



NVLAP LAB CODE 200707-0



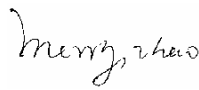
FCC PART 22 H/24 E
MEASUREMENT AND TEST REPORT

For

Shengtai Industry Co., Ltd.

Room 201, 2/F, Golden Gate Commercial Building,
136-138 Austin Road, Kowloon, Hong Kong

FCC ID: X2QK818

Report Type: Original Report	Product Type: Mobile Phone
Test Engineer: Sula Huang	
Report Number: RSZ09121508-2224	
Report Date: 2010-01-11	
Reviewed By: EMC Engineer	Merry Zhao 
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China Tel: +86-755-33320018 Fax: +86-755-33320008

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)

TABLE OF CONTENTS

GENERAL INFORMATION.....	4
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	4
EUT PHOTO	4
OBJECTIVE	5
RELATED SUBMITTAL(S)/GRANT(S)	5
TEST METHODOLOGY	5
TEST FACILITY	5
SYSTEM TEST CONFIGURATION.....	6
JUSTIFICATION	6
EQUIPMENT MODIFICATIONS	6
LOCAL SUPPORT EQUIPMENT LIST AND DETAILS	6
CONFIGURATION OF TEST SETUP	6
BLOCK DIAGRAM OF TEST SETUP	7
SUMMARY OF TEST RESULTS	8
CFR47 §1.1307 & §2.1093 - RF EXPOSURE.....	9
APPLICABLE STANDARD	9
TEST RESULT	9
CFR47 §2.1047 - MODULATION CHARACTERISTIC	10
CFR47 §2.1046, §22.913 (A) & §24.232 (C) - RF OUTPUT POWER.....	11
APPLICABLE STANDARD	11
TEST PROCEDURE	11
TEST EQUIPMENT LIST AND DETAILS.....	11
TEST DATA	12
CFR47 §2.1049, §22.917, §22.905 & §24.238 - OCCUPIED BANDWIDTH	21
APPLICABLE STANDARDS.....	21
TEST PROCEDURE	21
TEST EQUIPMENT LIST AND DETAILS.....	21
TEST DATA	21
CFR47 §2.1051, §22.917(A) & §24.238(A) - SPURIOUS EMISSIONS AT ANTENNA TERMINALS	27
APPLICABLE STANDARDS.....	27
TEST PROCEDURE	27
TEST EQUIPMENT LIST AND DETAILS.....	27
TEST DATA	28
CFR47 §2.1053, §22.917 & §24.238 - SPURIOUS RADIATED EMISSIONS	34
APPLICABLE STANDARDS.....	34
TEST PROCEDURE	34
TEST EQUIPMENT LIST AND DETAILS.....	34
TEST DATA	35
CFR47 §22.917(A) & §24.238(A) - BAND EDGES.....	36
APPLICABLE STANDARDS.....	36
TEST PROCEDURE	36
TEST EQUIPMENT LIST AND DETAILS.....	36

TEST DATA36

CFR47 §2.1055, §22.355 & §24.235 - FREQUENCY STABILITY.....42

APPLICABLE STANDARD42

TEST PROCEDURE42

TEST EQUIPMENT LIST AND DETAILS.....43

TEST DATA43

GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The *Shengtai Industry Co., Ltd.*'s product, model number: *K818 (FCC ID: X2QK818)* or the "EUT" as referred to in this report is a *Mobile Phone*, which measures approximately: 10.5 cm L x 5.5 cm W x 1.6 cm H, rated input voltage: DC 3.7V battery.

Frequency Range:

Cellular Band: 824-849 MHz (TX), 869-894 MHz (RX)
PCS Band: 1850-1910 MHz (TX), 1930-1990 MHz (RX)
Bluetooth: 2400-2483.5 MHz (TX/RX)

Modulation Mode: GMSK (GSM/PCS) , GFSK (Bluetooth)

Transmitter Output Power:

Cellular Band: 33±2 dBm
PCS Band: 30±2 dBm
Bluetooth: -6~4 dBm

** All measurement and test data in this report was gathered from production sample serial number: IMEI: 354300008238749 (Assigned by the applicant). The EUT was received on 2009-12-15.*

EUT Photo



Please see additional photos in Exhibit B&C

Objective

This type approval report is prepared on behalf of *Shengtai Industry 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)

FCC Part 15.247 submission with FCC ID: X2QK818.

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 - Personal Communication Services

Applicable Standards: TIA/EIA 603-C, ANSI C63.4-2003.

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 21, 2007. 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.

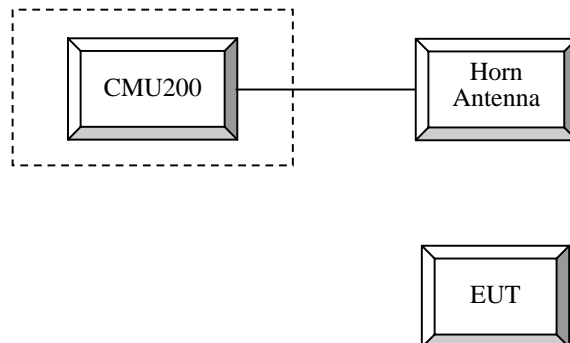
Equipment Modifications

No modifications were made to the EUT.

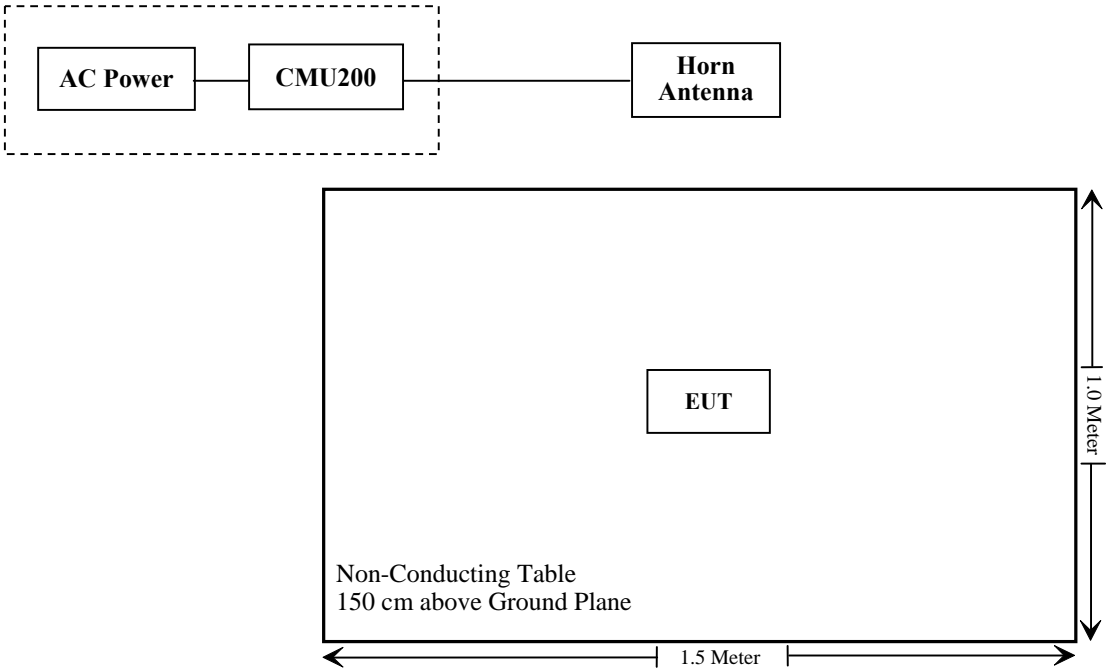
Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
R & S	Universal Radio commutation tester	CMU200	1100.0008.02	DoC

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307, §2.1093	RF Exposure (SAR)	Compliant *
§2.1046, § 22.913 (a), § 24.232 (c)	RF Output Power	Compliant
§2.1047	Modulation Characteristics	N/A
§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

* SAR report released by BACL, Report Number: RSZ09121508-SAR

CFR47 §1.1307 & §2.1093 - RF EXPOSURE

Applicable Standard

§1.1307 and §2.1093.

Test Result

Compliance

The EUT is a portable device, thus requires SAR evaluation; please refer to BACL SAR Report: RSZ09121508-SAR.

CFR47 §2.1047 - MODULATION CHARACTERISTIC

According to FCC § 2.1047(d), Part 22H & 24E there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

CFR47 §2.1046, §22.913 (a) & §24.232 (c) - RF OUTPUT POWER

Applicable Standard

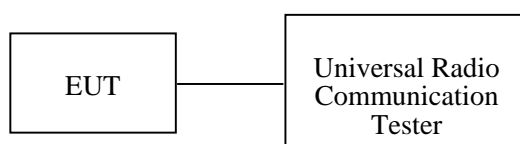
According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

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	2009-05-05	2010-05-04
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2009-07-08	2010-07-07
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2009-03-11	2010-03-11
HP	Preamplifier	8449B	3008A00277	2009-09-12	2010-09-11
HP	Signal Generator	HP8657A	2849U00982	2009-10-16	2010-10-15
HP	Amplifier	HP8447D	2944A09795	2009-08-02	2010-08-02
HP	Synthesized Sweeper	8341B	2624A00116	2008-11-07	2009-11-06
COM POWER	Dipole Antenna	AD-100	041000	2009-09-25	2010-09-25
A.H. System	Horn Antenna	SAS-200/571	135	2009-05-17	2010-05-17
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	109038	2009-06-11	2010-06-10

* **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 Sula Huang on 2009-12-27

Conducted Power**Cellular Band (Part 22H)**

Mode	Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)
GSM	Low	824.2	32.16	38.45
	Middle	836.6	32.35	38.45
	High	848.8	32.45	38.45
GRPS	Low	824.2	32.22	38.45
	Middle	836.6	32.38	38.45
	High	848.8	32.48	38.45

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)
GSM	Low	1850.2	29.08	33
	Middle	1880.0	29.02	33
	High	1909.8	29.12	33
GRPS	Low	1850.2	29.27	33
	Middle	1880.0	29.22	33
	High	1909.8	29.36	33

Radiated Power (ERP and EIRP)**Cellular Band (Part 22H)**

GSM Mode:

Indicated		Table Angle Degree	Test Antenna		Substituted			Antenna Gain Cord. (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Part 22H
Frequency (MHz)	S.A. Reading (dBμV/m)		Height (m)	Polar (H/V)	Frequency (MHz)	S.G. Level (dBm)	Polar (H/V)				Limit (dBm)
Low Channel											
824.2	91.44	99	1.70	H	824.2	21.55	H	0	0.9	20.65	38.45
824.2	99.35	17	1.17	V	824.2	27.80	V	0	0.9	26.90	38.45
Middle Channel											
836.6	91.05	326	1.44	H	836.6	21.31	H	0	0.9	20.41	38.45
836.6	100.77	137	1.49	V	836.6	29.14	V	0	0.9	28.24	38.45
High Channel											
848.8	85.38	95	1.70	H	848.8	15.40	H	0	0.9	14.50	38.45
848.8	96.82	110	1.13	V	848.8	26.12	V	0	0.9	25.22	38.45

GPRS Mode:

