FCC Part 22H/24E TEST REPORT

for

GSM Fixed Wireless Terminal

Model: FCT-400

FCC ID: 2ACKSFCT-400

Prepared for: MAXCOMM Co., LTD.
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Report Number: TCT140402023F2-1
Date of Test: May 15-May 31, 2014
Date of Report: Jun. 04, 2014

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Beryl Zhao

Reviewed By Jack Kang
Jack Kang

The results detailed in this test report relate only to the specific sample(s) tested. It is the Application's responsibility to ensure that all production units are manufactured with equivalent EMC characteristics. This report is not to be reproduced except in full, without written approval from TCT Testing Technology.

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1. GENERAL INFORMATION

1.1. Report information

1.1.1.This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that TCT approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that TCT in any way guarantees the later performance of the product/equipment.

1.1.2.The sample/s mentioned in this report is/are supplied by Applicant, TCT therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.

Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through Nexpro International Limitada, unless the applicant has authorized Nexpro International Limitada in writing to do so.

Test Facility -
The test site used to collect the radiated data is located on the address of
Compliance Certification Services (Shenzhen) Inc.
(FCC Registered Test Site Number: 441872) on
No.10-1 Mingkeda Logistics Park. No. 18 Huanguan South RD. Guanlan Town, Baoan District Shenzhen, China.
The Test Site is constructed and calibrated to meet the FCC requirements.

1.2. Measurement Uncertainty

The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2,providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission Test	±1.38dB
2	RF power,conducted	±0.16dB
3	Spurious emissions,conducted	±0.21dB
4	All emissions,radiated(<1G)	±4.68dB
5	All emissions,radiated(>1G)	±4.89dB
6	Temperature	±0.5°C
7	Humidity	±2%

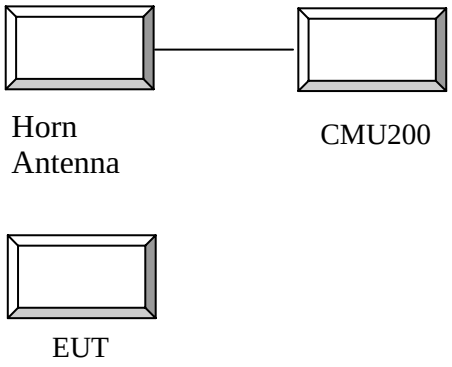
2. PRODUCT DESCRIPTION

2.1. EUT Description

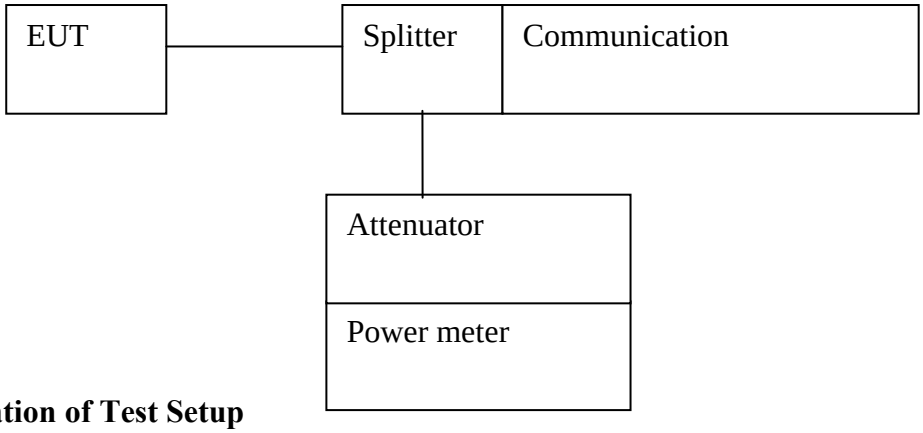
Description	:	GSM Fixed Wireless Terminal
Applicant	:	MAXCOMM Co., LTD
Model Number	:	FCT-400
Trade Name	:	MAXCOMM
Modulation		GMSK(GSM)
Frequency Bands	:	GSM 850: 824- 849MHz PCS 1900: 1850-1910MHz
Antenna gain	:	3dbi
Antenna Type	:	External antenna
Power Supply		DC 3.7V Battery or DC 12V from Adapter 1，DC 9V from Adapter2 Adapter 1 information: Model: FJ-SW1201000DU INPUT: AC 100-240V 50/60Hz 0.35Amax OUTPUT: DC 12V, 1000mA Adapter 2 information: Model: FJ-SW0901000DE INPUT: AC 100-240V 50/60Hz 0.35Amax OUTPUT: DC 9V, 1000mA
Battery information	:	Model: 083450A Voltage: 3.7V/1200mAh
Hardware version	:	N/A
Software version	:	N/A

2.2. Block Diagram of EUT Configuration

Radiated output power



Conducted output power



2.3. Configuration of Test Setup

EUT Orthogonal Axis:
X - denotes Laid on Table; Y - denotes Vertical Stand; Z - denotes Side Stand

2.4. Test Conditions

Temperature: 23~25°C
Relative Humidity: 55~63 %

3. TEST RESULTS SUMMARY

FCC PART 22H & FCC PART 24E

FCC Rules	Description of Test	Result
§1.1307, §2.1093	RF Exposure (SAR)	Not Applicable
§2.1046; § 22.913 (a); § 24.232 (c)	RF Output Power	Compliance
§24.232(d)	Peak-to-Average Ratio	Compliance
§ 2.1047	Modulation Characteristics	Not Applicable
§ 2.1049; § 22.905 § 22.917; § 24.238	Occupied Bandwidth	Compliance
§ 2.1051, § 22.917 (a); § 24.238 (a)	Spurious Emissions at Antenna Terminal	Compliance
§ 2.1053 § 22.917 (a); § 24.238 (a)	Field Strength of Spurious Radiation	Compliance
§ 22.917 (a); § 24.238 (a)	Out of band emission, Band Edge	Compliance
§ 2.1055 § 22.355; § 24.235	Frequency stability vs. temperature Frequency stability vs. voltage	Compliance

Note: The EUT only Support GSM.

Modifications

No modification was made.

4. TEST EQUIPMENT USED

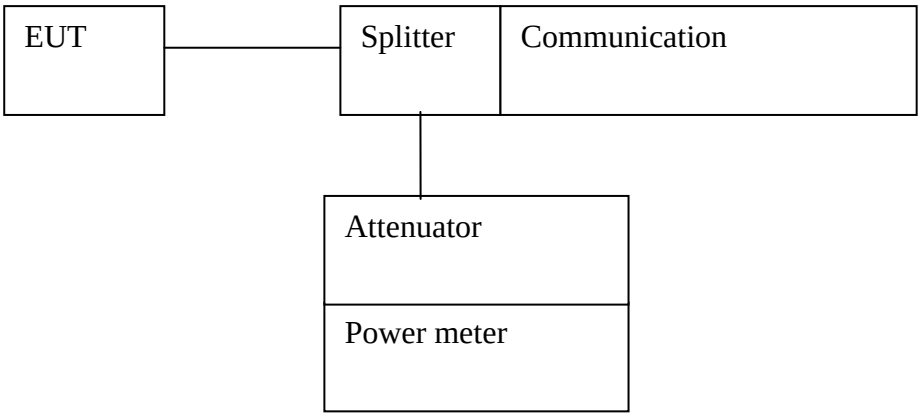
EQUIPMENT/FACILITIES	MANUFACTURER	MODEL	SERIAL NO.	DATE OF CAL.	CAL. INTERVAL
3m Semi-Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	Aug. 30 2013	1 Year
Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	Jul. 07 2013	1 Year
BiConiLog Antenna	Schwarzbeck Mess-Elektronik	VULB9163	GTS214	Feb. 25 2014	1 Year
Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June 30 2014	1 Year
Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 30 2014	1 Year
EMI Test Software	AUDIX	E3	N/A	N/A	N/A
Cable	Resenberger	N/A	NO.1	Apr. 6, 2014	1 Year
Cable	SCHWARZBECK	N/A	NO.2	Apr. 6, 2014	1 Year
Cable	SCHWARZBECK	N/A	NO.3	Apr. 6, 2014	1 Year
Amplifier(100kHz-3GHz)	HP	8347A	GTS204	Jul. 04 2013	1 Year
Amplifier(2GHz-20GHz)	HP	8349B	GTS206	Jul. 04 2013	1 Year
Amplifier (18-26GHz)	R&S	AFS33-18002 650-30-8P-44	GTS218	June. 30 2013	1 Year
Band filter	Amindeon	82346	GTS219	Mar. 31 2014	1 Year
Active Loop Antenna	Beijing Daze	ZN30900A	GTS215	Mar. 30, 2014	1 Year
Power Meter	R&S	NRVS	GTS216	Apr. 5, 2014	1 Year
Power Sensor	R&S	NRV-Z33	GTS220	Apr. 5, 2014	1 Year
Shielding Room	ZhongYu Electron	7.0(L)x3.0(W)x3.0(H)	GTS264	Sep. 08 2013	1 Year
Universal radio communication tester	R&S	CMU200	GTS235	May 11 2014	1 Year
Signal Generator	R&S	SML03	GTS236	May 11 2014	1 Year
Temp. Humidity/ Barometer	Oregon Scientific	BA-888	GTS248	May 11 2014	1 Year
D.C. Power Supply	Instek	PS-3030	GTS232	N/A	N/A
Splitter	Agilent	11636B	GTS237	May 11 2014	1 Year
EMI Test Receiver	R&S	ESCS30	GTS223	Jul. 04 2013	1 Year
10dB Pulse Limita	R&S	N/A	GTS224	Jul. 04 2013	1 Year
Coaxial Switch	ANRITSU CORP	MP59B	GTS225	Jul. 04 2013	1 Year
LISN	Schwarzbeck Mess-Elektronik	NSLK 8127	GTS226	Jul. 04 2013	1 Year
Coaxial Cable	SCHWARZBECK	N/A	NO.4	Apr. 6, 2014	1 Year
EMI Test Software	AUDIX	E3	N/A	N/A	N/A
Spectrum analyzer	agilent	E4440A	GTS251	N/A	N/A

5. OUTPUT POWER

5.1. Conducted Output Power

5.1.1.MEASUREMENT METHOD

The EUT was setup for the max output power with pseudo random data modulation. The EUT was directly connected to the power meter. The measurements were performed on all modes(GSM850, PCS1900) at 3 typical channels(the Top Channel, the Middle Channel and the Bottom Channel) for each band.



