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Report On

FCC Testing of the
Ericsson RRU22 1940 (KRC 161 134/2)
In accordance with FCC CFR 47 Part 24 and Industry Canada RSS 133

COMMERCIAL-IN-CONFIDENCE

FCC ID: TA8AKRC161134-2
IC: 287AB-AW1611342

Document 75905338 Report 01 Issue 2

December 2008



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COMMERCIAL-IN-CONFIDENCE

REPORT ON

FCC Testing of the Ericsson RRU22 1940 (KRC 161 134/2)
In accordance with FCC CFR 47 Part 24 and Industry Canada RSS 133

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PREPARED FOR

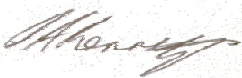
Ericsson (China) Communications Company Ltd
Ericsson Tower
No.5 Lize East Street
Chaoyang District
Beijing 100102
China

PREPARED BY



N Bennett
Senior Administrator

APPROVED BY



S Bennett
Authorised Signatory

DATED

22 December 2008

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 limited with FCC CFR 47: Part 24 and Industry Canada RSS 133. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);



C Zhang



X Zhang

This report has been up-issued to issue 2 to include the PAR testing.



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SECTION 1

REPORT SUMMARY

FCC Testing of the Ericsson RRU22 1940 (KRC 161 134/2)
In accordance with FCC CFR 47 Part 24 and Industry Canada RSS 133



1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Ericsson RRU22 1940 (KRC 161 134/2) to the requirements of FCC CFR 47 Part 24: 2007 and Industry Canada RSS 133:2008.

Testing was carried out in support of a C2PC application for Grant of RRU22 1940 (KRC 161 134/2) to include the use of 64QAM modulation.

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 (China) Communications Company Ltd
Model Number(s)	RRU22 1940 (KRC 161 134/2)
Serial Number(s)	CB 48198738
Software Version	--
Hardware Version	R1G
Number of Samples Tested	1
Test Specification/Issue/Date	FCC CFR 47 Part 24: 2007 Industry Canada RSS 133: 2008
Incoming Release Date	Declaration of Build Status 08 December 2008
Start of Test	08 December 2008
Finish of Test	22 December 2008
Name of Engineer(s)	C Zhang X Zhang
Related Document(s)	FCC CFR 47 Part 2:2007 RSS-Gen Issue 2:2007 ANSI C63.4:2003



1.2 BRIEF SUMMARY OF RESULTS

A brief summary of results in accordance with FCC CFR 47 Part 24: 2007 and Industry Canada RSS 133:2008, is shown below.

Configuration - Base Station							
Section	Spec Clause		Test Description	Mode	Mod State	Result	Comments
	FCC Part 24	Industry Canada RSS 133					
-	22.913 (a)	-	Effective Radiated Power	-	-	N/A	-
2.1	24.232 (a)	6.4	Maximum Peak Output Power - Conducted	1932.4 MHz	0	Pass	-
2.2	24.232(d)	-	Peak – Average Ratio	1932.4 MHz	0	Pass	-
-	2.1047 (d)	-	Modulation Characteristics	-	-	-	Not tested ¹
2.3	2.1049, 24.238 (b)	RSS-GEN 4.6.1	Occupied Bandwidth	1932.4 MHz	0	Pass	-
2.4	2.1051, 24.238 (b)	6.5	Spurious Emissions at Antenna Terminals (±1MHz)	1932.4 MHz	0	Pass	-
2.5	2.1053, 24.238 (a)	6.5	Radiated Spurious Emissions	1932.4 MHz	0	Pass	-
2.6	2.1051, 24.238 (a)	6.5	Conducted Spurious Emissions	1932.4 MHz	0	Pass	-
2.7	-	6.6	Receiver Spurious Emissions	1932.4 MHz	0	Pass	-
-	2.1055, 22.355	-	Frequency Stability Under Temperature Variations	-	-	-	Not tested ¹
-	2.1055, 22.355	-	Frequency Stability Under Voltage Variations	-	-	-	Not tested ¹

Note¹ - Limited testing has been performed as this report to be used as justification for Class II Permissive Change. See section 1.6.

1.3 DECLARATION OF BUILD STATUS

MAIN EUT	
MANUFACTURING DESCRIPTION	Radio Equipment
MANUFACTURER	Ericsson
TYPE	RRU22 1940
PART NUMBER	KRC 161 134/2
SERIAL NUMBER	CB 48198738
HARDWARE VERSION	R1G
SOFTWARE VERSION	--
TRANSMITTER OPERATING RANGE	1932.4MHz - 1987.6MHz
RECEIVER OPERATING RANGE	1852.4MHz - 1907.6MHz
COUNTRY OF ORIGIN	P. R. China
INTERMEDIATE FREQUENCIES	--
ITU DESIGNATION OF EMISSION	4M17F9W
HIGHEST INTERNALLY GENERATED FREQUENCY	1987.6MHz
OUTPUT POWER (W or dBm)	46dBm
FCC ID	TA8AKRC161134-2
IC ID	287AB-AW1611342
TECHNICAL DESCRIPTION (a brief description of the intended use and operation)	RRU22 1940 is the radio part of a WCDMA Radio Base Station

Signature

	<u>Xiaoying Jiang</u>
Date	<u>16 December 2008</u>
D of B S Serial No	<u>75905338/01</u>

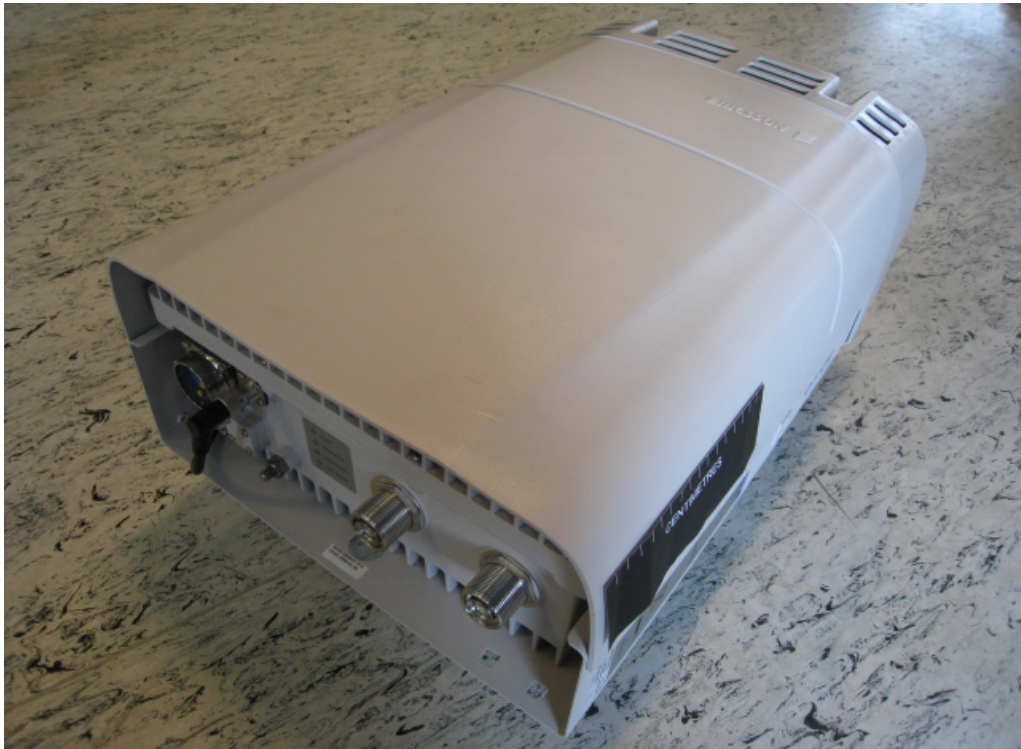
No responsibility will be accepted by TÜV Product Service as to the accuracy of the information declared in this document by the manufacturer.

1.4 PRODUCT INFORMATION

1.4.1 Technical Description

The Equipment Under Test (EUT) RRU22 1940 (KRC 161 134/2) is an Ericsson Radio Equipment intended to operate with a compatible Radio Equipment Controller to form a WCDMA 1900MHz band base station.

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

The EUT, RRU22 1940 (KRC 161 134/2) was configured in accordance with FCC CFR 47 Part 24: 2007 and Industry Canada RSS 133:2008.

The EUT supports QPSK, 16QAM and 64QAM modulations at 1900MHz. All TX measurements were performed at the combined TX/RX output connector ANT1 of the EUT. RX measurements were performed at RX connector ANT2 of the EUT. The complete testing was performed at maximum output power with QPSK, using Test model 1, and with a combination of QPSK and the 64QAM modulation, using Test model 6.

The EUT was powered by a -48V DC Power supply.

1.4.3 Modes of Operation

Test models

Test model 1 and 6 are defined in 3GPP TS 25.141 as follows:

Test model 1 (TM1): 64 DPCHs at 30 ksps (SF=128)

Test model 6 (TM6): 30 DPCHs at 30 ksps (SF=128) and 8 HS-PDSCHs at 240 ksps (SF=16)

Operation Modes:

Mode 1 – 1932.4 MHz (Bottom Channel) Single Carrier

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



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.

1.6 DEVIATIONS FROM THE STANDARD

Full testing has not been carried out in accordance with the specifications because this report is to be used as justification for a Class II Permissive Change to the EUT to include the use of 64QAM modulation. This report verified maintained performance of the EUT for the affected characteristics according to FCC CFR47 by re-testing the updated equipment as described in section 1.4.2. The channels and modes used for testing have been based on previous testing carried out and represent the “worst case” configuration.

