TEST REPORT

Reference No.	:	WTS14S0514570E
FCC ID	:	2ACEVS8
Applicant	:	IED CONEXION VIRTUAL S.A DE C.V
Address	:	Rio Tiber # 103 Int 502 Colonia DF CP: 06500 Cuauhtemoc Mexico
Manufacturer	:	Shenzhen Kente Science & Technology Co.,Ltd.
Address	:	Rm ABC, 15F, B Tower, Xuesong Building, Tairan 6th Rd, Tairan Industrial & Trading Park, Futian, Shenzhen, China
Product Name	:	4.5 inch smartphone
Model No	:	QUANTUM S8
Standards	:	FCC CFR47 Part 22 Subpart H:2012 FCC CFR47 Part 24 Subpart E:2012
Date of Receipt sample	:	May 30, 2014
Date of Test	:	May 09~Jun.23, 2014
Date of Issue	:	Jun.30, 2014
Test Result	:	**Pass ***

*Remarks:
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

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Compiled by:

Zero Zhou / Project Engineer

Approved by:

Philo Zhong / Manager

2 Test Summary

Test Items	Test Requirement	Result
RF Output Power	2.1046 22.913 (a) 24.232 (c)	PASS
Bandwidth	2.1049 22.905 22.917 24.238	PASS
Spurious Emissions at Antenna Terminal	2.1051 22.917 (a) 24.238 (a)	PASS
Field Strength of Spurious Radiation	2.1053 22.917 (a) 24.238 (a)	PASS
Out of band emission, Band Edge	22.917 (a) 24.238 (a)	PASS
Frequency Stability	2.1055 22.355 24.235	PASS
Maximum Permissible Exposure (SAR)	1.1307 2.1093	PASS

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4 General Information

4.1 General Description of E.U.T.

Product Name	: 4.5 inch smartphone
Model No.	: QUANTUM S8
Model Difference	: N/A
GSM Band(s)	: GSM 850/1900MHz
GPRS Class	: 12
WCDMA Band(s)	: FDD Band II/V
Wi-Fi Specification	: 802.11b/g/n HT20/n HT40
Bluetooth Version	: Bluetooth v4.0 with BLE
GPS	: Support
NFC	: N/A

4.2 Details of E.U.T.

Operation Frequency	: GSM/GPRS 850: 824~849MHz PCS/GPRS 1900: 1850~1910MHz WCDMA/UPA/DPA Band V: 824~849MHz WCDMA/UPA/DPA Band II: 1850~1910MHz WiFi: 802.11b/g/n HT20:2412-2462MHz 802.11n HT40:2422-2452MHz Bluetooth: 2402-2480MHz GPS:1.57GHz
Max. RF output power	: GSM 850: 33.22dBm PCS 1900: 30.47dBm WCDMA Band V:22.61dBm WCDMA Band II:22.88dBm WiFi:8.87dBm Bluetooth:3.97dBm
Type of Modulation	: GSM,GPRS:GMSK WCDMA: QPSK WiFi: CCK, OFDM Bluetooth: GFSK, Pi/4 DQPSK,8DPSK
Antenna installation	: GSM/WCDMA:Monopole antenna WiFi/Bluetooth: Monopole antenna

Antenna Gain	: GSM 850: 0dBi PCS 1900: 0dBi WCDMA Band II: 0dBi WCDMA Band V: 0dBi WiFi: 0dBi Bluetooth: 0dBi
Technical Data	: (1)DC 5V, 1000mA by Adapter (Adapter Input: AC 100-240V, 50/60Hz, 0.15A) (2)DC 3.7V by Battery(Capacity: 1550mAh) (3)DC 5V for USB charging
Adapter	: M/N: F2S8C01

4.3 Test Mode

All test mode(s) and condition(s) mentioned were considered and evaluated respectively by performing full tests, the worst data were recorded and reported.

Support Band	Test Mode	Channel Frequency	Channel Number
GSM 850	GSM/GPRS	824.2 MHz	128
		836.6 MHz	190
		848.8 MHz	251
PCS 1900	GSM/GPRS	1850.2 MHz	512
		1880.0 MHz	661
		1909.8 MHz	810
WCDMA Band II	WCDMA/HSUPA/HSDPA	1852.4 MHz	9262
		1880.0 MHz	9400
		1907.6 MHz	9538
WCDMA Band V	WCDMA/HSUPA/HSDPA	826.4 MHz	4132
		836.6 MHz	4183
		846.6 MHz	4233
Remark: All mode(s) were tested and the worst data was recorded.			

4.4 Test Facility

The test facility has a test site registered with the following organizations:

- **IC – Registration No.: 7760A-1**

  Waltek Services (Shenzhen) Co., Ltd. has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration 7760A-1, July 12, 2012.

- **FCC – Registration No.: 880581**

  Waltek Services (Shenzhen) Co., Ltd. EMC Laboratory `has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 880581, April 29, 2014.

5 Equipment Used during Test

5.1 Equipments List

3m Semi-anechoic Chamber for Radiation Emissions						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	EMC Analyzer	Agilent	E7405A	MY45114943	Sep.18,2013	Sep.17,2014
2	Active Loop Antenna	Beijing Dazhi	ZN30900A	-	Sep.18,2013	Sep.17,2014
3	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	Apr.19,2014	Apr.18,2015
4	Coaxial Cable (below 1GHz)	Top	TYPE16(13M)	-	Sep.18,2013	Sep.17,2014
5	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	Apr.19,2014	Apr.18,2015
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9170	335	Apr.19,2014	Apr.18,2015
7	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	Mar.17,2014	Mar.16,2015
8	Coaxial Cable (above 1GHz)	Top	1GHz-25GHz	EW02014-7	Apr.10,2014	Apr.09,2015
9	Universal Radio Communication Tester	R&S	CMU 200	112461	Apr. 11,2014	Apr. 10,2015
10	Signal Generator	R&S	SMR20	100046	Apr. 11,2014	Apr. 10,2015
RF Conducted Testing						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMC Analyzer	R&S	ESCI	101155	Sep.18,2013	Sep.17,2014
2.	Humidity Chamber	GF	GTH-225-40-1P	IAA061213	May 16,2014	May 15,2015
3.	DC Power Supply	EVERFINE	WY305	1004002	Apr.11,2014	Apr.10,2015
4.	Universal Radio Communication Tester	R&S	CMU 200	112461	Apr.11,2014	Apr.10,2015
5.	Synthesized Sweeper	HP	8341B	2624A00177	Apr.11,2014	Apr.10,2015
6.	Matching Network	SUN MOON ELECTRONICS	N/A	MP0835-6	Apr.11,2014	Apr.10,2015

5.2 Measurement Uncertainty

Parameter	**Uncertainty**
Radio Frequency	± 1 x 10^{-6}
RF Power	± 1.0 dB
RF Power Density	± 2.2 dB
Radiated Spurious Emissions test	± 5.03 dB (Bilog antenna 30M~1000MHz)
	± 5.47 dB (Horn antenna 1000M~25000MHz)
Conducted Spurious Emissions test	± 3.64 dB (AC mains 150KHz~30MHz)

5.3 Test Equipment Calibration

All the test equipments used are valid and calibrated by CEPREI Certification Body that address is No.110 Dongguan Zhuang RD. Guangzhou, P.R.China.

6 RF OUTPUT POWER

Test Requirement:	FCC Part 2.1046,22.913 (a),24.232 (c)
Test Method:	ANSI C63.4:2003, TIA/EIA-603-D:2010
Test Mode:	Transmitting

6.1 EUT Operation

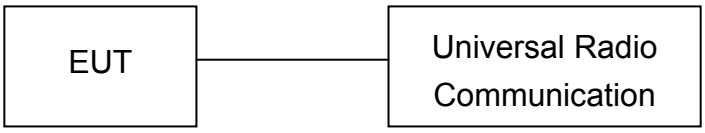
Operating Environment **:**

Temperature:	22.5 °C
Humidity:	52.3 % RH
Atmospheric Pressure:	101.2kPa

6.2 Test Procedure

Conducted method:

The RF output of the transmitter was connected to the wireless test set and the spectrum analyzer through sufficient attenuation.



Radiated method:

1. The setup of EUT is according with per TIA/EIA Standard 603D:2010 and ANSI C63.4-2003 measurement procedure.
2. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.
3. The frequency range up to tenth harmonic of the fundamental frequency was investigated.
4. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

6.3 Test Result

Conducted Power

Cellular Band (Part 22H)

Test Mode	Channel	Frequency (MHz)	Peak Output Power(dBm)	Limit (dBm)
GSM 850	128	824.2	33.04	38.45
	190	836.6	33.18	38.45
	251	848.8	33.22	38.45

Test Mode	Channel	Frequency (MHz)	Peak Output Power(dBm)				Limit(dBm)
			Slot 1	Slot 2	Slot 3	Slot 4	
GPRS	128	824.2	32.94	32.42	30.92	29.95	38.45
	190	836.6	33.03	32.54	31.00	30.04	38.45
	251	848.8	33.08	32.58	31.05	30.06	38.45

Test Mode	Channel	Frequency (MHz)	Peak Output Power(dBm)					Limit (dBm)
			RMC12.2k	HSDPA1	HSDPA2	HSDPA3	HSDPA4	
WCDMA Band V	4132	826.4	22.57	22.61	22.51	22.55	22.49	38.45
	4183	836.6	22.20	22.23	22.26	22.19	22.21	38.45
	4233	846.6	22.37	22.39	22.34	22.35	22.41	38.45

Test Mode	Channel	Frequency (MHz)	Peak Output Power(dBm)					Limit (dBm)
			HSUPA1	HSUPA2	HSUPA3	HSUPA4	HSUPA5	
WCDMA Band V	4132	826.4	22.59	22.52	22.54	22.55	22.57	38.45
	4183	836.6	22.18	22.19	22.17	22.21	22.16	38.45
	4233	846.6	22.34	22.29	22.31	22.32	22.28	38.45

Cellular Band (Part 24E)

Test Mode	Channel	Frequency (MHz)	Peak Output Power(dBm)	Limit (dBm)
PCS 1900	512	1850.2	30.24	33
	661	1880	30.34	33
	810	1909.8	30.47	33

Test Mode	Channel	Frequency (MHz)	Peak Output Power(dBm)				Limit(dBm)
			Slot 1	Slot 2	Slot 3	Slot 4	
GPRS	512	1850.2	30.18	29.23	27.10	26.03	33
	661	1880	30.28	29.46	27.50	26.52	33
	810	1909.8	30.32	29.66	27.89	26.93	33

Test Mode	Channel	Frequency (MHz)	Peak Output Power(dBm)					Limit (dBm)
			RMC12.2k	HSDPA1	HSDPA2	HSDPA3	HSDPA4	
WCDMA Band II	9262	1852.4	22.05	22.01	22.03	22.02	22.04	33
	9400	1880	22.24	22.22	22.25	22.23	22.24	33
	9538	1907.6	22.88	21.93	22.42	22.51	22.62	33

Test Mode	Channel	Frequency (MHz)	Peak Output Power(dBm)					Limit (dBm)
			HSUPA1	HSUPA2	HSUPA3	HSUPA4	HSUPA5	
WCDMA Band II	9262	1852.4	22.08	22.06	22.07	22.03	22.04	33
	9400	1880	22.19	22.15	22.17	22.16	22.18	33
	9538	1907.6	22.84	22.85	22.81	22.82	22.83	33

Radiated Power (Measured at max. conducted power channel)

ERP and EIRP

Cellular Band (Part 22H)

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	FCC Part 22H/24E	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
GSM 850 Channel190										
836.6	128.63	93	1.7	H	30.0	0.20	0.00	29.80	38.45	-8.65
836.6	119.75	312	1.3	V	20.1	0.20	0.00	19.92	38.45	-18.53
GPRS Channel190										
836.6	129.02	106	1.0	H	30.4	0.20	0.00	30.19	38.45	-8.26
836.6	119.11	245	1.3	V	19.5	0.20	0.00	19.28	38.45	-19.17
WCDMA Band V Channel4183										
836.6	119.03	254	1.9	H	20.4	0.20	0.00	20.20	33	-12.80
836.6	111.24	13	1.5	V	11.6	0.20	0.00	11.41	33	-21.59

Cellular Band (Part 24E)

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	FCC Part 22H/24E	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
PCS 1900 Channel512										
1880.0	123.75	192	1.9	H	18.1	2.72	12.63	28.03	38.45	-10.42
1880.0	117.81	48	1.0	V	11.0	2.72	12.63	20.91	38.45	-17.54
GPRS Channel512										
1880.0	121.36	110	1.4	H	15.7	2.72	12.63	25.64	38.45	-12.81
1880.0	116.74	102	1.1	V	9.9	2.72	12.63	19.84	38.45	-18.61
WCDMA Band II Channel9262										
1880.0	118.86	81	1.1	H	13.2	2.72	12.63	23.14	33	-9.86
1880.0	111.72	46	1.9	V	4.9	2.72	12.63	14.82	33	-18.18

