TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: IPWireless (UK) Ltd.
Node B V2 Model: HZ

To: FCC Part 27

Test Report Serial No:
RFI/MPTB5/RP44493JD13A

Superseded Test Report Serial No:
RFI/MPTB4/RP44493JD13A

This Test Report Is Issued Under The Authority Of Andrew Brown, Operations Manager: 	
Tested By: 	**Checked By:** 
Report Copy No: **PDF01**	
Issue Date: 04 May 2005	**Test Dates: 12 July 2003 to 18 July 2003**

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This test report was produced at the request of the client to demonstrate compliance with the requirements of FCC Part 27 and supersedes the original test report that was issued against the requirements of FCC Parts 21 and 74.

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Test Of: IPWireless (UK) Ltd.
Node B V2 Model: HZ
To: FCC Part 27

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1. Client Information

Company Name:	IPWireless (UK) Ltd.
Address:	Unit 7 Greenways Business Park Bellinger Close Chippenham Wilts SN15 1BN
Contact Name:	Mr P Warburg

2. Equipment Under Test (EUT)

The following information has been supplied by the client:

2.1. Identification Of Equipment Under Test (EUT)

Brand Name:	IPWireless Broadband Base Station
Model Name or Number:	Node B V2
Unique Type Identification:	HZ
Serial Number:	HZ1F3B-0000001 1:1
Country of Manufacture:	United Kingdom
FCC ID Number:	PKTNODEBHZ1
Date of Receipt:	02 July 2003

2.2. Description Of EUT

The equipment under test is a wireless broadband base station; the base station provides high-speed internet access network.

2.3. Modifications Incorporated In EUT

During the course of testing the EUT has not been modified.

2.4. Additional Information Related To Testing

Power Supply Requirement:	-48V DC		
Intended Operating Environment:	Residential, Commercial, Light Industry		
Equipment Category:	Miscellaneous Wireless Communications Services		
Type of Unit:	Wireless Broadband Base Station		
Weight:	25kg		
Dimensions:	566mm (H), 380mm (W), 202mm (D)		
Interface Ports:	Ethernet Port Mains -48V Input Antenna Receiver Port Antenna Receiver/Transmitter Port		
Transmit Frequency Range	2.506 GHz to 2.680 GHz		
Transmit Channels Tested	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	N/A	2506
	Middle	N/A	2596
	Top	N/A	2680
Receive Frequency Range	2.506 GHz to 2.680 GHz		
Receive Channels Tested	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	N/A	2506
	Middle	N/A	2596
	Top	N/A	2680
Highest Fundamental Frequency	2680 MHz		
Highest Oscillator Frequency	2300 MHz		
Maximum Power Output	34.0 dBm		

2.5. Support Equipment

The following support equipment was supplied by the applicant and used to exercise the EUT during testing:

Description:	Laptop PC	
Brand Name:	Intel/CompUSA PC	
Model Name or Number:	Ameri Note RL366C	
Serial Number:	3882A452	
Cable Length and Type	10 m Cat-5e	
Connected to Port:	Ethernet	

Description:	AC Power Adaptor	
Brand Name:	LSE Li Shin International Enterprise Corp.	
Model Name or Number:	LSE9802A2050	
Serial Number:	993206426	
Cable Length and Type	2 m Mains Cable	2 m 3 Core
Connected to Port:	AC I/P	AC O/P

3. Test Specification, Methods And Procedures

3.1. Test Specification

Reference:	FCC Part 27: 2004: Sections 27.50, 27.53 and 27.54
Title:	Code of Federal Regulations, Part 27 (47CFR) Subpart C Miscellaneous Wireless Communications Services
Purpose of Test:	To determine whether the equipment complied with the requirements of the specification for the purposes of certification.

Reference:	FCC Part 15: 2004 Class B, Sections: 15.107 and 15.109
Title:	Code of Federal Regulations, Part 15 (47CFR) Radio Frequency Devices: Digital Devices.
Comments:	A description of the test facility used for this test is on file with, and has been accepted by, the Federal Communications Commission as required by Section 2.948 of Federal Rules.

3.2. Methods And Procedures

The methods and procedures used were as detailed in:

ANSI/TIA-603-B-2003
Land Mobile Communications Equipment, Measurements and performance Standards.

ANSI C63.2 (1996)
Title: American National Standard for Instrumentation - Electromagnetic noise and field strength.

ANSI C63.4 (2003)
Title: American National Standard for Methods of Measurement of Radio-Noise Emissions from Low Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

ANSI C63.5 (1998)
Title: American National Standard for the Calibration of antennas used for Radiated Emission measurements in Electromagnetic Interference (EMI) control.

ANSI C63.7 (1988)
Title: American National Standard Guide for Construction of Open Area Test Sites for performing Radiated Emission Measurements.

CISPR 16-1 (1999)
Title: Specification for radio disturbance and immunity measuring apparatus and methods. Part 1. Radio disturbance and immunity measuring apparatus.

DA00-705 (2000)
Title: Filing and Frequency Measurement Guidelines for Frequency Hopping Spread Spectrum Systems.

3.3. Definition Of Measurement Equipment

The measurement equipment used complied with the requirements of the standards referenced in the Methods & Procedures section above. Appendix 1 contains a list of the test equipment used.

4. Deviations From The Test Specification

None

5. Operation Of The EUT During Testing

5.1. Operating Modes

The EUT was tested in the following operating modes:

Transmitter Modes:

For all conducted antenna port tests, the EUT was transmitting at full power on bottom, middle and top channels on all 15 timeslots.

For radiated tests, the EUT was transmitting at full power on bottom, middle and top channels on all 15 timeslots, i.e. worst-case configuration.

Receiver Modes:

Testing was performed with the EUT receiving on all timeslots.

5.2. Configuration and Peripherals

The EUT was tested in the following configuration:

All tests were performed with an external AC adaptor connected to 110 VAC, 60 Hz, AC Mains supply, and the ethernet port connected to a laptop PC

Appendix 3 contains a schematic diagram of the test configuration.

6. Summary Of Test Results

Receive Mode

Range Of Measurements	Specification Reference	Port Type	Compliancy Status
AC Conducted Spurious Emissions (150 kHz to 30 MHz)	CFR 47: 2004 FCC Part 15 Section 15.107	AC Mains	Complied
Receive Mode Spurious Emissions	CFR 47: 2004 FCC Part 15 Section 15.109	Enclosure	Complied

Transmit Mode

Range Of Measurements	Specification Reference	Port Type	Compliancy Status
Transmitter Carrier Output Power and EIRP	CFR 47: 2004 FCC Part 2.1046, Part 27.50	Antenna Terminals	Complied
Frequency Stability (Temperature Variation)	CFR 47: 2004 FCC Part 2.1055, Part 27.54	Antenna Terminals	Complied
Frequency Stability (Voltage Variation)	CFR 47: 2004 FCC Part 2.1055, Part 27.54	Antenna Terminals	Complied
Occupied Bandwidth	CFR 47: 2004 FCC Part 2.1049	Antenna Terminals	Complied
Conducted Emissions	CFR 47: 2004 FCC Part 2.1051, Part 27.53	Antenna Terminals	Complied
Radiated Spurious Emissions	CFR 47: 2004 FCC Part 2.1051, Part 27.53	Enclosure	Complied

6.1. Location Of Tests

All the measurements described in this report were performed at the premises of RFI Global Services Ltd, Ewhurst Park, Ramsdell, Basingstoke, Hampshire, RG26 5RQ, England.

7. Measurements, Examinations And Derived Results

7.1. General Comments

7.1.1. This section contains test results only. Details of the test methods and procedures can be found in Appendix 2 of this report.

7.1.2. Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to Section 8 for details of measurement uncertainties.

7.2. Receive AC Conducted Spurious Emissions

7.2.1. The EUT was configured as for AC conducted emissions measurements as described in Appendix 2 of this report.

7.2.2. Tests were performed to identify the maximum emissions levels on the AC mains line of the EUT.

Results: Quasi-Peak Detector Measurements On Live And Neutral Lines

Frequency (MHz)	Line	Q-P Level (dBμV)	Q-P Limit (dBμV)	Margin (dB)	Result
0.15000	Live	37.75	66.00	28.25	Complied
0.19017	Live	28.60	64.03	35.43	Complied
0.34811	Neutral	32.19	59.01	26.82	Complied
0.47446	Neutral	32.19	56.44	24.25	Complied
0.60055	Neutral	31.60	56.00	24.40	Complied
1.54743	Live	31.91	56.00	24.09	Complied
13.51183	Neutral	19.01	60.00	40.99	Complied
17.28245	Live	40.41	60.00	19.59	Complied

Results: Average Detector Measurements On Live And Neutral Lines

Frequency (MHz)	Line	Av. Level (dBμV)	Av. Limit (dBμV)	Margin (dB)	Result
0.15000	Live	22.41	56.00	33.59	Complied
0.19017	Neutral	23.04	54.03	30.99	Complied
0.34811	Live	31.70	49.01	17.31	Complied
0.47446	Neutral	31.75	46.44	14.69	Complied
0.60055	Neutral	31.02	46.00	14.98	Complied
1.54743	Live	31.20	46.00	14.80	Complied
13.51183	Live	13.70	50.00	36.30	Complied
17.28245	Live	26.78	50.00	23.22	Complied

Test Of: IPWireless (UK) Ltd.
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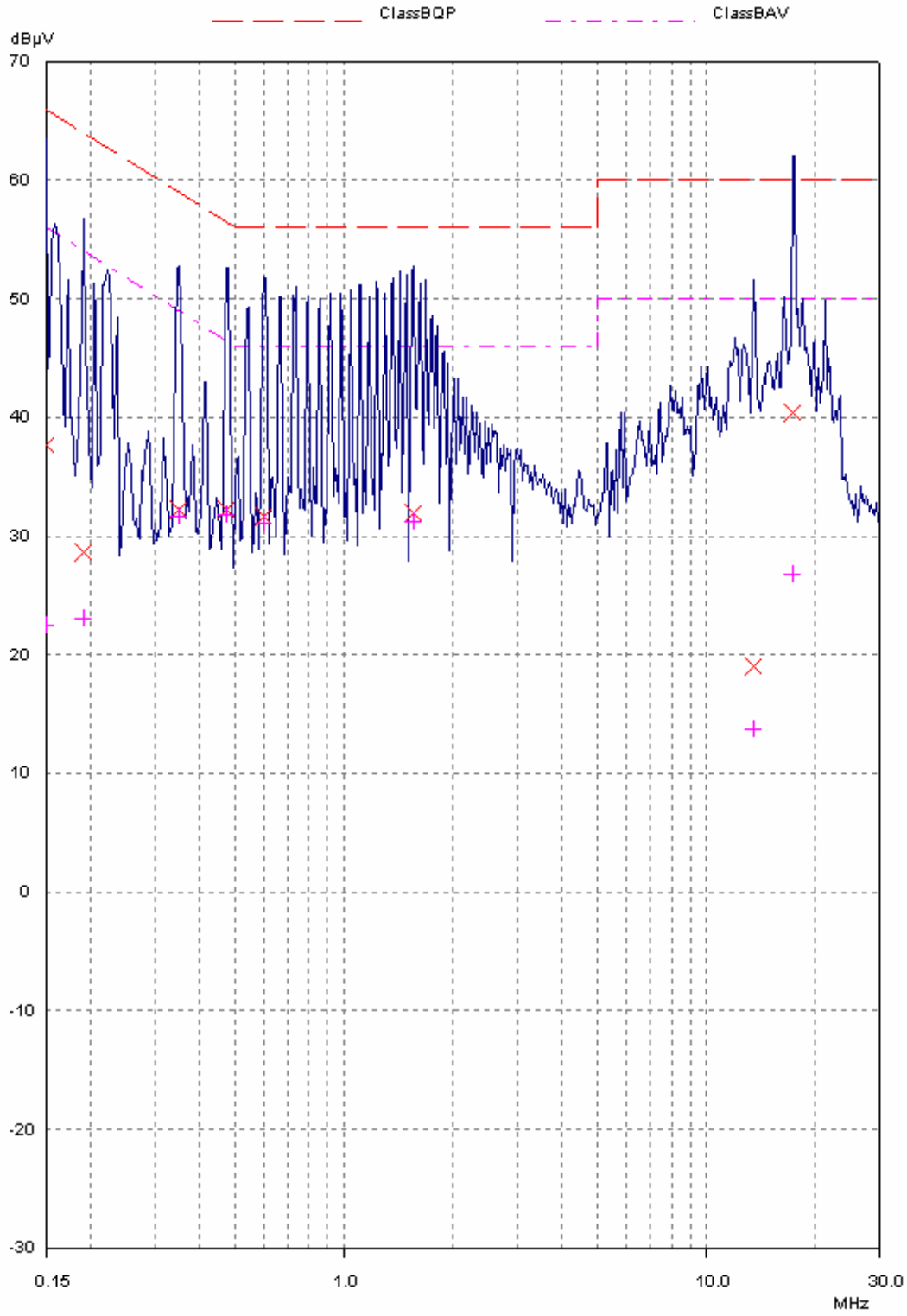


7.3. Radiated Emissions (Idle Mode)- 30 MHz to 1.0 GHz

7.3.1. The EUT was configured as for receiver-radiated emissions testing as described in Appendix 2 of this report.

7.3.2. Tests were performed to identify the maximum receiver or standby radiated emissions levels.

Results:

Frequency (MHz)	Ant. Pol.	Q-P Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
61.406	Vertical	13.0	40.0	27.0	Complied
99.510	Vertical	30.5	43.5	13.0	Complied
122.800	Vertical	28.9	43.5	14.6	Complied
250.000	Horizontal	25.9	46.0	20.1	Complied
307.020	Horizontal	26.8	46.0	19.2	Complied
368.640	Horizontal	28.3	46.0	17.7	Complied
398.096	Horizontal	27.0	46.0	19.0	Complied
430.080	Horizontal	30.8	46.0	15.2	Complied
491.521	Vertical	43.0	46.0	3.0	Complied
921.601	Vertical	37.0	46.0	9.0	Complied

7.4. Receiver Radiated Emission (Idle Mode) – 1 GHz to 20 GHz

7.4.1. The EUT was configured as for receiver radiated emissions testing as described in Appendix 2 of this report.

7.4.2. Tests were performed to identify the maximum receiver or standby radiated emissions levels.

Results:

Highest Average Level:

Frequency (MHz)	Antenna Polarity (H/V)	Average Detector level (dBμV)	Antenna factor (dB)	Cable loss (dB)	Actual Average Level (dBμV/m)	Average Limit (dBμV/m)	Average Margin (dB)	Result
1044.513	V	2.11	22.0	0.8	24.91	54.0	29.09	Complied
1228.847	H	0.91	22.0	0.8	23.71	54.0	30.29	Complied
1351.462	V	0.31	22.0	0.8	23.11	54.0	30.89	Complied

Highest Peak Level:

Frequency (MHz)	Antenna Polarity (H/V)	Peak Detector level (dBμV)	Antenna factor (dB)	Cable loss (dB)	Actual Peak Level (dBμV/m)	Peak Limit (dBμV/m)	Peak Margin (dB)	Result
1044.513	V	18.44	22.0	0.8	41.24	74.0	32.76	Complied
1228.847	H	19.95	22.0	0.8	40.75	74.0	33.25	Complied
1351.462	V	17.70	22.0	0.8	40.50	74.0	33.50	Complied

7.5. Transmitter Carrier Output Power and Effective Isotropic Radiated Power (EIRP): Part 2.1046 & Part 27.50

7.5.1. The EUT was configured as for conducted RF output power as described in Appendix 2 of this report.

7.5.2. The effective isotropic radiated power (EIRP) was calculated by adding the manufacturer's declared antenna gain to the figure measured for conducted RF output power.

Channel	Frequency (MHz)	Conducted RF O/P Power (dBm)*	Antenna Gain (dBi)	EIRP (dBm)	EIRP (dBW)	Limit EIRP (dBW)	Margin (dB)	Result
Bottom	2506	33.9	20.0	53.9	23.9	36.4	12.5	Complied
Middle	2596	34.0	20.0	54.0	24.0	36.0	12.0	Complied
Top	2680	34.0	20.0	54.0	24.0	36.4	12.4	Complied

** per 12 MHz Channel*

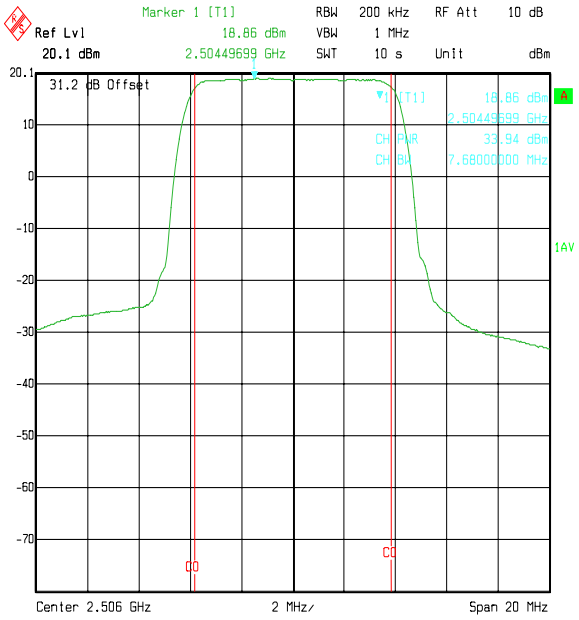
Note(s):

1. *The limit is calculated as 33+10 log (X/Y) where X is the actual channel width i.e. 12 MHz and Y is 6 MHz for channels in the MBS and 5.5 MHz for channels in the LBS and UBS.*

2. *The antenna gain is typically a maximum of 20 dBi and, hence, is the figure used in the above table. IP Wireless do not supply the antenna, the MDS licensee supplies this. IP Wireless will, in their user information, inform all MDS licensees of the device, that the combination of measured conducted RF output power and antenna gain must not, under any circumstances whatsoever, exceed the maximum allowable EIRP limit as detailed above.*

Transmitter Output Power and (EIRP Limitations) (Continued)

Bottom Channel



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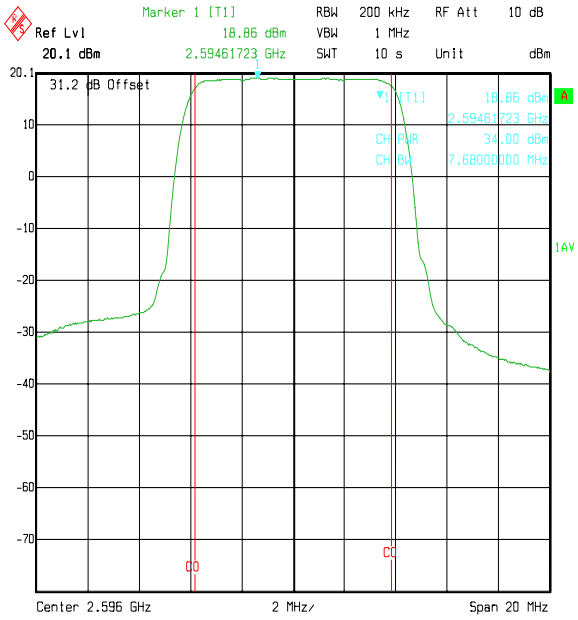
Comment A: 44493JD13_FCC_RFOP_001
Date: 9.JUL.2003 12:55:21

Middle Channel



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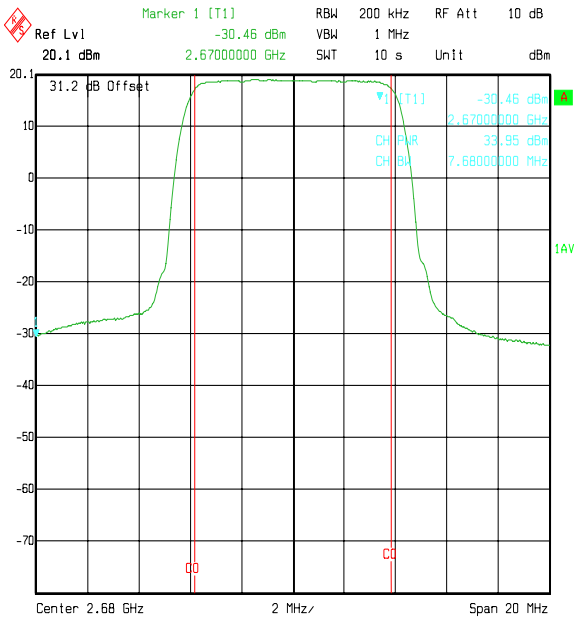
Top Channel



Title: IP Wireless EUT: Node B V2. FCC Part 21.
Comment A: 44493JD13_FCC_RFOP_003
Date: 9.JUL.2003 12:57:28

7.6. Transmitter Frequency Stability: (Temperature Variation): Part 2.1055 & Part 27.54

7.6.1. The EUT was configured as for frequency stability measurements as described in Appendix 2 of this report.

7.6.2. Tests were performed to identify the maximum frequency error of the EUT with variations in ambient temperature.

Results:

Bottom Channel (2506 MHz)

Temp (ºC)	Measured Frequency (MHz)	Frequency Error (kHz)
-30	2506.00012	0.12
-20	2506.00013	0.13
-10	2506.00007	0.07
0	2506.00001	0.01
10	2505.99995	-0.05
20	2505.99989	-0.11
30	2506.00302	3.02
40	2506.00294	2.94
50	2506.00292	2.92

Middle Channel (2596 MHz)

Temp (ºC)	Measured Frequency (MHz)	Frequency Error (kHz)
-30	2596.00013	0.13
-20	2596.00013	0.13
-10	2596.00005	0.05
0	2596.00001	0.01
10	2595.99997	-0.03
20	2595.99992	-0.08
30	2596.00312	3.12
40	2596.00304	3.04
50	2596.00302	3.02

Transmitter Frequency Stability: (Temperature Variation) (continued)

Top Channel (2680 MHz)

Temp (ºC)	Measured Frequency (MHz)	Frequency Error (kHz)
-30	2680.00016	0.16
-20	2680.00015	0.15
-10	2680.00009	0.09
0	2680.00001	0.01
10	2679.99997	-0.03
20	2679.99991	-0.09
30	2680.00318	3.18
40	2680.00314	3.14
50	2680.00312	3.12

As can be seen from the frequency stability results above, the fundamental emissions at the highest and lowest operating frequencies of the EUT (in addition to the fundamental emission at the centre of the operating band) stay, under all test conditions, within the authorised bands of operation i.e. 2496 MHz to 2690 MHz. The EUT is, therefore, compliant.

7.7. Transmitter Frequency Stability: (Voltage Variation): Part 2.1055 & Part 27.54

7.7.1. The EUT was configured as for frequency stability measurements as described in Appendix 2 of this report.

7.7.2. Tests were performed to identify the maximum frequency error of the EUT with variations in nominal operating voltage.

Results:

Bottom Channel (2506 MHz)

Supply Voltage (VAC)	Measured Frequency (MHz)	Frequency Error (kHz)
102	2505.999890	-1.10
120	2505.999890	-1.10
138	2505.999890	-1.10

Results Middle Channel (2596.00 MHz)

Supply Voltage (VAC)	Measured Frequency (MHz)	Frequency Error (kHz)
102	2595.999920	-0.80
120	2595.999920	-0.80
138	2595.999920	-0.80

Results Top Channel (2680.00 MHz)

Supply Voltage (VAC)	Measured Frequency (MHz)	Frequency Error (kHz)
102	2679.999910	-0.90
120	2679.999910	-0.90
138	2679.999910	-0.90

As can be seen from the frequency stability results above, the fundamental emissions at the highest and lowest operating frequencies of the EUT (in addition to the fundamental emission at the centre of the operating band) stay, under all test conditions, within the authorised bands of operation i.e. 2496 MHz to 2690 MHz. The EUT is, therefore, compliant.

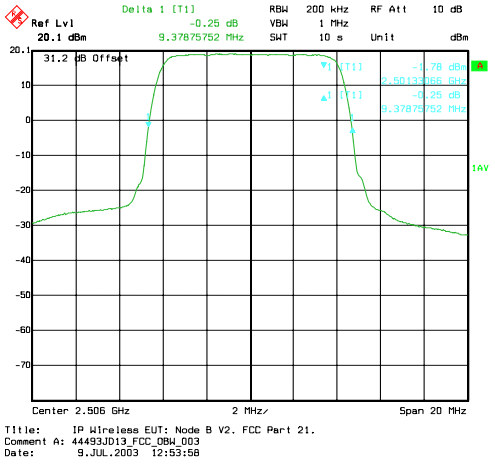
7.8. Transmitter Occupied Bandwidth: Part 2.1049

7.8.1. The EUT was configured as for Occupied Bandwidth measurements as described in Appendix 2 of this report.

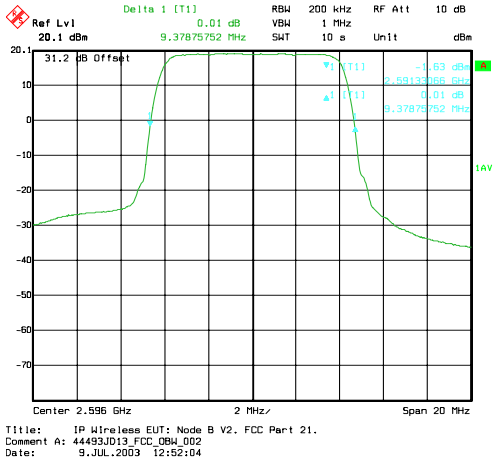
7.8.2. Tests were performed to identify the maximum bandwidth occupied by the fundamental frequency of the EUT.

Results:

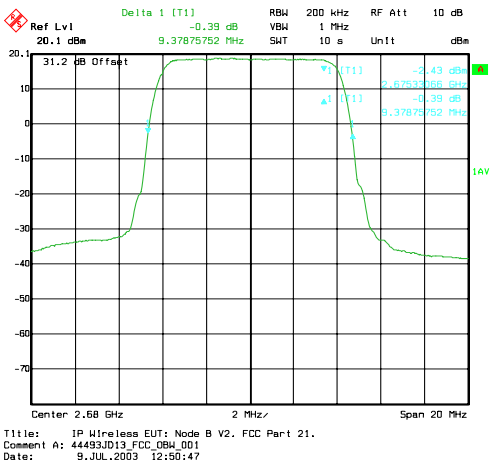
Channel	Frequency (MHz)	Resolution Bandwidth (kHz)	Video Bandwidth (kHz)	Occupied Bandwidth (MHz)
Bottom	2506	200	1000	9.378
Middle	2596	200	1000	9.378
Top	2680	200	1000	9.378



Bottom Channel



Middle Channel



Top channel

7.9. Transmitter Conducted Emissions (Channel Edge): Part 2.1051 & Part 27.53

7.9.1. The EUT was configured as for conducted emissions measurements as described in Section 9 of this report.

7.9.2. Tests were performed to determine compliance with the out of band power requirements at frequencies adjacent to the channel occupied by the fundamental frequency of the EUT.

Results:

Results are presented graphically in the following graphs. As can be seen from the plots the EUT complies with the requirements of relevant part of the regulations.

Note(s):

1. *A revised spectrum mask has been added to each plot to indicate the absolute -13 dBm limit which was derived from the 43 + 10log(P) where P is the measured transmitter power in Watts in a 12 MHz channel).*

2. *Measurements in the 2 MHz strip greater than 1 MHz away from the channel edge were performed using a 100 kHz Resolution Bandwidth (in line with the original requirements of to FCC Parts 21 and 74). Part 27 requires that these measurements be performed using a 1 MHz Resolution Bandwidth. In order to correct for this bandwidth change 10 dB shall be added to the levels shown in each plots in these 2 MHz strips. Therefore a pass margin of at least 10 dB exists at the highest point of the fundamental emission in these 2 MHz strips.*

Test Of: IPWireless (UK) Ltd.
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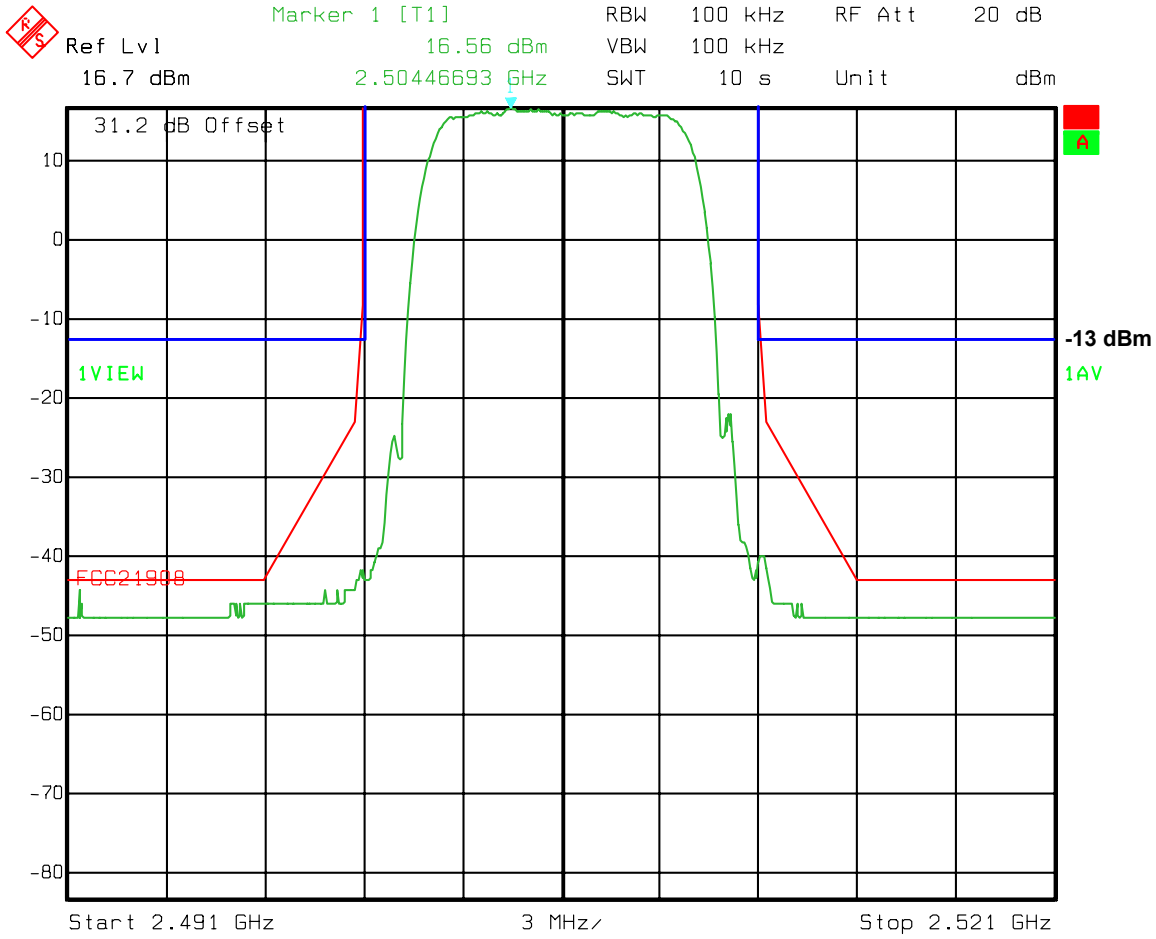
Transmitter Conducted Emissions (Channel Edge) (Continued)

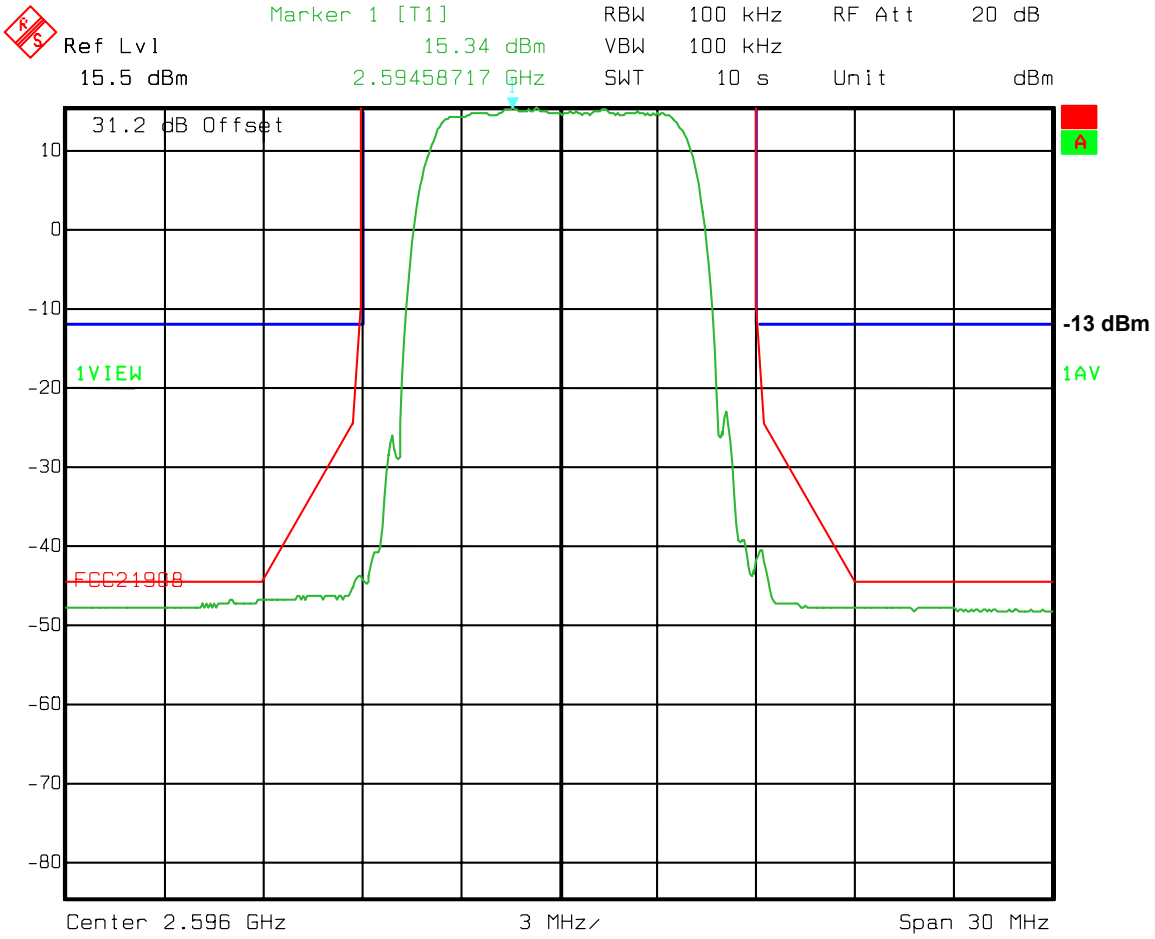
Bottom Channel



Comment A: 44493JD13_FCC_SPM_001 **Bottom Channel**
Date: 9.JUL.2003 15:47:26

Transmitter Conducted Emissions (Channel Edge) (Continued)

Middle Channel

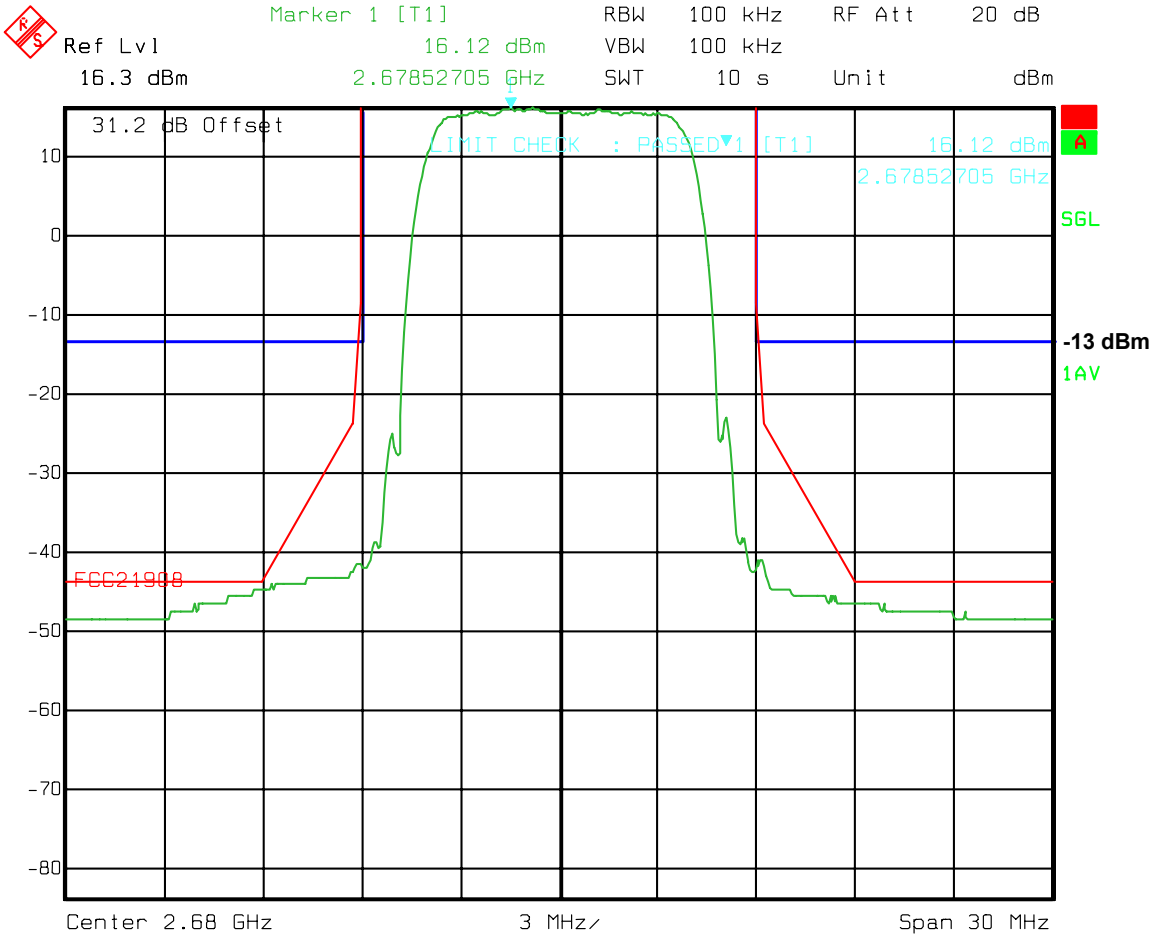


Title: 44493JD13 IP Wireless Eut: Node B V2 ZH. **Middle Channel**
Comment A: 44493JD13_FCC_SPM_002
Date: 9.JUL.2003 15:50:40

Test Of: **IPWireless (UK) Ltd.**
Node B V2 Model: HZ
To: **FCC Part 27**

Transmitter Conducted Emissions (Channel Edge) (Continued)

Top Channel



Title: IP Wireless EUT: Node B V2. FCC Part 21.908
Comment A: 44493JD13_FCC_SPM_003 **Top Channel**
Date: 9.JUL.2003 14:48:23

7.10. Transmitter Conducted Emissions: Part 2.1051 & Part 27.53

7.10.1. The EUT was configured as for conducted emissions measurements as described in Appendix 2 of this report.

7.10.2. Tests were performed to identify the maximum transmitter conducted emission levels.

Result: Bottom Channel

Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
0.332	-79.0	-13.0	66.0	Complied
2491.000	-40.8	-13.0	27.8	Complied
2521.000	-39.6	-13.0	26.6	Complied
5016.667	-52.7	-13.0	39.7	Complied

Result: Middle Channel

Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
1.000	-74.5	-13.0	61.5	Complied
2574.663	-39.7	-13.0	26.7	Complied
2665.687	-39.3	-13.0	26.3	Complied
5193.333	-53.3	-13.0	40.3	Complied

Result: Top Channel

Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
1.000	-77.3	-13.0	64.3	Complied
2661.663	-40.0	-13.0	27.0	Complied
2695.000	-40.3	-13.0	27.3	Complied
5363.333	-53.9	-13.0	40.9	Complied

Note: The limit is calculated according to FCC Section 27.53(l)(2) as follows: 43 + 10log(P) where P is the transmitter power in Watts.

