

FCC CFR47 CLASS II PERMISSIVE CHANGE CERTIFICATION

802.11b/g HALF SIZE MINI-PCI WLAN MODULE

MODEL NUMBER: PA3426U-1MPC

FCC ID: CJ6UPA3426WL

REPORT NUMBER: 05U3427-1

ISSUE DATE: MAY 16, 2005

Prepared for TOSHIBA CORPORATION DIGITAL MEDIA NETWORK COMPANY 2-9 SUEHIRO-CHO, OME TOKYO, 198-8710, JAPAN

> Prepared by COMPLIANCE ENGINEERING SERVICES, INC. d.b.a. COMPLIANCE CERTIFICATION SERVICES 561F MONTEREY ROAD, MORGAN HILL, CA 95037, USA TEL: (408) 463-0885 FAX: (408) 463-0888



Revision History

Rev. Revisions

Revised By

Page 2 of 66

TABLE OF CONTENTS

1.	ΑT	FESTATION OF TEST RESULTS	4
2.	TES	ST METHODOLOGY	5
3.	FA	CILITIES AND ACCREDITATION	5
4.	CA	LIBRATION AND UNCERTAINTY	5
4	.1.	MEASURING INSTRUMENT CALIBRATION	5
4	.2.	MEASUREMENT UNCERTAINTY	5
5.	EQ	UIPMENT UNDER TEST	6
5	.1.	DESCRIPTION OF EUT	6
5	.2.	CLASS II PERMISSIVE CHANGE DESCRIPTION	6
5	.3.	MAXIMUM OUTPUT POWER	7
5	.4.	DESCRIPTION OF AVAILABLE ANTENNAS	7
5	.5.	SOFTWARE AND FIRMWARE	7
5	.6.	WORST-CASE CONFIGURATION AND MODE	7
5	. 7.	DESCRIPTION OF TEST SETUP	8
6.	TES	ST AND MEASUREMENT EQUIPMENT	.10
7.	LIN	AITS AND RESULTS	.11
7	.1.	AVERAGE POWER	.11
7	.2.	RADIATED EMISSIONS	
	7.2.		
	7.2.		
	7.2. 7.2.		. 34
		4. WORST-CASE RADIATED EMISSIONS BELOW T GHZ (WITH LASVEGAS PTOP)	.53
7	.3.	POWERLINE CONDUCTED EMISSIONS	
/	. <i>3</i> . 7.3.		
8.	SET	FUP PHOTOS	.61

Page 3 of 66

1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	TOSHIBA CORPORATION DIGITAL MEDIA NETWORK COMPANY 2-9 SUEHIRO-CHO, OME TOKYO, 198-8710, JAPAN		
EUT DESCRIPTION:	802.11 b/g HALF SIZE MINI-PCI WLAN MODULE		
MODEL:	PA3426U-1MPC		
SERIAL NUMBER:	04B-0619		
DATE TESTED:	MAY 11-16, 2005		
	APPLICABLE STANDARDS		
STANDARD	TEST RESULTS		
FCC PART 15 SUBF	ART 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:

THU CHAN EMC SUPERVISOR COMPLIANCE CERTIFICATION SERVICES

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Page 4 of 66

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 an 802.11b/g transceiver WLAN.

The radio module is manufactured by Atheros.

5.2. CLASS II PERMISSIVE CHANGE DESCRIPTION

The EUT was originally tested and reported under CCS project no.: 04U3194, and granted by TCB on February 28, 2005. Then CCS project no: 05U3307, and granted by TCB on March 24, 2005. The major change filed under this application is:

1. Components changed:

- $_$ Changed C146 from 105 Ω change to 39 Ω
- Changed R128 from 130 Ω change to 261 Ω
- Changed R130 from 150 Ω change to 121 Ω

Based on previous report filing number 05U3307-1, Libretto laptop configuration is the worst case at all, so additional tests were conducted on g-mode low and band edges, and b-mode harmonic spurious for radiated emissions at mid channel.

2. The EUT is being used in a different host.

Las Vegas Laptop: additional tests were conducted on radiated emissions and AC power line conducted emissions, while conducted emissions data remains the same as what was performed under CCS project no.: 04U3194.

Page 6 of 66

5.3. MAXIMUM OUTPUT POWER

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

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2462	802.11b	19.44	87.90
2412 - 2462	802.11g	22.97	198.15
2412 - 2462	802.11g Turbo	21.53	142.23

2400 to	2483 5	MHz	Autho	rized	Band
2100 10	2105.5	111112	ruuno	11200	Duna

5.4. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes four PIFA Film type antennas, each has a maximum gain as follows:

PIFA type antennas:

- 1. HTL017 4.24 dBi at 2.4GHz without cable loss;
- 2. HTL004 4.18 dBi at 2.4GHz without cable loss;
- 3. HTL008 2.89 dBi at 2.4GHz without cable loss;
- 4. TIAN01 4.02 dBi at 2.4GHz without cable loss.

The HTL017 antenna, which has the highest gain, represents the worst-case scenario.

5.5. SOFTWARE AND FIRMWARE

The test firmware was installed in the EUT during testing.

The test utility software used during testing was "art program" rev.4.8

5.6. 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 2412 MHz for both b and g modes.

The worst-case data rate for this channel is determined to be 1 Mb/s for b mode and 6 Mb/s for g mode, based on previous experience with 802.11b/g WLAN product design architectures

Page 7 of 66

5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST							
Description	Manufacturer	Model	Serial Number	FCC ID			
Laptop	Toshiba Libretto	XAL580TNHW	22062758J	DoC			
AC Adapter	Toshiba	PA24404	0110C1123893	NA			
AC Adapter	Toshiba	PA3241U-1ACA	0409A5177935G	DoC			
Laptop	Toshiba Las Vegas	PLU10N-AAA14	04B-0619	DoC			

I/O CABLES

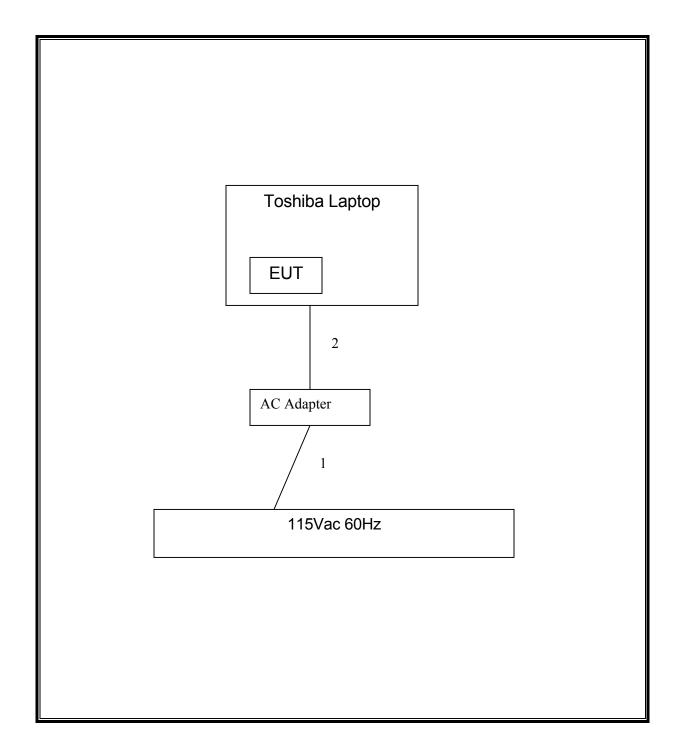
	I/O CABLE LIST								
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks			
1	AC	1	115VAC	Unshielded	2m	No			
2	DC	1	DC	Unshielded	1.5m	No			

TEST SETUP

The EUT is installed in a host laptop computer during the tests. Test software exercised the radio card.