Indicated		Table Angle Degree	Test Antenna		Substituted			Antenna Gain Cord. (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Part 22H
Frequency (MHz)	S.A. Reading (dBμV/m)		Height (m)	Polar (H/V)	Frequency (MHz)	S.G. Level (dBm)	Polar (H/V)				Limit (dBm)
Low Channel											
824.2	91.22	119	2.85	H	824.2	21.34	H	0	0.9	20.44	38.45
824.2	99.96	300	1.68	V	824.2	28.32	V	0	0.9	27.42	38.45
Middle Channel											
836.6	89.58	340	1.92	H	836.6	19.85	H	0	0.9	18.95	38.45
836.6	99.97	32	1.45	V	836.6	28.34	V	0	0.9	27.44	38.45
High Channel											
848.8	86.23	128	2.72	H	848.8	16.24	H	0	0.9	15.34	38.45
848.8	96.66	118	1.08	V	848.8	25.97	V	0	0.9	25.07	38.45

PCS Band (Part 24E)

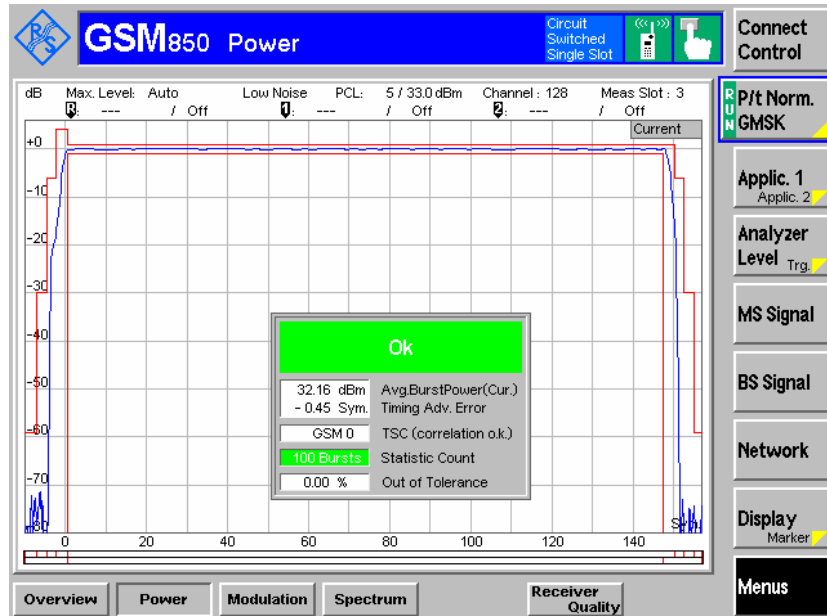
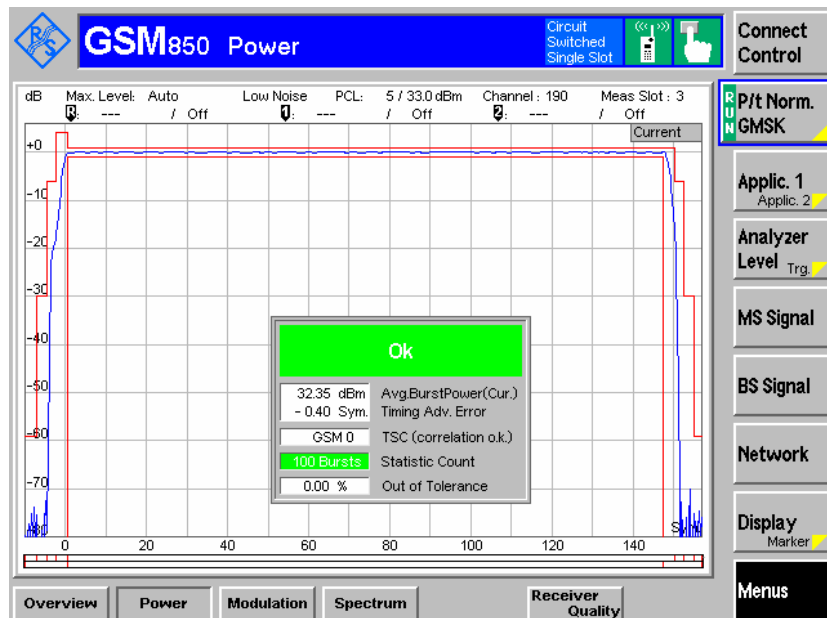
GSM Mode:

Indicated		Table Angle Degree	Test Antenna		Substituted			Antenna Gain Cord. (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Part 24E
Frequency (MHz)	S.A. Reading (dBμV/m)		Height (m)	Polar (H/V)	Frequency (MHz)	S.G. Level (dBm)	Polar (H/V)				Limit (dBm)
Low Channel											
1850.2	121.07	169	2.35	H	1850.2	23.51	H	6.2	1.1	28.61	33
1850.2	121.33	172	2.79	V	1850.2	23.68	V	6.2	1.1	28.78	33
Middle Channel											
1880	119.69	190	2.75	H	1880	22.10	H	6.2	1.1	27.20	33
1880	117.46	111	2.56	V	1880	19.78	V	6.2	1.1	24.88	33
High Channel											
1909.8	115.65	191	2.35	H	1909.8	18.24	H	6.2	1.2	23.24	33
1909.8	114.03	143	1.73	V	1909.8	16.44	V	6.2	1.2	21.44	33

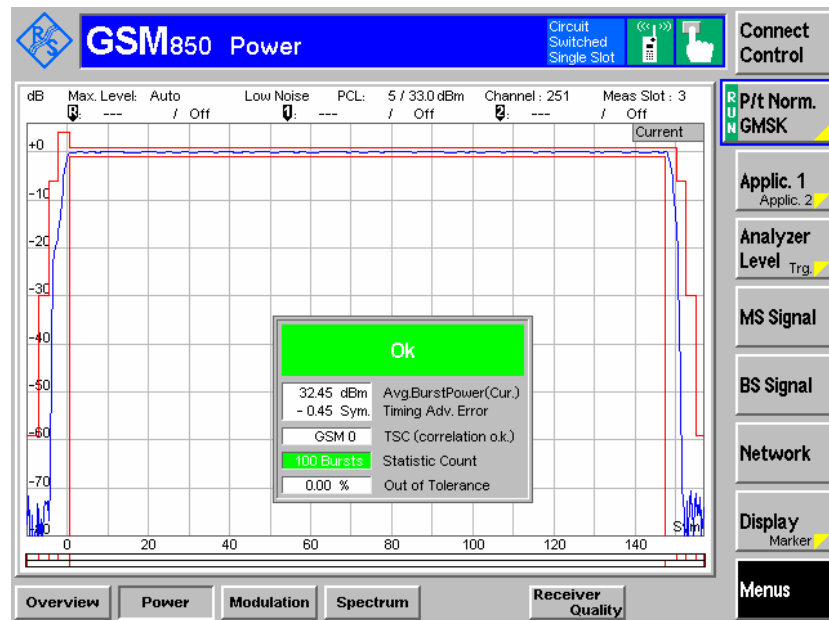
GPRS Mode:

Indicated		Table Angle Degree	Test Antenna		Substituted			Antenna Gain Cord. (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Part 24E
Frequency (MHz)	S.A. Reading (dBμV/m)		Height (m)	Polar (H/V)	Frequency (MHz)	S.G. Level (dBm)	Polar (H/V)				Limit (dBm)
Low Channel											
1850.2	121.42	1.77	2.61	H	1850.2	23.14	H	6.2	1.1	28.24	33
1850.2	121.30	1.39	2.61	V	1850.2	23.64	V	6.2	1.1	28.74	33
Middle Channel											
1880	118.86	349	1.98	H	1880	21.31	H	6.2	1.1	26.41	33
1880	118.92	107	1.08	V	1880	21.21	V	6.2	1.1	26.31	33
High Channel											
1909.8	116.48	182	2.63	H	1909.8	19.05	H	6.2	1.2	24.05	33
1909.8	112.77	113	2.61	V	1909.8	15.16	V	6.2	1.2	20.16	33

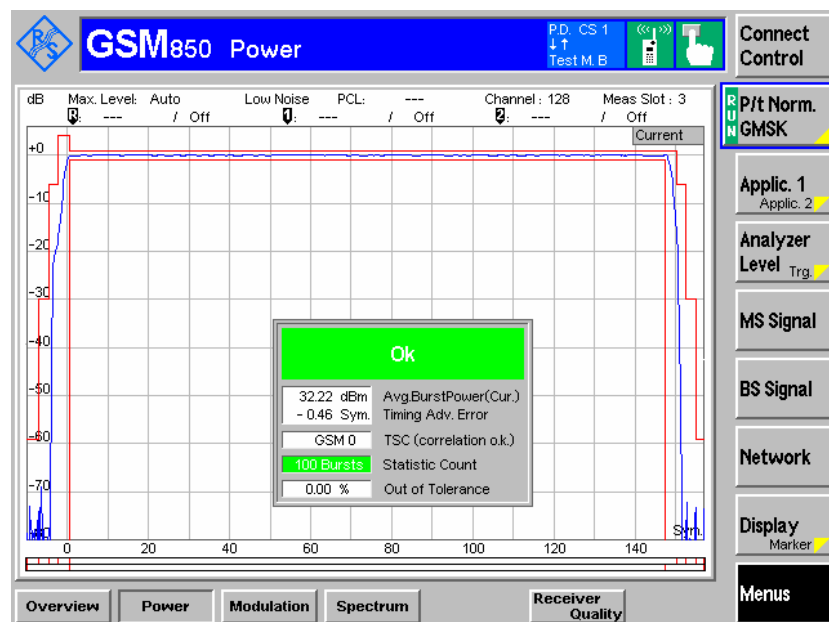
Note: PCS band test with amplifier

Plots of Conducted Output Power**Cellular Band (Part 22H)****Low Channel (GSM)****Middle Channel (GSM)**

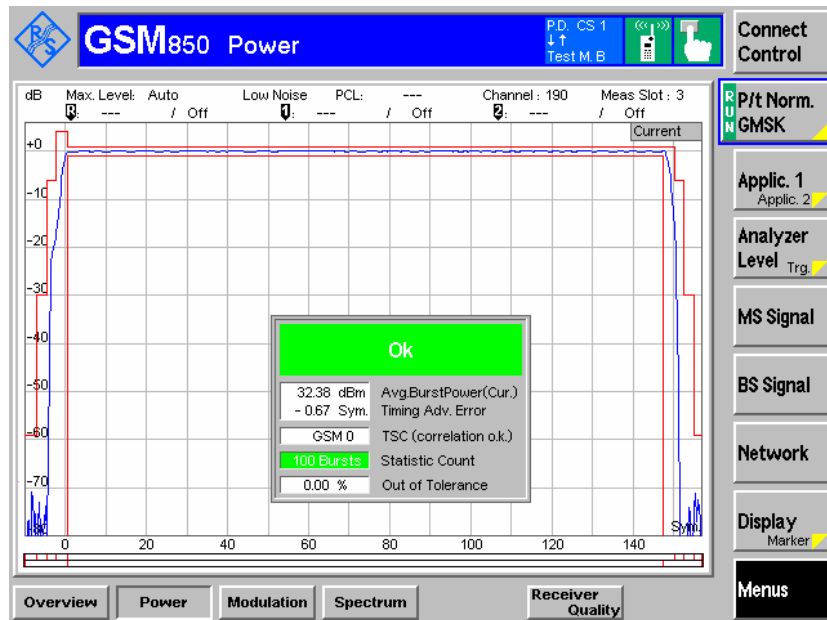
High Channel (GSM)



