

# TEST REPORT

REPORT NUMBER: B08GE6353-FCC-EMC

ON

**Type of Equipment:** GSM/GPRS Module

**Type of Designation:** TR-900

**Manufacturer:** IWOW Connections Pte Ltd

ACCORDING TO

FCC CFR Part 2, FREQUENCY ALLOCATIONS AND RADIO  
TREATY MATTERS; GENERAL RULES AND REGULATIONS;  
e-CFR, March 23, 2006

PART 22, PUBLIC MOBILE SERVICES (Oct 1, 02 Edition)

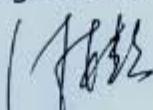
PART 24, PERSONAL COMMUNICATIONS SERVICES (Oct 1, 97  
Edition)

China Telecommunication Technology Labs.

Month date, year

Sep, 17, 2008

Signature



He Guili  
Director

**FCC ID:** QPB-TR9000808

**Report Date:** 2008-9-17

**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.

## CONTENTS

<b>1 GENERAL INFORMATION .....</b>	<b>4</b>
1.1 NOTES .....	4
1.2 TESTERS.....	5
1.3 TESTING LABORATORY INFORMATION .....	6
1.4 DETAILS OF APPLICANT OR MANUFACTURER .....	7
<b>2 TEST ITEM .....</b>	<b>8</b>
2.1 GENERAL INFORMATION .....	8
2.2 OUTLINE OF EUT .....	8
2.3 MODIFICATIONS INCORPORATED IN EUT .....	8
2.4 EQUIPMENT CONFIGURATION .....	8
2.5 OTHER INFORMATION .....	9
<b>3 SUMMARY OF TEST RESULTS .....</b>	<b>10</b>
<b>4 TEST RESULTS OF MODE .....</b>	<b>11</b>
4.1 RADIATED SPURIOUS EMISSION.....	11
4.2 RADIATED RF POWER OUTPUT AND ERP .....	21
4.3 OCCUPIED BANDWIDTH .....	24
4.4 FREQUENCY STABILITY OVER TEMPERATURE VARIATION .....	32
4.5 FREQUENCY STABILITY OVER VOLTAGE VARIATION .....	35
4.6 CONDUCTED RF POWER OUTPUT .....	37
4.7 CONDUCTED SPURIOUS EMISSION .....	40
4.8 BAND EDGE .....	45
<b>ANNEX A EXTERNAL PHOTOS .....</b>	<b>51</b>
<b>ANNEX B DEVIATIONS FROM PRESCRIBED TEST METHODS.....</b>	<b>522</b>

## 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.

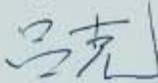
The test results of this test report relate exclusively to the item(s) tested as specified in section 2.

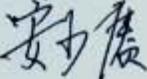
The following deviation from, additions to, or exclusions from the test specifications have been made. See Annex C.

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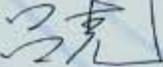
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## 1.2 Testers

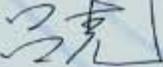
Name: Lv Ke  
Position: Engineer  
Department: Department of EMC test  
Signature: 

Name: An Shaogeng  
Position: Engineer  
Department: Department of EMC test  
Signature: 

### Editor of this test report:

Name: Lv Ke  
Position: Engineer  
Department: Department of EMC test  
Date: 2008-9-17  
Signature: 

### Technical responsibility for area of testing:

Name: Zhang Xia  
Position: Manager  
Department: Department of EMC test  
Date: 2008-9-17  
Signature: 

### 1.3 Testing Laboratory information

#### 1.3.1 Location

Name: China Telecommunication Technology Labs.  
Address: No. 11, Yue Tan Nan Jie, Xi Cheng District  
BEIJING  
P. R. CHINA, 100083  
Tel: +86 10 68094053  
Fax: +86 10 68011404  
Email: [emc@chinattl.com](mailto:emc@chinattl.com)

#### 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: -----  
Telephone: -----  
Fax: -----  
Postcode: -----

## 1.4 Details of applicant or manufacturer

### 1.4.1 Applicant

Name: IWOW Connections Pte Ltd  
Address: 1 Lorong 2 ToaPayoh #04-01  
Yellow Pages Building  
Singapore 319637  
Country: Singapore  
Telephone: 65-67488123  
Fax: 65-67482668  
Contact: Mr. Lee Yao Chiang (Chief Executive Officer)  
Telephone: 65-67488123 ext 806  
Email: [yclee@iwow.com.sg](mailto:yclee@iwow.com.sg)

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

Name: --  
Address: --

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

Name: --  
Address: --

## 2 Test Item

### 2.1 General Information

Manufacturer: IWOW Connections Pte Ltd  
Name: GSM/GPRS Module  
Model Number: TR-900  
Serial Number: --  
Production Status: Production  
Receipt date of test item: 2008-9-17

### 2.2 Outline of EUT

E.U.T. is a GSM/GPRS Module.

### 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	handset	--	--	--	None
B	adapter	--	--	--	None
C	battery	--	--	--	None

Cables:

Item	Cable Type	Manufacturer	Length	Shield	Quantity	Remarks
1	DC cable on Adapter	Unknown	1.0 m	No	1	None

## 2.5 Other Information

- (a) Modulation is GMSK.
- (b) Emission Designator is 288KGXW.
- (c) Version of hardware and software

HW Version: TR900\_P3

SW Version: Beta 1C

- (d) Adaptor information:

--

- (e) Battery information:

--

China Test Report

### 3 Summary of Test Results

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

<b>GSM mode:</b>		
Specification Clause	Name of Test	Result
2.1051, 24.238, 2.1053,22.917	Radiated Spurious Emission	Pass
2.1046,24.232	Radiated RF Power Output	Pass
22.913(a)	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
Note 1: No applicable performance criteria.		

<b>GPRS mode:</b>		
Specification Clause	Name of Test	Result
2.1051, 24.238, 2.1053,22.917	Radiated Spurious Emission	Pass
2.1046,24.232	Radiated RF Power Output	Pass
22.913(a)	Effective Radiated Power (ERP)	Pass
2.1049,22.917(b), 24.238(b)	Occupied Bandwidth	*Note 2
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
Note 2: No applicable performance criteria.		

## 4 Test Results of mode

### 4.1 Radiated Spurious Emission

<b>Specifications:</b>	2.1051, 24.238, 2.1053, 22.917					
<b>Date of Tests</b>	2008-9-4					
<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 and GPRS mode					
<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	ESI26	100211	2009-01-03	Normal
7330	Ultra Broadband Antenna	SCHWARZBECK	VULB 9160	--	2010-10-26	Normal
7330	Double-Ridged Horn Antenna	R/S	HF906	100037	2009-01-14	Normal
713	Fully-Anechoic Chamber	ETS	11.8m×6.5m×6.3m	--	2010-11-17	Normal
023	Wireless Communications Test Set	Agilent	8960(E5515C)	GB41450323	2009-06-13	Normal
111835	Wireless Communications Test Set	R&S	CMU200	1100000802	--	Normal

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

<b>Limits for Radiated spurious emissions(UE)</b>	
<b>Frequency range</b>	<b>Limit Level /Resolution Bandwidth</b>
30 MHz to 20000 MHz	-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:**

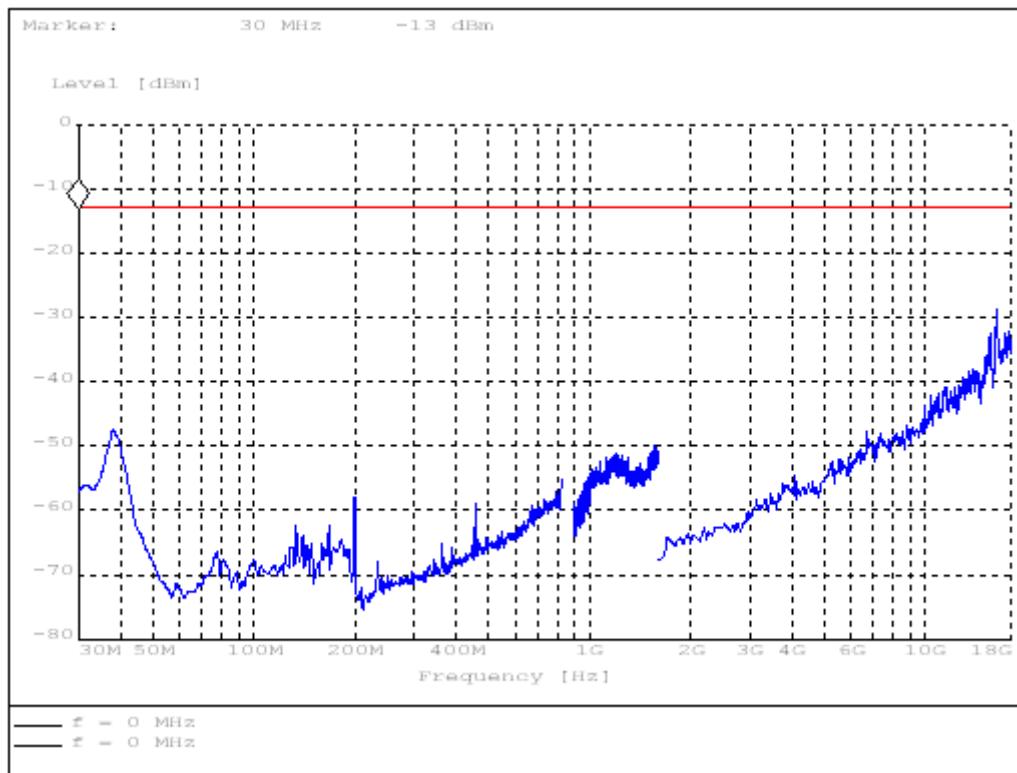
The measurement was performed accordance with section 2.2.12 of ANSI/TIA-603-B-2002: *Land Mobile FM or PM Communications Equipment Measurement and Performance Standards*.

- 1 The maximum spurious emissions were searched by turning the azimuth of the turntable, shifting the polarization of the measuring antenna and changing the pose of the EUT.
- 2 Levels of EUT's transmitter harmonics and suspicious signals were recorded.
- 3 The recorded levels were corrected in the automated test system with the correction factors given by a substitution calibration made before the measurement. The calibration was made separately for vertical and horizontal polarization and the system uses different correction factors depending on the measuring antenna polarization.
- 4 The corrected values of radiated spurious emissions indicated as EIRP are reported.

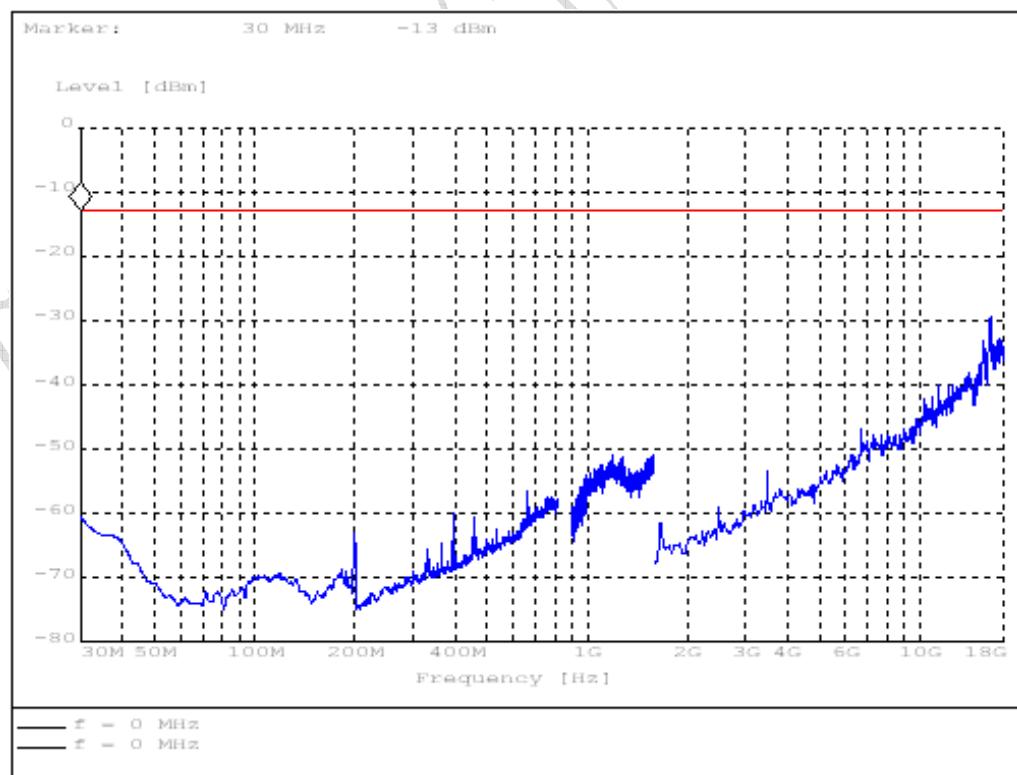
**Note:**

- 1 The investigated ARFCNs are 190 (836.6 MHz) and 661 (1880.0 MHz).
- 2 The investigated frequency range is 30 MHz ~ 18 GHz.