Power Limits

According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC §2.1046 and §24.232 (C), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

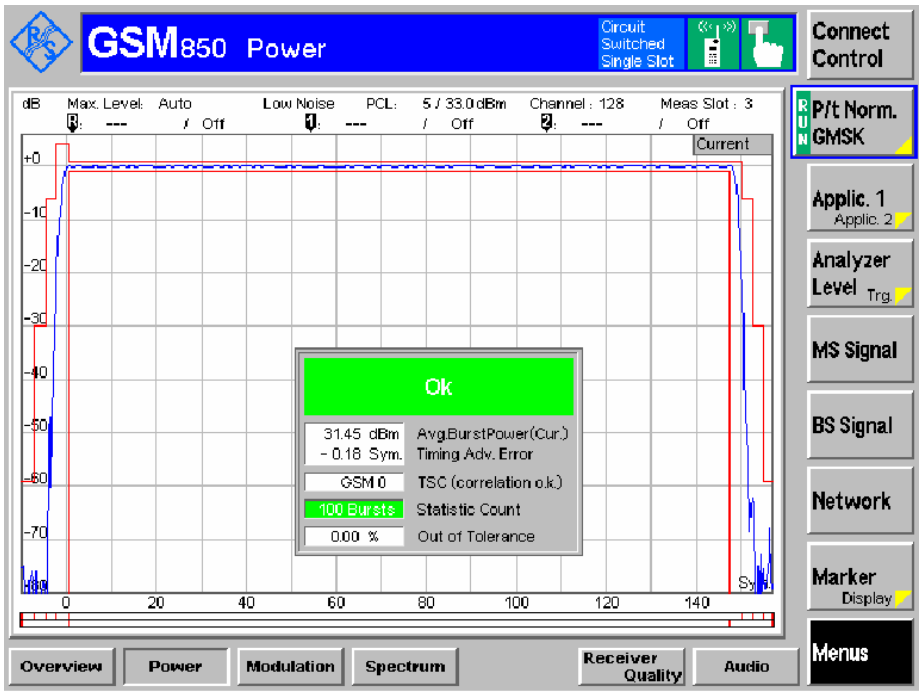
5.1.2.MEASUREMENT RESULT

GSM:

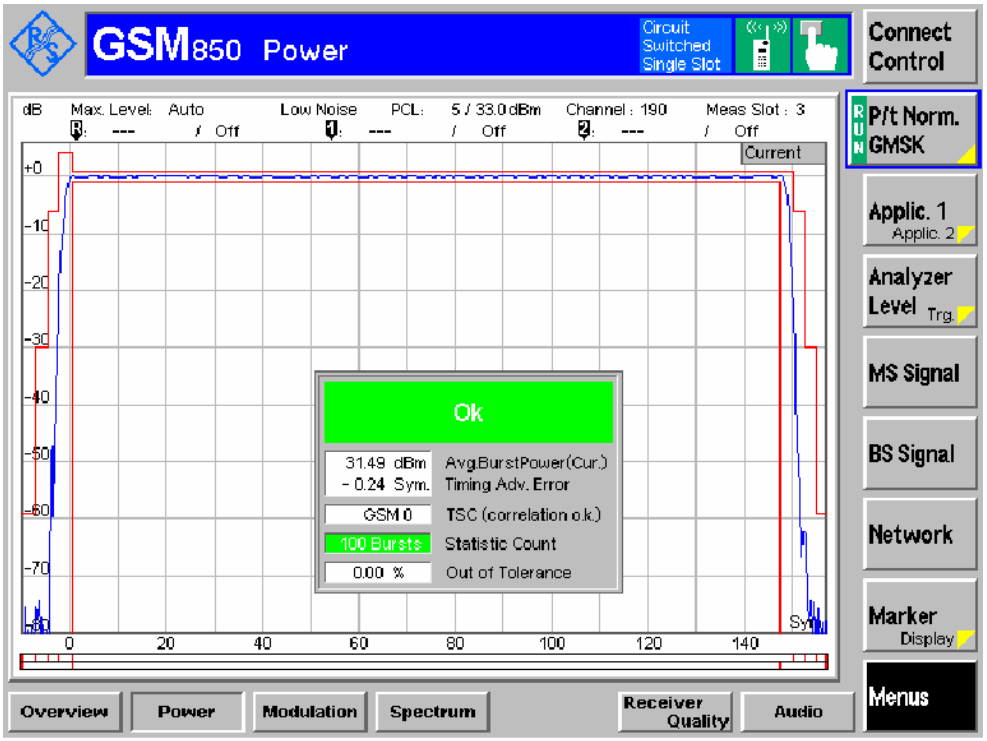
Band	Channel No.	Test Result PK Power(dBm)								
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Cellular	128	31.45	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	190	31.49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	251	31.89	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PCS	512	28.90	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	661	28.77	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	810	28.60	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Test plot:

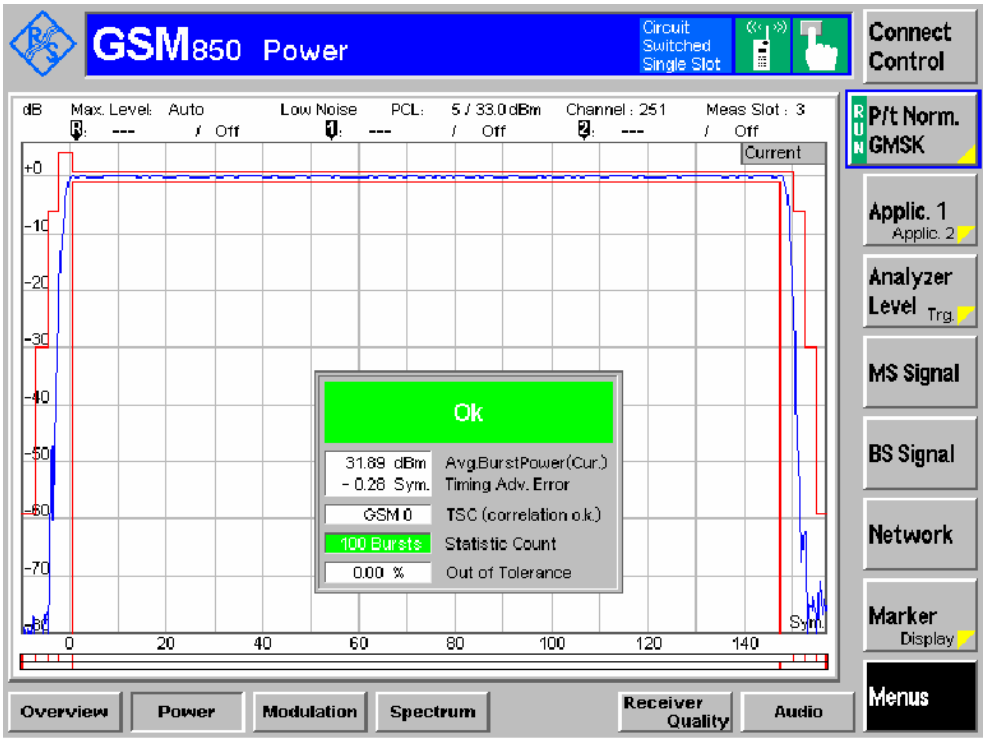
GSM850 band Low Channel



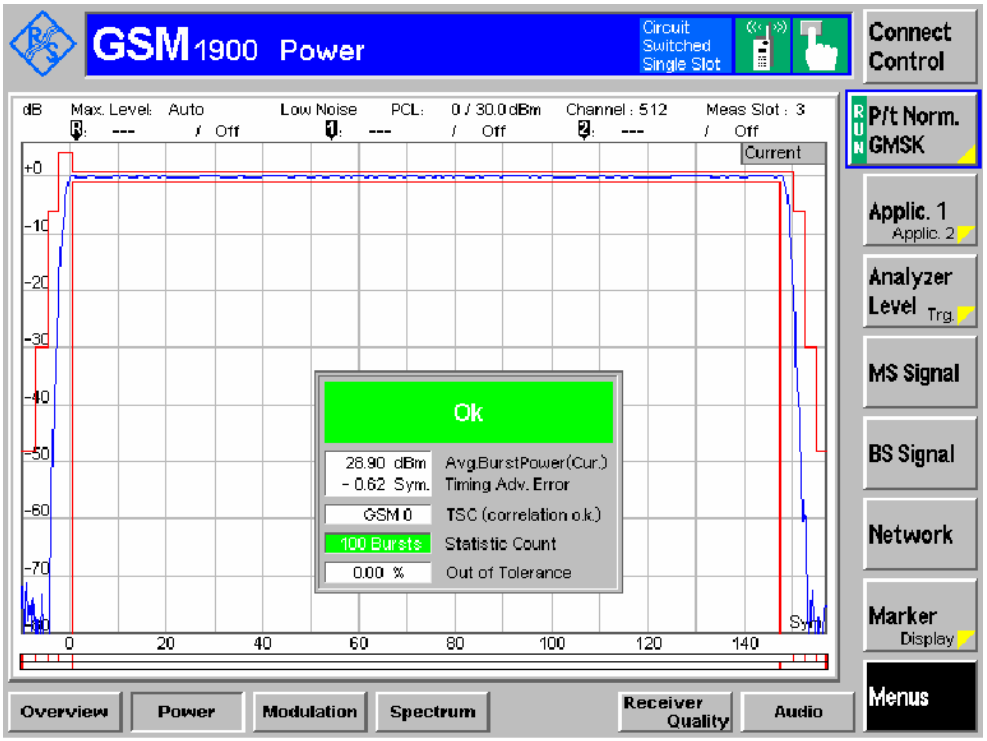
Middle Channel



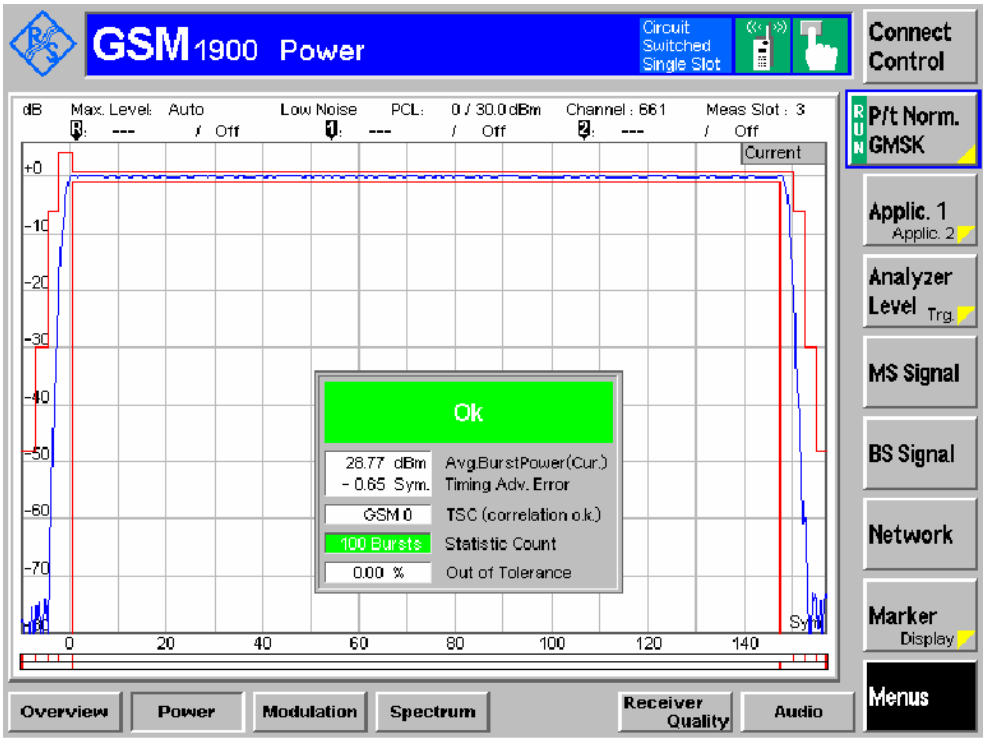
High Channel



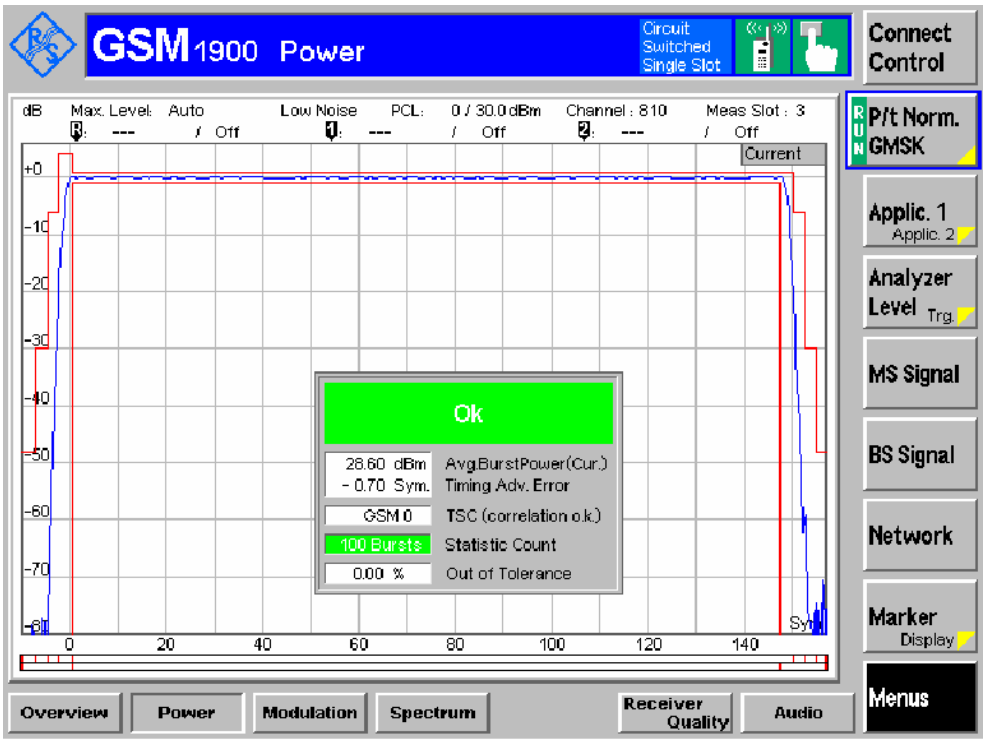
PCS 1900 Band Low Channel



Middle Channel



High Channel



6. PEAK-TO-AVERAGE RATIO

6.1. MEASUREMENT METHOD

The following steps outline the procedure used to measure the Peak-to-Average Ratio from the EUT.

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. For GSM/GPRS operating modes:
   a. Set the RBW = 1MHz, VBW = 1MHz, Peak detector in spectrum analyzer.
   b. Set EUT in maximum power output, and triggered the burst signal.
   c. Measured respectively the Peak level and Mean level, and the deviation was recorded as Peak to Average Ratio.
3. For UMTS operating modes:
   a. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
   b. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.

6.2. PROVISIONS APPLICABLE

This is the test for the Peak-to-Average Ratio from the EUT. Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. 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.

6.3. Measurement Result

Modes	GSM850(GSM)		
Channel	128	190	251
Frequency (MHz)	(Low)	(Mid)	(High)
	824.2	836.6	848.8
Peak-To-Average Ratio (dB)	0.85	0.82	0.87

Modes		PCS 1900 (GSM)	
Channel	512	661	810
	(Low)	(Mid)	(High)
Frequency (MHz)	1850.2	1880	1909.8
Peak-To-Average Ratio (dB)	0.82	0.91	0.84

7. SPURIOUS EMISSION

7.1. CONDUCTED SPURIOUS EMISSION

7.1.1.measurement method

The following steps outline the procedure used to measure the conducted emissions from the EUT.
1. Determine frequency range for measurements: From CFR 2.1057 the spectrum should be investigated from the lowest radio frequency generated in the equipment up to at least the 10th harmonic of the carrier frequency. For the equipment of PCS1900 band, this equates to a frequency range of 30 MHz to 19.1 GHz, data taken from 30 MHz to 20 GHz. For GSM850, data taken from 30 MHz to 9 GHz.
2. Determine EUT transmit frequencies: the following typical channels were chosen to conducted emissions testing.

Typical Channels for testing of GSM850 band	
Channel	Frequency (MHz)
low	824.2
middle	836.6
high	848.8

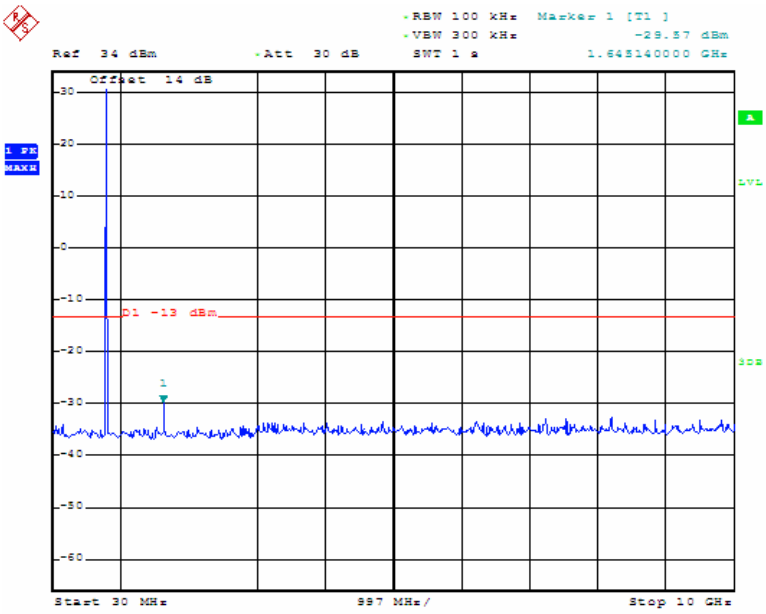
Typical Channels for testing of PCS1900 band	
Channel	Frequency (MHz)
low	1850.2
middle	1880.0
high	1909.8

Note: 1. Below 30MHZ no Spurious found.
2. As no emission found in standby or receive mode, no recording in this report.

