ADJACENT RESTRICTED BAND (g MODE, HIGH CHANNEL, HORIZONTAL)

Company Name:			Project No.:	Time & Da	Date					
Toshiba America	Informatio	n Systems, Inc	03U1876-1	4:26:07	' PM April 24, 2003					
REF 107.00 dBµV	ATTEN	0 dB		MKR 2.4	8350 GHz	64.23	dBμV			
POS PK LOG 10 dB/										
DL 74.0 dBμV	mbhund	maland	homen	manna	num	mandra				
RL OFFST										
23.3 dB										
START 2.48350 G	iHz				STOP 2	.50000 @	iHz			
	MHz		VID BW 1 MHz		SWP 20	.0000 ms	sec			

average, horiz

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REPORT NO: 03U1876-1 EUT: 802.11 a/b/g_Combo Mini_PCI Module_

Company Name:			Project No.:	Time & D	ate	
Toshiba America I	nformation Systems,	Inc	03U1876-1	4:27:36	PM April 24	4, 2003
REF 107.00 dBµV	ATTEN 0 dB			MKR 2.	48350 GHz	50.17 dBµV
POS PK LOG 10 dB/						
DL						
RL OFFST 23.3 dB	·					
23.3 00						
START 2.48350 GH	łz				STOP 2.	50000 GHz
CCS RES BW 1	MHz		VID BW 10 Hz		SWP 5.0	10 sec

Test Item: 802.11a/b/g Combo Module, PA329U-1MPC

Test Item: 802.11a/b/g Combo Module, 11g, normal mode, 17dBm, restricted band,high ch, average, horiz

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vert

ADJACENT RESTRICTED BAND (g MODE, HIGH CHANNEL, VERTICAL)

Company Name:				Project No.:	Time & D	ate		
Toshiba America	Informatio	n Systems,	, Inc	03U1876-1	4:21:54	PM April 2	4, 2003	
REF 107.00 dBµV	ATTEN	0 dB			MKR 2.4	8375 GHz	61.20	dBµV
POS PK LOG 10 dB/	-							
DL 74.0 dBμV								
RL	Manhan	and	A.MMAP	Maran Man	when	-	y	n marine
23.3 dB								
START 2.48350 G	Hz		-			STOP 2	.50000 @	iHz
CCS RES BW 1	MHz			VID BW 1 MHz		SWP 20	.0000 ms	sec

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REPORT NO: 03U1876-1 EUT: 802.11 a/b/g_Combo Mini_PCI Module_

Company Name:			Project No.:	Time & D	ate		
Toshiba America I	nformation Systems,	Inc	03U1876-1	4:23:47	PM April 24	4, 2003	
REF 107.00 dBµV	ATTEN 0 dB			MKR 2.	48371 GHz	46.91 dB	μV
POS PK LOG 10 dB/							
DL 54.0 dBµV							
RL OFFST 23.3 dB							
5TART 2.48350 GH	lz l				STOP 2.	50000 GH	z
CCS RES BW 11	MHz		VID BW 10 Hz		SWP 5.0	IO sec	

Test Item: 802.11a/b/g Combo Module, 11g, normal mode, 17dBm, restricted band,high ch, average, vert

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HARMONIC AND SPURIOUS RADIATED EMISSIONS (2.4 GHZ BAND, b MODE)

06/09/03 High Frequency Measurement Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: chin pang Project #: 03u1876-1 Company: Toshiba America Information Systems, Inc. EUT Descrip.: 802.11a/b/g Combo Module EUT M/N: PA3297U-1MPC FCC class B Mode Oper: Tx

Test Equipment:

	Horn 1-1 N: 2238 (Pre-amplife Miteq NSP2		z T	-	trum Analy EM Analyze			Ho	rn >18GHz		<u> </u>		
Hi Free	tuency Cab		☐ (4 ~ 6 ft)	🗹 (12 ft)				1 MHz	Measureme Resolution E Video Bandy	Bandwidth		leasuremen olution Bandw Bandwidth			
f GHz	Dist feet	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	HPF	Peak dBuV/m	Avg dBuV/m	Pk Lim	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes
2.412	9.8	100 v 72.2	ubuv	29.6	2.5	-36.3	0.0	0.0	67.9	ubu v/III	74.0	4.0	- <u>6.1</u>	ub	v
2.412	9.8	73.3		29.6	2.5	-36.3	0.0	0.0	69.1		74.0	54.0	-4.9		н
4.824	9.8	45.9	38.6	33.1	3.9	-36.1	0.0	1.0	47.9	40.6	74.0	54.0	-26.1	-13.4	v
4.824	9.8	47.8	41.9	33.1	3.9	-36.1	0.0	1.0	49.8	43.8	74.0	54.0	-24.2	-10.2	Н
7.236	9.8	46.3	38.0	36.1	5.1	-36.3	0.0	1.0	52.2	43.9	74.0	54.0	-21.8	-10.1	V, noise floor
7.236	9.8	47.9	38.0	36.1	5.1	-36.3	0.0	1.0	53.8	43.9	74.0	54.0	-20.2	-10.1	H, noise floor
2.437	9.8			29.6	2.5	-36.3	0.0	0.0			74.0	54.0			v
2.437	9.8			29.6	2.5	-36.3	0.0	0.0			74.0	54.0			Н
4.874	9.8	47.2	40.1	33.1	4.0	-36.1	0.0	1.0	49.2	42.1	74.0	54.0	-24.8	-11.9	v
4.874	9.8	47.7	41.6	33.1	4.0	-36.1	0.0	1.0	49.7	43.6	74.0	54.0	-24.3	-10.4	Н
7.311	9.8	46.5	38.0	36.2	5.2	-36.3	0.0	1.0	52.6	44.1	74.0	54.0	-21.4	-9.9	V, noise floor
7.311	9.8	48.4	38.5	36.2	5.2	-36.3	0.0	1.0	54.5	44.6	74.0	54.0	-19.5	-9.4	H, noise floor
2.462	9.8			29.7	2.6	-36.3	0.0	0.0			74.0	54.0			v
2.462	9.8			29.7	2.6	-36.3	0.0	0.0			74.0	54.0			Н
4.924	9.8	43.8	34.0	33.2	4.0	-36.1	0.0	1.0	45.9	36.1	74.0	54.0	-28.1	-17.9	v
4.924	9.8	45.5	37.0	33.2	4.0	-36.1	0.0	1.0	47.6	39.1	74.0	54.0	-26.4	-14.9	н
7.386	9.8	46.2	38.0	36.3	5.2	-36.2	0.0	1.0	52.5	44.3	74.0	54.0	-21.5	-9.7	V, noise floor
7.386	9.8	47.4	38.0	36.3	5.2	-36.2	0.0	1.0	53.7	44.3	74.0	54.0	-20.3	-9.7	H, noise floor
	f Dist Read AF CL	Measurem Distance to Analyzer F Antenna F Cable Loss	Reading actor	y		Amp D Corr Avg Peak HPF	Average	Correct Field S ed Peal	ct to 3 mete Strength @ c Field Stre r	3 m	1	Pk Lim Avg Mar	Peak Field Margin vs	Field Strengt d Strength Li s. Average L s. Peak Limit	imit imit

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HARMONIC AND SPURIOUS RADIATED EMISSIONS (2.4 GHZ BAND, g MODE)

06/09/03 High Frequency Measurement Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: chin pang Project #: 03u1876-1 Company: Toshiba America Information Systems, Inc. EUT Descrip.: 802.11a/b/g Combo Module EUT M/N: PA3297U-1MPC FCC class B Mode Oper: Tx

Test Equipment:

EMCO Horn 1-18GHz	Pre-amplifer 1-26GHz	Spectrum Analyzer	Horn > 18GHz
T60; S/N: 2238 @3m 💌	Miteq NSP2600-44 🔻	8593EM Analyzer -	-

Hi Fred	luency Cab		□ (4 ~ 6 ft)	🗹 (12 ft)				1 MHz	Measureme Resolution E Video Bandw	andwidth		leasuremen lution Bandw Bandwidth			
11g, norm	al mode														
f	Dist	Read Pk	Read Avg.	AF	CL	Amp	D Corr	HPF	Peak	Avg	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes
GHz	feet	dBuV	dBuV	dB/m	dB	dB	dB		dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	
Transn	nitting a	at low Cha	nnel												
4.824	9.8	57.4	42.8	33.1	3.9	-36.1	0.0	1.0	59.4	44.8	74.0	54.0	-14.6	-9.2	v
4.824	9.8	55.9	42.5	33.1	3.9	-36.1	0.0	1.0	57.8	44.5	74.0	54.0	-16.2	-9.5	Н
7.236	9.8	53.4	41.7	36.1	5.1	-36.3	0.0	1.0	59.3	47.6	74.0	54.0	-14.7	-6.4	v
7.236	9.8	56.5	42.5	36.1	5.1	-36.3	0.0	1.0	62.4	48.4	74.0	54.0	-11.6	-5.6	Н
Transm	itting a	t Mid Cha	nnel												
4.874	9.8	53.4	41.7	33.1	4.0	-36.1	0.0	1.0	55.4	43.7	74.0	54.0	-18.6	-10.3	v
4.874	9.8	53.3	41.6	33.1	4.0	-36.1	0.0	1.0	55.3	43.6	74.0	54.0	-18.7	-10.4	н
7.311	9.8	54.8	41.8	36.2	5.2	-36.3	0.0	1.0	60.9	47.9	74.0	54.0	-13.1	- 6.1	v
7.311	9.8	54.5	41.7	36.2	5.2	-36.3	0.0	1.0	60.6	47.8	74.0	54.0	-13.4	-6.2	н
Transn	nitting a	at high Cha	nnel												
4.924	9.8	52.6	39.6	33.2	4.0	-36.1	0.0	1.0	54.7	41.7	74.0	54.0	-19.3	-12.3	v
4.924	9.8	51.3	39.2	33.2	4.0	-36.1	0.0	1.0	53.4	41.3	74.0	54.0	-20.6	-12.7	н
7.386	9.8	52.8	39.6	36.3	5.2	-36.2	0.0	1.0	59.1	45.9	74.0	54.0	-14.9	-8.1	V, noise floor
7.386	9.8	51.5	39.4	36.3	5.2	-36.2	0.0	1.0	57.8	45.7	74.0	54.0	-16.2	-8.3	H, noise floor
	Measu	rement Free	quency			Amp	Preamp (Gain				Avg Lim	Average I	Field Strengt	th Limit
	Dist	Distance to	o Antenna			D Corr	Distance	Correc	t to 3 mete	rs		Pk Lim	Peak Field	d Strength L	imit
	Read	Analyzer F	Reading			Avg	Average	Field S	Strength @	3 m				. Average L	
	AF	Antenna F	U			ç	0		Field Stre			0	0	. Peak Limi	
										ngui		FK IVIAL	waa gin vs	. reak Liini	ι
	CL	Cable Loss	6			HPF	High Pas	s Filter	r						

