TEST REPORT
FROM
RADIO FREQUENCY
INVESTIGATION LTD.

Test Of: Mansella Ltd.
CDP 24 Bluetooth Data Phone Base Unit

To: FCC Part 15 Subpart C: 2002
(Intentional Radiators)
Section 15.247

Test Report Serial No:
RFI/MPTB2/RP44998JD07A

Supersedes Test Report Serial No:
RFI/MPTB1/RP44998JD07A

This Test Report Is Issued Under The Authority Of Richard Jacklin, Operations Director: 	**Checked By:** 
Tested By: 	**Release Version No:** **PDF01**
Issue Date: 30 September 2003	**Test Dates: 24 June 2003 to 18 July 2003**

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This report may be copied in full. The results in this report apply only to the sample(s) tested.

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1. Client Information

Company Name:	Mansella Ltd.
Address:	Stafford House 33-39 Station Road Aldershot Hampshire GU11 1BA UK
Contact Name:	Mr Wahed Dewan

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)

2.1.1. Radiated RF Sample

Brand Name:	Olympia
Model Name or Number:	Data Phone Base Unit
Unique Type Identification:	CDP 24
Serial Number:	Base#3
FCC ID Number:	QSP-CDP24-1-00
Country of Manufacture:	China
Date of Receipt:	24 June 2003

2.1.2. Conducted RF Sample

Brand Name:	Olympia
Model Name or Number:	Data Phone Base Unit
Unique Type Identification:	CDP 24
Serial Number:	BS#1
FCC ID Number:	QSP-CDP24-1-00
Country of Manufacture:	China
Date of Receipt:	24 June 2003

2.1.3. Power Supply

Brand Name:	Olympia
Model Name or Number:	MB132-075040
Unique Type Identification:	120 V AC Power Supply
Serial Number:	None stated by client
Country of Manufacture:	China
Date of Receipt:	24 June 2003

2.2. Description Of EUT

The equipment under test is a Cordless Data Phone (CDP) that is a cordless telephone with a built-in modem and USB capability. The CDP is a combined wireless voice and data product using the high power Bluetooth V1.1 wireless standard for worldwide operation.

2.3. Modifications Incorporated In EUT

The EUT has not been modified from what is described by the Model Number and Unique Type Identification stated above.

2.4. Additional Information Related To Testing

Power Supply Requirement: (AC Battery Charger)	Nominal 110 V, 60 Hz AC Mains Supply 13 Amp (max)
Intended Operating Environment:	Domestic Use
Equipment Category:	Mobile
Type of Unit:	Cordless Telephone
Weight:	300 g
Dimensions:	160 x 150 x 45 mm
Interface Ports:	Mini B USB Port 7.5 V (400 mA) DC supply Input Socket 2 RJ11 Telephone Socket
Highest Declared Generated Frequency within the EUT.	2.480 GHz
Transmit Frequency Range Tested	2.402 GHz to 2.480 GHz
Receive Frequency Range Tested	2.402 GHz to 2.480 GHz
Maximum Measured Output Power (EIRP)	19.2 dBm

2.5. Support Equipment

The following support equipment was used to exercise the EUT during testing:

Description:	BT RF Tester
Brand Name:	Agilent
Model Name or Number:	E1852A
Serial Number:	DK41300172
Cable Length And Type:	Not Applicable
Connected to Port:	50 Ω Antenna / 50 Ω SMA connector on the conducted EUT antenna port

Description:	Laptop PC
Brand Name:	Dell
Model Name or Number:	Latitude
Serial Number:	TW09C748-128-157-3888
Cable Length And Type:	Not Applicable
Connected to Port:	USB port on the EUT

Description:	3 m Parallel Printer Lead
Brand Name:	Roline
Model Name or Number:	Roline
Serial Number:	None stated by client
Cable Length And Type:	3 m Parallel
Connected to Port:	Connected to PC parallel port

3. Test Specification, Methods And Procedures

3.1. Test Specification

Reference:	FCC Part 15 Subpart C: 2002 (Section 15.247)
Title:	Code of Federal Regulations, Part 15 (47CFR15) Radio Frequency Devices: Intentional Radiators
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.
Purpose of Test:	To determine whether the equipment complied with the requirements of the specification for the purposes of certification.

Reference:	FCC Part 15 Subpart B: 2002 (Section 15.107 and 15.109)
Title:	Code of Federal Regulations, Part 15 (47CFR15) Radio Frequency Devices: Unintentional Radiators.
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.
Purpose of Test:	To determine whether the equipment complied with the requirements of the specification for the purposes of certification.

3.2. Methods And Procedures

The methods and procedures used were as detailed in:

FCC Code of Federal Regulations 47.
Telecommunication. Parts 0 to 19, 2002.

ANSI C63.2 (1987)
Title: American National Standard for Instrumentation - Electromagnetic noise and field strength.

ANSI C63.4 (2001)
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 Conditions

The EUT was tested in a normal laboratory environment.

During testing, the EUT was powered by nominal 110 V, 60 Hz AC Mains Supply 13 Amp (max) via an AC battery charger.

5.2. Operating Modes

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

Preliminary radiated scans were performed on the EUT with the accessories stated in section 2.1 of this report connected and then disconnected. The combination that exhibited the worse case mode of operation was then used to perform final measurements.

Bluetooth mode transmitting on top, middle or bottom channels, hopping on all channels or in receive mode.

5.3. Configuration And Peripherals

The EUT was tested in the following configuration:

Configured with mini USB connector to PC and AC adapter.

The EUT was commanded to operate on specific channels using a Bluetooth test set.

6. Summary Of Test Results

Range Of Measurements	Specification Reference	Port Type	Compliancy Status
Receiver Conducted Emissions (AC Mains)	C.F.R. 47 FCC Part 15: 2002 Section 15.107	AC Mains Terminals	Complied
Receiver Radiated Emissions	C.F.R. 47 FCC Part 15: 2002 Section 15.109	Antenna	Complied
Transmitter Conducted Emissions (AC Mains)	C.F.R. 47 FCC Part 15: 2002 Section 15.207	AC Mains Terminals	Complied
Transmitter 20dB Bandwidth	C.F.R. 47 FCC Part 15: 2002 Section 15.247(a)(1)	Antenna Terminals	Complied
Transmitter Carrier Frequency Separation	C.F.R. 47 FCC Part 15: 2002 Section 15.247(a)(1)	Antenna Terminals	Complied
Transmitter Average Time of Occupancy	C.F.R. 47 FCC Part 15: 2002 Section 15.247(a)(1)(iii)	Antenna Terminals	Complied
Transmitter Maximum Peak Output Power	C.F.R. 47 FCC Part 15: 2002 Section 15.247(b)(1)	Antenna Terminals	Complied
Transmitter Conducted Emissions	C.F.R. 47 FCC Part 15: 2002 Section 15.247 (c)	Antenna Terminals	Complied
Transmitter Radiated Emissions	C.F.R. 47 FCC Part 15: 2002 Section 15.247(c) Section 15.209(a)	Antenna	Complied
Transmitter Band Edge Conducted Emissions	C.F.R. 47 FCC Part 15: 2002 Section 15.247(c)	Antenna Terminals	Complied
Transmitter Band Edge Radiated Emission	C.F.R. 47 FCC Part 15: 2002 Section 15.247(c) Section 15.209(a)	Antenna	Complied

7. Measurements, Examinations And Derived Results

7.1. General Comments

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

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

7.2. Receiver Conducted Emissions: AC Mains - Section 15.107

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

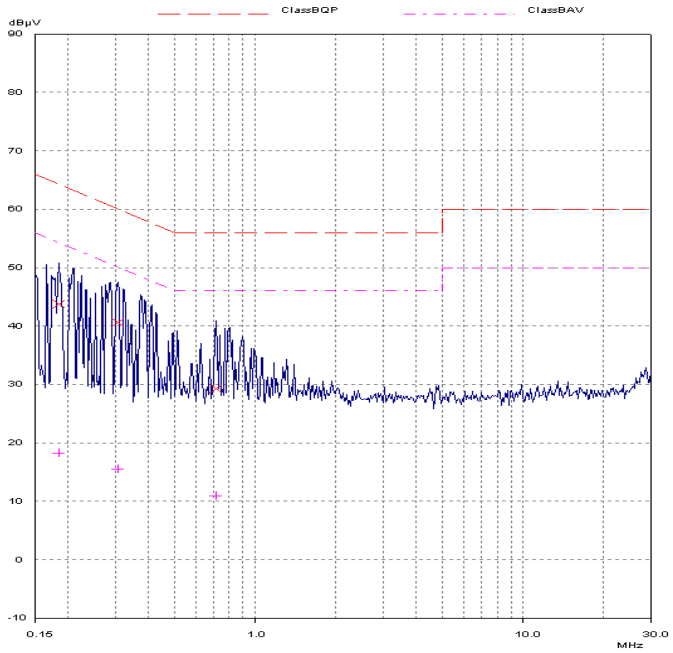
7.2.2. The following table lists frequencies at which emissions were measured using a Quasi-Peak detector:

Quasi-Peak Detector Measurements on Live and Neutral Lines

Frequency (MHz)	Line	Q-P Level (dBµV)	Q-P Limit (dBµV)	Margin (dB)	Result
184.340	Live	43.82	64.29	20.47	Complied
305.930	Live	40.64	60.08	19.44	Complied
714.480	Live	29.24	56.00	26.76	Complied

Average Detector Measurements on Live and Neutral Lines

Frequency (MHz)	Line	Avg Level (dBµV)	Avg Limit (dBµV)	Margin (dB)	Result
184.340	Live	18.19	54.29	36.10	Complied
305.930	Live	15.58	50.08	34.50	Complied
714.480	Live	10.88	46.00	35.12	Complied



7.3. Receiver Radiated 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 as for radiated emissions testing as described in Appendix 2 of this report.

7.3.1.2. Tests were performed to identify the maximum radiated spurious emissions levels.

Frequency (MHz)	Ant. Pol.	Q-P Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
45.056	Vert.	25.2	40.0	14.8	Complied
55.295	Vert.	39.4	40.0	0.6	Complied
142.998	Horiz.	27.3	43.5	16.2	Complied
179.999	Horiz.	34.8	43.5	8.7	Complied
185.955	Horiz.	27.8	43.5	15.7	Complied
239.998	Horiz.	30.1	46.0	15.9	Complied
301.055	Horiz.	29.9	46.0	16.1	Complied
324.999	Vert.	35.9	46.0	10.1	Complied
377.000	Vert.	33.8	46.0	12.2	Complied
455.000	Horiz.	40.0	46.0	6.0	Complied
481.000	Horiz.	38.4	46.0	7.6	Complied
491.526	Horiz.	43.3	46.0	2.7	Complied
532.475	Horiz.	41.6	46.0	4.4	Complied
532.999	Vert.	33.8	46.0	12.2	Complied
559.000	Vert.	36.8	46.0	9.2	Complied
611.000	Vert.	35.9	46.0	10.1	Complied
766.999	Horiz.	37.4	46.0	8.6	Complied
870.999	Horiz.	37.0	46.0	9.0	Complied
897.001	Horiz.	36.7	46.0	9.3	Complied
975.001	Horiz.	35.1	54.0	18.9	Complied

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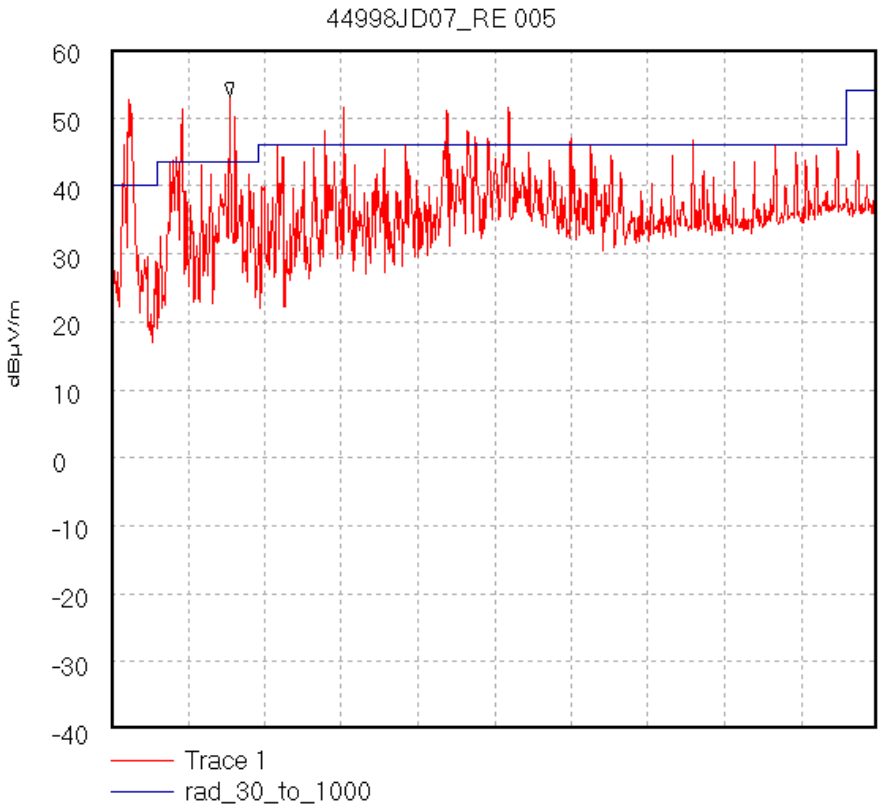
Receiver Radiated Emissions: Section 15.109 (Continued)



Start 30.0 MHz; Stop 1.0 GHz
Ref 60 dBµV/m; Ref Offset 0.0 dB; 10 dB/div
RBW 68.966 kHz; VBW 100.0 kHz; Att 0 dB; Swp 300.0 mS
Peak 179.811 MHz, 53.15 dBµV/m
Limit/Mask: rad_30_to_1000; ; Limit Test Failed
Transducer Factors: A490
24/06/2003 13:55:05

7.4. Receiver Radiated Emissions: Section 15.109

7.4.1. Electric Field Strength Measurements (Frequency Range: 1.0 to 12.5 GHz)

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

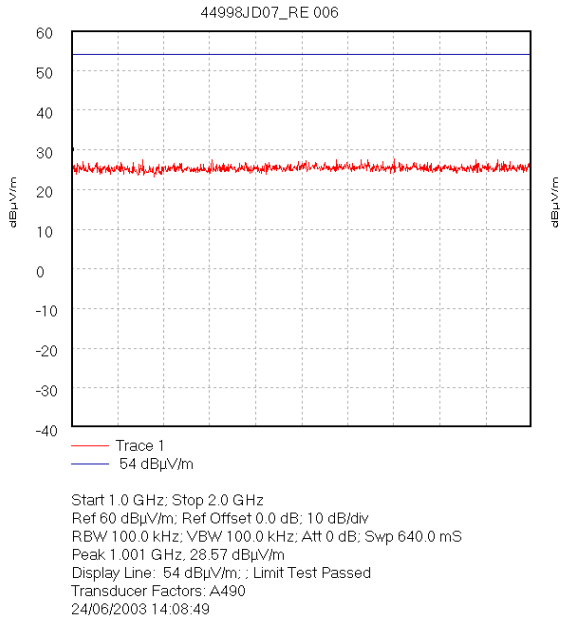
7.4.1.2. Tests were performed to identify the maximum radiated spurious emissions levels.