7.11. Transmitter Radiated Emissions: Part 2.1053 & Part 27.53

7.11.1. The EUT was configured as for transmitter radiated emissions testing as described in Appendix 2 of this report.

7.11.2. Tests were performed to identify the maximum transmitter radiated emission levels.

Results:

Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
61.439	-68.4	-13.0	55.4	Complied
99.620	-55.2	-13.0	42.2	Complied
122.890	-73.0	-13.0	60.0	Complied
250.016	-67.1	-13.0	54.1	Complied
307.196	-62.2	-13.0	49.2	Complied
368.642	-48.6	-13.0	35.6	Complied
396.309	-49.9	-13.0	36.9	Complied
430.086	-50.4	-13.0	37.4	Complied
491.499	-57.6	-13.0	44.6	Complied
921.600	-57.6	-13.0	44.6	Complied
1043.2223	-52.7	-13.0	39.7	Complied
1229.297	-52.2	-13.0	39.2	Complied

Note 1: The limit is calculated according to FCC Section 27.53(l)(2) as follows: 43 + 10log(P) where P is the transmitter power in Watts.

Note 2: All channels exhibited similar responses, therefore, results for middle channel only are shown.

8. Measurement Uncertainty

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently, the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor, such that a confidence level of approximately 95% is maintained. For the purposes of this document “approximately” is interpreted as meaning “effectively” or “for most practical purposes”.

Measurement Type	Range	Confidence Level	Calculated Uncertainty
Carrier Output Power	Not applicable	95%	+/- 0.46 dB
Frequency Stability	Not applicable	95%	+/- 20 Hz
Occupied Bandwidth	Not applicable	95%	+/- 0.12 %
Conducted Emissions	9 kHz to 26 GHz	95%	+/- 1.2 dB
Radiated Spurious Emissions	30 MHz to 1000 MHz	95%	+/- 5.26 dB
Radiated Spurious Emissions	1 GHz to 26 GHz	95%	+/- 1.78 dB
AC Conducted Spurious Emissions	0.15 MHz to 30 MHz	95%	+/- 3.25 dB

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty, the published guidance of the appropriate accreditation body is followed.

Appendix 1. Test Equipment Used

RFI No.	Instrument	Manufacturer	Type No.	Serial No.
A003	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	357 881/052
A028	Horn Antenna	Eaton	91888-2	304
A031	Horn Antenna	Eaton	91889-2	557
A067	LISN	Rohde & Schwarz	ESH3-Z5	890603/002
A075	Attenuator 20 dB	Narda	769-20	02878
A090	Attenuator	Narda	743-60	01057
A1037	Antenna	Chase EMC	CBL6112B	2413
A145	Attenuator	Narda	NONE	NONE
A256	Horn Antenna	Flann Microwave	18240-20	400
A258	Variable Power Supply	Zenith Electric	SVA 10	None
A427	Horn Antenna	Flann	14240-20	150
A428	Horn Antenna	Flann	12240-20	134
A429	Horn Antenna	Flann	16240-20	561
A436	Horn Antenna	Flann	20240-20	330
A490	Bilog Antenna	Chase	CBL6111A	1590
C1078	Cable	Rosenberger	FA210A1030M5050	28464-2
C1079	Cable	Rosenberger	FA210A1010M5050	28462-1
C1082	Cable	Rosenberger	FA210A1020M5050	28463-1
C160	Cable	Rosenberger	UFA210A-1-1181-70x70	None
C202	Cable	Rosenberger	UFA 210A-1-1180-70X70	1543
C342	Cable	Andrews	None	None
C344	Cable	Rosenberger	UFA210A-1-1181-70x70	1934
C363	Cable	Rosenberger	RG142	None

Test Equipment Used (Continued)

RFI No.	Instrument	Manufacturer	Type No.	Serial No.
C457	Cable	Rosenberger	RG142XX-002-RFIB	C457-10081998
C461	Cable	Rosenberger	UFA210A-1-1182-704704	98H0305
E009	Environmental Chamber	Thermotron Corporation	S-8-E Mini Max	25-2407-0
G013	Signal Generator	Rohde & Schwarz	SMHU	894 055/003
G046	Signal Generator	Gigatronics	7100/.01-20	749474
L0670	EMI Test Receiver.	Rohde and Schwarz	ESI	100046
M072	Spectrum Analyser	Rohde & Schwarz	FSM	862 967/010 (RU) 863 912/048 (DU)
M084	Power Meter	Rohde & Schwarz	NRVS	864268/006
M088	Receiver / Spectrum Analyser System	Rohde & Schwarz	ESBI	DU:835862/018 RU:835387/006
M090	Receiver / Spectrum Analyser System	Rohde & Schwarz	ESBI	DU:838494/005 RU:836833/001
M127	Spectrum Analyser	Rohde & Schwarz	FSEB 30	842 659/016
M139	Digital Multimeter	Fluke	11	65830028
M198	Power Sensor	Rohde & Schwarz	NRV-Z52	827 191/003
S201	Site 1	RFI	1	-
S202	Site 2	RFI	2	-

NB In accordance with UKAS requirements, all the measurement equipment is on a calibration schedule.

Appendix 2. Measurement Methods

AC Mains Conducted Emissions

AC mains conducted emissions measurements were performed in accordance with the standard, against appropriate limits for each detector function.

The test was performed in a shielded enclosure with the equipment arranged as detailed in the standard on a wooden bench using the floor of the screened enclosure as the ground reference plane. The EUT was powered with 110V 60 Hz AC mains supplied via a Line Impedance Stabilisation Network (LISN).

Initial measurements in the form of swept scans covering the entire measurement band were performed in order to identify frequencies on which the EUT was generating interference. In order to minimise the time taken for these swept measurements, a Peak detector was used in conjunction with the appropriate detector IF measuring bandwidths (see table below). Repetitive scans were performed to allow for emissions with low repetition rates, and the duty cycle of the EUT. The test configuration was the same for the initial scans as for the final measurements.

Following the initial scans, a graph was produced giving an overview of the emissions from the EUT plotted against the appropriate specification limit. A tolerance line was set 6 dB below the specification limit and levels above the tolerance line were re-tested (at individual frequencies) using the appropriate detector function.

The test equipment settings for conducted emissions measurements were as follows:

Receiver Function	Initial Scan	Final Measurements
Detector Type:	Peak	Quasi-Peak (CISPR)/Average
Mode:	Max Hold	Not applicable
Bandwidth:	10 kHz	9 kHz
Amplitude Range:	60 dB	20 dB
Measurement Time:	Not applicable	> 1 s
Observation Time:	Not applicable	> 15 s
Step Size:	Continuous sweep	Not applicable
Sweep Time:	Coupled	Not applicable

Receiver Radiated Emissions

Radiated emissions measurements were performed in accordance with the standard, against appropriate limits for each detector function.

Initial pre-scans covering the entire measurement band from the lowest generated frequency declared up to 5 times the highest unintentionally generated frequency were performed within a screened chamber in order to identify frequencies on which the EUT was generating interference. This determined the frequencies from the EUT which required further examination. In order to minimise the time taken for the swept measurements, a peak detector was used in conjunction with the appropriate detector measuring bandwidth (see table below). Repetitive scans were performed to allow for emissions with low repetition rates, and for the duty cycle of the EUT.

The initial scans were performed using an antenna height of 1.5 m and a measurement distance of 3 m. A limit line was set to the specification limit. Levels within 20 dB of this limit were measured where possible, on occasion, the receiver noise floor came within the 20 dB boundary. On these occasions, the system noise floor may have been recorded.

An open area test site using the appropriate test distance and measuring receiver with a Quasi-Peak detector was used for measurements below 1000 MHz, for measurements above 1000 MHz average and peak detectors were used.

For the final measurements the EUT was arranged on a non-conducting turn table on a standard test site compliant with ANSI C63.4 – 2003 Clause 5.4.

On the open area test site, at each frequency where a signal was found, the levels were maximised by initially rotating the turntable through 360° and then varying the antenna height between 1 m and 4 m in the horizontal polarisation. At this point, any signals found to be between the limit and a level 6 dB below it were further maximised by changing the configuration of the EUT, e.g. re-routing cables to peripherals and moving peripherals with respect to the EUT. The procedure was repeated for the vertical polarisation.

The final field strength was determined as the indicated level in dBμV plus cable loss and antenna factor.

The test equipment settings for radiated emissions measurements were as follows:

Receiver Function	**Initial Scan**	**Final Measurements Below 1 GHz**	**Final Measurements Above 1 GHz**
Detector Type:	Peak	Quasi-Peak (CISPR)	Peak/Average
Mode:	Max Hold	Not applicable	Not applicable
Bandwidth:	(120 kHz < 1 GHz) (1 MHz > 1 GHz)	120 kHz	1 MHz (If Applicable)
Amplitude Range:	60 dB	20 dB	20 dB (typical)
Step Size:	Continuous sweep	Not applicable	Not applicable
Sweep Time:	Coupled	Not applicable	Not applicable

Conducted RF Output Power & Effective Isotropic Radiated Power (EIRP)

There are no conducted power limits specified in Part 27, therefore measurements were performed as a requirement of Part 2.1046.

The levels obtained were also used in conjunction with spurious attenuation measurements where the results are based on the conducted carrier power (P).

The EUT's antenna port was connected to a wideband power meter with an average power head via suitable attenuation.

The total loss of the cables & attenuators were measured and entered as a reference level offset into the power meter to correct for these losses.

The EUT was set to a specified channel and the transmitter set to operate at full power.

This test was carried out on the bottom, middle and top channels.

In order to obtain an EIRP measurement the manufacturer's declared antenna gain was added to the measured conducted RF output power.

Frequency Stability

The EUT was situated within an environmental test chamber and its antenna port was connected to a spectrum analyser via suitable cables and RF attenuators.

Measurements were performed with the EUT operating under extremes of temperature in 10 degree increments within the range -30 to 50°C.

Measurements were also performed at voltage extremes by varying the primary supply voltage from 85% to 115% of the nominal value.

The requirement was to determine the frequency stability of the device under specified environmental operating conditions and ensure they remained within specified operating parameters.

Measurements were made on the top, middle and bottom channels.

The EUT was switched off for a minimum of 30 minutes between each stage of testing while the environmental chamber stabilised at the next temperature within the stated temperature range.

Once the environmental chamber had reached thermal equilibrium, the nominal frequency of the EUT was measured and recorded.

The reported data shows the nominal frequency drift and its margin from the declared frequency.

Occupied Bandwidth

The EUT was connected to a spectrum analyser enabled with an occupied bandwidth function via its antenna port.

Measurements were performed to determine the occupied bandwidth in accordance with FCC Part 2.1049. The occupied bandwidth was measured from the fundamental emission at the bottom, middle and top channels.

The occupied bandwidth was measured using the built in occupied bandwidth function of the Rohde and Schwarz FSEB or ESIB spectrum analyser. It was set to measure the bandwidth where 99% of the signal power was contained. The analyser automatically configures the measurement bandwidths to make an accurate measurement based on the channel bandwidth and channel spacing of the EUT. A value of 200 kHz was used for EUT's operating with a high chip rate of 7.68 Mcps whilst a value of 100 kHz was used was used for EUT's operating with a low chip rate of 3.84 Mcps.

Conducted Emissions

Spurious emission measurements at the antenna port were performed from the lowest declared frequency to 10 times the highest EUT fundamental frequency.

A spectrum analyser was connected to the antenna port of the EUT via a suitable cable and RF attenuator. The total loss of both the cable and the attenuator were measured and entered as a reference level offset into the measuring receiver to correct for the losses.

The frequency band described above was investigated with the transmitter operating at full power on the bottom, middle and top channels. Any spurious emissions noted were then measured.

The recorded emission level was then calculated as a spurious attenuation level using the following formula as described in TIA-EIA-603B.

$$dB = 10 \log_{10} \left(\frac{TX\ power\ in\ watts}{0.001} \right) - \text{spurious level (dBm)}$$

The limit in the standard states that emissions shall be attenuated by at least 43+10 log (P) dB below the transmitter power (P), where (P) is the maximum measured fundamental power in Watts for the channel under test. This calculation always gives an absolute level of -13 dBm therefore the limit is -13 dBm.

The frequency band described above was investigated with the transmitter operating at full power. Any spurious observed were then recorded and compared to the -13 dBm limit. The requirement is for the emission to be less than -13 dBm. The margin between emission and limit is recorded and should always be positive to indicate compliance.

It should be noted that FCC Part 27.53 states that in the 1 MHz bands immediately outside and adjacent to the applicants declared frequency block may be measured using a resolution bandwidth of at least 1% of the emission bandwidth. The resolution bandwidth used was 100 kHz which exceeded the 1% value for both the 3.84 Mcps and 7.68 Mcps chip rates.

For the measurements of emissions at the channel edge, plots of the spectral distribution including the fundamental frequency were recorded using a spectrum analyser for the EUT transmitting on bottom, middle and top channels. The method is in accordance with the measurement method detailed in Part 27.53 for measurements in the 1 MHz bands immediately outside and adjacent to the channel edge. A resolution bandwidth of 100 kHz was used.

.The test equipment settings for conducted antenna port measurements were as follows:

Receiver Function	**Settings**
Detector Type:	Average
Mode:	Max Hold
Bandwidth:	1 MHz >1 GHz
Bandwidth:	100 kHz <1 GHz
Bandwidth:	10 kHz <30 MHz
Amplitude Range:	100 dB
Sweep Time:	Coupled

Transmitter Radiated Emissions

Radiated emissions measurements were performed in accordance with the standard, against appropriate limits for each detector function.

Initial pre-scans covering the entire measurement band from the lowest generated frequency declared up to 10 times the highest fundamental frequency were performed in order to identify frequencies on which the EUT was generating spurious emissions. This determined the frequencies from the EUT that required further examination. Repetitive scans were performed to allow for emissions with low repetition rates, and for the duty cycle of the EUT.

The initial scans were performed using an antenna height of 1.5 m and a measurement distance of 3 m, below 4 GHz; above 4 GHz a 1 m measurement distance was used. A limit line was set to the specification limit. Levels within 20 dB of this limit were measured where possible, on occasion; the receiver noise floor came within the 20 dB boundary. On these occasions, the system noise floor may have been recorded.

An open area test site using the appropriate test distance and spectrum analyser with an average detector was used for final measurements.

On the open area test site, at each frequency where a signal was found, the levels were maximised by initially rotating the turntable through 360° and then varying the antenna height between 1 m and 4 m in the horizontal polarisation. At this point, any signals found to be between the limit and a level 6 dB below it were further maximised by changing the configuration of the EUT, e.g. re-routing cables to peripherals and moving peripherals with respect to the EUT. The procedure was repeated for the vertical polarisation.

Once the final amplitude (maximised) had been obtained and noted, the EUT was replaced by a substitution antenna, and a substitution method applied. The substitution antennas used were a horn antenna for measurements greater then or equal to 1 GHz and a dipole for measurements below 1 GHz. The centre of the substitution antenna was set to approximately the same centre location as the EUT. The substitution antenna was set to the horizontal polarity. The substitution antenna was matched into a signal generator using a 6 dB or greater attenuator. The signal generator was tuned to the EUT's frequency under test.

The test antenna was then raised and lowered to obtain a maximum reading on the spectrum analyser. The level of the signal generator output was then adjusted until the maximum recorded EUT level was observed. The signal generator level was noted. This procedure was repeated with both test antenna and substitution antenna vertically polarised. The EIRP was calculated as:-

EIRP = Signal Generator Level - Cable Loss + Antenna Gain

Once the EIRP was obtained, the difference between it and the level of the fundamental emission for the EIRP of the channel under test was noted at the spurious attenuation level in dBc. The following formula was used as described in TIA_EIA_603B

$$dB = 10 \log_{10} \left(\frac{TX\ power\ in\ watts}{0.001} \right) - \text{spurious level (dBm)}$$

Transmitter Radiated Emissions (Continued)

The limit in the standard states that emissions shall be attenuated by at least 43+10 log (P) dB below the transmitter power (P), where (P) is the maximum measured fundamental power in Watts for the channel under test. This calculation always gives an absolute level of -13 dBm therefore the limit is -13 dBm.

The frequency band described above was investigated with the transmitter operating at full power. Any spurious observed were then recorded and compared to the -13 dBm limit. The requirement is for the emission to be less than -13 dBm. The margin between emission and limit is recorded and should always be positive to indicate compliance.

Appendix 3. Test Configuration Drawings

This Appendix contains the following drawings:

Drawing Reference Number	Title
DRG\44493JD13\EMICON	Test configuration for measurement of conducted emissions
DRG\44493JD13\EMIRAD	Test configuration for measurement of radiated emissions
DRG\44493JD13\001	Schematic diagram of the EUT, support equipment and interconnecting cables used for the test

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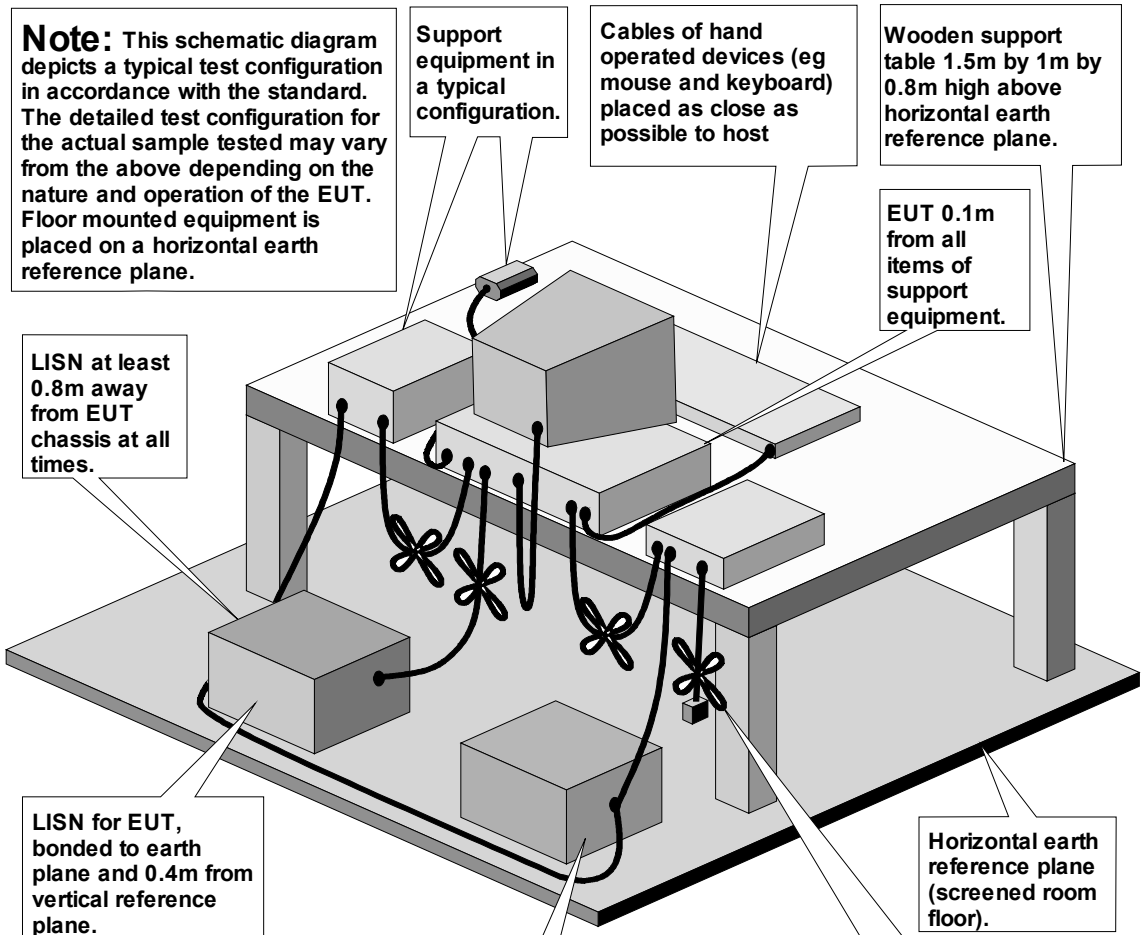
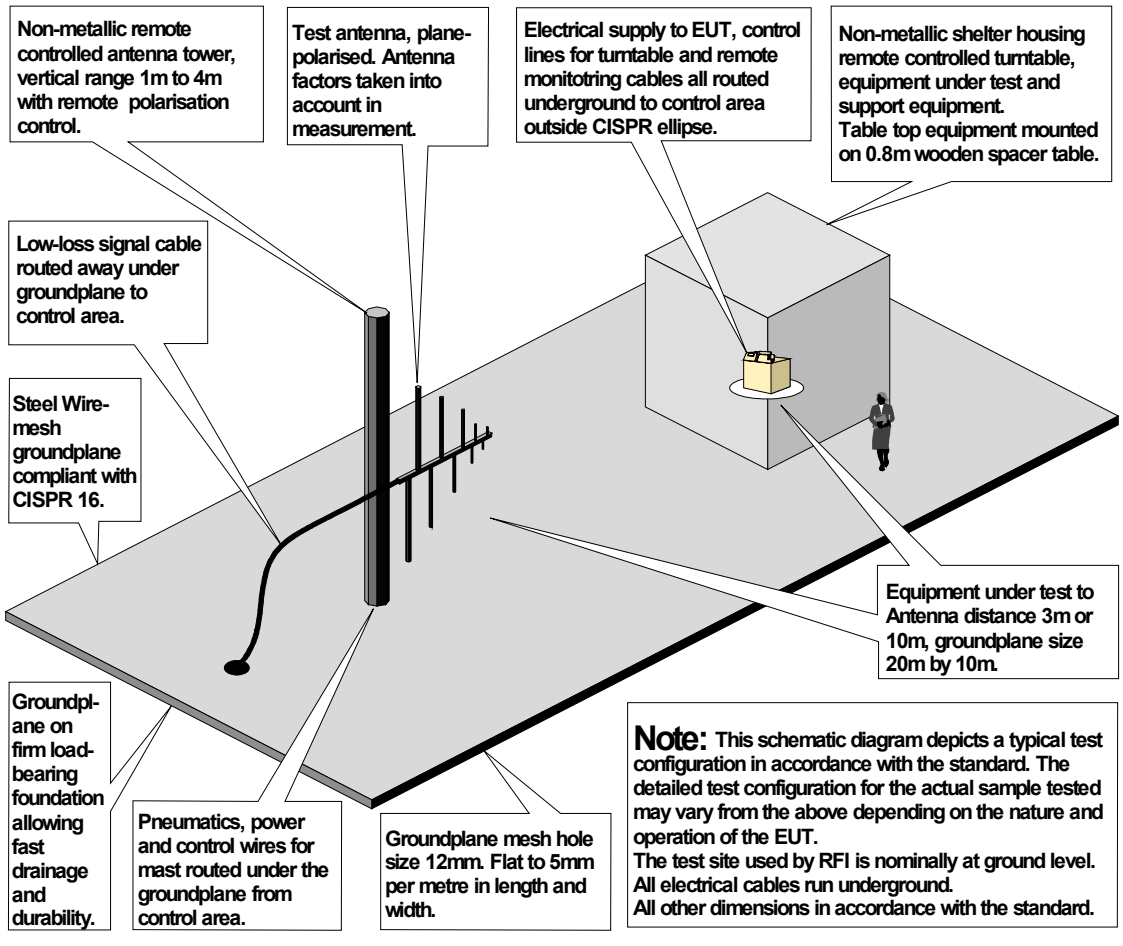
DRG\44493JD13\EMICON



Typical Test Configuration For Conducted Emissions Measurements In Accordance With ANSI C63.4-1992

Tests performed in a screened enclosure

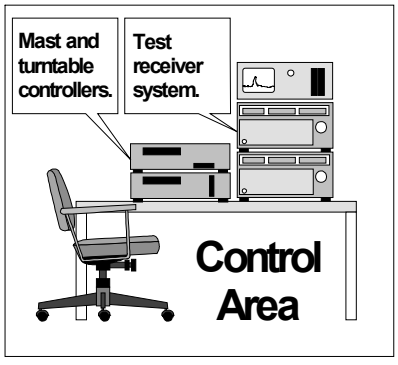
DRG\44493JD13\EMIRAD



Note: This schematic diagram depicts a typical test configuration in accordance with the standard. The detailed test configuration for the actual sample tested may vary from the above depending on the nature and operation of the EUT.
The test site used by RFI is nominally at ground level.
All electrical cables run underground.
All other dimensions in accordance with the standard.

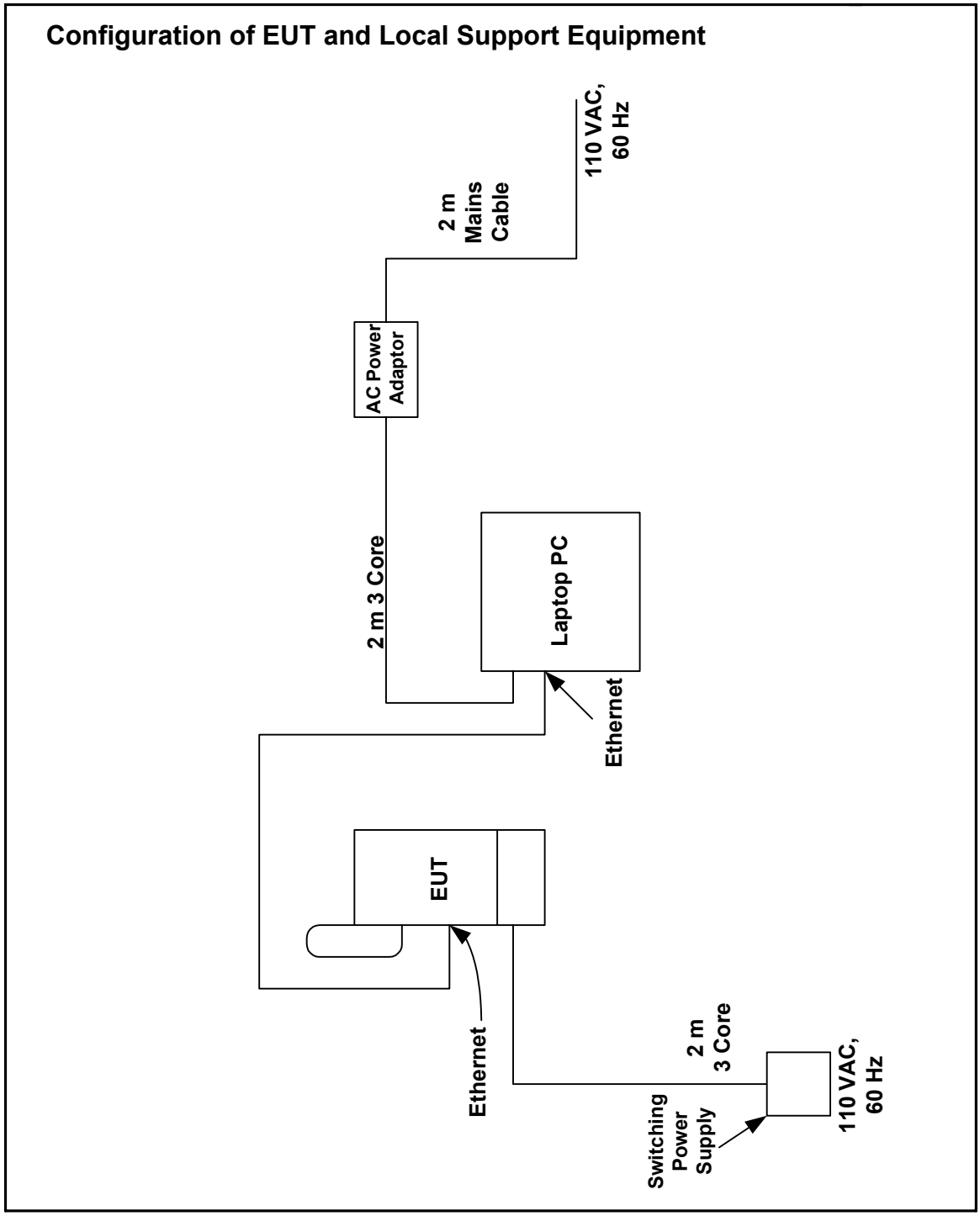
Test Configuration For Radiated Emissions Measurements

Reflection-free area: >60m by 52m
(CISPR ellipse)
Groundplane Earthed
Control room outside CISPR ellipse



DRG\44493JD13\001

Configuration of EUT and Local Support Equipment



Appendix 4. Graphical Test Results

This Appendix contains the following graphs:

Graph Reference Number	Title
GPH\44493JD13_FCC_CE_002	Conducted Emissions, Bottom Channel (1 MHz to 30 MHz)
GPH\44493JD13_FCC_CE_007	Conducted Emissions, Bottom Channel (30 MHz to 1 GHz)
GPH\44493JD13_FCC_CE_010	Conducted Emissions, Bottom Channel (1 GHz to 2.491 GHz)
GPH\44493JD13_FCC_CE_016	Conducted Emissions, Bottom Channel (2.521 GHz to 5 GHz)
GPH\44493-JD13-CE\006	Conducted Emissions. Bottom Channel (5 GHz to 8 GHz)
GPH\44493-JD13-CE\010	Conducted Emissions. Bottom Channel (8 GHz to 10 GHz)
GPH\44493-JD13-CE\015	Conducted Emissions. Bottom Channel (10 GHz to 18 GHz)
GPH\44493-JD13-CE\020	Conducted Emissions. Bottom Channel (18 GHz to 25.5 GHz)
GPH\44493-JD13-CE\023	Conducted Emissions. Bottom Channel (25.5 GHz to 26.5 GHz)
GPH\44493-JD13-CE\029	Conducted Emissions. Bottom Channel (26.5 GHz to 27.0 GHz)
GPH\44493JD13_FCC_CE_003	Conducted Emissions, Middle Channel (1 MHz to 30 MHz)
GPH\44493JD13_FCC_CE_006	Conducted Emissions, Middle Channel (30 MHz to 1 GHz)
GPH\44493JD13_FCC_CE_011	Conducted Emissions, Middle Channel (1 GHz to 2.581 GHz)
GPH\44493JD13_FCC_CE_013	Conducted Emissions, Middle Channel (2.661 GHz to 5 GHz)
GPH\44493-JD13-CE\005	Conducted Emissions. Middle Channel (5 GHz to 8 GHz)
GPH\44493-JD13-CE\009	Conducted Emissions. Middle Channel (8 GHz to 10 GHz)
GPH\44493-JD13-CE\014	Conducted Emissions. Middle Channel (10 GHz to 18 GHz)
GPH\44493-JD13-CE\018	Conducted Emissions. Middle Channel (18 GHz to 25.5 GHz)
GPH\44493-JD13-CE\025	Conducted Emissions. Middle Channel (25.5 GHz to 26.5 GHz)

Graphical Test Results (continued)

Graph Reference Number	Title
GPH\44493-JD13-CE\028	Conducted Emissions. Middle Channel (26.5 GHz to 27.0 GHz)
GPH\44493JD13_FCC_CE_001	Conducted Emissions, Top Channel (1 MHz to 30 MHz)
GPH\44493JD13_FCC_CE_008	Conducted Emissions, Top Channel (30 MHz to 1 GHz)
GPH\44493JD13_FCC_CE_009	Conducted Emissions, Top Channel (1 GHz to 2.665 GHz)
GPH\44493JD13_FCC_CE_014	Conducted Emissions, Top Channel (2.695 GHz to 5 GHz)
GPH\44493-JD13-CE\004	Conducted Emissions. Top Channel (5 GHz to 8 GHz)
GPH\44493-JD13-CE\011	Conducted Emissions. Top Channel (8 GHz to 10 GHz)
GPH\44493-JD13-CE\013	Conducted Emissions. Top Channel (10 GHz to 18 GHz)
GPH\44493-JD13-CE\021	Conducted Emissions. Top Channel (18 GHz to 25.5 GHz)
GPH\44493-JD13-CE\022	Conducted Emissions. Top Channel (25.5 GHz to 26.5 GHz)
GPH\44493-JD13-CE\027	Conducted Emissions. Top Channel (26.5 GHz to 27.0 GHz)
GPH\44493JD13_FCC_CE_004	Conducted Emissions, Receive Mode (1 MHz to 30 MHz)
GPH\44493JD13_FCC_CE_005	Conducted Emissions, Receive Mode (30 MHz to 1 GHz)
GPH\44493JD13_FCC_CE_012	Conducted Emissions, Receive Mode (1 GHz to 5 GHz)
GPH\44493-JD13-CE\007	Conducted Emissions. Receive Middle Channel (5 GHz to 8 GHz)
GPH\44493-JD13-CE\008	Conducted Emissions. Receive Middle Channel (8 GHz to 10 GHz)
GPH\44493-JD13-CE\016	Conducted Emissions. Receive Middle Channel (10 GHz to 18 GHz)

Graphical Test Results (continued)

Graph Reference Number	Title
GPH\44493-JD13_FCC_RE\002	Radiated Emissions. Middle Channel (30 MHz to 1 GHz)
GPH\44493-JD13_FCC_RE\006	Radiated Emissions. Middle Channel (1 GHz to 2 GHz)
GPH\44493-JD13_FCC_RE\007	Radiated Emissions. Middle Channel (2 GHz to 4 GHz)
GPH\44493-JD13_RE\006	Radiated Emissions. Middle Channel (4 GHz to 6 GHz)
GPH\44493-JD13_RE\007	Radiated Emissions. Middle Channel (6 GHz to 8 GHz)
GPH\44493-JD13_RE\008	Radiated Emissions. Middle Channel (8 GHz to 12.5 GHz)
GPH\44493-JD13_RE\009	Radiated Emissions. Middle Channel (12.5 GHz to 18.0 GHz)
GPH\44493-JD13_RE\010	Radiated Emissions. Middle Channel (18.0 GHz to 26.5 GHz)
GPH\44493-JD13_RE\011	Radiated Emissions. Middle Channel (26.5 GHz to 27.0 GHz)
GPH\44493-JD13_RE\017	Radiated Emissions. Receive Middle Channel (25.0 MHz to 200 MHz)
GPH\44493-JD13_RE\018	Radiated Emissions. Receive Middle Channel (200 MHz to 1 GHz)

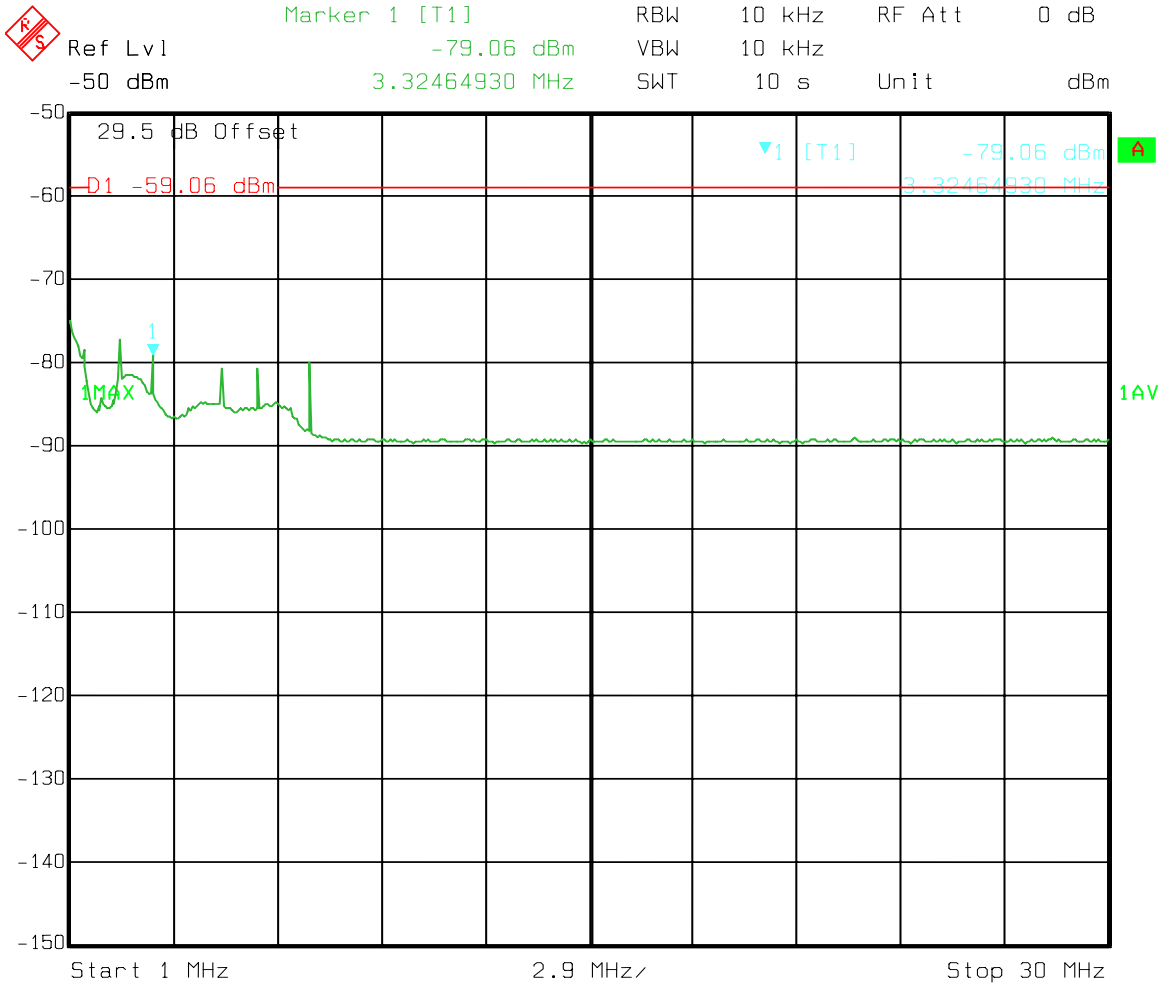
Graphical Test Results (continued)

Graph Reference Number	Title
GPH\44493-JD13_RE\019	Radiated Emissions. Receive Middle Channel (1 GHz to 2 GHz)
GPH\44493-JD13_RE\021	Radiated Emissions. Receive Middle Channel (2 GHz to 4 GHz)
GPH\44493-JD13_RE\001	Radiated Emissions. Receive Mode (4 GHz to 6 GHz)
GPH\44493-JD13_RE\003	Radiated Emissions. Receive Mode (6 GHz to 8 GHz)
GPH\44493-JD13_RE\004	Radiated Emissions. Receive Mode (8 GHz to 12.5 GHz)
GPH\44493-JD13_RE\005	Radiated Emissions. Receive Mode (12.5 GHz to 18.0 GHz)
GPH\44493-JD13_RE\014	Radiated Emissions. Bottom Channel, Lower Band Edge (2.491 GHz to 2.506 GHz)
GPH\44493-JD13_RE\013	Radiated Emissions. Top Channel, Upper Band Edge (2.68 GHz to 2.695 GHz)

Note: The limit shown in the above plots was the derived limit for testing according to Part 21.908, the limit for Part 27.53 is -13 dBm. It is confirmed that the position of the limit line on the plot has no bearing on the measurement result.

