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Report On

FCC Testing of the
IP Access
2G (EDGE) BTS Nano Base Station (850MHz)

COMMERCIAL-IN-CONFIDENCE

FCC ID: QGGKU02ZZR
IC ID: 4644A-KU02ZZR

Document 75903461 Report 02 Issue 1

June 2008



Product Service

TUV 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 Testing of the
IP Access
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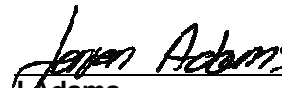
PREPARED FOR


IP Access Ltd, Building 2020
Cambourne Business Park
Cambourne
Cambridge
CB23 6DW

PREPARED BY


J. Plummer
Technical Author

APPROVED BY


J. Adams
Authorised Signatory


M. Jenkins
Authorised Signatory


DATED

25 June 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 limited 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);


G Lawler


S Bennett





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Product Service

SECTION 1

REPORT SUMMARY

FCC Testing of the
IP Access
2G (EDGE) BTS Nano Base Station (850MHz)



1.1 INTRODUCTION

The information contained in this report is intended to show verification of the IP Access 2G (EDGE) BTS Nano Base Station (850MHz) to the requirements of FCC CFR 47 Part 22: 2006 and Industry Canada RSS-132 Issue 2: 2005.

Objective	To perform Electromagnetic Compatibility (EMC) Qualification Approval Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Manufacturer	IP Access
Model Number(s)	165D
Serial Number(s)	00073853
Software Version	168a007_v142b7d26
Hardware Version	XA
Number of Samples Tested	1
Test Specification/Issue/Date	FCC CFR 47 Part 22: 2006 Industry Canada RSS-132 Issue 2: 2005
Incoming Release Date	Not Formally Released 02 June 2008
Disposal Reference Number Date	Held Pending Disposal Not Applicable Not Applicable
Order Number Date	PO17918 20 March 2008
Start of Test	02 June 2008
Finish of Test	04 June 2008
Name of Engineer(s)	G Lawler S Bennett
Related Documents	FCC CFR 47 Part 2: 2006 FCC CFR 47 Part 15C: 2006 RSS-Gen: 2007



Product Service

1.2 BRIEF SUMMARY OF RESULTS

A brief summary of results in accordance with FCC CFR 47 Part 22: 2006 and RSS-132 Issue 2: 2005, is shown below.

Configuration 1 - As supplied							
Section	Spec Clause		Test Description	Mode	Mod State	Result	Base Standard
	FCC	Industry Canada					
2.1	15.207	RSS-Gen: 7.2.2	Conducted Emissions AC Power Port	TX	0	Pass	FCC CFR 47 Part 15: 2006
				RX Qual		N/A	
2.2	22.917, 2.1053	RSS-132: 4.5	Emission limitations for Cellular Equipment	TX	0	Pass	FCC CFR 47 Part 22: 2006
				RX Qual		N/A	
2.3	22.913(a)	RSS-132: 4.4	Effective Radiated Power	TX	0	Pass	FCC CFR 47 Part 22: 2006
				RX Qual		N/A	
2.4	22.913(a)	RSS-132: 4.4	Maximum Peak Output Power – Conducted	TX	0	Pass	FCC CFR 47 Part 22: 2006
				RX Qual		N/A	
2.5	2.1047(d)	-	Modulation Characteristics	TX	0	Pass	FCC CFR 47 Part 22: 2006
				RX Qual		N/A	
2.6	2.1049, 22.917(b)	RSS-132: 4.2	Occupied Bandwidth	TX	0	Pass	FCC CFR 47 Part 22: 2006
				RX Qual		N/A	
2.7	2.1051, 22.905	RSS-132: 4.5	Spurious Emissions at Antenna Terminals	TX	0	Pass	FCC CFR 47 Part 22: 2006
				RX Qual		N/A	
2.8	2.1051, 22.9179(a)	-	Conducted Spurious Emissions	TX	0	Pass	FCC CFR 47 Part 22: 2006
				RX Qual		N/A	
2.9	2.1055, 22.355	RSS-132: 4.3	Frequency Stability Under Temperature Variations	TX	0	Pass	FCC CFR 47 Part 22: 2006
				RX Qual		N/A	
2.10	2.1055, 22.355	-	Frequency Stability Under Voltage Variations	TX	0	Pass	FCC CFR 47 Part 22: 2006
				RX Qual		N/A	

N/A – Not Applicable



Product Service

1.3 DECLARATION OF BUILD STATUS

MAIN EUT			
MANUFACTURING DESCRIPTION	850M NanaBTS		
MANUFACTURER	Ip Access		
TYPE	165D		
PART NUMBER	165D		
SERIAL NUMBER	00073853		
HARDWARE VERSION	XA		
SOFTWARE VERSION	168a007_v142b7d26		
TRANSMITTER OPERATING RANGE	869MHz- 894MHz		
RECEIVER OPERATING RANGE	824MHz – 849MHz		
COUNTRY OF ORIGIN	Mexico		
INTERMEDIATE FREQUENCIES	170.6MHz		
ITU DESIGNATION OF EMISSION			
HIGHEST INTERNALLY GENERATED FREQUENCY	894MHz		
OUTPUT POWER (W or dBm)	23dBm		
FCC ID	QGGKU02ZZR		
INDUSTRY CANADA ID	4644A-KU02ZZR		
TECHNICAL DESCRIPTION (a brief description of the intended use and operation)	Base Station		
BATTERY/POWER SUPPLY			
MANUFACTURING DESCRIPTION	External DC PSU 109A for BTS		
MANUFACTURER	PPI		
TYPE	PSU109A		
PART NUMBER	PSU109A		
VOLTAGE	48V DC		
COUNTRY OF ORIGIN	China		
MODULES (if applicable)			
MANUFACTURING DESCRIPTION			
MANUFACTURER			
TYPE			
POWER			
FCC ID			
COUNTRY OF ORIGIN			
INDUSTRY CANADA ID			
EMISSION DESIGNATOR			
DHSS/FHSS/COMBINED OR OTHER			
ANCILLARIES (if applicable)			
MANUFACTURING DESCRIPTION			
MANUFACTURER			
TYPE			
PART NUMBER			
SERIAL NUMBER			
COUNTRY OF ORIGIN			

Signature Completed Electronically

Date: 17 June 2008

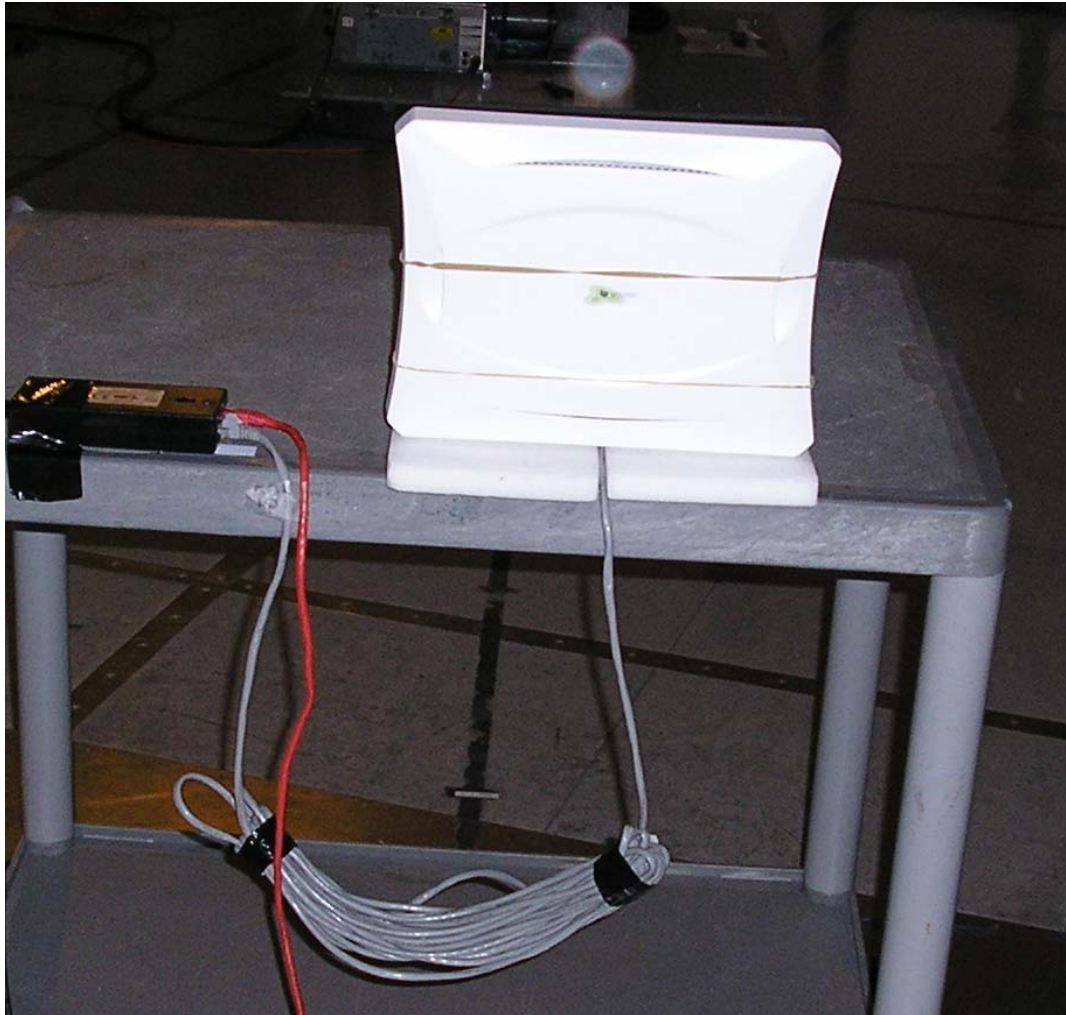
Declaration of Build Status Serial Number: 75903461/01



1.4 PRODUCT INFORMATION

1.4.1 Technical Description

The Equipment Under Test (EUT) was a IP Access 2G (EDGE) BTS Nano Base Station (850MHz) as shown in the photograph below. A full technical description can be found in the Manufacturers documentation.



Equipment Under Test



Product Service

1.4.2 Test Configuration

Configuration 1: As supplied

The EUT was configured in accordance with FCC CFR 47 Part 22: 2006.

1.4.3 Modes of Operation

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

Mode 1 – TX

Mode 2 – RX Qual

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 117.5V AC, 60Hz supply.

FCC Accreditation
90987 Octagon House, Fareham Test Laboratory

Industry Canada Accreditation
2932B-1 Octagon House, Fareham Test Laboratory

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.



Product Service

SECTION 2

TEST DETAILS

FCC Testing of the
IP Access
2G (EDGE) BTS Nano Base Station (850MHz)



Product Service

2.1 CONDUCTED EMISSIONS AC POWER PORT

2.1.1 Specification Reference

FCC Part 15C: 2006, Clause 15.207
Industry Canada RSS-Gen, Clause 7.2.2

2.1.2 Equipment Under Test

2G (EDGE) BTS Nano Base Station (850MHz), S/N: 00073853

2.1.3 Date of Test and Modification State

02 June 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 15: 2006.

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

Configuration 1 - Mode 1

2.1.6 Environmental Conditions

	02 June 2008
Ambient Temperature	17.6°C
Relative Humidity	47%
Atmospheric Pressure	1006mbar



Product Service

2.1.7 Test Results

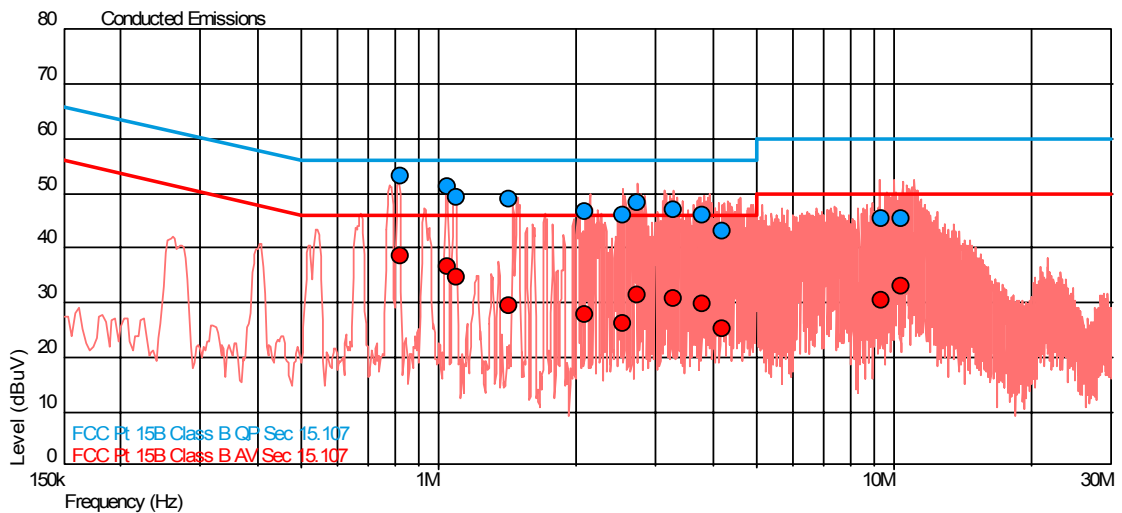
For the period of test the EUT met the requirements of FCC Part 15: 2006 and Industry Canada RSS-Gen, Clause 7.2.2 for Conducted Emissions AC Power Port.

The test results are shown below.

Configuration 1 - Mode 1

Bottom Channels 128

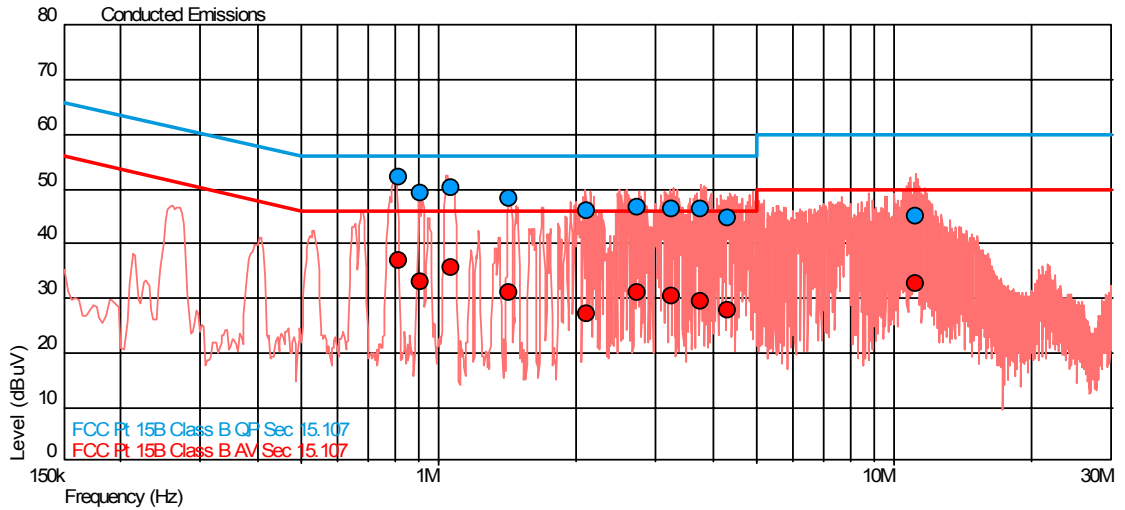
Live Line Results



Frequency (MHz)	QP Level (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Level (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
0.821	53.3	56.0	-2.7	38.5	46.0	-7.5
1.048	51.3	56.0	-4.7	36.5	46.0	-9.5
1.091	49.4	56.0	-6.6	34.6	46.0	-11.4
1.431	48.8	56.0	-7.2	29.4	46.0	-16.6
2.085	46.6	56.0	-9.4	27.7	46.0	-18.3
2.540	46.1	56.0	-9.9	26.3	46.0	-19.7
2.732	48.2	56.0	-7.8	31.4	46.0	-14.6
3.266	46.9	56.0	-9.1	30.9	46.0	-15.1
3.779	46.1	56.0	-9.9	29.7	46.0	-16.3
4.180	43.1	56.0	-12.9	25.3	46.0	-20.7
9.323	45.3	60.0	-14.7	30.5	50.0	-19.5
10.372	45.4	60.0	-14.6	32.9	50.0	-17.1