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HARMONIC AND SPURIOUS RADIATED EMISSIONS (2.4 GHZ BAND, g TURBO MODE)

06/09/03 High Frequency Measurement Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: chin pang Project #: 03u1876-1 Company: Toshiba America Information Systems, Inc. EUT Descrip.: 802.11a/b/g Combo Module EUT M/N: PA3297U-1MPC FCC class B Mode Oper: Tx

Test Equipment:

T60; S/	Horn 1-1 N: 2238 (quency Cat ft)	@3m 🔻	Pre-amplife Miteq NSP2	600-44			trum Analy EM Analyze	er – Peak 1 1 MHz	Measureme Resolution E Video Bandw	nts: Bandwidth		leasuremer Jution Bandw Bandwidth			
11g, Turb	o Mode														
f	Dist	Read Pk	Read Avg.	AF	CL	Amp	D Corr	HPF	Peak	Avg	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes
GHz	feet	dBuV	dBuV	dB/m	dB	dB	dB		dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	
Transm	itting a	t Mid Cha	nnel												
4.874	9.8	53.7	40.5	33.1	4.0	-36.1	0.0	1.0	55.7	42.5	74.0	54.0	-18.3	-11.5	v
4.874	9.8	52.5	40.2	33.1	4.0	-36.1	0.0	1.0	54.5	42.2	74.0	54.0	-19.5	-11.8	Н
7.311	9.8	52.8	40.5	36.2	5.2	-36.3	0.0	1.0	58.9	46.6	74.0	54.0	-15.1	-7.4	v
7.311	9.8	52.4	40.0	36.2	5.2	-36.3	0.0	1.0	58.5	46.1	74.0	54.0	-15.5	-7.9	Н
	Measu Dist Read AF CL	rement Frec Distance to Analyzer R Antenna Fa Cable Loss	Antenna Reading actor	<u> </u>		Amp D Corr Avg Peak HPF	Average	Correct Field S ed Peal	ct to 3 mete Strength @ c Field Stre r	3 m		Pk Lim	Peak Field Margin vs	Field Streng d Strength L s. Average I s. Peak Limi	.imit .imit

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HARMONIC AND SPURIOUS RADIATED EMISSIONS (5.8 GHZ BAND)

06/05/03 High Frequency Measurement Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: VIEN TRAN Project #: 03U1876-1/2/3 Company: TOSHIBA EUT Descrip.: 802.11a/b/g Combo Module EUT M/N: PA3297U-1MPC Test Target: FCC15.247/IC/DGT (5.8 GHz) Mode Oper: Tx at Low, Mid, Hi Ch's _ Normal Mode & Turbo Mode

Test Equipment:

EMCO Horn 1-18GHz	Pre-amplifer 1-26GHz	Spectrum Analyzer	Horn >18GHz
T72; S/N: 6739 @3m -	HP 8449B -	8566B Analyzer 👻	T87 ARA 18-26GHz & Mixer > 26GHz 🔻

Hi Frequency Cables (2 ~ 3 ft) (4 ~ 6 ft) (12 ft) (2 ft)

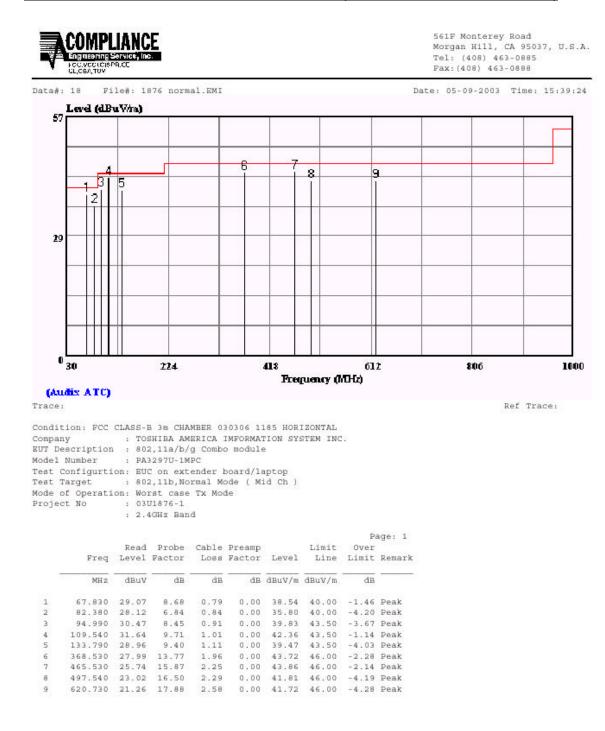
Peak Measurements: 1MHz Video Bandwidth

Average Measurements: 1 MHz Resolution Bandwidth 1 MHz Resolution Bandwidth 10Hz Video Bandwidth

