

# TEST REPORT

**REPORT NUMBER: B15X50225-FCC-RF\_Rev1**

**ON**

**Type of Equipment:** Mobile Phone  
**Type of Designation:** U100  
**Manufacturer:** Shenzhen fortuneship technology.,LTD

**ACCORDING TO**

**FCC CFR Part 2, FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS; e-CFR, Mar 17, 2015**

**PART 22, PUBLIC MOBILE SERVICES , e-CFR, Mar 17, 2015**

**PART 24, PERSONAL COMMUNICATIONS SERVICES, e-CFR, Mar 17, 2015**

**KDB971168 D01 Power Meas License Digital Systems v02r01, June 7, 2013**

**China Telecommunication Technology Labs.**

*Month date, year*

*Jul, 26, 2015*

*Signature*



He Guili  
Director

FCC Parts 2, 22, 24  
Equipment: U100

REPORT NO.: B15X50225-FCC-RF\_Rev1

**FCC ID:** ZC4U100  
**Report Date:** 2015-07-26

**Test Firm Name:** China Telecommunication Technology Labs  
**Registration Number:** 840587

#### Statement

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported tests were carried out on a sample equipment to demonstrate limited compliance with FCC CFR 47 Parts 2, 22, 24. The sample tested was found to comply with the requirements defined in the applied rules.

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## 1 General Information

### 1.1 Notes

All reported tests were carried out on a sample equipment to demonstrate limited compliance with FCC CFR 47 Parts 2, 22, 24.

The test results of this test report relate exclusively to the item(s) tested as specified in section 2.

The following deviation from, additions to, or exclusions from the test specifications have been made. See Annex C.

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## 1.2 Testers

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Date: 2015-06-17  
Signature: 邹东屹

### 1.3 Testing Laboratory information

#### 1.3.1 Location

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#### 1.3.2 Details of accreditation status

Accredited by: China National Accreditation Service for Conformity  
Assessment (CNAS)  
Registration number: CNAS Registration No. CNAS L0570  
Standard: ISO/IEC 17025:2005

#### 1.3.3 Test location, where different from section 1.3.1

Name: -----  
Street: -----  
City: -----  
Country: -----  
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Postcode: -----

## 1.4 Details of applicant or manufacturer

### 1.4.1 Applicant

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### 1.4.2 Manufacturer (if different from applicant in section 1.4.1)

Name: Shenzhen fortuneship technology,LTD  
Address: 6thFloor,KingsonBuilding,NewEnergy Innovation  
Industrial Park,No.1Chuangsheng Road, Nanshan  
District, Shenzhen, P.R.China

### 1.4.3 Manufactory (if different from applicant in section 1.4.1)

Name: Shenzhen fortuneship technology.,LTD  
Address: 6thFloor,KingsonBuilding,NewEnergy Innovation  
Industrial Park,No.1Chuangsheng Road, Nanshan  
District, Shenzhen, P.R.China

## 2 Test Item

### 2.1 General Information

Manufacturer: Shenzhen fortuneship technology,LTD  
 Name: Mobile Phone  
 Model Number: U100  
 Serial Number: --  
 Production Status: Product  
 Receipt date of test item: 2015-05-29

### 2.2 Outline of EUT

E.U.T. is a GSM850/ PCS1900 bands bands Terminal Equipment with Bluetooth.

### 2.3 Modifications Incorporated in EUT

The EUT has not been modified from what is described by the brand name and unique type identification stated above.

### 2.4 Equipment Configuration

Equipment configuration list:

Item	Generic Description	Manufacturer	Type	Serial No.	Remarks
A	Mobile Phone	Shenzhen fortuneship technology.,LTD	U100	--	None
B	Battery	None	None	--	None
C	Adaptor	None	None	--	None

### 2.5 Other Information

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### 3 Summary of Test Results

A brief summary of the tests carried out is shown as following.

<b>GSM/GPRS mode:</b>		
Specification Clause	Name of Test	Result
2.1051, 24.238, 2.1053,22.917	Radiated Spurious Emission	Pass
2.1049,22.917(b), 24.238(b)	Occupied Bandwidth	*Note 1
2.1055,22.355, 24.235	Frequency Stability over Temperature Variation	Pass
2.1055,22.355, 24.235	Frequency Stability over Voltage Variation	Pass
2.1046,22.913(a), 24.232(c)	Conducted RF Power Output	Pass
2.1051,22.917, 24.238	Conducted spurious emissions	Pass
2.1051,24.238, 2.1053, 22.917	Band Edge	Pass
22.913(a), 22.232(b)	ERP and EIRP	Pass
Note 1: No applicable performance criteria.		

<b>Test equipment Used:</b>						
Asset Number	Description	Manufacturer	Model Number	Serial Number	Cal Due	State
1	EMI Test Receiver	R&S	ESU26	100367	2016-03-05	Normal
2	Ultra Broadband Antenna	R/S	VULB 9163	vulb9163-544	2015-12-13	Normal
3	Double-Ridged Horn Antenna	R/S	HF907	100357	2015-12-13	Normal
4	Fully-Anechoic Chamber	ETS	FACT3-2	--	2015-08-20	Normal
5	Wireless Connectivity Test Set	R/S	CMW500	152395	2016-01-28	Normal
6	EMI Test Receiver	R/S	ESU40	100350	2016-03-05	Normal
7	Signal Generator	R/S	SMU200	104517	2016-03-05	Normal

## 4 Test Results

### 4.1 Radiated Spurious Emission

<b>Specifications:</b>	2.1051, 22.917, 2.1053, 22.917
<b>Date of Tests</b>	2015-06-04-2015-06-16
<b>Test conditions:</b>	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
<b>Operation Mode</b>	TX on, channel 190 and 661 for GSM/GPRS/EGPRS mode.
<b>Test Results:</b>	Pass

#### Limit Level Construction:

##### Part 22:

According to Part 22.917(a), i.e., Out of band emissions, the power of any emission 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, so the limit level is:

$$P(\text{dBm}) - (43 + 10 \log(P)) \text{ dB} = -13\text{dBm}$$

##### Part 24:

According to Part 24.238 (a), i.e., Out of band emissions, the power of any emission 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, so the limit level is:

$$P(\text{dBm}) - (43 + 10 \log(P)) \text{ dB} = -13\text{dBm}$$

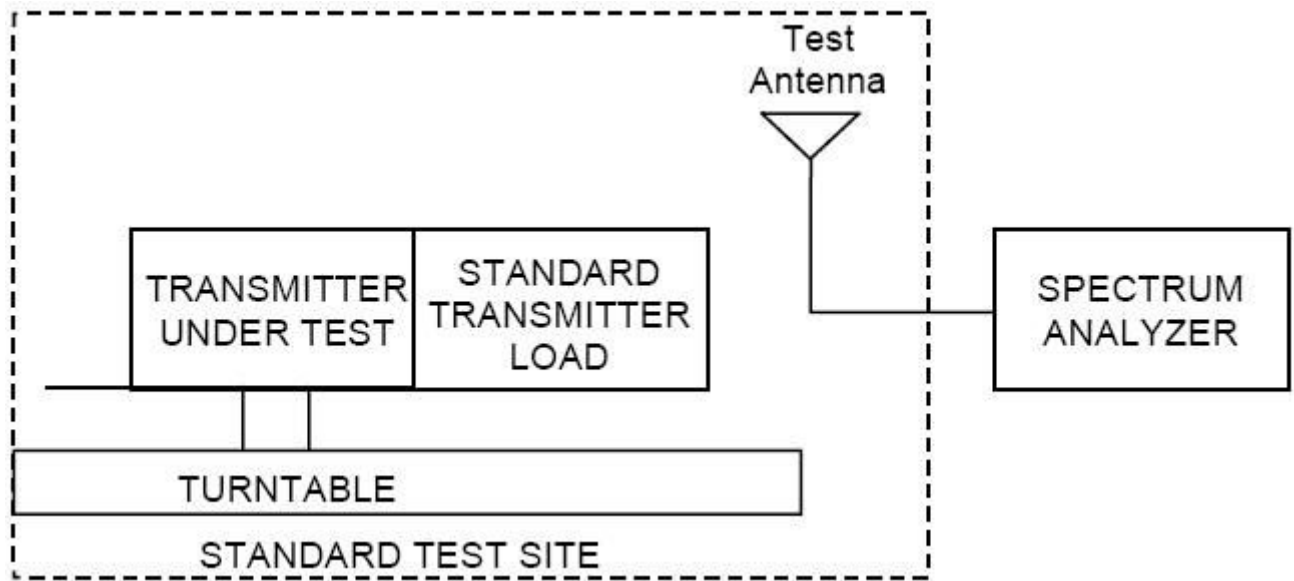
#### Test Setup:

The EUT was placed in an anechoic chamber. The Wireless Communications Test Set was used to set the TX channel and power level and modulate the TX signal with different bit patterns.

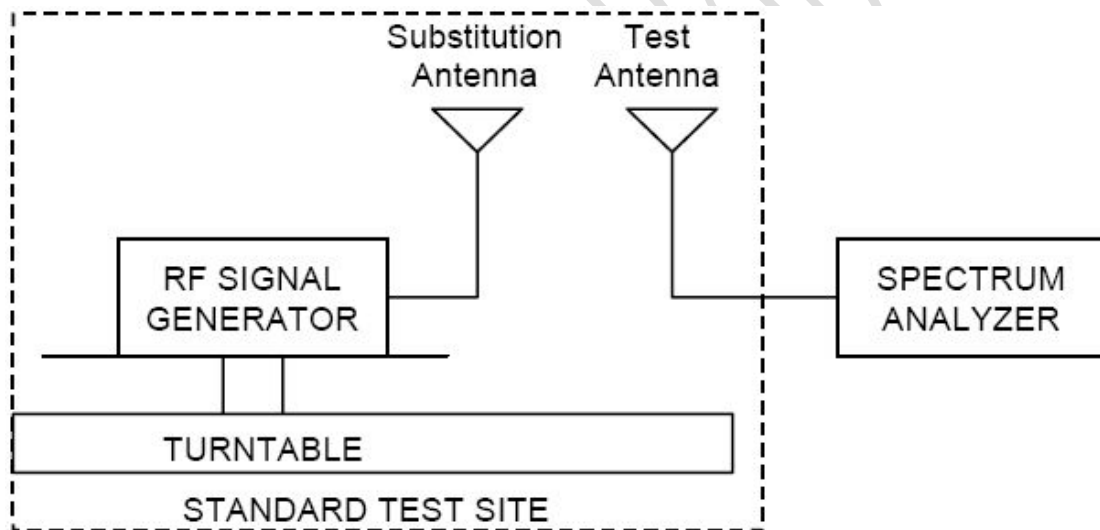
#### Test Method:

The measurement method is substitution method accordance with section 2.2.12 of ANSI/TIA-603-C: *Land Mobile FM or PM Communications Equipment Measurement and Performance Standards*.