## Test Results for GSM mode:



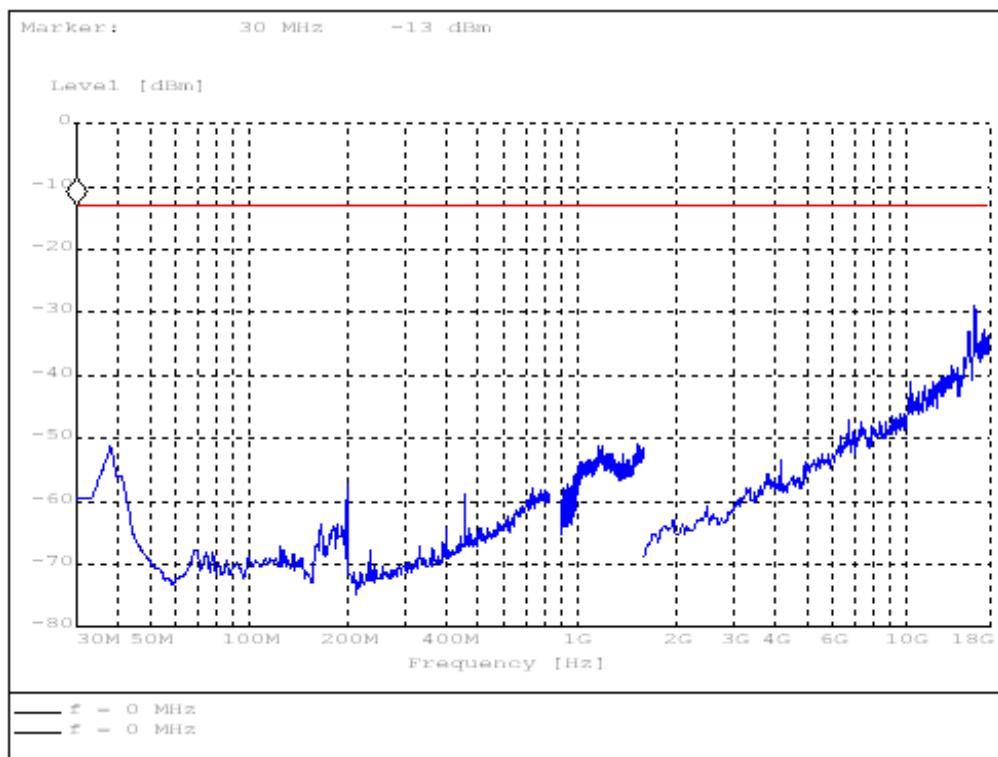
S190VF for GSM mode



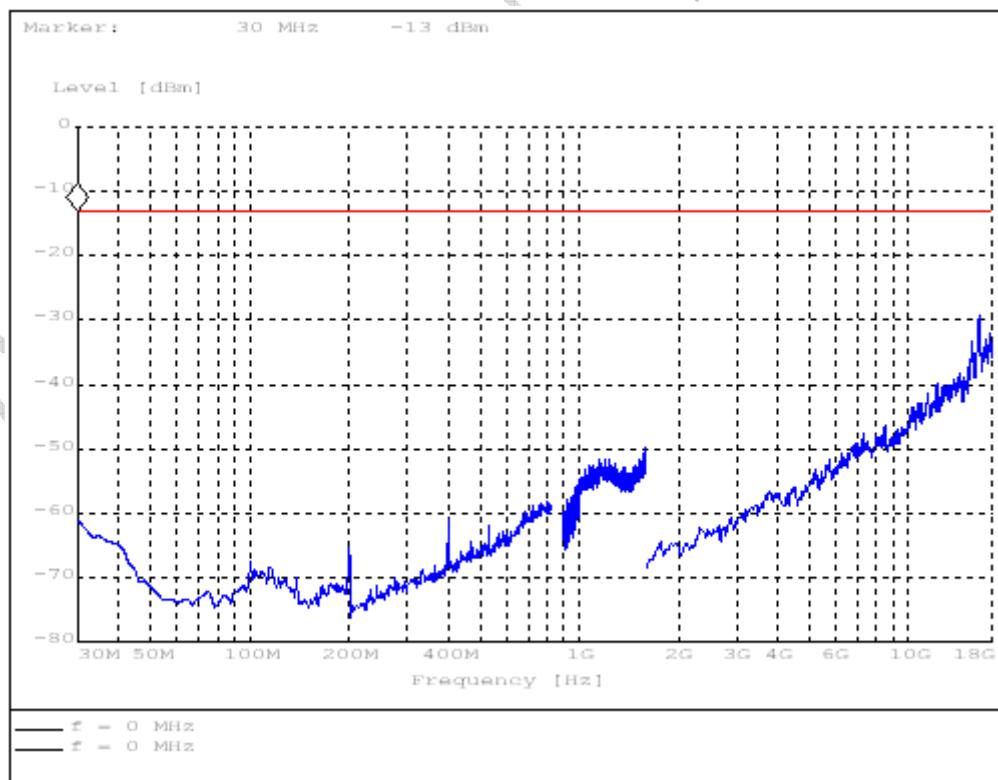
S190HF for GSM mode

FCC Parts 2, 22, 24  
Equipment: TR-900

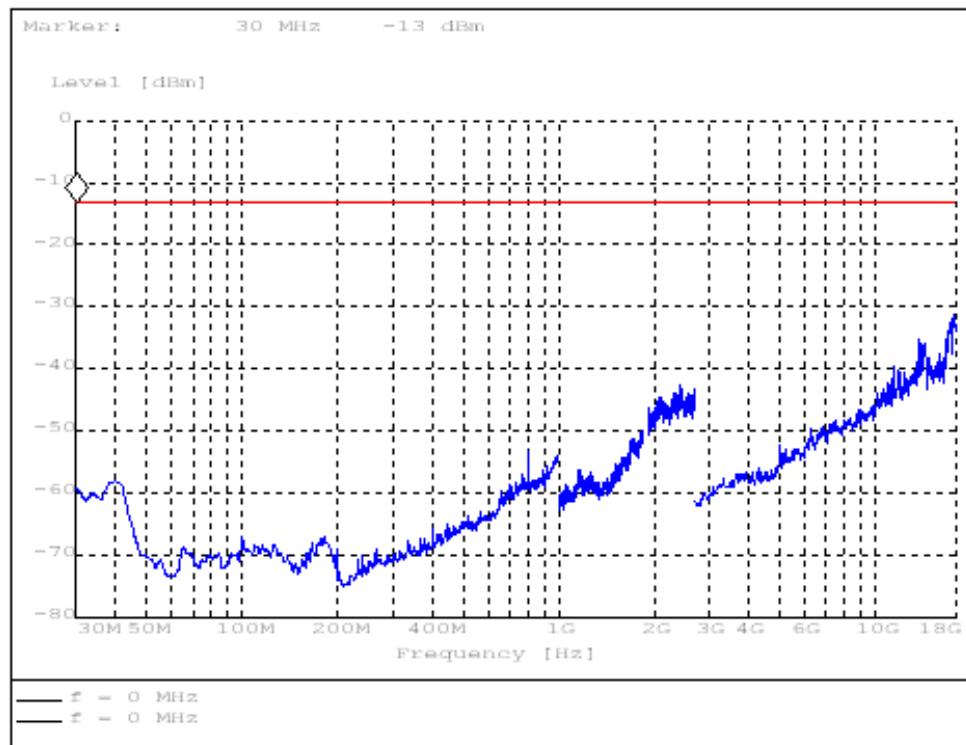
REPORT NO.: B08GE6353-FCC-EMC



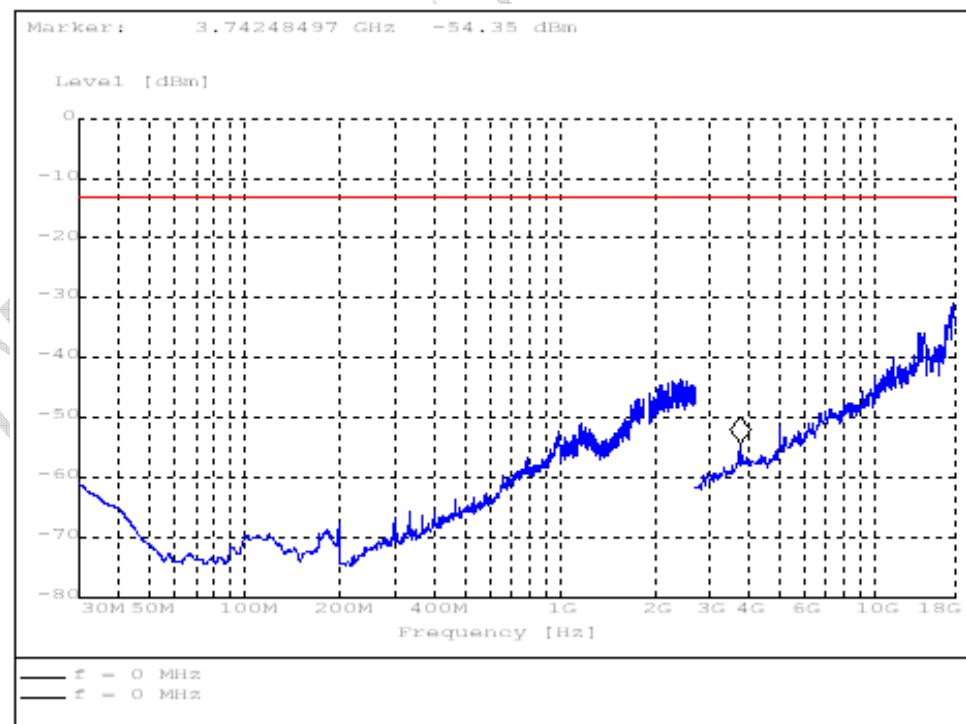
S190VT for GSM mode



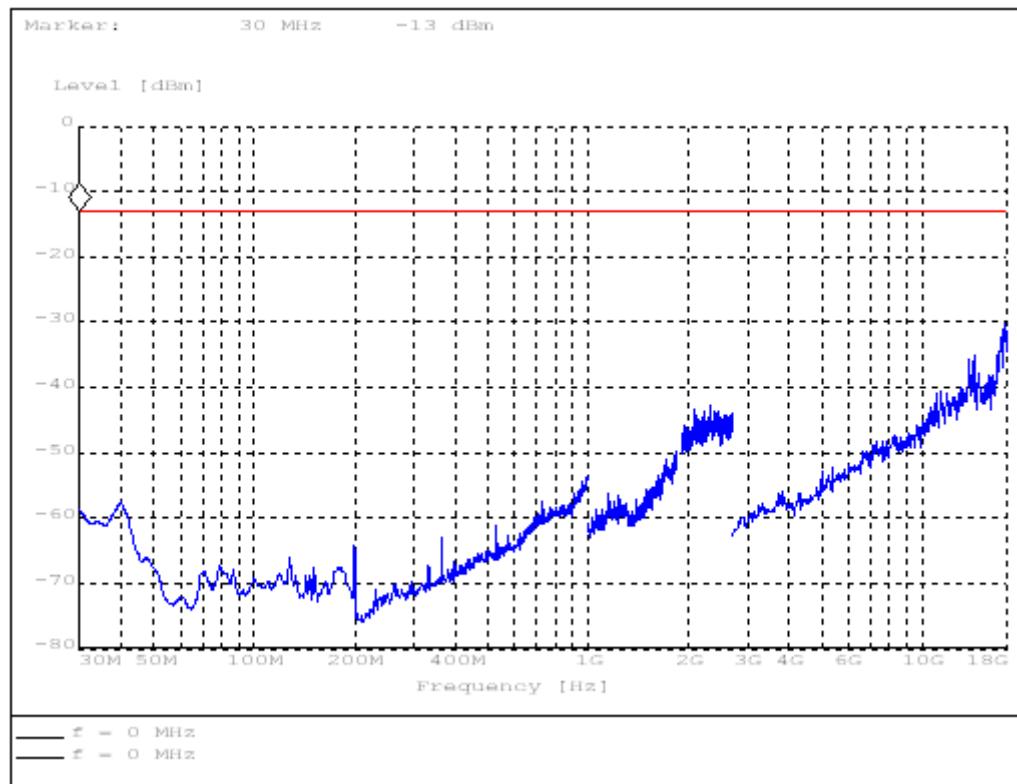
S190HT for GSM mode



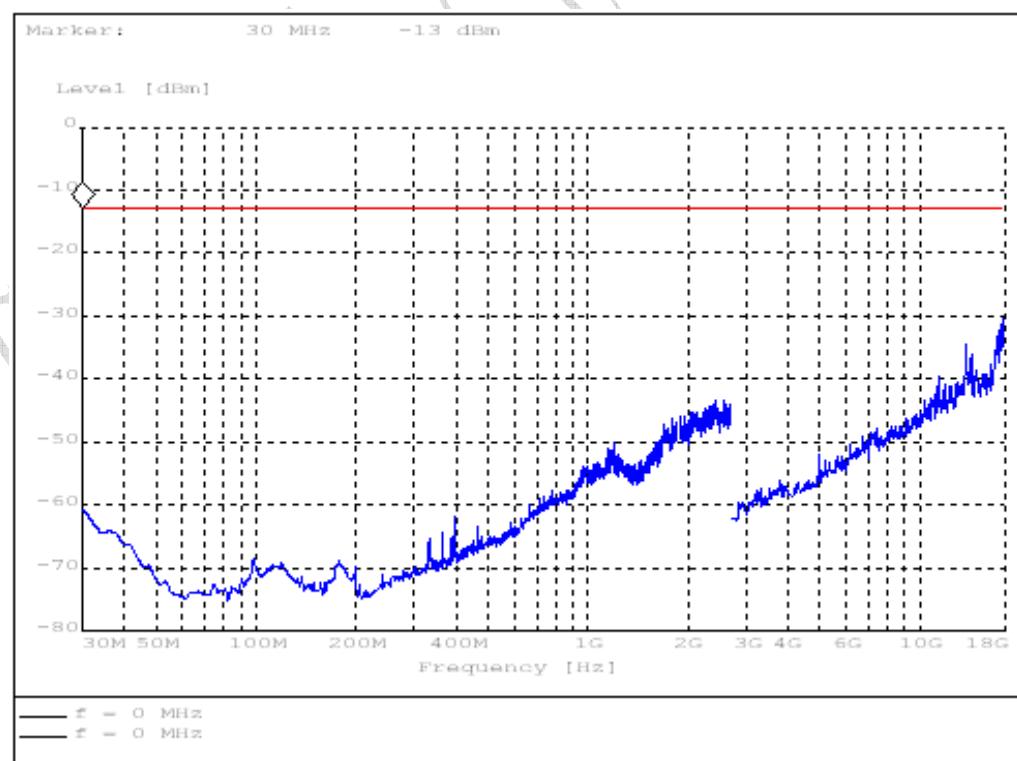
S661VF for GSM mode



S661HF for GSM mode

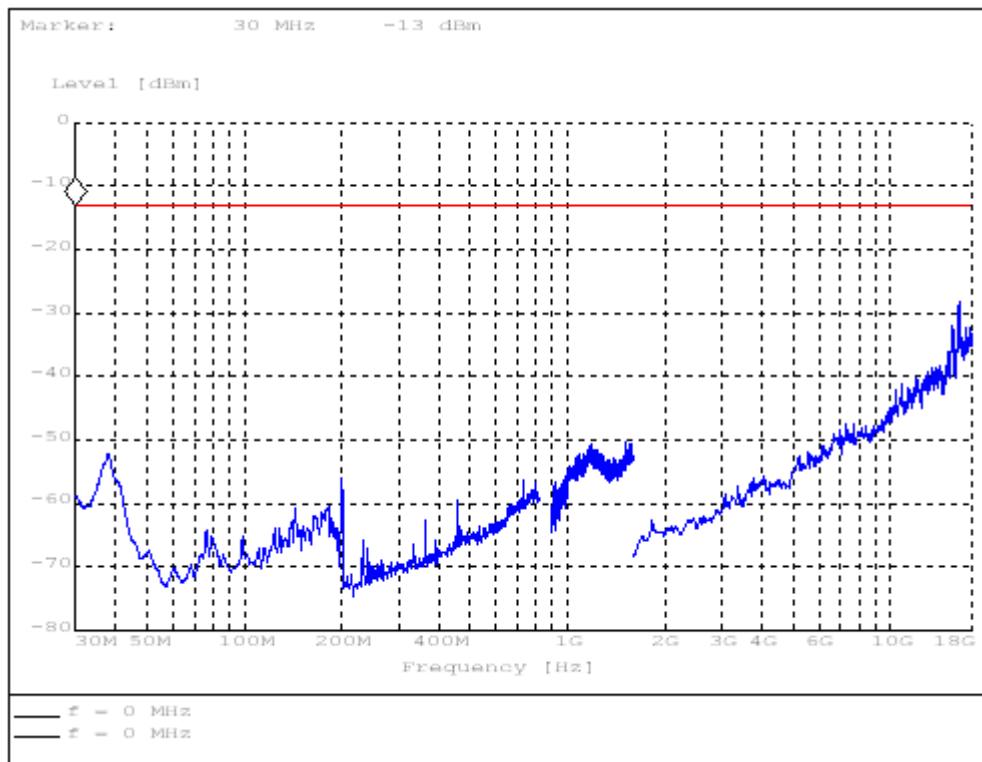


S661VT for GSM mode

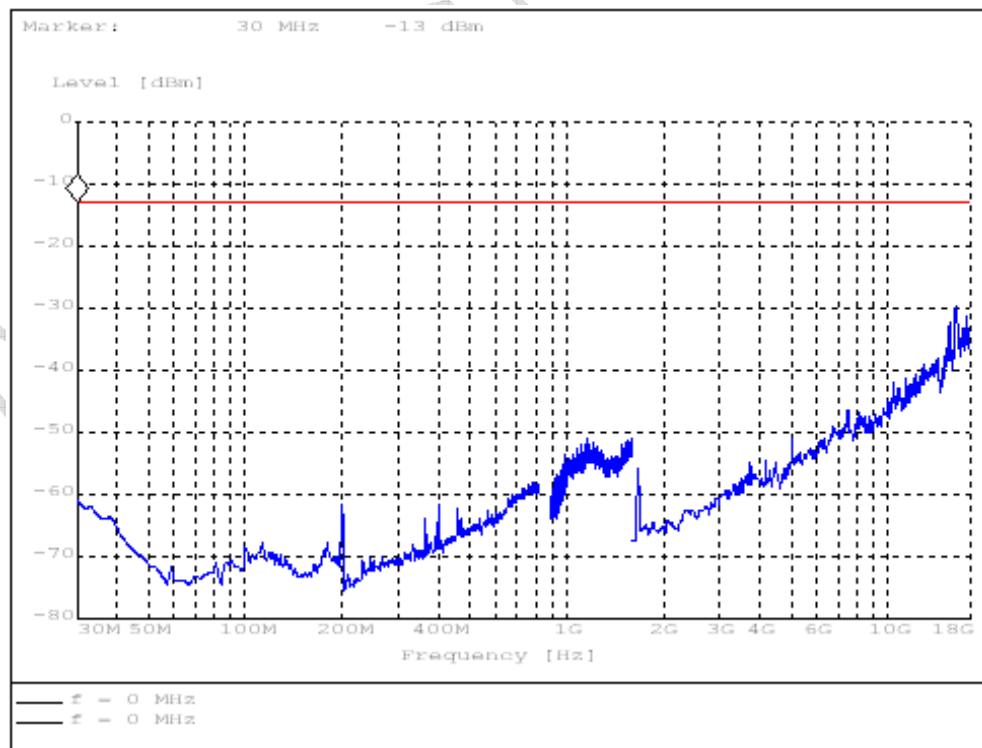


S661HT for GSM mode

**Test Results for GPRS mode:**



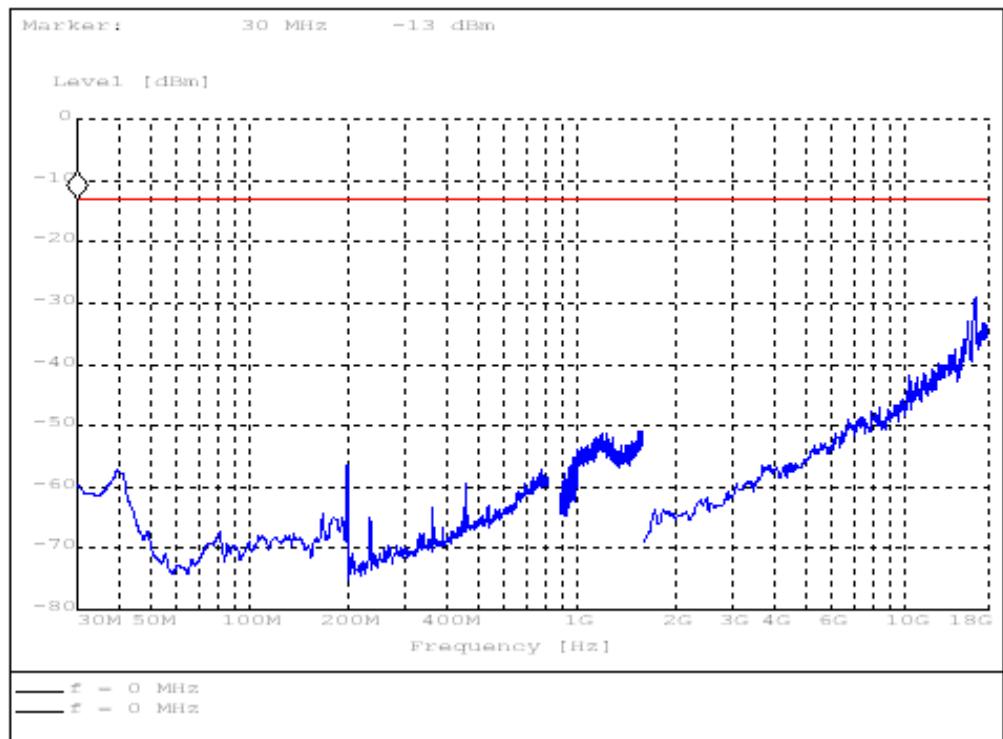
S190VF for GPRS mode



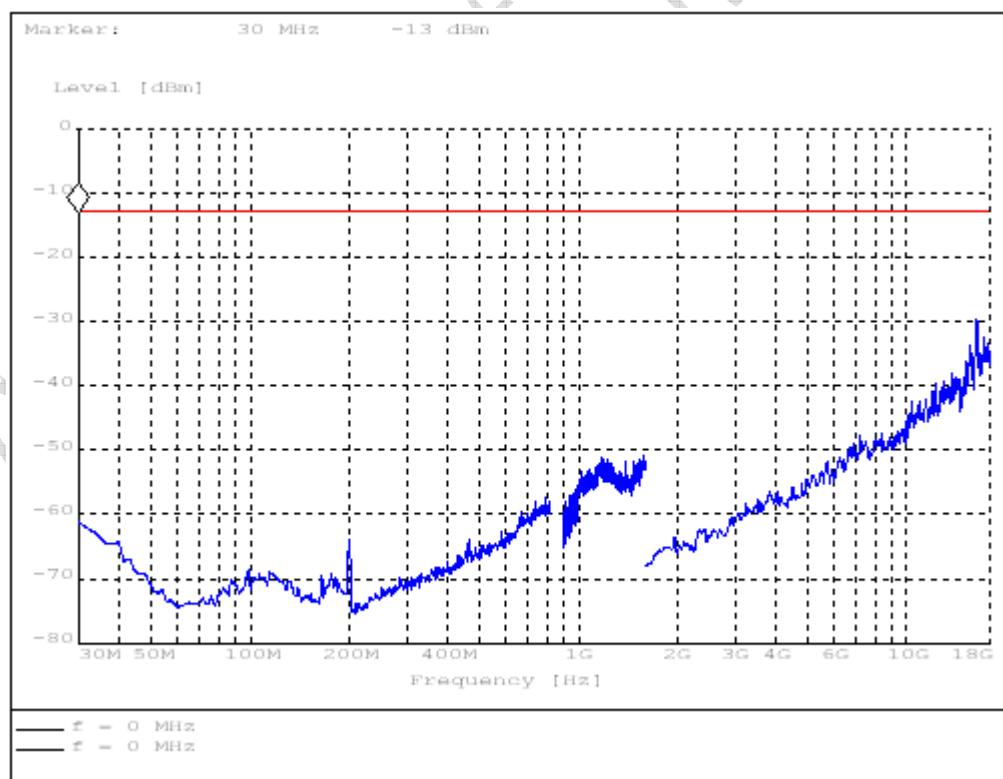
S190HF for GPRS mode

FCC Parts 2, 22, 24  
Equipment: TR-900

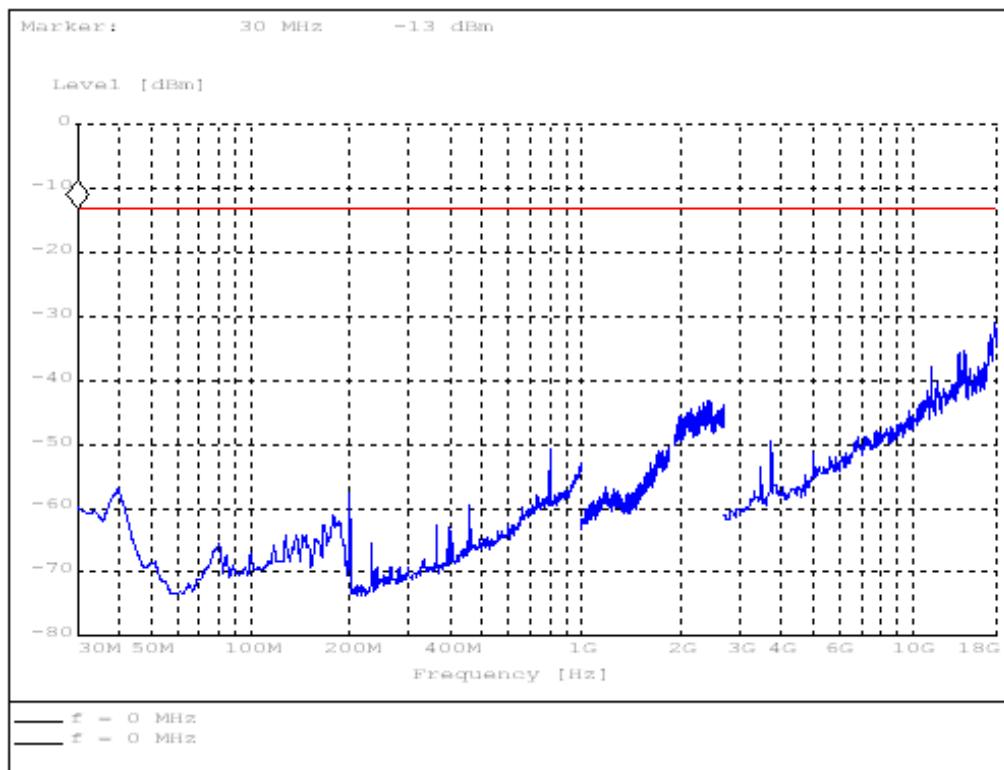
REPORT NO.: B08GE6353-FCC-EMC



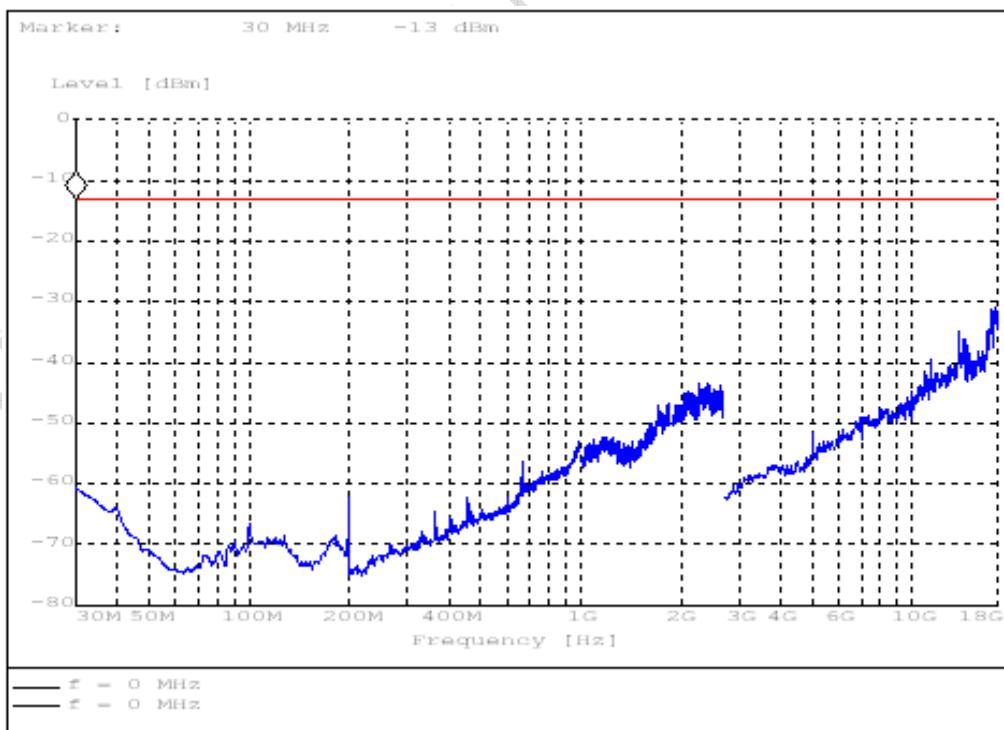
S190VT for GPRS mode



S190HT for GPRS mode