f	Dist	Read Pk	Read Avg.	AF	CL	Amp	D Corr	HPF	Peak	Avg	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes
GHz	feet	dBuV	dBuV	dB/m	dB	dB	dB		dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	
IORMA	L MOI	DE													
/lid ch =	5.785														
1.570	9.8	43.0	29.0	38.6	5.8	-33.7	0.0	1.0	54.7	40.7	74.0	54.0	-19.3	-13.3	H, 2nd Har
1.570	9.8	46.4	32.0	38.6	5.8	-33.7	0.0	1.0	58.1	43.7	74.0	54.0	-15.9	-10.3	V, 2nd Har
		MONICS AN	D SPURIOUS	FOUND	AFTE	R 2nd HA	RMONIC								
ow ch = :															
1.490	9.8	42.4	28.5	38.5	5.8	-33.8	0.0	1.0	53.9	40.0	74.0	54.0	-20.1	-14.0	H, 2nd Har
2.980	9.8	44.6	31.3	36.3	9.4	-33.7	0.0	1.0	57.6	44.3	74.0	54.0	-16.4	-9.7	V, 2nd Har
1.490	9.8	45.1	30.2	38.5	5.8	-33.8	0.0	1.0	56.6	41.7	74.0	54.0	-17.4	-12.3	H, 4h Har
2.980	9.8	45.5	32.5	36.3	9.4	-33.7	0.0	1.0	58.5	45.5	74.0	54.0	-15.5	-8.5	V, 4th Har
		MONICS AN	D SPURIOUS	FOUND	AFTE	k 4th HAI	RMONIC								
<u> Hi ch = 5.8</u> 1.650	525 9.8	42.8	28.3	38.7	5.9	-33.7	0.0	1.0	54.6	40.1	74.0	54.0	-19.4	-13.9	H. 2nd Har
1.650	9.8	42.8	28.5	38.7	5.9	-33.7	0.0	1.0	54.0	40.1	74.0	54.0	-19.4	-13.9	V, 2nd Har
			D SPURIOUS					1.0	34.9	40.5	74.0	34.0	-13.1	-13.7	v, 2nu mai
00111		MONICS AN	DSICKIOUS	FOUND	AFILI	x 200 1174	KINDIVIC								
TURBO	MODE	Ξ													
ow ch =	5.76														
1.520	9.8	41.7	29.1	38.6	5.8	-33.8	0.0	1.0	53.3	40.7	74.0	54.0	-20.7	-13.3	H, 2nd Har
1.520	9.8	45.2	31.1	38.6	5.8	-33.8	0.0	1.0	56.8	42.7	74.0	54.0	-17.2	-11.3	V, 2nd Har
		MONICS AN	D SPURIOUS	FOUND	AFTE	R 2nd HA	RMONIC								
Ii ch = 5.8															
1.600	9.8	42.0	28.5	38.6	5.8	-33.7	0.0	1.0	53.7	40.2	74.0	54.0	-20.3	-13.8	H, 2nd Har
1.600	9.8	43.3	29.4	38.6	5.8	-33.7	0.0	1.0	55.0	41.1	74.0	54.0	-19.0	-12.9	V, 2nd Har
NO OTHE	CR HAR	MONICS AN	D SPURIOUS	FOUND	AFTE	R 2nd HA	RMONIC								
	1	1					I				1	I			
	f	Measureme	ent Frequency	/		Amp	Preamp O	Jain				Avg Lim	Average F	ield Strength	n Limit
	Dist	Distance to	Antenna			D Corr	Distance	Correc	t to 3 mete	rs		Pk Lim	Peak Field	Strength Li	mit
	Read	Analyzer R	eading			Avg	Average	Field S	strength @	3 m				. Average Li	
	AF	Antenna Fa							Field Stre					. Peak Limit	
										ngui		I K IVIdi	ivia gili vs	. I Cak Lillin	
	CL	Cable Loss				HPF	High Pas	s Filter							

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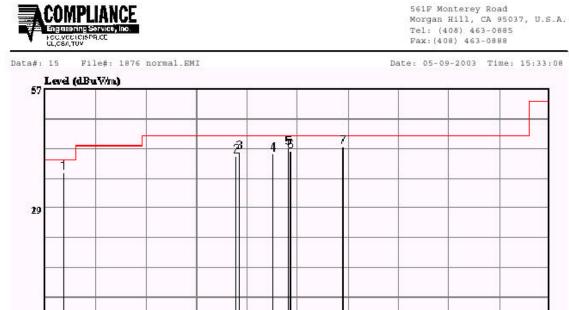
SPURIOUS RADIATED EMISSIONS BELOW 1 GHZ (WORST-CASE CONFIGURATION)



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1000

Ref Trace:



418

612

Frequency (MHz)

(Audix ATC)

0 30

Trace:

Condition: FCC CLA	SS-B 3m CHAMBER 030306 1185 VERTICAL
Company :	TOSHIBA AMERICA IMFORMATION SYSTEM INC.
	802,11a/b/g Combo module
Model Number :	PA3297U-1MPC
Test Configurtion:	EUC on extender board/laptop
Test Target :	802,11b,Normal Mode (Mid Ch)
Mode of Operation:	Worst case Tx Mode
Project No :	03U1876-1
	2.4GHz Band

224

amp Limit Over tor Level Line Limit Remark dB dBuV/m dBuV/m dB
dB dBuV/m dBuV/m dB
.00 37.10 40.00 -2.90 Peak
.00 41.00 46.00 -5.00 Peak
.00 41.92 46.00 -4.08 Peak
.00 41.35 46.00 -4.65 Peak
.00 42.83 46.00 -3.17 Peak
.00 42.27 46.00 -3.73 Peak
.00 43.22 46.00 -2.78 Peak

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COMPLIANCE CERTIFICATION SERVICES DOCUMENT NO: CCSUP4031A 561F MONTEREY ROAD, MORGAN HILL, CA 95037 USA TEL: (408) 463-0885 FAX: (408) 463-0888 This report shall not be reproduced except in full, without the written approval of CCS. This document may be altered or revised by Compliance Certification Services personnel only, and shall be noted in the revision section of the document.