Page 8 of 66

SETUP DIAGRAM FOR TESTS



Page 9 of 66

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		
EMI Test Receiver	R & S	ESHS 20	827129/006	10/22/2005		
30MHz - 2Ghz	Sunol Sciences	JB1 Antenna	A121003	9/12/2005		
RF Filter Section	HP	85420E	3705A00256	3/6/2006		
EMI Receiver, 9 kHz ~ 2.9 GHz	HP	8542E	3942A00286	3/6/2006		
EMI Test Receiver	R & S	ESHS 20	827129/006	10/22/2005		
Antenna, Horn 18 ~ 26 GHz	ARA	SWH-28	1007	9/12/2005		
LISN, 10 kHz ~ 30 MHz	FCC	LISN-50/250-25-2	2023	8/30/2005		
Site A Line Stabilizer / Conditioner	Tripplite	LC-1800a	A0051681	CNR		
Spectrum Analyzer	HP	E4446A	US42510266	8/25/2005		
Peak Power Meter	Agilent	E4416A	GB41291160	1/9/2006		
Peak / Average Power Sensor	Agilent	E9327A	US40440755	1/10/2006		
Amplifier 1-26GHz	MITEQ	NSP2600-SP	924341	8/17/2005		
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	2238	9/12/2005		
4.0GHz HPF	Microtronic	HPM13351	2	CNR		
Preamplifier, 1 ~ 26.5 GHz	HP	8449B	3008A00369	8/17/05		

Page 10 of 66

7. LIMITS AND RESULTS

7.1. 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 11 dB (including 10 dB pad and 1dB cable) was entered as an offset in the power meter to allow for direct reading of power.

802.11b Mode

Channel	Frequency	Average Power
	(MHz)	(dBm)
Low	2412	16.56
Middle	2437	16.39
High	2462	16.45

802.11g Mode

Channel	Frequency (MHz)	Average Power (dBm)
Low	2412	15.21
Middle	2437	15.05
High	2462	15.12

802.11g Turbo Mode

Channel	Frequency (MHz)	Average Power (dBm)
Middle	2437	15.00

Page 11 of 66

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. \$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	Field Strength	Measurement Distance
(MHz)	(microvolts/meter)	(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.

Page 13 of 66

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.

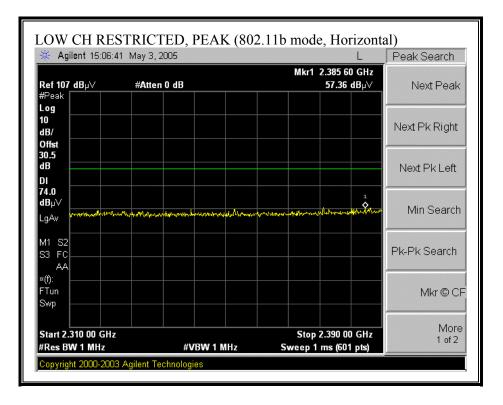
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each 5 GHz band.

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.

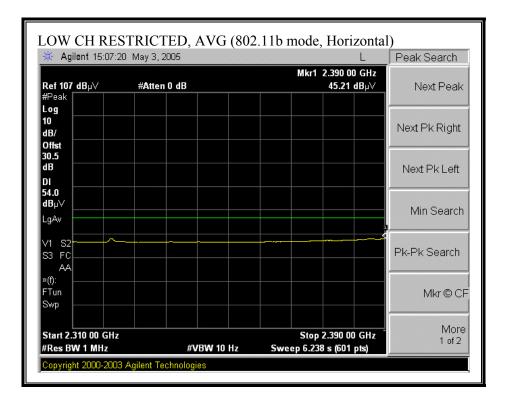
Page 14 of 66

7.2.2. TRANSMITTER ABOVE 1 GHz (WITH LIBRETTO LAPTOP)

RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, HORIZONTAL)

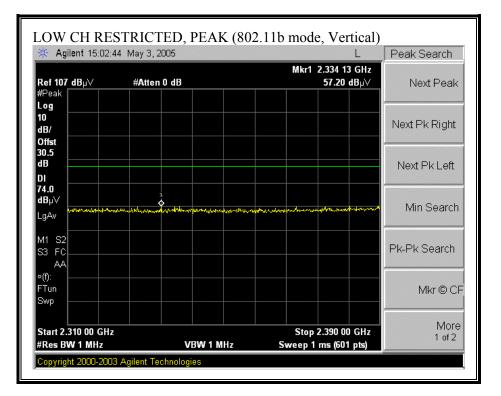


Page 15 of 66

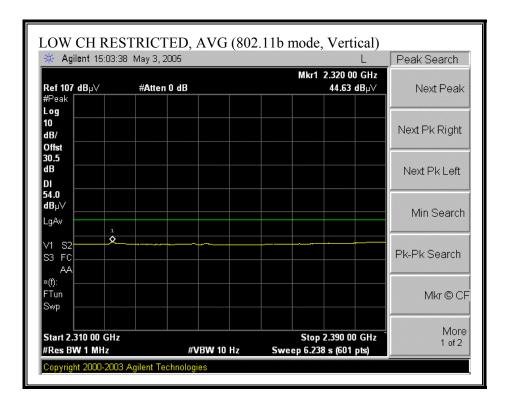


Page 16 of 66

RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, VERTICAL)

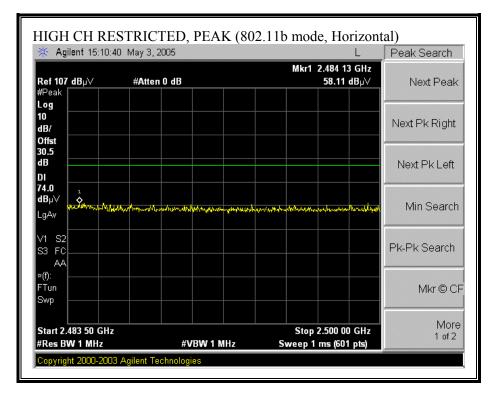


Page 17 of 66

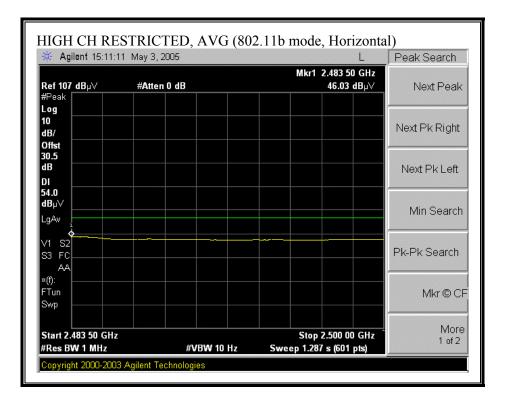


Page 18 of 66

RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, HORIZONTAL)

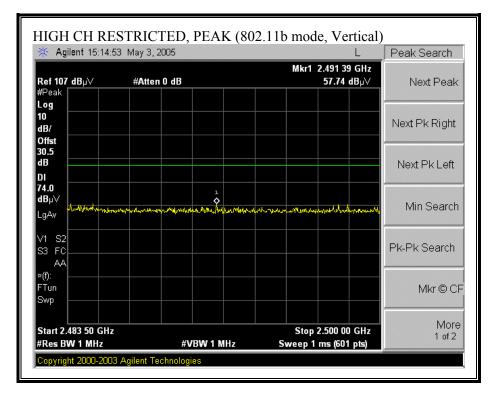


Page 19 of 66



Page 20 of 66

RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, VERTICAL)



Page 21 of 66

🔆 Agilent 15:14:0	08 May 3, 2005		L Peak Search
Ref 107_dBµ∨	#Atten 0 dB	Mkr1 2.483 50 45.11 dl	
#Peak			
10 dB/			Next Pk Right
Offst 30.5			
dB			Next Pk Left
DI			
dBµ∨ LgAv			Min Search
∨1 S2 S3 FC			Pk-Pk Search
AA ≈(f):			
FTun			Mkr © C
Swp			
Start 2.483 50 GHz		Stop 2.500 00 (GHz More
#Res BW 1 MHz	#VBW 10		

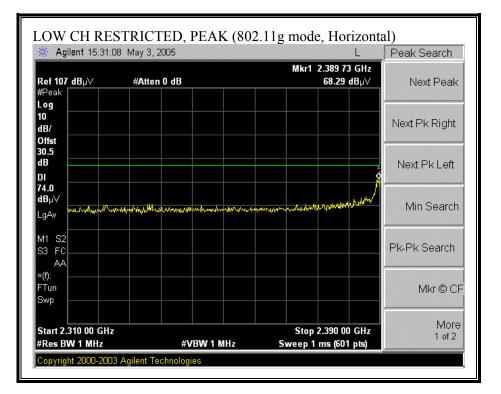
Page 22 of 66

HARMONICS AND SPURIOUS EMISSIONS (b MODE)