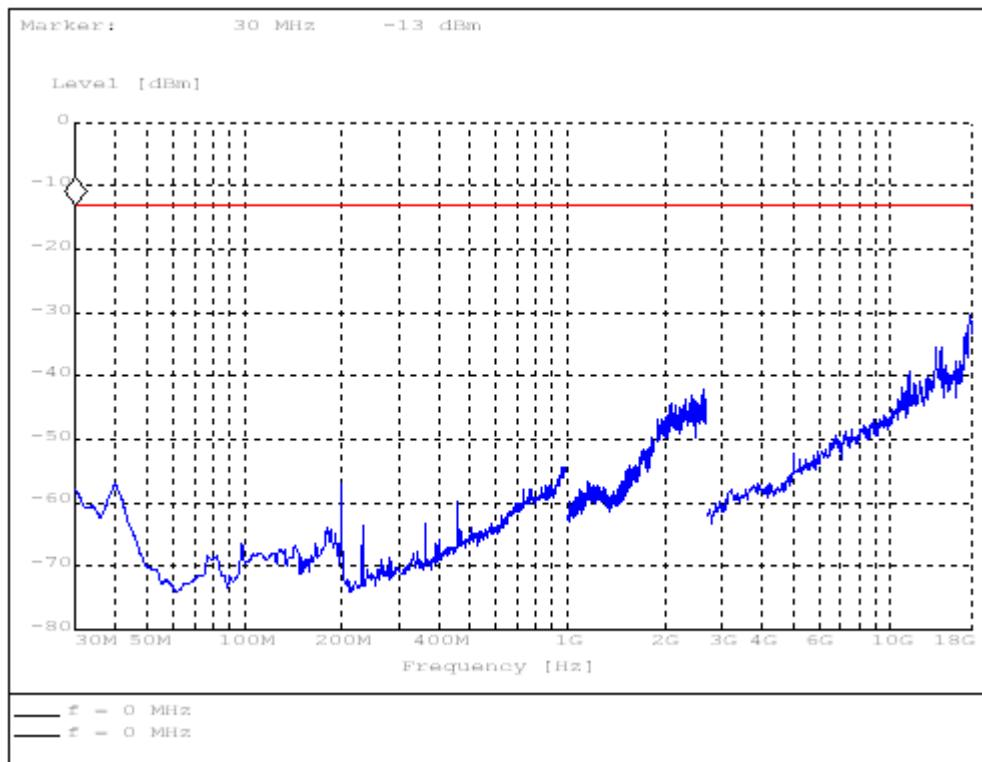
S661VF for GPRS mode



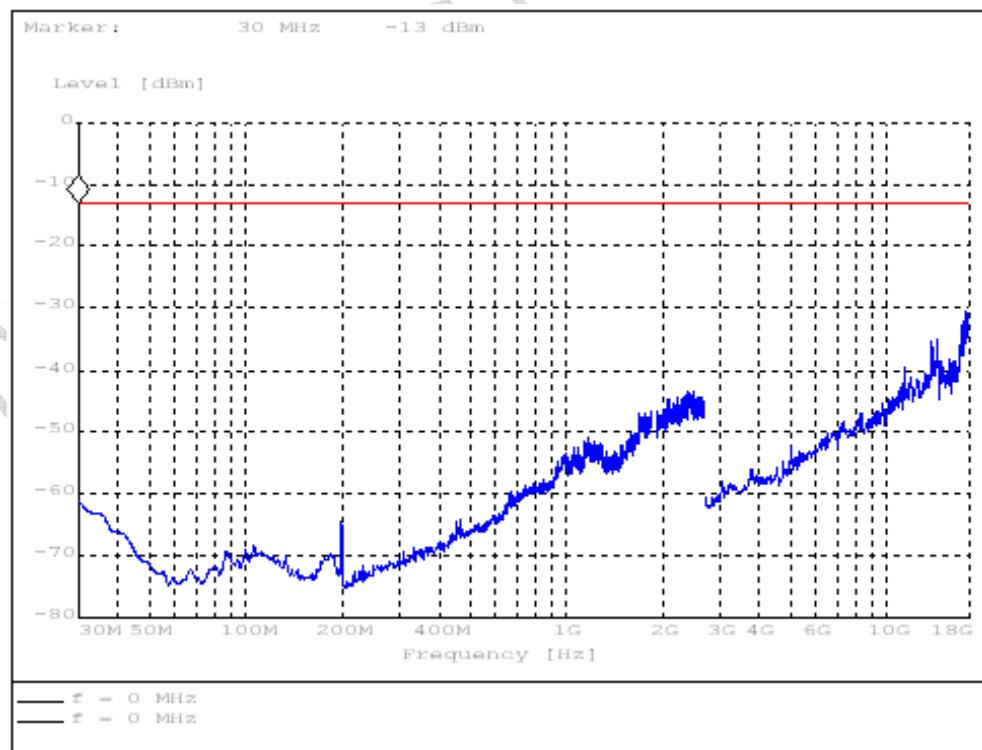
S661HF for GPRS mode

FCC Parts 2, 22, 24  
Equipment: TR-900

REPORT NO.: B08GE6353-FCC-EMC



S661VT for GPRS mode



S661HT for GPRS mode

## 4.2 Radiated RF Power Output and ERP

<b>Specifications:</b>	2.1046,24.232,22.913(a)					
<b>Date of Tests</b>	2008-9-4					
<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					
<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	ESI26	100211	2009-01-04	Normal
7330	Ultra Broadband Antenna	SCHWARZBECK	VULB 9160	--	2010-10-26	Normal
7330	Double-Ridged Horn Antenna	R/S	HF906	100037	2009-01-14	Normal
713	Fully-Anechoic Chamber	ETS	11.8m×6.5m×6.3m	--	2010-11-17	Normal
023	Wireless Communications Test Set	Agilent	8960(E5515C)	GB41450323	2009-06-13	Normal
111835	Wireless Communications Test Set	R&S	CMU200	1100000802	--	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 communications, 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.

