FCC RADIO TEST REPORT
FCC ID: 2AC5CD260

Product： Mobile Phone

Trade Name： D3

Model Number： D26

Serial Model： N/A

Prepared for

Londa industry limited

ROOM636, Gongyi block,No.55 zhenhua road,Shenzhen, Guangdong,China

Prepared by

Shenzhen Asia Test Technology Co.,Ltd.

1/6, Bldg.8, Zhonghua Industrial City, Chuangye Rd., Nanshan District, Shenzhen, Guangdong, China

TEST RESULT CERTIFICATION

Applicant's name.....	Londa industry limited
Address.....	ROOM636, Gongyi block,No.55 zhenhua road,Shenzhen, Guangdong,China
Manufacture's Name.....	Londa industry limited
Address.....	ROOM636, Gongyi block,No.55 zhenhua road,Shenzhen, Guangdong,China
Product name.....	Mobile Phone
Model and/or type reference	D26
Serial Model:	N/A
Standards	FCC Part 22H and 24E
Test procedure.....	ANSI C63.4-2003, TIA/EIA 603

This device described above has been tested by ATT, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test.....	
Date (s) of performance of tests....	Oct 25, 2014 ~ Nov 19, 2014
Date of Issue.....	Nov 19, 2014
Test Result	**Pass**

Testing Engineer	:	Eric Wang (Eric Wang)
Technical Manager	:	Jerry You (Jerry You)
Authorized Signatory	:	Jack yu (Jack yu)

Contents

1. TEST STANDARDS ANDTEST DESCRIPTION

1.1. Test Standards

The tests were performed according to following standards:

FCC Part 22(10-1-13 Edition): PRIVATE LAND MOBILE RADIO SERVICES.
FCC Part 24(10-1-13 Edition): PUBLIC MOBILE SERVICES
TIA/EIA 603 D June 2010: Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.
47 CFR FCC Part 15 Subpart B: - Unintentional Radiators
FCC Part 2: FREQUENCY ALLOCA-TIONS AND RADIO TREATY MAT-TERS; GENERAL RULES AND REG-ULATIONS
KDB971168 D01:2013-06-07Procedures for Compliance Measurement of the Fundamental Emission Power of Licensed Wideband (> 1 MHz) Digital Transmission Systems
ANSI C63.4:2003 Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

1.2. Test Description

Test Item	Section in CFR 47	Result
AC Power Conducted Emission	Part 15.207	Pass
RF Output Power	Part 2.1046 Part 22.913 (a)(2) Part 24.232 (c)	Pass
Modulation Characteristics	Part 2.1047	Pass
99% & -26 dB Occupied Bandwidth	Part 2.1049 Part 22.917 Part 24.238	Pass
Spurious Emissions at Antenna Terminal	Part 2.1051 Part 22.917 (a) Part 24.238 (a)	Pass
Field Strength of Spurious Radiation	Part 2.1053 Part 22.917 (a) Part 24.238 (a)	Pass
Out of band emission, Band Edge	Part 22.917 (a) Part 24.238 (a)	Pass
Frequency stability vs. temperature	Part 2.1055(a)(1)(b)	Pass
Frequency stability vs. voltage	Part 2.1055(d)(1)(2)	Pass

Remark: The measurement uncertainty is not included in the test result.

2. SUMMARY

2.1. Client Information

Applicant:	Londa industry limited
Address:	ROOM636, Gongyi block,No.55 zhenhua road,Shenzhen, Guangdong,China
Manufacturer:	Londa industry limited
Address:	ROOM636, Gongyi block,No.55 zhenhua road,Shenzhen, Guangdong,China

2.2. Product Description

Name of EUT	mobile phone
Model No.:	D26
List Model:	N/A
Power supply:	DC 3.7V for lithium battery
Adapter information:	Input: AC100-240V, 0.15 A, 50/60 Hz Output: DC 5V, 600mA
2G:	
Support Network:	GSM, GPRS
Support Band:	GSM850, DCS1900
Modulation:	GSM/GPRS: GMSK
Transmit Frequency:	GSM850: 824.20MHz-848.80MHz PCS1900: 1850.20MHz-1909.80MHz
Receive Frequency:	GSM850: 869.20MHz-893.80MHz PCS1900: 1930.20MHz-1989.80MHz
GPRS Class:	12
Antenna type:	PIFA Antenna
Antenna gain:	0dBi
Software version:	N/A
Hardware version:	N/A
3G:	
Operation Band:	FDD Band II
Power Class:	Power Class 3
Modilation Type:	QPSK for WCDMA/HSUPA/HSDPA
WCDMA Release Version:	R7
HSDPA Release Version:	Release 8
HSUPA Release Version:	Release 6
DC-HSUPA Release Version:	Not Supported
Antenna type:	PIFA Antenna
Antenna gain:	0dBi

Test Frequency:

GSM 850		PCS1900	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
128	824.20	512	1850.20
190	836.60	661	1880.00
251	848.80	810	1909.80

FDD Band II	
Channel	Frequency (MHz)
9262	1852.4
9400	1880.0
9538	1907.6

2.3. EUT operation mode

The EUT has been tested under typical operating condition. The Applicant provides software to control the EUT for staying in continuous transmitting and receiving mode for testing.

2.4. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

● - supplied by the manufacturer

○ - supplied by the lab

○	Power Cable	Length (m) :	/
		Shield :	/
		Detachable :	/
○	Multimeter	Manufacturer :	/
		Model No. :	/

2.5. Modifications

No modifications were implemented to meet testing criteria.

3. TEST ENVIRONMENT

3.1. Address of the test laboratory

Shenzhen STONE Testing Technology Co.,Ltd.
F/6, Bldg.12, Zhongxing Industrial City, Chuangye Rd., Nanshan District Shenzhen P.R. China.
The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003.
FCC Registration No.: 323508
IC Registration No.: 11043A

3.2. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Normal Temperature/Tnor:	15~35°C
lative Humidity	30~60 %
Air Pressure	950-1050 hPa

3.3. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01"Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 1"and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 2 " and is documented in the STT Testing Technology Co., Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen Huatongwei laboratory is reported:

Test Items	MeasurementUncertainty	Notes
Frequency stability	25 Hz	(1)
Transmitter power conducted	0.57 dB	(1)
Transmitter power Radiated	2.20 dB	(1)
Conducted spurious emission 9KHz-12.75 GHz	1.60 dB	(1)
Conducted Emission 9KHz-30MHz	3.39 dB	(1)
Radiated Emission 30~1000MHz	4.24 dB	(1)
Radiated Emissio 1~18GHz	5.16 dB	(1)
Radiated Emissio 18-40GHz	5.54 dB	(1)
Occupied Bandwidth	---------	(1)
Emission Mask	---------	(1)
Modulation Characteristic	---------	(1)
Transmitter Frequency Behavior	---------	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

3.4. Equipments Used during the Test

AC Power Conducted Emission						
No.	Equipment	Manufacturer	Model No.	SerialNo.	Last Cal.	Next cal. Date
1	Artificial Mains	Rohde&Schwarz	ESH2-Z5	100045	2014/10/26	2015/10/25
2	EMI Test Receiver	Rohde&Schwarz	ESCS 30	100066	2014/10/26	2015/10/25
3	Pulse Limiter	Rohde&Schwarz	ESHSZ2	100042	2014/10/26	2015/10/25
4	EMI Test Software	Rohde&Schwarz	ES-K1 V1.71	N/A	N/	N/
5	UNIVERSAL RADIO COMMUNICATIO N	Rohde&Schwarz	CMU200	112064	2014/10/26	2015/10/25
6	Cable 0.009-30MHz	R&S	C01	201309C006	2014.06.08	2015.06.07

Output Power(Conducted) &Occupied Bandwidth&Emission Bandwidth&Band Edge Compliance&Conducted Spurious Emission						
No.	Equipment	Manufacturer	Model No.	SerialNo.	Last Cal.	Next cal. Date
1	UNIVERSAL RADIO COMMUNICATIO N	Rohde&Schwarz	CMU200	112064	2014/10/26	2015/10/25
2	Spectrum Analyzer	Rohde&Schwarz	FSU26	201154	2014/10/26	2015/10/25
3	Splitter	Mini-Circuit	ZAPD-4	400037	2014/10/26	2015/10/25
4	Power Meter	Anritsu	MA2411B	R101077	2014/10/25	2015/10/24
5	Spectrum Analyzer	Agilent	E4407B	MY45108040	2014/07/06	2015/07/05
6	RF Cable (1-26.5g)	R&S	RF01	201409RF001	2014.06.08	2015.06.07

Frequency Stability						
No.	Equipment	Manufacturer	Model No.	SerialNo.	Last Cal.	Next cal. Date
1	UNIVERSAL RADIO COMMUNICATIO N	Rohde&Schwarz	CMU200	112012	2014/10/26	2015/10/25
2	Spectrum Analyzer	Rohde&Schwarz	FSU26	201141	2014/10/26	2015/10/25
3	Climate Chamber	ESPEC	EL-10KA	05107008	2014/10/26	2015/10/25
4	Splitter	Mini-Circuit	ZAPD-4	400059	2014/10/26	2015/10/25

Output Power (Radiated) &Radiated Spurious Emission						
No.	Equipment	Manufacturer	Model No.	SerialNo.	Last Cal.	Next cal. Date
1	UNIVERSAL RADIO COMMUNICATION	Rohde&Schwarz	CMU200	112012	2014/10/26	2015/10/25
2	Spectrum Analyzer	Rohde&Schwarz	FSU26	201141	2014/10/26	2015/10/25
3	HORNANTENNA	ShwarzBeck	9120D	1012	2014/10/26	2015/10/25
4	HORNANTENNA	ShwarzBeck	9120D	1011	2014/10/26	2015/10/25
5	Ultra-Broadband Antenna	ShwarzBeck	VULB9163	538	2014/10/26	2015/10/25
6	Ultra-Broadband Antenna	ShwarzBeck	VULB9163	539	2014/10/26	2015/10/25

7	TURNTABLE	MATURO	TT2.0	----	N/A	N/A
8	ANTENNA MAST	MATURO	TAM-4.0-P	----	N/A	N/A
9	EMI Test Software	Audix	E3	N/A	N/A	N/A
10	EMI Test Receiver	Rohde&Schwarz	ESIB 26	100009	2014/10/26	2015/10/25
11	RF Test Panel	Rohde&Schwarz	TS / RSP	335015/ 0017	N/A	N/A
12	High pass filter	Compliance Direction systems	BSU-6	34202	2014/10/26	2015/10/25
13	Splitter	Mini-Circuit	ZAPD-4	400059	2014/10/26	2015/10/25
14	Horn Antenna	SCHWARZBECK	BBHA9170	25841	2014/10/26	2015/10/25
15	Horn Antenna	SCHWARZBECK	BBHA9170	25842	2014/10/26	2015/10/25
16	Preamplifier	ShwarzBeck	BBV 9718	BBV 9718	2014/10/26	2015/10/25
17	Broadband Preamplifier	ShwarzBeck	BBV743	9743-0079	2014/10/26	2015/10/25
18	Signal Generator	Rohde&Schwarz	SMF100A	101932	2014/10/26	2015/10/25
19	Amplifer	Compliance Direction systems	PAP1-4060	120	2014/10/26	2015/10/25
20	TURNTABLE	ETS	2088	2149	N/A	N/A
21	ANTENNA MAST	ETS	2075	2346	N/A	N/A
22	HORNANTENNA	Rohde&Schwarz	HF906	100068	2014/10/26	2015/10/25
23	HORNANTENNA	Rohde&Schwarz	HF906	100039	2014/10/26	2015/10/25
24	RF Cable (1-26.5g)	R&S	RF02	201409RF002	2014.06.08	2015.06.07
25	RF Cable (30-1000MHz)	R&S	RF03	201409RF003	2014.06.08	2015.06.07

The calibration interval was one year.

4. TEST CONDITIONS AND RESULTS

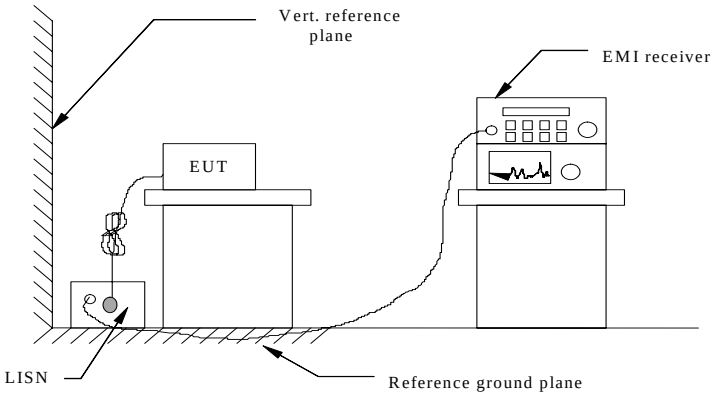
4.1. Conducted Emissions Test

LIMIT:

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

* Decreasing linearly with the logarithm of the frequency

TEST CONFIGURATION



TEST PROCEDURE

1 The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4-2009.
2 Support equipment, if needed, was placed as per ANSI C63.4-2009.
3 All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4-2009.
4 If a EUT received DC power from the adapter, the adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5 All support equipments received AC power from a second LISN, if any.
6 The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7 Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
8 During the above scans, the emissions were maximized by cable manipulation.

