

FCC CFR47 PART 15 SUBPART E CLASS II PERMISSIVE CHANGE TEST REPORT FOR

WIRELESS LAN MINI-PCI EXPRESS, 802.11a/b/g

MODEL NUMBER: PA3489U-1MPC

FCC ID: CJ6UPA3489WL

REPORT NUMBER: 06U10660-3

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

> 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
	10/30/06	Initial Issue	Thu

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1. ATTESTATION OF TEST RESULTS

EUT DESCRIPTION: MODEL:	PA3489U-1MPC	N MINI-PCI EXPRESS, 802.11a/b/g
SERIAL NUMBER: DATE TESTED:	76019908J OCTOBER 20 -	24 2006
		LE STANDARDS
STANDAR	D	TEST RESULTS
FCC PART 15 SUF	BPART E	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 menyizh mekenon.

MENGISTU MEKURIA EMC ENGINEER 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 an 802.11a/b/g WLAN transceiver in Toshiba Protégé R400 Tablet

5.2. DESCRIPTION OF CLASS II CHANGE

The major changes filed under this application include:

Change #1: The EUT module is being used in a different host; Change #2: Collocation with BT module; Change #3: Collocation with WWAN module.

5.3. MAXIMUM OUTPUT POWER

The transmitter has a same conducted output power on the original grant of FCC ID: CJ6UPA3489WL.

5.4. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes two PIFA antennas, each with a maximum gain of 0.8dBi @ 5.2GHz bands.

5.5. SOFTWARE AND FIRMWARE

The EUT driver software installed in the host support equipment during testing was CRTU, rev. 4.0.18.0000

The test utility software used during testing was CRTU, rev. 4.0.18.0000

5.6. WORST-CASE CONFIGURATION AND MODE

The Mobile position and portable X, Y and Z positions have been investigated; the worst-case configuration has been evaluated at mobile position for 5.2GHz band.

The worst-case channel is determined as the channel with the highest output power. The highest measured output powers were at 5300 MHz for 11a.

The worst-case data rate for this channel is determined to be 6 Mb/s for 11a mode based on previous experience with WLAN product design architectures.

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5.7. DESCRIPTION OF TEST SETUP

I/O CABLES

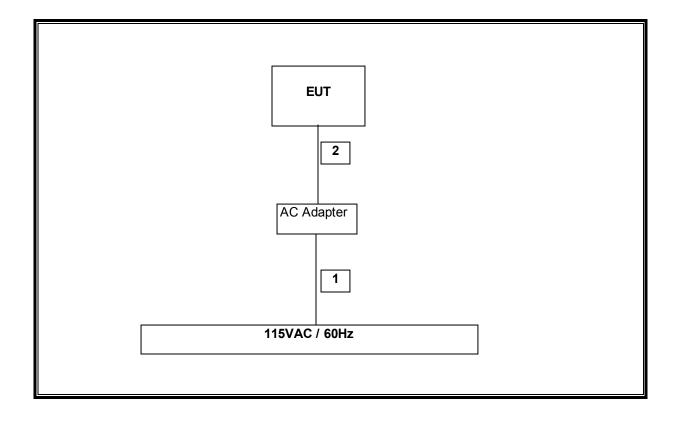
I/O CABLE LIST						
Cable	Port	# of	Connector	Cable	Cable	Remarks
No.		Identical	Туре	Туре	Length	
		Ports				
1	AC	1	US 115V	Un-shielded	2m	N/A
2	DC	1	DC	Un-shielded	2m	N/A

TEST SETUP

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

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SETUP DIAGRAM FOR TESTS



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6. TEST AND MEASUREMENT EQUIPMENT

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	Cal Due
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	2238	4/22/2007
Preamplifier, 1 ~ 26.5 GHz	Agilent / HP	8449B	3008A00561	10/3/2007
Antenna, Bilog 30 MHz ~ 2	Sunol Scienc	JB1	A121003	9/3/2007
EMI Receiver, 9 kHz ~ 2.9 (Agilent / HP	8542E	3942A00286	2/4/2007
RF Filter Section	Agilent / HP	85420E	3705A00256	2/4/2007
EMI Test Receiver	R & S	ESHS 20	827129/006	6/3/2007
LISN, 10 kHz ~ 30 MHz	FCC	LISN-50/250-25-	2023	8/30/2007
Spectrum Analyzer 3 Hz ~ 4	Agilent / HP	E4446A	MY43360112	5/3/2007
Antenna, Horn 1 ~ 18 GHz	ETS	3117	29310	4/22/2007
Preamplifier, 1 ~ 26.5 GHz	Agilent / HP	8449B	3008A00561	10/3/2007
Spectrum Analyzer 3 Hz ~ 4	Agilent / HP	E4446A	MY43360112	5/3/2007
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	2238	4/22/2007
7.6 Highpass Filter	Micro-Tronics	HPM13195	1	CNR

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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 11.5 dB (including 10 dB pad and 1.5dB cable) was entered as an offset in the power meter to allow for direct reading of power.

