

47 CFR PART 15 SUBPART C

TEST REPORT

of

Bluetooth Printer

Model Name:

P25

Trade Name:

BLUE BAMBOO

Report No.:

SH07020001E01

FCC ID:

UWJP25

prepared for

BLUE BAMBOO (HK LIMITED

Unit 1001, Lucky Building, No. Street, Central, Hong Kong

prepared by Certification

Shenzhen Electronic Product Quality Testing Center

Mortab Laboratory

3/F, Electronic Testing Building Shahe Road, Xili, Nanshan District, Shenzhen, 518055 P. R. China

Tel: +86 755 86130398 Fax: +86 755 86130218











NOTE: This test report can be duplicated completely for the legal use with the approval of the applicant; it shall not be reproduced except in full, without the written approval of Shenzhen Electronic Product Quality Testing Center Morlab Laboratory. Any objections should be raised to us within thirty workdays since the date of issue.



TABLE OF CONTENTS

1.	TEST CERTIFICATION4
2.	GENERAL INFORMATION5
2.1	EUT Description
2.2	Test Standards and Results6
2.3	Facilities and Accreditations
2.3.1	Facilities
2.3.2	Test Environment Conditions
3.	47 CFR PART 15C REQUIREMENTS8
3.1	Number of Hopping Frequency8
3.1.1	Requirement8
3.1.2	Test Description8
3.1.3	Test Result8
3.2	Peak Output Power10
3.2.1	Requirement 10
3.2.2	Test Description
3.2.3	Test Result10
3.3	20dB Bandwidth
3.3.1	Definition
3.3.2	Test Description
3.3.3	Test Result 13
3.4	Peak Power Spectral Density14
3.4.1	Definition14
3.4.2	Test Configuration 14
3.4.3	Test procedure14
3.4.4	Test results 14
3.5	Carried Frequency Separation
3.5.1	Definition17
3.5.2	Test Description
3.5.3	Test Result 17
3.6	Time of Occupancy (Dwell time)18





3.6.1 Requirement	18			
3.6.2 Test Description				
3.6.3 Test Result				
3.7 Conducted Spurious Emissions	24			
3.7.1 Requirement				
3.7.2 Test Description	24			
3.7.3 Test Result	24			
3.8 Band Edge	28			
3.8.1 Requirement	28			
3.8.2 Test Description	28			
3.8.3 Test Result	28			
3.9 Conducted Emission	33			
3.9.1 Requirement	33			
3.9.2 Test Description	33			
3.9.3 Test Result	34			
3.10 Radiated Emission	36			
3.10.1 Requirement	36			
3.10.2 Test Description	36			
3.10.3 Test Result	38			
APPENDIX I: PHOTOGRAPH OF THE TEST SETUP53				
APPENDIX II: PHOTOGRAPH OF THE EUT55				



1. TEST CERTIFICATION

Equipment under Test: Bluetooth Printer

Trade Name: BLUE BAMBOO

Model Name: P25

FCC ID: UWJP25

Applicant: BLUE BAMBOO (HK) LIMITED

Unit 1001, Lucky Building, NO. 39 Wellington Street, Central,

Hong Kong

Manufacturer: BLUE BAMBOO (HK) LIMITED

Unit 1001, Lucky Building, NO. 39 Wellington Street, Central,

Hong Kong

Test Standards: 47 CFR Part 15 Subpart C

Test Date(s): February 27, 2007 – March 2, 2007

Test Result: PASS

* We Hereby Certify That:

The equipment under test was tested by Shenzhen Electronic Product Quality Testing Center Morlab Laboratory. The test data, data evaluation, test procedures and equipment configurations shown in this report were made in accordance with the requirement of related FCC rules.

The test results of this report only apply for the tested sample equipment identified above. The test report shall be invalid without all the signatures of the test engineer, the reviewer and the approver.

Tested by:

Zhang Weimin

Reviewed by:

Yang Bo

Dated:

2007.03.05

Approved by:

Shu Luan



2. GENERAL INFORMATION

2.1 EUT Description

EUT Type...... Bluetooth Printer

Modulation Type..... GFSK,DQPSK,DPSK

Rated Power...: <= 4dBm

Bluetooth Antenna Peak Gain = 1dBi
Power Supply Lithium-ion Battery

Trade Name: BLUE BAMBOO

Model Name: P25-BM1

Manufacturer: Edan Technology Corporation

Serial No.: (n.a.)
Capacitance: 950mAh
Rated Voltage: 7.4VDC

Trade Name: BLUE BAMBOO

Model Name: XKD-C1000NHS9.0-12

Manufacturer: Shenzhen Xixing Electronic Co., Ltd.

Serial No.: (n.a.)

Rated Input: $\sim 100-240 \text{V}, 50/60 \text{Hz}, 0.5 \text{A}$

Rated Output: = 9.0V, 1A Wire Length: 160cm

Note 1: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.



2.2 Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart C (Bluetooth, 2.4GHz ISM band radiators) for the EUT FCC ID Certification:

No.	Identity	Document Title
1	47 CFR Part 15	Radio Frequency Devices
	(10-1-05 Edition)	

Test detailed items/section required by FCC rules and results are as below:

No.	Section	Description	Result	Date of Test
1	15.247(a)	Number of Hopping Frequency	PASS	2007-02-28
2	15.247(b)	Peak Output Power	PASS	2007-02-28
3	15.247(a)	20dB Bandwidth	PASS	2007-02-28
4	15.247(d)	Peak Power Spectral Density	PASS	2007-02-28
5	15.247(a)	Carrier Frequency Separation	PASS	2007-02-28
6	15.247(a)	Time of Occupancy (Dwell time)	PASS	2007-02-28
7	15.247(c)	Conducted Spurious Emission	PASS	2007-02-28
8	15.247(c)) Band Edge		2007-02-28
9	15.207	Conducted Emission	PASS	2007-03-01
10	15.209	Radiated Emission	PASS	2007-03-01
	15.247(c)			



2.3 Facilities and Accreditations

2.3.1 Facilities

Shenzhen Electronic Product Quality Testing Center Morlab Laboratory is a testing organization accredited by China National Accreditation Board for Laboratories (CNAL) according to ISO/IEC 17025. The accreditation certificate number is L1659.

All measurement facilities used to collect the measurement data are located at Electronic Testing Building, Shahe Road, Xili, Nanshan District, Shenzhen 518055 CHINA. The test site is constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22; the FCC registration number is 741109.

2.3.2 Test Environment Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	20 - 25
Relative Humidity (%):	40 - 60
Atmospheric Pressure (kPa):	960





3. 47 CFR PART 15C REQUIREMENTS

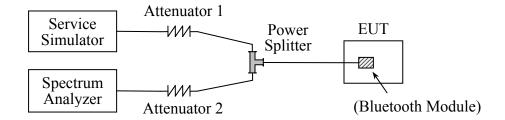
3.1 Number of Hopping Frequency

3.1.1 Requirement

According to FCC section 15.247(a)(1)(ii), frequency hopping systems operating in the 2400MHz to 2483.5MHz bands shall use at least 75 hopping frequencies.

3.1.2 Test Description

A. Test Setup:



The EUT, which is powered by the Battery, is coupled to the Spectrum Analyzer (SA) and the Bluetooth Service Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 500hm; the path loss as the factor is calibrated to correct the reading. During the measurement, the Bluetooth Module of the EUT is activated and controlled by the SS, and is set to operate under test mode transmitting 339 bytes DH5 packages at maximum power.

B. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Service Simulator	Agilent	E5515C	GB43130131	2006.06	1year
Spectrum Analyzer	Agilent	E7405A	US44210471	2006.07	1year
Power Splitter	Weinschel	1506A	NW521	(n.a.)	(n.a.)
Attenuator 1	Resnet	20dB	(n.a.)	(n.a.)	(n.a.)
Attenuator 2	Resnet	3dB	(n.a.)	(n.a.)	(n.a.)

3.1.3 Test Result

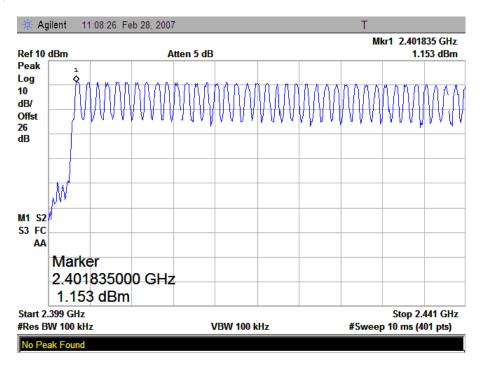
The Bluetooth Module operates at hopping-on test mode; the frequencies number employed is counted to verify the Module's using the number of hopping frequency.

A. Test Verdict:

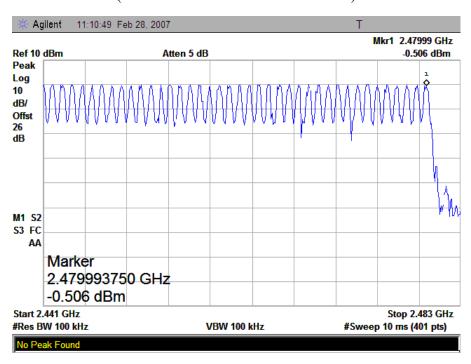


Frequency Block (MHz)	Measured Channel Numbers	Min. Limit	Refer to Plot	Verdict
2400 - 2483.5	79	75	Plot A.1/A.2	PASS

B. Test Plot:



(Plot A.1: 2402MHz to 2441MHz)



(Plot A.2: 2441MHz to 2483.5MHz)



3.2 Peak Output Power

3.2.1 Requirement

According to FCC section 15.247(b)(1), for frequency hopping systems that operates in the 2400MHz to 2483.5MHz band employing at least 75 hopping channels, the maximum peak output power of the intentional radiator shall not exceed 1Watt. For all other frequency hopping systems in the 2400MHz to 2483.5MHz band, it is 0.125Watts.