Neutral Line Results

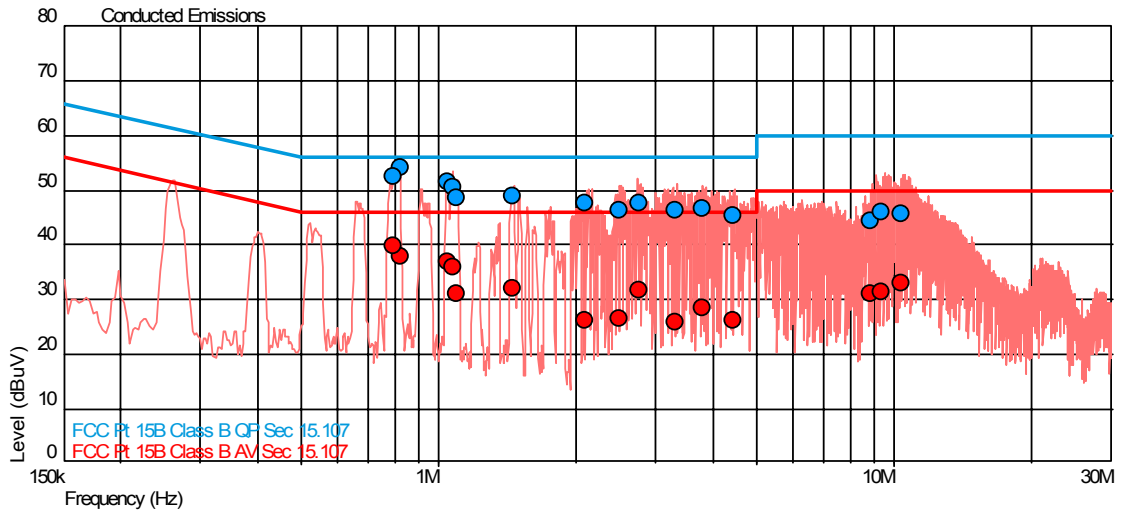


Frequency (MHz)	QP Level (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Level (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
0.819	52.2	56.0	-3.8	36.9	46.0	-9.1
0.909	49.2	56.0	-6.8	33.2	46.0	-12.8
1.069	50.3	56.0	-5.7	35.5	46.0	-10.5
1.430	48.4	56.0	-7.6	31.1	46.0	-14.9
2.110	46.2	56.0	-9.8	27.1	46.0	-18.9
2.732	46.6	56.0	-9.4	31.1	46.0	-14.9
3.257	46.4	56.0	-9.6	30.5	46.0	-15.5
3.767	46.4	56.0	-9.6	29.3	46.0	-16.7
4.302	44.8	56.0	-11.2	27.7	46.0	-18.3
11.111	45.2	60.0	-14.8	32.7	50.0	-17.3



Middle Channel 190

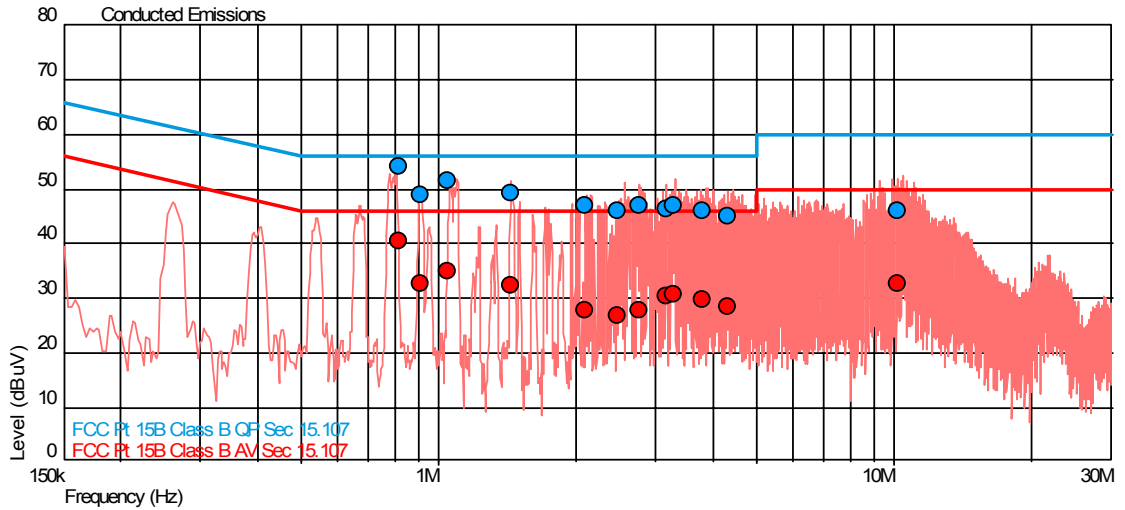
Live Line Results



Frequency (MHz)	QP Level (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Level (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
0.795	52.6	56.0	-3.4	39.9	46.0	-6.1
0.823	54.0	56.0	-2.0	37.8	46.0	-8.2
1.049	51.7	56.0	-4.3	36.8	46.0	-9.2
1.073	50.6	56.0	-5.4	36.0	46.0	-10.0
1.097	48.7	56.0	-7.3	31.0	46.0	-15.0
1.446	49.0	56.0	-7.0	32.1	46.0	-13.9
2.085	47.5	56.0	-8.5	26.2	46.0	-19.8
2.482	46.2	56.0	-9.8	26.6	46.0	-19.4
2.741	47.6	56.0	-8.4	31.7	46.0	-14.3
3.308	46.3	56.0	-9.7	25.7	46.0	-20.3
3.777	46.6	56.0	-9.4	28.4	46.0	-17.6
4.430	45.3	56.0	-10.7	26.3	46.0	-19.7
8.869	44.5	60.0	-15.5	31.1	50.0	-18.9
9.401	46.1	60.0	-13.9	31.4	50.0	-18.6
10.313	45.7	60.0	-14.3	33.1	50.0	-16.9



Neutral Line Results

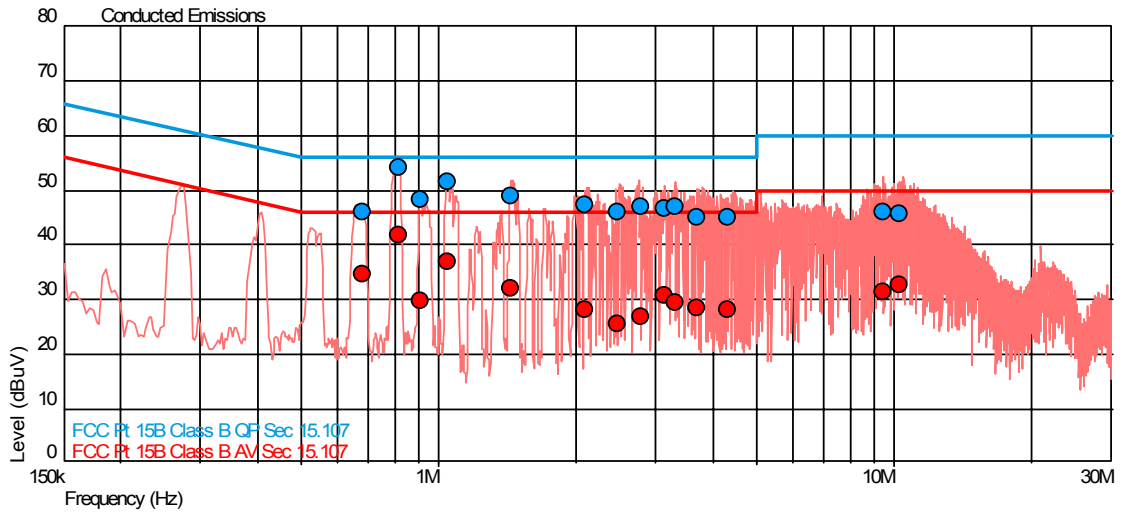


Frequency (MHz)	QP Level (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Level (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
0.819	54.1	56.0	-1.9	40.5	46.0	-5.5
0.913	48.8	56.0	-7.2	32.7	46.0	-13.3
1.043	51.6	56.0	-4.4	35.1	46.0	-10.9
1.438	49.3	56.0	-6.7	32.4	46.0	-13.6
2.087	46.8	56.0	-9.2	27.8	46.0	-18.2
2.477	46.1	56.0	-9.9	26.8	46.0	-19.2
2.751	47.1	56.0	-8.9	27.8	46.0	-18.2
3.147	46.3	56.0	-9.7	30.4	46.0	-15.6
3.259	46.9	56.0	-9.1	30.7	46.0	-15.3
3.801	46.0	56.0	-10.0	29.6	46.0	-16.4
4.316	45.0	56.0	-11.0	28.3	46.0	-17.7
10.158	46.1	60.0	-13.9	32.6	50.0	-17.4



Top Channel 251

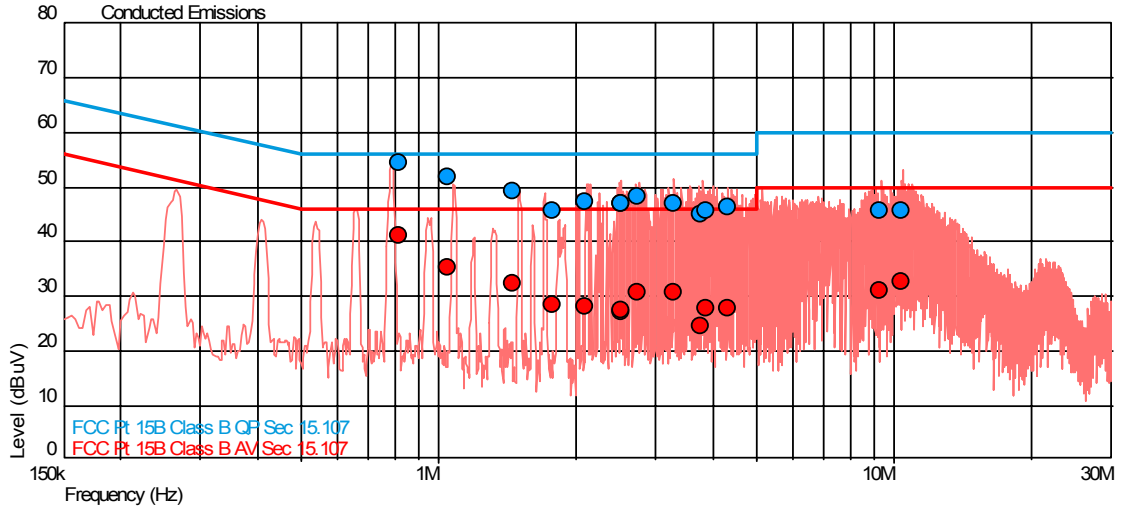
Live Line Results



Frequency (MHz)	QP Level (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Level (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
0.682	46.1	56.0	-9.9	34.5	46.0	-11.5
0.818	54.3	56.0	-1.7	41.8	46.0	-4.2
0.911	48.2	56.0	-7.8	29.9	46.0	-16.1
1.050	51.7	56.0	-4.3	36.9	46.0	-9.1
1.438	49.0	56.0	-7.0	32.0	46.0	-14.0
2.096	47.2	56.0	-8.8	28.3	46.0	-17.7
2.476	46.2	56.0	-9.8	25.7	46.0	-20.3
2.767	47.0	56.0	-9.0	26.9	46.0	-19.1
3.134	46.5	56.0	-9.5	30.7	46.0	-15.3
3.294	46.9	56.0	-9.1	29.5	46.0	-16.5
3.697	45.2	56.0	-10.8	28.5	46.0	-17.5
4.306	44.9	56.0	-11.1	28.0	46.0	-18.0
9.427	46.1	60.0	-13.9	31.3	50.0	-18.7
10.212	45.6	60.0	-14.4	32.6	50.0	-17.4



Neutral Line Results



Frequency (MHz)	QP Level (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Level (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
0.820	54.5	56.0	-1.5	41.2	46.0	-4.8
1.044	51.8	56.0	-4.2	35.1	46.0	-10.9
1.448	49.3	56.0	-6.7	32.5	46.0	-13.5
1.771	45.8	56.0	-10.2	28.4	46.0	-17.6
2.099	47.2	56.0	-8.8	28.2	46.0	-17.8
2.503	46.9	56.0	-9.1	27.2	46.0	-18.8
2.521	47.0	56.0	-9.0	27.4	46.0	-18.6
2.736	48.2	56.0	-7.8	30.7	46.0	-15.3
3.277	47.0	56.0	-9.0	30.7	46.0	-15.3
3.758	44.9	56.0	-11.1	24.5	46.0	-21.5
3.842	45.6	56.0	-10.4	27.7	46.0	-18.3
4.300	46.4	56.0	-9.6	27.7	46.0	-18.3
9.316	45.6	60.0	-14.4	31.0	50.0	-19.0
10.363	45.5	60.0	-14.5	32.8	50.0	-17.2



Product Service

2.2 EMISSION LIMITATIONS FOR CELLULAR EQUIPMENT

2.2.1 Specification Reference

FCC CFR 47 Part 22: 2006, Clause 22.917
Industry Canada RSS-132 Issue 2: 2005, Clause 4.5

2.2.2 Equipment Under Test

2G (EDGE) BTS Nano Base Station (850MHz), S/N: 00073853

2.2.3 Date of Test and Modification State

02 June 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 22: 2006.

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

Configuration 1 - Mode 1

2.2.6 Environmental Conditions

	02 June 2008
Ambient Temperature	17.6°C
Relative Humidity	47%
Atmospheric Pressure	1006mbar



Product Service

2.2.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 22: 2006 and Industry Canada RSS-132 Issue 2: 2005 for Emission limitations for Cellular Equipment.

The test results are shown below.

Configuration 1 - Mode 1

No emissions were detected within 20dB of the specification limit.

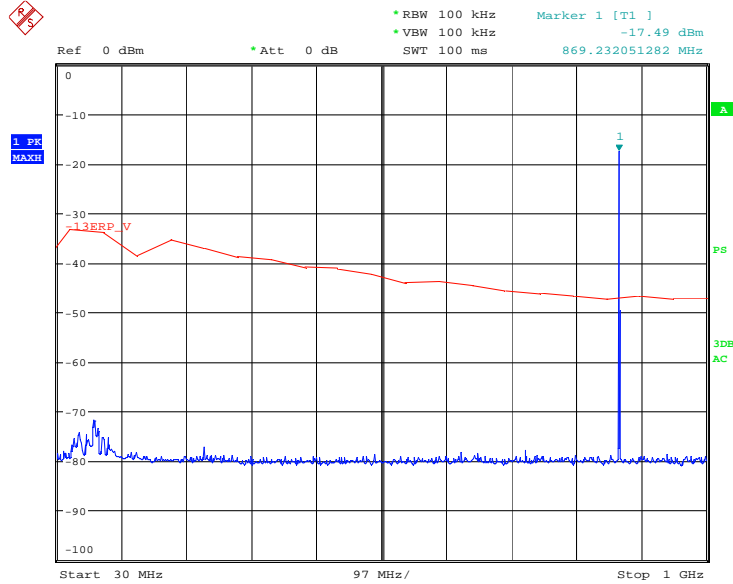


Product Service

Bottom Channel 128

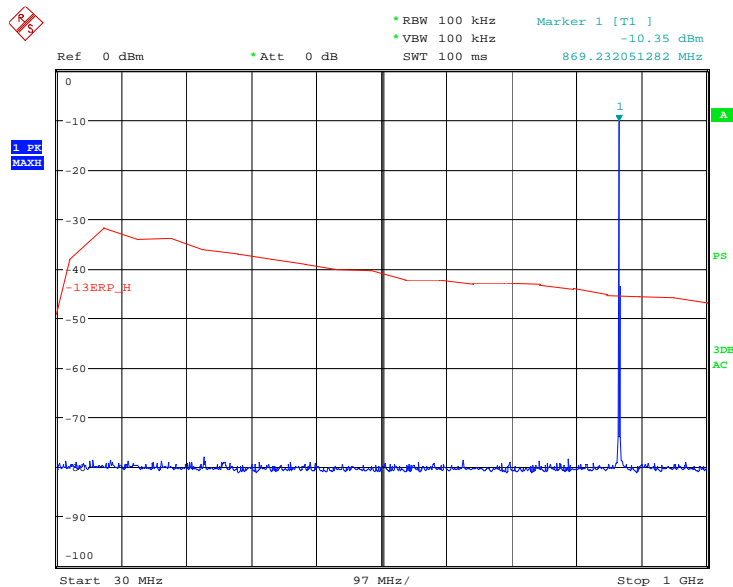
30MHz to 1GHz

Vertical Polarisation



Date: 2.JUN.2008 19:48:57

Horizontal Polarisation

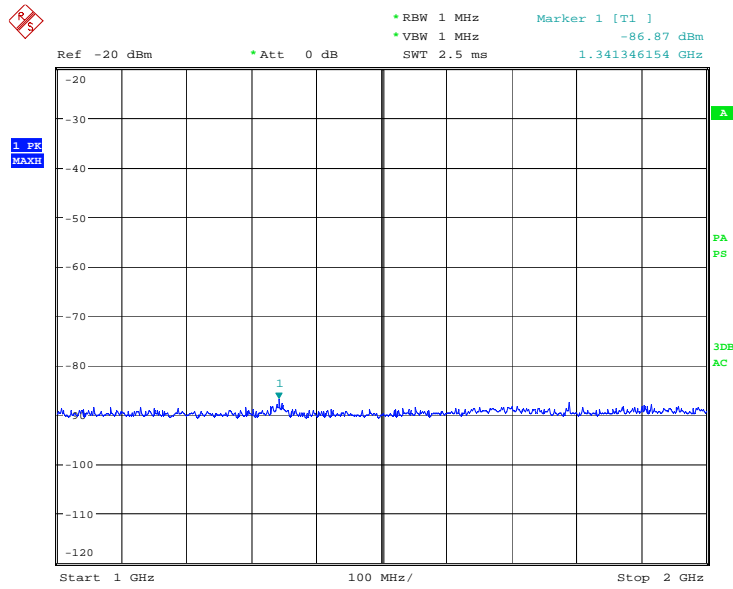


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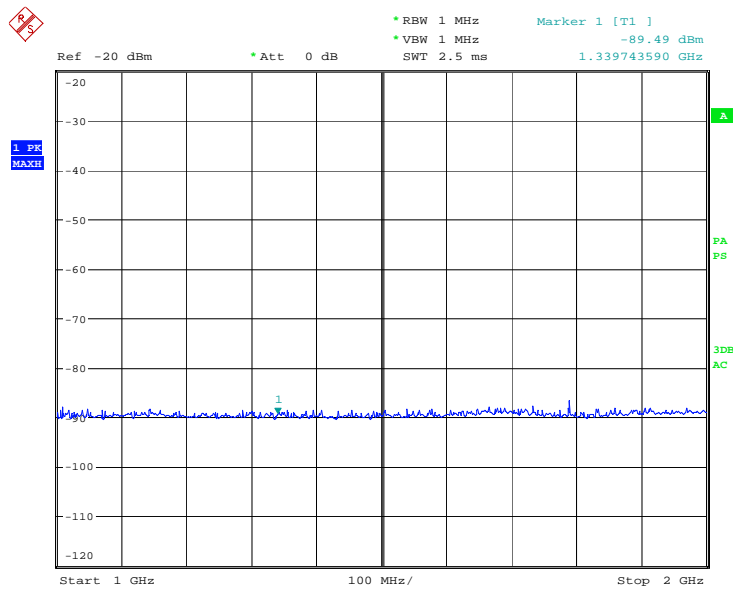
1GHz to 2GHz

