

# TEST REPORT

REPORT NUMBER: I08GE5373-FCC-EMC

**ON**

**Type of Equipment:** Tri Band GSM850/1800/1900 handheld cellular phone  
**Type of Designation:** M4E  
**Manufacturer:** Ezze Mobile Tech

**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*  
*June, 26, 2008*

*Signature*



He Gui  
Director

**FCC ID:** RV2M4E

**Report Date:** 2008-06-26

**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, 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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## 1.2 Testers

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

Name: Yuan Yuan  
Position: Engineer  
Department: Department of EMC test  
Signature:

Name: Li Dongjin  
Position: Engineer  
Department: Department of EMC test  
Signature:

Editor of this test report:

Name: Li Guoqing  
Position: Engineer  
Department: Department of EMC test  
Date: 2008-06-26  
Signature:

Technical responsibility for area of testing:

Name: Zou Dongyi  
Position: Manager  
Department: Department of EMC test  
Date: 2008-06-26  
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  
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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: Ezze Mobile Tech., Inc  
Address: 1F, Bubmusa Bldg., 151-31, Nonhyun-dong,  
Kangnam-ku, Seoul  
Country: Korea  
Telephone: 82-2-519-7802  
Fax: 82-2-519-7882  
Contact: Han shin, Lee  
Telephone: 82-19-543-3776  
Email: leehs@ezzemobile.com

### 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: Ezze Mobile Tech  
Address: Rm. 204, Anyang Megavalley, 799,  
Guanyang-dong, Dongan-gu, Anyang-city,  
Gyeonggi-do, Korea, 431-767

## 2 Test Item

### 2.1 General Information

Manufacturer: Ezze Mobile Tech., Inc

Name: Tri Band GSM850/1800/1900 handheld cellular phone

Model Number: M4E

Serial Number: --

Production Status: Product

Receipt date of test item: 2008-06-03

### 2.2 Outline of EUT

E.U.T. is a Tri Band GSM850/1800/1900 handheld cellular phone.

### 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	Ezze Mobile Tech	M4E	--	None
B	adapter	Yu Feng	USB Type / YF-0510228	--	None
C	battery	Zhi-in	M4E(Li-ion)	--	None
D	Earphone	Rich star	Wire Type(stereo)	--	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 281KGXW.

(c) Version of hardware and software

HW Version: V 0.1

SW Version: V 0.1

(d) Adaptor information:

Input: 100-240VAC 50-60Hz

Output: 5.0V

(e) Battery information:

3.7VDC 730mAh

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>		
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

Specifications:	2.1051, 24.238, 2.1053, 22.917					
Date of Tests	2008-06-05					
Test conditions:	Ambient Temperature: 15°C -35°C Relative Humidity: 30%-60% Air pressure: 86-106kPa					
Operation Mode	TX on, channel 190 and 661 for GSM and GPRS mode					
Test Results:	Pass					
Test equipment Used:						
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	R/S	HL562	100013	2008-07-24	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

#### 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:

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.