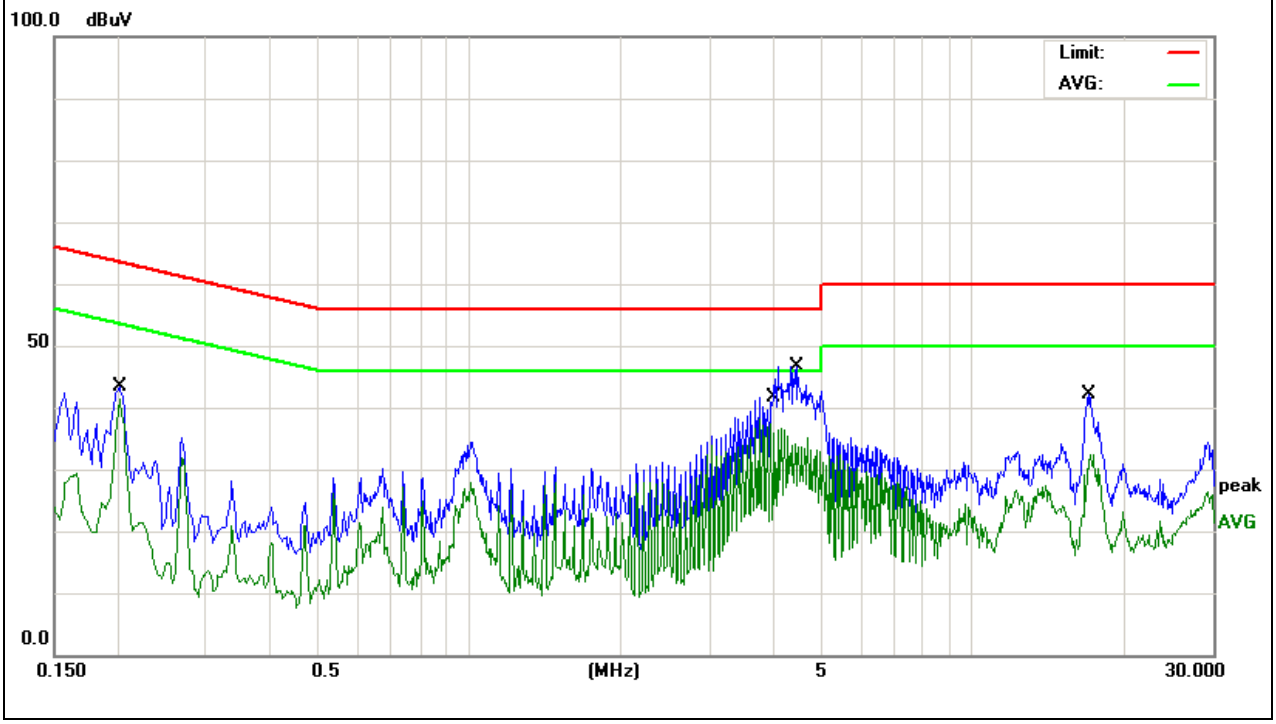
TEST RESULTS

Note: We tested all modes and recorded the worst case at GSM900

EUT：	Mobile phone	Model Name. ：	D26
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Test Date :	2014-11-14
Test Mode：	GSM 850	Phase :	L
Test Voltage ：	DC 5V from adapter AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector
0.2020	32.91	10.44	43.35	63.52	-20.17	QP
0.2020	31.03	10.44	41.47	53.52	-12.05	AVG
3.9740	26.76	10.62	37.38	46.00	-8.62	AVG
4.4940	36.04	10.64	46.68	56.00	-9.32	QP
16.9860	31.46	10.71	42.17	60.00	-17.83	QP
17.1100	21.78	10.71	32.49	50.00	-17.51	AVG

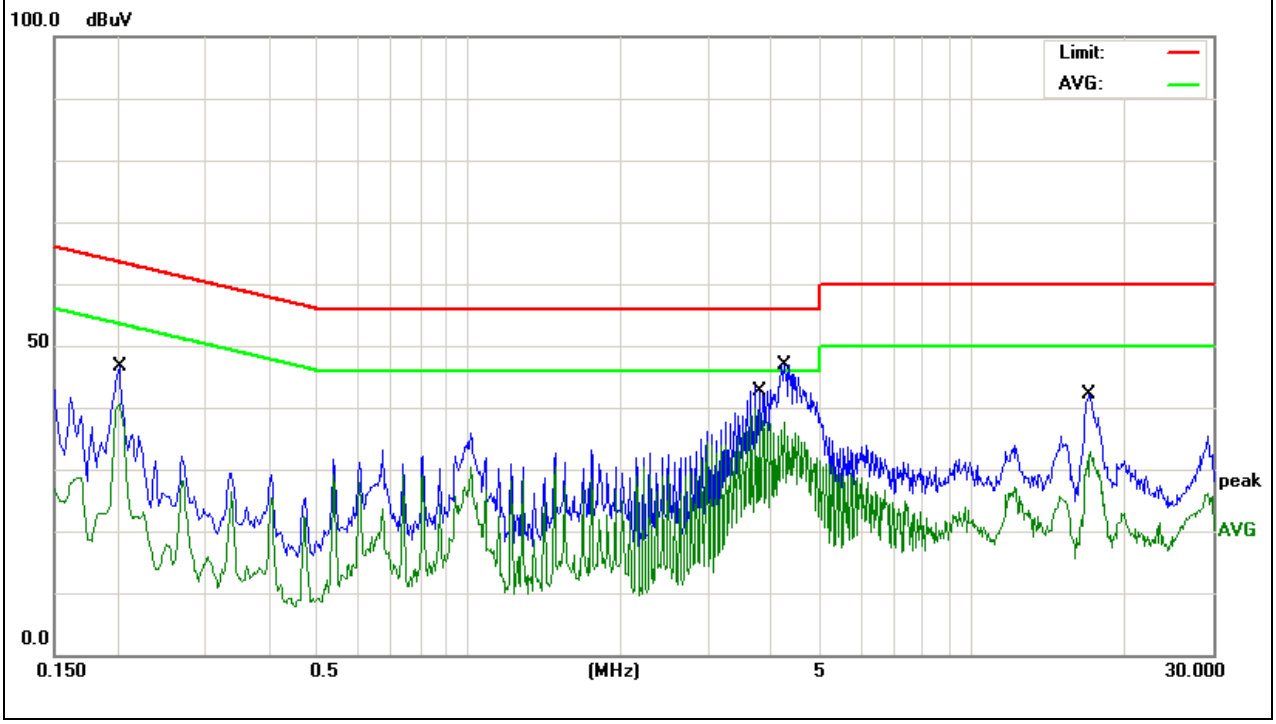
Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. N/A means All Data have pass Limit



EUT：	Mobile phone	Model Name. ：	D26
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Test Date :	2014-11-14
Test Mode：	GSM 850	Phase :	N
Test Voltage ：	DC 5V from adapter AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector
0.2020	36.23	10.43	46.66	63.52	-16.86	QP
0.2020	30.26	10.43	40.69	53.52	-12.83	AVG
3.7700	28.39	10.66	39.05	46.00	-6.95	AVG
4.2420	36.30	10.65	46.95	56.00	-9.05	QP
17.0459	31.27	10.74	42.01	60.00	-17.99	QP
17.1780	22.26	10.74	33.00	50.00	-17.00	AVG

Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. N/A means All Data have pass Limit



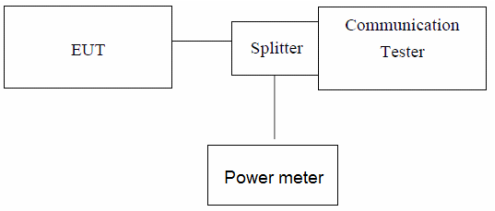
4.2. Conducted Peak Output Power

LIMIT:

GSM850/WCDMA Band V: 7W

PCS1900/WCDMA Band II: 2W

TEST CONFIGURATION



Note: Measurement setup for testing on Antenna connector

TEST PROCEDURE

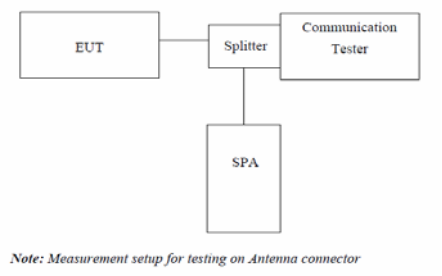
1. The transmitter output port was connected to base station.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator, the path loss was compensated to the results for each measurement.
3. Set EUT at maximum power through base station.
4. Select lowest, middle, and highest channels for each band and different modulation.
5. Measure the maximum burst average power.

TEST RESULTS

EUT Mode	Channel	Frequency (MHz)	PK Power (dBm)	AVG Power (dBm)	Limit (dBm)	Result
GSM 850 (GMSK)	128	824.20	32.46	32.23	38.45	Pass
	190	836.60	32.35	32.15		
	251	848.80	32.52	32.27		
GPRS850 (GMSK,1Slot)	128	824.20	32.43	32.15	38.45	Pass
	190	836.60	32.26	32.11		
	251	848.80	32.18	32.04		
PCS1900 (GMSK)	512	1850.20	31.26	30.52	33.01	Pass
	661	1880.00	31.16	30.34		
	810	1909.80	31.24	30.45		
GPRS1900 (GMSK,1Slot)	512	1850.20	30.87	30.35	33.01	Pass
	661	1880.00	30.63	30.19		
	810	1909.80	30.85	30.31		
WCDMA Band II	9262	1852.40	22.98	22.75	33.01	Pass
	9400	1880.00	22.82	22.53		
	9538	1907.60	22.88	22.56		

4.3. Occupy Bandwidth

TEST CONFIGURATION



Note: Measurement setup for testing on Antenna connector

TEST PROCEDURE

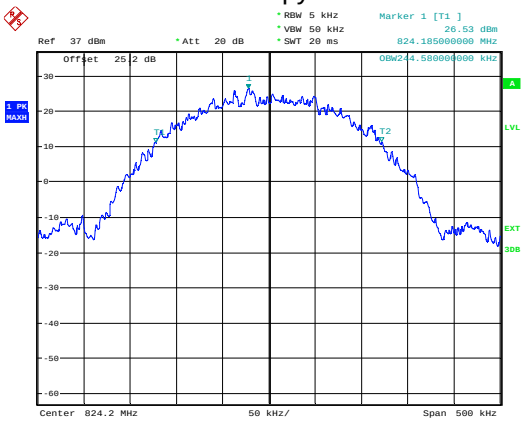
1. The EUT's output RF connector was connected with a short cable to the spectrum analyzer
2. RBW was set to about 1% of emission BW, VBW= 3 times RBW.
3. -26dBc display line was placed on the screen (or 99% bandwidth); the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

TEST RESULTS

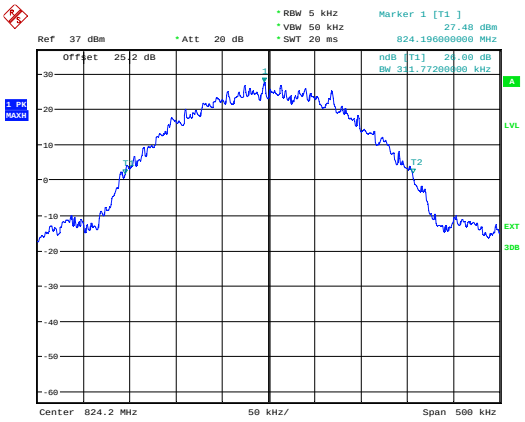
EUT Mode	Channel	Frequency (MHz)	99% Occupy bandwidth (KHz)	-26dB bandwidth (KHz)
GSM 850 (GMSK)	128	824.20	244.58	311.77
	190	836.60	244.41	314.16
	251	848.80	242.78	315.05
GPRS850 (GMSK,1Slot)	128	824.20	242.81	305.35
	190	836.60	246.06	307.71
	251	848.80	244.99	316.34
PCS1900 (GMSK)	512	1850.20	245.00	318.36
	661	1880.00	247.07	312.68
	810	1909.80	247.78	313.58
GPRS1900 (GMSK,1Slot)	512	1850.20	245.36	317.67
	661	1880.00	246.16	316.05
	810	1909.80	244.44	315.88
WCDMA Band II	9262	1852.4	4245	4786
	9400	1880.0	4155	4798
	9538	1907.6	4153	4735

GSM850 For GMSK Moudlation

99% Occupy bandwidth



-26dB bandwidth



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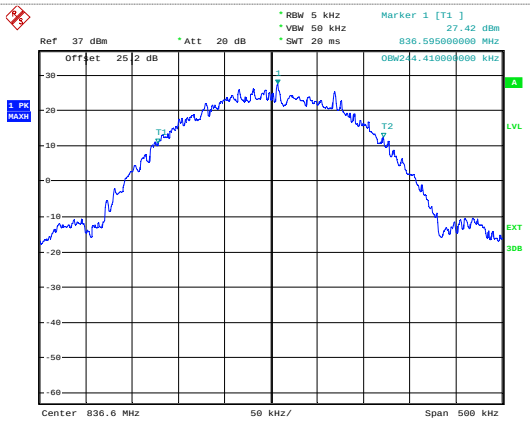

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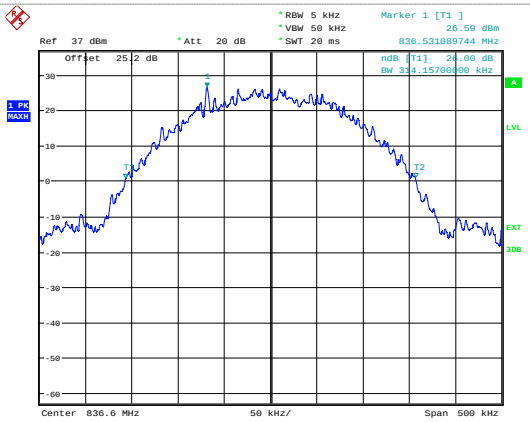

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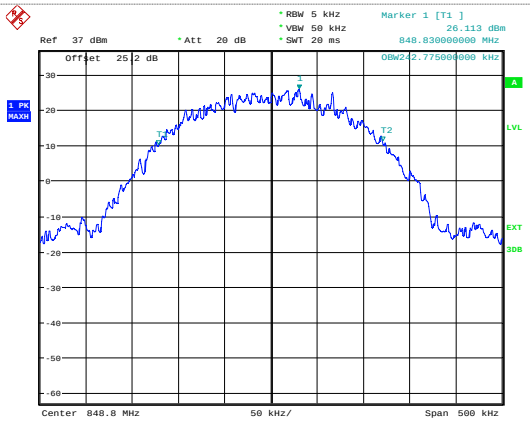

