TEST REPORT

REPORT NUMBER: I09GE6624-FCC-EMC

ON

Type of Equipment:	GSM/GPRS/UMTS mobile phone
Type of Designation:	Sonim XP2.10 Spirit
Manufacturer:	Sonim Technologies, Inc
Type name:	P32B003AA

ACCORDING TO

FCC CFR Part 2, FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS; e-CFR, April 24, 2009

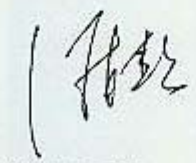
PART 22, PUBLIC MOBILE SERVICES e-CFR, April 24, 2009

PART 24, PERSONAL COMMUNICATIONS SERVICES e-CFR, April 24, 2009

China Telecommunication Technology Labs.

Month date, year
Sep, 15, 2009

Signature



He Guili
Director

FCC ID:	WYPP32B003AA
Report Date:	2009-9-11
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: 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 Wang

Position: Engineer

Department: Department of EMC test

Date: 2009-9-15

Signature:

Technical responsibility for area of testing:

Name: Zou Dongyi

Position: Manager

Department: Department of EMC test

Date: 2009-9-15

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

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:	Sonim Technologies, Inc
Address:	1875 S. Grant Street, Suite 620, San Mateo, CA 94402
Country:	USA
Telephone:	+1 650 504 4411
Fax:	+1 650 378 8190
Contact:	Jasen Kolev
Telephone:	+1 650 504 4411
Email:	jasen@sonimtech.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:	----
Address:	----

2 Test Item

2.1 General Information

Manufacturer: Sonim Technologies, Inc
Name: GSM/GPRS/UMTS mobile phone
Model Number: Sonim XP2.10 Spirit
Serial Number: --
Production Status: Product
Receipt date of test item: 2009-7-9

2.2 Outline of EUT

EUT is a GSM/GPRS/UMTS mobile 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	Sonim Technologies, Inc	Sonim XP2.10 Spirit	--	None
B	adapter	Dee Van Enterprise Co.,LTD.	DSA-5W-05 FEU 051055	--	None
C	battery	XWODA Electronic Co., Ltd	XP2-0001100	--	None
D	Earphone	MINAMI ACOUSTICS LIMITED	ME-816B6	--	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 250KGXW.

(c) Version of hardware and software

HW Version: A

SW Version: 7.0.0-07.0-1

(d) Adaptor information:
Input: 100-240VAC 50/60Hz 0.2A
Output: 5.1VDC 0.55A

(e) Battery information:
3.7VDC 1300mAh

3 Summary of Test Results

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

GSM mode:		
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.		

GPRS mode:		
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.		

EGPRS mode:		
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 3
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 3: 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	2009-8-25,2009-8-27
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Operation Mode	TX on, channel 661 for GSM,GPRS and EGPRS 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	2010-01-11	Normal
7330	Ultra Broadband Antenna	SCHWARZBECK	VULB 9160	--	2010-10-26	Normal
7330	Double-Ridged Horn Antenna	R/S	HF906	100037	2010-01-09	Normal
713	Fully-Anechoic Chamber	ETS	11.8m×6.5m×6.3m	--	2010-11-16	Normal
023	Wireless Communications Test Set	Agilent	8960(E5515C)	GB41450323	2010-06-09	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(dBm) – (43 + 10 log(P)) dB= -13dBm

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.

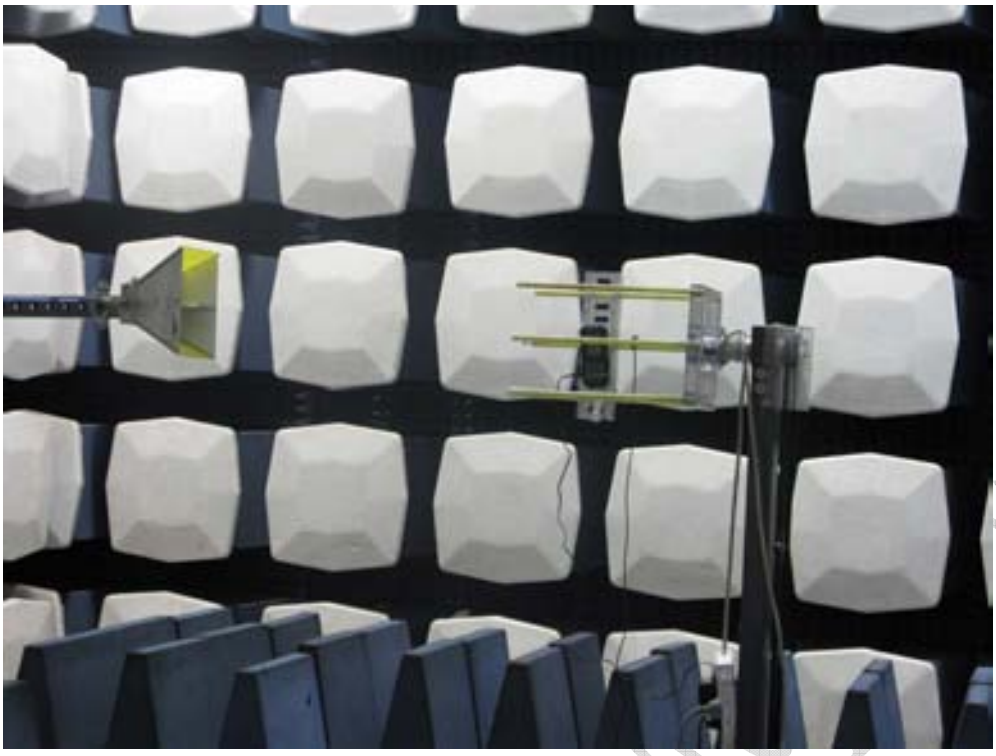


Figure SP

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.

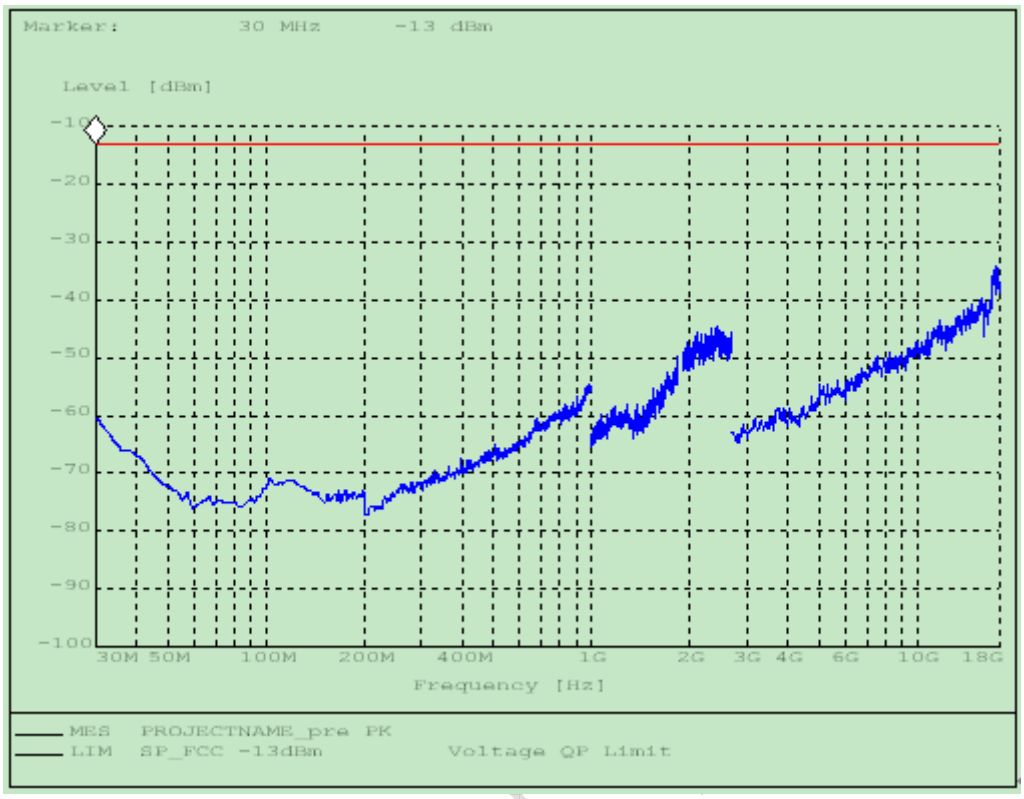
4 The corrected values of radiated spurious emissions indicated as EIRP are reported.

Note:

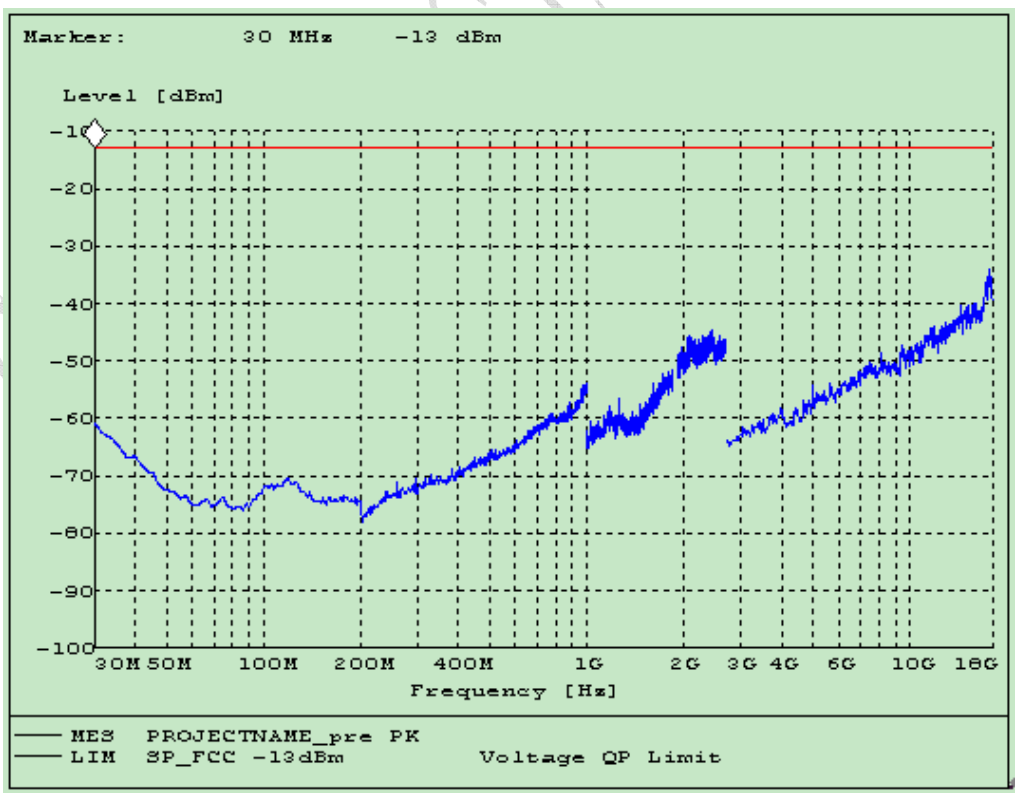
1 The investigated ARFCNs is 661 (1880.0 MHz).

2 The investigated frequency range is 30 MHz ~ 18 GHz.

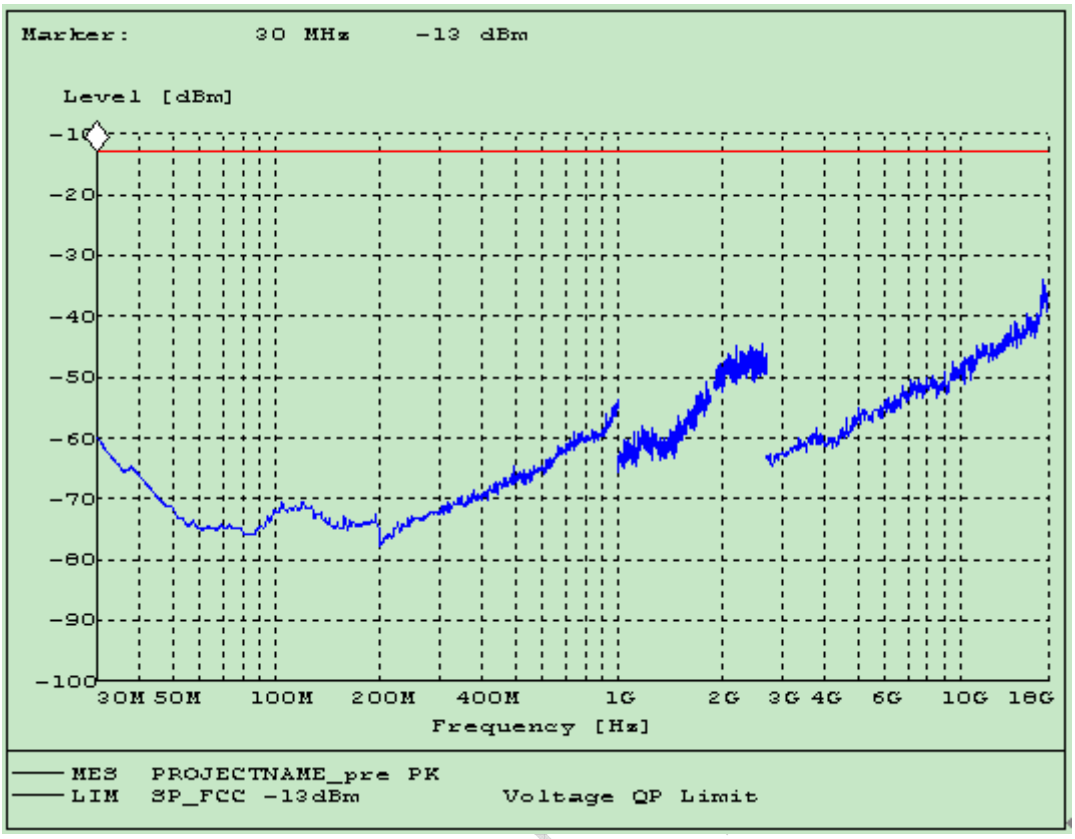
Test Results for GSM mode:



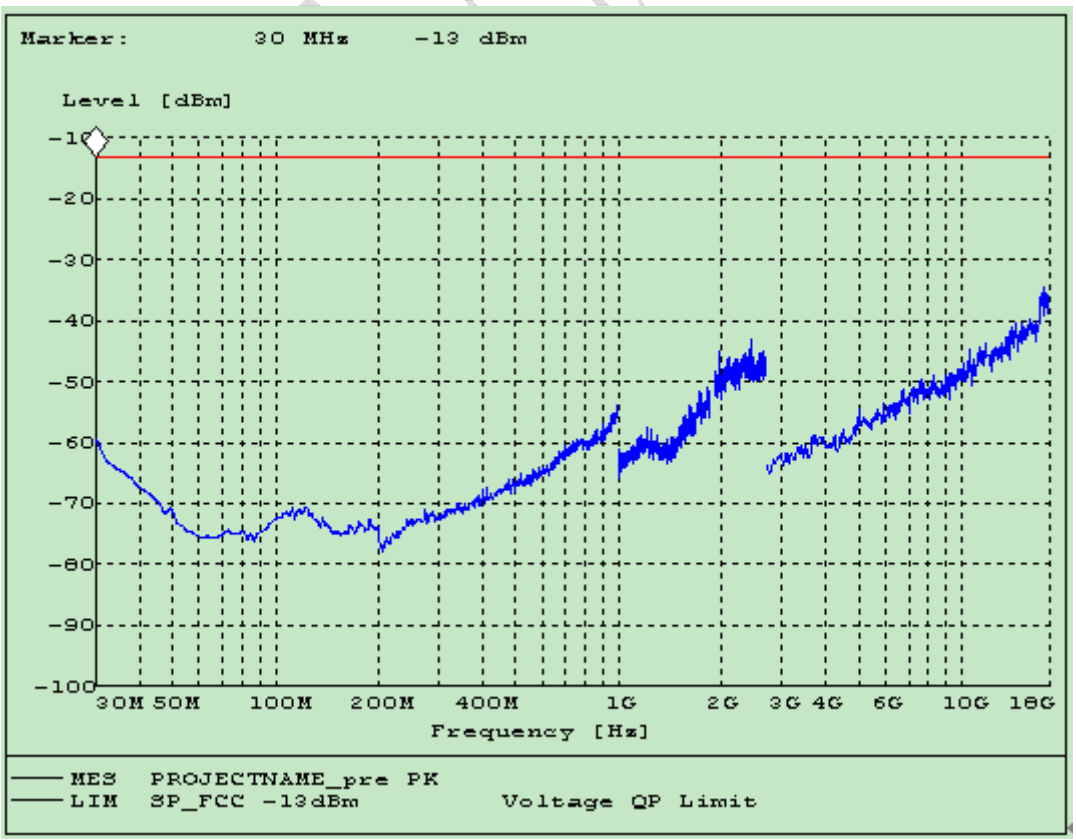
S661VF for GSM mode



S661HF for GSM mode

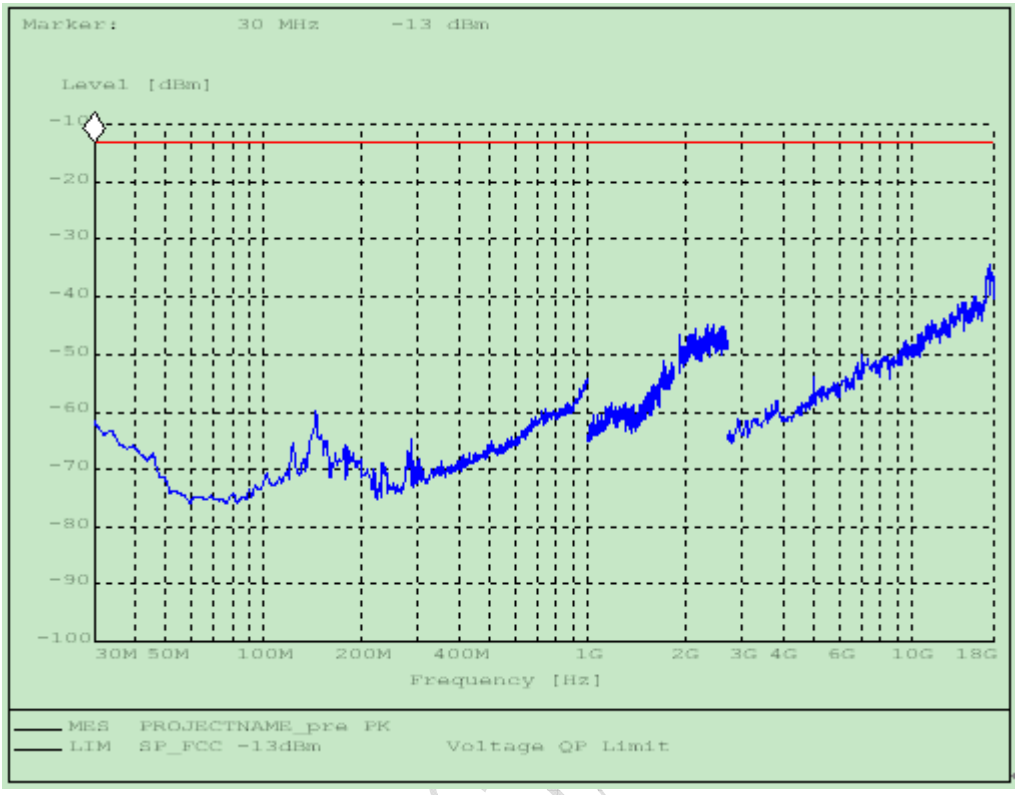


S661VT for GSM mode

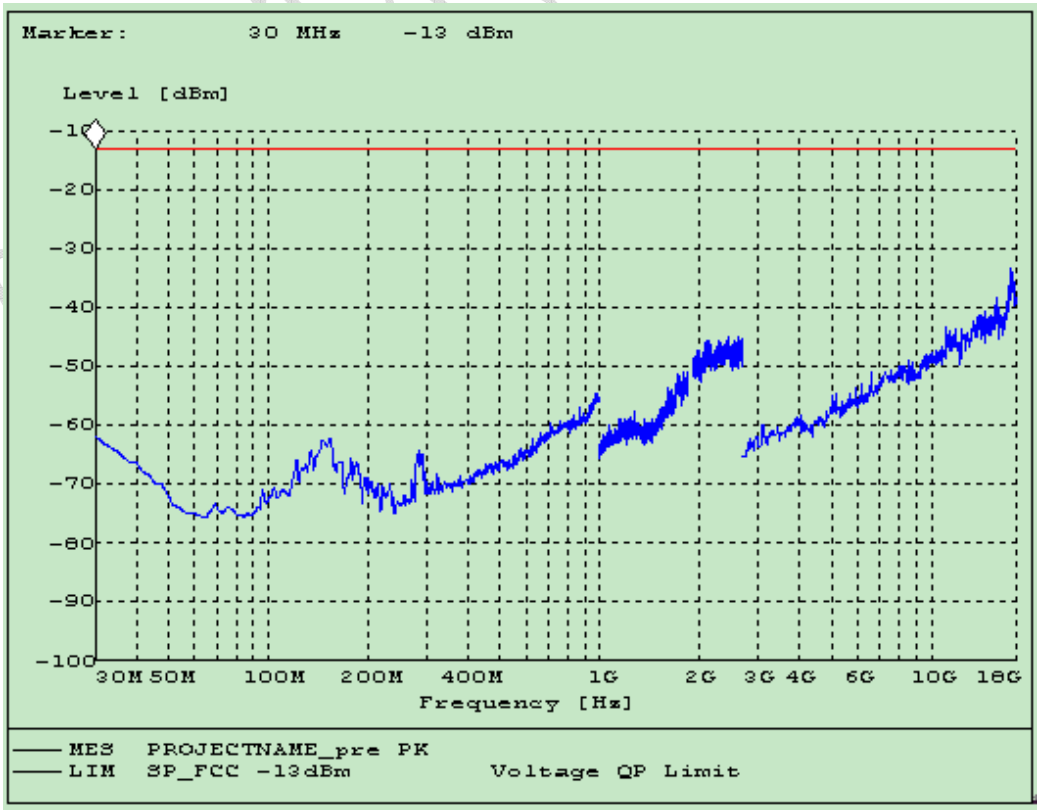


S661HT for GSM mode

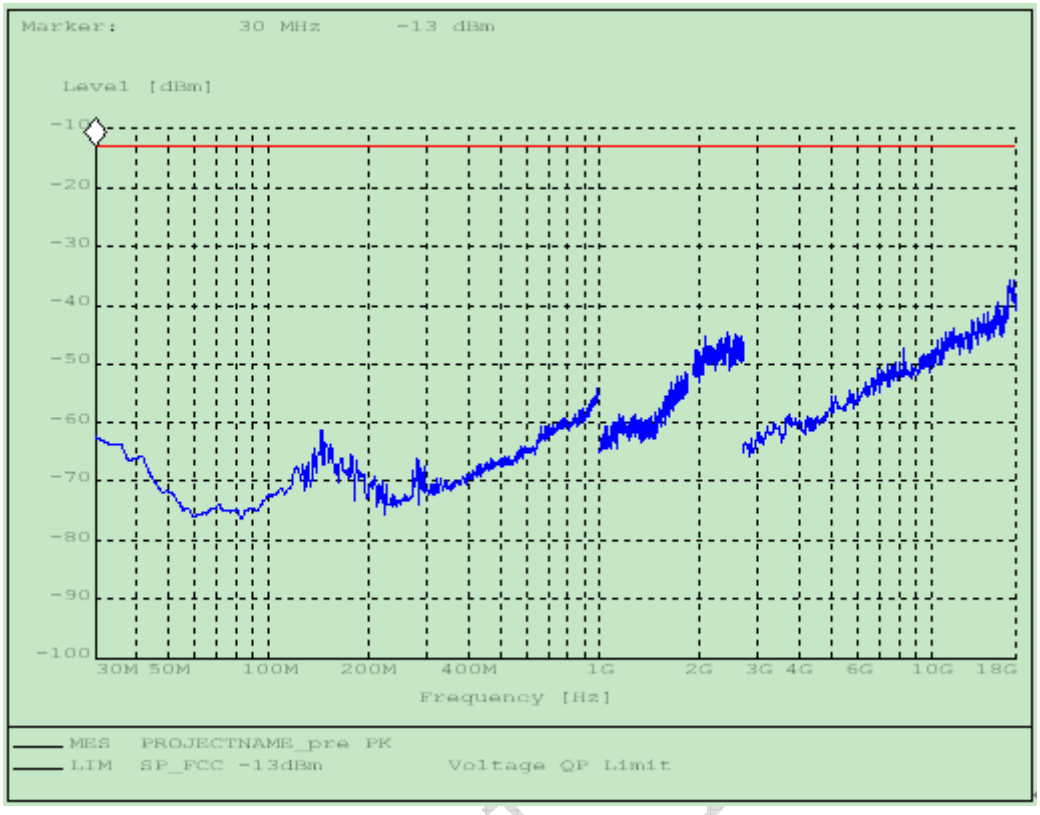
Test Results for GPRS mode:



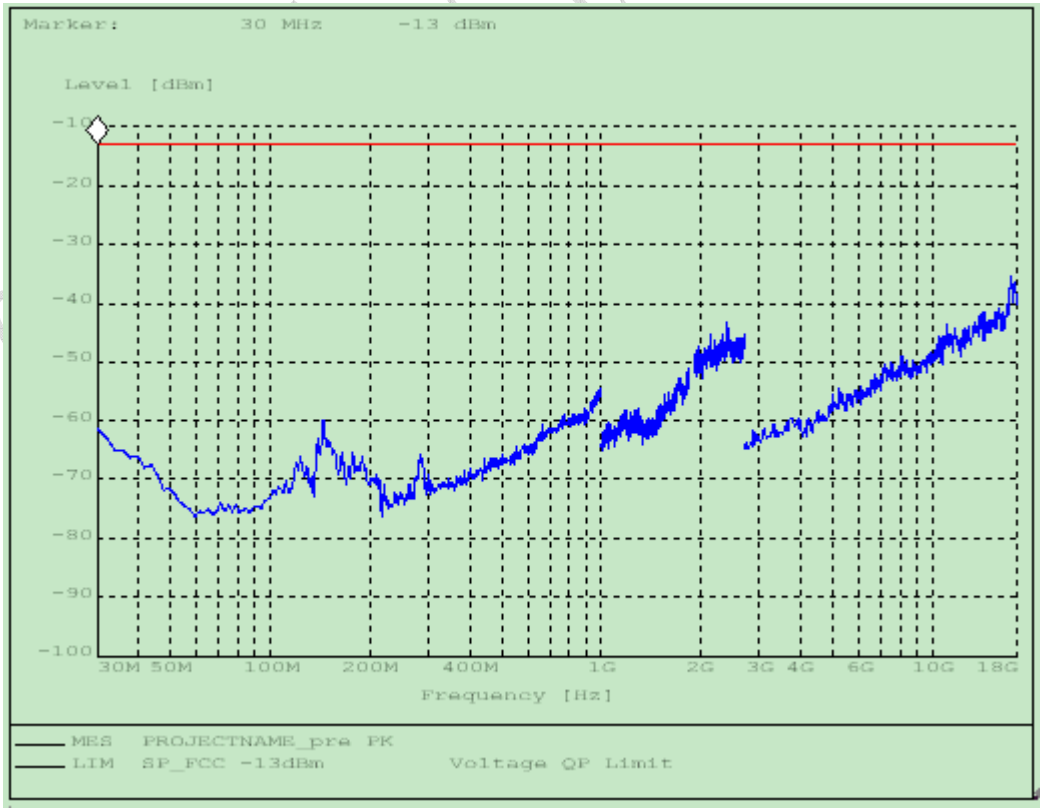
S661VF for GPRS mode



S661HF for GPRS mode

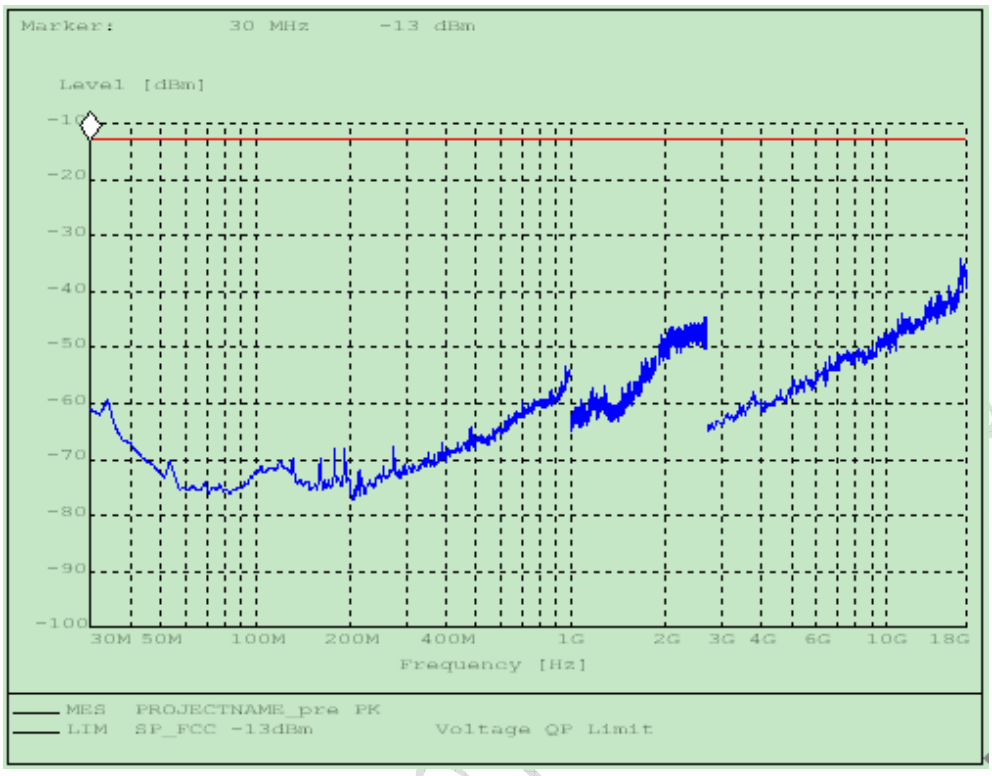


S661VT for GPRS mode

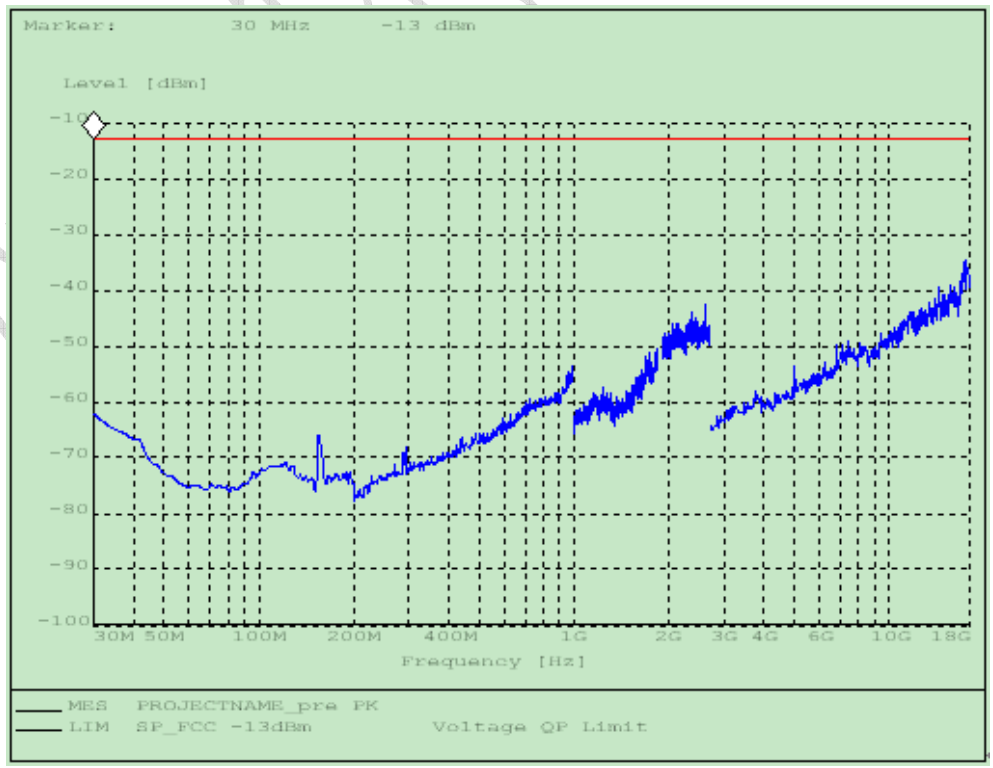


S661HT for GPRS mode

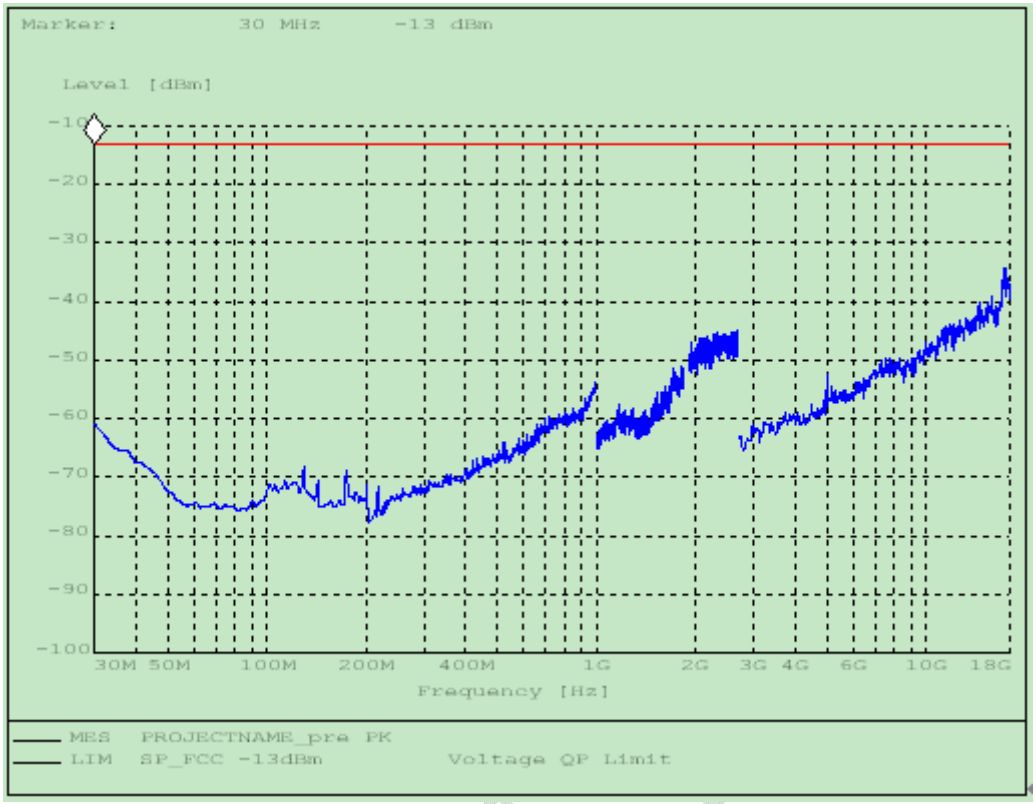
Test Results for EGPRS mode:



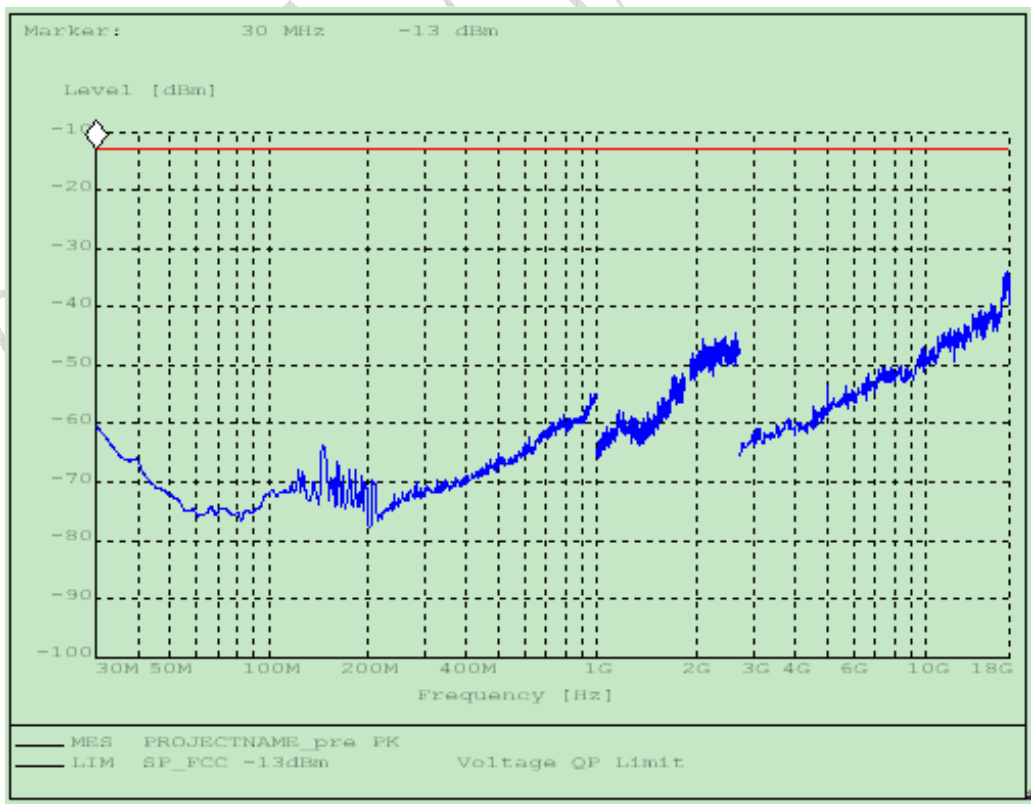
S661VF for EGPRS mode



S661HF for EGPRS mode



S661VT for EGPRS mode



S661HT for EGPRS mode

4.2 Radiated RF Power Output and ERP

Specifications:	2.1046,24.232,22.913(a)
Date of Tests	2009-8-27,2009-8-28
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Operation Mode	TX on, channel 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	2010-01-11	Normal
7330	Ultra Broadband Antenna	SCHWARZBECK	VULB 9160	--	2010-10-26	Normal
7330	Double-Ridged Horn Antenna	R/S	HF906	100037	2010-01-09	Normal
713	Fully-Anechoic Chamber	ETS	11.8m×6.5m×6.3m	--	2010-11-16	Normal
023	Wireless Communications Test Set	Agilent	8960(E5515C)	GB41450323	2010-06-09	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.

EIRP Value for GSM 1900 band mode:

ARFCN	Frequency [MHz]	EIRP [dBm]
512	1850.100200	23.06
661	1880.080160	24.82
810	1909.739479	26.46

EIRP Value for GPRS 1900 band mode:

ARFCN	Frequency [MHz]	EIRP [dBm]
128	1850.260521	27.10
190	1879.919840	26.16
251	1909.899800	25.56

EIRP Value for EGPRS 1900 band mode:

ARFCN	Frequency [MHz]	EIRP [dBm]
128	1850.260521	26.91
190	1879.919840	26.30
251	1909.899800	25.81

4.3 Occupied bandwidth

Specifications:	2.1049,22.917(b),24.238(b)
Date of Test	2009-8-26
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Operation Mode	TX on, channel 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	2010-01-11	Normal
7330	Ultra Broadband Antenna	SCHWARZBECK	VULB 9160	--	2010-10-26	Normal
7330	Double-Ridged Horn Antenna	R/S	HF906	100037	2010-01-09	Normal
713	Fully-Anechoic Chamber	ETS	11.8m×6.5m×6.3m	--	2010-11-16	Normal
023	Wireless Communications Test Set	Agilent	8960(E5515C)	GB41450323	2010--06-09	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

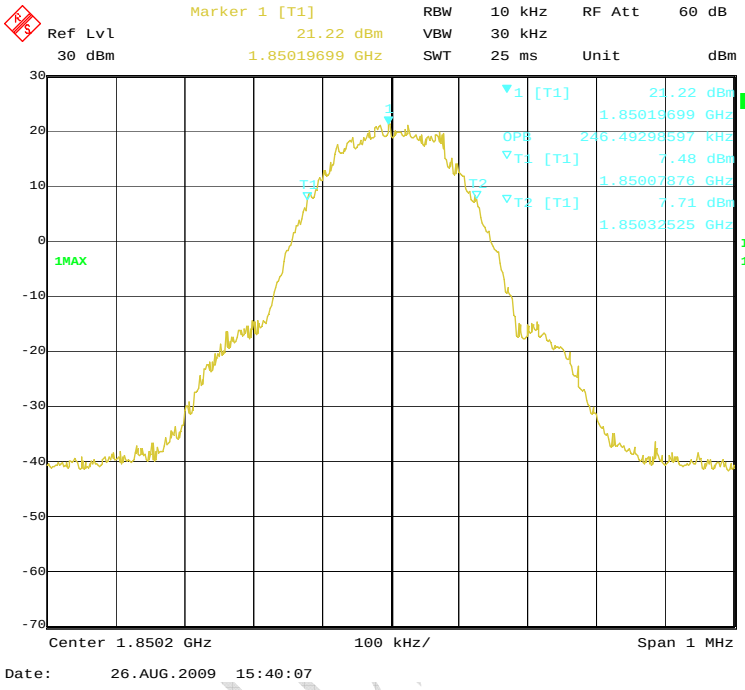
The 99% occupied bandwidth was calculated form the spectrum analyzer. Markers in the spectrum analyzer were then placed between the calculated frequencies to show the calculated 99% power band.

