TEST REPORT
FROM
RFI GLOBAL SERVICES LTD.

Test Of: Datascope Corp.
Panorama Wireless Transceiver

To: FCC Part 95 Subpart H: 2003

Test Report Serial No:
RFI/MPTE1/RP46115JD03A

This Test Report Is Issued Under The Authority Of Richard Jacklin, Operations Director: 	**Checked By: Tony Henriques** 
Tested By: Steven Wong 	**Release Version No: PDF01**
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Panorama Wireless Transceiver
To: FCC Part 95 Subpart H: 2003

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1. Client Information

Company Name:	Datascope Corp.
Address:	Patient Monitoring Division 800 MacArthur Blvd Mahwah NJ 07430 0619 USA
Contact Name:	Mr R. Coffin

2. Equipment Under Test (EUT)

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

2.1. Identification Of Equipment Under Test (EUT)

Description:	Transceiver
Brand Name:	Panorama Wireless Transceiver
Model Number:	0998-0190-01
Serial Number:	None stated
FCC ID	DXXVT0190-00000
Country of Manufacture:	USA
Date of Receipt:	17/05/04

Description:	WMTS Antenna (x3)
Brand Name:	Panorama
Model Name or Number:	Panorama Antenna
Serial number	N0104, N0105 and N0106
Country of Manufacture:	USA

Description:	Power Splitter
Brand Name:	Mini-Circuits
Model Name or Number:	ZAPD-1450DC75-1
Serial number	BE0405590405
Country of Manufacture:	USA

Description:	Repeater RF Amplifier
Brand Name:	Panorama Repeater
Model Name or Number:	0998-00-0703-01
Serial number	EP0001
Country of Manufacture:	USA

2.2.Description Of EUT

The equipment under test is the fixed transceiver part only of a wireless patient monitor system, designed to operate in the Wireless Medical Telemetry Service.

2.3.Modifications Incorporated In EUT

During the course of testing the EUT was not modified.

2.4.Additional Information Related To Testing

Power Supply Requirement:	110 V, 60 Hz AC Mains supply		
Intended Operating Environment:	Hospitals		
Equipment Category:	Fixed		
Type of Unit:	Transceiver		
Interface Ports:	DS1; DS2; DS3; DS4; RF A; RF B; AC Mains		
Transmit Frequency Range	1395 MHz to 1400 MHz & 1427 MHz to 1429.5 MHz		
Transmit Channels Tested (1395 MHz to 1400 MHz band)	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	1A	1396.2
	Top	1B	1398.6
Transmit Channels Tested (1427 MHz to 1429.5 MHz band)	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	3A	1427.8
	Top	2B	1428.6
Highest Fundamental Frequency	1428.6 MHz		
Maximum Fundamental Fieldstrength @ 3 metres (without cable repeater fitted)	103.4 dBμV/m		
Maximum Fundamental Fieldstrength @ 3 metres (with cable repeater fitted)	101.6 dBμV/m		

2.5. Support Equipment

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

Description:	Server PC
Brand Name:	ViewPoint™ Server
Model Name or Number:	0998-00-0187-07
Serial number	CS01068-F2
Cable length and Type:	3m LVDS
Connected to Port:	EUT DS1 Port

Description:	ViewPoint PC
Brand Name:	ViewPoint™ Server
Model Name or Number:	0998-00-0187-07
Serial number	CS01104-L2
Cable length and Type:	N/A, connected to other Support Equipment only, no connection to EUT
Connected to Port:	

Description:	Monitor
Brand Name:	Llyama Vision Master 400
Model Name or Number:	S701GT
Serial Number:	20027562
Cable length and Type:	N/A, connected to other Support Equipment only, no connection to EUT
Connected to Port:	

Description:	Monitor
Brand Name:	National Display Systems
Model Name or Number:	VI-SX18-04
Serial Number:	03-21042
Cable length and Type:	N/A, connected to other Support Equipment only, no connection to EUT
Connected to Port:	

Description:	Keyboard
Brand Name:	IBM
Model Name or Number:	KB-7953
Serial Number:	1166900
Cable length and Type:	N/A, connected to other Support Equipment only, no connection to EUT
Connected to Port:	

Support Equipment (Continued)

Description:	Keyboard
Brand Name:	Microsoft
Model Name or Number:	KB-0168
Serial Number:	5919500605062
Cable length and Type:	N/A, connected to other Support Equipment only, no connection to EUT
Connected to Port:	

Description:	Mouse
Brand Name:	Microsoft Intellimouse
Model Name or Number:	XOB-70372
Serial Number:	None stated
Cable length and Type:	N/A, connected to other Support Equipment only, no connection to EUT
Connected to Port:	

Description:	Ethernet Hub
Brand Name:	Netgear
Model Name or Number:	DS108
Serial Number:	DS18135DB657960
Cable length and Type:	N/A, connected to other Support Equipment only, no connection to EUT
Connected to Port:	

3. Test Specification, Methods And Procedures

3.1. Test Specifications

Reference:	FCC Part 95 Subpart H: 2003 (Wireless Medical Telemetry Service).
Title:	Code of Federal Regulations, Part 95 (47CFR95) Personal Radio Services.
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:

ANSI/TIA-603-B-2002
Land Mobile Communications Equipment, Measurements and performance Standards

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

ANSI C63.4 (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 a 110 V, 60 Hz AC Mains supply

5.2. Operating Modes

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

Fully operational, continuously transmitting control data.

Preliminary radiated and conducted spurious pre-scan tests were performed on the highest operating frequency of the EUT (top channel) in each band that the EUT operates in i.e. on channels 1B and 2B. Final measurements were then performed on the top channel and the bottom channel of each band if an emission was identified. All other tests were performed on the top and bottom channels of both bands of operation.

5.3. Configuration And Peripherals

The EUT was tested in the following configurations:

Configuration 1: Panorama transceiver connected to the repeater, which in turn was feeding three antennas via an antenna splitter.

Configuration 2: Panorama transceiver feeding three antennas via an antenna splitter.

Full tests were performed on Configuration 1 whilst full tests (with the exception of Occupied Bandwidth and Frequency Stability tests) were performed on Configuration 2.

5.4. Location Of Tests

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

6. Summary Of Test Results

6.1. Summary Of Part 95 Subpart H Tests (With Cable Repeater Fitted)

Range Of Measurements	Specification Reference	Port Type	Compliancy Status
Transmitter Carrier Output Power	C.F.R. 47 FCC Part 2: 2003 Section 2.1046(a)	Antenna Terminals	Complied
Transmitter Fundamental Fieldstrength	C.F.R. 47 FCC Part 95 H: 2003 Section 95.1115(a)	Antenna	Complied
Transmitter Occupied Bandwidth	C.F.R. 47 FCC Part 95 H: 2003 Section 95.1115(d)/2.1049	Antenna	Complied
Transmitter Out of Band Conducted Emissions (9 kHz to 14.5 GHz)	C.F.R. 47 FCC Part 2: 2003 Section 2.1051	Antenna Terminals	Complied
Transmitter Band Edge Conducted Emissions	C.F.R. 47 FCC Part 2: 2003 Section 2.1051	Antenna Terminals	Complied
Transmitter Intermodulation Products	Amplifier/Booster/Repeater Policy Guidelines	Antenna Terminals	Complied
Transmitter Out of Band Radiated Emissions (30 MHz to 14.5 GHz)	C.F.R. 47 FCC Part 95: 2003 Section 95.1115(b)/2.1053	Antenna	Complied
Transmitter Band Edge Radiated Emissions	C.F.R. 47 FCC Part 95: 2003 Section 95.1115(b)/2.1053	Antenna	Complied
Transmitter Frequency Stability (Temperature & Voltage Variation)	C.F.R. 47 FCC Part 95: 2003 Section 95.1115(e)/2.1055	Antenna	Complied

6.2. Summary Of Part 95 Subpart H Tests (Without Cable Repeater Fitted)

Range Of Measurements	Specification Reference	Port Type	Compliancy Status
Transmitter Carrier Output Power	C.F.R. 47 FCC Part 2: 2003 Section 2.1046(a)	Antenna Terminals	Complied
Transmitter Fundamental Fieldstrength	C.F.R. 47 FCC Part 95 H: 2003 Section 95.1115(a)	Antenna	Complied
Transmitter Out of Band Conducted Emissions (9 kHz to 14.5 GHz)	C.F.R. 47 FCC Part 2: 2003 Section 2.1051	Antenna Terminals	Complied
Transmitter Band Edge Conducted Emissions	C.F.R. 47 FCC Part 2: 2003 Section 2.1051	Antenna Terminals	Complied
Transmitter Out of Band Radiated Emissions (30 MHz to 14.5 GHz)	C.F.R. 47 FCC Part 95: 2003 Section 95.1115(b)/2.1053	Antenna	Complied
Transmitter Band Edge Radiated Emissions	C.F.R. 47 FCC Part 95: 2003 Section 95.1115(b)/2.1053	Antenna	Complied

7. Measurements, Examinations And Derived Results

7.1. General Comments

7.1.1. This section contains test results only.

7.1.2. Details of the test methods and procedures can be found in Section 9 of this report.

7.1.3. 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.

7.1.4. The Panorama transceiver transmits in the Wireless Medical Telemetry Service (WMTS) allocated frequency bands 1395 MHz to 1400 MHz and 1427 MHz to 1429.5 MHz. The EUT transmits on two separate carriers in order to create downlink transmit diversity in order that receivers within the wireless patient monitor system (that the EUT forms part of) are able to select the best signal. Transmission of these two separate carriers is via the Panorama Transceiver's two RF outputs, RFA and RFB. Consequently, the EUT was tested in its normal mode of operation i.e. with two separate carriers being transmitted.

7.1.5. The Panorama transceiver transmits on four frequencies within the 1395 MHz to 1400 MHz band and two frequencies within the 1427 MHz to 1429.5 MHz band shown below. The transmission pairs are 1A & 1B, 2A & 2B and 3A & 3B.

1395 - 1400 MHz band	**1427 – 1429.5 MHz band**
Channel 1A: 1396.2 MHz	Channel 3A: 1427.8 MHz
Channel 3B: 1397.0 MHz	Channel 2B: 1428.6 MHz
Channel 2A: 1397.8 MHz	
Channel 1B: 1398.6 MHz	

7.1.6. The EUT comes in two possible configurations, one which consisted of a Panorama transceiver with a repeater RF amplifier, power splitter and three WMTS antennas connected by 20 metre lengths of RF cable (45 metres lengths between the Panorama transceiver and repeater RF amplifier) and one without the repeater RF amplifier (refer to diagrams of Configurations 1 and 2 in Appendix 2 of this report). The configuration with the repeater RF amplifier is for larger hospitals where extremely long RF cable lengths are required to achieve coverage. Consequently the associated losses are higher resulting in the need for the signal to be boosted.
Note that the RF cable lengths detailed above are the minimum cable lengths specified for the system. The reasoning for using minimum cable length is that this will result in the highest input levels to the three antennas (and the repeater RF amplifier). Three antennas were chosen to simulate a minimum system configuration that would include a power splitter. All three WMTS antennas were transmitting throughout the duration of testing.

7.1.7. In emissions plots showing the highest operating frequency (Channel 2B) of the upper operating band of 1427 MHz to 1429.5 MHz, the EUT is also transmitting on Channel 2A (1397.8 MHz) which is covered by final testing of the highest and lowest frequencies in band 1395 MHz to 1400 MHz. Final testing in band 1427 MHz to 1429.5 MHz was performed on the highest and lowest frequencies in that band i.e. on Channels 3A and 2B. In the plots shown in this test report, harmonic emissions directly rated to the transmission frequency of Channel 2A were, therefore, ignored (as testing of the 1395 MHz to 1400 MHz band which includes this channel is covered by final testing of Channels 1A and 1B).

Measurements, Examinations And Derived Results (continued)

7.1.8. Tests of Transmitter Intermodulation Products were performed on the configuration containing the repeater RF amplifier in line with the Amplifier/Booster/Repeater Policy Guidelines produced by the FCC. This was performed to establish the level of any intermodulation products that may have been generated in the repeater RF amplifier, these levels were measured at the antenna RF outputs.

7.1.9. It should be noted that the EUT did not operate (i.e. transmit) at a temperature of -10ºC or at -20ºC or at -30ºC. Further investigatory measurements were performed and it was established that the EUT operated at a temperature of -5ºC, consequently results are given for this temperature. It is confirmed that below this temperature the EUT did not operate i.e. at no time did it transmit. Under all test conditions where the EUT was transmitting it is confirmed that the transmissions remained in band.

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8. Test Results: 1395-1400 MHz Downlink Band (Cable Repeater Fitted)

8.1. Transmitter Carrier Output Power (and EIRP Limitations): Section 2.1046(a)

8.1.1. The EUT was configured as for transmitter conducted emissions as described in Section 12.1 of this report.

8.1.2. Tests were performed to identify the EUT's maximum conducted transmit power.

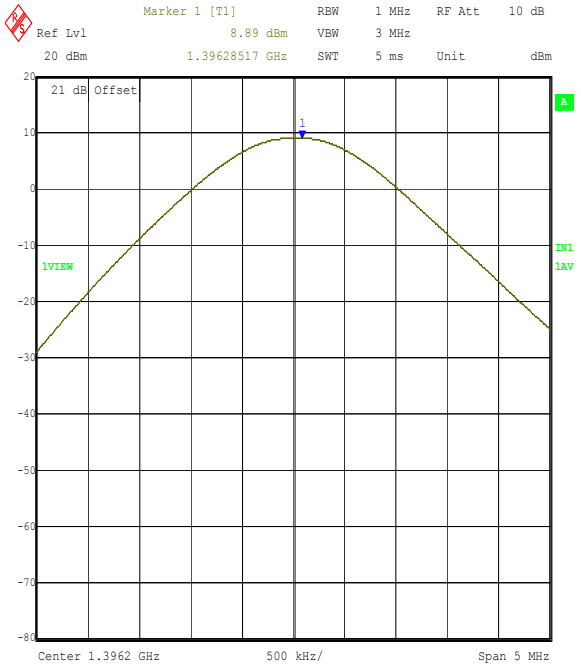
8.1.3. The effective isotropically radiated power (EIRP) was calculated by adding the manufacturer's declared antenna gain to the figure measured for conducted RF output power.

Results:

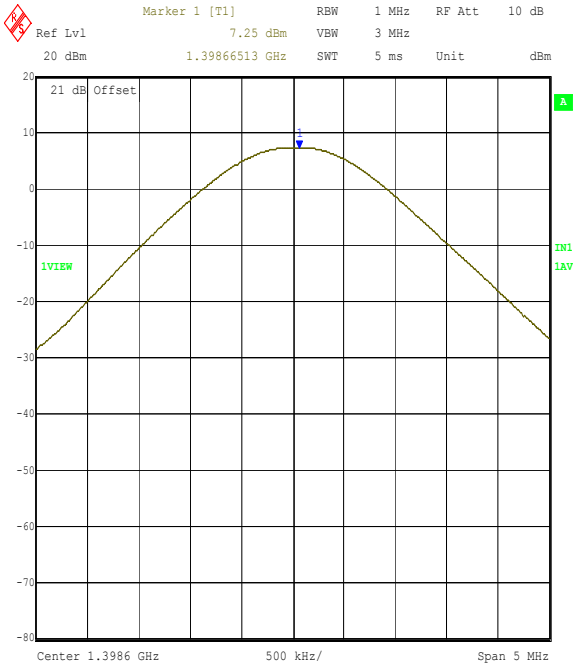
Channel	Frequency (MHz)	Conducted RF O/P Power (dBm)	Stated Antenna Gain (dB)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
Bottom	1396.2	8.9	0	8.9	22.2	13.3	Complied
Top	1398.6	7.3	0	7.3	22.2	14.9	Complied

Note: *According to Part 95.1115(a) the radiated field strength limit is 740 mV/m (117.4 dBμV/m) at 3 metres. To convert from fieldstrength to an equivalent conducted power in dBm, subtract 95.2 dB. (117.4 –95.2 = 22.2). The figure of 95.2 dB is arrived at using the formula P = (V/m x d)^2 /30.*

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz Power Output Bottom Channel
Date: 6.JUL.2004 11:20:10



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz Power Output Top Channel
Date: 6.JUL.2004 11:18:18

8.2. Transmitter Fundamental Fieldstrength Section 95.1115(a)

8.2.1. The EUT was configured as for transmitter radiated emissions testing as described in Section 12.2 of this report.

8.2.2. Tests were performed to identify the maximum fieldstrength at 3 metres of the fundamental frequency.

Result:

Channel	Frequency (MHz)	Ant. Pol.	Average Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
Bottom	1396.2	Vert.	95.5	117.4	21.9	Complied
Top	1398.6	Vert.	101.6	117.4	15.8	Complied

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

8.3. Transmitter Occupied Bandwidth: Sections 95.1115(d)/2.1049

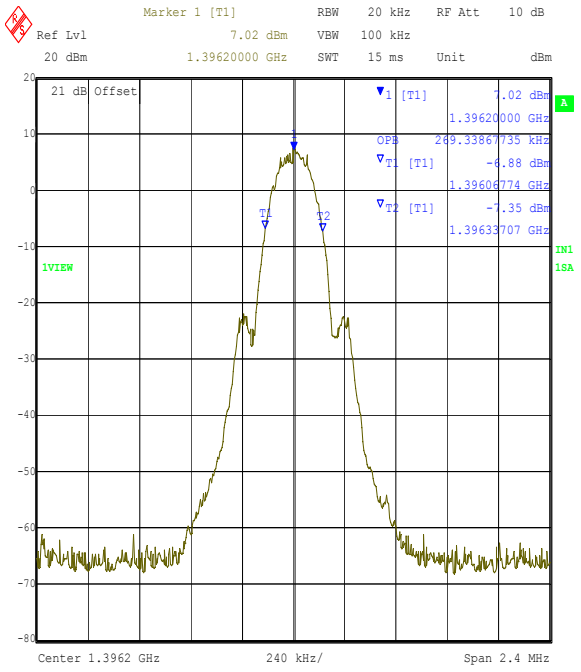
8.3.1. The EUT was configured as for Occupied Bandwidth measurements as described in Section 12.3 of this report.

8.3.2. Tests were performed to identify the 20 dB bandwidth occupied by the fundamental frequency of the EUT.

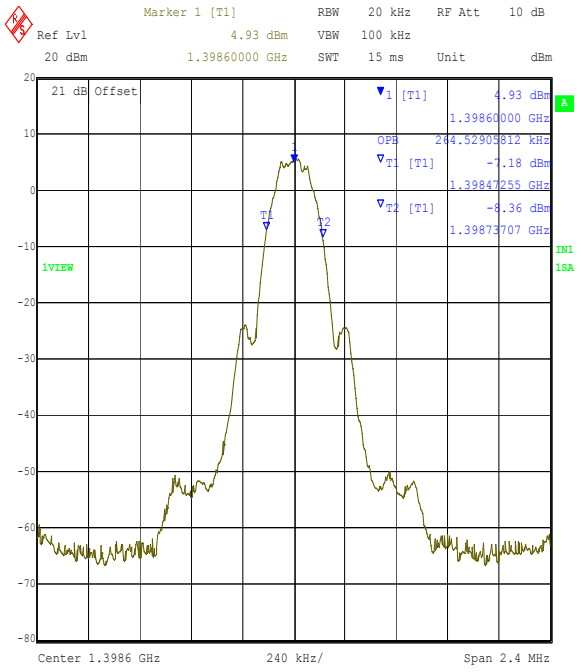
Result:

Channel	Frequency (MHz)	Resolution Bandwidth (kHz)	Video Bandwidth (kHz)	Occupied Bandwidth (kHz)
Bottom	1396.2	20	100	269.339
Top	1398.6	20	100	264.529

Note: *According to Part 95.1115(c) any emission type appropriate for communications in the Wireless Medical Telemetry Service may be transmitted with the except for video and voice. It can be seen from the Occupied Bandwidth plots shown below that the Modulation Characteristic of the EUT meets the modulation requirements of Part 95.1115 (c).*



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz Occ. B/W Bottom Channel
Date: 6.JUL.2004 11:48:09



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz Occ. B/W Top Channel
Date: 6.JUL.2004 11:46:01

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

8.4. Transmitter Out of Band Conducted Emissions: Section 2.1051

8.4.1. The EUT was configured as for transmitter conducted emissions measurements as described in Section 12.1 of this report.

8.4.2. Tests were performed to identify the maximum transmitter conducted emission levels.

8.4.3. The limit lines shown in the plots below are set to a level 20 dB below the measured fundamental peak power.

Result: Bottom Channel

Frequency (MHz)	Peak Emission Level (dBm)	Peak Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
*6973.948	-43.7	-52.6	-20.0	32.6	Complied

Result: Top Channel

Frequency (MHz)	Peak Emission Level (dBm)	Peak Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
*6993.988	-43.2	-50.5	-20.0	30.5	Complied

**Note: No spurious emissions were detected above the noise floor of the measuring receiver. Therefore the highest peak noise floor readings of the measuring receiver recorded are given in the above results table.*

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

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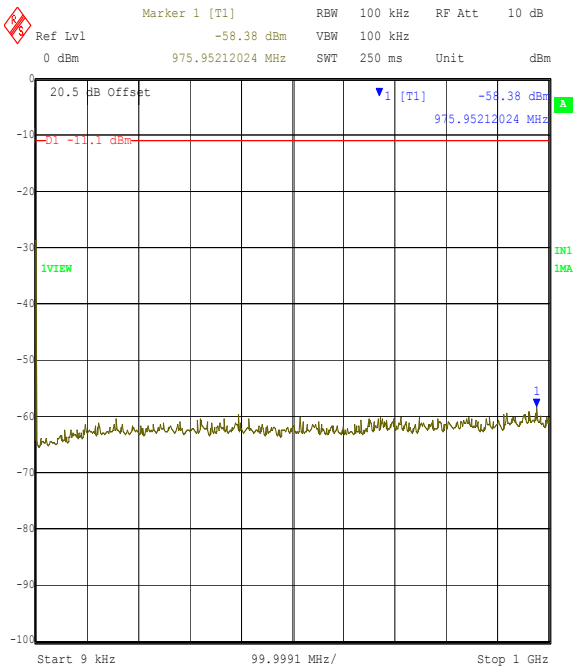
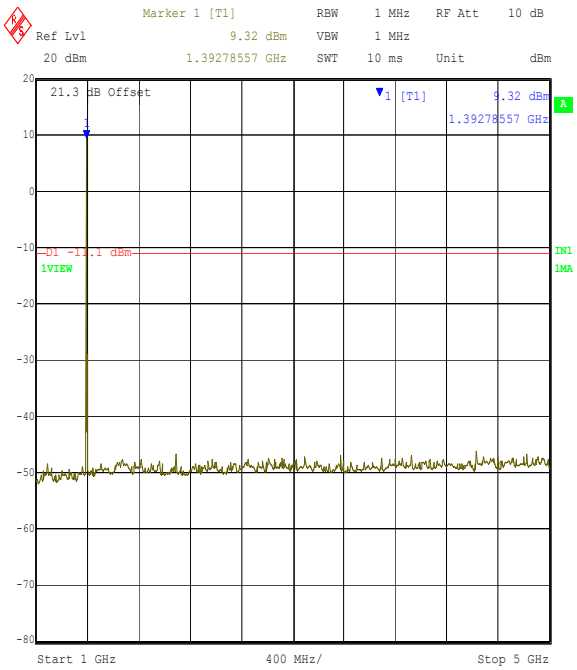
Transmitter Out of Band Conducted Emissions (Continued)



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz Cond. Emiss. Bottom Channel
Date: 6.JUL.2004 13:36:38



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
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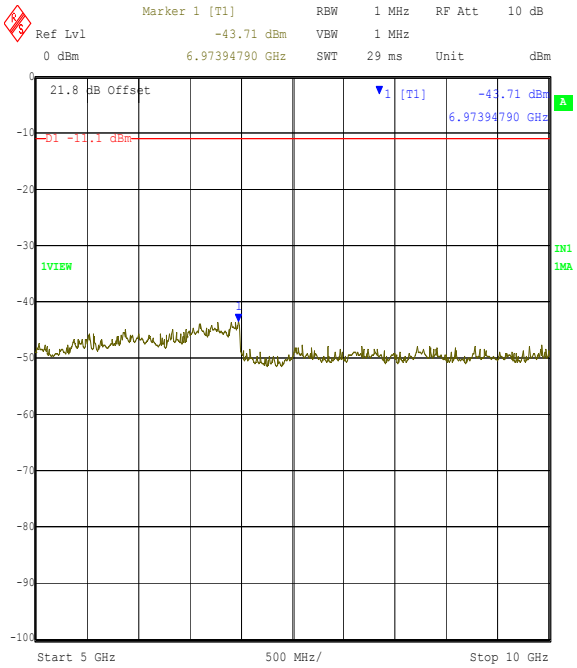
Date: 6.JUL.2004 13:37:52



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
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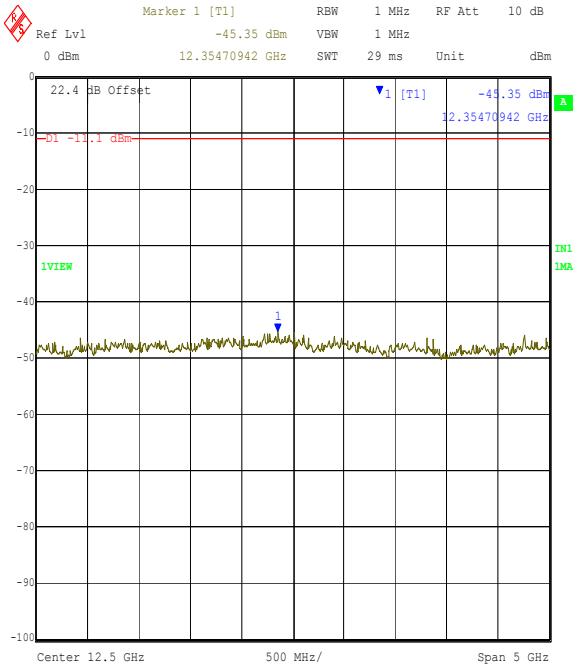
Date: 6.JUL.2004 13:38:44



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz Cond. Emiss. Bottom Channel
Date: 6.JUL.2004 13:39:22

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

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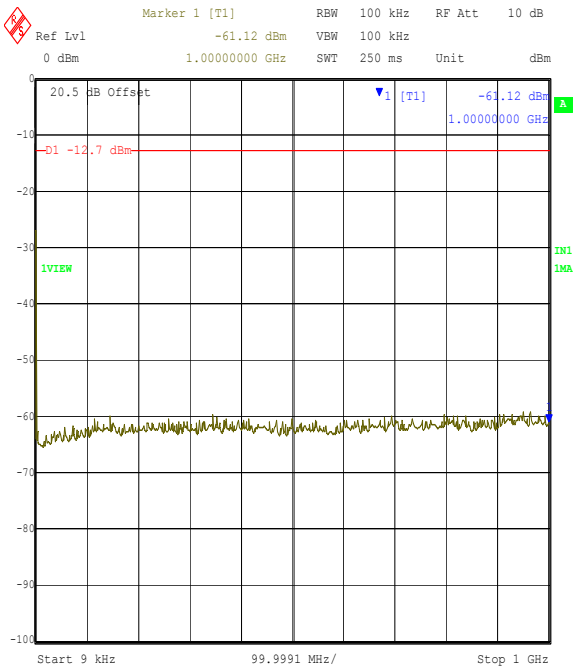
Transmitter Out of Band Conducted Emissions (Continued)