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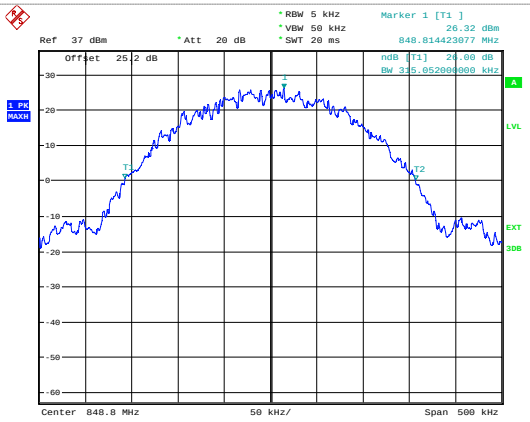
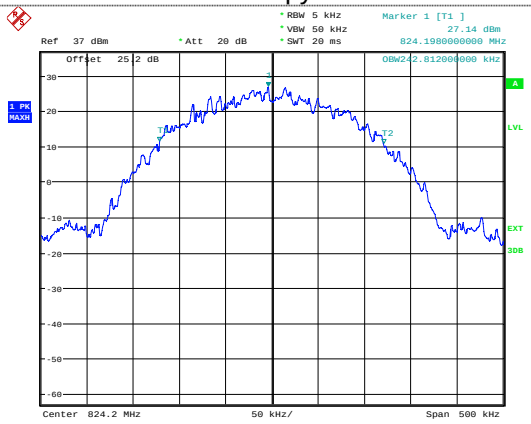


Channel 251

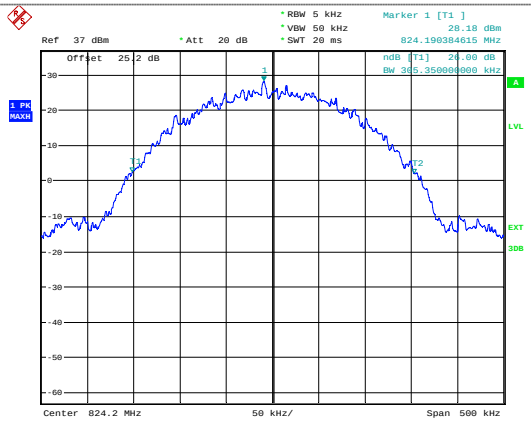
Channel 251

GPRS850 For GMSK Moudlation

99% Occupy bandwidth



-26dB bandwidth



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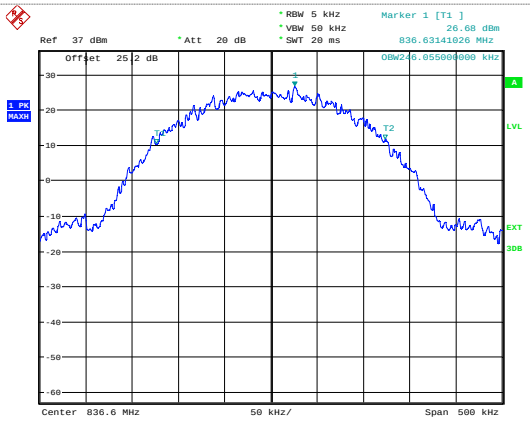

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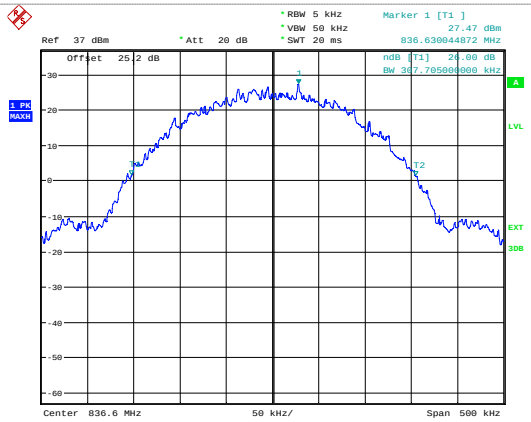
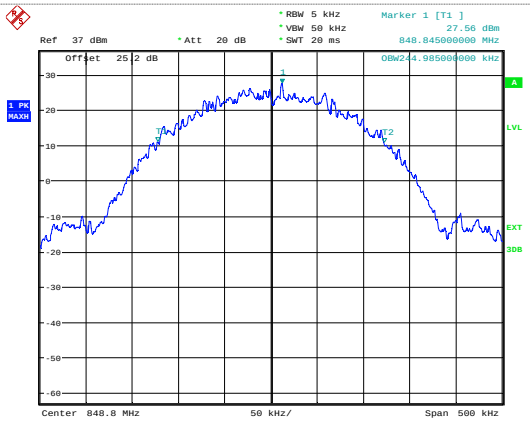
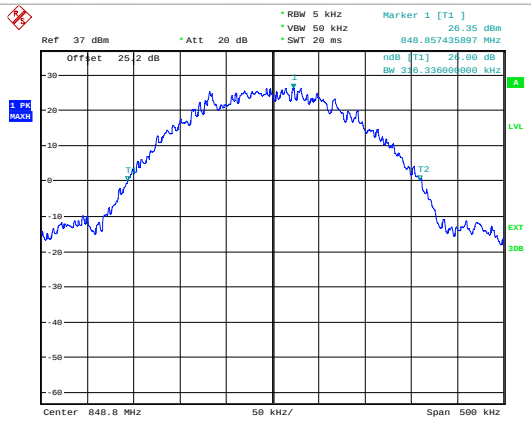


