TEST REPORT
FROM
RADIO FREQUENCY
INVESTIGATION LTD.

Test Of: Orthogon Systems.
Gemini OS58XX-T

To: FCC Part 15.247
(Requested Parts Only)

Test Report Serial No:
RFI/MPTB1/RP45394JD01A

This Test Report Is Issued Under The Authority Of Richard Jacklin, Operations Director: 	**Checked By:** 
Tested By: 	**Release Version No:** **PDF01**
Issue Date: 31 October 2003	**Test Dates: 08 October 2003 to 10 October 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:	Orthogon Systems
Address:	Unit A1 Linhay Business Park Eastern Road Ashburton Devon TQ13 7UP
Contact Name:	Mr C Fisher

2. Equipment Under Test (EUT)

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

The EUT submitted has previously been tested at RFI and is covered by RFI report RFI/MPTB1/RP45349JD01A. The limited tests presented here have been performed to show compliance with additional antennas.

The EUT is exclusively point-to-point; as such there is no limit to the antenna gain being used. Thus peak output power did not need to be redone. However, the antennas may have effected spurious emissions, therefore all radiated and band edge testing was redone to verify the compliance.

2.1. Identification Of Equipment Under Test (EUT)

Brand Name:	Gemini
Model Name or Number:	OS58XXC (Outdoor Unit)
Serial Number:	00:04:56:00:02:7C
FCC ID:	QWP58XX-T
Country of Manufacture:	UK
Date of Receipt:	08 October 2003

Brand Name:	Gemini
Model Name or Number:	OS58XXC (Indoor Unit)
Serial Number:	0312
FCC ID:	QWP58XX-T
Country of Manufacture:	UK
Date of Receipt:	08 October 2003

Brand Name:	Hitron Electronics Corporation
Model Name or Number:	HES51-48010 (AC Adaptor)
Serial Number:	0437
FCC ID:	QWP58XX-T
Country of Manufacture:	Taiwan
Date of Receipt:	08 October 2003

Identification Of Equipment Under Test (EUT) (Continued)

Brand Name:	MTI
Model Name or Number:	MT-20004 (Antenna)
Unique Type Identification:	MT-20004
Serial Number:	01030
Country of Manufacture:	Israel
Date of Receipt:	08 October 2003

Brand Name:	Radiowave
Model Name or Number:	SP6-5.2NS (Antenna)
Unique Type Identification:	SP6-5.2NS
Serial Number:	813
Country of Manufacture:	UK
Date of Receipt:	08 October 2003

2.2. Description Of EUT

The equipment under test is a point to point Ethernet Bridge radio equipment operating in the band 5725 MHz to 5850 MHz (USA band limits) and 5725 MHz to 5875 MHz (European band limits). The equipment supplied for formal testing will comprise of one end of the Ethernet Bridge, although the other end will be supplied to enable the equipment to be operated in its normal operating modes.

The equipment comprises of the following parts:

Outdoor Unit, which comprises of an electronics enclosure and two differently polarised external antenna connectors. The ODU contains all the main electronic components in the system and generates all the RF frequencies.

Indoor Unit, which provides an interface box between the ODU, the power supply and the customer's LAN network. This compromises of connectors, LEDs and filters.

A mains power supply adapter from an external supplier, which provides all the DC supply for the rest of the system.

The equipment can be used with various different types of antennas. However, only two types of antenna were specified in this report.

The system is connected by CAT5 cables, which may be screened or unscreened.

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:	Nominal 110 V, 60 Hz AC Mains Supply 13 Amp (max).		
Intended Operating Environment:	Indoor Unit & Power Supply – intended for protected indoor environments only. Outdoor unit intended for unprotected outdoor environments.		
Equipment Category:	Fixed Transmitter.		
Type of Unit:	Wireless Ethernet Bridge.		
Weight:	Approx. 5.5 kg Outdoor Unit. Approx. 1.0 kg Indoor Unit.		
Dimensions:	400 x 400 x 100 mm Outdoor Unit. 150 x 60 x 30 mm Indoor Unit.		
Interface Ports:	Ethernet 10/100baseT via RJ45 connector to external network. CAT5 Interconnects (UTP) between RJ45s in system Mains Power Inlet.		
Transmit Frequency Range:	5738 MHz to 5838 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	1	5738
	Middle	6	5788
	Top	11	5838
Receive Frequency Range:	5738 MHz to 5838 MHz		
Receive Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	1	5738
	Middle	6	5788
	Top	11	5838
Highest Fundamental Frequency:	5838 MHz		
Occupied Bandwidth:	10.2765 MHz		
Antenna Gain:	28.0 dBi for the Mti antenna and 37.7 dBi for the Radiowave antenna		
Maximum Power Output (Conducted)	26.9 dBm		

2.5. Support Equipment

Description:	Laptop
Brand Name:	Compaq
Model Name or Number:	Armada E700, U98.003.C.00
Serial Number:	1J0DC64D014
Cable Length And Type:	CAT5 UTP Cable, in a length suitable for test site
Connected to Port:	Customer RJ45 on Indoor Unit

Description:	Slave Outdoor Unit
Brand Name:	Gemini
Model Name or Number:	OS58XX Outdoor Unit
Serial Number:	00:04:56:00:02:7C
Cable Length And Type:	As Required

Description:	Slave Indoor Unit
Brand Name:	Gemini
Model Name or Number:	OS58XX Indoor Unit
Serial Number:	0214
Cable Length And Type:	As Required

Description:	Ault
Brand Name:	PW125
Model Name or Number:	PW125KA4803
Serial Number:	A01

Support Equipment (Continued)

Description:	Fixed Attenuators	
Brand Name:	Weinschel	
Model Name or Number:	23-30-34	24-30-12
Serial Number:	BH9158	BJ6926
Cable Length And Type:	As Required	

3. Methods And Procedures

Reference:	FCC Part 15 Subpart C: 2002 (Section 15.247)
Title:	Code of Federal Regulations, Part 15 (47CFR15) Radio Frequency Devices
Comments:	A description of the test facility used for this test is on file with, and has been accepted by, the Federal Communications Commission as required by Section 2.948 of Federal Rules.
Purpose of Test:	To determine whether the equipment complied with the requirements of the specification for the purposes of certification.

The methods and procedures used were as detailed in:

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.

3.1. 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

During testing, the EUT was powered by a Nominal 115 V, 60 Hz AC Mains power supply (13 Amp max)

5.2. Operating Modes

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

Radiated Emissions:

All transmitter radiated spurious pre-scan tests were performed on the middle channel of the assigned frequency block with the EUT connected to the MTI antenna and set to the highest power (Acquisition) mode.

Final measurements were then performed on any indicated spurious emissions on the top, middle and bottom channels in Acquisition mode (worst-case modulation mode) for both types of highest gain antenna.

All measurements performed with the MTI antenna were referenced as antenna A and all measurements performed with the Radiowave antenna were referenced as antenna B.

Band edge testing was performed in all modulations modes.

All receiver radiated emissions were carried out with the unit set to Slave (search/standby) mode.

Conducted Emissions:

All transmitter conducted emissions tests and Band edge were performed with the EUT set to BPSK, QPSK, 64QA, Acquisition and 16QAM modulation mode on the vertical antenna port.

5.3. Configuration And Peripherals

The EUT was tested in the following configuration:

The EUT has two external antenna ports, one for the vertical antenna and one for the horizontal antenna. The client has provided two types of antenna. Only the MTI antenna was used for the radiated pre-scans and both types of antenna were measured for the final measurements.

The EUT can be operated in Acquisition, BPSK, QPSK, 64QAM and 16QAM modulation modes; these are selected via software control. All modes of modulation use the same hardware. The operating mode can also be selected as Slave which was used as the Receive-only mode for testing emissions as an unintentional radiator.

The reason for choosing this configuration was that the client defined it as being likely to be the worst case with regards to EMC.

6. Summary Of Test Results

Part 15.247

Range Of Measurements	Specification Reference	Port Type	Compliancy Status
Idle Mode Radiated Spurious Emissions	C.F.R. 47 FCC Part 15: 2002 Section 15.109	Antenna	Complied
Transmitter Radiated Spurious Emissions	C.F.R. 47 FCC Part 15: 2002 Section 15.247(c) and 15.209(a)	Antenna	Complied
Transmitter Band Edge Conducted Emissions	C.F.R. 47 FCC Part 15: 2002 Section 15.247(c) Section 15.209(a)	Antenna Terminals	Complied

6.1. Location Of Tests

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

7. Measurements, Examinations And Derived Results

7.1. General Comments

7.1.1. This section contains test results only. Details of the test methods and procedures can be found in Section 9 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 10 for details of measurement uncertainties.

8. Test Results

8.1. Idle Mode Radiated Emissions: Section 15.109

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

8.1.1.1. The EUT was configured as for radiated field strength emissions testing as described in Section 9 of this report.

8.1.1.2. Tests were performed to identify the maximum idle mode radiated emission level.

Antenna A:

Frequency (MHz)	Antenna. Polarity (H/V)	Q-P Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
43.493	Horiz.	25.5	40.0	14.5	Complied
60.200	Vert.	29.8	40.0	10.2	Complied
62.750	Vert.	29.9	40.0	10.1	Complied
68.444	Vert.	30.3	40.0	9.7	Complied
106.694	Vert.	35.0	43.5	8.5	Complied
249.994	Horiz.	37.0	46.0	9.0	Complied
599.983	Vert.	44.0	46.0	2.0	Complied
699.966	Horiz.	43.0	46.0	3.0	Complied

Idle Mode Radiated Emissions: Section 15.109 (Continued)

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

8.1.1.3. The EUT was configured as for radiated field strength emissions testing as described in Section 9 of this report.