Test Of: **IPWireless (UK) Ltd. Node B V2 Model: HZ**
To: **FCC Part 27**

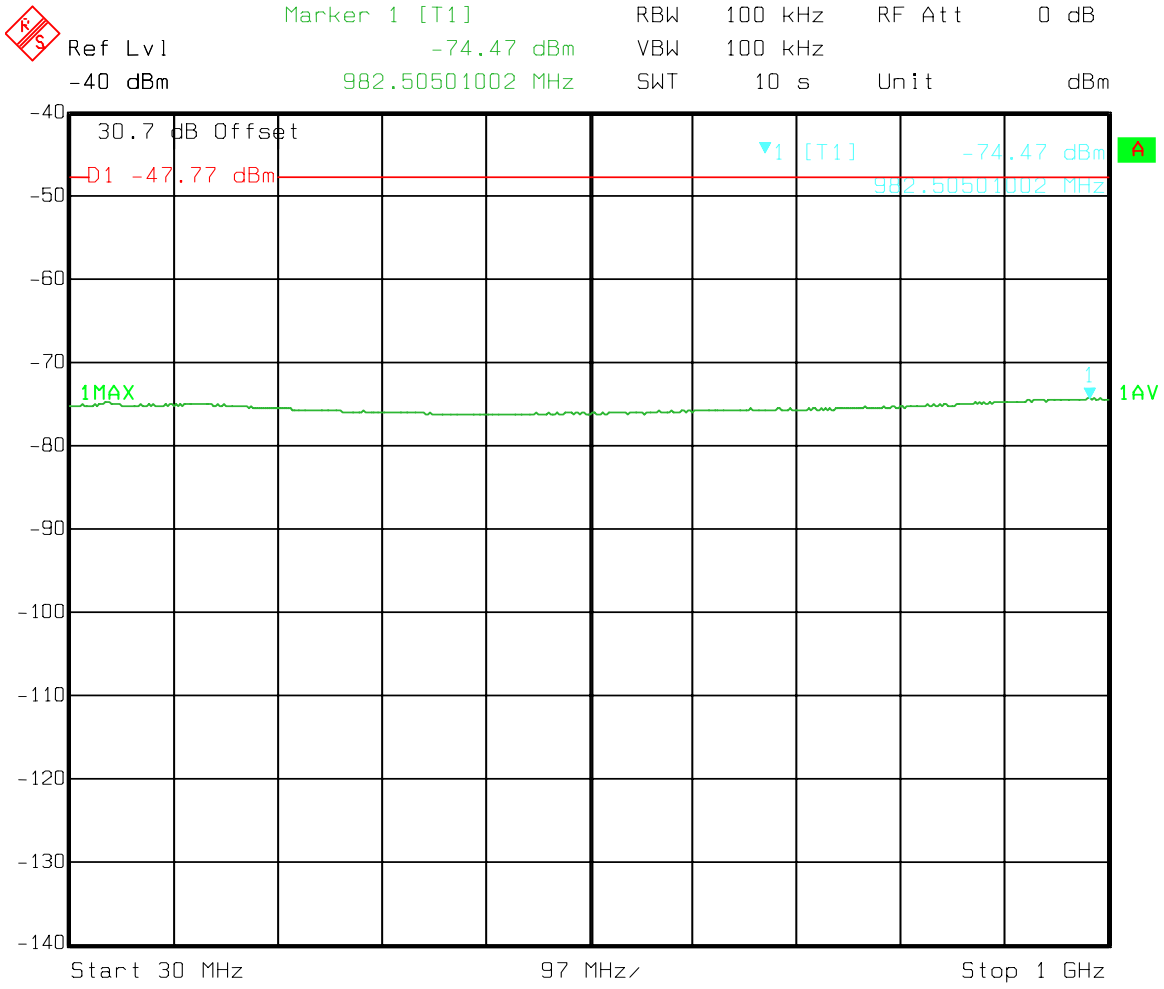
GPH\44493JD13_FCC_CE_002
Conducted Emissions, Bottom Channel (1 MHz to 30 MHz)



Title: IP Wireless EUT: Node B V2. FCC Part 21.908
Comment A: 44493JD13_FCC_CE_002
Date: 9.JUL.2003 13:28:00

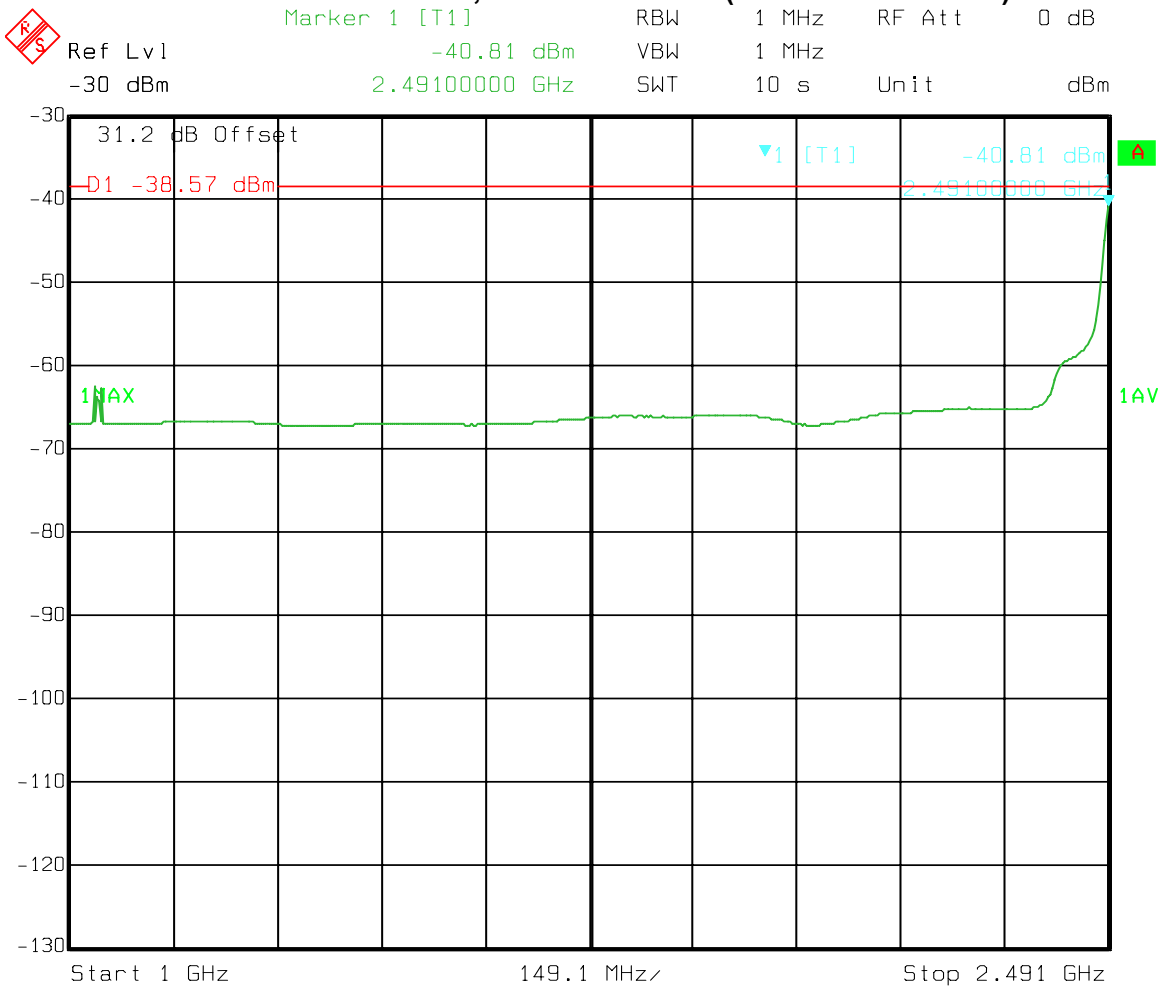
Test Of: **IPWireless (UK) Ltd. Node B V2 Model: HZ**
To: **FCC Part 27**

GPH\44493JD13_FCC_CE_007
Conducted Emissions, Bottom Channel (30 MHz to 1 GHz)



Title: IP Wireless EUT: Node B V2. FCC Part 21.908
Comment A: 44493JD13_FCC_CE_007
Date: 9.JUL.2003 13:21:01

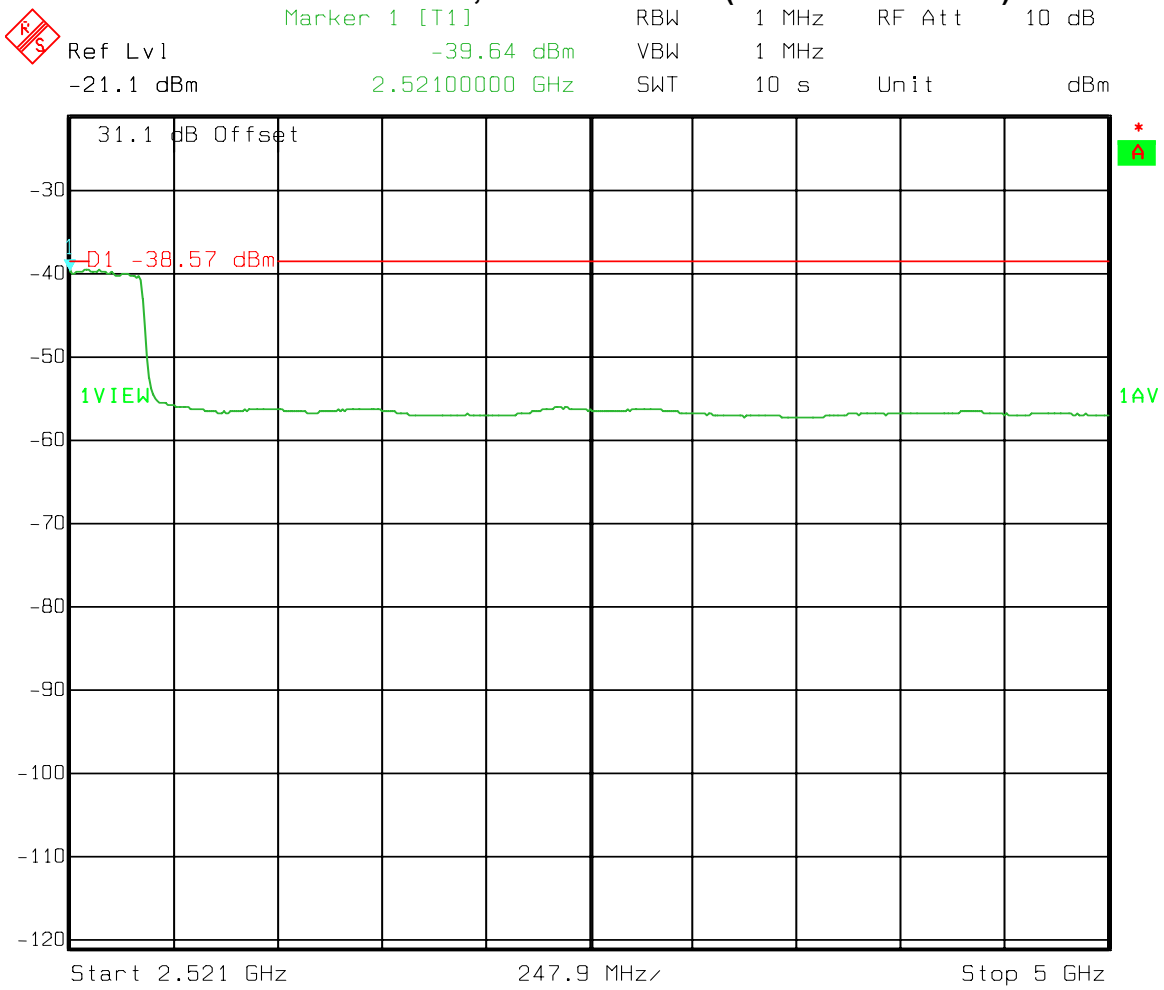
GPH\44493JD13_FCC_CE_010
Conducted Emissions, Bottom Channel (1 GHz to 2.491 GHz)



Title: IP Wireless EUT: Node B V2. FCC Part 21.908
Comment A: 44493JD13_FCC_CE_010
Date: 9.JUL.2003 13:37:51

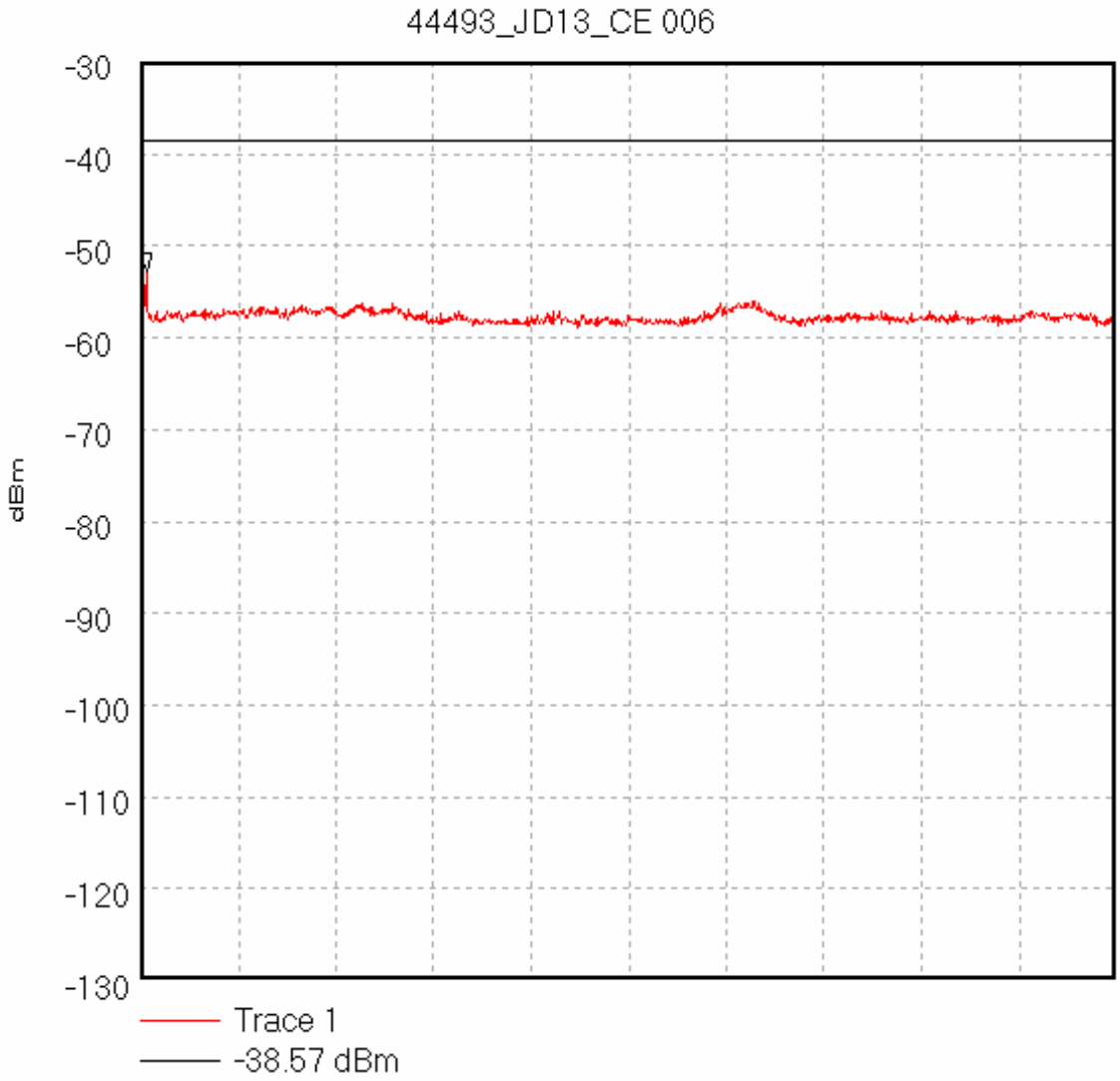
Test Of: **IPWireless (UK) Ltd.**
Node B V2 Model: HZ
To: **FCC Part 27**

GPH\44493JD13_FCC_CE_016
Conducted Emissions, Bottom Channel (2.521 GHz to 5 GHz)

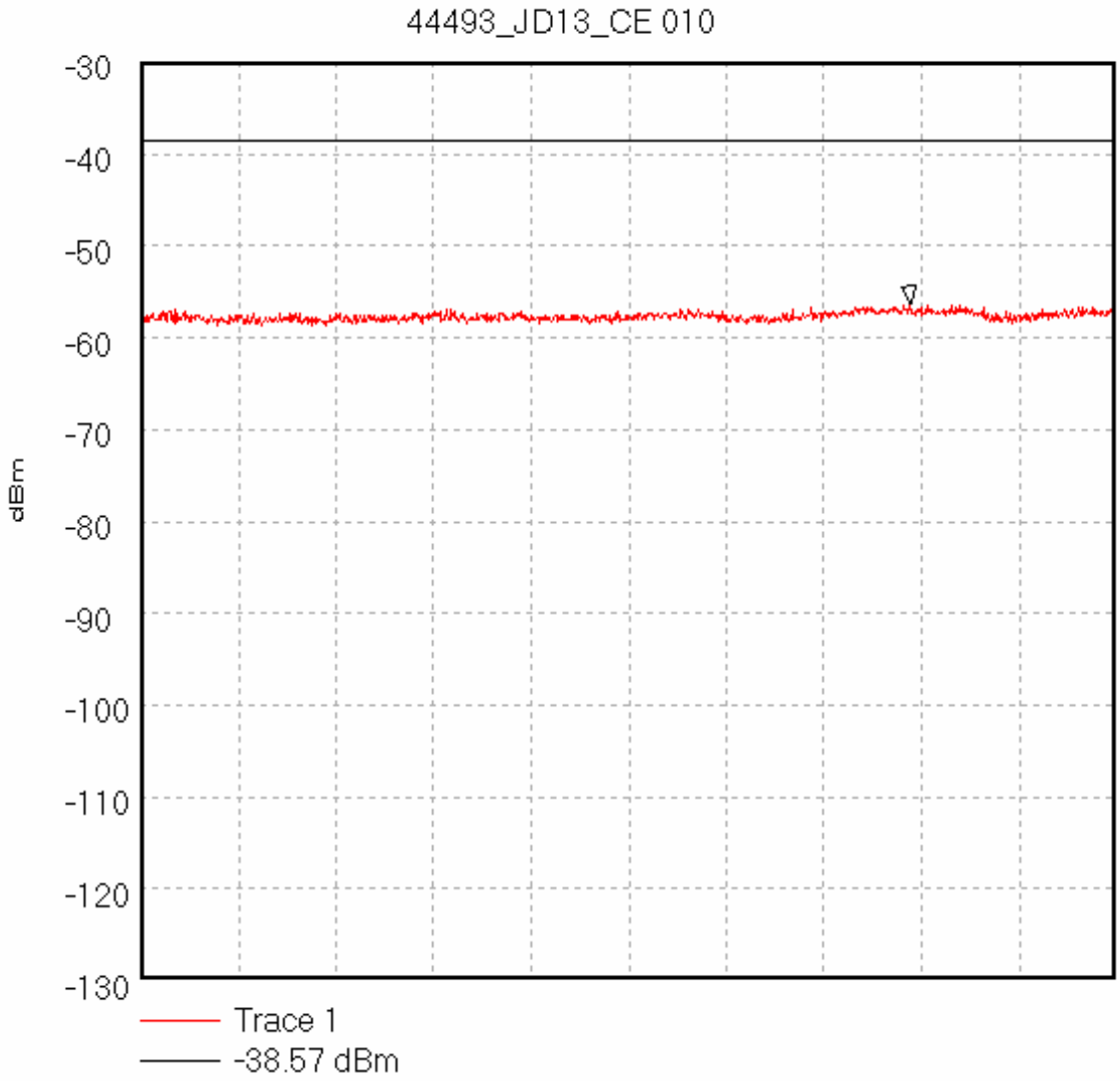


Title: IP Wireless EUT: Node B V2. FCC Part 21.908
Comment A: 44493JD13_FCC_CE_016
Date: 9.JUL.2003 13:59:14

GPH\44493_JD13_CE\006
44493JD13 IP Wireless EUT: Node B V2. FCC Part 21.908.
Conducted Emissions. Operating at Bottom Channel.

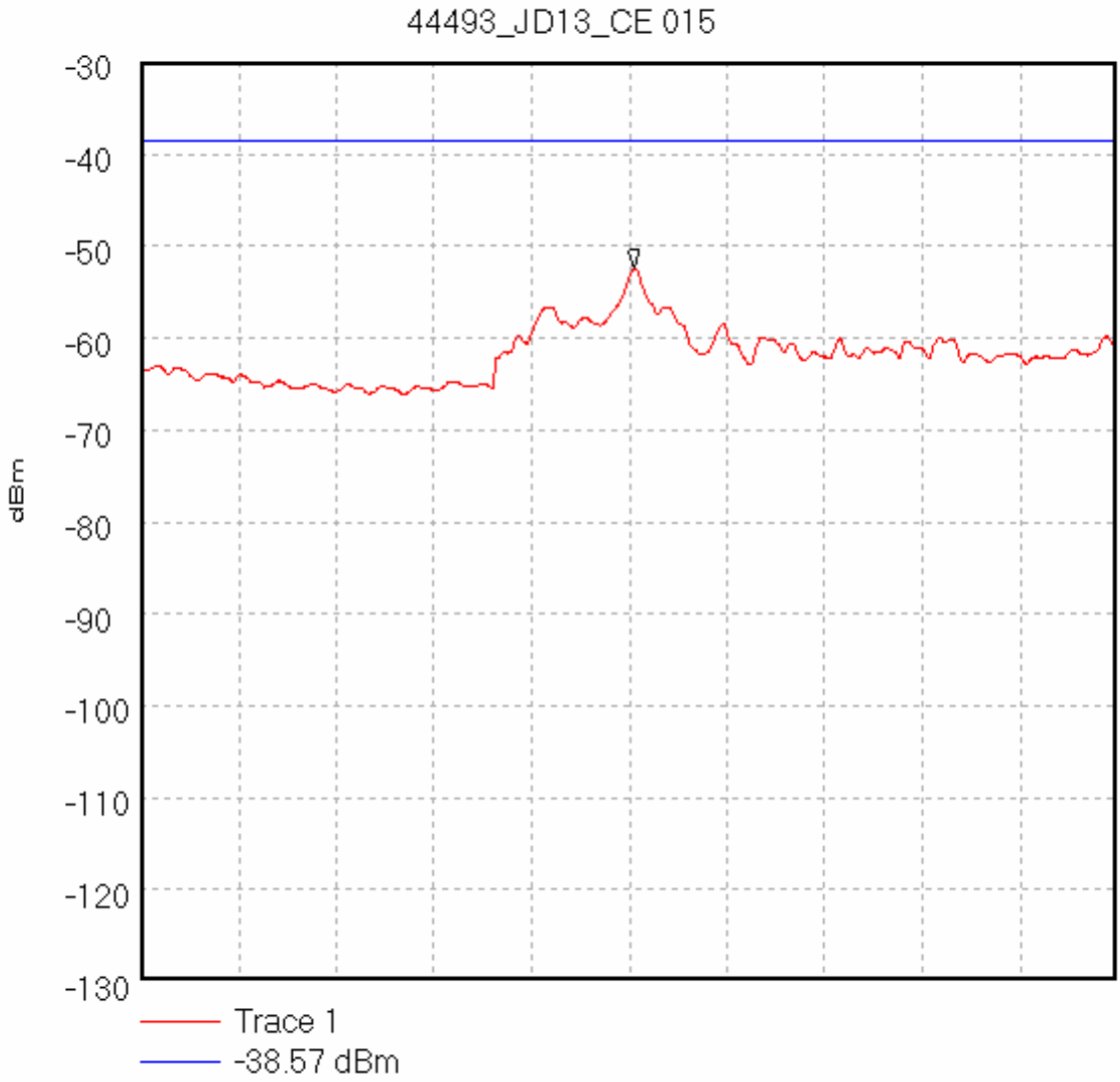


GPH\44493_JD13_CE\010
44493JD13 IP Wireless EUT: Node B V2. FCC Part 21.908.
Conducted Emissions. Operating at Bottom Channel.



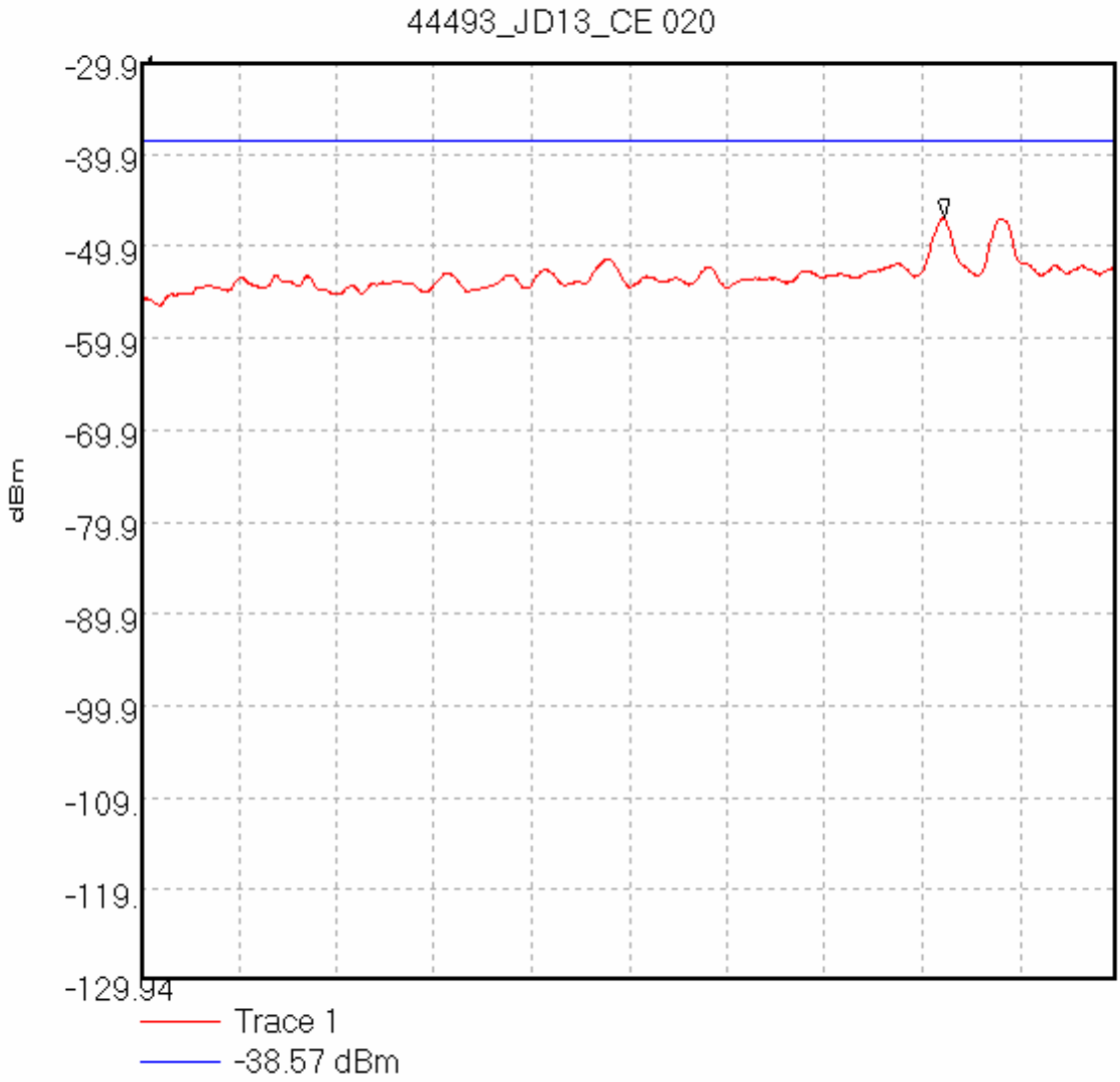
Start 8.0 GHz; Stop 10.0 GHz
Ref -30 dBm; Ref Offset 44.3 dB; 10 dB/div
RBW 1.45 MHz; VBW 10.0 kHz; Att 5 dB; Swp 880.0 mS
Peak 9.577778 GHz, -56.35 dBm
Display Line: -38.57 dBm;
08/07/2003 14:26:34

GPH\44493_JD13_CE\015
44493JD13 IP Wireless EUT: Node B V2 ZH. FCC Part 21.908.
Conducted Emissions. Operating at Bottom Channel.



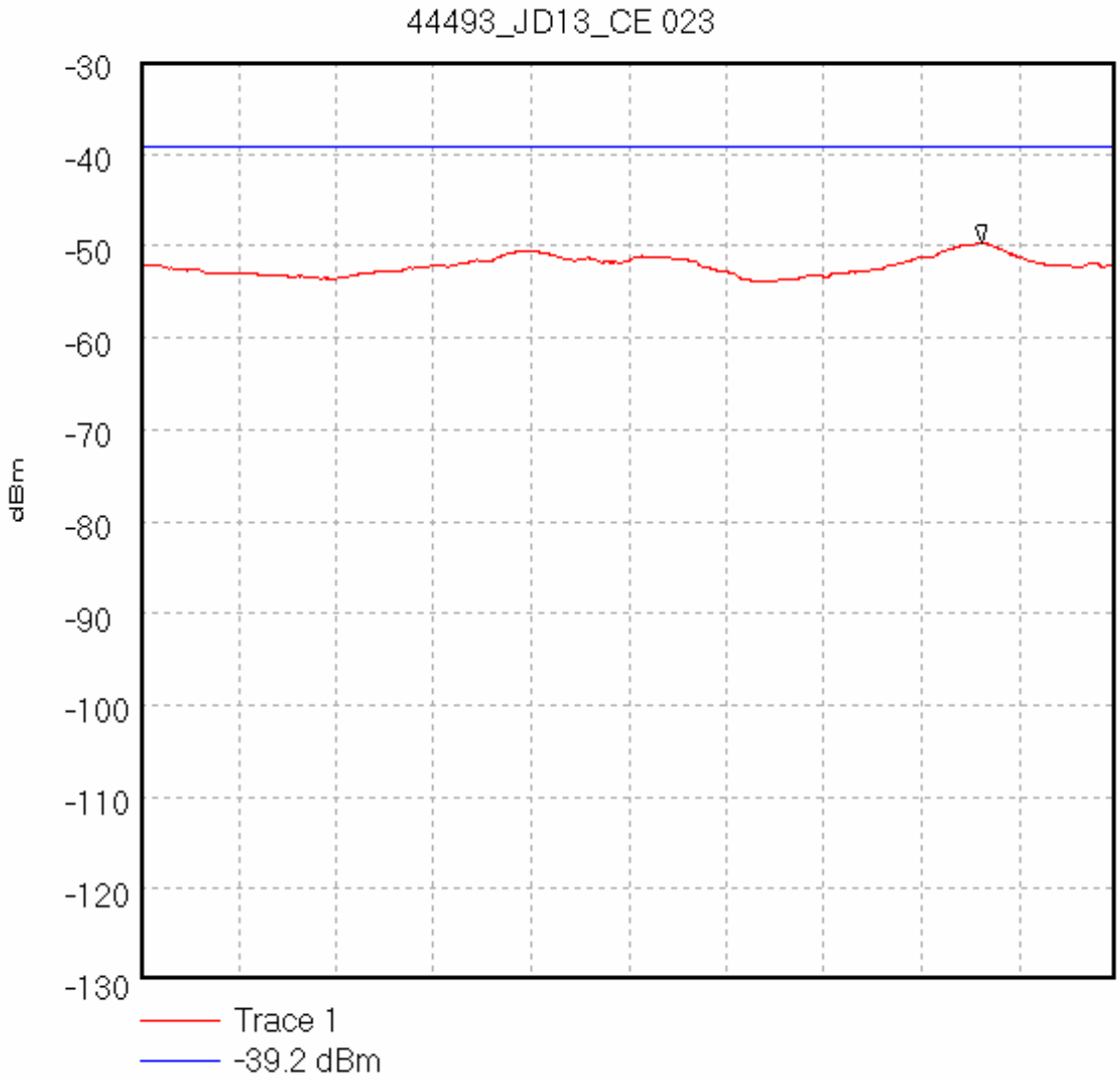
Start 10.0 GHz; Stop 18.0 GHz
Ref -30 dBm; Ref Offset 35.1 dB; 10 dB/div
RBW 1.0 MHz; VBW 10.0 Hz; Att 0 dB; Swp 10.0 S
Peak 14.044444 GHz, -52.42 dBm
Display Line: -38.57 dBm;
08/07/2003 19:43:22

GPH\44493_JD13_CE\020
44493JD13 IP Wireless EUT: Node B V2 ZH. FCC Part 21.908.
Conducted Emissions. Operating at Bottom Channel.



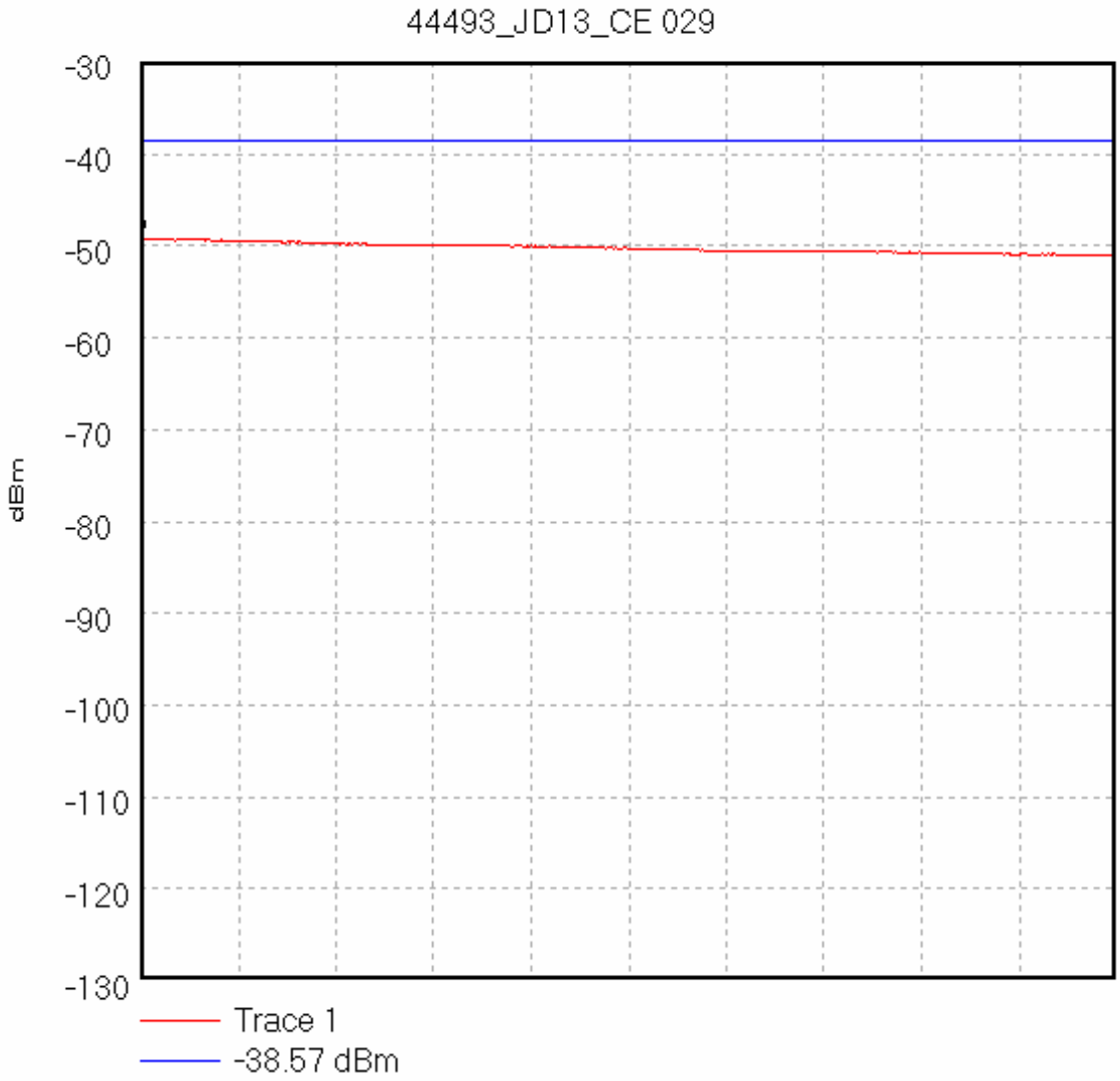
Start 18.0 GHz; Stop 25.5 GHz
Ref -29.94 dBm; Ref Offset 41.0 dB; 10 dB/div
RBW 1.0 MHz; VBW 10.0 Hz; Att 0 dB; Swp 10.0 S
Peak 24.166667 GHz, -46.8 dBm
Display Line: -38.57 dBm;
08/07/2003 19:48:12

GPH\44493_JD13_CE\023
44493JD13 IP Wireless EUT: Node B V2 ZH. FCC Part 21.908.
Conducted Emissions. Operating at Bottom Channel.



Start 25.5 GHz; Stop 26.5 GHz
Ref -30 dBm; Ref Offset 40.9 dB; 10 dB/div
RBW 1.0 MHz; VBW 10.0 Hz; Att 0 dB; Swp 10.0 S
Peak 26.362222 GHz, -49.68 dBm
Display Line: -39.2 dBm;
08/07/2003 19:53:17

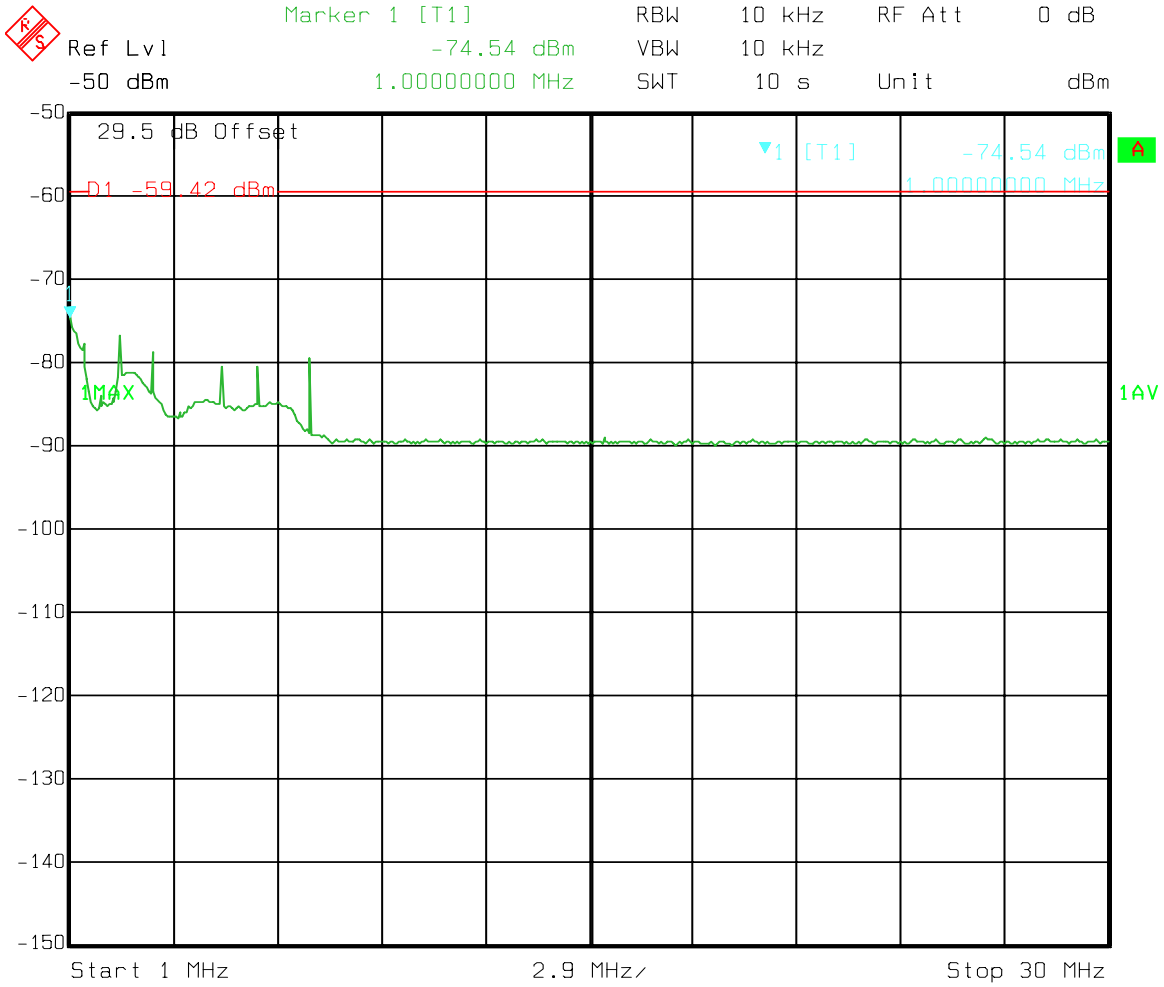
GPH\44493_JD13_CE\029
44493JD13 IP Wireless EUT: Node B V2 ZH. FCC Part 21.908.
Conducted Emissions. Operating at Bottom Channel.