7 BANDWIDTH

Test Requirement:	FCC Part 2.1049,22.917,22.905,24.238
Test Method:	ANSI C63.4:2003, TIA/EIA-603-D:2010
Test Mode:	Transmitting

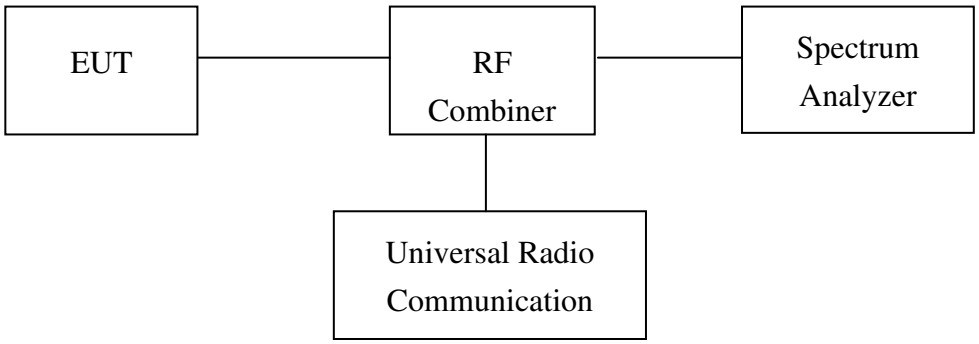
7.1 EUT Operation

Operating Environment **:**

Temperature:	23.0 °C
Humidity:	51.5 % RH
Atmospheric Pressure:	101.2kPa

7.2 Test Procedure

The RF output of the transmitter was connected to the wireless test set and the spectrum analyzer through sufficient attenuation.
The resolution bandwidth of the spectrum analyzer was set at 3 kHz (Cellular /PCS) and the 26 dB & 99%bandwidth was recorded.



7.3 Test Result

Cellular Band (Part 22H)

Test Mode		Channel	Frequency (MHz)	99% Occupied Bandwidth(kHz)	26 dB Emission Bandwidth(kHz)
GSM 850		190	836.6	245.509	317.4
GPRS		190	836.6	243.513	319.4
WCDMA Band V	RMC12.2k	4183	836.6	4151.697	4727
	HSDPA(16QAM)	4183	836.6	4151.697	4711
	HSUPA(BPSK)	4183	836.6	4151.697	4711

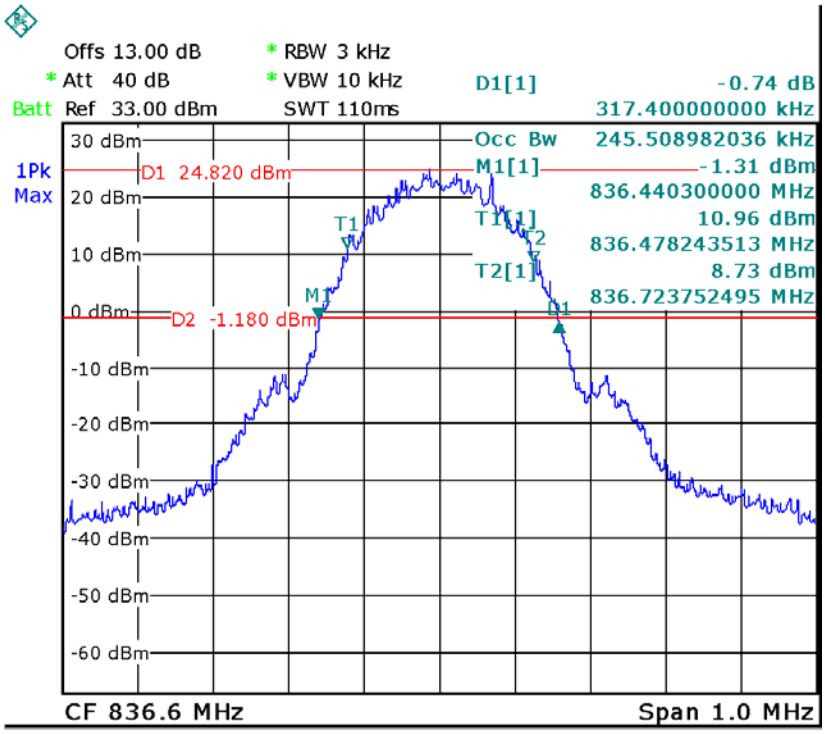
Cellular Band (Part 24E)

Test Mode		Channel	Frequency (MHz)	99% Occupied Bandwidth(kHz)	26 dB Emission Bandwidth(kHz)
PCS 1900		661	1880	243.513	317.4
GPRS		661	1880	243.513	319.4
WCDMA Band II	RMC12.2k	9400	1880	4167.665	4727
	HSDPA(16QAM)	9400	1880	4167.665	4727
	HSUPA(BPSK)	9400	1880	4167.665	4727

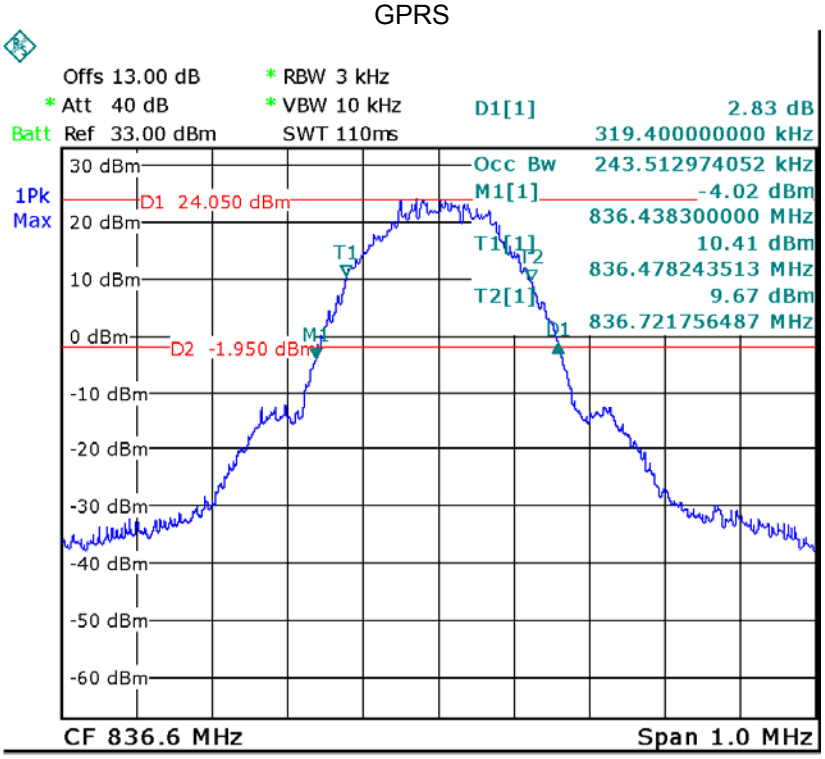
Test Plots

Cellular Band (Part 22H)

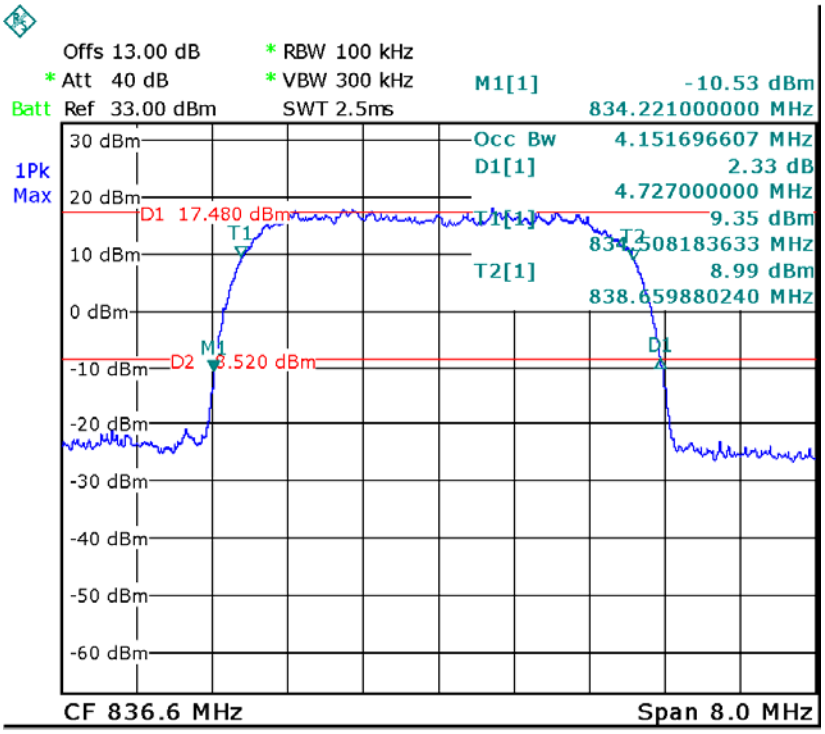
GSM 850



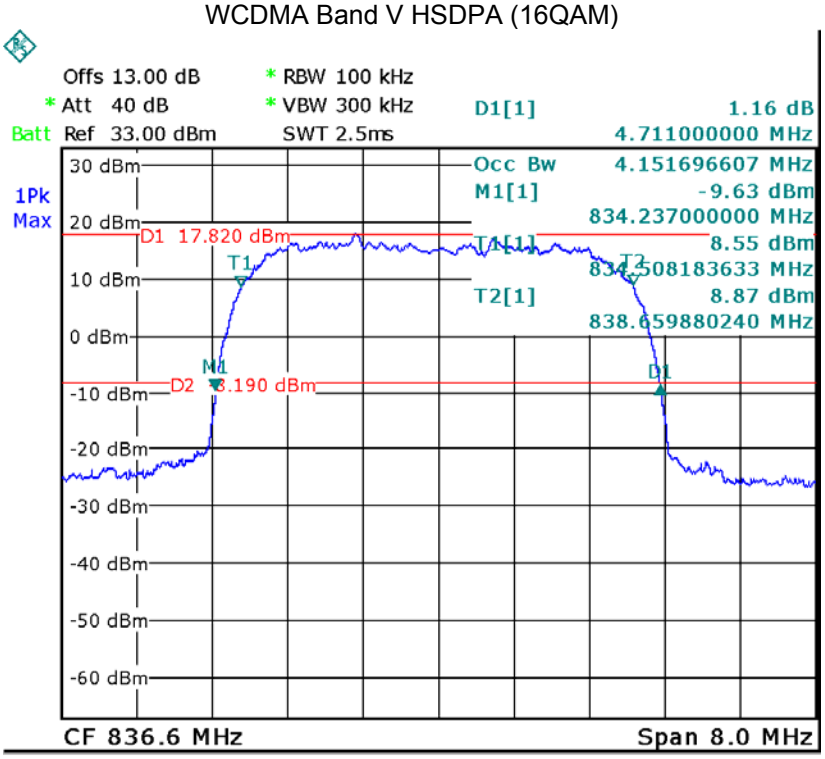
GPRS



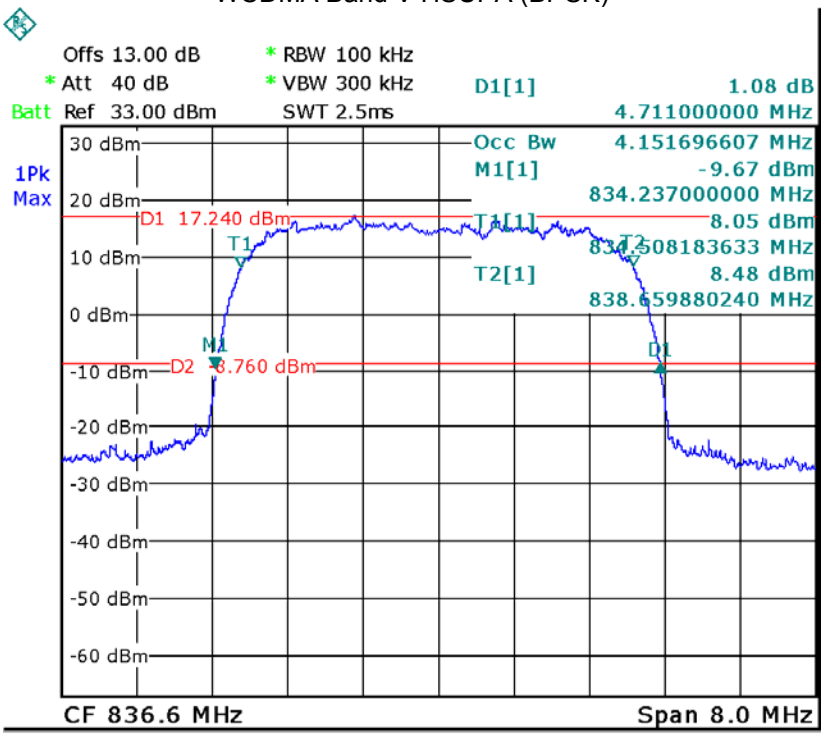
WCDMA Band V RMC12.2k



WCDMA Band V HSDPA (16QAM)

