FCC TEST REPORT

for

47 CFR Part 15 Subpart C

Equipment : TeamPad7500W

Model No. : FHTLA681

FCC ID. : IXM-TP7500W

Filing Type : Certification

Applicant : Universal Scientific Industrial Co., Ltd.
135,Lane 351,Taiping Road,Sec.1,Tsao Tuen,Nan-Tou,Taiwan

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SPORTON International Inc.

6F, No.106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

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History of this test report

Original Report Issue Date: July 01, 2004

■ No additional attachment.

□ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

Certificate No. : F411614-01-B

CERTIFICATE OF COMPLIANCE

for

47 CFR Part 15 Subpart C

Equipment : TeamPad7500W

Model No. : FHTLA681

FCC ID. : IXM-TP7500W

Filing Type : Certification

Applicant : Universal Scientific Industrial Co., Ltd.
135,Lane 351,Taiping Road,Sec.1,Tsao Tuen,Nan–Tou,Taiwam.

I **HEREBY** CERTIFY THAT :

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.4 - 2001** and the equipment under test was ***passed*** all test items required in FCC Part 15 subpart C, relative to the equipment under test. Testing was carried out on Feb. 18, 2004 at **SPORTON International Inc.** LAB.

Daniel Lee 7/1/2004

Daniel Lee
Manager

SPORTON International Inc.
6F, No.106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

1. General Description of Equipment under Test

1.1. Applicant

Universal Scientific Industrial Co., Ltd.
135,Lane 351,Taiping Road, Sec.1,Tsao Tuen,Nan-Tou,Taiwan

1.2. Manufacturer

Same as 1.1

1.3. Basic Description of Equipment under Test

Equipment	: TeamPad7500W
Model No.	: FHTLA681
FCC ID	: IXM-TP7500W
Trade Name	: FUJITSU LIMITED
Power Supply Type	: Switching
AC Power Cord	: AC 100~240V, Non-shielded, 1.8meter,2pin
DC Power Cable	: DC 12V, Non-shielded, 1.6 meter, 2 pin

1.4. Feature of Equipment under Test

Product Feature & Specification				
1. Type of Modulation	GFSK			
2. Number of Channels	79			
3. Frequency Band	2.400GHz ~ 2.4835GHz			
4. Carrier Frequency of each channel	2402+K MHz ; K=0 ~ 78			
5. Bandwidth of each channel	1MHz			
6. Maximum Output Power to Antenna	1.94dBm(Peak) (Normal Condition)			
7. IF & L.O. frequency	1.5MHz/1.2GHz			
8. Type of Antenna Connector	I-PEX			
9. Antenna Type / Gain	PCB antenna / -2.4dBi			
10. Function Type	Transmitter		Transceiver	V
11. Power Rating (DC/AC , Voltage)	DC 3.3V±10%			
12. Temperature Range (Operating)	-40°C to + 85°C			

2. Test Configuration of Equipment under Test

2.1. Test Manner

a. The EUT has been associated with peripherals pursuant to ANSI C63.4-2001 and configuration operated in a manner, which tended to maximize its emission characteristics in a typical application.
b. The complete test system included LOGITECH USB Mouse, KOKA Speaker and EUT for EMI test.
c. The following test modes were pretested for conduction test:
   Mode 1: CH78（2480MHz）
d. The following test modes were pretested for radiation test:
   Mode 1: CH00_HF（2402MHz）
   Mode 2: CH39_HF（2441MHz）
   Mode 3: CH78_HF（2480MHz）
   Mode 4: CH78_LF（2480MHz）
e. Frequency range investigated: conduction 150 KHz to 30 MHz, radiation 30 MHz to 25000MHz.

