FCC CFR47 PART 15 SUBPART C CLASS II PERMISSIVE CHANGE



TEST REPORT

FOR

WIRELESS LAN MODULE

MODEL: PA3171WL

FCC ID: CJ6PA3171WL

REPORT NUMBER: 02U1606-1

ISSUE DATE: OCTOBER 15, 2002

Prepared for TOSHIBA CORPORATION DIGITAL MEDIA NETWORK COMPANY 2-9, SUEHIRO-CHO, OME, 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

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1. TEST RESULT CERTIFICATION

| COMPANY NAME: | TOSHIBA CORPORATION DIGITAL MEDIA NETWORK COMPANY 2-9, SUEHIRO-CHO, OME TOKYO, 198-8710 JAPAN |
|------------------|---|
| EUT DESCRIPTION: | WIRELESS LAN MODULE |

MODEL: PA3171WL

DATE TESTED: SEPTEMBER 24 - 25, 2002

| TYPE OF EQUIPMENT | INTENTIONAL RADIATOR |
|-----------------------|-------------------------------|
| EQUIPMENT TYPE | 2.4 - 2.4835 GHz TRANSCEIVER |
| MEASUREMENT PROCEDURE | ANSI 63.4 / 1992, TIA/EIA 603 |
| PROCEDURE | CLASS II PERMISSIVE CHANGE |
| 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:

THU CHAN SENIOR EMC ENGINEER COMPLIANCE CERTIFICATION SERVICES

Tested By:

m to

MIKE HECKROTTE CHIEF ENGINEER COMPLIANCE CERTIFICATION SERVICES

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.

The WLAN Transmitter Module has an existing 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. DESCRIPTION OF EUT AND CLASS II PERMISSIVE CHANGE

3.1.1. EUT DESCRIPTION

The PA3171WL is a wireless Direct Sequence Spread Spectrum WLAN transceiver module 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.

According to the original FCC Grant of Equipment Authorization, this module may only be used in Toshiba laptops.

3.1.2. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

This module was originally certified with the Dual Film antenna set. Each identical antenna in this set has a 0.9 dBi gain.

The proposed change is to add the Wide Dual Film antenna set and to add co-location with the CSR Bluetooth transceiver module. Each identical antenna in this alternate set has a 1.26 dBi gain

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

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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.

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)).

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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 | <u>qalvn</u> |
| | | 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 | FCC 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 | (本) 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.

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6. CALIBRATION AND UNCERTAINTY

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 Conducted Emission | | | | | |
| 150kHz – 30MHz | +/-2.9 | | | | |

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

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6.3. TEST AND MEASUREMENT EQUIPMENT

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

| TEST AND MEASUREMENT EQUIPMENT LIST | | | | | | | |
|-------------------------------------|---------------|-------------|------------------|-------------------------|--|--|--|
| 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

| PERIPHERAL SUPPORT EQUIPMENT 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 | | | | |

SUPPORT EQUIPMENT

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 |

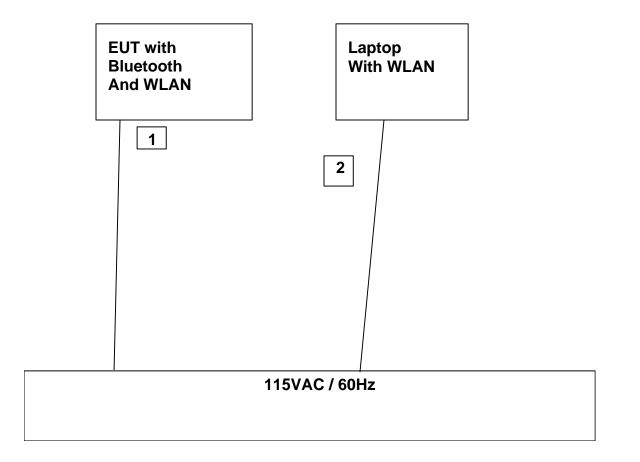
TEST SETUP

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.

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SETUP DIAGRAM FOR TRANSMITTER TESTS



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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 | (²) |
| 13.36 - 13.41 | | | |

 1 Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz. 2 Above 38.6

(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- 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:

| 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 |

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8. TEST SETUP, PROCEDURE AND RESULT

8.1. UNDESIRABLE EMISSIONS – RADIATED MEASUREMENTS

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

Compliance Certification Services

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

| Specif | 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 | beak dete | ection | | | | | | |
| 18 | 41.9 | 47.8 | 1 | -9.5 | 32.6 | 13.5 | 61.06 | 74 | -12.94 |
| RBW = | 1 MHz, a | average of | detection | | | | | | |
| 18 | 28.7 | 47.8 | 1 | -9.5 | 32.6 | 13.5 | 47.86 | 54 | -6.14 |
| | | | | | | | | | |
| 18 to 26 | .5 GHz l | band | | | | | | | |
| RBW = | 1 MHz, p | beak dete | ection | | | | | | |
| 26.5 | 44.6 | 33.4 | 1 | -9.5 | 35.0 | 19.5 | 52.96 | 74 | -21.04 |
| RBW = 1 MHz, average detection | | | | | | | | | |
| 26.5 | 32.4 | 33.4 | 1 | -9.5 | 35.0 | 19.5 | 40.76 | 54 | -13.24 |

TEST RESULTS

No non-compliance noted:

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| | Descr | iption o | f Test: | Spurio | us Radia | ted Emiss | sions | | | | |
|---|--|---|---|--|--|--|--|---|--|--|--|
| | Pro | pject Nu | mber: | 02U15 | 01 | | | | | | |
| | | | Date: | 09/24/0 |)2 | | | | | | |
| | Т | est Eng | ineer: | Mike H | leckrotte | | | | | | |
| | | | Site: | В | | | | | | | |
| | | Con | npany: | Toshib | а | | | | | | |
| | EUT | Descr | iption: | Touch | Screen / | Bluetooth | n / Single | e Film An | itenna / WL | AN | |
| | Test | 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 | is off | | | | | | |
| | | | | | | | | | | | |
| | Specifica | ation Dis | stance: | 3.0 | meters | | | | | | |
| | Ad | ctual Dis | stance: | 1.0 | meters | Cable | Length: | 15.0 | feet | | |
| | | | • • | Dist | | Dreema | | Cable | Field | Limit | Morain |
| Freq | Pol | Det | SA | Dist | AF | Preamp | Filter | Cable | Field | Limit | Margin |
| Freq GHz | Pol V/H | Det | SA dBuV | dB | AF dB/m | dB | dB | dB | dBuV/m | dBuV/m | dB |
| | - | Det Peak | | | | dB | | | | | - |
| GHz | V/H | | dBuV | dB | dB/m 33.8 | dB 34.5 | dB | dB | dBuV/m | dBuV/m | dB |
| GHz 4.804 | V/H | Peak | dBuV 50.0 | dB -9.5 | dB/m 33.8 | dB 34.5 | dB 1.0 | dB 5.7 | dBuV/m 46.4 | dBuV/m 74.0 | dB -27.6 -7.6 |
| GHz 4.804 4.804 | V/H V V | Peak Peak* | dBuV 50.0 50.0 | dB -9.5 -9.5 | dB/m 33.8 33.8 33.8 | dB 34.5 34.5 34.5 | dB 1.0 1.0 | dB 5.7 5.7 | dBuV/m 46.4 46.4 | dBuV/m 74.0 54.0 | dB -27.6 -7.6 -25.5 |
| GHz 4.804 4.804 4.804 | V/H V V H | Peak Peak* Peak | dBuV 50.0 50.0 52.1 | dB -9.5 -9.5 -9.5 | dB/m 33.8 33.8 33.8 33.8 33.8 | dB 34.5 34.5 34.5 34.5 34.5 | dB 1.0 1.0 1.0 | dB 5.7 5.7 5.7 | dBuV/m 46.4 46.4 48.5 | dBuV/m 74.0 54.0 74.0 | dB -27.6 -7.6 -25.5 -5.5 |
| GHz 4.804 4.804 4.804 4.804 | V/H V V H H | Peak Peak* Peak Peak* | dBuV 50.0 52.1 52.1 | dB -9.5 -9.5 -9.5 -9.5 | dB/m 33.8 33.8 33.8 33.8 33.8 37.0 | dB 34.5 34.5 34.5 34.5 34.5 | dB 1.0 1.0 1.0 1.0 | dB 5.7 5.7 5.7 5.7 | dBuV/m 46.4 46.4 48.5 48.5 | dBuV/m 74.0 54.0 74.0 54.0 | dB -27.6 -7.6 -25.5 -5.5 -28.3 |
| GHz 4.804 4.804 4.804 4.804 7.206 | V/H V V H H V | Peak Peak* Peak Peak* Peak | dBuV 50.0 52.1 52.1 44.6 | dB -9.5 -9.5 -9.5 -9.5 -9.5 | dB/m 33.8 33.8 33.8 33.8 33.8 37.0 | dB 34.5 34.5 34.5 34.5 34.5 34.5 | dB 1.0 1.0 1.0 1.0 1.0 | dB 5.7 5.7 5.7 5.7 7.2 | dBuV/m 46.4 46.4 48.5 48.5 48.5 | dBuV/m 74.0 54.0 74.0 54.0 74.0 | dB -27.6 -7.6 -25.5 -5.5 -28.3 -8.3 |
| GHz 4.804 4.804 4.804 4.804 7.206 7.206 | V/H V V H H V V V | Peak Peak* Peak Peak* Peak Peak* | dBuV 50.0 52.1 52.1 44.6 44.6 | dB -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 | dB/m 33.8 33.8 33.8 33.8 33.8 37.0 37.0 37.0 | dB 34.5 34.5 34.5 34.5 34.5 34.5 | dB 1.0 1.0 1.0 1.0 1.0 1.0 | dB 5.7 5.7 5.7 5.7 7.2 7.2 | dBuV/m 46.4 46.4 48.5 48.5 45.7 45.7 | dBuV/m 74.0 54.0 74.0 54.0 74.0 54.0 | dB -27.6 |
| GHz 4.804 4.804 4.804 4.804 7.206 7.206 7.206 | V/H V H H V V V H | Peak Peak* Peak Peak* Peak Peak* Peak | dBuV 50.0 52.1 52.1 44.6 44.6 49.9 | dB -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 | dB/m 33.8 33.8 33.8 33.8 33.8 37.0 37.0 37.0 | dB 34.5 34.5 34.5 34.5 34.5 34.5 34.5 34.5 | dB 1.0 1.0 1.0 1.0 1.0 1.0 1.0 | dB 5.7 5.7 5.7 5.7 7.2 7.2 7.2 7.2 | dBuV/m 46.4 46.4 48.5 48.5 45.7 45.7 51.0 | dBuV/m 74.0 54.0 74.0 54.0 74.0 54.0 74.0 | dB -27.6 -7.6 -25.5 -5.5 -28.3 -8.3 -23.0 |
| GHz 4.804 4.804 4.804 7.206 7.206 7.206 7.206 7.206 | V/H V H H V V H H | Peak Peak* Peak Peak Peak Peak Peak | dBuV 50.0 52.1 52.1 44.6 49.9 49.9 | dB -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 | dB/m 33.8 33.8 33.8 33.8 37.0 37.0 37.0 37.0 | dB 34.5 34.5 34.5 34.5 34.5 34.5 34.5 34.5 | dB 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 | dB 5.7 5.7 5.7 7.2 7.2 7.2 7.2 7.2 7.2 | dBuV/m 46.4 48.5 48.5 45.7 45.7 51.0 51.0 | dBuV/m 74.0 54.0 74.0 54.0 74.0 54.0 74.0 | dB -27.6 -7.6 -25.5 -5.5 -28.3 -8.3 -8.3 -23.0 |

SPURIOUS RADIATED EMISSIONS WITH BLUETOOTH ONLY OPERATING

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| | Docor | intion of | f Toot: | Spurio | ue Podia | ted Emiss | sions | | | | |
|---|---|---|---|--|--|---|--|--|--|--|--|
| | | | | | | | 51015 | | | | |
| | PI | oject Nu | | | | | | | | | |
| | _ | | | 09/24/0 | - | | | | | | |
| | | est Eng | | | eckrotte | | | | | | |
| | | | Site: | | | | | | | | |
| | | Com | npany: | Toshib | а | | | | | | |
| | | | | | | | 0 | | itenna / WL | | |
| | | | | | | | | | C Adapter | | |
| | Mode | of Ope | ration: | Blueto | oth trans | mitting at | maximu | m power | , Mid chanr | nel | |
| | | | | WLAN | is off | | | | | | |
| | | | | | | | | | | | |
| Ş | Specifica | ation Dis | stance: | 3.0 | meters | | | | | | |
| | A | ctual Dis | stance: | 1.0 | meters | Cable | Length: | 15.0 | feet | | |
| | | | | | | | | | | | |
| Freq | Pol | Det | SA | Dist | AF | Preamp | ų | Cable | Field | Limit | Margin |
| Freq GHz | Pol V/H | Det | SA dBuV | - | | | ų | | Field dBuV/m | | Margin dB |
| GHz | V/H | | dBuV | Dist dB | AF dB/m | Preamp dB | Filter dB | Cable dB | dBuV/m | dBuV/m | dB |
| GHz 4.882 | V/H | Peak | dBuV 51.1 | Dist dB -9.5 | AF dB/m 34.0 | Preamp dB 34.5 | Filter dB 1.0 | Cable dB 5.8 | dBuV/m 47.8 | dBuV/m 74.0 | dB -26.2 |
| GHz 4.882 4.882 | V/H V V | Peak Peak* | dBuV 51.1 51.1 | Dist dB -9.5 -9.5 | AF dB/m 34.0 34.0 | Preamp dB 34.5 34.5 | Filter dB 1.0 1.0 | Cable dB 5.8 5.8 | dBuV/m 47.8 47.8 | dBuV/m 74.0 54.0 | dB -26.2 -6.2 |
| GHz 4.882 4.882 4.882 | V/H V V H | Peak Peak* Peak | dBuV 51.1 51.1 51.5 | Dist dB -9.5 -9.5 -9.5 | AF dB/m 34.0 34.0 34.0 | Preamp dB 34.5 34.5 34.5 | Filter dB 1.0 1.0 1.0 | Cable dB 5.8 5.8 5.8 | dBuV/m 47.8 47.8 48.2 | dBuV/m 74.0 54.0 74.0 | dB -26.2 -6.2 -25.8 |
| GHz 4.882 4.882 4.882 4.882 | V/H V V H H | Peak Peak* Peak Peak* | dBuV 51.1 51.5 51.5 51.5 | Dist dB -9.5 -9.5 -9.5 -9.5 | AF dB/m 34.0 34.0 34.0 34.0 | Preamp dB 34.5 34.5 34.5 34.5 | Filter dB 1.0 1.0 1.0 1.0 | Cable dB 5.8 5.8 5.8 5.8 5.8 | dBuV/m 47.8 47.8 48.2 48.2 | dBuV/m 74.0 54.0 74.0 54.0 | dB -26.2 -6.2 -25.8 -5.8 |
| GHz 4.882 4.882 4.882 4.882 7.323 | V/H V V H H V | Peak Peak* Peak Peak* Peak | dBuV 51.1 51.5 51.5 51.5 43.9 | Dist dB -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 | AF dB/m 34.0 34.0 34.0 34.0 37.2 | Preamp dB 34.5 34.5 34.5 34.5 34.5 34.6 | Filter dB 1.0 1.0 1.0 1.0 1.0 | Cable dB 5.8 5.8 5.8 5.8 5.8 7.3 | dBuV/m 47.8 47.8 48.2 48.2 48.2 45.3 | dBuV/m 74.0 54.0 74.0 54.0 74.0 | dB -26.2 -6.2 -25.8 -5.8 -28.7 |
| GHz 4.882 4.882 4.882 4.882 7.323 7.323 | V/H V V H H V V V | Peak Peak* Peak Peak* Peak Peak* | dBuV 51.1 51.5 51.5 43.9 43.9 | Dist dB -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 | AF dB/m 34.0 34.0 34.0 34.0 34.0 37.2 37.2 | Preamp dB 34.5 34.5 34.5 34.5 34.6 34.6 | Filter dB 1.0 1.0 1.0 1.0 1.0 1.0 | Cable dB 5.8 5.8 5.8 5.8 7.3 7.3 | dBuV/m 47.8 47.8 48.2 48.2 45.3 45.3 | dBuV/m 74.0 54.0 74.0 54.0 74.0 54.0 | dB -26.2 -6.2 -25.8 -5.8 -5.8 -28.7 -8.7 |
| GHz 4.882 4.882 4.882 4.882 7.323 7.323 7.323 | V/H V H H V V V H | Peak Peak* Peak Peak* Peak Peak* Peak | dBuV 51.1 51.5 51.5 51.5 43.9 43.9 43.9 | Dist dB -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 | AF dB/m 34.0 34.0 34.0 34.0 37.2 37.2 37.2 | Preamp dB 34.5 34.5 34.5 34.5 34.6 34.6 34.6 | Filter dB 1.0 1.0 1.0 1.0 1.0 1.0 1.0 | Cable dB 5.8 5.8 5.8 5.8 7.3 7.3 7.3 7.3 | dBuV/m 47.8 47.8 48.2 48.2 45.3 45.3 50.8 | dBuV/m 74.0 54.0 54.0 74.0 54.0 54.0 74.0 | dB -26.2 -6.2 -25.8 -5.8 -5.8 -28.7 -8.7 -23.2 |
| GHz 4.882 4.882 4.882 4.882 7.323 7.323 | V/H V V H H V V V | Peak Peak* Peak Peak* Peak Peak* | dBuV 51.1 51.5 51.5 43.9 43.9 | Dist dB -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 | AF dB/m 34.0 34.0 34.0 34.0 34.0 37.2 37.2 | Preamp dB 34.5 34.5 34.5 34.5 34.6 34.6 | Filter dB 1.0 1.0 1.0 1.0 1.0 1.0 1.0 | Cable dB 5.8 5.8 5.8 5.8 7.3 7.3 | dBuV/m 47.8 47.8 48.2 48.2 45.3 45.3 | dBuV/m 74.0 54.0 74.0 54.0 74.0 54.0 | dB -26.2 -6.2 -25.8 -5.8 -5.8 -28.7 -8.7 |
| GHz 4.882 4.882 4.882 7.323 7.323 7.323 7.323 7.323 | V/H V H H V V H H H | Peak Peak* Peak Peak Peak Peak Peak | dBuV 51.1 51.5 51.5 43.9 43.9 49.4 49.4 | Dist dB -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 | AF dB/m 34.0 34.0 34.0 37.2 37.2 37.2 37.2 37.2 | Preamp dB 34.5 34.5 34.5 34.6 34.6 34.6 34.6 | Filter dB 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 | Cable dB 5.8 5.8 5.8 5.8 7.3 7.3 7.3 7.3 7.3 | dBuV/m 47.8 47.8 48.2 48.2 45.3 45.3 50.8 50.8 | dBuV/m 74.0 54.0 54.0 74.0 54.0 54.0 74.0 | dB -26.2 -6.2 -25.8 -5.8 -5.8 -28.7 -8.7 -23.2 |
| GHz 4.882 4.882 4.882 4.882 7.323 7.323 7.323 7.323 | V/H V H H V H V H O other s | Peak Peak* Peak Peak Peak Peak Peak Spurious | dBuV 51.1 51.5 51.5 43.9 43.9 49.4 49.4 5 emiss | Dist dB -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 | AF dB/m 34.0 34.0 34.0 37.2 37.2 37.2 37.2 37.2 ere detect | Preamp dB 34.5 34.5 34.5 34.6 34.6 34.6 34.6 34.6 ted above | Filter dB 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 | Cable dB 5.8 5.8 5.8 5.8 7.3 7.3 7.3 7.3 7.3 | dBuV/m 47.8 47.8 48.2 48.2 45.3 45.3 50.8 50.8 | dBuV/m 74.0 54.0 54.0 74.0 54.0 54.0 74.0 | dB -26.2 -6.2 -25.8 -5.8 -5.8 -28.7 -8.7 -23.2 |