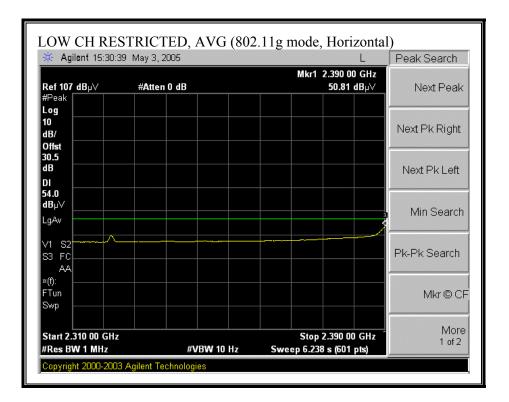
set Target: FCC 15.247 ode Oper: TX, b mode, rerage Power Meter: Low = 16.56 dBm, Mid = 16.39 dBm, High = 16.45 dBm EMCO Horn 1-18GHz Pre-amplifer 1-26 GHz Pre-amplifer 26-40 GHz Horn > 18GHz Limit FCC 15.205 Image Notes T59; S/N: 3245 @3m Tere-amplifer 1-26 GHz Pre-amplifer 26-40 GHz Horn > 18 GHz Limit 2 footcable 3 footcable 1 2 foot cable 1 2 foot cable Peak Measurements 2 footcable 3 footcable 1 2 foot cable 1 2 foot cable Peak Measurements REW=10HZ Peak Measurements RBW=10HZ Peak Magu Mag Notes GHZ (m) ME Peak Avg Pk Lim Average Measurements RBW=10HZ Peak Avg Pk Lim Networks Mag Notes ME Peak Avg Pk Lim Networks Mag <th>Intermediation of the system noise floor. Pre-amplifier 26-40GHz Horm > 18GHz Limit Frequency Cables Pre-amplifier 26-40GHz Horm > 18GHz Limit Pre-amplifier 1-26GHz Pre-amplifier 26-40GHz Horm > 18GHz Limit Total field with a state of the system noise floor. Pre-amplifier 26-40GHz Horm > 18GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Horm > 18GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-ak Pre-amplifier 26-40GHz Pre</th> <th>for Target: FCC 15.247 ode Oper: TX, b mode, rerage Power Meter: Low = 16.56 dBm, Mid = 16.39 dBm, High = 16.45 dBm EMCO Horn 1.18GHz Pre-amplifer 1-26GHz Horn > 18GHz Fre-amplifer 26-40GHz Too Horn 1.18GHz Pre-amplifer 26-40GHz Horn > 18GHz Fre-amplifer 26-40GHz Fre-amplifer 26-40GHz Horn > 18GHz FCC 2 footcable 3 footcable 4 footcable 12 footcable HFF RejectFilter Peak Meass 2 footcable 4 footcable 12 footcable HFF RejectFilter Peak Meass Average Mass Affer (m) dBuV dB/m dB dB dB dB B Peak Meass Affer (m) dBuV dB/m dB dB dB B Peak Meass Affer (m) dBuV dB/m dB dB dB dB dB dB <th< th=""><th></th></th<></th>	Intermediation of the system noise floor. Pre-amplifier 26-40GHz Horm > 18GHz Limit Frequency Cables Pre-amplifier 26-40GHz Horm > 18GHz Limit Pre-amplifier 1-26GHz Pre-amplifier 26-40GHz Horm > 18GHz Limit Total field with a state of the system noise floor. Pre-amplifier 26-40GHz Horm > 18GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Horm > 18GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-amplifier 26-40GHz Pre-ak Pre-amplifier 26-40GHz Pre	for Target: FCC 15.247 ode Oper: TX, b mode, rerage Power Meter: Low = 16.56 dBm, Mid = 16.39 dBm, High = 16.45 dBm EMCO Horn 1.18GHz Pre-amplifer 1-26GHz Horn > 18GHz Fre-amplifer 26-40GHz Too Horn 1.18GHz Pre-amplifer 26-40GHz Horn > 18GHz Fre-amplifer 26-40GHz Fre-amplifer 26-40GHz Horn > 18GHz FCC 2 footcable 3 footcable 4 footcable 12 footcable HFF RejectFilter Peak Meass 2 footcable 4 footcable 12 footcable HFF RejectFilter Peak Meass Average Mass Affer (m) dBuV dB/m dB dB dB dB B Peak Meass Affer (m) dBuV dB/m dB dB dB B Peak Meass Affer (m) dBuV dB/m dB dB dB dB dB dB <th< th=""><th></th></th<>	
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CL Cable Loss HPF High Pass Filter	CL Cable Loss HPF High Pass Filter	CL Cable Loss HPF High Pass Filter	

Page 23 of 66

RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, HORIZONTAL)

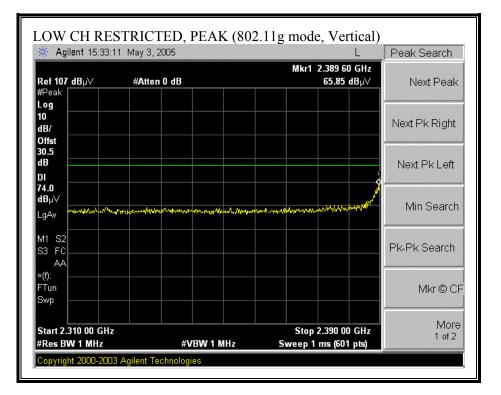


Page 24 of 66

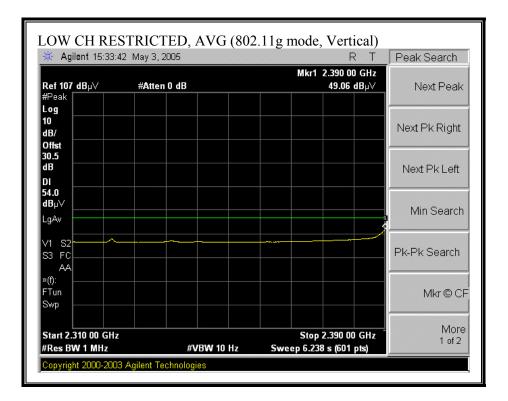


Page 25 of 66

RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, VERTICAL)

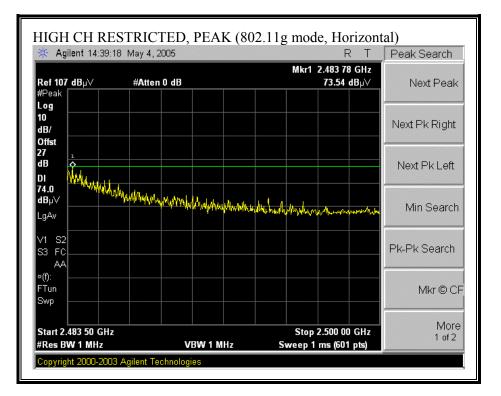


Page 26 of 66

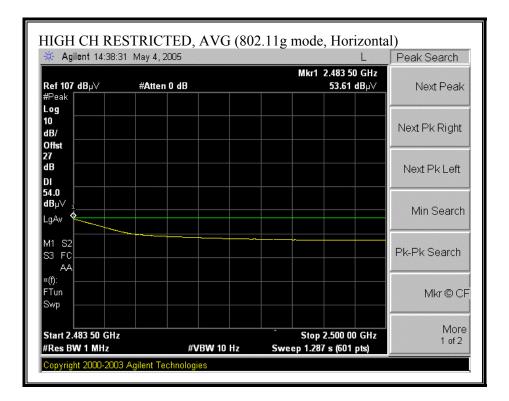


Page 27 of 66

RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, HORIZONTAL)

