

FCC CFR47 PART 15 SUBPART C CERTIFICATION TEST REPORT

FOR

BLUETOOTH SCANNER

MODEL NUMBER: BT2141-03

FCC ID: T9J-RN1022-M

REPORT NUMBER: 06U10284-1, REVISION B

ISSUE DATE: JUNE 01, 2006

Prepared for ROVING NETWORKS 431 MONTEREY AVE, SUITE 5 LOS GATOS, CA 95030, USA

Prepared by COMPLIANCE CERTIFICATION SERVICES 561F MONTEREY ROAD MORGAN HILL, CA 95037, USA TEL: (408) 463-0885 FAX: (408) 463-0888



Revision History

Rev.	Issue Date	Revisions	Revised By
-	5/30/06	Initial Issue	MH
В	6/01/06	Updated EUT description, model number and section 5.1	DZ

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	ROVING NETWO 431 MONTEREY A	AVE, SUITE 5	
	LOS GATOS, CA 9		
EUT DESCRIPTION:	BLUETOOTH SCA	ANNER	
MODEL:	BT2141-03		
SERIAL NUMBER:	01746		
DATE TESTED:	MAY 17- 20, 2006		
	APPLICABLE	STANDARDS	
STANDAR)	TEST RESULTS	
FCC PART 15 SUB	PART C	NO NON-COMPLIANCE NOTED	

Compliance Certification Services, Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:

Tested By:

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MH

MIKE HECKROTTE ENGINEERING MANAGER COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003, FCC CFR 47 Part 2 and FCC CFR 47 Part 15.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 561F Monterey Road, Morgan Hill, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <u>http://www.ccsemc.com</u>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Radiated Emission, 30 to 200 MHz	+/- 3.3 dB
Radiated Emission, 200 to 1000 MHz	+4.5 / -2.9 dB
Radiated Emission, 1000 to 2000 MHz	+4.5 / -2.9 dB
Power Line Conducted Emission	+/- 2.9 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a Bluetooth scanner powered by batteries.

The radio module is manufactured by Roving Networks.

The Applicant name, EUT model number and EUT description were changed after testing commenced, all data in this report is applicable to the Applicant name, model number and description documented in Section 1 above.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:

Frequency Range	Output Power	Output Power
(MHz)	(dBm)	(mW)
2402 - 2480	2.64	1.84

2400 to 2483.5 MHz Authorized Band

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a single chip antenna. Two models are available: one is YAGOE with a maximum gain of 4.1 dBi and the other is TDK with a maximum gain of 0 dBi.

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was BLUETEST 2833.

The EUT driver software installed in the host support equipment during testing was BLUETEST

The test utility software used during testing was Bluetest.exe

5.5. WORST-CASE CONFIGURATION AND MODE

The worst-case channel is determined as the channel with the highest output power. The highest measured output power was at 2480 MHz.

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5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST						
Description Manufacturer Model Serial Number FCC ID						
Laptop	Sony	PCG-F390	28305031-3030373	DoC		
PS2 mouse	Logitech	811375-000	LZA9037	DoC		
Interface card	Roving Networks	Plotech 4-944-0	E169497	NA		

I/O CABLES

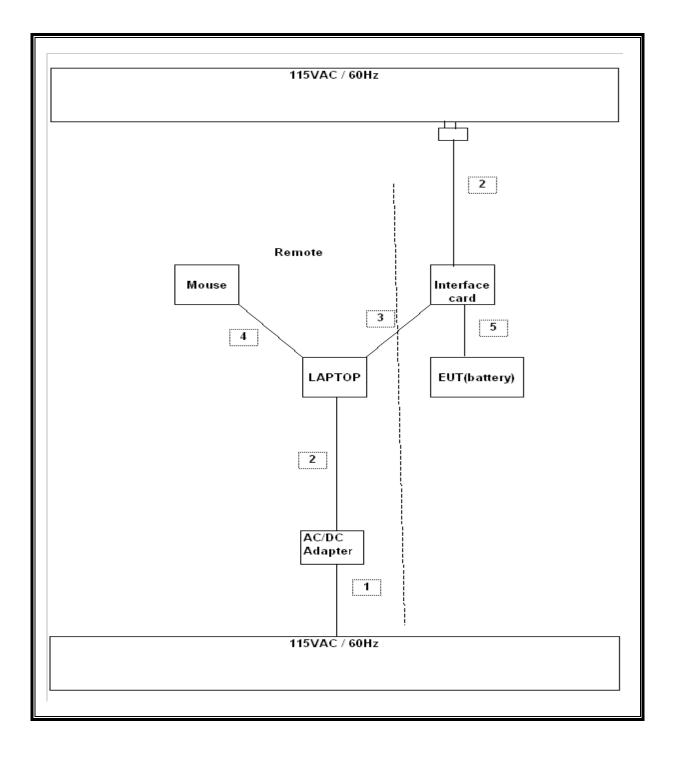
	I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks	
1	AC	1	US 115V	Un-shielded	2m	No	
2	DC	2	DC Plug	Un-shielded	2m	No	
3	Serial	1	DB9	Un-shielded	2m	Yes	
4	Mouse	1	PS/2	Un-shielded	2m	Yes	
5	N/A	N/A	DC	Un-shielded	.5m	No	

TEST SETUP

The EUT is connected to the serial port of a laptop computer via an interface card. Test software exercised the radio card.