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| | Docor | intion of | f Toot: | Sourio | ue Podia | ted Emiss | vione | | | | |
|--|---|--|---|--|--|--|--|---|--|--|--|
| | | | | | | | 51015 | | | | |
| | PI | oject Nu | | | | | | | | | |
| | _ | | | 09/24/0 | - | | | | | | |
| | | est Eng | | | leckrotte | | | | | | |
| | | | Site: | | | | | | | | |
| | | Com | npany: | Toshib | а | | | | | | |
| | | | | | | | 0 | | itenna / WL | | |
| | | | | | | | | | C Adapter | | |
| | Mode | of Ope | ration: | Blueto | oth trans | mitting at | maximu | m power | , High char | nel | |
| | | | | WLAN | is off | | | | | | |
| | | | | | | | | | | | |
| | Specifica | ation Dis | stance: | 3.0 | meters | | | | | | |
| | A | 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 | | Margin dB |
| GHz | V/H | | dBuV | dB | dB/m | dB | dB | dB | dBuV/m | dBuV/m | dB |
| GHz 4.960 | V/H | Peak | dBuV 50.2 | dB -9.5 | dB/m 34.2 | dB 34.5 | dB 1.0 | dB 5.8 | dBuV/m 47.2 | dBuV/m 74.0 | dB -26.8 |
| GHz 4.960 4.960 | V/H V V | Peak Peak* | dBuV 50.2 50.2 | dB -9.5 -9.5 | dB/m 34.2 34.2 | dB 34.5 34.5 | dB 1.0 1.0 | dB 5.8 5.8 | dBuV/m 47.2 47.2 | dBuV/m 74.0 54.0 | dB -26.8 -6.8 |
| GHz 4.960 4.960 4.960 | V/H V V H | Peak Peak* Peak | dBuV 50.2 50.2 52.9 | -9.5 -9.5 -9.5 | dB/m 34.2 34.2 34.2 | dB 34.5 34.5 34.5 | dB 1.0 1.0 1.0 | dB 5.8 5.8 5.8 | dBuV/m 47.2 47.2 49.9 | dBuV/m 74.0 54.0 74.0 | dB -26.8 -6.8 -24.1 |
| GHz 4.960 4.960 4.960 4.960 | V/H V V H H | Peak Peak* Peak Peak* | dBuV 50.2 50.2 52.9 52.9 | dB -9.5 -9.5 -9.5 -9.5 | dB/m 34.2 34.2 34.2 34.2 | dB 34.5 34.5 34.5 34.5 | dB 1.0 1.0 1.0 1.0 | dB 5.8 5.8 5.8 5.8 5.8 | dBuV/m 47.2 47.2 49.9 49.9 | dBuV/m 74.0 54.0 74.0 54.0 | dB -26.8 -6.8 -24.1 -4.1 |
| GHz 4.960 4.960 4.960 4.960 7.440 | V/H V V H H V | Peak Peak* Peak Peak* Peak | dBuV 50.2 52.9 52.9 44.7 | dB -9.5 -9.5 -9.5 -9.5 -9.5 | dB/m 34.2 34.2 34.2 34.2 37.5 | dB 34.5 34.5 34.5 34.5 34.5 34.6 | dB 1.0 1.0 1.0 1.0 1.0 | dB 5.8 5.8 5.8 5.8 5.8 7.4 | dBuV/m 47.2 47.2 49.9 49.9 46.4 | dBuV/m 74.0 54.0 74.0 54.0 74.0 | dB -26.8 -6.8 -24.1 -4.1 -27.6 |
| GHz 4.960 4.960 4.960 4.960 7.440 7.440 | V/H V V H H V V V | Peak Peak* Peak Peak* Peak Peak* | dBuV 50.2 52.9 52.9 44.7 44.7 | dB -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 | dB/m 34.2 34.2 34.2 34.2 37.5 37.5 | dB 34.5 34.5 34.5 34.5 34.6 34.6 | dB 1.0 1.0 1.0 1.0 1.0 1.0 | dB 5.8 5.8 5.8 5.8 5.8 7.4 7.4 | dBuV/m 47.2 47.2 49.9 49.9 46.4 46.4 | dBuV/m 74.0 54.0 74.0 54.0 74.0 54.0 | dB -26.8 -6.8 -24.1 -4.1 -27.6 -7.6 |
| GHz 4.960 4.960 4.960 7.440 7.440 7.440 | V/H V H H V V V H | Peak Peak* Peak Peak* Peak Peak* Peak | dBuV 50.2 52.9 52.9 44.7 44.7 48.6 | dB -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 | dB/m 34.2 34.2 34.2 34.2 37.5 37.5 37.5 | dB 34.5 34.5 34.5 34.5 34.6 34.6 34.6 | dB 1.0 1.0 1.0 1.0 1.0 1.0 1.0 | dB 5.8 5.8 5.8 5.8 5.8 7.4 7.4 7.4 7.4 | dBuV/m 47.2 47.2 49.9 49.9 46.4 46.4 50.3 | dBuV/m 74.0 54.0 74.0 54.0 74.0 54.0 74.0 | dB -26.8 -6.8 -24.1 -4.1 -27.6 -7.6 -7.6 -23.7 |
| GHz 4.960 4.960 4.960 4.960 7.440 7.440 | V/H V V H H V V V | Peak Peak* Peak Peak* Peak Peak* | dBuV 50.2 52.9 52.9 44.7 44.7 | dB -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 | dB/m 34.2 34.2 34.2 34.2 37.5 37.5 | dB 34.5 34.5 34.5 34.5 34.6 34.6 | dB 1.0 1.0 1.0 1.0 1.0 1.0 1.0 | dB 5.8 5.8 5.8 5.8 5.8 7.4 7.4 | dBuV/m 47.2 47.2 49.9 49.9 46.4 46.4 | dBuV/m 74.0 54.0 74.0 54.0 74.0 54.0 | dB -26.8 -6.8 -24.1 -4.1 -27.6 -7.6 |
| GHz 4.960 4.960 4.960 7.440 7.440 7.440 7.440 | V/H V H H V V H H H | Peak Peak* Peak Peak Peak Peak Peak | dBuV 50.2 52.9 52.9 44.7 48.6 48.6 | dB -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 | dB/m 34.2 34.2 34.2 37.5 37.5 37.5 37.5 37.5 | dB 34.5 34.5 34.5 34.6 34.6 34.6 34.6 | dB 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 | dB 5.8 5.8 5.8 5.8 7.4 7.4 7.4 7.4 7.4 | dBuV/m 47.2 47.2 49.9 49.9 46.4 46.4 50.3 50.3 | dBuV/m 74.0 54.0 74.0 54.0 74.0 54.0 74.0 | dB -26.8 -6.8 -24.1 -4.1 -27.6 -7.6 -7.6 -23.7 |
| GHz 4.960 4.960 4.960 4.960 7.440 7.440 7.440 | V/H V H H V H N V H O other s | Peak Peak* Peak Peak Peak Peak Peak Peak* | dBuV 50.2 52.9 52.9 44.7 44.7 48.6 48.6 s emiss | dB -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 | dB/m 34.2 34.2 34.2 37.5 37.5 37.5 37.5 37.5 | dB 34.5 34.5 34.5 34.6 34.6 34.6 34.6 34.6 34.6 | dB 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 | dB 5.8 5.8 5.8 5.8 7.4 7.4 7.4 7.4 7.4 | dBuV/m 47.2 47.2 49.9 49.9 46.4 46.4 50.3 50.3 | dBuV/m 74.0 54.0 74.0 54.0 74.0 54.0 74.0 | dB -26.8 -6.8 -24.1 -4.1 -27.6 -7.6 -23.7 |