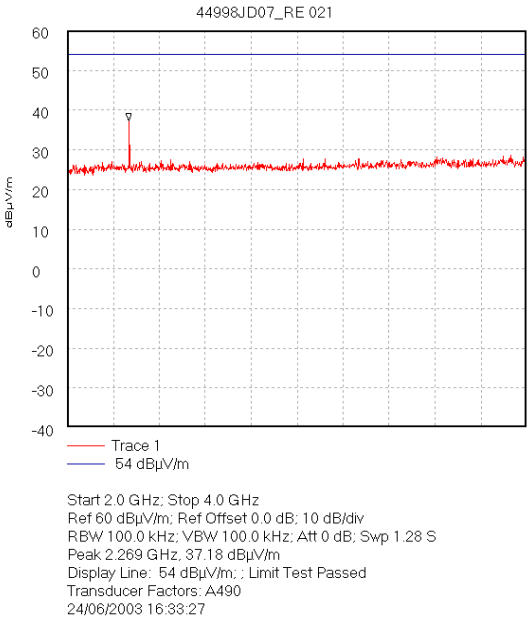
Highest Average Level:

Frequency (GHz)	Antenna Polarity (H/V)	Average Detector level (dBµV)	Antenna factor (dB)	Cable loss (dB)	Actual Average Level (dBµV/m)	Average Limit (dBµV/m)	Average Margin (dB)	Result
2.268527	Vert	6.26	21.3	0.8	28.36	54.0	25.64	Complied
6.86078	Vert	0.32	26.8	2.2	29.32	54.0	24.68	Complied

Highest Peak Level:

Frequency (GHz)	Antenna Polarity (H/V)	Peak Detector level (dBµV)	Antenna factor (dB)	Cable loss (dB)	Actual Peak Level (dBµV/m)	Peak Limit (dBµV/m)	Peak Margin (dB)	Result
2.268527	Vert	24.85	21.3	0.8	46.95	74.0	27.05	Complied
6.86078	Vert	13.46	26.8	2.2	42.46	74.0	31.54	Complied





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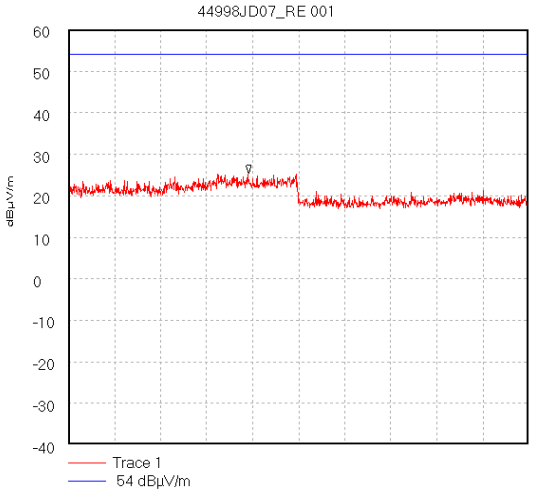
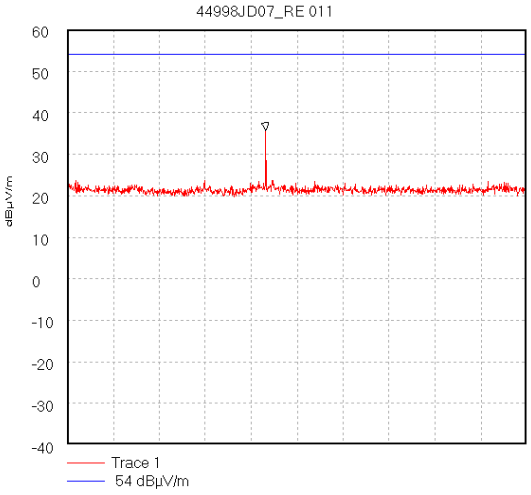
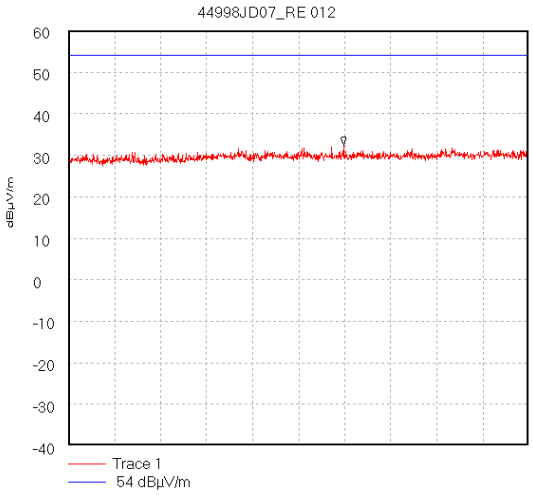
Receiver Radiated Emissions: Section 15.109 (Continued)



Start 4.0 GHz; Stop 6.0 GHz
Ref 60 dBµV/m; Ref Offset 1.5 dB; 10 dB/div
RBW 145.0 kHz; VBW 100.0 kHz; Att 0 dB; Swp 1.28 S
Peak 4.782 GHz, 25.32 dBµV/m
Display Line: 54 dBµV/m;
25/06/2003 16:43:29



Start 6.0 GHz; Stop 8.0 GHz
Ref 60 dBµV/m; Ref Offset 3.6 dB; 10 dB/div
RBW 145.0 kHz; VBW 100.0 kHz; Att 0 dB; Swp 1.28 S
Peak 6.864 GHz, 35.75 dBµV/m
Display Line: 54 dBµV/m;
25/06/2003 17:36:51



Start 8.0 GHz; Stop 12.5 GHz
Ref 60 dBµV/m; Ref Offset 3.6 dB; 10 dB/div
RBW 1.45 MHz; VBW 100.0 kHz; Att 0 dB; Swp 200.0 mS
Peak 10.69 GHz, 32.35 dBµV/m
Display Line: 54 dBµV/m;
25/06/2003 17:43:30

7.5. Transmitter Conducted Emissions: AC Mains - Section 15.207

7.5.1. Preliminary conducted spurious scans were performed with the EUT set to Top, Middle, Bottom as requested in FCC Part 15.31(m).

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

7.5.3. The following tables list frequencies at which emissions were measured using a Quasi-Peak and Average detector:

Transmitter Conducted Emissions: AC Mains - Section 15.207 (continued)

Quasi-Peak Detector Measurements on Live and Neutral Lines

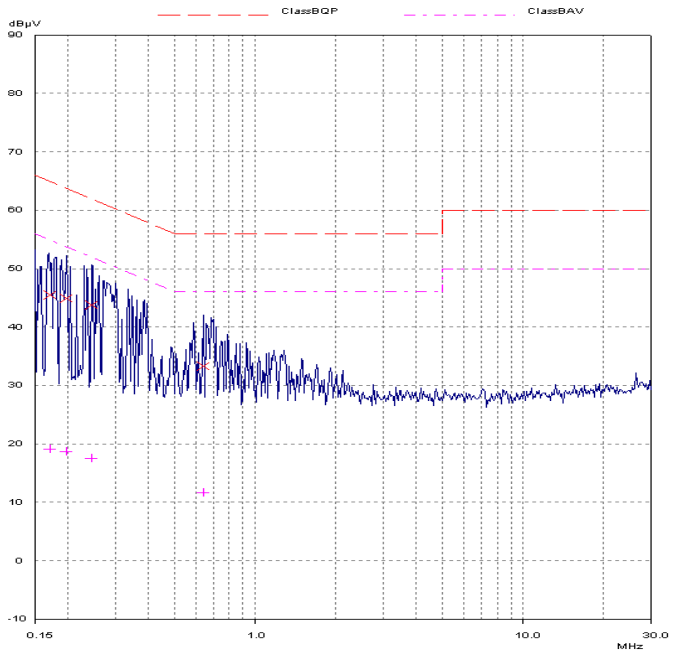
Bottom Channel

Frequency (MHz)	Line	Q-P Level (dBµV)	Q-P Limit (dBµV)	Margin (dB)	Result
170.350	Live	45.54	64.94	19.40	Complied
196.680	Live	44.93	63.75	18.82	Complied
244.570	Live	43.71	61.94	18.23	Complied
638.830	Live	33.33	56.00	22.67	Complied

Average Detector Measurements on Live and Neutral Lines

Bottom Channel

Frequency (MHz)	Line	Avg Level (dBµV)	Avg Limit (dBµV)	Margin (dB)	Result
170.350	Live	19.06	54.94	35.88	Complied
196.680	Live	18.60	53.15	35.15	Complied
244.570	Live	17.48	34.46	34.46	Complied
638.830	Live	11.59	34.41	34.41	Complied



Transmitter Conducted Emissions: AC Mains - Section 15.207 (continued)

Quasi-Peak Detector Measurements on Live and Neutral Lines

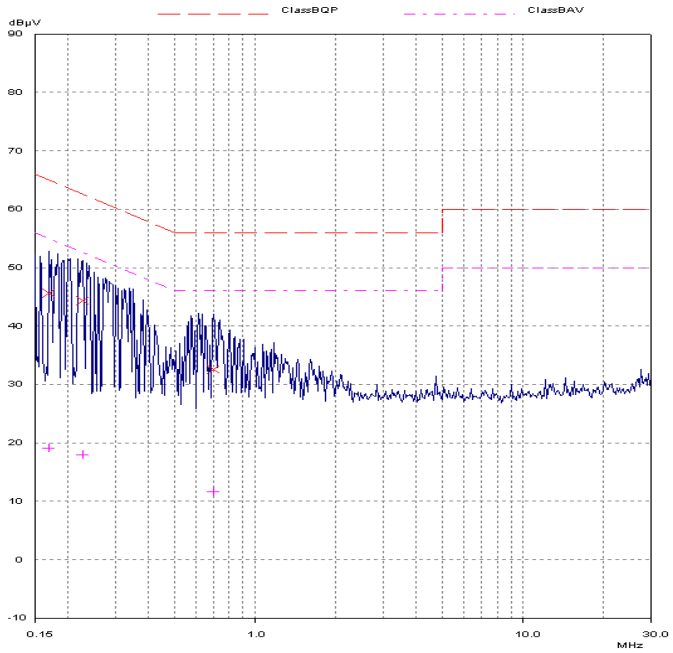
Middle Channel

Frequency (MHz)	Line	Q-P Level (dBµV)	Q-P Limit (dBµV)	Margin (dB)	Result
169.750	Live	45.59	64.97	19.38	Complied
226.540	Live	44.37	62.58	18.21	Complied
693.740	Live	32.62	56.00	23.38	Complied

Average Detector Measurements on Live and Neutral Lines

Middle Channel

Frequency (MHz)	Line	Avg Level (dBµV)	Avg Limit (dBµV)	Margin (dB)	Result
169.750	Live	19.11	54.97	35.86	Complied
226.540	Live	17.89	52.58	34.69	Complied
693.740	Live	11.67	46.00	34.33	Complied



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Transmitter Conducted Emissions: AC Mains - Section 15.207 (continued)

Quasi-Peak Detector Measurements on Live and Neutral Lines

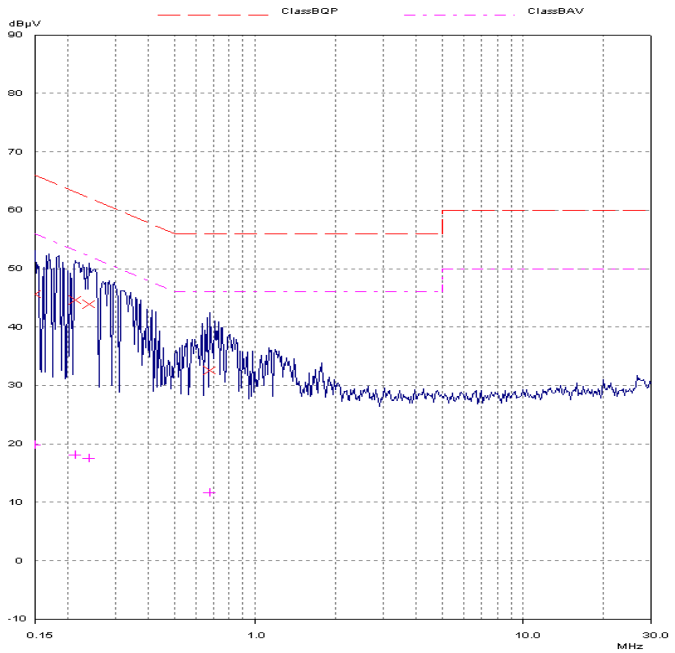
Top Channel

Frequency (MHz)	Line	Q-P Level (dBµV)	Q-P Limit (dBµV)	Margin (dB)	Result
150.000	Live	45.69	66.00	20.31	Complied
211.080	Live	44.70	63.16	18.46	Complied
238.880	Live	43.97	62.14	18.17	Complied
673.610	Live	32.64	56.00	23.36	Complied

Average Detector Measurements on Live and Neutral Lines

Top Channel

Frequency (MHz)	Line	Avg Level (dBµV)	Avg Limit (dBµV)	Margin (dB)	Result
150.000	Live	19.76	56.00	36.24	Complied
211.080	Live	18.07	53.16	35.09	Complied
238.880	Live	17.48	52.14	34.66	Complied
673.610	Live	11.62	46.00	34.38	Complied



Transmitter Conducted Emissions: AC Mains - Section 15.207 (continued)

Quasi-Peak Detector Measurements on Live and Neutral Lines

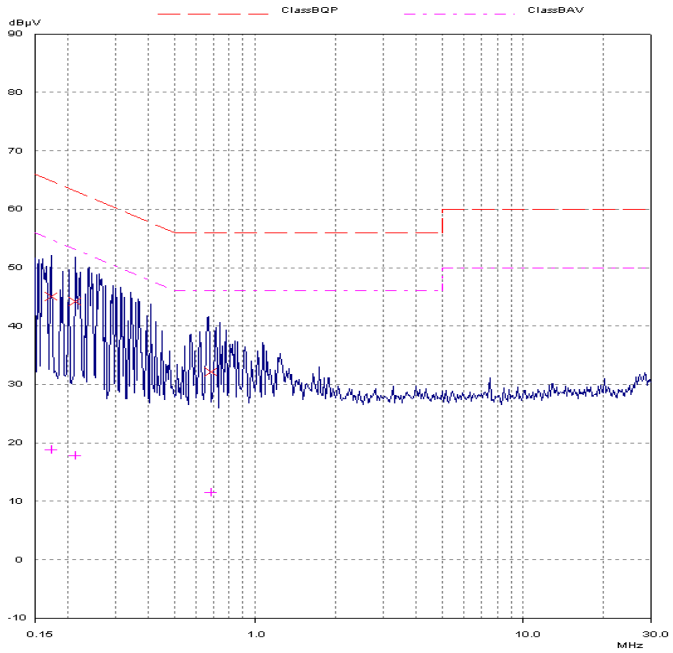
Hopping All Channels

Frequency (MHz)	Line	Q-P Level (dBµV)	Q-P Limit (dBµV)	Margin (dB)	Result
171.760	Live	45.00	64.87	19.87	Complied
212.330	Live	44.15	63.11	18.96	Complied
680.520	Live	32.21	56.00	23.79	Complied

Average Detector Measurements on Live and Neutral Lines

Hopping All Channels

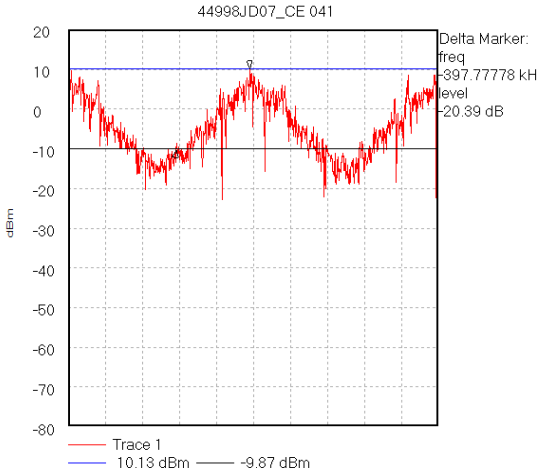
Frequency (MHz)	Line	Avg Level (dBµV)	Avg Limit (dBµV)	Margin (dB)	Result
171.760	Live	18.77	54.87	36.1	Complied
212.330	Live	17.81	53.11	35.3	Complied
680.520	Live	11.44	46.00	34.56	Complied



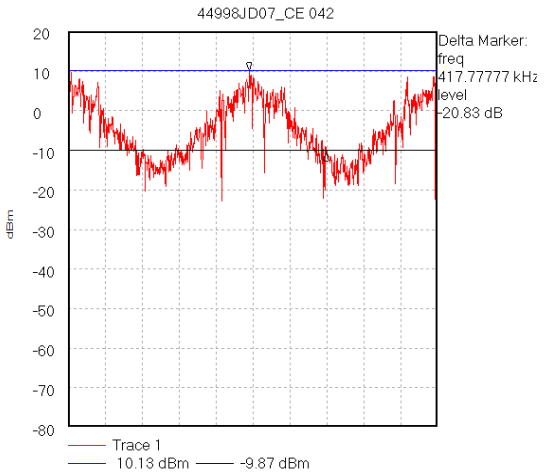
7.6.Transmitter 20 dB Bandwidth: Section 15.247(a)(1)

7.6.1. Tests were performed to identify the 20 dB bandwidth as per FCC Part 15.247(a)(1).

Transmitter 20dB Bandwidth (kHz)	Limit (kHz)	Margin (kHz)	Result
815.555	None Specified	N/A	N/A



Start 2.44 GHz; Stop 2.442 GHz
Ref 20 dBm; Ref Offset 42.5 dB; 10 dB/div
RBW 0.0 Hz; VBW 10.0 kHz; Att 0 dB; Swp 60.0 mS
Marker 2.44098 GHz, 10.13 dBm
Delta 2.440582 GHz, -10.26 dBm
Display Line: 10.13 dBm; -9.87 dBm;
27/06/2003 16:42:33



Start 2.44 GHz; Stop 2.442 GHz
Ref 20 dBm; Ref Offset 42.5 dB; 10 dB/div
RBW 0.0 Hz; VBW 10.0 kHz; Att 0 dB; Swp 60.0 mS
Marker 2.44098 GHz, 10.13 dBm
Delta 2.441398 GHz, -10.7 dBm
Display Line: 10.13 dBm; -9.87 dBm;
27/06/2003 16:43:45

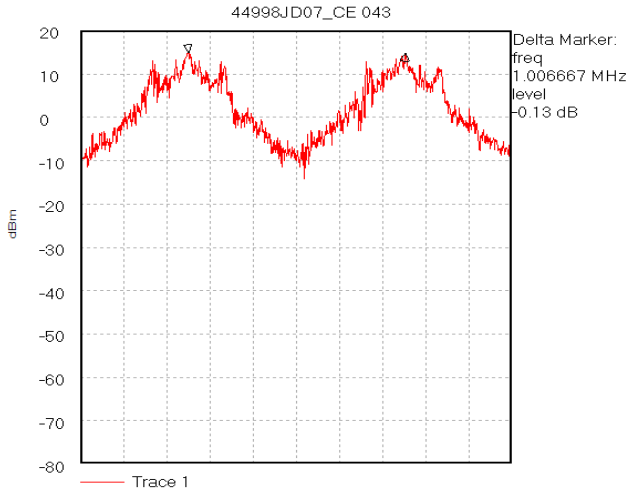
7.7. Transmitter Carrier Frequency Separation: Section 15.247(a)(1)

7.7.1. Tests were performed to identify the carrier frequency separation as per FCC Part 15.247(a)(1).

7.7.2. Section 15.247 (a)(1) specifies that at least 25 kHz or the 20 dB bandwidth of the channel should separate the channels.

