

TEST REPORT FROM RFI GLOBAL SERVICES LTD

Test of: Panasonic Mobile Comms Dev of Europe Ltd
VS70A Dual Mode (3G/GSM) Mobile Station

To: FCC Part 15.247: 2006 (Subpart C)

Test Report Serial No:
RFI/RPTE2/RP72327JD01B

Supersedes Test Report Serial No:
RFI/RPTE1/RP72327JD01B

This Test Report Is Issued Under The Authority
Of Andrew Brown, Operations Manager:

pp.

A handwritten signature in blue ink, appearing to read 'A. Brown', enclosed within a faint circular stamp.

Tested By: Ian Watch

pp.

A handwritten signature in blue ink, appearing to read 'I. Watch', followed by a vertical red line.

Checked By: Michael Derby

A handwritten signature in blue ink, appearing to read 'M. Derby', enclosed within a faint circular stamp.

Report Copy No: PDF01

Issue Date: 29 November 2006

Test Dates: 06 November 2006 to 13 November 2006

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1. Client Information

Company Name:	Panasonic Mobile Comms Dev of Europe Ltd
Address:	2 Gables Way Colthrop Thatcham Berkshire RG19 4ZB United Kingdom
Contact Name:	Mr M Hargreaves

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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)

Description:	Dual Mobile Phone
Brand Name:	Panasonic
Model Name or Number:	VS70A
Unique Type Identification:	Sample C3
Serial Number:	004401220170043
Hardware Revision:	D
Software Revision:	706PVB01
FCC ID Number:	UCE206001A
Country of Manufacture:	None Stated
Date of Receipt:	06 November 2006

Description:	AC Charger US Type
Brand Name:	Panasonic
Model Name or Number:	EB-CAX800US
Unique Type Identification:	Sample C22
Country of Manufacture:	Phillipines
Date of Receipt:	06 November 2006

2.2. Description of EUT

The equipment under test is a Dual Mode (3G/GSM) Mobile Station with Bluetooth capability.

2.3. Modifications Incorporated in EUT

During the course of testing the EUT was not modified.

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2.4. Additional Information Related to Testing

Power Supply Requirement:	Nominal 110 V, 60 Hz AC Mains supply (via AC Charger)		
Intended Operating Environment:	Within GSM Coverage Within <i>Bluetooth</i> Coverage		
Equipment Category:	GSM 1900 <i>Bluetooth</i>		
Type of Unit:	Portable (Standalone Battery Powered Device)		
Transmitter Power (EIRP):	-2.3 dBm (measured)		
Transmit Frequency Range:	2402 MHz to 2480 MHz		
Transmit Channels Tested:	Channel ID	Channel Number	Channel Frequency (MHz)
	Bottom	1	2402
	Middle	40	2441
	Top	79	2480
Receive Frequency Range:	2402 MHz to 2480 MHz		
Receive Channels Tested:	Channel ID	Channel Number	Channel Frequency (MHz)
	Bottom	1	2402
	Middle	40	2441
	Top	79	2480

2.5. Port Identification

Port	Description	Type/Length	Applicable
1	Charger/ USB	>1.0 m, Multicore	Y
2	Handsfree Port	>1.0 m, Multicore	Y
3	USM	>1.0 m, Multicore	Y
4	Communications / Charger	>1.0 m, Multicore	Y

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3. Test Specification

Reference:	FCC Part 15.247: 2006 Subpart C
Title:	Code of Federal Regulations, Part 15.247 (47CFR15) (Intentional Radiators operating within the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz)

3.1. 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 (1987)

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.

3.2. 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.

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4. Deviations from the Test Specification

At the request of the client, only the Radiated measurements tests were performed.

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5. Operation of the EUT during Testing

5.1. Operating Modes

The EUT was tested in the following operating modes, unless otherwise stated:

Connected (via wireless link) to a Bluetooth test set, operating in Bluetooth transceiver mode.

5.2. Configuration and Peripherals

The EUT was tested in the following configuration:

Standalone operation, with AC charger Connected.

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6. Summary of Test Results

Range of Measurements	Specification Reference	Port Type	Compliance Status
Idle Mode Radiated Spurious Emissions	Section 15.109	Enclosure/Antenna	Complied
Transmitter Maximum Peak Output Power	Section 15.247(b)(1)	Antenna	Complied
Transmitter Radiated Emissions	Sections 15.247(d) & 15.209(a)	Enclosure/Antenna	Complied
Transmitter Band Edge Radiated Emissions	Sections 15.247(d) & 15.209(a)	Enclosure/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.

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7. Measurements, Examinations and Derived Results

7.1. General Comments

This section contains test results only.

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.

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7.2. Test Results

7.2.1. Idle Mode Radiated Spurious Emissions: Section 15.109

The EUT was configured for radiated emission testing, as described in section 9 of this report.

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

Results:

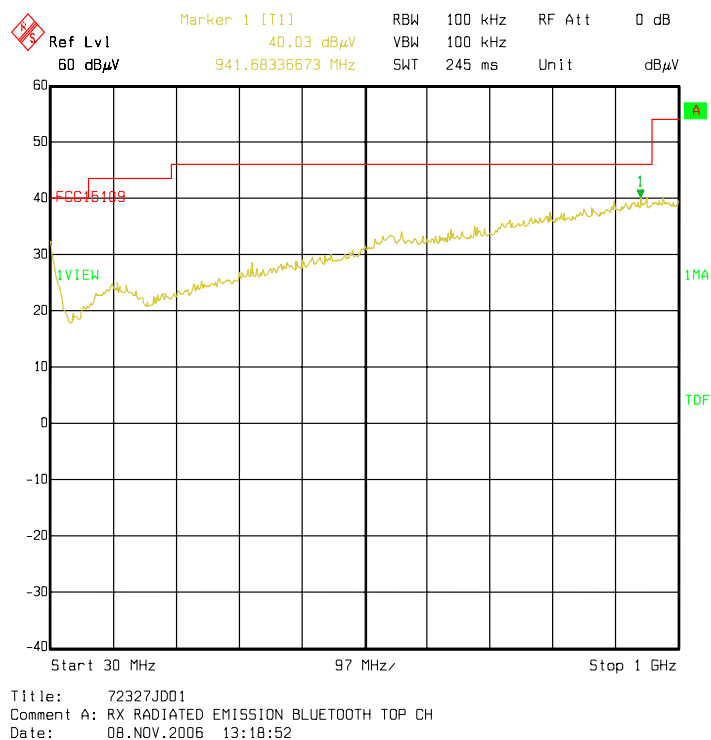
Electric Field Strength Measurements (Frequency Range: 30 MHz to 1000 MHz)

Frequency (MHz)	Antenna Polarity	Q-P Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
941.683	Vertical	40.0	46.0	6.0	Complied

Note(s):

1. No spurious emissions were detected above the noise floor of the measuring receiver; therefore, the highest peak noise floor reading of the measuring receiver was recorded as shown in the table above.