802.1	la M	ode
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Channel	Frequency	Average Power
	(MHz)	(dBm)
Low	5180	15.80
Middle	5260	17.30
High	5320	17.40

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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	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.

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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 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each band.

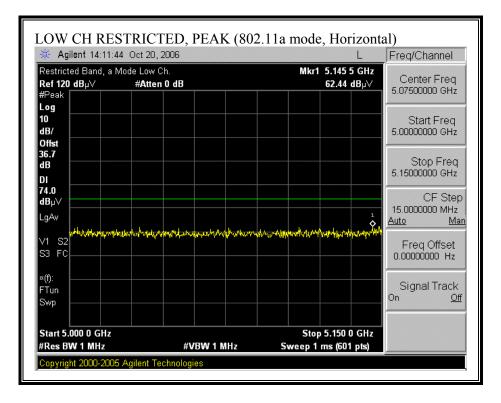
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

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7.3. CHANNEL TESTS FOR THE 5150 TO 5350 MHz BAND

7.3.1. TRANSMITTER ABOVE 1 GHZ FOR 5150 TO 5350 MHz BAND

RESTRICTED BANDEDGE (802.11a MODE, LOW CHANNEL, HORIZONTAL)

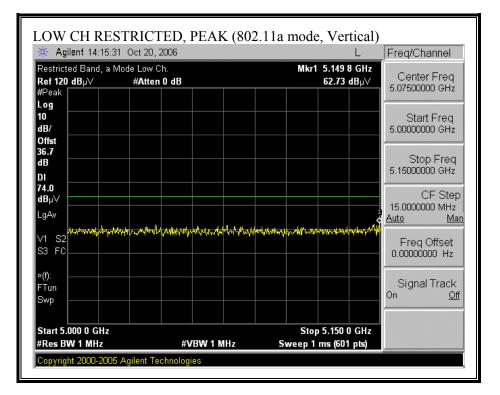


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🔆 Agilent 14:1	2:51 Oct 20, 2006	L	Freq/Channel
	a Mode Low Ch. #Atten 0 dB	Mkr1 5.150 0 GHz 51.36 dBµ∨	Center Freq
#Peak Log			
10 dB/			Start Freq 5.0000000 GHz
Offst			
36.7 dB			Stop Freq
DI			5.15000000 GHz
54.0 dBµ∀			CF Step
LgAv			15.0000000 MHz <u>Auto Mar</u>
V1 S2			Freq Offset
S3 FC			0.00000000 Hz
×(f):			
FTun			Signal Track On Off
Swp			
Start 5.000 0 GH	7	Stop 5.150 0 GHz	
#Res BW 1 MHz	#VBW 10 H;		

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RESTRICTED BANDEDGE (802.11a MODE, LOW CHANNEL, VERTICAL)

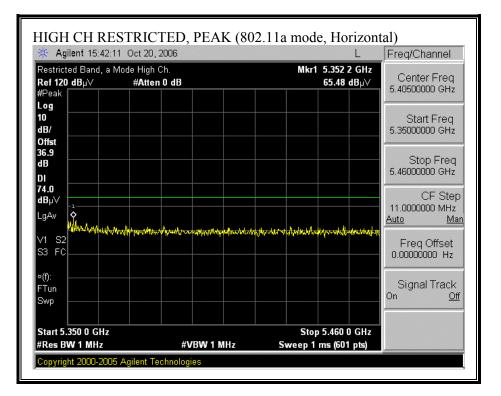


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🔆 Agilent 14:11	5:48 Oct 20, 2006	RL	Freq/Channel				
	a Mode Low Ch. #Atten 0 dB	Mkr1 5.150 0 GHz 51.05 dBμ∀	Center Freq 5.07500000 GHz				
#Peak			5.07500000 GHz				
Log			Otest Error				
dB/			Start Freq				
Offst			5.0000000 OHz				
36.7			Ctop Erog				
dB			Stop Freq 5.1500000 GHz				
DI			5.1506000 OTTE				
54.0 dBµ∀			CF Step				
LgAv			15.0000000 MHz				
LyAv			<u>Auto Mar</u>				
∨1 S2			Freq Offset				
S3 FC							
×(f):			Signal Track				
FTun			On <u>Off</u>				
Swp							
Start 5.000 0 GH	Z	Stop 5.150 0 GHz					