7.7.3. A graphical plot of the characteristics of two adjacent channels was obtained. The following results were noted:

Transmitter Carrier Frequency Separation (kHz)	Limit (25 kHz or 20 dB BW whichever is greater) (kHz)	Margin (kHz)	Result
1006.667	815.555	191.111	Complied



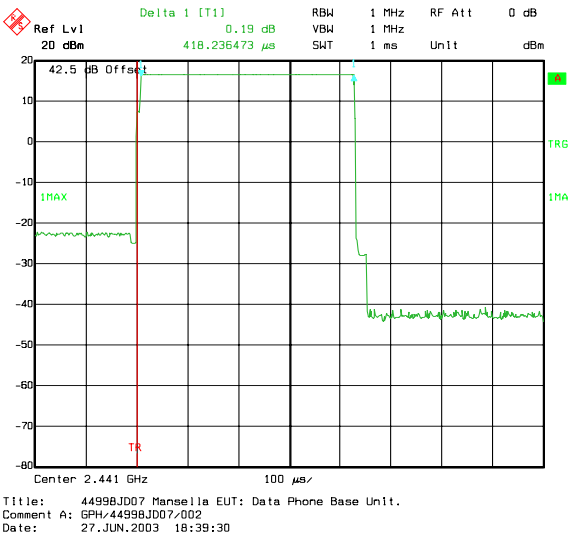
7.8. Transmitter Average Time of Occupancy: Section 15.247(a)(1)(iii)

7.8.1. The EUT was configured as for average time of occupancy measurements as described in Section 9 of this report.

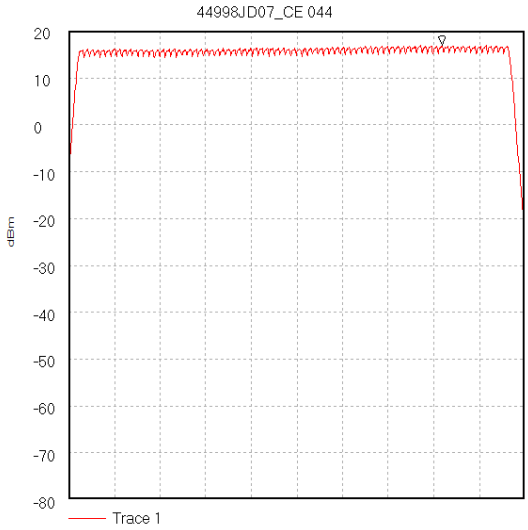
7.8.2. Tests were performed to identify the average time of occupancy in number of channels (79) x 0.4 seconds. The calculated period is 31.6 seconds.

Emission Width (μs)	Number of Hops in 31.6 seconds	Average Time of Occupancy (s)	Limit (s)	Margin (s)	Result
418.236473	259	0.108323	0.4	0.291677	Complied

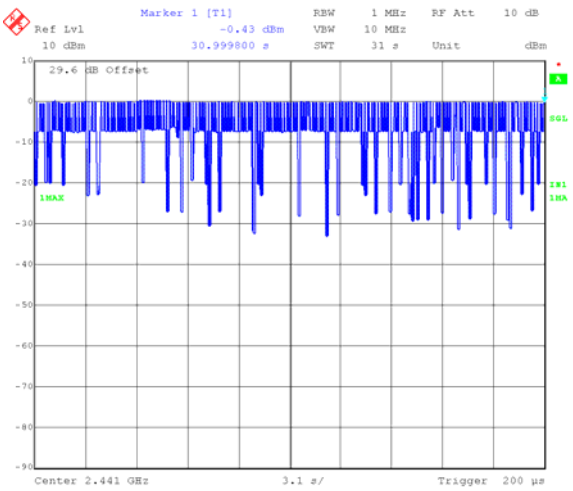
Transmitter Average Time of Occupancy: Section 15.247(a)(1)(iii) (Continued)



Title: 44998JD07 Mansella EUT: Data Phone Base Unit.
Comment A: GPH/44998JD07/D02
Date: 27.JUN.2003 18:39:30



Start 2.4 GHz; Stop 2.4835 GHz
Ref 20 dBm; Ref Offset 42.5 dB; 10 dB/div
RBW 0.0 Hz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 2.468377 GHz, 16.98 dBm
27/06/2003 17:12:33



Title: FCC Part 15.247. Mansella. Time of Occupancy
Comment A: 44998JD07_FCC_Data_Phone_Base_Unit
Date: 27.JUN.2003 18:54:52

7.9. Transmitter Peak Output Power: Section 15.247(b)(1)

7.9.1. Tests were performed to identify the maximum transmit power in accordance with FCC Part 15.247(b)(1).

7.9.2. The client has provided a temporary antenna port to allow a direct connection to be made.

7.9.3. The client has specified that the EUT employs frequency hopping with 79 hopping channels. Therefore the maximum transmitter power level under FCC Part 15.247(b)(1) is 1 Watt.

7.9.4. Results are shown for the EUT set to Top, Middle and Bottom channels as stated in FCC Part 15.31 (m) and section 5.2 of this report.

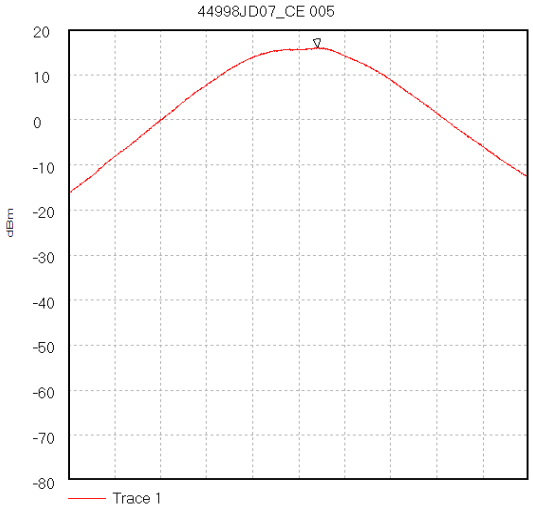
7.9.5. Measurements were performed on the Top, Middle and Bottom channels for the specified extremes of input voltages:

Channel	Input Voltage (AC)	Output Level (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	93.5	15.92	2.2	18.12	30	11.9	Complied
Bottom	110	15.87	2.2	18.07	30	11.9	Complied
Bottom	126.5	16.07	2.2	18.27	30	11.7	Complied

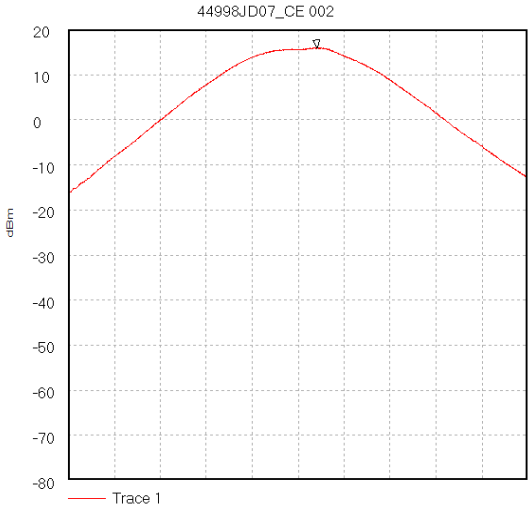
As per the requirements of Public Notice DA 00-705, the stated antenna gain of the EUT is 2.2 dBi which, when added to the highest measured conducted peak output power of 16.07 dBm (from the table above) gives a de facto EIRP of 2.5 dBm. This is in compliance with the requirements of Section 15.247(b)(1) for de facto EIRP limitation i.e. 1 Watt (30 dBm).

Test Of: **Mansella Ltd.**
CDP 24 Bluetooth Data Phone Base Unit
To: **FCC Part 15 Subpart C: 2002 (Intentional Radiators) Section 15.247**

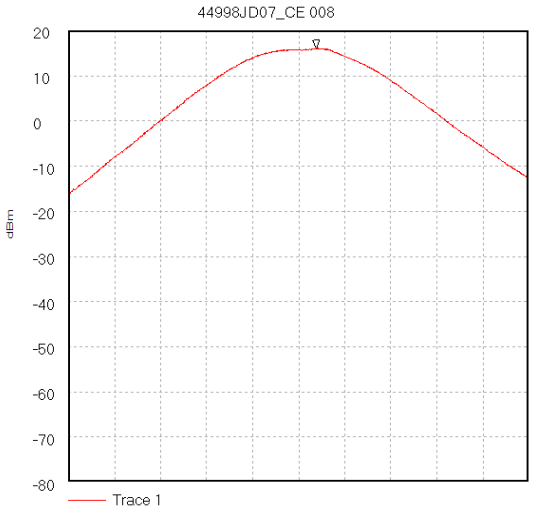
Transmitter Peak Output Power: Section 15.247(b)(1) (Continued)



Start 2.3995 GHz; Stop 2.4045 GHz
Ref 20 dBm; Ref Offset 42.5 dB; 10 dB/div
RBW 0.0 Hz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 2.402206 GHz, 15.92 dBm
27/06/2003 14:50:31



Start 2.3995 GHz; Stop 2.4045 GHz
Ref 20 dBm; Ref Offset 42.5 dB; 10 dB/div
RBW 0.0 Hz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 2.402206 GHz, 15.87 dBm
27/06/2003 14:45:47



Start 2.3995 GHz; Stop 2.4045 GHz
Ref 20 dBm; Ref Offset 42.5 dB; 10 dB/div
RBW 0.0 Hz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 2.402194 GHz, 16.07 dBm
27/06/2003 14:55:40

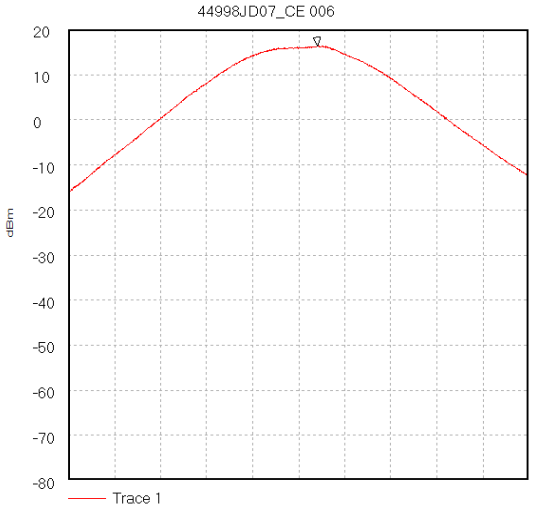
Transmitter Peak Output Power: Section 15.247(b)(1) (continued)

Channel	Input Voltage (AC)	Output Level (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Middle	93.5	16.35	2.2	18.55	30	11.5	Complied
Middle	110	16.25	2.2	18.45	30	11.6	Complied
Middle	126.5	16.45	2.2	18.65	30	11.4	Complied

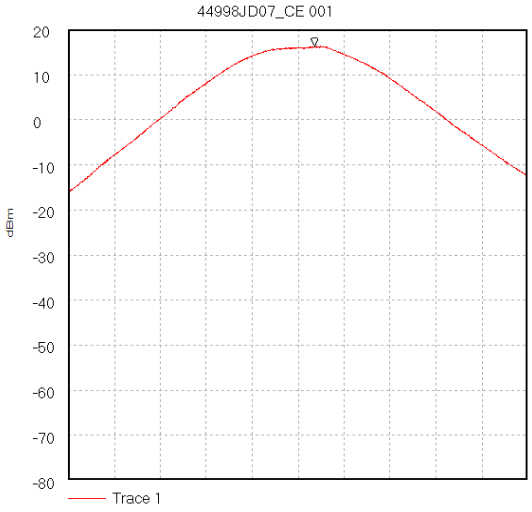
As per the requirements of Public Notice DA 00-705, the stated antenna gain of the EUT is 2.2 dBi which, when added to the highest measured conducted peak output power of 16.45 dBm (from the table above) gives a de facto EIRP of 18.65 dBm. This is in compliance with the requirements of Section 15.247(b)(1) for de facto EIRP limitation i.e. 1 Watt (30 dBm).

Test Of: **Mansella Ltd.**
CDP 24 Bluetooth Data Phone Base Unit
To: **FCC Part 15 Subpart C: 2002 (Intentional Radiators) Section 15.247**

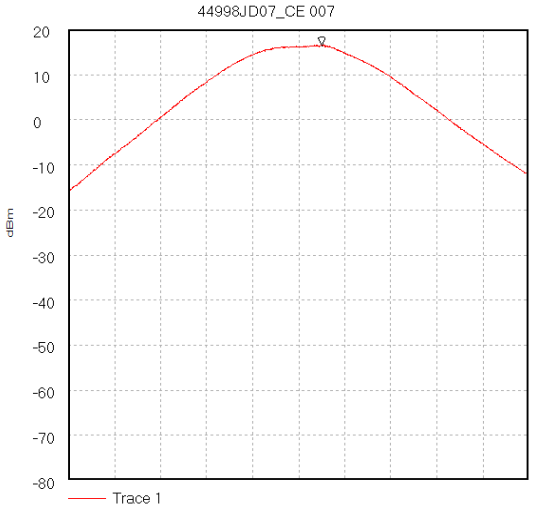
Transmitter Peak Output Power: Section 15.247(b)(1) (continued)



Start 2.4385 GHz; Stop 2.4435 GHz
Ref 20 dBm; Ref Offset 42.5 dB; 10 dB/div
RBW 0.0 Hz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 2.441206 GHz, 16.35 dBm
27/06/2003 14:51:06



Start 2.4385 GHz; Stop 2.4435 GHz
Ref 20 dBm; Ref Offset 42.5 dB; 10 dB/div
RBW 0.0 Hz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 2.441178 GHz, 16.25 dBm
27/06/2003 14:43:41



Start 2.4385 GHz; Stop 2.4435 GHz
Ref 20 dBm; Ref Offset 42.5 dB; 10 dB/div
RBW 0.0 Hz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 2.441256 GHz, 16.45 dBm
27/06/2003 14:54:59

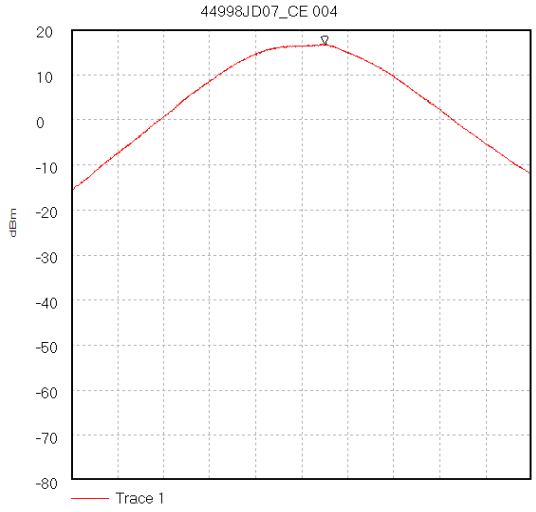
Transmitter Peak Output Power: Section 15.247(b)(1) (continued)

Channel	Input Voltage (AC)	Output Level (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Top	93.5	16.65	2.2	18.85	30	11.2	Complied
Top	110	16.48	2.2	18.68	30	11.3	Complied
Top	126.5	17.03	2.2	19.23	30	10.8	Complied

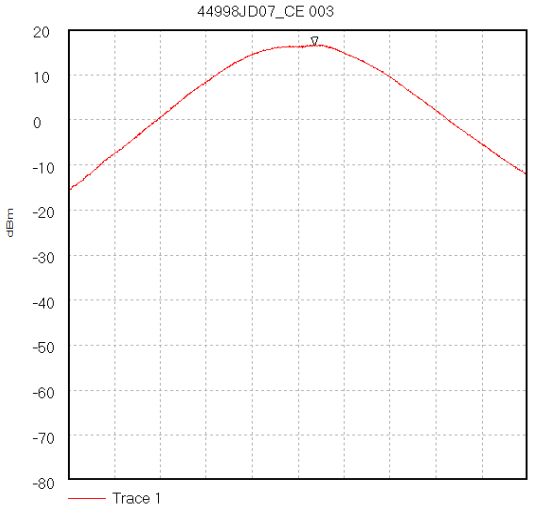
As per the requirements of Public Notice DA 00-705, the stated antenna gain of the EUT is 2.2 dBi which, when added to the highest measured conducted peak output power of 17.03 dBm (from the table above) gives a de facto EIRP of 19.23 dBm. This is in compliance with the requirements of Section 15.247(b)(1) for de facto EIRP limitation i.e. 1 Watt (30 dBm).