1.7 MODIFICATION RECORD

Modification State	Description of Modification fitted to EUT	Sample S/N
0	Initial sample supplied by customer	CB 48198738

No modifications were made to the EUT during testing.

1.8 ALTERNATIVE TEST SITE

Under our UKAS Accreditation, TÜV Product Service Ltd conducted the testing at:

Ericsson Tower, No.5 Lize East Street Chaoyang District, Beijing 100102 China

Except the testing for section 2.5 Radiated Spurious Emission was conducted at following site registrations:

FCC Accreditation

612767 The State Radio Monitoring Center, No.80 Beilishi Road Xicheng District Beijing, China.

Industry Canada Accreditation

7308A The State Radio Monitoring Center, No.80 Beilishi Road Xicheng District Beijing, China.



SECTION 2

TEST DETAILS

FCC Testing of the Ericsson RRU22 1940 (KRC 161 134/2)
In accordance with FCC CFR 47 Part 24 and Industry Canada RSS 133



2.1 MAXIMUM PEAK OUTPUT POWER - CONDUCTED

2.1.1 Specification Reference

FCC CFR 47 Part 24: 2007, Clause 24.232 (a) and Industry Canada RSS 133:2008 Clause 6.4

2.1.2 Equipment Under Test

RRU22 1940 (KRC 161 134/2)

2.1.3 Date of Test and Modification State

22 December 2008 – 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 24: 2007 and Industry Canada RSS 133:2008.

Using a Spectrum Analyzer with attenuator(s), the output was connected to a spectrum analyzer with RMS detector activated, the output power of the EUT was measured at the antenna terminals.

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

- Mode 1

2.1.6 Environmental Conditions

	22 December 2008
Ambient Temperature	23.6°C
Relative Humidity	19.7%

2.1.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 24: 2007 and Industry Canada RSS 133:2008 for Maximum Peak Output Power - Conducted.

The test results are shown below.

- Mode 1

	Frequency (MHz)	Path Loss (dB)	Result (dBm)	Result (W)
TM1	1932.4	41.6	45.45	35.08
TM6	1932.4	41.6	45.53	35.73

Limit	$\leq 1640\text{W}$ or $\leq +62\text{dBm}$
-------	---

Remarks

The EUT does not exceed 1640W or +62dBm at the measured frequencies.



2.2 PEAK – AVERAGE RATIO

2.2.1 Specification Reference

FCC CFR 47 Part 24: 2007, Clause 24.232(d)

2.2.2 Equipment Under Test

RRU22 1940 (KRC 161 134/2)

2.2.3 Date of Test and Modification State

22 December 2008 – 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 24: 2007.

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 percentage 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 operating on all modes in section 1.4.3 and record the result of following configurations and modes of operation for worst case:

- Mode 1

2.2.6 Environmental Conditions

	22 December 2008
Ambient Temperature	23.6°C
Relative Humidity	19.7%



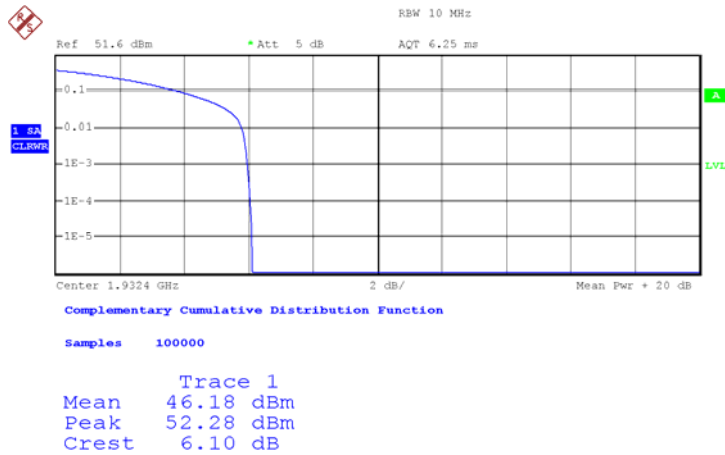
2.2.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 24: 2007 Peak – Average Ratio.

The test results are shown below.

- Mode 1

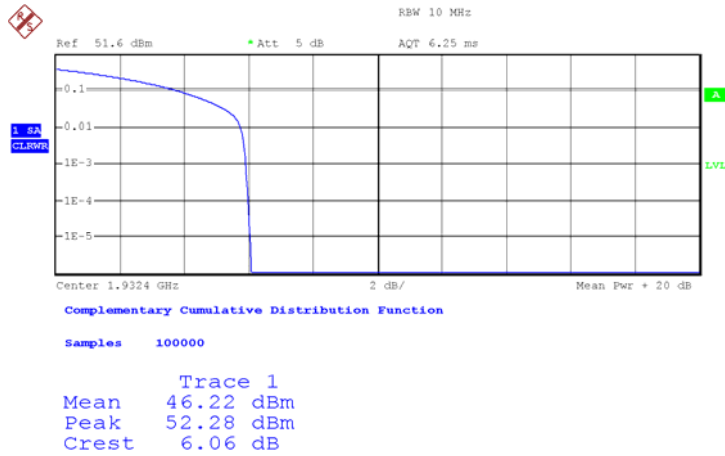
TM1



Date: 22.DEC.2008 03:31:52



TM6



Date: 22.DEC.2008 03:52:37

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

Remarks

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



2.3 OCCUPIED BANDWIDTH

2.3.1 Specification Reference

FCC CFR 47 Part 24: 2007, Clause 2.1049 (h), 24.238 (b) and Industry Canada RSS GEN:2007 Clause 4.6.1

2.3.2 Equipment Under Test

RRU22 1940 (KRC 161 134/2)

2.3.3 Date of Test and Modification State

08 December 2008 – Modification State 0

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 Method and Operating Modes

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 24: 2007 and Industry Canada RSS 133:2008.

The EUT was transmitting at maximum power. Using a resolution bandwidth of 50 kHz and a video bandwidth of 500 kHz. 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:

- Mode 1

2.3.6 Environmental Conditions

	08 December 2008
Ambient Temperature	23.1°C
Relative Humidity	20.1%

2.3.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 24: 2007 and Industry Canada RSS 133:2008 for Occupied Bandwidth.

- Mode 1

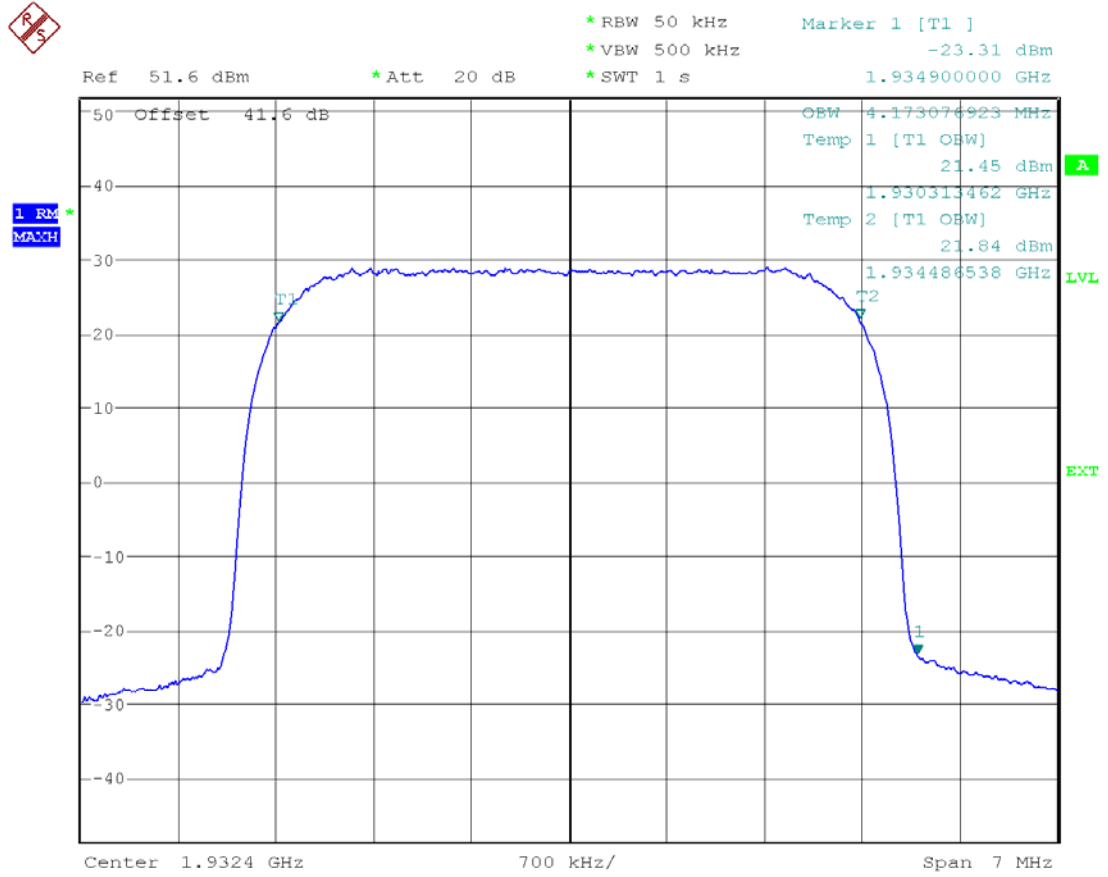
	Frequency (MHz)	99% Power bandwidth (MHz)
TM1	1932.4	4.1731
TM6	1932.4	4.1731



The plots of test results are shown below.