(a) Connect the equipment as illustrated and measure the spurious emissions as the method as above.



(b) Reconnect the equipment as illustrated.



(c) Remove the transmitter and replace it with a substitution antenna. The center of the substitution antenna should be approximately at the same location as the center of the transmitter.

(d) Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a non-radiating cable. With the antennas at both ends horizontally polarized, and with the signal generator tuned to a particular spurious frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output.

(e) Repeat step d) with both antennas vertically polarized for each spurious frequency.

(f) Calculate power in dBm into a reference ideal half-wave dipole antenna by

reducing the readings obtained in steps d) and e) by the power loss in the cable between the generator and the antenna, and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna by the following formula:

$$P_d(\text{dBm}) = P_g(\text{dBm}) - \text{cable loss (dB)} + \text{antenna gain (dB)}$$

where:

$P_d$  is the dipole equivalent power and

$P_g$  is the generator output power into the substitution antenna.

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**Test Data (GSM channel 190 GMSK Mode)**

Frequency [MHz]	Generator output power(P <sub>g</sub> ) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (P <sub>d</sub> ) [dBm]	Antenna Polarization [H/V]
1672.8	-45.13	4.7	9.4	-40.43	V
2509.2	-43.67	5.9	10.6	-38.97	V
3345.6	-40.14	6.8	12.6	-34.34	V
4182.0	-42.87	7.8	12.6	-38.07	V
5018.4	-41.87	7.5	12.7	-36.67	V
1672.8	-52.21	4.7	9.4	-47.51	H
2509.2	-45.32	5.9	10.6	-40.62	H
3345.6	-50.65	6.8	12.6	-44.85	H
4182.0	-52.45	7.8	12.6	-47.65	H
5018.4	-51.63	7.5	12.7	-46.43	H

**Test Data (GSM channel 661 GMSK Mode)**

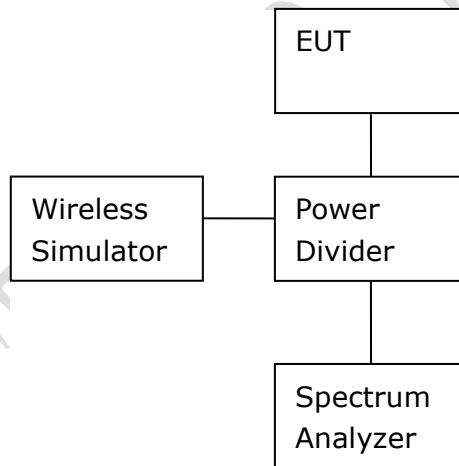
Frequency [MHz]	Generator output power(P <sub>g</sub> ) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (P <sub>d</sub> ) [dBm]	Antenna Polarization [H/V]
3760.0	-44.03	7.3	12.6	-38.73	V
5840.0	-56.82	1.1	13.1	-44.82	V
7520.0	-35.21	0.8	11.5	-24.51	V
9400.0	-42.12	0.8	12.0	-30.92	V
11280.0	-40.83	0.3	11.5	-29.63	V
3760.0	-43.00	7.3	12.6	-37.70	H
5840.0	-56.93	1.1	13.1	-44.93	H
7520.0	-53.90	0.8	11.5	-43.20	H
9400.0	-50.71	0.8	12.0	-39.51	H
11280.0	-40.18	0.3	11.5	-28.98	H

### 4.2 Occupied bandwidth

<b>Specifications:</b>	2.1049,22.917(b),24.238(b)
<b>Date of Test</b>	2015-06-01
<b>Test conditions:</b>	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
<b>Operation Mode</b>	TX on, channel 128, 190, 251 and 512, 661, 810 for GSM/GPRS mode.
<b>Test Results:</b>	--

### Test Setup

During the test, the EUT was controlled via the Wireless Communications Test Set to ensure max power transmission and proper modulation and measured by spectrum analyzer.



### Test Method

The 99% occupied bandwidth was calculated from the spectrum analyzer. Markers in the spectrum analyzer were then placed between the calculated frequencies to show the calculated 99% power band.

### Note:

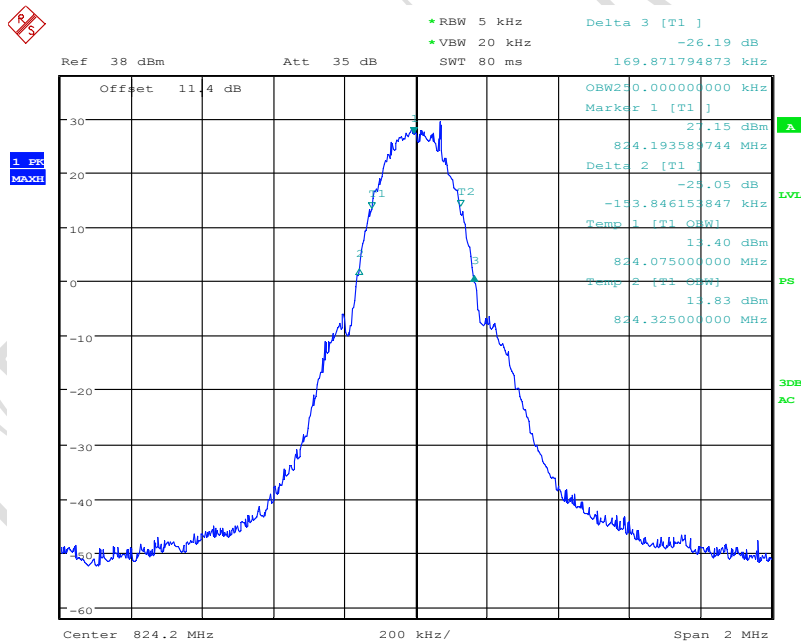
None

Test Data:

**GSM/GPRS mode**

	EUT channel no.	99% occupied bandwidth [kHz]
GMSK	128 (824.2MHz)	250.00
	190 (836.4MHz)	246.79
	251 (848.8MHz)	246.79
	512 (1850.2MHz)	250.00
	661 (1880 MHz)	246.80
	810 (1909.8 MHz)	246.80