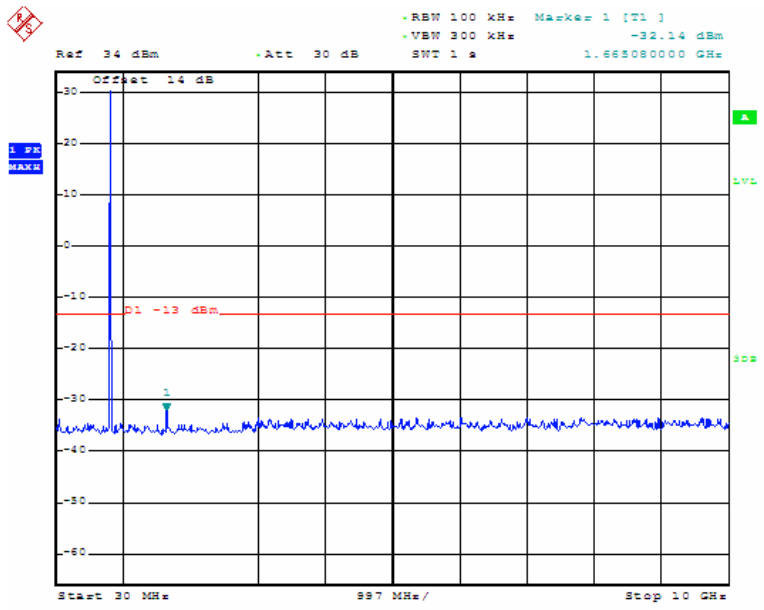
7.1.2.Measurement Result

GSM 850 BAND

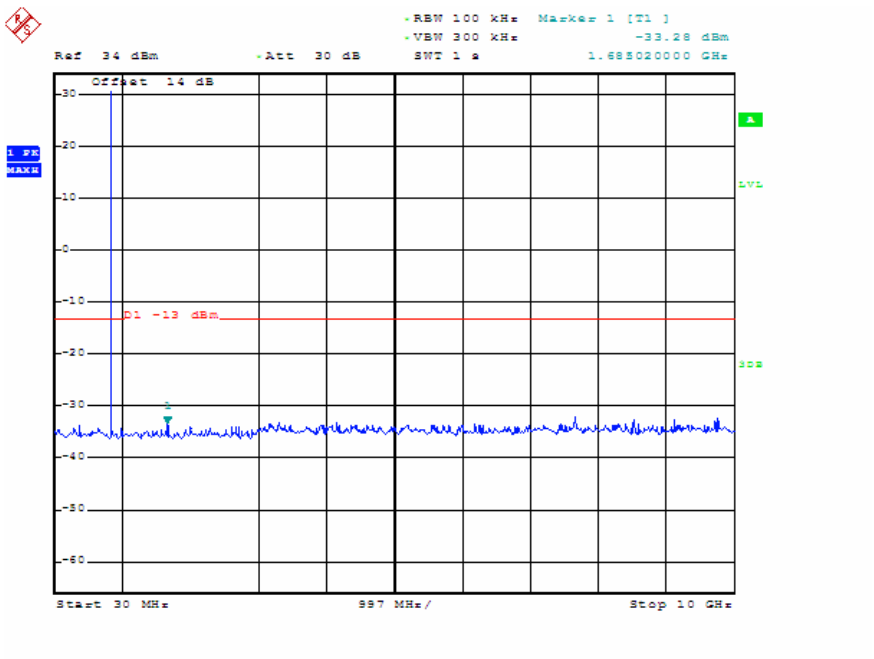
Conducted Emission Transmitting Mode Low Channel 30MHz-10GHz



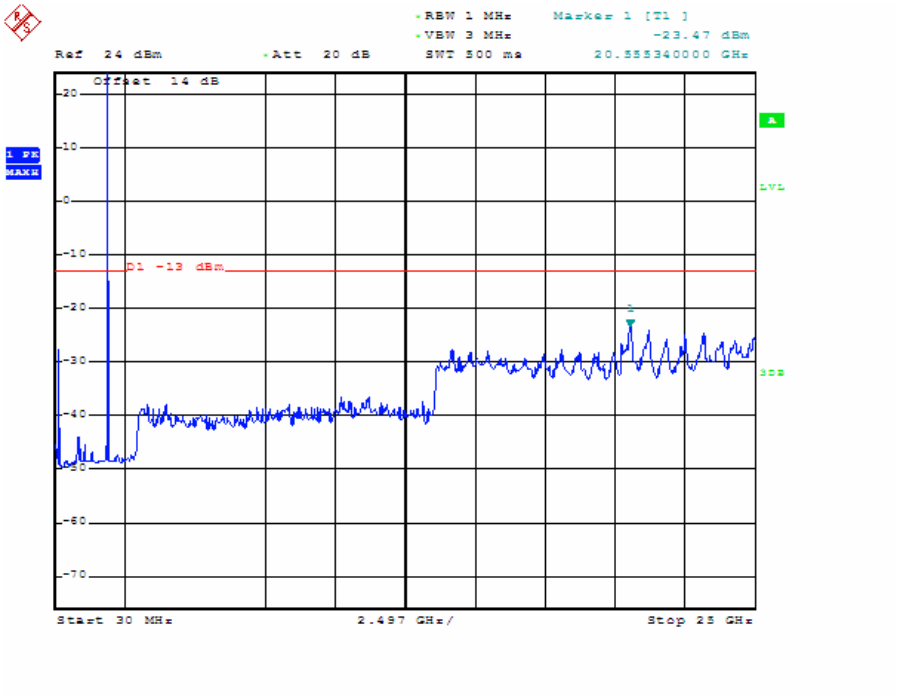
Middle Channel



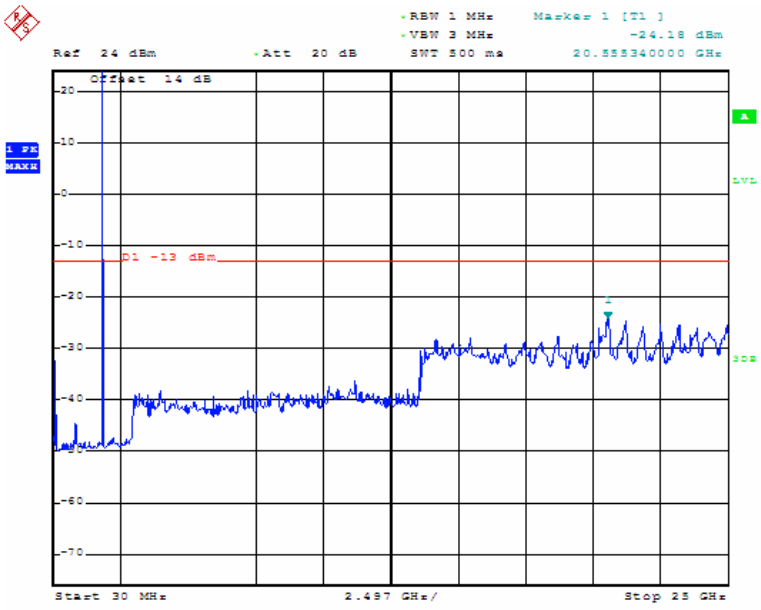
High Channel



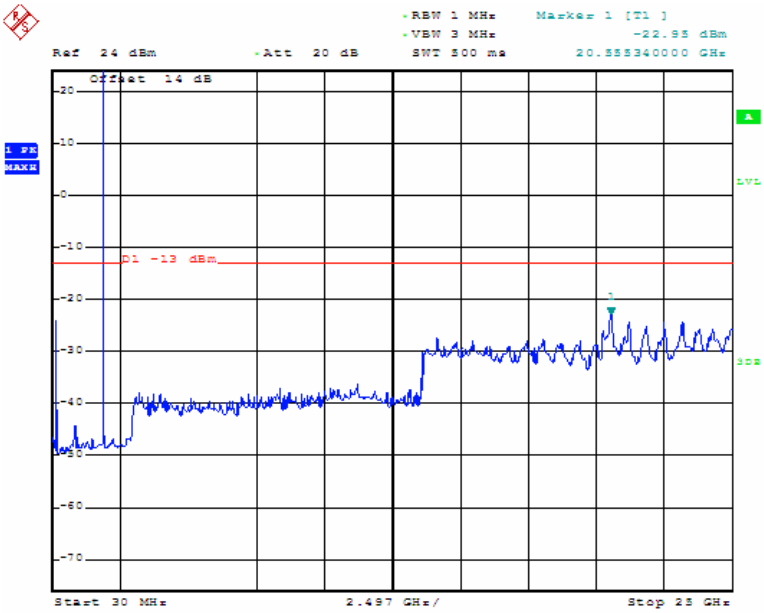
PCS 1900 BAND
Conducted Emission Transmitting Mode Low Channel 30MHz-10GHz



Middle Channel



High Channel



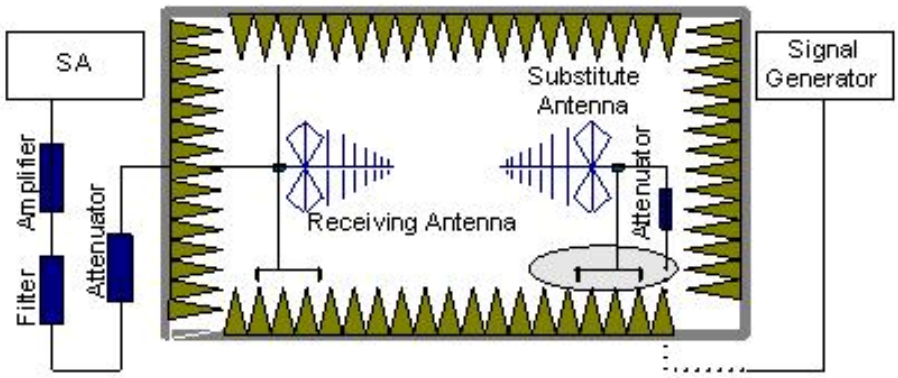
7.2. Radiated Spurious Emission

7.2.1. Measurement Method

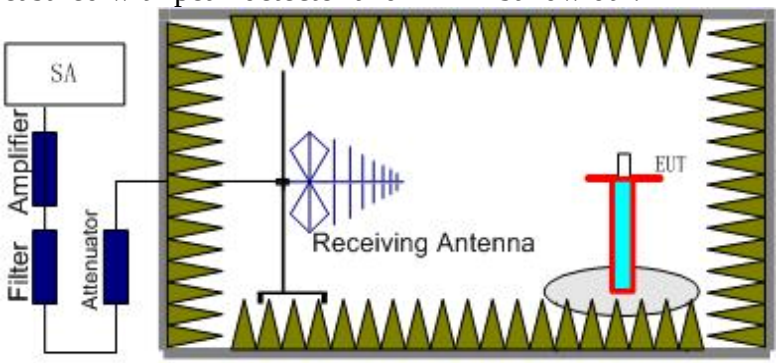
The measurements procedures specified in TIA-603C-2004 were used for testing. The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment. The resolution bandwidth is set 1MHz as outlined in Part 24.238. The measurements were performed on all modes(GPRS850, GPRS1900, HSDPA band V) at 3 typical channels(the Top Channel, the Middle Channel and the Bottom Channel) for each band.