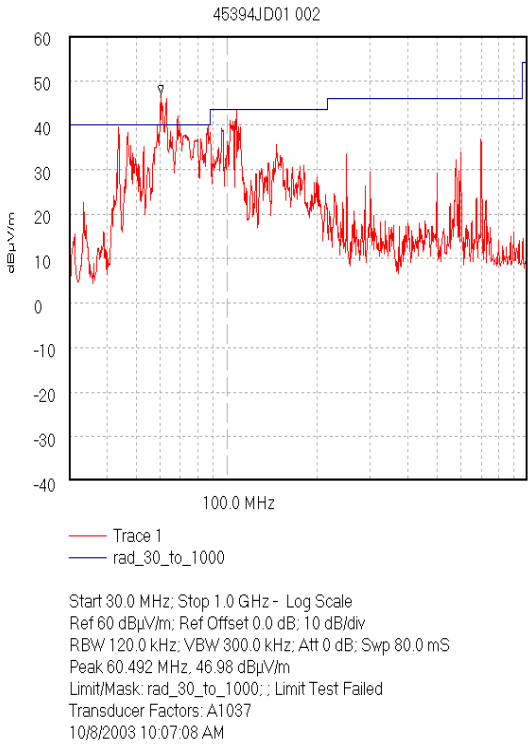
8.1.1.4. Tests were performed to identify the maximum idle mode radiated emission level.

Antenna B:

Frequency (MHz)	Antenna. Polarity (H/V)	Q-P Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
43.493	Horiz.	27.3	40.0	12.7	Complied
60.200	Vert.	38.9	40.0	1.1	Complied
62.750	Vert.	37.0	40.0	3.0	Complied
68.444	Vert.	27.5	40.0	12.5	Complied
106.694	Vert.	35.0	43.5	8.5	Complied
249.994	Vert.	36.4	46.0	9.6	Complied
599.991	Vert.	38.7	46.0	7.3	Complied
699.989	Vert.	40.0	46.0	6.0	Complied

Idle Mode Radiated Emissions: Section 15.109 (Continued)

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



Note: The preliminary scan was only performed with the EUT connected to Antenna A, transmitting on the middle channel. Final measurements were performed with the EUT set to the worst-case channel. For final measurements, see accompanying tables. (Once the emissions indicating failure in the plot were finally measured on an OATS, they showed compliance.)

Idle Mode Radiated Emissions: Section 15.109 (Continued)

Electric Field Strength Measurements (Frequency Range: 1.0 to 40.0 GHz)

Highest Peak Level: Antenna A

Frequency (GHz)	Antenna. Polarity (H/V)	Peak Detector Level (dBµV)	Antenna Factor	Cable Loss	Actual Peak Level (dBµV/m)	Peak Limit (dBµV/m)	Peak Margin (dB)	Result
1.34991	Vert.	12.6	21.6	1.2	35.4	74.0	38.6	Complied
1.40988	Vert.	15.6	22.3	1.2	39.1	74.0	34.9	Complied
1.49979	Vert.	16.5	21.1	1.2	38.8	74.0	35.2	Complied
1.65022	Vert.	13.6	21.2	1.2	36.0	74.0	38.0	Complied
1.69986	Vert.	17.5	21.5	1.2	40.2	74.0	33.8	Complied
3.01983	Horiz.	24.6	21.8	2.0	48.4	74.0	25.6	Complied
3.02979	Horiz.	23.8	21.8	2.0	47.6	74.0	26.4	Complied
3.03986	Horiz.	23.9	21.8	2.0	47.7	74.0	26.3	Complied
3.06985	Horiz.	22.4	21.7	2.0	46.1	74.0	27.9	Complied
3.11980	Horiz.	25.8	21.6	2.0	49.4	74.0	24.6	Complied
3.12095	Horiz.	26.7	21.6	2.0	50.3	74.0	23.7	Complied
4.92580	Vert.	19.6	24.2	2.3	46.1	74.0	27.9	Complied
9.36224	Vert.	30.0	30.4	3.6	64.0	74.0	10.0	Complied
9.87164	Vert.	10.4	30.6	3.6	44.6	74.0	29.4	Complied

Idle Mode Radiated Emissions: Section 15.109 (Continued)

Electric Field Strength Measurements (Frequency Range: 1.0 to 40.0 GHz)

Highest Average Level: Antenna A

Frequency (GHz)	Antenna. Polarity (H/V)	Average Detector Level (dBµV)	Antenna Factor	Cable Loss	Actual Average Level (dBµV/m)	Average Limit (dBµV/m)	Average Margin (dB)	Result
1.34991	Vert.	0.8	21.6	1.2	23.6	54.0	30.4	Complied
1.40988	Vert.	-4.3	22.3	1.2	19.2	54.0	34.8	Complied
1.49979	Vert.	9.6	21.1	1.2	31.9	54.0	22.1	Complied
1.65022	Vert.	2.2	21.2	1.2	24.6	54.0	29.4	Complied
1.69986	Vert.	2.8	21.5	1.2	25.5	54.0	28.5	Complied
3.01983	Horiz.	22.7	21.8	2.0	46.5	54.0	7.5	Complied
3.02979	Horiz.	20.5	21.8	2.0	44.3	54.0	9.5	Complied
3.03986	Horiz.	21.1	21.8	2.0	44.8	54.0	9.2	Complied
3.06985	Horiz.	19.6	21.7	2.0	43.3	54.0	10.7	Complied
3.11980	Horiz.	23.3	21.6	2.0	46.9	54.0	7.1	Complied
3.12095	Horiz.	23.1	21.6	2.0	46.7	54.0	7.3	Complied
4.92580	Vert.	12.7	24.2	2.3	39.2	54.0	14.8	Complied
9.36224	Vert.	-8.4	30.4	3.6	25.6	54.0	28.4	Complied
9.87154	Vert.	-2.6	30.6	3.6	31.6	54.0	22.4	Complied

Idle Mode Radiated Emissions: Section 15.109 (Continued)

Electric Field Strength Measurements (Frequency Range: 1.0 to 40.0 GHz)

Highest Peak Level: Antenna B

Frequency (GHz)	Antenna. Polarity (H/V)	Peak Detector Level (dBµV)	Antenna Factor	Cable Loss	Actual Peak Level (dBµV/m)	Peak Limit (dBµV/m)	Peak Margin (dB)	Result
1.34929	Vert.	17.6	21.6	1.2	40.4	74.0	33.6	Complied
1.40822	Vert.	16.3	22.3	1.2	39.8	74.0	34.2	Complied
1.49824	Vert.	20.6	21.1	1.2	42.9	74.0	31.1	Complied
1.64778	Vert.	20.2	21.2	1.2	42.6	74.0	31.4	Complied
1.69881	Vert.	19.7	21.5	1.2	42.4	74.0	31.6	Complied
3.01983	Horiz.	28.9	21.8	2.0	51.6	74.0	22.4	Complied
3.03089	Horiz.	27.4	21.8	2.0	51.2	74.0	22.8	Complied
3.06982	Horiz.	25.8	21.7	2.0	49.5	74.0	24.5	Complied
3.07116	Horiz.	26.1	21.7	2.0	49.8	74.0	24.2	Complied
3.12092	Horiz.	26.6	21.6	2.0	50.2	74.0	23.8	Complied
3.13140	Horiz.	22.2	21.6	2.0	45.8	74.0	28.2	Complied
4.91585	Horiz.	26.2	24.2	2.3	52.7	74.0	21.3	Complied
9.35994	Vert.	7.5	30.4	3.6	41.5	74.0	32.5	Complied
9.87481	Vert.	6.9	30.6	3.6	41.1	74.0	32.9	Complied

Idle Mode Radiated Emissions: Section 15.109 (Continued)

Electric Field Strength Measurements (Frequency Range: 1.0 to 40.0 GHz)

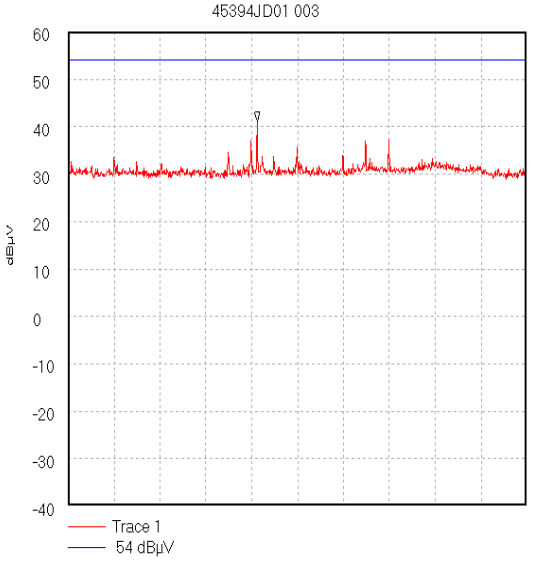
Highest Average Level: Antenna B

Frequency (GHz)	Antenna. Polarity (H/V)	Average Detector Level (dBµV)	Antenna Factor	Cable Loss	Actual Average Level (dBµV/m)	Average Limit (dBµV/m)	Average Margin (dB)	Result
1.34929	Vert.	1.4	21.6	1.2	24.2	54.0	29.8	Complied
1.40822	Vert.	-0.6	22.3	1.2	22.9	54.0	31.1	Complied
1.49824	Vert.	4.3	21.1	1.2	26.6	54.0	27.4	Complied
1.64778	Vert.	2.9	21.2	1.2	25.3	54.0	28.7	Complied
1.69881	Vert.	2.8	21.5	1.2	25.5	54.0	28.5	Complied
3.01983	Horiz.	26.6	21.8	2.0	50.4	54.0	3.6	Complied
3.03089	Horiz.	26.0	21.8	2.0	49.8	54.0	4.2	Complied
3.06982	Horiz.	22.7	21.7	2.0	46.4	54.0	7.6	Complied
3.07116	Horiz.	23.8	21.7	2.0	47.5	54.0	6.5	Complied
3.12092	Horiz.	22.9	21.6	2.0	46.5	54.0	7.5	Complied
3.13140	Horiz.	0.7	21.6	2.0	24.3	54.0	29.7	Complied
4.91585	Horiz.	19.8	24.2	2.3	46.3	54.0	7.7	Complied
9.85994	Vert.	-8.6	30.4	3.6	25.4	54.0	28.6	Complied
9.87481	Vert.	-8.8	30.6	3.6	25.4	54.0	28.6	Complied

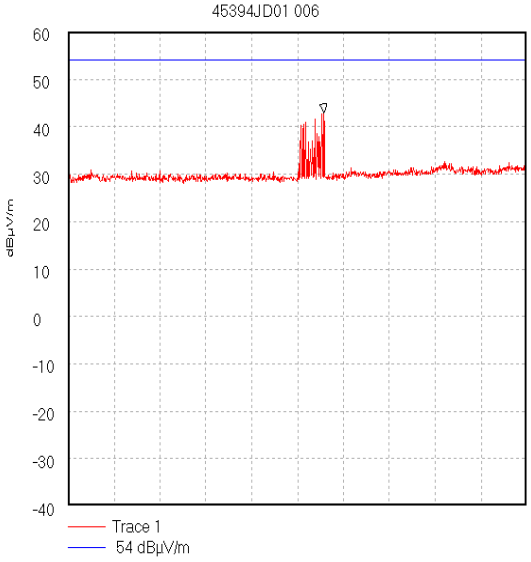
Note: The preliminary scans were only performed with the EUT connected to Antenna A, transmitting on the middle channel. Final measurements were performed with the EUT set to the worst-case channel. For final measurements, see accompanying tables.

