FCC Test Report

(PART 24)

Report No.:	RF160330W009-2
FCC ID:	ZMOH380GL
Test Model:	H380-GL
Received Date:	Apr. 01, 2016
Test Date:	Apr. 02, 2016 ~ Apr. 21, 2016
Issued Date:	May. 09, 2016
Applicant:	FIBOCOM Wireless Inc.
Address:	5/F, Tower A, Technology Building II, 1057 Nanhai Blvd, Nanshan, Shenzhen, China
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Cau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

This report should not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.

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RELEASE CONTROL RECORD

Issue No.	Description	Date Issued
RF160330W009-2	Original release	May. 09, 2016

1 Certificate of Conformity

Product:	WCDMA module with GSM,GPRS,EDGE
Brand:	FIBOCOM
Test Model:	H380-GL
Sample Status:	Identical Prototype
Applicant:	FIBOCOM Wireless Inc.
Test Date:	Apr. 02, 2016 ~ Apr. 21, 2016
Standards:	FCC Part 24, Subpart E

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : _____ , **Date:** May. 09, 2016

Amyee Qian / Engineer

Approved by : _____ , **Date:** May. 09, 2016

William Chung / Manager

2 Summary of Test Results

Applied Standard: FCC Part 24 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 24.232	Effective Radiated Power	PASS	Meet the requirement of limit.
2.1046 24.232(d)	Peak To Average Ratio	PASS	Meet the requirement of limit.
2.1055 24.235	Frequency Stability	PASS	Meet the requirement of limit.
2.1049 24.238(b)	Occupied Bandwidth	PASS	Meet the requirement of limit.
24.238(b)	Band Edge Measurements	PASS	Meet the requirement of limit.
2.1051 24.238	Conducted Spurious Emissions	PASS	Meet the requirement of limit.
2.1053 24.238	Radiated Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -18.54dB at 47.46MHz.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expended Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.44 dB
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	2.93 dB
	200MHz ~1000MHz	2.95 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

2.2 Test Site And Instruments

Description & Manufacturer	Model No.	Serial No.	Date Of Calibration	Due Date Of Calibration
Spectrum Analyzer Agilent Technologies	N9038A	MY52260177	May 19, 2015	May 18, 2016
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 09, 2015	Dec. 08, 2016
BILOG Antenna ETS-Lindgren	3142E	117536	Feb. 23, 2016	Feb. 22, 2017
HORN Antenna ETS-Lindgren	3117	00143293	Aug. 27, 2015	Aug. 26, 2016
Bluetooth Tester	CBT	100980	Apr. 27, 2015	Apr. 26, 2016
Agilent Communications Tester-Wireless	8960 Series 10	MY53201073	Jul. 06, 2015	Jul. 05, 2017
Preamplifier Agilent	310N	187226	Jun. 29, 2015	Jun. 28, 2016
Preamplifier Agilent	83017A	980116	Jan. 08, 2016	Jan. 07, 2017
Power Meter Anritsu	ML2495A	1232002	Sep. 16, 2015	Sep. 15, 2016
Power Sensor Anritsu	MA2411B	1207325	Sep. 16, 2015	Sep. 15, 2016
RF signal cable ETS-LINDGREN	5D-FB	Cable-CH1-01(RFC-SMS-100-SMS-120+RFC-SMS-100-SMS-400)	Jun. 27, 2015	Jun. 26, 2016
RF signal cable ETS-LINDGREN	8D-FB	Cable-CH1-02(RFC-SMS-100-SMS-24)	Jun. 27, 2015	Jun. 26, 2016
Software BV ADT	E38.130425b	NA	NA	NA
Antenna Tower MF	NA	NA	NA	NA
Turn Table MF	NA	NA	NA	NA
Antenna Tower &Turn Table Controller MF	MF-7802	NA	NA	NA

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The calibration interval of the loop antenna is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in HwaYa Chamber 4.
4. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
5. The FCC Site Registration No. is 460141.
6. The IC Site Registration No. is IC7450F-4.

3 General Information

3.1 General Description of EUT

PRODUCT	WCDMA module with GSM,GPRS,EDGE	
BRAND	FIBOCOM	
MODEL NAME	H380-GL	
POWER SUPPLY	3.3Vdc (adapter or host equipment)	
MODULATION TYPE	**GSM/GPRS**	GMSK
	EDGE	GMSK, 8PSK
	WCDMA	BPSK
FREQUENCY RANGE	**GSM/GPRS/EDGE**	1850.2MHz ~ 1909.8MHz
	WCDMA	1852.4MHz ~ 1907.6MHz
MAX. ERP POWER	**GSM/GPRS**	1047mW
	EDGE	339mW
	WCDMA	261mW
EMISSION DESIGNATOR	**GSM/GPRS**	248KGXW
	EDGE	248KG7W
	WCDMA	4M08F9W
ANTENNA TYPE	External antenna with 5dBi gain	
HW VERSION	V1.0.2	
SW VERSION	H380_V2G.0C.00.02	
ACCESSORY DEVICE	Refer to note as below	
DATA CABLE	N/A	

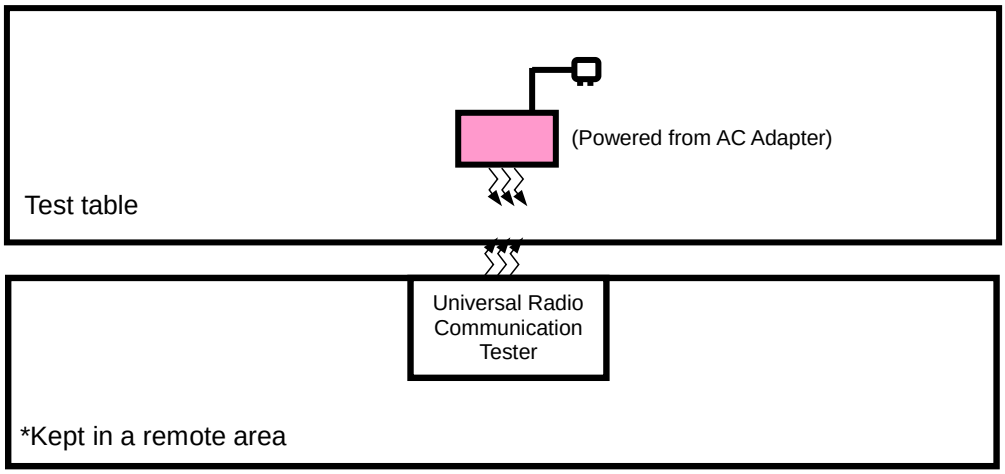
Note:

1. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

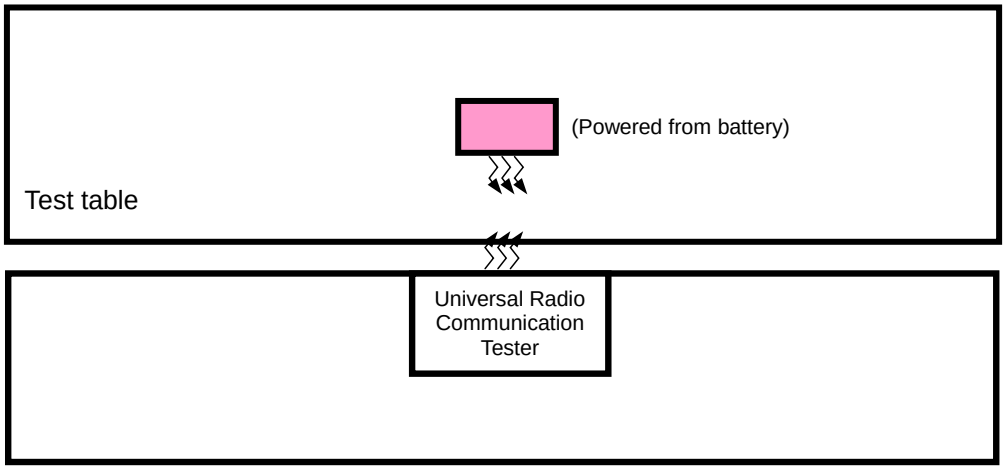
2. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

3.2 Configuration Of System Under Test

FOR RADIATION EMISSION TEST



FOR E.R.P. TEST



3.2.1 Description Of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	DC source	LONG WEI	PS-6403D	010934269	N/A
2	PC	HP	A6608CN	3CR83825X3	N/A
3	Adapter	N/A	N/A	N/A	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	DC Line: Unshielded, Detachable 1.0m
2	AC Line: Unshielded, Detachable 1.5m
3	DC 5V, 2000mA / AC 100-240V, 500mA

NOTE:

1. All power cords of the above support units are non shielded (1.8m).

3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports
The worst case was found when positioned on Z-plane. Following channel(s) was (were) selected for the final test as listed below:

Test results are presented in the report as below.

