FCC CFR47 PART 15 SUBPART C CERTIFICATION



TEST REPORT

FOR

TOUCH SCREEN PLATFORM WITH BLUETOOTH AND IEEE802.11b

MODEL: PORTEGE 3500

FCC ID: CJ6UPP350SY

REPORT NUMBER: 02U1463-1

ISSUE DATE: OCTOBER 3, 2002

Prepared for

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

Prepared by

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DATE: OCTOBER 3, 2002 EUT: Touchscreen Platform with Bluetooth and IEEE802.11b FCC ID: CJ6UPP350SY

1. TEST RESULT CERTIFICATION

COMPANY NAME: TOSHIBA CORPORATION DIGITAL MEDIA NETWORK COMPANY

> 2-9, SUEHIRO-CHO, OME TOKYO, 198-8710 JAPAN

EUT DESCRIPTION: TOUCH SCREEN PLATFORM WITH BLUETOOTH AND

IEEE802.11b

PORTEGE 3500 **MODEL NAME:**

DATE TESTED: SEPTEMBER 24 - 25, 2002

TYPE OF EQUIPMENT	INTENTIONAL RADIATOR
EQUIPMENT TYPE	TWO CO-LOCATED 2.4 - 2.4835 GHz TRANSCEIVERS
MEASUREMENT PROCEDURE	ANSI 63.4 / 1992, TIA/EIA 603
PROCEDURE	CERTIFICATION
FCC RULE	CFR 47 PART 15.C

Compliance Certification Services, Inc. tested the above equipment for compliance with the requirements set forth in CFR 47, PART 15, Subpart C. Test results show that the measured emission levels emanating from the equipment in the configuration described in this report do not exceed the specified limits. This report documents the radiated emissions of the co-located radio modules. See Section 2 below for cross references to additional reports with respect to other applicable requirements.

Note: This document reports conditions under which testing was conducted and results of tests performed. 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.

Approved & Released For CCS By:

Tested By:

THU CHAN SENIOR EMC ENGINEER COMPLIANCE CERTIFICATION SERVICES MIKE HECKROTTE CHIEF ENGINEER COMPLIANCE CERTIFICATION SERVICES

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2. CROSS REFERENCES TO OTHER APPLICABLE REPORTS

The Bluetooth Transmitter Module performance, with respect to FCC Part 15 Subpart C requirements, is documented by CCS Report 02U1501-1 dated October 3, 2002, FCC ID: CJ6UPA3232BT, Certification Pending.

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The WLAN Transmitter Module has a limited module approval under FCC ID CJ6PA3171WL.

The performance of the Touch Screen Platform system, with respect to AC Mains Line Conducted emissions and radiated emissions as a Digital Device, is documented by Toshiba Document Number OFA-H3355 Rev.A dated October 3, 2002, FCC ID: CJ6UPP350SY, Certification Pending.

3. EUT DESCRIPTION

The Toshiba Portege 3500 is a Touch Screen Platform with two transceivers installed. One is a Bluetooth module and one is a WLAN module.

The Bluetooth module is a wireless Frequency Hopping Spread Spectrum transceiver that operates from 2402 - 2480 MHz. This unit provides a maximum power output of +1.4 dBm (1.38 mW) and is connected to an internal film antenna with a 1.22 dBi gain (Single Film).

The WLAN module is a wireless Direct Sequence Spread Spectrum transceiver that operates from 2412 – 2462 MHz. This unit provides a maximum power output of +19.29 dBm (85 mW) and is connected to two identical internal film antennas. One antenna (Main) is used for transmit and both antennas (Main plus Aux) are used for dual diversity receive.

The Portege 3500 can be equipped with either of two pairs of WLAN antennas. One pair (Dual Film) utilizes antennas with 0.9 dBi gain. The alternate pair (Wide Dual Film) utilizes antennas with 1.26 dBi gain.

4. TEST METHODOLOGY

Conducted and radiated testing were performed according to the procedures documented on chapter 13 of ANSI C63.4 and FCC CFR 47 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057, and 15.407.

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FCC ID: CJ6UPP350SY

5. FACILITIES AND ACCREDITATION

5.1. FACILITIES AND EQUIPMENT

The open area test sites and conducted measurement facilities used to collect the radiated data are located at 561F Monterey Road, Morgan Hill, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

Receiving equipment (i.e., receiver, analyzer, quasi-peak adapter, pre-selector) and LISNs conform to CISPR specifications for "Radio Interference Measuring Apparatus and Measurement Methods," Publication 16.

5.2. LABORATORY ACCREDITATIONS AND LISTINGS

The test facilities used to perform radiated and conducted emissions tests are accredited by National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code: 200065-0 to perform Electromagnetic Interference tests according to FCC PART 15 AND CISPR 22 requirements. No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government. In addition, the test facilities are listed with Federal Communications Commission (reference no: 31040/SIT (1300B3) and 31040/SIT (1300F2)).

5.3. TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	NVLAP*	FCC Part 15, CISPR 22, AS/NZS 3548,IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC	NVLAĢ
		61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11, CNS 13438	200065-0
USA	FCC	3/10 meter Open Area Test Sites to perform FCC Part 15/18 measurements	FC 1300
Japan	VCCI	CISPR 22 Two OATS and one conducted Site	VCCI R-1014, R-619, C-640
Norway	NEMKO	EN50081-1, EN50081-2, EN50082-1, EN50082-2, IEC61000-6-1, IEC61000-6-2, EN50083-2, EN50091-2, EN50130-4, EN55011, EN55013, EN55014-1, EN55104, EN55015, EN61547, EN55022, EN55024, EN61000-3-2, EN61000-3-3, EN60945, EN61326-1	N _{ELA 117}
Norway	NEMKO	EN60601-1-2 and IEC 60601-1-2, the Collateral Standards for Electro-Medical Products. MDD, 93/42/EEC, AIMD 90/385/EEC	N _{ELA-171}
Taiwan	BSMI	CNS 13438	点 SL2-IN-E-1012
Canada	Industry Canada	RSS210 Low Power Transmitter and Receiver	Canada IC2324 A,B,C, and F

^{*} No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government.

6. CALIBRATION AND UNCERTAINTY

chscreen Platform with Bluetooth and IEEE802.11b FCC ID: CJ6UPP350SY

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6.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

6.2. MEASUREMENT UNCERTAINTY

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

Radiated	Emission
30MHz – 200 MHz	+/- 3.3dB
200MHz – 1000MHz	+4.5/-2.9dB
1000MHz – 2000MHz	+4.6/-2.2dB
Power Line Con	ducted Emission
150kHz – 30MHz	+/-2.9

Any results falling within the above values are deemed to be marginal.

6.3. TEST AND MEASUREMENT EQUIPMENT

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

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TES	T AND MEASUREME	ENT EQUIPMENT LI	ST	
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due Date
Spectrum Analyzer	HP	8566B	3014A06685	6/1/03
Spectrum Display	HP	85662A	2152A03066	6/1/03
Quasi-Peak Detector	HP	85650A	3145A01654	6/1/03
Preamplifier	HP	8447D	2944A06833	8/10/02
Log Periodic Antenna	EMCO	3146	9107-3163	3/30/03
Biconical Antenna	Eaton	94455-1	1197	3/30/03
Spectrum Analyzer	HP	8593EM	3710A00205	6/11/03
Preamplifier (1 - 26.5GHz)	HP	11	646456	4/26/03
Horn Antenna (1 - 18GHz)	EMCO	3115	6717	1/31/03
Horn Antenna (18 – 26.5GHz)	ARA	MWH 1826/B	6717	1/31/03
High Pass Filter (4.57GHz)	FSY Microwave	FM-4570-9SS	003	N.C.R.

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7. SETUP OF EQUIPMENT UNDER TEST

SUPPORT EQUIPMENT

	PERIPHERA	L SUPPORT EQUIPM	MENT LIST	
Device Type	Manufacturer	Model	Serial Number	FCC ID
Touch Screen Platform	Toshiba	Portege 3500	92027903	Prototype / EUT
Laptop	Toshiba	TECRA 9100	12040512	DoC
Touch Screen Platform	Toshiba	Portege 3500	82010051	Prototype / EUT
Laptop	Toshiba	TECRA 9100	72043652	DoC
AC Adapter	Toshiba	PA3083U-1ACA	1336963G	DoC
AC Adapter	Toshiba	PA3083U-1ACA	1230257G	DoC

Note 1: EUT Serial Number 92027903 is equipped with the Dual Film WLAN antenna set.

Note 2: The Tecra 9100 Serial Number 12040512 is set up to establish an ad hoc WLAN link with EUT Serial Number 92027903.

Note 3: EUT Serial Number 82010051 is equipped with the Wide Dual Film WLAN antenna set.

Note 4: The Tecra 9100 Serial Number 72043652 is set up to establish an ad hoc WLAN link with EUT Serial Number 82010051.

Note 5: Both EUT samples are equipped with the Single Film Bluetooth antenna.

I/O CABLES

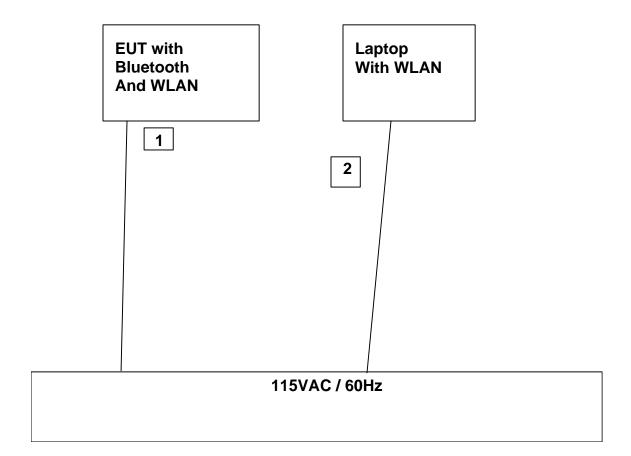
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	1	US115	Unshielded	2 m	Integrated with AC Adapter
2	AC	1	US115	Unshielded	2 m	Integrated with AC Adapter

TEST SETUP

The EUT (equipped with a Bluetooth transceiver and a WLAN transceiver) is placed next to a laptop computer (equipped with a similar WLAN transceiver) during the test.

The Bluetooth transceiver in the EUT is operated in a standalone mode by a utility program. The WLAN transceiver in the EUT is operated in a linked ad hoc mode, using the similar WLAN to complete the link.

SETUP DIAGRAM FOR TRANSMITTER TESTS



7.1. APPLICABLE RULES

§15.247 (c)- SPURIOUS EMISSIONS

In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

§15.205- RESTRICTED BANDS OF OPERATIONS

(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	$\binom{2}{}$
13.36 - 13.41			

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

(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.

² Above 38.6

§15.209- RADIATED EMISSION LIMITS

(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:

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

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

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

Frequency Range	Field Strength	Field Strength
(MHz)	(uV/m at 3 m)	(dBuV/m at 3 m)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

8. TEST SETUP, PROCEDURE AND RESULT

8.1. UNDESIRABLE EMISSIONS – RADIATED MEASUREMENTS

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TEST SETUP

The EUT is placed on the wooden table. The antenna to EUT distance is 3 meters for measurements below 1 GHz and 1 meter for measurements above 1 GHz. The EUT is configured in accordance with Section 8 of ANSI C63.4/1992.

The EUT is set to transmit 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 spectrum from 30 MHz to 26 GHz is investigated.

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 PROCEDURE FOR CO-LOCATED TRANSMITTERS

Each transmitter is operated individually, in a continuously transmitting mode, on their respective Low, Middle, and High channels, and the spurious emissions are measured.

Pretesting of all channel combinations with both transmitters operating simultaneously is performed to determine the worst case simultaneous configuration.

The results of final testing of the worst case simultaneous configuration is presented in this report.

