Report On

Limited FCC Testing of the
Sharp CDMA SHI14 Dual Band CDMA (800 MHz, BC0 and 1900 MHz, BC6) Cellular Phone with Bluetooth, WLAN, FeliCa and GPS
In accordance with FCC CFR 47 Part 2 and FCC CFR 47 Part 22

COMMERCIAL-IN-CONFIDENCE

FCC ID: APYHRO00163

Document 75915808 Report 08 Issue 1 December 2011

TÜV SÜD Product Service Ltd, Octagon House, Concorde Way, Segensworth North,
Fareham, Hampshire, United Kingdom, PO15 5RL
Tel: +44 (0) 1489 558100. Website: www.tuvps.co.uk

REPORT ON

Limited FCC Testing of the
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Document 75915808 Report 08 Issue 1

December 2011

PREPARED FOR

Sharp Communication Compliance Ltd
Azure House
Bagshot Road
Bracknell
Berkshire
RG12 7QY

PREPARED BY

Natalie Bennett
Senior Administrator

APPROVED BY

Mark Jenkins
Authorised Signatory

DATED 08 December 2011

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 2 and FCC CFR 47 Part 22. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);

G Lawler

UKAS TESTING 0141

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SECTION 1

REPORT SUMMARY

Limited FCC Testing of the
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with Bluetooth, WLAN, FeliCa and GPS
In accordance with FCC CFR 47 Part 2 and FCC CFR 47 Part 22

1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Limited FCC Testing of the Sharp CDMA SHI14 Dual Band CDMA (800 MHz, BC0 and 1900 MHz, BC6) Cellular Phone with Bluetooth, WLAN, FeliCa and GPS to the requirements of FCC CFR 47 Part 2 and FCC CFR 47 Part 22.

Objective	To perform Limited FCC Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Manufacturer	Sharp Corporation
Model Number(s)	CDMA SHI14
Serial Number(s)	SSHFA002162
Number of Samples Tested	1
Test Specification/Issue/Date	FCC CFR 47 Part 2: (2010) FCC CFR 47 Part 22: (2010)
Incoming Release Date	Application Form 24 October 2011
Disposal Reference Number Date	Held Pending Disposal Not Applicable Not Applicable
Order Number Date	8857 07 November 2011
Start of Test	20 November 2011
Finish of Test	20 November 2011
Name of Engineer(s)	G Lawler
Related Document(s)	ANSI C63.4: 2009

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1.2 BRIEF SUMMARY OF RESULTS

A brief summary of the tests carried out in accordance with FCC CFR 47 Part 2 and FCC CFR 47 Part 22 is shown below.

Section	Spec Clause	Test Description	Result	Comments/Base Standard
CDMA 2000 - Loopback Service				
2.1	22.917	Emission Limitations for Cellular Equipment	Pass	
CDMA 2000 - Test Data Service				
2.1	22.917	Emission Limitations for Cellular Equipment	Pass	

Product Service

1.3 APPLICATION FORM

APPLICANT'S DETAILS			
COMPANY NAME :	Sharp Telecommunications of Europe Ltd		
ADDRESS :	Azure House, Bagshot Road Bracknell, Berkshire RG12 7QY		
NAME FOR CONTACT PURPOSES : Ken Newman			
TELEPHONE NO: 01344 301 883	FAX NO:	01344 300 293	
		E-MAIL:	ken.newman@sharp.eu

EQUIPMENT INFORMATION

Equipment designator:
Model name/number CDMA SHI14 Identification number APYHRO00163

Supply Voltage:

[ ]	AC mains	State AC voltage …… V	and AC frequency …… Hz
[ ]	DC (external)	State DC voltage …… V	and DC current …… A
[X]	DC (internal)	State DC voltage …3.7 V	and Battery type…Li-Ion.

Frequency characteristics:
Frequency range 824.7MHz to 848.31 MHz Channel spacing ……
(if channelized)

Designated test frequencies:
Bottom: 824.7 MHz Middle: 836.52 MHz Top: 848.31MHz

Power characteristics:
Maximum transmitter power 0.25W(24dBm) Minimum transmitter power …… W
(if variable)

[X] Continuous transmission
[ ] Intermittent transmission State duty cycle ……
If intermittent, can transmitter be set to continuous transmit test mode? Y/N

Antenna characteristics:

[X]	Antenna connector	State impedance 50 ohm
[ ]	Temporary antenna connector	State impedance …… ohm
[ ]	Integral antenna	State gain …… dBi

Modulation characteristics:

[ ]	Amplitude	[ ]	Other
[ ]	Frequency	Details: ……..	
[X]	Phase		

Can the transmitter operate un-modulated? ~~Y~~/N
ITU Class of emission: ……

Extreme conditions:
Maximum temperature 60 ºC Minimum temperature -20 ºC
Maximum supply voltage 4.0 V Minimum supply voltage 3.7 V

I hereby declare that I am entitled to sign on behalf of the applicant and that the information supplied is correct and complete.

