FCC
Test Report
For
epop 50

Report Number 08-373/4049/3/09
Report Produced by: -

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1. Contents

2. Summary of Test Results

The epop 50 was tested to the following standards: -

FCC Part 15C (effective date October 1, 2008); Class DXT Intentional Radiator

Any compliance statements are made reliant on the modes of operation as instructed to us by the Manufacturer based on their specific knowledge of the application and functionality of the equipment tested. Whilst every effort is made to assure quality of testing, type tests are not exhaustive and although no non-conformances may be found, this doesn't exclude the possibility of equipment not meeting the intentions of the standard, particularly under different conditions to those during testing.

Title	Reference	Results
1. Conducted Emissions	FCC Part 15C §15.207	NOT APPLICABLE[2]
2. Radiated Emissions	FCC Part 15C §15.205, §15.209 & §15.249	PASSED
3. Modulation Bandwidth	FCC Part 15C §15.215(c), §15.249	PASSED
4. Intentional Radiator Field Strength	FCC Part 15C §15.249	PASSED
5. Frequency Tolerance	FCC Part 15C §15.225, §15.229, §15.233, §15.249(b)	NOT APPLICABLE[1]
6. Duty Cycle	FCC Part 15C §15.231, §15.240	NOT APPLICABLE[1]
7. Power Spectral Density	FCC Part 15C §15.247	NOT APPLICABLE[1]
8. Frequency separation	FCC Part 15C §15.247	NOT APPLICABLE[1]
9. No.of hopping channels	FCC Part 15C §15.247	NOT APPLICABLE[1]

[1] No specification requirement for this type of equipment.
[2] EUT is a battery powered product

This report relates to the equipment tested as identified by a unique serial number and at the time it was tested. It does not relate to any other similar equipment and performance of the product before or after the test cannot be guaranteed.

Date of Test: 24th August 2009

Test Engineer: Daniel Sims
Digitally signed by Daniel Sims
DN: CN = Daniel Sims, C = GB, O = RN Electronics
Date: 2009.09.15 13:32:03 +01'00'

Approved By: Roger Ray
2009.09.15 15:24:14 Z

Customer Representative:

3. Information about Equipment Under Test

3.1 Equipment Specification

Applicant	ZBD Displays Ltd Longford Business Centre Orchard Lea Winkfield Lane Windsor SL4 4RU
Manufacturer/Brand Name	ZBD Displays Ltd
Full name of EUT	epop 50
Model Number of EUT	epop 50
Serial Number of EUT	AB00000226B
FCC ID (if applicable):	Not specified
Date when equipment was received by RN Electronics Limited	24th August 2009
Date of test:	24th August 2009
Customer order number:	4653
A visual description of EUT is as follows:	Small clear plastic enclosure with one whole side housing an LCD. Through the rear can be seen two 3V batteries.
The main function of the EUT is:	an electronic shelf edge label
Antenna:	Integral

Equipment Under Test Information specification:

Height	33mm
Width	72mm
Depth	15mm
Weight	0.1kg
Voltage	3V DC (battery)
Current required from above voltage source	40mA
Highest Frequencies used / generated	902.5 – 927.5MHz

Purpose of Test:	To demonstrate compliance with FCC OET regulations for intentional radiators.
Modes of operation:	

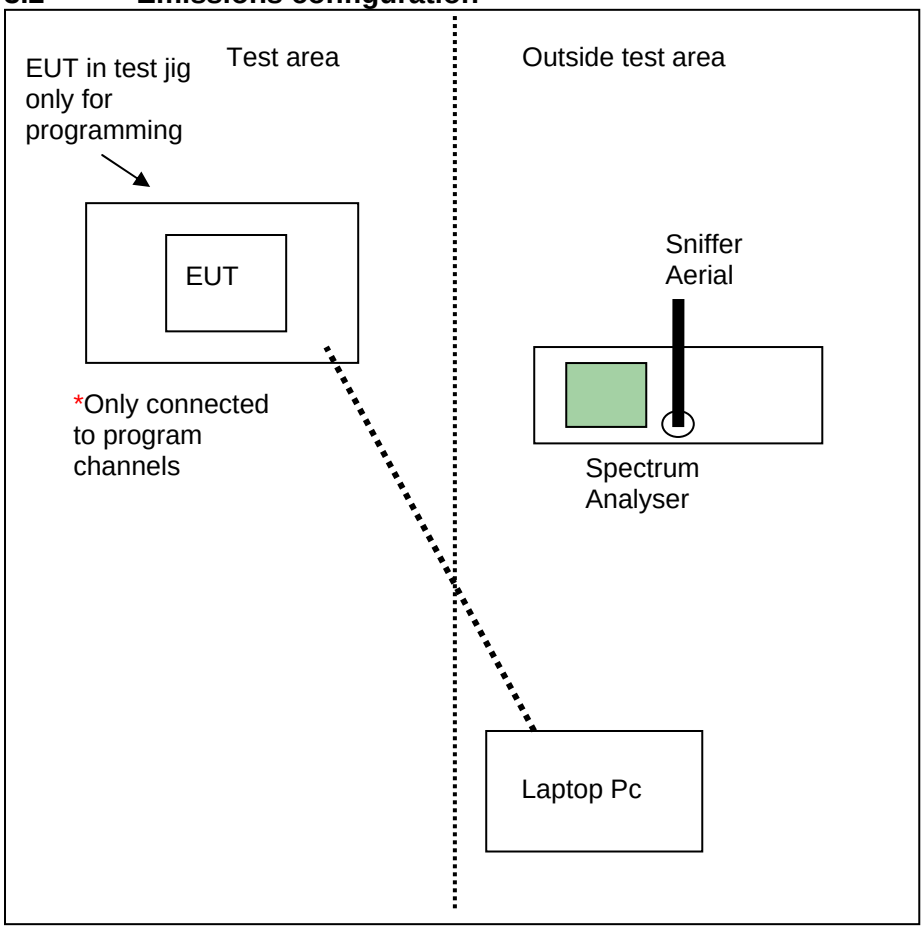
Mode	Description of mode	Used for Testing
Unmodulated carrier TX 902.5MHz	constant CW transmission	YES
Unmodulated carrier TX 915MHz	constant CW transmission	YES
Unmodulated carrier TX 927.5MHz	constant CW transmission	YES
Standby /RX mode 902.5MHz	Receive mode	YES
Standby /RX mode 915MHz	Receive mode	YES
Standby /RX mode 927.5MHz	Receive mode	YES
Constant Transmit data 902.5MHz	constant system modulated transmission	YES
Constant Transmit data 915MHz	constant system modulated transmission	YES
Constant Transmit data 927.5MHz	constant system modulated transmission	YES

Other channels between the frequencies selected above were available each at 500 kHz channel spacings, however only the top, middle & bottom channels (covering the entire range) were selected for tests.

Any modifications made to the **EUT**, whilst under test, can be found in Section 12.

This report was printed on: 15 September 2009

3.2 Emissions configuration



The epop 50 unit is housed in an entirely plastic enclosure.

New batteries were fitted into the unit before tests began and monitored to ensure supply parameters were maintained.

*The unit was only connected via the laptop for programming of channels and modes and once programmed the EUT was removed from the programming jig and placed back into its enclosure. Short supply leads to a battery were required with a small switch in line to allow cycling of the EUT power between programming instances, to allow the relevant modes to be set on the EUT.

The spectrum analyser was only used to ensure the correct operating channel was programmed by detecting the RF carrier signal.

Bottom, middle & top channels were selected for tests. See section 3.1. These were:-

Bottom = 902.5 MHz
Middle = 915 MHz
Top = 927.5 MHz

Power level setting for tests was P7 which was the equivalent of 0dBm.

Description of ancillary equipment connected to the equipment under test, for the purpose of tests, can be found in Section 11.

4. Specifications

The tests were performed by RN Electronics Engineer Daniel Sims who set up the tests, the test equipment, and operated it in accordance with the ***R.N. Electronics Ltd*** procedures manual, FCC Part 15 and those specifications incorporated by reference into 47CFR15 (e.g. ANSI C63.4-2003).

R.N. Electronics Ltd sites M and OATS are listed with the FCC. Registration Number 293246

4.1 Deviations

None.

5. Tests, Methods and Results
5.1 Conducted Emissions

Test not applicable, EUT is battery powered only.

5.2 Radiated Emissions

5.2.1 Test Methods

Test Requirements	FCC Part 15C, Reference (15.209)
Test Method:	FCC Part 15C, Reference (15.209)

5.2.1.1 Configuration of EUT

The EUT was placed on a 0.8 metres high turntable. The front edge of the EUT was initially positioned facing the antenna. The EUT was measured at a distance of 3 metres. The EUT was rotated in all three orthogonal planes. Radiated Emissions testing was performed with a new battery.

5.2.1.2 Test Procedure

Tests were made in accordance with FCC Part 15 using the measuring equipment noted below.

Below 30MHz, measurements were made in a semi-anechoic chamber (pre-scan) with final measurements on an OATS without a ground plane. The antenna was placed 1m above the ground. The equipment and the antenna were rotated 360° to record the worst case emissions.

30MHz - 1GHz, measurements were made on a site listed with the FCC. The equipment was rotated 360° and the antenna scanned 1 – 4 metres in both horizontal and vertical polarisations to record the worst case emissions.

Above 1GHz, measurements were made in a semi-anechoic chamber with appropriate absorbing material for use in this range. The antenna was placed 1m above the ground in line with the EUT, which was rotated through 360° to record the worst case emissions.

At least 6 signals within 20dB and all signals within 10dB of the limit were investigated.

5.2.2 Test results

Tests were performed using Test Site M or OATS**.**

Test Environment:
M or OATS

Temperature: 21-24°C Humidity: 41-53%

Analyser plots for the Quasi-Peak / Average values as applicable and any table of signals within 20dB of the limit line can be found in Section 6.2 of this report.

These show that the **EUT** has **PASSED** this test.

5.2.2.1 Test Equipment used

E001, TMS933, E429, E268, E342, TMS82, TMS81

See Section 10 for more details

5.3 Intentional Radiator Field Strength

5.3.1 Test Methods

Test Requirements FCC Part 15C, Reference (15.)

Test Method: FCC Part 15C, Reference (15.)

5.3.1.1 Configuration of EUT

The EUT was placed on a 0.8 metres high turntable. The front edge of the EUT was initially positioned facing the antenna. The EUT was measured at a distance of 3 metres. The antenna was scanned 1-4m in height in both Horizontal and Vertical polarisations. The EUT was rotated in all three orthogonal planes.

5.3.1.2 Test Procedure

Tests were made in accordance with FCC Part 15 using the measuring equipment noted below.

Measurements were made in a semi-anechoic chamber.

Both the equipment and the antenna were rotated 360° to record the maximised emission.

5.3.2 Test results

Tests were performed using Test Site M**.**

Test Environment:
Temperature: 21°C Humidity: 53%

Any Analyser plots can be found in Section 6.3 of this report.

The maximised field strength measured was 90dBuV/m @ 3metres, measured on the bottom channel with a horizontal measuring antenna with the EUT in a horizontal but upright plane.

These results show that the EUT has **PASSED** this test.

5.3.2.1 Test Equipment used

E001, TMS933

See Section 10 for more details

5.4 5.4 Frequency Tolerance

Test not applicable. No requirement for this type of device and frequency range.

5.5 Duty Cycle

Test not applicable. No requirement for this type of device and frequency range.

5.6 Maximum Spectral Power Density

Test not applicable. No requirement for this type of device and frequency range.

5.7 20dB Bandwidth

5.7.1 Test Methods

Test Requirements FCC Part 15C, Reference (15.215)

Test Method: FCC Part 15C, Reference (15.215)

5.7.1.1 Configuration of EUT

The EUT was placed on a 0.8 metres high turntable. The front edge of the EUT was initially positioned facing the antenna. The EUT was measured at a distance of 3 metres.

5.7.1.2 Test Procedure

Tests were made in accordance with FCC Part 15 using the measuring equipment noted below.

Measurements were made in a semi-anechoic chamber.

Test site 'M' has been listed with the FCC.

5.7.2 Test results

Tests were performed using Test Site M.

Temperature of test Environment: 21°C

Analyser plots for the 20dB bandwidth can be found in Section 6.6 of this report.

Channel frequency	20 dB bandwidth
902.5MHz	86.250kHz
915.0MHz	88.125kHz
927.5MHz	84.375kHz

These results show that the **EUT** has **PASSED** this test.

5.7.2.1 Test Equipment used

E001, TMS933

See Section 10 for more details.