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Idle Mode 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.

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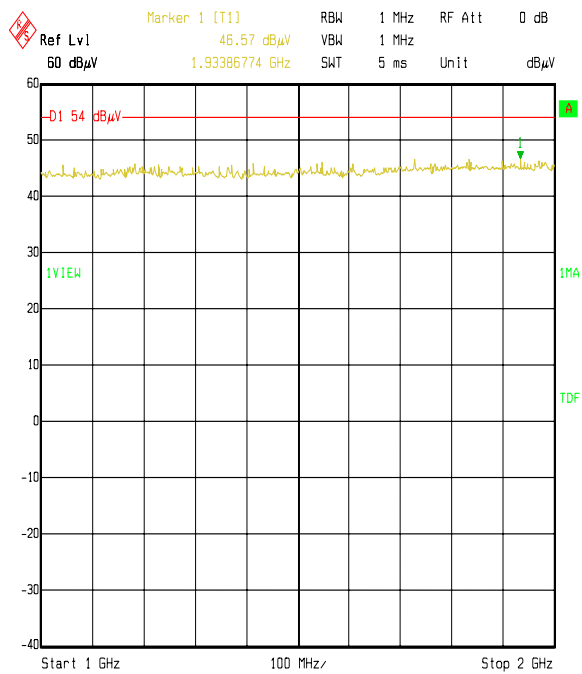
Idle Mode Radiated Spurious Emissions: Section 15.109 (Continued)**Results:****Electric Field Strength Measurements (Frequency Range: 1 GHz to 12.5 GHz)****Highest Peak Level:**

Frequency (GHz)	Antenna Polarity	Detector Level (dB μ V)	Transducer Factor (dB)	Actual Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
2.500	Vertical	57.6	-11.0	46.6	54.0	7.4	Complied

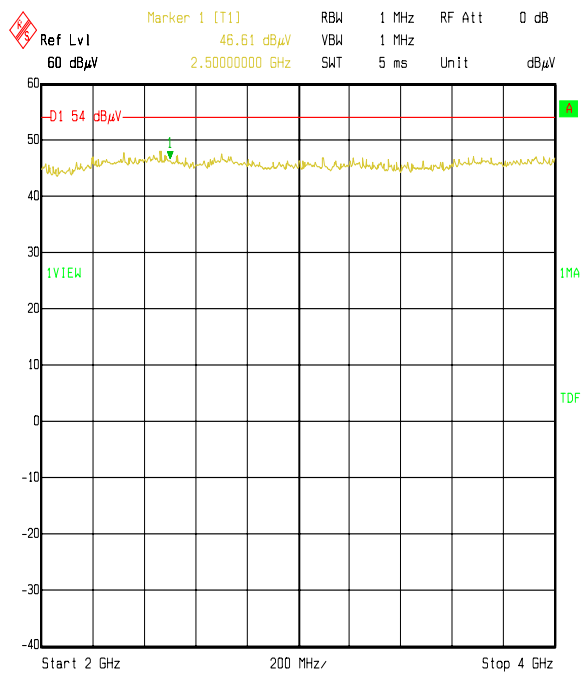
Note(s):

1. No spurious emissions were detected above the noise floor of the measuring receiver; therefore, the highest peak noise floor reading of the measuring receiver was recorded as shown in the table above. The peak level was compared to the average limit as opposed to being compared to the peak limit because this is a more onerous limit.

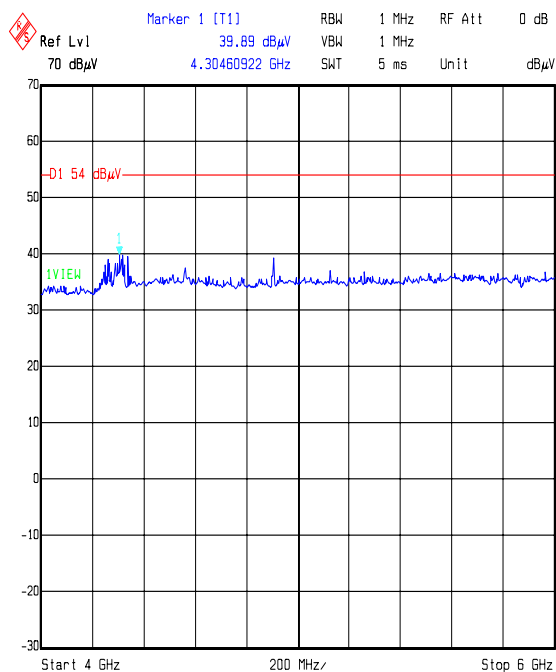
Test of: Panasonic Mobile Comms Dev of Europe Ltd
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Idle Mode Radiated Spurious Emissions: Section 15.109 (Continued)

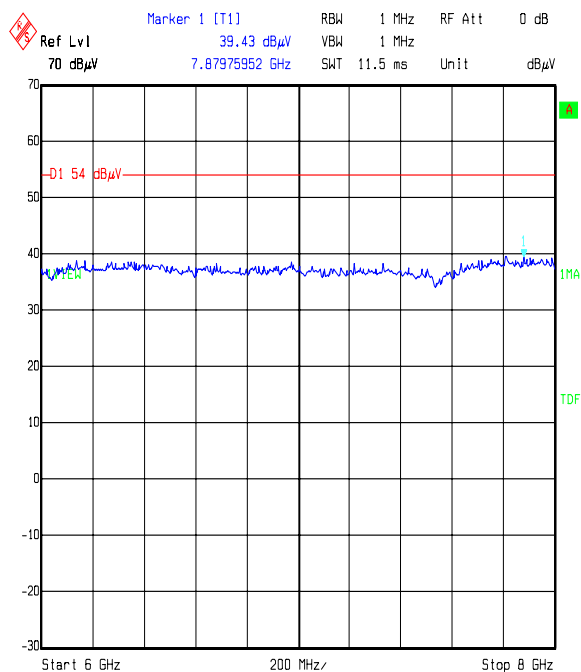
Title: 72327JD01
Comment A: RX RADIATED EMISSION BLUETOOTH TOP CH
Date: 08.NOV.2006 13:11:17



Title: 72327JD01
Comment A: RX RADIATED EMISSION BLUETOOTH TOP CH
Date: 08.NOV.2006 13:09:22



