Lab Code: 200707-0

FCC PART 22H, 24E

MEASUREMENT AND TEST REPORT

For

Beijing Telestone Technology Co., Ltd.

6F, Saiou Scientific Building, No.5 Haiying Road, Fentai Science Park,

Beijing 100070, China

FCC ID: U5TWFDS-RUC

Report Type:	**Product Type:**
Original Report	Remote Unit for Wireless Fiber Distribution System

Test Engineer:	Bruce Zhang
Report Number:	RSZ11050604-22H&24E
Report Date:	2011-06-28
Reviewed By:	Merry Zhao EMC Engineer
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

TABLE OF CONTENTS

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Beijing Telestone Technology Co., Ltd.*'s product, model number: *WFDS-RUC (FCC ID:U5TWFDS-RUC*) or the "EUT" as referred to in this report is a *Remote Unit for Wireless Fiber Distribution System*, which measures approximately: 35.2 cm (L) x 24.8 cm (W) x 7.5 cm (H), rated input voltage: DC 48V.

The *Wireless Fiber Distribution System* which mentioned above can divide into several parts, signal source, point of interface and WFDS as the distribution system. For downlink signal the point of interface gets the signal from several BTSs, then combines them into one signal and feeds Main Unit. Main Unit converts it into optical signal and distributes the signal to Expansion Unit and Remote Unit. The Remote Unit transfers the signal into radio frequency and outputs to the antenna, and the uplink is the reverse process. So we selected the downlink to perform the test.

Frequency Range:

Cellular Band: 824-849 MHz (Uplink), 869-894 MHz (Downlink)
PCS Band: 1850-1910 MHz (Uplink), 1930-1990 MHz (Downlink)

** All measurement and test data in this report was gathered from production sample serial number: 1105035 (Assigned by BACL, Shenzhen). The EUT was received on 2011-05-06.*

Objective

This type approval report is prepared on behalf of *Beijing Telestone Technology 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)

None.

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 C63.4-2009.

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 December 06, 2010. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

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 an ISO/IEC 17025 accredited laboratory, and is accredited by National Voluntary Laboratory Accredited Program (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.

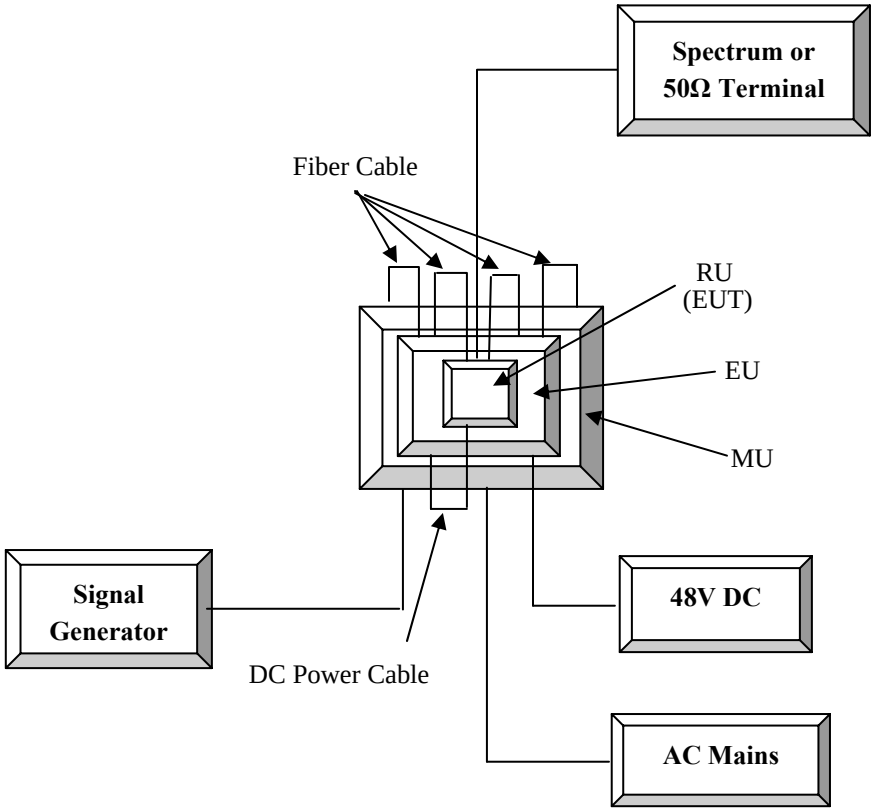
Local Support Equipment List and Details

Manufacturer	Device Name	Model	Serial Number
Agilent	ESG-D Series Signal Generator	E4432B	GB40051862
LONGWEI	DC Power supply	TPR-64200	0398363
Beijing Telestone Technology Co., Ltd.	Wireless Fiber Distribution System	WFDS-EU	N/A
Beijing Telestone Technology Co., Ltd.	Wireless Fiber Distribution System	WFDS-MU	N/A

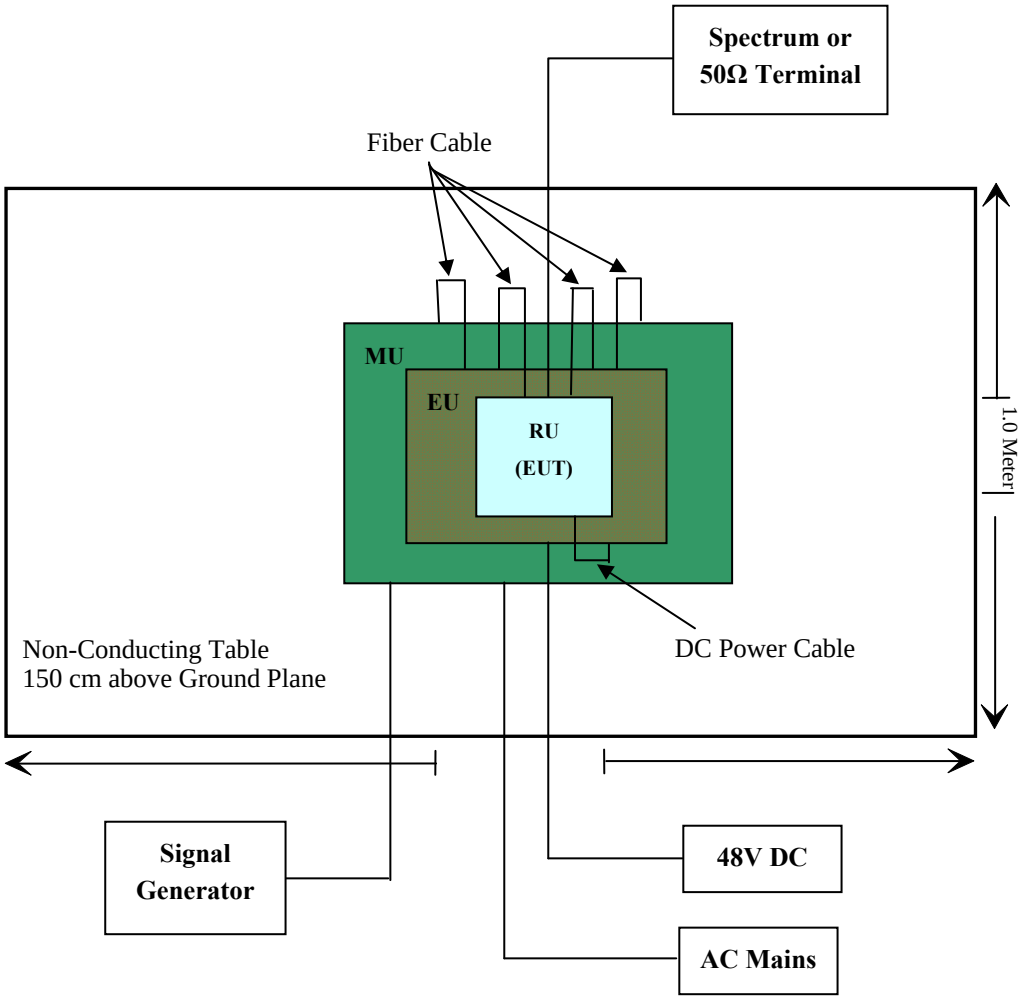
External I/O Cable

Cable Description	Length (m)	From/Port	To
2 Fiber cables	10	RU	EU
2 Fiber cables	10	EU	MU
RF Cable	< 1	RU	Spectrum Analyzer
Unshielded Undetectable power Cable	< 1	RU	EU

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307 (b)(1), §2.1091	RF Exposure Information	Compliance
§2.1046; §22.913 (a); §24.232 (c)	RF Output Power	Compliance
§ 2.1047	Modulation Characteristics	N/A
§2.1049; §22.905 §22.917; §24.238	99% & -26 dB Occupied Bandwidth	Compliance
§2.1051, §22.917 (a); §24.238 (a)	Spurious Emissions at Antenna Terminal	Compliance
§2.1053 §22.917 (a); §24.238 (a)	Field Strength of Spurious Radiation	Compliance
§22.917 (a); §24.238 (a)	Out of band emission, Band Edge	Compliance
§2.1055; §22.355; §24.235	Frequency stability vs. temperature Frequency stability vs. voltage	Compliance

FCC §1.1307 & §2.1091 - RF EXPOSURE INFORMATION

Applicable Standard

According to §1.1307 (b)(1) and §2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

Limits for General Population/Uncontrolled Exposure

Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (V/m)**	**Magnetic Field Strength (A/m)**	**Power Density (mW/cm^2)**	**Averaging Time (minutes)**
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f^2)	30
30–300	27.5	0.073	0.2	30
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density

MPE Calculation

Predication of MPE limit at a given distance, Equation from OET 65, Edition97-01

$$S = PG/4\pi R^2$$

Where:

S = power density (in appropriate units, e.g. mW/cm^2);
P = power input to the antenna (in appropriate units, e.g., mW);
G = the antenna gain;
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

Band	**Frequency (MHz)**	**Antenna Gain**		**Conducted Power**		**Evaluation Distance (cm)**	**Power Density (mW/cm^2)**	**MPE Limit (mW/cm^2)**
		(dBi)	**(numeric)**	**(dBm)**	**(mW)**			
Cellular	881.6	5.0	3.16	20.49	111.94	20	0.0704	0.587
PCS	1960.0	5.0	3.16	21.53	142.23	20	0.0895	1.0

Result: The device meets FCC MPE limit at 20 cm distance.