6. Plots and Results

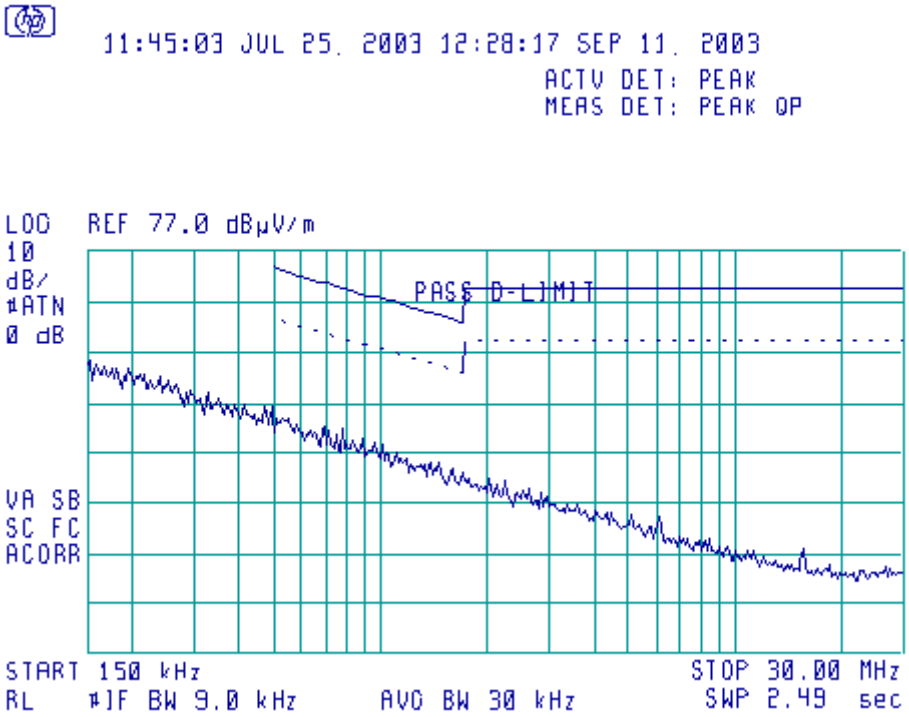
6.1 Conducted Emissions

Not applicable, EUT battery powered only.

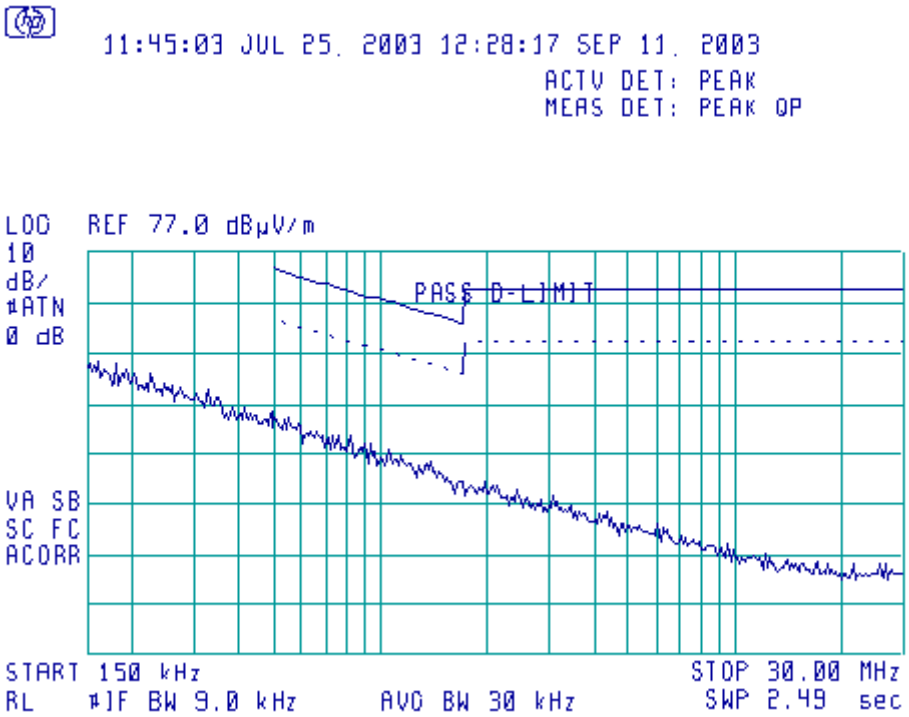
6.2 Radiated Emissions

(plots shown are for middle channel transmit mode only)

Parallel.

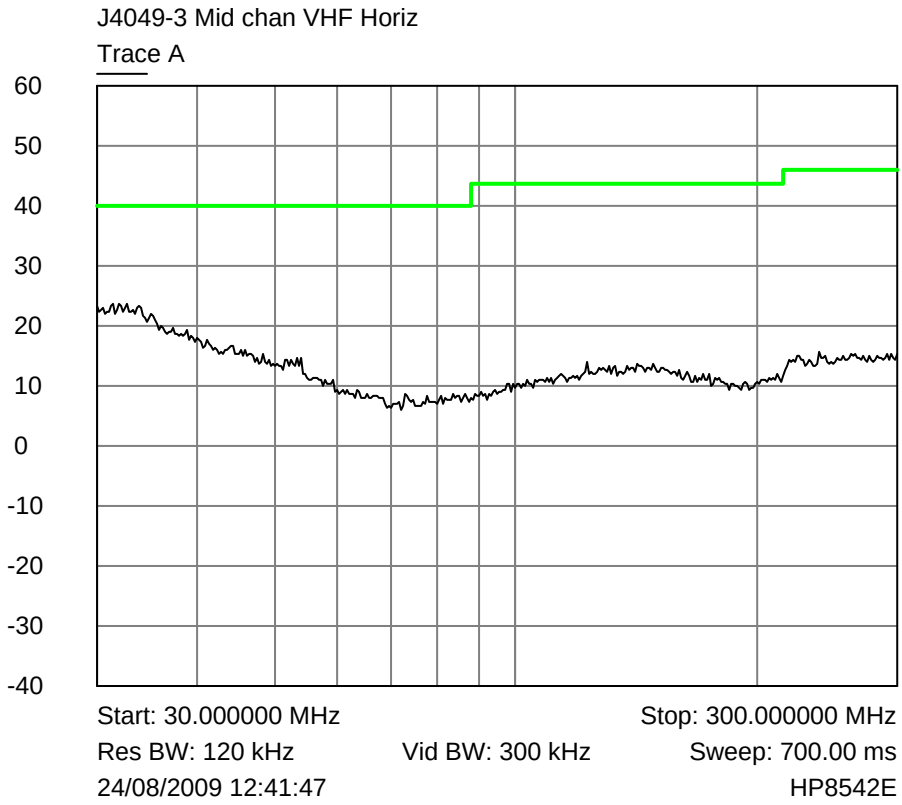


Perpendicular.



Quasi-Peak Values 150kHz to 30MHz.

The plot shows a swept response of peak values using the quasi-peak limit line



Quasi-Peak Values of 30 MHz. to 300 MHz.

Horizontal Polarisation

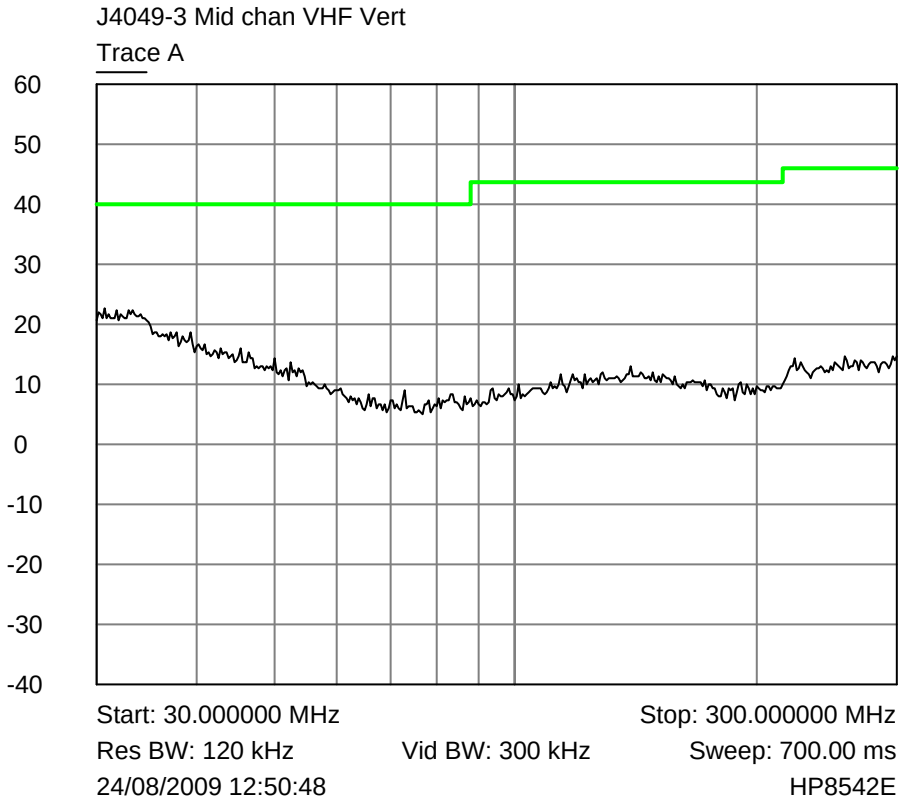
The plot shows a swept response of peak values using the quasi-peak limit line

(Any peaks within 20dB of the limit line have been calculated and appear in the table on following page of this report)

Table of signals within 20dB of the limit line for Quasi-Peak Horizontal

None.

Measurement Uncertainty of ± 5.2dB Applies



Quasi-Peak Values of 30 MHz. to 300 MHz.

Vertical Polarisation

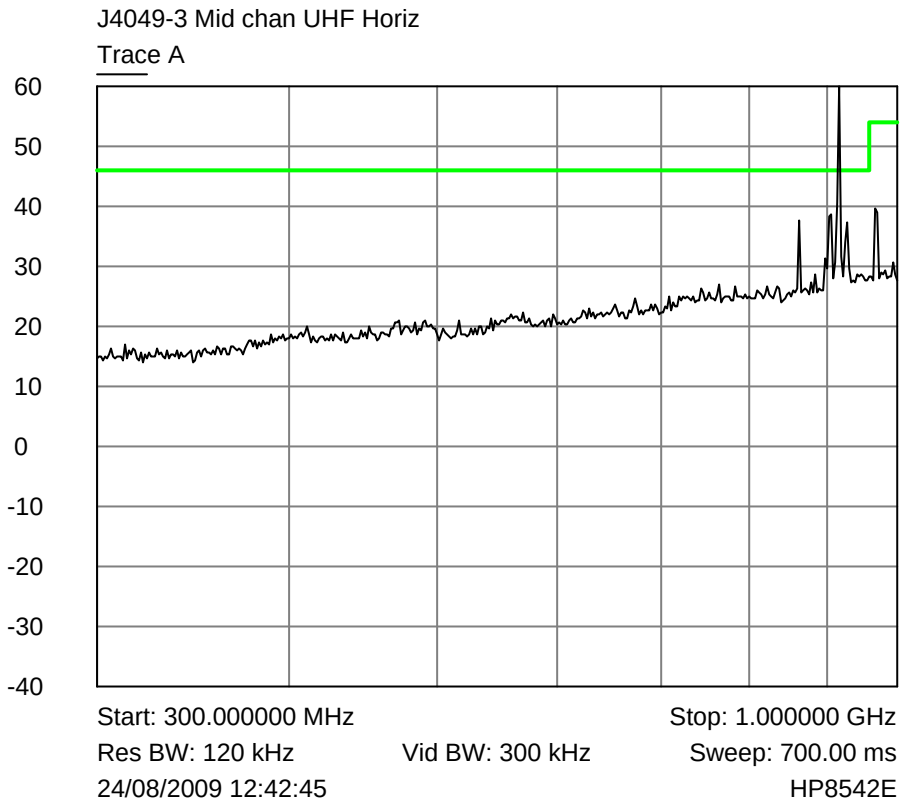
The plot shows a swept response of peak values using the quasi-peak limit line

(Any peaks within 20dB of the limit line have been calculated and appear in the table on following page of this report)

Table of signals within 20dB of the limit line for Quasi-peak Vertical

None.

Measurement Uncertainty of ± 5.2dB Applies



Quasi-Peak Values of 300 MHz. to 1 GHz.