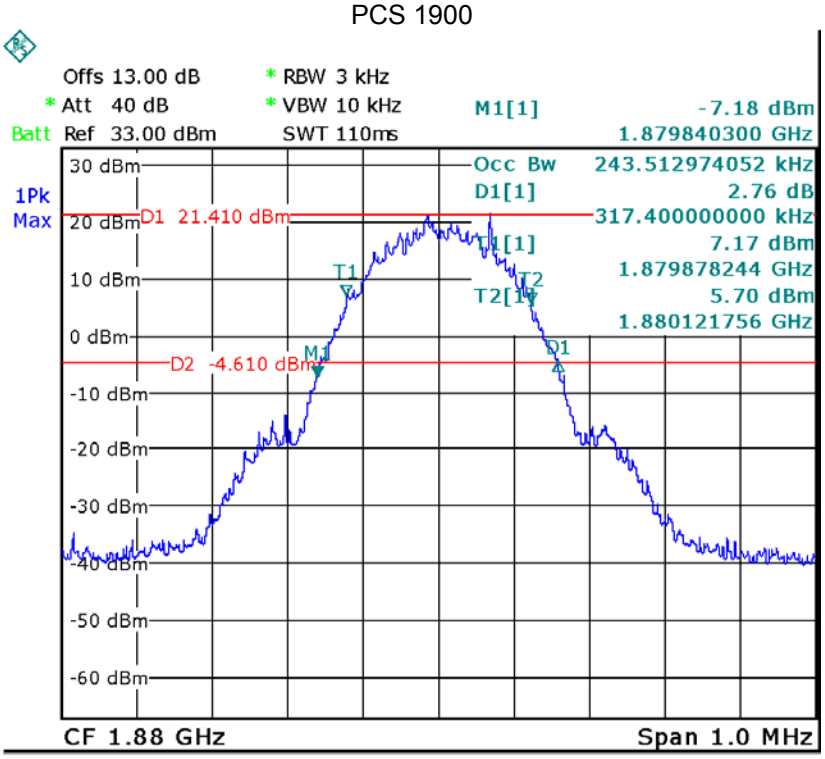


WCDMA Band V HSUPA (BPSK)

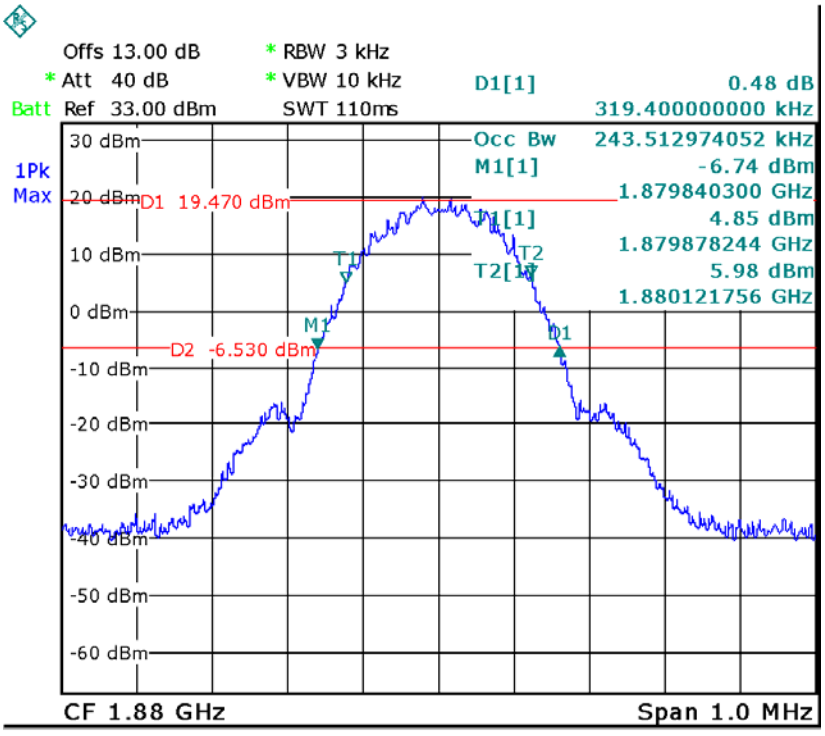


Cellular Band (Part 24E)

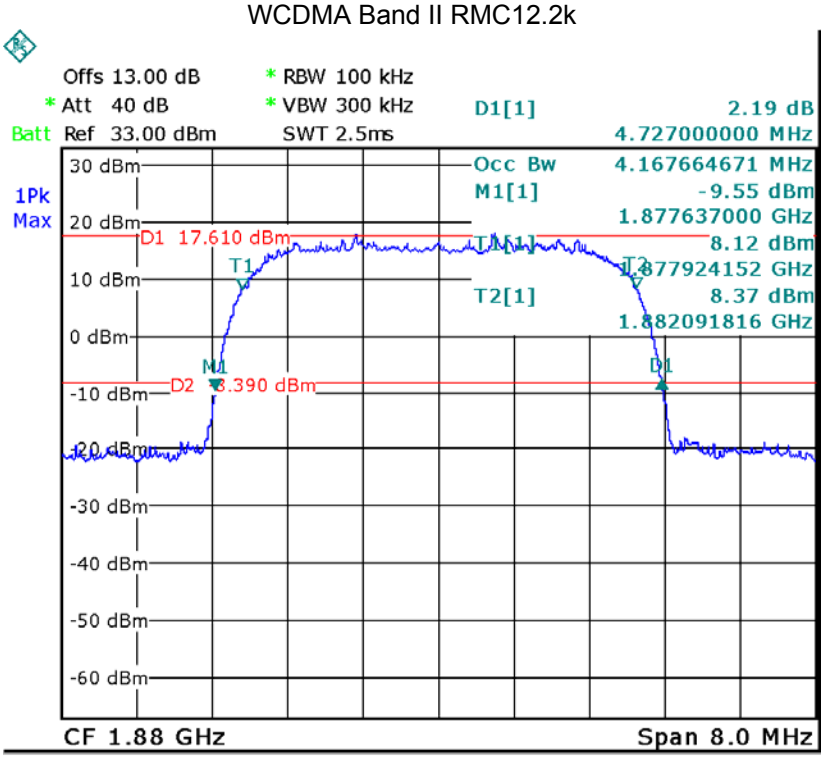
PCS 1900



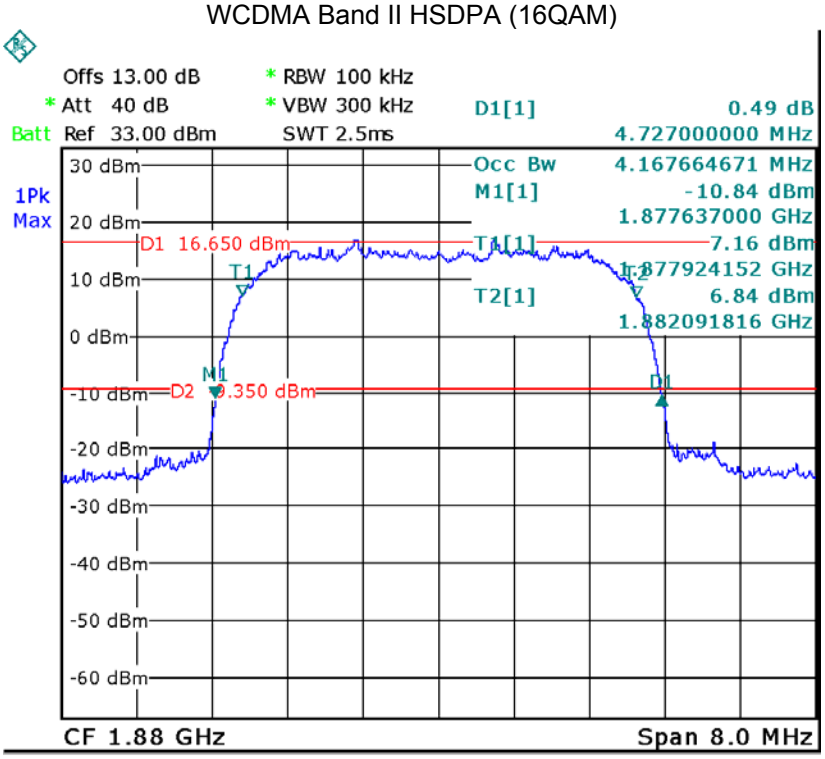
GPRS



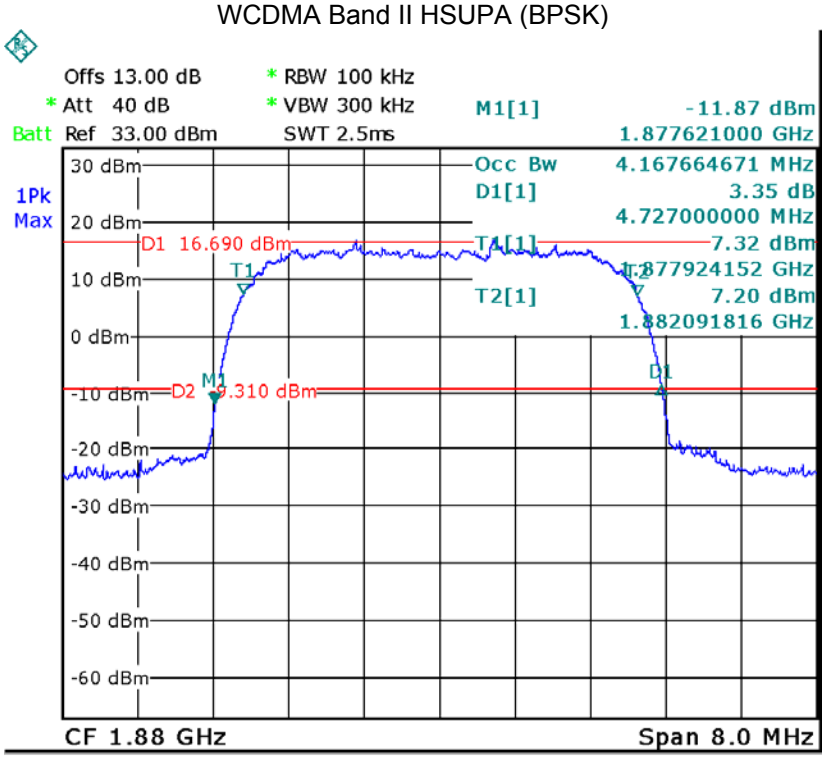
WCDMA Band II RMC12.2k



WCDMA Band II HSDPA (16QAM)



WCDMA Band II HSUPA (BPSK)



8 SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Test Requirement:	FCC Part 2.1051,22.917(a),24.238(a)
Test Method:	ANSI C63.4:2003, TIA/EIA-603-D:2010
Test Mode:	Transmitting

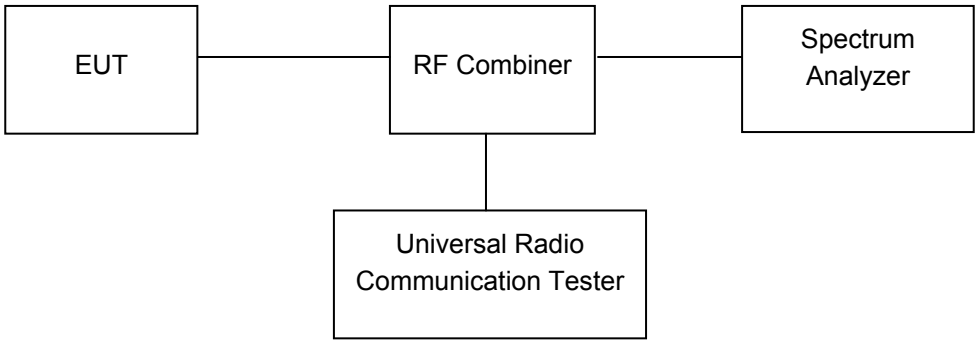
8.1 EUT Operation

Operating Environment **:**

Temperature:	22.8 °C
Humidity:	51.3 % RH
Atmospheric Pressure:	101.2kPa

8.2 Test Procedure

The RF output of the transceiver was connected to a spectrum analyzer and simulator through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz. Sufficient scans were taken to show any out of band emissions up to 10th harmonics.