Note: --

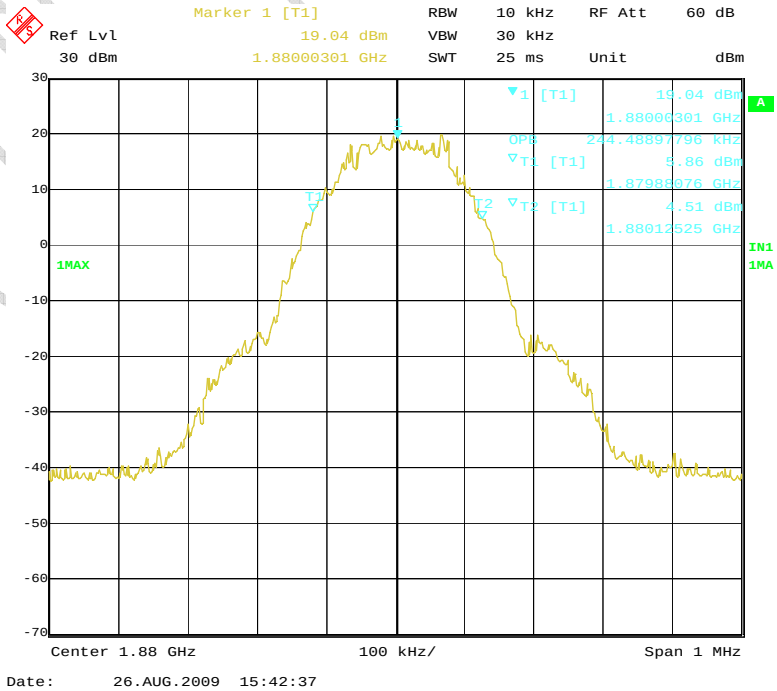
Results data of GSM mode:

EUT channel	99% occupied bandwidth [kHz]
512	246
661	244
810	242

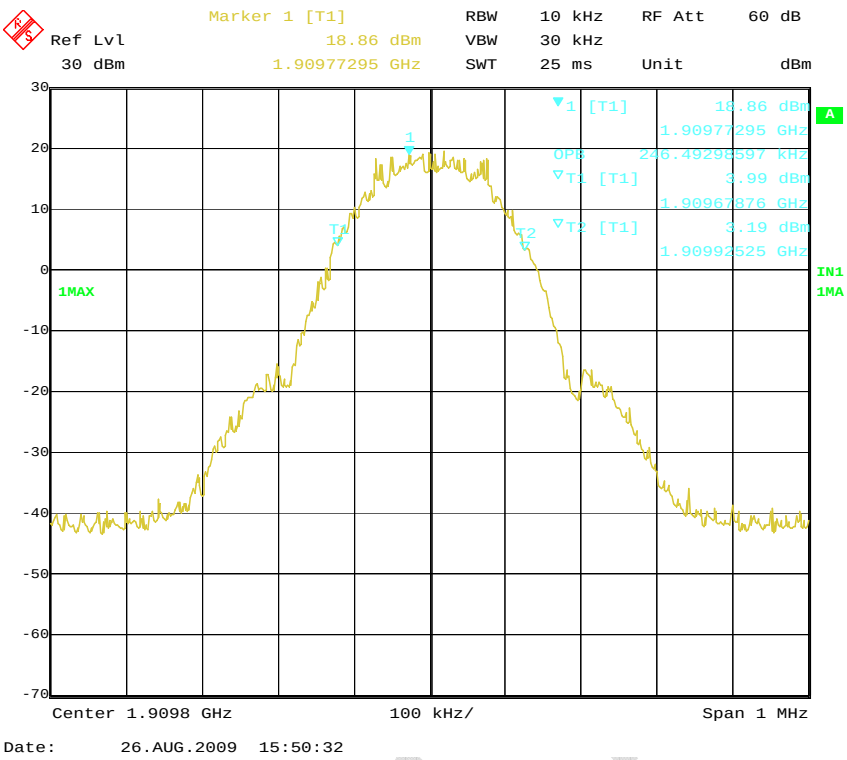
Graphical results for GSM mode:



Channel 512



Channel 661

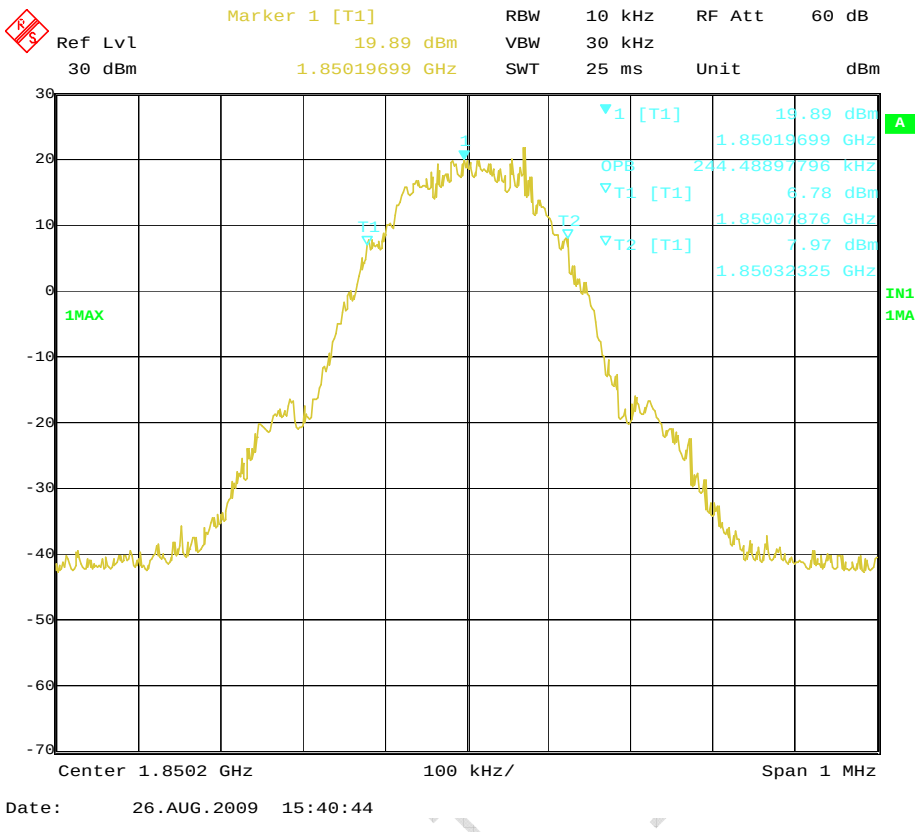


Channel 810

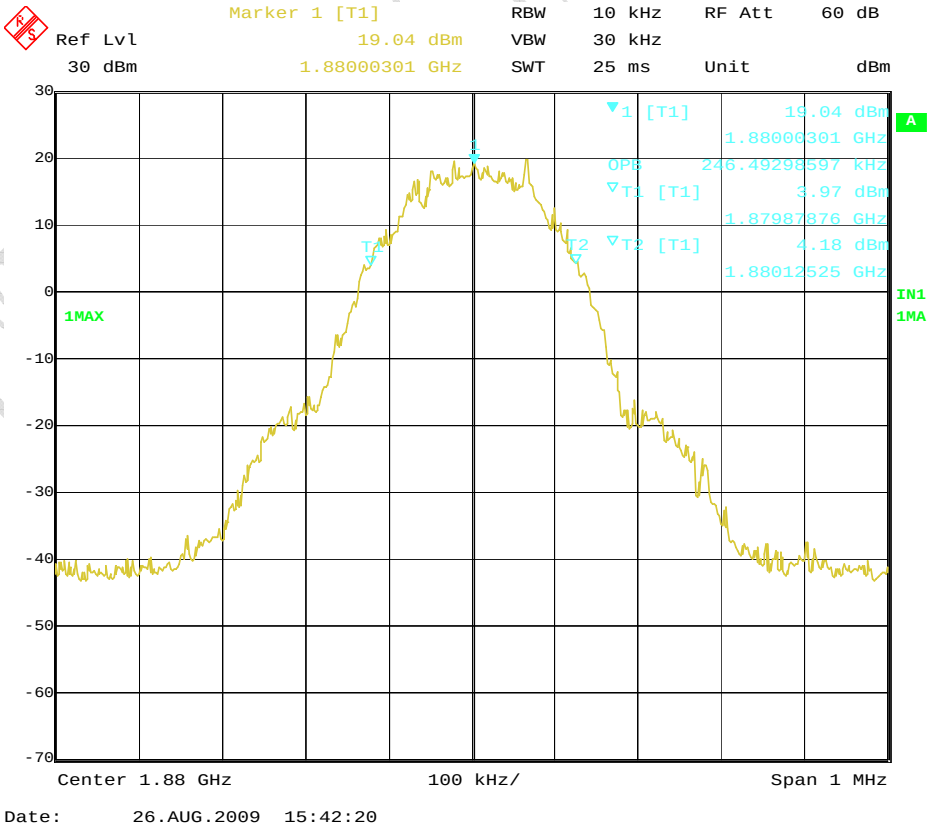
Results data of GPRS mode:

EUT channel	99% occupied bandwidth [kHz]
512	244
661	246
810	244

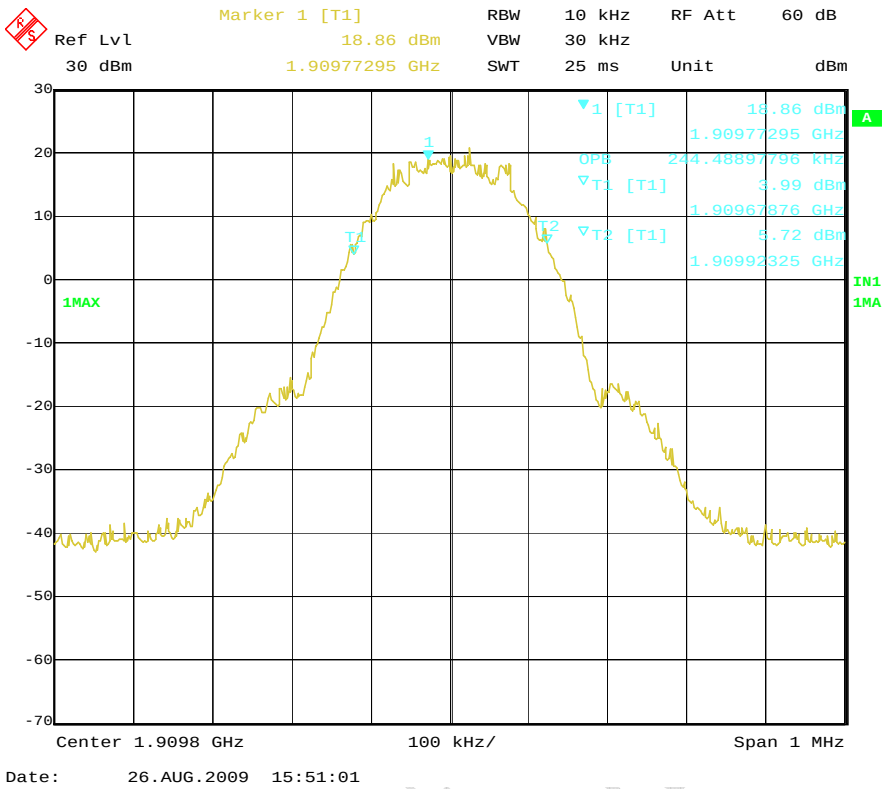
Graphical results for GPRS mode:



Channel 512



Channel 661

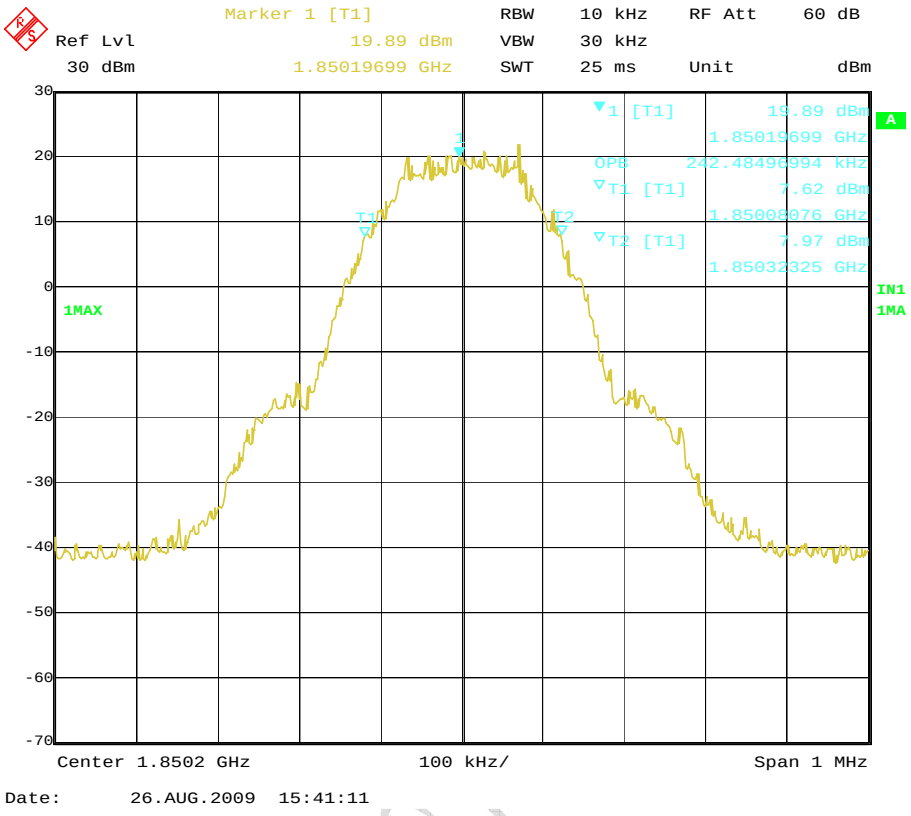


Channel 810

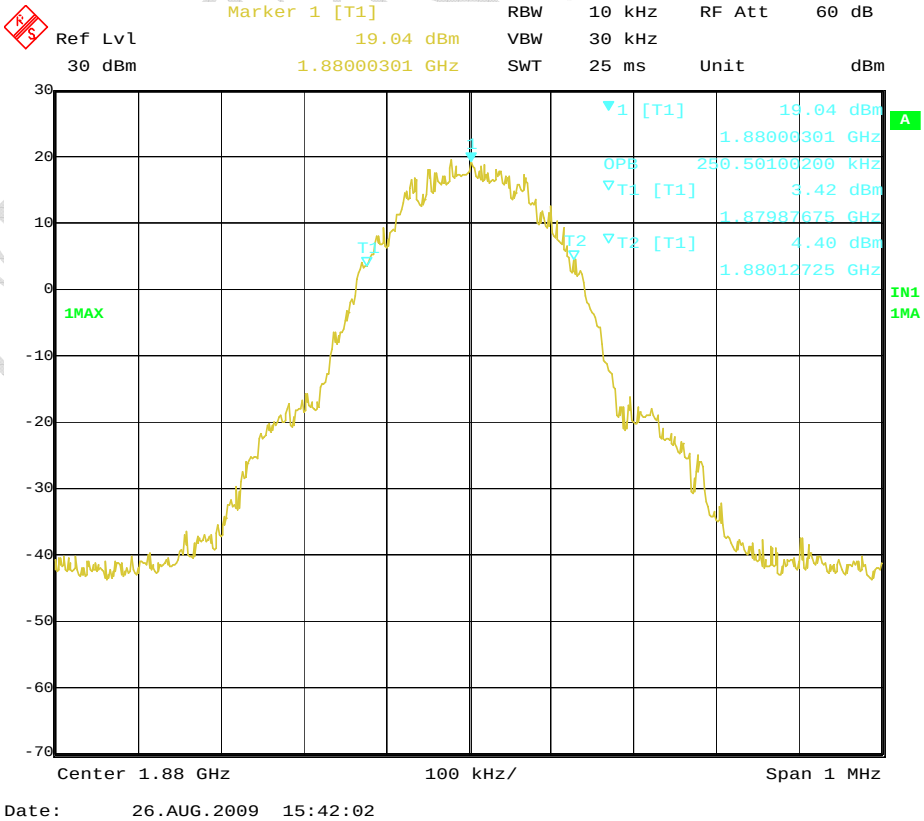
Results data of EGPRS mode:

EUT channel	99% occupied bandwidth [kHz]
512	242
661	250
810	242

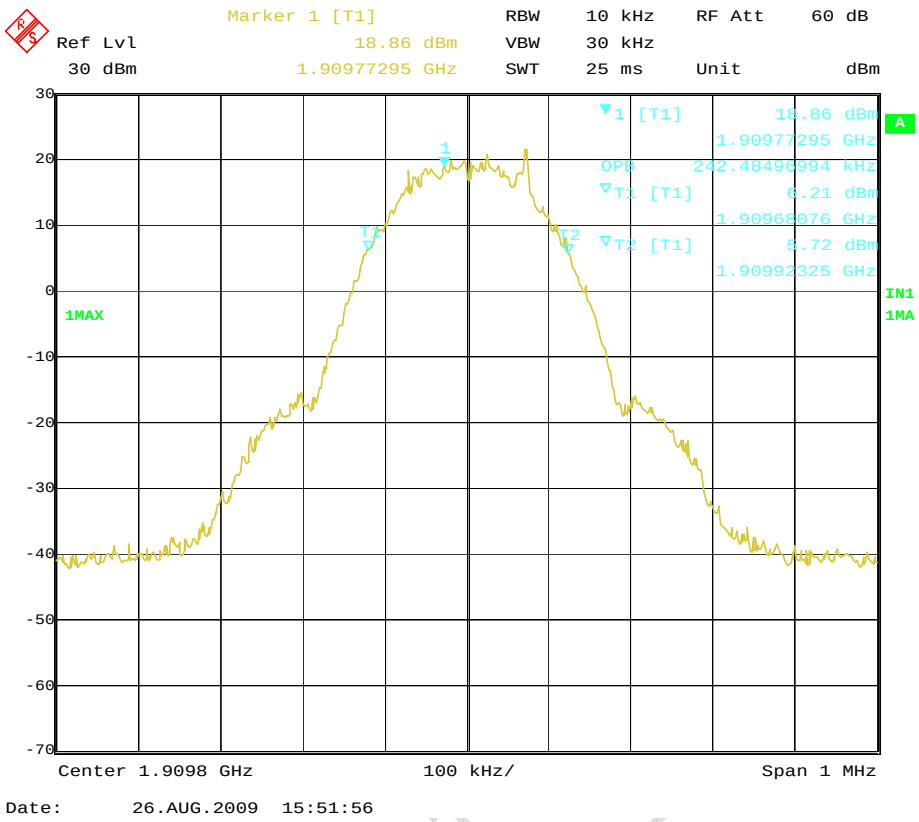
Graphical results for EGPRS mode:



Channel 512



Channel 661


Marker 1 [T1]
Ref Lvl
30 dBm
18.86 dBm
1.90977295 GHz
RBW 10 kHz
VBW 30 kHz
SWT 25 ms
RF Att 60 dB
Unit dBm
1 [T1] 18.86 dBm
1.90977295 GHz
OPB 242.48496994 kHz
T1 [T1] 6.21 dBm
1.90968076 GHz
T2 [T1] 5.72 dBm
1.90992325 GHz
A
IN1
1MA
1MAX
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
Center 1.9098 GHz
100 kHz/
Span 1 MHz
Date: 26.AUG.2009 15:51:56

Channel 810

4.4 Frequency Stability over Temperature Variation

Specifications:	2.1055,22.355,24.235
Date of Test	2009-8-27
Test conditions:	Ambient Temperature:-30℃-50℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Operation Mode	TX on, channel 661
Test Results:	Pass

Test equipment Used:

Asset Number	Description	Manufacturer	Model Number	Serial Number	Cal Due	State
023	Wireless Communications Test Set	Agilent	8960(E5515C)	GB41450323	2010-06-09	Normal
561	Temperature Chamber	Terchy Environmental Technology LTD.	MHU-800SR	84121202	2011-01-06	Normal
111835	Wireless Communications 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.

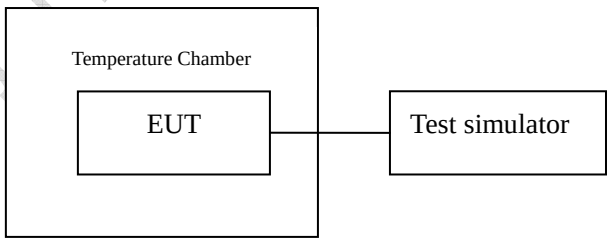


Figure T: setup for measurement of frequency stability over temperature variation

Test Method

1. The EUT was turned off and placed in the temperature chamber.
2. The temperature of the chamber was set to -30℃ 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℃, -10℃, 0℃, 10℃, 20℃, 30℃, 40℃ and 50℃.

Test results data for GSM mode:

Channel 661:

Temperature[℃]	Deviation[Hz]	Deviation[ppm]	Remarks
-30	-49	-0.02606	Pass
-20	-50	-0.02660	Pass
-10	-31	-0.01649	Pass
0	-26	-0.01383	Pass
10	-15	-0.00798	Pass
20	-40	-0.02128	Pass
30	-51	-0.02713	Pass
40	-10	-0.00532	Pass
50	-9	-0.00479	Pass

Test results data for GPRS mode:

Channel 661:

Temperature[℃]	Deviation[Hz]	Deviation[ppm]	Remarks
-30	-41	-0.02181	Pass
-20	-30	-0.01596	Pass
-10	-35	-0.01862	Pass
0	-20	-0.01064	Pass
10	-5	-0.00266	Pass
20	-11	-0.00585	Pass
30	-20	-0.01064	Pass
40	-8	-0.00426	Pass
50	-21	-0.01117	Pass

Test results data for EGPRS mode:

Channel 661:

Temperature[℃]	Deviation[Hz]	Deviation[ppm]	Remarks
-30	-45	-0.02394	Pass
-20	-39	-0.02074	Pass
-10	-31	-0.01649	Pass
0	-9	-0.00479	Pass
10	-17	-0.00904	Pass
20	-22	-0.01170	Pass
30	-20	-0.01064	Pass
40	-15	-0.00798	Pass
50	-18	-0.00957	Pass

4.5 Frequency Stability over Voltage Variation

Specifications:	2.1055,22.355,24.235
Date of Test	2009-8-27
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Operation Mode	TX on, channel 661
Test Results:	Pass

Test equipment Used:

Asset Number	Description	Manufacturer	Model Number	Serial Number	Cal Due	State
023	Wireless Communications Test Set	Agilent	8960(E5515C)	GB41450323	2010-06-09	Normal
111835	Wireless Communications 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.

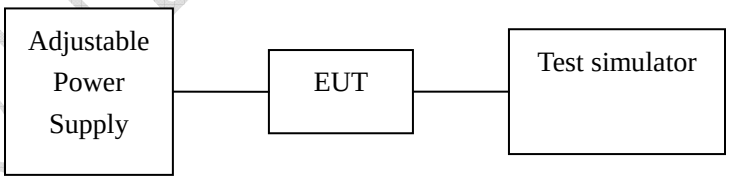


Figure V: test setup for measurement of frequency stability over voltage variation

Test Results data for GSM mode:

Channel 661:

Level	Voltage[V]	Deviation[Hz]	Deviation[ppm]	Remarks
Nominal	4.2	-26	-0.01383	Pass
Cut-off point	3.5	-35	-0.01862	Pass

Test Results data for GPRS mode:

Channel 661:

Level	Voltage[V]	Deviation[Hz]	Deviation[ppm]	Remarks
Nominal	4.2	-35	-0.01862	Pass
Cut-off point	3.5	-30	-0.01596	Pass

Test Results data for EGPRS mode:

Channel 661:

Level	Voltage[V]	Deviation[Hz]	Deviation[ppm]	Remarks
Nominal	4.2	-27	-0.01436	Pass
Cut-off point	3.5	-34	-0.01809	Pass

4.6 Conducted RF Power Output

Specifications:	2.1046,22.913(a),24.232(c)
Date of Tests	2009-8-26
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Operation Mode	TX on, channel 512, 661 and 810
Test Results:	Pass

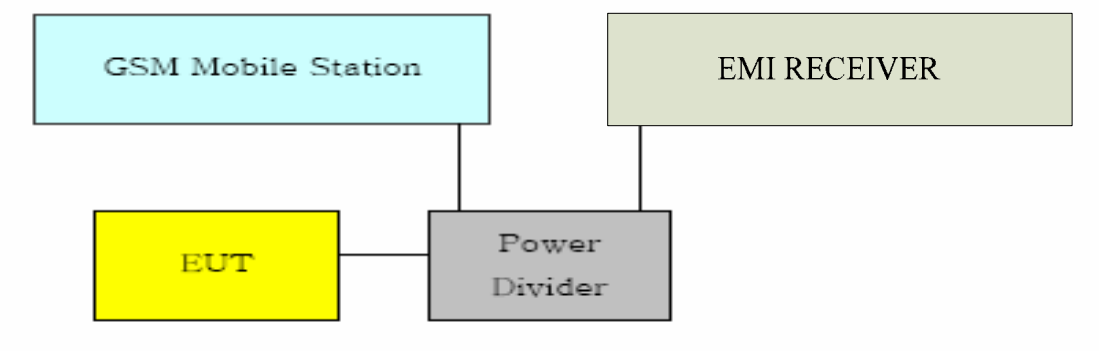
Test equipment Used:

Asset Number	Description	Manufacturer	Model Number	Serial Number	Cal Due	State
7805	EMI Test Receiver	R/S	ESI26	100211	2010-01-11	Normal
023	Wireless Communications Test Set	Agilent	8960(E5515C)	GB41450323	2010-06-09	Normal
---	Power spliter	Jie sai	---	1000132	2010-01-04	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 (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 lost 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:

EIRP Value for GSM 1900 band:

ARFCN	Peak output power [dBm]
512	28.97
661	29.60
810	29.70

Test Results for GPRS mode:

EIRP Value for GPRS 1900 band:

ARFCN	Peak output power [dBm]
512	27.40
661	27.65
810	27.73

Test Results for EGPRS mode:

EIRP Value for EGPRS 1900 band:

ARFCN	Peak output power [dBm]
512	27.38
661	27.65
810	27.73

4.7 Conducted Spurious Emission

Specifications:	2.1051,22.917,24.238
Date of Tests	2009-8-26
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Operation Mode	TX on, channel 661
Test Results:	Pass

Test equipment Used:

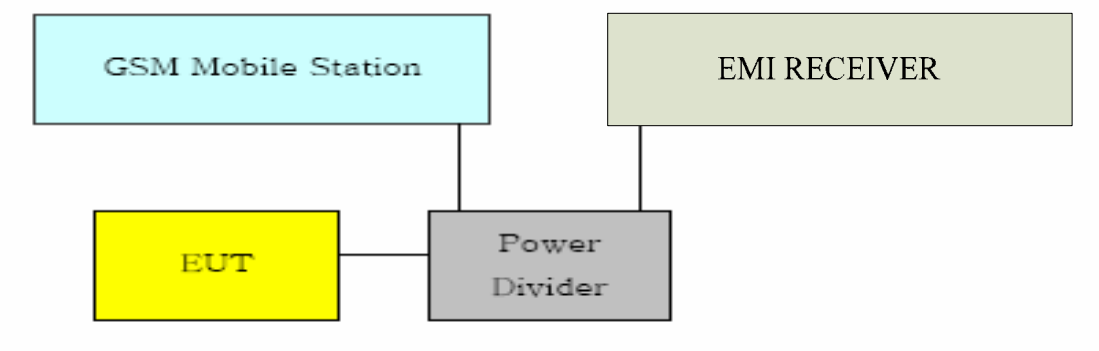
Asset Number	Description	Manufacturer	Model Number	Serial Number	Cal Due	State
7805	EMI Test Receiver	R/S	ESI26	100211	2010-01-11	Normal
023	Wireless Communications Test Set	Agilent	8960(E5515C)	GB41450323	2010-06-09	Normal
---	Power spliter	Jie sai	---	1000132	2010-01-04	Normal
111835	Wireless Communications 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(dBm) – (43 + 10 log(P)) dB= -13dBm

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.