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SYSTEM NOISE FLOOR FOR HARMONIC AND SPURIOUS MEASUREMENTS

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Worst Case Radiated Emissions System Noise Floor

Each band below corresponds to each horn antenna band
Uses the lowest gain preamplifier; actual preamp used may have higher gain
Uses the longest typical cable configuration; actual cables used may have less loss
Noise floor field strength results are compared to the FCC 15.205 Restricted Band limit

motore

Specii	ication D	istance.	3	meters					
Freq GHz	SA dBuV	AF dB/m	Distance m	Distance dB	Preamp dB	Cable dB	Field dBuV/m	Limit dBuV/m	Margin dB
1 to 18	GHz ban	d							
RBW =	1 MHz, p	eak dete	ection						
18	41.9	47.8	1	-9.5	32.6	13.5	61.06	74	-12.94
RBW =	1 MHz, a	average (detection						
18	28.7	47.8	1	-9.5	32.6	13.5	47.86	54	-6.14
18 to 26	.5 GHz l	oand							
RBW =	1 MHz, p	oeak dete	ection						
26.5	44.6	33.4	1	-9.5	35.0	19.5	52.96	74	-21.04

35.0

19.5

40.76

54

-13.24

-9.5

TEST RESULTS

No non-compliance noted:

32.4

RBW = 1 MHz, average detection

33.4

Specification Distance:

SPURIOUS RADIATED EMISSIONS WITH BLUETOOTH ONLY OPERATING

	Descr	iption of	f Test:	Spurio	us Radia	ted Emiss	sions				
	Pro	oject Nu	mber:	02U15	01						
		09/24/02									
Test Engineer:		Mike H	eckrotte								
			Site:	В							
		Con	npany:	Toshib	а						
	EUT	□ Descr	iption:	Touch	Screen /	Bluetooth	n / Single	Film An	tenna / WL	AN	
	Test	Configu	ration:	EUT / /	AC Adap	ter / Lapto	op with V	VLAN / A	C Adapter		
	Mode	of Ope	ration:	Blueto	oth trans	mitting at	maximu	m power	, Low chan	nel	
				WLAN	is off						
,	Specifica	ation Dis	stance:	3.0	meters						
Actual Distance:				1.0	meters	Cable	Length:	15.0	feet		
Freq	Pol	Det	SA	Dist	AF	Preamp		Cable	Field	Limit	Margin
Freq GHz										Limit dBuV/m	Margin dB
	Pol		SA	Dist	AF	Preamp dB	Filter	Cable	Field		
GHz	Pol V/H	Det	SA dBuV	Dist dB	AF dB/m	Preamp dB 34.5	Filter dB	Cable dB 5.7	Field dBuV/m	dBuV/m	dB
GHz 4.804	Pol V/H V	Det Peak	SA dBuV 50.0	Dist dB -9.5	AF dB/m 33.8	Preamp dB 34.5 34.5	Filter dB	Cable dB 5.7 5.7	Field dBuV/m 46.4	dBuV/m 74.0	dB -27.6
4.804 4.804	Pol V/H V	Peak Peak*	SA dBuV 50.0 50.0	Dist dB -9.5 -9.5	AF dB/m 33.8 33.8	Preamp dB 34.5 34.5 34.5	Filter dB 1.0 1.0	Cable dB 5.7 5.7 5.7	Field dBuV/m 46.4 46.4	dBuV/m 74.0 54.0	-27.6 -7.6
4.804 4.804 4.804	Pol V/H V V H	Peak Peak* Peak	SA dBuV 50.0 50.0 52.1	Dist dB -9.5 -9.5 -9.5	AF dB/m 33.8 33.8 33.8	Preamp dB 34.5 34.5 34.5 34.5	Filter dB 1.0 1.0 1.0	Cable dB 5.7 5.7 5.7 5.7	Field dBuV/m 46.4 46.4 48.5	74.0 54.0 74.0	-27.6 -7.6 -25.5
4.804 4.804 4.804 4.804	Pol V/H V V H	Peak Peak* Peak* Peak*	\$A dBuV 50.0 50.0 52.1 52.1	Dist dB -9.5 -9.5 -9.5 -9.5	AF dB/m 33.8 33.8 33.8 33.8	Preamp dB 34.5 34.5 34.5 34.5	1.0 1.0 1.0 1.0	Cable dB 5.7 5.7 5.7 5.7	Field dBuV/m 46.4 46.4 48.5 48.5	74.0 54.0 74.0 54.0	-27.6 -7.6 -25.5 -5.5
4.804 4.804 4.804 4.804 7.206	Pol V/H V V H H	Peak Peak* Peak* Peak* Peak	\$A dBuV 50.0 50.0 52.1 52.1 44.6	-9.5 -9.5 -9.5 -9.5 -9.5 -9.5	AF dB/m 33.8 33.8 33.8 33.8 37.0	978 Preamp dB 34.5 34.5 34.5 34.5 34.5 34.5 34.5	1.0 1.0 1.0 1.0 1.0	5.7 5.7 5.7 5.7 7.2	Field dBuV/m 46.4 46.4 48.5 48.5 45.7	74.0 54.0 74.0 54.0 74.0	-27.6 -7.6 -25.5 -5.5 -28.3
4.804 4.804 4.804 4.804 7.206 7.206	Pol V/H	Peak Peak* Peak* Peak* Peak Peak*	\$A dBuV 50.0 50.0 52.1 52.1 44.6 44.6	Dist dB -9.5 -9.5 -9.5 -9.5 -9.5 -9.5	AF dB/m 33.8 33.8 33.8 33.8 37.0 37.0	978 Preamp dB 34.5 34.5 34.5 34.5 34.5 34.5 34.5 34.5	1.0 1.0 1.0 1.0 1.0 1.0	5.7 5.7 5.7 5.7 7.2 7.2 7.2	Field dBuV/m 46.4 46.4 48.5 48.5 45.7 45.7	74.0 54.0 74.0 54.0 74.0 54.0	-27.6 -7.6 -25.5 -5.5 -28.3 -8.3
4.804 4.804 4.804 4.804 4.804 7.206 7.206 7.206	Pol V/H	Peak Peak* Peak* Peak Peak* Peak Peak*	50.0 50.0 52.1 52.1 44.6 44.6 49.9	9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5	AF dB/m 33.8 33.8 33.8 37.0 37.0 37.0	94.5 34.5 34.5 34.5 34.5 34.5 34.5 34.5	1.0 1.0 1.0 1.0 1.0 1.0 1.0	5.7 5.7 5.7 5.7 7.2 7.2 7.2	Field dBuV/m 46.4 46.5 48.5 45.7 45.7 51.0	74.0 54.0 74.0 54.0 74.0 54.0 74.0	-27.6 -7.6 -25.5 -5.5 -28.3 -8.3 -23.0
4.804 4.804 4.804 4.804 7.206 7.206 7.206	Pol	Peak Peak* Peak Peak Peak Peak Peak Peak Peak Peak	\$A dBuV 50.0 50.0 52.1 52.1 44.6 49.9 49.9	-9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5	AF dB/m 33.8 33.8 33.8 37.0 37.0 37.0	Preamp dB 34.5 34.5 34.5 34.5 34.5 34.5 34.5	1.0 1.0 1.0 1.0 1.0 1.0 1.0	Cable dB 5.7 5.7 5.7 7.2 7.2 7.2 7.2	Field dBuV/m 46.4 48.5 48.5 45.7 45.7 51.0	74.0 54.0 74.0 54.0 74.0 54.0 74.0	-27.6 -7.6 -25.5 -5.5 -28.3 -8.3 -23.0

	Descr	iption o	f Test:	Spurio	us Radia	ted Emiss	sions				
	Pr	oject Nu	mber:	02U15	01						
			Date:	09/24/0)2						
		est Eng	gineer:	Mike H	eckrotte						
			Site:	В							
		Con	npany:	Toshib	а						
	EUT	□ Descr	iption:	Touch	Screen /	Bluetooth	n / Single	Film An	tenna / WL	AN	
	Test	Configu	ration:	EUT / /	AC Adap	ter / Lapto	op with V	VLAN / A	C Adapter		
	Mode	of Ope	ration:	Blueto	oth trans	mitting at	maximu	n power	, Mid chann	nel	
				WLAN	is off						
	Specifica	ation Dis	stance:	3.0	meters						
	Ad	ctual Dis	stance:	1.0	meters	Cable	Length:	15.0	feet		
Freq	Pol	Det	SA	Dist	AF	Preamp	Filter	Cable	Field	Limit	Margin
Freq GHz	Pol V/H	Det	SA dBuV	Dist dB	AF dB/m	Preamp dB	Filter dB	Cable dB	Field dBuV/m	Limit dBuV/m	Margin dB
•		Det Peak				•					
GHz	V/H		dBuV	dB	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB
GHz 4.882	V/H	Peak	dBuV 51.1	dB -9.5	dB/m 34.0	dB 34.5	dB	dB 5.8	dBuV/m 47.8	dBuV/m 74.0	dB -26.2
4.882 4.882	V/H V V	Peak Peak*	51.1 51.1	-9.5 -9.5	34.0 34.0	dB 34.5 34.5	1.0 1.0	dB 5.8 5.8	47.8 47.8	74.0 54.0	-26.2 -6.2
4.882 4.882 4.882	V/H V V H	Peak Peak* Peak	51.1 51.1 51.5	-9.5 -9.5 -9.5 -9.5	34.0 34.0 34.0	34.5 34.5 34.5 34.5	1.0 1.0 1.0 1.0	5.8 5.8 5.8	47.8 47.8 48.2 48.2	74.0 54.0 74.0	-26.2 -6.2 -25.8
4.882 4.882 4.882 4.882	V/H V V H H	Peak Peak Peak Peak	51.1 51.1 51.5 51.5	-9.5 -9.5 -9.5 -9.5	34.0 34.0 34.0 34.0	34.5 34.5 34.5 34.5 34.6	1.0 1.0 1.0 1.0	5.8 5.8 5.8 5.8	47.8 47.8 48.2 48.2	74.0 54.0 74.0 54.0	-26.2 -6.2 -25.8 -5.8
4.882 4.882 4.882 4.882 7.323	V/H V V H H V	Peak Peak* Peak Peak* Peak	51.1 51.5 51.5 43.9	-9.5 -9.5 -9.5 -9.5 -9.5	34.0 34.0 34.0 34.0 37.2	34.5 34.5 34.5 34.5 34.6	1.0 1.0 1.0 1.0 1.0 1.0	5.8 5.8 5.8 5.8 7.3	47.8 47.8 48.2 48.2 45.3 45.3	74.0 54.0 74.0 54.0 74.0	-26.2 -6.2 -25.8 -5.8 -28.7
4.882 4.882 4.882 4.882 7.323 7.323	V/H V V H H V V	Peak Peak* Peak Peak Peak Peak	51.1 51.5 51.5 43.9 43.9	-9.5 -9.5 -9.5 -9.5 -9.5 -9.5	34.0 34.0 34.0 34.0 37.2 37.2	34.5 34.5 34.5 34.5 34.6 34.6	1.0 1.0 1.0 1.0 1.0 1.0	5.8 5.8 5.8 5.8 7.3 7.3	47.8 47.8 48.2 48.2 45.3 45.3 50.8	74.0 54.0 74.0 54.0 74.0 54.0	-26.2 -6.2 -25.8 -5.8 -28.7 -8.7
4.882 4.882 4.882 4.882 7.323 7.323 7.323	V/H V V H H V V H H H V	Peak Peak* Peak Peak Peak Peak Peak	51.1 51.5 51.5 43.9 43.9 49.4	-9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5	34.0 34.0 34.0 34.0 37.2 37.2	34.5 34.5 34.5 34.5 34.6 34.6 34.6	1.0 1.0 1.0 1.0 1.0 1.0	5.8 5.8 5.8 5.8 7.3 7.3 7.3	47.8 47.8 48.2 48.2 45.3 45.3 50.8	74.0 54.0 74.0 54.0 74.0 54.0 74.0	-26.2 -6.2 -25.8 -5.8 -28.7 -8.7 -23.2
4.882 4.882 4.882 4.882 7.323 7.323 7.323	V/H V V H H V V H H H H H H	Peak Peak* Peak* Peak Peak Peak Peak Peak Peak	51.1 51.5 51.5 51.5 43.9 49.4 49.4	-9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5	34.0 34.0 34.0 34.0 37.2 37.2 37.2	34.5 34.5 34.5 34.5 34.6 34.6 34.6	1.0 1.0 1.0 1.0 1.0 1.0 1.0	5.8 5.8 5.8 5.8 7.3 7.3 7.3 7.3	47.8 47.8 48.2 48.2 45.3 45.3 50.8	74.0 54.0 74.0 54.0 74.0 54.0 74.0	-26.2 -6.2 -25.8 -5.8 -28.7 -8.7 -23.2