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SETUP DIAGRAM FOR TESTS



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6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST						
Description	Manufacturer	Model	Serial Number	Cal Due		
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	2/15/1906	4/22/2007		
Spectrum Analyzer 3 Hz ~ 44 GHz	Agilent / HP	E4446A	MY45300064	12/19/06		
Preamplifier, 1 ~ 26.5 GHz	Agilent / HP	8449B	3008A00561	10/3/07		
EMI Receiver, 9 kHz ~ 2.9 GHz	Agilent / HP	8542E	3942A00286	2/4/07		
RF Filter Section	Agilent / HP	85420E	3705A00256	2/4/07		
Antenna, Bilog 30 MHz ~ 2 Ghz	Sunol Sciences	JB1	A121003	9/3/06		
Power Meter	Agilent / HP	438B	3125U09516	2/15/07		

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7. LIMITS AND RESULTS

7.1. ANTENNA PORT CHANNEL TESTS

7.1.1. 20 dB BANDWIDTH

<u>LIMIT</u>

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 1% to 3% of the 20 dB bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled.

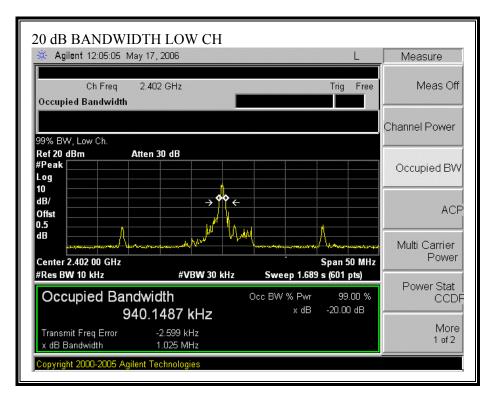
RESULTS

No non-compliance noted:

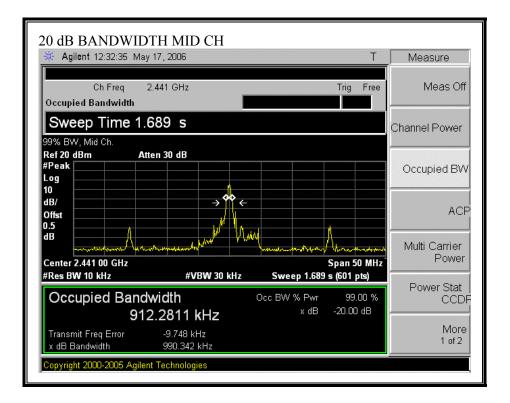
Channel	Frequency	20 dB Bandwidth
	(MHz)	(kHz)
Low	2402	940.1487
Middle	2441	912.2811
High	2480	912.9189

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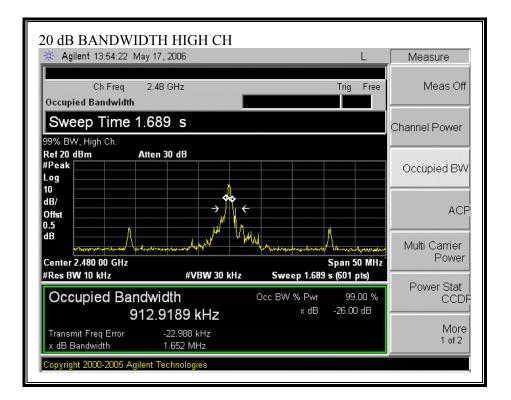
20 dB BANDWIDTH



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7.1.2. HOPPING FREQUENCY SEPARATION

<u>LIMIT</u>

§15.247 (a) (1) Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hoping channel, whichever is greater.

TEST PROCEDURE

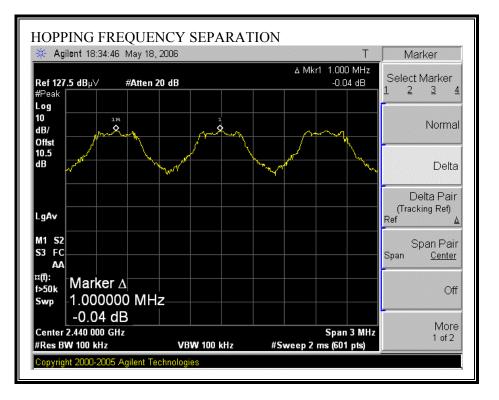
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 100 kHz. The sweep time is coupled.

RESULTS

No non-compliance noted:

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HOPPING FREQUENCY SEPARATION



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7.1.3. NUMBER OF HOPPING CHANNELS

<u>LIMIT</u>

15.247 (a) (1) (iii) Frequency hopping systems in the 2400 – 2483.5 MHz band shall use at least 15 non-overlapping channels.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The span is set to cover the entire authorized band, in either a single sweep or in multiple contiguous sweeps. The RBW is set to 1 % of the span. The analyzer is set to Max Hold.

