



**SGS-CSTC Standards
Technical Services(Shanghai)
Co., Ltd.**

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Report No.: SHEM110700097308-02
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PARTIAL TEST REPORT

Application No. : SHEM110700097308-02
Applicant: Panasonic Mobile communications Co.,LTD
Address: 600 Saedo-cho,Tsuzuki-ku,Yokohama;224-8539,Japan
FCC ID: UCE211044A
Equipment Under Test (EUT):
Product Name: WCDMA Digital Mobile Phone
Model Name: EB-4052
Brand Name: NTT DOCOMO
Serial number: D26B729N3351290
Standards: FCC Part 2, 22H & 24E
Date of Receipt: Jul 28, 2011
Date of Test: Aug 03, 2011 to Sep 30 ,2011
Date of Issue: Sep 30, 2011

Test Result :	PASS *
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* In the configuration tested, the EUT detailed in this report complied with the standards specified above. Please refer to section 2 of this report for further details.

E&E Section Head
SGS-CSTC(Shanghai) Co., Ltd.

Project Engineer
SGS-CSTC(Shanghai) Co., Ltd.

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2 Test Summary

Description of Test	FCC Rules	Result
99% Occupied Bandwidth	2.1049(h)	Compliant
Frequency Stability vs. Temperature and Voltage	2.1055(a)&(d) 22.863 24.235	Compliant
Out of Band Emissions at antenna Terminals and Band Edge	2.1051 22.917(a) 24.238(a)	Compliant



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4 General Information

4.1 Client Information

Applicant: Panasonic Mobile communications Co.,LTD
Address of Applicant: 600 Saedo-cho,Tsuzuki-ku,Yokohama;224-8539,Japan

4.2 General Description of E.U.T.

Product Name:	WCDMA Digital Mobile Phone
Model Name:	EB-4052
Brand Name:	NTT DOCOMO
Support Frequency Band:	GSM 850/900/1800/1900, WCDMA Band I, Band V
Testing Frequency Band:	GSM 850/1900,WCDMA Band V
AC Adaptor (with USB cable):	Model: P01(UHA) (Input :110-240V~ 50/60 Hz, 0.14A, Output : 5.0 VDC, 1.0A) (Cable Length:1.34m)
Battery:	Model: P25 S/N:Unknown 3.7V 1200mAh
Bluetooth support:	V 2.1 (EDR)
WiFi support:	802.11 b/g/n

GSM 850/1900, WCDMA Band V

	Operating frequency	
Cellular phone standards Frequency Range and Power:	GSM/GPRS/E-GPRS 1900	1850.2MHz-1909.8MHz
	GSM/GPRS/E-GPRS 850	824.2MHz-848.8MHz
	WCDMA Band V	826.4MHz-846.6MHz
Hardware Version:	V2.2	
Software Version:	ponyo-ginger-dcm-07-0033	
	M7630A-ABBQMAZM-4.1.30T V0.25	

4.3 Test Location

Tests were performed at:

SGS-CSTC Standards Technical Services(Shanghai) Co., Ltd.
588 West Jindu Road, Songjiang District, Shanghai, China
Tel: +86 21 61915666 Fax: +86 21 61915655



4.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

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

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

- **FCC – Registration No.: 402683**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered and fully described in a report filed with the Federal Communications Commission (FCC). The acceptance letter from the FCC is maintained in our files. Registration No.: 402683, Expiry Date: 2012-03-17.

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

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

4.5 Test Methodology

Both conducted and radiated testing were performed according to the procedures document on TIA/EIA-603-C-2004 and FCC CFR 47 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057.



5 Equipments Used during Test

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due date
1	Atmosphere pressure meter	Shanghai ZhongXuan Electronic Co;Ltd	BY—2003P	--	2010-10-15	2011-10-14
2	CLAMP METER	FLUKE	316	86080010	2011-04-22	2012-04-20
3	Thermo-Hygrometer	ZHICHEN	ZC1-2	01050033	2010-10-15	2011-10-14
4	High-low temperature cabinet	Shanghai YuanZhen	GW2050	--	2011-6-17	2012-6-16
5	DC power	KIKUSUI	PMC35—3	NF100260	2011-1-16	2012-1-15
6	Line impedance stabilization network	SCHWARZBECK	NSLK8127	8127-490	2011-5-7	2012-5-6
7	Power meter	Rohde & Schwarz	NRP	101641	2011-5-5	2012-5-4
8	UNIVERSAL RADIO COMMUNICATION TESTER	Rohde & Schwarz	CMU 200	112012	2011-04-13	2012-04-12
9	EMI test receiver	Rohde & Schwarz	ESU40	100109	2011-06-04	2012-06-03



6 Test Results

6.1 E.U.T. test conditions

Operating Environment:

Temperature:

20.0 -25.0 °C

Humidity:

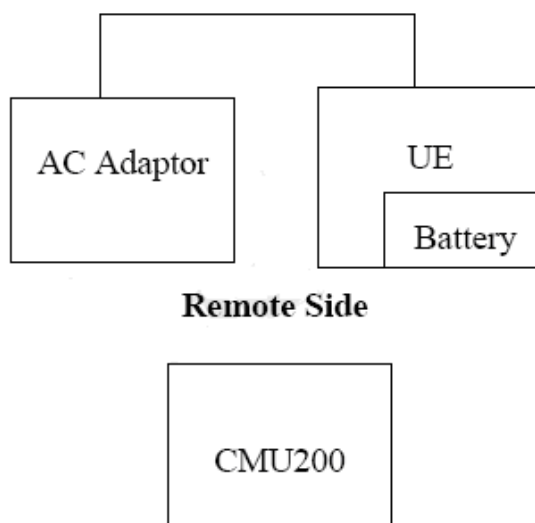
38-52% RH

Atmospheric Pressure:

992 -1010 mbar

Configuration of

Tested System:





6.2 Occupied Bandwidth

Test Requirement: 2.1049(h)
Test Date: Aug 19, 2011-Aug 25, 2011
Test Status: Test lowest, middle, highest channel.
Test Procedure:

The EUT output RF connector was connected with a short a cable to the spectrum analyzer, RBW was set to about 1% of emission BW, VBW>=3 times RBW, 99% bandwidth were measured, the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

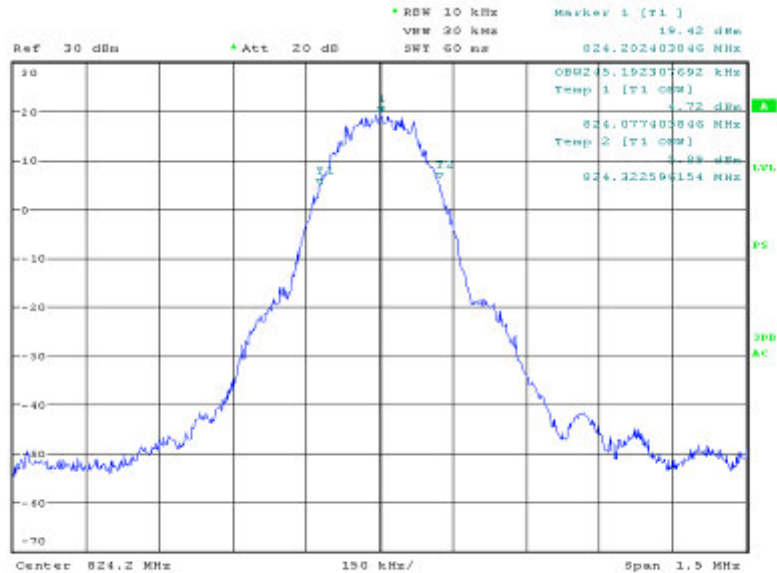
Test result:

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (kHz)
GSM 850 GMSK	824.2	128	245.192
	836.4	189	245.192
	848.8	251	242.788
EUT Mode	Frequency (MHz)	CH	99% Bandwidth (kHz)
GSM 850 8-PSK	824.2	128	245.192
	836.4	189	242.788
	848.8	251	245.192
EUT Mode	Frequency (MHz)	CH	99% Bandwidth (kHz)
PCS 1900 GMSK	1850.2	512	242.788
	1880.0	661	240.384
	1909.8	810	240.384
EUT Mode	Frequency (MHz)	CH	99% Bandwidth (kHz)
PCS 1900 8-PSK	1850.2	512	240.384
	1880.0	661	247.596
	1909.8	810	240.384
EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
WCDMA Band V	826.4	4132	4.12
	836.6	4183	4.14
	846.6	4233	4.12

