

FCC PART 22H, PART 24E
MEASUREMENT AND TEST REPORT

For

Onglory Rich Limited

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Hong Kong

FCC ID: R6DTL700

Report Type: Original Report	Product Type: Mobile phone
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Report Number: R1DG121116004 -00D	
Report Date: 2012-11-23	
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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. (Dongguan).

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Onglory Rich Limited*'s product, model number: *TL700 (FCC ID: R6DTL700)* (the "EUT") in this report was a *Mobile phone*, which was measured approximately: 12.5 cm (L) x 7.0 cm (W) x 1.5 cm (H), rated input voltage: DC 3.7 V from battery or DC 5V from adapter.

Adapter information: Tonino
Model No: HB12-050100SPA
Input: AC 100-250V, 50/60Hz
Output: AC 100-250V, 50/60Hz or DC 5V

Product function:
GSM and GPRS Multi-slot class 10
Bluetooth:v2.1+EDR
Wifi:802.11b/g

The Operating Frequency Range:
GSM850: 824 ~ 849 MHz (TX), 869 ~ 894 MHz (RX);
DCS1900: 1850 ~ 1910 MHz (TX), 1930 ~ 1990 MHz (RX);
Wi-Fi: 2412~2462 MHz (TX/RX);
Bluetooth: 2402 ~ 2480 MHz (TX/RX)

** All measurement and test data in this report was gathered from production sample serial number: 121116004 (Assigned by BACL.Dongguan). The EUT was received on 2012-11-19.*

Objective

This report is prepared on behalf of *Onglory Rich Limited* 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, spurious emissions at antenna terminal, spurious radiated emission, frequency stability and band edge.

Related Submittal(s)/Grant(s)

FCC Part 15B JBP submissions with FCC ID: *R6DTL700*.
FCC Part 15C DSS submissions with FCC ID: *R6DTL700* for Bluetooth.
FCC Part 15C DTS submissions with FCC ID: *R6DTL700* for Wifi.

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-D-2010, 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.

The uncertainty of any RF tests which use conducted method measurement is ± 0.96 dB, the uncertainty of any radiation on emissions measurement is ± 4.0 dB, and the uncertainty will not be taken into consideration for all the test data recorded in the report.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industrial Zone, Tangxia, Dongguan, Guangdong, China

Test site at Bay Area Compliance Laboratories Corp. (Dongguan) 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 February 02, 2012. 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.: 273710. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

SYSTEM TEST CONFIGURATION

Justification

The GSM/GPRS test items were performed with the EUT operating at test mode.

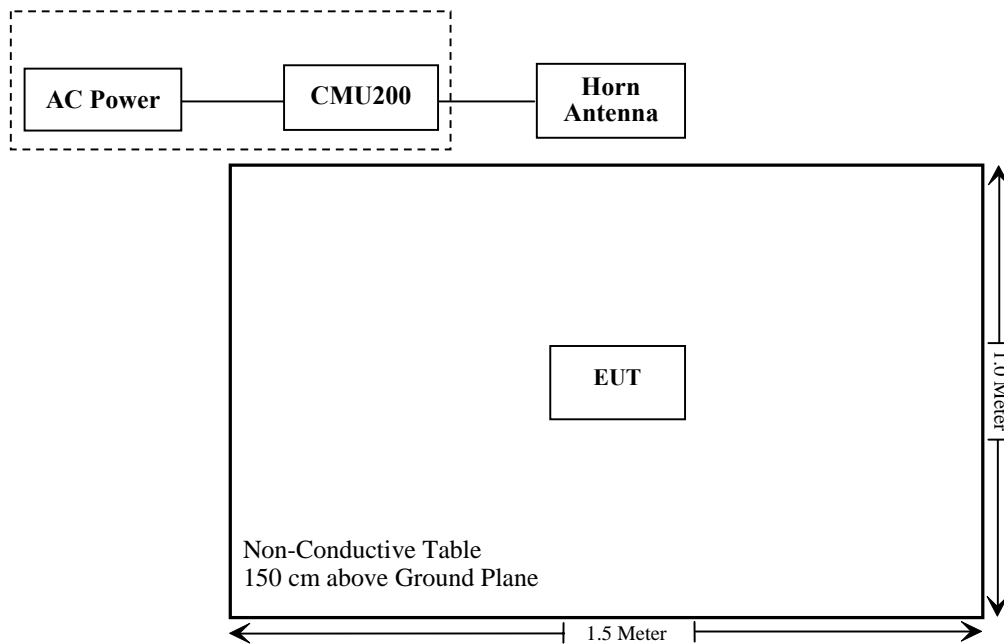
Equipment Modifications

No modification was made to the EUT.

Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
R&S	Universal Radio Communication Tester	CMU200	111787B

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307, §2.1093	RF Exposure (SAR)	Compliance*
§2.1046; § 22.913 (a); § 24.232 (c)	RF Output Power	Compliance
§ 2.1047	Modulation Characteristics	Not Applicable
§ 2.1049; § 22.905 § 22.917; § 24.238	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

Note: * Please refer to SAR report released by BACL, report number: R1DG121116004-20

FCC §1.1307 & §2.1093 - RF EXPOSURE

Applicable Standard

FCC§1.1307 and §2.1093.

Test Result

Compliance, please refer to the SAR report: R1DG121116004-20

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 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), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications..

Test Procedure

Conducted method:

GSM

Function: Menu select > GSM Mobile Station > GSM 850/1900

Press Connection control to choose the different menus

Press RESET > choose all the reset all settings

Connection Press Signal Off to turn off the signal and change settings

Network Support > GSM + only

MS Signal

> 33 dBm for GSM 850

> 30 dBm for GSM 1900

BS Signal Enter the same channel number for TCH channel (test channel) and BCCH channel

Frequency Offset > + 0 Hz

Mode > BCCH and TCH

BCCH Level > -85 dBm (May need to adjust if link is not stable)

BCCH Channel > choose desired test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel]

Channel Type > Off

P0 > 4 dB

TCH > choose desired test channel

Hopping > Off

AF/RF Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input

Connection Press Signal on to turn on the signal and change settings

Signal on to turn on the signal and change settings

GPRS/EGPRS

Function: Menu select > GSM Mobile Station > GSM 850/1900

Press Connection control to choose the different menus

Press RESET > choose all the reset all settings

Connection Press Signal Off to turn off the signal and change settings

Network Support > GSM + GPRS or GSM + EGSM

Main Service > Packet Data

Service selection > Test Mode A – Auto Slot Config. off

MS Signal Press Slot Config Bottom on the right twice to select and change the number of time slots and power setting

> Slot configuration > Uplink/Gamma

> 33 dBm for GPRS 850

> 30 dBm for GPRS 1900

> 27 dBm for EGPRS 850

> 26 dBm for EGPRS 1900

BS Signal Enter the same channel number for TCH channel (test channel) and BCCH channel

Frequency Offset > + 0 Hz

Mode > BCCH and TCH
 BCCH Level > -85 dBm (May need to adjust if link is not stable)
 BCCH Channel > choose desired test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel]

Channel Type > Off
 P0 > 4 dB
 Slot Config > Unchanged (if already set under MS signal)
 TCH > choose desired test channel
 Hopping > Off
 Main Timeslot > 3
 Network Coding Scheme > CS4 (GPRS) and MCS9 (EGPRS)
 Bit Stream > 2E9-1 PSR Bit Stream
 AF/RF Connection Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input
 Press Signal on to turn on the signal and change settings

Radiated method:

ANSI/TIA 603-D section 2.2.17

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSEM	1079 8500	2012-10-9	2013-10-8
Sunol Sciences	Hybrid Antennas	JB3	A060611-2	2011-9-6	2013-9-5
Dayang	Horn Antenna	OMCDH10180	10279001A	2008-8-22	2013-8-21
HP	Pre-amplifier	8447E	2434A02181	2012-10-8	2013-10-7
Mini-Circuits	Wideband Amplifier	ZVA-183-S+	96901149	N/A	N/A
EMCO	Adjustable Dipole Antenna System	3121C	9109-753	N/A	N/A
ETS-LINDGREN	Horn Antenna	3115	000 527 35	2012-09-06	2013-09-05
HP	Signal Generator	8648A	3426A00831	2012-10-9	2013-10-8
Giga	Signal Generator	1026	320408	2012-3-15	2013-3-14
R&S	Universal Radio Communication Tester	CMU200	111787B	2012-3-16	2013-3-15

Test Data

Environmental Conditions

Temperature:	26.3 °C
Relative Humidity:	55 %
ATM Pressure:	100.1kPa

The testing was performed by Leon Chen on 2012-11-22.