Test Mode	Test Condition
A	Power from adapter
B	Power from battery

GSM MODE

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
A	EIRP	512 to 810	512, 661, 810	GSM
B	Frequency Stability	512 to 810	661	GSM
A	Occupied Bandwidth	512 to 810	512, 661, 810	GSM, EDGE
A	Band Edge	512 to 810	512, 810	GSM, EDGE
A	Peak To Average Ratio	512 to 810	512, 661, 810	GSM, EDGE
A	Condcudeted Emission	512 to 810	512, 661, 810	GSM, EDGE
A	Radiated Emission Below 1GHz	512 to 810	512	GSM
A	Radiated Emission Above 1GHz	512 to 810	512, 661, 810	GSM

WCDMA MODE

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
A	EIRP	9262 to 9538	9262, 9400, 9538	WCDMA
B	Frequency Stability	9262 to 9538	9400	WCDMA
A	Occupied Bandwidth	9262 to 9538	9262, 9400, 9538	WCDMA
A	Band Edge	9262 to 9538	9262, 9538	WCDMA
A	Peak To Average Ratio	9262 to 9538	9262, 9400, 9538	WCDMA
A	Condcudeted Emission	9262 to 9538	9262, 9400, 9538	WCDMA
A	Radiated Emission Below 1GHz	9262 to 9538	9262	WCDMA
A	Radiated Emission Above 1GHz	9262 to 9538	9262, 9400, 9538	WCDMA

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
EIRP	21deg. C, 71%RH 22deg. C, 71%RH	120Vac, 60Hz	Nick Hsu
Frequency Stability	24deg. C, 64%RH	3.3Vdc	Match Tsui
Occupied Bandwidth	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui
Band Edge	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui
Peak To Average Ratio	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui
Condcudeted Emission	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui
Radiated Emission	21deg. C, 71%RH	120Vac, 60Hz	Nick Hsu

3.4 EUT Operating Conditions

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency

3.5 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC 47 CFR Part 2

FCC 47 CFR Part 24

ANSI/TIA/EIA-603-D

NOTE: All test items have been performed and recorded as per the above standards.

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

Mobile / Portable station are limited to 2 watts e.i.r.p.

4.1.2 Test Procedures

EIRP / ERP Measurement:

a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 1MHz for GSM, GPRS and 5MHz for WCDMA mode.

b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.

c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value“ of step b. Record the power level of S.G

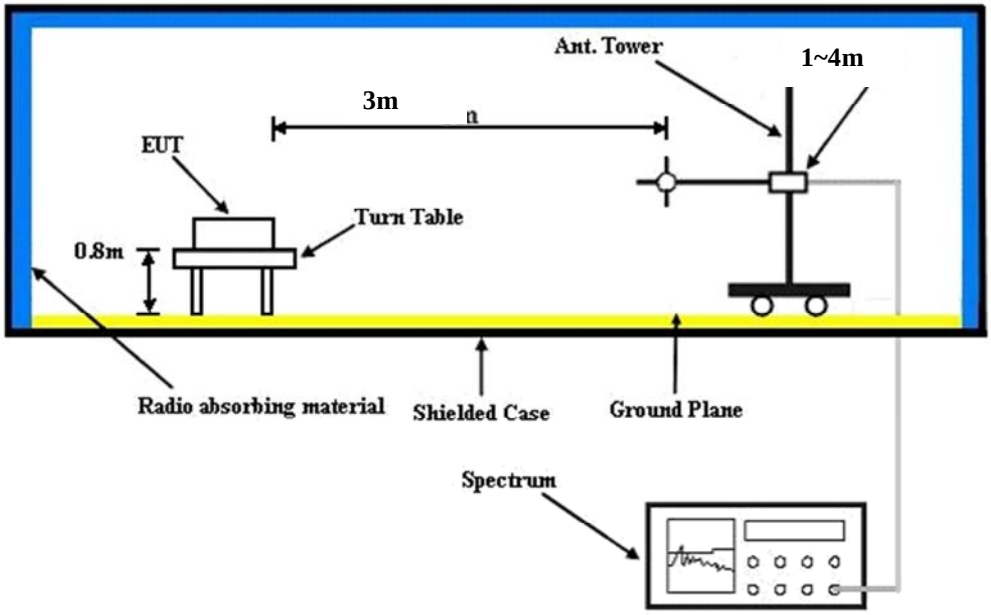
d. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.

Conducted Power Measurement:

The EUT was set up for the maximum power with GSM, GPRS & WCDMA link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

4.1.3 Test Setup

EIRP / ERP MEASUREMENT:



For the actual test configuration, please refer to the attached file (Test Setup Photo).

CONDUCTED POWER MEASUREMENT:

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.4 Test Results

CONDUCTED OUTPUT POWER (dBm)

Band	GSM1900		
Channel	512	661	810
Frequency (MHz)	1850.2	1880.0	1909.8
GPRS 8	29.24	29.48	**29.67**
GPRS 10	27.04	27.30	27.53
GPRS 11	25.77	26.03	26.25
GPRS 12	24.28	24.51	24.74
EDGE 8 (MCS9)	25.24	25.54	25.77
EDGE 10 (MCS9)	22.98	23.24	23.48
EDGE 8 (MCS9)	22.23	22.52	22.75
EDGE 10 (MCS9)	20.67	20.97	21.22

Band	WCDMA II		
Channel	9262	9400	9538
Frequency (MHz)	1852.4	1880.0	1907.6
RMC 12.2K	23.04	22.98	**23.18**
HSPA			
HSDPA Subtest-1	22.97	22.92	23.17
HSDPA Subtest-2	22.06	21.98	22.22
HSDPA Subtest-3	21.77	21.74	22.01
HSDPA Subtest-4	21.60	21.50	21.75
HSUPA Subtest-1	22.04	21.95	22.16
HSUPA Subtest-2	20.01	19.98	20.17
HSUPA Subtest-3	20.86	20.82	21.00
HSUPA Subtest-4	20.17	20.15	20.33
HSUPA Subtest-5	22.25	22.17	22.39

EIRP POWER (dBm)

GSM

Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
512	1850.2	-14.58	43.83	29.25	841.40	H
661	1880.0	-14.63	43.57	28.94	783.43	H
810	1909.8	-14.37	44.57	30.20	**1047.13**	H
512	1850.2	-23.38	46.39	23.01	199.99	V
661	1880.0	-23.63	47.10	23.47	222.23	V
810	1909.8	-23.16	45.98	22.82	191.25	V

EDGE

Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
512	1850.2	-18.86	43.83	24.97	314.05	H
661	1880.0	-18.66	43.57	24.91	309.74	H
810	1909.8	-19.27	44.57	25.30	**338.84**	H
512	1850.2	-23.67	46.39	22.72	187.07	V
661	1880.0	-23.42	47.10	23.68	233.24	V
810	1909.8	-23.14	45.98	22.84	192.13	V

WCDMA

Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
9262	1852.4	-29.74	43.83	14.09	25.64	H
9400	1880.0	-30.19	43.57	13.38	21.78	H
9538	1907.6	-30.31	44.57	14.26	26.67	H
9262	1852.4	-22.69	46.39	23.70	234.42	V
9400	1880.0	-22.94	47.10	24.16	**260.50**	V
9538	1907.6	-22.58	45.98	23.40	218.57	V

REMARKS: 1. EIRP Output Power (dBm) = LVL (dBm) + Correction Factor (dB).
2. Correction factor (dB) = Free Space Loss + Antenna Factor + Cable Loss

4.2 Frequency Stability Measurement

4.2.1 Limits of Frequency Stabiliity Measurement

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

4.2.2 Test Procedure

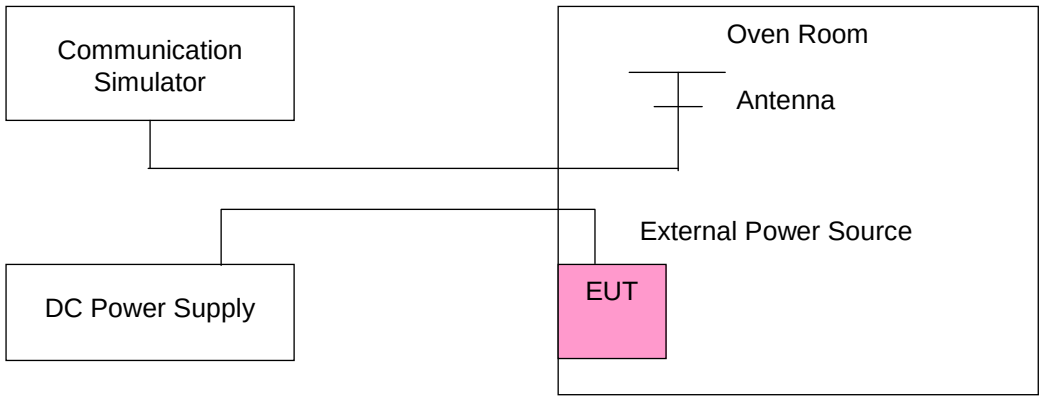
a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.

b. EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.

c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ± 0.5℃ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

NOTE: The frequency error was recorded frequency error from the communication simulator.