Channel 190



Channel 190

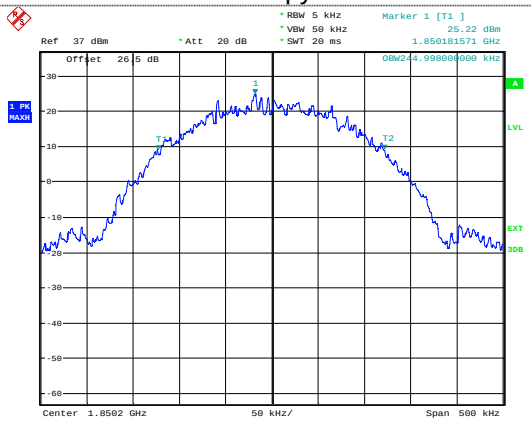


Channel 251

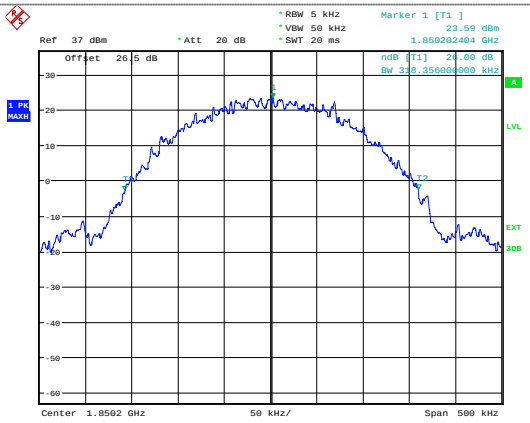
Channel 251

PCS1900 For GMSK Moudlation

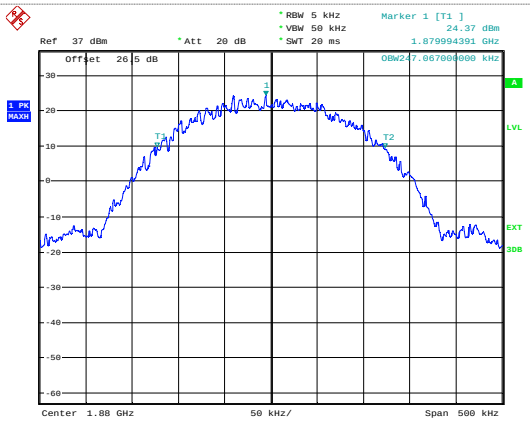
99% Occupy bandwidth



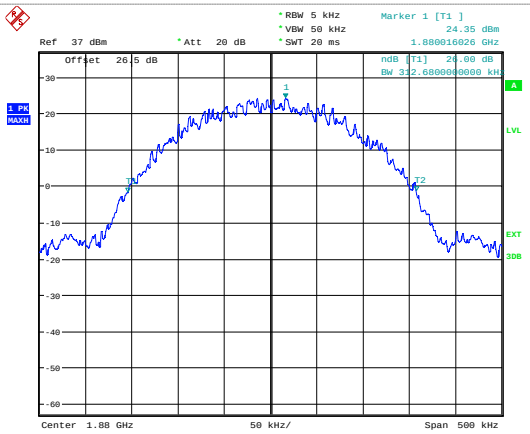
-26dB bandwidth



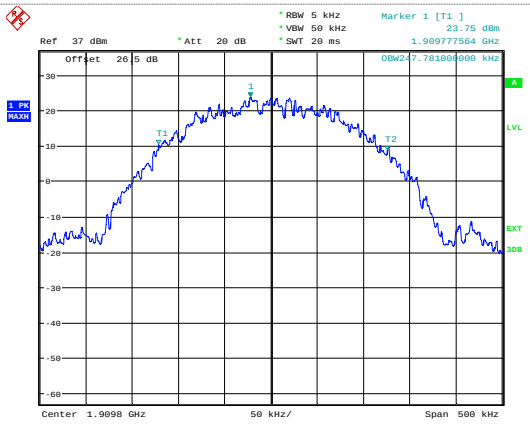
Channel 512



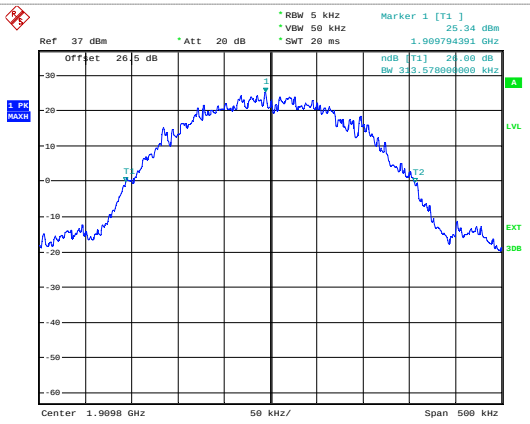
Channel 512



Channel 661



Channel 661

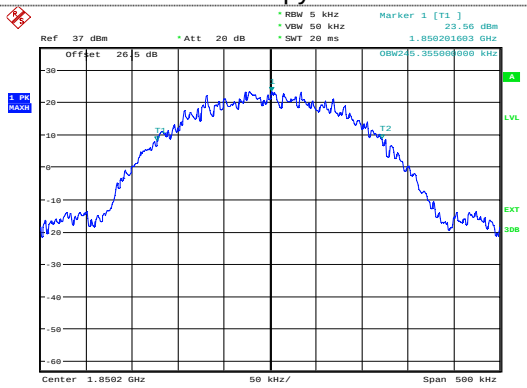


Channel 810

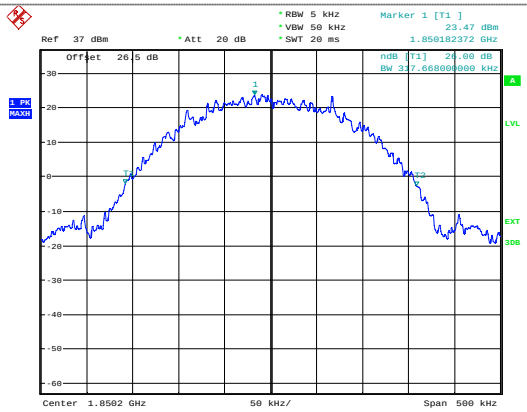
Channel 810

GPRS1900 For GMSK Moudlation

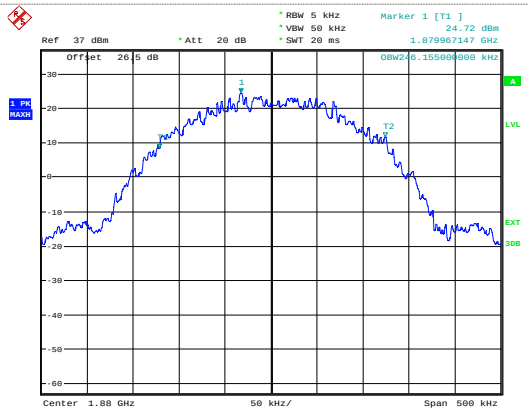
99% Occupy bandwidth



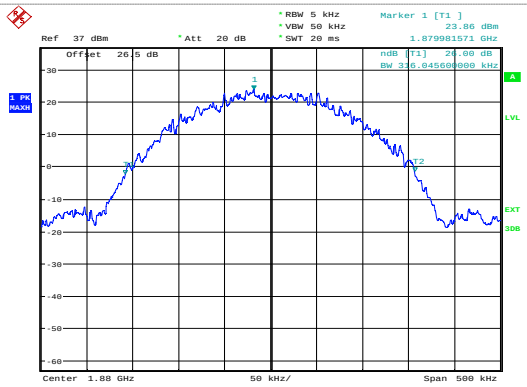
-26dB bandwidth



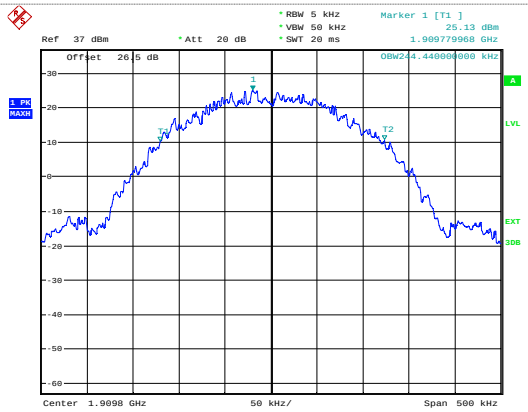
Channel 512



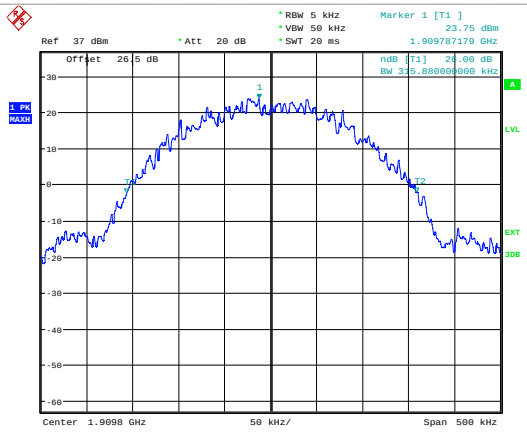
Channel 512



Channel 661



Channel 661

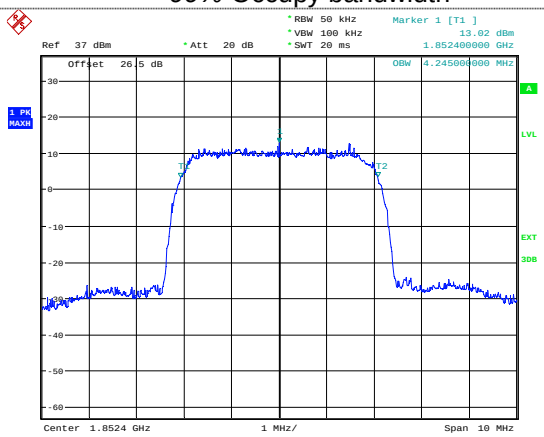


Channel 810

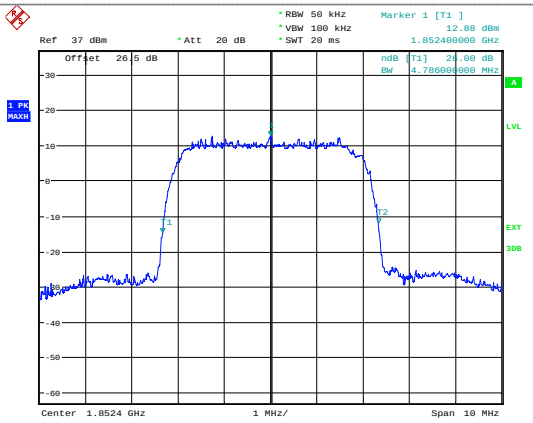
Channel 810

WCDMA Band II

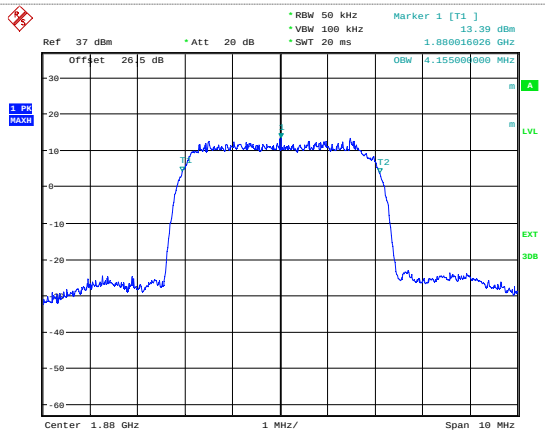
99% Occupy bandwidth



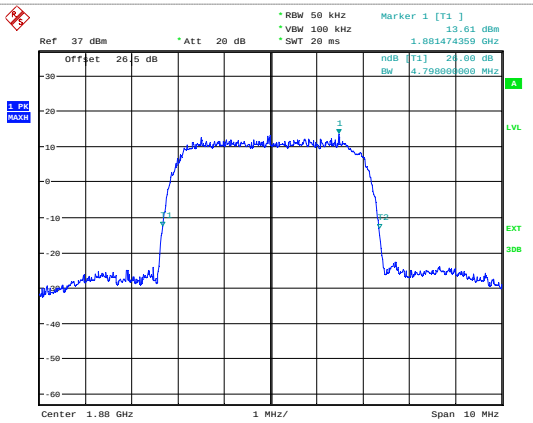
-26dB bandwidth



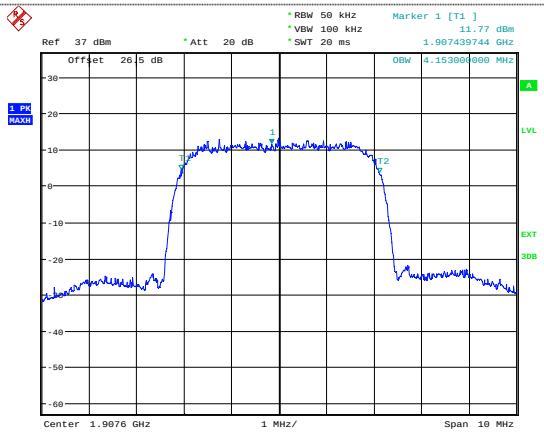
Channel 9262



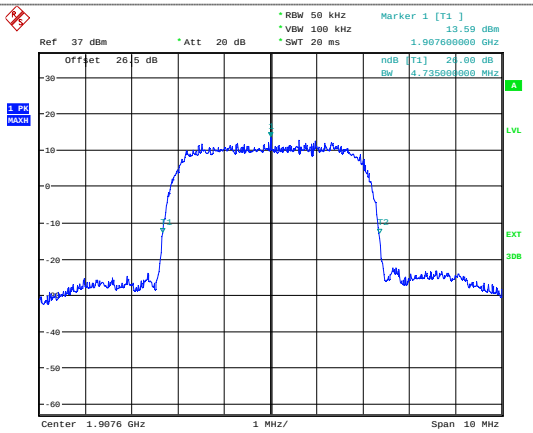
Channel 9262



Channel 9400



Channel 9400



Channel 9538

Channel 9538

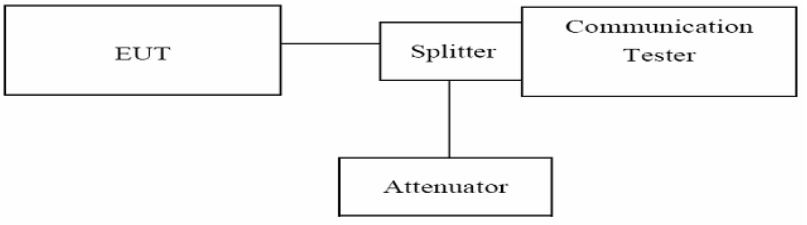
4.4. Out of band emission at antenna terminals

LIMIT

Part 24.238 and Part 22.917 specify that 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 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.

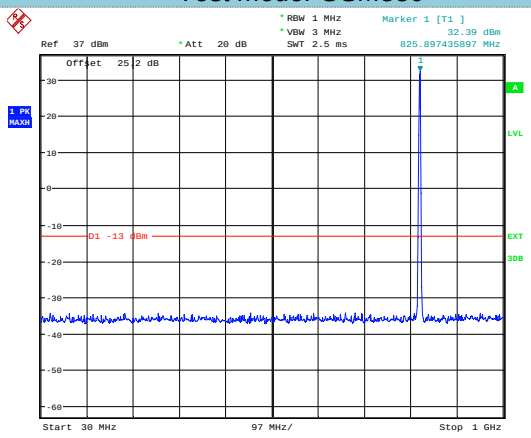
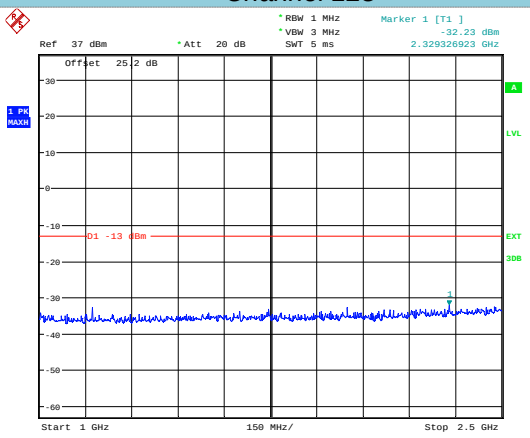
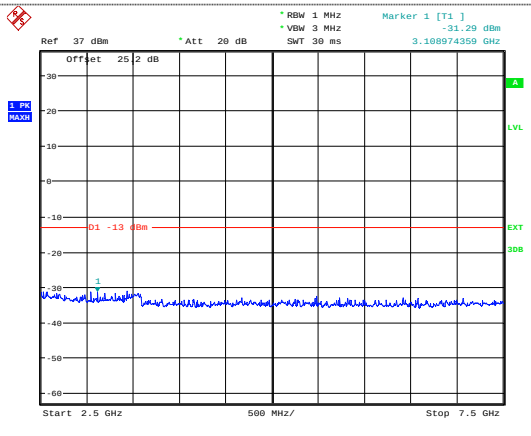
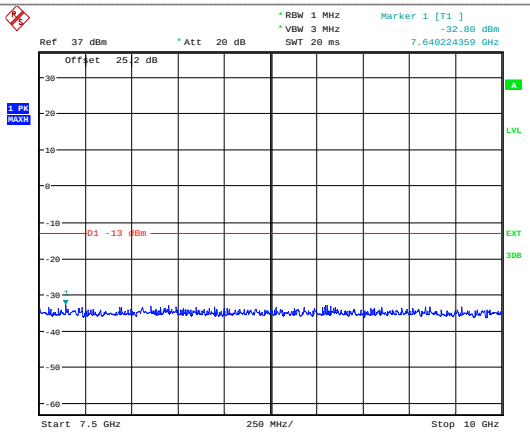
TEST CONFIGURATION

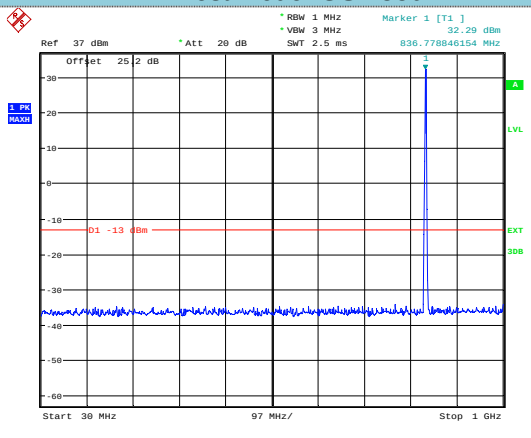
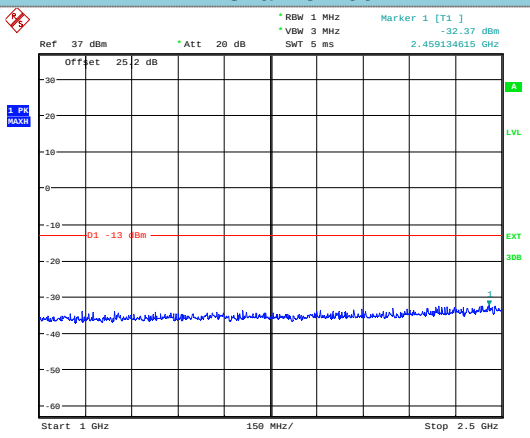


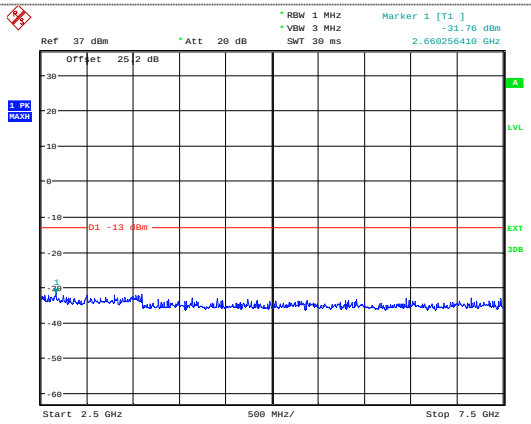
TEST PROCEDURE

1. The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation.
2. The resolution bandwidth of the spectrum analyzer was set at 1MHz; sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.
3. For the out of band: Set the RBW, VBW = 1MHz, Start=30MHz, Stop= 10th harmonic.

