MOTOROLA

MOBILE DEVICES BUSINESS

PRODUCT SAFETY AND COMPLIANCE
EMC LABORATORY

EMC TEST REPORT - Addendum

Test Report Number – 23072-1BT

Report Date – 2009-05-19

The test results contained herein relate only to the model(s) identified. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical characteristics.

Signature: Lei Yang Name: Lei Yang

Title: EMC Project Manager Test: 2009-05-06 to 2009-05-18

As the responsible test lab manager, I hereby declare that the model tested as specified in this report conforms to the requirements indicated.

Signature: Name: Yilin Zhao

Title: Test Lab Manager Date: 2009-05-22

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FCC Registration Number: 177885
IC Registration Number: 109AW-1

ADR Testing Service location ADR BJ
ISO/IEC-17025:2005 accredited by UKAS

UKAS TESTING
2404

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Test Report Details

Tests Performed By:	Motorola (China) Technologies Ltd. Asia Global Compliance Labs No.1 Wang Jing East Road Chao Yang District Beijing, 100102, P. R. China Phone: +86 10 8473 2610 FCC Registration Number: 177885 IC Registration Number: 109AW-1
Tests Requested By:	Motorola Inc. Mobile Devices business 600 North US Hwy 45 Libertyville, IL 60048
Product Type:	Cell phone with embedded Bluetooth
Form Factor:	Slider
Signaling Capability:	WCDMA 900/1700/2100, GSM 850/900/1800/1900, HSDPA 7.2 Mbps (Category 7/8), EDGE Class 12, GPRS Class 12, Bluetooth Class I, 802.11b/802.11g
IMEI:	004401026995387
Battery Type:	BP60 with model number SNN5843A
FCC ID:	IHDT56KV1
Project number:	23072-1
Testing Complete Date:	05-18-2009

Applicable Standards

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2, Sub-part J as well as the following parts:

__X__Part 15 Subpart C – Intentional Radiators
_____Part 22 Subpart H - Public Mobile Services
_____Part 24 - Personal Communications Services
_____Part 27 - Wireless Communications Service
_____ Part 90 - Private Land Mobile Radio Service

Applicable Standards: ANSI 63.4-2003, RSS-GEN, RSS-210 (Bluetooth).

The following tests were performed according to the regulations:

- The **spurious radiated emission** requirements of § **15.247(d) of CFR47 Part 15 2006**, specifically" radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

- Under this project only 30 to 1000 MHz, 1 to 26.5 GHz radiated emissions and radiated band-edge measurements were performed.

- For frequencies below 1 GHz a 100 kHz RBW (6 dB) is used and above 1 GHz a 1 MHz RBW (6 dB) is used.

Summary of Testing

Test	Test Name	Pass/Fail
1	Field Strength of Spurious Emissions	Pass
2	Band-edge Compliance of RF Radiated Emissions	Pass

Test	Test Name	Results
1	Field Strength of Spurious Emissions	See plots
2	Band-edge Compliance of RF Radiated Emissions	See plots

The margin with respect to the limit is the minimum margin for all modes and bands. ( ) indicates the margin at which the product exceeds the limit.

General and Special Conditions

The test sample was tested using a fully charged battery when applicable. Where a battery could not be used due to the need for a controlled variation of input voltage, an external power supply was utilized.

All testing was done in an indoor controlled environment with an average temperature of 25 º C ± 1 º C and relative humidity of 45 % ± 6 % over the dates used for testing.

Equipment and Cable Configurations

The test sample was tested in a stand-alone configuration that is representative of typical use.

Measuring Equipment and Calibration Information

Equipment related to the semi-anechoic chamber testing:

Equipment	Model/type	Serial number	Operational range	Date of calibration
EMI Receiver	ESU 40	100036	20 Hz – 40 GHz	05.15.2009
Pre Amplifiers	PA-02-0001:	2007343	10 kHz – 3 GHz	06.26.2008
	PA-02-218	2007344	3 GHz – 18 GHz	06.26.2008
	PA-02-5	2007345	18 GHz – 40 GHz	06.26.2008
Radio Communication Tester	CMU 200	112790	GSM 850/900/1800/1900, IS95, UMTS, CDMA, Bluetooth	N/A
Band Reject Filter	WRCG	N/A	ISM band	N/A
	4N45-24241/3/6	N/A	WLAN	N/A

The antennas used in the various tests are listed in the below table.

Antenna	Type	Serial number	Operational range	Date of calibration
Hybrid-log periodic	TDK HLP 3003C	130361	30 MHz – 3 GHz	11.07.08
Double ridged Horn	TDK HRN0118	130303	1 GHz – 18 GHz	03.26.09
Double ridged Horn	ETS HRN3116	00071938	18 GHz – 40 GHz	10.17.08

All equipment is on a one-year calibration cycle except for antennas

Description of Bluetooth (BT) Transmitter

The 23072-1 cell phone sample offers Bluetooth as a feature. The Bluetooth spread-spectrum, frequency hopping transceiver is designed to operate between 2400 and 2483.5 MHz. The antenna installation is permanent. For a more thorough description of the functionality please refer to Exhibit 12 of this package.

As a Bluetooth transmitter, it is designed operate with other Bluetooth devices as defined by the industrial standard. In this application, the test sample is battery-operated.

Measurement Procedures and Data

FIELD STRENGTH OF SPURIOUS EMISSIONS

CFR Part 2.1053, 15.205, 15.209, 15.247

Measurement Procedure

The test sample is placed inside the semi-anechoic chamber on a polystyrene table at the turntable center. For each spurious frequency, the antenna mast is raised and lowered from 1 to 4 meters and the turntable is rotated 360 degrees to obtain a maximum reading on the spectrum analyzer. This is repeated for both horizontal and vertical polarizations of the receive antenna.

For 30 MHz – 18 GHz:
Field Strength (dBµV/m) = EMI Receiver Level (dBµV) + Cable Loss (dB) - Amplifier Gain (dB) + Filter loss (dB) + Antenna Correction Factor (3/m)

For 18 GHz – 26.5 GHz:
Field Strength (dBµV/m) = EMI Receiver Level (dBµV) + Cable Loss (dB) - Amplifier Gain (dB) + Filter loss (dB) + Antenna Correction Factor (1/m)

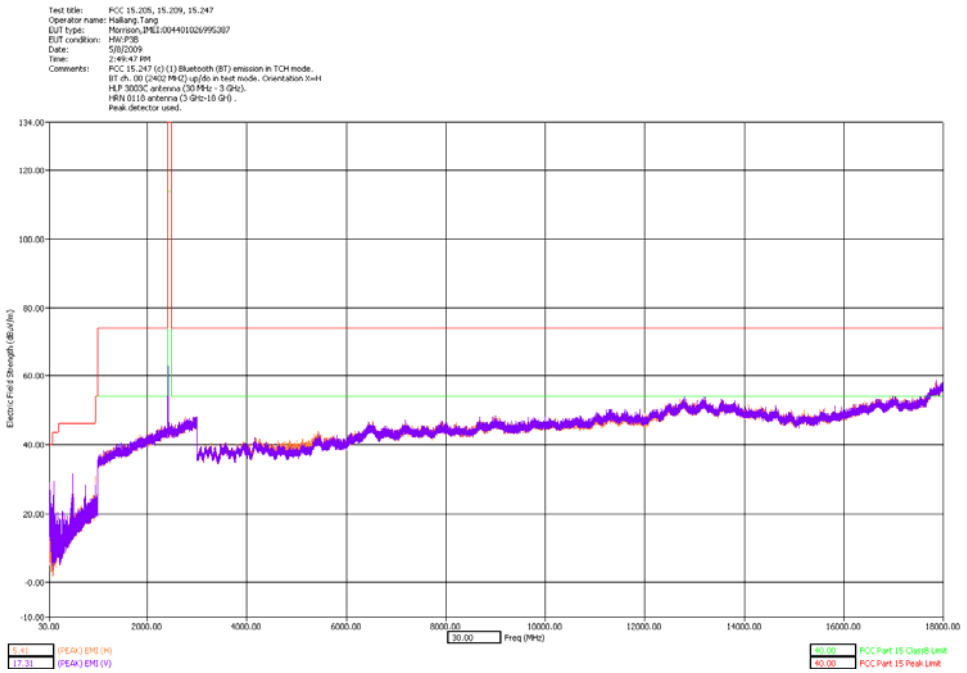
A fully charged battery was used for the supply voltage.

The test sample was operated during the measurements under the following conditions:

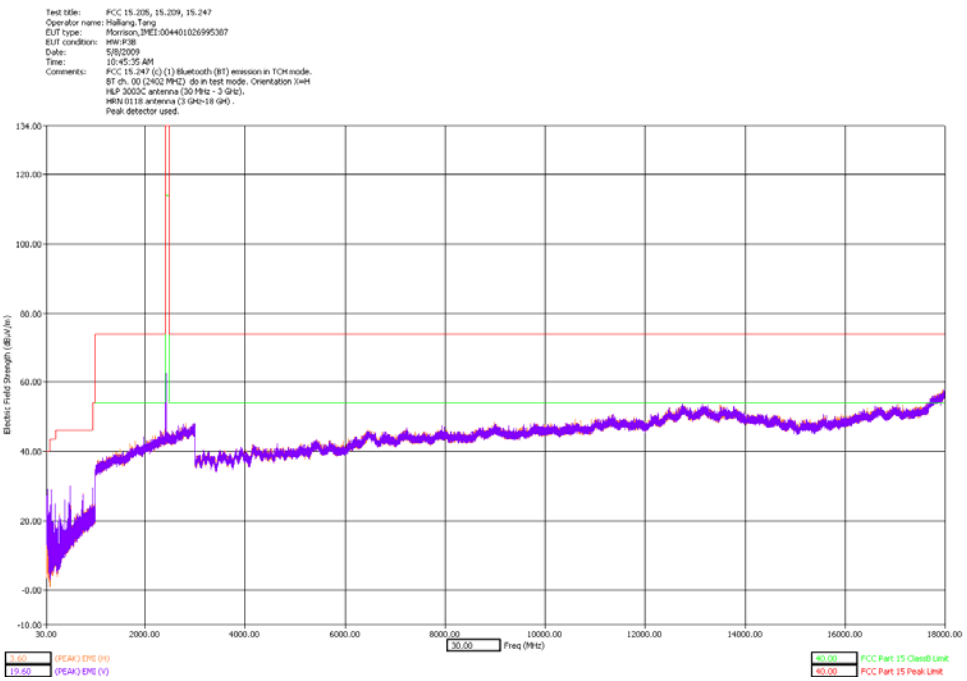
- Tests were performed at low, mid and high channels.
- Tests were performed in X, Y and Z polarizations.

Measurement Results

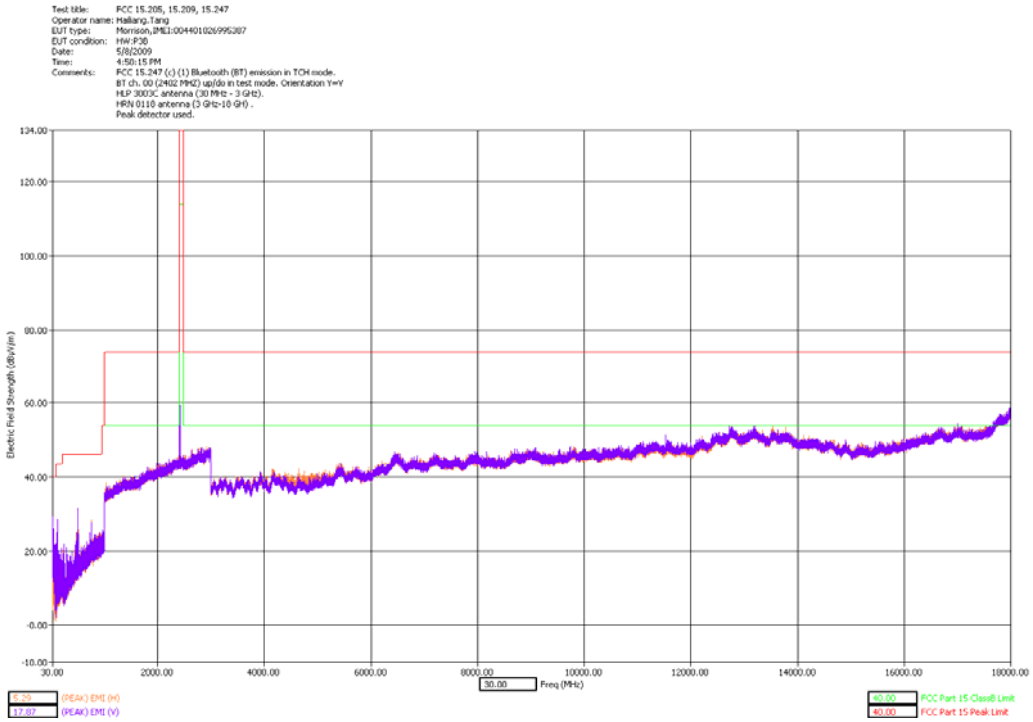
For peak emissions detected above 1 GHz, only those emissions that are higher than the AVG limit line plus 8 dB are selected for final emission analysis.



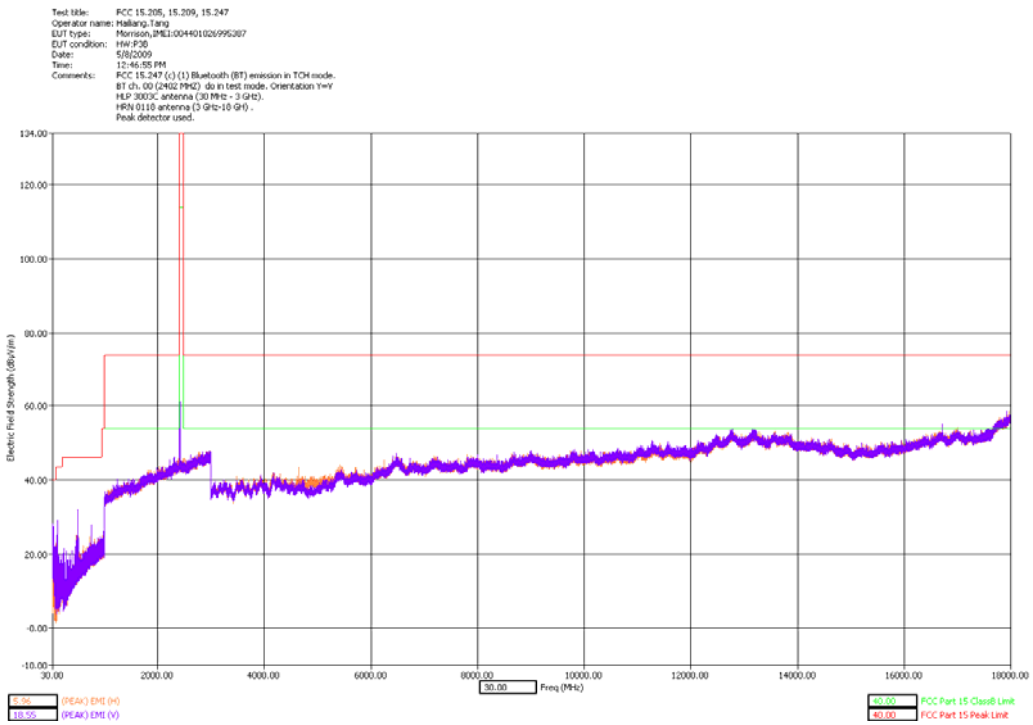
30 MHz – 18 GHz Low Channel Dual Polarization X – slider open



