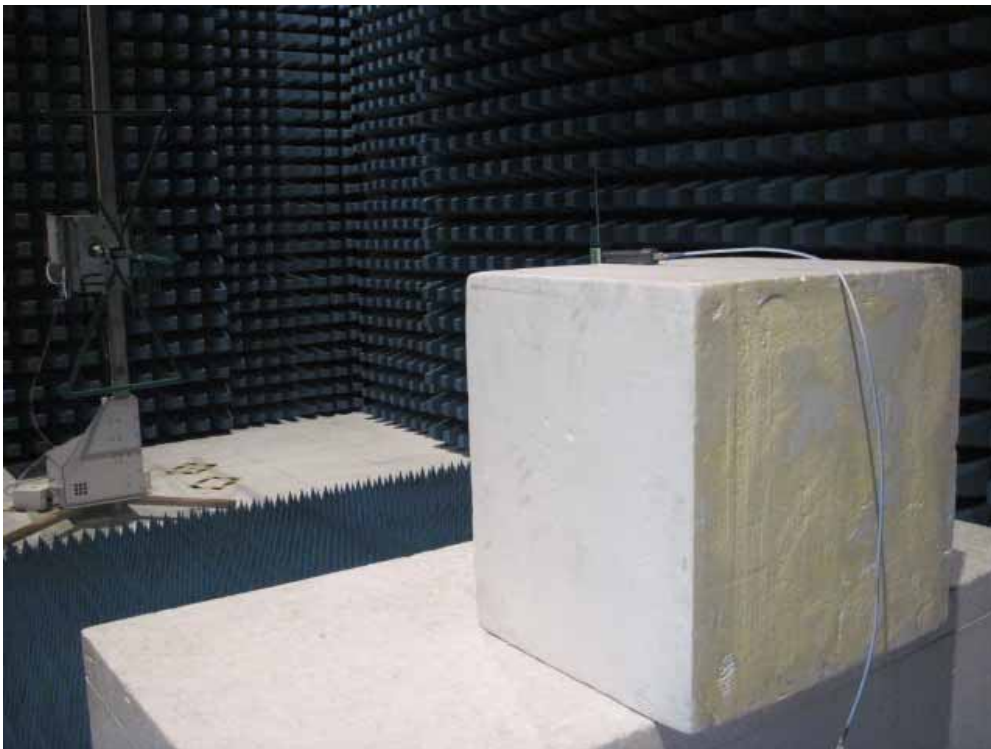
Note : This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

5.7. Test Photograph

Description: ERP Test Setup with Antenna 1#



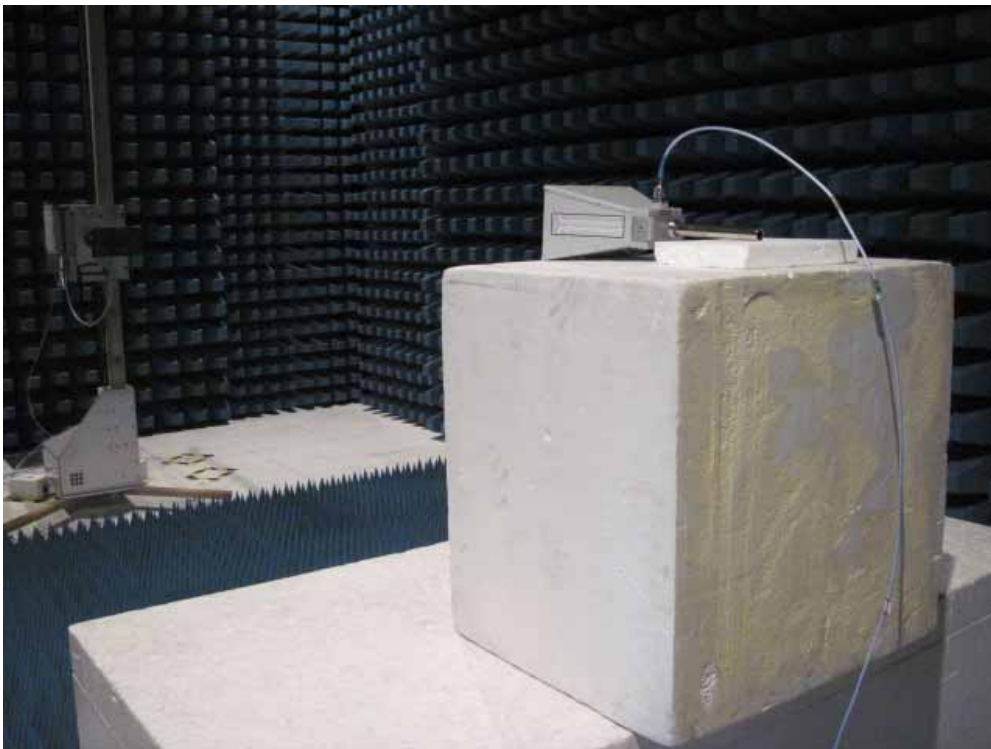
Description: Substitution Antenna for ERP Test