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
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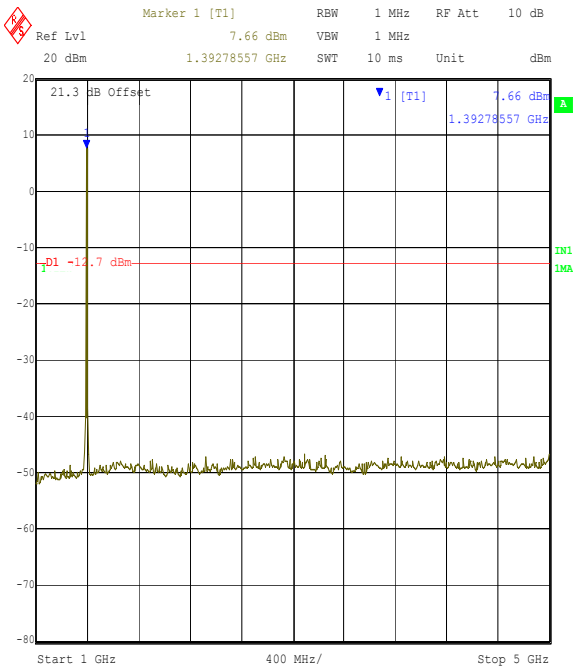
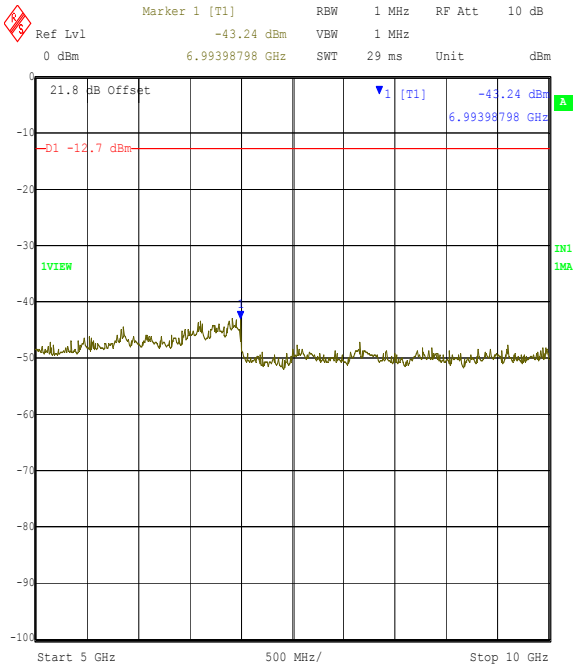


Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz Cond. Emiss. Top Channel
Date: 6.JUL.2004 13:48:02



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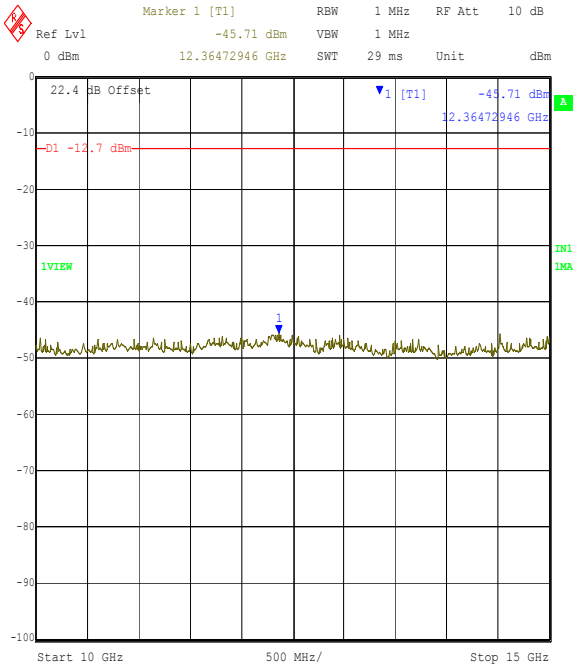

Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz Cond. Emiss. Top Channel
Date: 6.JUL.2004 13:50:49

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

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8.5. Transmitter Conducted Emissions At Band Edges: Section 2.1051

8.5.1. The EUT was configured as for transmitter conducted emissions testing described in Section 12.1 of this report.

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

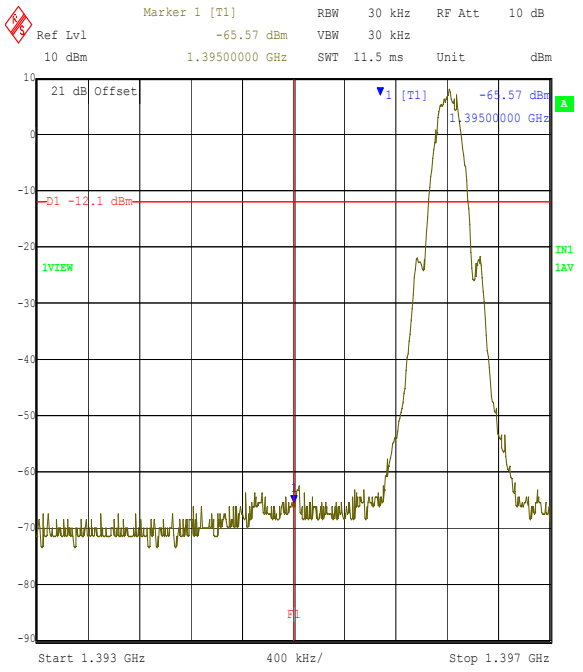
Results:

Bottom Band Edge

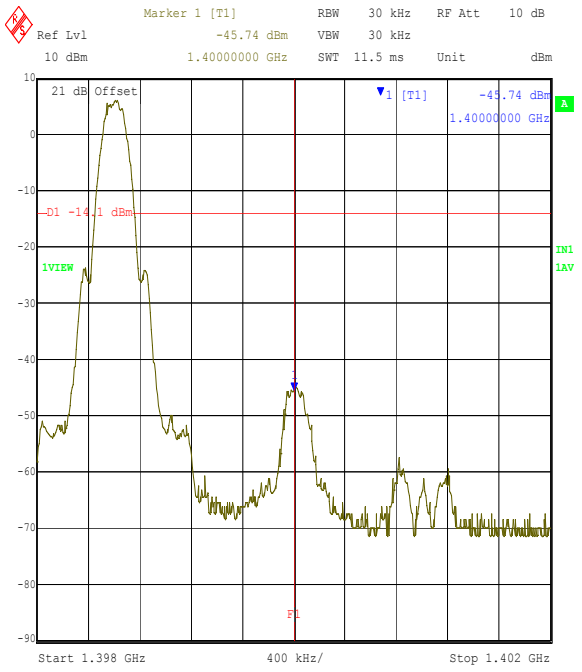
Frequency (MHz)	Peak Emission Level (dBm)	Peak Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
1395	-65.6	-73.5	-20.0	53.5	Complied

Top Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Peak Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
1400	-45.7	-51.6	-20.0	31.6	Complied



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz Cond. BE. Bottom Channel
Date: 6.JUL.2004 15:23:30



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz Cond. BE. Top Channel
Date: 6.JUL.2004 15:26:22

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

8.6. Transmitter Intermodulation Products

8.6.1. The EUT was configured as for transmitter conducted emissions testing described in Section 12.1 of this report.

8.6.2. Tests were performed to identify the maximum level of the intermodulation product produced in the Repeater RF Amplifier falling below the lower band edge and above the upper band edge of the frequency band that the EUT will operate over.

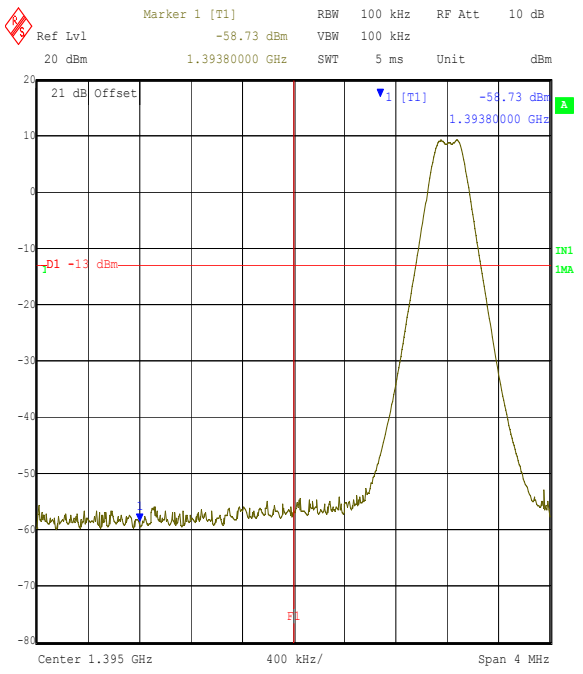
Results:

Intermodulation Product produced below the Bottom Edge of Band 1395 to 1400 MHz

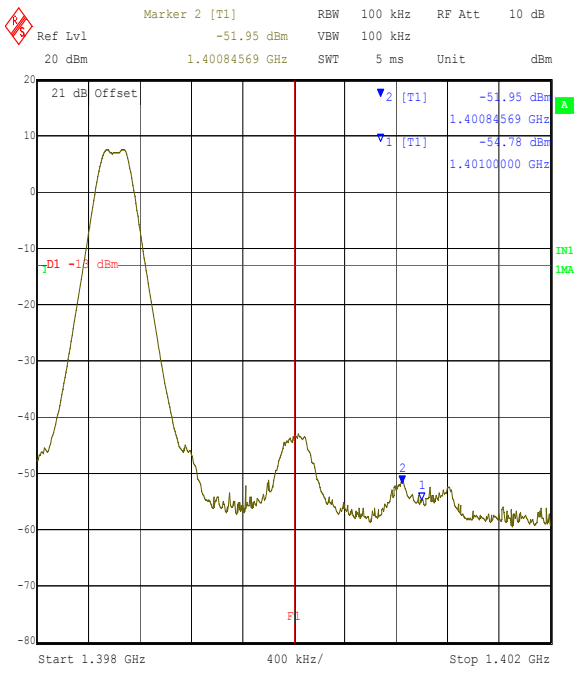
Channel Pair	Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
1A / 1B	1393.800	-58.7	-13.0	43.7	Complied

Intermodulation Product produced above the Top Edge of Band 1395 to 1400 MHz

Channel Pair	Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
1A / 1B	1400.846	-52.0	-13.0	39.0	Complied



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Channel Pair (1A/1B)MHz Cond. Intermod. Ch1A
Date: 7.JUL.2004 09:26:13



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Channel Pair (1A/1B)MHz Cond. Intermod. Ch1B
Date: 7.JUL.2004 09:29:15

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

8.7. Transmitter Out of Band Radiated Emissions: Sections 95.1115(b)/2.1053

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

8.7.1.1. The EUT was configured as for transmitter radiated emissions testing as described in Section 12.2 of this report.

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

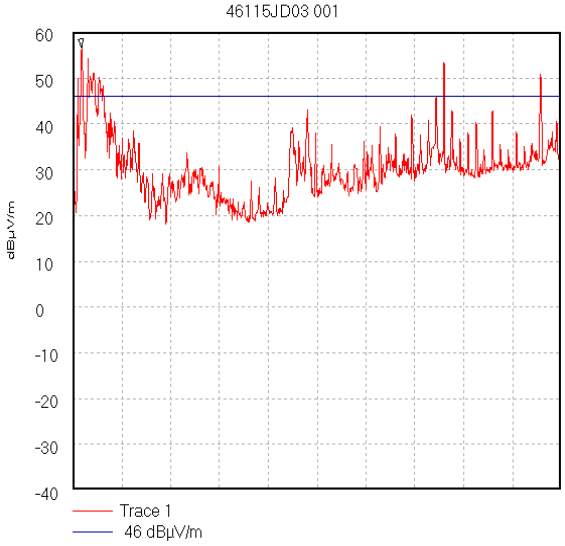
Result:

Frequency (MHz)	Ant. Pol.	Q-P Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
47.178	Horiz.	22.3	46.0	23.7	Complied
58.907	Vert.	39.2	46.0	6.8	Complied
81.580	Vert.	29.2	46.0	16.8	Complied
151.845	Vert.	25.0	46.0	21.0	Complied
255.974	Vert.	25.5	46.0	20.5	Complied
319.966	Horiz.	31.6	46.0	14.4	Complied
465.731	Horiz.	32.4	46.0	13.6	Complied
495.998	Horiz.	36.1	46.0	9.9	Complied
512.000	Horiz.	33.5	46.0	12.5	Complied
544.001	Horiz.	26.6	46.0	19.4	Complied
704.003	Horiz.	45.9	46.0	0.1	Complied
751.989	Vert.	42.7	46.0	3.3	Complied
767.999	Vert.	45.6	46.0	0.4	Complied
783.990	Horiz.	42.5	46.0	3.5	Complied
863.968	Vert.	43.7	46.0	2.3	Complied
912.001	Horiz.	41.9	46.0	4.1	Complied
960.001	Horiz.	45.9	54.0	8.1	Complied

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

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

Transmitter Out of Band Radiated Emissions (Continued)



Start 30.0 MHz; Stop 1.0 GHz
Ref 60 dBµV/m; Ref Offset 0.0 dB; 10 dB/div
RBW 120.0 kHz; VBW 100.0 kHz; Att 0 dB; Swp 440.0 mS
Peak 47.244 MHz, 56.7 dBµV/m
Display Line: 46 dBµV/m; ; Limit Test Failed
Transducer Factors: A490
6/28/2004 10:50:01 AM

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

8.8. Transmitter Out of Band Radiated Emissions: Sections 95.1115(b)/2.1053 (Continued)

8.8.1. Electric Field Strength Measurements: 1.0 to 14.5 GHz

Result: 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
1.382674	Vert.	19.5	21.5	0.6	41.6	54.0	12.4	Complied
1.390567	Vert.	26.6	21.5	0.6	48.7	54.0	5.3	Complied
1.404346	Vert.	12.9	21.5	0.6	35.0	54.0	19.0	Complied
1.406543	Vert.	30.2	21.5	0.6	52.3	54.0	1.7	Complied
1.414604	Vert.	21.9	21.5	0.6	44.0	54.0	10.0	Complied
2.792612	Vert.	26.2	21.8	0.9	48.9	54.0	5.1	Complied
2.813397	Vert.	24.3	21.8	0.9	47.0	54.0	7.0	Complied
4.188555	Vert.	5.8	24.1	1.1	31.1	54.0	22.9	Complied
4.981107	Vert.	12.0	24.2	1.3	37.5	54.0	16.5	Complied
5.066829	Vert.	11.8	24.3	1.3	37.4	54.0	16.6	Complied
5.584795	Vert.	6.0	24.3	1.4	31.7	54.0	22.3	Complied

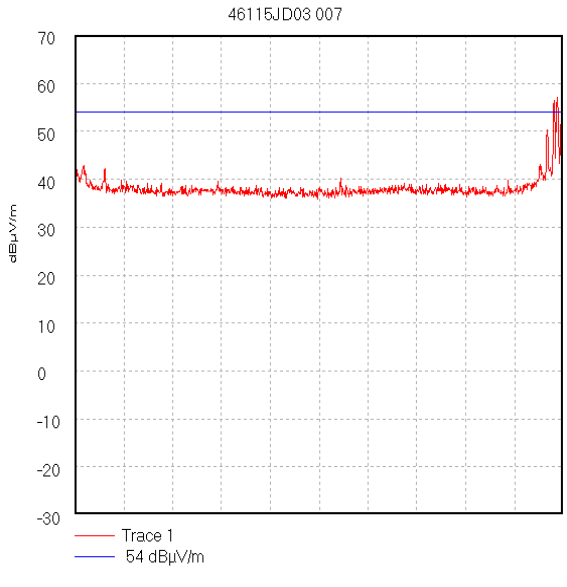
Result: Top Channel

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
1.382674	Vert.	19.5	21.5	0.6	41.6	54.0	12.4	Complied
1.390567	Vert.	26.6	21.5	0.6	48.7	54.0	5.3	Complied
1.404346	Vert.	12.9	21.5	0.6	35.0	54.0	19.0	Complied
1.406543	Vert.	30.2	21.5	0.6	52.3	54.0	1.7	Complied
1.414604	Vert.	21.9	21.5	0.6	44.0	54.0	10.0	Complied
2.797154	Vert.	30.3	21.8	0.9	53.0	54.0	1.0	Complied
2.813397	Vert.	24.3	21.8	0.9	47.0	54.0	7.0	Complied
4.196688	Vert.	13.6	24.1	1.1	38.8	54.0	15.2	Complied
4.981107	Vert.	12.0	24.2	1.3	37.5	54.0	16.5	Complied
5.066829	Vert.	11.8	24.3	1.3	37.4	54.0	16.6	Complied
5.594451	Vert.	10.0	24.3	1.4	35.7	54.0	18.3	Complied

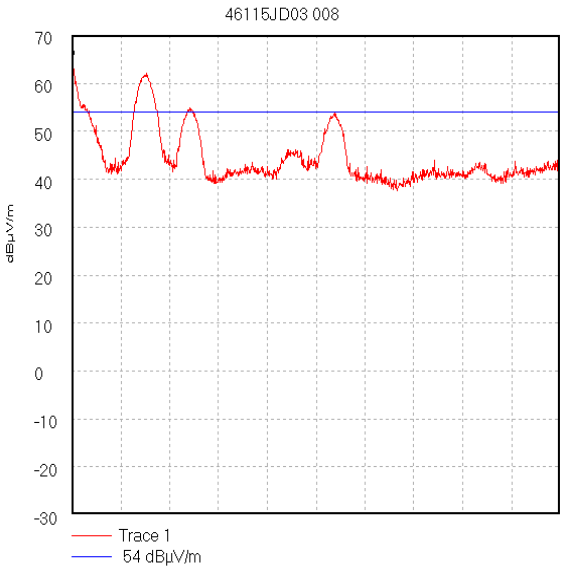
TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

Test Of: **Datascope Corp.**
Panorama Wireless Transceiver
To: **FCC Part 95 Subpart H: 2003**

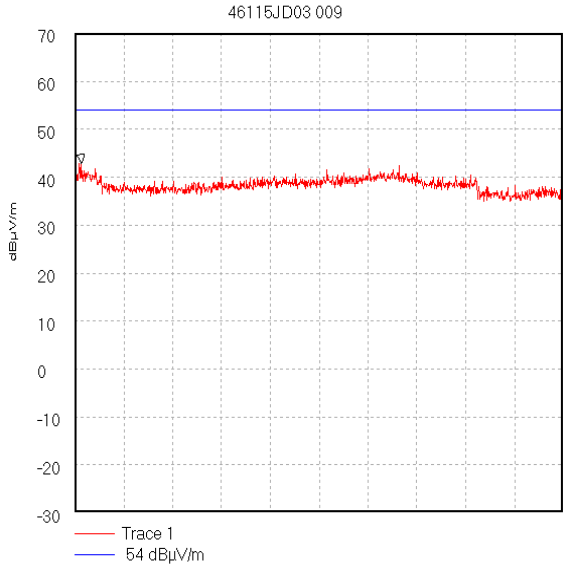
Transmitter Out of Band Radiated Emissions (Continued)



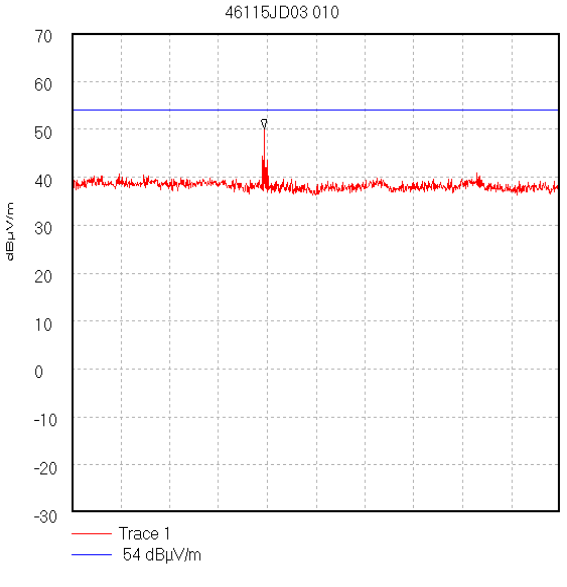
Start 1.0 GHz; Stop 1.395 GHz
Ref 70 dBµV/m; Ref Offset 23.1 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 1.395 GHz, 73.98 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Failed
6/28/2004 3:02:23 PM



Start 1.4 GHz; Stop 1.427 GHz
Ref 70 dBµV/m; Ref Offset 23.1 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 1.4 GHz, 64.62 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Failed
6/28/2004 3:21:23 PM



Start 1.43 GHz; Stop 2.0 GHz
Ref 70 dBµV/m; Ref Offset 23.1 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 1.437 GHz, 42.91 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Passed
6/28/2004 3:37:52 PM

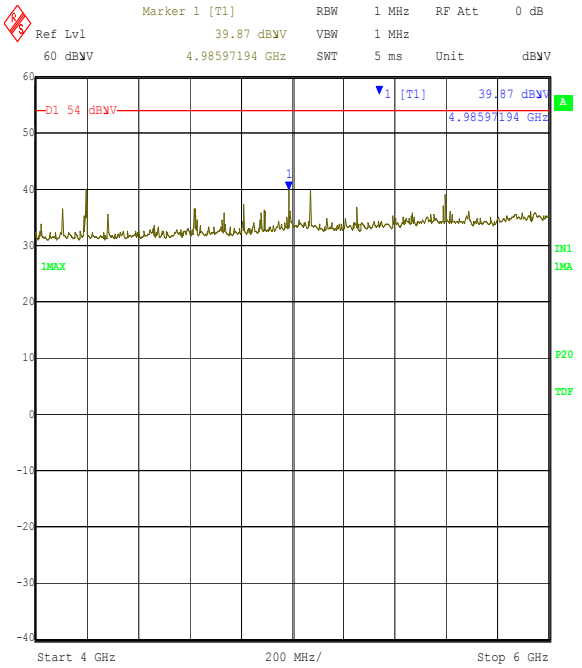


Start 2.0 GHz; Stop 4.0 GHz
Ref 70 dBµV/m; Ref Offset 24.4 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 2.787 GHz, 50.15 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Passed
6/28/2004 4:06:09 PM

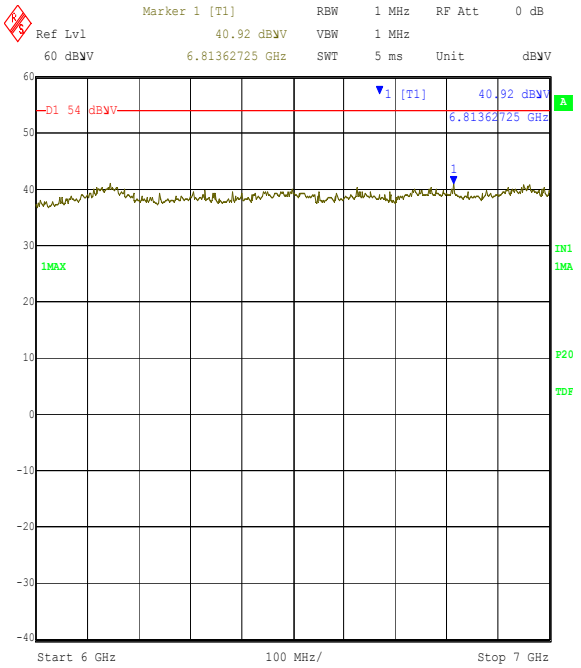
Note: these plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

Test Of: **Datascope Corp.**
Panorama Wireless Transceiver
To: **FCC Part 95 Subpart H: 2003**

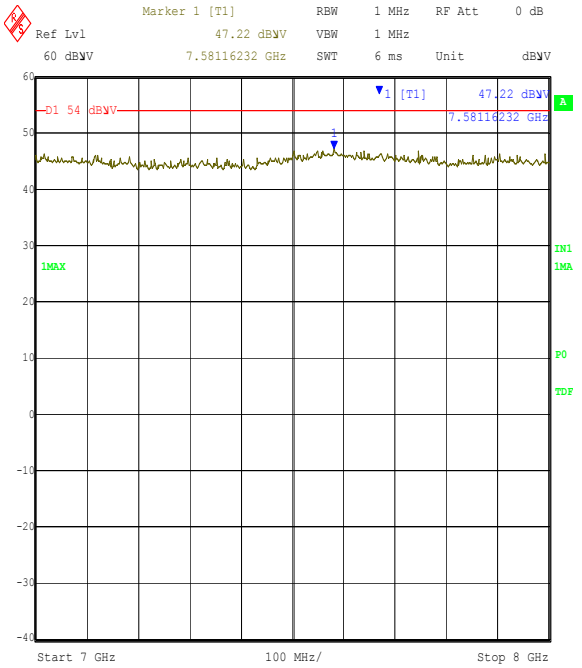
Transmitter Out of Band Radiated Emissions (Continued)



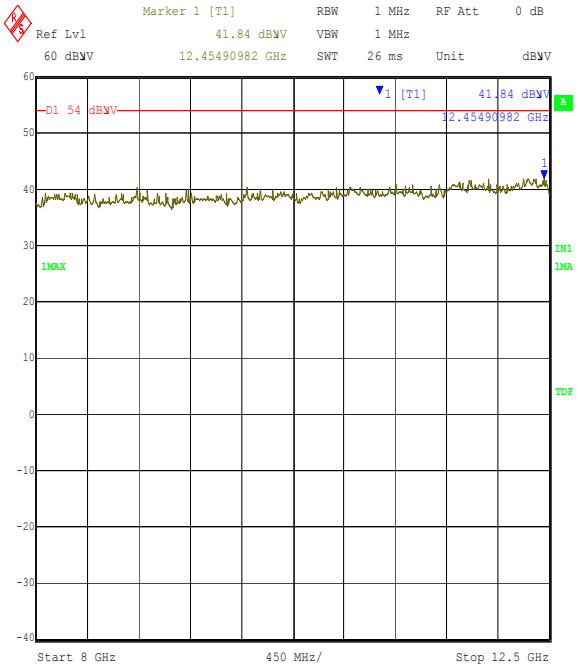
Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz Top Channel Rad. Spurious
Date: 8.JUL.2004 09:51:45



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz Top Channel Rad. Spurious
Date: 8.JUL.2004 10:48:29



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz Top Channel Rad. Spurious
Date: 8.JUL.2004 10:47:05

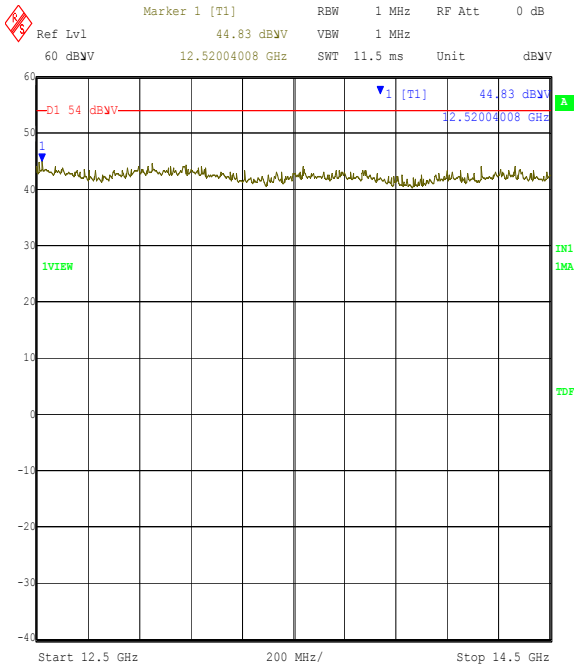


Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz Top Channel Rad. Spurious
Date: 8.JUL.2004 10:57:10

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

Test Of: **Datascope Corp.**
Panorama Wireless Transceiver
To: **FCC Part 95 Subpart H: 2003**

Transmitter Out of Band Radiated Emissions (Continued)



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz Top Channel Rad. Spurious
Date: 8.JUL.2004 11:08:59

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

Note: Plot 46115JD03 009 incorrectly shows the start frequency to be 1.43 GHz. This is due to a rounding off error in the software used to transpose the on-screen image on the spectrum analyser to the PC holding the soft copy of the plot. It is confirmed that the measurements were made with a start frequency of 1429.5 MHz.

Test Of: **Datascope Corp.**
Panorama Wireless Transceiver
To: **FCC Part 95 Subpart H: 2003**

Transmitter Out of Band Radiated Emissions: Sections 95.1115(b)/2.1053 (Continued)

Integrated Power Over 1 MHz Strip Bands: 1393 to 1394 MHz and 1401 to 1402 MHz

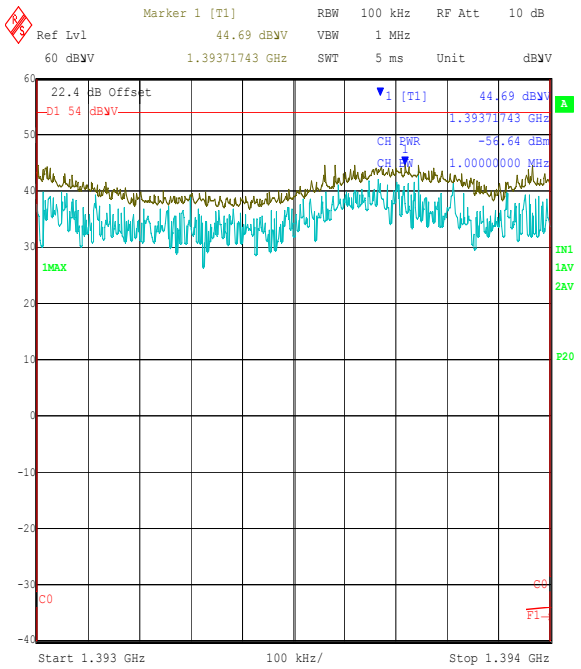
1st 1 MHz block immediately outside adjacent frequency block.