Horizontal Polarisation

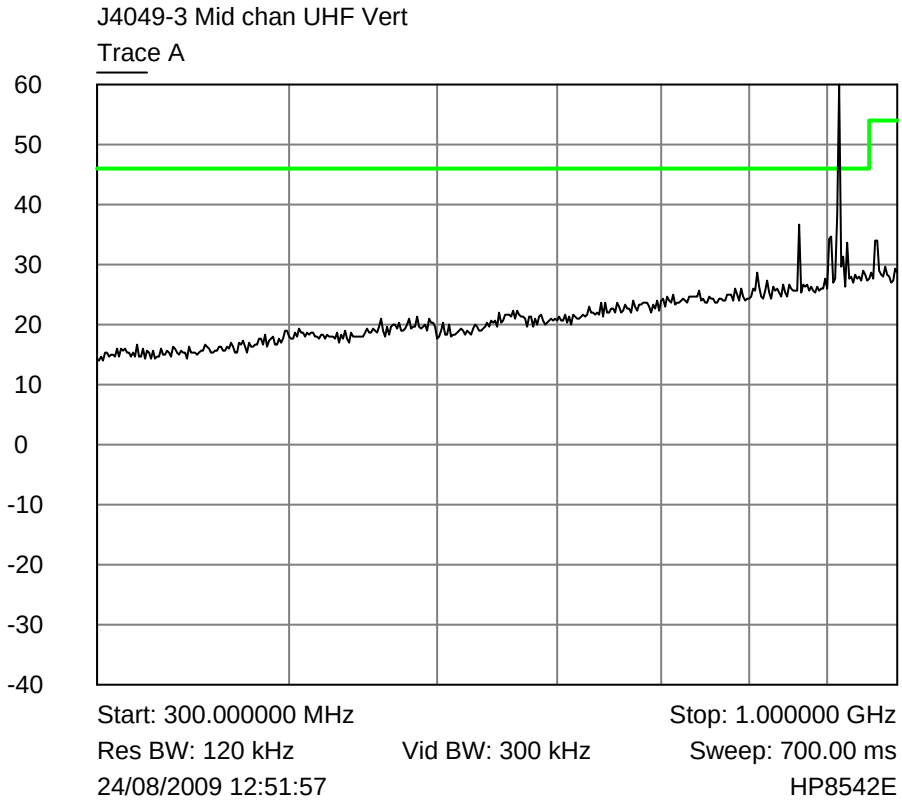
The plot shows a swept response of peak values using the quasi-peak limit line

(Any peaks within 20dB of the limit line have been calculated and appear in the table on following page of this report)

Table of signals within 20dB of the limit line for Quasi-Peak Horizontal

Signal No.	Freq (MHz)	Peak Amp (dBuV)	Peak - Lim1 (dB)	QP Amp (dBuV)	QP - Lim1 (dB)
1	901.986125	41.28	-4.72	39.22	-6.78
2	906.336288	37.53	-8.47	23.78	-22.22
3	913.303413	50.94	4.94	35.15	-10.85
4	918.928550	43.86	-2.14	29.89	-16.11
5	927.985600	40.54	-5.46	38.71	-7.29

Measurement Uncertainty of ± 5.2dB Applies



Quasi-Peak Values of 300 MHz. to 1 GHz.

Vertical Polarisation

The plot shows a swept response of peak values using the quasi-peak limit line

(Any peaks within 20dB of the limit line have been calculated and appear in the table on following page of this report)

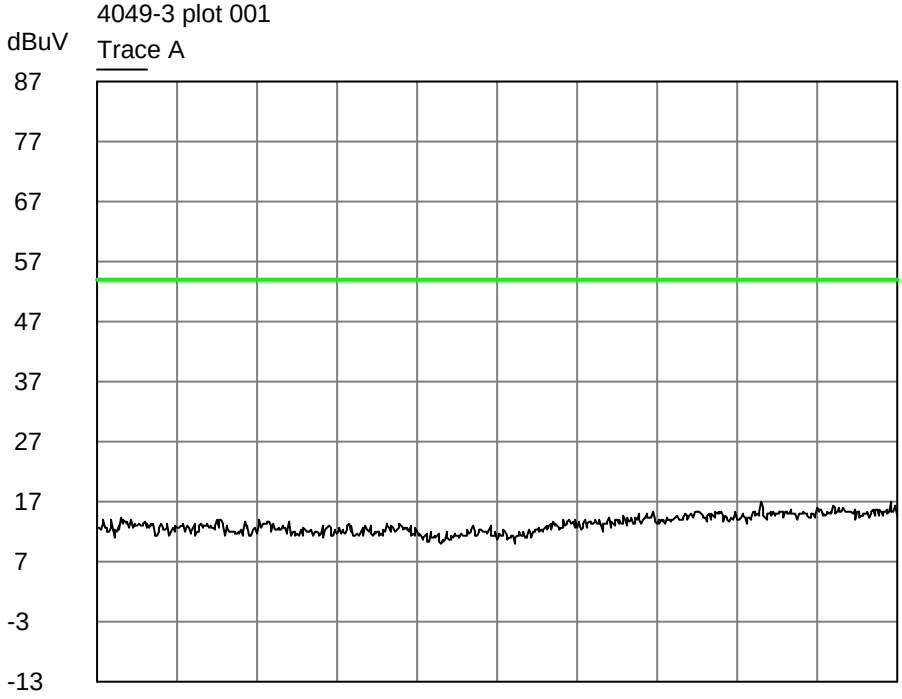
Table of signals within 20dB of the limit line for Quasi-peak Vertical

Signal No.	Freq (MHz)	Peak Amp (dBuV)	Peak - Lim1 (dB)	QP Amp (dBuV)	QP - Lim1 (dB)
1	901.981988	37.38	-8.62	34.99	-11.01
2	909.057638	35.12	-10.88	23.8	-22.2
3	920.034438	34.67	-11.33	24.55	-21.45
4	928.001938	35.02	-10.98	32.06	-13.94

Measurement Uncertainty of ± 5.2dB Applies

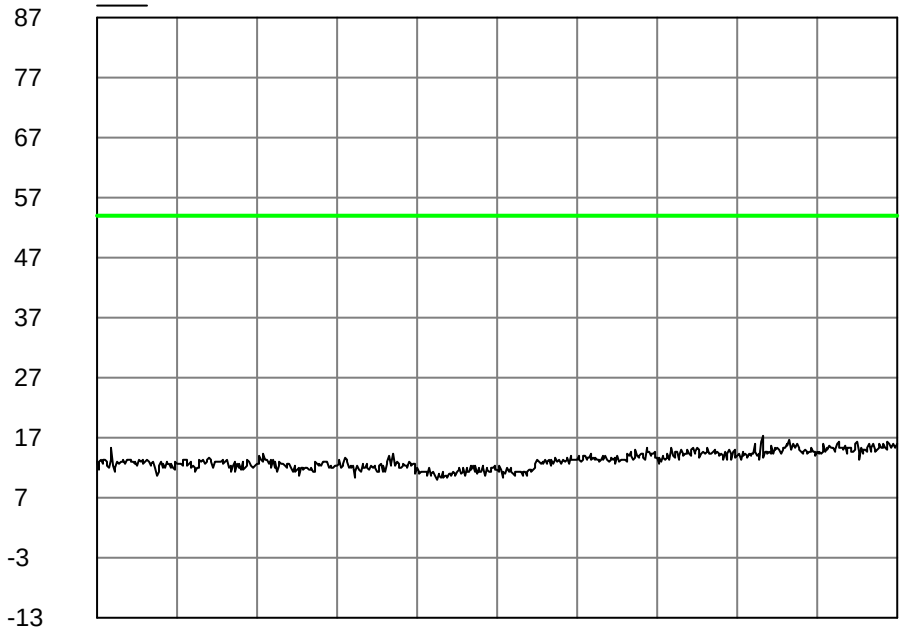
Above 1GHz radiated emissions plots.
(plots shown are middle channel transmit mode only)

4049-3 plot 001



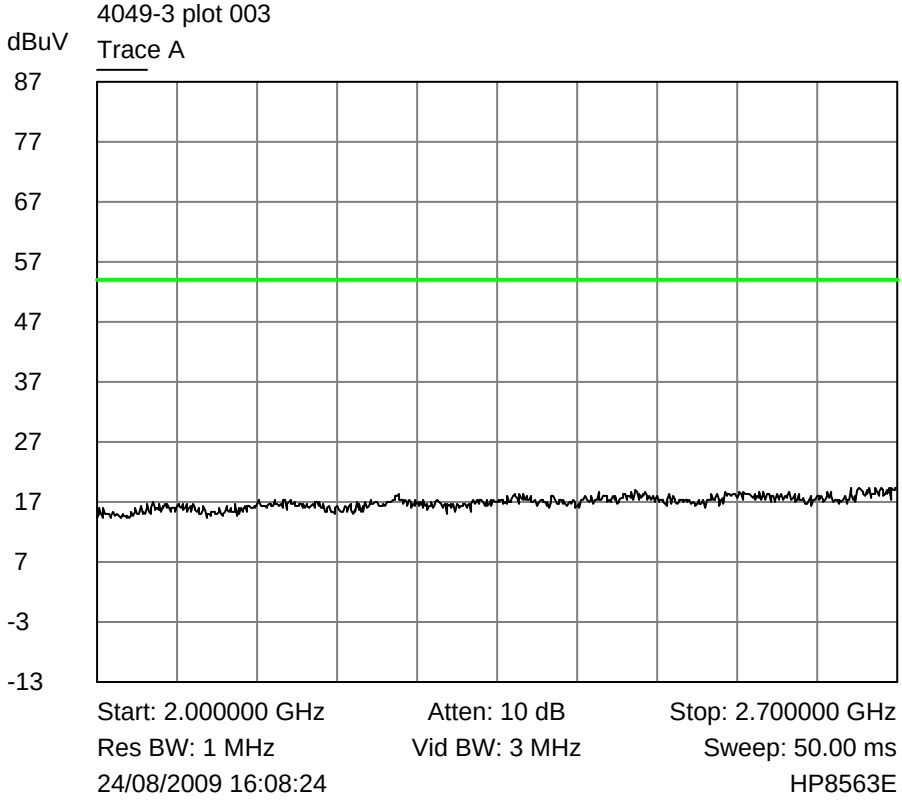
Start: 1.000000 GHz Atten: 10 dB Stop: 2.000000 GHz
Res BW: 1 MHz Vid BW: 3 MHz Sweep: 50.00 ms
24/08/2009 16:06:33 HP8563E

4049-3 plot 002



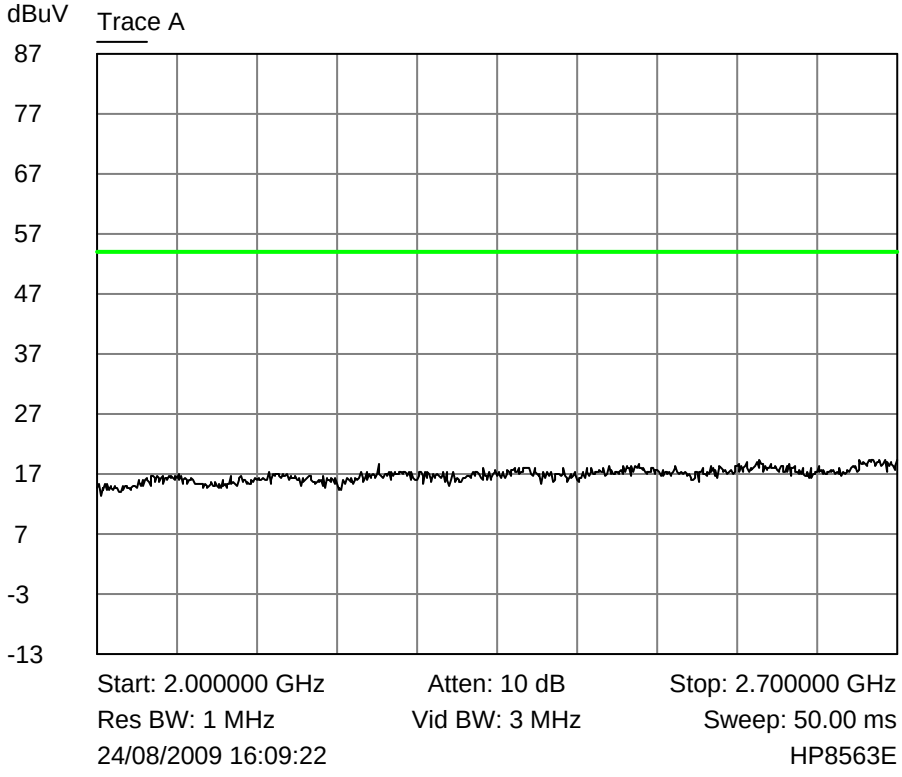
Start: 1.000000 GHz Atten: 10 dB Stop: 2.000000 GHz
Res BW: 1 MHz Vid BW: 3 MHz Sweep: 50.00 ms
24/08/2009 16:07:43 HP8563E

