
REPORT ON

FCC CFR 47: Part 22 Testing
of the SAGEM Communication MC2006a

COMMERCIAL-IN-CONFIDENCE

FCC ID: M9HMC06A

Doc Number 75900916 Report 01 Issue 1

March 2007



Product Service





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REPORT ON

FCC CFR 47: Part 22 Testing of the SAGEM Communication MC2006a

Doc Number 75900916 Report 01 Issue 1

FCC ID: M9HMC06A

March 2007

PREPARED FOR

SAGEM Communication (SAFRAN Group)
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95801 Cergy Pontoise Cedex
France

PREPARED BY


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APPROVED BY


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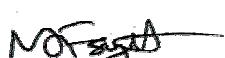
DATED

21st March 2007

ENGINEERING STATEMENT

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

Test Engineers;


N Forsyth


P Harrison





Product Service

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SECTION 1

REPORT SUMMARY

FCC CFR 47: Part 22 testing of the SAGEM Communication MC2006a



Product Service

1.1 STATUS

Equipment Under Test	MC2006a
Objective	To undertake measurements to determine the Equipment Under Test's (EUT's) compliance with the specification.
Name and Address of Client	SAGEM Communication (SAFRAN Group) 2, rue du Petit Albi – BP 28250 95801 Cergy Pontoise Cedex France
Type	Mobile Station
Part Number(s)	MC2006a
Serial Number(s)	IMEI 01119300000099-2 (conducted tests) IMEI 01119300000001-8 (radiated tests)
Hardware Version	V0x
Software Version	L 5,8G
Declared Variants	None
Test Specification/Issue/Date	FCC CFR 47: Part 22, Subpart H: 2005
Number of Items Tested	Two
Security Classification of EUT	Commercial-in-Confidence
Incoming Release Date	Application Form 12 th March 2007
Disposal	Held pending disposal
Reference Number	Not Applicable
Date	Not Applicable
Order Number	113644
Date	8 th March 2007
Start of Test	15 th March 2007
Finish of Test	19 th March 2007
Related Documents	ANSI C63.4: 2001



Product Service

1.2 INTRODUCTION

The information contained within this report is intended to show limited verification of compliance of the SAGEM Communication MC2006a to the requirements of FCC Specification Part 22

Testing has been performed under the following site accreditations

FCC Accreditation
90987 Octagon House, Fareham Test Laboratory



Product Service

1.3 BRIEF SUMMARY OF RESULTS

FCC CFR 47: Part 22, Subpart H

Section	Spec Clause	Test Description	Result	Comments
	FCC			
2.1	Part 2.1046, Part 22.913 (a)	Effective Radiated Power – Conducted	Pass	
2.2	Part 2.1046 Part 22.913 (a)	Effective Radiated Power –Radiated	Pass	
2.3	Part 2.1047(d)	Modulation Characteristics	Pass	
2.4	Part 2.1049, Part 22.917 (b)	Occupied Bandwidth	Pass	
2.5	Part 2.1051, Part 22.905 Part 22.917	Spurious Emissions at Antenna Terminals (+/- 1MHz)	Pass	
2.6	Part 2.1053, Part 22.917	Radiated Spurious Emissions	Pass	
2.7	Part 2.1051, Part 22.917(a)	Conducted Spurious Emissions	Pass	
2.8	Part 2.1055, Part 22.355	Frequency Stability Under Temperature Variations	Pass	
2.9	Part 2.1055, Part 22.355	Frequency Stability Under Voltage Variations	Pass	



Product Service

1.4 APPLICATION FORM

Lab. ref number (if known):	Lab. Contact Person:
-----------------------------	----------------------

In order to cater our services to your requirements, please complete this form as fully as possible.

Product and Company Information

Company Details

Company Name ¹	SAGEM Communication		
Company Address ¹	2, rue du Petit Albi BP 28250 95801 CERGY PONTOISE Cedex		
Contact Name ¹	Mr. Jean MARQUET		
Contact Telephone	+33 1 58 11 91 72	Contact Email	Jean.marquet@sagem.com

Note 1: Company Name, address and contact name will be referenced in the report as the "issued to" information. If another name is to be used in report please add to this document.

Product Information

Brand Name	SAGEM		
Type Name/Number	MC2006a		
Marketing Name	myC5-3a		

Initial Software Version: L 5,8G	Initial Hardware Version: V0x
FCC ID : M9HMC06A	

Release Version :

<input checked="" type="checkbox"/> GSM R97-98	<input type="checkbox"/> GSM R99	<input type="checkbox"/> GSM Rel-4
<input checked="" type="checkbox"/> AMR R98	<input type="checkbox"/> AMR R99	
<input type="checkbox"/> WCDMA R99	<input type="checkbox"/> WCDMA R5	

Please complete PICS/PIXIT and/or Option table information.



Product Service

1.4 APPLICATION FORM

Testing requirements

Please complete this section to ensure all compliance routes are followed, both regulatory and voluntary, as required.

FCC Radio Testing according to:	<input checked="" type="checkbox"/> Complete Tests <input type="checkbox"/> Delta Tests:
<input checked="" type="checkbox"/> FCC part 22 only	<input type="checkbox"/> FCC part 15

Ancillary equipment to be combined with EUT
(e. g. additional charging unit, headset, cigar light adapter, etc.)

<input checked="" type="checkbox"/>	1. Travel adapter ¹⁾	Type: DA2-3102USWR		
		HW:	Reference :188644046	
<input checked="" type="checkbox"/>	Standard battery ²⁾	Type: SAKA-SN1		Reference :188973731
		Voltage	3,9V	mAh

MS basic functionality

Operating Voltages	Voltage	Voltages to be tested for Radiated Emissions.
Normal (Nominal)		3,9 V
High Voltage		3,9 V
Low Voltage		3,55 V

Applicable particularly for RF testing, test cases 12. *, 13. *, 14. * And 21.1

GPRS Support	
MS GPRS Multislot Class	Y/8
MS E-GPRS Multislot Class	N
Number of Multislot Uplink, e.g. 2 Uplink Slots	1
Test Loop Supported	A

List of samples

Indicate IMEIs of samples and SW reference

01119300000001-8 (radiated)	L 5,8G
01119300000099-2 (conducted)	L5,8G

TUV Product Service Limited formally certifies that the manufacturer's declaration as reproduced in this report is a true and accurate record of the original received from the applicant.



Product Service

1.5 PRODUCT INFORMATION

1.5.1 Technical Description

The Equipment Under Test (EUT) was a SAGEM Communication MC2006a mobile station.

1.5.2 Modes of Operation

Modes of operation of the EUT during testing were as given in section 1.4.3:

Applicable testing was carried out with the EUT transmitting at maximum power or receiving as detailed in section 1.4.3.

Maximum Output Powers and Classes were;

GSM (Class 4) GSM 850 = 32.0dBm

GPRS (Class 8) Class B operation

The EUT was tested in GSM mode only as the GPRS mode of operation supports only 1 timeslot as in GSM mode. Therefore, in RF terms there is no difference between the 2 modes of operation.

1.5.3 Test Configuration

Test Configuration – GSM 850 Mode

850MHz transmitting on the following channels and frequencies;

Bottom Channel 128: 824.20MHz

Middle Channel 189: 836.40MHz

Top Channel 251: 848.8MHz

850MHz receiving on the following channels and frequencies;

Middle Channel 189: 836.40MHz



Product Service

1.6 TEST CONDITIONS

The EUT was set-up simulating a typical user installation at the Test Laboratory, as listed in Section 1.2 and tested in accordance with the applicable specification.

For all conducted tests, excluding voltage variation tests, the SAGEM Communication MC2006a was operated using a fully charged 3.9 V battery.

For all radiated test the EUT was operated via the travel charger and powered from 115V, 60Hz AC supply.

1.7 DEVIATIONS FROM THE STANDARD

Not Applicable

1.8 MODIFICATION RECORD

Not Applicable



Product Service

SECTION 2

TEST RESULTS

FCC CFR 47: Part 22 of the SAGEM Communication MC2006a mobile station.



Product Service

2.1 EFFECTIVE RADIATED POWER (CONDUCTED)

2.1.1 Specification Reference

FCC CFR 47: Part 22 Subpart H, Section 22.913(a)

2.1.2 Equipment Under Test

MC2006a IMEI 01119300000099-2

2.1.3 Date of Test

15th March 2007

2.1.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.1.5 Test Procedure

Using a spectrum analyser and attenuator(s), the output power of the EUT was measured at the antenna terminals. The EUT supports GSM and GPRS. The device is a class 4 mobile. The carrier was modulated by normal GMSK modulation and measurements performed with TS 3 active.