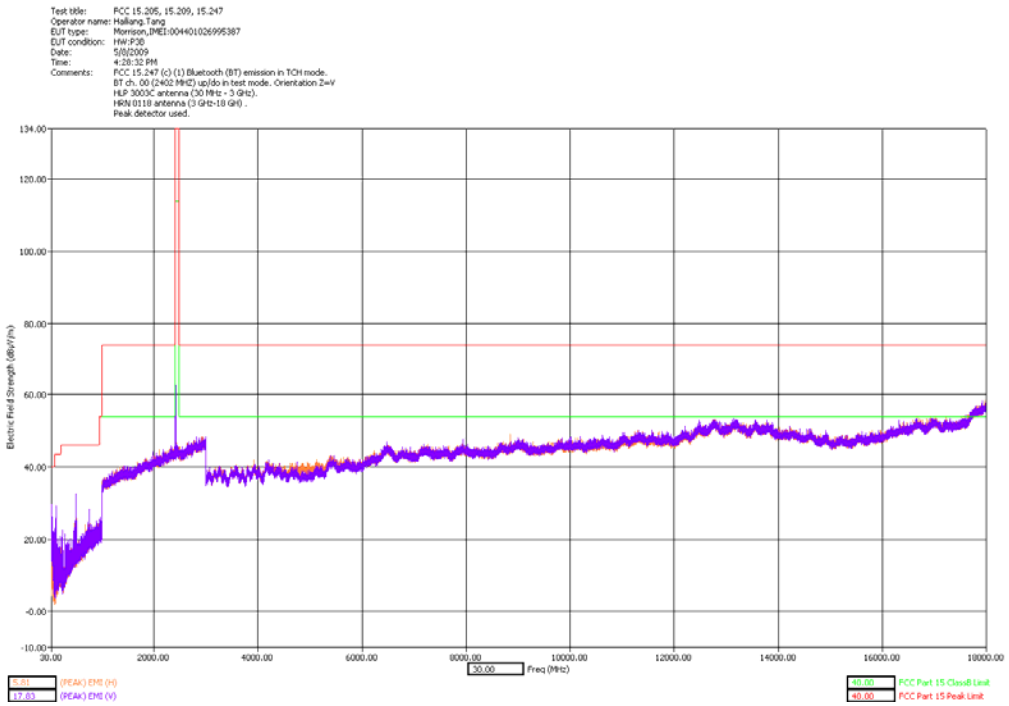
30 MHz – 18 GHz Low Channel Dual Polarization X – slider closed



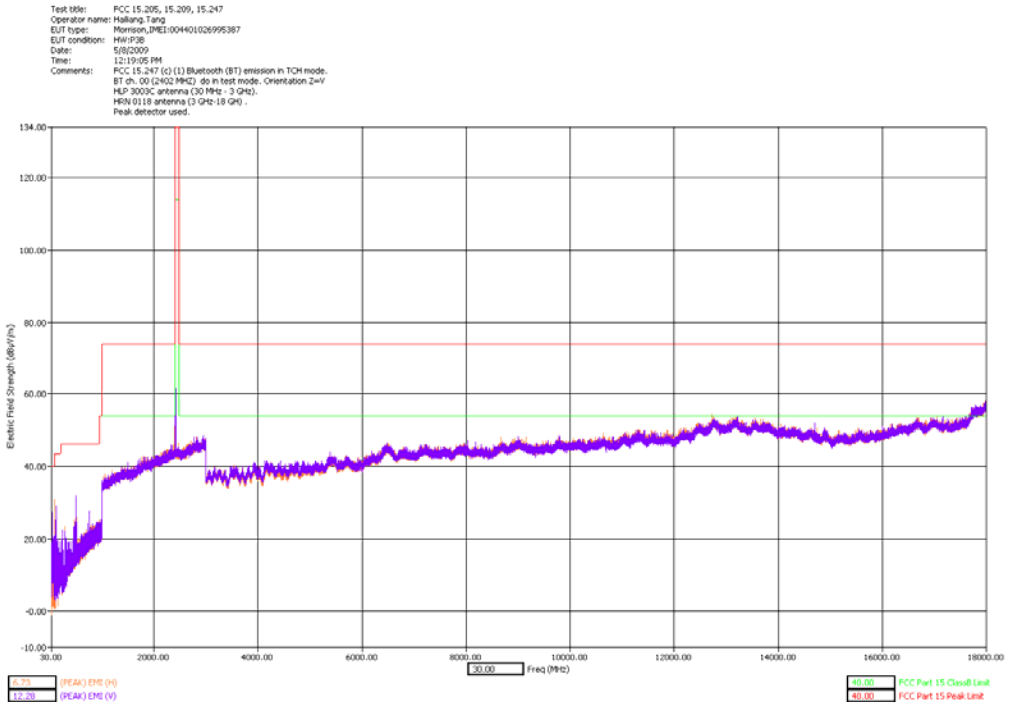
30 MHz – 18 GHz Low Channel Dual Polarization Y – slider open



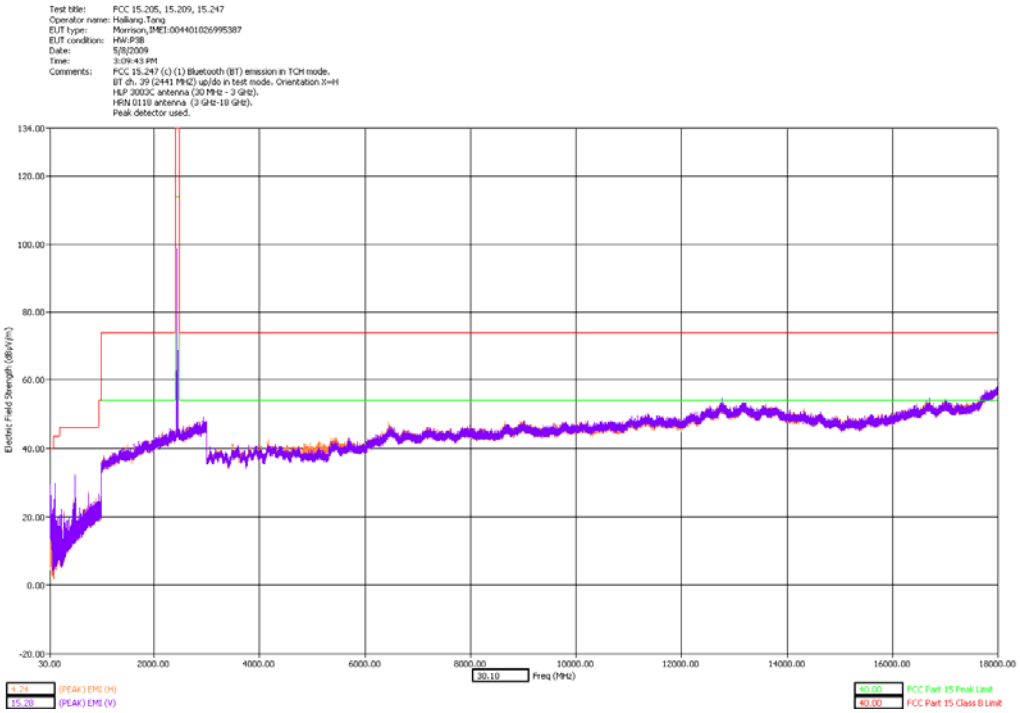
30 MHz – 18 GHz Low Channel Dual Polarization Y – slider closed



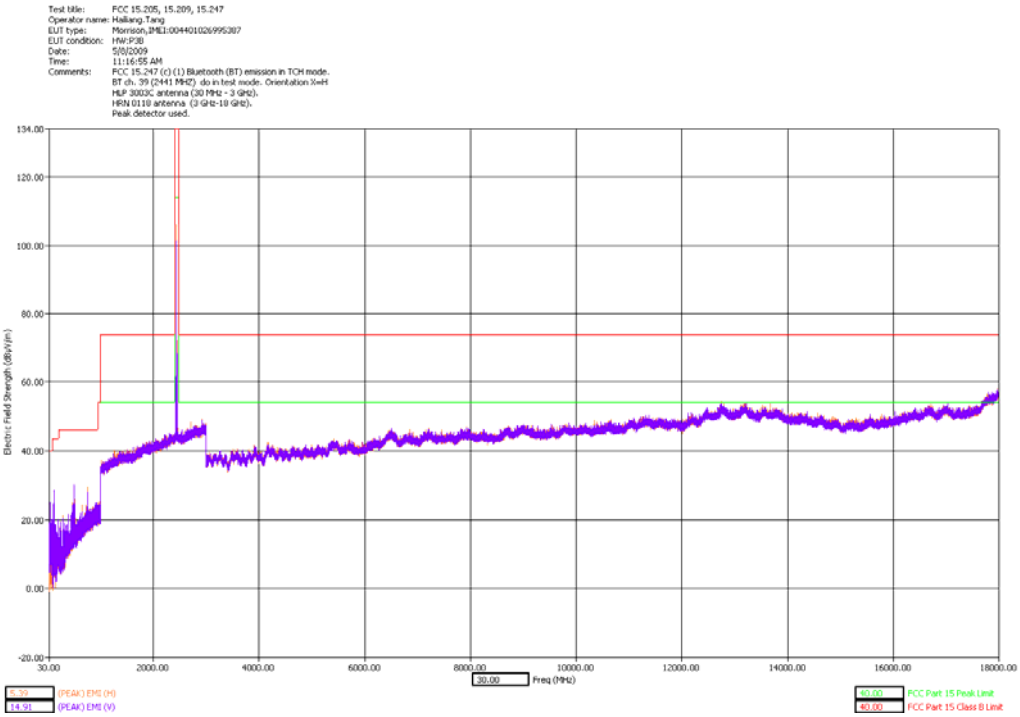
30 MHz – 18 GHz Low Channel Dual Polarization Z – slider open



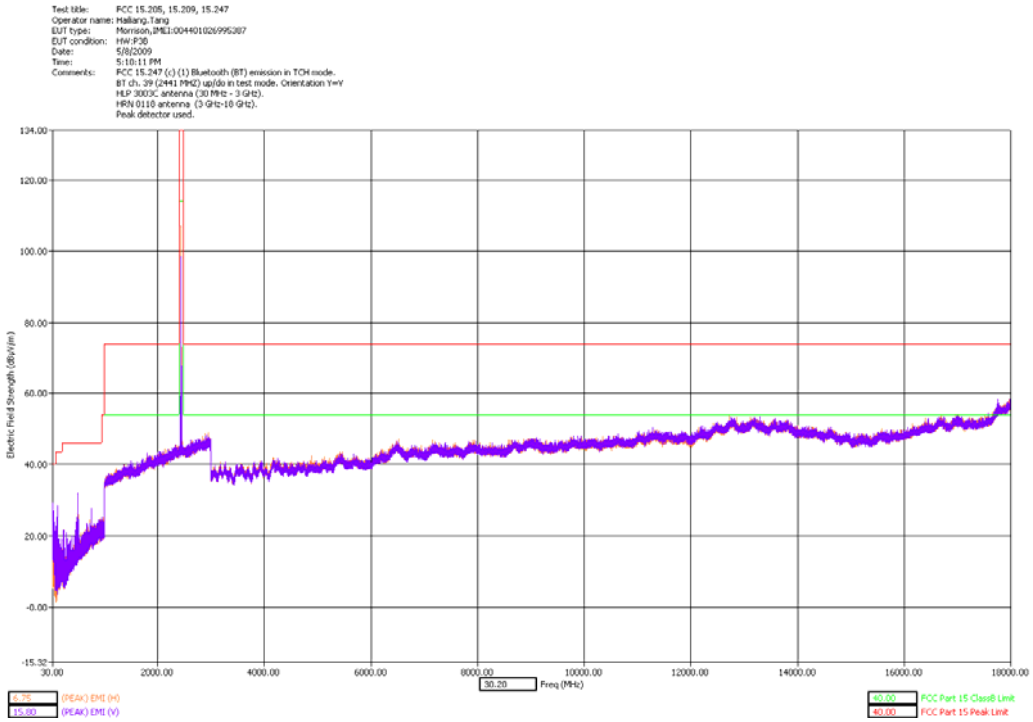
30 MHz – 18 GHz Low Channel Dual Polarization Z – slider closed



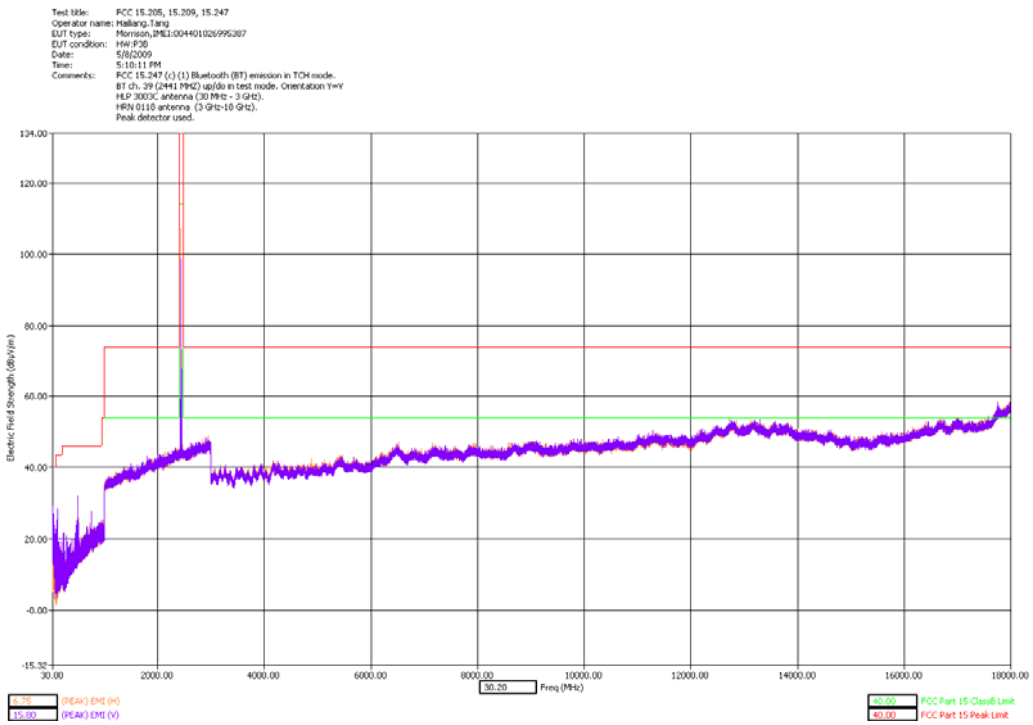
30 MHz – 18 GHz Middle Channel Dual Polarization X – slider open