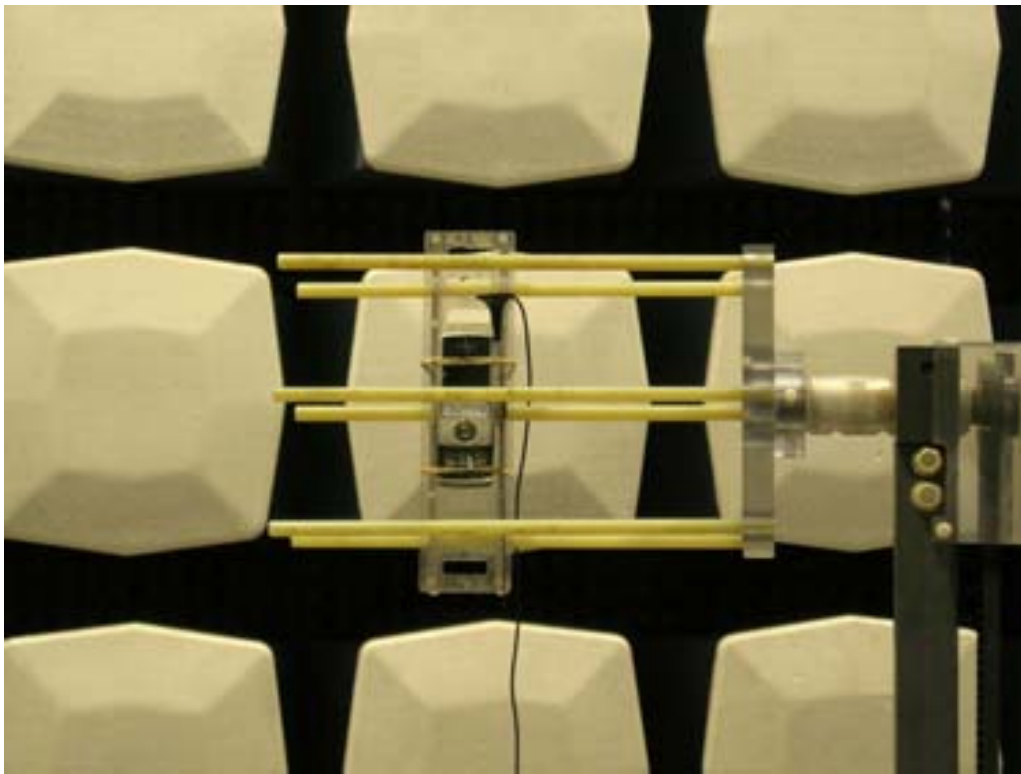


Figure SP

**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.

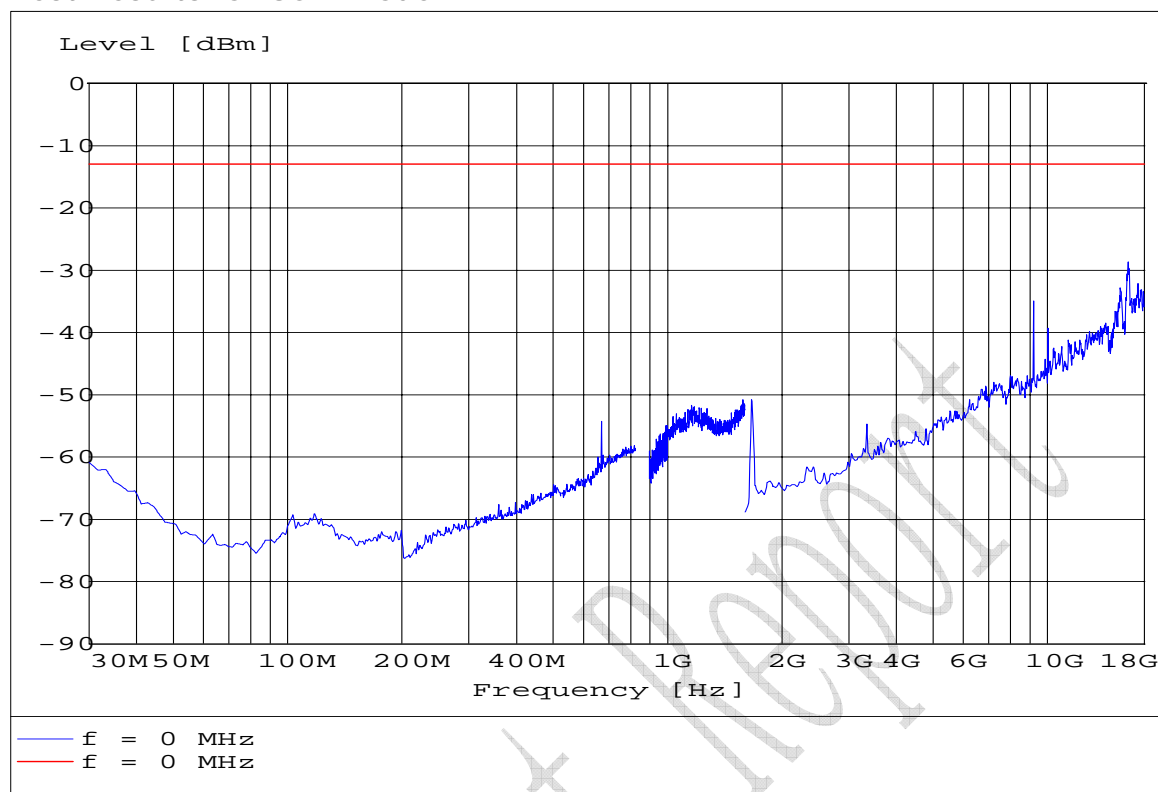
**Note:**

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

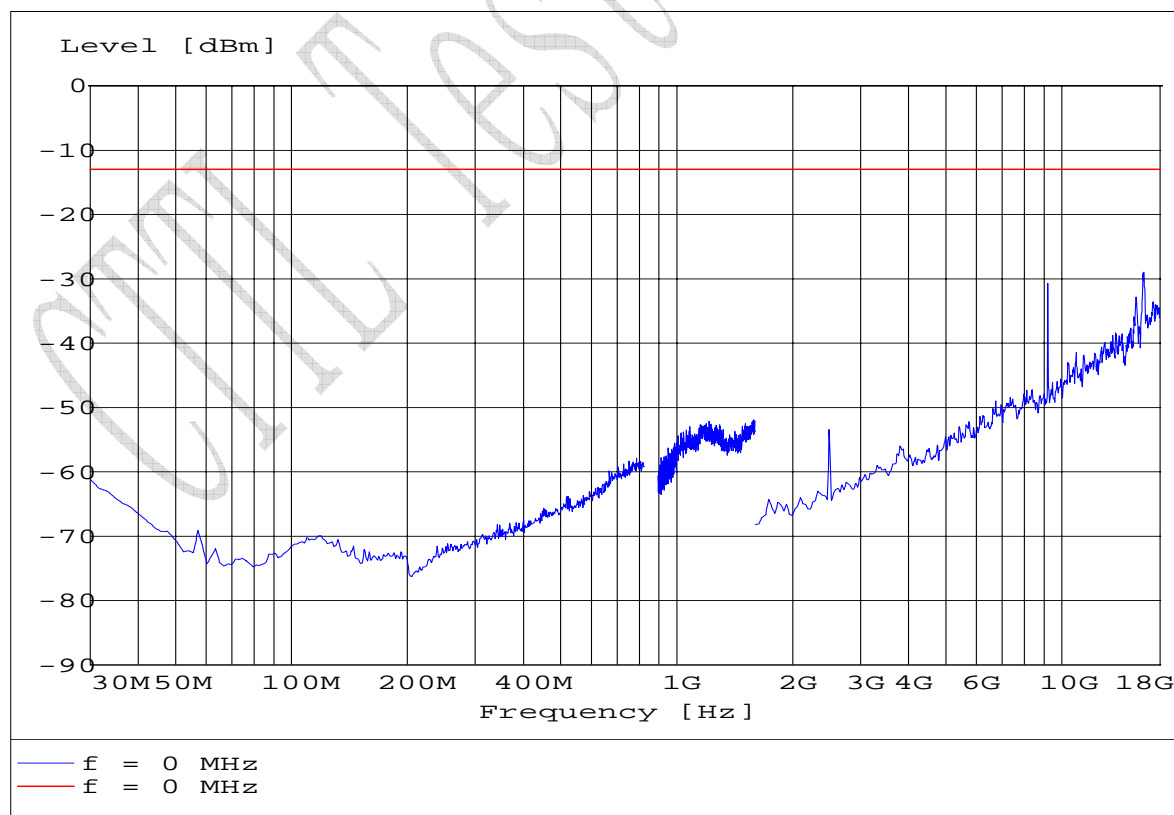
FCC Parts 2, 22, 24  
Equipment: M4E

REPORT NO.: I08GE5373-FCC-EMC

### Test Results for GSM mode:



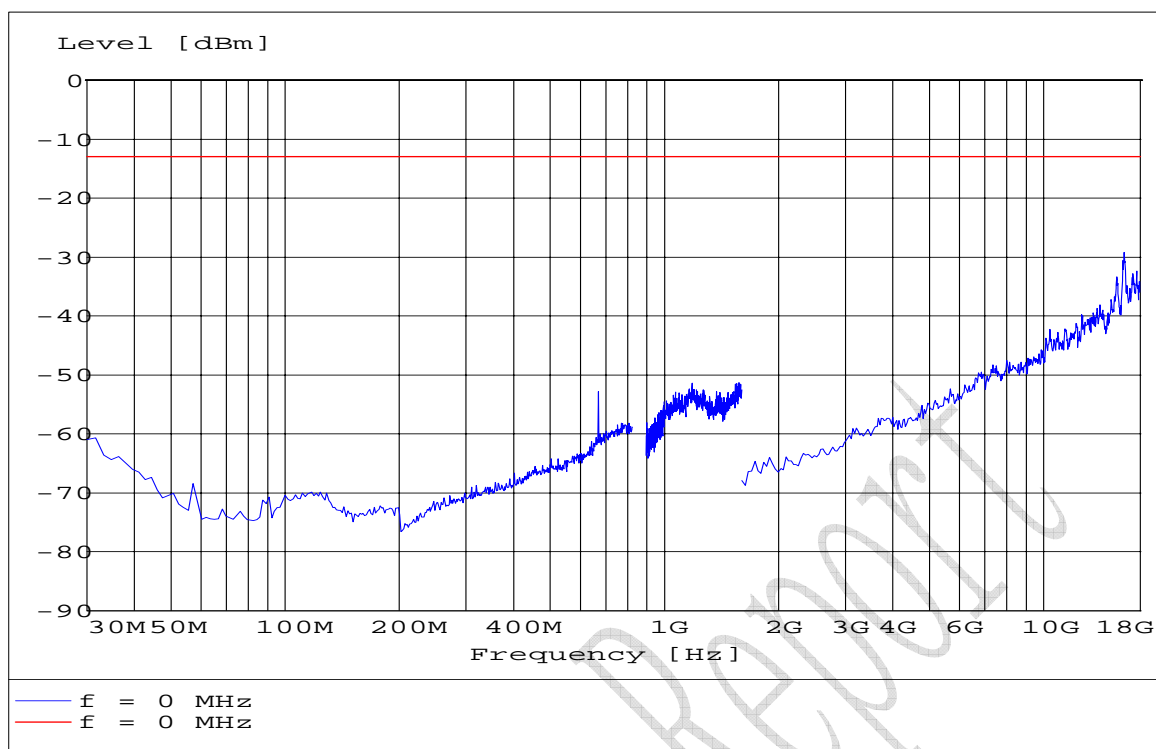
### S190VF for GSM mode



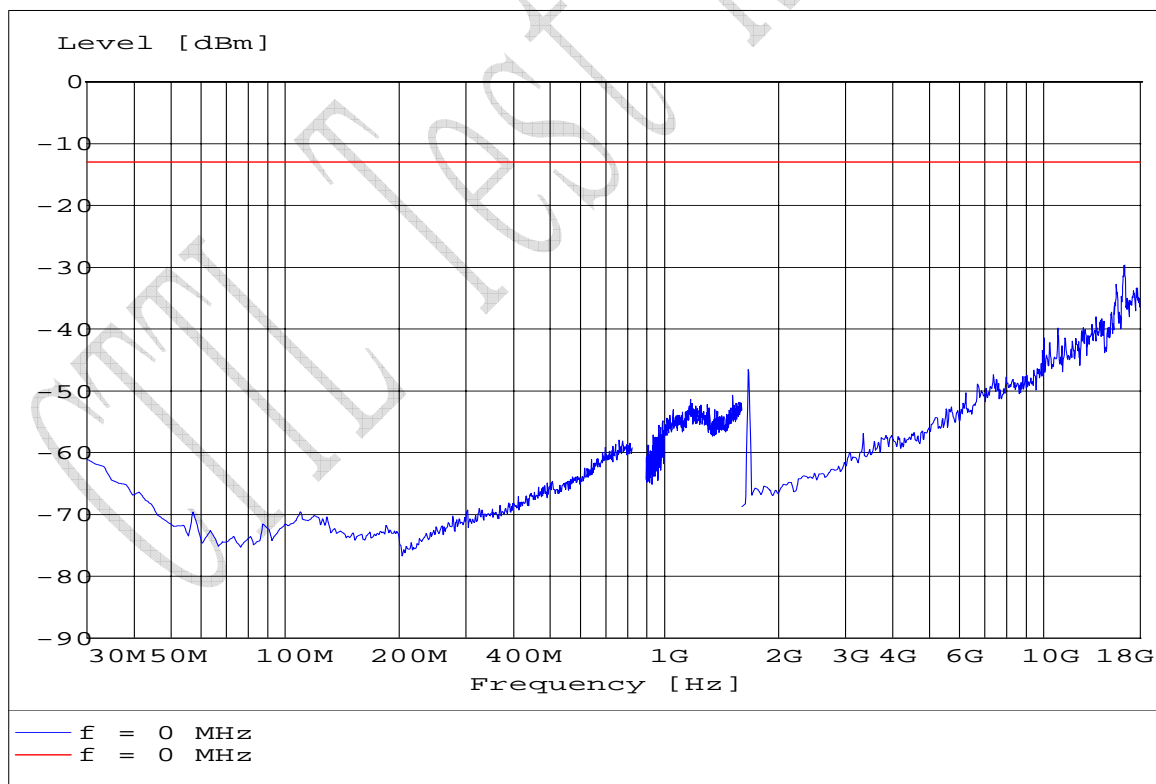
### S190HF for GSM mode

FCC Parts 2, 22, 24  
Equipment: M4E

REPORT NO.: I08GE5373-FCC-EMC



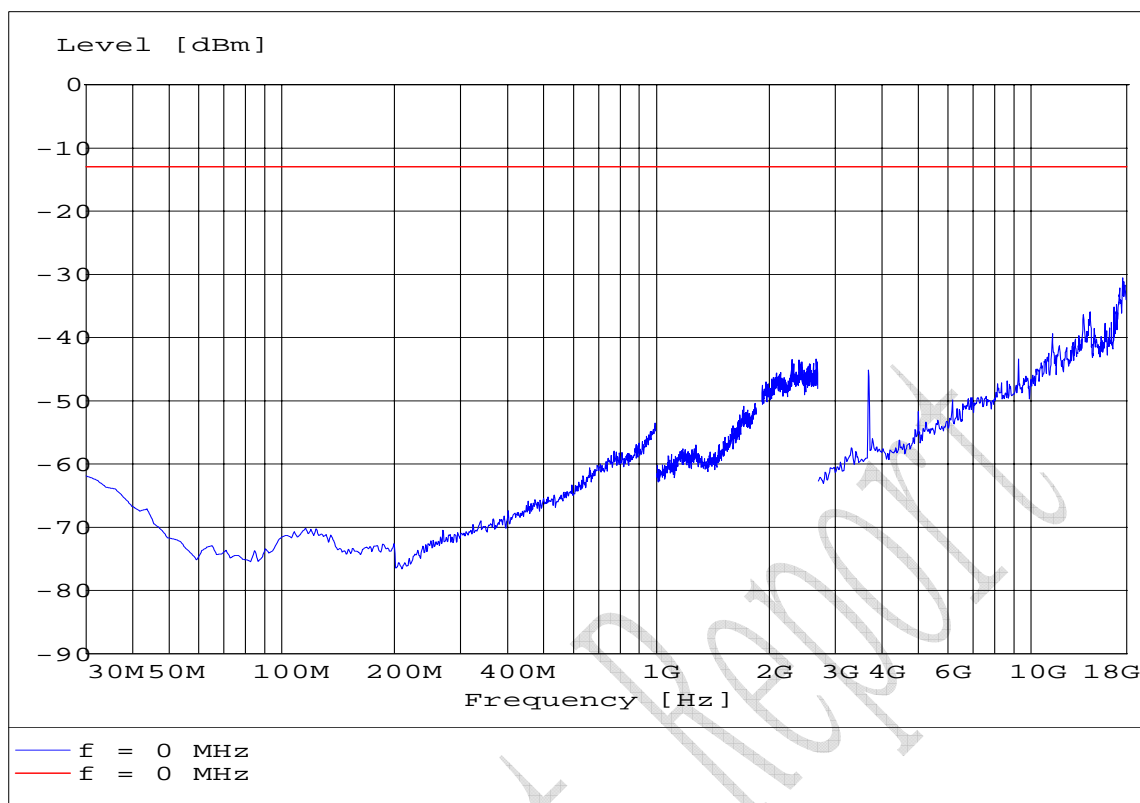
S190VT for GSM mode



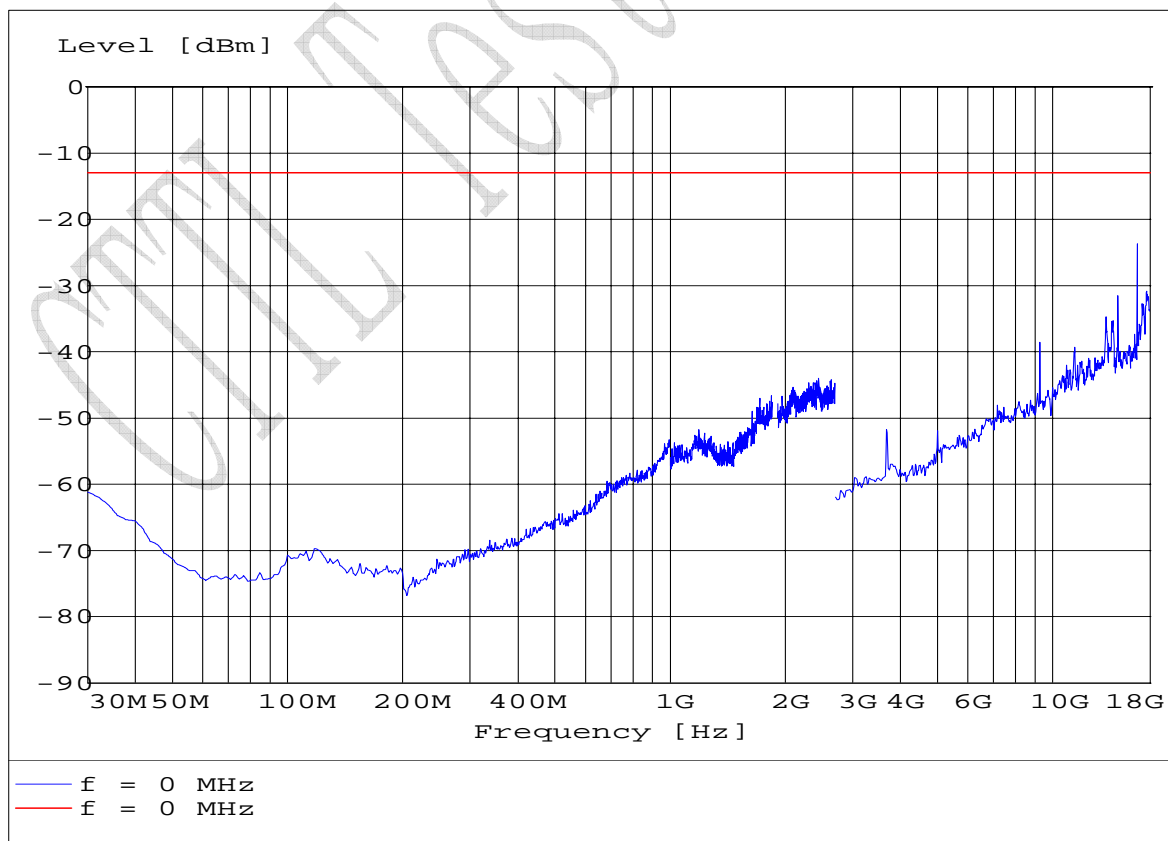
S190HT for GSM mode

FCC Parts 2, 22, 24  
Equipment: M4E

REPORT NO.: I08GE5373-FCC-EMC



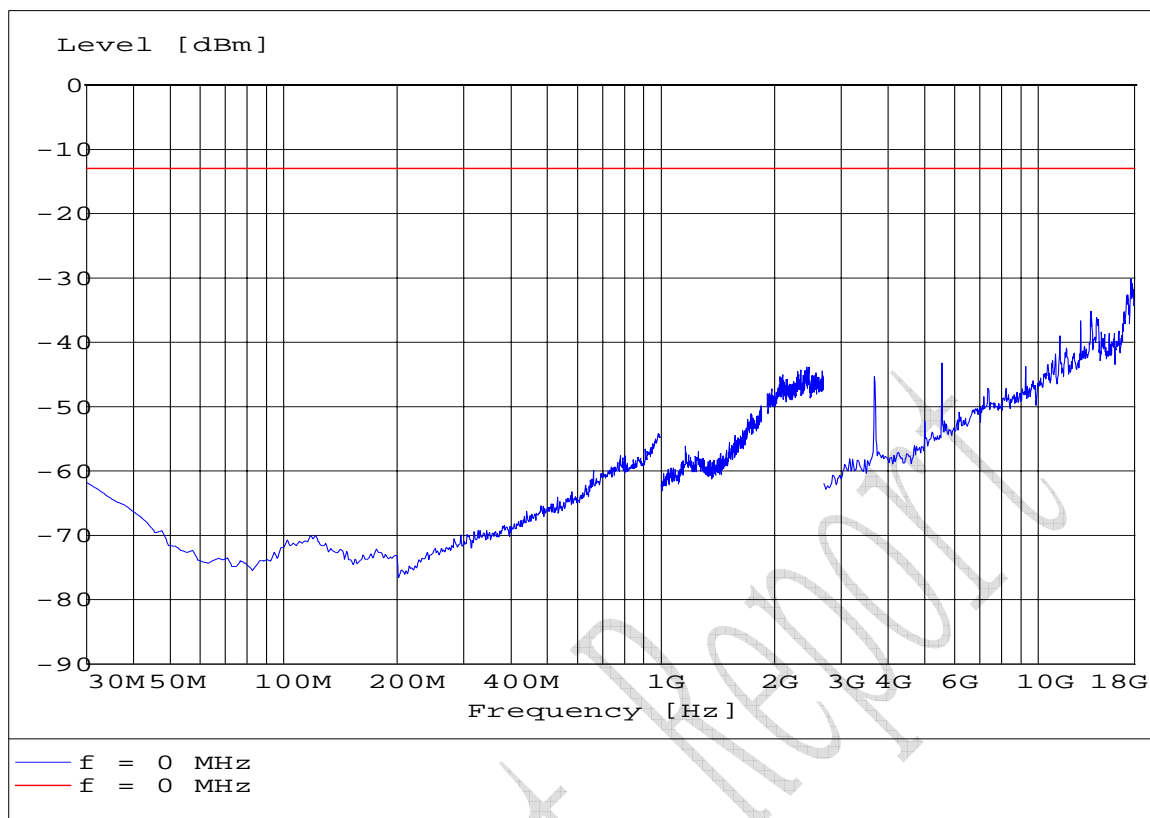
**S661VF for GSM mode**



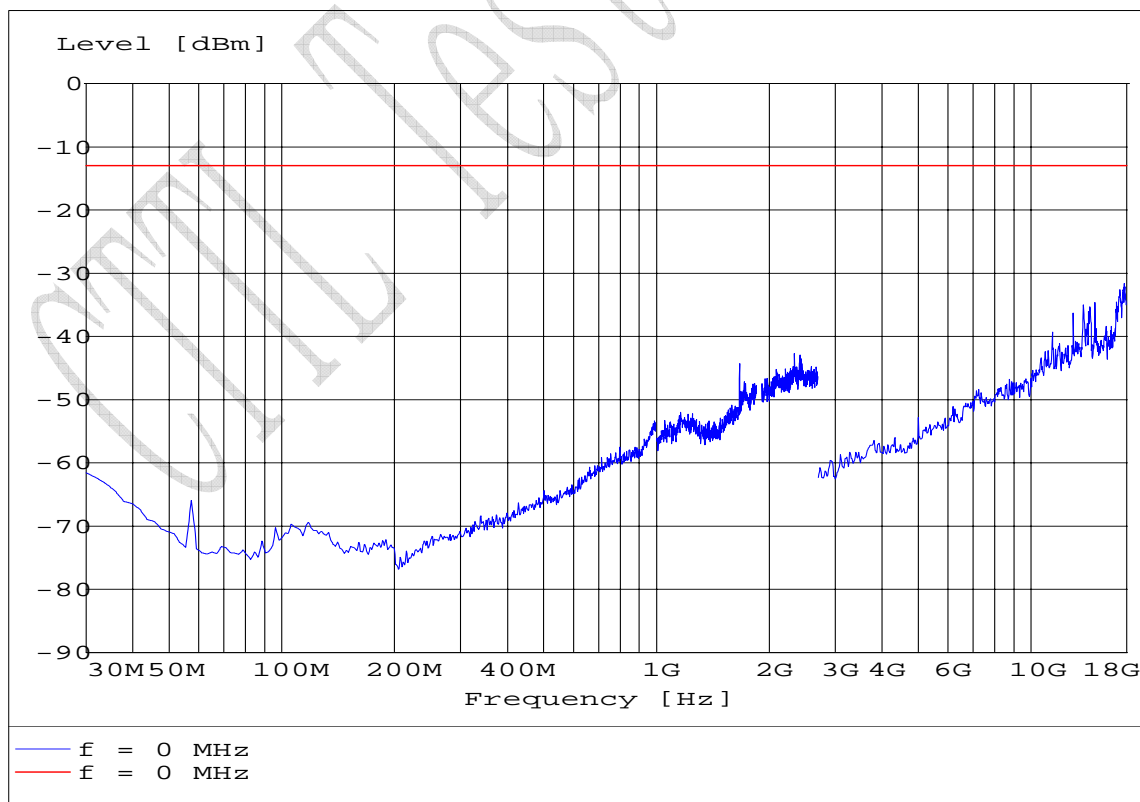
**S661HF for GSM mode**

FCC Parts 2, 22, 24  
Equipment: M4E

REPORT NO.: I08GE5373-FCC-EMC



**S661VT for GSM mode**

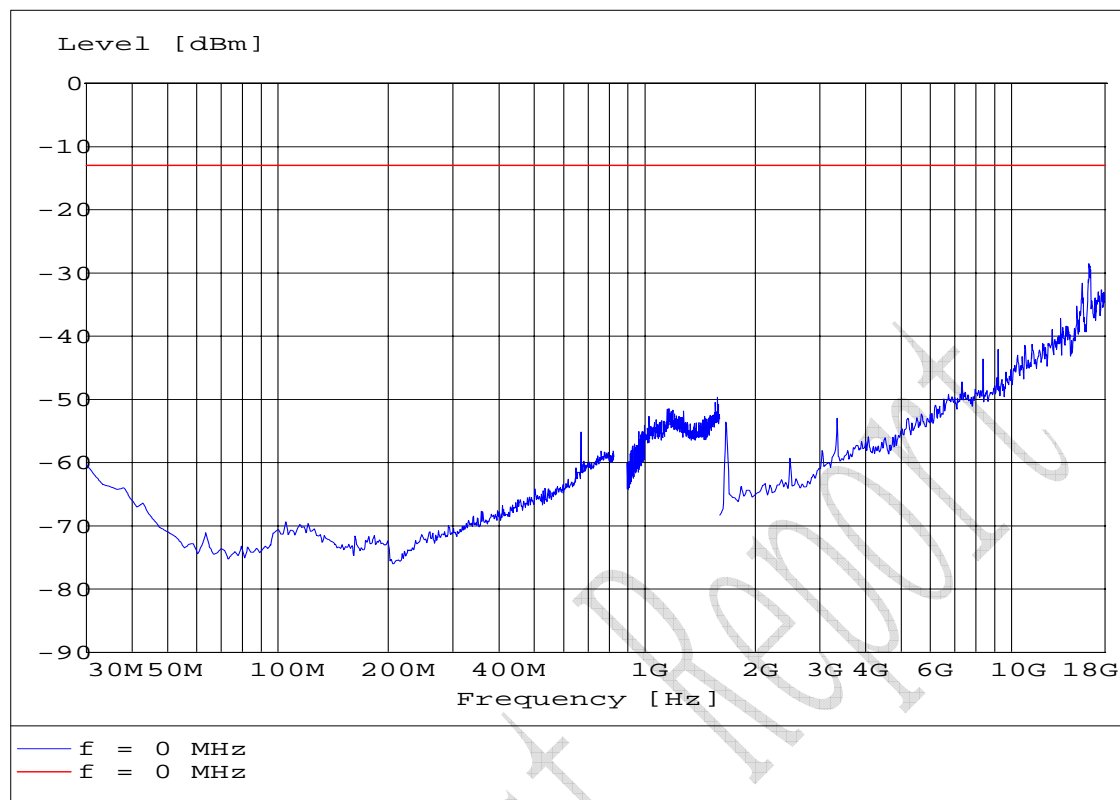


**S661HT for GSM mode**

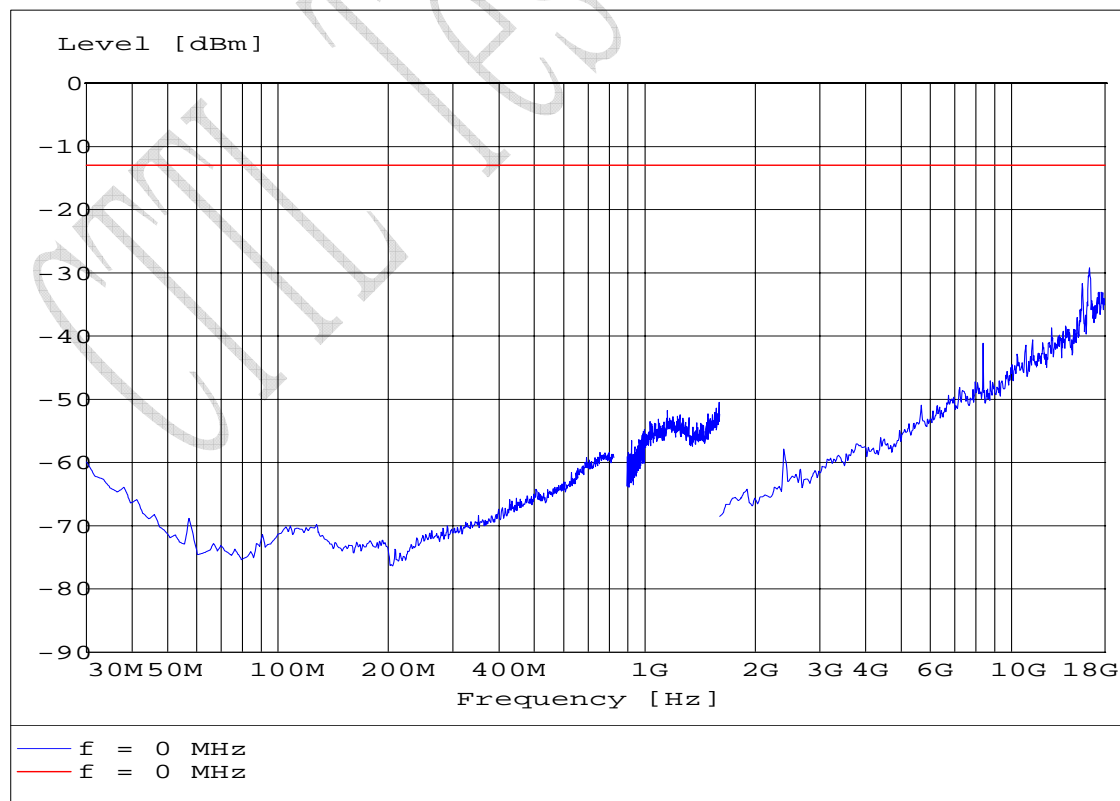
FCC Parts 2, 22, 24  
Equipment: M4E

REPORT NO.: I08GE5373-FCC-EMC

### Test Results for GPRS mode:



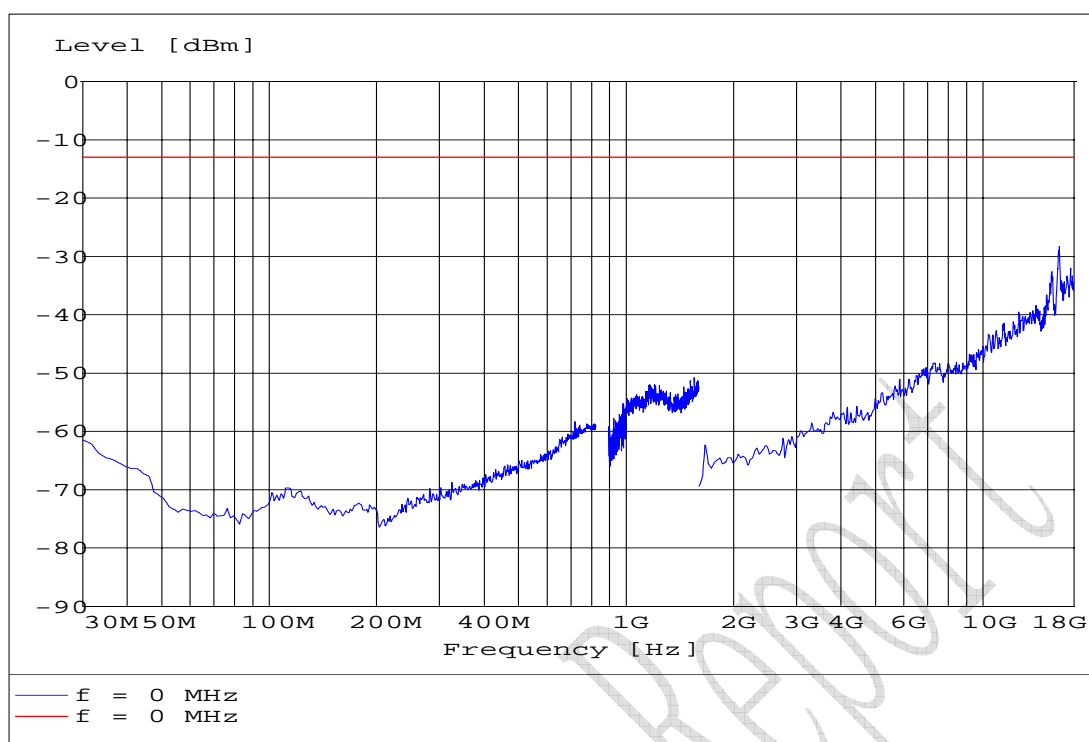
### S190VF for GPRS mode



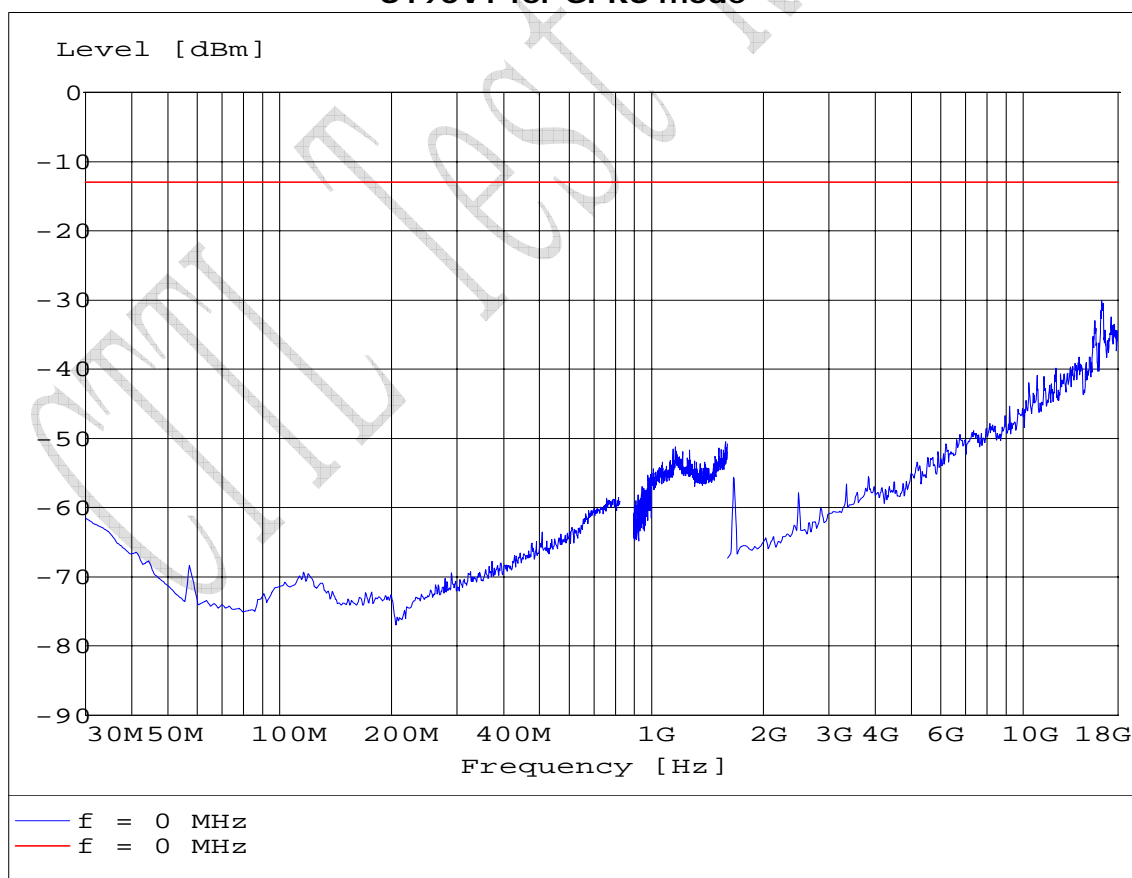
### S190HF for GPRS mode

FCC Parts 2, 22, 24  