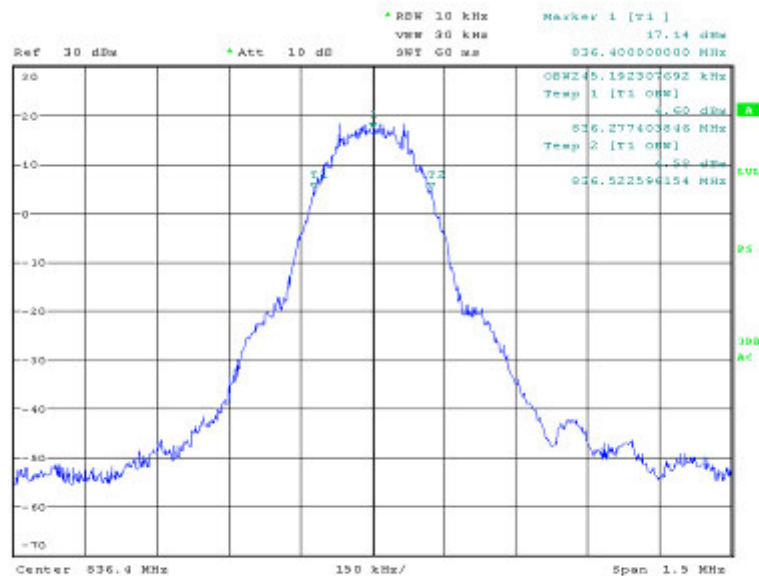


GSM 850 GMSK

Graph: Channel Low

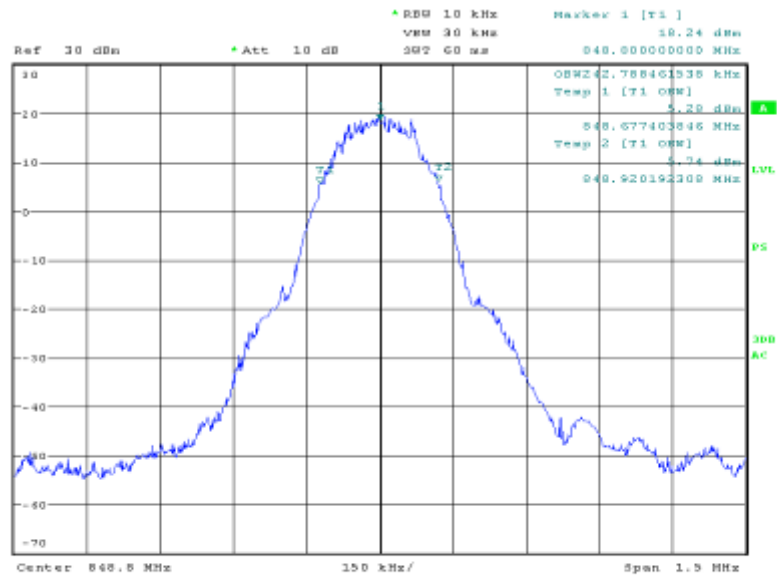


Channel Middle



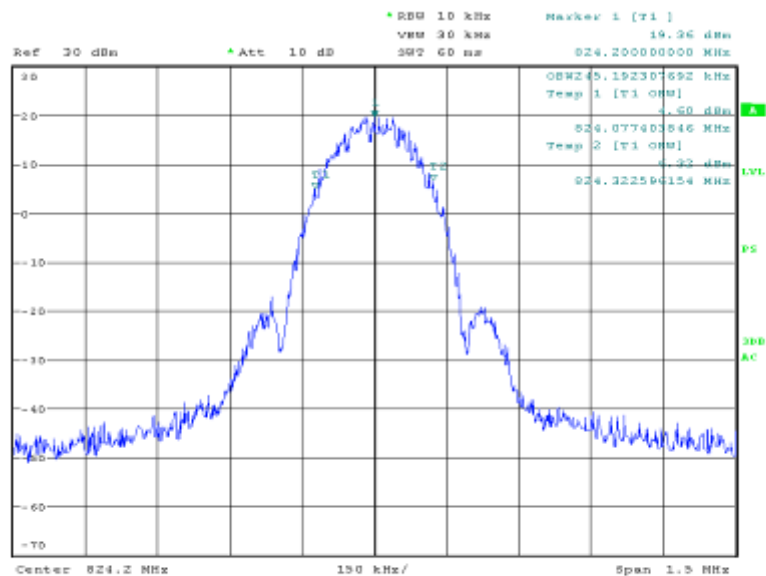


Channel High



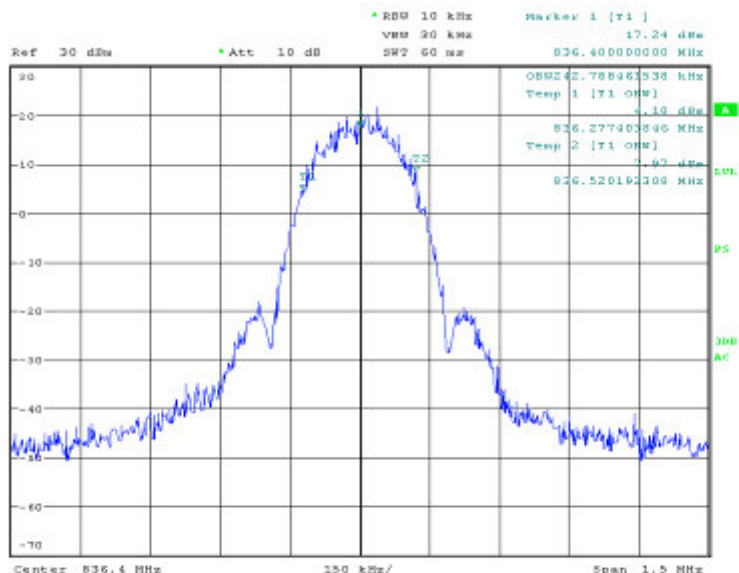
GSM 850 8-PSK

Graph: Channel Low

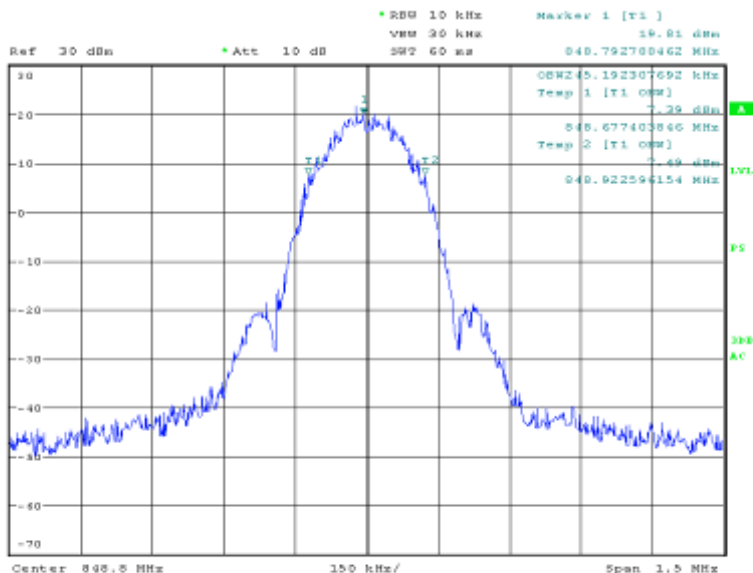




Channel Middle

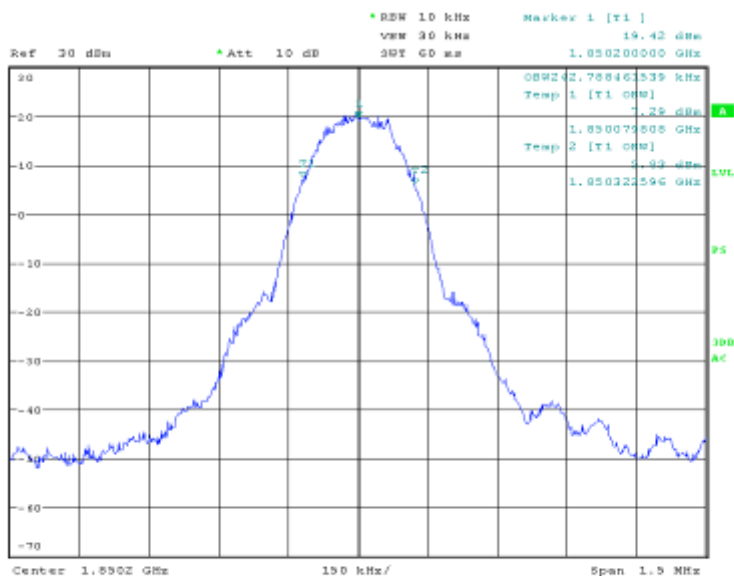


Channel High

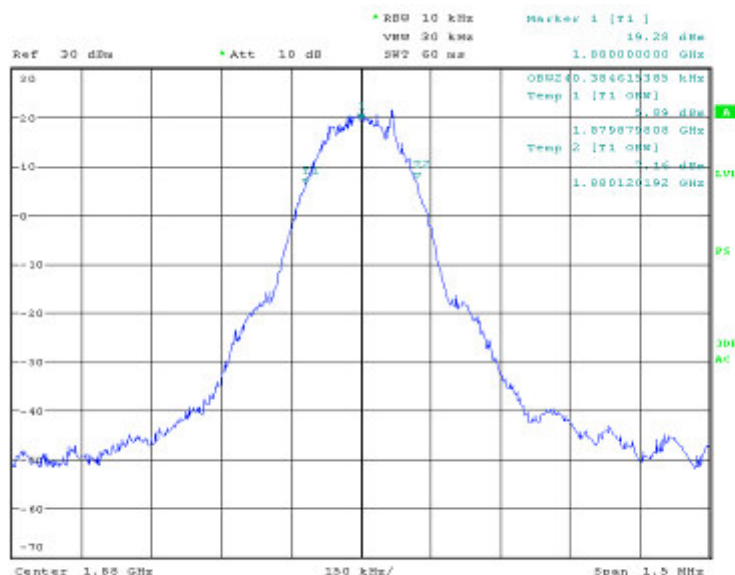


GSM 1900 GMSK

Graph: Channel Low



Channel Middle



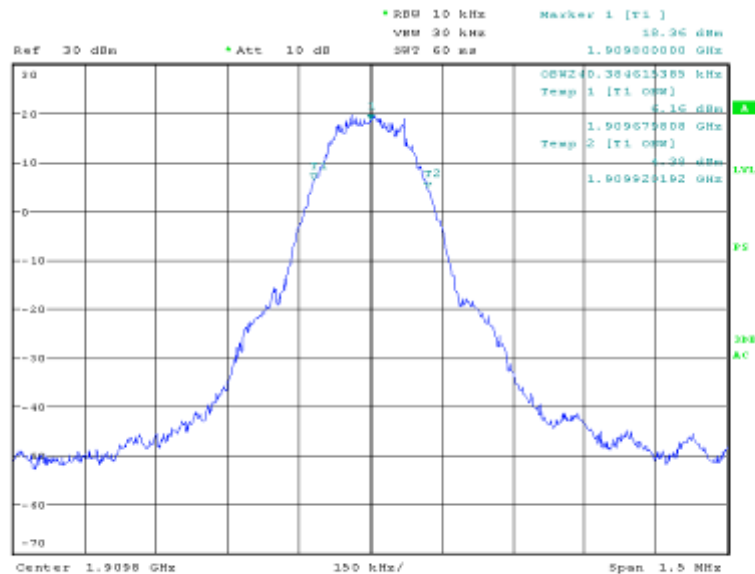


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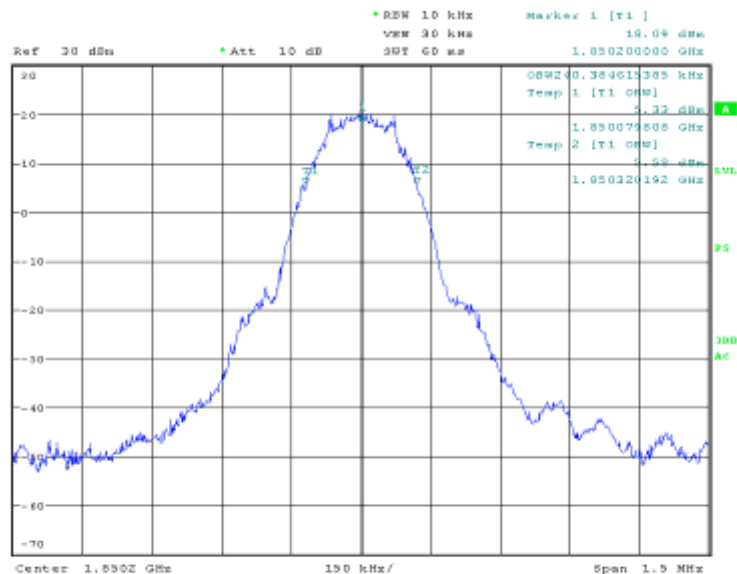
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Channel High



GSM 1900 8-PSK

Graph: Channel Low



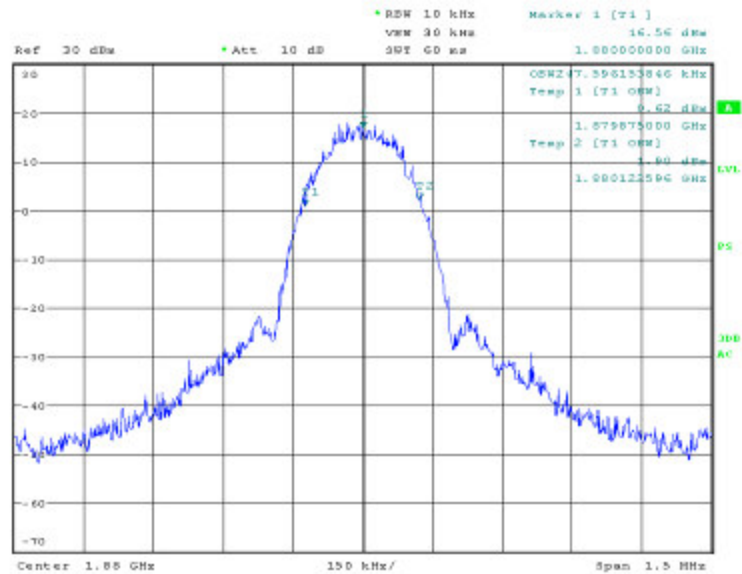


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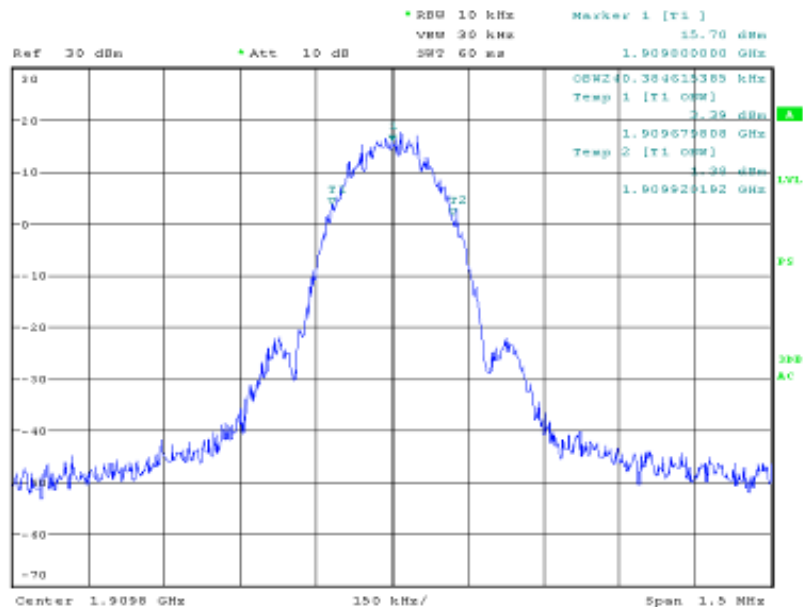
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Channel Middle



Channel High



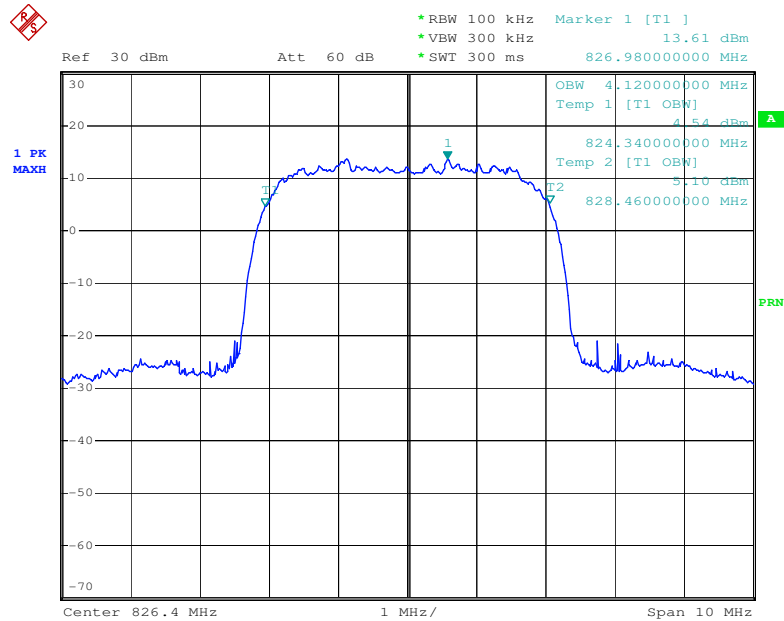


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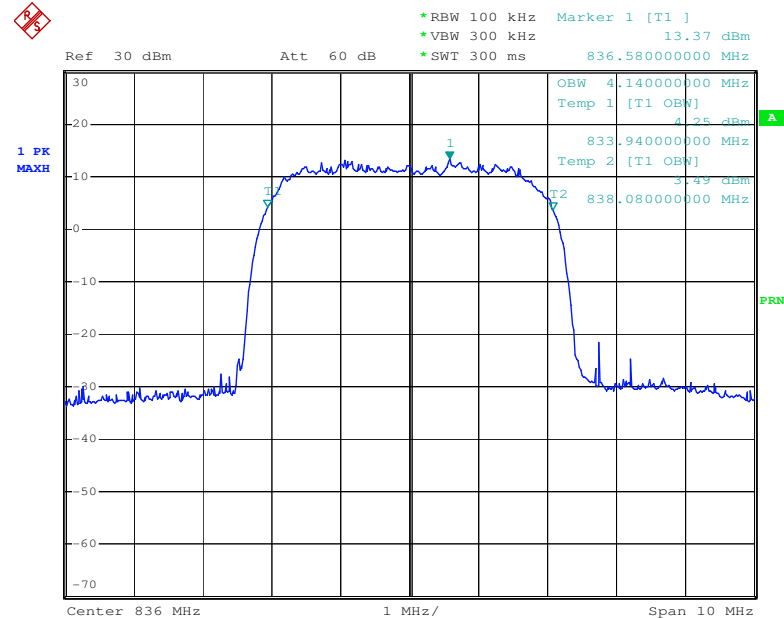
WCDMA Band V

Graph: Channel Low



Date: 25.AUG.2011 10:25:00

Graph: Channel Mid



Date: 25.AUG.2011 10:31:31

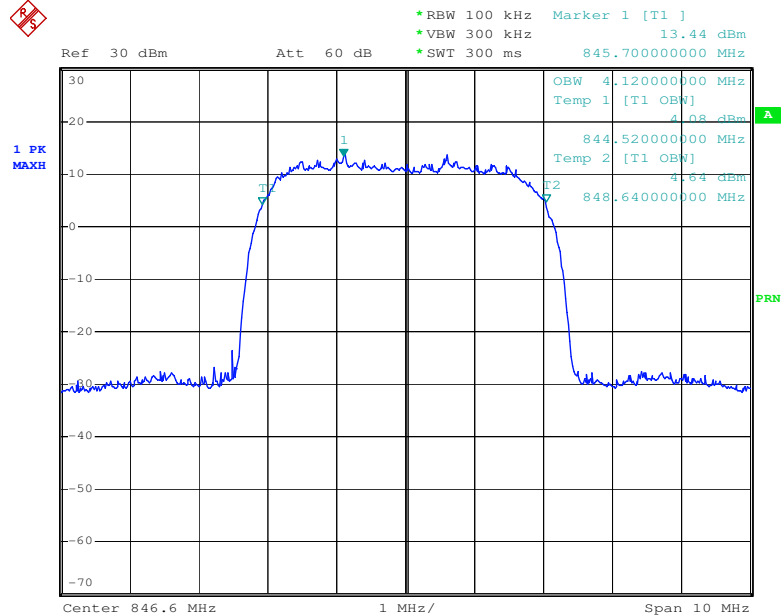
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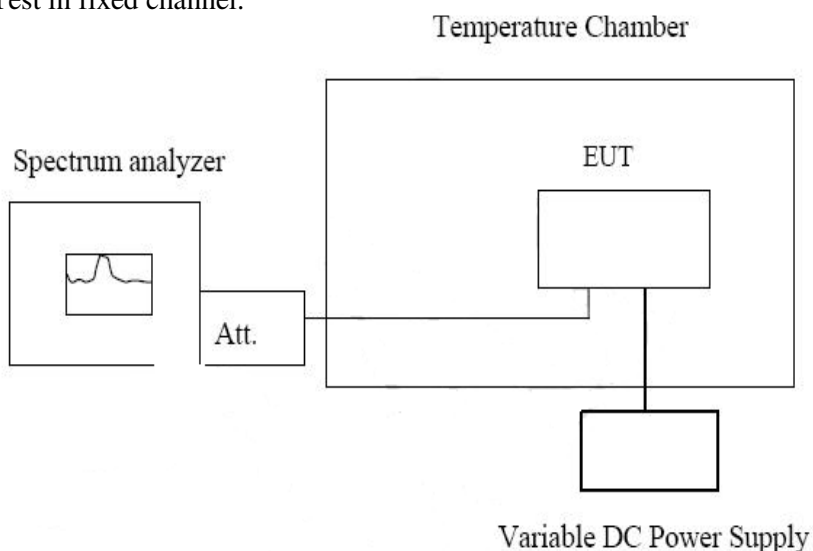
Graph: Channel High



Date: 25.AUG.2011 10:32:45

6.3 Frequency Stability V.S. TEMPERATURE MEASUREMENT

Test Requirement: Part 2.1055(a)(1)
Test Date: Aug 16, 2011 to Aug 20, 2011
Test Status: Test in fixed channel.
Test Setup:



Note: Measurement setup for testing On antenna connector.