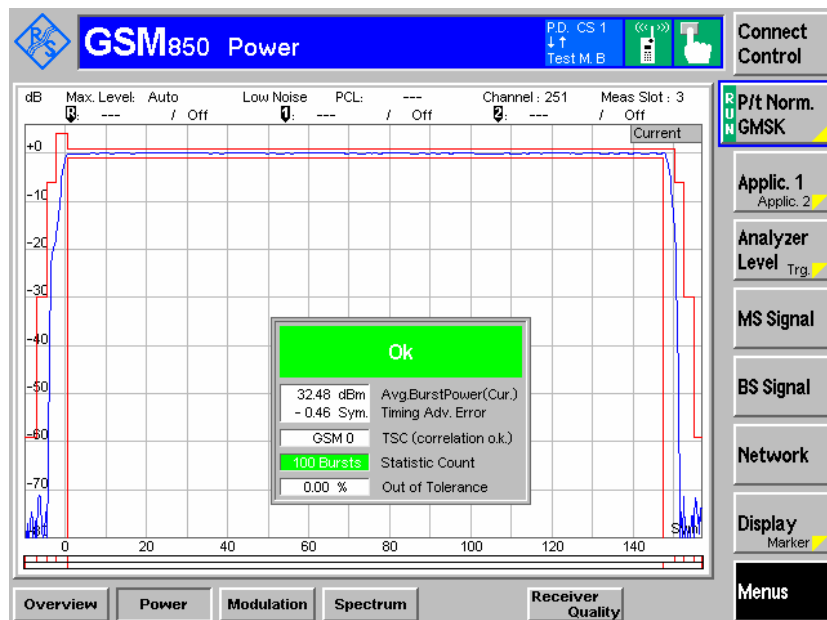
Low Channel (GPRS)



Middle Channel (GPRS)

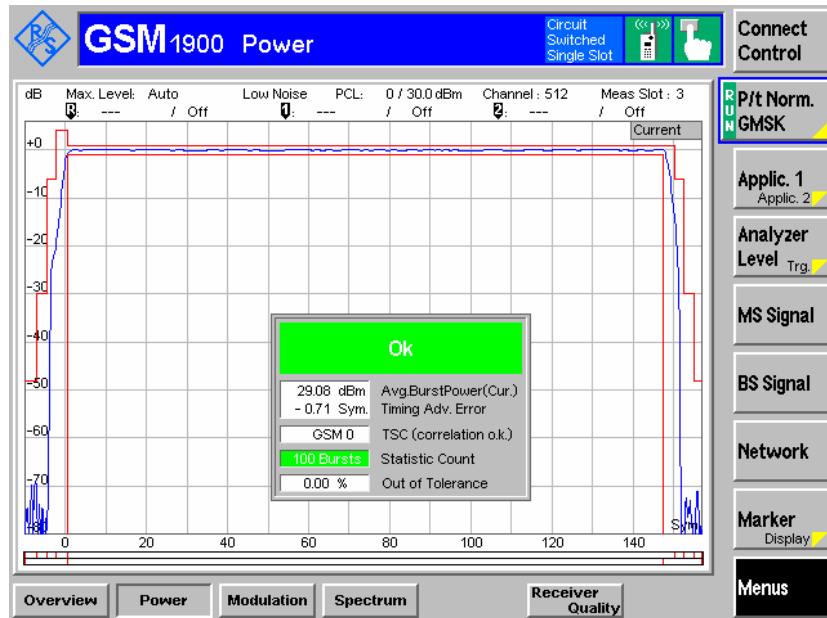


High Channel (GPRS)

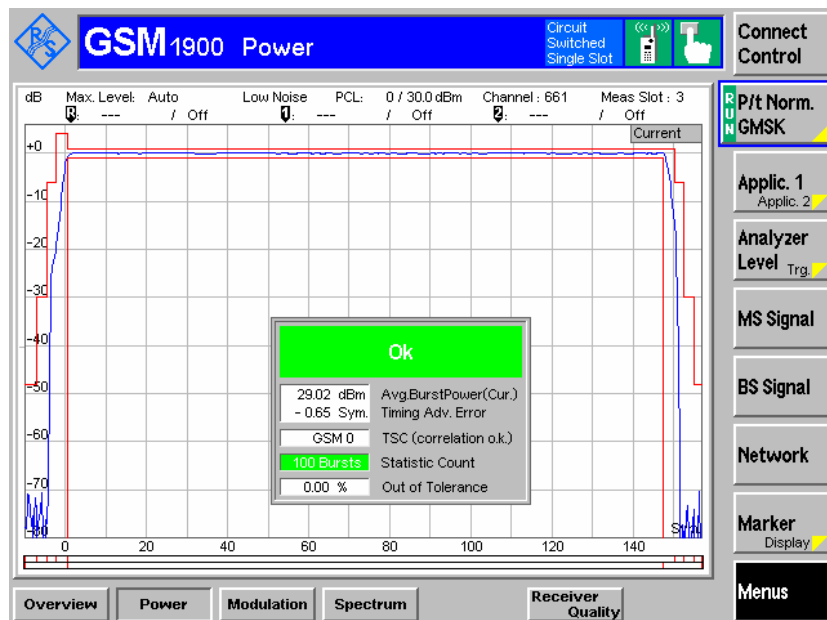


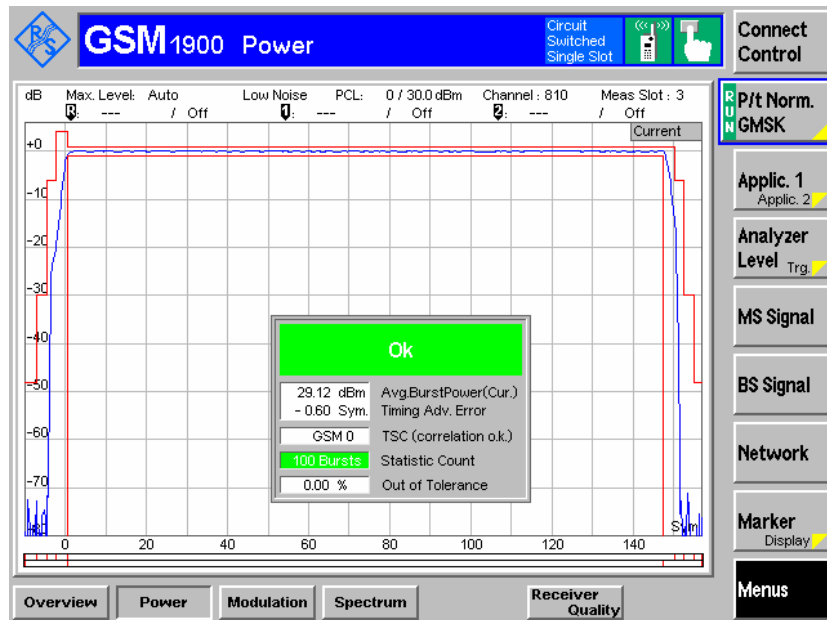
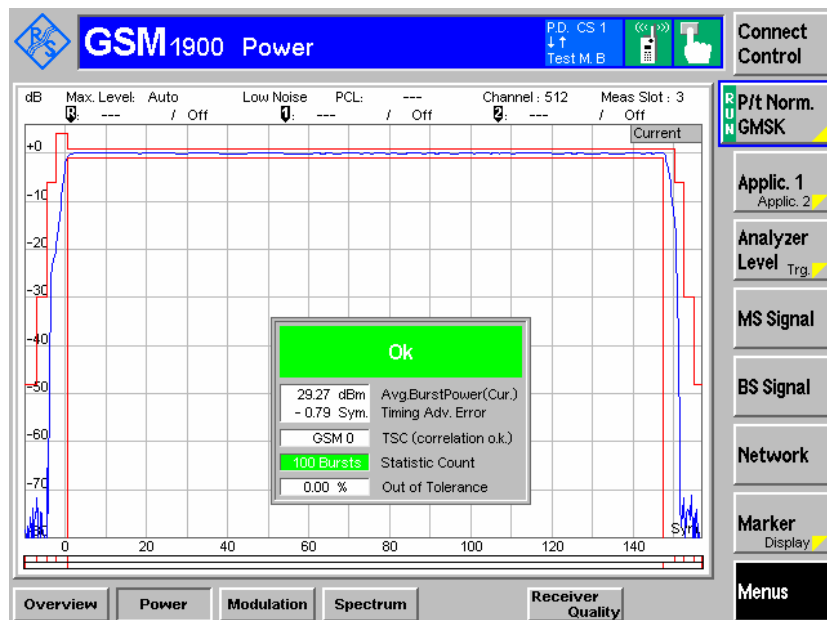
PCS Band (Part 24E)

Low Channel (GSM)

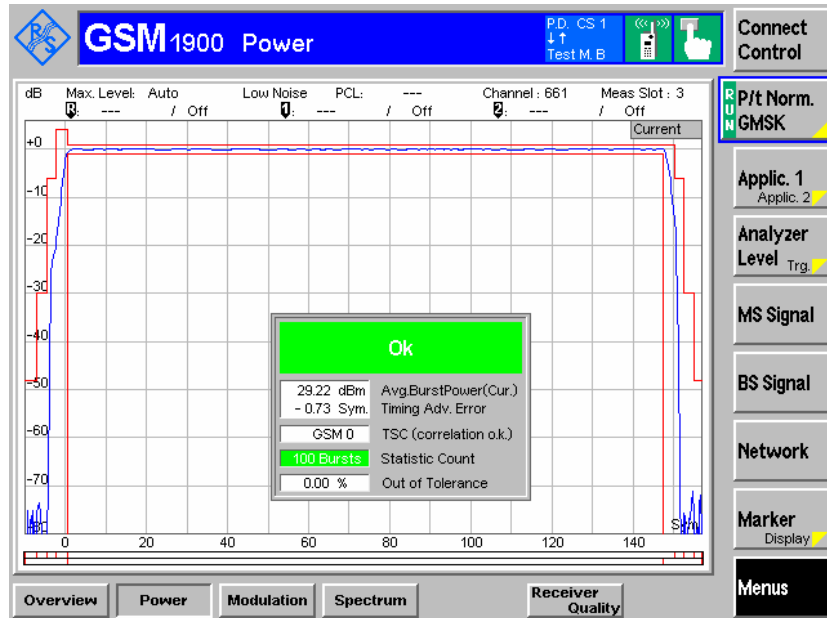


Middle Channel (GSM)