Description of Test: Spurious Radiated Emissions	
Project Number: 02U1501	
Date: 09/24/02	
Test Engineer: Mike Heckrotte	
Site: B	
Company: Toshiba	
EUT Description: Touch Screen / Bluetooth / Single Film Antenna / WLAN	
Test Configuration: EUT / AC Adapter / Laptop with WLAN / AC Adapter	
Mode of Operation: Bluetooth transmitting at maximum power, High channel	
WLAN is off	
TYEAT TO OIL	
Specification Distance: 3.0 meters	
Actual Distance: 1.0 meters Cable Length: 15.0 feet	it Margin
Actual Distance: 1.0 meters Cable Length: 15.0 feet Freq Pol Det SA Dist AF Preamp Filter Cable Field Lim	
Actual Distance: 1.0 meters Cable Length: 15.0 feet	_
Actual Distance: 1.0 meters Cable Length: 15.0 feet Freq Pol Det SA Dist AF Preamp Filter Cable Field Lim GHz V/H dBuV dB dB/m dB dB dB dBuV/m dBuV	_
Freq Pol Det SA Dist AF Preample Filter Cable Field Lim GHz V/H dBuV dB dB/m dB dB dB dBuV/m dBuV/m dBuV 4.960 V Peak 50.2 -9.5 34.2 34.5 1.0 5.8 47.2 34.2	/m dB
Actual Distance: 1.0 meters Cable Length: 15.0 feet Freq Pol Det SA Dist AF Preamp Filter Cable Field Lim GHz V/H dBuV dB dB/m dB dB dB dBuV/m dBuV 4.960 V Peak 50.2 -9.5 34.2 34.5 1.0 5.8 47.2 34.2 49.6 47.2 49.6 47.2 49.6 47.2 49.6 47.2 49.6 47.2 49.6 47.2 49.6 47.2 49.6 47.2 49.6 47.2 49.6 47.2 49.6 47.2 49.6 47.2 49.6 47.2 49.6 47.2 49.6 47.2 49.6 <td< td=""><td>'/m dB '4.0 -26.8</td></td<>	'/m dB '4.0 -26.8
Actual Distance: 1.0 meters Cable Length: 15.0 feet Freq Pol Det SA Dist AF Preample Filter Cable Field Lim GHz V/H dBuV dB dB/m dB dB dB dBuV/m dBuV 4.960 V Peak 50.2 -9.5 34.2 34.5 1.0 5.8 47.2 34.2 4.960 V Peak* 50.2 -9.5 34.2 34.5 1.0 5.8 47.2 34.2 4.960 H Peak 52.9 -9.5 34.2 34.5 1.0 5.8 49.9	//m dB /4.0 -26.8 /4.0 -6.8
Actual Distance: 1.0 meters Cable Length: 15.0 feet	//m dB 74.0 -26.8 54.0 -6.8 74.0 -24.1
Freq Pol Det SA Dist AF Preample Filter Cable Field Lim GHz V/H dBuV dB dB/m dB dB dB dB dBuV/m dBuV/m dBuV/m 4.960 V Peak 50.2 -9.5 34.2 34.5 1.0 5.8 47.2 34.2 34.5 1.0 5.8 47.2 34.2 34.5 1.0 5.8 47.2 34.2 34.5 1.0 5.8 49.9 34.2 34.5 1.0 5.8 49.9 34.2 34.5 1.0 5.8 49.9 34.2 34.5 1.0 5.8 49.9 34.2 34.5 1.0 5.8 49.9 34.2 34.5 1.0 5.8 49.9 34.2 34.5 1.0 5.8 49.9 34.2 34.5 1.0 5.8 49.9 34.2 34.5 1.0 5.8 49.9 34.2 34.2 34.5 1.0	//m dB 74.0 -26.8 54.0 -6.8 74.0 -24.1 54.0 -4.1
Freq Pol Det SA Dist AF Preample Filter Cable Field Lim GHz V/H dBuV dB dB/m dB dB dB dB dBuV/m dBuV/m dBuV 4.960 V Peak 50.2 -9.5 34.2 34.5 1.0 5.8 47.2 34.2 4.960 H Peak 52.9 -9.5 34.2 34.5 1.0 5.8 49.9 34.2 4.960 H Peak 52.9 -9.5 34.2 34.5 1.0 5.8 49.9 34.2 34.5 1.0 5.8 49.9 34.2 34.5 1.0 5.8 49.9 34.2 34.5 1.0 5.8 49.9 34.2 34.5 1.0 5.8 49.9 34.2 34.5 1.0 5.8 49.9 34.2 34.5 1.0 5.8 49.9 34.2 34.5 1.0 5.8 49.9 34.2 34.5	//m dB 74.0 -26.8 54.0 -6.8 74.0 -24.1 54.0 -4.1 74.0 -27.6 54.0 -7.6
Actual Distance: 1.0 meters Cable Length: 15.0 feet Freq Pol Det SA Dist AF Preamp Filter Cable Field Lim GHz V/H dBuV dB dB/m dB dB dB dB wW/m dBuV/m dBuV 4.960 V Peak 50.2 -9.5 34.2 34.5 1.0 5.8 47.2 34.2 4.960 H Peak 52.9 -9.5 34.2 34.5 1.0 5.8 49.9 34.9 34.9 34.2 34.5 1.0 5.8 49.9 34.9 34.9 34.2 34.5 1.0 5.8 49.9 34.9 34.9 34.2 34.5 1.0 5.8 49.9 34.9 34.9 34.5 1.0 5.8 49.9 34.9 34.9 34.9 34.9 34.9 34.9 34.9 34.9 34.9 34.9 34.9 34.9 34.9 34.9 34.9 <td>//m dB /4.0 -26.8 /4.0 -6.8 /4.0 -24.1 /4.0 -27.6 /4.0 -7.6 /4.0 -7.6 /4.0 -23.7</td>	//m dB /4.0 -26.8 /4.0 -6.8 /4.0 -24.1 /4.0 -27.6 /4.0 -7.6 /4.0 -7.6 /4.0 -23.7
Actual Distance: 1.0 meters Cable Length: 15.0 feet Freq Pol Det SA Dist AF Preamp Filter Cable Field Lim GHz V/H dBuV dB dB/m dB dB dB dB wW/m dBuV/m dBuV 4.960 V Peak 50.2 -9.5 34.2 34.5 1.0 5.8 47.2 34.2 4.960 H Peak 52.9 -9.5 34.2 34.5 1.0 5.8 49.9 34.9 34.9 34.2 34.5 1.0 5.8 49.9 34.9 34.9 34.2 34.5 1.0 5.8 49.9 34.9 34.9 34.2 34.5 1.0 5.8 49.9 34.9 34.9 34.5 1.0 5.8 49.9 34.9 34.9 34.9 34.9 34.9 34.9 34.9 34.9 34.9 34.9 34.9 34.9 34.9 34.9 34.9 <td>//m dB 74.0 -26.8 54.0 -6.8 74.0 -24.1 54.0 -4.1 74.0 -27.6 54.0 -7.6</td>	//m dB 74.0 -26.8 54.0 -6.8 74.0 -24.1 54.0 -4.1 74.0 -27.6 54.0 -7.6
Actual Distance: 1.0 meters Cable Length: 15.0 feet Freq Pol Det SA Dist AF Preamp Filter Cable Field Lim GHz V/H dBuV dB dB/m dB dB dB dB/m dBuV/m dBuV 4.960 V Peak 50.2 -9.5 34.2 34.5 1.0 5.8 47.2 34.2 4.960 H Peak 52.9 -9.5 34.2 34.5 1.0 5.8 49.9 34.9 34.9 34.2 34.5 1.0 5.8 49.9 34.9 34.2 34.5 1.0 5.8 49.9 34.9 34.2 34.5 1.0 5.8 49.9 34.9 34.9 34.2 34.5 1.0 5.8 49.9 34.9 34.9 34.9 34.9 34.9 34.9 34.9 34.9 34.9 34.9 34.9 34.9 34.9 34.9 34.9	//m dB /4.0 -26.8 /4.0 -6.8 /4.0 -24.1 /4.0 -27.6 /4.0 -7.6 /4.0 -7.6 /4.0 -23.7

SPURIOUS RADIATED EMISSIONS WITH WLAN ONLY OPERATING, DUAL FILM ANTENNAS

DATE: OCTOBER 3, 2002

FCC ID: CJ6UPP350SY

GHz V/H dBuV dB dB/m dB dB dB dB uV/m dBuV/m dB dB 4.824 V Peak 63.3 -9.5 33.8 34.5 1.0 5.7 59.8 74.0 -14.2 4.824 V Avg 46.0 -9.5 33.8 34.5 1.0 5.7 42.5 54.0 -11.5 4.824 H Peak 61.8 -9.5 33.8 34.5 1.0 5.7 58.3 74.0 -15.7 4.824 H Avg 45.7 -9.5 33.8 34.5 1.0 5.7 58.3 74.0 -15.7 4.824 H Avg 45.7 -9.5 33.8 34.5 1.0 5.7 42.2 54.0 -11.8 7.236 V Peak 58.5 -9.5 37.0 34.5 1.0 7.2 43.7 54.0 -10.3 7.236 H Peak 60.8 <th></th> <th>Descri</th> <th>ption o</th> <th>f Test:</th> <th>Spurio</th> <th>us Radia</th> <th>ted Emiss</th> <th>sions</th> <th></th> <th></th> <th></th> <th></th>		Descri	ption o	f Test:	Spurio	us Radia	ted Emiss	sions					
Test Engineer: Mike Heckrotte B		Pro	ject Nu	ımber:	02U15	01							
Site: B Company: Toshiba Touch Screen / Bluetooth / WLAN / Dual Film Antenna EUT / AC Adapter / Laptop with WLAN / AC Adapter				Date:	09/24/0	02							
Company: Toshiba EUT Description: Touch Screen / Bluetooth / WLAN / Dual Film Antenna Test Configuration: EUT / AC Adapter / Laptop with WLAN / AC Adapter		Т	est Eng	gineer:	Mike H	eckrotte	•						
EUT Description: Touch Screen Bluetooth WLAN Dual Film Antenna				Site:	В								
Test Configuration: EUT / AC Adapter / Laptop with WLAN / AC Adapter Mode of Operation: WLAN transmitting at maximum power in linked mode, Low channel Bluetooth is off Bluetooth is off Specification Distance: 1.0 meters Cable Length: 15.0 feet Freq Pol Det SA Dist AF Preamp Filter Cable Field Limit Margin GHz V/H dBuV dB dB/m dB dB dB dBuV/m dBuV/m dB dB dB dB dB dB dB d			Con	npany:	Toshib	Foshiba Foshiba							
Specification Distance: 3.0 meters		EUT	Descr	ription:	Touch	Screen /	Bluetooth	n / WLAN	l / Dual F	Film Antenr	na		
Specification Distance: 3.0 meters Specification Distance: 1.0 meters Cable Length: 15.0 feet SA Dist AF Preamp Filter Cable Brield Limit Margin Margin GHz V/H Ma		Test C	Configu	ration:			•	•		•			
Specification Distance: 3.0 meters Actual Distance: 1.0 meters Cable Length: 15.0 feet Freq Pol Det SA Dist AF Preamp Filter Cable dBuV/m dB uV/m dB uV		Mode	of Ope	ration:	WLAN	transmit	ting at ma	ximum p	ower in	linked mod	e, Low cha	nnel	
Freq Pol Det SA Dist AF Preamp Filter Cable GHz Field GBuV/m Limit Margin GHz GHz V/H dBuV dB dB/m dB dB dB dB dBuV/m dBuV/m Margin dBuV/m 4.824 V Peak 63.3 -9.5 33.8 34.5 1.0 5.7 59.8 74.0 -14.2 4.824 V Avg 46.0 -9.5 33.8 34.5 1.0 5.7 59.8 74.0 -14.2 4.824 H Peak 61.8 -9.5 33.8 34.5 1.0 5.7 58.3 74.0 -11.5 4.824 H Peak 61.8 -9.5 33.8 34.5 1.0 5.7 58.3 74.0 -15.7 4.824 H Avg 45.7 -9.5 33.8 34.5 1.0 5.7 58.3 74.0 -15.7 7.236 V Peak 58.5 -9.5					Blueto	oth is off							
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Freq Pol Det SA Dist dBuV AF Preamp dB Filter dB Cable dB uV/m Limit dB uV/m Margin dB 4.824 V Peak 63.3 -9.5 33.8 34.5 1.0 5.7 59.8 74.0 -14.2 4.824 V Avg 46.0 -9.5 33.8 34.5 1.0 5.7 42.5 54.0 -11.5 4.824 H Peak 61.8 -9.5 33.8 34.5 1.0 5.7 42.5 54.0 -11.5 4.824 H Peak 61.8 -9.5 33.8 34.5 1.0 5.7 42.5 54.0 -11.5 4.824 H Avg 45.7 -9.5 33.8 34.5 1.0 5.7 58.3 74.0 -15.7 4.824 H Avg 45.7 -9.5 33.8 34.5 1.0 5.7 42.2 54.0 -11.6 7.236 V Peak	9	•											
GHz V/H dBuV dB dB/m dB dB dB dB uV/m dBuV/m dB dB 4.824 V Peak 63.3 -9.5 33.8 34.5 1.0 5.7 59.8 74.0 -14.2 4.824 V Avg 46.0 -9.5 33.8 34.5 1.0 5.7 42.5 54.0 -11.5 4.824 H Peak 61.8 -9.5 33.8 34.5 1.0 5.7 58.3 74.0 -15.7 4.824 H Avg 45.7 -9.5 33.8 34.5 1.0 5.7 58.3 74.0 -15.7 4.824 H Avg 45.7 -9.5 33.8 34.5 1.0 5.7 42.2 54.0 -11.8 7.236 V Peak 58.5 -9.5 37.0 34.5 1.0 7.2 43.7 54.0 -10.3 7.236 H Peak 60.8 <td></td> <td>Ac</td> <td></td>		Ac											
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4.824 H Peak 61.8 -9.5 33.8 34.5 1.0 5.7 58.3 74.0 -15.7 4.824 H Avg 45.7 -9.5 33.8 34.5 1.0 5.7 42.2 54.0 -11.8 7.236 V Peak 58.5 -9.5 37.0 34.5 1.0 7.2 59.7 74.0 -14.3 7.236 V Avg 42.5 -9.5 37.0 34.5 1.0 7.2 43.7 54.0 -10.3 7.236 H Peak 60.8 -9.5 37.0 34.5 1.0 7.2 62.0 74.0 -12.0 7.236 H Avg 44.8 -9.5 37.0 34.5 1.0 7.2 62.0 74.0 -12.0 9.648 V Peak 56.7 -9.5 39.7 34.9 1.0 8.5 61.4 74.0 -12.6 9.648 H Peak 56.5 -9.5 39.7 34.9 1.0 8.5 61.2 74.0 -12.8	GHZ	ν/Π		авиу	иь	ub/III	иь	uБ	uБ	авиу/п	ubuv/III	иь	
4.824 H Avg 45.7 -9.5 33.8 34.5 1.0 5.7 42.2 54.0 -11.8 7.236 V Peak 58.5 -9.5 37.0 34.5 1.0 7.2 59.7 74.0 -14.3 7.236 V Avg 42.5 -9.5 37.0 34.5 1.0 7.2 43.7 54.0 -10.3 7.236 H Peak 60.8 -9.5 37.0 34.5 1.0 7.2 62.0 74.0 -12.0 7.236 H Avg 44.8 -9.5 37.0 34.5 1.0 7.2 46.0 54.0 -8.0 9.648 V Peak 56.7 -9.5 39.7 34.9 1.0 8.5 61.4 74.0 -12.6 9.648 V Avg 41.8 -9.5 39.7 34.9 1.0 8.5 61.2 74.0 -12.6 9.648 H Peak 56.5 -9.5 39.7 34.9 1.0 8.5 61.2 74.0 -12.8			Peak										
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7.236 V Avg 42.5 -9.5 37.0 34.5 1.0 7.2 43.7 54.0 -10.3 7.236 H Peak 60.8 -9.5 37.0 34.5 1.0 7.2 62.0 74.0 -12.0 7.236 H Avg 44.8 -9.5 37.0 34.5 1.0 7.2 46.0 54.0 -8.0 9.648 V Peak 56.7 -9.5 39.7 34.9 1.0 8.5 61.4 74.0 -12.6 9.648 V Avg 41.8 -9.5 39.7 34.9 1.0 8.5 46.6 54.0 -7.4 9.648 H Peak 56.5 -9.5 39.7 34.9 1.0 8.5 61.2 74.0 -12.6	4.824 4.824	V	Avg	63.3 46.0	-9.5 -9.5	33.8 33.8	34.5 34.5	1.0 1.0	5.7 5.7	59.8 42.5	74.0 54.0	-14.2 -11.5	
7.236 H Peak 60.8 -9.5 37.0 34.5 1.0 7.2 62.0 74.0 -12.0 7.236 H Avg 44.8 -9.5 37.0 34.5 1.0 7.2 46.0 54.0 -8.0 9.648 V Peak 56.7 -9.5 39.7 34.9 1.0 8.5 61.4 74.0 -12.6 9.648 V Avg 41.8 -9.5 39.7 34.9 1.0 8.5 46.6 54.0 -7.4 9.648 H Peak 56.5 -9.5 39.7 34.9 1.0 8.5 61.2 74.0 -12.6	4.824 4.824 4.824	V V H	Avg Peak	63.3 46.0 61.8	-9.5 -9.5 -9.5	33.8 33.8 33.8	34.5 34.5 34.5	1.0 1.0 1.0	5.7 5.7 5.7	59.8 42.5 58.3	74.0 54.0 74.0	-14.2 -11.5 -15.7 -11.8	
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	4.824 4.824 4.824 7.236 7.236 7.236 7.236 9.648 9.648 9.648	V V H H V V H H V	Avg Peak Avg Peak Avg Peak Avg Peak Avg Avg	63.3 46.0 61.8 45.7 58.5 42.5 60.8 44.8 56.7 41.8	-9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5	33.8 33.8 33.8 37.0 37.0 37.0 37.0 39.7 39.7	34.5 34.5 34.5 34.5 34.5 34.5 34.5 34.9 34.9	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	5.7 5.7 5.7 5.7 7.2 7.2 7.2 7.2 8.5 8.5	59.8 42.5 58.3 42.2 59.7 43.7 62.0 46.0 61.4 46.6 61.2	74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0	-14.2 -11.5 -15.7 -11.8 -14.3 -10.3 -12.0 -8.0 -7.4	
Note 1: No other spurious emissions were detected above the system noise floor.	4.824 4.824 4.824 7.236 7.236 7.236 7.236 9.648 9.648 9.648	V V H H V V H H V	Avg Peak	63.3 46.0 61.8 45.7 58.5 42.5 60.8 44.8 56.7 41.8	-9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5	33.8 33.8 33.8 37.0 37.0 37.0 37.0 39.7 39.7	34.5 34.5 34.5 34.5 34.5 34.5 34.5 34.9 34.9 34.9	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	5.7 5.7 5.7 5.7 7.2 7.2 7.2 7.2 8.5 8.5	59.8 42.5 58.3 42.2 59.7 43.7 62.0 46.0 61.4 46.6 61.2	74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0	-14.2 -11.5 -15.7 -11.8 -14.3 -10.3	