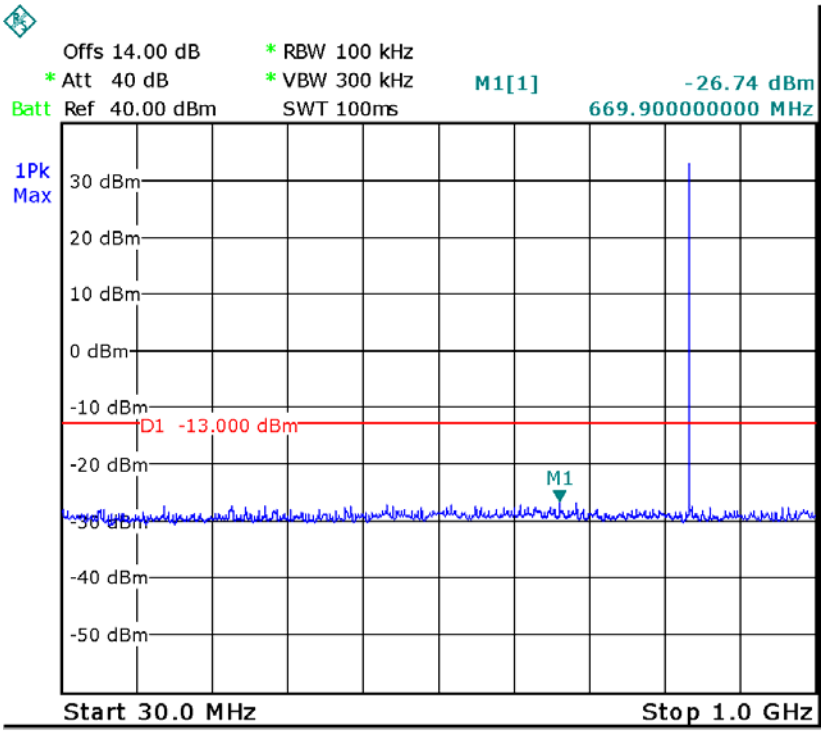
8.3 Test Result

Remark: only the worst data were recorded.

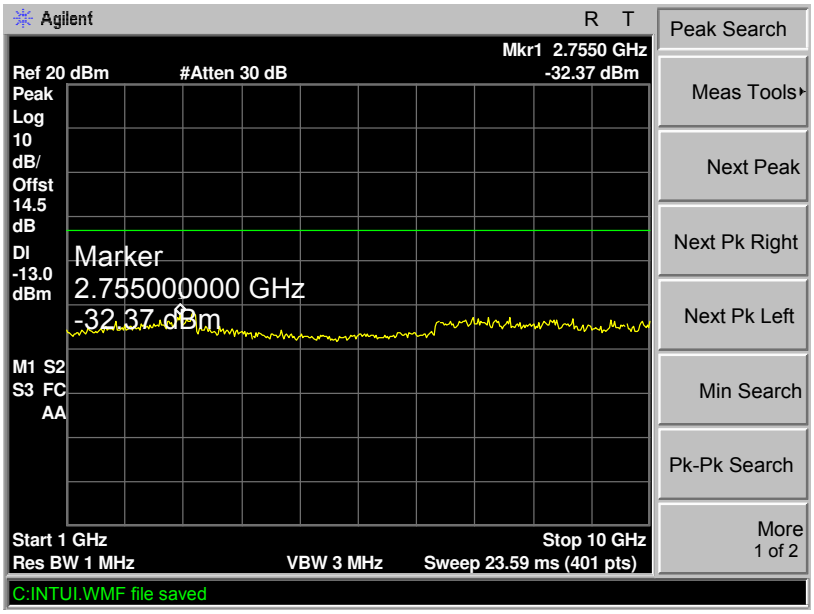
Cellular Band (Part 22H)

GSM 850

30MHz-1GHz

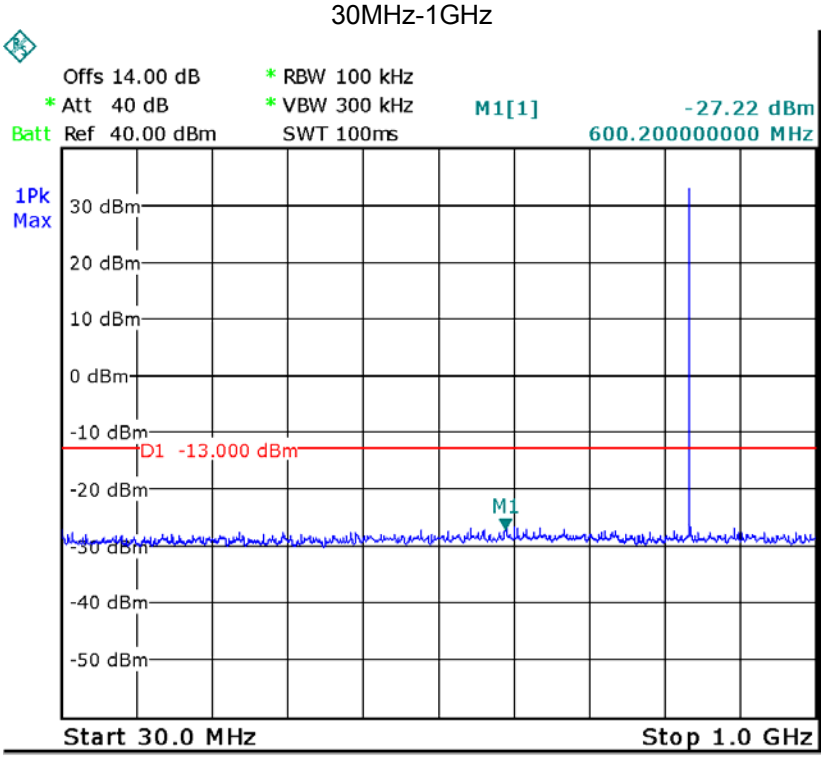


Above 1GHz

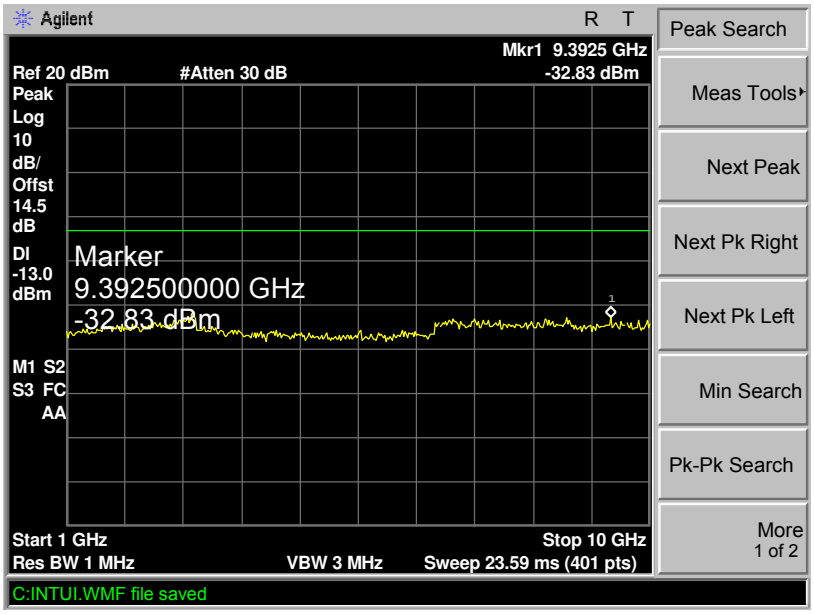


WCDMA Band V

30MHz-1GHz



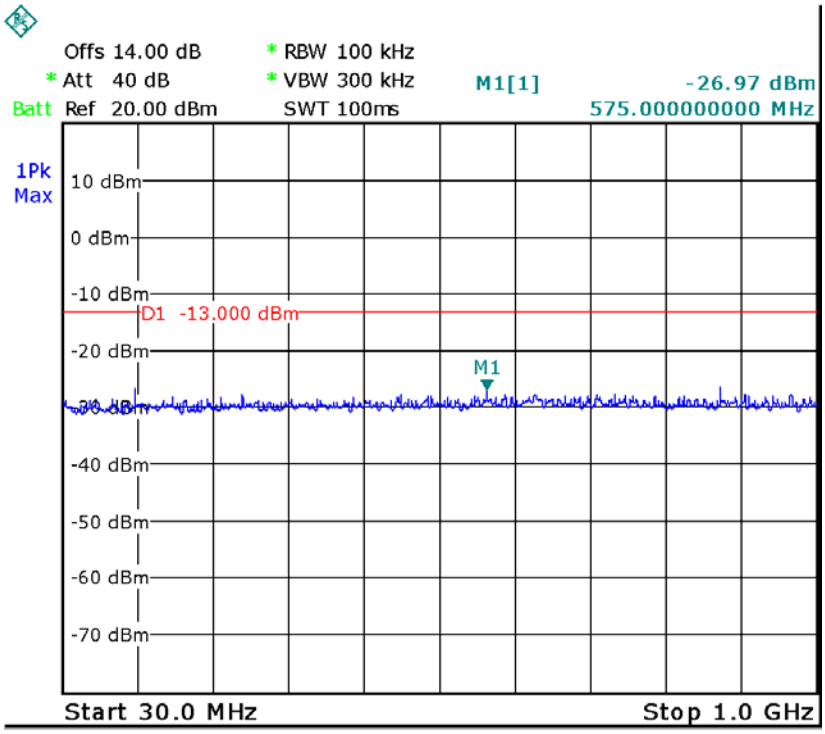
Above 1GHz



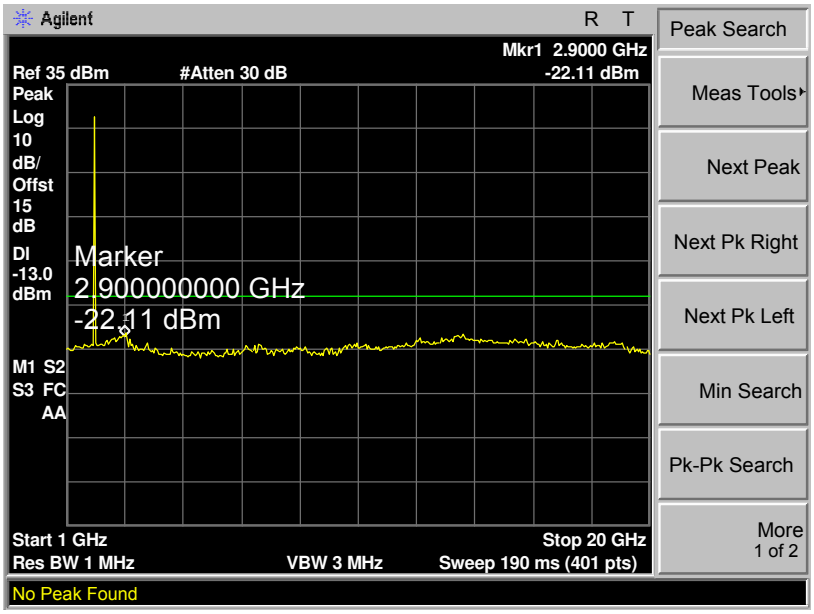
Cellular Band (Part 24E)