4.2.3 Test Setup



4.2.4 Test Results

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	FREQUENCY ERROR (ppm)			LIMIT (ppm)
	GSM	EDGE	WCDMA	
3.3	0.0006	0.0007	0.0003	2.5
3.135	-0.0013	-0.0013	-0.0018	2.5
4.4	-0.0016	-0.0016	-0.0022	2.5

NOTE: The applicant defined the normal working voltage of the battery is from 3.135Vdc to 4.4Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

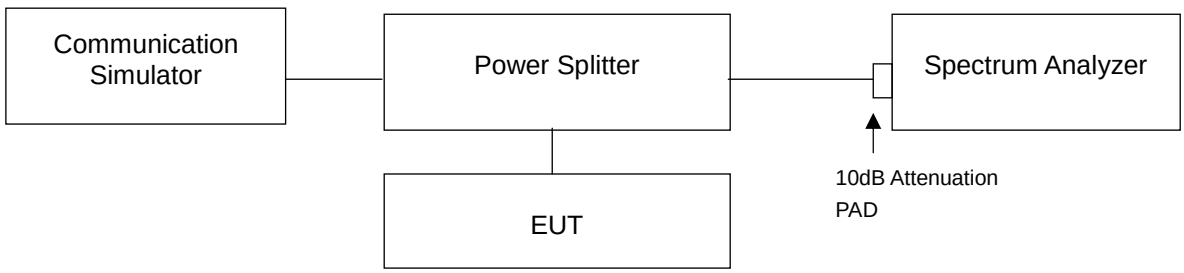
TEMP. (℃)	FREQUENCY ERROR (ppm)			LIMIT (ppm)
	GSM	EDGE	WCDMA	
-30	-0.0059	-0.0060	-0.0061	2.5
-20	-0.0055	-0.0054	-0.0057	2.5
-10	-0.0050	-0.0049	-0.0049	2.5
0	-0.0044	-0.0044	-0.0044	2.5
10	-0.0037	-0.0038	-0.0038	2.5
20	-0.0031	-0.0033	-0.0034	2.5
30	-0.0023	-0.0026	-0.0023	2.5
40	-0.0016	-0.0018	-0.0017	2.5
50	-0.0006	-0.0011	-0.0010	2.5
60	-0.0002	-0.0005	-0.0002	2.5

4.3 Occupied Bandwidth Measurement

4.3.1 Test Procedure

The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

4.3.2 Test Setup

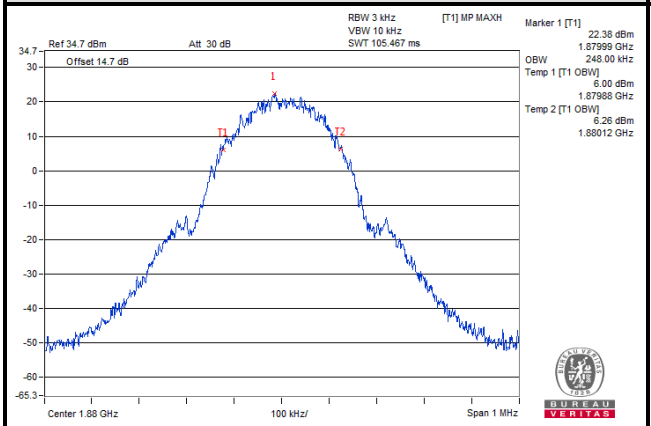


4.3.3 Test Result

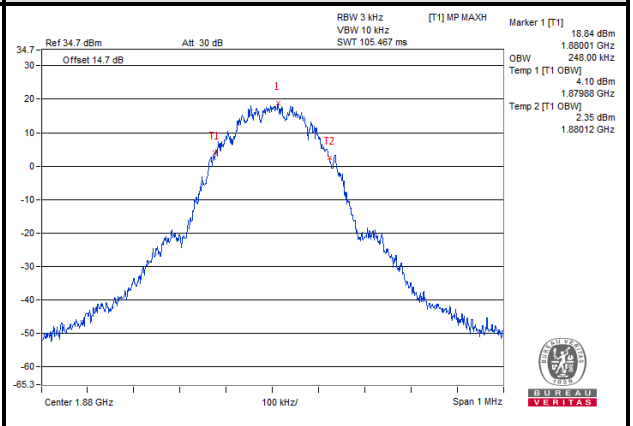
CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (kHz)		CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (MHz)
		GSM	EDGE			WCDMA
512	1850.2	244.00	246.00	9262	1852.4	4.08
661	1880.0	248.00	248.00	9400	1880.0	4.07
810	1909.8	243.00	247.00	9538	1907.6	4.06

SPECTRUM PLOT OF WORST VALUE

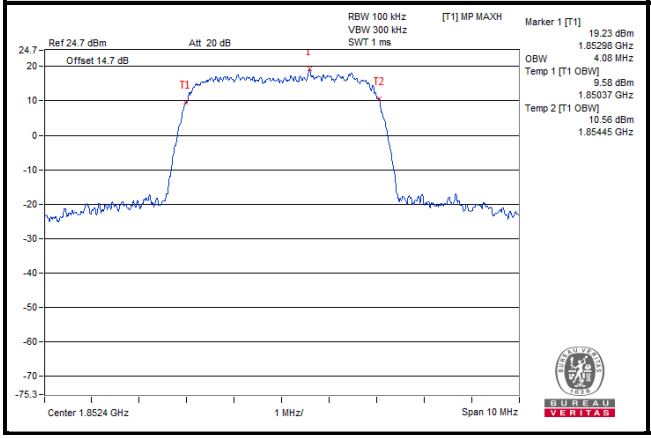
GSM



EDGE



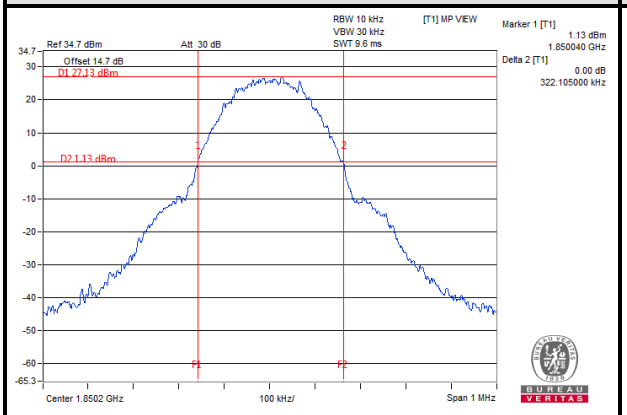
WCDMA



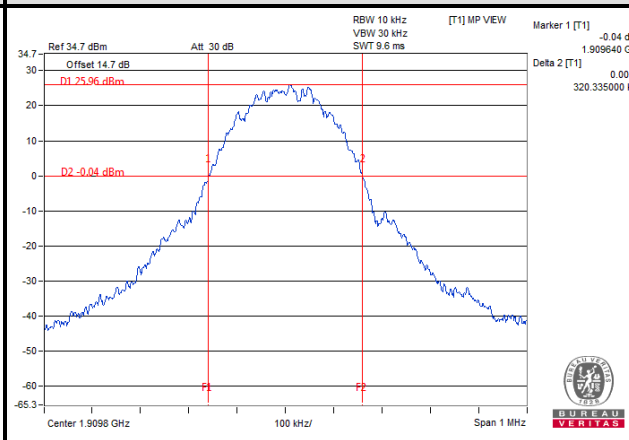
CHANNEL	FREQUENCY (MHz)	26dB BANDWIDTH (kHz)		CHANNEL	FREQUENCY (MHz)	26dB BANDWIDTH (MHz)
		GSM	EDGE			WCDMA
512	1850.2	322.105	319.433	9262	1852.4	4.633
661	1880.0	316.210	317.650	9400	1880.0	4.651
810	1909.8	318.712	320.335	9538	1907.6	4.644

SPECTRUM PLOT OF WORST VALUE

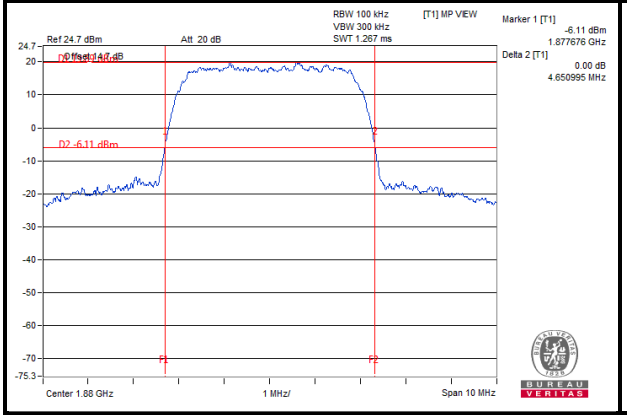
GSM



EDGE



WCDMA

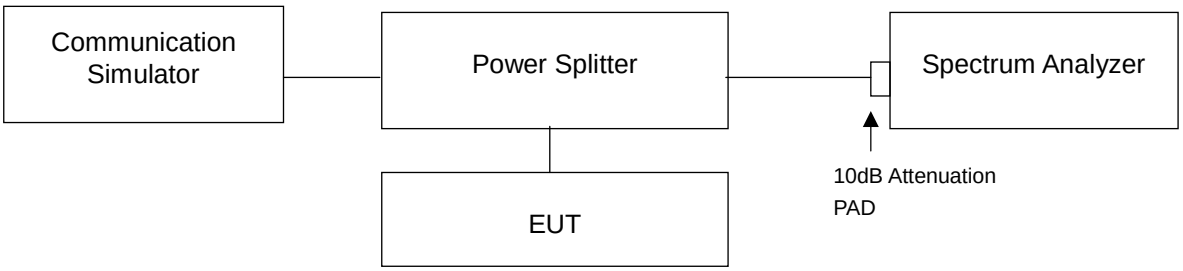


4.4 Band Edge Measurement

4.4.1 Limits of Band Edge Measurement

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. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

4.4.2 Test Setup



4.4.3 Test Procedures

a. All measurements were done at low and high operational frequency range.

b. The center frequency of spectrum is the band edge frequency and span is 1.5MHz. RB of the spectrum is 3kHz and VB of the spectrum is 10kHz (GSM/ GPRS/EDGE).

