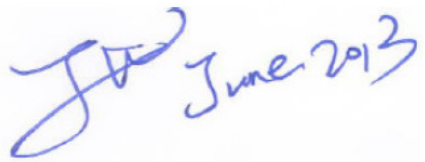
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.
588 West Jindu Road,Songjiang District,Shanghai,China
Telephone: +86 (0) 21 6191 5666
Fax: +86 (0) 21 6191 5678
ee.shanghai@sgs.com

1 Cover Page

FCC REPORT

Application No. :	SHEM1304000529RF
Applicant:	AXESSTEL,INC.
FCC ID:	PH7AX140
Equipment Under Test (EUT): **NOTE:** The following sample(s) submitted was/were identified on behalf of the client as	
Product Name:	Home Alert
Brand Name:	Axesstel
Model:	AX140
Added Model:	N/A
Standards:	47 CFR Part 22 subpart H (2011) 47 CFR Part 24 subpart E (2011)
Date of Receipt:	April 07, 2013
Date of Test:	April 15, 2013 to May 13, 2013
Date of Issue:	June 04, 2013
Test Result:	**PASS ***

*In the configuration tested, the EUT (Equipment under test) complied with the standards specified above.



Tony Wu

E&E Section Manager

SGS-CSTC (Shanghai) Co., Ltd.

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

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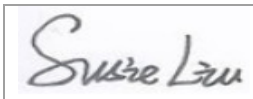
2 Version

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
00	/	June 04, 2013	/	Original

Authorized for issue by:				
Engineer		Zenger Zhang Print Name		
Clerk		Susie Liu Print Name		
Reviewer		Keny Xu **Print Name**		

3 Test Summary

Test Item	FCC Requirement	Test method	Result
CDMA Cell 800			
Conducted output power	Part 2.1046(a)/Part 22.913(a)	ITA-603-D-2010 Clause 2.2.1	PASS
Effective Radiated Power of Transmitter(ERP)	Part 2.1046(a)/Part 22.913(a)	ITA-603-D-2010 Clause 2.2.17	PASS
99% Occupied Bandwidth	Part 2.1049(h)	Part 22.917(b)	PASS
Band Edge at antenna terminals	Part 2.1051/Part 22.917(a)	Part 22.917(b)	PASS
Spurious emissions at antenna terminals	Part 2.1051/ Part 2.1057/ Part 22.917(a)(b)	ITA-603-D-2010 Clause 2.2.13	PASS
Field strength of spurious radiation	Part 2.1053/ Part 2.1057/ Part 22.917(a)(b)	ITA-603-D-2010 Clause 2.2.12	PASS
Frequency stability	Part 2.1055/ Part 22.355	ITA-603-D-2010 Clause 2.2.2	PASS
CDMA PCS1900			
Conducted output power	Part 2.1046(a) /Part 24.232(c)	ITA-603-D-2010 Clause 2.2.1	PASS
Peak-to-Average Ratio	Part24.232(d)	ITA-603-D-2010	PASS
Effective Radiated Power of Transmitter(EIRP)	Part 2.1046(a) / Part 24.232(c)	ITA-603-D-2010 Clause 2.2.17	PASS
99% Occupied Bandwidth	Part 2.1049(h)	Part 24.238(b)	PASS
Band Edge at antenna terminals	Part 2.1051/ Part 24.238(a)	Part 24.238(b)	PASS
Spurious emissions at antenna terminals	Part 2.1051/ Part 2.1057/ Part 24.238(a)(b)	ITA-603-D-2010 Clause 2.2.13	PASS
Field strength of spurious radiation	Part 2.1053 /Part 2.1057 / Part 24.238(a)(b)	ITA-603-D-2010 Clause 2.2.12	PASS
Frequency stability	Part 2.1055/Part 24.235	ITA-603-D-2010 Clause 2.2.2	PASS

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4 Contents

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5 General Information

5.1 Client Information

Applicant:	AXESSTEL, INC
Address of Applicant:	6815 Flanders Drive, Ste 210, San Diego, CA92121, USA
Manufacturer:	Axesstel (Shanghai) Ltd.
Address of Manufacturer:	Room 1101, Building 19, No.1515 Gumei Road, Xuhui District, Shanghai
Factory:	Eastcom incorporated Co., LTD.

5.2 General Description of E.U.T.

Product Name	Home Alert
Brand Name:	Axesstel
Model No:	AX140
Added Model:	N/A
Product Description:	Home Alert

5.3 Technical Specifications:

Operation Frequency:	CDMA Cell 800 and PCS1900
Modulation:	Fwd 1, Rvs1/SO2 Fwd 2, Rvs2/SO9 Fwd 3,Rvs3/SO55 Fwd 4,Rvs3/SO55 Fwd 5,Rvs4/SO55
Power Supply:	9V DC Battery or 5V DC Charger.
Antenna Type	Integral

5.4 Accessories of Product:

Battery:	Battery Type:	9V DC	
Adapter:	Model No.:	TA31-0502000	
	Rated Input:	AC 100V-240V 50-60Hz 0.4A	
	Rated Output:	DC 5.0V 2.0A	
	Cable length:	DC port:	180cm (2 wires)

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5.5 Support equipments for Testing

The EUT has been tested independently.

5.6 Details of Test Mode

Test Mode	Description of Test Mode
Transmitting mode	Keep the EUT on continue transmitting mode.

5.7 Test Location

All tests were performed at:
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. E&E Lab
No.588 West Jindu Road, Songjiang District, Shanghai, China. 201612.
Tel: +86 21 6191 5666
Fax: +86 21 6191 5678
No tests were sub-contracted.

5.8 Test Facility

- **CNAS (No. CNAS L0599)**

  CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing. Date of expiry: 2014-07-26.

- **FCC – Registration No.: 402683**

  SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered and fully described in a report filed with the Federal Communications Commission (FCC). The acceptance letter from the FCC is maintained in our files. Registration No.: 402683, Expiry Date: 2015-02-22.

- **Industry Canada (IC) – IC Assigned Code: 8617A**

  The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 8617A. Expiry Date: 2014-09-20.

- **VCCI (Member No.: 3061)**

  The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control

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Measures with Registration No.: R-3868 and C-4336 respectively. Date of Registration: 2012-05-29. Date of Expiry: 2015-05-28.

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6 Equipments Used during Test

☒ **Conducted Emission**

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due date
1	EMI test receiver	Rohde & Schwarz	ESCS30	100086	2012-06-13	2013-06-12
2	Line impedance stabilization network (LISN)	SCHWARZBECK	NSLK8127	8127-490	2012-06-13	2013-06-12
3	Line impedance stabilization network (LISN)	ETS	3816/2	00034161	2012-06-13	2013-06-12

☒ **Radiated Spurious Emission**

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due date
1	EMI test receiver	Rohde & Schwarz	ESU40	100109	2012-06-02	2014-06-01
2	Antenna	SCHWARZBECK	VULB9168	9168-313	2012-08-15	2013-08-14
3	CONTROLLER	INNCO	CO200	474	/	/
4	Antenna	SCHWARZBECK	BBHA9120D	9120D-679	2012-08-15	2013-08-14
5	Antenna	SCHWARZBECK	BBHA9170	9170-373	2012-08-15	2013-08-14
6	Low nosie amplifier	LNA6900	TESEQ	71033	2012-08-15	2013-08-14

☒ **RF** Conducted **Test**

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due date
1	EMI test receiver	Rohde & Schwarz	ESU40	100109	2013-06-03	2014-06-01
2	Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-679	2013-06-03	2014-06-01
3	Horn Antenna	Rohde & Schwarz	HF906	100284	2013-06-03	2014-06-01
4	ANTENNA	SCHWARZBECK	VULB9168	9168-313	2013-06-03	2014-06-01
5	Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170373	2012-08-15	2013-08-14
6	Ultra broadband antenna	Rohde & Schwarz	HL562	100227	2012-10-09	2013-10-08
7	Atmosphere pressure meter	Shanghai ZhongXuan Electronic Co;Ltd	BY—2009P	--	2012-10-09	2013-10-08

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8	CLAMP METER	FLUKE	316	86080010	2013-06-03	2014-06-01
9	Thermo-Hygrometer	ZHICHEN	ZC1-2	01050033	2012-10-09	2013-10-08
11	High-low temperature cabinet	Shanghai YuanZhen	GW2050	--	2013-06-03	2014-06-01
12	Tunable Notch Filter	Wainwright instruments Gmbh	WRCT1800.0/ 2000.0-0.2/40-5SSK	11	2013-06-03	2014-06-01
13	Tunable Notch Filter	Wainwright instruments Gmbh	WRCT800.0/ 880.0-0.2/40-5SSK	9	2013-06-03	2014-06-01
14	High pass Filter	FSCW	HP 12/2800-5AA2	19A45-02	2013-06-03	2014-06-01
15	Low nosie amplifier	TESEQ	LNA6900	70133	2013-06-03	2014-06-01
16	EMI test receiver	Rohde & Schwarz	ESCS30	100086	2013-06-03	2014-06-01
17	Line impedance stabilization network	SCHWARZBECK	NSLK8127	8127-490	2013-06-03	2014-06-01
18	Universal radio communication	Agilent	E5515C	45361045	2013-06-03	2014-06-01
19	Power meter	Rohde & Schwarz	NRP	101641	2013-02-23	2014-02-22

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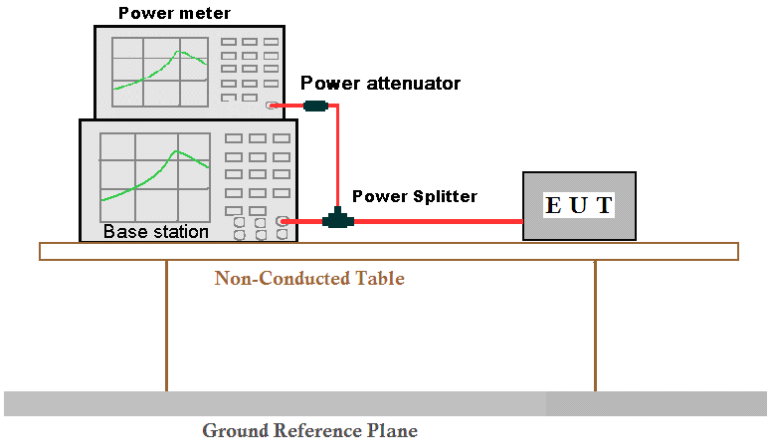
7 Test results and Measurement Data