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7.7. CO-LOCATED RADIATED EMISSIONS

TEST SETUP

The EUT is placed on the wooden table. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4.

Both transmitters in the EUT are set to transmit simultaneously in a continuous mode.

TEST PROCEDURE

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 within restricted bands, 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.

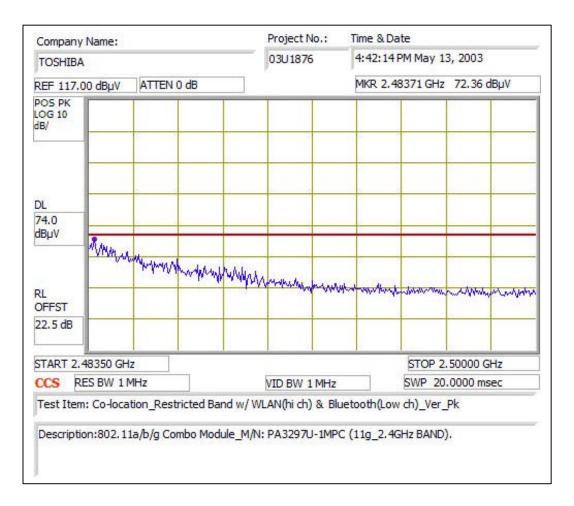
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The frequency span is set small enough to easily differentiate between broadcast stations, intermittent ambient signals and EUT emissions. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the suspected signal. Measurements were made with the antenna polarized in both the vertical and the horizontal positions.

TEST RESULTS

Worst-case results are reported. No non-compliance noted:

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WORST CASE RESTRICTED BAND WITH WLAN OPERATING AT THE WORST-CASE CHANNEL AND THE CO-LOCATED BLUETOOTH OPERATING SIMULTANEOUSLY AT THE LOW FREQUENCY CHANNEL – VERTICAL PEAK



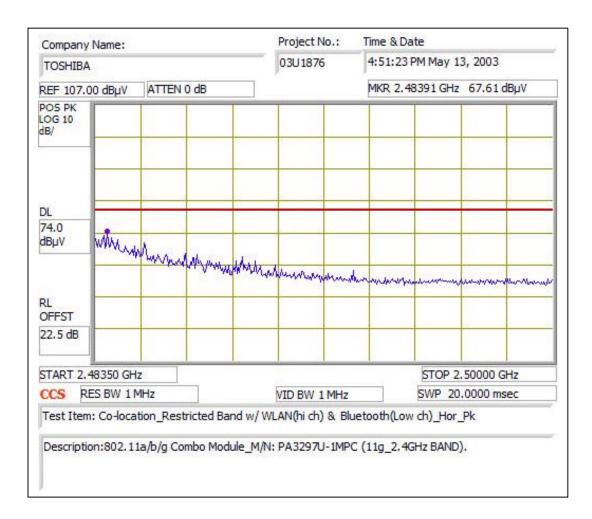
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WORST CASE RESTRICTED BAND WITH WLAN OPERATING AT THE WORST-CASE CHANNEL AND THE CO-LOCATED BLUETOOTH OPERATING SIMULTANEOUSLY AT THE LOW FREQUENCY CHANNEL – VERTICAL AVERAGE

	Project No.:	Project No.: Time & Date				
	03U1876	4:49:03	2 PM May 13, 2003			
ATTEN 0 dB		MKR 2.48354 GHz 53.03 dBµV				
z J			STOP 2.50000 GHz			
Win weight and the second						
	z_ //Hz	03U1876	03U1876 4:49:02 ATTEN 0 dB MKR 2.	03U 1876 4:49:02 PM May 1 ATTEN 0 dB MKR 2.48354 GH MKR 2.48554 GH MKR 2.485564 GH MKR 2.485564 GH MKR 2.485566 GH MKR 2.485566 GH MKR 2.4855		

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WORST CASE RESTRICTED BAND WITH WLAN OPERATING AT THE WORST-CASE CHANNEL AND THE CO-LOCATED BLUETOOTH OPERATING SIMULTANEOUSLY AT THE LOW FREQUENCY CHANNEL – HORIZONTAL PEAK



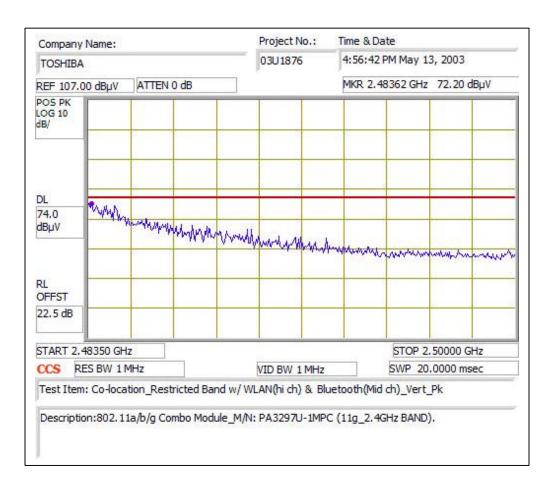
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WORST CASE RESTRICTED BAND WITH WLAN OPERATING AT THE WORST-CASE CHANNEL AND THE CO-LOCATED BLUETOOTH OPERATING SIMULTANEOUSLY AT THE LOW FREQUENCY CHANNEL – HORIZONTAL AVERAGE