**Graphical results for GSM/GPRS mode:**

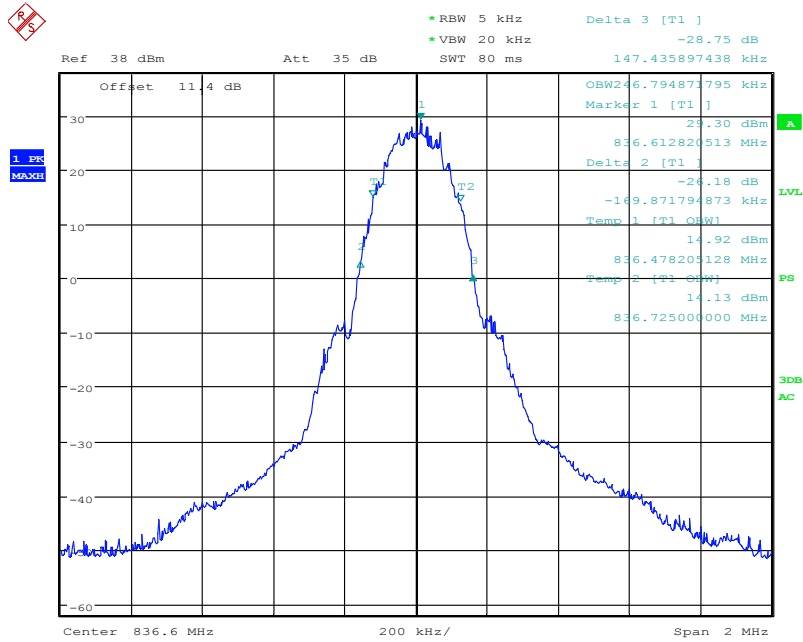


Date: 1.JUN.2015 15:52:02

GMSK Channel 128

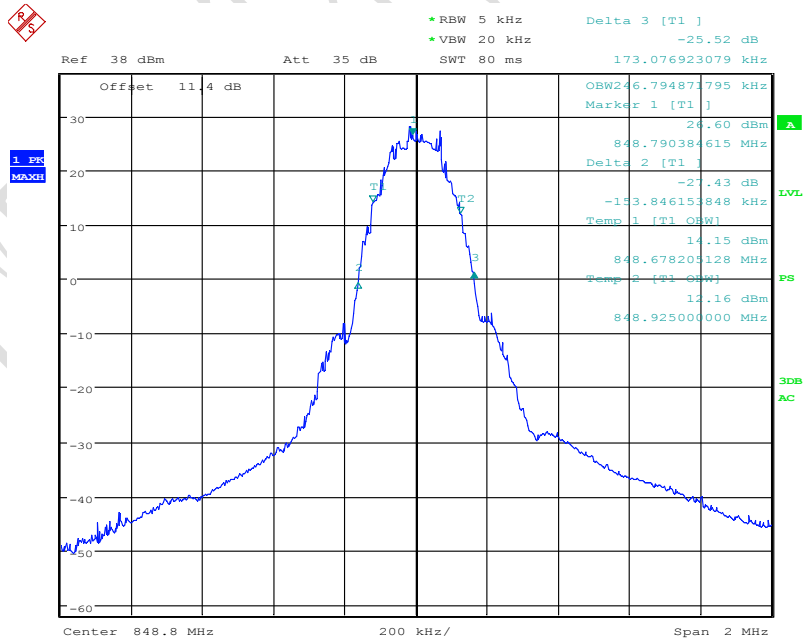
FCC Parts 2, 22, 24  
Equipment: U100

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Date: 1.JUN.2015 15:55:00

GMSK Channel 190



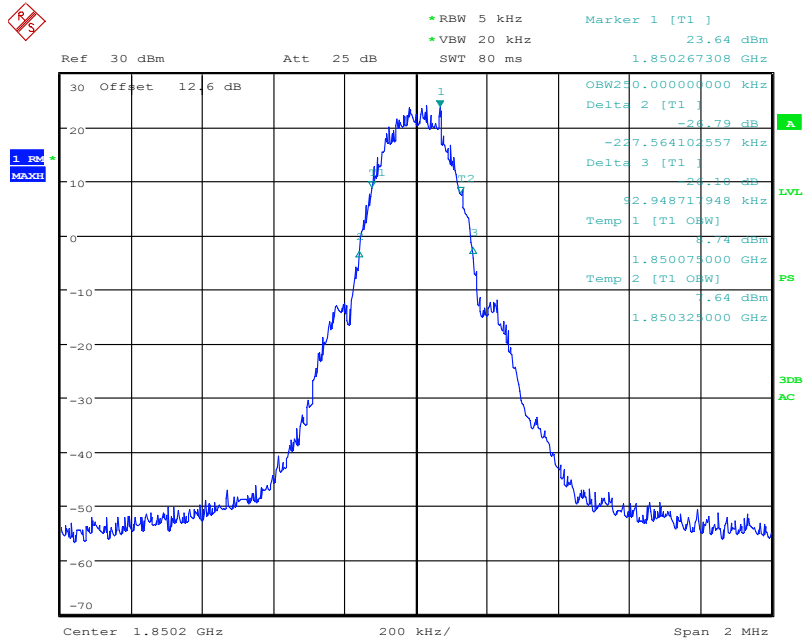
Date: 1.JUN.2015 15:56:57

GMSK Channel 251



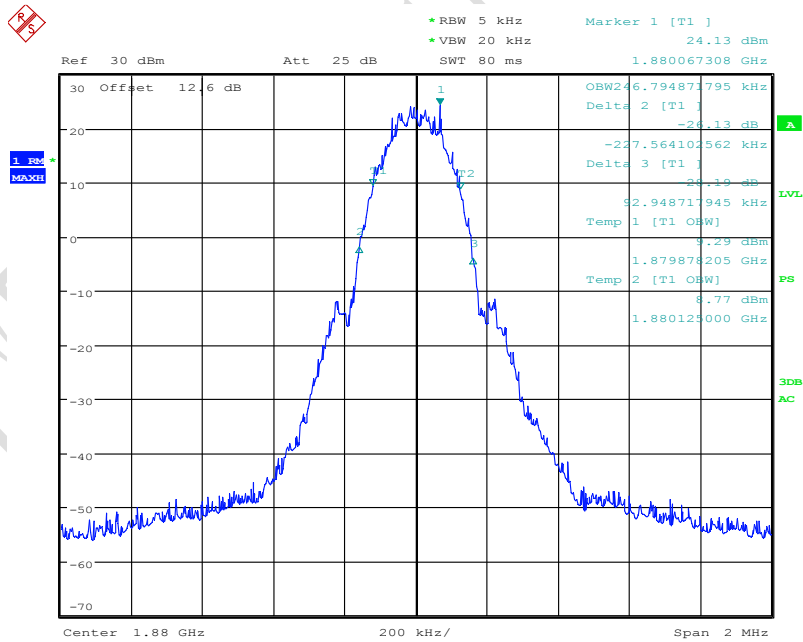
FCC Parts 2, 22, 24  
Equipment: U100

REPORT NO.: B15X50225-FCC-RF\_Rev1



Date: 1.JUN.2015 18:17:06

### GMSK Channel 512

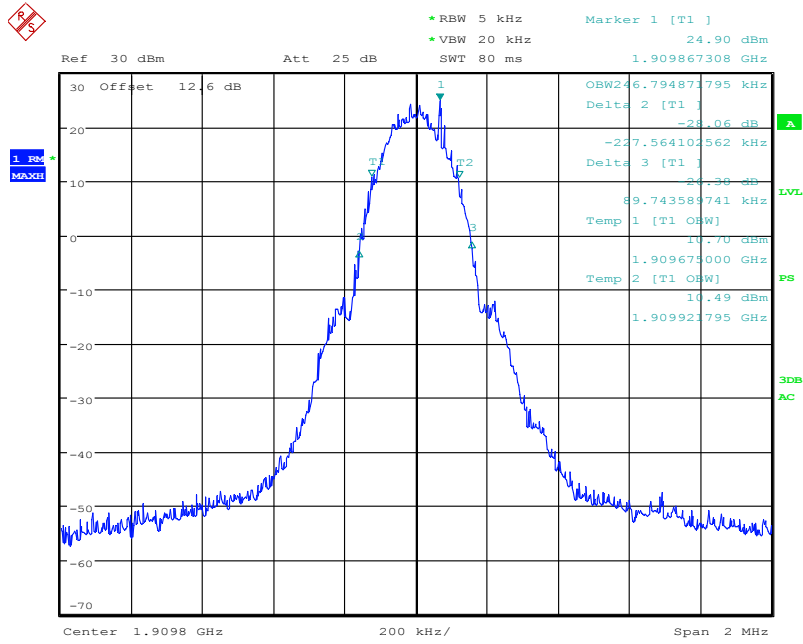


Date: 1.JUN.2015 18:18:45

### GMSK Channel 661

FCC Parts 2, 22, 24  
Equipment: U100

REPORT NO.: B15X50225-FCC-RF\_Rev1



Date: 1.JUN.2015 18:20:29

GMSK Channel 810

China Test Lab

### 4.3 Frequency Stability over Temperature Variation

<b>Specifications:</b>	2.1055,22.355,24.235
<b>Date of Test</b>	2015-06-01
<b>Test conditions:</b>	Ambient Temperature:-30°C-50°C Relative Humidity:30%-60% Air pressure: 86-106kPa
<b>Operation Mode</b>	TX on, channel 190 and 661 for GSM/GPRS mode.
<b>Test Results:</b>	Pass

<b>Limit</b>	
Frequency deviation [ppm]	±2.5

### Test Setup

The EUT was placed in a temperature chamber, demonstrated as figure T. The Wireless Telecommunications Test Set was used to set the Tx channel and power level, modulate the TX signal with different bit patterns and measure the frequency of Tx.

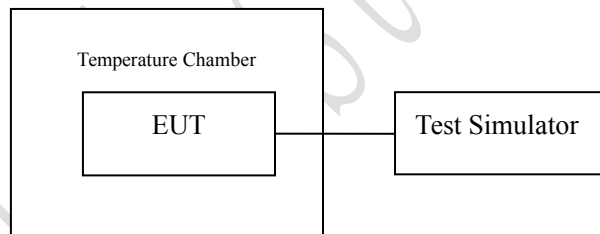


Figure T: setup for measurement of frequency stability over temperature variation

### Test Method

1. The EUT was turned off and placed in the temperature chamber.
2. The temperature of the chamber was set to -30°C and allowed to stabilize.
3. The EUT temperature was allowed to stabilize for 45 minutes.
4. The EUT was turned on and set to transmit with Wireless Telecommunications Test Set.
5. The maximum transmit frequency deviation during one minute period was measured by Wireless Communications Test Set.
6. The steps 3-5 were repeated for -30°C, -20°C, -10°C, 0°C, 10°C, 20°C, 30°C, 40°C and 50°C.

Test data:

**GSM/GPRS 850 band mode**

	Temperature[°C]	Offset[Hz]	Offset[ppm]	Remarks
GMSK	-30	62	0.07411	Pass
	-20	58	0.06933	Pass
	-10	-51	-0.06096	Pass
	0	54	0.06455	Pass
	10	41	0.04901	Pass
	20	47	0.05618	Pass
	30	48	0.05738	Pass
	40	43	0.05140	Pass
	50	47	0.05618	Pass

**GSM/GPRS 1900 band mode**

	Temperature[°C]	Offset[Hz]	Offset[ppm]	Remarks
GMSK	-30	-100	-0.05319	Pass
	-20	-62	-0.03298	Pass
	-10	-57	-0.03032	Pass
	0	-59	-0.03138	Pass
	10	-56	-0.02979	Pass
	20	-64	-0.03404	Pass
	30	-60	-0.03191	Pass
	40	-62	-0.03298	Pass
	50	-51	-0.02713	Pass

### 4.4 Frequency Stability over Voltage Variation

<b>Specifications:</b>	2.1055,22.355,24.235
<b>Date of Test</b>	2015-06-01
<b>Test conditions:</b>	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
<b>Operation Mode</b>	TX on, channel 190 and 661 for GSM/GPRS mode.
<b>Test Results:</b>	Pass

<b>Limit</b>	
Frequency deviation [ppm]	±2.5

### Test Setup

The EUT was placed in a shielding chamber and powered by an adjustable power supply, demonstrated as figure V. A Wireless Telecommunications Test Set was used to set the TX channel and power level, modulate the TX signal with different bit patterns and measure the frequency of TX.

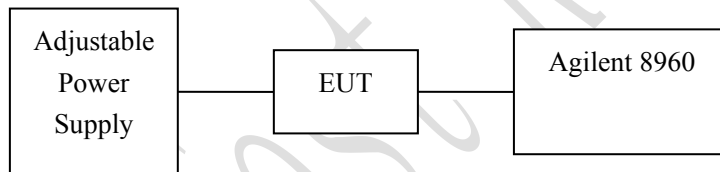


Figure V: test setup for measurement of frequency stability over voltage variation

### Test Method

The EUT was powered by the adjustable power supply. The frequency stability is measured by the Wireless Telecommunications Test Set.

### Test data:

#### GSM/GPRS 850MHz band GMSK mode

Voltage (V)	Offset[Hz]	Offset[ppm]	Remarks
3.3	-66	-0.07889	Pass
3.7	48	0.05738	Pass
4.2	-46	-0.05498	Pass

#### GSM/GPRS 1900MHz band GMSK mode

Voltage (V)	Offset[Hz]	Offset[ppm]	Remarks
3.3	-64	-0.07650	Pass
3.7	-61	-0.07291	Pass
4.2	-61	-0.07291	Pass

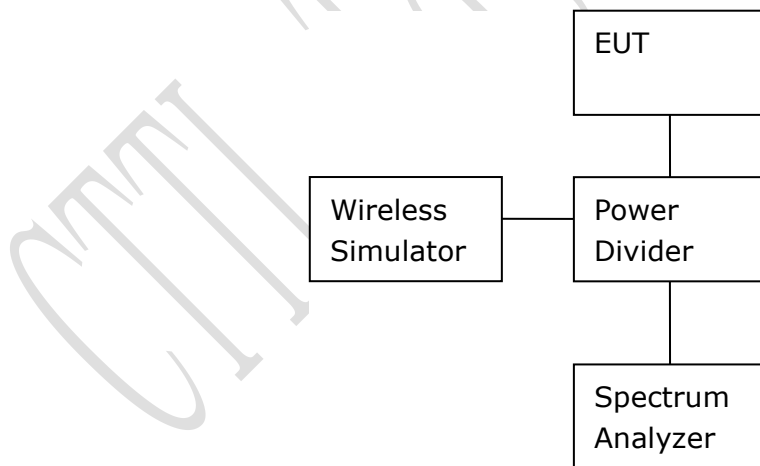
### 4.5 Conducted RF Power Output

<b>Specifications:</b>	2.1046,22.913(a),24.232(c)
<b>Date of Tests</b>	2015-02-07-2015-04-09
<b>Test conditions:</b>	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
<b>Operation Mode</b>	TX on, channel 128, 190, 251 and 512, 661, 810 for GSM/GPRS mode.
<b>Test Results:</b>	Pass

<b>Limit Level Construction:</b> ERP: According to Part 22.913(a) and 24.232(c), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.	
<b>Limits for ERP</b>	
<b>Frequency range</b>	<b>Limit Level (ERP)</b>
TX channel	7W or 38.5dBm

### Test Setup:

During the test, the EUT was controlled via the Wireless Communications Test Set to ensure max power transmission and proper modulation and measured by spectrum analyzer.