Start 26.5 GHz; Stop 27.0 GHz
Ref -30 dBm; Ref Offset 35.0 dB; 10 dB/div
RBW 1.0 MHz; VBW 10.0 Hz; Att 0 dB; Swp 130.0 S
Peak 26.5 GHz, -49.33 dBm
Display Line: -38.57 dBm;
09/07/2003 10:14:57

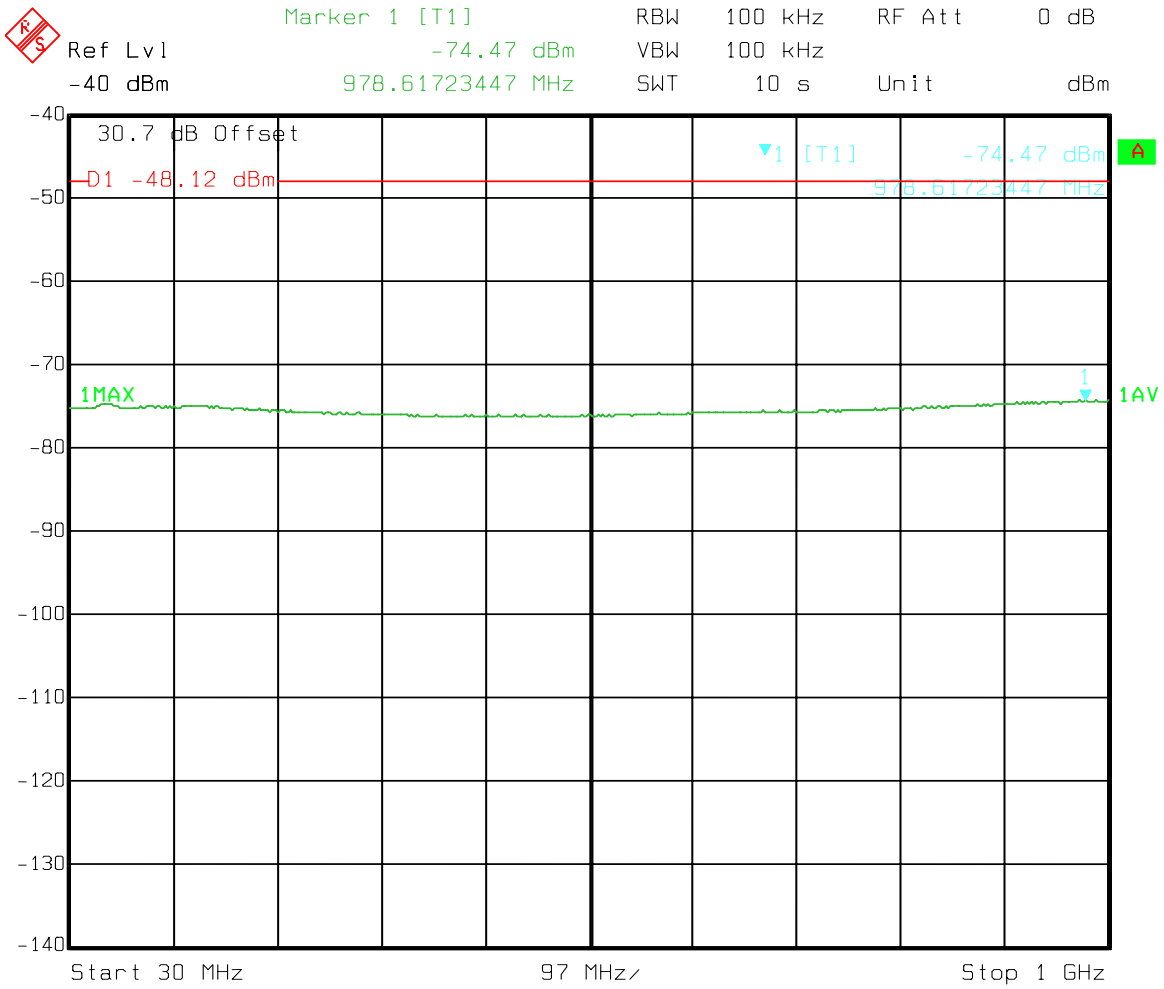
Test Of: **IPWireless (UK) Ltd. Node B V2 Model: HZ**
To: **FCC Part 27**

GPH\44493JD13_FCC_CE_003
Conducted Emissions, Middle Channel (1 MHz to 30 MHz)



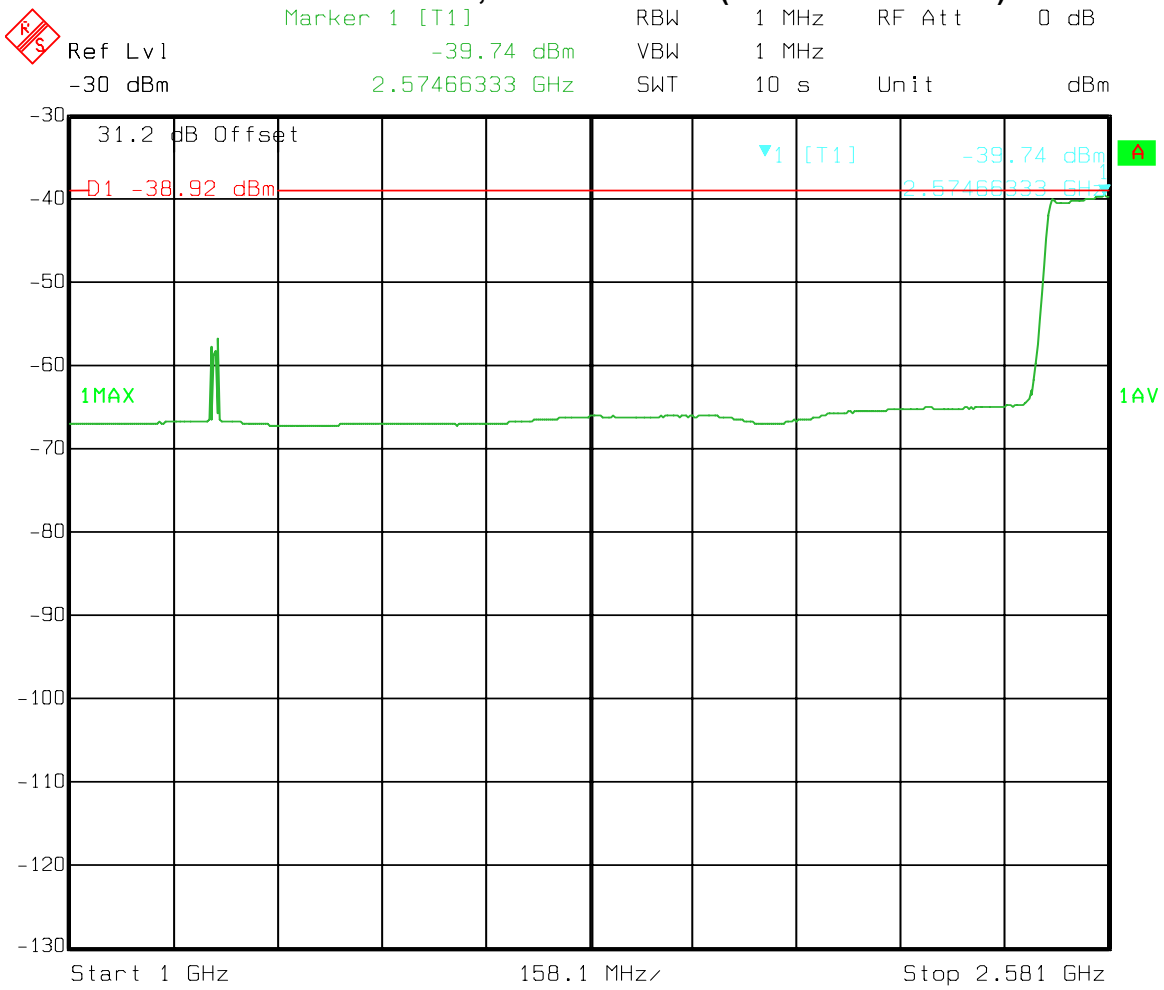
Title: IP Wireless EUT: Node B V2. FCC Part 21.908
Comment A: 44493JD13_FCC_CE_003
Date: 9.JUL.2003 13:26:01

GPH\44493JD13_FCC_CE_006
Conducted Emissions, Middle Channel (30 MHz to 1 GHz)



Title: IP Wireless EUT: Node B V2. FCC Part 21.908
Comment A: 44493JD13_FCC_CE_006
Date: 9.JUL.2003 13:21:45

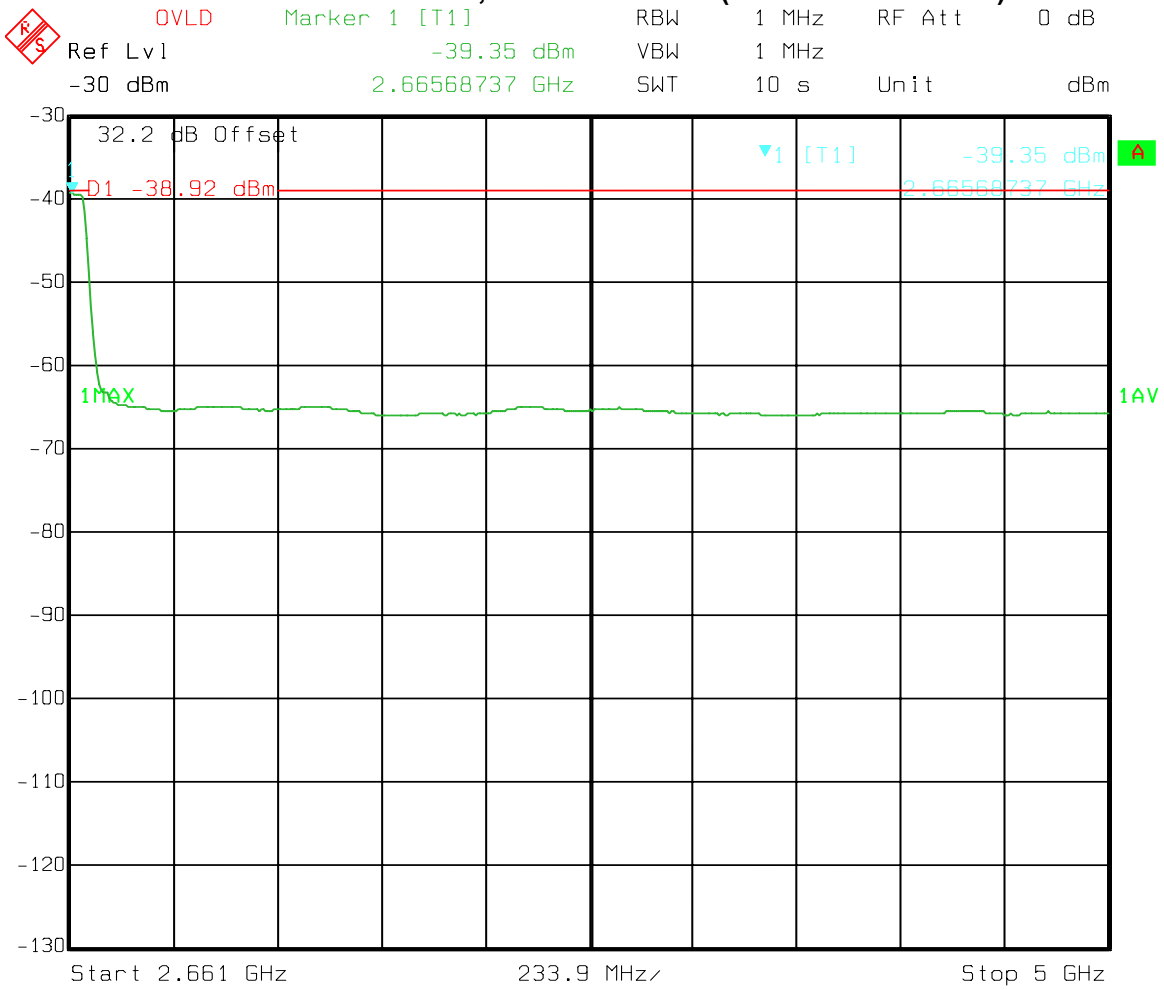
GPH\44493JD13_FCC_CE_011
Conducted Emissions, Middle Channel (1 GHz to 2.581 GHz)



Title: IP Wireless EUT: Node B V2. FCC Part 21.908
Comment A: 44493JD13_FCC_CE_011
Date: 9.JUL.2003 13:39:27

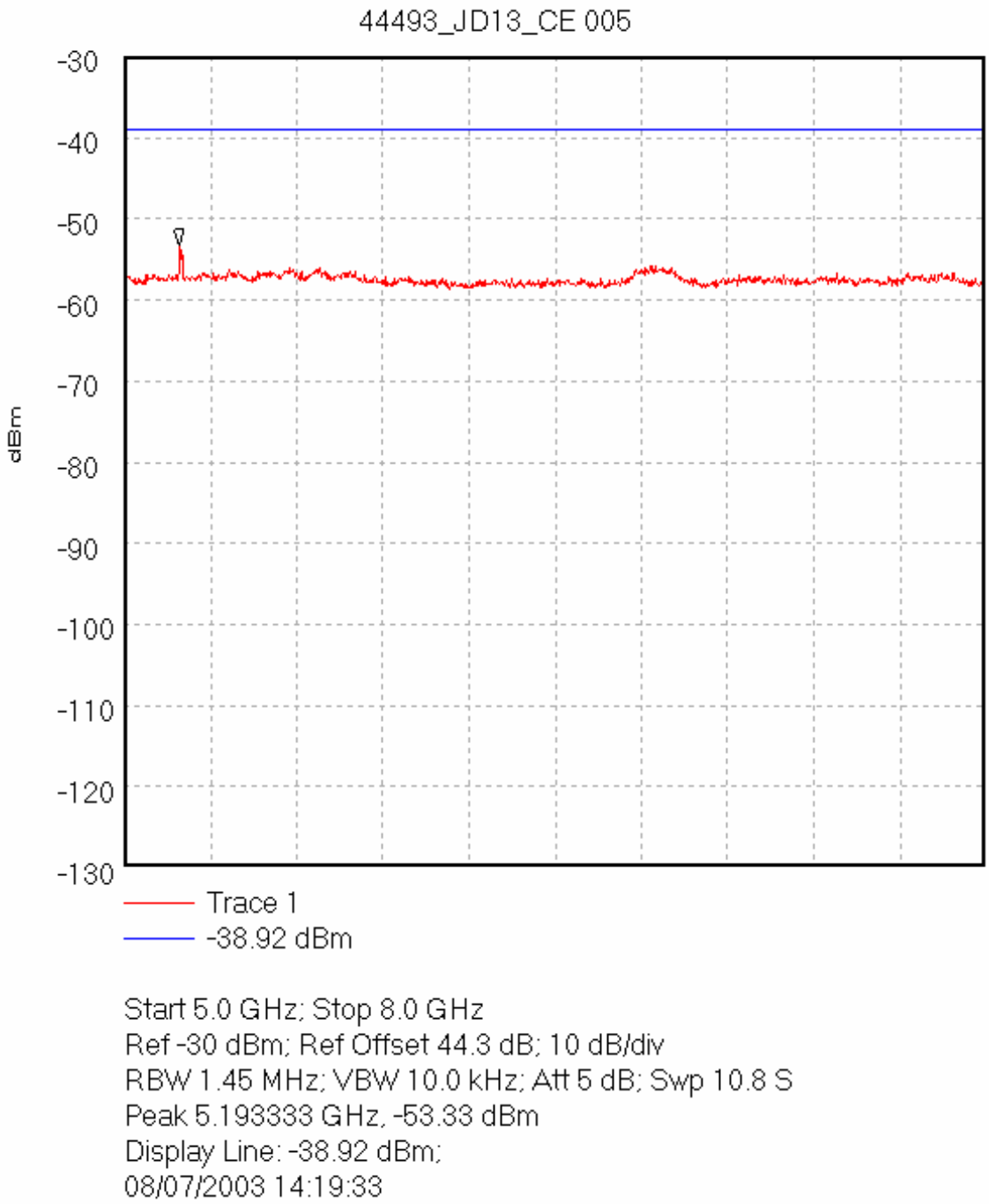
Test Of: **IPWireless (UK) Ltd. Node B V2 Model: HZ**
To: **FCC Part 27**

GPH\44493JD13_FCC_CE_013
Conducted Emissions, Middle Channel (2.661 GHz to 5 GHz)

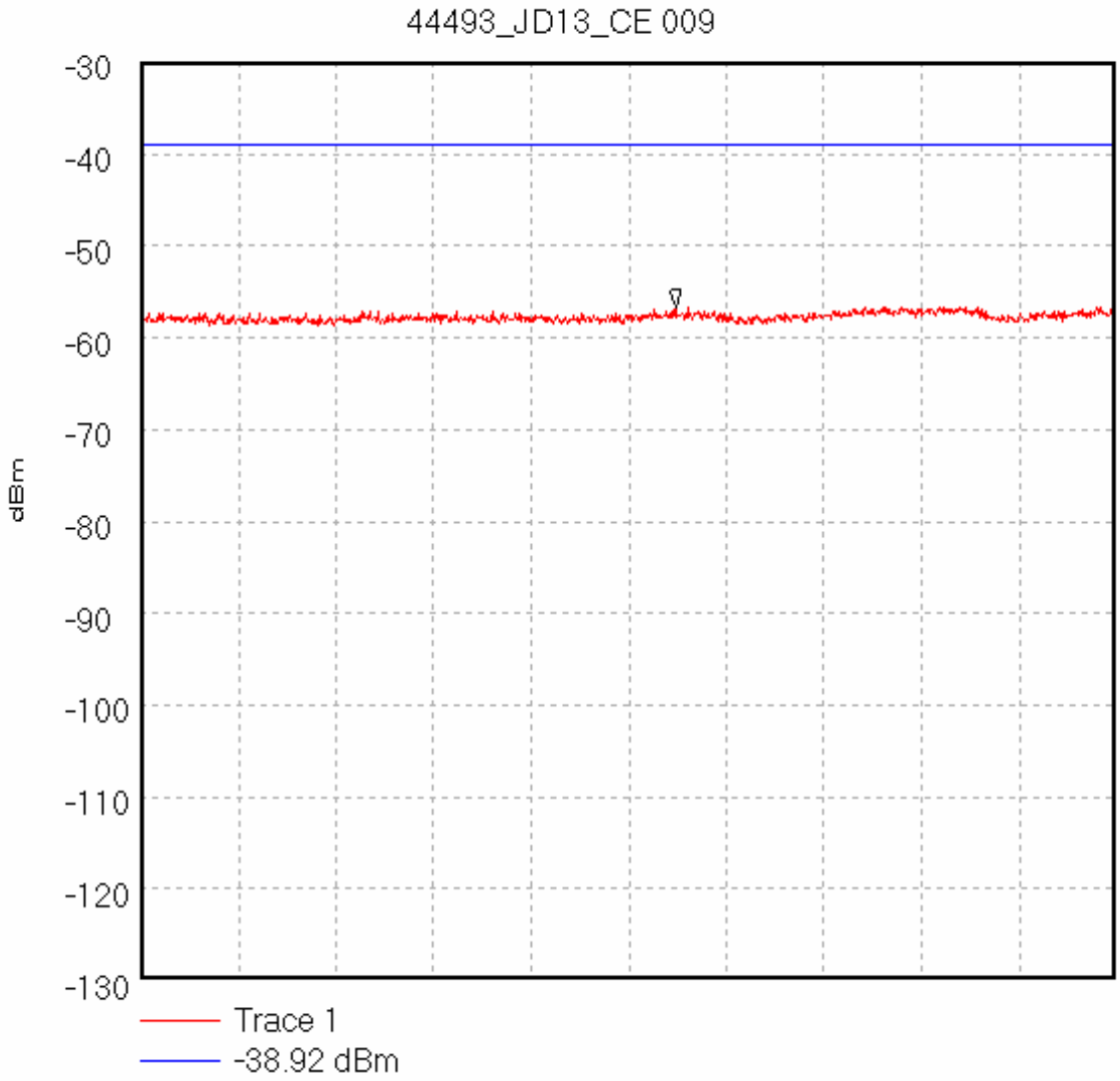


Title: IP Wireless EUT: Node B V2. FCC Part 21.908
Comment A: 44493JD13_FCC_CE_013
Date: 9.JUL.2003 13:45:04

GPH\44493_JD13_CE\005
44493JD13 IP Wireless EUT: Node B V2. FCC Part 21.908.
Conducted Emissions. Operating at Middle Channel.

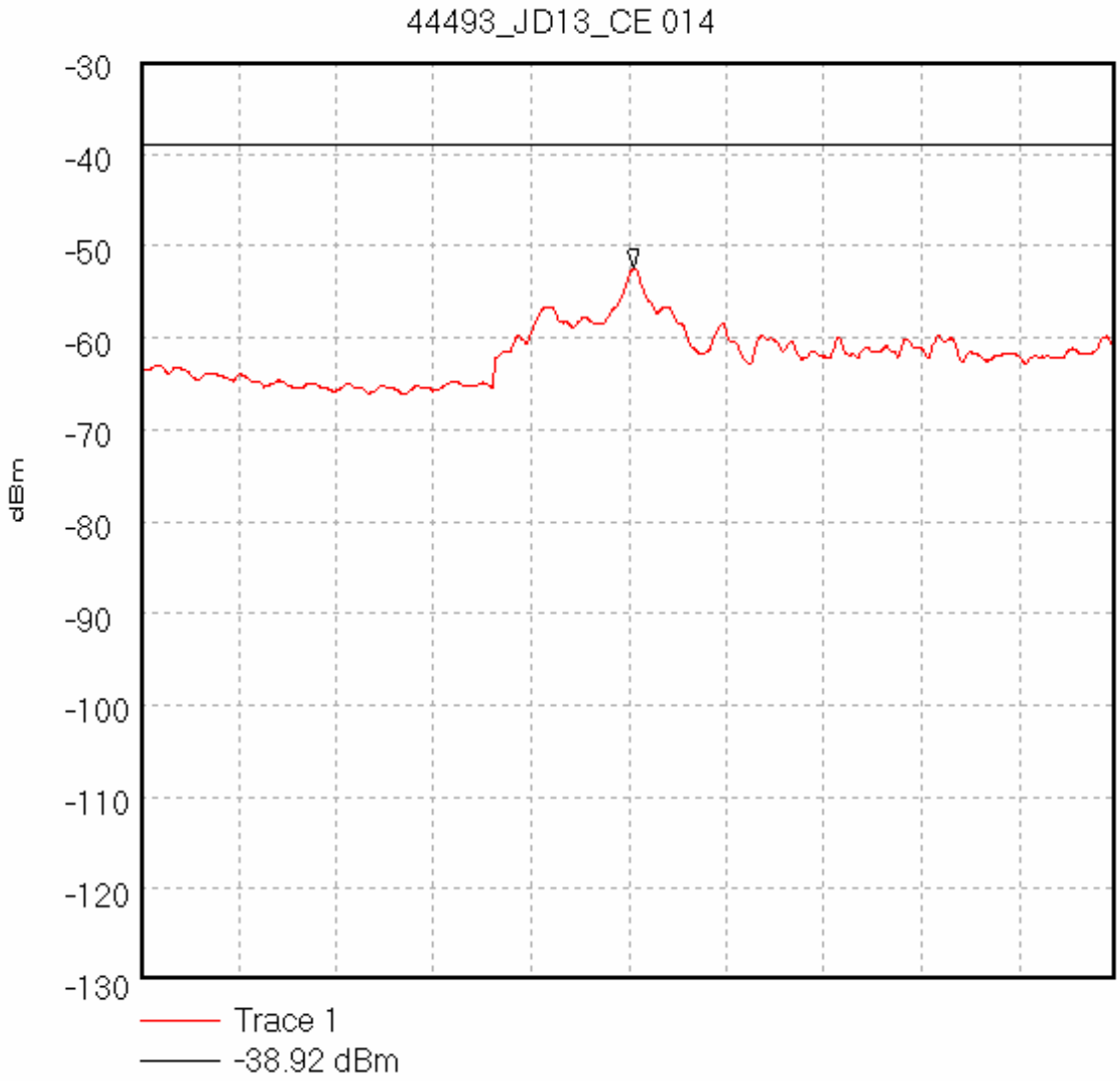


GPH\44493_JD13_CE\009
44493JD13 IP Wireless EUT: Node B V2. FCC Part 21.908.
Conducted Emissions. Operating at Middle Channel.



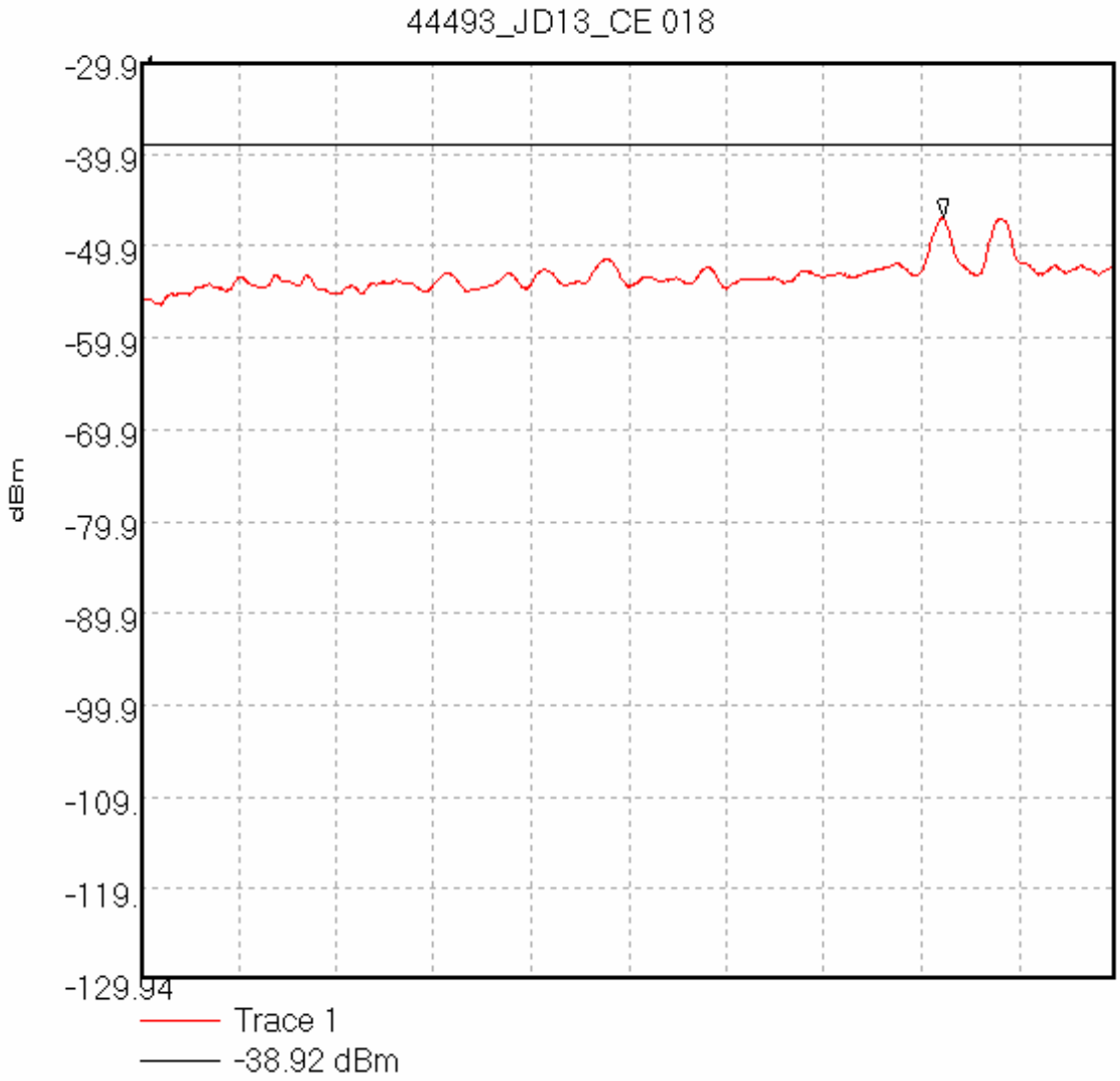
Start 8.0 GHz; Stop 10.0 GHz
Ref -30 dBm; Ref Offset 44.3 dB; 10 dB/div
RBW 1.45 MHz; VBW 10.0 kHz; Att 5 dB; Swp 880.0 mS
Peak 9.097778 GHz, -56.63 dBm
Display Line: -38.92 dBm;
08/07/2003 14:26:06

GPH\44493_JD13_CE\014
44493JD13 IP Wireless EUT: Node B V2 ZH. FCC Part 21.908.
Conducted Emissions. Operating at Middle Channel.



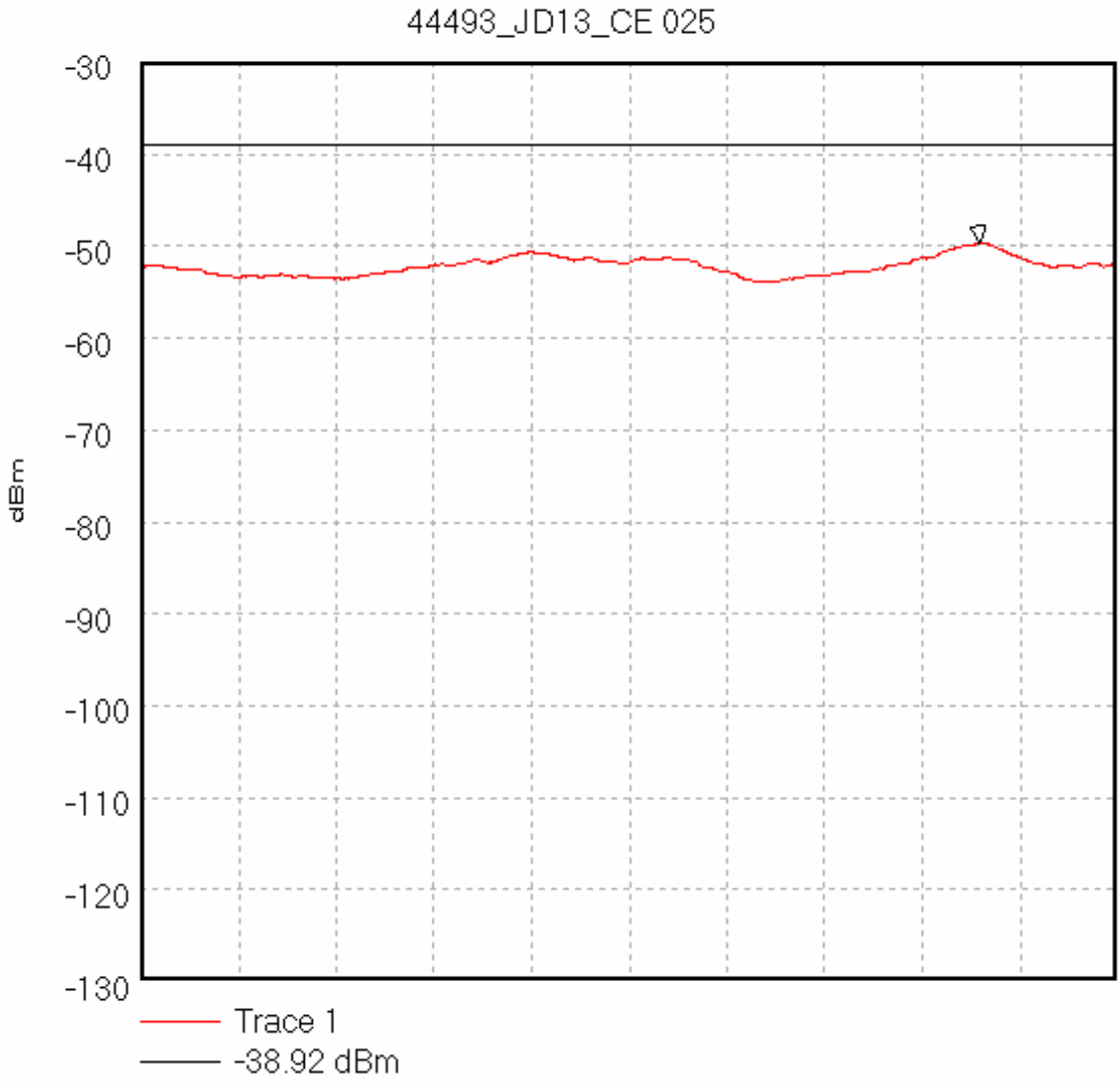
Start 10.0 GHz; Stop 18.0 GHz
Ref -30 dBm; Ref Offset 35.1 dB; 10 dB/div
RBW 1.0 MHz; VBW 10.0 Hz; Att 0 dB; Swp 10.0 S
Peak 14.044444 GHz, -52.42 dBm
Display Line: -38.92 dBm;
08/07/2003 19:42:01

GPH\44493_JD13_CE\018
44493JD13 IP Wireless EUT: Node B V2 ZH. FCC Part 21.908.
Conducted Emissions. Operating at Middle Channel.



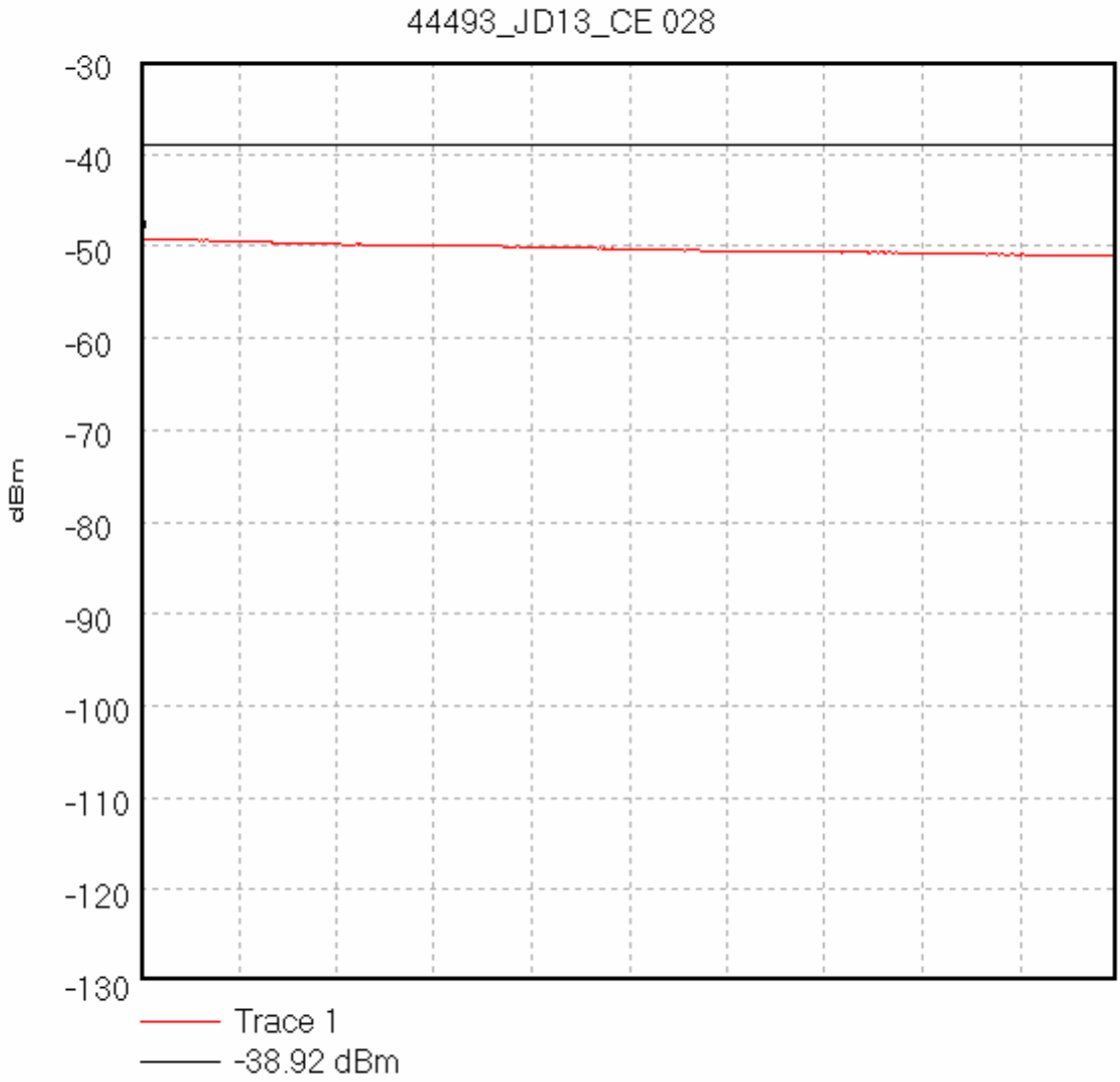
Start 18.0 GHz; Stop 25.5 GHz
Ref -29.94 dBm; Ref Offset 41.0 dB; 10 dB/div
RBW 1.0 MHz; VBW 10.0 Hz; Att 0 dB; Swp 10.0 S
Peak 24.166667 GHz, -46.82 dBm
Display Line: -38.92 dBm;
08/07/2003 19:47:15

GPH\44493_JD13_CE\025
44493JD13 IP Wireless EUT: Node B V2 ZH. FCC Part 21.908.
Conducted Emissions. Operating at Middle Channel.