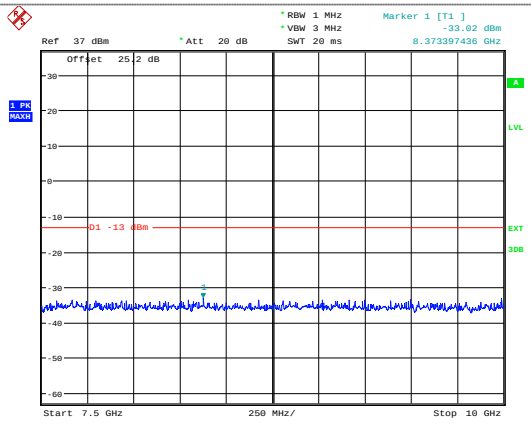
TEST RESULTS

Test mode: GSM850	Channel 128
	
30MHz~1GHz	1GHz~2.5GHz
	
2.5GHz~7.5GHz	7.5GHz~10GHz

Test mode: GSM850	Channel 190
	
30MHz~1GHz	1GHz~2.5GHz

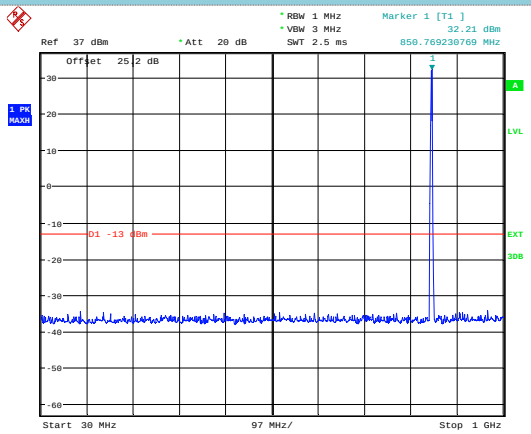


2.5GHz~7.5GHz

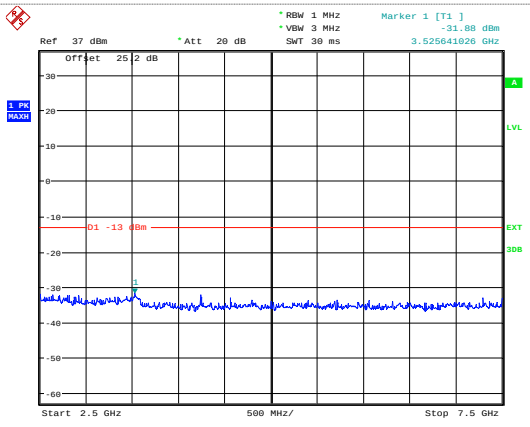


7.5GHz~10GHz

Test mode: GSM850

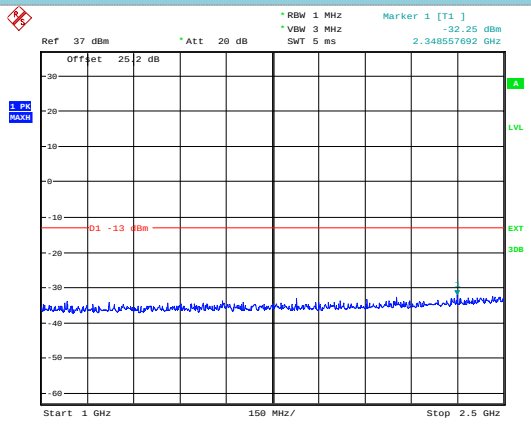


30MHz~1GHz

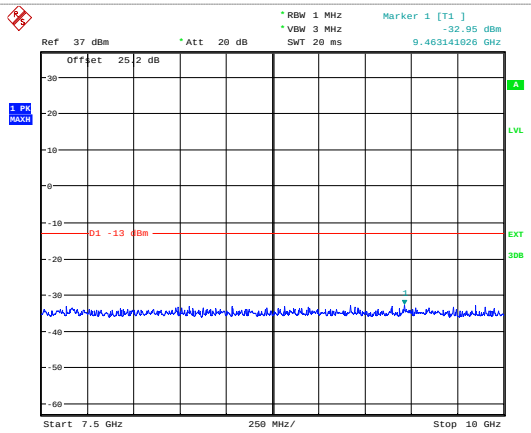


2.5GHz~7.5GHz

Channel 251



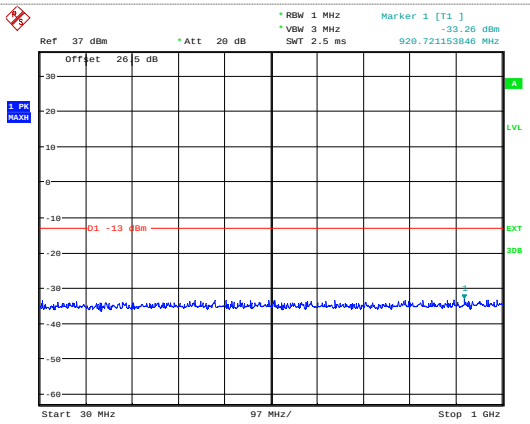
1GHz~2.5GHz



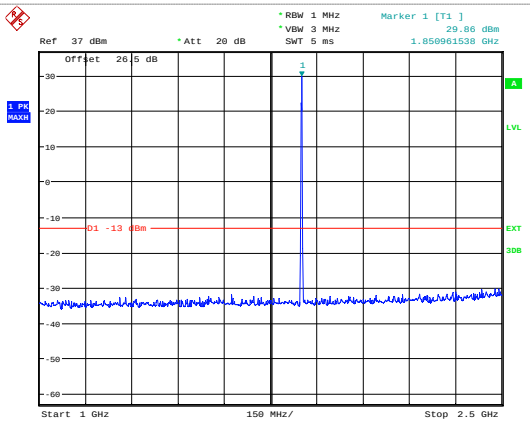
7.5GHz~10GHz

Test mode: PCS1900	*Channel 512*

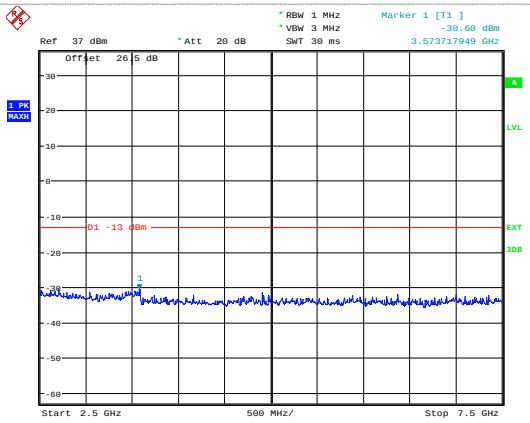
30MHz~1GHz



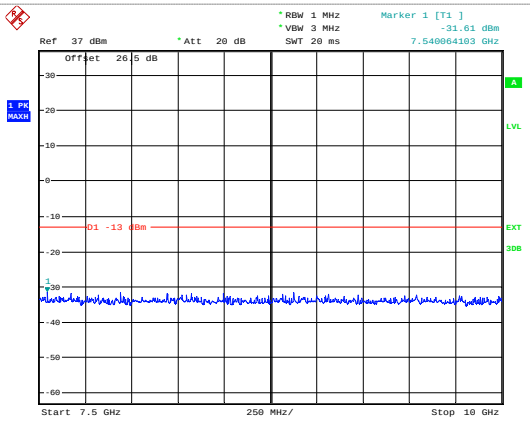
1GHz~2.5GHz



2.5GHz~7.5GHz

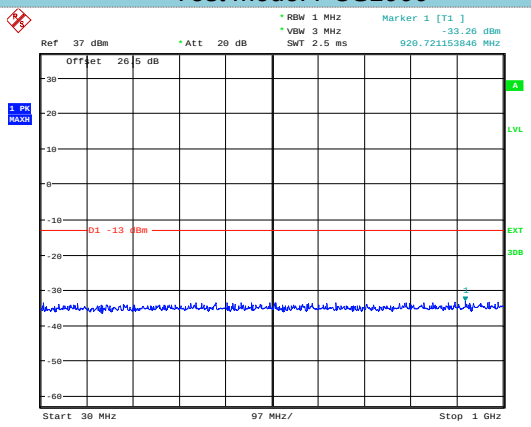
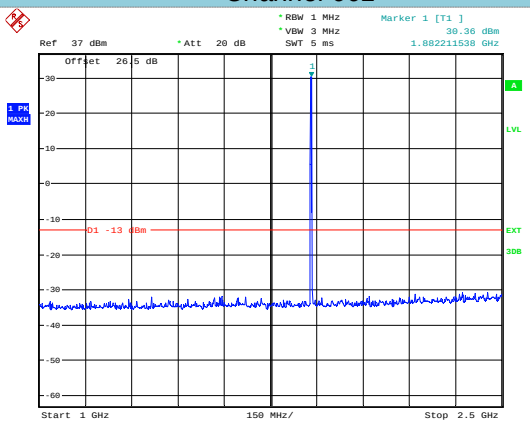
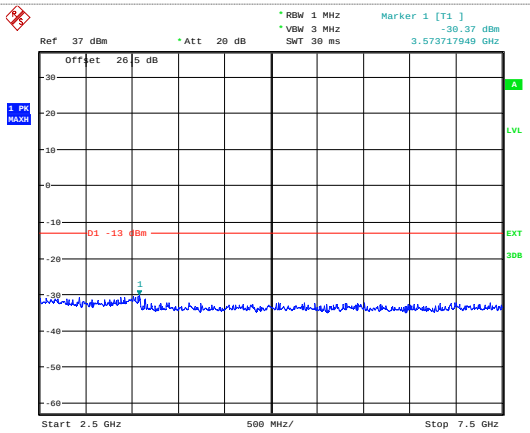
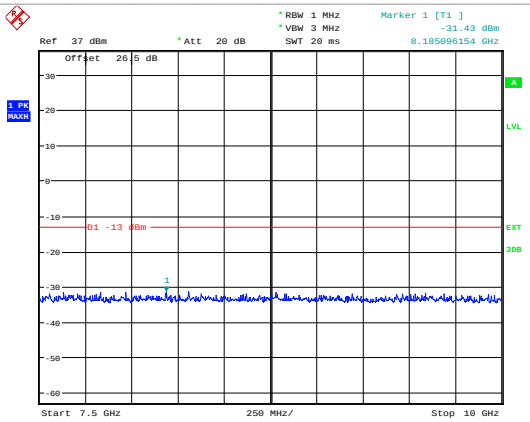
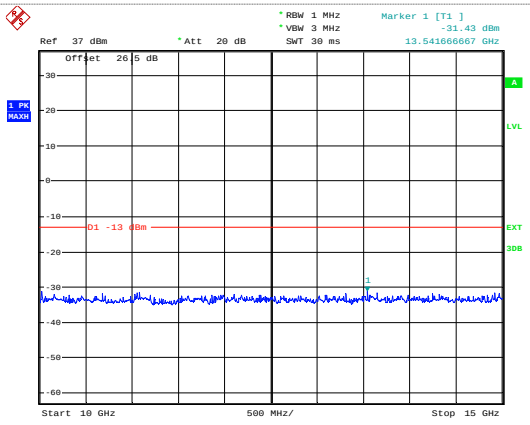
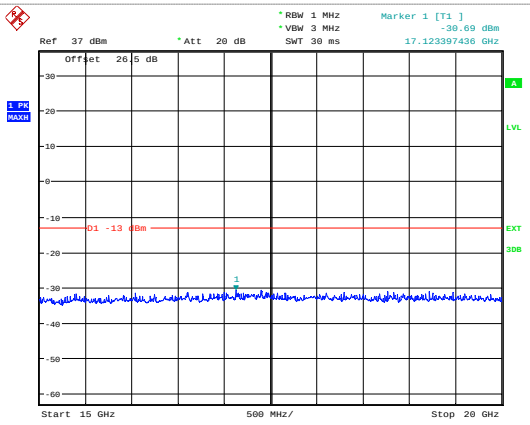


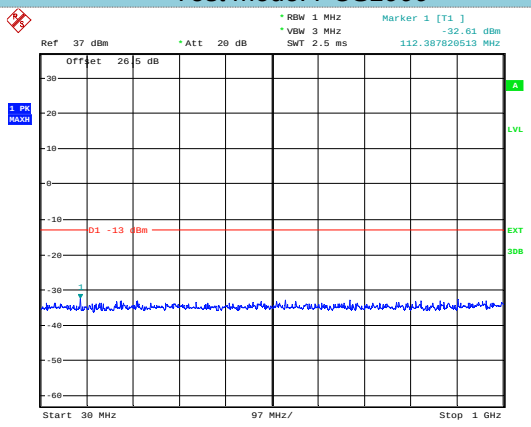
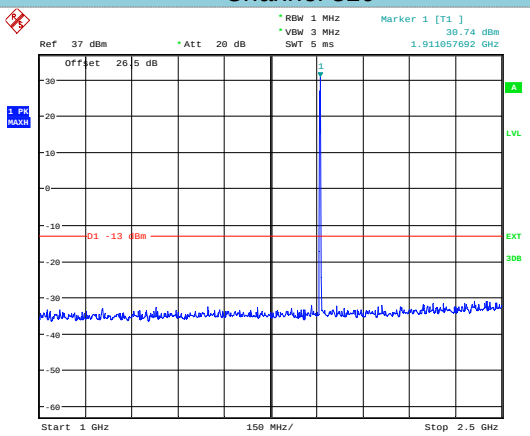
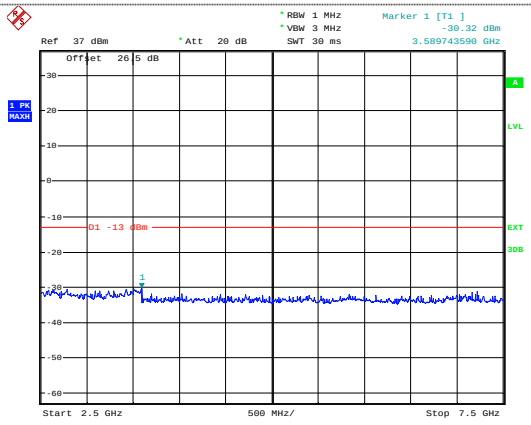
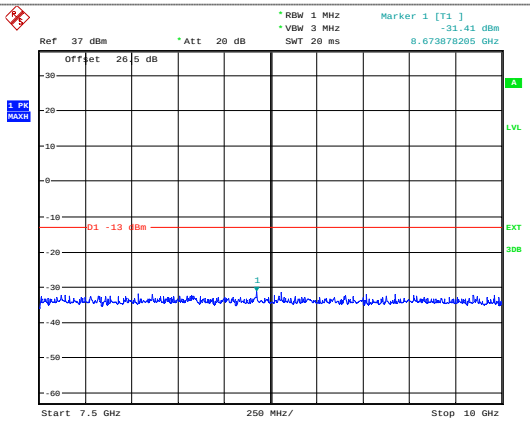
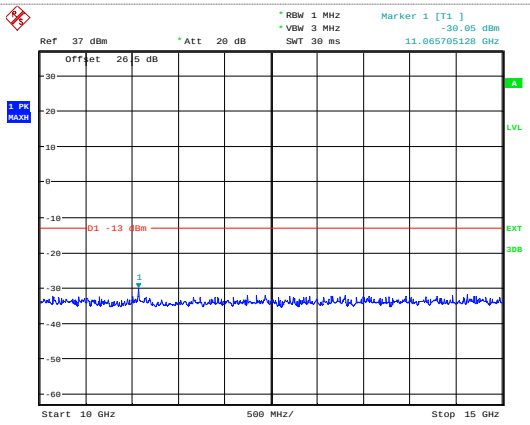
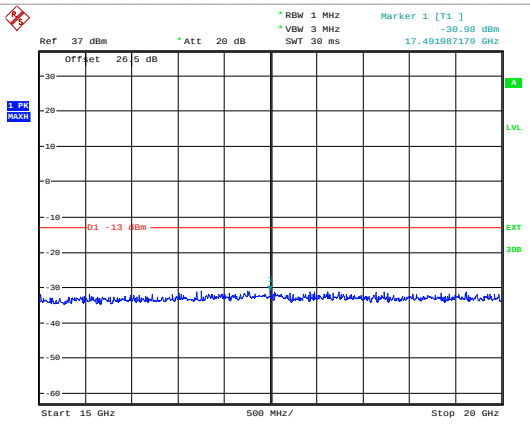
7.5GHz~10GHz

