

# TEST REPORT

**REPORT NUMBER: I11GC0275-FCC-RF-2**

**ON**

**Type of Equipment:** PremierWave XC  
**Type of Designation:** PremierWave XC  
**Manufacturer:** iWOW Connections Pte Ltd

**ACCORDING TO**

**FCC CFR Part 2, FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS. Oct, 1, 2011**

**PART 22, PUBLIC MOBILE SERVICES. Oct 1, 2011**

**PART 24, PERSONAL COMMUNICATIONS SERVICES, Oct 1, 2011**

**China Telecommunication Technology Labs.**

*Month date, year*

*Mar 6, 2012*

*Signature*



He Guili  
Director

**FCC ID:** R68PWXC

**Report Date:** 2012-3-6

**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 and 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 and 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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### 1.3 Testing Laboratory information

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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: -----  
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## 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: iWOW Connections Pte Ltd  
Address: 1 Lorong 2 Toa Payoh #04-01 Yellow Pages Building  
Singapore 319637

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

Name: iWOW Connections Pte Ltd  
Address: 1 Lorong 2 Toa Payoh #04-01 Yellow Pages Building  
Singapore 319637

## 2 Test Item

### 2.1 General Information

Manufacturer: iWOW Connections Pte Ltd  
 Name: PremierWave XC  
 Model Number: PremierWave XC  
 Serial Number: 355292020252775  
 Production Status: Product  
 Receipt date of test item: 2011-05-04

### 2.2 Outline of EUT

EUT is a cellular Radio Module supporting GPRS of 850/900/1800/1900. For GPRS, its multi-slot class is 12 with maximum 4 up slots.

### 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 Station	iWOW Connections Pte Ltd	PremierWave XC	3552920 2025277 5	--
B	adapter	Click Technology (SHEN ZHEN) CO.LTD	CPS012A120100 *	--	--
C	battery	--	--	--	--
D	Earphone	--	--	--	--

Cables:

Item	Cable Type	Manufacturer	Length	Shield	Quantity	Remarks
1	USB	--	--	--	--	--

### 2.5 Other Information

Version of hardware and software:

HW Version: --

SW Version: --



### 3 Summary of Test Results

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

<b>GPRS mode:</b>		
Specification Clause	Name of Test	Result
2.1053, 24.238, 22.917	Radiated Spurious Emission	Pass
2.1046,24.232, 22.913(a)	Radiated RF Power Output Effective Radiated Power (ERP)	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
Note 1: No applicable performance criteria.		

## 4 Test Results

### 4.1 Radiated Spurious Emission

<b>Specifications:</b>	2.1053, 24.238, 22.917					
<b>Date of Tests</b>	2011-10-14					
<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 GPRS mode 850 and 1900 band respectively.					
<b>Test Results:</b>	Pass					
<b>Test equipment Used:</b>						
Asset Number	Description	Manufacturer	Model Number	Serial Number	Cal Due	State
7805	EMI Test Receiver	R/S	ESIB26	100211	2012-01-12	Normal
7330	Ultra Broadband Antenna	SCHWARZBECK	VULB 9160	--	2013-11-24	Normal
7330	Double-Ridged Horn Antenna	R/S	HF906	100037	2013-01-24	Normal
713	Fully-Anechoic Chamber	ETS	11.8m×6.5m×6.3 m	--	2013-11-16	Normal
111835	Wireless Communications Test Set	R&S	CMU200	1100000802	2012-06-08	Normal

#### Limit Level Construction:

##### Part22:

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:

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

##### Part24:

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 1 GHz	-13dBm/100kHz
1 GHz to 20 GHz	-13dBm/1MHz

**Test Setup:**

The EUT was placed in an anechoic chamber, see figure SP. The Wireless Communications Test Set was used to set the TX channel and power level and modulate the TX signal with different bit patterns. The test was done using an automated test system, where all test equipments were controlled by a computer.

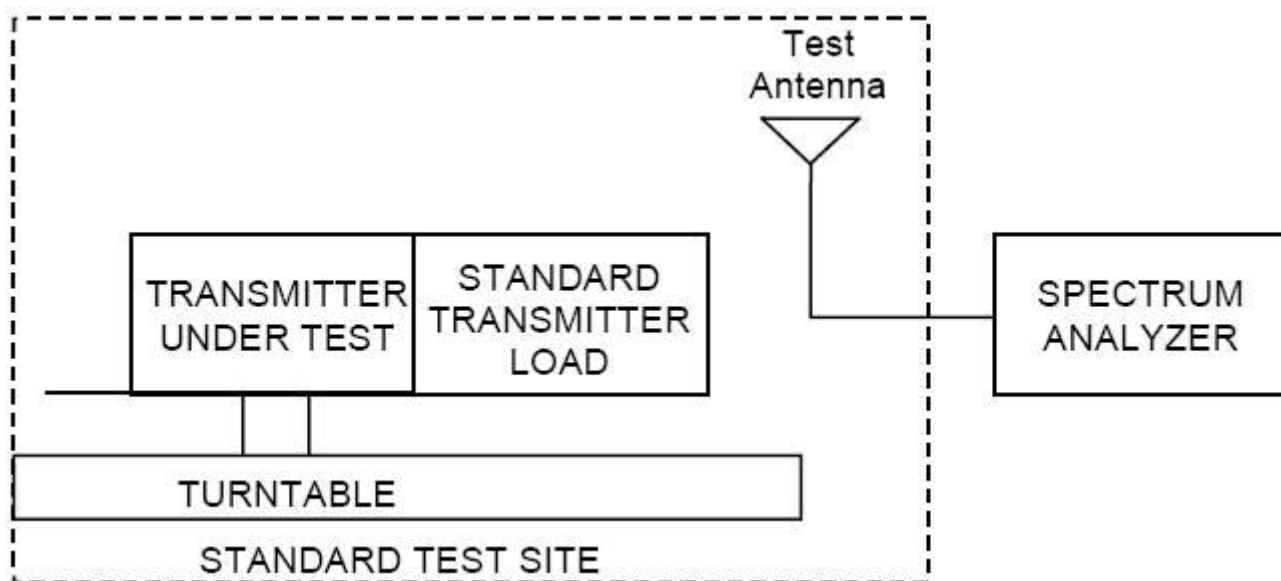


Figure SP

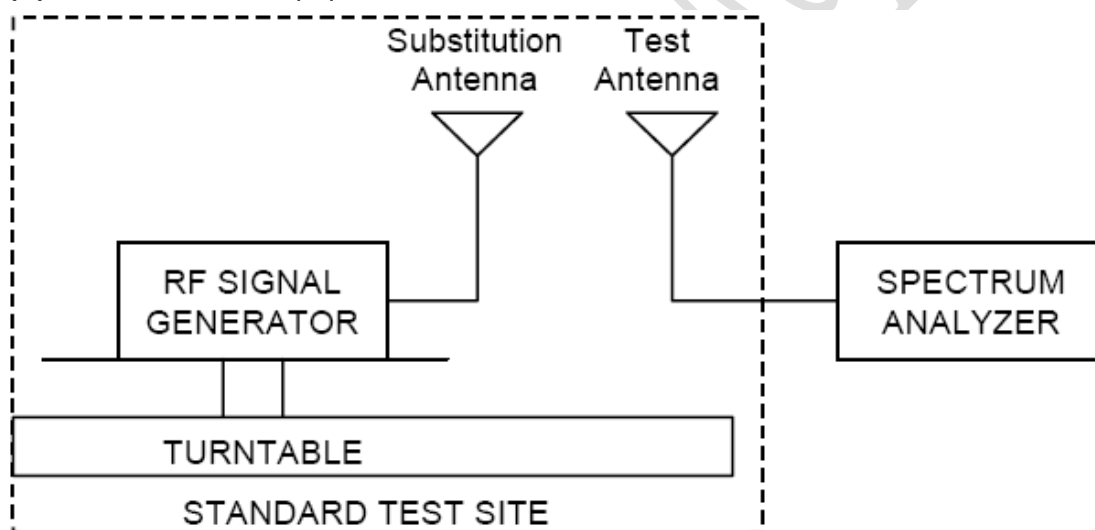
**Test Method:**

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 standard 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 standard 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 standard antenna power and

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

**GPRS 850 band mode:**

Frequency MHz	Output power (Pg) [dBm]	Loss [dB]	Antenna Gain [dBi]	Pd [dBm]	Antenna Status	EUT Status
1544.689379	-59.41	0.5	8.6	-51.31	Horizontal	Vertical
2484.969940	-57.6	0.5	10.0	-48.10	Horizontal	Vertical
3738.677355	-65.97	0.6	9.9	-56.67	Horizontal	Vertical
6651.703407	-61.14	0.6	11.5	-50.24	Horizontal	Vertical
1567.535070	-59.66	0.5	8.6	-51.56	Vertical	Vertical
1894.989980	-72.57	0.5	9.3	-63.77	Vertical	Vertical
3812.424850	-65.35	0.6	9.8	-56.15	Vertical	Vertical
6541.082164	-61.63	0.6	11.5	-50.73	Vertical	Vertical

**GPRS 1900 band mode:**

Frequency MHz	Output power (Pg) [dBm]	Loss [dB]	Antenna Gain [dBi]	Pd [dBm]	Antenna Status	EUT Status
3636.072144	-68.53	0.6	9.9	-59.23	Horizontal	Vertical
5473.547094	-64.18	0.6	10.9	-53.88	Horizontal	Vertical
7415.030060	-61.61	0.6	11.4	-50.81	Horizontal	Vertical
3740.080160	-66.34	0.6	9.9	-57.04	Vertical	Vertical
5300.200401	-64.59	0.6	10.9	-54.29	Vertical	Vertical
7519.038076	-61.85	0.6	11.4	-51.05	Vertical	Vertical

### 4.2 Radiated RF Power Output and ERP

<b>Specifications:</b>	2.1046,24.232,22.913(a)					
<b>Date of Tests</b>	2011-03-07, 2011-05-19					
<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 GPRS mode 850 and 1900 band respectively.					
<b>Test Results:</b>	Pass					
<b>Test equipment Used:</b>						
Asset Number	Description	Manufacturer	Model Number	Serial Number	Cal Due	State
7805	EMI Test Receiver	R/S	ESIB26	100211	2012-01-12	Normal
7330	Ultra Broadband Antenna	SCHWARZBECK	VULB 9160	--	2013-11-24	Normal
713	Fully-Anechoic Chamber	ETS	11.8m×6.5m×6.3m	--	2013-11-16	Normal
111835	Wireless Communications Test Set	R&S	CMU200	1100000802	2011-06-08	Normal

#### Limit Level Construction:

##### (a) Radiated RF Power Output

According to Part 24.232(b), i.e., Mobile/portable stations are limited to 2 watts EIRP peak power and the equipment must employ means to limit the power to the minimum necessary for successful communication, so the limit level is 2 W or 33 dBm.

##### (b) ERP

According to Part 22.913(a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts, or 38.5 dBm.