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RESTRICTED BANDEDGE (802.11a MODE, HIGH CHANNEL, HORIZONTAL)

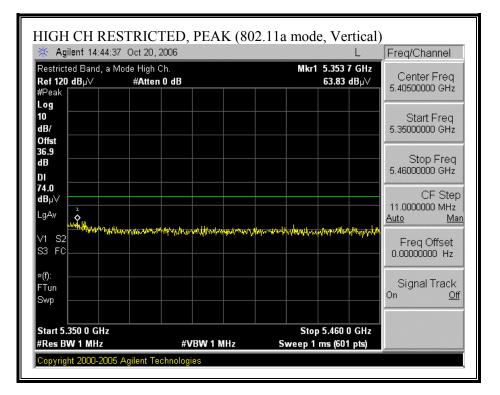


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🔆 Agilent 15:43:	05 Oct 20, 2006		LFreq/Channel
Restricted Band, a Ref 120 dB µ∨		Mkr1 5.350 0 52.22 dl	Contor Frog
#Peak Log			
10 dB/			Start Freq 5.35000000 GHz
Offst 36.9 dB			Stop Freq
DI			5.46000000 GHz
54.0 dBµ∨			CF Step 11.000000 MHz
LgAv			Auto Mar
V1 S2 S3 FC			Freq Offset 0.00000000 Hz
×(f): FTun			Signal Track
Swp			On <u>Off</u>
Start 5.350 0 GHz		Stop 5.460 0	GHz [°]
#Res BW 1 MHz	#VBW 10 H	· · · · ·	

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RESTRICTED BANDEDGE (802.11a MODE, HIGH CHANNEL, VERTICAL)



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Agilent 14:45:				Freq/Channel
Restricted Band, a Ref 120_dB µ∨		Mkr	1 5.350 0 GHz 52.33 dBµ∨	Contor Frod
#Peak				5.40500000 GH2
Log				Start Freq
dB/				5.35000000 GHz
Offst				
36.9 dB				Stop Freq
				5.46000000 GHz
54.0				
dBµ∨				CF Step 11.000000 MHz
LgAv				Auto Mar
∨1 S21 S3 FC				Freq Offset
				0.0000000 Hz
×(f):				Cignal Track
FTun				Signal Track
Swp				
			F 100 0 01	
Start 5.350 0 GHz #Res BW 1 MHz	V 10 Hz		p 5.460 0 GHz 7 s (601 pts)	

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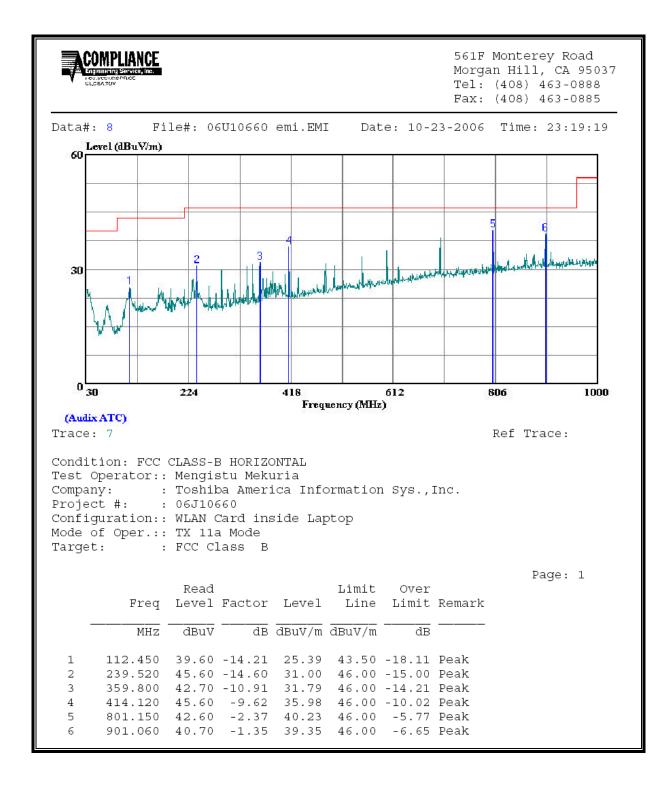
HARMONICS AND SPURIOUS EMISSIONS (802.11a MODE)