FCC §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.

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

Applicable Standards

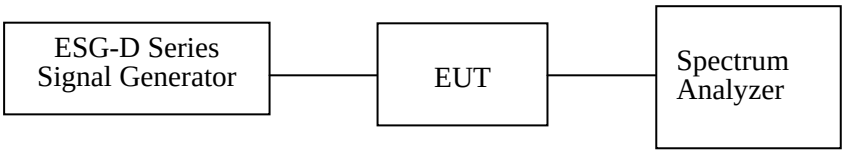
According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

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
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2010-07-08	2011-07-07
Rohde & Schwarz	EMI Test Receiver	ESCI	100224	2009-11-11	2010-11-10
Agilent	ESG-D Series Signal Generator	E4432B	GB40051862	2010-11-20	2011-11-19

*** 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 2011-05-22.

Conducted Power:

Cellular Band (Part 22H)

Band	Channel	Frequency (MHz)	Input Power (dBm)	Output Power (dBm)
Cellular	Low	871.4	-20.2	19.63
	Middle	881.6	-20.4	20.49
	High	907.6	-20.3	19.97

PCS Band (Part 24E)

Band	Channel	Frequency (MHz)	Input Power (dBm)	Output Power (dBm)
PCS	Low	1932.4	-20.4	20.55
	Middle	1960.0	-20.2	21.53
	High	1987.6	-20.8	21.51

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

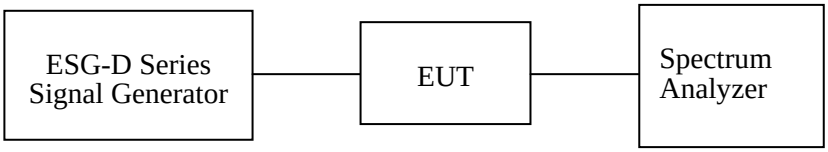
Applicable Standards

FCC §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 100 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	Spectrum Analyzer	FSEM30	849720/019	2010-07-08	2011-07-07
Agilent	ESG-D Series Signal Generator	E4432B	GB40051862	2010-11-20	2011-11-19
Rohde & Schwarz	EMI Test Receiver	ESCI	100224	2009-11-11	2010-11-10

*** 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 Bruce Zhang on 2011-05-23.

Cellular Band (Part 22H)

Band	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
Cellular	Low	871.4	4.14	4.66
	Middle	881.6	4.14	4.66
	High	891.6	4.16	4.66

PCS Band (Part 24E)

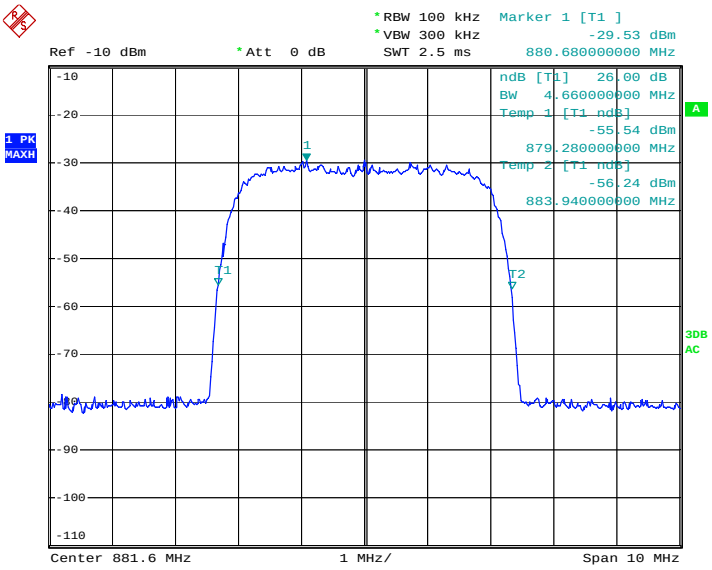
Band	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
PCS	Low	1932.4	4.12	4.68
	Middle	1960.0	4.16	4.68
	High	1987.6	4.16	4.66

Please refer to the following plots.

Cellular Band (Part 22H)

99% Occupied Bandwidth

Input



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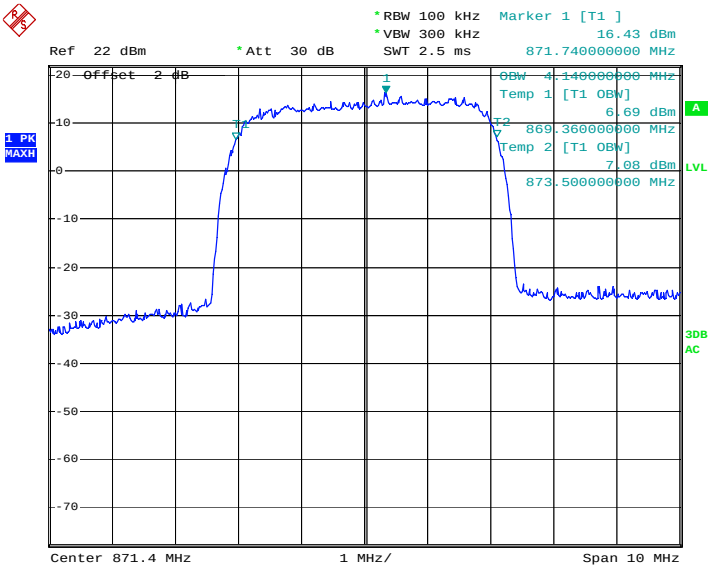
Output, Low Channel



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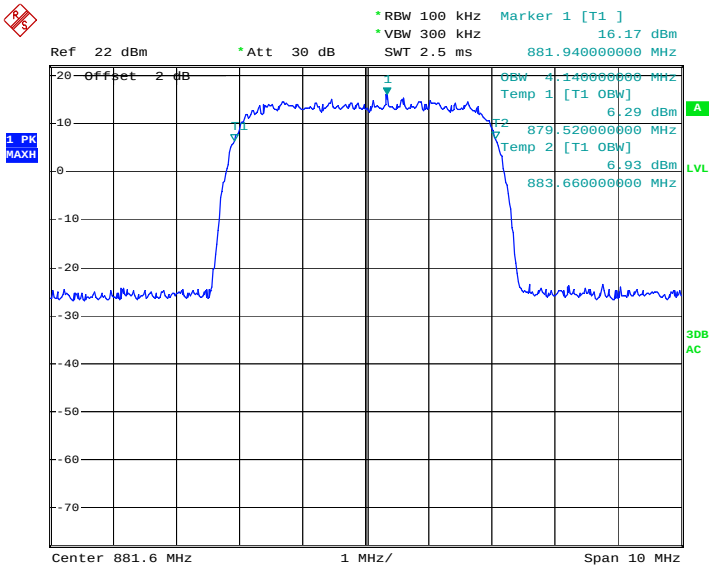
Output, Middle Channel



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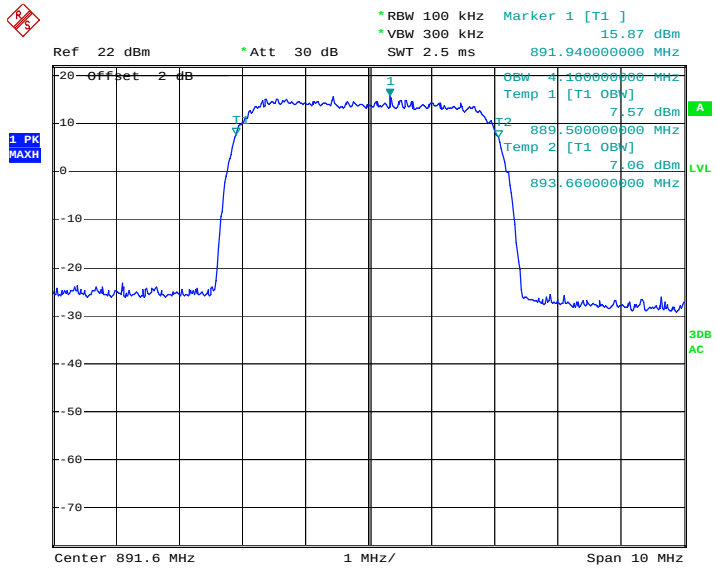
Output, High Channel