Test Of: **Mansella Ltd.**
CDP 24 Bluetooth Data Phone Base Unit
To: **FCC Part 15 Subpart C: 2002 (Intentional Radiators) Section 15.247**

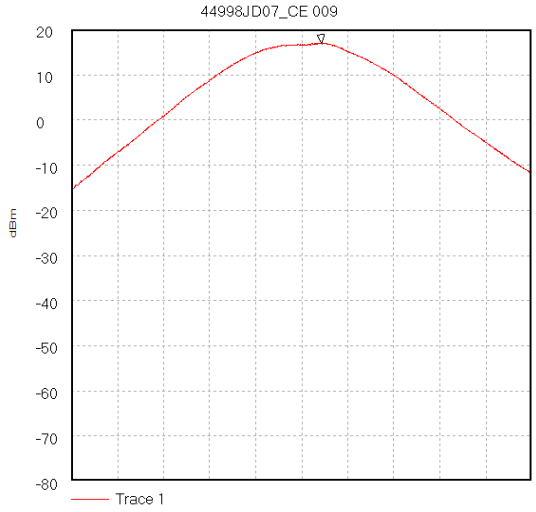
Transmitter Peak Output Power: Section 15.247(b)(1) (continued)



Start 2.4775 GHz; Stop 2.4825 GHz
Ref 20 dBm; Ref Offset 42.5 dB; 10 dB/div
RBW 0.0 Hz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 2.48025 GHz, 16.65 dBm
27/06/2003 14:49:23



Start 2.4775 GHz; Stop 2.4825 GHz
Ref 20 dBm; Ref Offset 42.5 dB; 10 dB/div
RBW 0.0 Hz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 2.480183 GHz, 16.48 dBm
27/06/2003 14:46:42



Start 2.4775 GHz; Stop 2.4825 GHz
Ref 20 dBm; Ref Offset 42.5 dB; 10 dB/div
RBW 0.0 Hz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 2.480217 GHz, 17.03 dBm
27/06/2003 14:56:10

7.10. Transmitter Conducted Emissions: Section 15.247(c)

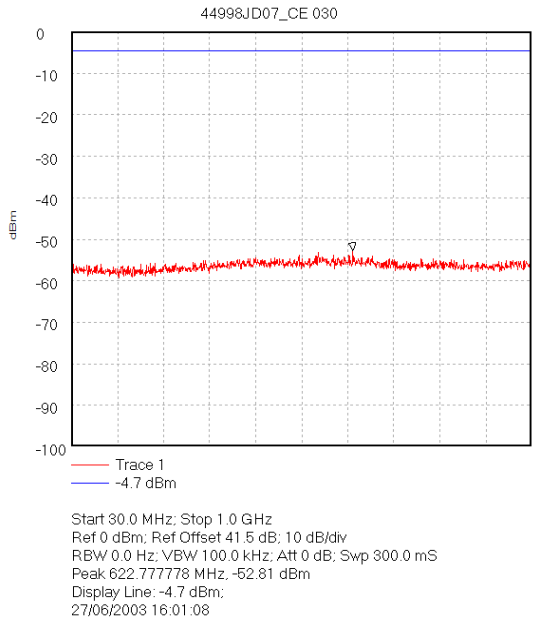
7.10.1. Spurious emissions tests on the antenna port were performed in accordance with FCC Part 15.247(c).

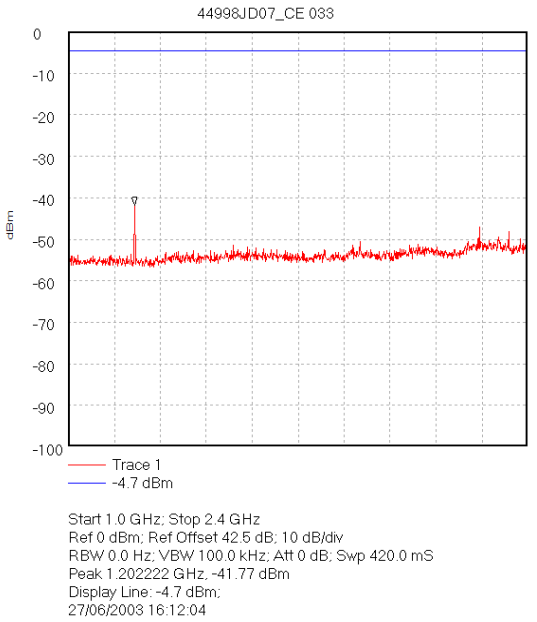
7.10.2. Section 15.247(c) specifies that all spurious emissions measured within a 100 kHz bandwidth shall be attenuated by at least 20 dB below the level of the highest fundamental level measured in a 100 kHz bandwidth.

7.10.3. Conducted spurious emission scans were performed between 30 to 26500 MHz with the EUT operating at the Top, Middle, Bottom channels and hopping on all channels as specified within clause 15.31(m).

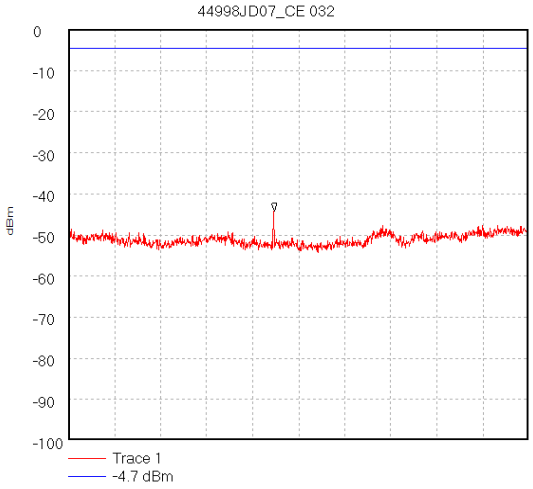
Highest Peak Level: Bottom Channel

Frequency (GHz)	Peak Detector Level (dBm)	Peak Limit (dBm)	Peak Margin (dB)	Result
1.202222	-41.77	-4.7	37.07	Complied

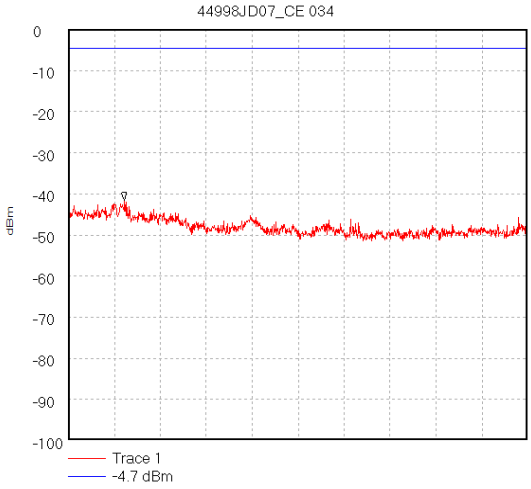




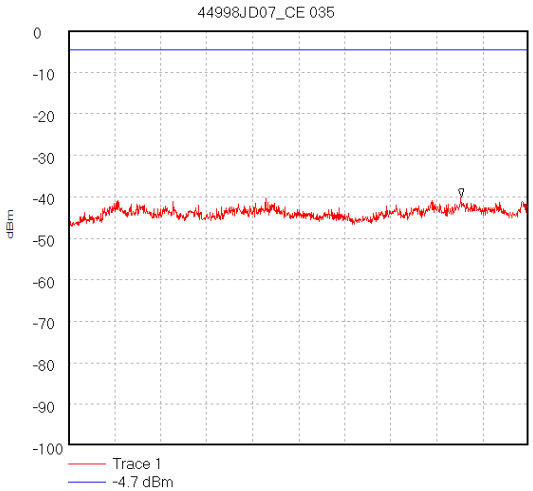
Transmitter Conducted Emissions: Section 15.247(c) (Continued)



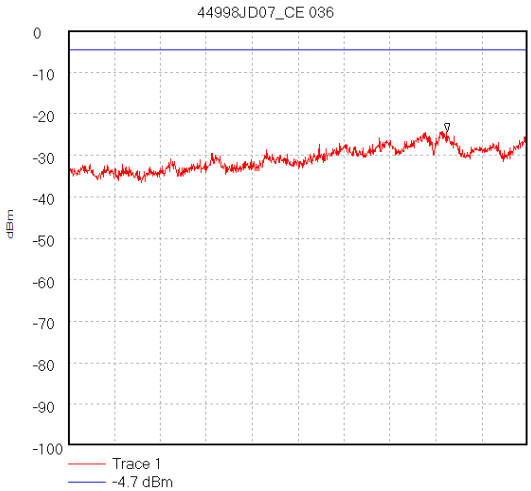
Start 2.4835 GHz; Stop 5.0 GHz
Ref 0 dBm; Ref Offset 43.6 dB; 10 dB/div
RBW 0.0 Hz; VBW 100.0 kHz; Att 0 dB; Swp 760.0 mS
Peak 3.607537 GHz, -44.18 dBm
Display Line: -4.7 dBm;
27/06/2003 16:11:29



Start 5.0 GHz; Stop 12.5 GHz
Ref 0 dBm; Ref Offset 46.5 dB; 10 dB/div
RBW 0.0 Hz; VBW 100.0 kHz; Att 0 dB; Swp 2.4 S
Peak 5.916667 GHz, -41.54 dBm
Display Line: -4.7 dBm;
27/06/2003 16:12:37



Start 12.5 GHz; Stop 18.0 GHz
Ref 0 dBm; Ref Offset 48.2 dB; 10 dB/div
RBW 0.0 Hz; VBW 100.0 kHz; Att 0 dB; Swp 1.66 S
Peak 17.193333 GHz, -40.02 dBm
Display Line: -4.7 dBm;
27/06/2003 16:13:11



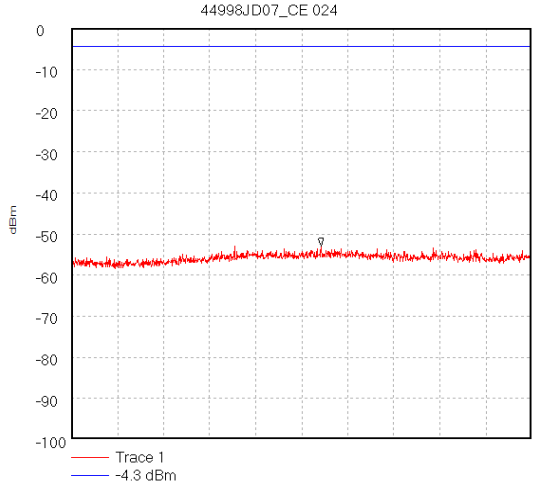
Start 18.0 GHz; Stop 26.5 GHz
Ref 0 dBm; Ref Offset 57.3 dB; 10 dB/div
RBW 0.0 Hz; VBW 100.0 kHz; Att 0 dB; Swp 2.6 S
Peak 25.007778 GHz, -24.27 dBm
Display Line: -4.7 dBm;
27/06/2003 16:13:44

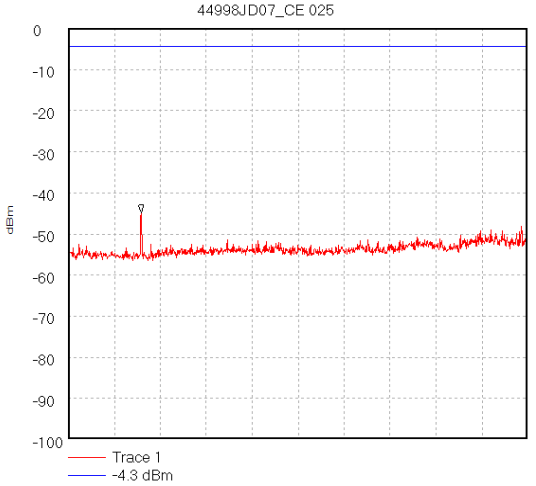
Test Of: **Mansella Ltd.**
CDP 24 Bluetooth Data Phone Base Unit
To: **FCC Part 15 Subpart C: 2002 (Intentional Radiators) Section 15.247**

Transmitter Conducted Emissions: Section 15.247(c) (continued)

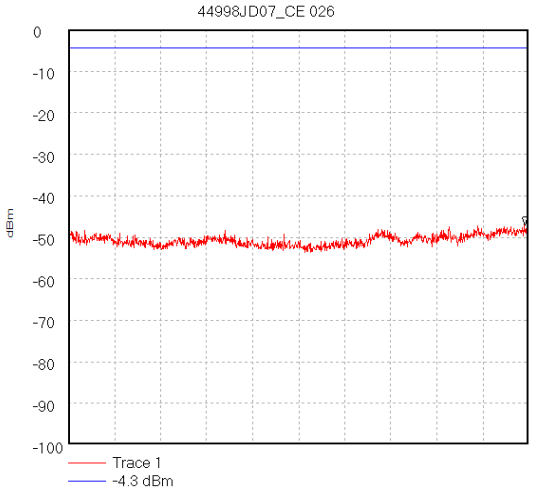
Highest Peak Level: Middle Channel

Frequency (GHz)	Peak Detector Level (dBm)	Peak Limit (dBm)	Peak Margin (dB)	Result
1.222444	-44.79	-4.3	40.49	Complied

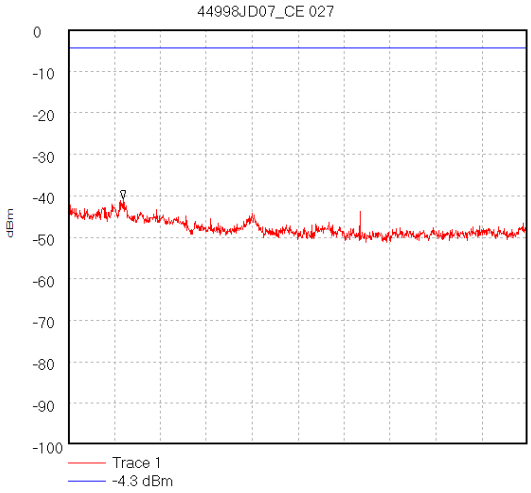




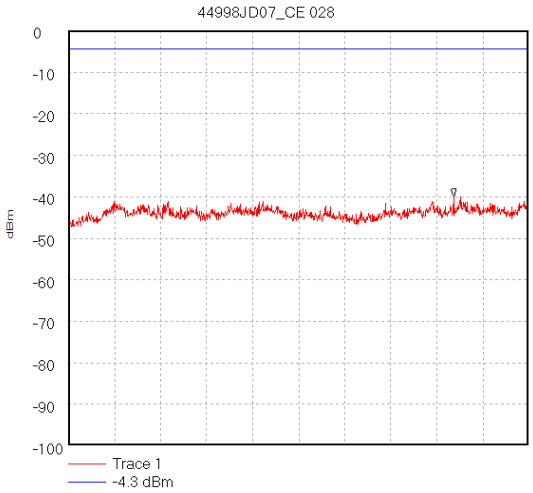
Transmitter Conducted Emissions: Section 15.247(c) (Continued)



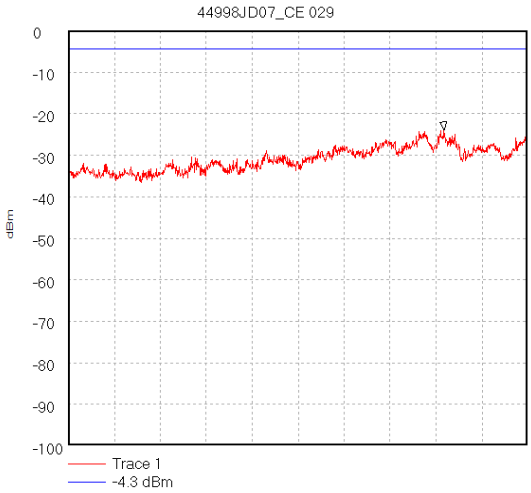
Start 2.4835 GHz; Stop 5.0 GHz
Ref 0 dBm; Ref Offset 43.6 dB; 10 dB/div
RBW 0.0 Hz; VBW 100.0 kHz; Att 0 dB; Swp 760.0 mS
Peak 4.977631 GHz, -47.13 dBm
Display Line: -4.3 dBm;
27/06/2003 15:58:04



Start 5.0 GHz; Stop 12.5 GHz
Ref 0 dBm; Ref Offset 46.5 dB; 10 dB/div
RBW 0.0 Hz; VBW 100.0 kHz; Att 0 dB; Swp 2.4 S
Peak 5.9 GHz, -40.83 dBm
Display Line: -4.3 dBm;
27/06/2003 15:58:54



Start 12.5 GHz; Stop 18.0 GHz
Ref 0 dBm; Ref Offset 48.2 dB; 10 dB/div
RBW 0.0 Hz; VBW 100.0 kHz; Att 0 dB; Swp 1.66 S
Peak 17.107778 GHz, -40.02 dBm
Display Line: -4.3 dBm;
27/06/2003 15:59:30

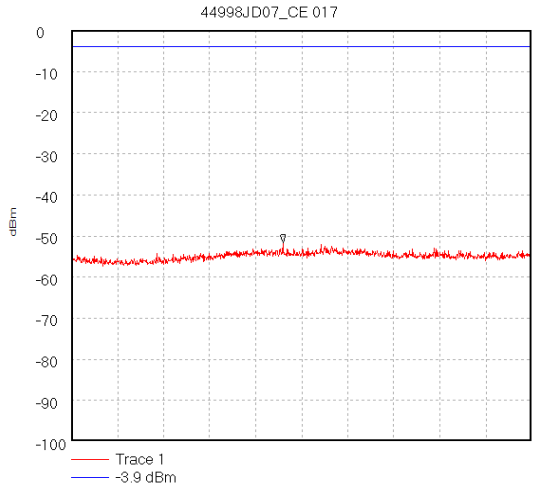


Start 18.0 GHz; Stop 26.5 GHz
Ref 0 dBm; Ref Offset 57.3 dB; 10 dB/div
RBW 0.0 Hz; VBW 100.0 kHz; Att 0 dB; Swp 2.6 S
Peak 24.951111 GHz, -23.97 dBm
Display Line: -4.3 dBm;
27/06/2003 16:00:15