Equipment: M4E

REPORT NO.: I08GE5373-FCC-EMC



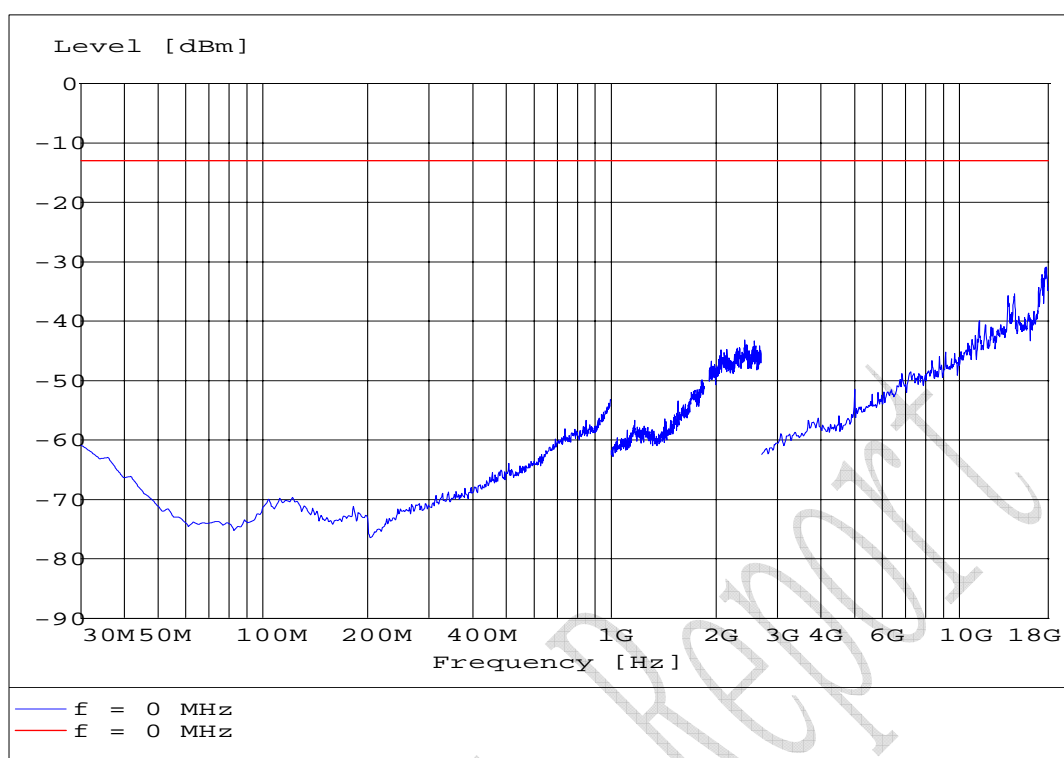
S190VT for GPRS mode



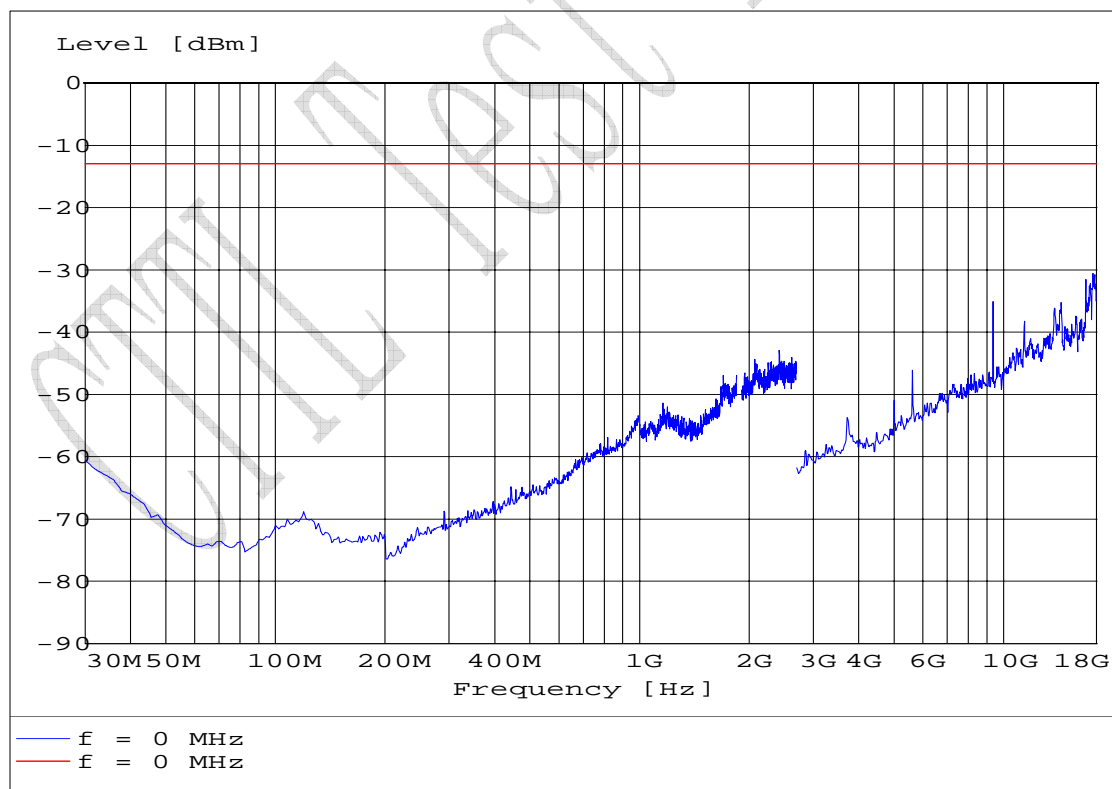
S190HT for GPRS mode

FCC Parts 2, 22, 24  
Equipment: M4E

REPORT NO.: I08GE5373-FCC-EMC



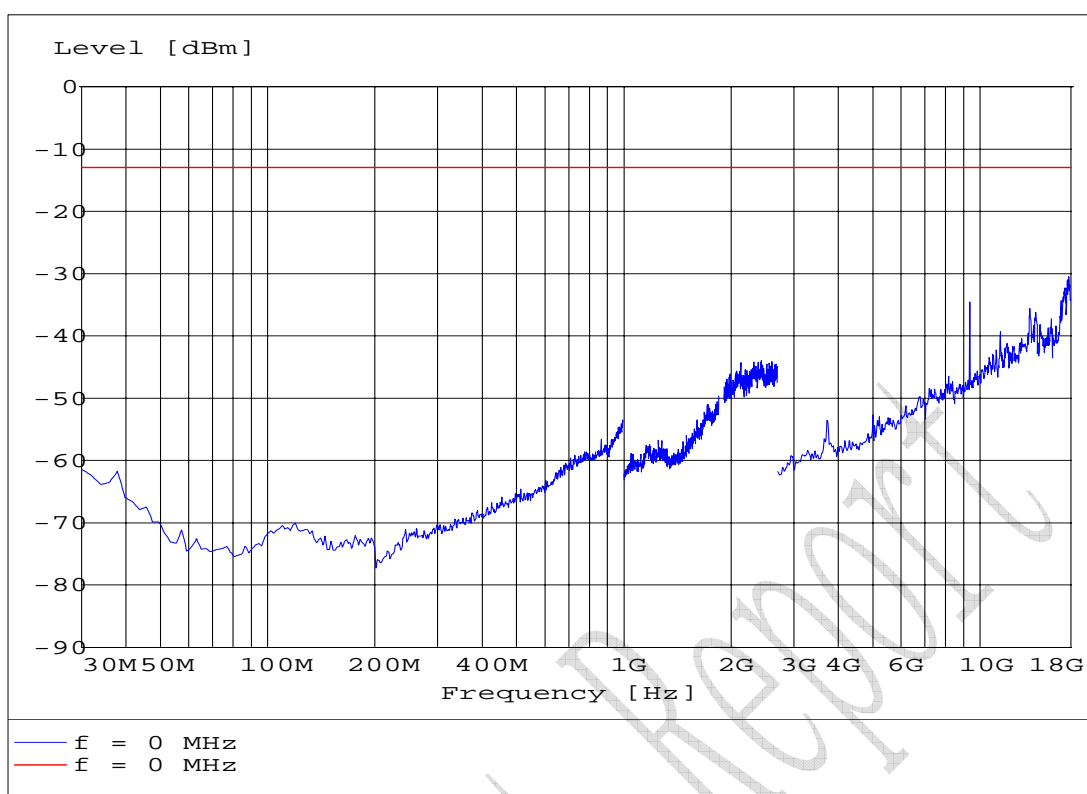
S661VF for GPRS mode



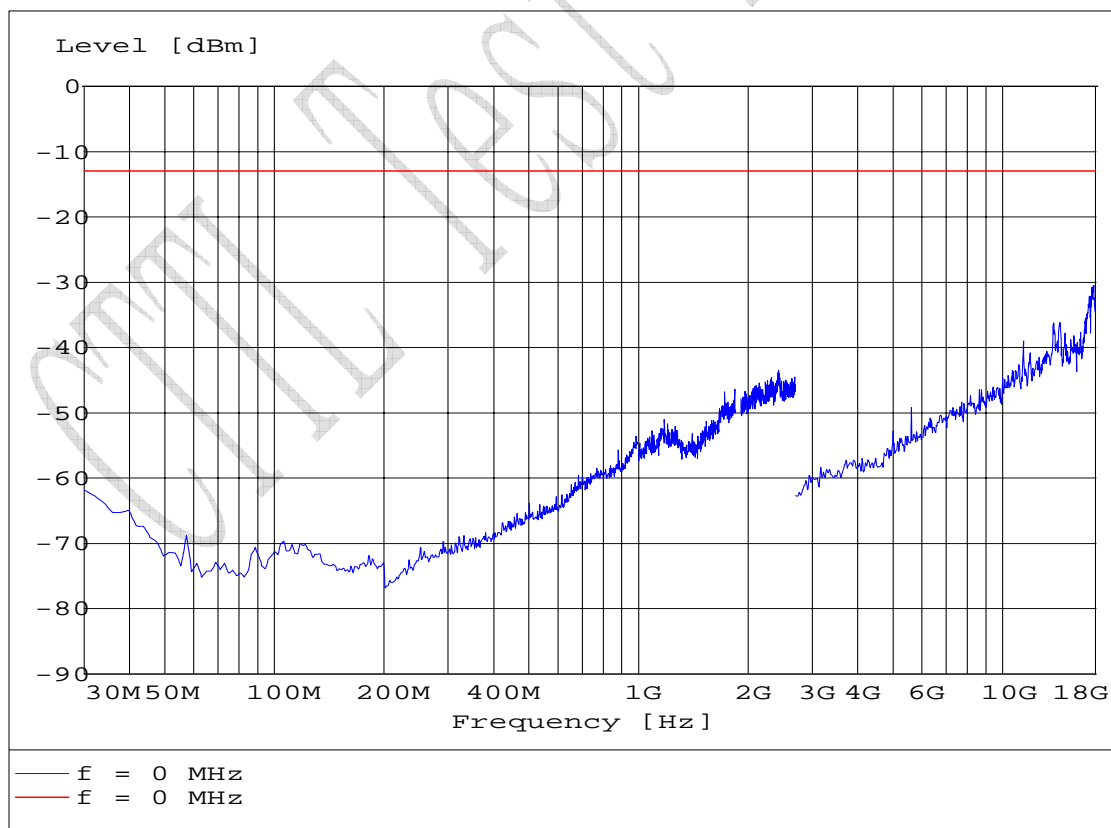
S661HF for GPRS mode

FCC Parts 2, 22, 24  
Equipment: M4E

REPORT NO.: I08GE5373-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>		2008-06-06 and 2008-06-06				
<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				
<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>
7805	EMI Test Receiver	R/S	ESI26	100211	2009-01-04	Normal
7330	Ultra Broadband Antenna	R/S	HL562	100013	2008-07-24	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:

$ERP\text{ dBm} = EIRP\text{ dBm} - 2.15\text{dB}$ .

### ERP Value for GSM 850 band mode:

ARFCN	Frequency [MHz]	ERP [dBm]
128	824.228457	23.12
190	836.553106	21.36
251	848.877756	21.26

### EIRP Value for GSM 1900 band mode:

ARFCN	Frequency [MHz]	EIRP [dBm]
512	1850.180361	24.74
661	1880.08016	24.24
810	1909.8998	25.04

## ERP Value for GPRS 850 band mode:

ARFCN	Frequency [MHz]	EIRP [dBm]
512	824.128257	18.93
661	836.653307	20.60
810	848.877756	17.62

## EIRP Value for GPRS 1900 band mode:

ARFCN	Frequency [MHz]	ERP [dBm]
128	1850.1002	23.55
190	1879.91984	23.10