Start 25.5 GHz; Stop 26.5 GHz
Ref -30 dBm; Ref Offset 40.9 dB; 10 dB/div
RBW 1.0 MHz; VBW 10.0 Hz; Att 0 dB; Swp 10.0 S
Peak 26.358889 GHz, -49.7 dBm
Display Line: -38.92 dBm;
08/07/2003 19:54:18

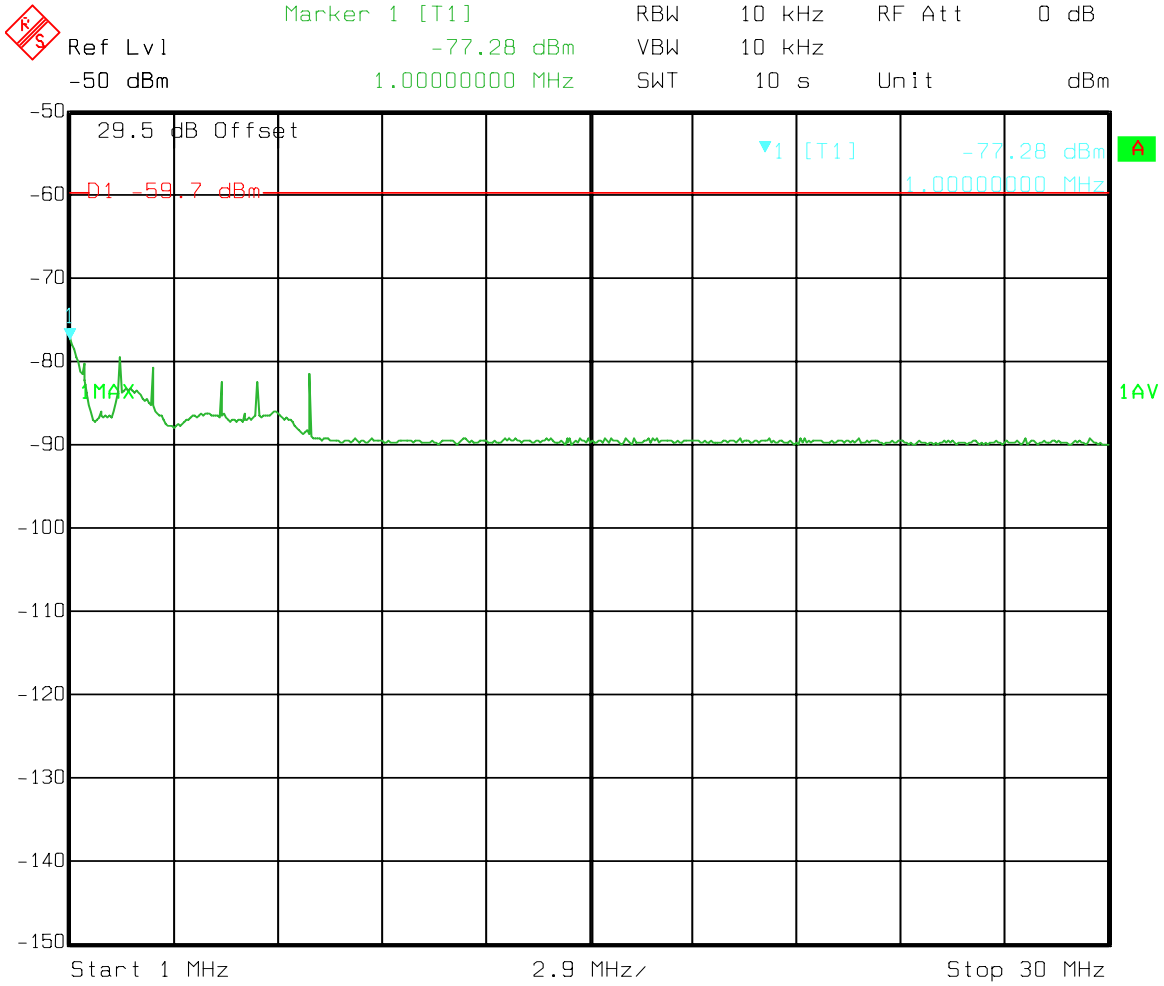
GPH\44493_JD13_CE\028
44493JD13 IP Wireless EUT: Node B V2 ZH. FCC Part 21.908.
Conducted Emissions. Operating at Middle Channel.



Start 26.5 GHz; Stop 27.0 GHz
Ref -30 dBm; Ref Offset 35.0 dB; 10 dB/div
RBW 1.0 MHz; VBW 10.0 Hz; Att 0 dB; Swp 130.0 S
Peak 26.5 GHz, -49.33 dBm
Display Line: -38.92 dBm;
09/07/2003 10:11:44

Test Of: **IPWireless (UK) Ltd. Node B V2 Model: HZ**
To: **FCC Part 27**

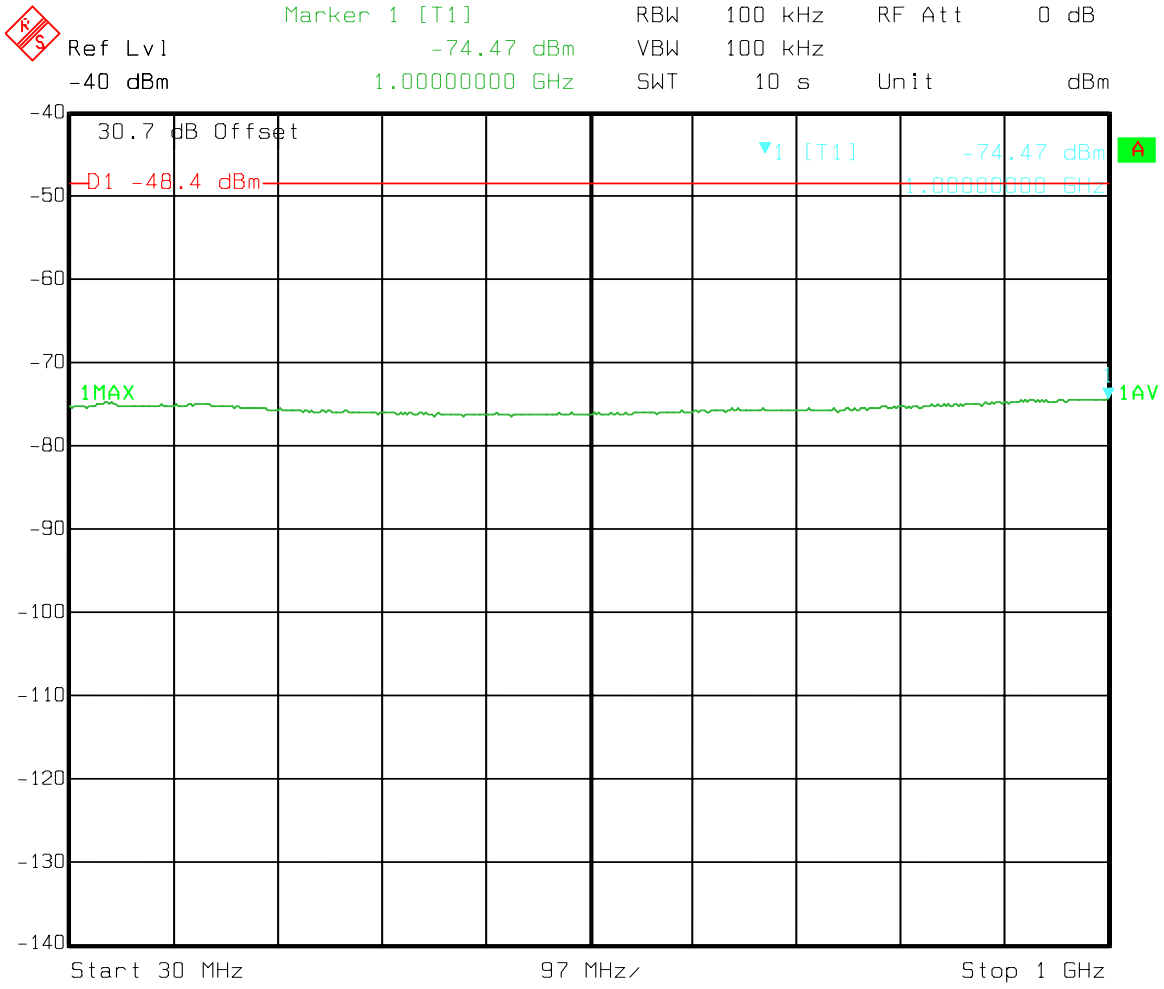
GPH\44493JD13_FCC_CE_001
Conducted Emissions, Top Channel (1 MHz to 30 MHz)



Title: IP Wireless EUT: Node B V2. FCC Part 21.908
Comment A: 44493JD13_FCC_CE_001
Date: 9.JUL.2003 13:28:47

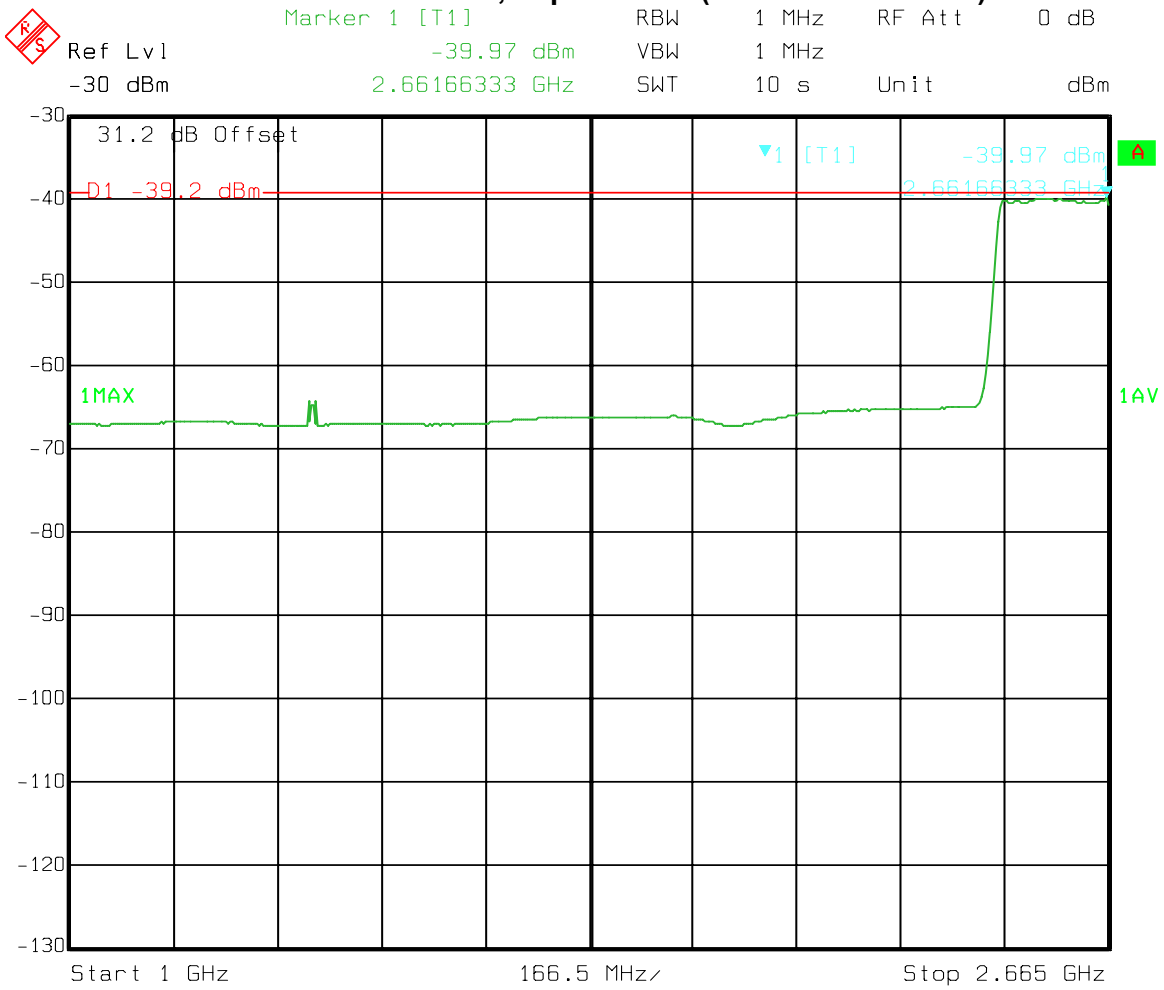
Test Of: **IPWireless (UK) Ltd. Node B V2 Model: HZ**
To: **FCC Part 27**

GPH\44493JD13_FCC_CE_008
Conducted Emissions, Top Channel (30 MHz to 1 GHz)



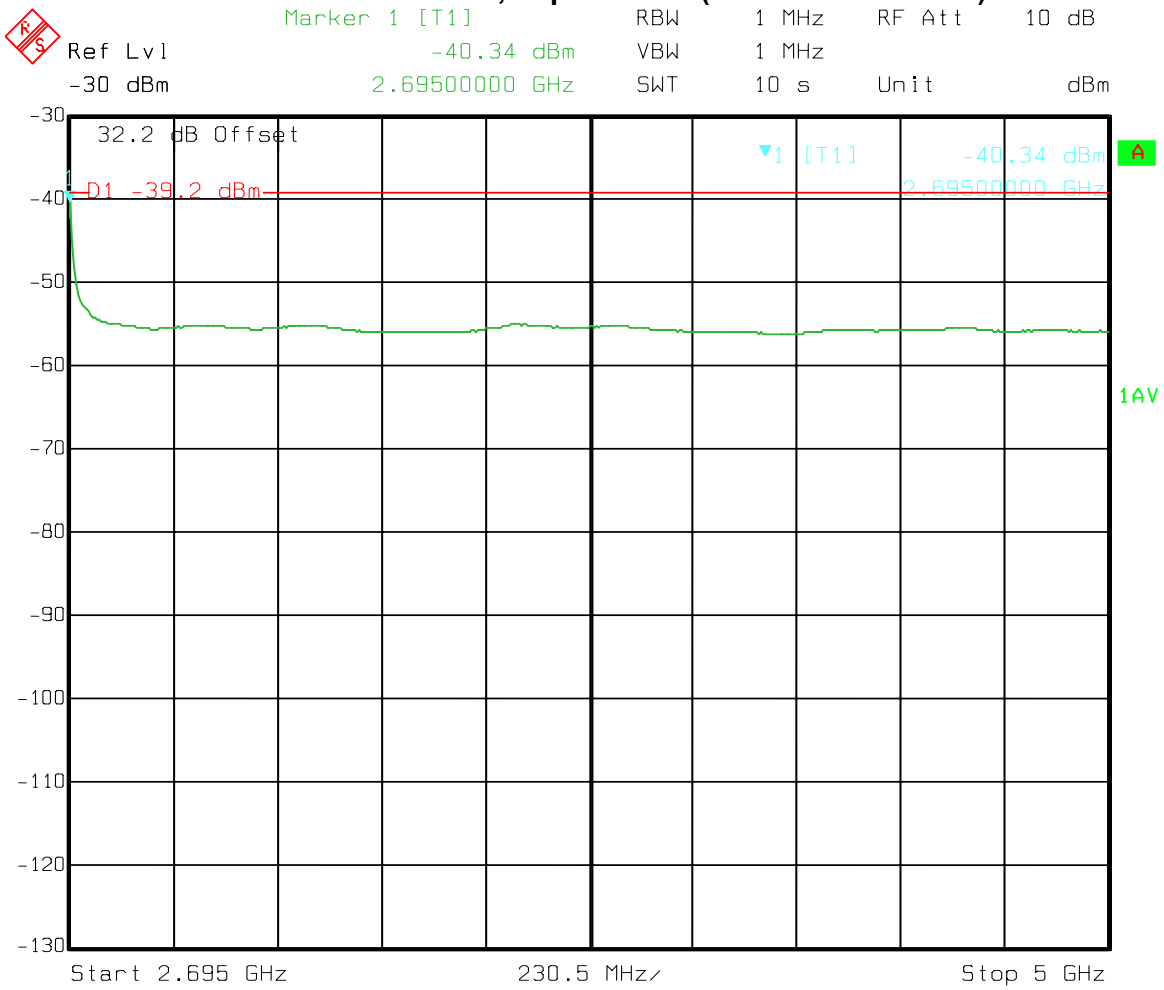
Title: IP Wireless EUT: Node B V2. FCC Part 21.908
Comment A: 44493JD13_FCC_CE_008
Date: 9.JUL.2003 13:19:16

GPH\44493JD13_FCC_CE_009
Conducted Emissions, Top Channel (1 GHz to 2.665 GHz)



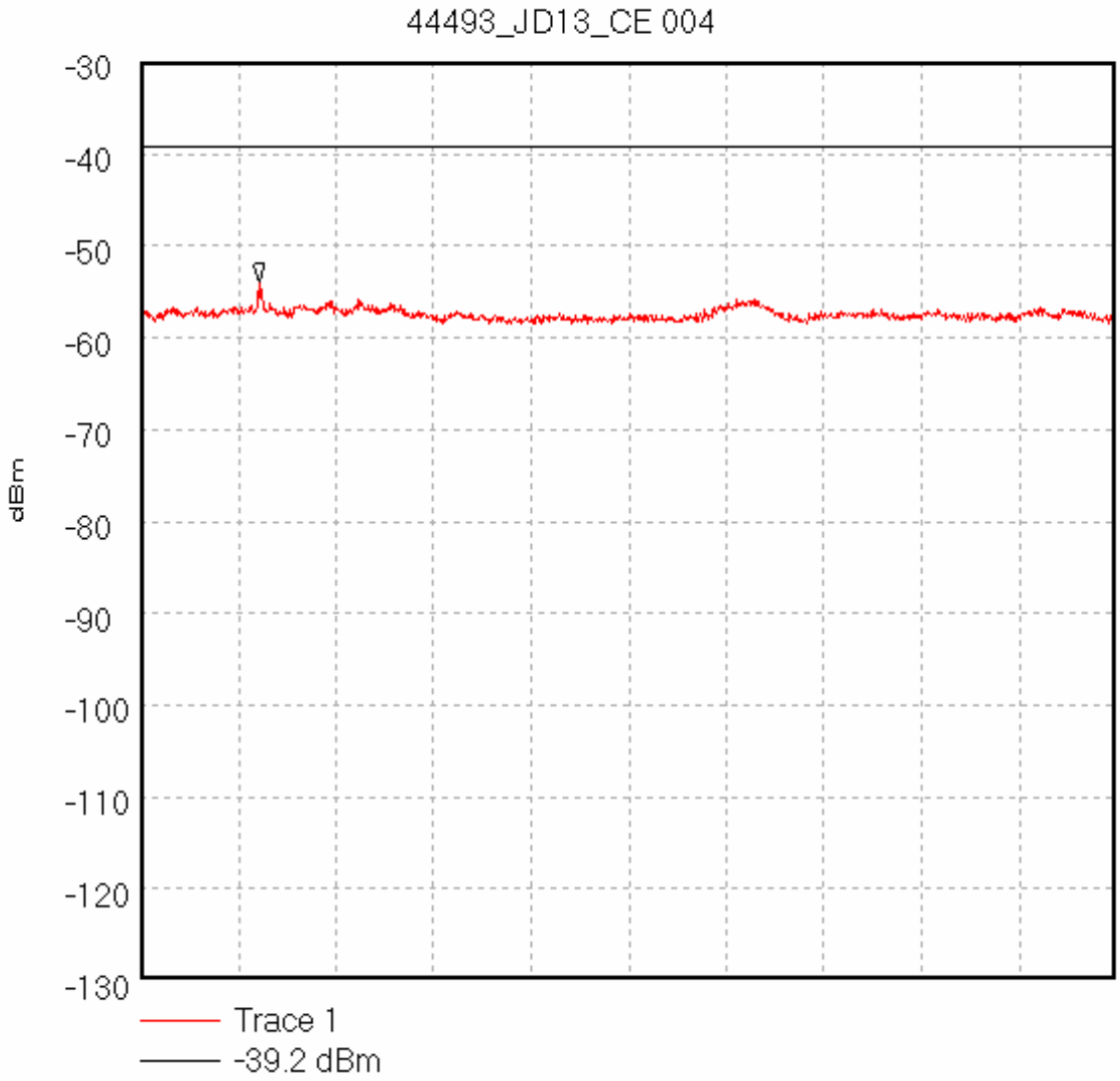
Title: IP Wireless EUT: Node B V2. FCC Part 21.908
Comment A: 44493JD13_FCC_CE_009
Date: 9.JUL.2003 13:36:34

GPH\44493JD13_FCC_CE_014
Conducted Emissions, Top Channel (2.695 GHz to 5 GHz)



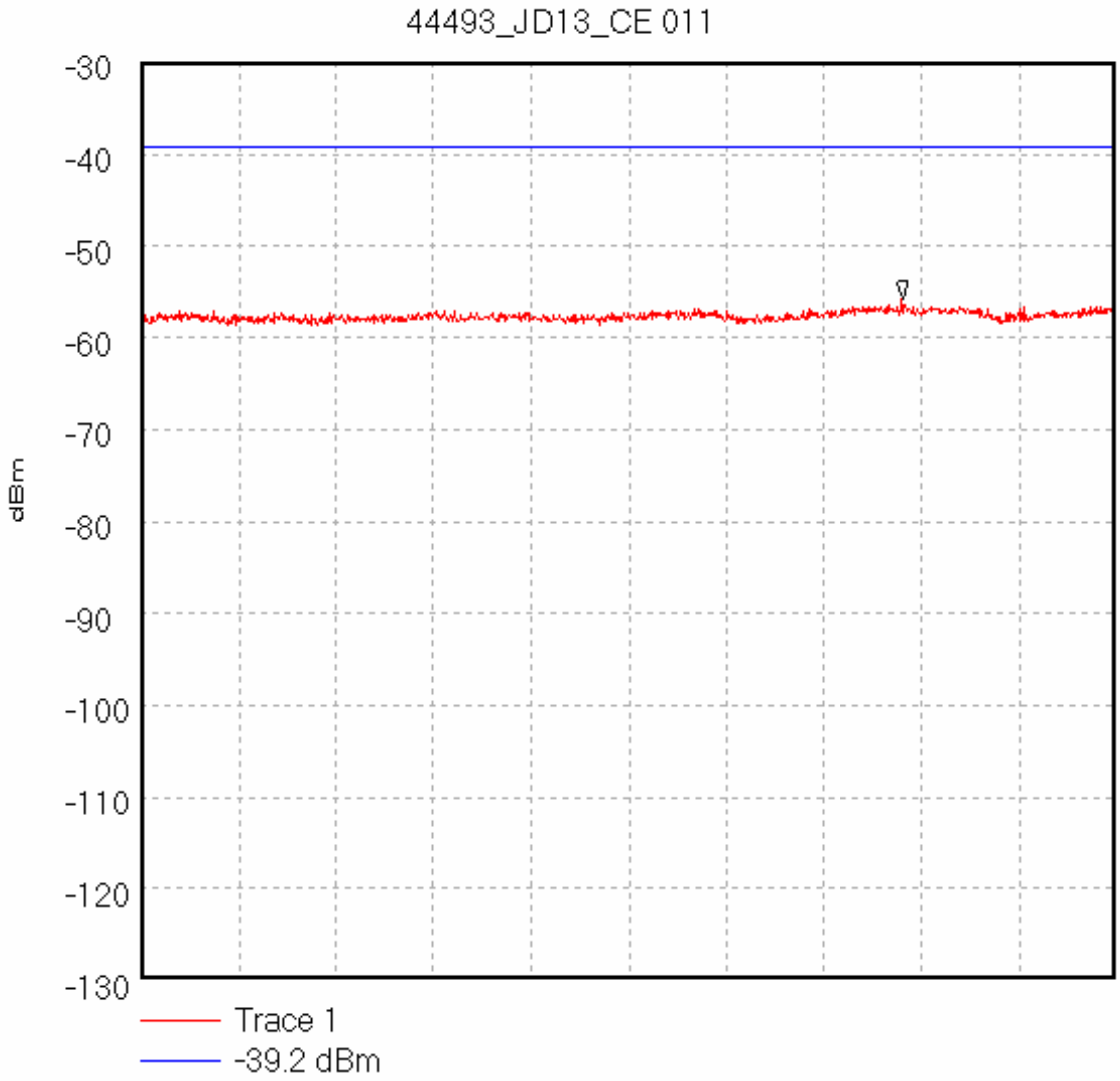
Title: IP Wireless EUT: Node B V2. FCC Part 21.908
Comment A: 44493JD13_FCC_CE_014
Date: 9.JUL.2003 13:49:44

GPH\44493_JD13_CE\004
44493JD13 IP Wireless EUT: Node B V2. FCC Part 21.908.
Conducted Emissions. Operating at Top Channel.



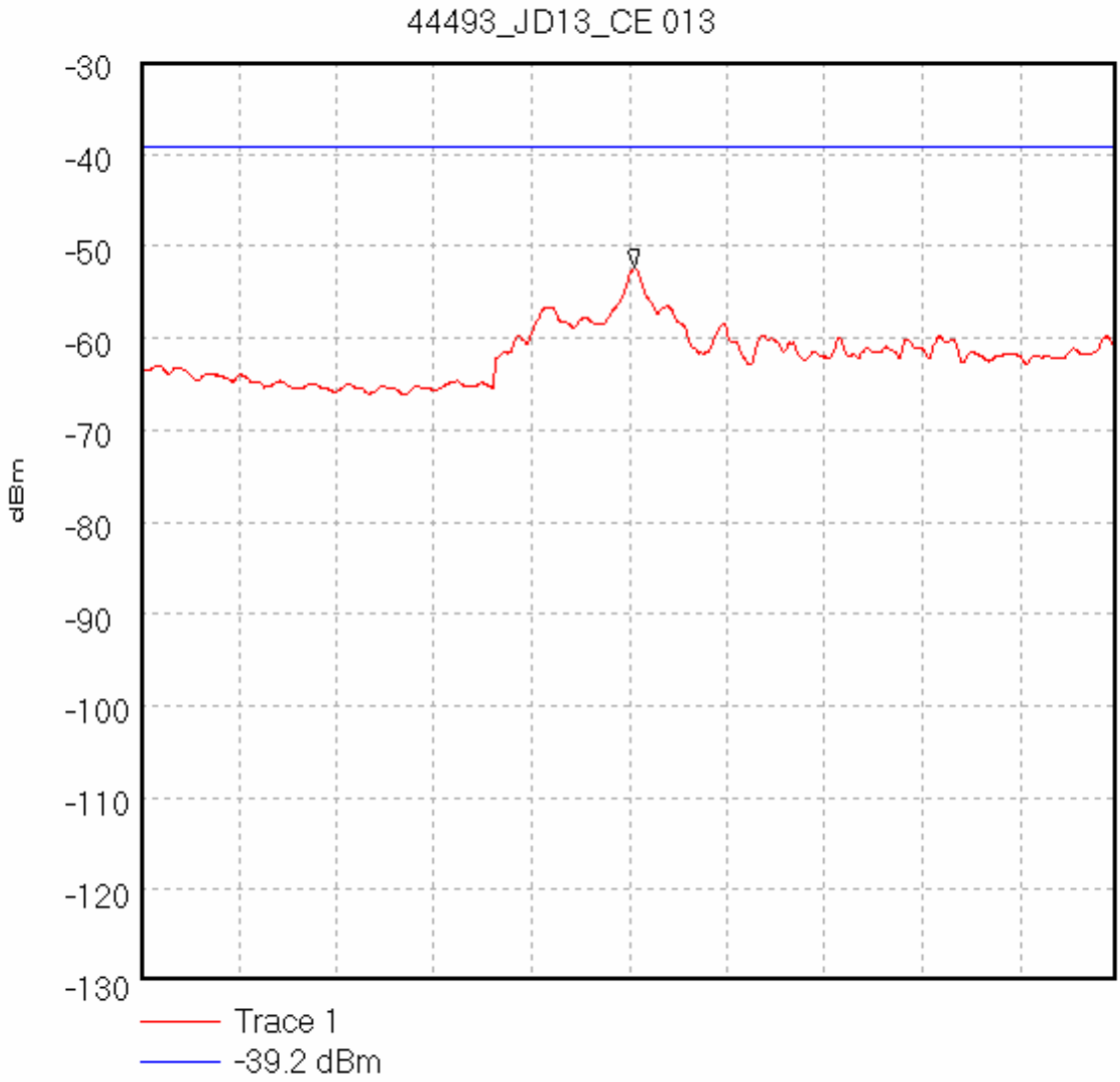
Start 5.0 GHz; Stop 8.0 GHz
Ref -30 dBm; Ref Offset 44.3 dB; 10 dB/div
RBW 1.45 MHz; VBW 10.0 kHz; Att 5 dB; Swp 10.8 S
Peak 5.363333 GHz, -53.94 dBm
Display Line: -39.2 dBm;
08/07/2003 14:18:35

GPH\44493_JD13_CE\011
44493JD13 IP Wireless EUT: Node B V2. FCC Part 21.908.
Conducted Emissions. Operating at Top Channel.



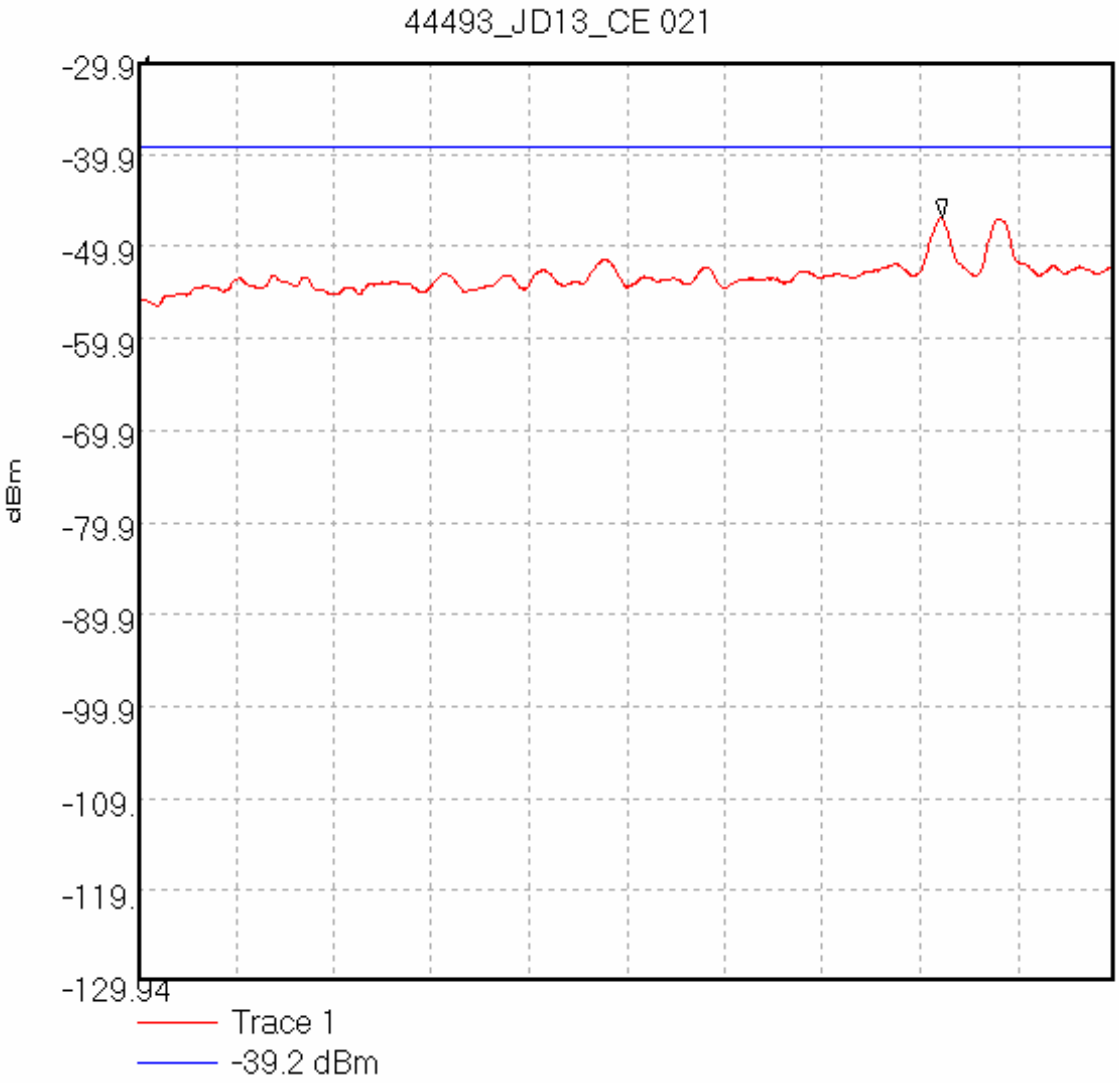
Start 8.0 GHz; Stop 10.0 GHz
Ref -30 dBm; Ref Offset 44.3 dB; 10 dB/div
RBW 1.45 MHz; VBW 10.0 kHz; Att 5 dB; Swp 880.0 mS
Peak 9.562222 GHz, -55.87 dBm
Display Line: -39.2 dBm;
08/07/2003 14:27:28

GPH\44493_JD13_CE\013
44493JD13 IP Wireless EUT: Node B V2 ZH. FCC Part 21.908.
Conducted Emissions. Operating at Top Channel.



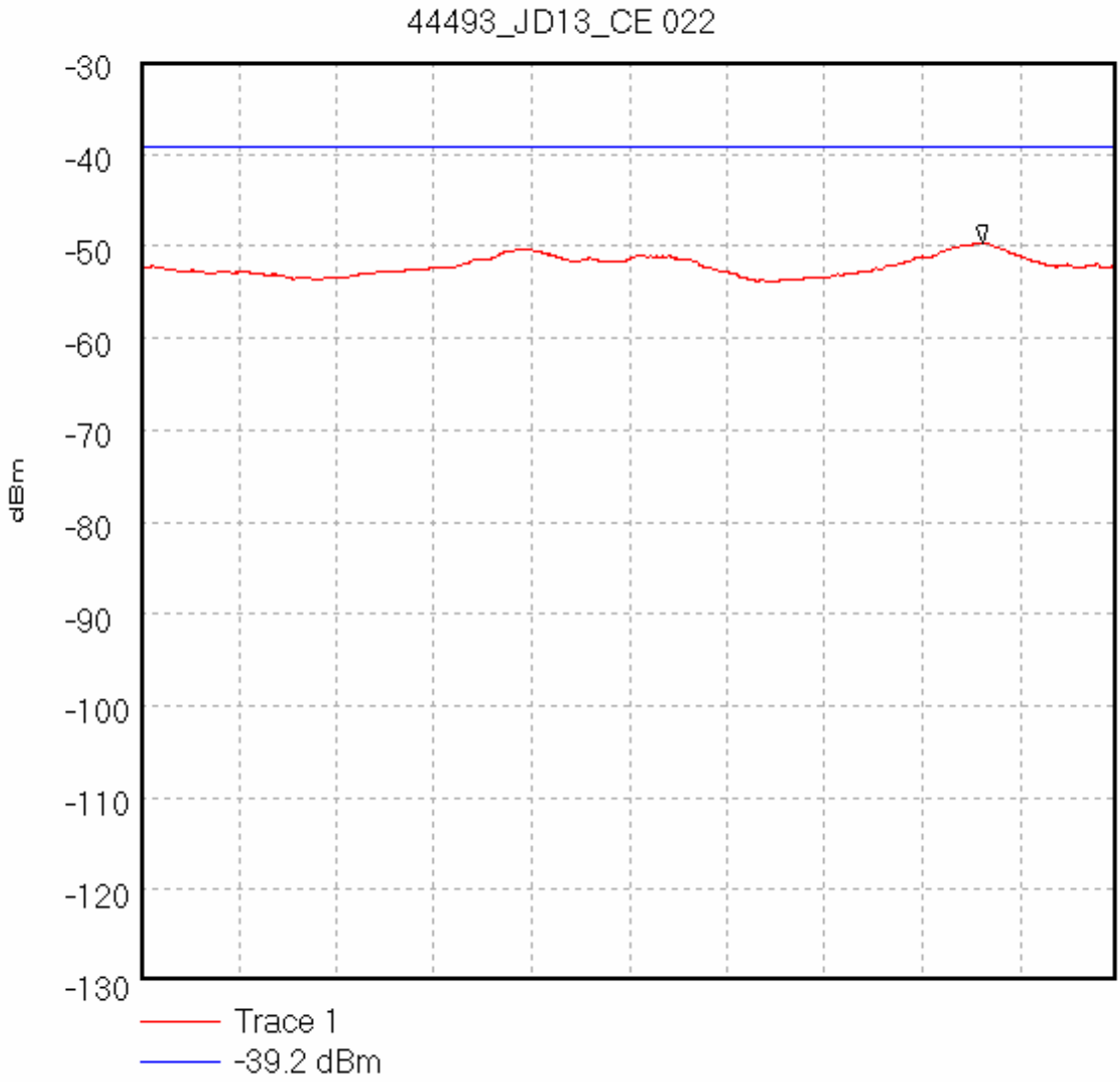
Start 10.0 GHz; Stop 18.0 GHz
Ref -30 dBm; Ref Offset 35.1 dB; 10 dB/div
RBW 1.0 MHz; VBW 10.0 Hz; Att 0 dB; Swp 10.0 S
Peak 14.044444 GHz, -52.37 dBm
Display Line: -39.2 dBm;
08/07/2003 19:40:47

GPH\44493_JD13_CE\021
44493JD13 IP Wireless EUT: Node B V2 ZH. FCC Part 21.908.
Conducted Emissions. Operating at Top Channel.



Start 18.0 GHz; Stop 25.5 GHz
Ref -29.94 dBm; Ref Offset 41.0 dB; 10 dB/div
RBW 1.0 MHz; VBW 10.0 Hz; Att 0 dB; Swp 10.0 S
Peak 24.175 GHz, -46.82 dBm
Display Line: -39.2 dBm;
08/07/2003 19:49:27

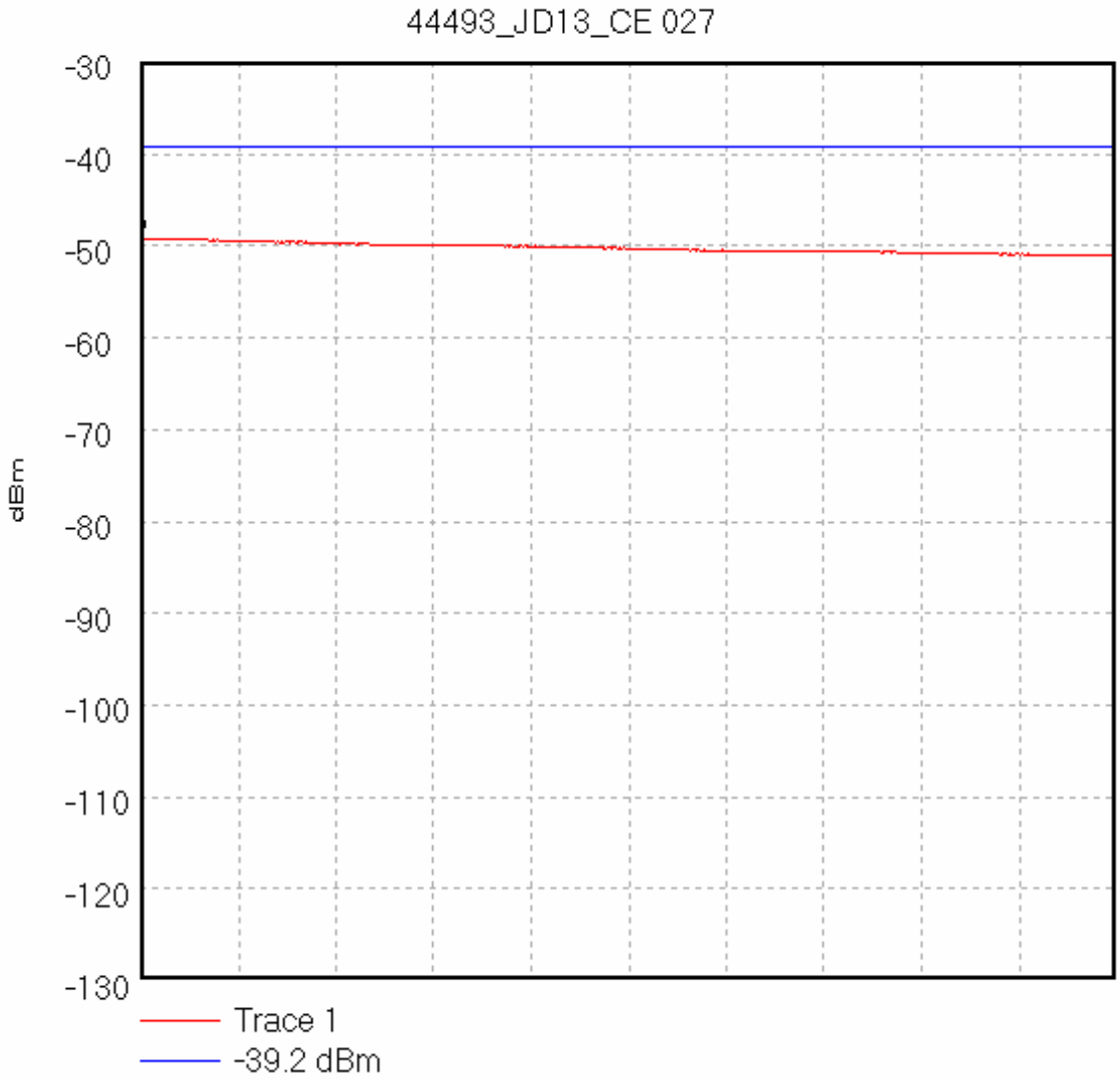
GPH\44493_JD13_CE\022
44493JD13 IP Wireless EUT: Node B V2 ZH. FCC Part 21.908.
Conducted Emissions. Operating at Top Channel.