### Test Method

- 1) The EUT was coupled to the spectrum analyzer and the base station simulator through a power divider. The loss of the cables in the test system is calibrated to correct the readings.
- 2) The spectrum analyzer was set to Maxpeak Detector function and Maximum hold mode.
- 3) The resolution bandwidth of the spectrum analyzer was comparable to the emission bandwidth.

Note:

None

Test Results:

**GSM 850 band GSM mode**

Channel No.	Maximum output power (PK) [dBm]
128 (824.2MHz)	33.04
190 (836.6MHz)	33.13
251 (848.8MHz)	32.93

**GSM 850 band GPRS mode**

Channel No.	Maximum output power (PK) [dBm]			
	1TS	2TS	3TS	4TS
128 (824.2MHz)	33.25	30.92	28.70	26.62
190 (836.6MHz)	33.16	30.96	28.78	26.83
251 (848.8MHz)	33.04	31.01	28.93	26.92

**GSM 1900 band GSM mode**

Channel No.	Maximum output power (PK) [dBm]
512 (1850.2MHz)	30.05
661 (1880.0MHz)	30.22
810 (1909.8MHz)	30.03

**GSM 1900 band GPRS mode**

Channel No.	Maximum output power (PK) [dBm]			
	1TS	2TS	3TS	4TS
512 (1850.2MHz)	30.01	28.21	26.14	24.01
661 (1880.0MHz)	30.16	28.37	26.36	24.29
810 (1909.8MHz)	30.09	28.26	26.26	24.14

### 4.6 Conducted Spurious Emission

<b>Specifications:</b>	2.1051,22.917,24.238
<b>Date of Tests</b>	2015-06-01~2015-06-02
<b>Test conditions:</b>	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
<b>Operation Mode</b>	TX on, channel 128, 190, 251 and 512, 661, 810 for GSM/GPRS mode.
<b>Test Results:</b>	Pass

**Limit Level Construction:**

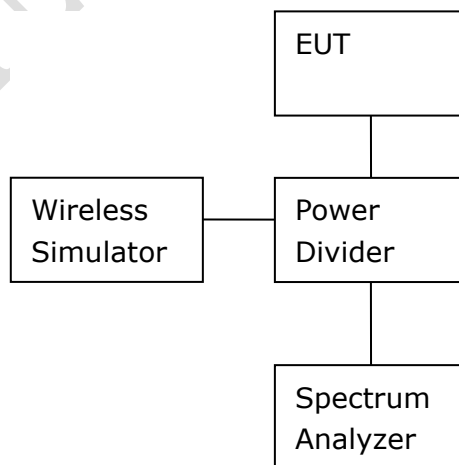
According to Part 24.238 (a), i.e., Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB, so the limit level is:  
 $P(\text{dBm}) - (43 + 10 \log(P)) \text{ dB} = -13\text{dBm}$

**Limits for Radiated spurious emissions(UE)**

Frequency range	Limit Level /Resolution Bandwidth
30 MHz to 20000 MHz	-13dBm/1MHz

### Test Setup:

During the test, the EUT was controlled via the Wireless Communications Test Set to ensure max power transmission and proper modulation and measured by spectrum analyzer.





## Test Method

The measurement was performed accordance with section 2.2.13 of ANSI/TIA-603-C-2002: *Land Mobile FM or PM Communications Equipment Measurement and Performance Standards*.

The following steps outline the procedure used to measure the conducted emissions from the EUT.

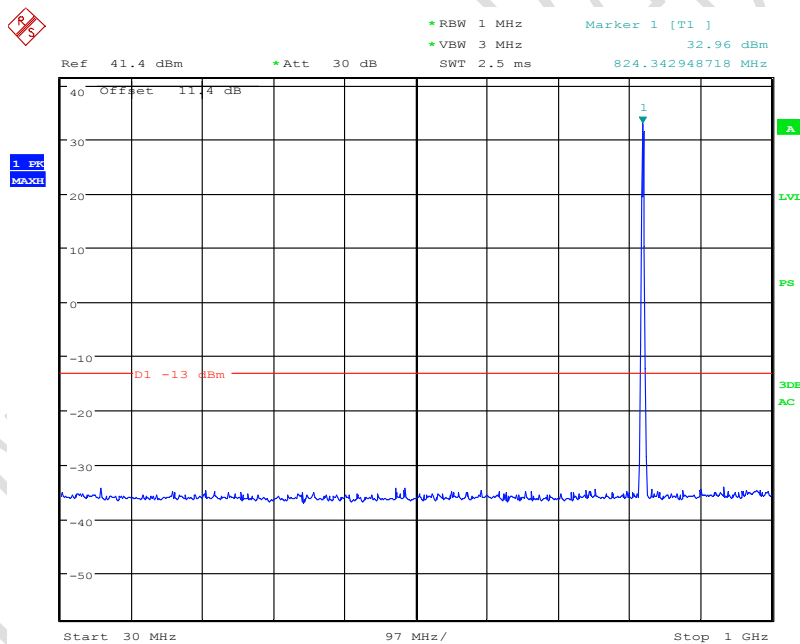
1. Determine frequency range for measurements: From CFR 2.1057 the spectrum should be investigated from the lowest radio frequency generated in the equipment up to at least the 10th harmonic of the carrier frequency.