Signature : Yasuhiro Kawauchi
Name : Yasuhiro Kawauchi
Position held : Manager
Date : 24 October 2011

1.4 PRODUCT INFORMATION

1.4.1 Technical Description

The Equipment Under Test (EUT) was a Sharp CDMA SHI14 Dual Band CDMA (800 MHz, BC0 and 1900 MHz, BC6) Cellular Phone with Bluetooth, WLAN, FeliCa and GPS. A full technical description can be found in the manufacturer's documentation.

1.5 TEST CONDITIONS

For all tests the EUT was set up in accordance with the relevant test standard and to represent typical operating conditions. Tests were applied with the EUT situated in a shielded enclosure.

The EUT was powered from a 4.0 V DC supply.

FCC Accreditation
90987 Octagon House, Fareham Test Laboratory

1.6 DEVIATIONS FROM THE STANDARD

No deviations from the applicable test standard or test plan were made during testing.

1.7 MODIFICATION RECORD

Modification 0 - No modifications were made to the test sample during testing.

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SECTION 2

TEST DETAILS

Limited FCC Testing of the
Sharp CDMA SHI14 Dual Band CDMA (800 MHz, BC0 and 1900 MHz, BC6) Cellular Phone
with Bluetooth, WLAN, FeliCa and GPS
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2.1 EMISSION LIMITATIONS FOR CELLULAR EQUIPMENT

2.1.1 Specification Reference

FCC CFR 47 Part 2 and FCC CFR 47 Part 22, Clause 22.917

2.1.2 Equipment Under Test and Modification State

CDMA SHI14 S/N: SSHFA002162 - Modification State 0

2.1.3 Date of Test

20 November 2011

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

A preliminary profile of the Spurious Radiated Emissions was obtained up to the 10th harmonic by operating the EUT on a remotely controlled turntable within a 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 under Alternative Open Site conditions. Emission levels were maximised by adjusting the antenna height, antenna polarisation and turntable azimuth.

The EUT was set to transmit on maximum power with modulation. The EUT was tested on bottom, middle and top channels at maximum power.

For any emissions found the EUT was then removed from the chamber and replaced with a substitution antenna. Using a signal generator the level was adjusted to achieve the same value on the measuring instrument as previously recorded with the EUT. The final result was determined by a calculation using the signal generator level, antenna gain and cable loss.