### Limits for Radiated RF Power Output

Frequency range	Limit Level (EIRP)/Resolution Bandwidth
TX channel	33dBm/1MHz

### Limits for ERP

Frequency range	Limit Level (ERP)
TX channel	7W

## Test Setup:

The EUT was set in an anechoic chamber, which is connected to the Wireless Communications Test Set located outside the chamber over the air. The test was done using an automated test system, where all test equipments were controlled by a computer.

## Test Method

The measurement was performed accordance with section 2.2.17 of ANSI/TIA-603-B-2002: *Land Mobile FM or PM Communications Equipment Measurement and Performance Standards*.

1 The maximum power was searched by turning the azimuth of the turntable, shifting the polarization of the measuring antenna and changing the pose of the EUT.

2 The measured levels are EIRP values corrected in the automated test system with the correction factors given by a substitution calibration made before the measurement. The calibration is made separately for vertical and horizontal polarization and the system uses different correction factors depending on the measuring antenna polarization.

3 The corrected maximum levels were reported for EIRP values, and ERP values can be calculated from EIRP values.

## Note:

ERP dBm = EIRP dBm – 2.15dB.

### ERP Value for GSM 850 band mode:

ARFCN	Frequency [MHz]	ERP [dBm]
128	824.228457	18.69
190	836.653307	17.73
251	848.877756	18.87

### EIRP Value for GSM 1900 band mode:

ARFCN	Frequency [MHz]	EIRP [dBm]
512	1850.260521	11.26
661	1880.080160	10.53
810	1909.899800	8.95

## ERP Value for GPRS 850 band mode:

ARFCN	Frequency [MHz]	ERP [dBm]
512	824.228457	13.03
661	836.553106	11.93
810	848.777555	15.14

## EIRP Value for GPRS 1900 band mode:

ARFCN	Frequency [MHz]	EIRP [dBm]
128	1850.100200	7.42
190	1879.919840	7.16
251	1909.899800	9.16

### 4.3 Occupied bandwidth

<b>Specifications:</b>	2.1049,22.917(b),24.238(b)					
<b>Date of Test</b>	2008-9-9					
<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					
<b>Test Results:</b>	--					
<b>Test equipment Used:</b>						
Asset Number	Description	Manufacturer	Model Number	Serial Number	Cal Due	State
7805	EMI Test Receiver	R/S	ESI26	100211	2009-01-03	Normal
7330	Ultra Broadband Antenna	SCHWARZBECK	VULB 9160	--	2010-10-26	Normal
7330	Double-Ridged Horn Antenna	R/S	HF906	100037	2009-01-14	Normal
713	Fully-Anechoic Chamber	ETS	11.8m×6.5m×6.3 m	--	2010-11-17	Normal
023	Wireless Communications Test Set	Agilent	8960(E5515C)	GB41450323	2009-06-13	Normal
111835	Wireless Communications Test Set	R&S	CMU200	1100000802	--	Normal

### Test Setup

The situation under which maximum EIRP values were found in the measurement of the radiated RF power output was used to determine the 99% occupied bandwidth. The Wireless Communications Test Set was used to set the TX channel, power level and modulation.

### Test Method

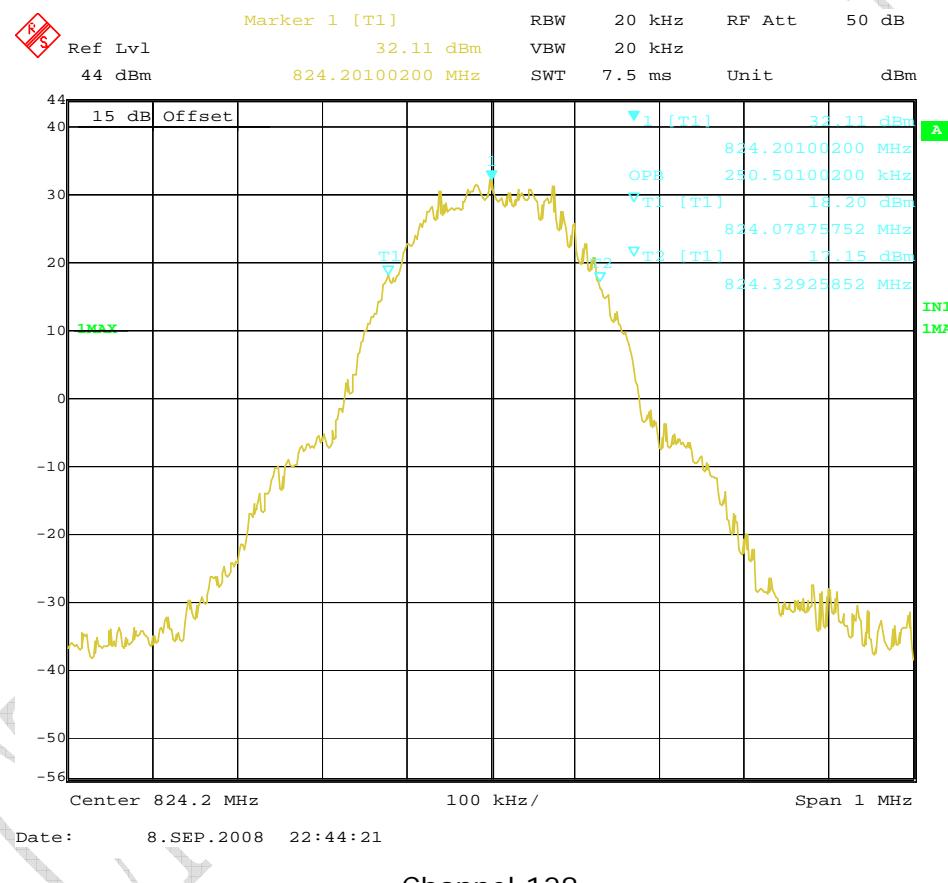
The 99% occupied bandwidth was calculated from the spectrum analyzer. Markers in the spectrum analyzer were then placed between the calculated frequencies to show the calculated 99% power band.

Note: --

## Results data of GSM mode:

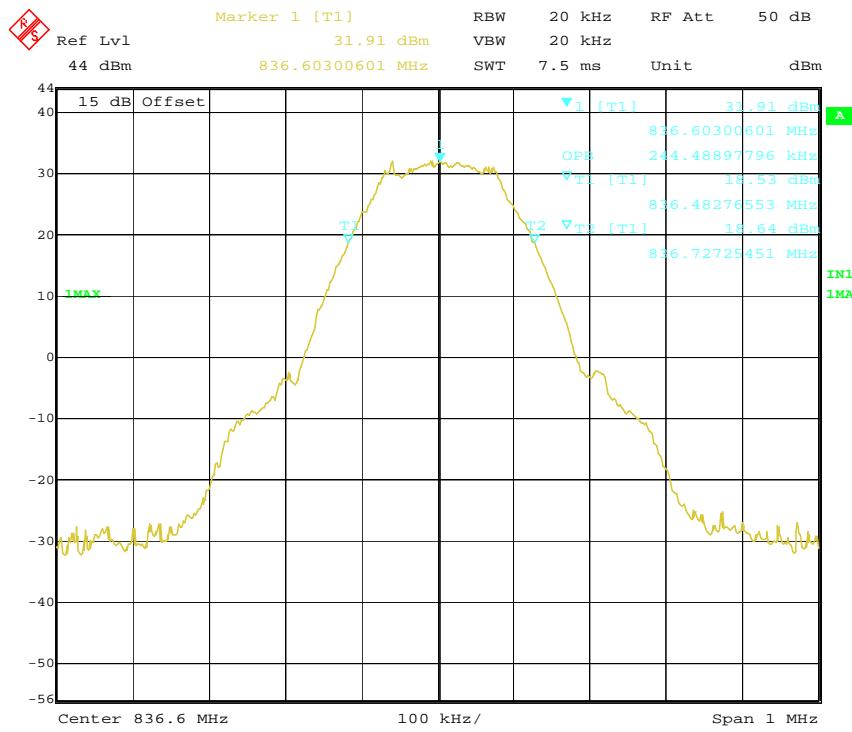
EUT channel	99% occupied bandwidth [kHz]
128	250
190	244
251	244
512	252
661	244
810	248

## Graphical results for GSM mode:

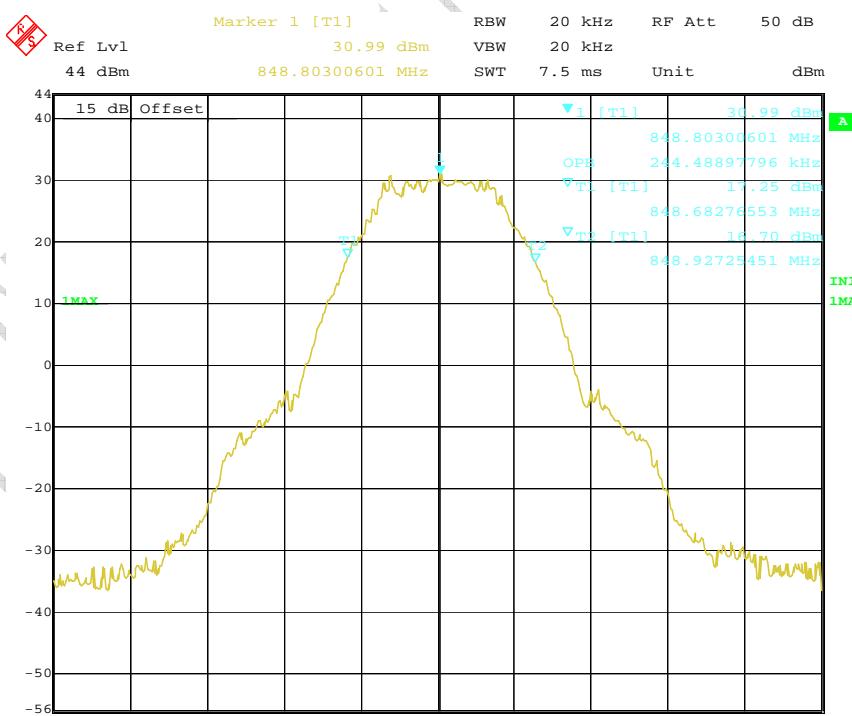


FCC Parts 2, 22, 24  
Equipment: TR-900

REPORT NO.: B08GE6353-FCC-EMC



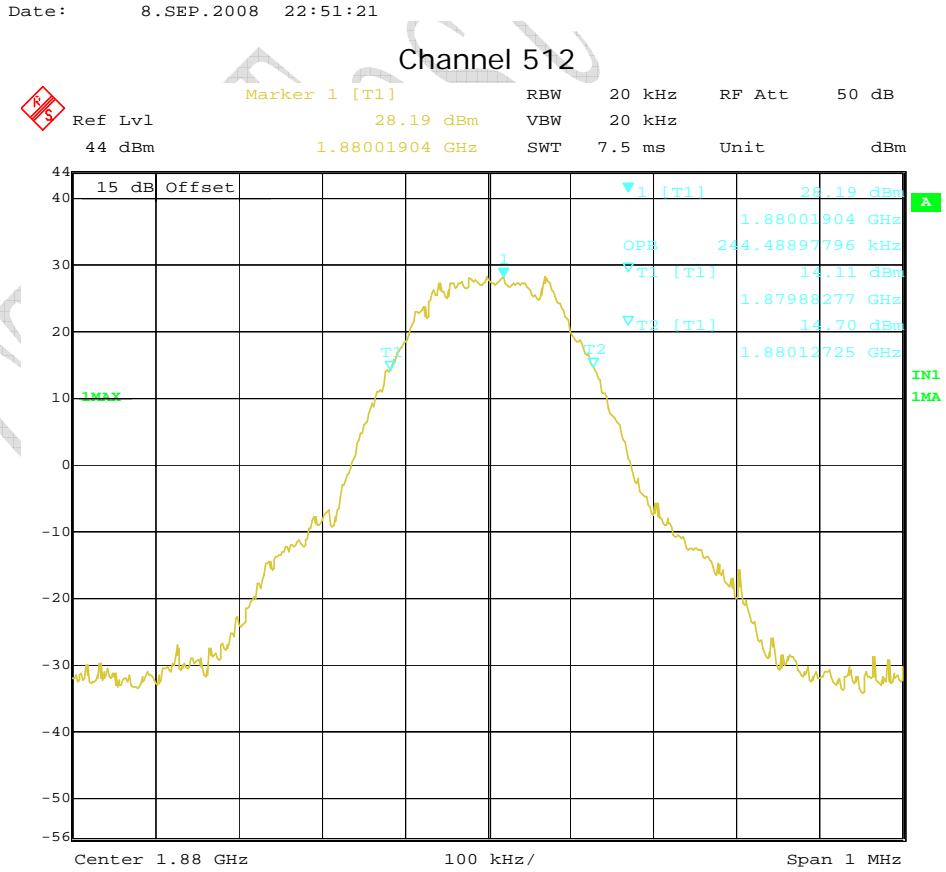
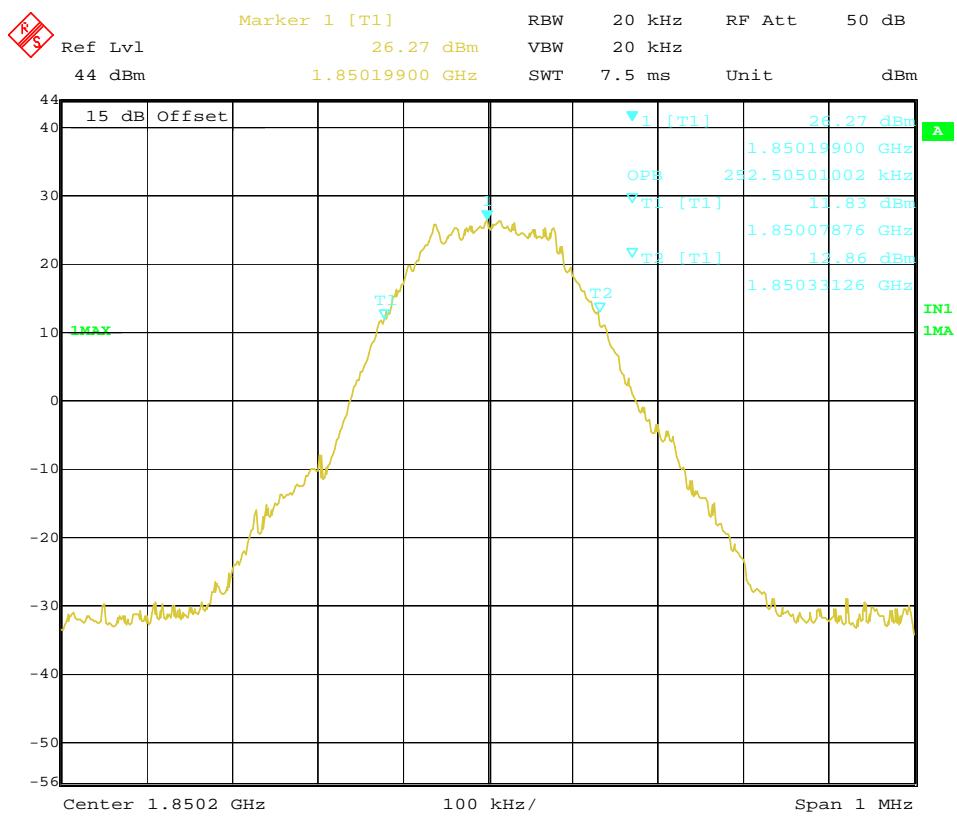
Channel 190



