

FCC PART 22H, 24E

MEASUREMENT AND TEST REPORT

For

Cellon Communications Technology (Shenzhen) Co., Ltd.

13/F, Skyworth Building C Gaoxin S. Ave. 1st, High-Tech industrial Park,

NanShan, Shenzhen, Guangdong, China

FCC ID: T38UT2082

Report Type: Original Report	Product Type: GSM&GPRS Dual Band Mobile Phone
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Report No.:	RSZ08090102
Report Date:	2008-09-23
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Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. This report **must not** be used by the customer to claim product certification, approval, or endorsement by NVLAP*, NIST, or any agency of the Federal Government.

* This report may contain data that are not covered by the NVLAP accreditation and are marked with an asterisk "*" (Rev.2)

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GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The *Cellon Communications Technology (ShenZhen) Co., Ltd.*'s product, model number: GPFM1218 or the "EUT" as referred to in this report is a *GSM&GPRS Dual Standby Mobile Phone*, which measures approximately: 9.5 cm L x 4.2 cm W x 1.5 cm H, rated input voltage: DC 3.7V battery.

** All measurement and test data in this report was gathered from production sample serial number: 02BS20712170023. The EUT was received on 2008-09-01.*

***Note:** The series products, model GPFM1218; GPFM1219; GPRS1218; GPRS1219, we select GPFM1218 to test, there is no electrical change has been made to the equipment, which was explained in the attached Declaration Letter.

EUT Photo



Please see additional photos in Exhibit B&C

Objective

This type approval report is prepared on behalf of *Cellon Communications Technology (ShenZhen) Co., Ltd.* in accordance with Part 2, Subpart J, Part 22 Subpart H, and Part 24 Subpart E of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC rules for output power, modulation characteristic, occupied bandwidth, and spurious emission at antenna terminal, spurious radiated emission, frequency stability, band edge and radiated margin.

Related Submittal(s)/Grant(s)

No Related Submittal(s).

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2, Sub-part J as well as the following parts:

Part 22 Subpart H - Public Mobile Services

Part 24 Subpart E - PCS

Applicable Standards: TIA EIA 98-C, TIA/EIA 603-C, ANSI 63.4-2003.

All radiated and conducted emissions measurements were performed at Bay Area Compliance Laboratories Corp. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp.(Shenzhen) to collect test data is located in the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on November 04, 2004. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratories Corp. (Shenzhen) is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200707-0).



NVLAP LAB CODE 200707-0

The current scope of accreditations can be found at
<http://ts.nist.gov/Standards/scopes/2007070.htm>

SYSTEM TEST CONFIGURATION

Justification

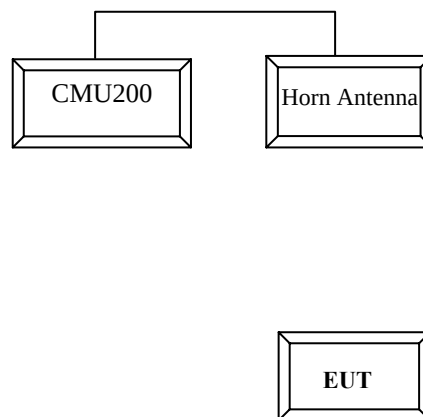
The EUT was configured for testing according to TIA/EIA-603-C.

The final qualification test was performed with the EUT operating at normal mode.

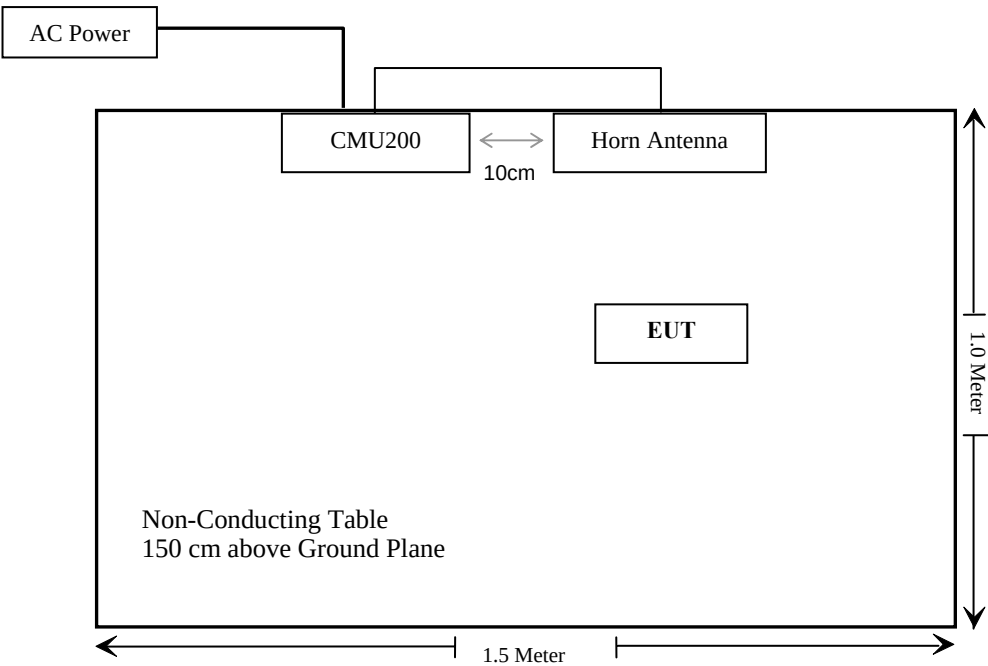
Equipment Modifications

No modifications were made to the EUT.

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1037, §2.1093	RF Exposure	Please refer to SAR Report *
§2.1046; § 22.913 (a) § 24.232 (c)	RF Output Power	Compliant
§ 2.1047	Modulation Characteristics	Compliant
§ 2.1049 § 22.905 § 22.917 § 24.238	99% & -26 dB Occupied Bandwidth	Compliant
§ 2.1051, § 22.917 (a) § 24.238 (a)	Spurious Emissions at Antenna Terminal	Compliant
§ 2.1053 § 22.917 (a) § 24.238 (a)	Field Strength of Spurious Radiation	Compliant
§ 22.917 (a) § 24.238 (a)	Out of band emission, Band Edge	Compliant
§ 2.1055 § 22.355 § 24.235	Frequency stability vs. temperature Frequency stability vs. voltage	Compliant

Note: * SAR report number R0809033-SAR

§1.1037, §2.1093 - RF EXPOSURE

Please refer to SAR Report, report number R0809033-SAR.

§ 2.1046, § 22.913 (a), & § 24.232 (c) - RF OUTPUT POWER

Applicable Standard

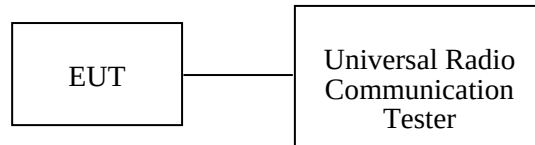
According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC §2.1046 and §24.232 (C), in no case may the peak output power of a base station transmitter exceed 2 watt EIRP.

Test Procedure

Conducted method:

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



Radiated method:

TIA 603-C section 2.2.17

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Horn Antenna	DRH-118	A052604	2007-09-25	2008-09-25
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2008-03-11	2009-03-11
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2008-05-09	2009-05-09
HP	Preamplifier	8449B	3008A00277	2007-09-29	2008-09-29
HP	Signal Generator	HP8657A	2849U00982	2007-10-16	2008-10-16
HP	Amplifier	HP8447D	2944A09795	2007-11-15	2008-11-15
Giga-tronics	Signal Generator	1026	270801	2007-09-29	2008-09-29
COM POWER	Dipole Antenna	AD-100	041000	2007-09-25	2008-09-25
A.H. System	Horn Antenna	SAS-200/571	135	2008-05-17	2009-05-17
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	1100.0008.02	2008-06-21	2009-06-21

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Data**Environmental Conditions**

Temperature:	25 ° C
Relative Humidity:	56%
ATM Pressure:	100.0kPa

* The testing was performed by Bruce Zhang on 2008-09-11.

GSM:

Cellular Band:

Channel	Frequency (MHz)	Output Power (dBm)
Channel 128	824.2	31.51
Channel 190	836.6	31.42
Channel 251	848.8	31.43

PCS Band:

Channel	Frequency (MHz)	Output Power (dBm)
Channel 512	1850.2	29.63
Channel 661	1880.0	29.28
Channel 810	1909.8	28.56

GPRS:

Cellular Band:

Channel	Frequency (MHz)	Output Power (dBm)
Channel 128	824.2	31.90
Channel 190	836.6	31.89
Channel 251	848.8	31.85

PCS Band:

Channel	Frequency (MHz)	Output Power (dBm)
Channel 512	1850.2	30.67
Channel 661	1880.0	30.13
Channel 810	1909.8	29.15

ERP & EIRP**GSM:**

Cellular Band:

Indicated		Table Angle Degree	Test Antenna		Substituted			Ant. Gain Cord. (dBi)	Cable Loss (dB)	Absolute Level		Part 22H
Freq. (MHz)	Receiver Reading (dBμV)		Height (m)	Polar (H/V)	Freq. (MHz)	Level (dBm)	Polar (H/V)			(dBm)	(W)	Limit (W)
Low Channel												
824.2	115.78	120	1.0	H	824.2	26.5	H	0	0.90	25.60	0.363	7
824.2	116.14	80	1.5	V	824.2	27.1	V	0	0.90	26.20	0.417	7
Middle Channel												
836.6	116.27	120	125	H	836.6	27.3	H	0	0.90	26.40	0.437	7
836.6	116.42	88	155	V	836.6	27.5	V	0	0.90	26.60	0.457	7
High Channel												
848.8	116.50	120	1.0	H	848.8	27.6	H	0	0.90	26.70	0.468	7
848.8	116.65	82	1.54	V	848.8	27.9	V	0	0.90	27.00	0.501	7

PCS Band:

Indicated		Table Angle Degree	Test Antenna		Substituted			Ant. Gain Cord. (dBi)	Cable Loss (dB)	Absolute Level		Part 24E
Freq. (MHz)	Receiver Reading (dBμV)		Height (m)	Polar (H/V)	Freq. (MHz)	Level (dBm)	Polar (H/V)			(dBm)	(W)	Limit (W)
Low Channel												
1850.2	116.38	240	1.8	H	1850.2	15.2	H	6.2	1.02	20.38	0.109	2
1850.2	123.14	80	1.0	V	1850.2	22.3	V	6.2	1.02	27.48	0.560	2
Middle Channel												
1880	118.72	230	1.85	H	1880	17.5	H	6.2	1.03	22.67	0.185	2
1880	123.40	82	1.0	V	1880	22.4	V	6.2	1.03	27.57	0.571	2
High Channel												
1909.8	118.34	240	1.9	H	1909.8	18.6	H	6.2	1.03	23.77	0.238	2
1909.8	122.10	82	1.04	V	1909.8	21.9	V	6.2	1.03	27.07	0.509	2

GPRS

Cellular Band:

Indicated		Table Angle Degree	Test Antenna		Substituted			Ant. Gain Cord. (dBi)	Cable Loss (dB)	Absolute Level		Part 22H
Freq. (MHz)	Receiver Reading (dBμV)		Height (m)	Polar (H/V)	Freq. (MHz)	Level (dBm)	Polar (H/V)			(dBm)	(W)	Limit (W)
Low Channel												
824.2	115.84	125	1.0	H	824.2	26.5	H	0	0.90	25.6	0.36	7
824.2	116.07	250	1.1	V	824.2	27.1	V	0	0.90	26.2	0.42	7
Middle Channel												
836.6	116.28	120	1.1	H	836.6	27.4	H	0	0.90	26.5	0.45	7
836.6	116.43	125	1.0	V	836.6	27.7	V	0	0.90	26.8	0.48	7
High Channel												
848.8	116.54	125	1.1	H	848.8	27.9	H	0	0.90	27.0	0.50	7
848.8	116.63	130	1.0	V	848.8	28.2	V	0	0.90	27.3	0.54	7

PCS Band:

Indicated		Table Angle Degree	Test Antenna		Substituted			Ant. Gain Cord. (dBi)	Cable Loss (dB)	Absolute Level		Part 24E
Freq. (MHz)	Receiver Reading (dBμV)		Height (m)	Polar (H/V)	Freq. (MHz)	Level (dBm)	Polar (H/V)			(dBm)	(W)	Limit (W)
Low Channel												
1850.2	117.37	125	1.0	H	1850.2	16.4	H	6.2	1.02	21.58	0.14	2
1850.2	124.45	150	1.1	V	1850.2	23.5	V	6.2	1.02	28.68	0.74	2
Middle Channel												
1880	118.12	120	1.1	H	1880	17.6	H	6.2	1.03	22.77	0.19	2
1880	123.65	125	1.0	V	1880	23.1	V	6.2	1.03	28.27	0.67	2
High Channel												
1909.8	115.77	125	1.1	H	1909.8	16.8	H	6.2	1.03	21.97	0.16	2
1909.8	121.72	130	1.0	V	1909.8	22.4	V	6.2	1.03	27.57	0.57	2

§2.1047 – MODULATION CHARACTERISTIC

Applicable Standard

Requirement: FCC § 2.1047(d). FCC parts 22H and Part24E do not have any specific digital modulation requirements; therefore modulation characteristics are not presented.

§2.1049, §22.917, §22.905, & §24.238 - OCCUPIED BANDWIDTH

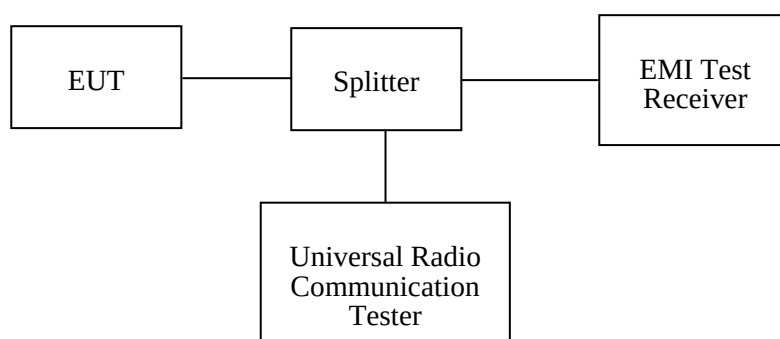
Applicable Standards

CFR 47 §2.1049, §22.917, §22.905 and §24.238.

Test Procedure

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

The resolution bandwidth of the spectrum analyzer was set at 30 kHz (Cellular /PCS) and the 26 dB & 99% bandwidth was recorded.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100224	2007-10-16	2008-10-16
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	1100.0008.02	2008-06-21	2009-06-21

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Data

Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	56%
ATM Pressure:	100.0kPa

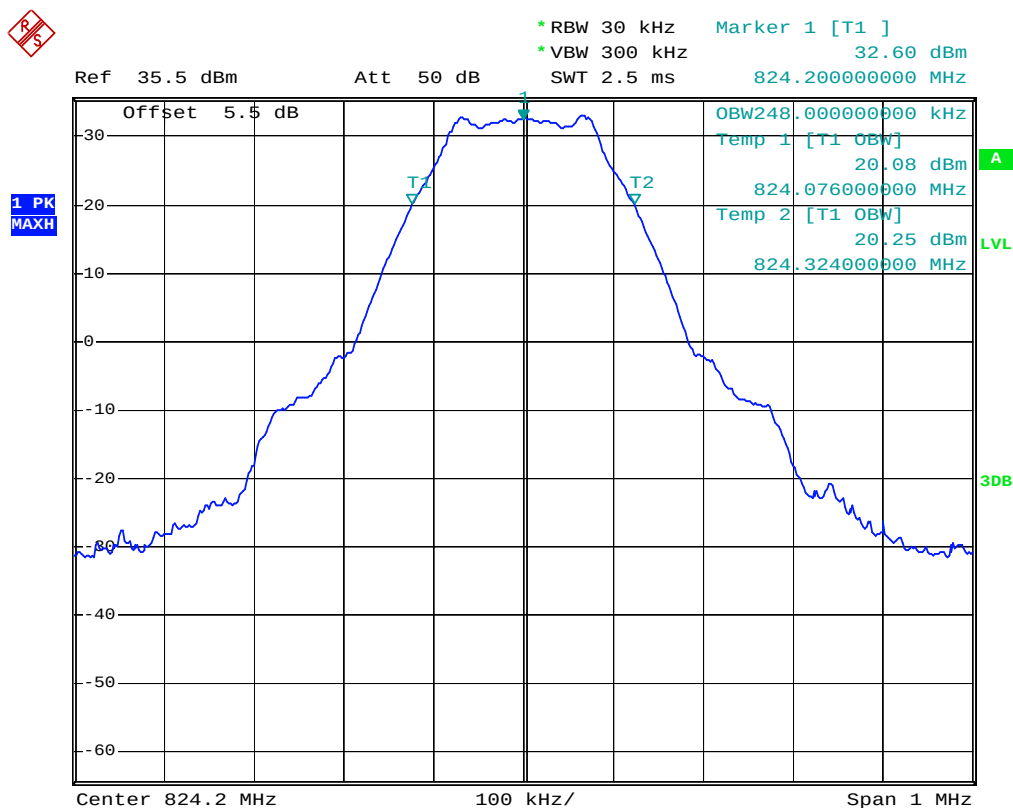
* The testing was performed by Bruce Zhang on 2008-09-10.

GSM:

Cellular Band:

Channel	Frequency (MHz)	99% Bandwidth (kHz)	26 dB Bandwidth (kHz)
Channel 128	824.2	248	336
Channel 190	836.6	248	334
Channel 251	848.8	248	336

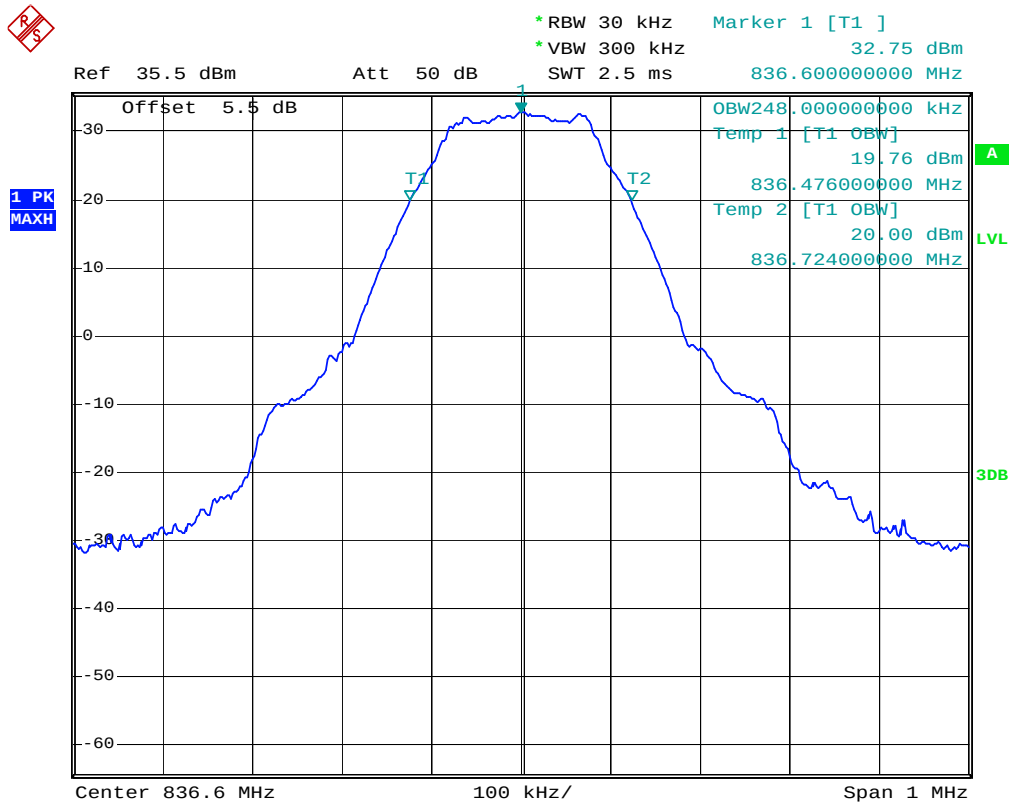
Please refer to the following plots.