251	1909.8998	20.50

### 4.3 Occupied bandwidth

Specifications:	2.1049,22.917(b),24.238(b)					
Date of Test	2008-06-10					
Test conditions:	Ambient Temperature: 15℃-35℃ Relative Humidity: 30%-60% Air pressure: 86-106kPa					
Operation Mode	TX on, channel 128, 190, 251, 512, 661 and 810					
Test Results:	--					
Test equipment Used:						
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	R/S	HL562	100013	2008-07-24	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

### 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

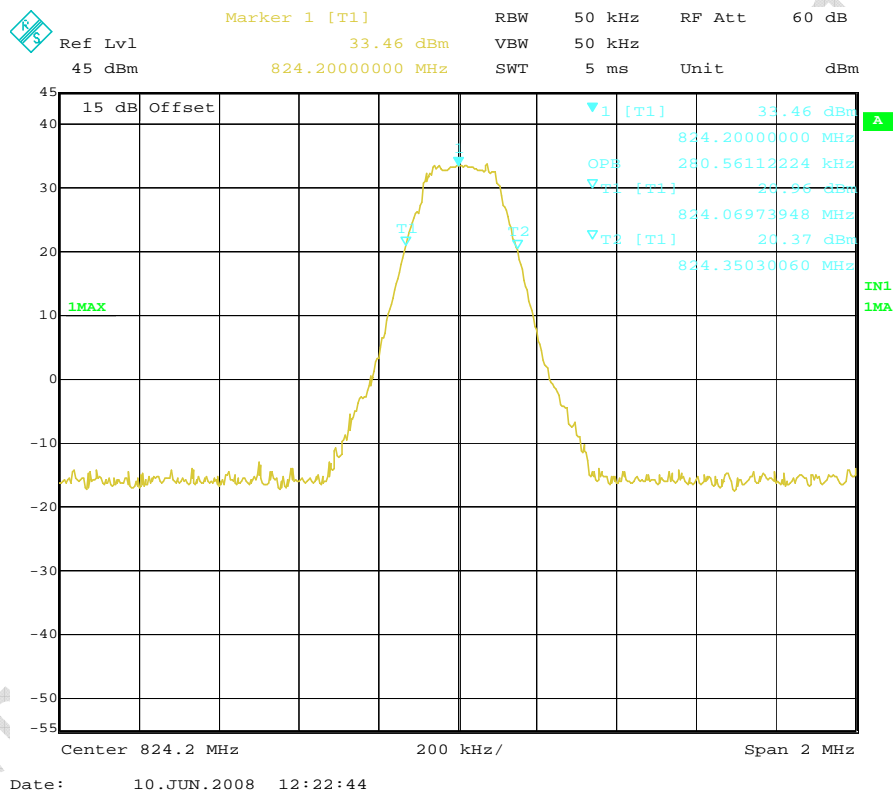
The 99% occupied bandwidth was calculated from the spectrum analyzer. Markers in the spectrum analyzer were then placed between the calculated frequencies to show the calculated 99% power band.

Note: --

## Results data of GSM mode:

EUT channel	99% occupied bandwidth [kHz]
128	281
190	281
251	281
512	281
661	281
810	281

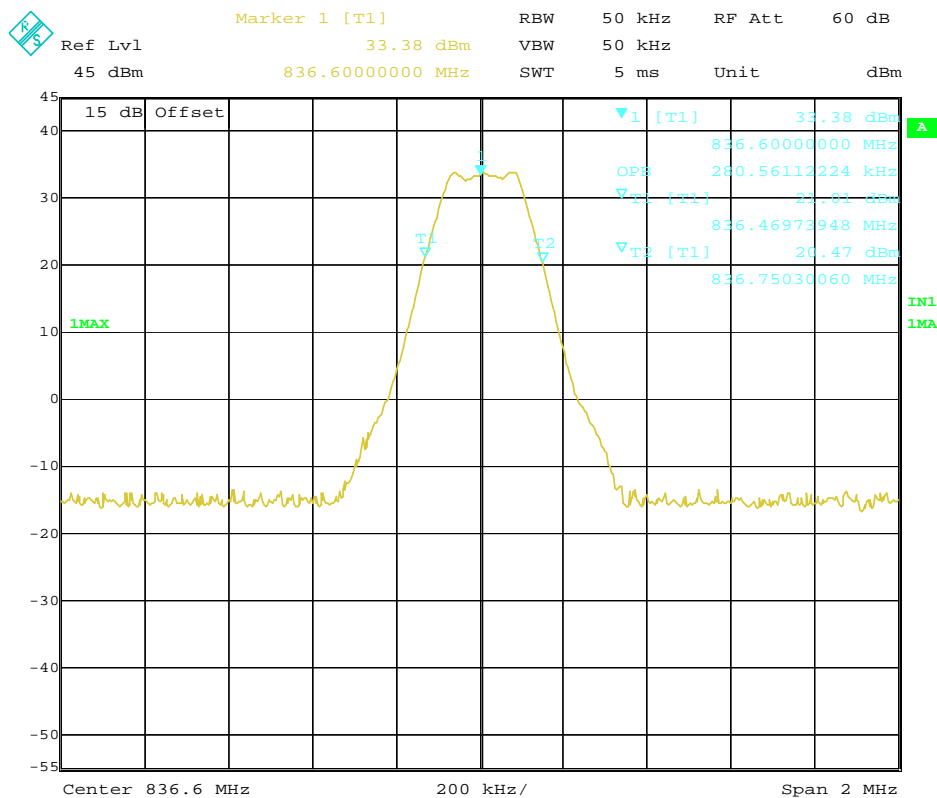
## Graphical results for GSM mode:



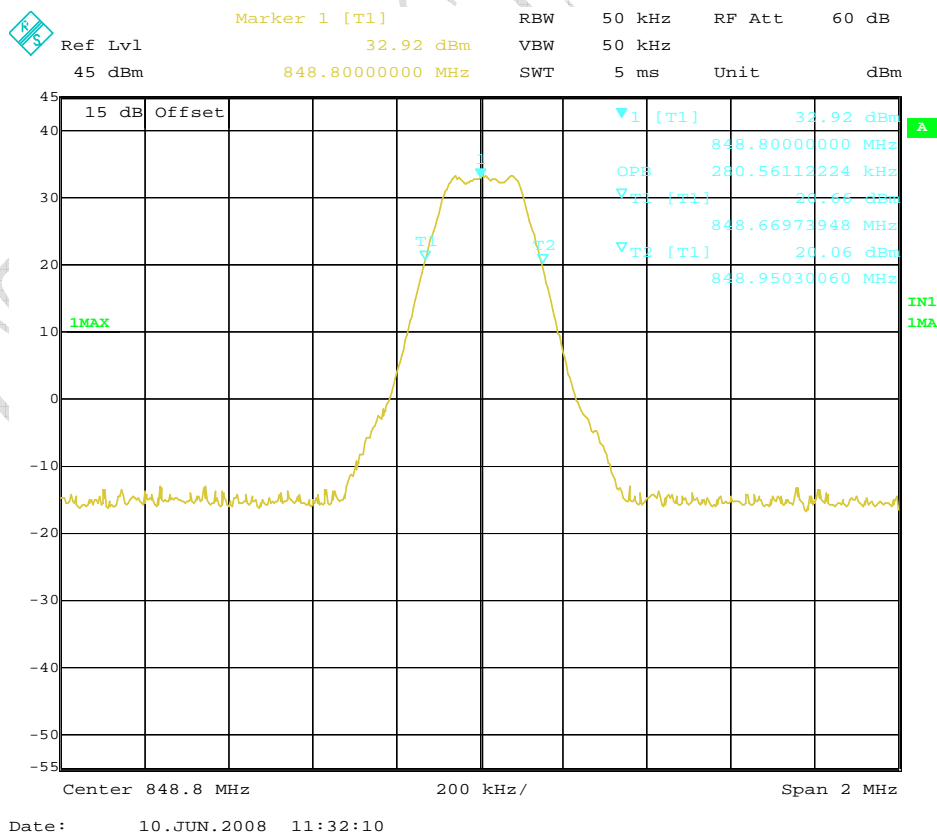
Channel 128

FCC Parts 2, 22, 24  
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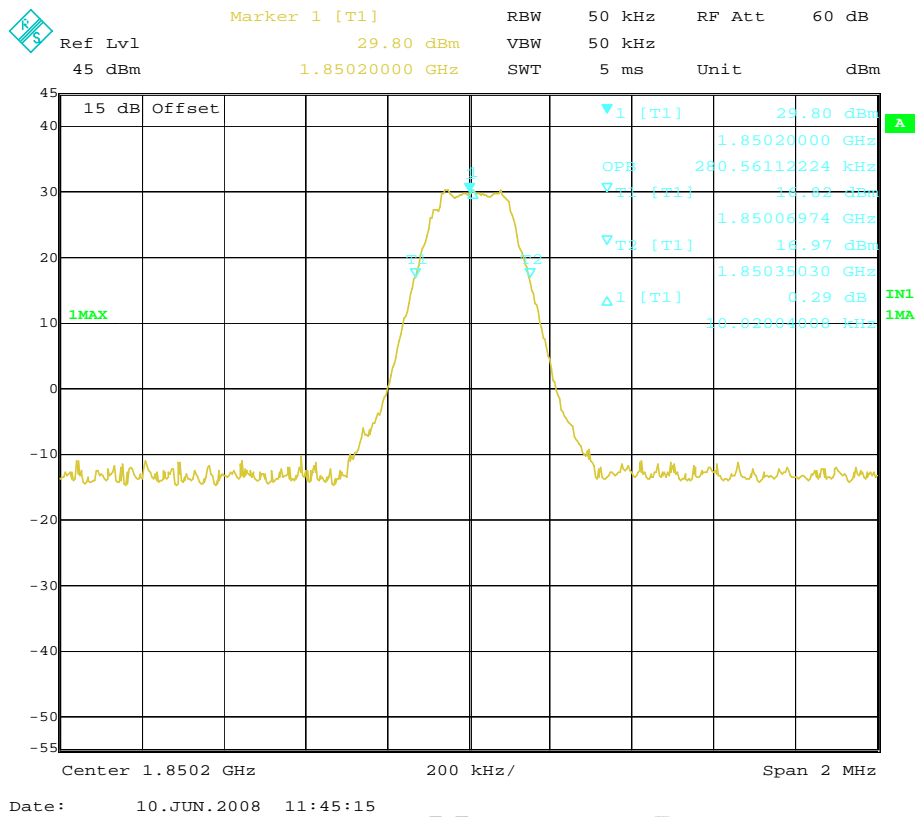
### Channel 190



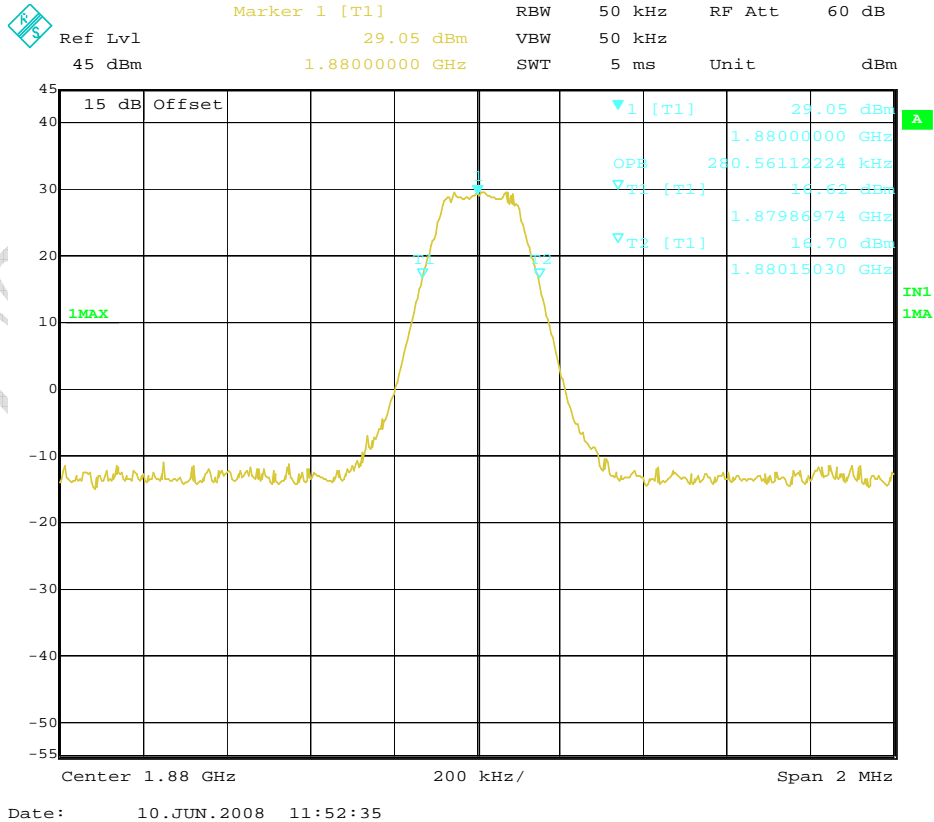
### Channel 251

FCC Parts 2, 22, 24  
Equipment: M4E

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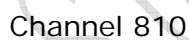