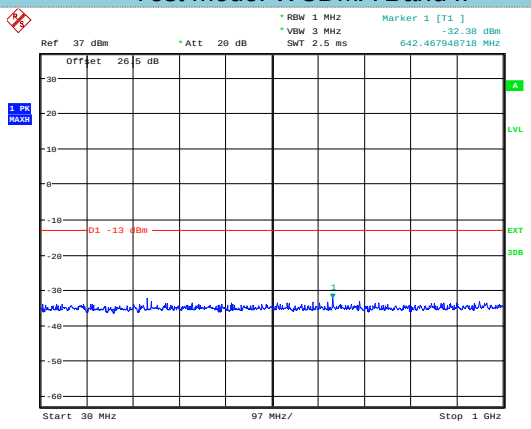
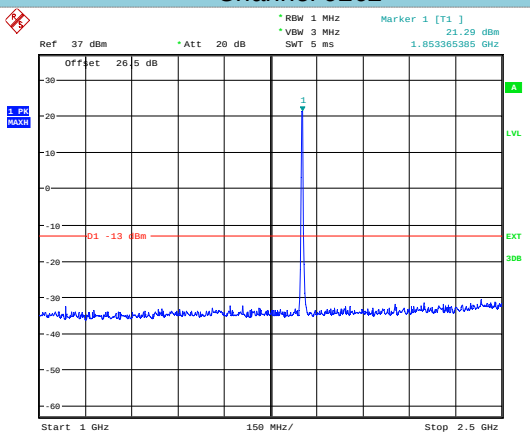
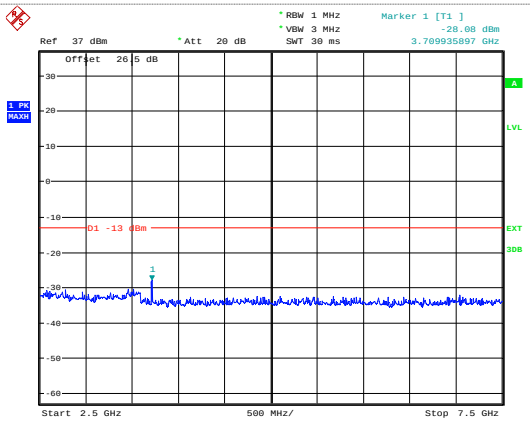
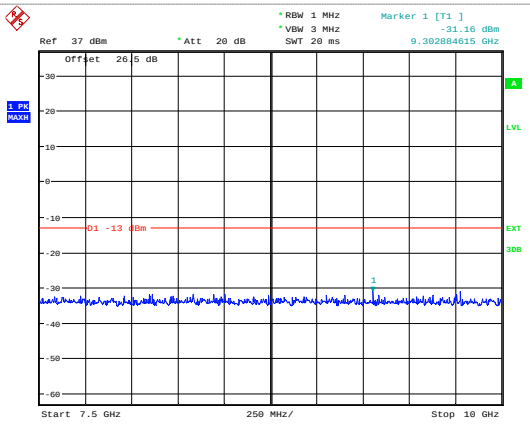
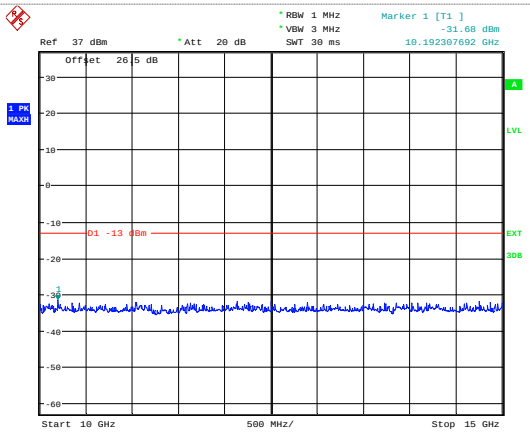
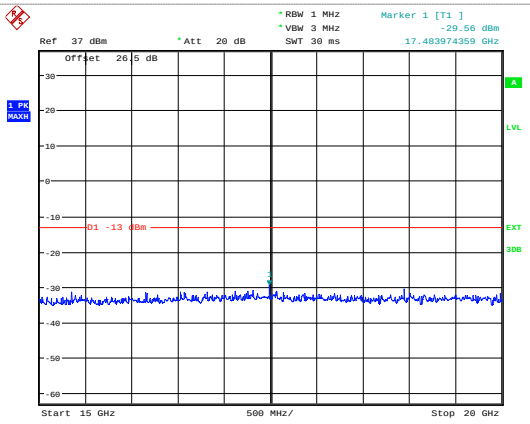


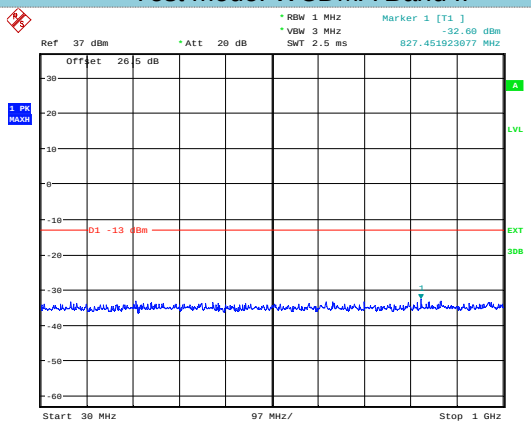
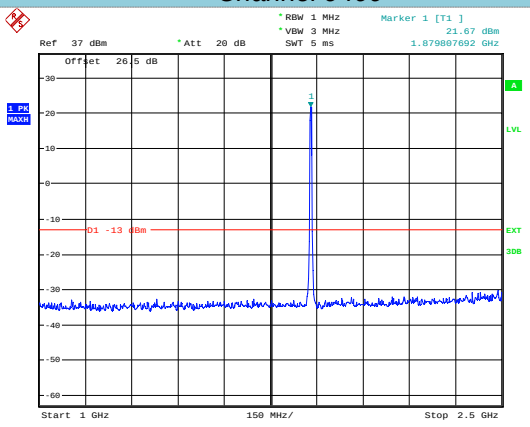
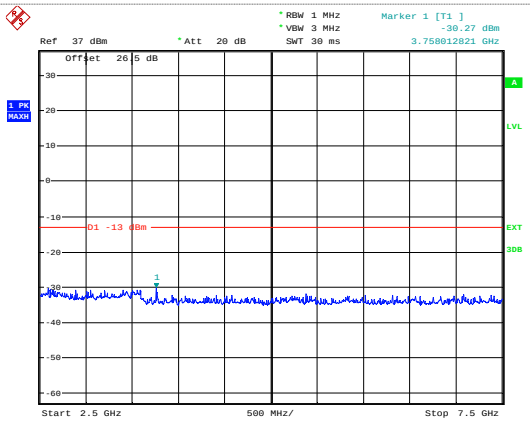
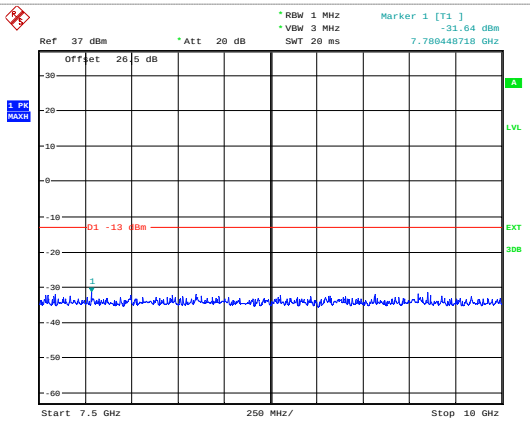
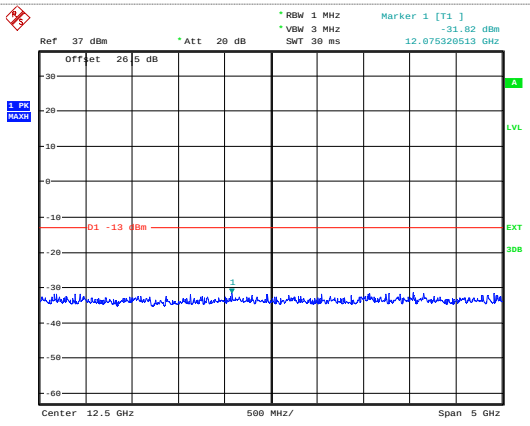
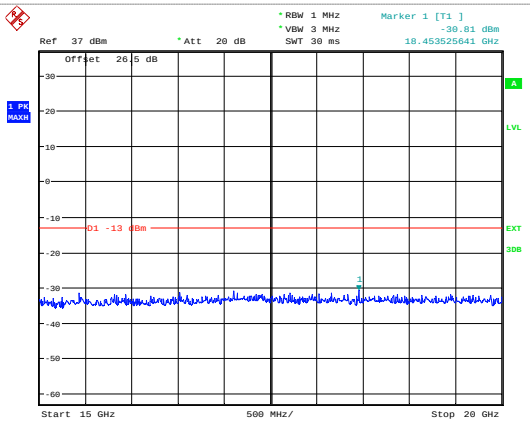
10GHz~15GHz

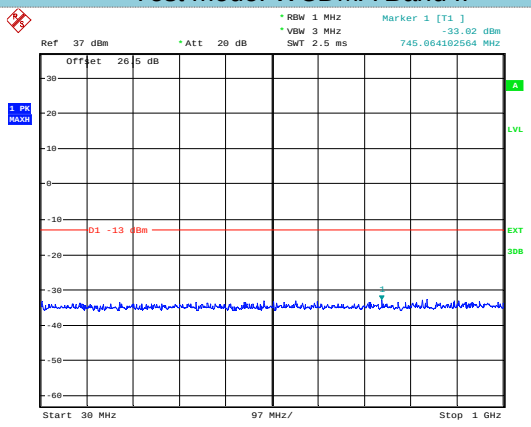
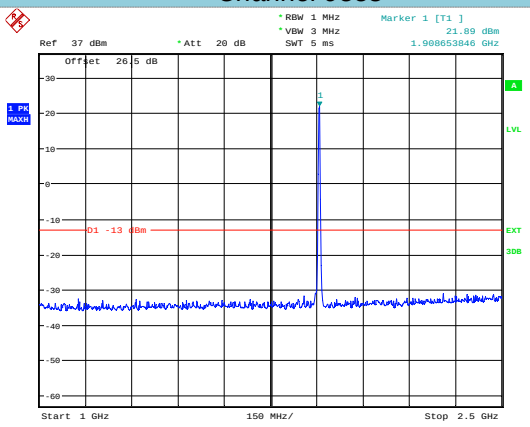
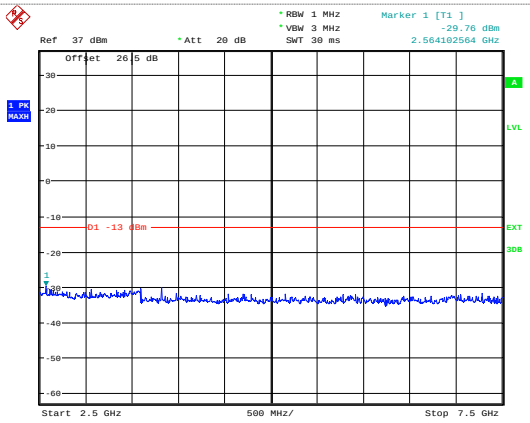
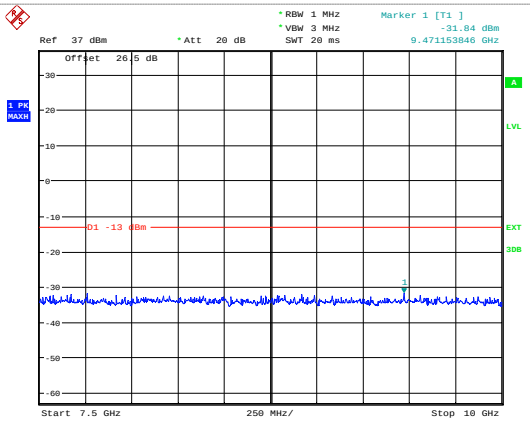
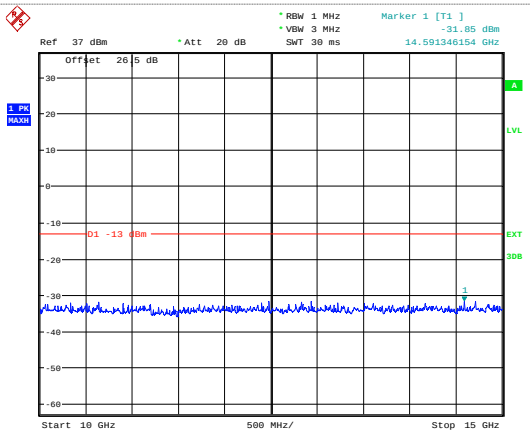
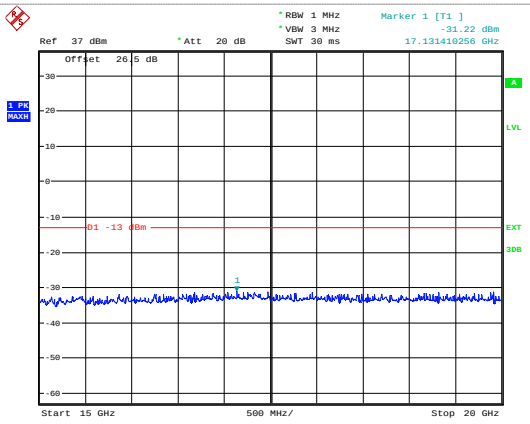
15GHz~20GHz

Test mode: PCS1900	Channel 661
	
30MHz~1GHz	*1GHz~2.5GHz*
	
2.5GHz~7.5GHz	*7.5GHz~10GHz*
	
10GHz~15GHz	*15GHz~20GHz*

Test mode: PCS1900	Channel 810
	
30MHz~1GHz	1GHz~2.5GHz
	
2.5GHz~7.5GHz	7.5GHz~10GHz
	
10GHz~15GHz	15GHz~20GHz

Test mode: WCDMA Band II	Channel 9262
	
30MHz~1GHz	1GHz~2.5GHz
	
2.5GHz~7.5GHz	7.5GHz~10GHz
	
10GHz~15GHz	15GHz~20GHz

Test mode: WCDMA Band II	Channel 9400
	
30MHz~1GHz	*1GHz~2.5GHz*
	
2.5GHz~7.5GHz	*7.5GHz~10GHz*
	
10GHz~15GHz	*15GHz~20GHz*

Test mode: WCDMA Band II	Channel 9538
	
30MHz~1GHz	1GHz~2.5GHz
	
2.5GHz~7.5GHz	7.5GHz~10GHz
	
10GHz~15GHz	15GHz~20GHz

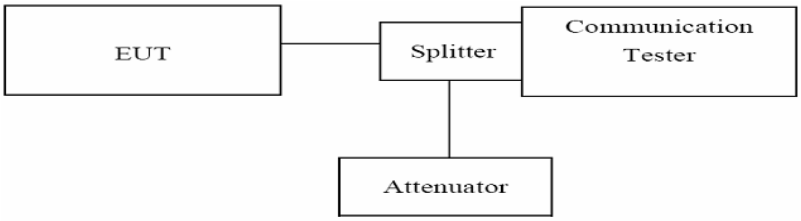
4.5. Band Edge compliance

LIMIT

Part 24.238 and Part 22.917 specify that 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 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.

