TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: Radiometrix Ltd.
RPM3-914-17-ANT.

To: FCC Part 15.249

Test Report Serial No:
RFI/MPTE3/RP47441JD01A

Supersedes Test Report Serial No:
RFI/MPTE2/RP47441JD01A

This Test Report Is Issued Under The Authority Of Andrew Brown, Operations Manager: 	
Tested By: Raul Recio 	**Checked By: Steven Wong** 
Report Copy No: PDF01	
Issue Date: 15 December 2005	**Test Dates: 22 September 2005 to 21 October 2005 and 02 December 2005**

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Test of: Radiometrix Ltd.
RPM3-914-17-ANT.
To: FCC Part 15.249

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1. Client Information

Company Name:	Radiometrix Ltd.
Address:	Hartcran House 231 Kenton Lane Harrow Middlesex HA3 8RP
Contact Name:	Mr S. Paramananthan

2. Equipment Under Test (EUT)

The following information (with the exception of the Date of Receipt) has been supplied by the client:

2.1. Identification of Equipment Under Test (EUT)

Brand Name:	Radiometrix
Model Name or Number:	RPM3-914-17-ANT
Unique Type Identification:	Not Stated
Serial Number:	0021
Country of Manufacture:	UK
FCC ID:	TSK-RPM3-914-17
Date of Receipt:	15 September 2005

2.2. Accessories

The following accessories were supplied with the EUT:

Description:	Carrier Board
Brand Name:	Radiometrix
Model Name or Number:	SpacePort Modem Evaluation Kit
Serial Number:	65535
Cable Length and Type:	Not Applicable
Connected to Port:	EUT Soldered on Board

Description:	Antenna
Brand Name:	Not Stated
Model Name or Number:	RPSMA ¼ Wavelength Monopole
Serial Number:	Not Applicable
Cable Length and Type:	Not Applicable
Connected to Port:	Reverse Polarity SMA Connector

Description:	RS232 Serial Cable
Brand Name:	Not Stated
Model Name or Number:	Not Stated
Serial Number:	Not Stated
Cable Length and Type:	1.75m / RS232 Serial
Connected to Port:	RS232 Serial Port

2.3. Description of EUT

The equipment under test is a Radio Packet Modem with integrated low Power Radio Transceiver, Fast Radio Packet Controller and Radio Packet Modem Controller. The device uses addressable data packets with error checking, packet acknowledgements and retransmissions to achieve a reliable transparent wireless data link.

2.4. Modifications Incorporated in the EUT

Two capacitors were changed on the output matching network of the EUT to reduce the power at the fundamental frequency. The EUT was re-tested after the modification.

2.5. Additional Information Related to Testing

Power Supply Requirement:	Internal battery supply of 9V to the test board. The EUT is powered by a regulated supply of 5 V DC from the test board.		
Intended Operating Environment:	Residential, Commercial, Light Industry and Heavy Industry		
Equipment Category:	Short Range (Low Power)		
Type of Unit:	Base Station (Fixed Use) Portable (Standalone battery powered device)		
Interface Ports:	Antenna Port – Reverse SMA Polarity		
Transmit Frequency Range:	902 MHz to 928 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Single Channel	Not Applicable	914.5
Highest Unintentionally Generated Frequency:	914.5 MHz		
Receive Frequency Range:	902 MHz to 928 MHz		
Receive Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Single Channel	Not Applicable	914.5
Highest Unintentionally Generated Frequency:	914.5 MHz		
Highest Fundamental Frequency:	914.5 MHz		
Occupied Bandwidth:	88.427 kHz		

2.6. Support Equipment

No support equipment was used to exercise the EUT during testing.

3. Test Specification, Methods and Procedures

3.1. Test Specifications

Reference:	FCC Part 15 Subpart C: 2004 (Sections 15.249).
Title:	Code of Federal Regulations, Part 15 (47CFR215) Radio Frequency 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 Methods of Measurement of Electromagnetic Emissions from Low Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

ANSI C63.5 (1988)
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, unless otherwise stated.

EUT transmitting at maximum data rate (64 Kbps) with a modulated carrier for all transmitter tests. For the receiver tests, the EUT was set to receive mode.

5.2. Configuration and Peripherals

The EUT was tested in the following configuration:

EUT soldered on carrier board with two PIC microcontrollers to handle serial data interface. A RPSMA ¼ wavelength monopole antenna was used connected t the EUT using a reverse polarity SMA connector.

6. Summary of Test Results

Range of Measurements	Specification Reference	Port Type	Compliancy Status
Receiver AC Conducted Emissions (150 kHz to 30 MHz)	C.F.R 47 FCC Part 15: 2004 Section 15.107	AC Mains	Complied
Receiver Radiated Spurious Emissions	C.F.R. 47 FCC Part 15: 2004 Section 15.109	Enclosure	Complied
Transmitter AC Conducted Emissions (150 kHz to 30 MHz)	C.F.R 47 FCC Part 15: 2004 Section 15.207	AC Mains	Complied
Transmitter Fundamental Fieldstrength	C.F.R. 47 FCC Part 15: 2004 Section 15.249(a)	Antenna	Complied
Transmitter 20 dB Bandwidth	C.F.R. 47 FCC Part 2: 2004 Section 2.1049	Antenna	Complied
Transmitter Radiated Spurious Emissions	C.F.R. 47 FCC Part 15: 2004 Section 15.249(a)(d)(e) & 15.209	Antenna	Complied
Transmitter Band Edge Radiated Emissions	C.F.R. 47 FCC Part 15: 2004 Section 15.249(d) & 15.209	Antenna	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.