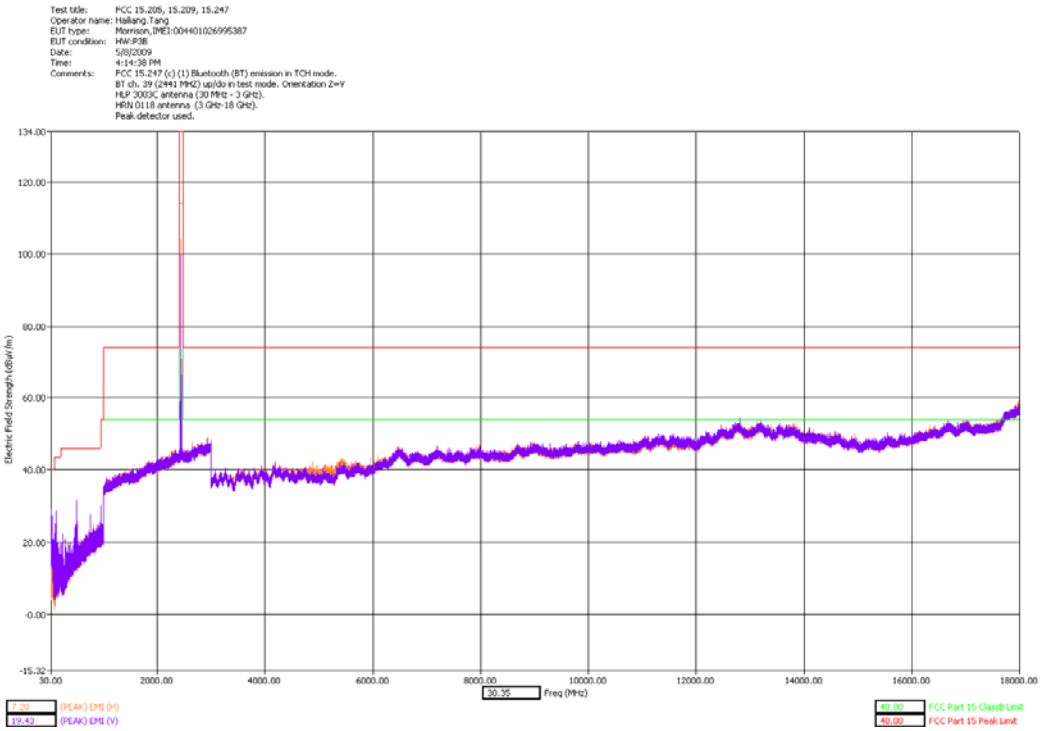
30 MHz – 18 GHz Middle Channel Dual Polarization X- slider closed



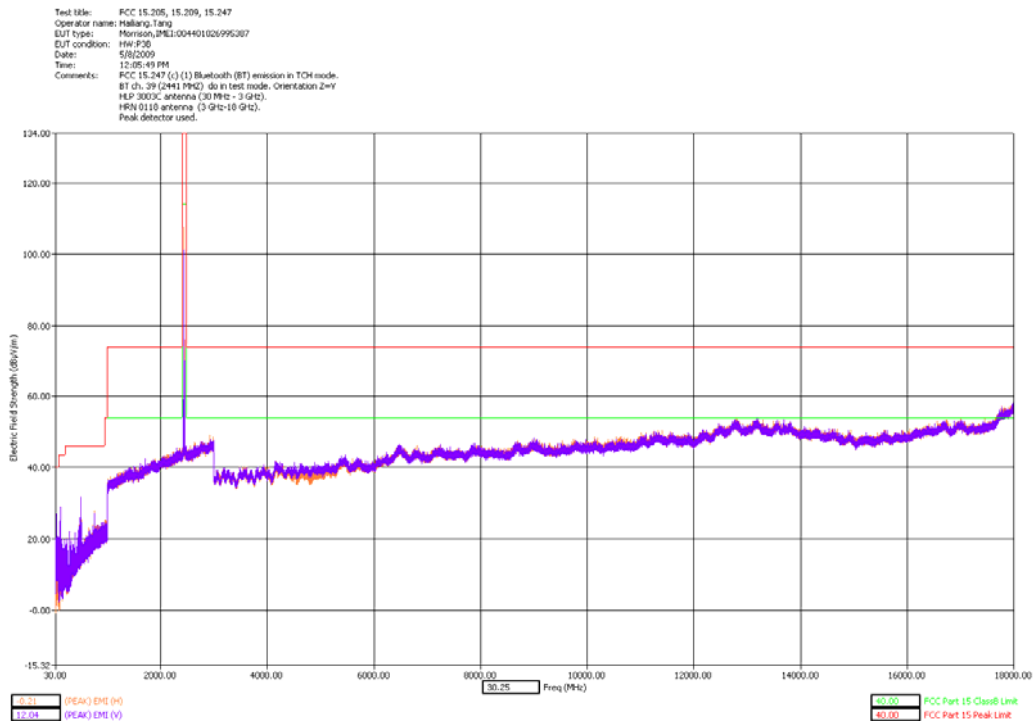
30 MHz – 18 GHz Middle Channel Dual Polarization Y – slider open



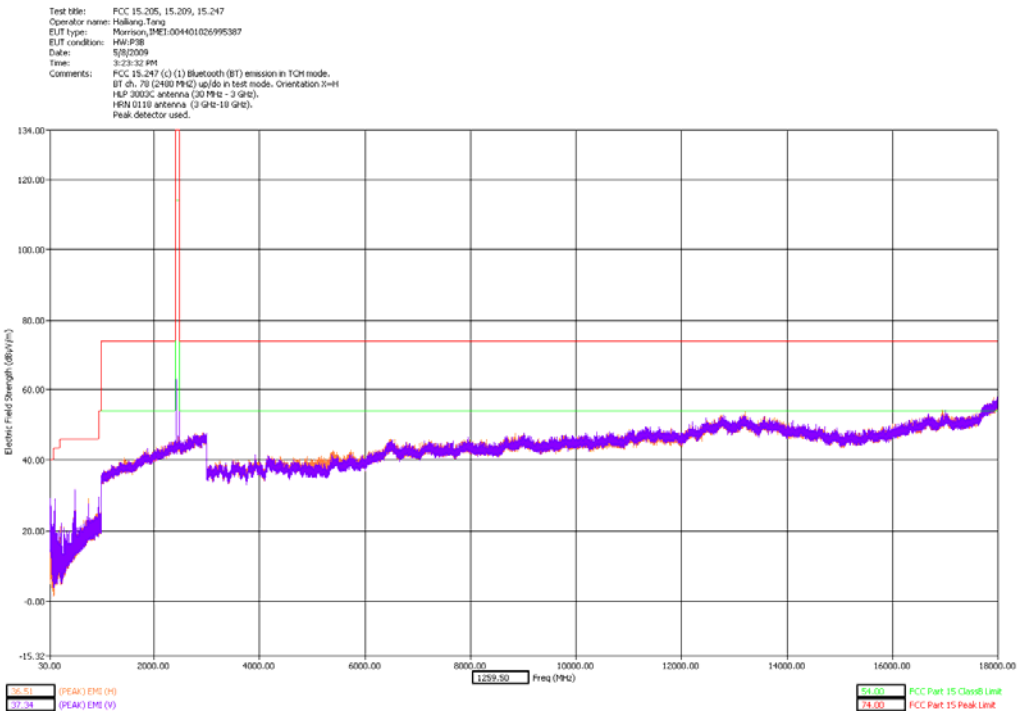
30 MHz – 18 GHz Middle Channel Dual Polarization Y – slider closed



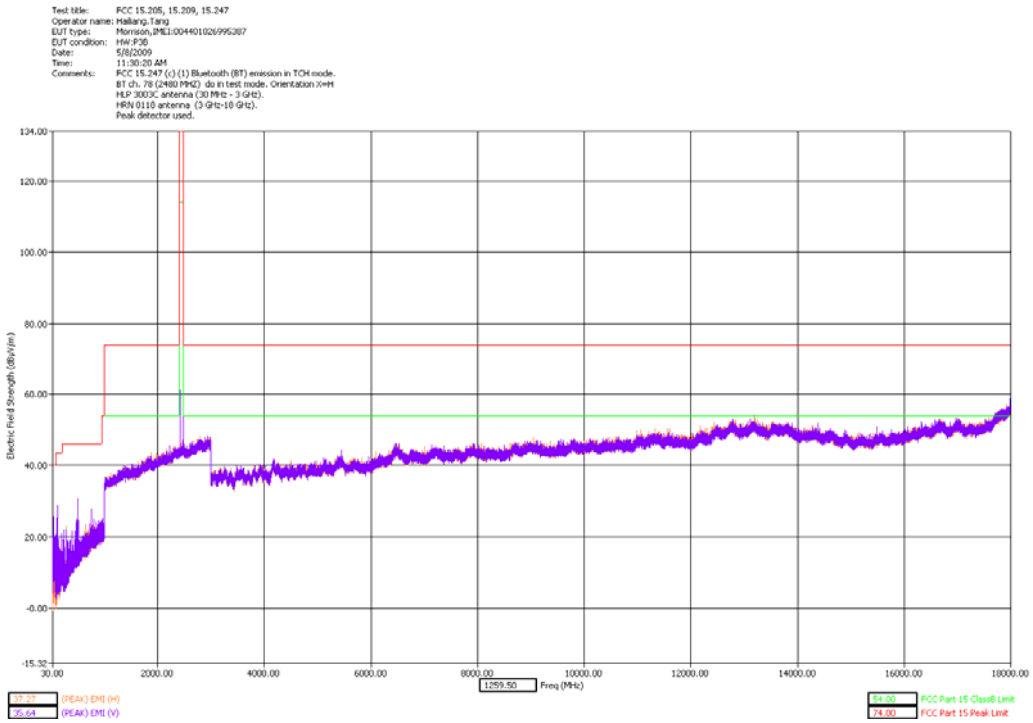
30 MHz – 18 GHz Middle Channel Dual Polarization Z – slider open



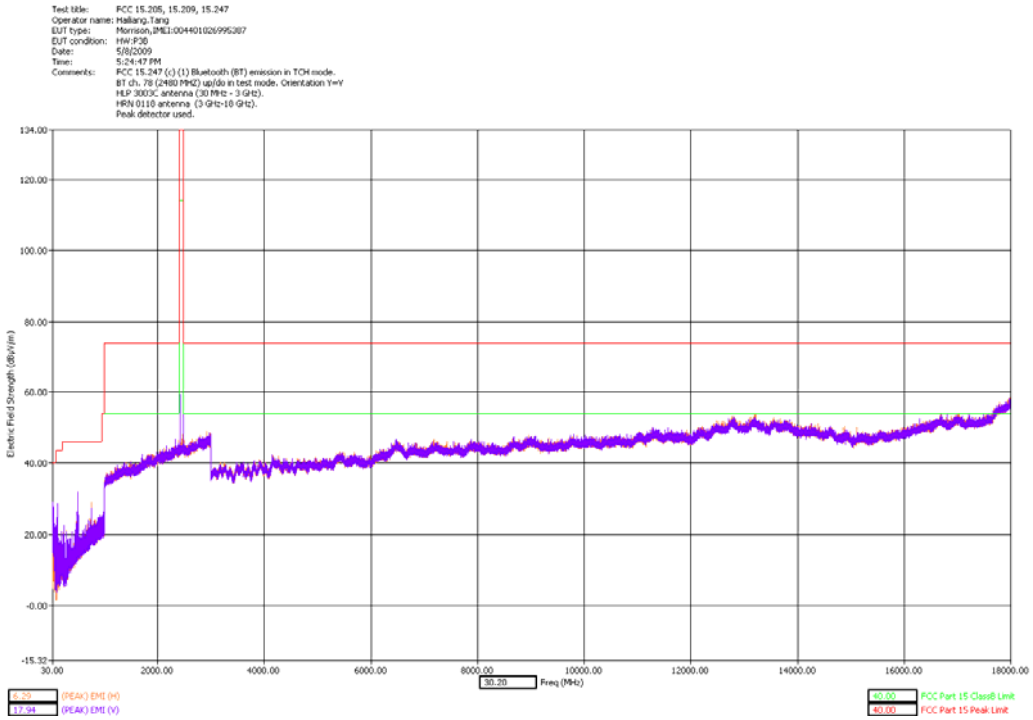
30 MHz – 18 GHz Middle Channel Dual Polarization Z – slider closed



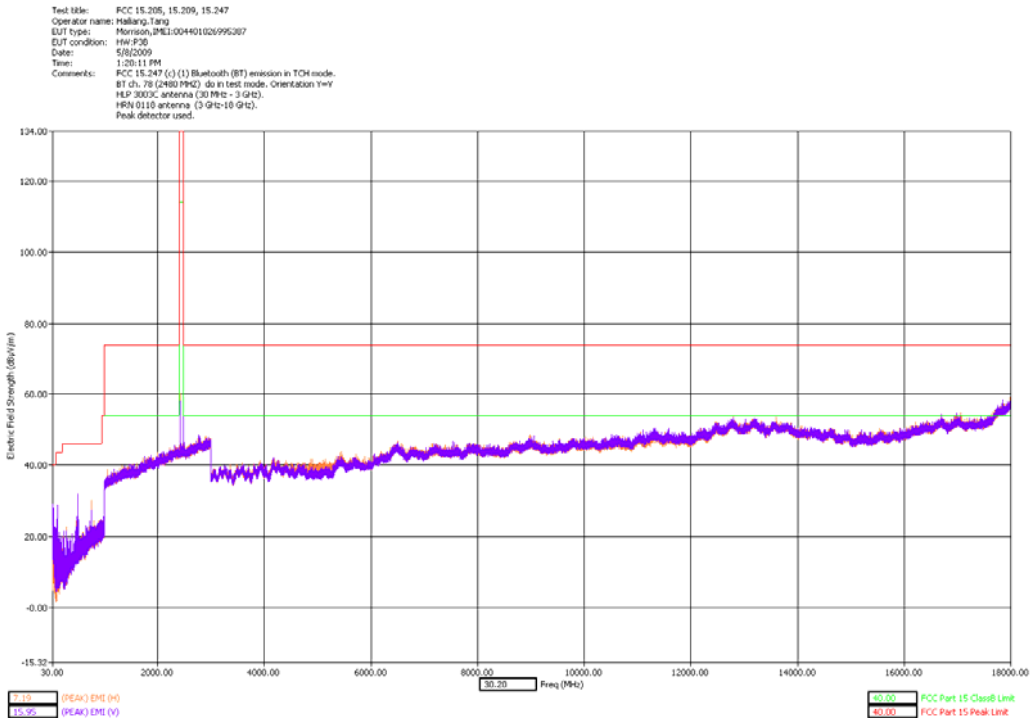
30 MHz – 18 GHz High Channel Dual Polarization X – slider open



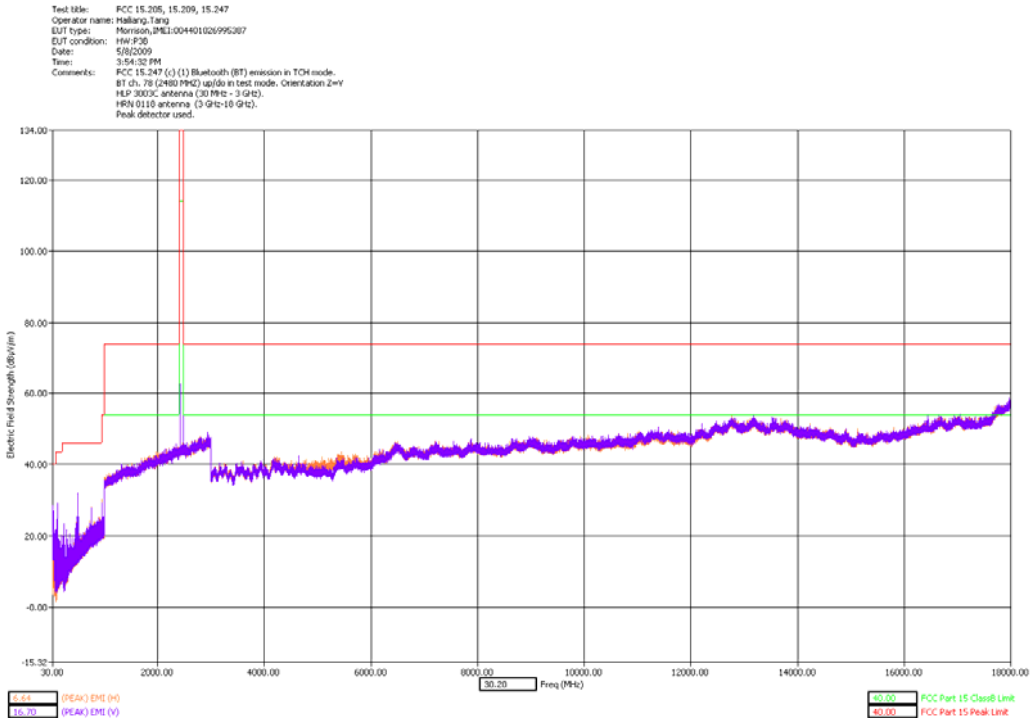
30 MHz – 18 GHz High Channel Dual Polarization X – slider closed