Start 25.5 GHz; Stop 26.5 GHz
Ref -30 dBm; Ref Offset 40.9 dB; 10 dB/div
RBW 1.0 MHz; VBW 10.0 Hz; Att 0 dB; Swp 10.0 S
Peak 26.362222 GHz, -49.68 dBm
Display Line: -39.2 dBm;
08/07/2003 19:52:34

Test Of: IPWireless (UK) Ltd.
Node B V2 Model: HZ
To: FCC Part 27

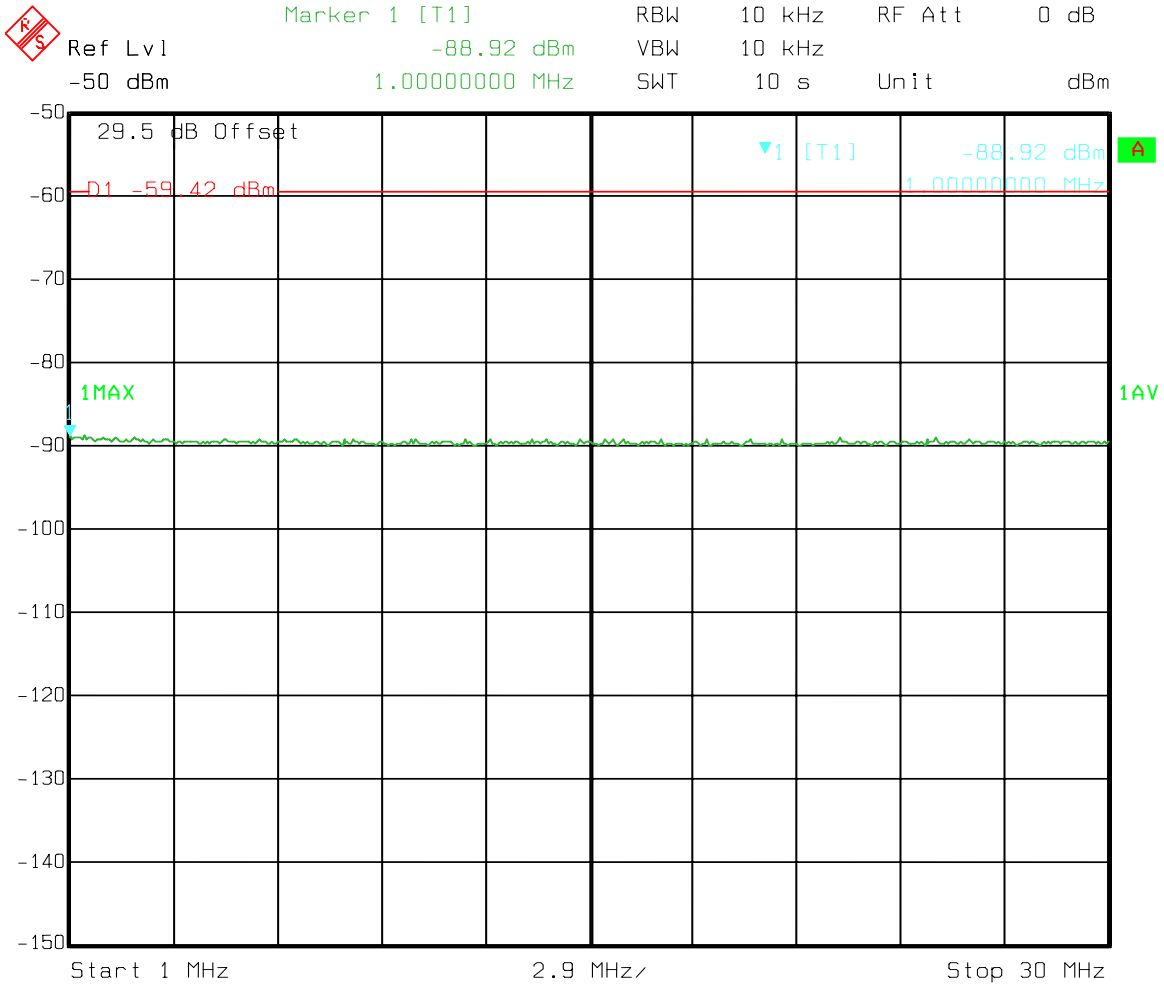
GPH\44493_JD13_CE\027
44493JD13 IP Wireless EUT: Node B V2 ZH. FCC Part 21.908.
Conducted Emissions. Operating at Top Channel.



Start 26.5 GHz; Stop 27.0 GHz
Ref -30 dBm; Ref Offset 35.0 dB; 10 dB/div
RBW 1.0 MHz; VBW 10.0 Hz; Att 0 dB; Swp 130.0 S
Peak 26.5 GHz, -49.33 dBm
Display Line: -39.2 dBm;
09/07/2003 10:08:45

Test Of: **IPWireless (UK) Ltd. Node B V2 Model: HZ**
To: **FCC Part 27**

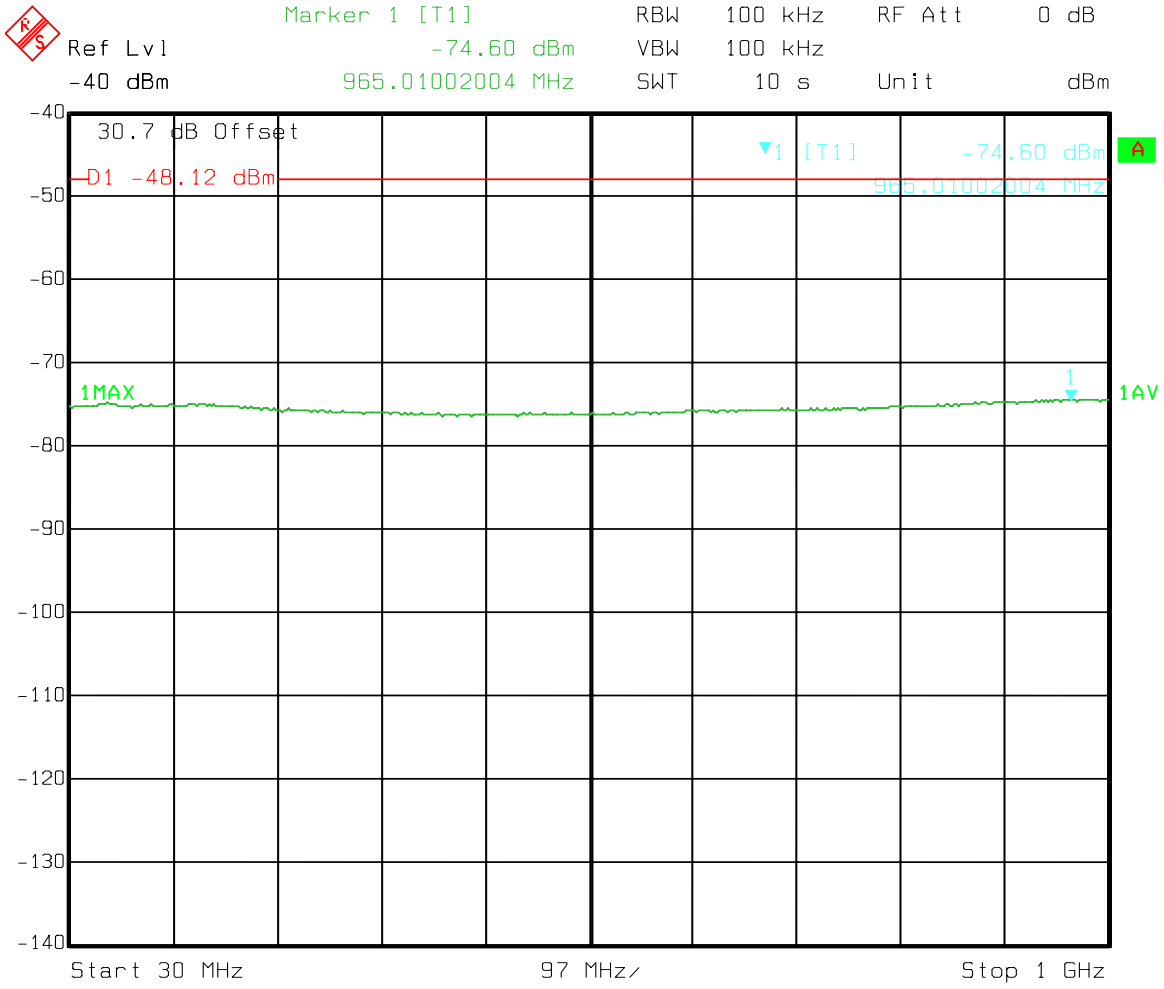
GPH\44493JD13_FCC_CE_004
Conducted Emissions, Receive Mode (1 MHz to 30 MHz)



Title: IP Wireless EUT: Node B V2. FCC Part 15.109
Comment A: 44493JD13_FCC_CE_004
Date: 9.JUL.2003 13:24:05

Test Of: **IPWireless (UK) Ltd. Node B V2 Model: HZ**
To: **FCC Part 27**

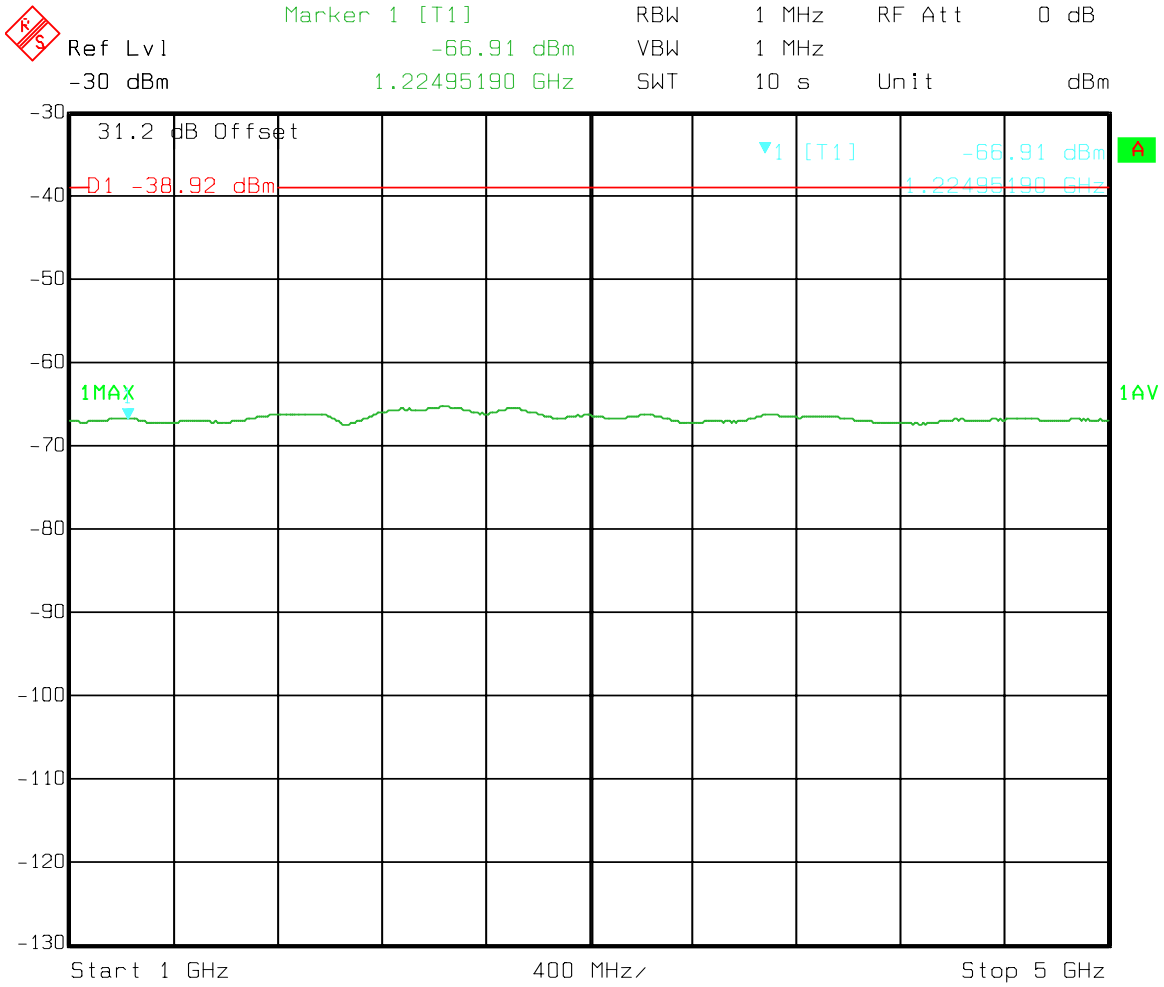
GPH\44493JD13_FCC_CE_005
Conducted Emissions, Receive Mode (30 MHz to 1 GHz)



Title: IP Wireless EUT: Node B V2. FCC Part 15.109
Comment A: 44493JD13_FCC_CE_005
Date: 9.JUL.2003 13:22:43

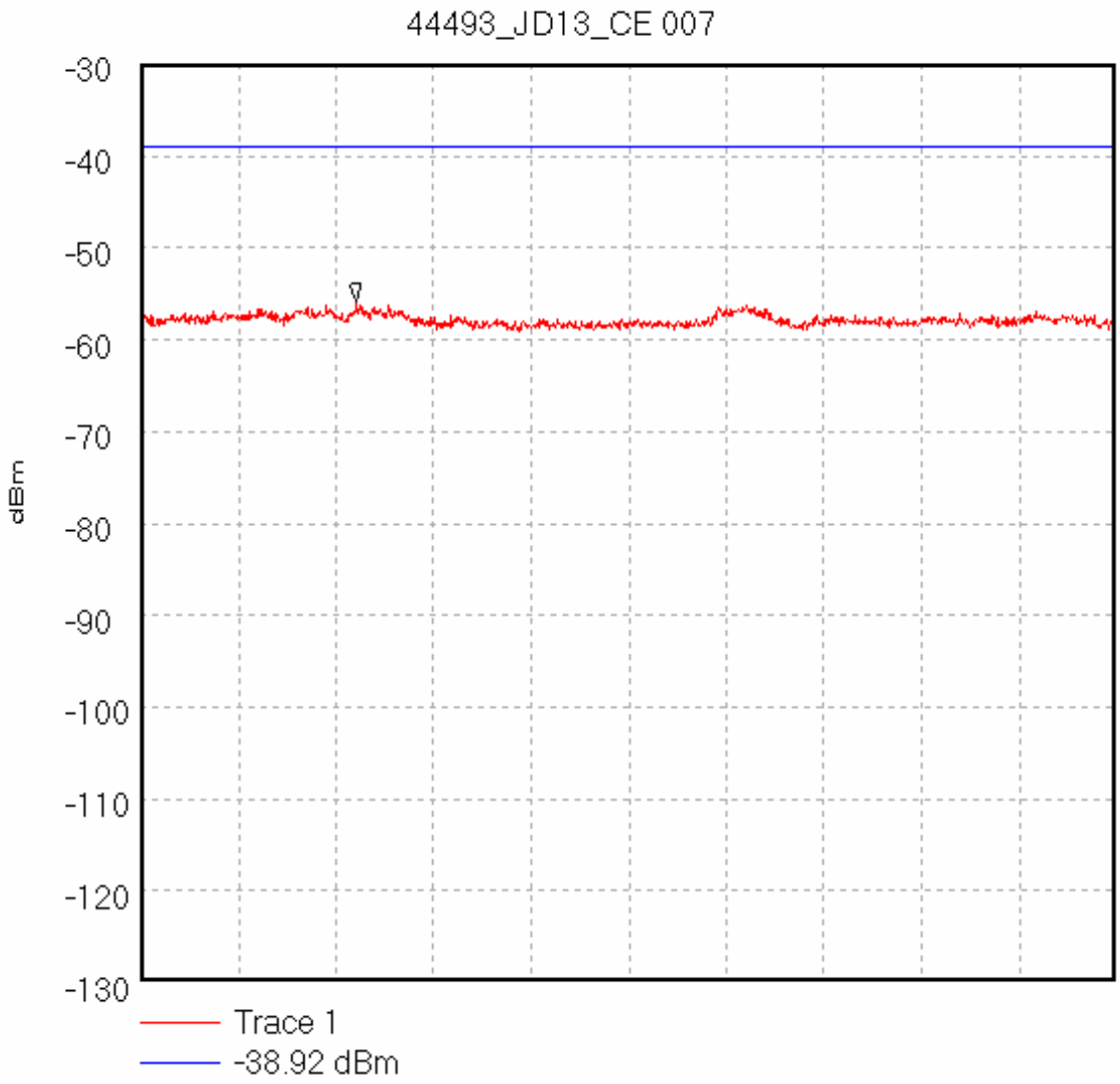
Test Of: **IPWireless (UK) Ltd. Node B V2 Model: HZ**
To: **FCC Part 27**

GPH\44493JD13_FCC_CE_012
Conducted Emissions, Receive Mode (1 GHz to 5 GHz)



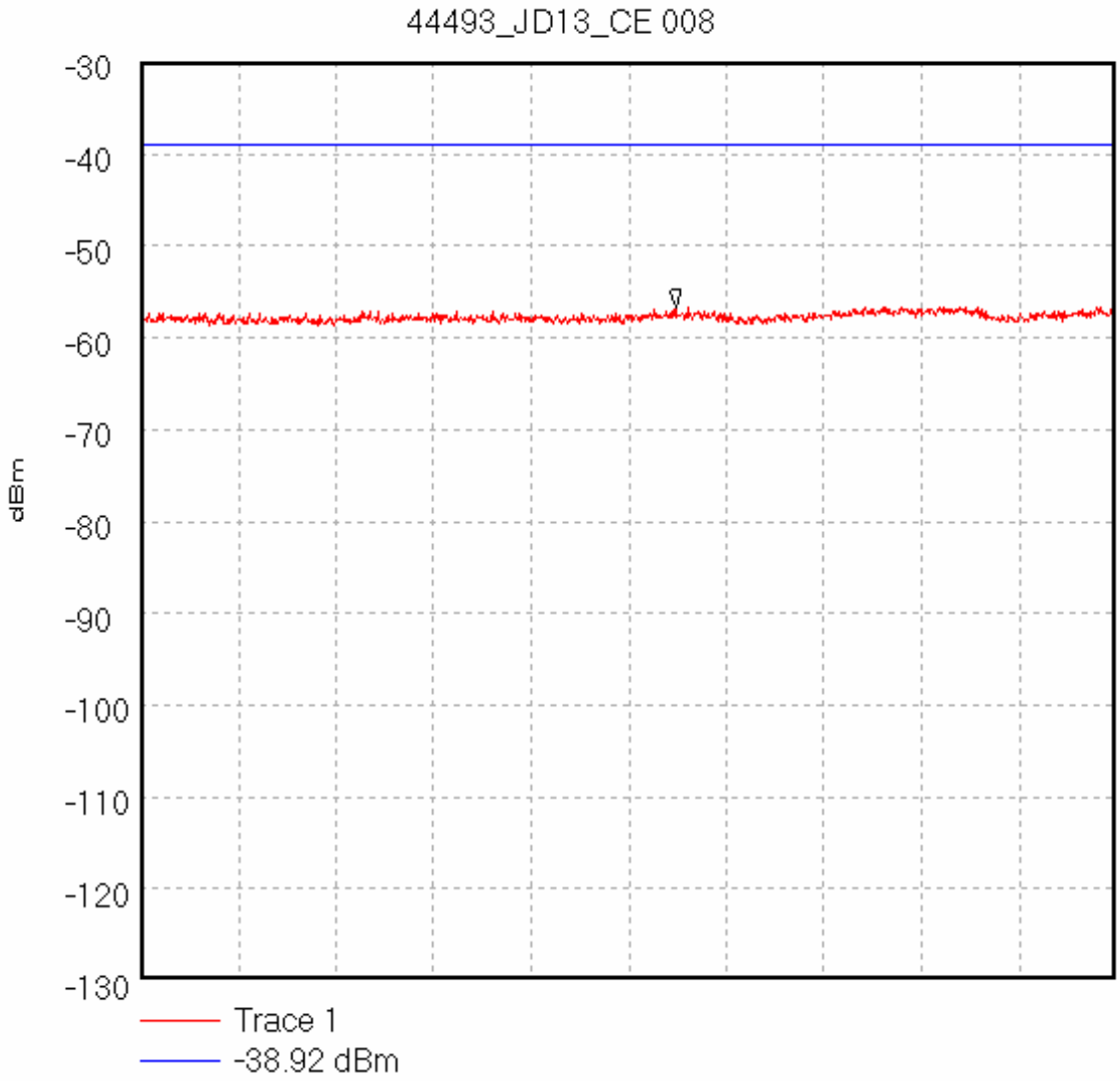
Title: IP Wireless EUT: Node B V2. FCC Part 15.109
Comment A: 44493JD13_FCC_CE_012
Date: 9.JUL.2003 13:41:29

GPH\44493_JD13_CE\007
44493JD13 IP Wireless EUT: Node B V2. FCC Part 21.908.
Conducted Emissions. Operating at Receive Middle Channel.



Start 5.0 GHz; Stop 8.0 GHz
Ref -30 dBm; Ref Offset 44.3 dB; 10 dB/div
RBW 1.45 MHz; VBW 10.0 kHz; Att 5 dB; Swp 1.32 S
Peak 5.663333 GHz, -55.87 dBm
Display Line: -38.92 dBm;
08/07/2003 14:22:44

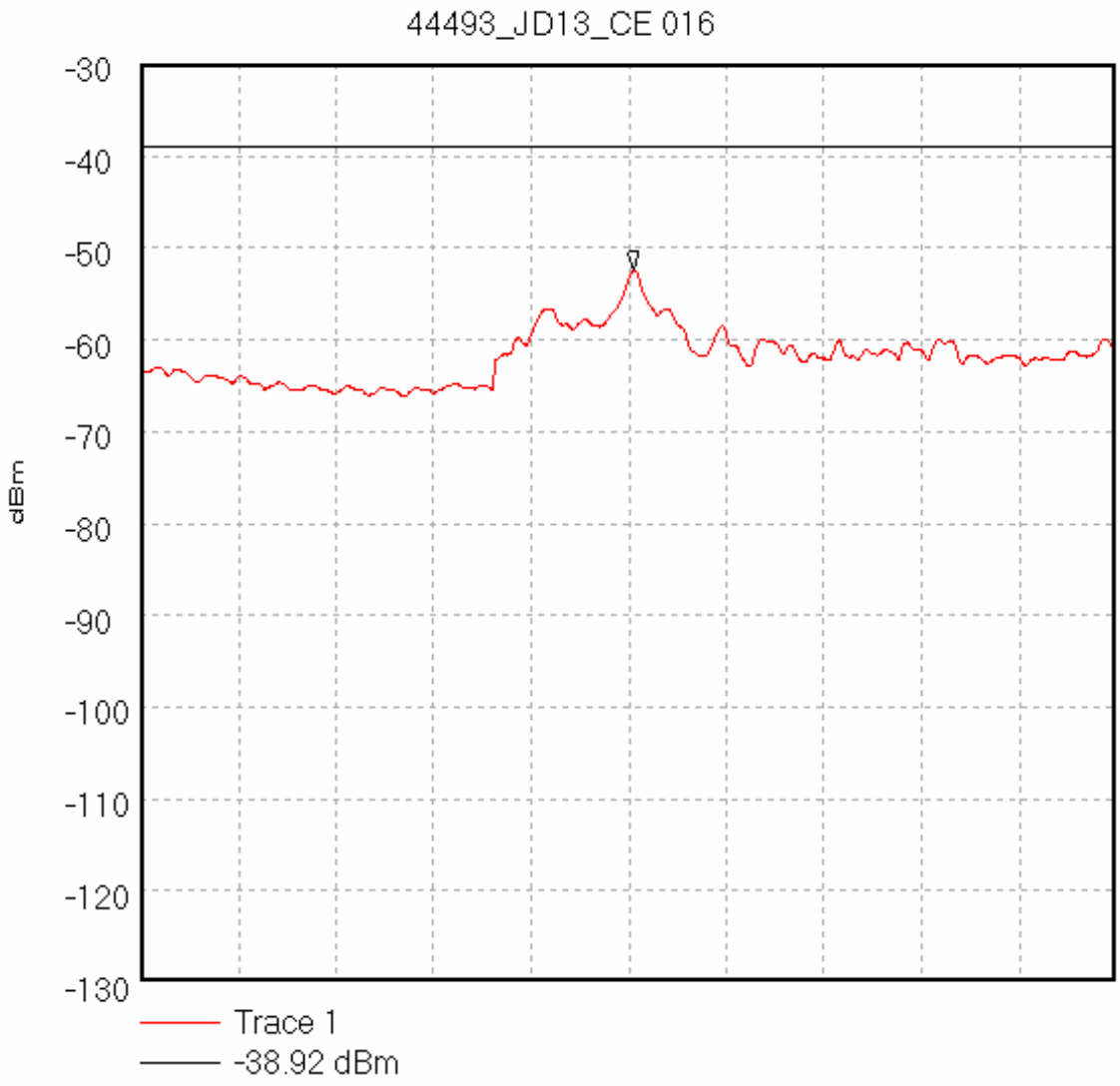
GPH\44493_JD13_CE\008
44493JD13 IP Wireless EUT: Node B V2. FCC Part 21.908.
Conducted Emissions. Operating at Receive Middle Channel.



Start 8.0 GHz; Stop 10.0 GHz
Ref -30 dBm; Ref Offset 44.3 dB; 10 dB/div
RBW 1.45 MHz; VBW 10.0 kHz; Att 5 dB; Swp 880.0 mS
Peak 9.097778 GHz, -56.63 dBm
Display Line: -38.92 dBm;
08/07/2003 14:25:01

Test Of: IPWireless (UK) Ltd.
Node B V2 Model: HZ
To: FCC Part 27

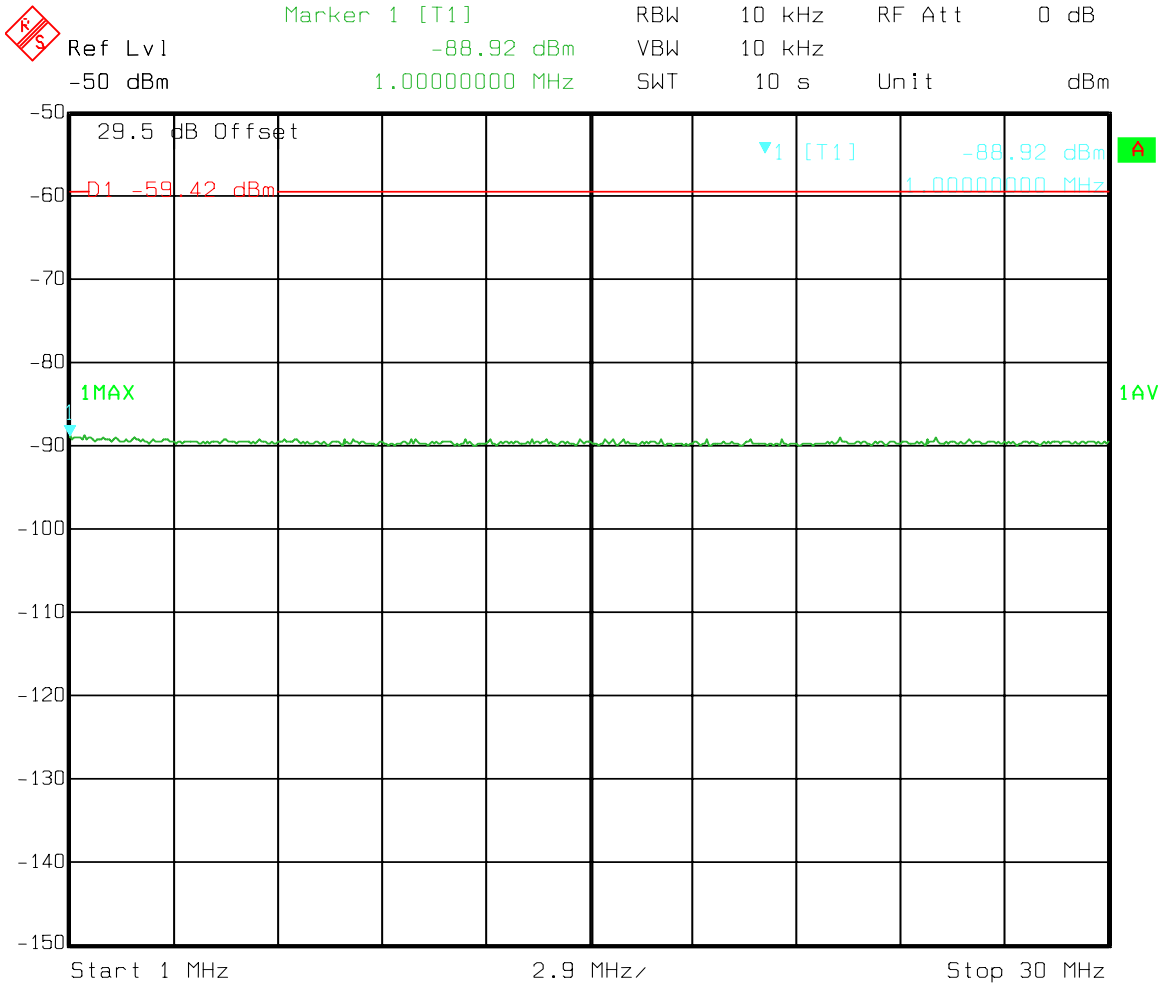
GPH\44493_JD13_CE\016
44493JD13 IP Wireless EUT: Node B V2 ZH. FCC Part 21.908.
Conducted Emissions. Operating at Receive Middle Channel.



Start 10.0 GHz; Stop 18.0 GHz
Ref -30 dBm; Ref Offset 35.1 dB; 10 dB/div
RBW 1.0 MHz; VBW 10.0 Hz; Att 0 dB; Swp 10.0 S
Peak 14.044444 GHz, -52.44 dBm
Display Line: -38.92 dBm;
08/07/2003 19:44:21

Test Of: **IPWireless (UK) Ltd. Node B V2 Model: HZ**
To: **FCC Part 27**

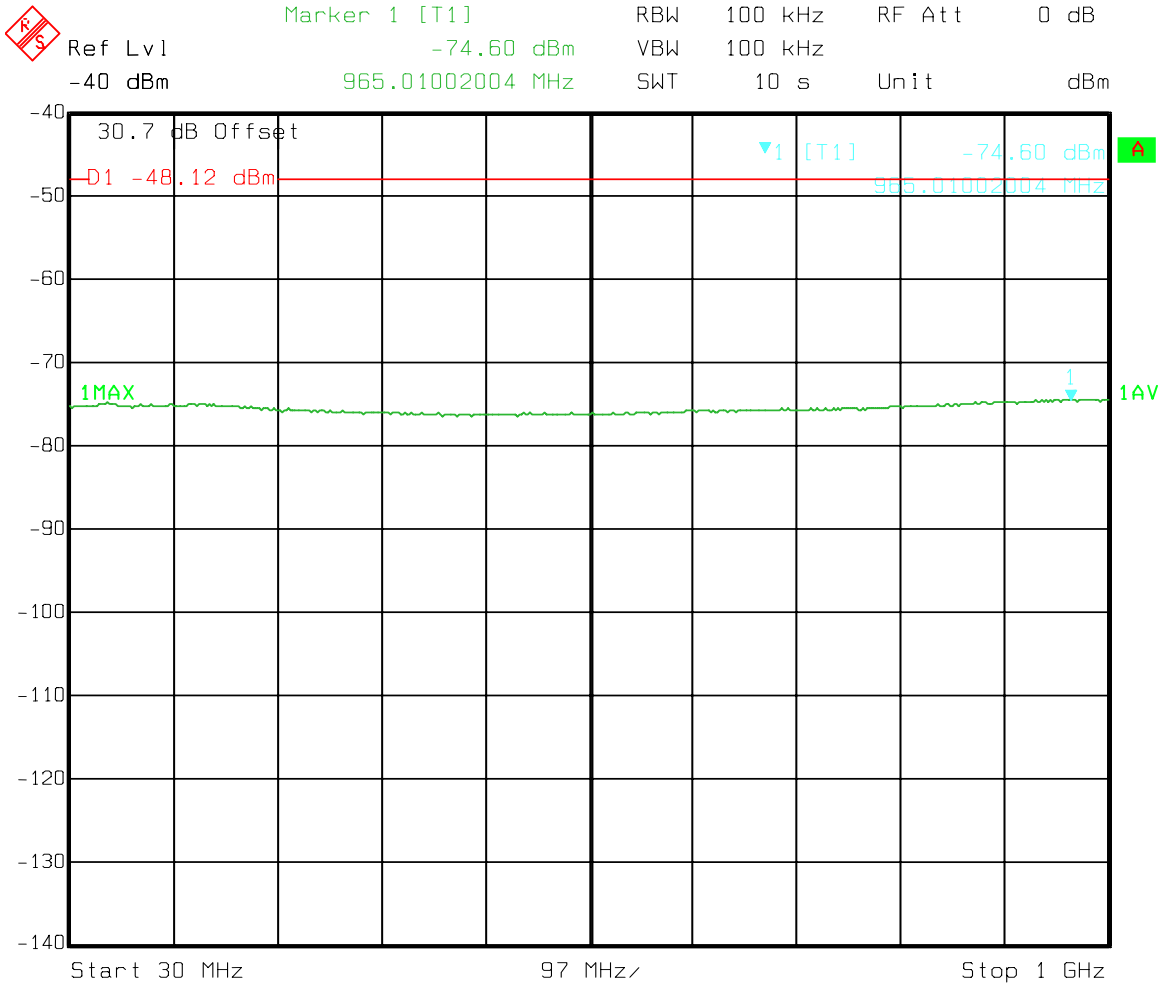
GPH\44493JD13_FCC_CE_004
Conducted Emissions, Receive Mode (1 MHz to 30 MHz)



Title: IP Wireless EUT: Node B V2. FCC Part 15.109
Comment A: 44493JD13_FCC_CE_004
Date: 9.JUL.2003 13:24:05

Test Of: **IPWireless (UK) Ltd. Node B V2 Model: HZ**
To: **FCC Part 27**

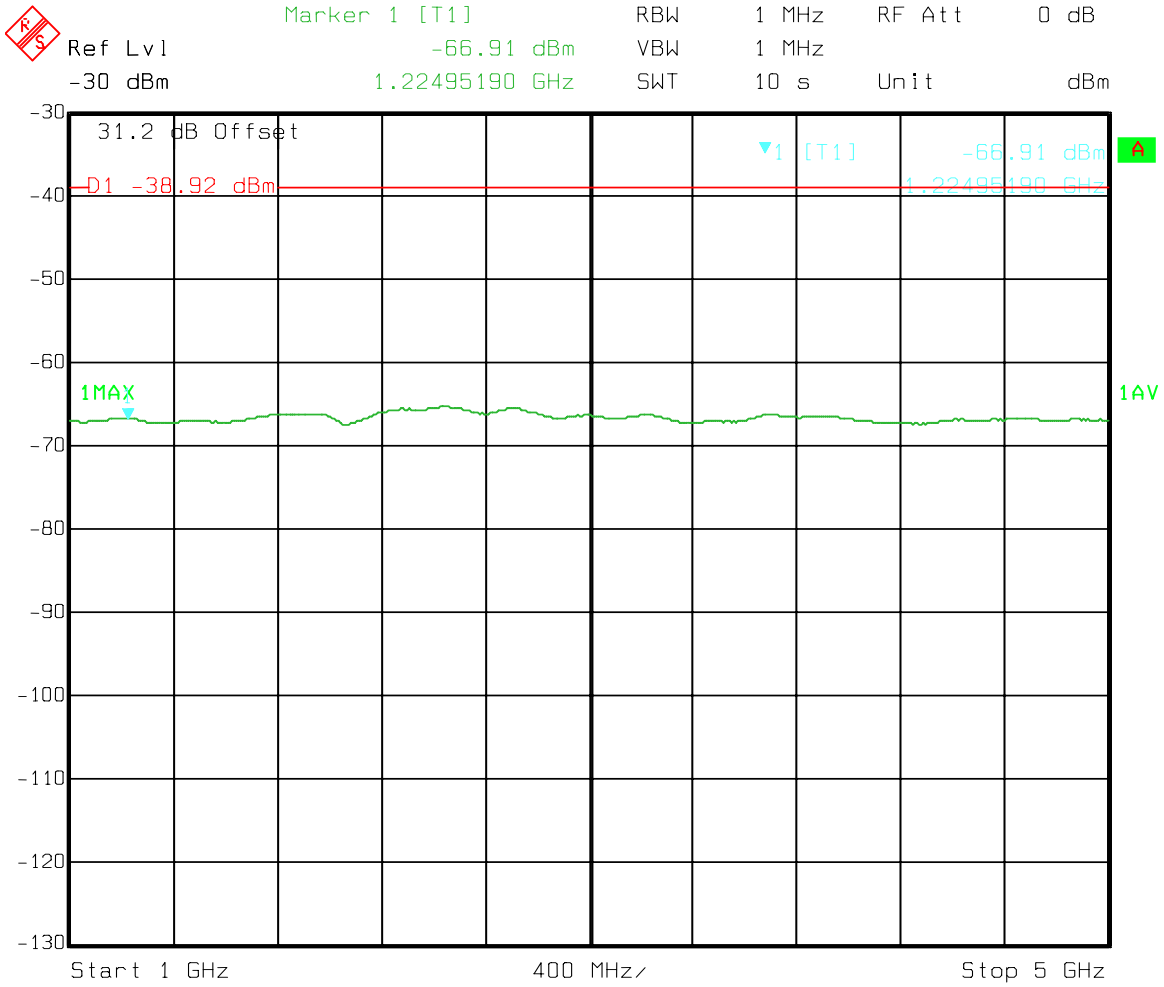
GPH\44493JD13_FCC_CE_005
Conducted Emissions, Receive Mode (30 MHz to 1 GHz)



Title: IP Wireless EUT: Node B V2. FCC Part 15.109
Comment A: 44493JD13_FCC_CE_005
Date: 9.JUL.2003 13:22:43

Test Of: **IPWireless (UK) Ltd. Node B V2 Model: HZ**
To: **FCC Part 27**

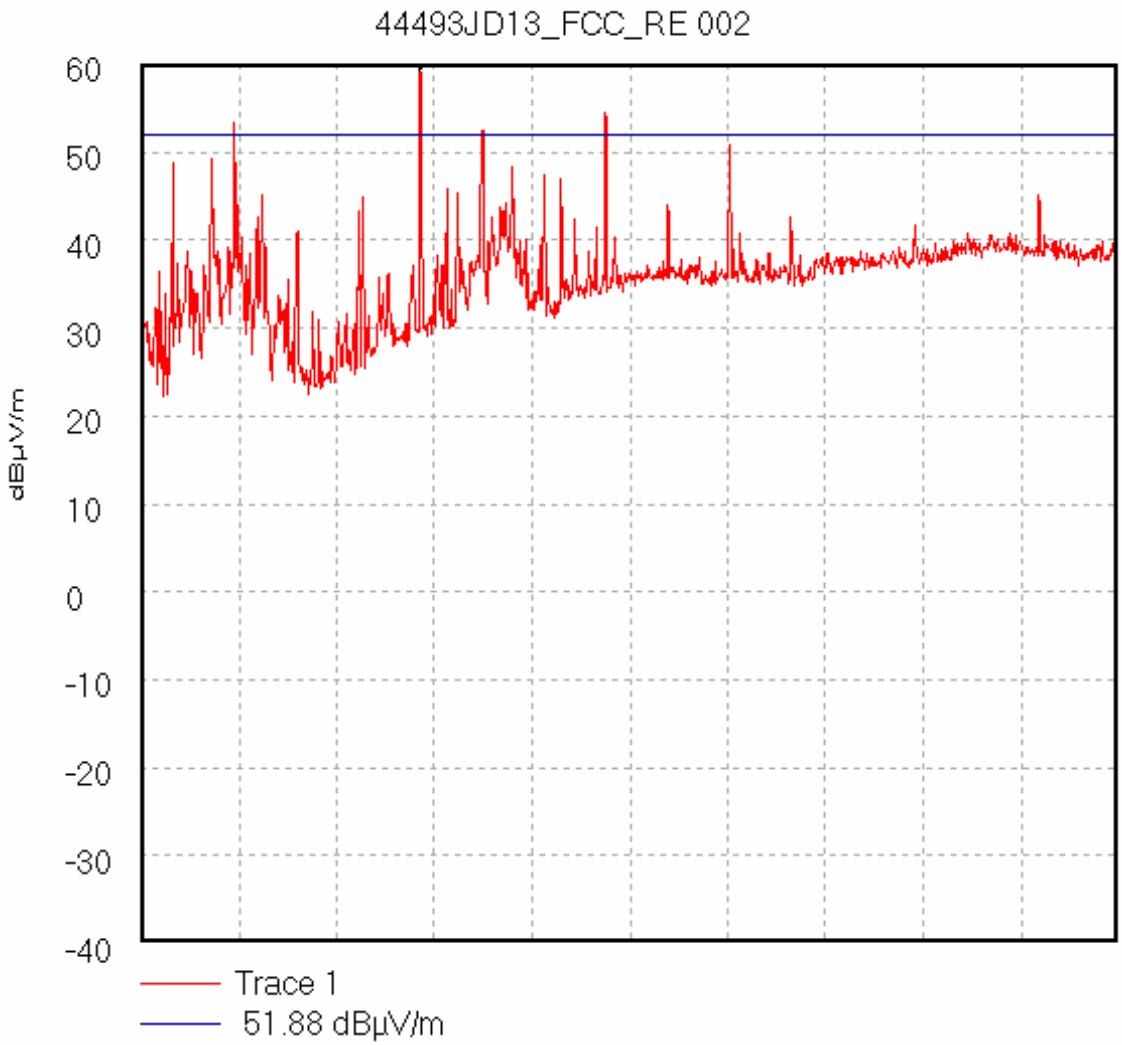
GPH\44493JD13_FCC_CE_012
Conducted Emissions, Receive Mode (1 GHz to 5 GHz)



