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Report On

FCC and Industry Canada Testing of the
Ericsson RRUS 01 B5 / KRC 118 70/3

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FCC ID: TA8AKRC11870-3
IC ID: 287AB-AS118703

Document 75915029 Report 01 Issue 1

September 2011



Product Service

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

COMMERCIAL-IN-CONFIDENCE

REPORT ON

FCC and Industry Canada Testing of the
Ericsson RRUS 01 B5 / KRC 118 70/3

Document 75915029 Report 01 Issue 1

September 2011

PREPARED FOR

Ericsson AB
Torshamnsgatan 23
SE-164 80
Stockholm
Sweden

PREPARED BY

Q Li
Test Engineer

APPROVED BY

M Jenkins
Authorised Signatory

DATED

08 September 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 compliance with FCC CFR 47: Part 22 and Industry Canada RSS-132. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);

Q Li

X Zhang





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SECTION 1

REPORT SUMMARY

FCC and Industry Canada Testing of the
Ericsson RRUS 01 B5 / KRC 118 70/3



1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Ericsson RRUS 01 B5 / KRC 118 70/3 to the requirements of FCC CFR 47 Part 22 and Industry Canada RSS-132.

Testing was carried out in support of an application for Grant of Equipment Authorisation in the name of RRUS 01 B5 / KRC 118 70/3.

Objective	To perform FCC and Industry Canada Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Manufacturer	Ericsson AB
Product Name	RRUS 01 B5
Product Number	KRC 118 70/3
IC Model Number	AS118703
Serial Number(s)	C824850048
Software Version	CXP9018436/1 R2AA02
Hardware Version	R1A
Number of Samples Tested	1
Test Specification/Issue/Date	FCC CFR 47 Part 22: 2010 Industry Canada RSS-132 Issue 2: 2005
Incoming Release Date	Declaration of Build Status 10 August 2011
Order Number Date	PTP 10 August 2011
Start of Test	10 August 2011
Finish of Test	29 August 2011
Name of Engineer(s)	X Zhang Q Li
Related Document(s)	ANSI C63.4: 2009 FCC CFR 47 Part 2: 2010 Industry Canada RSS-GEN Issue 3: 2010



1.2 BRIEF SUMMARY OF RESULTS

A brief summary of results in accordance with FCC CFR 47 Part 22 and Industry Canada RSS-132, is shown below.

Configuration 1 – Radio Equipment							
Section	Spec Clause		Test Description	Mode	Mod State	Result	Comments
	FCC Part 2 and 22	RSS-132 and RSS-GEN					
	22.913 (a)	4.4	Effective Radiated Power	871.4MHz		N/A	No integral antenna.
				881.4MHz		N/A	
				891.6MHz		N/A	
				871.4MHz + 886.4MHz		N/A	
				876.6MHz + 891.6MHz		N/A	
				871.4MHz + 876.4MHz + 881.4MHz + 886.4MHz		N/A	
				876.4MHz + 881.4MHz + 886.4MHz + 891.4MHz		N/A	
				876.6MHz + 881.6MHz + 886.6MHz + 891.6MHz		N/A	
2.1	2.1046, 22.913 (a)	4.4	Maximum Peak Output Power - Conducted	871.4MHz	0	Pass	-
				881.4MHz	0	Pass	
				891.6MHz	0	Pass	
				871.4MHz + 886.4MHz	0	Pass	
				876.6MHz + 891.6MHz	0	Pass	
				871.4MHz + 876.4MHz + 881.4MHz + 886.4MHz	0	Pass	
				876.4MHz + 881.4MHz + 886.4MHz + 891.4MHz	0	Pass	
				876.6MHz + 881.6MHz + 886.6MHz + 891.6MHz	0	Pass	
2.2	22.913 (a)	-	Peak – Average Ratio	871.4MHz	0	Pass	-
				881.4MHz	0	Pass	
				891.6MHz	0	Pass	
				871.4MHz + 886.4MHz	0	Pass	
				876.6MHz + 891.6MHz	0	Pass	
				871.4MHz + 876.4MHz + 881.4MHz + 886.4MHz	0	Pass	
				876.4MHz + 881.4MHz + 886.4MHz + 891.4MHz	0	Pass	
				876.6MHz + 881.6MHz + 886.6MHz + 891.6MHz	0	Pass	
2.3	2.1047 (d)	4.2	Modulation Characteristics	871.4MHz		N/A	-
				881.4MHz	0	Pass	
				891.6MHz		N/A	
				871.4MHz + 886.4MHz		N/A	
				876.6MHz + 891.6MHz		N/A	
				871.4MHz + 876.4MHz + 881.4MHz + 886.4MHz		N/A	
				876.4MHz + 881.4MHz + 886.4MHz + 891.4MHz		N/A	
				876.6MHz + 881.6MHz + 886.6MHz + 891.6MHz		N/A	



Configuration 1 – Radio Equipment							
Section	Spec Clause		Test Description	Mode	Mod State	Result	Comments
	FCC Part 2 and 22	RSS-132 and RSS-GEN					
2.4	2.1049, 22.917 (b)	RSS-Gen 4.6.1	Occupied Bandwidth	871.4MHz	0	Pass	-
				881.4MHz	0	Pass	
				891.6MHz	0	Pass	
				871.4MHz + 886.4MHz		N/A	
				876.6MHz + 891.6MHz		N/A	
				871.4MHz + 876.4MHz + 881.4MHz + 886.4MHz		N/A	
				876.4MHz + 881.4MHz + 886.4MHz + 891.4MHz		N/A	
				876.6MHz + 881.6MHz + 886.6MHz + 891.6MHz		N/A	
2.5	2.1051, 22.917 (b)	4.5	Spurious Emissions at Antenna Terminals (± 1 MHz)	871.4MHz	0	Pass	-
				881.4MHz		N/A	
				891.6MHz	0	Pass	
				871.4MHz + 876.4MHz	0	Pass	
				886.6MHz + 891.6MHz	0	Pass	
				871.4MHz + 876.4MHz + 881.4MHz + 886.4MHz		N/A	
				876.4MHz + 881.4MHz + 886.4MHz + 891.4MHz		N/A	
				876.6MHz + 881.6MHz + 886.6MHz + 891.6MHz		N/A	
2.6	2.1053, 22.917 (a)	4.5	Radiated Spurious Emissions	871.4MHz	0	Pass	-
				881.4MHz	0	Pass	
				891.6MHz	0	Pass	
				871.4MHz + 886.4MHz		N/A	
				876.6MHz + 891.6MHz	0	Pass	
				871.4MHz + 876.4MHz + 881.4MHz + 886.4MHz		N/A	
				876.4MHz + 881.4MHz + 886.4MHz + 891.4MHz		N/A	
				876.6MHz + 881.6MHz + 886.6MHz + 891.6MHz	0	Pass	
2.7	2.1051, 22.917 (a)	4.5	Conducted Spurious Emissions	871.4MHz	0	Pass	-
				881.4MHz	0	Pass	
				891.6MHz	0	Pass	
				871.4MHz + 886.4MHz		N/A	
				876.6MHz + 891.6MHz		N/A	
				871.4MHz + 876.4MHz + 881.4MHz + 886.4MHz		N/A	
				876.4MHz + 881.4MHz + 886.4MHz + 891.4MHz		N/A	
				876.6MHz + 881.6MHz + 886.6MHz + 891.6MHz		N/A	



Configuration 1 – Radio Equipment							
Section	Spec Clause		Test Description	Mode	Mod State	Result	Comments
	FCC Part 2 and 22	RSS-132 and RSS-GEN					
2.8	2.1055, 22.355	4.3	Frequency Stability Under Temperature Variations	871.4MHz		N/A	-
				881.4MHz	0	Pass	
				891.6MHz		N/A	
				871.4MHz + 886.4MHz		N/A	
				876.6MHz + 891.6MHz		N/A	
				871.4MHz + 876.4MHz + 881.4MHz + 886.4MHz		N/A	
				876.4MHz + 881.4MHz + 886.4MHz + 891.4MHz		N/A	
				876.6MHz + 881.6MHz + 886.6MHz + 891.6MHz		N/A	
2.9	2.1055, 22.355	4.3	Frequency Stability Under Voltage Variations	871.4MHz		N/A	-
				881.4MHz	0	Pass	
				891.6MHz		N/A	
				871.4MHz + 886.4MHz		N/A	
				876.6MHz + 891.6MHz		N/A	
				871.4MHz + 876.4MHz + 881.4MHz + 886.4MHz		N/A	
				876.4MHz + 881.4MHz + 886.4MHz + 891.4MHz		N/A	
				876.6MHz + 881.6MHz + 886.6MHz + 891.6MHz		N/A	
2.10	-	4.6	Receiver Spurious Emissions	871.4MHz		N/A	-
				881.4MHz	0	Pass	
				891.6MHz		N/A	
				871.4MHz + 886.4MHz		N/A	
				876.6MHz + 891.6MHz		N/A	
				871.4MHz + 876.4MHz + 881.4MHz + 886.4MHz		N/A	
				876.4MHz + 881.4MHz + 886.4MHz + 891.4MHz		N/A	
				876.6MHz + 881.6MHz + 886.6MHz + 891.6MHz		N/A	

N/A – Not Applicable



Product Service

1.3 DECLARATION OF BUILD STATUS

MAIN EUT	
MANUFACTURING DESCRIPTION	Radio Equipment
MANUFACTURER	Ericsson AB
PRODUCT NUMBER	RRUS 01 B5
PART NUMBER	KRC 118 70/3
IC Model NUMBER	AS118703
SERIAL NUMBER	C824850048
HARDWARE VERSION	R1A
SOFTWARE VERSION	CXP9018436/1 R2AA02
TRANSMITTER OPERATING RANGE	TX: 871.4MHz - 891.6MHz RX: 826.4MHz - 846.6MHz
MODULATIONS	QPSK, 16QAM, 64QAM
INTERMEDIATE FREQUENCIES	--
ITU DESIGNATION OF EMISSION	5M00F9W
CHANNEL BANDWIDTH	4.2 to 5MHz (configurable in steps of 100/200kHz)
OUTPUT POWER (RMS) (W or dBm)	Single Carrier: 1 x 49dBm (1 x 80W) Multi Carrier (x 2): 2 x 46dBm (2 x 40W) Multi Carrier (x 4): 4 x 43dBm (4 x 20W)
OUTPUT POWER TOLERANCE	± 1dB
NUMBER OF ANTENNA PORTS	1 TX/ RX and 1 RX ports
FCC ID	TA8AKRC11870-3
IC ID	287AB-AS118703
TECHNICAL DESCRIPTION (a brief description of the intended use and operation)	The equipment is the Radio Part of WCDMA Base Station.

Signature

Date

24 August 2011

D of B S Serial No

75915029 /01

No responsibility will be accepted by TÜV SÜD Product Service as to the accuracy of the information declared in this document by the manufacturer.



1.4 PRODUCT INFORMATION

1.4.1 Technical Description

The Equipment Under Test (EUT) RRUS 01 B5 / KRC 118 70/3 is an Ericsson Radio Equipment working in the public mobile service 850MHz band which provides communication connections to WCDMA850 network. The RRUS 01 B5 / KRC 118 70/3 operates from a - 48V DC supply.

The Equipment Under Test (EUT) is shown in the photograph below. A full technical description can be found in the Manufacturers documentation.



Equipment Under Test



1.4.2 Test Configuration

Configuration 1: Radio Equipment

The EUT was configured in accordance with FCC CFR 47 Part 22 and Industry Canada RSS-132.

The RRUS 01 B5 / KRC 118 70/3 supports Test Models TM1, TM5 and TM6 at 850MHz defined in 3GPP TS 25.141. Test Model 1 (TM1) uses the QPSK modulation, Test Model 5 (TM5) includes the 16QAM modulation and Test Model 6 (TM6) includes 64QAM modulation.

The settings below were found to be representative for all traffic scenarios when several settings with the different modulations, channel bandwidths and the number of carriers were tested to find the worst case setting. These settings were used for all measurements unless otherwise stated.

Single carrier:

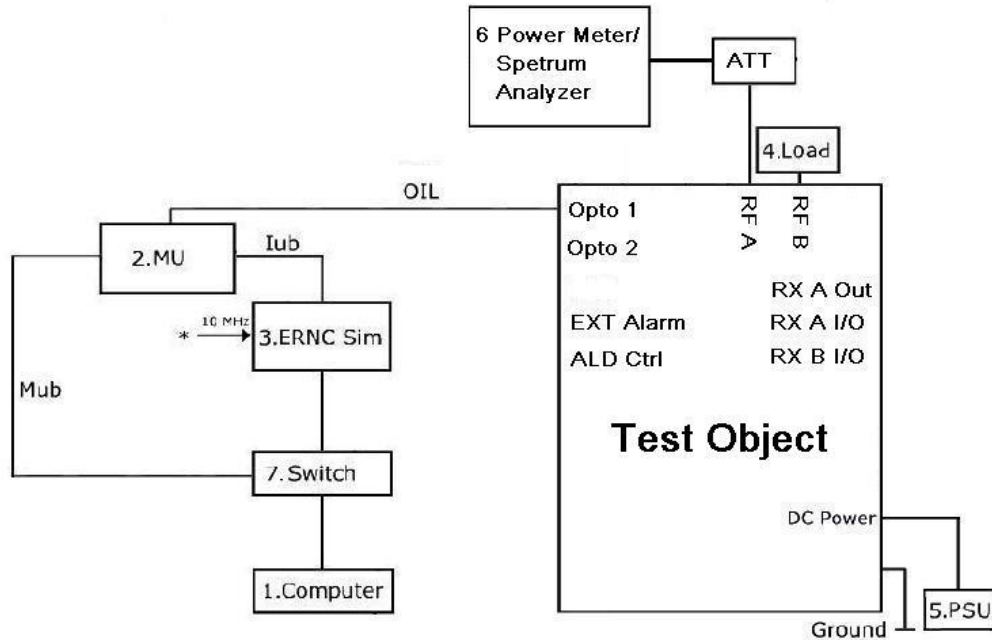
Test Model1 (TM1): 64 DPCHs at 30 ksps (SF=128)

Multi carrier (1x2):

Test model 1 (TM1): 30 DPCHs at 30 ksps (SF=128) in each carrier

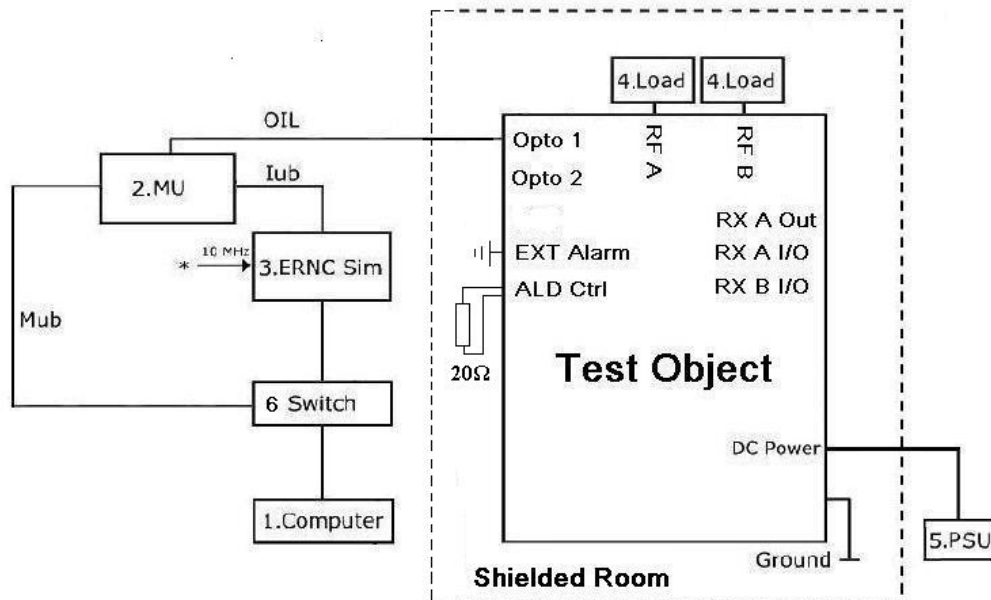
Channel bandwidth 5MHz.