Test procedure:

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

Frequency Tolerance: $\pm 2.5\text{ppm}$



GSM850-GMSK:

Reference Frequency: GSM channel 836.4MHz@ 25 degree				
Limit: +/- 2.5ppm = 2091Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature(degree)	(MHz)		
3.7	-30	836.400006	6	2091
3.7	-20	836.400012	12	2091
3.7	-10	836.400004	4	2091
3.7	10	836.399992	8	2091
3.7	20	836.400016	16	2091
3.7	30	836.400008	8	2091
3.7	40	836.400020	20	2091
3.7	50	836.400011	11	2091

GSM850-8PSK:

Reference Frequency: GSM channel 836.4MHz@ 25 degree				
Limit: +/- 2.5ppm = 2091Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature(degree)	(MHz)		
3.7	-30	836.400044	44	2091
3.7	-20	836.400053	53	2091
3.7	-10	836.400082	82	2091
3.7	10	836.400024	24	2091
3.7	20	836.400024	24	2091
3.7	30	836.400048	48	2091
3.7	40	836.400055	55	2091
3.7	50	836.400067	67	2091



PCS1900-GMSK:

Reference Frequency: PCS channel 1880MHz@ 25 degree				
Limit: +/- 2.5ppm = 4700Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature(degree)	(MHz)		
3.7	-30	1879.999982	-18	4700
3.7	-20	1879.999992	-8	4700
3.7	-10	1879.999950	-50	4700
3.7	10	1879.999914	-86	4700
3.7	20	1879.999994	-6	4700
3.7	30	1879.999987	-13	4700
3.7	40	1879.999973	-27	4700
3.7	50	1879.999986	-14	4700

PCS1900-8PSK:

Reference Frequency: PCS channel 1880MHz@ 25 degree				
Limit: +/- 2.5ppm = 4700Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature(degree)	(MHz)		
3.7	-30	1880.000063	63	4700
3.7	-20	1880.000055	55	4700
3.7	-10	1880.000049	49	4700
3.7	10	1880.000075	75	4700
3.7	20	1880.000044	44	4700
3.7	30	1880.000055	55	4700
3.7	40	1880.000073	73	4700
3.7	50	1880.000086	86	4700

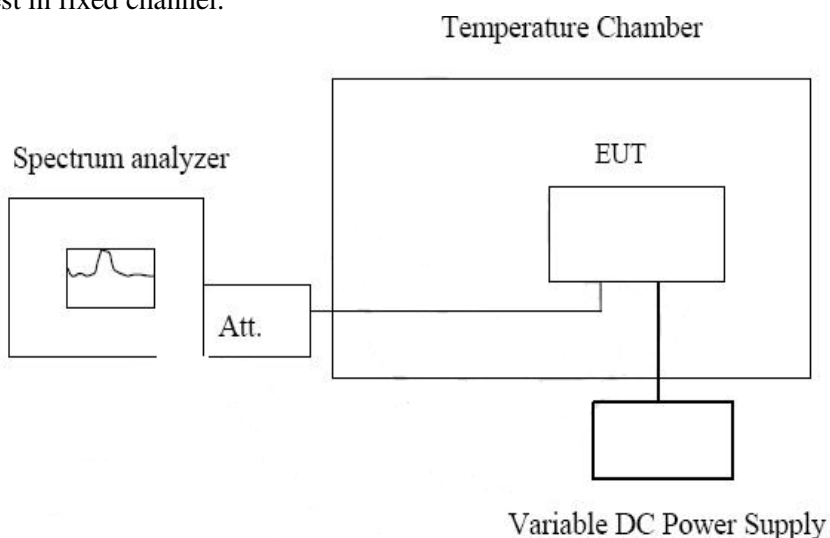


WCDMA Band V

Reference Frequency: WCDMA V Mid channel 836.0MHz@ 25 degree				
Limit: +/- 2.5ppm = 2090Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature(degree)	(MHz)		
3.7	-30	835.999914	-86	2090
3.7	-20	835.999929	-71	2090
3.7	-10	835.999949	-51	2090
3.7	10	835.999984	-16	2090
3.7	20	835.999995	-5	2090
3.7	30	835.999943	-57	2090
3.7	40	835.999934	-66	2090
3.7	50	835.999949	-51	2090

6.4 Frequency Stability V.S. VOLTAGE MEASUREMENT

Test Requirement: Part 2.1055(a)(1)
Test Date: Aug 16, 2011 to Aug 20, 2011
Test Status: Test in fixed channel.
Test Setup:



Note: Measurement setup for testing On antenna connector.

Test procedure:

Set chamber temperature to 25 degree. Use a variable AC power/ DC power supply to power the EUT and set the Voltage to rated voltage. Set the spectrum analyzer RBW enough to obtain the desired frequency resolution and recorded the frequency. Reduce the input voltage to specified extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.

GSM850-GMSK:

Reference Frequency: GSM channel 836.4MHz@ 25 degree				
Limit: +/- 2.5ppm = 2091Hz				
Power Supply	Environment	Frequency	Delta	Limit
Vdc	Temperature(degree)	(MHz)	(Hz)	(Hz)
4.20	25	836.400014	14	2091
3.70	25	836.400012	12	2091
3.45	25	836.400027	27	2091



GSM850-8PSK:

Reference Frequency: GSM channel 836.4MHz@ 25 degree				
Limit: +/- 2.5ppm = 2091Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature(degree)	(MHz)		
4.20	25	836.400057	57	2091
3.70	25	836.400064	64	2091
3.45	25	836.400064	64	2091

PCS1900-GMSK:

Reference Frequency: PCS channel 1880MHz@ 25 degree				
Limit: +/- 2.5ppm = 4700Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature(degree)	(MHz)		
4.20	25	1879.999994	-6	4700
3.70	25	1879.999980	-20	4700
3.45	25	1879.999982	-18	4700

PCS1900-8PSK:

Reference Frequency: PCS channel 1880MHz@ 25 degree				
Limit: +/- 2.5ppm = 4700Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature(degree)	(MHz)		
4.20	25	1880.000042	42	4700
3.70	25	1880.000052	52	4700
3.45	25	1880.000090	90	4700



WCDMA BAND V

Reference Frequency: WCDMA V Mid channel 836.0MHz@ 25 degree				
Limit: +/- 2.5ppm = 2090Hz				
Power Supply	Environment	Frequency	Delta	Limit
Vdc	Temperature(degree)	(MHz)	(Hz)	(Hz)
4.20	25	835.999973	-27	2090
3.70	25	836.000000	0	2090
3.45	25	835.999965	-35	2090

Note: The High and normal voltage is DC 4.20V, and low voltage is DC 3.45V.



6.5 Out of band emissions at antenna Terminals

6.5.1 Band edges emissions

Test Requirement: Part 2.1051

The magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specification in the instruction manual and/or alignment procedure, shall not be less than $43+10\log(\text{Mean power in watts})$ dBc below the mean power output outside a license's frequency block(-13dBm).

Test Date: Aug 20,2011

Test Procedure:

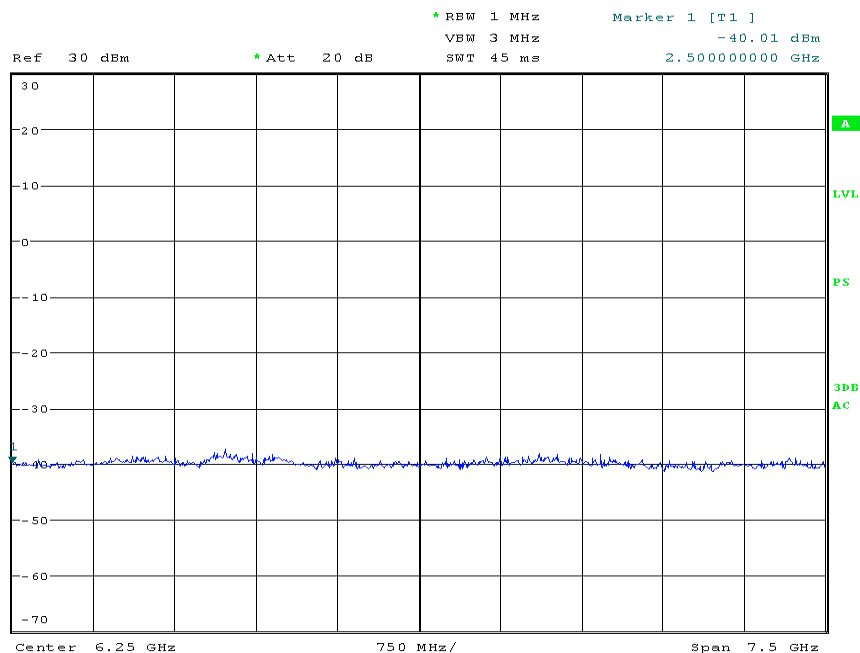
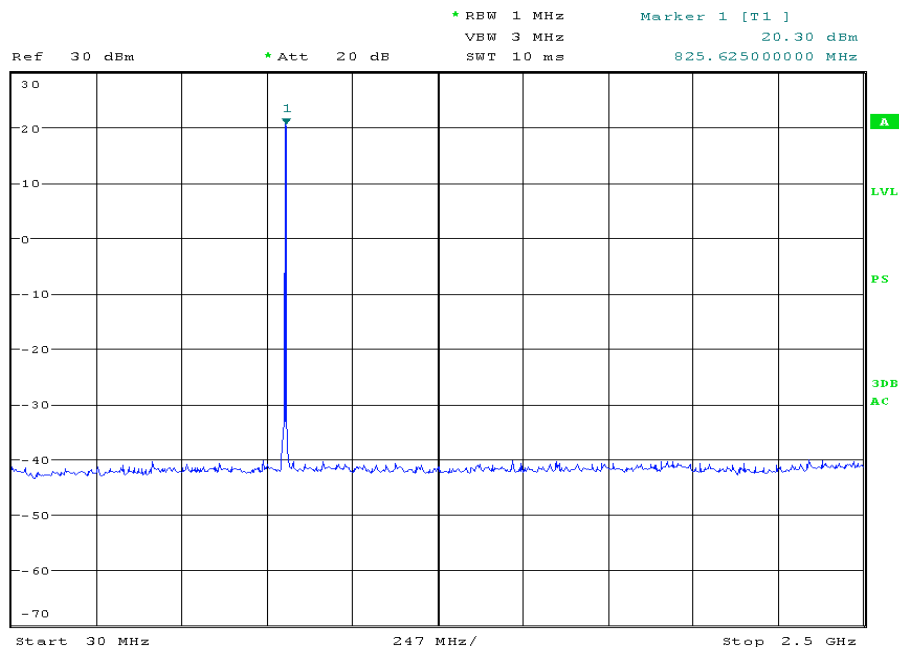
The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emission is any up to 10th harmonic.

For the out of band: set RBW=1MHz, VBW=3MHz, stat=30MHz, stop= 10 th harmonic. Limit= --13dBm Band Edge requirements: In 1MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 % of bandwidth of fundamental emission of the transmitter any be employed to measure the out of band emission. Limit= - 13dBm.