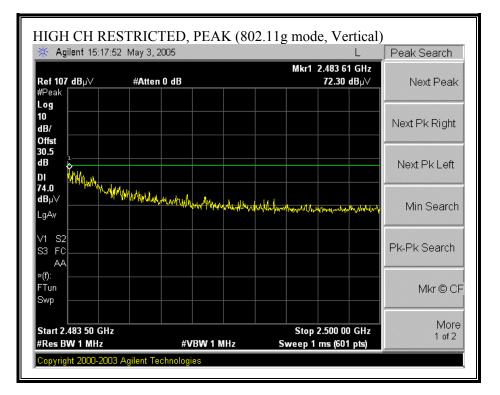


Page 28 of 66

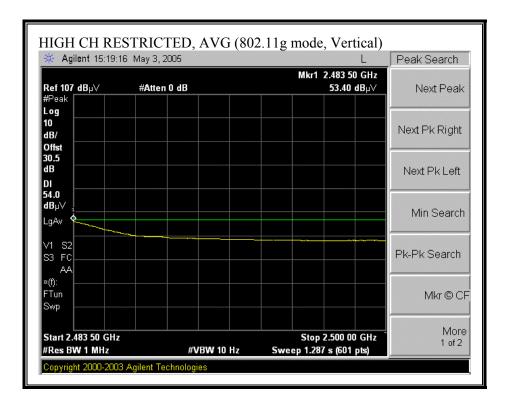


Page 29 of 66

RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, VERTICAL)



Page 30 of 66



Page 31 of 66

HARMONICS AND SPURIOUS EMISSIONS (g MODE)

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- Hi Frequen										I				Peok Marri	surements
2 foote	able	3 foo	ot cable	4 foot c	cable	12	2 foot cable		1	HPF	Reje	ect Filter		RBW=VBV	
	-		•	4_Than	h _	12	2 Neelesh	-	HPF_	4.0GHz		-			<u>Measurements</u> Hz ; VBW=10Hz
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GHz (lid Ch	(m)	dBuV	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	(V/H)
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Ċ.		Cable Loss				HPF	High Pas			م <u>ن</u>					

Page 32 of 66

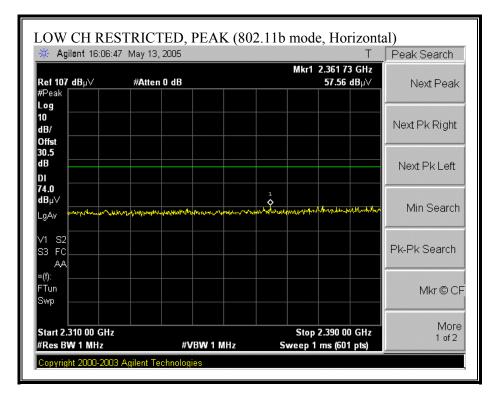
HARMONICS AND SPURIOUS EMISSIONS (g TURBO MODE)

$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	EMCO Horn 1-18 GHz Pre-amplifier 1-26 GHz Pre-amplifier 1-26 GHz FCC 15-205 T59; S/N: 3245 @3m T86 Mileq 924341 FCC 15-205 FCC 15-205 P Frequency Cables 3 foot cable 4 foot cable 12 foot cable HPF Reject Filter Rewerves Measurements C Dist Read Avg AF CL Amp D Corr Fltr Peak Avg Pk Lim Avg Lim Avg Mar Notes GHz (m) dBu V dB'm dB dB dB dBu V/m dBuV/m dBuV/m dBuV/m dBuV/m dBuV/m dB (V/H) Hard Ch 50.8 38.0 33.3 4.1 44.1 0.0 0.6 44.9 32.2 74 54 -29.3 -22.1 V 874 3.0 51.0 38.3 33.3 4.1 44.1 0.0 0.6 44.9 32.2 74 54 -29.1 -21.8 H 311 3.0 52.5 39.2 35.8 5.4 44.7 0.0 0.6 49.6 36.3 <t< th=""><th>UT M/N: PA3426U-JMPC (Component Changed) est Target: FCC 15.247 Joid Open: TX; g Turbo Mode verage Power Meter: Mid =15.00 dBm est Equipment:</th><th>UT M/N: PA3426U-JMPC (Component Changed) est Target: FCC 15.247 Jold Open: TX, g Turbo Mode verage Power Meter: Mid =15.00 dBm est Equipment: <u>Ext Equipment:</u> <u>BRCO Horn 1-18GHz</u> <u>Pre-amplifer1-26GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Horn >18GHz</u> <u>BRCO Horn 1-18GHz</u> <u>Pre-amplifer12.66GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>BRCO Horn 1-18GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-</u></th><th>UT M/N: PA3426U-IMPC (Component Changed) est Target: FCC 15.247 Iode Open: TX, g Turbo Mode verage Power Meter: Mid =15.00 dBm est Equipment: <u>Ext Equipment:</u> <u>BRCO Horn 1-18GHz</u> <u>Pre-amplifer1-26GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Brow - 18GHz</u> <u>Brow - 18GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Brow - 18GHz</u> <u>Brow - 18GHz</u> <u>Pre-amplifer12.66GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Brow - 18GHz</u> <u>Brow - 18GHz</u> <u>Brow - 18GHz</u> <u>Pre-amplifer26-40GHz</u> <u>Brow - 18GHz</u> <u>Brow - 18GHz</u></th><th>est Eng roject # ompany</th><th>nce Če gr: Chin #:05341 y: Toshi</th><th>rtification Pang 7-1 ba</th><th>Measurem Services, M</th><th>[organ]</th><th>-</th><th></th><th></th><th>- 7</th><th>1</th><th></th><th></th><th></th><th></th><th></th><th></th></t<>	UT M/N: PA3426U-JMPC (Component Changed) est Target: FCC 15.247 Joid Open: TX; 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ote: No other emissions were detected above the system noise floor. Image: Construction of the system noise floor. Image: Construction of the system noise floor. f Measurement Frequency Amp Preamp Gain Avg Lim Average Field Strength Limit Dist Distance to Antenna D Corr Distance Correct to 3 meters Pk Lim Peak Field Strength Limit AF Antenna Factor Peak Calculated Peak Field Strength Pk Mar Margin vs. Peak Limit	ote: No other emissions were detected above the system noise floor. Image: Construction of the system noise floor. Image: Construction of the system noise floor. f Measurement Frequency Amp Preamp Gain Avg Lim Average Field Strength Limit Dist Distance to Antenna D Corr Distance Correct to 3 meters Pk Lim Peak Field Strength Limit Read Analyzer Reading Avg Average Field Strength (@ 3 m) Avg Mar Margin vs. Average Limit AF Antenna Factor Peak Calculated Peak Field Strength Pk Mar Margin vs. Peak Limit	ote: No other emissions were detected above the system noise floor. Image: Construction of the system noise floor. f Measurement Frequency Amp Preamp Gain Avg Lim Average Field Strength Limit Dist Distance to Antenna D Corr Distance Correct to 3 meters Pk Lim Peak Field Strength Limit Read Analyzer Reading Avg Average Field Strength @ 3 m Avg Mar Margin vs. Average Limit AF Antenna Factor Peak Calculated Peak Field Strength Pk Mar Margin vs. Peak Limit	iote: No other emissions were detected above the system noise floor. Image: Construction of the system noise floor. Image: Construction of the system noise floor. f Measurement Frequency Amp Preamp Gain Avg Lim Average Field Strength Limit Dist Distance to Antenna D Corr Distance Correct to 3 meters Pk Lim Peak Field Strength Limit Read Analyzer Reading Avg Average Field Strength @ 3 m Avg Mar Margin vs. Average Limit AF Antenna Factor Peak Calculated Peak Field Strength Pk Mar Margin vs. Peak Limit	iote: No other emissions were detected above the system noise floor. Image: Construction of the system noise floor. Image: Construction of the system noise floor. f Measurement Frequency Amp Preamp Gain Avg Lim Average Field Strength Limit Dist Distance to Antenna D Corr Distance Correct to 3 meters Pk Lim Peak Field Strength Limit AF Antenna Factor Peak Calculated Peak Field Strength Pk Mar Margin vs. Peak Limit	Aid Ch 1874 1311 1874	3.0	52.5	39.0	35.8	5.4	-44.7	0.0	0.0	49.6	36.1	74	54	-24.4	-17 <i>9</i>	v
f Measurement Frequency Amp Preamp Gain Avg Lim Average Field Strength Limit Dist Distance to Antenna D Corr Distance Correct to 3 meters Pk Lim Peak Field Strength Limit Read Analyzer Reading Avg Average Field Strength @ 3 m Avg Mar Margin vs. Average Limit AF Antenna Factor Peak Calculated Peak Field Strength Pk Mar Margin vs. Peak Limit	f Measurement Frequency Amp Preamp Gain Avg Lim Average Field Strength Limit Dist Distance to Antenna D Corr Distance Correct to 3 meters Pk Lim Peak Field Strength Limit AF Antenna Factor Peak Calculated Peak Field Strength Pk Mar Margin vs. Peak Limit	f Measurement Frequency Amp Preamp Gain Avg Lim Average Field Strength Limit Dist Distance to Antenna D Corr Distance Correct to 3 meters Pk Lim Peak Field Strength Limit AF Antenna Factor Peak Calculated Peak Field Strength Pk Mar Margin vs. Peak Limit	f Measurement Frequency Amp Preamp Gain Avg Lim Average Field Strength Limit Dist Distance to Antenna D Corr Distance Correct to 3 meters Pk Lim Peak Field Strength Limit AF Antenna Factor Peak Calculated Peak Field Strength Pk Mar Margin vs. Peak Limit	f Measurement Frequency Amp Preamp Gain Avg Lim Average Field Strength Limit Dist Distance to Antenna D Corr Distance Correct to 3 meters Pk Lim Peak Field Strength Limit Aff Antenna Factor Peak Calculated Peak Field Strength Pk Mar Margin vs. Peak Limit								0.0	0.6	49.6	36.3	74	54	-24.4	-17.7	H
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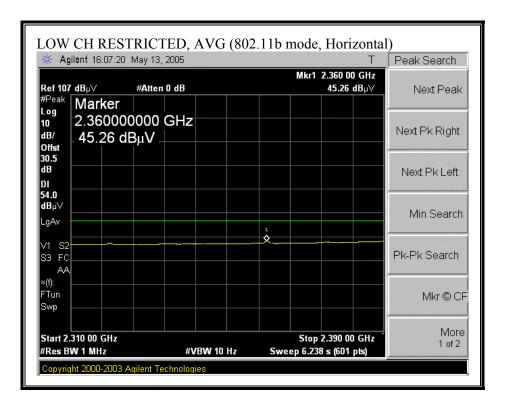
Page 33 of 66