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V/H		dBuV	dB	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
V	Peak	63.6	-9.5	33.9	34.5	1.0	5.8	60.3	74.0	-13.7	
V	Avg	46.1	-9.5			1.0	5.8		54.0	-11.2	
Η	Peak	61.5	-9.5	33.9	34.5	1.0	5.8		74.0	-15.8	
Н	Avg	45.6	-9.5	33.9	34.5	1.0	5.8	42.3	54.0	-11.7	
V	Peak	58.1	-9.5	37.2	34.6	1.0	7.3	59.5	74.0	-14.5	
V	Avg	42.0	-9.5	37.2	34.6	1.0	7.3	43.4	54.0	-10.6	
Н	Peak	61.6	-9.5	37.2	34.6	1.0	7.3	63.0	74.0	-11.0	
Н	Avg	45.1	-9.5	37.2	34.6	1.0	7.3	46.5	54.0	-7.5	
V	Peak	56.0	-9.5	39.8	34.9	1.0	8.6	60.9	74.0	-13.1	
V	Avg	41.5	-9.5	39.8	34.9	1.0	8.6	46.4	54.0	-7.6	
Н	Peak	56.9	-9.5	39.8	34.9	1.0	8.6	61.8	74.0	-12.2	
Н	Avg	41.9	-9.5	39.8	34.9	1.0	8.6	46.8	54.0	-7.2	
	Test C Mode pecifica Ac Pol V/H V H H V V H H H V V H H H	Test Configu Mode of Ope pecification Dis Actual Dis Pol Det V/H V Peak V Avg H Peak H Avg V Peak V Avg H Peak H Avg V Peak H Peak H Avg V Peak H Peak H Avg V Peak V Peak V Avg H Peak	Test Configuration: Mode of Operation: Pecification Distance: Actual Distance: Pol Det SA V/H dBuV V Peak 63.6 V Avg 46.1 H Peak 61.5 H Avg 45.6 V Peak 58.1 V Avg 42.0 H Peak 61.6 H Peak 61.6 H Avg 45.1 V Avg 45.1 V Avg 45.1 V Avg 45.1 V Peak 56.0 H Peak 56.0 V Avg 41.5 H Peak 56.9	Test Configuration: EUT / A Mode of Operation: WLAN Blueton Blueton pecification Distance: 3.0 Actual Distance: 1.0 Pol Det SA Dist V/H dBuV dB V Peak 63.6 -9.5 V Avg 46.1 -9.5 H Peak 61.5 -9.5 V Peak 58.1 -9.5 V Avg 42.0 -9.5 H Peak 61.6 -9.5 H Avg 45.1 -9.5 V Peak 56.0 -9.5 V Avg 41.5 -9.5 V Avg 41.5 -9.5 H Peak 56.9 -9.5	Test Configuration: EUT / AC Adapt Mode of Operation: Mode of Operation: WLAN transmit Bluetooth is off pecification Distance: 3.0 meters Actual Distance: 1.0 meters Pol Det SA Dist AF V/H dBuV dBu/m V Peak 63.6 -9.5 33.9 V Peak 661.5 -9.5 33.9 V Peak 58.1 -9.5 37.2 V Avg 42.0 -9.5 37.2 H Peak 61.6 -9.5 37.2 V Peak 56.0 -9.5 37.2 V Peak 56.0 -9.5 37.2 V Peak 56.0 -9.5 39.8 V Peak 56.0 -9.5 <th c<="" td=""><td>EUT / AC Adapter / Lapter Mode of Operation: WLAN transmitting at max Bluetooth is off Bluetooth is off pecification Distance: 3.0 meters Actual Distance: 1.0 meters Cable Pol Det SA Dist AF Preamp V/H dBuV dB dB/m dB V Peak 63.6 -9.5 33.9 34.5 V Avg 46.1 -9.5 33.9 34.5 H Peak 61.5 -9.5 33.9 34.5 V Peak 58.1 -9.5 37.2 34.6 V Avg 42.0 -9.5 37.2 34.6 H Peak 61.6 -9.5 37.2 34.6 H Peak 56.0 -9.5 39.8 34.9 V Avg 41.5 -9.5 39.8 34.9 H Peak 56.9 -9.5 39.8 34.9</td><td>Test Configuration: EUT / AC Adapter / Laptop with V Mode of Operation: WLAN transmitting at maximum p Bluetooth is off Bluetooth is off pecification Distance: 3.0 meters Actual Distance: 1.0 meters Cable Length: Pol Det SA Dist AF Preamp Filter V/H dBuV dB dB/m dB dB V Peak 63.6 -9.5 33.9 34.5 1.0 V Avg 46.1 -9.5 33.9 34.5 1.0 H Peak 61.5 -9.5 33.9 34.5 1.0 V Peak 58.1 -9.5 37.2 34.6 1.0 V Avg 42.0 -9.5 37.2 34.6 1.0 V Peak 61.6 -9.5 37.2 34.6 1.0 H Peak 56.0 -9.5 39.8 <t< td=""><td>Test Configuration: EUT / AC Adapter / Laptop with WLAN / A Mode of Operation: WLAN transmitting at maximum power in Bluetooth is off Pecification Distance: 3.0 meters Actual Distance: 1.0 meters Cable Length: 15.0 Pol Det SA Dist AF Preamp Filter Cable Cable Length: V/H Avg 46.1 -9.5 33.9 34.5 1.0 5.8 V Avg 46.1 -9.5 33.9 34.5 1.0 5.8 H Peak 61.5 -9.5 33.9 34.5 1.0 5.8 V Peak 58.1 -9.5 33.9 34.5 1.0 5.8 V Peak 58.1 -9.5 37.2 34.6 1.0 7.3 V Avg 42.0 -9.5 37.2 34.6 1.0 7.3 H Peak 61.6 -9.5 37.2 34.6 1.0 7.3 H Peak 56.0 -9.5 39.8 34.9 1.0 8.6 V Avg 41.5 -9.5 39.8 34.9 1.0 8.6 H Peak 56.9 -9.5 39.8 34.9 1.0 8.6</td><td> Test Configuration: EUT / AC Adapter / Laptop with WLAN / AC Adapter Mode of Operation: WLAN transmitting at maximum power in linked mode Bluetooth is off </td><td>Test Configuration: EUT / AC Adapter / Laptop with WLAN / AC Adapter Mode of Operation: WLAN transmitting at maximum power in linked mode, Mid char Bluetooth is off Bluetooth is off pecification Distance: 3.0 meters Actual Distance: 1.0 meters Cable Length: 15.0 feet Pol Det SA Dist AF Preamp Filter Cable Field Limit V/H dBuV dB dB dB dB dBuV/m dBuV/m V Peak 63.6 -9.5 33.9 34.5 1.0 5.8 60.3 74.0 V Avg 46.1 -9.5 33.9 34.5 1.0 5.8 42.8 54.0 H Peak 61.5 -9.5 33.9 34.5 1.0 5.8 42.3 54.0 V Peak 58.1 -9.5 37.2 34.6 1.0 7.3 59.5 74.0 V Avg 42.0 -9.5 37.2 34.6 1.0 7.3 43.4 54.0 H Peak 61.6 -9.5 37.2 34.6 1.0 7.3 63.0 74.0 H Peak 56.0 -9.5 39.8 34.9 1.0 8.6 60.9 74.0 V Peak 56.0 -9.5 39.8 34.9 1.0 8.6 60.9 74.0 V Avg 41.5 -9.5 39.8 34.9 1.0 8.6 61.8 74.0 H Peak 56.9 -9.5 39.8 34.9 1.0 8.6 61.8 74.0</td></t<></td></th>	<td>EUT / AC Adapter / Lapter Mode of Operation: WLAN transmitting at max Bluetooth is off Bluetooth is off pecification Distance: 3.0 meters Actual Distance: 1.0 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/ AC Adapter / Laptop with WLAN / AC Adapter Mode of Operation: WLAN transmitting at maximum power in linked mode Bluetooth is off </td><td>Test Configuration: EUT / AC Adapter / Laptop with WLAN / AC Adapter Mode of Operation: WLAN transmitting at maximum power in linked mode, Mid char Bluetooth is off Bluetooth is off pecification Distance: 3.0 meters Actual Distance: 1.0 meters Cable Length: 15.0 feet Pol Det SA Dist AF Preamp Filter Cable Field Limit V/H dBuV dB dB dB dB dBuV/m dBuV/m V Peak 63.6 -9.5 33.9 34.5 1.0 5.8 60.3 74.0 V Avg 46.1 -9.5 33.9 34.5 1.0 5.8 42.8 54.0 H Peak 61.5 -9.5 33.9 34.5 1.0 5.8 42.3 54.0 V Peak 58.1 -9.5 37.2 34.6 1.0 7.3 59.5 74.0 V Avg 42.0 -9.5 37.2 34.6 1.0 7.3 43.4 54.0 H Peak 61.6 -9.5 37.2 34.6 1.0 7.3 63.0 74.0 H Peak 56.0 -9.5 39.8 34.9 1.0 8.6 60.9 74.0 V Peak 56.0 -9.5 39.8 34.9 1.0 8.6 60.9 74.0 V Avg 41.5 -9.5 39.8 34.9 1.0 8.6 61.8 74.0 H Peak 56.9 -9.5 39.8 34.9 1.0 8.6 61.8 74.0</td></t<>	Test Configuration: EUT / AC Adapter / Laptop 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SA Dist AF Preamp Filter Cable Field Limit V/H dBuV dB dB dB dB dBuV/m dBuV/m V Peak 63.6 -9.5 33.9 34.5 1.0 5.8 60.3 74.0 V Avg 46.1 -9.5 33.9 34.5 1.0 5.8 42.8 54.0 H Peak 61.5 -9.5 33.9 34.5 1.0 5.8 42.3 54.0 V Peak 58.1 -9.5 37.2 34.6 1.0 7.3 59.5 74.0 V Avg 42.0 -9.5 37.2 34.6 1.0 7.3 43.4 54.0 H Peak 61.6 -9.5 37.2 34.6 1.0 7.3 63.0 74.0 H Peak 56.0 -9.5 39.8 34.9 1.0 8.6 60.9 74.0 V Peak 56.0 -9.5 39.8 34.9 1.0 8.6 60.9 74.0 V Avg 41.5 -9.5 39.8 34.9 1.0 8.6 61.8 74.0 H Peak 56.9 -9.5 39.8 34.9 1.0 8.6 61.8 74.0