The EUT can be configured to transmit with 850MHz single or multi carrier at the RF output connector. All Tx Testing was performed on the combined Tx / Rx output connector RF A of the EUT, with RX antenna port RF B terminated. The complete testing was performed with the EUT transmitting at maximum RF power unless otherwise stated. The EUT was powered by a -48V DC Power supply.

**Test Setup, Conducted Measurement:**

Product Name	Product Number	Version	Serial Number
RRUS 01 B5	KRC 118 70/3	R1A	C824850048

No.	Auxiliary Equipment	Part Number / Model Type	Version	Serial Number
1	Computer	Sun Blade 500S	--	0826TFC1VD
2.1	RBS 6601	BFL 901 009/1	--	--
	DUW 30 01	KDU 127 161/3	R3A	C823662910
	SUP 6601	1/BFL 901 009/1	R3B	BR81066729
2.2	RBS 6601	BFL 901 009/1	--	--
	DUW 30 01	KDU 127 161/3	R3C	CB4H415961
	SUP 6601	1/BFL 901 009/1	R3B	BR80910322
3	RNC	FAB102614	R30A	A535116344
4	Load	TFZ100-3NF	--	09121144
5	Power Supply	DH1716A-14	--	1000303181
	Power Supply	DH1716A-14	--	20080403
6	Power Meter	Rohde & Schwarz NRP	--	101194
	AVG Power Sensor	Rohde & Schwarz NRP-Z51	--	102427
	Spectrum Analyzer	FSQ26	--	200235
7	Switch	TL-SF1008+	2.1	09617800822

**Test Setup, Radiated Measurement:**

Product Name	Product Number	Version	Serial Number
RRUS 01 B5	KRC 118 70/3	R1A	C824850048

No.	Auxiliary Equipment	Part Number / Model Type	Version	Serial Number
1	Computer	Sun Blade 500S	--	0826TFC1VD
2.1	RBS 6601	BFL 901 009/1	--	--
	DUW 30 01	KDU 127 161/3	R3A	C823662910
	SUP 6601	1/BFL 901 009/1	R3B	BR81066729
2.2	RBS 6601	BFL 901 009/1	--	--
	DUW 30 01	KDU 127 161/3	R3C	CB4H415961
	SUP 6601	1/BFL 901 009/1	R3B	BR80910322
3	RNC	FAB102614	R30A	A535116344
4	Load	TFZ100-3NF	--	09121144
	Load	TF100	--	09121602
5	Power Supply	DH1716A-14	--	1000303181
	Power Supply	DH1716A-14	--	20080403
6	Switch	TL-SF1008+	2.1	09617800822



1.4.3 Modes of Operation

Modes of operation of each EUT during testing were as follows:

Mode 1 – ARFCN 4357: 871.4MHz (Bottom Channel)

Mode 2 – ARFCN 4407: 881.4MHz (Middle Channel)

Mode 3 – ARFCN 4458: 891.6MHz (Top Channel)

Mode 4 – ARFCN 4357 + 4432: 871.4MHz + 886.4MHz (B and B+15MHz)

Mode 5 – ARFCN 4383 + 4458: 876.6MHz + 891.6MHz (T-15MHz and T)

Mode 6 – ARFCN 4357 + 4382: 871.4MHz + 876.4MHz (B and B+5MHz)

Mode 7 – ARFCN 4433 + 4458: 886.6MHz + 891.6MHz (T-5MHz and T)

Mode 8 – ARFCN 4357 + 4382 + 4407 + 4432:
871.4MHz + 876.4MHz + 881.4MHz + 886.4MHz (B, B+5MHz, B+10MHz and B+15MHz)

Mode 9 – ARFCN 4382 + 4407 + 4432 + 4457:
876.4MHz + 881.4MHz + 886.4MHz + 891.4MHz (M-5MHz, M, M+5MHz and M+10MHz)

Mode 10 – ARFCN 4383+ 4408 + 4433 + 4458:
876.6MHz + 881.6MHz + 886.6MHz + 891.6MHz (T-15MHz, T-10MHz, T-5MHz and T)

Information on the specific test modes utilised are detailed in the test procedure for each individual test.



Product Service

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, test laboratories or an open test area as appropriate.

The EUT was powered from a -48V DC supply.

1.6 DEVIATIONS FROM THE STANDARD

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

1.7 MODIFICATION RECORD

No modifications were made to the EUT during testing.

1.8 ALTERNATIVE TEST SITE

Testing has been performed under the following site registrations:

FCC Accreditation 910917:

The State Radio Monitoring Centre, No.80 Beilishi Road Xicheng District Beijing, China.

Industry Canada Accreditation 7308A:

The State Radio Monitoring Centre, No.80 Beilishi Road Xicheng District Beijing, China.



Product Service

SECTION 2

TEST DETAILS

FCC and Industry Canada Testing of the
Ericsson RRUS 01 B5 / KRC 118 70/3



Product Service

2.1 MAXIMUM PEAK OUTPUT POWER - CONDUCTED

2.1.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1046
 FCC CFR 47 Part 22, Clause 22.913 (a)
 Industry Canada RSS-132, Clause 4.4

2.1.2 Equipment Under Test

RRUS 01 B5 / KRC 118 70/3, S/N: C824850048

2.1.3 Date of Test and Modification State

15, 16 and 17 August 2011 – Modification State 0

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 Method and Operating Modes

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 2 and Part 22 and Industry Canada RSS-132.

Using a power meter and attenuator(s), the output power of the EUT was measured at the antenna terminal. The carrier power was measured with QPSK, 16QAM, 64QAM using the test model described.

The path loss was measured and entered as a reference level offset.

The test was performed with the EUT in the following configurations and modes of operation:

Configuration 1 - Mode 1
 - Mode 2
 - Mode 3
 - Mode 4
 - Mode 5
 - Mode 8
 - Mode 9
 - Mode 10

2.1.6 Environmental Conditions

	15 August 2011	16 August 2011	17 August 2011
Ambient Temperature	25.4°C	25.8°C	24.9°C
Relative Humidity	58.9%	58.6%	56.8%



2.1.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 2 and Part 22 and Industry Canada RSS-132 for Maximum Peak Output Power.

The test results are shown below

Single Carrier

Configuration 1 - Mode 1, 2 and 3

TM1

UARFCN	Frequency (MHz)	Path Loss (dB)	Result (dBm) RMS	Result (W) RMS
4357	871.4	41.5	49.56	90.36
4407	881.4	41.5	49.56	90.36
4458	891.6	41.5	49.53	89.74

TM5

UARFCN	Frequency (MHz)	Path Loss (dB)	Result (dBm) RMS	Result (W) RMS
4357	871.4	41.5	49.59	90.99
4407	881.4	41.5	49.55	90.16
4458	891.6	41.5	49.51	89.33

TM6

UARFCN	Frequency (MHz)	Path Loss (dB)	Result (dBm) RMS	Result (W) RMS
4357	871.4	41.5	49.40	87.10
4407	881.4	41.5	49.41	87.30
4458	891.6	41.5	49.35	86.10

**Multi Carrier (1x2)****Configuration 1 - Mode 4 and 5****TM1**

UARFCN	Frequency (MHz)	Path Loss (dB)	Result (dBm) RMS	Result (W) RMS
4357 & 4432	871.4 & 886.4	41.5	49.45	88.10
4383 & 4458	876.6 & 891.6	41.5	49.60	91.20

TM5

UARFCN	Frequency (MHz)	Path Loss (dB)	Result (dBm) RMS	Result (W) RMS
4357 & 4432	871.4 & 886.4	41.5	49.54	89.95
4383 & 4458	876.6 & 891.6	41.5	49.59	90.99

TM6

UARFCN	Frequency (MHz)	Path Loss (dB)	Result (dBm) RMS	Result (W) RMS
4357 & 4432	871.4 & 886.4	41.5	49.38	86.70
4383 & 4458	876.6 & 891.6	41.5	49.37	86.50

**Multi Carrier (1x4)****Configuration 1 - Mode 8, 9 and 10****TM1**

UARFCN	Frequency (MHz)	Path Loss (dB)	Result (dBm) RMS	Result (W) RMS
4357 & 4382 & 4407 & 4432	871.4 & 876.4 & 881.4 & 886.4	41.5	49.42	87.50
4382 & 4407 & 4432 & 4457	876.4 & 881.4 & 886.4 & 891.4	41.5	49.33	85.70
4383 & 4408 & 4423 & 4458	876.6 & 881.6 & 886.6 & 891.6	41.5	49.35	86.10

TM5

UARFCN	Frequency (MHz)	Path Loss (dB)	Result (dBm) RMS	Result (W) RMS
4357 & 4382 & 4407 & 4432	871.4 & 876.4 & 881.4 & 886.4	41.5	49.39	86.90
4382 & 4407 & 4432 & 4457	876.4 & 881.4 & 886.4 & 891.4	41.5	49.34	85.90
4383 & 4408 & 4423 & 4458	876.6 & 881.6 & 886.6 & 891.6	41.5	49.35	86.10

TM6

UARFCN	Frequency (MHz)	Path Loss (dB)	Result (dBm) RMS	Result (W) RMS
4357 & 4382 & 4407 & 4432	871.4 & 876.4 & 881.4 & 886.4	41.5	48.93	78.16
4382 & 4407 & 4432 & 4457	876.4 & 881.4 & 886.4 & 891.4	41.5	48.95	78.52
4383 & 4408 & 4423 & 4458	876.6 & 881.6 & 886.6 & 891.6	41.5	48.87	77.09

Limit	≤500W or ≤+57dBm
-------	------------------

Remarks

The EUT does not exceed 500W or 57dBm at the measured frequencies.



Product Service

2.2 PEAK – AVERAGE RATIO

2.2.1 Specification Reference

FCC CFR 47 Part 22, Clause 22.913 (a)

2.2.2 Equipment Under Test

RRUS 01 B5 / KRC 118 70/3, S/N: C824850048

2.2.3 Date of Test and Modification State

15, 16 and 17 August 2011 – Modification State 0

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 Method and Operating Modes

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 22.

A peak to average ratio measurement is performed at the conducted port of the EUT. The spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level.

The spectrum analyzer Measurement bandwidth was set to 10MHz for single carrier and 20MHz for multi carrier and the path loss measured and entered as a reference level offset.

The test was performed with the EUT in the following configurations and modes of operation:

Configuration 1 - Mode 1
 - Mode 2
 - Mode 3
 - Mode 4
 - Mode 5
 - Mode 8
 - Mode 9
 - Mode 10

2.2.6 Environmental Conditions

	15 August 2011	16 August 2011	17 August 2011
Ambient Temperature	25.4°C	25.8°C	24.9°C
Relative Humidity	58.9%	58.6%	56.8%



Product Service

2.2.7 Test Results

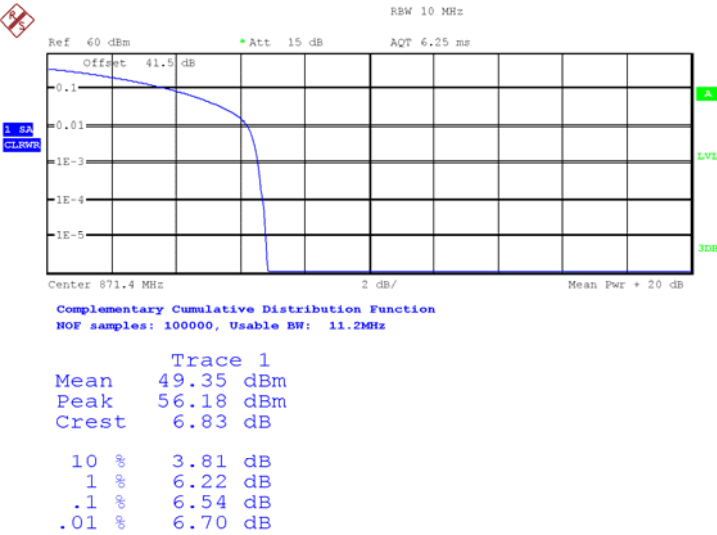
For the period of test the EUT met the requirements of FCC CFR 47 Part 22 Peak – Average Ratio.

The test results are shown below.