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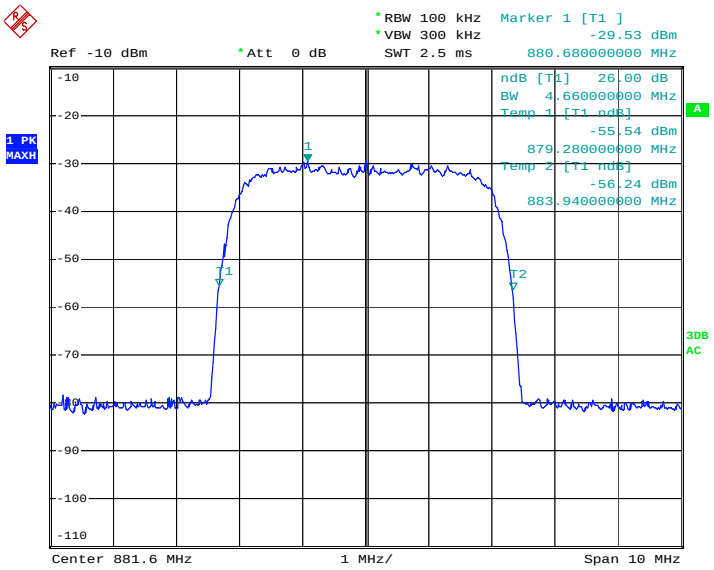
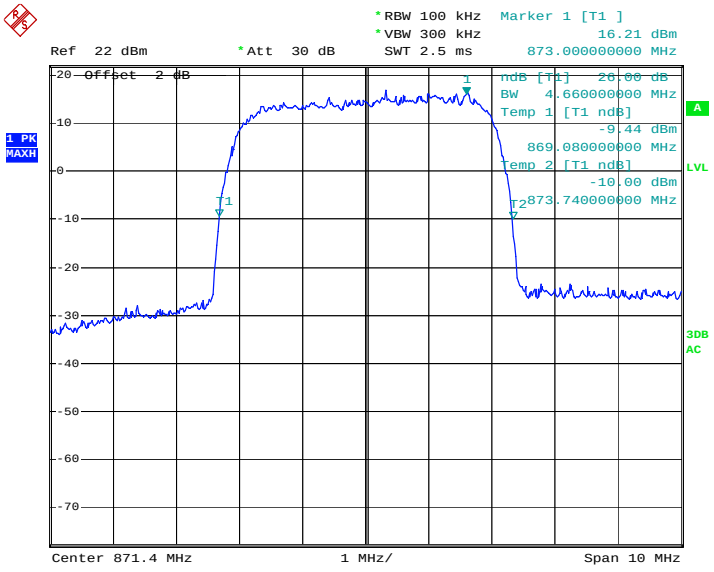
26 dB Occupied Bandwidth

Input



Date: 27.MAY.2011 10:10:50

Output, Low Channel



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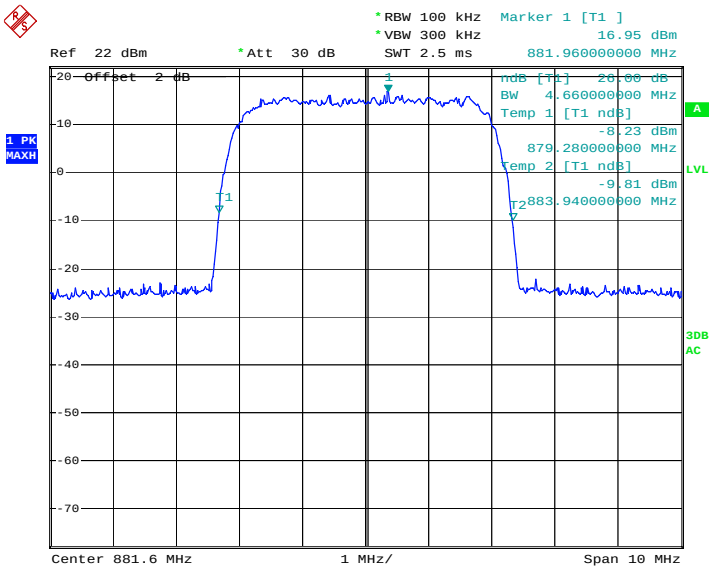
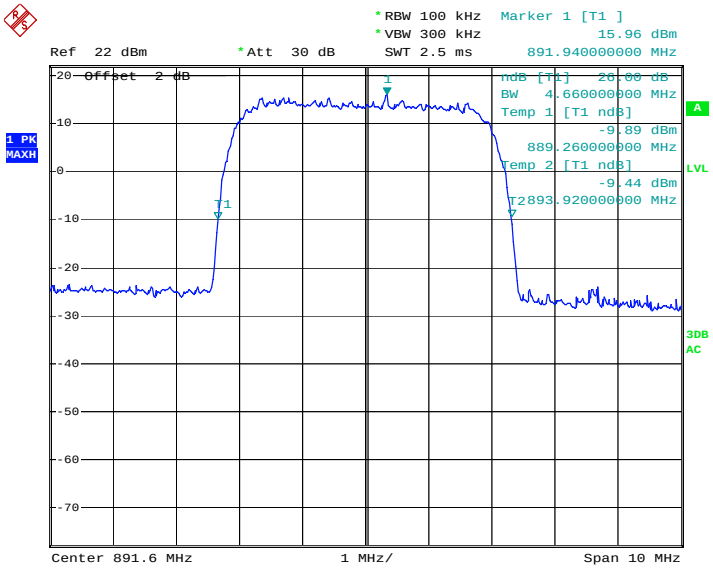
Output, Middle Channel



Date: 23.MAY.2011 15:27:24

Output, High Channel

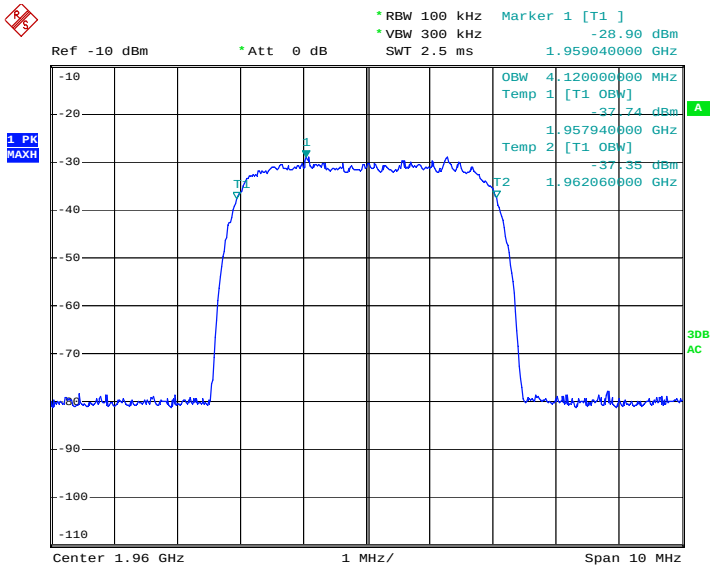


Date: 23.MAY.2011 15:29:41

PCS Band (Part 24E)

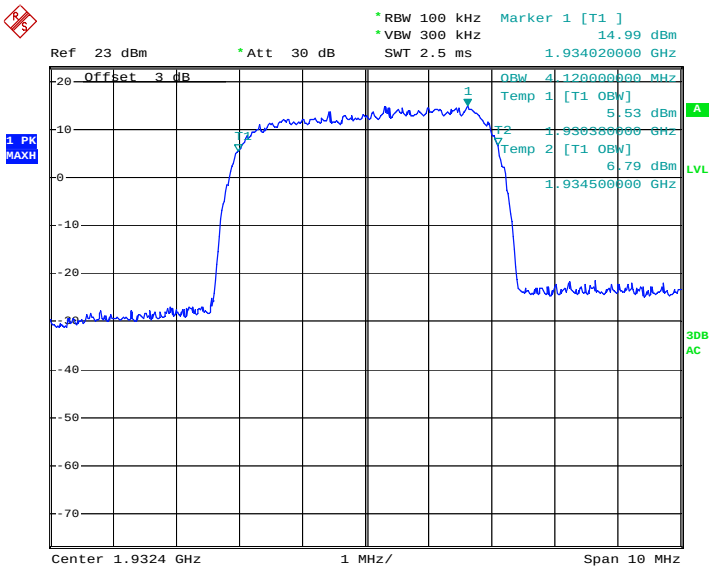
99% Occupied Bandwidth

Input



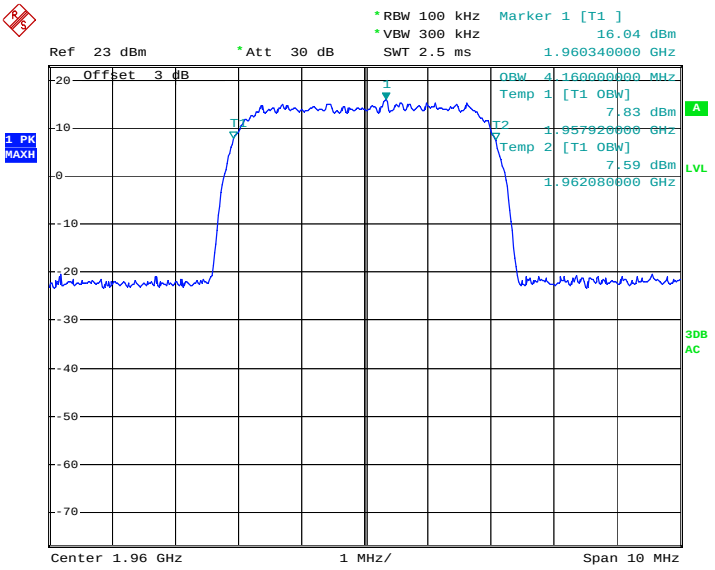
Date: 27.MAY.2011 10:12:49

Output, Low Channel



Date: 23.MAY.2011 15:36:13

Output, Middle Channel



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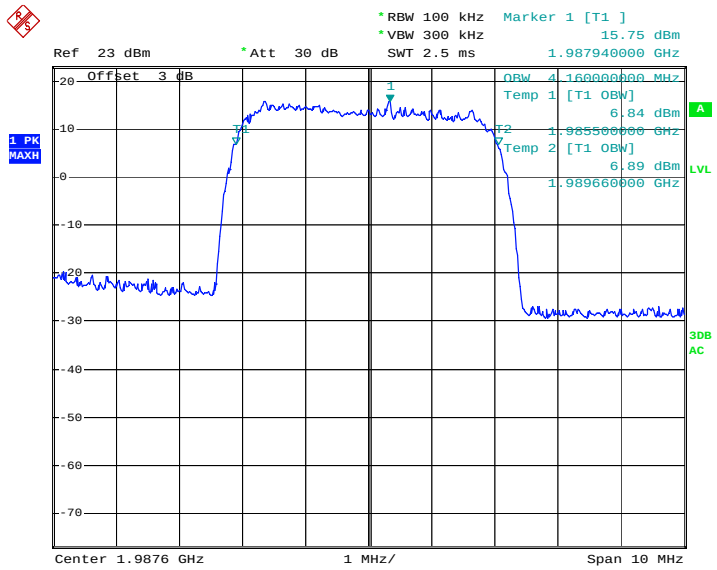
Output, High Channel