Channel 512



Channel 661

**REPORT NO.: I08GE5373-FCC-EMC**

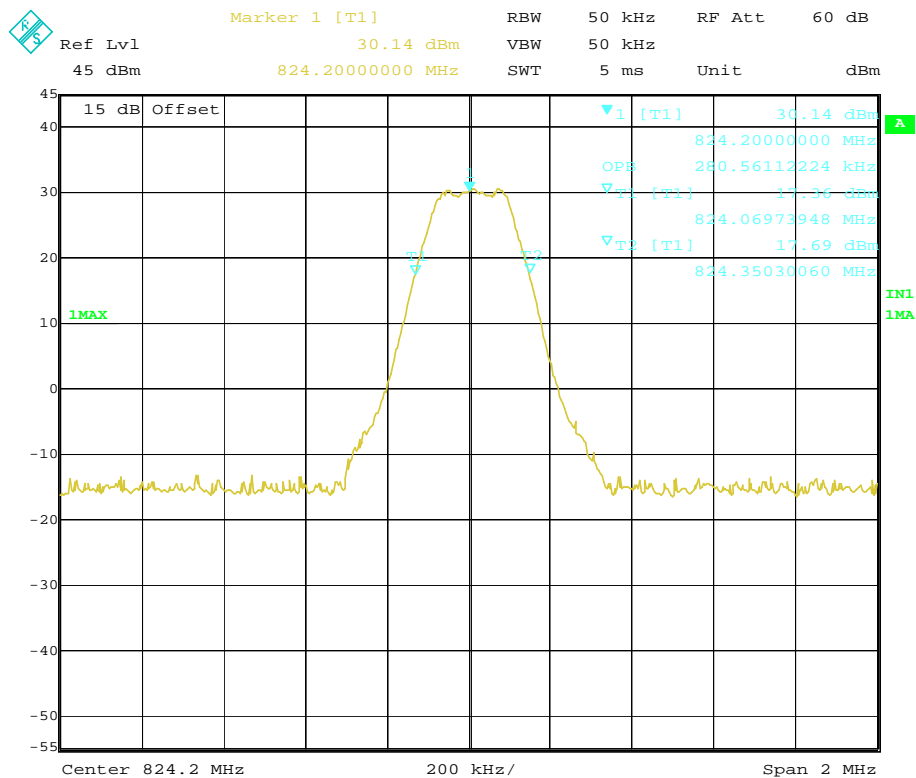


EUT channel	99% occupied bandwidth [kHz]
128	281
190	281
251	281
512	281
661	281
810	281

Address: 11 YUE TAN NAN JIE, BEIJING, P.R.C,100045 Tel: +86 10 68094053 FAX: +86 10 68011404 Web: <http://www.chinattl.com>

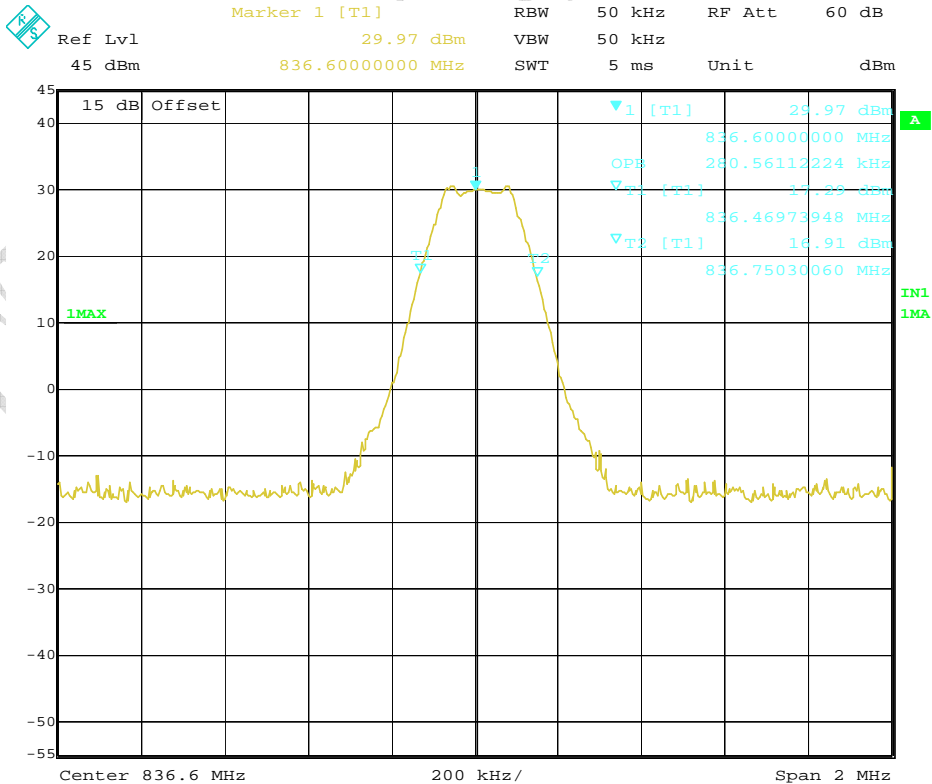
FCC Parts 2, 22, 24  
Equipment: M4E

REPORT NO.: I08GE5373-FCC-EMC



Date: 10.JUN.2008 12:15:43

### Channel 128

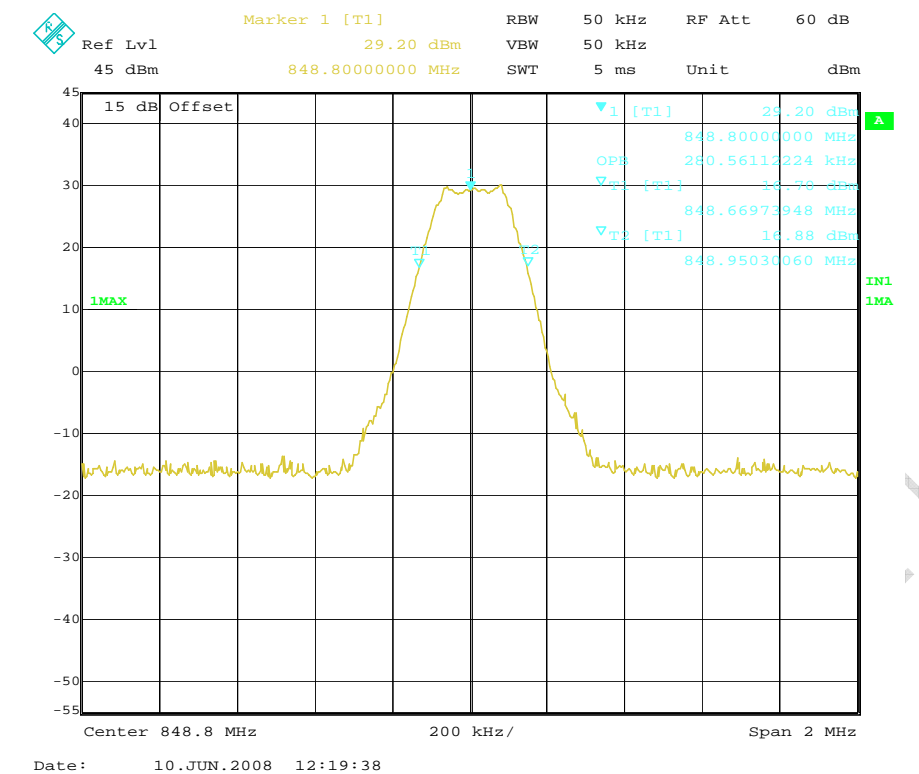


Date: 10.JUN.2008 12:18:03

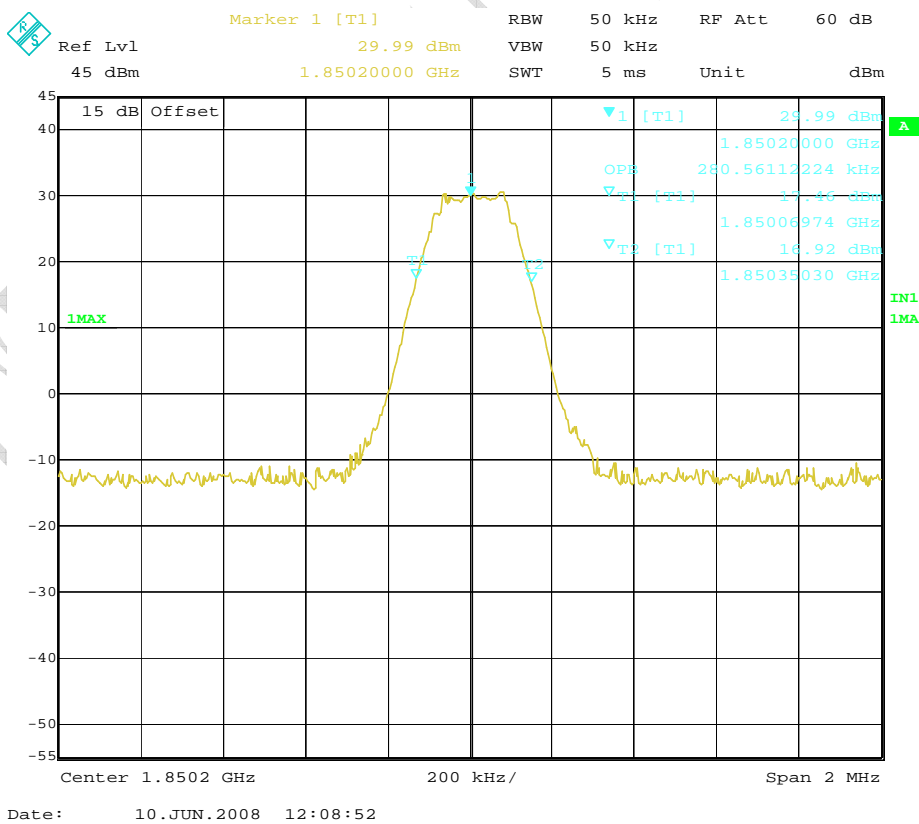
### Channel 190

FCC Parts 2, 22, 24  
Equipment: M4E

REPORT NO.: I08GE5373-FCC-EMC



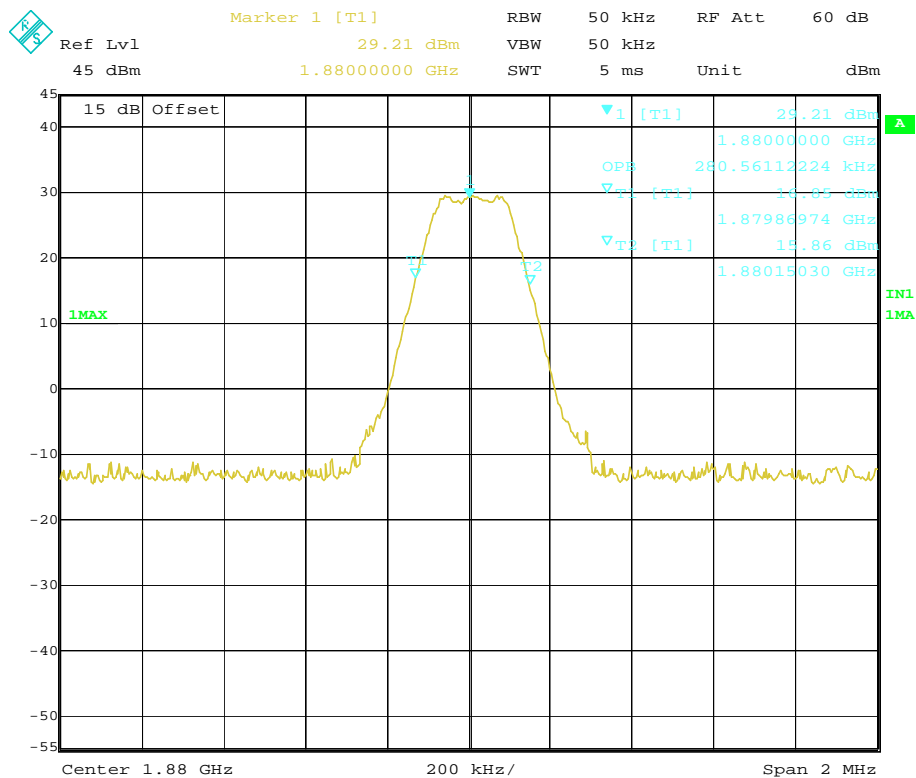
Channel 251



Channel 512

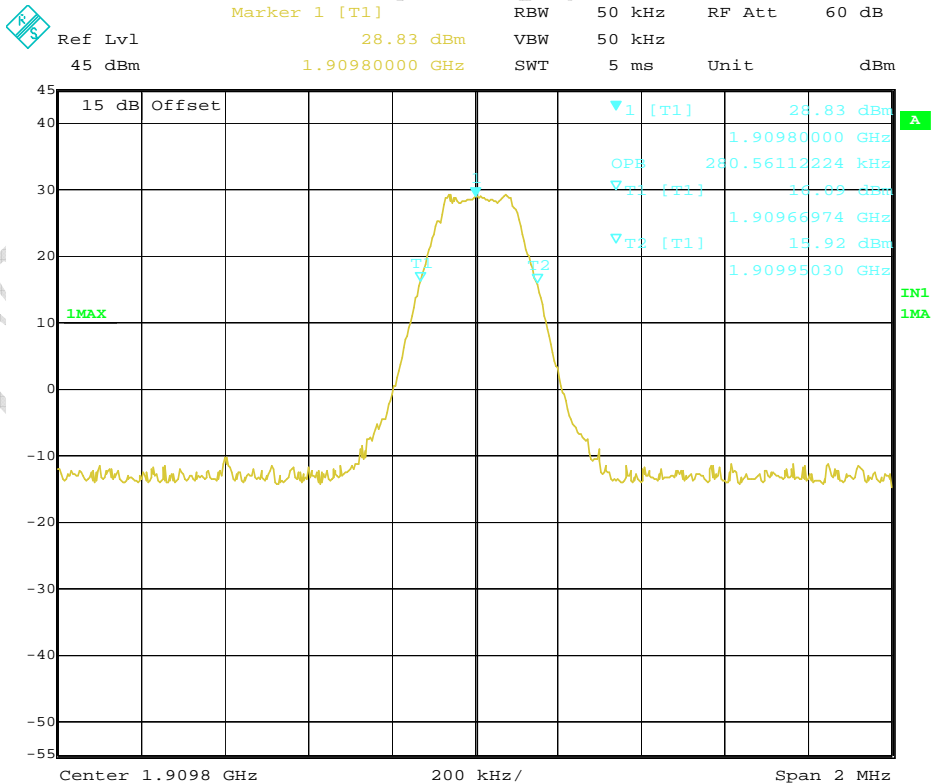
FCC Parts 2, 22, 24  
Equipment: M4E

REPORT NO.: I08GE5373-FCC-EMC



Date: 10.JUN.2008 12:05:37

### Channel 661



Date: 10.JUN.2008 12:01:22

### Channel 810

#### 4.4 Frequency Stability over Temperature Variation

Specifications:	2.1055,22.355,24.235					
Date of Test	2008-06-23					
Test conditions:	Ambient Temperature: -30℃-50℃ Relative Humidity: 30%-60% Air pressure: 86-106kPa					
Operation Mode	TX on, channel 190 and 661					
Test Results:	Pass					
Test equipment Used:						
Asset Number	Description	Manufacturer	Model Number	Serial Number	Cal Due	State
023	Wireless Communication s 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 Communication s Test Set	R&S	CMU200	1100000802	--	Normal
Limit						
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.