Conducted Power**Cellular Band & PCS Band**

Band	Channel No.	Conducted Output Power (dBm)		
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot
Cellular	128	31.41	31.35	31.17
	190	31.39	31.30	31.10
	251	31.28	31.24	31.04
PCS	512	28.41	28.47	28.17
	661	28.28	28.36	28.09
	810	28.35	28.41	28.14

ERP & EIRP**ERP for Cellular Band (Part 22H)**

Frequency	Polar	S.A. Reading	S.G. Level	Antenna Gain	Cable Loss	Absolute Level	Limit
	H/V	dB μ V	dBm	dBd	dB	dBm	dBm
824.200	H	89.38	19.9	0.0	0.8	19.1	38.4
	V	98.84	31.8	0.0	0.8	31.0	38.4
836.600	H	89.64	20.3	0.0	0.8	19.5	38.4
	V	99.80	33.2	0.0	0.8	32.4	38.4
848.800	H	90.12	21.1	0.0	0.8	20.3	38.4
	V	99.85	33.5	0.0	0.8	32.7	38.4

EIRP for PCS Band (Part 24E)

Frequency	Polar	S.A. Reading	S.G. Level	Antenna Gain	Cable Loss	Absolute Level	Limit
	H/V	dB μ V	dBm	dB i	dB	dBm	dBm
1850.200	H	89.32	17.3	11.4	1.6	27.1	33
	V	85.64	11.6	11.4	1.6	21.4	33
1880.000	H	88.26	17.3	11.7	1.6	27.4	33
	V	83.33	10.0	11.7	1.6	20.1	33
1909.800	H	88.78	17.7	11.8	1.6	27.9	33
	V	83.73	9.7	11.8	1.6	19.9	33

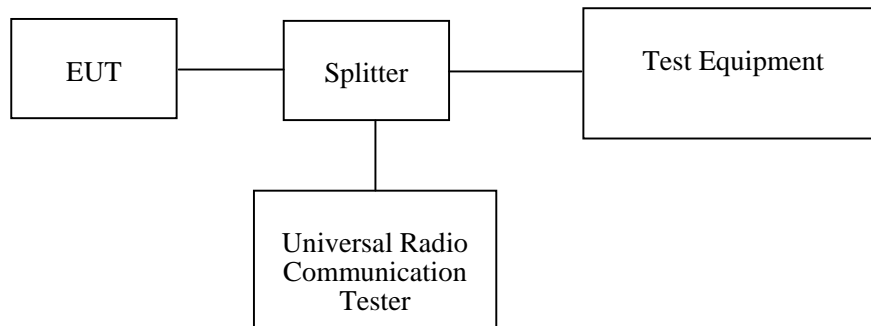
FCC §2.1049, §22.917, §22.905 & §24.238 - OCCUPIED BANDWIDTH**Applicable Standard**

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 3 kHz (Cellular /PCS) or 100 kHz (WCDMA) 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	FSP38	100478	2012-5-14	2013-5-13

Test Data**Environmental Conditions**

Temperature:	25.5 °C
Relative Humidity:	47 %
ATM Pressure:	100.4kPa

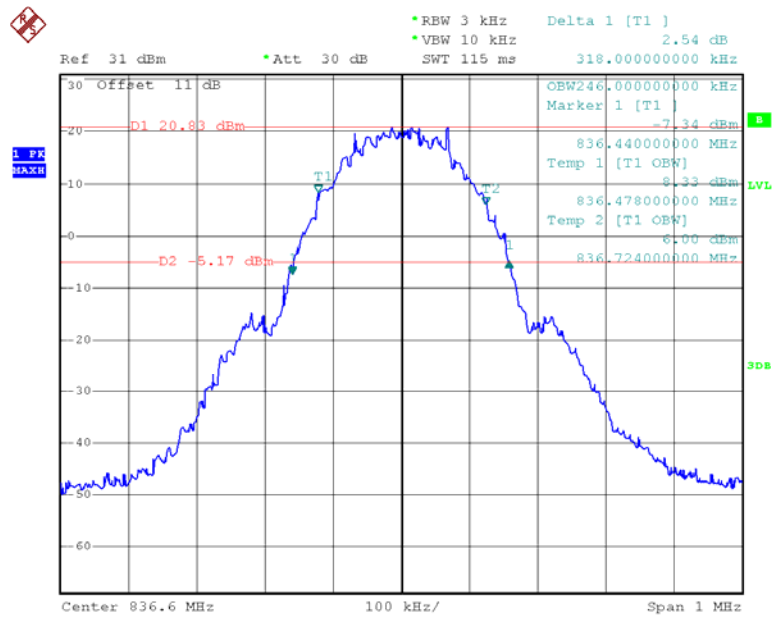
The testing was performed by Leon Chen on 2012-11-21.