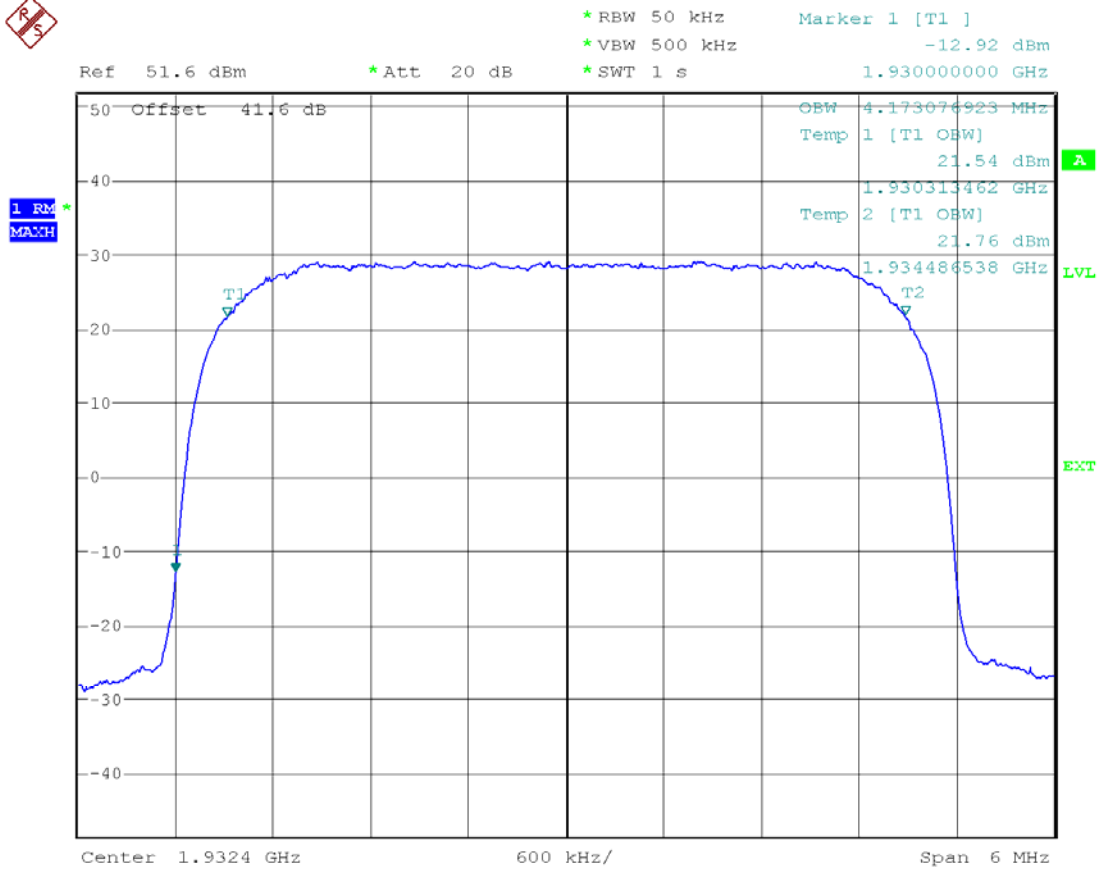
- Mode 1

TM1



Date: 8.DEC.2008 08:50:43

TM6



Date: 8.DEC.2008 09:15:29



2.4 SPURIOUS EMISSIONS AT TERMINALS (± 1 MHz)

2.4.1 Specification Reference

FCC CFR 47 Part 24: 2007, Clause 2.1051, 24.238 (b) and Industry Canada RSS 133:2008 Clause 6.5

2.4.2 Equipment Under Test

RRU22 1940 (KRC 161 134/2)

2.4.3 Date of Test and Modification State

08 December 2008 – 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 24: 2007 and Industry Canada RSS 133:2008.

The measurements were made per definition in 24.238. Measurements were performed on the combined TX/RX antenna terminal ANT1. The output was connected to a spectrum analyzer with RMS detector activated. A resolution bandwidth of 30kHz was used up to 1MHz away from the band edges. 30kHz is $< 1\%$ of the emission bandwidth (4.68 MHz between the 26dB points). The limit was adjusted with 1.5 dB to -14.5 dBm up to 0.2 MHz away from the band edge to compensate for the reduced bandwidth for FCC and with -14.5 dBm to -26 dBm between 0.2 MHz to 1 MHz away from the band edge, with -26 dBm between 1 MHz to 1.5 MHz away from the band edge to meet the IC requirement. The EUT was tested at its maximum power level with QPSK and 64QAM modulations.

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

- Mode 1

2.4.6 Environmental Conditions

	08 December 2008
Ambient Temperature	23.1°C
Relative Humidity	20.1%



2.4.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 24: 2007 and Industry Canada RSS 133:2008 for Spurious Emissions Antenna Terminals (± 1 MHz)

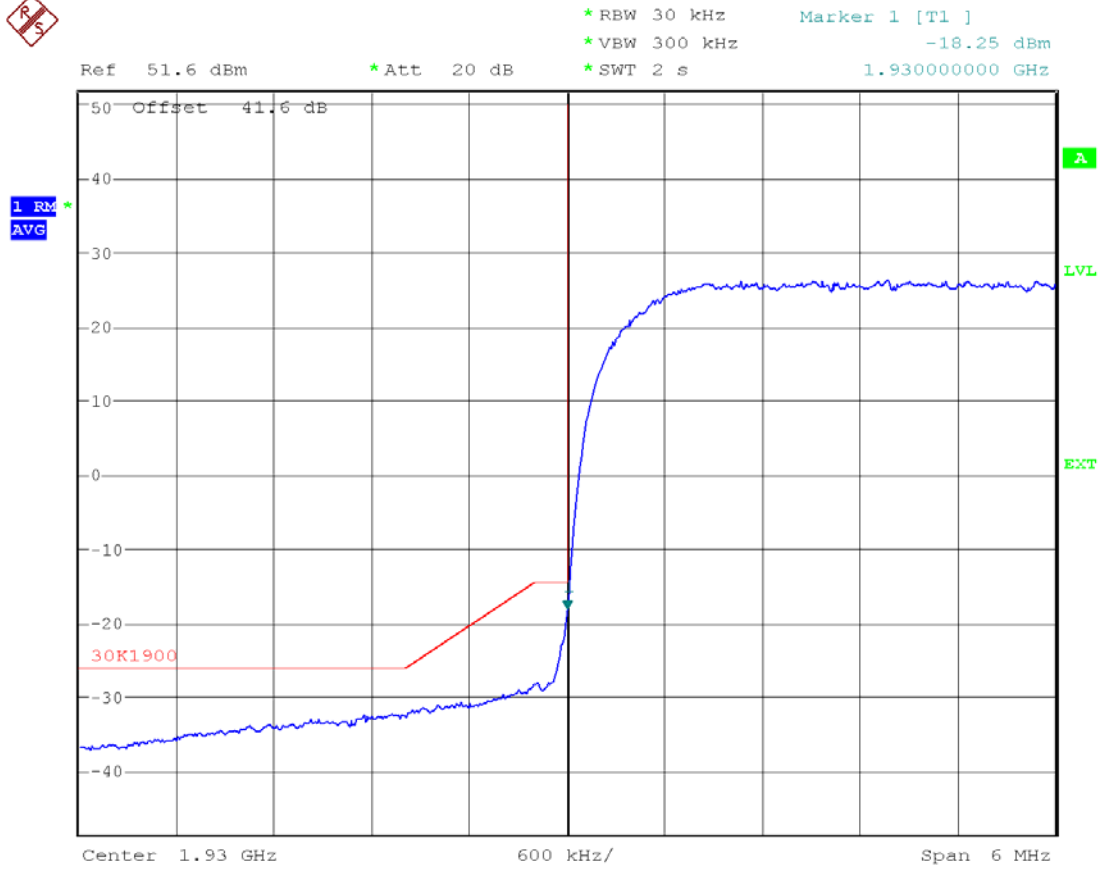
The test results are shown below.

Below is the Frequency the EUT was tested against along with the tested channel.