Company Name	:)	Project No.:	Project No.: Time & Date				
TOSHIBA		03U1876	4:52:16 PM May 13, 2003				
REF 107.00 dBµ	V ATTEN 0 dB		MKR 2.48350 GHz 47.10 dBµV				
POS PK LOG 10 dB/							
DL							
dBµV							
RL Market Contraction of the second s	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~						
22.5 dB							
START 2.48350	GHz		STOP 2.50000 GHz				
CCS RES BW	1 MHz	VID BW 10 Hz	SWP 5.00 sec				
		l Band w/ WLAN(hi ch) & B Module_M/N: PA3297U-1MF	luetooth(Low ch)_Hor_Avg PC (11g_2.4GHz BAND).				

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WORST CASE RESTRICTED BAND WITH WLAN OPERATING AT THE WORST-CASE CHANNEL AND THE CO-LOCATED BLUETOOTH OPERATING SIMULTANEOUSLY AT THE MID FREQUENCY CHANNEL – VERTICAL PEAK



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WORST CASE RESTRICTED BAND WITH WLAN OPERATING AT THE WORST-CASE CHANNEL AND THE CO-LOCATED BLUETOOTH OPERATING SIMULTANEOUSLY AT THE MID FREQUENCY CHANNEL – VERTICAL AVERAGE

Company Name:			Project No.:	Project No.: Time & Date				
TOSHIBA			03U1876	4:59:1	13 PM May 13, 2003			
REF 107.00 dBµV	ATTEN 0	dB	Ĩ	MKR 2.48391 GHz 53.08 dBµV				
POS PK LOG 10 dB/								
DL 54.0 dBµV								
RL OFFST								
22.5 dB								
START 2.48350 0	Hz				STOP 2,50000 GHz			
CCS RES BW	1 MHz		VID BW 10 Hz		SWP 5.	00 sec		
			// WLAN(hi ch) & B M/N: PA3297U-1Mi					

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WORST CASE RESTRICTED BAND WITH WLAN OPERATING AT THE WORST-CASE CHANNEL AND THE CO-LOCATED BLUETOOTH OPERATING SIMULTANEOUSLY AT THE MID FREQUENCY CHANNEL – HORIZONTAL PEAK

Company	Name:			Project No.	Project No.: Time & Date					
TOSHIBA	U.			03U1876	5:02:	00 PM May 13	0 PM May 13, 2003			
REF 107.0	0 dBµV	ATTEN	0 dB	1	MKR	2.48371 GHz	64.72 dBµV			
OG 10 IB/										
DL 74.0 dBµV	Rinne	Margaret	marchard	mitter	harry					
RL OFFST										
22.5 dB										
START 2.4	48350 GH:	z		-	-	STOP 2.	50000 GHz			
CCS RE	ES BW 1 M	/Hz		VID BW 1 M	D BW 1 MHz SWP 20.0000 msec					
Test Item	: Co-locat	tion_Rest	tricted Band	w/ WLAN(hi ch) &	Bluetooth(Mid ch)_Hor_I	Pk			

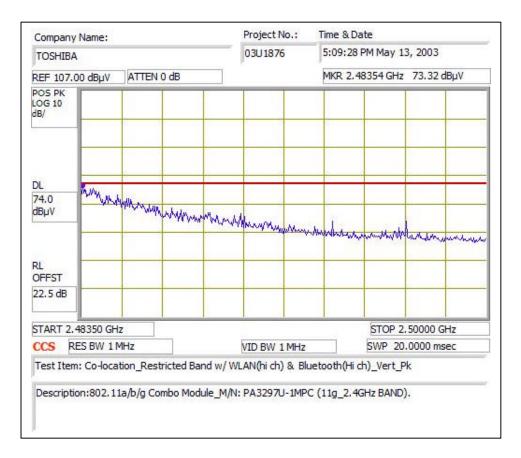
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WORST CASE RESTRICTED BAND WITH WLAN OPERATING AT THE WORST-CASE CHANNEL AND THE CO-LOCATED BLUETOOTH OPERATING SIMULTANEOUSLY AT THE MID FREQUENCY CHANNEL – HORIZONTAL AVERAGE

Company Name:		Project No.:	Time 8	& Date			
TOSHIBA		03U1876	5:03	33 PM May	33 PM May 13, 2003		
REF 107.00 dBµV	ATTEN 0 dB		MKR 2.48350 GHz 46.60 dB				
POS PK LOG 10 dB/							
DL 54.0 dBµV							
22.5 dB							
START 2.48350 G	Hz			STOP 2.50000 GHz			
CCS RES BW 1	MHz	VID BW 10 H	VID BW 10 Hz SWP 5.00 sec				
	_	8and w/ WLAN(hi ch) &					

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WORST CASE RESTRICTED BAND WITH WLAN OPERATING AT THE WORST-CASE CHANNEL AND THE CO-LOCATED BLUETOOTH OPERATING SIMULTANEOUSLY AT THE HIGH FREQUENCY CHANNEL – VERTICAL -- PEAK