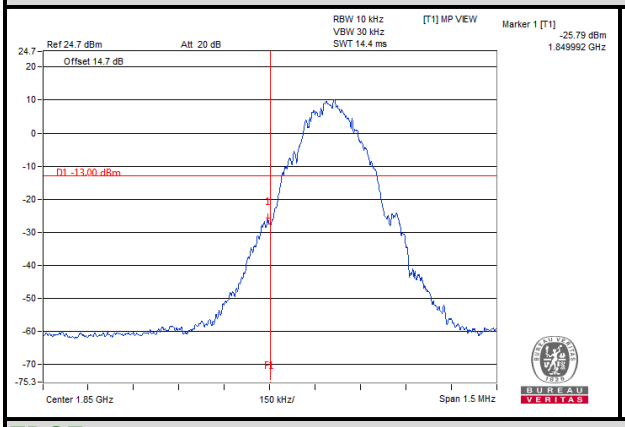
c. The center frequency of spectrum is the band edge frequency and span is 10MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (WCDMA).

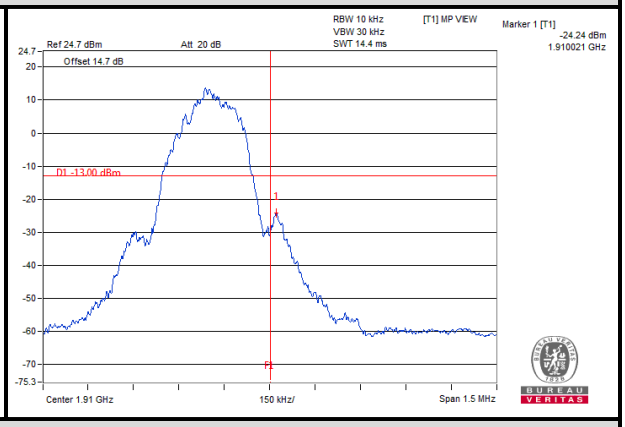
d. Record the max trace plot into the test report.

4.4.4 Test Results

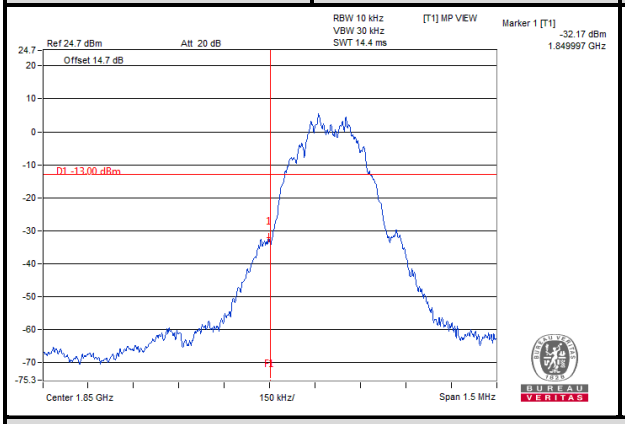
GSM			
CHANNEL	512	CHANNEL	810

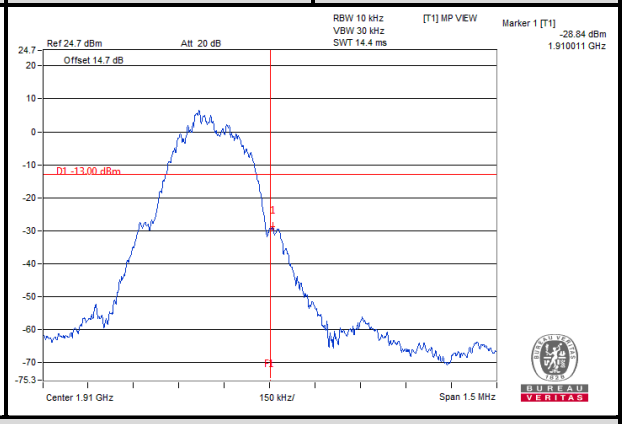
GSM



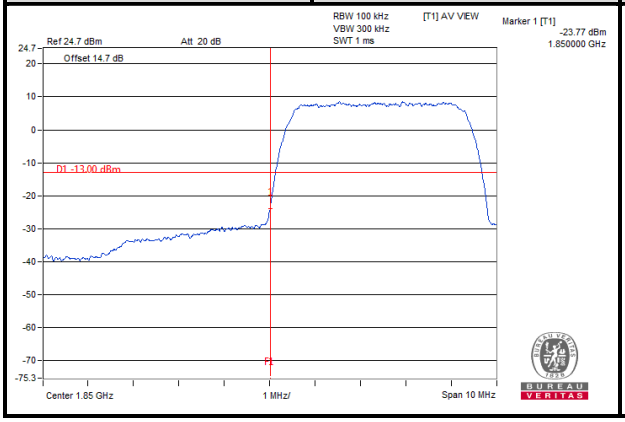


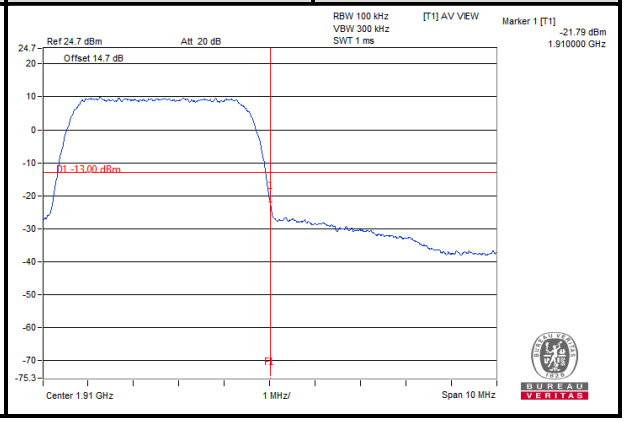
EDGE			
CHANNEL	512	CHANNEL	810





WCDMA			
CHANNEL	9262	CHANNEL	9538



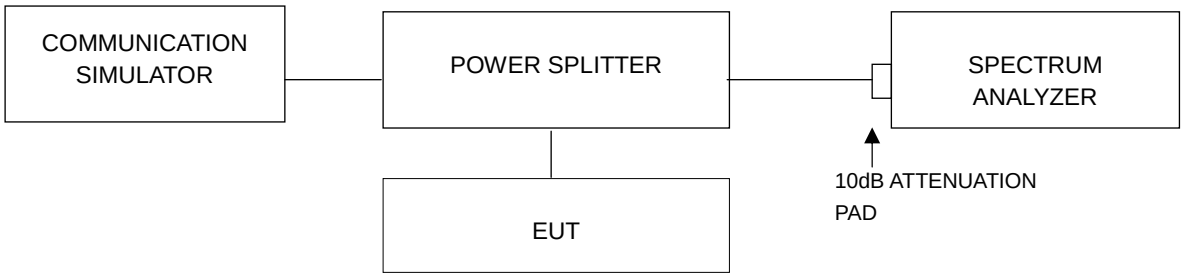


4.5 Peak To Average Ratio

4.5.1 Limits of Peak To Average Ratio Measurement

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

4.5.2 Test Setup



4.5.3 Test Procedures

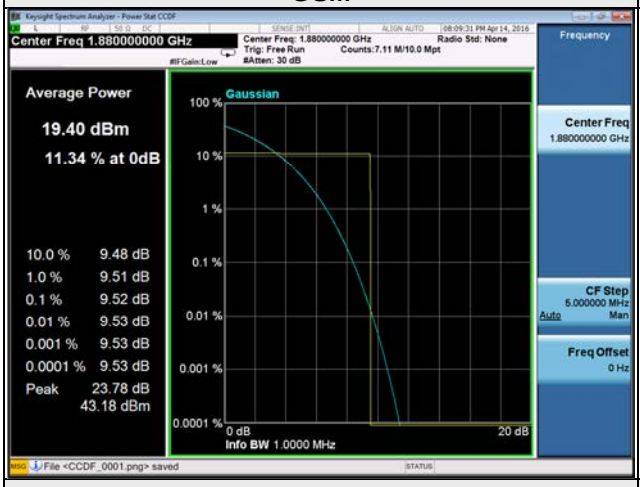
1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1%.