The spectrum analyser RBW and VBW were set to 1MHz and the path loss measured and entered as a reference level offset.

2.1.6 Test Results

Maximum Power – GSM 850 Mode

Frequency MHz	Output Power dBm	Path Loss dB	Result dBm	Result W
824.20	16.26	16.77	33.03	2.01
836.40	16.22	16.70	32.92	1.96
848.80	16.21	16.97	33.18	2.08

Limit for FCC 22.913(a)	<7W
-------------------------	-----

Remarks

EUT complies with 22.913(a). The EUT does not exceed 7W at the measured frequencies.



Product Service

2.2 EFFECTIVE RADIATED POWER (RADIATED)

2.2.1 Specification Reference

FCC CFR 47: Part 22 Subpart H, Section 22.913(a)

2.2.2 Equipment Under Test

MC2006a IMEI 01119300000001-8

2.2.3 Date of Test

16th March 2007

2.2.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.2.5 Test Procedure

The Spectrum Analyser was tuned to the test frequency. The device Output Power setting was controlled as specified in the Product Information, Section 1.5 of this document. The device was then rotated through 360 degrees until the highest power level was observed in both horizontal and vertical polarisation. The device was then replaced with a substitution antenna, who's input signal the antenna was adjusted until the received level matched that of the previously detected emission.

2.2.6 Test Results

Maximum Power – GSM 850 Mode

Frequency MHz	Result dBm	Result mW
824.2	27.20	524.81
836.1	29.06	805.38
848.8	28.14	651.63

Limit for FCC 22.913(a)	<7W
-------------------------	-----

Remarks

EUT complies with 22.913(a). The EUT does not exceed 7W at the measured frequencies.



Product Service

2.3 MODULATION CHARACTERISTICS

2.3.1 Specification Reference

FCC CFR 47: Part 24 Subpart E, Section 2.1047(d)

2.3.2 Equipment Under Test

MC2006a IMEI 01119300000099-2

2.3.3 Date of Test

15th March 2007.

2.3.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.3.5 Test Procedure

Two views are shown for GSM modes of operation. One view shows the active slot(s) over a complete screen. The other view shows the active slot(s) over a complete frame.

2.3.6 Modulation Description

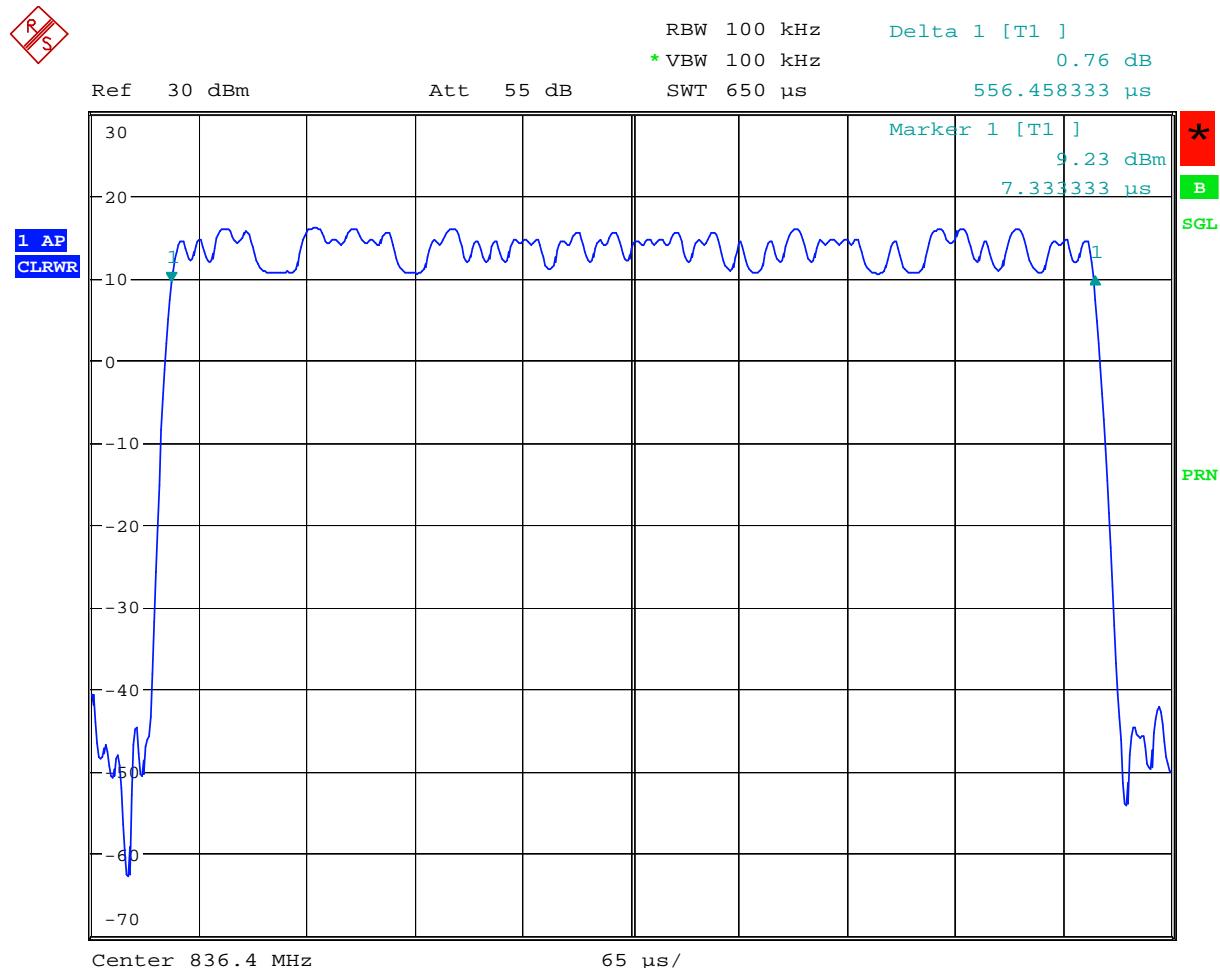
The GSM System uses the modulation system of 0.3 GMSK in a Time Division Duplex. The bandwidth is 200 kHz. The frame of the uplink and downlink if in a single slot is 4.6 ms long. There are 8 slots per frame, thus a burst length is 577 μ s, including transients.