3.2.2 Test Description

See section 3.1.2 of this report.

3.2.3 Test Result

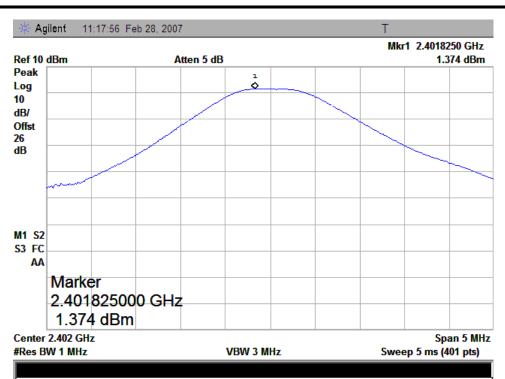
The EUT operates at hopping-off test mode. The lowest, middle and highest channels are selected to perform testing to verify the conducted RF output peak power.

A. Test Verdict:

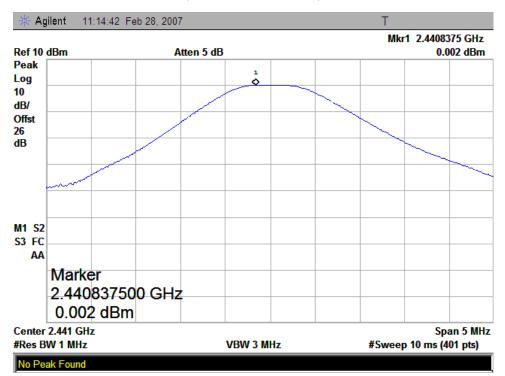
Channel	Channel Fraguency (MII)		Measured Output Peak Power		Limit		Verdict
Chamiei	Frequency (MHz)	dBm	W	Refer to Plot	dBm	W	verdict
0	2402	1.374	1.37E-3	Plot A			PASS
39	2441	0.002	1.00E-3	Plot B	30	1	PASS
78	2480	-0.193	0.95E-3	Plot C			PASS

B. Test Plot:



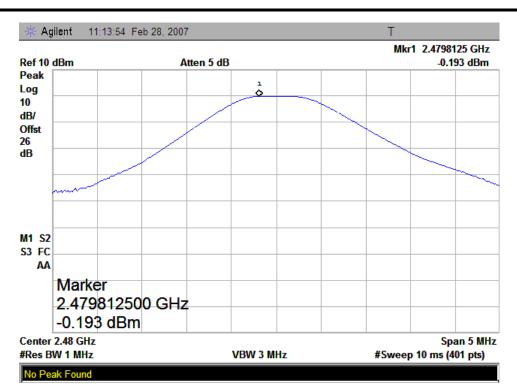


(Plot A: Channel = 0)



(Plot B: Channel = 39)





(Plot C: Channel = 78)



3.3 20dB Bandwidth

3.3.1 Definition

The 20dB bandwidth is known as the 99% emission bandwidth, or 20dB bandwidth (10*log1% = 20dB) taking the total RF output power.

3.3.2 Test Description

See section 3.1.2 of this report.

3.3.3 Test Result

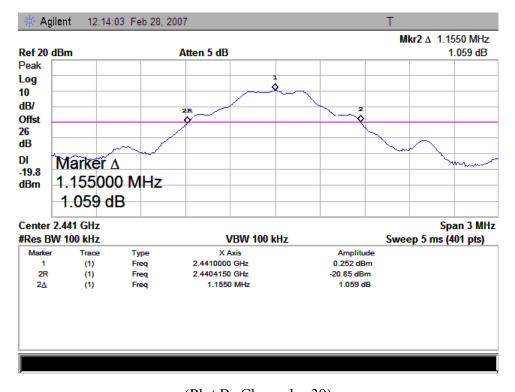
The EUT operates at hopping-off test mode. The lowest, middle and highest channels are selected to perform testing to record the 20dB bandwidth.

A. Test Verdict:

The maximum 20dB bandwidth measured is 1.02MHz according to the table below.

Channel Frequency (MHz)		20dB Bandwidth (MHz)	Refer to Plot	
39	2441	1.02	Plot B	

B. Test Plot:



(Plot B: Channel = 39)

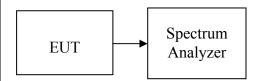


3.4 Peak Power Spectral Density

3.4.1 Definition

- 1. For direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.
- 2. The direct sequence operating of the hybrid system, with the frequency hopping operation turned off, shall comply with the power density requirements of paragraph (d) of this section.

3.4.2 Test Configuration



3.4.3 Test procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 3. Set the spectrum analyzer as RBW = 3kHz, VBW = 10kHz, Span = 300kHz, Sweep=100s
- 4. Record the max reading.
- 5. Repeat the above procedure until the measurements for all frequencies are completed.

3.4.4 Test results

No non-compliance noted

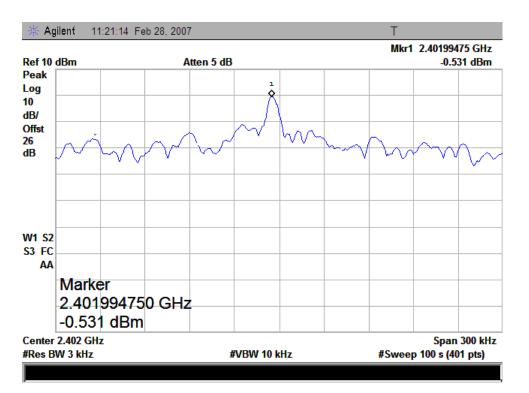
Test Data

Channel	Measured Peak Power Density		Limit	Verdict	
Chamiei	Frequency (MHz)	dBm	Refer to Plot	dBm	verdict
0	2402	-0.531	Plot A		PASS
39	2441	-1.891	Plot B	8	PASS
78	2480	-2.115	Plot C		PASS

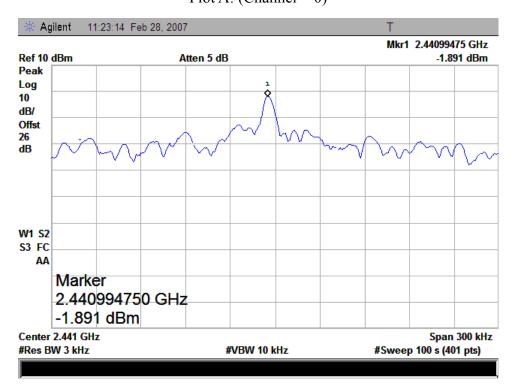




Test Plot:



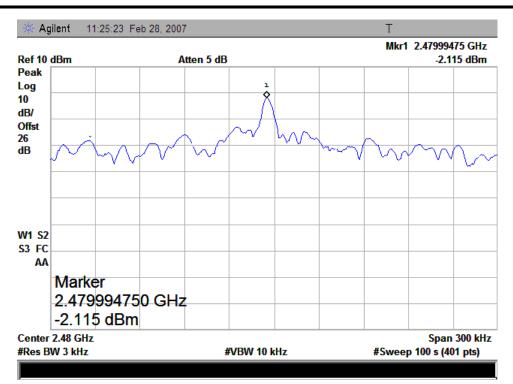
Plot A: (Channel = 0)



Plot B: (Channel = 39)







Plot C: (Channel = 78)

3.5 Carried Frequency Separation

3.5.1 Definition

According to FCC section 15.247(a)(1), frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25kHz or the 20dB bandwidth of the hopping channel, whichever is greater.

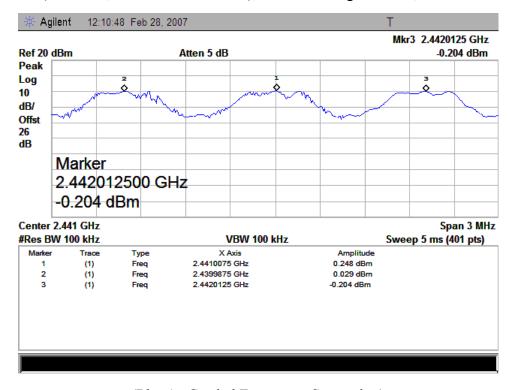
3.5.2 Test Description

See section 3.1.2 of this report.

3.5.3 Test Result

The EUT operates at hopping-on test mode.

For any adjacent channels (e.g. the channel 39 and 40 as showed in the Plot A), the Module does have hopping channel carrier frequencies separated by a minimum of 25kHz or the 20dB bandwidth of the hopping channel (1.02MHz, refer to section 3.3.3), whichever is greater. So, the verdict is PASS.



(Plot A: Carried Frequency Separation)



3.6 Time of Occupancy (Dwell time)

3.6.1 Requirement

According to FCC section 15.247(a)(1)(iii), frequency hopping systems in the 2400 - 2483.5MHz band shall use at least 15 non-overlapping channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

3.6.2 Test Description

See section 3.1.2 of this report.