Vertical Polarisation



Date: 2.JUN.2008 21:29:46

Horizontal Polarisation

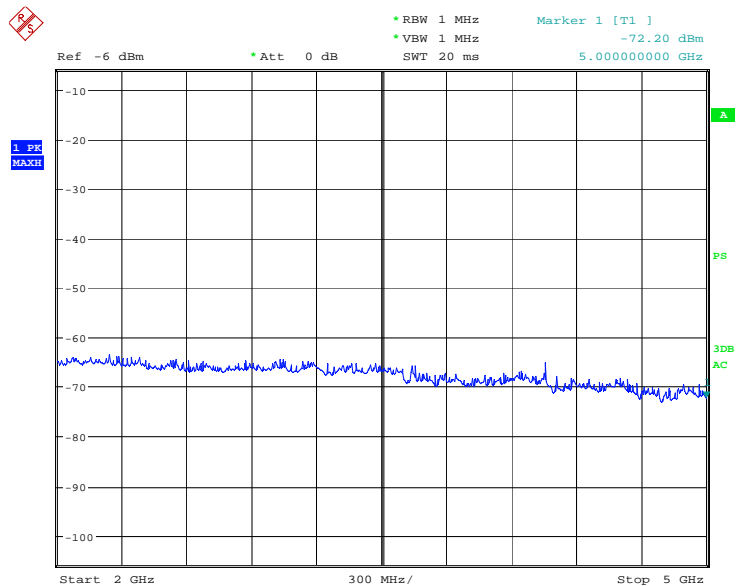


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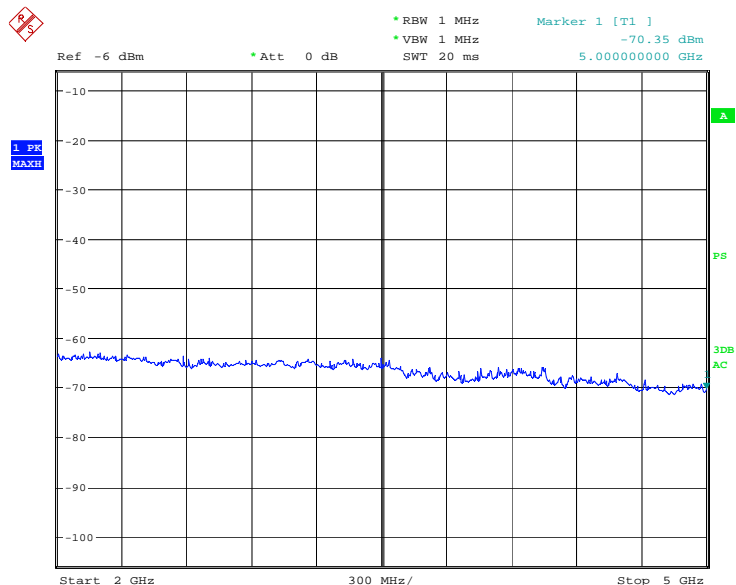
2GHz to 5GHz

Vertical Polarisation



Date: 2.JUN.2008 22:08:56

Horizontal Polarisation

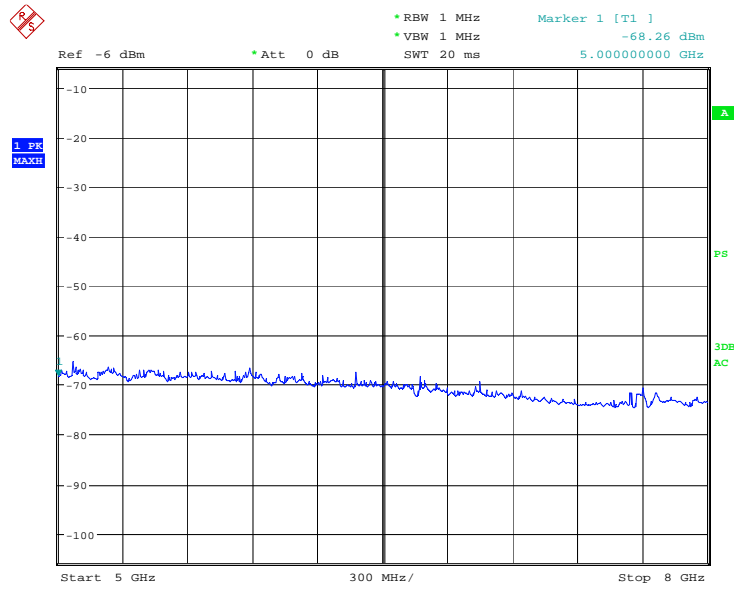


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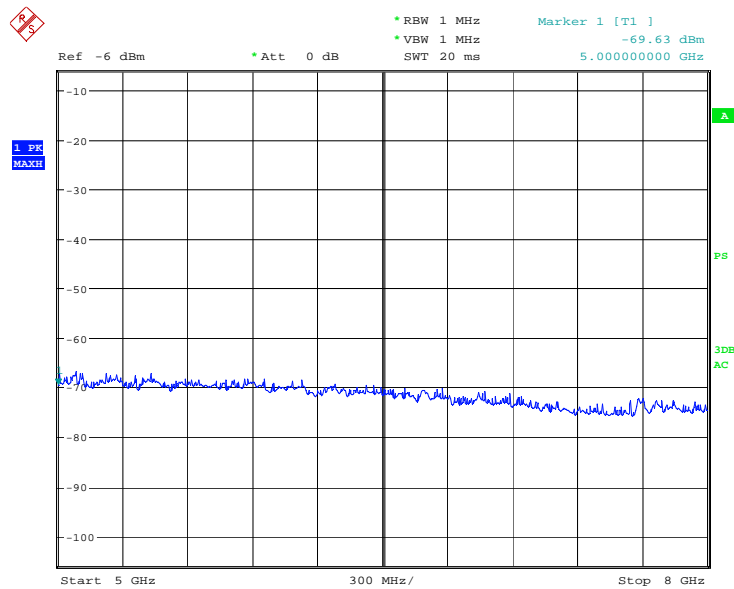
5GHz to 8GHz

Vertical Polarisation



Date: 2.JUN.2008 22:17:19

Horizontal Polarisation



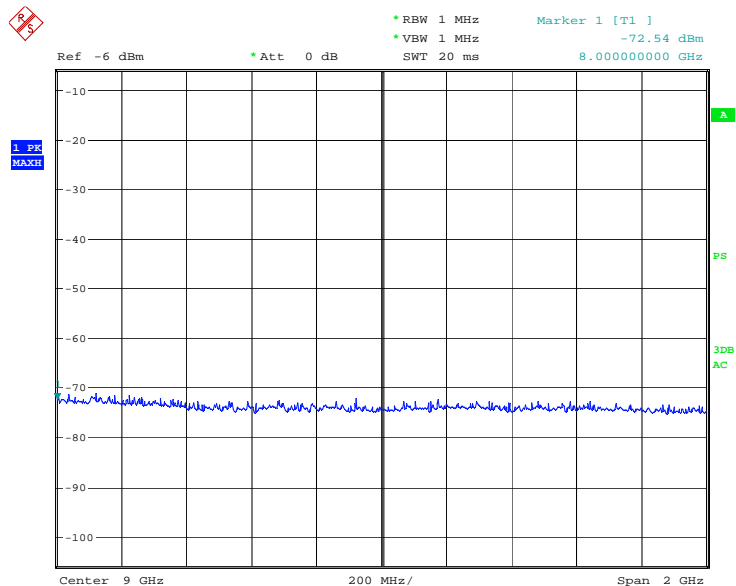
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Product Service