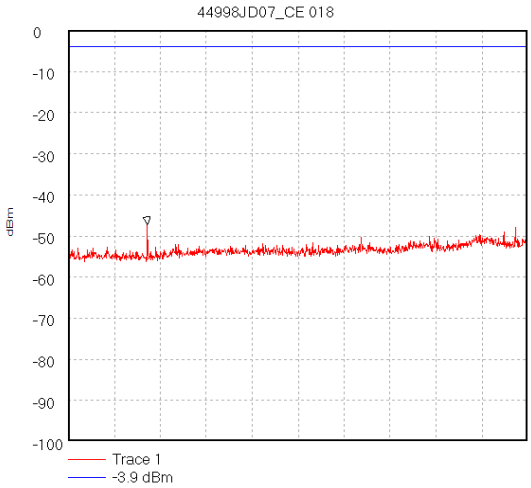
Transmitter Conducted Emissions: Section 15.247(c) (continued)

Highest Peak Level: Top Channel

Frequency (GHz)	Peak Detector Level (dBm)	Peak Limit (dBm)	Peak Margin (dB)	Result
5.733333	-41.67	-3.9	37.77	Complied



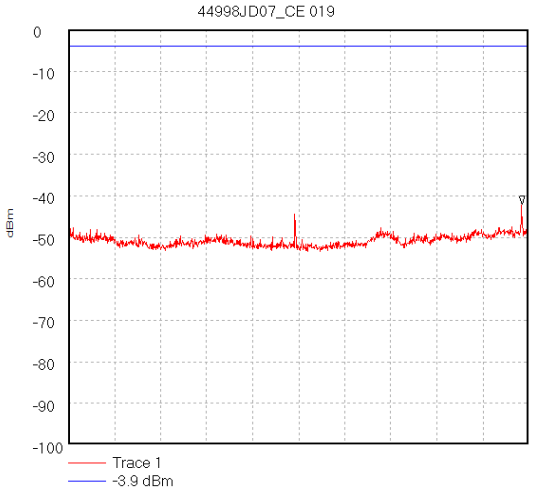
Start 30.0 MHz; Stop 1.0 GHz
Ref 0 dBm; Ref Offset 41.5 dB; 10 dB/div
RBW 0.0 Hz; VBW 100.0 kHz; Att 0 dB; Swp 300.0 mS
Peak 476.2 MHz, -51.7 dBm
Display Line: -3.9 dBm;
27/06/2003 15:45:34



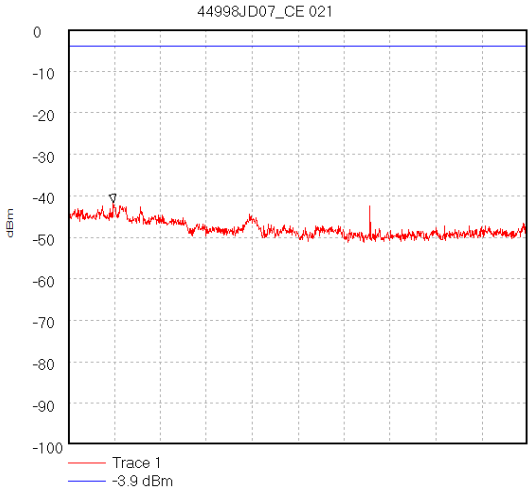
Start 1.0 GHz; Stop 2.4 GHz
Ref 0 dBm; Ref Offset 42.6 dB; 10 dB/div
RBW 0.0 Hz; VBW 100.0 kHz; Att 0 dB; Swp 420.0 mS
Peak 1.241111 GHz, -47.33 dBm
Display Line: -3.9 dBm;
27/06/2003 15:48:25

Test Of: **Mansella Ltd.**
CDP 24 Bluetooth Data Phone Base Unit
To: **FCC Part 15 Subpart C: 2002 (Intentional Radiators) Section 15.247**

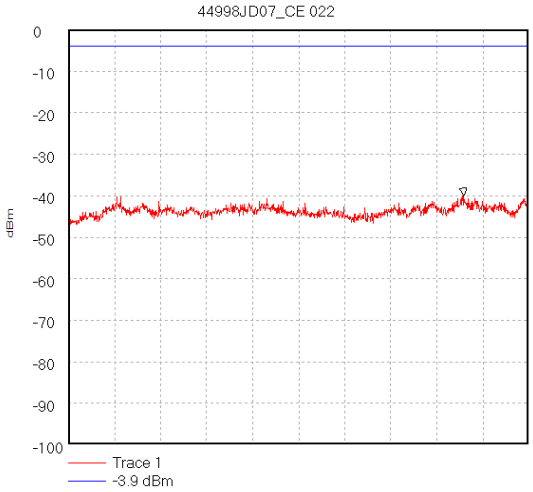
Transmitter Conducted Emissions: Section 15.247(c) (Continued)



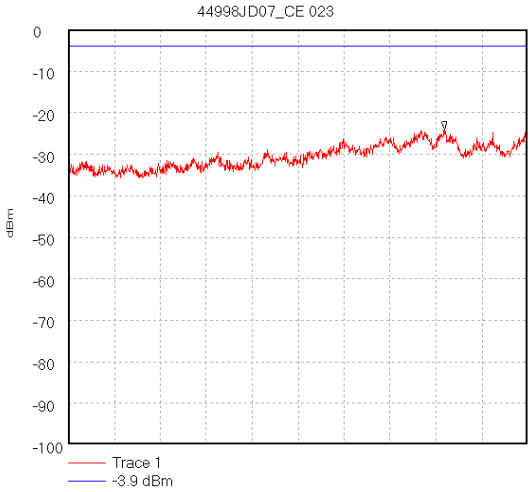
Start 2.4835 GHz; Stop 5.0 GHz
Ref 0 dBm; Ref Offset 42.6 dB; 10 dB/div
RBW 0.0 Hz; VBW 100.0 kHz; Att 0 dB; Swp 760.0 mS
Peak 4.963651 GHz, -42.12 dBm
Display Line: -3.9 dBm;
27/06/2003 15:50:15



Start 5.0 GHz; Stop 12.5 GHz
Ref 0 dBm; Ref Offset 46.5 dB; 10 dB/div
RBW 0.0 Hz; VBW 100.0 kHz; Att 0 dB; Swp 2.4 S
Peak 5.733333 GHz, -41.67 dBm
Display Line: -3.9 dBm;
27/06/2003 15:53:30



Start 12.5 GHz; Stop 18.0 GHz
Ref 0 dBm; Ref Offset 48.2 dB; 10 dB/div
RBW 0.0 Hz; VBW 100.0 kHz; Att 0 dB; Swp 1.66 S
Peak 17.223889 GHz, -40.07 dBm
Display Line: -3.9 dBm;
27/06/2003 15:54:16



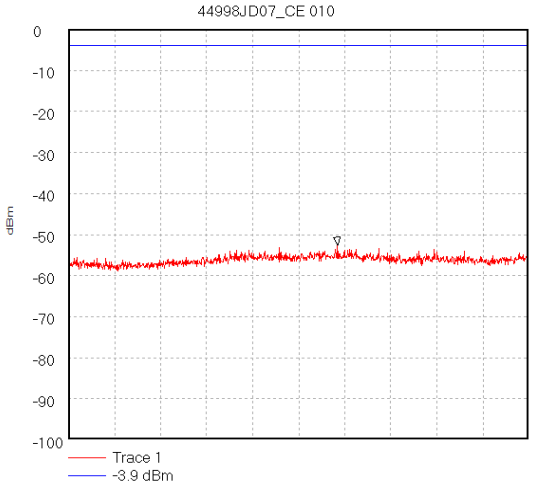
Start 18.0 GHz; Stop 26.5 GHz
Ref 0 dBm; Ref Offset 57.3 dB; 10 dB/div
RBW 0.0 Hz; VBW 100.0 kHz; Att 0 dB; Swp 2.6 S
Peak 24.960556 GHz, -24.09 dBm
Display Line: -3.9 dBm;
27/06/2003 15:54:57

Test Of: **Mansella Ltd.**
CDP 24 Bluetooth Data Phone Base Unit
To: **FCC Part 15 Subpart C: 2002 (Intentional Radiators) Section 15.247**

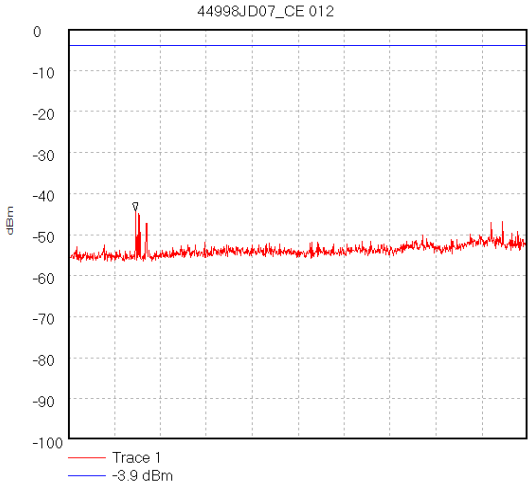
Transmitter Conducted Emissions: Section 15.247(c) (continued)

Highest Peak Level: Hopping All Channels

Frequency (GHz)	Peak Detector Level (dBm)	Peak Limit (dBm)	Peak Margin (dB)	Result
9.916667	-40.73	-3.9	36.83	Complied



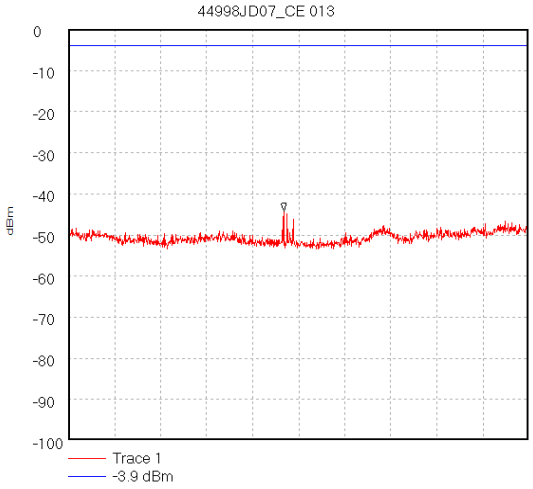
Start 30.0 MHz; Stop 1.0 GHz
Ref 0 dBm; Ref Offset 41.5 dB; 10 dB/div
RBW 0.0 Hz; VBW 100.0 kHz; Att 0 dB; Swp 300.0 mS
Peak 596.911111 MHz, -52.64 dBm
Display Line: -3.9 dBm;
27/06/2003 15:28:56



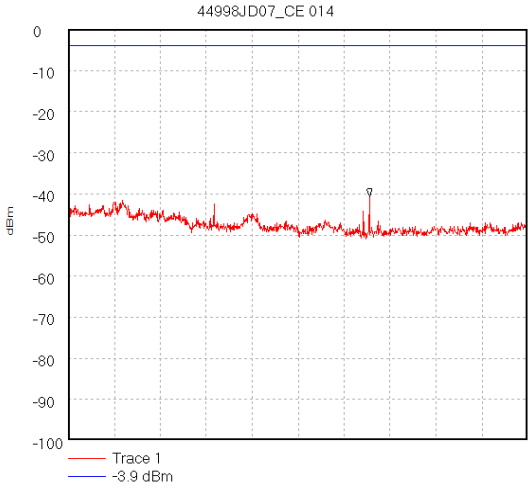
Start 1.0 GHz; Stop 2.4 GHz
Ref 0 dBm; Ref Offset 42.5 dB; 10 dB/div
RBW 0.0 Hz; VBW 100.0 kHz; Att 0 dB; Swp 420.0 mS
Peak 1.205333 GHz, -44.31 dBm
Display Line: -3.9 dBm;
27/06/2003 15:34:42

Test Of: **Mansella Ltd.**
CDP 24 Bluetooth Data Phone Base Unit
To: **FCC Part 15 Subpart C: 2002 (Intentional Radiators) Section 15.247**

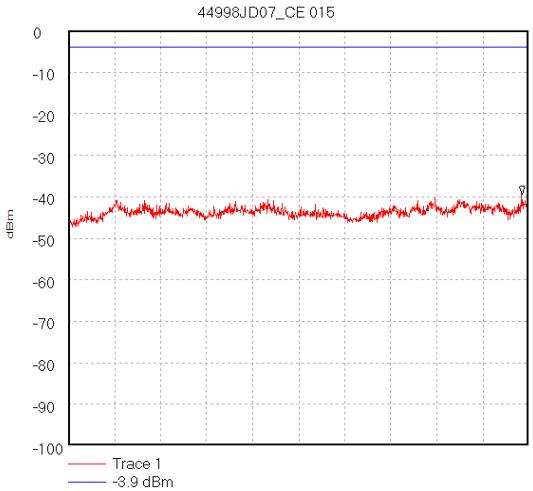
Transmitter Conducted Emissions: Section 15.247(c) (Continued)



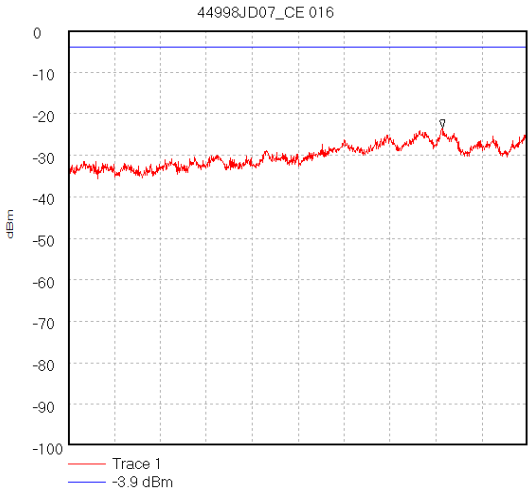
Start 2.4835 GHz; Stop 5.0 GHz
Ref 0 dBm; Ref Offset 43.6 dB; 10 dB/div
RBW 0.0 Hz; VBW 100.0 kHz; Att 0 dB; Swp 760.0 mS
Peak 3.660663 GHz, -44.18 dBm
Display Line: -3.9 dBm;
27/06/2003 15:36:05



Start 5.0 GHz; Stop 12.5 GHz
Ref 0 dBm; Ref Offset 46.5 dB; 10 dB/div
RBW 0.0 Hz; VBW 100.0 kHz; Att 0 dB; Swp 2.4 S
Peak 9.916667 GHz, -40.73 dBm
Display Line: -3.9 dBm;
27/06/2003 15:38:53



Start 12.5 GHz; Stop 18.0 GHz
Ref 0 dBm; Ref Offset 48.2 dB; 10 dB/div
RBW 0.0 Hz; VBW 100.0 kHz; Att 0 dB; Swp 1.66 S
Peak 17.920556 GHz, -39.48 dBm
Display Line: -3.9 dBm;
27/06/2003 15:40:01



Start 18.0 GHz; Stop 26.5 GHz
Ref 0 dBm; Ref Offset 57.3 dB; 10 dB/div
RBW 0.0 Hz; VBW 100.0 kHz; Att 0 dB; Swp 2.6 S
Peak 24.922778 GHz, -23.36 dBm
Display Line: -3.9 dBm;
27/06/2003 15:40:58

7.11. Transmitter Radiated Emissions: Section 15.247(c) and 15.209(a)

7.11.1. Electric Field Strength Measurements: 30 to 1000 MHz.

7.11.1.1. The following table specifies frequencies, which fall close to the restricted bands as specified in section 15.205(a).

7.11.1.2. Preliminary radiated spurious scans were performed with the EUT set to Top, Middle and Bottom channels.

7.11.1.3. Due to dynamic range limitations of the measuring receiver, scans at high frequencies above 12 GHz were performed at a 1 m measurement distance. The measured value was then corrected by 9.5 dB using the formula 20log(D1/D2) Where D1 was 3 m and D2 was 1 m.