7.1 Conducted Output Power

Test Requirement:	Part 2.1046(a)
Test Method:	ITA-603-D-2010 Clause 2.2.1
Test Setup:	
Limit:	Mode: CDMA CELL 800 / CDMA PCS1900 Frequency: 824 – 849MHz / 1850 – 1910MHz Limit: 38.45dBm（ERP） / 33.01dBm（EIRP）
Measurement Procedure:	The transmitter output was connected to a calibrated coaxial cable, attenuator and power meter, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The power output at the transmitter antenna port was determined by adding the value of the cable insertion loss to the power reading. The tests were performed at three frequencies (low channel, middle channel and high channel) and on the highest power levels, which can be setup on the transmitters.
Instruments Used:	Refer to section 6 for details
Test Results:	Pass

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Measurement results:

Cell 800			
Center Frequency (MHz)	Channel No.	Test Mode	RF Power output dBm(Average)
824.70	1013	Fwd 1, Rvs1/SO2	24.32
835.89	363	Fwd 1,Rvs1/SO2	24.44
848.31	777	Fwd 1,Rvs1/SO2	24.12
824.70	1013	Fwd 2,Rvs2/SO9	24.28
835.89	363	Fwd 2,Rvs2/SO9	24.36
848.31	777	Fwd 2,Rvs2/SO9	24.36
824.70	1013	Fwd 3,Rvs3/SO55	24.26
835.89	363	Fwd 3,Rvs3/SO55	24.41
848.31	777	Fwd 3,Rvs3/SO55	24.29
824.70	1013	Fwd 4,Rvs3/SO55	24.38
835.89	363	Fwd 4,Rvs3/SO55	24.31
848.31	777	Fwd 4,Rvs3/SO55	24.33
824.70	1013	Fwd 5,Rvs4/SO55	24.37
835.89	363	Fwd 5,Rvs4/SO55	24.51
848.31	777	Fwd 5,Rvs4/SO55	24.48

US PCS1900			
Center Frequency (MHz)	Channel No.	Test Mode	RF Power output dBm(Average)
1851.25	25	Fwd 1, Rvs1/SO2	23.20
1880.00	600	Fwd 1,Rvs1/SO2	23.33
1908.75	1175	Fwd 1,Rvs1/SO2	23.01
1851.25	25	Fwd 2,Rvs2/SO9	23.31
1880.000	600	Fwd 2,Rvs2/SO9	23.24
1908.75	1175	Fwd 2,Rvs2/SO9	23.26
1851.25	25	Fwd 3,Rvs3/SO55	23.31
1880.00	600	Fwd 3,Rvs3/SO55	23.28
1908.75	1175	Fwd 3,Rvs3/SO55	23.15
1851.25	25	Fwd 4,Rvs3/SO55	23.38
1880.00	600	Fwd 4,Rvs3/SO55	23.18
1908.75	1175	Fwd 4,Rvs3/SO55	23.19
1851.25	25	Fwd 5,Rvs4/SO55	23.36
1880.00	600	Fwd 5,Rvs4/SO55	23.37
1908.75	1175	Fwd 5,Rvs4/SO55	23.34

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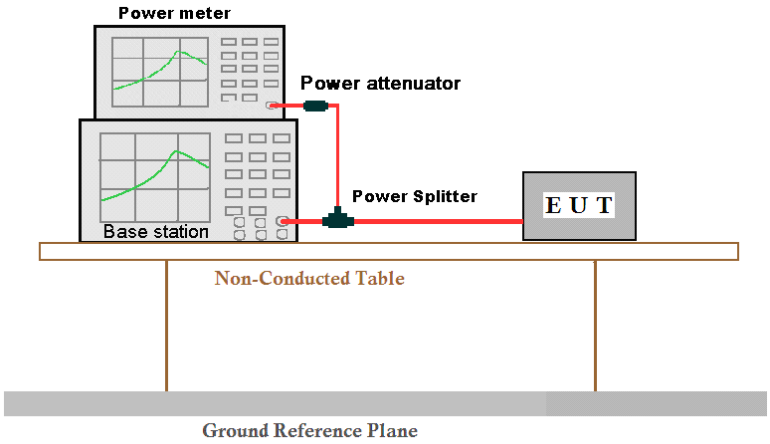
7.2 Peak-to-Average Ratio

Test Requirement:	Part 24.232(d)
Test Method:	KDB 971168 D01
Test Setup:	
Limit:	<13dB
Instruments Used:	Refer to section 6 for details
Test Results:	Pass

Measurement results:

US PCS1900			
Center Frequency (MHz)	**Channel No.**	**Test Mode**	**Peak-to-Average Ratio dB**
1851.25	25	Fwd 1, Rvs1/SO2	2.56
		Fwd 2,Rvs2/SO9	2.21
		Fwd 3,Rvs3/SO55	2.36
		Fwd 4,Rvs3/SO55	3.25
		Fwd 5,Rvs4/SO55	3.39
1880.00	600	Fwd 1, Rvs1/SO2	2.17
		Fwd 2,Rvs2/SO9	2.83
		Fwd 3,Rvs3/SO55	2.88
		Fwd 4,Rvs3/SO55	3.64
		Fwd 5,Rvs4/SO55	3.91
1908.75	1175	Fwd 1, Rvs1/SO2	3.35
		Fwd 2,Rvs2/SO9	3.56
		Fwd 3,Rvs3/SO55	3.55
		Fwd 4,Rvs3/SO55	4.07
		Fwd 5,Rvs4/SO55	4.04

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7.3 Effective Radiated Power of Transmitter (ERP/EIRP)

Test Requirement:	Part 2.1046(a)
Test Method:	ITA-603-D-2010 Clause 2.2.17

Receiver Setup:

Frequency	Detector	RBW	VBW	Remark
30MHz-1GHz	peak	100 kHz	300kHz	Peak
Above 1GHz	Peak	1MHz	3MHz	Peak

Test Setup:

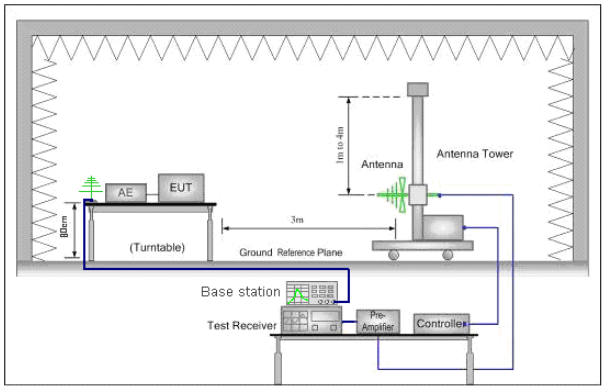

Figure 1. 30MHz to 1GHz

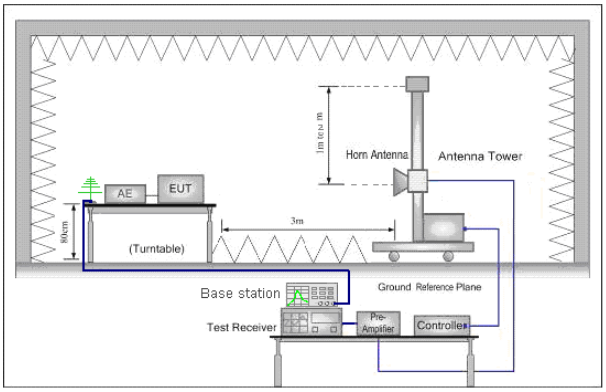

Figure 2. above 1GHz

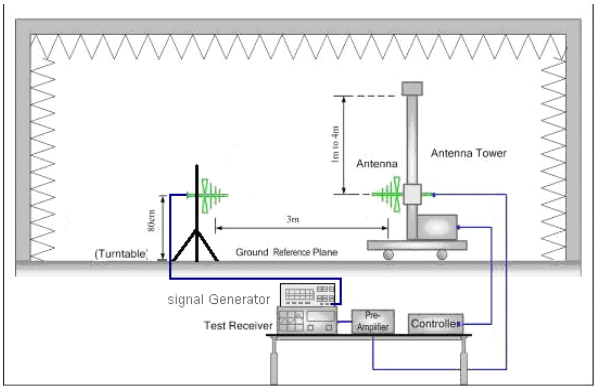

Figure 1. 30MHz to 1GHz

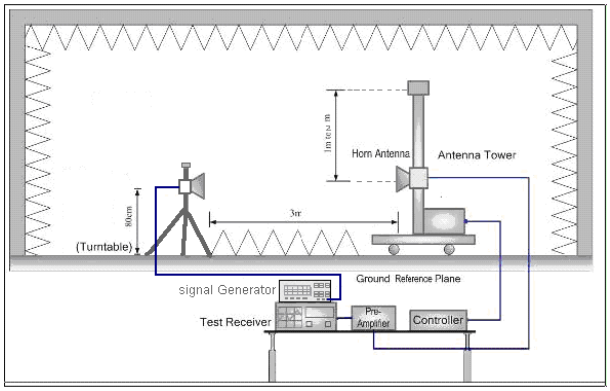

Figure 2. above 1GHz

Limit:

Mode	CDMA CELL 800	CDMA PCS1900
Frequency	824 – 849MHz	1850 – 1910MHz
Limit	38.45dBm（7W）	33.01dBm（2W）