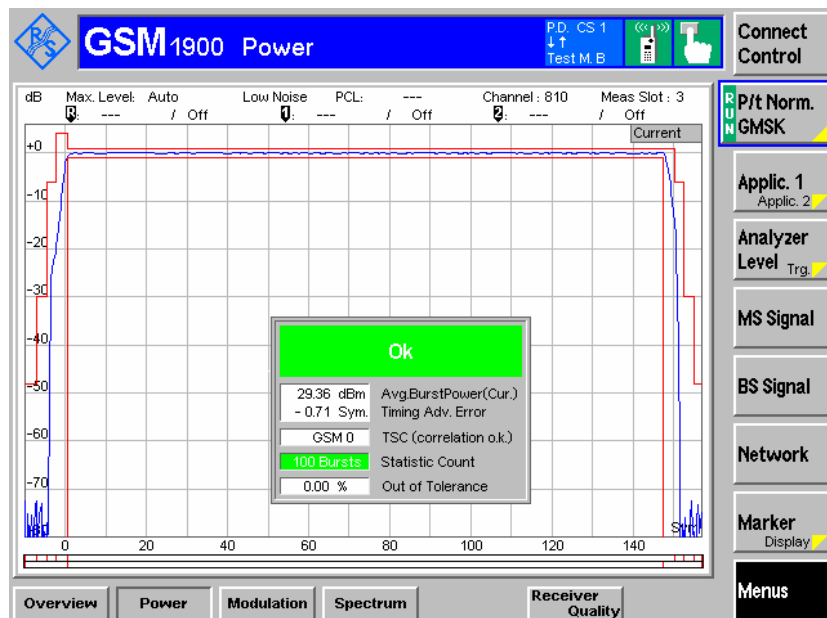


High Channel (GSM)**Low Channel (GPRS)**

Middle Channel (GPRS)



High Channel (GPRS)



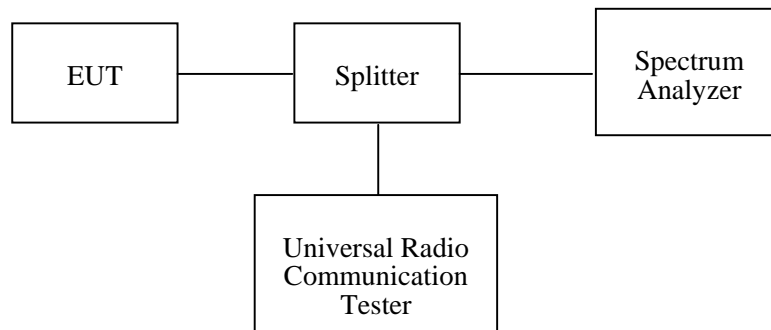
CFR47 §2.1049, §22.917, §22.905 & §24.238 - OCCUPIED BANDWIDTH**Applicable Standards**

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	2009-11-24	2010-11-23
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	109038	2009-06-11	2010-06-10

* **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 Sula Huang on 2009-12-26

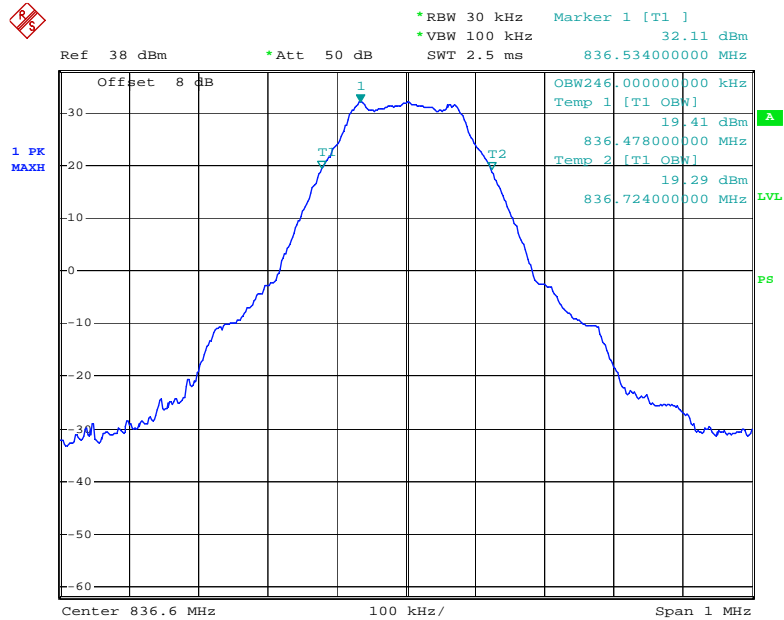
Occupied Bandwidth:

Mode	Band	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Occupied Bandwidth (kHz)
GSM	GSM850	190	836.6	246.0	332.0
	PCS1900	661	1880.0	248.0	332.0
GPRS	GSM850	190	836.6	248.0	334.0
	PCS1900	661	1880.0	248.0	334.0

Please refer to the following plots.

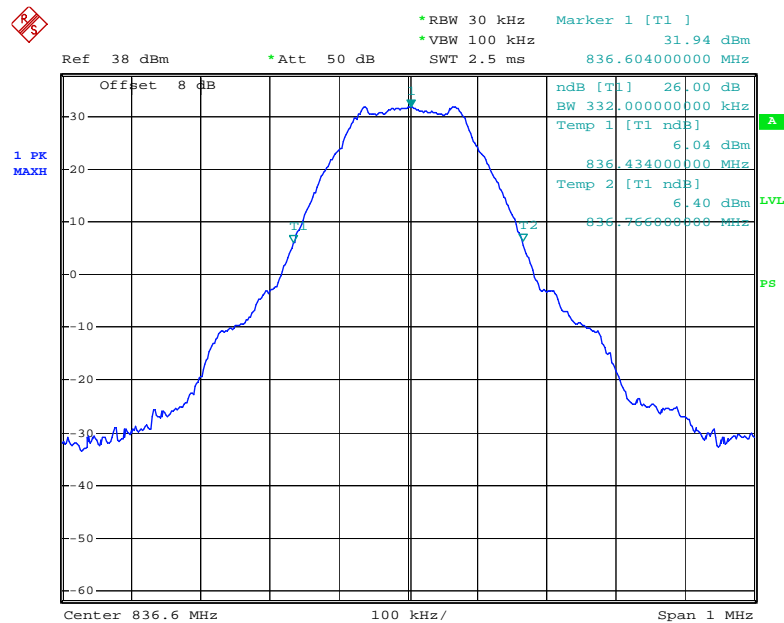
Cellular Band (Part 22H)

99% Occupied Bandwidth (GSM)



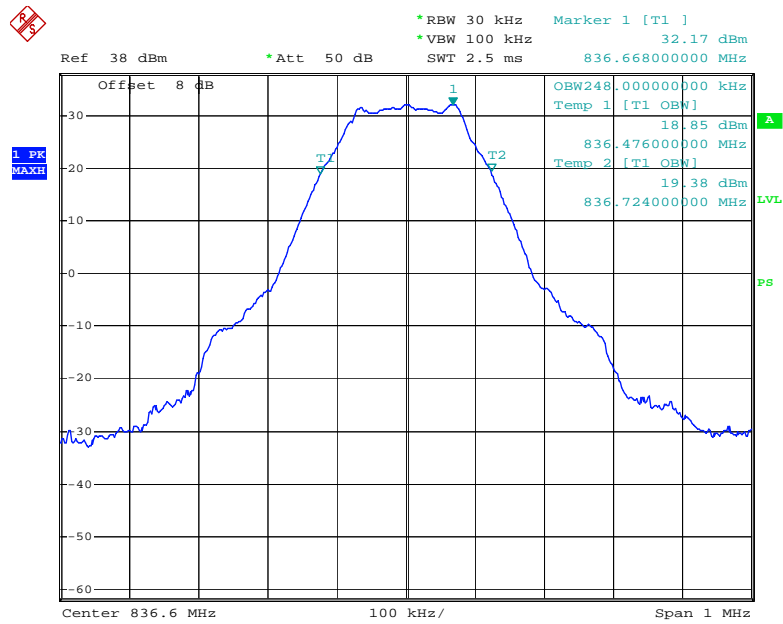
Date: 26.DEC.2009 17:51:28

26 dB Occupied Bandwidth (GSM)



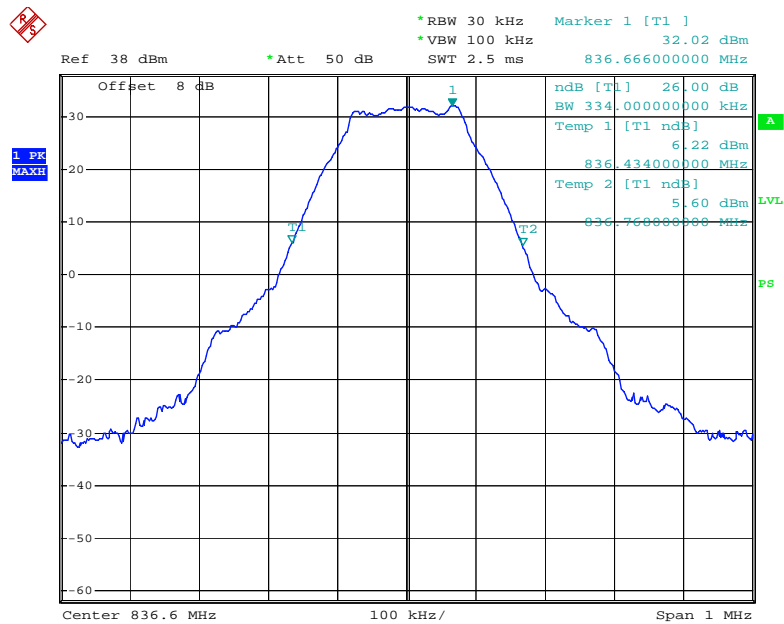
Date: 26.DEC.2009 17:52:45

99% Occupied Bandwidth (GPRS)



Date: 26.DEC.2009 20:39:10

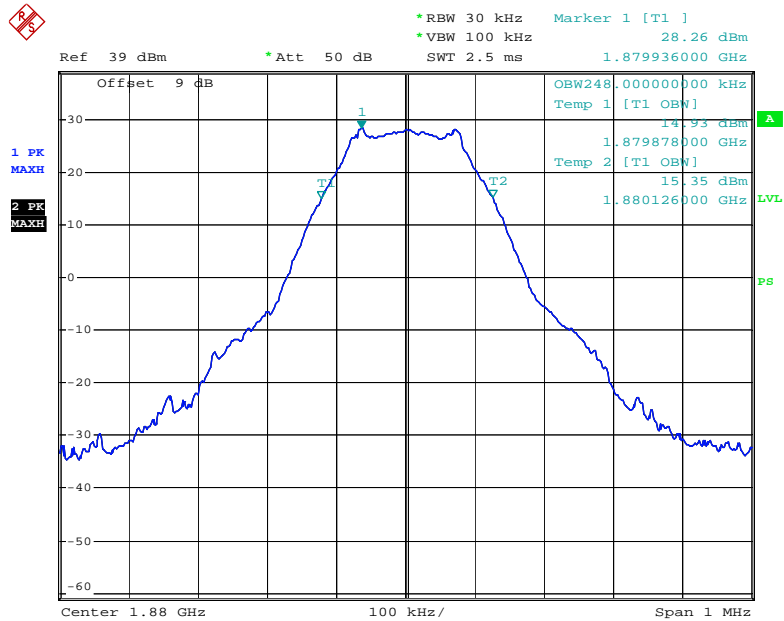
26 dB Occupied Bandwidth (GPRS)