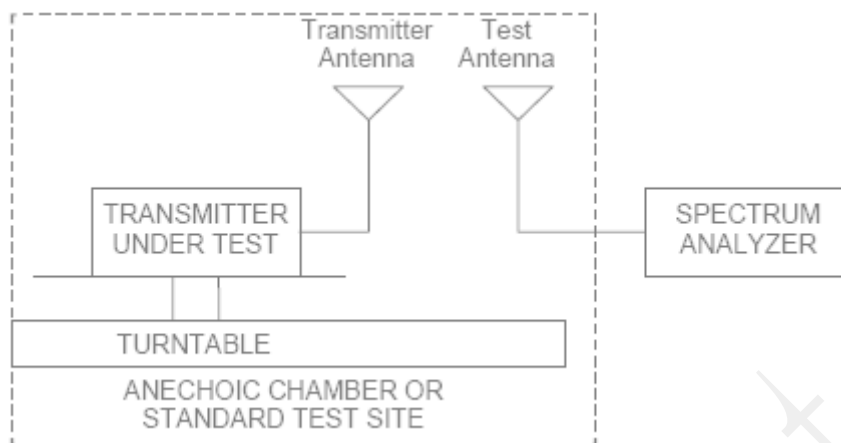
#### Test Setup:

The EUT was set in an anechoic chamber, which is connected to the Wireless Communications Test Set located outside the chamber. The test was done using an automated test system, where all test equipments were controlled by a computer. The test distance separation from the receive antenna is 3 meters.

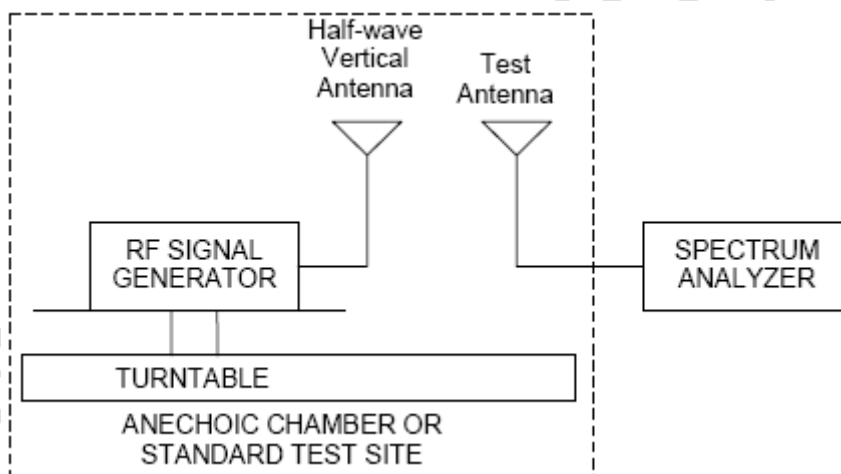
#### Test Method

The measurement was performed accordance with section 2.2.17 of ANSI/TIA-603-C: *Land Mobile FM or PM Communications Equipment Measurement and Performance Standards*.

a) Connect the equipment as illustrated. Mount the equipment in a vertical orientation on a multi-axis plastic holder in a RF anechoic chamber.



- b) Key the transmitter on, then rotate the EUT 360 degree azimuthally and record spectrum analyzer power level (LVL) measurements at angular increments that are sufficiently small to permit resolution of all peaks.
- c) Replace the transmitter under test with a vertically polarized half-wave dipole, or an antenna whose gain is known relative to an ideal half-wave dipole, illustrated as following. The center of the antenna should be at the same location as the center of the antenna under test.



- d) Connect the antenna to a signal generator with a known output power and record the path loss (in dB) as LOSS.

$$\text{LOSS} = \text{Generator Output Power (dBm)} - \text{Analyzer reading (dBm)}$$

- e) Determine the effective radiated output power at each angular position from the readings in steps b) and d) using the following equation:

$$\text{ERP (dBm)} = \text{LVL (dBm)} + \text{LOSS (dB)}$$

- f) The maximum ERP is the maximum value determined in the preceding step.

## Method of Calculation

ERP can then be calculated as follows:

$$P_d \text{ (dBm)} = P_g \text{ (dBm)} - \text{Losses (dB)} + \text{Antenna Gain (dBd)}$$

where:

dBd refers to gain relative to an ideal dipole.

EIRP can then be calculated as follows:

$$P_i \text{ (dBm)} = P_g \text{ (dBm)} - \text{Losses (dB)} + \text{Antenna Gain (dBi)}$$

where:

dBi refers to gain relative to an ideal source.

$$0 \text{ dBi} = 2.15 \text{ dBd}$$

### Test Data:

#### GPRS 850 band mode:

Channel	Output power (Pg) [dBm]	Loss [dB]	Antenna Gain [dBd]	ERP (Pd) [dBm]
128(4TS) (824.2MHz)	25.69	0.3	2.73	28.12
190(4TS) (836.6MHz)	24.67	0.5	2.80	26.97
251(4TS) (848.8MHz)	21.50	0.5	2.87	26.02

#### GPRS 1900 band mode:

Channel	Output power (Pg) [dBm]	Loss [dB]	Antenna Gain [dBi]	EIRP (Pi) [dBm]
512(4TS) (1850.2MHz)	17.11	0.3	4.88	21.69
661(4TS) (1880.0MHz)	19.15	0.5	4.95	23.60
810(4TS) (1909.8MHz)	20.17	0.5	5.02	24.69

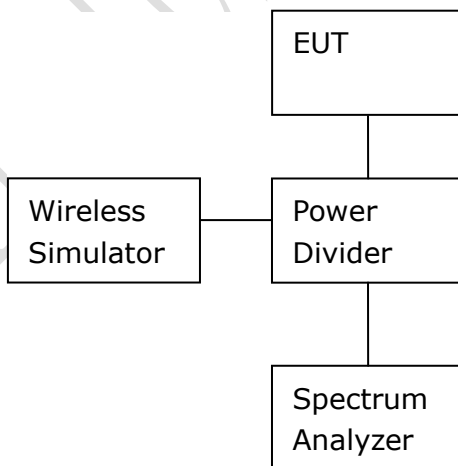


### 4.3 Occupied bandwidth

<b>Specifications:</b>	2.1049,22.917(b),24.238(b)					
<b>Date of Test</b>	2012-3-6					
<b>Test conditions:</b>	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa					
<b>Operation Mode</b>	TX on, channel 128, 190, 251, 512, 661 and 810 for GPRS mode 850 and 1900 band respectively.					
<b>Test Results:</b>	--					
<b>Test equipment Used:</b>						
Asset Number	Description	Manufacturer	Model Number	Serial Number	Cal Due	State
7330	EMI Test Receiver	R&S	ESI40	839283/007	2013-02-08	Normal
---	Power splitter	Jie sai	---	1000132	--	Normal
111835	Wireless Communications Test Set	R&S	CMU200	1100000802	2012-06-08	Normal

### 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.

Note: None

Test Data:

**GPRS 850 band mode**

EUT channel no.	99% occupied bandwidth [kHz]
128 (824.2MHz)	244.489
190 (836.6MHz)	244.489
251 (848.8MHz)	246.493

**GPRS 1900 band mode**

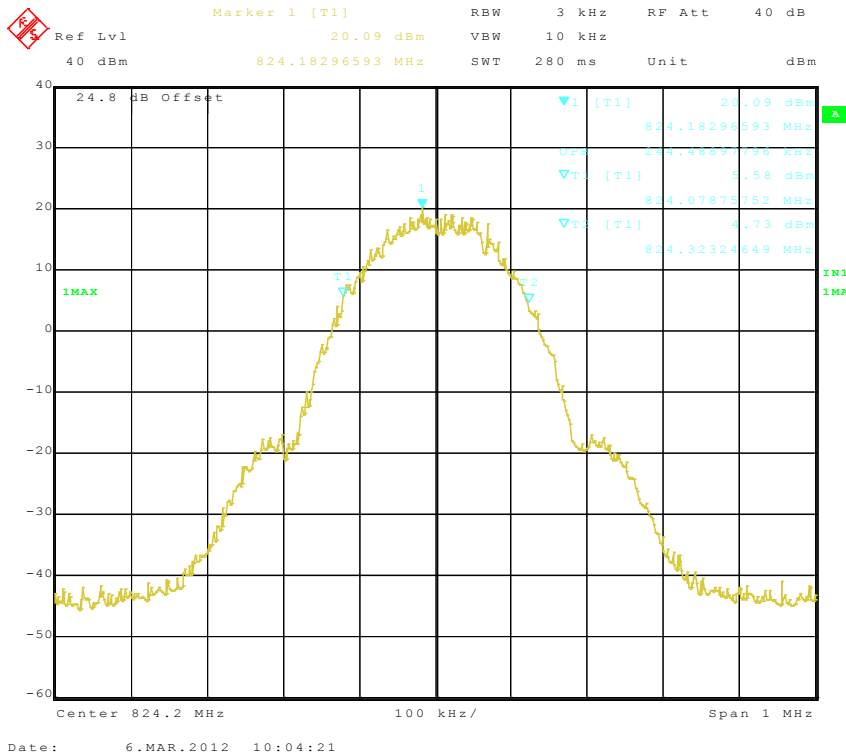
EUT channel no.	99% occupied bandwidth [kHz]
512 (1850.2MHz)	244.489
661 (1880.0MHz)	244.489
810 (1909.8MHz)	244.489

GTL TEST REPORT

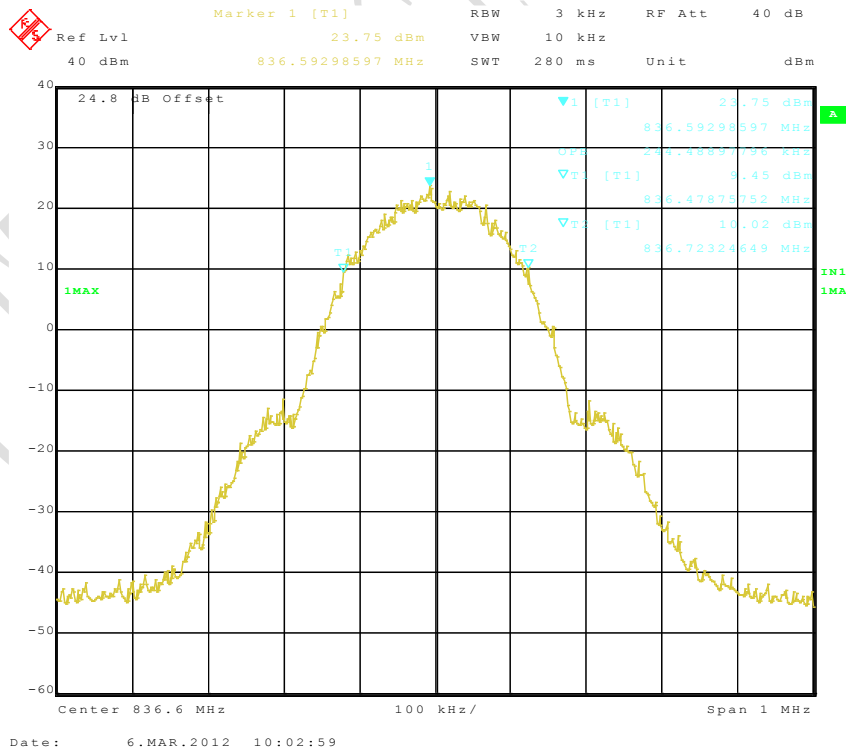
FCC Parts 2, 22, 24  
Equipment: PremierWave XC