Test Of: **Orthogon Systems.**
Gemini OS58XX-T
To: **FCC Part 15.247 (Requested Parts Only)**

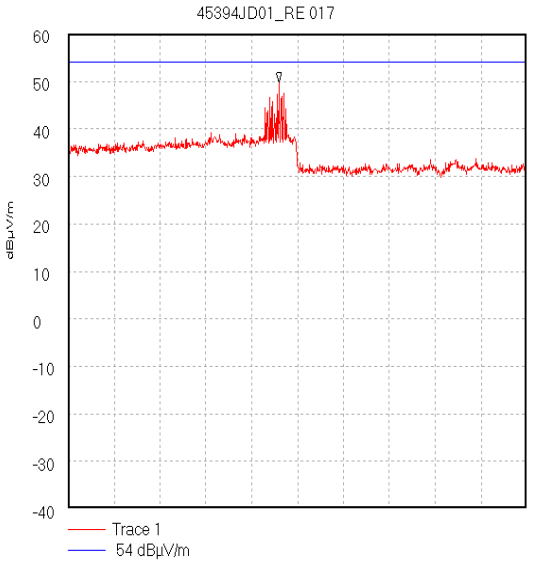
Idle Mode Radiated Emissions: Section 15.109 (Continued)



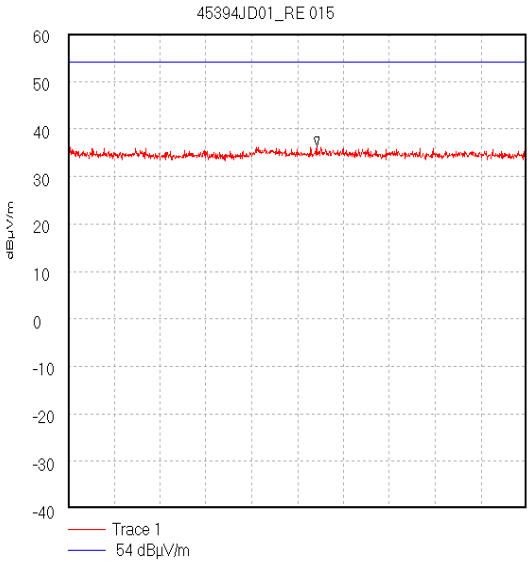
Start 1.0 GHz; Stop 2.0 GHz
Ref 60 dBµV; Ref Offset 0.0 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 1.412 GHz, 41.14 dBµV
Display Line: 54 dBµV; ; Limit Test Failed
10/8/2003 10:30:03 AM



Start 2.0 GHz; Stop 4.0 GHz
Ref 60 dBµV/m; Ref Offset 0.0 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 3.116 GHz, 42.99 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Passed
10/8/2003 11:11:57 AM



Start 4.0 GHz; Stop 6.0 GHz
Ref 60 dBµV/m; Ref Offset 2.0 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 4.92 GHz, 49.82 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Passed
09/10/2003 14:58:28

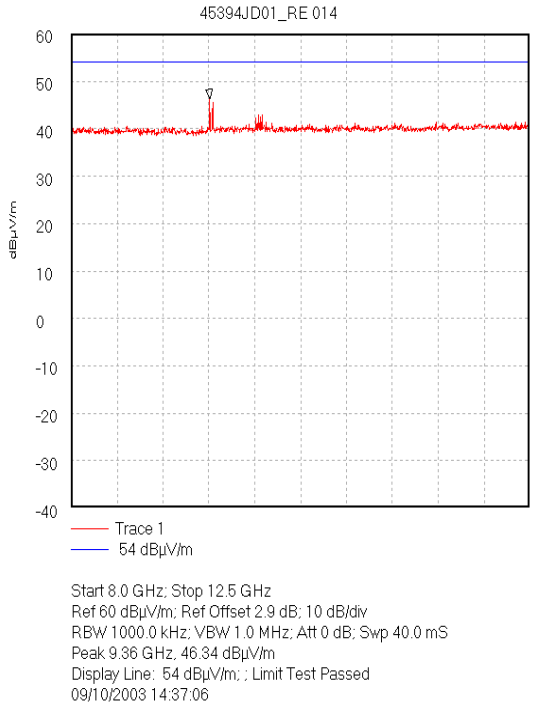


Start 6.0 GHz; Stop 8.0 GHz
Ref 60 dBµV/m; Ref Offset 2.3 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 7.084 GHz, 36.41 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Passed
09/10/2003 14:45:23

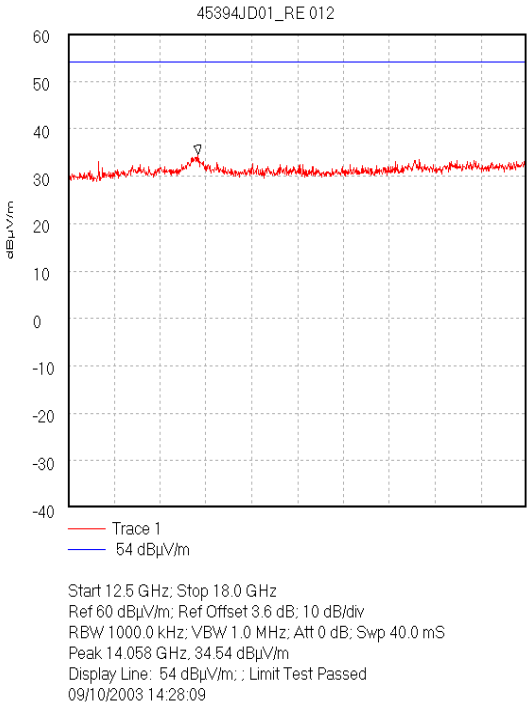
Note: these plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

Test Of: **Orthogon Systems.**
Gemini OS58XX-T
To: **FCC Part 15.247 (Requested Parts Only)**

Idle Mode Radiated Emissions: Section 15.109 (Continued)



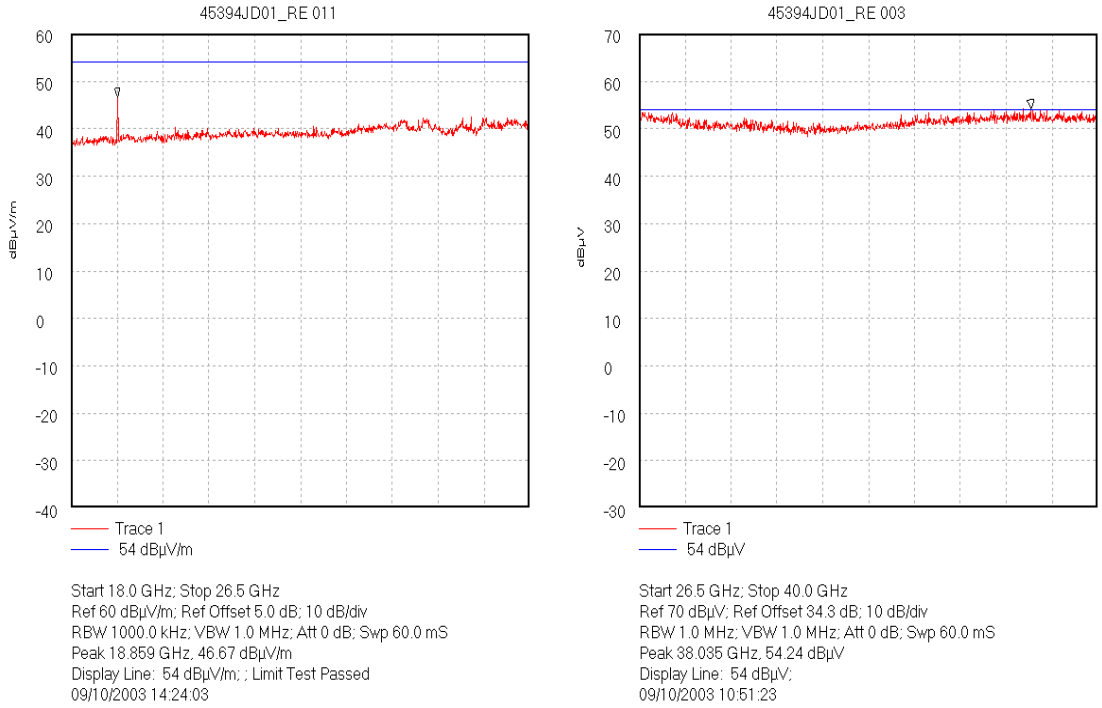
Start 8.0 GHz; Stop 12.5 GHz
Ref 60 dBµV/m; Ref Offset 2.9 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 40.0 mS
Peak 9.36 GHz, 46.34 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Passed
09/10/2003 14:37:06



Start 12.5 GHz; Stop 18.0 GHz
Ref 60 dBµV/m; Ref Offset 3.6 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 40.0 mS
Peak 14.058 GHz, 34.54 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Passed
09/10/2003 14:28:09

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

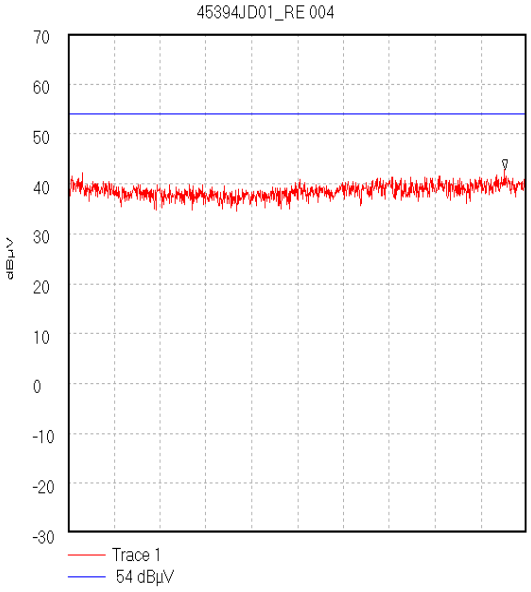
Idle Mode Radiated Emissions: Section 15.109 (Continued)



Note 1: these plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

Note 2. The noise floor was very close to the specified limit, however, a peak detector was used with an average limit so as to obtain a worse case scenario. However, the limit was very close to the noise floor, as such an average scan was also performed to verify that there were no emissions apparent. This fact can be seen in the plot below.