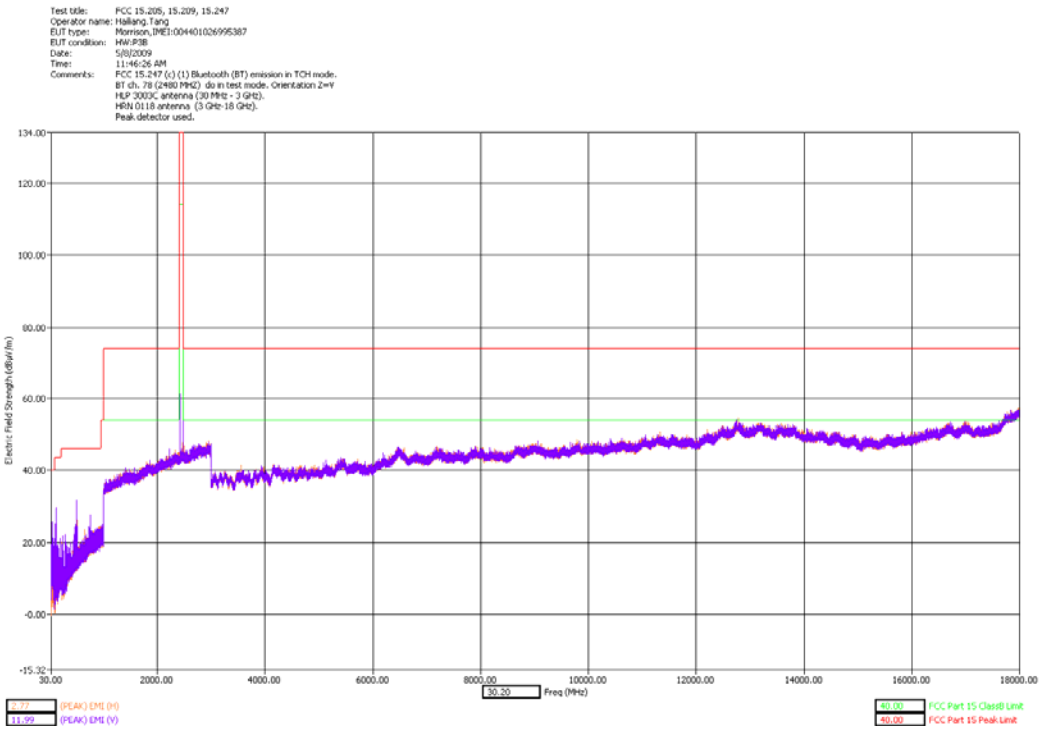
30 MHz – 18 GHz High Channel Dual Polarization Y – slider open



30 MHz – 18 GHz High Channel Dual Polarization Y – slider closed

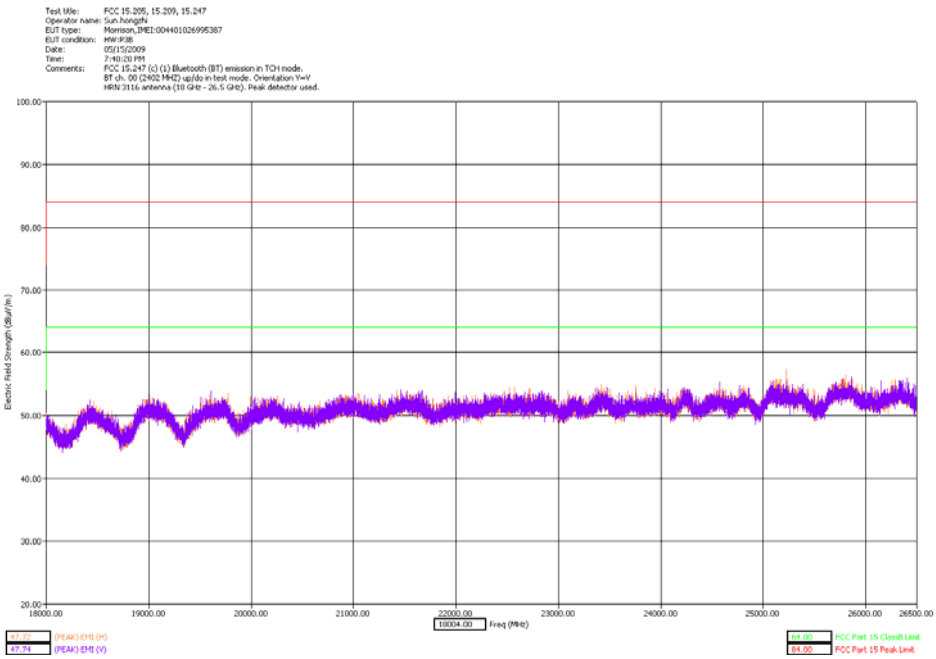


30 MHz – 18 GHz High Channel Dual Polarization Z – slider open

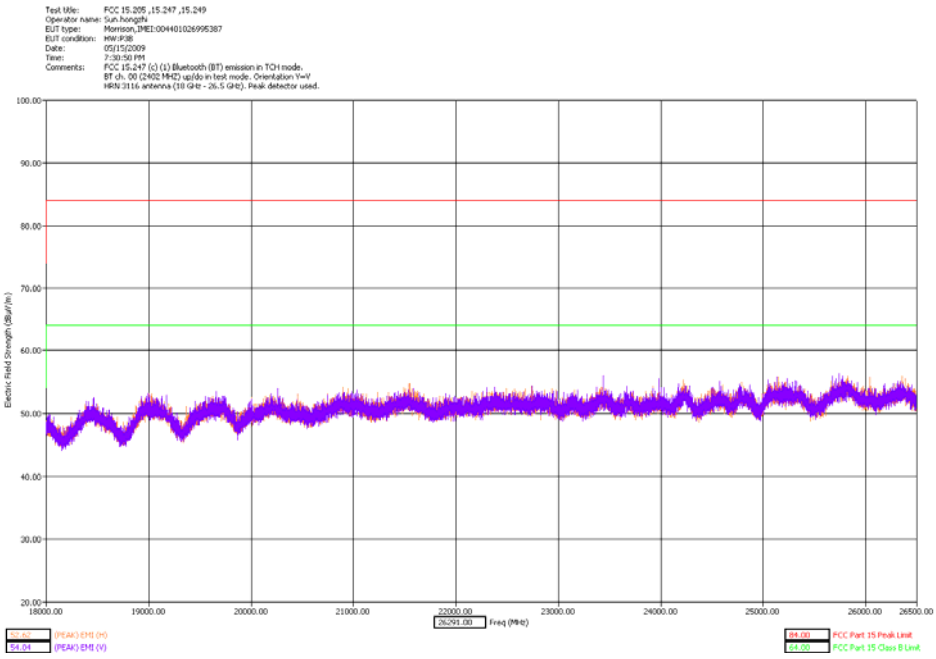


30 MHz – 18 GHz High Channel Dual Polarization Z – slider closed

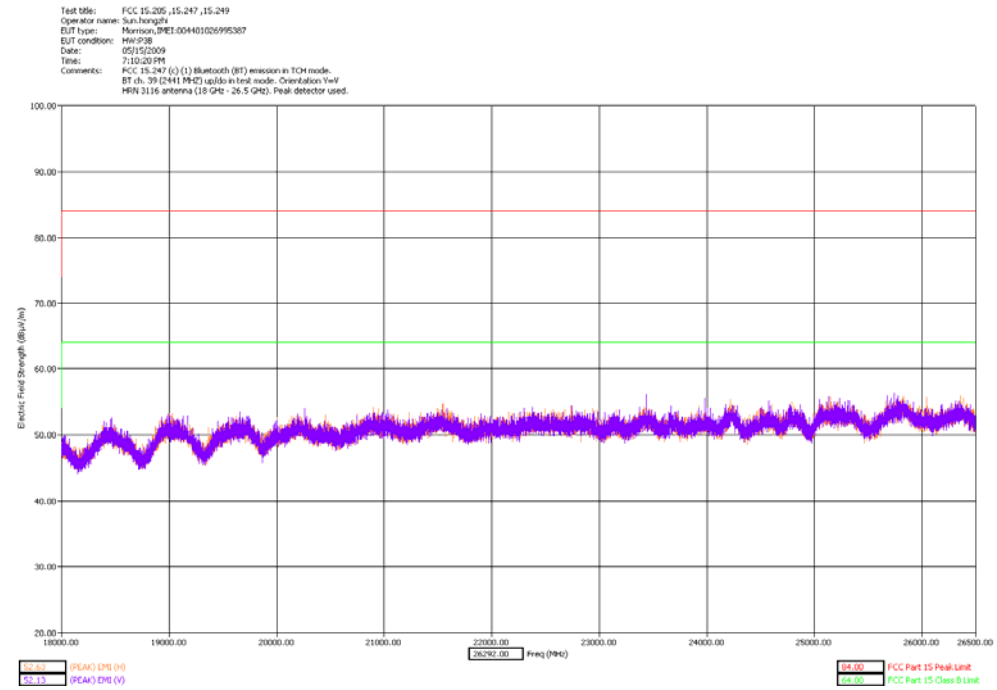
There were no discernible emissions above the noise floor for 18 - 26.5 GHz for Low, Mid and High Channels and all polarizations in Bluetooth operation band. The distance between EUT and receiving antenna is 1m.
Only polarization Y results are showed here:



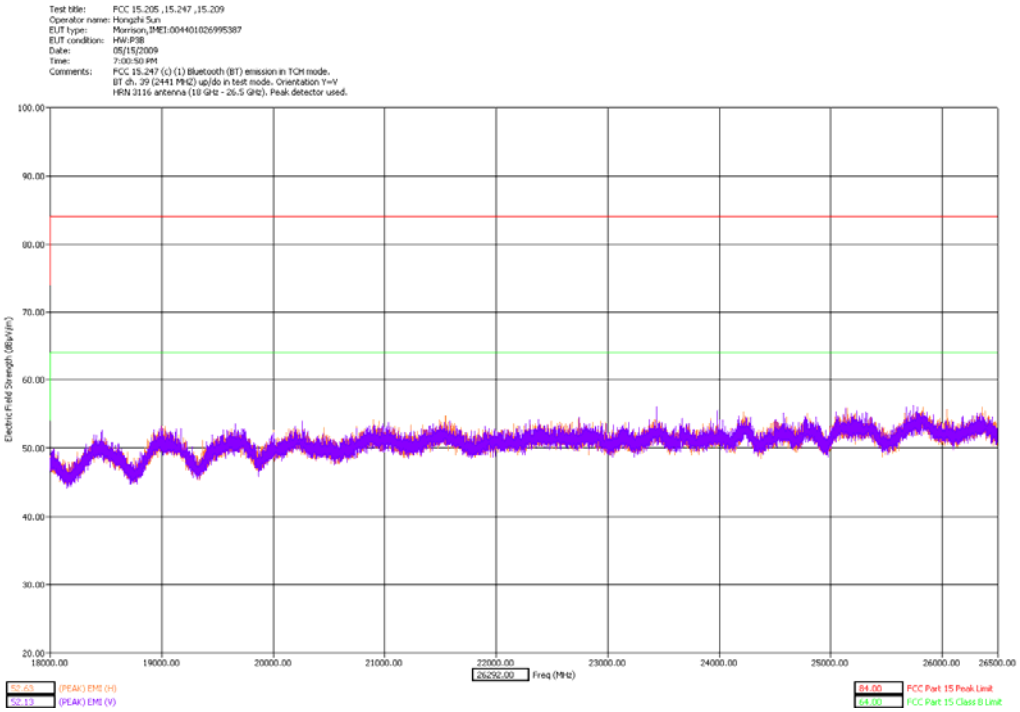
18-26.5 GHz Low Channel Dual Polarization Y – slider open



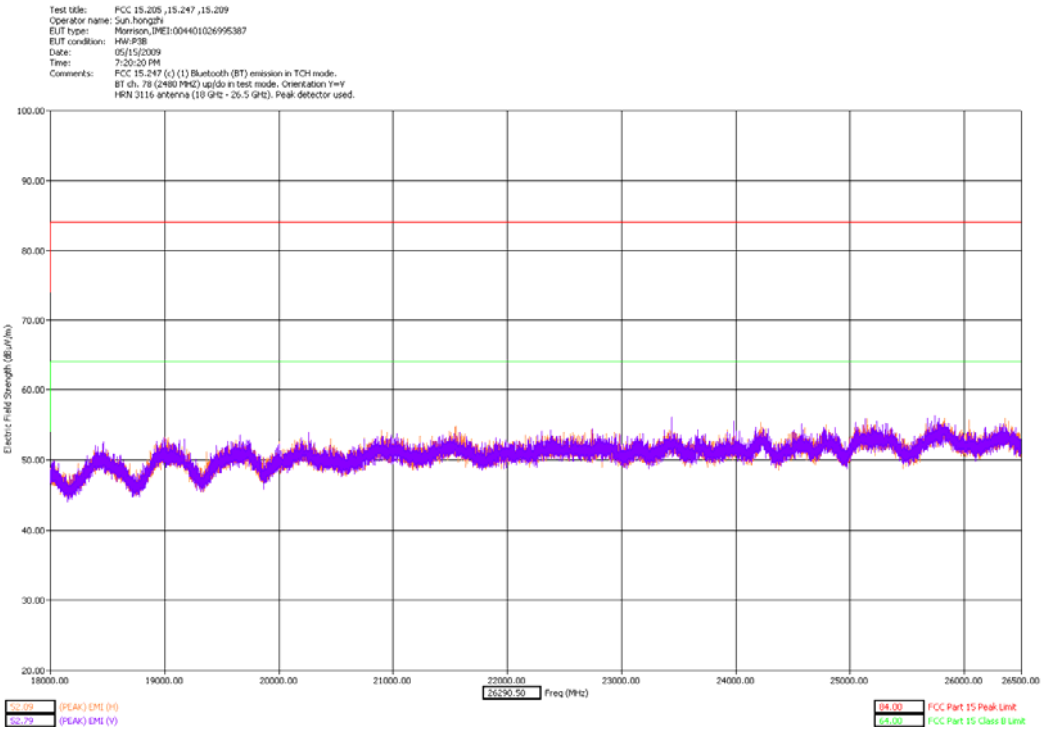
18-26.5 GHz Low Channel Dual Polarization Y- slider closed



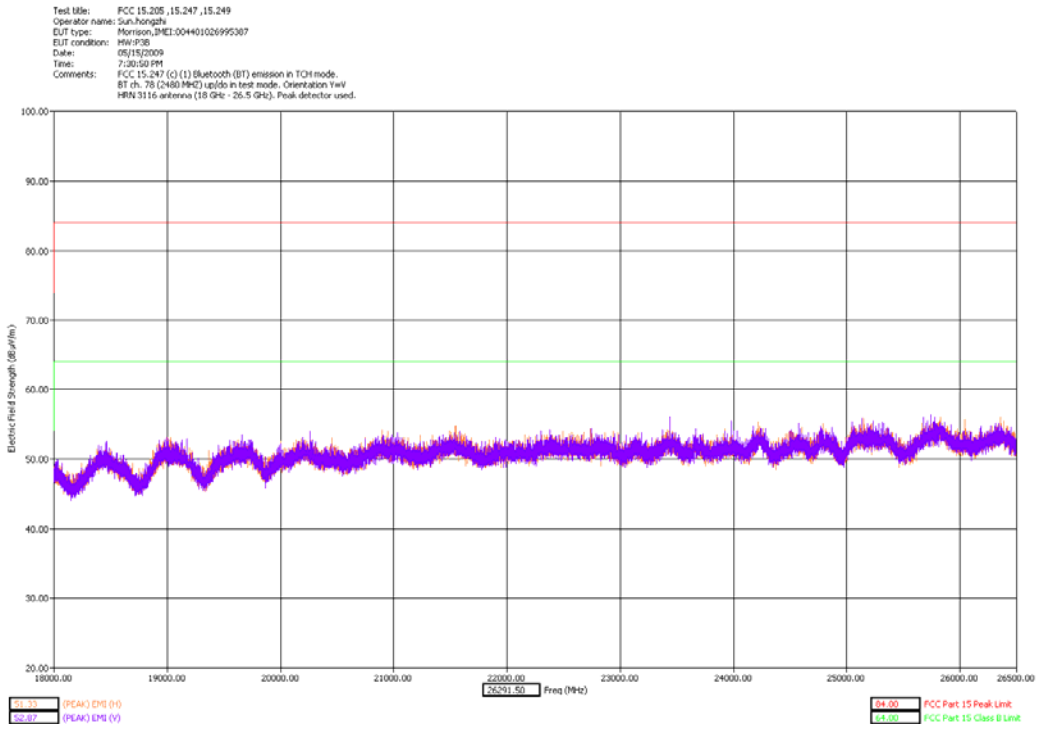
18-26.5 GHz Middle Channel Dual Polarization Y- slider open



18-26.5 GHz Middle Channel Dual Polarization Y – slider closed



18-26.5 GHz High Channel Dual Polarization Y- slider open



18-26.5 GHz High Channel Dual Polarization Y – slider closed

BAND-EDGE COMPLIANCE OF RF RADIATED EMISSIONS

CFR Part 15.247

Measurement Procedure

The test sample is placed inside the semi-anechoic chamber on a polystyrene table at the turntable center. Test is repeated for both horizontal and vertical polarizations of the receive antenna.