3.6.3 Test Result

A. Test Verdict:

DH 1

CH Low: 0.380 * (1600/2)/79 * 30 = 115.44 (ms)CH Mid: 0.380 * (1600/2)/79 * 30 = 115.44 (ms)CH High: 0.380 * (1600/2)/79 * 30 = 115.44 (ms)

СН	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
Low	0.380	115.44	30.00	400.00	PASS
Mid	0.380	115.44	30.00		PASS
High	0.380	115.44	30.00		PASS

DH 3

CH Low: 1.625 * (1600/4)/79 * 30 = 246.83 (ms) CH Mid: 1.625 * (1600/4)/79 * 30 = 246.83 (ms) CH High: 1.625 * (1600/4)/79 * 30 = 246.83 (ms)

СН	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
Low	1.625	246.83	30.00	400.00	PASS
Mid	1.625	246.83	30.00		PASS
High	1.625	246.83	30.00		PASS



DH 5

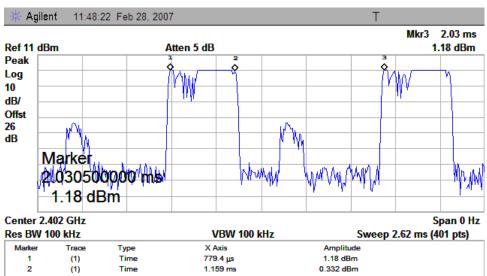
CH Low: 2.900 * (1600/6)/79 * 30 = 293.67 (ms) CH Mid: 2.900 * (1600/6)/79 * 30 = 293.67 (ms) CH High: 2.900 * (1600/6)/79 * 30 = 293.67 (ms)

СН	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
Low	2.900	293.67	30.00		PASS
Mid	2.900	293.67	30.00	400.00	PASS
High	2.900	293.67	30.00		PASS

B. Test Plot:

Note: the following plots record the Pulse Time of the Module carrier.

DH1:



 Res BW 100 kHz
 VBW 100 kHz
 Sweep 2.62 ms (401 pts)

 Marker
 Trace
 Type
 X Axis
 Amplitude

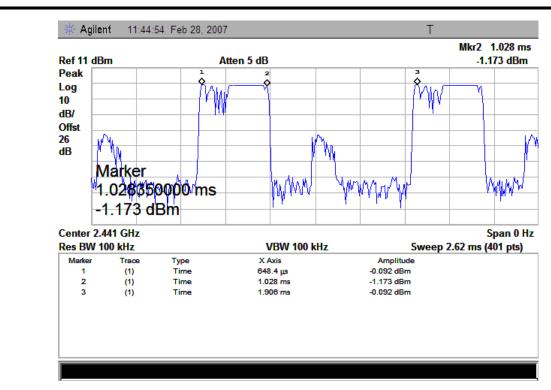
 1
 (1)
 Time
 779.4 μs
 1.18 dBm

 2
 (1)
 Time
 1.159 ms
 0.332 dBm

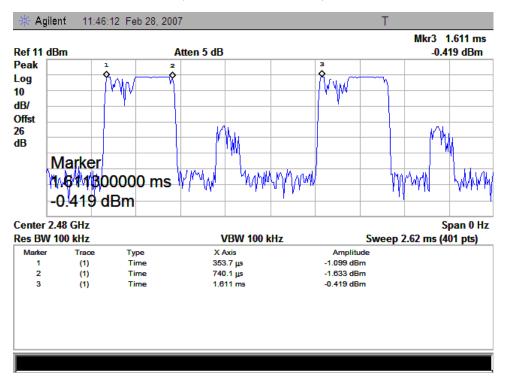
 3
 (1)
 Time
 2.03 ms
 1.18 dBm

(Plot A: Channel =0)





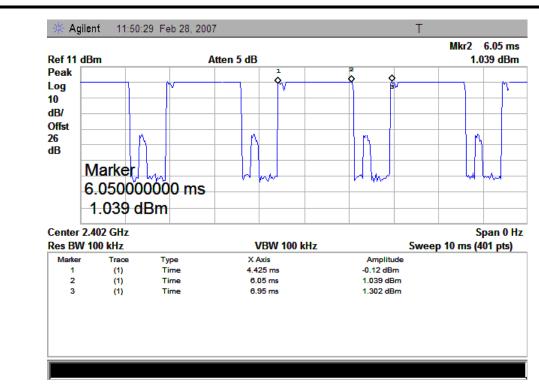
(Plot B: Channel = 39)



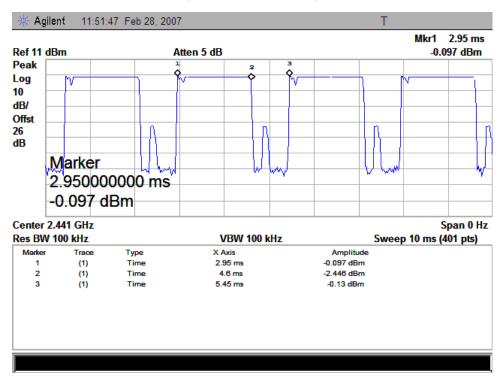
(Plot C: Channel = 78)

DH3:



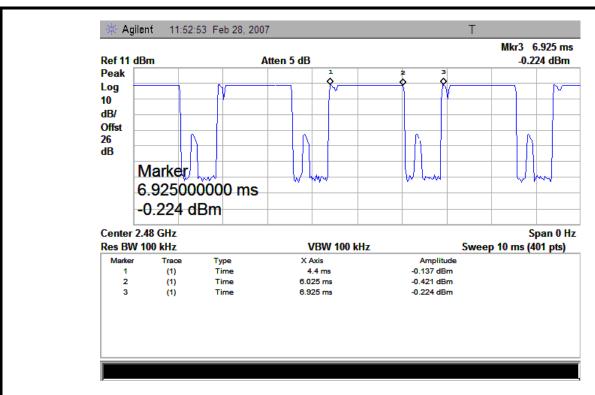


(Plot A: Channel =0)



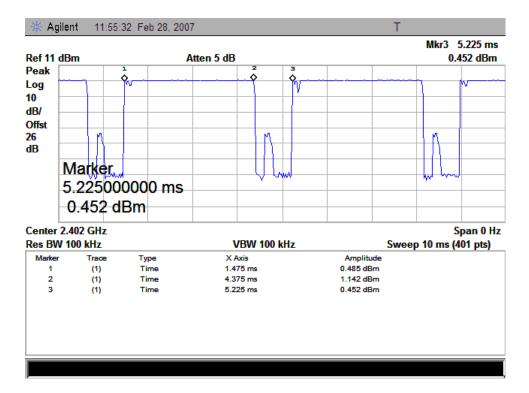
(Plot B: Channel = 39)





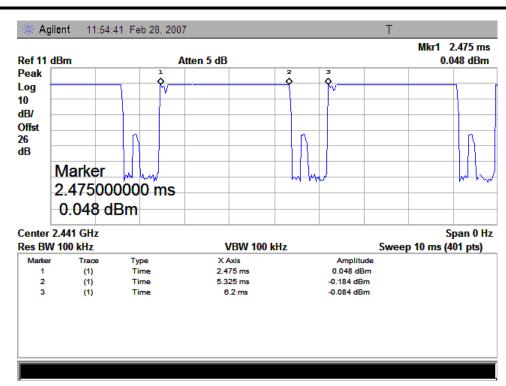
(Plot C: Channel = 78)

DH5:

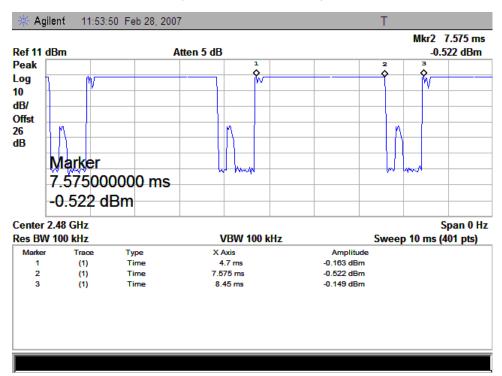


(Plot A: Channel =0)





(Plot B: Channel = 39)



(Plot C: Channel = 78)



3.7 Conducted Spurious Emissions

3.7.1 Requirement

According to FCC section 15.247(c), in any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

3.7.2 Test Description

See section 3.1.2 of this report.

3.7.3 Test Result

The EUT operates at hopping-off test mode. The measurement frequency range is from 9 KHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions.

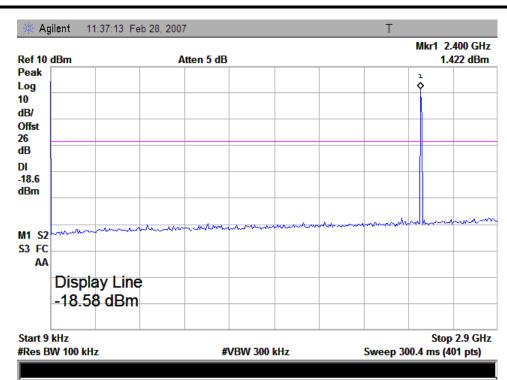
A. Test Verdict:

	Етадиатац	Measured Max.		Limi		
Channel	Frequency (MHz)	Out of Band Refer to Plot		Carrier	Calculated	Verdict
	(MITIZ)	Emission (dBm)		Level	-20dBc Limit	
0	2402	-46.94	Plot A.1/A.2	1.422	-18.578	PASS
39	2441	-45.84	Plot B.1/B.2	-0.002	-20.002	PASS
78	2480	-47.09	Plot C.1/C.2	-0.073	-20.073	PASS

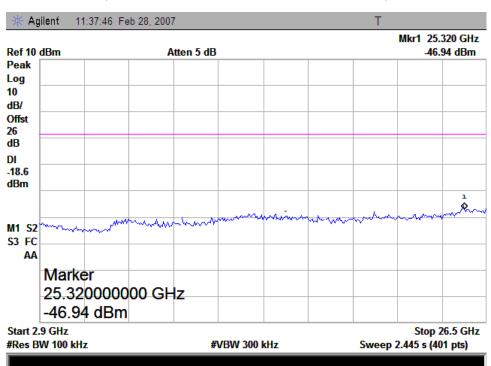
B. Test Plot:

Note: the power of the Module transmitting frequency should be ignored.