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. Receiver AC Conducted Spurious Emissions: Section 15.107

7.2.1. The EUT was configured for AC conducted emissions measurements as described in Section 8 of this report.

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

Results:

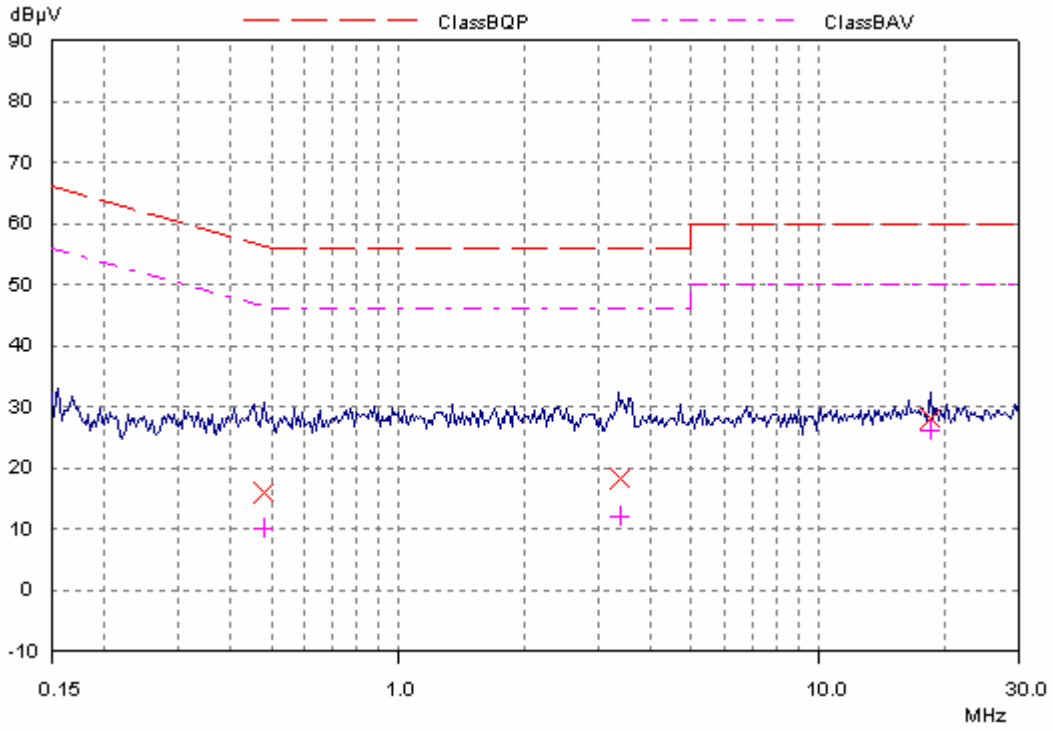
Quasi-Peak Detector Measurements on Live Lines

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.48107	Live	15.92	56.32	40.40	Complied
3.39567	Live	18.28	56.00	37.72	Complied
18.43219	Live	28.03	60.00	31.97	Complied

Average Detector Measurements on Live Lines

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.48107	Live	10.15	46.32	36.17	Complied
3.39567	Live	11.83	46.00	34.17	Complied
18.43219	Live	26.20	50.00	23.80	Complied

Receiver AC Conducted Spurious Emissions: Section 15.107 (Continued)



Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying tables.

7.3. Receiver Radiated Spurious Emissions: Section 15.109

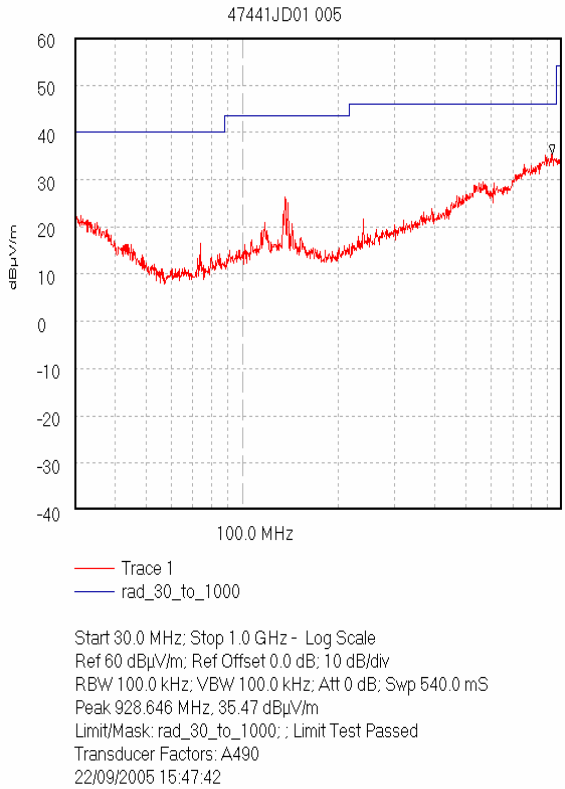
7.3.1. Electric Field Strength Measurements (Frequency Range: 30 to 1000 MHz)

7.3.1.1. The EUT was configured for radiated emissions testing as described in Section 8 of this report.

7.3.1.2. Tests were performed to identify the maximum receiver or standby radiated emission levels.

Results:

Frequency (MHz)	Antenna Polarity	Q-P Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
135.915	Vertical	24.0	43.5	19.5	Complied



Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying tables.

7.4. Receiver Radiated Spurious Emissions: Section 15.109 (Continued)

7.4.1. Electric Field Strength Measurements (Frequency Range: 1 to 5 GHz)

Results:

Highest Peak Level:

Frequency (MHz)	Antenna Polarity	Detector Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
See note 1 below								

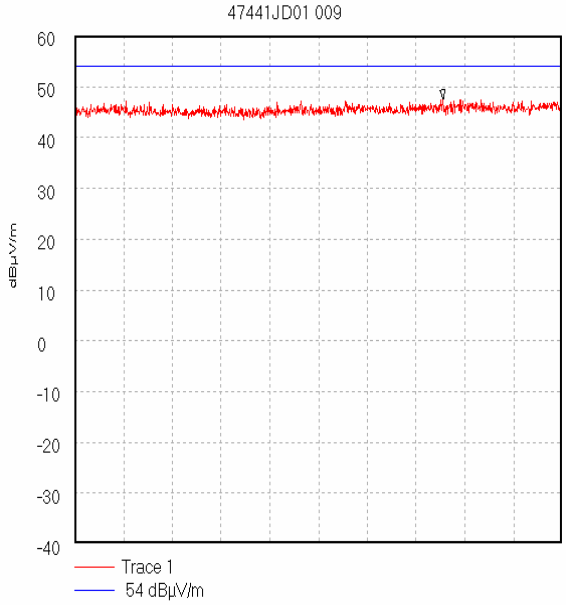
Highest Average Level:

Frequency (MHz)	Antenna Polarity	Detector Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
See note 1 below								

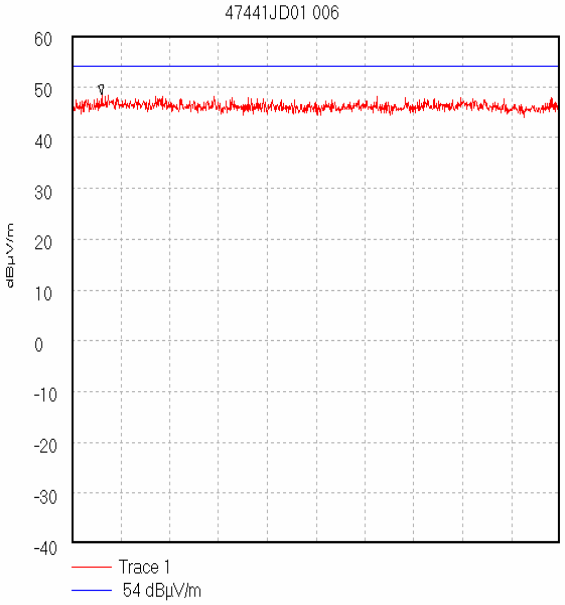
Note(s):

1. No emissions were found above the noise floor of the measuring receiver and therefore the highest peak noise floor reading of the measuring receiver was compared to the average limit as opposed to being compared to the peak limit because this is the more onerous limit. The highest noise floor was 48.5 dBµV/m at 2.122 GHz.