For 30 MHz – 18 GHz:
Field Strength (dBµV/m) = EMI Receiver Level (dBµV) + Cable Loss (dB) - Amplifier Gain (dB) + Filter loss (dB) + Antenna Correction Factor (3/m)

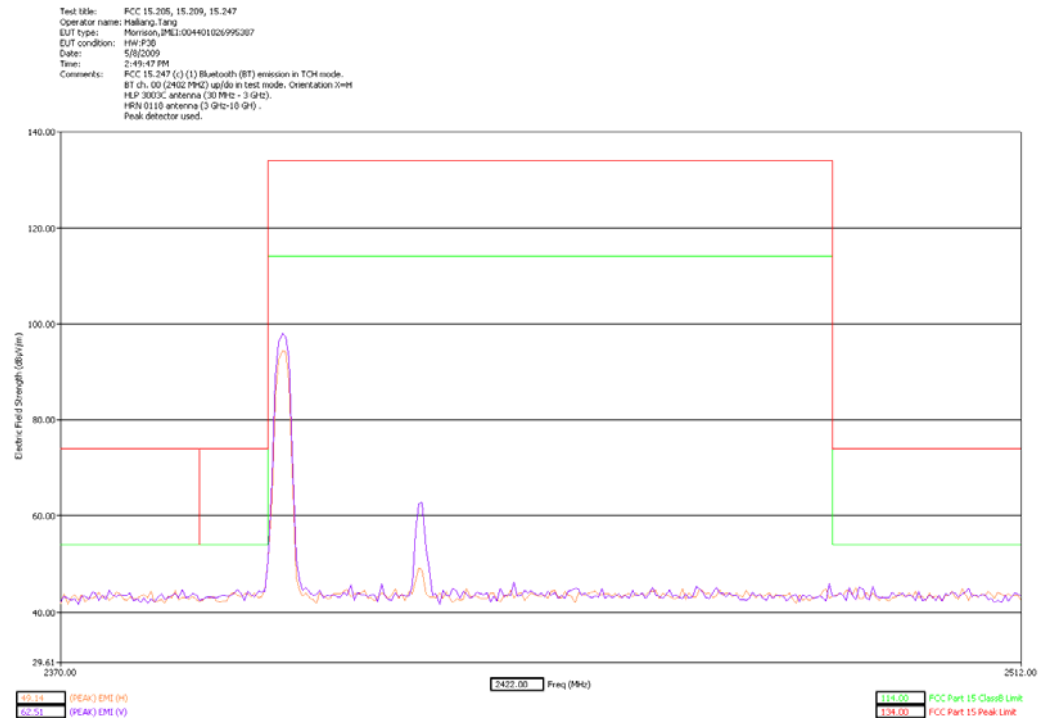
For 18 GHz – 26.5 GHz:
Field Strength (dBµV/m) = EMI Receiver Level (dBµV) + Cable Loss (dB) - Amplifier Gain (dB) + Filter loss (dB) + Antenna Correction Factor (1/m)

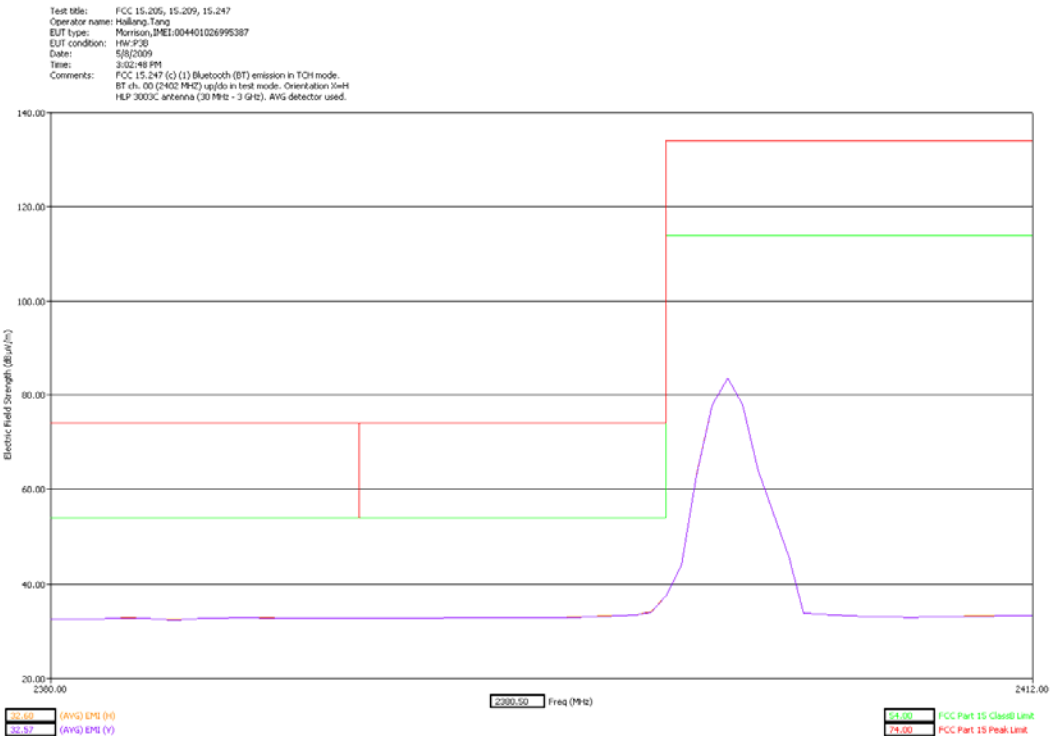
The test sample was operated in Bluetooth single channel test mode. A fully charged battery was used for the supply voltage.

Measurement Results

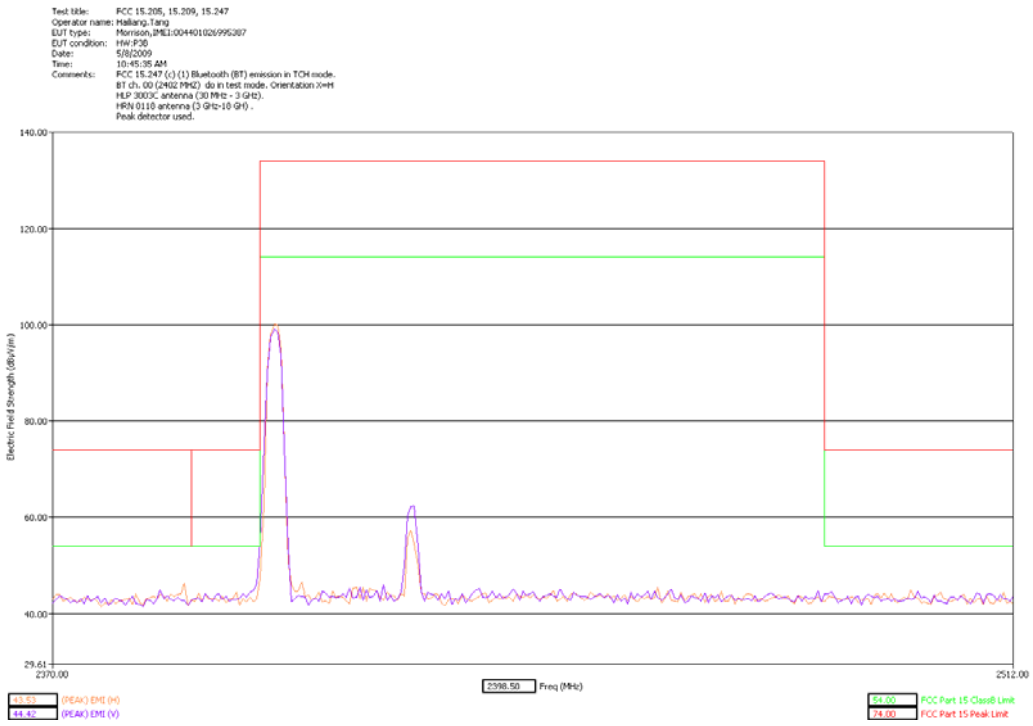
Comments:
The band edge measurements crossing the corner for the low/high channel with respect to the average limit line is acceptable when applying the FCC rule specified in CFR 47 part 15.35(b) for the use of peak detector above 1 GHz. The peak detector limit line has been added to the graphical plots.

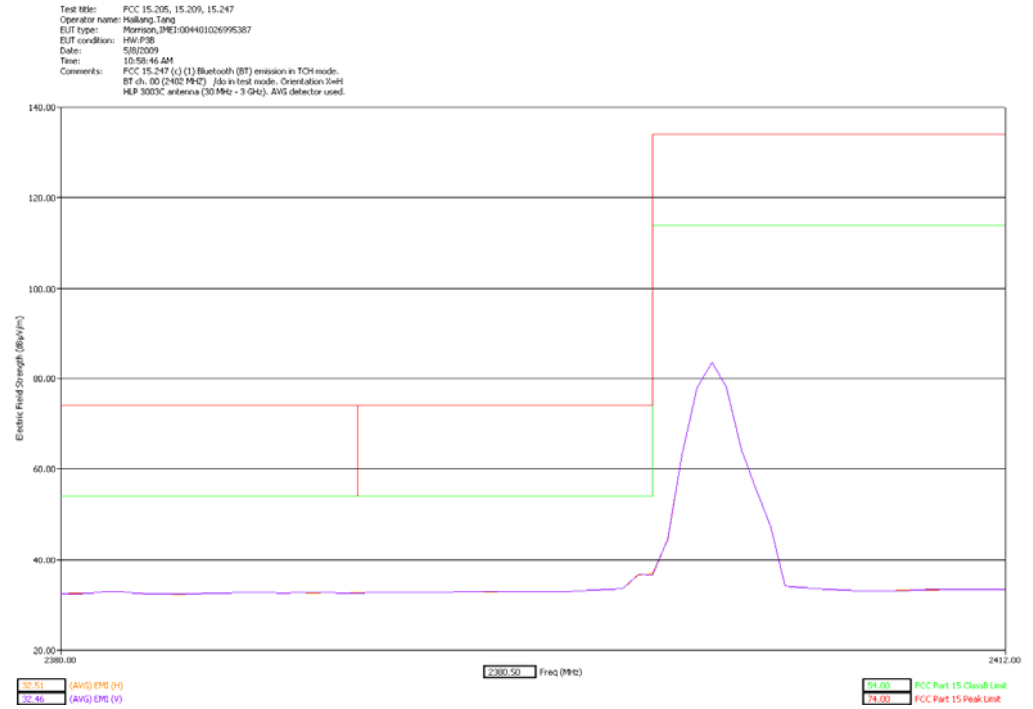
See below attached plots for the measurement results with both peak detector and average detector:



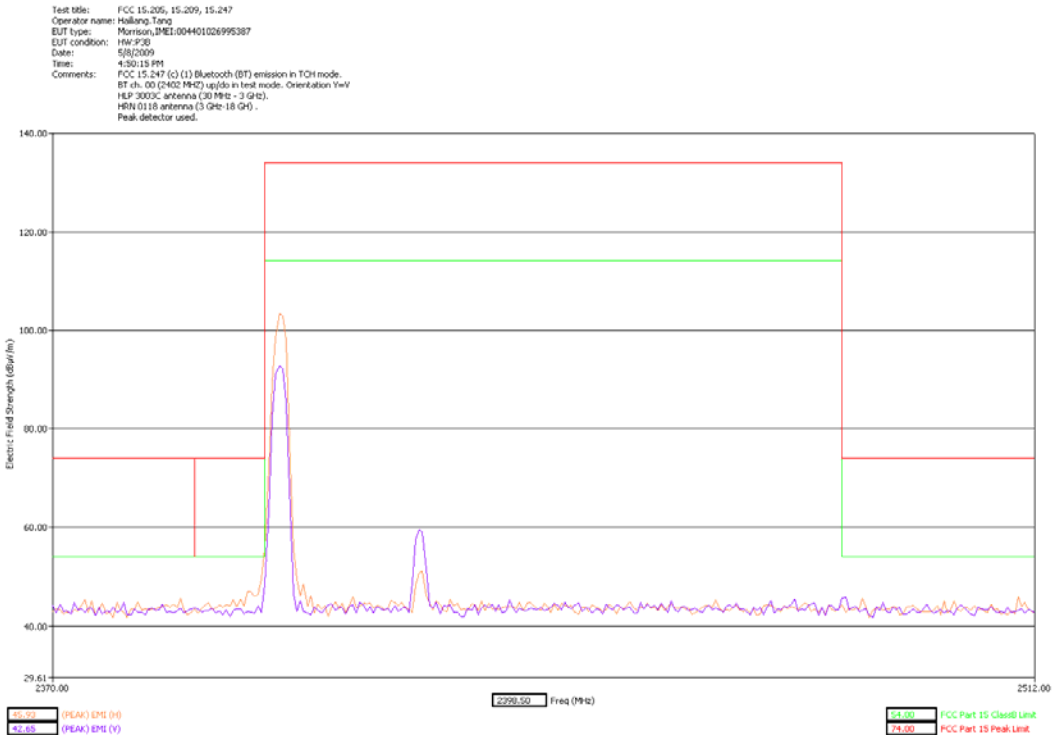


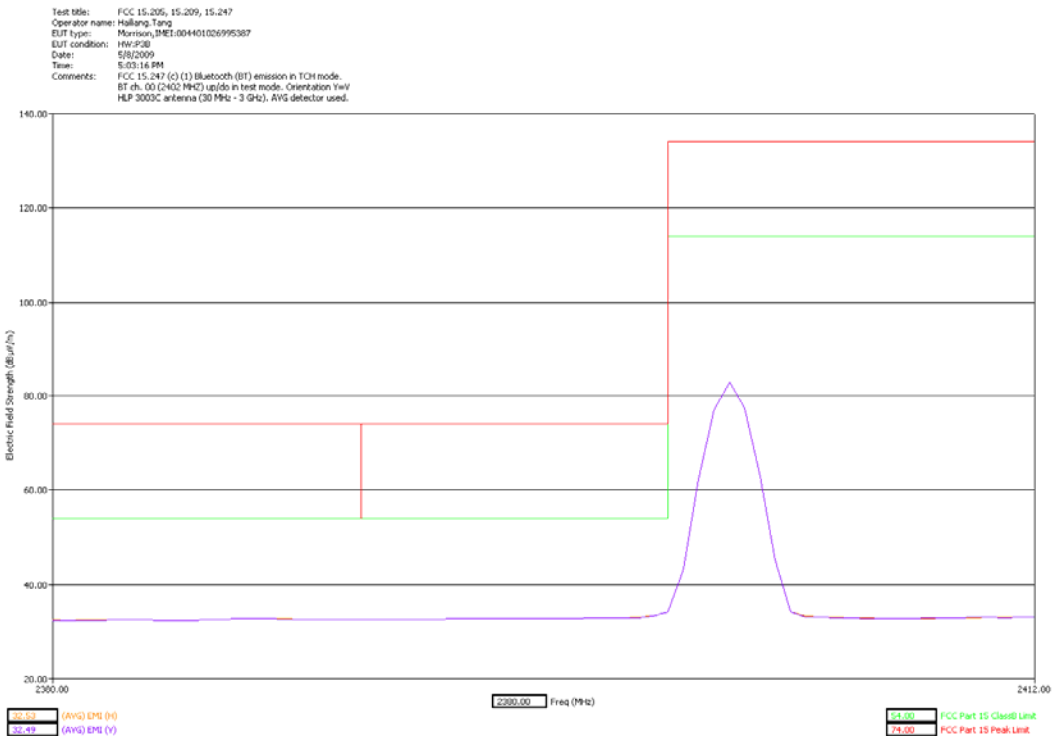
Authorized Band Emissions Low Channel Dual Polarization X – slider open



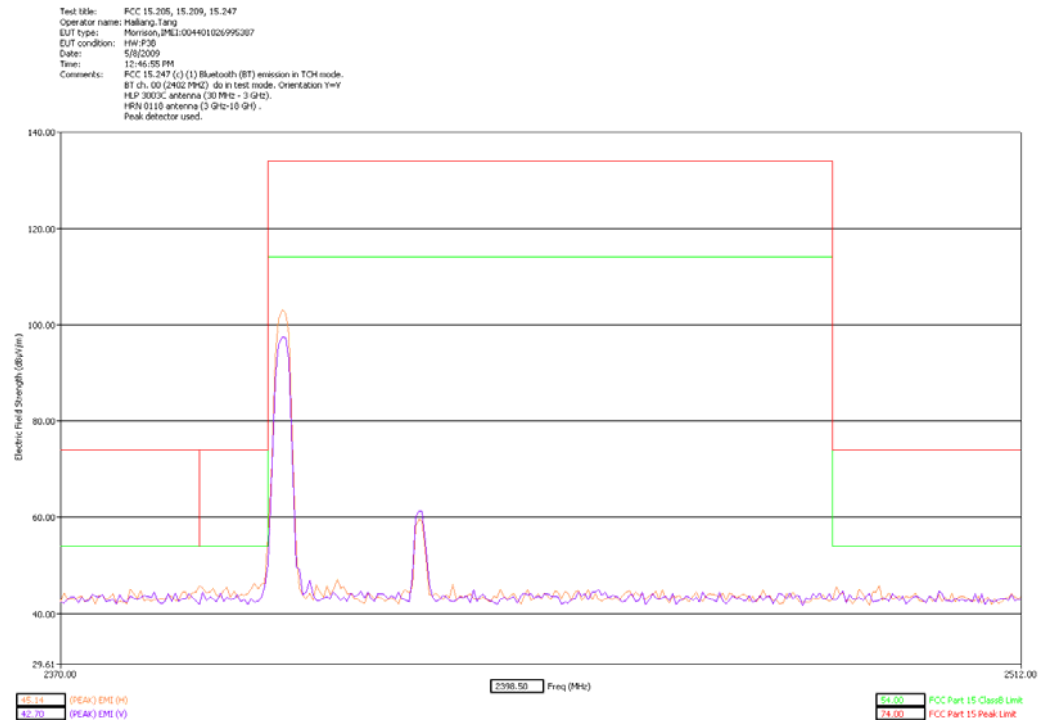


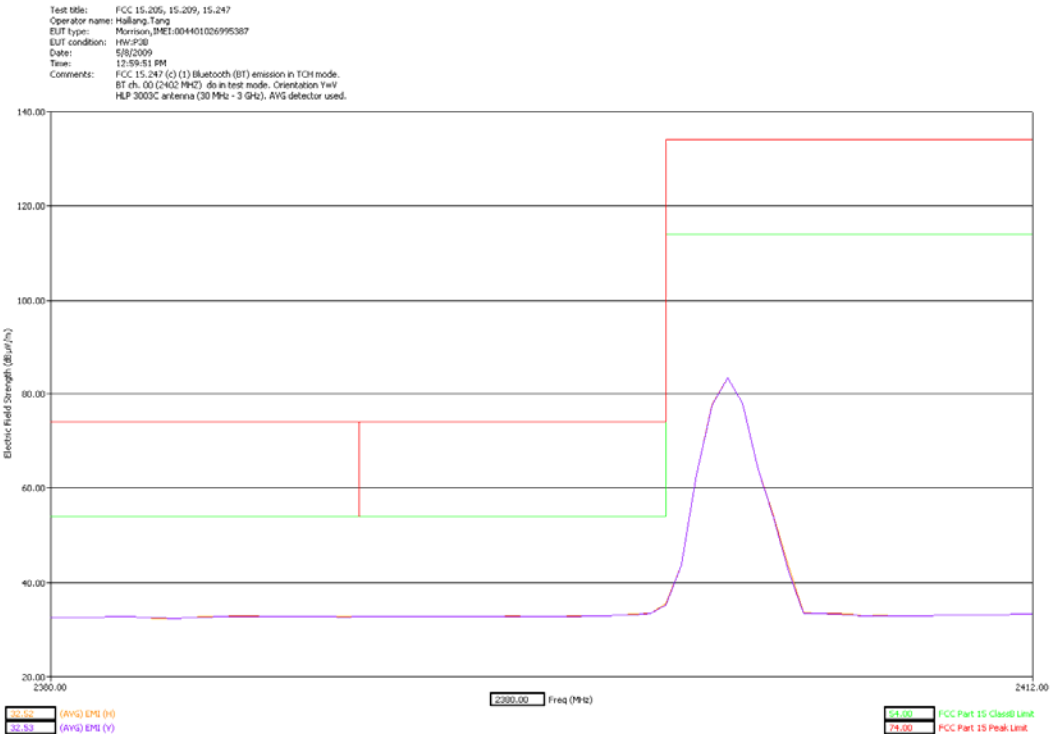
Authorized Band Emissions Low Channel Dual Polarization X – slider closed



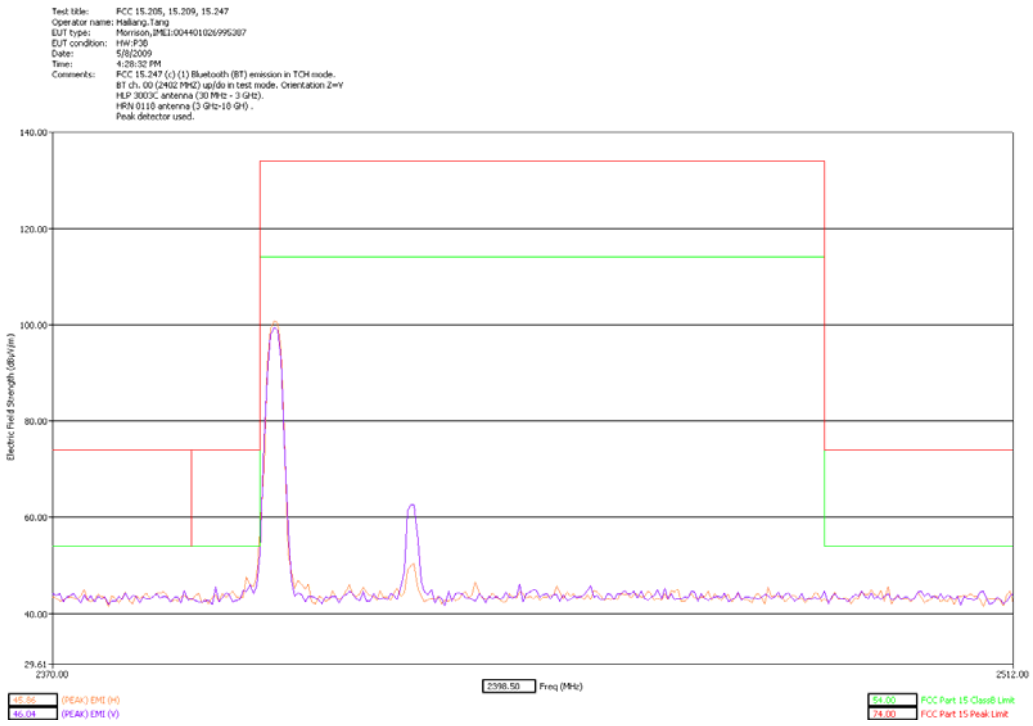


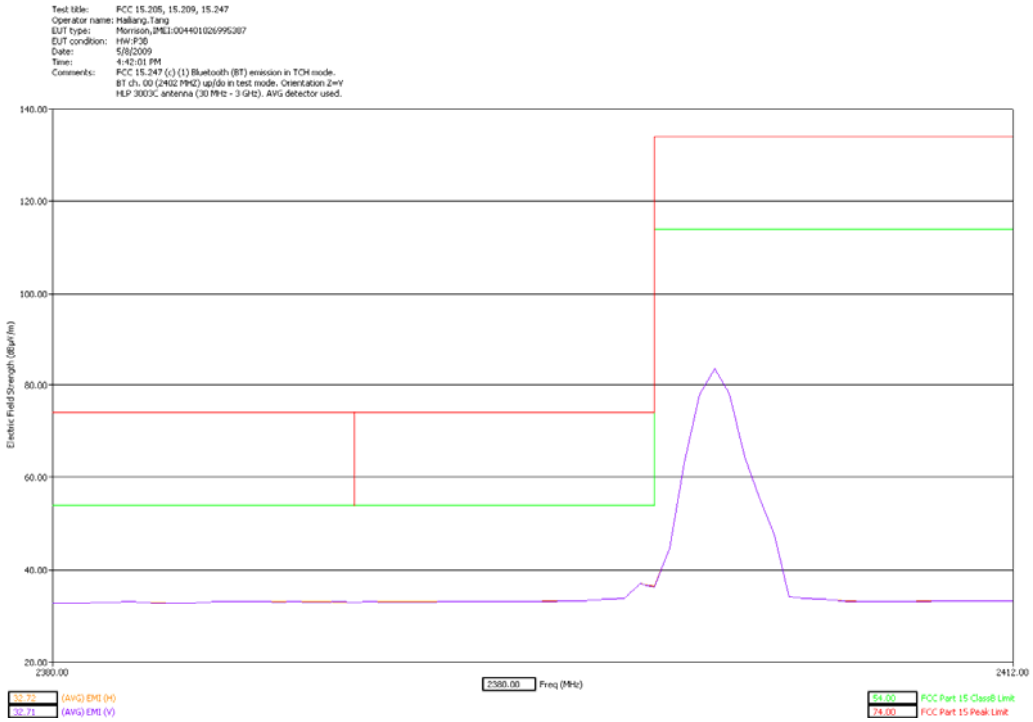
Authorized Band Emissions Low Channel Dual Polarization Y – slider open



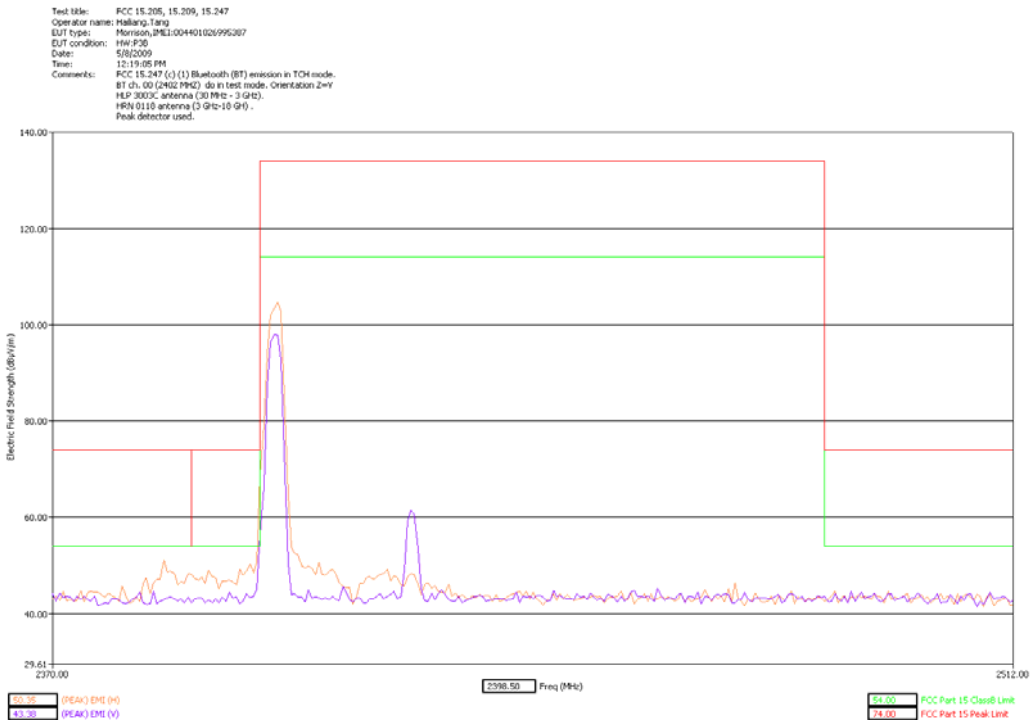


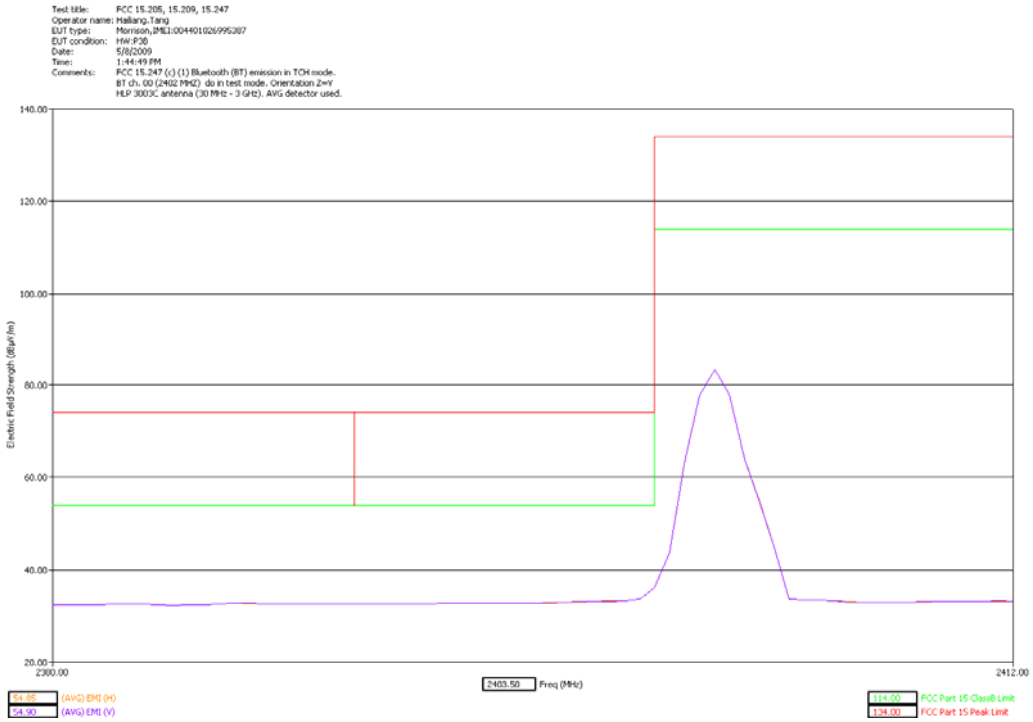
Authorized Band Emissions Low Channel Dual Polarization Y – slider closed