Cellular Band & PCS Band

Band	Channel No.	99% Occupied Bandwidth	26 dB Occupied Bandwidth
		kHz	kHz
Cellular	190	246	318
PCS	661	246	318

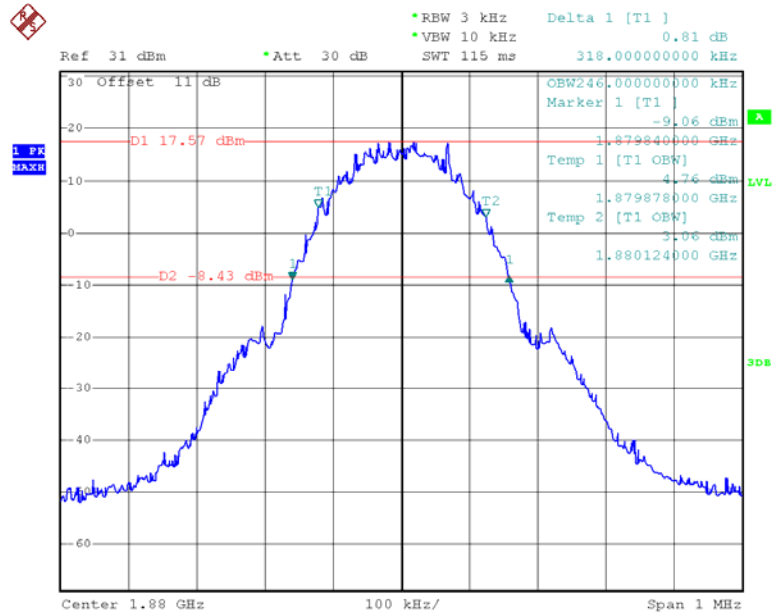
Please refer to the following plots.

Cellular Band (Part 22H)



Date: 21.NOV.2012 13:17:16

PCS Band (Part 24E)



Date: 21.NOV.2012 13:27:25

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

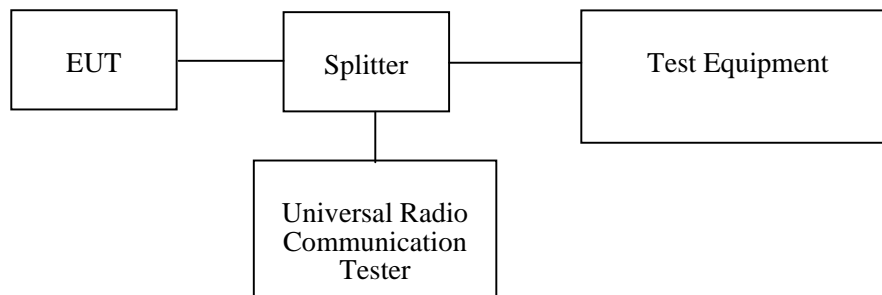
Applicable Standard

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 100 kHz for part 22 and 1 MHz for part 24. 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	FSP38	100478	2012-5-14	2013-5-13