## Note:

None

## Graphical results :

GMSK, Low channel, 824.200 MHz, 30MHz to 1GHz



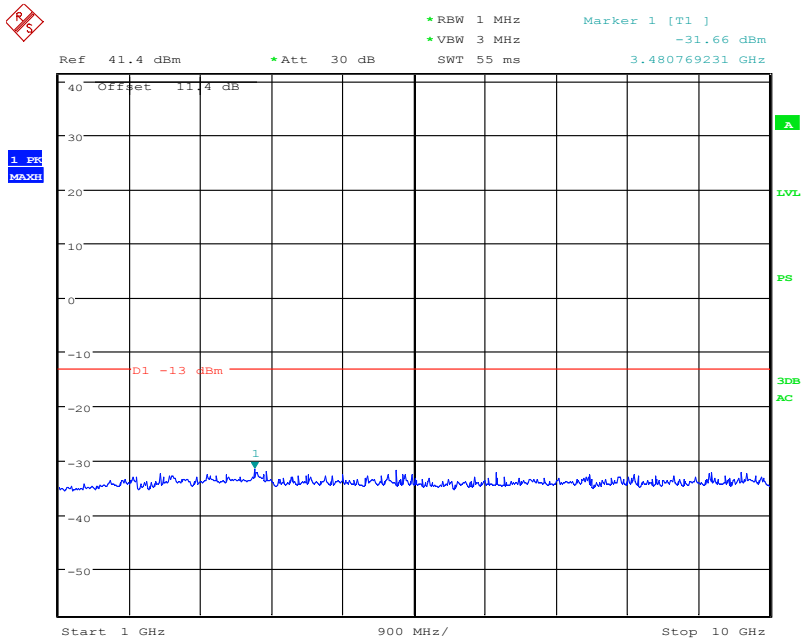
Date: 1.JUN.2015 19:27:43

**Note: The strong emission shown in each case is the carrier signal.**

FCC Parts 2, 22, 24  
Equipment: U100

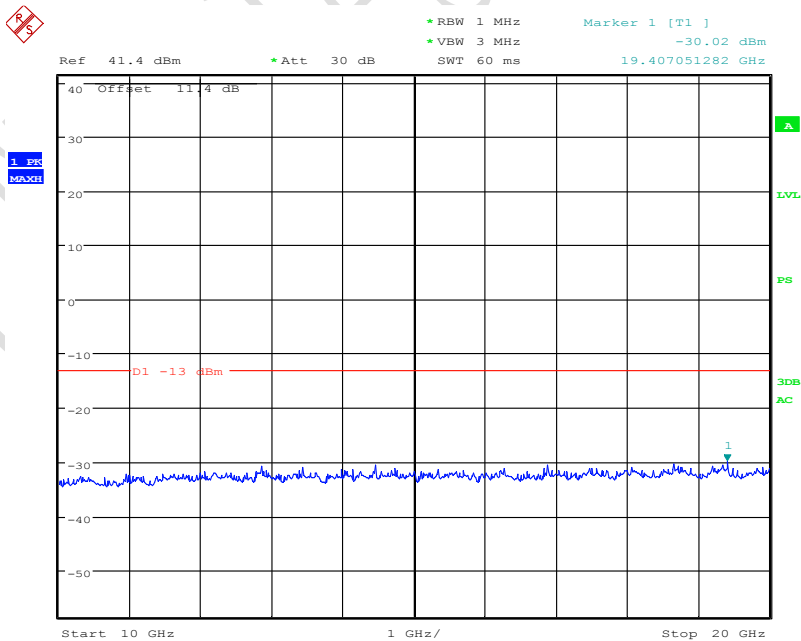
REPORT NO.: B15X50225-FCC-RF\_Rev1

GMSK, Low channel, 824.200 MHz, 1GHz to 10GHz



Date: 1.JUN.2015 19:29:46

GMSK, Low channel, 824.200 MHz, 10GHz to 20GHz

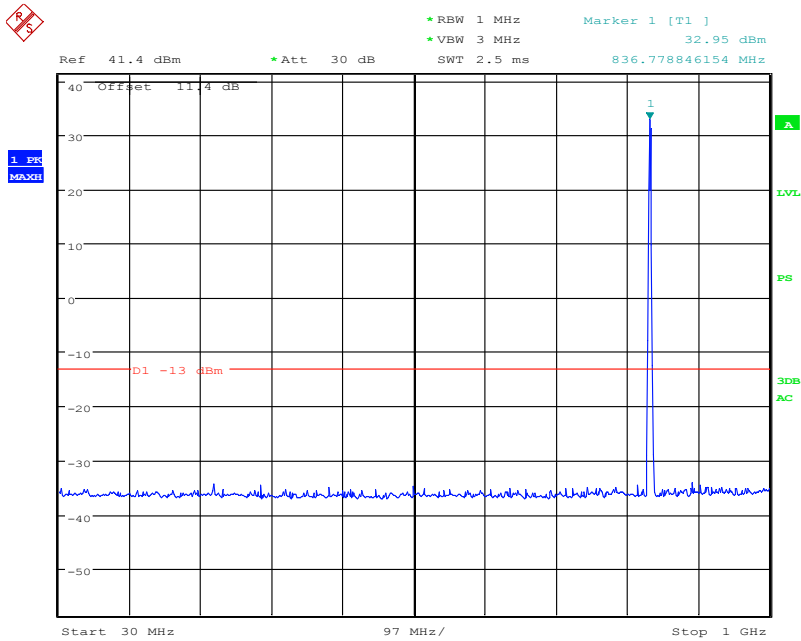


Date: 1.JUN.2015 19:30:56

FCC Parts 2, 22, 24  
Equipment: U100

REPORT NO.: B15X50225-FCC-RF\_Rev1

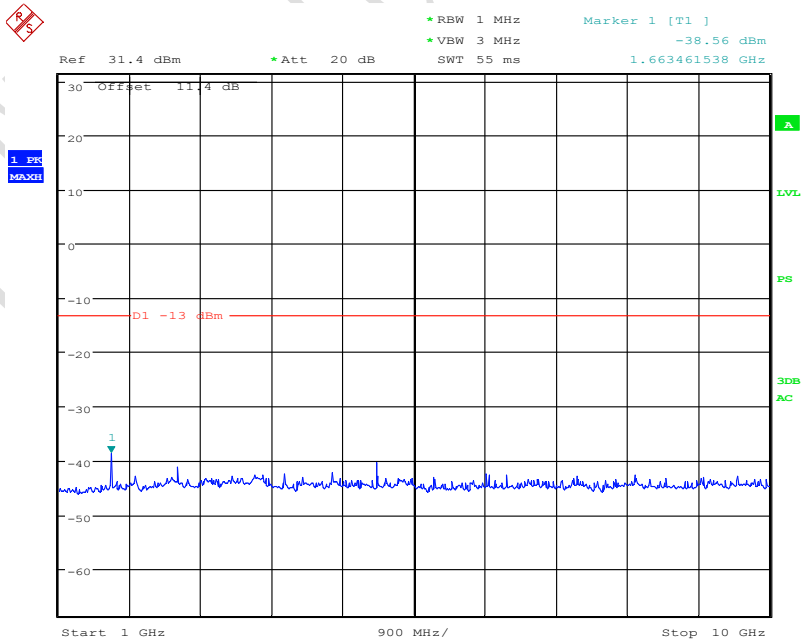
GMSK, Mid Channel, 836.6 MHz, 30MHz to 1GHz



Date: 1.JUN.2015 19:34:30

**Note: The strong emission shown in each case is the carrier signal.**

GMSK, Mid Channel, 836.6 MHz, 1GHz to 10GHz

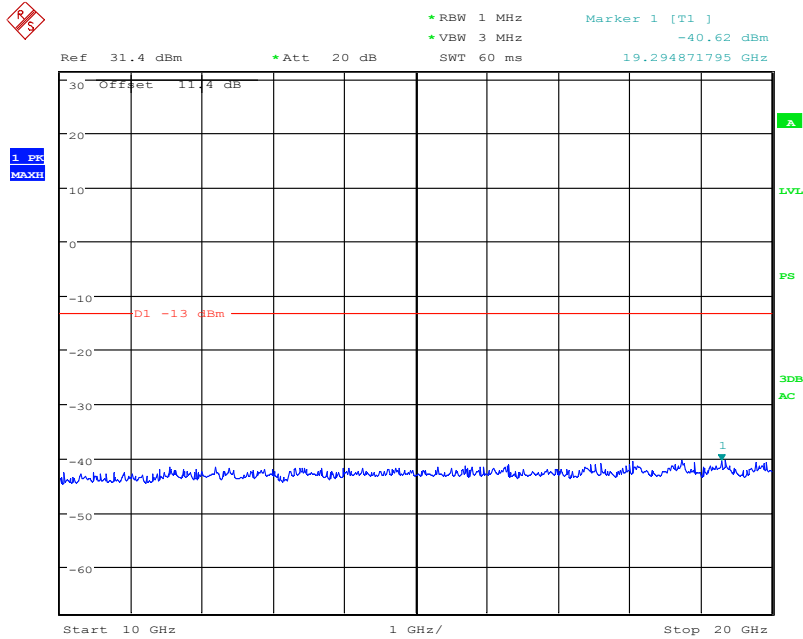


Date: 1.JUN.2015 19:33:24

FCC Parts 2, 22, 24  
Equipment: U100

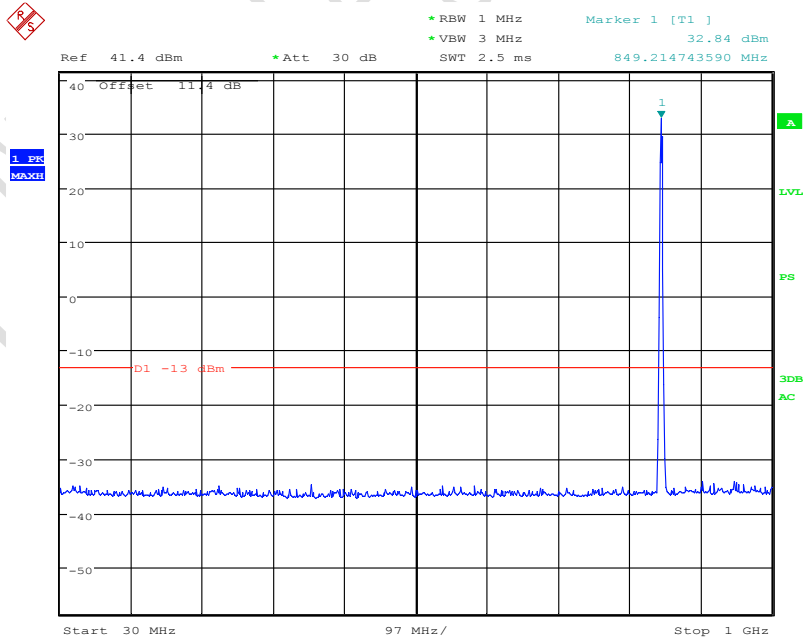
REPORT NO.: B15X50225-FCC-RF\_Rev1

GMSK, Mid Channel, 836.6 MHz, 10GHz to 20GHz



Date: 1.JUN.2015 19:32:47

GMSK, High Channel, 848.8 MHz, 30MHz to 1GHz



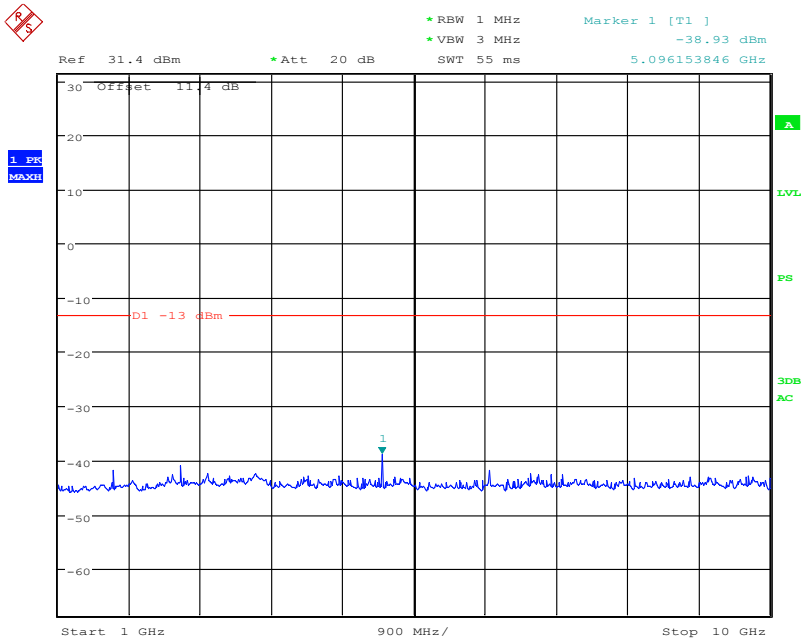
Date: 1.JUN.2015 19:35:15

Note: The strong emission shown in each case is the carrier signal.