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	Company:			Toshib		/ Di 4 41	/ \ \ / \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	I / D I [-:l A t	_	
	EUT Description: Test Configuration:								Film Antenn	ıa	
						•	•		•	111111	
	Mode	от Оре	ration:			_	ximum p	ower in	linked mod	e, Hign cha	innei
				Blueto	oth is off						
	N	P:		0.0							
	Specifica ^ •			3.0	meters	Cabla	ا ماه مطلع	15.0	foot		
F			stance:		meters		Length:		feet	1.224	8.6
Freq	Pol	Det	SA	Dist	AF	Preamp		Cable	Field	Limit	Margin
								- 10			40
GHz	V/H		dBuV	dB	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB
4.924	V/H ∨	Peak	62.7	dB -9.5	dB/m 34.1	dB 34.5	dB 1.0	dB 5.8	dBuV/m 59.6	dBuV/m 74.0	-14.4
		Peak Avg									
4.924	V		62.7	-9.5	34.1	34.5	1.0	5.8	59.6	74.0	-14.4
4.924 4.924	V	Avg	62.7 45.8	-9.5 -9.5	34.1 34.1	34.5 34.5	1.0	5.8 5.8	59.6 42.7	74.0 54.0	-14.4 -11.3
4.924 4.924 4.924	V V H	Avg Peak	62.7 45.8 62.3	-9.5 -9.5 -9.5	34.1 34.1 34.1	34.5 34.5 34.5	1.0 1.0 1.0	5.8 5.8 5.8	59.6 42.7 59.2	74.0 54.0 74.0	-14.4 -11.3 -14.8
4.924 4.924 4.924 4.924	V V H H	Avg Peak Avg	62.7 45.8 62.3 46.1	-9.5 -9.5 -9.5	34.1 34.1 34.1 34.1	34.5 34.5 34.5 34.5	1.0 1.0 1.0 1.0	5.8 5.8 5.8 5.8	59.6 42.7 59.2 43.0	74.0 54.0 74.0 54.0	-14.4 -11.3 -14.8 -11.0
4.924 4.924 4.924 4.924 7.386	V V H H	Avg Peak Avg Peak	62.7 45.8 62.3 46.1 58.9	-9.5 -9.5 -9.5 -9.5	34.1 34.1 34.1 34.1 37.3	34.5 34.5 34.5 34.5 34.6	1.0 1.0 1.0 1.0 1.0	5.8 5.8 5.8 5.8 7.3	59.6 42.7 59.2 43.0 60.5	74.0 54.0 74.0 54.0 74.0	-14.4 -11.3 -14.8 -11.0 -13.5
4.924 4.924 4.924 4.924 7.386 7.386	V V H H V	Avg Peak Avg Peak Avg	62.7 45.8 62.3 46.1 58.9 42.7	-9.5 -9.5 -9.5 -9.5 -9.5	34.1 34.1 34.1 34.1 37.3 37.3	34.5 34.5 34.5 34.5 34.6 34.6	1.0 1.0 1.0 1.0 1.0	5.8 5.8 5.8 5.8 7.3 7.3	59.6 42.7 59.2 43.0 60.5 44.3	74.0 54.0 74.0 54.0 74.0 54.0	-14.4 -11.3 -14.8 -11.0 -13.5 -9.7
4.924 4.924 4.924 4.924 7.386 7.386 7.386	V V H H V V	Avg Peak Avg Peak Avg Peak Peak	62.7 45.8 62.3 46.1 58.9 42.7 60.5	-9.5 -9.5 -9.5 -9.5 -9.5 -9.5	34.1 34.1 34.1 37.3 37.3 37.3	34.5 34.5 34.5 34.5 34.6 34.6 34.6	1.0 1.0 1.0 1.0 1.0 1.0	5.8 5.8 5.8 5.8 7.3 7.3 7.3	59.6 42.7 59.2 43.0 60.5 44.3 62.1	74.0 54.0 74.0 54.0 74.0 54.0 74.0	-14.4 -11.3 -14.8 -11.0 -13.5 -9.7 -11.9
4.924 4.924 4.924 7.386 7.386 7.386 7.386	V V H H V V H	Avg Peak Avg Peak Avg Peak Avg	62.7 45.8 62.3 46.1 58.9 42.7 60.5 44.2	-9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5	34.1 34.1 34.1 37.3 37.3 37.3 37.3	34.5 34.5 34.5 34.6 34.6 34.6 34.6 34.6	1.0 1.0 1.0 1.0 1.0 1.0 1.0	5.8 5.8 5.8 5.8 7.3 7.3 7.3 7.3	59.6 42.7 59.2 43.0 60.5 44.3 62.1 45.8	74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0	-14.4 -11.3 -14.8 -11.0 -13.5 -9.7 -11.9 -8.2
4.924 4.924 4.924 7.386 7.386 7.386 7.386 9.848	V V H H V V H H	Avg Peak Avg Peak Avg Peak Avg Peak Avg	62.7 45.8 62.3 46.1 58.9 42.7 60.5 44.2 56.9	-9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5	34.1 34.1 34.1 37.3 37.3 37.3 37.3 40.0	34.5 34.5 34.5 34.6 34.6 34.6 35.0	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	5.8 5.8 5.8 5.8 7.3 7.3 7.3 7.3 8.6	59.6 42.7 59.2 43.0 60.5 44.3 62.1 45.8 62.0	74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0	-14.4 -11.3 -14.8 -11.0 -13.5 -9.7 -11.9 -8.2 -12.0
4.924 4.924 4.924 7.386 7.386 7.386 7.386 9.848 9.848	V V H H V V H H V	Avg Peak Avg Peak Avg Peak Avg Peak Avg	62.7 45.8 62.3 46.1 58.9 42.7 60.5 44.2 56.9 41.9	-9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5	34.1 34.1 34.1 37.3 37.3 37.3 37.3 40.0 40.0	34.5 34.5 34.5 34.6 34.6 34.6 35.0 35.0	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	5.8 5.8 5.8 5.8 7.3 7.3 7.3 7.3 8.6 8.6	59.6 42.7 59.2 43.0 60.5 44.3 62.1 45.8 62.0 47.0	74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0	-14.4 -11.3 -14.8 -11.0 -13.5 -9.7 -11.9 -8.2 -12.0 -7.0
4.924 4.924 4.924 7.386 7.386 7.386 7.386 9.848 9.848	V V H H V V H H V	Avg Peak Avg Peak Avg Peak Avg Avg Peak Avg Peak Avg Peak	62.7 45.8 62.3 46.1 58.9 42.7 60.5 44.2 56.9 41.9 56.4	-9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5	34.1 34.1 34.1 37.3 37.3 37.3 40.0 40.0 40.0	34.5 34.5 34.5 34.6 34.6 34.6 35.0 35.0 35.0	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	5.8 5.8 5.8 5.8 7.3 7.3 7.3 7.3 8.6 8.6	59.6 42.7 59.2 43.0 60.5 44.3 62.1 45.8 62.0 47.0 61.5	74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0	-14.4 -11.3 -14.8 -11.0 -13.5 -9.7 -11.9 -8.2 -12.0 -7.0 -12.5