REPORT NO.: I11GC0275-FCC-RF-2

Graphical results for GPRS mode:



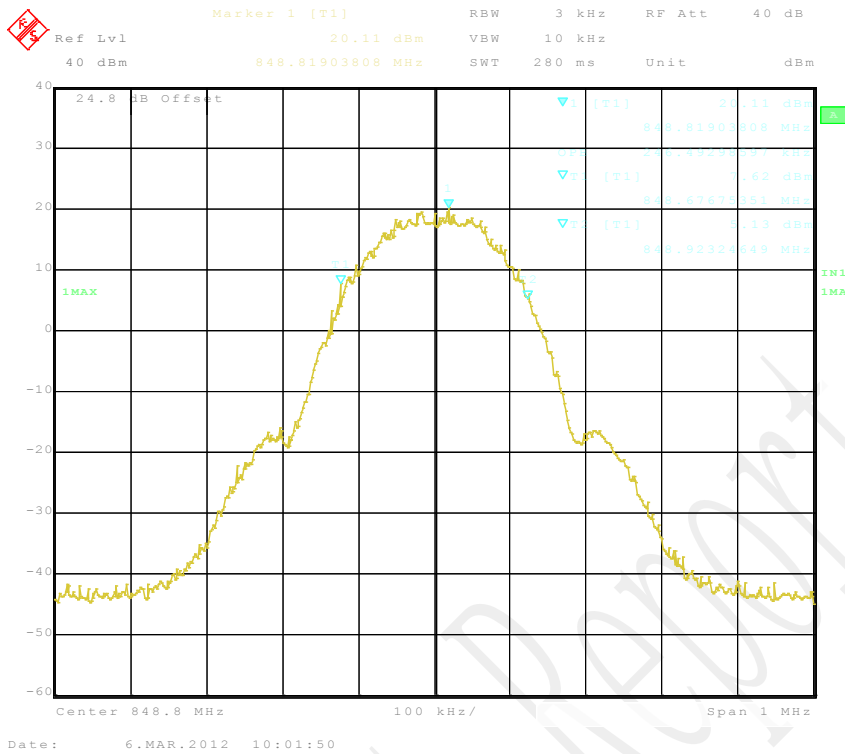
GPRS850 Channel 128



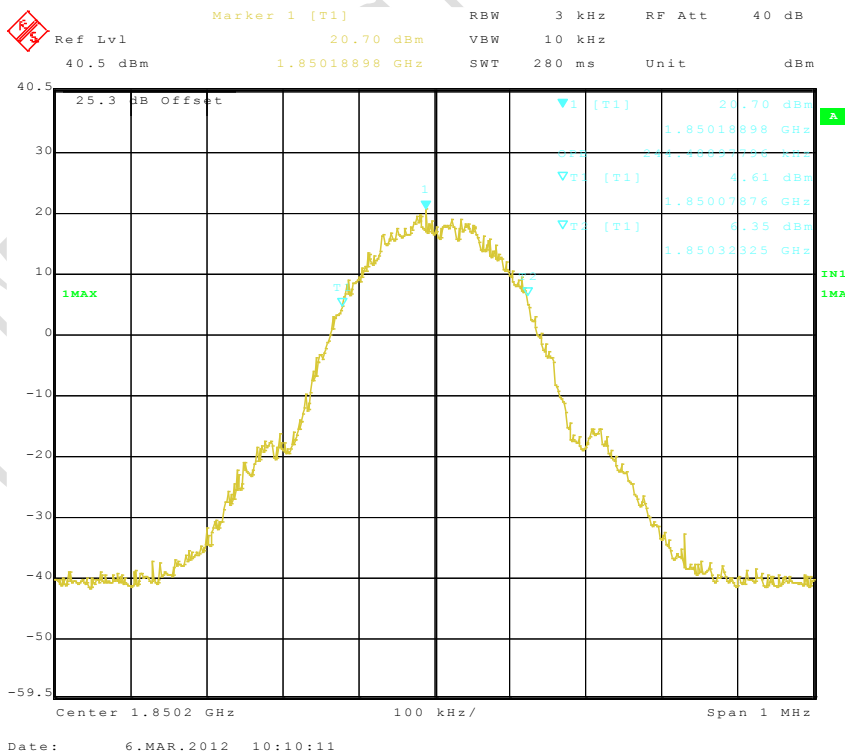
GPRS850 Channel 190

FCC Parts 2, 22, 24  
Equipment: PremierWave XC

REPORT NO.: I11GC0275-FCC-RF-2



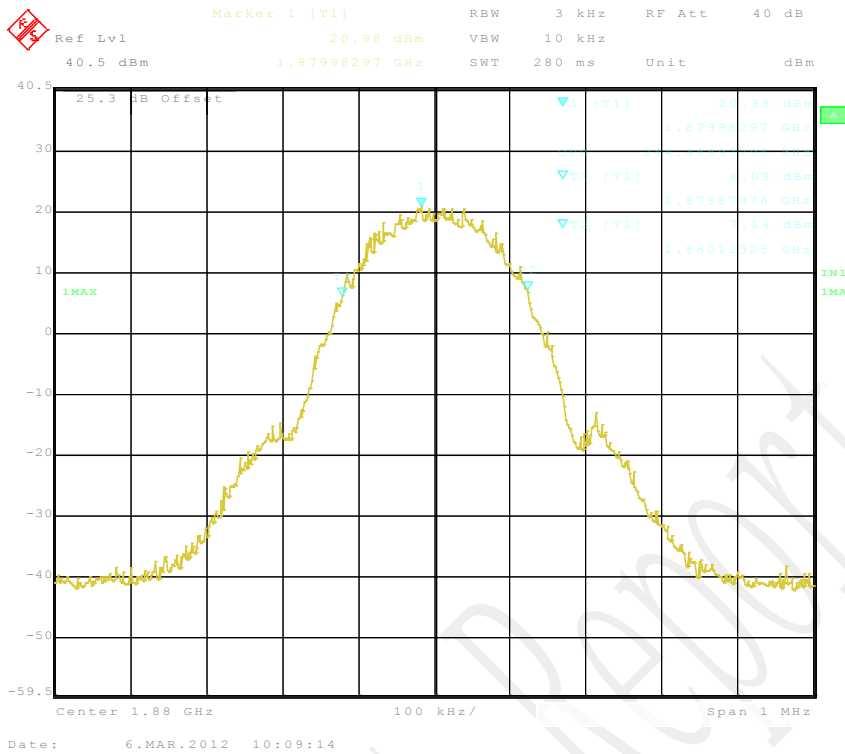
GPRS850 Channel 251



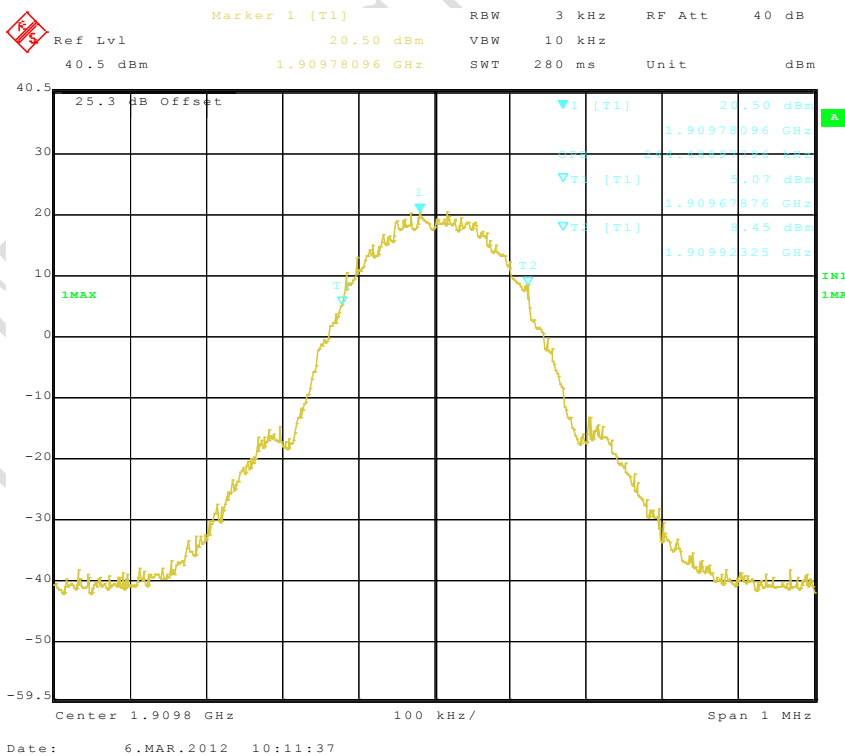
GPRS1900 Channel 512

FCC Parts 2, 22, 24  
Equipment: PremierWave XC

REPORT NO.: I11GC0275-FCC-RF-2



GPRS1900 Channel 661



GPRS1900 Channel 810

### 4.4 Frequency Stability over Temperature Variation

<b>Specifications:</b>	2.1055,22.355,24.235					
<b>Date of Test</b>	2011-03-28, 2011-05-18					
<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 GPRS mode 850 and 1900 band respectively.					
<b>Test Results:</b>	Pass					
<b>Test equipment Used:</b>						
<b>Asset Number</b>	<b>Description</b>	<b>Manufacturer</b>	<b>Model Number</b>	<b>Serial Number</b>	<b>Cal Due</b>	<b>State</b>
111835	Wireless Communication s Test Set	R&S	CMU200	1100000802	2011-06-08	Normal
561	Temperature Chamber	Terchy Environmental Technology LTD.	MHU-800SR	84121202	2013-01-06	Normal
<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.

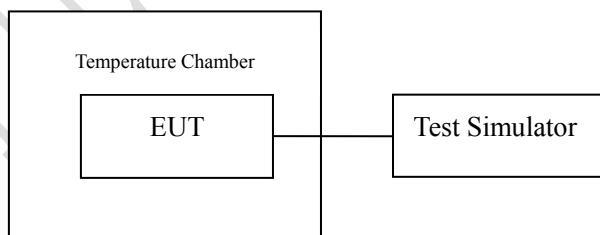


Figure T: setup for measurement of frequency stability over temperature variation

### 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 -20°C, -10°C, 0°C, 10°C, 20°C, 30°C, 40°C and 50°C.

Test data:

### GPRS 850 band mode

Compliance windows:  $\pm 2091.5\text{Hz}$

Temperature[°C]	Deviation[Hz]	Remarks
-30	-29	Pass
-20	-25	Pass
-10	-27	Pass
0	-33	Pass
10	-30	Pass
20	-34	Pass
30	-33	Pass
40	-32	Pass
50	-29	Pass

### GPRS 1900 band mode

Compliance windows:  $\pm 4700.0\text{Hz}$

Temperature[°C]	Deviation[Hz]	Remarks
-30	-56	Pass
-20	-52	Pass
-10	-58	Pass
0	-65	Pass
10	-64	Pass
20	-66	Pass
30	-61	Pass
40	-75	Pass
50	-62	Pass

### 4.5 Frequency Stability over Voltage Variation

<b>Specifications:</b>	2.1055,22.355,24.235					
<b>Date of Test</b>	2011-03-29, 2011-05-18					
<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 GPRS mode 850 and 1900 band respectively.					
<b>Test Results:</b>	Pass					
<b>Test equipment Used:</b>						
Asset Number	Description	Manufacturer	Model Number	Serial Number	Cal Due	State
111835	Wireless Communications Test Set	R&S	CMU200	1100000802	2011-06-08	Normal
7982	DC Power Source	4NIC	DH1715A-3	004224	--	Normal
<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.