PCS 1900

30MHz-1GHz

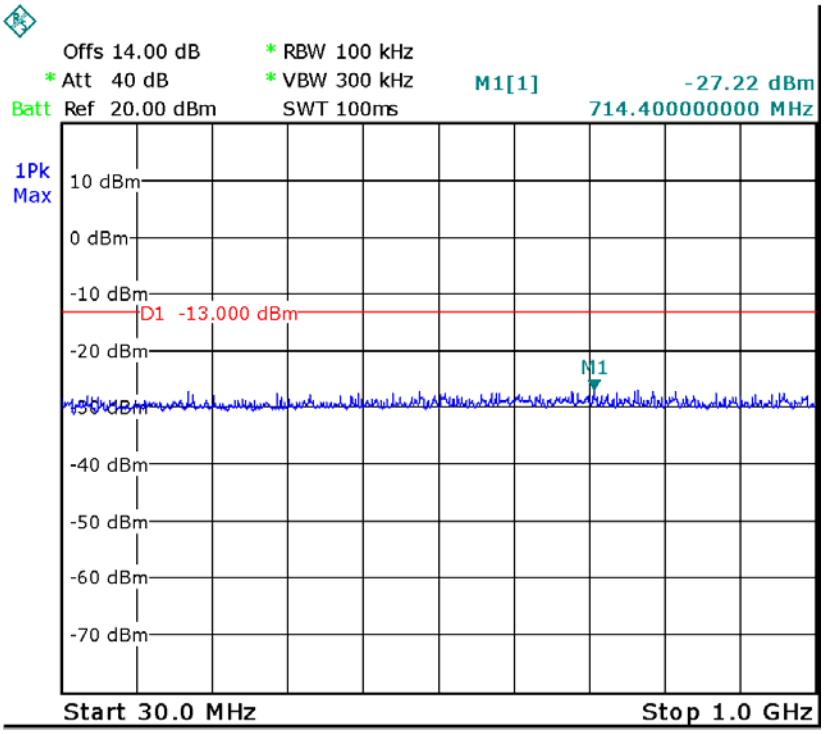


Above 1GHz

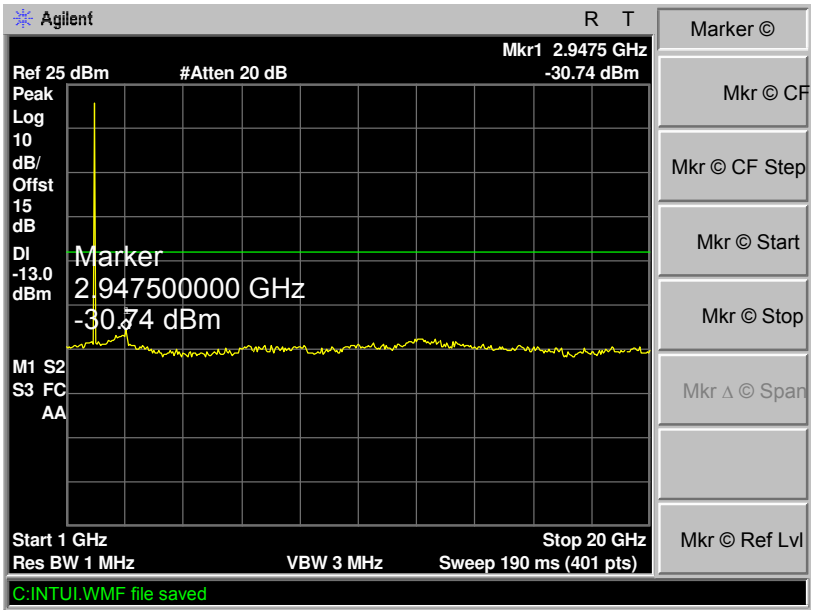


WCDMA Band II

30MHz-1GHz



Above 1GHz



9 SPURIOUS RADIATED EMISSIONS

Test Requirement:	FCC Part 2.1053,22.917,24.238.
Test Method:	ANSI C63.4:2003, TIA/EIA-603-D:2010
Test Mode:	Transmitting

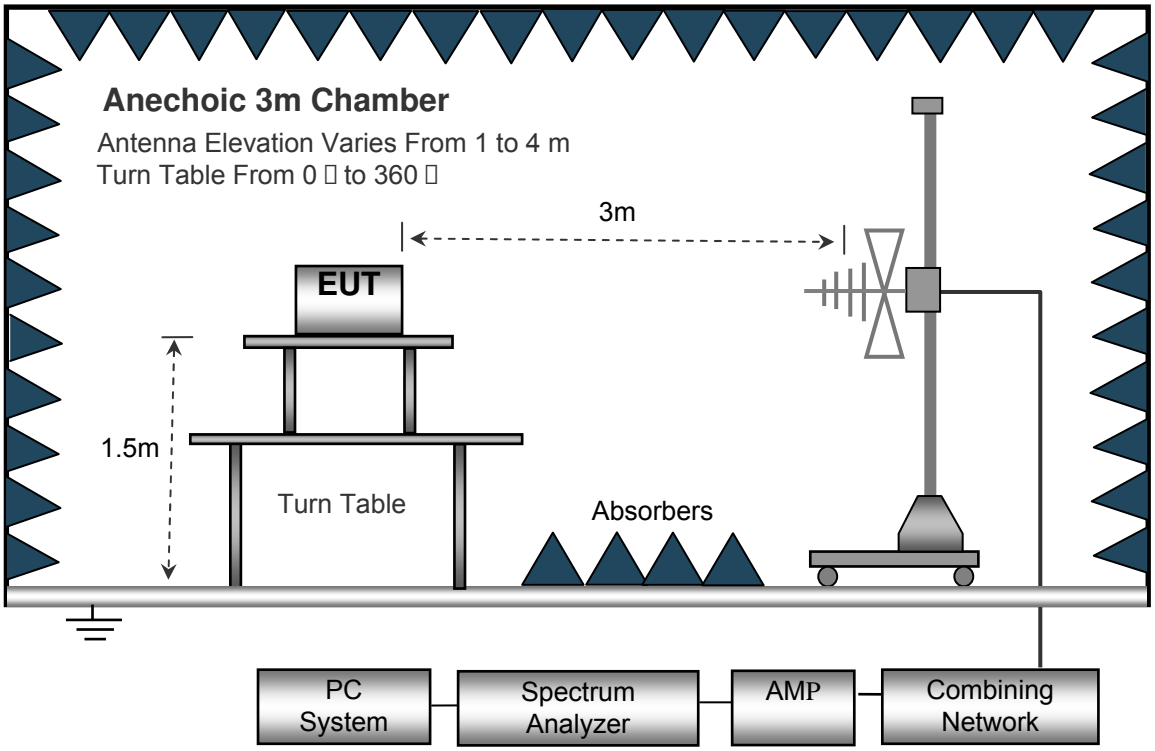
9.1 EUT Operation

Operating Environment **:**

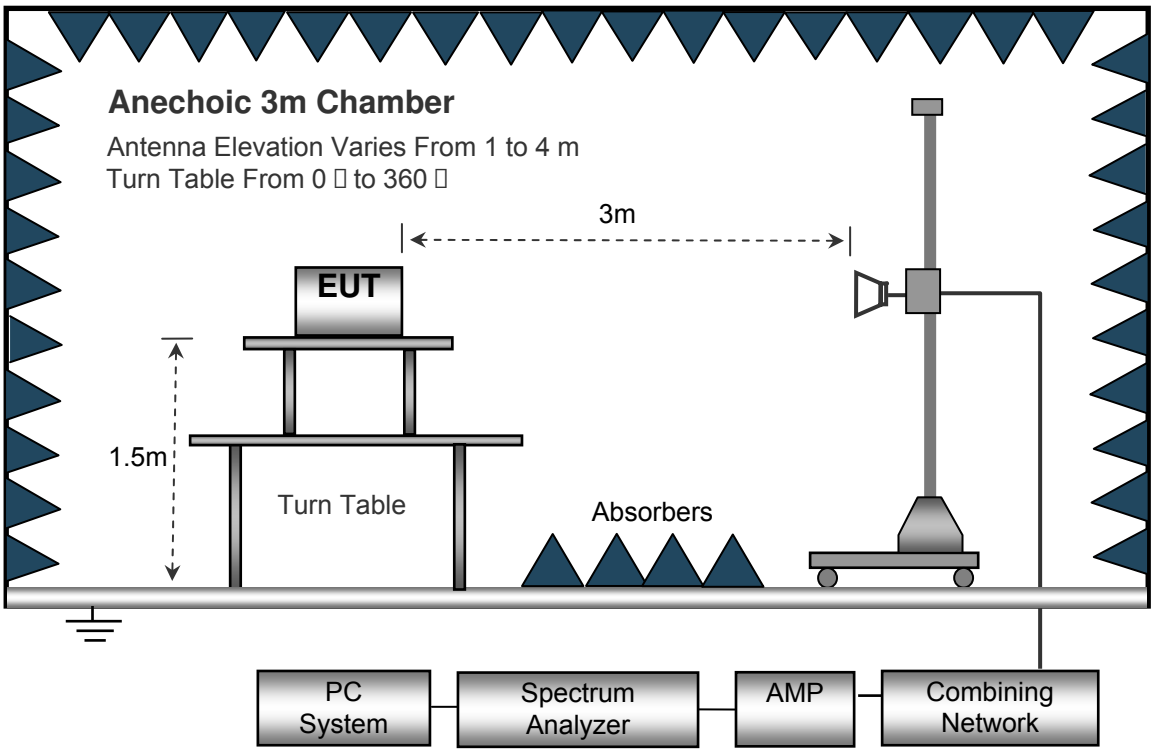
Temperature:	23.2 °C
Humidity:	52.6 % RH
Atmospheric Pressure:	101.2kPa

9.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4: 2003.
The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz.



9.3 Spectrum Analyzer Setup

30MHz ~ 1GHz

Sweep Speed ..... Auto
Detector ..... PK
Resolution Bandwidth 100kHz
Video Bandwidth 300kHz

Above 1GHz

Sweep Speed ..... Auto
Detector ..... PK
Resolution Bandwidth 1MHz
Video Bandwidth 3MHz
Detector ..... Ave.
Resolution Bandwidth 1MHz
Video Bandwidth 10Hz

9.4 Test Procedure

1. The EUT is placed on a turntable, which is 1.5m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions. The spectrum was investigated from 30MHz up to the tenth harmonic of the highest fundamental frequency.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. The radiation measurements are tested under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the X position. So the data shown was the X position only.
7. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.
   Spurious emissions in dB = 10 lg (TXpwr in Watts/0.001) – the absolute level
   Spurious attenuation limit in dB = 43 + 10 Log10 (power out in Watts)
8. Repeat above procedures until the measurements for all frequencies are completed.

9.5 Summary of Test Results

Remark: Test performed from 30MHz to 10th harmonics, only the worst data were recorded.

Cellular Band (Part 22H)

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	Result	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
GSM 850 Channel 190										
365.8	47.32	332	1.6	H	-51.3	0.20	0.00	-51.51	-13	-38.51
365.8	41.62	291	1.1	V	-58.0	0.20	0.00	-58.21	-13	-45.21
1673.2	64.32	120	2.0	H	-43.2	2.64	12.70	-33.14	-13	-20.14
1673.2	53.84	286	1.7	V	-53.0	2.64	12.70	-42.94	-13	-29.94
2509.8	56.51	358	1.1	H	-50.2	2.90	12.34	-40.76	-13	-27.76
2509.8	48.24	239	1.4	V	-60.1	2.90	12.34	-50.64	-13	-37.64
WCDMA Band V Channel 4183										
365.8	47.72	21	1.5	H	-50.9	0.20	0.00	-51.11	-13	-38.11
365.8	41.73	360	2.0	V	-57.9	0.20	0.00	-58.10	-13	-45.10
1673.2	62.38	86	1.3	H	-43.3	2.72	12.63	-33.34	-13	-20.34
1673.2	52.71	331	1.4	V	-54.1	2.72	12.63	-44.19	-13	-31.19
2509.8	55.84	161	1.7	H	-50.9	3.00	11.86	-42.04	-13	-29.04
2509.8	47.28	56	1.6	V	-58.7	3.00	11.86	-49.82	-13	-36.82

Cellular Band (Part 24E)

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	Result	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
PCS 1900 Channel 661										
365.8	46.32	296	1.7	H	-52.3	0.20	0.00	-52.51	-13	-39.51
365.8	41.37	185	1.9	V	-58.3	0.20	0.00	-58.46	-13	-45.46
3760.0	62.41	134	1.6	H	-45.1	2.64	12.70	-35.05	-13	-22.05
3760.0	51.69	257	1.3	V	-55.2	2.64	12.70	-45.09	-13	-32.09
5640.0	55.47	306	1.3	H	-51.2	2.90	12.34	-41.80	-13	-28.80
5640.0	47.12	141	1.2	V	-61.2	2.90	12.34	-51.76	-13	-38.76
WCDMA Band II Channel 9400										
365.8	46.92	180	1.2	H	-51.7	0.20	0.00	-51.91	-13	-38.91
365.8	41.23	132	1.0	V	-58.4	0.20	0.00	-58.60	-13	-45.60
3760.0	62.35	250	1.1	H	-43.3	2.72	12.63	-33.37	-13	-20.37
3760.0	52.47	46	1.3	V	-54.3	2.72	12.63	-44.43	-13	-31.43
5640.0	55.93	102	1.8	H	-50.8	3.00	11.86	-41.95	-13	-28.95
5640.0	47.21	46	1.1	V	-58.8	3.00	11.86	-49.89	-13	-36.89

Note:

1) Absolute Level = SG Level - Cable loss + Antenna Gain

2) Margin = Limit- Absolute Level

10 Band Edge Measurement

Test Requirement:	FCC Part 2.1051,22.917(a),24.238(a)
Test Method:	ANSI C63.4:2003, TIA/EIA-603-D:2010
Test Mode:	Transmitting

10.1 EUT Operation

Operating Environment **:**

Temperature:	22.5 °C
Humidity:	51.9 % RH
Atmospheric Pressure:	101.2kPa

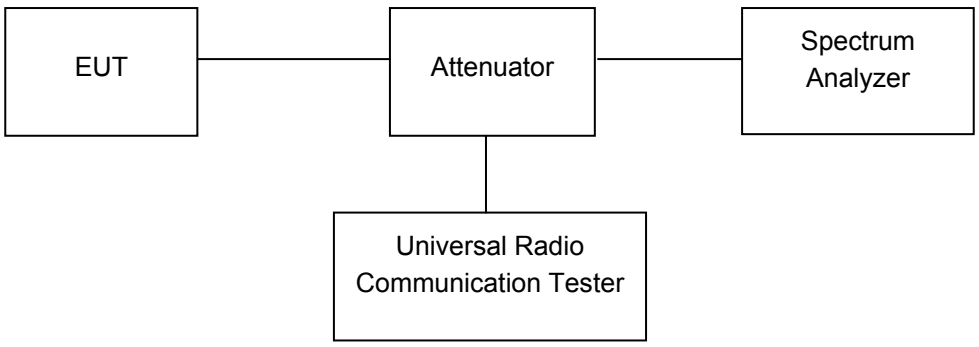
10.2 Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

According to FCC Part 22.917(a), the power of any emissions 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.