Product Service

2.3 MODULATION CHARACTERISTICS

2.3.7 Test Results



Date: 15.MAR.2007 15:12:27

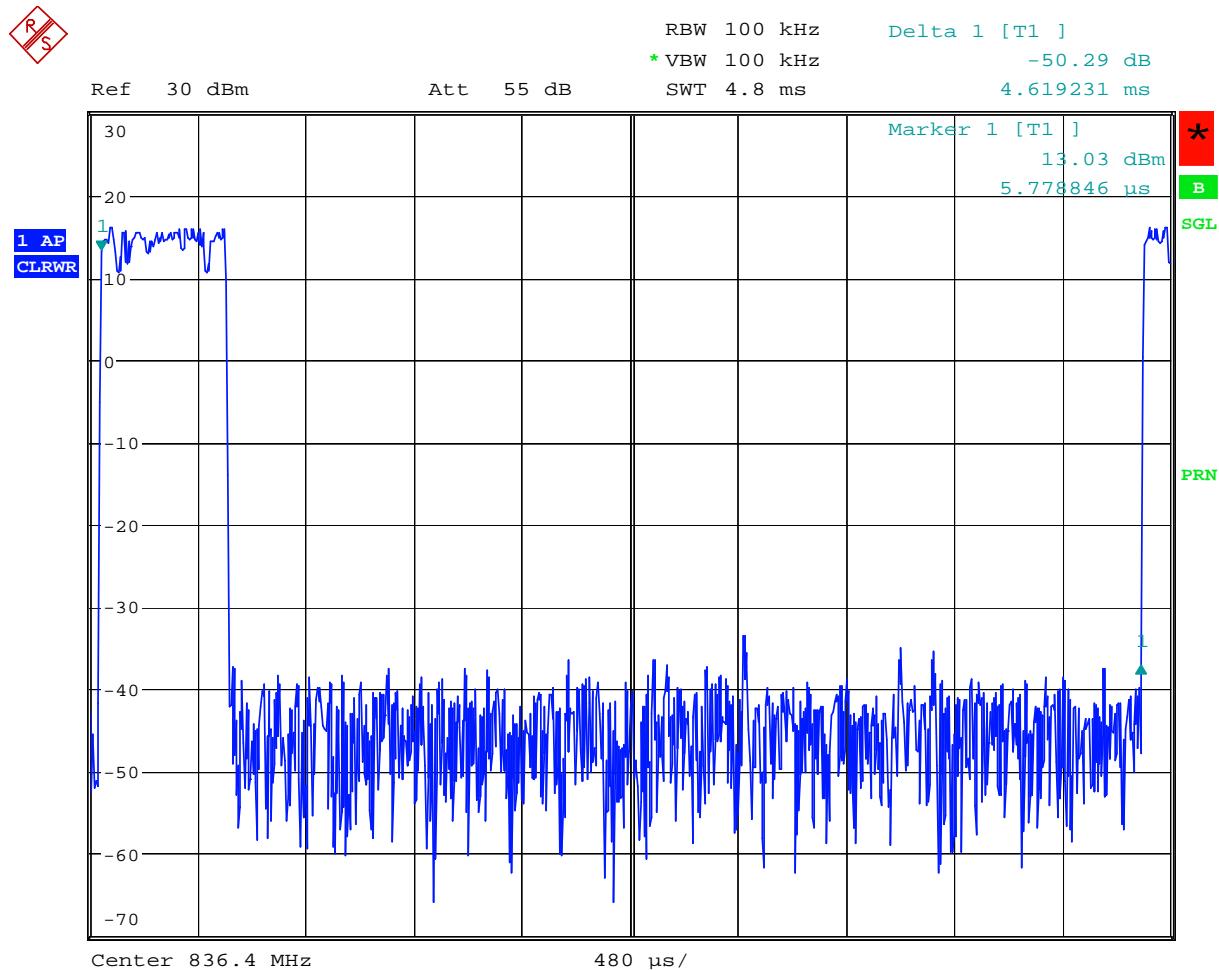
GSM Mode. View of TS 3



Product Service

2.3 MODULATION CHARACTERISTICS

2.3.7 Test Results



Date: 15.MAR.2007 15:16:07

GSM Mode. View of one complete frame showing TS 3



Product Service

2.4 OCCUPIED BANDWIDTH

2.4.1 Specification Reference

FCC CFR 47: Part 22 Subpart H, Section 2.1049(h), 22.917(b)

2.4.2 Equipment Under Test

MC2006a IMEI 01119300000099-2

2.4.3 Date of Test

15th March 2007

2.4.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.4.5 Test Procedure

The EUT was transmitting at maximum power. In GSM mode, TS 3 was active using a resolution bandwidth of 10 kHz and a video bandwidth of 30 kHz, the -26 dBc points were established and the emission bandwidth determined.

The plot below shows the resultant display from the spectrum analyser.

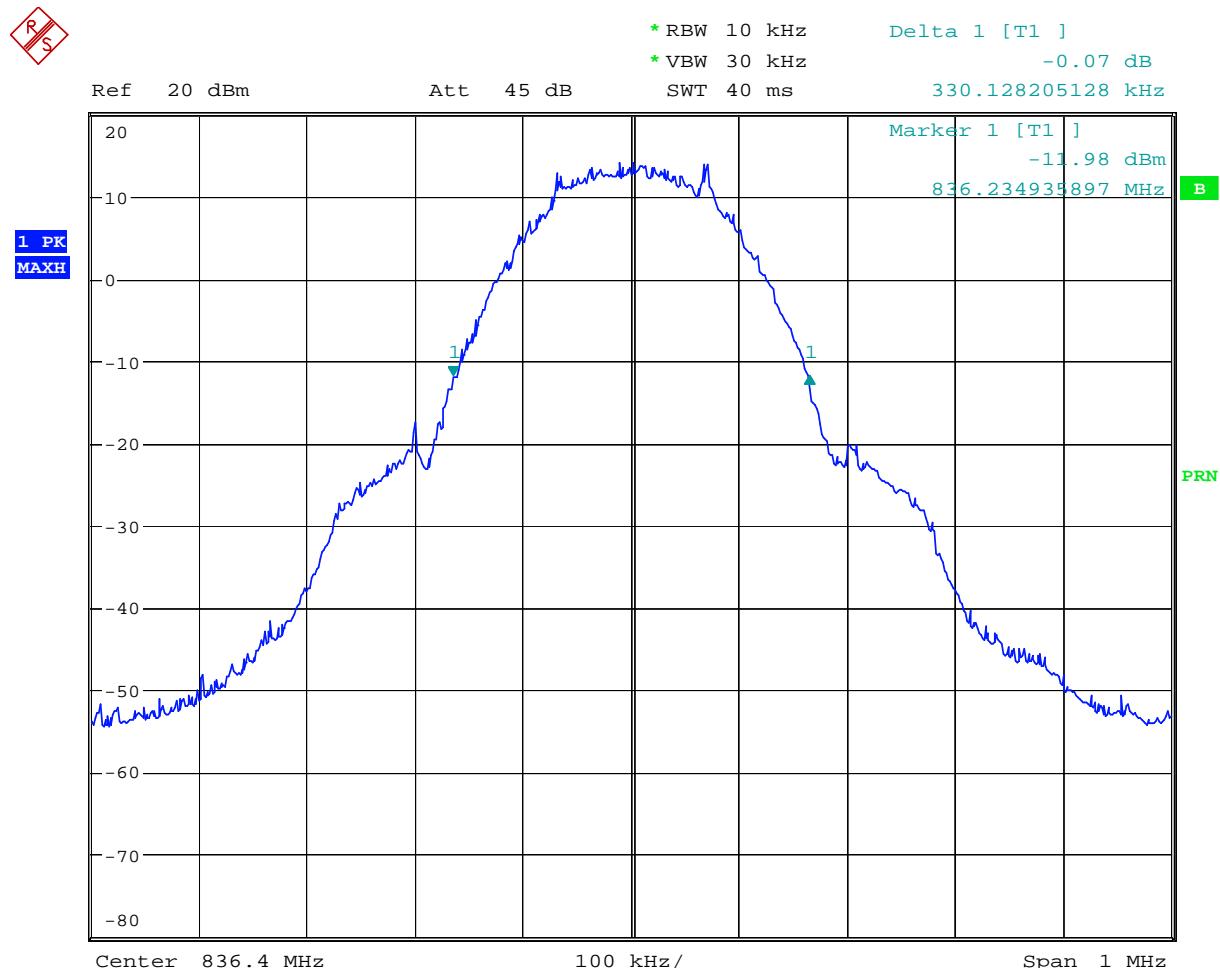


Product Service

2.4 OCCUPIED BANDWIDTH

2.4.6 Test Results

Occupied bandwidth as defined by the -26dBc points



Date: 15.MAR.2007 15:28:49

Maximum power – GSM 850



Product Service

2.5 SPURIOUS EMISSIONS AT ANTENNA TERMINALS (+/-1MHz)**2.5.1 Specification Reference**

FCC CFR 47: Part 22 Subpart H, Section 2.1051, 22.905, 22.917 and

2.5.2 Equipment Under Test

MC2006a IMEI 01119300000099-2

2.5.3 Date of Test

15th March 2007

2.5.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.5.5 Test Procedure

In accordance with 22.917(e), any emissions outside of the block edges shall be attenuated by at least $43 + 10 \log(P)$. The measurements are shown to ± 1 MHz from the block edges. The plots shown under the spurious emissions section covers the required range of 9 kHz to 9 GHz.

The reference power and path losses of all channels used for testing in each frequency block were measured. It was found that there was less than 0.2 dB variation across the frequency range tested, thus the worst case reference level offset was used throughout. Having entered the reference level offset, the limit line was displayed, showing the -13dBm , $(43+10\log P)$, limit.



Product Service

2.5 SPURIOUS EMISSIONS AT ANTENNA TERMINALS (+/-1MHz)

2.5.6 Test Results

Below are the frequency blocks the EUT was tested against along with the tested channels.

Measurements were made with the EUT in GSM 850 Mode.

Communication Channel Pair Blocks

Frequency Block MHz	Lower Block Edge Test Channels/Frequencies	Upper Block Edge Test Channels/Frequencies
A 824.0 – 835.0	Channel : 129 Frequency : 824.4MHz	-
B 846.5 – 849.0	-	Channel : 250 Frequency : 848.6MHz

The channels shown in the table above are the minimum and maximum channels that can be used in each block to maintain compliance. Channels used outside of those stated in the table exceed the specification limits, thus they cannot be used.

The channels outside of those shown in the table above were not tested at lower power levels to determine a level at which compliance would be achieved. Therefore, to maintain compliance, only the channels shown in the table above shall be used.

The measurement plots are shown on the following pages.