Channel 251

FCC Parts 2, 22, 24  
Equipment: TR-900

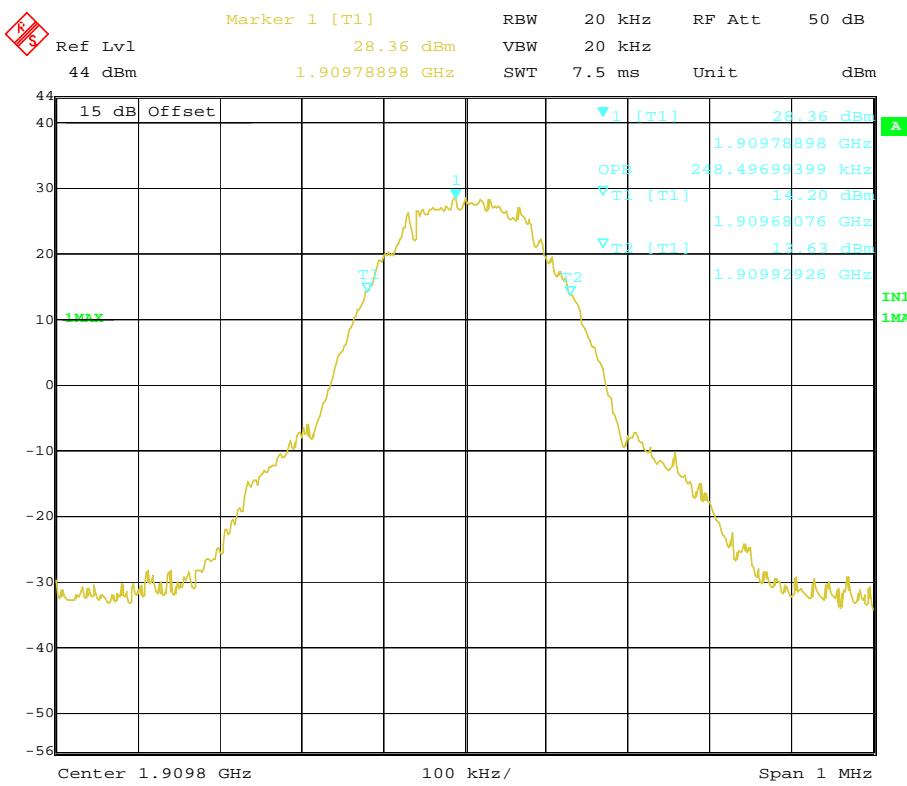
REPORT NO.: B08GE6353-FCC-EMC



Channel 661

FCC Parts 2, 22, 24  
Equipment: TR-900

REPORT NO.: B08GE6353-FCC-EMC



Channel 810

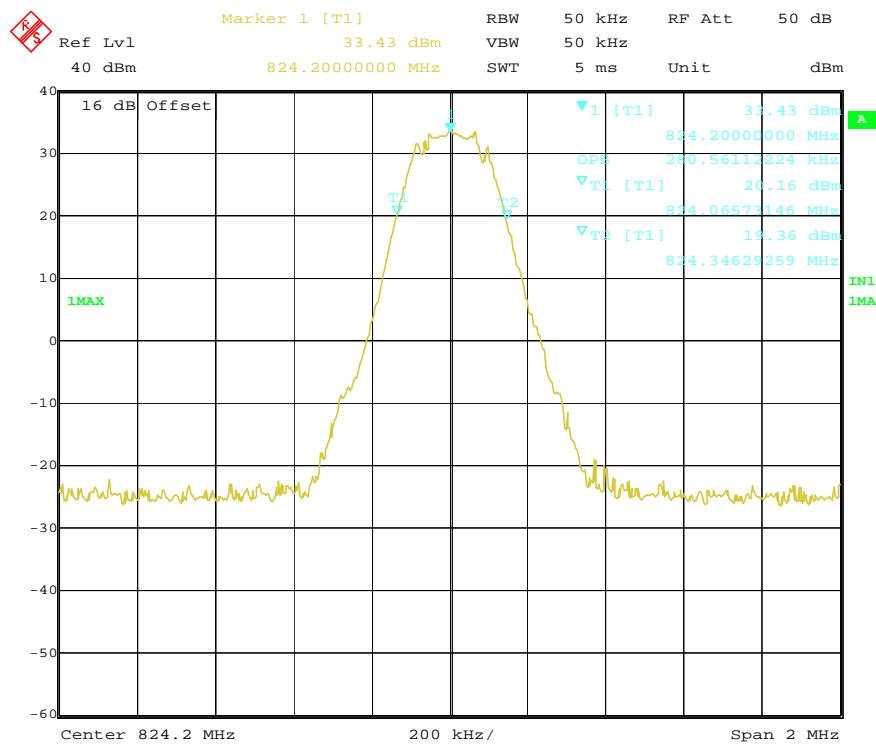
### Results data of GPRS mode:

EUT channel	99% occupied bandwidth [kHz]
128	276
190	276
251	272
512	288
661	280
810	276

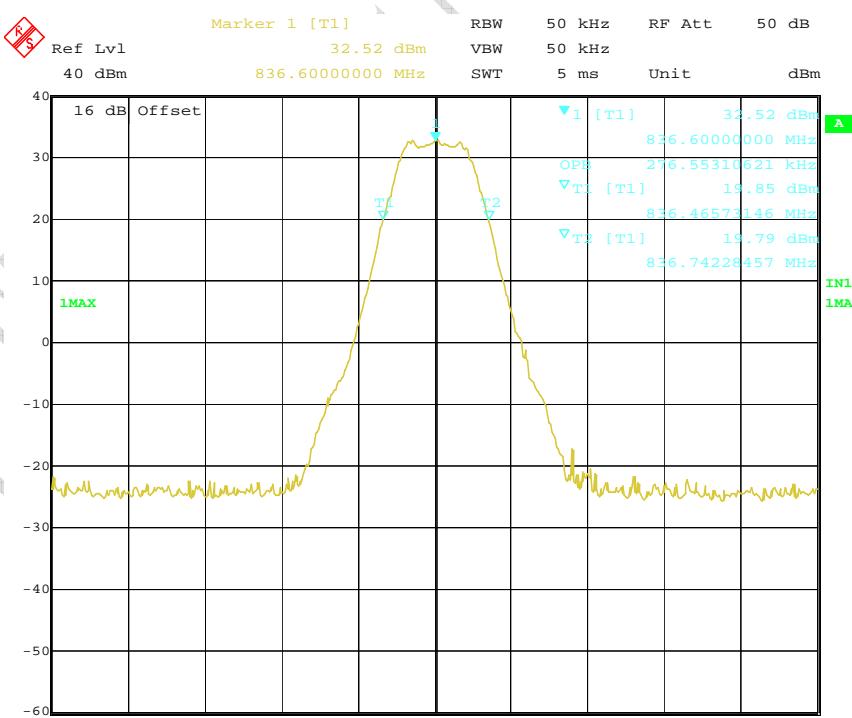
Graphical results for GPRS mode:

FCC Parts 2, 22, 24  
Equipment: TR-900

REPORT NO.: B08GE6353-FCC-EMC



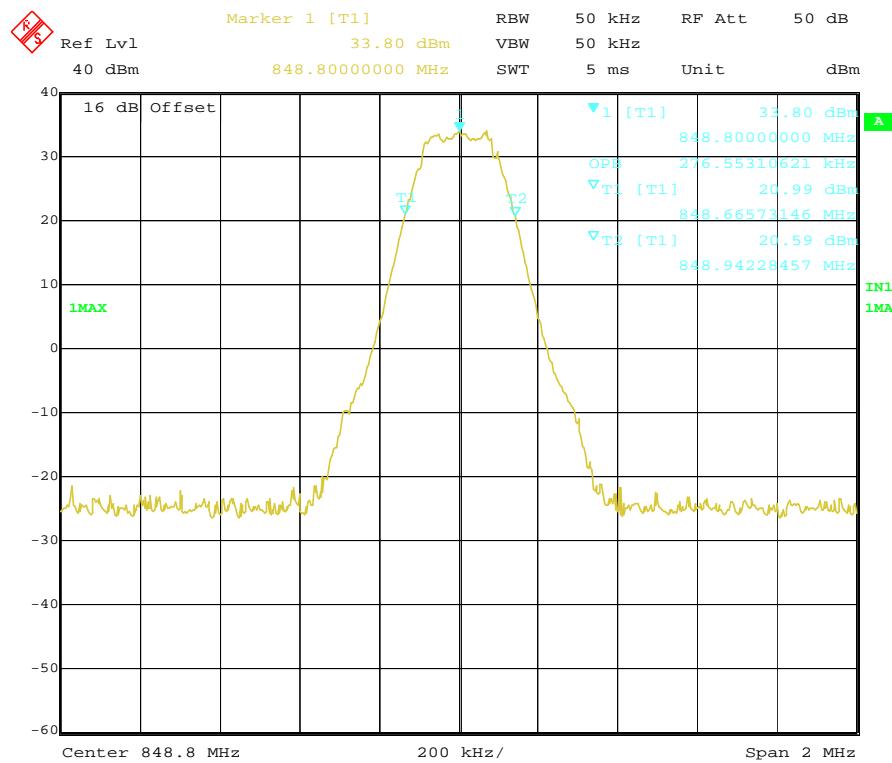
Channel 128



Channel 190

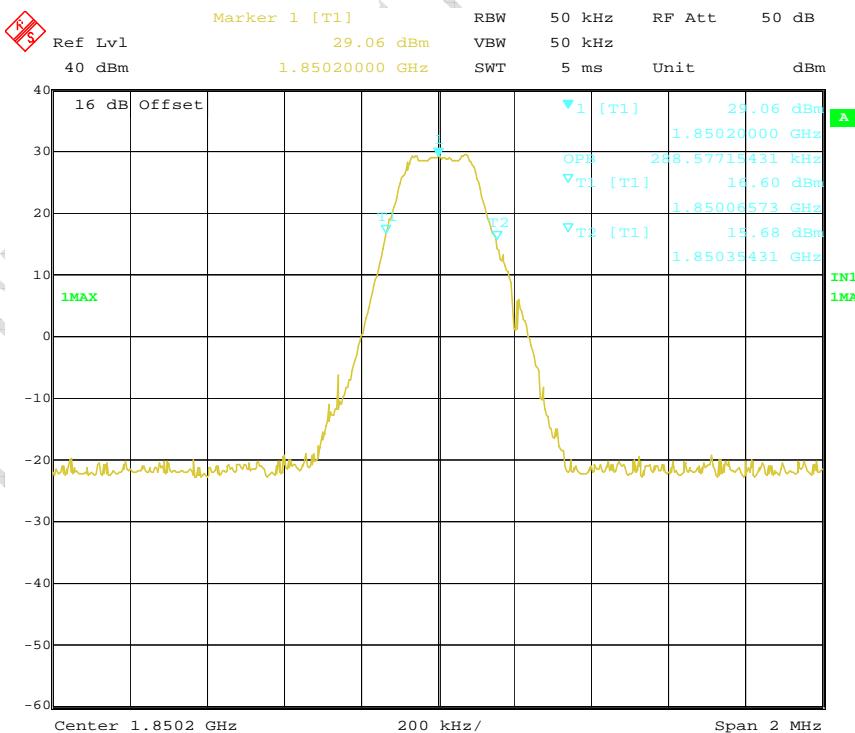
FCC Parts 2, 22, 24  
Equipment: TR-900

REPORT NO.: B08GE6353-FCC-EMC



Date: 9.SEP.2008 15:27:11

Channel 251

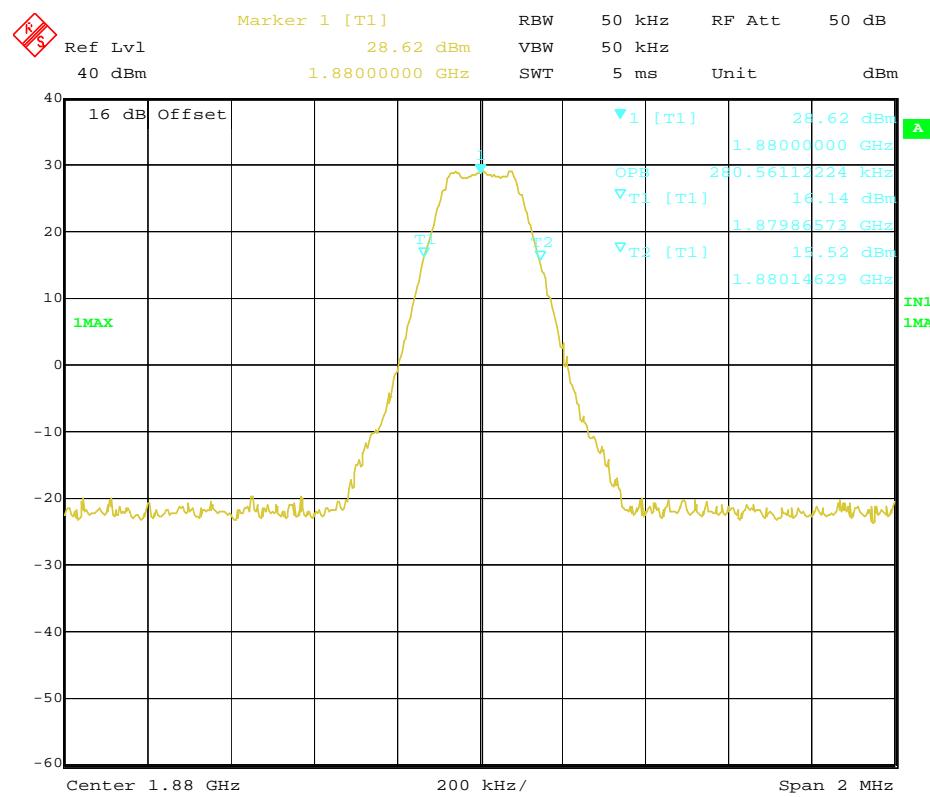


Date: 9.SEP.2008 15:19:28

Channel 512

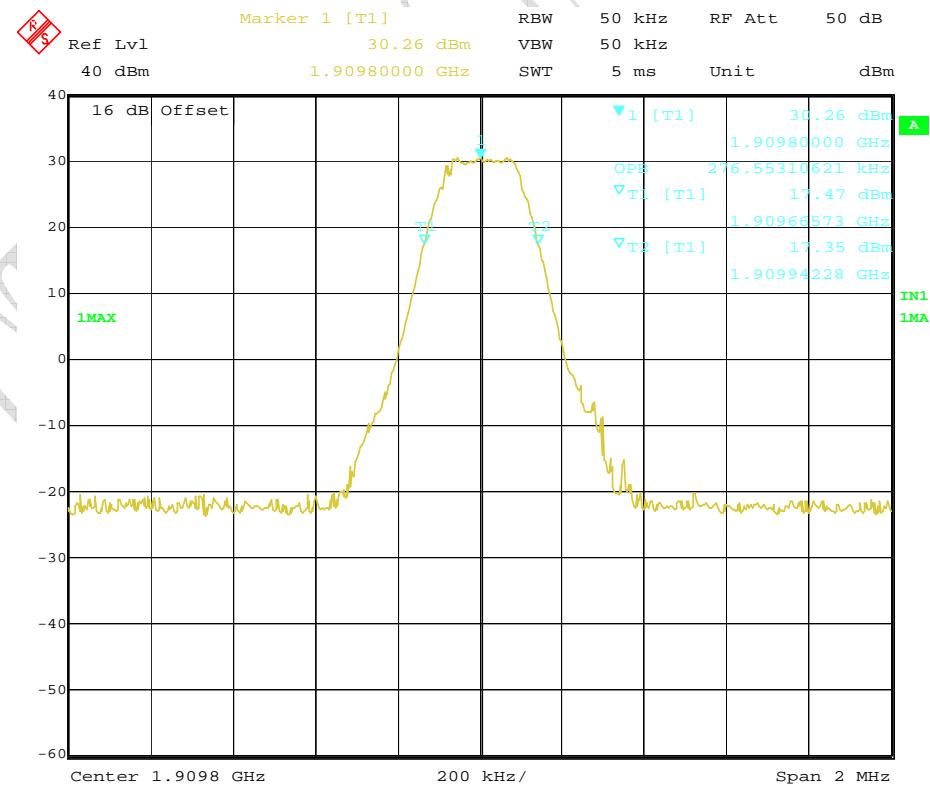
FCC Parts 2, 22, 24  
Equipment: TR-900

REPORT NO.: B08GE6353-FCC-EMC



Date: 9.SEP.2008 14:23:44

## Channel 661



Date: 9.SEP.2008 14:45:59

## Channel 810

#### 4.4 Frequency Stability over Temperature Variation

<b>Specifications:</b>	2.1055,22.355,24.235					
<b>Date of Test</b>	2008-08-11					
<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					
<b>Test Results:</b>	Pass					
<b>Test equipment Used:</b>						
Asset Number	Description	Manufacturer	Model Number	Serial Number	Cal Due	State
023	Wireless Communications Test Set	Agilent	8960(E5515C)	GB41450323	2009-06-13	Normal
561	Temperature Chamber	Terchy Environmental Technology LTD.	MHU-800SR	84121202	2009-05-06	Normal
111835	Wireless Communications Test Set	R&S	CMU200	1100000802	--	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 communications test set (test simulator) was used to set the TX channel and power levels, modulate the TX signal with different bit patterns and measure the frequency of TX.

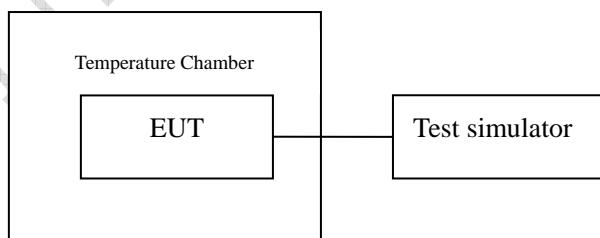


Figure T: setup for measurement of frequency stability over temperature variation

## 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 8960.
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 results data for GSM mode:

Channel 190:

Temperature[°C]	Deviation[Hz]	Deviation[ppm]	Remarks
-30	-24	-0.0287	Pass
-20	-18	-0.0215	Pass
-10	-16	-0.0191	Pass
0	-22	-0.0263	Pass
10	-24	-0.0287	Pass
20	-24	-0.0287	Pass
30	-28	-0.0335	Pass
40	-23	-0.0275	Pass
50	-25	-0.0298	Pass

Channel 661:

Temperature[°C]	Deviation[Hz]	Deviation[ppm]	Remarks
-30	-16	-0.0085	Pass
-20	-23	-0.0122	Pass
-10	-20	-0.0106	Pass
0	-20	-0.0106	Pass
10	-30	-0.0159	Pass
20	-35	-0.0186	Pass
30	-40	-0.0212	Pass
40	-41	-0.0218	Pass
50	-38	-0.0202	Pass

## Test results data for GPRS mode:

## Channel 190:

Temperature[°C]	Deviation[Hz]	Deviation[ppm]	Remarks
-30	-20	-0.0215	Pass
-20	8	0.0096	Pass
-10	10	0.0120	Pass
0	-24	-0.0287	Pass
10	-39	-0.0466	Pass
20	-34	-0.0406	Pass
30	-42	-0.0502	Pass
40	-27	-0.0323	Pass
50	-33	-0.0395	Pass

## Channel 661:

Temperature[°C]	Deviation[Hz]	Deviation[ppm]	Remarks
-30	-30	-0.0159	Pass
-20	-6	-0.0032	Pass
-10	-11	-0.0058	Pass
0	0	0	Pass
10	10	0.0053	Pass
20	15	0.0079	Pass
30	18	0.0096	Pass
40	-10	-0.0053	Pass
50	-12	-0.0064	Pass

#### 4.5 Frequency Stability over Voltage Variation

<b>Specifications:</b>	2.1055,22.355,24.235					
<b>Date of Test</b>	2008-9-9					
<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					
<b>Test Results:</b>	Pass					
<b>Test equipment Used:</b>						
Asset Number	Description	Manufacturer	Model Number	Serial Number	Cal Due	State
023	Wireless Communications Test Set	Agilent	8960(E5515C)	GB41450323	2009-06-13	Normal
111835	Wireless Communications Test Set	R&S	CMU200	1100000802	--	Normal
7982	DC Power Source	4NIC	DH1715A-3	004224	--	Normal
<b>Limit</b>						
Frequency deviation [ppm]	$\pm 2.5$					

#### Test Setup

The EUT was placed in a shielding chamber and powered by the dummy battery which is connected to a DC power source, demonstrated as figure V. The wireless communications 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.

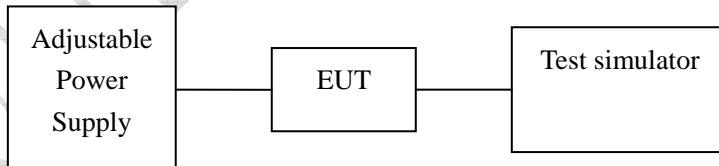


Figure V: test setup for measurement of frequency stability over voltage variation

## Test Results data for GSM mode:

Channel 190:

Level	Voltage[V]	Deviation[Hz]	Deviation[ppm]	Remarks
Nominal	3.8	24	0.0287	Pass
Cut-off point	3.3	29	0.0346	Pass

Channel 661:

Level	Voltage[V]	Deviation[Hz]	Deviation[ppm]	Remarks
Nominal	3.8	39	0.0207	Pass
Cut-off point	3.3	52	0.0277	Pass

## Test Results data for GPRS mode:

Channel 190:

Level	Voltage[V]	Deviation[Hz]	Deviation[ppm]	Remarks
Nominal	3.8	33	0.0394	Pass
Cut-off point	3.3	29	0.0346	Pass

Channel 661:

Level	Voltage[V]	Deviation[Hz]	Deviation[ppm]	Remarks
Nominal	3.8	44	0.0234	Pass
Cut-off point	3.3	33	0.0175	Pass

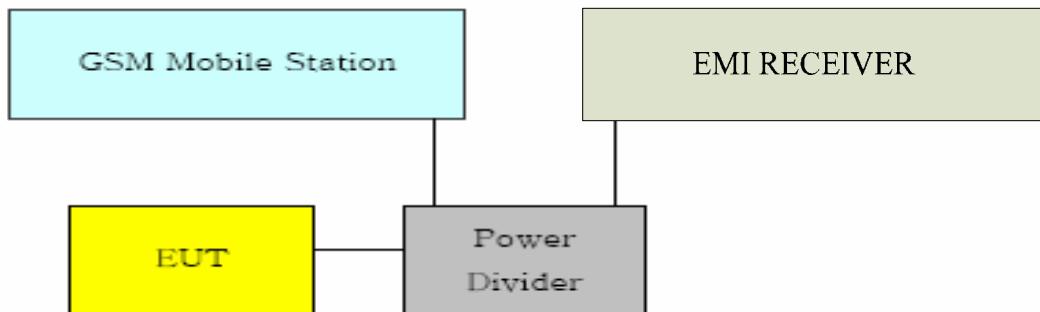
#### 4.6 Conducted RF Power Output

<b>Specifications:</b>	2.1046,22.913(a),24.232(c)					
<b>Date of Tests</b>	2008-9-3					
<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					
<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	ESI26	100211	2009-01-04	Normal
023	Wireless Communications Test Set	Agilent	8960(E5515C)	GB41450323	2009-06-13	Normal
---	Power spliter	Jie sai	---	1000132	2009-01-04	Normal
111835	Wireless Communications Test Set	R&S	CMU200	1100000802	--	Normal

<b>Limits for Radiated RF Power Output</b>	
<b>Frequency range</b>	<b>Limit Level (EIRP)/Resolution Bandwidth</b>
TX channel	33dBm/1MHz
<b>Limits for ERP</b>	
<b>Frequency range</b>	<b>Limit Level (ERP)</b>
TX channel	7W

#### Test Setup:

During the process of testing, the EUT was controlled via the Wireless Communications Test Set to ensure max power transmission and proper modulation and measured by Rhode & Schwarz EMI test receiver (ESI26).



## Test Method

- 1) The EUT was coupled to the EMI test receiver analyzer mode and the base station simulator through a power divider. The radio frequency load attached to the EUT antenna terminal was 50 Ohm. 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: --

## Test Results for GSM mode:

ERP Value for GSM 850 band:

ARFCN	Peak output power [dBm]
128	30.43
190	30.07
251	29.69

EIRP Value for GSM 1900 band:

ARFCN	Peak output power [dBm]
512	28.80
661	29.14
810	29.59

## Test Results for GPRS mode:

ERP Value for GPRS 850 band:

ARFCN	Peak output power [dBm]
128	31.17
190	30.30
251	30.71

EIRP Value for GPRS 1900 band:

ARFCN	Peak output power [dBm]
512	29.15
661	28.77
810	30.41

#### 4.7 Conducted Spurious Emission

<b>Specifications:</b>	2.1051,22.917,24.238					
<b>Date of Tests</b>	2008-9-9					
<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					
<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	ESI26	100211	2009-01-04	Normal
023	Wireless Communications Test Set	Agilent	8960(E5515C)	GB41450323	2009-06-13	Normal
---	Power spliter	Jie sai	---	1000132	2009-01-04	Normal
111835	Wireless Communications Test Set	R&S	CMU200	1100000802	--	Normal

#### Limit Level Construction:

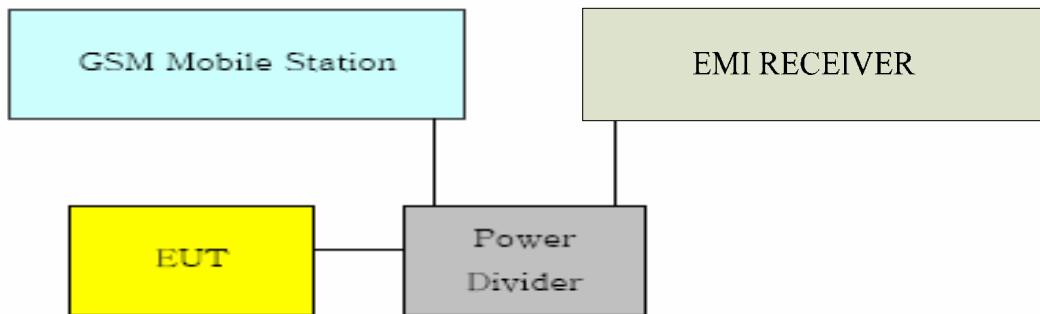
According to Part 24.238 (a), i.e., Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB, so the limit level is:  $P(\text{dBm}) - (43 + 10 \log(P)) \text{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

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

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

#### Test Setup:

During the process of testing, the EUT was controlled via Wireless Communications Test Set to ensure max power transmission and proper modulation and measured by Rhode & Schwarz EMI test receiver (ESI26)



## 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. For the equipment under test, this equates to a frequency range of 30 MHz to 19.1 GHz, data taken from 30 MHz to 20 GHz.
2. Determine EUT transmit frequencies: below out

lines the band edge frequencies pertinent to conducted emissions testing.

Note: --

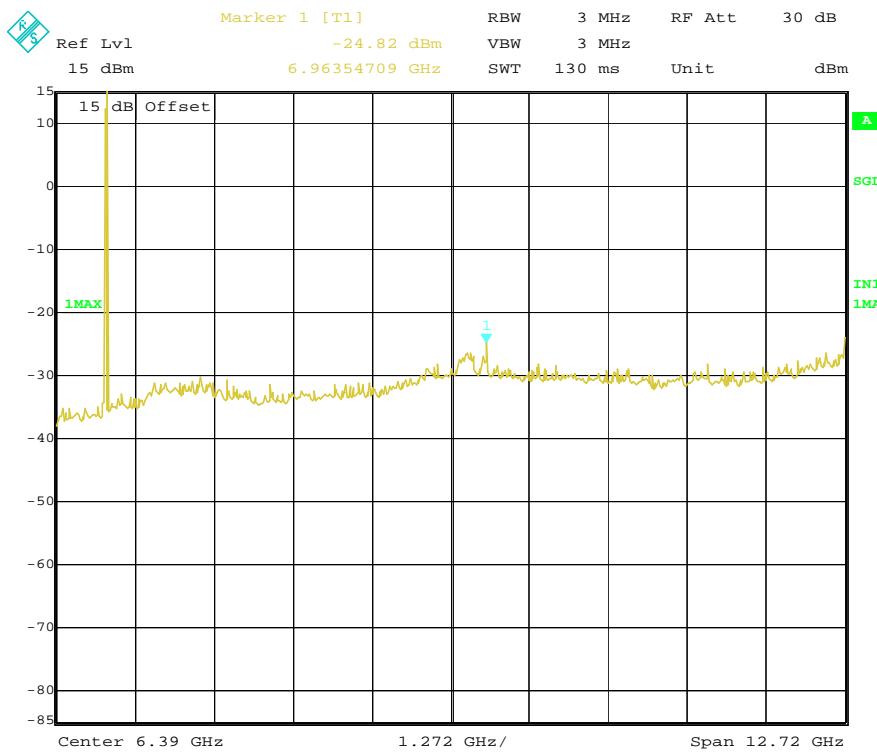
### Test Results for GSM mode:

Out of band emission	
Frequency [MHz]	Level (dBm)
--	--

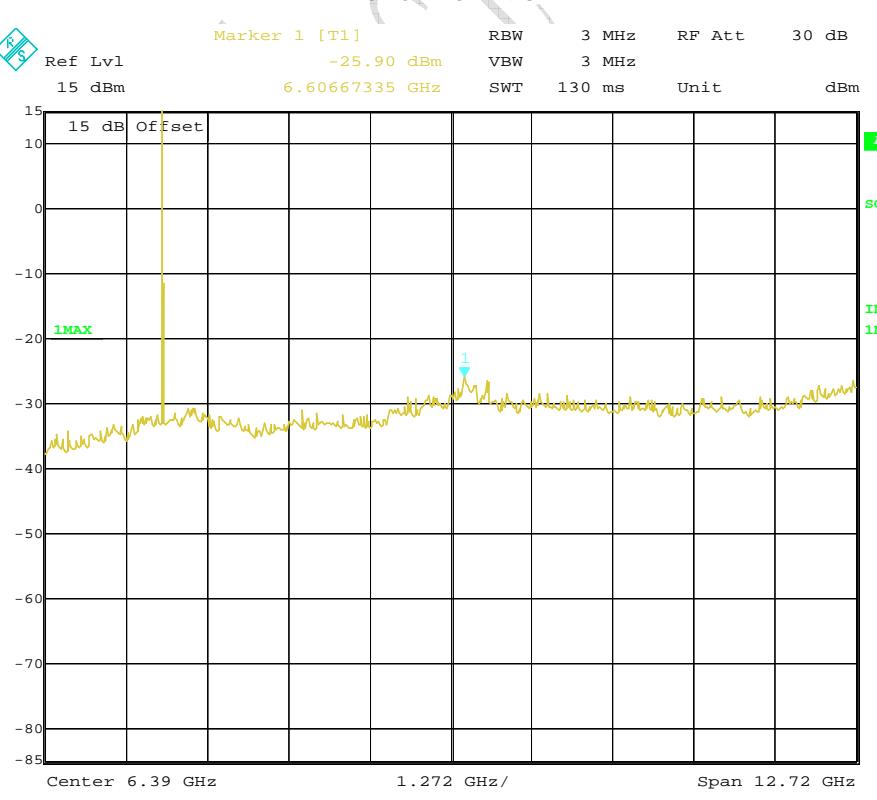
FCC Parts 2, 22, 24  
Equipment: TR-900

REPORT NO.: B08GE6353-FCC-EMC

## Graphical results for GSM mode:



## Channel 190



## Channel 661

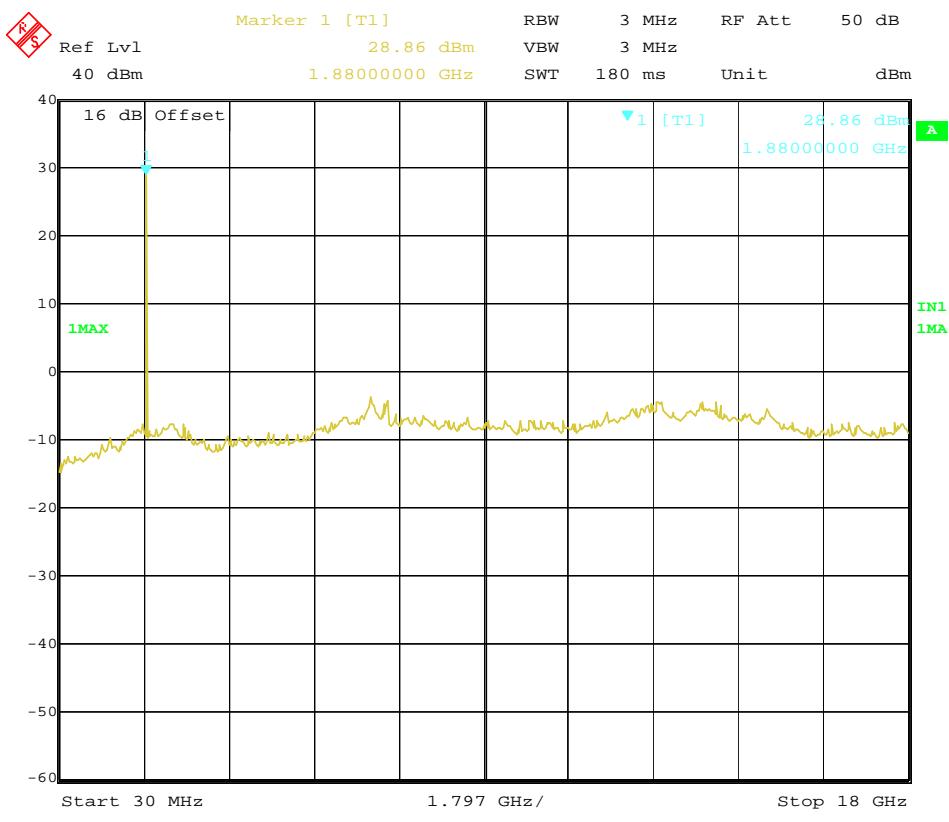
**Test Results for GPRS mode:**

Out of band emission	
Frequency [MHz]	Level (dBm)
--	--

**Graphical results for GPRS mode:**

FCC Parts 2, 22, 24  
Equipment: TR-900

REPORT NO.: B08GE6353-FCC-EMC



Channel 661  
Test  
CMMI

**4.8 Band Edge**

<b>Specifications:</b>	2.1051, 24.238, 2.1053, 22.917					
<b>Date of Tests</b>	2008-9-3					
<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					
<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	ESI26	100211	2009-01-04	Normal
023	Wireless Communications Test Set	Agilent	8960(E5515C)	GB41450323	2009-06-13	Normal
---	Power spliter	Jie sai	---	1000132	2009-01-04	Normal
111835	Wireless Communications Test Set	R&S	CMU200	1100000802	--	Normal

**Limit Level Construction:**

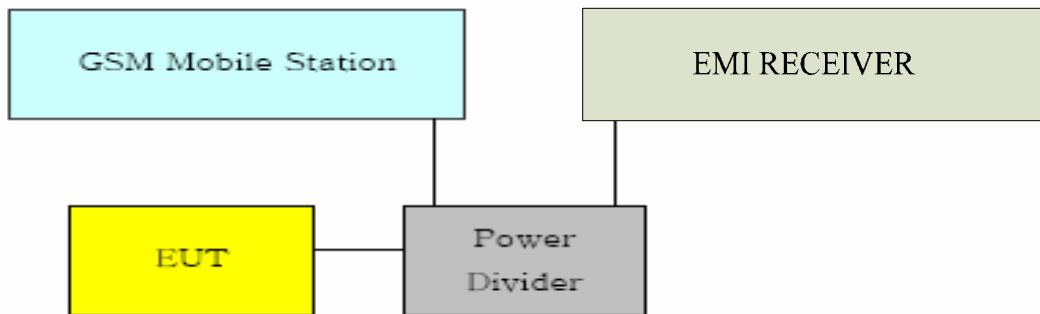
According to Part 24.238 (a), i.e., Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB, so the limit level is:  $P(\text{dBm}) - (43 + 10 \log(P)) \text{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

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

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

**Test Setup:**

During the process of testing, the EUT was controlled via the Wireless Communications Test Set to ensure max power transmission and proper modulation and measured by Rhode & Schwarz EMI test receiver (ESI26).



## Test Method

- 1) The EUT was coupled to the EMI test receiver analyzer mode and the base station simulator through a power divider. The radio frequency load attached to the EUT antenna terminal was 50 Ohm. 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: --

## Test Results:

### GSM mode:

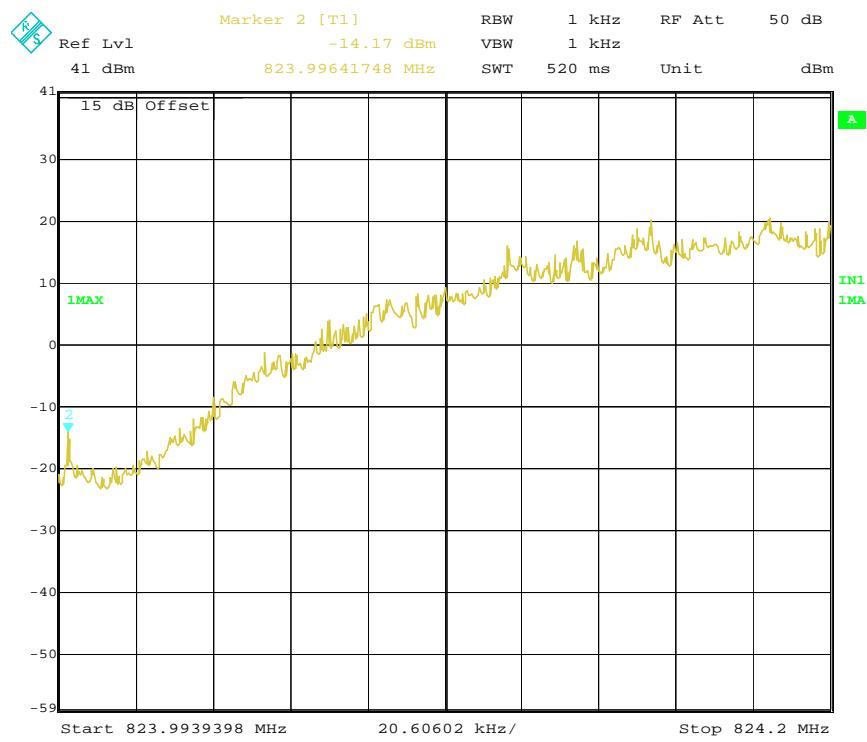
Band-edge emission		
EUT Channel	Frequency [MHz]	Level [dBm]
128 Left band edge	823.996	-14.17
251 Right band edge	849.019	-16.68
512 Left band edge	1850.004	-23.73
810 Right band edge	1909.990	-20.77

### GPRS mode:

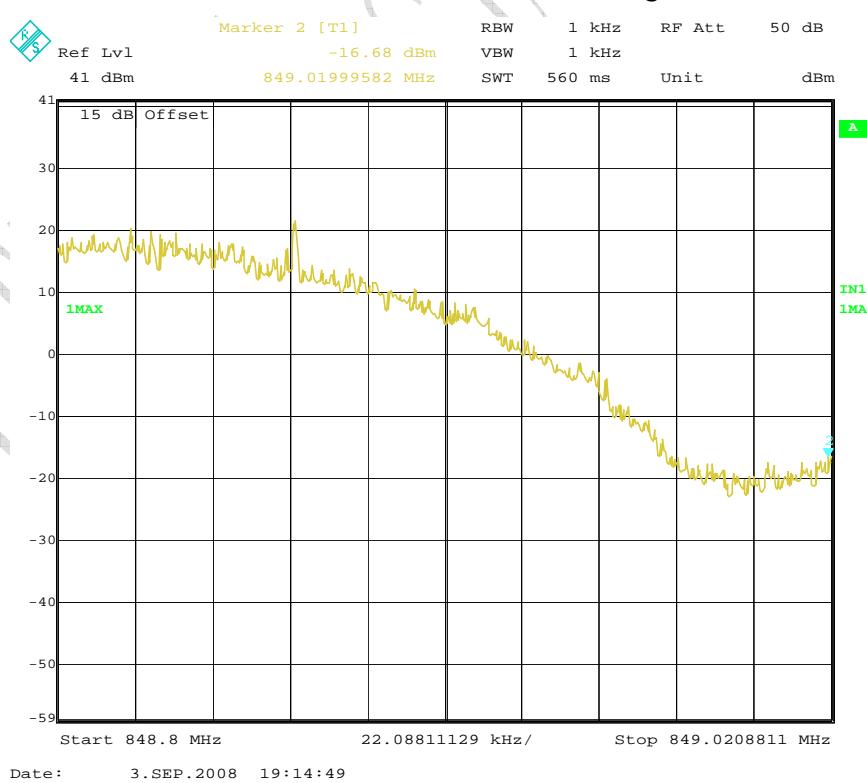
Band-edge emission		
EUT Channel	Frequency [MHz]	Level [dBm]
128 Left band edge	824.000	-13.27
251 Right band edge	849.000	-14.20
512 Left band edge	1850.000	-16.20
810 Right band edge	1910.000	-16.08