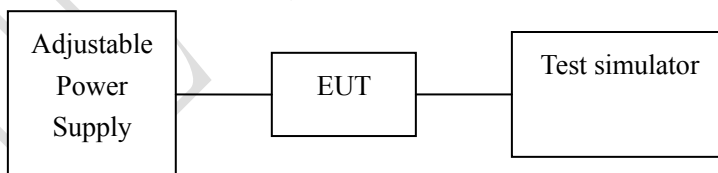


Figure V: test setup for measurement of frequency stability over voltage variation

### Test Method

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



Test data:

**GPRS 850 band mode**

Compliance windows:  $\pm 2091.5\text{Hz}$

Level	Voltage[V]	Deviation[Hz]	Remarks
Nominal	3.8	-41	Pass
Cut-off Point	3.3	-36	Pass

**GPRS 1900 band mode**

Compliance windows:  $\pm 4700.0\text{Hz}$

Level	Voltage[V]	Deviation[Hz]	Remarks
Nominal	3.8	-66	Pass
Cut-off Point	3.3	-60	Pass

TTL Test Report

### 4.6 Conducted RF Power Output

<b>Specifications:</b>	2.1046,22.913(a),24.232(c)					
<b>Date of Tests</b>	2012-3-6					
<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 GPRS mode 850 and 1900 band respectively.					
<b>Test Results:</b>	Pass					
<b>Test equipment Used:</b>						
Asset Number	Description	Manufacturer	Model Number	Serial Number	Cal Due	State
7805	EMI Test Receiver	R/S	ESI40	839283/007	2013-02-8	Normal
---	Power splitter	Jie sai	---	1000132	--	Normal
111835	Wireless Communications Test Set	R&S	CMU200	1100000802	2012-06-08	Normal

**Limit Level Construction:**

(a) Radiated RF Power Output

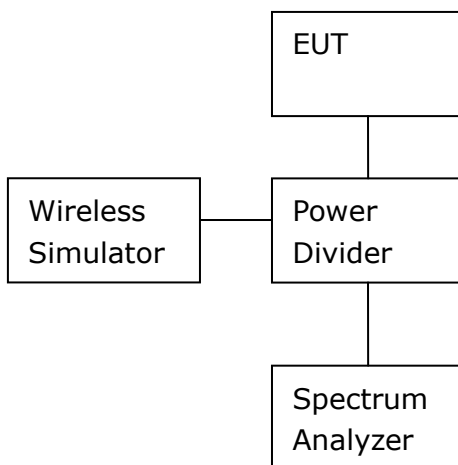
According to Part 24.232(b), i.e., Mobile/portable stations are limited to 2 watts EIRP peak power and the equipment must employ means to limit the power to the minimum necessary for successful communication, so the limit level is 2 W or 33 dBm.

(b) ERP

According to Part 22.913(a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts, or 38.5 dBm.

**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 rest 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 comparable to the emission bandwidth.

Note: None

## Test Results:

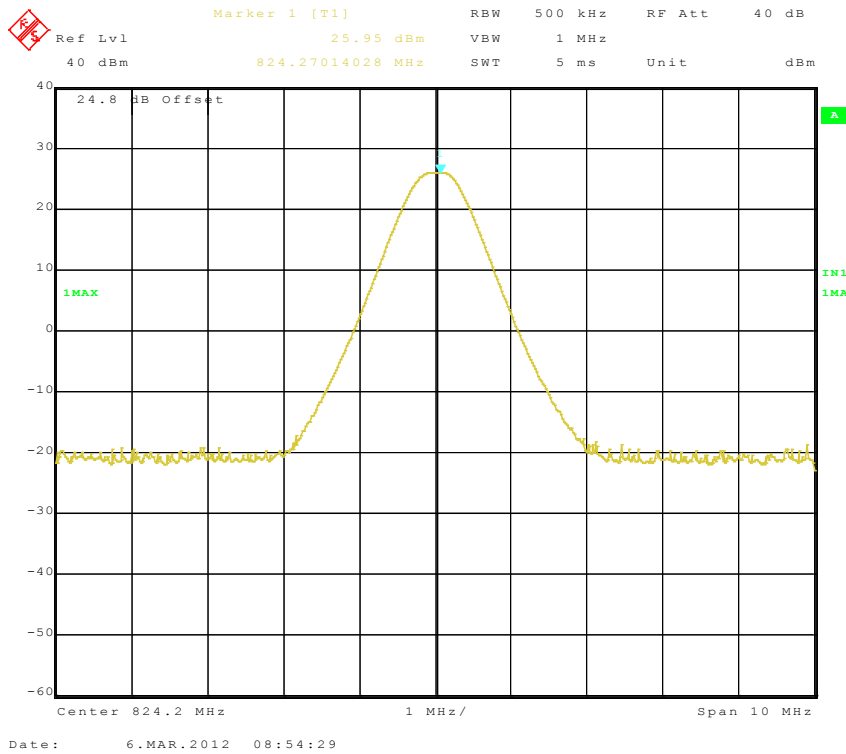
### GPRS 850 band mode

Channel No.	Peak output power [dBm]
128 (824.2MHz)	25.95
190 (836.6MHz)	29.64
251 (848.8MHz)	26.09

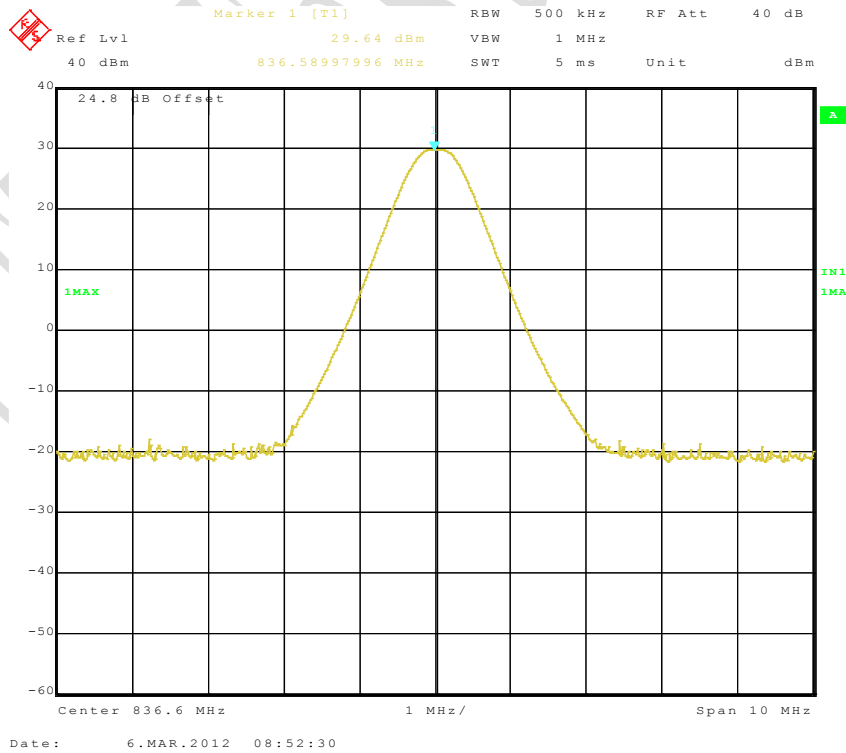
### GPRS 1900 band mode

Channel No.	Peak output power [dBm]
512 (1850.2MHz)	26.85
661 (1880.0MHz)	27.68
810 (1909.8MHz)	27.97

### Graphical Results:



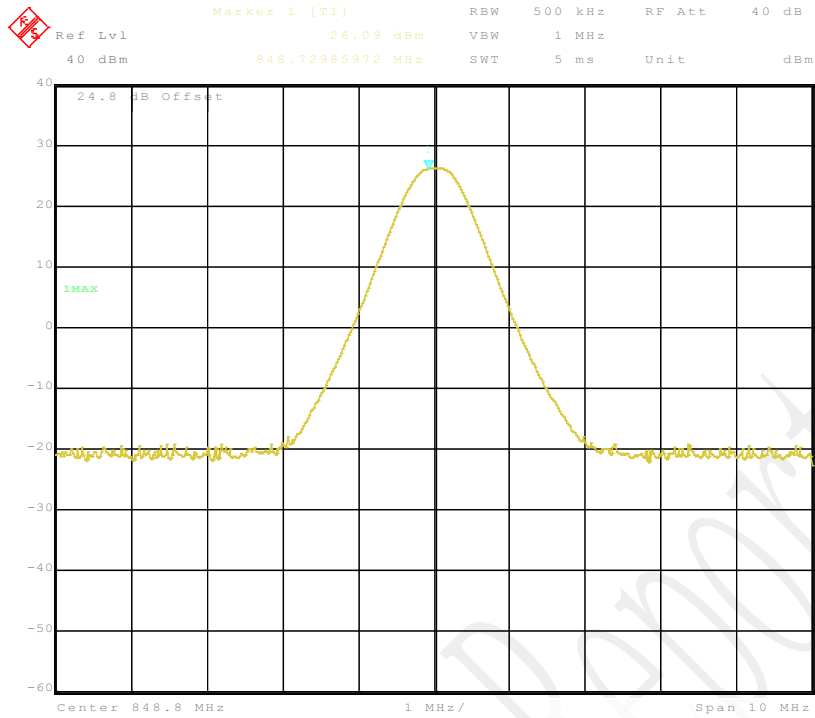
### GPRS Channel 128



### GPRS Channel 190

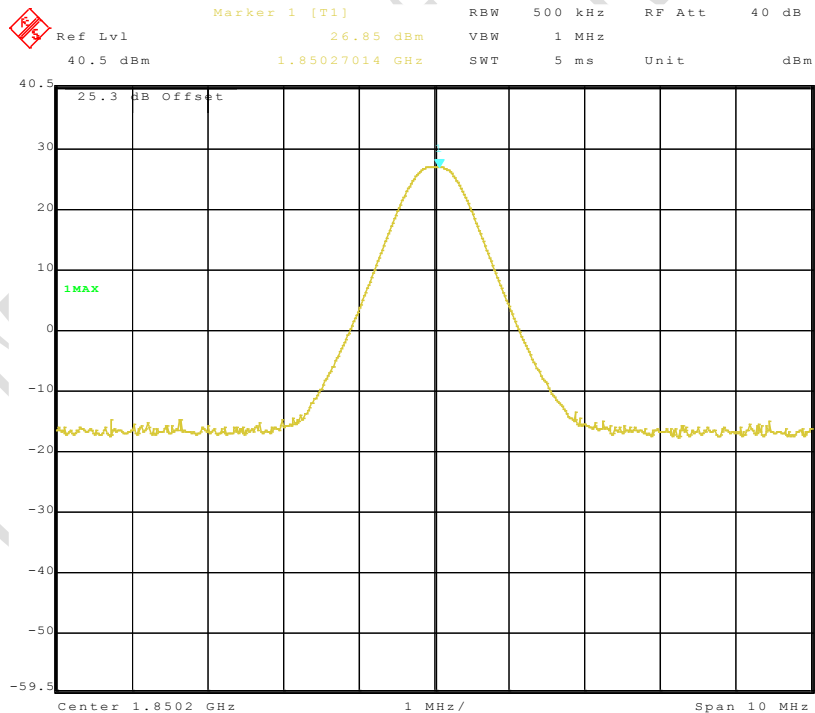
FCC Parts 2, 22, 24  
Equipment: PremierWave XC