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

2.1.6 Environmental Conditions

Ambient Temperature	20.3°C
Relative Humidity	47.0%

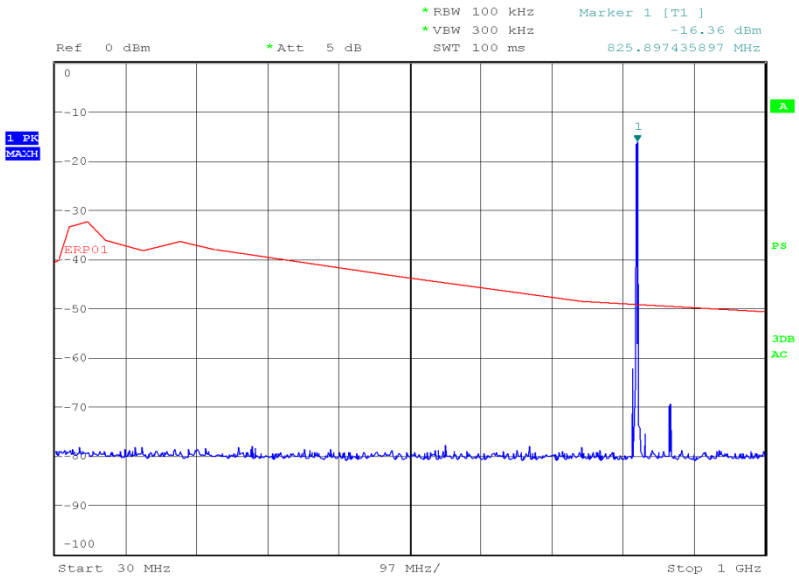
Product Service

2.1.7 Test Results

CDMA 2000 - Loopback Service

824.70 MHz

30 MHz to 1 GHz



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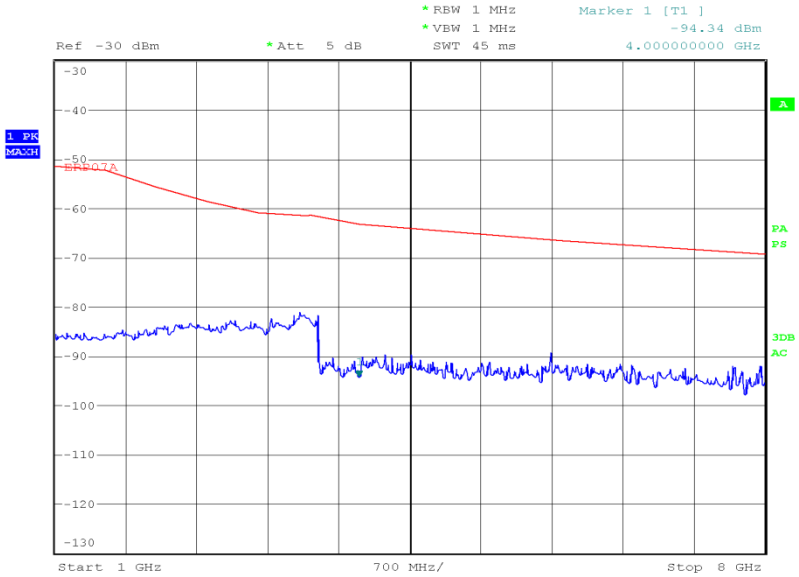
1 GHz to 8 GHz



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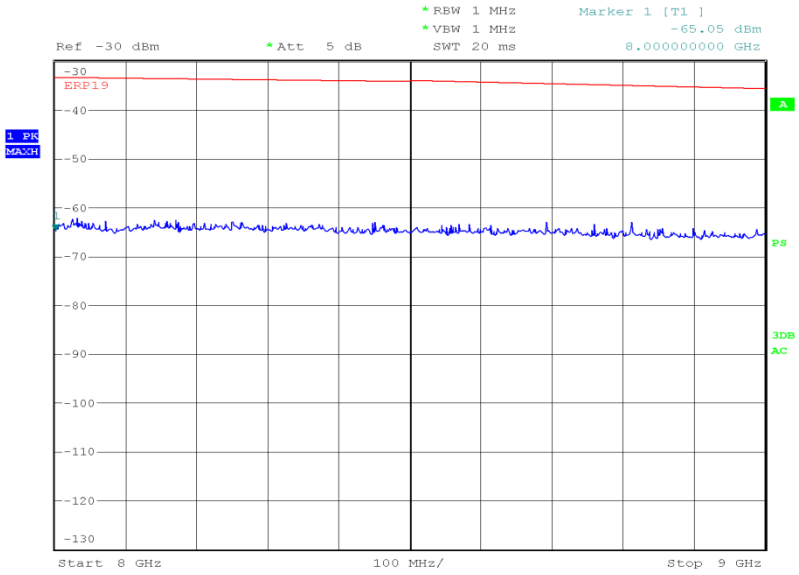
Product Service

8 GHz to 9 GHz



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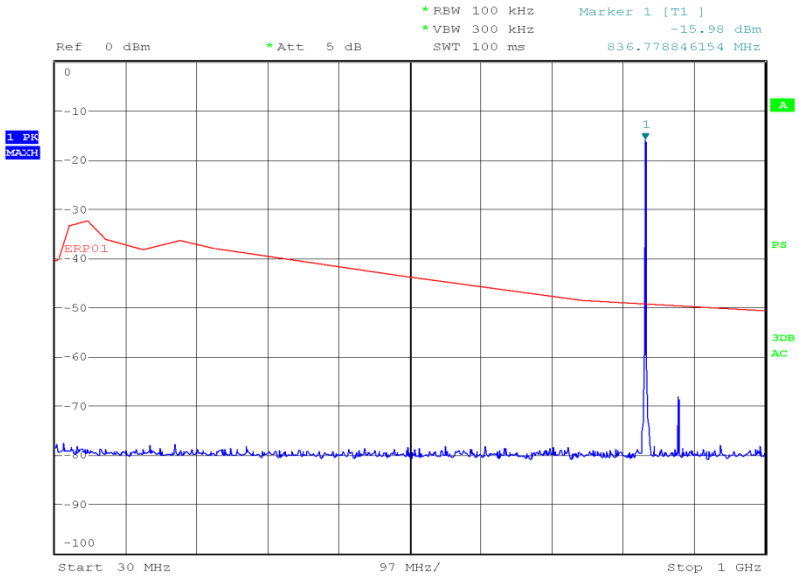
836.52 MHz