Channel (MHz)	Edge Test with QPSK modulation Channel No./Frequencies	Edge Test with 64QAM modulation Channel No./Frequencies
Bottom 1932.4	Channel: 9662 Frequency: 1930MHz	Channel: 9662 Frequency : 1930MHz

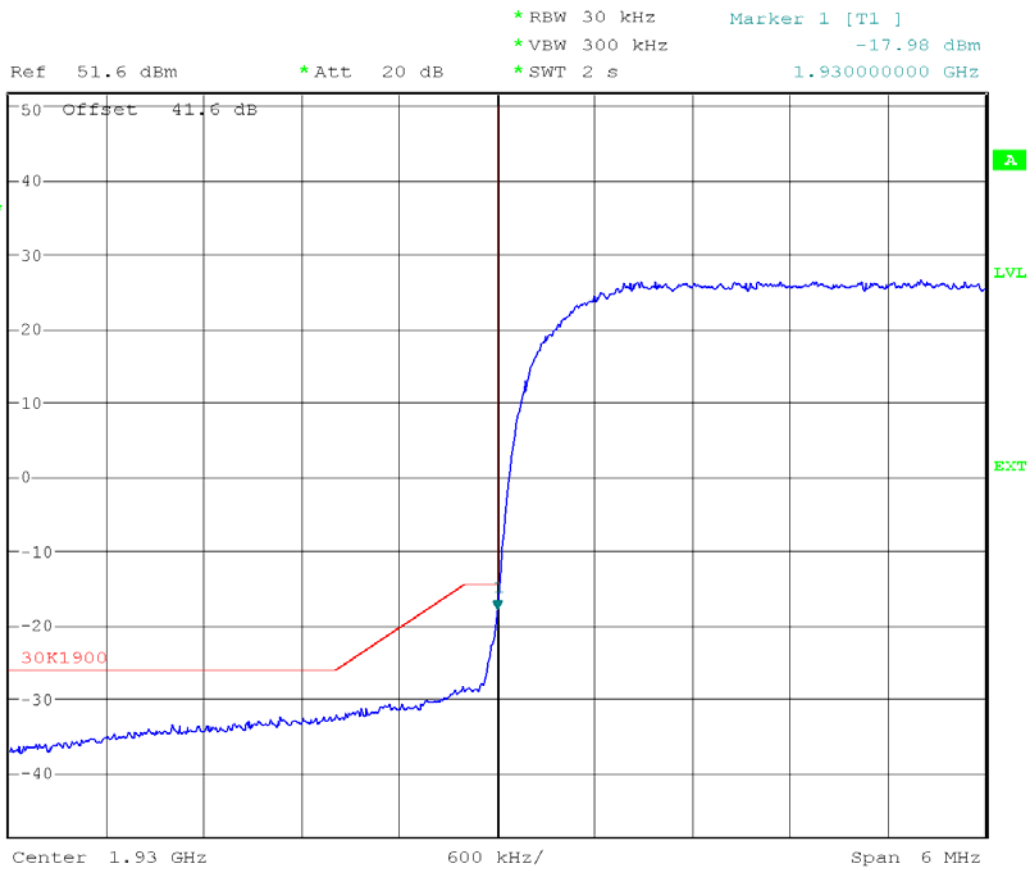
- Mode 1

TM1



Date: 8.DEC.2008 09:04:23

TM6



Date: 8.DEC.2008 09:14:23



2.5 RADIATED SPURIOUS EMISSIONS

2.5.1 Specification Reference

FCC CFR 47 Part 24: 2007, Clause 2.1053, 24.238 (a) and Industry Canada RSS 133:2008 Clause 6.5

2.5.2 Equipment Under Test

RRU22 1940 (KRC 161 134/2)

2.5.3 Date of Test and Modification State

11 December 2008 – 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 24: 2007 and Industry Canada RSS 133:2008.

A preliminary profile of the Spurious Radiated Emissions was obtained 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 Polarisation with Peak Detector in the frequency range of 30MHz – 22GHz. The profiling produced a list of the worst-case emissions together with the EUT azimuth and antenna polarisation.

Emissions closer than 20 dB to the limit were measured with Average Detector. Emissions closer than 10 dB to the limit with the Average Detector were measured with the substitution method according to the standard.

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 - $(43 + 10\text{Log}(P))$ 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:

$$E_{(v/m)} = (30 \times 1.64 \times 45.53)^{0.5} / 3 = 15.776\text{V/m} = 143.96\text{dB}\mu\text{V/m}$$

As per 24.238 (a) the spurious emission must be attenuated by $43 + 10\text{log}(P_o)$ dB this gives:

$$43 + 10\text{log}(45.53) = 59.56\text{dB}$$

Therefore the limit at 3m measurement distance is:

$$143.96 - 59.56 = 84.4 \text{ dB}\mu\text{V/m}$$

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:

- Mode 1

2.5.6 Environmental Conditions

	11 December 2008
Ambient Temperature	18.1°C
Relative Humidity	20.1%



2.5.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 24: 2007 and Industry Canada RSS 133:2008 Clause 6.5 for Radiated Spurious Emissions.

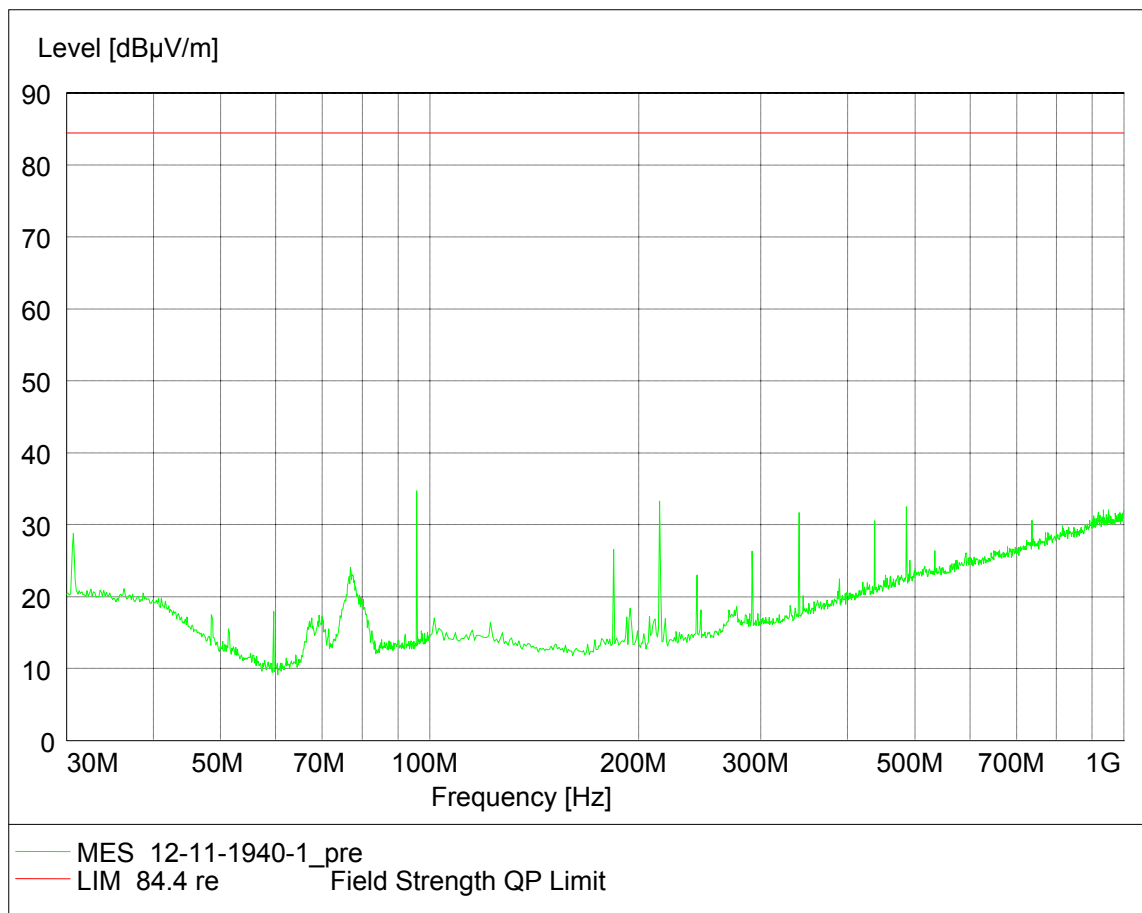
The test results are shown below.

- Mode 1

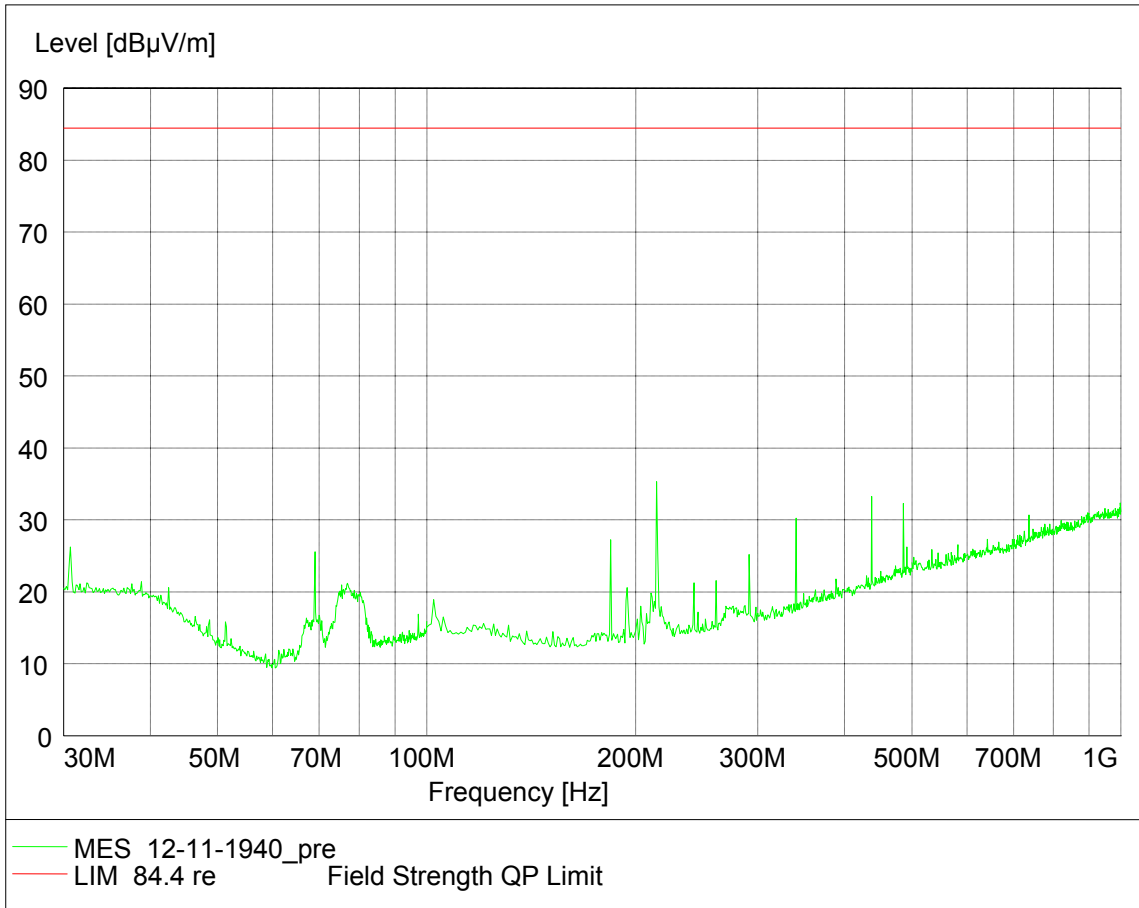
No emissions were detected within 20dB of the limit.