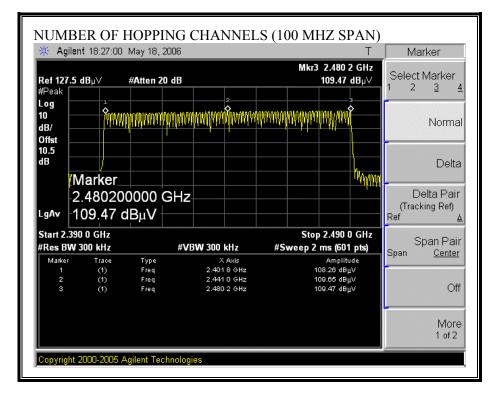
RESULTS

No non-compliance noted:

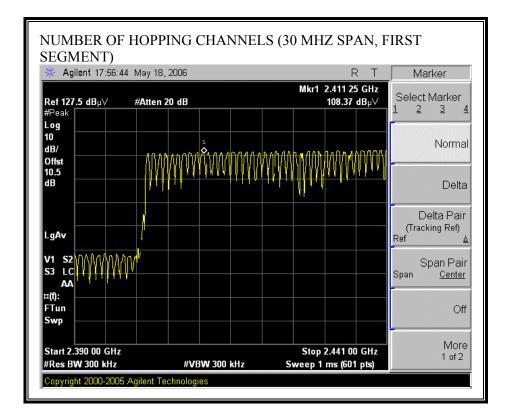
79 Channels observed.

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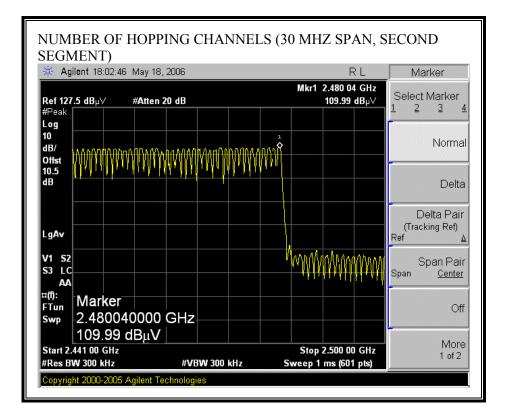
NUMBER OF HOPPING CHANNELS



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7.1.4. AVERAGE TIME OF OCCUPANCY

<u>LIMIT</u>

15.247 (a) (1) (iii) Frequency hopping systems in the 2400 - 2483.5 MHz band shall use at least 15 nonoverlapping channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The span is set to 0 Hz, centered on a single, selected hopping channel. The width of a single pulse is measured in a fast scan. The number of pulses is measured in a 3.16 second scan, to enable resolution of each occurrence.

The average time of occupancy in the specified 31.6 second period (79 channels * 0.4 s) is equal to 10 * (# of pulses in 3.16 s) * pulse width.

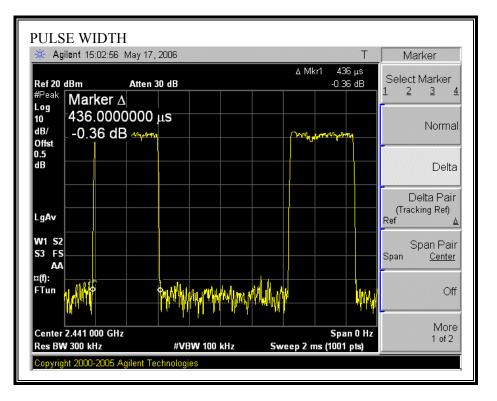
RESULTS

No non-compliance noted:

Time Of Occupancy = 10 * 30 pulses * 0.436 msec = 130.8 msec

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PULSE WIDTH



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NUMBER OF PULSES 🔆 Agilent 19:01:24 May 18, 2006 Freq/Channel Center Freq Ref 10.5 dBm #Atten 20 dB 2.44100000 GHz #Peak Log 10 Start Freq dB/ 2.44100000 GHz Offst 0.5 Stop Freq 2.44100000 GHz dB CF Step 2.44100000 GHz LgAv Auto Man W1 S2 Freq Offset 0.00000000 Hz S3 FS AA ¤(f): Center FTun 2.441000000 GHz Step 2.441000000 GHz Center 2.441 000 GHz Span 0 Hz Sweep 3 s (601 pts) Res BW 1 MHz #VBW 1 MHz Copyright 2000-2005 Agilent Technologies

NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD

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7.1.5. PEAK OUTPUT POWER

PEAK POWER LIMIT

§15.247 (b) The maximum peak output power of the intentional radiator shall not exceed the following:

§15.247 (b) (1) For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 hopping channels: 1 watt.