4.5.4 Test Results

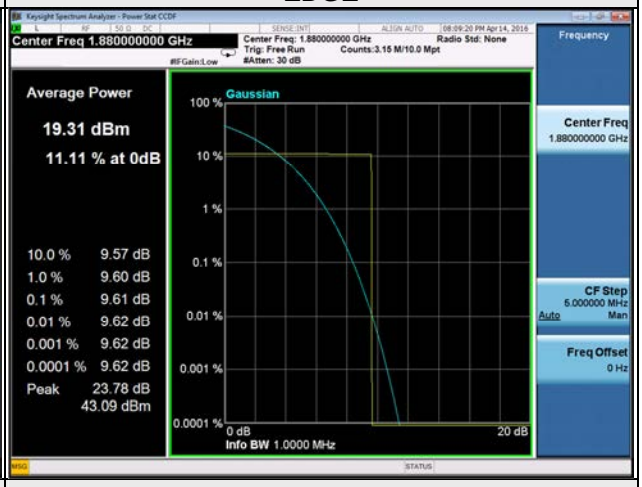
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		GSM	EDGE			WCDMA
661	1880.0	9.52	9.61	9400	1880.0	2.72

SPECTRUM PLOT OF WORST VALUE

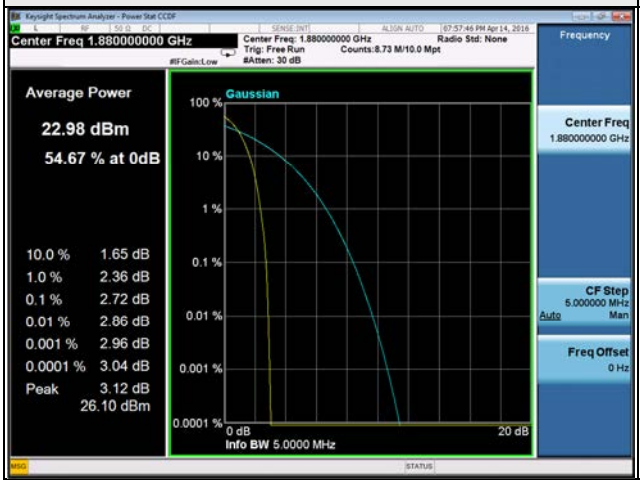
GSM



EDGE



WCDMA

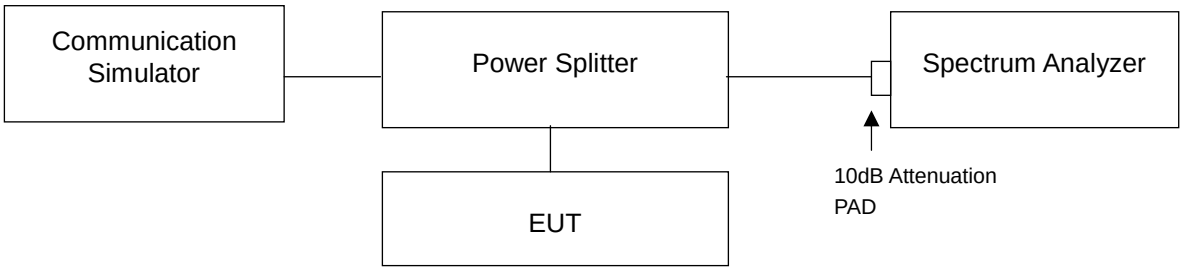


4.6 Conducted Spurious Emissions

4.6.1 Limits of Conducted Spurious Emissions Measurement

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. The emission limit equal to –13dBm.

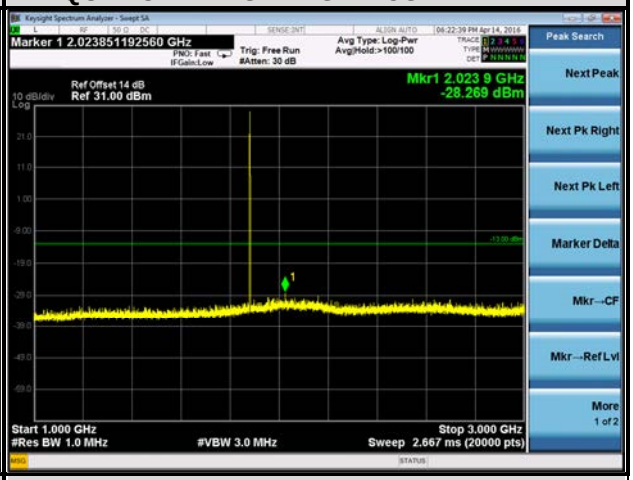
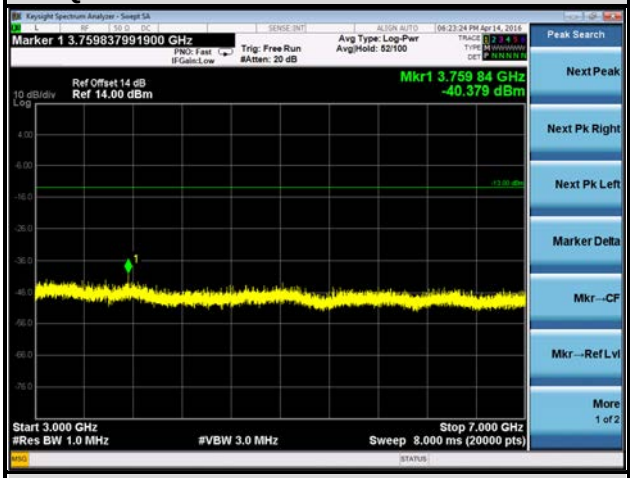
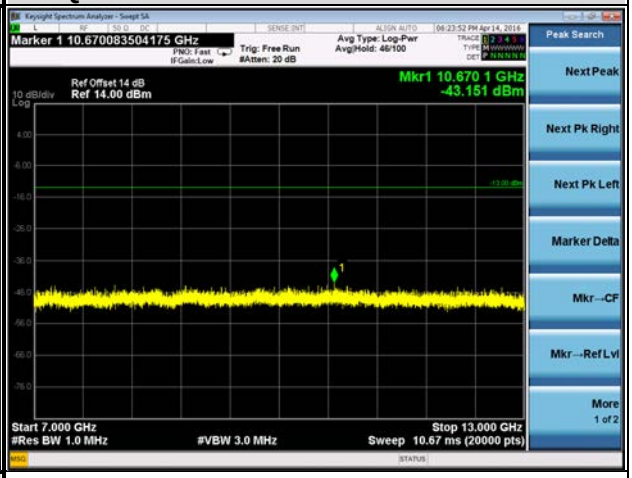
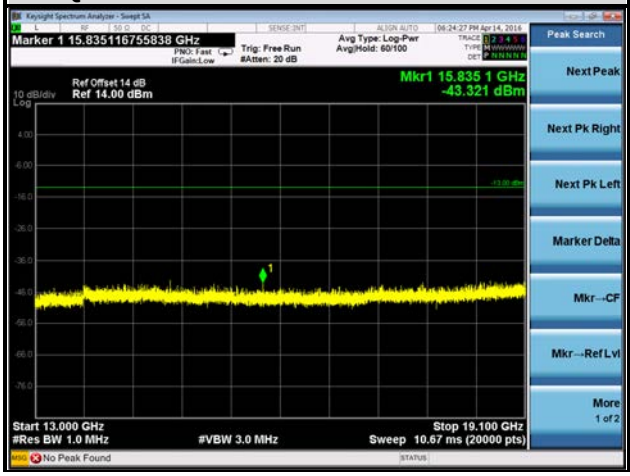
4.6.2 Test Setup

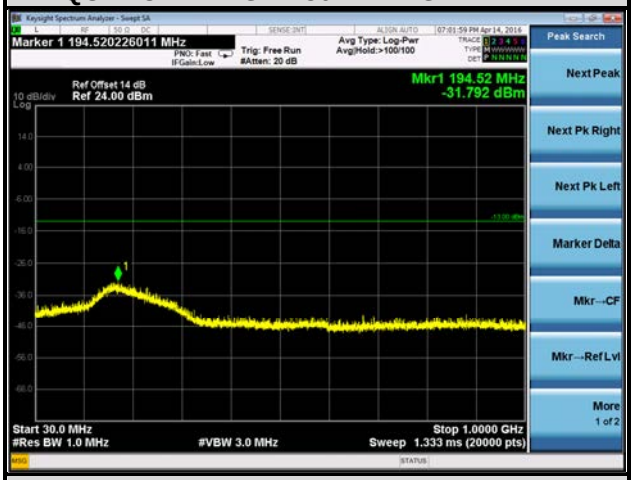
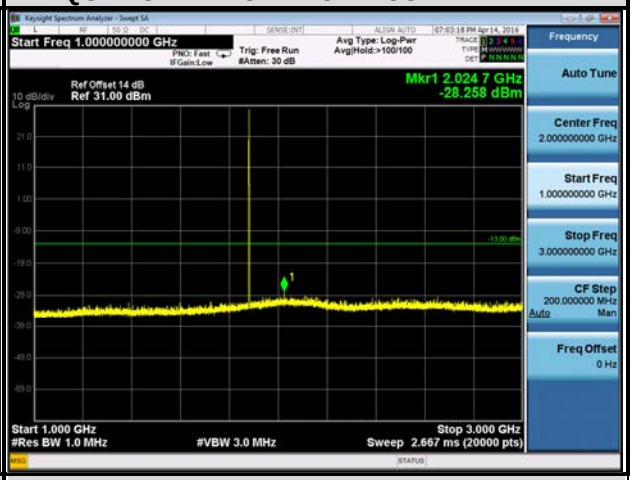
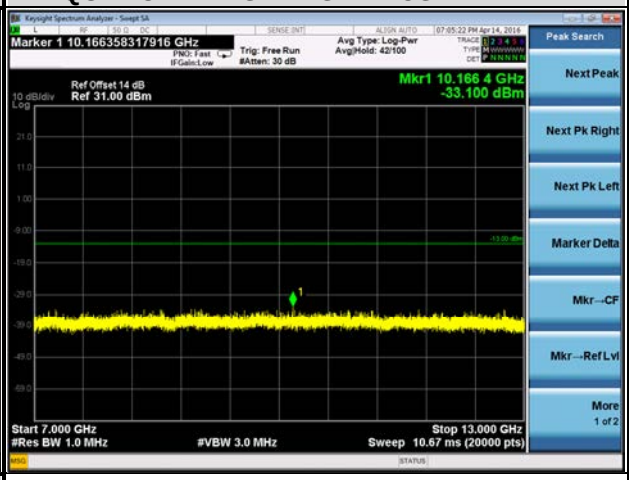
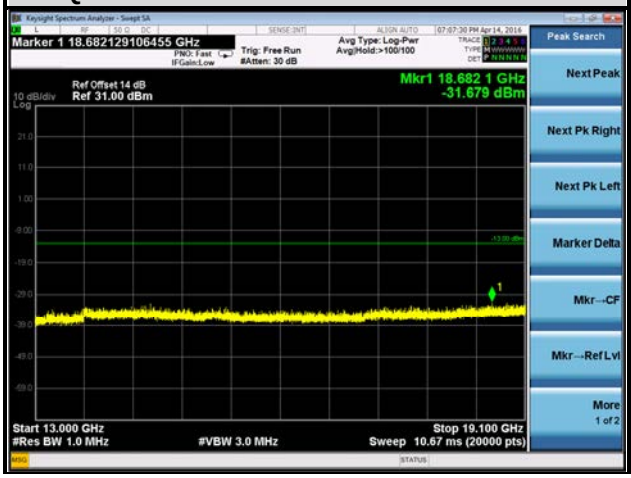