Date: 26.DEC.2009 20:37:28

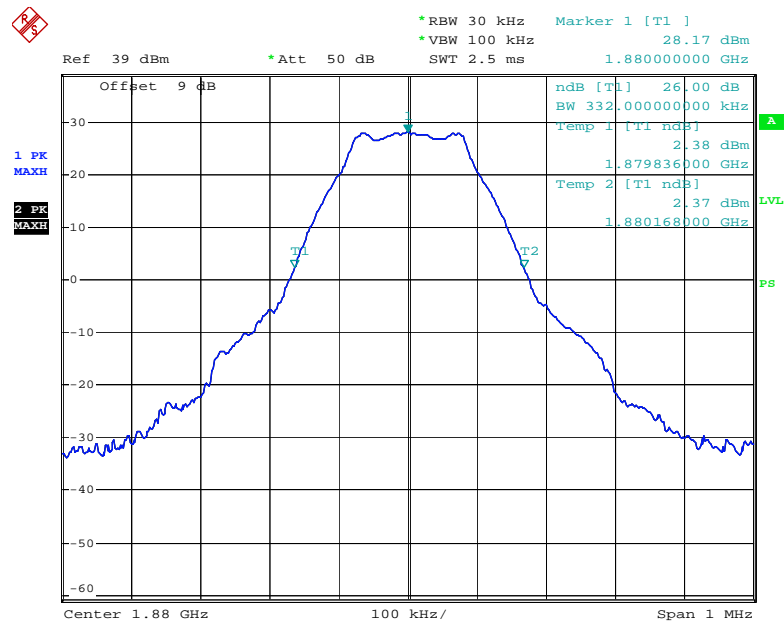
PCS Band (Part 24E)

99% Occupied Bandwidth (GSM)



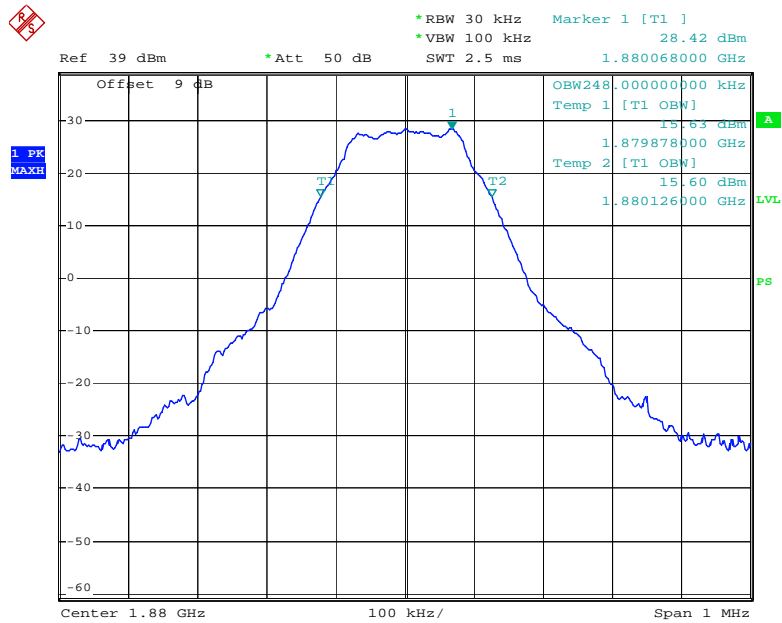
Date: 26.DEC.2009 18:38:36

26 dB Occupied Bandwidth (GSM)



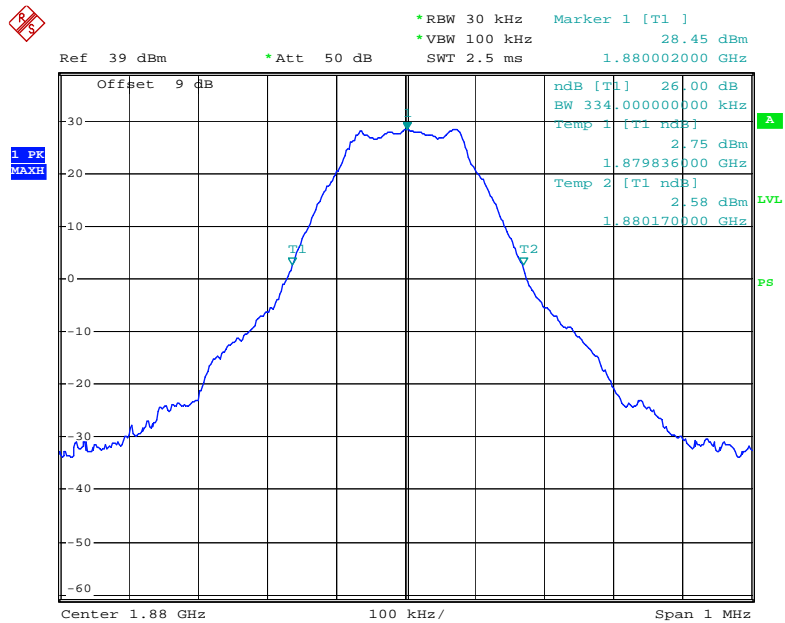
Date: 26.DEC.2009 18:37:32

99% Occupied Bandwidth (GPRS)



Date: 26.DEC.2009 20:16:57

26 dB Occupied Bandwidth (GPRS)



Date: 26.DEC.2009 20:18:37

CFR47 §2.1051, §22.917(a) & §24.238(a) - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

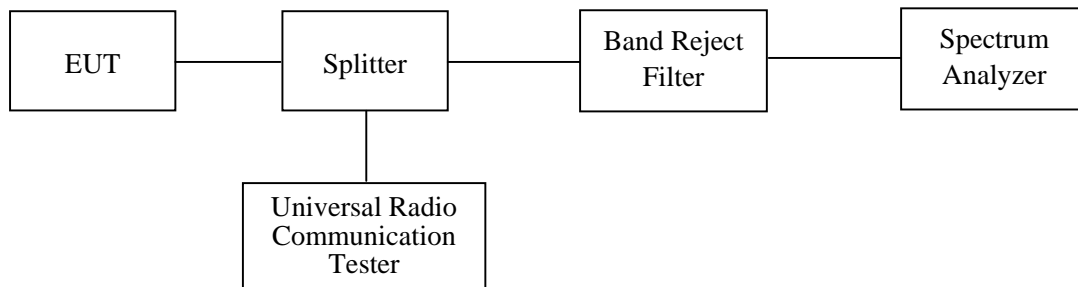
Applicable Standards

CFR 47 §2.1051, §22.917(a) and §24.238(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	2009-07-08	2010-07-07
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	109038	2009-04-11	2010-06-10
Rohde & Schwarz	EMI Test Receiver	ESCI	100224	2009-11-24	2010-11-23
Wainwright Germany	Band Reject Filter	WRCG1850/1910-1835/1925-40/8SS	22	2009-02-28	2010-02-28
Wainwright Germany	Band Reject Filter	WRCG823/850-813/860-40/8SS	7	2009-02-28	2010-02-28

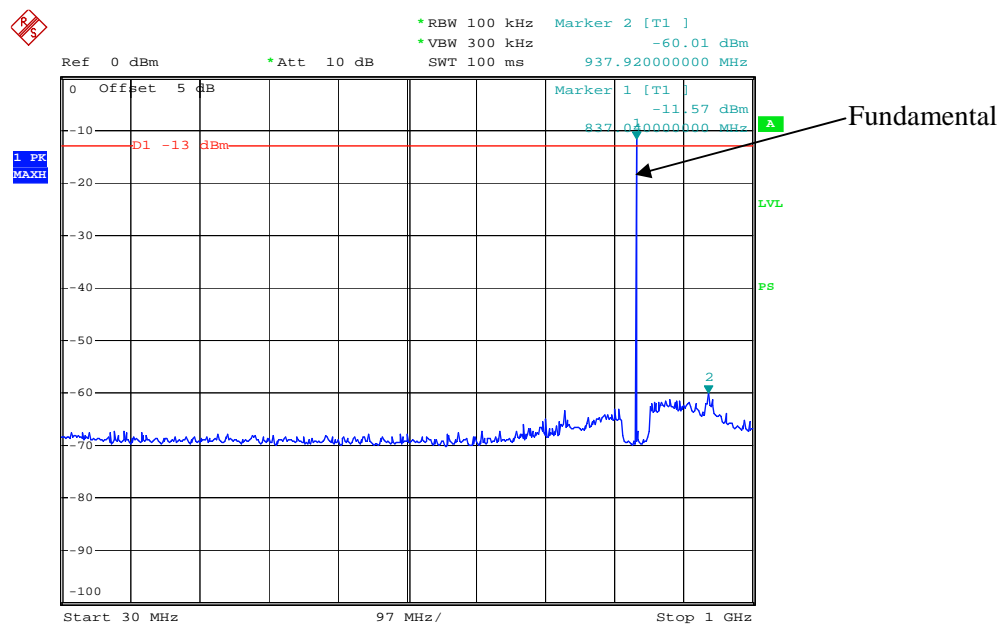
*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Data**Environmental Conditions**

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

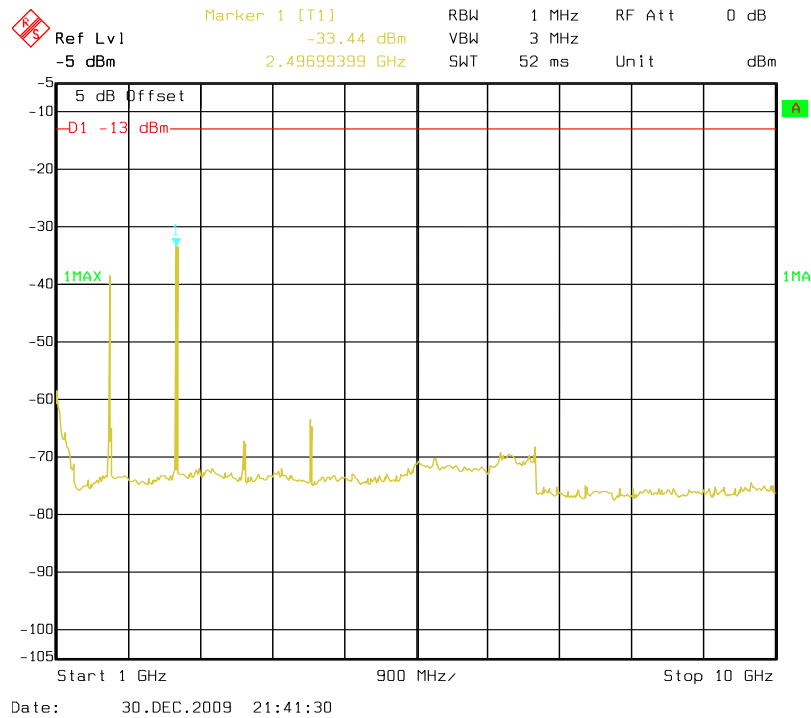
The testing was performed by Sula Huang on 2009-12-26 and 2009-12-30.

Please refer to the following plots.