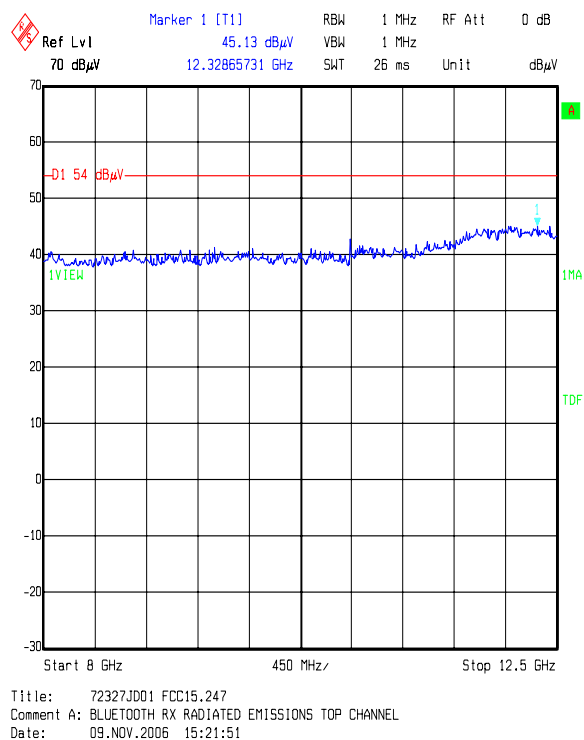
Title: 72327JD01 FCC15.247
Comment A: BLUETOOTH RX RADIATED EMISSIONS TOP CHANNEL
Date: 09.NOV.2006 15:39:31



Title: 72327JD01 FCC15.247
Comment A: BLUETOOTH RX RADIATED EMISSIONS TOP CHANNEL
Date: 09.NOV.2006 15:29:31

Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

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Idle Mode 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.

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7.2.2. Transmitter Maximum Peak Output Power: (EIRP) Section 15.247(b)(1)

The EUT was configured for transmitter peak output power measurements, as described in Section 9 of this report.

Tests were performed to identify the transmitter maximum peak output power (ERP) of the EUT.

Results:**Battery Powered Devices**

Channel	ERP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	-2.3	30.0	32.3	Complied
Middle	-2.7	30.0	32.7	Complied
Top	-3.4	30.0	33.4	Complied

Note(s):

1. These tests were performed radiated; therefore the EUT antenna gain is encompassed in the final result and not measurable.

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7.2.3. Transmitter Radiated Emissions: Section 15.247(d) and 15.209(a)

The EUT was configured for radiated emission testing, as described in section 9 of this report.

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

Results:**Electric Field Strength Measurements: 30 MHz to 1000 MHz
(emissions occurring in the restricted bands)****Electric Field Strength Measurements (Frequency Range: 30 MHz to 1000 MHz)**

Frequency (MHz)	Antenna Polarity	Q-P Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
941.683	Vertical	40.0	46.0	6.0	Complied

Note(s):

2. No spurious emissions were detected above the noise floor of the measuring receiver; therefore, the highest peak noise floor reading of the measuring receiver was recorded as shown in the table above.

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Transmitter Radiated Emissions: Section 15.247(d) and 15.209(a) (Continued)

The EUT was configured for radiated emission testing as described in section 9 of this report.

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

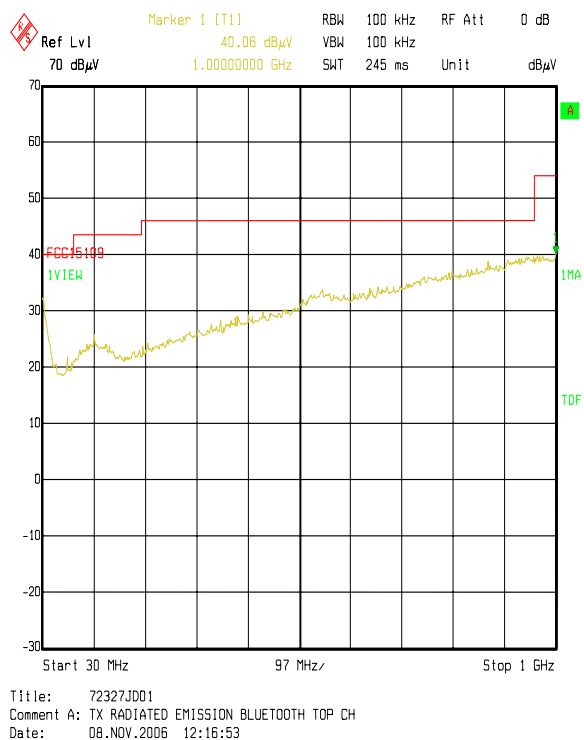
Results:**Electric Field Strength Measurements: 30 to 1000 MHz
(emissions outside the restricted bands)**

Frequency (MHz)	Antenna Polarity	Peak Level (dB μ V/m)	-20 dBc Limit (dB μ V/m)	Margin (dB)	Result
See Note Below					

Note(s):

1. No spurious emissions were detected above the noise floor of the measuring receiver; all emissions were at least 20 dB below the emissions limit.

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Transmitter Radiated Emissions: Section 15.247(d) and 15.209(a) (Continued)

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

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Transmitter Radiated Emissions: Section 15.247(d) and 15.209(a) (Continued)

The EUT was configured for radiated emission testing, as described in section 9 of this report.

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

Results:

Electric Field Strength Measurements (Frequency Range: 1 GHz to 25 GHz) (emissions occurring in the restricted bands)

Highest Peak Level: Bottom Channel

Frequency (GHz)	Antenna Polarity	Detector Level (dB μ V)	Transducer Factor (dB)	Actual Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4.803868	Horizontal	49.1	-6.5	42.6	74.0	31.4	Complied

Highest Average Level: Bottom Channel

Frequency (GHz)	Antenna Polarity	Detector Level (dB μ V)	Transducer Factor (dB)	Actual Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4.803868	Horizontal	44.3	-6.5	37.8	54.0	16.2	Complied

Highest Peak Level: Middle Channel

Frequency (GHz)	Antenna Polarity	Detector Level (dB μ V)	Transducer Factor (dB)	Actual Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4.881983	Horizontal	49.8	-6.2	43.6	74.0	30.4	Complied

Highest Average Level: Middle Channel

Frequency (GHz)	Antenna Polarity	Detector Level (dB μ V)	Transducer Factor (dB)	Actual Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4.881983	Horizontal	43.8	-6.2	37.6	54.0	16.4	Complied

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Transmitter Radiated Emissions: Section 15.247(d) and 15.209(a) (Continued)**Highest Peak Level: Top Channel**