The procedure of radiated spurious emissions is as follows:

a) Pre-calibration With pre-calibration method, the Radiated Spurious Emissions(RSE) is calculated as, RSE=Rx(dBuV)+CL(dB)+SA(dB)+Gain(dBi)-107(dBuV to dBm)The SA is calibrated using following setup.



b) EUT was placed on a 0.8 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the test item for emission measurements. The height of receiving antenna is 0.8m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the test item and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic were measured with peak detector and 1MHz bandwidth.



Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the PCS 1900 band (1850.2 MHz, 1880 MHz and 1909.8 MHz) ,GSM850 band (824.2MHz, 836.6MHz, 848.8MHz), UMTS band V(826.4MHz, 835.0MHz, 846.6MHz) . It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs

occur well outside the band and no radiation was seen from a carrier in one block of any band into any of the other blocks.

The substitution method is used. Substitution values at each frequency are measured before and saved to the test software. A "reference path loss" is established and the ARpl is the attenuation of “reference path loss”, and including the gain of receive antenna, the gain of the preamplifier, the cable loss and the air loss. The measurement results are obtained as described below: Power=PMea+ARpl

7.2.2.Provisions Applicable

(a) On any frequency outside a licensee’s frequency block (e.g. A, D, B, etc.) within the USPCS spectrum, the power of any emission shall be attenuated below the transmitter power (P, in Watts) by at least 43+10Log(P) dB. The specification that emissions shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

Note: only result the worst condition of each test mode:

7.3. MEASUREMENT RESULT

- GSM 850 data								
Frequency	Polar	S.A Reading	S.G. Level	Antenna Gain	Cable Loss	Absolute Level	Limit	Margin
MHz	H/V	dBµV	dBm	dBd/dBi	dB	dBm	dBm	dB
Low Channel, fo = 824.2 MHz								
1648.400	H	57.41	-43.2	7.3	0.9	-36.8	-13.0	23.8
1648.400	V	58.79	-40.7	7.3	0.9	-34.2	-13.0	21.2
2472.600	H	48.54	-53.2	9.8	0.9	-44.2	-13.0	31.2
2472.600	V	49.35	-47.7	9.8	0.9	-38.7	-13.0	25.7
3296.800	H	53.67	-40.3	10.0	0.8	-31.1	-13.0	18.1
3296.800	V	55.28	-36.3	10.0	0.8	-27.1	-13.0	14.1
Middle Channel, fo = 836.6 MHz								
1673.200	H	54.63	-44.9	7.3	0.9	-38.4	-13.0	25.4
1673.200	V	54.63	-42.3	7.3	0.9	-35.9	-13.0	22.9
2509.800	H	46.85	-55.3	10.1	0.9	-46.1	-13.0	33.1
2509.800	V	50.12	-51.1	10.1	0.9	-41.8	-13.0	28.8
3346.400	H	50.52	-42.2	10.0	0.8	-33.0	-13.0	20.0
3346.400	V	48.69	-41.9	10.0	0.8	-32.7	-13.0	19.7
High Channel, fo = 848.8 MHz								
1697.600	H	55.15	-45.6	7.3	0.9	-39.1	-13.0	26.1
1697.600	V	56.31	-40.0	7.3	0.9	-33.5	-13.0	20.5
2546.400	H	48.36	-55.0	10.1	0.9	-45.7	-13.0	32.7
2546.400	V	51.75	-46.8	10.1	0.9	-37.6	-13.0	24.6
3395.200	H	49.63	-40.7	10.0	0.8	-31.5	-13.0	18.5
3395.200	V	50.48	-41.3	10.0	0.8	-32.1	-13.0	19.1

- GSM 1900 data								
Frequency	**Polar**	**S.A. Reading**	**S.G. Level**	**Antenna Gain**	**Cable Loss**	**Absolute Level**	**Limit**	Margin
MHz	**H/V**	**dBµV**	**dBm**	**dBd/dBi**	**dB**	**dBm**	**dBm**	dB
Low Channel, fo = 1850.2 MHz								
3700.400	H	48.36	-41.1	10.0	1.1	-32.2	-13.0	19.2
5550.600	H	44.54	-45.2	11.3	1.5	-35.4	-13.0	22.4
3700.400	V	52.47	-35.7	10.0	1.1	-26.8	-13.0	13.8
5550.600	V	46.85	-45.7	11.3	1.5	-35.9	-13.0	22.9
Middle Channel, fo = 1880.0 MHz								
3760.000	H	43.58	-50.9	10.0	1.1	-42.0	-13.0	29.0
5640.000	H	45.39	-43.7	11.2	1.5	-34.0	-13.0	21.0
3760.000	V	47.55	-46.9	10.0	1.1	-38.0	-13.0	25.0
5640.000	V	48.29	-43.9	11.2	1.5	-34.2	-13.0	21.2
High Channel, fo = 1909.8 MHz								
3819.600	H	46.35	-43.8	9.8	1.1	-35.0	-13.0	22.0
5729.400	H	47.12	-41.8	11.1	1.5	-32.2	-13.0	19.2
3819.600	V	48.69	-40.9	9.8	1.1	-32.2	-13.0	19.2
5729.400	V	49.22	-42.0	11.1	1.5	-32.4	-13.0	19.4

Note: Below 30MHZ no Spurious found.

8. MAINS CONDUCTED EMISSION

8.1. MEASUREMENT METHOD

The measurement procedure specified in ANSI C63.4-2003 was used for testing. Conducted Emission was measured with travel charger.

8.2. PROVISIONS APPLICABLE

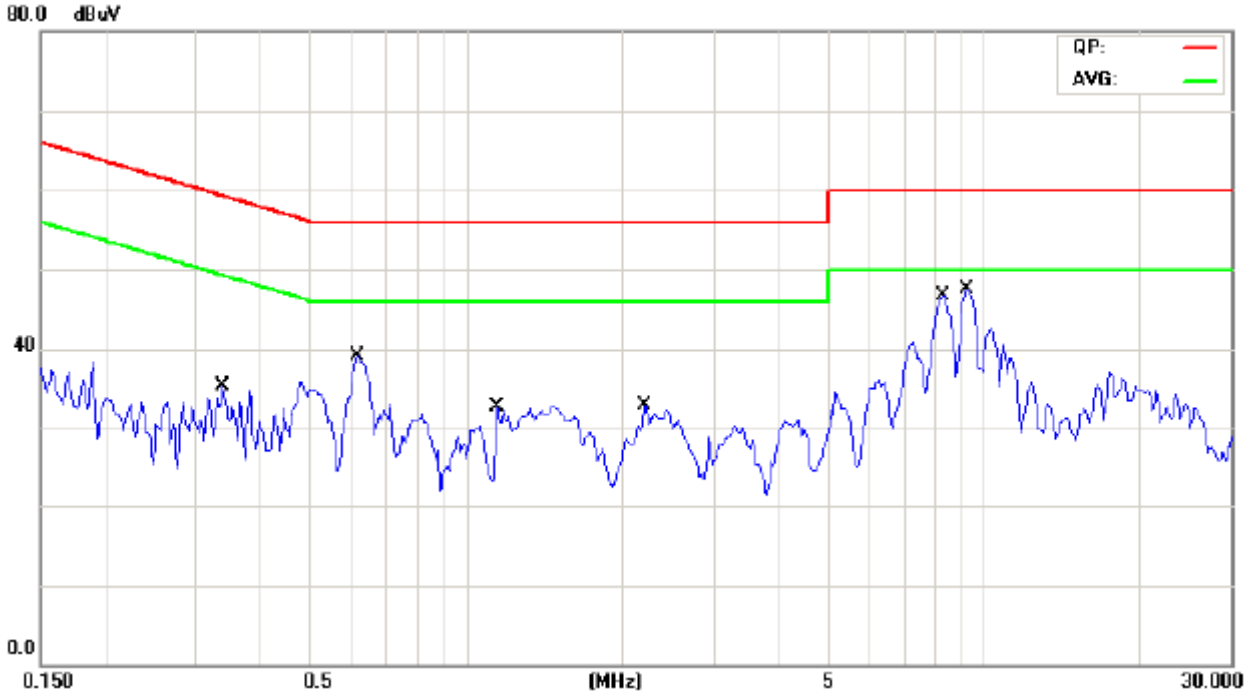
Frequency of Emission (MHz)	Conducted Limit(dBuV)	
	Quasi-Peak	Average
0.15 – 0.5	66 to 56 *	56 to 46 *
0.5 – 5	56	46
5 – 30	60	50
*Decreases with the logarithm of the frequency. *The lower limit shall apply at the transition frequency.		

8.3. MEASUREMENT RESULT

Pass.

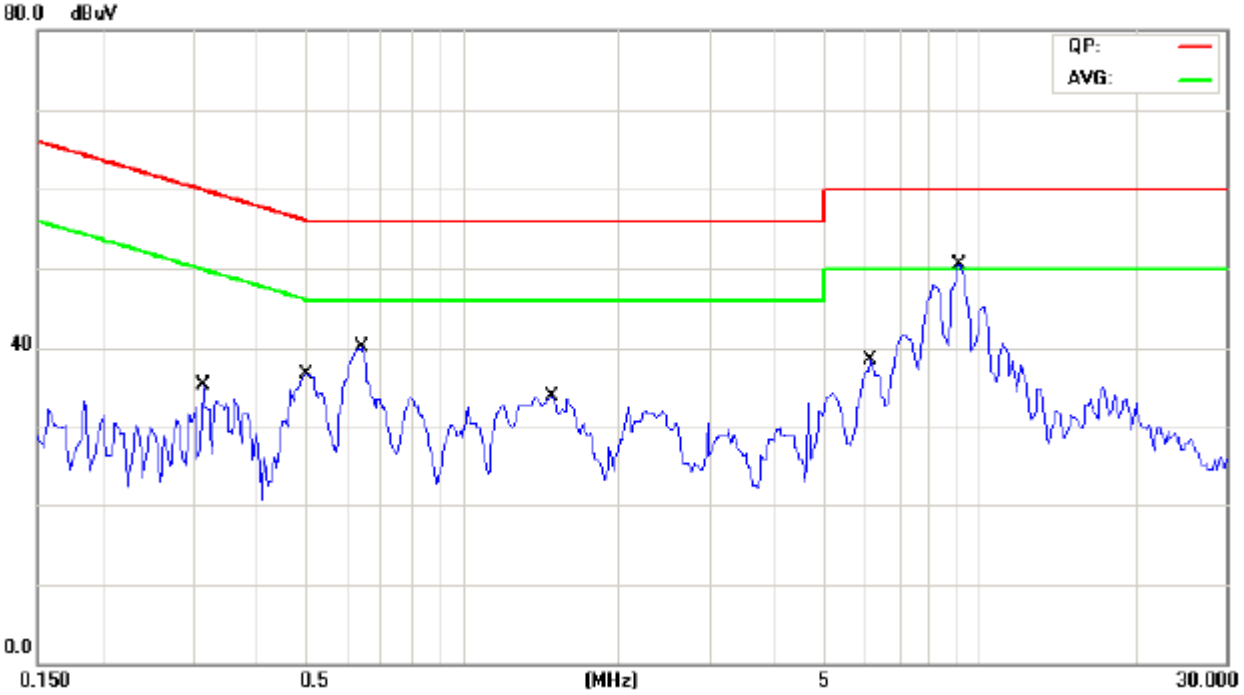
Note: The GSM850(1 UP Slot) mode is the worst(ADAPTER1) condition and the test result as following