Receiver Radiated Spurious Emissions: Section 15.109 (Continued)



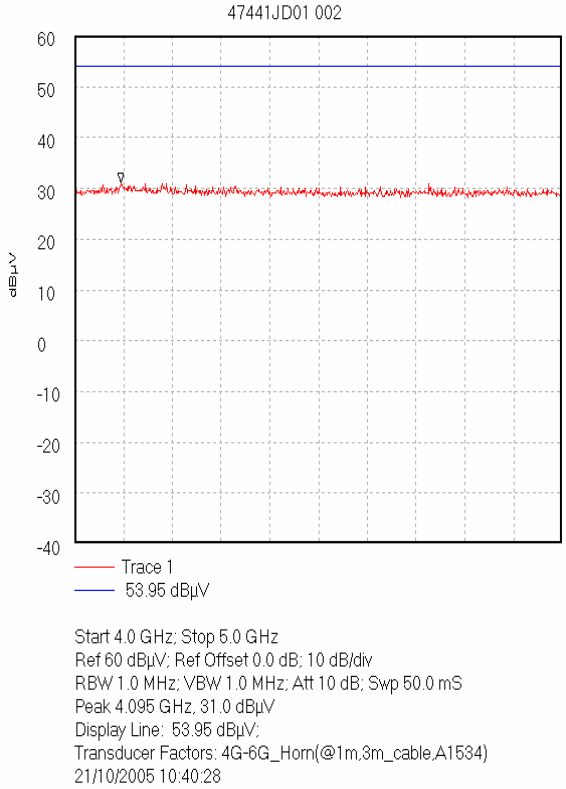
Start 1.0 GHz; Stop 2.0 GHz
Ref 60 dBµV/m; Ref Offset 0.0 dB; 10 dB/div
RBW 1.0 MHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 1.756 GHz, 47.56 dBµV/m
Display Line: 54 dBµV/m;
Transducer Factors: 1 to 2
22/09/2005 16:14:51



Start 2.0 GHz; Stop 4.0 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 2.122 GHz, 48.48 dBµV/m
Display Line: 54 dBµV/m;
Transducer Factors: 2 to 4
22/09/2005 15:59:49

Test of: **Radiometrix Ltd.**
RPM3-914-17-ANT.
To: **FCC Part 15.249**

Receiver Radiated Spurious Emissions: Section 15.109 (Continued)



Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying tables.

7.5. Transmitter AC Conducted Spurious Emissions: Section 15.207

7.5.1. The EUT was configured for AC conducted emissions measurements as described in Section 8 of this report.

7.5.2. Tests were performed to identify the maximum emission levels on the AC mains line of the EUT.

Results:

Quasi-Peak Detector Measurements on Live Lines

Top Channel

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
1.02444	Live	17.90	56.00	38.10	Complied
3.45104	Live	18.46	56.00	37.54	Complied
18.43259	Live	28.03	60.00	31.97	Complied

Average Detector Measurements on Live Lines

Top Channel

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
1.02444	Live	12.54	46.00	33.46	Complied
3.45104	Live	11.37	46.00	34.63	Complied
18.43259	Live	26.20	50.00	23.80	Complied

Test of: **Radiometrix Ltd.**
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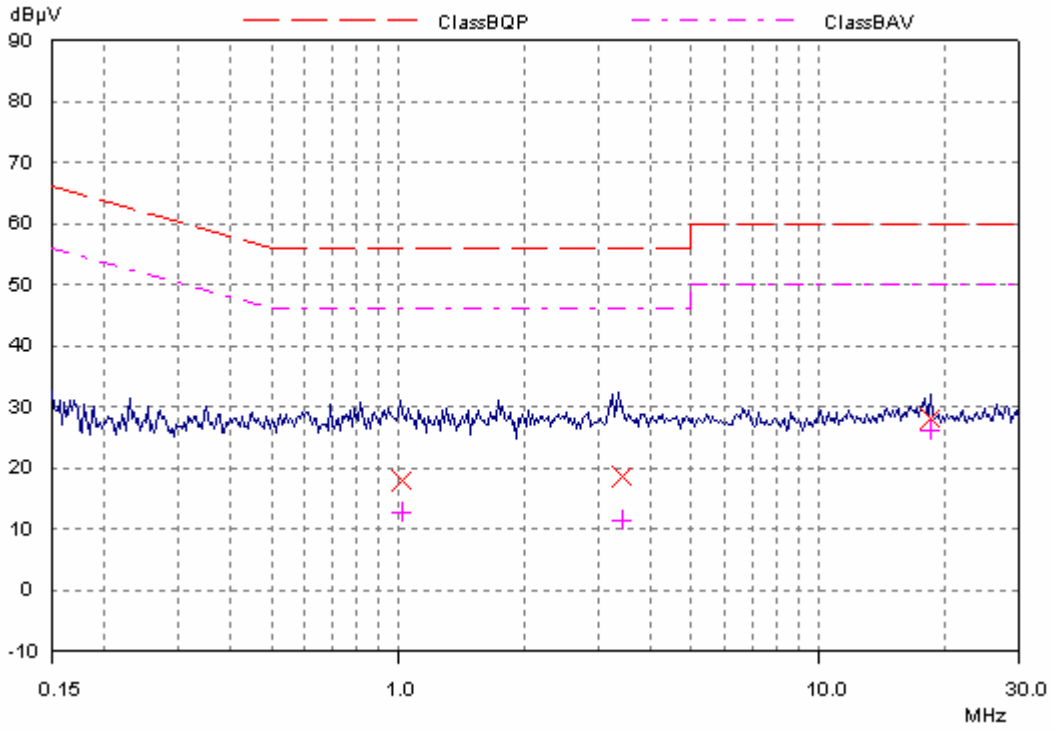
Transmitter AC Conducted Spurious Emissions: Section 15.207 (Continued)



Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying tables.