REPORT NO.: I11GC0275-FCC-RF-2



Date: 6.MAR.2012 08:55:13

GPRS Channel 251

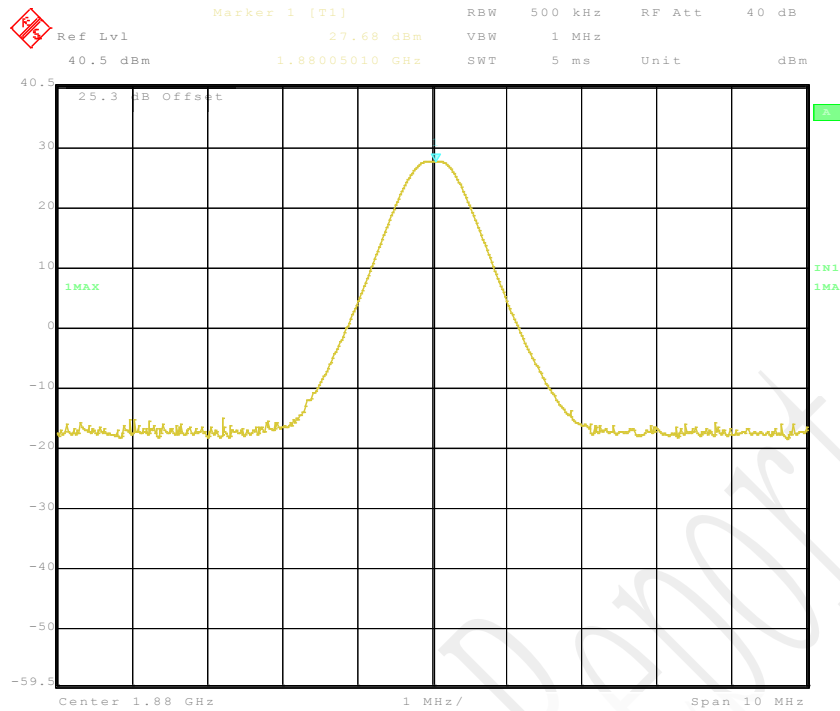


Date: 6.MAR.2012 09:08:25

GPRS Channel 512

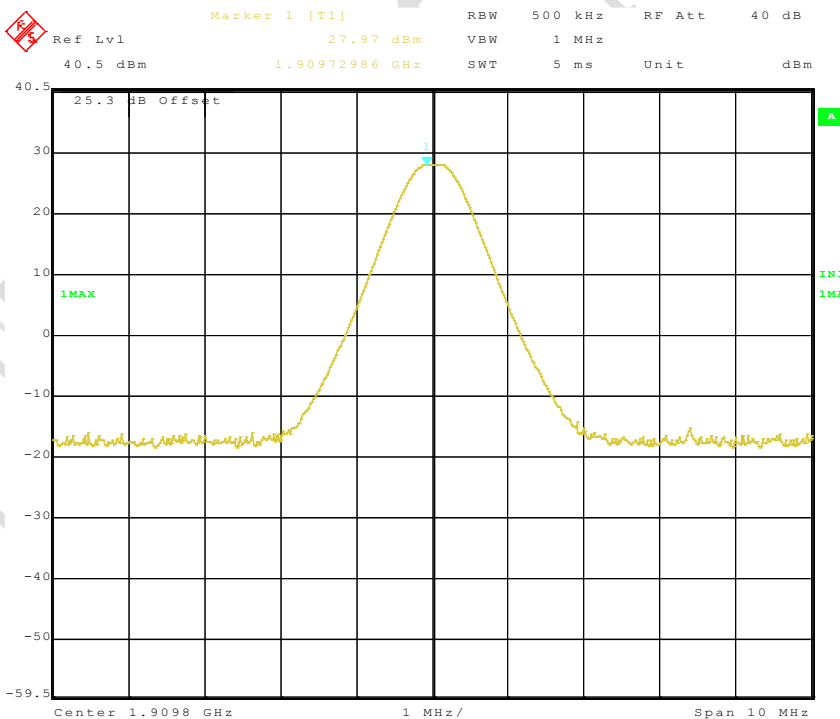
FCC Parts 2, 22, 24  
Equipment: PremierWave XC

REPORT NO.: I11GC0275-FCC-RF-2



Date: 6.MAR.2012 09:09:08

GPRS Channel 661



Date: 6.MAR.2012 09:09:48

GPRS Channel 810

### 4.7 Conducted Spurious Emission

<b>Specifications:</b>	2.1051,22.917,24.238					
<b>Date of Tests</b>	2011-10-14					
<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 GPRS mode 850 and 1900 band respectively.					
<b>Test Results:</b>	Pass					
<b>Test equipment Used:</b>						
Asset Number	Description	Manufacturer	Model Number	Serial Number	Cal Due	State
7805	EMI Test Receiver	R/S	ESI40	839283/007	2012-02-15	Normal
---	Power splitter	Jie sai	---	1000132	2012-01-04	Normal
111835	Wireless Communications Test Set	R&S	CMU200	1100000802	2012-06-08	Normal

**Limit Level Construction:**

**Part22:**

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:

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

**Part24:**

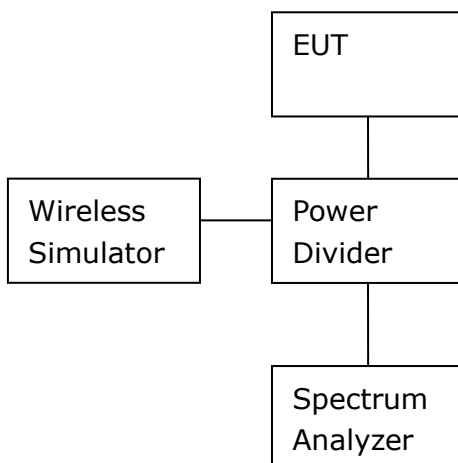
According to Part 24.238(a), i.e., out of band emissions, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB, so the limit level is:

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

<b>Limits for Conducted spurious emissions(UE)</b>	
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-B-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

Test Results:

#### **GPRS 850 band mode:**

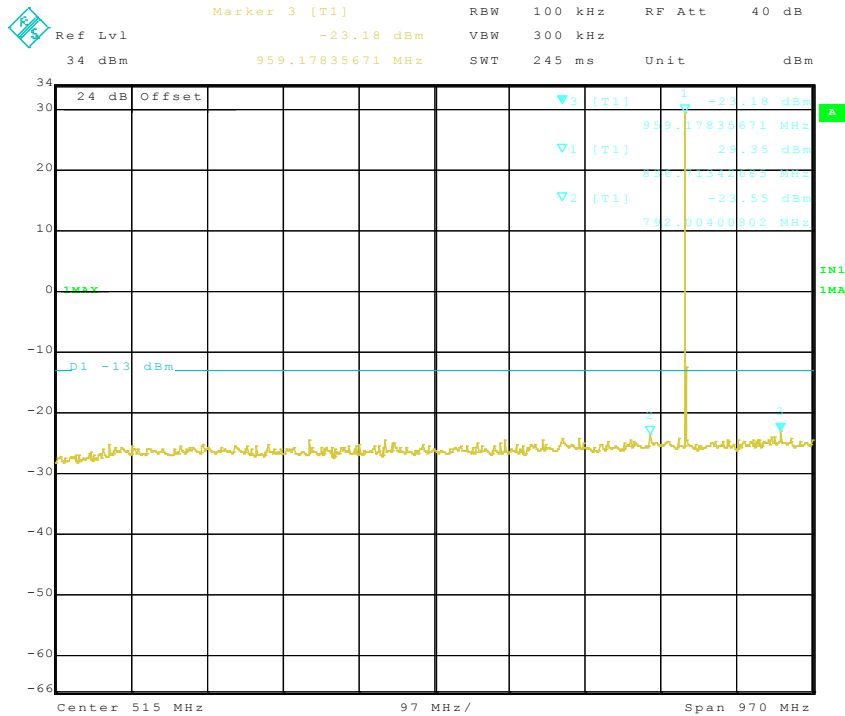
Frequency Range	Results
30MHz~1GHz	Pass
1GH~3GHz	Pass
3GHz~10GHz	Pass
10GHz~26.5GHz	Pass

#### **GPRS 1900 band mode:**

Frequency Range	Results
30MHz~1GHz	Pass
1GH~3GHz	Pass
3GHz~10GHz	Pass
10GHz~26.5GHz	Pass



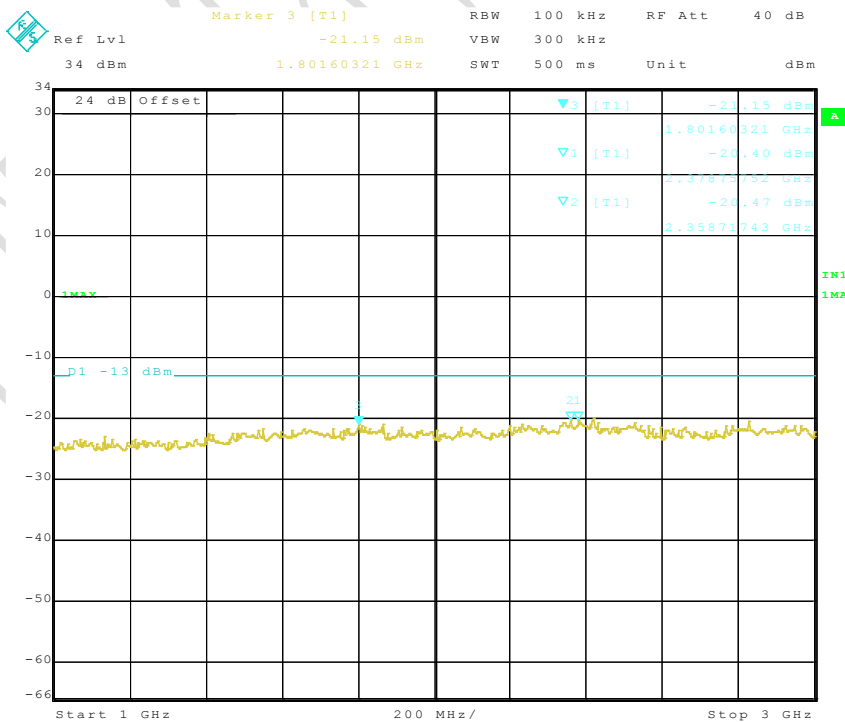
Graphical results for GPRS mode:



Date: 14.OCT.2011 10:29:21

GPRS850 Channel 190 30MHz~1GHz

Note: 837 MHz is the EUT's operating frequency point.