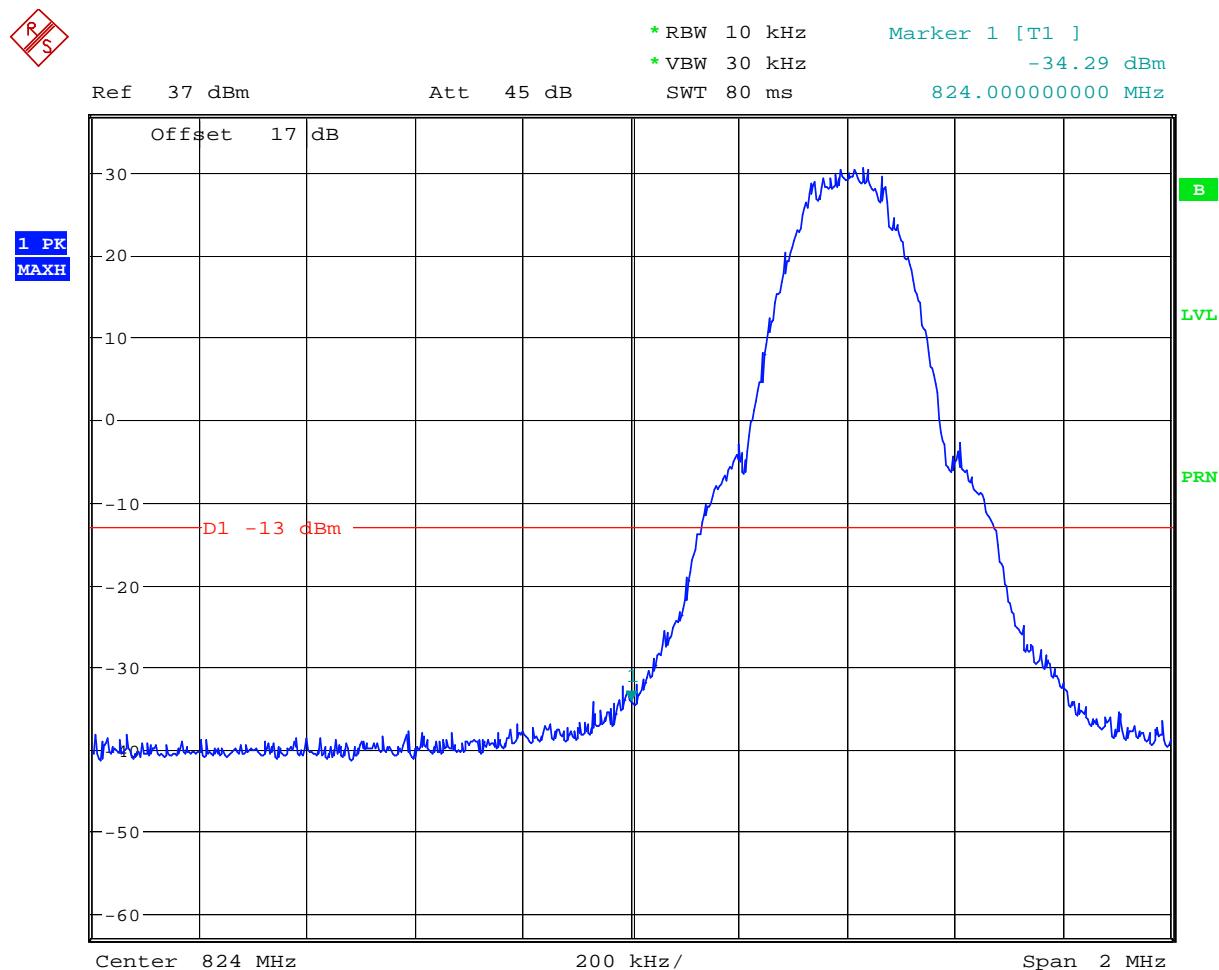


Product Service

2.5 SPURIOUS EMISSIONS AT ANTENNA TERMINALS (+/-1MHz)

2.5.6 Test Results - continued

Block edge measurement with EUT transmitting on full power on channel 129, (824.40MHz)



Date: 15.MAR.2007 15:48:44

Block A
GSM modulation
824.0 – 835.0MHz

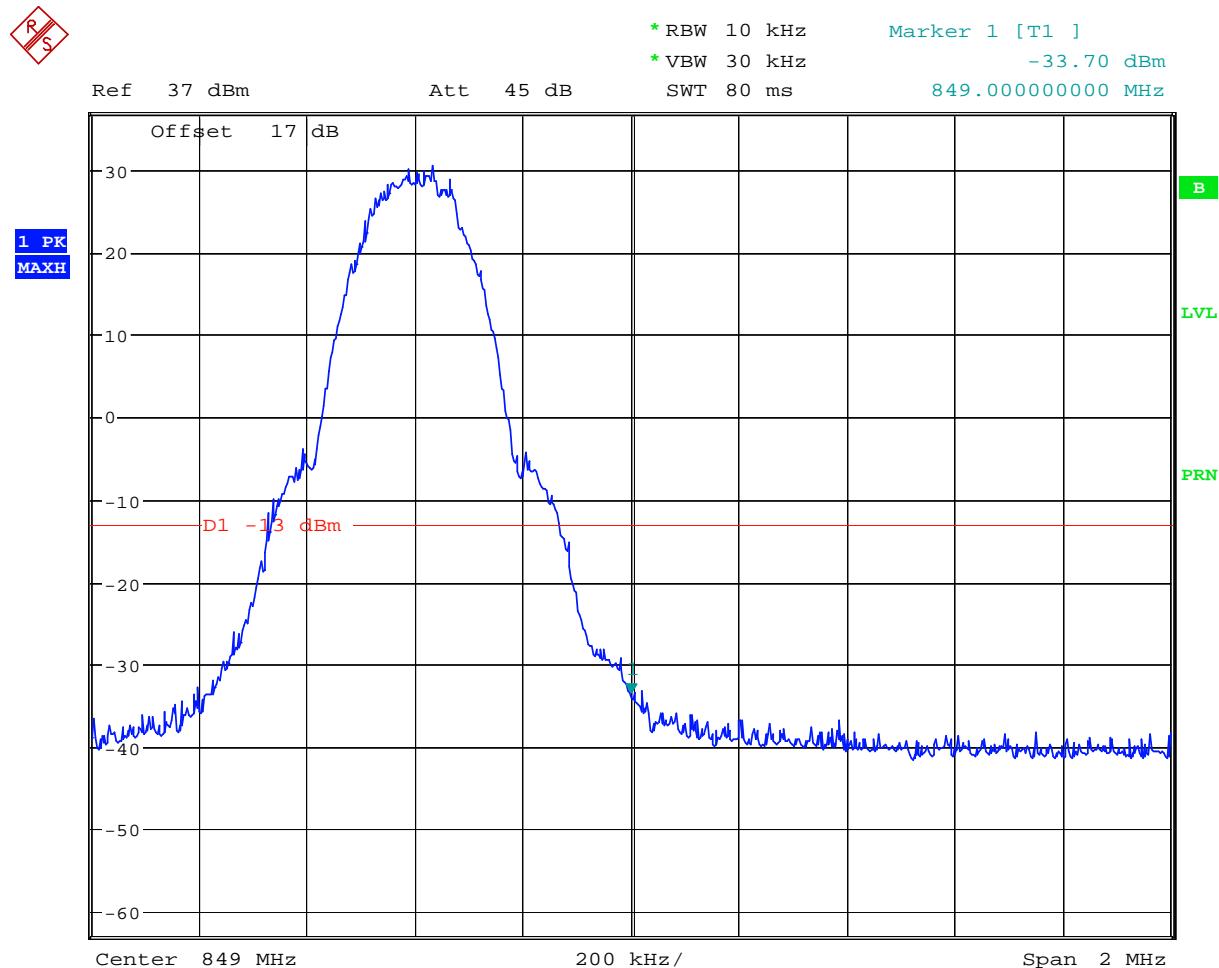


Product Service

2.5 SPURIOUS EMISSIONS AT ANTENNA TERMINALS (+/-1MHz)

2.5.6 Test Results - continued

Block edge measurement with EUT transmitting on full power on channel 250, (848.6MHz)



Date: 15.MAR.2007 15:50:02

Block B
GSM modulation
846.5 – 849.0MHz



Product Service

2.6 RADIATED SPURIOUS EMISSIONS

2.6.1 Equipment Reference

FCC CFR 47: Part 22 Subpart H, Sections 2.1053, 22.917

2.6.2 Equipment Under Test

MC2006a IMEI 01119300000001-8

2.6.3 Date of Test

16th March 2007

2.6.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.6.5 Test Procedure

Test Performed in accordance with ANSI C63.4.

In order to determine the radiated emission limits, measurements of transmitter power (P) were first carried out on the top, middle and bottom channels using a peak detector, and the results are shown in the following table.