30MHz to 1GHz

TM1



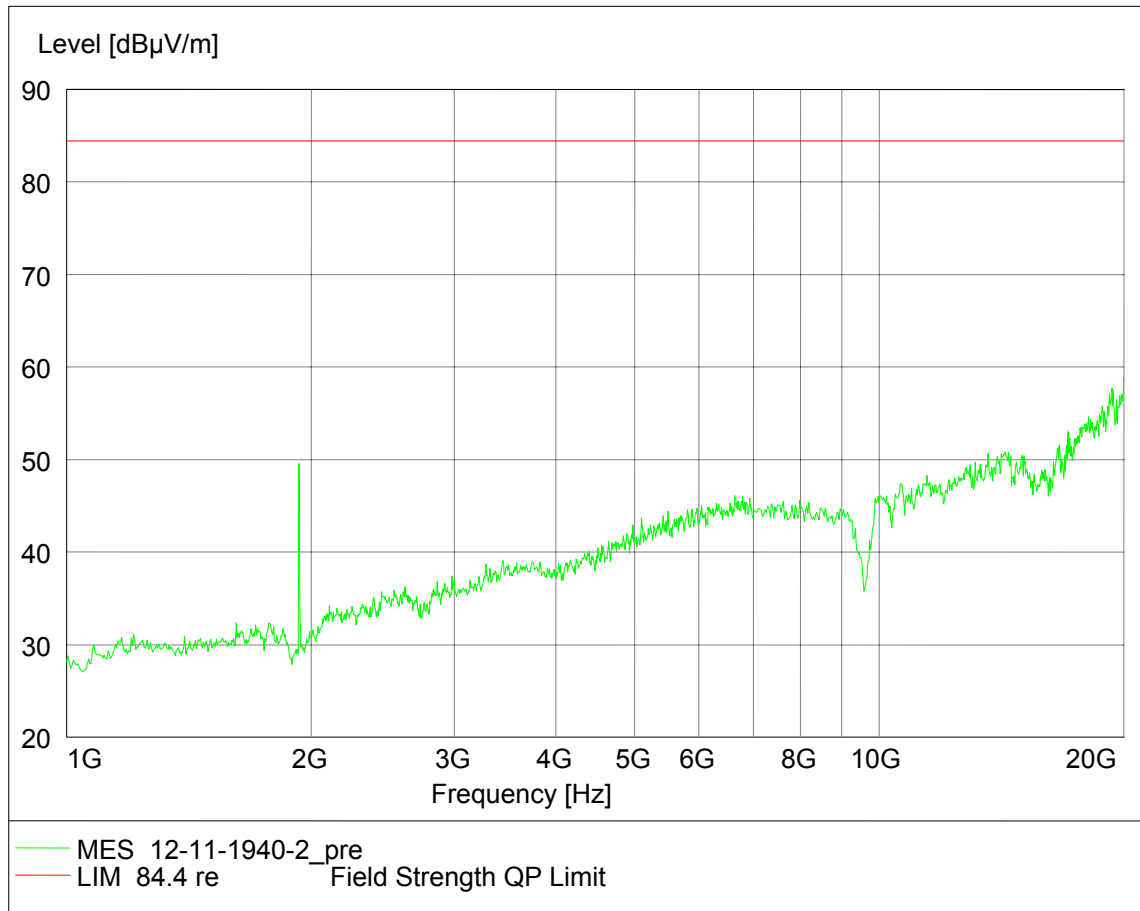
TM6



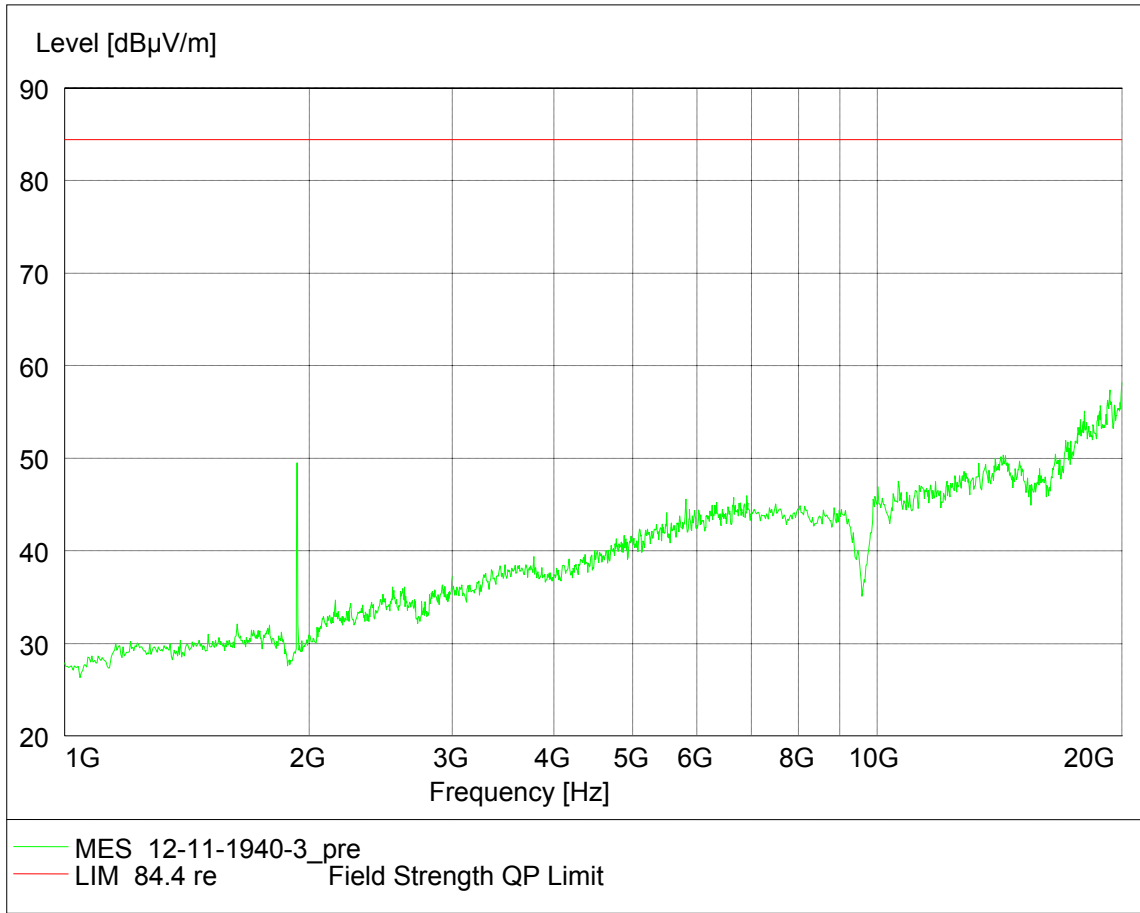


1GHz to 20GHz

TM1



TM6



Limit	84.4dBµV/m.
-------	-------------



2.6 CONDUCTED SPURIOUS EMISSIONS

2.6.1 Specification Reference

FCC CFR 47 Part 24: 2007, Clause 2.1051, 24.238 (a) and Industry Canada RSS 133:2008 Clause 6.5

2.6.2 Equipment Under Test

RRU22 1940 (KRC 161 134/2)

2.6.3 Date of Test and Modification State

08 December 2008 – 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 24: 2007 and Industry Canada RSS 133:2008.

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 20GHz. The EUT was set to transmit on maximum power. The EUT was tested on Bottom channel for both modulations. The resolution bandwidth was set to 1MHz and video bandwidths were set to 1MHz thus meeting the requirements of Part 24.238 (b). The spectrum analyser detector was set to peak and trace was kept on Max Hold. The limit line was displayed, showing the -13dBm.

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 fundamental.