Cellular Band (Part 22H)**30 – 1000 MHz - Middle Channel (GSM)**

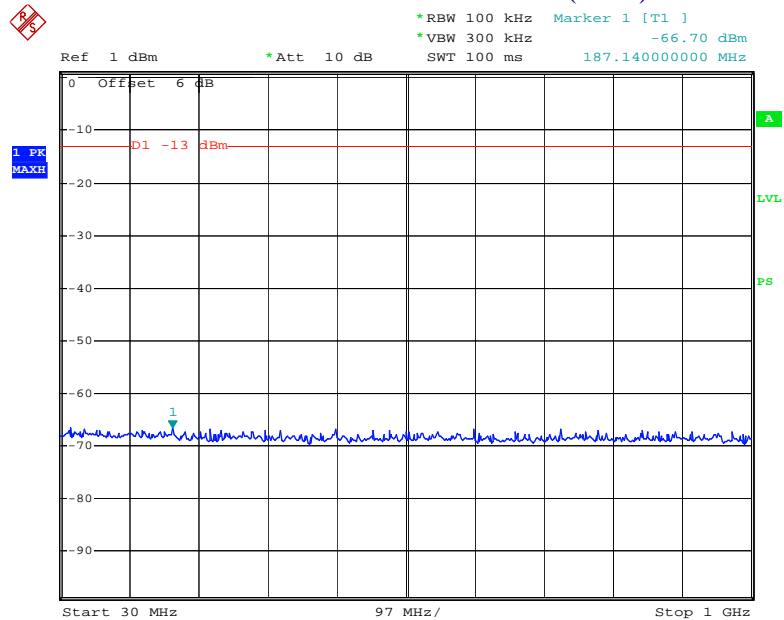
Date: 26.DEC.2009 21:41:25

1 – 10 GHz - Middle Channel (GSM)



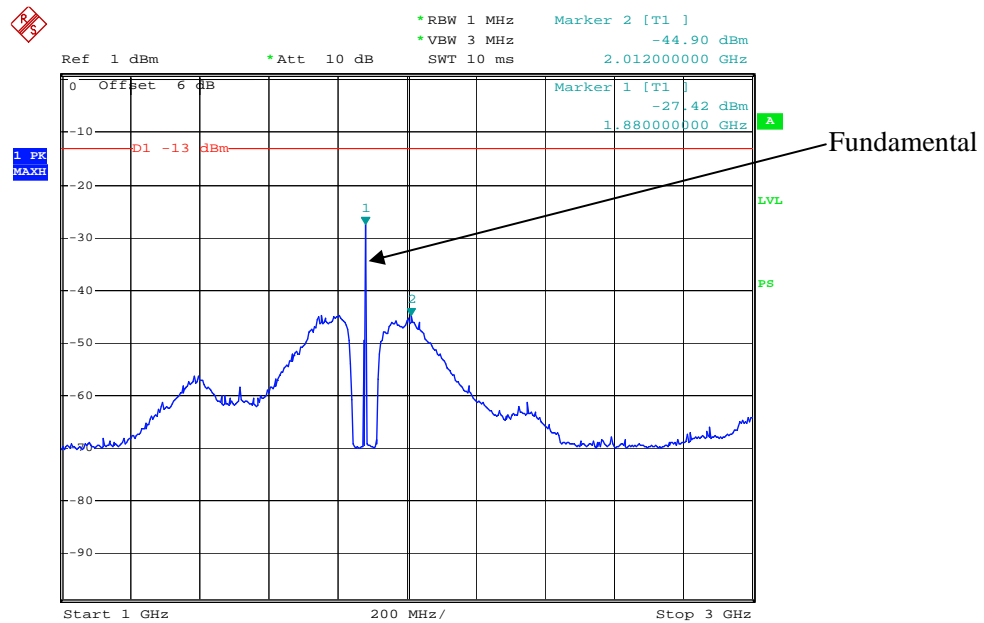
PCS Band (Part24E)

30 – 1000 MHz - Middle Channel (GSM)



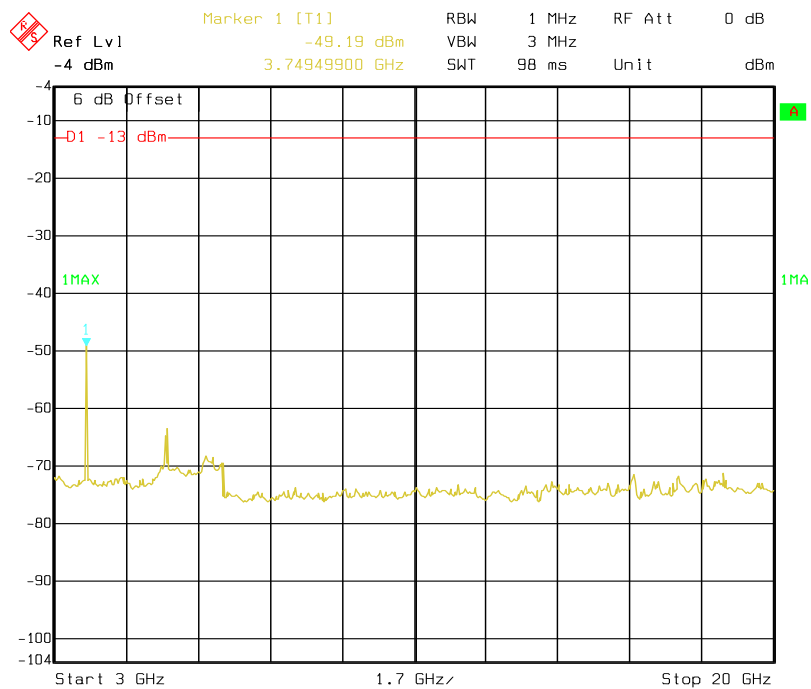
Date: 26.DEC.2009 21:32:14

1.0 – 3.0 GHz - Middle Channel (GSM)



Date: 26.DEC.2009 21:36:51

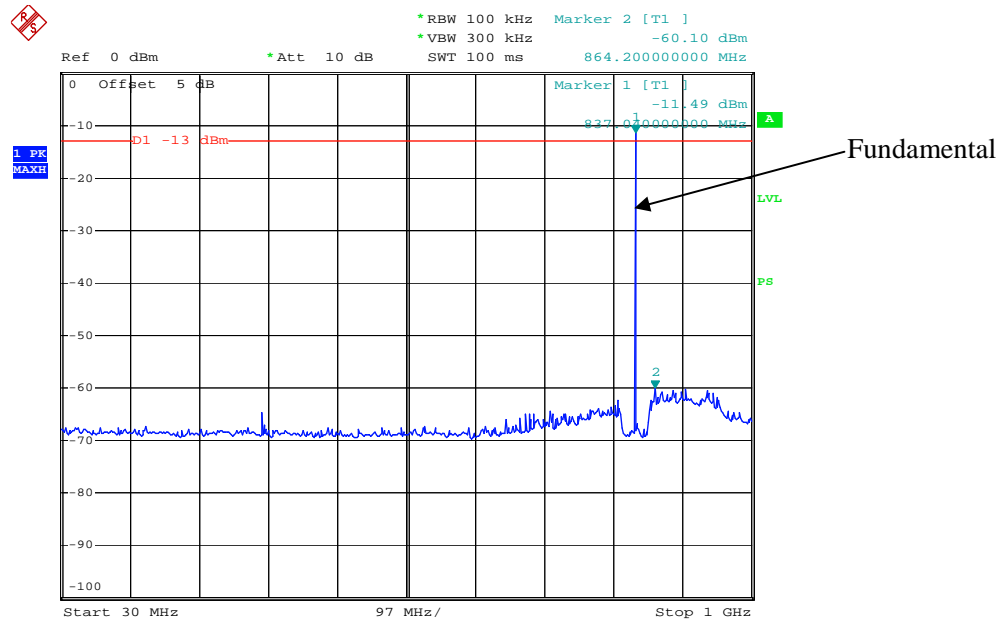
3.0 – 20 GHz - Middle Channel (GSM)



Date: 30.DEC.2009 21:48:37

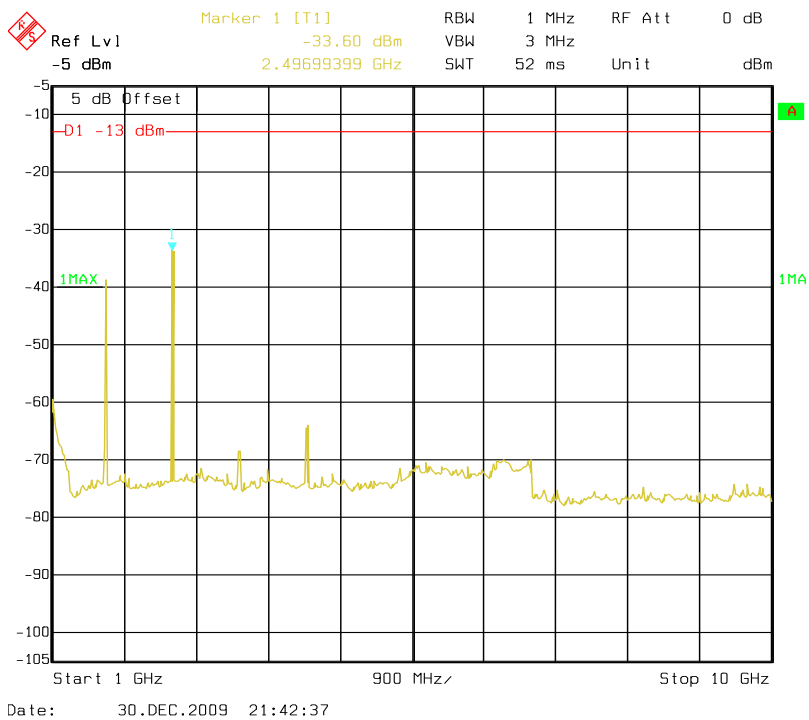
Cellular Band (Part 22H)

30 – 1000 MHz - Middle Channel (GPRS)



Date: 26.DEC.2009 21:19:04

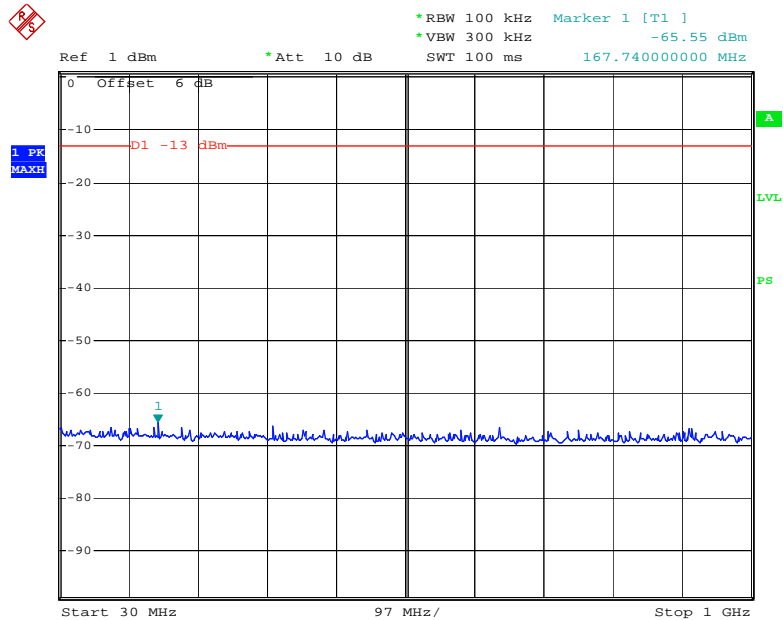
1 – 10 GHz - Middle Channel (GPRS)