According to FCC Part 24.238(a), the power of any emissions 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.

The center of the spectrum analyzer was set to block edge frequency



10.3 Test Result

Cellular Band (Part 22H)

Test Mode	Frequency(MHz)	Emission(dBm)	Limit(dBm)
GSM 850	823.996	-14.31	-13
	849.02	-13.88	-13

Test Mode	Frequency(MHz)	Emission(dBm)	Limit(dBm)
WCDMA Band V	823.984	-15.98	-13
	849.032	-14.37	-13

Cellular Band (Part 24E)

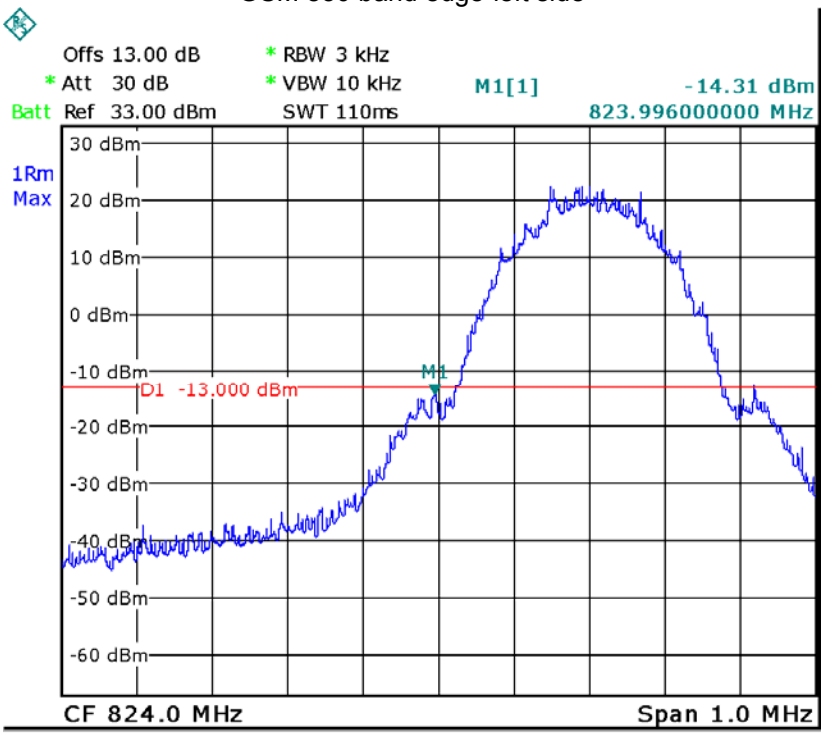
Test Mode	Frequency(MHz)	Emission(dBm)	Limit(dBm)
PCS 1900	1849.996	-15.86	-13
	1910.02	-18.5	-13

Test Mode	Frequency(MHz)	Emission(dBm)	Limit(dBm)
WCDMA Band II	1849.984	-21.88	-13
	1910.016	-20.74	-13

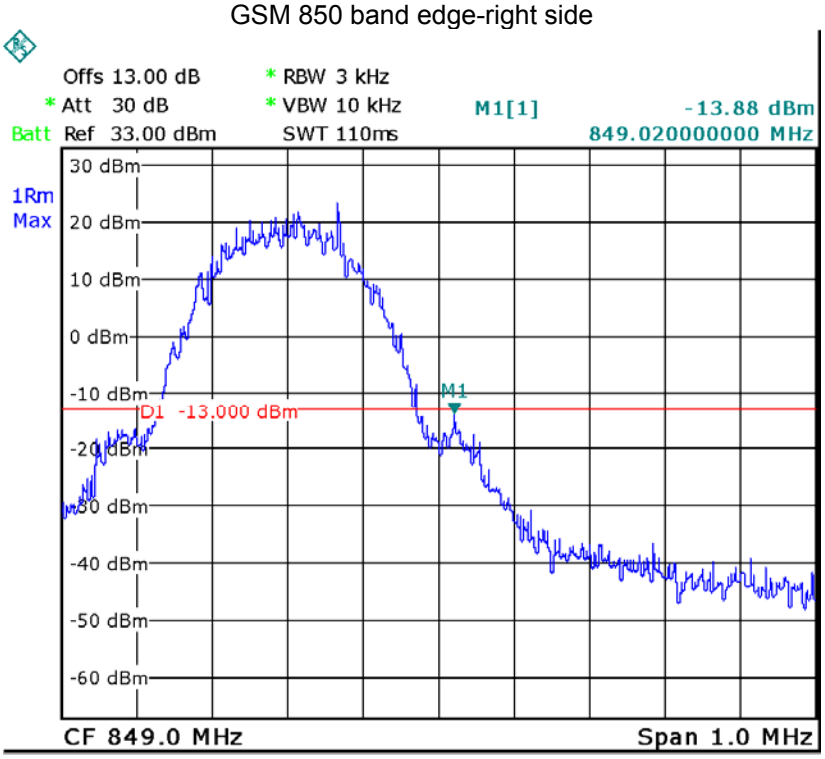
Test plots

Cellular Band (Part 22H)