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SPURIOUS RADIATED EMISSIONS WITH WLAN ONLY OPERATING, DUAL FILM ANTENNAS

| | Descri | ption o | f Test: | Spurio | us Radia | ted Emiss | sions | | | | |
|----------------|-----------|----------|---------|---------|------------|--------------|-----------|------------|-------------|------------|--------|
| | Pro | ject Nu | mber: | 02U15 | 01 | | | | | | |
| | | | Date: | 09/24/ |)2 | | | | | | |
| | Т | est Eng | gineer: | Mike ⊢ | leckrotte | | | | | | |
| | | | Site: | В | | | | | | | |
| | | Con | npany: | Toshib | а | | | | | | |
| | EUT | Descr | iption: | Touch | Screen / | Bluetooth | n / WLAN | V / Dual F | -ilm Antenr | na | |
| | | | ration: | EUT / . | AC Adap | oter / Lapto | op with V | VLAN / A | C Adapter | | |
| | Mode | of Ope | ration: | WLAN | transmit | ting at ma | ximum p | ower in | linked mod | e, Low cha | nnel |
| | | | | Blueto | oth is off | | | | | | |
| | | | | | | | | | | | |
| 5 | Specifica | | | 3.0 | meters | | | | | | |
| | Ac | 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 |
| 4.824 | 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. |
| 4.824 | Н | Peak | 61.8 | -9.5 | 33.8 | 34.5 | 1.0 | 5.7 | 58.3 | 74.0 | -15. |
| 4.824 | Н | Avg | 45.7 | -9.5 | 33.8 | 34.5 | 1.0 | 5.7 | 42.2 | 54.0 | -11. |
| 7.236 | V | Peak | 58.5 | -9.5 | 37.0 | 34.5 | 1.0 | 7.2 | 59.7 | 74.0 | -14. |
| 7.236 | V | Avg | 42.5 | -9.5 | 37.0 | 34.5 | 1.0 | 7.2 | 43.7 | 54.0 | -10. |
| 7.236 | Н | Peak | 60.8 | -9.5 | 37.0 | 34.5 | 1.0 | 7.2 | 62.0 | 74.0 | -12. |
| 7.236 | Н | Avg | 44.8 | -9.5 | 37.0 | 34.5 | 1.0 | 7.2 | 46.0 | 54.0 | -8. |
| 9.648 | V | Peak | 56.7 | -9.5 | 39.7 | 34.9 | 1.0 | 8.5 | 61.4 | 74.0 | -12. |
| 9.648 | V | Avg | 41.8 | -9.5 | 39.7 | 34.9 | 1.0 | 8.5 | 46.6 | 54.0 | -7. |
| | Н | Peak | 56.5 | -9.5 | 39.7 | 34.9 | 1.0 | 8.5 | 61.2 | 74.0 | -12. |
| 9.648 | | 1 | 44 - | 0.5 | 007 | 34.9 | 1.0 | 8.5 | 46.2 | 54.0 | -7. |
| 9.648 9.648 | Н | Avg | 41.5 | -9.5 | 39.7 | 34.9 | 1.0 | 0.0 | 40.2 | 54.0 | |

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| | | | Site: | В | | | | | | | |
|-----------|-----------|----------|---------|---------|------------|-------------|-----------|-----------|-----------------|-------------|--------|
| | | Corr | npany: | Toshib | а | | | | | | |
| | EUT | Descr | iption: | Touch | Screen / | Bluetooth | n / WLAN | / Dual F | - ilm Antenr | na | |
| | Test C | Configu | ration: | EUT / / | AC Adap | ter / Lapto | op with V | VLAN / A | C Adapter | | |
| | Mode | of Ope | ration: | WLAN | transmit | ting at ma | ximum p | ower in | linked mod | e, Mid char | nnel |
| | | | | Blueto | oth is off | | | | | | |
| | | | | | | | | | | | |
| S | Specifica | tion Dis | stance: | 3.0 | meters | | | | | | |
| | Ac | tual Dis | stance: | 1.0 | meters | | 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 |
| 4.874 | V | Peak | 63.6 | -9.5 | 33.9 | 34.5 | 1.0 | 5.8 | 60.3 | 74.0 | -13.7 |
| 4.874 | V | Avg | 46.1 | -9.5 | 33.9 | 34.5 | 1.0 | 5.8 | 42.8 | 54.0 | -11.2 |
| 4.874 | Н | Peak | 61.5 | -9.5 | 33.9 | 34.5 | 1.0 | 5.8 | 58.2 | 74.0 | -15.8 |
| 4.874 | Н | Avg | 45.6 | -9.5 | 33.9 | 34.5 | 1.0 | 5.8 | 42.3 | 54.0 | -11.7 |
| 7.311 | V | Peak | 58.1 | -9.5 | 37.2 | 34.6 | 1.0 | 7.3 | 59.5 | 74.0 | -14.5 |
| 7.311 | V | Avg | 42.0 | -9.5 | 37.2 | 34.6 | 1.0 | 7.3 | 43.4 | 54.0 | -10.6 |
| 7.311 | Н | Peak | 61.6 | -9.5 | 37.2 | 34.6 | 1.0 | 7.3 | 63.0 | 74.0 | -11.0 |
| 7.311 | Н | Avg | 45.1 | -9.5 | 37.2 | 34.6 | 1.0 | 7.3 | 46.5 | 54.0 | -7.5 |
| 9.748 | V | Peak | 56.0 | -9.5 | 39.8 | 34.9 | 1.0 | 8.6 | 60.9 | 74.0 | -13.1 |
| 9.748 | V | Avg | 41.5 | -9.5 | 39.8 | 34.9 | 1.0 | 8.6 | 46.4 | 54.0 | -7.6 |
| 9.748 | Н | Peak | 56.9 | -9.5 | 39.8 | 34.9 | 1.0 | 8.6 | 61.8 | 74.0 | -12.2 |
| 9.748 | Н | Avg | 41.9 | -9.5 | 39.8 | 34.9 | 1.0 | 8.6 | 46.8 | 54.0 | -7.2 |
| | | | | | | | | | | | |
| Note 1: N | o other s | spuriou | s emiss | sions w | ere dete | cted abov | e the sys | stem nois | se floor. | | |