4049-3 plot 003



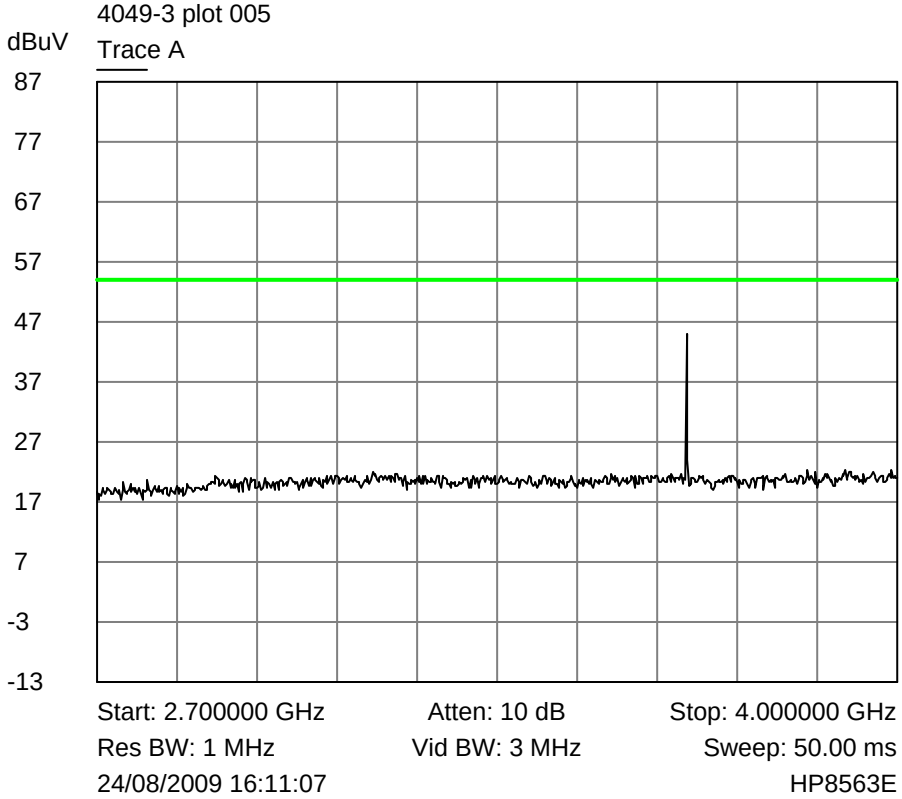
Start: 2.000000 GHz Atten: 10 dB Stop: 2.700000 GHz
Res BW: 1 MHz Vid BW: 3 MHz Sweep: 50.00 ms
24/08/2009 16:08:24 HP8563E

4049-3 plot 004



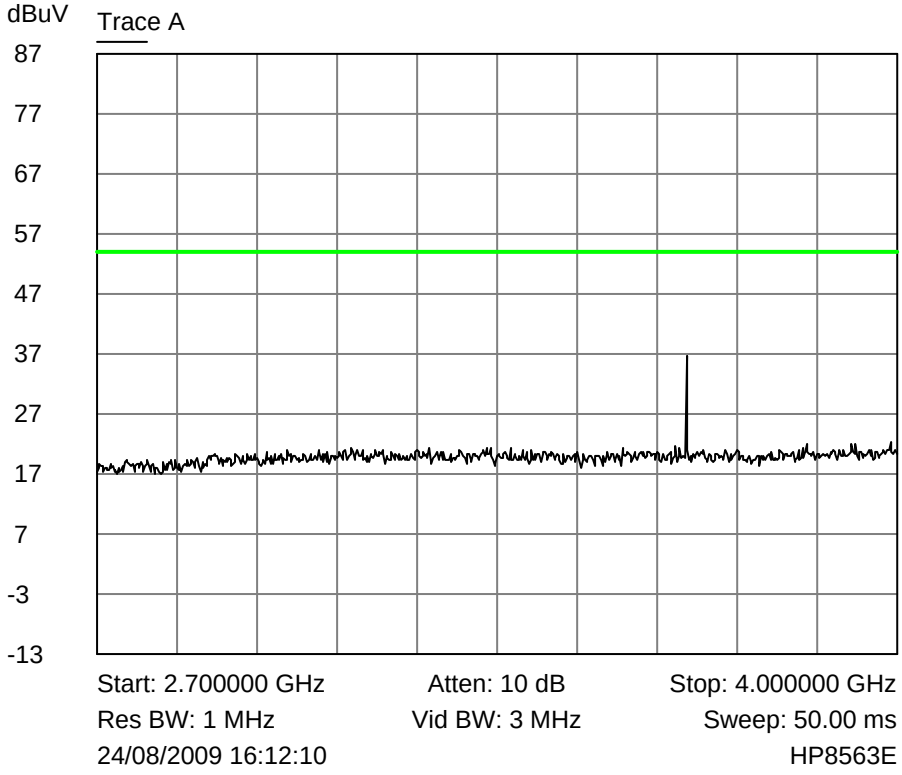
Start: 2.000000 GHz Atten: 10 dB Stop: 2.700000 GHz
Res BW: 1 MHz Vid BW: 3 MHz Sweep: 50.00 ms
24/08/2009 16:09:22 HP8563E

4049-3 plot 005



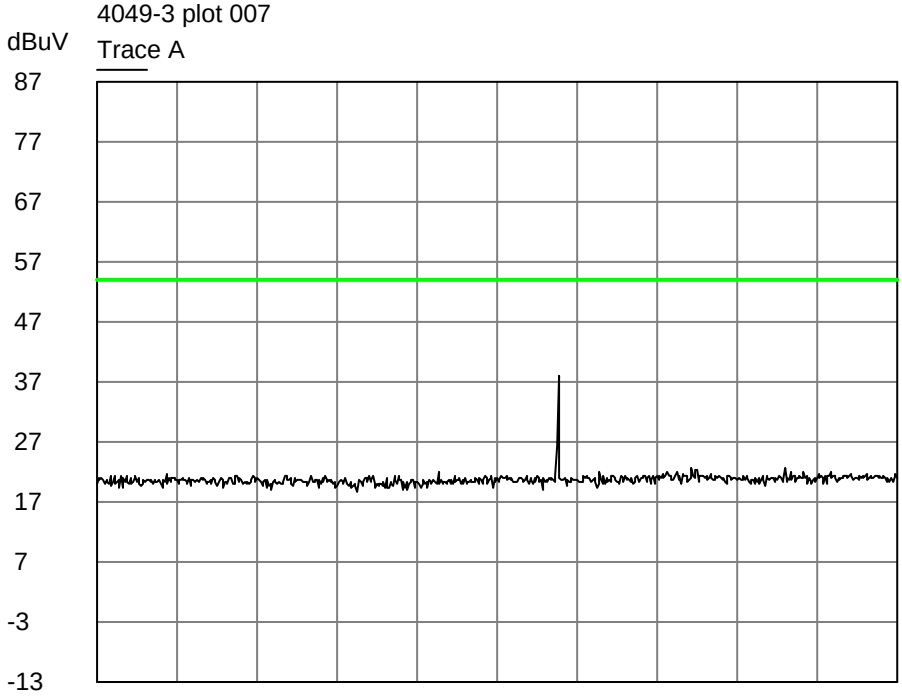
Start: 2.700000 GHz Atten: 10 dB Stop: 4.000000 GHz
Res BW: 1 MHz Vid BW: 3 MHz Sweep: 50.00 ms
24/08/2009 16:11:07 HP8563E

4049-3 plot 006



Start: 2.700000 GHz Atten: 10 dB Stop: 4.000000 GHz
Res BW: 1 MHz Vid BW: 3 MHz Sweep: 50.00 ms
24/08/2009 16:12:10 HP8563E

4049-3 plot 007

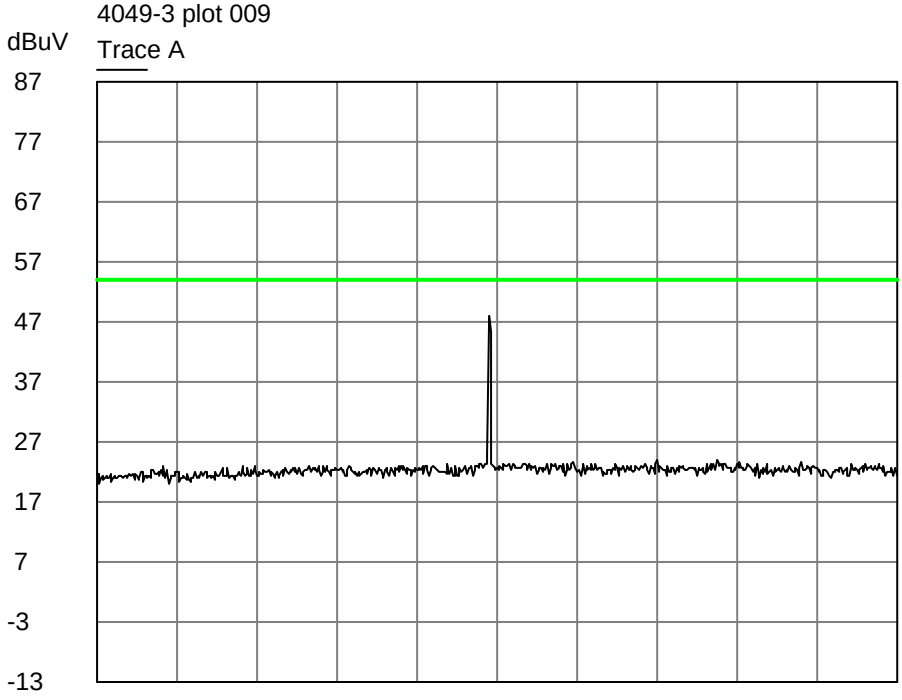


Start: 4.000000 GHz Atten: 10 dB Stop: 5.000000 GHz
Res BW: 1 MHz Vid BW: 3 MHz Sweep: 50.00 ms
24/08/2009 16:13:57 HP8563E

4049-3 plot 008

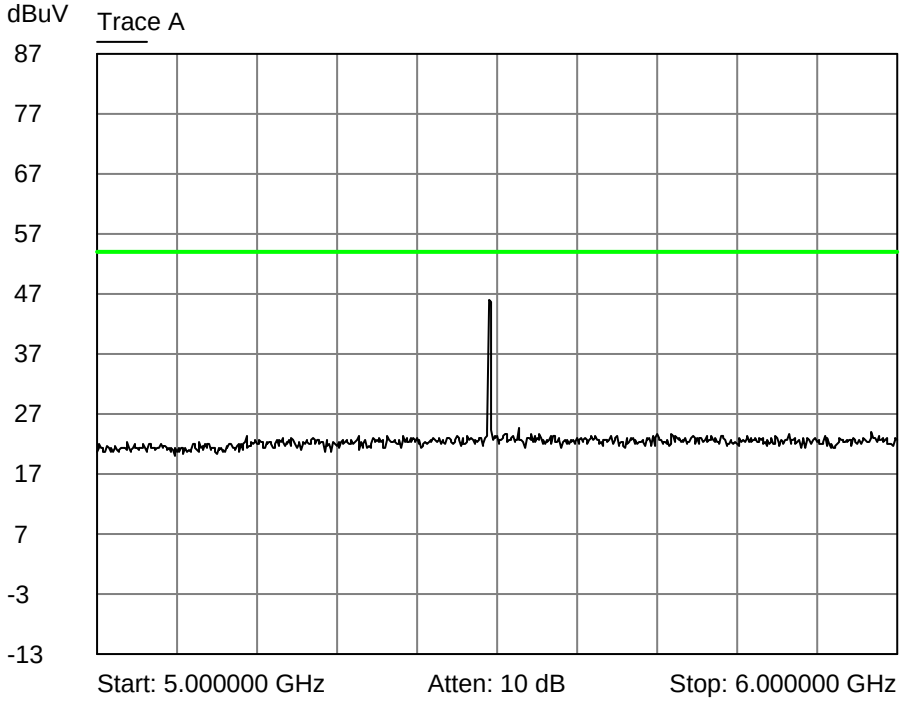
Start: 4.000000 GHz Atten: 10 dB Stop: 5.000000 GHz
Res BW: 1 MHz Vid BW: 3 MHz Sweep: 50.00 ms
24/08/2009 16:15:06 HP8563E