§15.247 (b) (4) Except as shown in paragraphs (b)(3) (i), (ii) and (iii) of this section, if transmitting antennas of directional gain greater than 6 dBi are used the peak output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1) or (b)(2) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The maximum antenna gain is 4.1dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer and the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

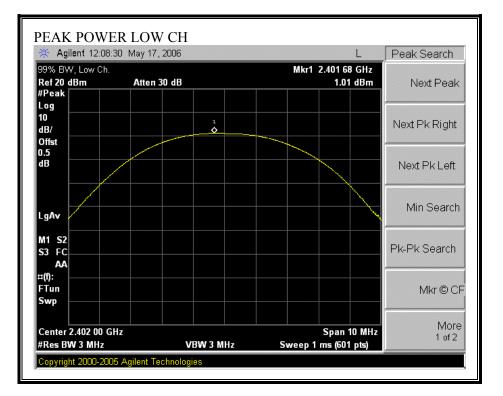
RESULTS

No non-compliance noted:

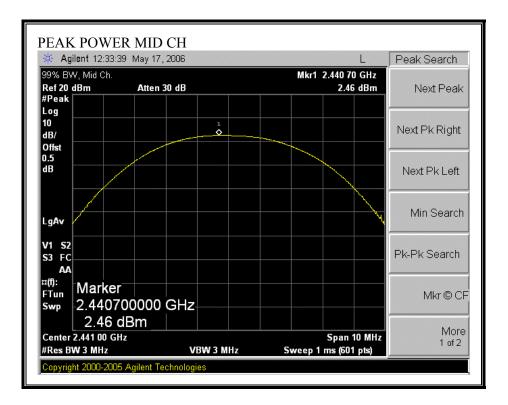
Channel	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	1.01	30	-28.99
Middle	2441	2.46	30	-27.54
High	2480	2.64	30	-27.36

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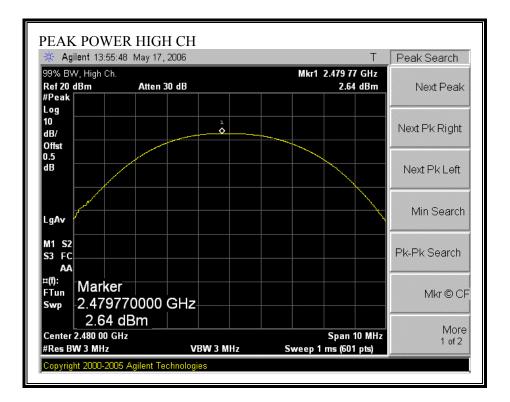
OUTPUT POWER



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7.1.6. RF EXPOSURE REQUIREMENT

The output power is below the SAR Threshold of the RF exposure requirement.

7.1.7. AVERAGE POWER

AVERAGE POWER LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

No non-compliance noted:

The cable assembly insertion loss of .5 dB was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency	Average Power
	(MHz)	(dBm)
Low	2402	-4.46
Middle	2441	-3.32
High	2480	-2.60

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7.1.8. CONDUCTED SPURIOUS EMISSIONS

LIMITS

§15.247 (c) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in§15.205(a), must also comply with the radiated emission limits specified in §15.205(a).

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

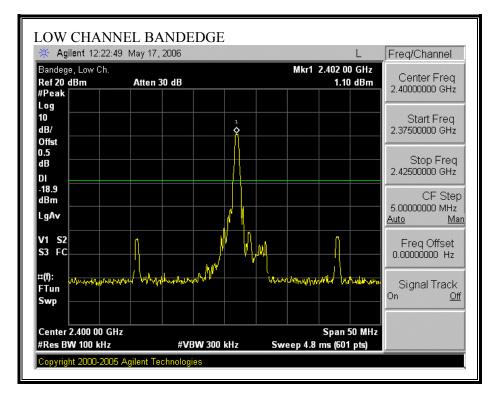
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

No non-compliance noted:

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SPURIOUS EMISSIONS, LOW CHANNEL

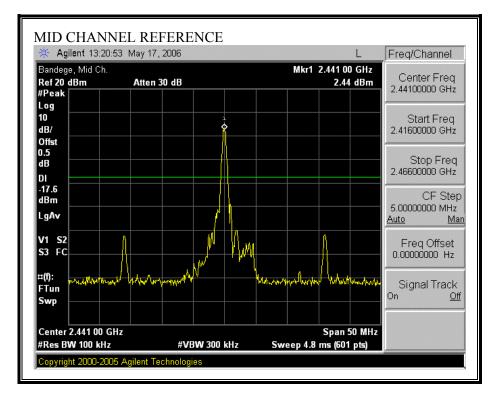


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· ·	f 14:28:40	May 17, 200	6		RL	Marker
Spurious, L Ref 20 dBr #Peak		Atten 30 d	B	M	kr3 3.20 GHz -57.61 dBm	Select Marker 1 2 <u>3</u> 4
Log 10 dB/ Offst						Marker Trace <u>Auto 1 2 3</u>
0.5 dB ↓	2					Readout , Frequency
-19.1 dBm			http://www.angingalitica.com	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	and the state of t	Marker Table On Off
Start 30 M #Res BW 1			45 / DMI 200 1-11-		op 26.00 GHz	Marker All Off
Marker	Trace	Туре	#VBW 300 kHz X Axis	Sweep 2.482 s	Amplitude	Marker All Off
1	(1)	Freq	810 MHz	4	39.06 dBm	
2	(1)	Freq	1.61 GHz	-•	47.35 dBm	
3	(1)	Freq	3.20 GHz	-4	57.61 dBm	
						More

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SPURIOUS EMISSIONS, MID CHANNEL

