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**EMI TEST REPORT FOR CERTIFICATION
to
FCC PART 15 Subpart C (Section 15.247) & RSS-210
Class II Permissive Change**

FCC ID: EJE-BT0001

Industry Canada ID: 337J-BT0001

Test Sample: Bluetooth Module

Model: EYTF3CSFT

Report Number: M060410_Cert_EYTF3CSFT_Class_2

Tested for: Fujitsu Australia Ltd.

Issue Date: 7th May 2006

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Number: 5292

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Class II Permissive Change

Report Number: M060410_Cert_EYTF3CSFT_Class_2

Test Sample: Bluetooth Module
Model: EYTF3CSFT
Manufacturer: TAIYO YUDEN

FCC ID: EJE-BT0001
Industry Canada ID: 337J-BT0001
Equipment Type: Intentional Radiator (Transceiver)

Host Notebook Manufacturer: Fujitsu Ltd.
Address: Mobile Computing Division
1-1 Kamikodanaka 4-Chome, Nakahara-Ku, Kawasaki, Japan
Contact: Mr. Tsuyoshi Uchihara

Tested for: Fujitsu Australia Ltd


Test Standards: FCC Part 15, Subpart C – Intentional Radiators
FCC Part 15.247, 2400 – 2483.5 MHz Operation Band
ANSI C63.4 – 2003
OET Bulletin No. 65

RSS-210 Issue 6 Low Power Licence-Exempt RadioCommunication
Devices: 6.2.2 (o) 2400 – 2483.5 MHz Spread Spectrum

RSS-102 Issue 1 (Provisional), Evaluation Procedure for Mobile and
Portable Radio Transmitters with respect to Health Canada's Safety
Code 6 for Exposure of Humans to Radio Frequency Fields

Test Dates: 19th April to 1st May 2006

Test Officer:



Chieu Huynh - B.Eng (Hons) Electronics

Attestation:

I hereby certify that the device(s) described herein were tested as described in this report and that the data included is that which was obtained during such testing.

Authorised Signatory:



Chris Zombolas
Technical Director
EMC Technologies Pty Ltd



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EMI TEST REPORT FOR CERTIFICATION
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FCC PART 15 Subpart C (Section 15.247) & RSS-210
Class II Permissive Change

1.0 INTRODUCTION

Testing was performed on the TAIYO YUDEN Bluetooth Module, Model: EYTF3CSFT installed in Fujitsu notebook PC.

The EYTF3CSFT Bluetooth module has been recently certified by Fujitsu Australia Ltd under the FCC ID: EJE-BT0001 (IC: 337J-BT0001). The intention of this application is to add host models (Fujitsu Notebooks) and re-certify the EYTF3CSFT Bluetooth module installed in hosts: B6210 and C1410 as a **Class II Permissive Change**.

The EYTF3CSFT Bluetooth module was also originally certified by TAIYO YUDEN as a modular approval under FCC ID: RYYEYTF3CSFT (Canada ID: 4389AEYTF3CSFT). The intention of this application is to get a Limited Modular approval for this Bluetooth module for use in Fujitsu notebook PCs. The Radio modules are installed in a controlled environment at the Fujitsu notebook production/assembly factory.

The second transmitter in the notebook is INTEL WLAN module, model: WM3945ABG. This WLAN module has been recently certified by Fujitsu Australia Ltd under the FCC ID: EJE-WL0010 (IC: 337J-WL0010).

Test results and procedures were performed in accordance with the following Federal Communications Commission (FCC) standards/regulations:

| | |
|-----------------------------|--|
| 47 CFR, Part 15, Subpart C: | Rules for intentional radiators (particularly section 15.247) |
| Section 15.203: | Antenna requirements |
| Section 15.205: | Restricted bands of operation |
| Section 15.207: | Conducted Emission Limits |
| Section 15.209: | Radiated Emission Limits (General requirements) |
| Section 15.247: | Operation in the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5850 MHz |

The test sample **complied** with the **Class II Permissive Change** requirements of 47 CFR, Part 15 Subpart C - Section 15.247.

The test sample also complied with the Industry Canada RSS-210 issue 6 (Low Power Licence-Exempt Radiocommunication Devices (All Frequency Bands)) clause 6.2.2(o) and the RF exposure requirements of RSS-102.