Testing was performed using the channel power function of the spectrum analyser to integrate the 1 MHz blocks immediately outside the adjacent frequency block.

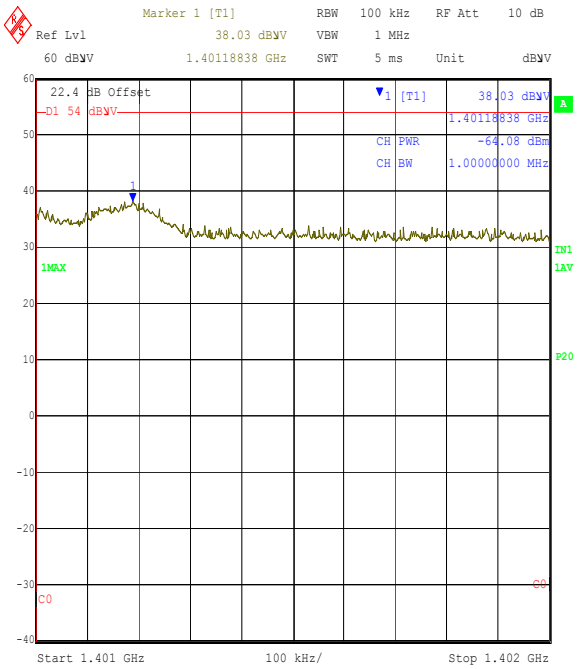
Results:

Band (MHz)	Average Power (dBm/MHz)	Average Power (dBµV/MHz)	Limit (dBµV/MHz)	Margin (dB)	Result
1393 to 1394	-56.6	50.4	54.0	3.6	Complied
1401 to 1402	-64.1	42.9	54.0	11.1	Complied

Note: The average power in dBµV/MHz is obtained by adding a correction factor of 107 dB to the average power in dBm/MHz. The antenna factors and cable loss are included within these measurements.*
**The spectrum analyser always defaults to this unit for this measurement.*



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz Bottom Channel Band Strip.
Date: 7.JUL.2004 14:55:44



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz Top Channel Band Strip.
Date: 7.JUL.2004 14:42:29

8.9. Transmitter Radiated Emissions At Band Edges: Section 95.1115(b)/2.1053

8.9.1. The EUT was configured as for transmitter radiated emissions testing described in Section 12.2 of this report.

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

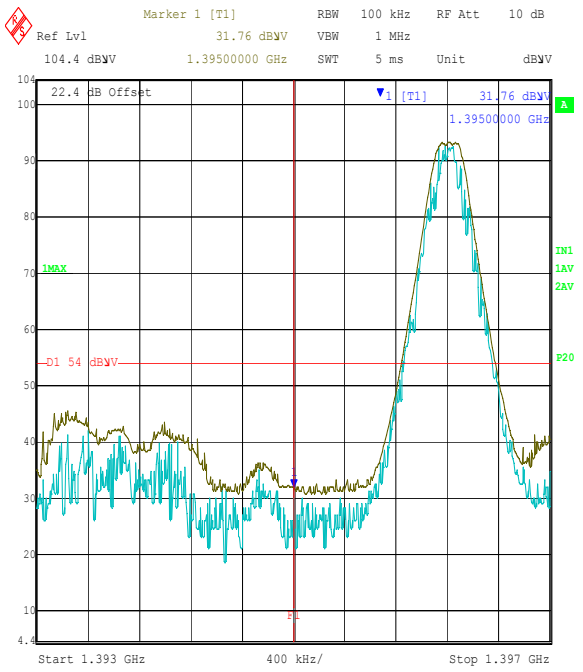
Results:

Bottom Band Edge

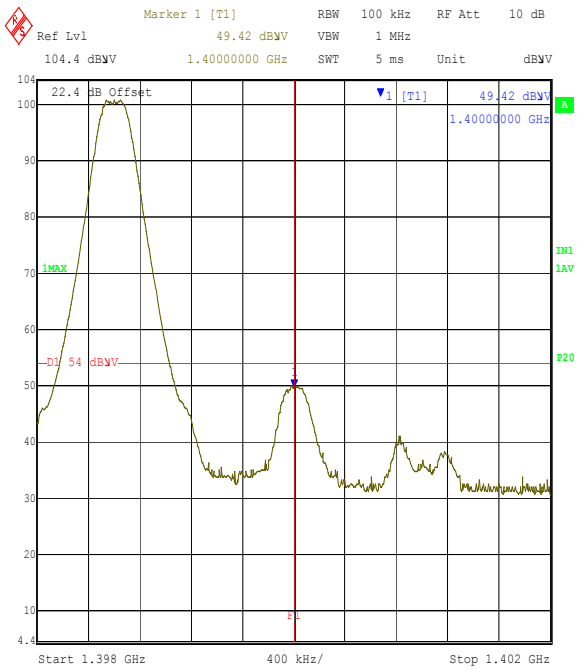
Frequency (MHz)	Avg Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
1395	31.8	54.0	22.2	Complied

Top Band Edge

Frequency (MHz)	Avg Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
1400	49.4	54.0	4.6	Complied



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz Bottom Channel Band Edge.
Date: 7.JUL.2004 14:50:14



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz Top Channel Band Edge.
Date: 7.JUL.2004 14:45:26

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

8.10. Transmitter Frequency Stability (Temperature Variation): Sections 95.1115(e)/2.1055

8.10.1. The EUT was configured as for frequency stability measurements as described in Section 12.4 of this report.

8.10.2. Tests were performed to identify the maximum frequency error of the EUT with variations in ambient temperature.

Results Bottom Channel (1396.2 MHz)

Temp (ºC)	Frequency Error (Hz)	Measured Frequency (MHz)	Lower Band Edge Limit (MHz)	Margin (MHz)	Result
-5	5810	1396.20581	1395.0	1.20581	Complied
0	5810	1396.20581	1395.0	1.20581	Complied
10	5810	1396.20581	1395.0	1.20581	Complied
20	5410	1396.20541	1395.0	1.20541	Complied
30	5810	1396.20581	1395.0	1.20581	Complied
40	5410	1396.20541	1395.0	1.20541	Complied
50	5710	1396.20571	1395.0	1.20571	Complied

Results Top Channel (1398.6 MHz)

Temp (ºC)	Frequency Error (Hz)	Measured Frequency (MHz)	Upper Band Edge Limit (MHz)	Margin (MHz)	Result
-5	3810	1398.59619	1400.0	1.40381	Complied
0	3810	1398.59619	1400.0	1.40381	Complied
10	2610	1398.59739	1400.0	1.40261	Complied
20	2610	1398.59739	1400.0	1.40261	Complied
30	2610	1398. 59739	1400.0	1.40261	Complied
40	2610	1398. 59739	1400.0	1.40261	Complied
50	2710	1398.59729	1400.0	1.40271	Complied

Note: The EUT did not operate at a temperature of -10ºC and below. Further investigatory measurements were performed and it was established that the EUT operated at a temperature of -5ºC, consequently results are given for this temperature. The EUT did not transmit below this temperature.

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

8.11. Transmitter Frequency Stability (Voltage Variation): Sections 95.1115(e)/2.1055

8.11.1. The EUT was configured as for frequency stability measurements as described in Section 12.4 of this report.

8.11.2. Tests were performed to identify the maximum frequency error of the EUT with variations in supply voltage.

Results Bottom Channel (1396.2 MHz)

Supply Voltage (V)	Frequency Error (Hz)	Measured Frequency (MHz)	Lower Band Edge Limit (MHz)	Margin (MHz)	Result
93.5	5410	1396.20541	1395.0	1.20541	Complied
110.0	5410	1396.20541	1395.0	1.20541	Complied
126.5	5410	1396.20541	1395.0	1.20541	Complied

Results Top Channel (1398.6 MHz)

Supply Voltage (V)	Frequency Error (Hz)	Measured Frequency (MHz)	Lower Band Edge Limit (MHz)	Margin (MHz)	Result
93.5	2610	1398.59739	1400.0	1.40261	Complied
110.0	2610	1398.59739	1400.0	1.40261	Complied
126.5	2610	1398.59739	1400.0	1.40261	Complied

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

9. Test Results: 1427-1429.5 MHz Downlink Band (Cable Repeater Fitted)

9.1. Transmitter Carrier Output Power (and EIRP Limitations): Section 2.1046(a)

9.1.1. The EUT was configured as for transmitter conducted emissions as described in Section 12.1 of this report.

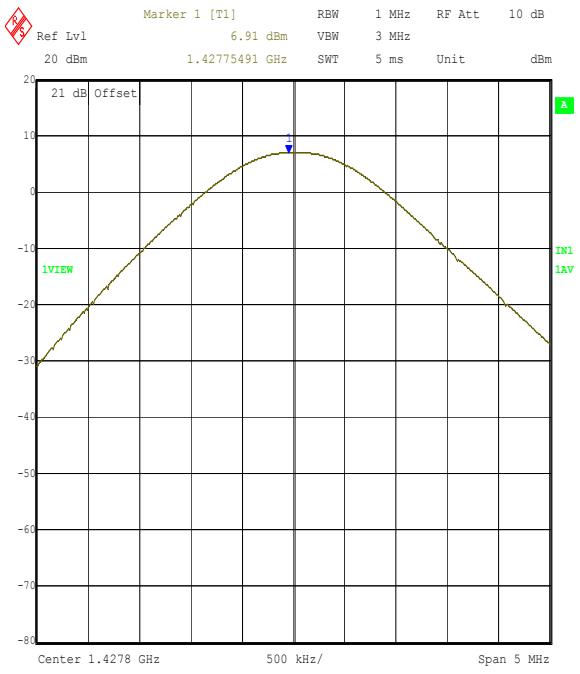
9.1.2. Tests were performed to identify the EUT's maximum conducted transmit power.

9.1.3. The effective isotropically radiated power (EIRP) was calculated by adding the manufacturer's declared antenna gain to the figure measured for conducted RF output power.

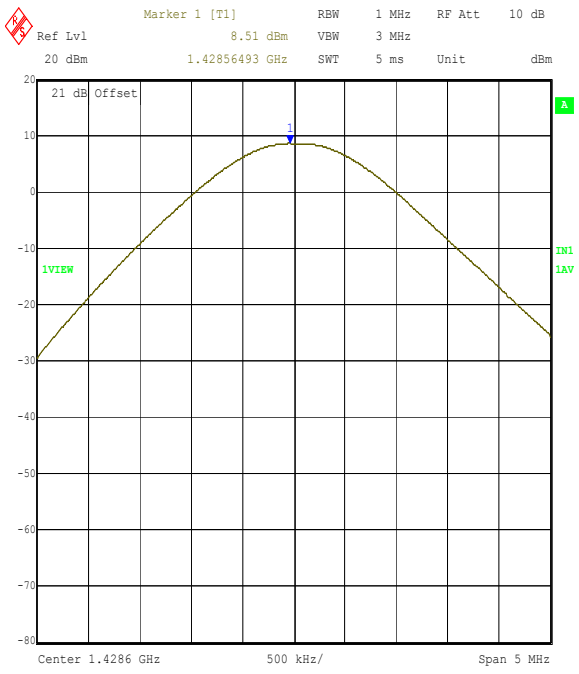
Results:

Channel	Frequency (MHz)	Conducted RF O/P Power (dBm)	Stated Antenna Gain (dB)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
Bottom	1427.8	6.9	0	6.9	22.2	15.3	Complied
Top	1428.6	8.5	0	8.5	22.2	13.7	Complied

Note: *According to Part 95.1115(a) the radiated field strength limit is 740 mV/m (117.4 dBμV/m) at 3 metres. To convert from fieldstrength to an equivalent conducted power in dBm, subtract 95.2 dB. (117.4 –95.2 = 22.2). The figure of 95.2 dB is arrived at using the formula P = (V/m x d)^2 /30.*



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Power Output Bottom Channel
Date: 6.JUL.2004 11:30:53



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Power Output Top Channel
Date: 6.JUL.2004 11:28:48

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

9.2. Transmitter Fundamental Fieldstrength Section 95.1115(a)

9.2.1. The EUT was configured as for transmitter radiated emissions testing as described in Section 12.2 of this report.

9.2.2. Tests were performed to identify the maximum fieldstrength at 3 metres of the fundamental frequency.

Result:

Channel	Frequency (MHz)	Ant. Pol.	Average Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
Bottom	1427.8	Vert.	93.2	117.4	24.2	Complied
Top	1428.6	Vert.	101.6	117.4	15.8	Complied

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

9.3. Transmitter Occupied Bandwidth: Sections 95.1115(d)/2.1049

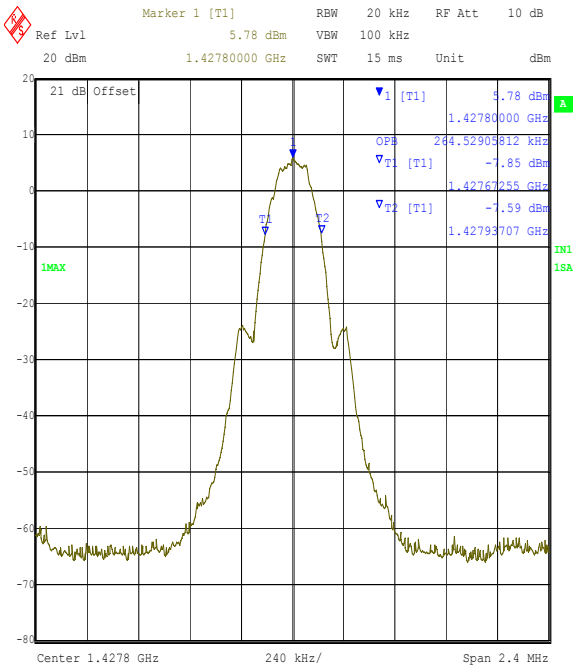
9.3.1. The EUT was configured as for Occupied Bandwidth measurements as described in Section 12.3 of this report.

9.3.2. Tests were performed to identify the 20 dB bandwidth occupied by the fundamental frequency of the EUT.

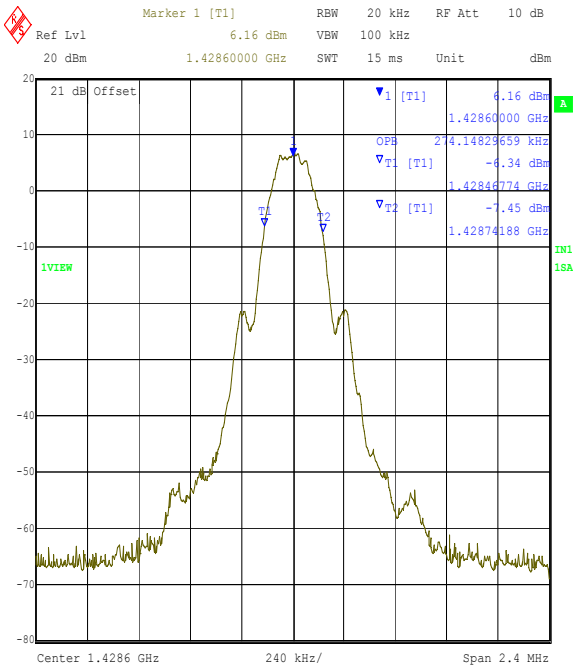
Result:

Channel	Frequency (MHz)	Resolution Bandwidth (kHz)	Video Bandwidth (kHz)	Occupied Bandwidth (kHz)
Bottom	1427.8	20	100	264.529
Top	1428.6	20	100	274.148

Note: *According to Part 95.1115(c) any emission type appropriate for communications in the Wireless Medical Telemetry Service may be transmitted with the except for video and voice. It can be seen from the Occupied Bandwidth plots shown below that the Modulation Characteristic of the EUT meets the modulation requirements of Part 95.1115 (c).*



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Occ. B/W Bottom Channel
Date: 6.JUL.2004 11:40:41



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Occ. B/W Top Channel
Date: 6.JUL.2004 11:42:37

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

9.4. Transmitter Out of Band Conducted Emissions: Section 2.1051

9.4.1. The EUT was configured as for transmitter conducted emissions measurements as described in Section 12.1 of this report.

9.4.2. Tests were performed to identify the maximum transmitter conducted emission levels.

9.4.3. The limit lines shown in the plots below are set to a level 20 dB below the measured fundamental peak power.

Result: Bottom Channel

Frequency (MHz)	Peak Emission Level (dBm)	Peak Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
*6973.948	-43.5	-50.4	-20.0	30.4	Complied

Result: Top Channel

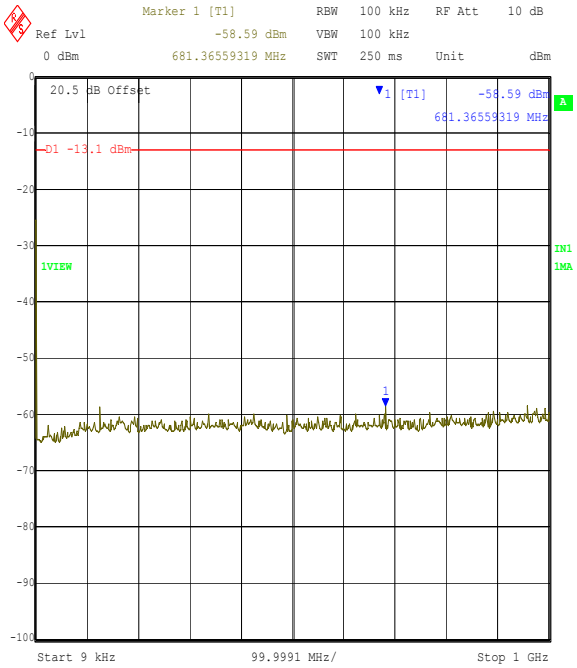
Frequency (MHz)	Peak Emission Level (dBm)	Peak Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
*6713.427	-43.1	-51.6	-20.0	31.6	Complied

**Note: No spurious emissions were detected above the noise floor of the measuring receiver. Therefore the highest peak noise floor readings of the measuring receiver recorded are given in the above results table.*

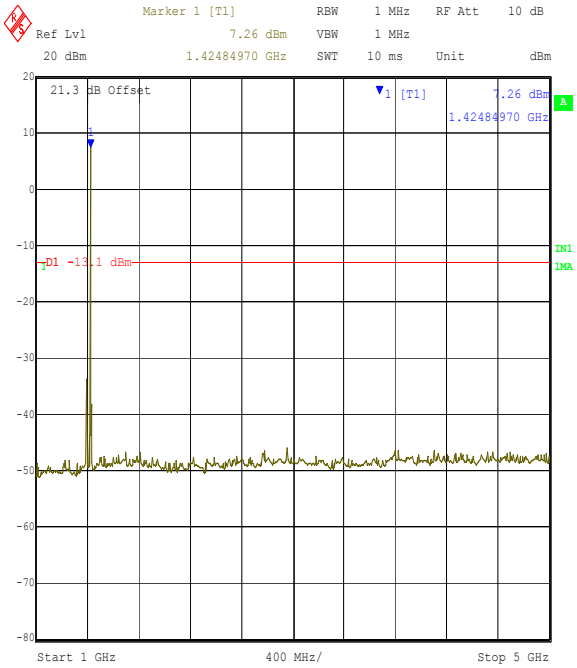
TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

Test Of: **Datascope Corp.**
Panorama Wireless Transceiver
To: **FCC Part 95 Subpart H: 2003**

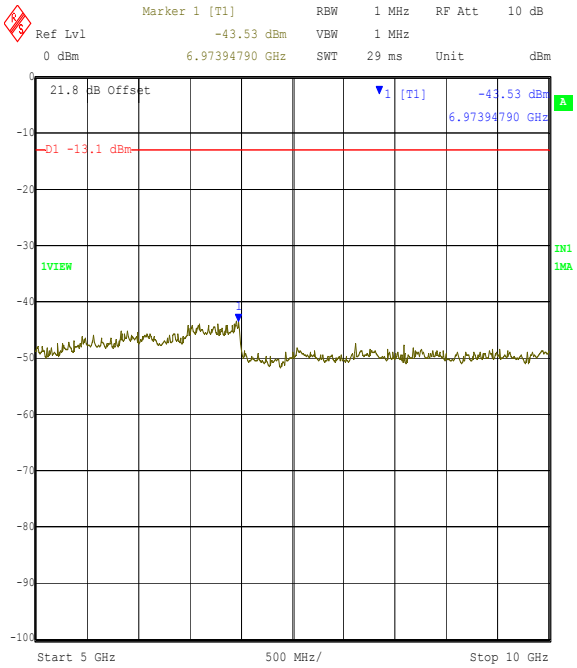
Transmitter Out of Band Conducted Emissions (Continued)



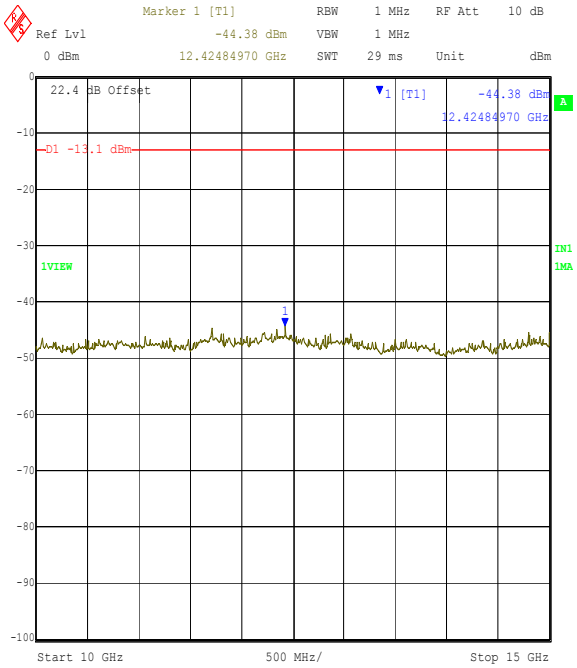
Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Cond. Emiss. Bottom Channel
Date: 6.JUL.2004 13:59:34



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Cond. Emiss. Bottom Channel
Date: 6.JUL.2004 14:20:20



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Cond. Emiss. Bottom Channel
Date: 6.JUL.2004 14:21:24

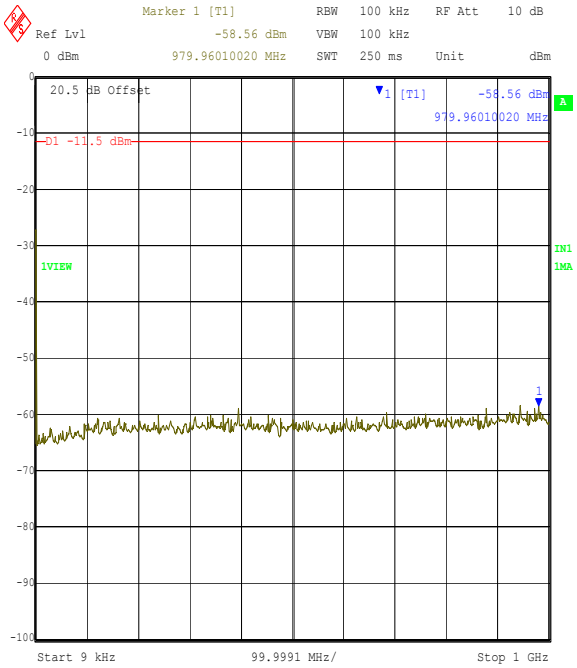


Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Cond. Emiss. Bottom Channel
Date: 6.JUL.2004 14:22:15

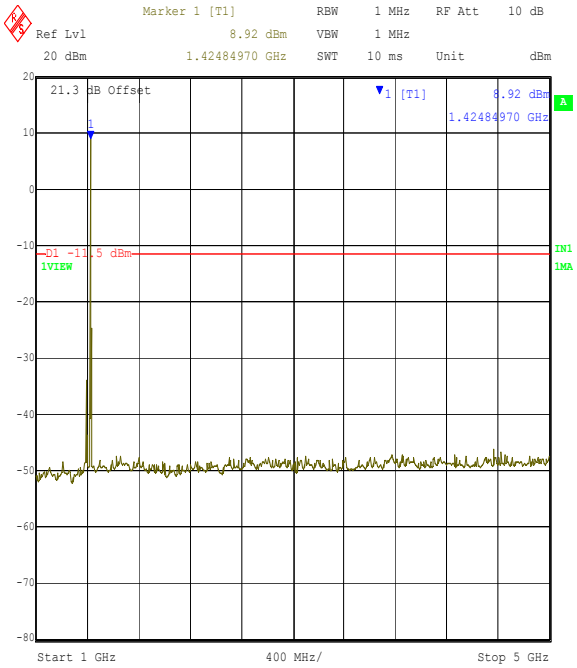
Note: these plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

Test Of: **Datascope Corp.**
Panorama Wireless Transceiver
To: **FCC Part 95 Subpart H: 2003**

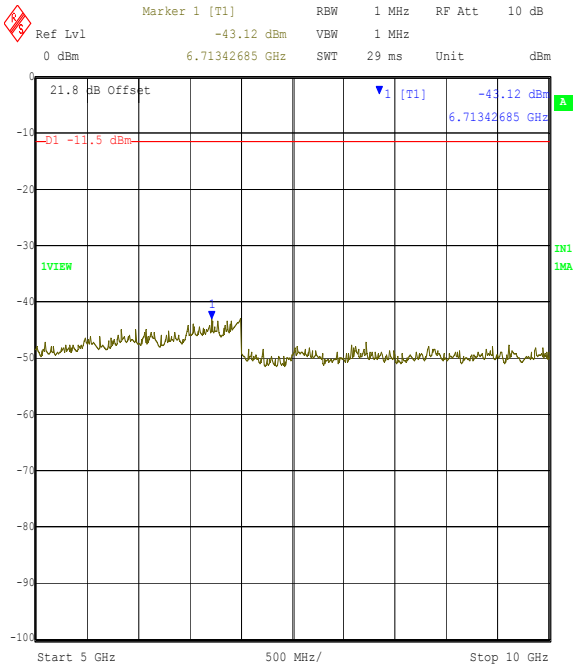
Transmitter Out of Band Conducted Emissions (Continued)



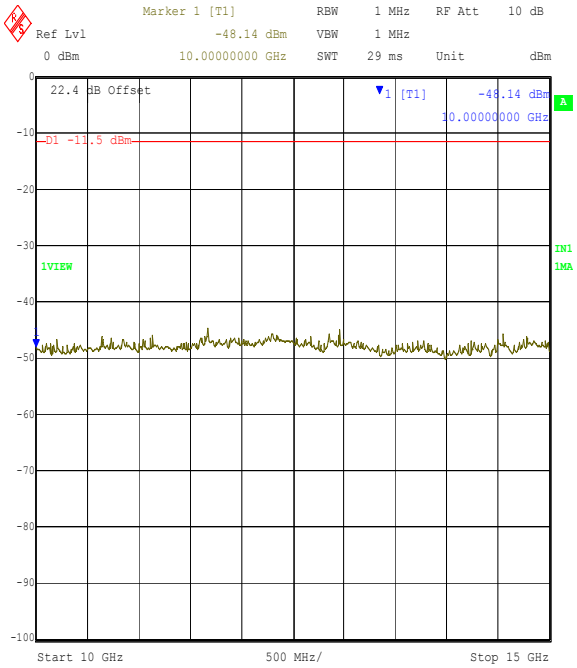
Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Cond. Emiss. Top Channel
Date: 6.JUL.2004 13:53:42



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Cond. Emiss. Top Channel
Date: 6.JUL.2004 13:55:04



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Cond. Emiss. Top Channel
Date: 6.JUL.2004 13:55:39



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Cond. Emiss. Top Channel
Date: 6.JUL.2004 13:56:20

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

9.5. Transmitter Conducted Emissions At Band Edges: Section 2.1051

9.5.1. The EUT was configured as for transmitter conducted emissions testing described in Section 12.1 of this report.

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

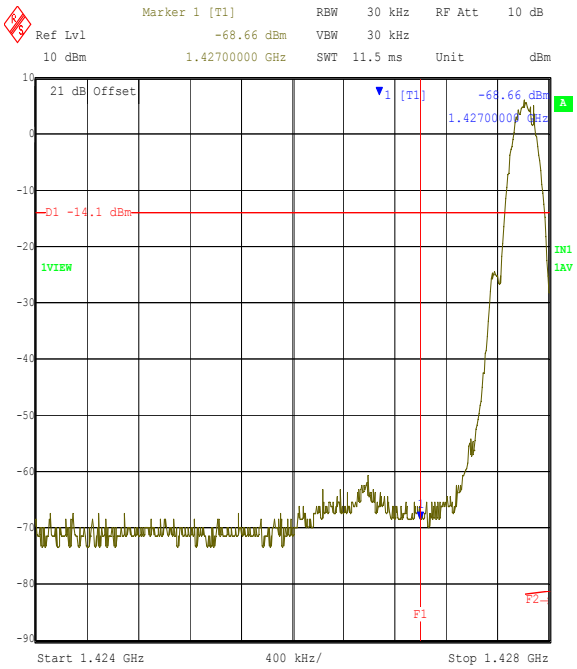
Results:

Bottom Band Edge

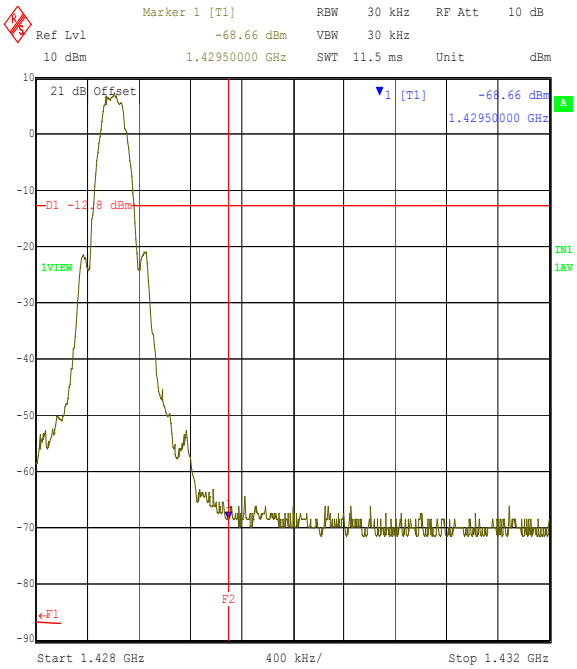
Frequency (MHz)	Peak Emission Level (dBm)	Peak Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
1427	-68.7	-74.6	-20.0	54.6	Complied

Top Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Peak Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
1429.5	-68.7	-75.8	-20.0	55.8	Complied



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Cond. BE. Bottom Channel
Date: 6.JUL.2004 15:16:12



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Cond. BE. Top Channel
Date: 6.JUL.2004 15:14:28

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

9.6. Transmitter Intermodulation Products

9.6.1. The EUT was configured as for transmitter conducted emissions testing described in Section 12.1 of this report.

9.6.2. Tests were performed to identify the maximum level of the intermodulation product produced in the Repeater RF Amplifier falling below the lower band edge and above the upper band edge of the frequency band that the EUT will operate over.