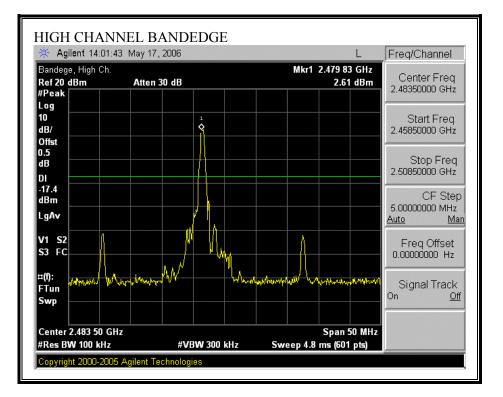


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	nt 13:22:27	May 17, 20	106		L	Marker
Spurious, I Ref 20 dB #Peak		Atten 30	dB		1.89 GHz 80 dBm	Select Marker 1 2 3 <u>4</u>
Log 10 dB/ Offst						Marker Trace <u>Auto 1 2</u> 3
0.5 <u>1</u> dB ¢ DI _		4 0				Readout Frequency
-17.6 dBm		and the second sec	when a should be should be should be a should be a should be a should be a sho		~~~~~	Marker Table <u>On Off</u>
	Hz			Stop 26	.00 GHz	
Start 30 M			#VBW 300 kHz	Stop 26 Sweep 2.482 s (100		Marker All Off
Start 30 M #Res BW	100 kHz Trace	Туре	X Axis	Sweep 2.482 s (100	1 pts) litude	Marker All Off
Start 30 M #Res BW Marker 1	100 kHz Trace (1)	Freq	X Axis 810 MHz	Sweep 2.482 s (100 Amp -35.44	1 pts) litude dBm	Marker All Off
Start 30 M #Res BW Marker 1 2	100 kHz Trace (1) (1)	Freq Freq	X Axis 810 MHz 1.64 GHz	Sweep 2.482 s (100 Amp -35.44 -49.04	1 pts) litude dBm dBm	Marker All Off
Start 30 M #Res BW Marker 1	100 kHz Trace (1)	Freq	X Axis 810 MHz	Sweep 2.482 s (100 Amp -35.44	1 pts) litude dBm dBm dBm	Marker All Off

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SPURIOUS EMISSIONS, HIGH CHANNEL

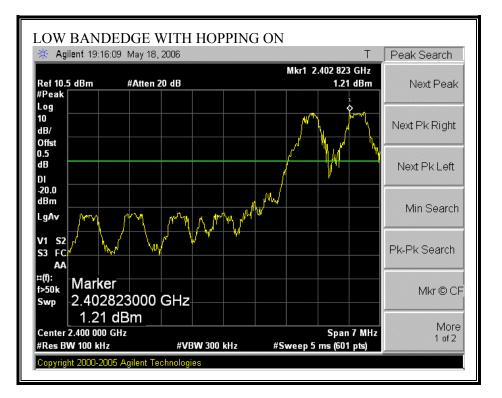


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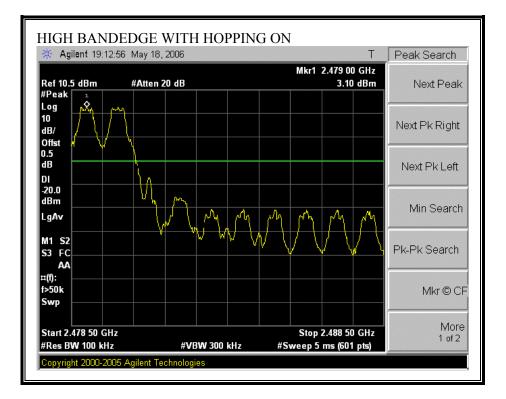
	nt 14:03:15	May 17, 200	6		L	Marker
Spurious, I Ref 20 dB #Peak		Atten 30 d	B		.96 GHz 54 dBm	Select Marker 1 2 3 <u>4</u>
Log 10 dB/ Offst						Marker Trace <u>Auto 1 2 3</u>
0.5 dB						Readout , Frequency
-17.4 dBm	0		and the second strains	have by any set of the set of the set	ran Mur	Marker Table
LgAv						<u>On Off</u>
Start 30 M	Hz			Stop 26	.00 GHz	
#Res BW	100 kHz		#VBW 300 kHz	Sweep 2.482 s (100	1pts)	Marker All Off
Marker	Trace	Туре	X Axis	Ampl		
	(1)	Freq	840 MHz	-33.14 (
1	(1)	Freq Freq	1.64 GHz 3.30 GHz	-52.23 (-51.19 (
1 2				-01.181		
1	(1) (1)	Freq	4.96 GHz	-56.64 (iBm	
1 2 3	(1)			-56.64 (18m	
1 2 3	(1)			-56.84 (iBm	More

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SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON



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7.2. RADIATED EMISSIONS

7.2.1. TRANSMITTER RADIATED SPURIOUS EMISSIONS

LIMITS

§15.205 (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	$(^{2})$
13.36 - 13.41			

¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

² Above 38.6

§15.205 (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

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\$15.209 (a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

§15.209 (b) In the emission table above, the tighter limit applies at the band edges.