Frequency (GHz)	Antenna Polarity	Detector Level (dB μ V)	Transducer Factor (dB)	Actual Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4.959956	Horizontal	56.5	-5.9	50.6	74.0	23.4	Complied

Highest Average Level: Top Channel

Frequency (GHz)	Antenna Polarity	Detector Level (dB μ V)	Transducer Factor (dB)	Actual Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4.959936	Horizontal	52.6	-5.9	46.7	54.0	7.3	Complied

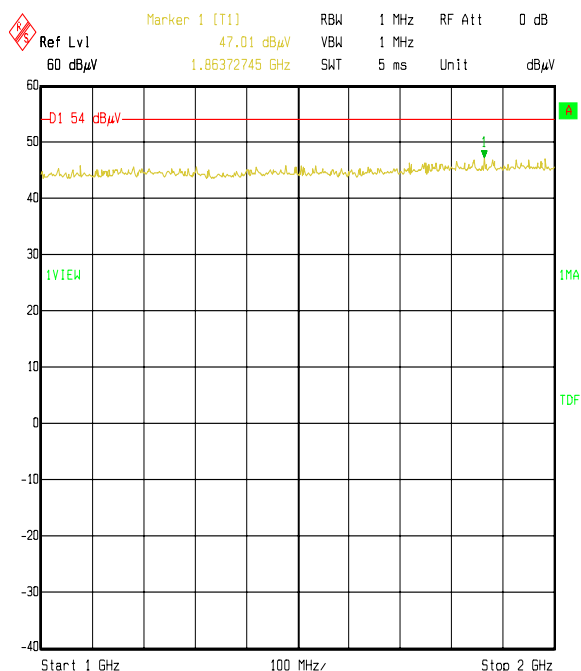
Highest Peak Level: Hopping Mode

Frequency (GHz)	Antenna Polarity	Detector Level (dB μ V)	Transducer Factor (dB)	Actual Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4.951809	Horizontal	46.6	-5.9	40.7	74.0	33.3	Complied

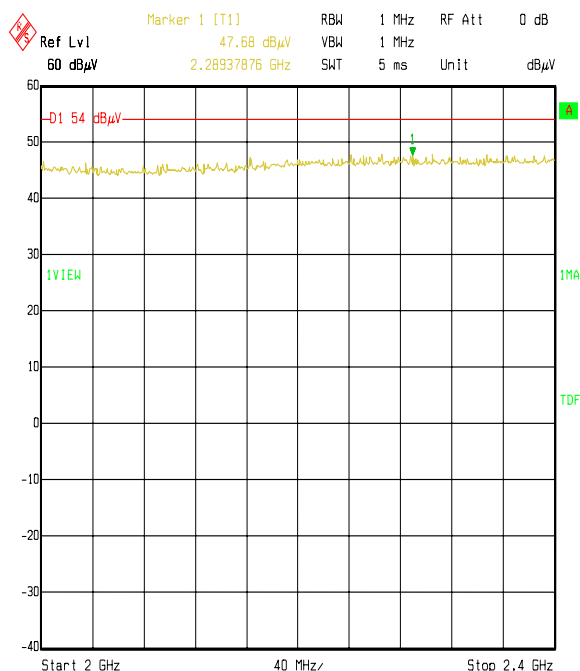
Highest Average Level: Hopping Mode

Frequency (GHz)	Antenna Polarity	Detector Level (dB μ V)	Transducer Factor (dB)	Actual Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4.951809	Horizontal	41.7	-5.9	35.8	54.0	18.2	Complied

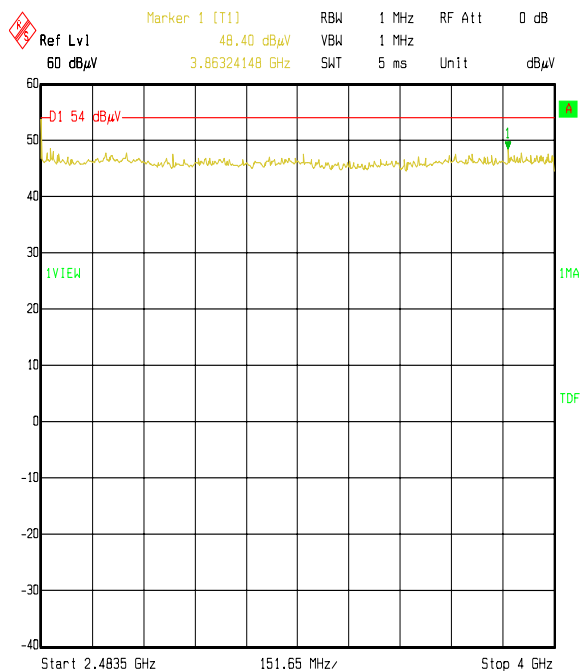
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Transmitter Radiated Emissions: Section 15.247(d) and 15.209(a) (Continued)

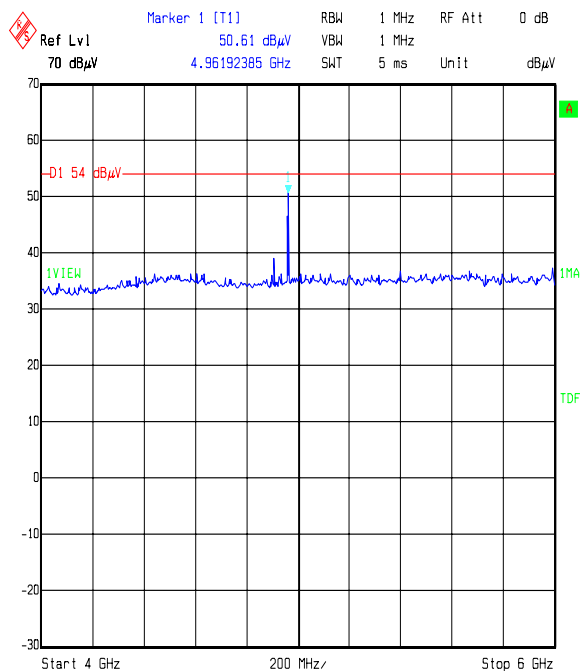
Title: 72327JD01
Comment A: TX RADIATED EMISSION BLUETOOTH TOP CH
Date: 08.NOV.2006 12:42:43



Title: 72327JD01
Comment A: TX RADIATED EMISSION BLUETOOTH TOP CH
Date: 08.NOV.2006 12:54:35