Idle Mode Radiated Emissions: Section 15.109 (Continued)



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

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

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

8.2.1. The EUT was configured as for radiated field strength measurements as described in Section 9 of this report.

8.2.2. Tests were performed to identify the maximum radiated levels.

Results: Antenna A

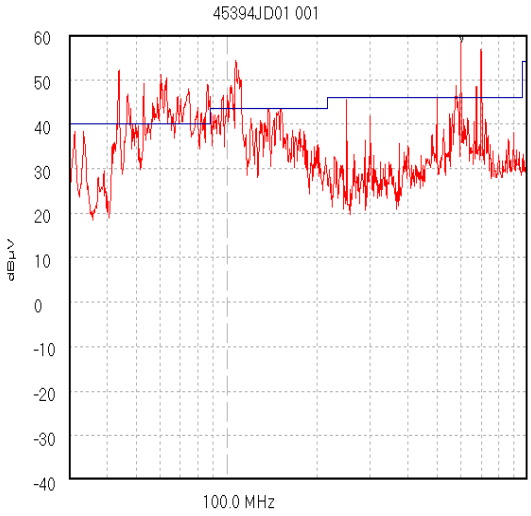
Frequency (MHz)	Antenna. Polarity (H/V)	Q-P Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
43.761	Horiz.	25.1	40.0	14.9	Complied
52.955	Vert.	31.5	40.0	8.5	Complied
60.200	Vert.	30.2	40.0	9.8	Complied
60.805	Horiz.	31.0	40.0	9.0	Complied
106.700	Vert.	38.0	43.5	5.5	Complied
146.627	Horiz.	26.6	43.5	16.9	Complied
199.055	Vert.	28.1	43.5	15.4	Complied
249.994	Vert.	45.5	46.0	10.5	Complied
499.977	Vert.	42.9	46.0	13.1	Complied
599.983	Vert.	43.7	46.0	2.3	Complied
699.972	Horiz.	44.3	46.0	1.7	Complied

Results: Antenna B

Frequency (MHz)	Antenna. Polarity (H/V)	Q-P Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
43.764	Horiz.	28.7	40.0	11.3	Complied
52.955	Vert.	37.0	40.0	3.0	Complied
60.200	Vert.	38.3	40.0	1.7	Complied
60.805	Horiz.	30.0	40.0	10.0	Complied
106.700	Vert.	34.7	43.5	8.8	Complied
146.627	Horiz.	24.0	43.5	19.5	Complied
199.055	Vert.	41.1	43.5	2.4	Complied
249.994	Vert.	36.9	46.0	9.1	Complied
499.977	Vert.	43.9	46.0	12.1	Complied
599.983	Vert.	39.9	46.0	16.1	Complied
699.972	Horiz.	40.2	46.0	15.8	Complied

Test Of: **Orthogon Systems.**
Gemini OS58XX-T
To: **FCC Part 15.247 (Requested Parts Only)**

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



Note: this plot is a pre-scan and for indication purposes only. For final measurements, see accompanying tables. (Once the emissions indicating failure in the plot were finally measured on an Oats, they showed compliance.)

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

Electric Field Strength Measurements (Frequency Range: 1.0 to 40.0 GHz)

Highest Peak Level: Antenna A

Frequency (GHz)	Antenna. Polarity (H/V)	Peak Detector Level (dBµV)	Antenna Factor	Cable Loss	Actual Peak Level (dBµV/m)	Peak Limit (dBµV/m)	Peak Margin (dB)	Result
1.39980	Vert.	21.5	21.6	1.2	44.3	74.0	29.7	Complied
1.42474	Vert.	11.5	22.3	1.2	35.0	74.0	39.0	Complied
1.49986	Vert.	24.1	21.1	1.2	46.4	74.0	27.6	Complied
1.65006	Vert.	17.7	21.2	1.2	40.1	130.2	90.1	Complied
1.69987	Vert.	21.3	21.5	1.2	44.0	74.0	30.0	Complied
3.01075	Vert.	20.9	21.8	2.0	44.7	130.2	85.5	Complied
3.02997	Vert.	24.4	21.8	2.0	48.2	130.2	82.0	Complied
3.08095	Vert.	26.6	21.7	2.0	50.3	130.2	79.9	Complied
3.11090	Vert.	28.7	21.6	2.0	52.3	130.2	77.9	Complied
4.88860	Vert.	29.0	24.2	2.3	55.5	74.0	18.5	Complied
4.91688	Vert.	27.1	24.2	2.3	52.3	74.0	20.1	Complied
5.71517	Vert.	59.3	24.3	2.3	85.9	130.2	44.3	Complied
5.85021	Vert.	77.5	24.4	2.3	104.2	130.2	26.0	Complied
6.00200	Vert.	17.1	26.7	2.9	46.7	130.2	83.5	Complied
6.56810	Vert.	17.9	26.8	2.9	47.6	130.2	82.6	Complied
7.83740	Vert.	18.2	26.9	2.9	48.0	130.2	82.2	Complied

Highest Average Level: Antenna A

Frequency (GHz)	Antenna. Polarity (H/V)	Average Detector Level (dBµV)	Antenna Factor	Cable Loss	Actual Average Level (dBµV/m)	Average Limit (dBµV/m)	Average Margin (dB)	Result
1.39987	Vert.	4.4	21.6	1.2	27.2	54.0	26.8	Complied
1.42474	Vert.	-3.8	22.3	1.2	19.7	54.0	34.3	Complied
1.49986	Vert.	12.5	21.1	1.2	34.8	54.0	19.2	Complied
1.69987	Vert.	10.2	21.5	1.2	32.9	54.0	21.1	Complied
4.88886	Vert.	8.5	24.2	2.3	35.0	54.0	19.0	Complied
4.91688	Vert.	8.5	24.2	2.3	35.0	54.0	19.0	Complied

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

Electric Field Strength Measurements (Frequency Range: 1.0 to 40.0 GHz)

Highest Peak Level: Antenna B

Frequency (GHz)	Antenna. Polarity (H/V)	Peak Detector Level (dBµV)	Antenna Factor	Cable Loss	Actual Peak Level (dBµV/m)	Peak Limit (dBµV/m)	Peak Margin (dB)	Result
1.39843	Vert.	19.7	21.6	1.2	42.5	74.0	31.5	Complied
1.42502	Vert.	17.7	22.3	1.2	41.2	74.0	32.8	Complied
1.49996	Horiz.	19.9	21.1	1.2	42.2	74.0	31.8	Complied
1.65029	Horiz.	18.3	21.2	1.2	40.7	139.7	99.0	Complied
1.70343	Horiz.	18.8	21.5	1.2	41.5	74.0	32.5	Complied
3.01442	Horiz.	29.2	21.8	2.0	53.0	139.7	86.7	Complied
3.02988	Horiz.	31.0	21.8	2.0	54.8	139.7	84.9	Complied
3.08115	Horiz.	29.1	21.7	2.0	52.8	139.7	86.9	Complied
3.11087	Horiz.	27.0	216	2.0	50.6	139.7	89.1	Complied
4.88571	Horiz.	26.3	24.2	2.3	52.8	74.0	21.2	Complied
4.91574	Horiz.	25.7	24.4	2.3	52.2	74.0	21.8	Complied
5.72007	Horiz.	28.2	24.3	2.3	54.8	139.7	84.9	Complied
5.85002	Horiz.	43.2	24.4	2.3	69.9	139.7	69.8	Complied
6.00140	Vert.	9.3	26.7	2.9	38.9	139.7	100.8	Complied
6.57161	Horiz.	6.0	26.8	2.9	35.7	139.7	104.0	Complied
7.83701	Horiz.	4.9	26.9	2.9	34.7	139.7	105.0	Complied

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

Electric Field Strength Measurements (Frequency Range: 1.0 to 40.0 GHz)