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

- Mode 1

2.6.6 Environmental Conditions

05 November 2008

Ambient Temperature 23.1°C

Relative Humidity 20.1%



2.6.7 Test Results

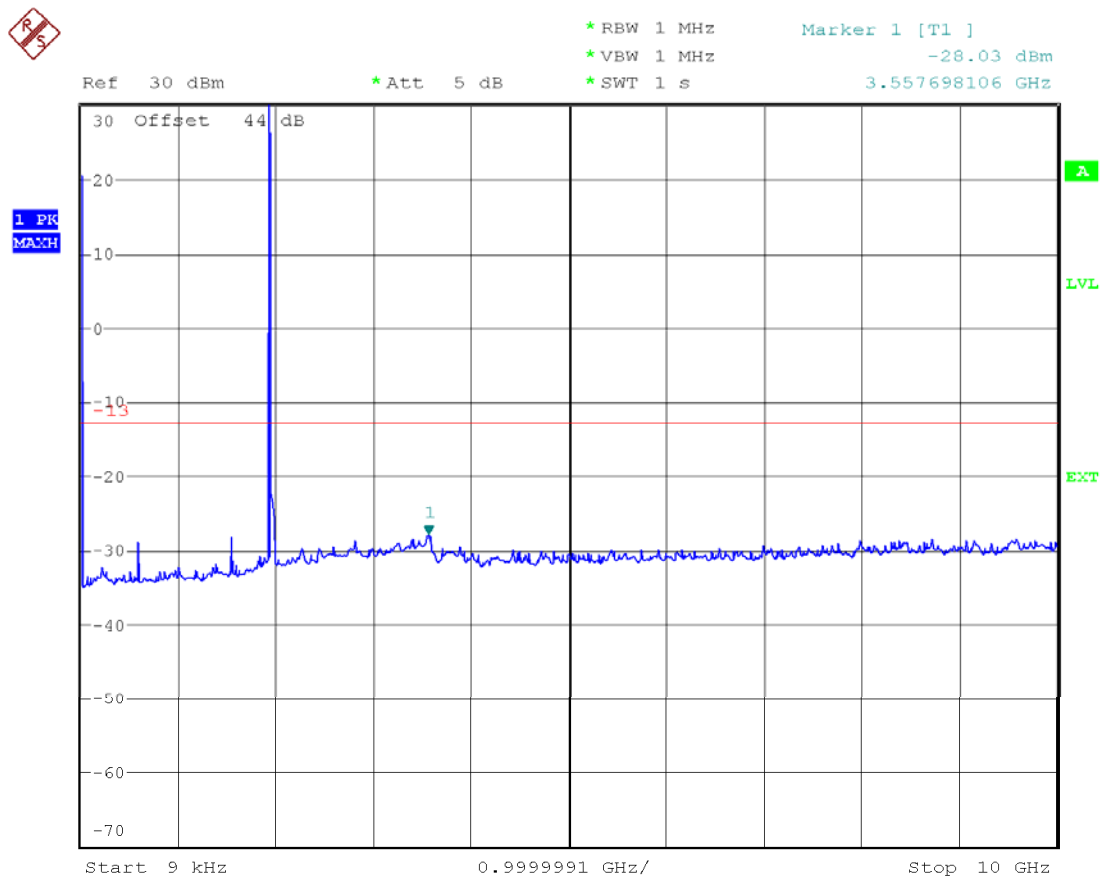
For the period of test the EUT met the requirements of FCC CFR 47 Part 24: 2007 and Industry Canada RSS 133:2008 for Spurious Emissions.

The test results are shown below.

- Mode 1

9kHz to 10GHz

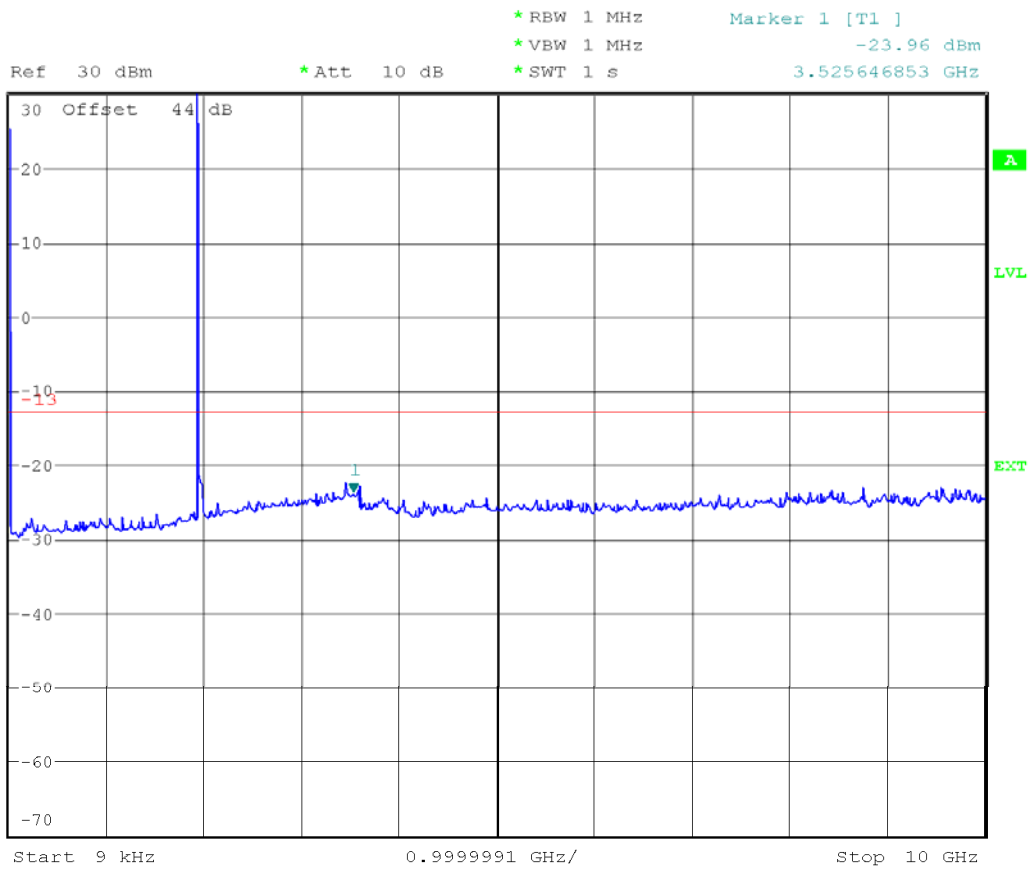
TM1



Date: 8.DEC.2008 08:47:49

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

TM6



Date: 8.DEC.2008 09:18:54

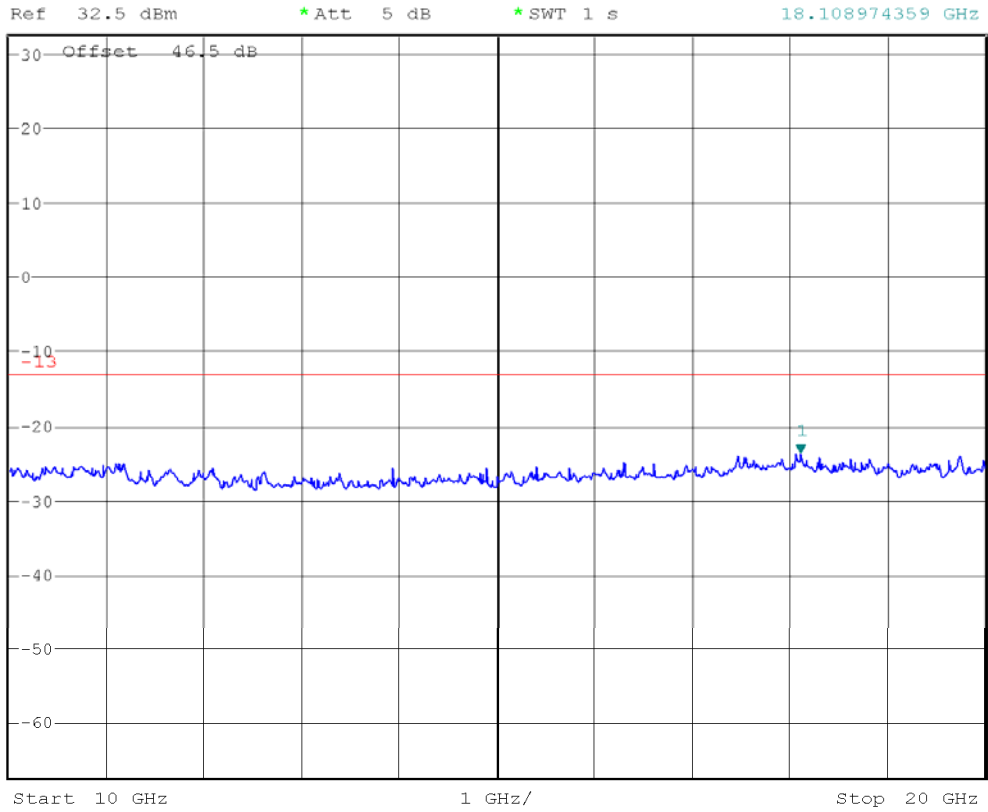
Note: The emission beyond the limit is the operating frequency.