99% Bandwidth, Low CH

Occupied Bandwidth

Date: 11.SEP.2008 15:27:17

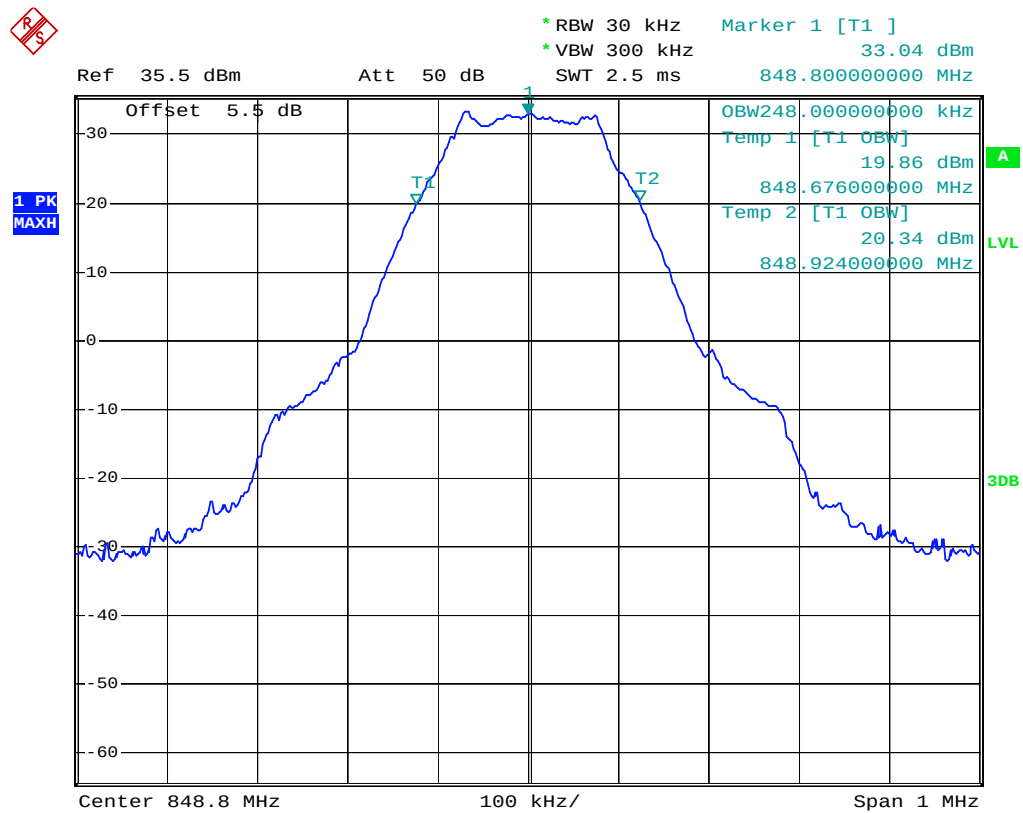
99% Bandwidth, Mid CH



Occupied Bandwidth

Date: 11.SEP.2008 15:28:40

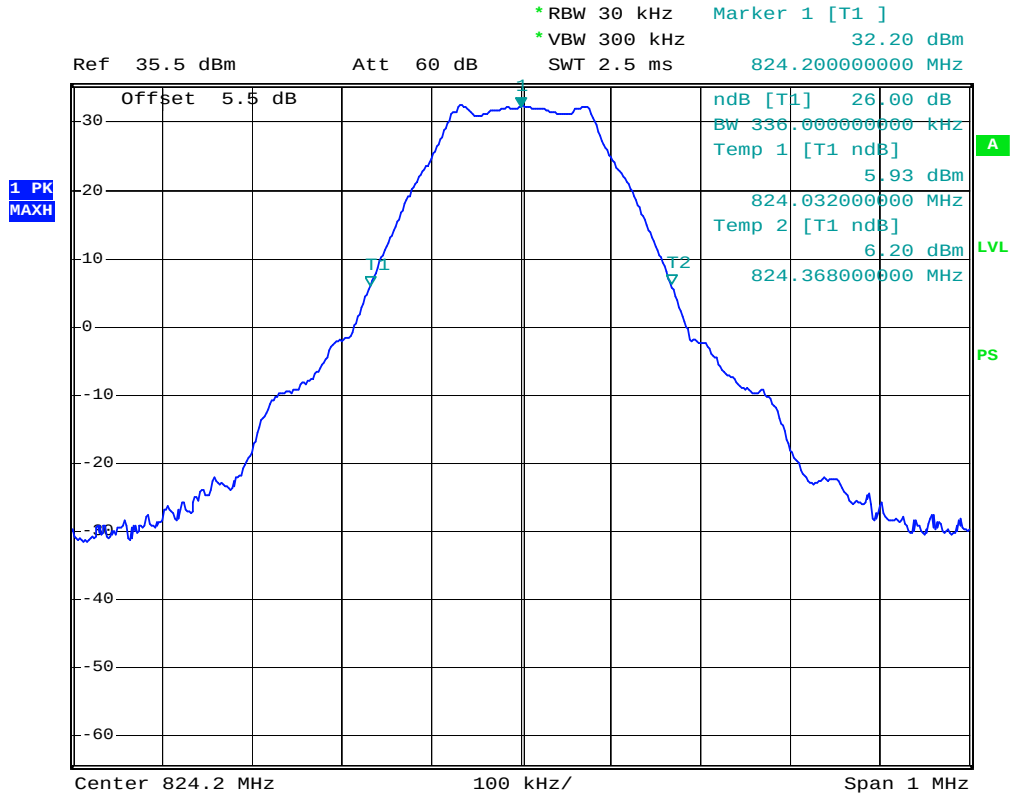
99% Bandwidth, High CH



Occupied Bandwidth

Date: 11.SEP.2008 15:29:40

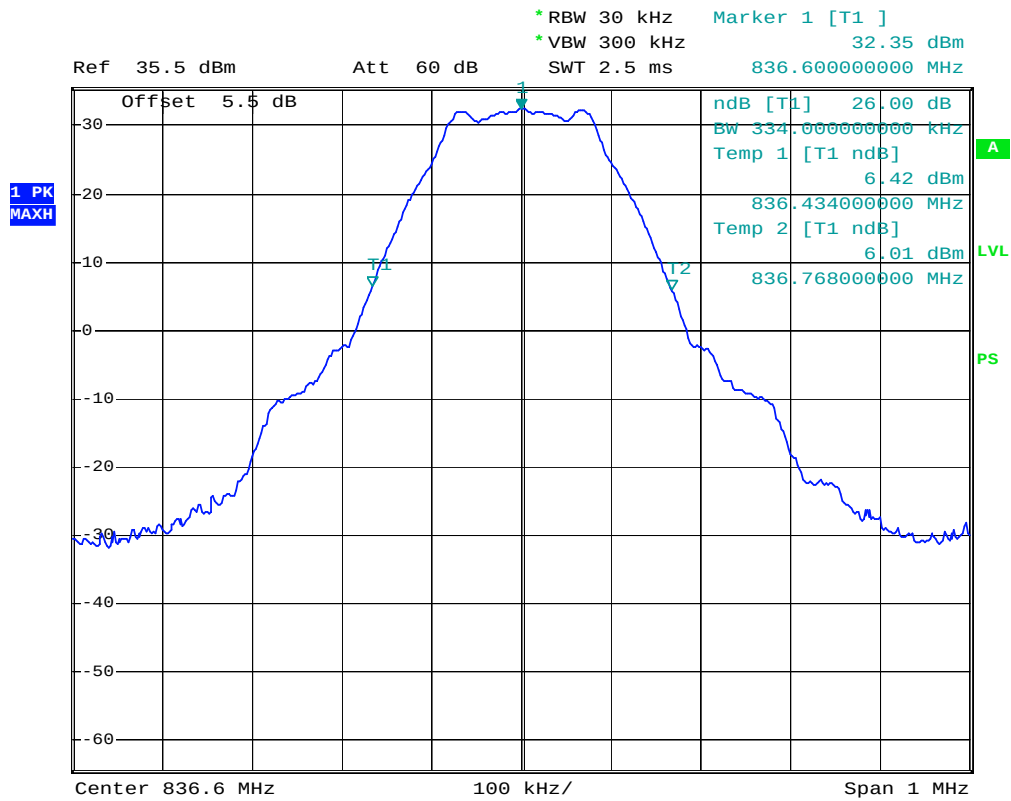
26 dB Bandwidth, Low CH



Occupied Bandwidth

Date: 10.SEP.2008 12:26:54

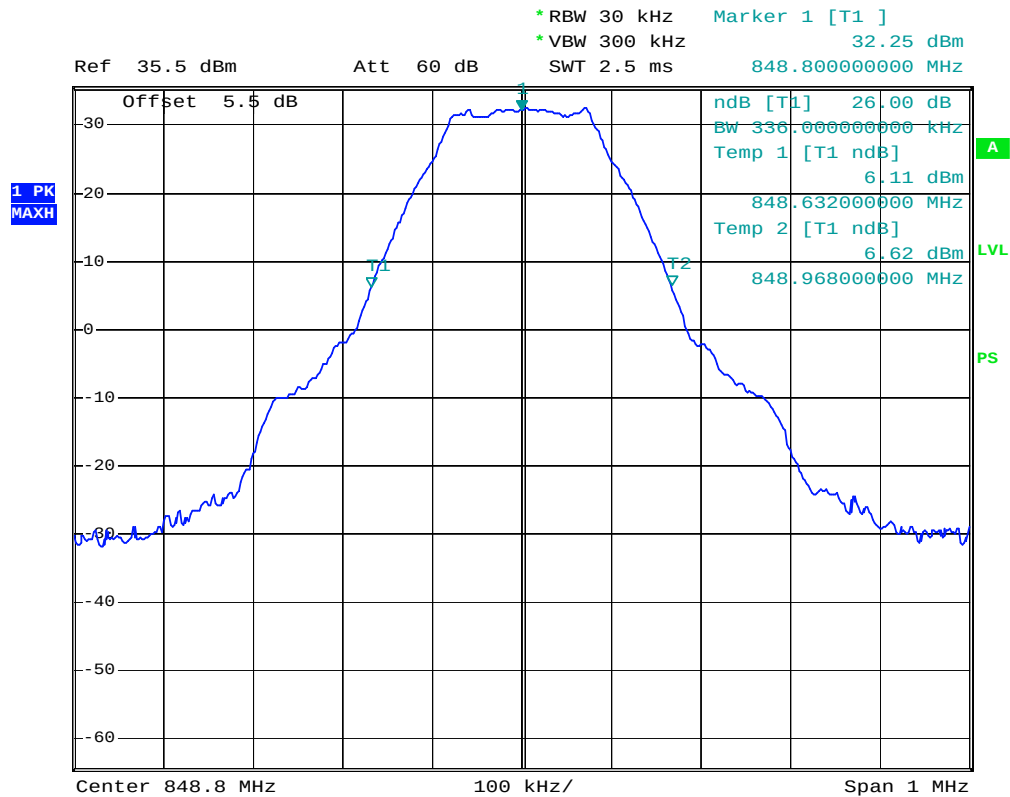
26 dB Bandwidth, Mid CH



Occupied Bandwidth

Date: 10.SEP.2008 12:28:33

26 dB Bandwidth, High CH



Occupied Bandwidth

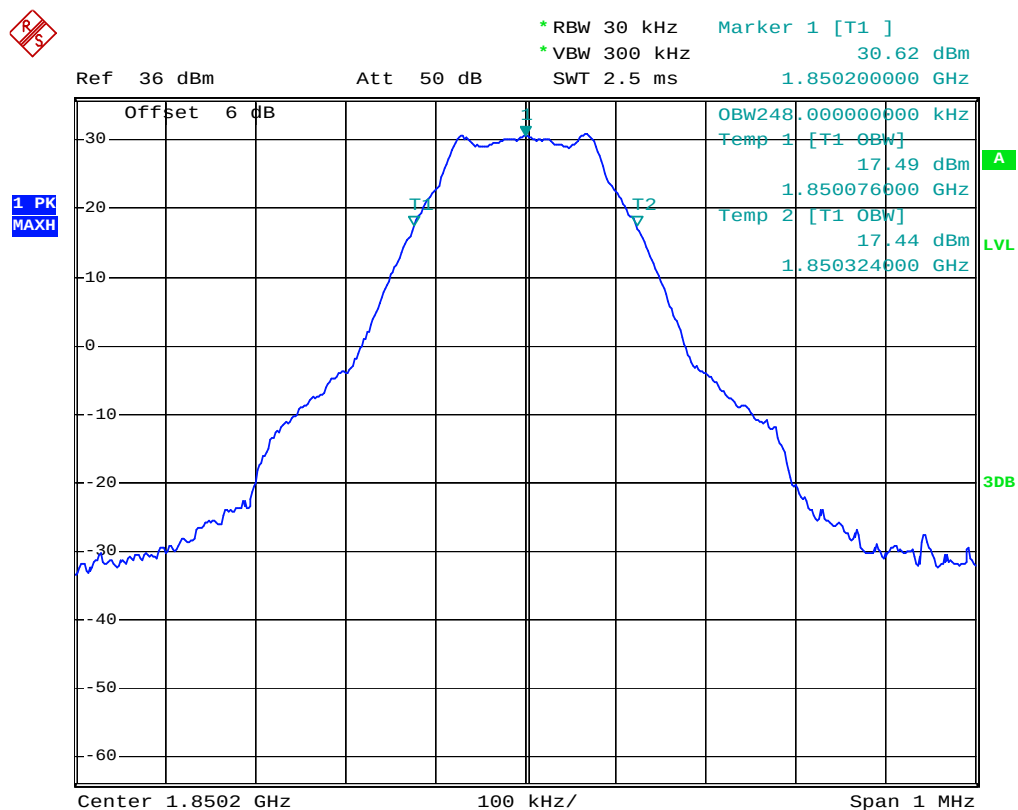
Date: 10.SEP.2008 12:31:12

PCS Band:

Channel	Frequency (MHz)	99% Bandwidth (kHz)	26 dB Bandwidth (kHz)
Channel 512	1850.2	248	332
Channel 661	1880.0	248	330
Channel 810	1909.8	248	334

Please refer to the following plots.