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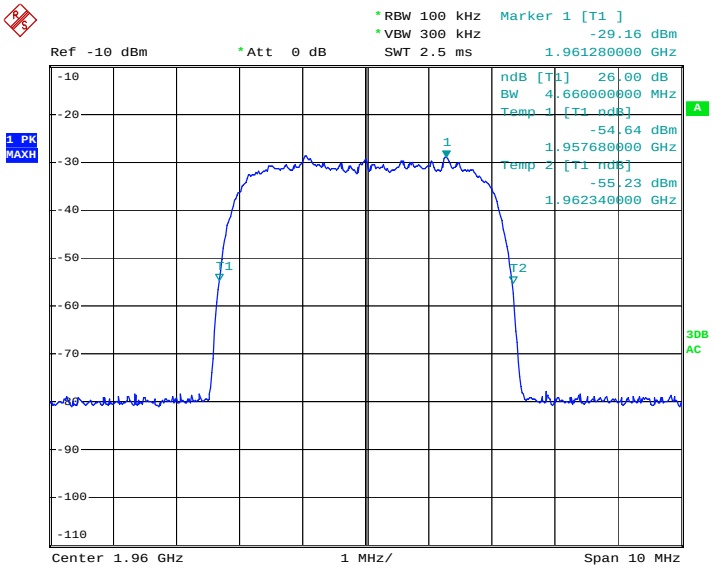
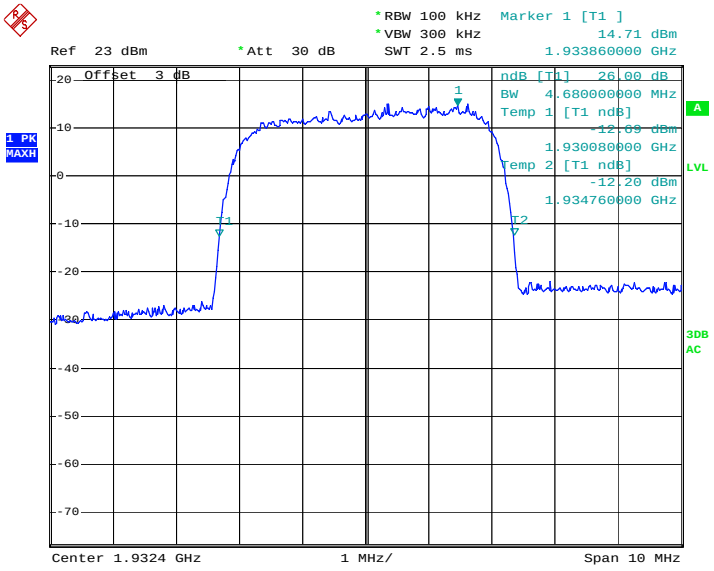
26 dB Occupied Bandwidth

Input



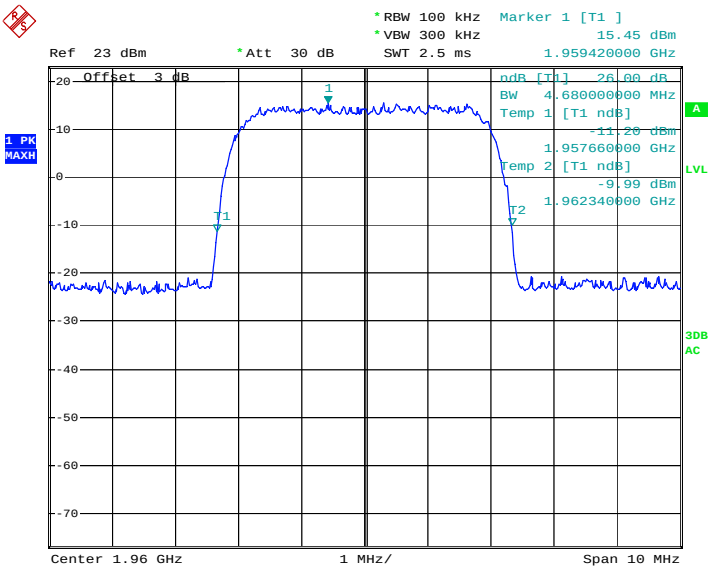
Date: 27.MAY.2011 10:12:06

Output, Low Channel



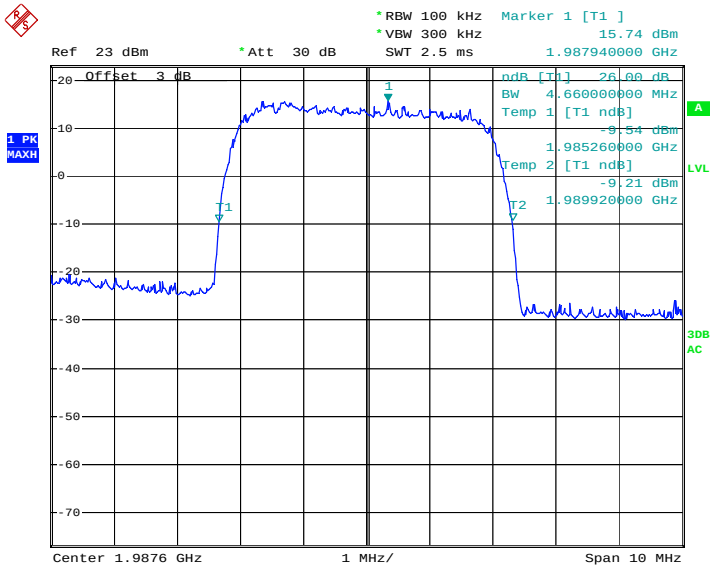
Date: 23.MAY.2011 15:41:46

Output, Middle Channel



Date: 23.MAY.2011 15:40:56

Output, High Channel



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

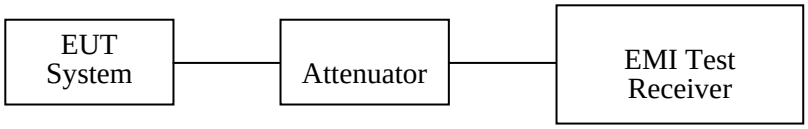
Applicable Standards

FCC §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 1 MHz. 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	EMI Test Receiver	ESCI	100224	2009-11-11	2010-11-10
Agilent	ESG-D Series Signal Generator	E4432B	GB40051862	2010-11-20	2011-11-19

*** 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

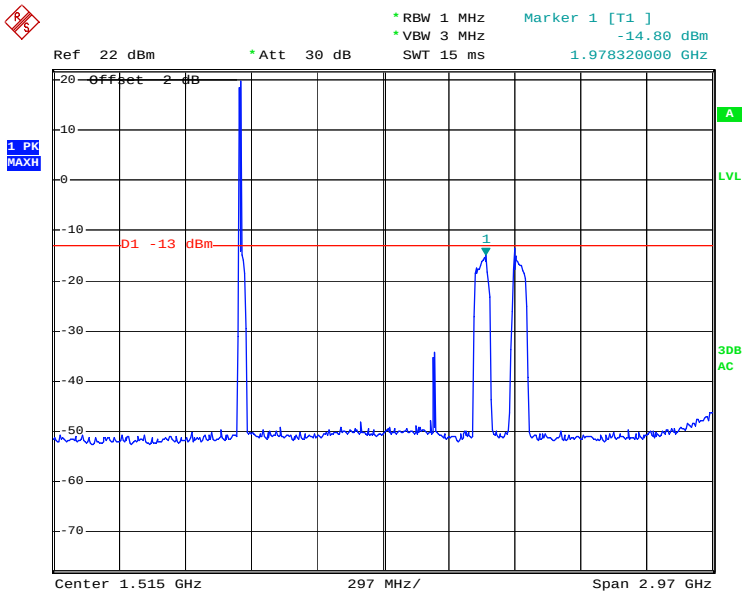
The testing was performed by Bruce Zhang on 2011-05-25.

Please refer to the following plots.

Cellular Band (Part 22H)

Low Channel

30 MHz - 3 GHz



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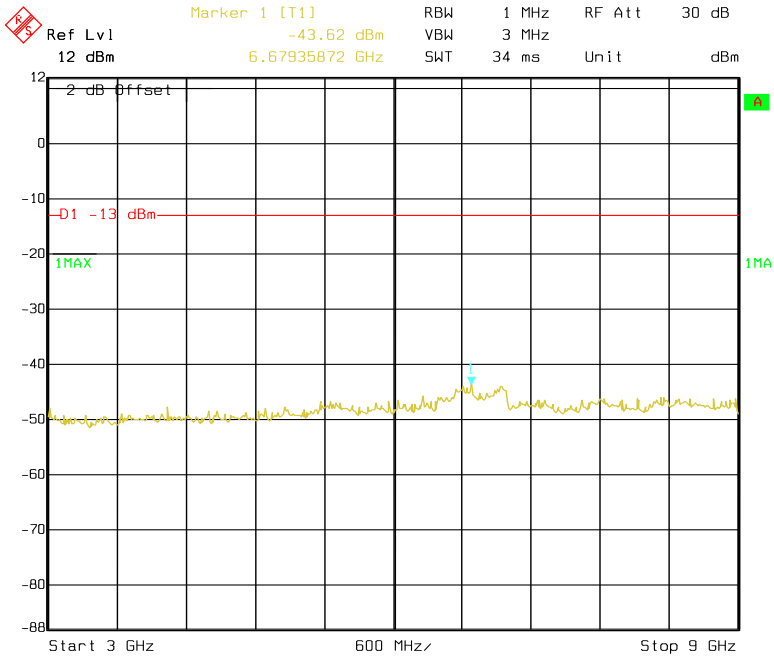
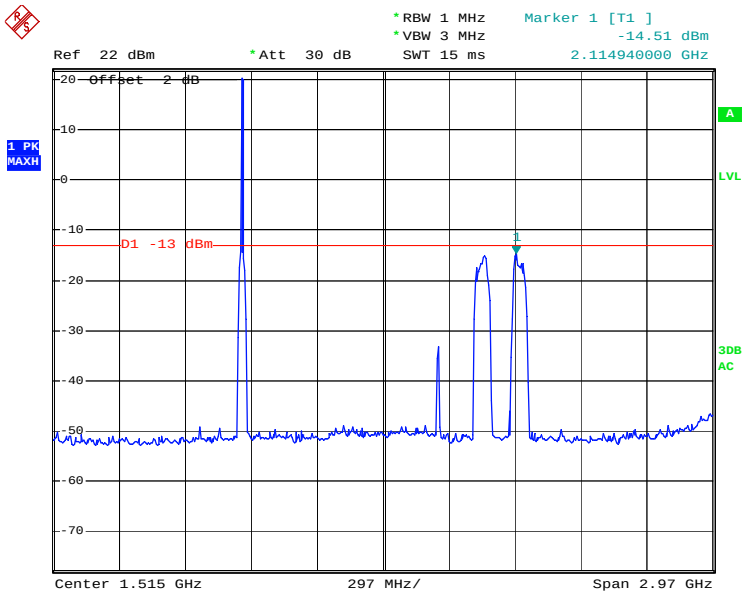
3 GHz - 9 GHz