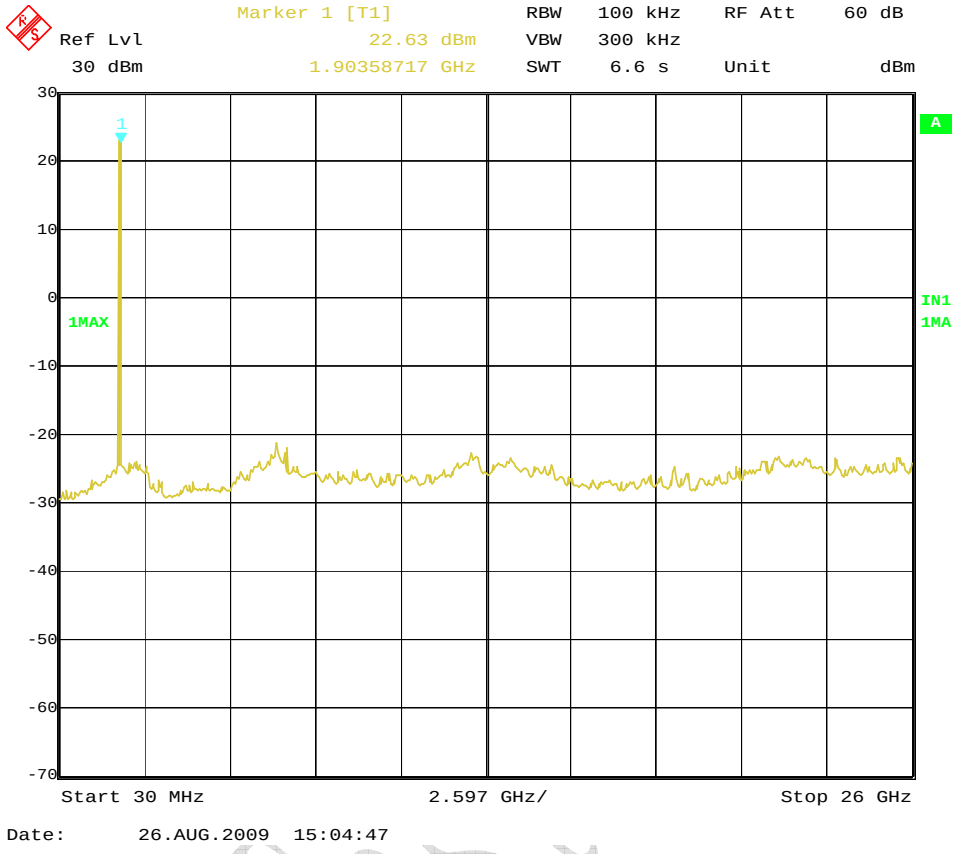
1. Determine frequency range for measurements: From CFR 2.1057 the spectrum should be investigated from the lowest radio frequency generated in the equipment up to at least the 10th harmonic of the carrier frequency. For the equipment under test, this equates to a frequency range of 30 MHz to 19.1 GHz, data taken from 30 MHz to 20 GHz.
2. Determine EUT transmit frequencies: below outlines the band edge frequencies pertinent to conducted emissions testing.

Note: --

Test Results for GSM mode:

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

Graphical results for GSM mode:

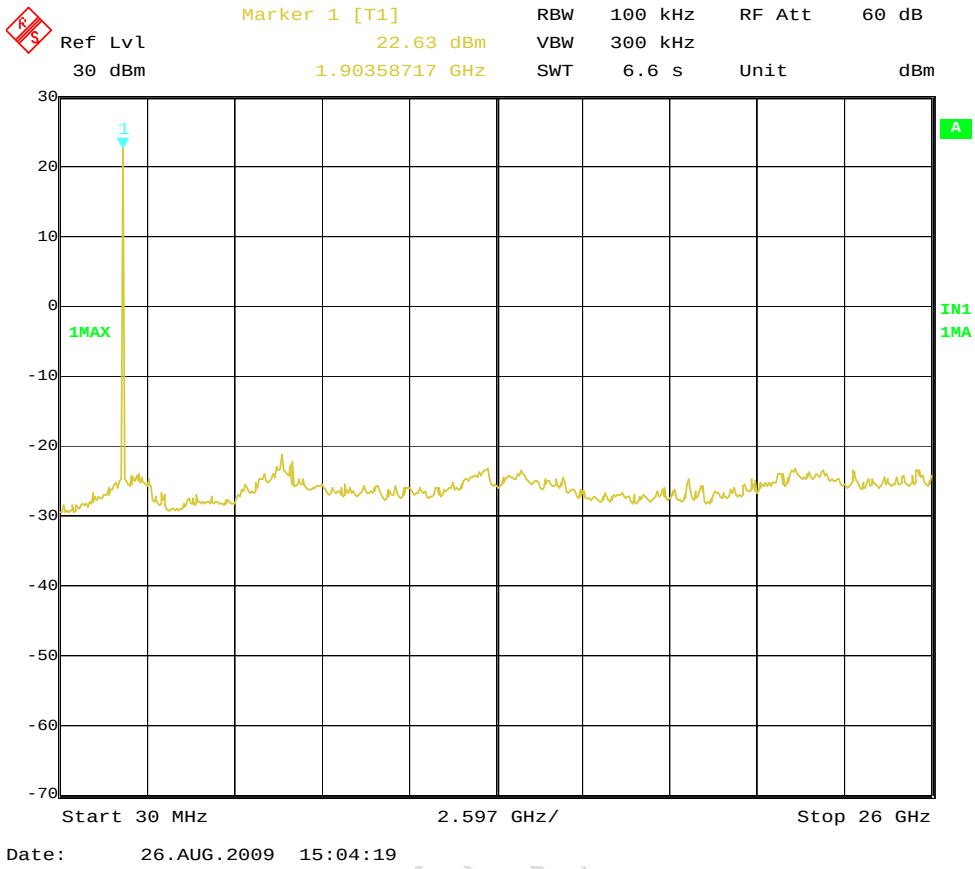


Channel 661

Test Results for GPRS mode:

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

Graphical results for GPRS mode:

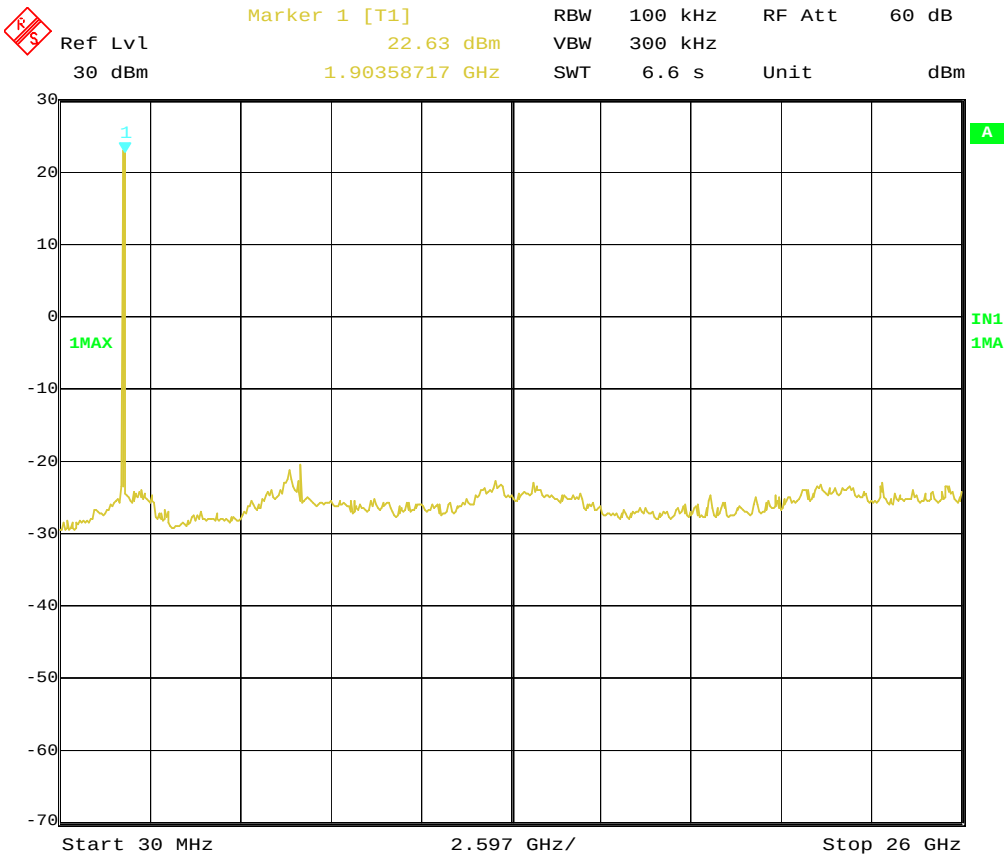


Channel 661

Test Results for GPRS mode:

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

Graphical results for GPRS mode:


Marker 1 [T1]
Ref Lvl
30 dBm
22.63 dBm
1.90358717 GHz
RBW 100 kHz
VBW 300 kHz
SWT 6.6 s
RF Att 60 dB
Unit dBm
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
1MAX
A
IN1
1MA
Start 30 MHz
2.597 GHz/
Stop 26 GHz
Date: 26.AUG.2009 15:06:48

Channel 661

4.8 Band Edge

Specifications:	2.1051, 24.238, 2.1053, 22.917
Date of Tests	2009-8-28
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Operation Mode	TX on, channel 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	2010-01-11	Normal
023	Wireless Communications Test Set	Agilent	8960(E5515C)	GB41450323	2010-06-09	Normal
---	Power spliter	Jie sai	---	1000132	2010-01-04	Normal
111835	Wireless Communications Test Set	R&S	CMU200	1100000802	--	Normal

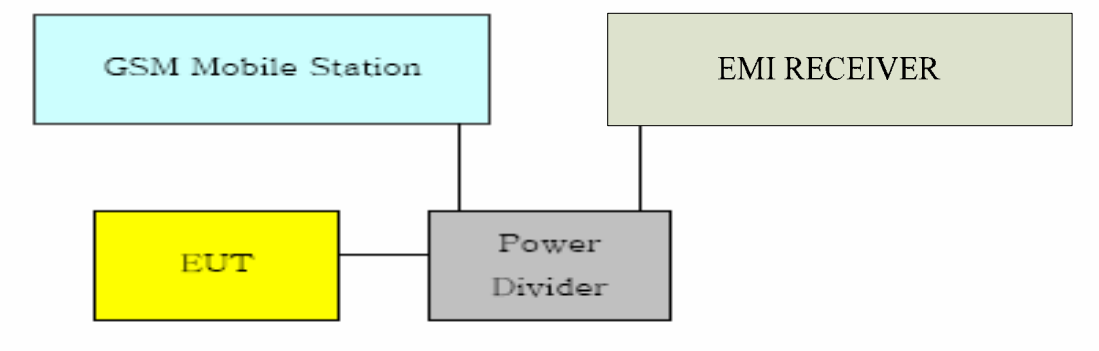
Limit Level Construction:
According to Part 24.238 (a), i.e., Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB, so the limit level is:
P(dBm) – (43 + 10 log(P))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

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 lost 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:

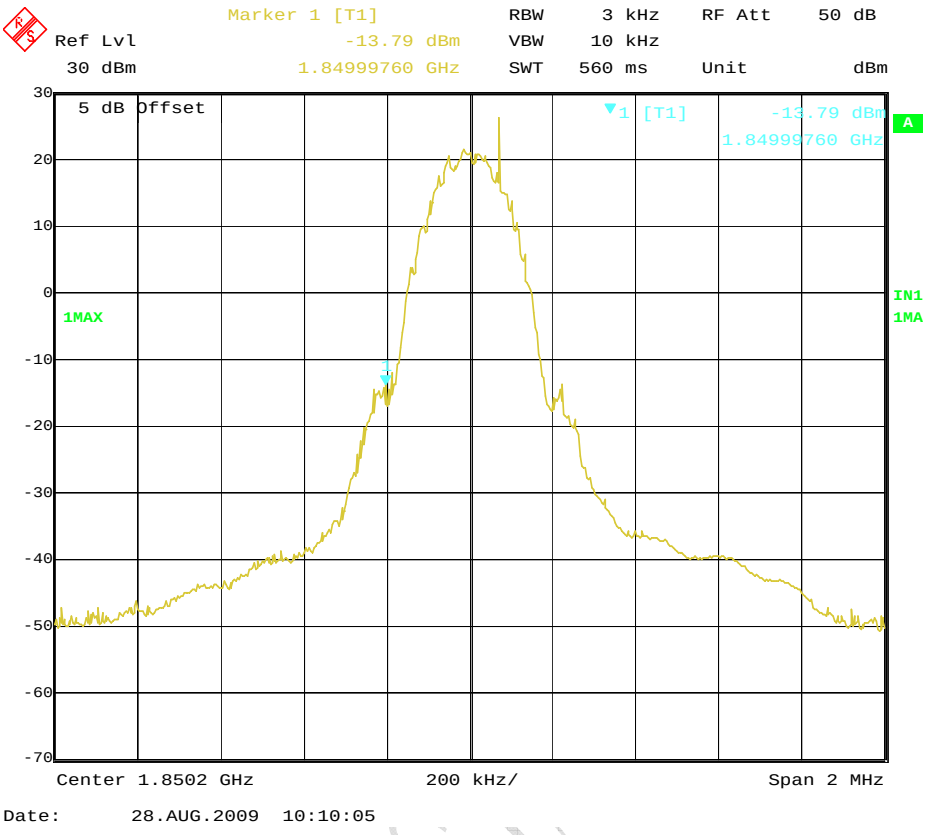
Band-edge emission		
EUT Channel	Frequency [MHz]	Level [dBm]
512 Left band edge	1849.976000	-13.79
810 Right band edge	1910.006410	-13.86