SPURIOUS RADIATED EMISSIONS WITH WLAN ONLY OPERATING, WIDE DUAL FILM ANTENNAS

	Descri	ption o	f Test:	Spurio	us Radia	ted Emiss	sions				
	Pro	ject Nu	mber:	02U15	01						
			Date:	09/24/	02						
	T	est Eng		Mike F	eckrotte	Г					
			Site:	В							
			npany:	Toshib	Toshiba Santa S						
		Descr							Dual Film A	Antenna	
		Configu			-	-	-		C Adapter		
	Mode	of Ope	ration:				ximum p	ower in	linked mod	e, Low cha	nnel
				Blueto	oth is off						
	Specifica			3.0	meters	0.11.	1	45.0	f t		
F		tual Dis		1.0	meters		Length:		feet	1.224	B.
Freq GHz	Pol V/H	Det	SA dBuV	Dist dB	AF dB/m	Preamp dB	dB	Cable dB	Field dBuV/m	Limit dBuV/m	Margin dB
<u> </u>	.,		4	1	ì	1	ì	ì	5	~= ~ · · · · · · ·	
4.004	١,,	Б	04.5	٥.	00.0	04.5	4.0		04.0	740	40.0
4.824	V	Peak	64.5	-9.5	33.8	34.5	1.0		61.0	74.0	
4.824	V	Avg	47.3	-9.5	33.8	34.5	1.0	5.7	43.8	54.0	-10.2
4.824 4.824	V H	Avg Peak	47.3 63.5	-9.5 -9.5	33.8 33.8	34.5 34.5	1.0 1.0	5.7 5.7	43.8 60.0	54.0 74.0	-13.0 -10.2 -14.0
4.824 4.824 4.824	V H H	Avg Peak Avg	47.3 63.5 46.5	-9.5 -9.5 -9.5	33.8 33.8 33.8	34.5 34.5 34.5	1.0 1.0 1.0	5.7 5.7 5.7	43.8 60.0 43.0	54.0 74.0 54.0	-10.2 -14.0 -11.0
4.824 4.824 4.824 7.236	V H H V	Avg Peak Avg Peak	47.3 63.5 46.5 60.5	-9.5 -9.5 -9.5 -9.5	33.8 33.8 33.8 37.0	34.5 34.5 34.5 34.5	1.0 1.0 1.0 1.0	5.7 5.7 5.7 7.2	43.8 60.0 43.0 61.7	54.0 74.0 54.0 74.0	-10.2 -14.0 -11.0 -12.3
4.824 4.824 4.824 7.236 7.236	V H H V	Avg Peak Avg Peak Avg	47.3 63.5 46.5 60.5 45.7	-9.5 -9.5 -9.5 -9.5	33.8 33.8 33.8 37.0 37.0	34.5 34.5 34.5 34.5 34.5	1.0 1.0 1.0 1.0	5.7 5.7 5.7 7.2 7.2	43.8 60.0 43.0 61.7 46.8	54.0 74.0 54.0 74.0 54.0	-10.2 -14.0 -11.0 -12.3 -7.2
4.824 4.824 4.824 7.236 7.236 7.236	V H H V V	Avg Peak Avg Peak Avg Peak	47.3 63.5 46.5 60.5 45.7 64.0	-9.5 -9.5 -9.5 -9.5 -9.5	33.8 33.8 33.8 37.0 37.0	34.5 34.5 34.5 34.5 34.5 34.5	1.0 1.0 1.0 1.0 1.0	5.7 5.7 5.7 7.2 7.2 7.2	43.8 60.0 43.0 61.7 46.8 65.2	54.0 74.0 54.0 74.0 54.0 74.0	-10.2 -14.0 -11.0 -12.3 -7.2 -8.8
4.824 4.824 4.824 7.236 7.236 7.236 7.236	V H H V	Avg Peak Avg Peak Avg Peak Avg	47.3 63.5 46.5 60.5 45.7 64.0 47.0	-9.5 -9.5 -9.5 -9.5 -9.5 -9.5	33.8 33.8 33.8 37.0 37.0 37.0	34.5 34.5 34.5 34.5 34.5 34.5 34.5	1.0 1.0 1.0 1.0	5.7 5.7 5.7 7.2 7.2 7.2 7.2	43.8 60.0 43.0 61.7 46.8 65.2 48.2	54.0 74.0 54.0 74.0 54.0 74.0 54.0	-10.2 -14.0 -11.0 -12.3 -7.2 -8.8 -5.8
4.824 4.824 4.824 7.236 7.236 7.236	V H H V V H H	Avg Peak Avg Peak Avg Peak Avg Peak Avg	47.3 63.5 46.5 60.5 45.7 64.0	-9.5 -9.5 -9.5 -9.5 -9.5	33.8 33.8 33.8 37.0 37.0	34.5 34.5 34.5 34.5 34.5 34.5	1.0 1.0 1.0 1.0 1.0 1.0	5.7 5.7 5.7 7.2 7.2 7.2	43.8 60.0 43.0 61.7 46.8 65.2	54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0	-10.2 -14.0 -11.0 -12.3 -7.2 -8.8 -5.8 -12.1
4.824 4.824 7.236 7.236 7.236 7.236 9.648	V H H V V H H	Avg Peak Avg Peak Avg Peak Avg	47.3 63.5 46.5 60.5 45.7 64.0 47.0 57.2	-9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5	33.8 33.8 37.0 37.0 37.0 37.0 39.7	34.5 34.5 34.5 34.5 34.5 34.5 34.5 34.5	1.0 1.0 1.0 1.0 1.0 1.0 1.0	5.7 5.7 5.7 7.2 7.2 7.2 7.2 8.5 8.5	43.8 60.0 43.0 61.7 46.8 65.2 48.2 61.9	54.0 74.0 54.0 74.0 54.0 74.0 54.0	-10.2 -14.0 -11.0 -12.3 -7.2 -8.8 -5.8
4.824 4.824 7.236 7.236 7.236 7.236 9.648 9.648	V H H V V V V V	Avg Peak Avg Peak Avg Peak Avg Peak Avg	47.3 63.5 46.5 60.5 45.7 64.0 47.0 57.2 42.0	-9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5	33.8 33.8 37.0 37.0 37.0 37.0 39.7 39.7	34.5 34.5 34.5 34.5 34.5 34.5 34.5 34.9 34.9	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	5.7 5.7 5.7 7.2 7.2 7.2 7.2 8.5 8.5	43.8 60.0 43.0 61.7 46.8 65.2 48.2 61.9 46.7	54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0	-10.2 -14.0 -11.0 -12.3 -7.2 -8.8 -5.8 -12.1 -7.3
4.824 4.824 7.236 7.236 7.236 7.236 9.648 9.648 9.648	V H H V V V H H H V V V H H	Avg Peak	47.3 63.5 46.5 60.5 45.7 64.0 47.0 57.2 42.0 57.8	-9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5	33.8 33.8 37.0 37.0 37.0 37.0 39.7 39.7	34.5 34.5 34.5 34.5 34.5 34.5 34.9 34.9 34.9	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	5.7 5.7 7.2 7.2 7.2 7.2 8.5 8.5	43.8 60.0 43.0 61.7 46.8 65.2 48.2 61.9 46.7 62.6	54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0	-10.2 -14.0 -11.0 -12.3 -7.2 -8.8 -5.8 -12.1 -7.3 -11.4

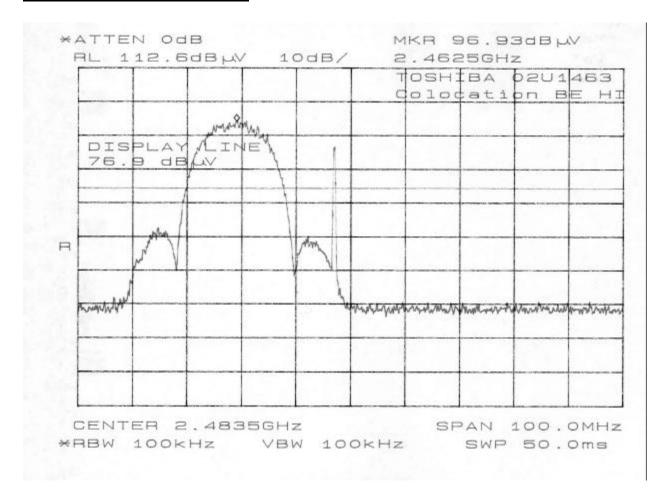
	Descri	ption o	f Test:	Spurio	us Radia	ted Emiss	sions				
		•		02U15		2111100	510110				
		,		09/24/0							
	T	est End			leckrotte						
	Company:			Toshib	а						
	EUT Description:			Touch	Screen /	Bluetooth	ı / WLAN	1 / Wide	Dual Film A	ntenna	
	Test Configuration:			EUT /	AC Adap	ter / Lapto	op with V	VLAN / A	C Adapter		
	· · · · · · · · · · · · · · · · · · ·			WLAN	transmit	ting at ma	ximum p	ower in	linked mode	e, Mid char	nel
		•		Blueto	oth is off	,	•				
S	Specifica	tion Dis	stance:	3.0	meters						
	Ac	tual Dis	stance:	1.0	meters	Cable	Length:	15.0	feet		
Freq	Pol	Det	SA	Dist	AF	Preamp	Filter	Cable	Field	Limit	Margin
GHz	V/H		dBuV	dB	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB
4.074											
4.874	V	Peak	64.2	-9.5	33.9	34.5	1.0	5.8	60.9	74.0	-13.1
4.874 4.874	V	Peak Avg	64.2 47.0	-9.5 -9.5	33.9 33.9	34.5 34.5	1.0 1.0	5.8 5.8	60.9 43.7	74.0 54.0	
											-10.3
4.874	V	Avg	47.0	-9.5	33.9	34.5	1.0	5.8	43.7	54.0	-10.3 -13.3
4.874 4.874	V H	Avg Peak	47.0 64.0	-9.5 -9.5	33.9 33.9	34.5 34.5	1.0 1.0	5.8 5.8	43.7 60.7	54.0 74.0	-10.3 -13.3 -10.2
4.874 4.874 4.874	V H H	Avg Peak Avg	47.0 64.0 47.1	-9.5 -9.5 -9.5	33.9 33.9 33.9	34.5 34.5 34.5	1.0 1.0 1.0	5.8 5.8 5.8	43.7 60.7 43.8	54.0 74.0 54.0	-10.3 -13.3 -10.2 -11.8
4.874 4.874 4.874 7.311	V H H V	Avg Peak Avg Peak	47.0 64.0 47.1 60.8	-9.5 -9.5 -9.5 -9.5	33.9 33.9 33.9 37.2	34.5 34.5 34.5 34.6	1.0 1.0 1.0 1.0	5.8 5.8 5.8 7.3	43.7 60.7 43.8 62.2	54.0 74.0 54.0 74.0	-10.3 -13.3 -10.2 -11.8 -6.7
4.874 4.874 4.874 7.311 7.311	V H H V V	Avg Peak Avg Peak Avg	47.0 64.0 47.1 60.8 45.9	-9.5 -9.5 -9.5 -9.5	33.9 33.9 37.2 37.2	34.5 34.5 34.5 34.6 34.6	1.0 1.0 1.0 1.0 1.0	5.8 5.8 5.8 7.3 7.3	43.7 60.7 43.8 62.2 47.3	54.0 74.0 54.0 74.0 54.0	-10.3 -13.3 -10.2 -11.8 -6.7 -9.0
4.874 4.874 4.874 7.311 7.311 7.311	V H H V V	Avg Peak Avg Peak Avg Peak	47.0 64.0 47.1 60.8 45.9 63.6	-9.5 -9.5 -9.5 -9.5 -9.5	33.9 33.9 37.2 37.2 37.2	34.5 34.5 34.5 34.6 34.6 34.6	1.0 1.0 1.0 1.0 1.0	5.8 5.8 5.8 7.3 7.3 7.3	43.7 60.7 43.8 62.2 47.3 65.0	54.0 74.0 54.0 74.0 54.0 74.0	-10.3 -13.3 -10.2 -11.8 -6.7 -9.0 -6.3
4.874 4.874 4.874 7.311 7.311 7.311	V H H V V H	Avg Peak Avg Peak Avg Peak Avg	47.0 64.0 47.1 60.8 45.9 63.6 46.3	-9.5 -9.5 -9.5 -9.5 -9.5 -9.5	33.9 33.9 37.2 37.2 37.2 37.2	34.5 34.5 34.6 34.6 34.6 34.6	1.0 1.0 1.0 1.0 1.0 1.0	5.8 5.8 5.8 7.3 7.3 7.3 7.3	43.7 60.7 43.8 62.2 47.3 65.0 47.7	54.0 74.0 54.0 74.0 54.0 74.0 54.0	-10.3 -13.3 -10.2 -11.8 -6.7 -9.0 -6.3 -12.2
4.874 4.874 4.874 7.311 7.311 7.311 9.748	V H H V V H H	Avg Peak Avg Peak Avg Peak Avg Peak Avg	47.0 64.0 47.1 60.8 45.9 63.6 46.3 56.9	-9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5	33.9 33.9 37.2 37.2 37.2 37.2 39.8	34.5 34.5 34.6 34.6 34.6 34.6 34.9	1.0 1.0 1.0 1.0 1.0 1.0 1.0	5.8 5.8 5.8 7.3 7.3 7.3 7.3 8.6	43.7 60.7 43.8 62.2 47.3 65.0 47.7 61.8	54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0	-13.1 -10.3 -13.3 -10.2 -11.8 -6.7 -9.0 -6.3 -12.2 -7.2 -10.9
4.874 4.874 4.874 7.311 7.311 7.311 7.311 9.748 9.748	V H H V V V V V	Avg Peak Avg Peak Avg Peak Avg Peak Avg	47.0 64.0 47.1 60.8 45.9 63.6 46.3 56.9 41.9	-9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5	33.9 33.9 37.2 37.2 37.2 37.2 39.8 39.8	34.5 34.5 34.6 34.6 34.6 34.6 34.9 34.9	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	5.8 5.8 7.3 7.3 7.3 7.3 8.6 8.6	43.7 60.7 43.8 62.2 47.3 65.0 47.7 61.8 46.8	54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0	-10.3 -13.3 -10.2 -11.8 -6.7 -9.0 -6.3 -12.2