7.2.3. TRANSMITTER ABOVE 1 GHz (WITH LASVEGAS LAPTOP)

RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, HORIZONTAL)



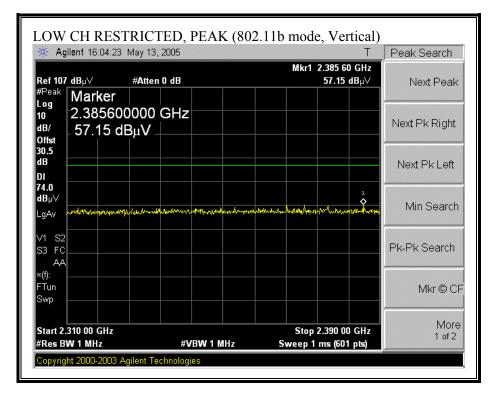
Page 34 of 66



REPORT NO: 05U3427-1

Page 35 of 66

RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, VERTICAL)

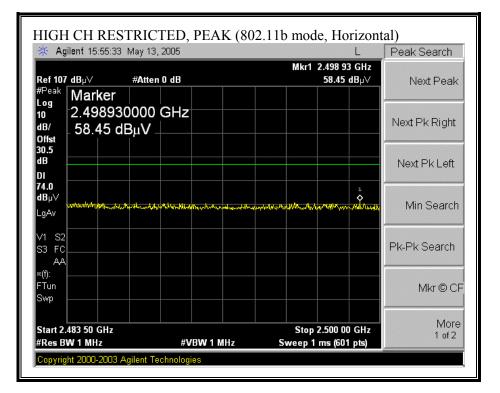


Page 36 of 66

🔆 Agilent 16:03:47 May	13, 2005	Т	Peak Search
Ref 107 dBµ∀ #A	ten 0 dB	Mkr1 2.360 13 GHz 44.45 dBµ∨	Next Peak
^{#Peak} Marker 10 2.36013000 18/ 44.45 dBµ\			Next Pk Right
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/1 S2 53 FC AA			Pk-Pk Search
«()): -Tun Swp			Mkr © C
Start 2.310 00 GHz #Res BW 1 MHz	#VBW 10 Hz	Stop 2.390 00 GHz Sweep 6.238 s (601 pts)	More 1 of 2

Page 37 of 66

RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, HORIZONTAL)

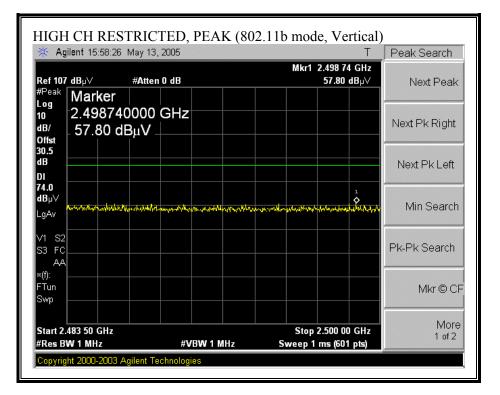


Page 38 of 66

🔆 Agilent 15:54:	55 May 13, 2005	RT	Peak Search
Ref 107 dBµ∨ #Peak	#Atten 0 dB	Mkr1 2.483 53 GHz 46.02 dBµ∀	Next Peak
Log 10 dB/			Next Pk Right
Offst 30.5 dB DI			Next Pk Left
54.0 dBµ∨ LgAv			Min Search
M1 S2 S3 FC			Pk-Pk Search
≈(f): FTun Swp			Mkr © C
Start 2.483 50 GHz #Res BW 1 MHz	2 #VBW 10 H	Stop 2.500 00 GHz z Sweep 1.287 s (601 pts)	More 1 of 2

Page 39 of 66

RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, VERTICAL)



Page 40 of 66

🔆 Agilent 15:58:50 Ma	ay 13, 2005	Т	Peak Search
Ref107_dBµ∀ #	Atten 0 dB	Mkr1 2.483 53 GHz 45.76 dBµ∨	Next Peak
^{#Peak} Marker Log 10 2.4835300 dB/ 45.76 dBµ			Next Pk Right
Dffst 80.5 1B DI			Next Pk Left
54.0 1Bµ∨ _gAv			Min Search
V1 S2 33 FC AA			Pk-Pk Search
×(f): =Tun Swp			Mkr © C
Start 2.483 50 GHz #Res BW 1 MHz	#VBW 10 Hz	Stop 2.500 00 GHz Sweep 1.287 s (601 pts)	More 1 of 2

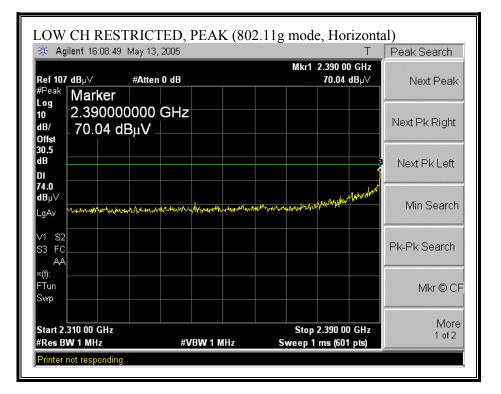
Page 41 of 66

HARMONICS AND SPURIOUS EMISSIONS (b MODE)