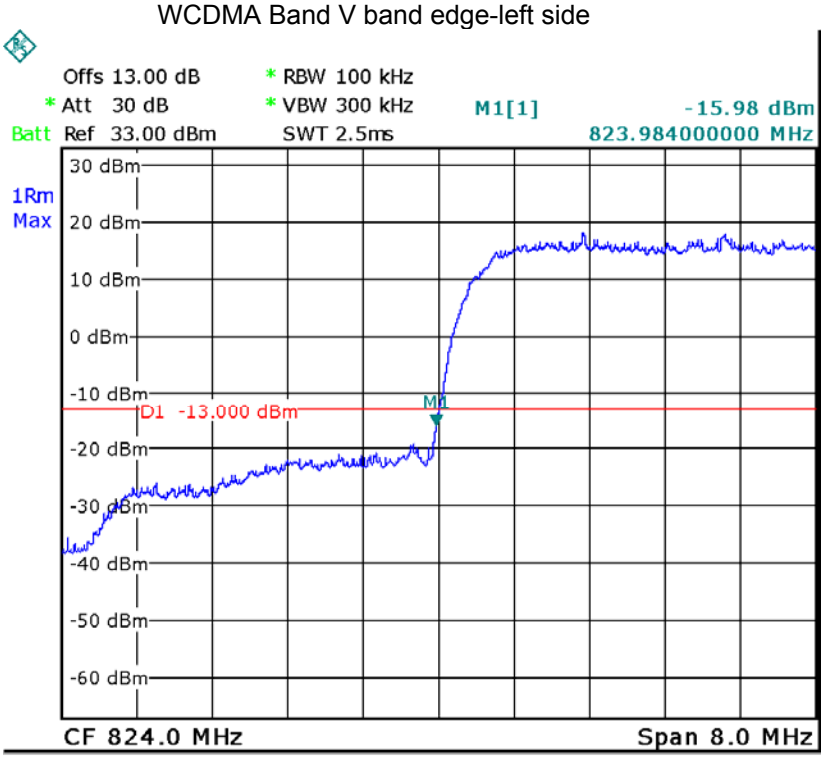
GSM 850 band edge-left side



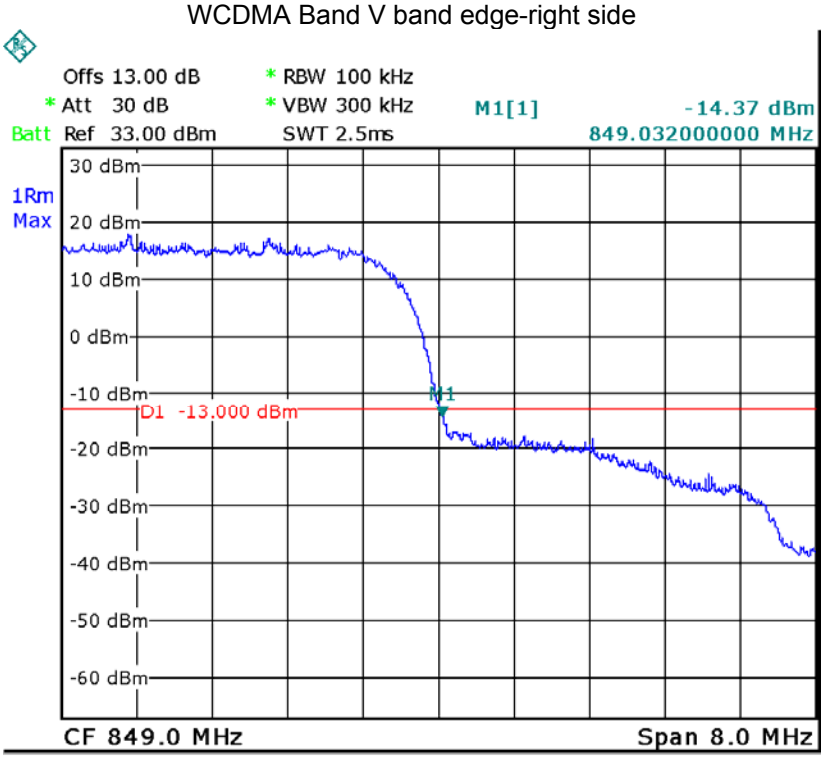
GSM 850 band edge-right side



WCDMA Band V band edge-left side

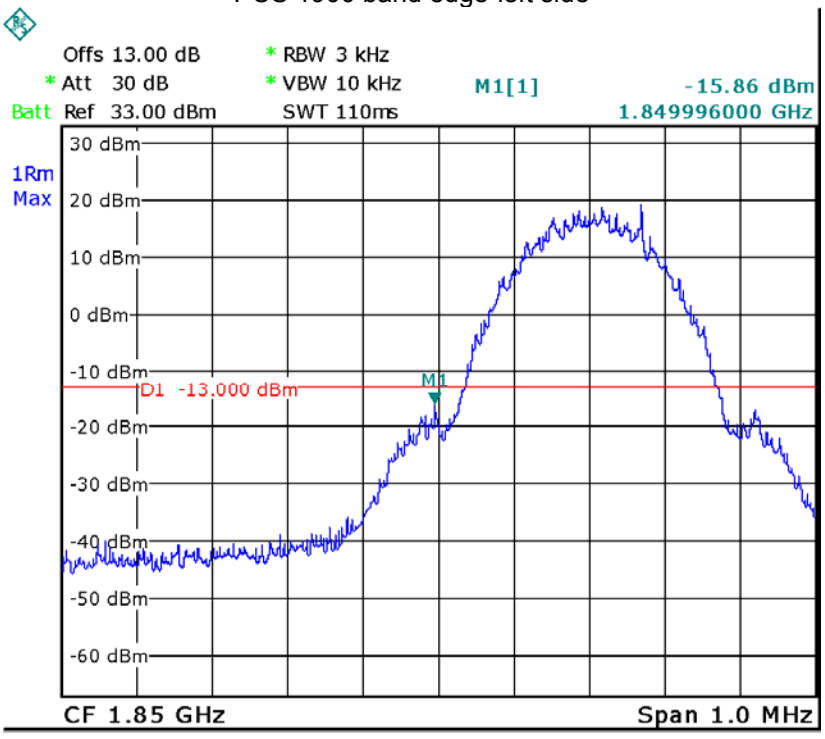


WCDMA Band V band edge-right side

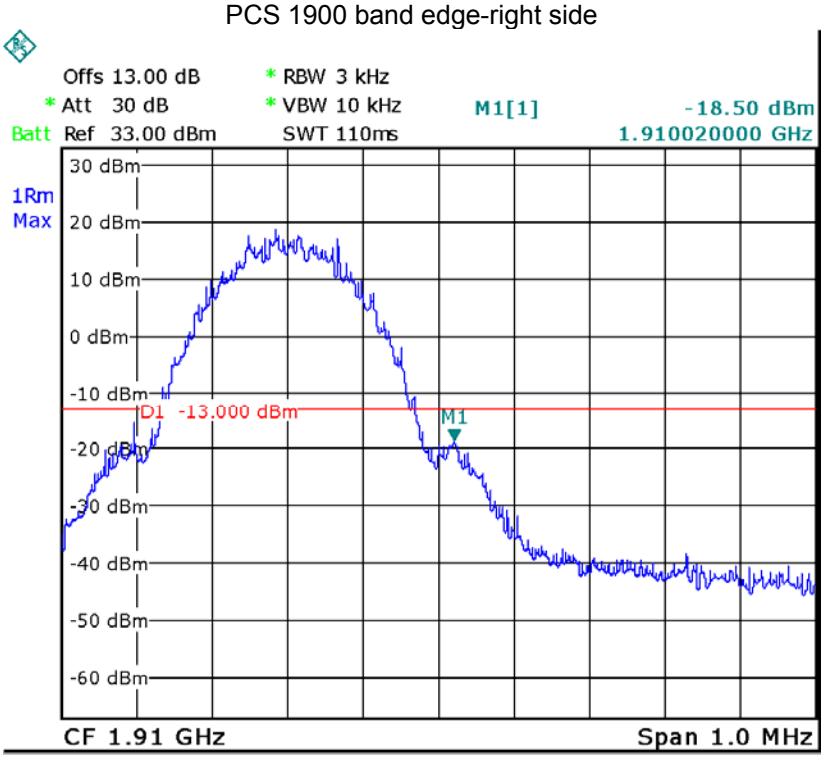


Cellular Band (Part 24E)

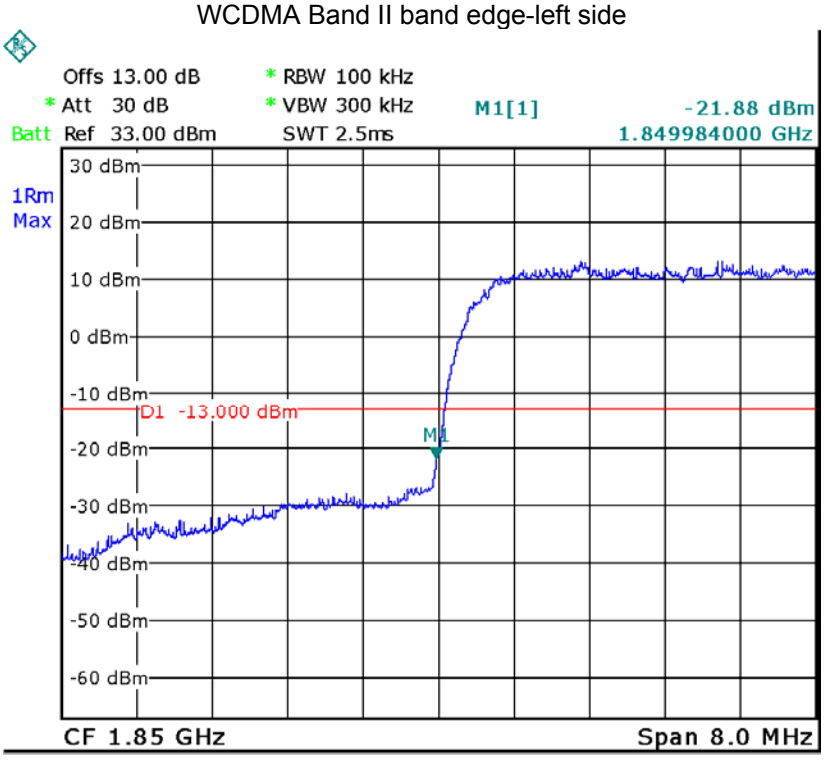
PCS 1900 band edge-left side



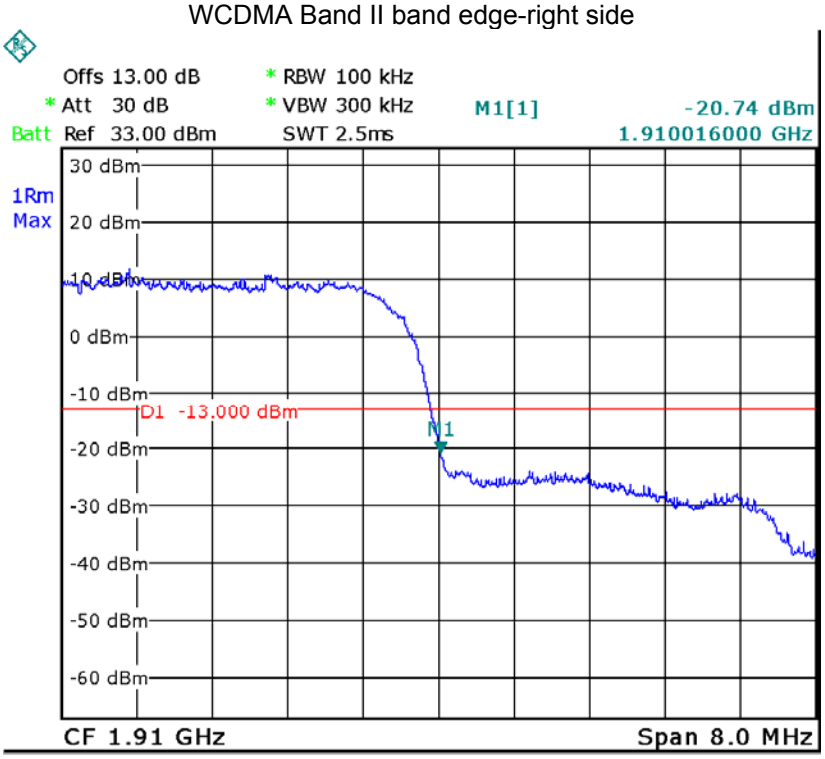
PCS 1900 band edge-right side



WCDMA Band II band edge-left side



WCDMA Band II band edge-right side



11 FREQUENCY STABILITY

Test Requirement: FCC Part 2.1055,22.355,24.235

Test Method: ANSI C63.4:2003, TIA/EIA-603-D:2010

Test Mode: Transmitting

11.1 EUT Operation

Operating Environment **:**

Temperature: 22.6 °C

Humidity: 51.6 % RH

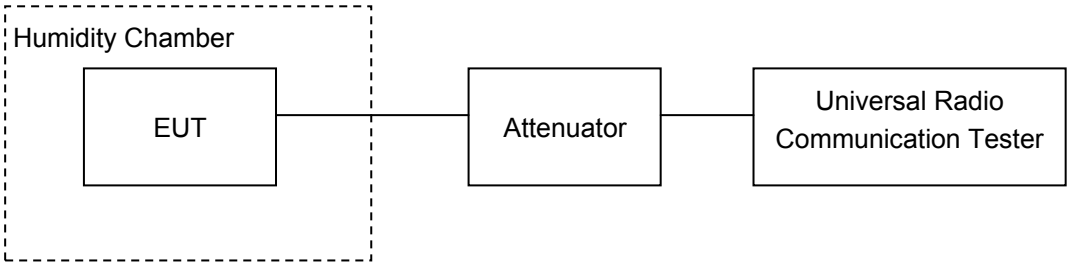
Atmospheric Pressure: 101.2kPa

11.2 Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the communication test set.

Frequency Stability vs. Voltage: For hand carried, battery powered equipment; reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.



11.3 Test Result

Cellular Band (Part 22H)

GSM 850 Test Frequency:836.6MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	15	0.0018	2.5
40		14	0.0017	2.5
30		14	0.0016	2.5
20		14	0.0016	2.5
10		13	0.0015	2.5
0		12	0.0015	2.5
-10		12	0.0014	2.5
-20		11	0.0014	2.5
-30		10	0.0012	2.5
20	3.3	9	0.0011	2.5
20	4.2	9	0.0011	2.5

WCDMA Band V Test Frequency:836.6MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	3	0.0036	2.5
40		4	0.0046	2.5
30		5	0.0055	2.5
20		6	0.0067	2.5
10		6	0.0076	2.5
0		7	0.0084	2.5
-10		8	0.0098	2.5
-20		8	0.0098	2.5
-30		3	0.0036	2.5
20	3.3	8	0.0098	2.5
20	4.2	8	0.0098	2.5

PCS 1900 Band (Part 24E)

PCS 1900 Test Frequency:1880.0MHz				
Temperature ( )	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	12	0.0006	2.5
40		13	0.0007	2.5
30		13	0.0007	2.5
20		14	0.0007	2.5
10		14	0.0008	2.5
0		15	0.0008	2.5
-10		16	0.0008	2.5
-20		16	0.0008	2.5
-30		17	0.0009	2.5
20	3.3	17	0.0009	2.5
20	4.2	17	0.0009	2.5

WCDMA Band II Test Frequency:1880.0MHz				
Temperature ( )	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
50	3.7	6	0.0032	2.5
40		6	0.0031	2.5
30		5	0.0029	2.5
20		5	0.0025	2.5
10		4	0.0020	2.5
0		3	0.0019	2.5
-10		3	0.0017	2.5
-20		3	0.0015	2.5
-30		2	0.0012	2.5
20	3.3	2	0.0010	2.5
20	4.2	1	0.0007	2.5

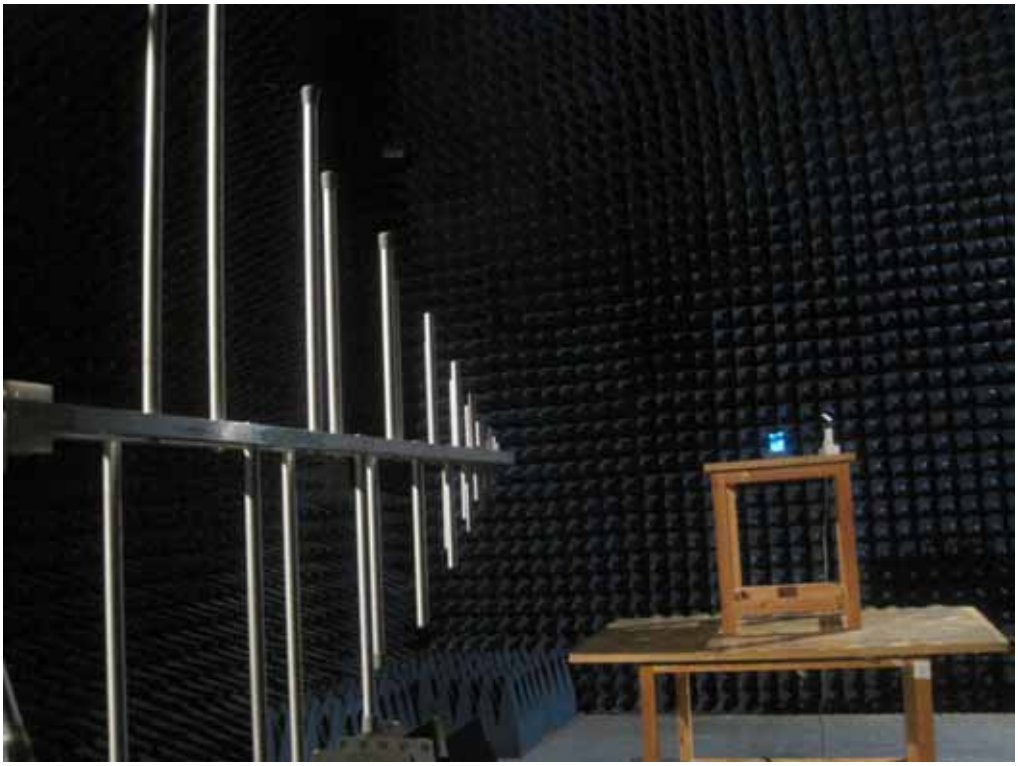
12 RF Exposure

Remark: refer to SAR test report: STR14068125.