Measurement result: GSM 850 GMSK:

Channel Low

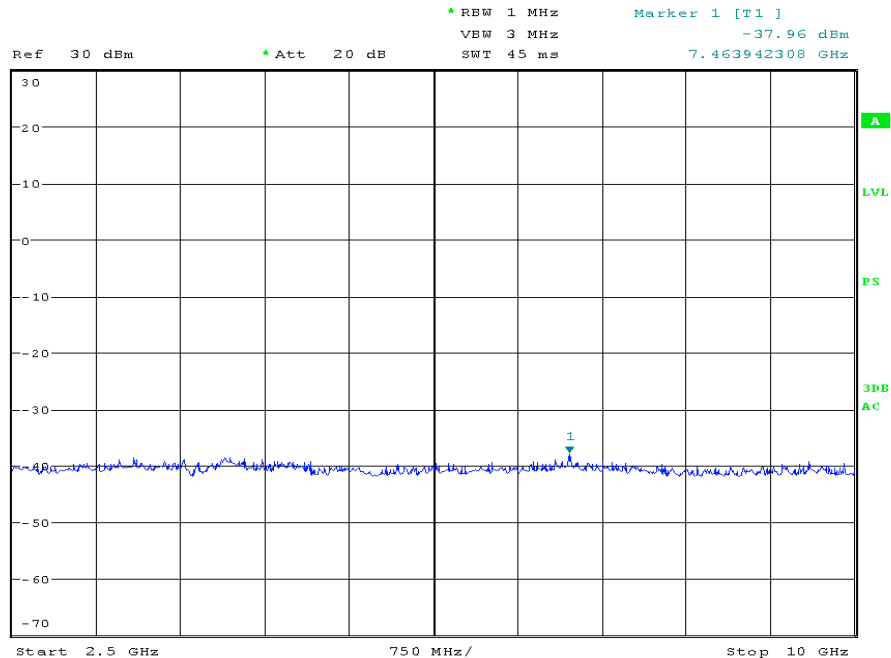
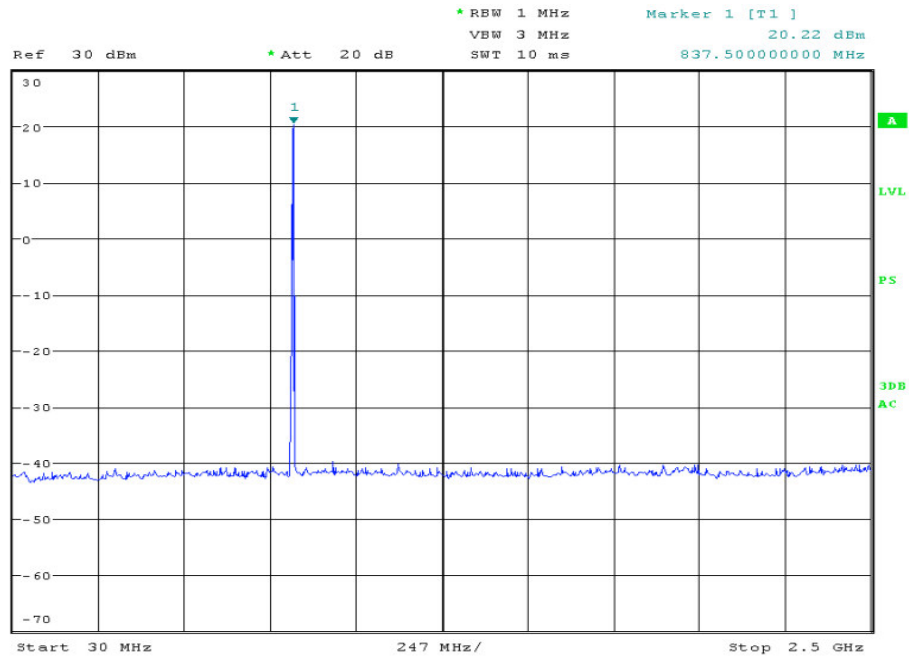




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Channel Mid



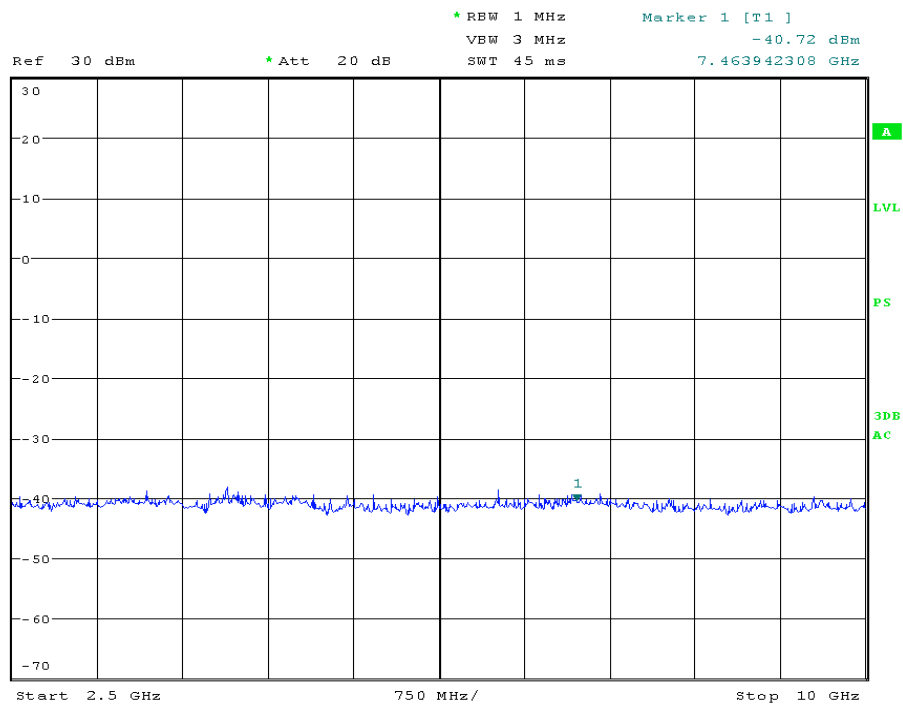
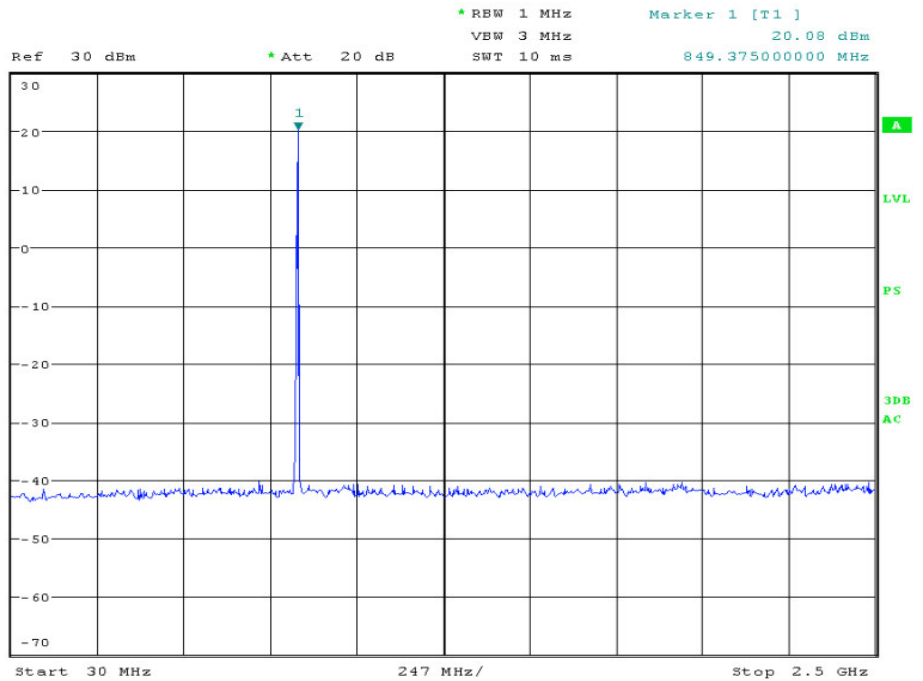
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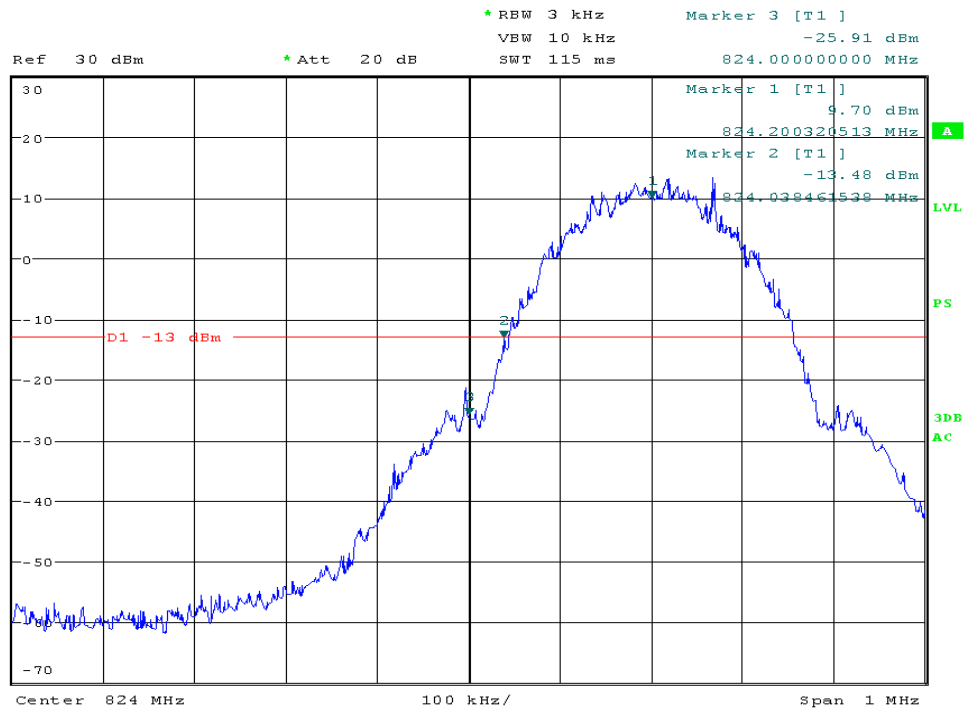
Channel High



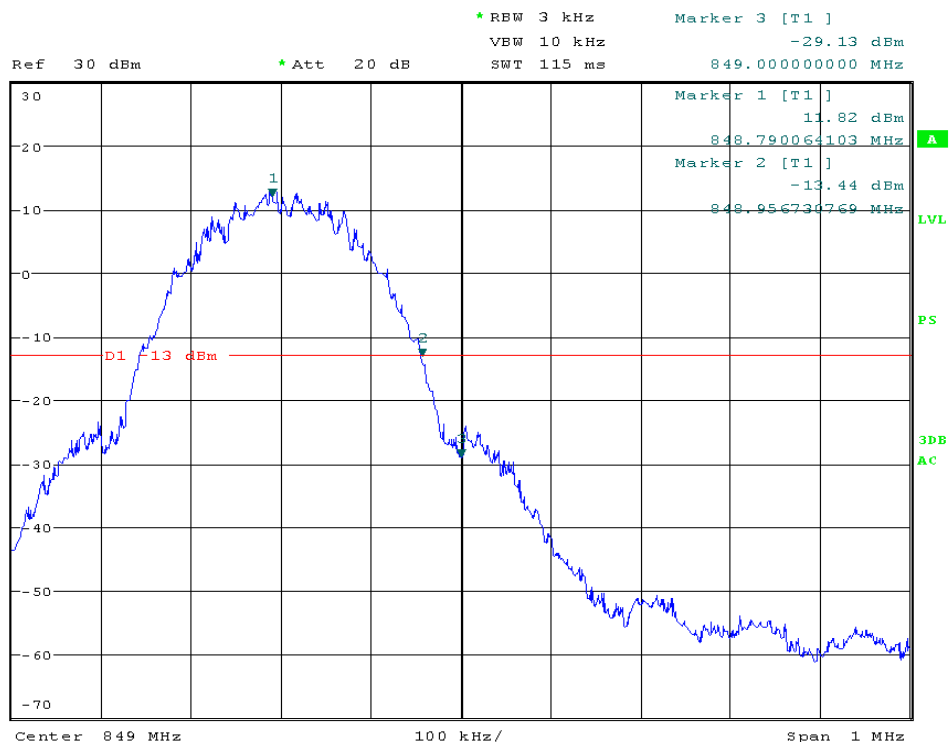
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Band Edge emission Channel Low



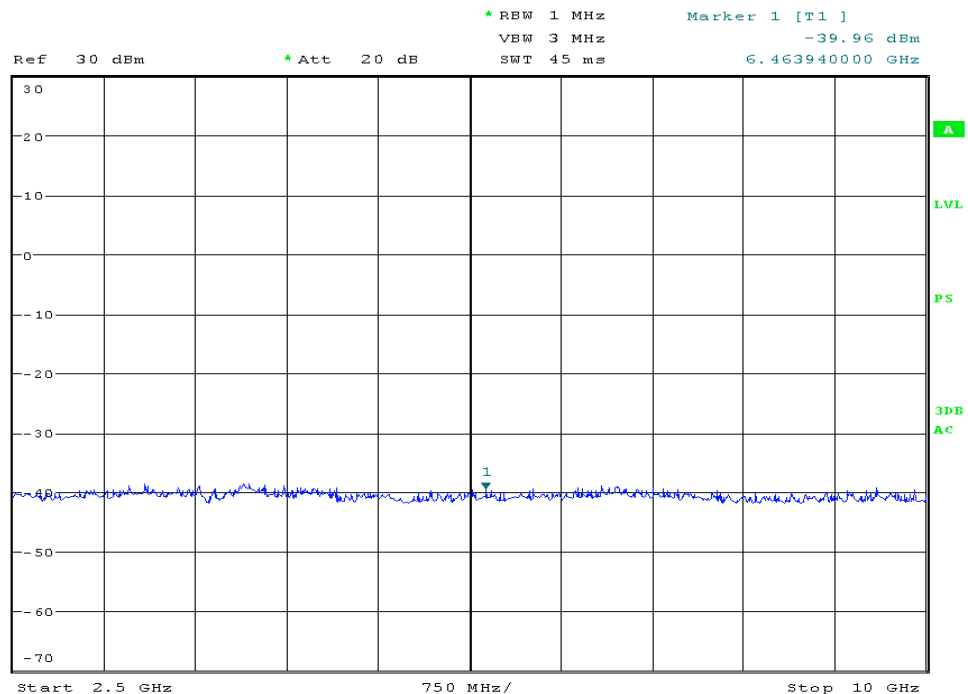
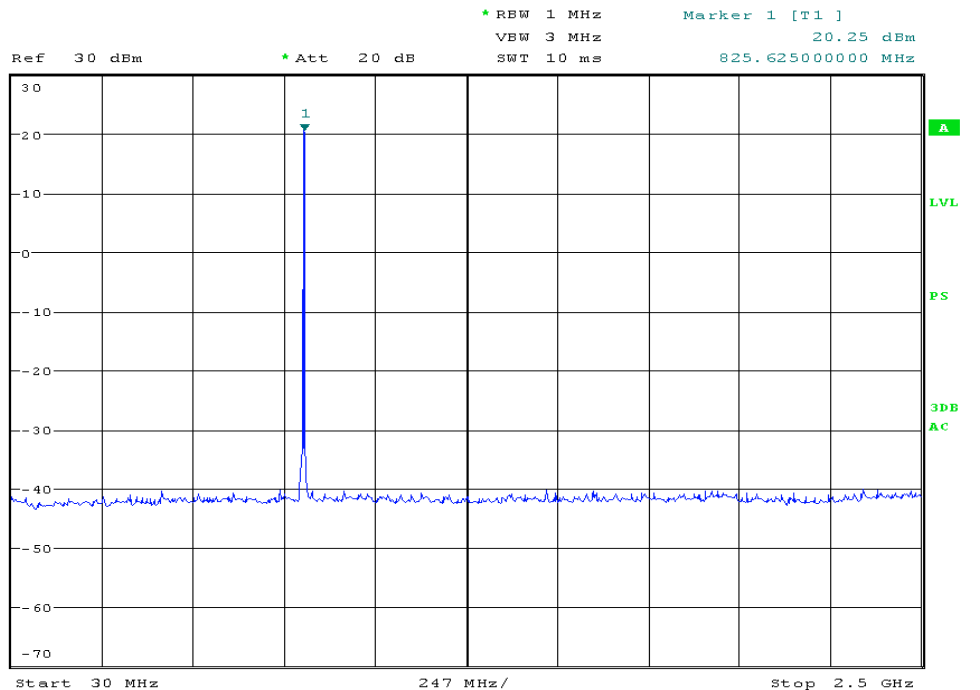
Band Edge emission Channel high