30 MHz to 1 GHz



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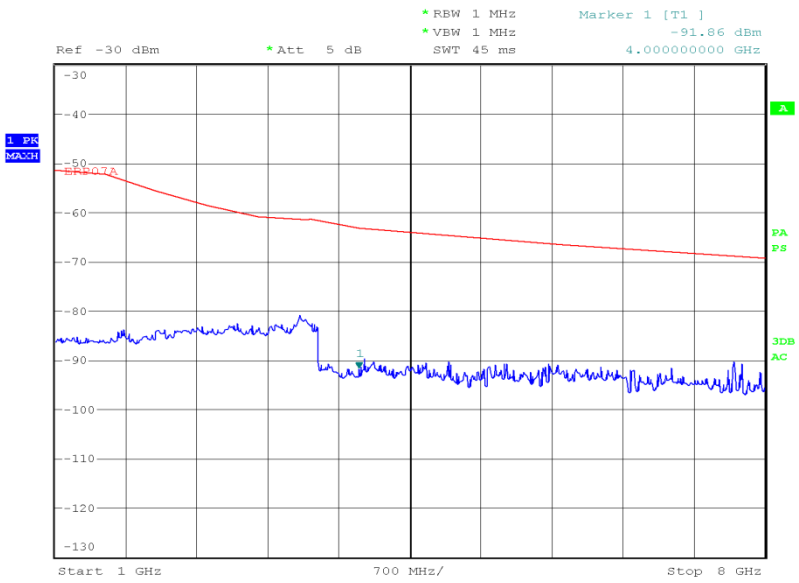
1 GHz to 8 GHz



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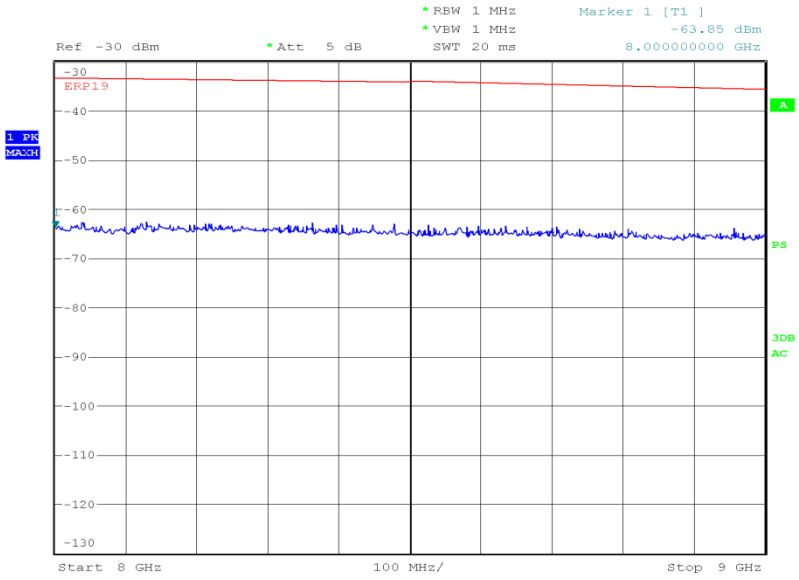
Product Service

8 GHz to 9 GHz



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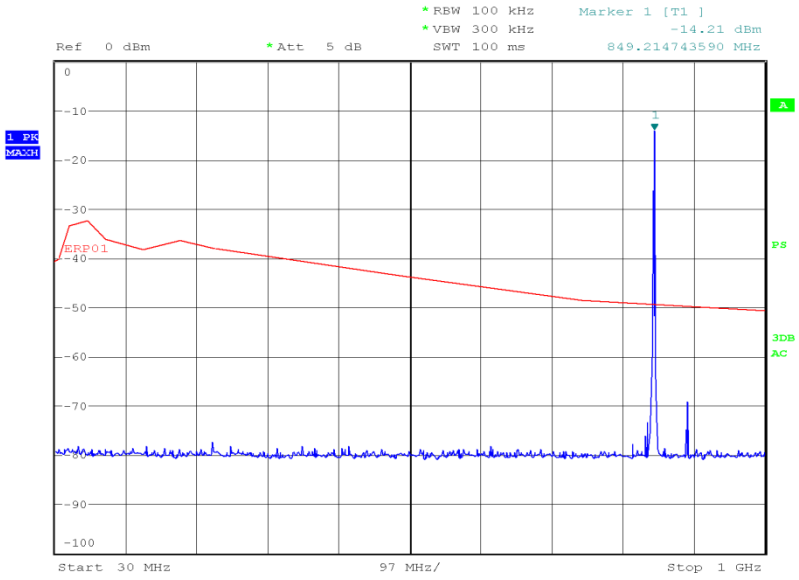
Product Service