A preliminary profile of the spurious radiated emissions was obtained by operating the EUT on a remotely controlled turntable within the Semi Anechoic Chamber. Measurements of emissions from the EUT were obtained with the measurement antenna in both horizontal and vertical polarisations.

The profiling produced a list of the worst-case emissions together with the EUT azimuth and antenna polarisation.

Using the information from the preliminary profiling of the EUT. The list of emissions was then confirmed or updated in the Semi Anechoic Chamber (3 metres). Emission levels were maximised by adjusting the antenna height, antenna polarisation and turntable azimuth.

Emissions identified within the range 30MHz – 1GHz were then formally measured using a peak detector.

Emissions identified within the range 1GHz – 9GHz were then formally measured using peak and average detectors, as appropriate.

The measurements were performed at a 3m distance unless otherwise stated.



Product Service

2.6 RADIATED SPURIOUS EMISSIONS

2.6.6 Test Results

30MHz – 1GHz Frequency Range

Equipment Designation: Intentional Radiator.

The EUT met the requirements of FCC CFR 47: Part 22, Subpart H 2.1049, 22.917 for Radiated Emissions (30MHz – 1GHz).

Measurements were made with the EUT in GSM 850 Mode.

EUT Transmitting on Bottom Channel (824.2MHz)

No emissions were detected with the exception of the carrier.

EUT Transmitting on Middle Channel (836.4MHz)

No emissions were detected with the exception of the carrier.

EUT Transmitting on Top Channel (848.8MHz)

No emissions were detected with the exception of the carrier.



Product Service

2.6 RADIATED SPURIOUS EMISSIONS

2.6.6 Test Results - continued

1GHz – 9GHz Frequency Range

Equipment Designation: Intentional Radiator.

The EUT met the requirements of FCC CFR 47: Part 22, Subpart H, 2.1053, 22.917 for Radiated Emissions (1GHz – 9GHz).

Measurements were made with the EUT in GSM 850 Mode

EUT Transmitting on Bottom Channel (824.2MHz)

No emissions were detected with the exception of the carrier.

EUT Transmitting on Middle Channel (836.4MHz)

No emissions were detected with the exception of the carrier.

EUT Transmitting on Top Channel (848.8MHz)

No emissions were detected with the exception of the carrier.



Product Service

2.7 CONDUCTED SPURIOUS EMISSIONS

2.7.1 Specification Reference

FCC CFR 47: Part 22 Subpart H, Section 2.1051, 22.917 (a)

2.7.2 Equipment Under Test

MC2006a IMEI 01119300000099-2

2.7.3 Date of Test

15th March 2007

2.7.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.7.5 Test Procedure

In accordance with Part 2.1051, the spurious emissions from the antenna terminal were measured. The transmitter output power was attenuated using a combination of filters and attenuators and the frequency spectrum investigated from 9 kHz to 9 GHz. The EUT was set to transmit on full power on timeslot 3. The EUT was tested on Bottom, Middle and Top channels on maximum power. The resolution and video bandwidths were set to 1 MHz thus meeting the requirements of Part 22.917(b). The spectrum analyser detector was set to max hold.

From 9 kHz to 1.5 GHz, an attenuator was used. For measuring the range 1.5 GHz to 9 GHz, an attenuator and high pass filter were used. This was to reduce saturation effects in the spectrum analyser.

The maximum path loss across the measurement band was used as the reference level offset to ensure worst case.



Product Service

2.7 CONDUCTED SPURIOUS EMISSIONS

2.7.6 Test Results

See test plots.

Remarks

The EUT passed the requirements laid out in 22.917(a).

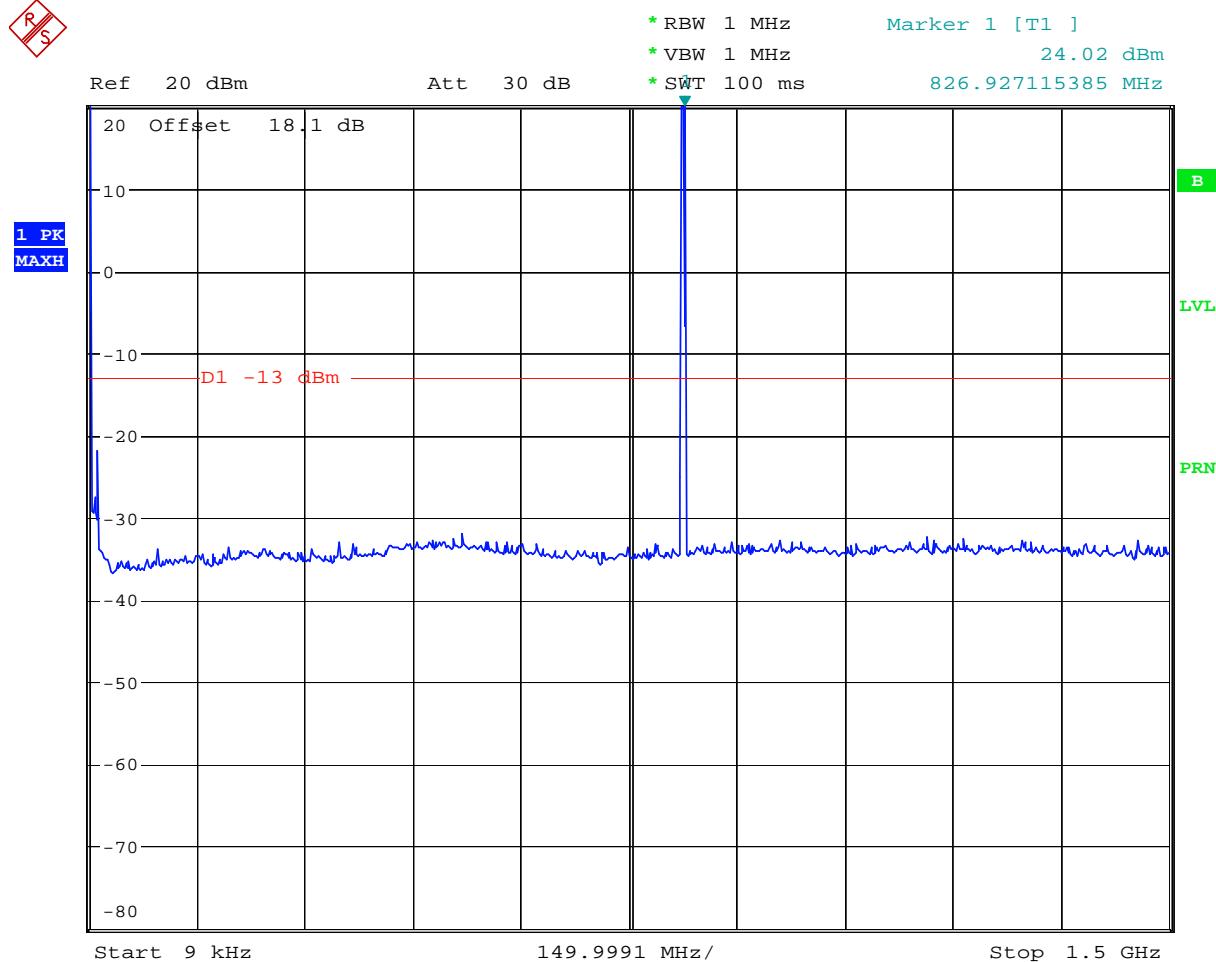
The plots on the following pages show the frequency spectrum from 9 kHz to 9 GHz of the EUT