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| | Descri | ption o | f Test: | Spurio | us Radia | ted Emiss | sions | | | | |
|-------------|-----------|---------|---------|------------|------------|--------------|-----------|-------------|-----------------|-----------------|--------------|
| | Pro | ject Nu | mber: | 02U15 | 01 | | | | | | |
| | | | Date: | 09/24/0 | 02 | | | | | | |
| | T | est Eng | ineer: | Mike H | leckrotte | | | | | | |
| | | | Site: | В | | | | | | | |
| | | | | Toshib | | | | | | | |
| | | | | | | | | | -ilm Antenr | na | |
| | | - | | | | | | | C Adapter | | L |
| | Mode | of Ope | ration: | | | | iximum p | ower in | linked mod | e, High cha | innel |
| | | | | Blueto | oth is off | | | | | | |
| | | | | | | | | | | | <u> </u> |
| S | | | | | meters | 0.111 | 1 4 | 45.0 | f | | |
| _ | | | | 1.0 | meters | | Length: | | feet | | |
| Freq GHz | | | | Dist dB | AF dB/m | Preamp dB | dB | Cable dB | Field dBuV/m | Limit dBuV/m | Margin dB |
| GHZ | V/П | | dBuV | uВ | ub/III | uВ | uВ | | ubuv/iii | ubuv/iii | uв |
| 4.924 | V | Peak | 62.7 | -9.5 | 34.1 | 34.5 | 1.0 | 5.8 | 59.6 | 74.0 | -14.4 |
| 4.924 | V | Avg | 45.8 | -9.5 | 34.1 | 34.5 | 1.0 | 5.8 | 42.7 | 54.0 | -11.3 |
| 4.924 | Н | Peak | 62.3 | -9.5 | 34.1 | 34.5 | 1.0 | 5.8 | 59.2 | 74.0 | -14.8 |
| 4.924 | Н | Avg | 46.1 | -9.5 | 34.1 | 34.5 | 1.0 | 5.8 | 43.0 | 54.0 | -11.0 |
| 7.386 | V | Peak | 58.9 | -9.5 | 37.3 | 34.6 | 1.0 | 7.3 | 60.5 | 74.0 | -13.5 |
| 7.386 | V | Avg | 42.7 | -9.5 | 37.3 | 34.6 | 1.0 | 7.3 | 44.3 | 54.0 | -9.7 |
| 7.386 | H | Peak | 60.5 | -9.5 | 37.3 | 34.6 | 1.0 | 7.3 | 62.1 | 74.0 | -11.9 |
| 7.386 | H | Avg | 44.2 | -9.5 | 37.3 | 34.6 | 1.0 | 7.3 | 45.8 | 54.0 | -8.2 |
| 9.848 | V | Peak | 56.9 | -9.5 | 40.0 | 35.0 | 1.0 | 8.6 | 62.0 | 74.0 | -12.0 |
| 9.848 | V | Avg | 41.9 | -9.5 | 40.0 | 35.0 | 1.0 | 8.6 | 47.0 | 54.0 | -7.0 |
| 9.848 | H | Peak | 56.4 | -9.5 | 40.0 | 35.0 | 1.0 | 8.6 | 61.5 | 74.0 | -12.5 |
| 9.848 | Н | Avg | 41.3 | -9.5 | 40.0 | 35.0 | 1.0 | 8.6 | 46.4 | 54.0 | -7.6 |
| Note 1: N | o other : | spuriou | s emiss | ions w | ere dete | cted abov | e the sys | stem nois | se floor. | | |

Page 20 of 46

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: | 09/24/0 |)2 | | | | | | |
| | Т | est Eng | ineer: | Mike H | eckrotte | | | | | | |
| | | | Site: | В | | | | | | | |
| | | | | Toshib | | | | | | | |
| | | | | | | | | | Dual Film A | ntenna | |
| | | | | | | | | | C Adapter | | |
| | Mode | of Ope | ration: | WLAN | transmit | ting at ma | <u>ximum p</u> | ower in | linked mod | e, Low cha | nnel |
| | | | | Blueto | oth is off | | | | | | |
| | | | | | | | | | | | |
| 5 | Specifica | tion Dis | stance: | 3.0 | meters | | | | | | |
| | Ac | tual Dis | | 1.0 | meters | | 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 |
| 4.824 | V | Peak | 64.5 | -9.5 | 33.8 | 34.5 | 1.0 | 5.7 | 61.0 | 74.0 | -13.0 |
| 4.824 | V | Avg | 47.3 | -9.5 | 33.8 | 34.5 | 1.0 | 5.7 | 43.8 | 54.0 | -10.2 |
| 4.824 | Н | Peak | 63.5 | -9.5 | 33.8 | 34.5 | 1.0 | 5.7 | 60.0 | 74.0 | -14.0 |
| 4 00 4 | | | | | | 0.110 | | . | | 1 110 | |
| 4.824 | Н | Avg | 46.5 | -9.5 | 33.8 | 34.5 | 1.0 | 5.7 | 43.0 | 54.0 | -11.0 |
| 4.824 | H V | | 46.5 60.5 | -9.5 -9.5 | 33.8 37.0 | | - | - | | | |
| _ | | Avg | | | | 34.5 | 1.0 | 5.7 | 43.0 | 54.0 | -12.3 |
| 7.236 | V | Avg Peak | 60.5 | -9.5 | 37.0 | 34.5 34.5 | 1.0 1.0 | 5.7 7.2 | 43.0 61.7 | 54.0 74.0 | -12.3 -7.2 |
| 7.236 7.236 | V V | Avg Peak Avg | 60.5 45.7 | -9.5 -9.5 | 37.0 37.0 | 34.5 34.5 34.5 | 1.0 1.0 1.0 | 5.7 7.2 7.2 | 43.0 61.7 46.8 | 54.0 74.0 54.0 | -12.3 -7.2 -8.8 |
| 7.236 7.236 7.236 | V V H | Avg Peak Avg Peak | 60.5 45.7 64.0 | -9.5 -9.5 -9.5 | 37.0 37.0 37.0 | 34.5 34.5 34.5 34.5 | 1.0 1.0 1.0 1.0 | 5.7 7.2 7.2 7.2 | 43.0 61.7 46.8 65.2 | 54.0 74.0 54.0 74.0 | -12.3 -7.2 -8.8 |
| 7.236 7.236 7.236 7.236 | V V H H | Avg Peak Avg Peak Avg | 60.5 45.7 64.0 47.0 | -9.5 -9.5 -9.5 -9.5 | 37.0 37.0 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 7.2 7.2 7.2 7.2 7.2 | 43.0 61.7 46.8 65.2 48.2 | 54.0 74.0 54.0 74.0 54.0 | -12.3 -7.2 -8.8 -5.8 -12.1 |
| 7.236 7.236 7.236 7.236 9.648 | V V H H V | Avg Peak Avg Peak Avg Peak | 60.5 45.7 64.0 47.0 57.2 | -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 | 37.0 37.0 37.0 37.0 37.0 39.7 | 34.5 34.5 34.5 34.5 34.5 34.5 34.9 | 1.0 1.0 1.0 1.0 1.0 1.0 | 5.7 7.2 7.2 7.2 7.2 7.2 8.5 | 43.0 61.7 46.8 65.2 48.2 61.9 | 54.0 74.0 54.0 74.0 54.0 74.0 | -12.3 -7.2 -8.8 -5.8 -12.1 -7.3 |
| 7.236 7.236 7.236 7.236 9.648 9.648 | V V H H V V | Avg Peak Avg Peak Avg Peak Avg | 60.5 45.7 64.0 47.0 57.2 42.0 | -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 | 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 | 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 | 5.7 7.2 7.2 7.2 7.2 7.2 8.5 8.5 | 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 | -11.0 -12.3 -7.2 -8.8 -5.8 -12.1 -7.3 -11.4 -7.3 |
| 7.236 7.236 7.236 7.236 9.648 9.648 9.648 | V V H H V V H | Avg Peak Avg Peak Avg Peak Avg Peak | 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 | 37.0 37.0 37.0 37.0 39.7 39.7 39.7 | 34.5 34.5 34.5 34.5 34.5 34.9 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 7.2 7.2 7.2 7.2 7.2 8.5 8.5 8.5 | 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 | -12.3 -7.2 -8.8 -5.8 -12.1 -7.3 -11.4 |