Description of Test: Spurious Radiat Project Number: 02U1501 Date: 09/24/02 Test Engineer: Mike Heckrotte Site: B Company: Toshiba						
Date: 09/24/02 Test Engineer: Mike Heckrotte Site: B						
Test Engineer: Mike Heckrotte Site: B						
Site: B						
· · · · · · · · · · · · · · · · · · ·						
EUT Description: Touch Screen /	Bluetooth	ı / WLAN	l / Wide	Dual Film A	ntenna	
Test Configuration: EUT / AC Adapt	er / Lapto	p with V	VLAN / A	C Adapter		
Mode of Operation: WLAN transmitti	-	•			e, High cha	nnel
Bluetooth is off		•				
						·
Specification Distance: 3.0 meters						
Actual Distance: 1.0 meters	Cable	Length:	15.0	feet		
Freq Pol Det SA Dist AF	Preamp	Filter	Cable	Field	Limit	Margin
GHz V/H dBuV dB dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB
4.924 V Peak 64.4 -9.5 34.1	34.5	1.0	5.8	61.3	74.0	-12.7
4.924 V Avg 47.3 -9.5 34.1	34.5	1.0	5.8	44.2	54.0	-9.8
4.924 H Peak 63.7 -9.5 34.1	34.5	1.0	5.8	60.6	74.0	-13.4
4.924 H Avg 46.8 -9.5 34.1	34.5	1.0	5.8	43.7	54.0	-10.3
7.386 V Peak 60.2 -9.5 37.3	34.6	1.0	7.3	61.8	74.0	-12.2
7.386 V Avg 45.3 -9.5 37.3	34.6	1.0	7.3	46.9	54.0	-7.1
	34.6	1.0	7.3	66.2	74.0	-7.8
7.386 H Peak 64.6 -9.5 37.3	34.0					
7.386 H Peak 64.6 -9.5 37.3 7.386 H Avg 47.7 -9.5 37.3	34.6	1.0	7.3	49.3	54.0	-4. <i>1</i>
			7.3 8.6	49.3 62.1	54.0 74.0	
7.386 H Avg 47.7 -9.5 37.3	34.6	1.0				-11.9
7.386 H Avg 47.7 -9.5 37.3 9.848 V Peak 57.0 -9.5 40.0	34.6 35.0	1.0 1.0	8.6	62.1	74.0	-4.7 -11.9 -6.9 -10.8
7.386 H Avg 47.7 -9.5 37.3 9.848 V Peak 57.0 -9.5 40.0 9.848 V Avg 42.0 -9.5 40.0	34.6 35.0 35.0	1.0 1.0 1.0	8.6 8.6	62.1 47.1	74.0 54.0	-11.9 -6.9

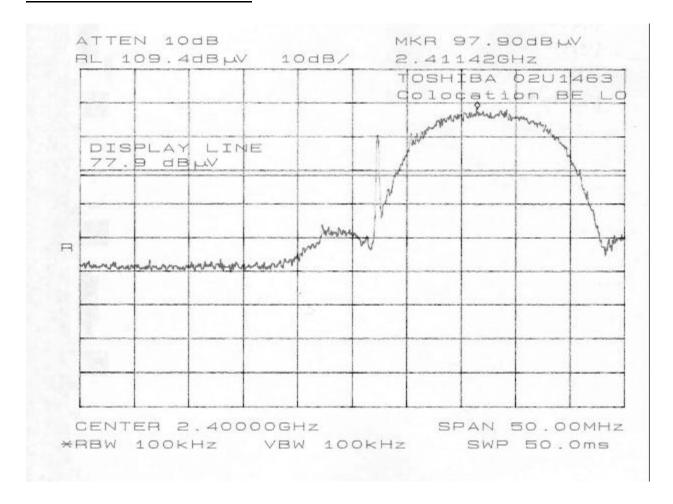
RADIATED EMISSIONS - LOWER BAND EDGE WITH CO-LOCATED BLUETOOTH AND WLAN OPERATING SIMULTANEOUSLY AT THEIR LOW FREQUENCY CHANNELS; DUAL FILM ANTENNAS INSTALLED FOR WLAN



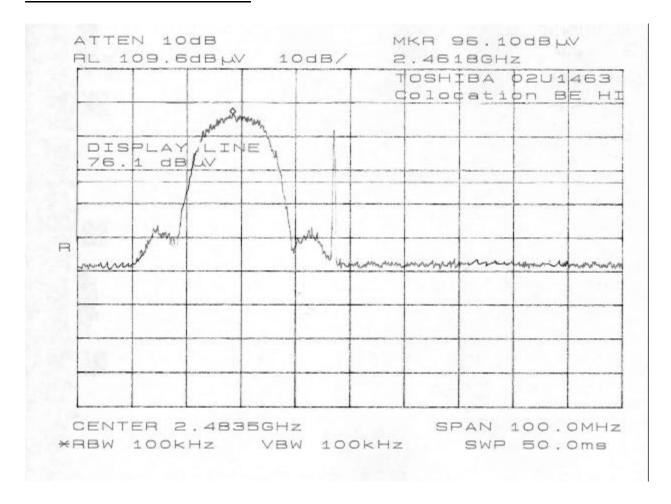
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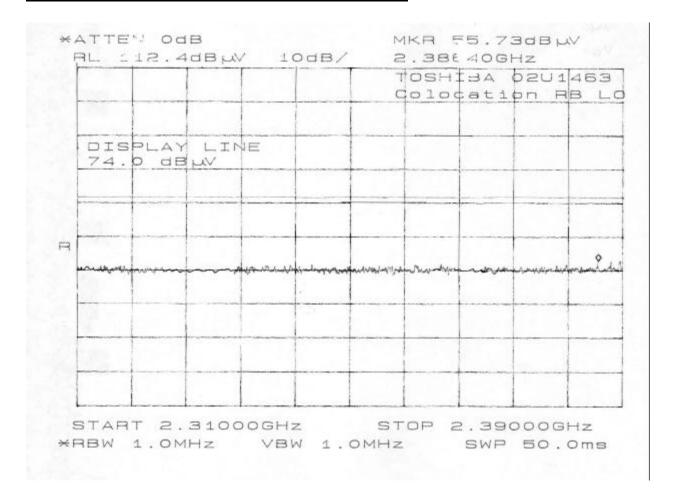
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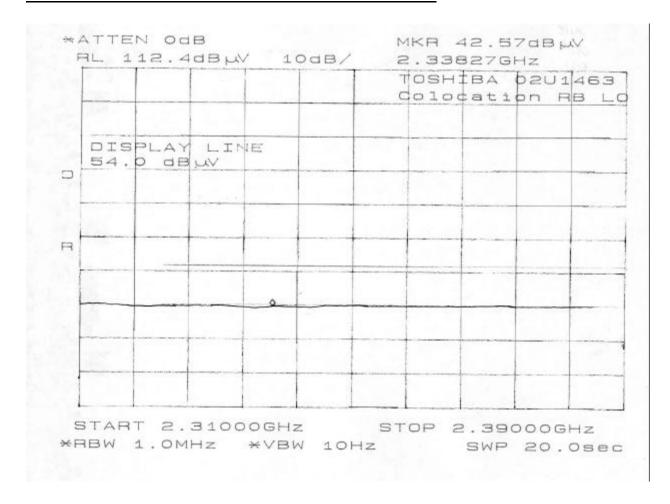
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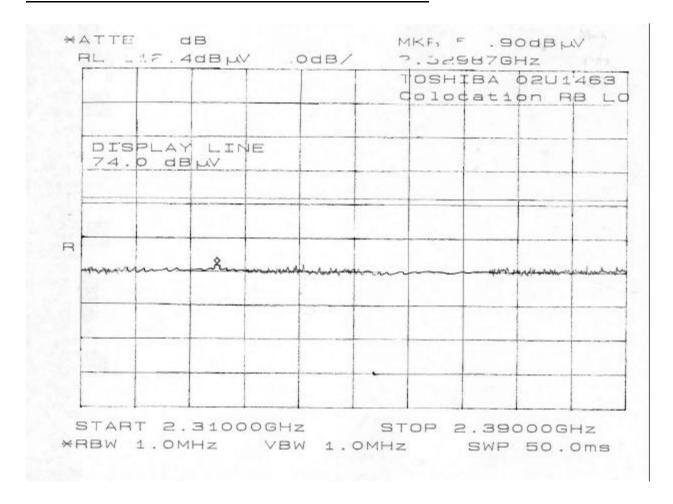
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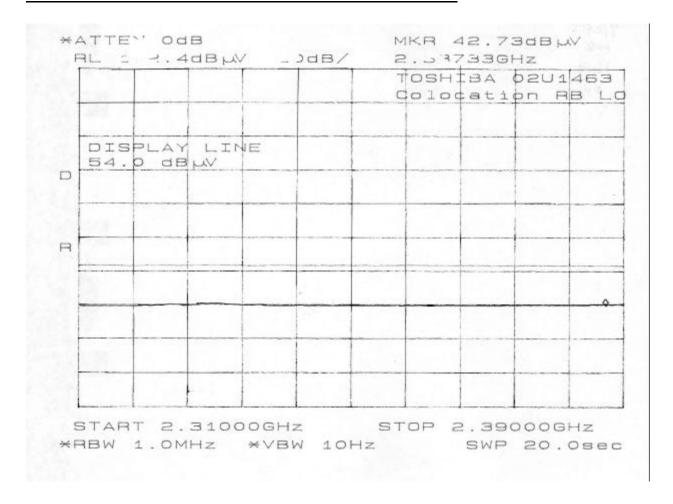
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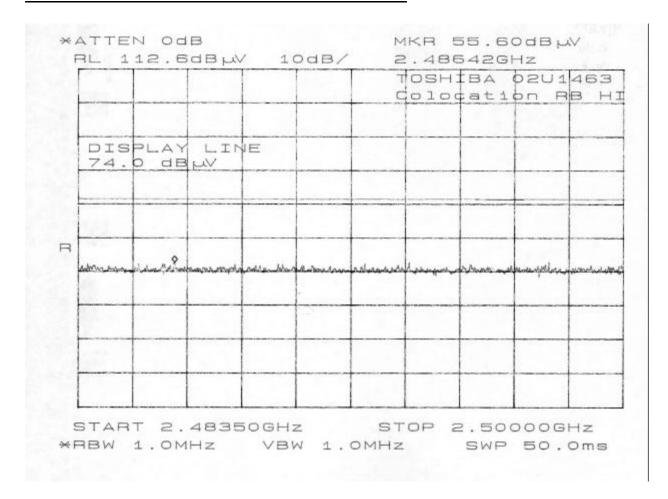
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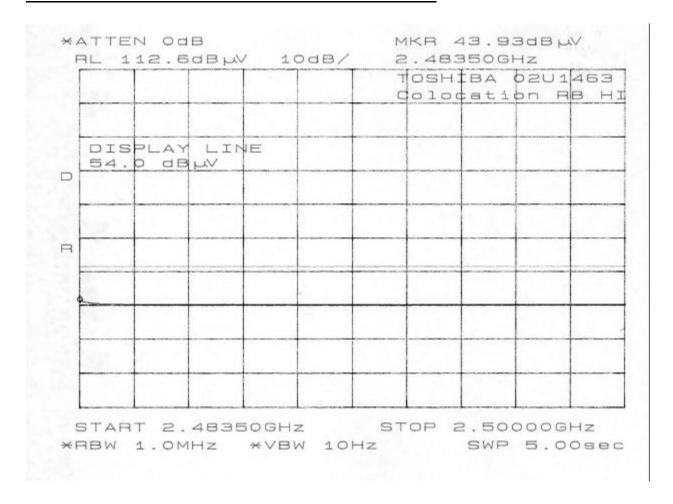
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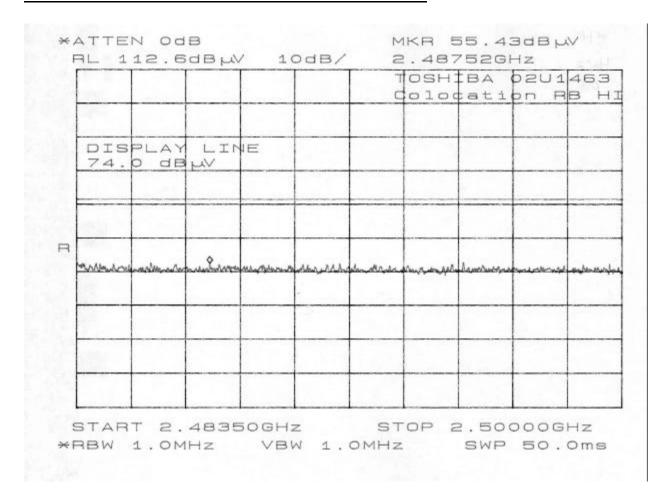
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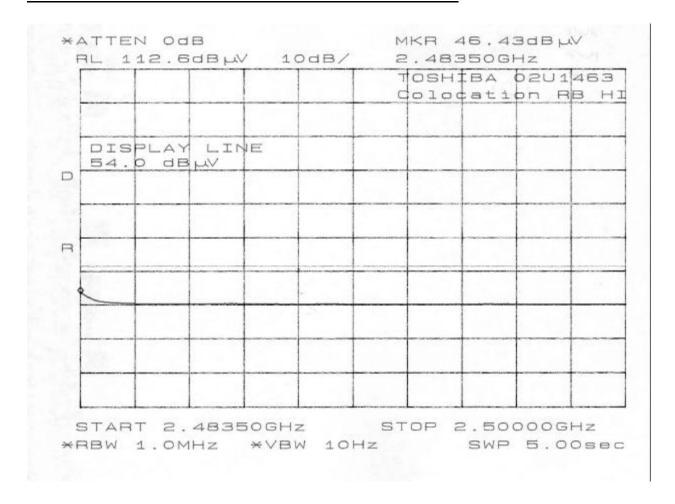
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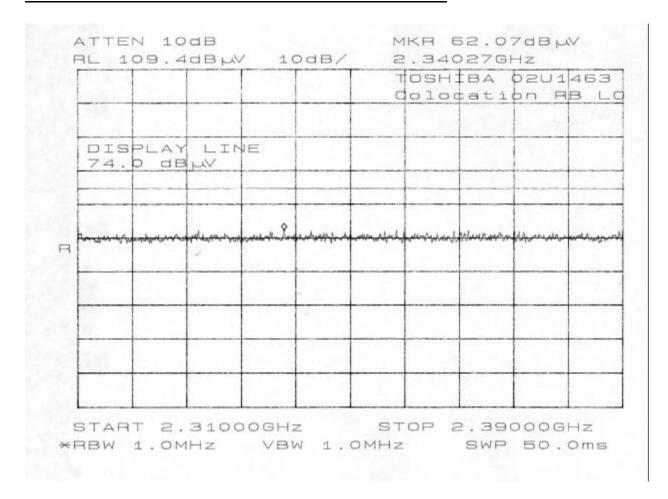
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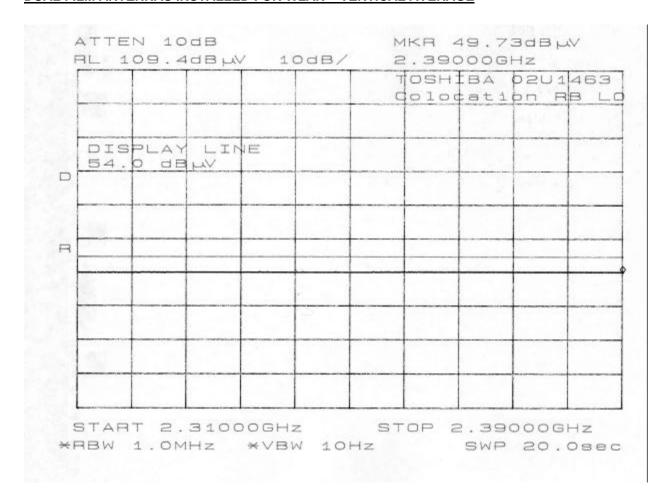
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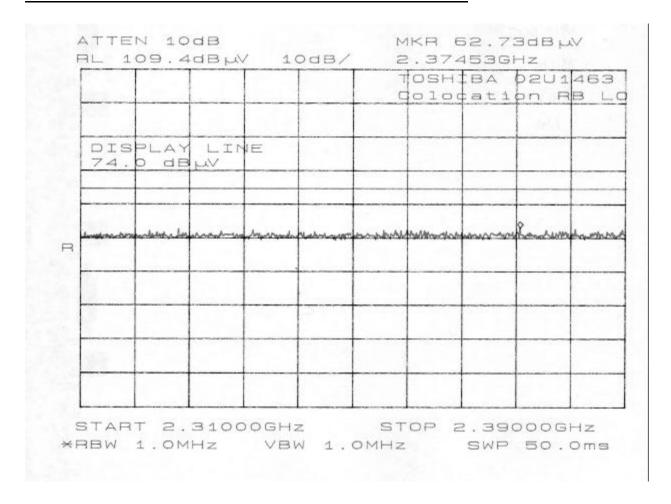
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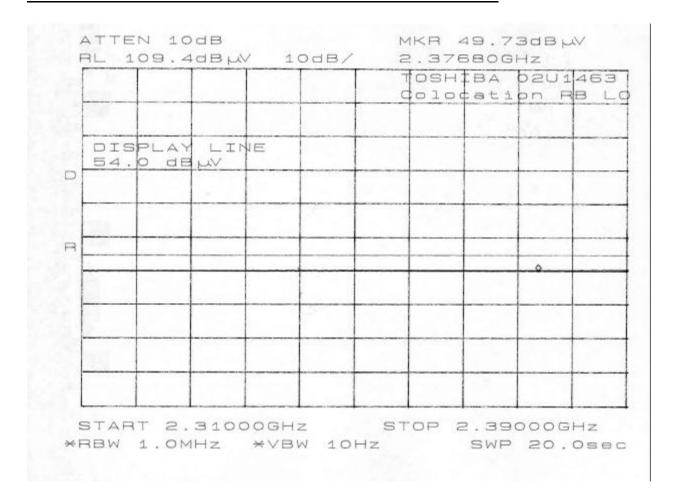
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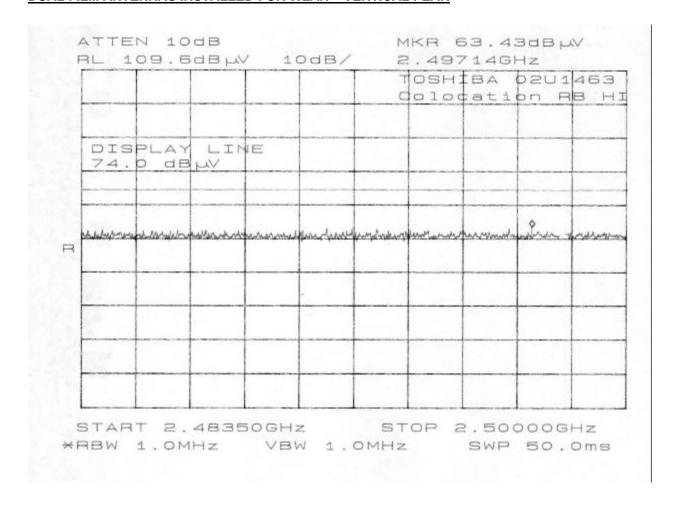
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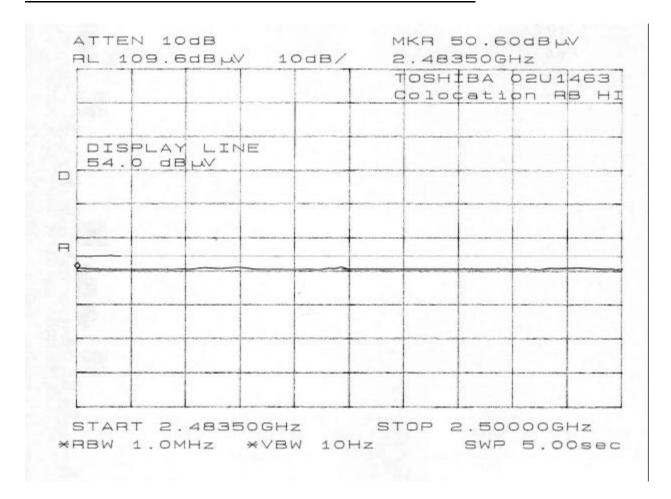
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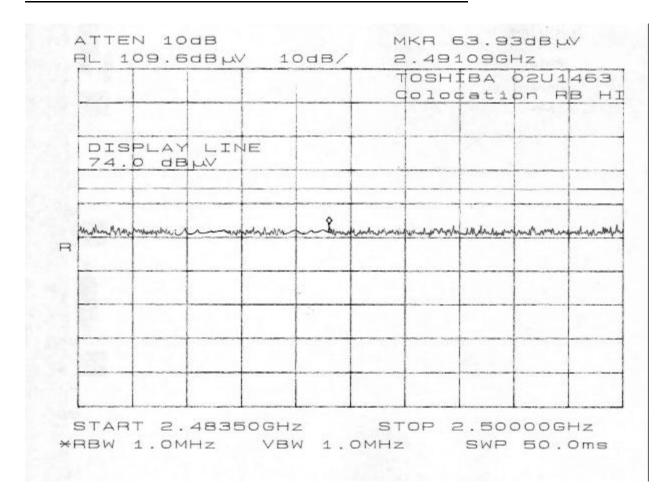
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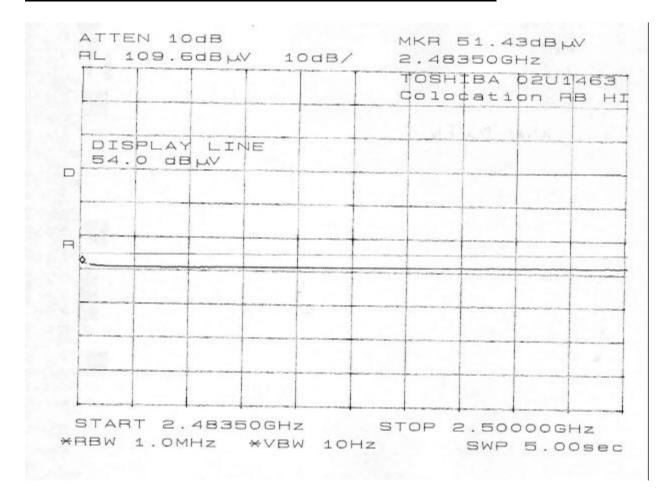
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RADIATED EMISSIONS - UPPER RESTRICTED BAND EDGE WITH CO-LOCATED BLUETOOTH AND WLAN OPERATING SIMULTANEOUSLY AT THEIR HIGH FREQUENCY CHANNELS; WIDE DUAL FILM ANTENNAS INSTALLED FOR WLAN – HORIZONTAL AVERAGE