Results:

Intermodulation Product produced below the Bottom Edge of Band 1395 to 1400 MHz

Channel Pair	Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
3A/3B	1366.200	-56.2	-13.0	43.2	Complied
2A/2B	1367.000	-54.5	-13.0	41.5	Complied

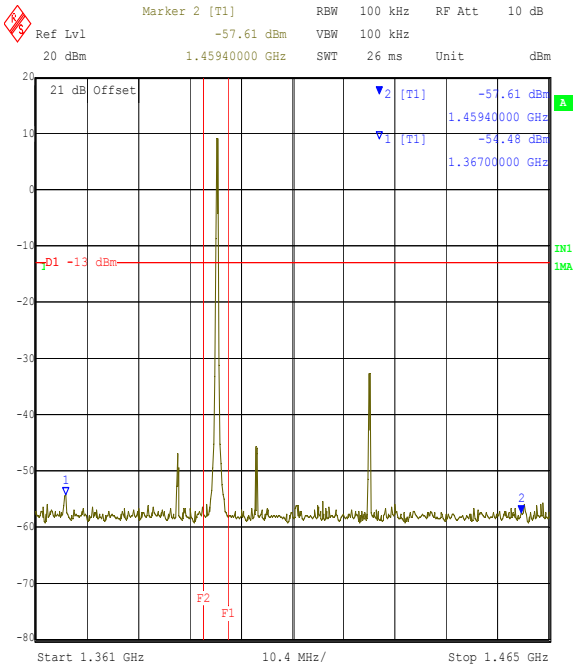
Intermodulation Product produced above the Top Edge of Band 1427 to 1429.5 MHz

Channel Pair	Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
3A/3B	1458.600	-56.5	-13.0	43.5	Complied
2A/2B	1459.400	-56.1	-13.0	43.1	Complied

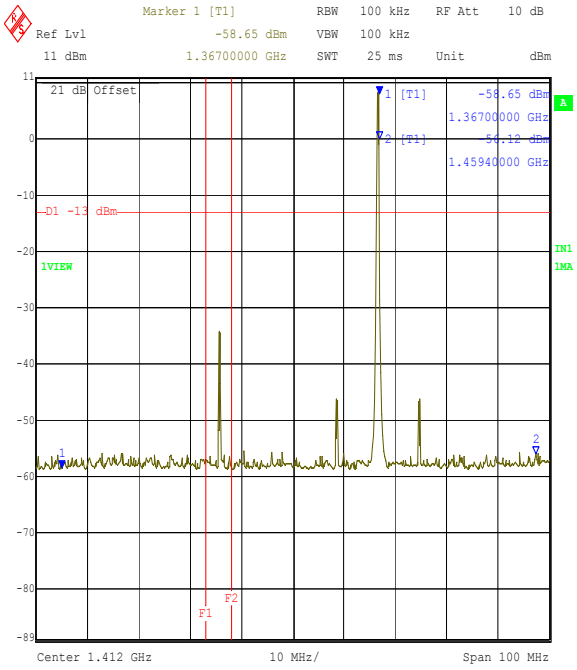
TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

Test Of: Datascope Corp.
Panorama Wireless Transceiver
To: FCC Part 95 Subpart H: 2003

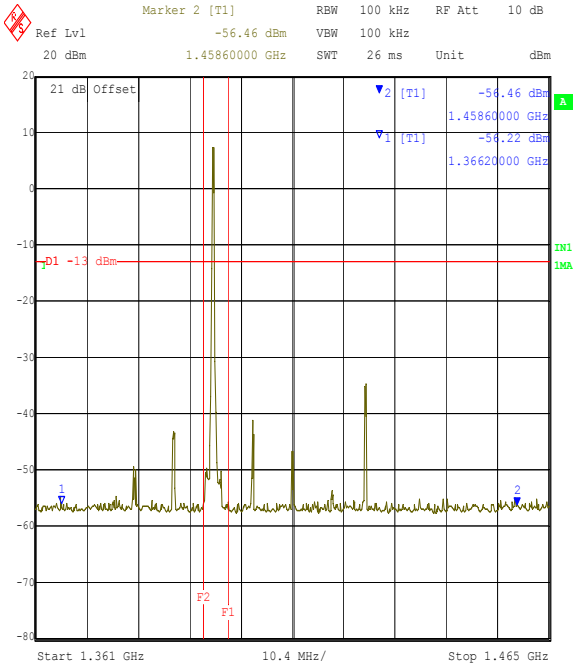
Transmitter Intermodulation Products (Continued)



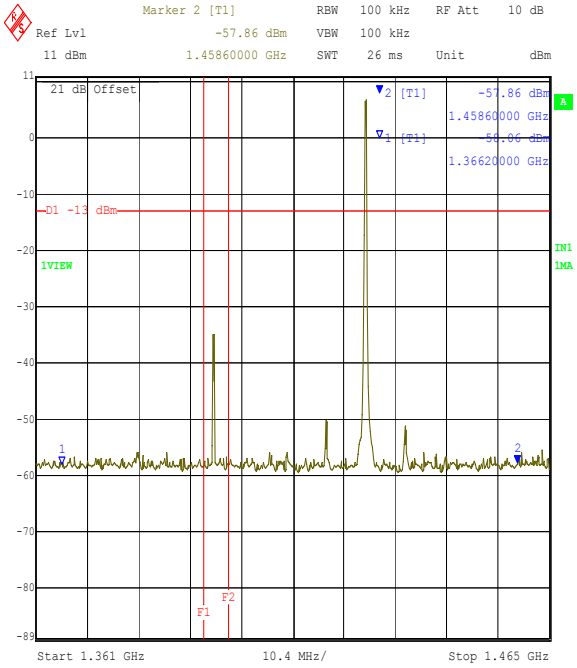
Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Channel Pair (2A/2B)MHz Cond. Intermod. Ch2A
Date: 7.JUL.2004 10:07:12



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Channel Pair (2A/2B)MHz Cond. Intermod. Ch2B
Date: 6.JUL.2004 16:37:07



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Channel Pair (3A/3B)MHz Cond. Intermod. Ch3B
Date: 7.JUL.2004 10:03:51



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Channel Pair (3A/3B)MHz Cond. Intermod. Ch3A
Date: 6.JUL.2004 16:45:39

9.7. Transmitter Out of Band Radiated Emissions: Sections 95.1115(b)/2.1053

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

9.7.1.1. The EUT was configured as for transmitter radiated emissions testing as described in Section 12.2 of this report.

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

Results:

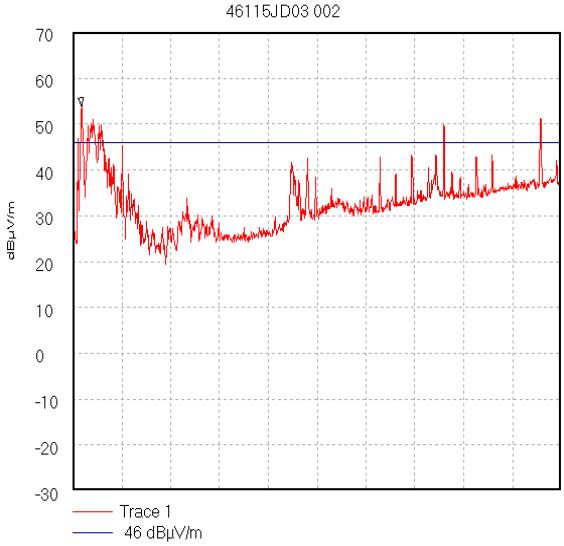
Frequency (MHz)	Ant. Pol.	Q-P Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
47.192	Horiz.	22.4	46.0	23.6	Complied
58.910	Vert.	40.0	46.0	6.0	Complied
81.573	Vert.	29.1	46.0	16.9	Complied
127.987	Vert.	32.2	46.0	13.8	Complied
140.260	Vert.	27.1	46.0	18.9	Complied
255.974	Vert.	25.5	46.0	20.5	Complied
465.730	Horiz.	32.3	46.0	13.7	Complied
496.010	Horiz.	36.2	46.0	9.8	Complied
512.000	Horiz.	33.5	46.0	12.5	Complied
544.001	Horiz.	26.6	46.0	19.4	Complied
704.003	Horiz.	45.9	46.0	0.1	Complied
736.001	Vert.	36.9	46.0	9.1	Complied
751.989	Vert.	42.7	46.0	3.3	Complied
960.001	Horiz.	45.9	54.0	8.1	Complied

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

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

Test Of: **Datascope Corp.**
Panorama Wireless Transceiver
To: **FCC Part 95 Subpart H: 2003**

Transmitter Out of Band Radiated Emissions (Continued)



Start 30.0 MHz; Stop 1.0 GHz
Ref 70 dBµV/m; Ref Offset 0.0 dB; 10 dB/div
RBW 120.0 kHz; VBW 100.0 kHz; Att 0 dB; Swp 440.0 mS
Peak 47.244 MHz, 53.91 dBµV/m
Display Line: 46 dBµV/m; ; Limit Test Failed
Transducer Factors: A490
6/28/2004 11:36:39 AM

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

9.8. Transmitter Out of Band Radiated Emissions: Sections 95.1115(b)/2.1053 (Continued)

9.8.1. Electric Field Strength Measurements: 1.0 to 14.5 GHz

Result: 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
1.367968	Vert.	14.5	21.5	0.6	36.6	54.0	17.4	Complied
1.388877	Vert.	12.3	21.5	0.6	34.4	54.0	19.6	Complied
1.404915	Vert.	13.6	21.5	0.6	35.7	54.0	18.3	Complied
1.413073	Vert.	9.5	21.5	0.6	31.6	54.0	22.4	Complied
1.419790	Vert.	14.7	21.5	0.6	36.8	54.0	17.2	Complied
1.436621	Vert.	25.2	21.5	0.6	47.3	54.0	6.7	Complied
1.443793	Vert.	7.5	21.5	0.6	29.6	54.0	24.4	Complied
2.810046	Vert.	24.6	21.8	0.9	47.3	54.0	6.7	Complied
2.855635	Vert.	21.9	21.9	0.9	44.7	54.0	9.3	Complied
4.283285	Vert.	0.7	24.1	1.2	26.0	54.0	28.0	Complied
4.979249	Vert.	14.3	24.2	1.3	39.8	54.0	14.2	Complied
5.096538	Vert.	12.2	24.3	1.3	37.8	54.0	16.2	Complied
5.711285	Horiz.	8.3	24.4	1.4	34.1	54.0	19.9	Complied

Transmitter Out of Band Radiated Emissions (Continued)

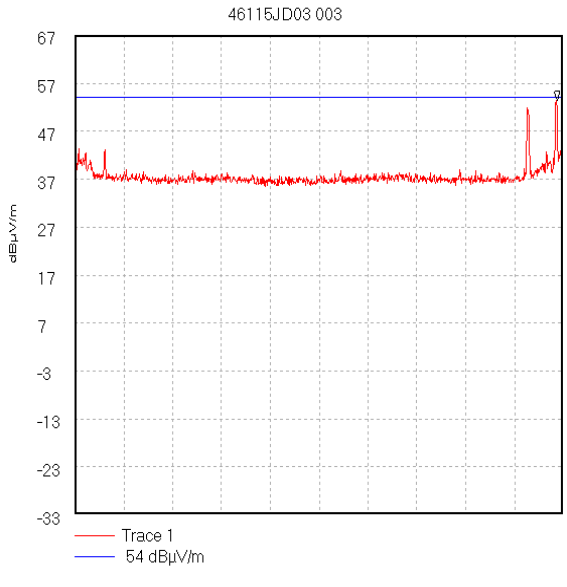
Result: Top Channel

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
1.364366	Vert.	7.5	21.5	0.6	29.6	54.0	24.4	Complied
1.389940	Vert.	9.8	21.5	0.6	31.9	54.0	22.1	Complied
1.405977	Vert.	11.2	21.5	0.6	33.3	54.0	20.7	Complied
1.412458	Horiz.	17.4	21.5	0.6	39.5	54.0	14.5	Complied
1.420575	Vert.	25.8	21.5	0.6	47.9	54.0	6.1	Complied
1.436621	Vert.	25.2	21.5	0.6	47.3	54.0	6.7	Complied
1.459448	Vert.	13.8	21.5	0.6	35.9	54.0	18.1	Complied
2.857269	Vert.	22.5	21.9	0.9	45.3	54.0	8.7	Complied
2.873272	Vert.	13.6	21.9	0.9	36.4	54.0	17.6	Complied
4.285935	Vert.	9.1	24.1	1.2	34.4	54.0	19.6	Complied
4.977059	Vert.	9.5	24.2	1.3	35.0	54.0	19.0	Complied
5.064805	Vert.	10.7	24.3	1.3	36.3	54.0	17.7	Complied
5.714355	Horiz.	5.6	24.4	1.4	31.4	54.0	22.6	Complied

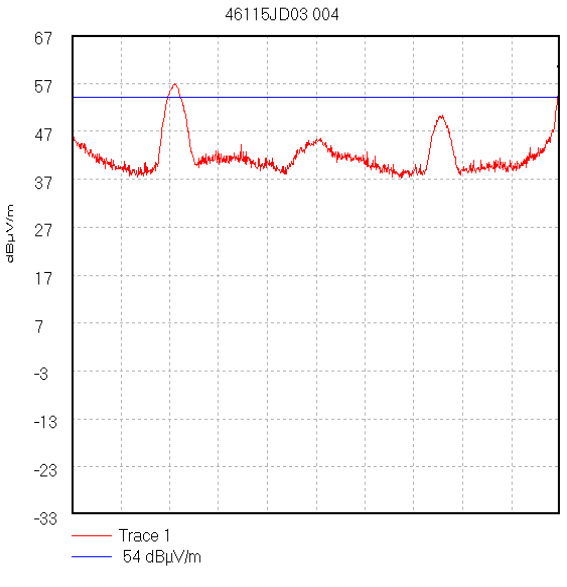
TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

Test Of: **Datascope Corp.**
Panorama Wireless Transceiver
To: **FCC Part 95 Subpart H: 2003**

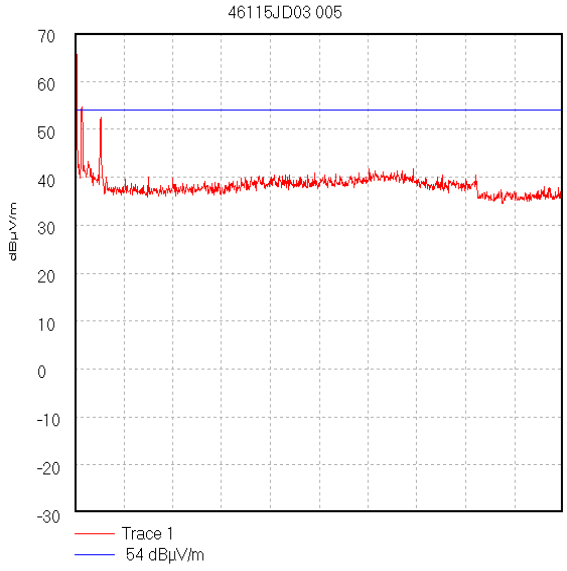
Transmitter Out of Band Radiated Emissions (Continued)



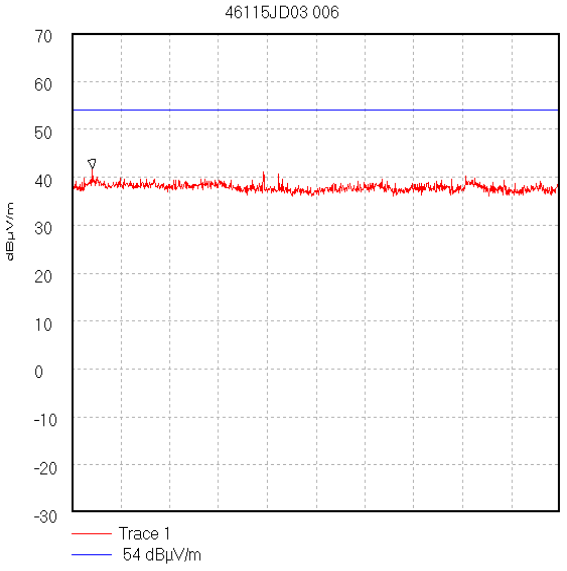
Start 1.0 GHz; Stop 1.395 GHz
Ref 67 dBµV/m; Ref Offset 23.1 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 1.39 GHz, 53.37 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Passed
6/28/2004 12:15:30 PM



Start 1.4 GHz; Stop 1.427 GHz
Ref 67 dBµV/m; Ref Offset 23.1 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 1.427 GHz, 58.85 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Failed
6/28/2004 12:22:22 PM



Start 1.43 GHz; Stop 2.0 GHz
Ref 70 dBµV/m; Ref Offset 23.1 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 1.43 GHz, 73.98 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Failed
6/28/2004 12:31:33 PM

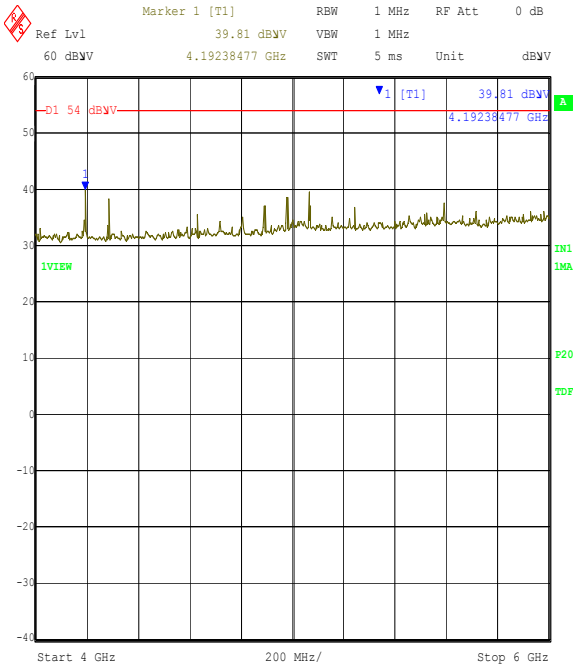


Start 2.0 GHz; Stop 4.0 GHz
Ref 70 dBµV/m; Ref Offset 24.4 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 2.084 GHz, 41.84 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Passed
6/28/2004 2:22:52 PM

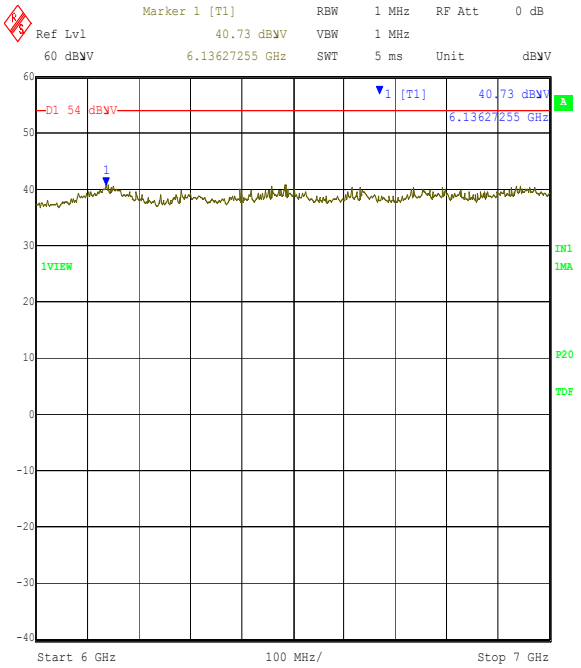
Note: these plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables."

Test Of: **Datascope Corp.**
Panorama Wireless Transceiver
To: **FCC Part 95 Subpart H: 2003**

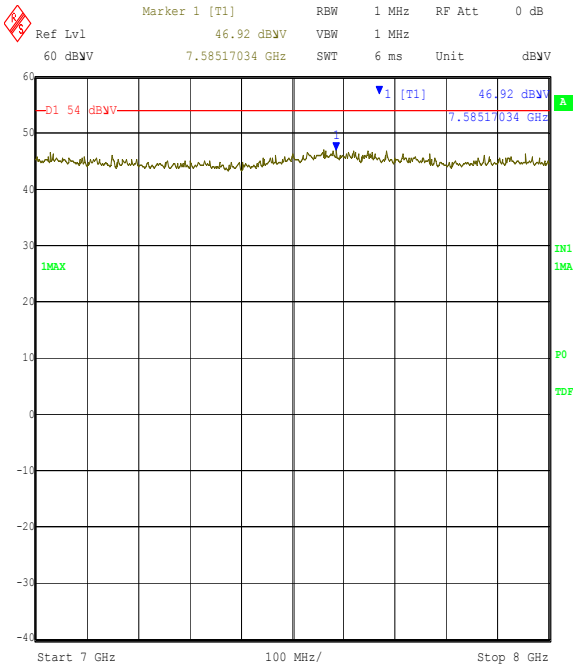
Transmitter Out of Band Radiated Emissions (Continued)



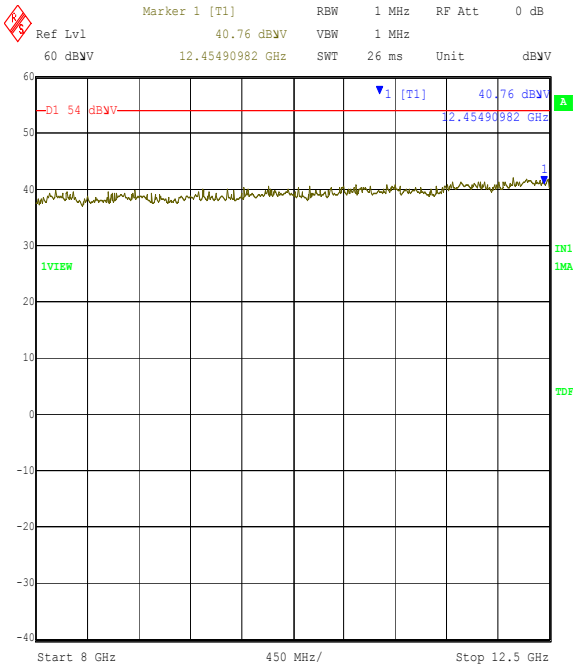
Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Top Channel Rad. Spurious
Date: 8.JUL.2004 10:10:39



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Top Channel Rad. Spurious
Date: 8.JUL.2004 10:39:02



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Top Channel Rad. Spurious
Date: 8.JUL.2004 10:44:17

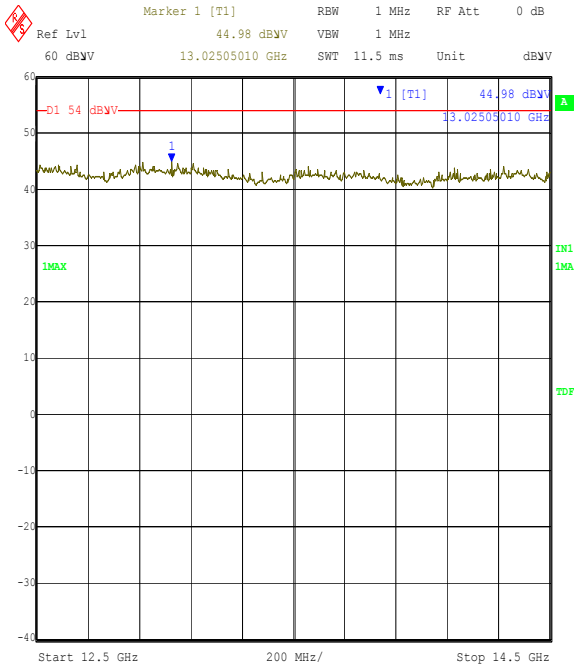


Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Top Channel Rad. Spurious
Date: 8.JUL.2004 11:00:30

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

Test Of: **Datascope Corp.**
Panorama Wireless Transceiver
To: **FCC Part 95 Subpart H: 2003**

Transmitter Out of Band Radiated Emissions (Continued)



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Top Channel Rad. Spurious
Date: 8.JUL.2004 11:06:41

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

Note: Plot 46115JD03 005 incorrectly shows the start frequency to be 1.43 GHz. This is due to a rounding off error in the software used to transpose the on-screen image on the spectrum analyser to the PC holding the soft copy of the plot. It is confirmed that the measurements were made with a start frequency of 1429.5 MHz.

Test Of: **Datascope Corp.**
Panorama Wireless Transceiver
To: **FCC Part 95 Subpart H: 2003**

Transmitter Out of Band Radiated Emissions: Sections 95.1115(b)/2.1053 (Continued)

Integrated Power Over 1 MHz Strip Bands: 1425 to 1426 MHz and 1430.5 to 1431.5 MHz

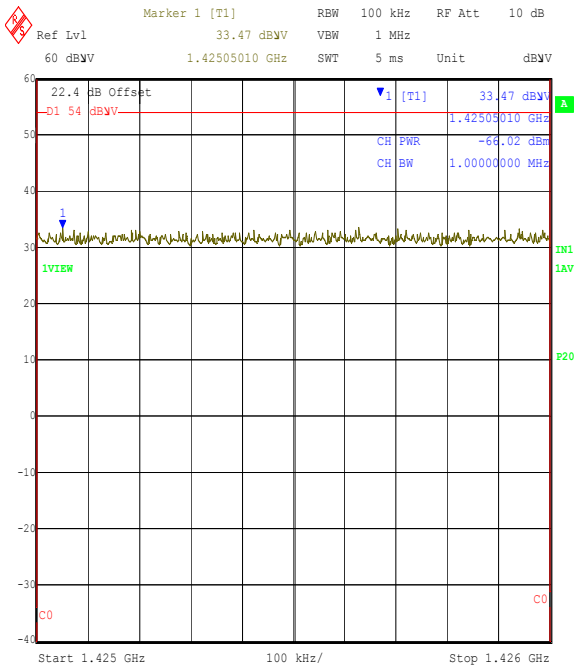
1st 1 MHz block immediately outside adjacent frequency block

Testing was performed using the channel power function of the spectrum analyser to integrate the 1 MHz blocks immediately outside the adjacent frequency block.