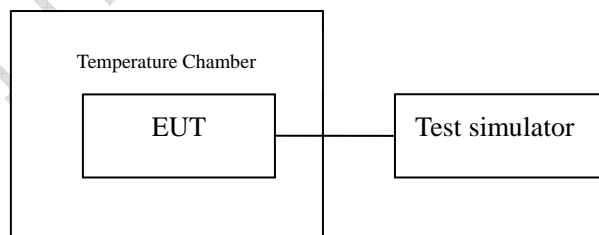


Figure T: setup for measurement of frequency stability over temperature variation

## 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	-27	-0.032	Pass
-20	-23	-0.027	Pass
-10	-19	-0.023	Pass
0	-17	-0.020	Pass
10	-14	-0.017	Pass
20	-11	-0.013	Pass
30	-12	-0.014	Pass
40	-9	-0.011	Pass
50	-11	-0.013	Pass

Channel 661:

Temperature[°C]	Deviation[Hz]	Deviation[ppm]	Remarks
-30	-40	-0.021	Pass
-20	-35	-0.019	Pass
-10	-32	-0.017	Pass
0	-31	-0.016	Pass
10	-30	-0.016	Pass
20	-28	-0.015	Pass
30	-29	-0.015	Pass
40	-31	-0.016	Pass
50	-17	-0.009	Pass

## Test results data for GPRS mode:

Channel 190:

Temperature[°C]	Deviation[Hz]	Deviation[ppm]	Remarks
-30	-11	-0.013	Pass
-20	0	0	Pass
-10	-4	-0.005	Pass
0	-10	-0.012	Pass
10	-26	-0.031	Pass
20	-23	-0.027	Pass
30	-19	-0.023	Pass
40	-26	-0.031	Pass
50	-18	-0.022	Pass

Channel 661:

Temperature[°C]	Deviation[Hz]	Deviation[ppm]	Remarks
-30	-39	-0.021	Pass
-20	-36	-0.019	Pass
-10	-34	-0.018	Pass
0	-26	-0.014	Pass
10	-28	-0.015	Pass
20	-36	-0.019	Pass
30	-41	-0.022	Pass
40	-36	-0.019	Pass
50	-41	-0.022	Pass

#### 4.5 Frequency Stability over Voltage Variation

Specifications:	2.1055,22.355,24.235					
Date of Test	2008-06-10					
Test conditions:	Ambient Temperature: 15℃-35℃ Relative Humidity: 30%-60% Air pressure: 86-106kPa					
Operation Mode	TX on, channel 190 and 661					
Test Results:	Pass					
Test equipment Used:						
Asset Number	Description	Manufacturer	Model Number	Serial Number	Cal Due	State
023	Wireless Communication s Test Set	Agilent	8960(E5515C)	GB41450323	2009-06-13	Normal
111835	Wireless Communication s Test Set	R&S	CMU200	1100000802	--	Normal
7982	DC Power Source	4NIC	DH1715A-3	004224	--	Normal
Limit						
Frequency deviation [ppm]		±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.

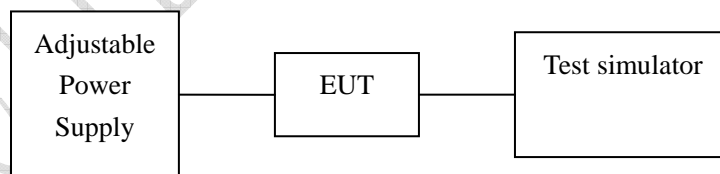


Figure V: test setup for measurement of frequency stability over voltage variation

## Test Results data for GSM mode:

Channel 190:

Level	Voltage[V]	Deviation[Hz]	Deviation[ppm]	Remarks
Nominal	3.7	19	0.023	Pass
Cut-off point	3.4	11	0.013	Pass

Channel 661:

Level	Voltage[V]	Deviation[Hz]	Deviation[ppm]	Remarks
Nominal	3.7	13	0.07	Pass
Cut-off point	3.4	18	0.10	Pass

## Test Results data for GPRS mode:

Channel 190:

Level	Voltage[V]	Deviation[Hz]	Deviation[ppm]	Remarks
Nominal	3.7	7	0.008	Pass
Cut-off point	3.4	12	0.014	Pass

Channel 661:

Level	Voltage[V]	Deviation[Hz]	Deviation[ppm]	Remarks
Nominal	3.7	15	0.008	Pass
Cut-off point	3.4	20	0.011	Pass

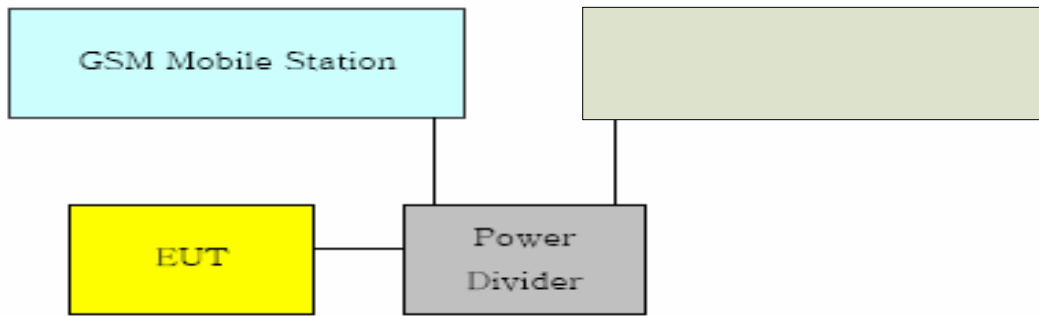
#### 4.6 Conducted RF Power Output

Specifications:	2.1046,22.913(a),24.232(c)					
Date of Tests	2008-06-10					
Test conditions:	Ambient Temperature: 15°C-35°C Relative Humidity: 30%-60% Air pressure: 86-106kPa					
Operation Mode	TX on, channel 128, 190, 251, 512, 661 and 810					
Test Results:	Pass					
Test equipment Used:						
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 splitter	Jie sai	---	1000132	2009-01-04	Normal
111835	Wireless Communications Test Set	R&S	CMU200	1100000802	--	Normal

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:

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 (ES126).



## 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 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	31.64
190	31.56
251	30.98

EIRP Value for GSM 1900 band:

ARFCN	Peak output power [dBm]
512	30.29
661	29.49
810	29.01

## Test Results for GPRS mode:

ERP Value for GPRS 850 band:

ARFCN	Peak output power [dBm]
128	31.62
190	31.59
251	31.01

EIRP Value for GPRS 1900 band:

ARFCN	Peak output power [dBm]
512	30.36
661	29.61
810	29.11

#### 4.7 Conducted Spurious Emission

Specifications:	2.1051,22.917,24.238					
Date of Tests	2008-06-12					
Test conditions:	Ambient Temperature: 15℃-35℃ Relative Humidity: 30%-60% Air pressure: 86-106kPa					
Operation Mode	TX on, channel 190 and 661					
Test Results:	Pass					
Test equipment Used:						
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 splitter	Jie sai	---	1000132	2009-01-04	Normal
111835	Wireless Communications Test Set	R&S	CMU200	1100000802	--	Normal

#### Limit Level Construction:

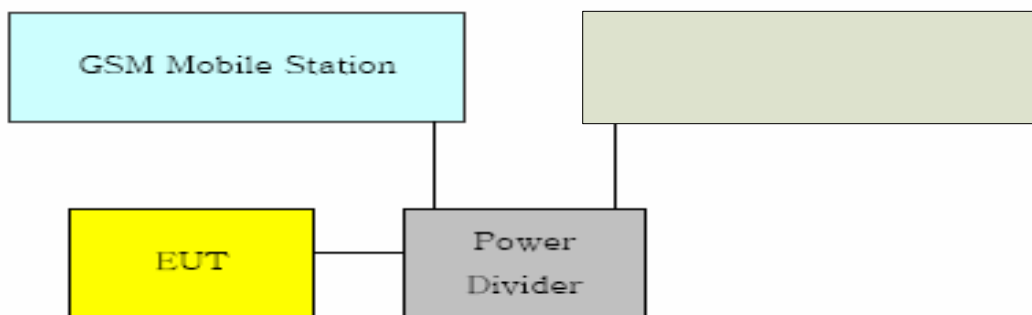
According to Part 24.238 (a), i.e., Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB, so the limit level is:  
 $P(\text{dBm}) - (43 + 10 \log(P)) \text{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

#### 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 (ES126)



## 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 outlines the band edge frequencies pertinent to conducted emissions testing.

Note: --

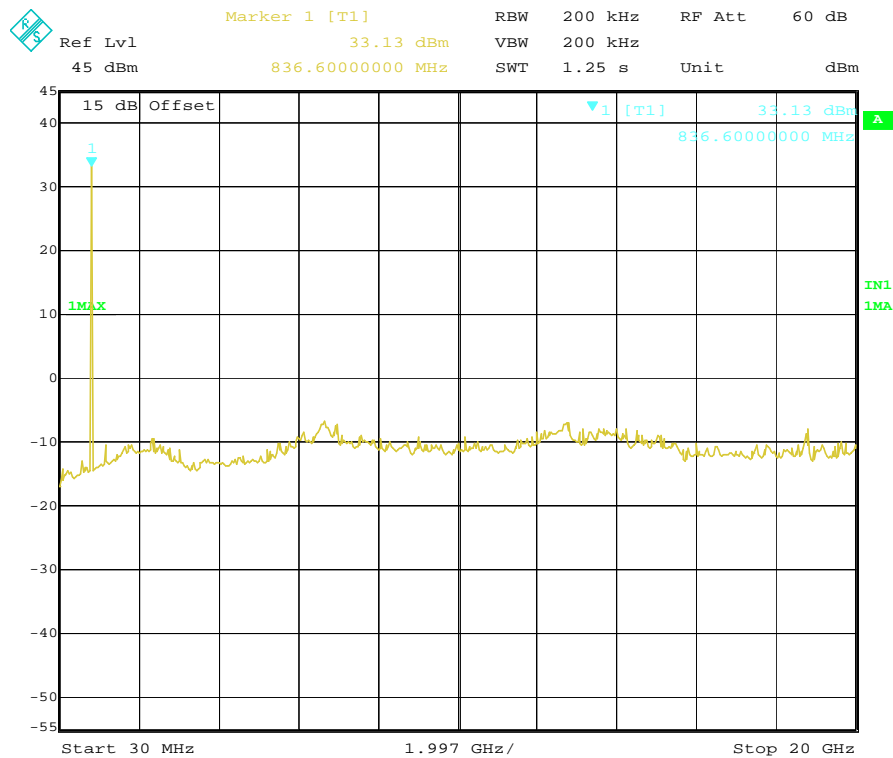
### Test Results for GSM mode:

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

FCC Parts 2, 22, 24  
Equipment: M4E

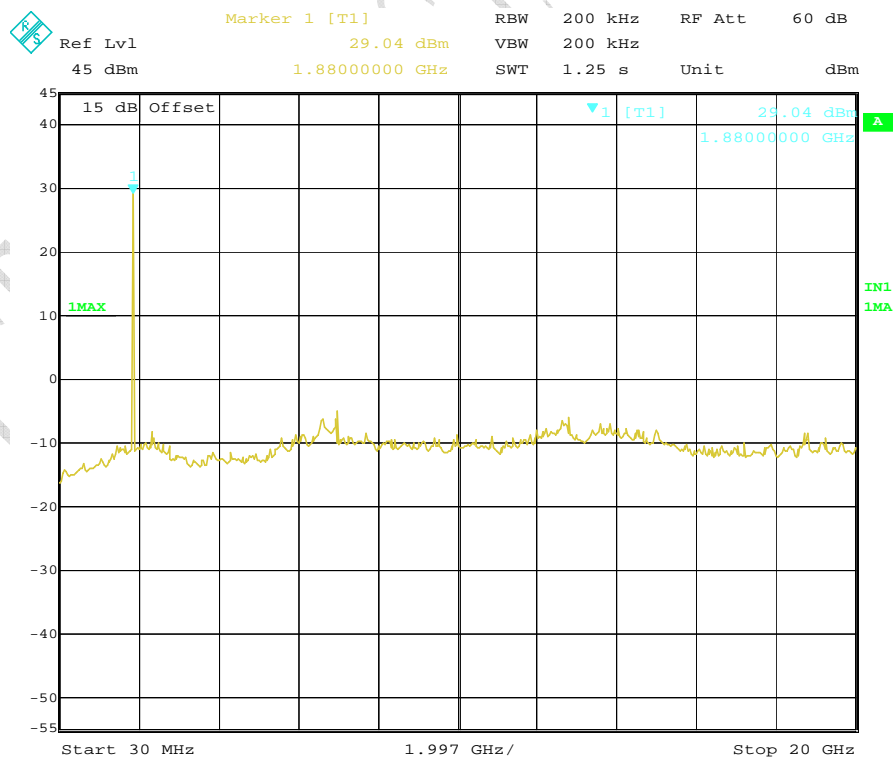
REPORT NO.: I08GE5373-FCC-EMC

### Graphical results for GSM mode:



Date: 12.JUN.2008 11:01:38

### Channel 190



Date: 12.JUN.2008 11:03:43

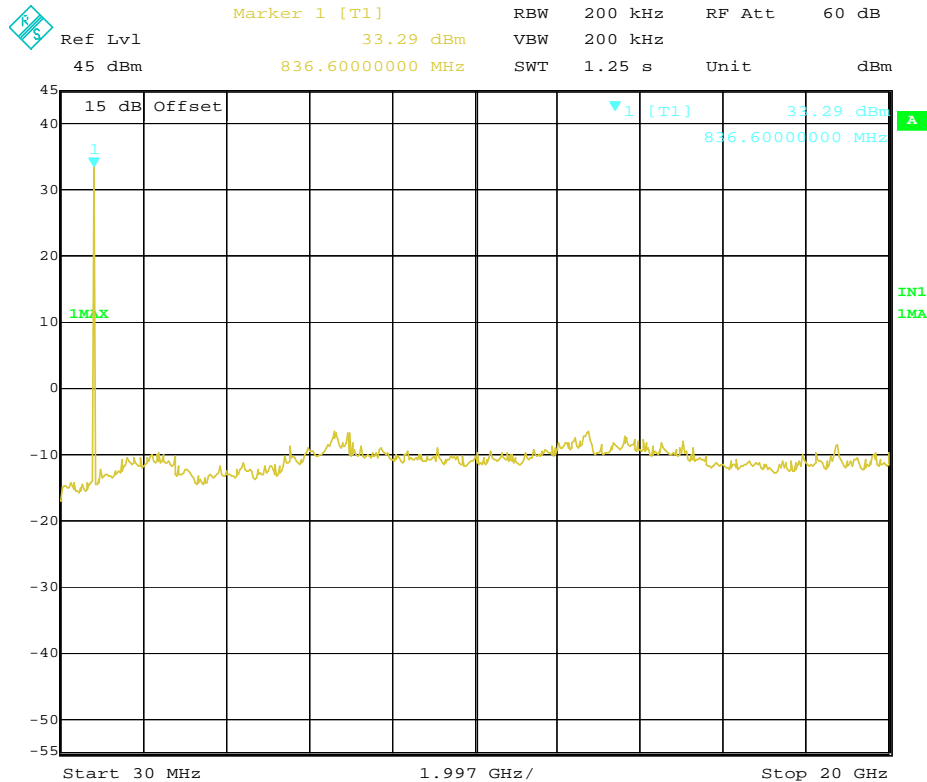
### Channel 661



Test Results for GPRS mode:

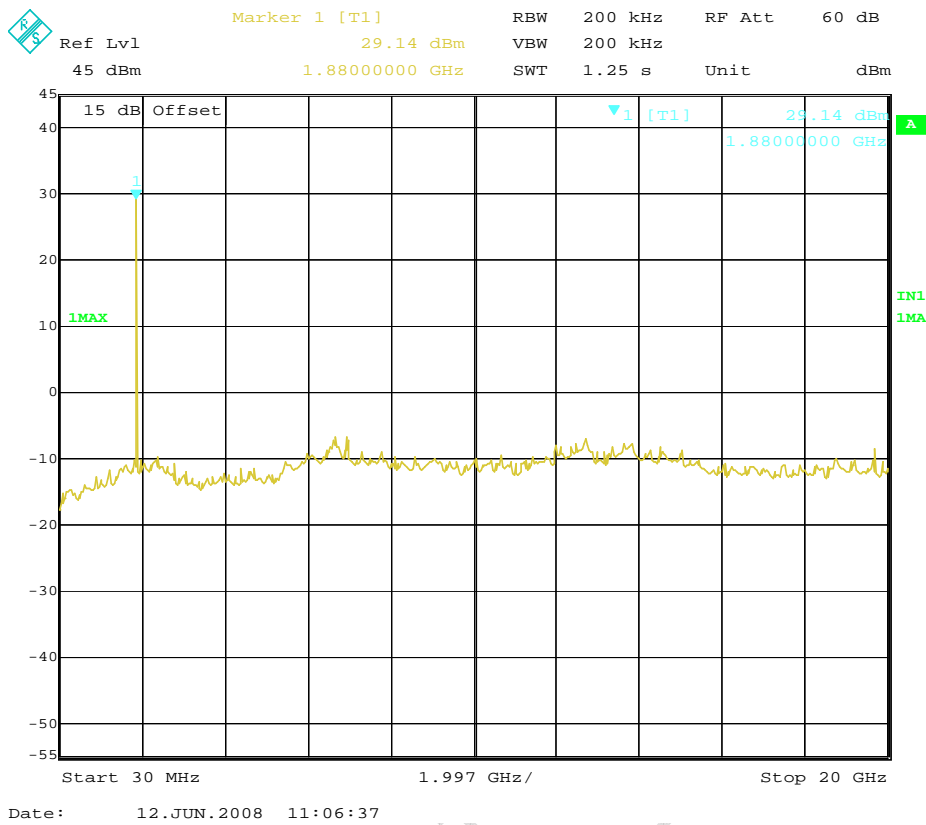
Out of band emission	
Frequency [MHz]	Level (dBm)
--	--