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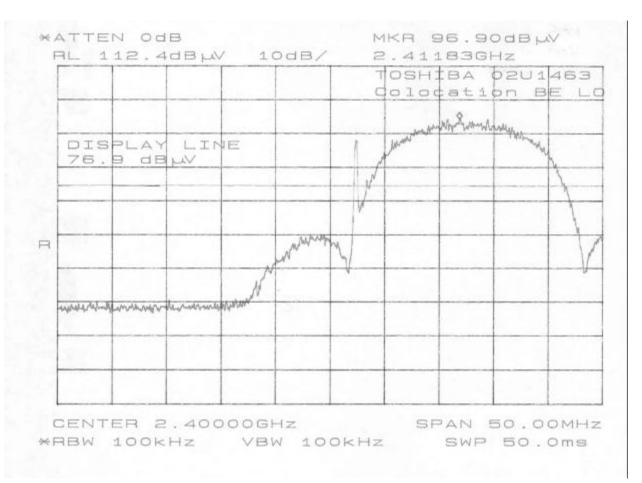
| | Descri | ption o | f Test: | Spurio | us Radia | ated Emiss | sions | | | | |
|-------|-----------|----------|---------|---------|------------|--------------|----------------|----------|-------------|-------------|--------|
| | Pro | ject Nu | mber: | 02U15 | 01 | | | | | | |
| | | | Date: | 09/24/0 |)2 | | | | | | |
| | Т | est Eng | gineer: | Mike H | leckrotte | | | | | | |
| | | | Site: | В | | | | | | | |
| | | Con | npany: | Toshib | а | | | | | | |
| | EUT | Descr | iption: | Touch | Screen / | Bluetooth | ו / WLAN | V / Wide | Dual Film A | Intenna | |
| | Test C | Configu | ration: | EUT / / | AC Adap | oter / Lapto | op with V | VLAN / A | C Adapter | | |
| | Mode | of Ope | ration: | WLAN | transmit | ting at ma | <u>ximum p</u> | ower in | linked mod | e, Mid char | nel |
| | | | | Blueto | oth is off | | | | | | |
| | | | | | | | | | | | |
| | 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 |
| 4.874 | V | Peak | 64.2 | -9.5 | 33.9 | 34.5 | 1.0 | 5.8 | 60.9 | 74.0 | -13.1 |
| 4.874 | V | Avg | 47.0 | -9.5 | 33.9 | 34.5 | 1.0 | 5.8 | 43.7 | 54.0 | -10.3 |
| 4.874 | Н | Peak | 64.0 | -9.5 | 33.9 | 34.5 | 1.0 | 5.8 | 60.7 | 74.0 | -13.3 |
| 4.874 | Н | Avg | 47.1 | -9.5 | 33.9 | 34.5 | 1.0 | 5.8 | 43.8 | 54.0 | -10.2 |
| 7.311 | V | Peak | 60.8 | -9.5 | 37.2 | 34.6 | 1.0 | | 62.2 | 74.0 | -11.8 |
| 7.311 | V | Avg | 45.9 | -9.5 | 37.2 | 34.6 | 1.0 | 7.3 | 47.3 | 54.0 | -6.7 |
| 7.311 | Н | Peak | 63.6 | -9.5 | 37.2 | 34.6 | 1.0 | 7.3 | 65.0 | 74.0 | -9.0 |
| 7.311 | Н | Avg | 46.3 | -9.5 | 37.2 | 34.6 | 1.0 | 7.3 | 47.7 | 54.0 | -6.3 |
| 9.748 | V | Peak | 56.9 | -9.5 | 39.8 | | 1.0 | | 61.8 | 74.0 | -12.2 |
| 9.748 | V | Avg | 41.9 | -9.5 | 39.8 | 34.9 | 1.0 | 8.6 | 46.8 | 54.0 | -7.2 |
| 9.748 | Н | Peak | 58.2 | -9.5 | 39.8 | 34.9 | 1.0 | 8.6 | 63.1 | 74.0 | -10.9 |
| | | | | | | | | | | | |
| 9.748 | Н | Avg | 42.3 | -9.5 | 39.8 | 34.9 | 1.0 | 8.6 | 47.2 | 54.0 | -6.8 |
| 9.748 | Н | Avg | 42.3 | -9.5 | | | 1.0 | 8.6 | 47.2 | 54.0 | -6.8 |

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| | Descri | ption o | f Test: | Spurio | us Radia | ted Emiss | sions | | | | |
|---|----------------------------|--|--|--|--|--|---|--|--|--|--|
| | Pro | ject Nu | mber: | 02U15 | 01 | | | | | | |
| | | | Date: | 09/24/0 | 02 | | | | | | |
| | Т | est Eng | gineer: | Mike H | leckrotte | | | | | | |
| | | | Site: | В | | | | | | | |
| | | Con | npany: | Toshib | а | | | | | | |
| | EUT | Descr | iption: | Touch | Screen / | Bluetooth | n / WLAN | / Wide | Dual Film A | Intenna | |
| | Test C | Configu | ration: | EUT / / | AC Adap | oter / Lapto | op with V | VLAN / A | C Adapter | | |
| | Mode | of Ope | ration: | | | | <u>ximum p</u> | ower in | linked mod | e, High cha | nnel |
| | | | | Blueto | oth is off | | | | | | |
| | | | | | | | | | | | |
| | 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 |
| 4.924 | 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 | Н | Peak | 63.7 | -9.5 | 34.1 | 34.5 | 1.0 | 5.8 | 60.6 | 74.0 | -13.4 |
| 4.924 | Н | 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 | 04.0 | | - | | | -12.2 |
| | | 1 Out | 00.2 | -9.0 | 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 1.0 | 7.3 7.3 | <u>61.8</u> 46.9 | 74.0 54.0 | -12.2 |
| 7.386 7.386 | V H | | | | | | | | | | |
| 7.386 7.386 | - | Avg | 45.3 64.6 47.7 | -9.5 -9.5 -9.5 | 37.3 37.3 37.3 | 34.6 34.6 34.6 | 1.0 1.0 1.0 | 7.3 7.3 7.3 | 46.9 66.2 49.3 | 54.0 | -7.1 -7.8 -4.7 |
| 7.386 7.386 9.848 | H H V | Avg Peak | 45.3 64.6 47.7 57.0 | -9.5 -9.5 -9.5 -9.5 | 37.3 37.3 37.3 40.0 | 34.6 34.6 34.6 35.0 | 1.0 1.0 1.0 1.0 | 7.3 7.3 7.3 8.6 | 46.9 66.2 | 54.0 74.0 | -7.1 -7.8 -4.7 -11.9 |
| 7.386 7.386 9.848 9.848 | H H V V | Avg Peak Avg | 45.3 64.6 47.7 57.0 42.0 | -9.5 -9.5 -9.5 -9.5 -9.5 | 37.3 37.3 37.3 | 34.6 34.6 35.0 35.0 | 1.0 1.0 1.0 | 7.3 7.3 7.3 8.6 8.6 | 46.9 66.2 49.3 62.1 47.1 | 54.0 74.0 54.0 | -7.1 -7.8 -4.7 -11.9 -6.9 |
| 7.386 7.386 9.848 9.848 9.848 | H H V V H | Avg Peak Avg Peak | 45.3 64.6 47.7 57.0 42.0 58.1 | -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 | 37.3 37.3 37.3 40.0 40.0 40.0 | 34.6 34.6 35.0 35.0 35.0 | 1.0 1.0 1.0 1.0 1.0 1.0 | 7.3 7.3 7.3 8.6 8.6 8.6 | 46.9 66.2 49.3 62.1 47.1 63.2 | 54.0 74.0 54.0 74.0 54.0 74.0 | -7.1 -7.8 -4.7 -11.9 -6.9 -10.8 |
| 7.386 7.386 9.848 9.848 | H H V V | Avg Peak Avg Peak Avg | 45.3 64.6 47.7 57.0 42.0 | -9.5 -9.5 -9.5 -9.5 -9.5 | 37.3 37.3 37.3 40.0 40.0 | 34.6 34.6 35.0 35.0 | 1.0 1.0 1.0 1.0 1.0 | 7.3 7.3 7.3 8.6 8.6 | 46.9 66.2 49.3 62.1 47.1 | 54.0 74.0 54.0 74.0 54.0 | -7.1 -7.8 -4.7 -11.9 |
| 7.386 7.386 9.848 9.848 9.848 | H H V V H H | Avg Peak Avg Peak Avg Peak Avg | 45.3 64.6 47.7 57.0 42.0 58.1 42.4 | -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 | 37.3 37.3 37.3 40.0 40.0 40.0 40.0 | 34.6 34.6 35.0 35.0 35.0 35.0 | 1.0 1.0 1.0 1.0 1.0 1.0 1.0 | 7.3 7.3 7.3 8.6 8.6 8.6 8.6 8.6 | 46.9 66.2 49.3 62.1 47.1 63.2 47.5 | 54.0 74.0 54.0 74.0 54.0 74.0 | -7.1 -7.8 -4.7 -11.9 -6.9 -10.8 |