Single Carrier

Configuration 1 - Mode 1

TM1

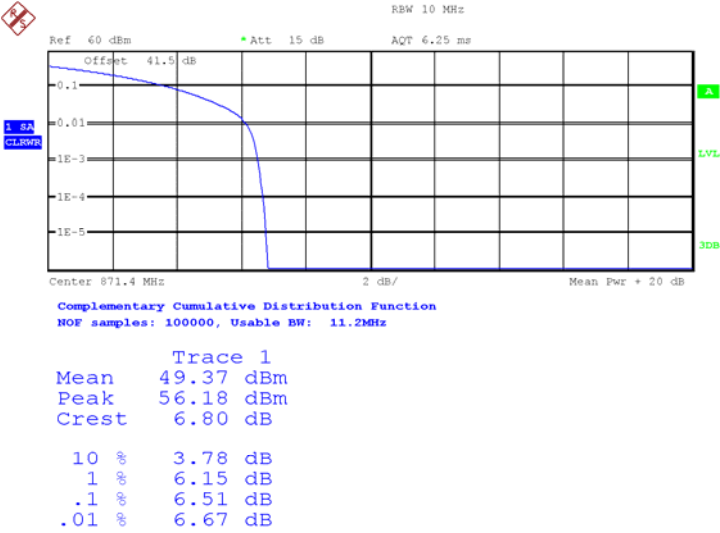


Date: 16.AUG.2011 16:55:35



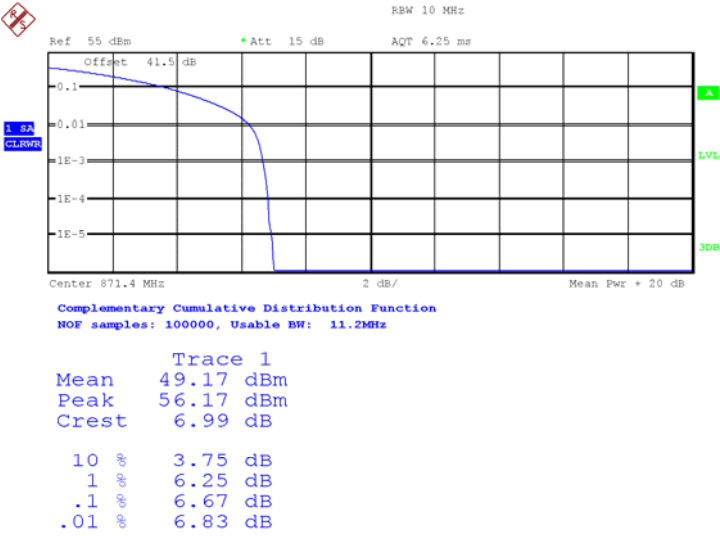
Product Service

TM5



Date: 16.AUG.2011 17:16:15

TM6



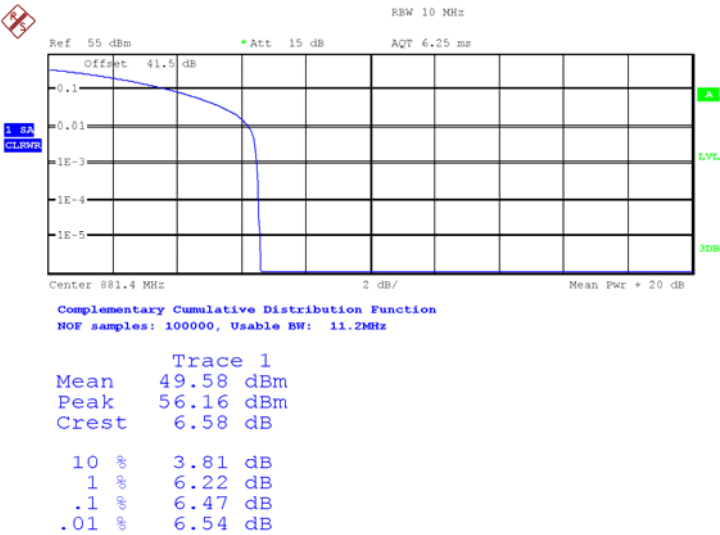
Date: 16.AUG.2011 17:32:45



Product Service

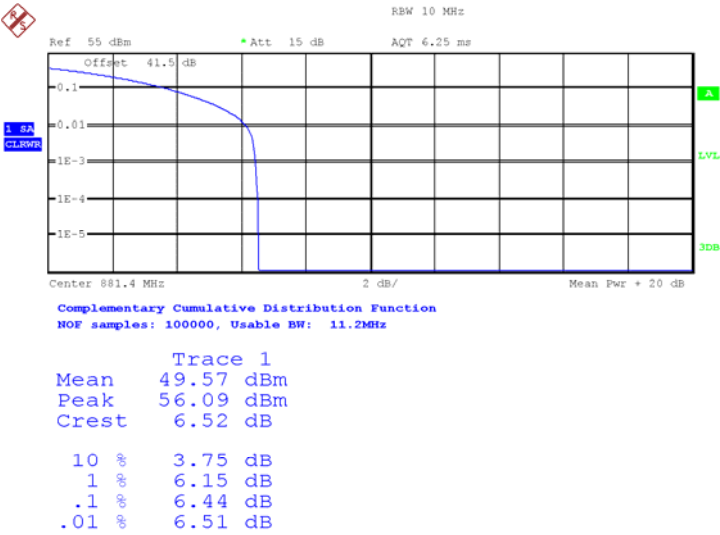
Configuration 1 – Mode 2

TM1



Date: 16.AUG.2011 18:08:37

TM5

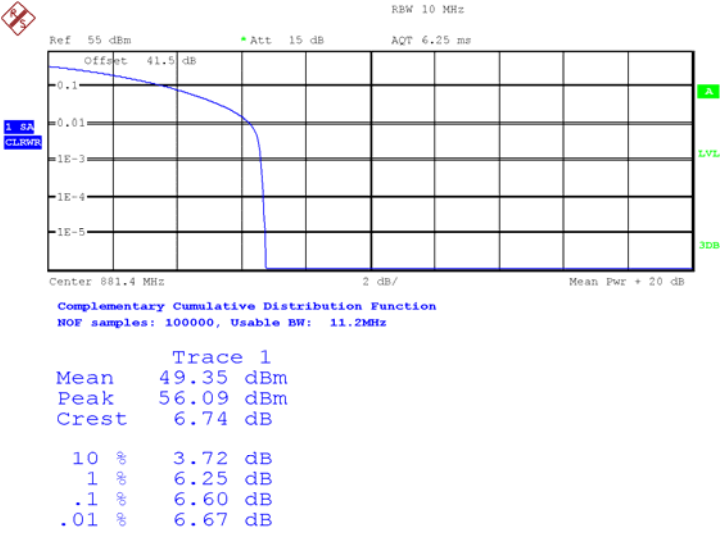


Date: 16.AUG.2011 17:59:08



Product Service

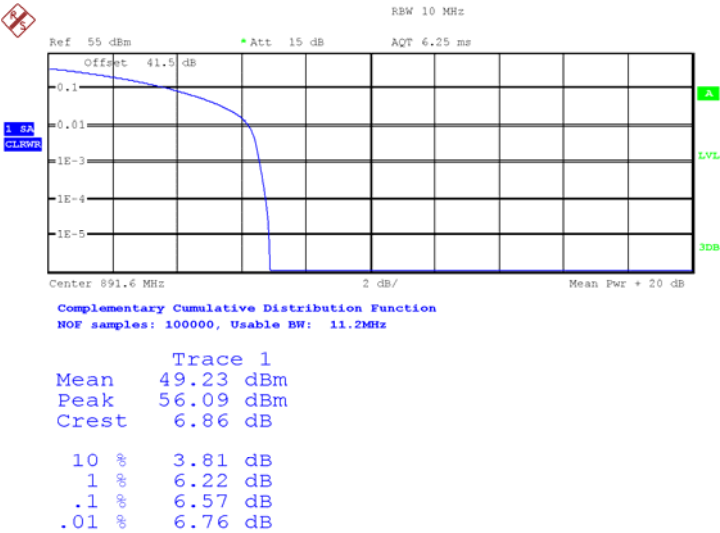
TM6



Date: 16.AUG.2011 17:45:53

Configuration 1 – Mode 3

TM1

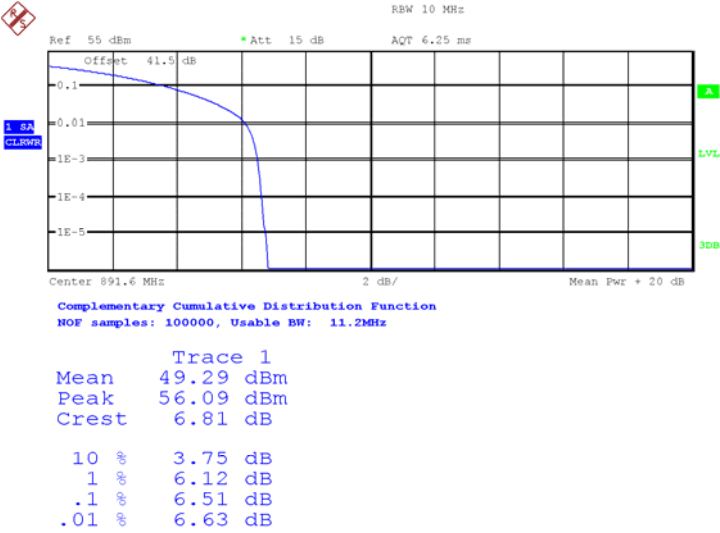


Date: 17.AUG.2011 10:27:35



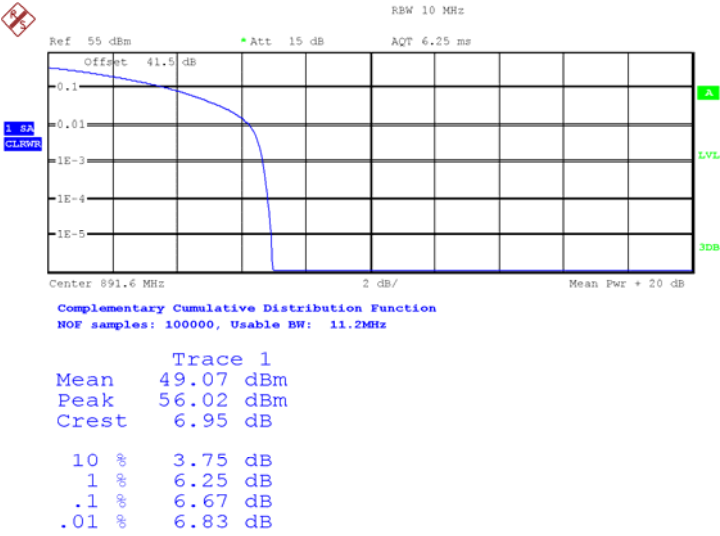
Product Service

TM5



Date: 17.AUG.2011 10:42:27

TM6



Date: 17.AUG.2011 10:51:34

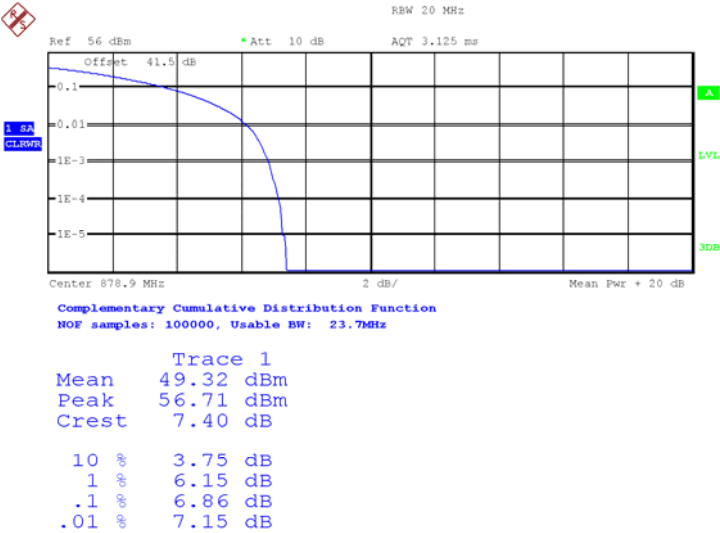


Product Service

Multi Carrier (1x2)

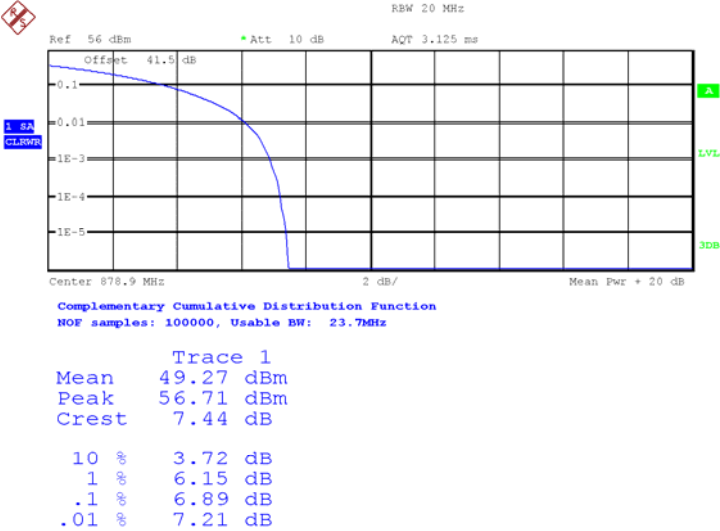
Configuration 1 - Mode 4

TM1



Date: 16.AUG.2011 14:38:51

TM5

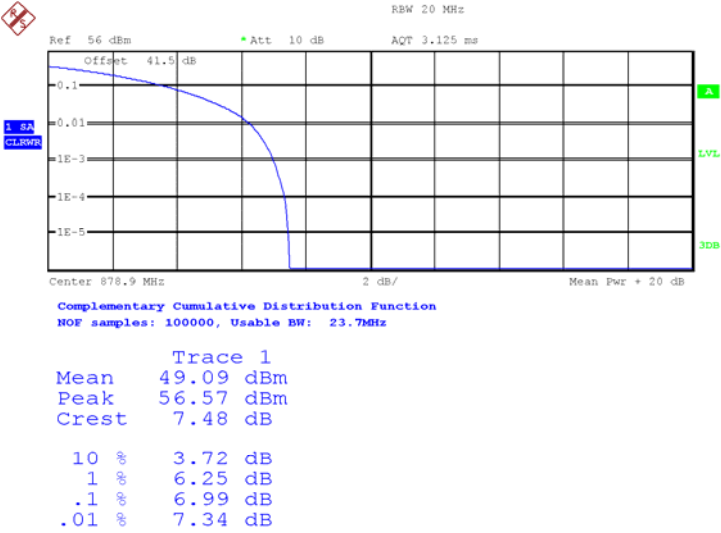


Date: 16.AUG.2011 15:02:10



Product Service

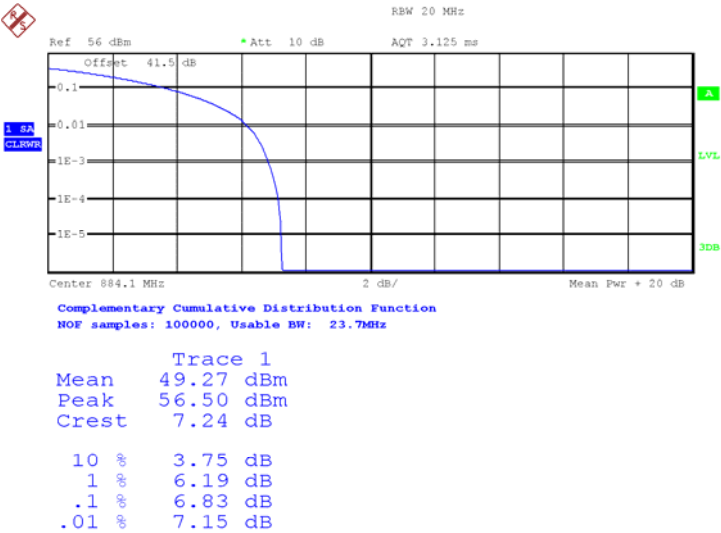
TM6



Date: 16.AUG.2011 15:13:29

Configuration 1 – Mode 5

TM1

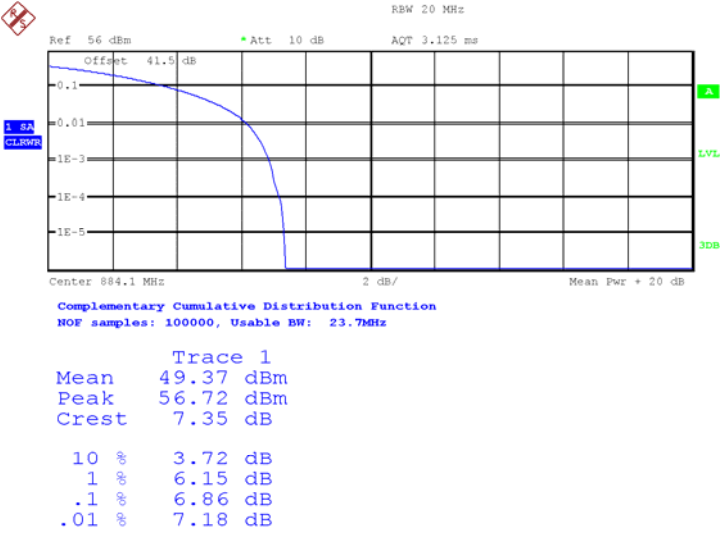


Date: 16.AUG.2011 16:02:06



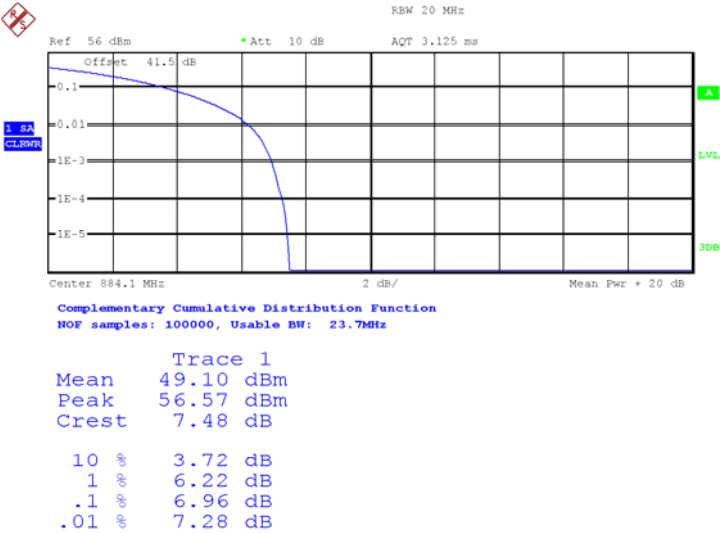
Product Service

TM5



Date: 16.AUG.2011 15:52:46

TM6



Date: 16.AUG.2011 15:33:01

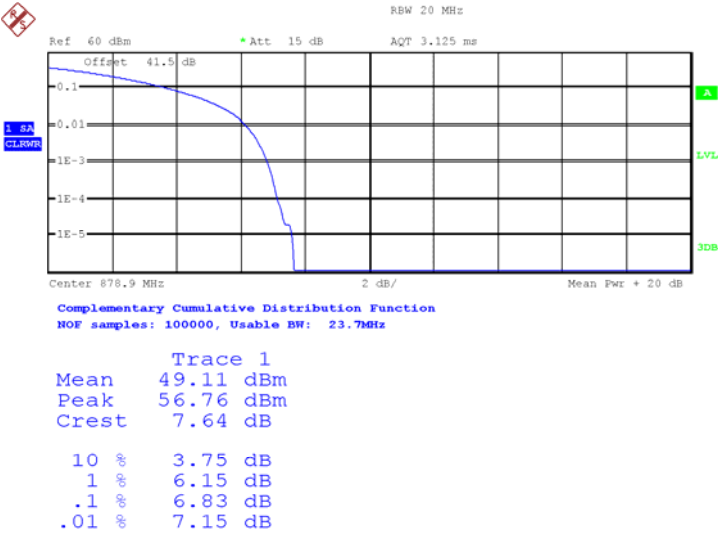


Product Service

Multi Carrier (1x4)