Graphical results for GPRS mode:



Date: 12.JUN.2008 11:12:33

Channel 190



Channel 661

#### 4.8 Band Edge

Specifications:	2.1051, 24.238, 2.1053, 22.917					
Date of Tests	2008-06-12					
Test conditions:	Ambient Temperature: 15°C-35°C Relative Humidity: 30%-60% Air pressure: 86-106kPa					
Operation Mode	TX on, channel 128, 251, 512 and 810					
Test Results:	Pass					
Test equipment Used:						
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 splitter	Jie sai	---	1000132	2009-01-04	Normal
111835	Wireless Communications Test Set	R&S	CMU200	1100000802	--	Normal

#### Limit Level Construction:

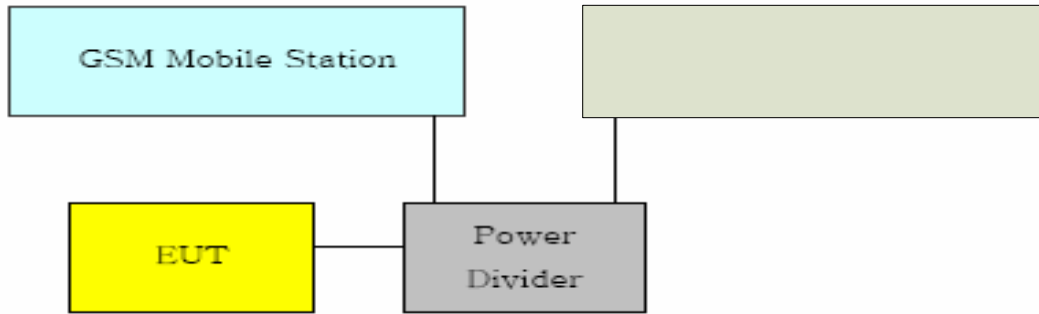
According to Part 24.238 (a), i.e., Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB, so the limit level is:  
 $P(\text{dBm}) - (43 + 10 \log(P)) \text{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

#### 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 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:

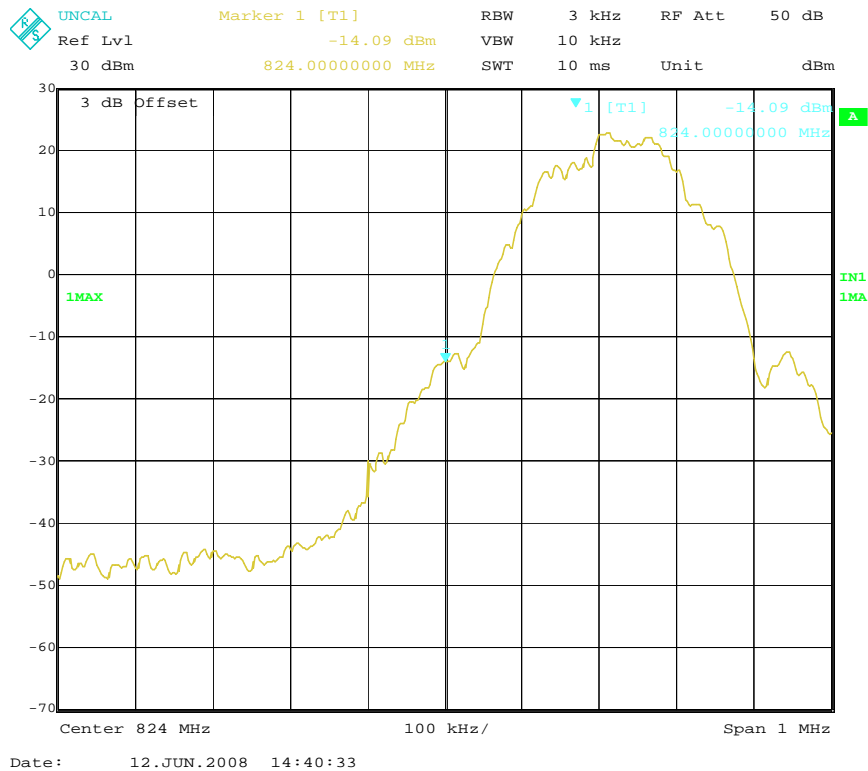
Band-edge emission		
EUT Channel	Frequency [MHz]	Level [dBm]
128 Left band edge	824.000	-14.09
251 Right band edge	849.000	-13.48
512 Left band edge	1850.000	-17.92
810 Right band edge	1910.000	-14.14

### GPRS mode:

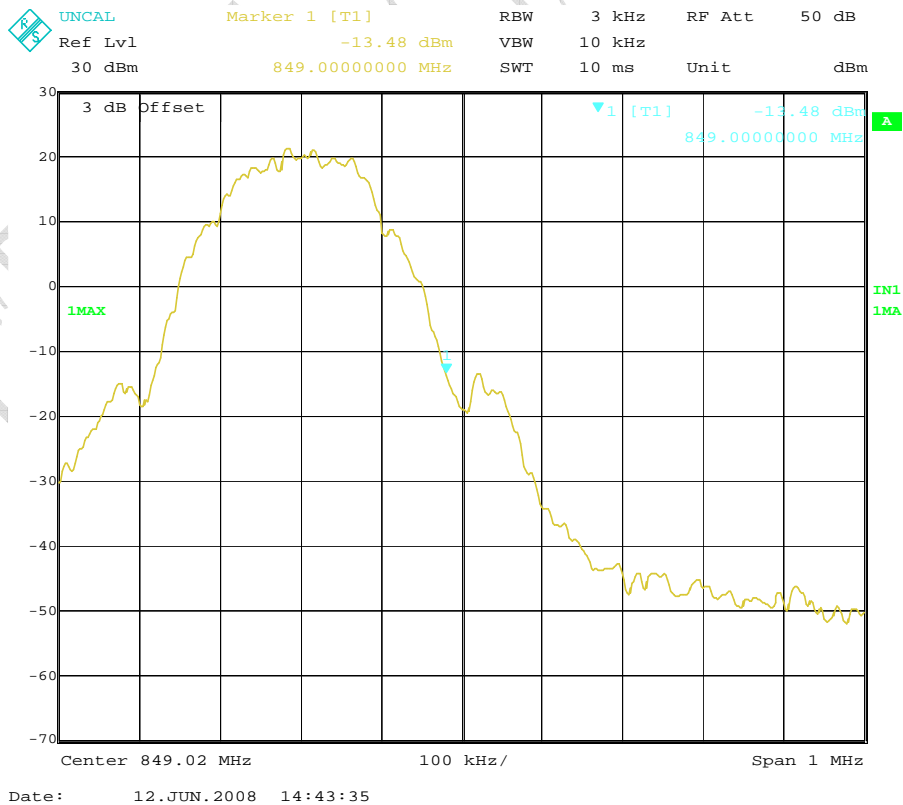
Band-edge emission		
EUT Channel	Frequency [MHz]	Level [dBm]
128 Left band edge	824.000	-13.24
251 Right band edge	849.000	-13.91
512 Left band edge	1850.000	-16.07
810 Right band edge	1910.000	-16.84

FCC Parts 2, 22, 24  
Equipment: M4E

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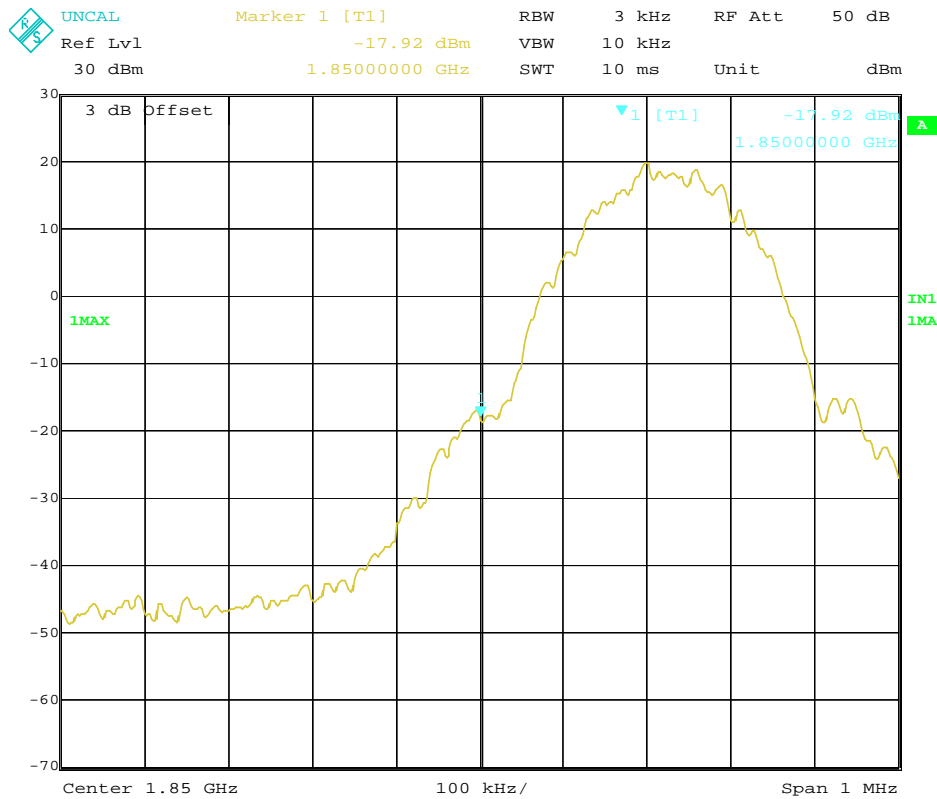
GSM channel 128 Left band edge