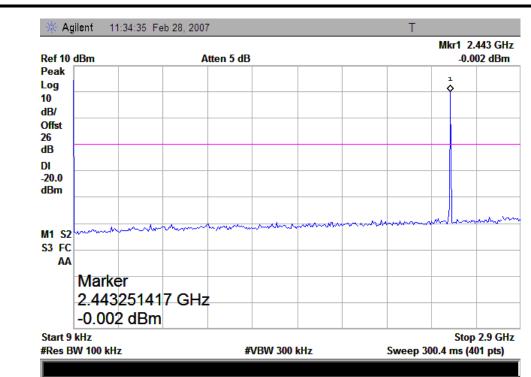


(Plot A.1: Channel = 0, 9 KHz to 2.9GHz)

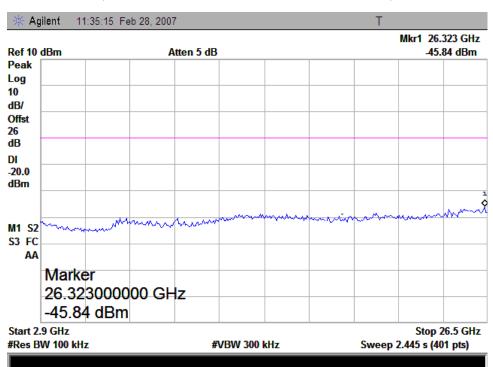


(Plot A.2: Channel = 0, 2.9GHz to 26.5GHz)



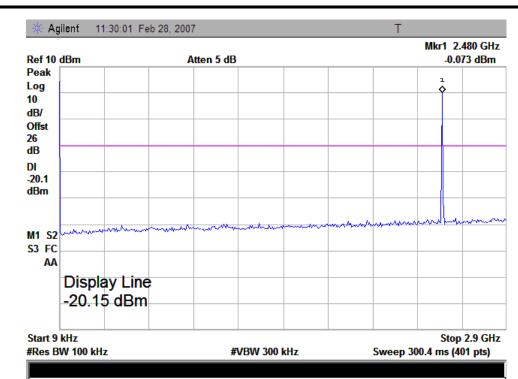


(Plot B.1: Channel = 39, 9 KHz to 2.9GHz)

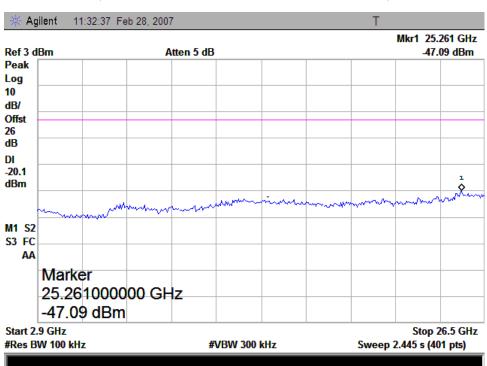


(Plot B.2: Channel = 39, 2.9GHz to 26.5GHz)





(Plot C.1: Channel = 78, 9 KHz to 2.9GHz)



(Plot C.2: Channel = 78, 2.9GHz to 26.5GHz)

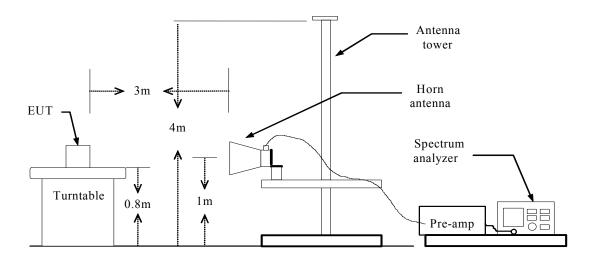


3.8 Band Edge

3.8.1 Requirement

According to FCC section 15.247(c), in any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

3.8.2 Test Description

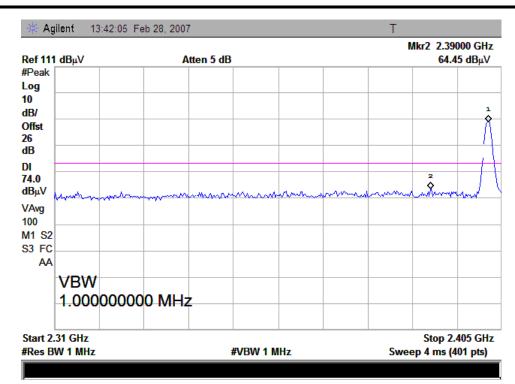


3.8.3 Test Result

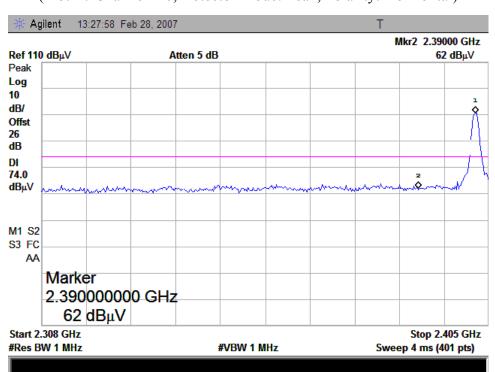
The EUT operates at hopping-off test mode. The lowest and highest channels are tested to verify the band edge emissions.

Test Plot:



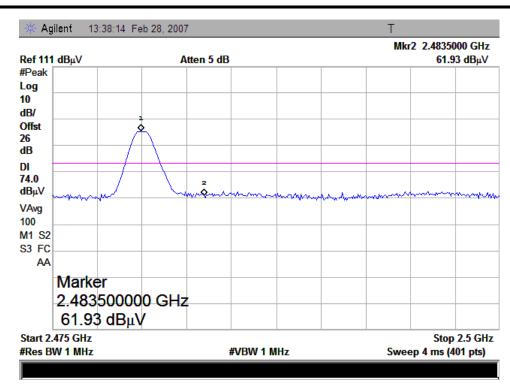


(Plot A: Channel = 0, Detector Mode: Peak, Polarity: Horizontal)

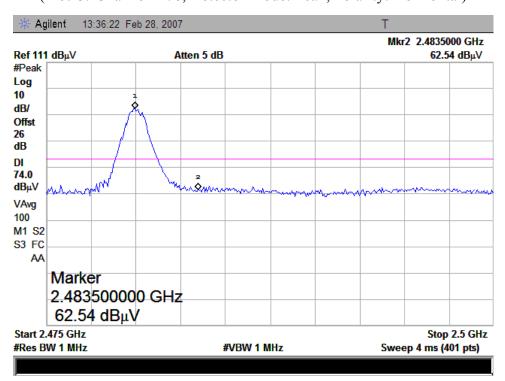


(Plot B: Channel = 0, Detector Mode: Peak, Polarity: Vertical)



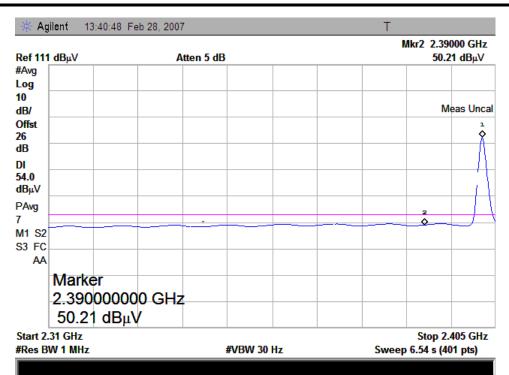


(Plot C: Channel = 78, Detector Mode: Peak, Polarity: Horizontal)

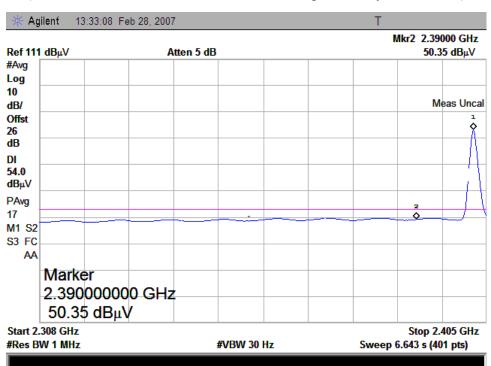


(Plot D: Channel = 78, Detector Mode: Peak, Polarity: Vertical)



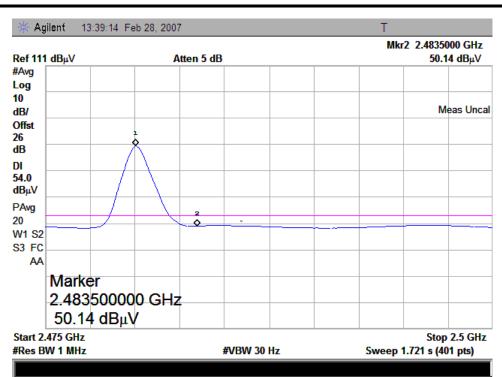


(Plot E: Channel = 0, Detector Mode: Average, Polarity: Horizontal)

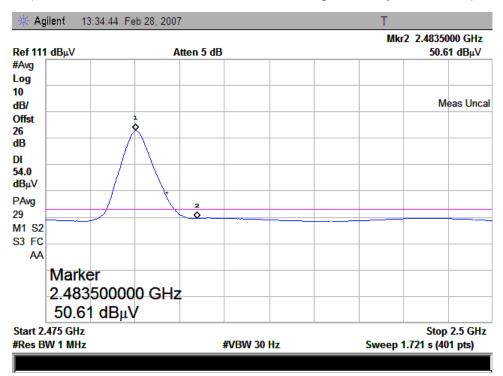


(Plot F: Channel = 0, Detector Mode: Average, Polarity: Vertical)





(Plot H: Channel = 78, Detector Mode: Average, Polarity: Horizontal)



(Plot I: Channel = 78, Detector Mode: Average, Polarity: Vertical)



3.9 Conducted Emission

3.9.1 Requirement

According to FCC section 15.207, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50μ H/50 Ω line impedance stabilization network (LISN).