Test Data

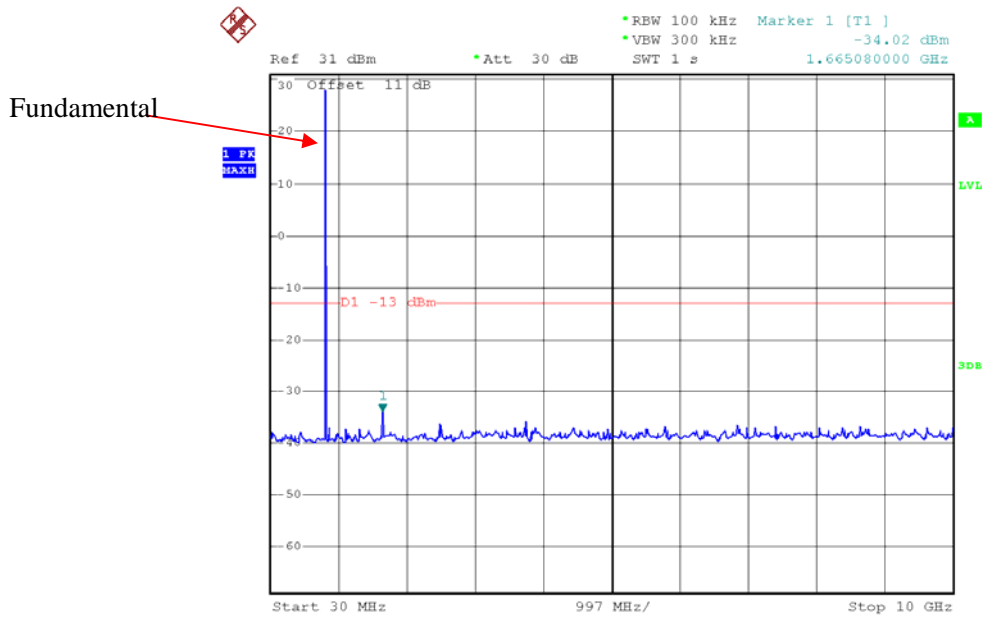
Environmental Conditions

Temperature:	25.5 °C
Relative Humidity:	47 %
ATM Pressure:	100.4kPa

The testing was performed by Leon Chen on 2012-11-21.

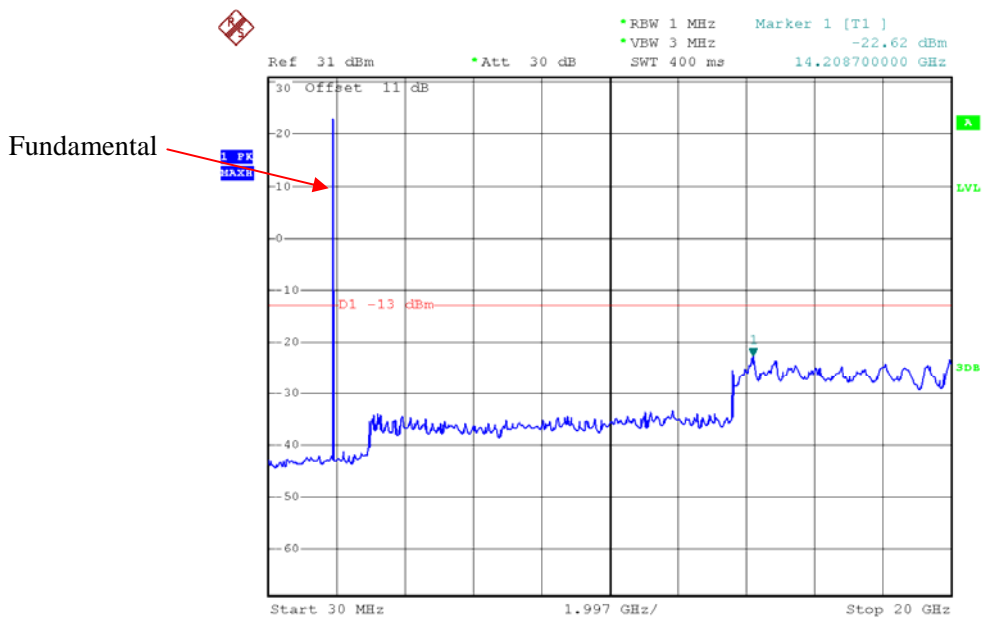
Please refer to the following plots.

Cellular Band (Part 22H) — Middle Channel



Date: 21.NOV.2012 13:23:16

PCS Band (Part 24E) — Middle Channel



Date: 21.NOV.2012 13:31:08

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

Applicable Standard

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 = $10 \log_{10}(\text{TXpwr in Watts}/0.001)$ – the absolute level

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSEM	1079 8500	2012-10-9	2013-10-8
Sunol Sciences	Hybrid Antennas	JB3	A060611-2	2011-9-6	2013-9-5
Dayang	Horn Antenna	OMCDH10180	10279001A	2008-8-22	2013-8-21
HP	Pre-amplifier	8447E	2434A02181	2012-10-8	2013-10-7
Mini-Circuits	Wideband Amplifier	ZVA-183-S+	96901149	N/A	N/A
EMCO	Adjustable Dipole Antenna System	3121C	9109-753	N/A	N/A
ETS-LINDGREN	Horn Antenna	3115	000 527 35	2012-09-06	2013-09-05
HP	Signal Generator	8648A	3426A00831	2012-10-9	2013-10-8
Giga	Signal Generator	1026	320408	2012-3-15	2013-3-14
R&S	Universal Radio Communication Tester	CMU200	SN:111787B	2012-3-16	2013-3-15

Test Data**Environmental Conditions**

Temperature:	25.8 °C
Relative Humidity:	57 %
ATM Pressure:	100.1kPa

The testing was performed by Leon Chen on 2012-11-22.