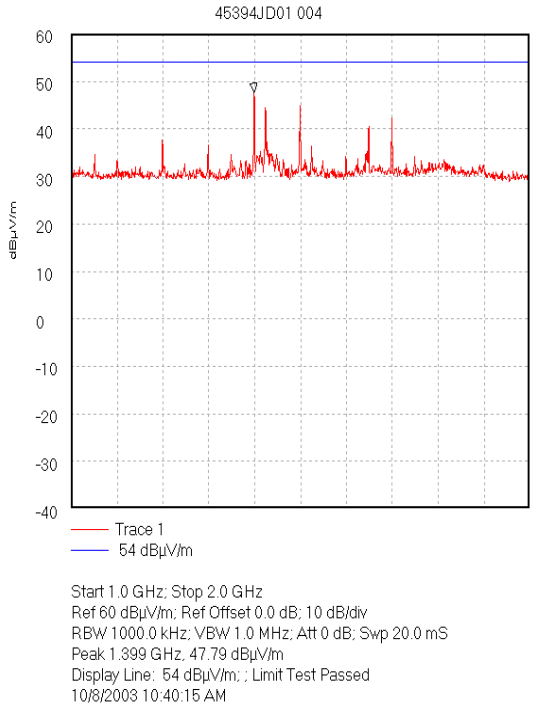
Highest Average Level: Antenna B

Frequency (GHz)	Antenna. Polarity (H/V)	Average Detector Level (dBµV)	Antenna Factor	Cable Loss	Actual Average Level (dBµV/m)	Average Limit (dBµV/m)	Average Margin (dB)	Result
1.39843	Vert.	1.9	21.6	1.2	24.7	54.0	29.3	Complied
1.42502	Vert.	0.7	22.3	1.2	24.1	54.0	29.9	Complied
1.49996	Vert.	7.0	21.1	1.2	29.3	54.0	24.7	Complied
1.70343	Vert.	1.9	21.5	1.2	25.6	54.0	28.4	Complied
4.88571	Horiz.	3.9	24.2	2.3	30.4	54.0	23.6	Complied
4.91574	Horiz.	4.2	24.2	2.3	30.7	54.0	23.3	Complied

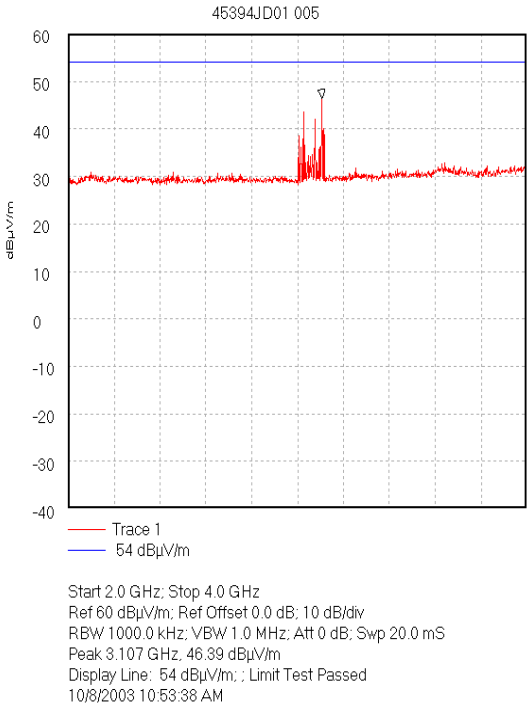
Note: The preliminary scans were only performed with the EUT connected to Antenna A, transmitting on the middle channel. Final measurements were performed with the EUT set to the worst-case channel. For final measurements, see accompanying tables.

Test Of: **Orthogon Systems.**
Gemini OS58XX-T
To: **FCC Part 15.247 (Requested Parts Only)**

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 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 1.399 GHz, 47.79 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Passed
10/8/2003 10:40:15 AM

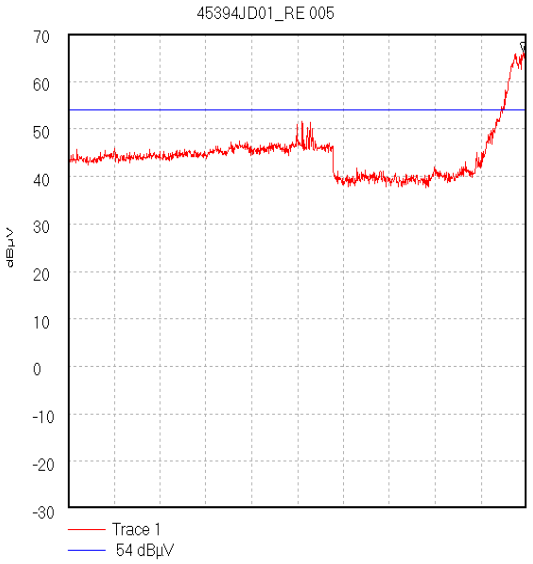


Start 2.0 GHz; Stop 4.0 GHz
Ref 60 dBµV/m; Ref Offset 0.0 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 3.107 GHz, 46.39 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Passed
10/8/2003 10:53:38 AM

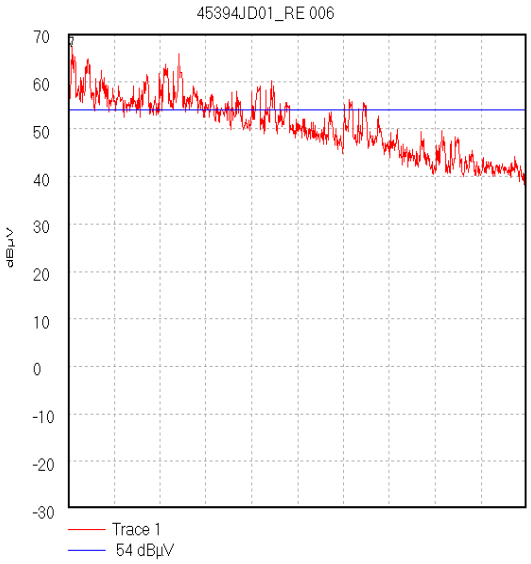
Note: these plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables. Note for the purpose of the pre-scans, an average limit was used with a peak detector. (Once the emissions indicating failure in the plot were finally measured on an Oats, they showed compliance.)

Test Of: **Orthogon Systems.**
Gemini OS58XX-T
To: **FCC Part 15.247 (Requested Parts Only)**

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



Start 4.0 GHz; Stop 5.725 GHz
Ref 70 dBµV; Ref Offset 2.0 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 5.712 GHz, 66.35 dBµV
Display Line: 54 dBµV; ; Limit Test Failed
09/10/2003 11:42:01

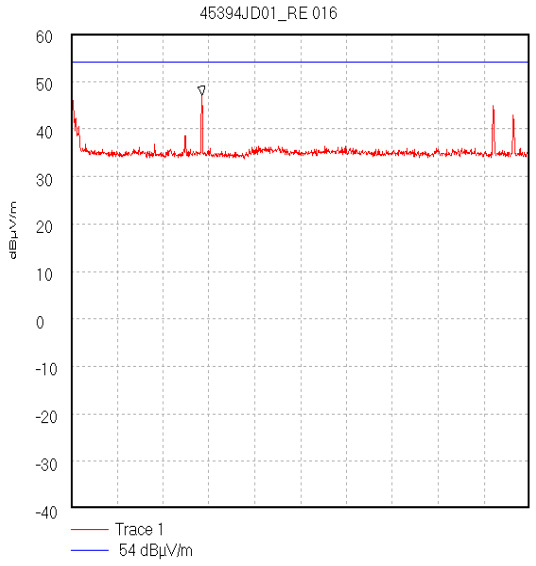


Start 5.85 GHz; Stop 6.0 GHz
Ref 70 dBµV; Ref Offset 2.0 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 5.851 GHz, 67.34 dBµV
Display Line: 54 dBµV; ; Limit Test Failed
09/10/2003 12:09:40

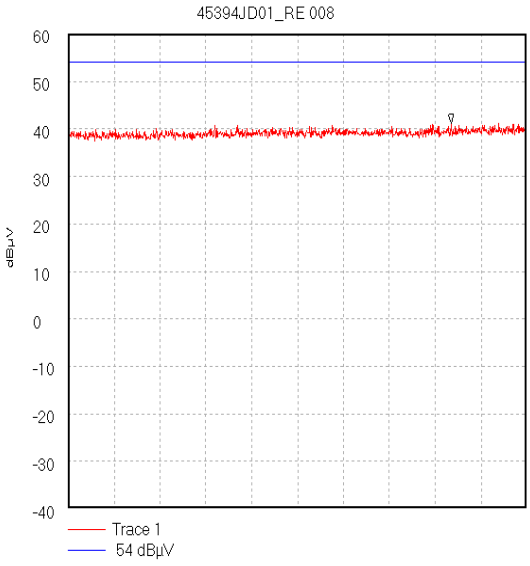
Note: these plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables. Note for the purpose of the pre-scans, an average limit was used with a peak detector. (Once the emissions indicating failure in the plot were finally measured on an Oats, they showed compliance.)

Test Of: **Orthogon Systems.**
Gemini OS58XX-T
To: **FCC Part 15.247 (Requested Parts Only)**

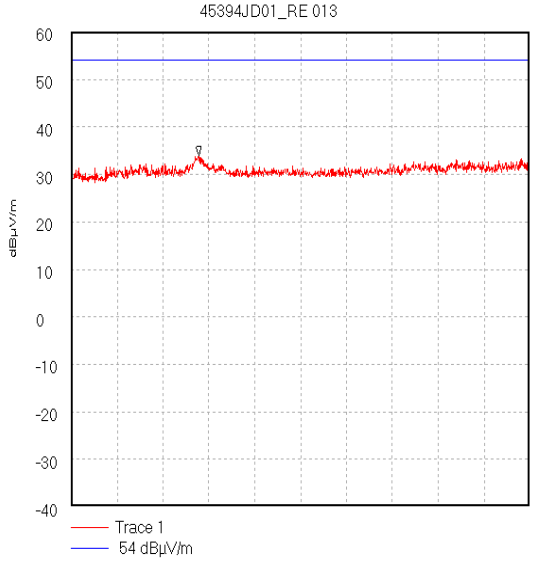
Transmitter Radiated Emissions: Section 15.247(c) and 15.209(a) (Continued)