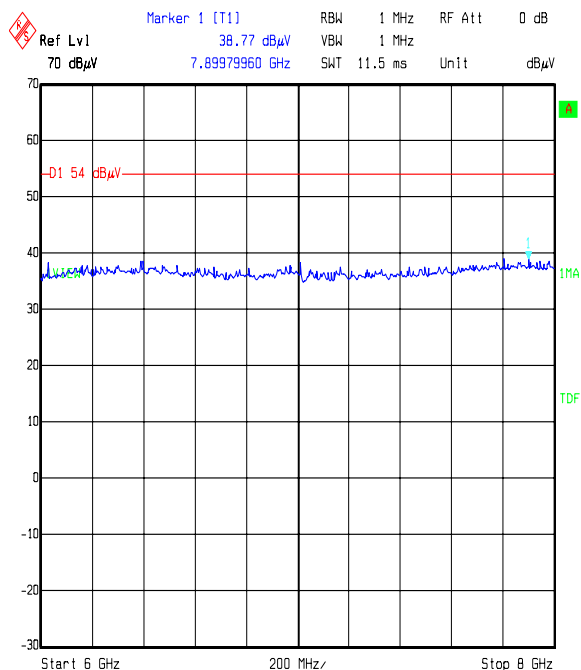
Title: 72327JD01
Comment A: TX RADIATED EMISSION BLUETOOTH TOP CH
Date: 08.NOV.2006 13:01:44



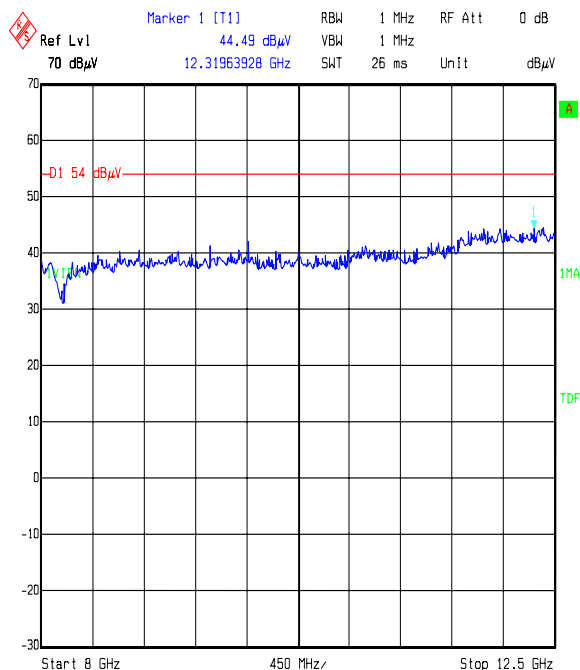
Title: 72327JD01 FCC15.247
Comment A: BLUETOOTH TX RADIATED EMISSIONS TOP CHANNEL
Date: 09.NOV.2006 11:34:14

Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

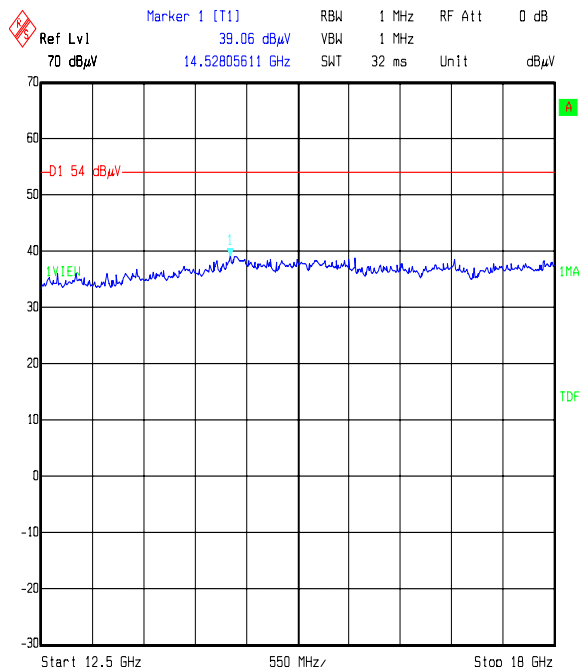
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Transmitter Radiated Emissions: Section 15.247(d) and 15.209(a) (Continued)

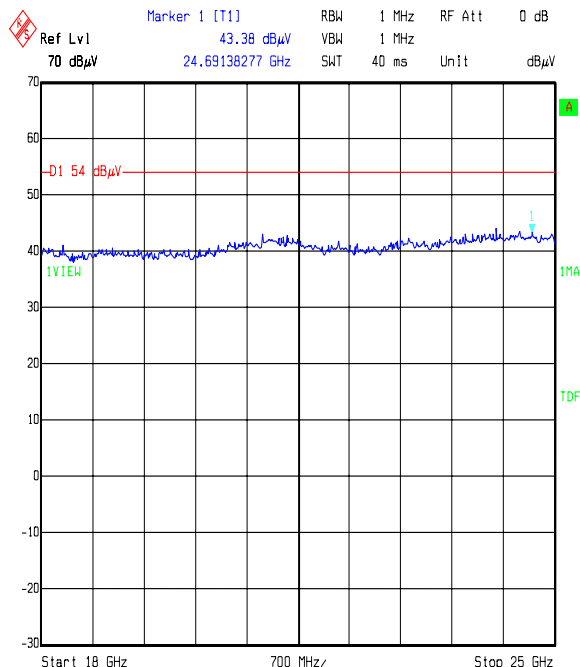
Title: 72327JD01 FCC15.247
Comment A: BLUETOOTH TX RADIATED EMISSIONS TOP CHANNEL
Date: 13.NOV.2006 11:47:21



Title: 72327JD01 FCC15.247
Comment A: BLUETOOTH TX RADIATED EMISSIONS TOP CHANNEL
Date: 09.NOV.2006 15:08:26



Title: 72327JD01 FCC15.247
Comment A: BLUETOOTH TX RADIATED EMISSIONS TOP CHANNEL
Date: 13.NOV.2006 11:55:45



Title: 72327JD01 FCC15.247
Comment A: BLUETOOTH TX RADIATED EMISSIONS TOP CHANNEL
Date: 13.NOV.2006 12:08:19

Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

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7.2.4. Transmitter Band Edge Radiated Emissions: Section 15.247(d) & 15.209(a)

The EUT was configured for band edge compliance of radiated emission measurements, as described in section 9 of this report.

Tests were performed to identify the maximum radiated band edge emissions.