7.6. Transmitter Fundamental Fieldstrength Section 15.249(a)

7.6.1. The EUT was configured for radiated emissions testing as described in Section 8 of this report.

7.6.2. Tests were performed to identify the maximum fieldstrength of the fundamental frequency.

Results:

Battery Powered Devices

Frequency (MHz)	Antenna Polarity	Q-P Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
914.487	Horizontal	92.8	94.0	1.2	Complied

Note(s):

1. The fundamental fieldstrength was measured by maximizing the signal from the EUT and performing substitutions. The EUT was replaced by a dipole antenna transmitting a CW signal at the EUT fundamental frequency and the power was varied until the same level recorded previously was achieved. The fieldstrength was obtained adding 95.2 dB and the dipole gain to the EIRP, according to the conversion formula in the public notice FCC DA 00-705 for conversion between conducted power and radiated fieldstrength at a distance of 3 m.

7.7. Transmitter 20 dB Bandwidth: Section 2.1049

7.7.1. The EUT was configured for 20 dB bandwidth measurements as described in Section 8 of this report.

7.7.2. Tests were performed to identify the 20 dB bandwidth.

Results:

Transmitter 20 dB Bandwidth (kHz)
88.427

Test of: **Radiometrix Ltd.**
RPM3-914-17-ANT.
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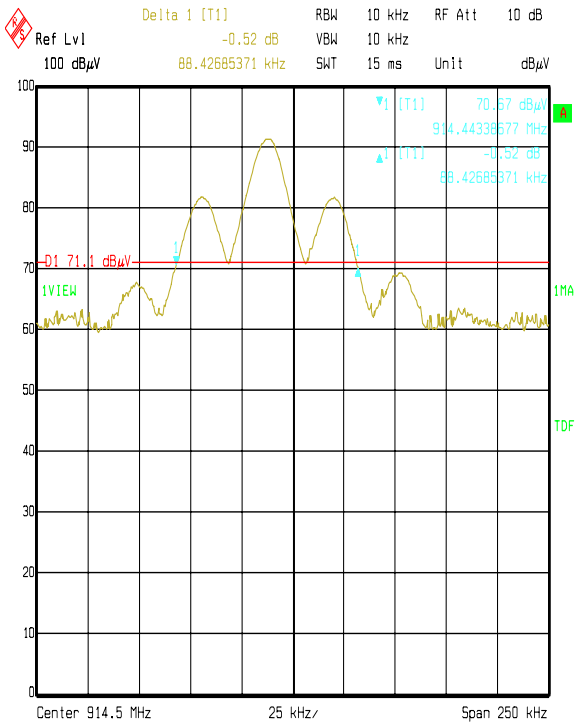
Transmitter 20 dB Bandwidth: Section 2.1049 (Continued)



Title: 47441JD01 Radiometrix EUT: RPM3-914-17-ANT FCC Part 15.249
Comment A: 20dB Bandwidth EUT transmitting at Max Frequency Squarewave Modulated Carrier
Date: 18.OCT.2005 18:20:11

Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying tables.

7.8. Transmitter Radiated Emissions: Section 15.249(a)(d)(e) & Section 15.209

7.8.1. Electric Field Strength Measurements: 30 to 1000 MHz

7.8.1.1. The EUT was configured for radiated emissions testing as described in Section 8 of this report.

7.8.1.2. Tests were performed to identify the maximum radiated spurious emission levels.

Results:

Frequency (MHz)	Antenna Polarity	Q-P Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
62.180	Vertical	16.5	40.0	23.5	Complied
105.945	Horizontal	22.2	43.5	21.3	Complied
928.765	Horizontal	42.0	46.0	4.0	Complied
930.836	Vertical	43.4	46.0	2.6	Complied

Test of: **Radiometrix Ltd.**
RPM3-914-17-ANT.
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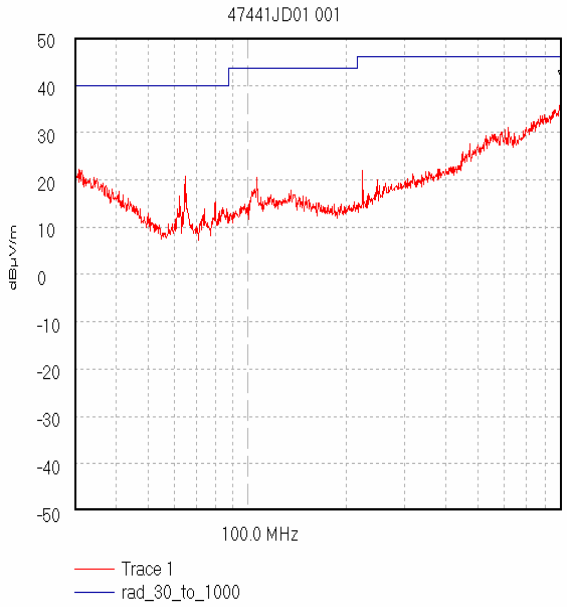
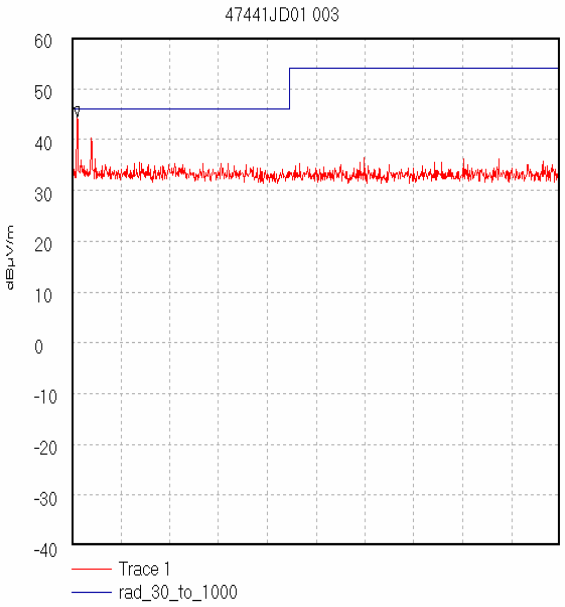
Transmitter Radiated Emissions: Section 15.249(a)(d)(e) & Section 15.209 (Continued)



Start 30.0 MHz; Stop 902.0 MHz - Log Scale
Ref 50 dBµV/m; Ref Offset 0.0 dB; 10 dB/div
RBW 120.0 kHz; VBW 100.0 kHz; Att 0 dB; Swp 340.0 mS
Peak 898.595 MHz, 41.32 dBµV/m
Limit/Mask: rad_30_to_1000; ; Limit Test Passed
Transducer Factors: A490
22/09/2005 15:23:02



Start 928.0 MHz; Stop 1.0 GHz
Ref 60 dBµV/m; Ref Offset 0.0 dB; 10 dB/div
RBW 120.0 kHz; VBW 100.0 kHz; Att 0 dB; Swp 40.0 mS
Peak 928.8 MHz, 44.44 dBµV/m
Limit/Mask: rad_30_to_1000; ; Limit Test Passed
Transducer Factors: A490
22/09/2005 15:30:40

Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying tables.