FCC Parts 2, 22, 24  
Equipment: U100

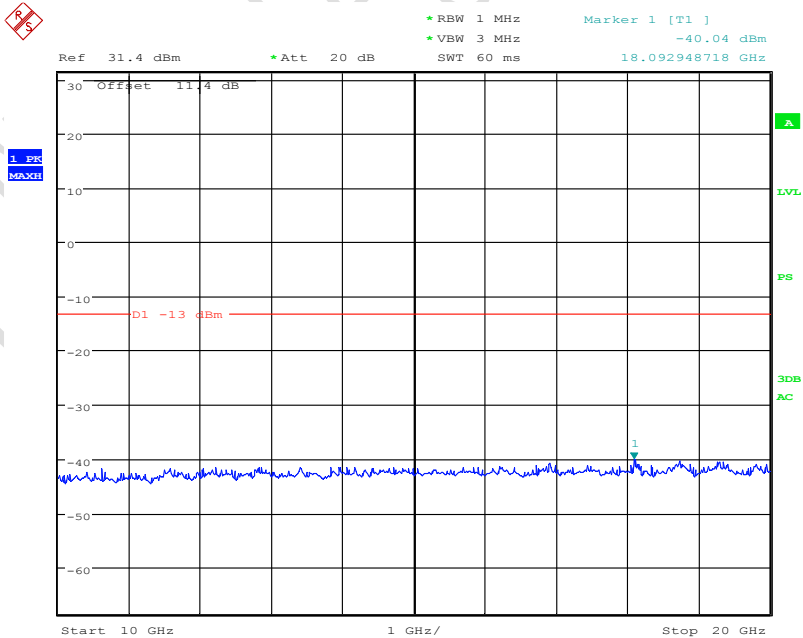
REPORT NO.: B15X50225-FCC-RF\_Rev1

GMSK, High Channel, 848.8 MHz, 1GHz to 10GHz



Date: 1.JUN.2015 19:36:08

GMSK, High Channel, 848.8 MHz, 10GHz to 20GHz

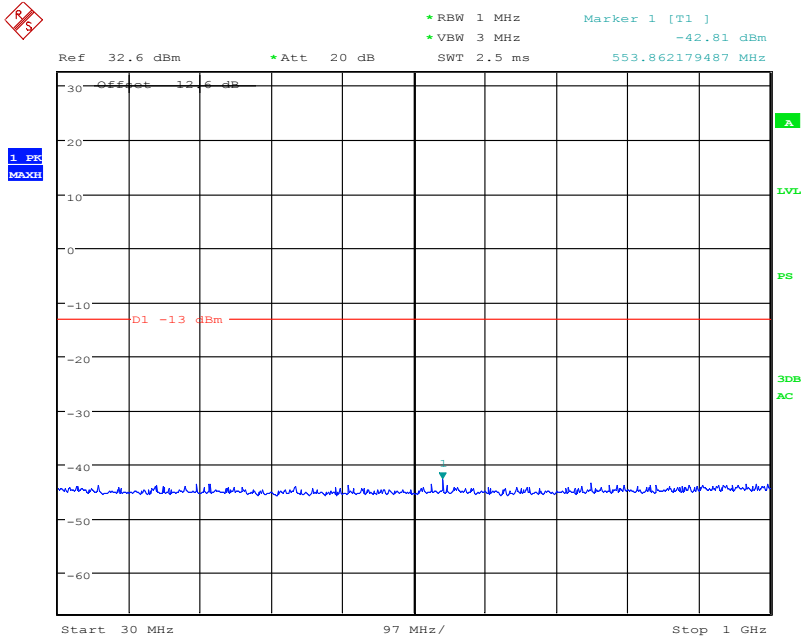


Date: 1.JUN.2015 19:37:04

FCC Parts 2, 22, 24  
Equipment: U100

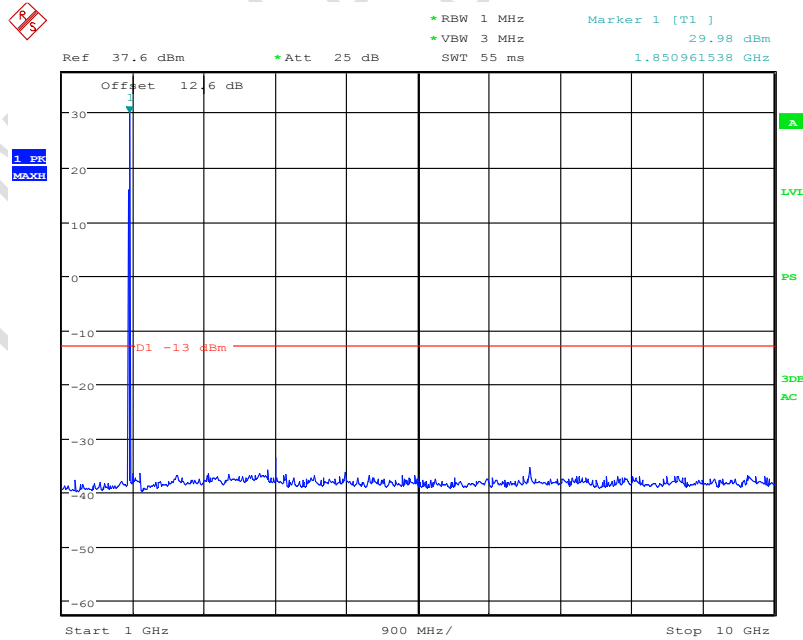
REPORT NO.: B15X50225-FCC-RF\_Rev1

GMSK, Low channel, 1850.2 MHz, 30MHz to 1GHz



Date: 2.JUN.2015 19:02:42

GMSK, Low channel, 1850.2 MHz, 1GHz to 10GHz



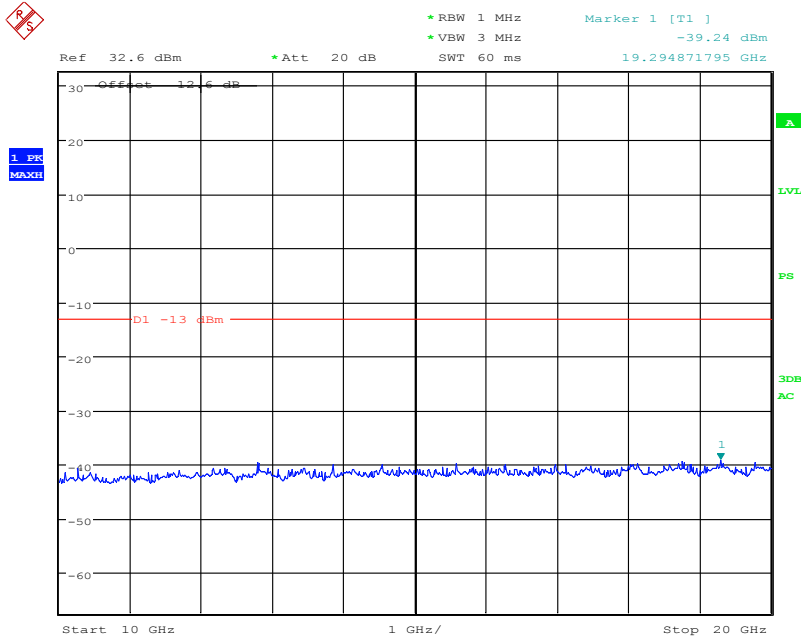
Date: 2.JUN.2015 19:04:54

**Note: The strong emission shown is the carrier signal.**

FCC Parts 2, 22, 24  
Equipment: U100

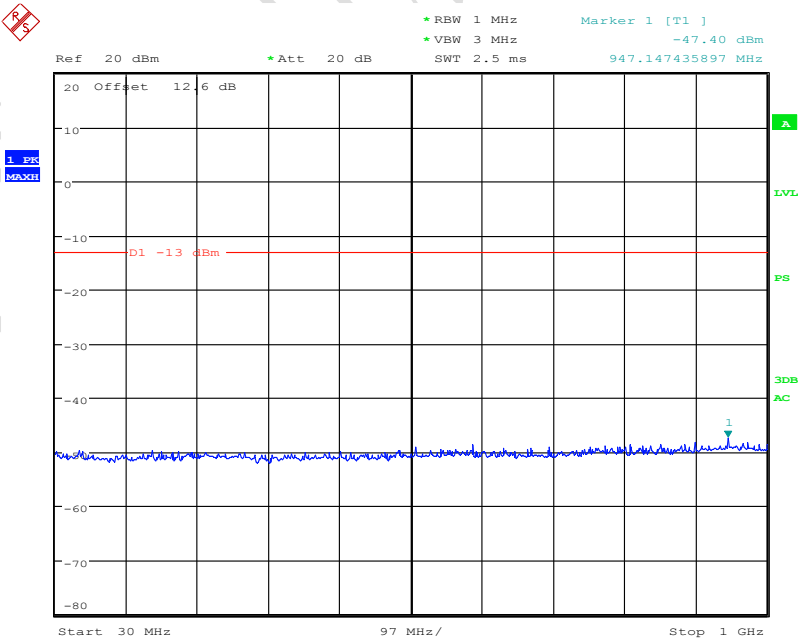
REPORT NO.: B15X50225-FCC-RF\_Rev1

GMSK, Low channel, 1850.2 MHz, 10GHz to 20GHz



Date: 2.JUN.2015 19:06:07

GMSK, Middle channel, 1880.0 MHz, 30MHz to 1GHz

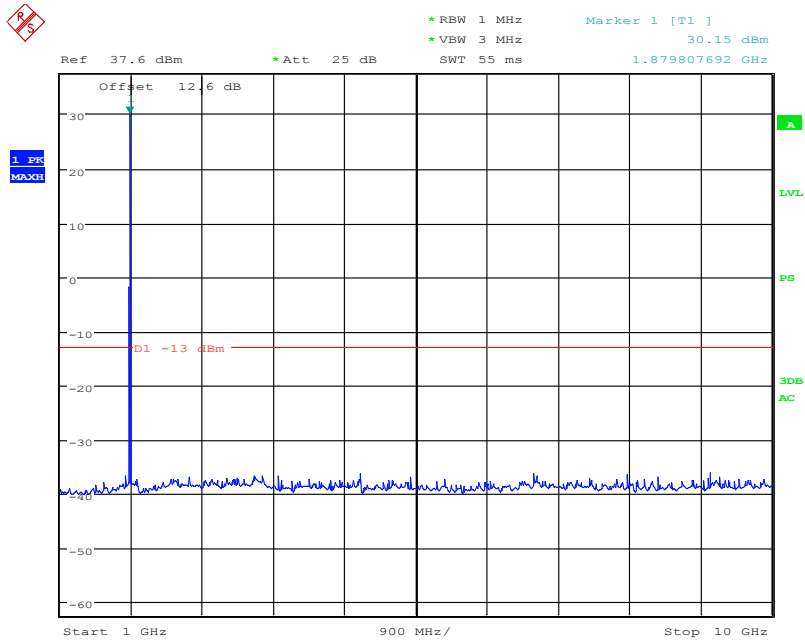


Date: 2.JUN.2015 19:09:07

FCC Parts 2, 22, 24  
Equipment: U100

REPORT NO.: B15X50225-FCC-RF\_Rev1

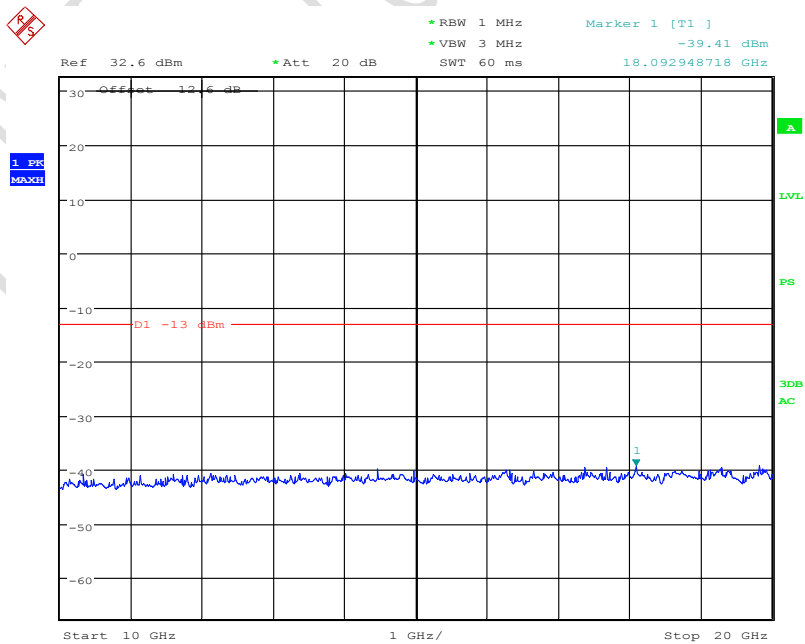
GMSK, Middle channel, 1880.0 MHz, 1GHz to 10GHz