2.2. Description of Test System

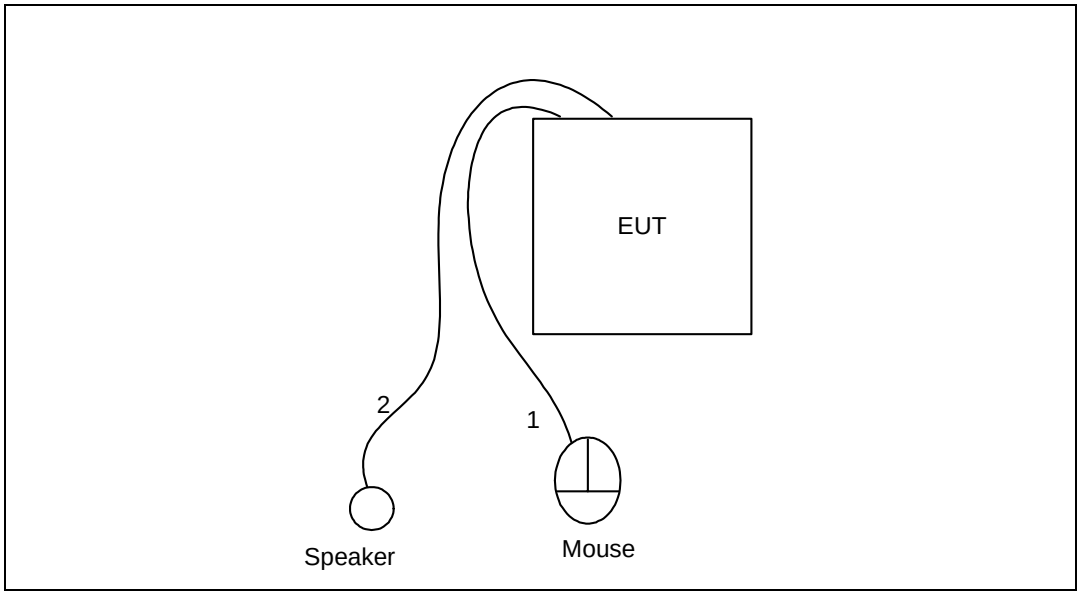
Support Unit 1. –(USB) Mouse(LOGITECH) -local workstation and remote workstation

FCC ID	: N/A
Model No.	: M-BE58
Power Cord	: Shielded1.7m
Serial No.	: SP0039
Remark	: This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

Support Unit 2. –Speaker (KOKA) -local workstation

FCC ID	: N/A
Model No.	: HD-305
Serial No.	: SP0050
Data Cable	: Non-Shielded, 1.2m
Remark	: This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

2.3. Connection Diagram of Test System



1. The I/O cable is connected from EUT to the support unit 1.
2. The I/O cable is connected from EUT to the support unit 2.

3. Operation of Equipment under Test

An executive program, EMITEST.EXE on WIN XP continuously generating a complete line of " H " pattern was used as the test software.

The program was executed as follows:

a. Turn on the power of all equipment.
b. The PC reads the test program from the hard disk drive and runs it.
c. The PC sends " H" messages to the monitor, and the monitor displays " H " patterns on the screen.
d. The PC sends " H " messages to the printer, then the printer prints them on the paper.
e. The PC sends " H " messages to the modem.
f. The PC sends " H " messages to the internal hard disk, and the hard disk reads and writes the message.
g. Repeat the steps from c to f.

At the same time, the EUT keep transmitting signals at fixed frequency.

4. General Information of Test

Test Site Location	:	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiag, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-318-0055
Test Site No	:	CO01-HY, 03CH03-HY

4.1. Test Voltage

110V/60Hz or DC 5V

4.2. Standard for Methods of Measurement

ANSI C63.4-2001

4.3. Test in Compliance with

47 CFR Part 15 Subpart C

4.4. Frequency Range Investigated

a. Conduction: from 150 KHz to 30 MHz
b. Radiation: from 30 MHz to 25000MHz

4.5. Test Distance

The test distance of radiated emission from antenna to EUT is 3 M.

5. Report of Measurements and Examinations

5.1. List of Measurements and Examinations

FCC Rule	Description of Test	Result
15.247(a)(1)(ii)	Hopping Channel Bandwidth	Pass
15.247(a)(1)	Hopping Channel Separation	Pass
15.247(a)(1)(ii)	Number of Hopping Frequency Used	Pass
15.247(a)(1)(ii)	Dwell Time of Each Frequency within a 30 Second Period	Pass
15.247(b)(1)	Output Power	Pass
15.247(c)	100KHz Bandwidth of Frequency Band Edges	Pass
15.207	Conducted Emission	Pass
15.209	Radiated Emission	Pass
15.203	Antenna Requirement	Pass
15.247(b)(4), 1.1307	RF Exposure	Pass

5.2. Hopping Channel Separation

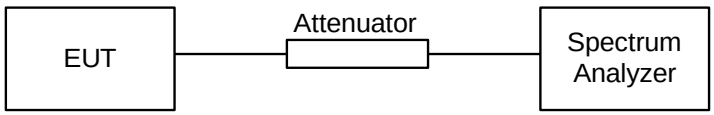
5.2.1. Measuring Instruments：

As described in chapter 10 of this test report.