Date: 26.MAY.2011 16:03:24

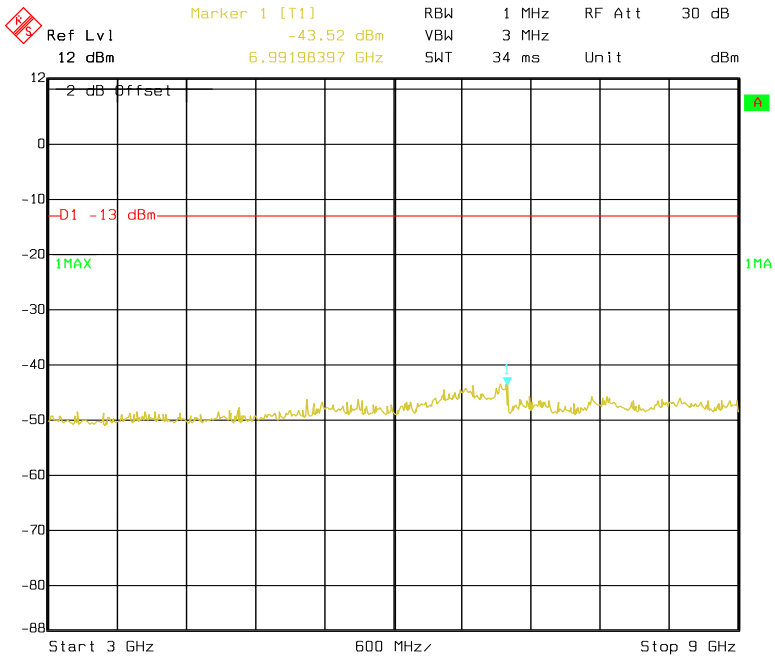
Middle Channel

30 MHz - 3 GHz



Date: 25.MAY.2011 13:44:56

3 GHz - 9 GHz



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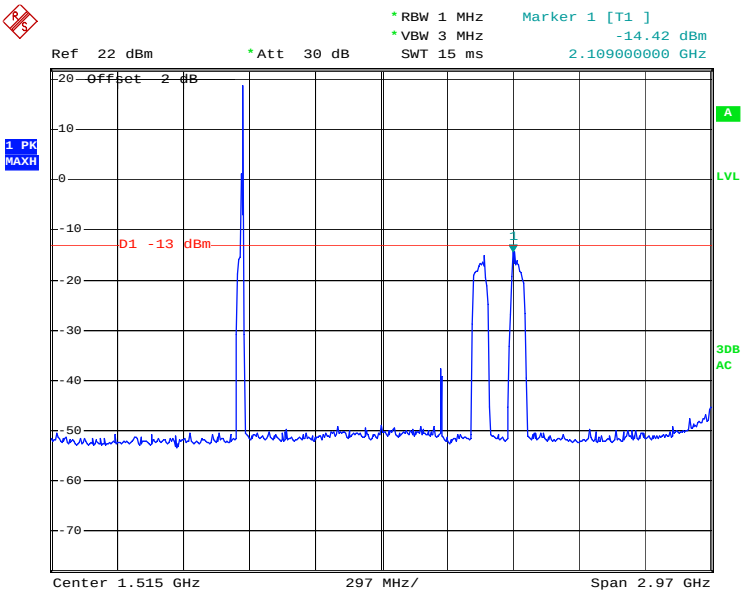
High Channel

30 MHz – 3 GHz



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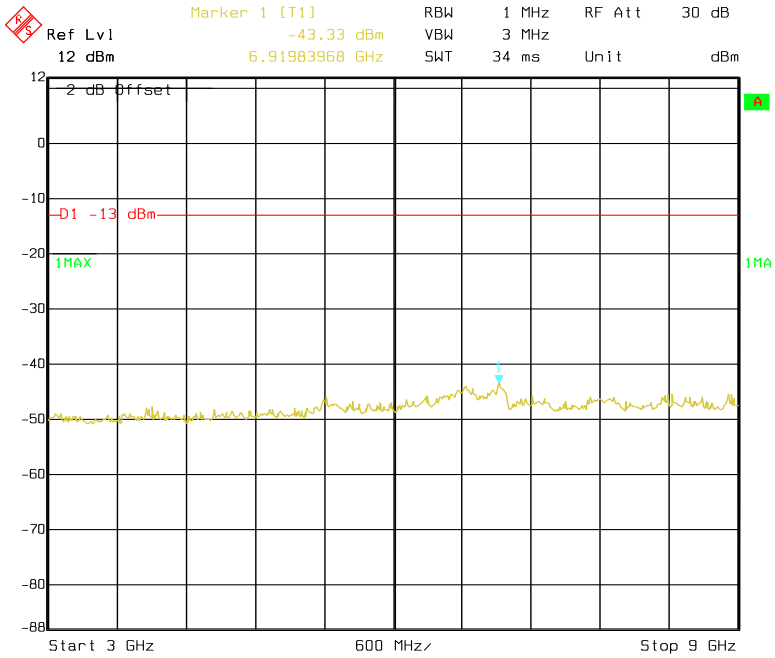
3 GHz – 9 GHz



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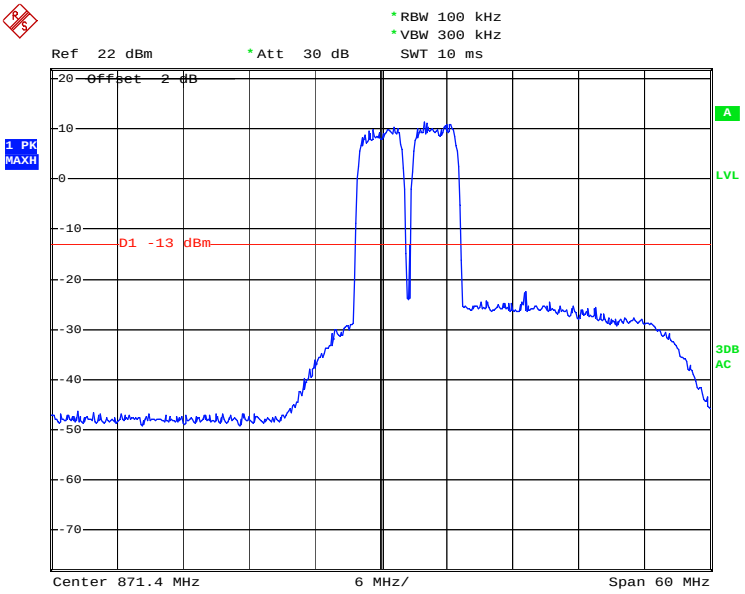
Two tone Inter-modulation (Low Channel)



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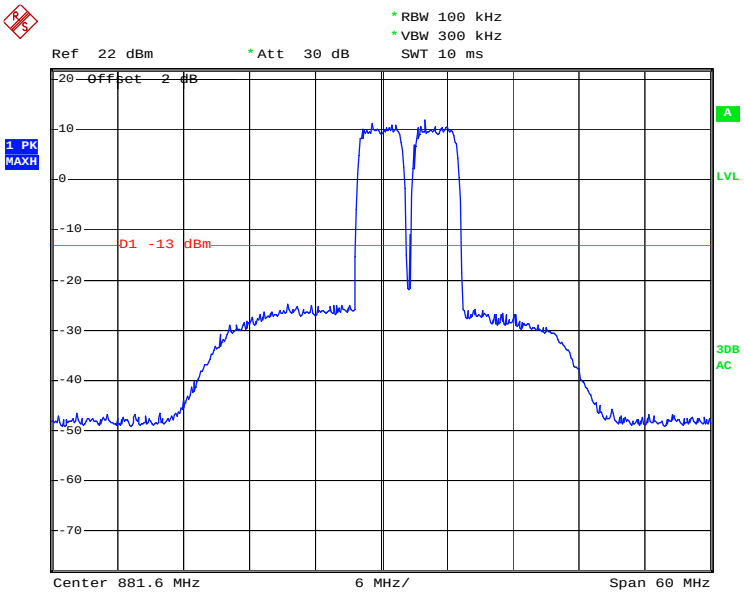
Two tone Inter-modulation (Middle Channel)