Date: 2.JUN.2015 19:07:47

**Note: The strong emission shown is the carrier signal.**

GMSK, Middle channel, 1880.0 MHz, 10GHz to 20GHz



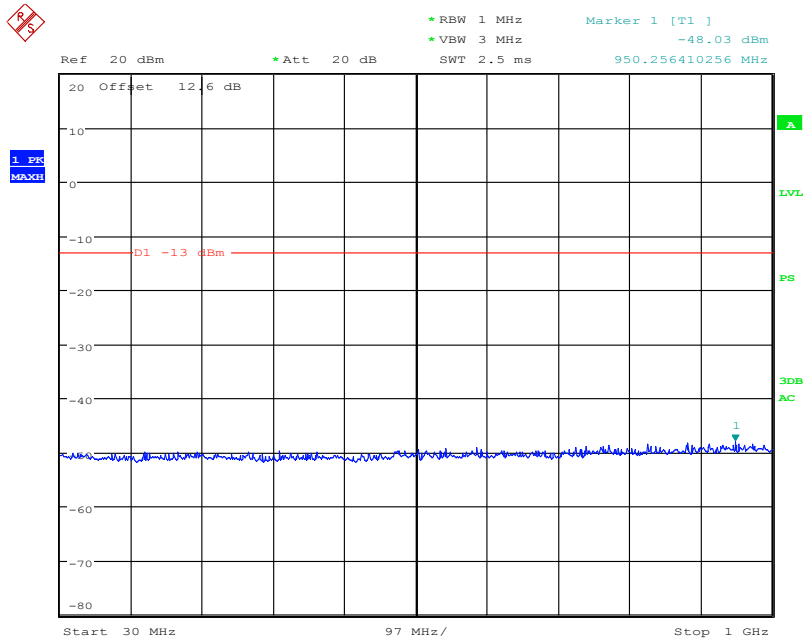
Date: 2.JUN.2015 19:07:01



FCC Parts 2, 22, 24  
Equipment: U100

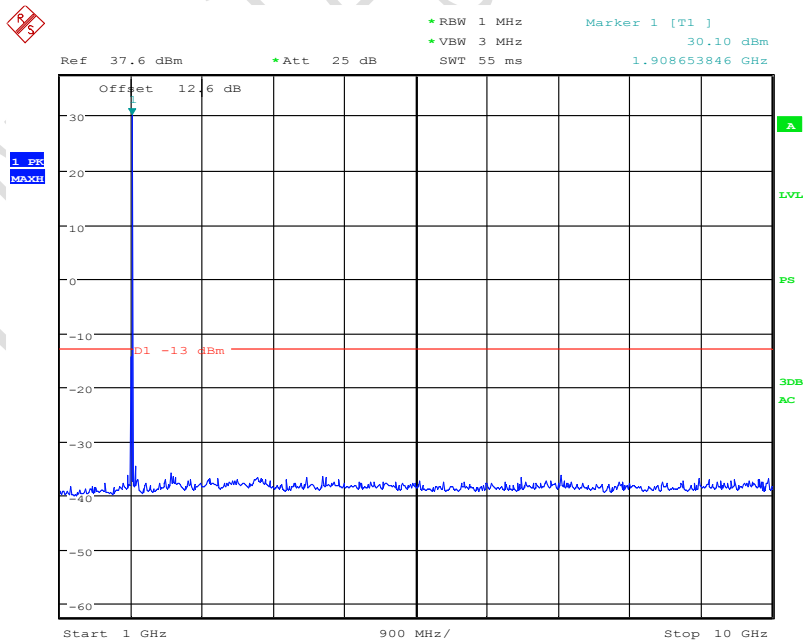
REPORT NO.: B15X50225-FCC-RF\_Rev1

GMSK, High channel, 1909.8 MHz, 30MHz to 1GHz



Date: 2.JUN.2015 19:10:24

GMSK, High channel, 1909.8 MHz, 1GHz to 10GHz



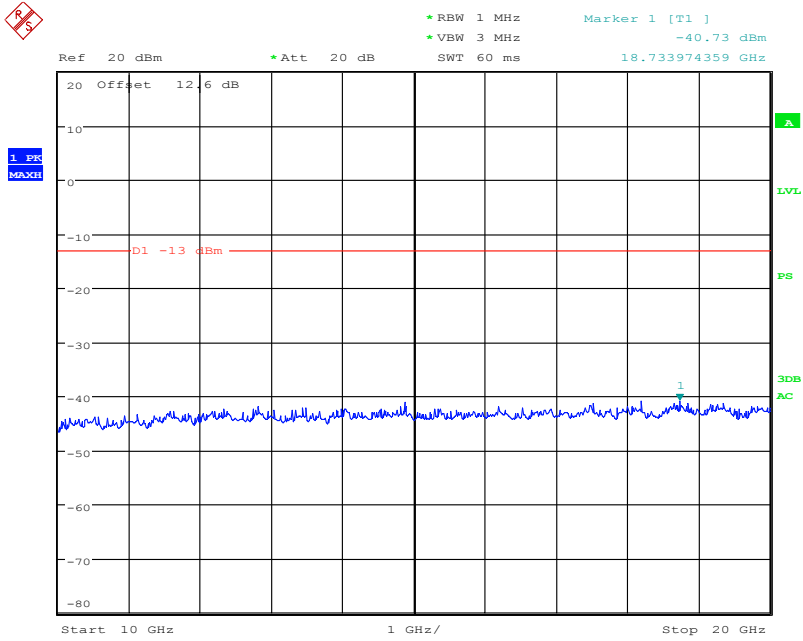
Date: 2.JUN.2015 19:11:15

**Note: The strong emission shown is the carrier signal.**

FCC Parts 2, 22, 24  
Equipment: U100

REPORT NO.: B15X50225-FCC-RF\_Rev1

GMSK, High channel, 1909.8 MHz, 10GHz to 20GHz



Date: 2.JUN.2015 19:11:59

CTTL TEST

### 4.7 Band Edge

<b>Specifications:</b>	2.1051, 24.238, 2.1053, 22.917
<b>Date of Tests</b>	2015-06-16
<b>Test conditions:</b>	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
<b>Operation Mode</b>	TX on, channel 128, 251 and 512, 810 for GSM/GPRS mode.
<b>Test Results:</b>	Pass

**Limit Level Construction:**

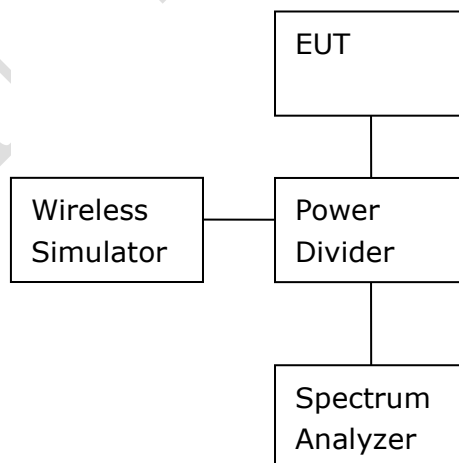
According to Part 24.238 (a), i.e., Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB, so the limit level is:  
 $P(\text{dBm}) - (43 + 10 \log(P)) \text{ dB} = -13\text{dBm}$

**Limits for Radiated spurious emissions**

Frequency range	Limit Level
Band edge	-13dBm

### Test Setup:

During the test, the EUT was controlled via the Wireless Communications Test Set to ensure max power transmission and proper modulation and measured by spectrum analyzer.



## Test Method

- 1) The EUT was coupled to the EMI test receiver analyzer mode and the base station simulator through a power divider. The loss of the cables the test system is calibrated to correct the readings.
- 2) The spectrum analyzer was set to Maxpeak Detector function and Maximum hold mode.
- 3) The resolution bandwidth of the spectrum analyzer was a little greater than 1% of the 26dB emission bandwidth.

Note: --

China Test Report

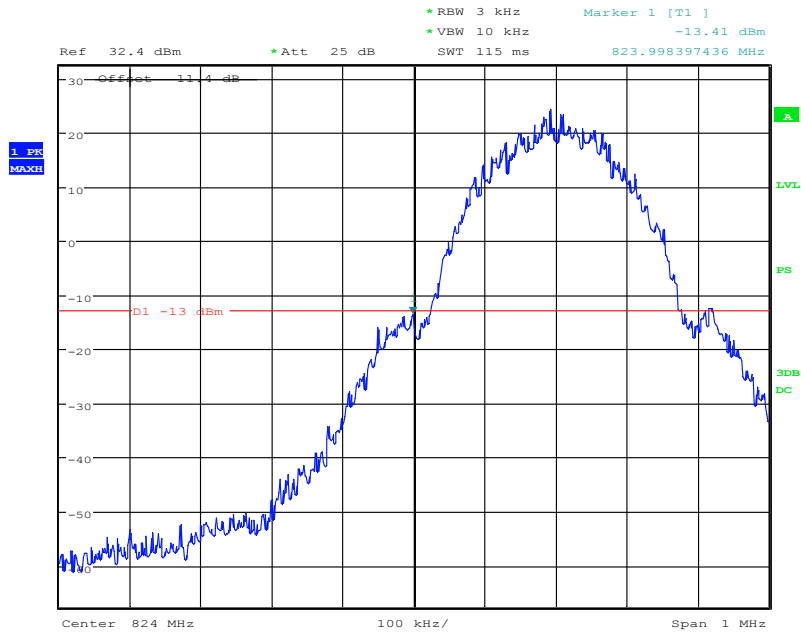
FCC Parts 2, 22, 24  
Equipment: U100

REPORT NO.: B15X50225-FCC-RF\_Rev1

### Test Results:

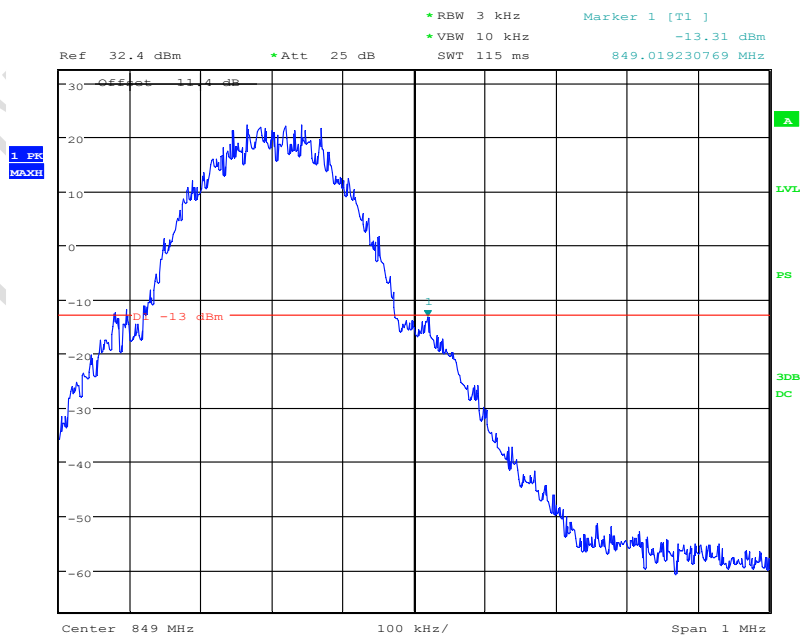
#### Graphical results:

GMSK; Cellular low channel, below 824 MHz



Date: 16.JUN.2015 19:44:02

GMSK; Cellular high channel, above 849 MHz

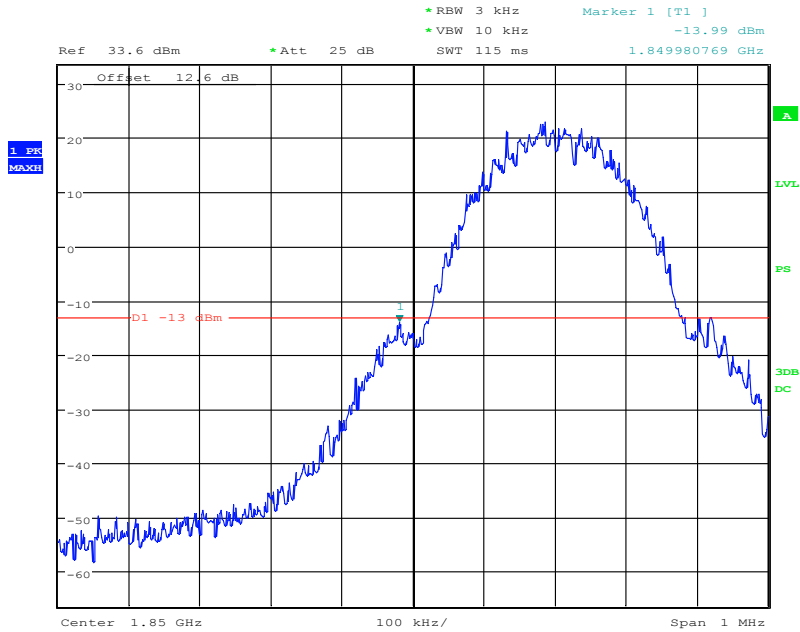


Date: 16.JUN.2015 19:48:46

FCC Parts 2, 22, 24  
Equipment: U100

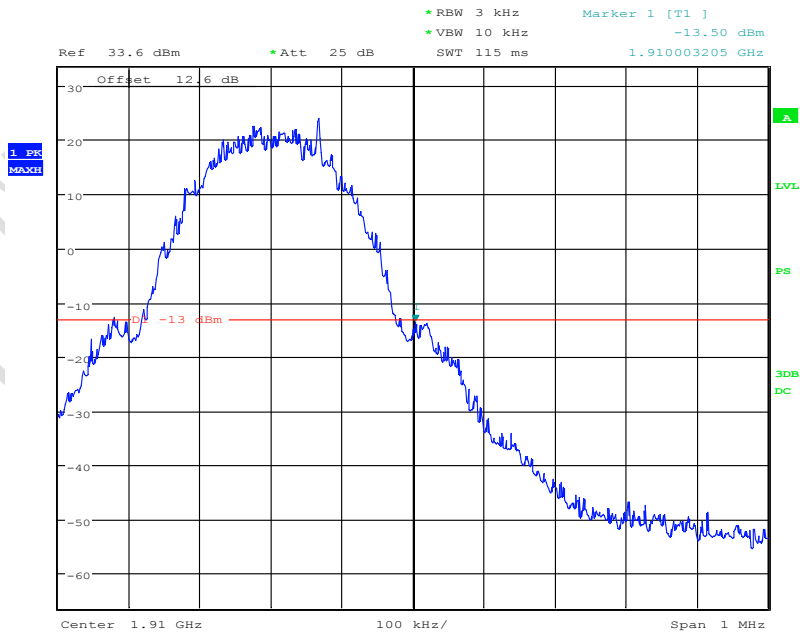
REPORT NO.: B15X50225-FCC-RF\_Rev1

GMSK; PCS low channel, below 1850 MHz



Date: 16.JUN.2015 19:51:55

GMSK; PCS high channel, above 1910 MHz



Date: 16.JUN.2015 19:55:49

### 4.8 ERP and EIRP

<b>Specifications:</b>	22.913(a), 24.232(b)
<b>Date of Tests</b>	2015-06-04-2015-06-05
<b>Test conditions:</b>	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
<b>Operation Mode</b>	TX on, channel 128,190,251,512, 661 and 810 for GSM/GPRS mode.
<b>Test Results:</b>	Pass

**Limit Level Construction:**

**Part 22:**

According to Part 22.913(a)(2):The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

**Part 24:**

According to Part 24.232(b):The EIRP of mobile transmitters and auxiliary test transmitters must not exceed 2 Watts.

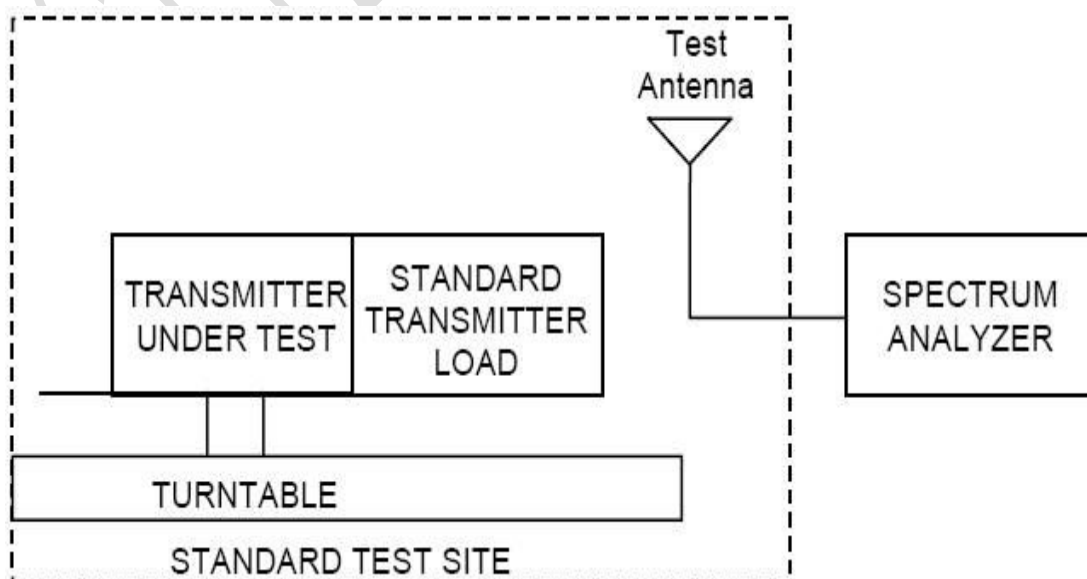
**Test Setup:**

The EUT was placed in an anechoic chamber. The Communications Test Set was used to set the TX channel and power level and modulate the TX signal with different bit patterns.

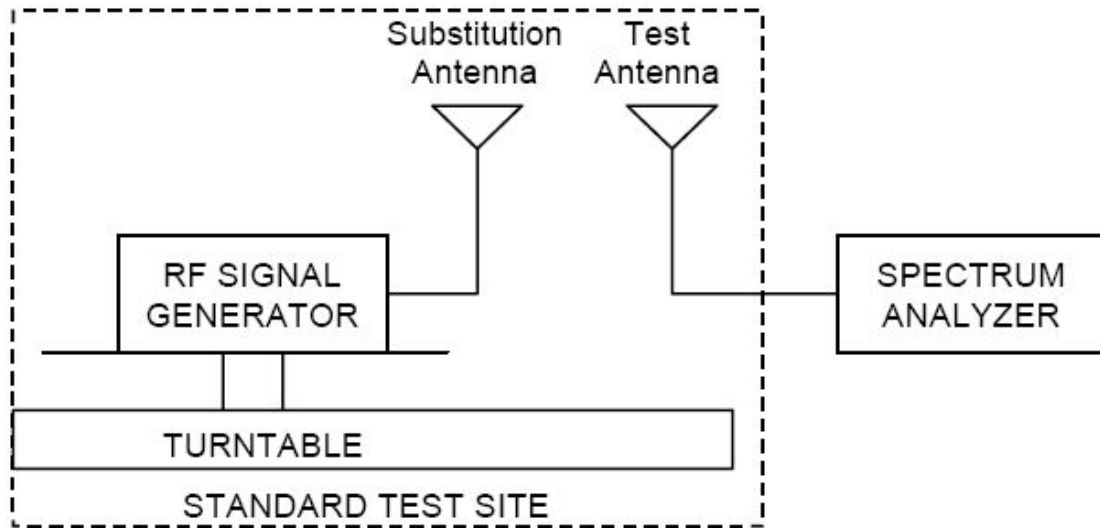
**Test Method:**

The measurement method is substitution method accordance with section 2.2.12 of ANSI/TIA-603-C: *Land Mobile FM or PM Communications Equipment Measurement and Performance Standards*.

(a) Connect the equipment as illustrated and measure the spurious emissions as the method as above.



(b) Reconnect the equipment as illustrated.



(c) Remove the transmitter and replace it with a substitution antenna. The center of the substitution antenna should be approximately at the same location as the center of the transmitter.

(d) Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a non-radiating cable. With the antennas at both ends horizontally polarized, and with the signal generator tuned to a particular spurious frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output.

(e) Repeat step d) with both antennas vertically polarized for each spurious frequency.

(f) Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained in steps d) and e) by the power loss in the cable between the generator and the antenna, and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna by the following formula:

$$ERP = S.G \text{ output}(dBm) - \text{cable loss (dB)} + \text{antenna gain (dBd)}$$

$$EIRP = S.G \text{ output}(dBm) - \text{cable loss (dB)} + \text{antenna gain (dBi)}$$



**Test Data (GSM 850 GSM)**

Frequency [MHz]	S.G output [dBm]	Cable loss [dB]	Antenna Gain [dB]	ERP (Pd) [dBm]
824.2	29.85	3.4	6.0	32.45
836.4	29.65	3.4	6.0	32.25
848.8	29.44	3.4	6.0	32.04

**Test Data (GSM 850 GPRS)**

Frequency [MHz]	S.G output [dBm]	Cable loss [dB]	Antenna Gain [dB]	ERP (Pd) [dBm]
824.2	29.01	3.4	6.0	31.61
836.4	28.65	3.4	6.0	31.25
848.8	28.69	3.4	6.0	31.29

**Test Data (PCS 1900 GSM)**

Frequency [MHz]	S.G output [dBm]	Cable loss [dB]	Antenna Gain [dB]	EIRP (Pd) [dBm]
1850.2	25.00	5.0	10.4	30.40
1880.0	24.57	5.0	10.4	29.97
1909.8	24.89	5.1	10.4	30.19

**Test Data (PCS 1900 GPRS)**

Frequency [MHz]	S.G output [dBm]	Cable loss [dB]	Antenna Gain [dB]	EIRP (Pd) [dBm]
1850.2	24.33	5.0	10.4	29.73
1880.0	24.52	5.0	10.4	29.92
1909.8	24.49	5.1	10.4	29.79

## **Annex A External Photos**

See the document "U100- External Photos".

## **Annex B Internal Photos**

See the document " U100-Internal Photos".

## **ANNEX C Deviations from Prescribed Test Methods**

No deviation from Prescribed Test Methods.

————— **The End of this Report** —————