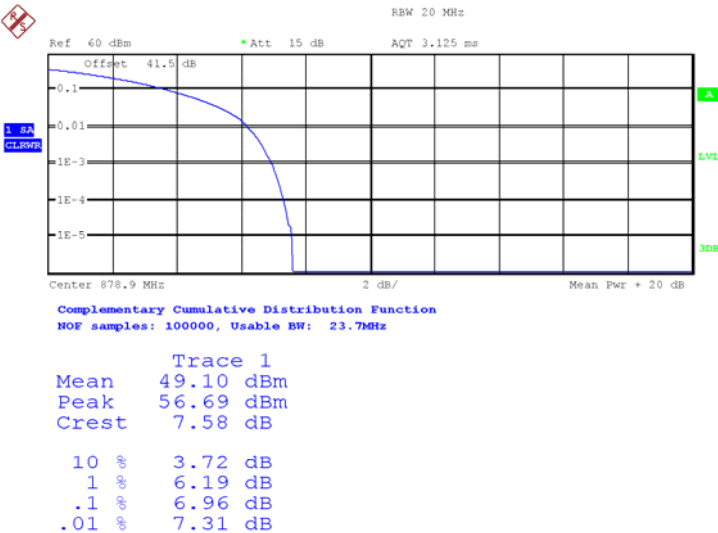
Configuration 1 – Mode 8

TM1



Date: 16.AUG.2011 10:47:36

TM5

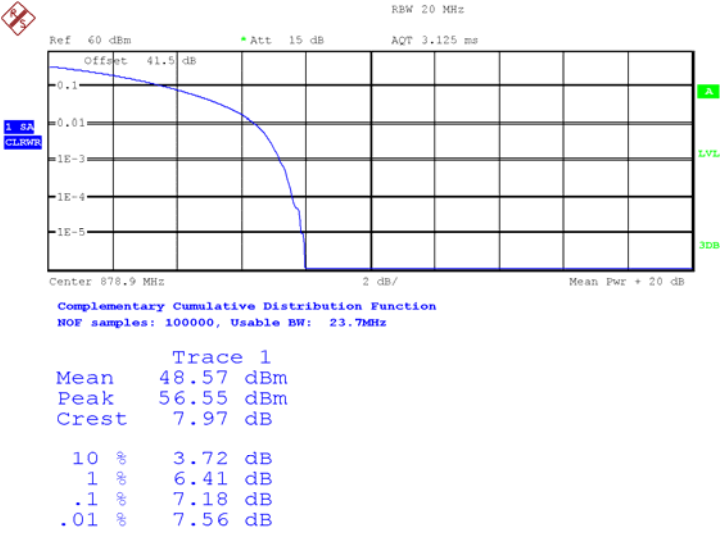


Date: 16.AUG.2011 11:07:49



Product Service

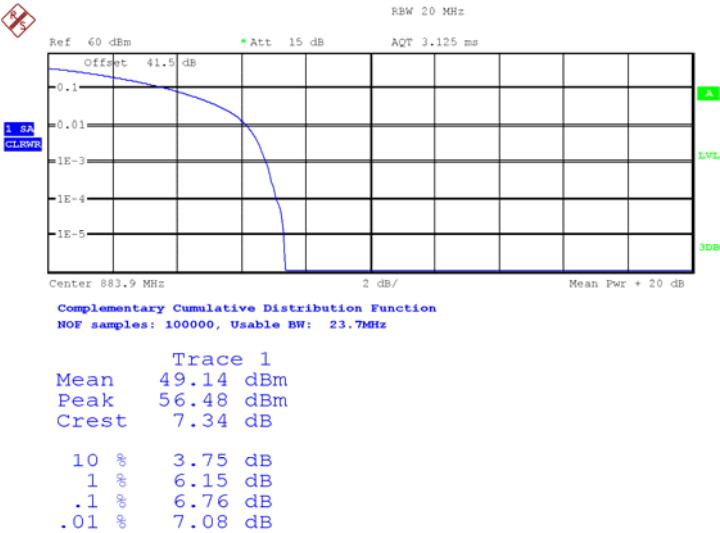
TM6



Date: 15.AUG.2011 16:35:55

Configuration 1 – Mode 9

TM1

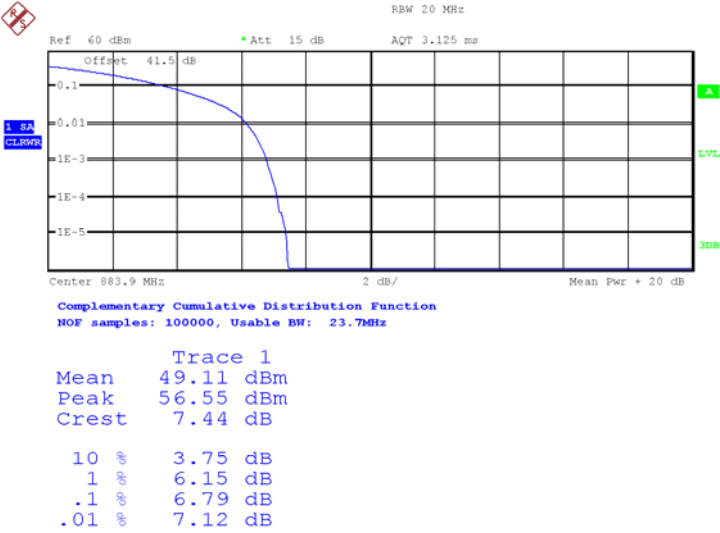


Date: 16.AUG.2011 11:29:04



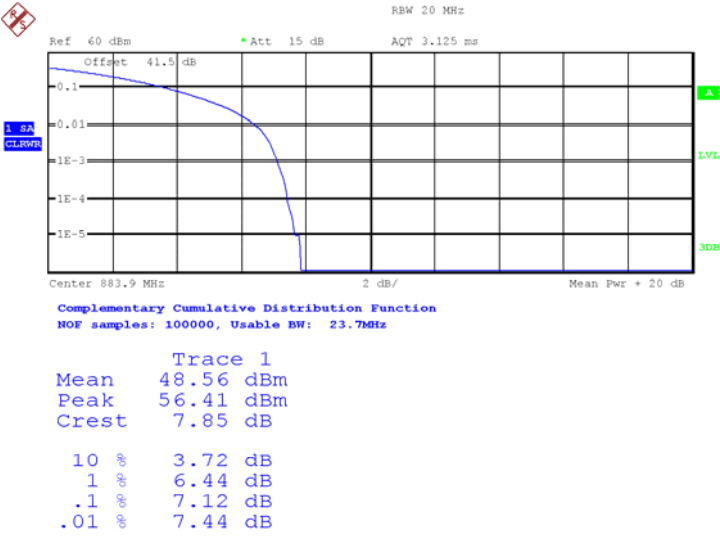
Product Service

TM5



Date: 16.AUG.2011 11:18:00

TM6



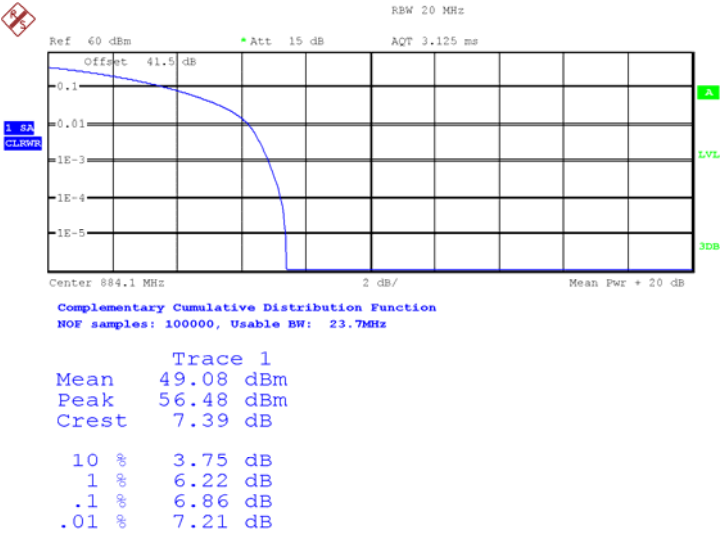
Date: 16.AUG.2011 11:47:20



Product Service

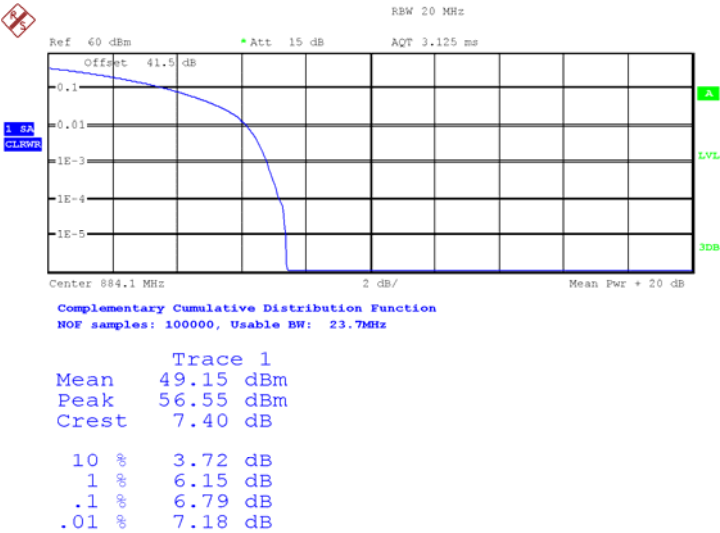
Configuration 1 – Mode 10

TM1



Date: 15.AUG.2011 17:51:32

TM5

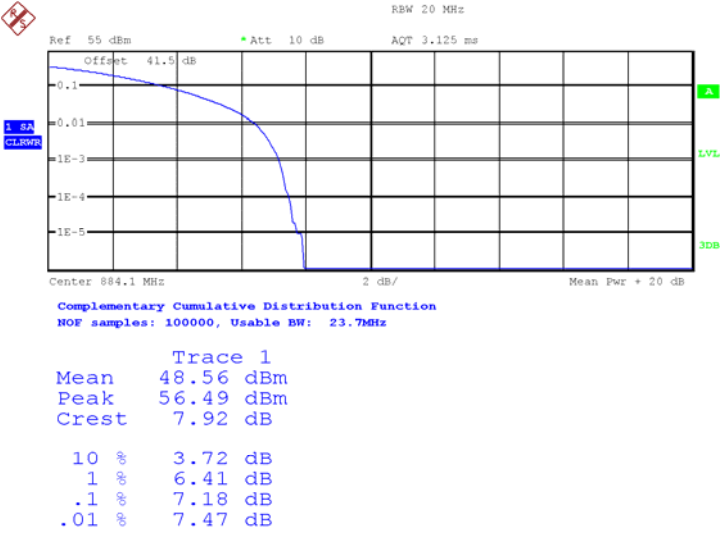


Date: 15.AUG.2011 18:09:14



Product Service

TM6



Date: 16.AUG.2011 12:05:44

Limit	13dB
-------	------

Remarks

The Peak – Average ratio does not exceed 13dB at the measured frequencies.



Product Service

2.3 MODULATION CHARACTERISTICS

2.3.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1047 (d)
Industry Canada RSS-132 Clause 4.2

2.3.2 Equipment Under Test

RRUS 01 B5 / KRC 118 70/3, S/N: C824850048

2.3.3 Date of Test and Modification State

16 and 17 August 2011 – Modification State 0

2.3.4 Test Method and Operating Modes

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 2 and Industry Canada RSS-132.

The EUT supports QPSK, 16QAM and 64QAM modulations.

The test was performed with the EUT in the following configurations and modes of operation:

Configuration 1 - Mode 2

2.3.5 Environmental Conditions

	16 August 2011	17 August 2011
Ambient Temperature	25.8°C	24.9°C
Relative Humidity	58.6%	56.8%



Product Service

2.3.6 Test Results

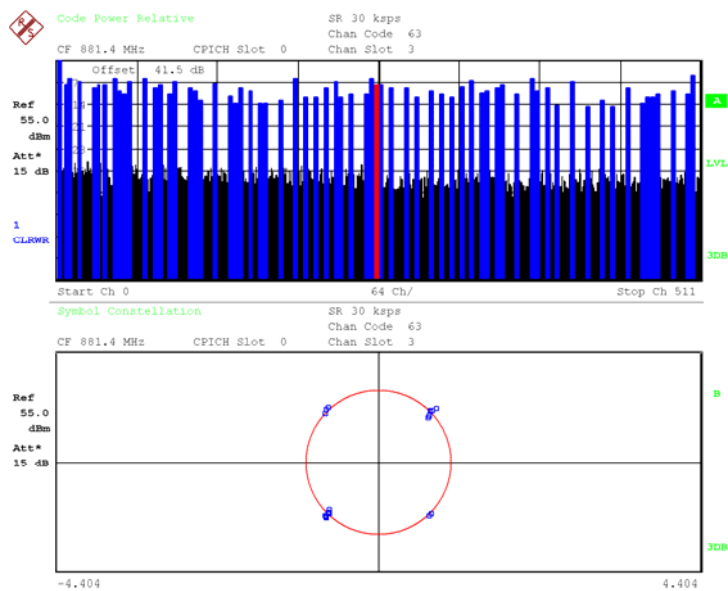
For the period of test the EUT met the requirements of FCC CFR 47 Part 2 and Industry Canada RSS-132 for Modulation Characteristics.