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TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

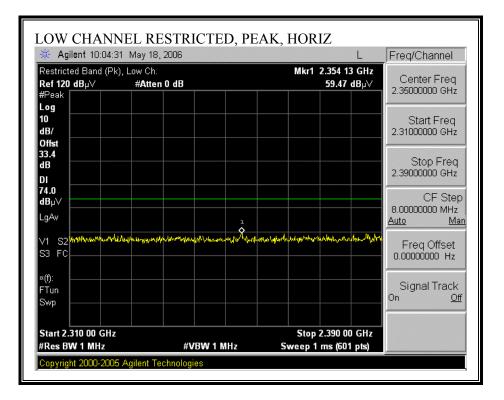
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each 5 GHz band.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

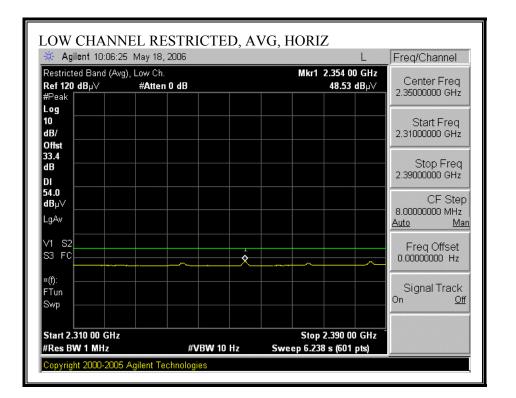
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7.2.2. TRANSMITTER RADIATED EMISSIONS ABOVE 1 GHZ

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

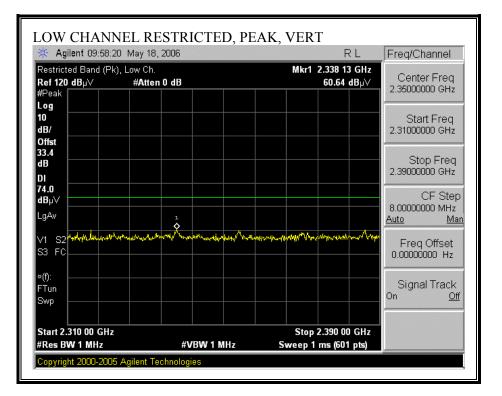


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RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

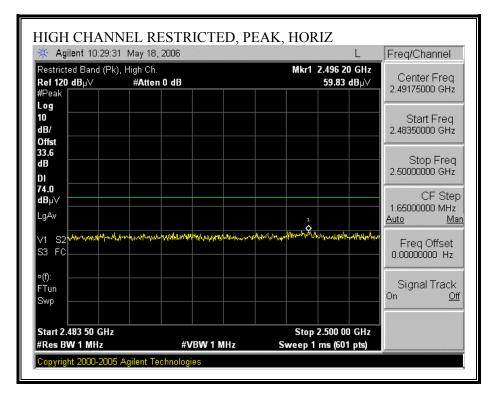


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🔆 Agilent 09:59:	38 May 18, 2006			L	Freq/Channel
Restricted Band (A Ref 120 dB µ∨ #Peak	vg), Low Ch. # Atten 0 dB		Mkr1 2.338 0 51.45		Center Freq 2.35000000 GHz
Log 10 dB/					Start Freq 2.31000000 GHz
Offst 33.4 dB DI					Stop Freq 2.3900000 GHz
54.0 dBµ√ LgAv					CF Step 8.00000000 MHz Auto Man
V1 S2	1				Freq Offset 0.00000000 Hz
≈(f): FTun Swp					Signal Track On <u>Off</u>
Start 2.310 00 GHz #Res BW 1 MHz	2 #VBW 1	IN H7	Stop 2.390 0 Sweep 6.238 s (601		

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RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

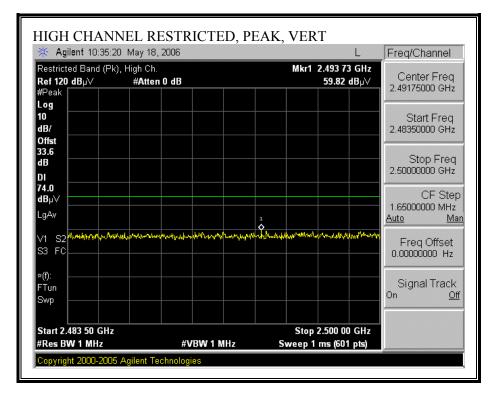


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🔆 Agilent 10:30:	56 May 18, 2006		L	Freq/Channel
Restricted Band (A Ref 120_dB µ∨		Mkr1 2	.496 04 GHz 48.83 dBµ∨	Center Freq 2.49175000 GHz
#Peak				2.43173000 0112
Log 10 dB/				Start Freq 2.48350000 GHz
Offst				2.40350000 GHZ
33.6 dB				Stop Freq 2.5000000 GHz
DI				2.3000000 0112
54.0 dBµ∨				CF Step
LgAv				1.65000000 MHz <u>Auto Man</u>
V1 S2				Freq Offset
S3 FC				0.00000000 Hz
×(f):				
FTun				Signal Track On Off
Swp				
Start 2.483 50 GH	<u> </u>	Stop 2	.500 00 GHz	
#Res BW 1 MHz		DHz Sweep 1.287		

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RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