Title: IP Wireless EUT: Node B V2. FCC Part 15.109
Comment A: 44493JD13_FCC_CE_012
Date: 9.JUL.2003 13:41:29

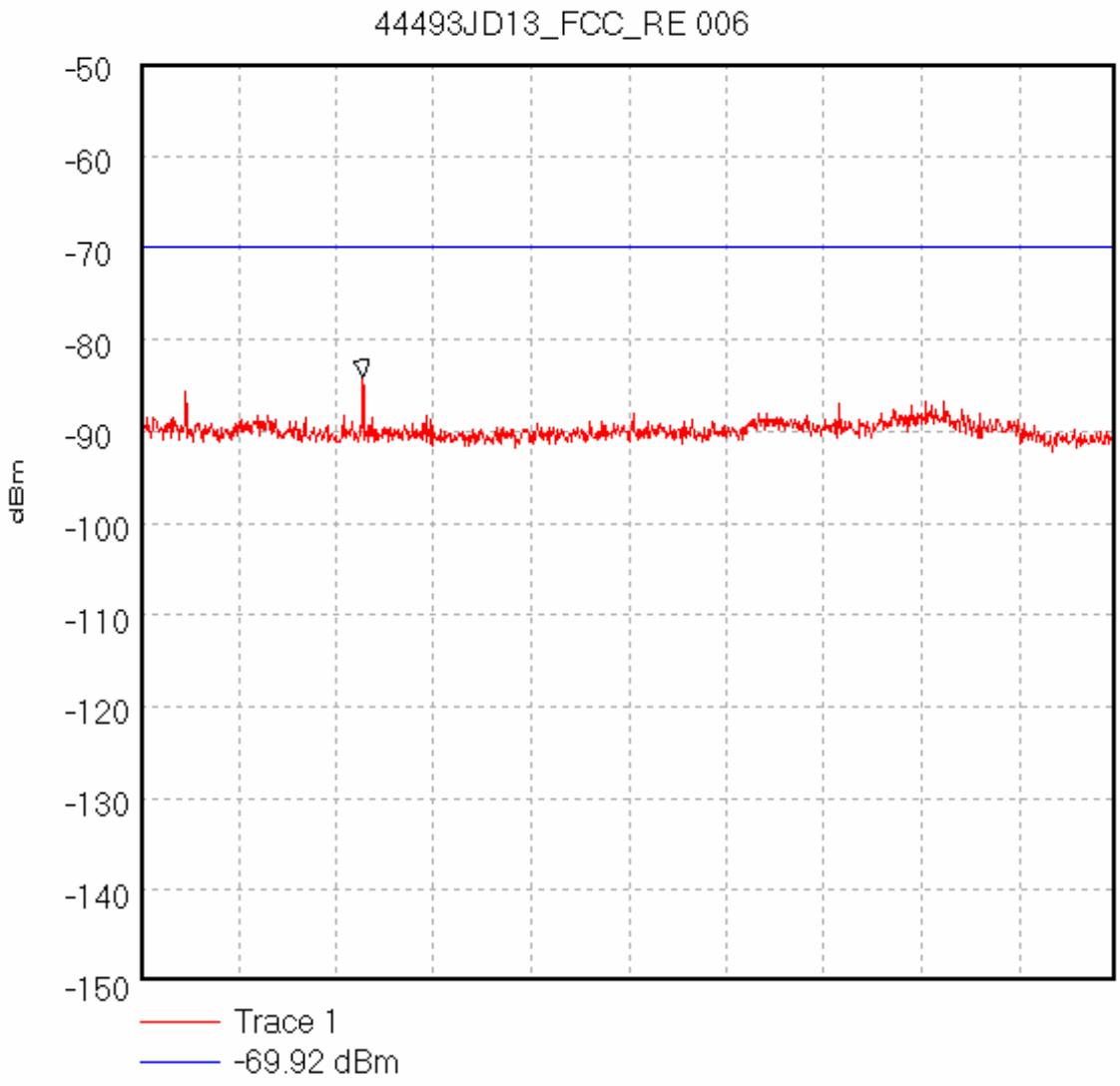
Test Of: **IPWireless (UK) Ltd.**
Node B V2 Model: HZ
To: **FCC Part 27**

GPH\44493JD13_FCC_RE\002
Radiated Emissions. FCC Part 15.209. PreScan @ 3m.
44493JD13 IP Wireless EUT: Node B V2.
Radiated Emissions for FCC Part 21.908(d). Operating at Middle Channel.



Start 30.0 MHz; Stop 1.0 GHz
Ref 60 dBµV/m; Ref Offset 0.0 dB; 10 dB/div
RBW 120.0 kHz; VBW 300.0 kHz; Att 10 dB; Swp 440.0 mS
Peak 306.989 MHz, 59.34 dBµV/m
Display Line: 51.88 dBµV/m; ; Limit Test Failed
Transducer Factors: A1037
04/07/2003 11:03:22

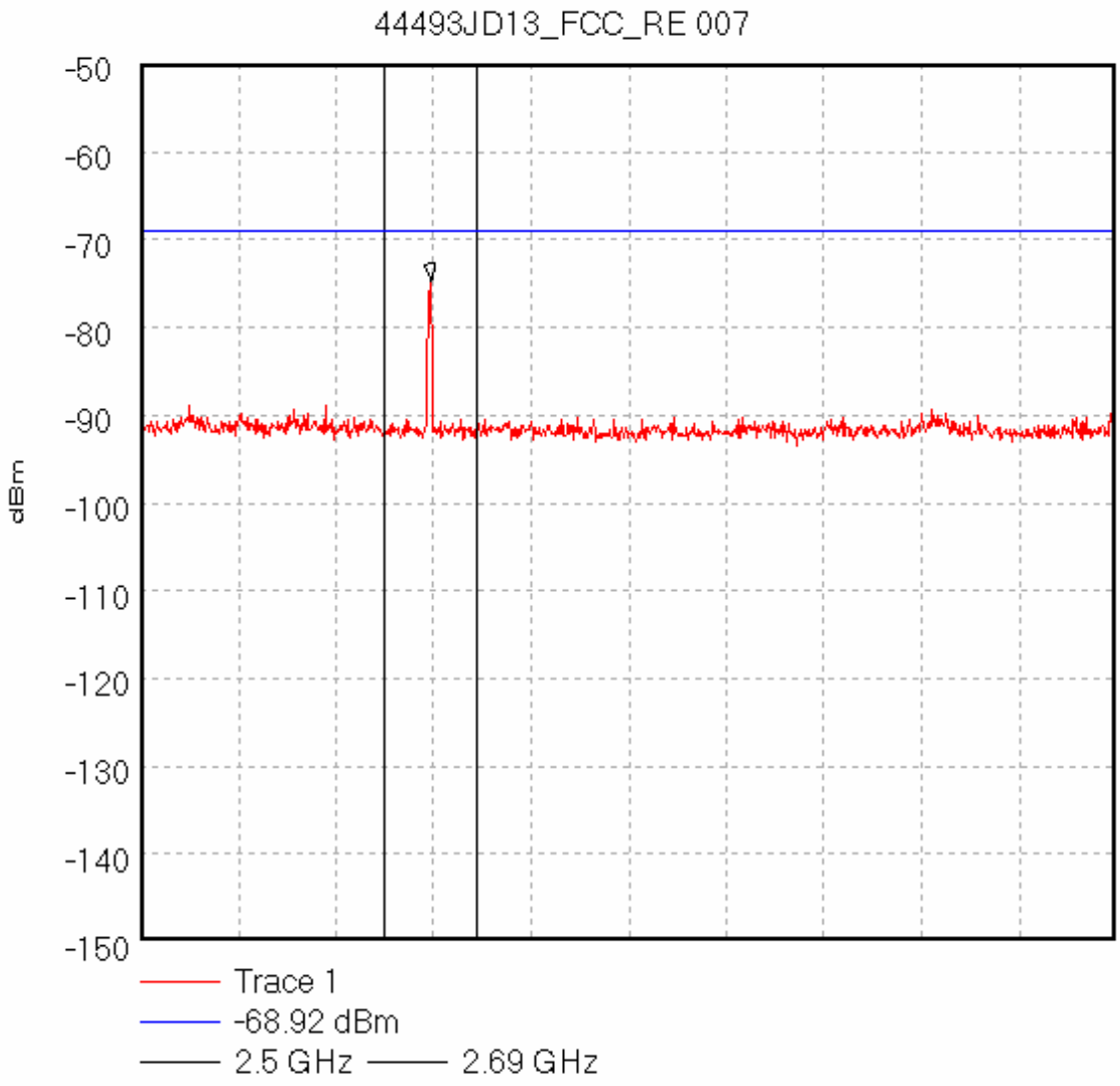
GPH\44493JD13_FCC_RE\006
Transmitter Radiated Emissions.
44493JD13 IP Wireless EUT: Node B V2.
Radiated Emissions for FCC 21.908(d). Operating at Middle Channel.



Start 1.0 GHz; Stop 2.0 GHz
Ref -50 dBm; Ref Offset 0.0 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 1.228 GHz, -84.17 dBm
Display Line: -69.92 dBm; ; Limit Test Passed
04/07/2003 12:01:10

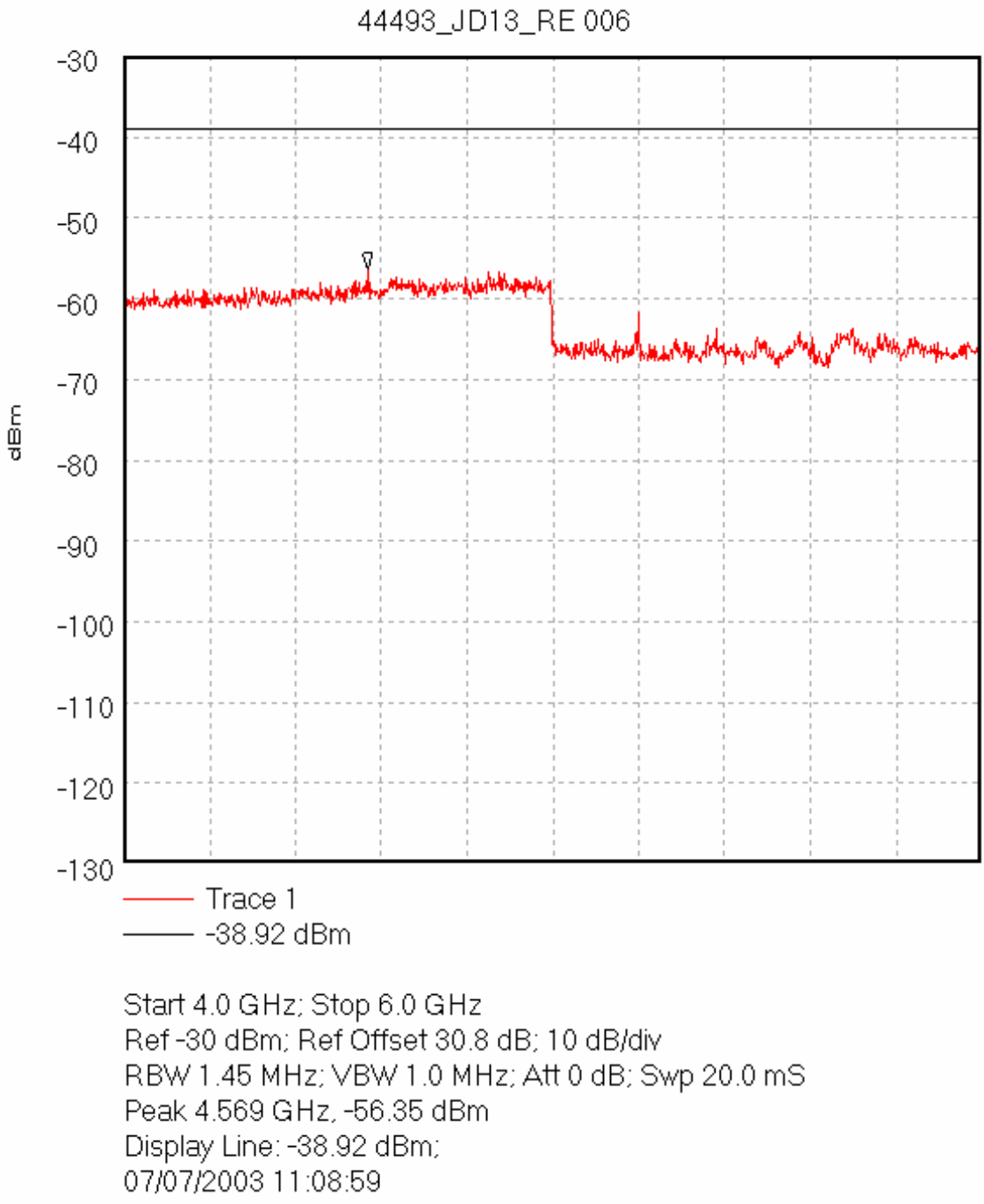
Test Of: IPWireless (UK) Ltd.
Node B V2 Model: HZ
To: FCC Part 27

GPH\44493JD13_FCC_RE\007
Transmitter Radiated Emissions.
44493JD13 IP Wireless EUT: Node B V2.
Radiated Emissions for FCC 21.908(d). Operating at Middle Channel.

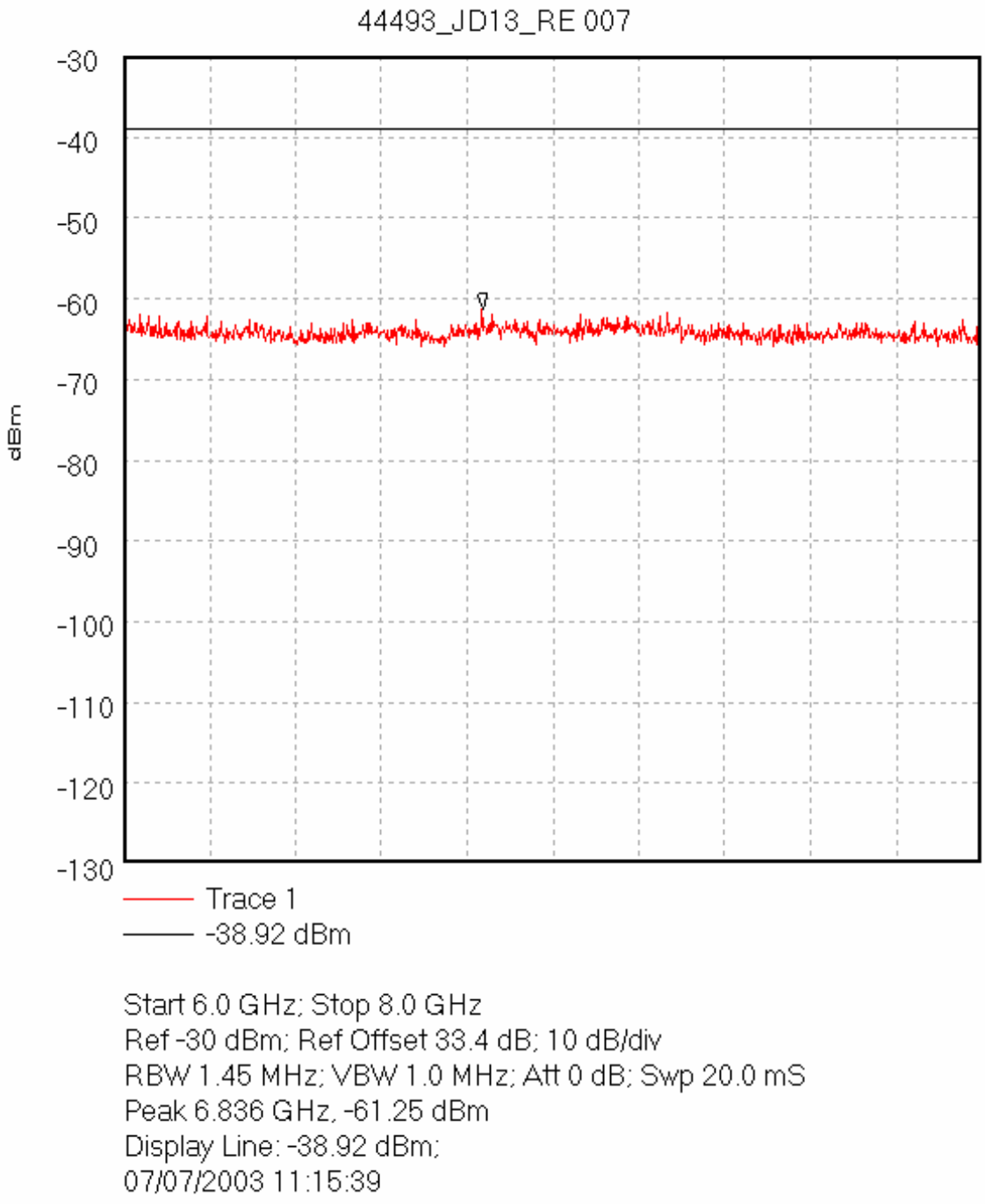


Start 2.0 GHz; Stop 4.0 GHz
Ref -50 dBm; Ref Offset 0.0 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 2.596 GHz, -74.7 dBm
Display Line: -68.92 dBm; ; Limit Test Passed
04/07/2003 12:06:24

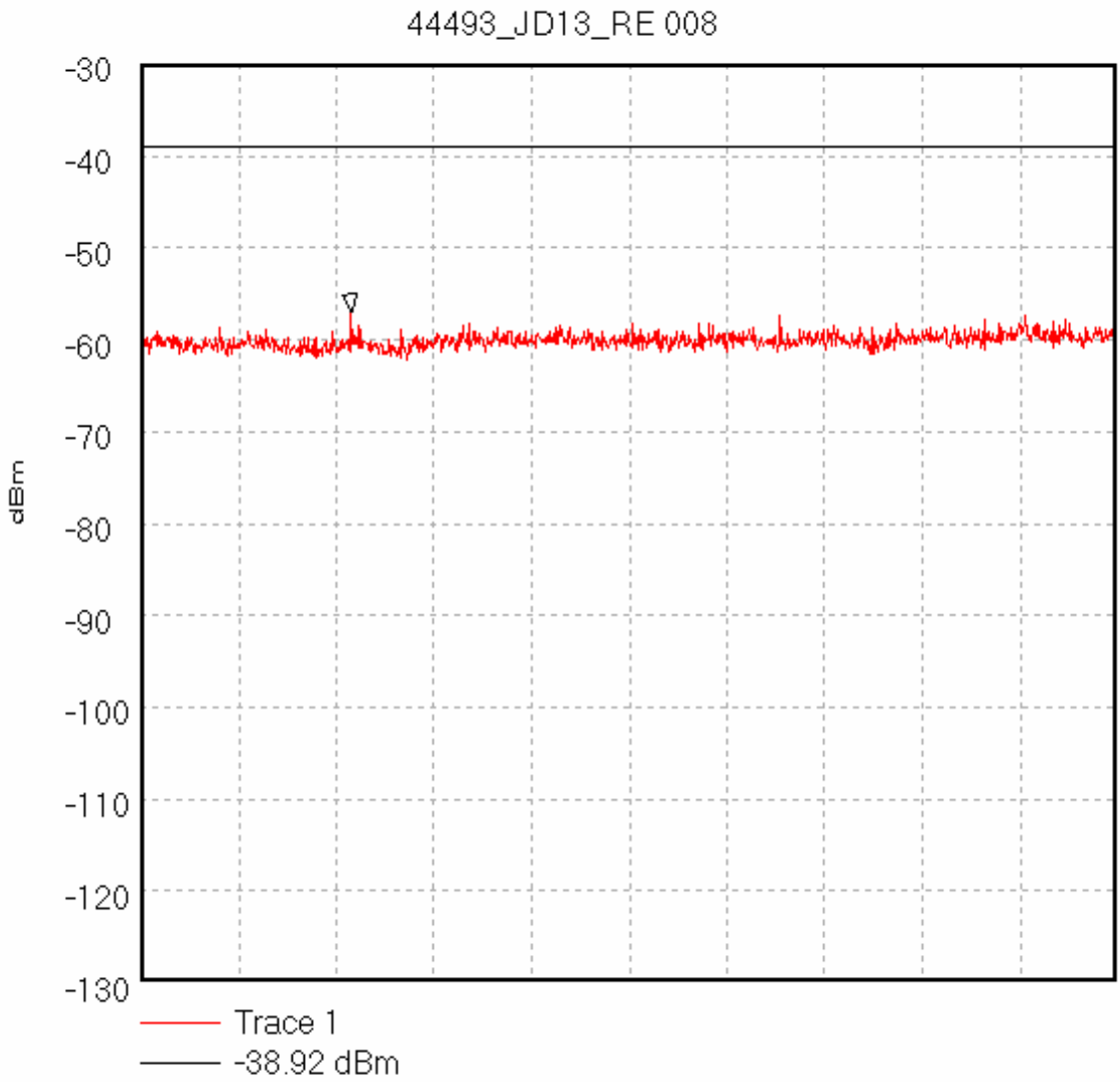
GPH\44493_JD13_RE\006
Radiated Emissions.
44493JD13 IP Wireless EUT: Node B V2. FCC Part 21.908(d).
Operating at Middle Channel.



GPH\44493_JD13_RE\007
Radiated Emissions.
44493JD13 IP Wireless EUT: Node B V2. FCC Part 21.908(d).
Operating at Middle Channel.

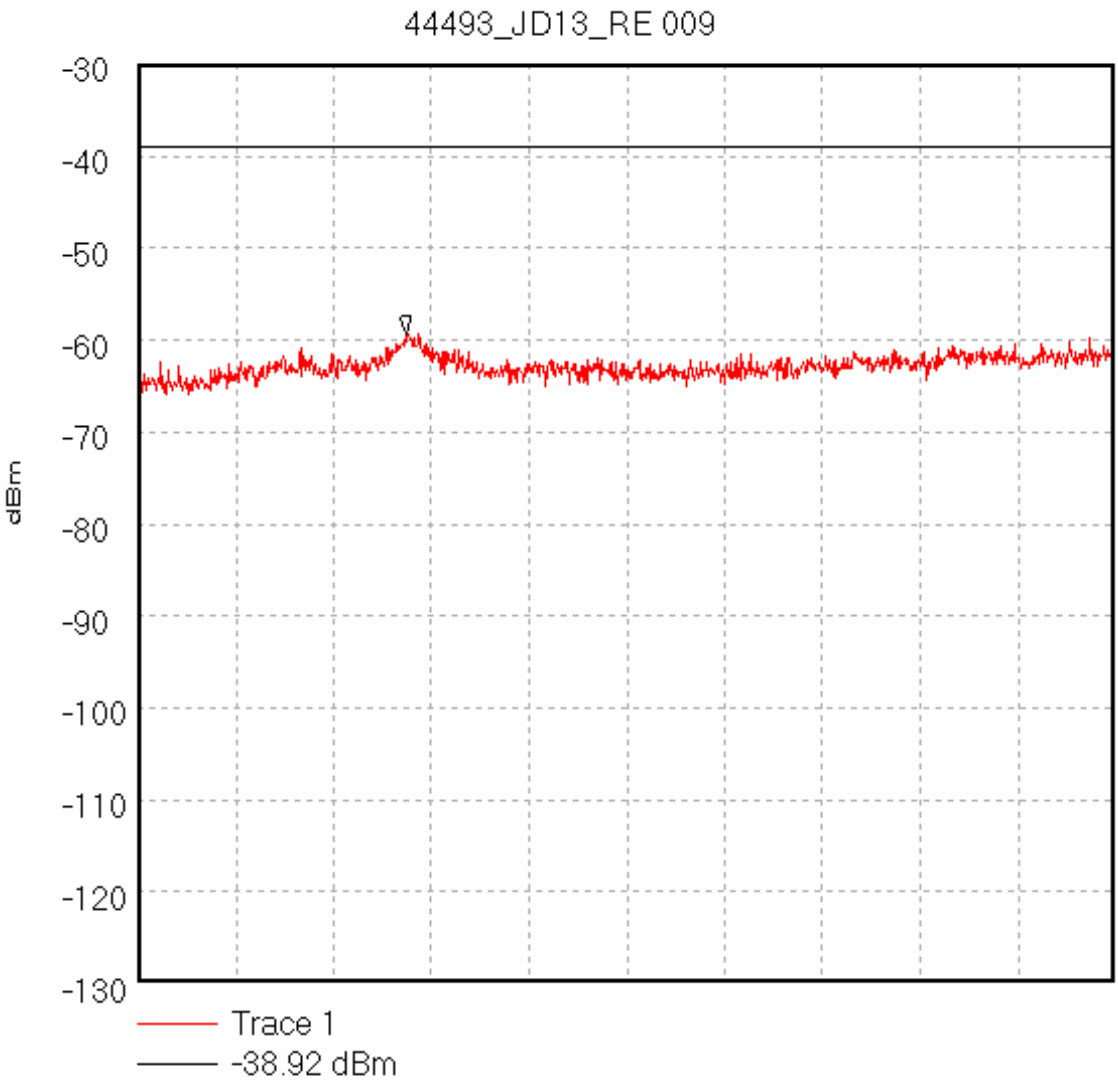


GPH\44493_JD13_RE\008
Radiated Emissions.
44493JD13 IP Wireless EUT: Node B V2. FCC Part 21.908(d).
Operating at Middle Channel.



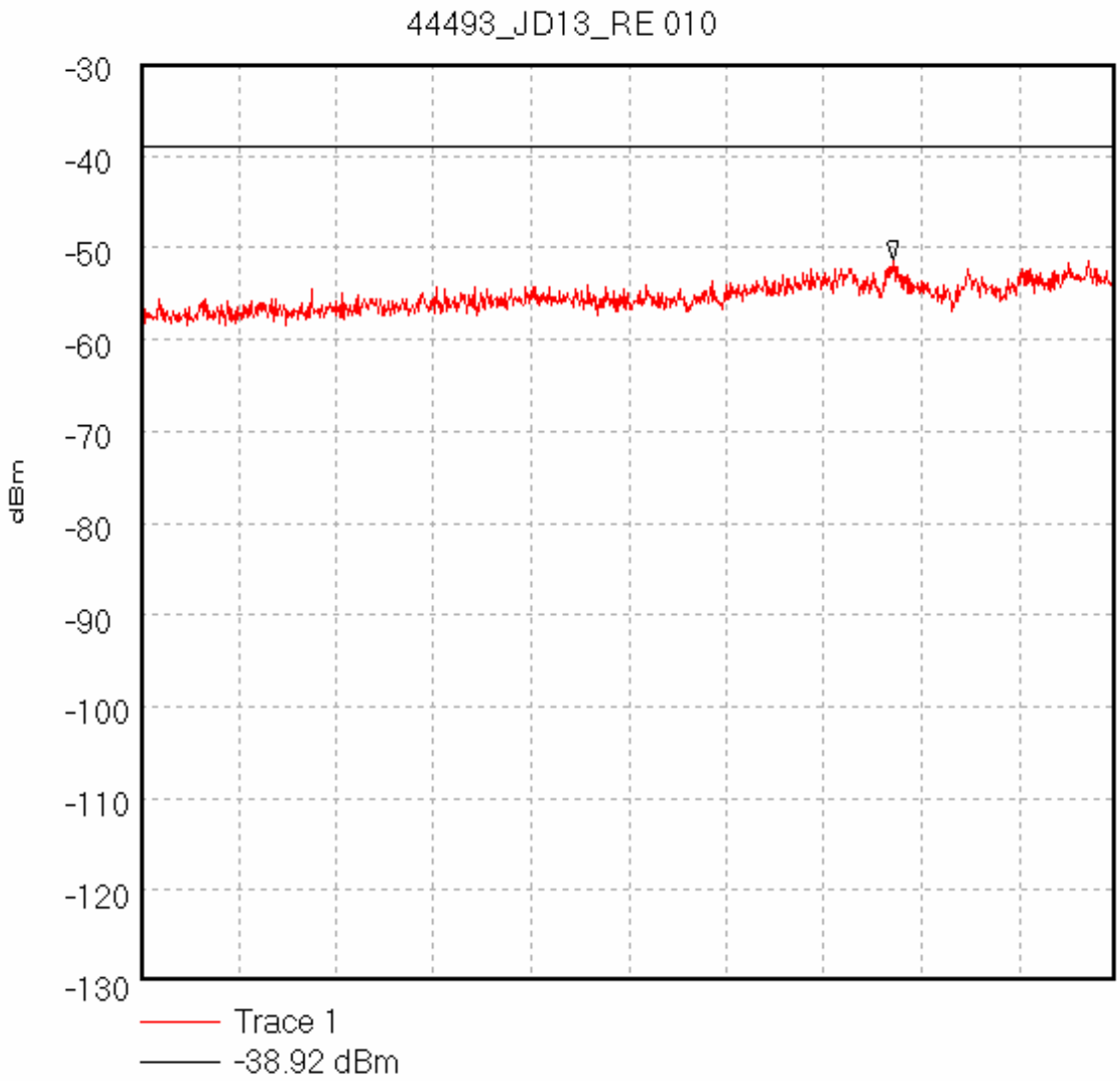
Start 8.0 GHz; Stop 12.5 GHz
Ref -30 dBm; Ref Offset 38.1 dB; 10 dB/div
RBW 1.45 MHz; VBW 1.0 MHz; Att 0 dB; Swp 40.0 mS
Peak 8.97 GHz, -57.04 dBm
Display Line: -38.92 dBm;
07/07/2003 11:22:57

GPH\44493_JD13_RE\009
Radiated Emissions.
44493JD13 IP Wireless EUT: Node B V2. FCC Part 21.908(d).
Operating at Middle Channel.



Start 12.5 GHz; Stop 18.0 GHz
Ref -30 dBm; Ref Offset 31.9 dB; 10 dB/div
RBW 1.45 MHz; VBW 1.0 MHz; Att 0 dB; Swp 40.0 mS
Peak 14.009 GHz, -59.27 dBm
Display Line: -38.92 dBm;
07/07/2003 11:25:27

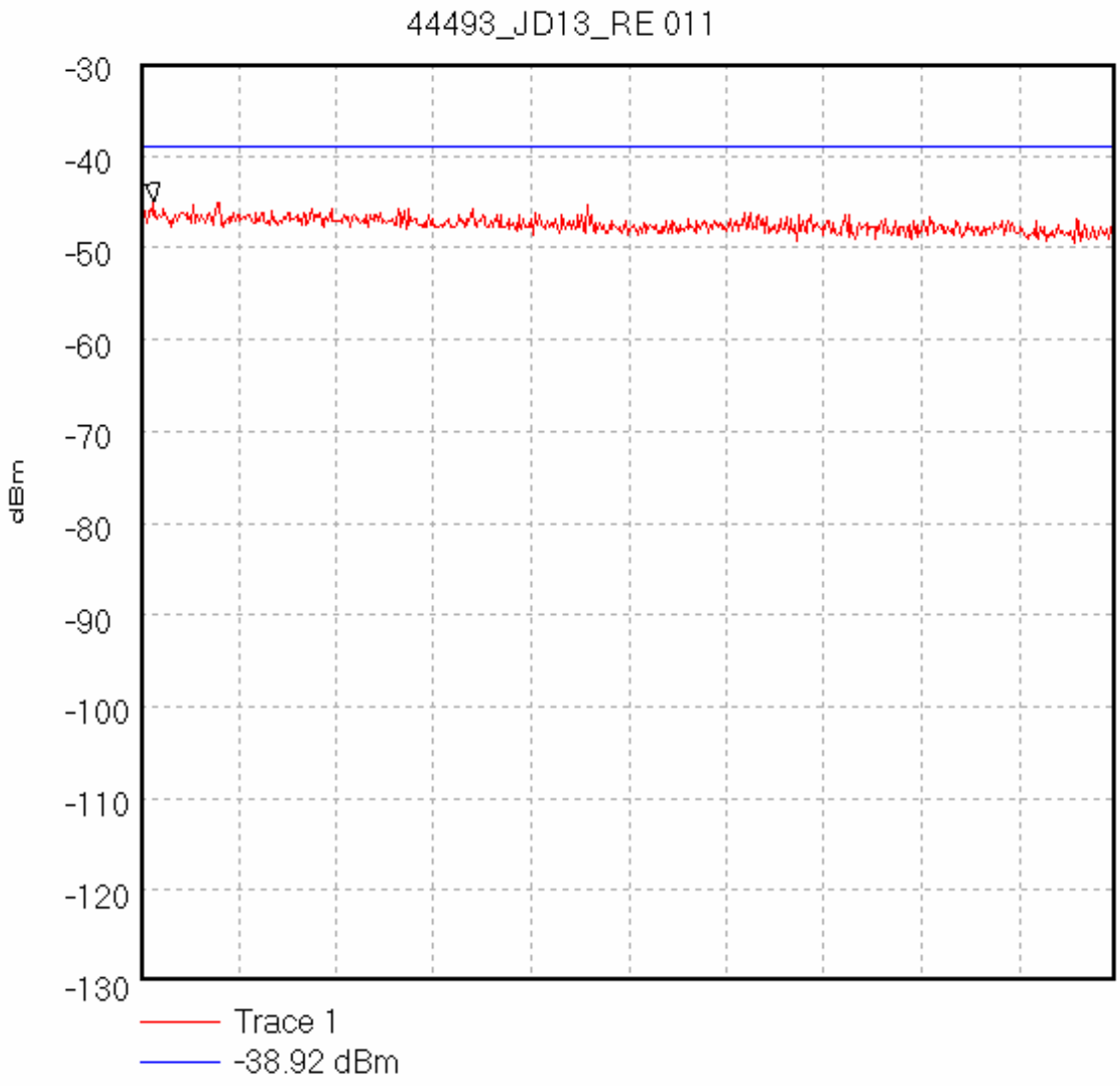
GPH\44493_JD13_RE\010
Radiated Emissions.
44493JD13 IP Wireless EUT: Node B V2. FCC Part 21.908(d).
Operating at Middle Channel.



Start 18.0 GHz; Stop 26.5 GHz
Ref -30 dBm; Ref Offset 36.7 dB; 10 dB/div
RBW 1.45 MHz; VBW 1.0 MHz; Att 0 dB; Swp 60.0 mS
Peak 24.554 GHz, -51.33 dBm
Display Line: -38.92 dBm;
07/07/2003 11:35:44

Test Of: IPWireless (UK) Ltd.
Node B V2 Model: HZ
To: FCC Part 27

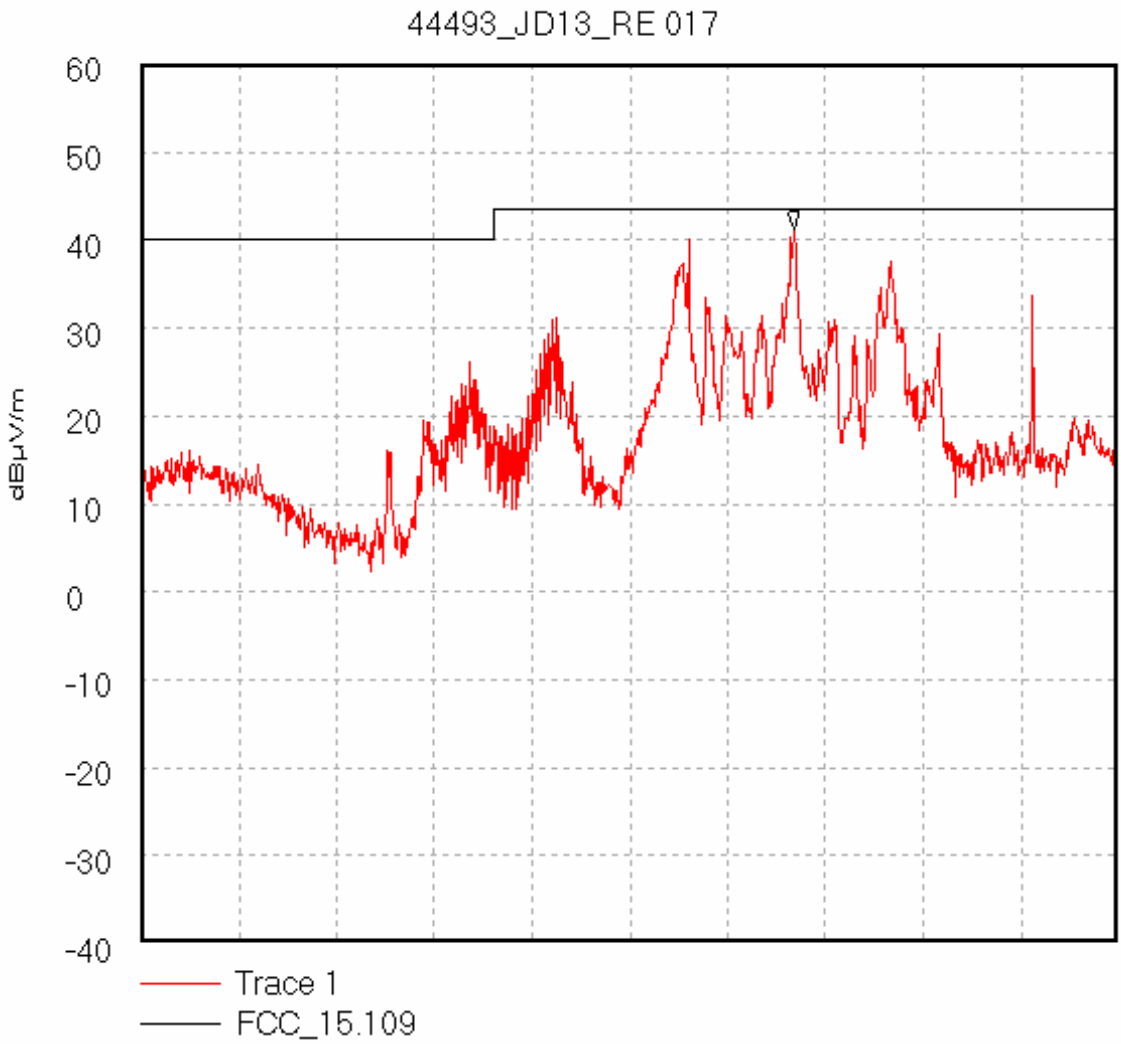
GPH\44493_JD13_RE\011
Radiated Emissions.
44493JD13 IP Wireless EUT: Node B V2. FCC Part 21.908.
Operating at Middle Channel.