EUT Operation Mode: Transmitting

Cellular Band (Part 22H)**30 MHz-10 GHz**

Frequency	Polar	S.A Reading	S.G. Level	Antenna Gain	Cable Loss	Absolute Level	Limit	Margin
MHz	H/V	dBμV	dBm	dBd/dBi	dB	dBm	dBm	dB
Low Channel, $f_c = 824.2$ MHz								
2472.600	H	45.86	-51.1	12.9	2	-40.2	-13.0	27.2
2472.600	V	43.14	-52.5	12.9	2	-41.6	-13.0	28.6
1648.400	V	47.21	-54.6	10.5	1.4	-45.5	-13.0	32.5
1648.400	H	43.48	-58.3	10.5	1.4	-49.2	-13.0	36.2
Middle Channel, $f_c = 836.6$ MHz								
2509.800	H	37.45	-59.5	13.1	2.1	-48.5	-13.0	35.5
2509.800	V	35.58	-59.8	13.1	2.1	-48.8	-13.0	35.8
1673.200	H	42.76	-58.9	10.6	1.5	-49.8	-13.0	36.8
1673.200	V	41.37	-60.4	10.6	1.5	-51.3	-13.0	38.3
High Channel, $f_c = 848.8$ MHz								
2546.400	V	36.33	-59.9	13.1	2.2	-49.0	-13.0	36.0
2546.400	H	36.92	-60.6	13.1	2.2	-49.7	-13.0	36.7
1697.600	H	42.15	-59.3	10.8	1.5	-50.0	-13.0	37.0
1697.600	V	40.68	-60.9	10.8	1.5	-51.6	-13.0	38.6

PCS Band (Part 24E)**30 MHz-20 GHz**

Frequency	Polar	S.A. Reading	S.G. Level	Antenna Gain	Cable Loss	Absolute Level	Limit	Margin
MHz	H/V	dBμV	dBm	dBd/dBi	dB	dBm	dBm	dB
Low Channel, $f_c = 1850.2$ MHz								
3700.400	H	45.33	-48.0	14.0	3.6	-37.6	-13.0	24.6
3700.400	V	45.59	-48.5	14.0	3.6	-38.1	-13.0	25.1
5550.600	H	45.57	-46.4	14.0	5.8	-38.2	-13.0	25.2
5550.600	V	42.17	-50.1	14.0	5.8	-41.9	-13.0	28.9
Middle Channel, $f_c = 1880.0$ MHz								
3760.000	H	44.65	-47.0	13.8	4	-37.2	-13.0	24.2
3760.000	V	44.46	-48.8	13.8	4	-39.0	-13.0	26.0
5640.000	H	45.96	-46.3	14.0	6.7	-39.0	-13.0	26.0
5640.000	V	44.04	-48.4	14.0	6.7	-41.1	-13.0	28.1
High Channel, $f_c = 1909.8$ MHz								
5729.400	H	45.32	-47.2	13.9	6.6	-39.9	-13.0	26.9
5729.400	V	44.13	-48.5	13.9	6.6	-41.2	-13.0	28.2
3819.600	H	39.79	-51.0	13.6	4.2	-41.6	-13.0	28.6
3819.600	V	39.89	-52.6	13.6	4.2	-43.2	-13.0	30.2

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

Applicable Standard

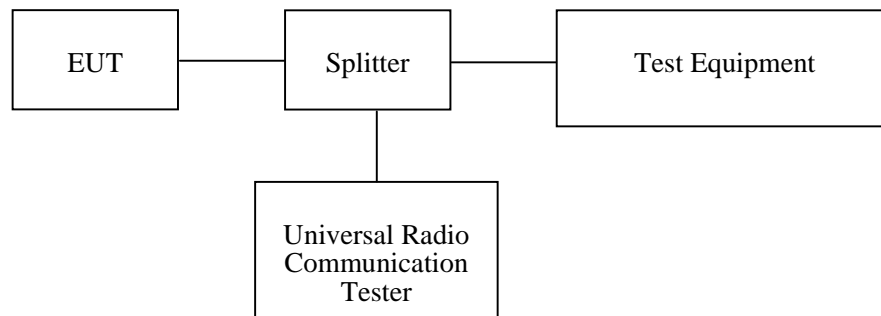
According to § 22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

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/100 kHz.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-5-14	2013-5-13