Description: EIRP Test Setup with Antenna #1



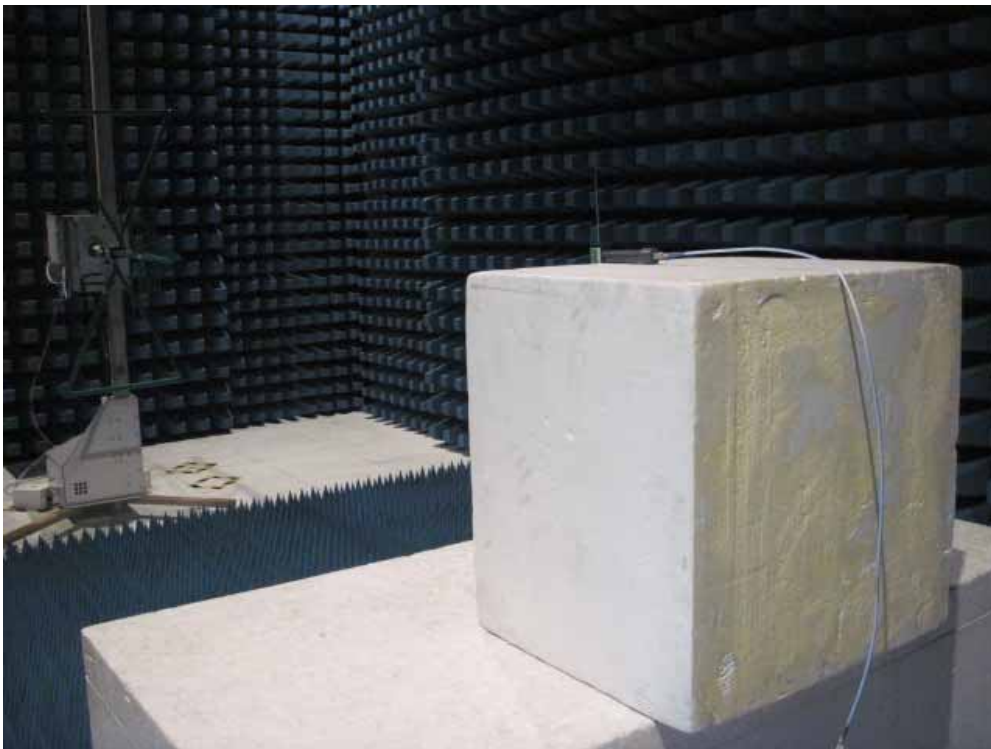
Description: Substitution Antenna for EIRP Test



Description: ERP Test Setup with Antenna #2



Description: Substitution Antenna for ERP Test



Description: EIRP Test Setup with Antenna #2



Description: Substitution Antenna for EIRP Test