Set Equipment: Horn 1-18GHz Pre-amplifer Pre-amplifer 26-40GHz Horn > 18GHz Limit T119; S/N: 29301 @3m T87 Miteq 924342 T88 Miteq 26-40GHz T89; ARA 18-26GHz; S/N:1049 E E I Frequency Cables 3 foot cable 12 foot cable HPF, 7 6GHz Reject Filter Peak Measurements RBW=VBW=1MHz Joseph 187207005 3 foot cable 0 Corr Fit Peak Avg Pk Lim Avg Lim Pk Mar Avg Mar Notes GHz (m) dBaV dBm dB dB dBuV/m dBuV/m dBuV/m dBuV/m Notes S40 3.0 51.0 38.4 38.7 5.5 41.3 0.0 0.7 54.6 42.3 74 54 19.4 11.7 H S780 3.0 50.7 38.4 38.8 5.6 41.2 0.0 0.7 54.6 42.3 74 54 19.4 11.7 H S780 3.0 51.7 38.4 38.8 5.6 41.2 0.0<	Compli		Frequency ertification 8				fill Or	oen Fiel	d Site								
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are: 1002/0007 test Engineer: Wilam Zhuang, Gongguration: EUT Gongguration: EUT Idee: Tx On in a Mode, 5.2GHz Fre-amplifer 1-26GHz Pre-amplifer 26-40GHz Horn > 18GHz Limit Tity: SN: 23301 @3m Pre-amplifer 1-26GHz Pre-amplifer 26-40GHz Horn > 18GHz Limit Tot Reade 24.43 Pre-amplifer 26-40GHz Horn > 18GHz Limit Of colspan="4">Colspan="4"Colspan="4">Colspan="4"Colspan="4">Colspan="4"Colspan="4">Colspan=	•	•		Inform	ation Sy	ystems,	Inc.										
Vilian Zhuang Soninguration: EUT Jode: Tx On in a Mode, 5.2GHz Pre-amplifer 1-26GHz T119; SN: 23301 @3m Pre-amplifer 1-26GHz T88 Miteq 26-40GHz Horn > 18GHz Limit Image: SN: 1049 Climit 1872005 Pre-amplifer 1-26GHz T88 Miteq 26-40GHz Horn > 18GHz Limit Office able SN: 1049 Climit Office able Office able Desk Measurements RBW-rBMz: VBW-rBMz: VBW-rBMz: VBW-rBMz: Office able Office able Peak Measurements RBW-rBMz: VBW-rBMz: VBW-rBMz: VBW-rBMz: <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>																	
Sonfgurnfon: EUT Jode: 7x On in a Mode, 5.2GHz International Society of the system state of the s																	
Mode, 5.2GHz Test Equipment: The numbifer 1-26GHz Pre-amplifer 26-40GHz Horn > 18GHz Limit Titls: SN: 29301 @3m Pre-amplifer 1-26GHz Tot cable Titls: SN: 1049 Colspan="2">Limit Titls: 29301 @3m Tot Miteq 924342 Tot Cable Titls: Titl: Tittl: Titl: Titl: Titl: Titl: Titl: Titl: Titl:		-		ang													
Horn 1.18GHz T119; S/N: 29301 @3m Pre-amplifer 1.26GHz T87 Miteq 924342 Pre-amplifer 26-40GHz T88 Miteq 26-40GHz Horn > 18GHz Limit 1 T87 Miteq 924342 T87 Miteq 924342 T88 Miteq 26-40GHz T89; ARA 18-26GHz; S/N:1049 FCC 15-205 1 Frequency Cables 3 foot cable 12 foot cable T89; ARA 18-26GHz; S/N:1049 Peak Measurements RBW=10Hz; VBW=10Hz; Average Measurements RBW=10Hz; VBW=10Hz; VBW=10Hz; 1 Dist Read Pk Read Avg AF CL Amp D Corr F1r Peak Avg Pk Lim Avg Lim Pk Mar Avg Mar Notes GHz (m) dBuV dBr dB dB dB dB dB dB VI/m dB dB dB VI/m Mar Avg Mar Avg Mar Notes GHz (m) dBuV dB dB dB dB dB dB dB VI/m dB dB dB VI/m dB dB dD VI/m dB dB dB VI/m dB dB dD VI/m dD dD dD dD				GHz													
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If Frequency Cables 2 foot cable 3 foot cable 12 foot cable Performance Reject Filter Peak Measurements RBW=VBW=1MHz Joseph 187207005 0	н	orn 1-	18GHz	P	re-am	plifer	1-260	GHz	Pre-am	plifer	26-40GH	z	I	Horn > 18	GHz		Limit
2 foot cable 3 foot cable 12 foot cable HPF Reject Filter Peak Measurements RBW=VBW=1MHz Joseph 187207005 0	T119;	S/N: 29	301 @3m	-	í87 Mite	eq 924:	342	•	T88 Mit	eq 26-4	10GHz	-	T89; ARA 18-	26GHz; S/N:	1049	•	FCC 15.205
Image: Construction Constructin Construction Constru	Hi Fre								40		abla					Deal	Masuramonte
f Dist Read Pk Read Avg. AF CL Amp D Corr Fltr Peak Avg Pk Lim Avg Mar Avg Mar Notes GHz (m) dBuV dBuV dB/m dB dB dB dB dB dB dB dW/m dBuV/m dBuV/m dB dB dB (V/H) over Ch. 5180MHz 0 0 0.0 0.7 54.0 42.2 74 54 -20.0 -11.8 H 5.540 3.0 50.3 38.4 38.7 5.5 -41.3 0.0 0.7 54.0 42.2 74 54 -19.4 -11.9 V idd Ch. 5260MHz -		2 foot	cable		31	oot c	able		121		able		HPF	Re	ject Filte		