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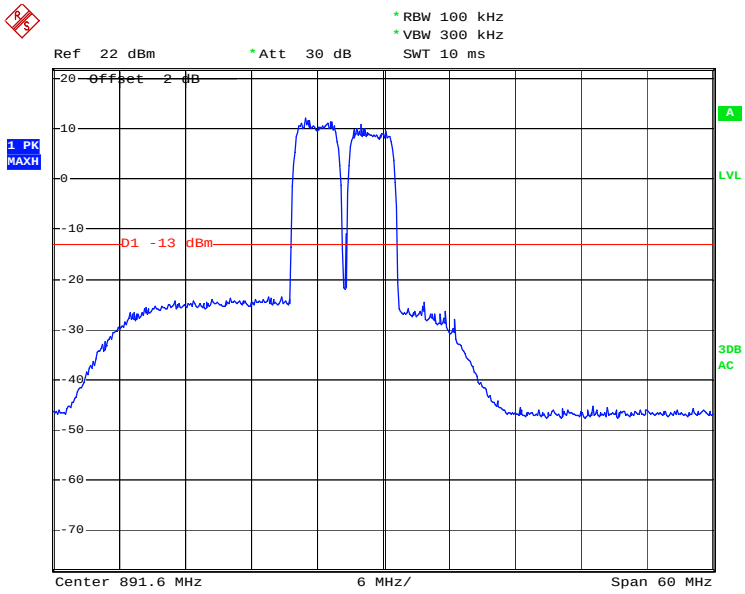
Two tone Inter-modulation (High Channel)

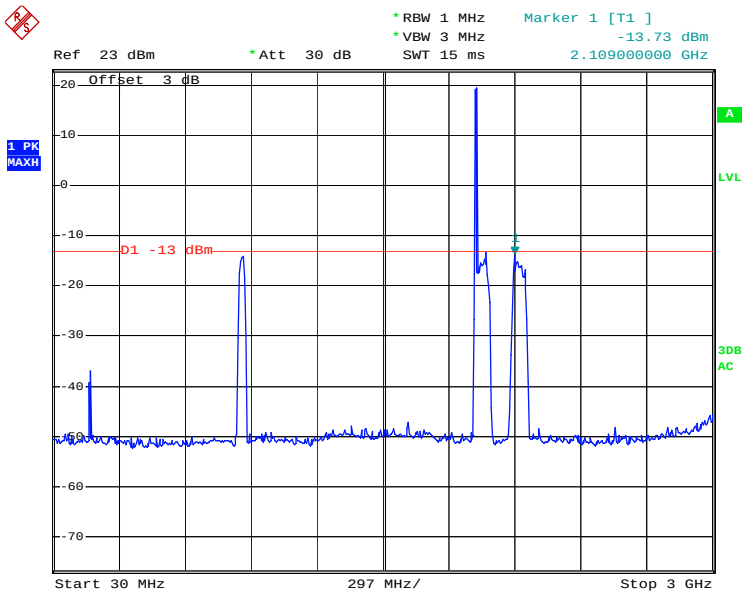


Date: 25.MAY.2011 16:29:23

PCS Band (Part24E)