Results:

Electric Field Strength Measurements

Peak Power Level Hopping Mode:

Frequency (GHz)	Antenna Polarity	Detector Level (dB μ V)	Transducer Factor (dB)	Actual Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
2.4000	Vertical	39.6	-11.4	28.2	*72.7	44.5	Complied
2.4835	Vertical	54.4	-11.0	43.4	74.0	30.6	Complied

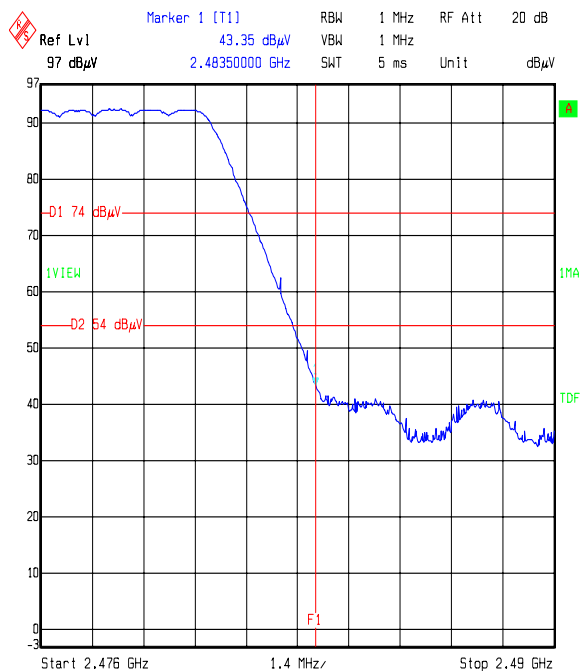
Average Power Level Hopping Mode:

Frequency (GHz)	Antenna Polarity	Detector Level (dB μ V)	Transducer Factor (dB)	Actual Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
2.4835	Vertical	45.5	-11.0	34.5	54.0	19.5	Complied

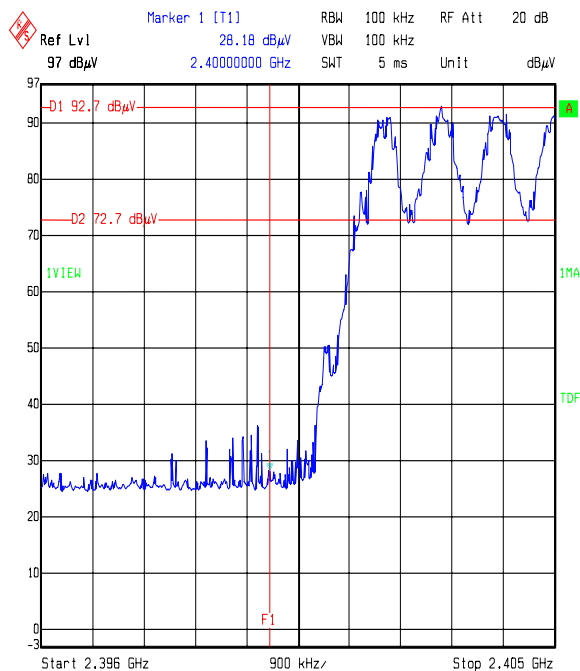
Note(s):

1. *-20 dBc limit

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Transmitter Band Edge Radiated Emissions: Section 15.247(d) & 15.209(a) (Continued)

Title: 72327JD01 FCC15.247
Comment A: BLUETOOTH BAND EDGE TOP CHANNEL HOPPING
Date: 10.NOV.2006 10:53:08



Title: 72327JD01 FCC15.247
Comment A: BLUETOOTH BAND EDGE BOTTOM CHANNEL HOPPING
Date: 10.NOV.2006 10:57:14

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Transmitter Band Edge Radiated Emissions: Section 15.247(d) & 15.209(a) (Continued)

The EUT was configured for band edge compliance of radiated emission measurements, as described in section 9 of this report.

Tests were performed to identify the average radiated band edge emissions.

Results:**Peak Power Level Static Mode:**

Frequency (GHz)	Antenna Polarity	Detector Level (dB μ V)	Transducer Factor (dB)	Actual Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
2.4000	Vertical	41.4	-11.4	30.0	*72.7	42.7	Complied
2.4835	Vertical	55.3	-11.0	44.3	74.0	29.7	Complied

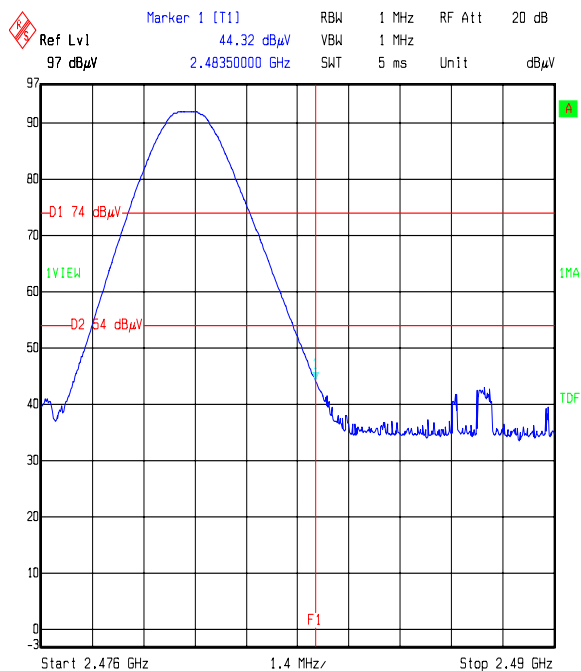
Average Power Level Static Mode:

Frequency (GHz)	Antenna Polarity	Detector Level (dB μ V)	Transducer Factor (dB)	Actual Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
2.4835	Vertical	36.4	-11.0	25.4	54.0	28.6	Complied

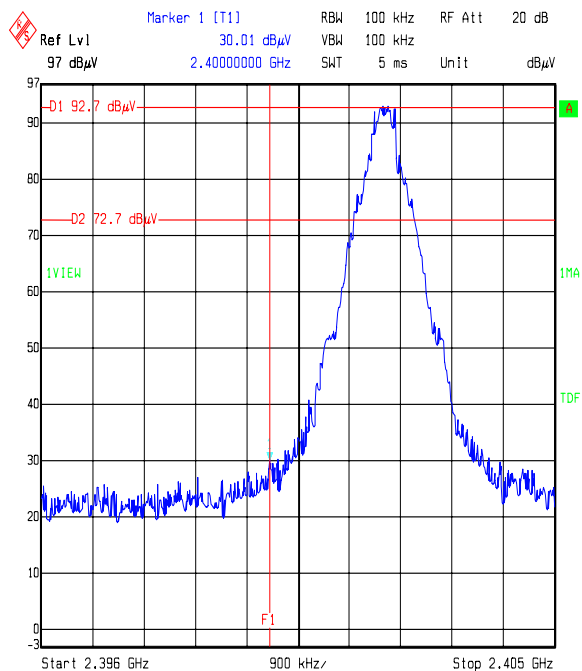
Note(s):