GPRS mode:

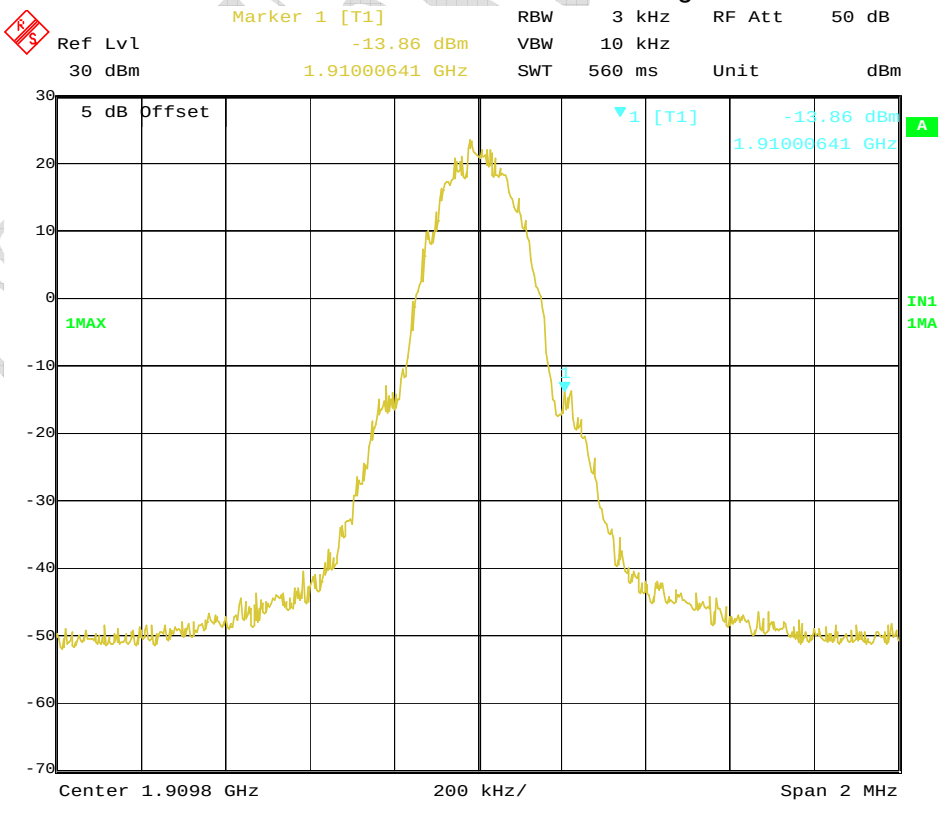
Band-edge emission		
EUT Channel	Frequency [MHz]	Level [dBm]
512 Left band edge	1849.981560	-15.49
810 Right band edge	1910.018440	-13.66

EGPRS mode:

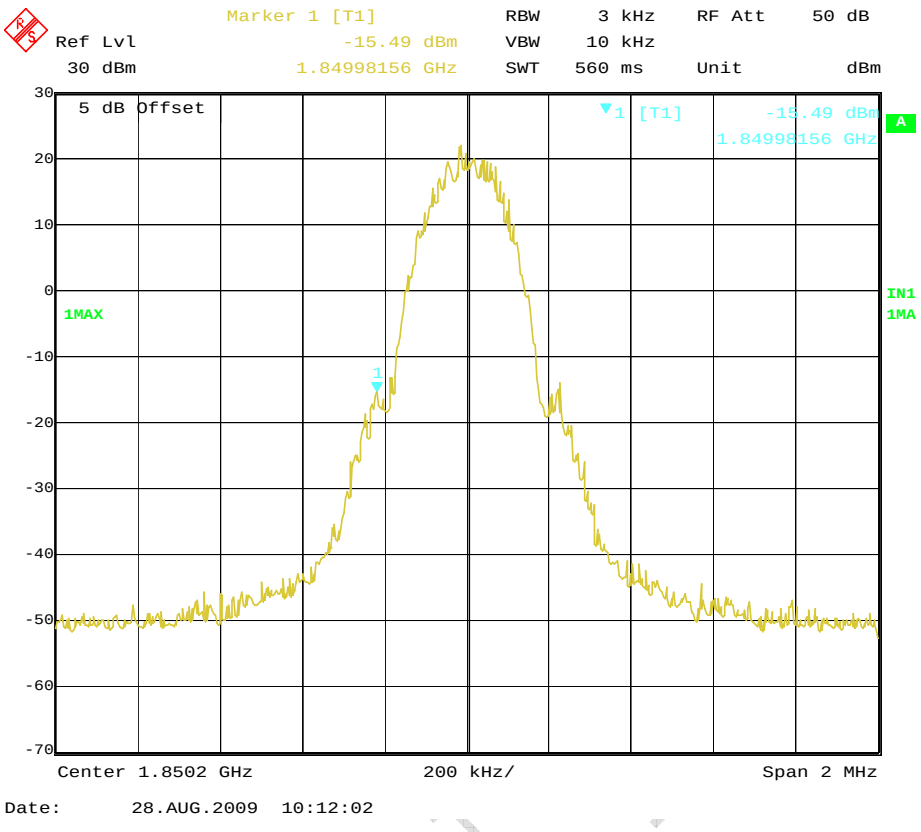
Band-edge emission		
EUT Channel	Frequency [MHz]	Level [dBm]
512 Left band edge	1849.981560	-15.24
810 Right band edge	1910.018440	-13.55