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Measurement Procedure:	**Below 1GHz test procedure as below:** 1). The EUT was powered ON and placed on a 0.8m high table in the chamber. The antenna of the transmitter was extended to its maximum length. 2). The disturbance of the transmitter was maximized on the test receiver display by raising and lowering from 1m to 4m the receive antenna and by rotating through 360° the turntable. After the fundamental emission was maximized, a field strength measurement was made. 3). Steps 1) and 2) were performed with the EUT and the receive antenna in both vertical and horizontal polarization. 4). The transmitter was then removed and replaced with another antenna. The center of the antenna was approximately at the same location as the center of the transmitter. 5). A signal at the disturbance was fed to the substitution antenna by means of a non-radiating cable. With both the substitution and the receive antennas horizontally polarized, the receive antenna was raised and lowered to obtain a maximum reading at the test receiver. The level of the signal generator was adjusted until the measured field strength level in step 2) is obtained for this set of conditions. 6). The output power into the substitution antenna was then measured. 7). Steps 5) and 6) were repeated with both antennas polarized. 8). Calculate power in dBm by the following formula: ERP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBd) where: Pg is the generator output power into the substitution antenna. **Above 1GHz test procedure as below:** 1). Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber 2). Calculate power in dBm by the following formula: EIRP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBi) EIRP=ERP+2.15dB where: Pg is the generator output power into the substitution antenna. 3). Test the EUT in the lowest channel, the middle channel the Highest channel 4). The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, Only the test worst case mode is recorded in the report. 5). Repeat above procedures until all frequencies measured was complete.
Instruments Used:	Refer to section 6 for details
Test Results:	Pass

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Measurement Data

EUT mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. output (dBm)	Antenna Gain (dBd)	Cable loss (dB)	ERP (dBm)	Limit (dBm)
Cell 800	824.70	1013	H	V	99.78	18.24	8.40	3.32	23.32	38.45
				H	100.12	19.13	8.40	3.32	24.21	38.45
	835.89	363	H	V	99.35	19.24	8.42	3.40	24.26	38.45
				H	99.98	18.78	8.42	3.40	23.80	38.45
	848.31	777	H	V	100.24	18.63	8.47	3.43	23.67	38.45
				H	101.17	18.89	8.47	3.43	23.93	38.45
EUT mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. output (dBm)	Antenna Gain (dBi)	Cable loss (dB)	EIRP (dBm)	Limit (dBm)
PCS 1900	1851.25	25	H	V	98.54	17.36	9.15	4.15	22.36	33
				H	101.62	17.08	9.15	4.15	22.08	33
	1880.00	600	H	V	97.64	17.39	9.22	4.28	22.33	33
				H	102.78	16.86	9.22	4.28	21.80	33
	1908.75	1175	H	V	99.33	17.58	9.25	4.41	22.42	33
				H	100.69	16.92	9.25	4.41	21.76	33

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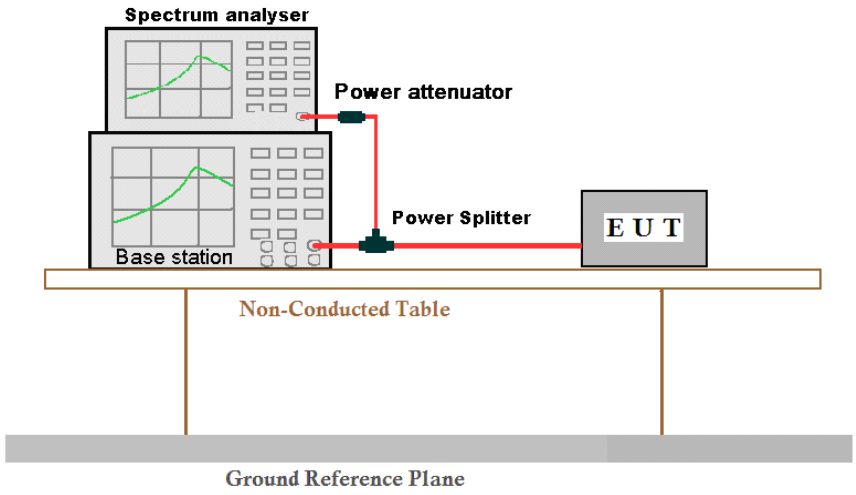
7.4 99%Occupied Bandwidth

Test Requirement:	Part 2.1049(h)
Test Method:	Part 22.917(b) and Part 24.238(b)
Test Setup:	
Limit:	N/A
Measurement Procedure:	The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyser, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at three frequencies (low channel, middle channel and high channel).the resolution bandwidth of the analyser is set to 100kHz or 1% of the emission bandwidth, the EUT emission bandwidth is measured as the width of the signal between two points, outside of which all emission are attenuated at least 26dB below the transmitter power. The video bandwidth of the spectrum analyzer was set at thrice the resolution bandwidth. Detector Mode was set to peak or peak hold power.
Instruments Used:	Refer to section 6 for details
Test Results:	Pass

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Measurement Data

Cell 800			
Test channel	Frequency (MHz)	99% Emission Bandwidth	Result
Lowest/1013	824.70	1.276MHz	Pass
Middle/363	835.89	1.268MHz	Pass
Highest/777	848.31	1.272MHz	Pass
PCS 1900			
Test channel	Frequency (MHz)	99% Emission Bandwidth	Result
Lowest/25	1851.25	1.268MHz	Pass
Middle/600	1880.00	1.268MHz	Pass
Highest/1175	1908.75	1.268MHz	Pass

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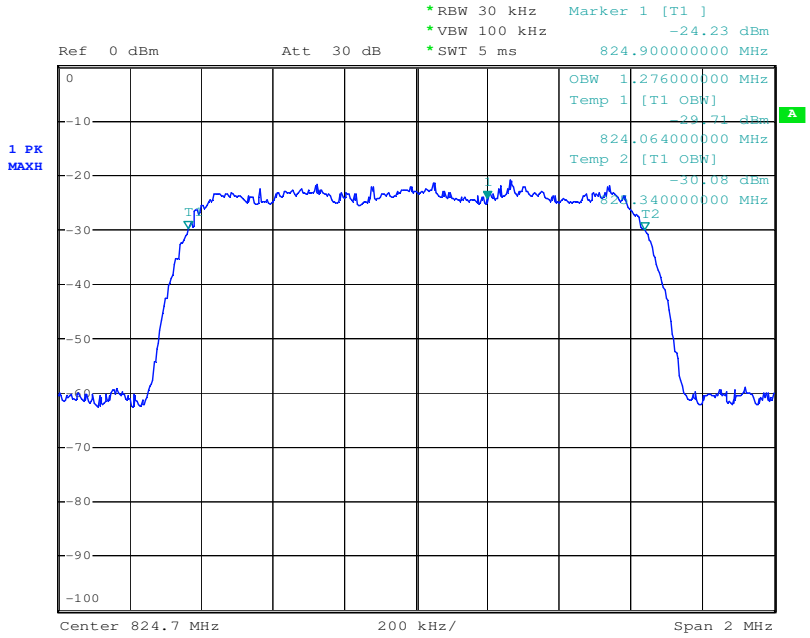
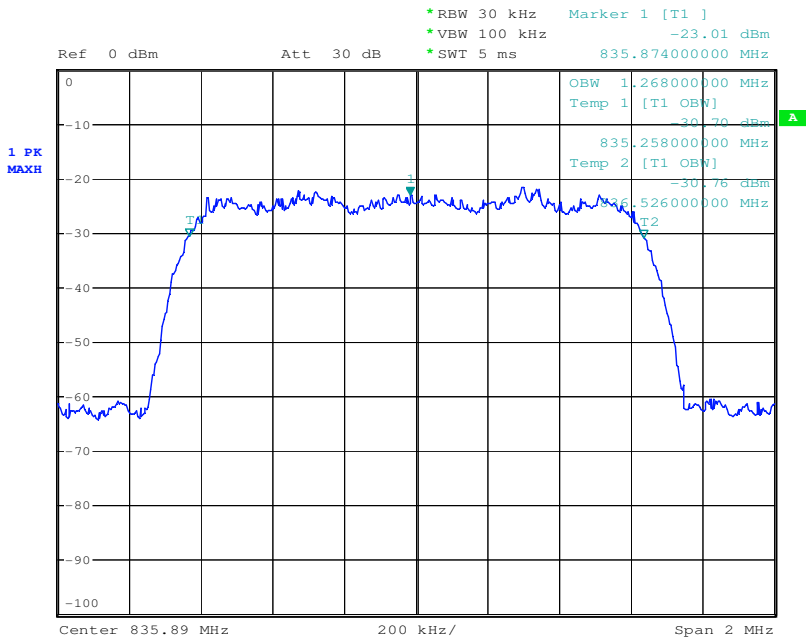
Test plot as follows:

Test mode:	Cell 800	Test channel:	Lowest/1013	Operation Frequency	824.70MHz



Test mode:	Cell 800	Test channel:	Middle/363	Operation Frequency	835.89MHz



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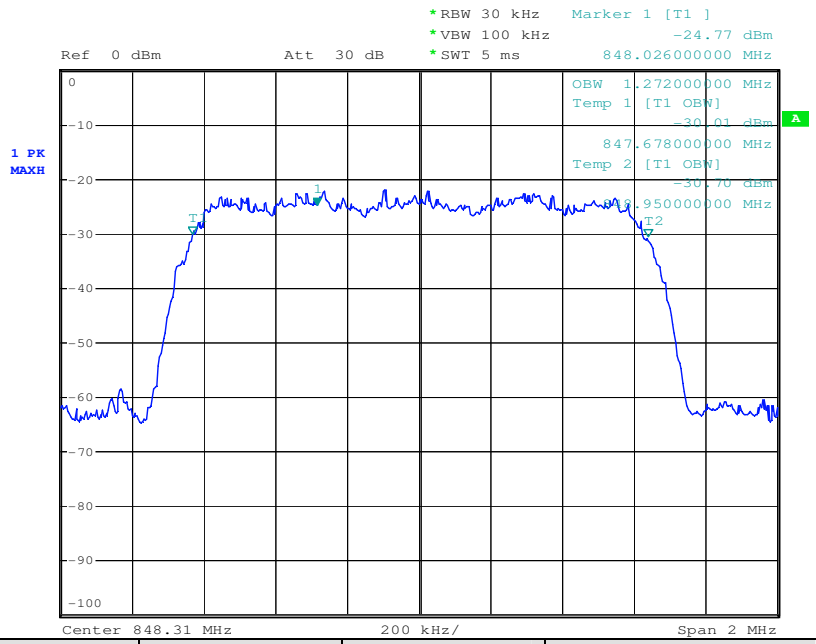
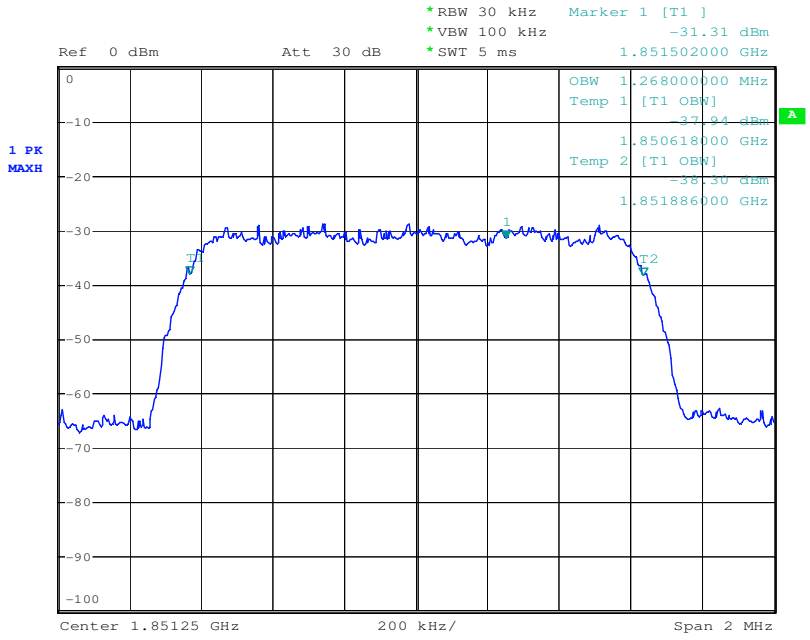
Test mode:	Cell 800	Test channel:	High/777	Operation Frequency	848.31MHz



Test mode:	PCS1900	Test channel:	Lowest/25	Operation Frequency	1851.25MHz



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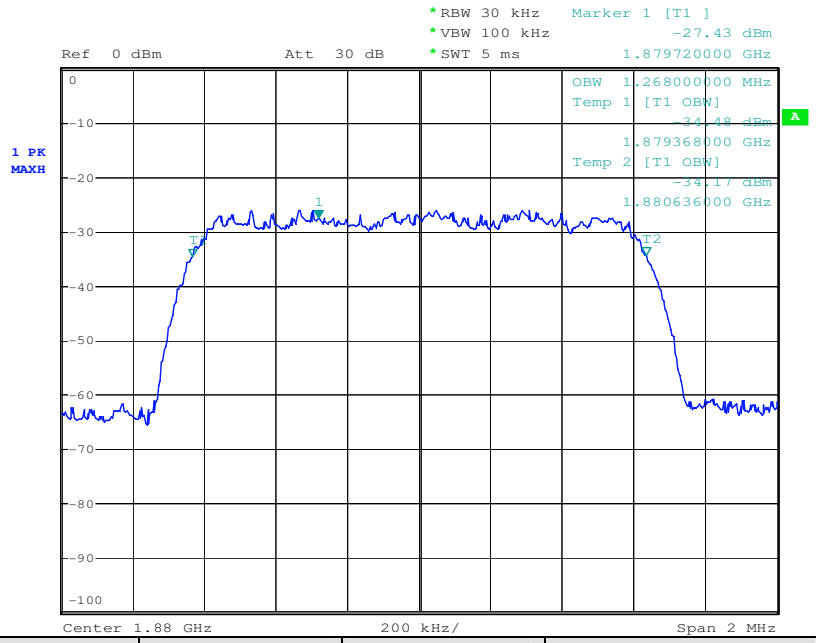
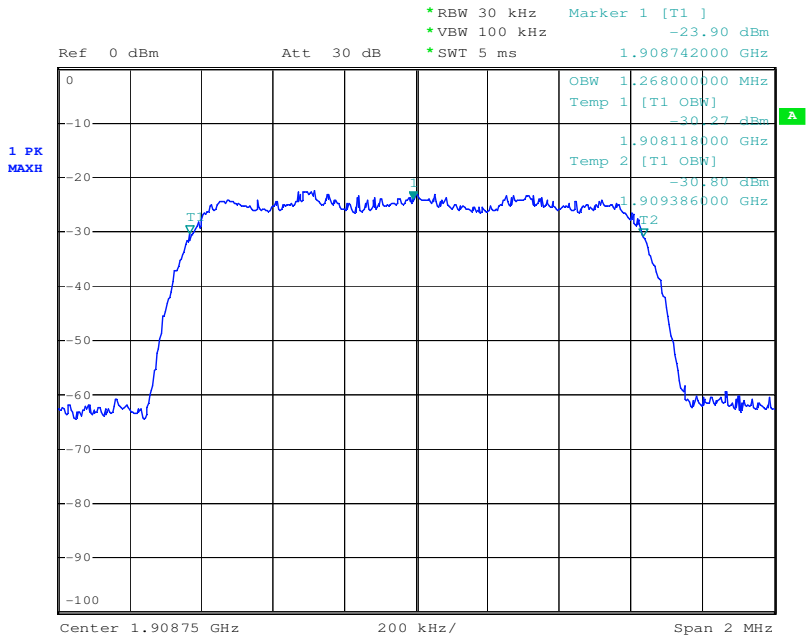
Test mode:	PCS1900	Test channel:	Middle/600	Operation Frequency	1880.00MHz



Test mode:	PCS1900	Test channel:	High/1175	Operation Frequency	1908.75MHz



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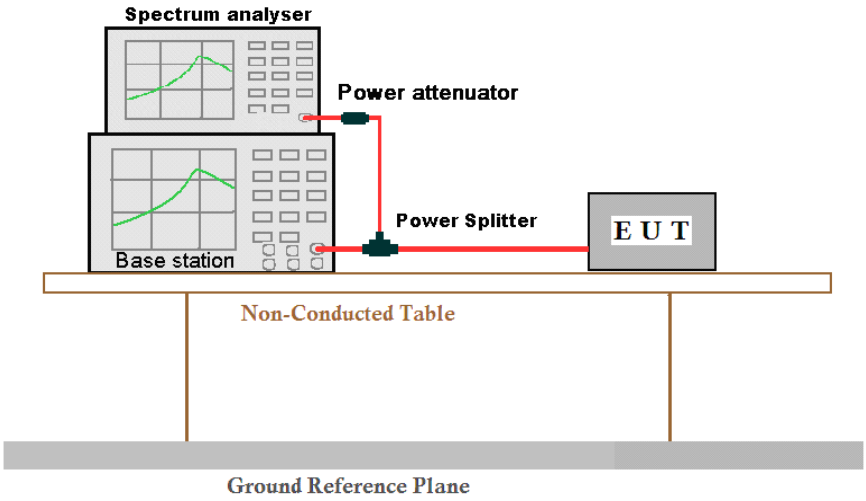
7.5 Band Edge at antenna terminals

Test Requirement:	Part 2.1051
Test Method:	Part 22.917(b) and Part 24.238(b)
Test Setup:	
Measurement Procedure:	The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyser, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at three frequencies (low channel and high channel).in the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of 100kHz or 1% of the emission bandwidth of the fundamental emission of the transmitter may be employed. The EUT emission bandwidth is measured as the width of the signal between two points, outside of which all emission are attenuated at least 26dB below the transmitter power. The video bandwidth of the spectrum analyzer was set at thrice the resolution bandwidth. Detector Mode was set to peak or peak hold power.
Limit:	See table below
Instruments Used:	Refer to section 6 for details
Test Results:	Pass

Operation Band	Frequency Range (MHz)	Limit
CDMA Cell800	Below 824 and above 849	Attenuated at least 43+10log(P)
CDMA PCS1900	Below 1850 and above 1910	Attenuated at least 43+10log(P)