The test results are shown below

Single Carrier

Configuration 1 - Mode 2

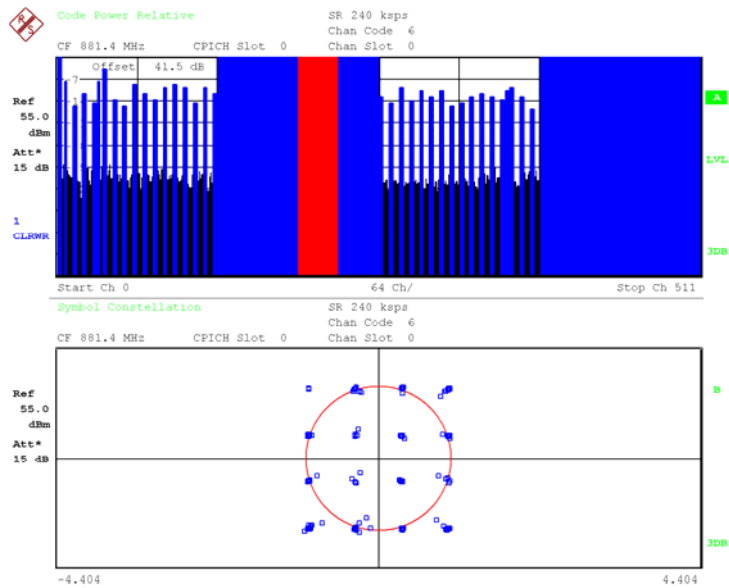
TM1: EUT transmitting with QPSK modulation:



Date: 17.AUG.2011 11:17:04

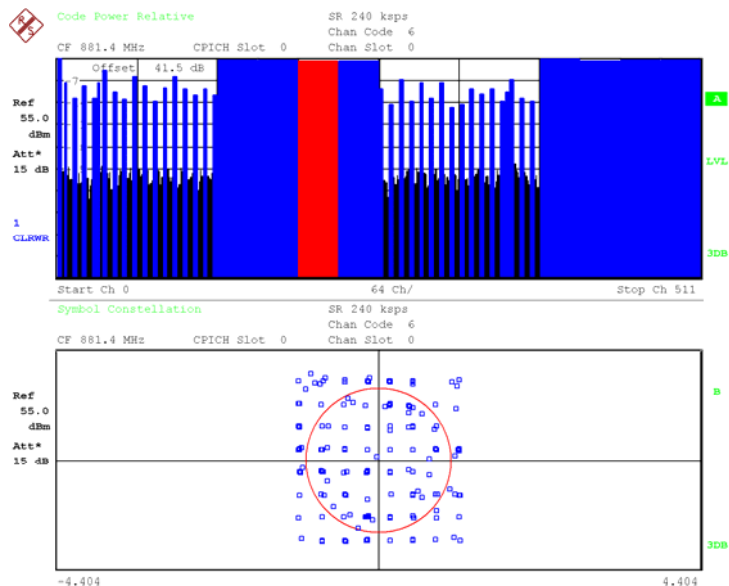


TM5: EUT transmitting with 16QAM modulation:



Date: 16.AUG.2011 17:55:44

TM6: EUT transmitting with 64QAM modulation:



Date: 16.AUG.2011 17:49:33



Product Service

2.4 OCCUPIED BANDWIDTH

2.4.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1049
 FCC CFR 47 Part 22, Clause 22.917 (b)
 Industry Canada RSS-GEN, Clause 4.6.1

2.4.2 Equipment Under Test

RRUS 01 B5 / KRC 118 70/3, S/N: C824850048

2.4.3 Date of Test and Modification State

16, 17 and 29 August 2011 – Modification State 0

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 Method and Operating Modes

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 2 and Part 22 and Industry Canada RSS-GEN.

The EUT was transmitting at maximum power, modulated using the test model described. Using a resolution bandwidth of 50kHz and a video bandwidth of 500kHz. The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission.

The test was performed with the EUT in the following configurations and modes of operation:

Configuration 1 - Mode 1
 - Mode 2
 - Mode 3

2.4.6 Environmental Conditions

	16 August 2011	17 August 2011	29 August 2011
Ambient Temperature	25.8°C	24.9°C	24.3°C
Relative Humidity	58.6%	56.8%	55.6%



Product Service

2.4.7 Test Results

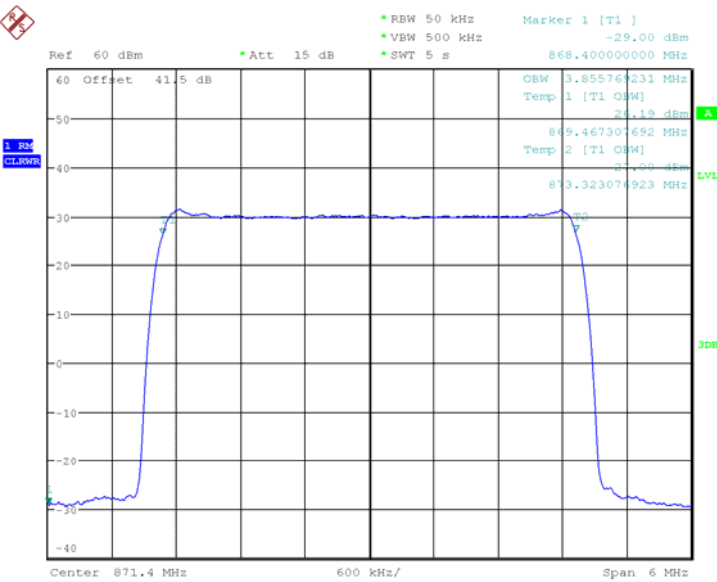
For the period of test the EUT met the requirements of FCC CFR 47 Part 2 and Part 22 and Industry Canada RSS-GEN for Occupied Bandwidth.

The test results are shown below

Single Carrier: 4.2MHz Bandwidth

TM1

Configuration 1 – Mode 1

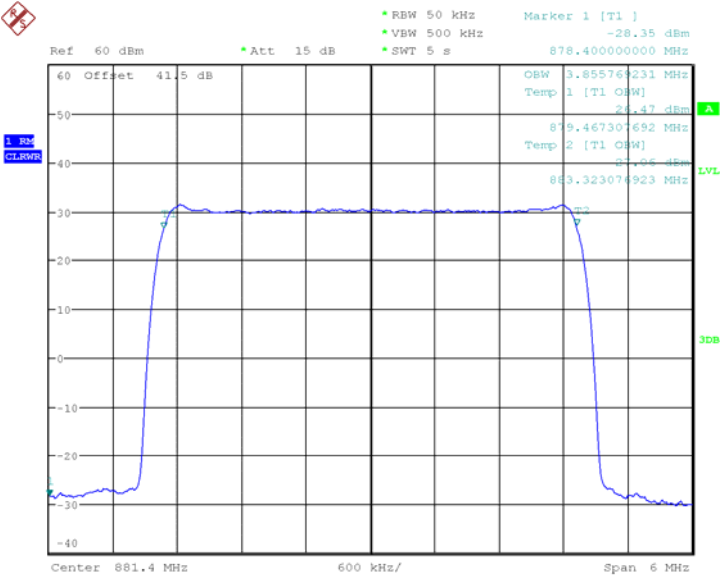


Date: 29.AUG.2011 15:21:32



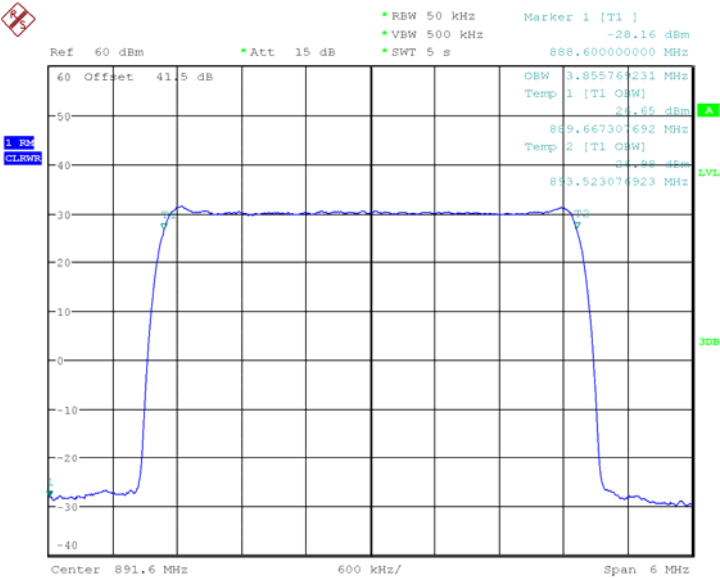
Product Service

Configuration 1 – Mode 2



Date: 29.AUG.2011 15:29:13

Configuration 1 – Mode 3



Date: 29.AUG.2011 15:36:06

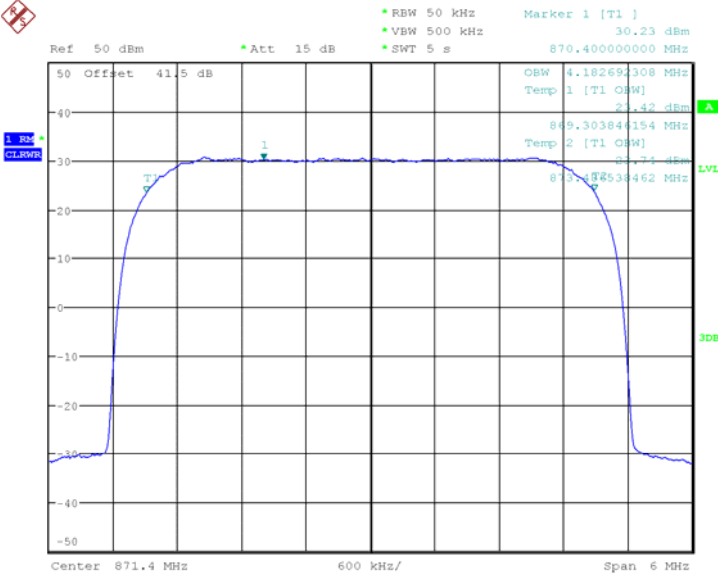


Product Service

Single Carrier: 5MHz Bandwidth

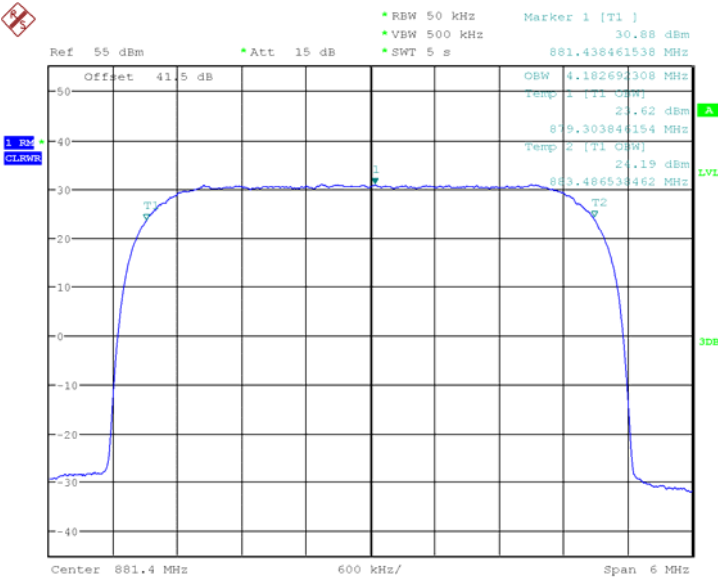
TM1

Configuration 1 – Mode 1



Date: 16.AUG.2011 16:53:51

Configuration 1 – Mode 2

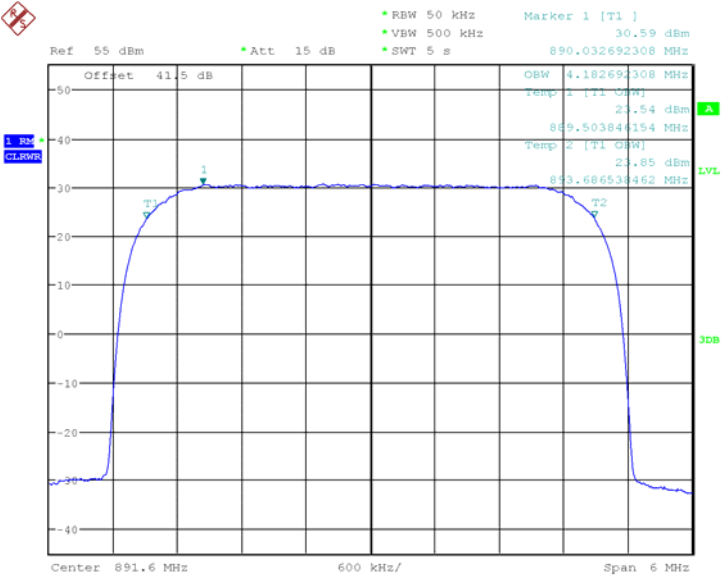


Date: 16.AUG.2011 18:09:30



Product Service

Configuration 1 – Mode 3



Date: 17.AUG.2011 10:26:46



Product Service

2.5 SPURIOUS EMISSIONS AT ANTENNA TERMINALS (± 1 MHz)

2.5.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1051
FCC CFR 47 Part 22, Clause 22.917 (b)
Industry Canada RSS-132 Clause 4.5

2.5.2 Equipment Under Test

RRUS 01 B5 / KRC 118 70/3, S/N: C824850048

2.5.3 Date of Test and Modification State

15, 16 and 17 August 2011 – Modification State 0

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 Method and Operating Modes

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 2 and Part 22 and Industry Canada RSS-132.

In accordance with 22.917(b), at least 1% of the 26dB bandwidth shall be used for the resolution bandwidths up to 1MHz away from the block edge. A resolution bandwidth of 20kHz was used for single carrier and 30kHz was used for multi carriers up to 1MHz away from the band edges. 20kHz and 30kHz are <1% of the Emission Bandwidth (5MHz nominal BW setting). To compensate for the reduced measurement bandwidth, the limit was adjusted to -17dBm for single carrier and -15dBm for multi carriers up to 1MHz away from the band edges. A resolution bandwidth of 50kHz was used between 1MHz to 5MHz away from the band edge. As Industry Canada RSS-132 specify a RBW of 1MHz for measurements of emissions > 1MHz away from the band edges, the limit was adjusted with -13dB to -26dBm to compensate for the reduce measurement bandwidth. Spectrum analyser detector was set as RMS.

The path loss measured and entered as a reference level offset.

The EUT was tested at it's maximum power level.

The test was performed with the EUT in the following configurations and modes of operation as the worst cases:

Configuration 1 - Mode 1
 - Mode 3
 - Mode 6
 - Mode 7



2.5.6 Environmental Conditions

	15 August 2011	16 August 2011	17 August 2011
Ambient Temperature	25.4°C	25.8°C	24.9°C
Relative Humidity	58.9%	58.6%	56.8%

2.5.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 2 and Part 22 and Industry Canada RSS-132 for Spurious Emissions Antenna Terminals (± 1 MHz)

Below are the Frequencies the EUT was tested against along with the tested channels.

TM1

Single Carrier

Configuration 1 - Mode 1 and 3

Band Edge Frequency	Edge Test with QPSK modulation Channel No./Frequencies
Bottom 869 MHz	Channel: 4357 Frequency: 871.4 MHz
Top 894 MHz	Channel: 4458 Frequency: 891.6 MHz

Multi Carrier (1x2)

Configuration 1 - Mode 6 and 7

Band Edge Frequency	Edge Test with QPSK modulation Channel No./Frequencies
Bottom 869 MHz	Channel: 4357 & 4382 Frequency: 871.4 & 876.4 MHz
Top 894 MHz	Channel: 4433 & 4458 Frequency: 886.6 & 891.6 MHz

The channels shown in the table above are the minimum and maximum channels that can be used in the authorised frequency ranges to maintain compliance.