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GSM 850 8-PSK Channel Low

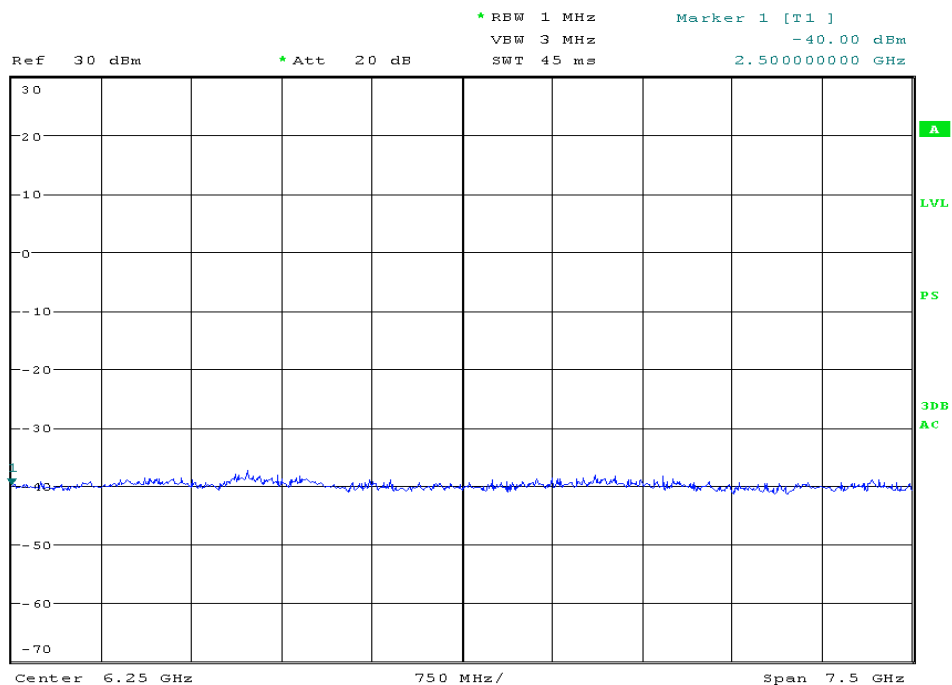
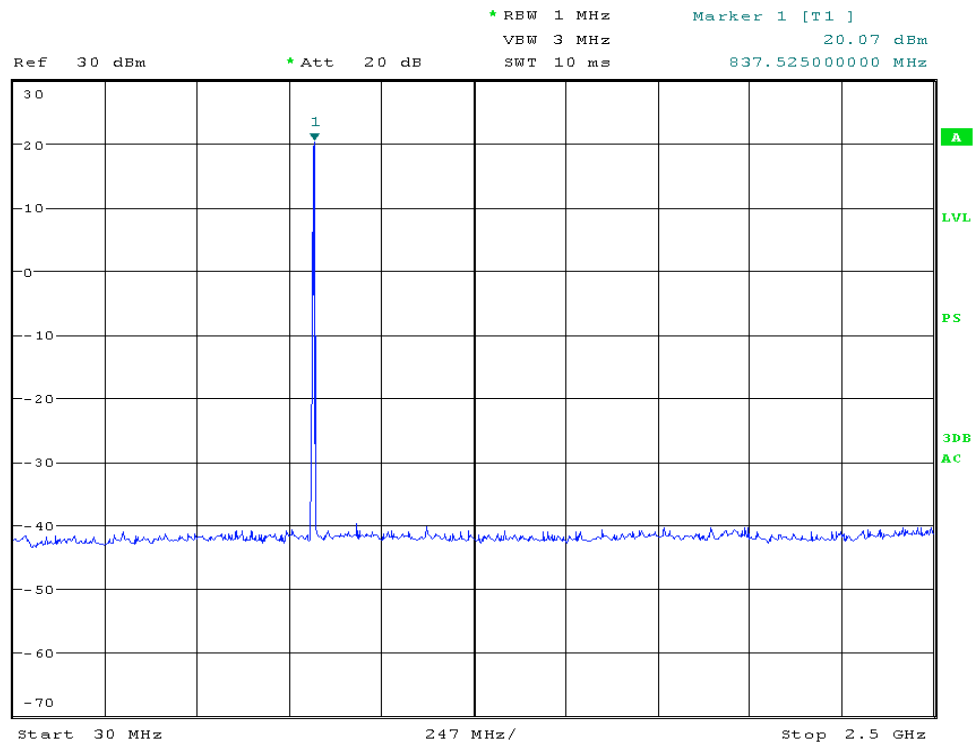




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Channel Mid



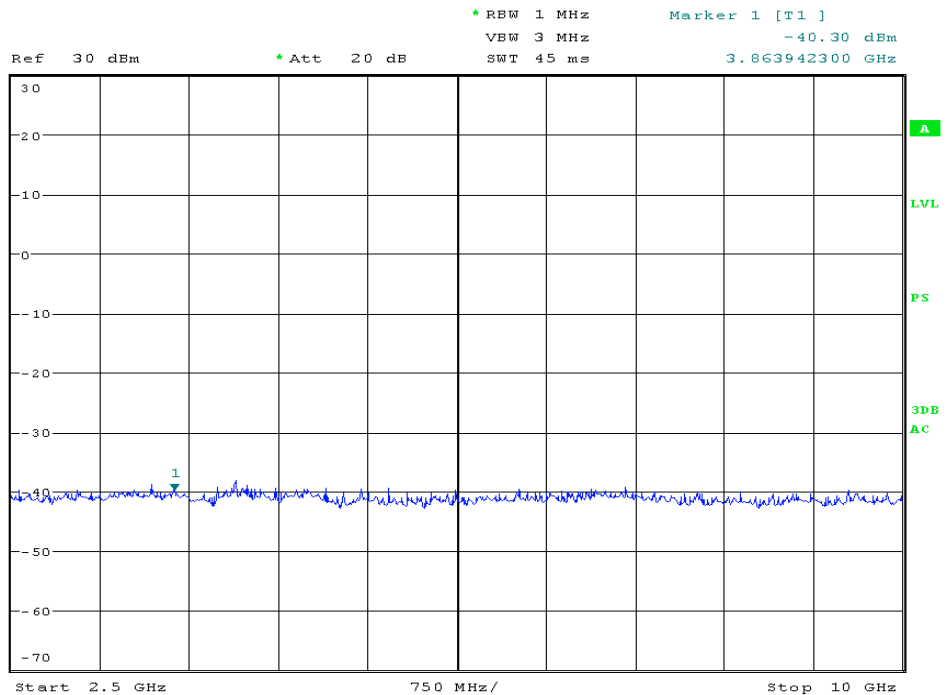
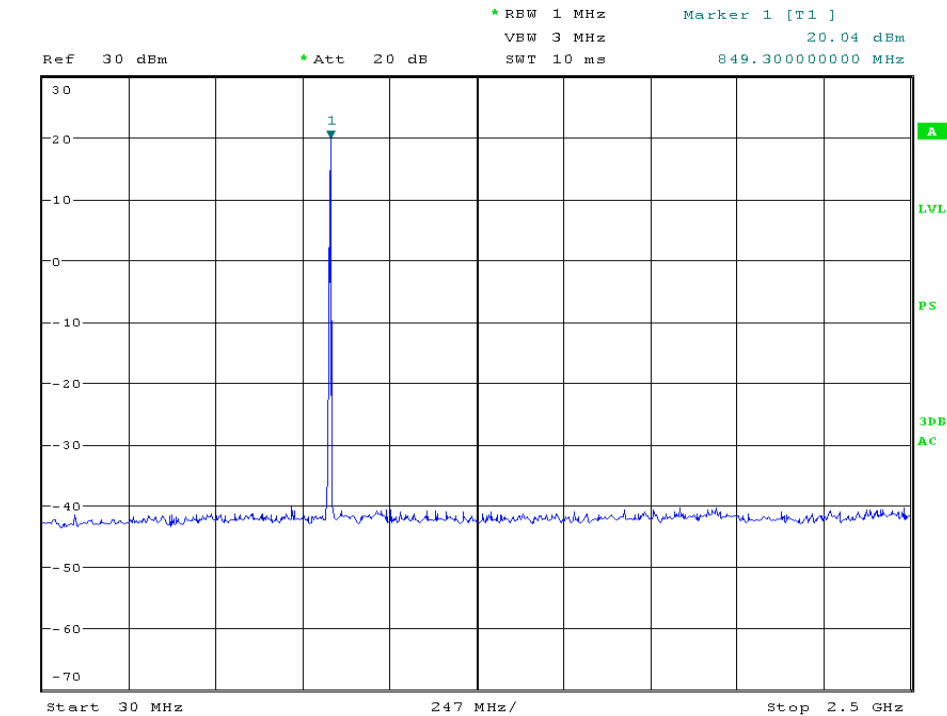
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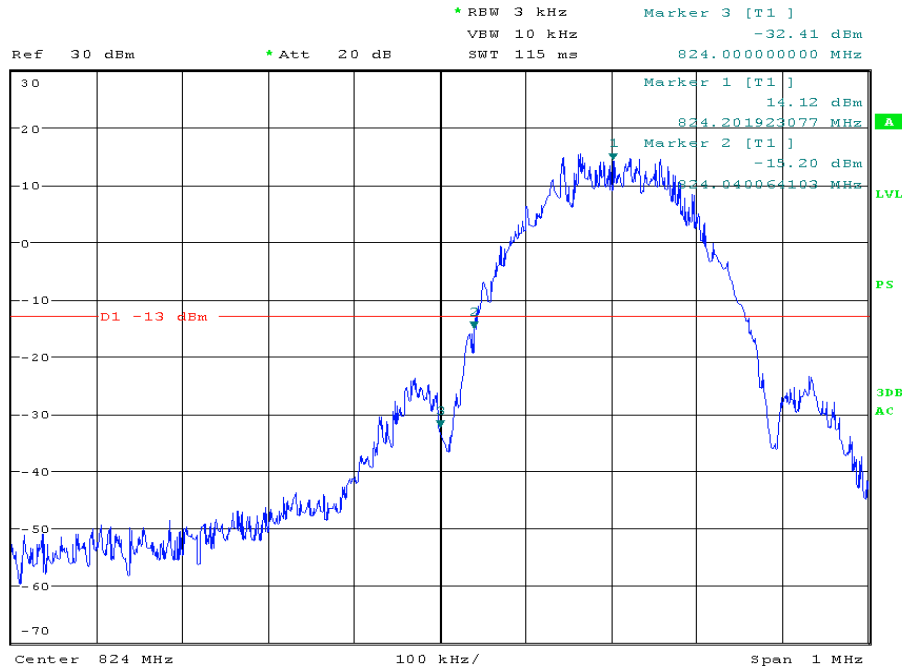
Channel High



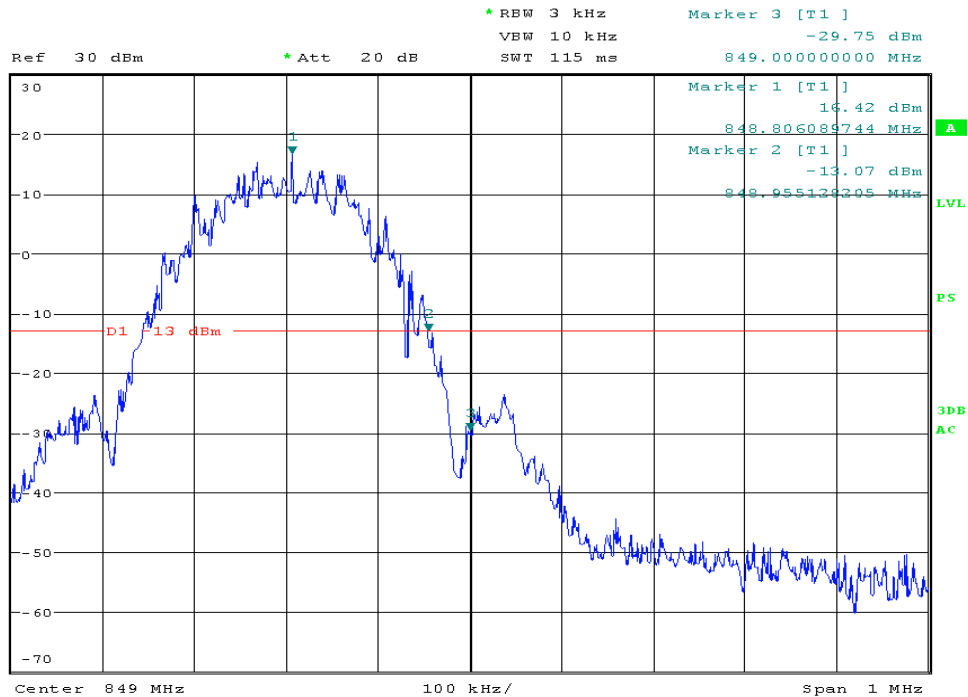
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Band Edge emission Channel Low