4049-3 plot 009



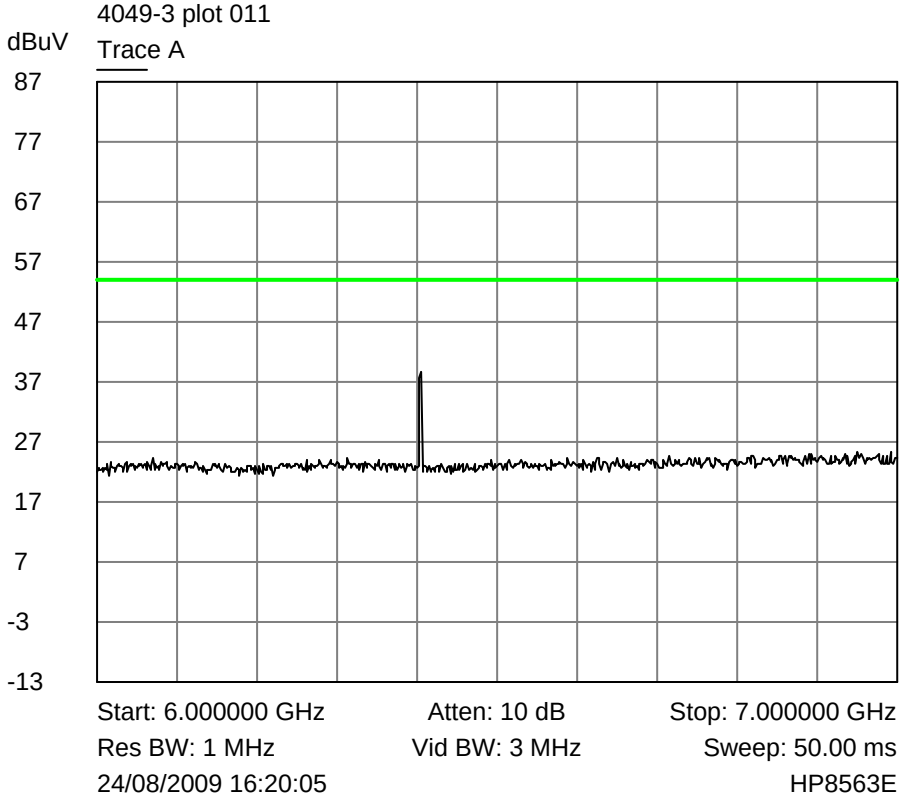
Start: 5.000000 GHz Atten: 10 dB Stop: 6.000000 GHz
Res BW: 1 MHz Vid BW: 3 MHz Sweep: 50.00 ms
24/08/2009 16:17:28 HP8563E

4049-3 plot 010



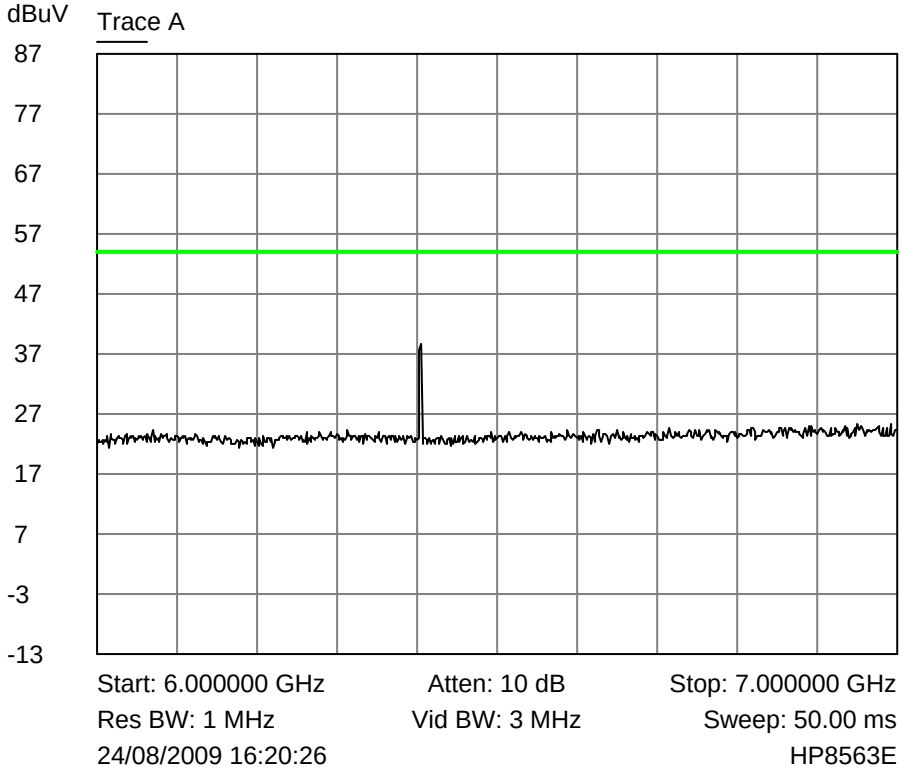
Start: 5.000000 GHz Atten: 10 dB Stop: 6.000000 GHz
Res BW: 1 MHz Vid BW: 3 MHz Sweep: 50.00 ms
24/08/2009 16:18:33 HP8563E

4049-3 plot 011



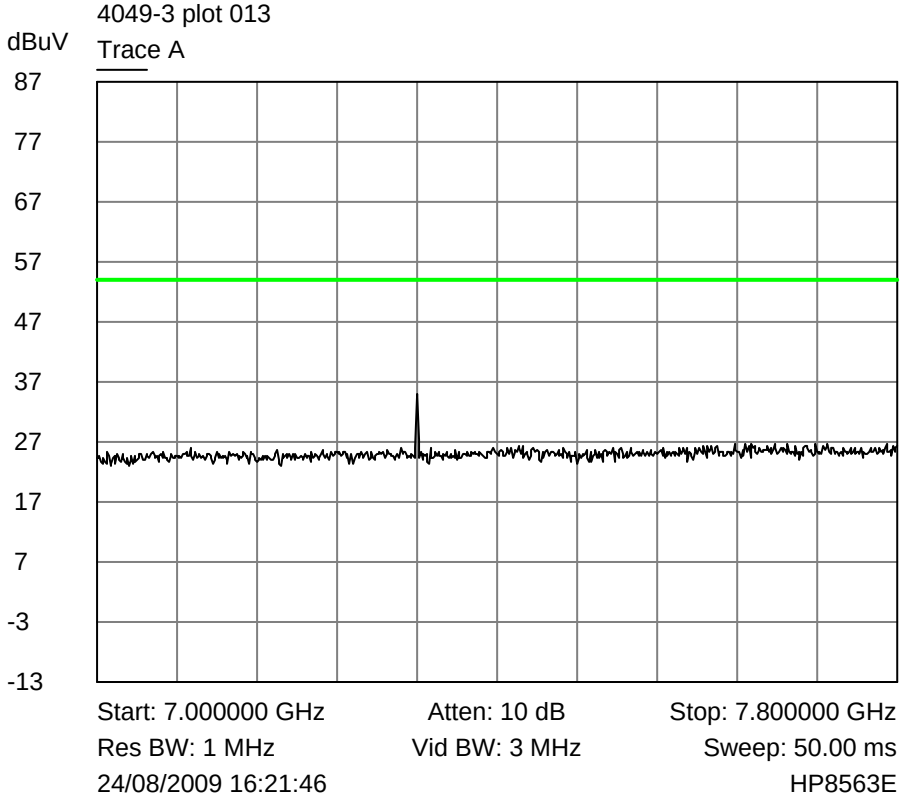
Start: 6.000000 GHz Atten: 10 dB Stop: 7.000000 GHz
Res BW: 1 MHz Vid BW: 3 MHz Sweep: 50.00 ms
24/08/2009 16:20:05 HP8563E

4049-3 plot 012



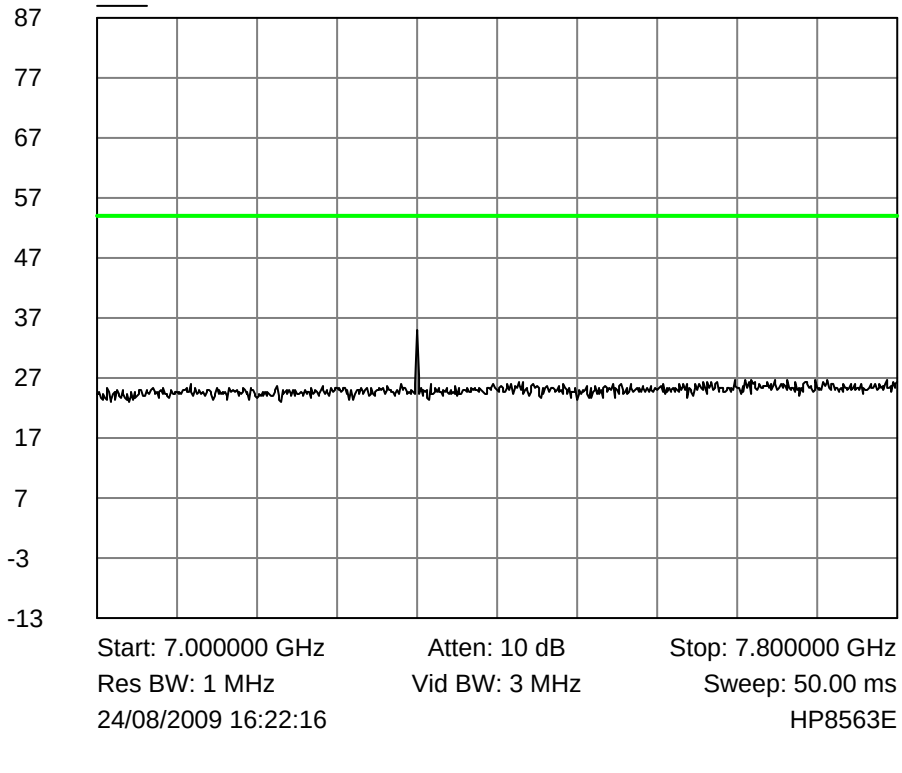
Start: 6.000000 GHz Atten: 10 dB Stop: 7.000000 GHz
Res BW: 1 MHz Vid BW: 3 MHz Sweep: 50.00 ms
24/08/2009 16:20:26 HP8563E

4049-3 plot 013



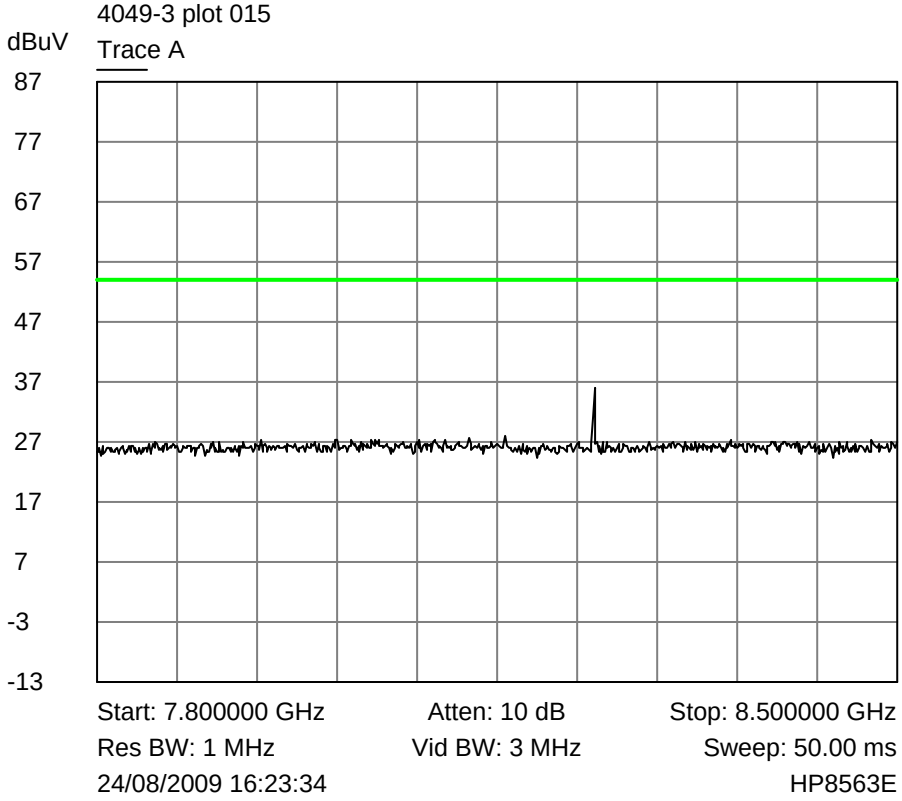
Start: 7.000000 GHz Atten: 10 dB Stop: 7.800000 GHz
Res BW: 1 MHz Vid BW: 3 MHz Sweep: 50.00 ms
24/08/2009 16:21:46 HP8563E