Date: 30.DEC.2009 21:42:37

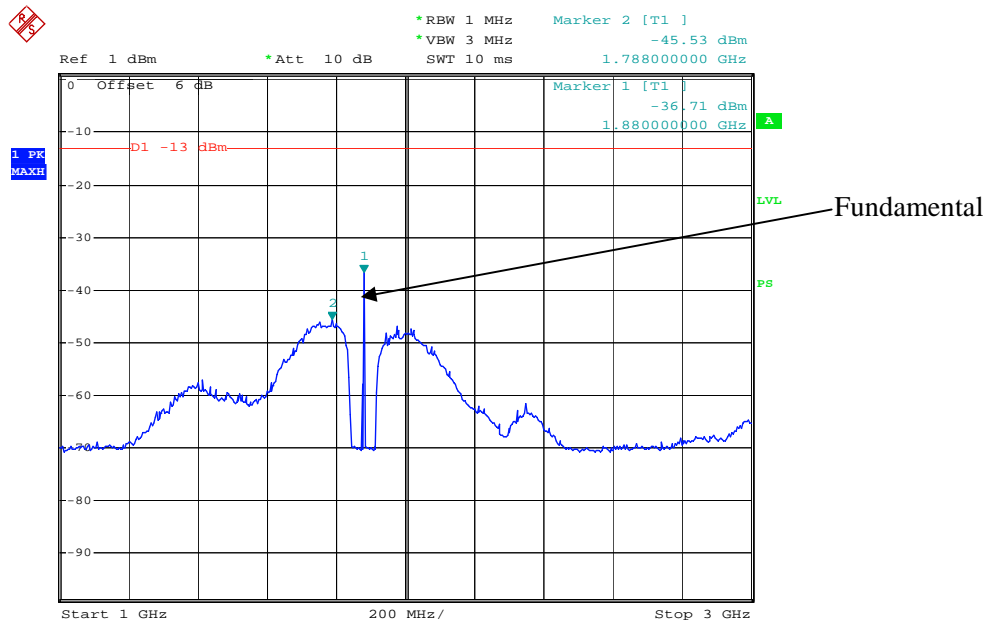
PCS Band (Part 24E)

30 – 1000 MHz - Middle Channel (GPRS)



Date: 26.DEC.2009 21:22:55

1.0 – 3.0 GHz - Middle Channel (GPRS)



Date: 26.DEC.2009 21:26:45

Ref Lvl -4 dBm
 Marker 1 [T1] -49.57 dBm
 RBW 1 MHz
 VBW 3 MHz
 SWT 98 ms
 RF Att 0 dB
 Unit dBm

6 dB Offset
 -D1 -13 dBm
 1MAX
 1MA

Start 3 GHz
 1.7 GHz
 Stop 20 GHz

Date: 30.DEC.2009 21:50:17

CFR47 §2.1053, §22.917 & §24.238 - 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 (TXpwr in Watts/0.001) – the absolute level

Spurious attenuation limit in dB = 43 + 10 Log₁₀ (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	2009-05-05	2010-05-04
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2009-03-11	2010-03-11
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2009-07-08	2010-07-07
HP	Preamplifier	8449B	3008A00277	2009-09-12	2010-09-11
HP	Signal Generator	HP8657A	2849U00982	2009-10-16	2010-10-15
HP	Amplifier	HP8447D	2944A09795	2009-08-02	2010-08-02
HP	Synthesized Sweeper	8341B	2624A00116	2009-11-07	2010-11-06
COM POWER	Dipole Antenna	AD-100	041000	2009-09-25	2010-09-25
A.H. System	Horn Antenna	SAS-200/571	135	2009-05-17	2010-05-17
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	109038	2009-06-11	2010-06-10

* **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 Sula Huang on 2009-12-29.

Test mode: Transmitting

Cellular Band (GSM)

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	Amplitude Reading (dBμV/m)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)			
Middle Channel											
2509.8	62.91	0	1.94	V	2509.8	-35.10	7.3	1.19	-28.99	-13	15.99
2509.8	66.88	360	2.37	H	2509.8	-35.11	7.3	1.19	-29.00	-13	16.00
1673.2	64.64	284	1.06	V	1673.2	-34.35	6.2	0.96	-29.11	-13	16.11
1673.2	62.97	0	1.99	H	1673.2	-39.04	6.2	0.96	-33.80	-13	20.80
756.53	36.42	212	1.62	V	756.53	-59.57	0	0.65	-60.22	-13	47.22
756.53	28.46	185	1.0	H	756.53	-67.55	0	0.65	-68.20	-13	55.20

PCS Band (GSM)

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	Amplitude Reading (dBμV/m)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)			
Middle Channel											
5640	50.56	332	1.63	H	5640	-42.44	8.3	1.75	-35.89	-13	22.89
5640	49.73	284	1.91	V	5640	-43.26	8.3	1.75	-36.71	-13	23.71
3760	51.50	200	2.13	H	3760	-46.51	6.9	1.48	-41.09	-13	28.09
3760	48.61	0	1.65	V	3760	-49.38	6.9	1.48	-43.96	-13	30.96
756.53	37.23	181	1.10	V	756.53	-58.76	0	0.65	-59.41	-13	46.41
756.53	30.46	0	1.15	H	756.53	-65.55	0	0.65	-66.20	-13	53.20

CFR47 §22.917(a) & §24.238(a) - BAND EDGES

Applicable Standards

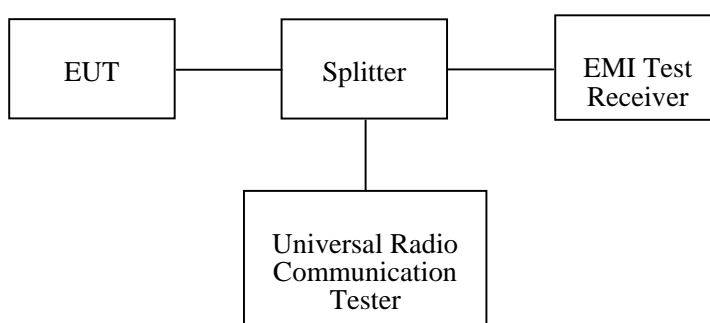
According to § 22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

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 3 kHz.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100224	2009-11-24	2010-11-23
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	109038	2009-06-11	2010-06-10

* **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 Sula Huang on 2009-12-26.

Please refer to the following tables and plots.

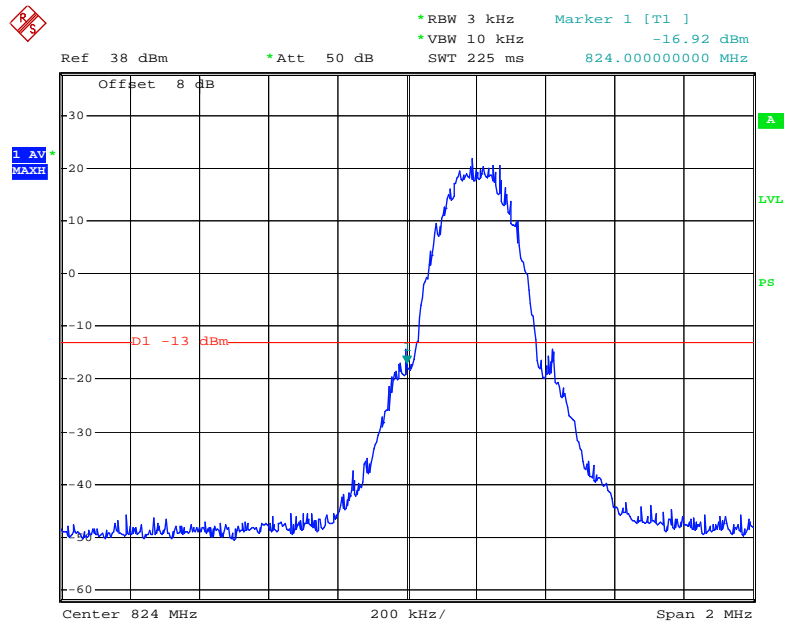
Cellular Band (Part 22H)

Mode	Frequency (MHz)	Band Edge Emission (dBm)	Limit (dBm)
GSM	824	-16.92	-13
	849	-18.06	-13
GPRS	824	-18.13	-13
	849	-17.22	-13

PCS Band (Part 24E)

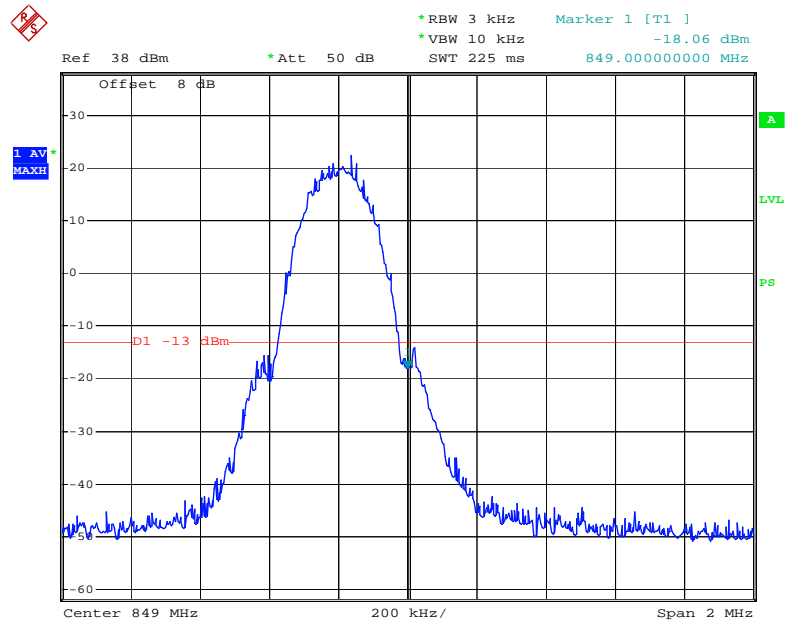
Mode	Frequency (MHz)	Band Edge Emission (dBm)	Limit (dBm)
GSM	1850	-18.46	-13
	1910	-17.92	-13
GPRS	1850	-17.77	-13
	1910	-19.62	-13

Cellular Band, Lowest Channel (GSM)