848.31 MHz

30 MHz to 1 GHz



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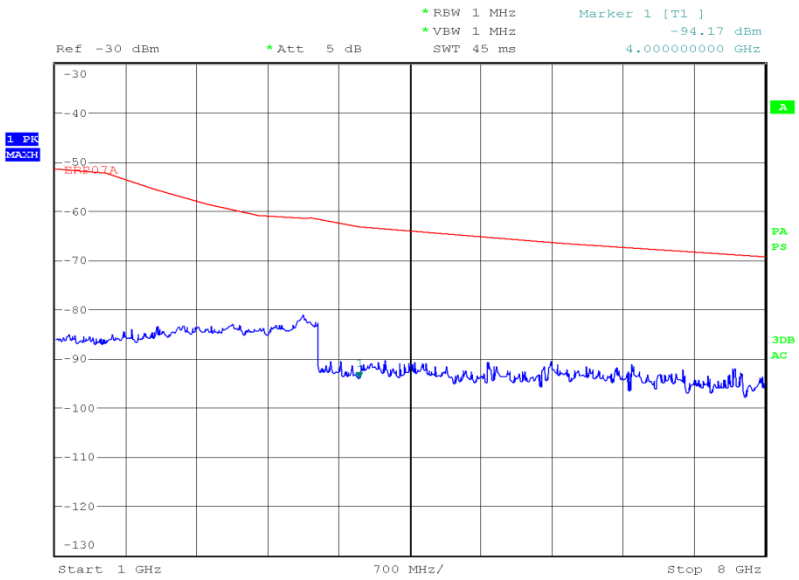
1 GHz to 8 GHz



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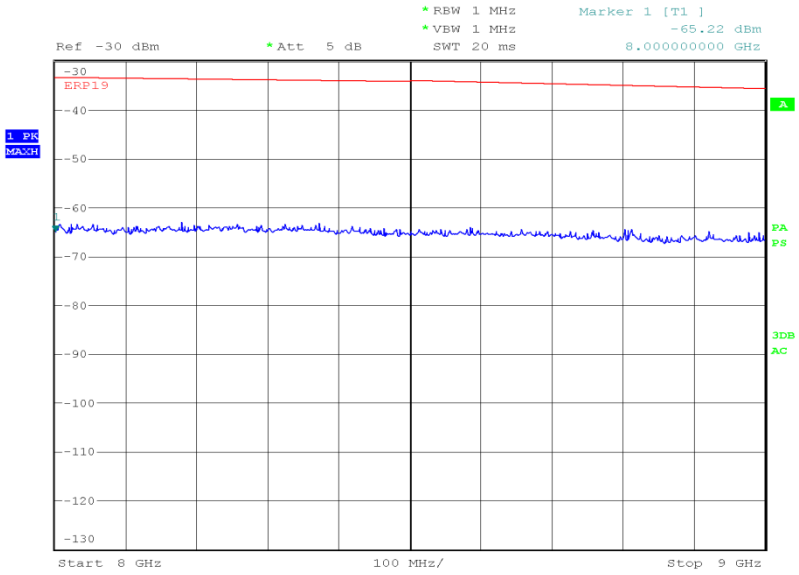
Product Service