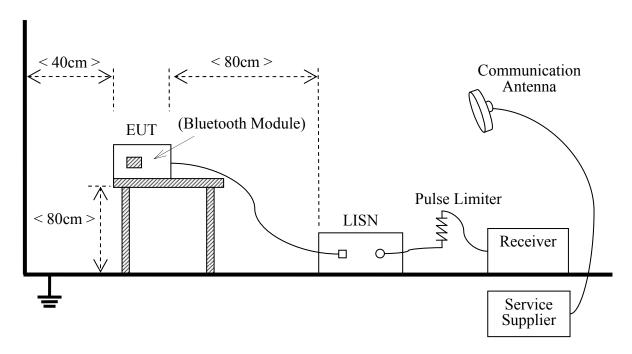
Eraguanay ranga (MUz)	Conducted Limit (dBµV)			
Frequency range (MHz)	Quai-peak	Average		
0.15 - 0.50	66 to 56	56 to 46		
0.50 - 5	56	46		
0.50 - 30	60	50		

NOTE:

- (a) The lower limit shall apply at the band edges.
- (b) The limit decreases linearly with the logarithm of the frequency in the range 0.15 0.50MHz.

3.9.2 Test Description

A. Test Setup:



The EUT of the EUT is powered by the Battery charged with the AC Adapter which is powered by 120V, 60Hz AC mains supply. The factors of the site are calibrated to correct the reading. During the measurement, the EUT is activated and transmitting with the other Bluetooth device (Supply by the



Applicant) during the test.

B. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Receiver	Agilent	E7405A	US44210471	2006.07	1 year
LISN	Schwarzbeck	NSLK 8127	812744	2006.08	1year
Service Supplier	R&S	CMU200	100448	2006.10	1year
Pulse Limiter (20dB)	Schwarzbeck	VTSD 9561-D	9391	(n.a.)	(n.a.)

3.9.3 Test Result

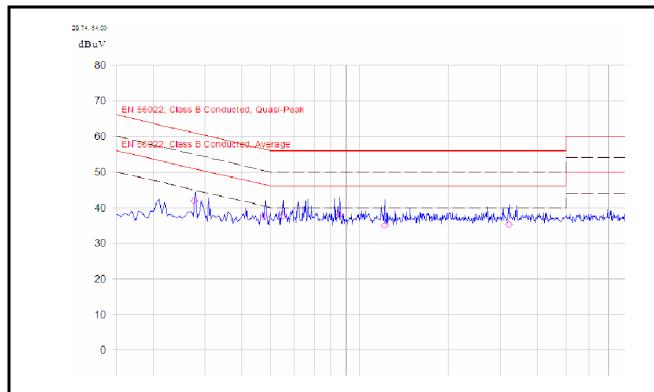
The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. Refer to recorded points and plots below.

A. Test Verdict Recorded for Suspicious Points:

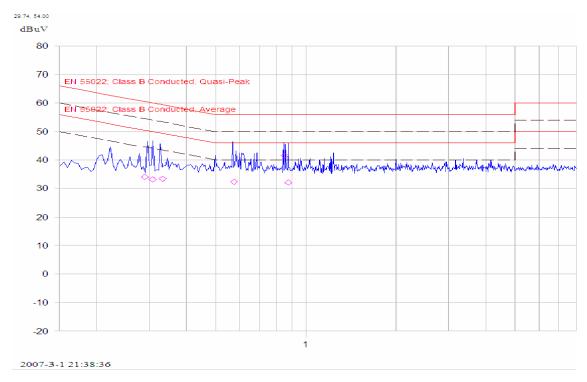
No.	@Frequency	uency Measured Emission Level (dBμV)			Limit (dBµV)		Verdict	
NO.	(MHz)	PK	QP	AV	Phase	QP	AV	verdict
1	0.2890	33.90	28.40	22.30	N	60.50	50.50	PASS
2	0.3320	33.30	28.41	23.20	N	59.40	49.40	PASS
3	0.8520	41.40	39.10	30.20	N	56.00	46.00	PASS
4	0.2750	41.90	29.50	22.90	L	60.90	50.90	PASS
5	0.4750	37.60	28.60	22.30	L	56.42	46.42	PASS
6	0.8570	38.00	28.70	21.60	L	56.00	46.00	PASS
7	1.2130	34.90	27.60	21.30	L	56.00	46.00	PASS

B. Test Plot:





(Plot A: L Phase)



(Plot B: N Phase)



3.10 Radiated Emission

3.10.1 Requirement

According to FCC section 15.247(c), radiated emission outside the frequency band attenuation below the general limits specified in FCC section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in FCC section 15.205(a), must also comply with the radiated emission limits specified in FCC section 15.209(a).

According to FCC section 15.209 (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 (µV/m)	Measurement Distance (m)		
0.009 - 0.490	2400/F(kHz)	300		
0.490 - 1.705	24000/F(kHz)	30		
1.705 - 30.0	30	30		
30 - 88	100	3		
88 - 216	150	3		
216 - 960	200	3		
Above 960	500	3		

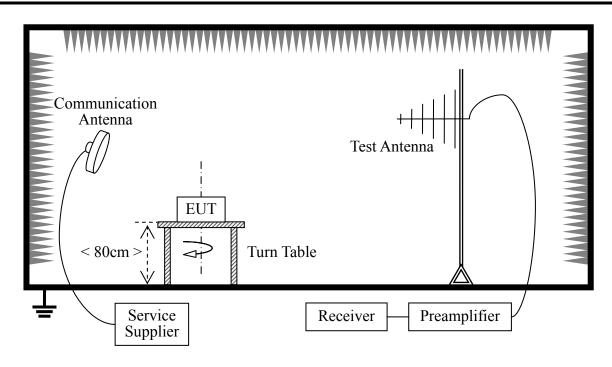
As shown in FCC section 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector. When average radiated emission measurements are specified in this part, including emission measurements below 1000MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules.

3.10.2 Test Description

A. Test Setup:







The EUT is powered by the Battery charged with the AC Adapter which is powered by 120V, 60Hz AC mains supply. The Module is located in a 3m Semi-Anechoic Chamber; the antenna factors, cable loss and so on of the site as factors are calculated to correct the reading. During the measurement, the EUT is activated and transmitting with the other Bluetooth device (Supply by the Applicant) during the test.

For the Test Antenna:

- (a) In the frequency range of 9 kHz to 30MHz, magnetic field is measured with Loop Test Antenna. The Test Antenna is positioned with its plane vertical at 1m distance from the EUT. The center of the Loop Test Antenna is 1m above the ground. During the measurement the Loop Test Antenna rotates about its vertical axis for maximum response at each azimuth about the EUT.
- (b) In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 1GHz) and Horn Test Antenna (above 1GHz) are used. Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength. The emission levels at both horizontal and vertical polarizations should be tested.

B. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	R&S	CMU200	100448	2006.10	1year
Receiver	Agilent	E7405A	US44210471	2006.07	1 year
Full-Anechoic Chamber	Albatross	9m*6m*6m	(n.a.)	2006.08	2year
Test Antenna - Bi-Log	Schwarzbeck	VULB 9163	9163-274	2006.07	1year
Test Antenna - Horn	Schwarzbeck	BBHA 9120C	9120C-384	2006.07	1year



Report No.: SH07020001E01

3.10.3 Test Result

The maximum radiated emission is searched using PK, QP and AV detectors; the emission levels more than the limits, and that have narrow margins from the limits will be re-measured with AV and QP detectors.

A. Test Verdict for Harmonics:

The Fundamental Emissions

The field strength of {Fundamental Emission} listed below is recorded, and used in the next table.

Channel	Frequency	Fundamental Em	ission (dBµV/m)	Antenna	Refer to Plot	
Channel	(MHz)	PK	AV	Polarization		
0	2402	84.03	68.87	Horizontal	Plot A.3	
	2402	87.97	72.41	Vertical	Plot A.7	
20 2441		83.49	67.60	Horizontal	Plot B.3	
39 24	2441	88.11	72.86	Vertical	Plot B.7	
78	2480	83.69	67.67	Horizontal	Plot C.3	
/8	2480	88.52	72.32	Vertical	Plot C.7	

Band Edge Emissions Fall in the Restricted Bands

The field strength of band edge emission falling in adjacent restricted bands (2310MHz - 2390MHz, and 2483.5MHz - 2500MHz) per FCC section 15.205(a) is calculated via the "Marker-Delta" method:

{Max. Band Edge Emission} = {Fundamental Emission} - {Marker Delta}

In the formula above, refer to section 3.8.2 for the {Marker Delta}. The calculation results in the table below show the compliance with the radiated emission limits specified in FCC section 15.209(a).