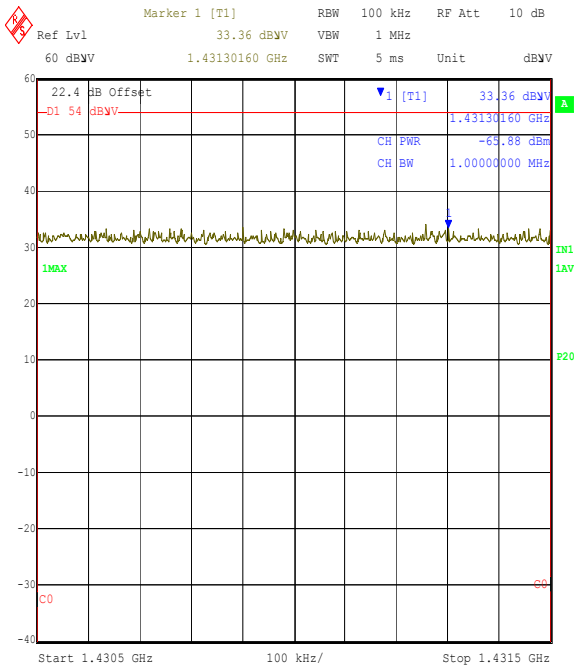
Results:

Band (MHz)	Average Power (dBm/MHz)	Average Power (dBμV/MHz)	Limit (dBμV/MHz)	Margin (dB)	Status
1425 to 1426	-66.0	41.0	54.0	13.0	Complied
1430.5 to 1431.5	-65.9	41.0	54.0	12.9	Complied

Note: The average power in dBμV/MHz is obtained by adding a correction factor of 107 dB to the average power in dBm/MHz. The antenna factors and cable loss are included within these measurements.*
**The spectrum analyser always defaults to this unit for this measurement.*



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Bottom Channel Band Strip.
Date: 7.JUL.2004 15:05:25



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Top Channel Band Strip.
Date: 7.JUL.2004 14:34:51

Test Of: **Datascope Corp.**
Panorama Wireless Transceiver
To: **FCC Part 95 Subpart H: 2003**

9.9. Transmitter Radiated Emissions At Band Edges: Section 95.1115(b)/2.1053

9.9.1. The EUT was configured as for transmitter radiated emissions testing described in Section 12.2 of this report.

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

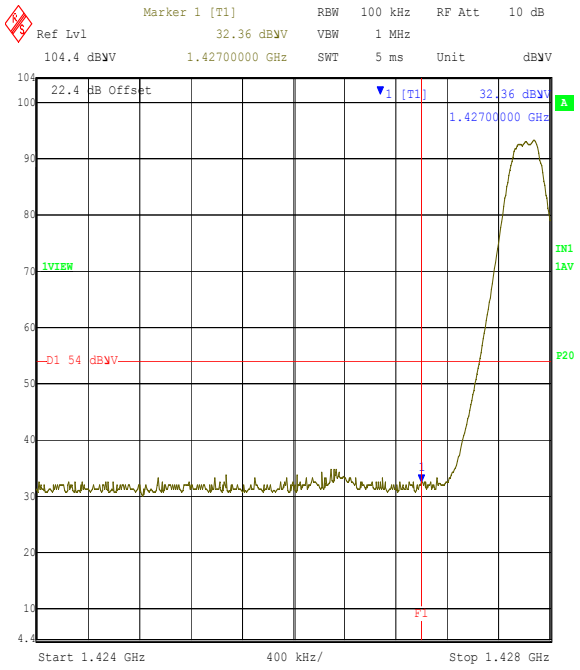
Results:

Bottom Band Edge

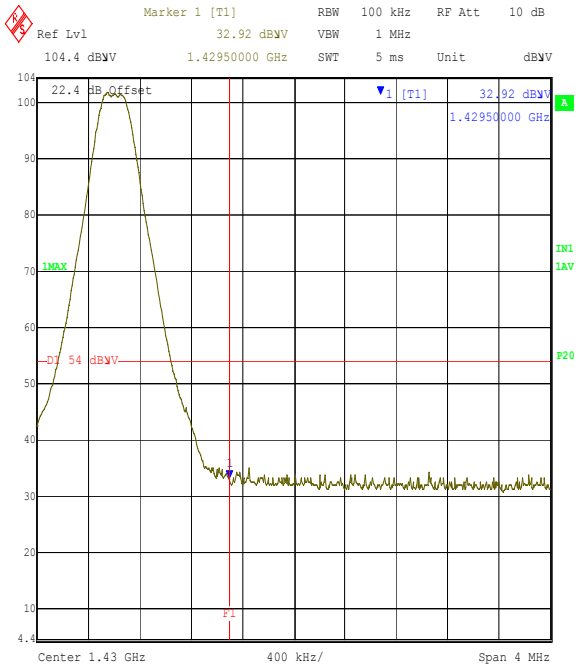
Frequency (MHz)	Avg Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
1427	32.4	54.0	21.6	Complied

Top Band Edge

Frequency (MHz)	Avg Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
1429.5	32.9	54.0	21.1	Complied



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Bottom Channel Band Edge.
Date: 7.JUL.2004 15:04:01



Title: Datascope EUT: Panarama Transceiver. FCC P95. With Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Top Channel Band Edge.
Date: 7.JUL.2004 14:31:50

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

9.10. Transmitter Frequency Stability: Sections 95.1115(e)/2.1055

9.10.1. The EUT was configured as for frequency stability measurements as described in Section 12.4 of this report.

9.10.2. Tests were performed to identify the maximum frequency error of the EUT with variations in ambient temperature.

Results Bottom Channel (1427.8 MHz)

Temp (ºC)	Frequency Error (Hz)	Measured Frequency (MHz)	Lower Band Edge Limit (MHz)	Margin (MHz)	Result
-5	5810	1427.80581	1427.0	0.80581	Complied
0	5810	1427.80581	1427.0	0.80581	Complied
10	5810	1427.80581	1427.0	0.80581	Complied
20	5810	1427.80581	1427.0	0.80581	Complied
30	6210	1427.80621	1427.0	0.80621	Complied
40	5810	1427.80581	1427.0	0.80581	Complied
50	5710	1427.80571	1427.0	0.80571	Complied

Results Top Channel (1428.6 MHz)

Temp (ºC)	Frequency Error (Hz)	Measured Frequency (MHz)	Upper Band Edge Limit (MHz)	Margin (MHz)	Result
-5	2610	1428.59739	1429.5	0.90261	Complied
0	2610	1428.59739	1429.5	0.90261	Complied
10	2610	1428.59739	1429.5	0.90261	Complied
20	2610	1428.59739	1429.5	0.90261	Complied
30	2610	1428.59739	1429.5	0.90261	Complied
40	2610	1428.59739	1429.5	0.90261	Complied
50	2610	1428.59739	1429.5	0.90261	Complied

Note: The EUT did not operate at a temperature of -10ºC and below. Further investigatory measurements were performed and it was established that the EUT operated at a temperature of -5ºC, consequently results are given for this temperature. The EUT did not transmit below this temperature.

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

9.11. Transmitter Frequency Stability (Voltage Variation): Sections 95.1115(e)/2.1055

9.11.1. The EUT was configured as for frequency stability measurements as described in Section 12.4 of this report.

9.11.2. Tests were performed to identify the maximum frequency error of the EUT with variations in supply voltage.

Results Bottom Channel (1427.8 MHz)

Supply Voltage (V)	Frequency Error (Hz)	Measured Frequency (MHz)	Lower Band Edge Limit (MHz)	Margin (MHz)	Result
93.5	5810	1427.80581	1427.0	0.80581	Complied
110.0	5810	1427.80581	1427.0	0.80581	Complied
126.5	5810	1427.80581	1427.0	0.80581	Complied

Results Top Channel (1428.6 MHz)

Supply Voltage (V)	Frequency Error (Hz)	Measured Frequency (MHz)	Lower Band Edge Limit (MHz)	Margin (MHz)	Result
93.5	2610	1428.59739	1429.5	0.90261	Complied
110.0	2610	1428.59739	1429.5	0.90261	Complied
126.5	2610	1428.59739	1429.5	0.90261	Complied

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

Test Of: **Datascope Corp.**
Panorama Wireless Transceiver
To: **FCC Part 95 Subpart H: 2003**

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10. Test Results: 1395-1400 MHz Downlink Band (Without Cable Repeater Fitted)

10.1. Transmitter Carrier Output Power (and EIRP Limitations): Section 2.1046(a)

10.1.1. The EUT was configured as for transmitter conducted emissions as described in Section 12.1 of this report.

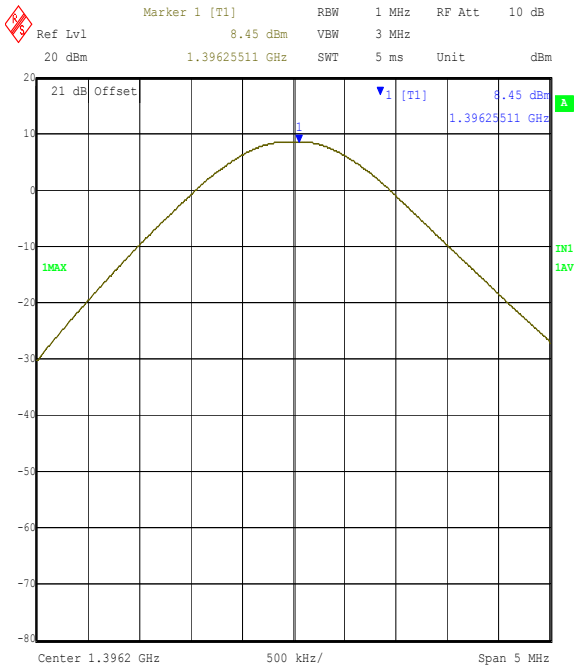
10.1.2. Tests were performed to identify the EUT's maximum conducted transmit power.

10.1.3. The effective isotropically radiated power (EIRP) was calculated by adding the manufacturer's declared antenna gain to the figure measured for conducted RF output power.

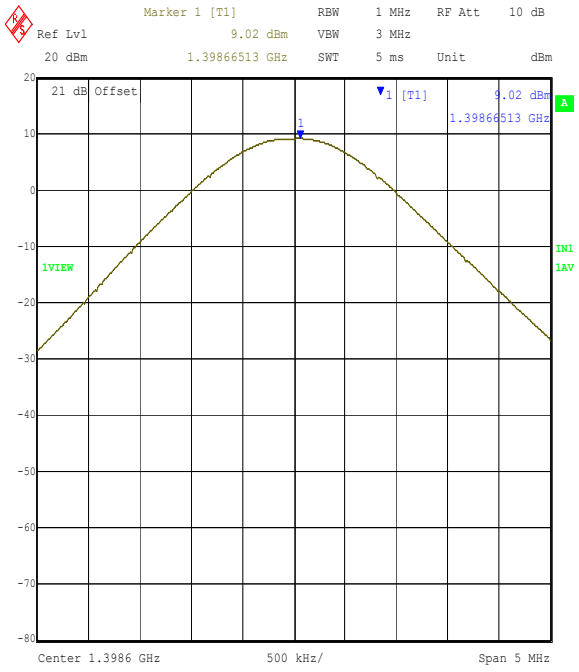
Results:

Channel	Frequency (MHz)	Conducted RF O/P Power (dBm)	Stated Antenna Gain (dB)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
Bottom	1396.2	8.5	0	8.5	22.2	13.7	Complied
Top	1398.6	9.0	0	9.0	22.2	13.2	Complied

Note: *According to Part 95.1115(a) the radiated field strength limit is 740 mV/m (117.4 dBμV/m) at 3 metres. To convert from fieldstrength to an equivalent conducted power in dBm, subtract 95.2 dB. (117.4 –95.2 = 22.2). The figure of 95.2 dB is arrived at using the formula P = (V/m x d)^2 /30.*



Title: Datascope EUT: Panarama Transceiver. FCC P95. Output Power.
Comment A: 46115JD03 Band (1395-1400)MHz Bottom Channel
Date: 5.JUL.2004 11:43:40



Title: Datascope EUT: Panarama Transceiver. FCC P95. Output Power.
Comment A: 46115JD03 Band (1395-1400)MHz Top Channel
Date: 5.JUL.2004 11:44:54

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

10.2. Transmitter Fundamental Fieldstrength Section 95.1115(a)

10.2.1. The EUT was configured as for transmitter radiated emissions testing as described in Section 12.2 of this report.

10.2.2. Tests were performed to identify the maximum fieldstrength at 3 metres of the fundamental frequency.

Result:

Channel	Frequency (MHz)	Ant. Pol.	Average Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
Bottom	1396.2	Vert.	101.9	117.4	15.5	Complied
Top	1398.6	Vert.	102.4	117.4	15.0	Complied

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

10.3. Transmitter Out of Band Conducted Emissions: Section 2.1051

10.3.1. The EUT was configured as for transmitter conducted emissions measurements as described in Section 12.1 of this report.

10.3.2. Tests were performed to identify the maximum transmitter conducted emission levels.

10.3.3. The limit lines shown in the plots below are set to a level 20 dB below the measured fundamental peak power.

Result: Bottom Channel

Frequency (MHz)	Peak Emission Level (dBm)	Peak Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
*6983.968	-42.5	-51.0	-20.0	31.0	Complied

Result: Top Channel

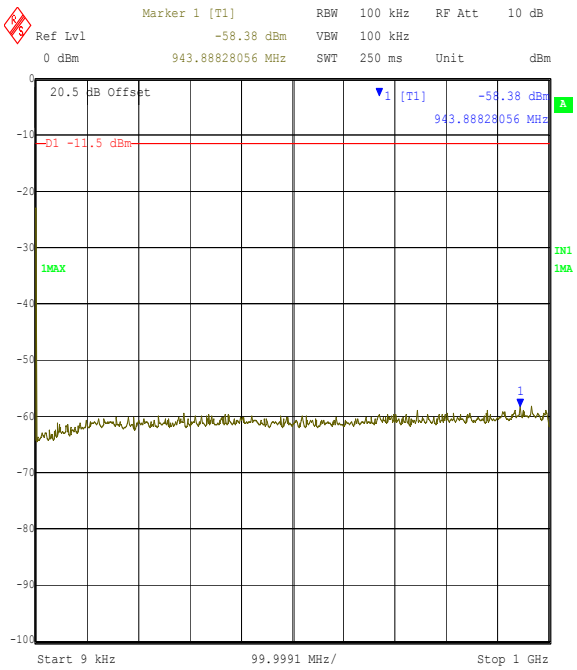
Frequency (MHz)	Peak Emission Level (dBm)	Peak Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
*6783.567	-43.6	-52.6	-20.0	32.6	Complied

**Note: No spurious emissions were detected above the noise floor of the measuring receiver. Therefore the highest peak noise floor readings of the measuring receiver recorded are given in the above results table.*

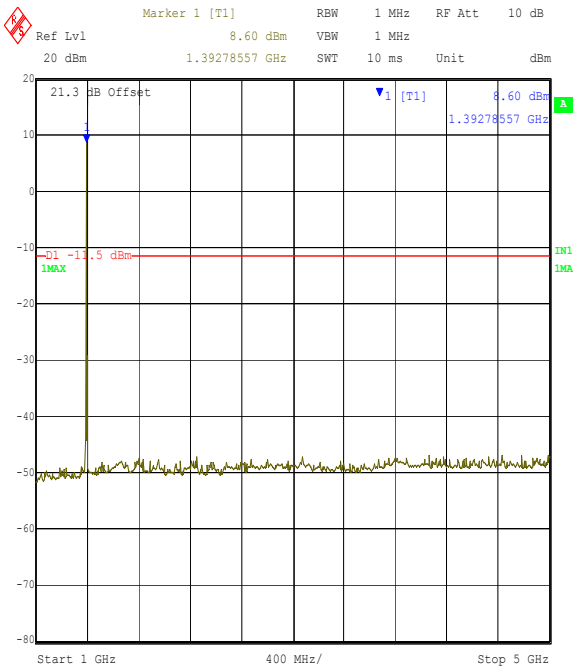
TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

Test Of: **Datascope Corp.**
Panorama Wireless Transceiver
To: **FCC Part 95 Subpart H: 2003**

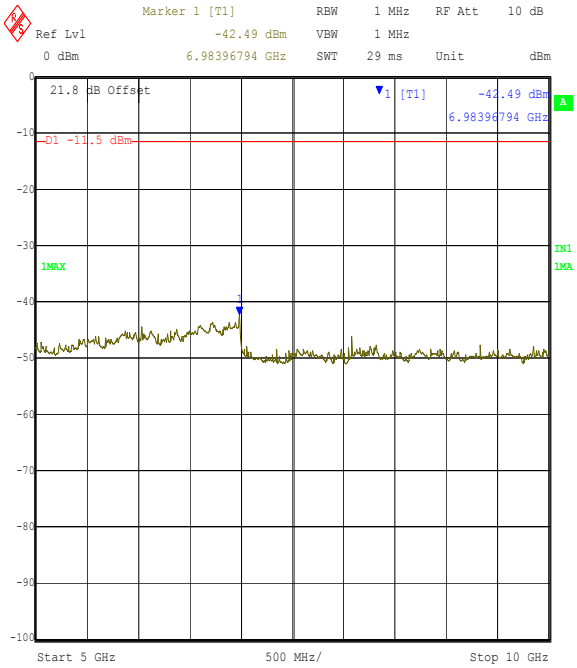
Transmitter Out of Band Conducted Emissions (Continued)



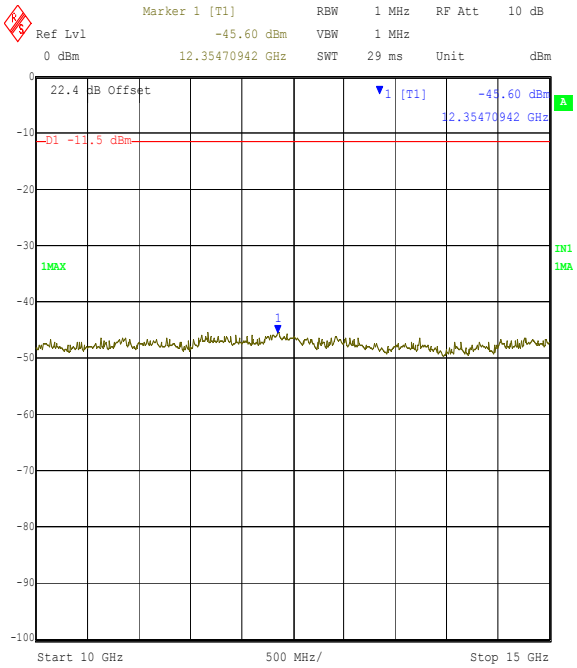
Title: Datascope EUT: Panarama Transceiver. FCC P95. Cond. Emiss.
Comment A: 46115JD03 Band (1395-1400)MHz Bottom Channel
Date: 5.JUL.2004 14:14:24



Title: Datascope EUT: Panarama Transceiver. FCC P95. Cond. Emiss.
Comment A: 46115JD03 Band (1395-1400)MHz Bottom Channel
Date: 5.JUL.2004 14:13:28



Title: Datascope EUT: Panarama Transceiver. FCC P95. Cond. Emiss.
Comment A: 46115JD03 Band (1395-1400)MHz Bottom Channel
Date: 5.JUL.2004 14:12:40

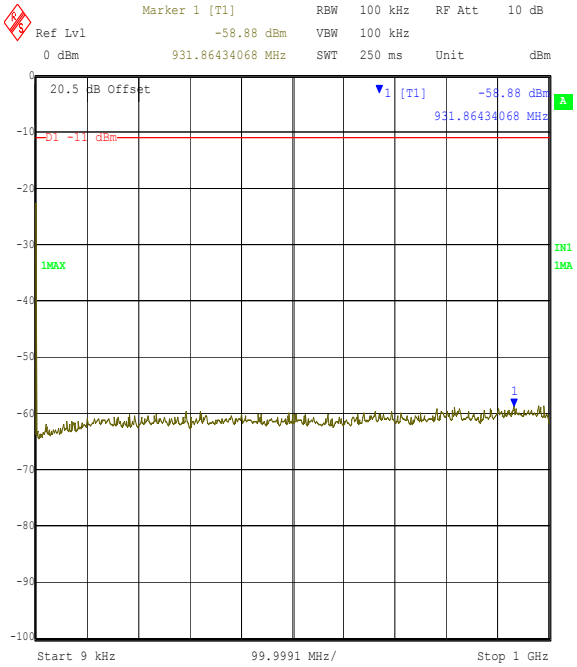


Title: Datascope EUT: Panarama Transceiver. FCC P95. Cond. Emiss.
Comment A: 46115JD03 Band (1395-1400)MHz Bottom Channel
Date: 5.JUL.2004 14:12:06

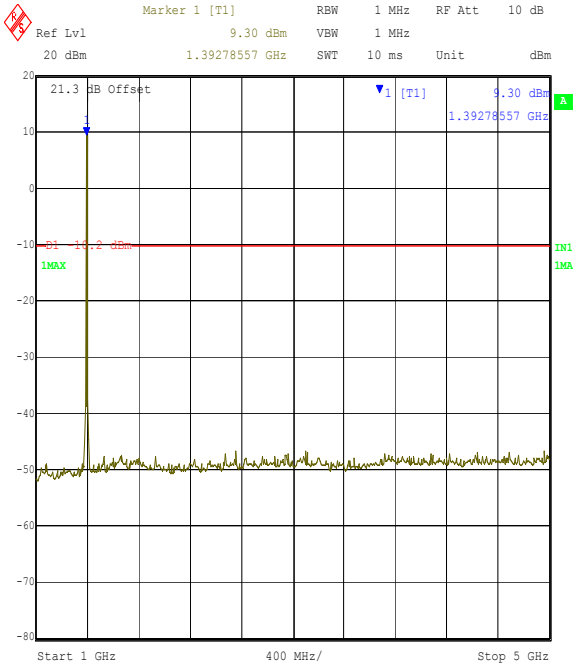
Note: these plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

Test Of: **Datascope Corp.**
Panorama Wireless Transceiver
To: **FCC Part 95 Subpart H: 2003**

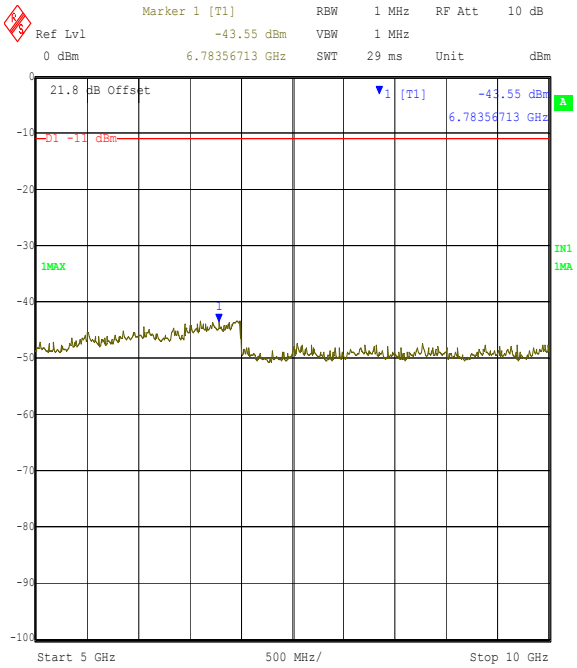
Transmitter Out of Band Conducted Emissions (Continued)



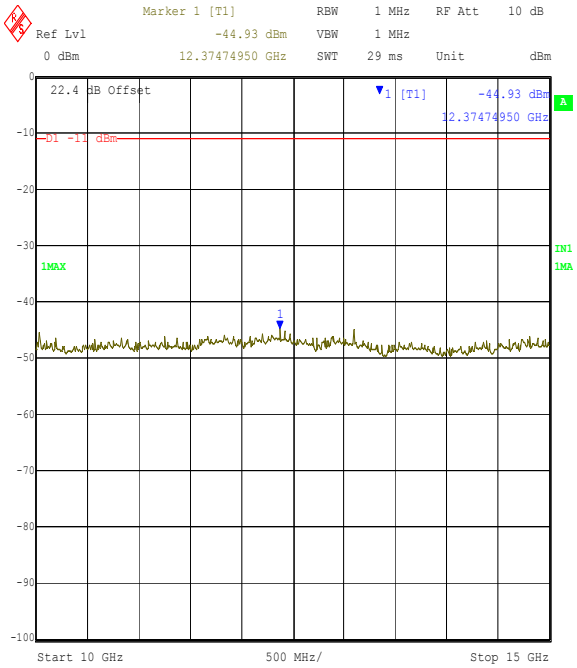
Title: Datascope EUT: Panarama Transceiver. FCC P95. Cond. Emiss.
Comment A: 46115JD03 Band (1395-1400)MHz Top Channel
Date: 5.JUL.2004 14:19:22



Title: Datascope EUT: Panarama Transceiver. FCC P95. Cond. Emiss.
Comment A: 46115JD03 Band (1395-1400)MHz Top Channel
Date: 5.JUL.2004 14:20:15



Title: Datascope EUT: Panarama Transceiver. FCC P95. Cond. Emiss.
Comment A: 46115JD03 Band (1395-1400)MHz Top Channel
Date: 5.JUL.2004 14:20:43



Title: Datascope EUT: Panarama Transceiver. FCC P95. Cond. Emiss.
Comment A: 46115JD03 Band (1395-1400)MHz Top Channel
Date: 5.JUL.2004 14:21:24

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

10.4. Transmitter Conducted Emissions At Band Edges: Section 2.1051

10.4.1. The EUT was configured as for transmitter conducted emissions testing described in Section 12.1 of this report.

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

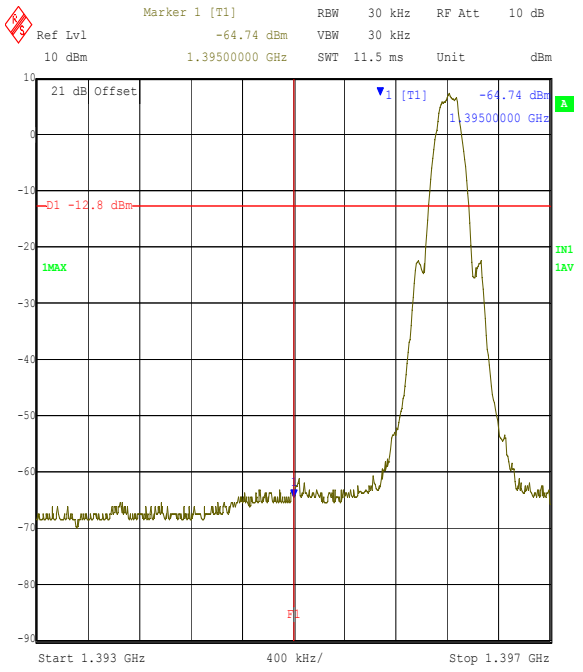
Results:

Bottom Band Edge

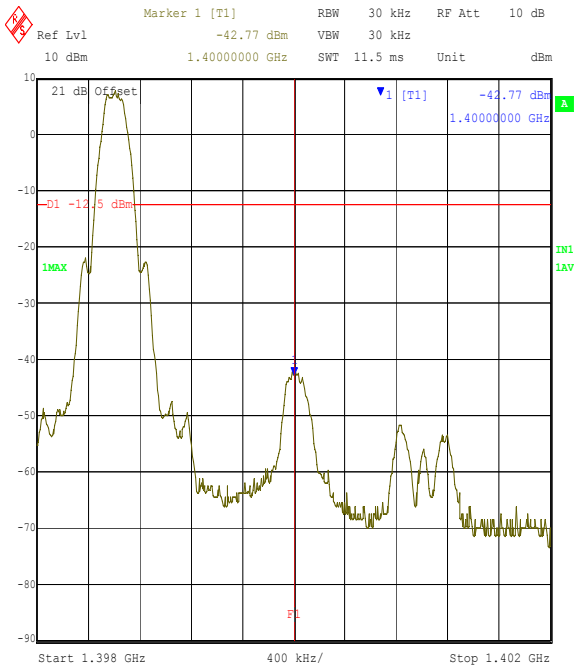
Frequency (MHz)	Peak Emission Level (dBm)	Peak Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
1395	-64.7	-73.2	-20.0	53.3	Complied

Top Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Peak Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
1400	-42.8	-51.8	-20.0	31.8	Complied



Title: Datascope EUT: Panarama Transceiver. FCC P95. Cond. BandEdge
Comment A: 46115JD03 Band (1395-1400)MHz Bottom Channel
Date: 5.JUL.2004 14:43:59



Title: Datascope EUT: Panarama Transceiver. FCC P95. Cond. BandEdge
Comment A: 46115JD03 Band (1395-1400)MHz Top Channel
Date: 5.JUL.2004 14:46:38

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

10.5. Transmitter Out of Band Radiated Emissions: Sections 95.1115(b)/2.1053

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

10.5.1.1. The EUT was configured as for transmitter radiated emissions testing as described in Section 12.2 of this report.