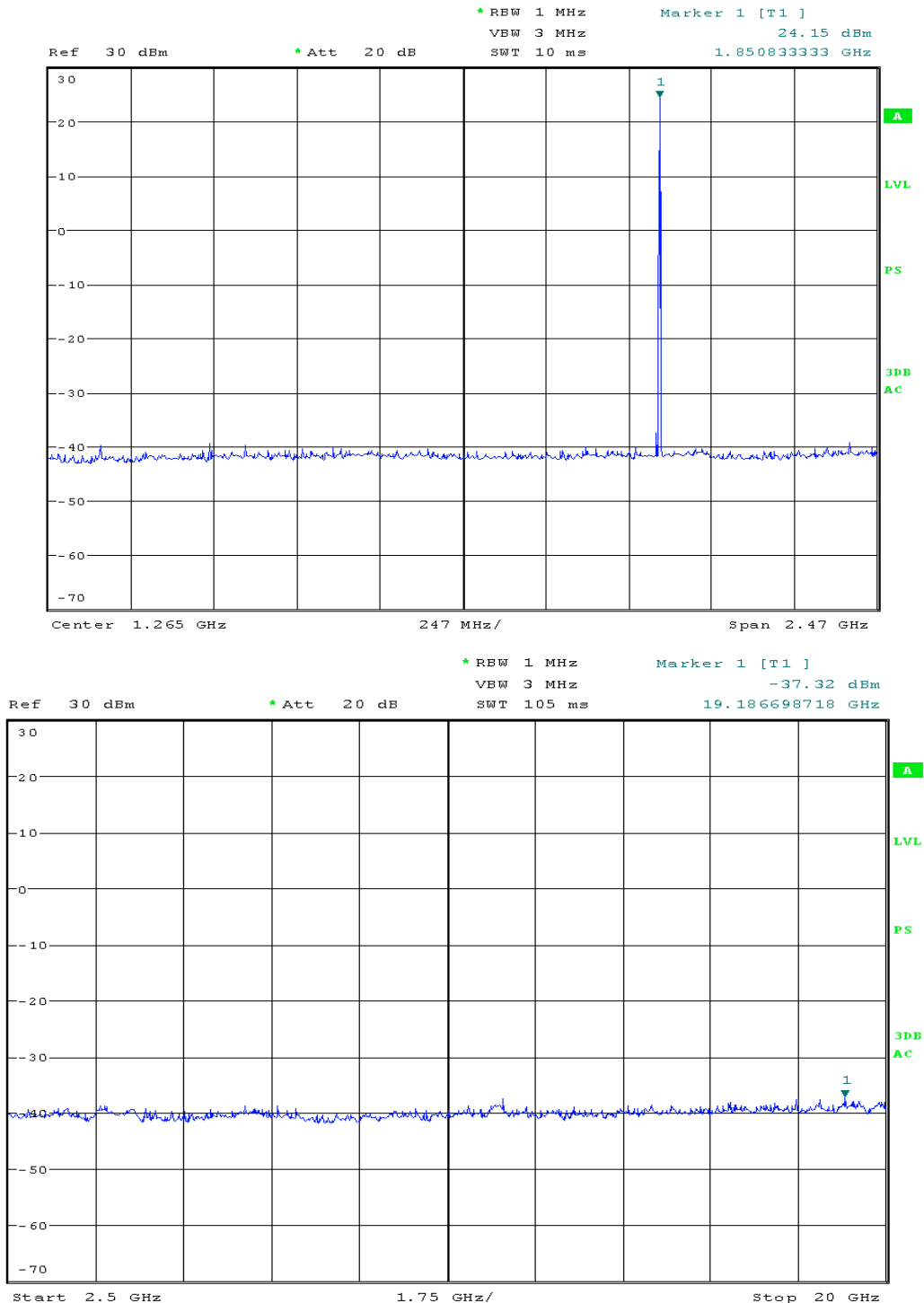


Band Edge emission Channel high:



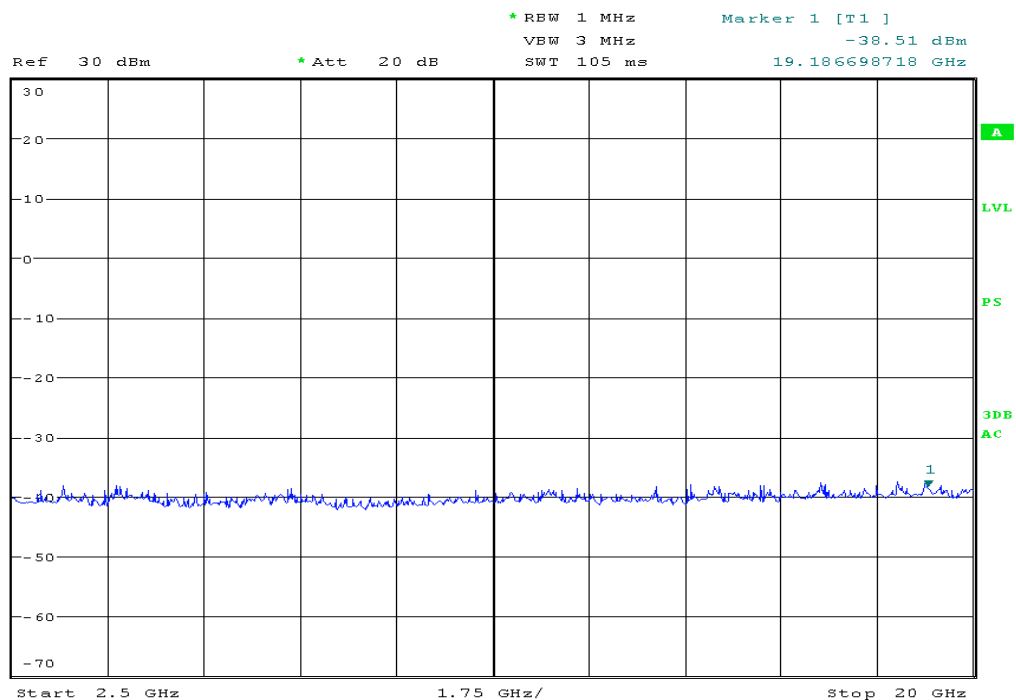
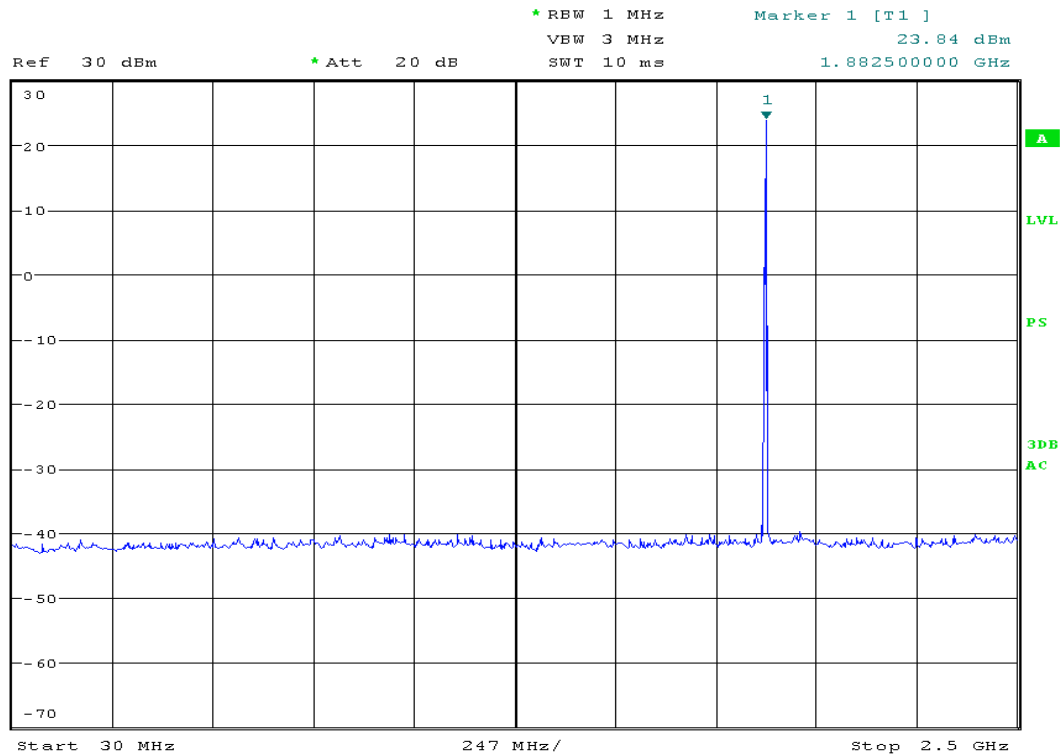


GSM 1900 GMSK: Channel Low



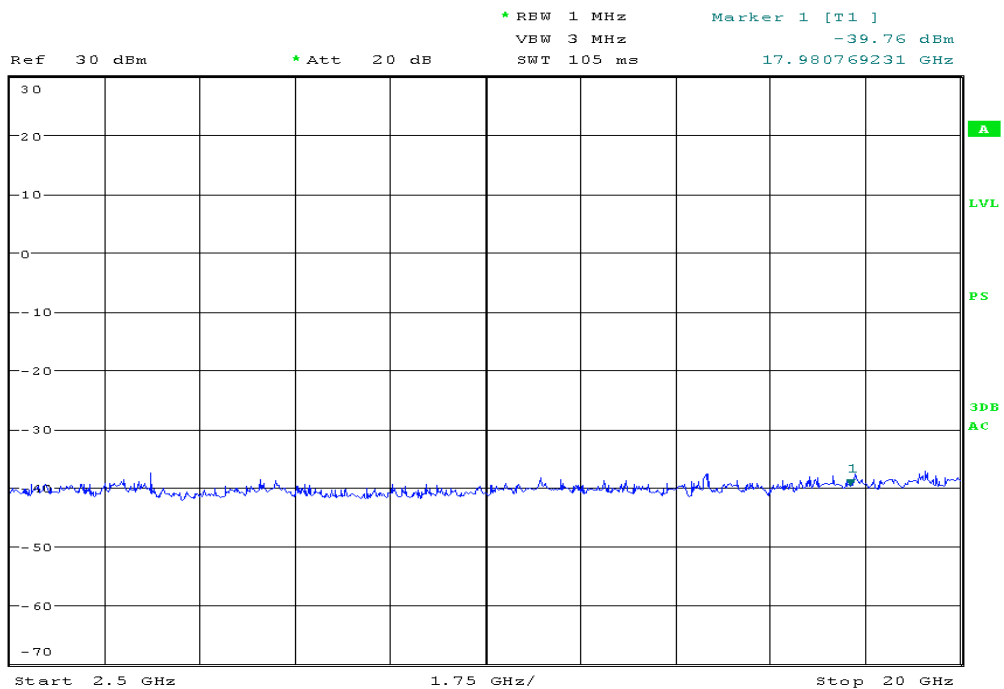
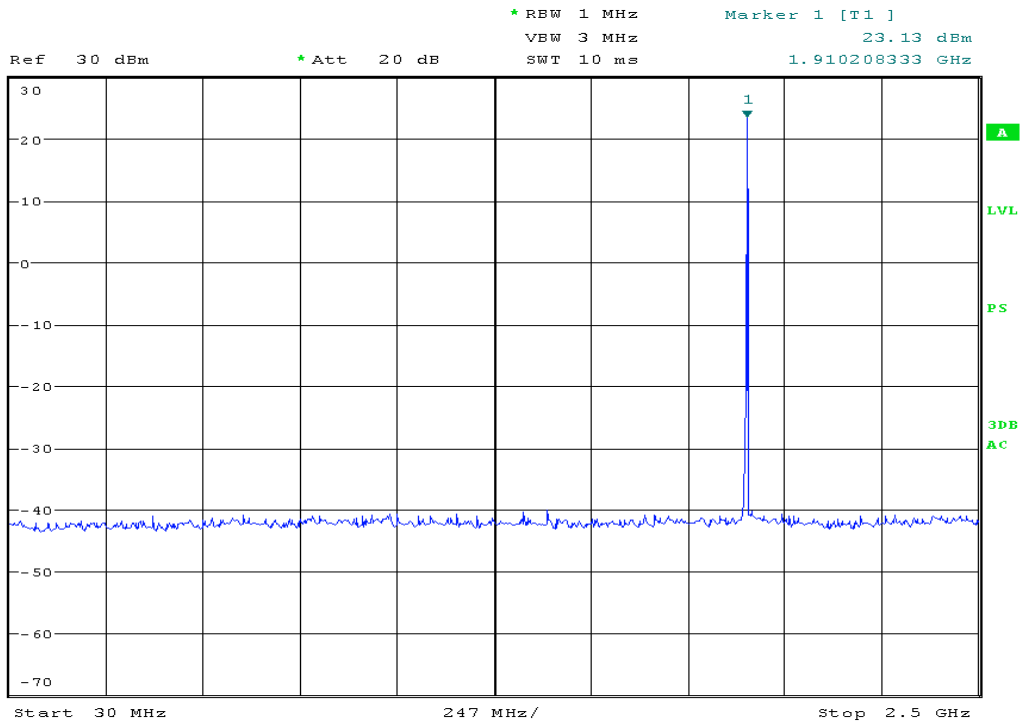