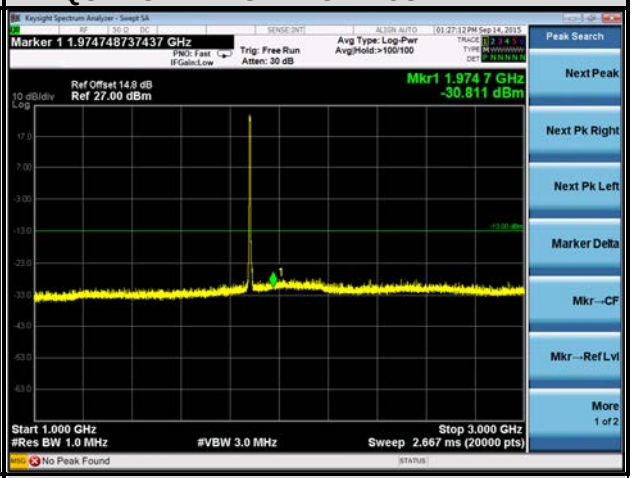
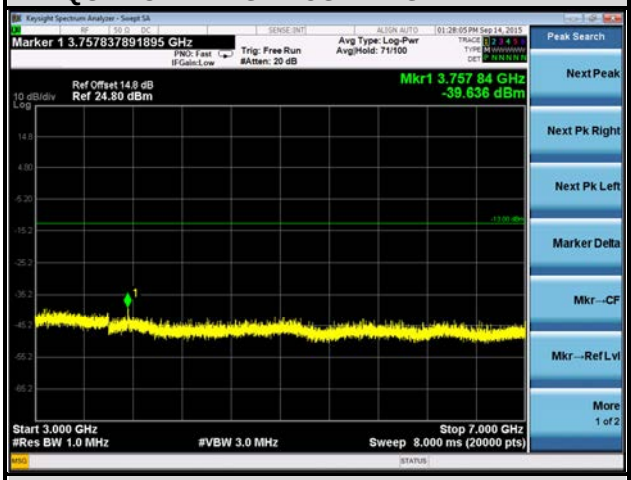
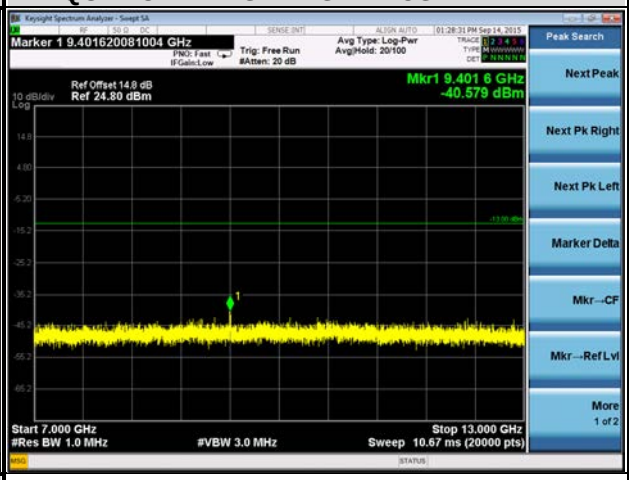
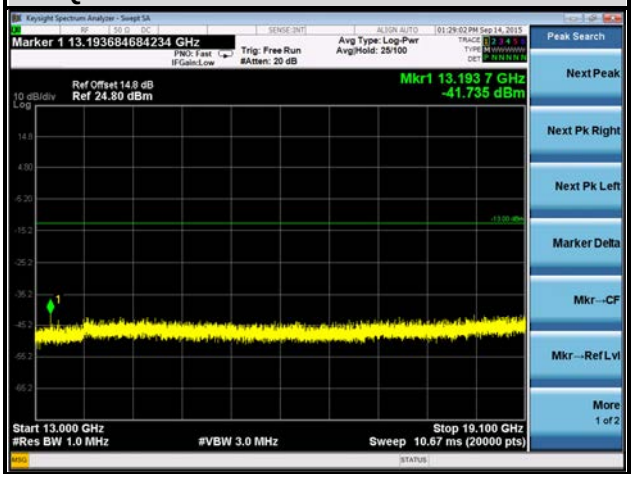
4.6.3 Test Procedure

a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
b. Measuring frequency range is from 9 kHz to 9GHz. 20dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

4.6.4 Test Results

GSM	
CHANNEL 661	
FREQUENCY RANGE : 30MHz~1GHz	FREQUENCY RANGE : 1GHz~3GHz
	
FREQUENCY RANGE : 3GHz~7GHz	FREQUENCY RANGE : 7GHz~13GHz
	
FREQUENCY RANGE : 13GHz~19.1GHz	
	

EDGE	
CHANNEL 512	
FREQUENCY RANGE : 30MHz~1GHz	FREQUENCY RANGE : 1GHz~3GHz
	
FREQUENCY RANGE : 3GHz~7GHz	FREQUENCY RANGE : 7GHz~13GHz
	
FREQUENCY RANGE : 13GHz~19.1GHz	
	

WCDMA	
CHANNEL 9400	
FREQUENCY RANGE : 30MHz~1GHz	FREQUENCY RANGE : 1GHz~3GHz
	
FREQUENCY RANGE : 3GHz~7GHz	FREQUENCY RANGE : 7GHz~13GHz
	
FREQUENCY RANGE : 13GHz~19.1GHz	
	

4.7 Radiated Emission Measurement

4.7.1 Limits of Radiated Emission Measurement

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. The emission limit equal to –13dBm.

4.7.2 Test Procedure

a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.

b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value “ of step a. Record the power level of S.G

c. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.

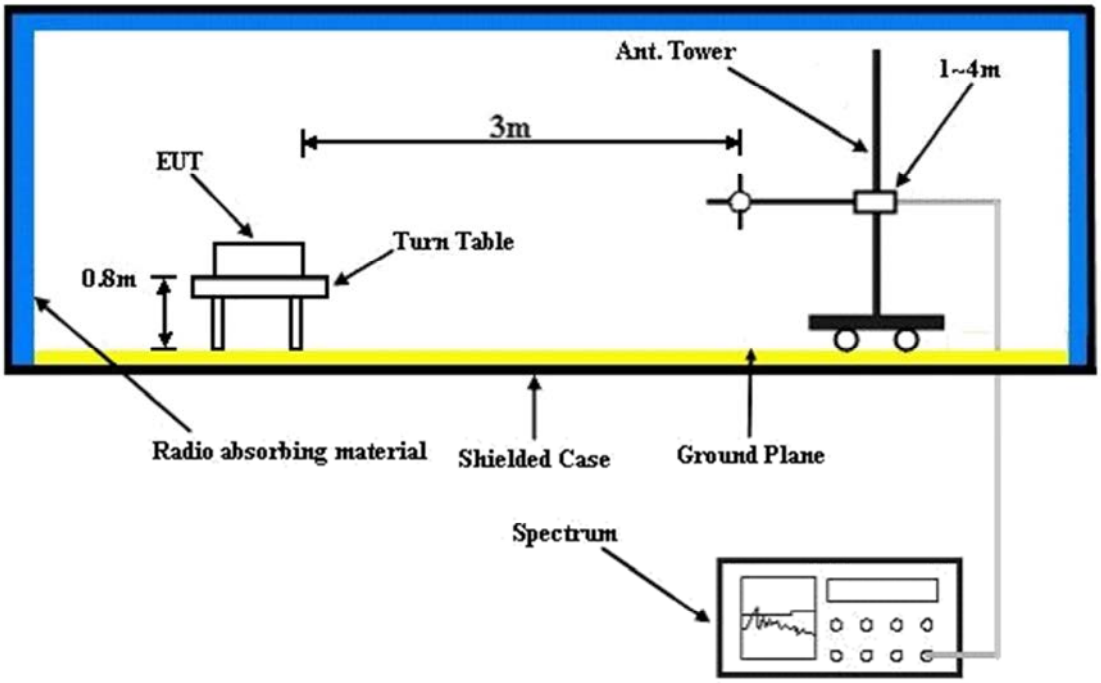
d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.P.R power - 2.15dBi.

NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

4.7.3 Deviation from Test Standard

No deviation.