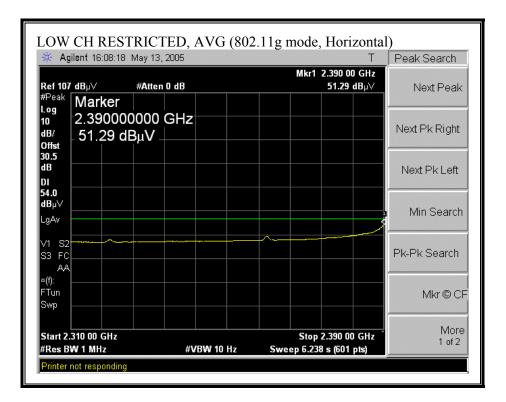
	gr: Chir														
	#:05U3														
	y: Tosh				1										
			2.11 b/g Hal nponent cha		1111-P(.1 WLA	IN MODUL	e							
		C 15.247	aponent tha	mgeu)											
		X, b mode													
			ow = 16.56 d	lBm, M	id = 16	6.39 dBı	n, High =	16.45	dBm						
est Equ	uipmen	t:													
		_				1	Pre-amplife	- 26.45	CH-		Horm >	18GHz			Limit
EMCO	O Horn 1	l-18GHz		plifer 1-2			re-ampille	1 20-40	onz					FCC	15.205
T119;	S/N: 293	01 @3m 🖵	T86 Mi	iteq 92434	41 .	-			-				-	FCC	
Hi Frequ	uency Cal	oles	1		_									Deels M	
	otcable		t cable	4 foot	cable	12	2 foot cable			HPF	Reie	ct Filter		Peak Measu RBW=VBW	
		-	-	4_Than	հ 🗸	12	Neelesh	-	HPF_	4.0GHz 🖵		-			easurements : ; VBW=10Hz
I					_				1					ND W = I WIHZ	., V D W - IUHZ
f	Dist	Read Pk	Read Avg.	AF	CL	Amp	D Corr	Fltr	Peak	Avg	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes
GHz	(m)	dBuV	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	(V/H)
ow Ch 824	3.0	59.8	57.1	34.0	4.1	-44.0	0.0	0.6	54.5	51.8	74	54	-19.5	-2.2	v
824 824	3.0	59.8 50.0	57.1 44.7	34.0	4.1 4.1	-44.0	0.0 0.0	0.0 0.0	54.5 44.7	51.8 39.4	74	54 54	-19.5	-2.2 -14.6	 Н
		•		ļ											
lid Ch 874	3.0	0.0	57.8	34.1	4.1	-44.1	0.0	0.6	54.7	52.4	74	54	-19.3	-1.6	v
311	3.0	55.0	44.2	35.6	4.1 5.4	-44.7	0.0	0.0	52.0	41.2	74	54 54	-175	-12.8	v
874	3.0	52.5	46.5	34.1	4.1	-44.1	0.0	0.0	47.2	41.2	74	54	-26.8	-12.8	H
311	3.0	51.0	41.0	35.6	5.4	-44.7	0.0	0.6	48 <i>.</i> 0	38.0	74	54	- 26. 0	-16,0	Н
ligh Ch	1						1								
924 284	3.0	57.6	55.2	34.1	4.1	-44.2	0.0	0.0	52.3	49.9	74	54	-21.7	-4.1	V
386 874	3.D 3.D	53.5 52.2	41.3 46.4	35.7 34.1	5.4 4.1	-44.7 -44.1	0.0 0.0	0.6 0.6	50.6 46.9	38.4 41.1	74 74	54 54	-23.4 -27.1	-15.6 -12.9	V н
.386	3.0 3.0	50.4	39.8	35.7	5.4	-44.7	0.0	0.0 0.0	40.5	36.9	74 74	54 54	-26.5	-17.1	H
			1-44-1 1												
are: No o	other emi	ISSIONS WETE (detected above	ute syste	m no1se	: 1100r									
010.1100															
	f		ent Frequenc	У		Amp	Preamp (_			-	-	Field Strength	
	Dist	Distance to							ct to 3 met					d Strength Lin	
	Read	Analyzer R	-			Avg	-		Strength @			-	-	Average Lin	nıt
		Antenna Fa				Peak HPF	Calculate High Pas		k Field Stre	ngth		Pk Mar	Margin vs	. Peak Limit	
	AF CL	Cable Loss					High Vac	s Filter							

Page 42 of 66

RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, HORIZONTAL)

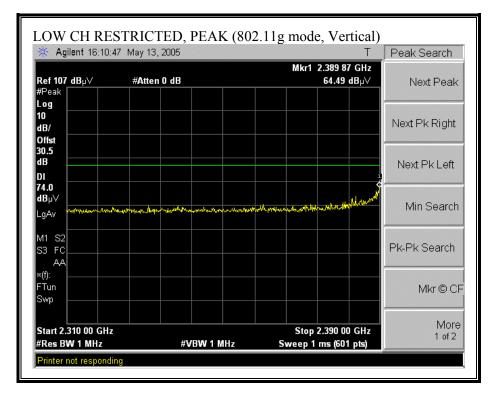


Page 43 of 66



Page 44 of 66

RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, VERTICAL)

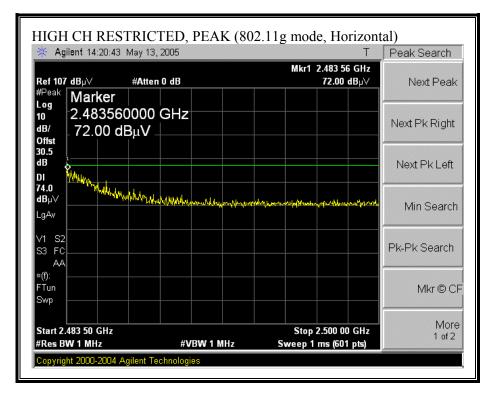


Page 45 of 66

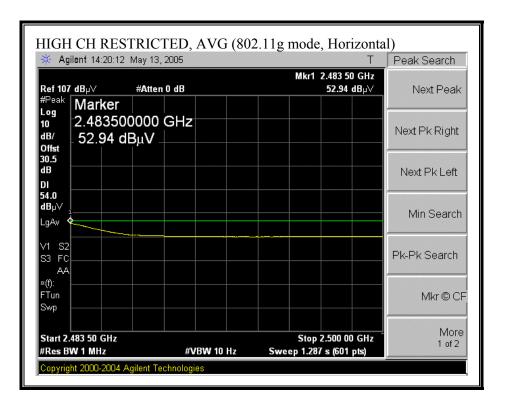
🔆 Agilent 16:11:14 1	/lay 13, 2005	Т	Peak Search
	#Atten 0 dB	Mkr1 2.390 00 GHz 48.67 dBµ∨	Next Peak
^{#Peak} Marker Log 2.390000 dB/ 48.67 dE	000 GHz βμV		Next Pk Right
30.5 dB DI			Next Pk Left
54.0 dBµ∨ LgAv			Min Search
V1 S2 53 FC AA			Pk-Pk Search
«(f): =Tun Swp			Mkr © C
Start 2.310 00 GHz #Res BW 1 MHz	#VBW 10 H	Stop 2.390 00 GHz Iz Sweep 6.238 s (601 pts)	• More 1 of 2

Page 46 of 66

RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, HORIZONTAL)

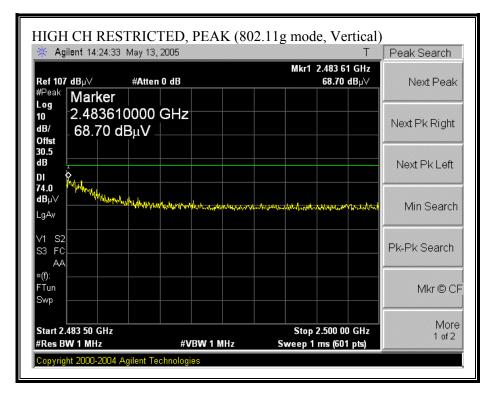


Page 47 of 66



Page 48 of 66

RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, VERTICAL)



Page 49 of 66

🔆 Agilent 14:23:4	46 May 13, 2005			Т	Peak Search
	#Atten 0 dB		Mkr1 2.48 50.0	350GHz 90dBµ∀	Next Peak
#Peak Log					
10 dB/					Next Pk Right
Offst 30.5					
dB					Next Pk Left
DI					
dBµ∀					Min Search
LgAv 1					
V1 S2 S3 FC					Pk-Pk Search
AA					
×(f): FTun					Mkr © Ci
Swp					
Start 2.483 50 GHz			Stop 2.500	D 00 CH-	More
#Res BW 1 MHz		VBW 10 Hz	Sweep 1.287 s (6		1 of 2

Page 50 of 66

HARMONICS AND SPURIOUS EMISSIONS (g MODE)