Transmitter Radiated Emissions: Section 15.249(a)(d)(e) & Section 15.209 (Continued)

7.8.2. Electric Field Strength Measurements (Frequency Range: 1 to 10 GHz)

Results:

Highest Peak Level:

Frequency (MHz)	Antenna Polarity	Detector Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
4572.393	Horizontal	20.8	24.2	3.3	48.3	74.0	25.7	Complied
5486.990	Horizontal	12.0	24.3	3.5	39.8	74.0	34.2	Complied

***Note:** -50 dBc limit*

Highest Average Level:

Frequency (MHz)	Antenna Polarity	Detector Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
4572.393	Horizontal	20.3	24.2	3.3	47.8	74.0	6.2	Complied
5486.990	Horizontal	10.7	24.3	3.5	38.5	74.0	15.5	Complied

Test of: **Radiometrix Ltd.**
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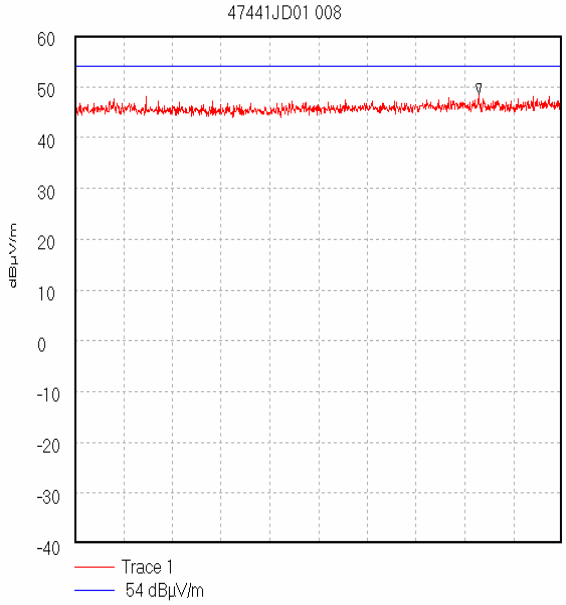
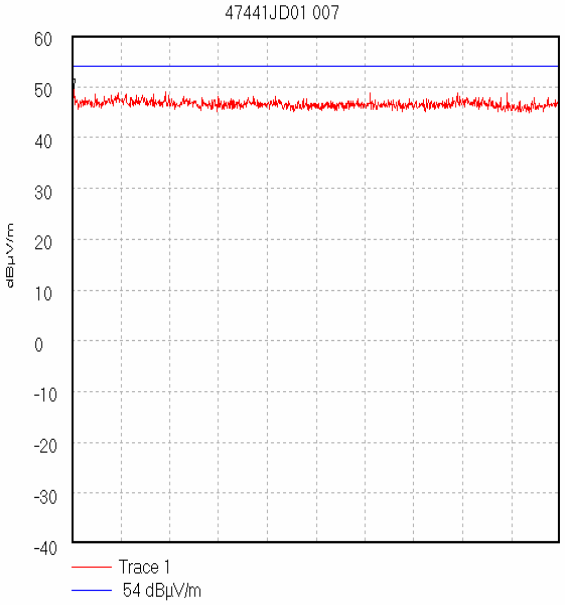
Transmitter Radiated Emissions: Section 15.249(a)(d)(e) & Section 15.209 (Continued)

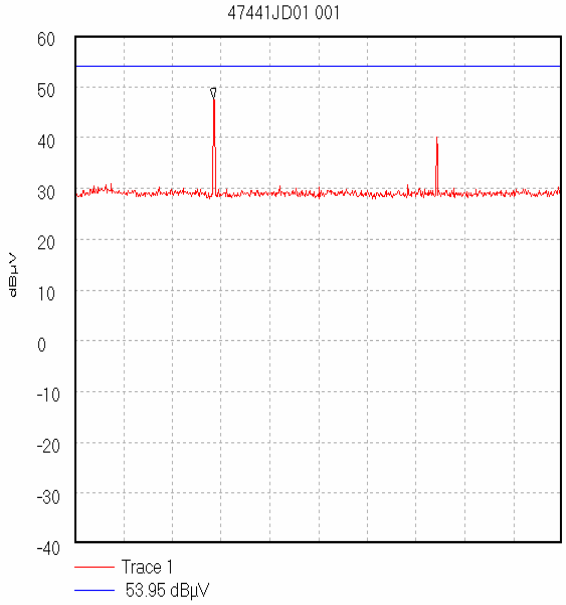


Start 1.0 GHz; Stop 2.0 GHz
Ref 60 dBµV/m; Ref Offset 0.0 dB; 10 dB/div
RBW 1.0 MHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 1.829 GHz, 48.55 dBµV/m
Display Line: 54 dBµV/m;
Transducer Factors: 1 to 2
22/09/2005 16:13:20

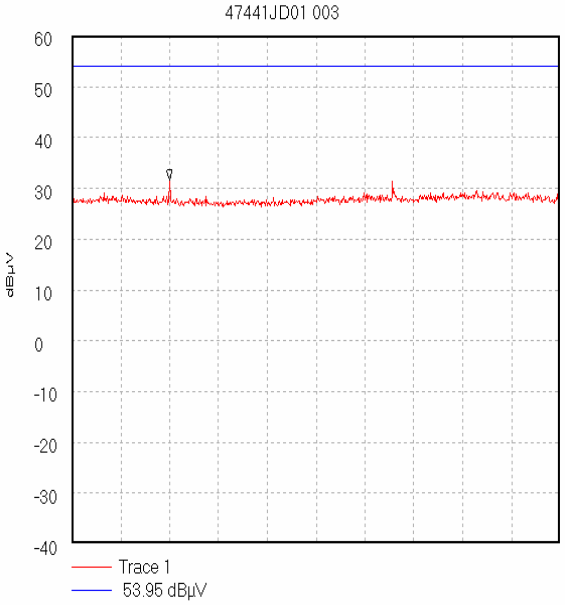


Start 2.0 GHz; Stop 4.0 GHz
Ref 60 dBµV/m; Ref Offset 0.0 dB; 10 dB/div
RBW 1.0 MHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 2.007 GHz, 49.57 dBµV/m
Display Line: 54 dBµV/m;
Transducer Factors: 2 to 4
22/09/2005 16:05:28