4.7.4 Test Setup



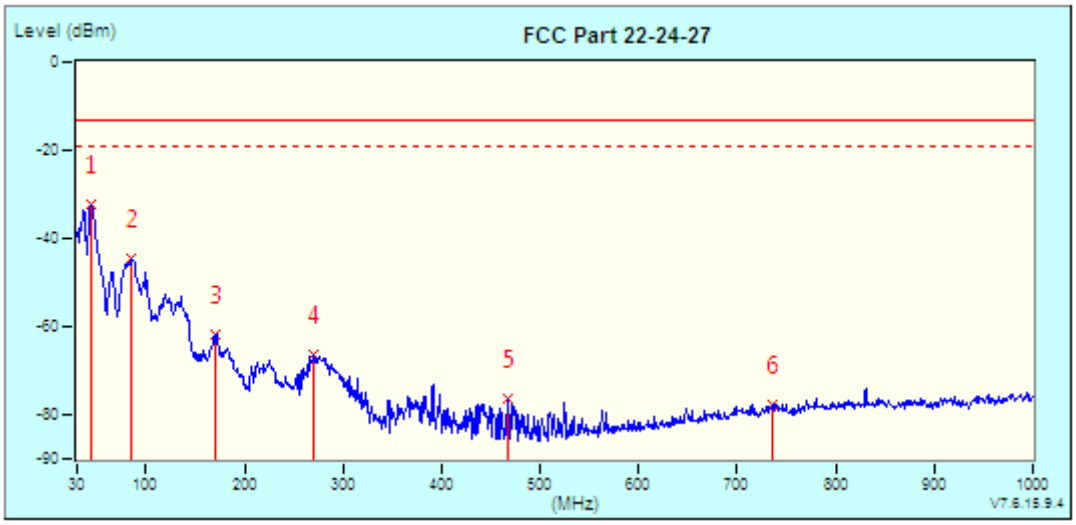
For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.7.5 Test Results

BELOW 1GHz WORST-CASE DATA

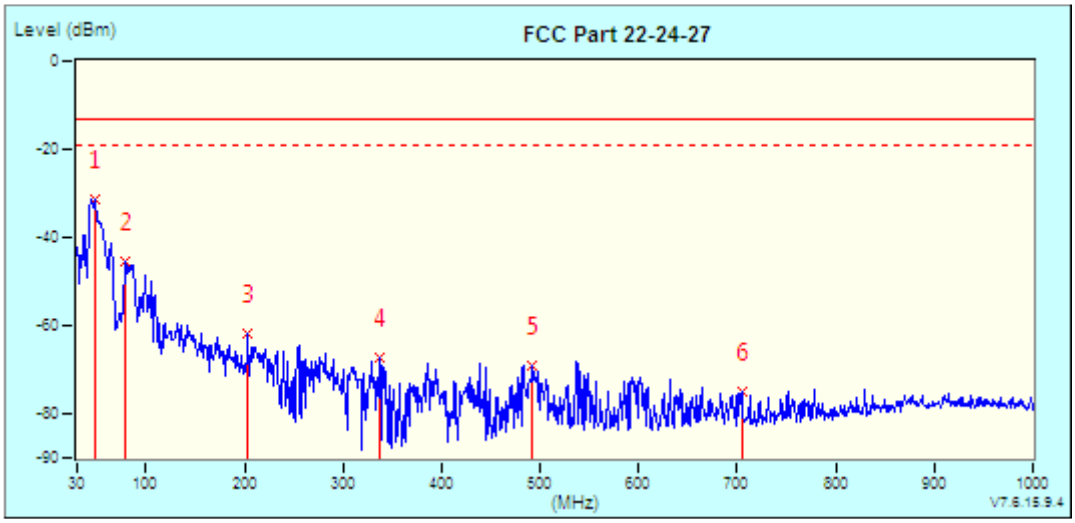
PCS 1900:

MODE	TX channel 661	**FREQUENCY RANGE**	Below 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	**INPUT POWER**	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			



No.		Frequency	Factor	Reading	Emission	Limit	Margin	Tower	Table
		MHz	dB	dBm	dBm	dBm	dB	cm	deg
*	1	43.58	8.94	-41.32	-32.38	-13.00	-19.38	--	--
	2	85.29	-8.38	-36.27	-44.65	-13.00	-31.65	--	--
	3	169.68	-18.13	-43.53	-61.66	-13.00	-48.66	--	--
	4	270.56	-15.26	-51.21	-66.47	-13.00	-53.47	--	--
	5	466.50	-10.41	-65.95	-76.36	-13.00	-63.36	--	--
	6	736.16	-4.88	-72.77	-77.65	-13.00	-64.65	--	--

MODE	TX channel 661	**FREQUENCY RANGE**	Below 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	**INPUT POWER**	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

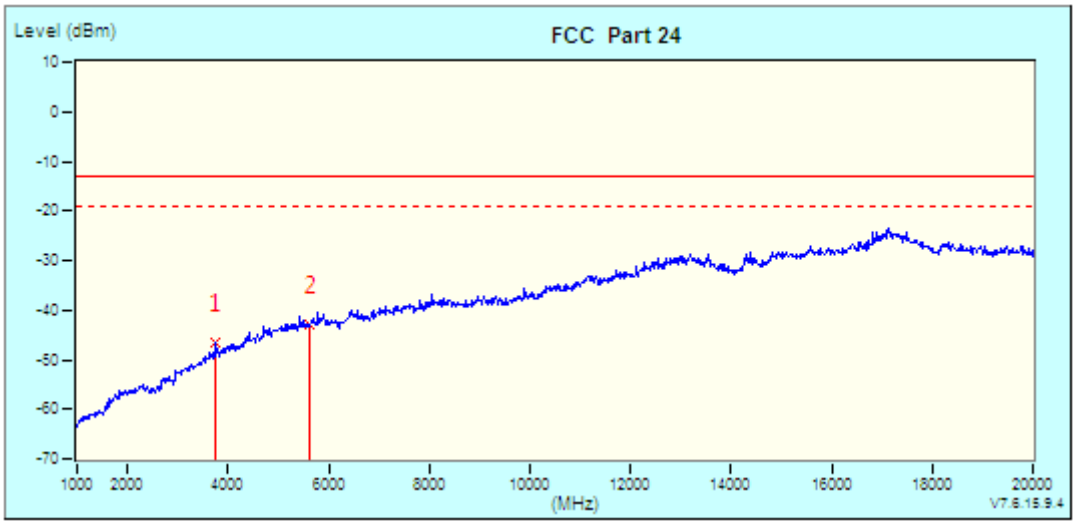


	No.	Frequency	Factor	Reading	Emission	Limit	Margin	Tower	Table
		MHz	dB	dBm	dBm	dBm	dB	cm	deg
*	1	47.46	-3.94	-27.60	-31.54	-13.00	-18.54	--	--
	2	79.47	-10.53	-34.92	-45.45	-13.00	-32.45	--	--
	3	203.63	-10.70	-51.25	-61.95	-13.00	-48.95	--	--
	4	337.49	-11.16	-55.91	-67.07	-13.00	-54.07	--	--
	5	491.72	-7.55	-61.65	-69.20	-13.00	-56.20	--	--
	6	704.15	-6.18	-68.62	-74.80	-13.00	-61.80	--	--

ABOVE 1GHz DATA

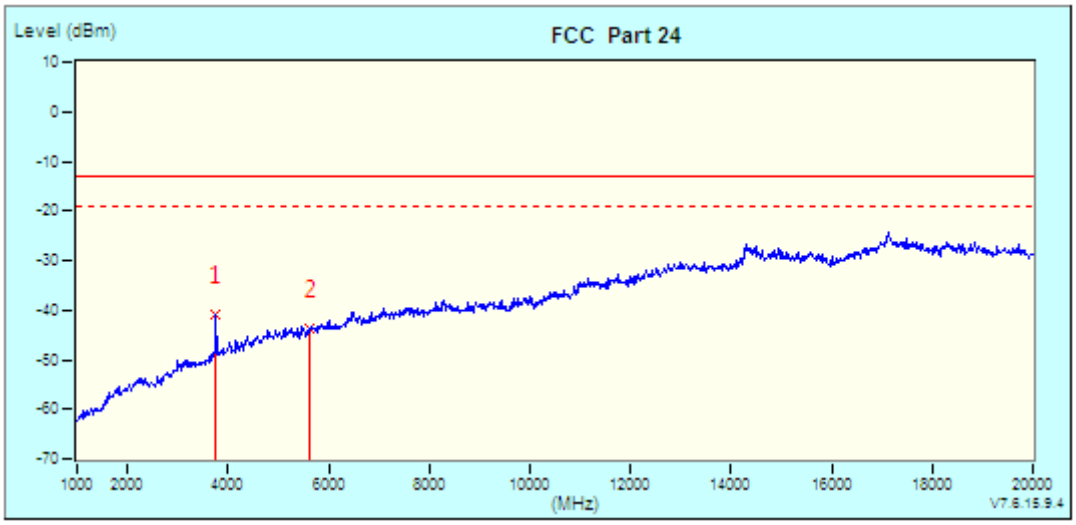
PCS 1900:

MODE	TX channel 661	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			



No.		Frequency MHz	Factor dB	Reading dBm	Emission dBm	Limit dBm	Margin dB	Tower / Table cm	deg
	1	3754.00 (PK)	3.38	-50.03	-46.65	-13.00	-33.65	100	0
*	2	5640.00 (PK)	9.12	-52.13	-43.01	-13.00	-30.01	100	0