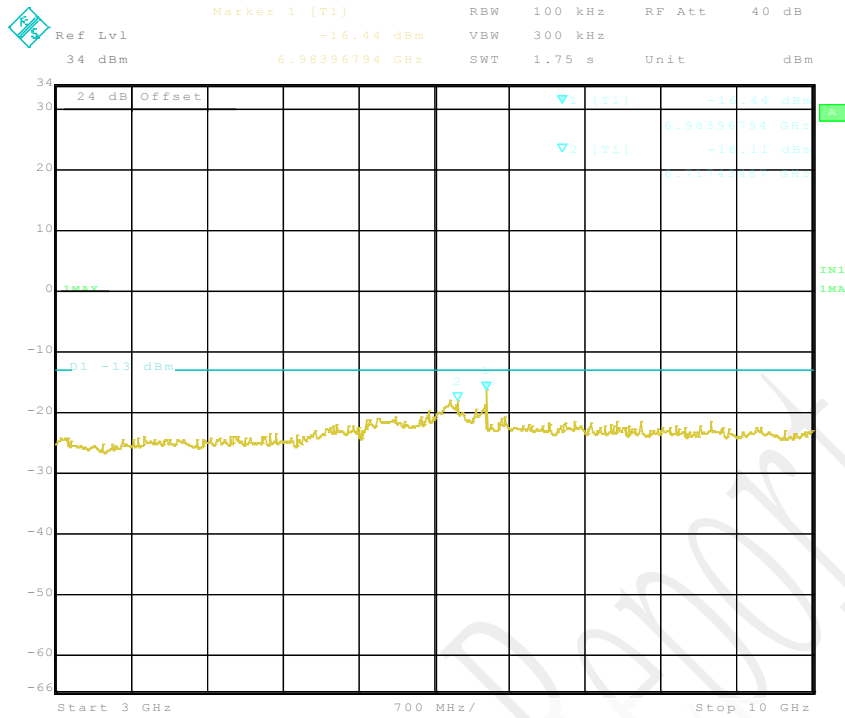


Date: 14.OCT.2011 10:31:00

GPRS 850 Channel 190 1GHz~3GHz

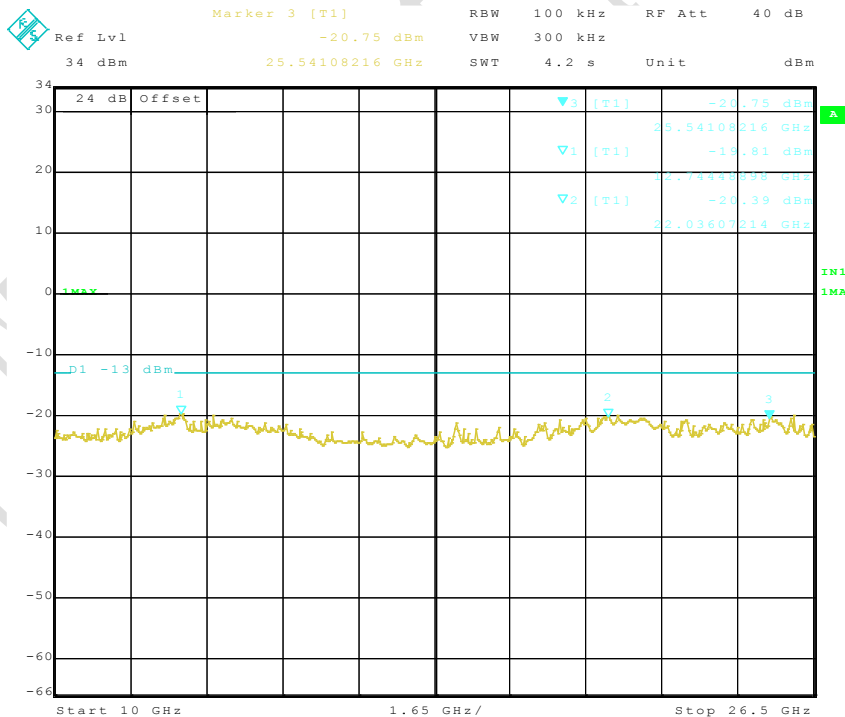
FCC Parts 2, 22, 24  
Equipment: PremierWave XC

REPORT NO.: I11GC0275-FCC-RF-2



Date: 14.OCT.2011 10:32:23

GPRS 850 Channel 190 3GHz~10GHz

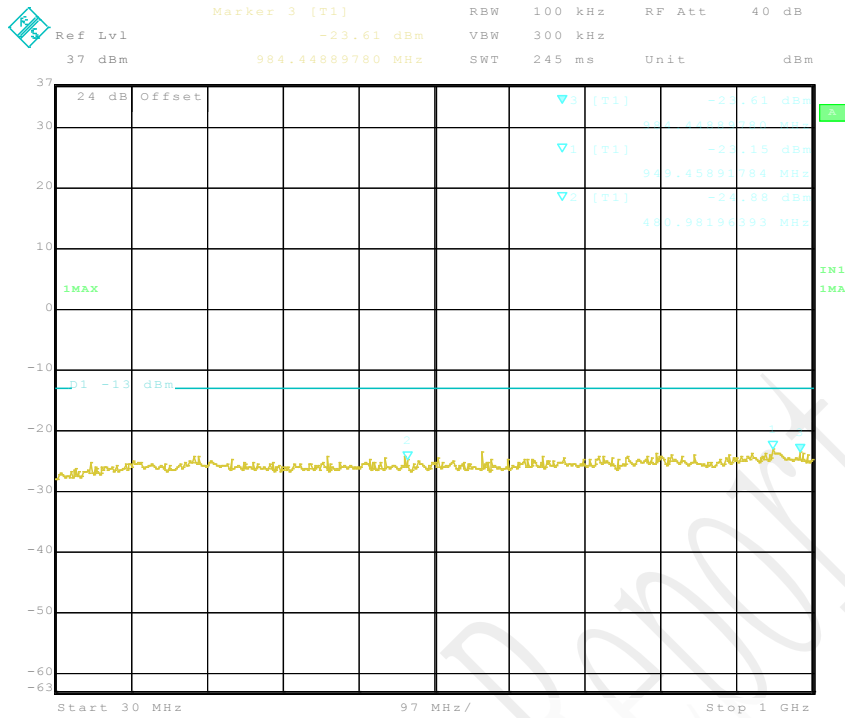


Date: 14.OCT.2011 10:33:35

GPRS 850 Channel 190 10GHz~26.5GHz

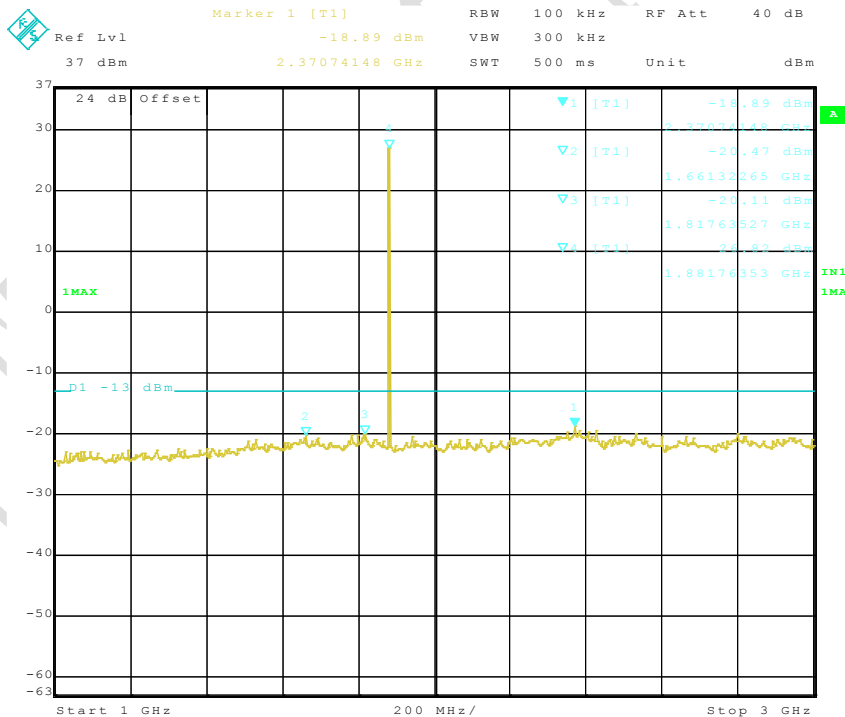
FCC Parts 2, 22, 24  
Equipment: PremierWave XC

REPORT NO.: I11GC0275-FCC-RF-2



Date: 14.OCT.2011 10:49:41

GPRS 1900 Channel 661 30MHz~1GHz



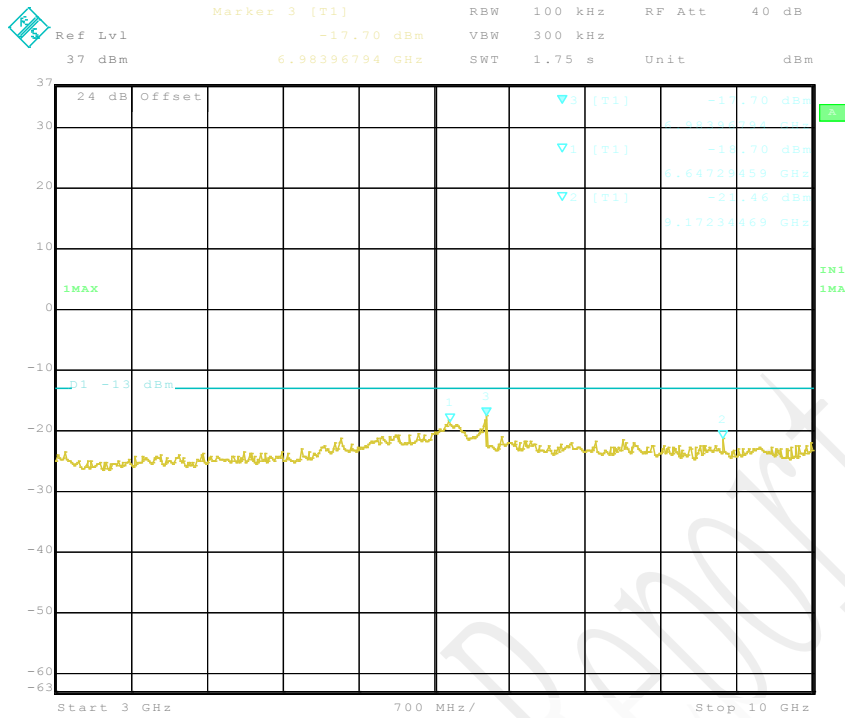
Date: 14.OCT.2011 10:48:46

GPRS 1900 Channel 661 1GHz~3GHz

Note: 1882 MHz is the EUT's operating frequency point.