7.11.1.4. The following table lists frequencies at which emissions were measured using a Quasi-Peak detector at a test distance of 3 m (results incorporate antenna factors and cable losses):

7.11.1.5. The following results are for the EUT configured with an internal antenna connected and operating.

Middle Channel

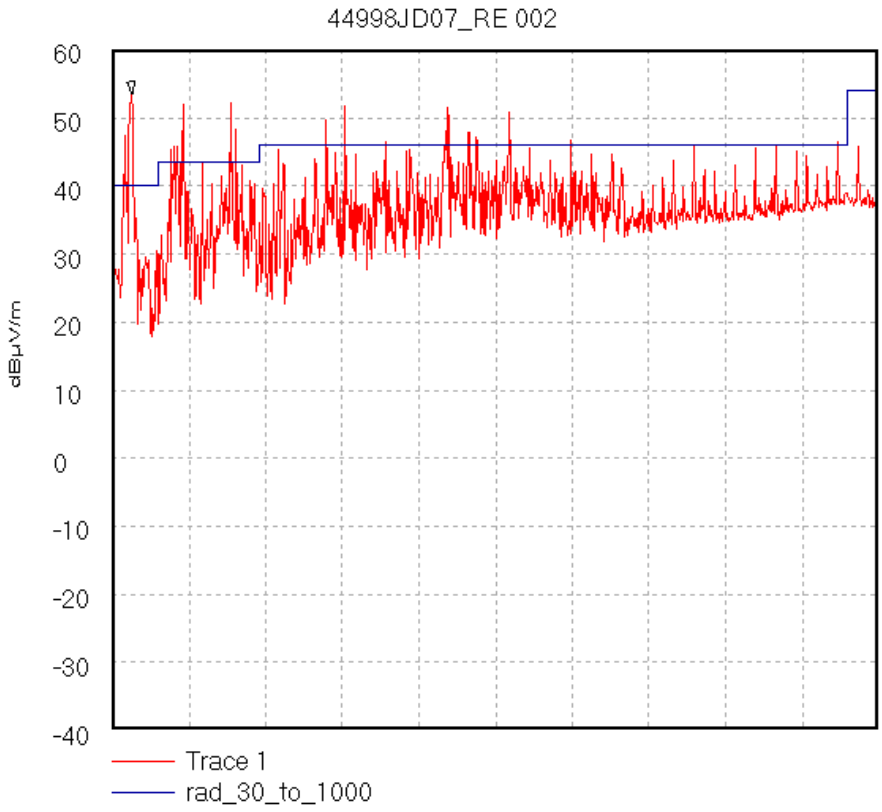
Frequency (MHz)	Ant. Pol.	Q-P Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
45.056	Vert.	25.2	40.0	14.8	Complied
55.295	Vert.	39.4	40.0	0.6	Complied
142.998	Horiz.	27.3	43.5	16.2	Complied
179.999	Horiz.	34.8	43.5	8.7	Complied
185.955	Horiz.	27.8	43.5	15.7	Complied
239.998	Horiz.	30.1	46.0	15.9	Complied
301.055	Horiz.	29.9	46.0	16.1	Complied
324.999	Vert.	35.9	46.0	10.1	Complied
377.000	Vert.	33.8	46.0	12.2	Complied
455.000	Horiz.	40.0	46.0	6.0	Complied
481.000	Horiz.	38.4	46.0	7.6	Complied
491.526	Horiz.	43.3	46.0	2.7	Complied
532.476	Horiz.	41.6	46.0	4.4	Complied
532.999	Vert.	33.8	46.0	12.2	Complied

Test Of: **Mansella Ltd.**
CDP 24 Bluetooth Data Phone Base Unit
To: **FCC Part 15 Subpart C: 2002 (Intentional Radiators) Section 15.247**

Middle Channel (Continued)

Frequency (MHz)	Ant. Pol.	Q-P Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
559.000	Vert.	36.8	46.0	9.2	Complied
611.000	Vert.	35.9	46.0	10.1	Complied
766.999	Horiz.	37.4	46.0	8.6	Complied
870.000	Horiz.	37.0	46.0	9.0	Complied
897.001	Horiz.	36.7	46.0	9.3	Complied
975.001	Horiz.	35.1	54.0	18.9	Complied

Note: The preliminary scans showed similar emission levels for each mode below 1 GHz, therefore final radiated emissions measurements were performed with the EUT set to the Middle channel only.



Start 30.0 MHz; Stop 1.0 GHz
Ref 60 dBµV/m; Ref Offset 0.0 dB; 10 dB/div
RBW 68.966 kHz; VBW 100.0 kHz; Att 0 dB; Swp 300.0 mS
Peak 54.789 MHz, 53.43 dBµV/m
Limit/Mask: rad_30_to_1000; ; Limit Test Failed
Transducer Factors: A490
24/06/2003 13:43:27

7.12. Transmitter Radiated Emissions: Section 15.247(c) and 15.209(a)

7.12.1. Electric Field Strength Measurements: 1.0 to 26.5 GHz

Highest Average Level: Bottom Channel

Frequency (GHz)	Antenna Polarity (H/V)	Average Detector level (dBμV)	Antenna factor (dB)	Cable loss (dB)	Actual Average Level (dBμV/m)	Average Limit (dBμV/m)	Average Margin (dB)	Result
2.2522	Horiz	3.56	23.4	1.2	28.16	54.0	25.8	Complied
2.2695	Vert	4.39	23.4	1.2	28.99	54.0	25.0	Complied
2.3420	Vert	3.99	23.4	1.2	28.59	54.0	25.4	Complied
2.8315	Vert	3.71	23.4	1.2	28.31	54.0	25.7	Complied
3.6023	Vert	10.13	23.4	1.2	34.73	54.0	19.3	Complied
4.8038	Vert	2.60	24.4	2.0	29.00	54.0	25.0	Complied

Highest Peak Level: Bottom Channel

Frequency (GHz)	Antenna Polarity (H/V)	Peak Detector level (dBμV)	Antenna factor (dB)	Cable loss (dB)	Actual Peak Level (dBμV/m)	Peak Limit (dBμV/m)	Peak Margin (dB)	Result
2.2522	Horiz	25.50	23.4	1.2	50.10	74.0	23.9	Complied
2.2695	Vert	22.83	23.4	1.2	47.43	74.0	26.6	Complied
2.3420	Vert	28.90	23.4	1.2	53.50	74.0	20.5	Complied
2.8315	Vert	24.94	23.4	1.2	49.54	74.0	24.5	Complied
3.6023	Vert	23.95	23.4	1.2	48.55	74.0	25.5	Complied
4.8038	Vert	27.00	24.4	2.0	53.40	74.0	20.6	Complied

Transmitter Radiated Emissions: Section 15.247(c) and 15.209(a) (continued)

Highest Average Level: Middle Channel

Frequency (GHz)	Antenna Polarity (H/V)	Average Detector level (dBμV)	Antenna factor (dB)	Cable loss (dB)	Actual Average Level (dBμV/m)	Average Limit (dBμV/m)	Average Margin (dB)	Result
2.7958	Vert	3.10	23.4	1.2	27.70	54.0	26.3	Complied
3.6617	Vert	3.57	23.4	1.2	28.17	54.0	25.8	Complied
4.8821	Vert	2.40	24.4	2.0	30.70	54.0	23.3	Complied

Highest Peak Level: Middle Channel

Frequency (GHz)	Antenna Polarity (H/V)	Peak Detector level (dBμV)	Antenna factor (dB)	Cable loss (dB)	Actual Peak Level (dBμV/m)	Peak Limit (dBμV/m)	Peak Margin (dB)	Result
2.7958	Vert	33.09	23.4	1.2	57.69	74.0	16.3	Complied
3.6617	Vert	26.97	23.4	1.2	51.57	74.0	22.4	Complied
4.8821	Vert	28.25	24.4	2.0	54.65	74.0	19.4	Complied

Highest Average Level: Top Channel

Frequency (GHz)	Antenna Polarity (H/V)	Average Detector level (dBμV)	Antenna factor (dB)	Cable loss (dB)	Actual Average Level (dBμV/m)	Average Limit (dBμV/m)	Average Margin (dB)	Result
2.3250	Vert	3.12	23.4	1.2	27.72	54.0	26.3	Complied
2.3598	Vert	9.74	23.4	1.2	34.34	54.0	19.7	Complied
4.9601	Vert	4.89	24.4	2.0	31.29	54.0	22.7	Complied

Highest Peak Level: Top Channel

Frequency (GHz)	Antenna Polarity (H/V)	Peak Detector level (dBμV)	Antenna factor (dB)	Cable loss (dB)	Actual Peak Level (dBμV/m)	Peak Limit (dBμV/m)	Peak Margin (dB)	Result
2.3250	Vert	28.88	23.4	1.2	53.48	74.0	20.5	Complied
2.3598	Vert	24.61	23.4	1.2	49.21	74.0	24.8	Complied
4.9601	Vert	28.91	24.4	2.0	55.31	74.0	18.7	Complied

Transmitter Radiated Emissions: Section 15.247(c) and 15.209(a) (continued)

Highest Average Level: Hopping All Channel

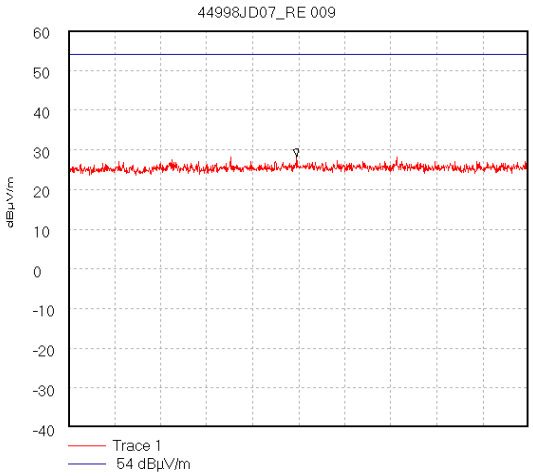
Frequency (GHz)	Antenna Polarity (H/V)	Average Detector level (dBμV)	Antenna factor (dB)	Cable loss (dB)	Actual Average Level (dBμV/m)	Average Limit (dBμV/m)	Average Margin (dB)	Result
2.2817	Vert	8.72	23.4	1.2	33.32	54.0	20.7	Complied
2.3409	Vert	7.82	23.4	1.2	32.42	54.0	21.6	Complied
3.6166	Vert	6.73	23.4	1.2	31.33	54.0	22.7	Complied
3.6362	Vert	6.63	23.4	1.2	31.23	54.0	22.8	Complied
3.6960	Vert	7.47	23.4	1.2	32.07	54.0	21.9	Complied
4.9334	Vert	3.97	24.4	2.0	30.37	54.0	23.6	Complied

Highest Peak Level: Hopping All Channel

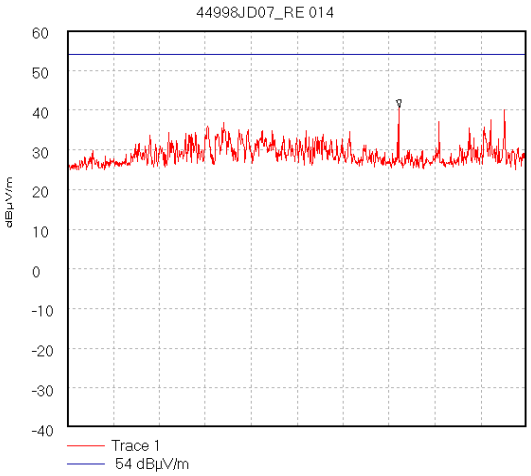
Frequency (GHz)	Antenna Polarity (H/V)	Peak Detector level (dBμV)	Antenna factor (dB)	Cable loss (dB)	Actual Peak Level (dBμV/m)	Peak Limit (dBμV/m)	Peak Margin (dB)	Result
2.2817	Vert	22.78	23.4	1.2	47.38	74.0	26.6	Complied
2.3409	Vert	28.06	23.4	1.2	52.66	74.0	21.3	Complied
3.6166	Vert	27.53	23.4	1.2	52.13	74.0	21.9	Complied
3.6362	Vert	28.57	23.4	1.2	53.17	74.0	20.8	Complied
3.6960	Vert	26.79	23.4	1.2	51.39	74.0	22.6	Complied
4.9334	Vert	27.21	24.4	2.0	53.61	74.0	20.4	Complied

Test Of: **Mansella Ltd.**
CDP 24 Bluetooth Data Phone Base Unit
To: **FCC Part 15 Subpart C: 2002 (Intentional Radiators) Section 15.247**

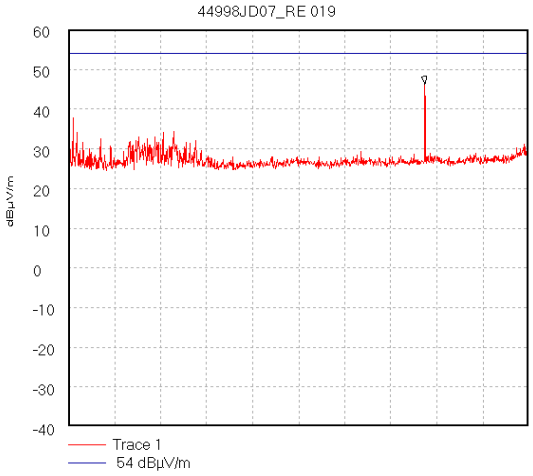
Transmitter Radiated Emissions: Section 15.247(c) and 15.209(a) (continued)



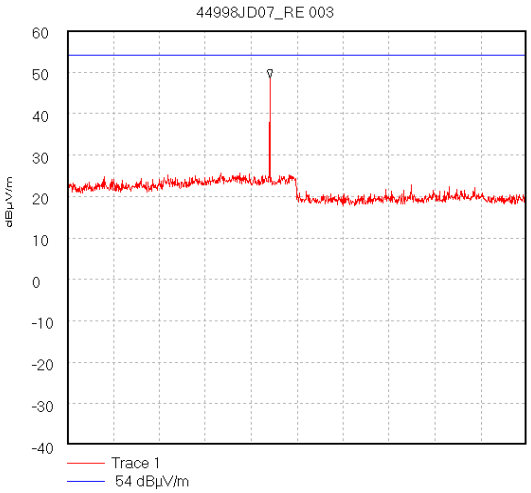
Start 1.0 GHz; Stop 2.0 GHz
Ref 60 dBµV/m; Ref Offset 0.0 dB; 10 dB/div
RBW 100.0 kHz; VBW 100.0 kHz; Att 0 dB; Swp 640.0 mS
Peak 1.496 GHz, 28.21 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Passed
Transducer Factors: A490
24/06/2003 14:20:22



Start 2.0 GHz; Stop 2.4 GHz
Ref 60 dBµV/m; Ref Offset 0.0 dB; 10 dB/div
RBW 100.0 kHz; VBW 100.0 kHz; Att 0 dB; Swp 260.0 mS
Peak 2.289 GHz, 40.68 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Passed
Transducer Factors: A490
24/06/2003 14:42:29



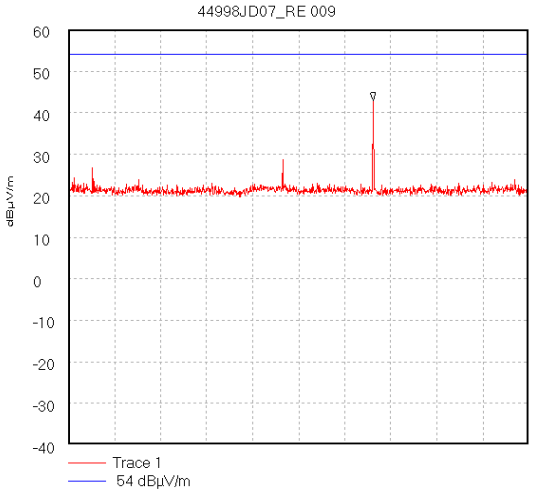
Start 2.485 GHz; Stop 4.002 GHz
Ref 60 dBµV/m; Ref Offset 0.0 dB; 10 dB/div
RBW 100.0 kHz; VBW 100.0 kHz; Att 0 dB; Swp 960.0 mS
Peak 3.66 GHz, 46.24 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Passed
Transducer Factors: A490
24/06/2003 15:04:03



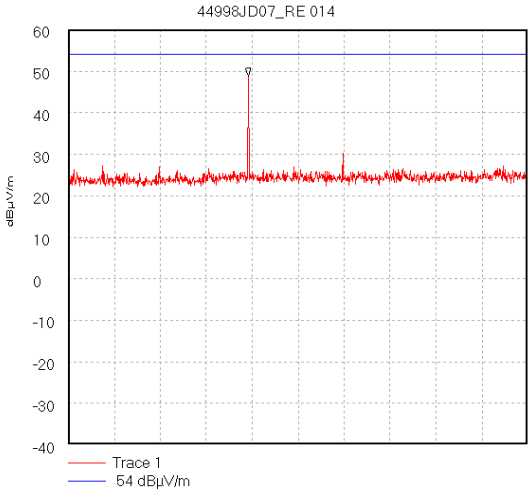
Start 4.0 GHz; Stop 6.0 GHz
Ref 60 dBµV/m; Ref Offset 1.5 dB; 10 dB/div
RBW 145.0 kHz; VBW 100.0 kHz; Att 0 dB; Swp 1.28 S
Peak 4.882 GHz, 48.53 dBµV/m
Display Line: 54 dBµV/m;
25/06/2003 16:53:53

Test Of: **Mansella Ltd.**
CDP 24 Bluetooth Data Phone Base Unit
To: **FCC Part 15 Subpart C: 2002 (Intentional Radiators) Section 15.247**

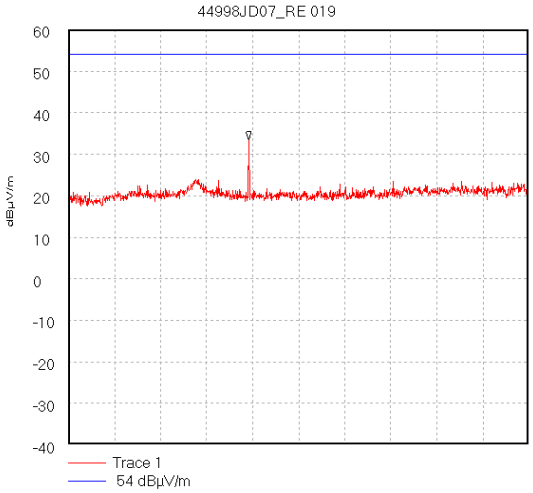
Transmitter Radiated Emissions: Section 15.247(c) and 15.209(a) (continued)