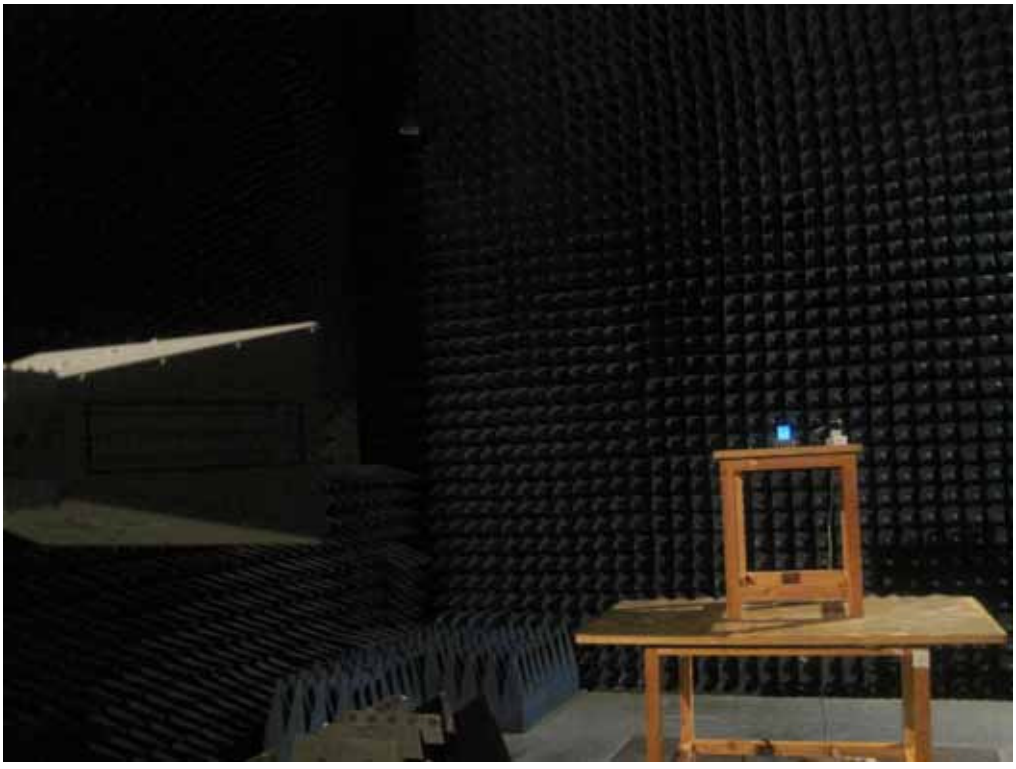
13 Photographs – Model QUANTUM S8 Test Setup

13.1 Photograph – Radiation Spurious Emission Test Setup

30MHz-1GHz



Above 1GHz

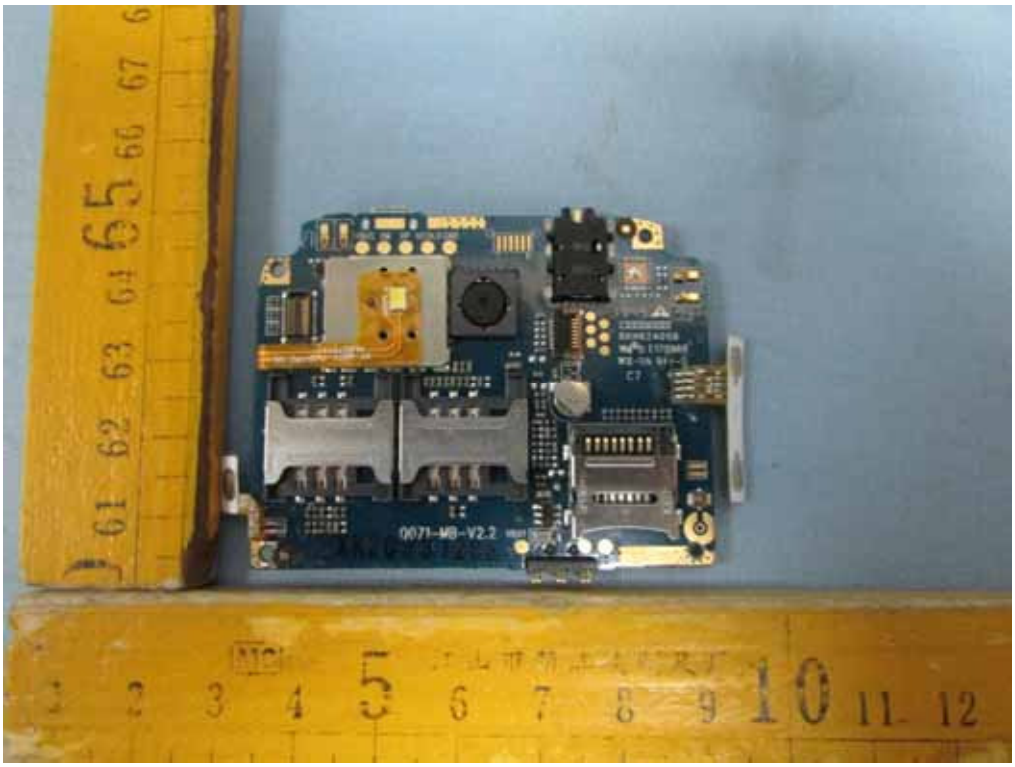


13.2 Photograph –Humidity Chamber Test Setup

14 Photographs - Constructional Details

14.1 Model QUANTUM S8- External View

14.2 Model QUANTUM S8 – Internal Photos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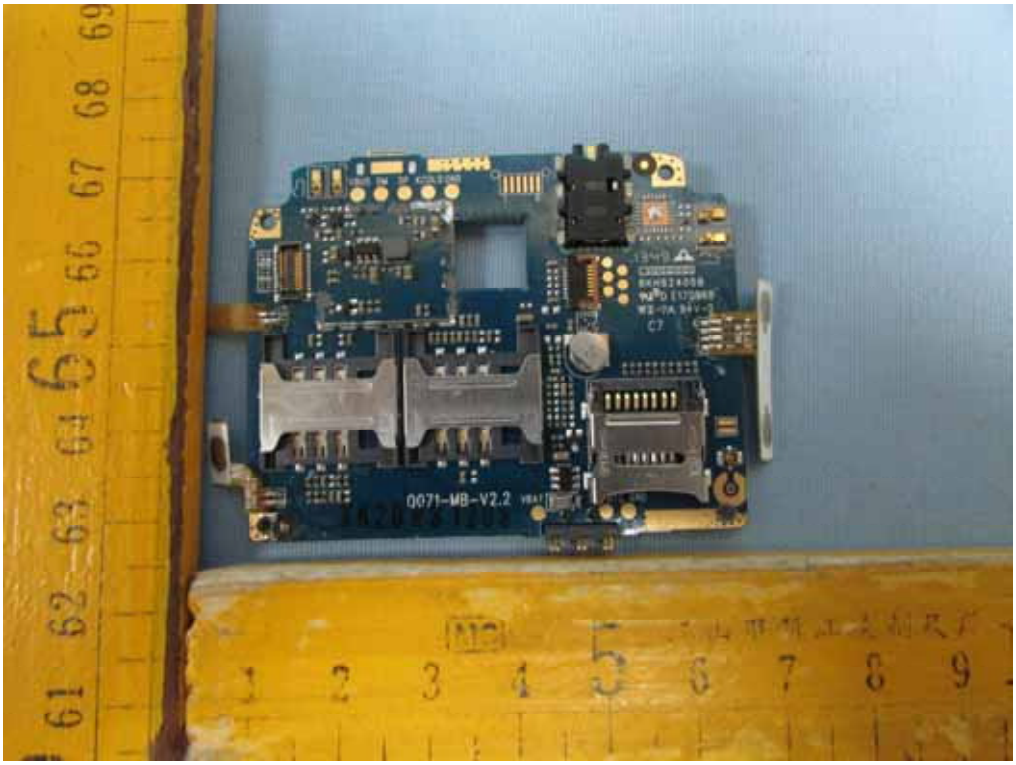
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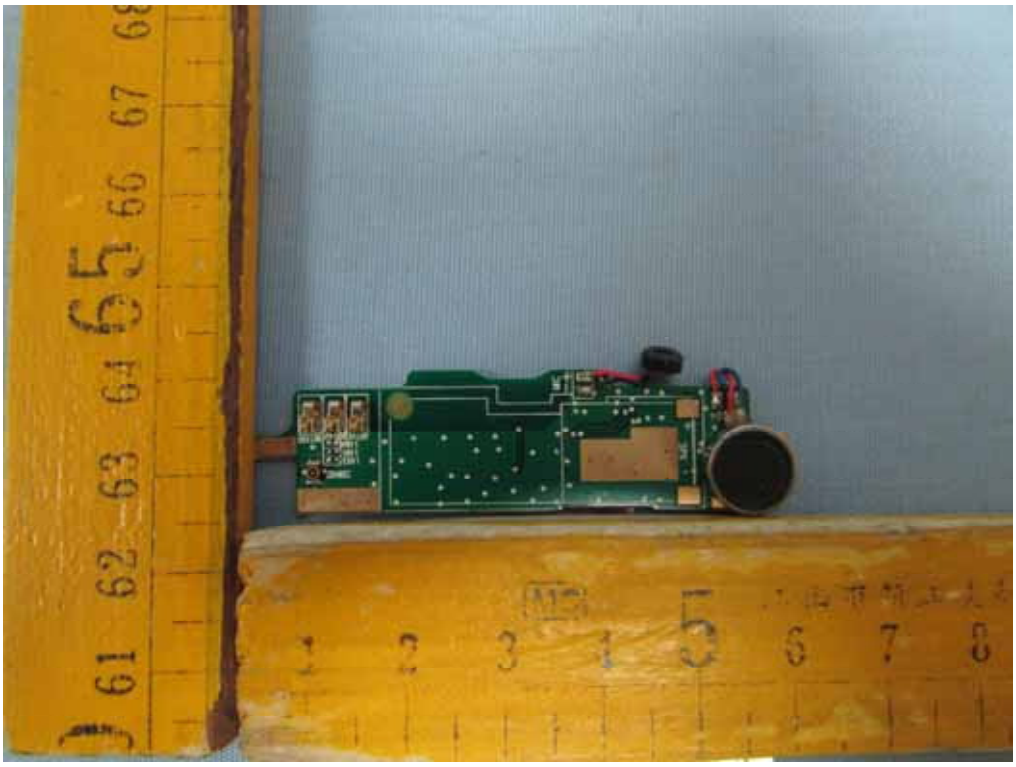

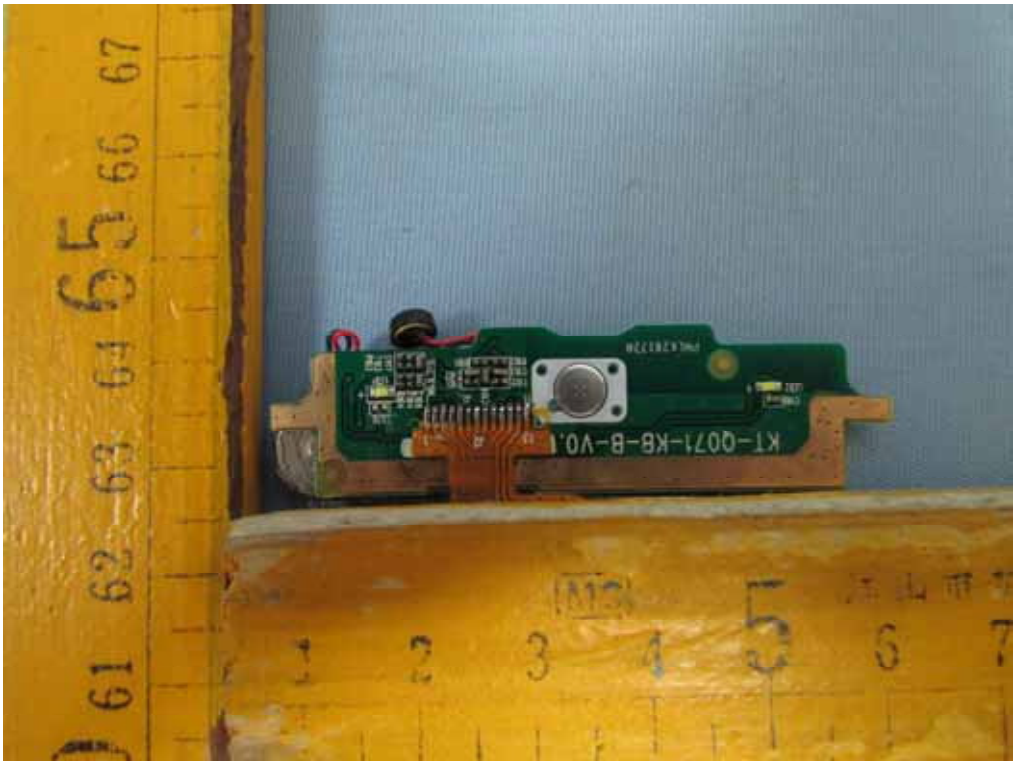
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======End of Report======