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1.1 Summary of Results

FCC Subpart C (Section 15.247)

| FCC Part 15, Subpart C Clauses | Industry Canada RSS-210 Clauses | Test Performed | Result |
|--------------------------------|---------------------------------|------------------------------|-----------------|
| 15.203 | 5.5 | Antenna Requirement | Note 1 |
| 15.205 | 6.3 | Operation in Restricted Band | Complies |
| 15.207 | 6.6 | Conducted Emissions | Note 1 |
| 15.209 | 6.3 | Radiated Emissions | Complies |
| 15.247 (a)(1) | 6.2.2(o)(ii) | Channel Occupancy/Bandwidth | Note 1 |
| 15.247 (b)(1) | 6.2.2(o)(b) | Peak Output Power | Note 1 |
| 15.247 (i) | | Radio Frequency Hazard | Complies |
| 15.247 (d) | 6.2.2(o)(e1) | Out of Band Emissions | Complies |

Note 1: Refer to EMC test report M060108_Cert_EYTF3CSFT and M060108_Cert_EYTF3CSFT_Class_2 with FCC ID: EJE-BT0001 (IC ID: 337J-BT0001)

The measurement procedure used was in accordance with ANSI C63.4-2003 and OET Bulletin No. 65. The instrumentation conformed to the requirements of ANSI C63.2-1996.

1.2 Modifications by EMC Technologies

No modifications were required.

2.0 GENERAL INFORMATION

(Information supplied by the Client)

2.1 EUT (Bluetooth) Details

| | |
|------------------------------|--|
| Transmitter: | Bluetooth Module |
| Model Number: | EYTF3CSFT |
| Manufacturer: | TAIYO YUDEN |
| Network Standard: | Bluetooth™ RF Test Specification |
| Modulation Type: | Frequency Hopping Spread Spectrum (FHSS) |
| Frequency Range: | 2402 MHz to 2480 MHz |
| Number of Channels: | 79 |
| Carrier Spacing: | 1.0 MHz |
| Interface Type: | USB |
| Reference Oscillator: | 16 MHz (Built-in) |
| Power Supply: | 3.3 VDC from host. |

Frequency allocation:

| Channel Number | Frequency (MHz) | Bluetooth Utility power setting |
|----------------|-----------------|---------------------------------|
| 1* | 2402 | Power (Ext, Int) = 0, 96 |
| 2 | 2403 | |
| 3 | 2404 | |
| . | . | |
| . | . | |
| 39 | 2440 | |
| 40* | 2441 | |
| 41 | 2442 | |
| . | . | |
| . | . | |
| 77 | 2478 | |
| 78 | 2479 | |
| 79* | 2480 | |

*Channels tested and reported in this report



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2.2 Operational Description

The Bluetooth Utility Software was used to transmit continuously during the tests.

For Spurious and Harmonics tests both radio modules (WLAN and Bluetooth) were simultaneously transmitting.

2.3 Test Configuration

Radiated tests were performed for measuring the harmonics and spurious from the transmitters.

Limited Modular Approval (LMA) details to cover the following Fujitsu notebook configurations:

| Fujitsu Notebook Model | Bluetooth Module | Bluetooth Antenna | Antenna Gain dBi | FCC/IC Certification Status |
|----------------------------------|------------------|-------------------|------------------|------------------------------------|
| S7110 | EYTF3CSFT | Inverted F | 2.78 | GRANT Issued FCC ID: EJE-BT0001 |
| E8110 | | | -0.22 | |
| E8210 | | | -0.22 | |
| Q2010 | | | 3.27 | |
| S6310 | | | 0.38 | |
| Following NEW Models to be added | | | | |
| B6210 | EYTF3CSFT | Monopole | -1.3 | Class II Permissive Change |
| C1410 | | Inverted F | 3.20 | |

Refer to the above table, the Bluetooth antenna installed in the new host B6210 and C1410 notebooks have lower gains than in host Q2010 (had been certified). Therefore, for harmonics and spurious emissions of the Bluetooth (with higher antenna gain) refer to EMC Technologies report numbers: M060108_Cert_EYTF3CSFT and M060108_Cert_EYTF3CSFT_Class_2.

There are IM spurious emissions recorded for host B6210 when both radio modules (WLAN and Bluetooth) were simultaneously transmitting. The IM results are reported under section 3.0 of this report.