5.2.2. Test Procedure：

1. The transmitter output was connected to the spectrum analyzer through an attenuator.
2. Set RBW of spectrum analyzer to 30kHz and VBW to 100kHz.
3. The Hopping Channel Separation is defined as the channel is separated with the next channel.

5.2.3. Test Setup Layout：



5.2.4. Test Result：The spectrum analyzer plots are attached as below

- Test Mode: Mode 1~Mode 3
- Temperature: 21°C
- Relative Humidity: 56 %
- Duty cycle of the equipment during the test X ＝ 100%

Channel	Frequency (MHz)	Hopping Channel Separation (KHz)	Limits (KHz)	Plot Ref. No.
00	2402	1000	1000	1
39	2441	1000	996	2
78	2480	1000	996	3

Remark: Limit is the greater one of 25kHz or the 20dB bandwith of the hopping channel.

5.3. Number of Hopping Frequency

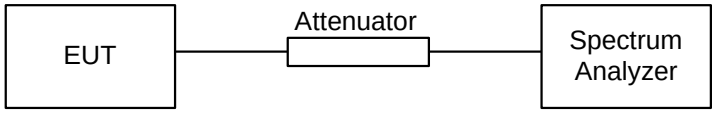
5.3.1. Measuring Instruments：

As described in chapter 10 of this test report.

5.3.2. Test Procedure：

1. The transmitter output was connected to the spectrum analyzer through an attenuator.
2. Set RBW of spectrum analyzer to 100kHz and VBW to 100kHz.
3. The number of hopping frequency used is defined as the device has the numbers of total channel.

5.3.3. Test Setup Layout：



5.3.4. Test Result：See spectrum analyzer plots below

- Temperature: 21°C
- Relative Humidity: 56 %
- Duty cycle of the equipment during the test X ＝ 100%

Number of Hopping Frequency (Channel)	Limits (Channel)	Plot Ref. No.
79	75	4

5.4 Hopping Channel Bandwidth

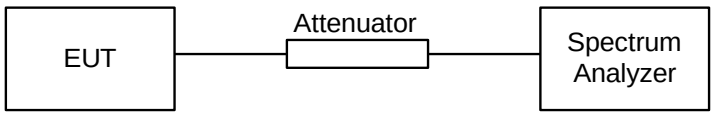
5.4.1 Measuring Instruments：

As described in chapter 10 of this test report.

5.4.2 Test Procedure：

1. The transmitter output was connected to the spectrum analyzer through an attenuator.
2. Set RBW of spectrum analyzer to 100kHz and VBW to 100kHz.
3. The Hopping Channel bandwidth is defined as the frequency range where the power is higher than peak power minus 20dB.

5.4.3 Test Setup Layout：



5.4.4 Test Result：See spectrum analyzer plots below

- Test Mode: Mode 1~Mode 3
- Temperature: 21°C
- Relative Humidity: 56 %
- Duty cycle of the equipment during the test X ＝ 100%

Channel	Frequency (MHz)	Hopping Channel Bandwidth (MHz)	Limits (MHz)	Plot Ref. No.
00	2402	1.0	1.0	5
39	2441	0.996	1.0	6
78	2480	0.996	1.0	7

5.5 Dwell Time of Each Frequency within a 30 Seconds Period

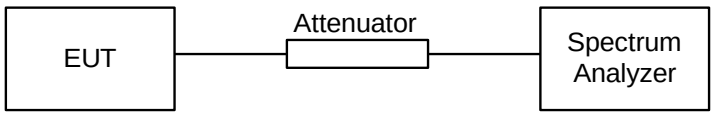
5.5.1 Measuring Instruments：

As described in chapter 10 of this test report.