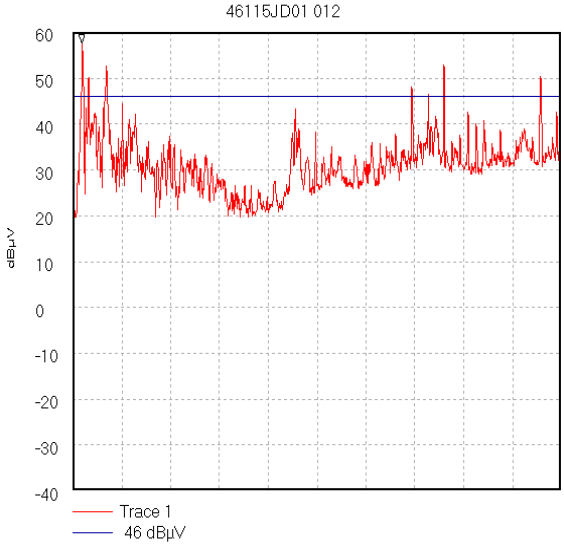
10.5.1.2. Tests were performed to identify the maximum transmitter radiated emission levels.

Result:

Frequency (MHz)	Ant. Pol.	Q-P Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
47.178	Horiz.	22.3	46.0	23.7	Complied
60.911	Vert.	34.1	46.0	11.9	Complied
96.938	Vert.	35.0	46.0	11.0	Complied
127.987	Vert.	32.2	46.0	13.8	Complied
154.055	Vert.	18.0	46.0	28.0	Complied
223.250	Horiz.	23.5	46.0	22.5	Complied
471.998	Horiz.	37.2	46.0	8.8	Complied
512.000	Horiz.	33.5	46.0	12.5	Complied
704.001	Horiz.	45.9	46.0	0.1	Complied
736.001	Vert.	36.9	46.0	9.1	Complied
768.000	Vert.	45.6	46.0	0.4	Complied
815.994	Vert.	40.0	46.0	6.0	Complied
960.001	Horiz.	45.9	54.0	8.1	Complied
991.994	Horiz.	44.0	54.0	10.0	Complied

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

Transmitter Out of Band Radiated Emissions (Continued)



Start 30.0 MHz; Stop 1.0 GHz
Ref 60 dBµV; Ref Offset 0.0 dB; 10 dB/div
RBW 120.0 kHz; VBW 300.0 kHz; Att 0 dB; Swp 440.0 mS
Peak 48.322 MHz, 57.59 dBµV
Display Line: 46 dBµV; ; Limit Test Failed
Transducer Factors: A490
7/2/2004 9:56:06 AM

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

10.6. Transmitter Out of Band Radiated Emissions: Sections 95.1115(b)/2.1053 (Continued)

10.6.1. Electric Field Strength Measurements: 1.0 to 14.5 GHz

Result: 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
1.382674	Vert.	19.5	21.5	0.6	41.6	54.0	12.4	Complied
1.390608	Vert.	28.9	21.5	0.6	51.0	54.0	3.0	Complied
1.404346	Vert.	12.9	21.5	0.6	35.0	54.0	19.0	Complied
1.406655	Vert.	22.2	21.5	0.6	52.4	54.0	1.6	Complied
1.414604	Vert.	21.9	21.5	0.6	44.0	54.0	10.0	Complied
1.422658	Vert.	12.5	21.5	0.6	34.6	54.0	5.1	Complied
2.792545	Vert.	21.9	21.8	0.9	44.6	54.0	9.4	Complied
2.805236	Vert.	15.8	21.8	0.9	38.5	54.0	15.5	Complied
4.188675	Horiz.	7.8	24.1	1.1	33.0	54.0	11.0	Complied
5.584725	Horiz.	9.3	24.3	1.4	35.0	54.0	9.0	Complied

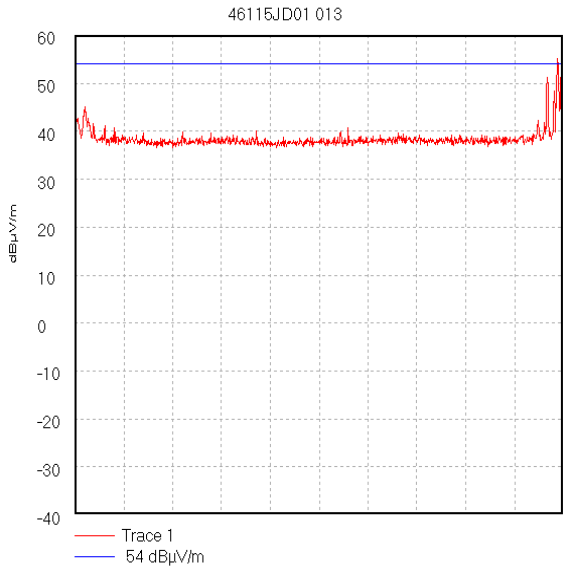
Result: Top Channel

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
1.382674	Vert.	19.5	21.5	0.6	41.6	54.0	12.4	Complied
1.390608	Vert.	28.9	21.5	0.6	51.0	54.0	3.0	Complied
1.404346	Vert.	12.9	21.5	0.6	35.0	54.0	19.0	Complied
1.406655	Vert.	22.2	21.5	0.6	52.4	54.0	1.6	Complied
1.414604	Vert.	21.9	21.5	0.6	44.0	54.0	10.0	Complied
1.422658	Vert.	12.5	21.5	0.6	34.6	54.0	5.1	Complied
2.797305	Vert.	21.9	21.8	0.9	44.6	54.0	9.4	Complied
2.805236	Vert.	15.8	21.8	0.9	38.5	54.0	15.5	Complied
4.195625	Vert.	9.0	24.1	1.1	34.2	54.0	9.8	Complied
5.594525	Horiz.	10.5	24.3	1.4	36.2	54.0	7.8	Complied

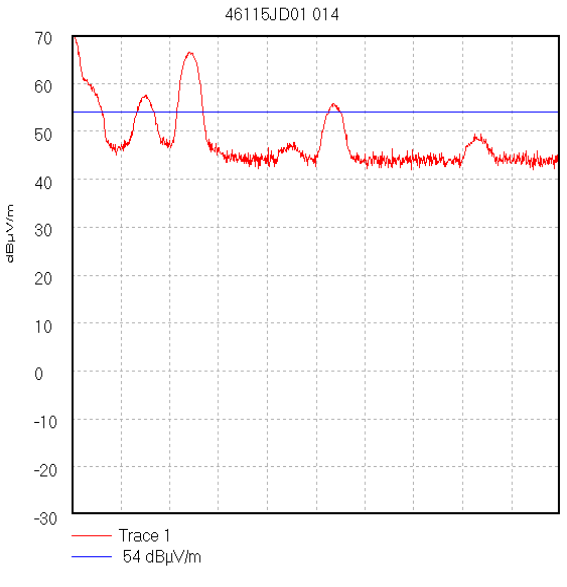
TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

Test Of: **Datascope Corp.**
Panorama Wireless Transceiver
To: **FCC Part 95 Subpart H: 2003**

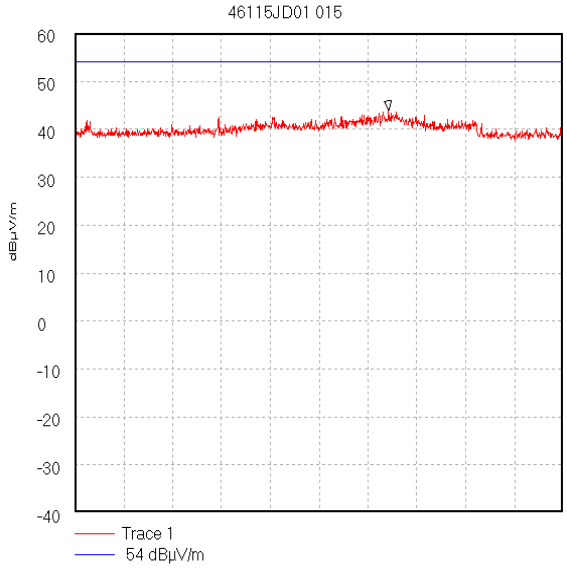
Transmitter Out of Band Radiated Emissions (Continued)



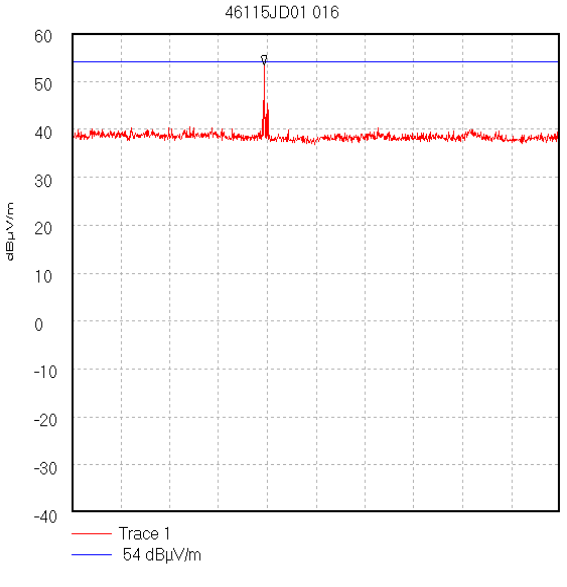
Start 1.0 GHz; Stop 1.395 GHz
Ref 60 dBµV/m; Ref Offset 0.0 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 1.395 GHz, 63.98 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Failed
7/2/2004 10:25:26 AM



Start 1.4 GHz; Stop 1.427 GHz
Ref 70 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 1.4 GHz, 72.69 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Failed
7/2/2004 10:32:43 AM



Start 1.43 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 1.796 GHz, 43.91 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Passed
7/2/2004 10:40:18 AM

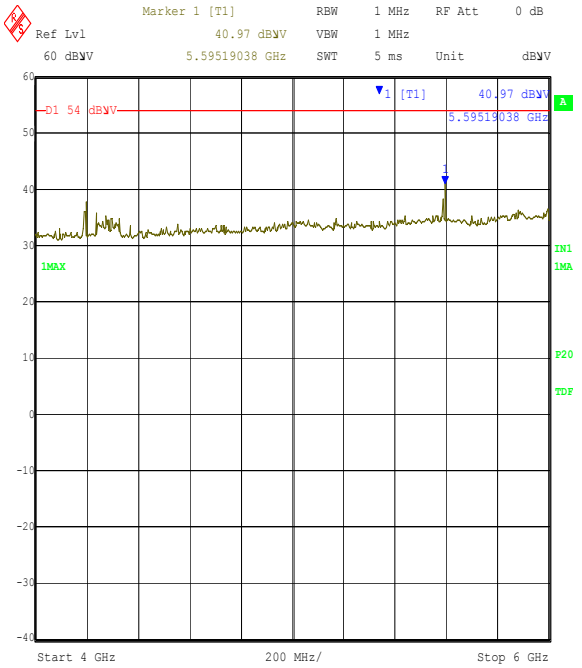


Start 2.0 GHz; Stop 4.0 GHz
Ref 60 dBµV/m; Ref Offset 0.0 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 2.787 GHz, 53.33 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Passed
7/2/2004 10:44:56 AM

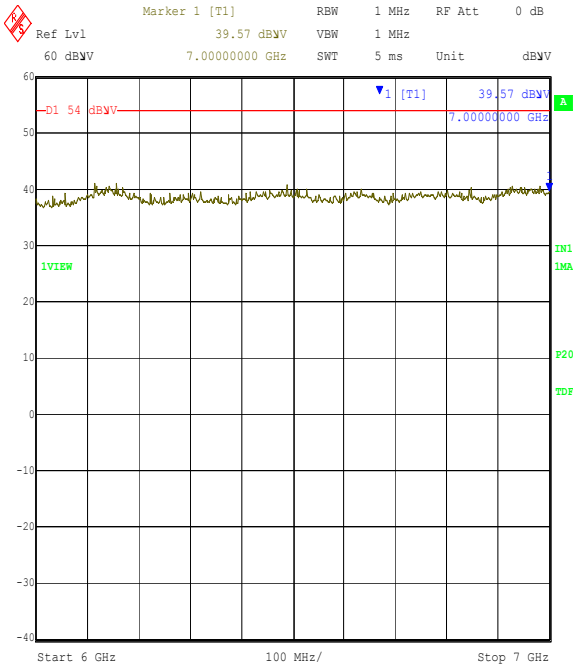
Note: these plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

Test Of: **Datascope Corp.**
Panorama Wireless Transceiver
To: **FCC Part 95 Subpart H: 2003**

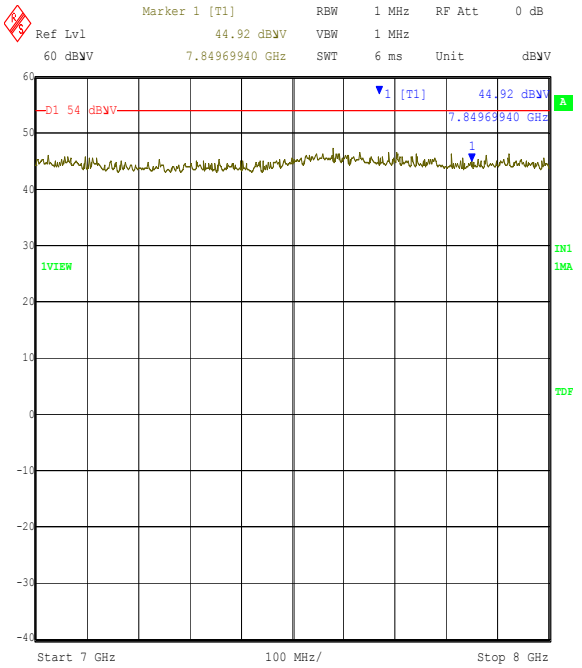
Transmitter Out of Band Radiated Emissions (Continued)



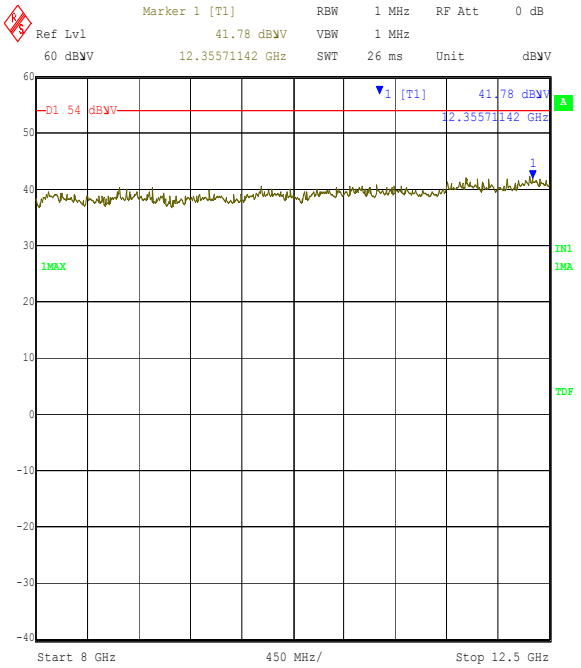
Title: Datascope EUT: Panarama Transceiver. FCC P95. No Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz Top Channel Rad. Spurious
Date: 9.JUL.2004 10:44:30



Title: Datascope EUT: Panarama Transceiver. FCC P95. No Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz Top Channel Rad. Spurious
Date: 8.JUL.2004 11:42:37



Title: Datascope EUT: Panarama Transceiver. FCC P95. No Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz Top Channel Rad. Spurious
Date: 8.JUL.2004 11:41:02

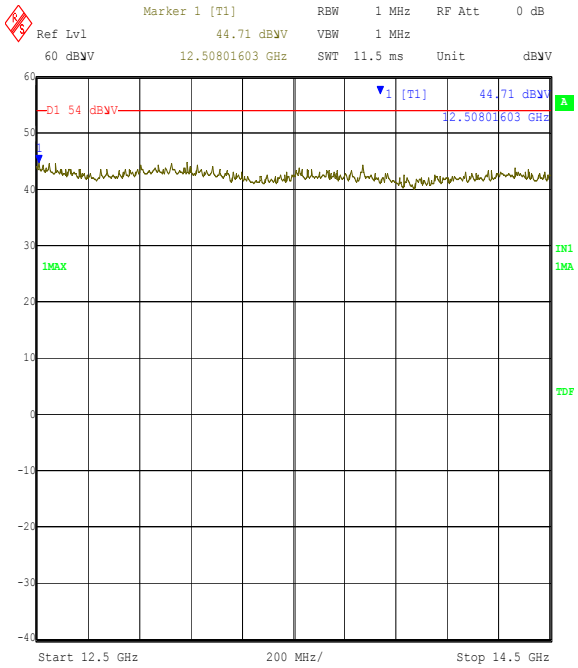


Title: Datascope EUT: Panarama Transceiver. FCC P95. No Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz Top Channel Rad. Spurious
Date: 8.JUL.2004 11:27:57

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

Test Of: **Datascope Corp.**
Panorama Wireless Transceiver
To: **FCC Part 95 Subpart H: 2003**

Transmitter Out of Band Radiated Emissions (Continued)



Title: Datascope EUT: Panarama Transceiver. FCC P95. No Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz Top Channel Rad. Spurious
Date: 8.JUL.2004 11:17:25

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

Note: Plot 46115JD01 015 incorrectly shows the start frequency to be 1.43 GHz. This is due to a rounding off error in the software used to transpose the on-screen image on the spectrum analyser to the PC holding the soft copy of the plot. It is confirmed that the measurements were made with a start frequency of 1429.5 MHz.

Test Of: **Datascope Corp.**
Panorama Wireless Transceiver
To: **FCC Part 95 Subpart H: 2003**

Transmitter Out of Band Radiated Emissions: Sections 95.1115(b)/2.1053 (Continued)

Integrated Power Over 1 MHz Strip Bands: 1393 to 1394 MHz and 1401 to 1402 MHz

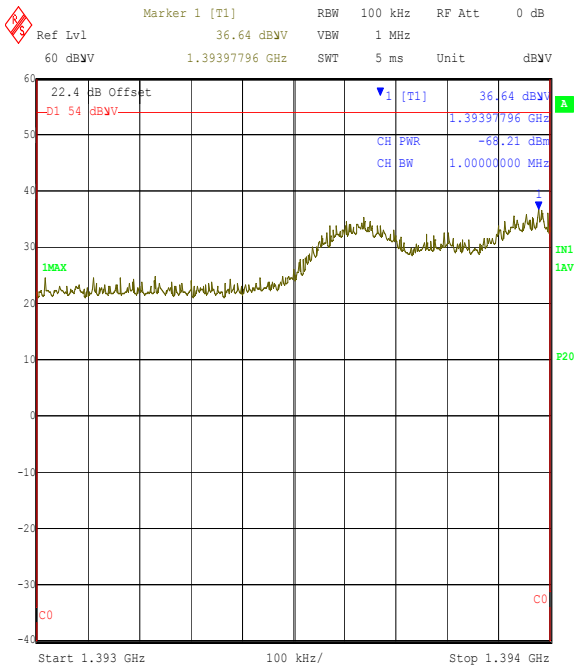
1st 1 MHz block immediately outside adjacent frequency block.

Testing was performed using the channel power function of the spectrum analyser to integrate the 1 MHz blocks immediately outside the adjacent frequency block.

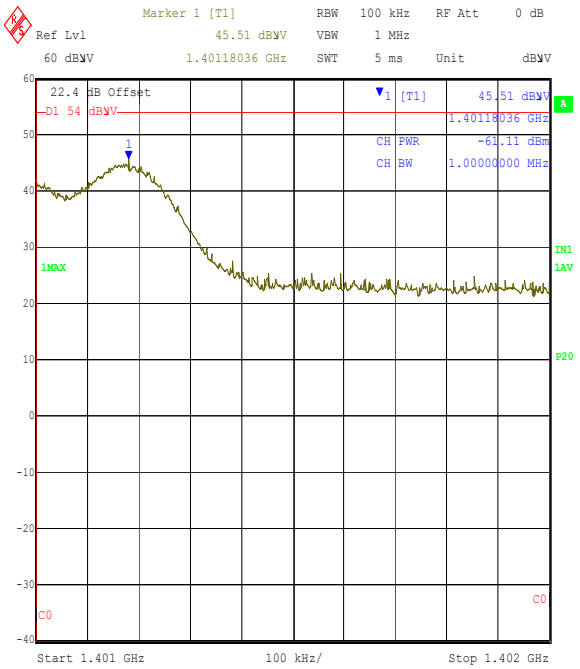
Results:

Band (MHz)	Average Power (dBm/MHz)	Average Power (dBµV/MHz)	Limit (dBµV/MHz)	Margin (dB)	Status
1393 to 1394	-68.2	38.8	54.0	15.2	Complied
1401 to 1402	-61.1	45.9	54.0	8.1	Complied

Note: The average power in dBµV/MHz is obtained by adding a correction factor of 107 dB to the average power in dBm/MHz. The antenna factors and cable loss are included within these measurements.*
**The spectrum analyser always defaults to this unit for this measurement.*



Title: Datascope EUT: Panarama Transceiver. FCC P95. No Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz 1MHz Band strip LB ch(1A)
Date: 9.JUL.2004 10:33:31



Title: Datascope EUT: Panarama Transceiver. FCC P95. No Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz 1MHz Band strip UB ch(1B)
Date: 9.JUL.2004 10:31:23

10.7. Transmitter Radiated Emissions At Band Edges: Section 95.1115(b)/2.1053

10.7.1. The EUT was configured as for transmitter radiated emissions testing described in Section 12.2 of this report.

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

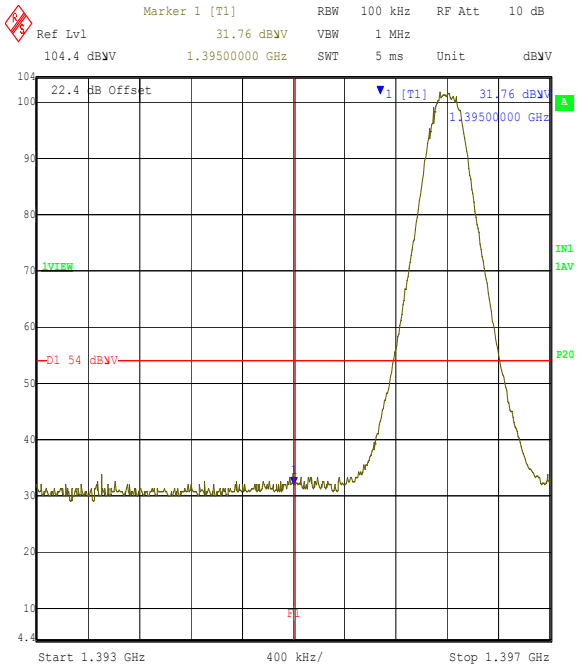
Results:

Bottom Band Edge

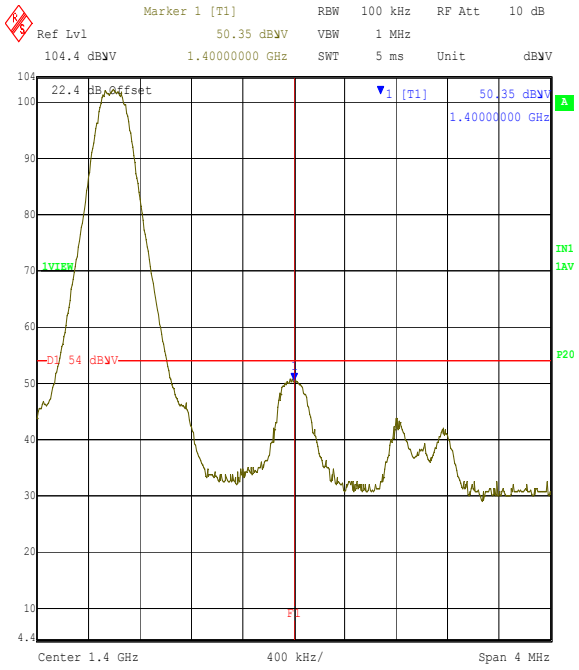
Frequency (MHz)	Avg Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
1395	31.8	54.0	22.2	Complied

Top Band Edge

Frequency (MHz)	Avg Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
1400	50.4	54.0	3.6	Complied



Title: Datascope EUT: Panarama Transceiver. FCC P95. No Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz Band Edge LB Channel(1A)
Date: 8.JUL.2004 17:00:48



Title: Datascope EUT: Panarama Transceiver. FCC P95. No Repeater.
Comment A: 46115JD03 Band (1395-1400)MHz Band Edge UB Channel(1B)
Date: 8.JUL.2004 17:03:06

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

11. Test Results:
1427-1429.5 MHz Downlink Band (Without Cable Repeater Fitted)

11.1. Transmitter Carrier Output Power (and EIRP Limitations): Section 2.1046(a)

11.1.1. The EUT was configured as for transmitter conducted emissions as described in Section 12.1 of this report.

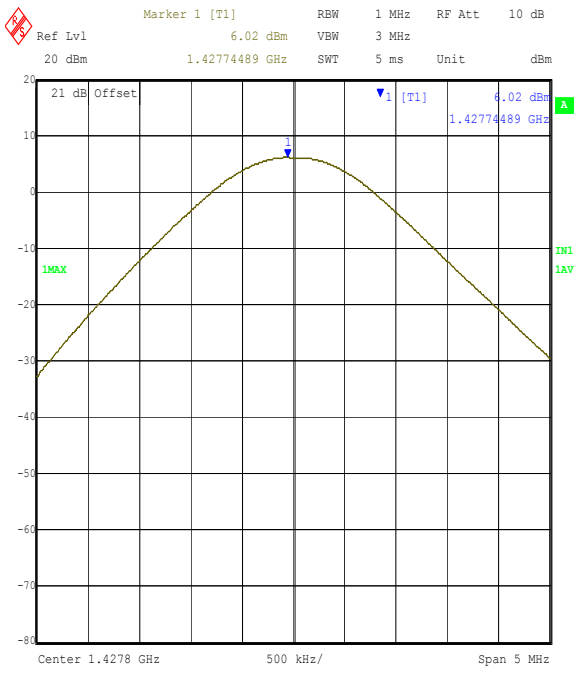
11.1.2. Tests were performed to identify the EUT's maximum conducted transmit power.

11.1.3. The effective isotropically radiated power (EIRP) was calculated by adding the manufacturer's declared antenna gain to the figure measured for conducted RF output power.

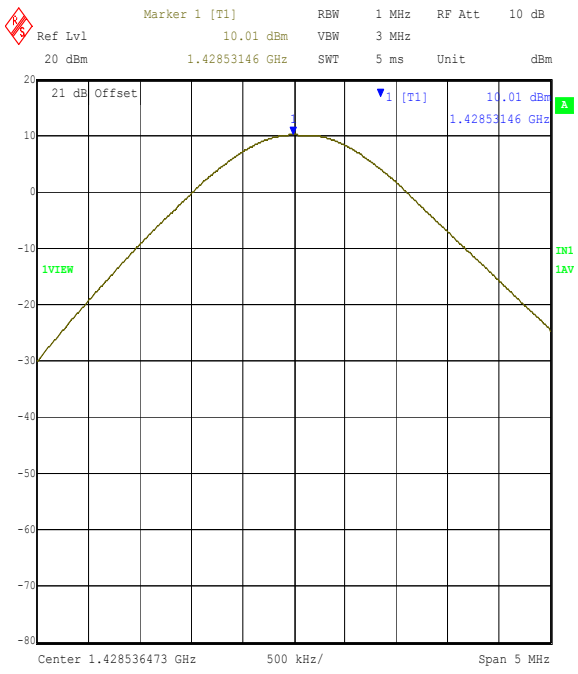
Results:

Channel	Frequency (MHz)	Conducted RF O/P Power (dBm)	Stated Antenna Gain (dB)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
Bottom	1427.8	6.0	0	6.0	22.2	16.2	Complied
Top	1428.6	10.0	0	10.0	22.2	12.2	Complied

Note: *According to Part 95.1115(a) the radiated field strength limit is 740 mV/m (117.4 dBμV/m) at 3 metres. To convert from fieldstrength to an equivalent conducted power in dBm, subtract 95.2 dB. (117.4 –95.2 = 22.2). The figure of 95.2 dB is arrived at using the formula P = (V/m x d)^2 /30.*



Title: Datascope EUT: Panarama Transceiver. FCC P95. Output Power.
Comment A: 46115JD03 Band (1427-1429.5)MHz Bottom Channel
Date: 5.JUL.2004 12:01:53



Title: Datascope EUT: Panarama Transceiver. FCC P95. Output Power.
Comment A: 46115JD03 Band (1427-1429.5)MHz Top Channel
Date: 5.JUL.2004 11:46:22

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

11.2. Transmitter Fundamental Fieldstrength Section 95.1115(a)

11.2.1. The EUT was configured as for transmitter radiated emissions testing as described in Section 12.2 of this report.