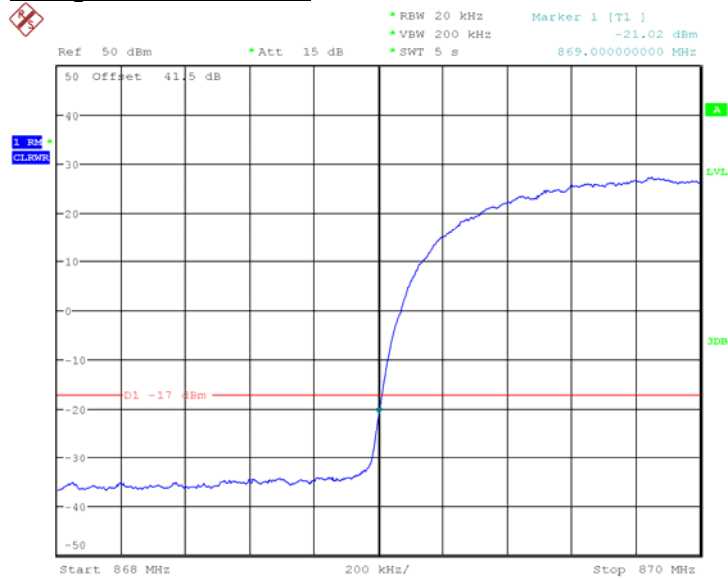
Product Service

The test results are shown below

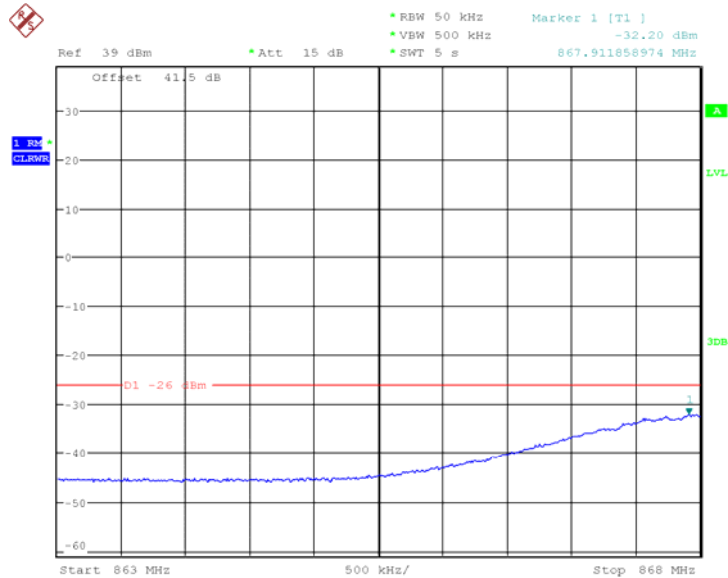
TM1

Single Carrier

Configuration 1 - Mode 1



Date: 16.AUG.2011 16:50:19

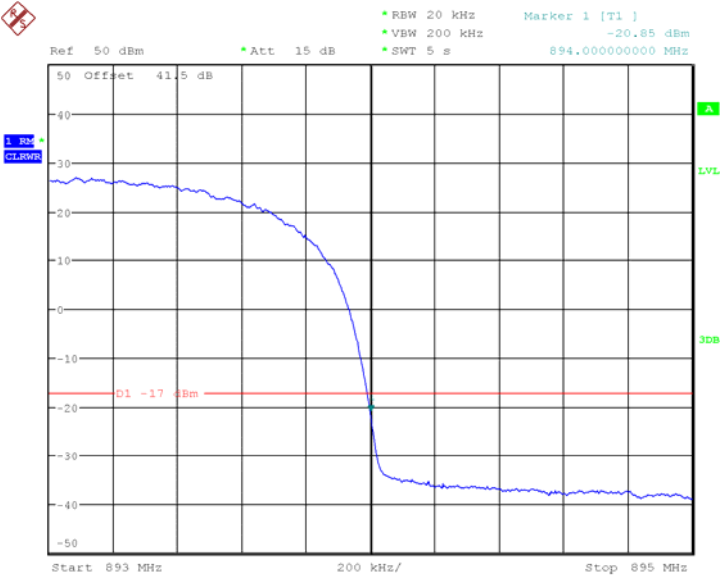


Date: 16.AUG.2011 16:44:31

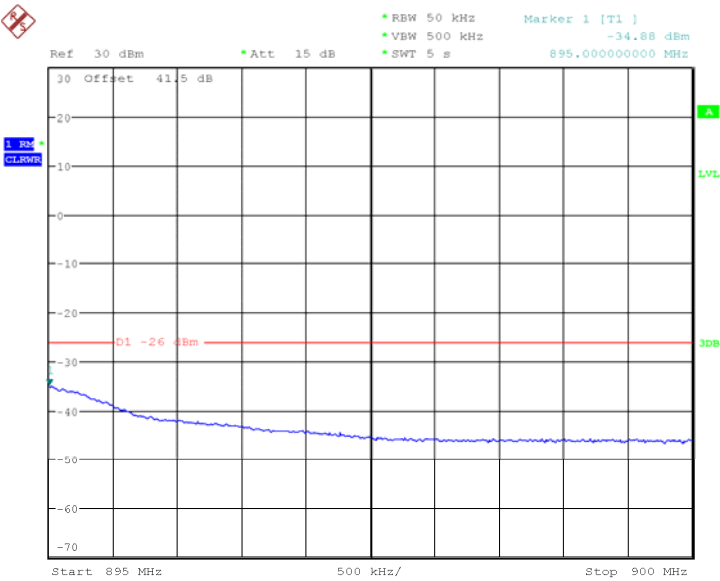


Product Service

Configuration 1 – Mode 3



Date: 17.AUG.2011 10:32:56



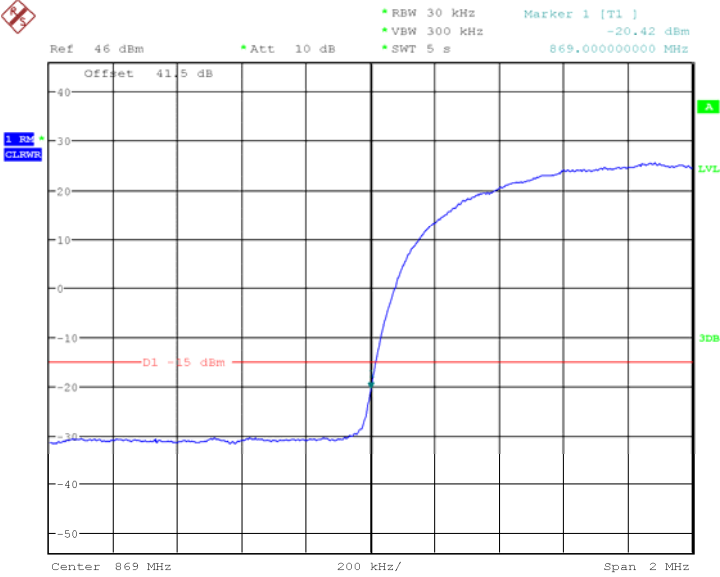
Date: 17.AUG.2011 10:34:49



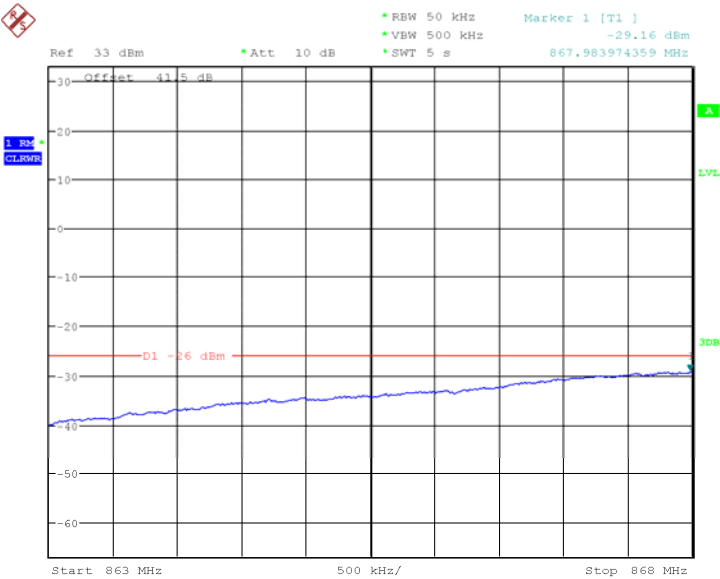
Product Service

Multi Carrier (1x2)

Configuration 1 - Mode 6



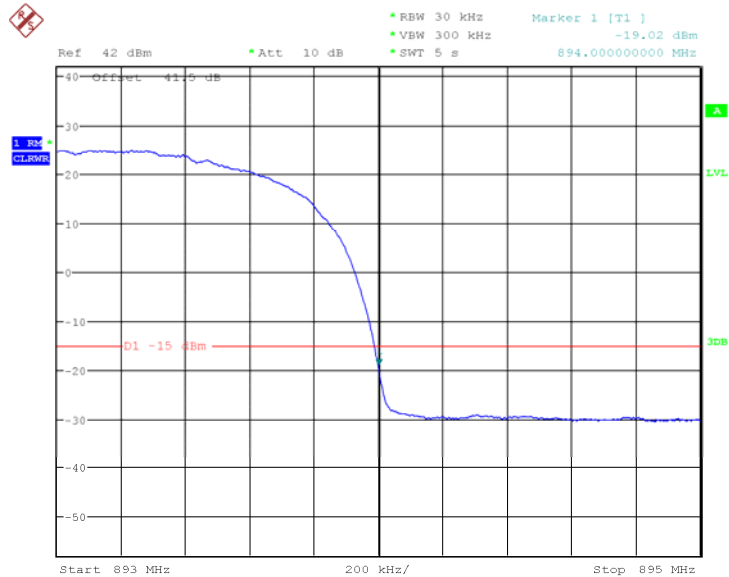
Date: 16.AUG.2011 14:50:03



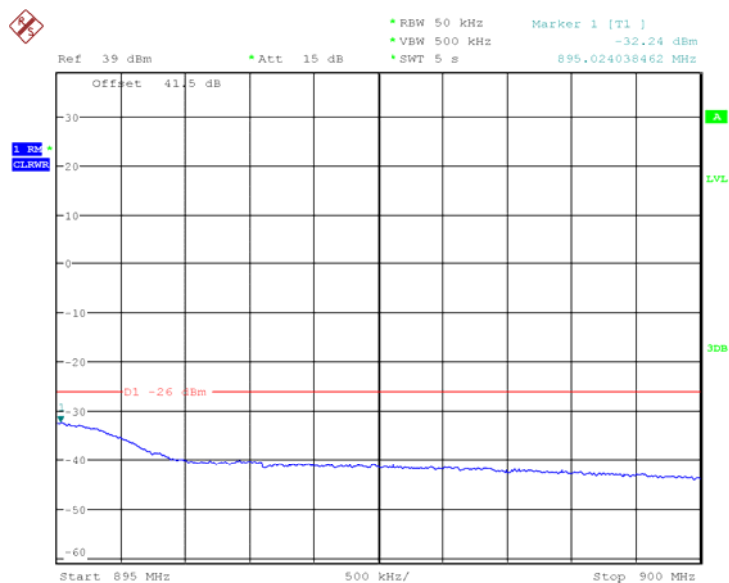
Date: 16.AUG.2011 14:53:23



Configuration 1 - Mode 7



Date: 16.AUG.2011 16:22:47



Date: 16.AUG.2011 16:26:35

Limit

The power of any emission outside the frequency band shall be attenuated below the transmitter power (P) by at least $43 + 10\log P$ dB.



2.6 RADIATED SPURIOUS EMISSIONS

2.6.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1053
FCC CFR 47 Part 22, Clause 22.917 (a)
Industry Canada RSS-132, Clause 4.5

2.6.2 Equipment Under Test

RRUS 01 B5 / KRC 118 70/3, S/N: C824850048

2.6.3 Date of Test and Modification State

22 and 23 August 2011 – Modification State 0

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 Method and Operating Modes

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 2 and Part 22 and Industry Canada RSS-132.

A preliminary profile of the Spurious Radiated Emissions was obtained by operating the EUT on a remotely controlled turntable within the chamber. Measurements of emissions from the EUT were obtained with the Measurement Antenna in both Horizontal and Vertical Polarisations.

Emissions identified within the range 30MHz – 25GHz were then formally measured using a Peak detector as the worst case.

In the frequency Range 30MHz – 25GHz, the measurement was performed with a resolution bandwidth of 1MHz.

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

The limits for Spurious Emissions have been calculated, as shown below using the following formula:

Field Strength of Carrier - $(43 + 10\log(P))$ dB

Where:

Field Strength is measured in dB μ V/m

P is measured Transmitter Power in Watts



Determination of Spurious Emission Limit

As the EUT does not have an integral antenna, the field strength of the carrier has been calculated assuming that the power is to be fed to a half-wave tuned dipoles as per 2.1053 (a).

$$E_{(v/m)} = (30 \times G_i \times P_o)^{0.5} / d$$

Where G_i is the antenna gain of ideal half-wave dipoles,
 P_o is the power out of the transceiver in W,
 d is the measurement distance in meter.

Therefore at 3m measurement distance the field strength using the lowest transceiver output power would be:

$$E_{(v/m)} = (30 \times 1.64 \times 77.09)^{0.5} / 3 = 20.53V/m = 146.27dB\mu V/m$$

As per 22.917(a) the spurious emission must be attenuated by $43 + 10\log(P_o)$ dB this gives:

$$43 + 10\log(77.09) = 61.87dB$$

Therefore the limit at 3m measurement distance is:

$$146.27 - 61.87 = 84.4 \text{ dB}\mu V/m$$

This limit has been used to determine Pass or Fail for the harmonics measured and detailed in the following results.

The test was performed with the EUT in the following configurations and modes of operation as the worst cases:

- Configuration 1 - Mode 1
 - Mode 2
 - Mode 3
 - Mode 5
 - Mode 10

2.6.6 Environmental Conditions

	22 August 2011	23 August 2011
Ambient Temperature	27.5°C	27.0°C
Relative Humidity	54.8%	54.0%



2.6.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 2 & Part 22 and Industry Canada RSS-132 for Radiated Spurious Emissions.

The test results are shown below

Note: Only the worst case results plots have been included as all of the emissions are greater than 20dB below the limit. A set of plots have been included to show the measurement system noise floor.