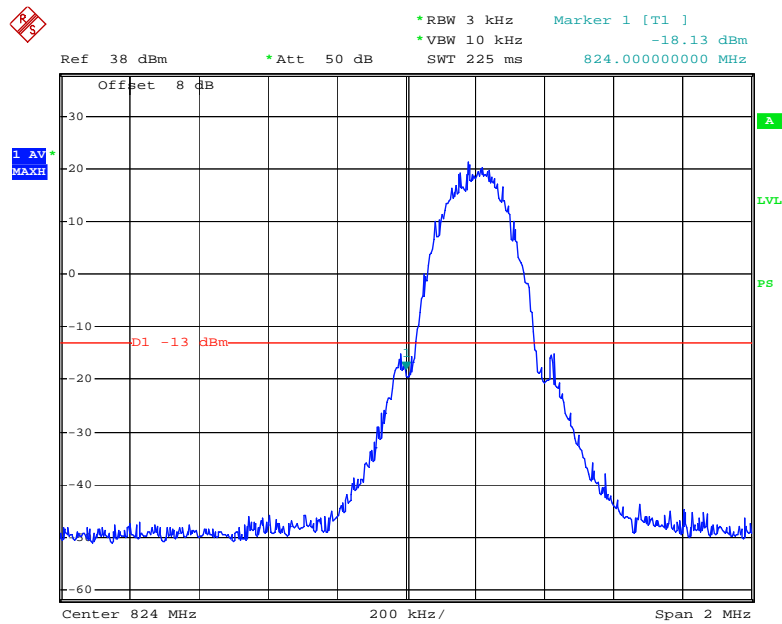
Date: 26.DEC.2009 19:15:06

Cellular Band, Highest Channel (GSM)



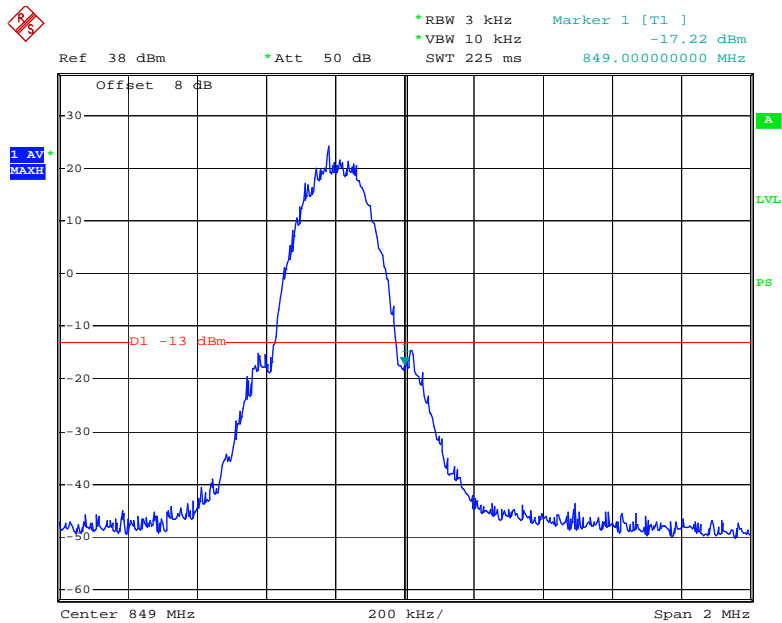
Date: 26.DEC.2009 19:46:34

Cellular Band, Lowest Channel (GPRS)



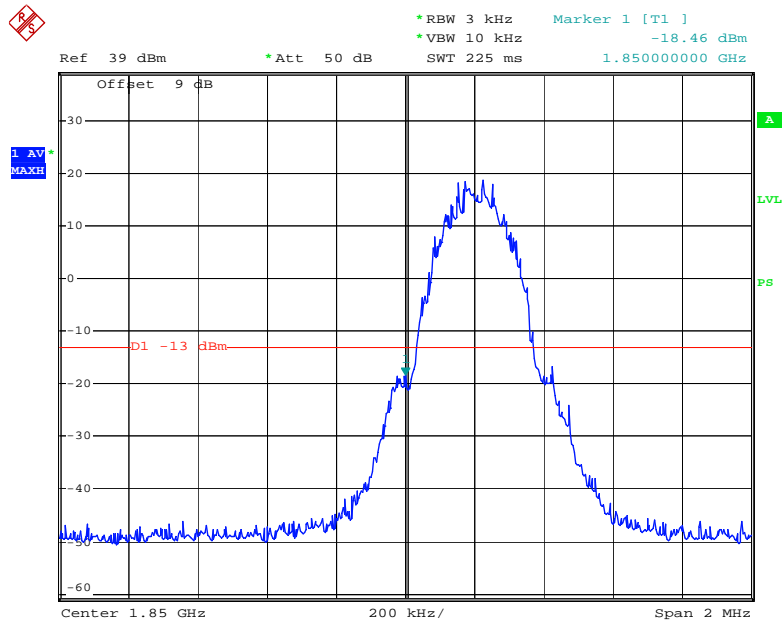
Date: 26.DEC.2009 19:53:19

Cellular Band, Highest Channel (GPRS)



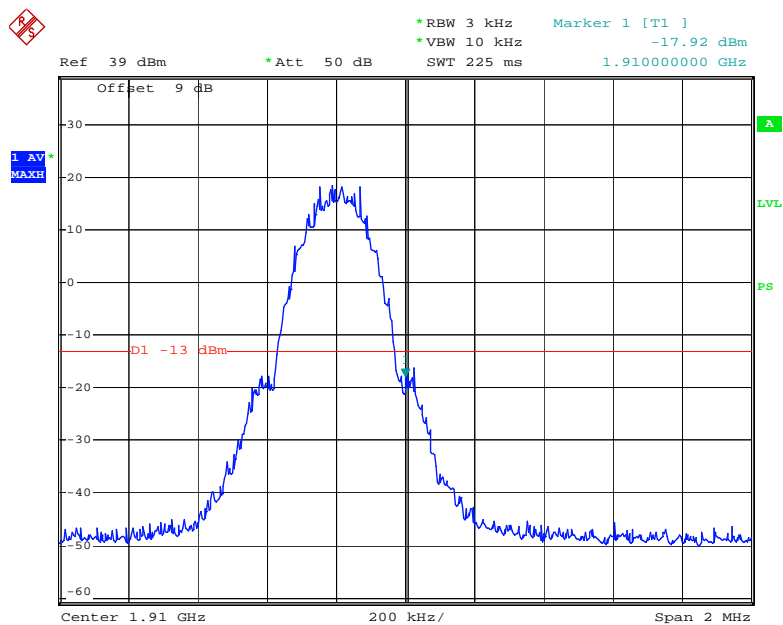
Date: 26.DEC.2009 19:57:29

PCS Band, Lowest Channel (GSM)



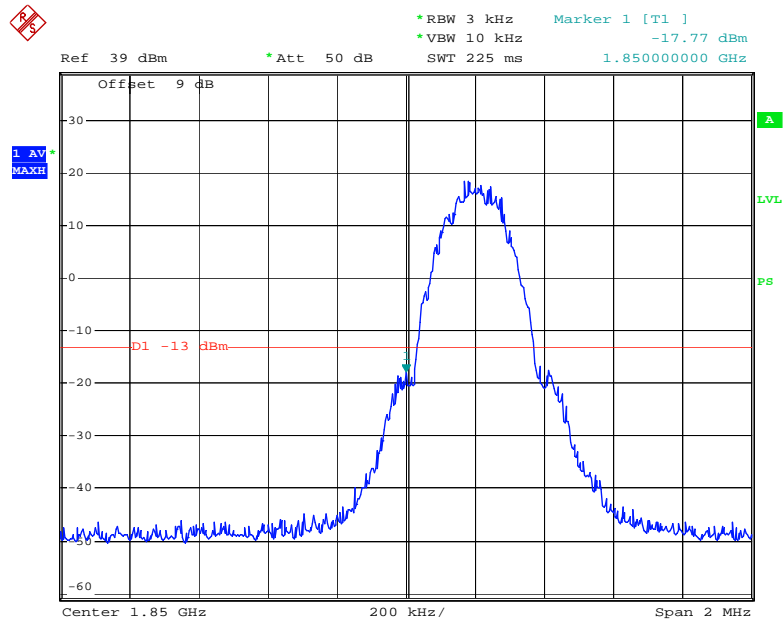
Date: 26.DEC.2009 18:56:15

PCS Band, Highest Channel (GSM)



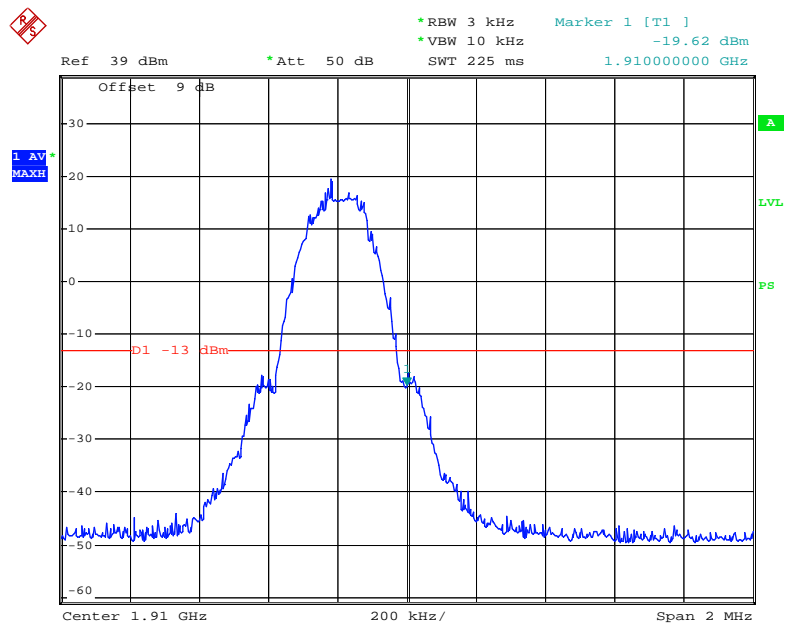
Date: 26.DEC.2009 18:53:59

PCS Band, Lowest Channel (GPRS)



Date: 26.DEC.2009 20:08:35

PCS Band, Highest Channel (GPRS)



Date: 26.DEC.2009 20:06:07

CFR47 §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

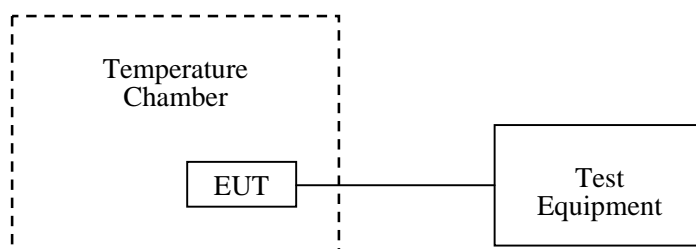
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

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	2009-06-04	2010-06-03
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	109038	2009-06-11	2010-06-10

* **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 Sula Huang on 2009-12-30.

Cellular Band:

Middle Channel, fo = 836.6 MHz				
Temperature (°C)	Power Supply (Vdc)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.7 V	11	0.013	2.5
-20		9	0.010	2.5
-10		10	0.012	2.5
0		7	0.008	2.5
20		9	0.011	2.5
40		-3	-0.004	2.5
50		-4	-0.005	2.5
25	3.7 V	4	0.005	2.5
	3.5 V	-2	-0.002	2.5
	4.2 V	4	0.005	2.5

PCS Band:

Middle Channel, fo = 1880.0 MHz				
Temperature (°C)	Power Supply (Vdc)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.7 V	32	0.017	2.5
-20		30	0.016	2.5
-10		34	0.018	2.5
0		22	0.012	2.5
20		17	0.009	2.5
40		21	0.011	2.5
50		23	0.012	2.5
25	3.7 V	20	0.011	2.5
	3.5 V	28	0.015	2.5
	4.2 V	2	0.001	2.5

******* END OF REPORT *******