SPURIOUS RADIATED EMISSIONS WITH WORST CASE CONFIGURATION OF CO-LOCATED BLUETOOTH AND WLAN OPERATING SIMULTANEOUSLY

	Descr	iption o	f Test:	Spurio	us Radia	ted Emiss	sions					
	Pro	ject Nu	ımber:	02U15	01							
			Date:	09/24/0)2							
	Т	est Eng	gineer:	Mike H	eckrotte							
			Site:	В								
		Con	npany:	Toshib	а							
	EUT	Descr	iption:	Touch	Screen /	Bluetooth	n / Single	Film Ar	tenna /			
				/ WLAI	Fouch Screen / Bluetooth / Single Film Antenna / WLAN / Wide Dual Film Antenna							
	Test 0	Configu	ration:	EUT / /	AC Adap	oter / Lapto	op with V	VLAN / A	C Adapter			
	Mode	of Ope	ration:	Blueto	oth trans	mitting at	maximu	m power	, Low chan	nel		
				WLAN	transmit	ting at ma	ximum p	power in	linked mod	e, Low cha	nnel	
5	Specifica			3.0	meters							
_		tual Dis		1.0	meters		Length:		feet			
Freq	Pol	Det	SA	Dist	AF	Preamp		Cable	Field	Limit	Margin	
GHz	V/H		dBuV	dB	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
4.804	V	Peak	49.8	-9.5	33.8	34.5	1.0	5.7	46.2	74.0	-27.8	
4.804	V	Peak*	49.8	-9.5	33.8	34.5	1.0	5.7	46.2	54.0	-7.8	
4.804	Н	Peak	51.6	-9.5	33.8	34.5	1.0	5.7	48.0	74.0	-26.0	
4.804	Н	Peak*	51.6	-9.5	33.8	34.5	1.0	5.7	48.0	54.0	-6.0	
4.824	V	Peak	63.2	-9.5	33.8	34.5	1.0	5.7	59.7	74.0	-14.3	
4.824	V	Avg	46.9	-9.5	33.8		1.0		43.4	54.0	-10.6	
4.824	Н	Peak	64.8	-9.5	33.8	34.5	1.0		61.3	74.0	-12.7	
4.824	H	Avg	47.1	-9.5	33.8	34.5	1.0	5.7	43.6	54.0	-10.4	
7.206	V	Peak	44.9	-9.5	37.0	34.5	1.0	7.2	46.0	74.0	-28.0	
7.206	V	Peak*	44.9	-9.5	37.0	34.5	1.0	7.2	46.0	54.0	-8.0	
7.206	Н	Peak	47.9	-9.5	37.0	34.5	1.0	7.2	49.0	74.0	-25.0	
7.206	Н	Peak*	47.9	-9.5	37.0		1.0		49.0	54.0	-5.0	
7.236	V	Peak	61.2	-9.5	37.0	34.5	1.0		62.4	74.0	-11.6	
7.236	V	Avg	46.2	-9.5	37.0		1.0		47.4	54.0	-6.6	
7.236	Н	Peak	63.7	-9.5	37.0		1.0		64.9	74.0	-9.1	
7.236	H	Avg	46.6	-9.5	37.0		1.0			54.0	-6.2	
9.648	V	Peak	56.8	-9.5	39.7		1.0		61.5	74.0	-12.5	
9.648	V	Avg	41.8	-9.5	39.7	34.9	1.0			54.0	-7.5	
9.648	H	Peak	59.0		39.7	34.9	1.0			74.0	-10.3	
9.648	Н	Avg	43.5	-9.5	39.7	34.9	1.0	8.5	48.2	54.0	-5.8	
Note 1: N	o othor	enurio:	c omics	ione w	oro dota	ctod obov	o the ex	etom nois	o floor			
Note 1: N Note 2: *							e me sys	Sterri HOR	e 11001.			
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SETUP PHOTOS

COLOCATION RADIATED RF MEASUREMENT SETUP





END OF REPORT

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