1. *-20 dBc limit

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Transmitter Band Edge Radiated Emissions: Section 15.247(d) & 15.209(a) (Continued)

Title: 72327JD01 FCC15.247
Comment A: BLUETOOTH BAND EDGE TOP CHANNEL STATIC
Date: 10.NOV.2006 10:47:38



Title: 72327JD01 FCC15.247
Comment A: BLUETOOTH BAND EDGE BOTTOM CHANNEL STATIC
Date: 13.NOV.2006 11:25:55

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To: **FCC Part 15.247: 2006 (Subpart C)**

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
Transmitter Maximum Peak Output Power	Not applicable	95%	±2.94 dB
Radiated Spurious Emissions	30 MHz to 1000 MHz	95%	±4.64 dB
Radiated Spurious Emissions	1 GHz to 40 GHz	95%	±2.94 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.

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9. Measurement Methods

9.1. 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.

Where an emission fell inside a restricted band, measurements were made at the appropriate test distance using a measuring receiver with a quasi peak detector for measurements below 1000 MHz and an average and peak detector for measurements above 1000 MHz. A peak detector was used for all other measurements.

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.

All measurements on the open area test site were performed using broadband antennas in both vertical and horizontal polarisations.

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.

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Radiated Emissions (Continued)

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 dB μ V plus cable loss and antenna factor.

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

Receiver Function	Initial Scan	Final Measurements <1 GHz	Final Measurements ≥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

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9.2. Peak Output Power

The EUT and spectrum analyser were configured as for conducted antenna port measurements and as per FCC Public Notice DA 00-705, Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems.

Prior to testing being performed a suitable RF attenuator and cable, were calibrated for the required frequencies. For each frequency to be measured, the calibrated level of the attenuator and cable were entered as an offset into a spectrum analyser to compensate for the measurement set up.

To determine the transmitter output power, the EUT was operated at maximum power and a result was obtained from the spectrum analyser using peak detector and trace max hold.

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9.3. Band Edge Compliance of RF Radiated Emissions

The EUT and spectrum analyser were configured as for radiated measurements and as per FCC Public Notice DA 00-705, Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems.

To determine band edge compliance, the analyser resolution bandwidth was set to $\geq 1\%$ of the analyser span. The video bandwidth was set to be \geq to the resolution bandwidth. The sweep was set to auto and the detector to peak. The trace was set to max hold and a trace was produced.

A plot of the lower band edge of the allocated frequency band was produced. A marker was set to the level of the highest in band emission with a limit line set to 20 dB below this. The marker was then placed on the highest out of band emission (the specification states that either the band edge level must be measured or the highest out of band emission, whichever is the greater). The plots show that the highest out of band emission complies with the -20 dBc limit.

The above procedure was then repeated for the upper band edge except that, as the upper band edge fell on a restricted band edge (as defined in section 15.205(a)), the limit for the restricted band was applied instead of the -20 dBc limit i.e. the general limits defined in section 15.209(a).

Final measurements were performed on the worst-case configuration as described in Part 15.31(i).

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Appendix 1. Test Equipment Used

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval
A028	Horn Antenna	Eaton	91888-2	304	08 Jun 2006	36
A031	2 to 4 GHz Eaton Horn Antenna	Eaton	91889-2	557	08 Jun 2006	36
A1534	Preamplifier 1-26.5 GHz	Hewlett Packard	8449B OPT H02	3008A00405	29 Jul 2006	12
A254	WG 14 Microwave Horn	Flann Microwave	14240-20	139	06 Oct 2006	36
A256	WG 18 Microwave Horn	Flann Microwave	18240-20	400	06 Oct 2006	36
A428	WG 12 horn	Flann	12240-20	134	06 Oct 2006	36
A429	WG 16 horn	Flann	16240-20	561	06 Oct 2006	36
A430	WG 18 horn	Flann	18240-20	425	06 Oct 2006	36
A436	WG 20 horn	Flann	20240-20	330	24 Apr 2006	36
A490	Bilog Antenna	Chase	CBL6111A	1590	09 Sept 2006	12
C1069	Cable	Rosenberger	FB311A10 50M5050	2302 26382- 1	22 Jan 2006	12
C1164	1.5m N-type Cable	Rosenberger Micro-Coax	FA210A10 15007070	43188-1	Cal Before Use	12
C1166	2m N-Type Cable	Rosenberger Micro-Coax	FA210A10 20007070	43189-02	Cal Before Use	12
C305	Cable	Rosenberger	UFA 210A- 1-0787- 50x50	2681	29 Jan 2006	12
M1242	FSEM30 Spectrum Analyser	Rohde & Schwarz, Inc.	FSEM30	845986_022	22 Sept 2006	12
M127	Spectrum Analyser	Rohde & Schwarz	FSEB 30	842 659/016	07 Aug 2006	12
S202	Site 2	RFI	2	S202- 15011990	N/A	-
S205	Site 5	RFI	5		N/A	-