11.2.2. Tests were performed to identify the maximum fieldstrength at 3 metres of the fundamental frequency.

Result:

Channel	Frequency (MHz)	Ant. Pol.	Average Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
Bottom	1427.8	Vert.	100.5	117.4	16.9	Complied
Top	1428.6	Vert.	103.4	117.4	14.0	Complied

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

11.3. Transmitter Out of Band Conducted Emissions: Section 2.1051

11.3.1. The EUT was configured as for transmitter conducted emissions measurements as described in Section 12.1 of this report.

11.3.2. Tests were performed to identify the maximum transmitter conducted emission levels.

11.3.3. The limit lines shown in the plots below are set to a level 20 dB below the measured fundamental peak power.

Result: Bottom Channel

Frequency (MHz)	Peak Emission Level (dBm)	Peak Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
*6743.487	-43.4	-49.4	-20.0	29.4	Complied

Result: Top Channel

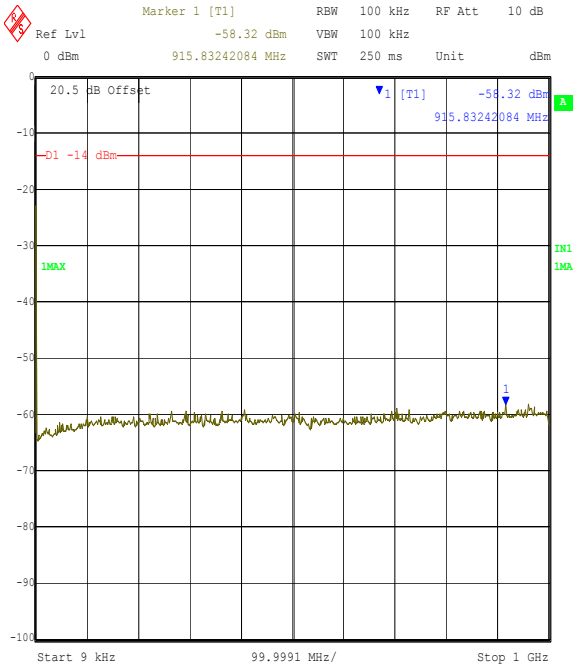
Frequency (MHz)	Peak Emission Level (dBm)	Peak Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
*6713.427	-44.3	-54.3	-20.0	34.3	Complied

**Note: No spurious emissions were detected above the noise floor of the measuring receiver. Therefore the highest peak noise floor readings of the measuring receiver recorded are given in the above results table.*

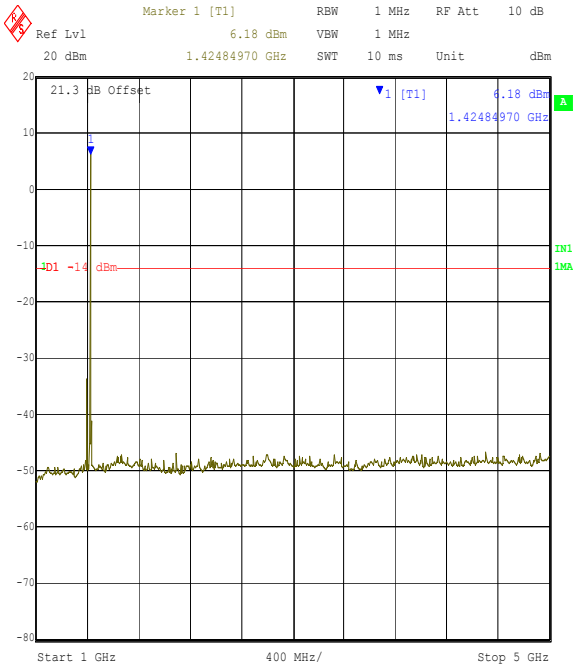
TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

Test Of: **Datascope Corp.**
Panorama Wireless Transceiver
To: **FCC Part 95 Subpart H: 2003**

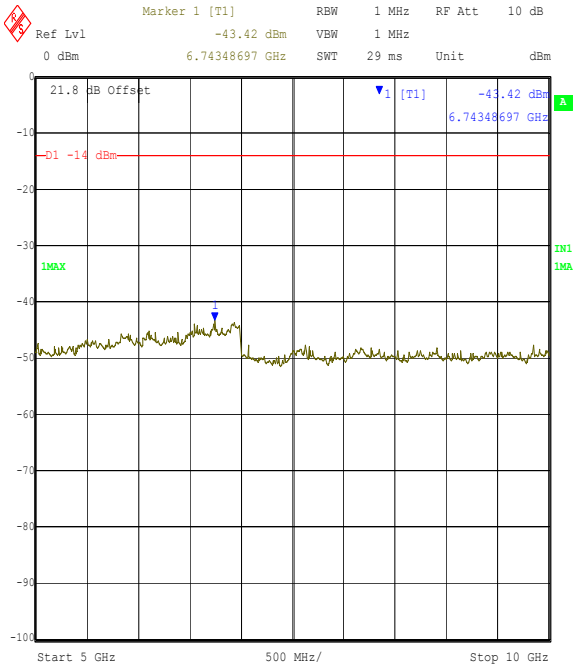
Transmitter Out of Band Conducted Emissions (Continued)



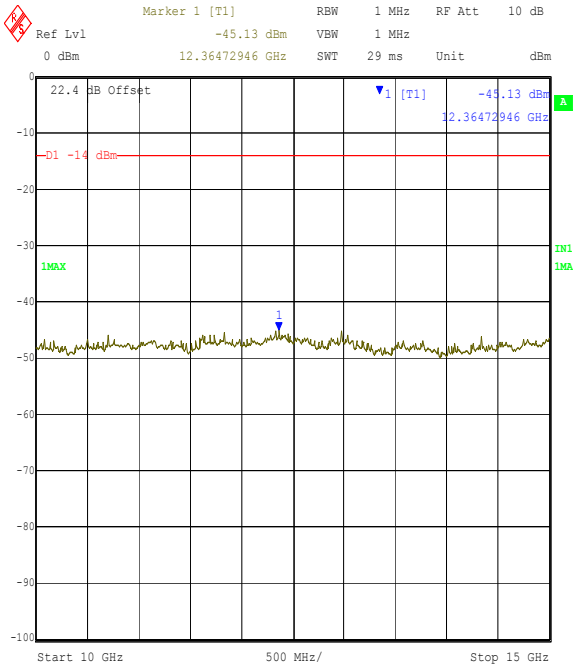
Title: Datascope EUT: Panarama Transceiver. FCC P95. Cond. Emiss.
Comment A: 46115JD03 Band (1427-1429.5)MHz Bottom Channel
Date: 5.JUL.2004 13:57:39



Title: Datascope EUT: Panarama Transceiver. FCC P95. Cond. Emiss.
Comment A: 46115JD03 Band (1427-1429.5)MHz Bottom Channel
Date: 5.JUL.2004 13:58:42



Title: Datascope EUT: Panarama Transceiver. FCC P95. Cond. Emiss.
Comment A: 46115JD03 Band (1427-1429.5)MHz Bottom Channel
Date: 5.JUL.2004 13:59:15

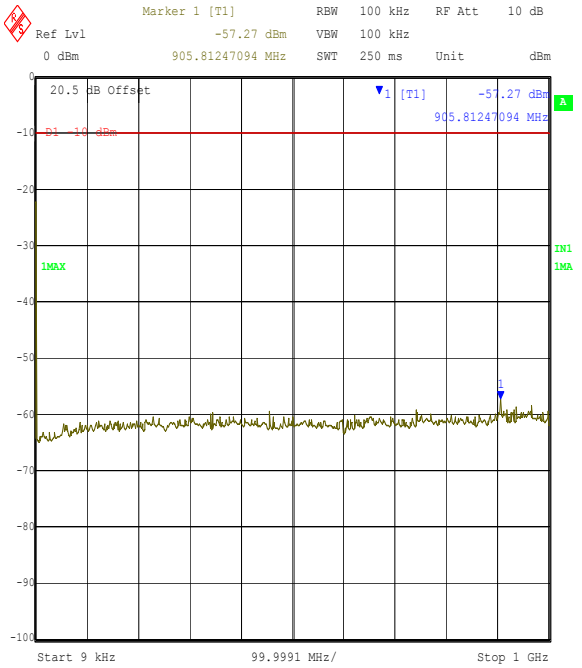


Title: Datascope EUT: Panarama Transceiver. FCC P95. Cond. Emiss.
Comment A: 46115JD03 Band (1427-1429.5)MHz Bottom Channel
Date: 5.JUL.2004 14:00:15

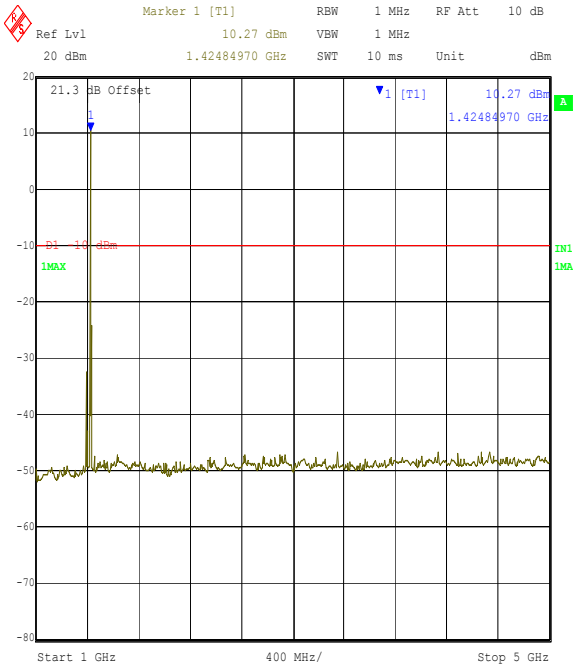
Note: these plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

Test Of: **Datascope Corp.**
Panorama Wireless Transceiver
To: **FCC Part 95 Subpart H: 2003**

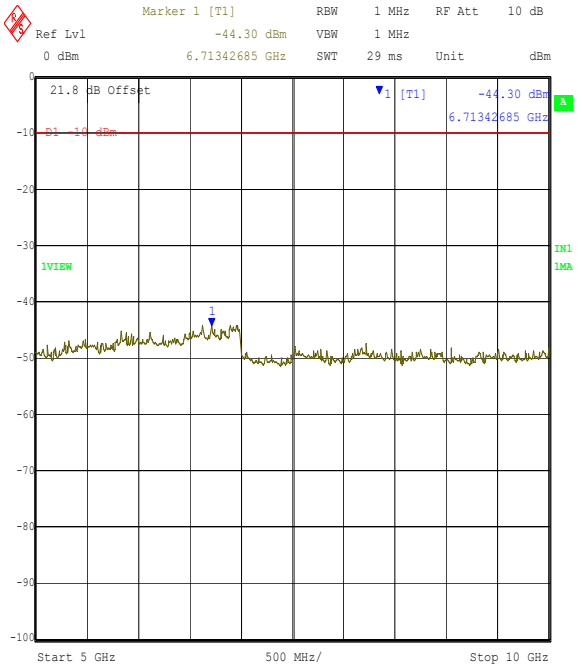
Transmitter Out of Band Conducted Emissions (Continued)



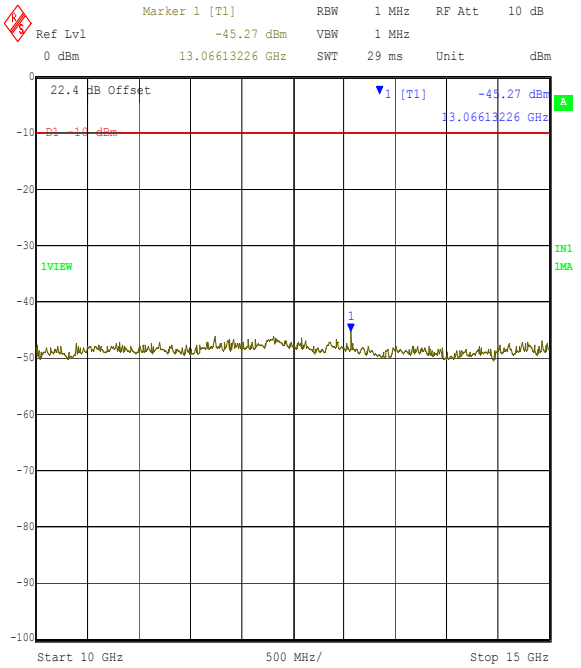
Title: Datascope EUT: Panarama Transceiver. FCC P95. Cond. Emiss.
Comment A: 46115JD03 Band (1427-1429.5)MHz Top Channel
Date: 5.JUL.2004 12:11:37



Title: Datascope EUT: Panarama Transceiver. FCC P95. Cond. Emiss.
Comment A: 46115JD03 Band (1427-1429.5)MHz Top Channel
Date: 5.JUL.2004 12:16:09



Title: Datascope EUT: Panarama Transceiver. FCC P95. Cond. Emiss.
Comment A: 46115JD03 Band (1427-1429.5)MHz Top Channel
Date: 5.JUL.2004 12:18:41



Title: Datascope EUT: Panarama Transceiver. FCC P95. Cond. Emiss.
Comment A: 46115JD03 Band (1427-1429.5)MHz Top Channel
Date: 5.JUL.2004 12:19:12

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

11.4. Transmitter Conducted Emissions At Band Edges: Section 2.1051

11.4.1. The EUT was configured as for transmitter conducted emissions testing described in Section 12.1 of this report.

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

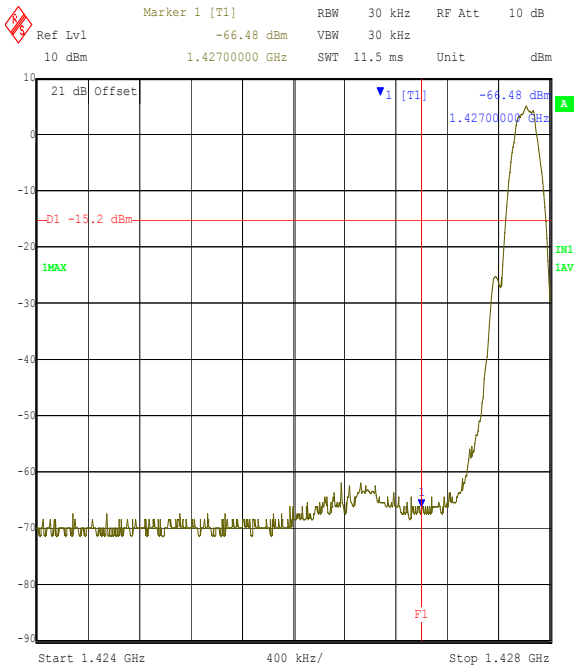
Results:

Bottom Band Edge

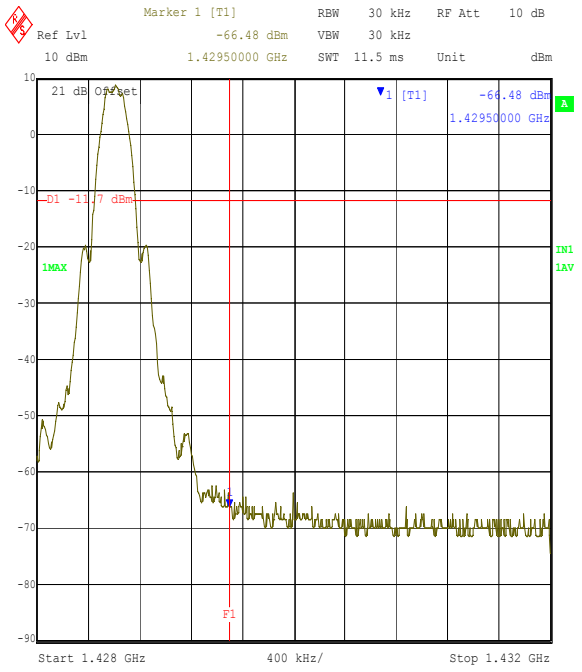
Frequency (MHz)	Peak Emission Level (dBm)	Peak Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
1427	-66.5	-72.6	-20.0	52.6	Complied

Top Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Peak Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
1429.5	-66.5	-73.7	-20.0	53.7	Complied



Title: Datascope EUT: Panarama Transceiver. FCC P95. Cond. BandEdge
Comment A: 46115JD03 Band (1427-1429.5)MHz Bottom Channel
Date: 5.JUL.2004 14:55:27



Title: Datascope EUT: Panarama Transceiver. FCC P95. Cond. BandEdge
Comment A: 46115JD03 Band (1427-1429.5)MHz Top Channel
Date: 5.JUL.2004 14:52:27

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

11.5. Transmitter Out of Band Radiated Emissions: Sections 95.1115(b)/2.1053

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

11.5.1.1. The EUT was configured as for transmitter radiated emissions testing as described in Section 12.2 of this report.

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

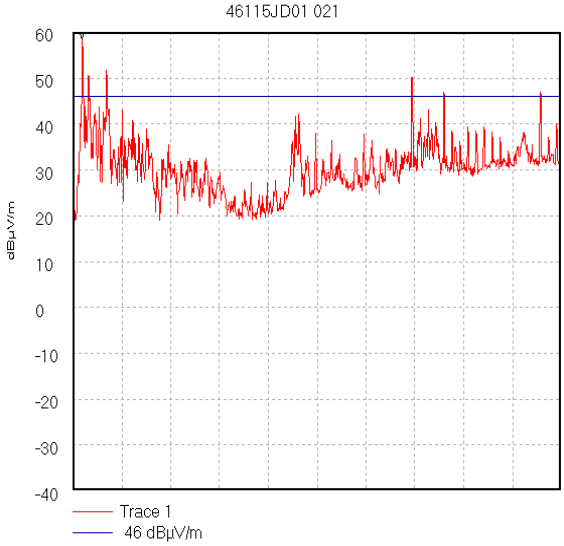
Results:

Frequency (MHz)	Ant. Pol.	Q-P Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
47.192	Horiz.	22.4	46.0	23.6	Complied
60.911	Vert.	34.1	46.0	11.9	Complied
96.938	Vert.	18.0	46.0	28.0	Complied
127.987	Vert.	32.2	46.0	13.8	Complied
148.910	Vert.	25.0	46.0	21.0	Complied
471.998	Horiz.	37.2	46.0	8.8	Complied
479.960	Horiz.	32.0	46.0	14.0	Complied
512.000	Horiz.	33.5	46.0	12.5	Complied
544.001	Horiz.	26.6	46.0	19.4	Complied
704.003	Horiz.	45.9	46.0	0.1	Complied
736.001	Vert.	36.9	46.0	9.1	Complied
768.000	Vert.	45.6	46.0	0.4	Complied
815.994	Vert.	40.0	46.0	6.0	Complied
863.968	Vert.	43.7	46.0	2.3	Complied
960.001	Horiz.	45.9	54.0	8.1	Complied
991.994	Horiz.	44.0	54.0	10.0	Complied

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

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

Transmitter Out of Band Radiated Emissions (Continued)



Start 30.0 MHz; Stop 1.0 GHz
Ref 60 dBµV/m; Ref Offset 0.0 dB; 10 dB/div
RBW 120.0 kHz; VBW 300.0 kHz; Att 0 dB; Swp 440.0 mS
Peak 48.322 MHz, 58.51 dBµV/m
Display Line: 46 dBµV/m; ; Limit Test Failed
Transducer Factors: A490
7/2/2004 11:43:21 AM

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

11.6. Transmitter Out of Band Radiated Emissions: Sections 95.1115(b)/2.1053 (Continued)

12. Electric Field Strength Measurements: 1.0 to 14.5 GHz

Result: 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
1.367968	Vert.	14.5	21.5	0.6	36.6	54.0	17.4	Complied
1.388877	Vert.	12.3	21.5	0.6	34.4	54.0	19.6	Complied
1.404915	Vert.	13.6	21.5	0.6	35.7	54.0	18.3	Complied
1.413073	Vert.	9.5	21.5	0.6	31.6	54.0	22.4	Complied
1.419790	Vert.	14.7	21.5	0.6	36.8	54.0	17.2	Complied
1.436621	Vert.	25.2	21.5	0.6	47.3	54.0	6.7	Complied
1.443793	Vert.	7.5	21.5	0.6	29.6	54.0	24.4	Complied
2.779585	Vert.	11.4	21.8	0.9	34.1	54.0	9.9	Complied
2.810046	Vert.	24.6	21.8	0.9	47.3	54.0	6.7	Complied
2.855635	Vert.	21.9	21.9	0.9	44.7	54.0	9.3	Complied
4.283215	Vert.	9.3	24.1	1.2	34.6	54.0	19.4	Complied
5.711265	Horiz.	6.7	24.4	1.4	32.5	54.0	21.5	Complied

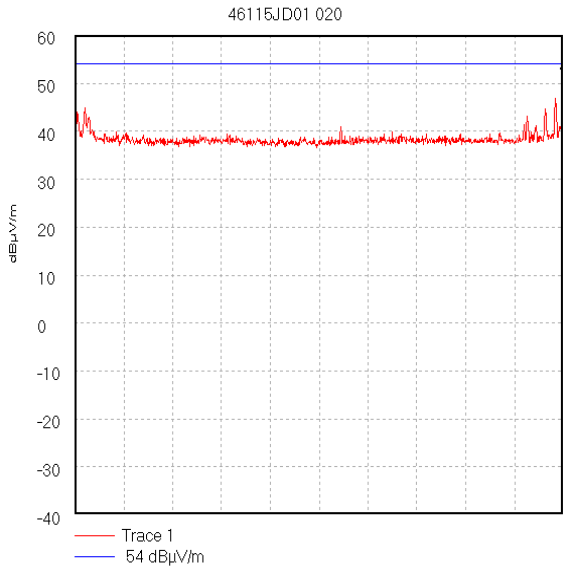
Result: Top Channel

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
1.364366	Vert.	7.5	21.5	0.6	29.6	54.0	24.4	Complied
1.389940	Vert.	9.8	21.5	0.6	31.9	54.0	22.1	Complied
1.405977	Vert.	11.2	21.5	0.6	33.3	54.0	20.7	Complied
1.412458	Horiz.	17.4	21.5	0.6	39.5	54.0	14.5	Complied
1.420575	Vert.	26.6	21.5	0.6	48.7	54.0	5.3	Complied
1.436621	Vert.	25.2	21.5	0.6	47.3	54.0	6.7	Complied
1.459448	Vert.	13.8	21.5	0.6	35.9	54.0	18.1	Complied
2.779585	Vert.	11.4	21.8	0.9	34.1	54.0	9.9	Complied
2.857195	Vert.	22.2	21.9	0.9	45.0	54.0	9.0	Complied
2.873272	Vert.	13.6	21.9	0.9	36.4	54.0	17.6	Complied
4.285805	Vert.	14.5	24.1	1.2	39.8	54.0	14.2	Complied
5.714485	Horiz.	8.2	24.4	1.4	34.0	54.0	20.0	Complied

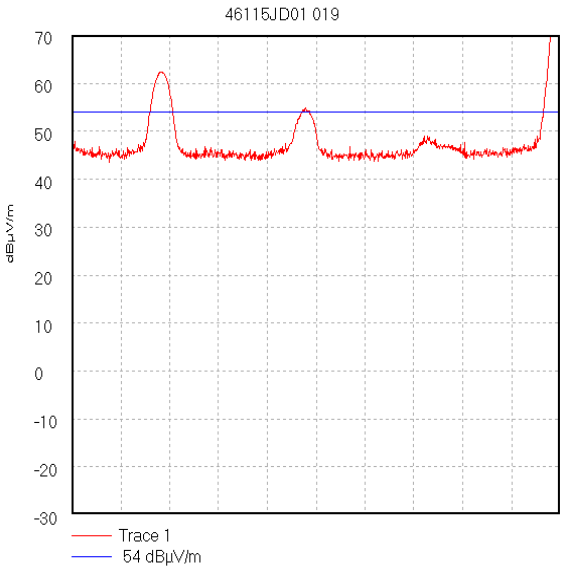
TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

Test Of: **Datascope Corp.**
Panorama Wireless Transceiver
To: **FCC Part 95 Subpart H: 2003**

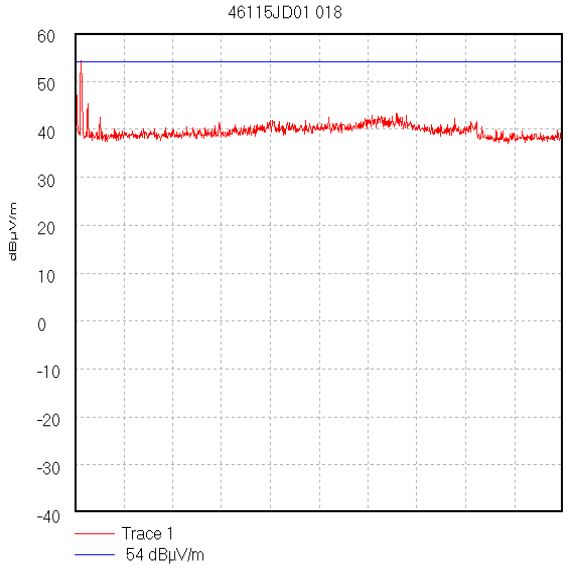
Transmitter Out of Band Radiated Emissions (Continued)



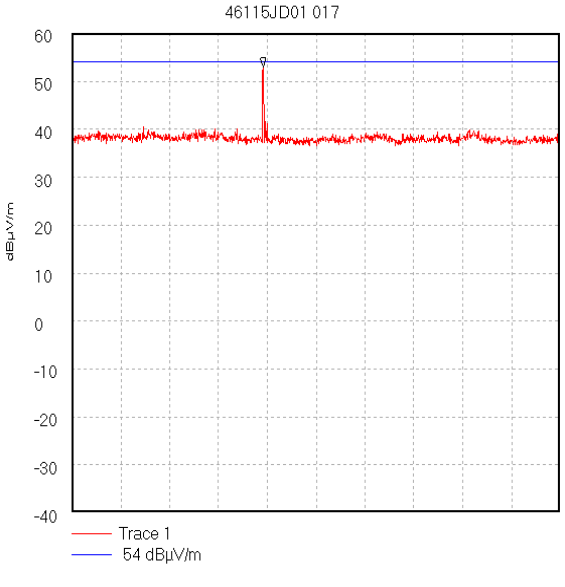
Start 1.0 GHz; Stop 1.395 GHz
Ref 60 dBµV/m; Ref Offset 0.0 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 1.395 GHz, 51.5 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Passed
7/2/2004 11:35:34 AM



Start 1.4 GHz; Stop 1.427 GHz
Ref 70 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 1.42676 GHz, 73.98 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Failed
7/2/2004 11:31:05 AM



Start 1.4295 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 1.4295 GHz, 62.1 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Failed
7/2/2004 11:24:44 AM

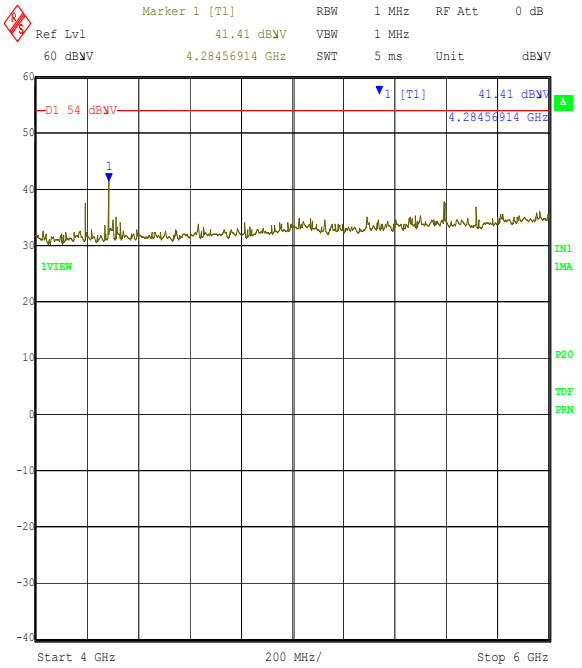


Start 2.0 GHz; Stop 4.0 GHz
Ref 60 dBµV/m; Ref Offset 0.0 dB; 10 dB/div
RBW 1000.0 kHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS
Peak 2.784 GHz, 53.07 dBµV/m
Display Line: 54 dBµV/m; ; Limit Test Passed
7/2/2004 11:02:29 AM