FCC Parts 2, 22, 24  
Equipment: TR-900

REPORT NO.: B08GE6353-FCC-EMC



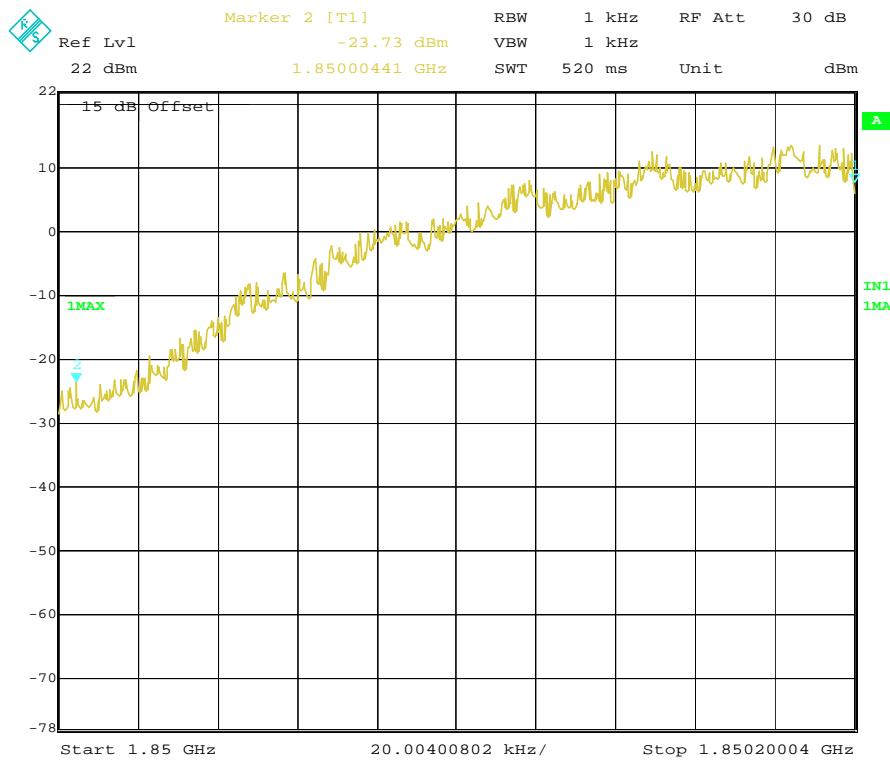
GSM channel 128 Left band edge



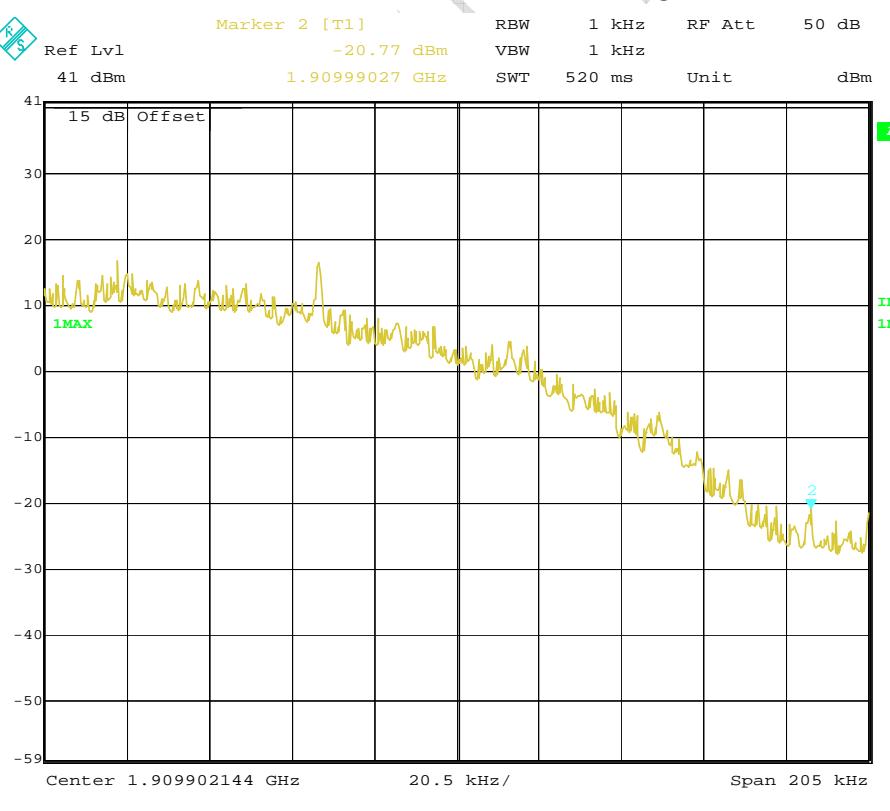
GSM channel 251 Right band edge

FCC Parts 2, 22, 24  
Equipment: TR-900

REPORT NO.: B08GE6353-FCC-EMC



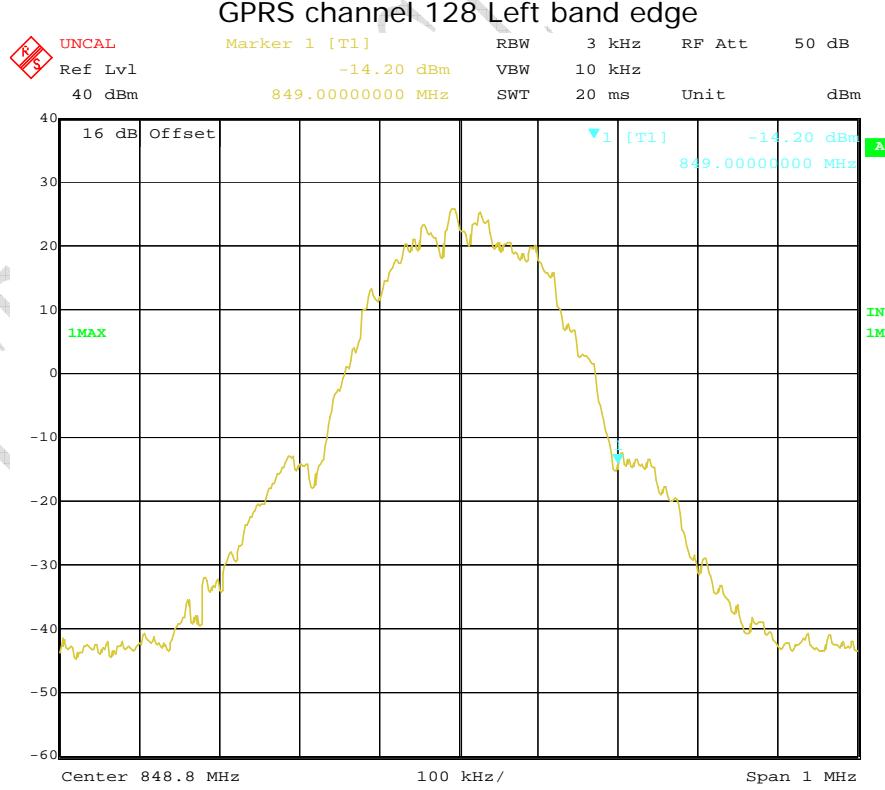
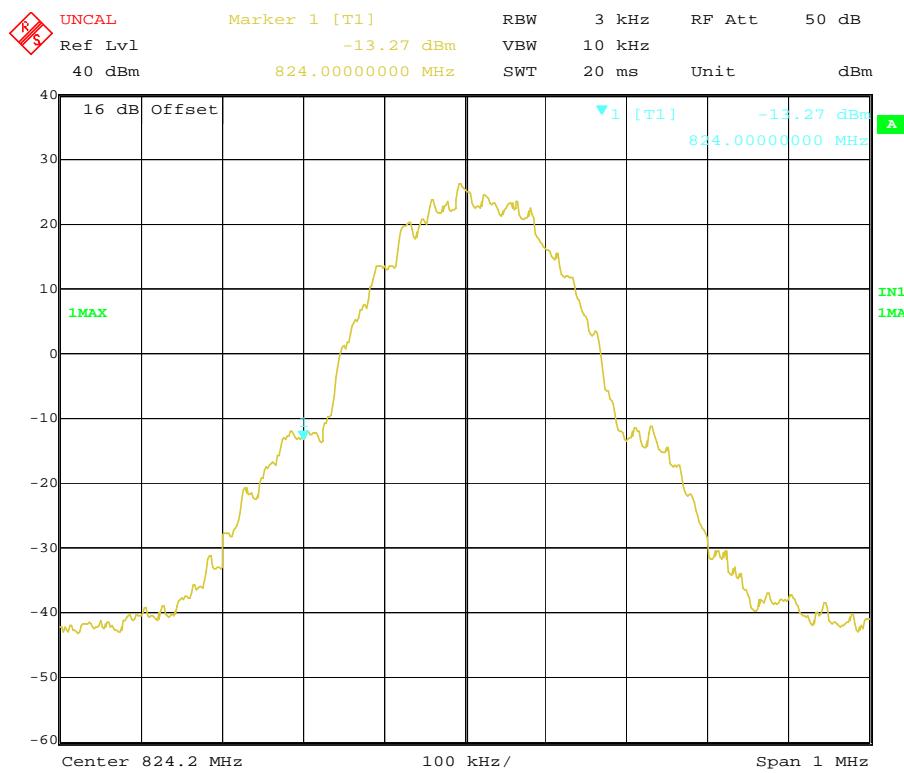
GSM channel 512 Left band edge



GSM channel 810 Right band edge

FCC Parts 2, 22, 24  
Equipment: TR-900

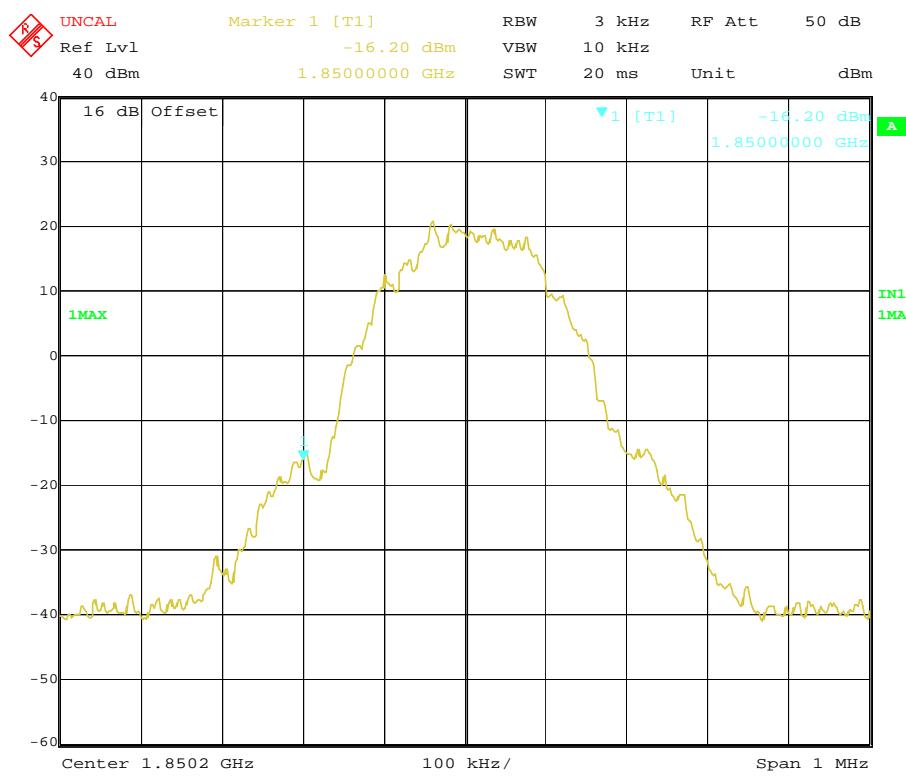
REPORT NO.: B08GE6353-FCC-EMC



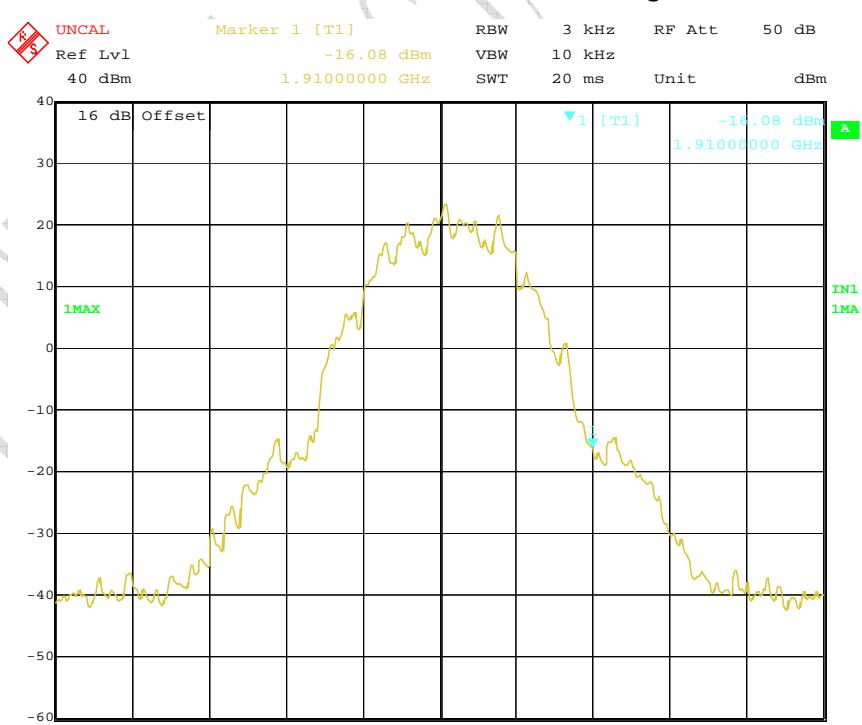
GPRS channel 251 Right band edge

FCC Parts 2, 22, 24  
Equipment: TR-900

REPORT NO.: B08GE6353-FCC-EMC

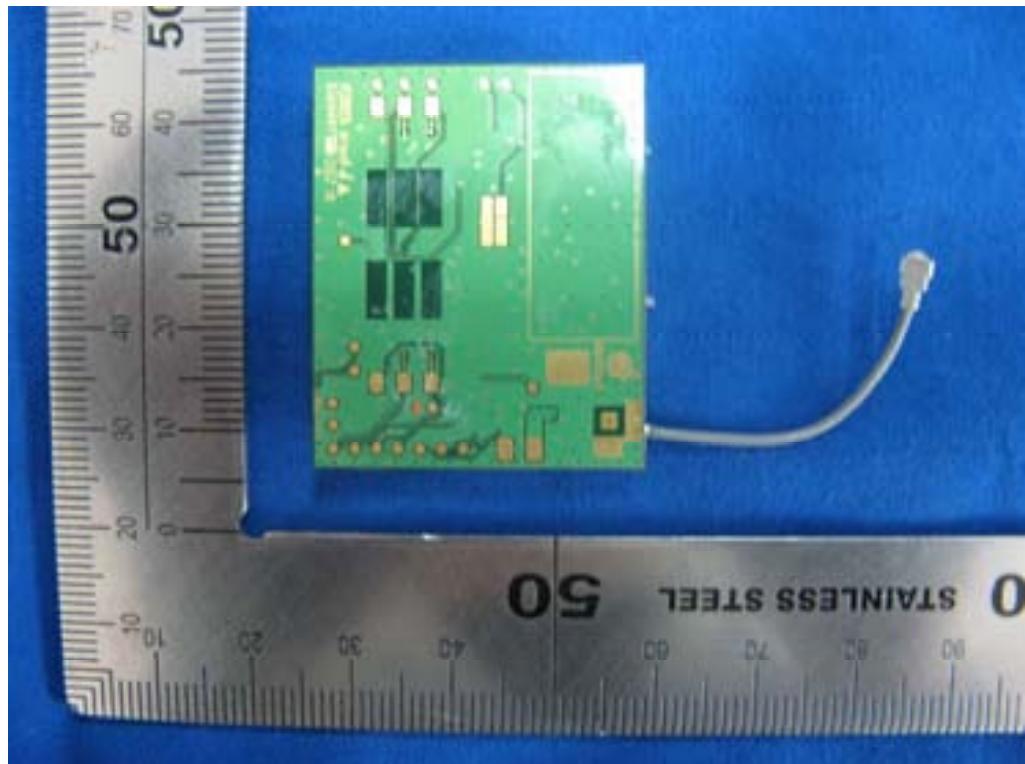


## GPRS channel 512 Left band edge

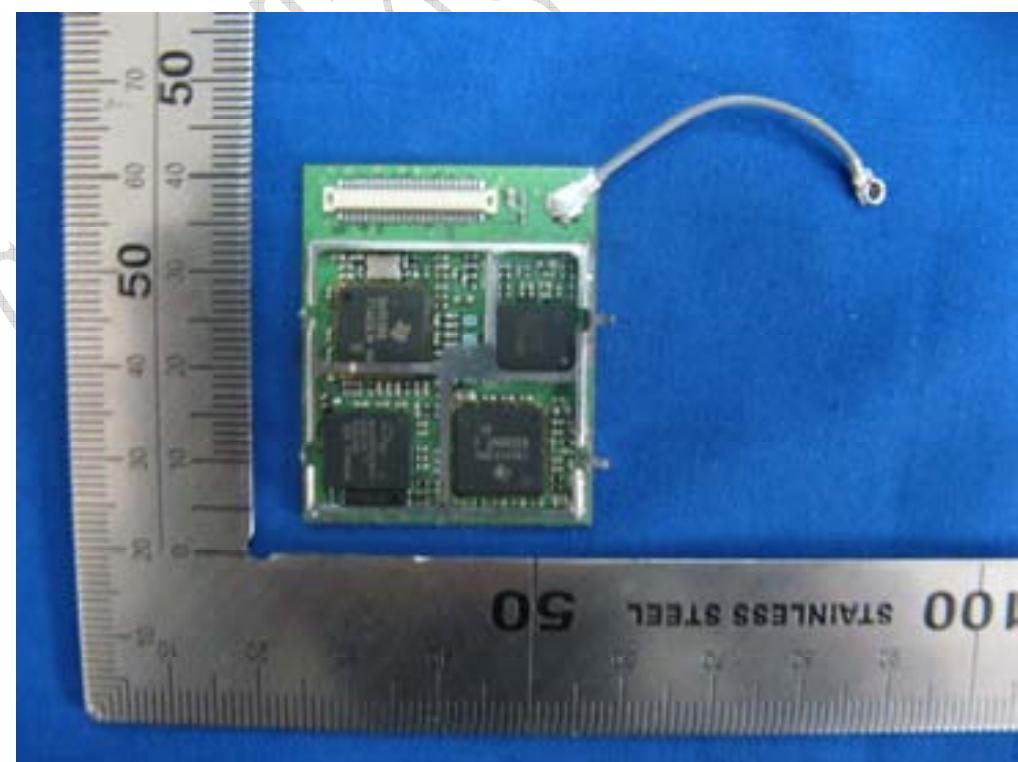


## GPRS channel 810 Right band edge

## Annex A External Photos



Front view



Back view

## ANNEX B Deviations from Prescribed Test Methods

No deviation from Prescribed Test Methods.

\_\_\_\_\_ The End of this Report \_\_\_\_\_

CEMTR Test Report