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

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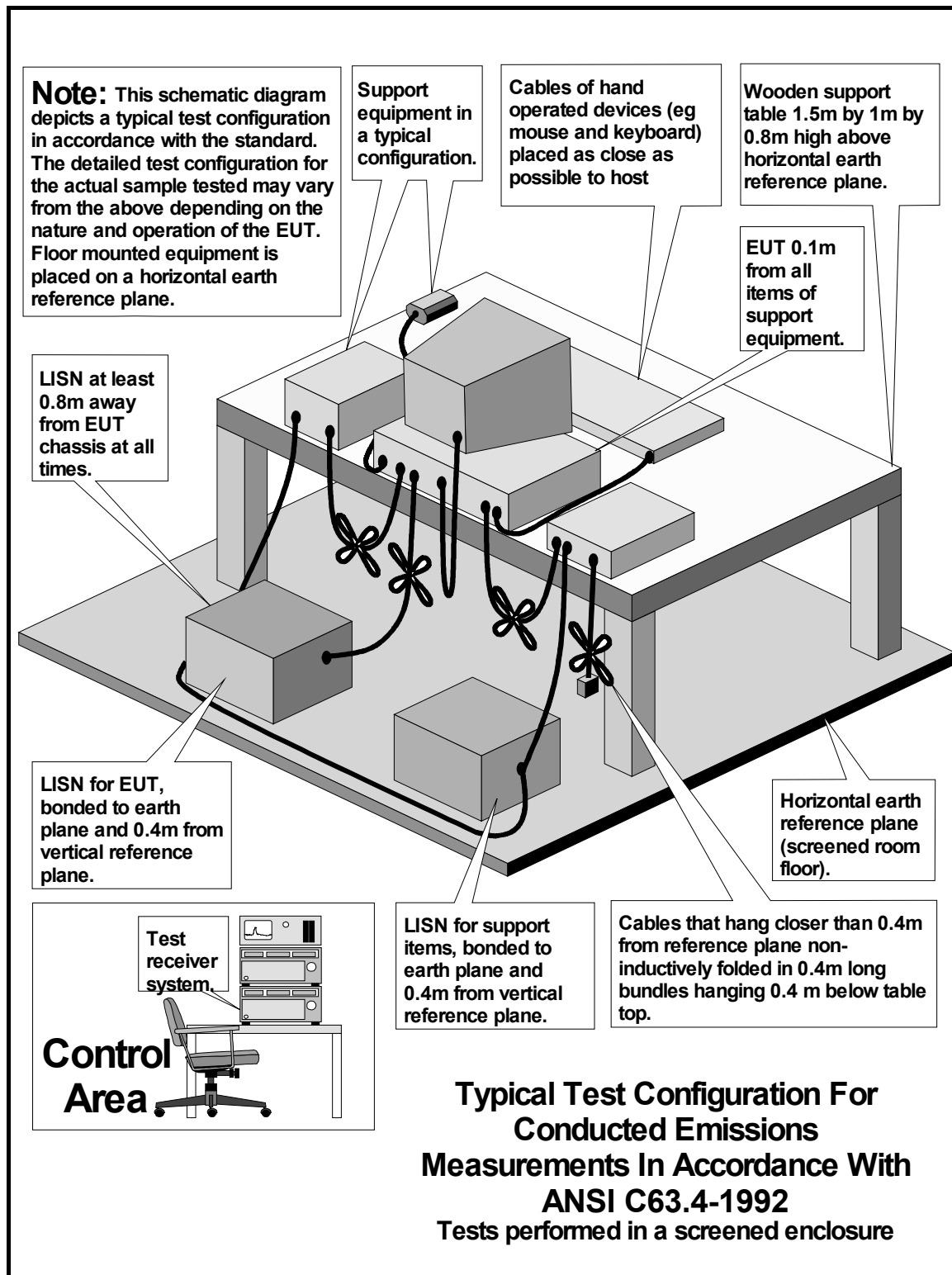
Appendix 2. Test Configuration Drawings

This appendix contains the following drawings:

Drawing Reference Number	Title
DRG\72327JD01\EMICON	Test configuration for measurement of conducted emissions.
DRG\72327JD01\EMIRAD	Test configuration for measurement of radiated emissions.

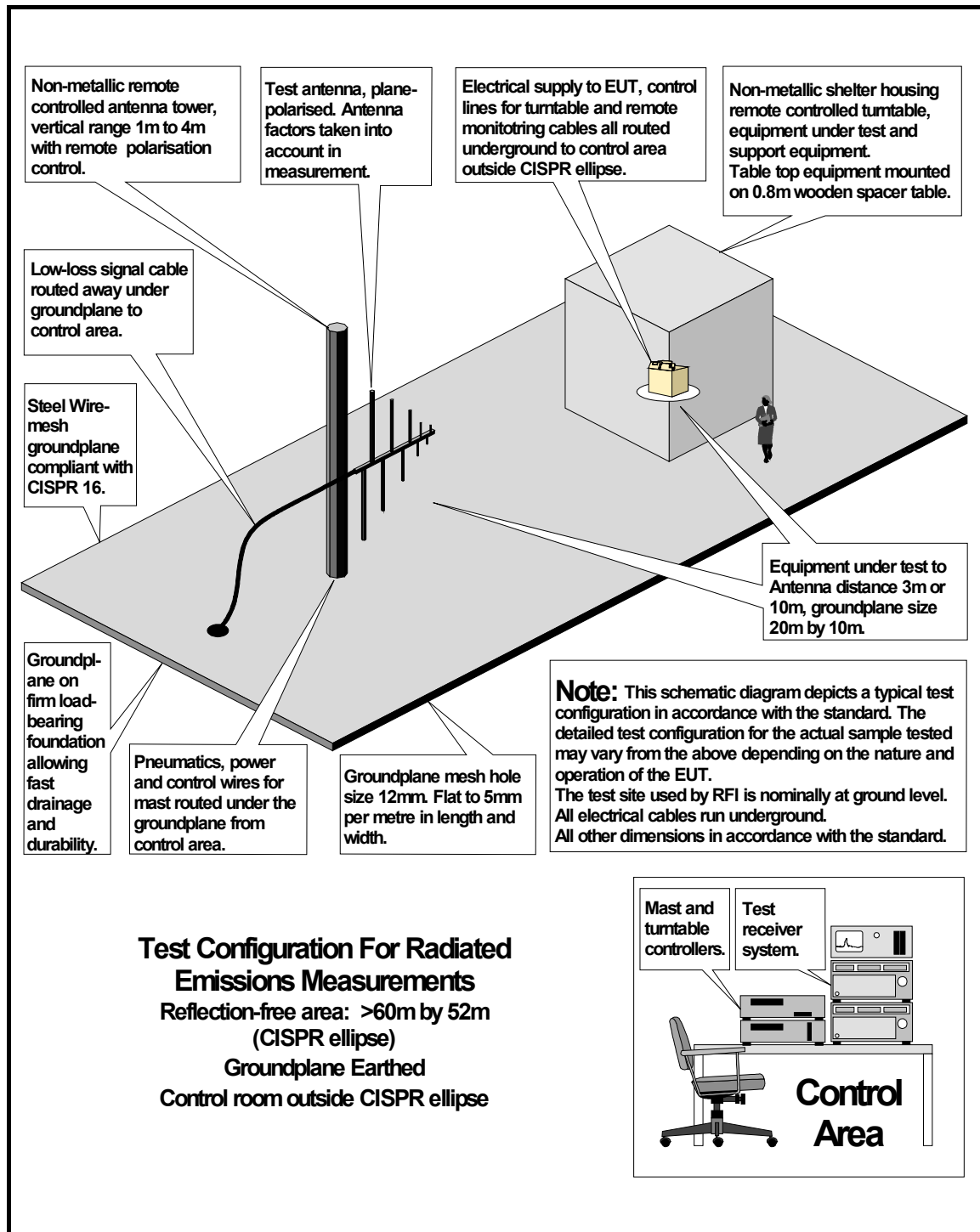
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DRG\72327JD01\EMICON



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DRG\72327JD01\EMIRAD



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