Refer to Appendix A1_B6210 and Appendix A2_C1410 for antenna details.

To qualify for a class II permissive change, the output power was re-measured on host B6210. The highest output power is reported below.

| Frequency GHz | Output Power Granted dBm | New Output Power Measured dBm |
|---------------|--------------------------|-------------------------------|
| 2.4 | 3.3 | 3.2 |



2.4 Host PC Details

2.4.1 B6210 Model Notebook

Host notebook : LifeBook B Series
Model Name: B6210
Serial Number: Pre-production Sample
Manufacturer: FUJITSU LIMITED

CPU Type and Speed: Yonah-SC(ULV) 1.2GHz
LCD 12"XGA
Wired LAN: Marvell 88E8055 : 10 Base-T/100 Base-TX/1000Base-T
Modem: Agere MDC1.5 modem Model: D40
Port Replicator Model: FPCPR52, FPCPR56, FMV-NPR8, FMV-NPR9

AC Adapter Model: SEC80N2-16.0(Sanken)
Voltage: 16 V
Current Specs: 3.75A
Watts: 60W

RADIO MODULES

Module # 1: Bluetooth Module
Model Number: EYTF3CSFT
Manufacturer: TAIYO YUDEN
Interface Type: USB
Antenna Type: Taiyo Yuden Monopole Antenna, Model: AH104N2450D2-T
 Location: Top center edge of LCD screen
Antenna gain: -1.3 dBi (Refer antenna data provided separately)
Max. Output Power: 4 dBm
Module # 2 WLAN (Golan IEEE802.11a+b/g)
WLAN Model No.: WM3945ABG
FCC/IC ID: EJE-WL0010 / 337J-WL0010
WLAN Manufacturer: Intel Corp.
Interface Type: Mini-Card Wireless LAN Module
Antenna Types: 2 x Taiyo Yuden Monopole Antenna
 Model: AH104N2450D2-T
 Located on top edge(right and left) of LCD screen



2.4.2 C1410 Model Notebook

| | |
|-------------------------------|--|
| Host notebook : | LifeBook C Series |
| Model Name: | C1410 |
| Serial Number: | Pre-production Sample |
| Manufacturer: | FUJITSU LIMITED |
| CPU Type and Speed: | Yonah-DC 2.16GHz |
| LCD | 15" WXGA / 15" XGA |
| Wired LAN: | Marvell 88E8055 : 10 Base-T/100 Base-TX/1000Base-T |
| Modem: | Agere MDC1.5 modem Model: D40 |
| Port Replicator Model: | FPCPR63 |
| AC Adapter Model: | SEC100P2-19.0(Sanken) / SQ2N80W19P-01(Nagano JRC) |
| Voltage: | 19 V |
| Current Specs: | 4.22A |
| Watts: | 80W |
| RADIO MODULES | |
| Module # 1: | Bluetooth Module |
| Model Number: | EYTF3CSFT |
| Manufacturer: | TAIYO YUDEN |
| Interface Type: | USB |
| Antenna Type: | Yokowo Inverted F Antenna, Model: YCE-5250 Location: right hinge of LCD |
| Antenna gain: | 3.2 dBi (Refer antenna data provided separately) |
| Max. Output Power: | 4 dBm |
| Module # 2 | WLAN (Golan IEEE802.11a+b/g) |
| WLAN Model No.: | WM3945ABG |
| FCC/IC ID: | EJE-WL0010 / 337J-WL0010 |
| WLAN Manufacturer: | Intel Corp. |
| Interface Type: | Mini-Card Wireless LAN Module |
| Antenna Types: | Nissei Electric Inverted F Antenna Model: CP250925 Located on top edge of LCD screen |

2.5 Test Procedure

Emissions measurements were performed in accordance with the procedures of ANSI C63.4-2003. Radiated emissions tests were performed at a distance of 1 and 3 metres from the EUT. OET Bulletin 65 dated June 2001 was used for reference.

2.6 Test Facility

2.6.1 General

Radiated Emission measurements were performed at EMC Technologies open area test site (OATS) situated at Lerderderg Gorge, near the township of Bacchus Marsh in Victoria, Australia. Conducted measurements at an antenna ports were performed at EMC Technologies' laboratory in Tullamarine, Victoria Australia.