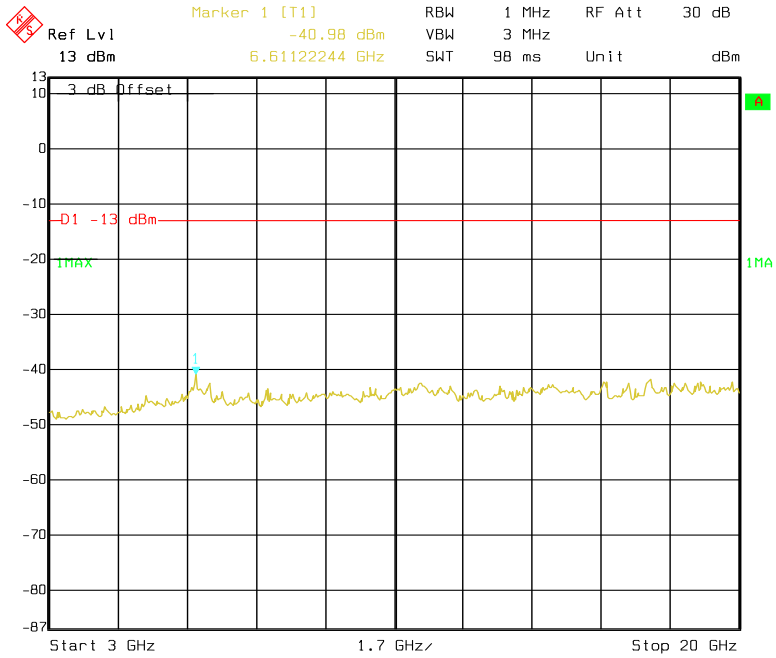
Low Channel

30 MHz - 3 GHz



Date: 25.MAY.2011 13:56:32

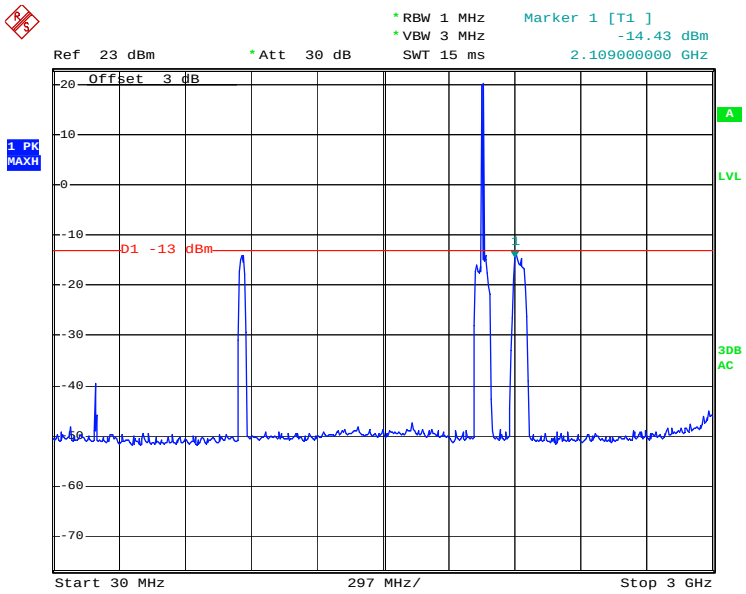
3 GHz - 20 GHz



Date: 26.MAY 2011 16:02:30

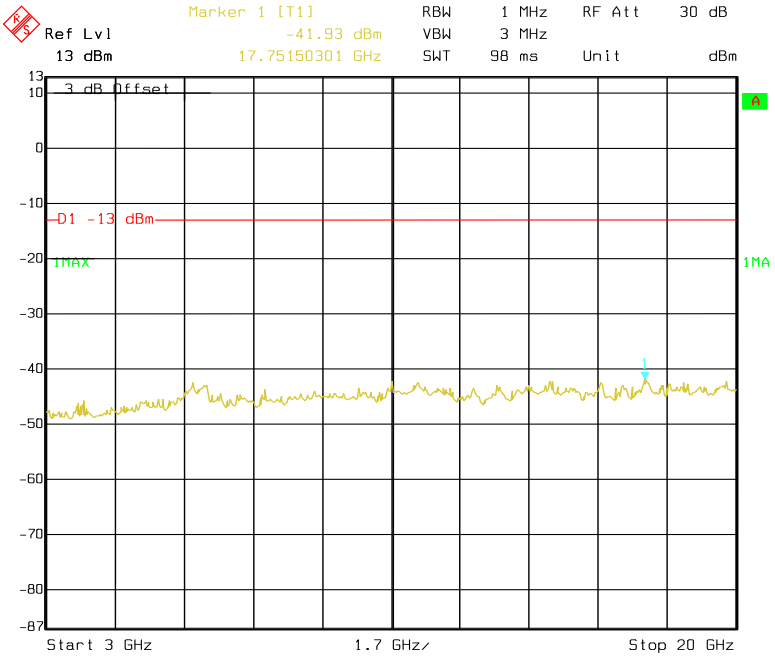
Middle Channel

30 MHz - 3 GHz



Date: 25.MAY.2011 13:59:21

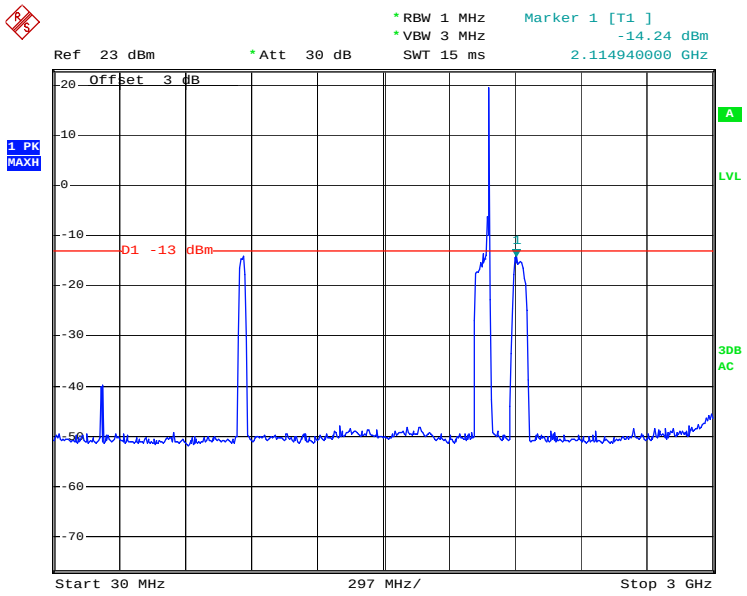
3 GHz -20 GHz



Date: 26.MAY 2011 16:01:24

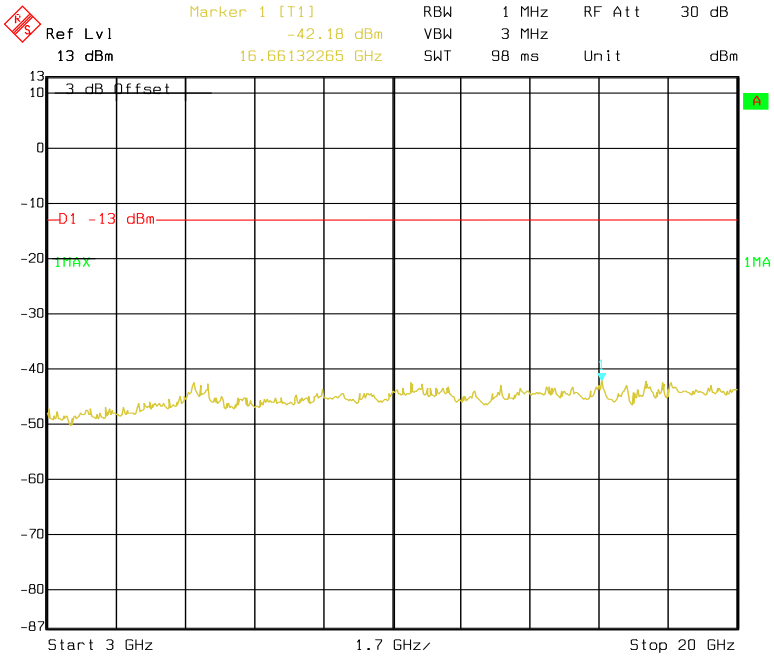
High Channel

30 MHz – 3 GHz



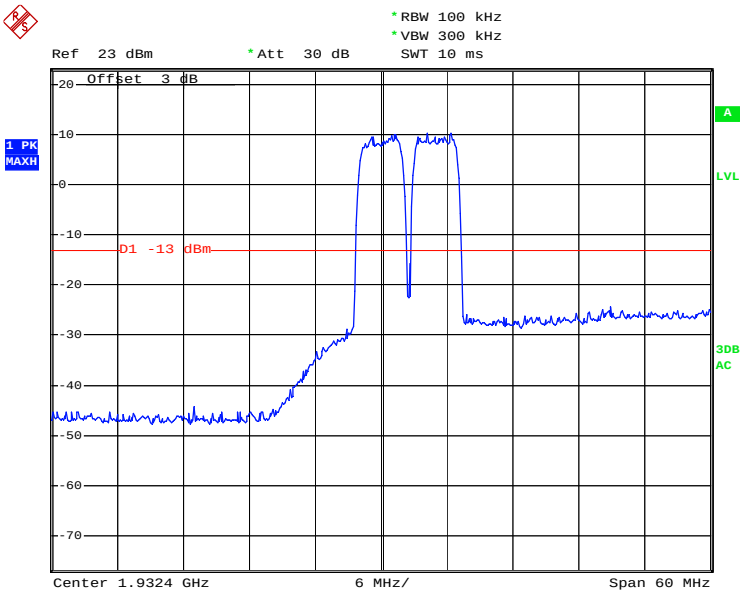
Date: 25.MAY.2011 14:00:49

3 GHz -20 GHz



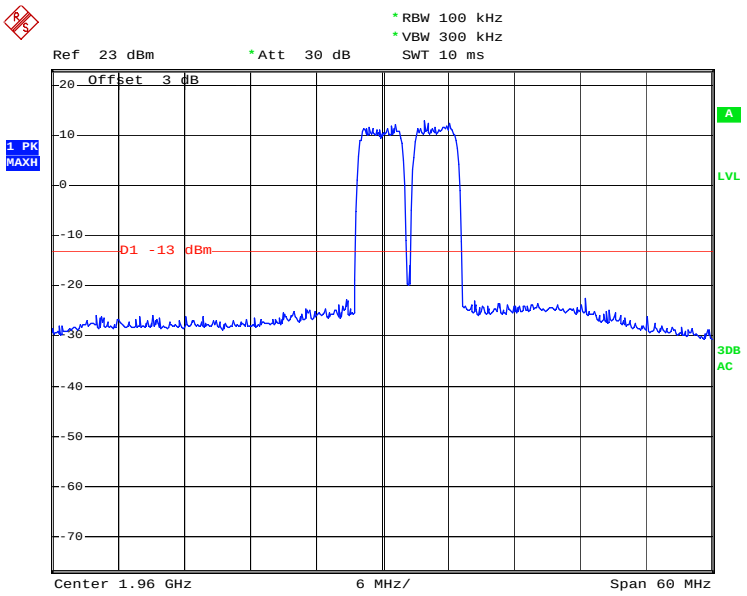
Date: 26.MAY.2011 16:00:22

Two tone Inter-modulation (Low Channel)



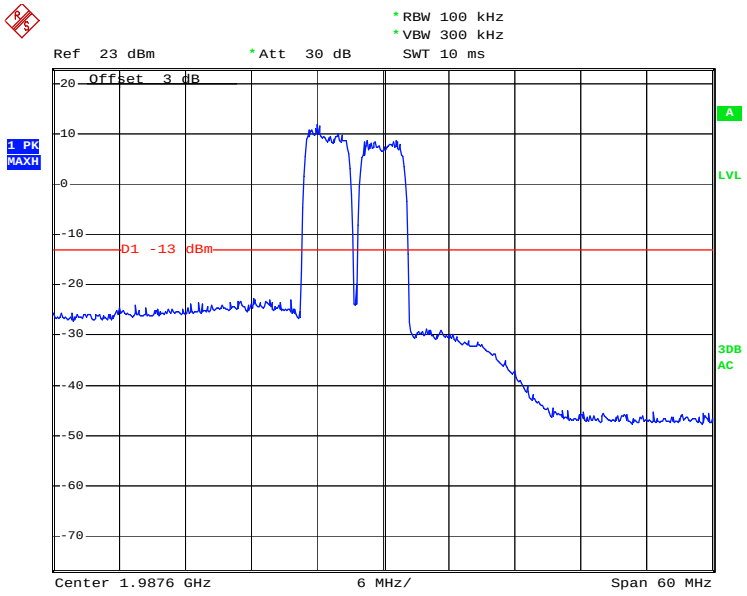
Date: 25.MAY.2011 16:13:57

Two tone Inter-modulation (Middle Channel)



Date: 25.MAY.2011 16:15:00

Two tone Inter-modulation (High Channel)



Date: 25.MAY.2011 16:16:44

FCC §2.1053, §22.917 & §24.238 - SPURIOUS RADIATED EMISSIONS

Applicable Standards

FCC §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 (TX pwr in Watts/0.001) – the absolute level

Spurious attenuation limit in dB = 43 + 10 Log_{10} (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	2011-05-05	2012-05-04
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2011-03-11	2012-03-11
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2010-07-08	2011-07-07
Mini-Circuits	Amplifier	ZVA-213+	T-E27H	2011-03-08	2012-03-07
HP	Signal Generator	HP8657A	2849U00982	2010-10-28	2011-10-27
HP	Amplifier	HP8447D	2944A09795	2010-08-02	2011-08-02
HP	Synthesized Sweeper	8341B	2624A00116	2011-04-11	2012-04-10
COM POWER	Dipole Antenna	AD-100	041000	2011-04-25	2012-04-25
A.H. System	Horn Antenna	SAS-200/571	135	2011-03-07	2012-03-06
Agilent	ESG-D Series Signal Generator	E4432B	US40051862	2010-11-20	2011-11-19

*** 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 2011-05-31

Test mode: Transmitting

Cellular Band (Part 22H)

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Reading (dBµV)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dBd)	Cable Loss (dB)			
Below 1 GHz											
34.12	38.25	175	1.0	V	34.12	-56.9	0	0.24	-57.14	-13	44.14
307.9	32.65	340	1.0	H	307.9	-59.8	0	0.36	-60.16	-13	47.16
Indicated		**Table Angle Degree**	**Test Antenna**		**Substituted**				**Absolute Level (dBm)**	**Limit (dBm)**	**Margin (dB)**
Frequency (MHz)	**S.A. Reading (dBµV)**		**Height (m)**	**Polar (H/V)**	**Frequency (MHz)**	**Level (dBm)**	**Ant. Gain (dBi)**	**Cable Loss (dB)**			
Above 1 GHz											
1901.8	54.41	250	1.8	V	1901.8	-41.8	6.2	1.03	-36.63	-13	23.63
1901.8	52.81	220	1.5	H	1901.8	-43.4	6.2	1.03	-38.23	-13	25.23
1384.8	46.33	130	1.0	V	1384.8	-54.6	6.4	0.88	-49.08	-13	36.08
1384.8	42.82	225	1.1	H	1384.8	-57.3	6.4	0.88	-51.78	-13	38.78
1763.2	39.42	240	1.8	V	1763.2	-60.4	6.2	0.98	-55.18	-13	42.18
1763.2	37.17	200	1.9	H	1763.2	-62.7	6.2	0.98	-57.48	-13	44.48

PCS Band (Part 24E)

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Reading (dBμV)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dBd)	Cable Loss (dB)			
Below 1 GHz											
34.5	40.30	210	1.5	V	34.5	-53.6	0	0.24	-53.84	-13	40.84
307.9	32.42	180	1.0	H	307.9	-62.4	0	0.36	-62.76	-13	49.76
Indicated		**Table Angle Degree**	**Test Antenna**		**Substituted**				**Absolute Level (dBm)**	**Limit (dBm)**	**Margin (dB)**
Frequency (MHz)	**S.A. Reading (dBμV)**		**Height (m)**	**Polar (H/V)**	**Frequency (MHz)**	**Level (dBm)**	**Ant. Gain (dBi)**	**Cable Loss (dB)**			
Above 1 GHz											
3920	39.13	220	2.0	V	3920	-54.5	6.7	1.53	-49.33	-13	36.33
1448.9	46.32	115	1.5	V	1448.9	-55.4	6.4	0.92	-49.92	-13	36.92
2172.3	39.35	240	1.3	V	2172.3	-56.7	7.1	1.11	-50.71	-13	37.71
3920	38.25	170	1.8	H	3920	-55.9	6.7	1.53	-50.73	-13	37.73
1448.9	43.83	182	1.5	H	1448.9	-56.5	6.4	0.92	-51.02	-13	38.02
2172.3	41.28	208	1.5	H	2172.3	-58.8	7.1	1.11	-52.81	-13	39.81

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

Applicable Standards

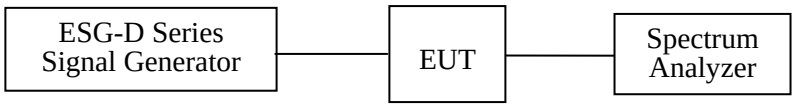
According to FCC §22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

According to FCC §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	2010-11-11	2011-11-10
Agilent	ESG-D Series Signal Generator	E4432B	US40051862	2010-11-20	2011-11-19

*** 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 2011-05-25.

Please refer to the following tables and plots.