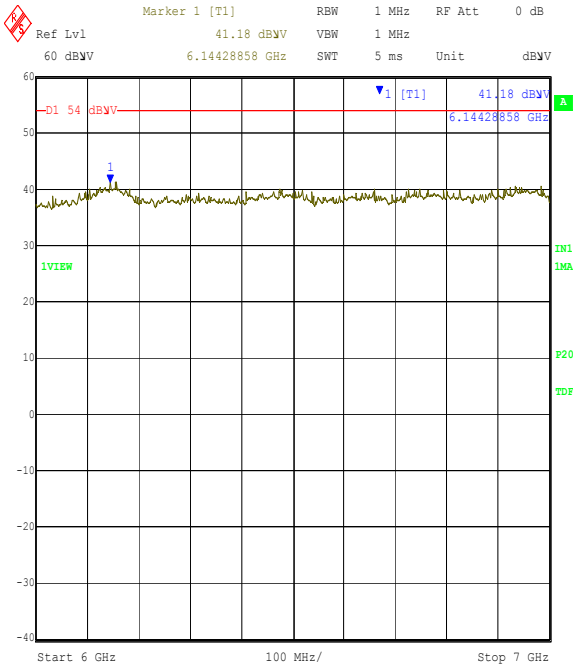
Note: these plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

Test Of: **Datascope Corp.**
Panorama Wireless Transceiver
To: **FCC Part 95 Subpart H: 2003**

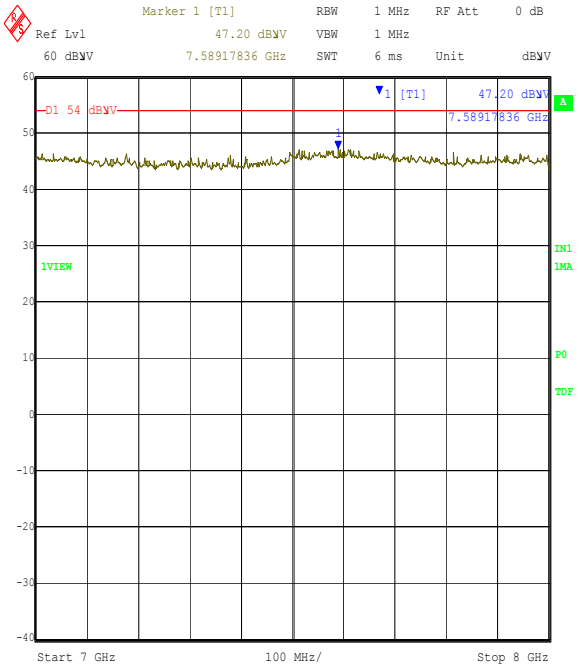
Transmitter Out of Band Radiated Emissions (Continued)



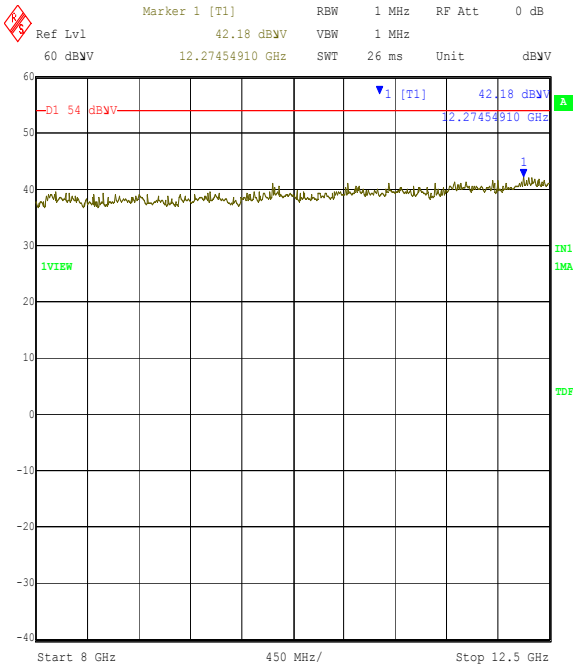
Title: Datascope EUT: Panarama Transceiver. FCC P95. No Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Top Channel Rad. Spurious
Date: 8.JUL.2004 14:23:41



Title: Datascope EUT: Panarama Transceiver. FCC P95. No Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Top Channel Rad. Spurious
Date: 8.JUL.2004 11:45:45



Title: Datascope EUT: Panarama Transceiver. FCC P95. No Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Top Channel Rad. Spurious
Date: 8.JUL.2004 11:48:09

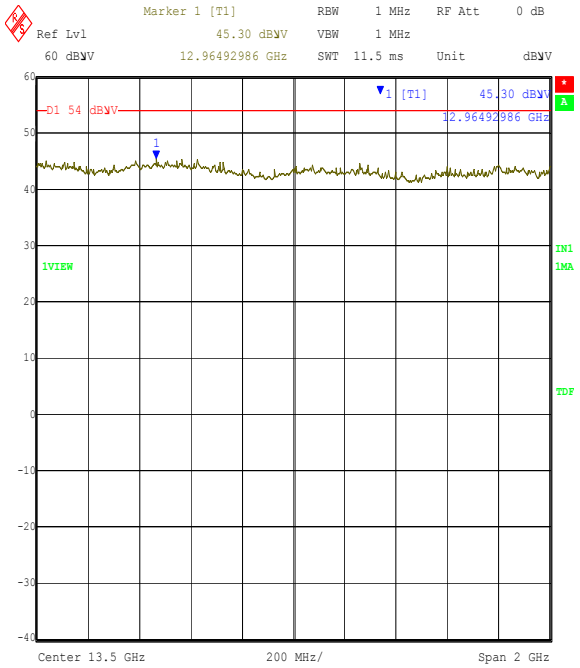


Title: Datascope EUT: Panarama Transceiver. FCC P95. No Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Top Channel Rad. Spurious
Date: 8.JUL.2004 11:26:00

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

Test Of: **Datascope Corp.**
Panorama Wireless Transceiver
To: **FCC Part 95 Subpart H: 2003**

Transmitter Out of Band Radiated Emissions (Continued)



Title: Datascope EUT: Panarama Transceiver. FCC P95. No Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Top Channel Rad. Spurious
Date: 8.JUL.2004 11:23:05

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

Test Of: **Datascope Corp.**
Panorama Wireless Transceiver
To: **FCC Part 95 Subpart H: 2003**

Transmitter Out of Band Radiated Emissions: Sections 95.1115(b)/2.1053 (Continued)

Integrated Power Over 1 MHz Strip Bands: 1425 to 1426 MHz and 1430.5 to 1431.5 MHz

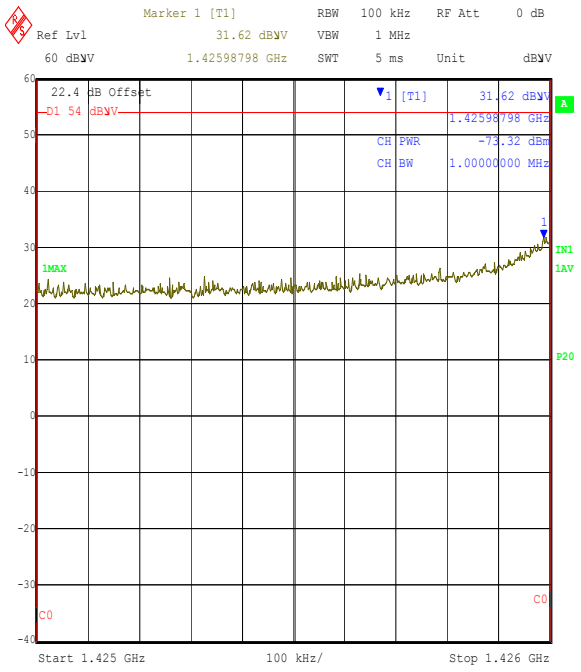
1st 1 MHz block immediately outside adjacent frequency block

Testing was performed using the channel power function of the spectrum analyser to integrate the 1 MHz blocks immediately outside the adjacent frequency block.

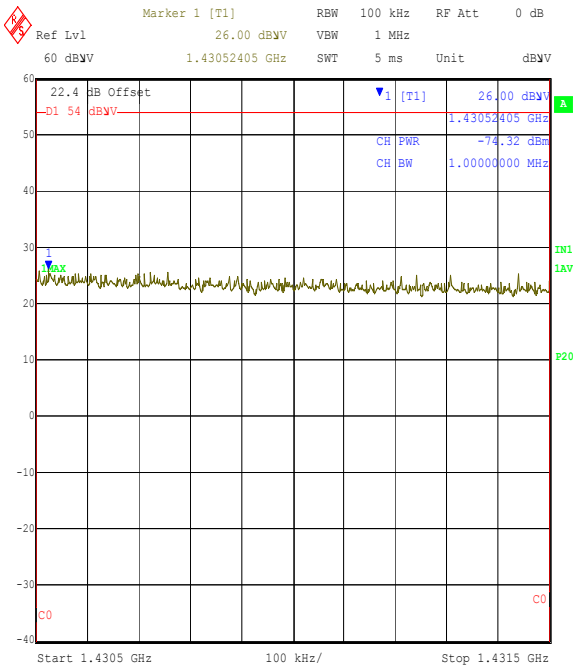
Results:

Band (MHz)	Average Power (dBm/MHz)	Average Power (dBμV/MHz)	Limit (dBμV/MHz)	Margin (dB)	Status
1425 to 1426	-73.3	33.7	54.0	20.3	Complied
1430.5 to 1431.5	-74.3	32.7	54.0	21.3	Complied

Note: The average power in dBμV/MHz is obtained by adding a correction factor of 107 dB to the average power in dBm/MHz. The antenna factors and cable loss are included within these measurements.*
**The spectrum analyser always defaults to this unit for this measurement.*



Title: Datascope EUT: Panarama Transceiver. FCC P95. No Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz 1MHz Band strip LB ch(3A)
Date: 9.JUL.2004 10:36:14



Title: Datascope EUT: Panarama Transceiver. FCC P95. No Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz 1MHz Band strip UB ch(2B)
Date: 9.JUL.2004 10:39:03

Test Of: **Datascope Corp.**
Panorama Wireless Transceiver
To: **FCC Part 95 Subpart H: 2003**

12.1. Transmitter Radiated Emissions At Band Edges: Section 95.1115(b)/2.1053

12.1.1. The EUT was configured as for transmitter radiated emissions testing described in Section 12.2 of this report.

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

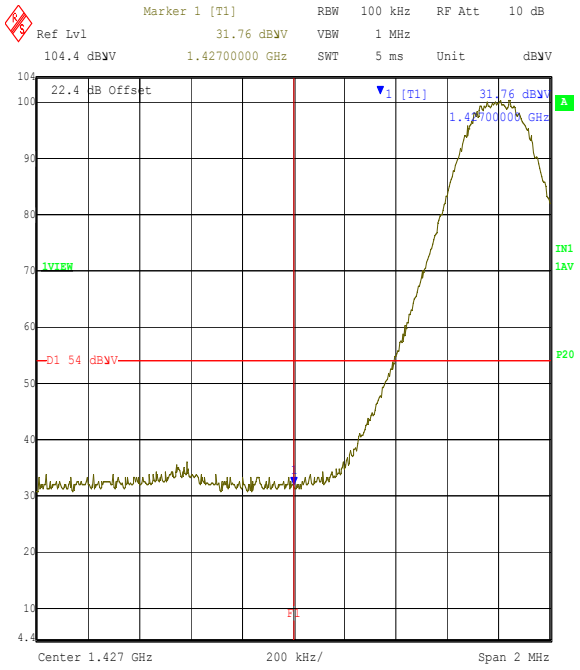
Results:

Bottom Band Edge

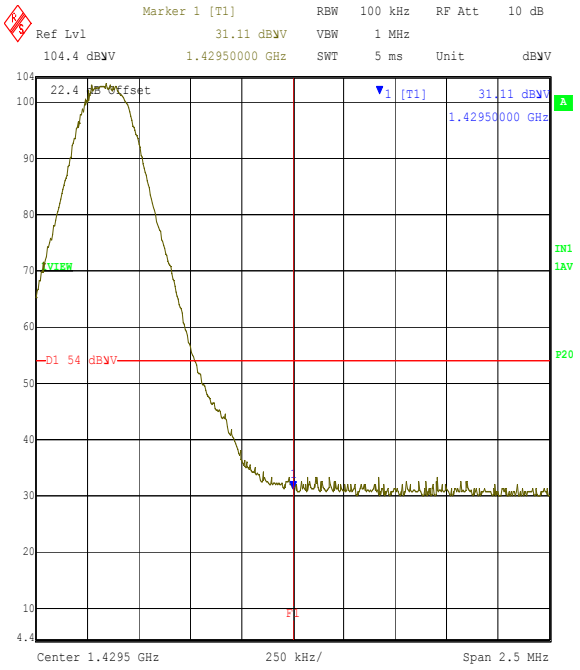
Frequency (MHz)	Avg Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
1427	31.8	54.0	22.2	Complied

Top Band Edge

Frequency (MHz)	Avg Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
1429.5	31.1	54.0	22.9	Complied



Title: Datascope EUT: Panarama Transceiver. FCC P95. No Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Band Edge Bottom Ch.(3A)
Date: 8.JUL.2004 16:49:45



Title: Datascope EUT: Panarama Transceiver. FCC P95. No Repeater.
Comment A: 46115JD03 Band (1427-1429.5)MHz Band Edge Top Channel (2B)
Date: 8.JUL.2004 16:40:22

TEST EQUIPMENT USED (Listed under RFI serial numbers):
Refer to Appendix 1 of this test report.

13. Measurement Methods – Part 95

13.1. Transmitter Conducted Emissions

Conducted Emissions measurements were performed in accordance with Part 2.1051 against the appropriate limits.

Spurious emission measurements at the Antenna port were performed from the lowest declared frequency to 10 times the highest EUT fundamental frequency.

A spectrum analyser was connected to the antenna port of the EUT via a suitable cable and RF attenuation. Prior to testing being performed the RF attenuation and cable were calibrated for the required frequency range. For each measurement range the calibrated level of the attenuator and cable were entered as an offset into the spectrum analyser to compensate for the losses in the measurement set up.

A limit line was set to 20 dB below the peak of the fundamental emission

Initial measurements covering the entire frequency band in the form of swept scans were performed on the bottom and top channels in order to identify frequencies on which the EUT was generating spurious emissions. This determined the frequencies on which final measurements were necessary. To make the final measurements a peak detector was used in conjunction with the appropriate detector IF measuring bandwidth.

Repetitive scans were performed to allow for emissions with low repetition rates.

Scans were performed to the upper frequency limit as stated in Section 2.1057(a)(1) i.e. as the equipment operates below 10 GHz, to the 10^{th} harmonic of the highest fundamental frequency.

Standard FCC practice states that the 1^{st} MHz band immediately adjacent to the applicants declared frequency block may be measured using a resolution bandwidth of at least 1% of the emission bandwidth. This was the method used to measure radiated emissions at the band edges. This bandwidth was found by calculating 1% of the bandwidth measured in the transmitter occupied bandwidth section of this report. A bandwidth of 30 kHz (> 1% of the emission bandwidth) was, therefore, used.

13.2. Transmitter Radiated Emissions

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

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

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

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

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

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

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

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

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

Scans were performed to the upper frequency limit as stated in Section 2.1057(a)(1) i.e. as the equipment operates below 10 GHz, to the 10^{th} harmonic of the highest fundamental frequency.

The final field strength was determined as the indicated level in dBμV plus cable loss and antenna factor.

Standard FCC practice states that the 1^{st} MHz band immediately adjacent to the applicants declared frequency block may be measured using a resolution bandwidth of at least 1% of the emission bandwidth. This was the method used to measure radiated emissions at the band edges. This bandwidth was found by calculating 1% of the bandwidth measured in the transmitter occupied bandwidth section of this report. A bandwidth of 100 kHz (> 1% of the emission bandwidth) was, therefore, used.

Transmitter Radiated Emissions (continued)

The measurements in the 2nd 1 MHz blocks away from the adjacent 1 MHz block from 1393 MHz to 1394 MHz, 1401 MHz to 1402 MHz, 1425 MHz to 1426 MHz and 1430. 5 MHz to 1431.5 MHz were performed using the channel power function of the spectrum analyser using a span of 1 MHz and a 100 kHz Resolution Bandwidth (RBW). These readings were integrated to give the emission level in an equivalent 1 MHz bandwidth.

13.3. Occupied (20 dB) Bandwidth

The EUT was connected to a spectrum analyser enabled with an occupied bandwidth function via a direct connection.

Measurements were performed to determine the Occupied Bandwidth in accordance with FCC Part 2.1049. The Occupied Bandwidth was measured from the fundamental emission at the bottom and top channels. The Occupied Bandwidth was measured in line with the requirements of 2.1049 i.e. wth the EUT modulated with a signal representing the maximum rated conditions under which it will operate (worst case)

The Occupied Bandwidth was measured using the built in occupied bandwidth function of the Rohde and Schwarz FSEB or ESIB spectrum analyser. It was set to measure the bandwidth where 99% of the signal power was contained. The analyser settings were set as per those outlined in the FSEB or ESIB user manual for this measurement.

13.4. Frequency Stability

The EUT was situated within an environmental test chamber and monitored on the test equipment via a direct connection (as applicable).

Measurements were performed with the EUT operating under extremes of temperature in 10° increments within the range –5°C* to 50°C.

Measurements were also performed at voltage extremes between the declared nominal supply voltage and at the declared endpoint voltage (for hand carried battery operated equipment) or by varying the primary supply voltage from 85% to 115% of the nominal value for all other equipment types.

The requirement was to determine the frequency stability of the device under specified environmental operating conditions.

The EUT was switched off for a minimum of 30 minutes between each stage of testing while the environmental chamber stabilised at the next temperature within the stated temperature range.

Once the environmental chamber had reached thermal equilibrium, the nominal frequency of the EUT was measured and recorded. The recorded frequency was compared to the appropriate operating frequency band edge.

In order to show compliance, the measured frequency must remain within the declared frequency band.

**Reduced lower temperature extreme due to EUT not operating at the intermediate temperatures below this temperature.*

14. Measurement Uncertainty

14.1. 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.

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

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

14.4. 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 Carrier Output Power	9 kHz to 26 GHz	95%	+/- 1.2 dB
Conducted Emissions Antenna Port	9 kHz to 26 GHz	95%	+/- 1.2 dB
Fundamental Fieldstrength	1 GHz to 2 GHz	95%	+/- 4.18 dB
Frequency Stability	Not applicable	95%	+/- 20 Hz
Occupied Bandwidth	Not applicable	95%	+/- 0.12 %
Radiated Spurious Emissions	30 MHz to 1000 MHz	95%	+/- 5.26 dB
Radiated Spurious Emissions	1 GHz to 18 GHz	95%	+/- 4.18 dB

14.5. 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	Horn Antenna	Eaton	91889-2	557
A037	Low Power Filter	RFI	004	A037
A1392	Attenuator	HUBER + SUHNER	757456	6820.17.B
A1393	Attenuator	HUBER + SUHNER	757456	6820.17.B
A258	Variable Power Supply	Zenith Electric	SVA 10	None
A259	Bilog Antenna	Chase	CBL6111	1513
A427	WG 14 Horn Antenna	Flann	14240-20	150
A428	WG 12 Horn Antenna	Flann	12240-20	134
A429	WG 16 Horn Antenna	Flann	16240-20	561
A430	WG 18 Horn Antenna	Flann	18240-20	425
A490	Bilog Antenna	Chase	CBL6111A	1590
E011	Environmental Chamber	DE	WIR3-40	11-96-A2103
G013	Signal Generator	Rohde & Schwarz	SMHU	894 055/003
M003	Spectrum Monitor	Rohde & Schwarz	EZM	883 580/008
M044	Test Receiver	Rohde & Schwarz	ESVP	891 845/026
M058	Multimeter	Fluke	79	54940691
M069	Receiver/Spectrum Analyser	Rohde & Schwarz	ESMI	827 063/008
M088	Receiver/Spectrum Analyser	Rohde & Schwarz	ESBI	835387/006
M090	Receiver/Spectrum Analyser	Rohde & Schwarz	ESBI	836833/001
M1122	Power Head	Boonton Electronics	57340	3297
M1123	Power Meter	Boonton	4531	138201
M1124	Receiver/Spectrum Analyser	Rohde & Schwarz	ESIB26	100046K
S201	Site 1	RFI	1	
S202	Site 2	RFI	2	S202-15011990

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

Appendix 2. Test Configuration Drawings

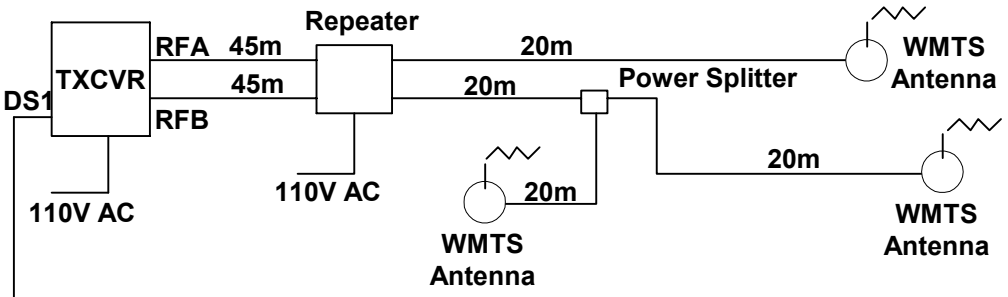
This appendix contains the following drawings:

Drawing Reference Number	Title
DRG\46115JD03\001	Configuration 1, With Cable Repeater Fitted
DRG\46115JD03\002	Configuration 2, Without Cable Repeater Fitted
DRG\46115JD03\EMIRAD	Test configuration for measurement of radiated emissions

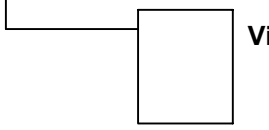
Test Of: Datascope Corp.
Panorama Wireless Transceiver
To: FCC Part 95 Subpart H: 2003

DRG\46115JD03\001

Configuration of EUT and Local Support Equipment



Note: All RF cables were 20m in length except for cables between Tranceiver and Repeater which were 45m in length.



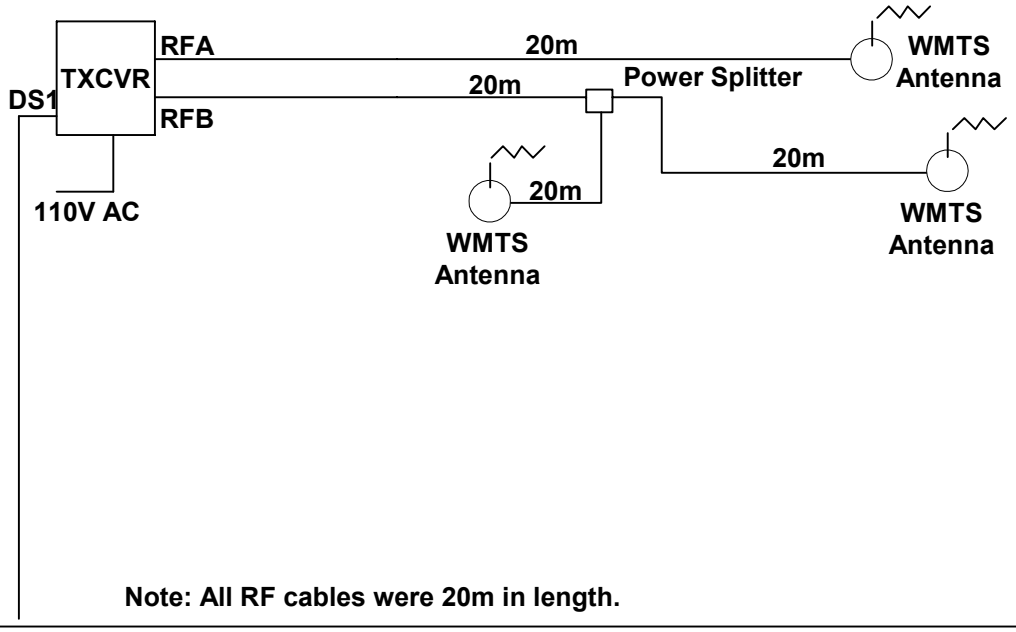
(Only used to set up the EUT, not connected during testing)

Configuration of Remote Support Equipment

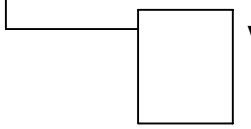
Test Of: Datascope Corp.
Panorama Wireless Transceiver
To: FCC Part 95 Subpart H: 2003

DRG\46115JD03\002

Configuration of EUT and Local Support Equipment



Note: All RF cables were 20m in length.



(Only used to set up the EUT,
not connected during testing)

Configuration of Remote Support Equipment

Test Of: Datascope Corp.
Panorama Wireless Transceiver
To: FCC Part 95 Subpart H: 2003

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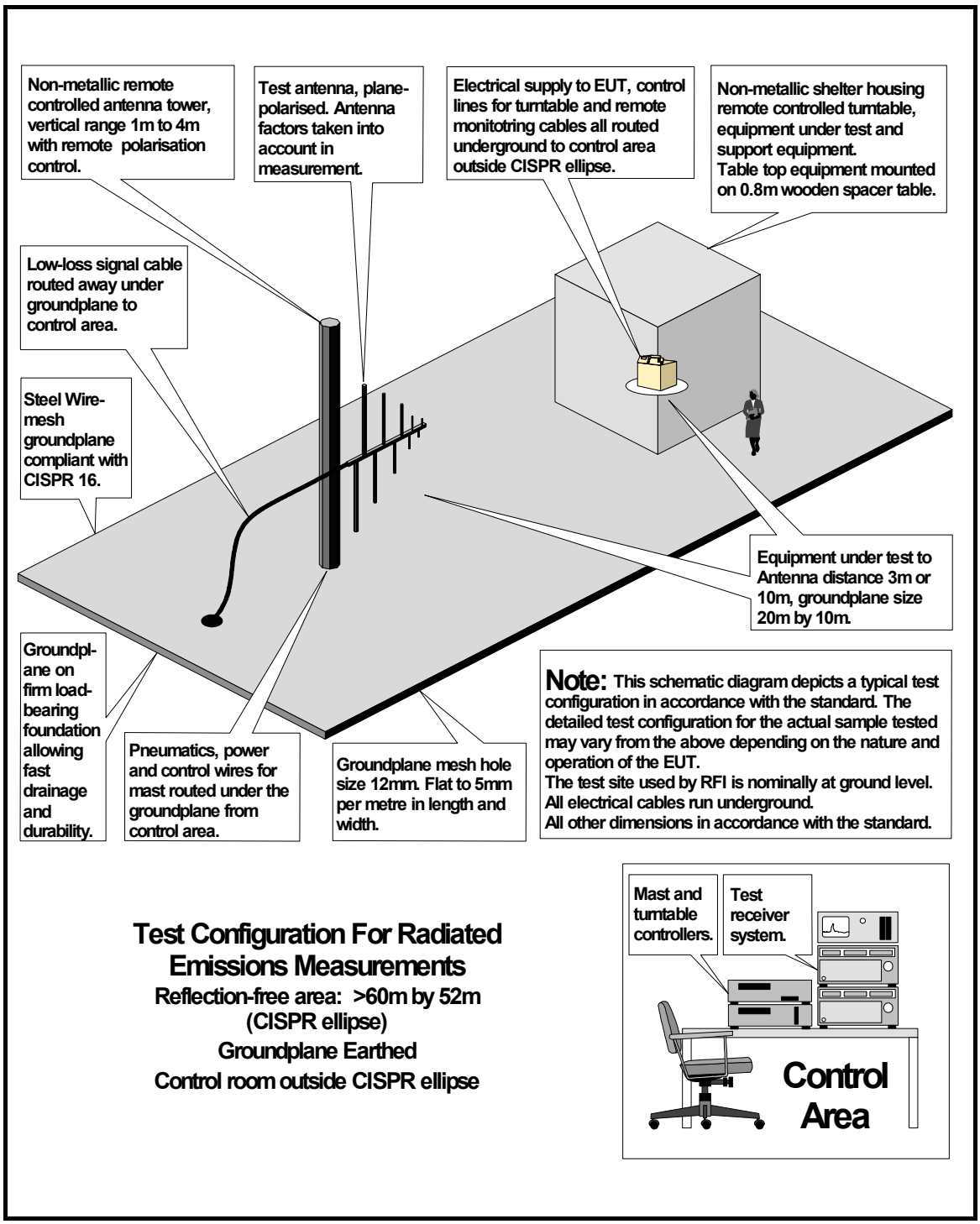

Test Configuration For Radiated Emissions Measurements
Reflection-free area: >60m by 52m (CISPR ellipse)
Groundplane Earthed
Control room outside CISPR ellipse

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