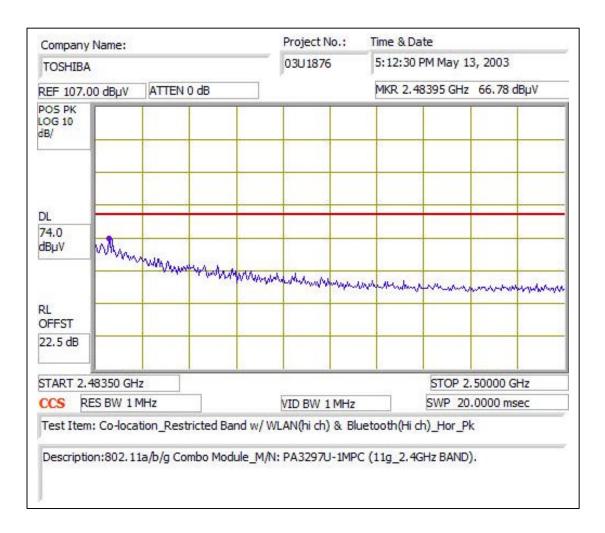
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WORST CASE RESTRICTED BAND WITH WLAN OPERATING AT THE WORST-CASE CHANNEL AND THE CO-LOCATED BLUETOOTH OPERATING SIMULTANEOUSLY AT THE HIGH FREQUENCY CHANNEL – VERTICAL AVERAGE

Company Name:		Project No.:	Time & [Time & Date			
TOSHIBA		03U1876	5:10:4	5:10:49 PM May 13, 2003			
REF 107.00 dBµ\	ATTEN 0 dB		MKR 2	48358 GHz	53.27 dBµV		
POS PK LOG 10 dB/			0				
DL 54.0 dBµV							
RL OFFST							
22.5 dB							
	START 2.48350 GHz		STOP 2.50000 GH BW 10 Hz SWP 5.00 sec				
Test Item: Co-lo	cation_Restricted Ba	and w/ WLAN(hi ch) & I	Bluetooth(Hi	i ch)_Vert_/	Avg		

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WORST CASE RESTRICTED BAND WITH WLAN OPERATING AT THE WORST-CASE CHANNEL AND THE CO-LOCATED BLUETOOTH OPERATING SIMULTANEOUSLY AT THE HIGH FREQUENCY CHANNEL – HORIZONTAL PEAK



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WORST CASE RESTRICTED BAND WITH WLAN OPERATING AT THE WORST-CASE CHANNEL AND THE CO-LOCATED BLUETOOTH OPERATING SIMULTANEOUSLY AT THE HIGH FREQUENCY CHANNEL – HORIZONTAL AVERAGE

LOG 10 dB/ DL 54.0 dBµV RL OFFST 22.5 dB	Company Name:		Project No.:	Project No.: Time & Date				
POS PK LOG 10 dB/ DL 54.0 dBµV RL OFFST 22.5 dB	TOSHIBA		03U1876	5:15:31	1 PM May 13, 2003			
POS PK LOG 10 dB/ Image: Constraint of the second se	REF 107.00 dBµV	ATTEN 0 dB	1	18350 GHz	47.67 dBµV			
54.0 dBμV RL OFFST 22.5 dB	POS PK LOG 10 dB/							
OFFST 22.5 dB	DL 54.0 dBµV							
	RL OFFST							
	22.5 dB							
START 2.48350 GHz STOP 2.50000 GHz	START 2.48350 GH	z		-	STOP 2	. 50000 GHz		
CCS RES BW 1 MHz VID BW 10 Hz SWP 5.00 sec	CCS RES BW 11	MHz	VID BW 10 Hz		SWP 5.00 sec			

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WORST CASE HARMONICS AND SPURIOUS WITH CO-LOCATED BLUETOOTH AND WLAN

05/13/03 High Frequency Measurement Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: VIEN TRAN Project #: 03U1867-2 Company: TOSHIBA EUT Descrip.: 802.11a/b/g Combo Module EUT M/N: M/N3297U-1MPC Test Target: FCC 15.247 (Co-Location) Mode Oper: Tx at H Channel (Worst case Harmonics and Spurious) _11g Hi channel 2.4GHz

Test Equipment:



Hi Frequency	Cables			Peak Measurements:	Average Measurements:
(2 ft)	(2 ~ 3 ft)	🗹 (4 ~ 6 ft)	🗹 (12 ft)	1 MHz Resolution Bandwidth	1 MHz Resolution Bandwidth
				1MHz Video Bandwidth	10Hz Video Bandwidth
				,	