Transmitter Radiated Emissions: Section 15.249(a)(d)(e) & Section 15.209 (Continued)



Start 4.0 GHz; Stop 6.0 GHz
Ref 60 dBµV; Ref Offset 0.0 dB; 10 dB/div
RBW 1.0 MHz; VBW 1.0 MHz; Att 10 dB; Swp 50.0 mS
Peak 4.57 GHz, 47.67 dBµV
Display Line: 53.95 dBµV;
Transducer Factors: 4G-6G_Horn(@1m,3m_cable,A1534)
21/10/2005 10:06:32



Start 6.0 GHz; Stop 8.0 GHz
Ref 60 dBµV; Ref Offset 0.0 dB; 10 dB/div
RBW 1.0 MHz; VBW 1.0 MHz; Att 10 dB; Swp 50.0 mS
Peak 6.4 GHz, 31.67 dBµV
Display Line: 53.95 dBµV;
Transducer Factors: 6G-8G_Horn(@0.7m,3m_cable,A1534)
21/10/2005 10:46:47

Test of: **Radiometrix Ltd.**
RPM3-914-17-ANT.
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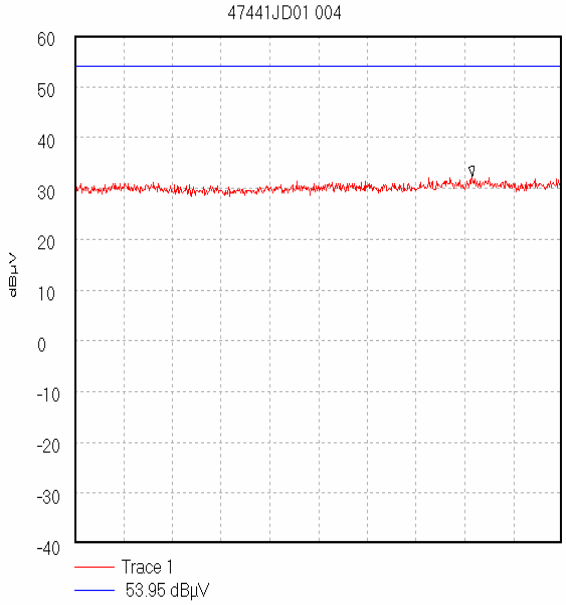
Transmitter Radiated Emissions: Section 15.249(a)(d)(e) & Section 15.209 (Continued)



Start 8.0 GHz; Stop 10.0 GHz
Ref 60 dBµV; Ref Offset 0.0 dB; 10 dB/div
RBW 1.0 MHz; VBW 1.0 MHz; Att 10 dB; Swp 50.0 mS
Peak 9.63 GHz, 32.33 dBµV
Display Line: 53.95 dBµV;
Transducer Factors: 8G-12.5G_Horn(@0.7m,3m_cable,A1534)
21/10/2005 10:53:27

Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying tables.

7.9. Transmitter Radiated Emissions at Band Edges: Section 15.249(d) & 15.209

7.9.1. The EUT was configured for transmitter radiated emissions testing described in Section 8 of this report.

7.9.2. Tests were performed to identify the maximum emissions level at the band edges of the frequency band that the EUT will operate over.

Results:

Bottom Band Edge

Frequency (MHz)	Q-P Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
902	33.3	46.0	12.7	Complied

Top Band Edge

Frequency (MHz)	Q-P Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
928	33.0	46.0	13.0	Complied

Test of: **Radiometrix Ltd.**
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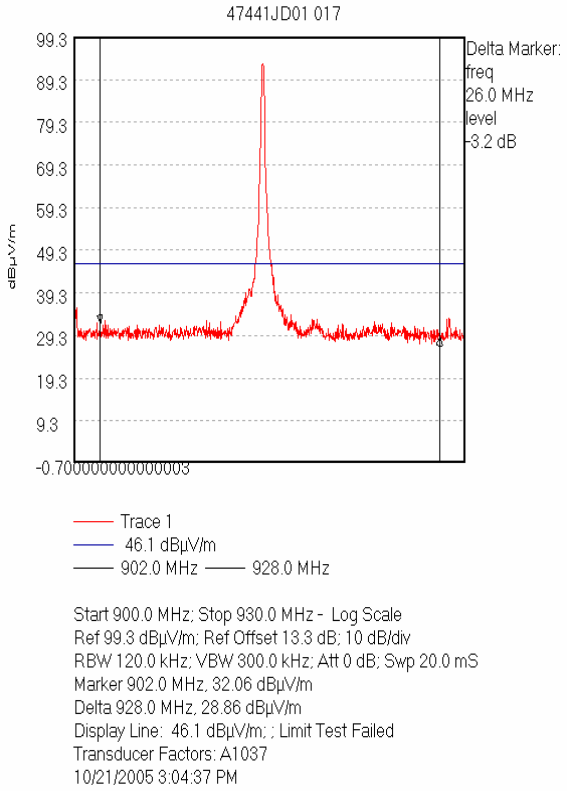
To: **FCC Part 15.249**

Transmitter Radiated Emissions at Band Edges: Section 15.249(d) & 15.209 (Continued)



Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying tables.

8. Measurement Methods

8.1. 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 115V 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

8.2. Radiated Emissions

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

Initial measurements covering the entire measurement band in the form of swept scans in a shielded enclosure were performed in order to identify frequencies on which the EUT was generating interference. This determined the frequencies on which the EUT should be re-measured in full on the open area test site. In order to minimise the time taken for the swept measurements, a Peak detector was used in conjunction with the appropriate detector IF measuring bandwidth (see table below). Repetitive scans were performed to allow for emissions with low repetition rates.

The initial scans were performed using an antenna height of 1.5 m and a measurement distance of 3 m. Following the initial scans, graphs were produced giving an overview of the emissions from the EUT plotted against the appropriate specification limit. Any emission within 20 dB of the limit were then measured on the open area test site, except in cases where the noise floor was within 20 dB of the limit, in these cases the highest point of the noise floor was measured.