L line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.3375	16.63	10.19	26.82	59.26	-32.44	QP	
2		0.3375	10.79	10.19	20.98	49.26	-28.28	AVG	
3		0.6148	25.79	10.65	36.44	56.00	-19.56	QP	
4		0.6148	24.96	10.65	35.61	46.00	-10.39	AVG	
5		1.1461	15.84	10.50	26.34	56.00	-29.66	QP	
6		1.1461	11.98	10.50	22.48	46.00	-23.52	AVG	
7		2.2125	17.41	10.53	27.94	56.00	-28.06	QP	
8		2.2125	13.16	10.53	23.69	46.00	-22.31	AVG	
9		8.3555	32.97	11.04	44.01	60.00	-15.99	QP	
10	*	8.3555	30.04	11.04	41.08	50.00	-8.92	AVG	
11		9.2891	34.15	11.07	45.22	60.00	-14.78	QP	
12		9.2891	25.09	11.07	36.16	50.00	-13.84	AVG	

N line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.3141	20.58	10.24	30.82	59.86	-29.04	QP	
2		0.3141	20.46	10.24	30.70	49.86	-19.16	AVG	
3		0.4977	24.80	10.44	35.24	56.04	-20.80	QP	
4		0.4977	23.04	10.44	33.48	46.04	-12.56	AVG	
5		0.6344	27.48	10.50	37.98	56.00	-18.02	QP	
6		0.6344	23.93	10.50	34.43	46.00	-11.57	AVG	
7		1.4859	21.16	10.65	31.81	56.00	-24.19	QP	
8		1.4859	18.39	10.65	29.04	46.00	-16.96	AVG	
9		6.1523	24.96	10.50	35.46	60.00	-24.54	QP	
10		6.1523	19.13	10.50	29.63	50.00	-20.37	AVG	
11		9.1367	36.13	11.06	47.19	60.00	-12.81	QP	
12	*	9.1367	31.71	11.06	42.77	50.00	-7.23	AVG	

9. FREQUENCY STABILITY

9.1. Applicable Standard

FCC § 2.1055 (a), § 2.1055 (d), §22.355, §24.235

According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table below:

Frequency Tolerance for Transmitters in the Public Mobile Services

Frequency Range (MHz)	Base, fixed (ppm)	Mobile ≤ 3 watts (ppm)	Mobile ≤ 3 watts (ppm)
25 to 50	20.0	20.0	50.0
50 to 450	5.0	5.0	50.0
450 to 512	2.5	5.0	5.0
821 to 896	1.5	2.5	2.5
928 to 929.	5.0	N/A	N/A
929 to 960.	1.5	N/A	N/A
2110 to 2220	10.0	N/A	N/A

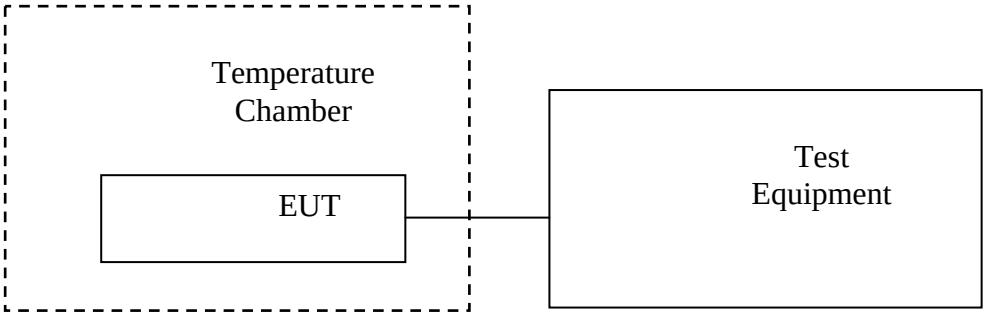
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

9.2. 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: An external variable DC power supply was connected to the battery terminals of the equipment under test. The voltage was set to 115% of the nominal value and was then decreased until the transmitter light no longer illuminated; i.e., the battery end point. The output frequency was recorded for each battery voltage.



9.3. Measurement Result

PASS

- GSM 850 data				
Middle Channel, fo=836.6MHz				
Temerature (℃)	Voltage(VDC)	Frequency Error(Hz)	Frequency Error(ppm)	Limit(ppm)
-30	3.7	-26	-0.030	2.5
-20	3.7	-21	-0.026	2.5
-10	3.7	-29	-0.033	2.5
0	3.7	-22	-0.024	2.5
10	3.7	-19	-0.022	2.5
20	3.7	-16	-0.018	2.5
30	3.7	-14	-0.017	2.5
40	3.7	-12	-0.016	2.5
50	3.7	-16	-0.019	2.5
25	3.5	-28	-0.032	2.5
25	4.2	-27	-0.031	2.5
25	3.7	-16	-0.018	2.5

Note: The time at each temperature step the equipment allowed to stabilize is 5 minutes.

- PCS 1900 data				
Middle Channel, f_o=1880.0MHz				
Temerature (℃)	Voltage(VDC)	Frequency Error(Hz)	Frequency Error(ppm)	Limit(ppm)
-30	3.7	-12	-0.006	2.5
-20	3.7	-11	-0.005	2.5
-10	3.7	-9	-0.004	2.5
0	3.7	-5	-0.002	2.5
10	3.7	-4	-0.003	2.5
20	3.7	-5	-0.003	2.5
30	3.7	-5	-0.003	2.5
40	3.7	-8	-0.004	2.5
50	3.7	-11	-0.006	2.5
25	3.5	-14	-0.007	2.5
25	4.2	-12	-0.006	2.5
25	3.7	-5	-0.003	2.5

Note: The time at each temperature step the equipment allowed to stabilize is 5 minutes.

10. OCCUPIED BANDWIDTH

10.1.MEASUREMENT METHOD

The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

10.2.PROVISIONS APPLICABLE

The occupied bandwidth (99%) shall not exceed 300 KHz.

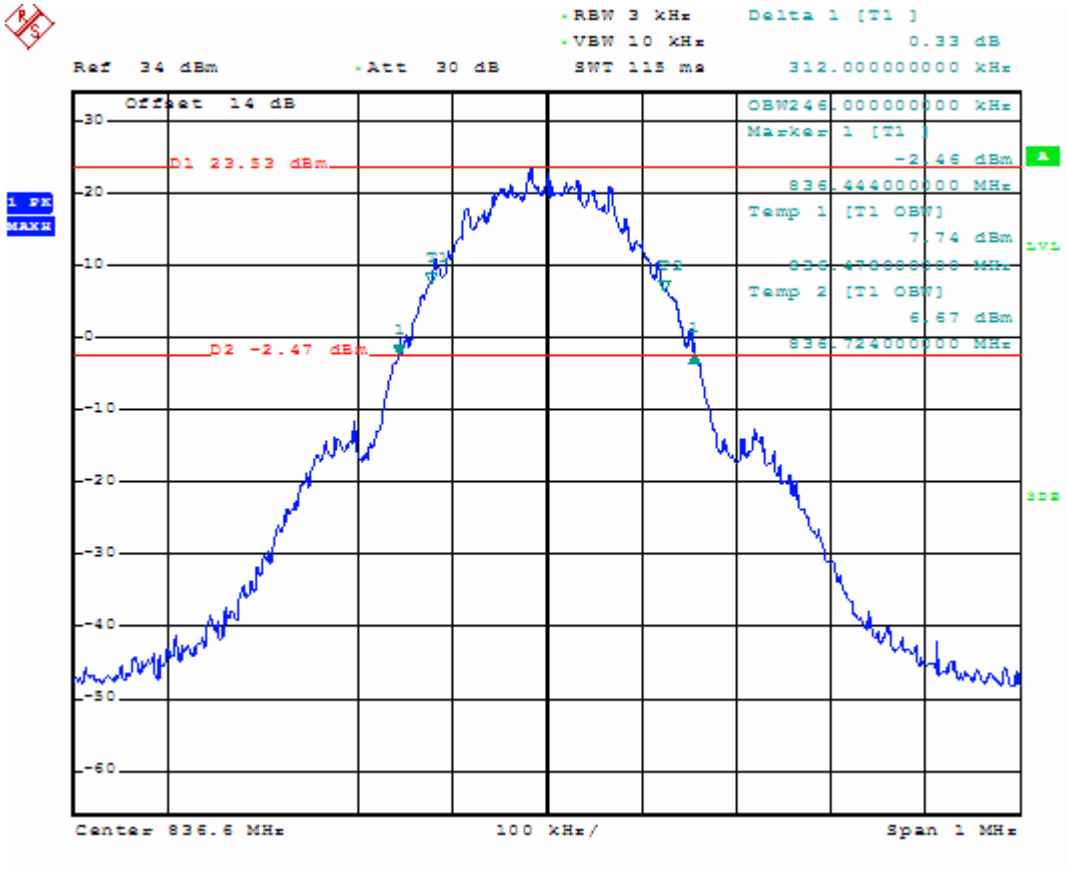
10.3.MEASUREMENT RESULT

Occupied Bandwidth (99%) for GSM850 band		
Mode	Frequency(MHz)	Occupied Bandwidth (99%)(kHz)
Middle Channel	836.6	246.00