TEST CONFIGURATION



TEST PROCEDURE

1. The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation.
2. For the band edge: 2G:Set the RBW=5KHz, VBW = 50KHz,Span=1MHzSweep time= Auto

   3G: Set the RBW=5KHz, VBW = 50KHz, Span=5MHzSweep time= Auto

TEST RESULTS

GSM850					
Channel Number	Frequency (MHz)	Measurement Results		Limit (dBm)	Verdict
		Frequency(MHz)	Values(dBm)		
128	824.20	823.98	-16.42	-13.00	Pass
251	848.80	849.00	-15.67	-13.00	Pass

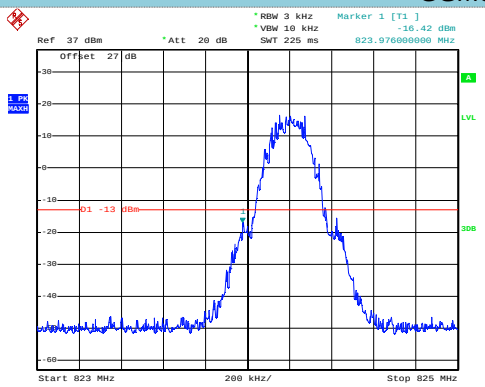
GPRS850					
Channel Number	Frequency (MHz)	Measurement Results		Limit (dBm)	Verdict
		Frequency(MHz)	Values(dBm)		
128	824.20	824.00	-16.10	-13.00	Pass
251	848.80	849.00	-14.33	-13.00	Pass

PCS1900					
Channel Number	Frequency (MHz)	Measurement Results		Limit (dBm)	Verdict
		Frequency(MHz)	Values(dBm)		
512	1850.20	1849.98	-16.85	-13.00	Pass
810	1909.80	1910.00	-15.68	-13.00	Pass

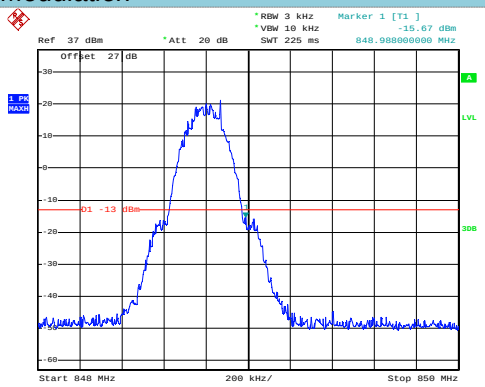
GPRS1900					
Channel Number	Frequency (MHz)	Measurement Results		Limit (dBm)	Verdict
		Frequency(MHz)	Values(dBm)		
512	1850.20	1849.96	-14.87	-13.00	Pass
810	1909.80	1910.00	-15.93	-13.00	Pass

WCDMA Band II					
Channel Number	Frequency (MHz)	Measurement Results		Limit (dBm)	Verdict
		Frequency(MHz)	Values(dBm)		
9262	1852.4	1849.82	-16.18	-13.00	Pass
9538	1907.6	1910.14	-23.12	-13.00	Pass

GSM850 For GMSK Moudlation

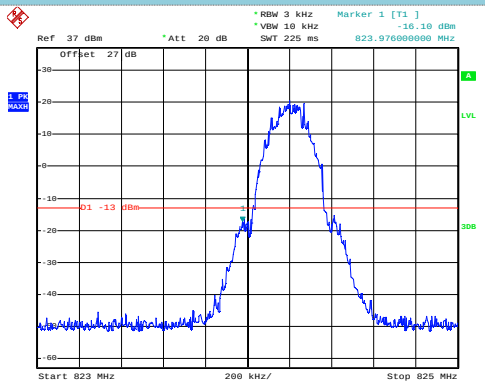


Channel 128

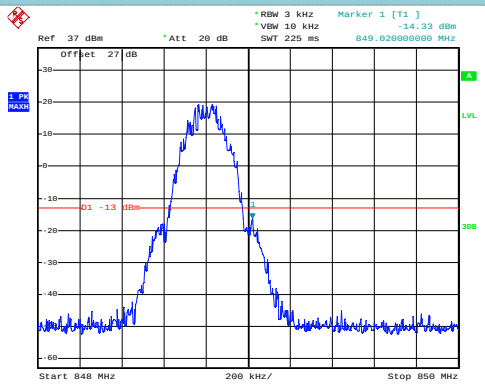


Channel 251

GPRS850 For GMSK Moudlation

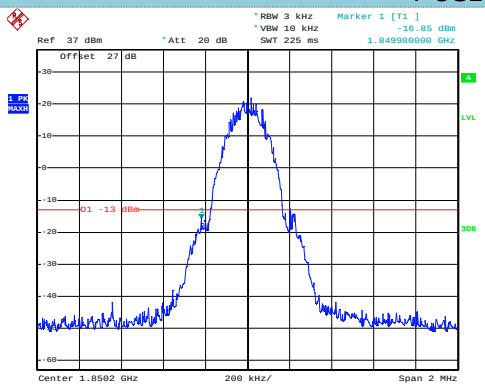


Channel 128

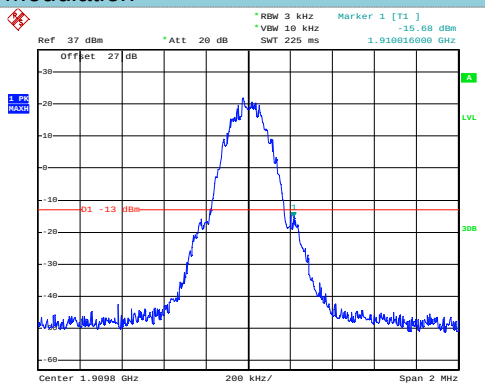


Channel 251

PCS1900 For GMSK Moudlation

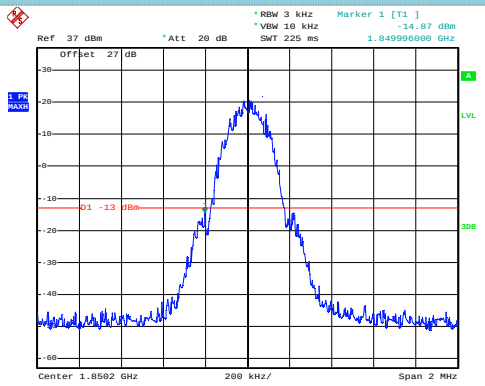


Channel 512

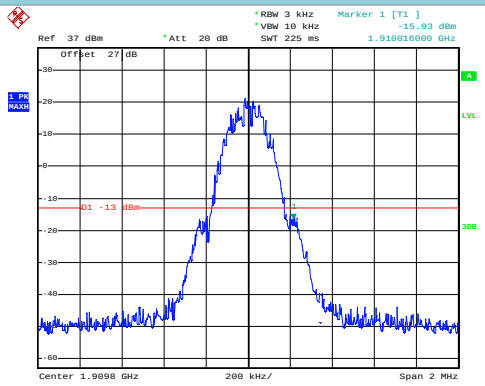


Channel 810

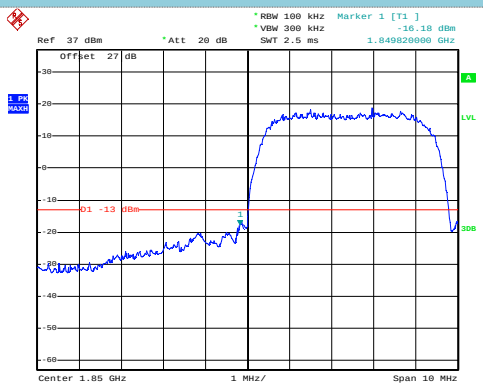
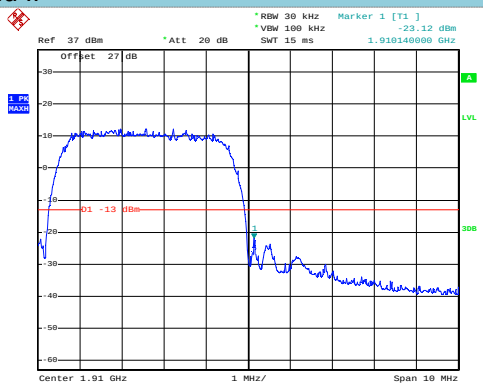
GPRS1900 For GMSK Moudlation



Channel 512



Channel 810

WCDMA Band II	
	
Channel 9262	*Channel 9538*

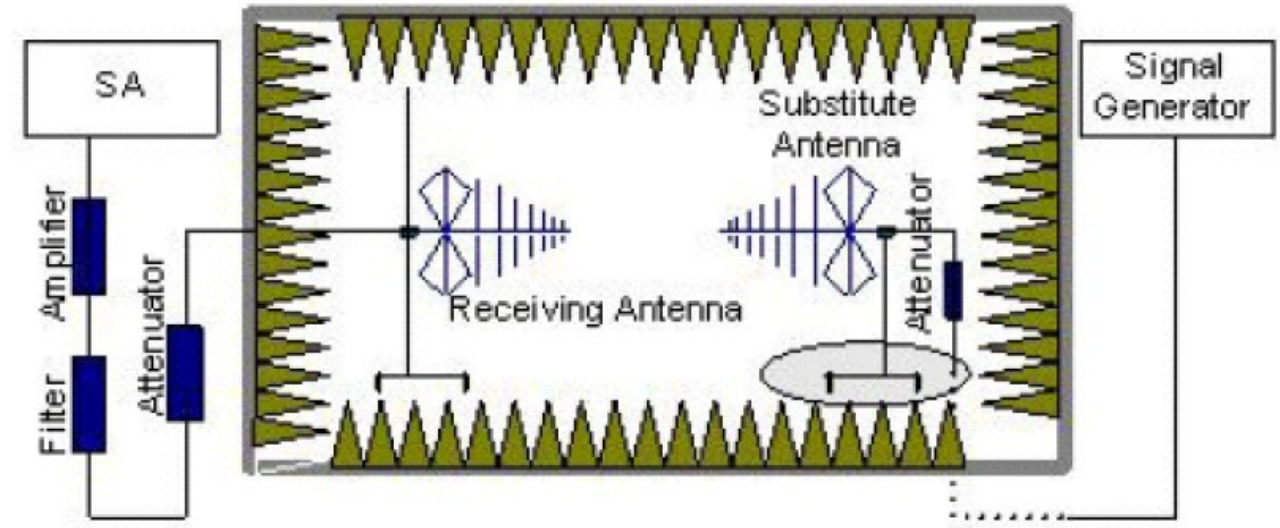
4.6. Radiated Power Measurement

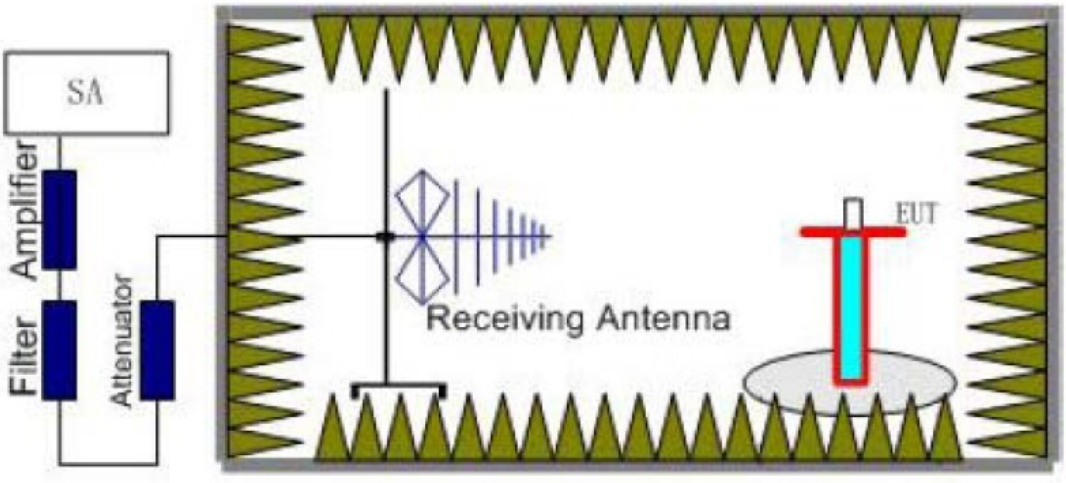
LIMIT

GSM850/WCDMA Band V: 7W ERP

PCS1900/WCDMA Band II: 2W EIRP

TEST CONFIGURATION





TEST PROCEDURE

1. EUT was placed on a 1.50 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 EUT for emission measurements. The height of receiving antenna is 1.50m. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.
2. A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated

through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.

3. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=1MHz, VBW=3MHz, And the maximum value of the receiver should be recorded as (Pr).

4. The EUT shall be replaced by a substitution antenna. In the chamber, a substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjusts the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
5. An amplifier should be connected to the Signal Source output port. And the cable should be connecting between the Amplifier and the Substitution Antenna. The cable loss (Pcl), the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
6. The measurement results are obtained as described below:
   Power(EIRP)=PMea- PAg - Pcl + Ga
   We used SMF100A microwave signal generator which signal level can up to 33dBm,so we not used power Amplifier for substitution test; The measurement results are amend as described below:
   Power(EIRP)=PMea- Pcl + Ga
7. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.
   ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.