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🔆 Agilent 10:36:	48 May 18, 2006	L	Freq/Channel
Restricted Band (A Ref 120 dB µ∨		Mkr1 2.496 12 0 48.06 dB	Contor Eroa
#Peak Log			
10 dB/			Start Freq 2.48350000 GHz
Offst 33.6			
dB			Stop Freq 2.5000000 GHz
DI			2.30000000 0112
dBµ∀			CF Step
LgAv			1.65000000 MHz <u>Auto Mar</u>
∨1 S2			Freq Offset
S3 FC			0.00000000 Hz
×(f):			
FTun			Signal Track
Swp			
Start 2.483 50 GH	z	Stop 2.500 00 G	iHz
#Res BW 1 MHz	#VBW 10		

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HARMONICS AND SPURIOUS EMISSIONS

mpan	v:Micr	oVision													
oject #	#:06U	10284													
	5/18/200 rineer	06 Thanh Ngu	von												
	-	-	face card and	d remot	e supj	oort Lap	top.								
ode: 1	fransm	it				-	-								
erage	Power	: Meter: Lo	w = -4.46 dB	m, Mid :	= -3.32	dBm, H	igh = -2.60) dBm							
st Eq	uipmen	. <u>t:</u>													
н	orn 1-	18GHz	Pre-ar	nplifer	1-260	GHz	Pre-am	plifer	26-40GH	Iz	н	orn > 18(GHz		Limit
T119;	S/N: 29	301 @3m		9 8449B		-				-				-	FCC 15.209 🗸
Hi Freq	uency Ca	bles —													
	2 foot		3	foot c	able		12	foot c	able		HPF	Re	ject Filte	r Peak	<u> Measurements</u>
									000				,	RB	W=VBW=1MHz
			, Than	h 18721	5003	•	Thanh	208946	•003	HF	F_4.0GHz	•		T	ge Measurements 1MHz ; VBW=10Hz
<u> </u>	D ' 4			AR	CT.		Da	774	- D 1		та т.	. т.	71.3.6		DT (
f GHz	Dist (m)	dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	dB	Avg Mar dB	Notes (V/H)
		12480MHz	uDu v	uD/m		<u></u>	<u></u>		and the second s	and with	and the second s	ubu v/m		<u>ш</u>	(11)
60	3.0	45.5	39.2	33.8	2.7	-34.8	0.0	6.0	47.8	41.5	74	54	-26.2	-12.5	v
40	3.0	42.3	29.7	35.2	3.7	-34.1	0.0	0.0	47.7	35.2	74	54	-26.3	-18.8	V
20 60	3.0 3.0	43.9 46.4	30.2 42.0	36.5 33.8	4.0 2.7	-32.9 -34.8	0.0 0.0	0.8 0.6	52.3 48.7	38.6 44.4	74 74	54 54	-21.7 -25.3	-15.4 -9.6	V H
40	3.0	40.4	29.8	35.2	3.7	-34.0	0.0	0.0	40.7	35.3	74	54 54	-25-5	-18.7	H
20	3.0			36.5	4.0	-32.9	0.0	0.8	8.5	8.5	74	54	-65.5	-45.5	Noise floor
	· · · · · · · · · · · · · · · · · · ·	2441 MHz													
82	3.0	45.6	40.2	33.7	2.6	-34.8	0.0	0.0	47.7	42.4	74	54	-26.3	-11.6	v
23 64	3.0 3.0	41.4 42.6	28.9	35.2 36.3	3.7 4.0	-34.1 -33.3	0.0 0.0	0.6 0.8	46.8 50.5	34.3 36.6	74 74	54 54	-27.2 -23.5	-19.7 -17.4	Noise floor
82	3.0	44.6	38.9	33.7	2.6	-34.8	0.0	0.0	46.8	41.0	74	54	-27.2	-13,0	Н
23	3.0	41.3	28.2	35.2	3.7	-34.1	0.0	0.0	46.7	33.6	74	54	- 27 3	- 20.4	Н
64	3.0	41.9	28.7	36.3	4.0	-33.3	0.0	0.8	49.8	36.6	74	54	-24.2	-17.4	Noise floor
Low 24 04	02MHz 3.0	44.2	36.6	33.7	2.6	-34.8	0.0	6.0	46.2	38.6	74	54	-27.8	-15.4	Н
04 04	3.0 3.0	44.2	28.5	35.7 35.2	3.6	-34.0	0.0	0.0	40.2	36.0	74	54 54	-21.8	-15.4	H
08	3.0	41.0	28.4	36.2	4.0	-33.7	0.0	0.8	48.3	35.7	74	54	-25.7	-18.3	Noise floor
04	3.0	43.6	31.2	33.7	2.6	-34.8	0.0	0.0	45.6	33.2	74	54	-28.4	-20.8	V
04 NS	3.0	41.5	31.0	35.2	3.6 4.0	-34.2	0.0	0.0 8 N	46.7 49 1	36.3	74 74	54 54	-27.3	-17.7	V
08 7. 5.1.6	3.0	41.8	28.5	36.2	4.0	-33.7	0.0	0.8	49.1	35.8	74	54	-24.9	-18.2	<u>v</u>
	f		nt Frequency	9		Amp	Preamp		_			~	-	ield Strengt	
	Dist	Distance to							ct to 3 met					i Strength Li	
		Analyzer R	-			Avg	-		Strength @			-	-	Average Li	
	AF	Antenna Fa				Peak			c Field Stre	ength		Pk Mar	Margin vs	Peak Limit	
	CL	Cable Loss				HPF	High Pas	s Filter							