f	Dist	Read Pk	Read Avg.	AF	CL	Amp	D Corr	HPF	Peak	Avg	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes
GHz	feet	dBuV	dBuV	dB/m	dB	dB	dB		dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	
WLAN W	ORST-C	CASE CH (2.4	62GHz) WITH	I BLUET	TOOTH	LOW CI	H (2.402GH	(z)							
4.924	9.8	47.0	33.1	33.5	3.5	-36.1	0.0	1.0	48.8	34.9	74.0	54.0	-25.2	-19.1	V
7.386	9.8	46.7	32.3	36.0	4.4	-36.2	0.0	1.0	51.9	37.4	74.0	54.0	-22.1	-16.6	V
4.924	9.8	46.1	33.4	33.5	3.5	-36.1	0.0	1.0	47.9	35.2	74.0	54.0	-26.1	-18.8	Н
7.386	9.8	45.6	33.0	36.0	4.4	-36.2	0.0	2.0	51.8	39.1	74.0	54.0	-22.2	-14.9	Н
NO OTH	ER EMS	SION FOUN	D AFTER 3rd	HARMO	NIC										
WLANW	ORST.(ASE CH (2.4	62GHz) WITH	IRLUFT	тоотн	MIDCH	(2 441CH	r)							
4.924	9.8	45.4	32.5	33.5	3.5	-36.1	0.0	1.0	47.2	34.3	74.0	54.0	-26.8	-19.7	v
7.386	9.8	46.0	32.7	36.0	4.4	-36.2	0.0	1.0	51.1	37.8	74.0	54.0	-22.9	-16.2	v
4.924	9.8	43.2	30.7	33.5	3.5	-36.1	0.0	1.0	45.0	32.5	74.0	54.0	-29.0	-21.5	Н
7.386	9.8	42.0	29.1	36.0	4.4	-36.2	0.0	1.0	47.2	34.2	74.0	54.0	-26.8	-19.8	Н
NO OTH	ER EMS	SION FOUN	D AFTER 3rd	HARMO	NIC										
			62GHz) WITH												
4.924	9.8	45.1	32.7	33.5	3.5	-36.1	0.0	1.0	46.9	34.5	74.0	54.0	-27.1	-19.5	V
7.386	9.8	45.9	33.1	36.0	4.4	-36.2	0.0	1.0	51.1	38.2	74.0	54.0	-22.9	-15.8	V
4.924	9.8	42.1	29.1	33.5	3.5	-36.1	0.0	1.0	43.9	30.9	74.0	54.0	-30.1	-23.1	Н
7.386	9.8	43.8	32.0 DAFTER 3rd	36.0	4.4	-36.2	0.0	1.0	48.9	37.1	74.0	54.0	-25.1	-16.9	Н
NOOTH	ER EMS	SION FOUN	D AFTER 3rd	HARMO	NIC										
	f	Measureme	ent Frequency	v		Amp	Preamp O	Gain				Avg Lim	Average H	Field Strengt	th Limit
	Dist	Distance to					1		ct to 3 mete	ers			0	l Strength L	
	Read	Analyzer R	Reading			Avg	Average	Field S	Strength @	3 m				. Average L	
	AF	Antenna Fa							Field Stre					. Peak Limi	
	CL	Cable Loss				HPF	High Pas								-
		Cubic 1055				••••		5 I III0							

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7.8. 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 L	imit (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:

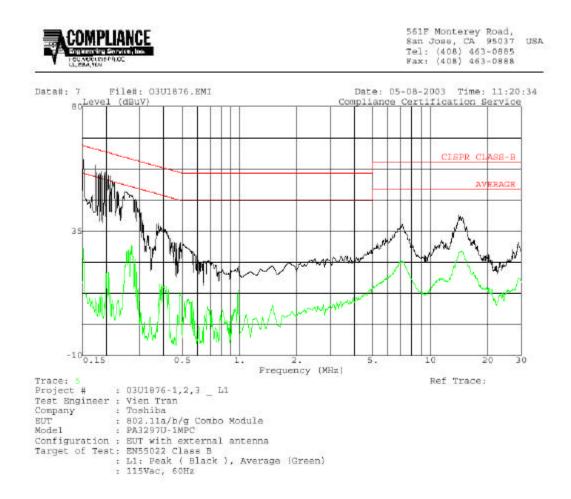
Freq.		Reading		Closs	Limit	EN_B	Marg	in	Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV(dB)	L1/L2
0.15	61.18		29.00	0.00	65.94	55.94	-4.76	-26.94	L1
0.26	49.27		30.77	0.00	62.86	52.86	-13.59	-22.09	L1
14.36	40.20		24.80	0.00	60.00	50.00	-19.80	-25.20	L1
0.15	59.34		41.70	0.00	65.94	55.94	-6.60	-14.24	L2
0.26	45.26		24.45	0.00	62.86	52.86	-17.60	-28.41	L2
14.36	40.98	22	28.39	0.00	60.00	50.00	-19.02	-21.61	L2
6 Worst :	 Data								

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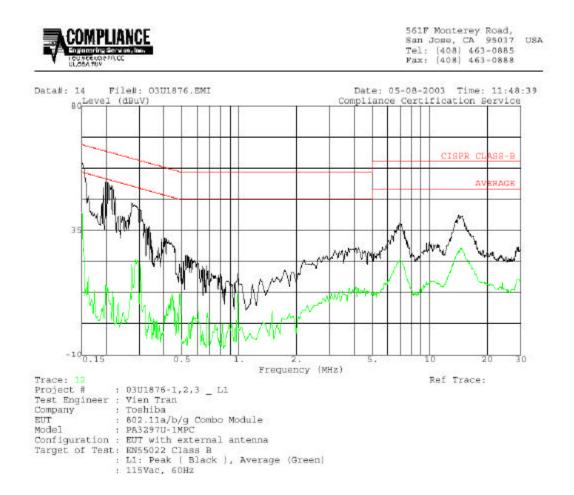
COMPLIANCE CERTIFICATION SERVICES

DOCUMENT NO: CCSUP4031A

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