The above test sites have been accepted for testing by the Federal Communications Commission (FCC) - **FCC Registration Number 90560**.

EMC Technologies open area test site (OATS) has also been accepted by Industry Canada for the performance of radiated measurements in accordance with RSS 212, Issue 1 (Provisional).

Industry Canada File Number IC 4161.

2.6.2 NATA Accreditation

EMC Technologies is accredited in Australia to test to the following standards by the National Association of Testing Authorities (NATA).

“FCC Part 15 unintentional and intentional emitters in the frequency range 9kHz to 18 GHz excluding TV receivers (15.117 and 15.119), TV interface devices (15.115), cable ready consumer electronic equipment (15.118), cable locating equipment (15.213) and unlicensed national information infrastructure devices (Sub part E).”

The current full scope of accreditation can be found on the NATA website: www.nata.asn.au
It also includes a large number of emission, immunity, SAR, EMR and Safety standards.

NATA is the Australian national laboratory accreditation body and has accredited EMC Technologies to operate to the IEC/ISO17025 requirements. A major requirement for accreditation is the assessment of the company and its personnel as being technically competent in testing to the standards. This requires fully documented test procedures, continued calibration of all equipment to the National Standard at the National Measurements Laboratory (NML) and an internal quality system to ISO 9002. NATA has mutual recognition agreements with the National Voluntary Laboratory Accreditation Program (NVLAP) and the American Association for Laboratory Accreditation (A²LA).

2.7 Test Equipment Calibration

All measurement instrumentation and transducers were calibrated in accordance with the applicable standards by an independent NATA registered laboratory such as Agilent Technologies (Australia) Pty Ltd or the National Measurement Laboratory (NML). All equipment calibration is traceable to Australia national standards at the National Measurements Laboratory. The reference antenna calibration was performed by NML and the working antennas (biconical and log-periodic) calibrated by the NATA approved procedures.

2.8 Ambients at OATS

The Open Area Test Site (OATS) is an area of low background ambient signals. No significant broadband ambients are present however commercial radio and TV signals exceed the limit in the FM radio, VHF and UHF television bands. Radiated prescan measurements were performed in the shielded enclosure to check for possible radiated emissions at the frequencies where the OATS ambient signals exceeded the test limit.



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RESULTS

Bluetooth Module, Model EYTF3CSFT

3.0 SPURIOUS EMISSION MEASUREMENTS

3.1 Test Procedure

Testing was performed in accordance with the requirements of FCC Part 15.247(d).

Radiated emission measurements were performed to the limits as per section 15.209. The measurements were made at the open area test site.

The EUT was set up on the table top (placed on turntable) of total height 80 cm above the ground plane, and operated as described in section 2 of this report. The EMI Receiver was operated under software control via the PC Controller through the IEEE.488 Interface Bus Card Adaptor. The test frequency range was sub-divided into smaller bands with sufficient frequency resolution to permit reliable display and identification of possible EMI peaks while also permitting fast frequency scan times. Calibrated EMCO 3115, EMCO 3116 and ETS standard gain horn antennas were used for measurements between 1 to 40 GHz.

The measurement of emissions between 30 - 1000 MHz, refer to EMC test report M060108_Cert_EYTF3CSFT with FCC ID: EJE-BT0001 (IC ID: 337J-BT0001).

The measurement of emissions above 1000 MHz, appearing in the restricted bands, was made using an average detector with a bandwidth of 1.0 MHz.

The EUT was slowly rotated with the Peak Detector set to Max-Hold. This was performed for two antenna heights. When an emission was located, it was positively identified and its maximum level found by rotating the automated turntable, and by varying the antenna height. Each significant peak was investigated with the Quasi-Peak/Average Detectors. The software for cable losses automatically corrected the measurement data for each frequency range, antenna factors and preamplifier gain and all data was then stored on disk in sequential data files. This process was performed for both horizontal and vertical antenna polarisations.