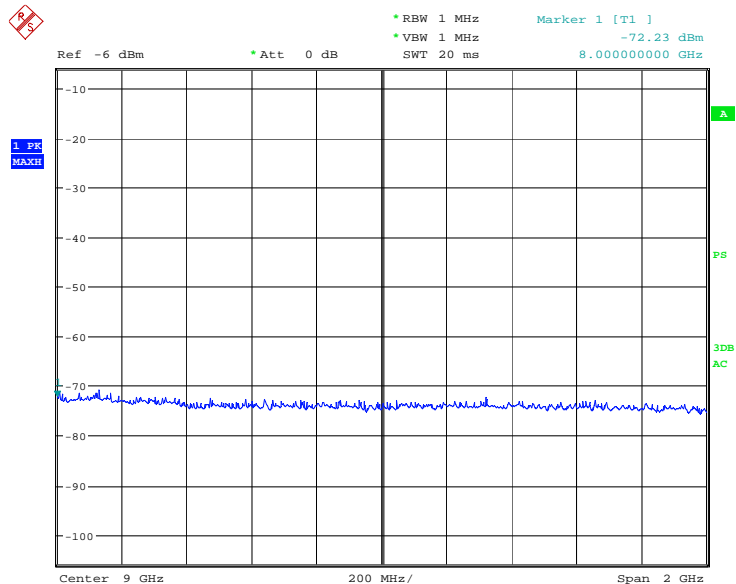
8GHz to 10GHz

Vertical Polarisation



Date: 2.JUN.2008 22:28:22

Horizontal Polarisation



Date: 2.JUN.2008 22:30:33

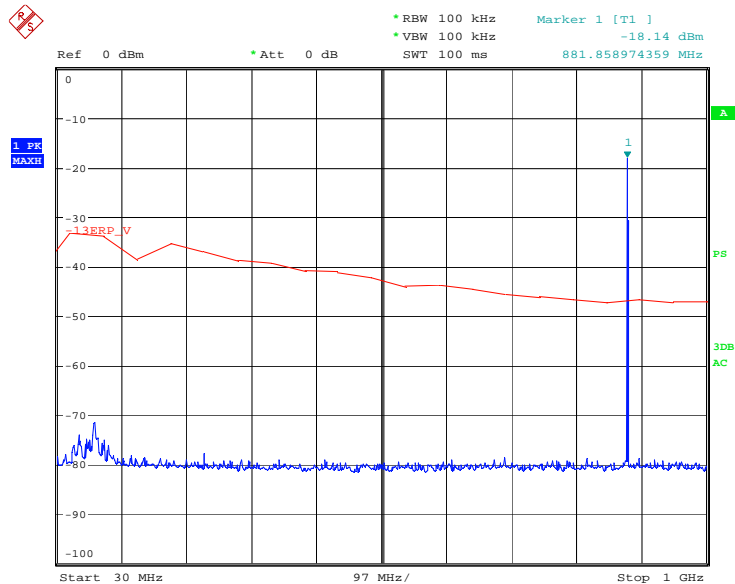


Product Service

Middle Channel 190

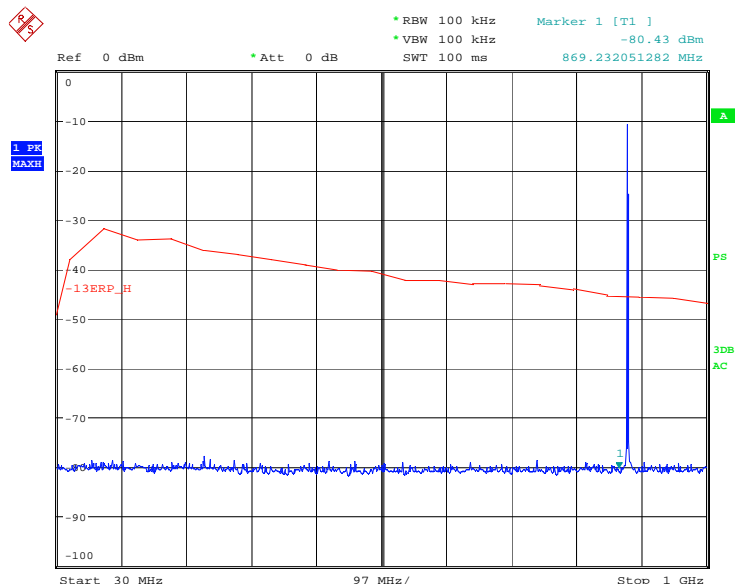
30MHz to 1GHz

Vertical Polarisation



Date: 2.JUN.2008 19:57:06

Horizontal Polarisation

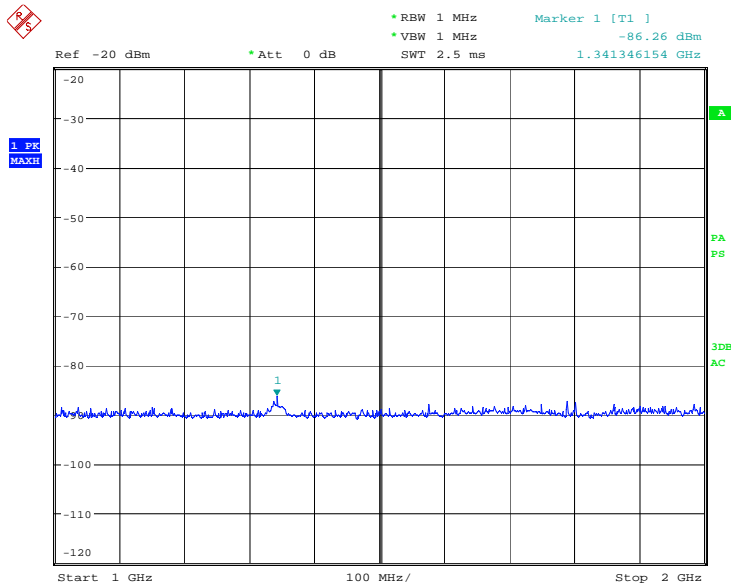


Date: 2.JUN.2008 19:54:55



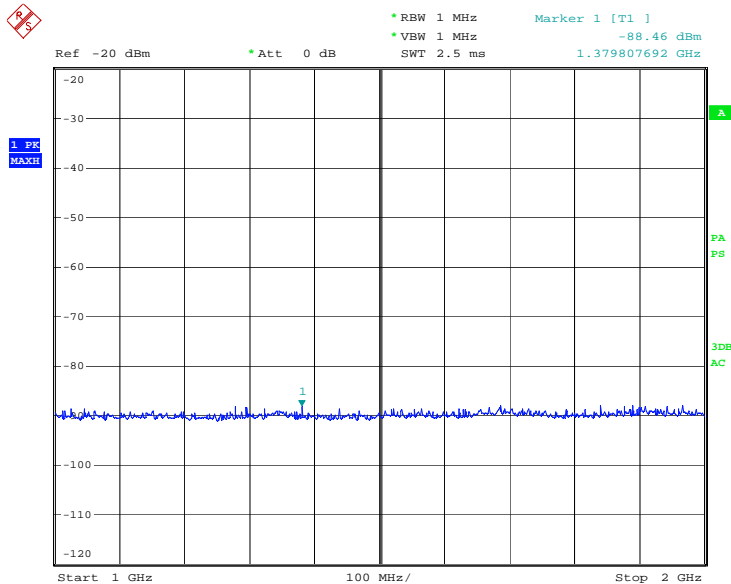
1GHz to 2GHz

Vertical Polarisation



Date: 2.JUN.2008 21:30:20

Horizontal Polarisation



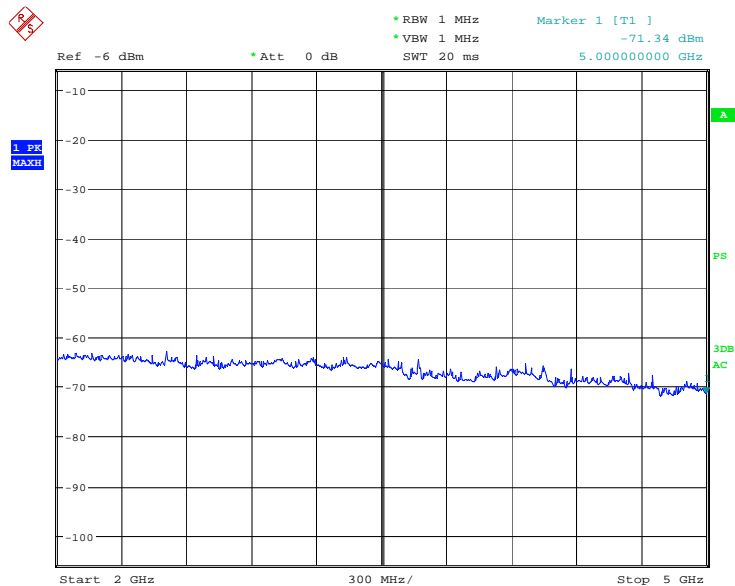
Date: 2.JUN.2008 21:28:00



Product Service

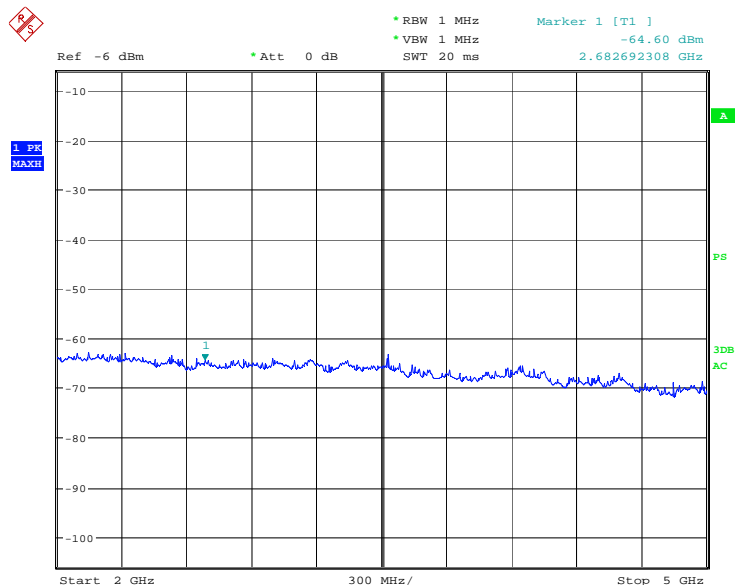
2GHz to 5GHz

Vertical Polarisation



Date: 2.JUN.2008 22:01:51

Horizontal Polarisation

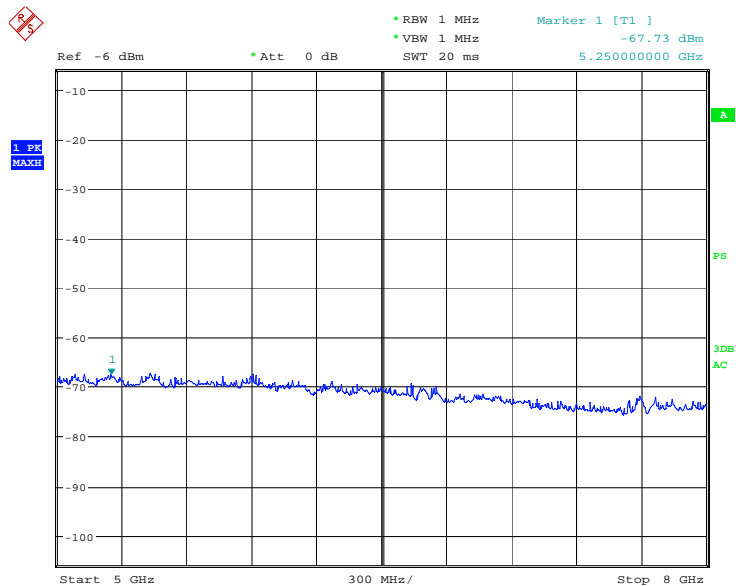


Date: 2.JUN.2008 21:55:18



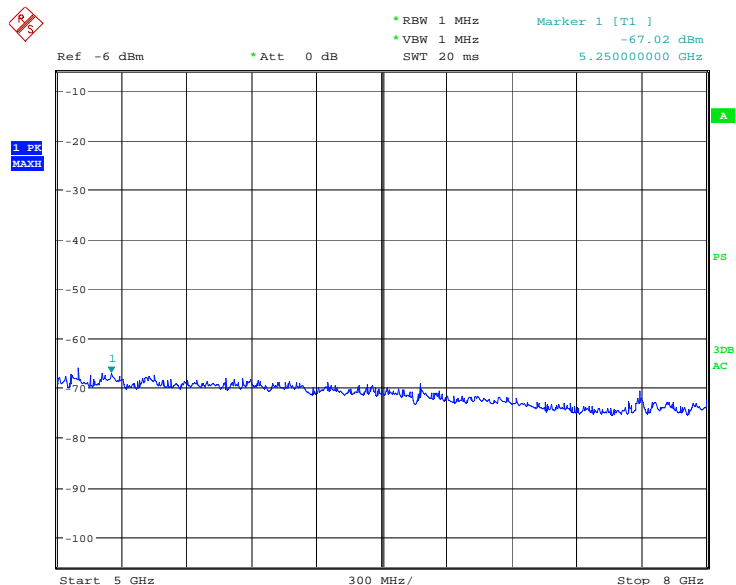
5GHz to 8GHz

Vertical Polarisation



Date: 2.JUN.2008 21:59:32

Horizontal Polarisation



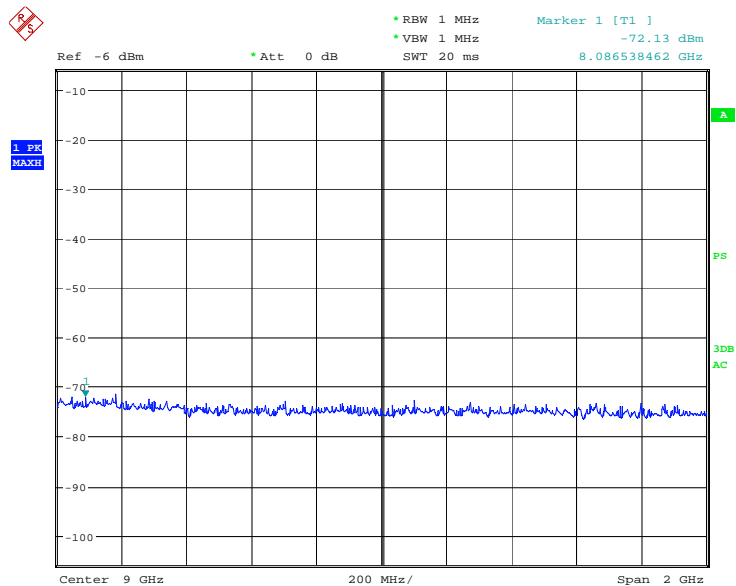
Date: 2.JUN.2008 21:57:12



Product Service

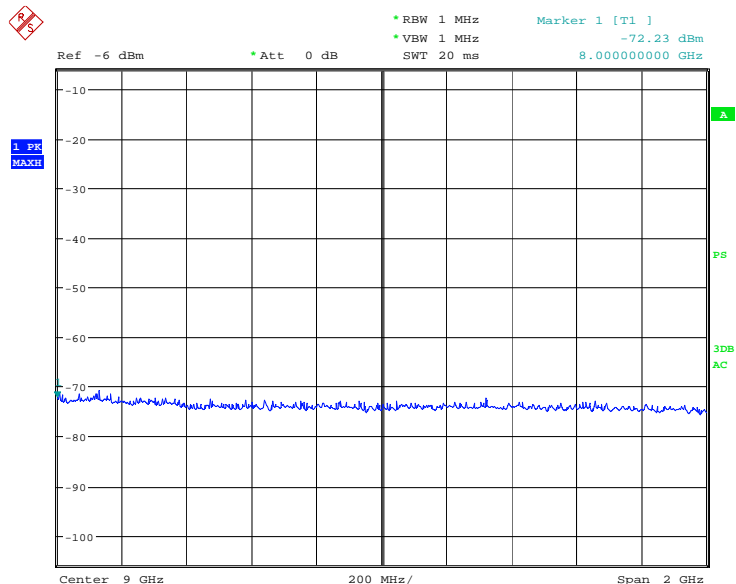
8GHz to 10GHz

Vertical Polarisation



Date: 2.JUN.2008 22:32:57

Horizontal Polarisation



Date: 2.JUN.2008 22:30:33

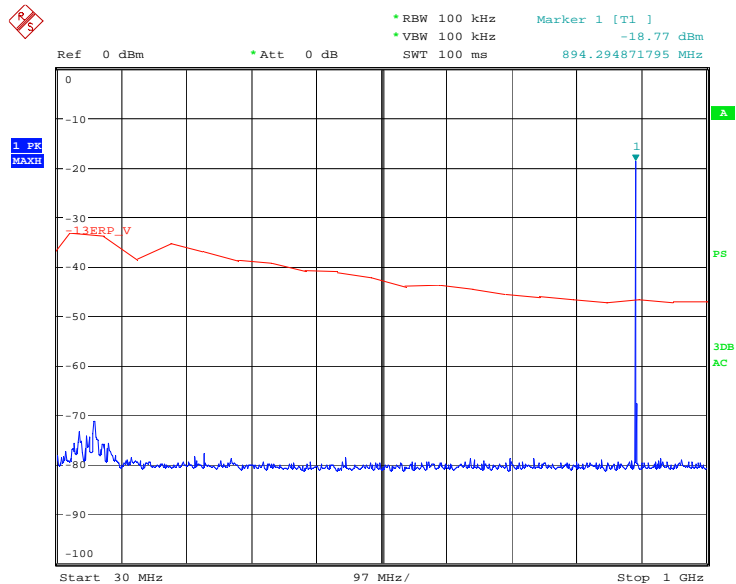


Product Service

Top Channel 251

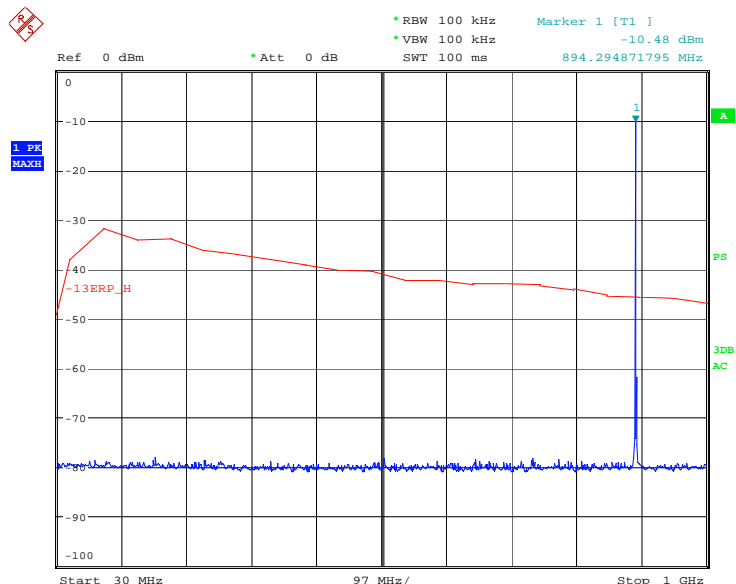
30MHz to 1GHz

Vertical Polarisation



Date: 2.JUN.2008 20:00:09

Horizontal Polarisation

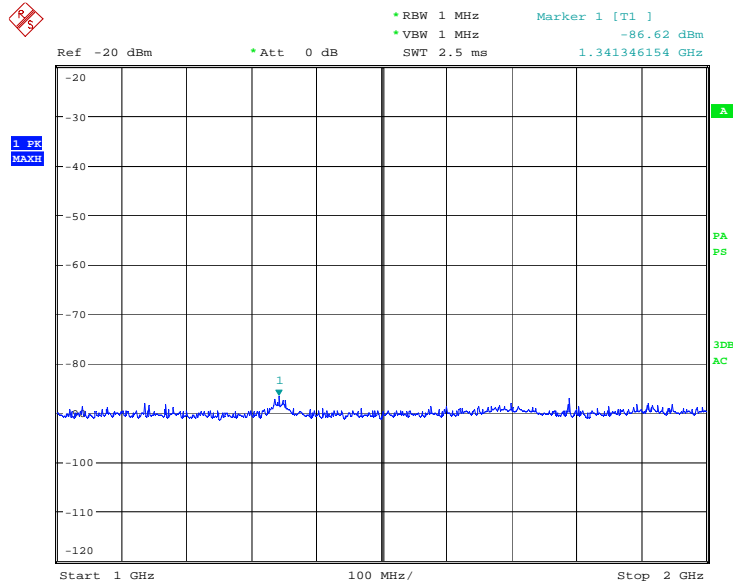


Date: 2.JUN.2008 20:05:52



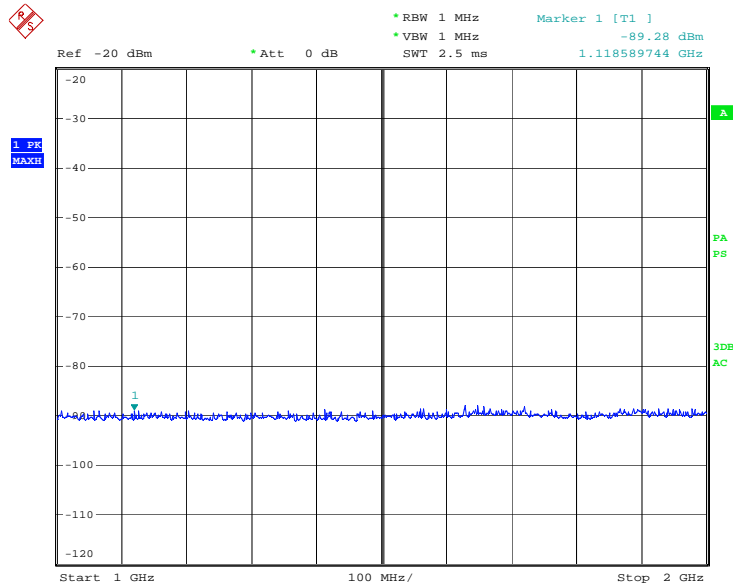
1GHz to 2GHz

Vertical Polarisation



Date: 2.JUN.2008 21:30:38

Horizontal Polarisation

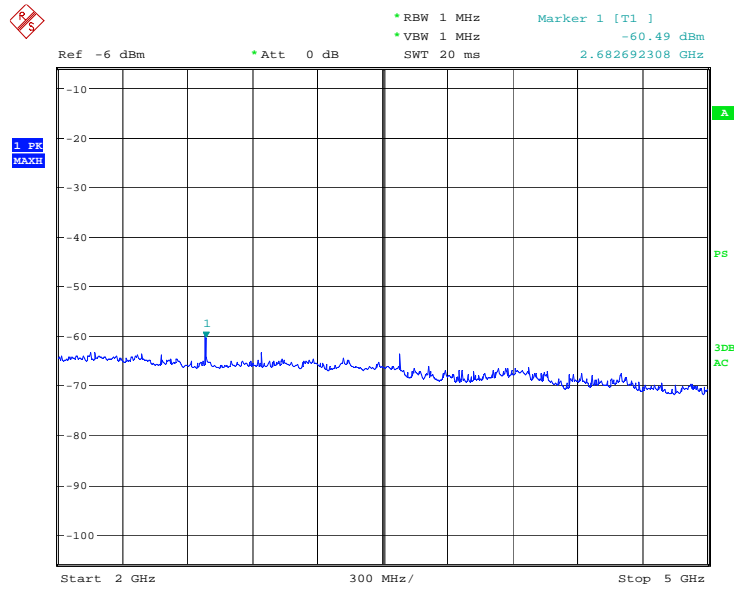


Date: 2.JUN.2008 21:28:22



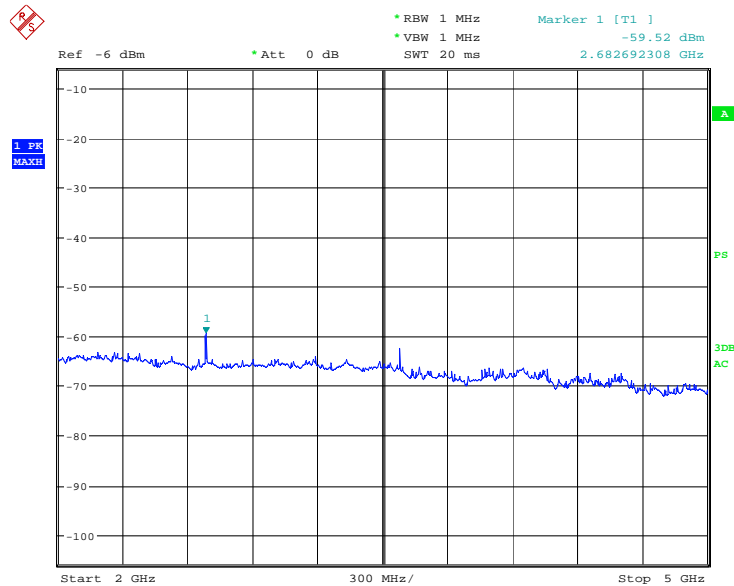
2GHz to 5GHz

Vertical Polarisation



Date: 2.JUN.2008 21:44:46

Horizontal Polarisation

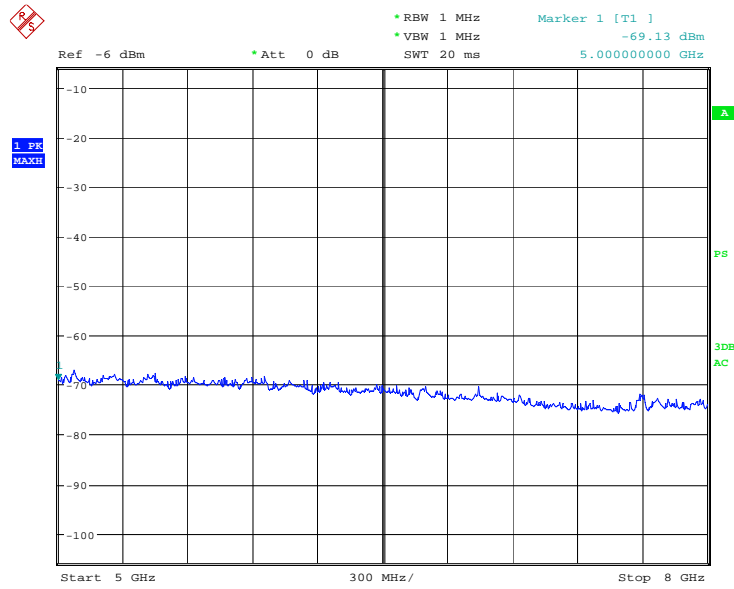


Date: 2.JUN.2008 21:50:40



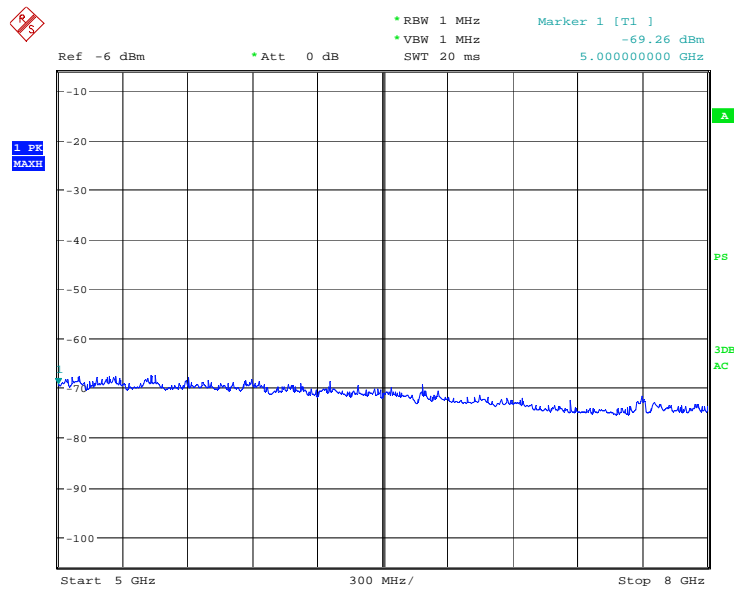
5GHz to 8GHz

Vertical Polarisation



Date: 2.JUN.2008 21:46:23

Horizontal Polarisation



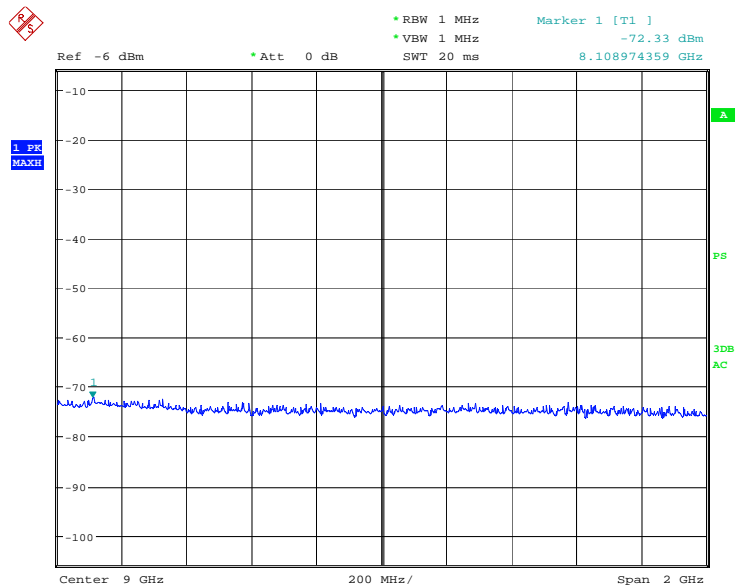
Date: 2.JUN.2008 21:48:47



Product Service

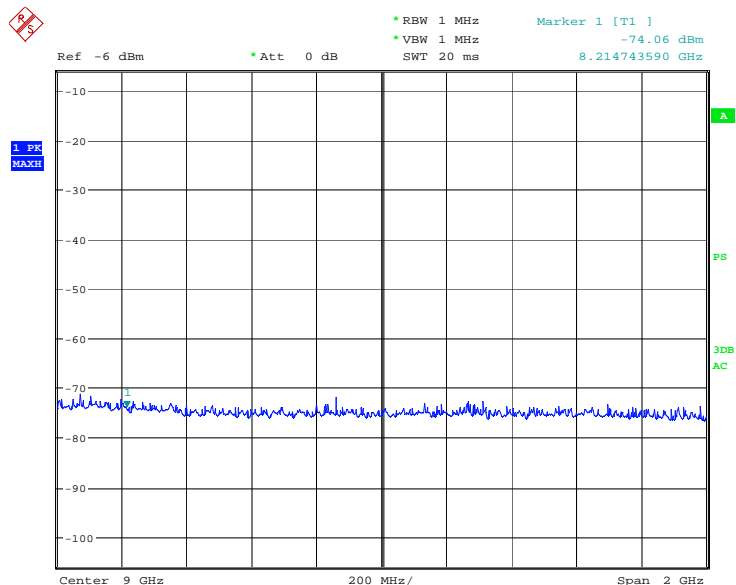
8GHz to 10GHz

Vertical Polarisation



Date: 2.JUN.2008 22:34:16

Horizontal Polarisation



Date: 2.JUN.2008 22:33:58



Product Service

2.3 EFFECTIVE RADIATED POWER

2.3.1 Specification Reference

FCC CFR 47 Part 22: 2006, Clause 22.913
Industry Canada RSS-132 Issue 2: 2005, Clause 4.4

2.3.2 Equipment Under Test

2G (EDGE) BTS Nano Base Station (850MHz), S/N: 00073853

2.3.3 Date of Test and Modification State

02 June 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 22: 2006.

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

Configuration 1 - Mode 1

2.3.6 Environmental Conditions

	02 June 2008
Ambient Temperature	17.6°C
Relative Humidity	47%
Atmospheric Pressure	1006mbar



Product Service

2.3.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 22: 2006 and Industry Canada RSS-132 Issue 2: 2005 for Effective Radiated Power.