GHz (m) dBuV dBuV dB dB dB dB dB dB dB dB dV/m dBuV/m dBuV/m dBuV/m dB dB (VH) ow Ch. 51800HHz 5.540 3.0 50.3 38.5 38.7 5.5 41.3 0.0 0.7 54.0 42.2 74 54 -20.0 -11.8 H 5.540 3.0 51.0 38.4 38.7 5.5 41.3 0.0 0.7 54.0 42.2 74 54 -19.3 -11.9 V did ch. 5260MHz 5.5 41.2 0.0 0.7 54.6 42.3 74 54 -19.4 -11.7 H 5.780 3.0 52.7 40.0 38.8 5.6 41.2 0.0 0.7 56.6 43.9 74 54 -19.4 -11.7 H 0.640 3.0 51.7 39.0 36.8 4.2 -39.4 0.0 0.8 <t< td=""><td>Jos</td><td>eph 187</td><td>207005</td><td></td><td></td><td></td><td></td><td>•</td><td>Gordon</td><td>20313</td><td>4001 •</td><td></td><td>HPF_7.6GHz</td><td>•</td><td></td><td></td><td></td></t<>	Jos	eph 187	207005					•	Gordon	20313	4001 •		HPF_7.6GHz	•			
GHz (m) dBuV dBuV dB dB dB dB dB dB dB dB dV/m dBuV/m dBuV/m dBuV/m dB dB (VH) ow Ch. 51800HHz 5.540 3.0 50.3 38.5 38.7 5.5 41.3 0.0 0.7 54.0 42.2 74 54 -20.0 -11.8 H 5.540 3.0 51.0 38.4 38.7 5.5 41.3 0.0 0.7 54.0 42.2 74 54 -19.3 -11.9 V did ch. 5260MHz 5.5 41.2 0.0 0.7 54.6 42.3 74 54 -19.4 -11.7 H 5.780 3.0 52.7 40.0 38.8 5.6 41.2 0.0 0.7 56.6 43.9 74 54 -19.4 -11.7 H 0.640 3.0 51.7 39.0 36.8 4.2 -39.4 0.0 0.8 <t< td=""><td>f</td><td>Dist</td><td>Read Pk</td><td>Read</td><td>Avg.</td><td>AF</td><td>CL</td><td>Amp</td><td>D Corr</td><td>Fltr</td><td>Peak</td><td>Av</td><td>g Pk Lin</td><td>Avg Lim</td><td>Pk Mar</td><td>Avg Mar</td><td>Notes</td></t<>	f	Dist	Read Pk	Read	Avg.	AF	CL	Amp	D Corr	Fltr	Peak	Av	g Pk Lin	Avg Lim	Pk Mar	Avg Mar	Notes
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Ii Ch, 5825 MHz Iii Ch, 5825 MHz </td <td></td>																	
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0.640 3.0 51.7 39.0 36.8 4.2 -39.4 0.0 0.8 54.2 41.4 74 54 -19.8 -12.6 H 5.560 3.0 51.8 40.0 38.8 5.7 -41.1 0.0 0.7 55.8 44.0 74 54 -19.8 -12.6 H 0.640 3.0 50.5 38.3 36.8 4.2 39.4 0.0 0.8 53.0 40.7 74 54 -18.2 -10.0 H 0.640 3.0 50.5 38.3 36.8 4.2 39.4 0.0 0.8 53.0 40.7 74 54 -17.3 -9.2 V 5960 3.0 52.7 40.8 38.8 5.7 41.1 0.0 0.7 56.7 44.8 74 54 -17.3 -9.2 V Rev. 51.6 Note: No other emissions were detected above the system noise floor. Image: Note the system noise floor. Image: Note the system noise floor.	li Ch. 58	25 MHz															
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15.960 3.0 52.7 40.8 38.8 5.7 -41.1 0.0 0.7 56.7 44.8 74 54 -17.3 -9.2 V Rev. 51.6 Sote: No other emissions were detected above 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																	
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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	Rev. 5.1.6		issions were d	etected	above th	e syste	n noise	floor.									
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AF Antenna Factor Peak Calculated Peak Field Strength Pk Mar Margin vs. Peak Limit	Rev. 5.1.6	other em f	Measureme	nt Fre	quency	e syster	n noise	Amp			ct to 3 mete	rs		-	-		
5	Rev. 5.1.6	other em f Dist	Measureme Distance to	nt Free Anten	quency na	e syster	m noise	Amp D Corr	Distance	Corre				Pk Lim	Peak Field	d Strength L	imit
	Rev. 5.1.6	f Dist Read	Measureme Distance to Analyzer Re	nt Free Anten: eading	quency na	e systei	m noise	Amp D Corr Avg	Distance Average	Corre Field S	strength @	3 m		Pk Lim Avg Mar	Peak Field Margin vs	d Strength L Average L	imit imit
	Rev. 5.1.6	f Dist Read AF	Measureme Distance to Analyzer Ra Antenna Fa	nt Free Anten eading ctor	quency na	e syster	m noise	Amp D Corr Avg Peak	Distance Average Calculate	Corre Field S d Peal	Strength @ c Field Stre	3 m		Pk Lim Avg Mar	Peak Field Margin vs	d Strength L Average L	imit imit
	Rev. 5.1.6	f Dist Read AF	Measureme Distance to Analyzer Ra Antenna Fa	nt Free Anten eading ctor	quency na	e systei	m noise	Amp D Corr Avg Peak	Distance Average Calculate	Corre Field S d Peal	Strength @ c Field Stre	3 m		Pk Lim Avg Mar	Peak Field Margin vs	d Strength L Average L	imit imit