Erag		Fundamental Emission		Max. Band Edge			Limit	
СН	Freq. (MHz)	dBμV/m	Detector	@Freq.	Marker	Emission	(dBµV/m)	Verdict
(MITZ)	αδμ ν/ΙΙΙ	Detector	(MHz)	Delta (dB)	$(dB\mu V/m)$	(ασμ ν/ιιι)		
0	0 2402	87.97	PK	2400.00	41.02	46.95	74	PASS
0 2402	72.41	AV	2400.00	41.02	31.39	54	PASS	
78 2480	88.52	PK	2494.00	64.90	33.63	74	PASS	
	Z48U	72.32	AV	2484.00	54.89	17.43	54	PASS

The Radiated Emissions Fall in the Restricted Bands

Channel	Frequency (MHz)	Antenna Polarization	Max. Emis Restricted Bar	Limit (dBµV/m)		Verdict	
	(IVIIIZ)		PK	AV	PK	AV	
0 2402	2402	Vertical			74	54	PASS
	2402	Horizontal			74	54	PASS



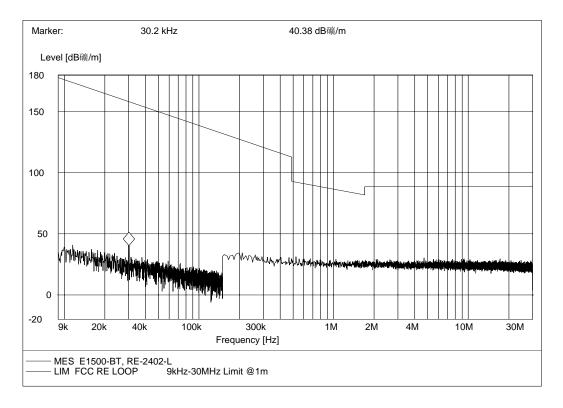


Channel Frequen (MHz)	Frequency		Max. Emis Restricted Bar	Limit (dBµV/m)		Verdict	
	(MITIZ)		PK	AV	PK	AV	
39 2441	2441	Vertical			74	54	PASS
	2 44 1	Horizontal			74	54	PASS
78	2480	Vertical			74	54	PASS
		Horizontal			74	54	PASS

Also refer to following plots for the emissions falling in the restricted bands.

B. Test Plot for the Whole Measurement Frequency Range:

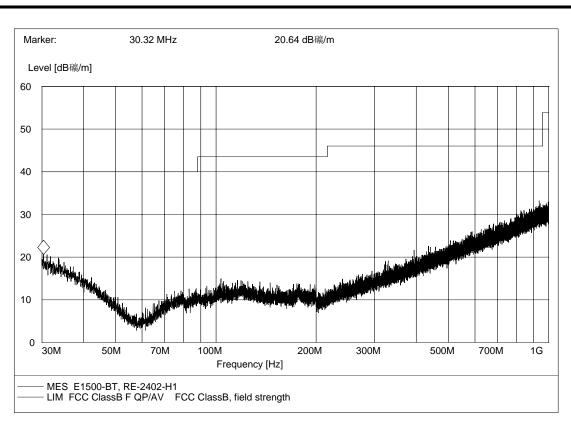
Plots for Channel = 0



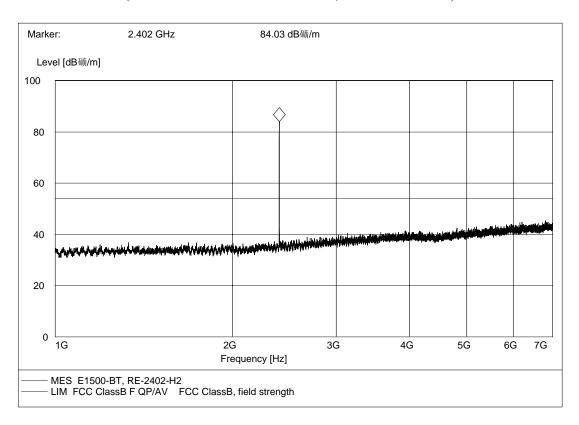
(Plot A.1: 9 kHz to 30MHz)







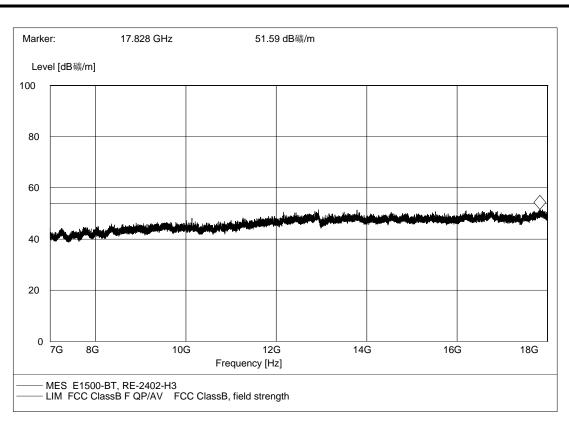
(Plot A.2: Antenna Horizontal, 30MHz to 1GHz)



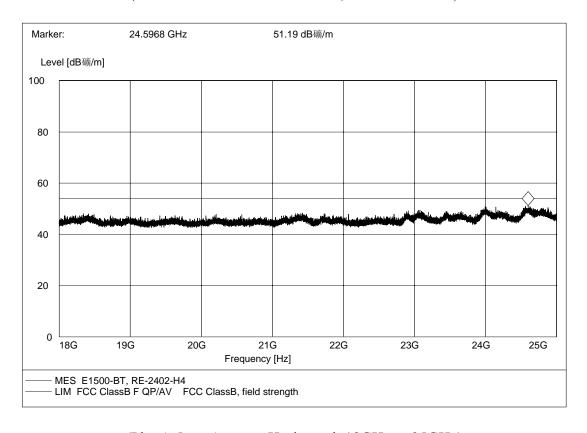
(Plot A.3: Antenna Horizontal, 1GHz to 7GHz)





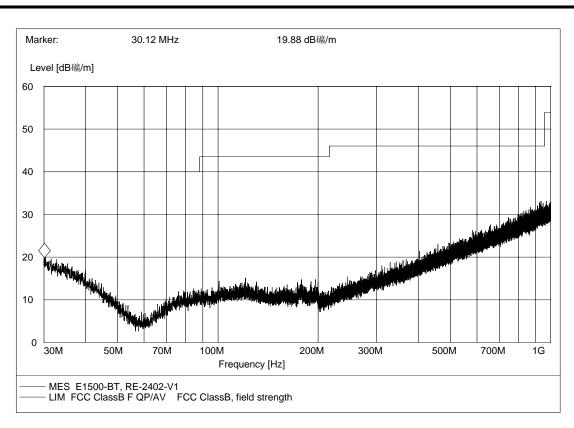


(Plot A.4: Antenna Horizontal, 7GHz to 18GHz)

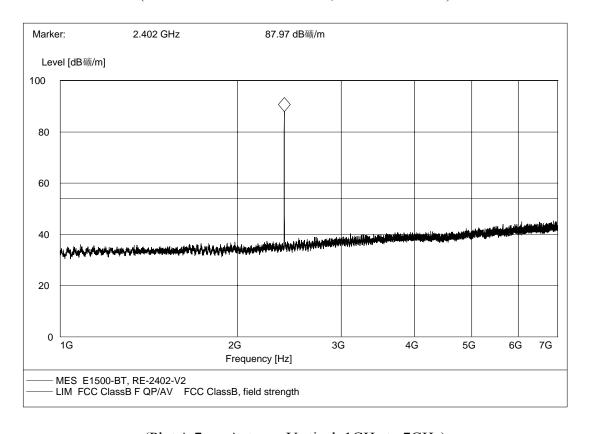


(Plot A.5: Antenna Horizontal, 18GHz to 25GHz)





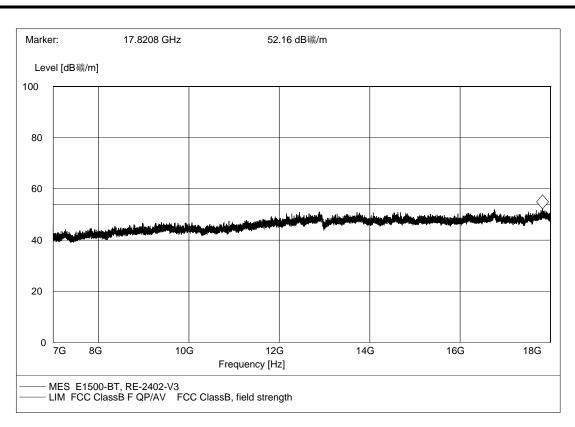
(Plot A.6: Antenna Vertical, 30MHz to 1GHz)