Single Carrier

TM1

Configuration 1 - Mode 1

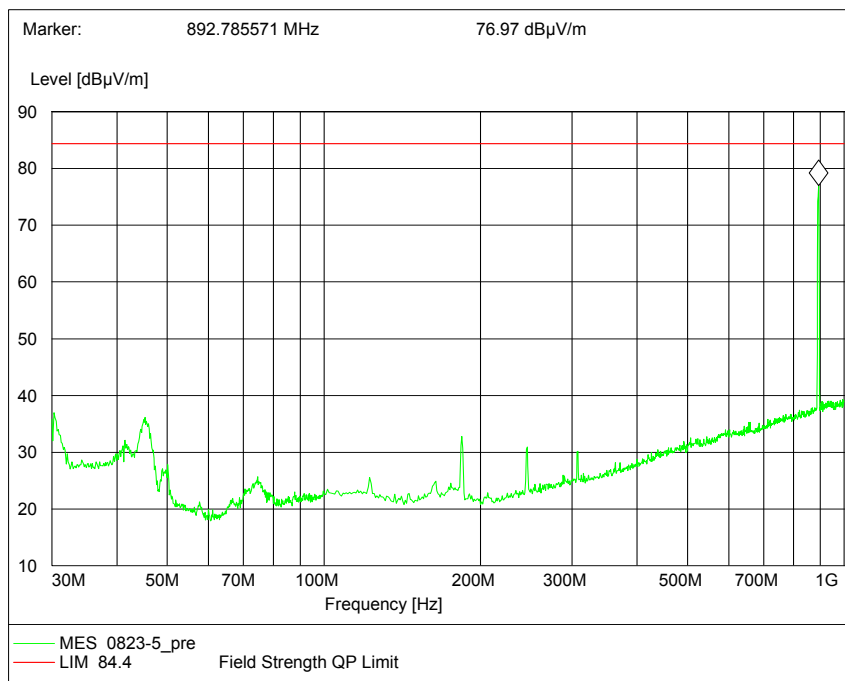
No emissions were detected within 20dB of the limit.

Configuration 1 – Mode 2

No emissions were detected within 20dB of the limit.

Configuration 1 – Mode 3

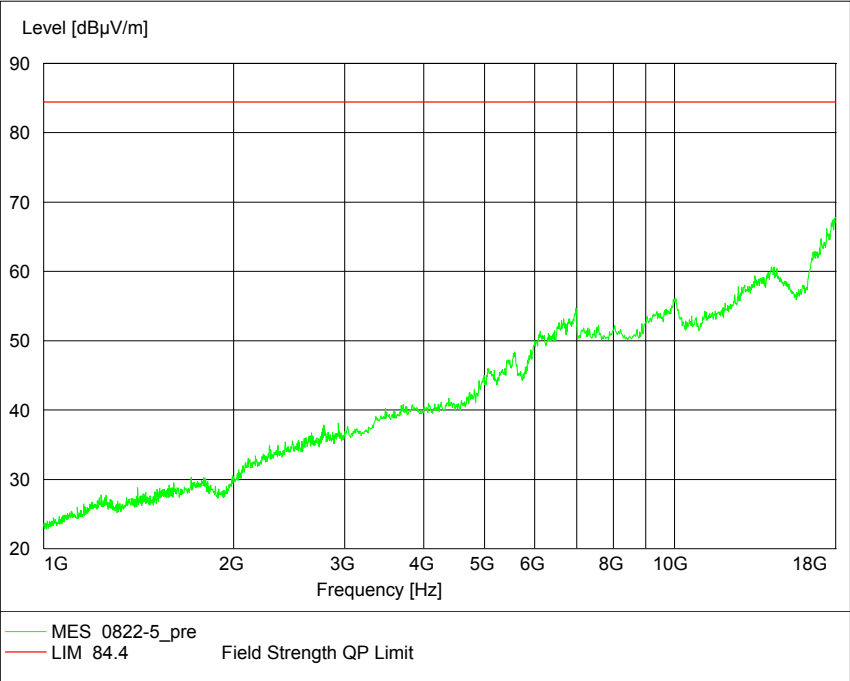
30MHz – 1GHz



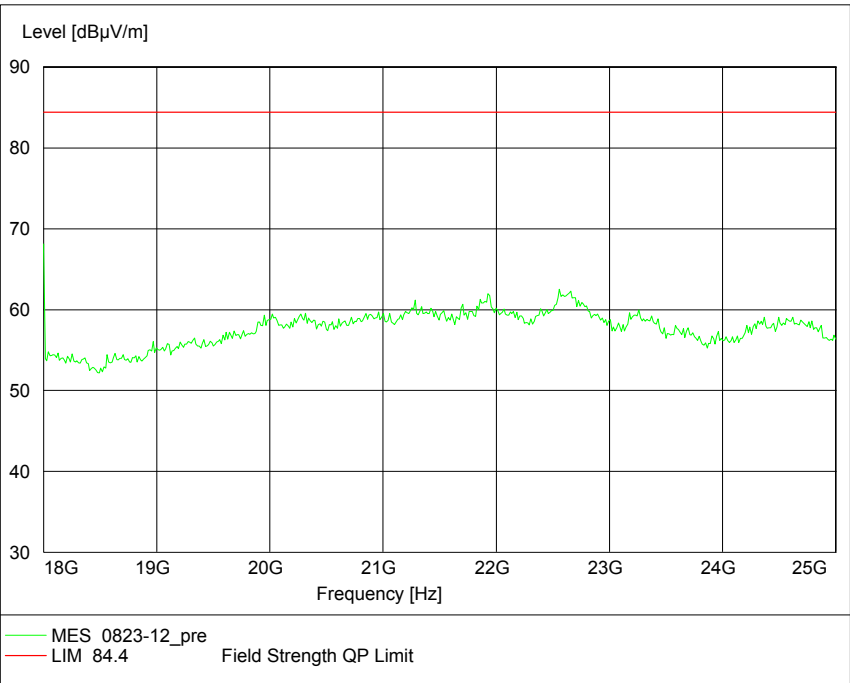


Product Service

1GHz – 18GHz



18GHz – 25GHz





Product Service

TM5Configuration 1 - Mode 3

No emissions were detected within 20dB of the limit.

TM6Configuration 1 - Mode 3

No emissions were detected within 20dB of the limit.

Multi Carrier(1x2)**TM1**Configuration 1 - Mode 5

No emissions were detected within 20dB of the limit.

Multi Carrier(1x4)**TM1**Configuration 1 - Mode 10

No emissions were detected within 20dB of the limit.

Limit	-13dBm / 84.4 dBµV/m
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Remarks

The EUT does not exceed -13dBm at the measured frequencies.



2.7 CONDUCTED SPURIOUS EMISSIONS

2.7.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1051
 FCC CFR 47 Part 22, Clause 22.917 (a)
 Industry Canada RSS-132, Clause 4.5

2.7.2 Equipment Under Test

RRUS 01 B5 / KRC 118 70/3, S/N: C824850048

2.7.3 Date of Test and Modification State

16 and 17 August 2011 – Modification State 0

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 Method and Operating Modes

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 2 and Part 22 and Industry Canada RSS-132.

In accordance with Part 2.1051, the spurious emissions from the antenna terminal were measured. The transmitter output power was attenuated using an attenuator and the frequency spectrum investigated from 9kHz to 25GHz. The EUT was set to transmit on maximum power. The resolution was set to 1MHz for 9kHz to 25GHz thus meeting the requirements of Industry Canada RSS-132 Clause 4.5.1.2. The spectrum analyser detector was set to peak and trace was kept on Max Hold.

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

In addition, measurements were made up to the 10th harmonic of the highest internal frequency.

The test was performed with the EUT in the following configurations and modes of operation as the worst cases:

Configuration 1 - Mode 1
 - Mode 2
 - Mode 3

2.7.6 Environmental Conditions

	16 August 2011	17 August 2011
Ambient Temperature	25.8°C	24.9°C
Relative Humidity	58.6%	56.8%



Product Service

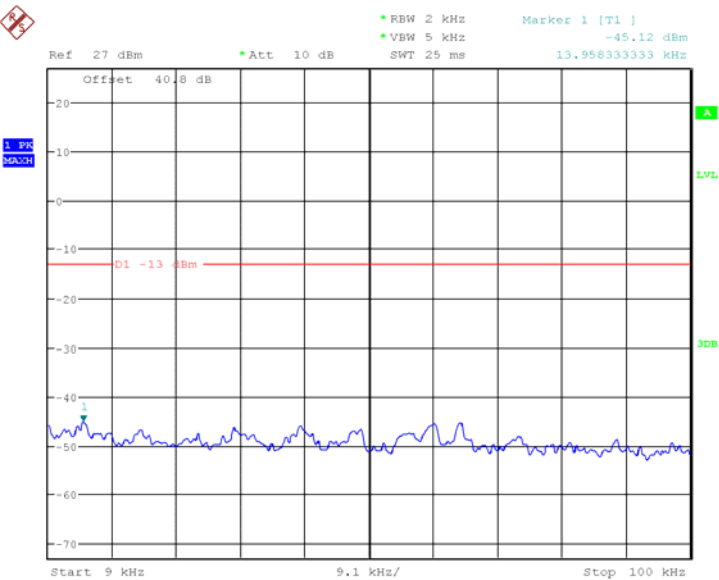
2.7.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 2 and Part 22 and Industry Canada RSS-132 for Conducted Spurious Emissions.

The test results are shown below

Remark:

The emissions at 9kHz on the plots was not generated by the test object. A complementary measruement with a smaller Span showed that it was related to the LO feedthrough.



Date: 16.AUG.2011 12:25:09



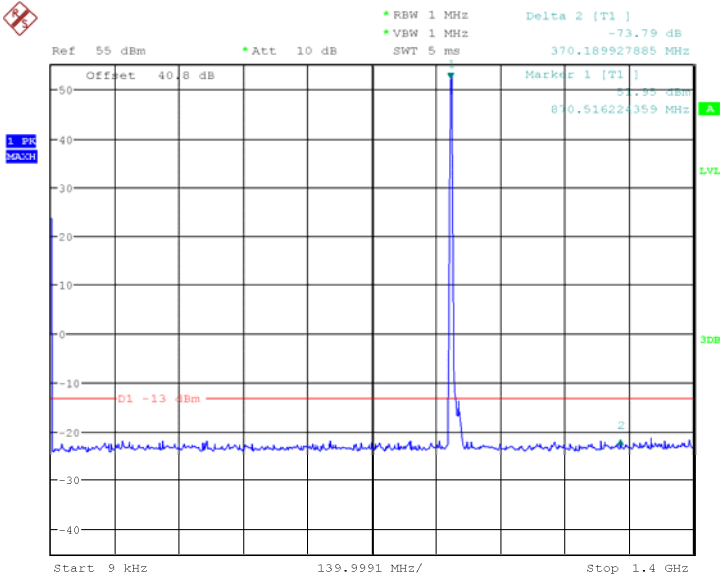
Product Service

TM1

Single Carrier

Configuration 1 - Mode 1

9kHz to 1.4GHz

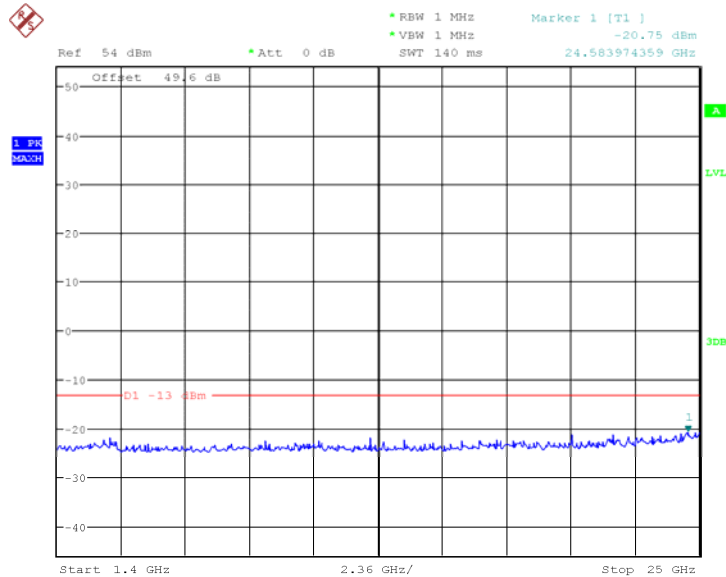


Date: 17.AUG.2011 12:06:20

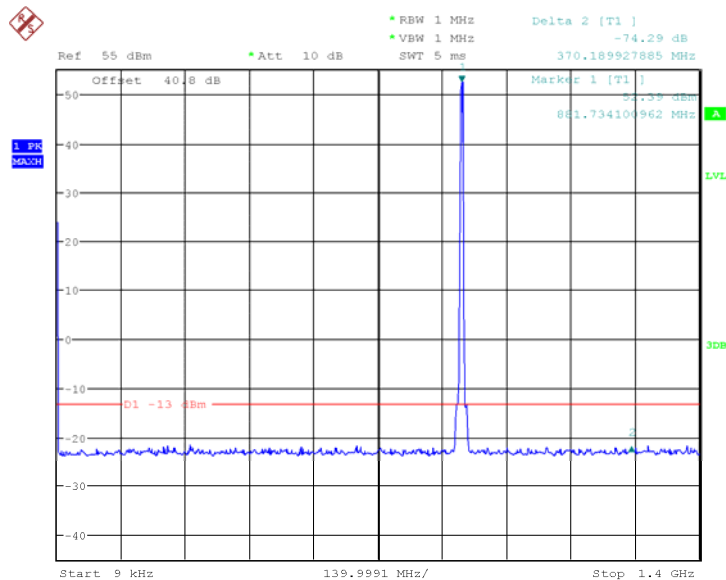
Note: The emission beyond the limit is the operating frequency.



Product Service

1.4GHz to 25GHz

Date: 17.AUG.2011 14:30:56

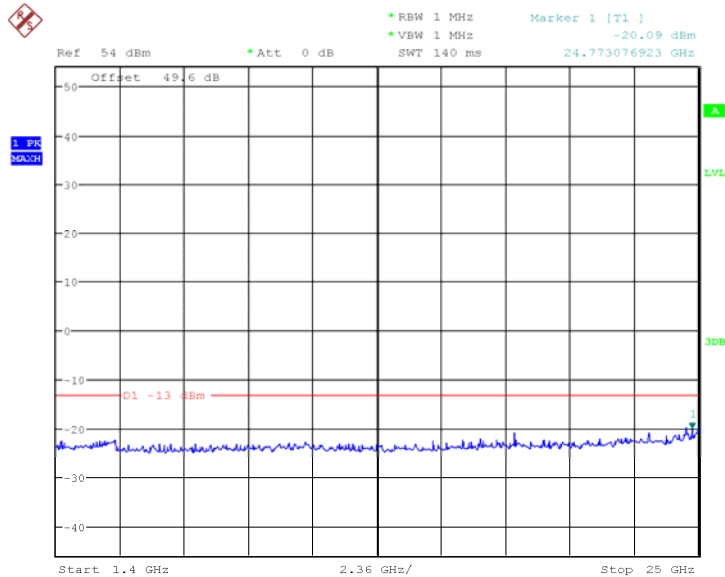
Configuration 1 - Mode 29kHz to 1.4GHz

Date: 17.AUG.2011 11:46:04

Note: The emission beyond the limit is the operating frequency.