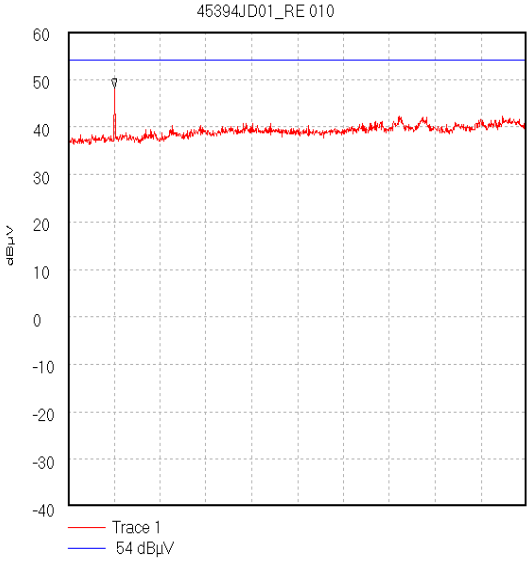
Start 6.0 GHz; Stop 8.0 GHz
Ref 60 dBµV/m; Ref Offset 2.3 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 6.571 GHz, 47.13 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Passed
09/10/2003 14:53:45



Start 8.0 GHz; Stop 12.5 GHz
Ref 60 dBµV; Ref Offset 2.9 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 40.0 mS
Peak 11.76 GHz, 41.24 dBµV
Display Line: 54 dBµV; ; Limit Test Passed
09/10/2003 13:51:27



Start 12.5 GHz; Stop 18.0 GHz
Ref 60 dBµV/m; Ref Offset 3.6 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 40.0 mS
Peak 14.028 GHz, 33.93 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Passed
09/10/2003 14:29:18

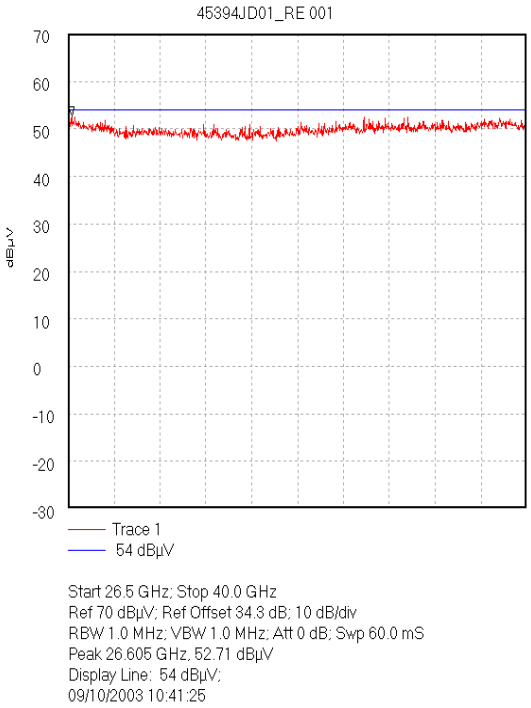


Start 18.0 GHz; Stop 26.5 GHz
Ref 60 dBµV; Ref Offset 5.0 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 60.0 mS
Peak 18.859 GHz, 48.17 dBµV
Display Line: 54 dBµV; ; Limit Test Passed
09/10/2003 14:04:13

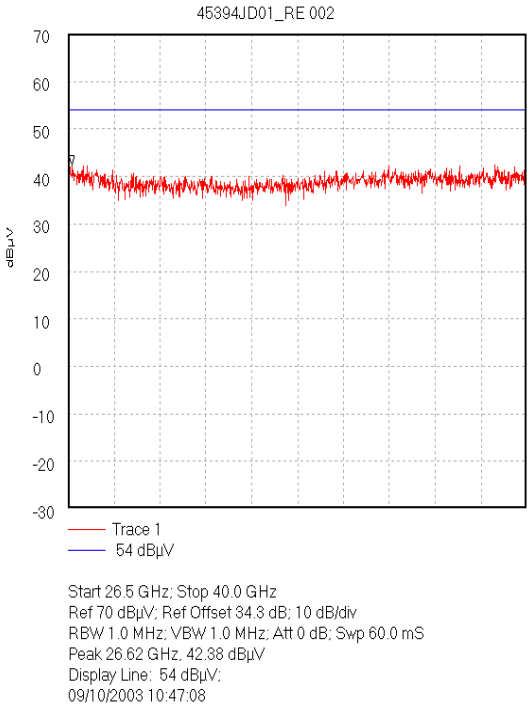
Note: these plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

Test Of: **Orthogon Systems.**
Gemini OS58XX-T
To: **FCC Part 15.247 (Requested Parts Only)**

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



Start 26.5 GHz; Stop 40.0 GHz
Ref 70 dBµV; Ref Offset 34.3 dB; 10 dB/div
RBW 1.0 MHz; VBW 1.0 MHz; Att 0 dB; Swp 60.0 mS
Peak 26.605 GHz, 52.71 dBµV
Display Line: 54 dBµV;
09/10/2003 10:41:25



Start 26.5 GHz; Stop 40.0 GHz
Ref 70 dBµV; Ref Offset 34.3 dB; 10 dB/div
RBW 1.0 MHz; VBW 1.0 MHz; Att 0 dB; Swp 60.0 mS
Peak 26.62 GHz, 42.38 dBµV
Display Line: 54 dBµV;
09/10/2003 10:47:08

Average Measurement

Note 1: this plot is a pre-scan and for indication purposes only. For final measurements, see accompanying tables.

Note 2. The noise floor was very close to the specified limit, however, a peak detector was used with an average limit so as to obtain a worse case scenario. However, the limit was very close to the noise floor, as such an average scan was also performed to verify that there were no emissions apparent. This fact can be seen in the plot below.

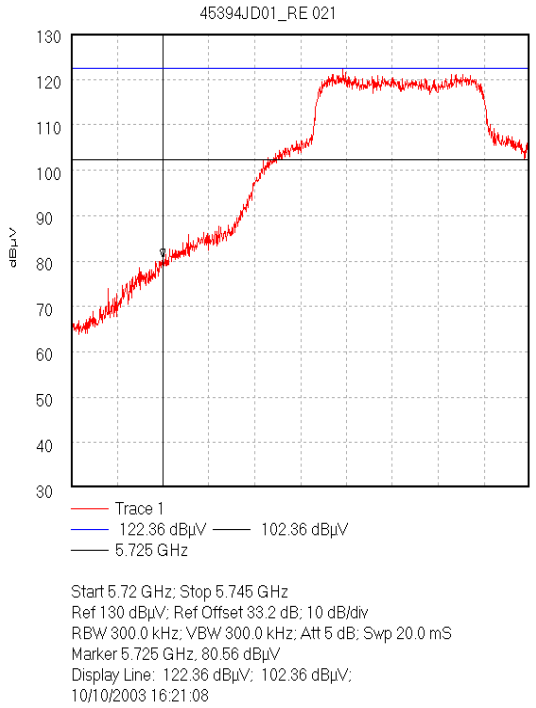
8.3. Transmitter Band Edge Conducted Emissions: Section 15.247(c)

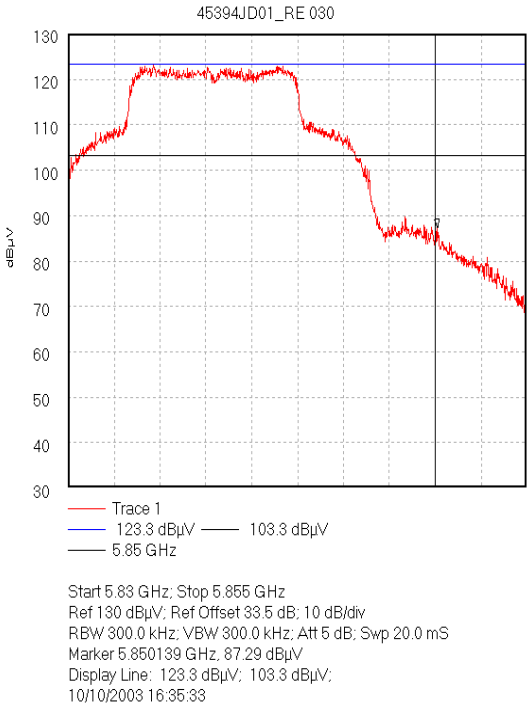
8.3.1. The EUT was configured as for band edge compliance of RF conducted Emissions measurement as described in Section 9 of this report.

8.3.2. Tests were performed to identify the maximum conducted band edge emissions.

Highest Peak Power Level Band Edge: BPSK Mode:

Frequency (GHz)	Peak Detector Level (dBµV)	Peak Limit (dBµV)	Peak Margin (dB)	Result
5.725000	80.56	102.36	21.80	Complied
5.850139	87.29	103.30	16.01	Complied



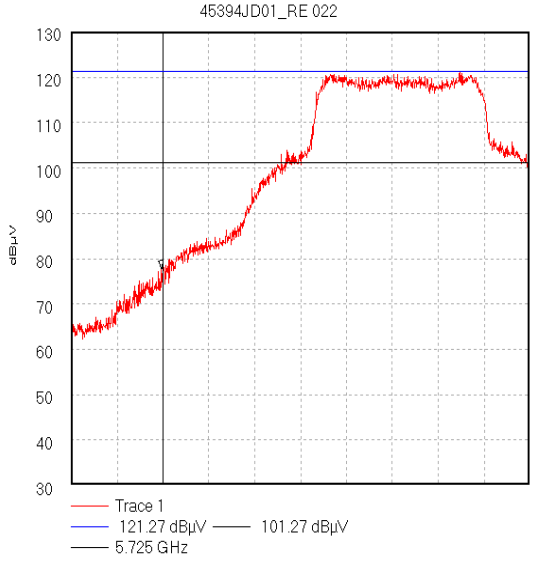


Test Of: **Orthogon Systems.**
Gemini OS58XX-T
To: **FCC Part 15.247 (Requested Parts Only)**

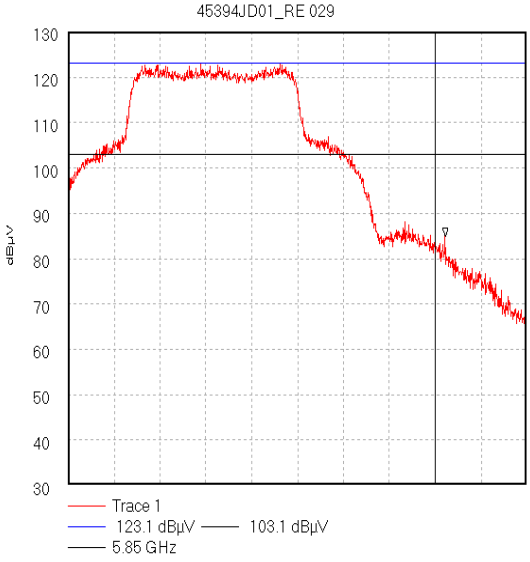
Transmitter Band Edge Conducted Emissions: Section 15.247(c) (Continued)