Test Data

Environmental Conditions

Temperature:	25.5 °C
Relative Humidity:	47%
ATM Pressure:	100.4kPa

The testing was performed by Leon Chen on 2012-11-21

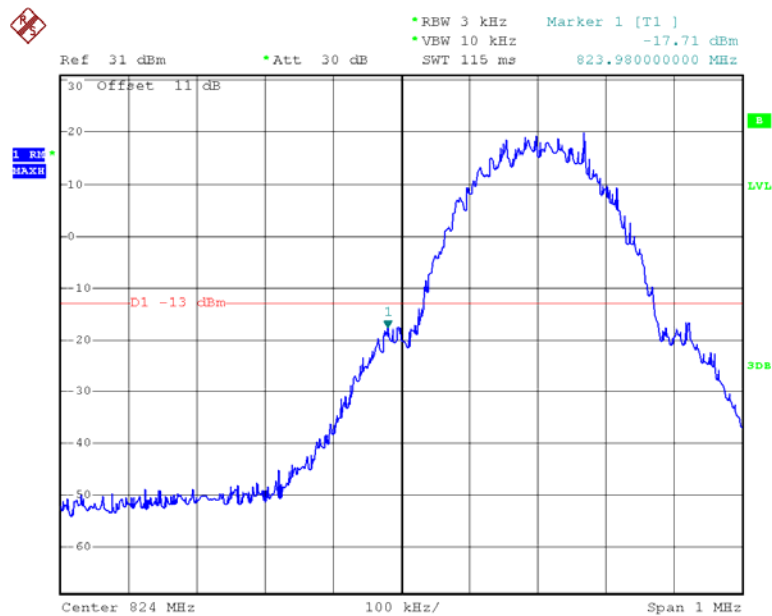
Please refer to the following tables and plots.

Cellular Band (Part 22H)

Channel	Emission (dBm)	Limit (dBm)
128	-17.71	-13
251	-16.17	-13

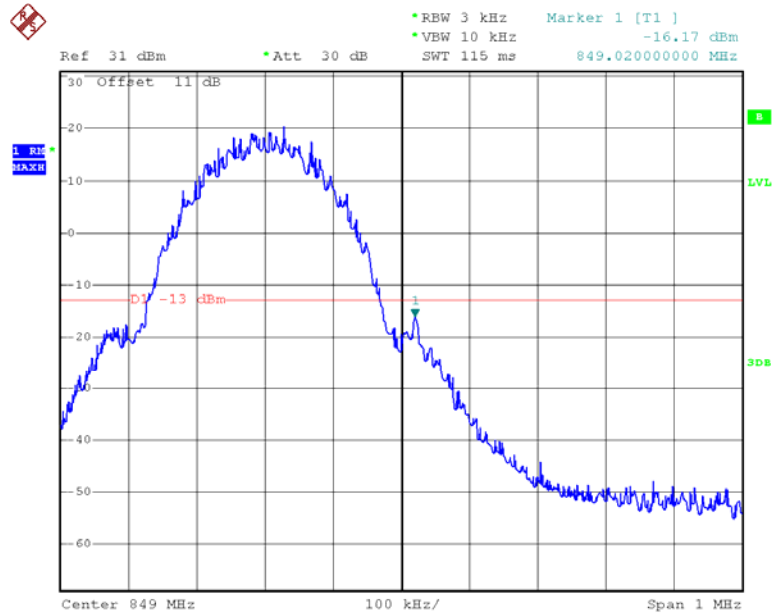
PCS Band (Part 24E)

Channel	Emission (dBm)	Limit (dBm)
512	-18.17	-13
810	-21.56	-13

Cellular Band, Left Band Edge

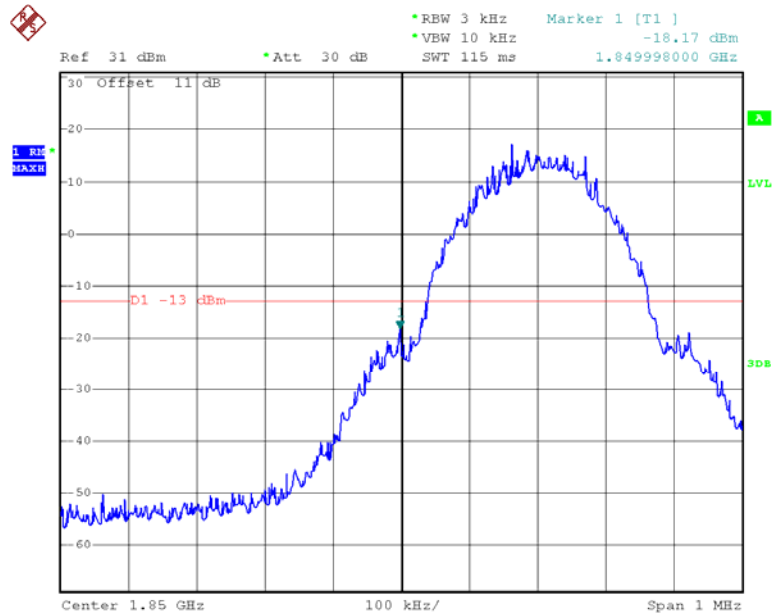
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Cellular Band, Right Band Edge