In either case the measurement was made at the appropriate distance using a measuring receiver with a Quasi-Peak detector for measurements below 1000 MHz and an Average detector for measurements above 1000 MHz.

For the final measurements the EUT was arranged on a non-conducting turn table on a standard test site compliant with ANSI C63.4 – 2001 Clause 5.4.

All measurements on the open area test site were performed using broadband antennas.

On the open area test site, at each frequency where a signal was to be measured, the trace was maximised by rotating a turntable through 360°. The angle at which the maximum signal was observed was locked out. For frequencies below 1000 MHz the test antenna was varied in height between 1 m and 4 m in order to further maximise the target emission.

For frequencies above 1000 MHz where a horn antenna was used, height searching was performed to locate the optimal height of the horn with respect to the EUT. At this point the horn was locked off and the turntable was again rotated through 360° to maximise the target signal. It should be noted that the received signal from the EUT would diminish very quickly after it exits the beam width of the horn antenna, for this reason it may not be necessary to fully height search with the horns.

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.

Scans were performed to the upper frequency limits as stated in Section 15.33

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	Max Hold
Bandwidth:	(120 kHz < 1 GHz) (1 MHz > 1 GHz)	120 kHz	1 MHz
Amplitude Range:	100 dB	100 dB	100 dB
Step Size:	Continuous sweep	Not applicable	Not applicable
Sweep Time:	Coupled	Not applicable	Not applicable

8.3. Transmitter 20 dB Bandwidth

The EUT and spectrum analyser was configured for transmitter radiated emissions measurements.

To determine the occupied bandwidth, a resolution bandwidth of 10 kHz was used, which is greater than 1% of the 20 dB bandwidth. A video bandwidth of a least the same value was used. The analyser was set for a maximum hold scan to capture the profile of the signal. The peak level was then determined, and a reference line was drawn 20 dB below the peak level. The bandwidth was determined at the points where the 20 dB reference crossed the profile of the emission.

9. Measurement Uncertainty

9.1. 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.

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

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

9.4. 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**
AC Conducted Spurious Emissions	0.15 MHz to 30 MHz	95%	+/- 3.25 dB
Occupied Bandwidth	N/A	95%	+/- 0.12 %
Radiated Spurious Emissions	30 MHz to 1000 MHz	95%	+/- 5.26 dB
Radiated Spurious Emissions	1 GHz to 40 GHz	95%	+/- 2.94 dB

9.5. 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.
A027	Horn Antenna	Eaton	9188-2	301
A031	2 to 4 GHz Eaton Horn Antenna	Eaton	91889-2	557
A1037	Chase Bilog Antenna	Chase EMC Ltd	CBL6112B	2413
A1227	Pre Amplifier	Agilent	8449B	3008A01566
A201	WG 20 Horn Antenna	Flann Microwave Ltd	20240-20	266
A253	WG 12 Microwave Horn	Flann Microwave	12240-20	128
A254	WG 14 Microwave Horn	Flann Microwave	14240-20	139
A255	WG 16 Microwave Horn	Flann Microwave	16240-20	519
A256	WG 18 Microwave Horn	Flann Microwave	18240-20	400
A259	Bilog Antenna	Chase	CBL6111	1513
A553	Bi-log Antenna	Chase	CBL6111A	1593
C1082	Rosenberger Cable 2m	Rosenberger	FA210A1020M5050	28463-1
C1122	Rosenberger	Rosenberger	FA210A1030005050	170434844-03
C323	Cable	Rosenberger	UFA 210A-1-0788-50x50	96A0121
M1008	HP 8563E	Hewlett Packard	8563E	3551A04412
M1242	FSEM30 Spectrum Analyser	Rohde & Schwarz, Inc.	FSEM30	845986_022
S201	Site 1	RFI	1	
S202	Site 2	RFI	2	S202-15011990
S006	D.C. Power Supply	Rohde & Schwarz	NGPE 40/40	192.0332.41
S212	Site 12	RFI	12	