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7.3.2. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz

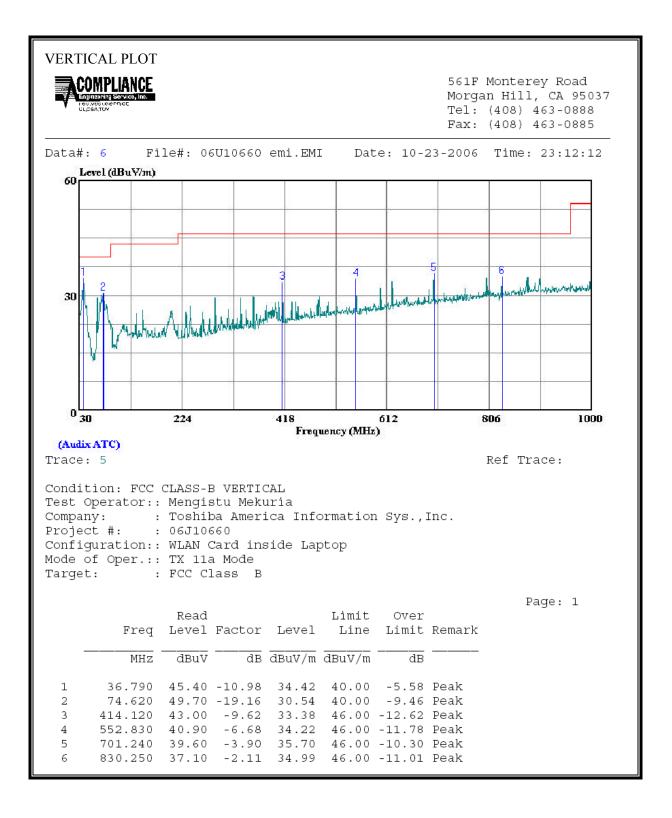
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)