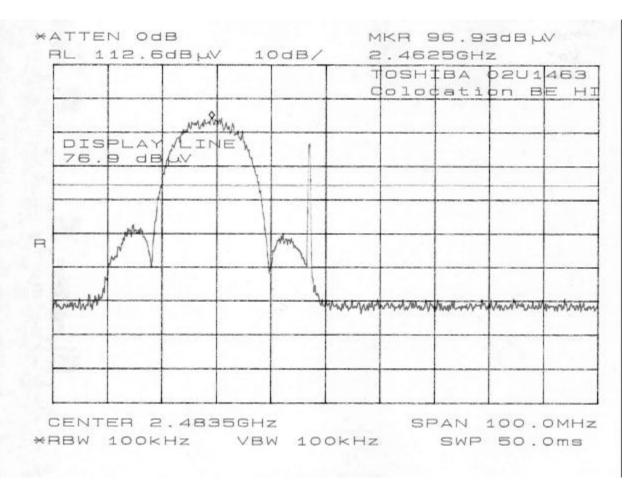
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RADIATED EMISSIONS - LOWER BAND EDGE WITH CO-LOCATED BLUETOOTH AND WLAN OPERATING SIMULTANEOUSLY AT THEIR LOW FREQUENCY CHANNELS; DUAL FILM ANTENNAS INSTALLED FOR WLAN



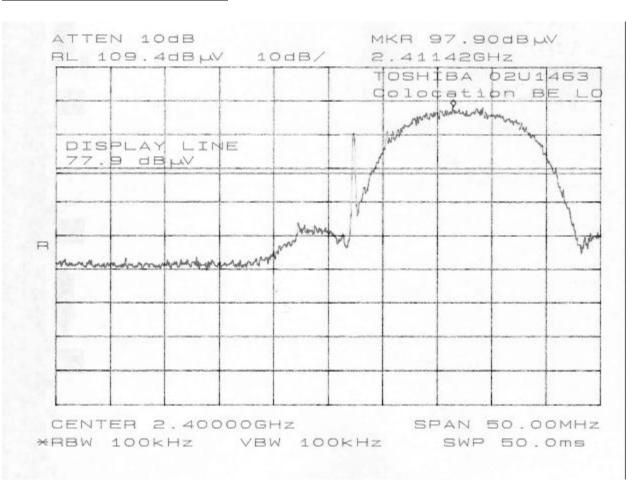
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RADIATED EMISSIONS - UPPER BAND EDGE WITH CO-LOCATED BLUETOOTH AND WLAN OPERATING SIMULTANEOUSLY AT THEIR HIGH FREQUENCY CHANNELS; DUAL FILM ANTENNAS INSTALLED FOR WLAN



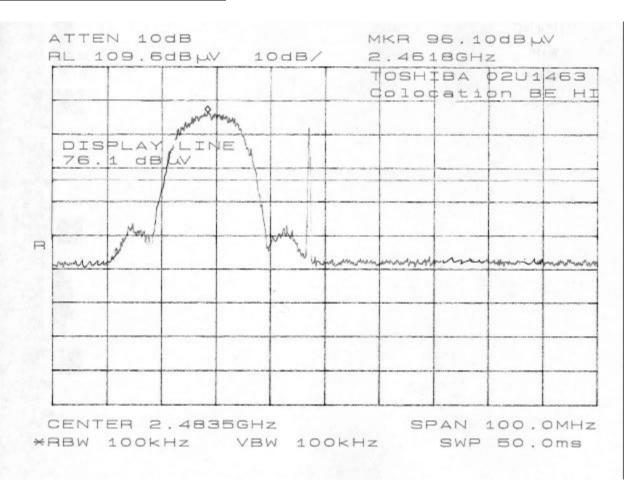
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RADIATED EMISSIONS - LOWER BAND EDGE WITH CO-LOCATED BLUETOOTH AND WLAN OPERATING SIMULTANEOUSLY AT THEIR LOW FREQUENCY CHANNELS; WIDE DUAL FILM ANTENNAS INSTALLED FOR WLAN



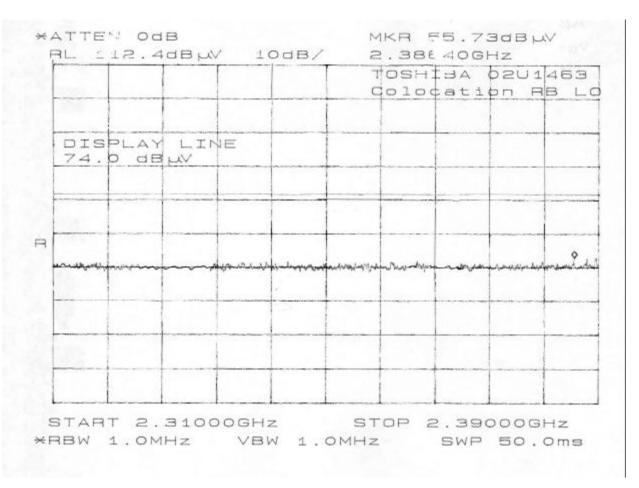
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RADIATED EMISSIONS - UPPER BAND EDGE WITH CO-LOCATED BLUETOOTH AND WLAN OPERATING SIMULTANEOUSLY AT THEIR HIGH FREQUENCY CHANNELS; WIDE DUAL FILM ANTENNAS INSTALLED FOR WLAN



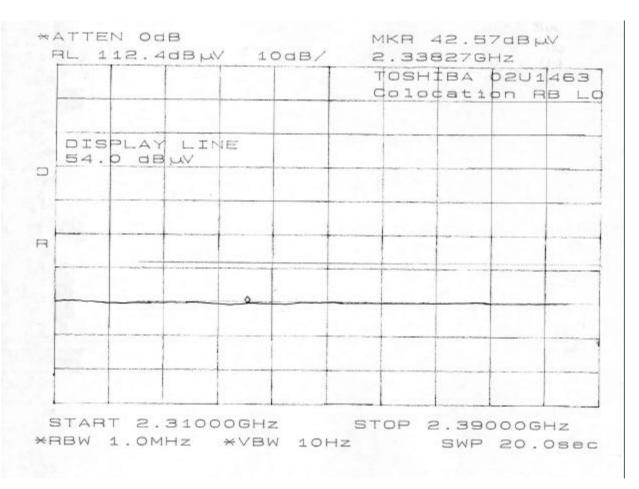
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RADIATED EMISSIONS - LOWER RESTRICTED BAND EDGE WITH CO-LOCATED BLUETOOTH AND WLAN OPERATING SIMULTANEOUSLY AT THEIR LOW FREQUENCY CHANNELS; DUAL FILM ANTENNAS INSTALLED FOR WLAN – VERTICAL PEAK