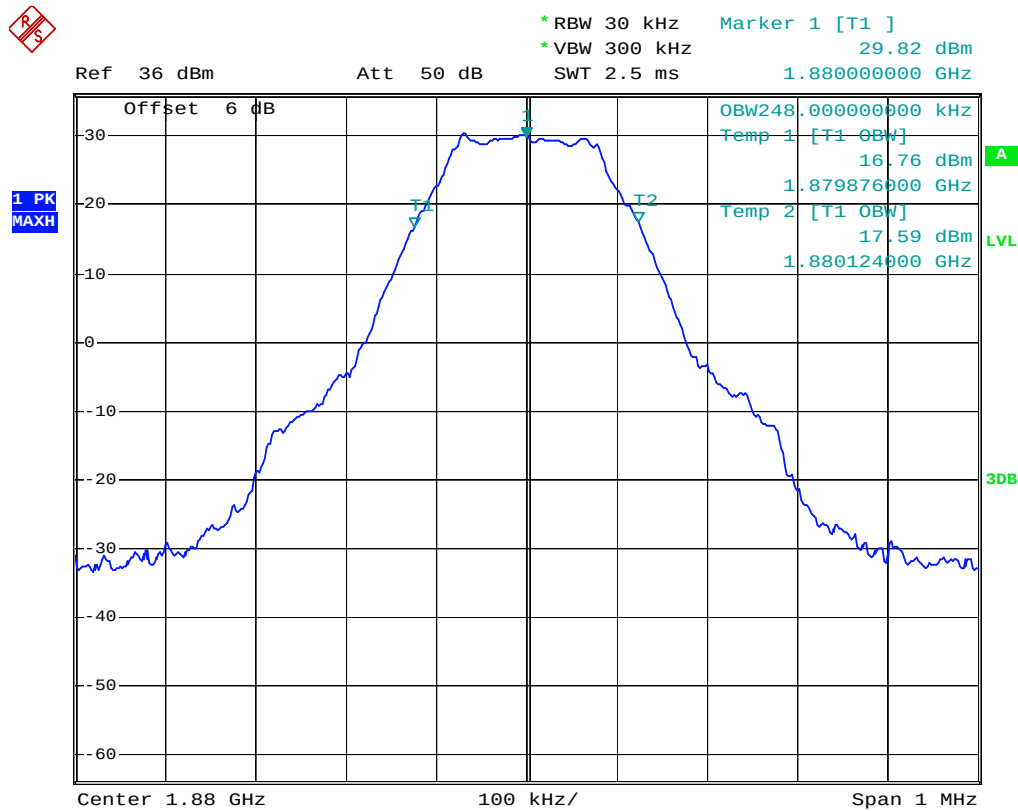
99% Bandwidth, Low CH



Occupied Bandwidth

Date: 11.SEP.2008 15:35:57

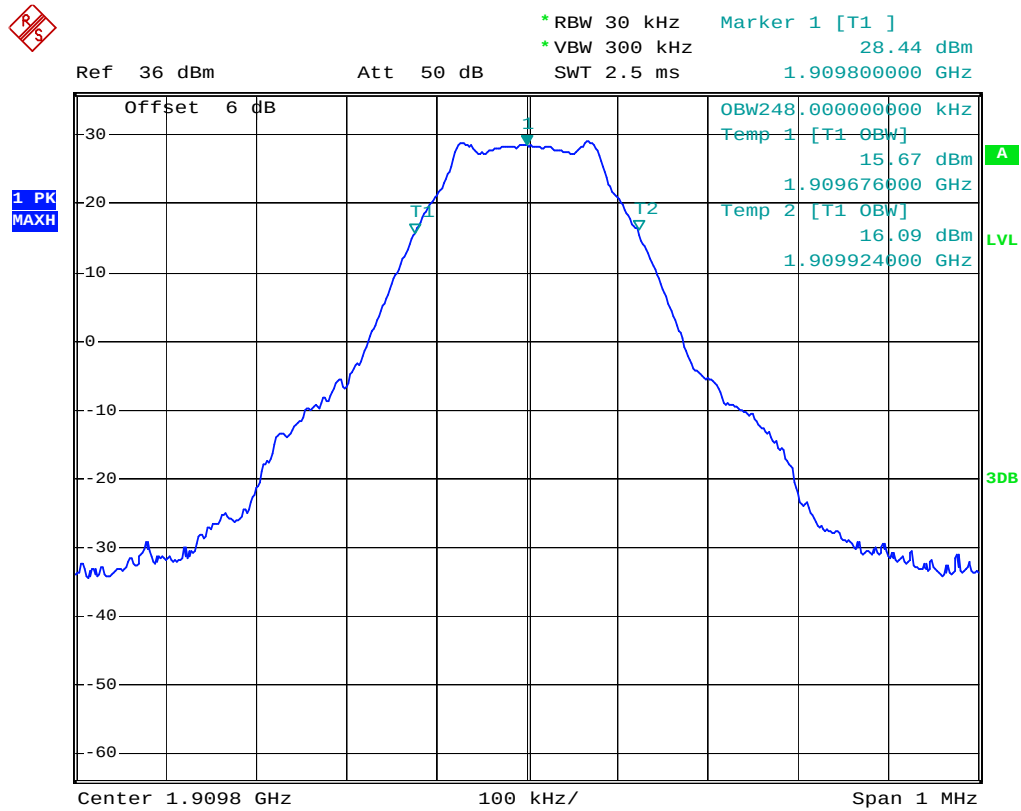
99% Bandwidth, Mid CH



Occupied Bandwidth

Date: 11.SEP.2008 15:34:10

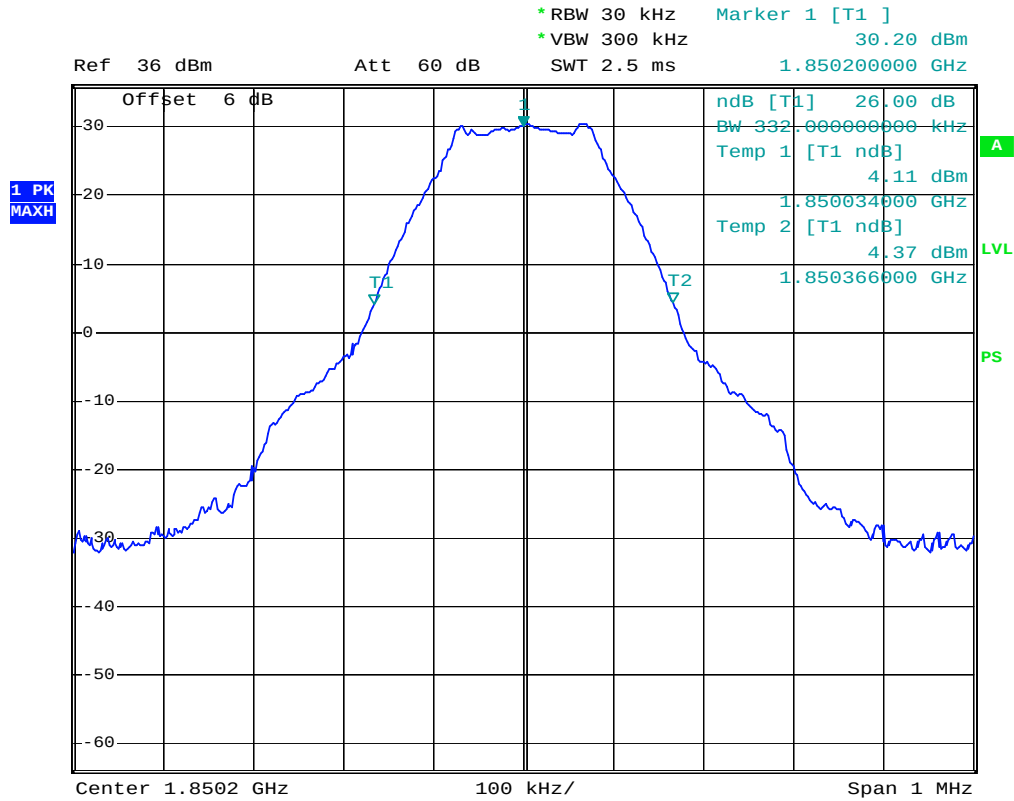
99% Bandwidth, High CH



Occupied Bandwidth

Date: 11.SEP.2008 15:37:35

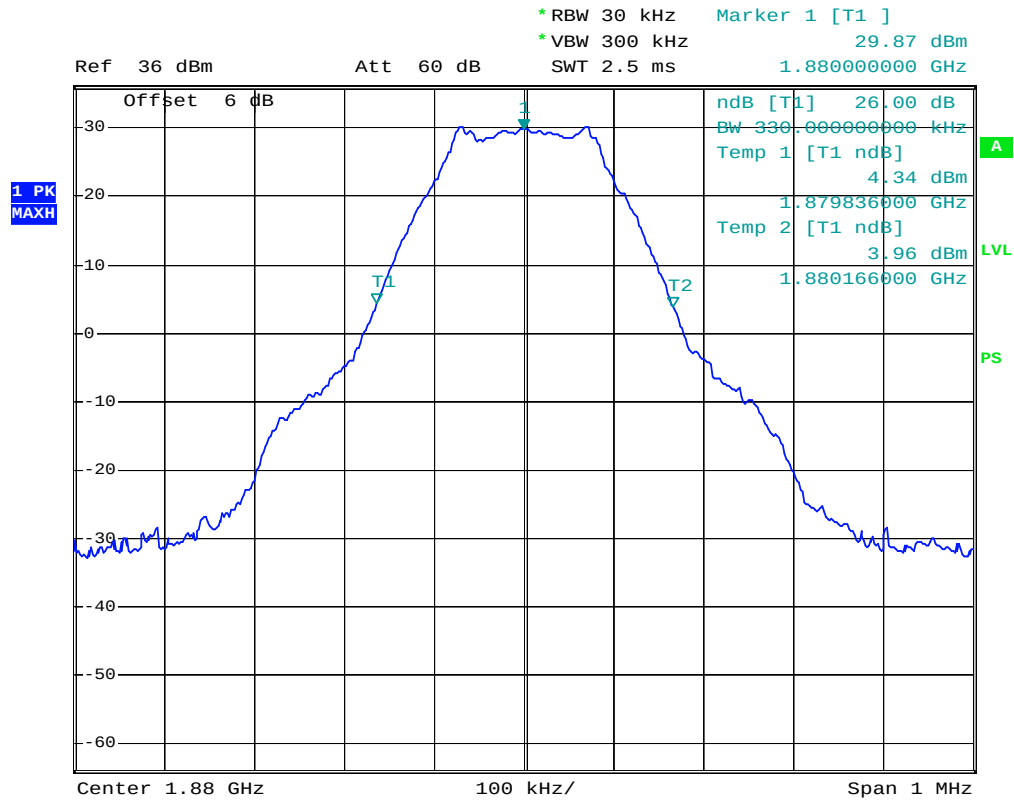
26 dB Bandwidth, Low CH



Occupied Bandwidth

Date: 10.SEP.2008 12:33:15

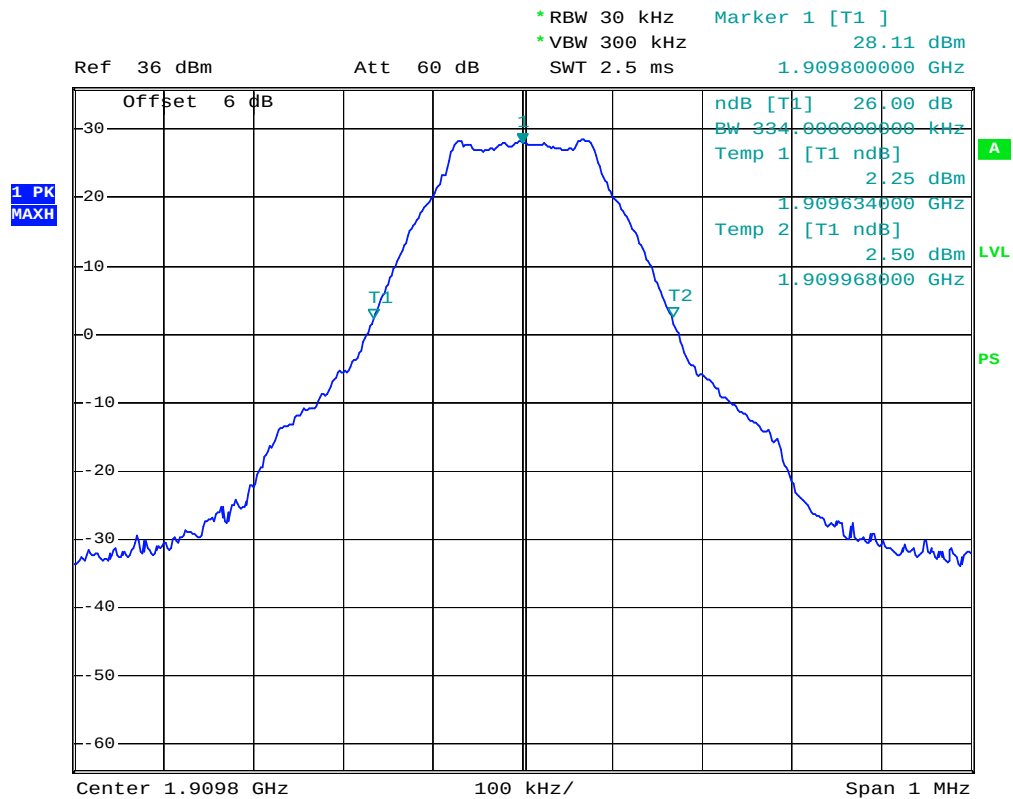
26 dB Bandwidth, Mid CH



Occupied Bandwidth

Date: 10.SEP.2008 12:34:15

26 dB Bandwidth, High CH



Occupied Bandwidth

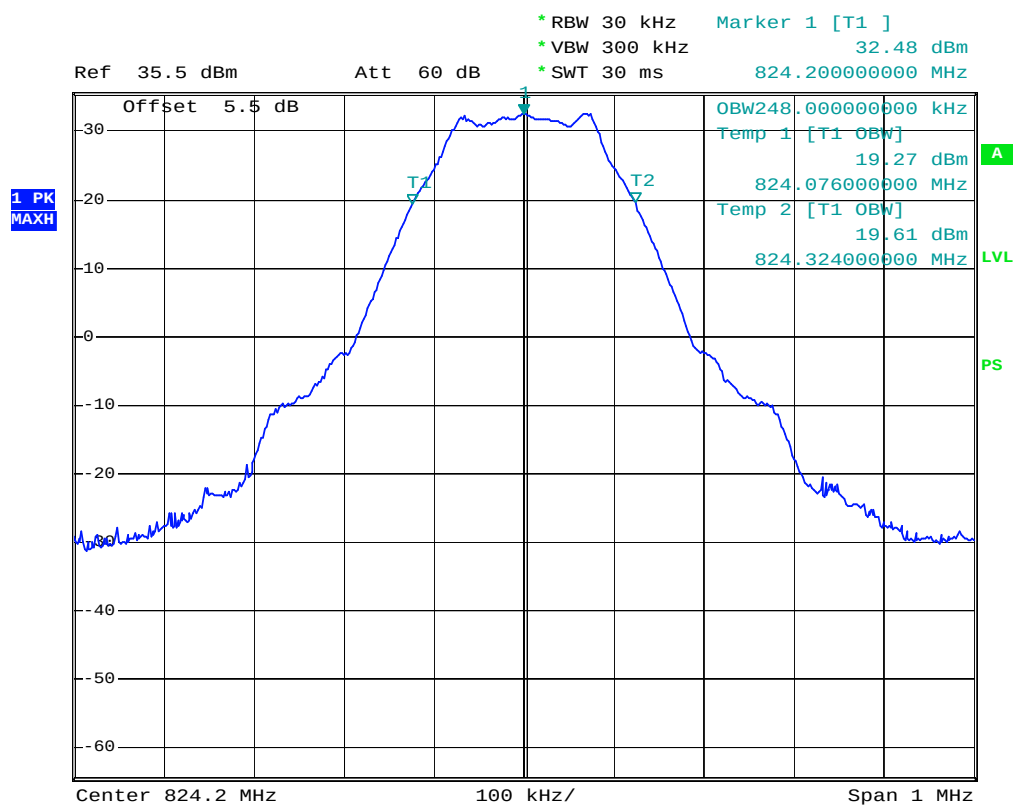
Date: 10.SEP.2008 12:36:32

GPRS

Cellular Band:

Channel	Frequency (MHz)	99% Bandwidth (kHz)	26 dB Bandwidth (kHz)
Channel 128	824.2	248	336
Channel 190	836.6	248	338
Channel 251	848.8	246	332

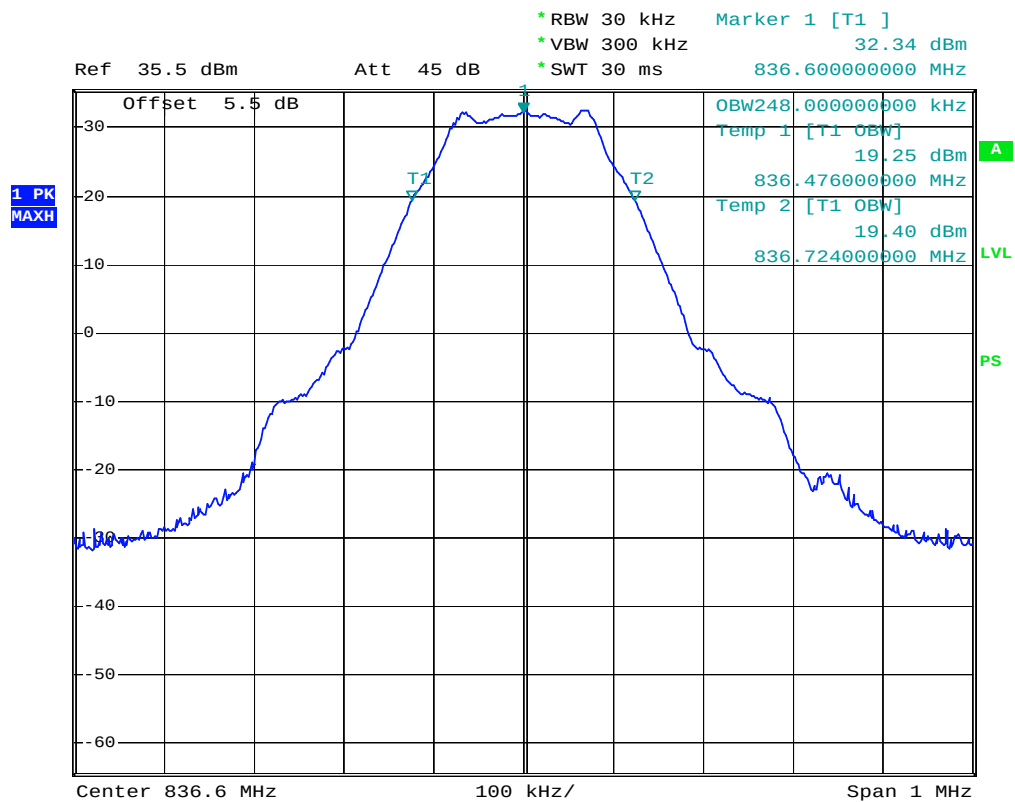
Please refer to the following plots.