4049-3 plot 014



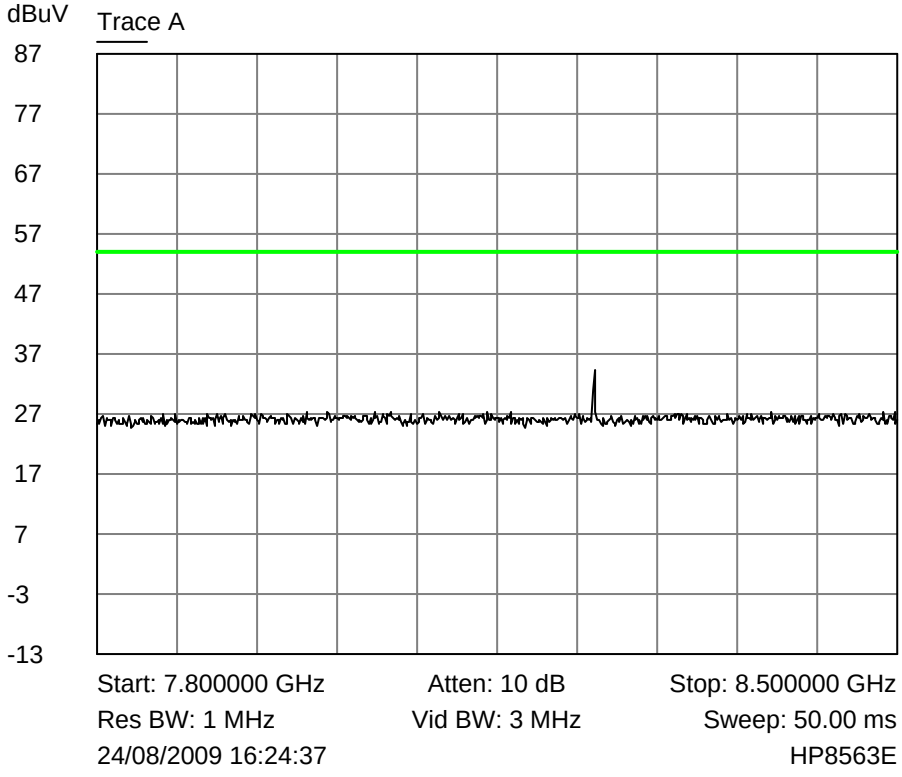
Start: 7.000000 GHz Atten: 10 dB Stop: 7.800000 GHz
Res BW: 1 MHz Vid BW: 3 MHz Sweep: 50.00 ms
24/08/2009 16:22:16 HP8563E

4049-3 plot 015



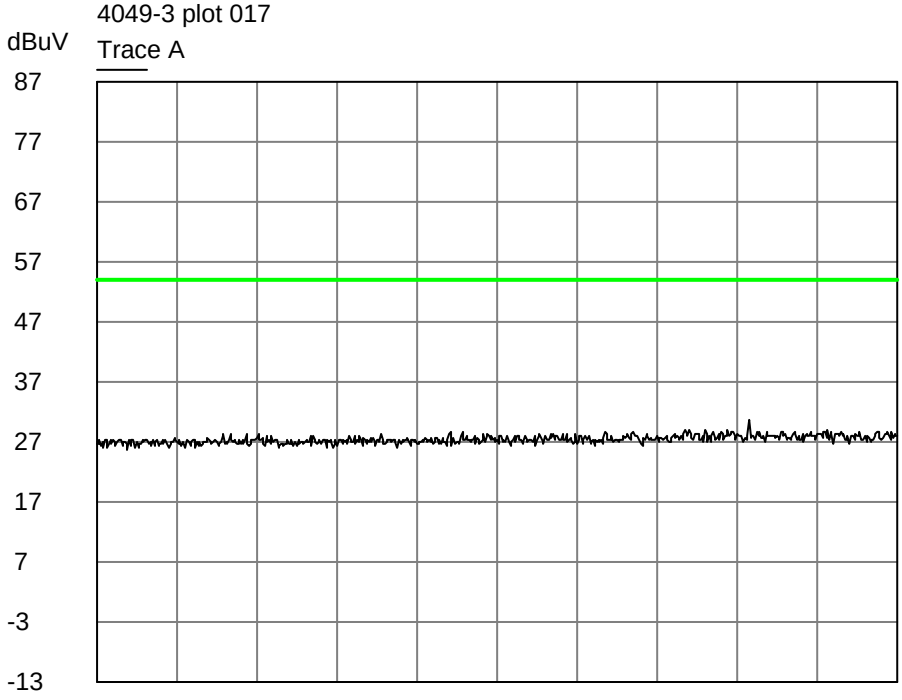
Start: 7.800000 GHz Atten: 10 dB Stop: 8.500000 GHz
Res BW: 1 MHz Vid BW: 3 MHz Sweep: 50.00 ms
24/08/2009 16:23:34 HP8563E

4049-3 plot 016



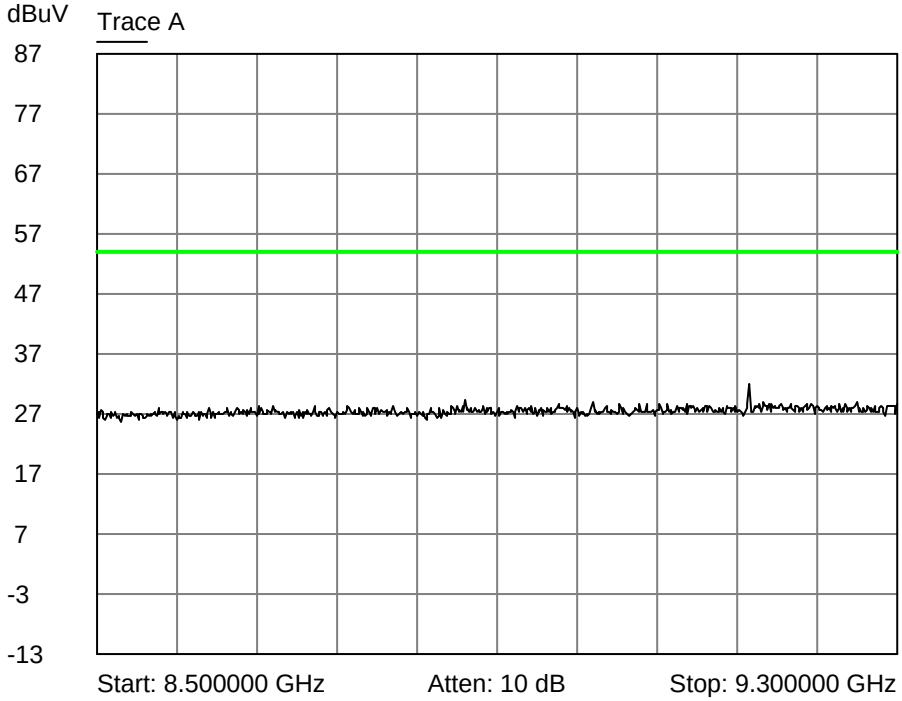
Start: 7.800000 GHz Atten: 10 dB Stop: 8.500000 GHz
Res BW: 1 MHz Vid BW: 3 MHz Sweep: 50.00 ms
24/08/2009 16:24:37 HP8563E

4049-3 plot 017



Start: 8.500000 GHz Atten: 10 dB Stop: 9.300000 GHz
Res BW: 1 MHz Vid BW: 3 MHz Sweep: 50.00 ms
24/08/2009 16:27:55 HP8563E

4049-3 plot 018



Start: 8.500000 GHz Atten: 10 dB Stop: 9.300000 GHz
Res BW: 1 MHz Vid BW: 3 MHz Sweep: 50.00 ms
24/08/2009 16:28:34 HP8563E

Above 1GHz radiated emissions signal lists.

Bottom channel TX

Number	Frequency (MHz)	Measured Average	Measured – Limit (54dBuV/m)	Measuring Antenna Polarisation
1	3610	51.5	-2.5	Vertical
2	3610	37.0	-17.0	Horizontal
3	4513	48.0	-6.0	Vertical
4	4513	43.0	-11.0	Horizontal
5	5415	52.0	-2.0	Vertical
6	5415	45.0	-9.0	Horizontal
7	6317.5	40.0	-14.0	Vertical
8	6317.5	45.0	-9.0	Horizontal
9	7220	36.0	-18.0	Vertical
10	7220	43.0	-11.0	Horizontal
11	8122.5	43.0	-11.0	Horizontal

Middle channel TX

Number	Frequency (MHz)	Measured Average	Measured – Limit (54dBuV/m)	Measuring Antenna Polarisation
1	3660	53.0	-1.0	Vertical
2	3660	38.0	-16	Horizontal
3	4575	46.8	-7.2	Vertical
4	4575	38.0	-16.0	Horizontal
5	5490	53.3	-0.7	Vertical
6	5490	48.5	-5.5	Horizontal
7	6405	41.0	-13.0	Vertical
8	6405	40.8	-13.2	Horizontal
9	7320	37.0	-17.0	Vertical
10	7320	44.0	-10.0	Horizontal
11	8235	44.0	-10.0	Vertical
12	8235	44.1	-9.9	Horizontal
13	9150	46.0	-8.0	Vertical

Top channel TX

Number	Frequency (MHz)	Measured Average	Measured – Limit (54dBuV/m)	Measuring Antenna Polarisation
1	3710	51.3	-2.7	Vertical
2	3710	38.1	-15.9	Horizontal
3	4637.5	46.0	-8.0	Vertical
4	4637.5	41.0	-13.0	Horizontal
5	5565	53.8	-0.2	Vertical
6	5565	45.0	-9.0	Horizontal
7	6492.5	44.0	-10.0	Vertical
8	6492.5	40.0	-14.0	Horizontal
9	7420	36.0	-18.0	Vertical
10	7420	41.0	-13.0	Horizontal

Receive modes.

Bottom channel RX

Number	Frequency (MHz)	Measured Average	Measured – Limit (54dBuV/m)	Measuring Antenna Polarisation
1	5415	42.0	-12.0	Vertical

2	5415	43.0	-11.0	Horizontal

Middle channel RX

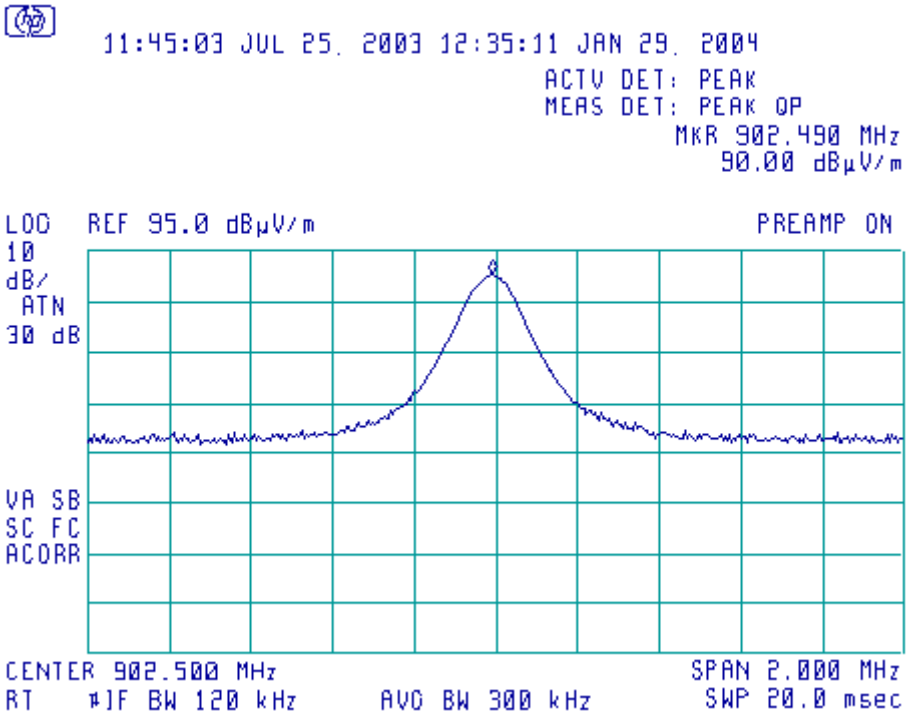
Number	Frequency (MHz)	Measured Average	Measured – Limit (54dBuV/m)	Measuring Antenna Polarisation
1	5490	37.5	-16.5	Vertical
2	5490	39.0	-15.0	Horizontal

Top channel RX

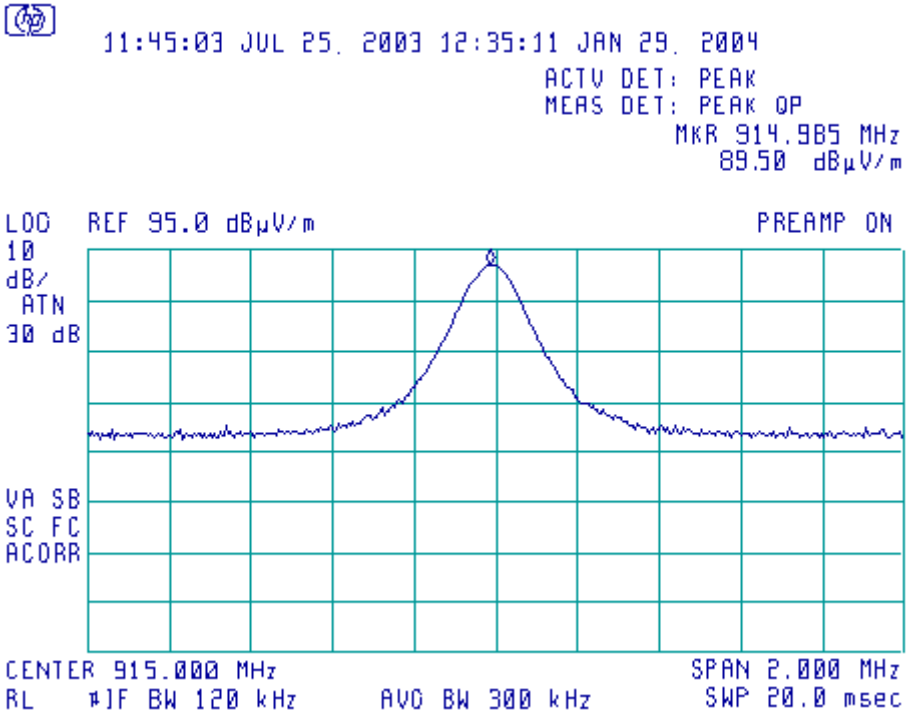
Number	Frequency (MHz)	Measured Average	Measured – Limit (54dBuV/m)	Measuring Antenna Polarisation
1	5565	40.6	-13.4	Vertical
2	5565	40.3	-13.7	Horizontal