3.2 Calculation of field strength

The field strength was calculated automatically by the software using all the pre-stored calibration data. The method of calculation is shown below:

E = V + AF - G + L Where:

- E** = Radiated Field Strength in dB μ V/m.
- V** = EMI Receiver Voltage in dB μ V. (measured value)
- AF** = Antenna Factor in dB(m⁻¹). (stored as a data array)
- G** = Preamplifier Gain in dB. (stored as a data array)
- L** = Cable loss in dB. (stored as a data array of Insertion Loss versus frequency)

- **Example Field Strength Calculation**

Assuming a receiver reading of 34.0 dB μ V is obtained at 90 MHz, the Antenna Factor at that frequency is 9.2 dB. The cable loss is 1.9 dB while the preamplifier gain is 20 dB. The resulting Field Strength is therefore as follows:

$$34.0 + 9.2 + 1.9 - 20 = 25.1 \text{ dB}\mu\text{V/m}$$

Measurement uncertainty with a confidence interval of 95% is:

- Free radiation tests (1000 MHz – 18,000 MHz) ± 4.1 dB



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3.3 Radiated Emissions (IM Spurious)

All measurements above 1 GHz were initially made over a distance of 3 metres. This was decreased to 1.0 metre as the emission levels from the device were very low.

Testing was performed while both the WLAN transmitter and Bluetooth transmitter continuously operated. IM spurious emissions are reported below.

For harmonics and spurious emissions of the Bluetooth, refer to EMC Technologies report numbers: M060108_Cert_EYTF3CSFT and M060108_Cert_EYTF3CSFT_Class_2 (other host notebooks with higher antenna gain).

Both WLAN and Bluetooth Transmitters Transmitting

| 802.11a and BT | Frequency MHz | Peak Detector dBuV | Average Detector dBuV | Peak Limit dBuV/m | Average Limit dBuV/m | Result |
|---------------------|---------------|--------------------|-----------------------|-------------------|----------------------|--------|
| 5745 MHz & 2402 MHz | 3344 | 48.2 | 32.5 | - | - | - |
| 5785 MHz & 2402 MHz | 3382 | 47.6 | 32.1 | - | - | - |
| 5825 MHz & 2402 MHz | 3426 | 46.4 | 30.8 | - | - | - |
| 5760 MHz & 2402 MHz | 3357 | 47.7 | 32.0 | 74.0 | 54.0 | Pass |
| 5800 MHz & 2402 MHz | 3404 | 47.5 | 31.6 | - | - | - |
| 5745 MHz & 2441 MHz | 3303 | 49.9 | 33.4 | - | - | - |
| 5785 MHz & 2441 MHz | 3344 | 49.2 | 33.1 | - | - | - |
| 5825 MHz & 2441 MHz | 3382 | 47.3 | 32.7 | - | - | - |
| 5760 MHz & 2441 MHz | 3320 | 46.9 | 32.2 | - | - | - |
| 5800 MHz & 2441 MHz | 3357 | 46.5 | 32.1 | - | - | - |
| 5745 MHz & 2480 MHz | 3262 | 47.1 | 32.3 | 74.0 | 54.0 | Pass |
| 5785 MHz & 2480 MHz | 3303 | 48.2 | 33.6 | - | - | - |
| 5825 MHz & 2480 MHz | 3346 | 47.4 | 33.0 | 74.0 | 54.0 | Pass |
| 5760 MHz & 2480 MHz | 3276 | 46.7 | 32.3 | - | - | - |
| 5800 MHz & 2480 MHz | 3323 | 46.9 | 31.8 | - | - | - |

| 802.11b and BT | Frequency MHz | Peak Detector dBuV | Average Detector dBuV | Peak Limit dBuV/m | Average Limit dBuV/m | Result |
|---------------------|---------------|--------------------|-----------------------|-------------------|----------------------|--------|
| 2437 MHz & 2402 MHz | 2484 | 50.1 | 38.4 | 74.0 | 54.0 | Pass |
| 2437 MHz & 2441 MHz | 2484 | 49.6 | 38.2 | 74.0 | 54.0 | Pass |
| 2437 MHz & 2480 MHz | 2484 | 58.3 | 44.1 | 74.0 | 54.0 | Pass |
| 2462 MHz & 2402 MHz | 2500 | 52.7 | 43.8 | 74.0 | 54.0 | Pass |
| 2462 MHz & 2441 MHz | 2500 | 52.0 | 43.2 | 74.0 | 54.0 | Pass |
| 2462 MHz & 2480 MHz | 2500 | 51.8 | 43.4 | 74.0 | 54.0 | Pass |