	-		⁷ Measurem Services, M		Hill Ol	oen Fiel	d Site								
ojecta ompan JT De JT M/ est Tau ode O	'N: PA3 rget:FC per: TI	427-1 iba MB51H 803 426U-1MF CC 15.247 X, g mode, ⁷	2.11b/g Half PC (Compor WLAN ow = 15.21 d	nent cha	unged)			dBm						
est Eq	uipmen	<u>t:</u>													
EMC	O Horn I	l-18GHz	Pre-am	plifer 1-2	6 GHz	1	Pre-amplife	r 26-40	GHz		Horn >	18GHz			Limit
T60; S	/N: 2238	@3m 🕌	T86 Mit	teq 92434	11 .				-				-	. FCO	- 15.205
	uency Cal oot cable		rt cable	4 foot 4_Than			2 foot cable Neelesh	-		HPF 4.6GHz	Reje	ctFilter •			
f GHz	Dist (m)	Read Pk 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	Pk Mar dB	Avg Mar dB	Notes (V/H)
w Ch															· · /
874 874	3.0 3.0	52.0 53.0	39.0 40.0	33.7 33.7	4.1 4.1	-44.1 -44.1	0.0 0.0	25 25	48.1 49.1	35.1 36.1	74 74	54 54	-25.9 -24.9	-189 -179	V H
id ch 874	3.0	53.5	40.3	33.7	4.1	-44.1	0.0	25	49.6	36.4	74	54	-24,4	-17.6	v
874 311	3.0	53.5 51.0	40.3 37.0	33.7 36.2	4.1 5.4	-44.1 -44.7	0.0 0.0	25 14	49.6 49.3	30.4 35.3	74 74	54	-24.A -24.7	-17.6 -18.7	v v
874 311	3.0 3.0	52.0 50.0	37.0 36.5	33.7 36.2	4.1 5.4	-44.1 -44.7	۵۵ ۵0	2.5 1.4	48.1 48.3	33.1 34.8	74 74	54 54	-25.9 -25.7	-20.9 -19.2	H H
igh Ch	Ì														
.874	3.0	52.7	39.5	33.7	4.1	-44.1	0.0	2.5	48.8	35.6	74	54	-25.2	-18.4	V
.386 .874	3.0 3.0	53.0 49.8	37.5 38.4	36.2 33.7	5.4 4.1	-44.7 -44.1	0.0 0.0	1.4 2.5	51 <i>A</i> 459	35.9 34.5	74 74	54 54	-22.6 -28.1	-18.1 -19 <i>.</i> 5	V H
.874 .386	3.0	49.8 50.2	38.4 37.0	33.7	4.1 5.4	-44.1 -44.7	0.0 0.0	2.5 1.4	45.9	34.5 35.4	74 74	54 54	-28.1 -25.4	-19.5	H
ote: No 4	other emi	issions were d	detected above	the syste											
												•			
	f Dist Read AF	Measureme Distance to Analyzer R Antenna Fa Cable Loss	eading actor	y y	1	Amp D Corr Avg Peak HPF	Average	Corre Field S d Peal	t to 3 mete Strength @ Field Stre	3 m	<u>.</u>	Pk Lim Avg Mar	Peak Fiel Margin vs	Field Strengt d Strength L Average L Peak Limit	imit imit

Page 51 of 66

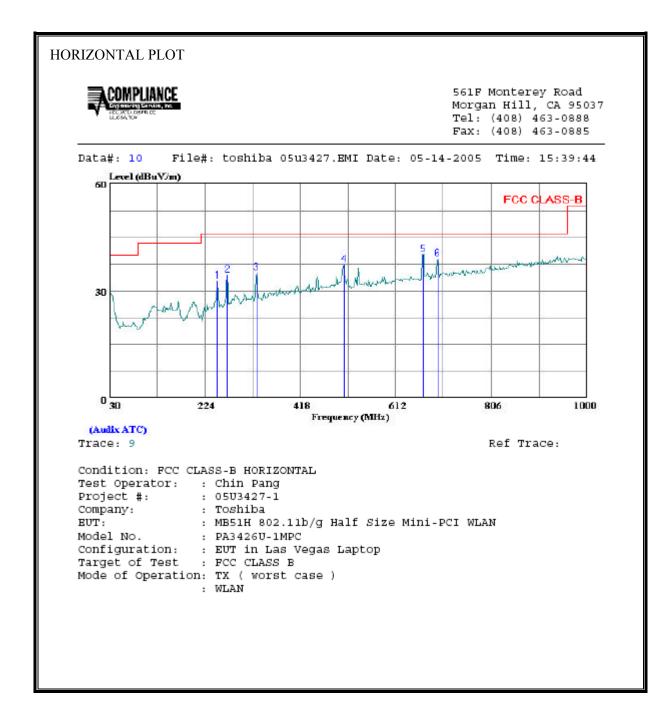
HARMONICS AND SPURIOUS EMISSIONS (g TURBO MODE)

Targe e Ope			2.11b/g Half				N Module	•							
	et:FC er: TX	C 15.247 , g Turbo :	C (Compon mode, WLA	N	ugea)										
age P Equip			id = 15.00 d	Bm											
		18GHz	Pre-am	plifer 1-2	6 GHz	1	Pre-amplife	r 26-40	GHz		Horn >	18GHz			Limit
0; S/N:	: 2238	@3m 🕌	T34 HP	8449B	-				-				-	FCC I	-
Frequen						-								Peak Measu	
2 foot	cable	3 foo	ot cable	4 foot			2 foot cable			HPF	Reje	ct Filter		RBW=VBW	
			-	4_Than	h _	12	Neelesh	-	HPF_	4.6GHz -		-			e <u>asurements</u> ;; VBW=10Hz
			Read Avg.		CL	Amp	D Corr		Peak	Avg	Pk Lim			Avg Mar	Notes
h	(m)	dBuV	dBuV	dB/m	dB	dB	dB	dB		dBuV/m		dBuV/m	dB	dB	(V/H)
	3.0 3.0	48.0 47.2	34.0 33.7	33.7 36.2	4.1 5.4	-33.5 -33.3	0.0 0.0	2.5 1.4	54.7 56.9	40.7 43.4	74 74	54 54	-19.3 -17.1	-13.3 -10.6	v v
	3.0	45.8	32.0	33.7	4.1	-33.5	0.0	2.5	52.5	38.7	74	54	-21.5	-15.3	Н
	3.0	44.6	31.8	36.2	5.4	-33.3	0.0	1.4	54.3	41.5	74	54	- 19. 7	-12.5	H
														•	
No othe	er emis	sions were o	detected above	the syste	m noise	floor.									
f								a .				л. т.:		F. 11.0	T 1 1
		Nieasureme Distance to	ent Frequency Antenna	ÿ		Amp D.Corr	Preamp (Distance		ct to 3 mete	erc				Field Strength] d Strength Lim	
		Analyzer R				Avg			Strength @					s. Average Lin	
		Antenna Fa	-			Peak	-		k Field Stre			-	-	. Peak Limit	
С	L	Cable Loss	5			HPF	High Pas	s Filter	r -	-			-		

Page 52 of 66

7.2.4. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz (WITH LASVEGAS LAPTOP)

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



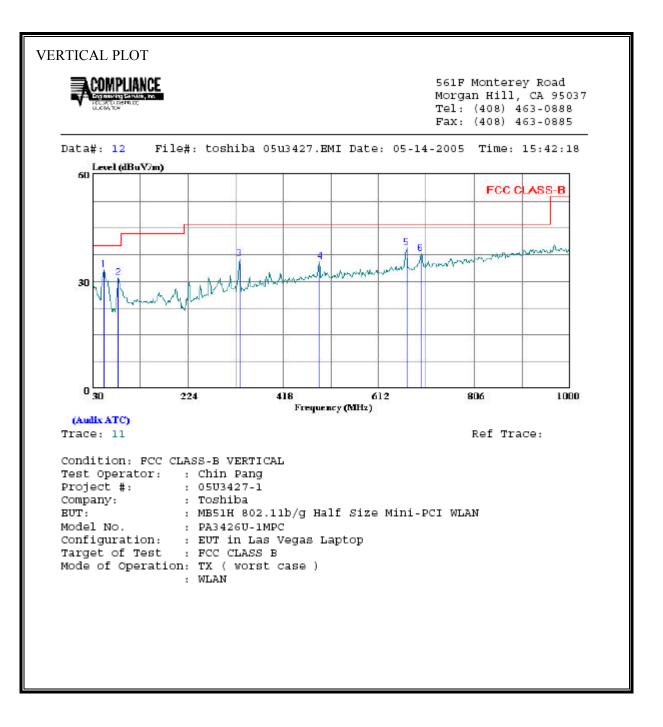
Page 53 of 66

REPORT NO: 05U3427-1 EUT: 802.11 b/g MB51H HALF SIZE MINI-PCI WLAN MODULE

HORIZO	ONTAL DAT	ĨA.						
	Freq	Read Level		Level		Over Limit	Remark	Page: 1
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1 2 4 5 6	507.240		16.44 20.31 22.66	34.56 35.06 37.43 40.34	46.00 46.00 46.00 46.00 46.00	-11.44 -10.94 -8.57 -5.66	Peak Peak Peak Peak	

Page 54 of 66

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



Page 55 of 66

REPORT NO: 05U3427-1 EUT: 802.11 b/g MB51H HALF SIZE MINI-PCI WLAN MODULE

VERTIC	CAL DATA							
	Freq	Read Level		Level	Limit Line	Over Limit	Remark	Page: 1
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1 2 3 4 5 6	53.280	24.35 22.27 19.86 15.37	8.94 8.60 16.44 20.11 22.65	33.29 30.87 36.30 35.48 39.47	dBuV/m 40.00 46.00 46.00 46.00 46.00	-6.71 -9.13 -9.70 -10.52 -6.53	Peak Peak Peak Peak	

Page 56 of 66

7.3. POWERLINE CONDUCTED EMISSIONS

7.3.1. AC CONDUCTED SPURIOUS EMISSIONS (WITH LASVEGAS LAPTOP)

<u>LIMIT</u>

\$15.207 (a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal.