6.3 Fundamental Emissions

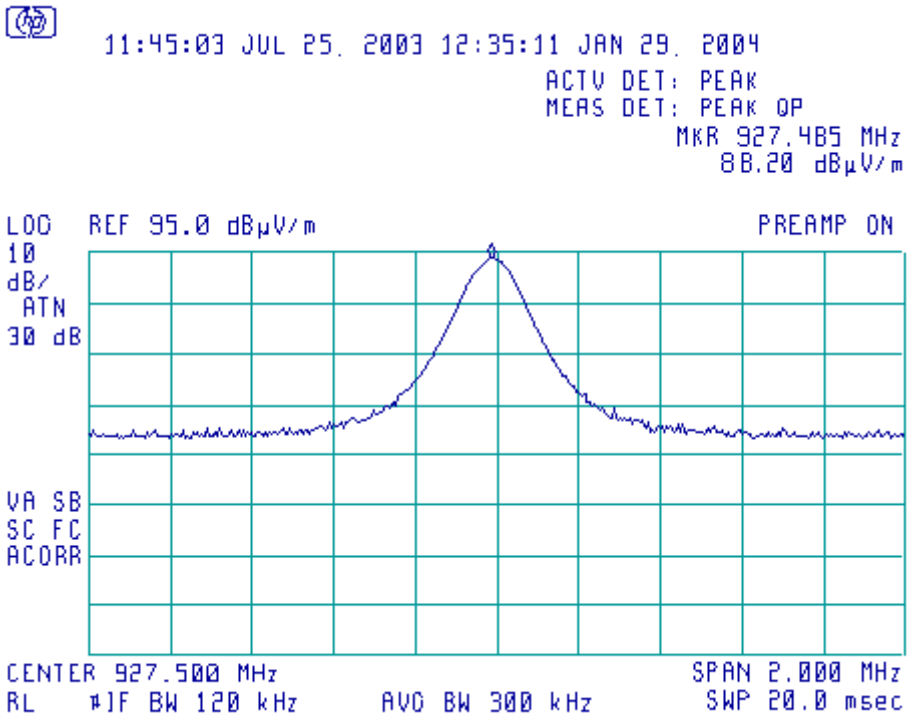
Bottom Channel



Middle channel



Top channel



6.4 Duty Cycle

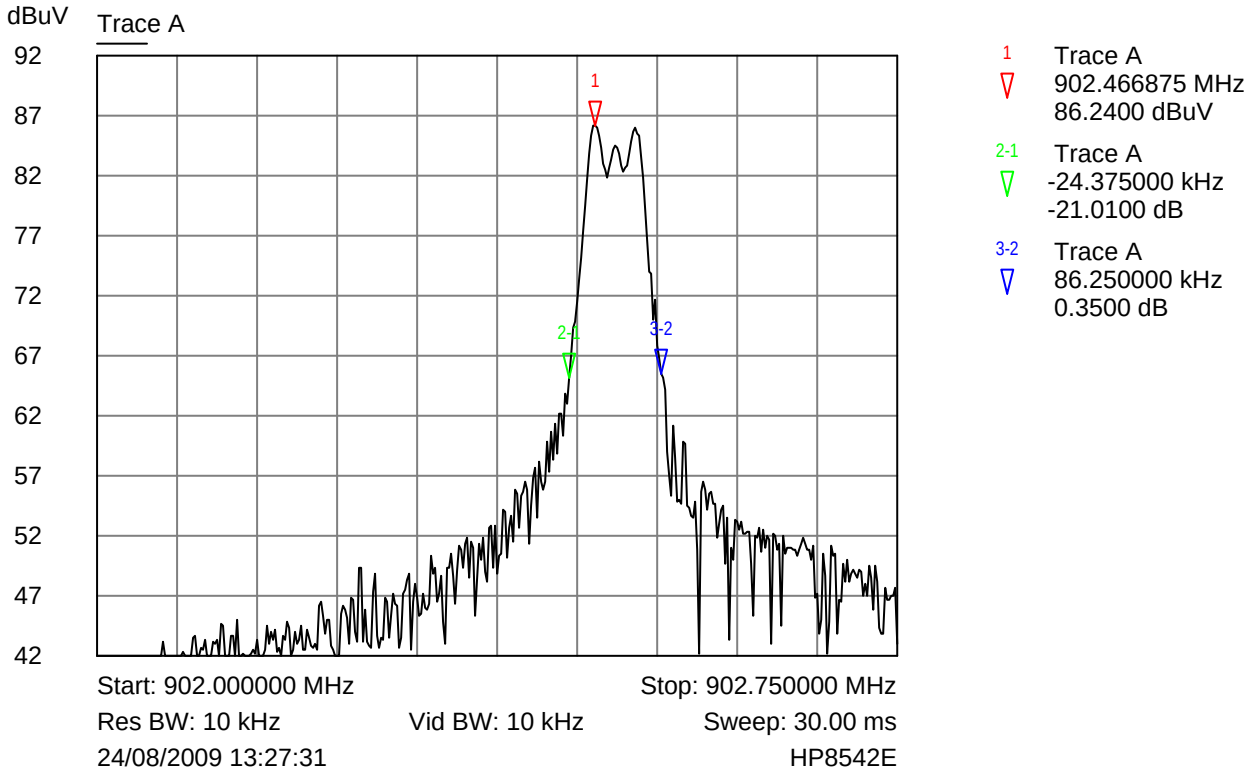
Not applicable.

6.5 Maximum Spectral Power Density

Not applicable.

6.6 Modulation Bandwidth

bottom channel 20dB bandwidth

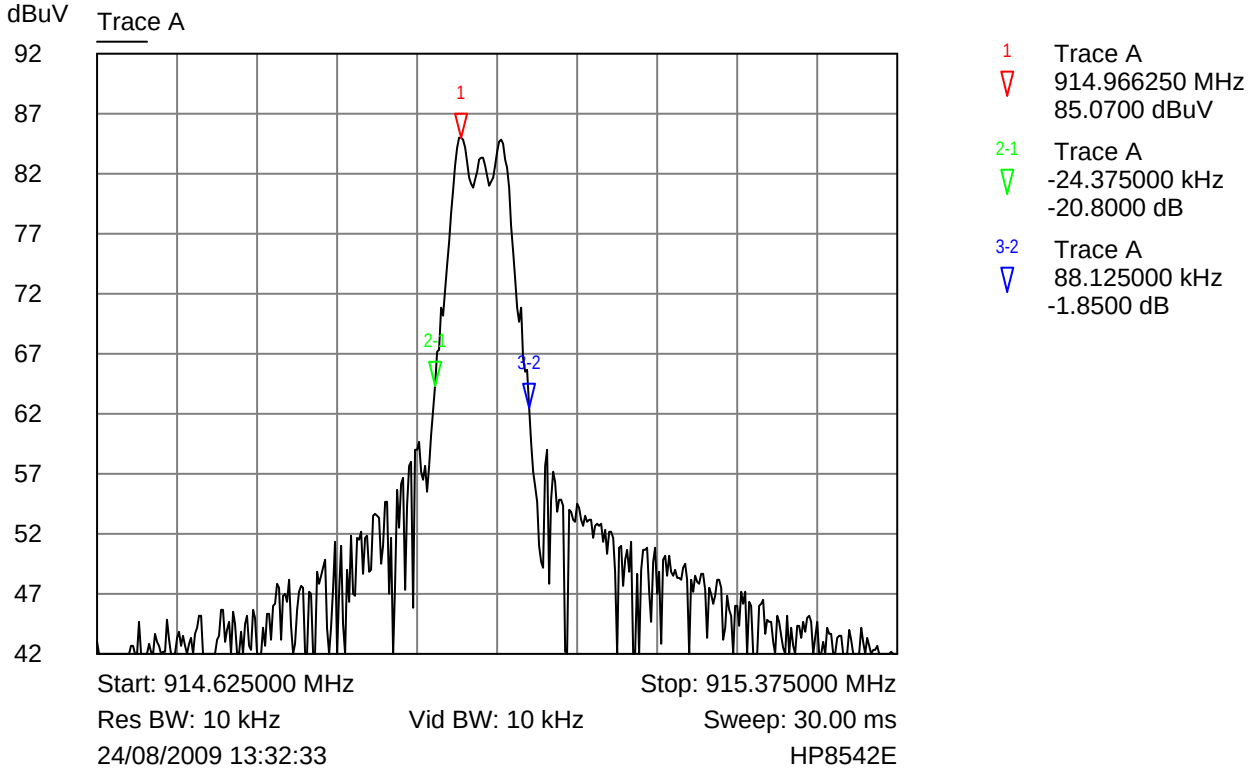


1 Trace A
902.466875 MHz
86.2400 dBuV

2-1 Trace A
-24.375000 kHz
-21.0100 dB

3-2 Trace A
86.250000 kHz
0.3500 dB

Mid channel 20dB bandwidth

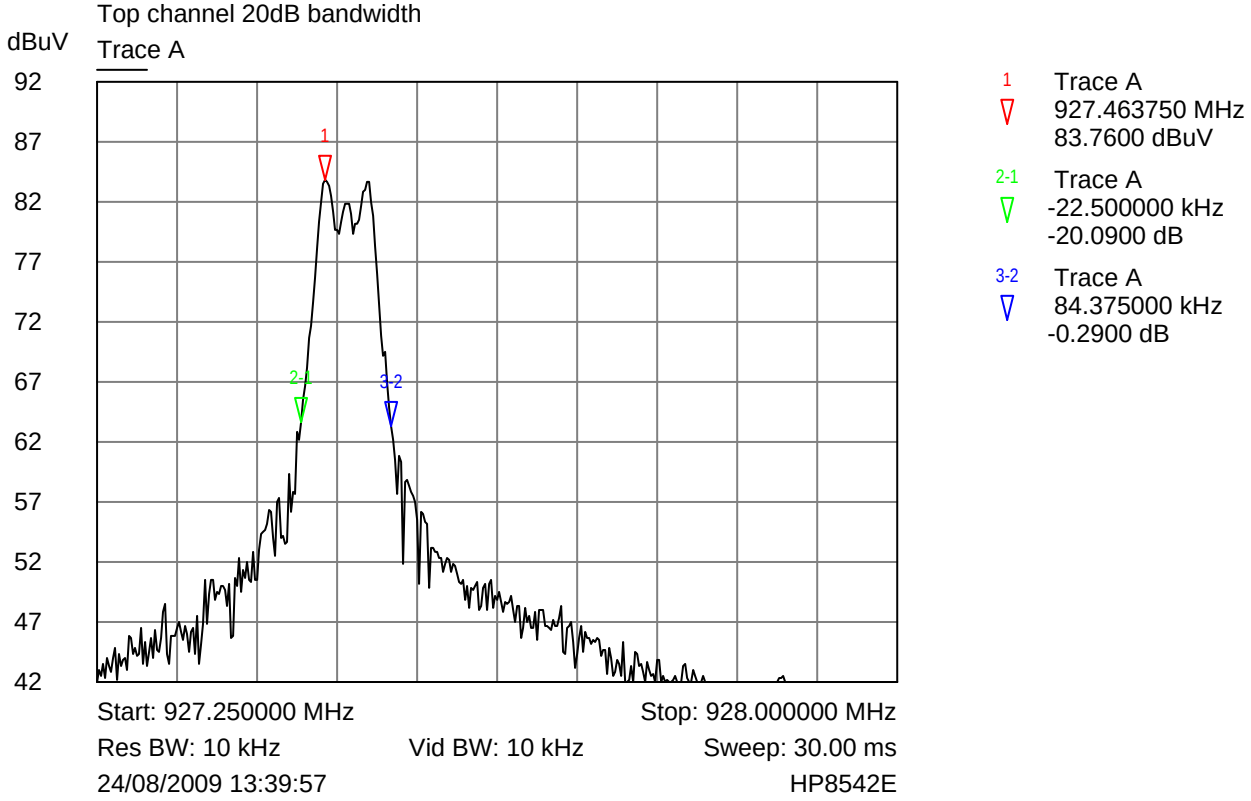


1 Trace A
914.966250 MHz
85.0700 dBuV

2-1 Trace A
-24.375000 kHz
-20.8000 dB

3-2 Trace A
88.125000 kHz
-1.8500 dB

Top channel 20dB bandwidth



7 Explanatory Notes

7.1 Explanation of FAIL LIMIT 1 Statement

The **FAIL MARGIN 1** statement(s) may appear on the graphical plots when the receiver used to measure your equipment detects a signal that exceeds the dashed line. This does not mean that the **EUT** has failed the test, only that the 10 dB calculation margin set, has been exceeded on a peak measurement.