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

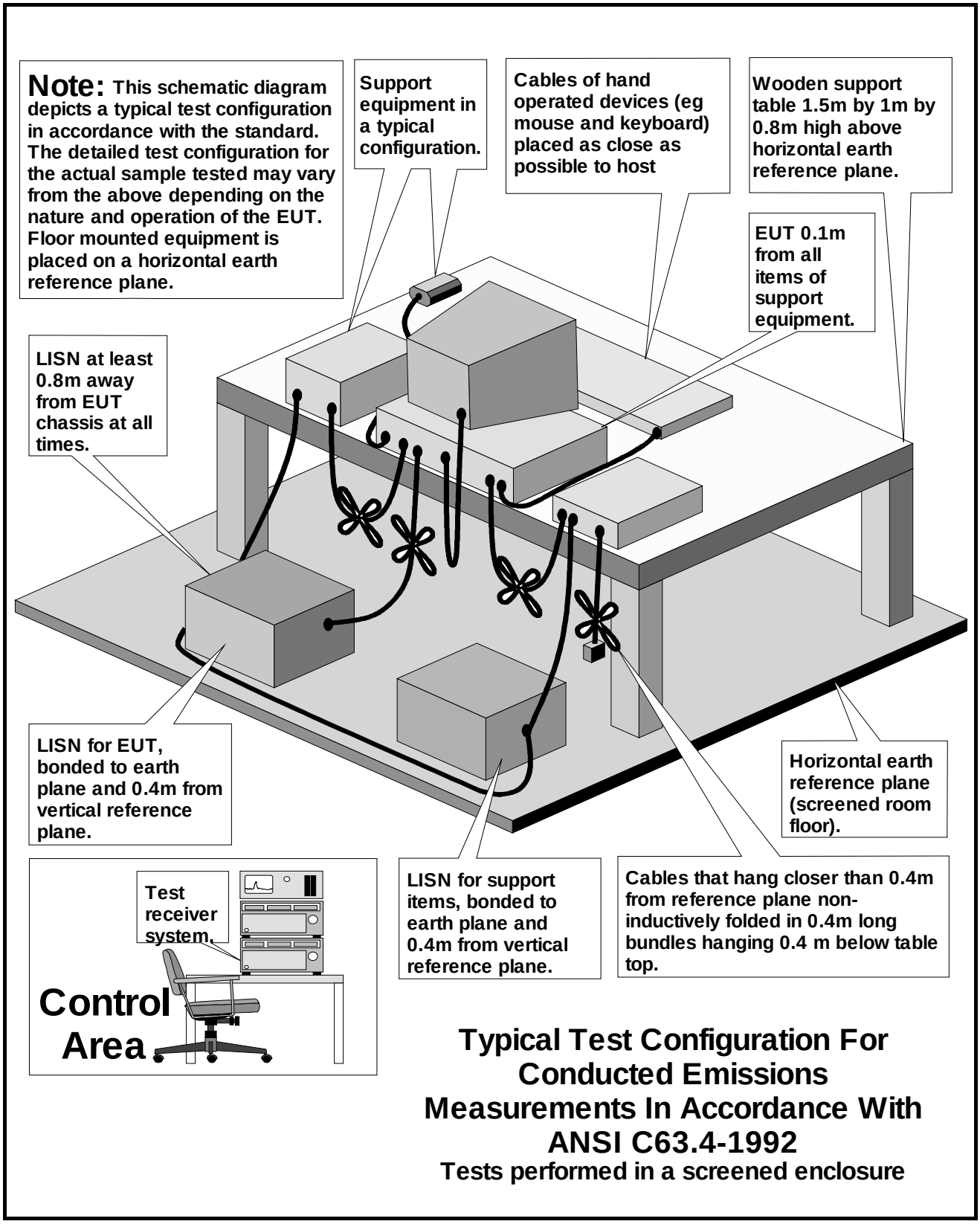
Appendix 2. Test Configuration Drawings

This appendix contains the following drawings:

Drawing Reference Number	Title
DRG\4744JD01\EMICON	Test configuration for measurement of conducted emissions.
DRG\4744JD01\EMIRAD	Test configuration for measurement of radiated emissions.

Test of: Radiometrix Ltd.
RPM3-914-17-ANT.
To: FCC Part 15.249

DRG\4744JD01\EMICON

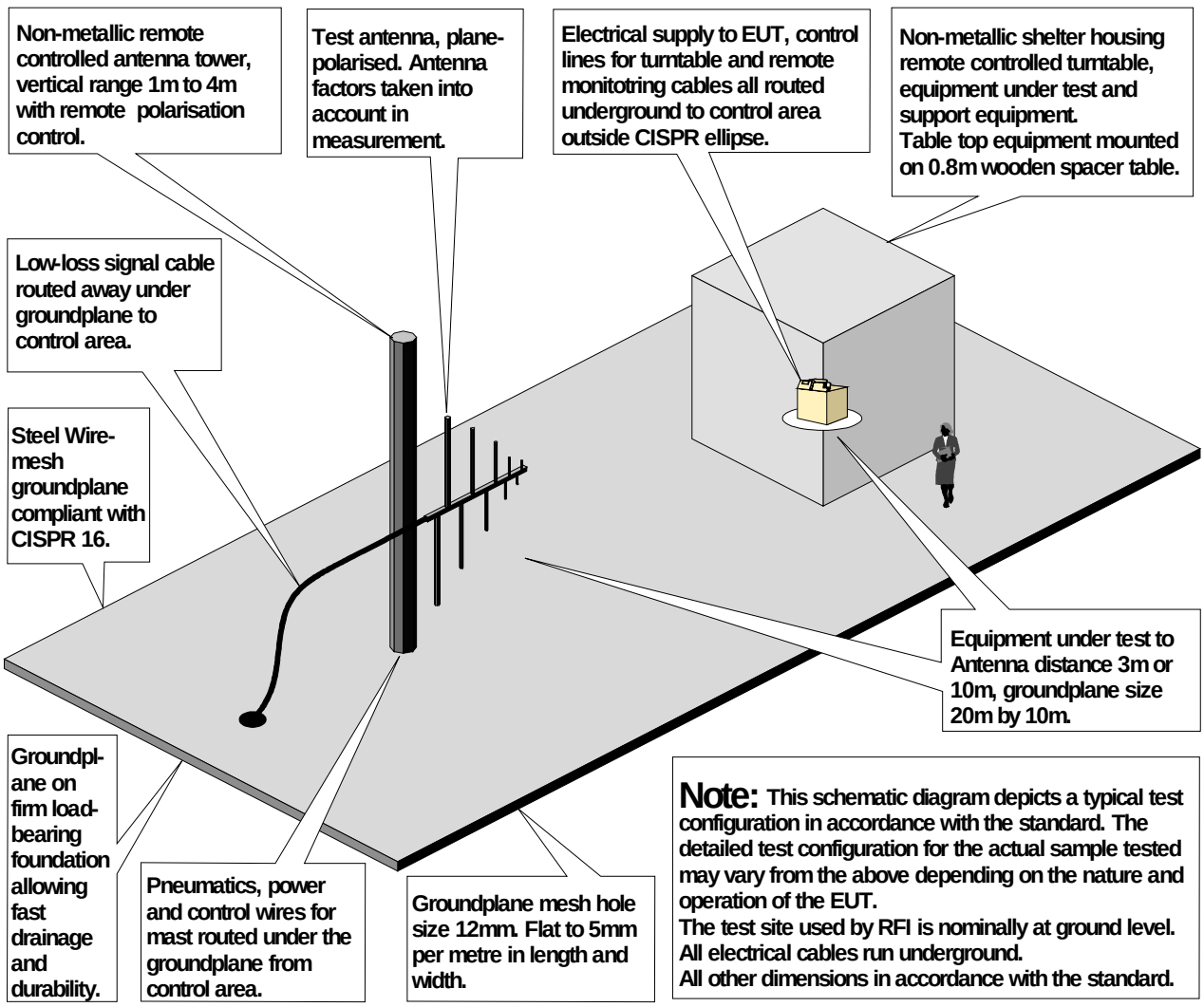


Typical Test Configuration For Conducted Emissions Measurements In Accordance With ANSI C63.4-1992

Tests performed in a screened enclosure

Test of: Radiometrix Ltd.
RPM3-914-17-ANT.
To: FCC Part 15.249

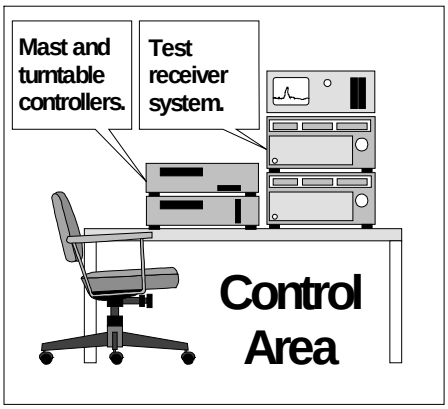
DRG\4744JD01\EMIRAD



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



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