The test results are shown below.

Configuration 1 - Mode 1

Frequency (GHz)	ERP (dBm)	Limit (dBm)	ERP (W)	Limit (W)
0.8692	22.80	33.00	0.19	2.00
0.8816	23.80	33.00	0.24	2.00
0.8938	23.30	33.00	0.21	2.00



Product Service

2.4 MAXIMUM PEAK OUTPUT POWER - CONDUCTED

2.4.1 Specification Reference

FCC CFR 47 Part 22: 2006, Clause 22.913(a)
Industry Canada RSS-132 Issue 2: 2005, Clause 4.4

2.4.2 Equipment Under Test

2G (EDGE) BTS Nano Base Station (850MHz), S/N: 00073853

2.4.3 Date of Test and Modification State

03 June 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 22: 2006.

Using a spectrum analyser and a 20dB attenuator, the output power of the EUT was measured at the antenna terminal. The EUT supports a GMSK and 8PSK modulation scheme. The carrier power was measured with GMSK modulation with all timeslots active and 8PSK with all timeslots active.

The spectrum analyser RBW and VBW were set to 1MHz 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

2.4.6 Environmental Conditions

	03 June 2008
Ambient Temperature	23°C
Relative Humidity	58%



Product Service

2.4.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 22: 2006 and Industry Canada RSS-132 Issue 2: 2005 for Maximum Peak Power – Conducted .

Configuration 1 (GSM850)

Measurements were made with the EUT in GSM850 Mode

115V AC Supply – 60Hz

Maximum Power - GMSK

Frequency (MHz)	Output Power (dBm)	Path Loss (dB)	Result (dBm)	Result (mW)
869.2	1.24	20.3	21.54	142.56
881.6	1.06	20.4	21.46	139.96
893.8	0.97	20.4	21.37	137.09

Maximum Power – 8PSK

Frequency (MHz)	Output Power (dBm)	Path Loss (dB)	Result (dBm)	Result (mW)
869.2	3.51	20.3	23.81	240.44
881.6	3.51	20.4	23.91	246.04
893.8	3.25	20.4	23.65	231.74

Limit	≤500W or <56.99dBm
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Remarks

EUT complies with CFR 47 2.1046 and 22.913(a). The EUT does not exceed 500W or 56.99.45dBm at the measured frequencies.



Product Service

2.5 MODULATION CHARACTERISTICS

2.5.1 Specification Reference

FCC CFR 47 Part 22: 2006, Clause 2.1047(d)

2.5.2 Equipment Under Test

2G (EDGE) BTS Nano Base Station (850MHz), S/N: 00073853

2.5.3 Date of Test and Modification State

03 June 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 22: 2006.

Four plots are shown on the following pages showing the EUT transmitting with the display in the time domain:

Plot 1: EUT transmitting with GMSK modulation showing one timeslot

Plot 2: EUT transmitting with GMSK modulation showing one frame with one timeslot active.

Plot 3: EUT transmitting with 8PSK modulation showing one timeslot

Plot 4: EUT transmitting with 8PSK modulation showing one frame with one timeslot active.

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

Configuration 1 - Mode 1

2.5.6 Environmental Conditions

03 June 2008

Ambient Temperature 23°C

Relative Humidity 57%

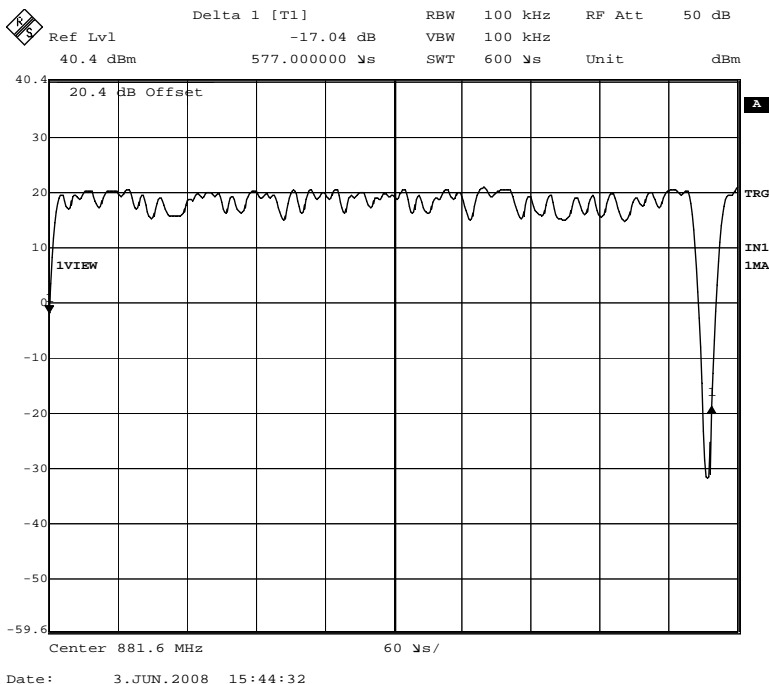


Product Service

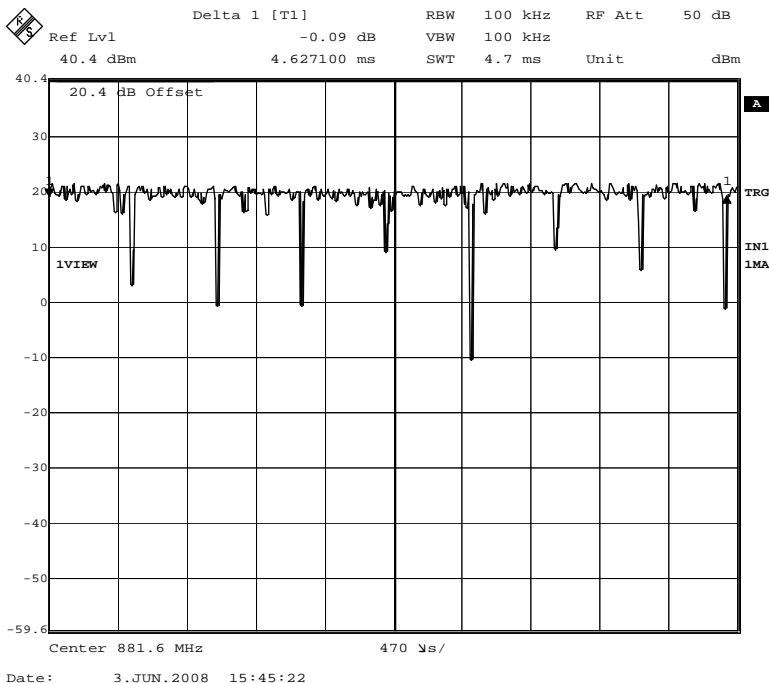
2.5.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 22: 2006 for Modulation Characteristics.