Product Service

2.7 CONDUCTED SPURIOUS EMISSIONS

2.7.6 Test Results



Date: 15.MAR.2007 17:47:00

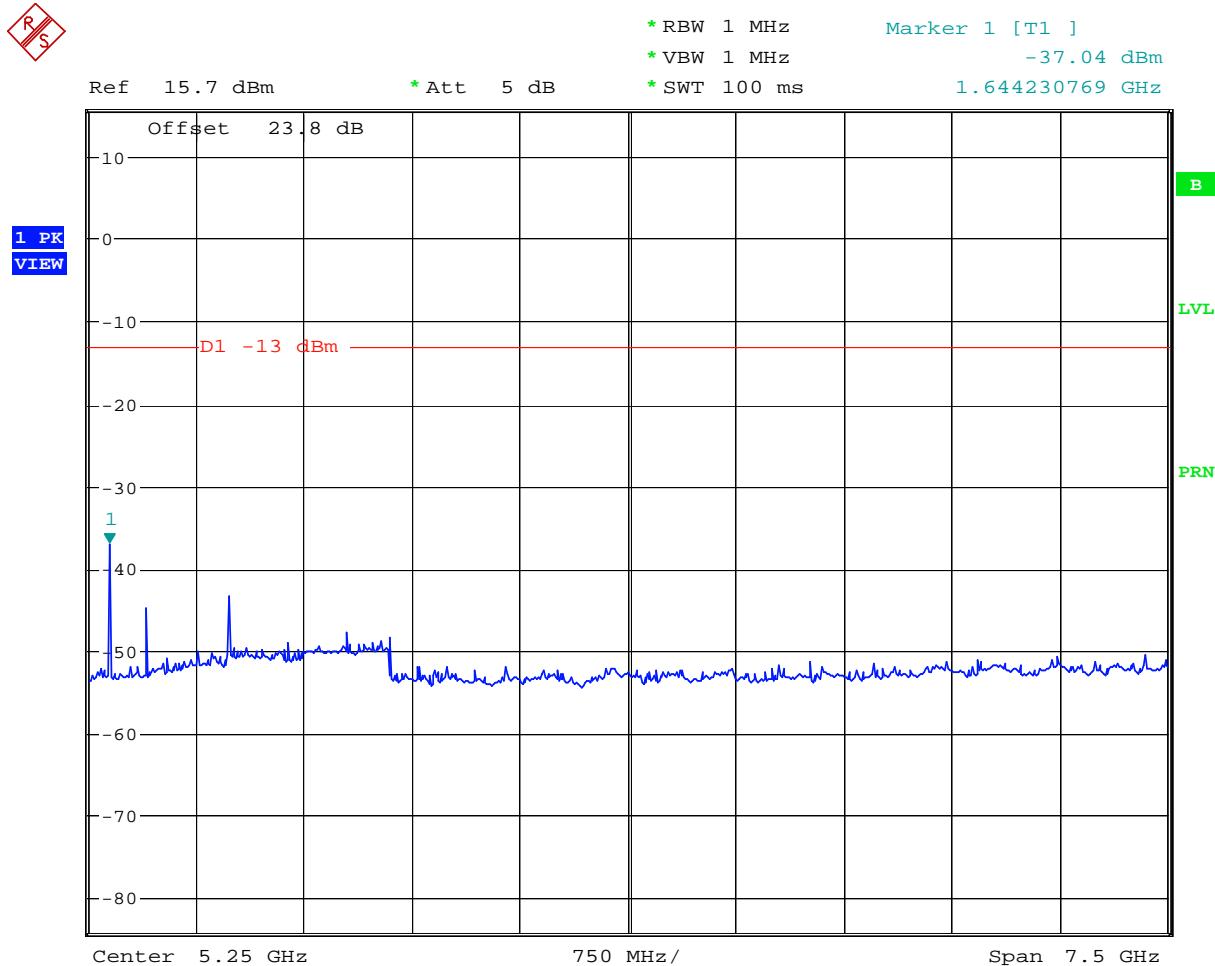
Spurious emissions (9 kHz – 1.5 GHz)
Channel 128, (824.2MHz) – Maximum power – GSM 850 Mode
3.9 V Supply



Product Service

2.7 CONDUCTED SPURIOUS EMISSIONS

2.7.6 Test Results - continued



Date: 15.MAR.2007 17:42:54

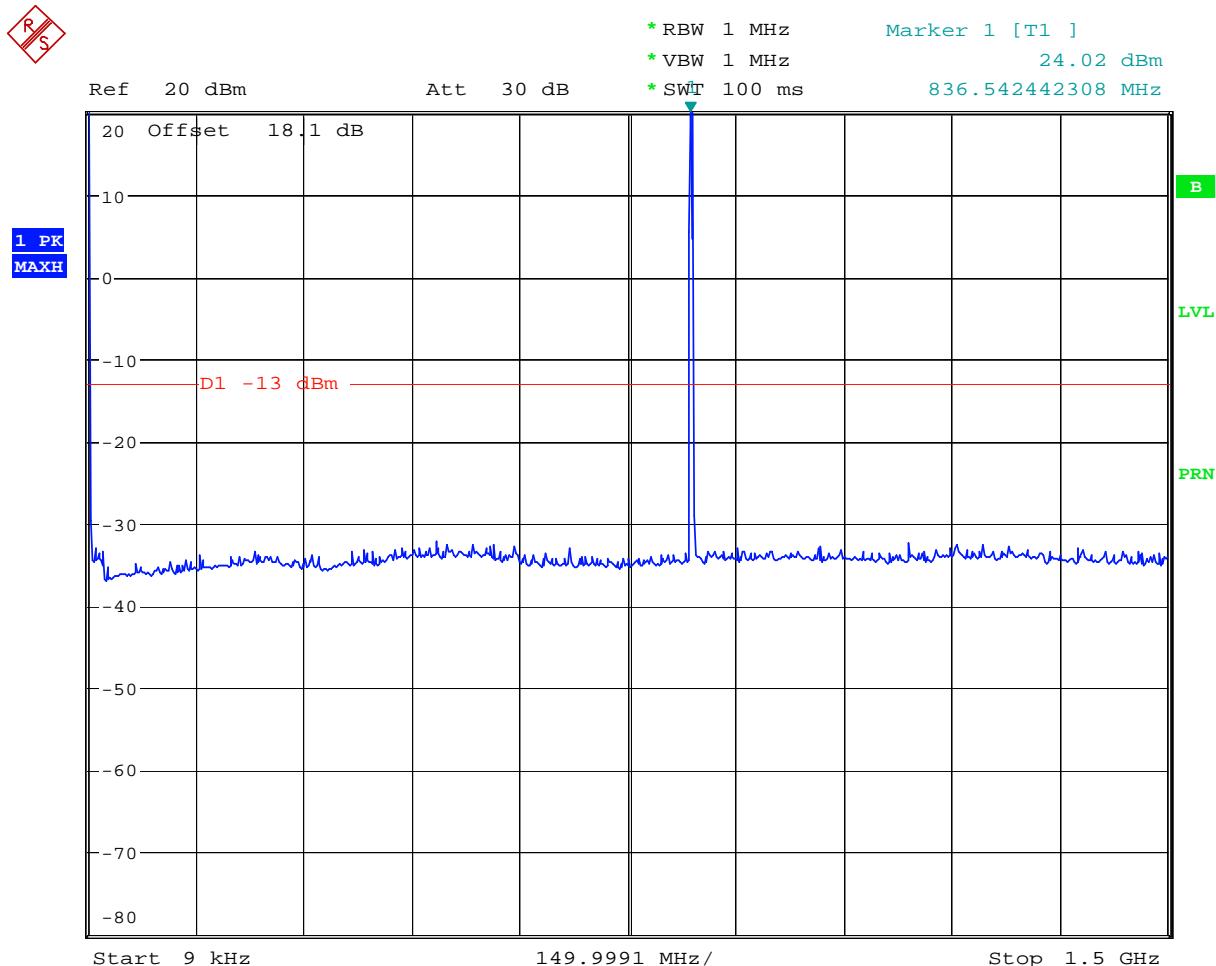
Spurious emissions (1.5 GHz – 9 GHz)
Channel 128 (824.2MHz) - Maximum power - GSM 850 Mode
3.9 V Supply