Channel Mid



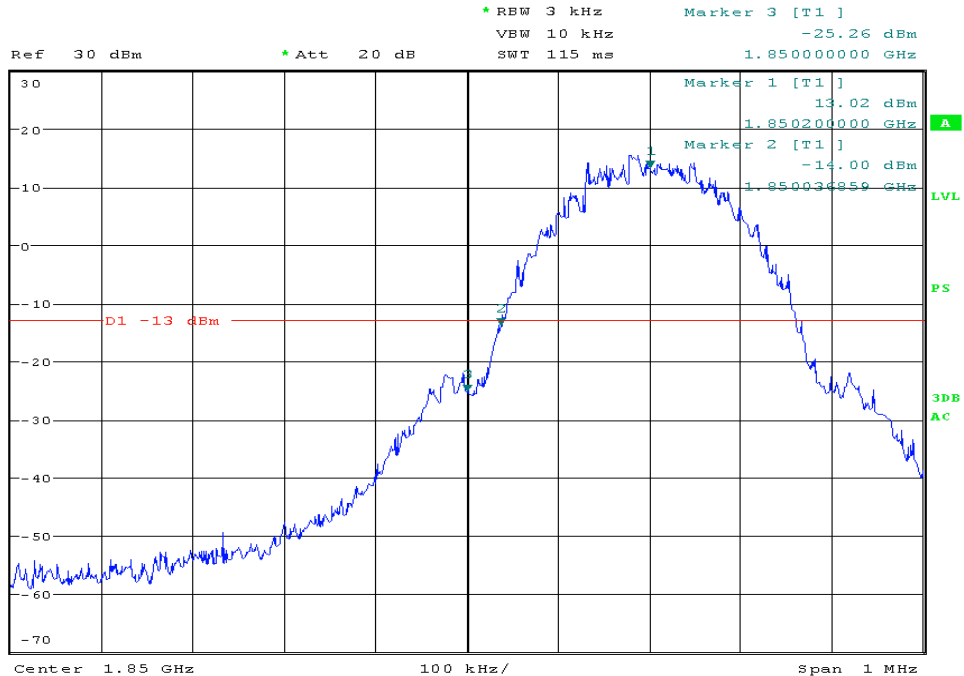


Channel High

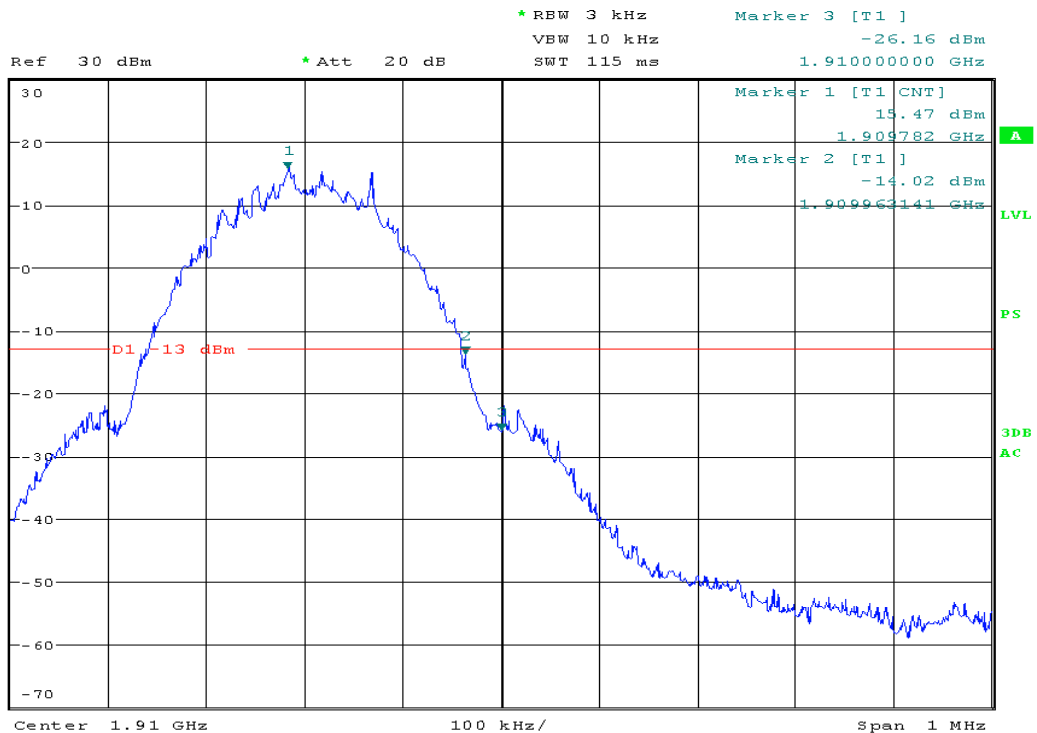




Band Edge emission Channel Low

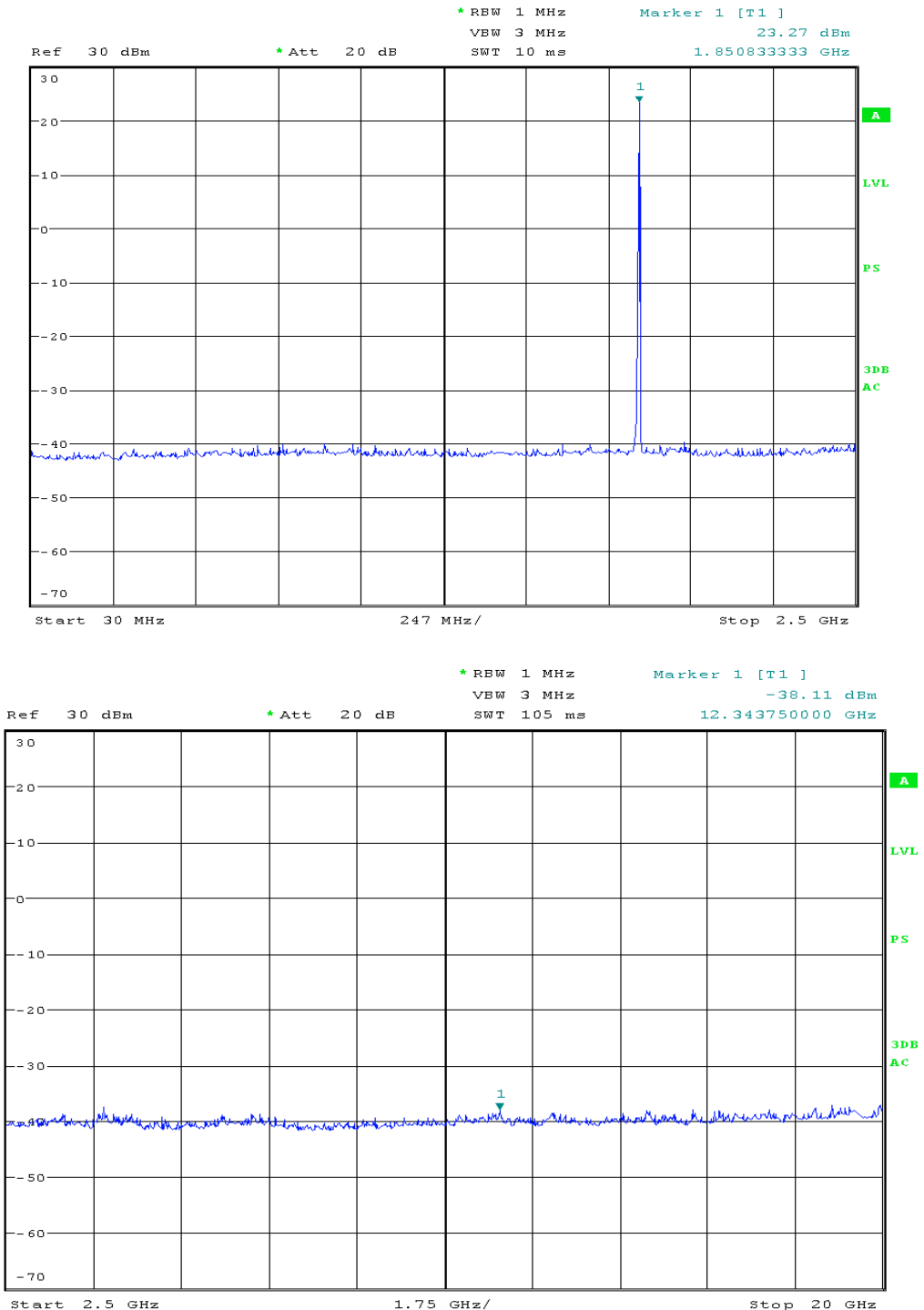


Band Edge emission Channel high



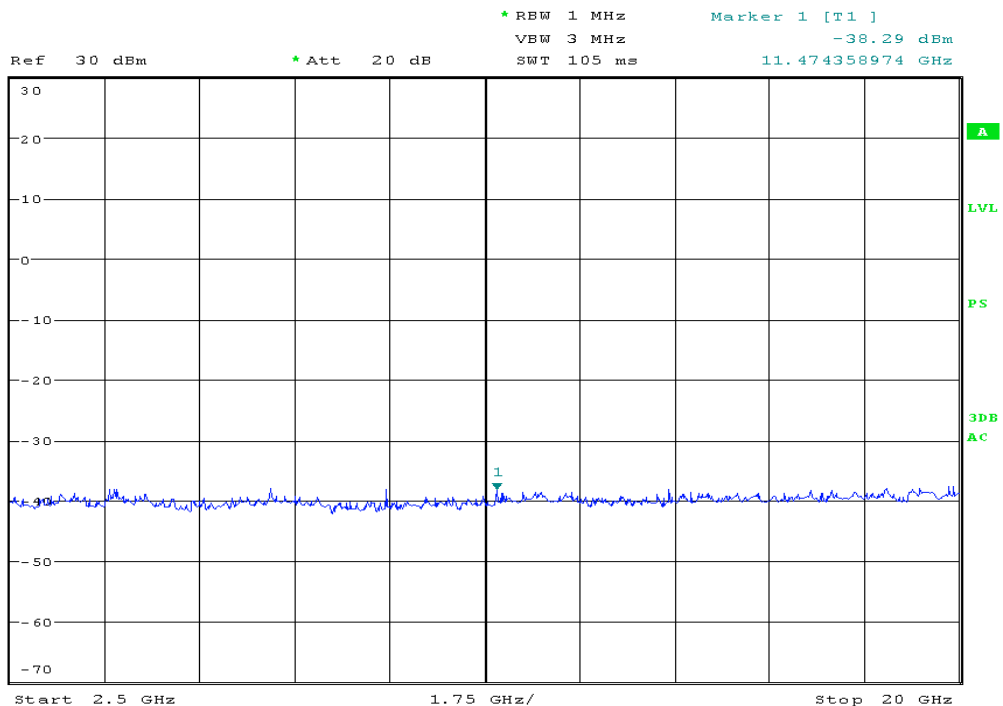
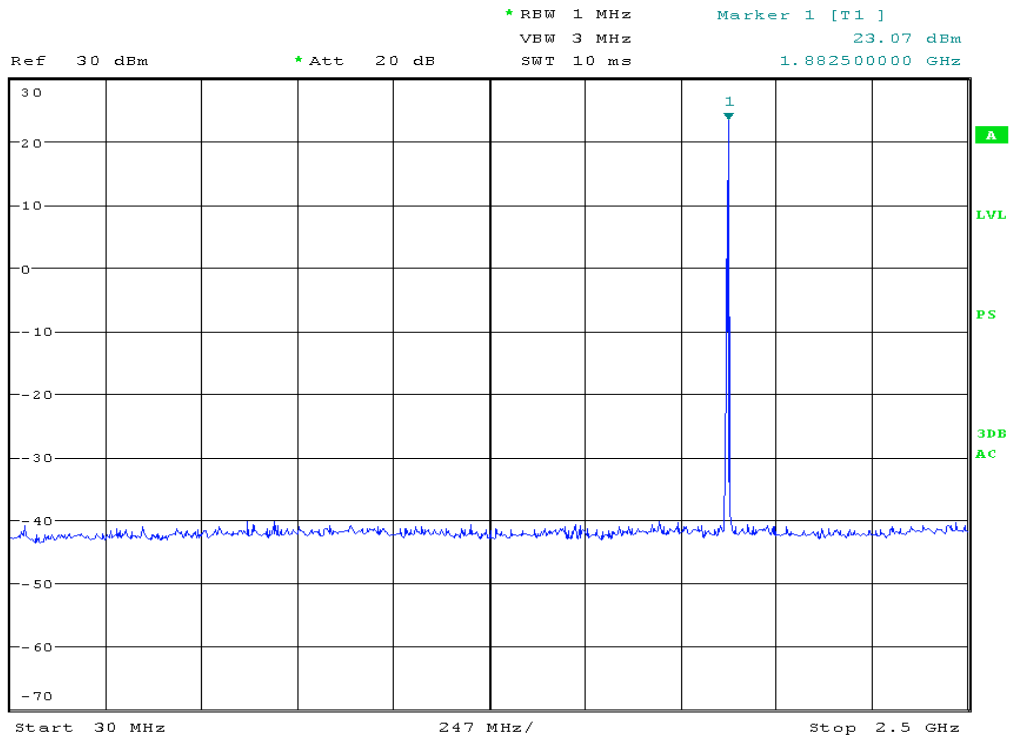


GSM 1900 8-PSK Channel Low



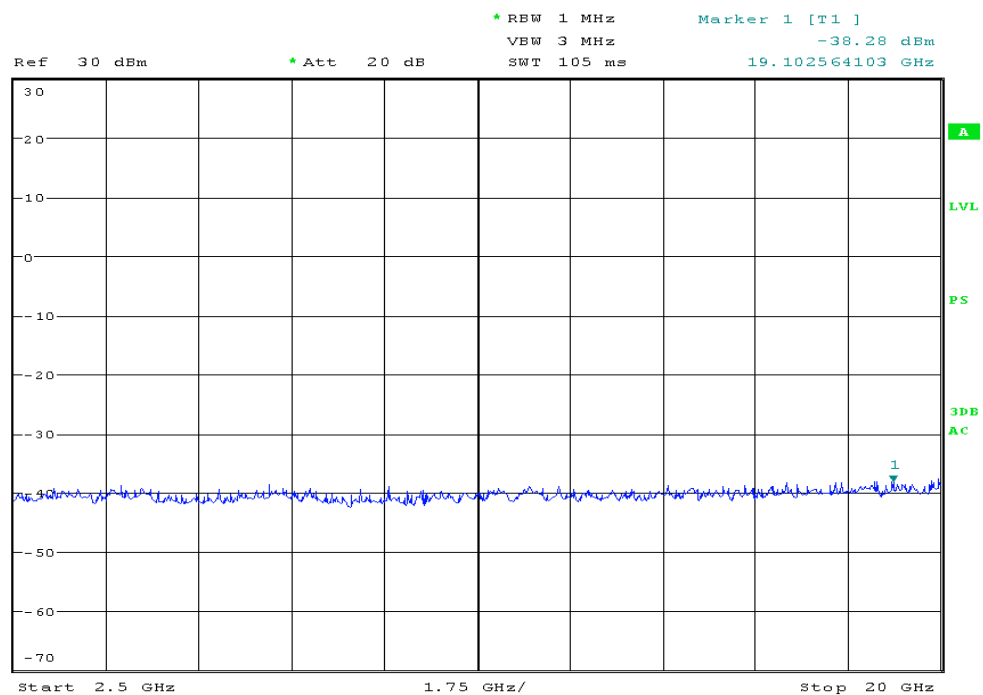
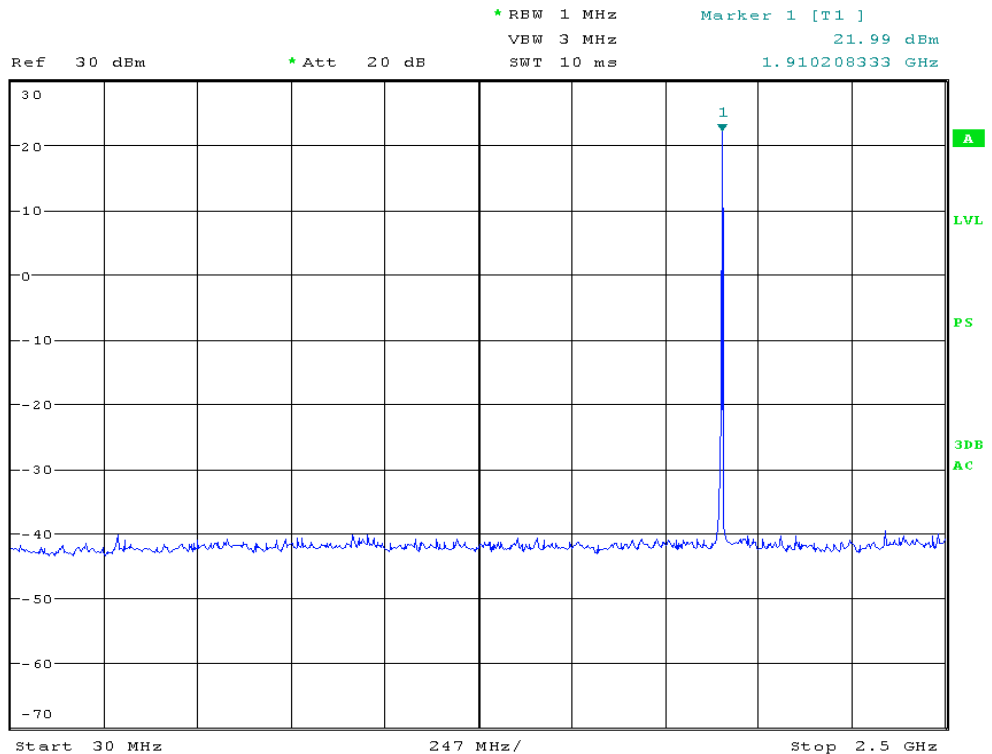