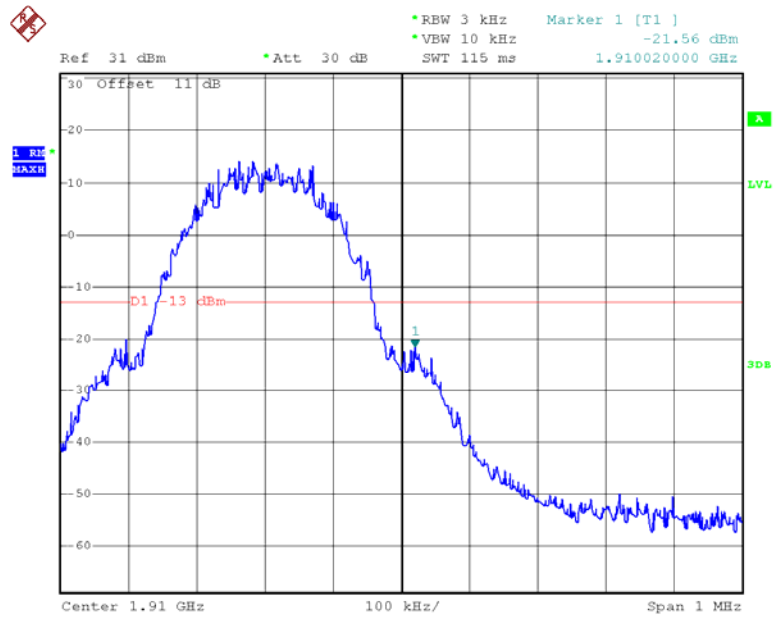
Date: 21.NOV.2012 13:20:21

PCS Band, Left Band Edge



Date: 21.NOV.2012 13:28:34

PCS Band, Right Band Edge



Date: 21.NOV.2012 13:29:26

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

Applicable Standard

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

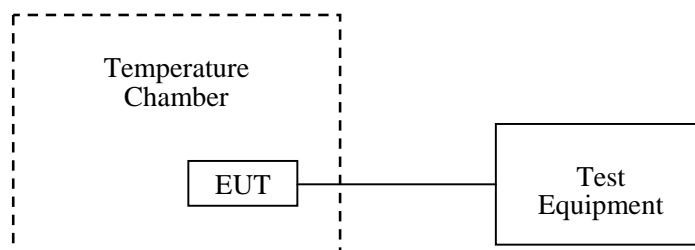
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

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
R&S	Universal Radio Communication Tester	CMU200	111787B	2012-3-16	2013-3-15
dongzixu	high temperature test chamber	DP1000	201105083-3	2012-7-3	2013-7-2

Test Data**Environmental Conditions**

Temperature:	25.5 °C
Relative Humidity:	47%
ATM Pressure:	100.4kPa

The testing was performed by Leon Chen on 2012-11-21

Cellular Band (Part 22H)

Middle Channel, $f_c = 836.6$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Limit
°C	V _{DC}	Hz	ppm	ppm
-30	3.7	-22	-0.026	2.5
-20	3.7	-20	-0.024	2.5
-10	3.7	-13	-0.016	2.5
0	3.7	-9	-0.011	2.5
10	3.7	-16	-0.019	2.5
20	3.7	-4	-0.005	2.5
30	3.7	-10	-0.012	2.5
40	3.7	-17	-0.020	2.5
50	3.7	-28	-0.033	2.5
25	V _{end point} = 3.5	-16	-0.019	2.5

PCS Band (Part 24E)

Middle Channel, $f_c = 1880.0$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
°C	V _{DC}	Hz	ppm	
-30	3.7	19	0.010	Pass
-20	3.7	26	0.014	Pass
-10	3.7	12	0.006	Pass
0	3.7	11	0.006	Pass
10	3.7	13	0.007	Pass
20	3.7	7	0.004	Pass
30	3.7	9	0.005	Pass
40	3.7	13	0.007	Pass
50	3.7	15	0.008	Pass
25	V _{end point} = 3.5	29	0.015	Pass

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