Product Service

2.7 CONDUCTED SPURIOUS EMISSIONS

2.7.6 Test Results - continued



Date: 15.MAR.2007 17:48:03

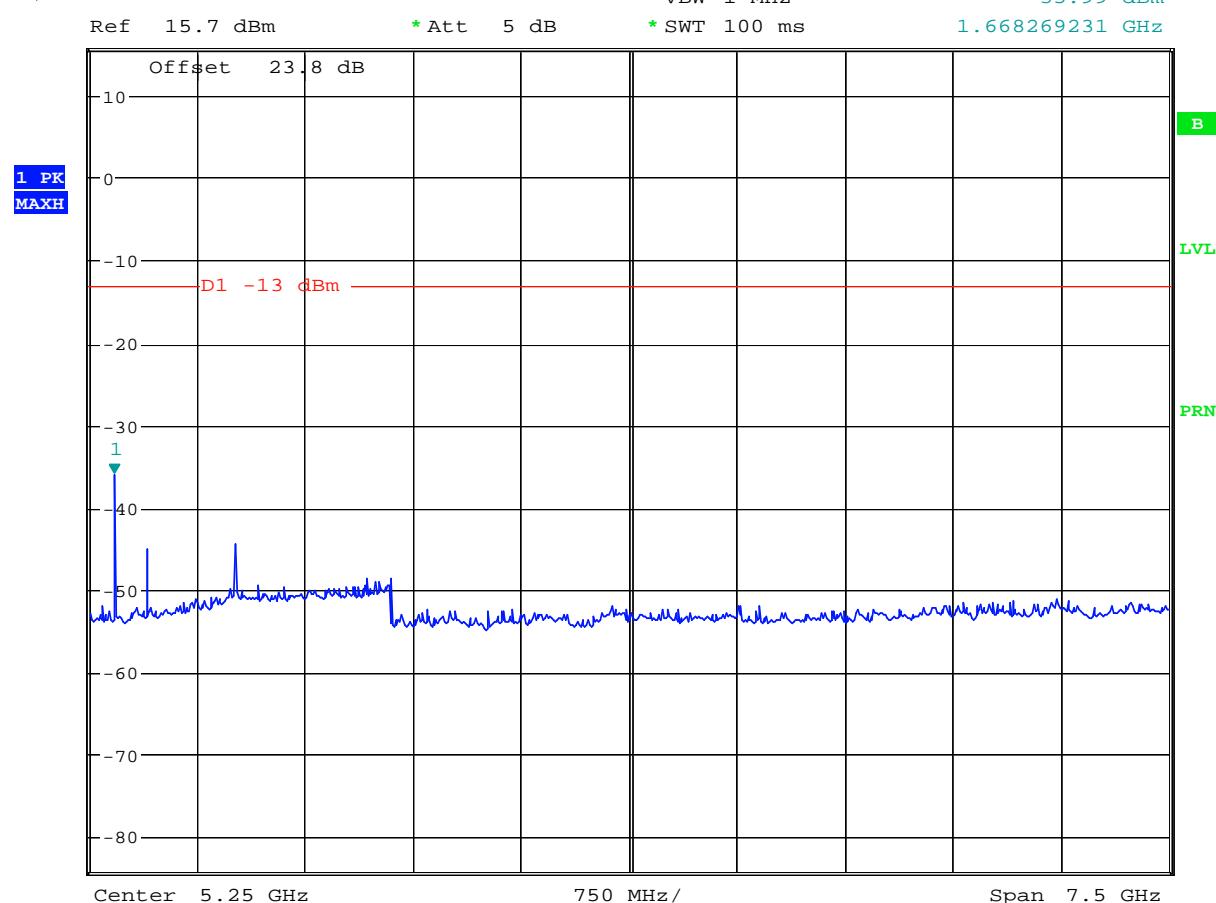
Spurious emissions (9 kHz – 1.5 GHz)
Channel 189 (836.4 MHz) - Maximum power - GSM 850 Mode
3.9 V Supply



Product Service

2.7 CONDUCTED SPURIOUS EMISSIONS

2.7.6 Test Results - continued



Date: 15.MAR.2007 17:43:43

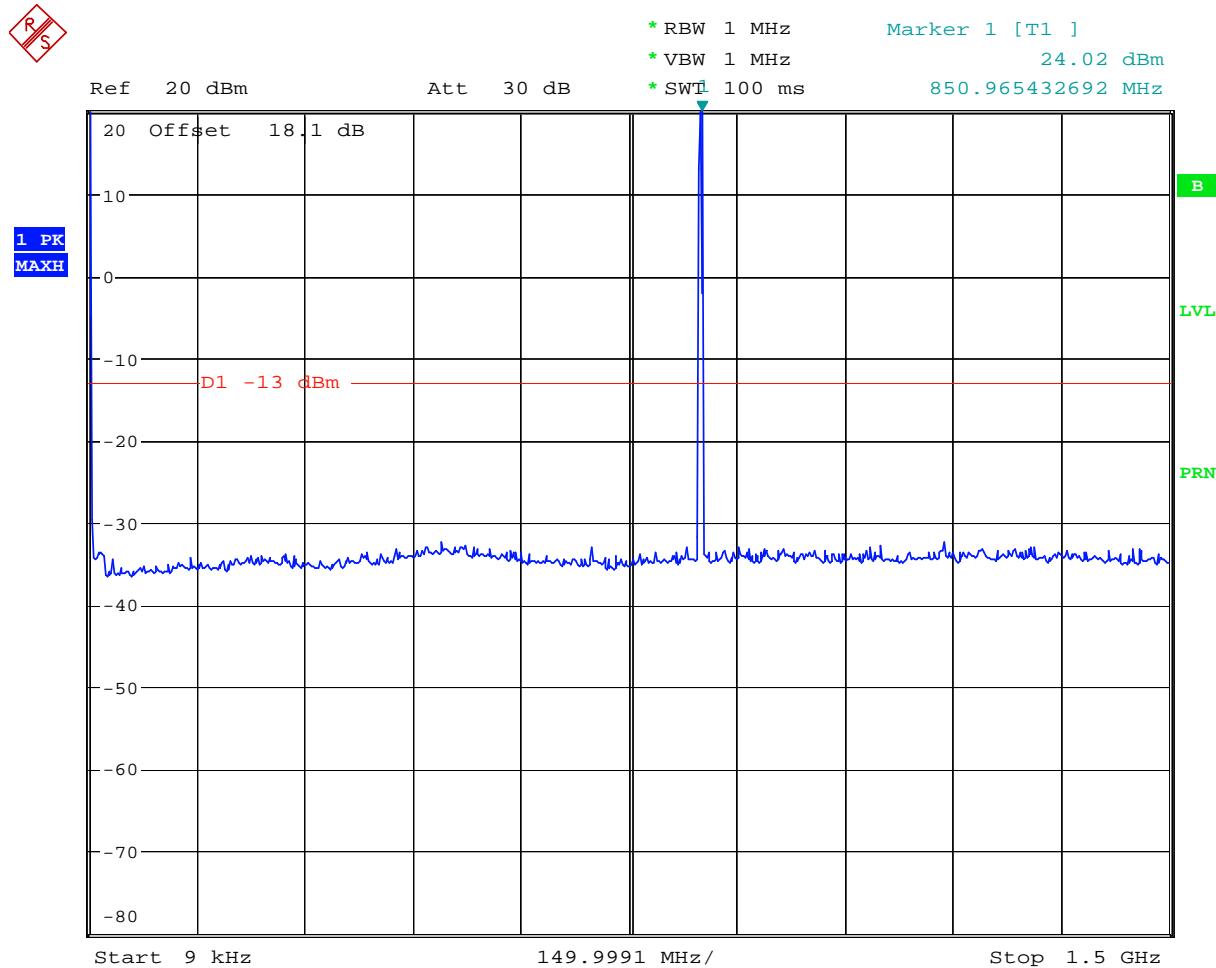
Spurious emissions (1.5 GHz – 9 GHz)
Channel 189 (836.4 MHz) - Maximum power - GSM 850 Mode
3.9 V Supply



Product Service

2.7 CONDUCTED SPURIOUS EMISSIONS

2.7.6 Test Results - continued



Date: 15.MAR.2007 17:49:31

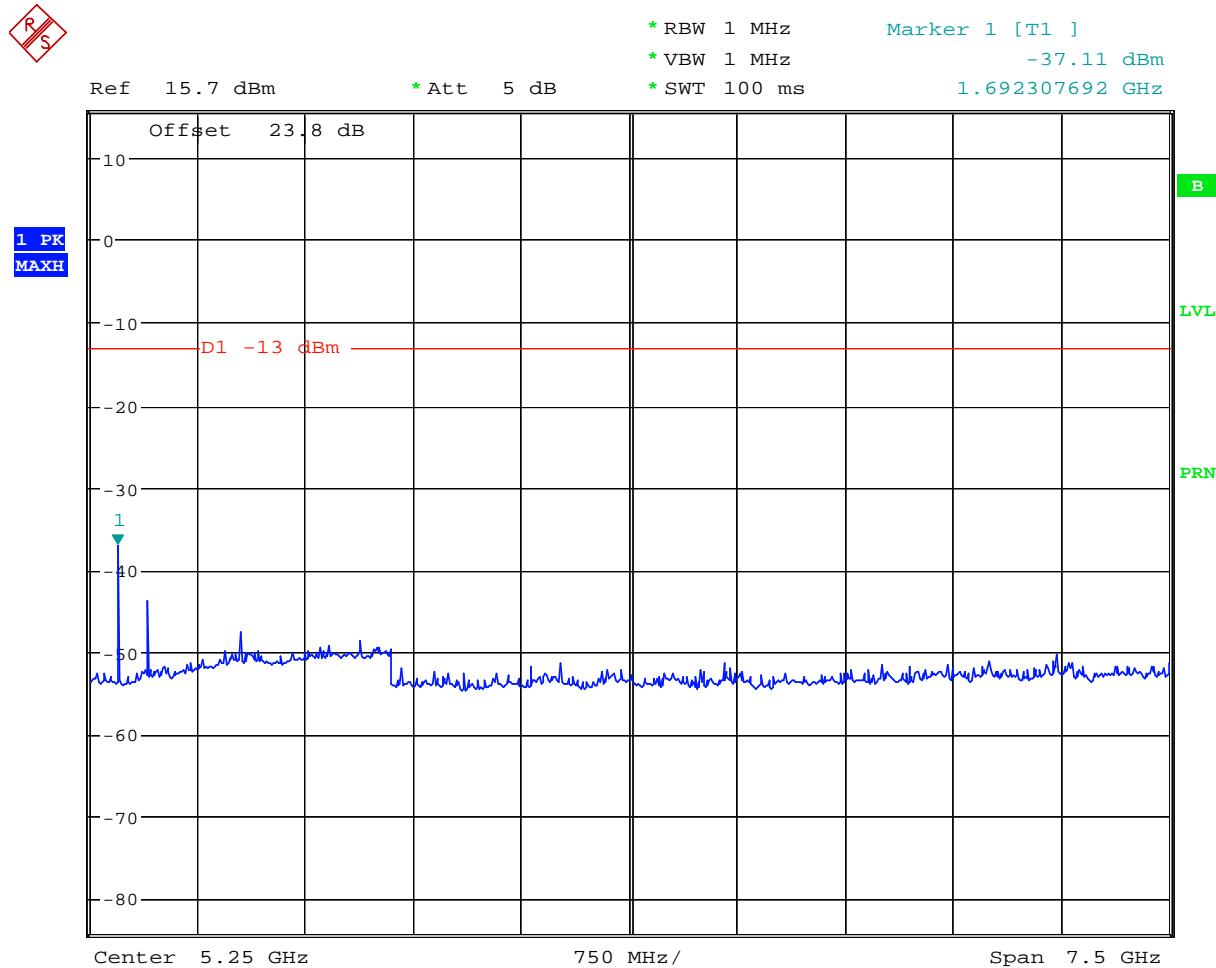
Spurious emissions (9 kHz – 1.5 GHz)
Channel 251 (848.8 MHz) - Maximum Power - GSM 850 Mode
3.9 V Supply