8 GHz to 9 GHz



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Limit Clause

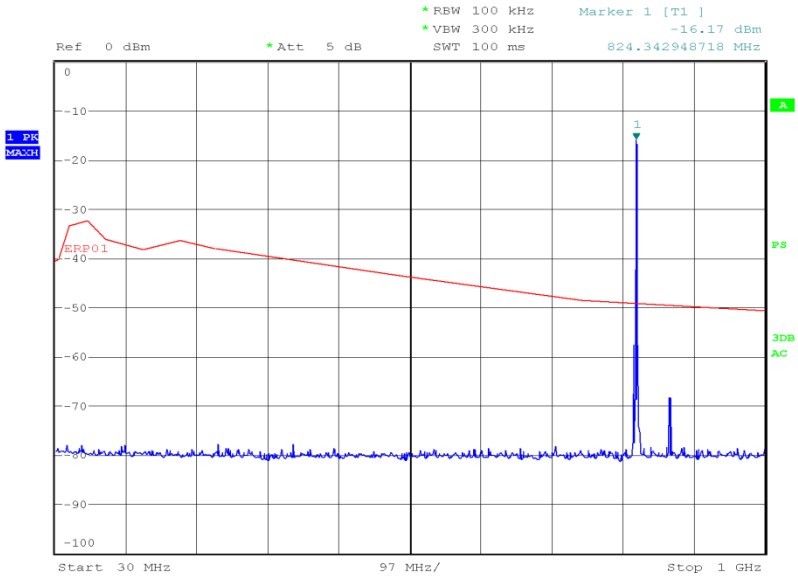
43+10log(P) or -13 dBm

Product Service

CDMA 2000 - Test Data Service

824.70 MHz

30 MHz to 1 GHz



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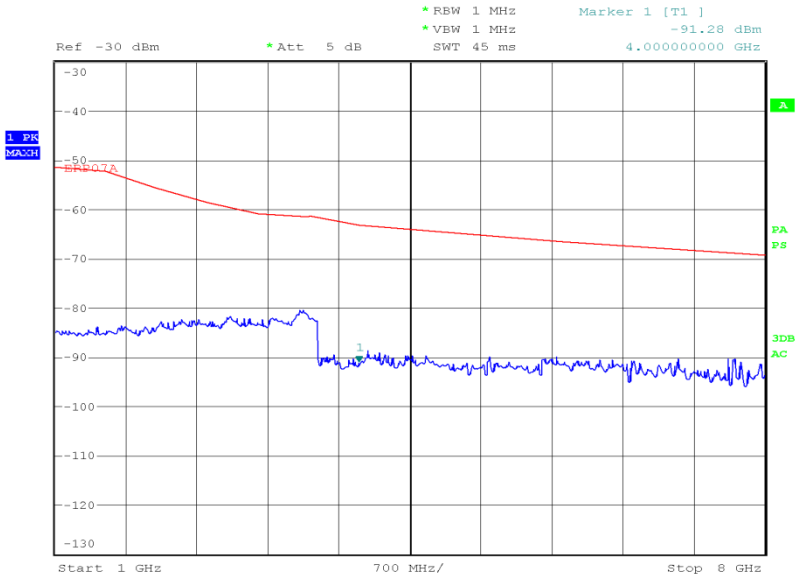
1 GHz to 8 GHz



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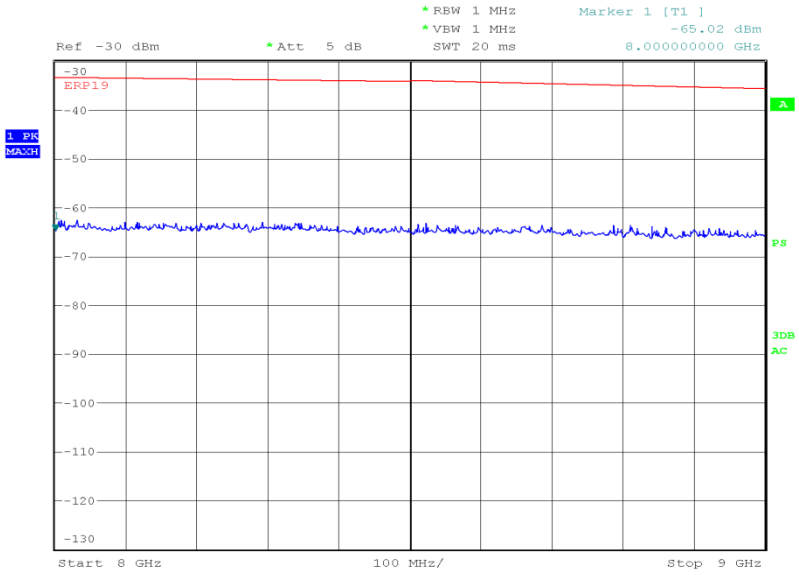
Product Service

8 GHz to 9 GHz



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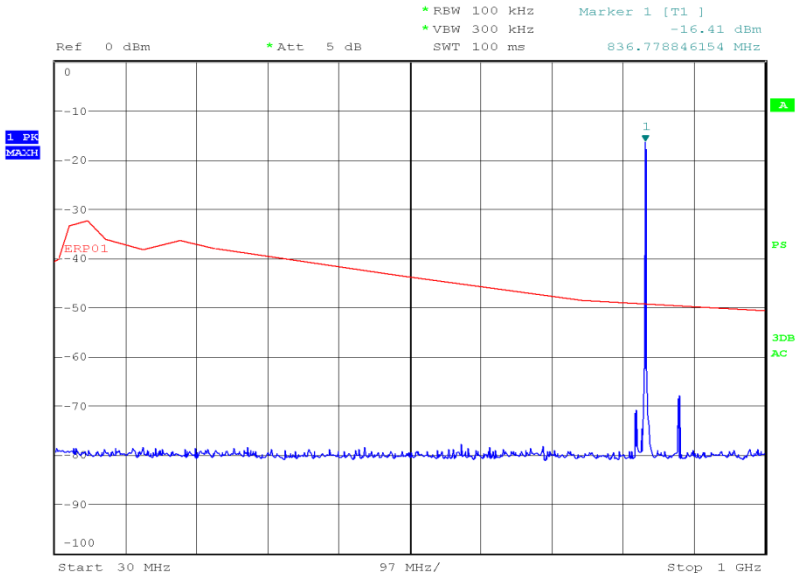
836.52 MHz