10GHz to 20GHz

TM1



*RBW 1 MHz Marker 1 [T1]
*VBW 1 MHz -23.94 dBm
*SWT 1 s 18.108974359 GHz



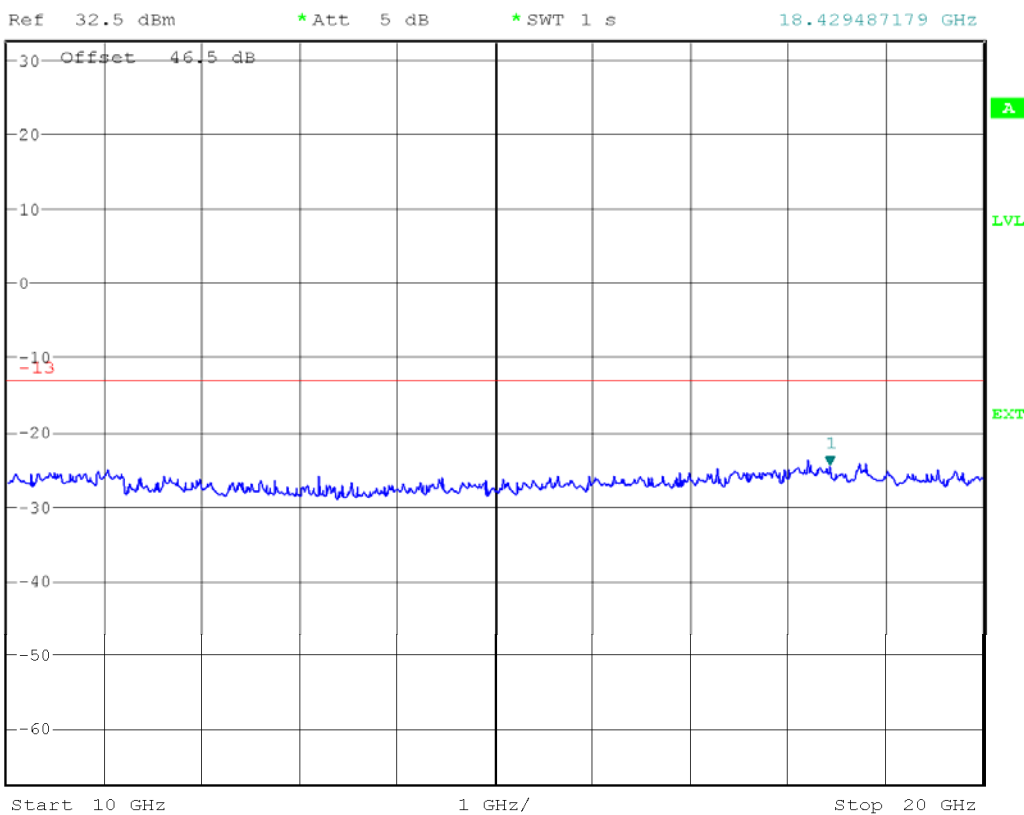
Date: 8.DEC.2008 08:48:43



TM6



*RBW 1 MHz Marker 1 [T1]
*VBW 1 MHz -24.76 dBm
*SWT 1 s 18.429487179 GHz



Date: 8.DEC.2008 09:19:45

Limit	-13dBm
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2.7 RECEIVER SPURIOUS EMISSIONS

2.7.1 Specification Reference

Industry Canada RSS 133:2008 Clause 6.6

2.7.2 Equipment Under Test

RRU22 1940 (KRC 161 134/2)

2.7.3 Date of Test and Modification State

08 December 2008 – 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 Industry Canada RSS 133:2008.

In accordance with RSS-Gen Clause 6(b), the receiver spurious emissions from the antenna terminal were measured. The transmitter output power and the frequency spectrum investigated from 9kHz to 10GHz. Measurements were performed on the receiver antenna connector (ANT2). The EUT was set to transmitter mode on the combined TX/RX connector ANT1 and during the measurement the ANT1 was terminated with 50 ohm load. The TX was active in single carrier mode with QPSK and 64QAM modulations.

The resolution was set to 1MHz and video bandwidths were set to 1MHz thus meeting the requirements of RSS-Gen Clause 6(b). The spectrum analyser detector was set to peak and trace was kept on Max Hold. The limit line was displayed, showing the -57dBm, 2 nanowatts in band 30MHz to 1GHz and -53dBm, 5 nanowatts above 1GHz.

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 5th harmonic of the fundamental.

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

- Mode 1

2.7.6 Environmental Conditions

	08 December 2008
Ambient Temperature	23.1°C
Relative Humidity	20.1%



2.7.7 Test Results

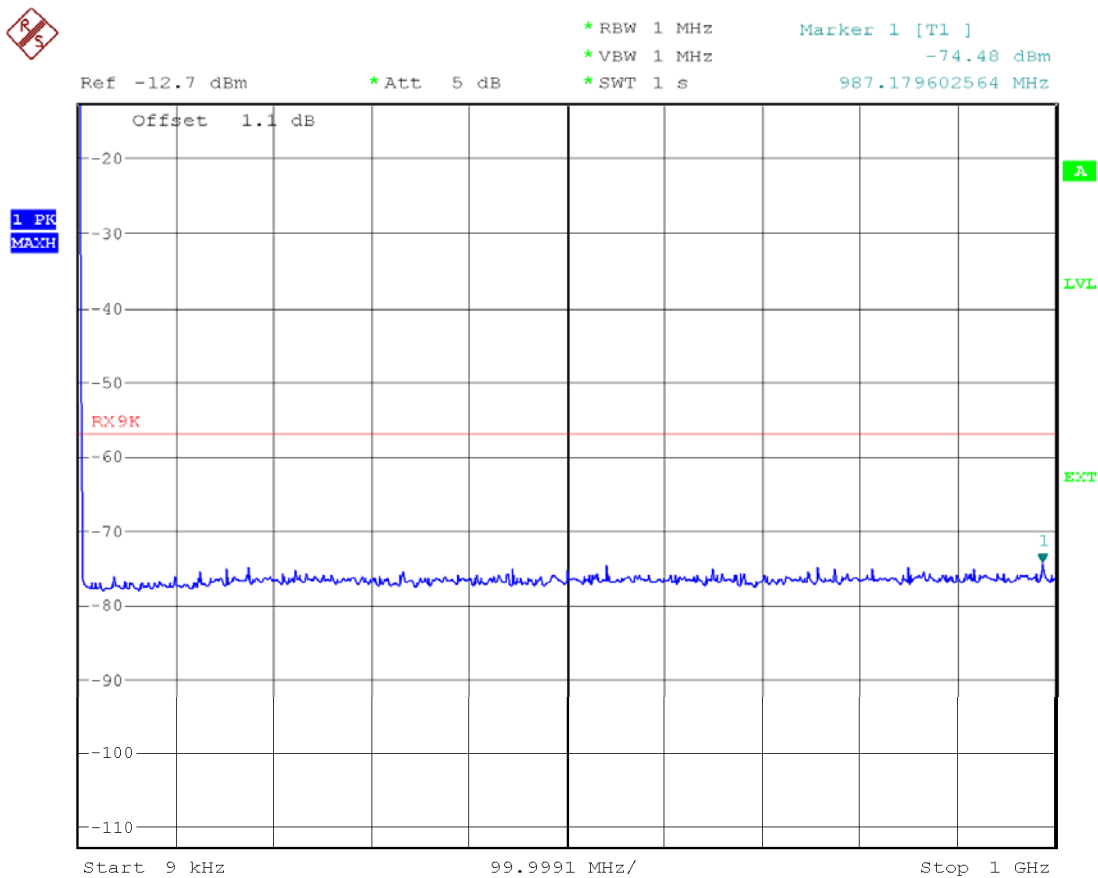
For the period of test the EUT met the requirements of Industry Canada RSS 133:2008 for Spurious Emissions.

The test results are shown below.