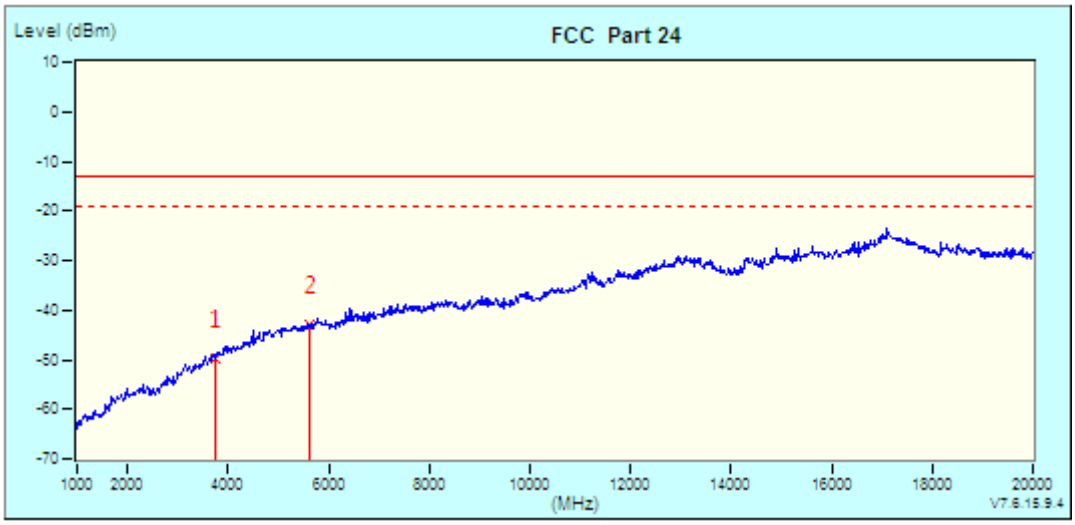
MODE	TX channel 661	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	**INPUT POWER**	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			



	No.	Frequency	Factor	Reading	Emission	Limit	Margin	Tower	Table
		MHz	dB	dBm	dBm	dBm	dB	cm	deg
*	1	3755.00 (PK)	3.85	-44.91	-41.06	-13.00	-28.06	100	360
	2	5640.00 (PK)	8.26	-52.09	-43.83	-13.00	-30.83	100	360

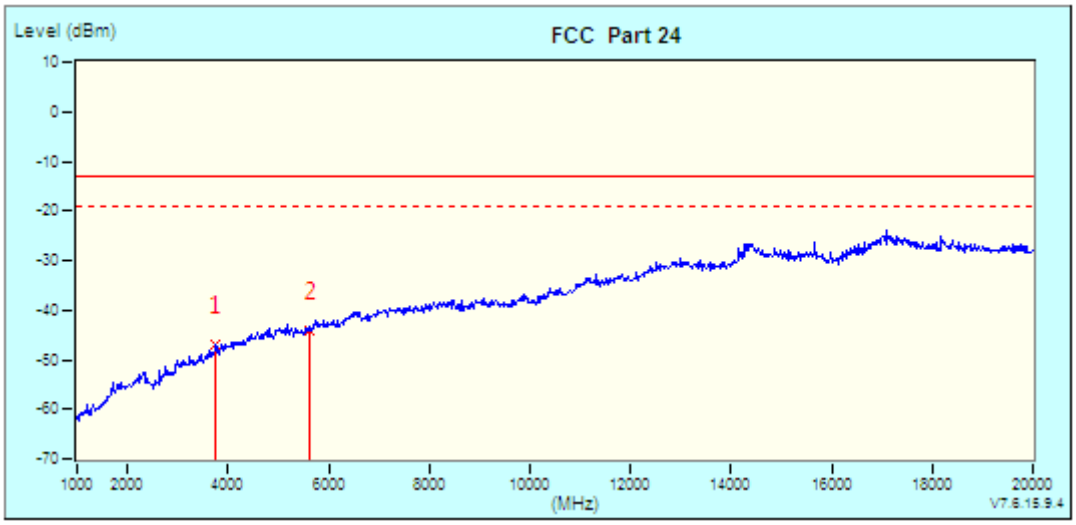
EDGE 1900:

MODE	TX channel 661	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	**INPUT POWER**	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			



	No.	Frequency	Factor	Reading	Emission	Limit	Margin	Tower	Table
		MHz	dB	dBm	dBm	dBm	dB	cm	deg
	1	3755.00 (PK)	3.39	-53.29	-49.90	-13.00	-36.90	200	0
*	2	5640.00 (PK)	9.12	-51.88	-42.76	-13.00	-29.76	200	0

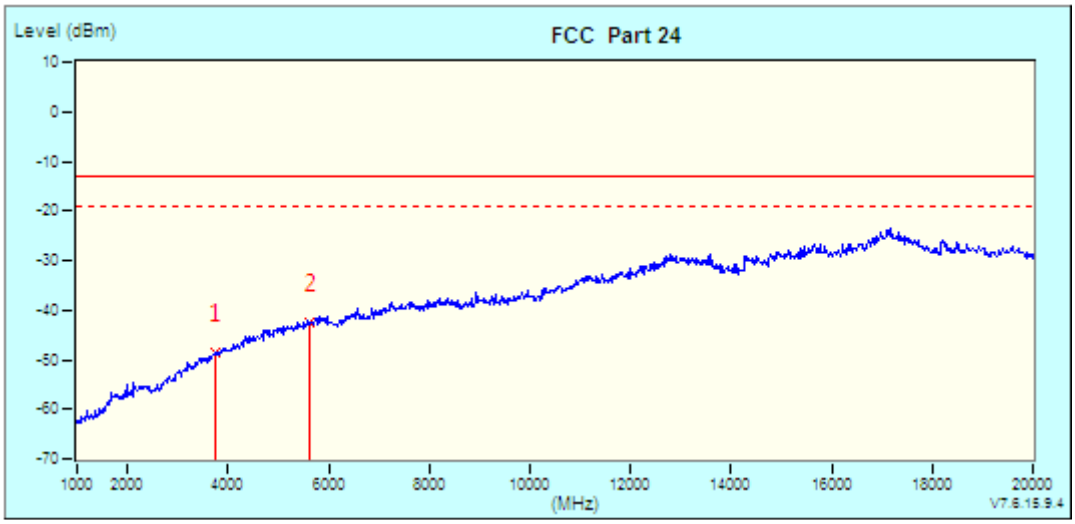
MODE	TX channel 661	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	**INPUT POWER**	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			



No.		Frequency	Factor	Reading	Emission	Limit	Margin	Tower / Table	
		MHz	dB	dBm	dBm	dBm	dB	cm	deg
	1	3755.00 (PK)	3.85	-50.98	-47.13	-13.00	-34.13	100	360
*	2	5640.00 (PK)	8.26	-52.51	-44.25	-13.00	-31.25	100	360

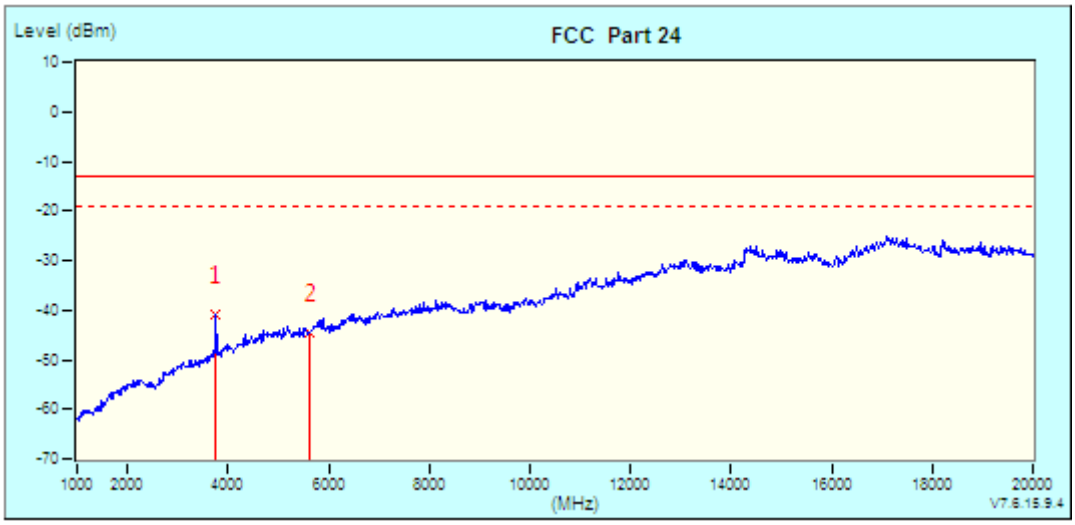
WCDMA Band II:

MODE	TX channel 9400	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	**INPUT POWER**	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			



No.		Frequency	Factor	Reading	Emission	Limit	Margin	Tower / Table	
		MHz	dB	dBm	dBm	dBm	dB	cm	deg
	1	3755.00 (PK)	3.39	-52.13	-48.74	-13.00	-35.74	100	0
*	2	5640.00 (PK)	9.12	-51.83	-42.71	-13.00	-29.71	100	0

MODE	TX channel 9400	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	**INPUT POWER**	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			



No.		Frequency	Factor	Reading	Emission	Limit	Margin	Tower / Table	
		MHz	dB	dBm	dBm	dBm	dB	cm	deg
*	1	3755.00 (PK)	3.85	-44.92	-41.07	-13.00	-28.07	100	360
	2	5640.00 (PK)	8.26	-52.96	-44.70	-13.00	-31.70	100	360

5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF Lab/Telecom Lab
Tel: 886-3-5935343
Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety
Tel: 886-3-3183232
Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.

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