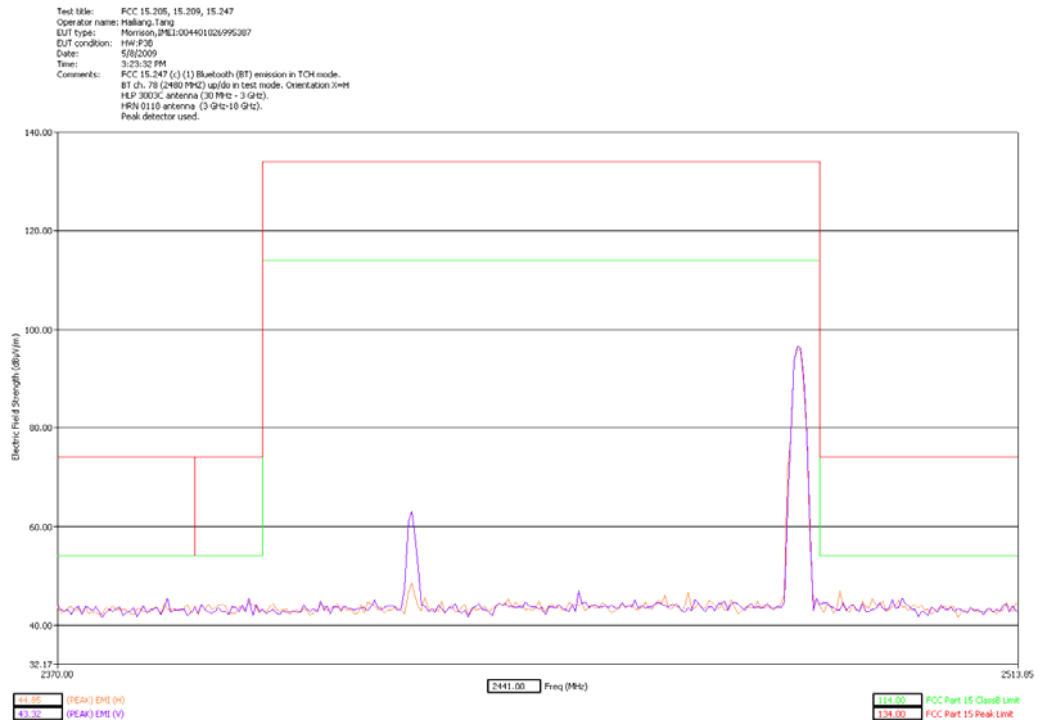


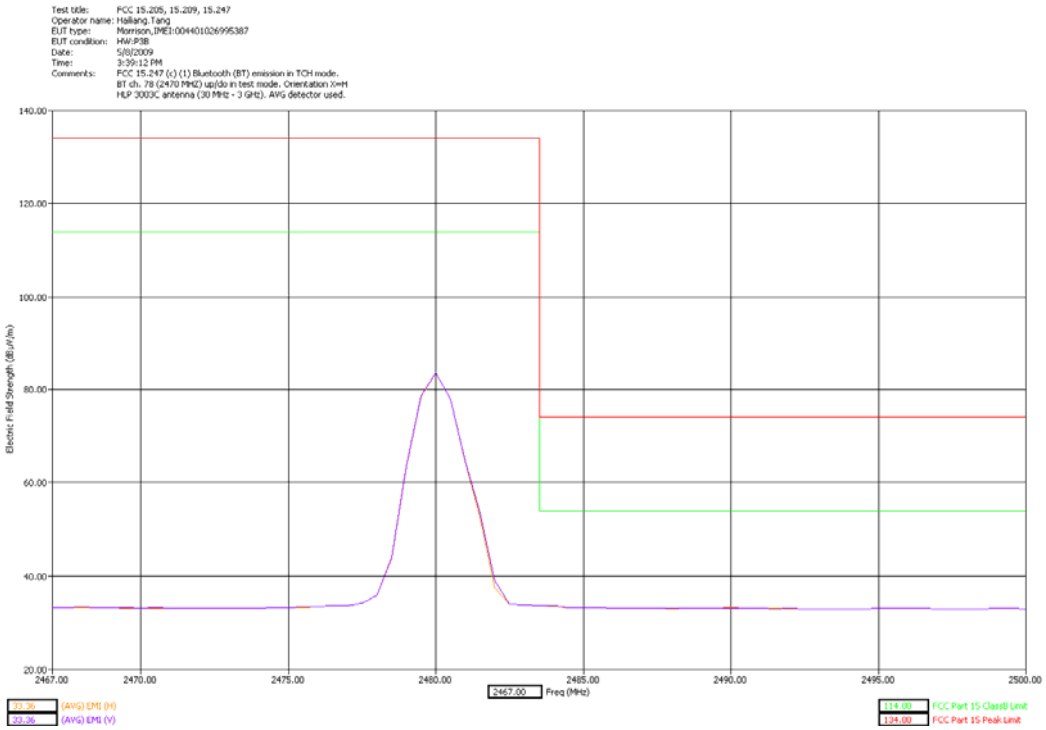
Authorized Band Emissions Low Channel Dual Polarization Z – slider open



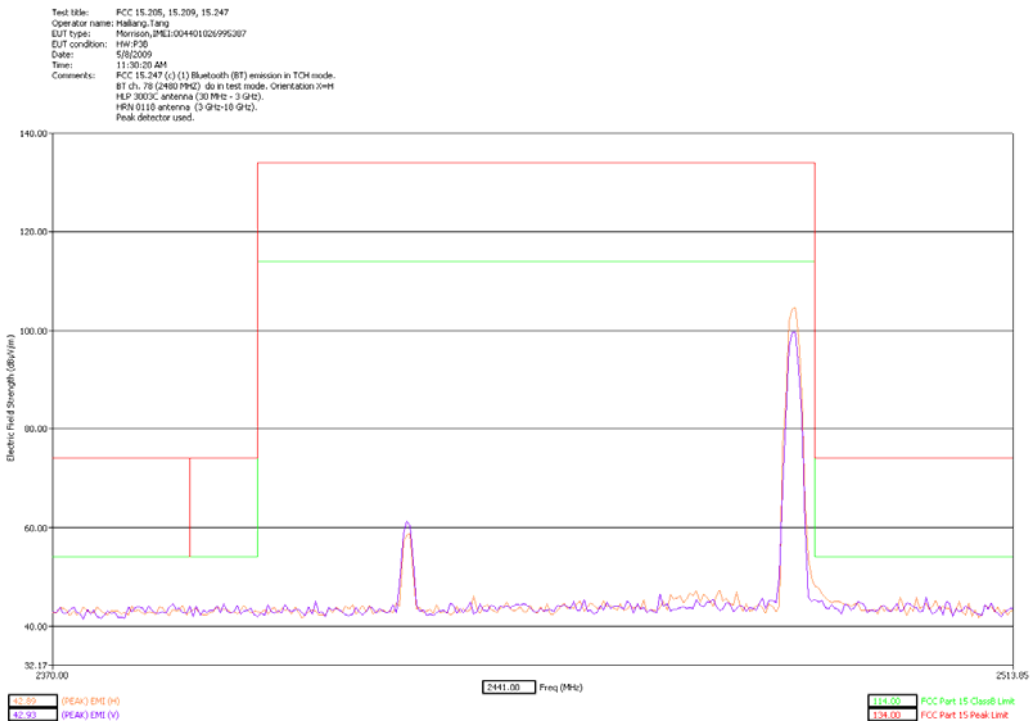


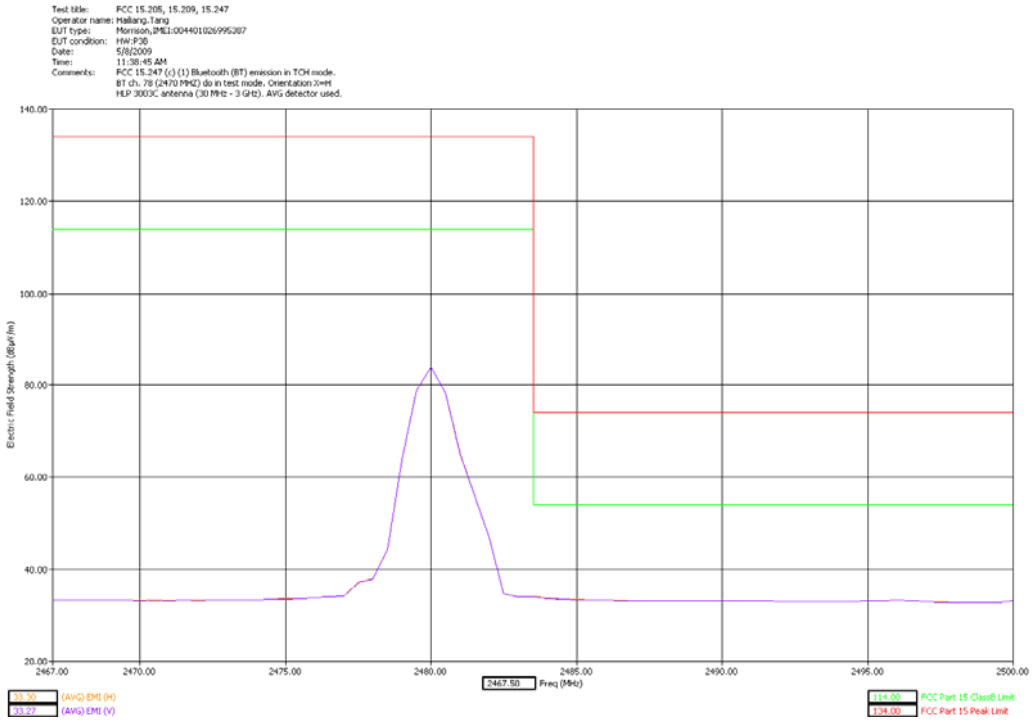
Authorized Band Emissions Low Channel Dual Polarization Z – slider closed



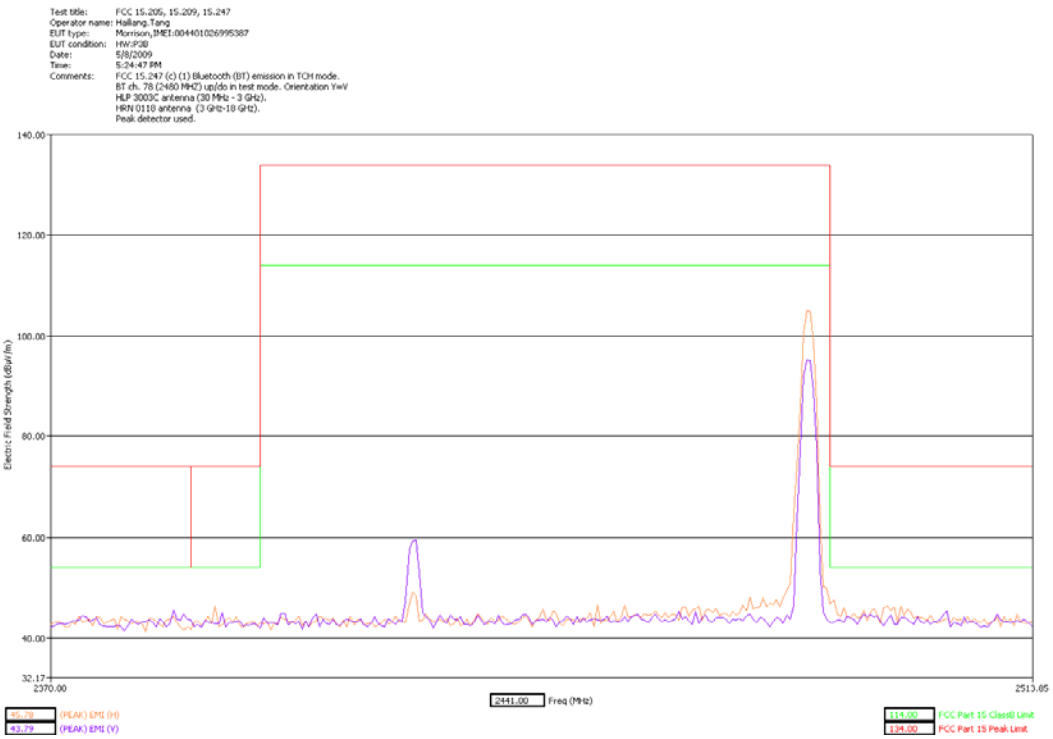


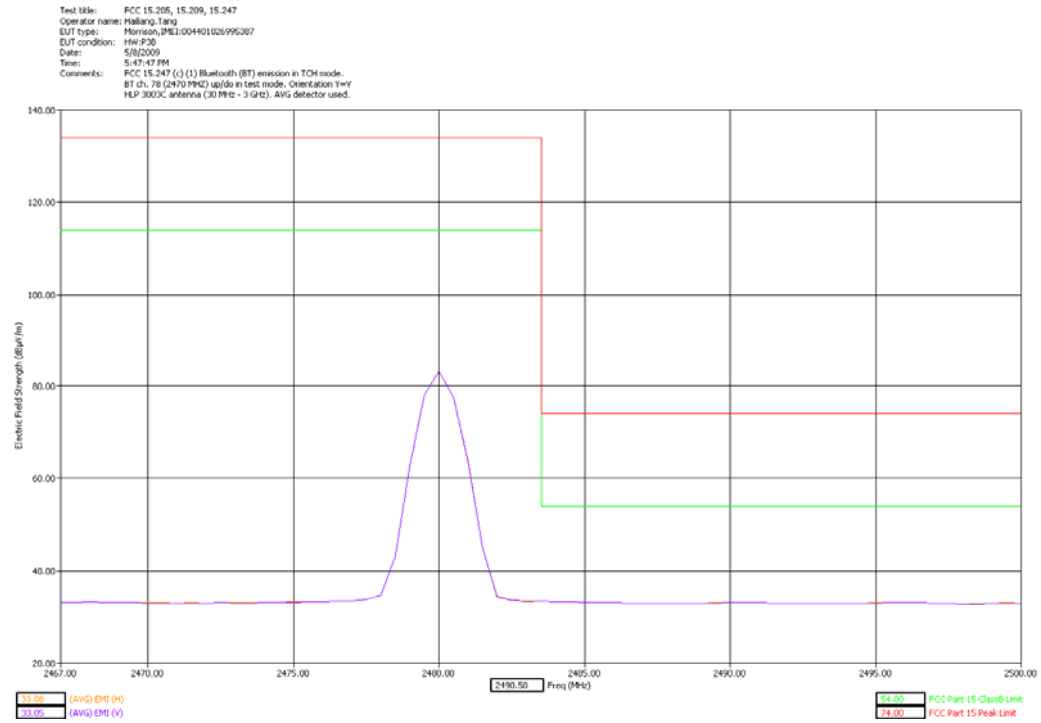
Authorized Band Emissions High Channel Dual Polarization X – slider open