Highest Peak Power Level Band Edge: QPSK Mode:

Frequency (GHz)	Peak Detector Level (dBµV)	Peak Limit (dBµV)	Peak Margin (dB)	Result
5.724917	77.76	101.27	23.60	Complied
5.850556	84.86	103.10	18.24	Complied



Start 5.72 GHz; Stop 5.745 GHz
Ref 130 dBµV; Ref Offset 33.2 dB; 10 dB/div
RBW 300.0 kHz; VBW 300.0 kHz; Att 5 dB; Swp 20.0 mS
Marker 5.724917 GHz, 77.67 dBµV
Display Line: 121.27 dBµV; 101.27 dBµV;
10/10/2003 16:22:35



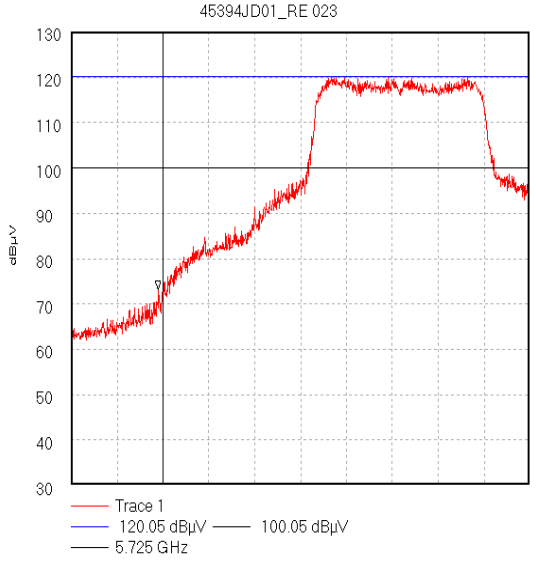
Start 5.83 GHz; Stop 5.855 GHz
Ref 130 dBµV; Ref Offset 33.5 dB; 10 dB/div
RBW 300.0 kHz; VBW 300.0 kHz; Att 5 dB; Swp 20.0 mS
Marker 5.850556 GHz, 84.86 dBµV
Display Line: 123.1 dBµV; 103.1 dBµV;
10/10/2003 16:34:28

Test Of: **Orthogon Systems.**
Gemini OS58XX-T
To: **FCC Part 15.247 (Requested Parts Only)**

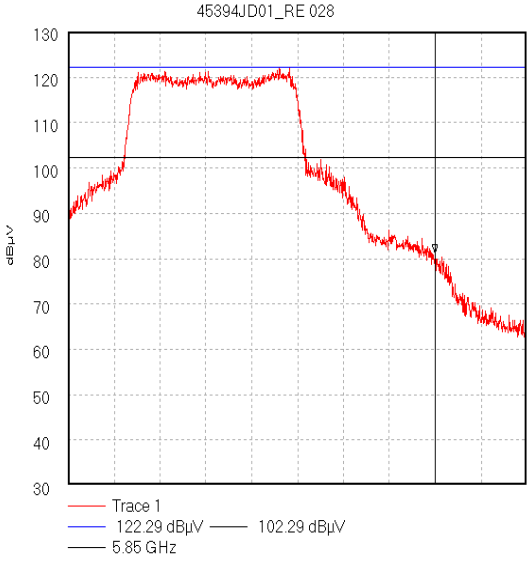
Transmitter Band Edge Conducted Emissions: Section 15.247(c) (Continued)

Highest Peak Power Level Band Edge: 16QAM Mode:

Frequency (GHz)	Peak Detector Level (dBµV)	Peak Limit (dBµV)	Peak Margin (dB)	Result
5.72475	73.12	100.05	26.93	Complied
5.85000	81.12	102.29	21.17	Complied



Start 5.72 GHz; Stop 5.745 GHz
Ref 130 dBµV; Ref Offset 33.2 dB; 10 dB/div
RBW 300.0 kHz; VBW 300.0 kHz; Att 5 dB; Swp 20.0 mS
Marker 5.72475 GHz, 73.12 dBµV
Display Line: 120.05 dBµV; 100.05 dBµV;
10/10/2003 16:24:20



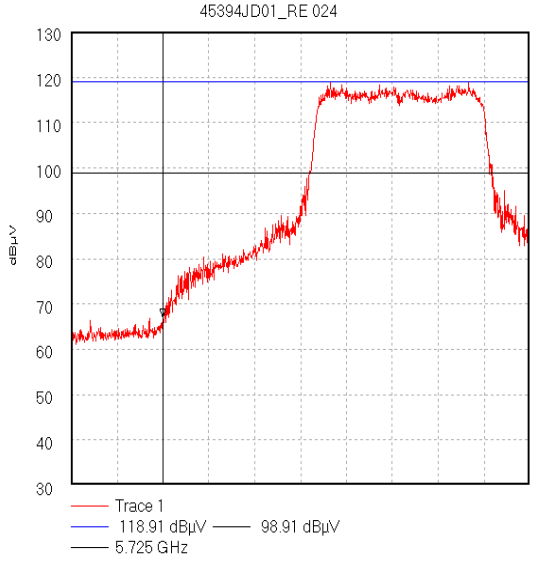
Start 5.83 GHz; Stop 5.855 GHz
Ref 130 dBµV; Ref Offset 33.5 dB; 10 dB/div
RBW 300.0 kHz; VBW 300.0 kHz; Att 5 dB; Swp 20.0 mS
Marker 5.85 GHz, 81.12 dBµV
Display Line: 122.29 dBµV; 102.29 dBµV;
10/10/2003 16:32:56

Test Of: **Orthogon Systems.**
Gemini OS58XX-T
To: **FCC Part 15.247 (Requested Parts Only)**

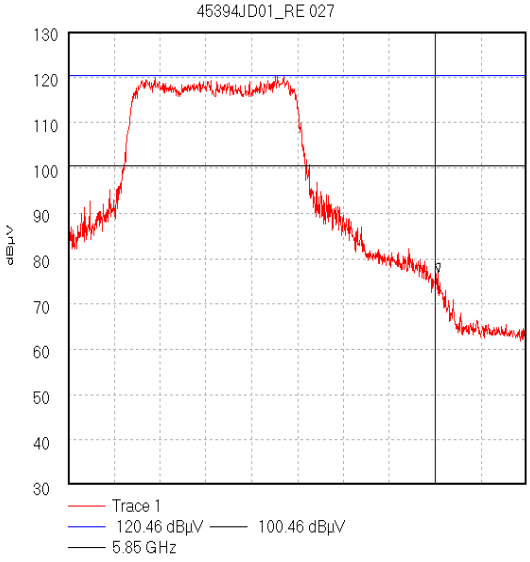
Transmitter Band Edge Conducted Emissions: Section 15.247(c) (Continued)

Highest Peak Power Level Band Edge: 64QAM Mode:

Frequency (GHz)	Peak Detector Level (dBµV)	Peak Limit (dBµV)	Peak Margin (dB)	Result
5.725000	66.98	98.91	31.93	Complied
5.850167	76.91	100.46	23.55	Complied



Start 5.72 GHz; Stop 5.745 GHz
Ref 130 dBµV; Ref Offset 33.2 dB; 10 dB/div
RBW 300.0 kHz; VBW 300.0 kHz; Att 5 dB; Swp 20.0 mS
Marker 5.725 GHz, 66.98 dBµV
Display Line: 118.91 dBµV; 98.91 dBµV;
10/10/2003 16:25:34



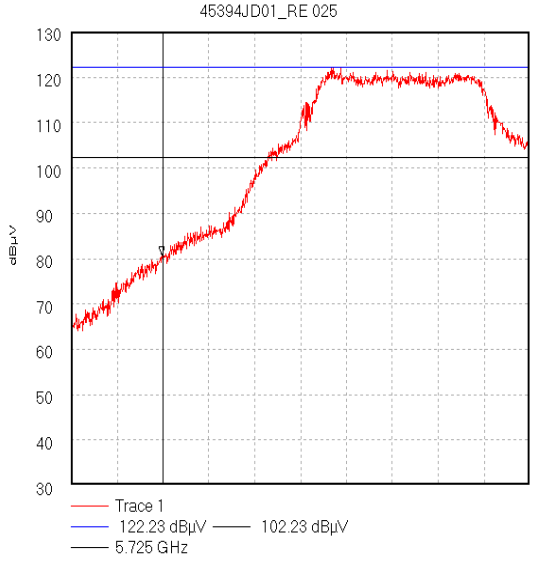
Start 5.83 GHz; Stop 5.855 GHz
Ref 130 dBµV; Ref Offset 33.5 dB; 10 dB/div
RBW 300.0 kHz; VBW 300.0 kHz; Att 5 dB; Swp 20.0 mS
Marker 5.850167 GHz, 76.91 dBµV
Display Line: 120.46 dBµV; 100.46 dBµV;
10/10/2003 16:31:16

Test Of: **Orthogon Systems.**
Gemini OS58XX-T
To: **FCC Part 15.247 (Requested Parts Only)**

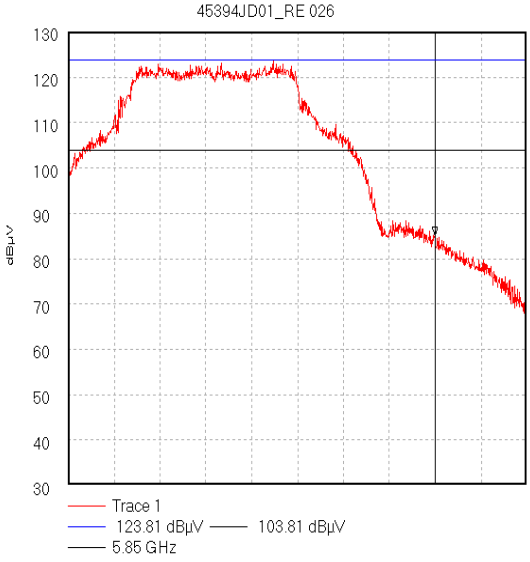
Transmitter Band Edge Conducted Emissions: Section 15.247(c) (Continued)