The lower limit applies at the boundary between the frequency ranges.

Frequency of Emission (MHz)	Conducted I	Limit (dBuV)
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46
0.5-5	56	46
5-30	60	50

Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

The resolution bandwidth is set to 9 kHz for both peak detection and quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

No non-compliance noted:

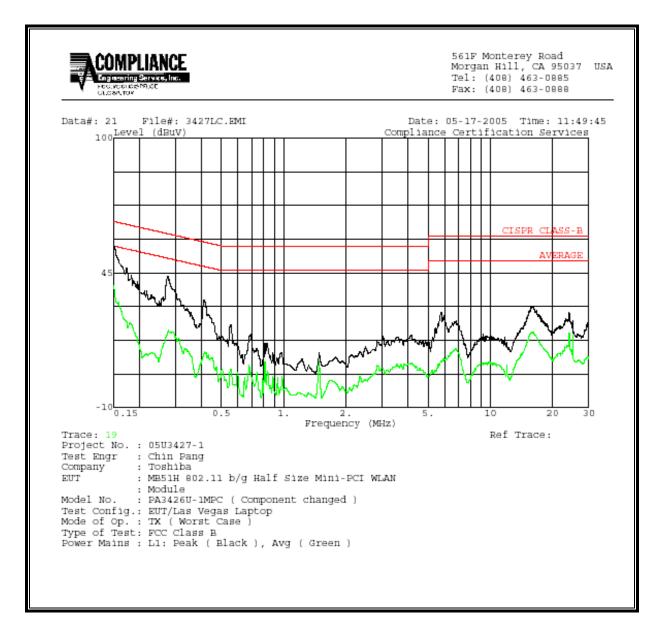
Page 57 of 66

6 WORST EMISSIONS

	CONDUCTED EMISSIONS DATA (115VAC 60Hz)										
Freq.		Reading		Closs	Limit	FCC_B	Mar	Margin			
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2		
0.15	56.03		40.02	0.00	66.00	56.00	-9.97	-15.98	L1		
0.27	43.62		21.94	0.00	61.03	51.03	-17.41	-29.09	L1		
0.41	33.89		12.40	0.00	57.59	47.59	-23.70	-35.19	L1		
0.15	55.86		39.69	0.00	66.00	56.00	-10.14	-16.31	L2		
0.27	44.54		21.25	0.00	61.03	51.03	-16.49	-29.78	L2		
0.41	35.20		13.20	0.00	57.59	47.59	-22.39	-34.39	L2		
6 Worst I	Data										

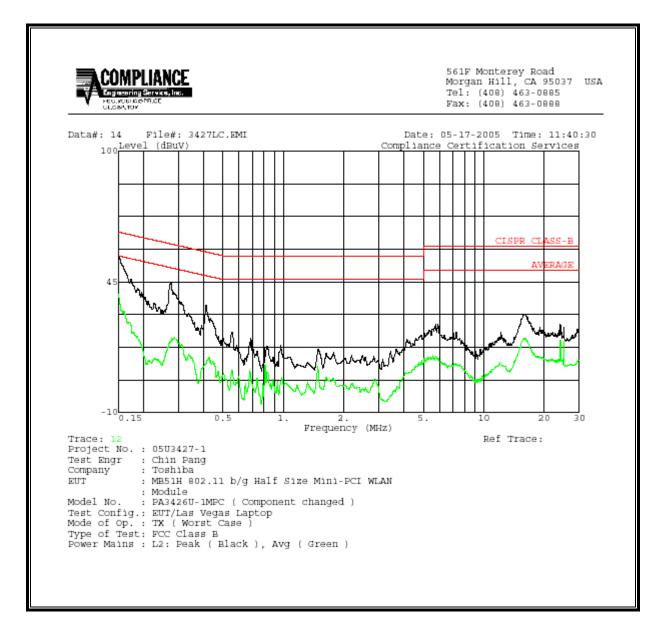
Page 58 of 66

LINE 1 RESULTS



Page 59 of 66

LINE 2 RESULTS



Page 60 of 66

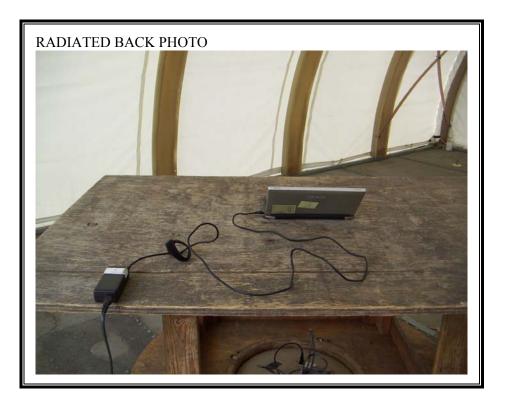
8. SETUP PHOTOS

RADIATED RF MEASUREMENT SETUP

(LIBRETTO LAPTOP)



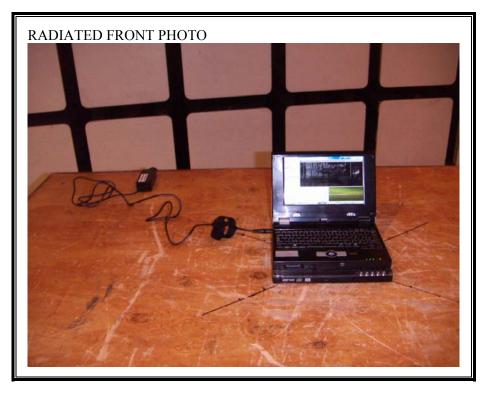
Page 61 of 66



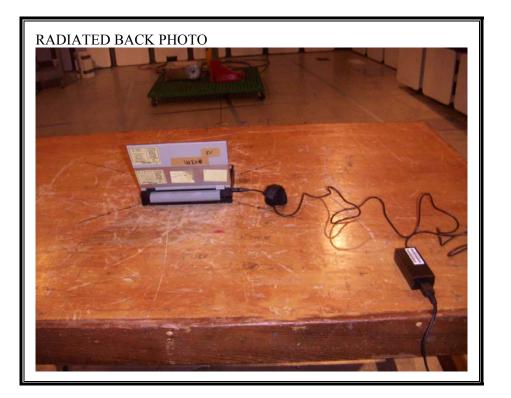
Page 62 of 66

RADIATED RF MEASUREMENT SETUP

(LASVEGAS LAPTOP)

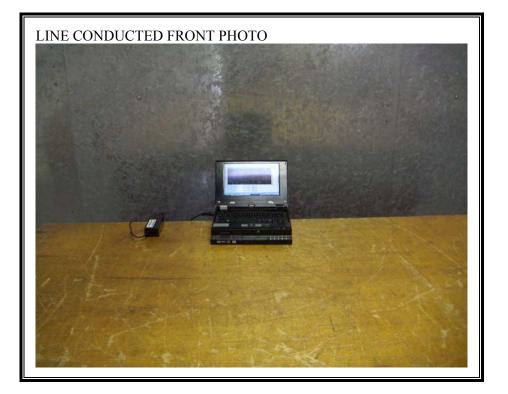


Page 63 of 66



Page 64 of 66

POWERLINE CONDUCTED EMISSIONS MEASUREMENT SETUP



Page 65 of 66



END OF REPORT

Page 66 of 66