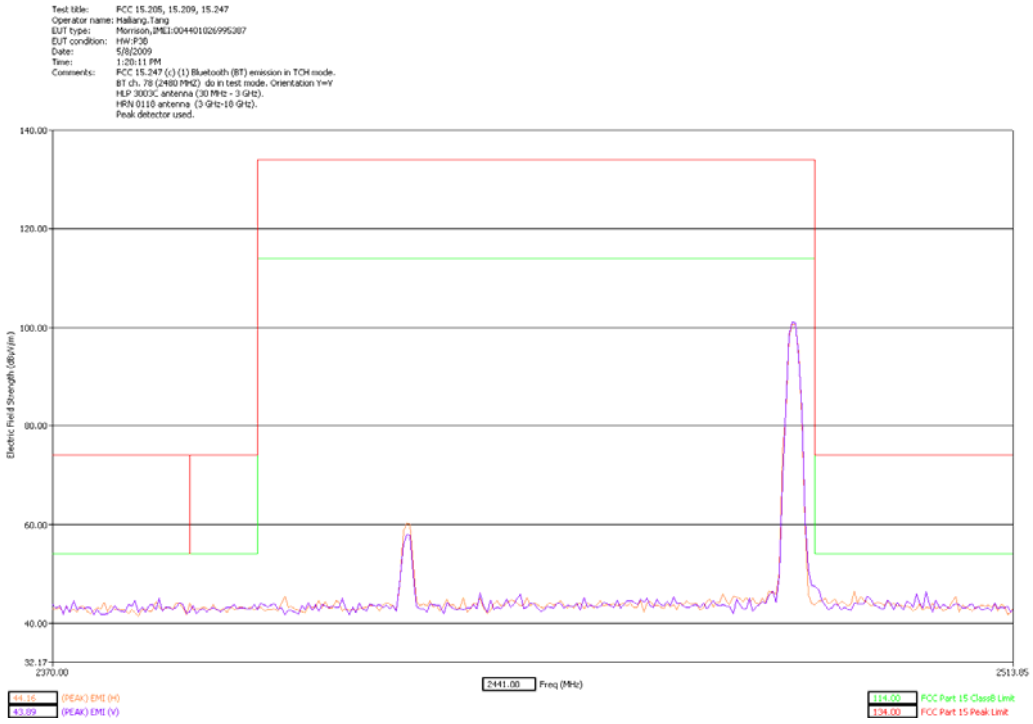


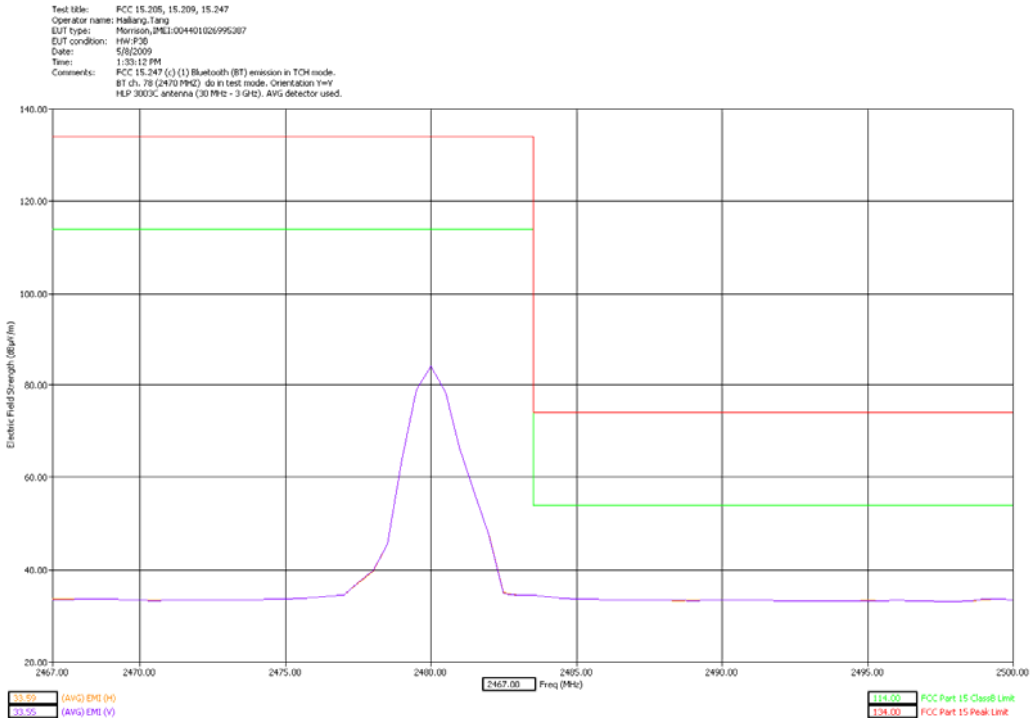
Authorized Band Emissions High Channel Dual Polarization X – slider closed



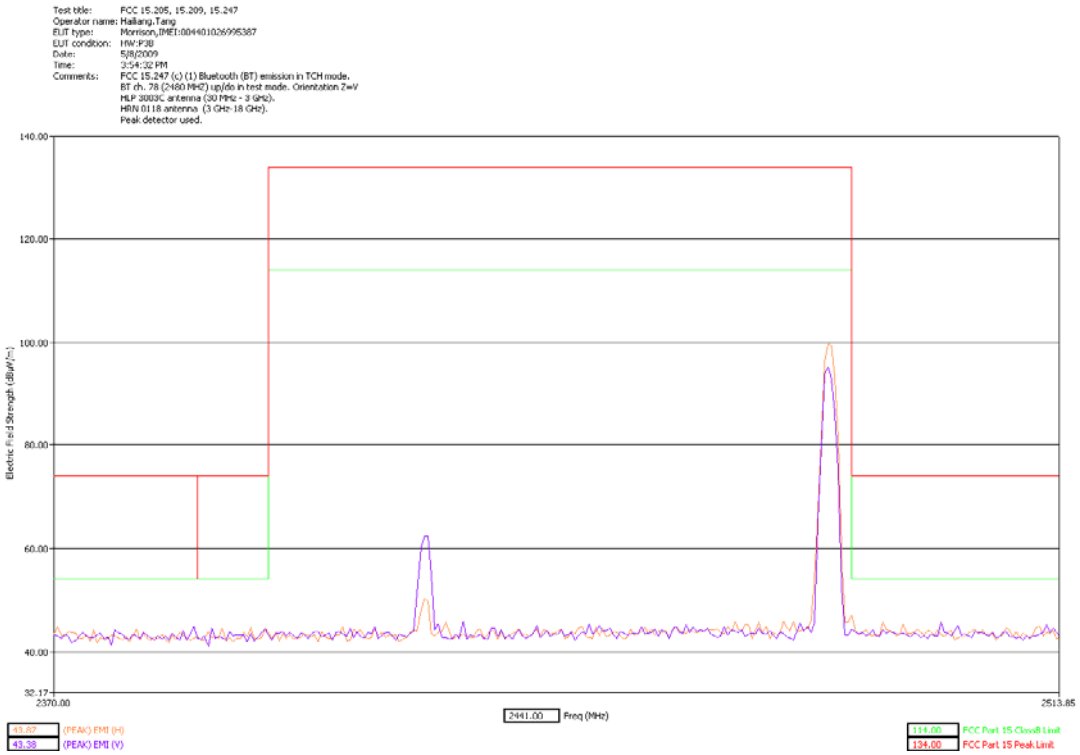


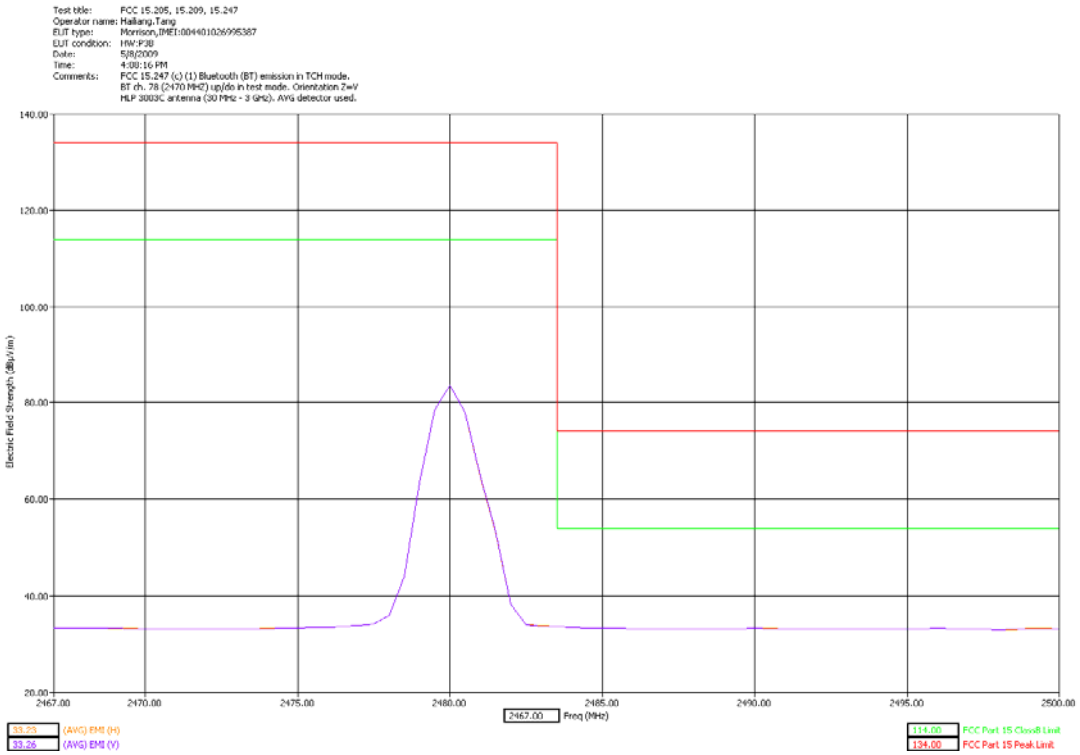
Authorized Band Emissions High Channel Dual Polarization Y – slider open



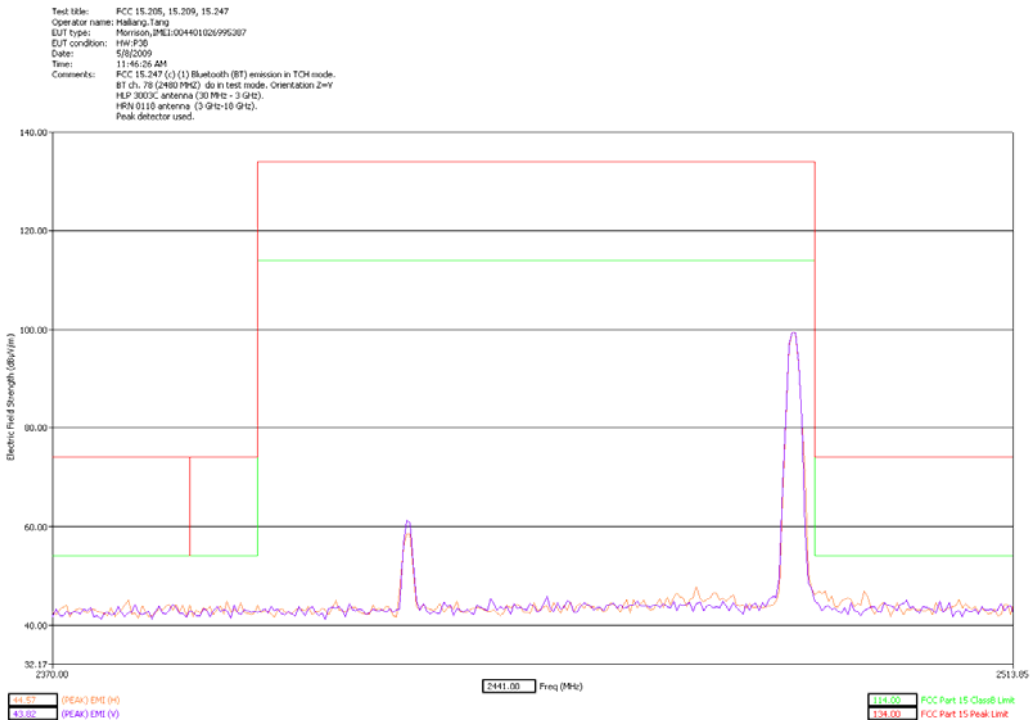


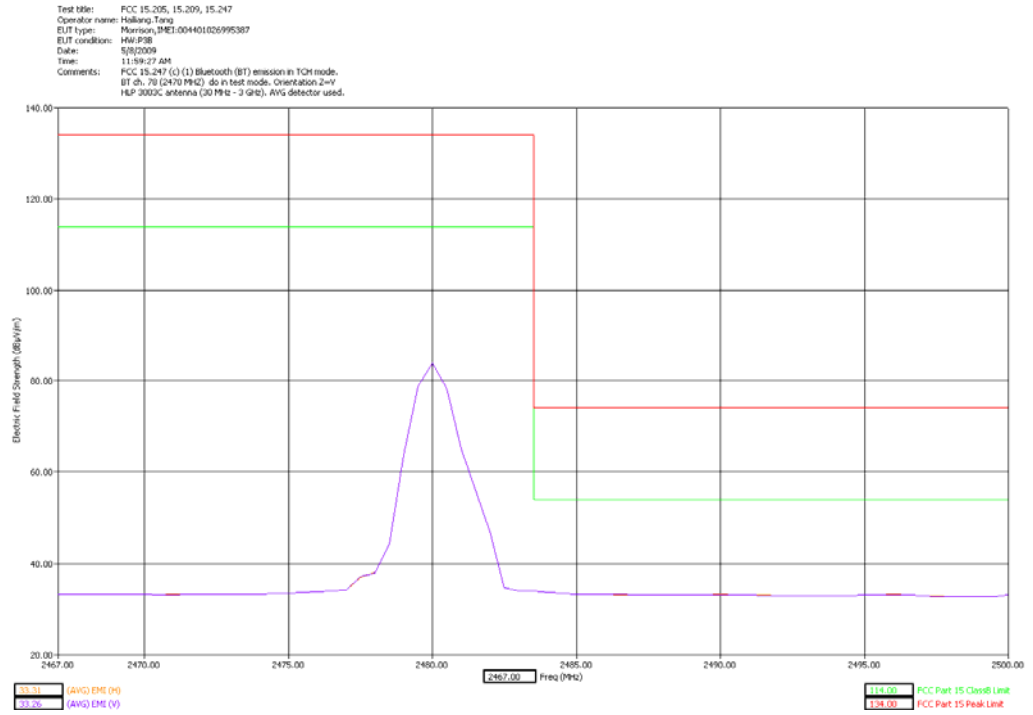
Authorized Band Emissions High Channel Dual Polarization Y – slider closed





Authorized Band Emissions High Channel Dual Polarization Z – slider open





Authorized Band Emissions High Channel Dual Polarization Z – slider closed

PICTURES

The pictures related to the above test results are placed in the associated report denoted as EXHIBIT 7A2.

End of Test Report