Following the indication that the margin has been exceeded, measurements are made at the frequency (ies) of the peaks. These peaks have been calculated to either Quasi Peak or Average Peak dependant on the test. A table of results has been printed on the reverse of the page. This table looks similar to the one illustrated below: -

Signal Number	Frequency (MHz)	Peak (dBμV)	PK Delta L 1 (dB)	Avg (dBμV)	Av Delta L 1 (dB)
1	12345.0000	12.9	-2.5	10.2	-5.2

The First column, labelled Signal Number, is a number that the receiver has given to each signal, which has been calculated.

Column Two, labelled Frequency (MHz), is the frequency of the signal received.

Column Three, labelled Peak (dBμV), (can also be labelled, in the case of Quasi Peak, Peak dBμV/m) is the Level that was received at peak amount in dB above 1μV.

Column Four, labelled PK Delta L1 (dB), is the same level as Column three but is given in a level relative to the limit line required.

Column Five, labelled AVG (dBμV), (can also be labelled, in the case of Quasi Peak, QP dBμV/m) when undertaking a Quasi peak test, This is the Average or Quasi peak calculation results given in dBμV or dBμV/m above 1μV.

Column Six, labelled AV Delta L 1 (dB), (can also be labelled, in the case of Quasi Peak, QP Delta L 1 (dB)) is the Average or Quasi Peak calculation relevant to the limit line. The results entered in this column indicate the signal level relative to the compliance limit required. Negative numbers indicate that the product is compliant.

7.2 Explanation of limit line calculations for radiated measurements

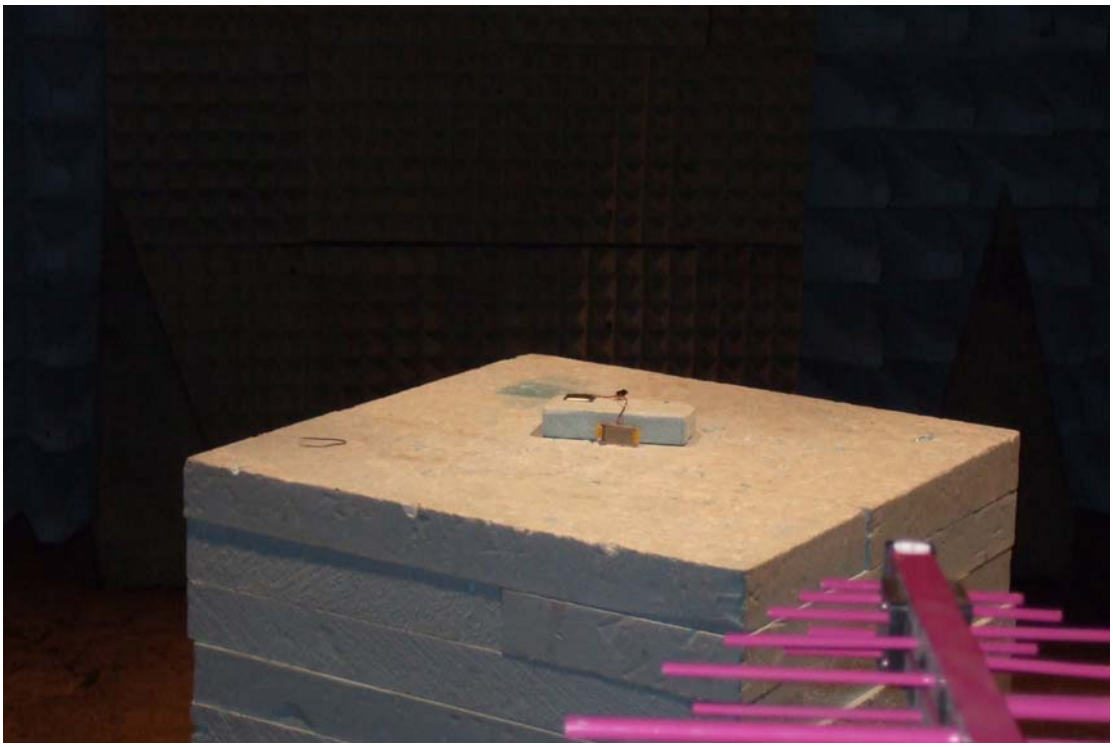
The limits given in the test standard are normally expressed as absolute values (e.g. in μV/m at a specified distance), whereas the measured values are expressed as peak, quasi peak or average values in dBμV/m referenced to the measuring instrument inputs. RN Electronics calibrate the test set-up to account for any path losses, antenna gains, etc. so that the value read at the receiver relates directly to the absolute value required, except that it is expressed in dB relative to one microVolt and may need to take account of any alternative measuring distance used. Examples:

(a) limit of 500 μV/m equates to 20.log (500) = 54 dB μV/m.

(b) limit of 300 μV/m at 10m equates to 20.log (300 . 10/3) = 60 dB μV/m at 3m

8. Photographs

Identifying photograph of the EUT



Photograph of the EUT as viewed from in front of the antenna, site M.

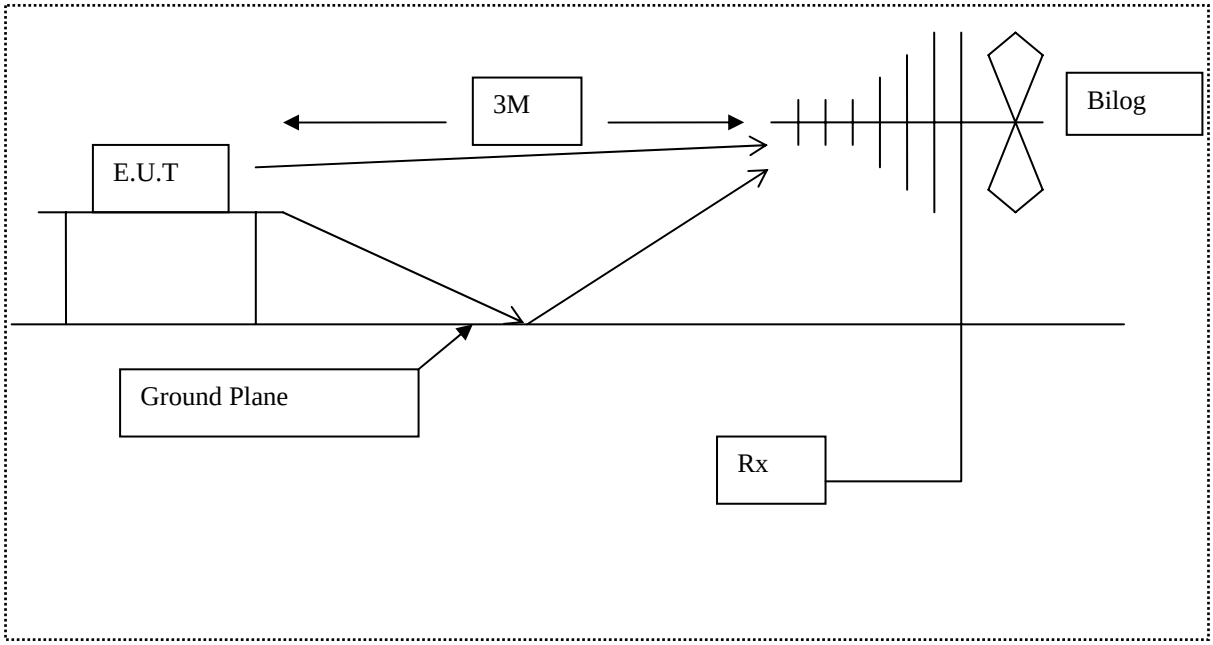


Diagram of the radiated emissions test setup.

Photograph of the EUT as viewed from screened room (conducted emissions)

Not Applicable EUT battery powered

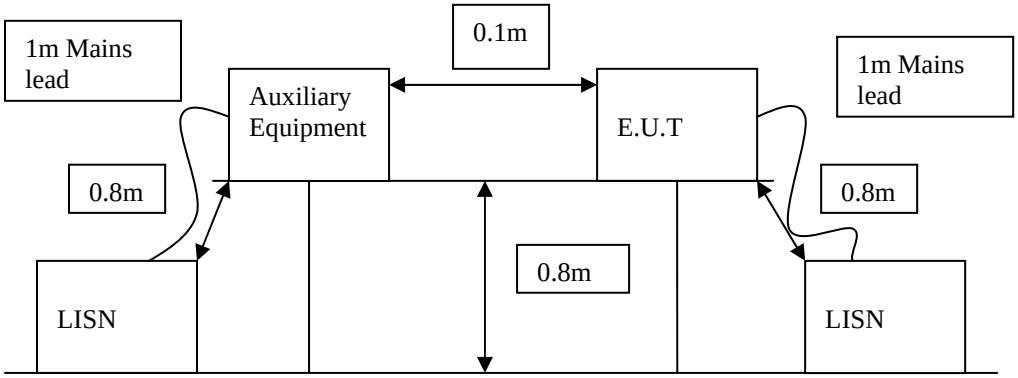


Diagram of the conducted emissions test setup.

Not Applicable EUT battery powered

9. Signal Leads

The EUT had no signal leads or ports of any type.

10. Test Equipment Calibration list

The following table lists the test equipment used, last calibration date and calibration interval. All test equipment used has been maintained within the calibration requirements of ***R.N. Electronics Ltd.*** test facility quality system. Calibration intervals are regularly reviewed dependent on equipment manufacturer's recommendations and actual usage of the equipment.

RNNo	Model	Description	Manufacturer	Date Calibrated	Period
E001	HP8542E	EMI Receiver & RF Filter	Hewlett Packard	12-Aug-09	12
E268	BHA 9118	1-18 GHz Horn Antenna	Schaffner	26-May-06	60
E342	8563E	Spectrum Analyser 26.5 GHz	HP	23-Feb-09	24
E429	-	5 Switch Filter Box 0.91 GHz - 16.3 GHz	RN Electronics	N/A	N/A
TMS81	6502	Active Loop Antenna	EMCO	11-Dec-07	24
TMS82	8449B	Pre Amplifier 1 - 26 GHz	Agilent	28-Oct-08	12
TMS933	CBL6141A	Bilog Antenna 30MHz - 2GHz	York EMC	10-Sep-07	36

11. Auxiliary equipment

11.1 Auxiliary equipment supplied by ZBD Displays Ltd

Auxiliary equipment used for the purpose of test supplied by the above has been listed below

Manufacturer	Description	Model Number	Serial Number
ZBD Displays Ltd	Test jig	-	-
ZBD Displays Ltd	Module USB interface	120-0050-01	1
Dell	Inspiron laptop PC	Inspiron 640M	CN0MG532-70166-6AH-08N5

11.2 Auxiliary equipment supplied by RN Electronics Limited

Auxiliary equipment used for the purpose of test supplied by the above has been listed below

No Auxiliary equipment was supplied by RN Electronics Ltd.

12. Modifications

In order for the EUT to produce the results shown within this report the following modifications, if any, were implemented.

No modifications were required in order for the EUT to pass the tests within this report.

However, In order for the EUT to be power cycled, re-programmed and re-housed in its enclosure for each of the modes required for tests (see section 3.1 modes), as short as possible leads from the battery (via a switch) to the supply pins on the EUT were provided by ZBD Displays Ltd.

13. Compliance information

Products subject to the Declaration of Conformity procedure are required to be supplied with a compliance information statement. A copy of this statement may be included here:

RN Electronics
EMC & RADIO TEST SERVICES

Certificate of Test 4049/3

The equipment noted below has been tested by ***R.N. Electronics Limited*** and conforms with the relevant subpart of FCC part 15, subject to deviations as detailed in this report.

This certificate relates to the equipment, as identified by unique serial number(s) and further detailed in the referenced report, in the condition(s) at the time it was tested. It does not relate to any other similar equipment and performance of the product before or after the test cannot be guaranteed. Furthermore, this is a certificate of test only and should not be confused with an equipment authorisation.

Equipment:	epop 50
Model Number(s):	epop 50
Unique Serial Number(s):	AB00000226B
Manufacturer:	ZBD Displays Ltd
Customer Purchase Order Number:	4653
R.N. Electronics Limited Report Number:	08-373/4049/3/09
Test Standards:	FCC Part 15C (effective date October 1, 2008); Class DXT Intentional Radiator
Date:	24th August 2009
For and on behalf of R.N. Electronics Limited	
Signature:	Roger Ray 2009.09.15 15:24:25 Z

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