| 802.11g and BT | Frequency MHz | Peak Detector dBuV | Average Detector dBuV | Peak Limit dBuV/m | Average Limit dBuV/m | Result |
|---------------------|---------------|--------------------|-----------------------|-------------------|----------------------|--------|
| 2462 MHz & 2402 MHz | 2500 | 51.5 | 42.7 | 74.0 | 54.0 | Pass |
| 2462 MHz & 2441 MHz | 2500 | 52.3 | 42.8 | 74.0 | 54.0 | Pass |
| 2462 MHz & 2480 MHz | 2500 | 51.4 | 42.0 | 74.0 | 54.0 | Pass |



| 802.11a and BT | Frequency MHz | Peak Detector dBuV | Average Detector dBuV | Peak Limit dBuV/m | Average Limit dBuV/m | Result |
|---------------------|---------------|--------------------|-----------------------|-------------------|----------------------|--------|
| 5180 MHz & 2402 MHz | 2778 | 50.4 | 35.9 | 74.0 | 54.0 | Pass |
| 5260 MHz & 2402 MHz | 2857 | 54.6 | 39.2 | 74.0 | 54.0 | Pass |
| 5320 MHz & 2402 MHz | 2917 | 53.1 | 38.0 | 68.3 | - | Pass |
| 5180 MHz & 2441 MHz | 2740 | 51.8 | 37.5 | 74.0 | 54.0 | Pass |
| 5260 MHz & 2441 MHz | 2820 | 57.2 | 40.6 | 74.0 | 54.0 | Pass |
| 5320 MHz & 2441 MHz | 2878 | 56.3 | 40.3 | 74.0 | 54.0 | Pass |
| 5180 MHz & 2480 MHz | 2700 | 54.1 | 38.7 | 74.0 | 54.0 | Pass |
| 5260 MHz & 2480 MHz | 2779 | 55.1 | 40.4 | 74.0 | 54.0 | Pass |
| 5320 MHz & 2480 MHz | 2839 | 55.4 | 39.7 | 74.0 | 54.0 | Pass |
| 5210 MHz & 2402 MHz | 2809 | 51.3 | 37.8 | 74.0 | 54.0 | Pass |
| 5250 MHz & 2402 MHz | 2849 | 53.7 | 38.6 | 74.0 | 54.0 | Pass |
| 5290 MHz & 2402 MHz | 2886 | 53.5 | 38.4 | 74.0 | 54.0 | Pass |
| 5210 MHz & 2441 MHz | 2771 | 50.9 | 37.2 | 74.0 | 54.0 | Pass |
| 5250 MHz & 2441 MHz | 2808 | 52.6 | 39.5 | 74.0 | 54.0 | Pass |
| 5290 MHz & 2441 MHz | 2850 | 55.1 | 40.1 | 74.0 | 54.0 | Pass |
| 5210 MHz & 2480 MHz | 2732 | 52.0 | 36.6 | 74.0 | 54.0 | Pass |
| 5250 MHz & 2480 MHz | 2771 | 51.7 | 37.3 | 74.0 | 54.0 | Pass |
| 5290 MHz & 2480 MHz | 2810 | 52.9 | 38.0 | 74.0 | 54.0 | Pass |

Result: IM spurious emissions were recorded within the restricted bands of up to 40 GHz. Emissions were complied with the FCC limits in section 15.209 and 15.247. The measurement uncertainty for radiated emissions in this band was ± 4.1 dB.

There are no IM spurious emissions recorded for host C1410 when both radio modules (WLAN and Bluetooth) simultaneously transmitting.

4.0 RADIO FREQUENCY EXPOSURE (HAZARD) INFORMATION

Testing was performed in accordance with the requirements of FCC Part 15.247(i) and 15.407(f).

Spread spectrum transmitters operating in the 2400 - 2483.5 MHz, 5150 – 5350 MHz and 5725 – 5850 MHz bands are required to be operated in a manner that ensures that the public is not exposed to RF energy levels in accordance with CFR 47, Section 1.1307(b)(1).

Transmitter # 1: The Bluetooth antenna is located at the middle of top edge of LCD screen and projected distance of greater than 20cm from user.

Transmitter # 2: The WLAN antennas are located on the top edge of LCD screen (2 antennas left and right) and projected distance of greater than 20cm from user.