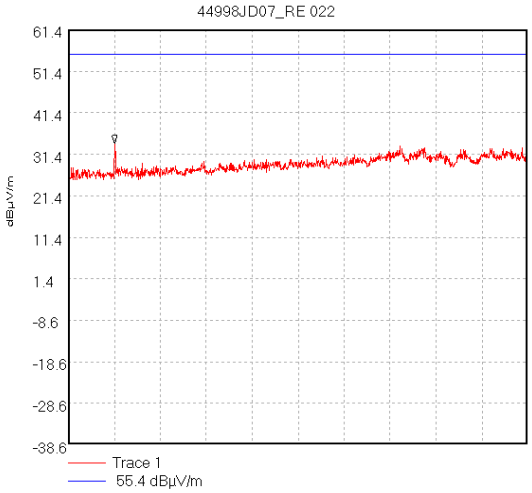
Start 6.0 GHz; Stop 8.0 GHz
Ref 60 dBµV/m; Ref Offset 3.6 dB; 10 dB/div
RBW 145.0 kHz; VBW 100.0 kHz; Att 0 dB; Swp 1.28 S
Peak 7.324 GHz, 42.86 dBµV/m
Display Line: 54 dBµV/m;
25/06/2003 17:27:42



Start 8.0 GHz; Stop 12.5 GHz
Ref 60 dBµV/m; Ref Offset 3.6 dB; 10 dB/div
RBW 145.0 kHz; VBW 100.0 kHz; Att 0 dB; Swp 3.0 S
Peak 9.765 GHz, 48.78 dBµV/m
Display Line: 54 dBµV/m;
25/06/2003 18:15:36



Start 12.5 GHz; Stop 18.0 GHz
Ref 60 dBµV/m; Ref Offset 3.6 dB; 10 dB/div
RBW 145.0 kHz; VBW 100.0 kHz; Att 0 dB; Swp 3.6 S
Peak 14.657 GHz, 33.39 dBµV/m
Display Line: 54 dBµV/m;
25/06/2003 18:41:12



Start 18.0 GHz; Stop 26.5 GHz
Ref 61.4 dBµV/m; Ref Offset 5.0 dB; 10 dB/div
RBW 145.0 kHz; VBW 100.0 kHz; Att 0 dB; Swp 5.4 S
Peak 18.859 GHz, 33.95 dBµV/m
Display Line: 55.4 dBµV/m;
25/06/2003 19:24:24

7.13. Transmitter Band Edge Conducted Emissions FCC 15.247(c)

7.13.1.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.

7.13.2.The applicant to allow for conducted measurements provided a temporary antenna port.

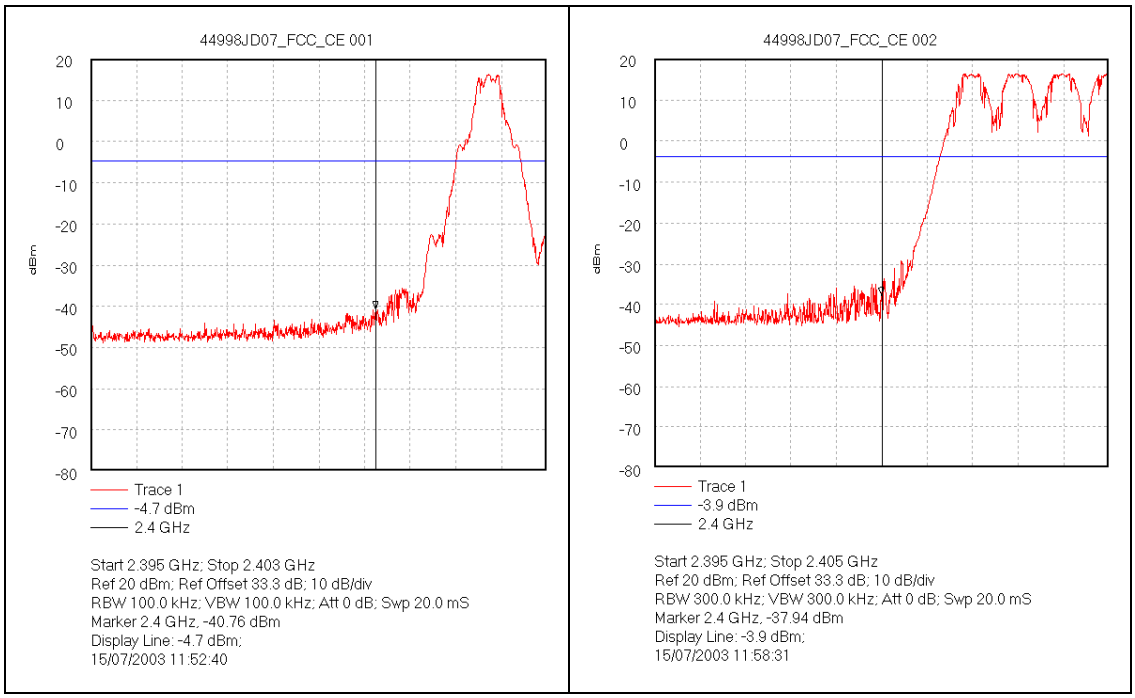
7.13.3. A plot of the upper channel and the protected band closest to the upper channel was produced. A marker was set to the peak of the highest channel and a delta marker set to the highest out of band peak. (The specification states that either the band edge level must be measured or the highest out of band emission, whichever is greater). The plots show that the emission complies with the 20 dBc limit.

7.13.4. A plot of the lower channel and the protected band closest to the lower channel was produced. A marker was set to the peak of the lowest channel and a delta marker set to the highest out of band peak. (The specification states that either the band edge level must be measured or the highest out of band emission, whichever is greater). The plots show that the emission complies with the 20 dBc limit.

Test Of: **Mansella Ltd.**
CDP 24 Bluetooth Data Phone Base Unit
To: **FCC Part 15 Subpart C: 2002 (Intentional Radiators) Section 15.247**

Highest Peak Level Lower Band Edge

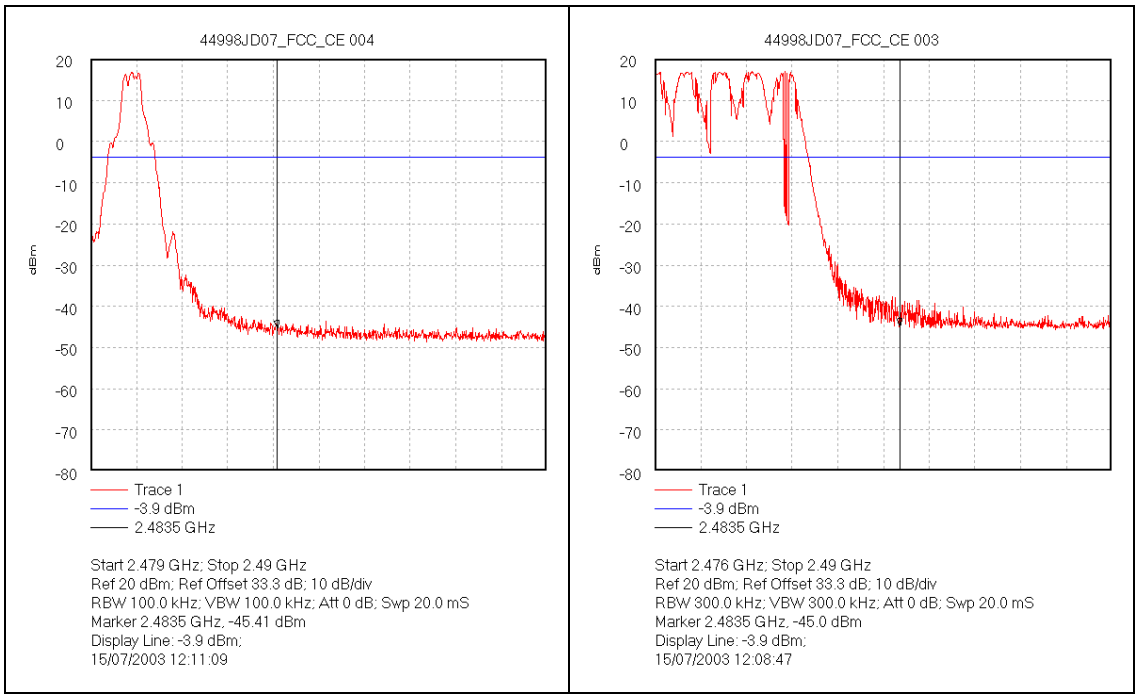
Frequency (GHz)	Mode	Peak Detector Level (dBm)	Peak Limit (dBm)	Peak Margin (dB)	Result
2.4000	Static	-40.76	-4.7	36.06	Complied
2.4000	Hopping	-37.94	-3.9	34.04	Complied



Test Of: **Mansella Ltd.**
CDP 24 Bluetooth Data Phone Base Unit
To: **FCC Part 15 Subpart C: 2002 (Intentional Radiators) Section 15.247**

Highest Peak Level Upper Band Edge

Frequency (GHz)	Mode	Peak Detector Level (dBm)	Peak Limit (dBm)	Peak Margin (dB)	Result
2.4835	Static	-45.41	-3.9	41.51	Complied
2.4835	Hopping	-45.00	-3.9	41.10	Complied



7.14. Transmitter Band Edge Radiated Emissions: Section 15.247(c) & 15.209(a)

7.14.1. Electric Field Strength Measurements

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

Peak Power Level Hopping Mode:

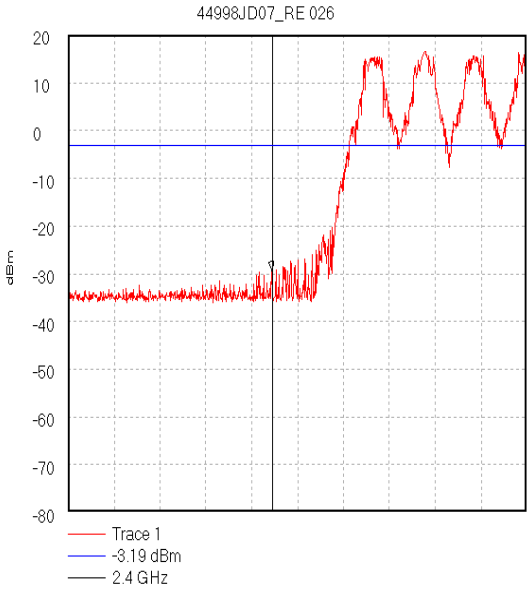
Frequency (GHz)	Antenna Polarity (H/V)	Peak Detector level (dBμV)	Antenna factor (dB)	Cable loss (dB)	Actual Peak Level (dBμV/m)	Peak Limit (dBμV/m)	Peak Margin (dB)	Result
2.4000	Horiz.	54.5	21.1	2.0	77.6	103.8	26.2	Complied
2.4835	Horiz.	21.3	21.1	2.0	44.4	74.0	29.6	Complied

Average Power Level Hopping Mode:

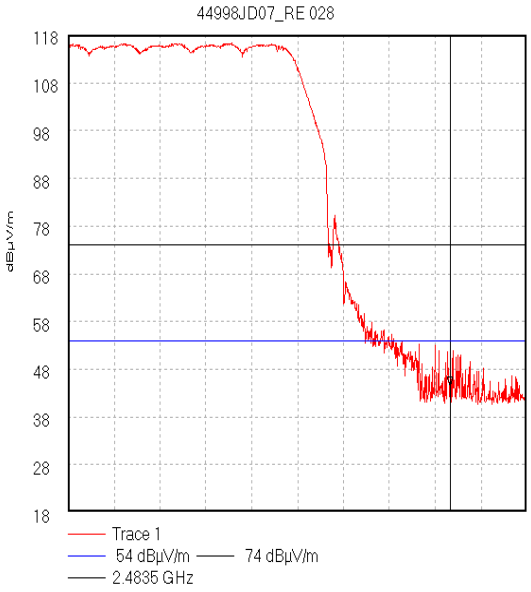
Frequency (GHz)	Antenna Polarity (H/V)	Average Detector level (dBμV)	Antenna factor (dB)	Cable loss (dB)	Actual Average Level (dBμV/m)	Average Limit (dBμV/m)	Average Margin (dB)	Result
2.4835	Horiz.	5.8	21.1	2.0	28.9	54.0	25.1	Complied

Test Of: **Mansella Ltd.**
CDP 24 Bluetooth Data Phone Base Unit
To: **FCC Part 15 Subpart C: 2002 (Intentional Radiators) Section 15.247**

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



Start 2.396 GHz; Stop 2.405 GHz
Ref 20 dBm; Ref Offset 39.6 dB; 10 dB/div
RBW 100.0 kHz; VBW 100.0 kHz; Att 20 dB; Swp 20.0 mS
Marker 2.4 GHz, -29.44 dBm
Display Line: -3.19 dBm; ; Limit Test Failed
25/06/2003 19:58:33



Start 2.476 GHz; Stop 2.485 GHz
Ref 118 dBµV/m; Ref Offset 2.0 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 30 dB; Swp 20.0 mS
Marker 2.4835 GHz, 44.41 dBµV/m
Display Line: 54 dBµV/m; 74 dBµV/m; ; Limit Test Failed
25/06/2003 20:14:25

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

Peak Power Static Mode:

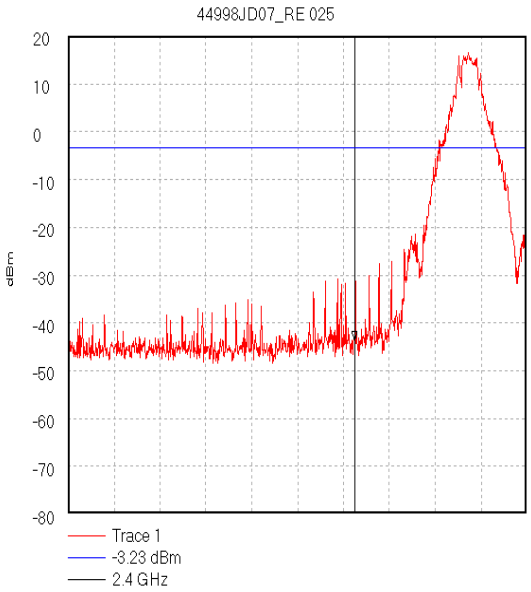
Frequency (GHz)	Antenna Polarity (H/V)	Peak Detector level (dBμV)	Antenna factor (dB)	Cable loss (dB)	Actual Peak Level (dBμV/m)	Peak Limit (dBμV/m)	Peak Margin (dB)	Result
2.4000	Horiz.	40.1	21.1	2.0	63.2	103.8	40.6	Complied
2.4835	Horiz.	29.9	21.1	2.0	53.0	74.0	21.0	Complied

Average Power Level Static Mode:

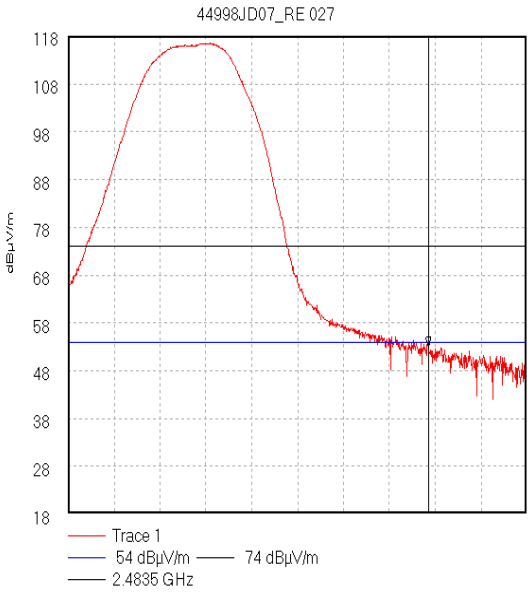
Frequency (GHz)	Antenna Polarity (H/V)	Average Detector level (dBμV)	Antenna factor (dB)	Cable loss (dB)	Actual Average Level (dBμV/m)	Average Limit (dBμV/m)	Average Margin (dB)	Result
2.4835	Horiz.	9.6	21.1	2.0	32.7	54.0	21.3	Complied

Test Of: **Mansella Ltd.**
CDP 24 Bluetooth Data Phone Base Unit
To: **FCC Part 15 Subpart C: 2002 (Intentional Radiators) Section 15.247**

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



Start 2.395 GHz; Stop 2.403 GHz
Ref 20 dBm; Ref Offset 39.6 dB; 10 dB/div
RBW 100.0 kHz; VBW 100.0 kHz; Att 20 dB; Swp 20.0 mS
Marker 2.4 GHz, -43.76 dBm
Display Line: -3.23 dBm; ; Limit Test Failed
25/06/2003 19:48:06



Start 2.478 GHz; Stop 2.485 GHz
Ref 118 dBµV/m; Ref Offset 2.0 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 30 dB; Swp 20.0 mS
Marker 2.4835 GHz, 52.97 dBµV/m
Display Line: 54 dBµV/m; 74 dBµV/m; ; Limit Test Failed
25/06/2003 20:08:30

8. Measurement Uncertainty

8.1. 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.