5.5.2 Test Procedure：

1. The transmitter output was connected to the spectrum analyzer through an attenuator.
2. Set RBW of spectrum analyzer to 1MHz and VBW to 1MHz.
3. Set the center frequency on any frequency would be measured and set the frequency span to zero span.
4. The equation = 30*(1600/79)*t (t = the time duration of one single pulse)

5.5.3 Test Setup Layout：



5.5.4 Test Result：See spectrum analyzer plots below

- Test Mode: Mode 1~Mode 3
- Temperature: 21°C
- Relative Humidity: 56 %
- Duty cycle of the equipment during the test X ＝ 100%

Channel	Frequency (MHz)	Dwell Time (s)	Limits (s)	Plot Ref. No.
00	2402	0.27	0.4	8
39	2441	0.28	0.4	9
78	2480	0.27	0.4	10

5.6 Output Power

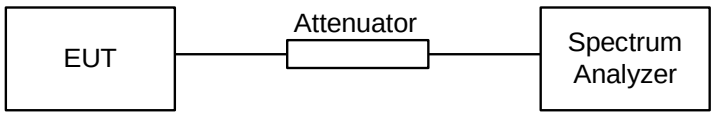
5.6.1 Measuring Instruments：

As described in chapter 10 of this test report.

5.6.2 Test Procedure：

1. The transmitter output was connected to the spectrum analyzer through an attenuator.
2. The center frequency of the spectrum analyzer was set to the fundamental frequency and set RBW to 1MHz and VBW to 1MHz.

5.6.3 Test Setup Layout：



5.6.4 Test Result：See spectrum analyzer plots below

- Test Mode: Mode 1~Mode 3
- Temperature: 21°C
- Relative Humidity: 56 %
- Duty cycle of the equipment during the test X ＝ 100%

Channel	Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt/dBm)	Plot Ref. No.
00	2402	1.53	1W/30 dBm	11
39	2441	1.94	1W/30 dBm	12
78	2480	0.95	1W/30 dBm	13

5.7 100KHz Bandwidth of Frequency Band Edges

5.7.1 Measuring Instruments：

As described in chapter 10 of this test report.

5.7.2 Test Procedure：

1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set both RBW and VBW of spectrum analyzer to 100kHz with suitable frequency span including 100 KHz bandwidth from band edge.
3. The band edges was measured and recorded.

5.7.3 Test Result：

- Test Mode: Mode 1 and Mode 3
- Temperature: 21°C
- Relative Humidity: 56 %
- Duty cycle of the equipment during the test X ＝ 100%

Test Result in lower band (Channel 00)： PASS

Test Result in higher band(Channel 78)： PASS

5.7.4 Note on Band edge Emission

<Mode 1>

Channel	Band edge Frequency	Polarity	The emission of band edge power strength	Limit	Margin	Remark	Result
	(MHz)		(dB μ V/m)	(dB μ V/m)	(dB)		
00	2390	V	45.29	74	-28.71	Peak	Pass
	2390	V	41.49	54	-12.51	Average	Pass
	2390	H	46.16	74	-27.84	Peak	Pass
	2390	H	39.05	54	-14.95	Average	Pass

<Mode 3>

Channel	Band edge Frequency	Polarity	The emission of band edge power strength	Limit	Margin	Remark	Result
	(MHz)		(dB μ V/m)	(dB μ V/m)	(dB)		
78	2483.5	V	46.61	74	-27.39	Peak	Pass
	2483.5	V	42.58	54	-11.42	Average	Pass
	2483.5	H	47.89	74	-26.11	Peak	Pass
	2483.5	H	42.20	54	-11.8	Average	Pass

＊Remark: The data above can refer to radiated emission in section 5.9.