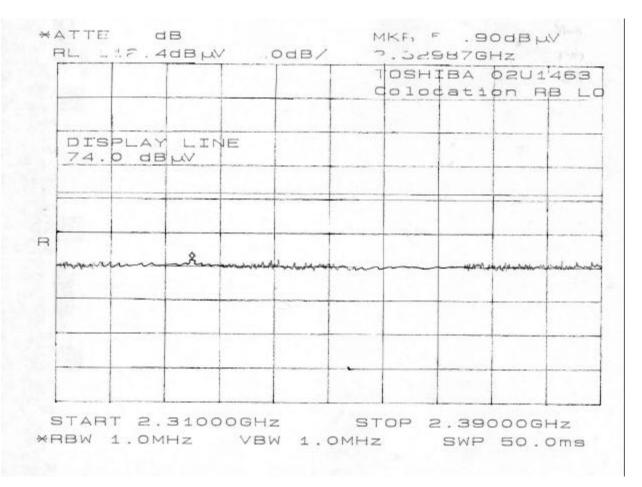
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RADIATED EMISSIONS - LOWER RESTRICTED BAND EDGE WITH CO-LOCATED BLUETOOTH AND WLAN OPERATING SIMULTANEOUSLY AT THEIR LOW FREQUENCY CHANNELS; DUAL FILM ANTENNAS INSTALLED FOR WLAN – VERTICAL AVERAGE



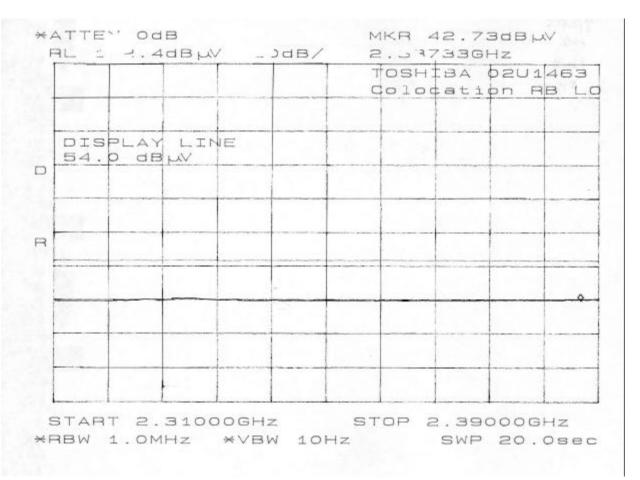
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RADIATED EMISSIONS - LOWER RESTRICTED BAND EDGE WITH CO-LOCATED BLUETOOTH AND WLAN OPERATING SIMULTANEOUSLY AT THEIR LOW FREQUENCY CHANNELS; DUAL FILM ANTENNAS INSTALLED FOR WLAN – HORIZONTAL PEAK



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



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

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

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

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

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

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

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

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

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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 – VERTICAL PEAK

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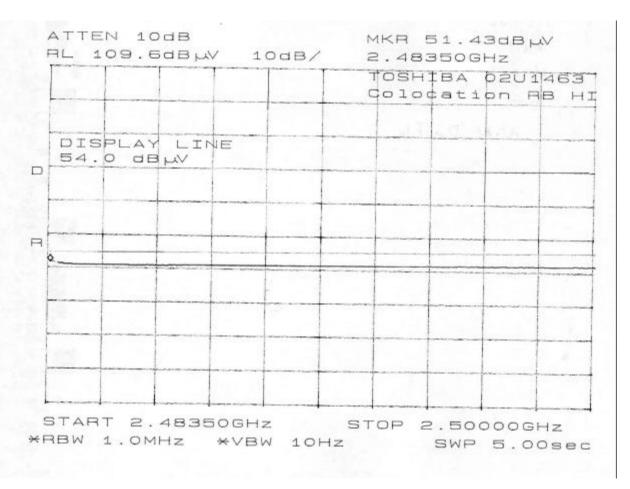
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RADIATED EMISSIONS - UPPER RESTRICTED BAND EDGE WITH CO-LOCATED BLUETOOTH AND WLAN OPERATING SIMULTANEOUSLY AT THEIR HIGH FREQUENCY CHANNELS; WIDE DUAL FILM ANTENNAS INSTALLED FOR WLAN – HORIZONTAL PEAK

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

| | Descri | iption o | f Test: | Spurio | us Radia | ted Emiss | sions | | | | | |
|-------------|-----------|----------|---------|---|---|--------------------------|------------|-----------|-----------|--------|----------|--|
| | Pro | ject Nu | mber: | 02U15 | 01 | | | | | | | |
| | | | Date: | 09/24/0 | 02 | | | | | | | |
| | Т | est Eng | ineer: | Mike H | leckrotte | | | | | | | |
| | | | Site: | В | | | | | | | | |
| | | Corr | npany: | Toshib | а | | | | | | | |
| | EUT | Descr | iption: | Touch | Screen / | Bluetooth | n / Single | e Film An | tenna / | | | |
| | | | | / WLAI | N / Wide | / Wide Dual Film Antenna | | | | | | |
| | Test C | Configu | ration: | EUT / / | AC Adapter / Laptop with WLAN / AC Adapter | | | | | | | |
| | Mode | of Ope | ration: | Blueto | both transmitting at maximum power, Low channel | | | | | | | |
| | | | | WLAN transmitting at maximum power in linked mode, Low chan | | | | | | | | |
| | | (' | | 0.0 | | | | | | | <u> </u> | |
| S | Specifica | tion Dis | | 3.0 1.0 | meters meters | Cablo | Length: | 15.0 | feet | | | |
| Freq | Pol | Det | SA SA | Dist | AF | Preamp | | Cable | Field | Limit | Margin | |
| GHz | V/H | Dei | 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 | | 46.2 | 74.0 | -27.8 | |
| 4.804 | V | Peak* | 49.8 | -9.5 | 33.8 | | 1.0 | | 46.2 | 54.0 | -7.8 | |
| 4.804 | Н | Peak | 51.6 | -9.5 | 33.8 | 34.5 | 1.0 | | 48.0 | 74.0 | -26.0 | |
| 4.804 | H | Peak* | 51.6 | -9.5 | 33.8 | 34.5 | 1.0 | | 48.0 | 54.0 | -6.0 | |
| 4.824 | V | Peak | 63.2 | -9.5 | 33.8 | 34.5 | 1.0 | | 59.7 | 74.0 | | |
| 4.824 | V | Avg | 46.9 | | 33.8 | | 1.0 | | 43.4 | 54.0 | -10.6 | |
| 4.824 | Н | Peak | 64.8 | -9.5 | 33.8 | | 1.0 | | 61.3 | 74.0 | | |
| 4.824 | H | Avg | 47.1 | -9.5 | 33.8 | | 1.0 | | 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 | | 46.0 | 54.0 | -8.0 | |
| 7.206 | Н | Peak | 47.9 | -9.5 | 37.0 | 34.5 | 1.0 | | 49.0 | 74.0 | -25.0 | |
| 7.206 | Н | Peak* | 47.9 | | 37.0 | 34.5 | 1.0 | | 49.0 | 54.0 | -5.0 | |
| 7.236 | V | Peak | 61.2 | -9.5 | 37.0 | 34.5 | 1.0 | 7.2 | 62.4 | 74.0 | -11.6 | |
| 7.236 | V | Avg | 46.2 | -9.5 | 37.0 | 34.5 | 1.0 | 7.2 | 47.4 | 54.0 | -6.6 | |
| 7.236 | Н | Peak | 63.7 | -9.5 | 37.0 | 34.5 | 1.0 | 7.2 | 64.9 | 74.0 | -9.1 | |
| 7.236 | Н | Avg | 46.6 | -9.5 | 37.0 | 34.5 | 1.0 | 7.2 | 47.8 | 54.0 | -6.2 | |
| 9.648 | V | Peak | 56.8 | -9.5 | 39.7 | 34.9 | 1.0 | 8.5 | 61.5 | 74.0 | -12.5 | |
| 9.648 | V | Avg | 41.8 | -9.5 | 39.7 | 34.9 | 1.0 | 8.5 | 46.5 | 54.0 | -7.5 | |
| 9.648 | Н | Peak | 59.0 | -9.5 | 39.7 | 34.9 | 1.0 | 8.5 | 63.7 | 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 | |
| | | | | | | | | | | | | |
| | | | | | | cted abov | e the sys | stem nois | se floor. | | ļ | |
| Note 2: * ' | The Pea | ak level | was les | ss than | the Ave | rage limit. | | | | | | |

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SETUP PHOTOS

COLOCATION RADIATED RF MEASUREMENT SETUP



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END OF REPORT

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