99% Bandwidth, Low CH

Occupied Bandwidth

Date: 10.SEP.2008 15:13:10

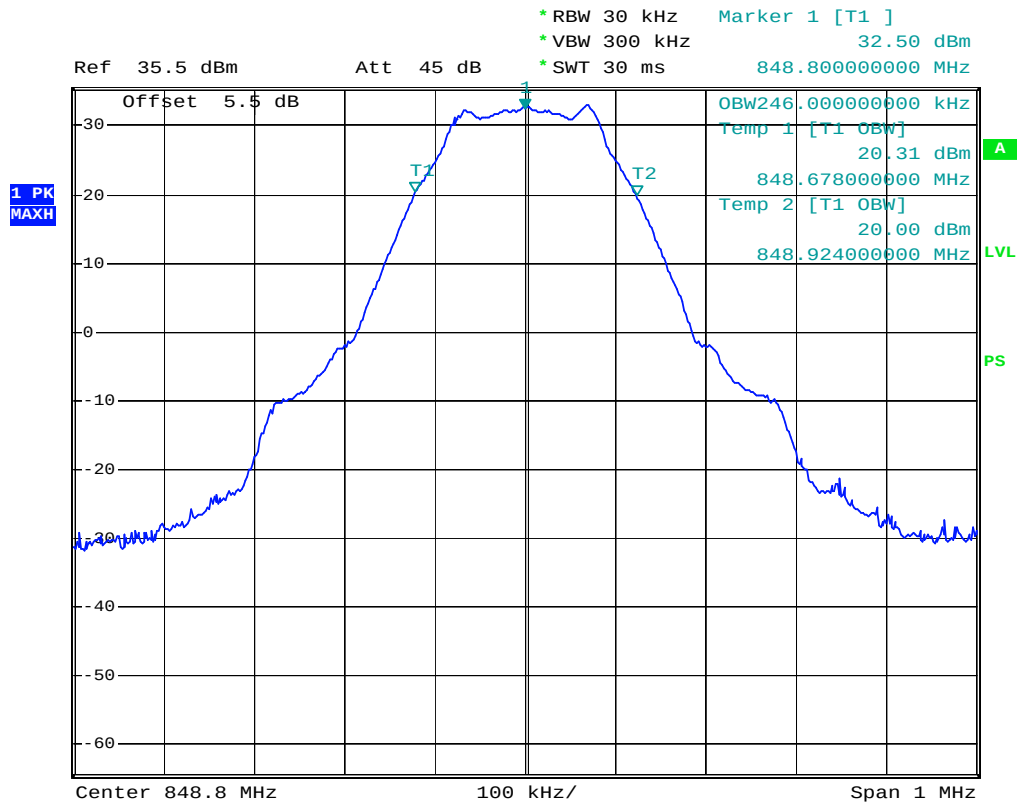
99% Bandwidth, Mid CH



Occupied Bandwidth

Date: 10.SEP.2008 15:15:37

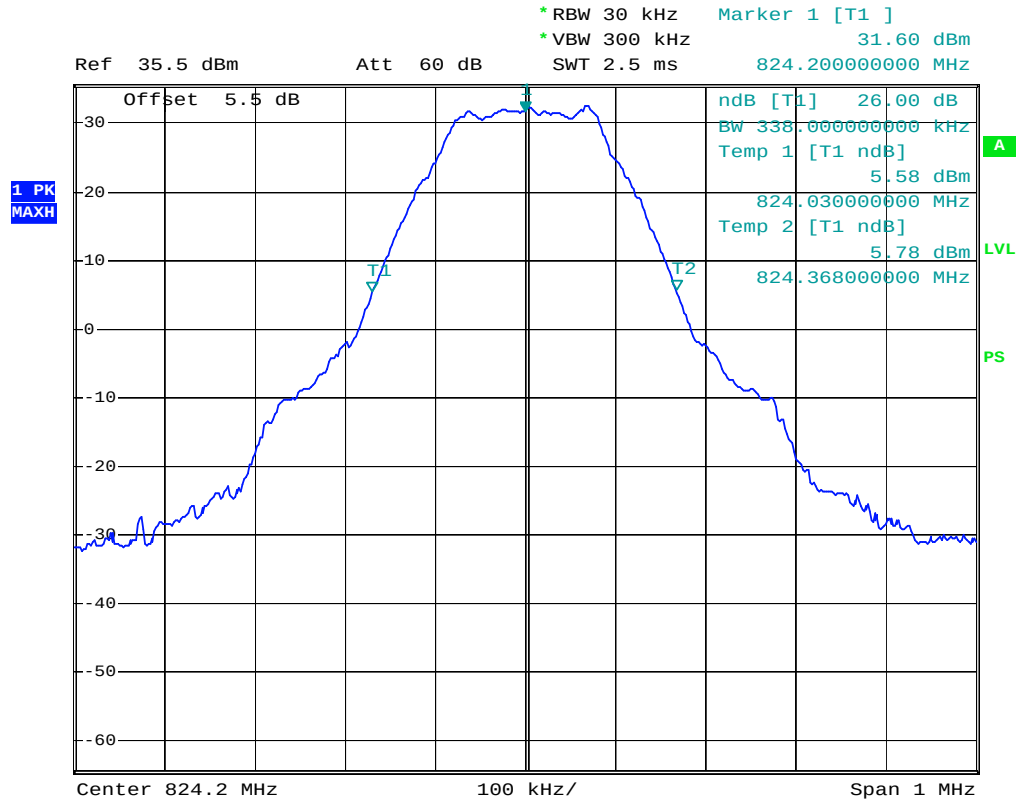
99% Bandwidth, High CH



Occupied Bandwidth

Date: 10.SEP.2008 15:18:22

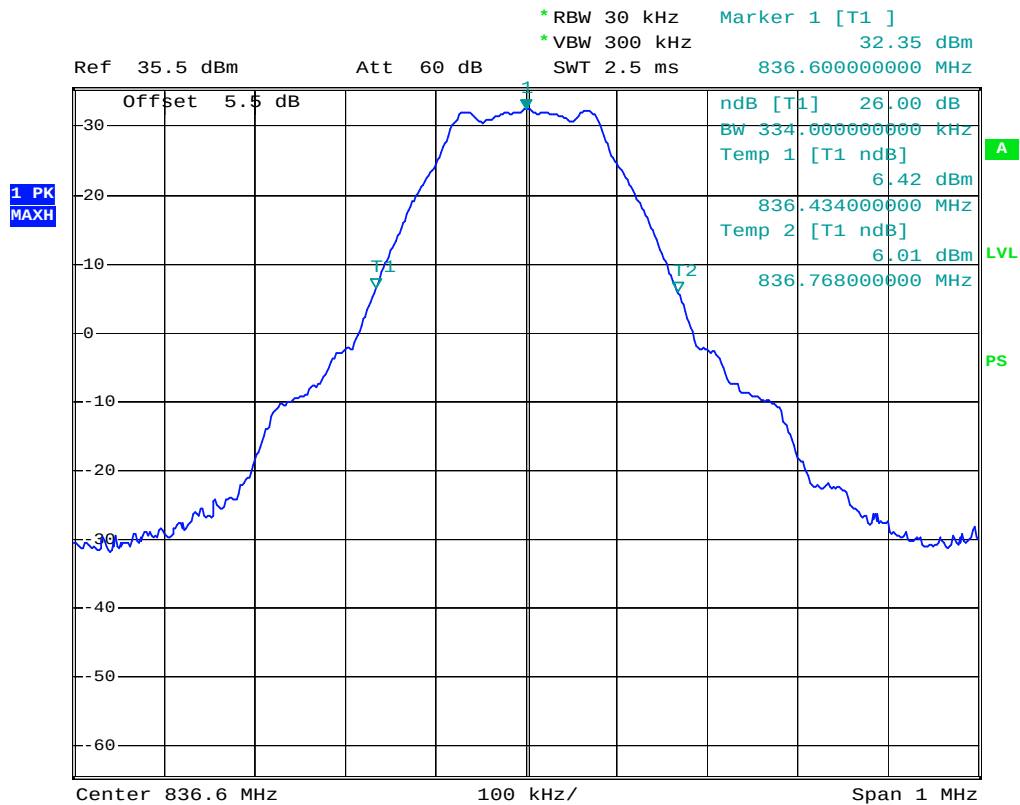
26 dB Bandwidth, Low CH



Occupied Bandwidth

Date: 10.SEP.2008 12:46:11

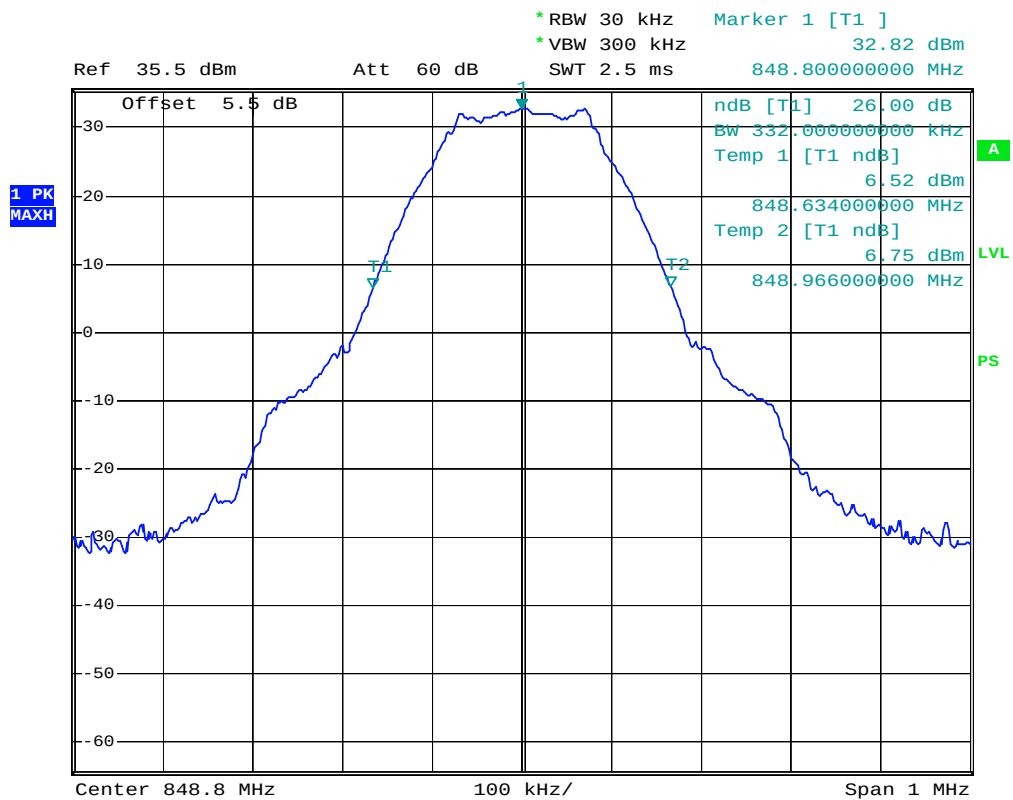
26 dB Bandwidth, Mid CH



Occupied Bandwidth

Date: 10.SEP.2008 12:28:33

26 dB Bandwidth, High CH



Occupied Bandwidth

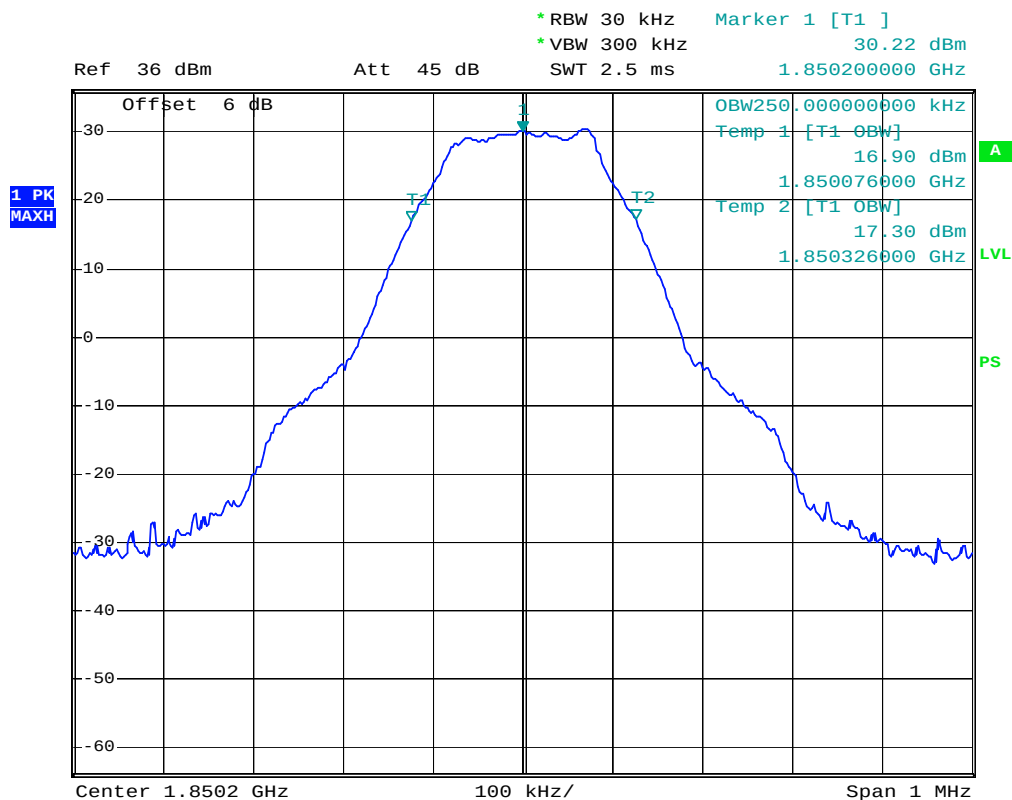
Date: 10.SEP.2008 12:47:04

PCS Band:

Channel	Frequency (MHz)	99% Bandwidth (kHz)	26 dB Bandwidth (kHz)
Channel 512	1850.2	250	334
Channel 661	1880.0	248	332
Channel 810	1909.8	250	332

Please refer to the following plots.