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7.2.3. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

ORIZO	NTAL DAT	ГА						
	DMPLIANCE						Morga Tel:	Monterey Road an Hill, CA 95037 (408) 463-0888 (408) 463-0885
Data#: Audix		le#: 10	284.EMI	:	Dat	e: 05-1	9-2006	Time: 18:43:13
Test (Compar Projec BUT De Model S/N: Config Mode (ct #: escription	: Tha : Mic : 06U : Fli : SM- : : EUT on: Tra	nh Nguy roVisio 10284 c Smart 2 , Inter	ven on : Module :face ca oata 2	ard,remo	te lapt		
								Page: 1
	Freq	Read Level	Factor	Level	Limit Line		Remark	
-	MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1	151.250	22.47	14.07	36.54	43.50	-6.96	Peak	
2	401.510	19.23			46.00			
3	487.840				46.00			
4	567.380				46.00			
5	606.180 670.200				46.00 46.00			

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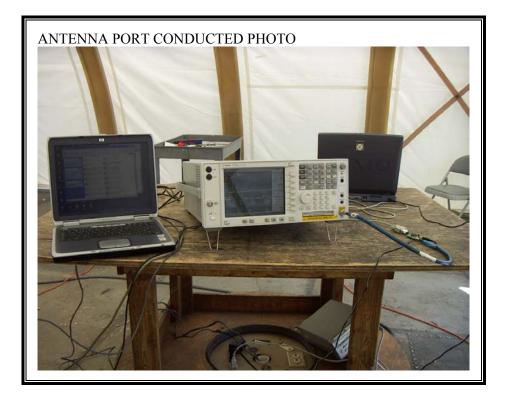
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

RTICAL DATA					Morga Tel:	Monterey Road In Hill, CA 95037 (408) 463-0888 (408) 463-0885
)ata#: 8 Fi Audix ATC	le#: 10284.EM:	Ľ	Dat	e: 05-1	9-2006	Time: 18:46:57
Condition: FCC Sest Operator: Company: Project #: SUT Description Model No: S/N: Configuration: Mode of Operati Sest Target:	: Thanh Nguy : MicroVisio : 06U10284 1: : Flic Smart : SM-2 : : EUT, Inter	yen on t Module rface car Data 2 (h	rd,remo	te lapt		
	B 1					Page: 1
Freq	Read Level Factor	Level	Limit Line	Over Limit	Remark	
MHz	dBuV dB	dBuV/m d	lBuV/m	dB		
	21.27 9.32					
		33.01				
		35.10				
		35.48				
	13.22 21.50 13.44 22.71					

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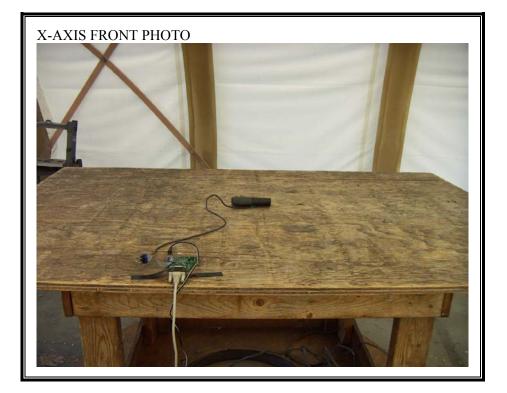
8. SETUP PHOTOS

ANTENNA PORT CONDUCTED RF MEASUREMENT SETUP



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RADIATED RF MEASUREMENT SETUP FOR PORTABLE CONFIGURATION



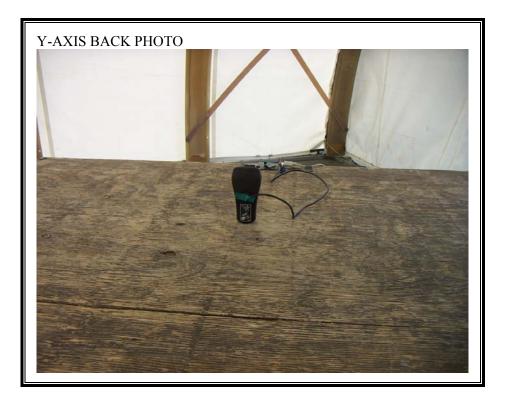
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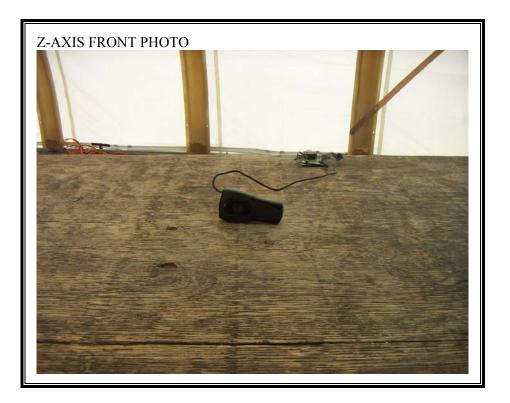
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END OF REPORT

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