30 MHz to 1 GHz



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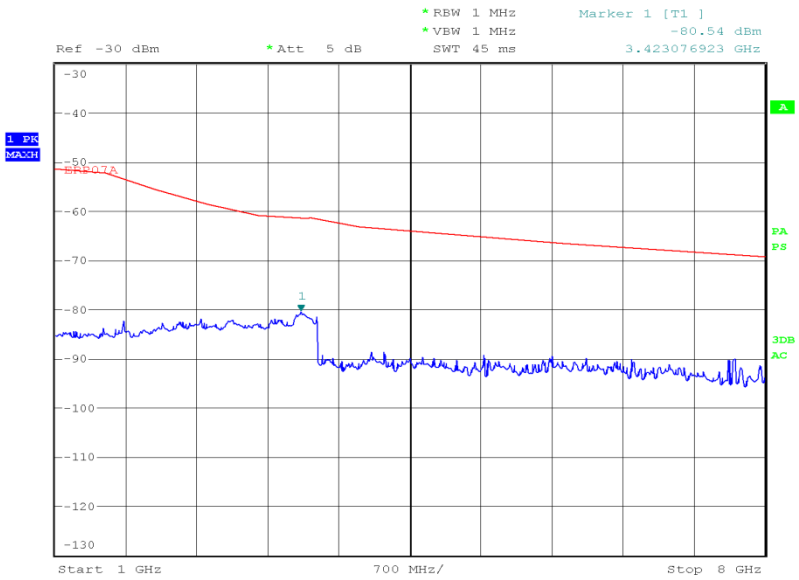
1 GHz to 8 GHz



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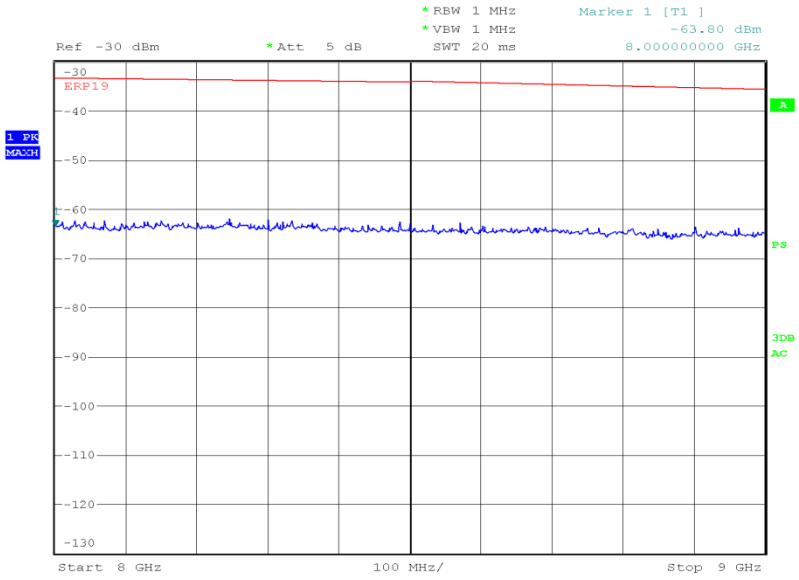
Product Service

8 GHz to 9 GHz



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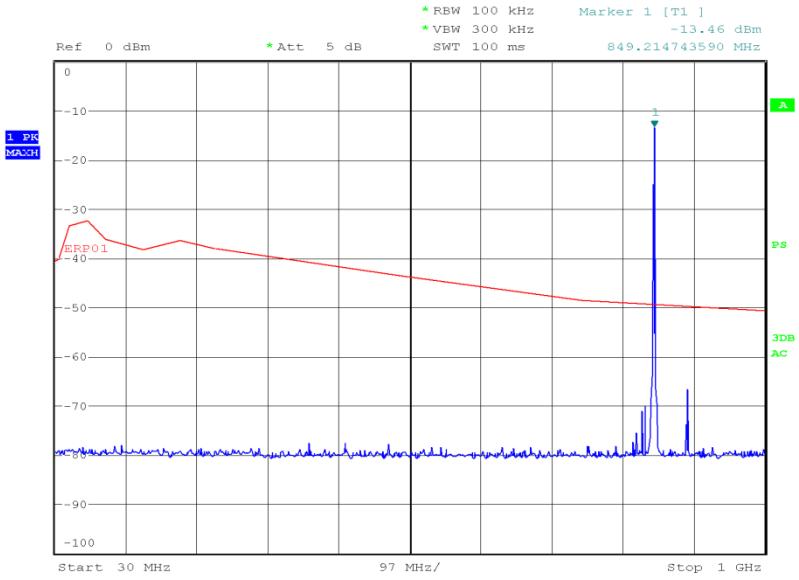
Product Service