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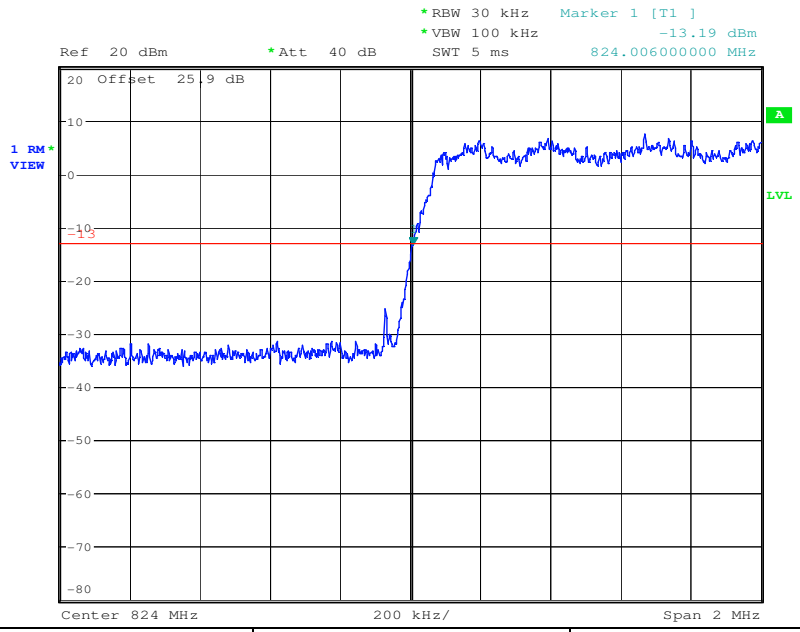
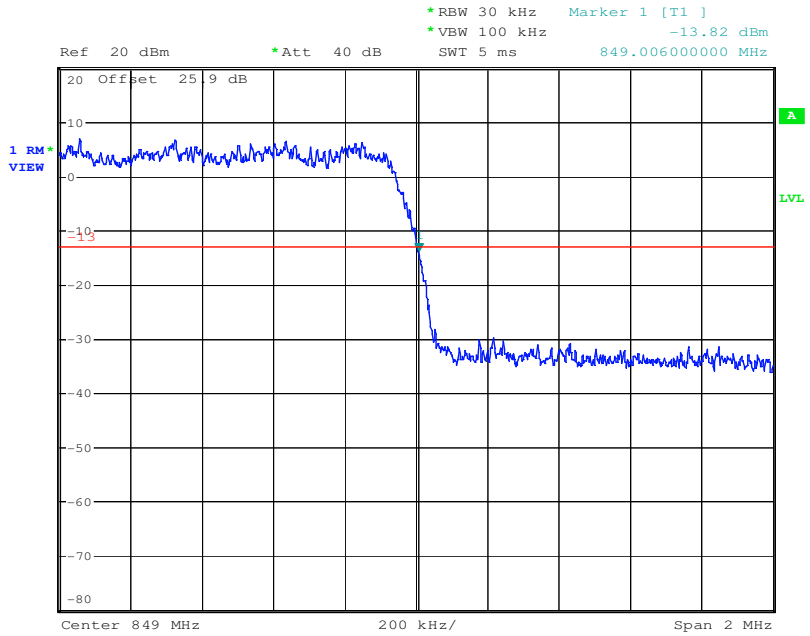
Measurement Data

Cell800		
Test channel	Frequency (MHz)	Result
Lowest/1013	824.006	Pass



Test channel	Frequency (MHz)	Result
Highest/777	849.006	Pass



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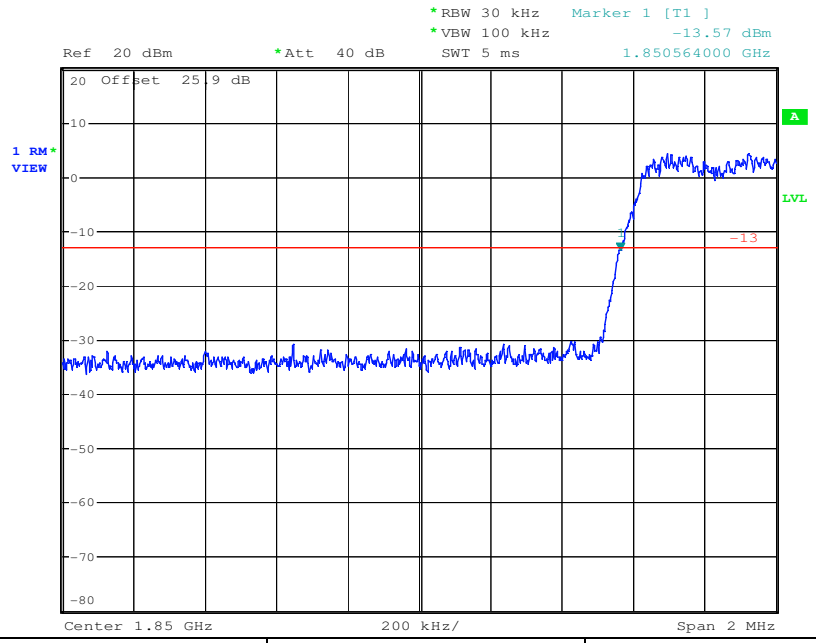
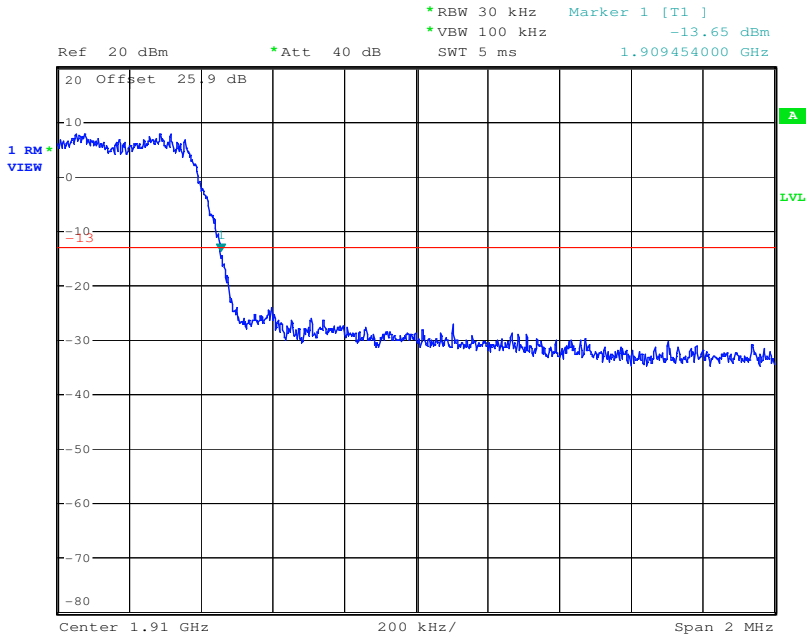
PCS1900		
Test channel	Frequency (MHz)	Result
Lowest/25	1850.56	Pass



Test channel	Frequency (MHz)	Result
Highest/1175	1909.45	Pass



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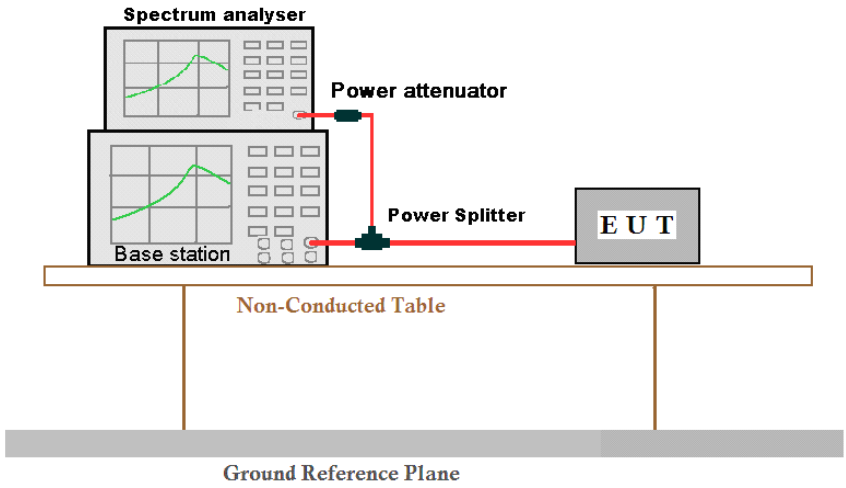
7.6 Spurious emissions at antenna terminals

Test Requirement:	Part 2.1051 and Part 2.1057
Test Method:	ITA-603-D-2010 Clause 2.2.13
Test Setup:	
Measurement Procedure:	The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyzer, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at three frequencies (low channel and high channel).the equipment operates below 10GHz: to the tenth harmonic of the highest fundamental frequency or to 40GHz.whichever is lower, the resolution bandwidth of the spectrum analyzer was set at 100kHz for spurious emissions below 1 GHz, and 1 MHz for spurious emissions above 1GHz.the video bandwidth of the spectrum analyzer was set at thrice the resolution bandwidth. Detector Mode was set to mean or average power.
Instruments Used:	Refer to section 6 for details
Limit:	Attenuated at least 43+10log(P)
Test Results:	Pass

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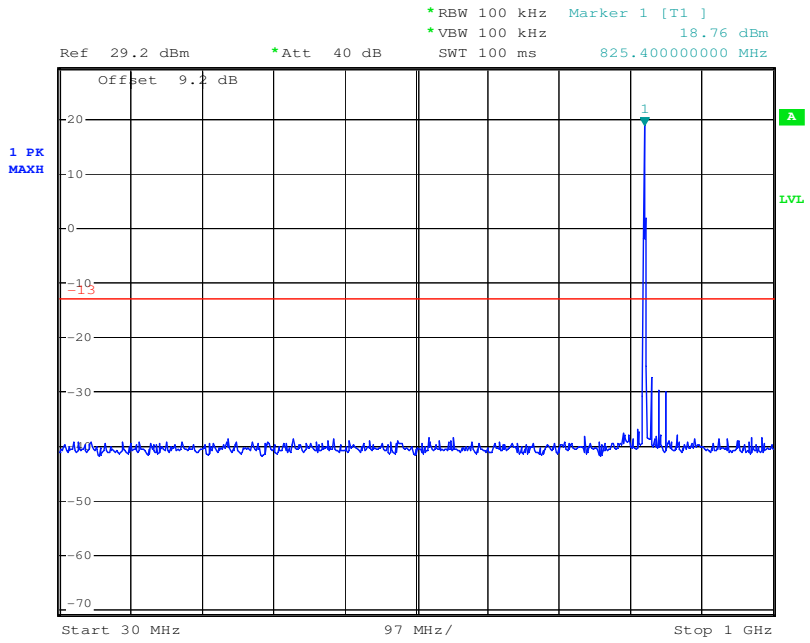
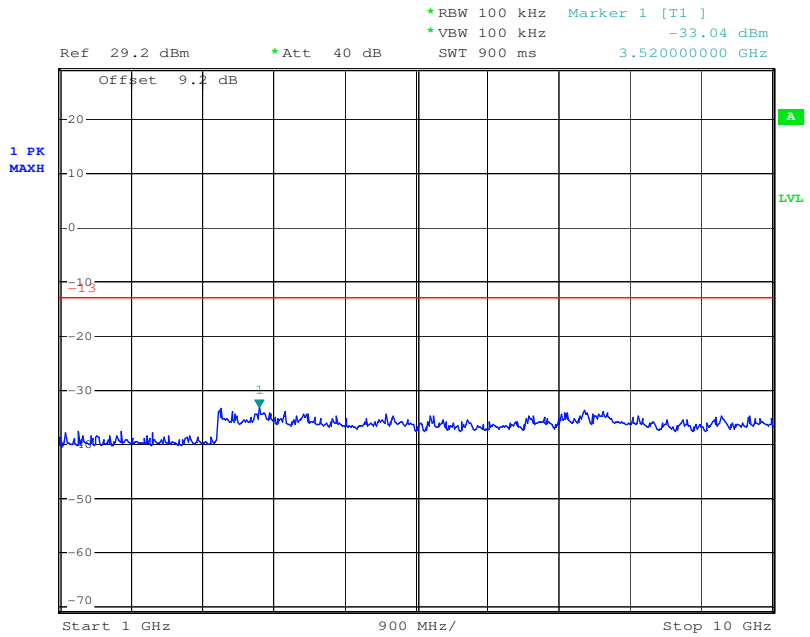
Test plot as follows:

Test mode:	Cell 800	Test channel:	Lowest/1013	Operation Frequency	824.7MHz

For 30MHz-1GHz:



For 1GHz-10GHz:



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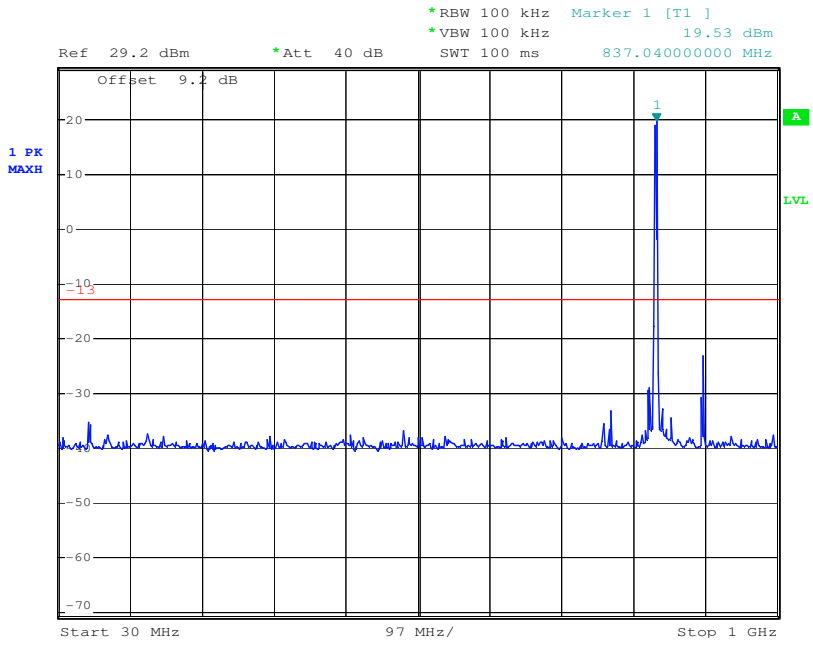
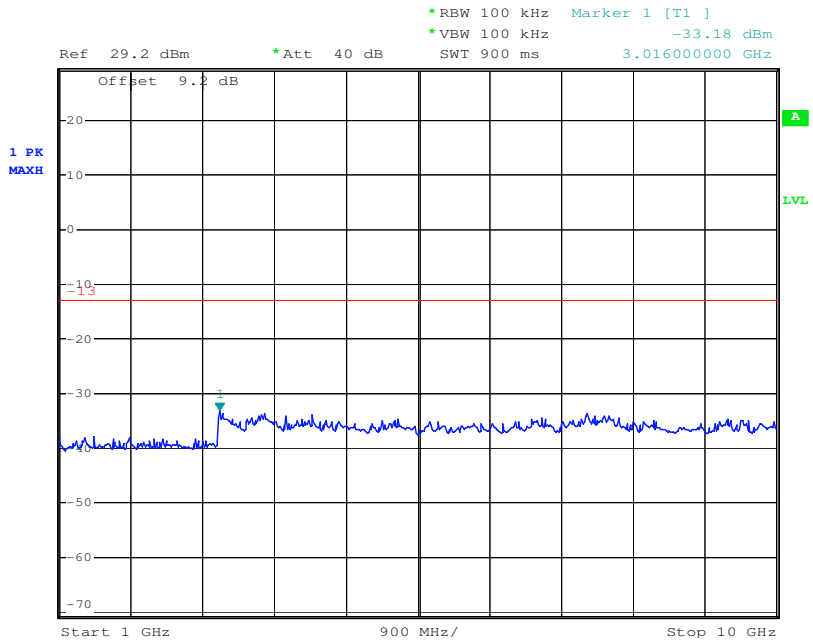
Test mode:	Cell 800	Test channel:	Middle/363	Operation Frequency	835.89MHz

For 30MHz-1GHz:



For 1GHz-10GHz:



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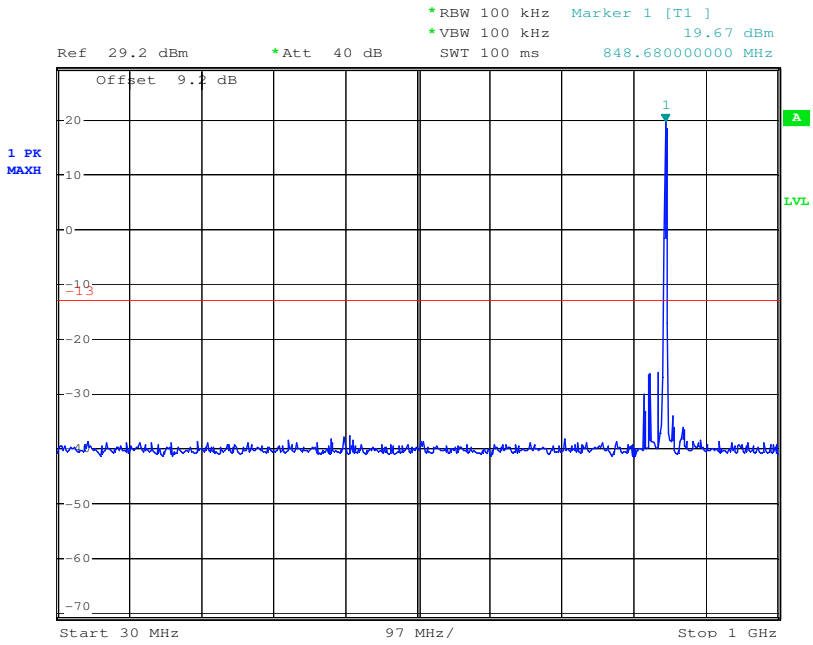
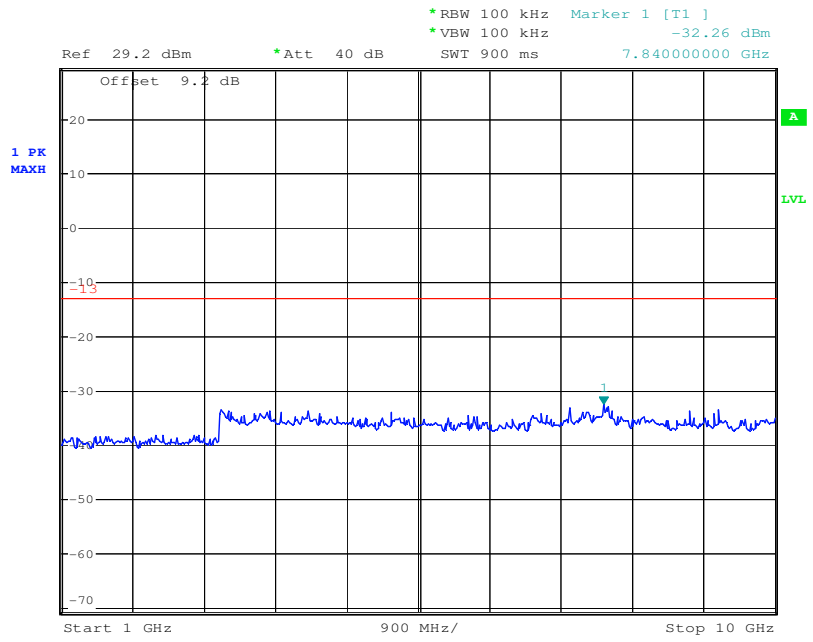
Test mode:	Cell 800	Test channel:	High/777	Operation Frequency	848.31MHz

For 30MHz-1GHz:



For 1GHz-10GHz:



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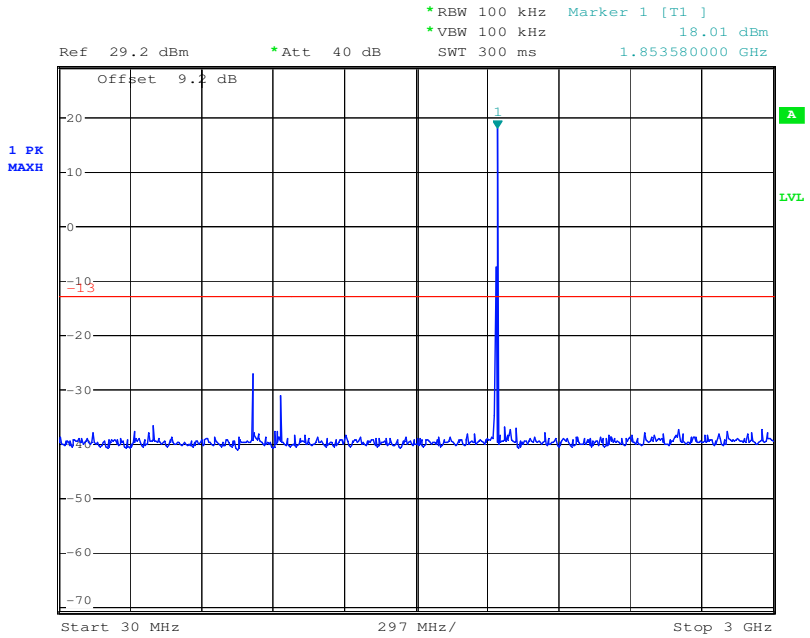
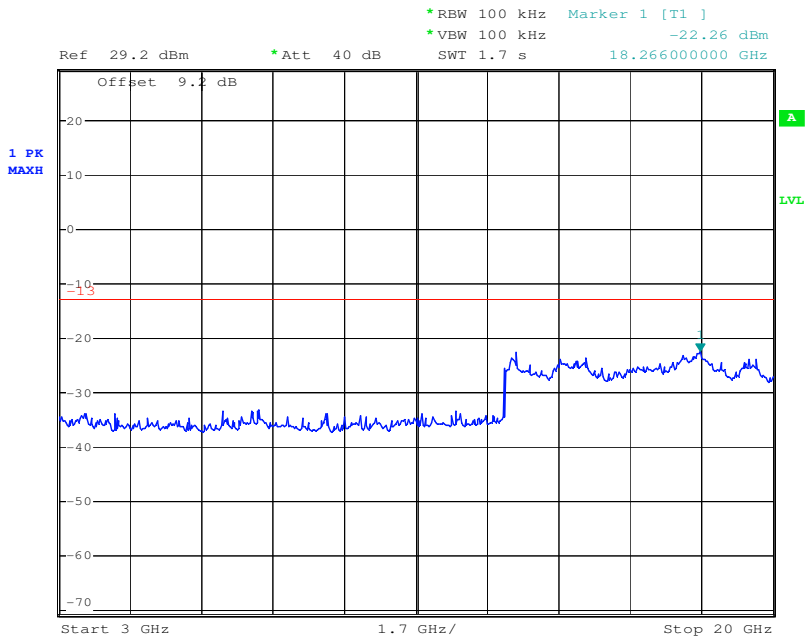
Test mode:	PCS 1900	Test channel:	Lowest/25	Operation Frequency	1851.25MHz

For 30MHz-3GHz:



For 3GHz-20GHz:



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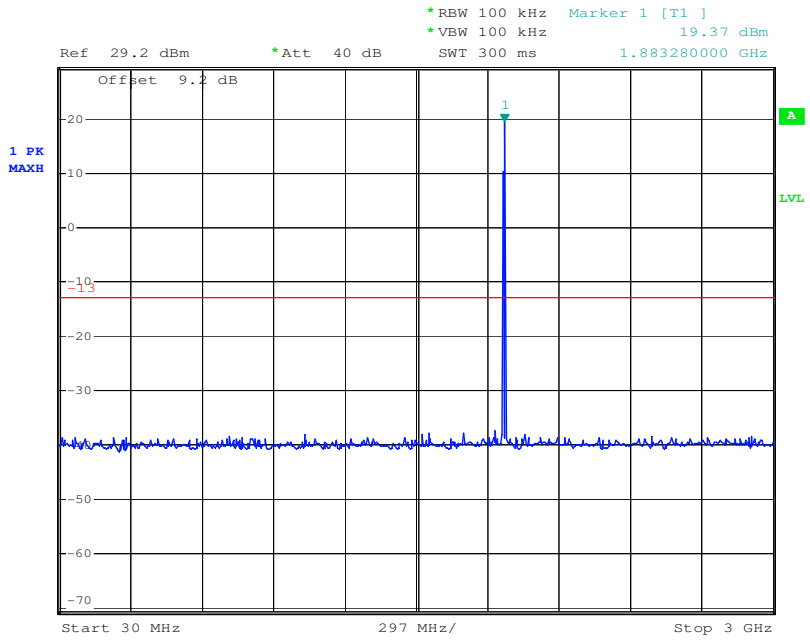
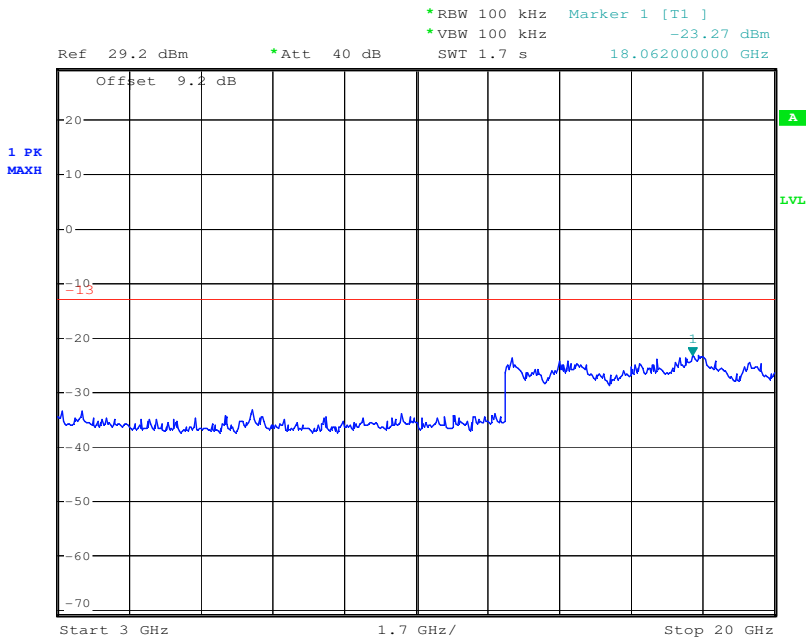
Test mode:	PCS 1900	Test channel:	Middle/600	Operation Frequency	1880.00MHz

For 30MHz-3GHz:



For 3GHz-20GHz:



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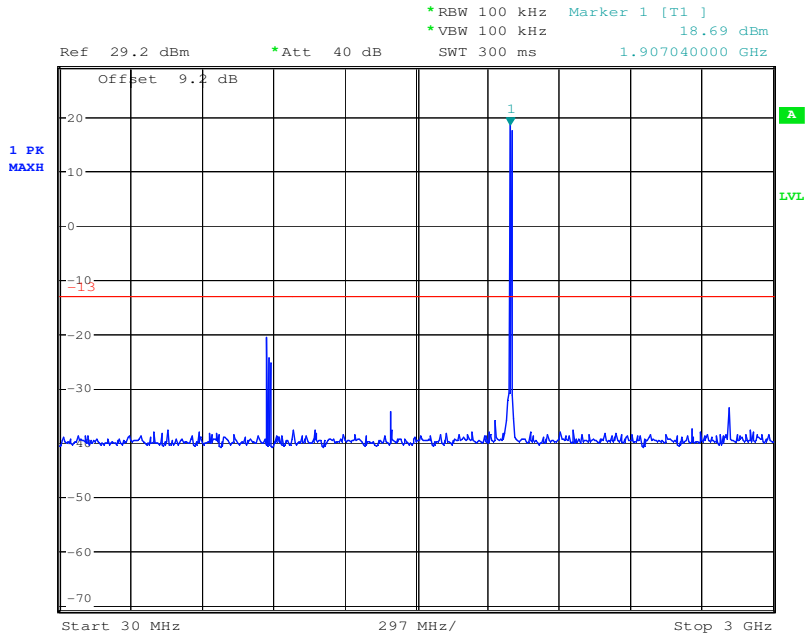
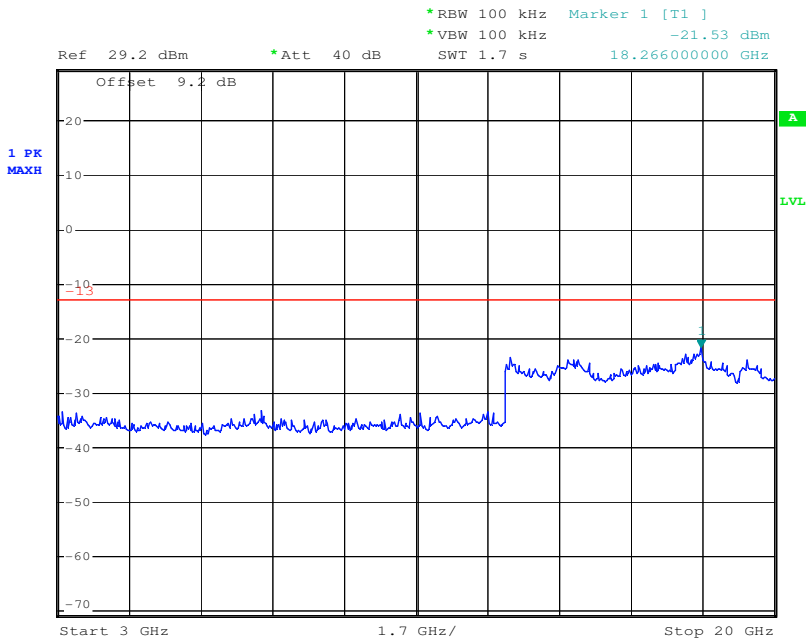
Test mode:	PCS 1900	Test channel:	High/1175	Operation Frequency	1908.75MHz

For 30MHz-3GHz:



For 3GHz-20GHz:



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7.7 Field strength of spurious radiation

Test Requirement:	Part 2.1053 and Part 2.1057
Test Method:	ITA-603-D-2010 Clause 2.2.12
Receiver Setup:	

Frequency	Detector	RBW	VBW	Remark
30MHz-1GHz	Peak	100 kHz	300kHz	Peak
Above 1GHz	Peak	1MHz	3MHz	Peak

Test Setup:

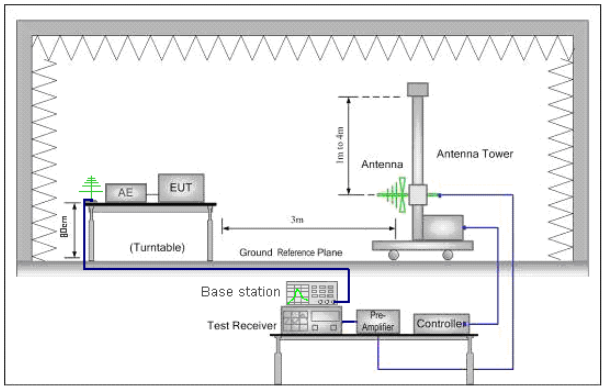

Figure 2. 30MHz to 1GHz

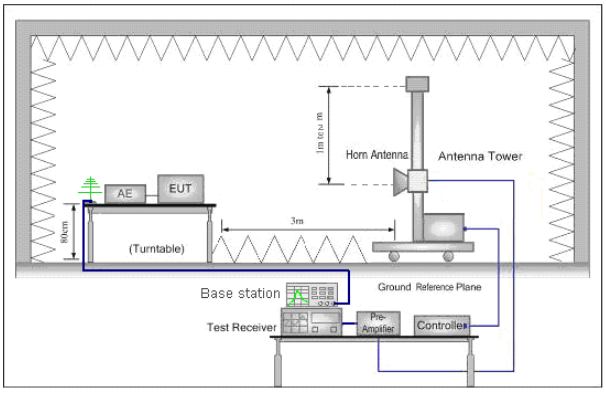

Figure 3. above 1GHz

Measurement Procedure:

Below 1GHz test procedure as below:

1). The EUT was powered ON and placed on a 1.70m high table in the chamber. The antenna of the transmitter was extended to its maximum length.

2). The disturbance of the transmitter was maximized on the test receiver display by raising and lowering from 1m to 4m (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) the receive antenna and by rotating through 360° the turntable. After the fundamental emission was maximized, a field strength measurement was made.

3). Steps 1) and 2) were performed with the EUT and the receive antenna in both vertical and horizontal polarization.

4). The transmitter was then removed and replaced with another antenna. The center of the antenna was approximately at the same location as the center of the transmitter.

5). A signal at the disturbance was fed to the substitution antenna by means of a non-radiating cable. With both the substitution and the receive antennas horizontally polarized, the receive antenna was raised and lowered to obtain a maximum reading at the test receiver. The level of the signal generator was adjusted until the measured field strength level in

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	step 2) is obtained for this set of conditions. 6). The output power into the substitution antenna was then measured. 7). Steps 5) and 6) were repeated with both antennas polarized. 8) Calculate power in dBm by the following formula: ERP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBd) where: Pg is the generator output power into the substitution antenna. **Above 1GHz test procedure as below:** 1) Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber 2) Calculate power in dBm by the following formula: EIRP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBi) EIRP=ERP+2.15dB where: Pg is the generator output power into the substitution antenna. 3.Test the EUT in the lowest channel, the middle channel the Highest channel 4. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, Only the test worst case mode is recorded in the report. 5. Repeat above procedures until all frequencies measured was complete.
Instruments Used:	Refer to section 6 for details
Limit:	Attenuated at least 43+10log(P)
Test Results:	Pass

Test mode:	Cell 800	Test channel:	Low/1013		

Frequency (MHz)	Ant.Pol. H/V	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dB)
1646.00	H	-39.50	-13.	26.50
2472.60	H	-47.63	-13	34.63
1646.00	V	-38.58	-13	25.58
2472.9	V	-44.19	-13	31.19

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Test mode:	Cell 800	Test channel:	Middle/363		

Frequency (MHz)	Ant.Pol. H/V	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dB)
1663.00	H	-41.47	-13.	28.47
2507.67	H	-43.58	-13	30.58
1663.00	V	-41.50	-13	28.50
2507.67	V	-42.36	-13	29.36

Test mode:	Cell 800	Test channel:	High/777		

Frequency (MHz)	Ant.Pol. H/V	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dB)
1697.00	H	-42.69	-13.	29.69
2544.93	H	-44.46	-13	31.46
1697.00	V	-46.65	-13	33.65
2544.93	V	-47.75	-13	34.75

Test mode:	PCS 1900	Test channel:	Low/25		

Frequency (MHz)	Ant.Pol. H/V	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dB)
3702.50	H	-44.60	-13.	31.60
5553.75	H	-34.41	-13	21.41
3702.50	V	-36.92	-13	23.92
5553.75	V	-41.86	-13	28.86

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Test mode:	PCS 1900	Test channel:	Middle/600		

Frequency (MHz)	Ant.Pol. H/V	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dB)
3760.00	H	-40.48	-13.	27.48
5640.00	H	-32.39	-13	19.39
3760.00	V	-31.70	-13	18.70
5640.00	V	-40.90	-13	27.90

Test mode:	PCS 1900	Test channel:	High/1175		

Frequency (MHz)	Ant.Pol. H/V	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dB)
3817.50	H	-33.54	-13.	20.54
5726.25	H	-41.09	-13	28.09
3817.50	V	-35.44	-13	22.44
5726.25	V	-38.77	-13	25.77

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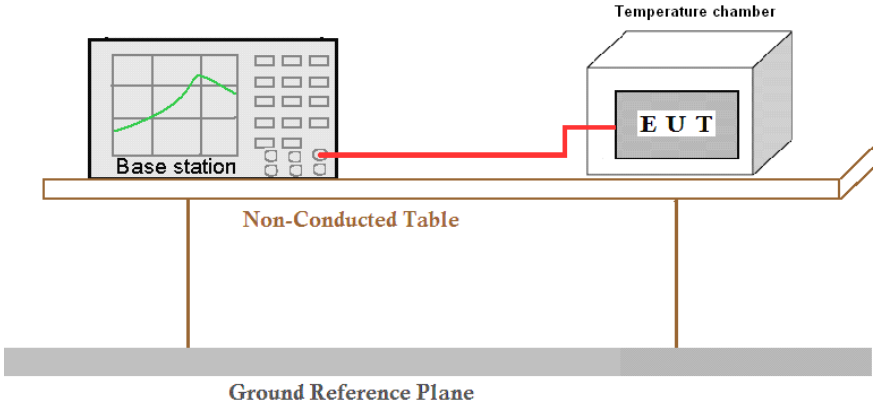
7.8 Frequency stability

Test Requirement:	Part 2.1055
Test Method:	ITA-603-D-2010 Clause 2.2.2
Test Setup:	
Measurement Procedure:	The transmitter output was connected to a calibrated coaxial cable and a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at three frequencies (low channel and high channel).The EUT was place in the temperature chamber, the DC leads and RF output cable exited the chamber though an opening made for that purpose. After Operate the equipment in standby conditions for 15 minutes before proceeding. The temperature was varied from -30℃ to +50℃ at intervals of not more than 10℃ The frequency stability was read from the base station at 25℃ the input voltage was varied +/-15%, the frequency stability and input voltage was record.
Instruments Used:	Refer to section 4.10 for details
Limit:	Operation Band: Frequency stability Limit(ppm) CDMA Cell 800: ±2.5ppm CDMA PCS 1900: ---
Test Results:	Pass

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Cell 800						
Power Supply	Environment	Test Channel		Freq Delta	Freq Dev	Limit
Vdc	Temperature (℃)	Channel No.	Frequency (MHz)	(Hz)	(ppm)	(ppm)
120	-20	1013	824.70	10	0.01	±2.5
120	-20	777	848.31	18	0.02	±2.5
120	-10	1013	824.70	36	0.04	±2.5
120	-10	777	848.31	-22	-0.03	±2.5
120	0	1013	824.70	34	0.04	±2.5
120	0	777	848.31	36	0.04	±2.5
120	10	1013	824.70	-22	-0.03	±2.5
120	10	777	848.31	34	0.04	±2.5
120	20	1013	824.70	37	0.04	±2.5
120	20	777	848.31	59	0.07	±2.5
120	30	1013	824.70	57	0.07	±2.5
120	30	777	848.31	-48	-0.06	±2.5
120	40	1013	824.70	-27	-0.03	±2.5
120	40	777	848.31	57	0.07	±2.5
120	50	1013	824.70	-32	-0.04	±2.5
120	50	777	848.31	28	0.03	±2.5
138	20	1013	824.70	-22	-0.03	±2.5
138	20	777	848.31	56	0.07	±2.5
102	20	1013	824.70	-36	-0.04	±2.5
102	20	777	848.31	-34	-0.04	±2.5

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PCS 1900						
Power Supply	Environment	Test Channel		Freq Delta	Freq Dev	Limit
Vdc	Temperature (℃)	Channel No.	Frequency (MHz)	(Hz)	(ppm)	(ppm)
120	-20	25	1851.25	38	0.02	±2.5
120	-20	1175	1908.75	22	0.01	±2.5
120	-10	25	1851.25	-19	-0.01	±2.5
120	-10	1175	1908.75	-33	-0.02	±2.5
120	0	25	1851.25	28	0.02	±2.5
120	0	1175	1908.75	-17	-0.01	±2.5
120	10	25	1851.25	-45	-0.02	±2.5
120	10	1175	1908.75	33	0.02	±2.5
120	20	25	1851.25	-27	-0.01	±2.5
120	20	1175	1908.75	58	0.03	±2.5
120	30	25	1851.25	22	0.01	±2.5
120	30	1175	1908.75	-43	-0.02	±2.5
120	40	25	1851.25	33	0.02	±2.5
120	40	1175	1908.75	26	0.01	±2.5
120	50	25	1851.25	-18	-0.01	±2.5
120	50	1175	1908.75	43	0.02	±2.5
138	20	25	1851.25	-33	-0.02	±2.5
138	20	1175	1908.75	24	0.01	±2.5
102	20	25	1851.25	-32	-0.02	±2.5
102	20	1175	1908.75	22	0.01	±2.5

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8 Photographs - EUT Test Setup

Refer to the < AX140--Test Setup photos>.

9 Photographs - EUT Constructional Details

Refer to the < AX140--External Photos > & < AX140--Internal Photos >.

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