TEST RESULTS

GSM:

Mode	Channel	Antenna Pol.	ERP	Limit (dBm)	Result
GSM850	128	V	31.45	38.45	Pass
		H	20.34		
	190	V	32.18		
		H	29.89		
	251	V	31.61		
		H	29.66		
GPRS850	128	V	31.56	38.45	Pass
		H	28.62		
	190	V	31.48		
		H	29.66		
	251	V	31.87		
		H	29.58		

Mode	Channel	Antenna Pol.	EIRP	Limit (dBm)	Result
PCS1900	512	V	30.33	33.01	Pass
		H	26.45		
	661	V	30.72		
		H	28.58		
	810	V	30.11		
		H	27.83		
GPRS1900	512	V	29.56	33.01	Pass
		H	27.48		
	661	V	30.22		
		H	28.27		
	810	V	30.25		
		H	27.94		

WCDMA:

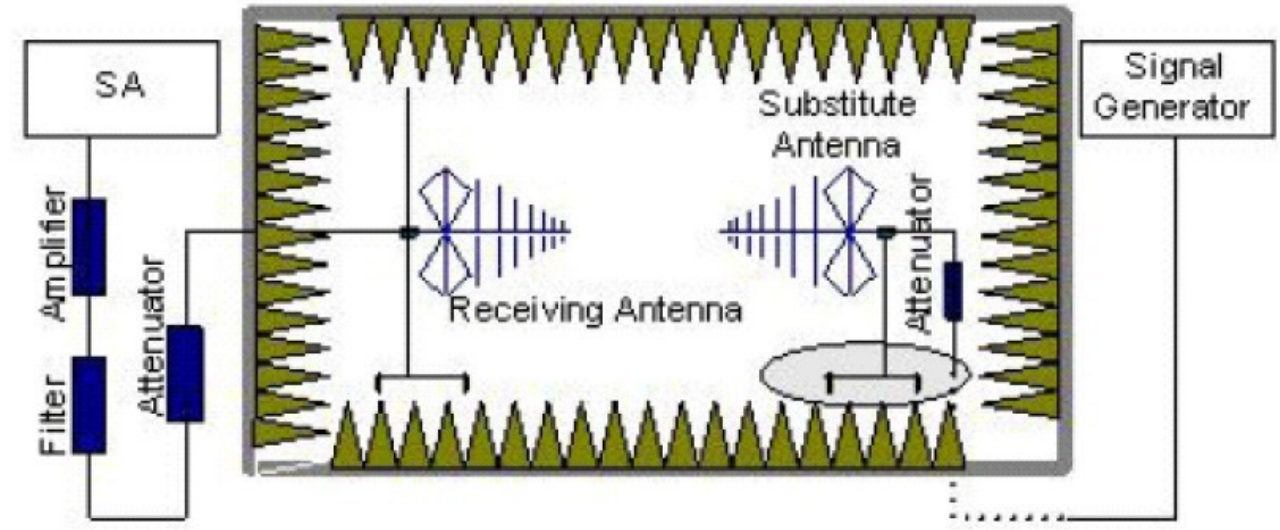
Mode	Channel	Antenna Pol.	EIRP	Limit (dBm)	Result
WCDMA Band II	9262	V	22.12	33.01	Pass
		H	19.33		
	9400	V	22.05		
		H	19.5		
	9538	V	22.01		
		H	18.89		

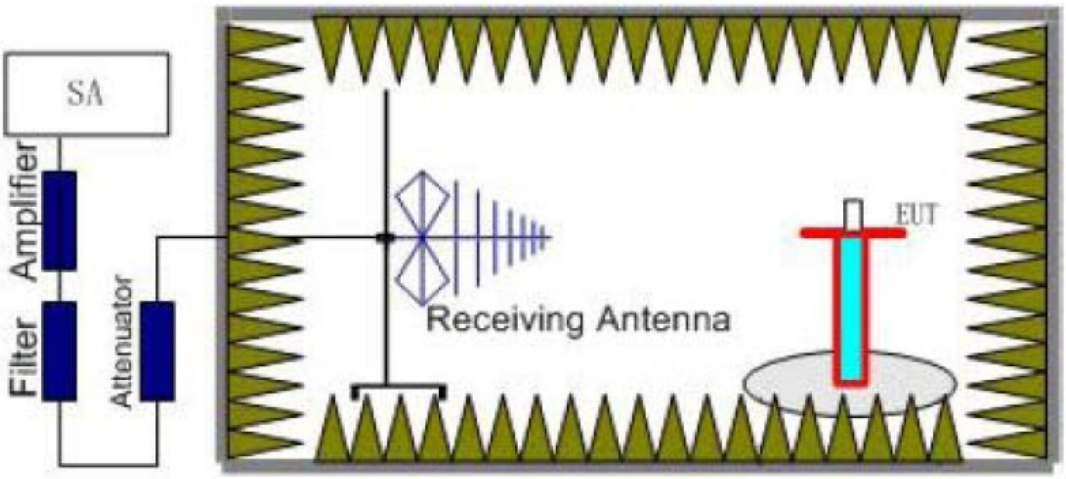
4.7. Radiated Spurious Emission

LIMIT

-13dBm

TEST CONFIGURATION





TEST RESULTS

1. EUT was placed on a 1.50 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 EUT for emission measurements. The height of receiving antenna is 1.50m. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.
2. A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
3. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set

Test Receiver or Spectrum RBW=1MHz, VBW=3MHz, and the maximum value of the receiver should be recorded as (Pr).

4. The EUT shall be replaced by a substitution antenna. In the chamber, a substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjusts the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
5. An amplifier should be connected to the Signal Source output port. And the cable should be connecting between the Amplifier and the Substitution Antenna. The cable loss (Pcl), the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
6. The measurement results are obtained as described below:
   Power(EIRP)=PMea- PAg - Pcl + Ga
   We used SMF100A microwave signal generator which signal level can up to 33dBm,so we not used power Amplifier for substitution test; The measurement results are amend as described below:
   Power(EIRP)=PMea- Pcl + Ga
7. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.
   ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.

TEST RESULTS

GSM850					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
128	1648.40	Vertical	-35.36	-13.00	Pass
	2472.60	V	-36.37		
	3296.80	V	-38.68		
	4121.00	V	-40.39		
	4945.20	V	---		
	1648.40	Horizontal	-38.16	-13.00	Pass
	2472.60	H	-42.33		
	3296.80	H	-44.57		
	4121.00	H	-43.84		
	4945.20	H	---		
190	1673.20	Vertical	-35.97	-13.00	Pass
	2509.80	V	-38.73		
	3346.40	V	-36.83		
	4183.00	V	-41.47		
	5019.60	V	---		
	1673.20	Horizontal	-43.37	-13.00	Pass
	2509.80	H	-42.73		
	3346.40	H	-41.83		
	4183.00	H	-47.48		
	5019.60	H	---		
251	1697.60	Vertical	-42.43	-13.00	Pass
	2546.40	V	-44.86		
	3395.20	V	-45.78		
	4244.00	V	-44.27		
	5092.80	V	---		
	1697.60	Horizontal	-39.74	-13.00	Pass
	2546.40	H	-42.83		
	3395.20	H	-40.55		
	4244.00	H	-46.72		
	5092.80	H	---		

Remark：

1. The emission behaviour belongs to narrowband spurious emission.
2. Remark”---“ means that the emission level is too low to be measured
3. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

PCS1900					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
512	3700.40	Vertical	-36.33	-13.00	Pass
	5550.60	V	-34.72		
	7400.80	V	-37.17		
	9251.00	V	-42.88		
	11101.20	V	---		
	3700.40	Horizontal	-39.62	-13.00	Pass
	5550.60	H	-43.75		
	7400.80	H	-44.77		
	9251.00	H	-46.17		
	11101.20	H	---		
661	3760.00	Vertical	-34.63	-13.00	Pass
	5640.00	V	-35.77		
	7520.00	V	-33.85		
	9400.00	V	-36.73		
	11280.00	V	---		
	3760.00	Horizontal	-35.28	-13.00	Pass
	5640.00	H	-43.77		
	7520.00	H	-43.53		
	9400.00	H	-43.88		
	11280.00	H	---		
810	3819.60	Vertical	-36.85	-13.00	Pass
	5729.40	V	-34.77		
	7639.20	V	-36.85		
	9549.00	V	-40.88		
	11458.80	V	---		
	3819.60	Horizontal	-34.85	-13.00	Pass
	5729.40	H	-36.33		
	7639.20	H	-40.85		
	9549.00	H	-42.15		
	11458.80	H	---		

Remark：

1. The emission behaviour belongs to narrowband spurious emission.
2. Remark”---“ means that the emission level is too low to be measured
3. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

WCDMA Band II					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
9262	3704.80	Vertical	-35.47	-13.00	Pass
	5557.20	V	-42.66		
	5557.20	V	-44.27		
	7409.60	V	-47.74		
	9262.00	V	---		
	3704.80	Horizontal	-35.85	-13.00	Pass
	5557.20	H	-40.73		
	5557.20	H	-42.66		
	7409.60	H	-44.63		
	9262.00	H	---		
9400	3760.00	Vertical	-35.73	-13.00	Pass
	5640.00	V	-44.36		
	5640.00	V	-36.85		
	7520.00	V	-43.56		
	9400.00	V	---		
	3760.00	Horizontal	-44.26	-13.00	Pass
	5640.00	H	-48.78		
	5640.00	H	-45.38		
	7520.00	H	-47.22		
	9400.00	H	---		
9538	3815.20	Vertical	-43.64	-13.00	Pass
	5722.80	V	-47.94		
	5722.80	V	-46.83		
	7630.40	V	-49.27		
	9538.00	V	---		
	3815.20	Horizontal	-37.57	-13.00	Pass
	5722.80	H	-42.86		
	5722.80	H	-47.52		
	7630.40	H	-49.63		
	9538.00	H	---		

Remark：

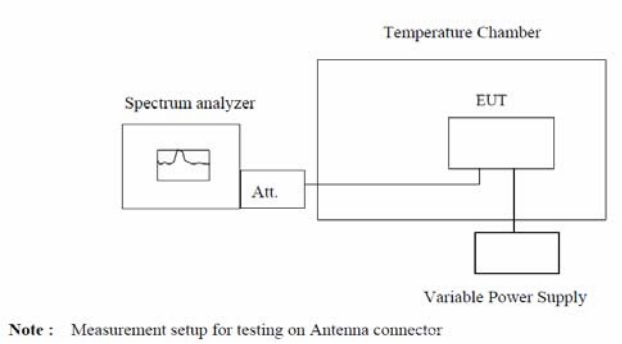
4. The emission behaviour belongs to narrowband spurious emission.
5. Remark”---“ means that the emission level is too low to be measured
6. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

4.8. Frequency stability V.S. Temperature measurement

LIMIT

2.5ppm

TEST CONFIGURATION



Note : Measurement setup for testing on Antenna connector

TEST PROCEDURE

1. The equipment under test was connected to an external DC power supply and input rated voltage.
2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators.
3. The EUT was placed inside the temperature chamber.
4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25℃ operating frequency as reference frequency.
5. Turn EUT off and set the chamber temperature to –30℃. After the temperature stabilized for approximately 30 minutes recorded the frequency.
6. Repeat step measure with 10℃ increased per stage until the highest temperature of +50℃ reached.

TEST RESULTS

Reference Frequency: GSM850 Middle channel=190 channel=836.6MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.70	-30	42	0.050	2.5	Pass
	-20	41	0.049		
	-10	38	0.045		
	0	34	0.041		
	10	36	0.043		
	20	29	0.035		
	30	34	0.041		
	40	35	0.042		
	50	32	0.038		
Reference Frequency: PCS1900 Middle channel=661 channel=1880MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.70	-30	36	0.019	2.5	Pass
	-20	38	0.020		
	-10	33	0.018		
	0	35	0.019		

	10	36	0.019		
	20	31	0.016		
	30	36	0.019		
	40	40	0.021		
	50	33	0.018		

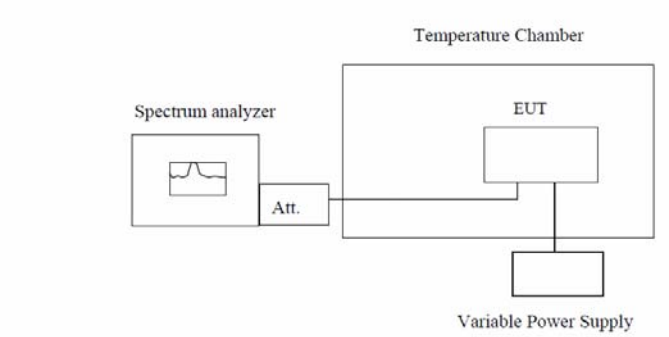
Reference Frequency: WCDMA Band II Middle channel=9400 channel=1880MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.70	-30	47	0.025	2.5	Pass
	-20	48	0.026		
	-10	55	0.029		
	0	46	0.024		
	10	36	0.019		
	20	33	0.018		
	30	37	0.020		
	40	44	0.023		
	50	37	0.020		

4.9. Frequency stability V.S. Temperature measurement

LIMIT

2.5ppm

TEST CONFIGURATION



Note : Measurement setup for testing on Antenna connector

TEST PROCEDURE

1. Set chamber temperature to 25℃. Use a variable DC power source topower the EUT and set the voltage to rated voltage.
2. Set the spectrum analyzer RBW lowenough to obtain the desired frequency resolution and recorded the frequency.
3. Reduce the input voltage to specified extreme voltage variation (+/- 15%) and endpoint, recordthe maximum frequency change.

TEST RESULTS

Reference Frequency: GSM850 (GSM link) Middle channel=190 channel=836.6MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.25	33	0.039	2.5	Pass
	3.70	36	0.043		
	3.40	38	0.045		
Reference Frequency: PCS1900 (GSM link) Middle channel=661 channel=1880MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.25	49	0.026	2.5	Pass
	3.70	52	0.028		
	3.40	47	0.025		
Reference Frequency: WCDMA Band II Middle channel=9400 channel=1880MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.25	55	0.029	2.5	Pass
	3.70	58	0.031		
	3.40	49	0.026		