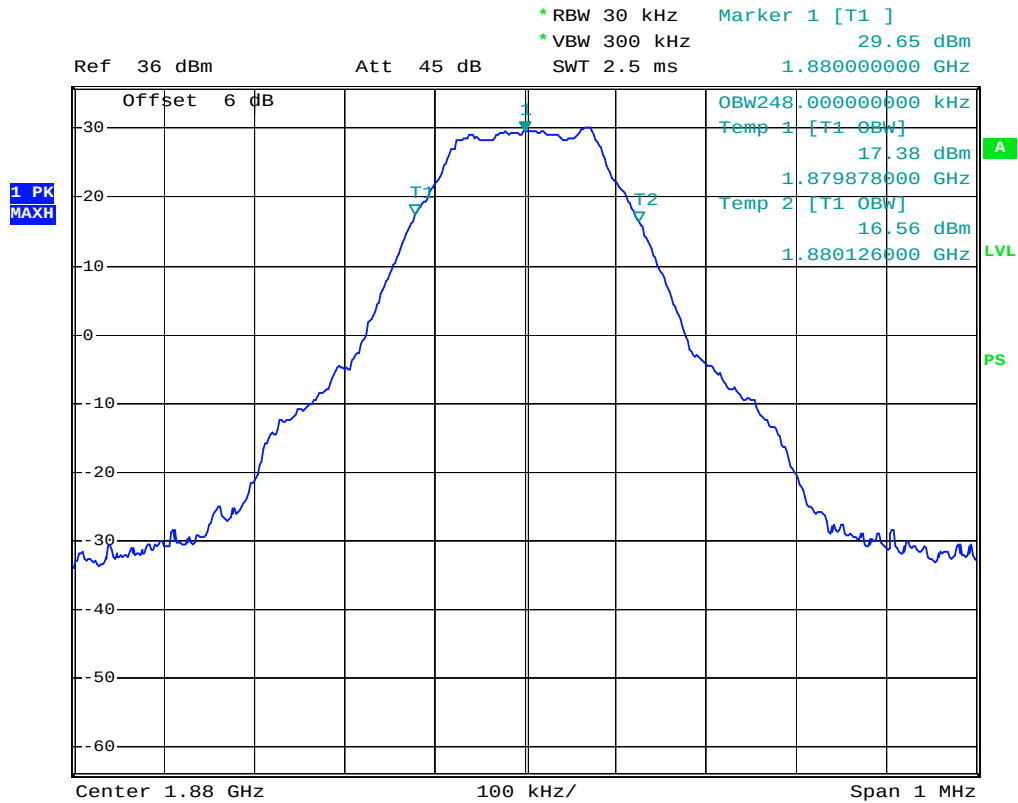
99% Bandwidth, Low CH



Occupied Bandwidth

Date: 10.SEP.2008 12:58:39

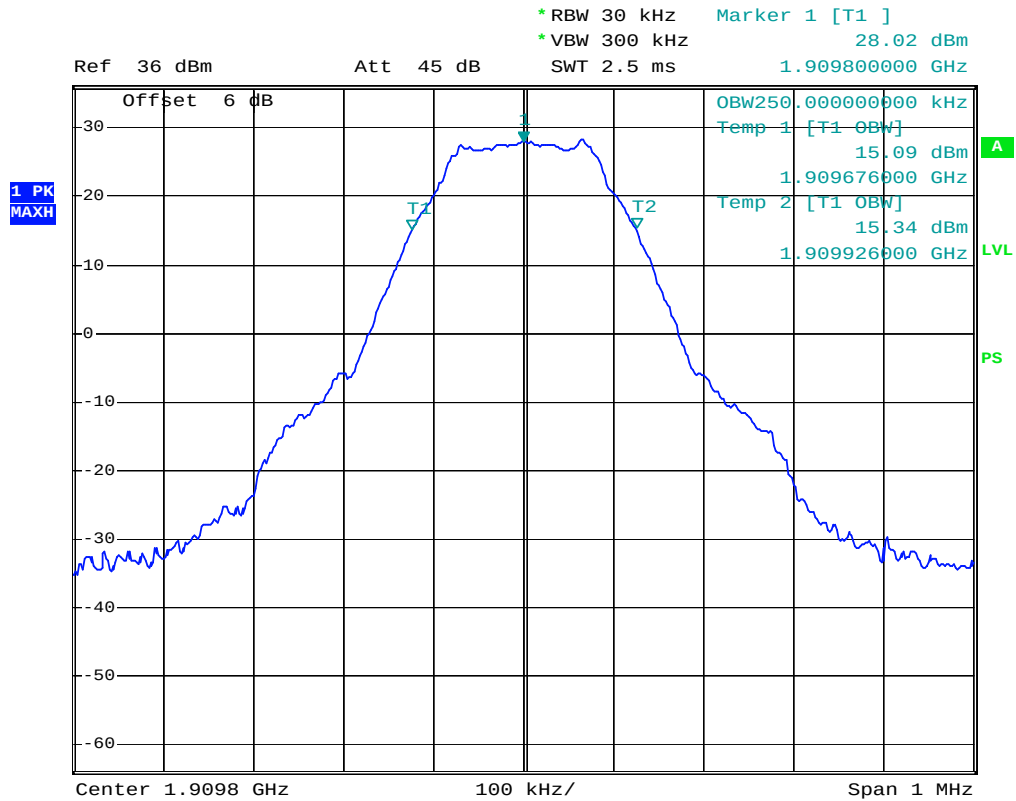
99% Bandwidth, Mid CH



Occupied Bandwidth

Date: 10.SEP.2008 12:56:31

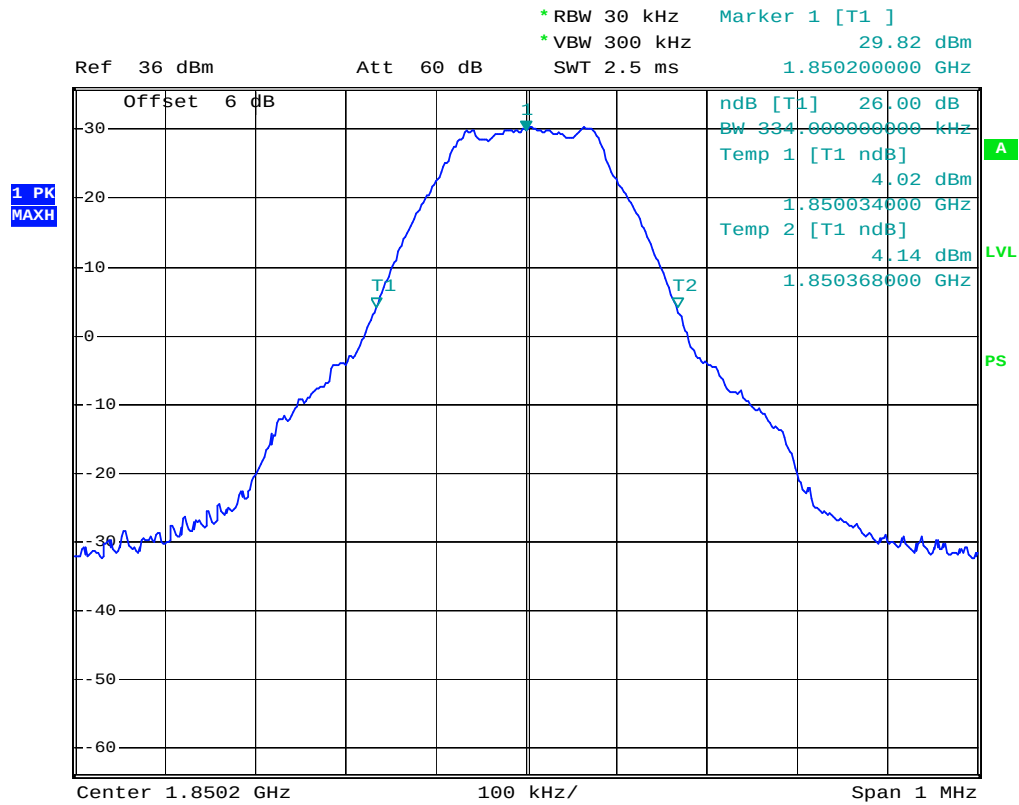
99% Bandwidth, High CH



Occupied Bandwidth

Date: 10.SEP.2008 13:00:36

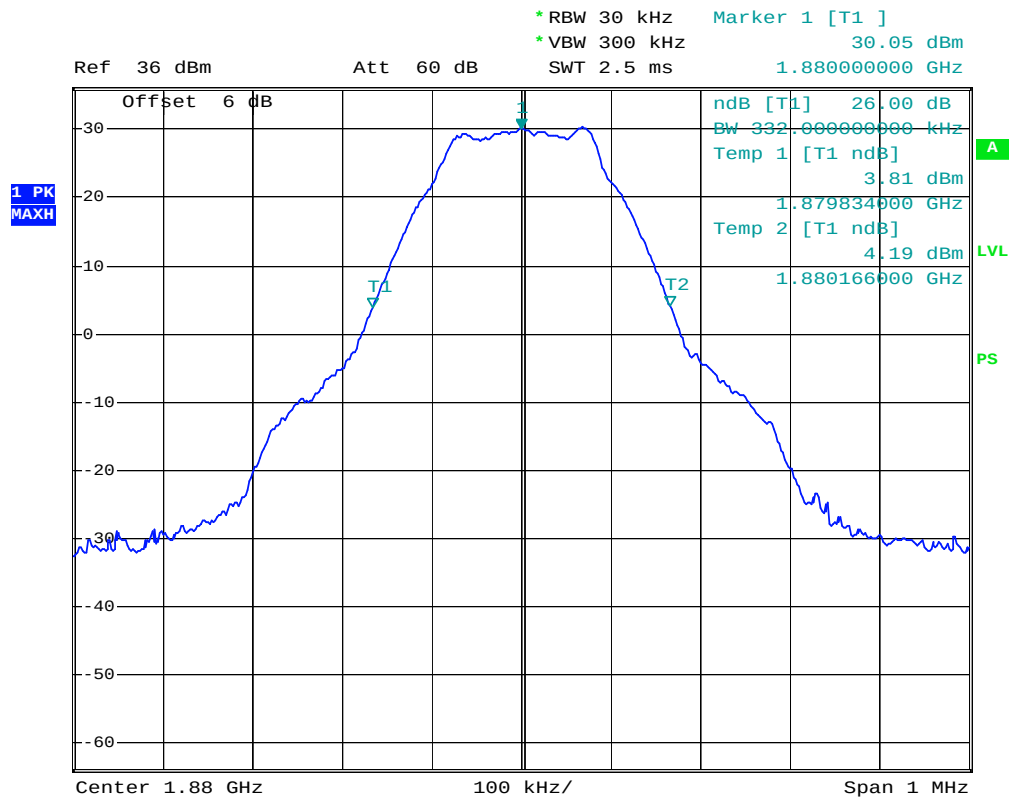
26 dB Bandwidth, Low CH



Occupied Bandwidth

Date: 10.SEP.2008 12:48:49

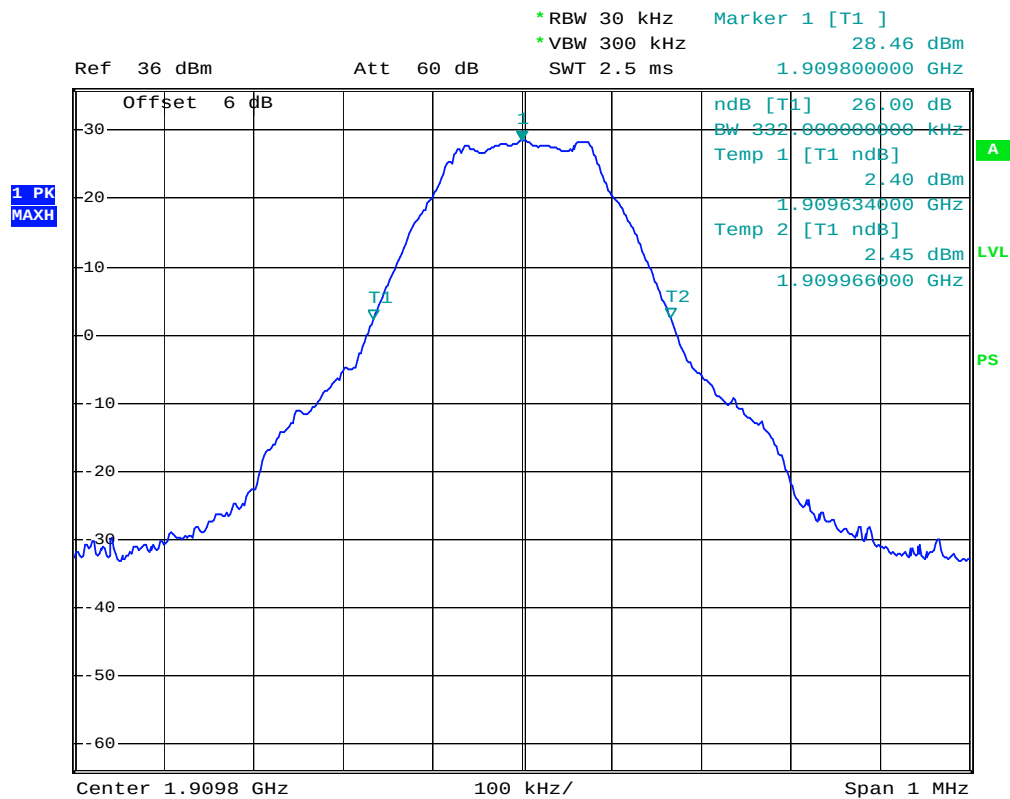
26 dB Bandwidth, Mid CH



Occupied Bandwidth

Date: 10.SEP.2008 12:50:53

26 dB Bandwidth, High CH



Occupied Bandwidth

Date: 10.SEP.2008 12:52:34

§2.1051, §22.917(a), & §24.238(a) - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

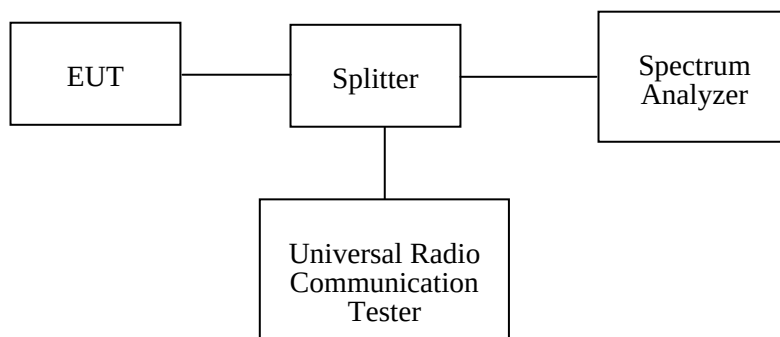
Applicable Standards

CFR 47 §2.1051, §22.917(a) and §4.238(a).

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in § 2.1051.

Test Procedure

The RF output of the transceiver was connected to a spectrum analyzer and simulator through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 100 kHz. Sufficient scans were taken to show any out of band emissions up to 10th harmonic.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2008-05-09	2009-05-09
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	1100.0008.02	2008-06-21	2009-06-21

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Data

Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	56%
ATM Pressure:	100.0kPa

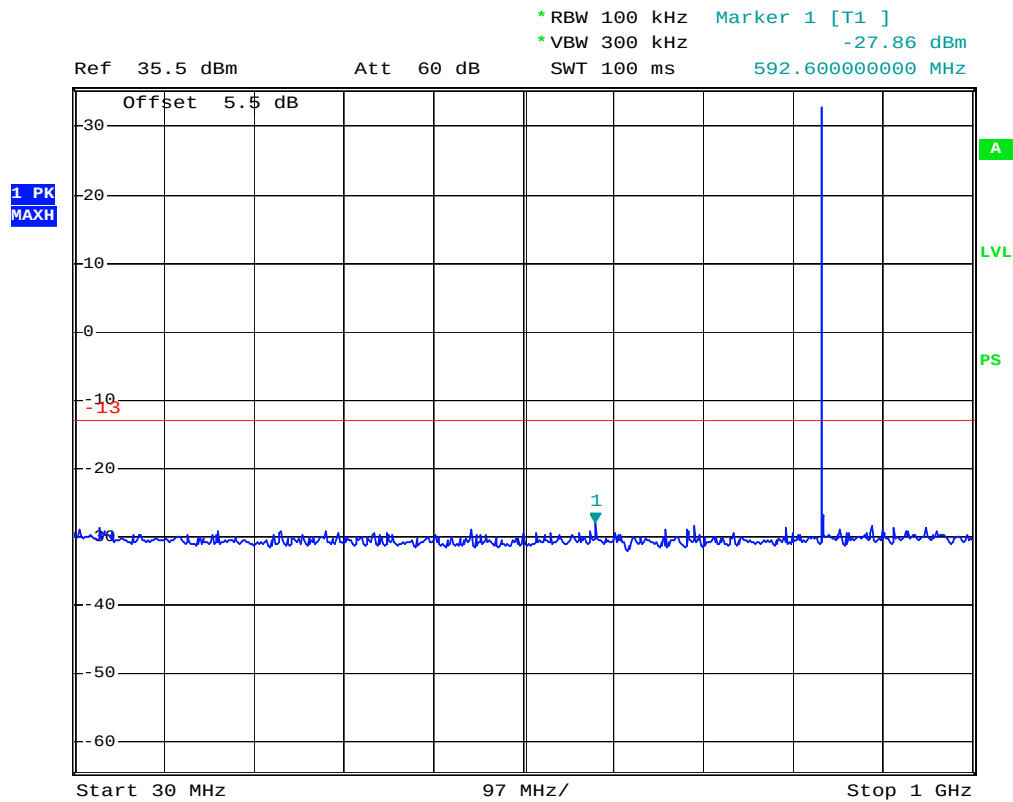
* The testing was performed by Bruce Zhang on 2008-09-10, 2008-09-11.

Please refer to the hereinafter plots.