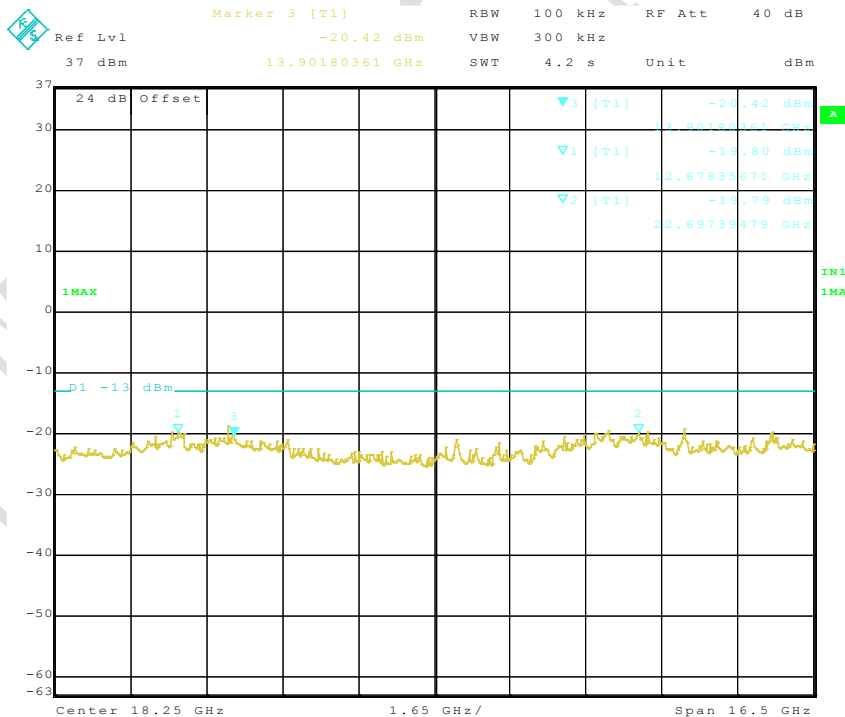
FCC Parts 2, 22, 24  
Equipment: PremierWave XC

REPORT NO.: I11GC0275-FCC-RF-2



Date: 14.OCT.2011 10:47:32

GPRS 1900 Channel 661 3GHz~10GHz



Date: 14.OCT.2011 10:46:44

GPRS 1900 Channel 661 10GHz~26.5GHz

### 4.8 Band Edge

<b>Specifications:</b>	2.1051, 24.238, 2.1053, 22.917					
<b>Date of Tests</b>	2012-03-6					
<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, 512, and 810 for GPRS mode 850 and 1900 band respectively.					
<b>Test Results:</b>	Pass					
<b>Test equipment Used:</b>						
Asset Number	Description	Manufacturer	Model Number	Serial Number	Cal Due	State
7805	EMI Test Receiver	R/S	ESI40	839283/007	2013-02-08	Normal
---	Power splitter	Jie sai	---	1000132	--	Normal
111835	Wireless Communications Test Set	R&S	CMU200	1100000802	2011-06-08	Normal

#### Limit Level Construction:

##### Part22:

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:

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

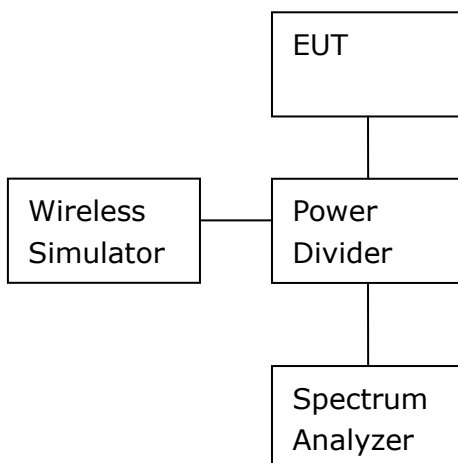
##### Part24:

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:

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: --

### Test Results:

#### GPRS 850 band mode

Band-edge emission		
EUT Channel	Frequency [MHz]	Level [dBm]
128 left band edge (824.2MHz)	823.99749499	-15.78
251 right band edge (848.8MHz)	849.00450902	-15.45

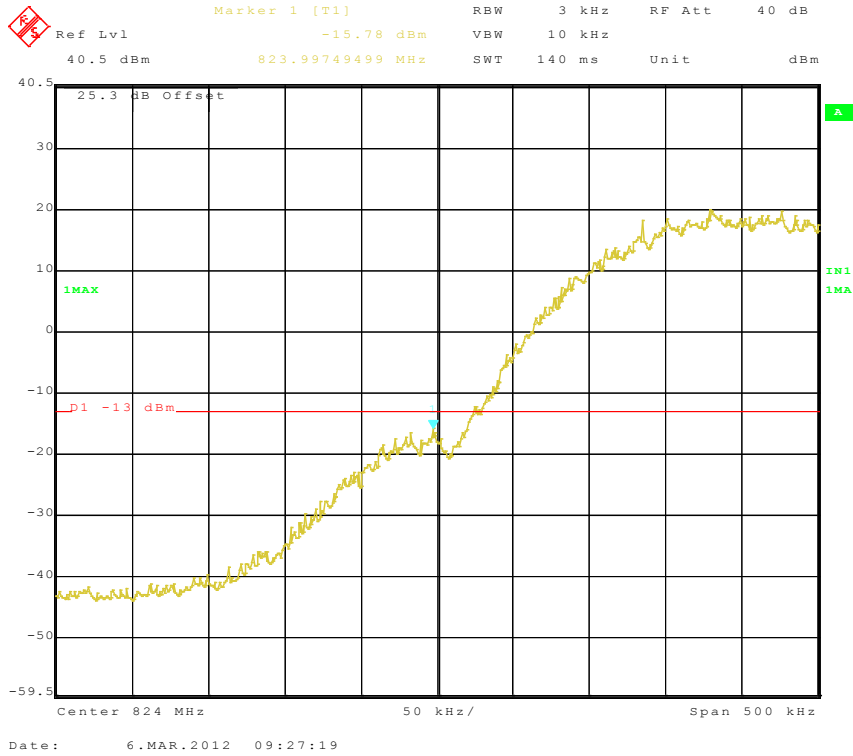
#### GPRS 1900 band mode

Band-edge emission		
EUT Channel	Frequency [MHz]	Level [dBm]
512 left band edge (1850.2MHz)	1849.99850	-14.93
810 right band edge (1909.8MHz)	1910.00451	-14.42

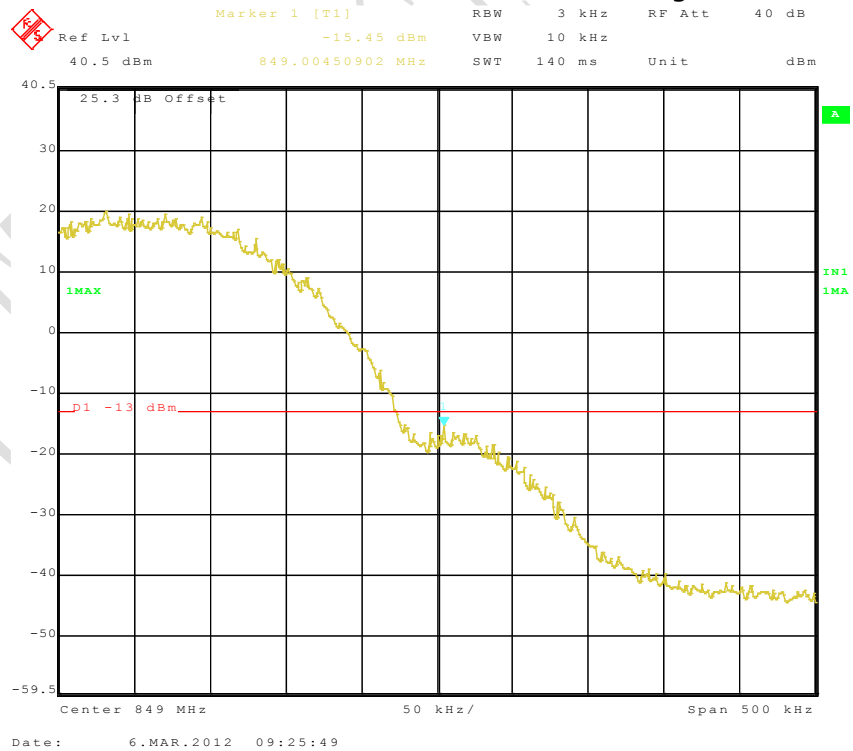
FCC Parts 2, 22, 24  
Equipment: PremierWave XC

REPORT NO.: I11GC0275-FCC-RF-2

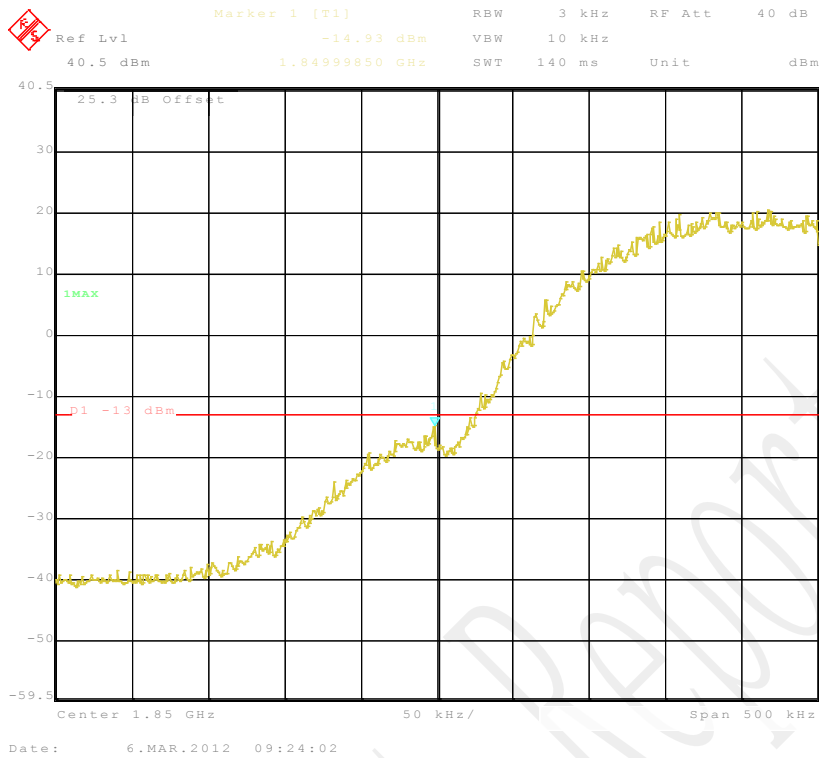
Graphical results for GPRS mode:



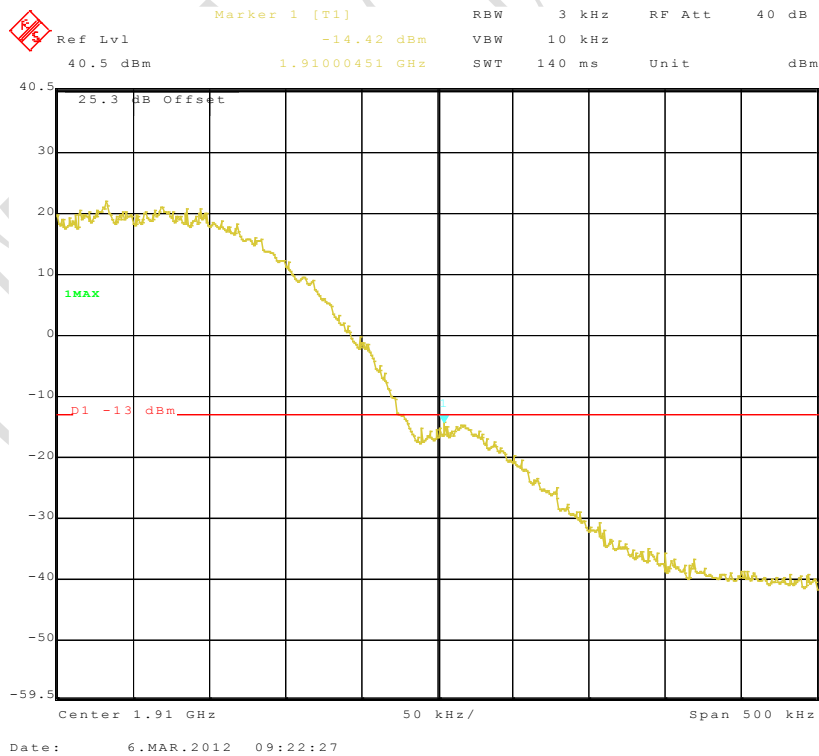
GPRS850 Channel 128 Left band edge



GPRS850 Channel 251 Right band edge



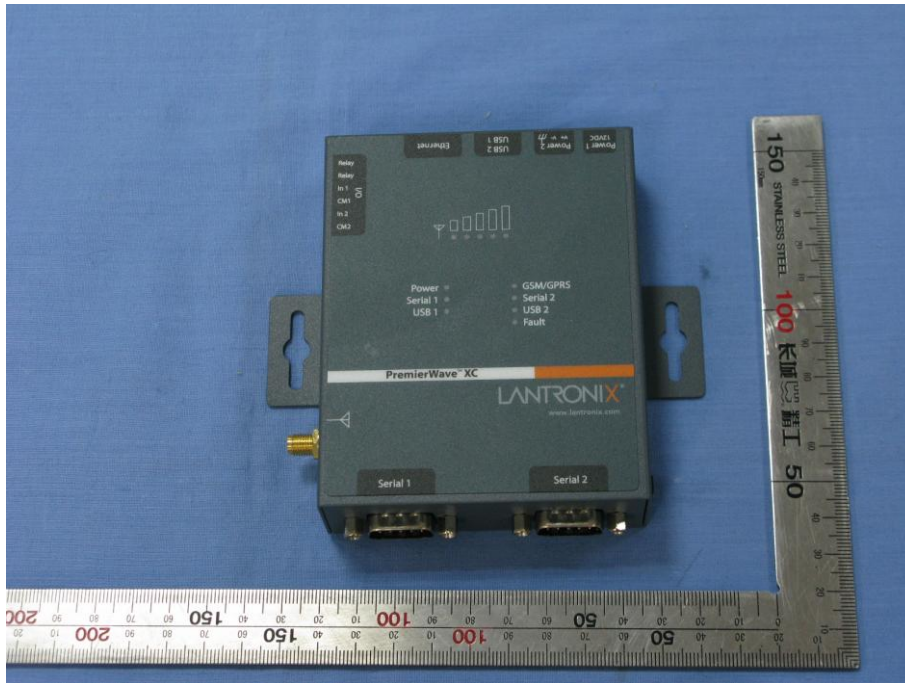
GPRS1900 Channel 512 Left band edge



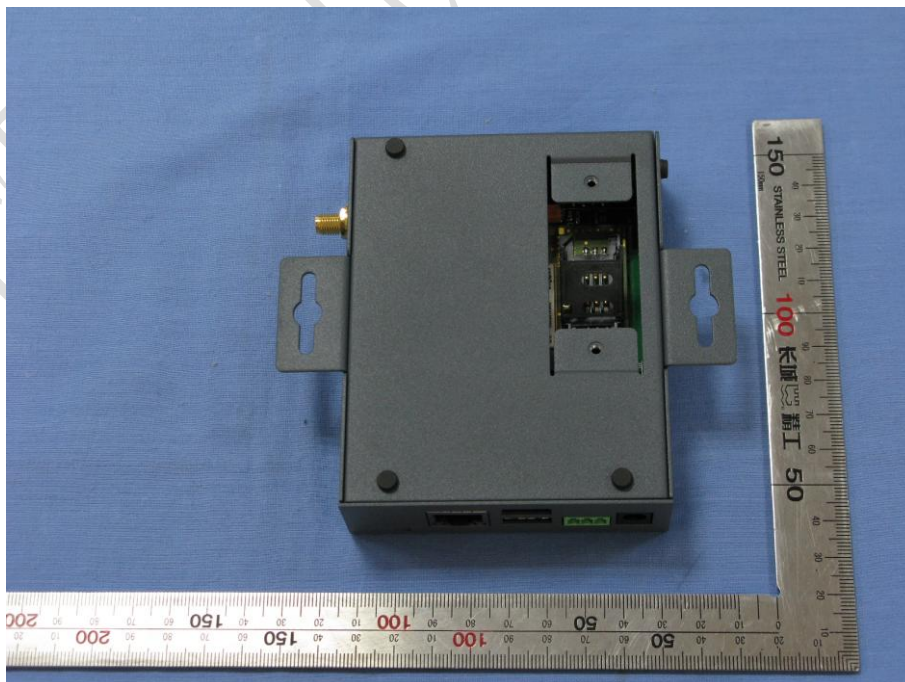
GPRS1900 Channel 810 Right band edge



## Annex A External Photos



Face



Back



Adapter and Antenna



Interface 1

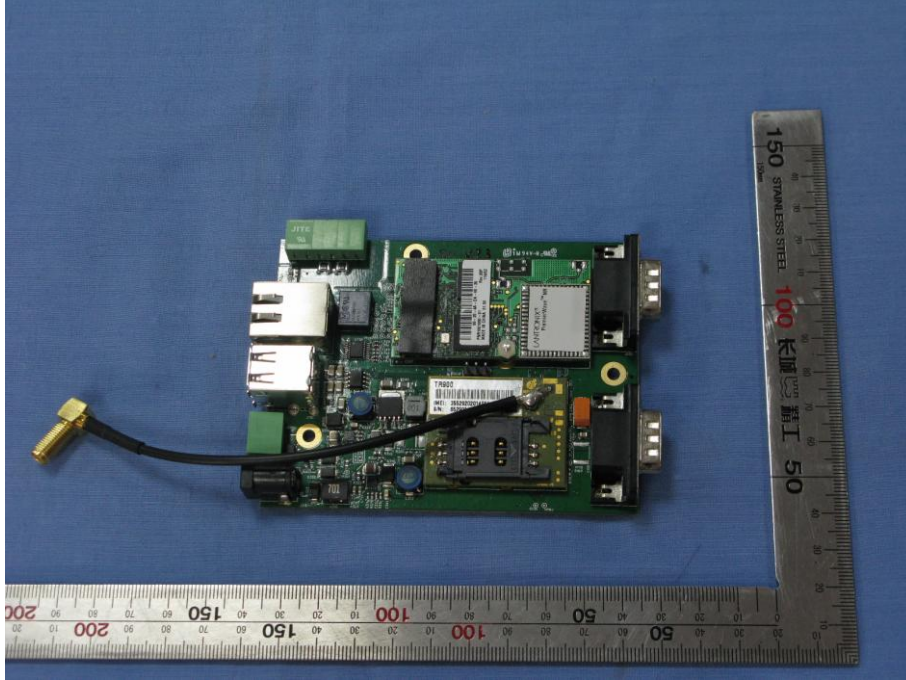


Interface 2

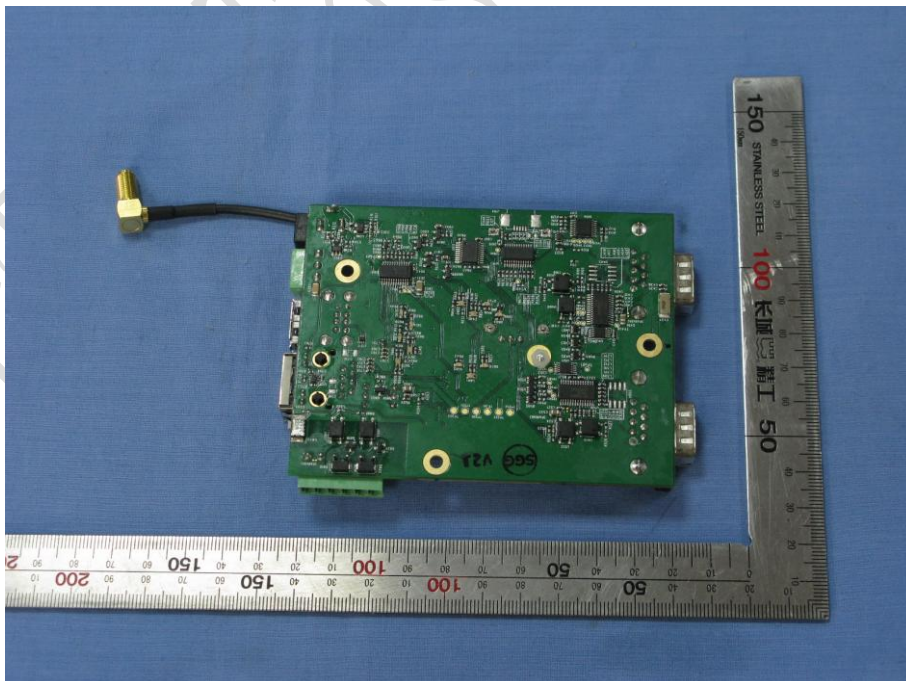


Interface 3

## Annex B Internal Photos



Main board (face)



Main board (back)

## ANNEX C Deviations from Prescribed Test Methods

No deviation from Prescribed Test Methods.

————— The End of this Report —————

TTL Test Report