Channel Mid



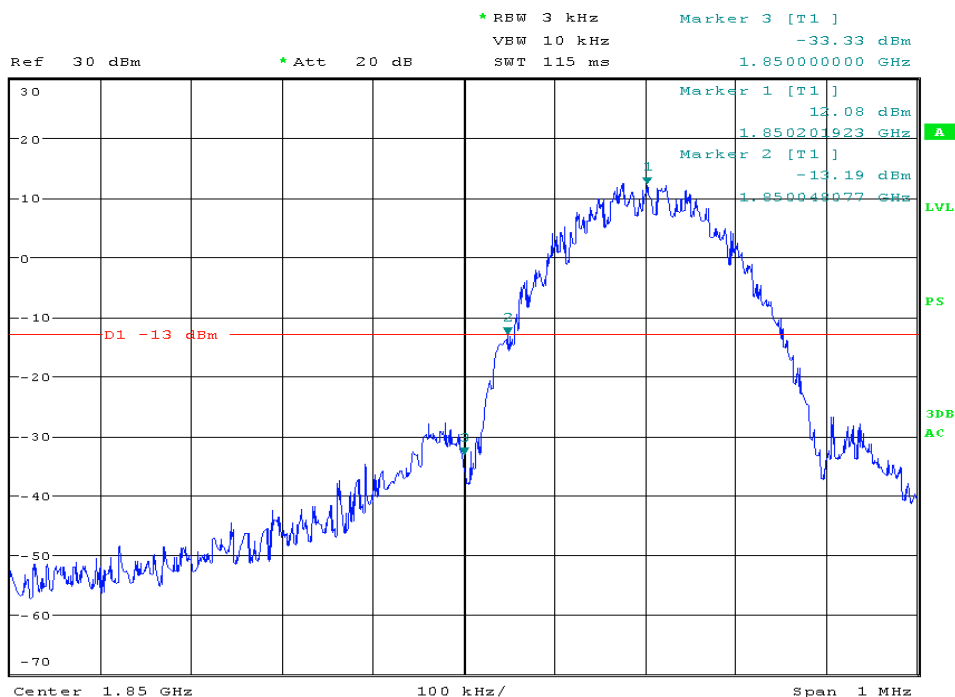


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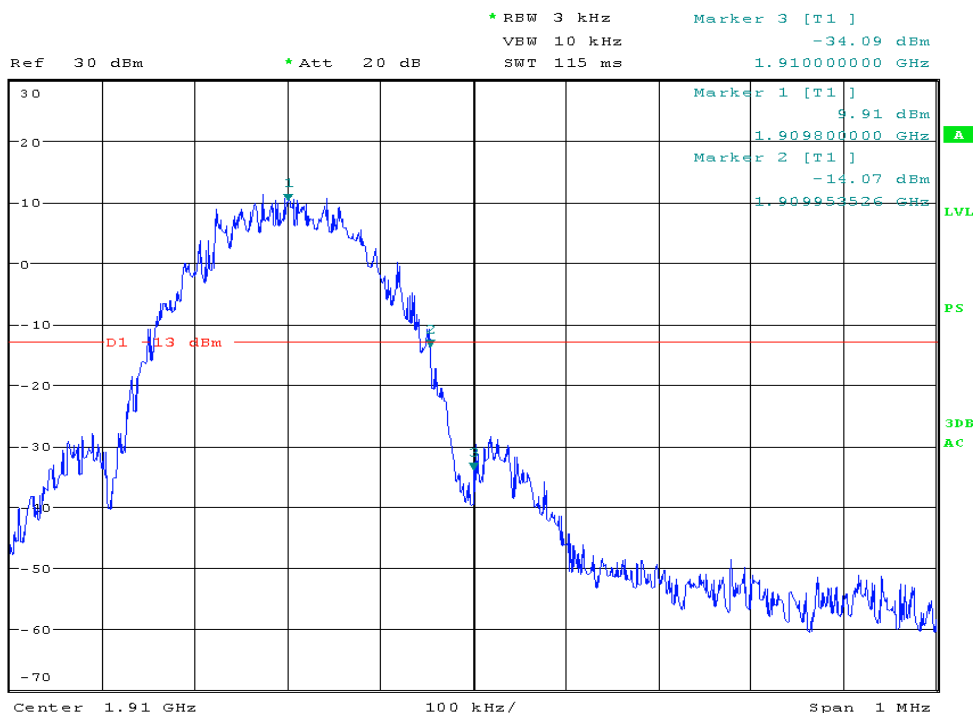




Band Edge emission Channel Low



Band Edge emission Channel high



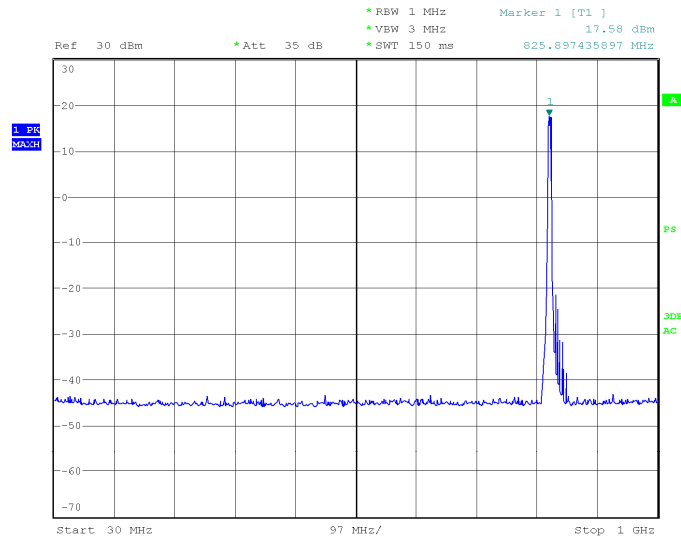


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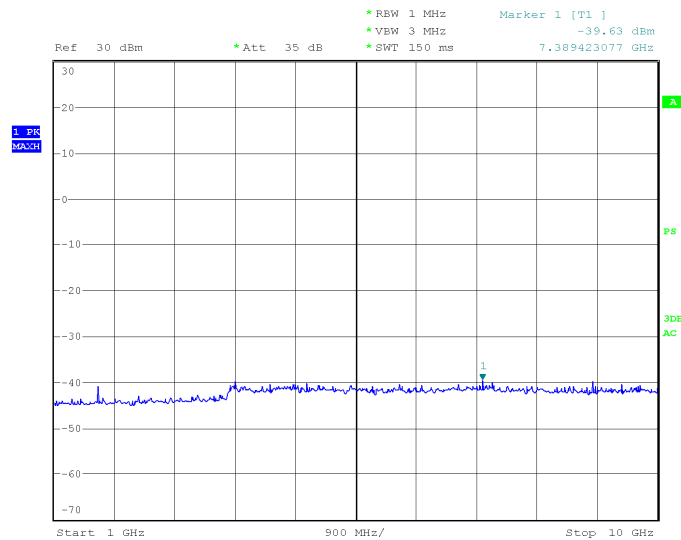
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WCDMA Band V

Channel Low



Date: 26.SEP.2011 21:48:32



Date: 26.SEP.2011 21:49:25

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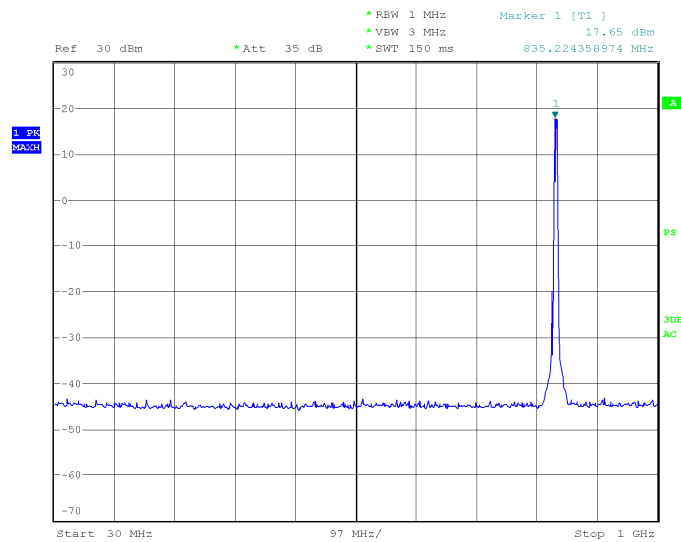


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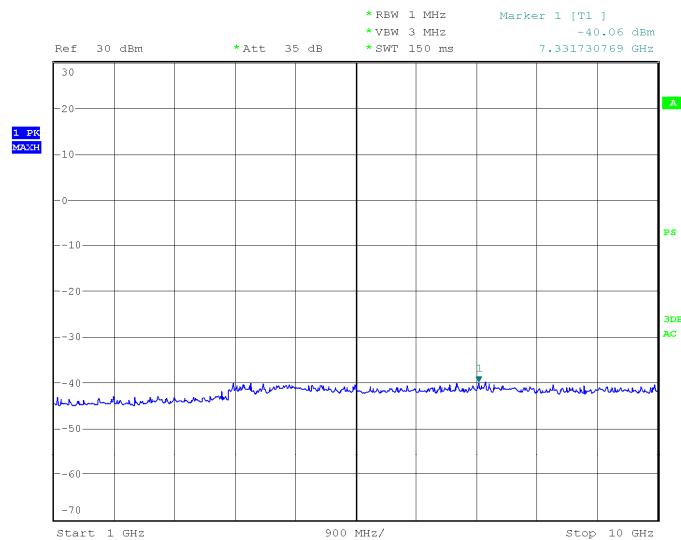
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Channel Mid



Date: 26.SEP.2011 21:51:23



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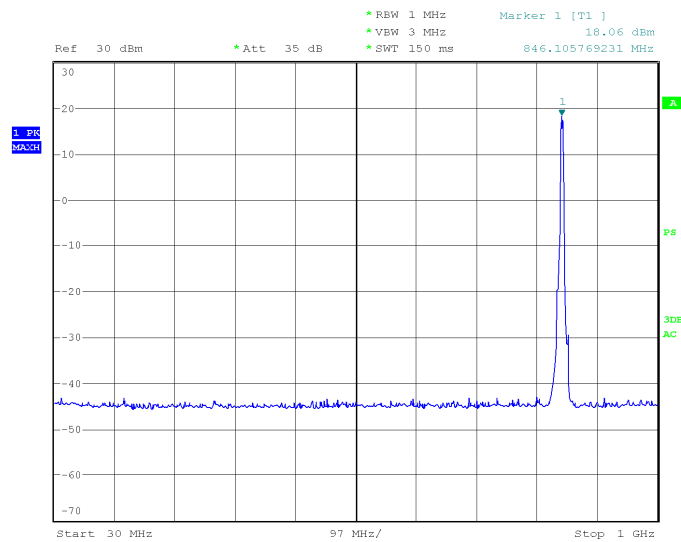
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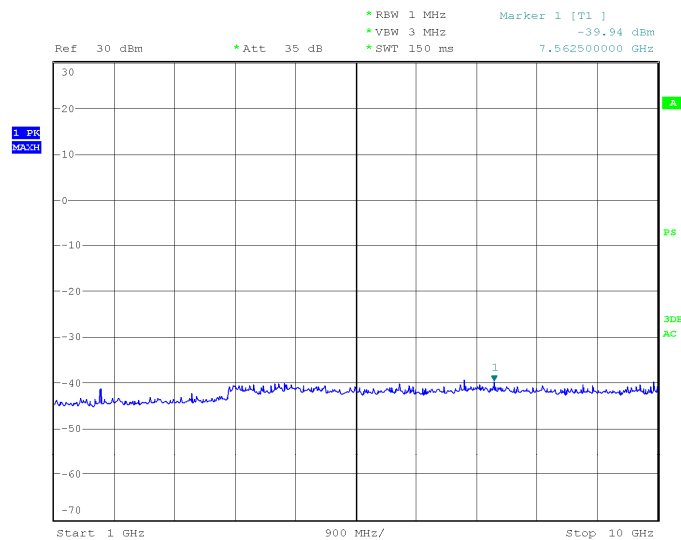
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Channel High



Date: 26.SEP.2011 21:53:32

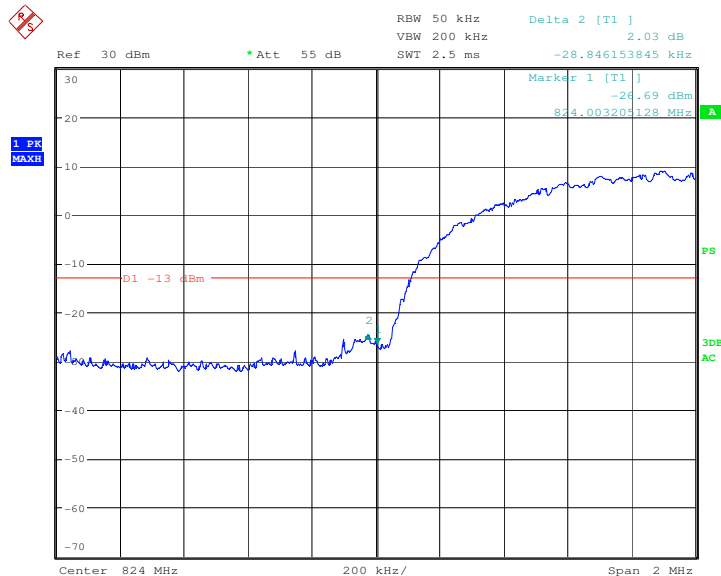


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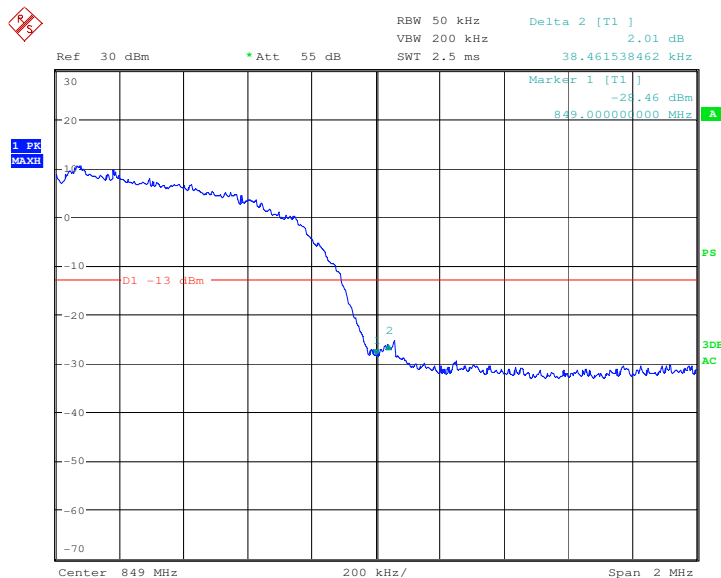


Band Edge emission Channel Low



Date: 19.AUG.2011 10:44:42

Band Edge emission Channel high



Date: 19.AUG.2011 10:46:23

The end of report

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