GSM

Cellular Band, Middle Channel

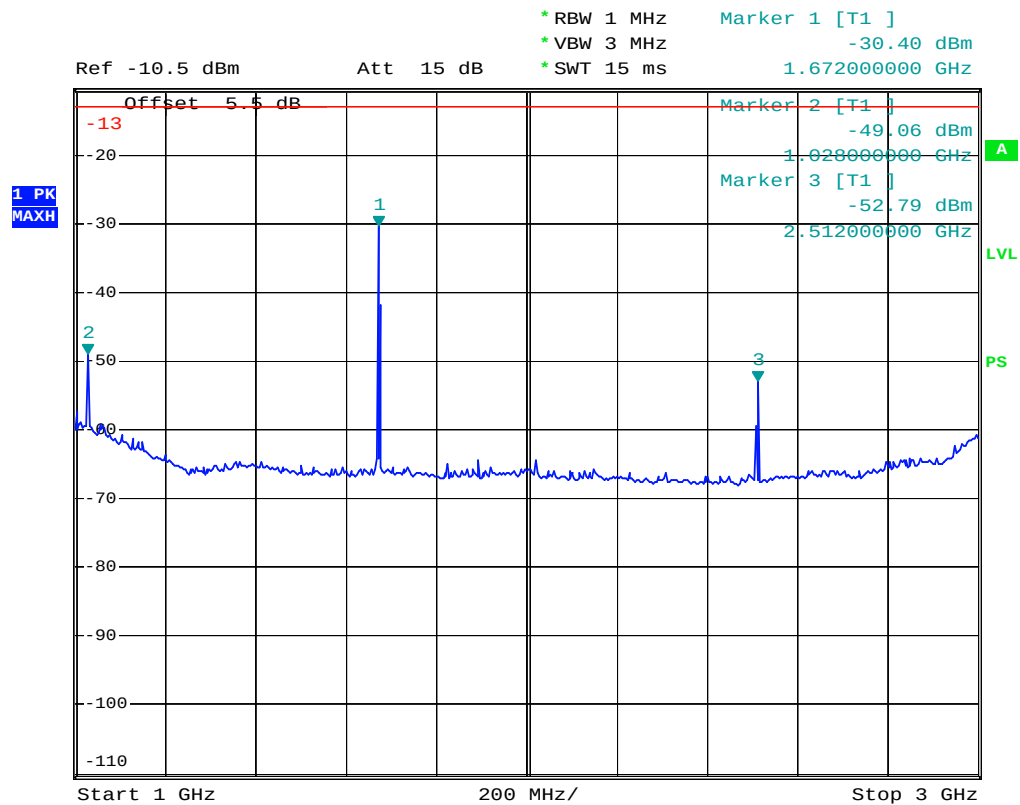
30 - 1000 MHz



Spurious Emissions At Antenna Terminals

Date: 10.SEP.2008 16:44:57

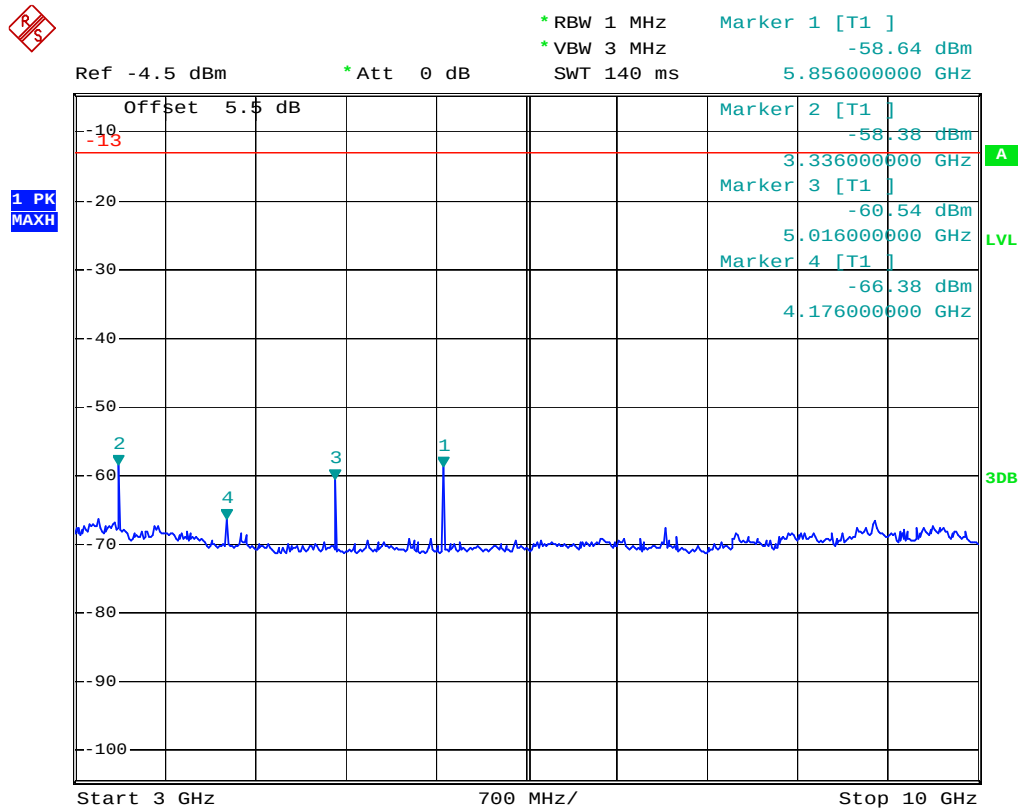
1 - 3 GHz



Spurious Emissions At Antenna Terminals

Date: 10.SEP.2008 17:00:09

3 – 10 GHz

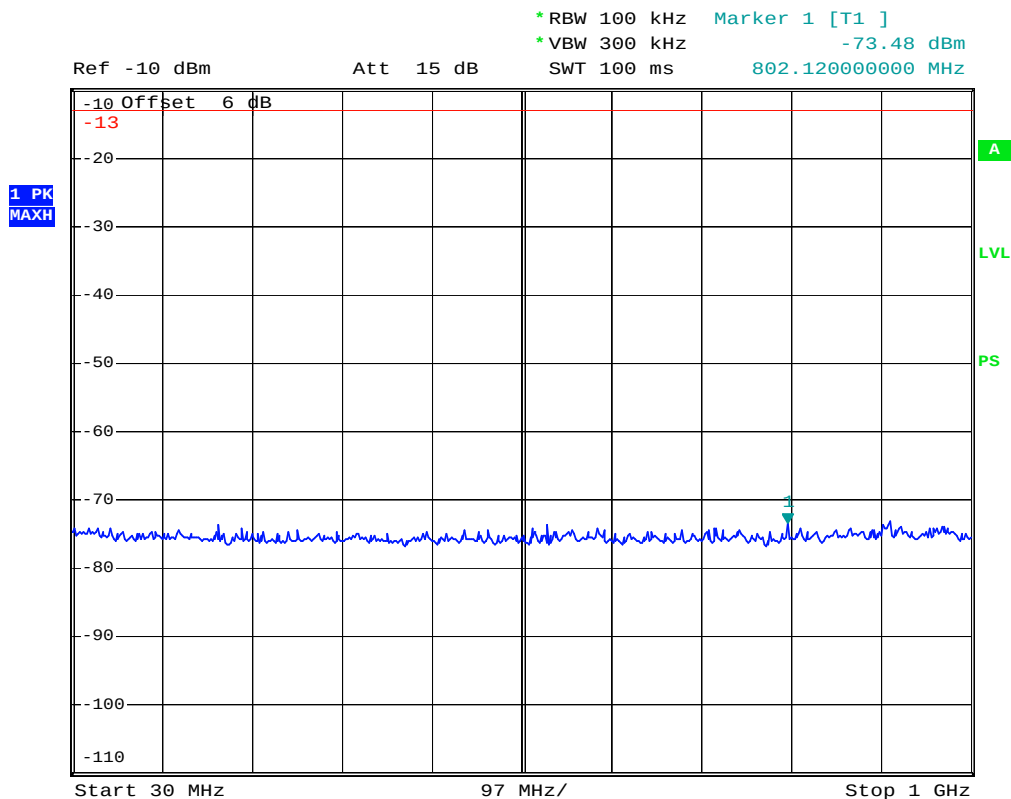


Spurious Emission At Antenna Terminals

Date: 11.SEP.2008 15:50:22

PCS Band, Middle Channel

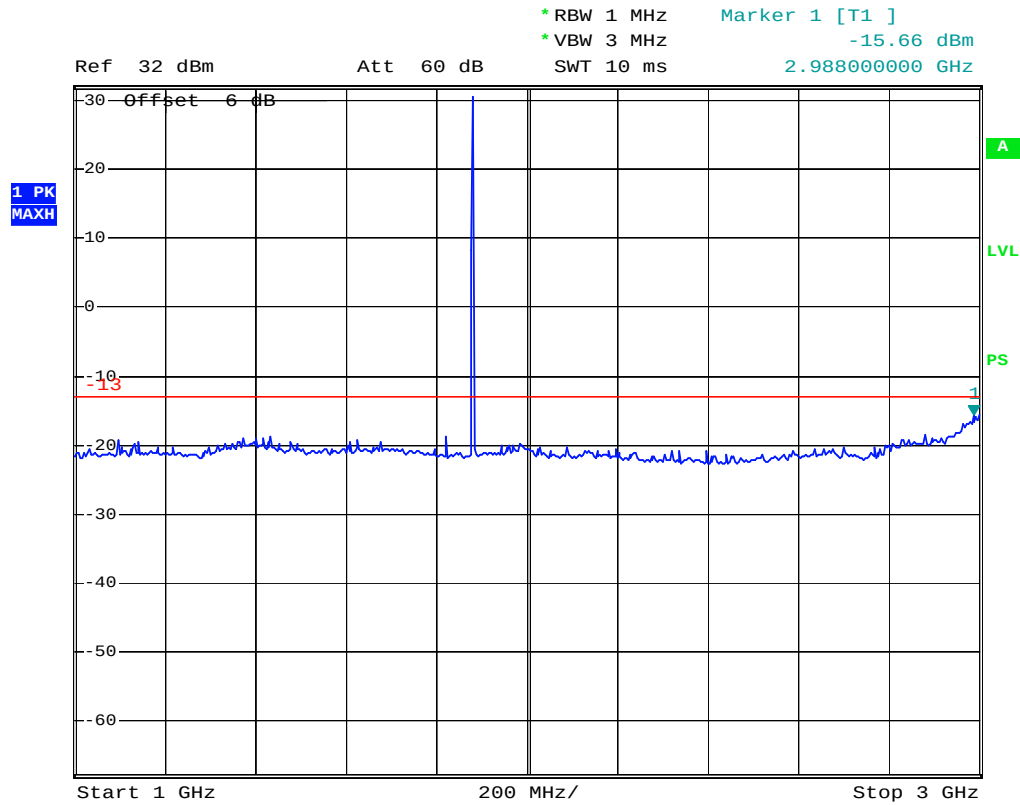
30 – 1000 MHz



Spurious Emissions At Antenna Terminals

Date: 10.SEP.2008 16:41:03

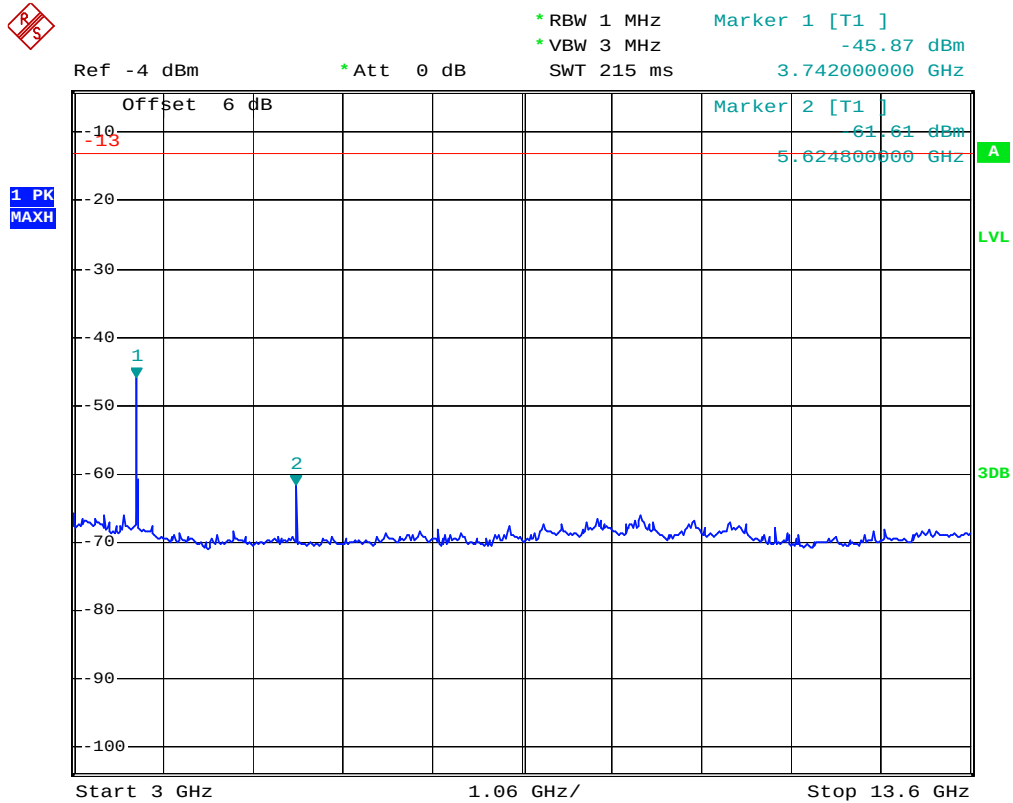
1 – 3 GHz



Spurious Emissions At Antenna Terminals

Date: 10.SEP.2008 16:43:16

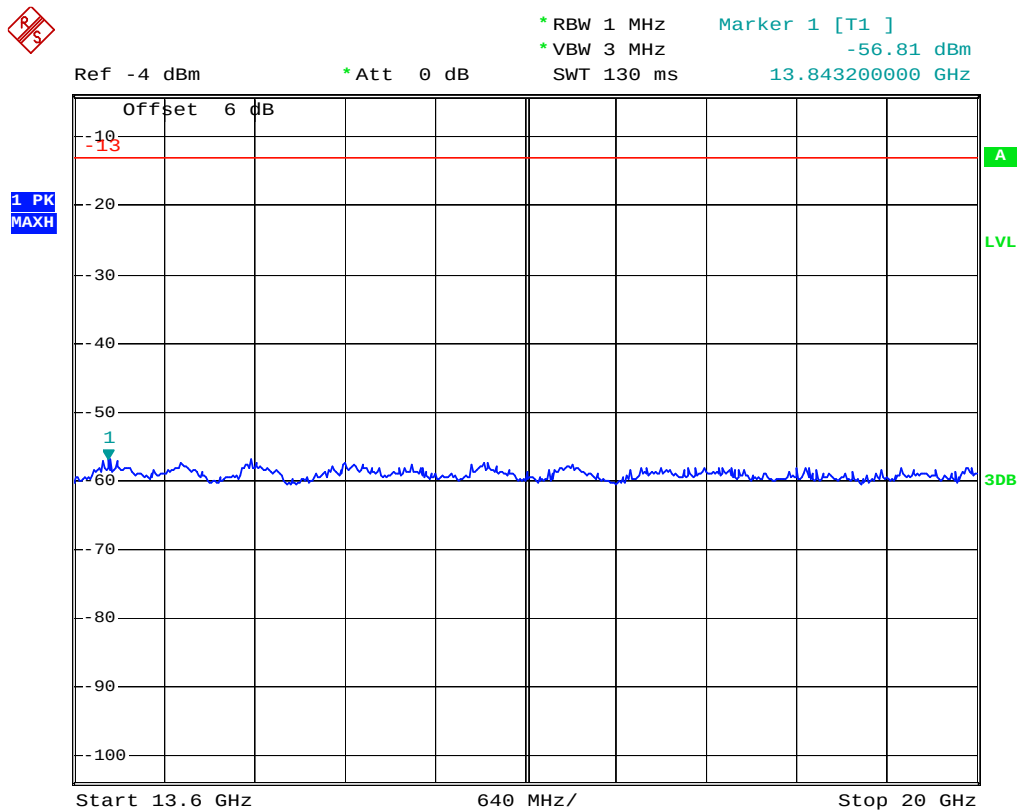
3 - 13.6 GHz



Spurious Emission At Antenna Terminals

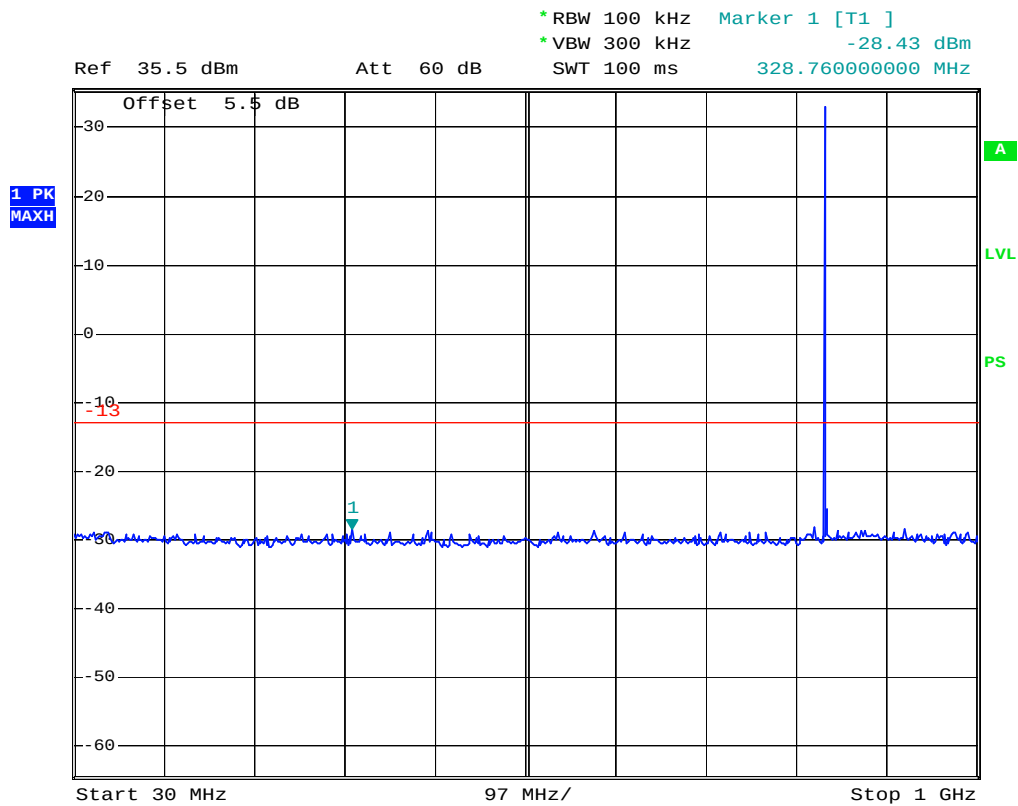
Date: 11.SEP.2008 15:46:25

13.6 – 20 GHz



Spurious Emission At Antenna Terminals

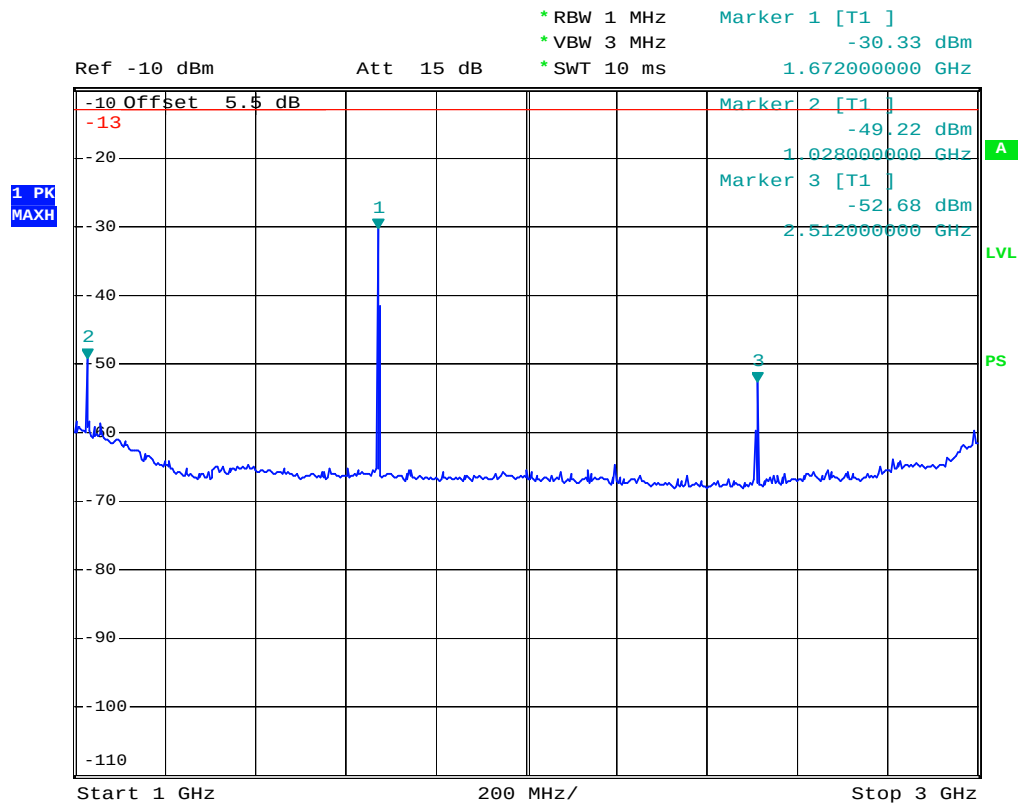
Date: 11.SEP.2008 15:48:11

GPRS**Cellular Band, Middle Channel****30 – 1000 MHz**

Spurious Emissions At Antenna Terminals

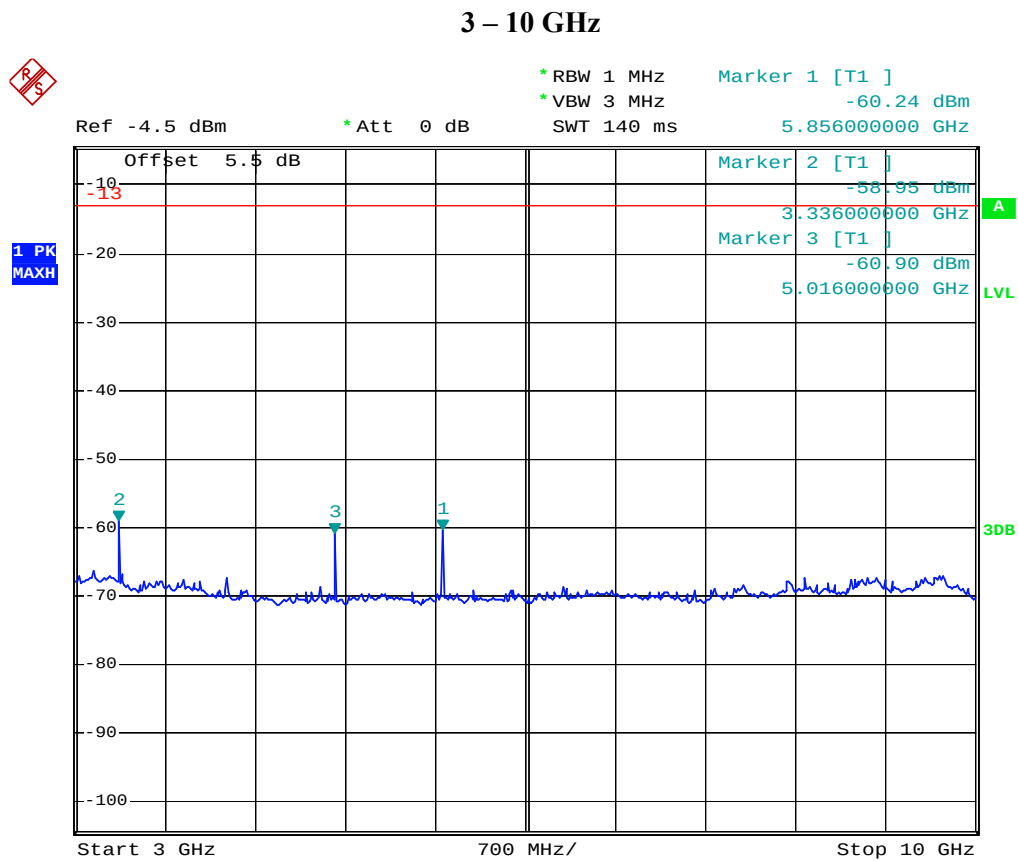
Date: 10.SEP.2008 16:51:55

1 – 3 GHz



Spurious Emissions At Antenna Terminals

Date: 10.SEP.2008 16:53:08

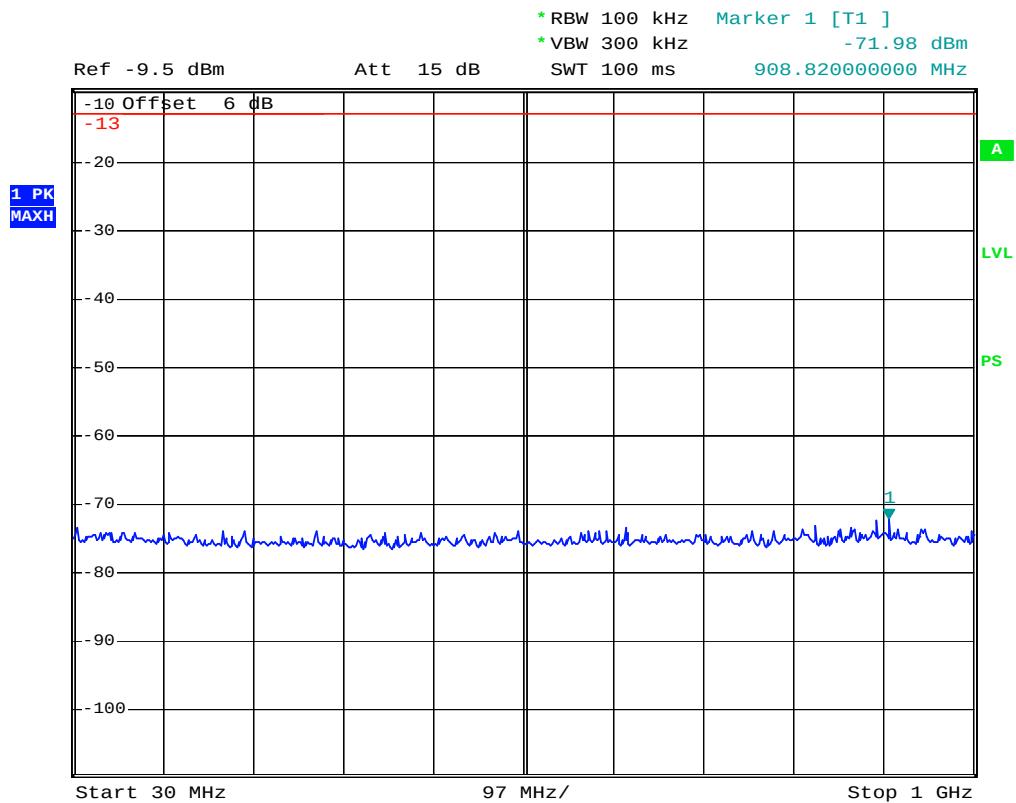


Spurious Emission At Antenna Terminals

Date: 11.SEP.2008 15:55:27

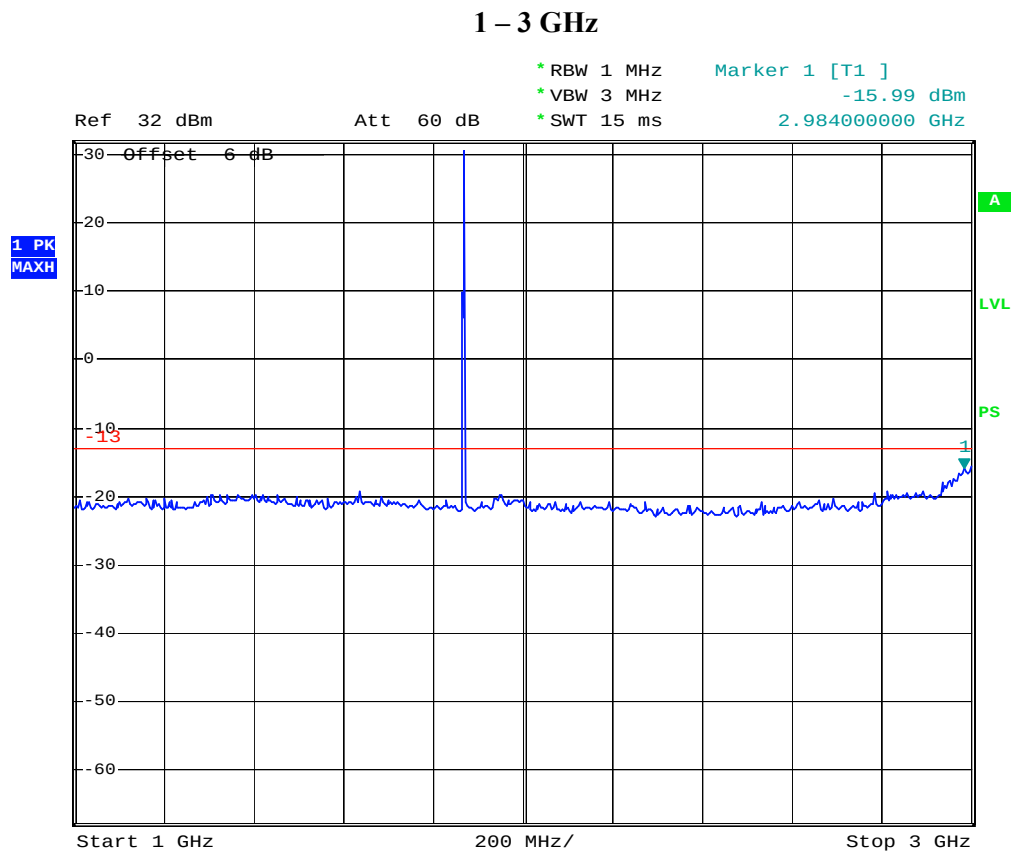
PCS Band, Middle Channel

30 – 1000 MHz



Spurious Emissions At Antenna Terminals

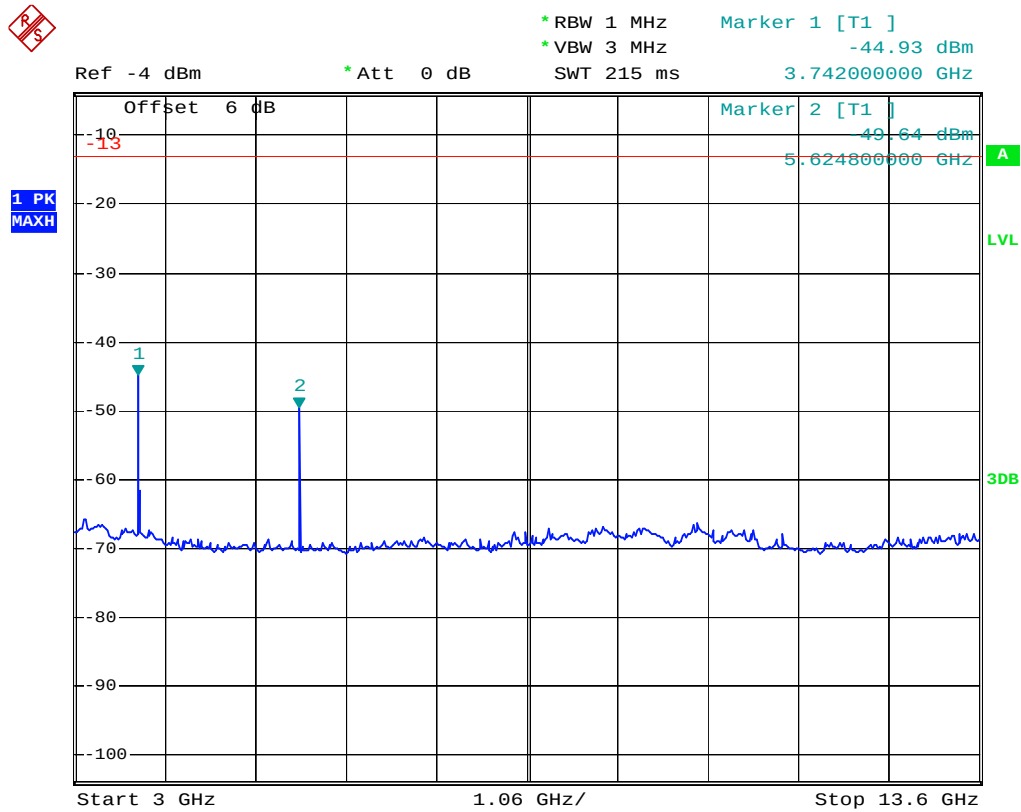
Date: 10.SEP.2008 17:02:27



Spurious Emissions At Antenna Terminals

Date: 10.SEP.2008 16:57:23

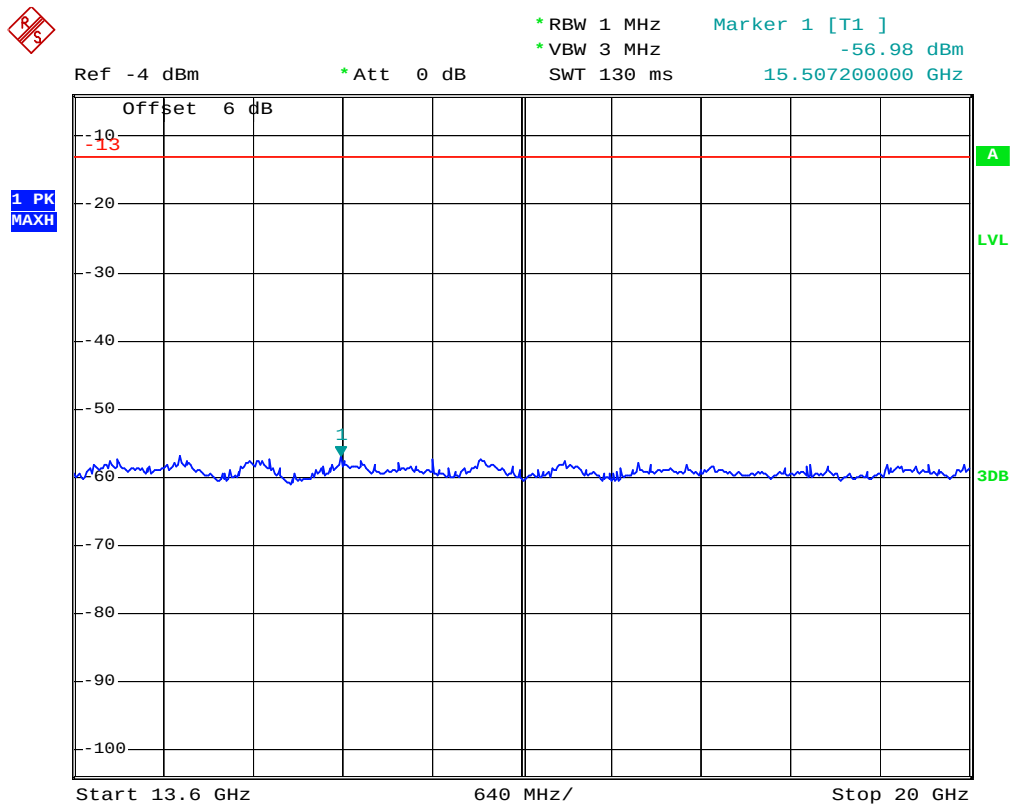
3 - 13.6 GHz



Spurious Emission At Antenna Terminals

Date: 11.SEP.2008 16:00:18

13.6 – 20 GHz



Spurious Emission At Antenna Terminals

Date: 11.SEP.2008 16:01:48

§2.1053 - SPURIOUS RADIATED EMISSIONS

Applicable Standards

CFR 47 § 2.1053, 22.917 and § 24.238.

Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB = $10 \lg (\text{TXpwr in Watts}/0.001)$ – the absolute level

Spurious attenuation limit in dB = $43 + 10 \text{ Log}_{10} (\text{power out in Watts})$

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Horn Antenna	DRH-118	A052604	2007-09-25	2008-09-25
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2008-03-11	2009-03-11
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2008-05-09	2009-05-09
HP	Preamplifier	8449B	3008A00277	2007-09-29	2008-09-29
HP	Signal Generator	HP8657A	2849U00982	2007-10-16	2008-10-16
HP	Amplifier	HP8447D	2944A09795	2007-11-15	2008-11-15
Giga-tronics	Signal Generator	1026	270801	2007-09-29	2008-09-29
COM POWER	Dipole Antenna	AD-100	041000	2007-09-25	2008-09-25
A.H. System	Horn Antenna	SAS-200/571	135	2008-05-17	2009-05-17
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	1100.0008.02	2008-06-21	2009-06-21

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Data**Environmental Conditions**

Temperature:	25 ° C
Relative Humidity:	56%
ATM Pressure:	100.0kPa

* The testing was performed by Bruce Zhang on 2008-09-11.

GSM:

Below 1GHz:

Cellular Band, Middle Channel

Indicated		Table Angle Degree	Test Antenna		Substituted					Absolute Level (dBm)	Part 22H	
Freq. (MHz)	S.A. Reading (dBμV)		Height (m)	Polar (H/V)	Freq. (MHz)	Level (dBm)	Polar (H/V)	Ant. Gain (dBi)	Cable Loss (dB)		Limit (dBm)	Margin (dB)
Middle Channel												
756.88	40.96	242	1.2	V	756.88	-52.7	V	0	0.64	-53.34	-13	40.34
756.88	38.32	150	1.5	H	756.88	-56.5	H	0	0.64	-57.14	-13	44.14
718.38	36.22	70	1.5	V	718.38	-58.6	V	0	0.62	-59.22	-13	46.22
378.04	33.04	210	1.0	H	378.04	-62.2	H	0	0.39	-62.59	-13	49.59

PCS Band, Middle Channel

Indicated		Table Angle Degree	Test Antenna		Substituted					Absolute Level (dBm)	Part 24E	
Freq. (MHz)	S.A. Reading (dBμV)		Height (m)	Polar (H/V)	Freq. (MHz)	Level (dBm)	Polar (H/V)	Ant. Gain (dBi)	Cable Loss (dB)		Limit (dBm)	Margin (dB)
Middle Channel												
757.5	42.58	137.0	1.2	V	757.5	-51.4	V	0	0.64	-52.04	-13	39.04
970.9	39.67	199.0	1.3	V	970.9	-56.2	V	0	0.73	-56.93	-13	43.93
757.5	37.49	130	1.5	H	757.5	-59.5	H	0	0.64	-60.14	-13	47.14
377.26	33.80	240	1.2	H	377.26	-61.7	H	0	0.39	-62.09	-13	49.09

Above 1GHz:

Cellular Band, Middle Channel

Indicated		Table Angle Degree	Test Antenna		Substituted					Absolute Level (dBm)	Part 22H	
Freq. (MHz)	S.A. Reading (dBμV)		Height (m)	Polar (H/V)	Freq. (MHz)	Level (dBm)	Polar (H/V)	Ant. Gain (dBi)	Cable Loss (dB)		Limit (dBm)	Margin (dB)