5.8 Test of Conducted Emission

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 kHz and return leads of the EUT according to the methods defined in ANSI C63.4-2001 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

5.8.1 Major Measuring Instruments：

● Test Receiver	(R&S ESCS 30)
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 KHz

5.8.2 Test Procedures：

a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
b. Connect EUT to the power port of a line impedance stabilization network (LISN).
c. All the support units are connected to the other LISN.
d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
e. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
f. Both sides of AC line were checked for maximum conducted interference.
g. The frequency range from 150 KHz to 30 MHz was searched.
h. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

5.8.3 Test Result of Conducted Emission：

- Test Mode: Mode 1
- Frequency Range of Test: from 150KHz to 30 MHz
- Temperature: 24°C
- Relative Humidity: 55 %
- Test Date: Jan. 20, 2004

■ The test that passed at the minimum margin was marked by a frame in the following data

Site : CO01-HY
Condition : CNS/VCCI/CISPR-B 2003 2001/008 LINE
EUT : TeamPad7500w
Power : 110 Vac / 60 Hz
Memo : PHTXXX/Bluetooth Ch78 2480 MHz Tx Mode

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.159	54.22	-11.30	65.52	54.11	0.10	0.01	QP
2	0.159	45.89	-9.63	55.52	45.78	0.10	0.01	Average
3	0.247	47.43	-14.43	61.86	47.31	0.10	0.02	QP
4	0.247	37.92	-13.94	51.86	37.80	0.10	0.02	Average
5	0.323	43.35	-16.28	59.63	43.23	0.10	0.02	QP
6	0.323	30.92	-18.71	49.63	30.80	0.10	0.02	Average
7	0.410	40.42	-17.23	57.65	40.30	0.10	0.02	QP
8	0.410	31.22	-16.43	47.65	31.10	0.10	0.02	Average
9	0.471	42.80	-13.70	56.50	42.68	0.10	0.02	QP
10	0.471	35.11	-11.39	46.50	34.99	0.10	0.02	Average
11	0.573	40.21	-15.79	56.00	40.08	0.10	0.03	QP
12	0.573	31.05	-14.95	46.00	30.92	0.10	0.03	Average

Site : CO01-HY
Condition : CNS/VCCI/CISPR-B 2003 2001/008 NEUTRAL
EUT : TeamPad7500w
Power : 110 Vac / 60 Hz
Memo : PHTXXX/Bluetooth Ch78 2480 MHz Tx Mode

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.158	52.64	-12.93	65.57	52.53	0.10	0.01	QP
2	0.158	44.17	-11.40	55.57	44.06	0.10	0.01	Average
3	0.247	46.46	-15.40	61.86	46.34	0.10	0.02	QP
4	0.247	35.87	-15.99	51.86	35.75	0.10	0.02	Average
5	0.323	43.03	-16.60	59.63	42.91	0.10	0.02	QP
6	0.323	29.77	-19.86	49.63	29.65	0.10	0.02	Average
7	0.410	40.17	-17.48	57.65	40.05	0.10	0.02	QP
8	0.410	31.22	-16.43	47.65	31.10	0.10	0.02	Average
9	0.471	42.62	-13.88	56.50	42.50	0.10	0.02	QP
10	0.471	34.53	-11.97	46.50	34.41	0.10	0.02	Average
11	0.564	39.95	-16.05	56.00	39.82	0.10	0.03	QP
12	0.564	22.10	-23.90	46.00	21.97	0.10	0.03	Average

Test Engineer: Hendry Yang

Hendry Yang

5.9 Test of Radiated Emission

Radiated emissions from 30 MHz to 26.5 GHz were measured according to the methods defined in ANSI C63.4-2001. The EUT was placed on a nonmetallic stand, 0.8 meter above the ground plane, as shown in section 5.9.3. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions

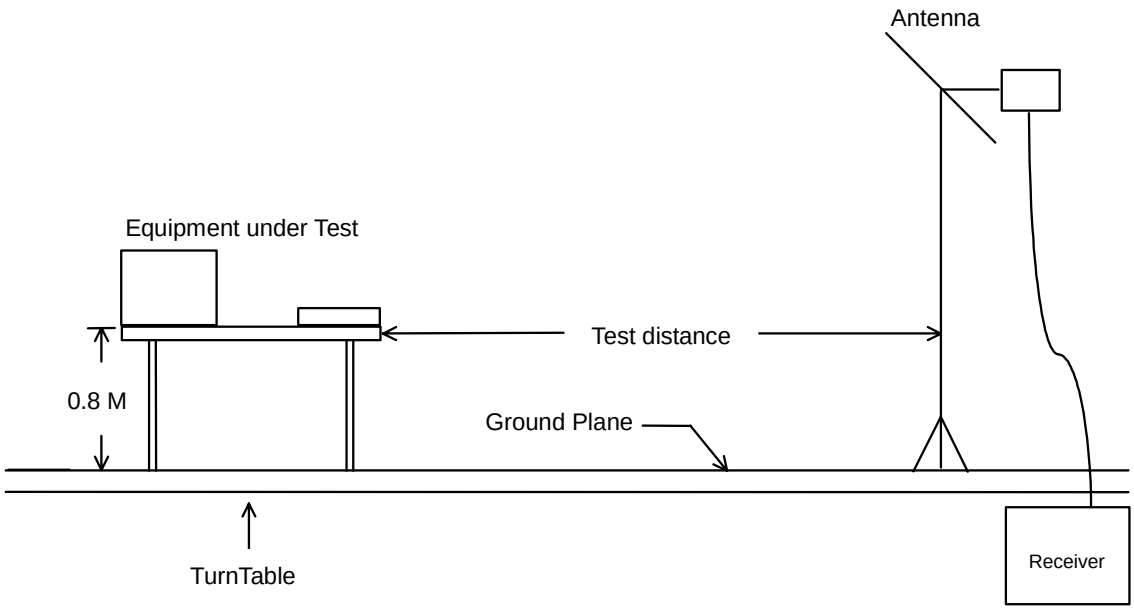
5.9.1 Major Measuring Instruments

● Amplifier	(MITEQ AFS44)
RF Gain	40 dB
Signal Input	100 MHz to 26.5 GHz
● Amplifier	(HP 8447D)
RF Gain	30 dB
Signal Input	100 kHz to 1.3 GHz
● Spectrum analyzer	(R&S FSP40)
Attenuation	10 dB
Start Frequency	1 GHz
Stop Frequency	24 GHz
Resolution Bandwidth	1 MHz
Video Bandwidth	1 MHz
Signal Input	9 kHz to 40 GHz
● Test Receiver	(SCHAFFNER SCR3501)
Resolution Bandwidth	120 kHz
Frequency Band	9 kHz – 1 GHz
Quasi-Peak Detector	ON for Quasi-Peak Mode
	OFF for Peak Mode

5.9.2 Test Procedures

1. The EUT was placed on a rotatable table top 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the quasi-peak method and reported.
8. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

5.9.3 Typical Test Setup Layout of Radiated Emission



5.9.4 Test Result of Radiated Emission

- Test Mode: Mode 1
- Test Distance: 3 M
- Temperature: 21 °C
- Relative Humidity: 52 %
- Test Date: Jan. 20, 2004
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

■ The test that passed at the minimum margin was marked by the frame in the following test record

■ Spurious Emission

Site : 03CH03-HY
Condition : FCC CLASS-B 3m HORN-ANT-6741 VERTICAL
EUT : TeamPed7500w
Power : 110V/60Hz
Memo : FHTXXXX/Bluetooth Ch00 2402MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1012.000	52.03	-21.97	74.00	60.31	24.15	4.20	36.63	Peak	115	360
2	1092.000	47.80	-26.20	74.00	55.66	24.34	4.42	36.62	Peak	115	360
3	1390.000	47.62	-26.38	74.00	54.06	25.07	5.08	36.59	Peak	115	360
4	1812.000	46.37	-27.63	74.00	50.02	26.65	6.10	36.40	Peak	115	360
5	2390.000	45.29	-28.71	74.00	46.36	28.20	6.97	36.24	Peak	115	360
6	2390.000	41.49	-12.51	54.00	42.56	28.20	6.97	36.24	Average	115	360
7 X	2401.800	94.62	40.62	54.00	95.65	28.22	6.98	36.23	Average	102	19
8 X	2401.800	102.72	28.72	74.00	103.75	28.22	6.98	36.23	Peak	102	19
9	2483.500	45.49	-28.51	74.00	46.16	28.39	7.16	36.22	Peak	---	---
10	2483.500	40.58	-13.42	54.00	41.25	28.39	7.16	36.22	Average	---	---