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



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7.4. POWERLINE CONDUCTED EMISSIONS

<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:

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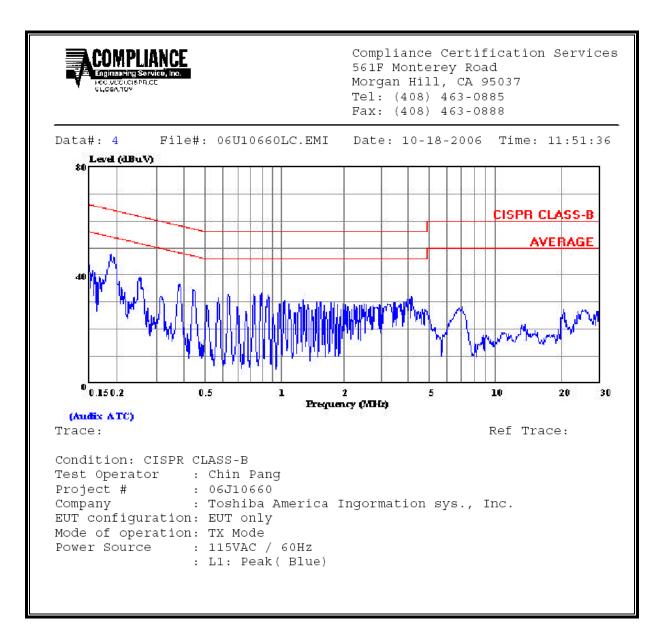
Т

6 WORST EMISSIONS

	CONDUCTED EMISSIONS DATA (115VAC 60Hz)										
Freq.		Reading		Closs	Limit	EN_B	Marg	;in	Remark		
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV(dB)	L1/L2		
0.19	47.96			0.00	64.12	54.12	-16.16	-6.16	L1		
0.39	36.61			0.00	58.13	48.13	-21.52	-11.52	L1		
4.25	5 32.17			0.00	56.00	46.00	-23.83	-13.83	L1		
0.19	47.47			0.00	64.04	54.04	-16.57	-6.57	L2		
0.45	32.83			0.00	56.89	46.89	-24.06	-14.06	L2		
1.32	32.45			0.00	56.00	46.00	-23.55	-13.55	L2		
6 Worst I	Data										

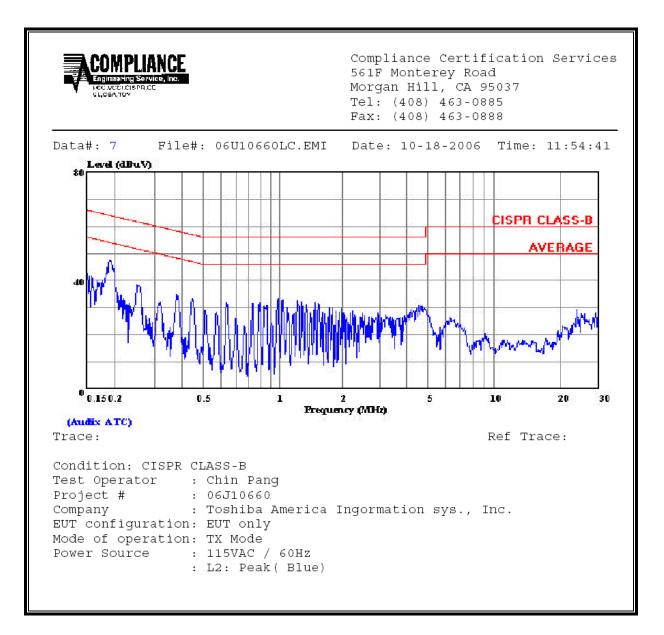
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LINE 1 RESULTS



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LINE 2 RESULTS



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