Middle Channel												
1673.2	64.29	220	1.0	V	1673.2	-41.1	V	6.2	0.94	-35.84	-13	22.84
2509.8	49.03	210	1.8	H	2509.8	-53.0	H	7.3	1.19	-46.89	-13	33.89
1673.2	47.47	100	1.9	H	1673.2	-52.8	H	6.2	0.94	-47.54	-13	34.54
2509.8	50.45	130	1.5	V	2509.8	-56.3	V	7.3	1.19	-50.19	-13	37.19
3346.6	46.10	130	1.6	H	3346.6	-57.7	H	6.7	1.38	-52.38	-13	39.38
3346.6	44.06	150	1.4	V	3346.6	-58.3	V	6.7	1.38	-52.98	-13	39.98

PCS Band, Middle Channel

Indicated		Table Angle Degree	Test Antenna		Substituted					Absolute Level (dBm)	Part 24E	
Freq. (MHz)	S.A. Reading (dBμV)		Height (m)	Polar (H/V)	Freq. (MHz)	Level (dBm)	Polar (H/V)	Ant. Gain (dBi)	Cable Loss (dB)		Limit (dBm)	Margin (dB)
Middle Channel												
5640	46.06	170	1.6	H	5640	-53.8	H	8.3	1.76	-47.26	-13	34.26
7520	44.93	180	1.5	H	7520	-54.3	H	7.6	2.09	-48.79	-13	35.79
5640	44.54	80	1.5	V	5640	-55.4	V	8.3	1.76	-48.86	-13	35.86
3760	49.27	190	1.9	H	3760	-54.4	H	6.9	1.47	-48.97	-13	35.97
7520	44.39	110	1.5	V	7520	-54.8	V	7.6	2.09	-49.29	-13	36.29
3760	47.46	200	1.6	V	3760	-55.6	V	6.9	1.47	-50.17	-13	37.17

GPRS

Below 1GHz:

Cellular Band, Middle Channel

Indicated		Table Angle Degree	Test Antenna		Substituted					Absolute Level (dBm)	Part 22H	
Freq. (MHz)	S.A. Reading (dBμV)		Height (m)	Polar (H/V)	Freq. (MHz)	Level (dBm)	Polar (H/V)	Ant. Gain (dBi)	Cable Loss (dB)		Limit (dBm)	Margin (dB)
Middle Channel												
756.88	40.13	282	1.2	V	756.88	-53.8	V	0	0.64	-54.44	-13	41.44
756.88	38.84	150	1.5	H	756.88	-57.4	H	0	0.64	-58.04	-13	45.04
772.28	35.72	170	1.5	V	772.28	-58.6	V	0	0.64	-59.24	-13	46.24
772.28	35.73	120	1.0	H	772.28	-59.2	H	0	0.64	-59.84	-13	46.84

PCS Band, Middle Channel

Indicated		Table Angle Degree	Test Antenna		Substituted					Absolute Level (dBm)	Part 24E	
Freq. (MHz)	S.A. Reading (dBμV)		Height (m)	Polar (H/V)	Freq. (MHz)	Level (dBm)	Polar (H/V)	Ant. Gain (dBi)	Cable Loss (dB)		Limit (dBm)	Margin (dB)
Middle Channel												
757.5	41.06	130	1.5	H	757.5	-53.8	H	0	0.64	-54.44	-13	41.44
757.5	39.03	137.0	1.2	V	757.5	-54.7	V	0	0.64	-55.34	-13	42.34
982.5	40.01	240	1.2	H	982.5	-54.9	H	0	0.73	-55.63	-13	42.63
701.2	33.55	199.0	1.3	V	701.2	-60.4	V	0	0.62	-61.02	-13	48.02

Above 1GHz:

Cellular Band, Middle Channel

Indicated		Table Angle Degree	Test Antenna		Substituted					Absolute Level (dBm)	Part 22H	
Freq. (MHz)	S.A. Reading (dBμV)		Height (m)	Polar (H/V)	Freq. (MHz)	Level (dBm)	Polar (H/V)	Ant. Gain (dBi)	Cable Loss (dB)		Limit (dBm)	Margin (dB)
Middle Channel												
1673.2	65.34	150	1.5	V	1673.2	-40.3	V	6.2	0.94	-35.04	-13	22.04
2509.8	51.05	180	1.5	V	2509.8	-51.7	V	7.3	1.19	-45.59	-13	32.59
1673.2	48.42	80	1.5	H	1673.2	-51.6	H	6.2	0.94	-46.34	-13	33.34
2509.8	49.33	120	1.2	H	2509.8	-52.6	H	7.3	1.19	-46.49	-13	33.49
3346.6	45.89	180	1.8	V	3346.6	-57.6	V	6.7	1.38	-52.28	-13	39.28
3346.6	44.21	200	1.6	H	3346.6	-58.4	H	6.7	1.38	-53.08	-13	40.08

PCS Band, Middle Channel

Indicated		Table Angle Degree	Test Antenna		Substituted					Absolute Level (dBm)	Part 24E	
Freq. (MHz)	S.A. Reading (dBμV)		Height (m)	Polar (H/V)	Freq. (MHz)	Level (dBm)	Polar (H/V)	Ant. Gain (dBi)	Cable Loss (dB)		Limit (dBm)	Margin (dB)
Middle Channel												
5640	45.71	80	1.5	V	5640	-53.2	V	8.3	1.76	-46.66	-13	33.66
7520	44.78	180	1.5	H	7520	-52.5	H	7.6	2.09	-46.99	-13	33.99
5640	45.39	120	1.6	H	5640	-53.7	H	8.3	1.76	-47.16	-13	34.16
7520	44.57	115	1.8	V	7520	-52.8	V	7.6	2.09	-47.29	-13	34.29
3760	48.46	180	1.8	H	3760	-55.3	H	6.9	1.47	-49.87	-13	36.87
3760	46.94	200	1.6	V	3760	-57.1	V	6.9	1.47	-51.67	-13	38.67

§22.917(a) & §24.238(a) - BAND EDGES

Applicable Standards

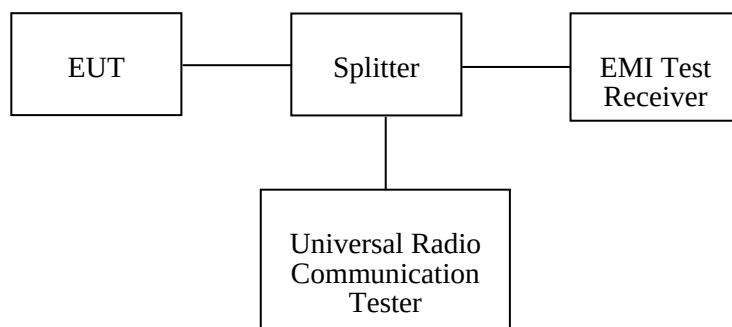
According to § 22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

Test Procedure

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

The center of the spectrum analyzer was set to block edge frequency, RBW set to 10 kHz.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100224	2007-10-16	2008-10-16
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	1100.0008.02	2008-06-21	2009-06-21

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Data

Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	56%
ATM Pressure:	100.0kPa

* The testing was performed by Bruce Zhang on 2008-09-16.

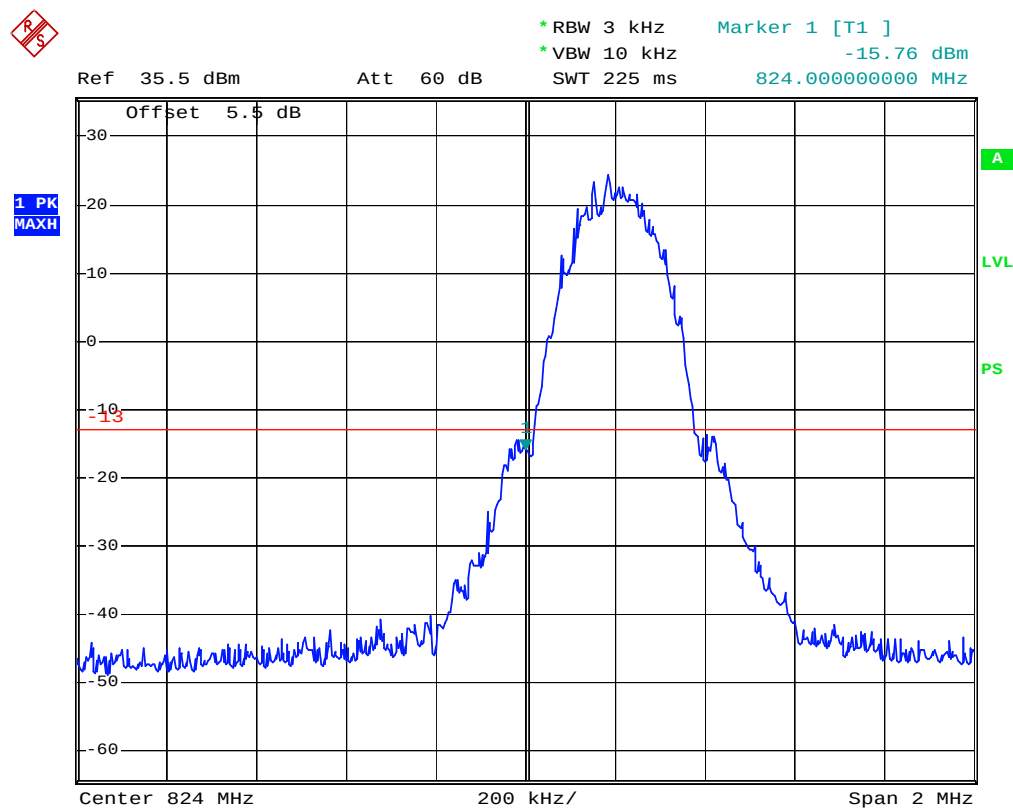
Please refer to the following tables and plots.