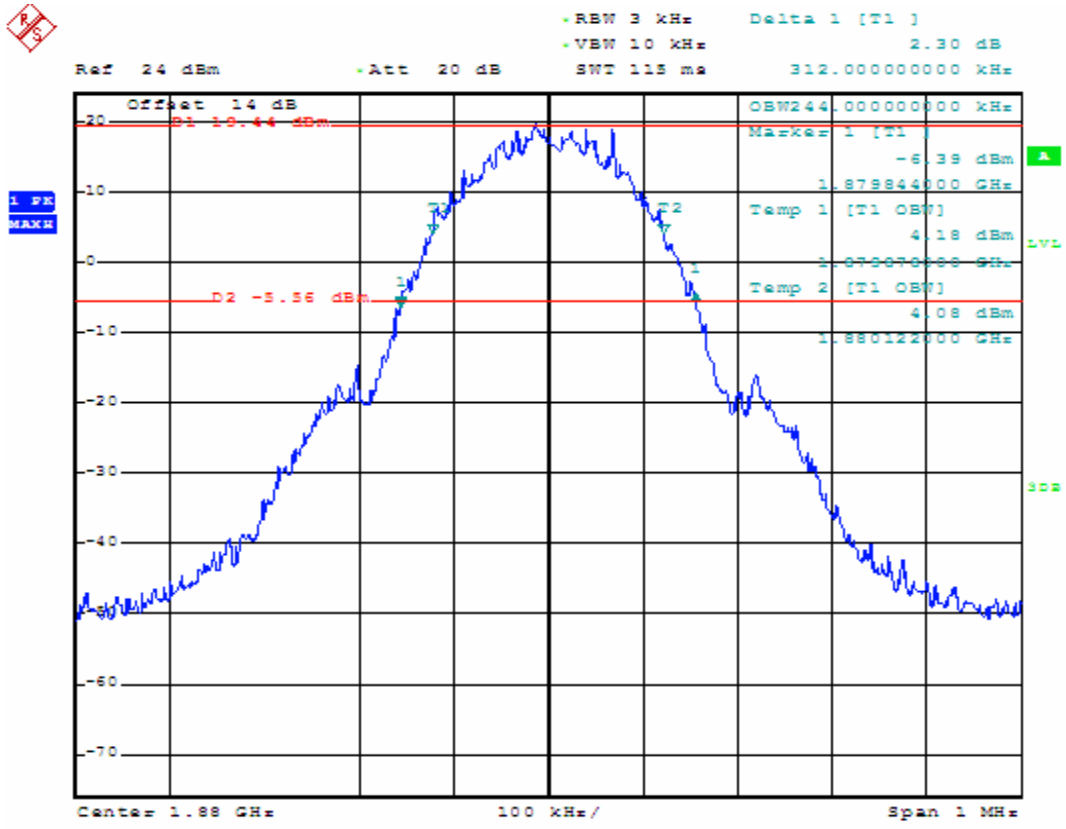
Occupied Bandwidth (99%) for PCS1900 band		
Mode	Frequency(MHz)	Occupied Bandwidth (99%)(kHz)
Middle Channel	1880.0	244.00

Note: The middle channel, which is the worst case, is reported only.

GSM850 band middle Channel



GSM1900 band middle Channel



11. EMISSION BANDWIDTH

11.1.MEASUREMENT METHOD

The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

11.2.PROVISIONS APPLICABLE

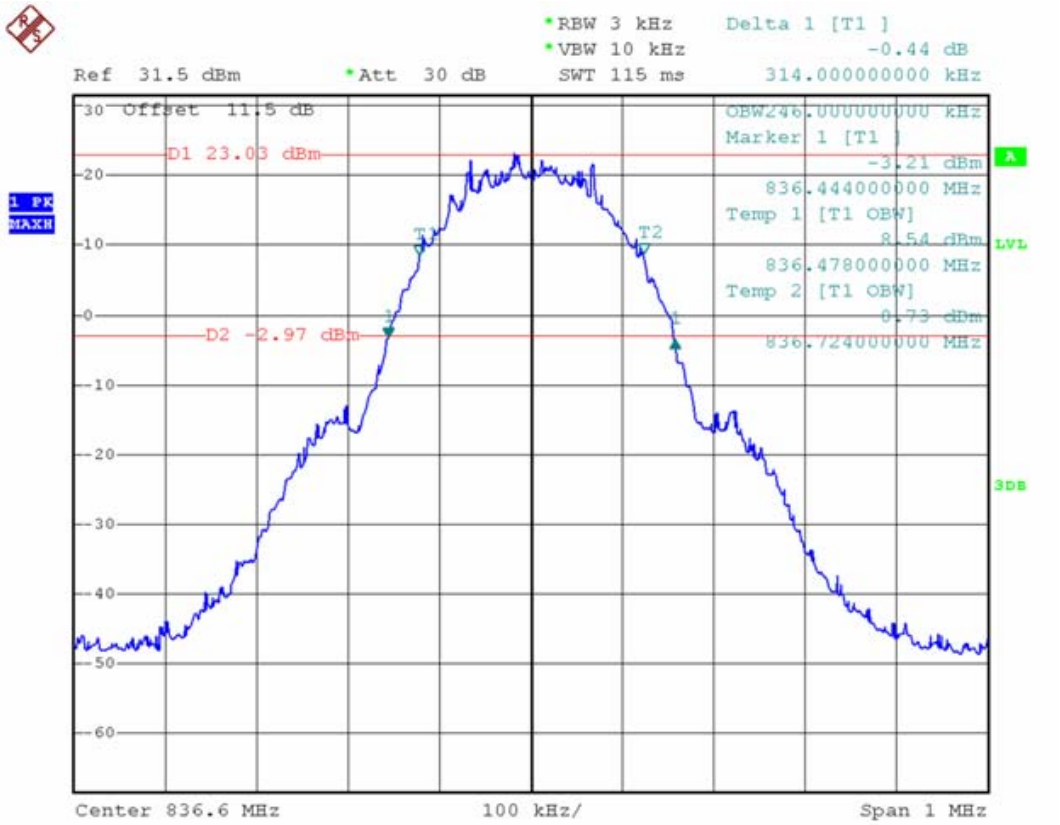
The emission bandwidth is defined as two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26dB below the transmitter power

11.3.MEASUREMENT RESULT

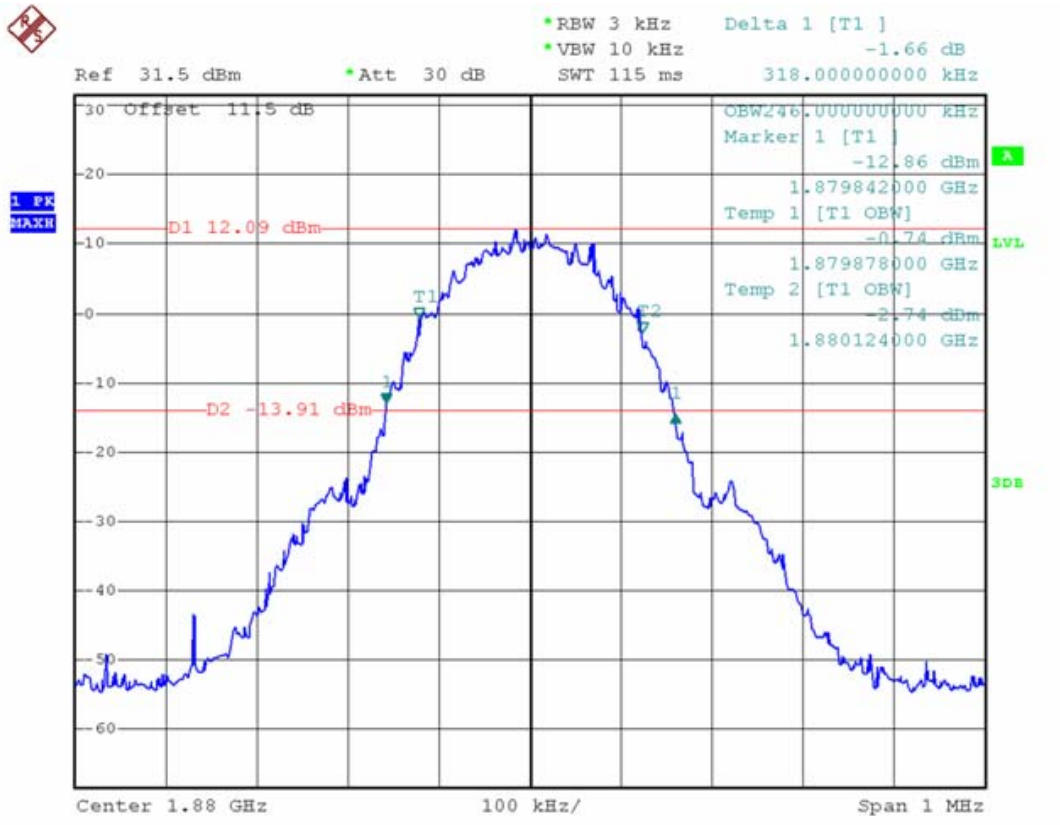
Emission Bandwidth (-26dBc) for GSM850 band		
Mode	Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)
Middle Channel	836.6	314.00

Emission Bandwidth (-26dBc) for PCS1900 band		
Mode	Frequency(MHz)	Emission Bandwidth (-26dBc)(kHz)
Middle Channel	1880.0	318.00

GSM850 band middle Channel



GSM1900 band middle Channel



12. BAND EDGE

12.1.MEASUREMENT METHOD

The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

12.2.PROVISIONS APPLICABLE

as Specified in FCC rules of 22.917(b) and 24.238(b)