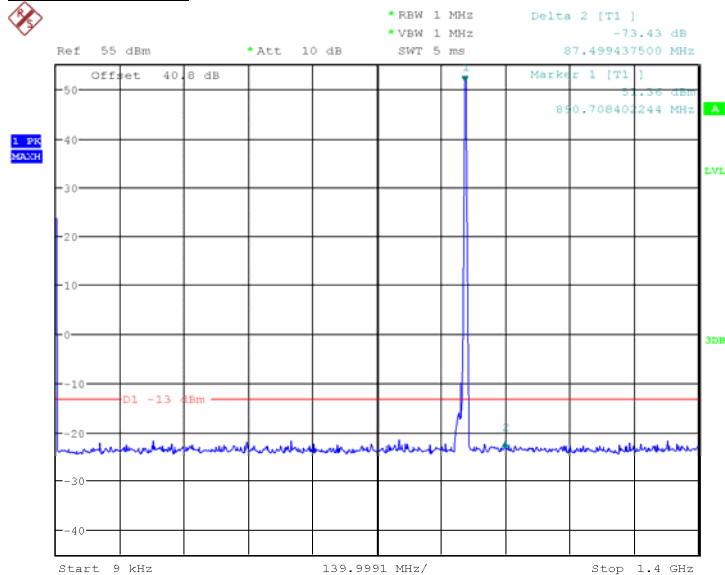
1.4GHz to 25GHz



Date: 17.AUG.2011 12:24:23

Configuration 1 – Mode 3

9kHz – 1.4GHz



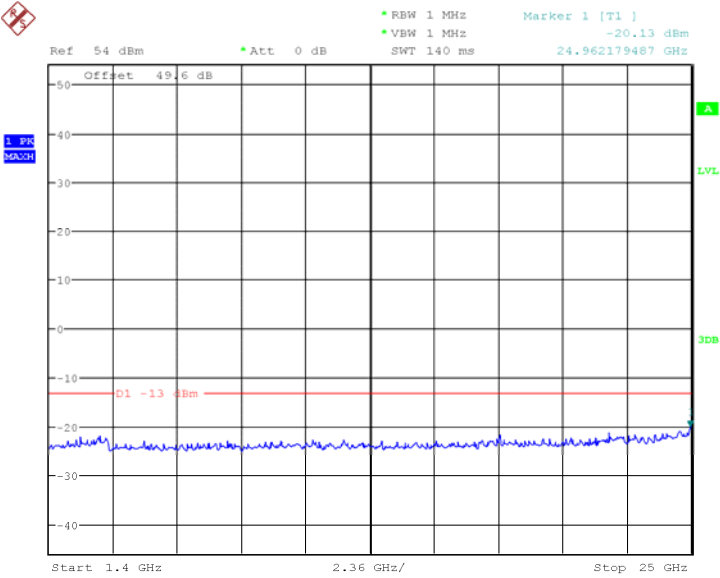
Date: 17.AUG.2011 12:12:58

Note: The emissions beyond the limit are the operating frequencies.



Product Service

1.4GHz – 25GHz



Date: 17.AUG.2011 12:16:04

Limit	-13dBm
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Remarks

The EUT does not exceed -13dBm at the frequency range of 9kHz to 25GHz.



2.8 FREQUENCY STABILITY UNDER TEMPERATURE VARIATIONS

2.8.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1055
 FCC CFR 47 Part 22, Clause 22.355
 Industry Canada RSS-132, Clause 4.3

2.8.2 Equipment Under Test

RRUS 01 B5 / KRC 118 70/3, S/N: C824850048

2.8.3 Date of Test and Modification State

18 and 19 August 2011 – Modification State 0

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 Method and Operating Modes

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 2 and Part 22 and Industry Canada RSS-132.

The EUT was set to transmit on maximum power. A Spectrum Analyser was used to measure the frequency error. The temperature was adjusted between -30°C and +50°C in 10°C steps as per 2.1055.

The test was performed with the EUT in the following configurations and modes of operation:

Configuration 1 - Mode 2

2.8.6 Environmental Conditions

	18 August 2011	19 August 2011
Ambient Temperature	25.3°C	25.6°C
Relative Humidity	55.6%	56.9%



2.8.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 2 and Part 22 and Industry Canada RSS-132 for Frequency Stability Under Temperature Variations.

The test results are shown below

Power Supply: -48V DC

Configuration 1 - Mode 2

TM1

Temperature Interval (°C)	Deviation (Hz)
-30	9.63
-20	3.72
-10	3.72
0	2.57
+10	2.23
+20	-10.12
+30	-2.85
+40	8.39
+50	4.21

Limit	± 1.5 ppm or ± 1.322 kHz
-------	----------------------------------

Remarks

The frequency stability of the EUT is sufficient to keep it within the authorised frequency ranges under voltage variations across the measured range.



Product Service

2.9 FREQUENCY STABILITY UNDER VOLTAGE VARIATIONS

2.9.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1055
 FCC CFR 47 Part 22, Clause 22.355
 Industry Canada RSS-132, Clause 4.3

2.9.2 Equipment Under Test

RRUS 01 B5 / KRC 118 70/3, S/N: C824850048

2.9.3 Date of Test and Modification State

18 and 19 August 2011 – Modification State 0

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 Method and Operating Modes

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 2 and Part 22 and Industry Canada RSS-132.

The EUT was set to transmit on maximum power. A Spectrum Analyser was used to measure the frequency error. The supplied voltage was varied from 85 to 115 percent of the nominal value.

The test was performed with the EUT in the following configurations and modes of operation:

Configuration 1 - Mode 2

2.9.6 Environmental Conditions

	18 August 2011	19 August 2011
Ambient Temperature	25.3°C	25.6°C
Relative Humidity	55.6%	56.9%



2.9.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 2 and Part 22 and Industry Canada RSS-132 for Frequency Stability Under Voltage Variations.

The test results are shown below

Temperature: 20°C

Configuration 1 - Mode 2

TM1

DC Voltage (V)	Deviation (Hz)
-40.8	-9.94
-48.0	-10.12
-55.2	-9.53

Limit	± 1.5 ppm or ± 1.322 kHz
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Remarks

The frequency stability of the EUT is sufficient to keep it within the authorised frequency ranges under voltage variations across the measured range.



Product Service

2.10 RECEIVER SPURIOUS EMISSIONS

2.10.1 Specification Reference

Industry Canada RSS-132, Clause 4.6

2.10.2 Equipment Under Test

RRUS 01 B5 / KRC 118 70/3, S/N: C824850048

2.10.3 Date of Test and Modification State

17 August 2011 – Modification State 0

2.10.4 Test Equipment Used

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

2.10.5 Test Method and Operating Modes

The test was applied in accordance with the test method requirements of Industry Canada RSS-132.

In accordance with RSS-Gen Clause 6.2, the receiver spurious emissions from the antenna terminal were measured. Measurements were performed on the receiver antenna connector RF B. The EUT was set to transmitter mode on the TX connector RF A and during the measurement the RF A was terminated with match load, (50 Ohm).

The resolution was set to 1MHz in the frequency range 9kHz to 13GHz thus meeting the requirements of RSS-Gen Clause 6.2, the spectrum analyser detector was set to peak and trace was kept on Max Hold to give the worst case. The limit line was displayed, showing the -57dBm, 2 nanowatts in band 9kHz to 1GHz and above 1GHz, -53dBm, 5 nanowatts.

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

In addition, measurements were made from 9kHz up to the 5th harmonic of highest internal frequency.

The test was performed with the EUT in the following configurations and modes of operation as the worst case:

Configuration 1 - Mode 2

2.10.6 Environmental Conditions

17 August 2011

Ambient Temperature 24.9°C

Relative Humidity 56.8%



Product Service

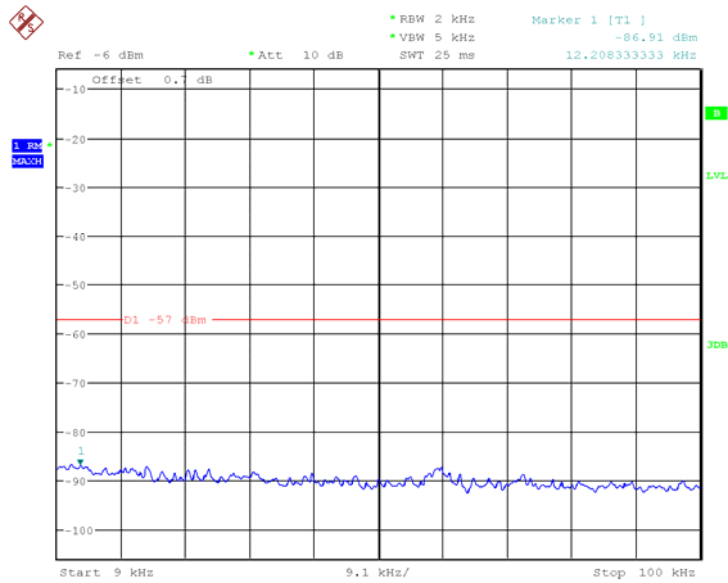
2.10.7 Test Results

For the period of test the EUT met the requirements of Industry Canada RSS-132 for Receiver Spurious Emissions.

The test results are shown below

Remark:

The emissions at 9kHz on the plots was not generated by the test object. A complementary measurement with a smaller Span showed that it was related to the LO feedthrough.



Date: 17.AUG.2011 15:31:34



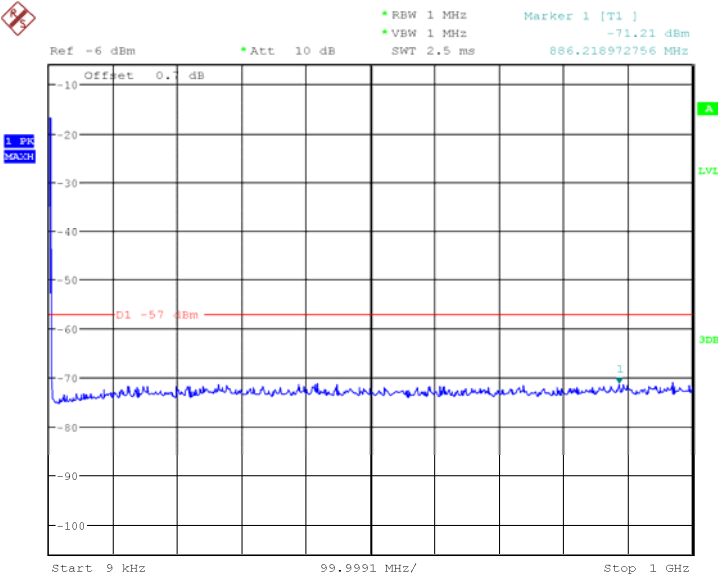
Product Service

Single Carrier

Configuration 1 - Mode 2

TM1

9kHz to 1GHz

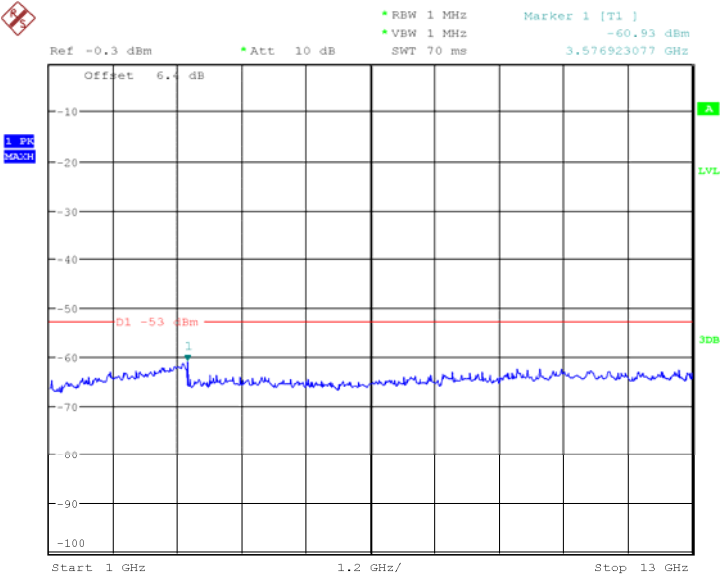


Date: 17.AUG.2011 15:13:53



Product Service

1GHz to 13GHz



Date: 17.AUG.2011 15:11:51

Limit	-57dBm (30MHz-1GHz) and -53dBm (above 1GHz)
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Remarks

The EUT does not exceed -57dBm at the frequency range of 9kHz to 1GHz and does not exceed -53dBm at the frequency range of 1GHz to 13GHz.



Product Service

SECTION 3

TEST EQUIPMENT USED



3.1 TEST EQUIPMENT USED

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

Instrument	Manufacturer	Type No.	Serial No.	Calibration Period (months)	Calibration Due
Section 2.1, 2.2, 2.3, 2.4, 2.5, 2.7 and 2.10 – Maximum Conducted Output Power, Peak – Average Ratio, Modulation Characteristics, Occupied Bandwidth, Spurious Emissions at Antenna Terminals (± 1MHz), Conducted Spurious Emissions and Receiver Spurious Emissions.					
Spectrum Analyser	Rohde & Schwarz	FSQ26	200235	12	27-Mar-2012
Power Metre	Rohde & Schwarz	NRP	101194	12	11-Aug-2012
Thermal Power Sensor	Rohde & Schwarz	NRP-Z51	102427	12	12-Jan-2012
Network Analyzer	Agilent	8720D	US36140166	12	24-Aug-2012
40dB Attenuator	Aeroflex / Weinschel	48-40-43-LIM	BR5020	-	O/P MON
40dB Attenuator	SHX	DTS100	04051204	-	O/P MON
Load	Shanghai Huaxiang	TFZ100-3NF	09121144	-	O/P MON
Power Supply	Dahua	DH1716A-14	1000303181	-	O/P MON
Power Supply	Dahua	DH1716A-14	20080401	-	O/P MON
Digital Multi-meter	FLUKE	179	91820401	12	03-Jan-2012
Thermo-hygrometer	AZ Instruments	8705	9151655	12	16-Dec-2011
Section 2.6 – Radiated Spurious Emissions					
Load	Shanghai Huaxiang	TFZ100-3NF	09121144	-	O/P MON
Load	Shanghai Huaxiang	TF100	09121602	-	O/P MON
EMI Receiver	Rohde & Schwarz	ESI 40	100015	12	19-Aug-2012
Ultra log test antenna	Rohde & Schwarz	HL562	100167	12	19-Aug-2012
Double-Ridged Waveguide Horn Antenna	Rohde & Schwarz	HF 906	100029	12	19-Aug-2012
Pyramidal Horn Antenna	EMCO	3160-09	-	-	-
Antenna master	Frankonia	MA 260	-	12	19-Aug-2012
Relay Switch Unit	Rohde & Schwarz	331.1601.31	338965002	-	TU
Semi Anechoic Chamber	Frankonia	23.18m×16.88m ×9.60m	-	12	19-Aug-2012
Power Supply	Dahua	DH1716A-14	1000303181	-	O/P MON
Power Supply	Dahua	DH1716A-14	20080401	-	O/P MON
Digital Multimeter	FLUKE	179	91820401	12	03-Jan-2012
Thermo-hygrometer	AZ Instruments	8705	9151655	12	16-Dec-2012
Section 2.8 and 2.9 – Frequency Stability Under Temperature and Voltage Variations					
Spectrum Analyser	Rohde & Schwarz	FSQ26	200235	12	27-Mar-2012
40dB Attenuator	SHX	DTS100	04051204	-	O/P MON



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Load	Shanghai Huaxiang	TFZ100-3NF	09121144	-	O/P MON
Temperature Chamber	Zenda	WGD/SJ7-10	200505100	-	O/P MON
Power Supply	Dahua	DH1716A-14	1000303181	-	O/P MON
Power Supply	Dahua	DH1716A-14	20080401	-	O/P MON
Digital Multimeter	FLUKE	179	91820401	12	03-Jan-2012
Thermo-hygrometer	AZ Instruments	8705	9151655	12	16-Dec-2011

O/P MON Output monitored with calibration equipment
 TU Traceability Unscheduled



3.2 MEASUREMENT UNCERTAINTY

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

Test Discipline	Frequency / Parameter	MU
Conducted Maximum Peak Output Power	30MHz to 10GHz Amplitude	0.5dB*
Conducted Emissions	30MHz to 40GHz Amplitude	3.0dB*
Frequency Stability	30MHz to 2GHz Amplitude	$<1 \times 10^{-7}$
Radiated Emissions, Bilog Antenna, AOATS	30MHz to 1GHz Amplitude	5.1dB*
Radiated Emissions, Horn Antenna, AOATS	1GHz to 40GHz Amplitude	6.3dB*
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



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