Highest Peak Power Level Band Edge: Acquisition Mode:

Frequency (GHz)	Peak Detector Level (dBµV)	Peak Limit (dBµV)	Peak Margin (dB)	Result
5.724944	80.74	102.23	21.49	Complied
5.850000	85.03	103.81	18.78	Complied



Start 5.72 GHz; Stop 5.745 GHz
Ref 130 dBµV; Ref Offset 33.2 dB; 10 dB/div
RBW 300.0 kHz; VBW 300.0 kHz; Att 5 dB; Swp 20.0 mS
Marker 5.724944 GHz, 80.74 dBµV
Display Line: 122.23 dBµV; 102.23 dBµV;
10/10/2003 16:27:04



Start 5.83 GHz; Stop 5.855 GHz
Ref 130 dBµV; Ref Offset 33.5 dB; 10 dB/div
RBW 300.0 kHz; VBW 300.0 kHz; Att 5 dB; Swp 20.0 mS
Marker 5.85 GHz, 85.03 dBµV
Display Line: 123.81 dBµV; 103.81 dBµV;
10/10/2003 16:28:57

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 pre-scans covering the entire measurement band from the lowest generated frequency declared up to 'n' times the highest fundamental frequency stated in section 2.5 of this report where 'n' is either 5 or 10 dependant upon whether the emission was produced via a transmitter/receiver or idle mode.

The pre-scans were performed within a screened chamber in order to identify frequencies on which the EUT was generating spurious.

This procedure identified the frequencies from the EUT, which required further examination.

The initial scans were performed using an antenna height of 1.5 m and at a measurement distance of 3 m.

A limit line was set to the specification limit by characterising the screen room using a known signal source set at exactly the same location as the EUT.

The signal source was derived from either a horn antenna or a dipole dependant on the frequency band under investigation.

Any levels within 20dB of this limit were measured where possible, on occasion; the receiver noise floor came within the 20dB boundary. On these occasions, the system noise floor may have been recorded.

An open area test site was then used with the EUT being set to the appropriate test distance.

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.

The levels were maximised by initially rotating the turntable through 360° and then varying the antenna height between 1 m and 4 m in the vertical polarisation.

At this point, any signals found to be between the limit and a level 6 dB below it were further maximised by changing the configuration of the EUT, e.g. re-routing cables to peripherals and moving peripherals with respect to the EUT.

The above procedure was repeated for the horizontal polarisation.

The final result was calculated as:-

E dBuV/m = LvL + AF + CL

Radiated Emissions (Continued)

Where:

E dBuV/m = Final field strength recorded.
LvL = Raw level indicate on measuring receiver.
AF = Antenna factor of test antenna.
CL = Cable loss.

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:	100 dB	100 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	Max Hold where applicable
Bandwidth:	100 kHz	1 MHz
Amplitude Range:	100 dB	100 dB
Measurement Time:	Not applicable	> 1 s
Observation Time:	Not applicable	> 15 s
Step Size:	Continuous sweep	Not applicable
Sweep Time:	Coupled	Not applicable

9.2. Band Edge Compliance of RF Conducted Emissions

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 20.0 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 complied with the 20.0 dBc limit. The above procedure was then repeated for the lower band edge.

If 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 20.0 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

10. Measurement Uncertainty

10.1. 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.

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

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

10.4. 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
Radiated Spurious Emissions	30.0 MHz to 1000.0 MHz	95%	+/- 5.26 dB
Radiated Spurious Emissions	1.0 GHz to 40.0 GHz	95%	+/- 1.78 dB

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

Appendix 1. Test Equipment Used

RFI No.	Instrument	Manufacturer	Type No.	Serial No.
A027	Horn Antenna	Eaton	9188-2	301
A031	2 to 4 GHz Eaton Horn Antenna	Eaton	91889-2	557
A1141	HP 11691D	Hewlett Packard	11691D	1212A02494
A145	10 dB Attenuator	Narda	NONE	NONE
A247	10 dB Attenuator	Narda	769-10	03712
A254	WG 14 Microwave Horn	Flann Microwave	14240-20	139
A255	WG 16 Microwave Horn	Flann Microwave	16240-20	519
A428	WG 12 horn	Flann	12240-20	134
A430	WG 18 horn	Flann	18240-20	425
A433	WG 27 Straight	Flann	27441	None
A553	Bi-log Antenna	Chase	CBL6111A	1593
C1067	Cable	Rosenberger	001	001
C1071	Cable	Rosenberger	FA21A1030M5050	Not Stated
C1077	Cable	Rosenberger	FA210A1010M5050	28462-2
C1079	Cable	Rosenberger	FA210A1010M5050	28462-1
C160	Cable	Rosenberger	UFA210A-1-1181-70x70	None
C202	Cable	Rosenberger	UFA 210A-1-1180-70X70	1543
C222	Cable	Rosenberger	UFA210A-1-1181-70x70	None
C453	Cable	Rosenberger	RG142XX-001-RFIB	C453-10081998
C457	Cable	Rosenberger	RG142XX-002-RFIB	C457-10081998

Test Equipment Used (Continued)

RFI No.	Instrument	Manufacturer	Type No.	Serial No.
C564	C564-N-2	Rosenberger	UFA 210A-1-0787-70x70	96L0226
G085	Generator	Hewlett Packard	83650L	3614A00104
M090	Receiver / Spectrum Analyser System	Rohde & Schwarz	ESBI	DU:838494/005 RU:836833/001
M115	Temperature/Humidity Meter	RS Components	212-146	None
M505	Analyser Display Unit	Rohde & Schwarz	ESAI-D	825316/010
M506	RF unit	Rohde & Schwarz	ESBI-RF	827060/004
S207	Site 7	RFI	7	-
S212	Site 12	RFI	12	-

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

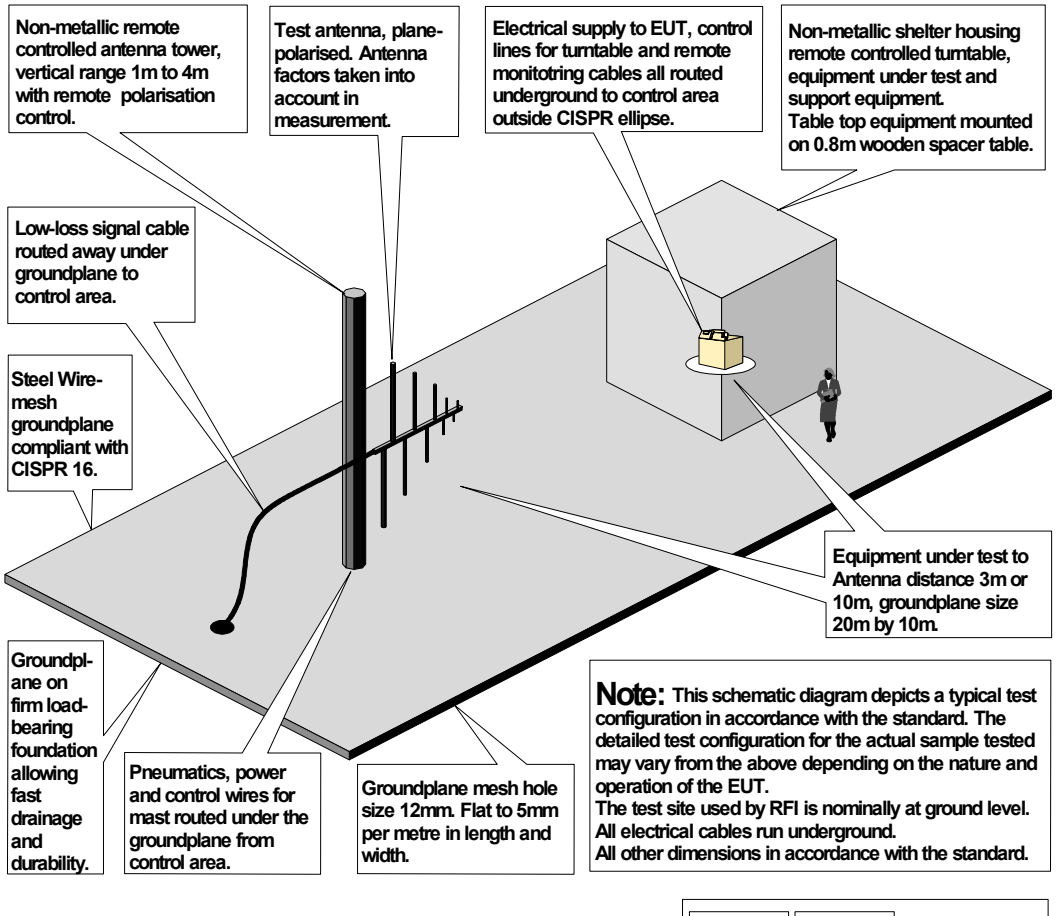
Appendix 2. Test Configuration Drawings

This appendix contains the following drawings:

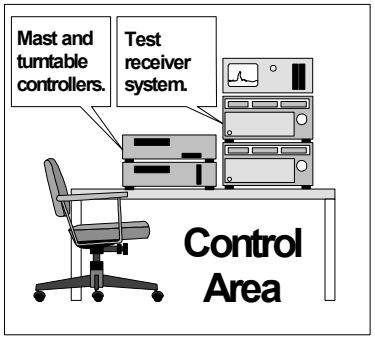
Drawing Reference Number	Title
DRG\45394JD01\EMIRAD	Test configuration for measurement of radiated emissions

Test Of: **Orthogon Systems.**
Gemini OS58XX-T
To: **FCC Part 15.247 (Requested Parts Only)**

DRG\45394JD01\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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