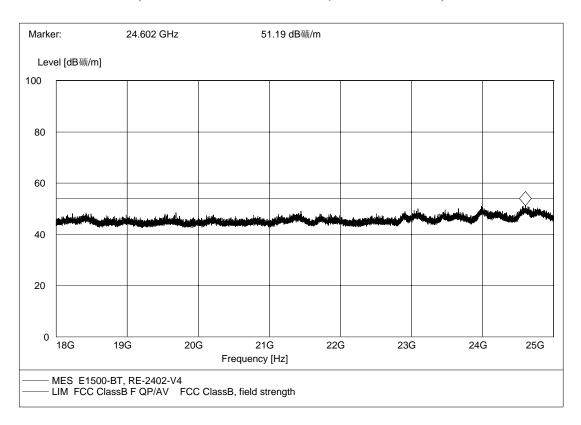
(Plot A.7: Antenna Vertical, 1GHz to 7GHz)







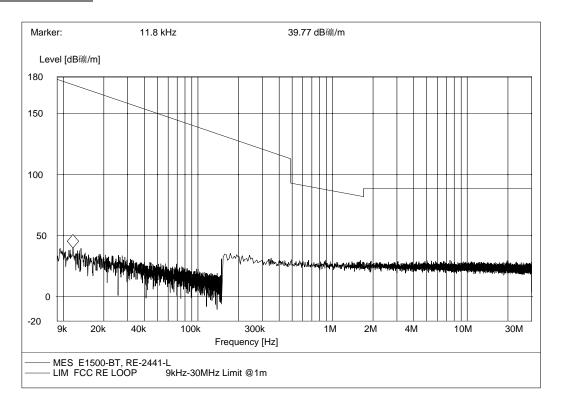
(Plot A.8: Antenna Vertical, 7GHz to 18GHz)



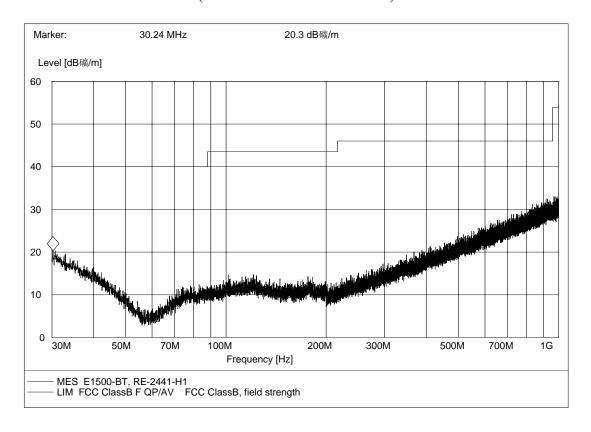
(Plot A.9: Antenna Vertical, 18GHz to 25GHz)



Plot for Channel = 39



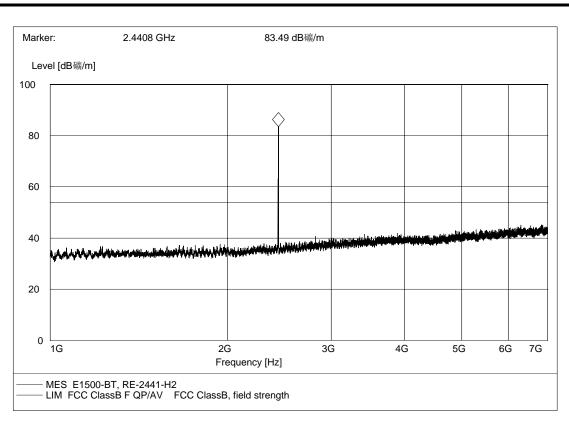
(Plot B.1: 9 kHz to 30MHz)



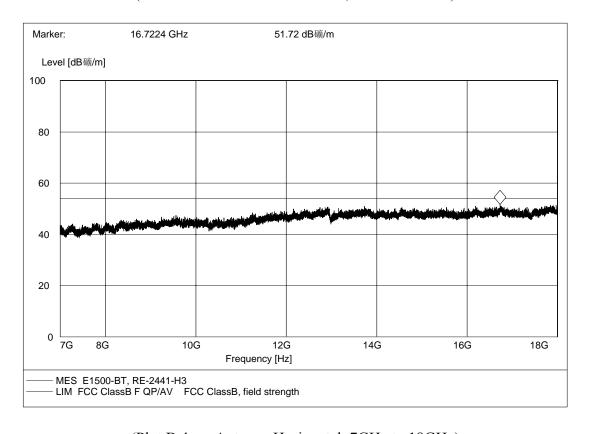
(Plot B.2: Antenna Horizontal, 30MHz to 1GHz)







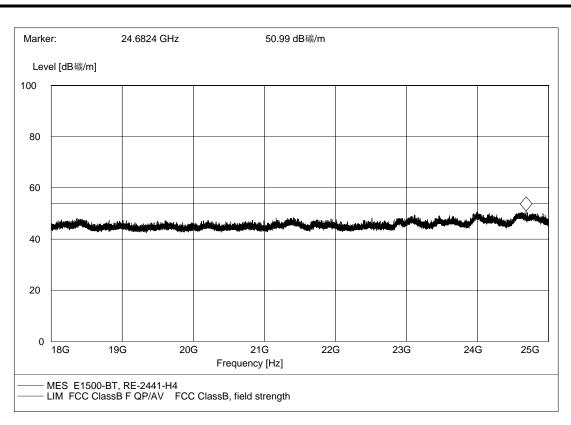
(Plot B.3: Antenna Horizontal, 1GHz to 7GHz)



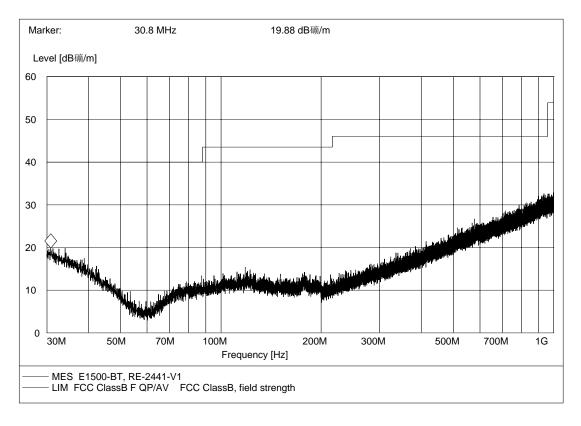
(Plot B.4: Antenna Horizontal, 7GHz to 18GHz)







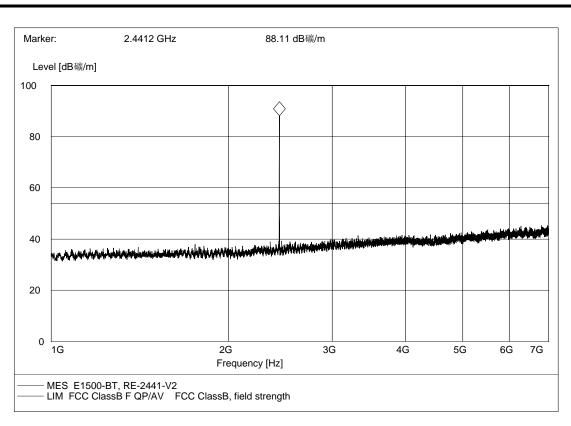
(Plot B.5: Antenna Horizontal, 18GHz to 25GHz)



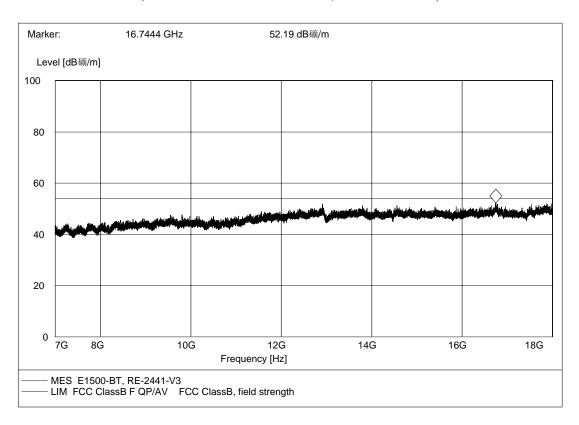
(Plot B.6: Antenna Vertical, 30MHz to 1GHz)





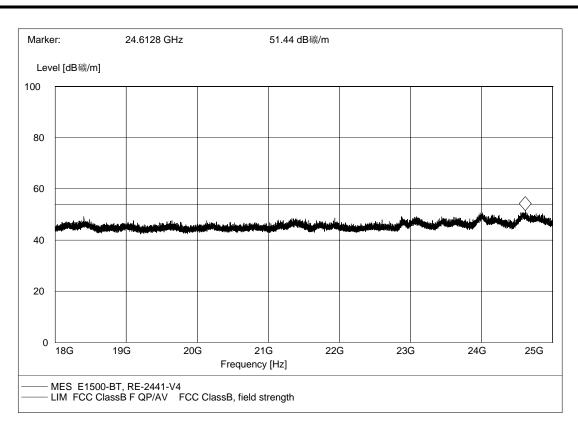


(Plot B.7: Antenna Vertical, 1GHz to 7GHz)



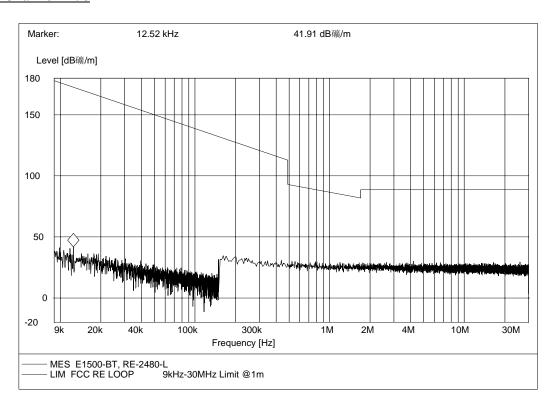
(Plot B.8: Antenna Vertical, 7GHz to 18GHz)