848.31 MHz

30 MHz to 1 GHz



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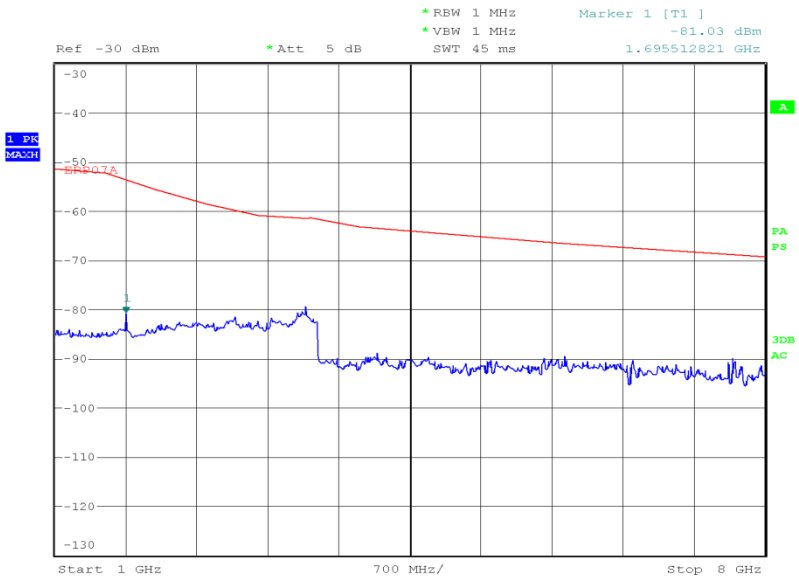
1 GHz to 8 GHz



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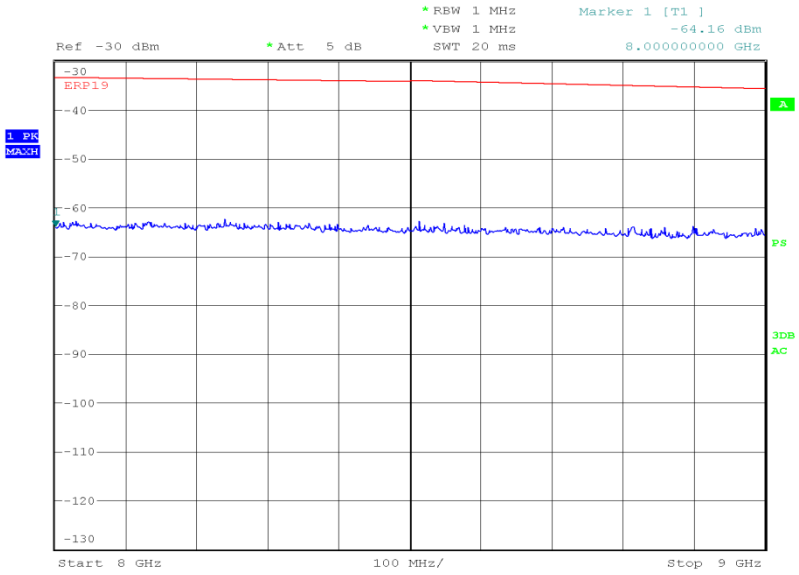
Product Service

8 GHz to 9 GHz



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Limit Clause

43+10log(P) or -13 dBm

Product Service

SECTION 3

TEST EQUIPMENT USED

Product Service

3.1 TEST EQUIPMENT USED

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

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Section 2.1 - Emission Limitations for Cellular Equipment					
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	235	12	12-Nov-2011
Antenna (Double Ridge Guide)	Q-Par Angus Ltd	QSH 180K	1511	24	2-Aug-2012
Pre-Amplifier	Phase One	PS04-0086	1533	12	20-Sep-2012
Pre-Amplifier	Phase One	PSO4-0087	1534	12	26-Sep-2012
Screened Room (5)	Rainford	Rainford	1545	36	3-Feb-2014
Mast Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Antenna (Bilog)	Chase	CBL6143	2904	24	12-May-2013
Antenna (DRG Horn)	ETS-LINDGREN	3115	3125	12	27-Apr-2012
Amplifier (1 - 8GHz)	Phase One	PS06-0060	3175	12	5-Jul-2012
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	29-Sep-2012
3 GHz High Pass Filter	K&L Microwave	11SH10-3000/X18000-O/O	3552	12	14-Apr-2012
'3.5mm' - '3.5mm' RF Cable (2m)	Rhophase	3PS-1803-2000-3PS	3703	-	TU
9m RF Cable (N Type)	Rhophase	NPS-2303-9000-NPS	3791	12	26-Aug-2012
Tilt Antenna Mast	maturo Gmbh	TAM 4.0-P	3916	-	TU
Mast Controller	maturo Gmbh	NCD	3917	-	TU

TU – Traceability Unscheduled

Product Service

3.2 MEASUREMENT UNCERTAINTY

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

Test Discipline	MU
Emission Limitations for Cellular Equipment	30MHz to 1GHz: ± 5.1 dB 1GHz to 40GHz: ± 6.3 dB

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SECTION 4

ACCREDITATION, DISCLAIMERS AND COPYRIGHT

Product Service

4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

UKAS TESTING 0141

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 (Not UKAS Accredited).