Site : 03CH03-HY
Condition : FCC CLASS-B 3m HORN-ANT-6741 VERTICAL
EUT : TeamPed7500w
Power : 110V/60Hz
Memo : FHTXXXX/Bluetooth Ch00 2402MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	4824.000	54.81	-19.19	74.00	47.78	33.07	10.16	36.20	Peak	115	360
2	4824.000	43.09	-10.91	54.00	36.06	33.07	10.16	36.20	Average	115	360

Site : 03CH03-HY
Condition : FCC CLASS-B 3m HORN-ANT-6741 VERTICAL
EUT : TeamPed7500w
Power : 110V/60Hz
Memo : FHTXXXX/Bluetooth Ch00 2402MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	7236.000	60.69	-13.31	74.00	48.07	35.89	13.20	36.47	Peak	---	---
2	7236.000	47.61	-6.39	54.00	34.99	35.89	13.20	36.47	Average	115	360

Site : 03CH03-HY
Condition : FCC CLASS-B 3m HORN-ANT-6741 HORIZONTAL
EUT : TeamPed7500w
Power : 110V/60Hz
Memo : FHTXXXX/Bluetooth Ch00 2402MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1012.000	50.47	-23.53	74.00	58.75	24.15	4.20	36.63	Peak	115	215
2	1190.000	43.88	-10.12	54.00	51.40	24.58	4.51	36.61	Average	115	215
3	1390.000	45.09	-8.91	54.00	51.53	25.07	5.08	36.59	Average	115	215
4	2390.000	46.16	-27.84	74.00	47.23	28.20	6.97	36.24	Peak	---	---
5	2390.000	39.05	-14.95	54.00	40.12	28.20	6.97	36.24	Average	---	---
6 X	2402.000	99.86	45.86	54.00	100.09	28.22	6.98	36.23	Average	100	8
7 X	2402.000	108.79	34.79	74.00	109.82	28.22	6.98	36.23	Peak	100	8
8	2483.500	45.34	-28.66	74.00	46.01	28.39	7.16	36.22	Peak	---	---
9	2483.500	40.59	-13.41	54.00	41.26	28.39	7.16	36.22	Average	---	---

Site : 03CH03-HY
Condition : FCC CLASS-B 3m HORN-ANT-6741 HORIZONTAL
EUT : TeamPed7500w
Power : 110V/60Hz
Memo : FHTXXXX/Bluetooth Ch00 2402MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	4824.000	54.82	-19.18	74.00	47.79	33.07	10.16	36.20	Peak	115	360
2	4824.000	42.01	-11.99	54.00	34.98	33.07	10.16	36.20	Average	115	360

Site : 03CH03-HY
Condition : FCC CLASS-B 3m HORN-ANT-6741 HORIZONTAL
EUT : TeamPed7500w
Power : 110V/60Hz
Memo : FHTXXXX/Bluetooth Ch00 2402MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	7206.000	63.13	-10.87	74.00	50.23	35.82	13.53	36.45	Peak	115	360
2	7206.000	47.91	-6.09	54.00	35.01	35.82	13.53	36.45	Average	115	360
3	7236.000	60.08	-13.92	74.00	47.46	35.89	13.20	36.47	Peak	115	360
4	7236.000	47.61	-6.39	54.00	34.99	35.89	13.20	36.47	Average	115	360

- For 7.236GHz ~ 25GHz
  Remark: Frequency from 7236MHz to 25000MHz, the emission emitted by the EUT is too low to be measured