The separation distance between the WLAN and BT antennas is less than 20cm. Therefore, they are co-located transmitters.

SAR is not required as the WLAN transmitter is mobile device and the power for the Bluetooth transmitter is below the low threshold.

The MPE calculation shown below is for the WLAN and BT power densities.

In accordance with Section 1.1310, the Maximum Permissible Exposure (MPE) limit for the General Population/Uncontrolled Exposure of 1.0 has been applied, i.e 1mW/cm².

Friis transmission formula: $P_d = (P \cdot G) / (4 \cdot \pi \cdot r^2)$

where: P_d = power density (mW/cm²)

P = power input to the antenna (mW)

G = antenna gain (numeric)

r = distance to the center of radiation of the antenna (cm)

The result was extracted from EMC report: M060108_Cert_WM3945ABG_NII_Class_2

Prediction frequency = **5320 MHz**

Maximum peak output power = 17.8 dBm = 60.3 mW

Antenna (Monopole) gain (max) = 3.23 dBi = 2.104 numeric

The power density calculated = 0.026 mW/cm²

The result was extracted from EMC report: M060108_Cert_WM3945ABG_DTS (WLAN)

Prediction frequency = **5785 MHz**

Maximum peak output power = 17.9 dBm = 61.7 mW

Antenna (Inverted F) gain (max) = 3.08 dBi = 2.03 numeric

The power density calculated = 0.025 mW/cm²

Prediction frequency = **2437 MHz**

Maximum peak output power = 17.1 dBm = 51.3 mW

Antenna (Inverted F) gain (max) = 2.47 dBi = 1.77 numeric

The power density calculated = 0.02 mW/cm²

The result was extracted from EMC report: M060108_Cert_EYTF3CSFT (BT)

Prediction frequency = **2480 MHz**

Maximum peak output power = 3.3 dBm = 2.1 mW

Antenna (Monopole) gain (max) = 3.27 dBi = 2.12 numeric

The power density calculated = 0.001 mW/cm²

Therefore, the power density (WLAN + BT) = 0.027 mW/cm²

MPE limit for uncontrolled exposure at prediction frequency = 1 mW/cm²

Results: Calculations show that the Radio devices with described antennas complied with Maximum Permissible Exposure (MPE) limit for the General Population/Uncontrolled Exposure



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5.0 COMPLIANCE STATEMENT

The Bluetooth Module, Model: EYTF3CSFT installed in Fujitsu notebook PCs tested on behalf of Fujitsu Australia Ltd, **comply** with the **Class II Permissive Change** requirements of 47 CFR, Part 15 Subpart C - Rules for Radio Frequency Devices (intentional radiators), Section 15.247 - Operation in the frequency band 2400 - 2483.5 MHz.

The test sample also complies with the Industry Canada RSS-210 issue 6 (Low Power Licence-Exempt Radiocommunication Devices (All Frequency Bands)) clause 6.2.2(o) 2400 – 2483.5 MHz Spread Spectrum requirements and the RF exposure requirements of RSS-102.

Results were as follows:

FCC Subpart C (Section 15.247)

| FCC Part 15, Subpart C Clauses | Industry Canada RSS-210 Clauses | Test Performed | Result |
|--------------------------------|---------------------------------|------------------------------|-----------------|
| 15.203 | 5.5 | Antenna Requirement | Note 1 |
| 15.205 | 6.3 | Operation in Restricted Band | Complies |
| 15.207 | 6.6 | Conducted Emissions | Note 1 |
| 15.209 | 6.3 | Radiated Emissions | Complies |
| 15.247 (a)(1) | 6.2.2(o)(ii) | Channel Occupancy/Bandwidth | Note 1 |
| 15.247 (b)(1) | 6.2.2(o)(b) | Peak Output Power | Note 1 |
| 15.247 (i) | | Radio Frequency Hazard | Complies |
| 15.247 (d) | 6.2.2(o)(e1) | Out of Band Emissions | Complies |

Note 1: Refer to EMC test report M060108_Cert_EYTF3CSFT and M060108_Cert_EYTF3CSFT_Class_2 with FCC ID: EJE-BT0001 (IC ID: 337J-BT0001)



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TEST REPORT APPENDICES

APPENDIX A: ANTENNA DETAILS

APPENDIX B: BT, WLAN and ANTENNA LOCATIONS PHOTOS



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