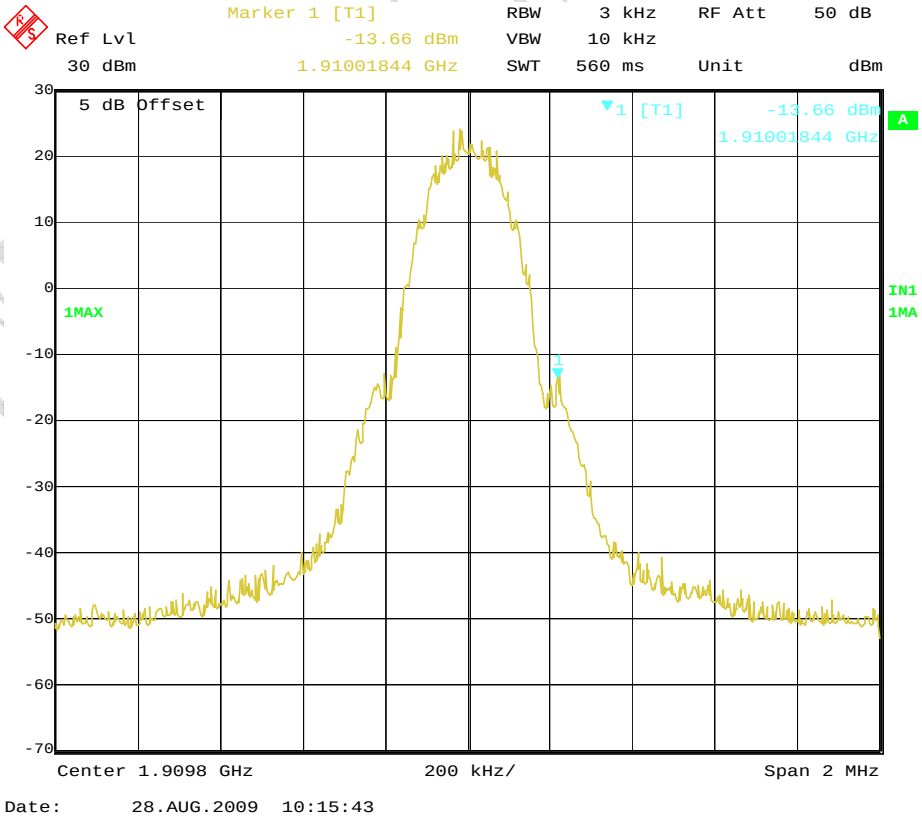
GSM channel 512 Left band edge



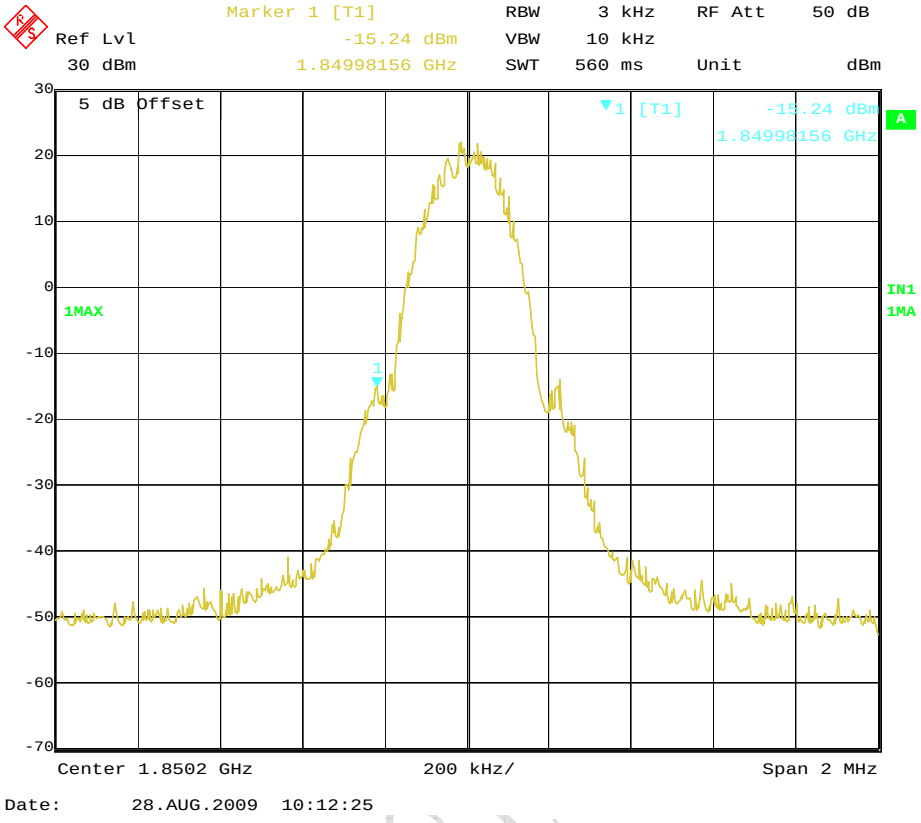
GSM channel 810 Right band edge



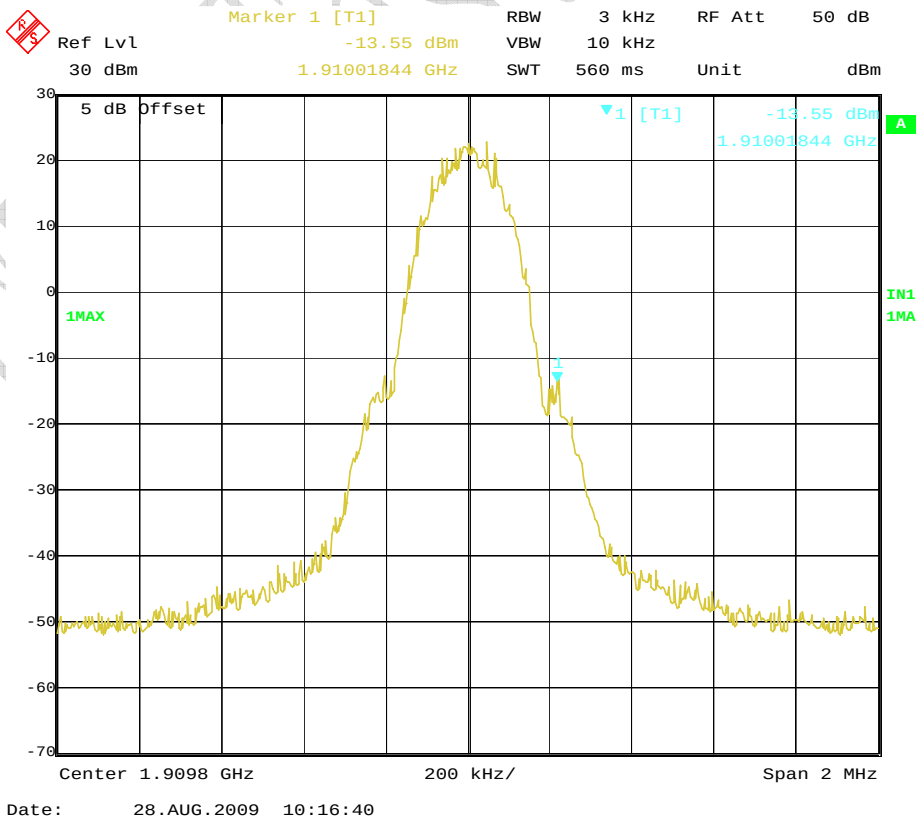
GPRS channel 512 Left band edge



GPRS channel 810 Right band edge



EGPRS channel 512 Left band edge



EGPRS channel 810 Right band edge

Annex A External Photos

Face view

Back view

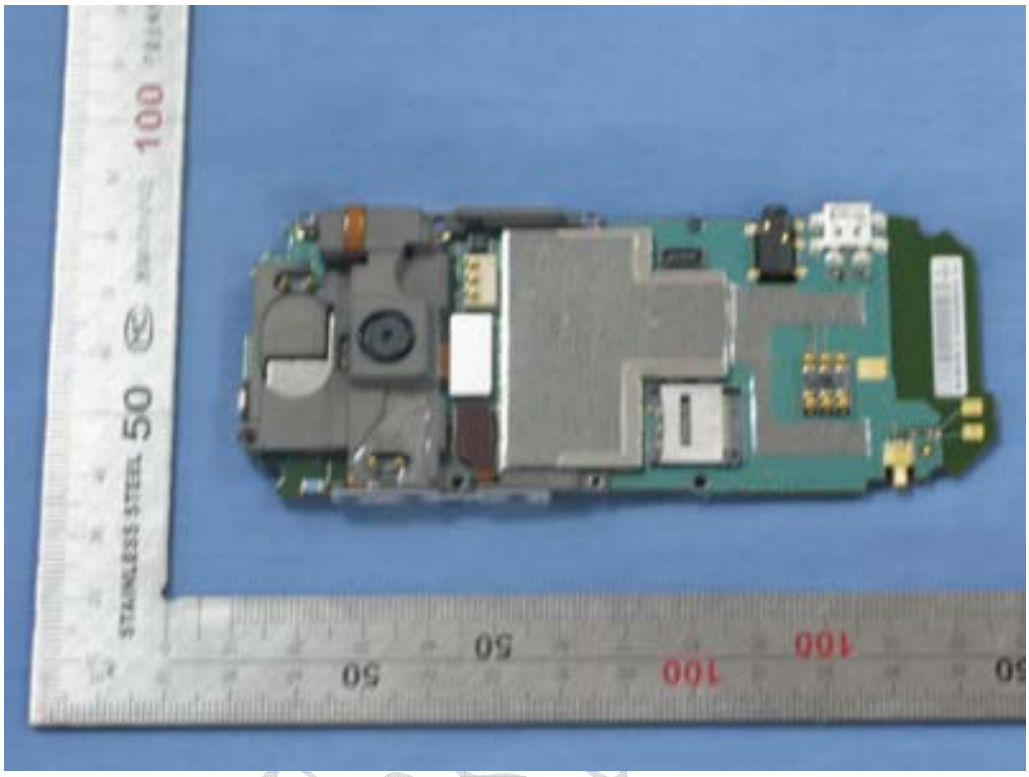
Battery

Adapter

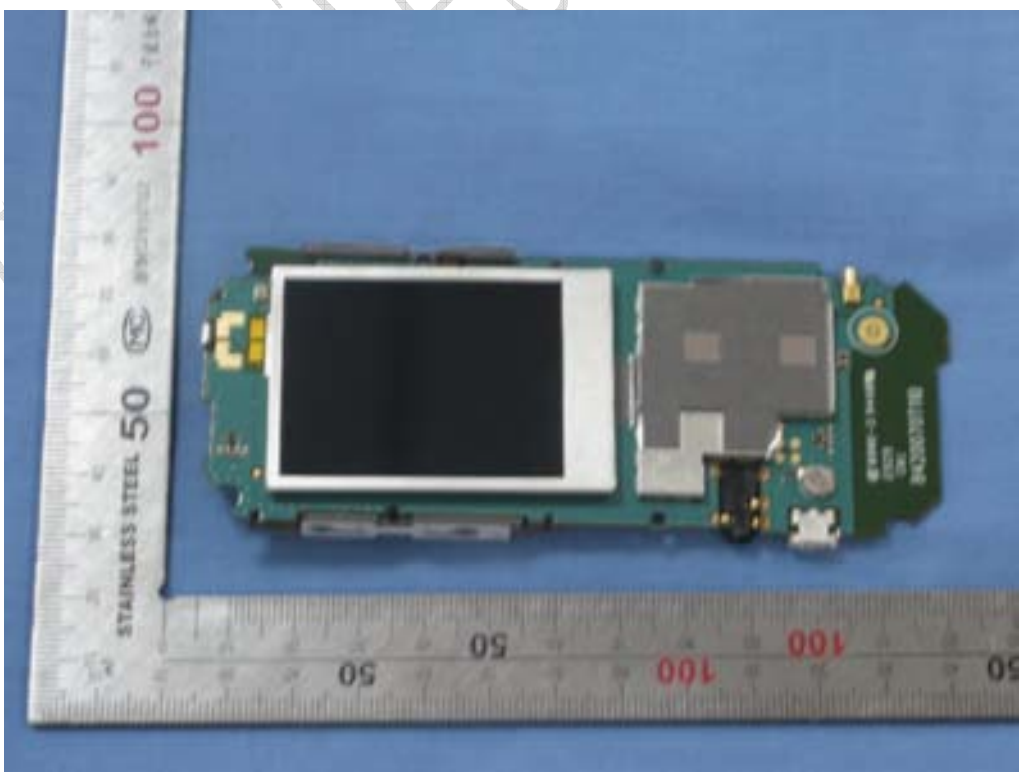
Earphone

vehicular charger

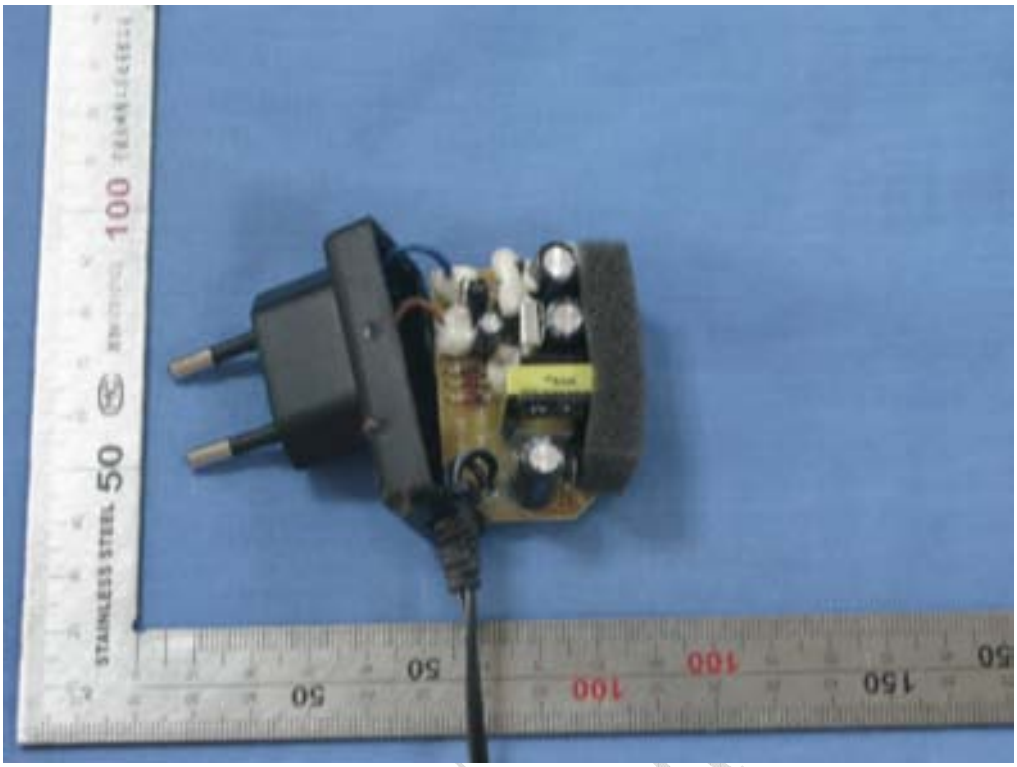
Annex B Internal Photos



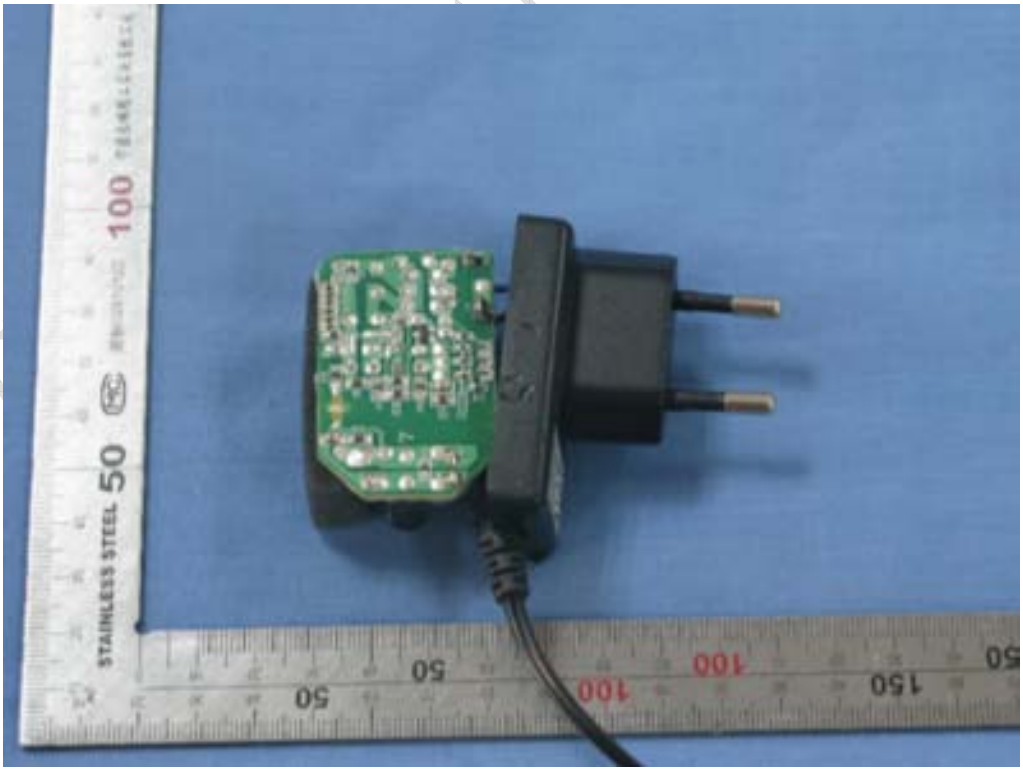
Main board (face)



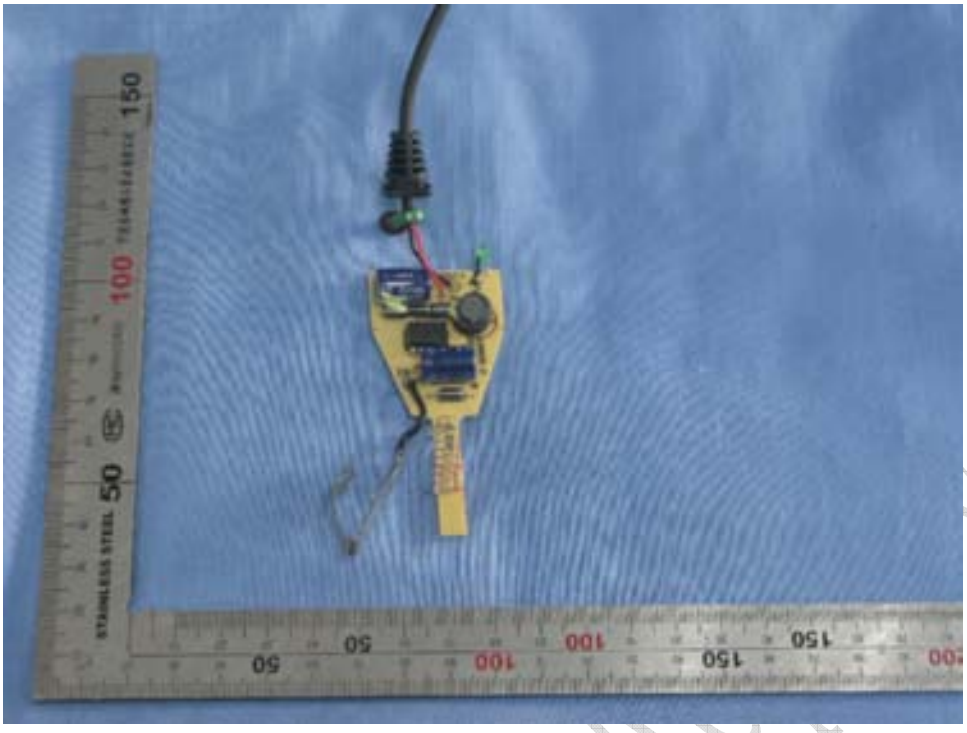
Main board (back)



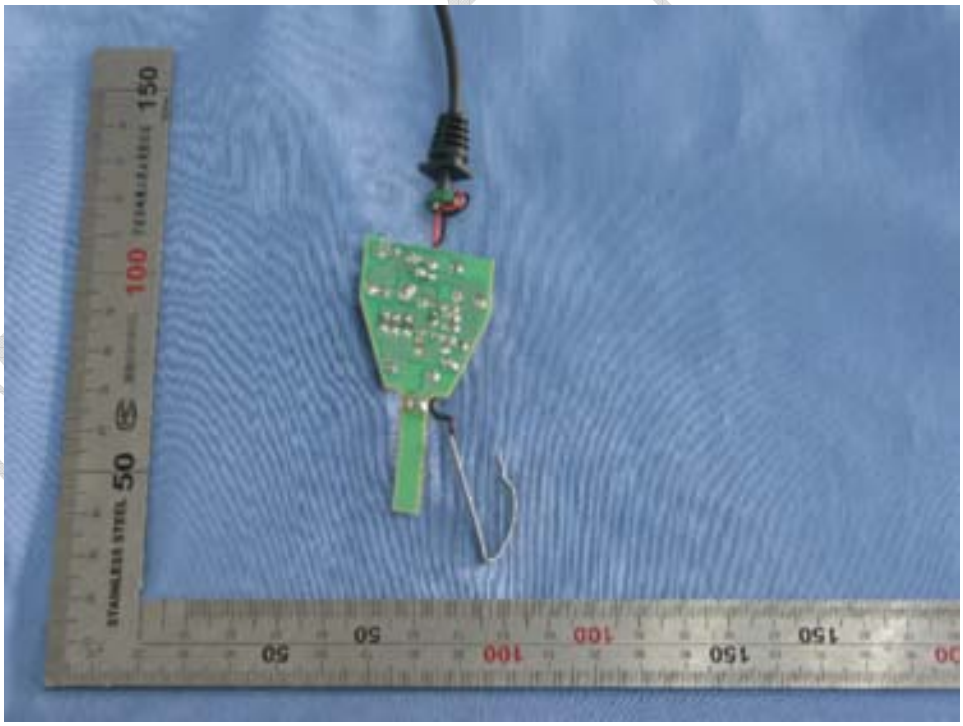
Mainboard of Adapter (face)



Mainboard of Adapter (inverse)



Mainboard of vehicular charger (face)



Mainboard of vehicular charger (inverse)

ANNEX C Deviations from Prescribed Test Methods

No deviation from Prescribed Test Methods.

The End of this Report