GSM channel 251 Right band edge

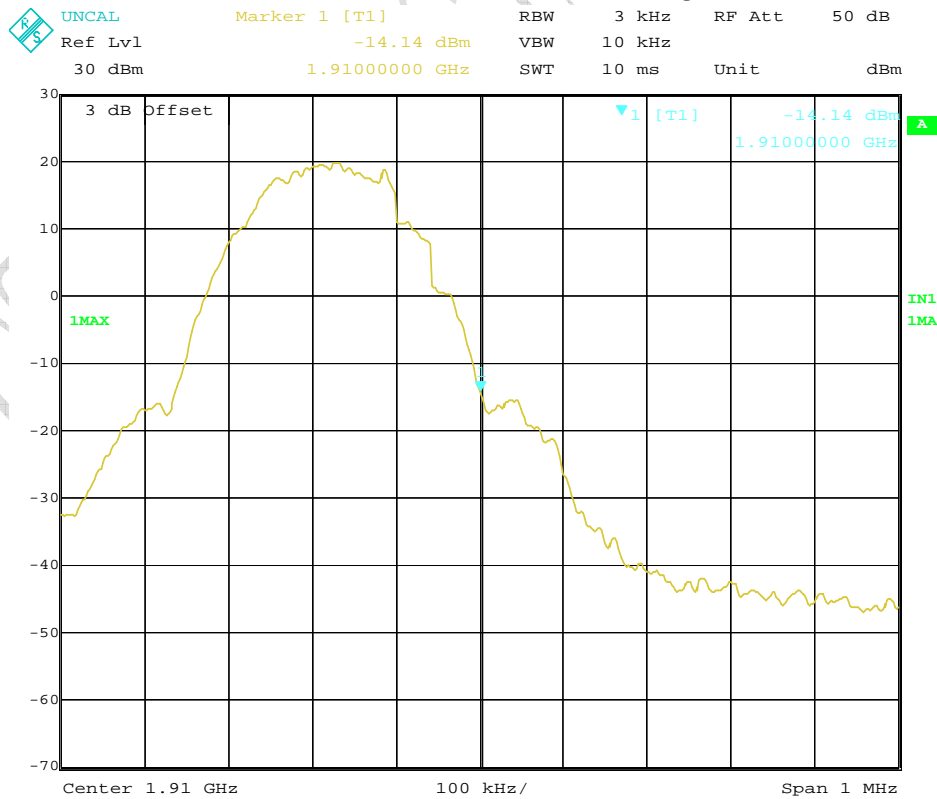
FCC Parts 2, 22, 24  
Equipment: M4E

REPORT NO.: I08GE5373-FCC-EMC



Date: 12.JUN.2008 12:43:37

### GSM channel 512 Left band edge

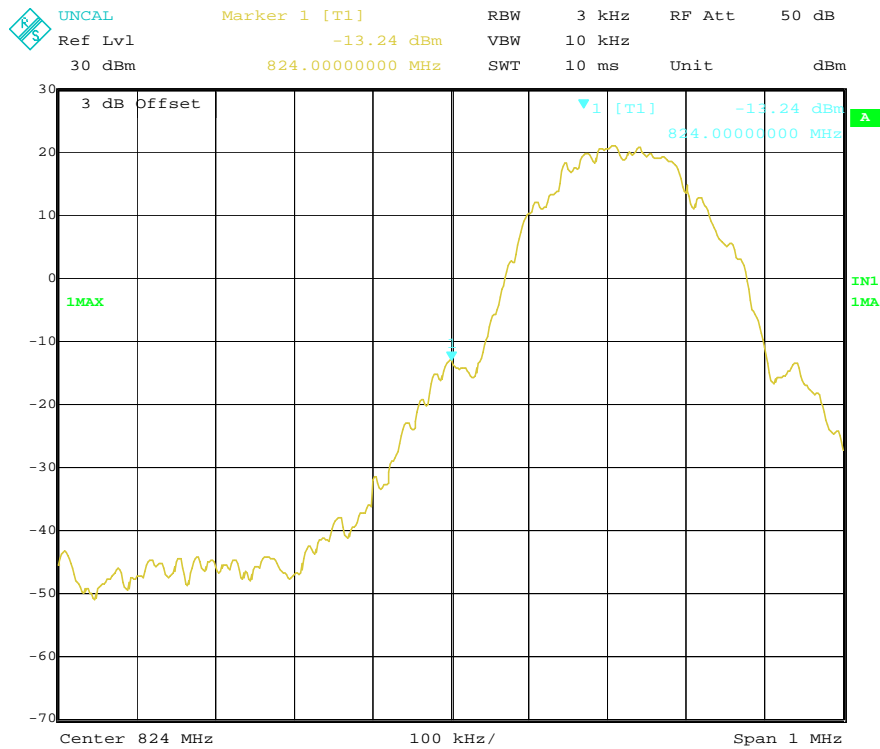


Date: 12.JUN.2008 12:35:02

### GSM channel 810 Right band edge

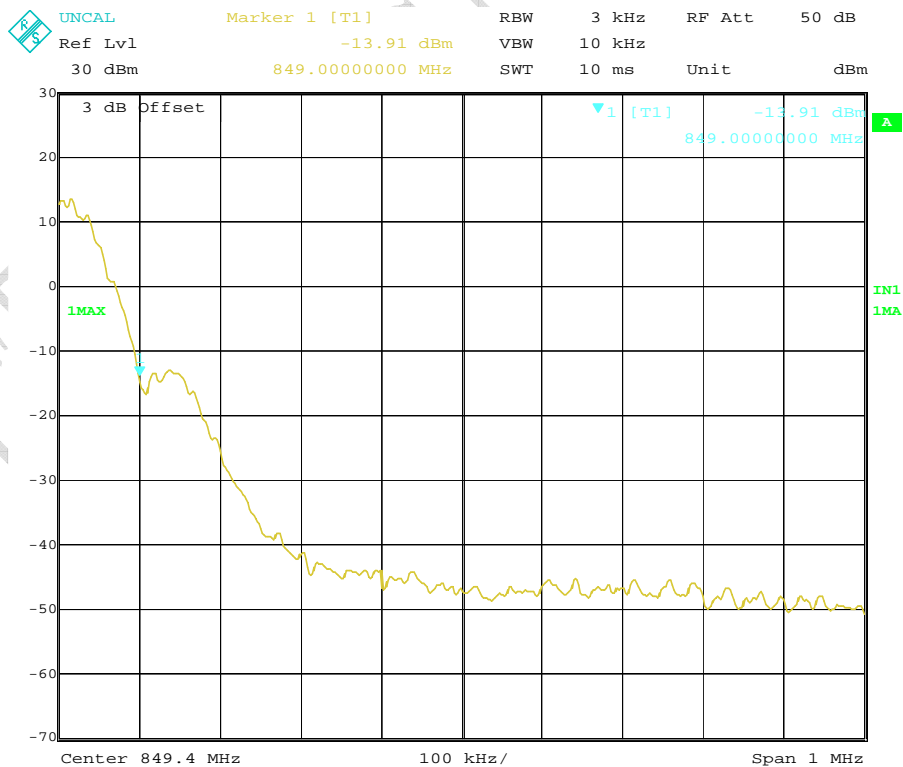
FCC Parts 2, 22, 24  
Equipment: M4E

REPORT NO.: I08GE5373-FCC-EMC



Date: 12.JUN.2008 12:09:04

### GPRS channel 128 Left band edge

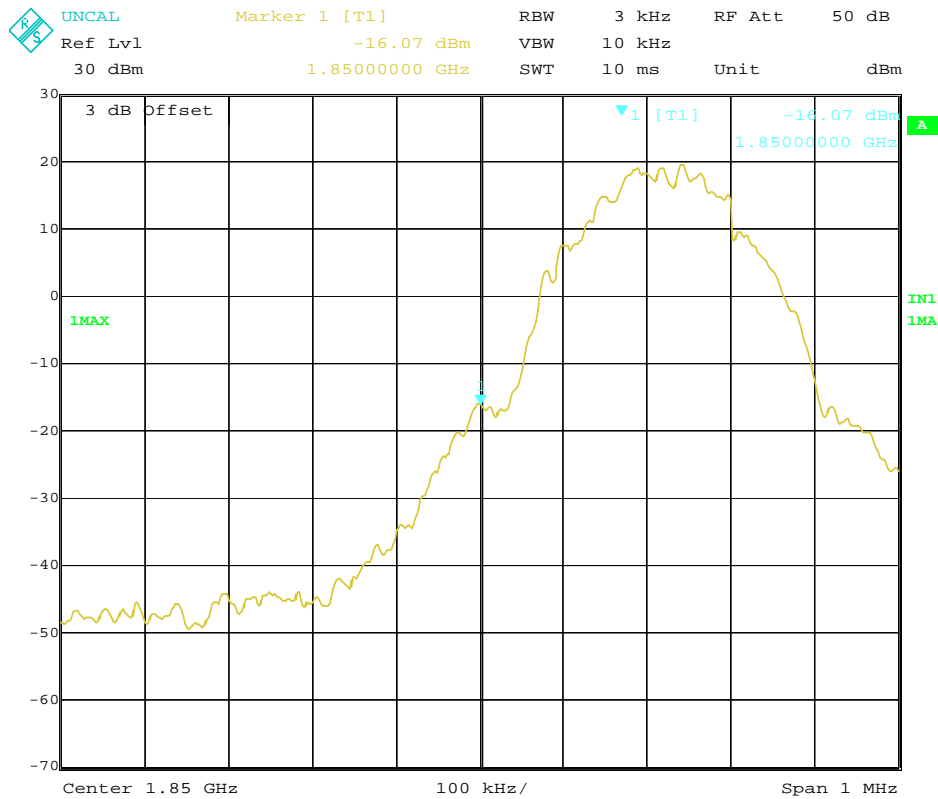


Date: 12.JUN.2008 12:07:42

### GPRS channel 251 Right band edge

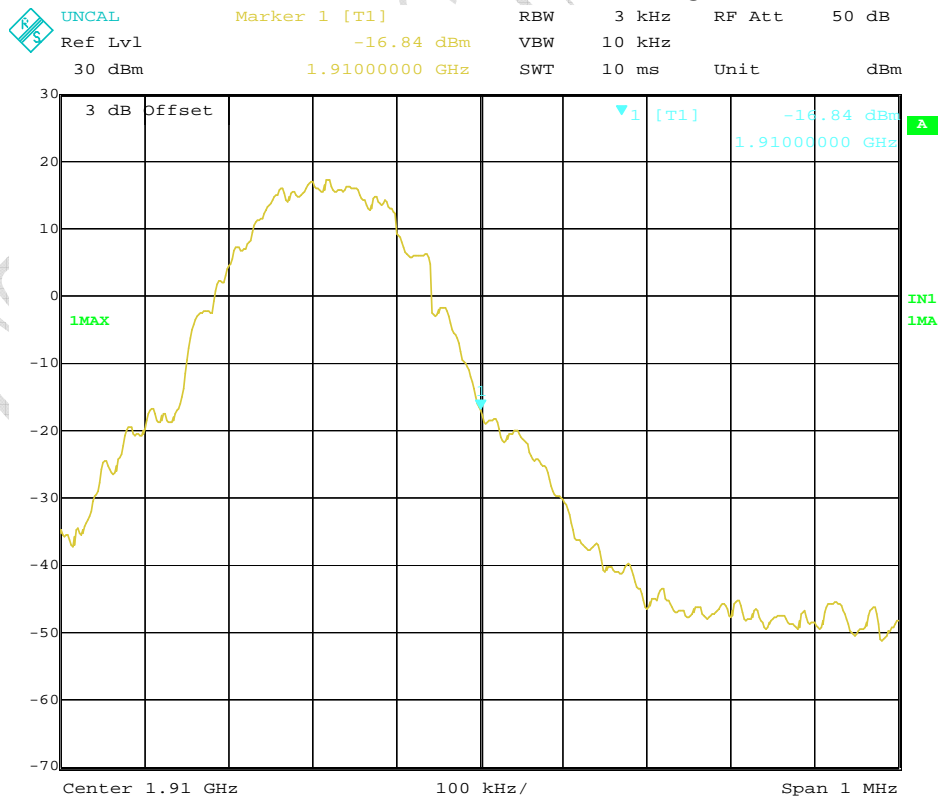
FCC Parts 2, 22, 24  
Equipment: M4E

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Date: 12.JUN.2008 12:13:17

### GPRS channel 512 Left band edge



Date: 12.JUN.2008 12:14:16

### GPRS channel 810 Right band edge

## Annex A External Photos



Front view



FCC Parts 2, 22, 24  
Equipment: M4E

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Front view with clip open



Back view



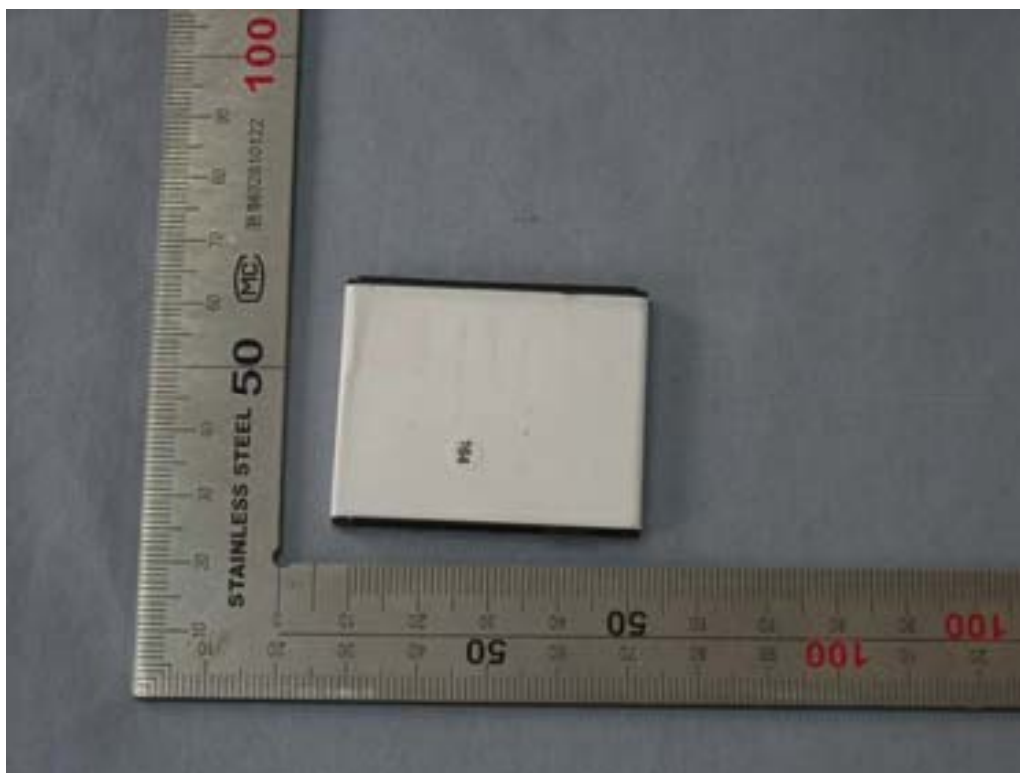
Adaptor



Cable

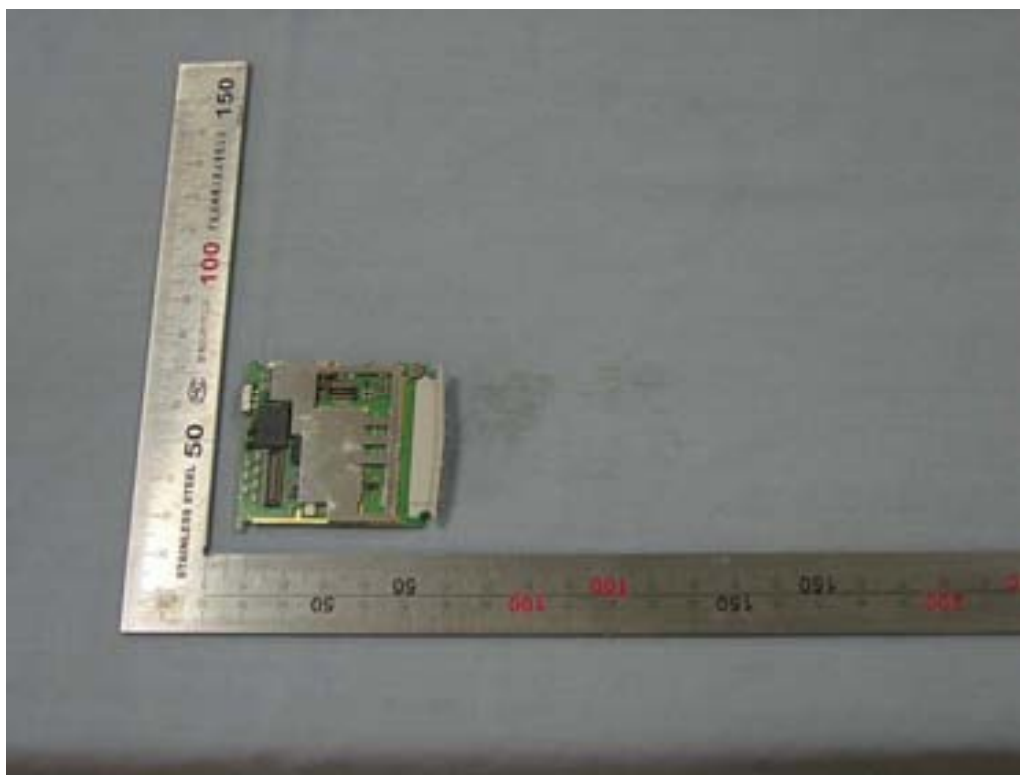


Headset

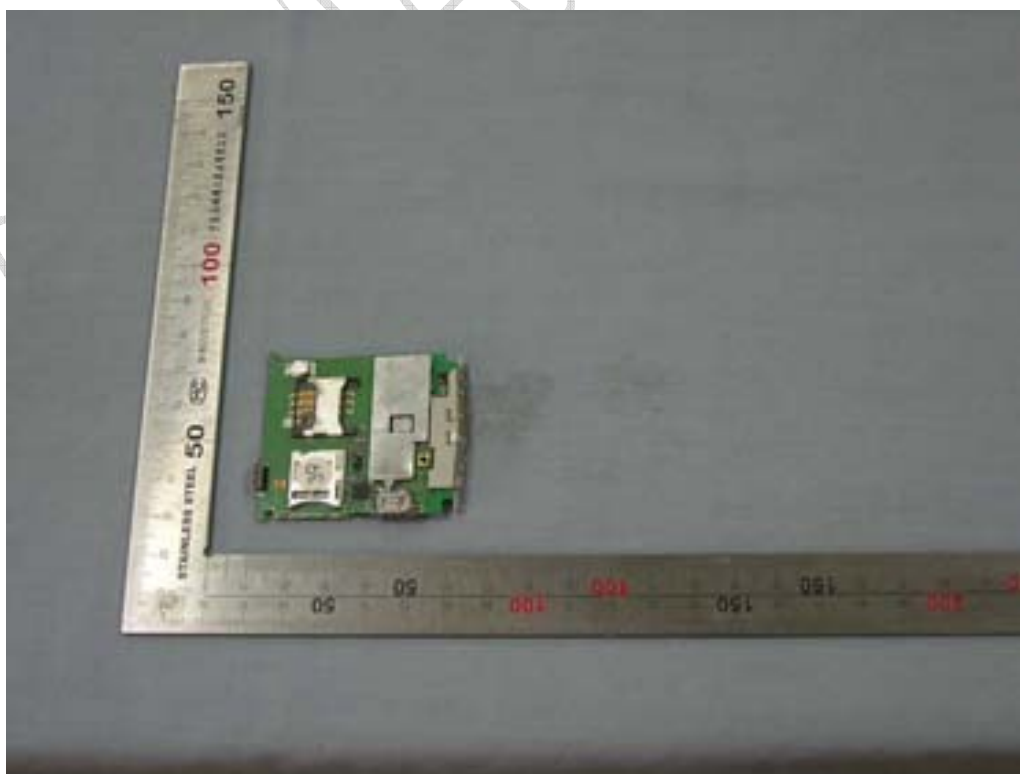


battery

## Annex B Internal Photos



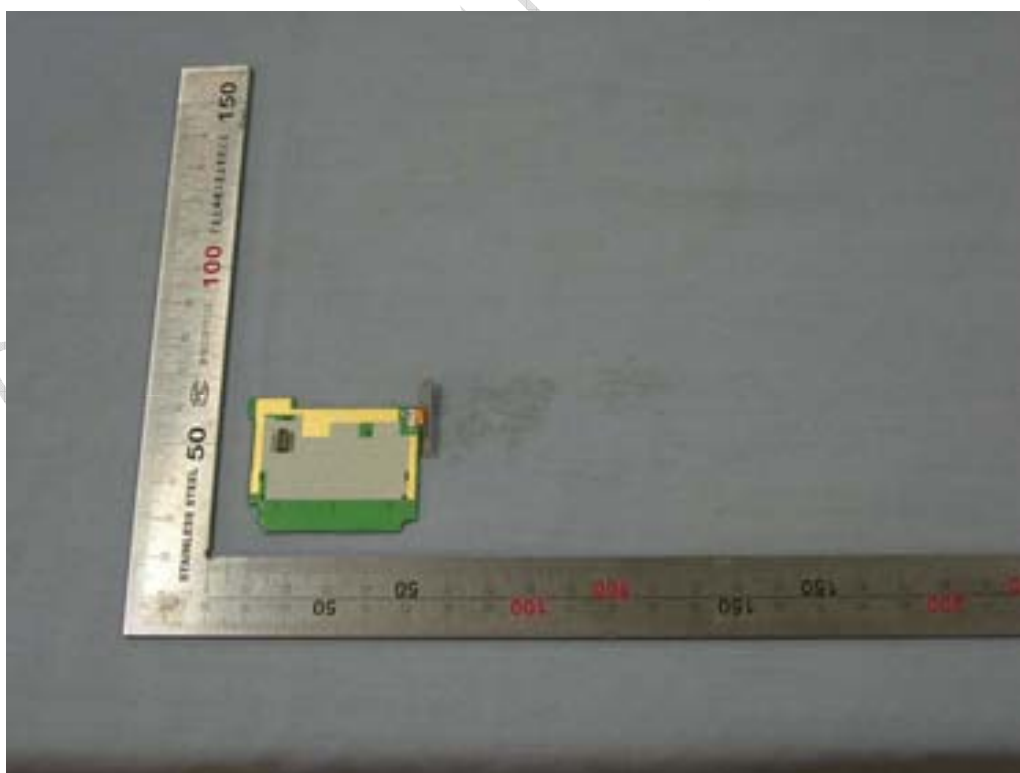
Main board (face)



Main board (back)



keyboard (face)



keyboard (back)

FCC Parts 2, 22, 24  
Equipment: M4E

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Adaptor face



Adaptor back

## ANNEX C Deviations from Prescribed Test Methods

No deviation from Prescribed Test Methods.

———— The End of this Report ————

Test Report