GSM:

Cellular Band

Frequency (MHz)	Emission (dBm)	Limit (dBm)
824	-15.76	-13
849	-15.25	-13

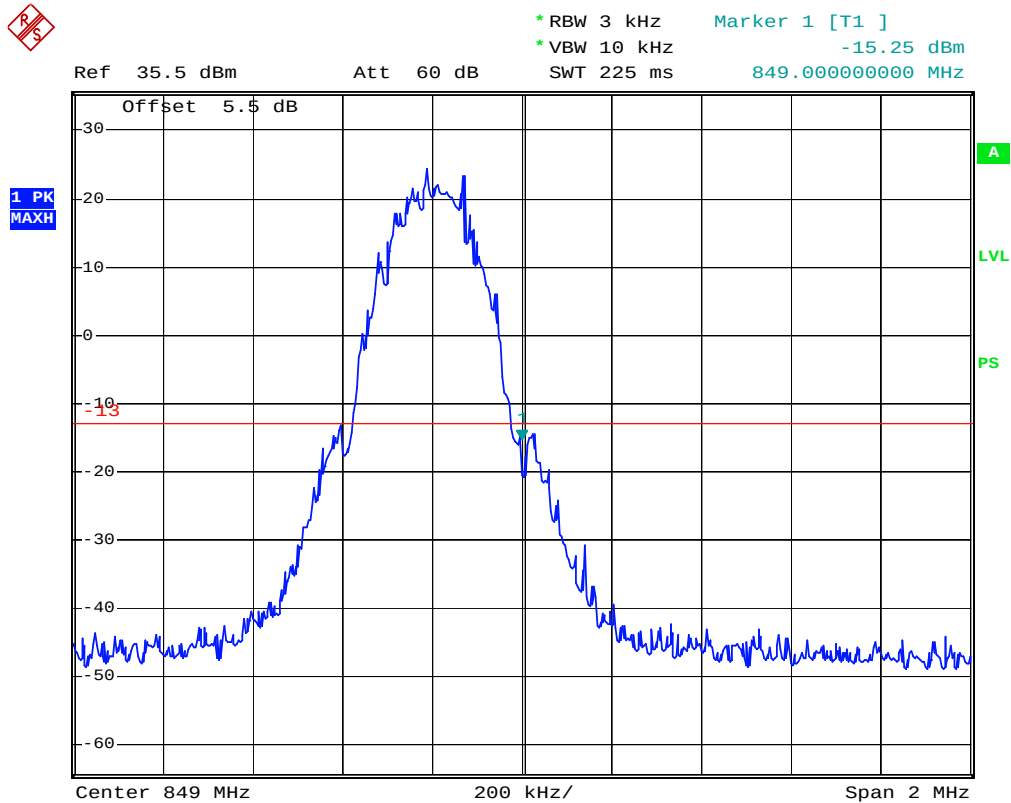
Cellular Band, Lowest Channel



Band edges

Date: 16.SEP.2008 12:00:27

Cellular Band, Highest Channel



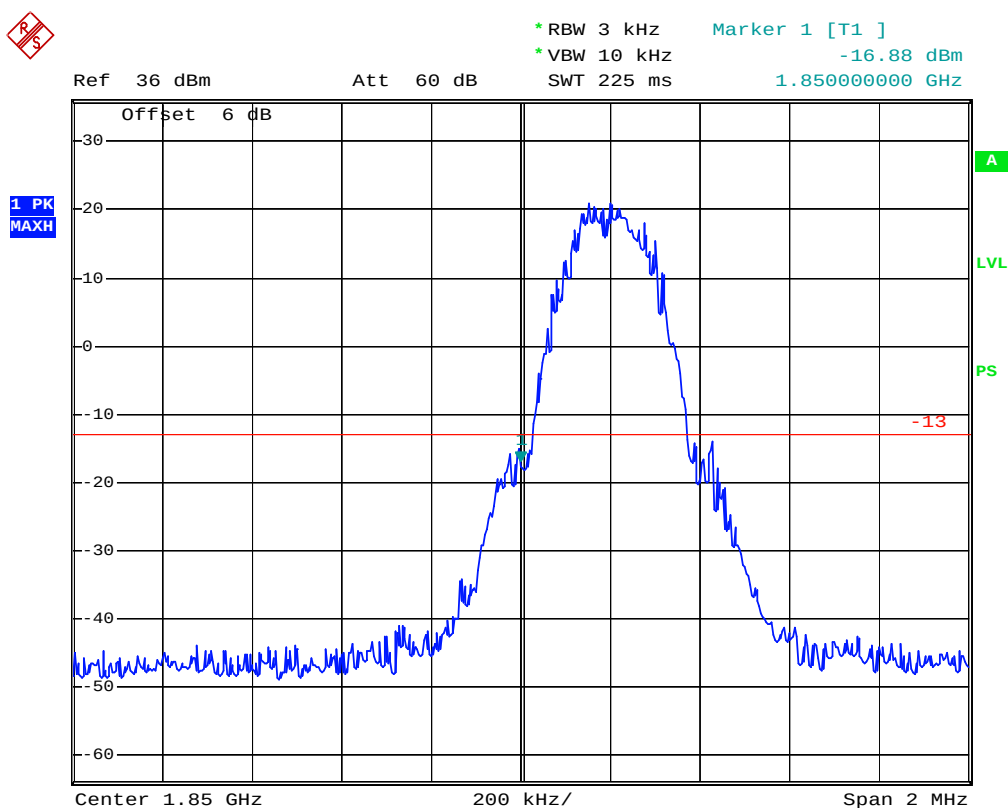
Band edges

Date: 16.SEP.2008 12:10:29

PCS Band

Frequency (MHz)	Emission (dBm)	Limit (dBm)
1850	-16.88	-13
1910	-17.15	-13

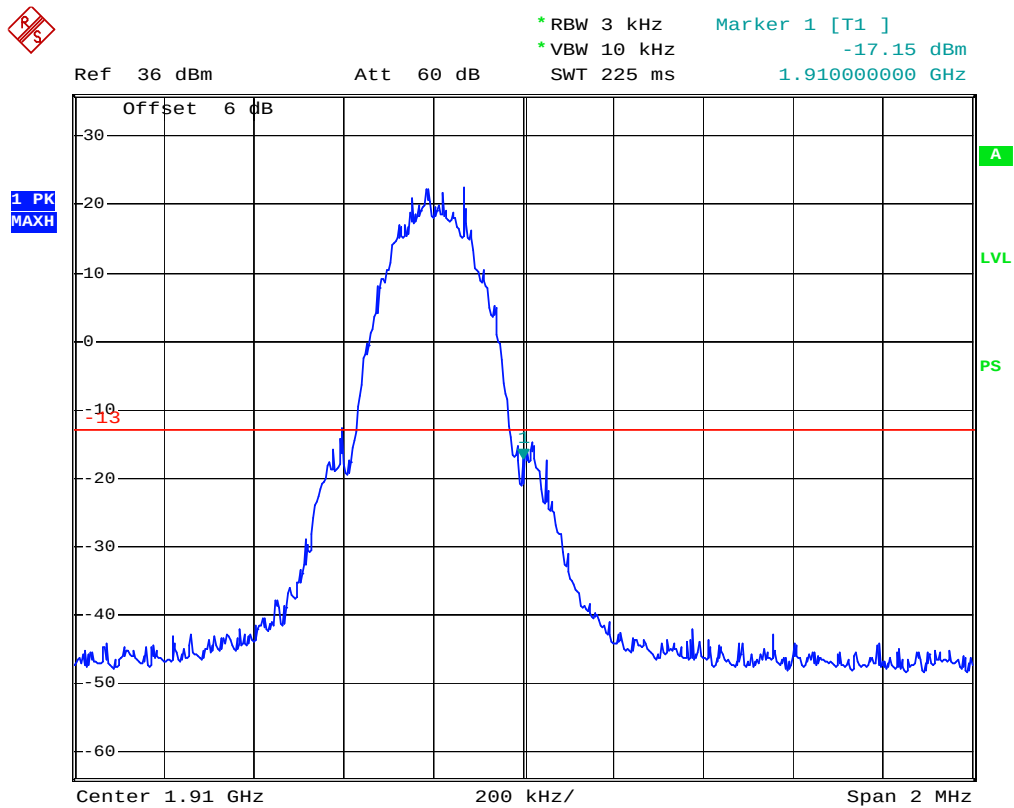
PCS Band, Lowest Channel



Band edges

Date: 16.SEP.2008 12:15:03

PCS Band, Highest Channel



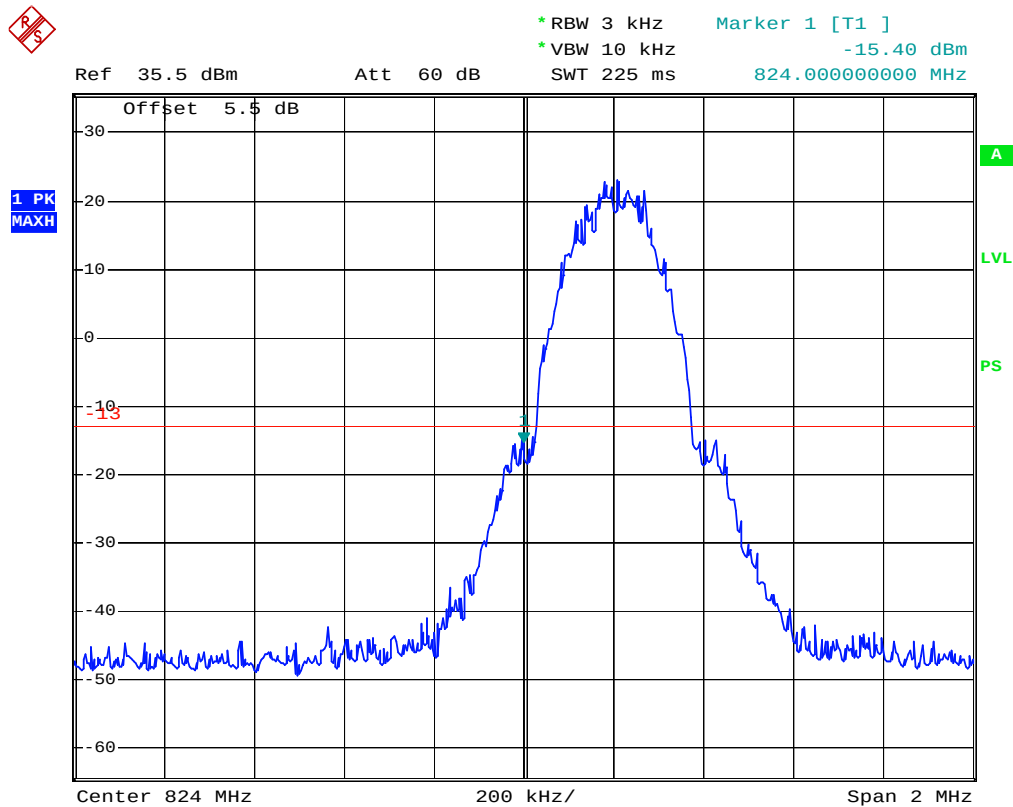
Band edges

Date: 16.SEP.2008 12:15:56

GPRS:

Cellular Band:

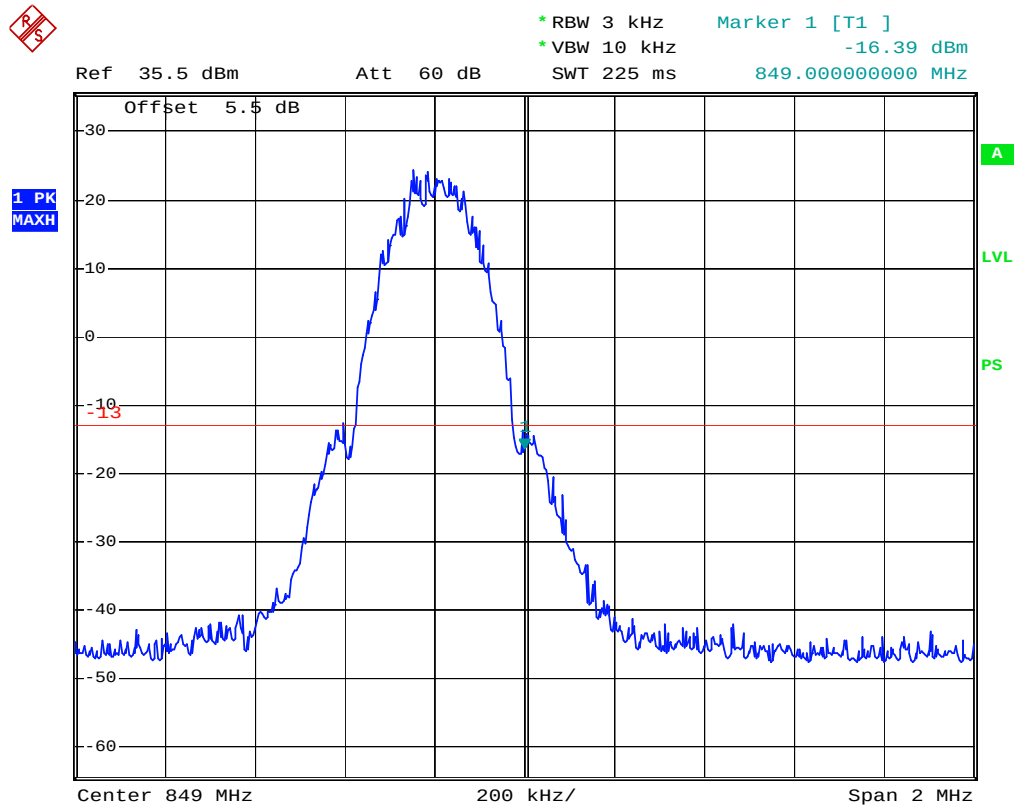
Frequency (MHz)	Emission (dBm)	Limit (dBm)
824	-15.40	-13
849	-16.39	-13

Cellular Band, Lowest Channel

Band edges

Date: 16.SEP.2008 12:24:10

Cellular Band, Highest Channel



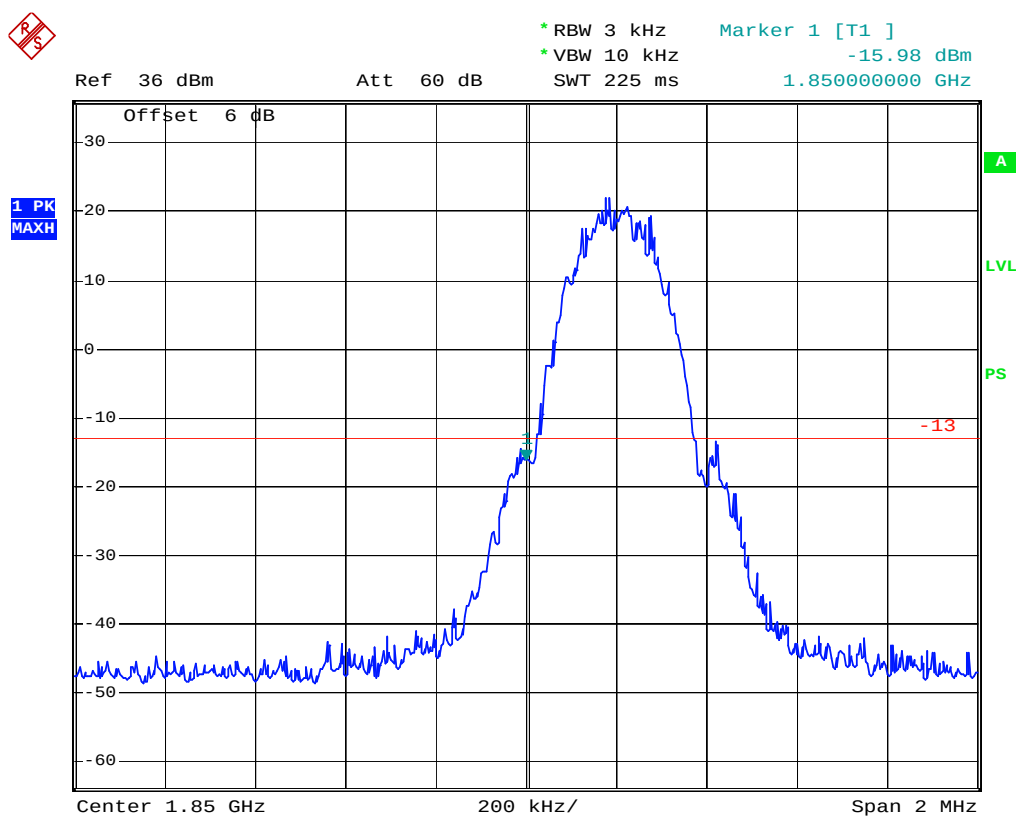
Band edges

Date: 16.SEP.2008 12:26:14

PCS Band:

Frequency (MHz)	Emission (dBm)	Limit (dBm)
1850	-15.98	-13
1910	-16.85	-13

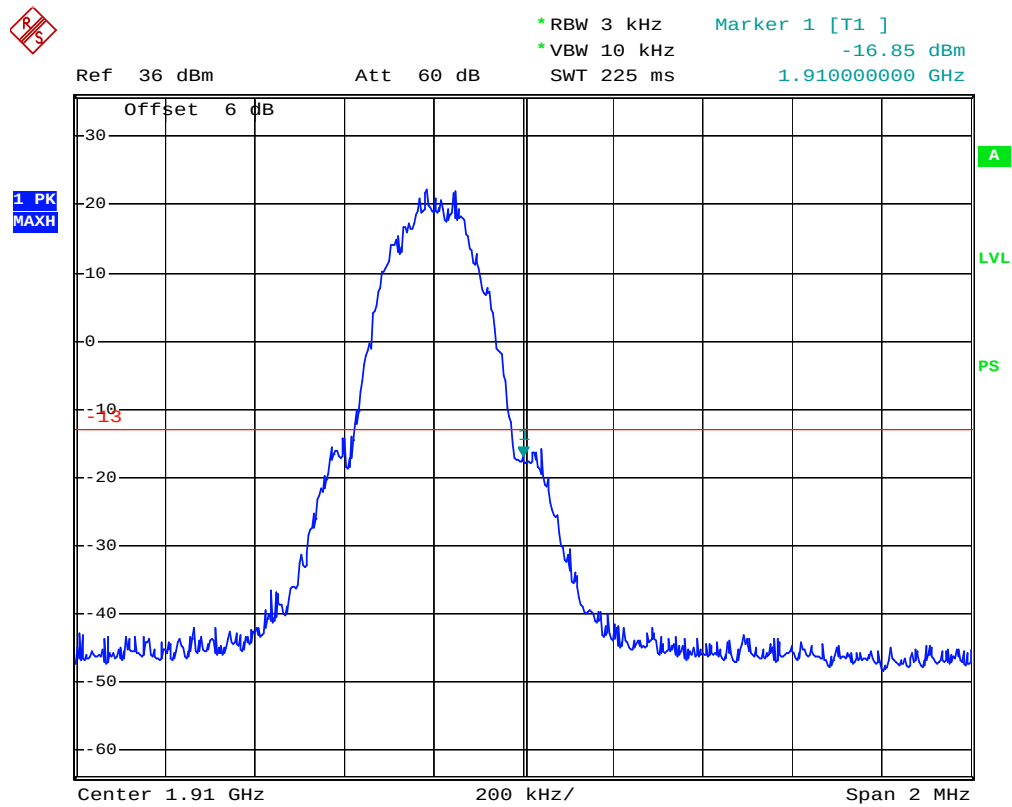
PCS Band, Lowest Channel



Band edges

Date: 16.SEP.2008 12:29:34

PCS Band, Highest Channel



Band edges

Date: 16.SEP.2008 12:30:40

§2.1055, §22.355, & §24.235 - FREQUENCY STABILITY

Applicable Standard

CFR47 § 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.

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.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
WUHUAN	Temperature & Humidity Chamber	HTP205	20021115	2007-12-28	2008-12-28
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	1100.0008.02	2008-06-21	2009-06-21

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Data**Environmental Conditions**

Temperature:	25 ° C
Relative Humidity:	56%
ATM Pressure:	100.0kPa

* The testing was performed by Bruce Zhang on 2008-09-16.

Cellular Band:

Cellular Band, Middle Channel fo = 836.6 MHz				
Temperature (°C)	Power Supplied (Vdc)	Frequency Error (Hz)	Error (ppm)	Limit (ppm)
-15	3.70	12	0.0143	2.5
	3.50	8	0.0096	2.5
-5	3.70	2	0.0024	2.5
	3.50	5	0.0060	2.5
5	3.70	6	0.0072	2.5
	3.50	4	0.0048	2.5
15	3.70	-10	-0.0120	2.5
	3.50	-5	-0.0060	2.5
25	3.70	-4	-0.0048	2.5
	3.50	-9	-0.0108	2.5
35	3.70	-8	-0.0096	2.5
	3.50	-12	-0.0143	2.5
45	3.70	-11	-0.0131	2.5
	3.50	-16	-0.0191	2.5
55	3.70	-13	-0.0155	2.5
	3.50	-10	-0.0120	2.5

PCS Band:

PCS Band, Middle Channel fo = 1880 MHz				
Temperature (°C)	Power Supplied (Vdc)	Frequency Error (Hz)	Error (ppm)	Limit (ppm)
-15	3.70	-50	-0.0266	2.5
	3.50	-57	-0.0303	2.5
-5	3.70	-42	-0.0223	2.5
	3.50	-48	-0.0255	2.5
5	3.70	-49	-0.0261	2.5
	3.50	-58	-0.0309	2.5
15	3.70	-53	-0.0282	2.5
	3.50	-50	-0.0266	2.5
25	3.70	-65	-0.0346	2.5
	3.50	-78	-0.0415	2.5
35	3.70	-74	-0.0394	2.5
	3.50	-83	-0.0442	2.5
45	3.70	-69	-0.0367	2.5
	3.50	-88	-0.0468	2.5
55	3.70	-86	-0.0457	2.5
	3.50	-90	-0.0479	2.5

END OF REPORT