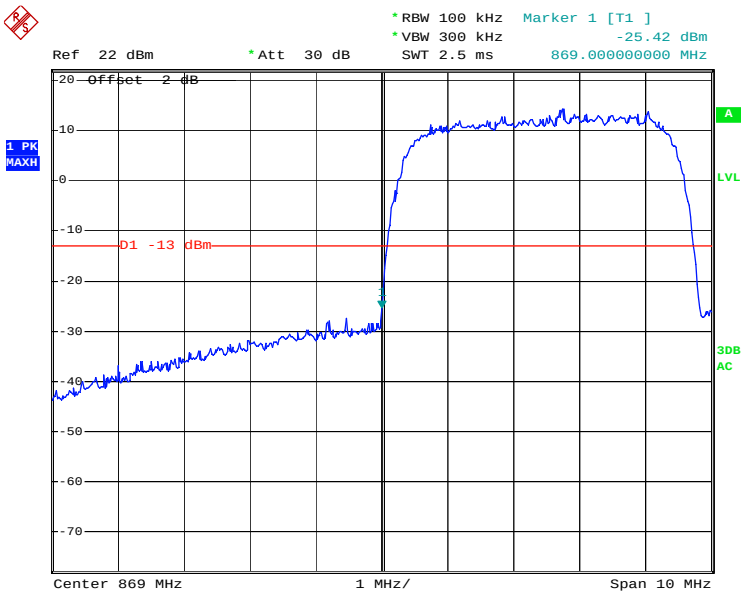
Cellular Band (Part 22H)

Frequency (MHz)	Emission (dBm)	Limit (dBm)
869	-25.42	-13
894	-22.72	-13

PCS Band (Part 24E)

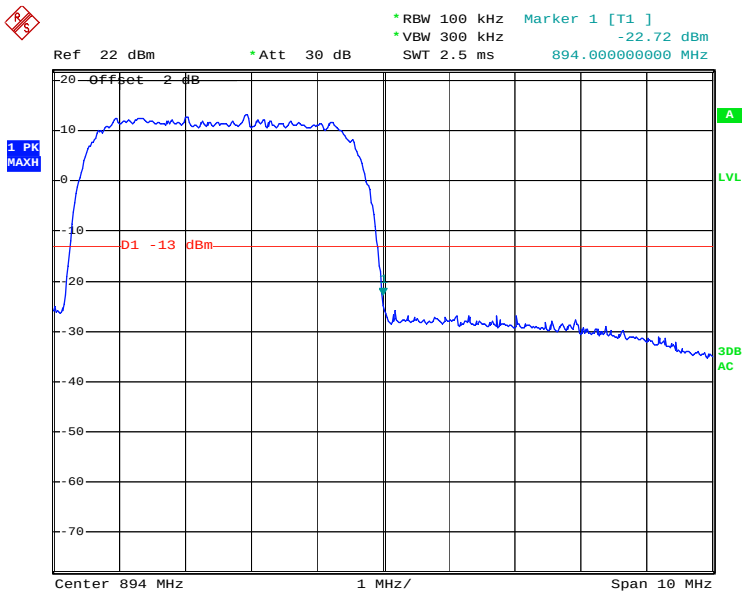
Frequency (MHz)	Emission (dBm)	Limit (dBm)
1930	-24.23	-13
1990	-23.53	-13

Cellular Band, Lowest Channel



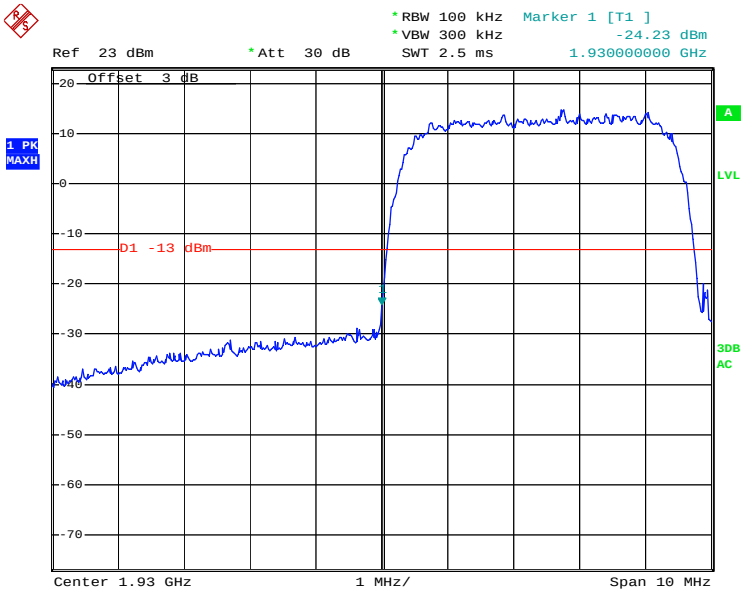
Date: 25.MAY.2011 16:39:14

Cellular Band, Highest Channel



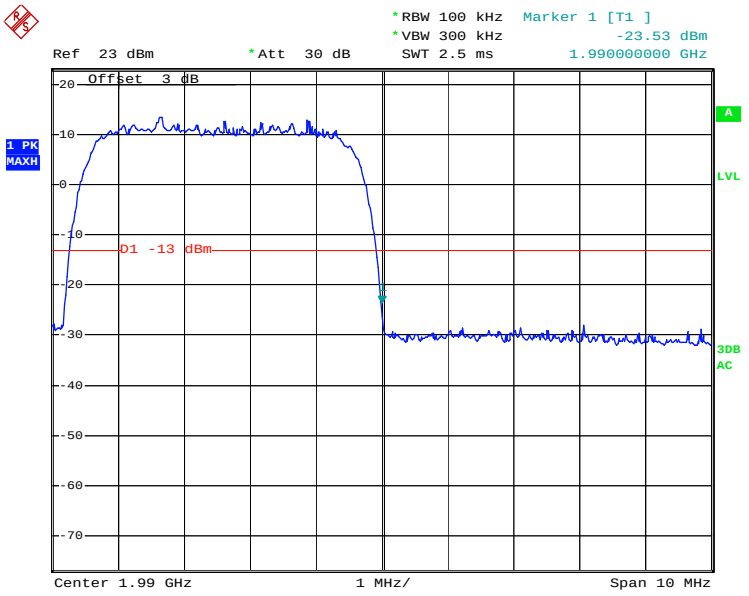
Date: 25.MAY.2011 16:38:31

PCS Band, Lowest Channel



Date: 25.MAY.2011 16:49:18

PCS Band, Highest Channel



Date: 25.MAY.2011 16:50:53

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

Applicable Standards

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

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

Frequency Tolerance for Transmitters in the Public Mobile Services

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

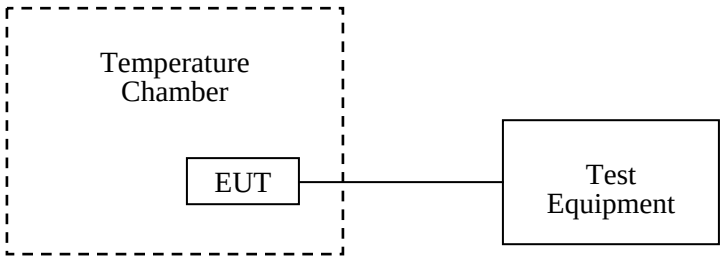
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

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	2010-06-04	2011-06-03
Rohde & Schwarz	EMI Test Receiver	ESCI	100224	2010-11-11	2011-11-10
Agilent	ESG-D Series Signal Generator	E4432B	US40051862	2010-11-20	2011-11-19

*** 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 2011-05-31

Cellular Band (Part 22H)

The EUT is tested at 881.6 MHz with CW

Frequency Drift with supply voltage variation		
Voltage (V_{AC})	**Frequency Error (Hz)**	**Frequency Error (ppm)**
43.2	90.3	0.102427
48.0	89.0	0.100953
55.2	85.7	0.09721

Frequency Drift with Supply Temperature Variation		
Temperature (^{O}C)	**Frequency Error (Hz)**	**Frequency Error (ppm)**
50	83.4	0.094601
40	83.6	0.094828
30	84.2	0.095508
20	84.5	0.095848
10	85.3	0.096756
0	86.2	0.097777
-10	86.8	0.098457

PCS Band (Part 24E)

The EUT is tested at 1960 MHz with CW

Frequency Drift with supply voltage variation		
Voltage (V_{AC})	**Frequency Error (Hz)**	**Frequency Error (ppm)**
43.2	105.3	0.05372
48.0	102.4	0.05224
52.8	103.1	0.05260

Frequency Drift with Supply Temperature Variation		
Temperature (^{O}C)	**Frequency Error (Hz)**	**Frequency Error (ppm)**
50	104.2	0.05316
40	105.7	0.05393
30	104.5	0.05332
20	106.5	0.05434
10	106.7	0.05444
0	107.6	0.05490
-10	108.3	0.05526

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