- Mode 1

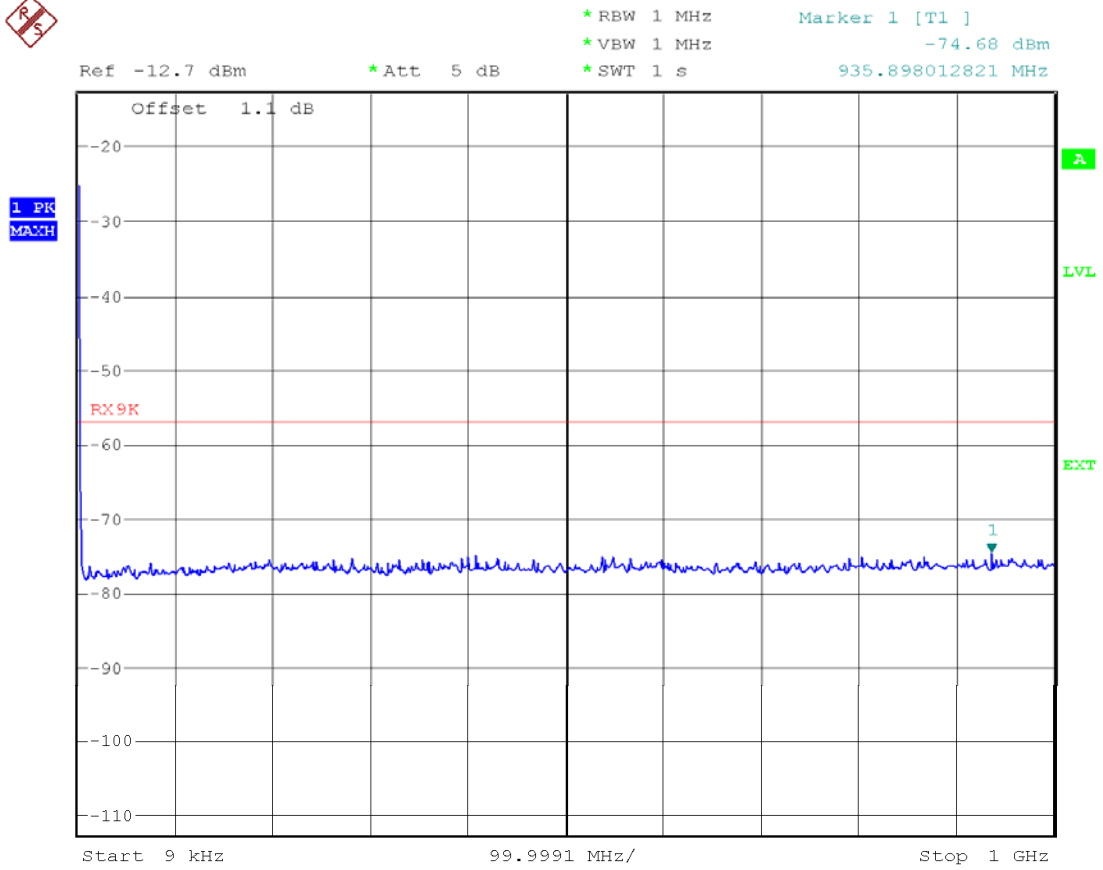
9kHz to 1GHz

TM1



Date: 8.DEC.2008 09:47:50

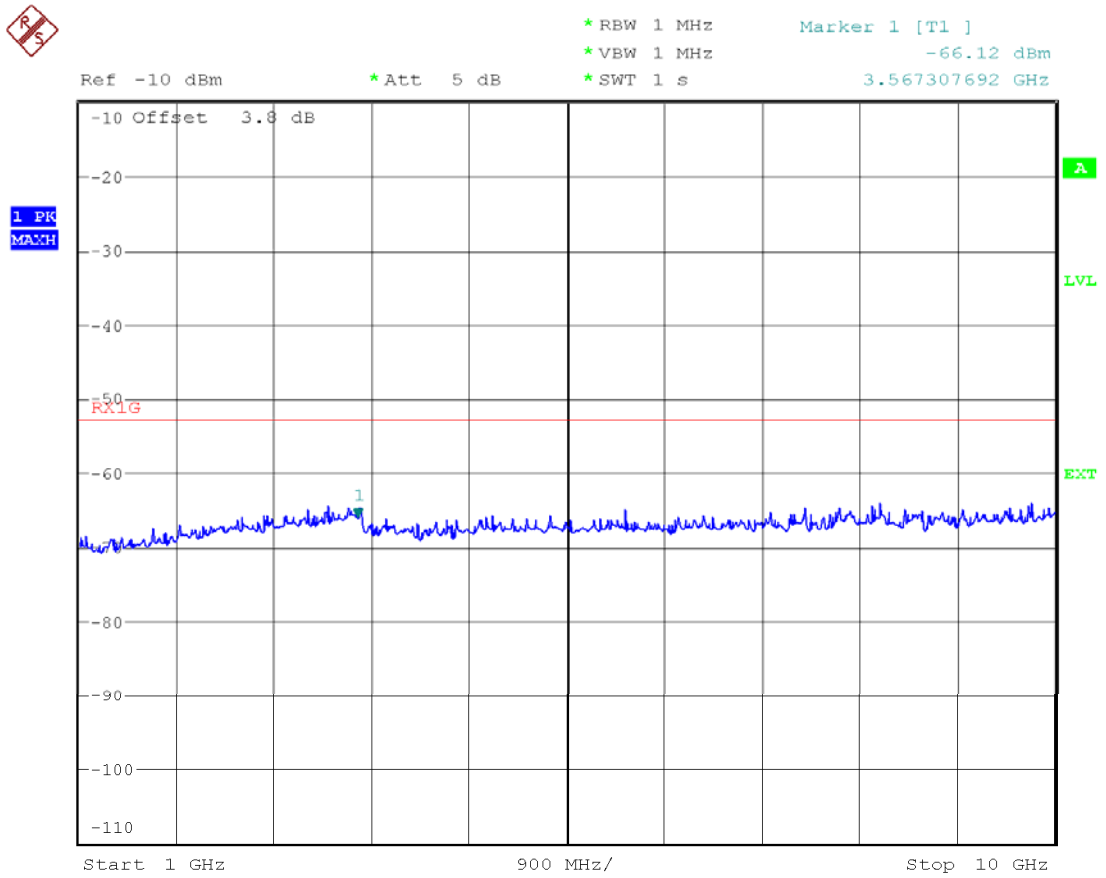
TM6



Date: 8.DEC.2008 09:53:27

1GHz to 10GHz

TM1

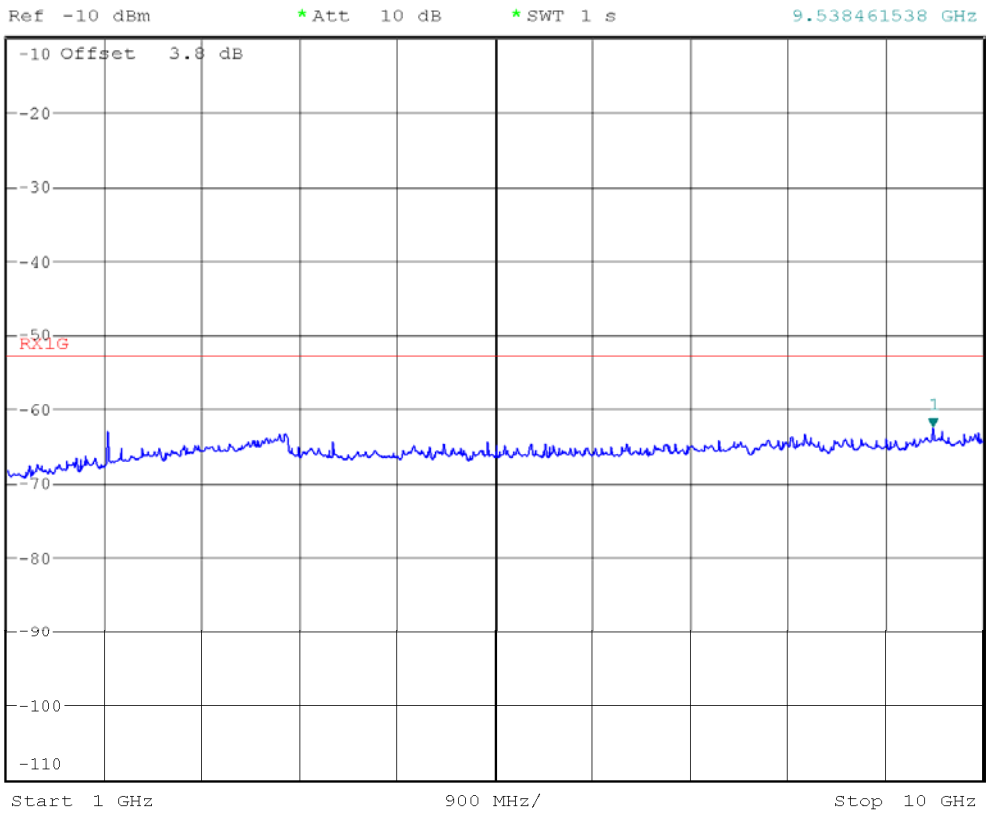


Date: 8.DEC.2008 09:46:36

TM6



* RBW 1 MHz Marker 1 [T1]
 * VBW 1 MHz -62.64 dBm
 * SWT 1 s 9.538461538 GHz



Date: 8.DEC.2008 09:55:34

Limit	-57dBm(30MHz-1GHz) and -53dBm(above 1GHz)
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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 Due
Section 2.1, 2.2, 2.3, 2.5 and 2.6 – Maximum Conducted Output Power, Occupied Bandwidth, Spurious Emissions at Antenna Terminals (± 1MHz), Conducted Spurious Emissions and Receiver Spurious Emissions.				
Spectrum Analyser	R&S	FSQ26	200014	2009/09/25
40dB Attenuator	Aeroflex Weinschel	48-40-43-LIM	BR5025	O/P MON
Network Analyzer	Agilent	8720D	US38431317	2009/05/04
Power Supply	Delta	SM70-45D	-	O/P MON
Power Supply	Dahua	DH1716-5D	-	O/P MON
Digital Multimeter	FLUKE	179	91820401	2009/01/04
Thermo-hygrometer	AZ Instruments	8705	9151655	2009/12/16
Section 2.4 – Radiated Spurious Emissions				
EMI Receiver	Rohde & Schwarz	ESI 40	100015	2009/08/20
Ultra log test antenna	Rohde & Schwarz	HL562	100167	2009/08/20
Double-Ridged Waveguide Horn Antenna	Rohde & Schwarz	HF 906	100029	2009/08/20
Antenna master	Frankonia	MA 260	-	TU
Relay Switch Unit	Rohde & Schwarz	331.1601.31	338965002	TU
Signal generator	Rohde & Schwarz	SMR 20	100086	2009/08/20
Semi- Anechoic Chamber	Frankonia	23.18m \times 16.88m \times 9.60m	-	2010/07/19
Digital Multimeter	FLUKE	179	91820401	2009/01/04
Thermo-hygrometer	AZ Instruments	8705	9151655	2009/12/16

O/P MON Output monitored with calibrated 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
Radiated Emissions, Bilog Antenna, AOATS	30MHz to 1GHz Amplitude	5.1dB*
Radiated Emissions, Horn Antenna, AOATS	1GHz to 40GHz Amplitude	6.3dB*
Substitution Antenna, Radiated Field	30MHz to 20GHz Amplitude	2.6dB
Worst case error for both Time and Frequency measurement 12 parts in 10 ⁶ .		

* In accordance with CISPR 16-4



SECTION 4

ACCREDITATION, DISCLAIMERS AND COPYRIGHT

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 (Not UKAS Accredited).

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