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

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

8.4. 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
Conducted Emissions AC Mains	0.15 MHz to 30 MHz	95%	+/- 3.25 dB
Time Occupancy	Not applicable	95%	+/- 10 %
Channel Separation	Not applicable	95%	+/- 10 %
Occupied Bandwidth	Not applicable	95%	+/- 0.12 %
Effective Isotropic Radiated Power	1.0 GHz to 26.5 GHz	95%	+/- 1.78 dB
Radiated Emissions at 3.0 m	30 MHz to 1000 MHz	95%	+/- 5.26 dB
Conducted Emissions Antenna Port	9 kHz to 26.5 GHz	95%	+/- 1.2 dB
Radiated Emissions at 3.0 m	1 GHz to 26.5 GHz	95%	+/- 1.78 dB

8.5. 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.
A017	3121 Dipole Set	EMCO	3121	0233
A027	Horn Antenna	Eaton	9188-2	301
A031	2 to 4 GHz Eaton Horn Antenna	Eaton	91889-2	557
A059	3146 Log Periodic Antenna	EMCO	3146	8902-2378
A072	Adjustable Dipole Antenna Set	EMCO	3121C	9004-552
A091	Biconical Antenna	EMCO	3110	9008-1182
A1069	ESH3-Z5	Rohde & Schwarz	ESH3-Z5	837469/012
A145	10 dB Attenuator	Narda	NONE	NONE
A201	WG 20 Horn Antenna	Flann Microwave	20240-20	266
A244	20 dB Attenuator	Schaffner	6820-17-B	None
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
A392	3 dB attenuator (9)	Suhner	6803.17.B	None
A429	WG 16 horn	Flann	16240-20	561
A436	WG 20 horn	Flann	20240-20	330
A438	WG 18 horn	Narda	439	8508
A451	Log Spiral Antenna	EMCO	3101	3751
A458	HP RF Limiter	Hewlett Packard	11867A	04421
A559	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	357881052
C341	Cable	Andrews	None	None
C362	Cable	Rosenberger	UFA210A-1-1181-70x70	1925
C364	BNC Cable	Rosenberger	RG142	None

Test Equipment Used (continued)

RFI No.	Instrument	Manufacturer	Type No.	Serial No.
C453	Cable	Rosenberger	RG142XX-001-RFIB	C453-10081998
C468	N-Type Coaxial Cable	Rosenberger	UFA210A-1-3937-504504	98L0440
E005	12x8 Enclosure	KEENE	81R	R3380
G013	SMHU Signal Generator	Rohde & Schwarz	SMHU	894 055/003
L0665	ESIB26 EMI Test Receiver	Rohde & Schwartz	ESIB	100087/026
M003	Spectrum Monitor	Rohde & Schwarz	EZM	883 580/008
M044	ESVP Receiver	Rohde & Schwarz	ESVP	891 845/026
M069	ESMI Spectrum Analyser / Receiver	Rohde & Schwarz	ESMI	829 808/007 (DU) / 827 063/008 (RU)
M090	Receiver / Spectrum Analyser System	Rohde & Schwarz	ESBI	DU:838494/005 RU:836833/001
M127	Spectrum Analyser	Rohde & Schwarz	FSEB 30	842 659/016
M133	Temperature/Humidity/ Pressure Meter	RS Components	None	None
M139	Digital Multimeter	Fluke	11	65830028
M209	Thermo/hygro meter	RS Components	RS212-124	M209-RS212-124
S011	D.C. PSU	INSTEK	PR-3010H	9401270
S201	Site 1	RFI	1	-
S202	Site 2	RFI	2	-
S207	Site 7	RFI	7	-

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

Appendix 2. Measurement Methods

AC Mains Conducted Emissions

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

The test was performed in a shielded enclosure with the equipment arranged as detailed in the standard on a wooden bench using the floor of the screened enclosure as the ground reference plane and with the EUT powered via a 60 Hz AC mains supply.

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)*
Mode:	Max Hold	Not applicable
Bandwidth:	9 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

* In some instances an Average detector function may also have been used.

Radiated Field Strength 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, and for the duty cycle of the EUT. The test configuration was the same for the initial scans as for the final measurements.

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. A tolerance line was set 6 dB below the specification limit and levels above the tolerance line were re-tested on the open area test site, at the appropriate distance, using a measuring receiver with a Quasi-Peak (below 1000 MHz), Average and Peak (above 1000 MHz) detector, where applicable.

For the main (final) measurements the EUT was arranged on a non-conducting table on an open area test site, as detailed in the specification.

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 found, the levels were maximised by initially rotating the turntable through 360°. For frequencies below 1000 MHz, the antenna was varied in height between 1 m and 4 m. For frequencies above 1000 MHz, the antenna was fixed at a height of 1.5 m. 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.

Once the signal amplitude is determined the EUT is replace with a substitution antenna. A signal generator is connected to the antenna and its level adjusted in order to obtain the same indicated level as that which was observed from the EUT. The receive antenna is then adjusted in height until the signal measured has peaked. The signal generator level is then re-adjusted to regain the original reading. The level on the signal generator – cable losses plus the antenna gain is the recorded ERP.

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

Receiver Function	**Initial Scan Below 1000 MHz**	**Final Measurements Below 1000 MHz**
Detector Type:	Peak	Quasi-Peak (CISPR)
Mode:	Max Hold	Not applicable
Bandwidth:	100 kHz	120 kHz
Amplitude Range:	60 dB	20 dB
Measurement Time:	Not applicable	> 1 s
Observation Time:	Not applicable	> 15 s
Step Size:	Continuous sweep	Not applicable
Sweep Time:	Coupled	Not applicable

Receiver Function	**Initial Scan Above 1000 MHz**	**Final Measurements Above 1000 MHz**
Detector Type:	Peak	Peak/Average
Mode:	Max Hold	Not applicable
Bandwidth:	1 MHz	1 MHz
Amplitude Range:	60 dB	20 dB (typical)
Measurement Time:	Not applicable	> 1 s
Observation Time:	Not applicable	> 15 s
Step Size:	Continuous sweep	Not applicable
Sweep Time:	Coupled	Not applicable

Conducted Antenna Port Emissions

Conducted Antenna Port Emissions measurements were performed in accordance with the standard, against appropriate limits for each detector function.

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

Initial measurements covering the entire measurement band in the form of swept scans were performed in order to identify frequencies on which the EUT was generating interference. This determined the frequencies on which measurements were performed. 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, and for the duty cycle of the EUT. The test configuration was the same for the initial scans as for the final measurements.

Due to the design of the EUT, conducted antenna port measurements were common for both the internal and external antenna connection.

To determine the transmitter output power, the EUT was operated as intended with the spectrum analyser operated in a maximum hold mode over the full operating frequency range of the EUT to identify the highest emission within the band.

To determine spurious emissions levels, the EUT was operated as intended with the spectrum analyser operated in a maximum hold mode over selected frequency ranges between 30 MHz and 26.5 GHz. A reference limit line of 20 dB below the maximum output of the transmitter was noted. Levels within 20 dB of this limit line were then recorded.

Channel Separation and Occupied Bandwidth

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.

To determine the separation of each transmission channel the analyser was configured to measure two adjacent channels. The analyser was configured with a resolution bandwidth and video bandwidth of at least 1% of the frequency span set on the analyser. The EUT was operated as intended and the analyser set to a maximum hold mode scan to capture the profile of the signals.

The peak points on the two adjacent channels were noted and the separation between them recorded.

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 established 20 dB below the peak level. The bandwidth was determined at the points where the 20 dB reference crossed the profile of the emission.

The channel separation was then determined as the greater of 25 kHz or the 20 dB bandwidth.

Average Time of Occupancy

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

First the maximum packet length was determined on the centre channel.

The measurement analyser was configured to the time domain mode by setting the span to 0 with a sweep time sufficiently wide enough to measure one pulse.

The EUT was configured to operate in normal mode of operation.

The pulse width of one transmission was then recorded.

The measurement analyser was then configured in 0 span with the time domain and a 31.6 second sweep time. This period was determined by multiplying the number of channels the device operates over (79) by 0.4 seconds.

The number of transmissions within this period was noted and multiplied by the pulse width recorded earlier. This gives the maximum occupancy over 31.6 seconds.

Number Of Hopping Frequencies

The EUT and spectrum analyser was 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.

To determine the number of hopping frequencies the EUT was set to operate in its normal mode of operation, hopping over all channels that it is intended to operate on.

The spectrum analyser had a span set to cover the frequency band of operation. The resolution bandwidth was set to >= 1% of the span. The video bandwidth was set to be no less than the resolution bandwidth. The sweep was set to auto, the detector function to peak and trace to max hold. This test was also performed with the span set to the lower half the operating frequency range and then to the upper half of the operating frequency range for better resolution.

Peak Output Power

The EUT and spectrum analyser was 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.

The applicant to allow for conducted measurements provided a temporary antenna port.

As the frequency range of operation was greater than 10 MHz, the test was performed on the bottom, middle and top channels as per FCC 15.31(m).

The tests were performed at extremes of voltage declared by the applicant.

Band Edge Compliance of RF Conducted Emissions

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.

A temporary antenna port was provided by the applicant to allow for conducted measurements.

To determine band-edge compliance, the analyser resolution bandwidth was set to >= 1% of the analyser span. The video bandwidth was set to be no less than 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 upper band edge of the allocated frequency band was produced in both static and hopping modes of operation. A limit line was set to the level of the highest in-band emission with a further limit line set to 20 dB below this. A 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 lower band edge.

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 >= 1% of the analyser span. The video bandwidth was set to be no less than 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 upper band edge of the allocated frequency band was produced. A limit line was set to the level of the highest in-band emission with a further limit line set to 20 dB below this. A 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 lower band edge.

It the upper or lower band edges fell on a restricted band edge then the limit set for the restricted band would be applied instead of the 20 dBc limit.

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

The EUT was configured in accordance with section 5.2 of this report

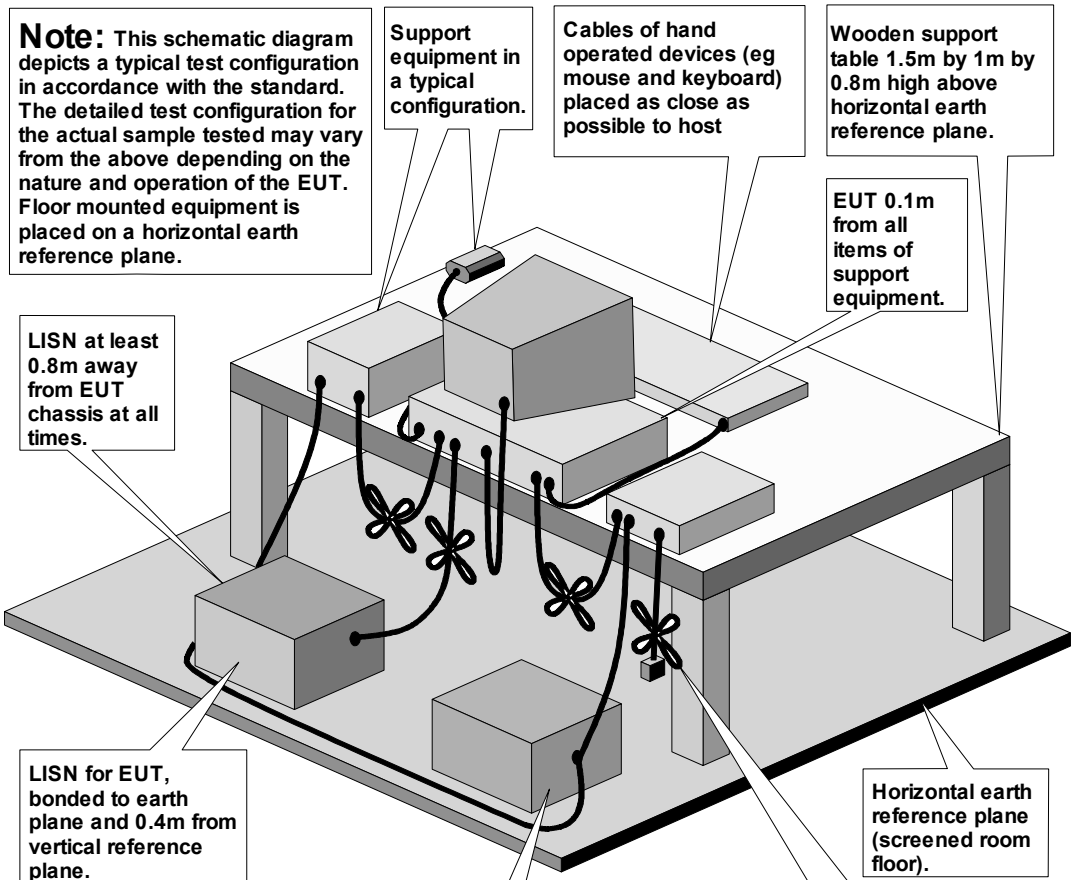
Appendix 3. Test Configuration Drawings

This appendix contains the following drawings:

Drawing Reference Number	Title
DRG\44998JD07\EMICON	Test configuration for measurement of conducted emissions
DRG\44998JD07\EMIRAD	Test configuration for measurement of radiated emissions

Test Of: Mansella Ltd.
CDP 24 Bluetooth Data Phone Base Unit
To: FCC Part 15 Subpart C: 2002 (Intentional Radiators) Section 15.247

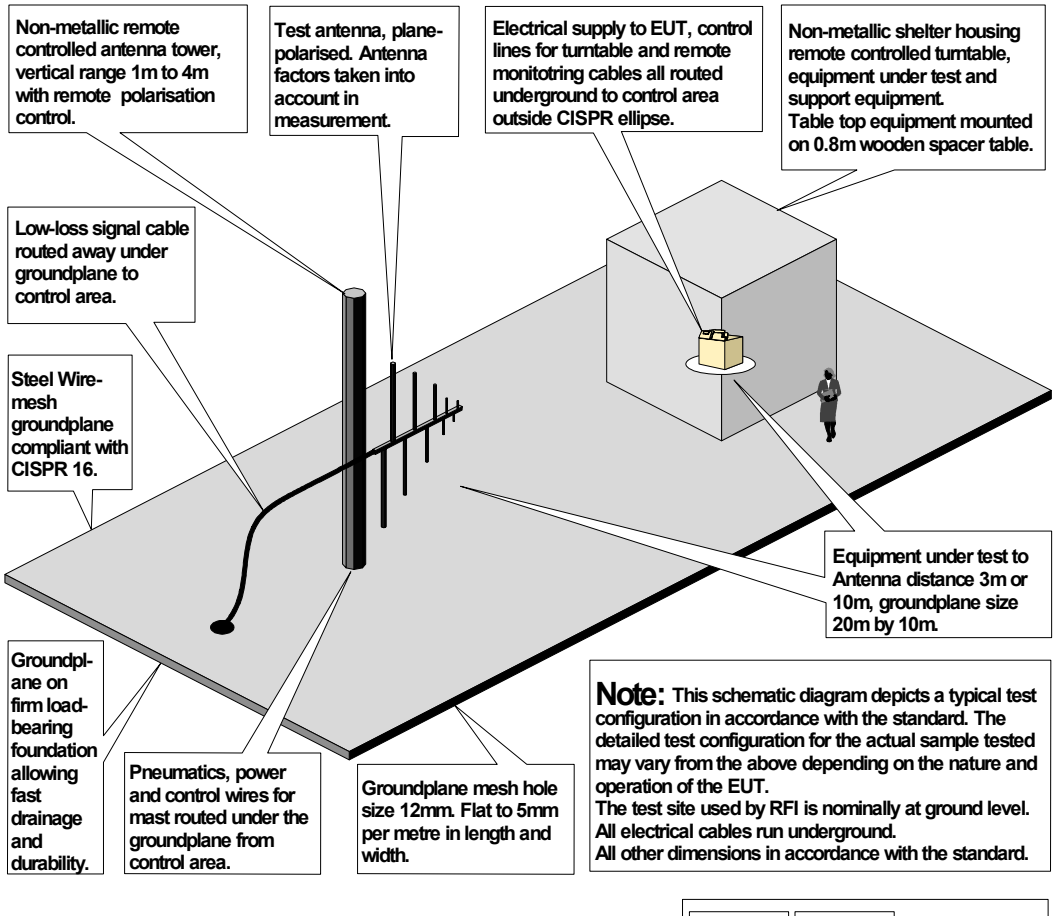
DRG\44998JD07\EMICON



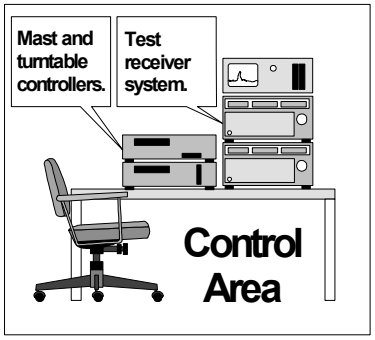
Typical Test Configuration For Conducted Emissions Measurements In Accordance With ANSI C63.4-1992
Tests performed in a screened enclosure

Test Of: **Mansella Ltd.**
CDP 24 Bluetooth Data Phone Base Unit
To: **FCC Part 15 Subpart C: 2002 (Intentional Radiators) Section 15.247**

DRG\44998JD07\EMIRAD



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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