12.3.MEASUREMENT RESULT

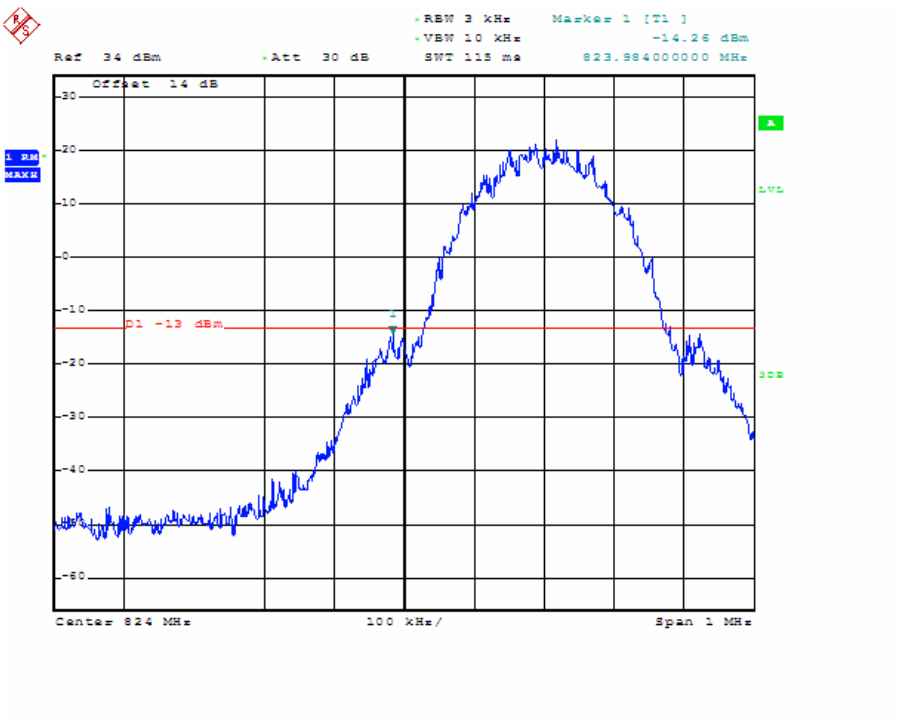
Cellular Band (Part 22H)

Channel	Emission (dBm)	Limit (dBm)
824.2MHz	-14.26	-13
848.8MHz	-15.08	-13

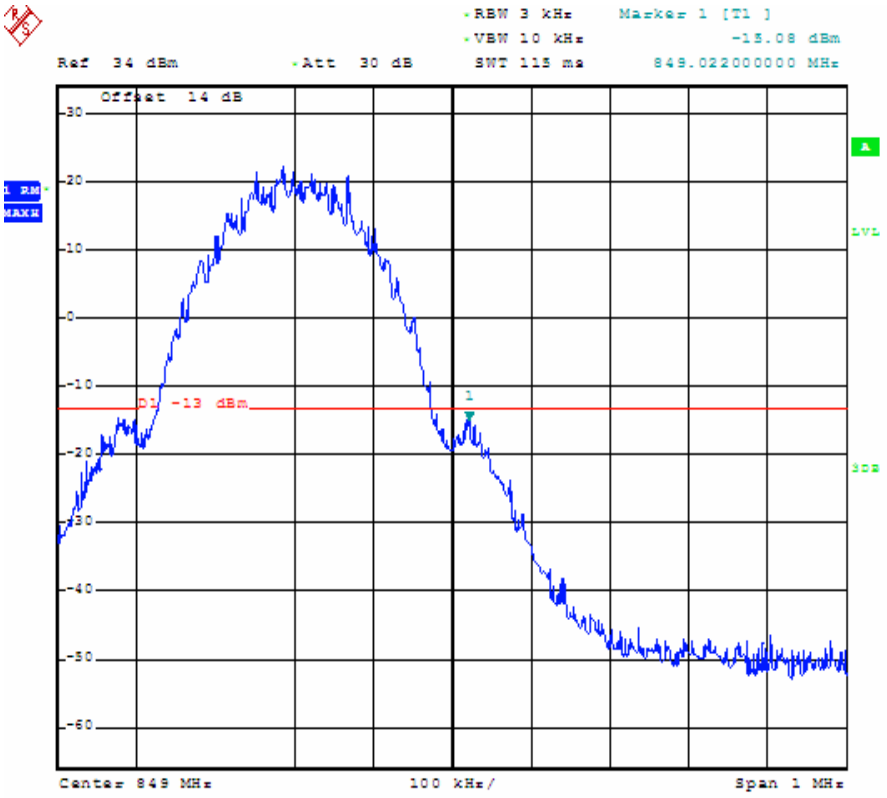
PCS Band (Part 24E)

Channel	Emission (dBm)	Limit (dBm)
1850.2MHz	-15.82	-13
1909.8MHz	-18.17	-13

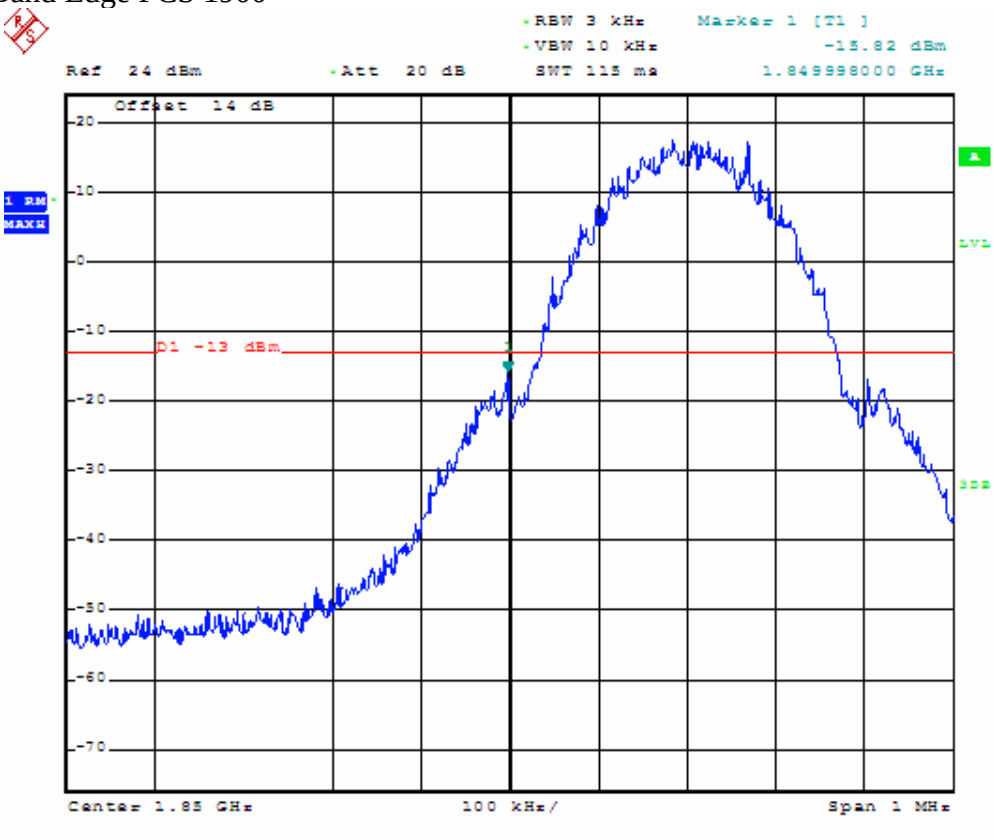
Low Band Edge GSM 850



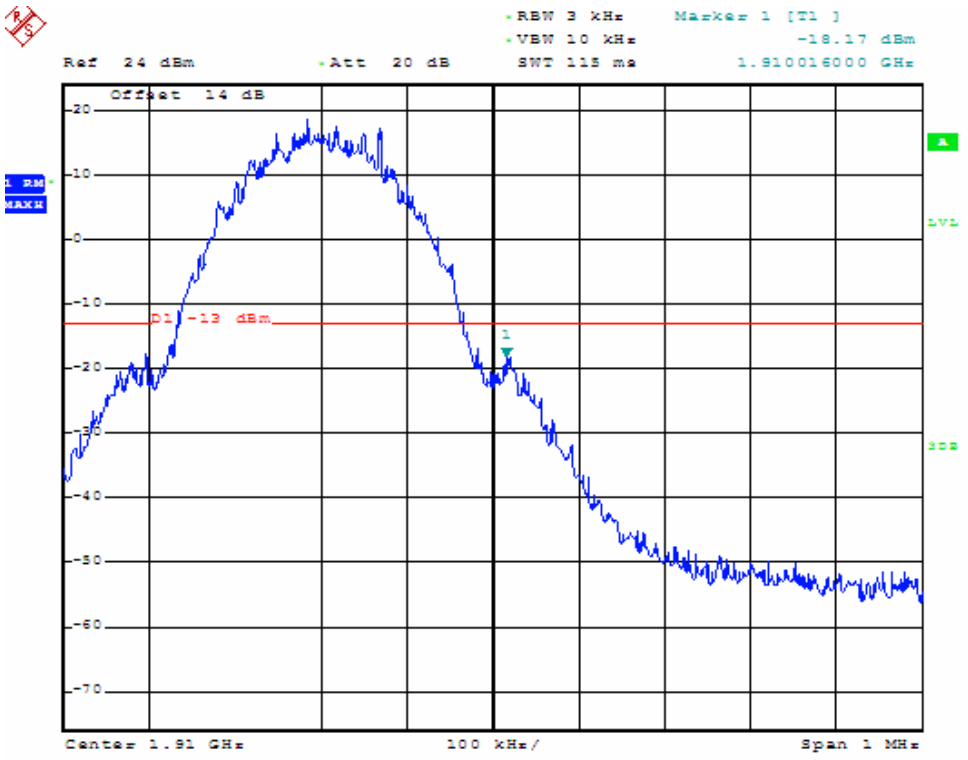
High Band Edge GSM 850



Low Band Edge PCS 1900



High Band Edge PCS 1900



End of the report