Plot 1 - GMSK



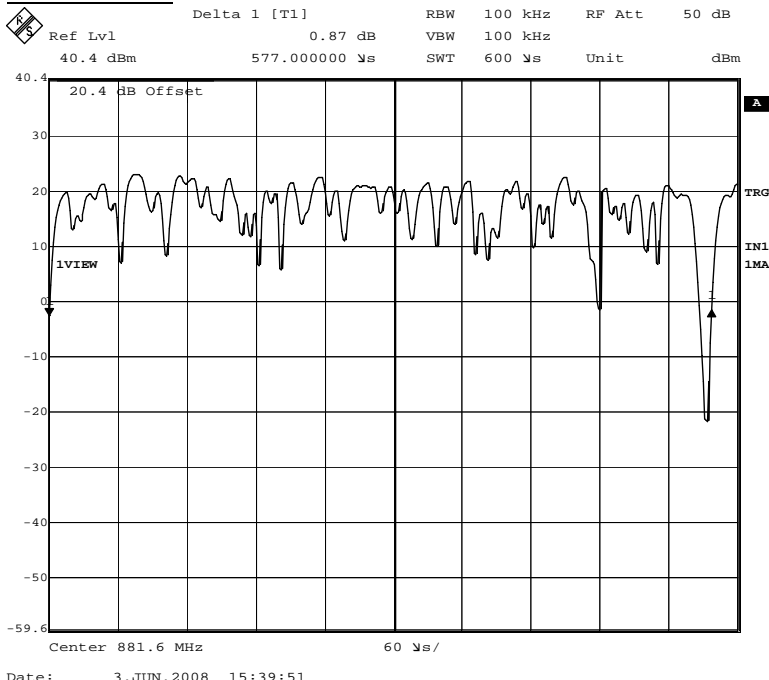
Plot 2 - GMSK



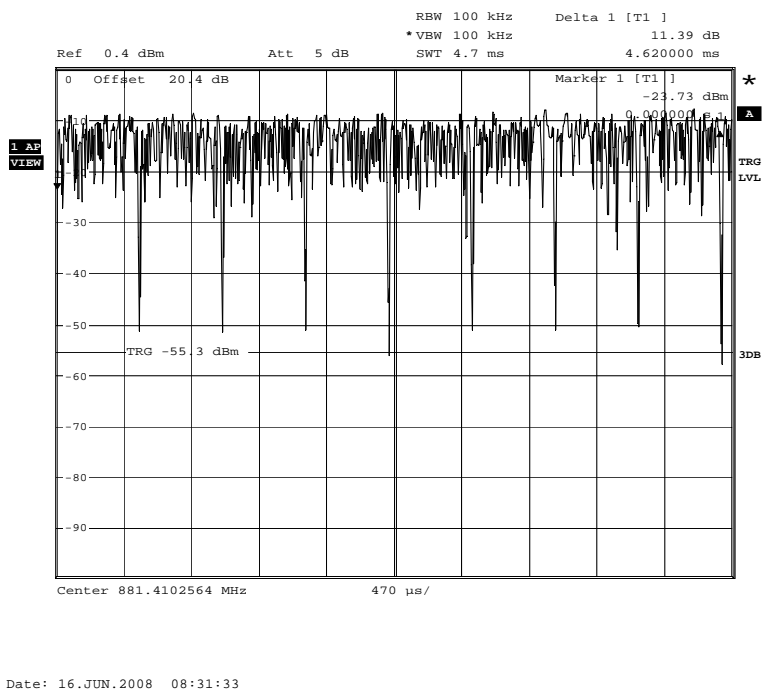


Product Service

Plot 3 – 8PSK



Plot 4 – 8PSK





Product Service

2.6 OCCUPIED BANDWIDTH

2.6.1 Specification Reference

FCC CFR 47 Part 22: 2006, Clause 22.917(b)
Industry Canada RSS-132 Issue 2: 2005, Clause 4.2

2.6.2 Equipment Under Test

2G (EDGE) BTS Nano Base Station (850MHz), S/N: 00073853

2.6.3 Date of Test and Modification State

03 June 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 22: 2006.

The EUT was transmitting at maximum power, modulated with all timeslots active. Using a resolution bandwidth of 10 kHz and a video bandwidth of 30 kHz, the -26dBc points were established and the emission bandwidth determined.

The plot below shows the resultant display from the Spectrum Analyser.

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

Configuration 1 - Mode 1

2.6.6 Environmental Conditions

03 June 2008

Ambient Temperature 23°C

Relative Humidity 57%



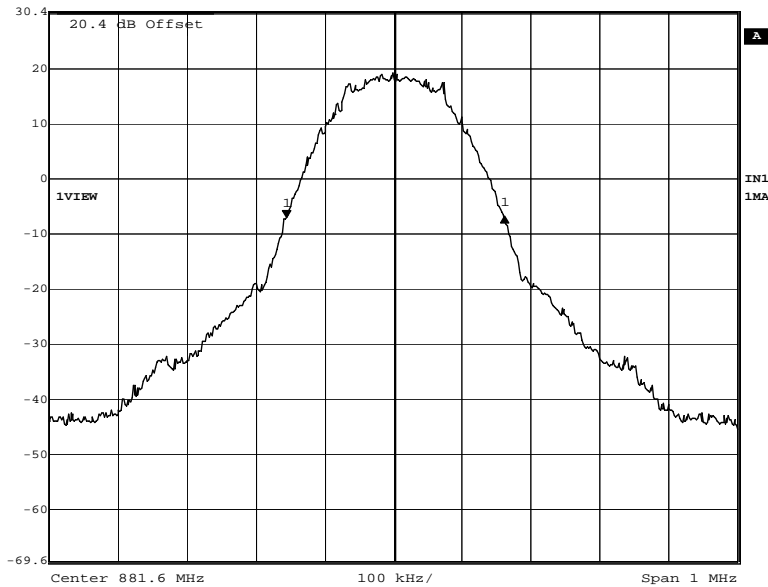
2.6.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 22: 2006 and Industry Canada RSS-132 Issue 2: 2005 for Occupied Bandwidth.

Occupied Bandwidth as defined by the -26dBc points

Maximum Power – GMSK

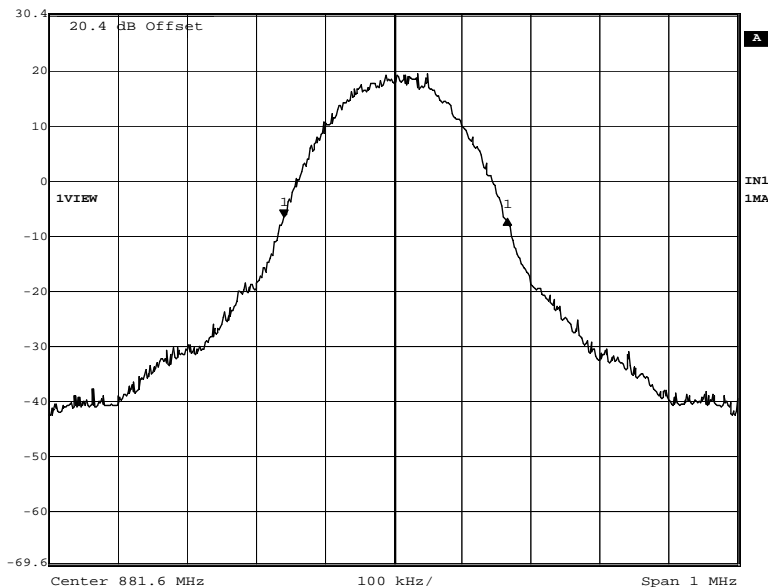
	Delta 1 [T1]	RBW	10 kHz	RF Att	40 dB
Ref Lvl	0.20 dB	VBW	30 kHz		
30.4 dBm	316.63326653 kHz	SWT	25 ms	Unit	dBm



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Maximum Power – 8PSK

	Delta 1 [T1]	RBW	10 kHz	RF Att	40 dB
Ref Lvl	-0.23 dB	VBW	30 kHz		
30.4 dBm	324.64929860 kHz	SWT	25 ms	Unit	dBm



Date: 3.JUN.2008 15:58:10



Product Service

2.7 SPURIOUS EMISSIONS AT ANTENNA TERMINALS

2.7.1 Specification Reference

FCC CFR 47 Part 22: 2006, Clause 2.1051, 22.905
Industry Canada RSS-132 Issue 2: 2005, Clause 4.5

2.7.2 Equipment Under Test

2G (EDGE) BTS Nano Base Station (850MHz), S/N: 00073853

2.7.3 Date of Test and Modification State

03 June 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 FCC CFR 47 Part 22: 2006.

In accordance with 22.917(b) and 22.905, using a Spectrum Analyser and attenuator, the emissions were measured between the block edge and up to 1MHz away to ensure compliance with the $43 + 10 \log(P)$ limit. Measurements were performed using a Peak Detector with the trace display set to max hold. An RBW of at least 1% of the measured 26dB bandwidth was used, in this case 10kHz RBW and 30kHz VBW.

The path loss was measured over the required test range and the worst case loss was entered as a reference level offset into the Spectrum Analyser.

Below are the Frequency Blocks the EUT was tested against along with the tested channels.

Communication Channel Pair Blocks

Frequency Block (MHz)	Lower Block Edge Test Channels/Frequencies	Upper Block Edge Test Channels/Frequencies
A (869.0 – 891.5)	Channel : 128 Frequency : 869.2MHz	-
B (891.5 – 894.0)	-	Channel : 250 Frequency : 893.6MHz

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

Configuration 1 - Mode 1



Product Service

2.7.6 Environmental Conditions

03 June 2008

Ambient Temperature 23°C

Relative Humidity 57%

2.7.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 22: 2006 and Industry Canada RSS-132 Issue 2: 2005 for Spurious Emissions at Antenna Terminals

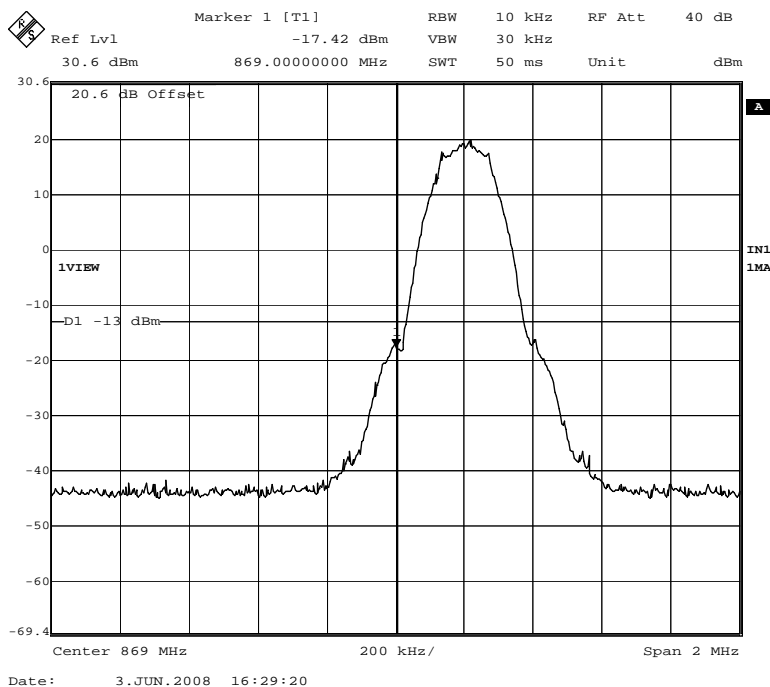
The channels shown in the table above are the minimum and maximum channels that can be used in each block to maintain compliance. Channels used outside of those stated in the table exceed the specification limits, thus they cannot be used.

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

The measurement plots are shown on the following pages.

Block Edge Measurement with EUT Transmitting on Full Power On Channel 128, (869.2MHz) GMSK Modulation

Block A
869.0 – 891.5MHz

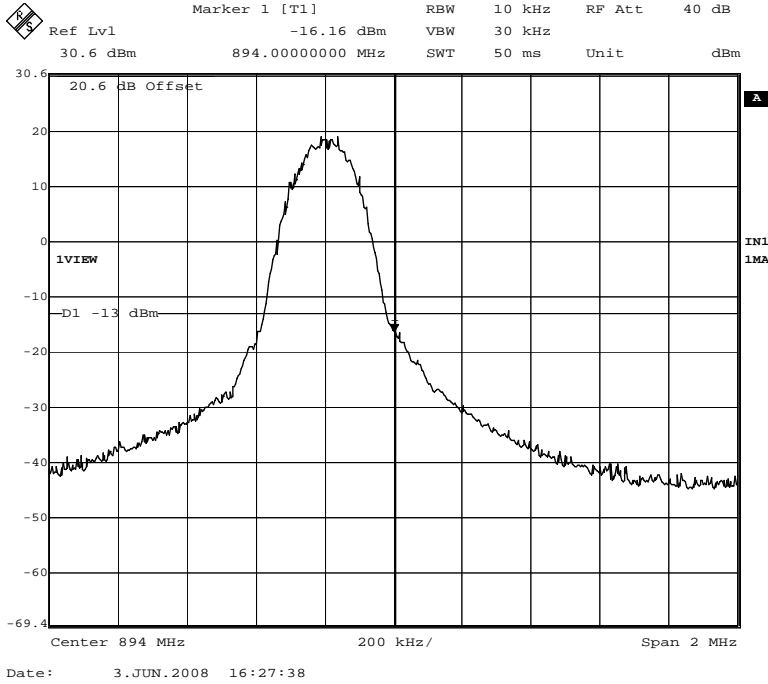




Product Service

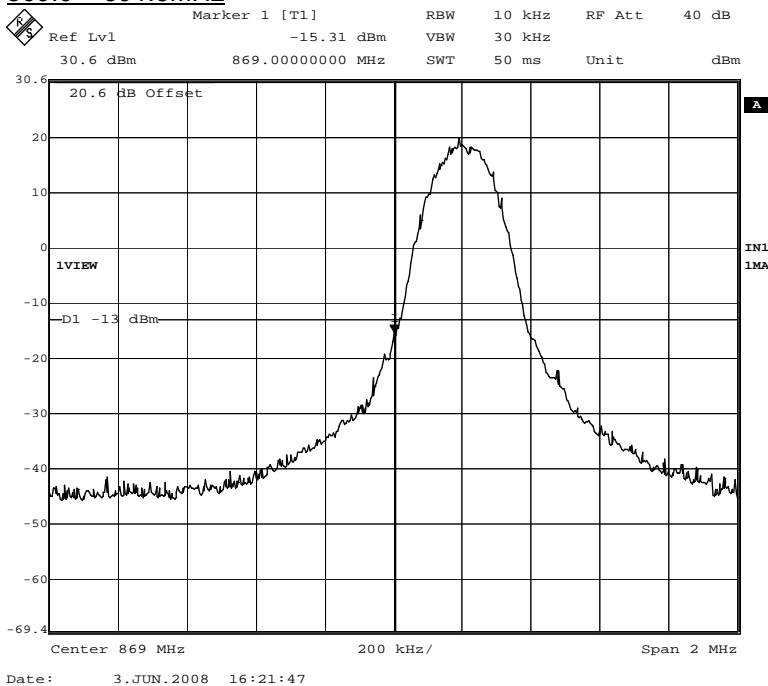
Block Edge Measurement With EUT Transmitting on Full Power On Channel 251, (893.8MHz)
GMSK Modulation

Block B
891.5 – 894.0MHz



Block Edge Measurement With EUT Transmitting on Full Power On Channel 128, (869.2MHz)
8PSK Modulation

Block A
869.0 – 891.5MHz



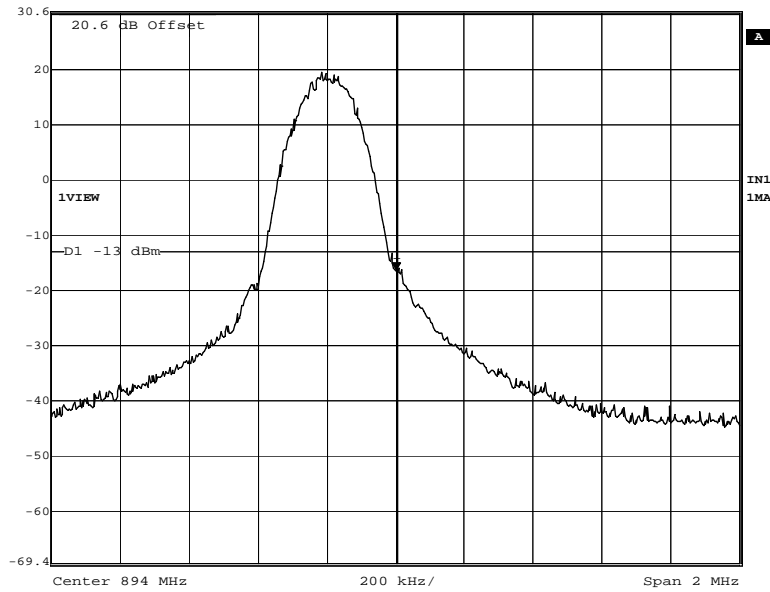


Product Service

Block Edge Measurement With EUT Transmitting on Full Power On Channel 251, (893.8MHz)
8PSK Modulation

Block B
891.5 – 894.0MHz

◆ RBW 10 kHz RF Att 40 dB
Ref Lvl 30.6 dBm Marker 1 [T1] -16.37 dBm VBW 30 kHz
894.0000000 MHz SWT 50 ms Unit dBm



Date: 3 JUN 2008 16:24:20



Product Service

2.8 CONDUCTED SPURIOUS EMISSIONS

2.8.1 Specification Reference

FCC CFR 47 Part 22: 2006, Clause 2.1051, 22.917(a)

2.8.2 Equipment Under Test

2G (EDGE) BTS Nano Base Station (850MHz), S/N: 00073853

2.8.3 Date of Test and Modification State

03 June 2008 - 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 22: 2006.

In accordance with Part 2.1051, the spurious emissions from the antenna terminal were measured. The transmitter output power was attenuated using a combination of filters and attenuators and the frequency spectrum investigated from 9kHz to 9GHz. The EUT was set to transmit on full power all timeslots. The EUT was tested on Bottom, Middle and Top channels. The resolution and video bandwidths were set to 1MHz thus meeting the requirements of FCC CFR 47 Part 22.917(b). The spectrum analyser detector was set to Max Hold.

From 9kHz to 4GHz, an attenuator was used. For measuring the range 4GHz to 9GHz, an attenuator and high pass filter were used. This was to reduce saturation effects in the spectrum analyser.