(Plot B.9: Antenna Vertical, 18GHz to 25GHz)

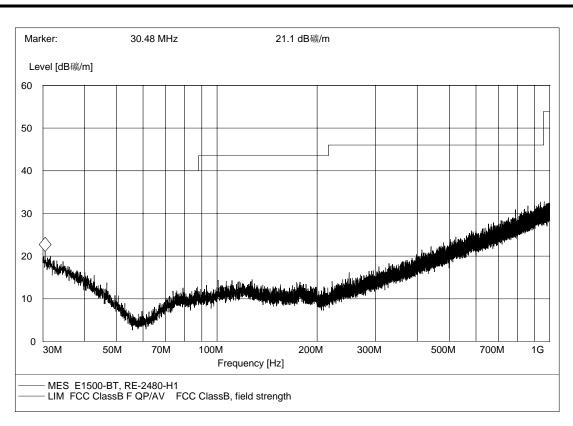
Plot for Channel = 78



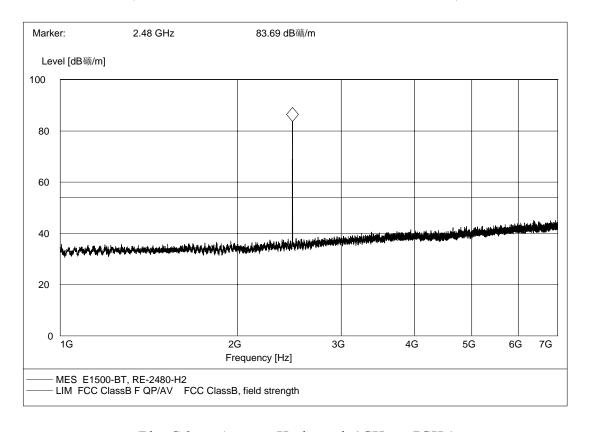
(Plot C.1: 9kHz to 30MHz)







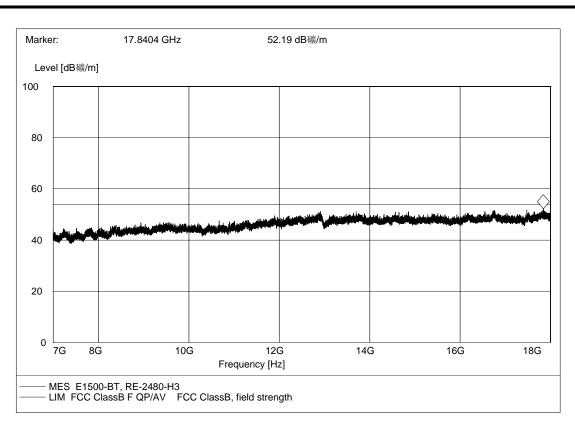
(Plot C.2: Antenna Horizontal, 30MHz to 1GHz)



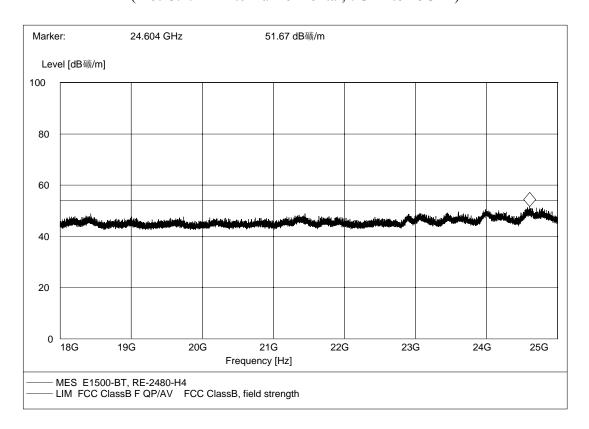
(Plot C.3: Antenna Horizontal, 1GHz to 7GHz)







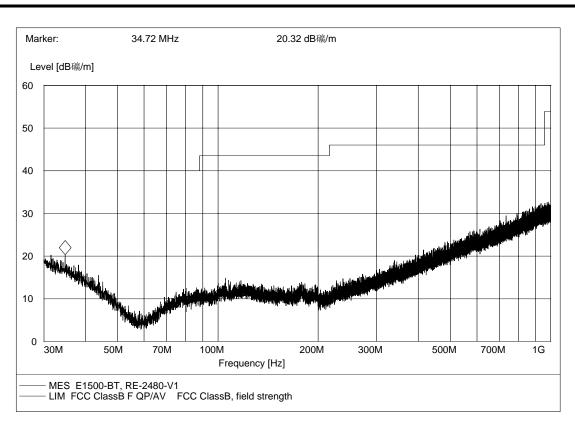
(Plot C.4: Antenna Horizontal, 7GHz to 18GHz)



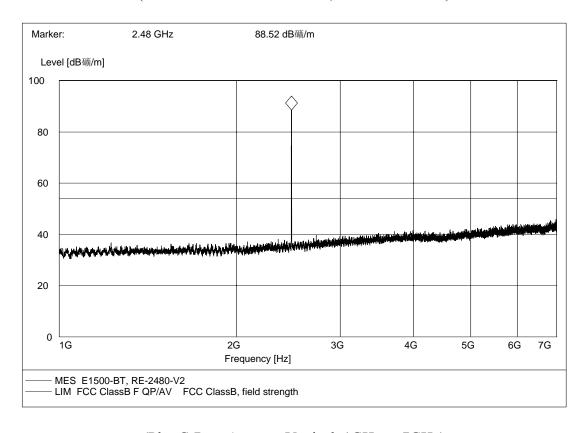
(Plot C.5: Antenna Horizontal, 18GHz to 25GHz)







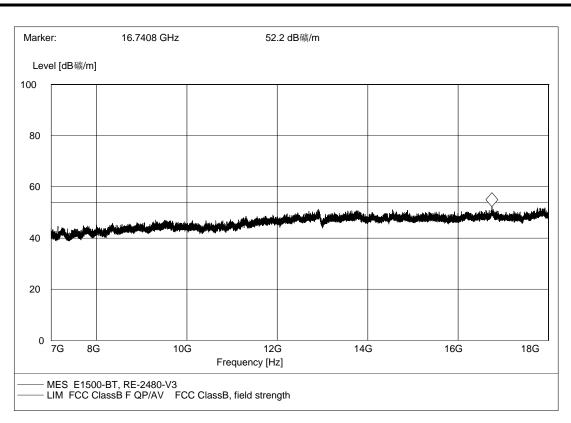
(Plot C.6: Antenna Vertical, 30MHz to 1GHz)



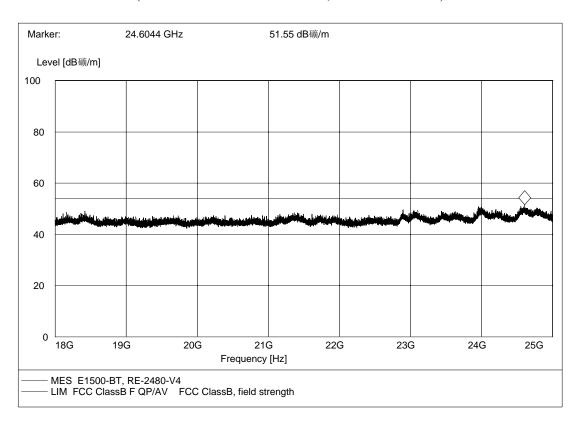
(Plot C.7: Antenna Vertical, 1GHz to 7GHz)







(Plot C.8: Antenna Vertical, 7GHz to 18GHz)



(Plot C.9: Antenna Vertical, 18GHz to 25GHz)



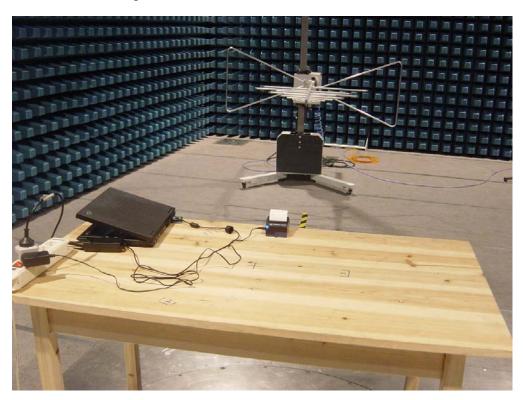


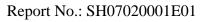
APPENDIX I: PHOTOGRAPH OF THE TEST SETUP

1. RF Test Setup



2. Radiated Emission Test Setup







3. Conducted Emission Test Setup







APPENDIX II: PHOTOGRAPH OF THE EUT

1. Appearance of the EUT

























2. Appearance of the Adapter









3. Inside of the EUT

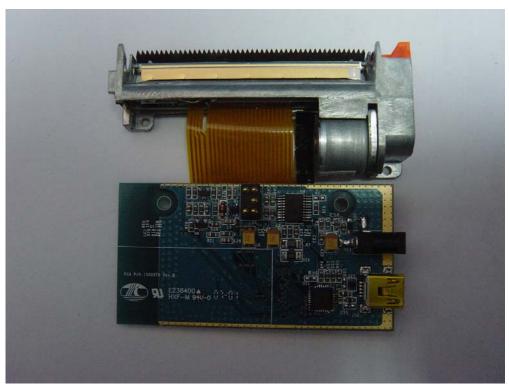
























4. Inside of the Adapter