Product Service

2.7 CONDUCTED SPURIOUS EMISSIONS

2.7.6 Test Results - continued



Date: 15.MAR.2007 17:44:21

Spurious emissions (1.5 GHz – 9 GHz)
Channel 251 (848.8MHz) - Maximum Power - GSM 850 Mode
3.9 V Supply



Product Service

2.8 FREQUENCY STABILITY UNDER TEMPERATURE VARIATIONS

2.8.1 Specification Reference

FCC CFR 47: Part 22 Subpart H, Section 2.1055, 22.355

2.8.2 Equipment Under Test

MC2006a IMEI 01119300000099-2

2.8.3 Date of Test

16th March 2007

2.8.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.8.5 Test Procedure

GSM Mode

The EUT was set to transmit on maximum power with timeslot 3 active. A digital communication analyser, (CMU200), was used to measure the frequency error. The maximum result was taken over 200 bursts. The temperature was adjusted between -30 °C and +50 °C in 10 °C steps as per 2.1055.

Measurements were conducted with the EUT in GSM mode of operation.



Product Service

2.8 FREQUENCY STABILITY UNDER TEMPERATURE VARIATIONS

2.8.6 Test Results

GSM 850 – Circuit Switched

3.9V SUPPLY – GSM 850 Mode

Temperature Interval °C	Test Frequency MHz	Deviation Hz	Limit kHz
-30	836.4	*	±2.092
-20	836.4	-32	±2.092
-10	836.4	-24	±2.092
0	836.4	-34	±2.092
+10	836.4	-25	±2.092
+20	836.4	-32	±2.092
+30	836.4	-27	±2.092
+40	836.4	-25	±2.092
+50	836.4	-27	±2.092

Remarks

EUT complies with CFR 47 Parts 2.1055, 22.355. The frequency stability of the EUT is sufficient to keep it within the authorised frequency blocks at any temperature interval across the measured range.

* The mobile station did not stay powered on before the test could be started.



Product Service

2.9 FREQUENCY STABILITY UNDER VOLTAGE VARIATIONS

2.9.1 Specification Reference

FCC CFR 47: Part 22 Subpart H, Section 2.1055, 22.355

2.9.2 Equipment Under Test

MC2006a IMEI 01119300000099-2

2.9.3 Date of Test

19th March 2007

2.9.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.9.5 Test Procedure

The EUT was set to transmit on maximum power with measurements performed on timeslot 3. A digital communication analyser, (CMU200), was used to measure the frequency error. The average result was taken over 200 bursts. Measurements were conducted with the EUT in GSM mode of operation.

The voltage to the EUT was varied as shown in the table of results at a temperature of 20 °C.

2.9.6 Test Results

GSM 850 Mode

DC Voltage V	Test Frequency MHz	Deviation Hz	Deviation Limit kHz
3.55	836.4	-17	± 2.092
3.90	836.4	-24	± 2.092

Remarks

EUT complies with CFR 47 Part 2.1053, 22.355. The EUT does not exceed ±2.092kHz at the measured frequency either at nominal or voltage variation.



Product Service

SECTION 3

TEST EQUIPMENT



Product Service

3.1 TEST EQUIPMENT

List of absolute measuring and other principal items of test equipment.

Instrument	Manufacturer	Type No	TE Number	Calibration Due
Sections 2.2 and 2.6 EMC - Radiated Emissions				
Radiocommunications Tester	Rohde & Schwarz	CMU 200	39	15/08/2007
Amplifier	Miteq Corp	AMF-3D-001080-18-13P	231	TU
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	234	29/06/2007
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	235	29/06/2007
Variac	R.S Components	8 AMP	290	TU
Antenna (Dipole, 300MHz-1000MHz)	Schwarzbeck	UHAP	447	08/09/2007
Attenuator (10dB, 10W)	Marconi	6534/3	1048	TU
Screened Room (5)	Rainford	Rainford	1545	01/03/2008
Mast Controller	Inn-Co GmbH	CO 1000	1606	TU
Turntable/Mast Controller	EMCO	2090	1607	TU
Signal Generator	Marconi	2031	2015	18/11/2007
EMI Test Receiver	Rohde & Schwarz	ESIB26	2028	13/06/2007
Multimeter	Iso-tech	Iso Tech IDM101	2417	08/08/2007
Amplifier (8GHz-18GHz)	Avantec	AWT-18036	2821	13/11/2007
Bilog Antenna	Chase	CBL6143	2904	10/11/2007
Sections 2.1, 2.3, 2.4, 2.5 and 2.7 Radio (Tx) - Conducted Spurious Emissions, Occupied Bandwidth, Carrier Power and Modulation Characteristics				
Communications Tester	Rohde & Schwarz	CMU 200	442	11/05/2007
Attenuator (10dB/ 100W)	Spinner	BN 745353	443	15/11/2007
Attenuator (10dB/100W)	Bird	8343-100	495	18/08/2007
Spectrum Analyser	Rohde & Schwarz	FSU26	2747	07/03/2008
Daden Anthony Filter	Daden Anthony Ass	MH-1500-7SS	2778	25/10/2007
Signal Generator: 10MHz to 40GHz	Rohde & Schwarz	SMR40	3171	29/06/2007



Product Service

3.1 TEST EQUIPMENT

Instrument	Manufacturer	Type No	TE Number	Calibration Due
Sections 2.8 and 2.9 Radio (Tx) - Frequency Stability				
Communications Tester	Rohde & Schwarz	CMU 200	442	11/05/2007
Attenuator (10dB/ 00W)	Spinner	BN 745353	443	15/11/2007
Attenuator (10dB/100W)	Bird	8343-100	495	18/08/2007
SMA-SMA Cable (1m)	Reynolds	262-0248-1000	2407	27/07/2007
Spectrum Analyser	Rohde & Schwarz	FSU26	2747	07/03/2008
Power Supply	Iso-tech	IPS 2010	2435	11/07/2007
Climatic Chamber	TAS	Micro 225	2892	15/02/2008

TU Traceability Unscheduled



Product Service

3.2 MEASUREMENT UNCERTAINTY

For a 95% confidence level, the measurement uncertainties for defined systems are:-

Test Discipline	Frequency / Parameter	MU
Radiated Emissions, Bilog Antenna, AOATS	30MHz to 1GHz Amplitude	5.1dB*
Radiated Emissions, Horn Antenna, AOATS	1GHz to 40GHz Amplitude	6.3dB*
Conducted Emissions, LISN	150kHz to 30MHz Amplitude	3.2dB*

Worst case error for both Time and Frequency measurement 12 parts in 10^6 .

* In accordance with CISPR 16-4



Product Service

SECTION 4

ACCREDITATION, DISCLAIMERS AND COPYRIGHT



Product Service

4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT



This report relates only to the actual item/items tested.

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation.

Results of tests not covered by our UKAS Accreditation Schedule are marked NUA
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