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

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

Configuration 1 - Mode 1

2.8.6 Environmental Conditions

	03 June 2008
Ambient Temperature	23°C
Relative Humidity	56%

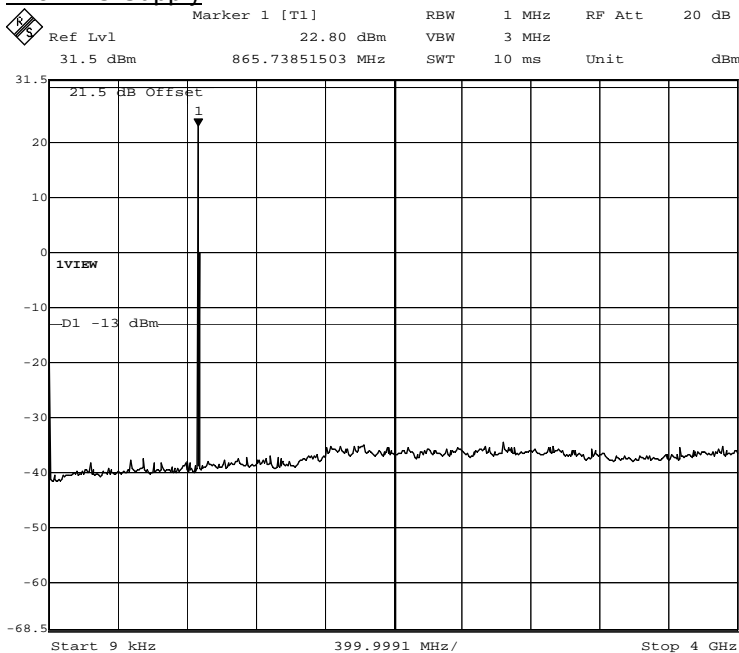


Product Service

2.8.7 Test Results

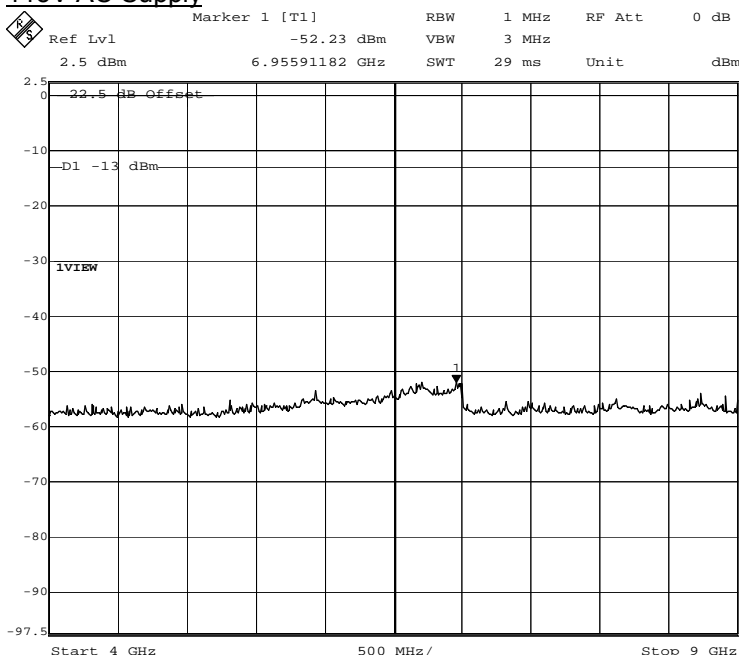
For the period of test the EUT met the requirements of FCC CFR 47 Part 22: 2006 for Conducted Spurious Emissions.

9kHz – 4.0GHz
Channel 128, (824.2MHz) – Maximum Power - GMSK
115V AC Supply



Date: 3.JUN.2008 16:51:54

4.0GHz – 9.0GHz
Channel 128, (824.2MHz) – Maximum Power - GMSK
115V AC Supply

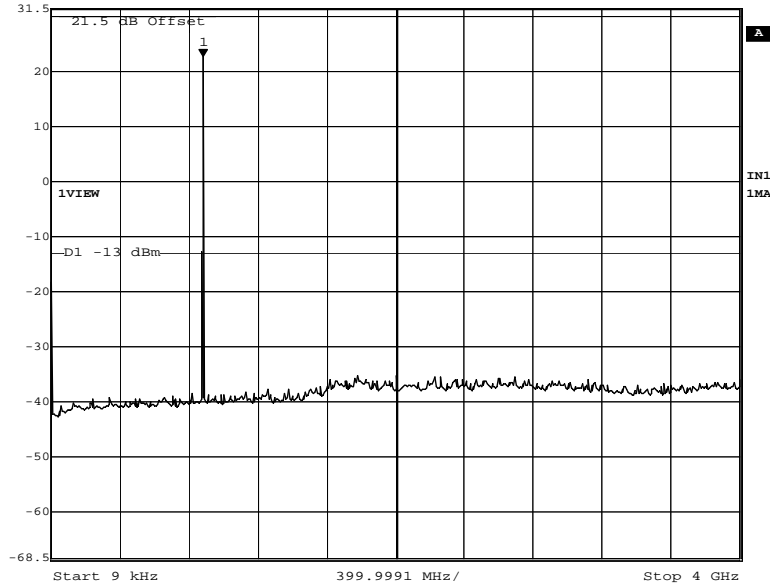


Date: 3.JUN.2008 17:16:09



9kHz – 4.0GHz
Channel 190, (836.6MHz) – Maximum Power - GMSK
115V AC Supply

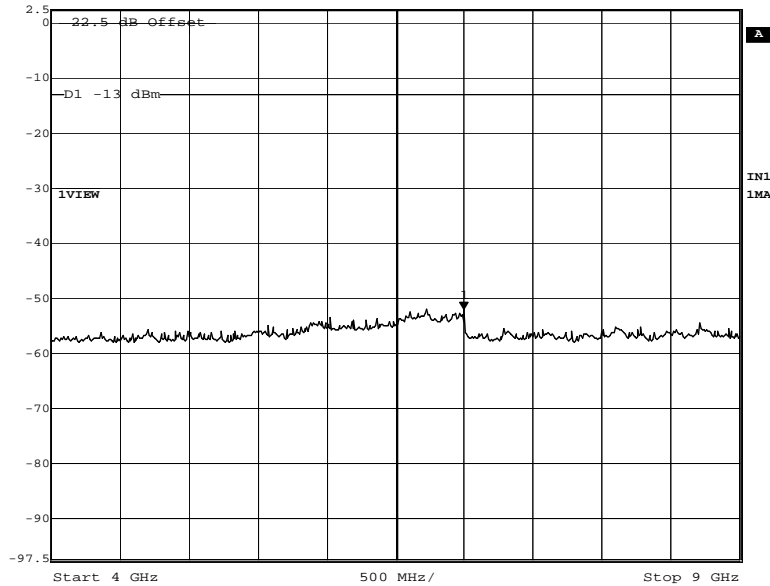
Marker 1 [T1] RBW 1 MHz RF Att 20 dB
Ref Lvl 22.51 dBm VBW 3 MHz
31.5 dBm 881.77054309 MHz SWT 10 ms Unit dBm



Date: 3 JUN. 2008 16:53:26

4.0GHz – 9.0GHz
Channel 190, (836.6MHz) – Maximum Power - GMSK
115V AC Supply

Marker 1 [T1] RBW 1 MHz RF Att 0 dB
Ref Lvl -52.02 dBm VBW 3 MHz
2.5 dBm 6.99599198 GHz SWT 29 ms Unit dBm

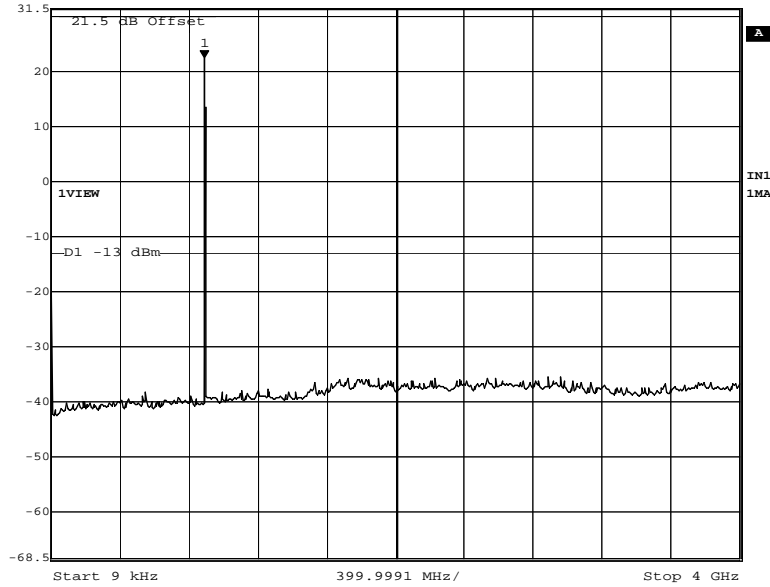


Date: 3 JUN. 2008 17:14:40



9kHz – 4.0GHz
Channel 251, (848.8MHz) – Maximum Power - GMSK
115V AC Supply

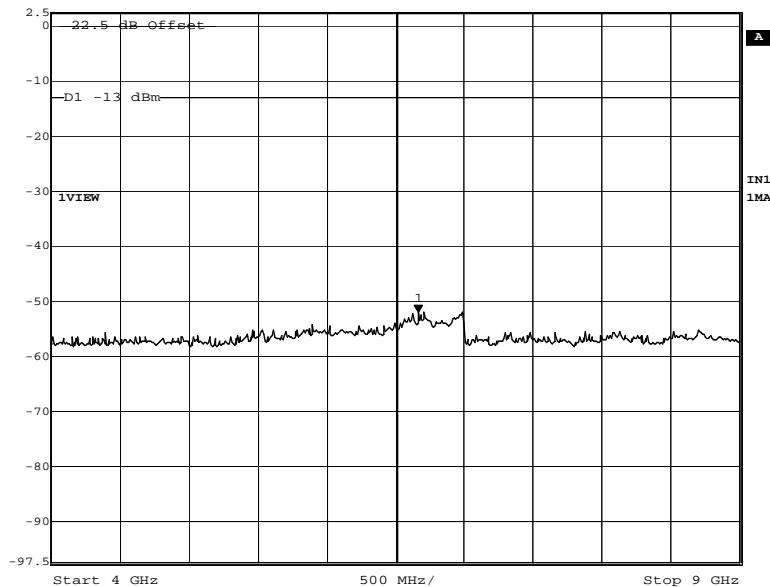
	Marker 1 [T1]	RBW	1 MHz	RF Att	20 dB
	Ref Lvl	22.40 dBm	VBW	3 MHz	
	31.5 dBm	889.78655711 MHz	SWT	10 ms	Unit dBm



Date: 3.JUN.2008 16:54:39

4.0GHz – 9.0GHz
Channel 251, (848.8MHz) – Maximum Power - GMSK
115V AC Supply

	Marker 1 [T1]	RBW	1 MHz	RF Att	0 dB
	Ref Lvl	-52.08 dBm	VBW	3 MHz	
	2.5 dBm	6.66533066 GHz	SWT	29 ms	Unit dBm

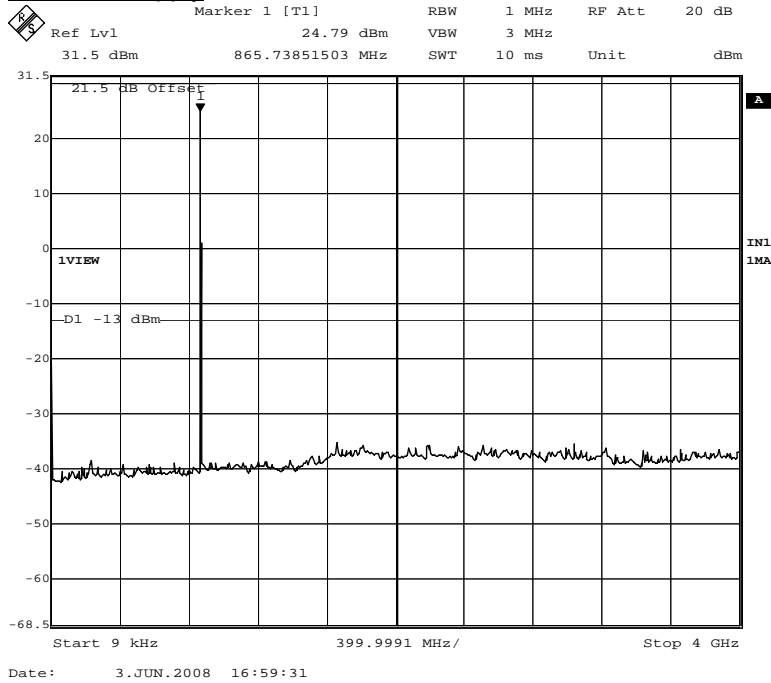


Date: 3.JUN.2008 17:13:09

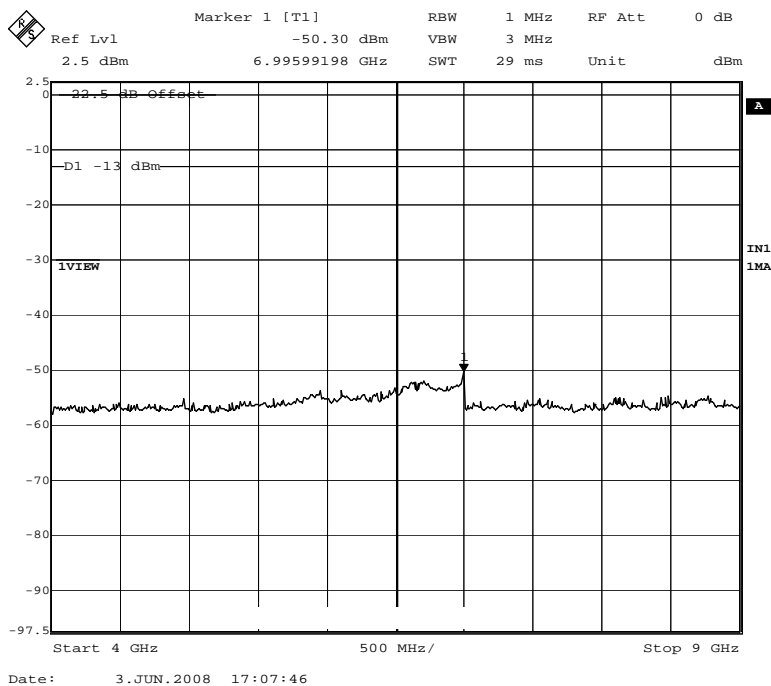


Product Service

9kHz – 4.0GHz
Channel 128, (824.2MHz) – Maximum Power – 8PSK
115V AC Supply



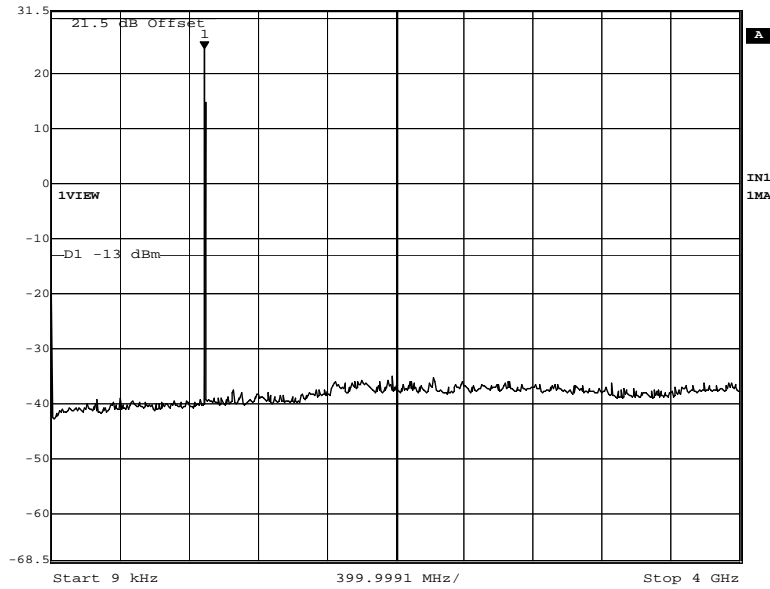
4.0GHz – 9.0GHz
Channel 128, (824.2MHz) – Maximum Power - 8PSK
115V AC Supply