Start 26.5 GHz; Stop 27.0 GHz
Ref -30 dBm; Ref Offset 37.0 dB; 10 dB/div
RBW 100.0 kHz; VBW 100.0 kHz; Att 0 dB; Swp 130.0 mS
Peak 26.506667 GHz, -45.0 dBm
Display Line: -38.92 dBm;
07/07/2003 12:10:48

Test Of: IPWireless (UK) Ltd.
Node B V2 Model: HZ
To: FCC Part 27

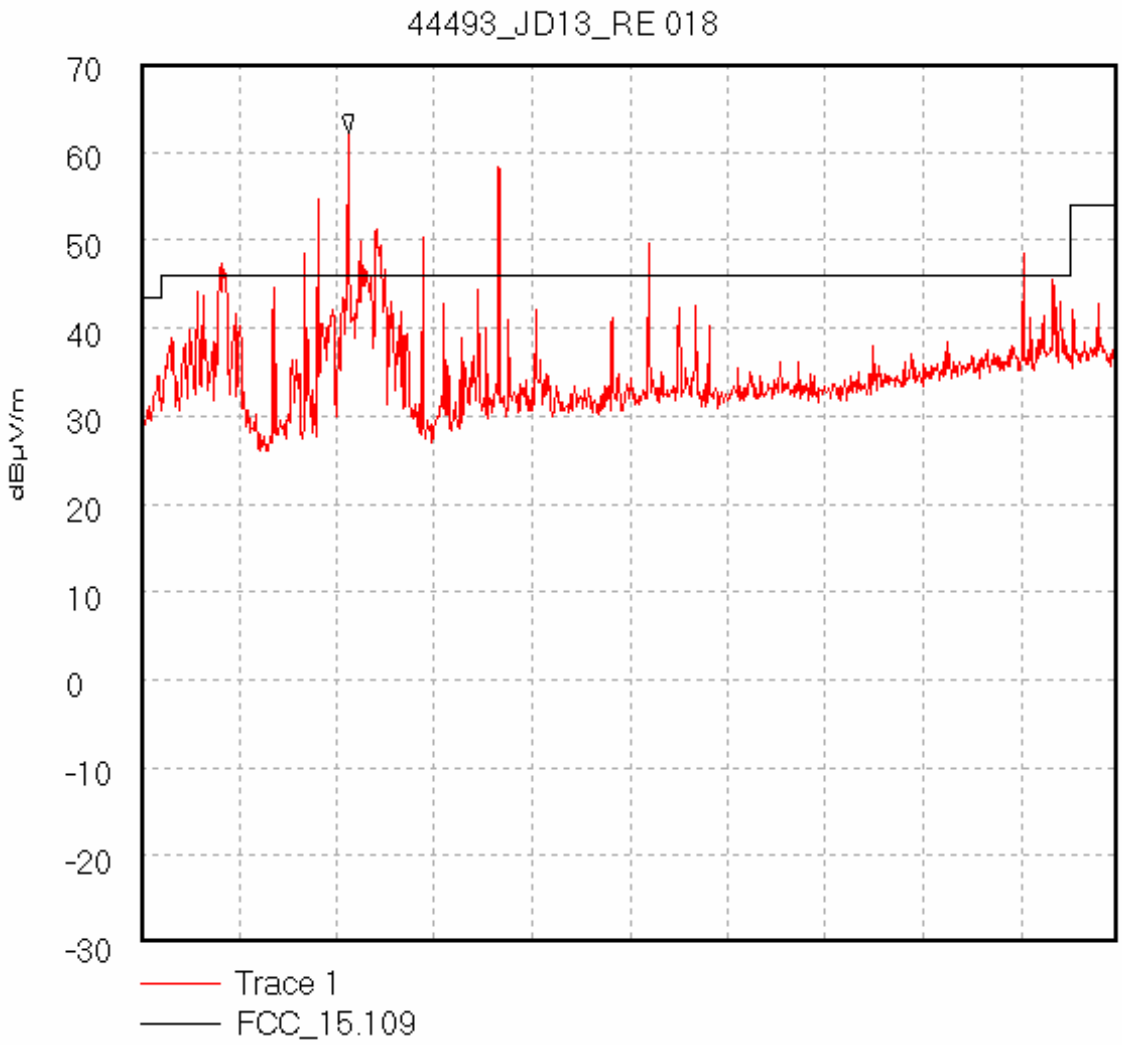
GPH\44493_JD13_RE\017
Radiated Emissions.
44493JD13 IP Wireless EUT: Node B V2 ZH. FCC Part 15.109.
Radiated Emissions. Operating at Receive Middle Channel.



Start 25.0 MHz; Stop 200.0 MHz
Ref 60 dBµV/m; Ref Offset 0.0 dB; 10 dB/div
RBW 118.47 kHz; VBW 100.0 kHz; Att 0 dB; Swp 10.0 S
Peak 141.861 MHz, 41.19 dBµV/m
Limit/Mask: FCC_15.109;
Transducer Factors: Radio_Bicon
09/07/2003 11:15:56

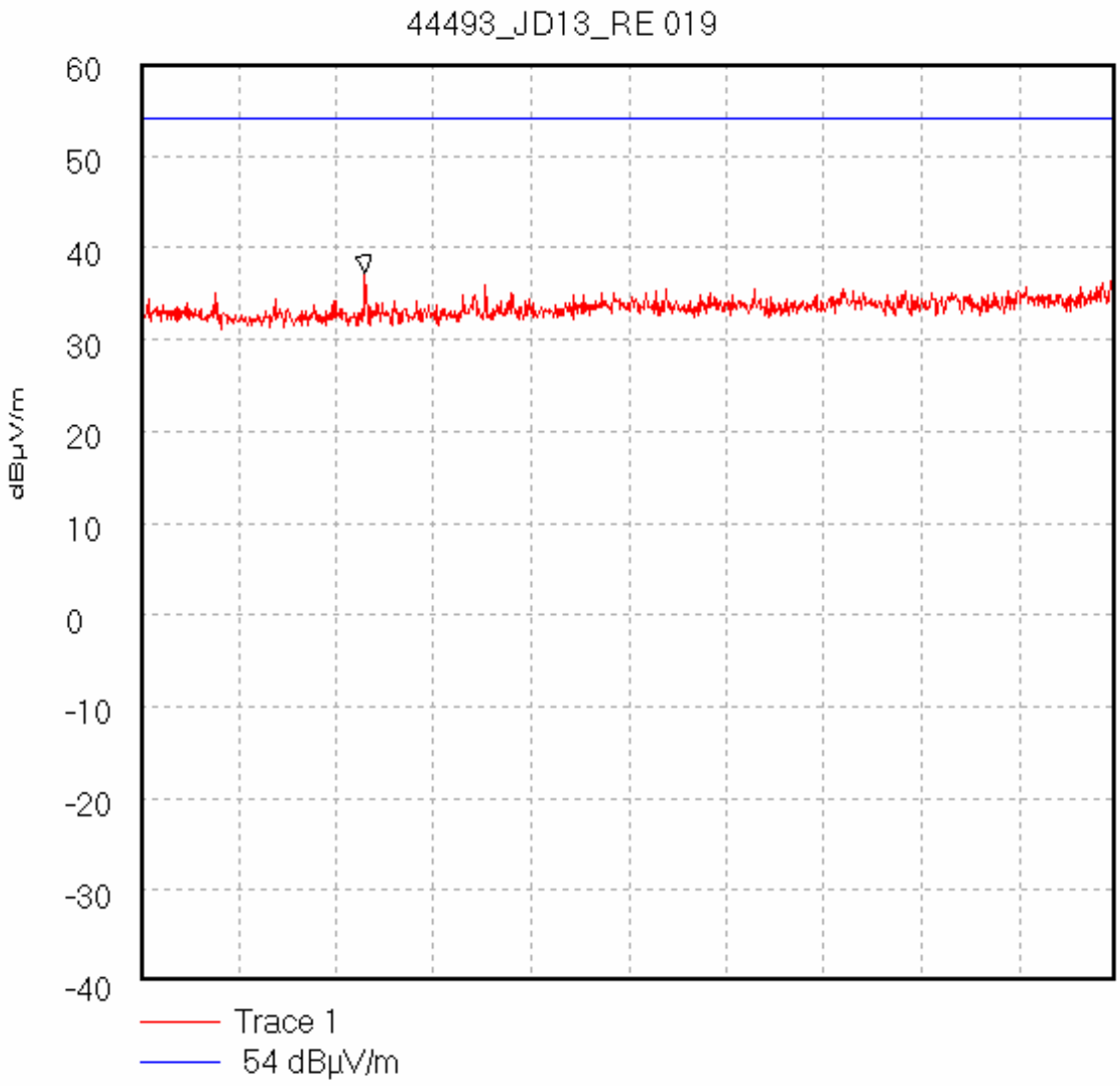
Test Of: IPWireless (UK) Ltd.
Node B V2 Model: HZ
To: FCC Part 27

GPH\44493_JD13_RE\018
Radiated Emissions.
44493JD13 IP Wireless EUT: Node B V2 ZH. FCC Part 15.109.
Radiated Emissions. Operating at Receive Middle Channel.



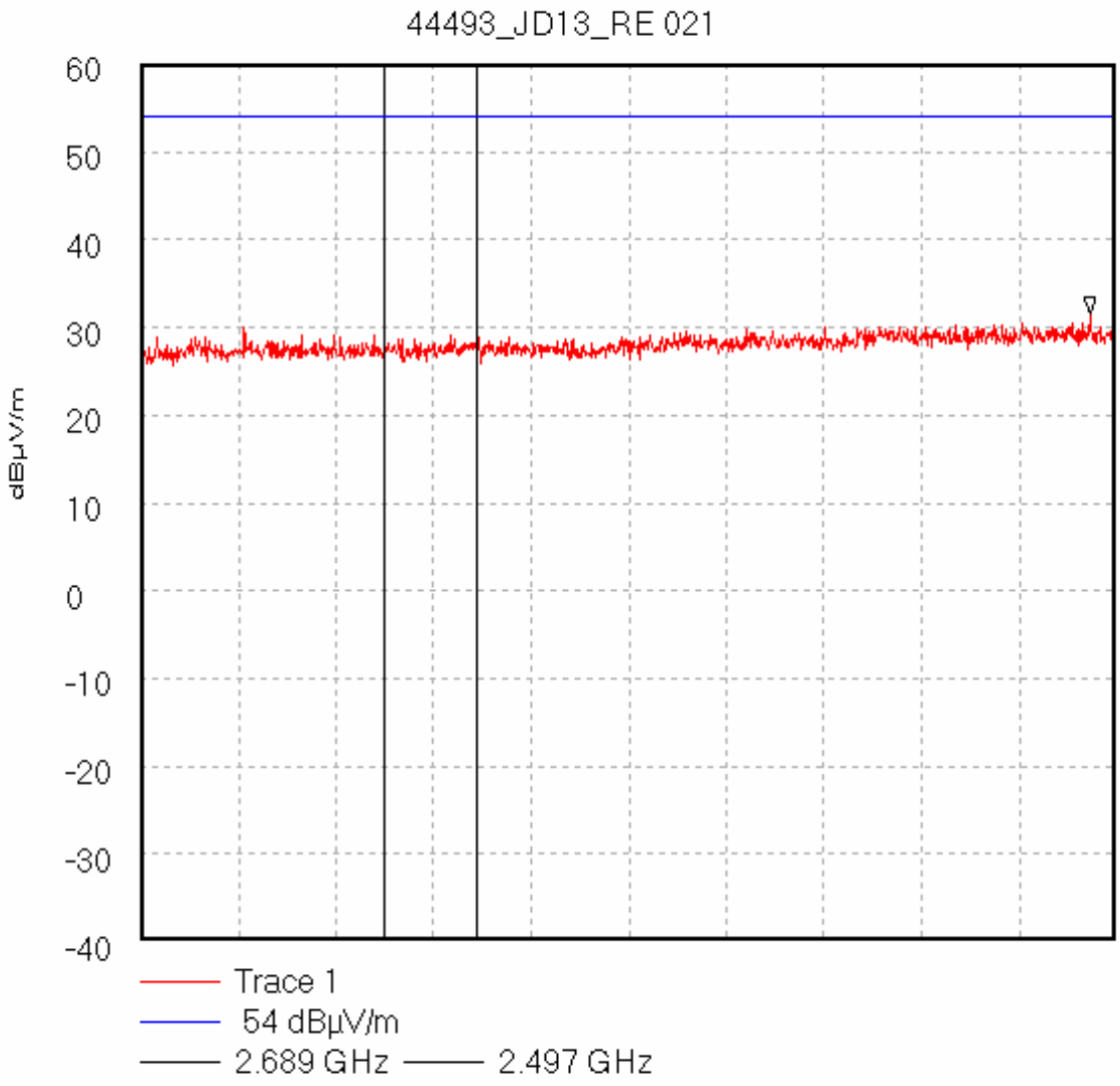
Start 200.0 MHz; Stop 1.0 GHz
Ref 70 dBµV/m; Ref Offset 0.0 dB; 10 dB/div
RBW 100.0 kHz; VBW 100.0 kHz; Att 0 dB; Swp 240.0 mS
Peak 369.778 MHz, 62.18 dBµV/m
Limit/Mask: FCC_15.109;
Transducer Factors: Radio_Log_Spiral
09/07/2003 11:28:38

GPH\44493_JD13_RE\019
Radiated Emissions.
44493JD13 IP Wireless EUT: Node B V2 ZH. FCC Part 15.109.
Radiated Emissions. Operating at Receive Middle Channel.



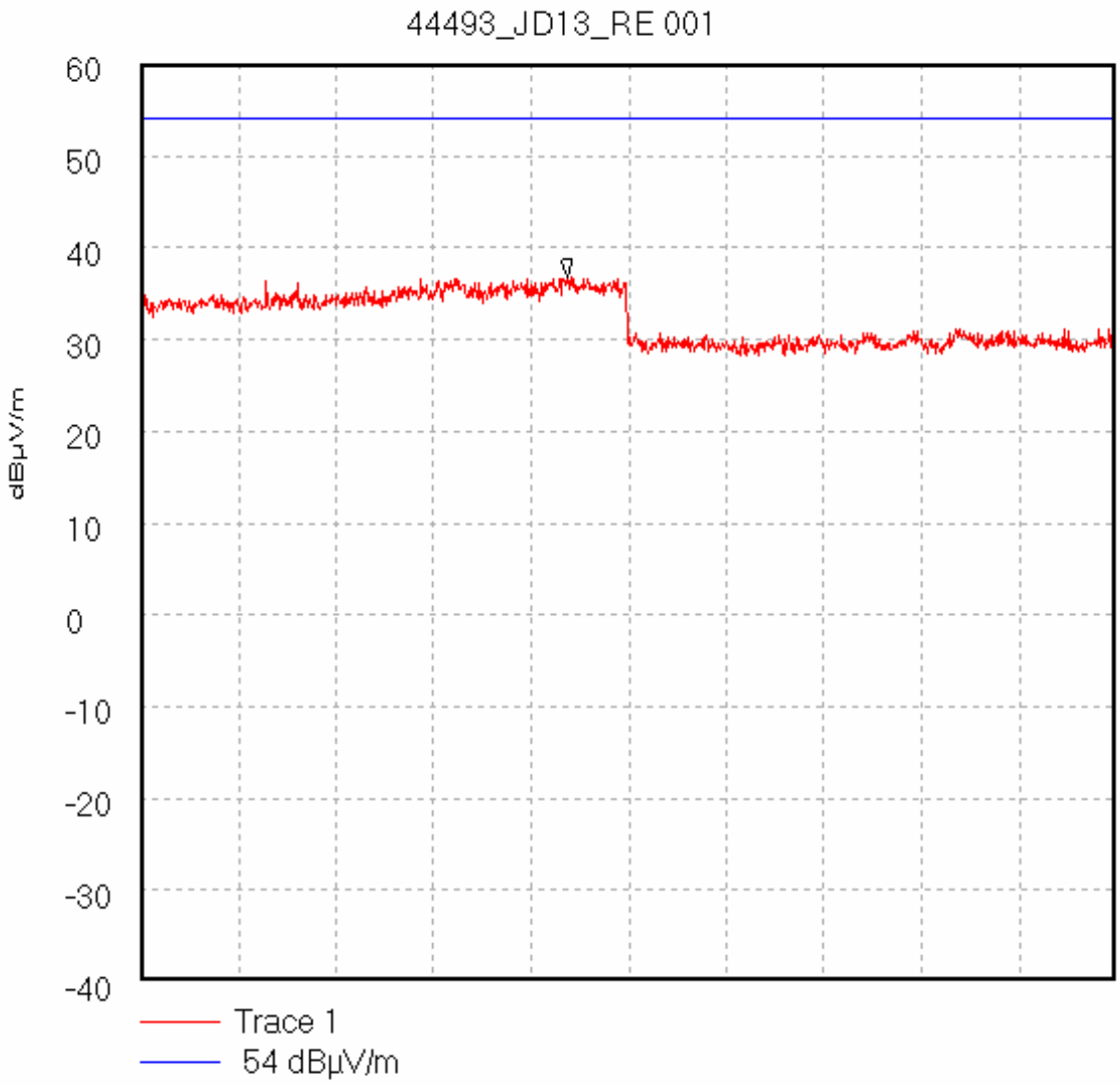
Start 1.0 GHz; Stop 2.0 GHz
Ref 60 dBµV/m; Ref Offset 0.0 dB; 10 dB/div
RBW 1.0 MHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 1.23 GHz, 37.3 dBµV/m
Display Line: 54 dBµV/m;
09/07/2003 11:37:21

GPH\44493_JD13_RE\021
Radiated Emissions.
44493JD13 IP Wireless EUT: Node B V2 ZH. FCC Part 15.109.
Radiated Emissions. Operating at Receive Middle Channel.



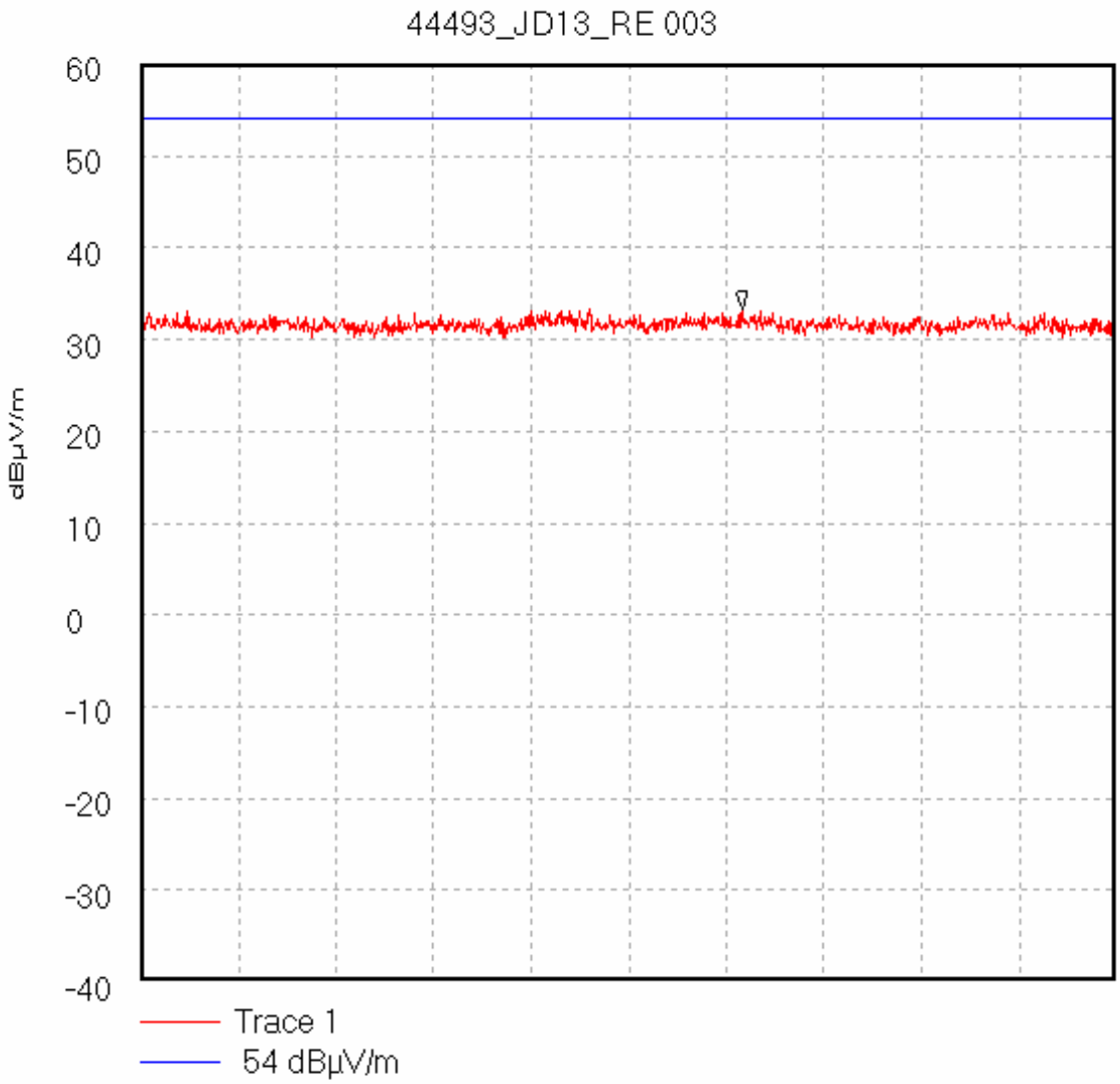
Start 2.0 GHz; Stop 4.0 GHz
Ref 60 dBµV/m; Ref Offset 0.0 dB; 10 dB/div
RBW 1.45 MHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 3.947 GHz, 31.56 dBµV/m
Display Line: 54 dBµV/m;
09/07/2003 11:43:00

GPH\44493_JD13_RE\001
Radiated Emissions.
44493JD13 IP Wireless EUT: Node B V2. FCC Part 15.109 Class B.
Operating at Receive Mode.



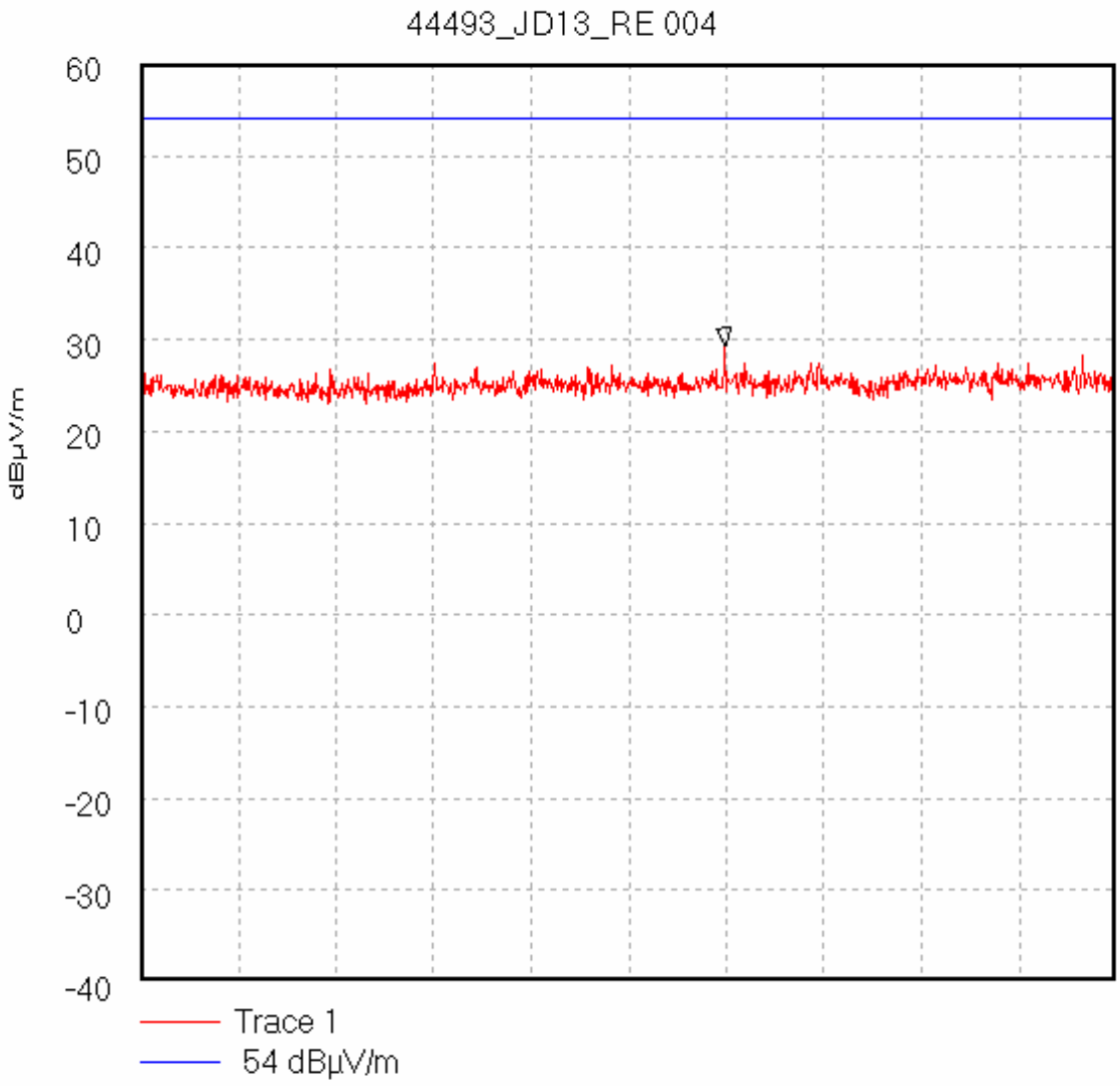
Start 4.0 GHz; Stop 6.0 GHz
Ref 60 dBµV/m; Ref Offset 2.0 dB; 10 dB/div
RBW 1.45 MHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 4.873 GHz, 36.85 dBµV/m
Display Line: 54 dBµV/m;
07/07/2003 10:44:33

GPH\44493_JD13_RE\003
Radiated Emissions.
44493JD13 IP Wireless EUT: Node B V2. FCC Part 15.109 Class B.
Operating at Receive Mode.



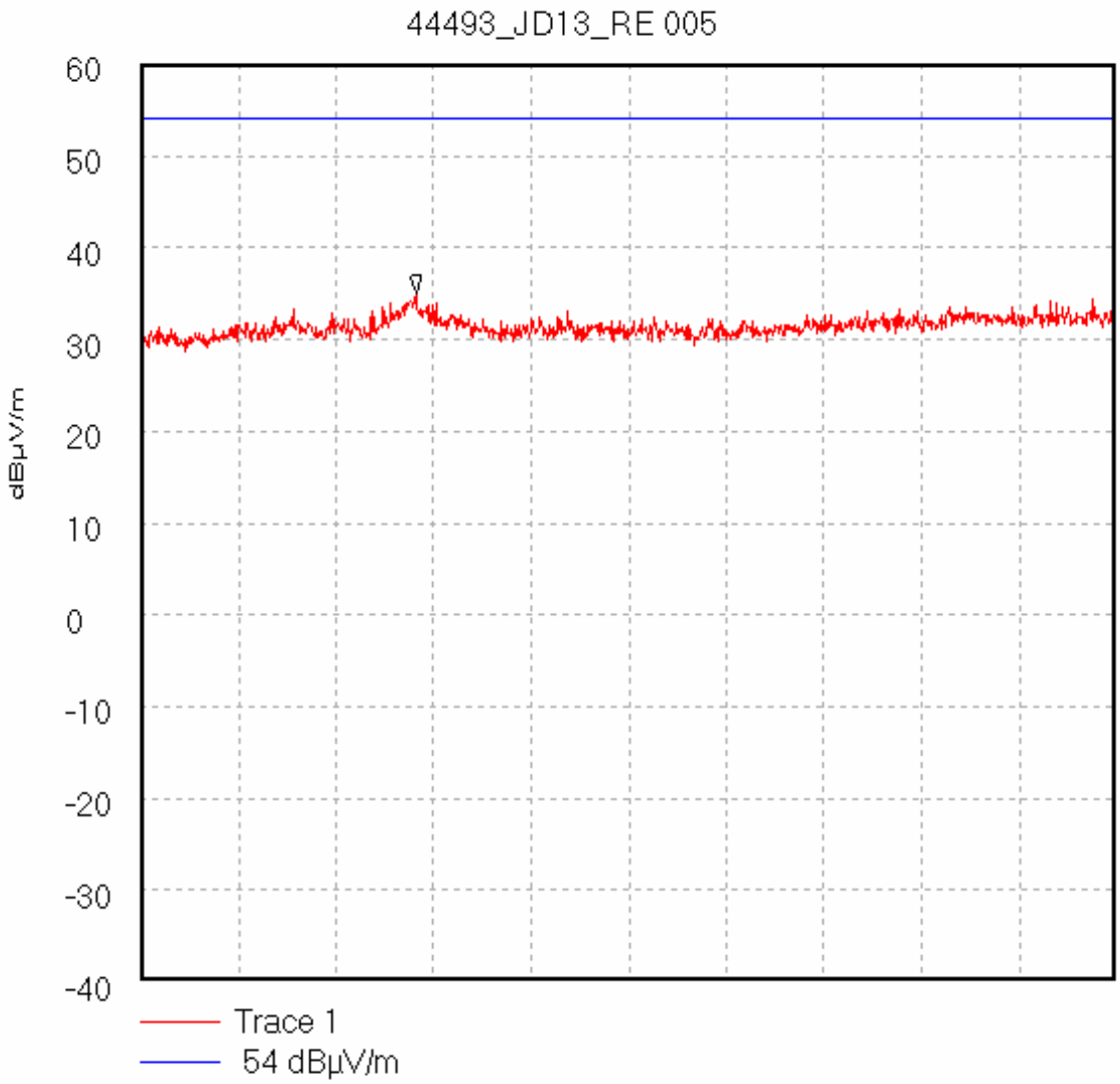
Start 6.0 GHz; Stop 8.0 GHz
Ref 60 dBµV/m; Ref Offset 2.3 dB; 10 dB/div
RBW 1.45 MHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 7.233 GHz, 33.34 dBµV/m
Display Line: 54 dBµV/m;
07/07/2003 10:50:30

GPH\44493_JD13_RE\004
Radiated Emissions.
44493JD13 IP Wireless EUT: Node B V2. FCC Part 15.109 Class B.
Operating at Receive Mode.



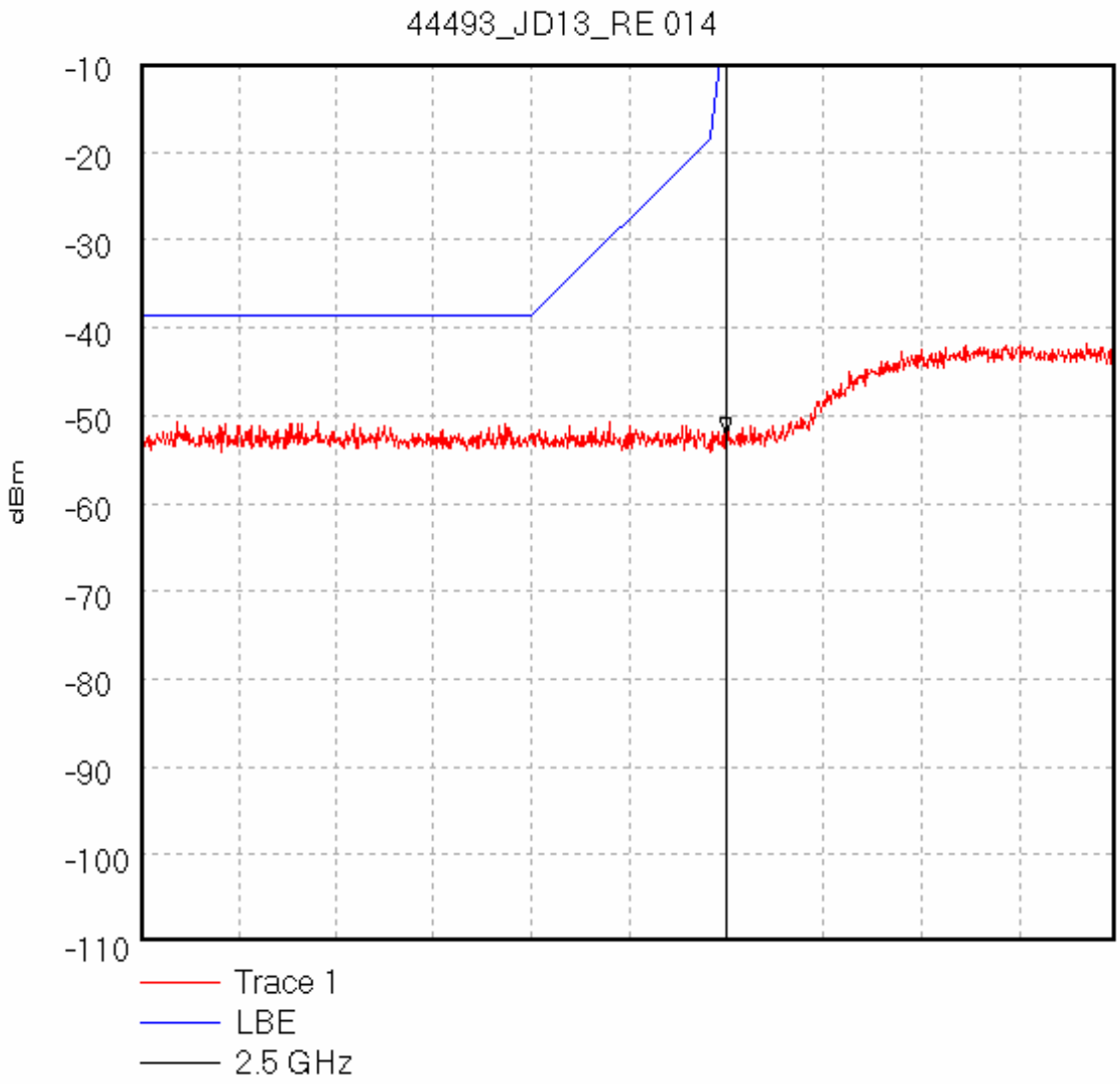
Start 8.0 GHz; Stop 12.5 GHz
Ref 60 dBµV/m; Ref Offset 2.9 dB; 10 dB/div
RBW 1.45 MHz; VBW 1.0 MHz; Att 0 dB; Swp 40.0 mS
Peak 10.695 GHz, 29.25 dBµV/m
Display Line: 54 dBµV/m;
07/07/2003 10:55:50

GPH\44493_JD13_RE\005
Radiated Emissions.
44493JD13 IP Wireless EUT: Node B V2. FCC Part 15.109 Class B.
Operating at Receive Mode.



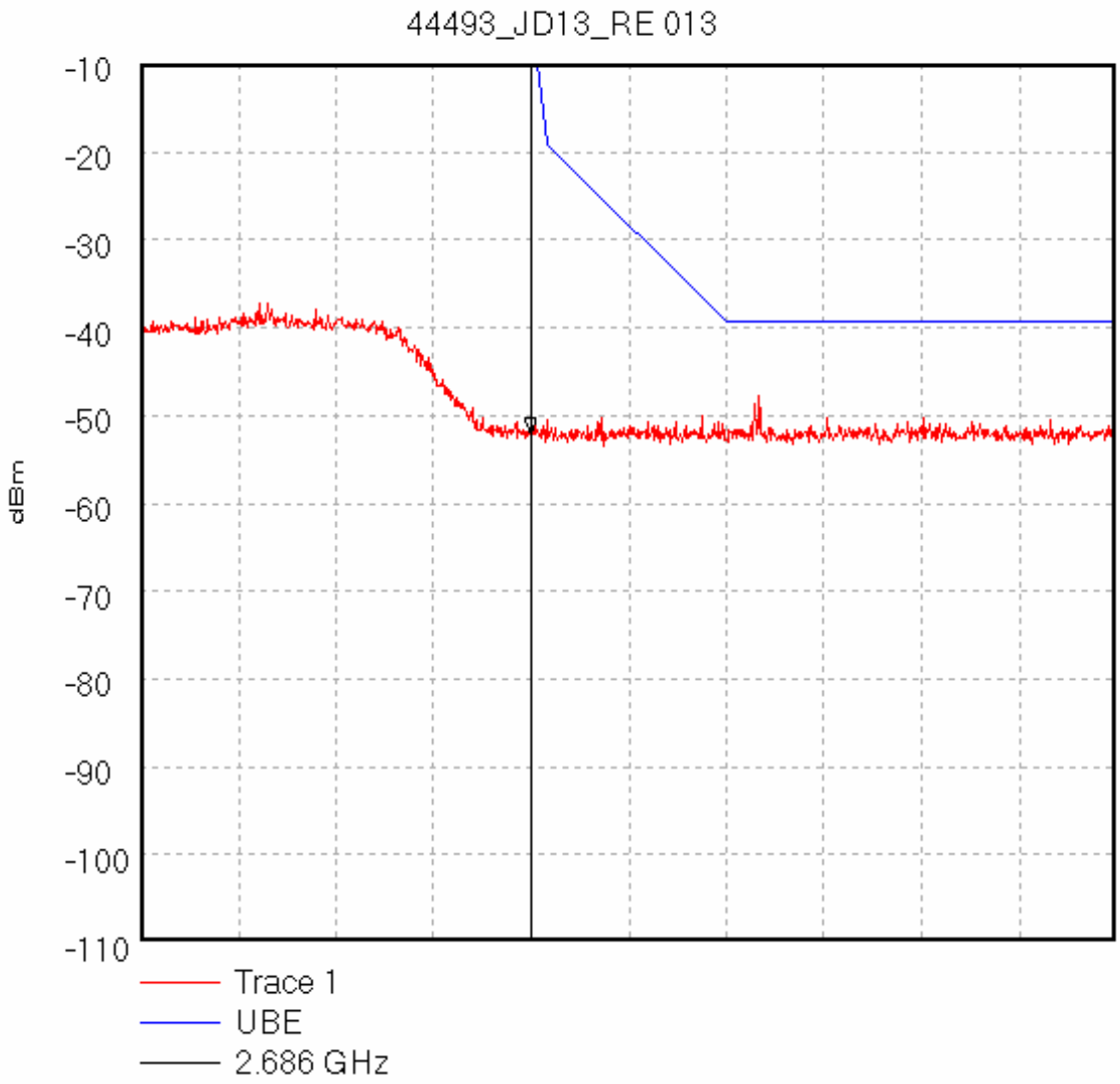
Start 12.5 GHz; Stop 18.0 GHz
Ref 60 dBµV/m; Ref Offset 3.6 dB; 10 dB/div
RBW 1.45 MHz; VBW 1.0 MHz; Att 0 dB; Swp 40.0 mS
Peak 14.052 GHz, 35.07 dBµV/m
Display Line: 54 dBµV/m;
07/07/2003 10:59:42

GPH\44493_JD13_RE\014
44493JD13 IP Wireless EUT: Node B V2. FCC Part 21.908.
Lower Band Edge. Operating at Bottom Channel.



Start 2.491 GHz; Stop 2.506 GHz
Ref -10 dBm; Ref Offset 30.1 dB; 10 dB/div
RBW 1.0 MHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Marker 2.5 GHz, -52.25 dBm
Limit/Mask: LBE;
07/07/2003 12:52:19

GPH\44493_JD13_RE\013
44493JD13 IP Wireless EUT: Node B V2. FCC Part 21.908.
Upper Band Edge. Operating at Top Channel.



Start 2.68 GHz; Stop 2.695 GHz
Ref -10 dBm; Ref Offset 30.1 dB; 10 dB/div
RBW 1.0 MHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Marker 2.686 GHz, -52.25 dBm
Limit/Mask: UBE;
07/07/2003 12:47:44

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