9kHz – 4.0GHz
Channel 109, (836.6MHz) – Maximum Power - 8PSK
115V AC Supply

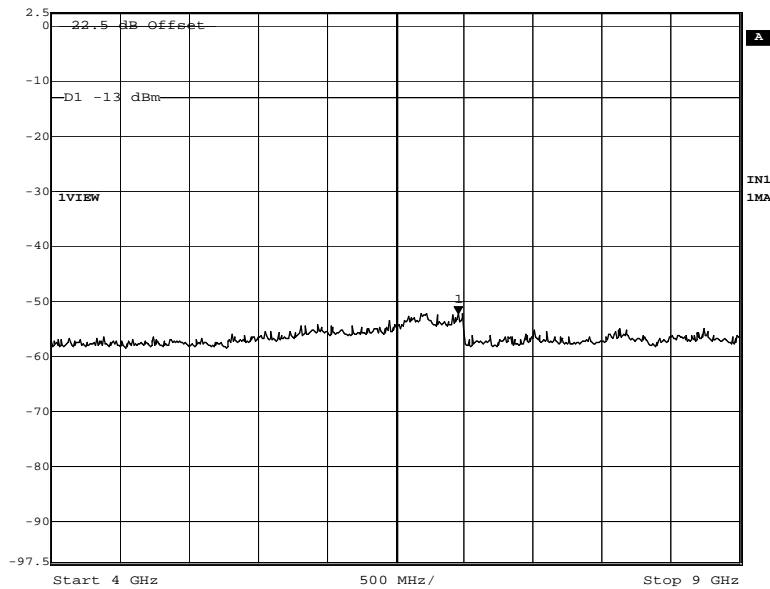
RES Marker 1 [T1] RBW 1 MHz RF Att 20 dB
Ref Lvl 24.26 dBm VBW 3 MHz
31.5 dBm 889.78655711 MHz SWT 10 ms Unit dBm



Date: 3.JUN.2008 16:58:54

4.0GHz – 9.0GHz
Channel 190, (836.6MHz) – Maximum Power - 8PSK
115V AC Supply

RES Marker 1 [T1] RBW 1 MHz RF Att 0 dB
Ref Lvl -52.29 dBm VBW 3 MHz
2.5 dBm 6.95591182 GHz SWT 29 ms Unit dBm

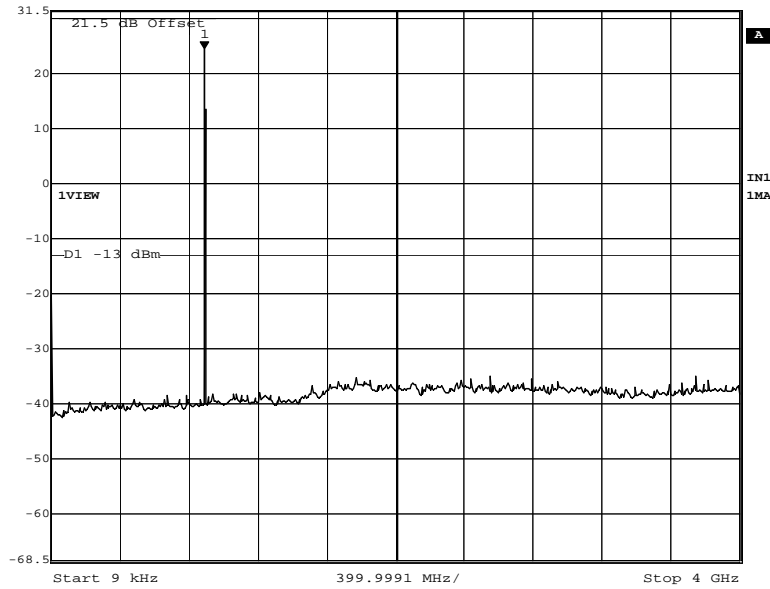


Date: 3.JUN.2008 17:08:51



9kHz – 4.0GHz
Channel 251, (848.8MHz) – Maximum Power - 8PSK
115V AC Supply

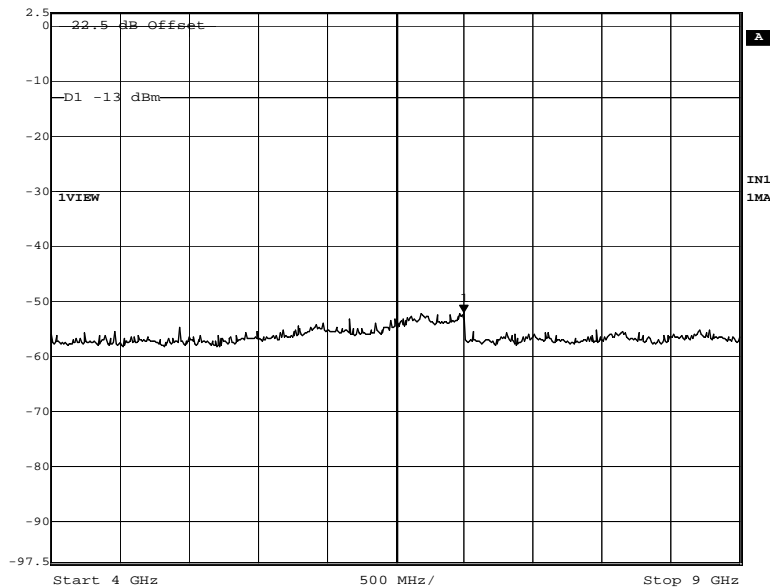
Marker 1 [T1] RBW 1 MHz RF Att 20 dB
Ref Lvl 24.25 dBm VBW 3 MHz
31.5 dBm 889.78655711 MHz SWT 10 ms Unit dBm



Date: 3.JUN.2008 16:57:23

4.0GHz – 9.0GHz
Channel 251, (848.8MHz) – Maximum Power - 8PSK
115V AC Supply

Marker 1 [T1] RBW 1 MHz RF Att 0 dB
Ref Lvl -52.20 dBm VBW 3 MHz
2.5 dBm 6.99599198 GHz SWT 29 ms Unit dBm



Date: 3.JUN.2008 17:11:33



Product Service

2.9 FREQUENCY STABILITY UNDER TEMPERATURE VARIATIONS

2.9.1 Specification Reference

FCC CFR 47 Part 22: 2006, Clause 2.1055, 22.355
Industry Canada RSS-132 Issue 2: 2005, Clause 4.3

2.9.2 Equipment Under Test

2G (EDGE) BTS Nano Base Station (850MHz), S/N: 00073853

2.9.3 Date of Test and Modification State

04 June 2008 - 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 22: 2006.

The EUT was set to transmit on maximum power with all timeslots active. A Digital Communication Analyser, (CMU200), was used to measure the frequency error. The maximum result was taken over 200 bursts. The temperature was adjusted between -30°C and $+50^{\circ}\text{C}$ in 10° steps as per 2.1055.

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

Configuration 1 - Mode 1

2.9.6 Environmental Conditions

	04 June 2008
Ambient Temperature	23.0°C
Relative Humidity	47%



2.9.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 22: 2006 and Industry Canada RSS-132 Issue 2: 2005 for Frequency Stability Under Temperature Variations.

15 V AC Supply – 60Hz - GMSK Modulation

Temperature Interval (°C)	Test Frequency (MHz)	Deviation (Hz)	Limit (kHz)
-30	881.6	+37	±2.092
-20	881.6	+33	±2.092
-10	881.6	+32	±2.092
0	881.6	+33	±2.092
+10	881.6	+32	±2.092
+20	881.6	+30	±2.092
+30	881.6	+32	±2.092
+40	881.6	+30	±2.092
+50	881.6	+29	±2.092

15 V AC Supply – 60Hz – 8PSK Modulation

Temperature Interval (°C)	Test Frequency (MHz)	Deviation (Hz)	Limit (kHz)
-30	881.6	+52	±2.092
-20	881.6	+44	±2.092
-10	881.6	+45	±2.092
0	881.6	+40	±2.092
+10	881.6	+43	±2.092
+20	881.6	+41	±2.092
+30	881.6	+42	±2.092
+40	881.6	+47	±2.092
+50	881.6	+41	±2.092

Remarks

The frequency stability of the EUT is sufficient to keep it within the authorised frequency blocks at any temperature interval across the measured range.



Product Service

2.10 FREQUENCY STABILITY UNDER VOLTAGE VARIATIONS

2.10.1 Specification Reference

FCC CFR 47 Part 22: 2006, Clause 2.1055, 22.355

2.10.2 Equipment Under Test

2G (EDGE) BTS Nano Base Station (850MHz), S/N: 00073853

2.10.3 Date of Test and Modification State

04 June 2008 - 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 FCC CFR 47 Part 22: 2006.

The EUT was set to transmit on maximum power on timeslot 3. A Digital Communication Analyser, (CMU200), was used to measure the frequency error. The maximum result was taken over 200 bursts.

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

Configuration 1 - Mode 1

2.10.6 Environmental Conditions

	04 June 2008
Ambient Temperature	23.0°C
Relative Humidity	47%



2.10.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 22: 2006 for Frequency Stability Under Voltage Variations.

15 V AC Supply – 60Hz - GMSK Modulation

AC Voltage (V)	Test Frequency (MHz)	Deviation (Hz)	Deviation Limit (kHz)
97.75	881.6	+28	±2.092
132.25	881.6	+30	±2.092

15 V AC Supply – 60Hz – 8PSK Modulation

AC Voltage (V)	Test Frequency (MHz)	Deviation (Hz)	Deviation Limit (kHz)
97.75	881.6	+42	±2.092
132.25	881.6	+38	±2.092

Remarks

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



Product Service

SECTION 3

TEST EQUIPMENT USED



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 EMC - Conducted Emissions					
LISN	Rohde & Schwarz	ESH2-Z5	17	12	1-May-2009
Screened Room (5)	Rainford	Rainford	1545	36	11-Feb-2011
Transient Limiter	Hewlett Packard	11947A	2378	12	19-Jun-2008
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	15-Mar-2009
Section 2.3 EMC - Maximum Output Power					
Antenna (Bilog)	Schaffner	CBL6143	287	24	21-Jan-2010
Screened Room (5)	Rainford	Rainford	1545	36	11-Feb-2011
Antenna (Bilog)	Chase	CBL6143	2904	24	28-Nov-2009
Signal Generator (10MHz to 40GHz)	Rohde & Schwarz	SMR40	3171	12	11-Jul-2008
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	15-Mar-2009
Section 2.2 EMC - Radiated Emissions					
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	235	12	29-Jun-2008
Pre-Amplifier	Phase One	PS04-0085	1532	-	TU
Pre-Amplifier	Phase One	PS04-0086	1533	-	TU
Screened Room (5)	Rainford	Rainford	1545	36	11-Feb-2011
Mast Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Turntable/Mast Controller	EMCO	2090	1607	-	TU
Filter (High Pass)	RLC Electronics	RLC-F100-1500-S-R	2843	12	TU
Screened Room (5)	Rainford	Rainford	1545	36	11-Feb-2011
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	15-Mar-2009
Section 2.7 Radio (Tx) – Spurious Emissions at Antenna Terminals					
Power Passport: 50, 60 or 400Hz Power Supply	Behlman Hauppauge	P1350-CE	1434	-	TU
Test Receiver	Rohde & Schwarz	ESIB26	2085	12	3-Dec-2008
Multimeter	Iso-tech	Iso Tech IDM101	2424	12	13-Aug-2008
Attenuator (20dB, 10W)	Aeroflex / Weinschel	23-20-34	3158	12	TU
Hygrometer	Rotronic	I-1000	3220	12	9-Apr-2009
1m RF Cable sma(m)-sma(m)	Reynolds	262-0248-1000	3453	12	17-Sep-2008



Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Section 2.8 Radio (Tx) - Conducted Spurious Emissions					
Power Passport: 50, 60 or 400Hz Power Supply	Behlman Hauppauge	P1350-CE	1434	-	TU
Test Receiver	Rohde & Schwarz	ESIB26	2085	12	3-Dec-2008
Multimeter	Iso-tech	Iso Tech IDM101	2424	12	13-Aug-2008
Attenuator (20dB, 10W)	Aeroflex / Weinschel	23-20-34	3158	12	TU
Hygrometer	Rotronic	I-1000	3220	12	9-Apr-2009
1m RF Cable sma(m)-sma(m)	Reynolds	262-0248-1000	3453	12	17-Sep-2008
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	16-Apr-2009
3 GHz High Pass Filter	K&L 5wave	11SH10-3000/X18000-O/O	3552	12	16-Apr-2009
Section 2.9 and 2.10 Radio (Tx) - Frequency Stability Under Voltage and Temperature Variations					
Temperature Chamber	Montford	2F3	467	-	O/P Mon
Power Passport: 50, 60 or 400Hz Power Supply	Behlman Hauppauge	P1350-CE	1434	-	TU
Multimeter	Iso-tech	Iso Tech IDM101	2424	12	13-Aug-2008
GSM Test Set	Rohde & Schwarz	CMU 200	2809	12	21-Apr-2009
Attenuator (20dB, 10W)	Aeroflex / Weinschel	23-20-34	3158	12	TU
Thermocouple Thermometer	Fluke	51	3173	12	18-Jun-2008
Hygrometer	Rotronic	I-1000	3220	12	9-Apr-2009
1m RF Cable sma(m)-sma(m)	Reynolds	262-0248-1000	3453	12	17-Sep-2008
Section 2.5 Radio (Tx) - Modulation Characteristics					
Power Passport: 50, 60 or 400Hz Power Supply	Behlman Hauppauge	P1350-CE	1434	-	TU
Test Receiver	Rohde & Schwarz	ESIB26	2085	12	3-Dec-2008
Multimeter	Iso-tech	Iso Tech IDM101	2424	12	13-Aug-2008
Attenuator (20dB, 10W)	Aeroflex / Weinschel	23-20-34	3158	12	TU
Hygrometer	Rotronic	I-1000	3220	12	9-Apr-2009
1m RF Cable sma(m)-sma(m)	Reynolds	262-0248-1000	3453	12	17-Sep-2008



Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Section 2.6 Radio (Tx) - Occupied Bandwidth					
Power Passport: 50, 60 or 400Hz Power Supply	Behlman Hauppauge	P1350-CE	1434	-	TU
Test Receiver	Rohde & Schwarz	ESIB26	2085	12	3-Dec-2008
Multimeter	Iso-tech	Iso Tech IDM101	2424	12	13-Aug-2008
Attenuator (20dB, 10W)	Aeroflex / Weinschel	23-20-34	3158	12	TU
Hygrometer	Rotronic	I-1000	3220	12	9-Apr-2009
1m RF Cable sma(m)-sma(m)	Reynolds	262-0248-1000	3453	12	17-Sep-2008
Section 2.4 Radio (Tx) - Maximum Peak Output Power					
Power Passport: 50, 60 or 400Hz Power Supply	Behlman Hauppauge	P1350-CE	1434	-	TU
Test Receiver	Rohde & Schwarz	ESIB26	2085	12	3-Dec-2008
Multimeter	Iso-tech	Iso Tech IDM101	2424	12	13-Aug-2008
Attenuator (20dB, 10W)	Aeroflex / Weinschel	23-20-34	3158	12	TU
Hygrometer	Rotronic	I-1000	3220	12	9-Apr-2009
1m RF Cable sma(m)-sma(m)	Reynolds	262-0248-1000	3453	12	17-Sep-2008

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*
Conducted Emissions, LISN	150kHz to 30MHz Amplitude	3.2dB*
Conducted Emissions, ISN	150kHz to 30MHz Amplitude	2.1dB
Substitution Antenna, Radiated Field	30MHz to 18GHz Amplitude	2.6dB
Discontinuous Interference	150kHz to 30MHz Amplitude	3.0dB*
Interference Power	30MHz to 300MHz Amplitude	3.0dB*
Radiated E-Field Susceptibility	26MHz to 2.5GHz Test Amplitude	1.4dB†
Conducted Susceptibility	100kHz to 250MHz Amplitude	1.8dB†
Power Frequency Magnetic Field	50Hz/60Hz Amplitude	0.45%
Magnetic Emissions	9kHz to 30MHz Amplitude	3.4dB*
Magnetic Field/Flux iaw EN 50366	10Hz to 400kHz	2.64%
Harmonics and Flicker	The test was applied using proprietary equipment that meets the requirements of EN 61000-3-2 and EN 61000-3-3	—
Mains Voltage Variations and Interrupts	The test was applied using proprietary equipment that meets the requirements of EN 61000-4-11	—
Fast Transient Burst	The test was applied using proprietary equipment that meets the requirements of EN 61000-4-4	—
Electrostatic Discharge	The test was applied using proprietary equipment that meets the requirements of EN 61000-4-2	—
Surge	The test was applied using proprietary equipment that meets the requirements of EN 61000-4-5	—
Vehicle Transients	The test was applied using proprietary equipment that meets the requirements of ISO 7637-1 and 2	—
Compass Safe Distance	Azimuth Accuracy	0.10°

Worst case error for both Time and Frequency measurement 12 parts in 10⁶.

* In accordance with CISPR 16-4

† In accordance with UKAS Lab 34



Product Service

SECTION 4

PHOTOGRAPHS



4.1 PHOTOGRAPHS OF EQUIPMENT UNDER TEST (EUT)



Conducted Emissions AC Power Port Test Setup



Radiated Emissions Test Setup



Product Service

SECTION 5

ACCREDITATION, DISCLAIMERS AND COPYRIGHT



Product Service

5.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT



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