■ Field strength of fundamental and harmonics

Frequency (MHz)	Polarity	Antenna Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Limits (dBuV/m)	Emission (dBuV/m)	Margin (dB)	Detect Mode
2401.000	V	28.22	6.98	67.52	-	102.72	-	Peak
2401.000	V	28.22	6.98	59.42	-	94.62	-	A.V.
2402.000	H	28.22	6.98	73.59	-	108.79	-	Peak
2402.000	H	28.22	6.98	64.66	-	99.86	-	A.V.
4824.000	V	33.07	10.16	11.58	74.00	54.81	-19.19	Peak
4824.000	V	33.07	10.16	-0.14	54.00	43.09	-10.91	A.V.
7236.000	V	35.89	13.20	11.60	74.00	60.69	-13.31	Peak
7236.000	V	35.89	13.20	-1.48	54.00	47.61	-6.39	A.V.
4824.000	H	33.07	10.16	11.59	74.00	54.82	-19.18	Peak
4824.000	H	33.07	10.16	-1.22	54.00	42.01	-11.99	A.V.
7206.000	H	35.82	13.53	13.78	74.00	63.13	-10.87	Peak
7206.000	H	35.82	13.53	-1.44	54.00	47.91	-6.09	A.V.
7236.000	H	35.89	13.20	10.99	74.00	60.08	-13.92	Peak
7236.000	H	35.89	13.20	-1.48	54.00	47.61	-6.39	A.V.
9608.000	V/H	-	-	-	-	-	-	Peak, A.V.
12010.000	V/H	-	-	-	-	-	-	Peak, A.V.
14412.000	V/H	-	-	-	-	-	-	Peak, A.V.
16814.000	V/H	-	-	-	-	-	-	Peak, A.V.
19216.000	V/H	-	-	-	-	-	-	Peak, A.V.
21618.000	V/H	-	-	-	-	-	-	Peak, A.V.
24020.000	V/H	-	-	-	-	-	-	Peak, A.V.

Remark: 1.The emission emitted by the EUT is too low to be measured except the emission listed above
2.Reading=Reading on SA-Preamp Factor

Test Engineer: Hendry Yang

Hendry Yang

- Test Mode: Mode 2
- Test Distance: 3 M
- Temperature: 21 °C
- Relative Humidity: 52 %
- Test Date: Jan. 20, 2004
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

■ The test that passed at the minimum margin was marked by the frame in the following test record

■ Spurious Emission

Site : 03CH03-HY
Condition : FCC CLASS-B 3m HORN-ANT-6741 VERTICAL
EUT : TeamPed7500w
Power : 110V/60Hz
Memo : FHTXXXX/Bluetooth Ch39 2441MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1012.000	37.87	-16.13	54.00	46.15	24.15	4.20	36.63	Average	115	18
2	1190.000	48.04	-25.96	74.00	55.56	24.58	4.51	36.61	Peak	115	18
3	1590.000	48.25	-25.75	74.00	53.47	25.73	5.58	36.53	Peak	115	18
4 X	2441.000	101.78	27.78	74.00	102.68	28.30	7.03	36.23	Peak	123	300
5 X	2441.000	93.84	39.84	54.00	94.74	28.30	7.03	36.23	Average	123	300

Site : 03CH03-HY
Condition : FCC CLASS-B 3m HORN-ANT-6741 VERTICAL
EUT : TeamPed7500w
Power : 110V/60Hz
Memo : FHTXXXX/Bluetooth Ch39 2441MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	4882.000	41.93	-12.07	54.00	34.40	33.18	10.55	36.20	Average	115	18
2	4882.000	55.26	-18.74	74.00	47.73	33.18	10.55	36.20	Peak	115	18

Site : 03CH03-HY
Condition : FCC CLASS-B 3m HORN-ANT-6741 VERTICAL
EUT : TeamPed7500w
Power : 110V/60Hz
Memo : FHTXXXX/Bluetooth Ch39 2441MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	7323.000	46.94	-7.06	54.00	34.22	36.10	13.13	36.51	Average	115	360
2	7326.000	60.20	-13.80	74.00	47.45	36.11	13.15	36.51	Peak	115	360

Site : 03CH03-HY
Condition : FCC CLASS-B 3m HORN-ANT-6741 HORIZONTAL
EUT : TeamPed7500w
Power : 110V/60Hz
Memo : FHTXXXX/Bluetooth Ch39 2441MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1012.000	50.36	-23.64	74.00	58.64	24.15	4.20	36.63	Peak	115	184
2	1190.000	39.92	-14.08	54.00	47.44	24.58	4.51	36.61	Average	115	184
3	1390.000	48.74	-25.26	74.00	55.18	25.07	5.08	36.59	Peak	115	184
4	1590.000	49.61	-24.39	74.00	54.03	25.73	5.50	36.53	Peak	115	184
5 X	2441.000	98.84	44.84	54.00	99.74	28.30	7.03	36.23	Average	100	360
6 X	2441.000	106.67	32.67	74.00	107.57	28.30	7.03	36.23	Peak	100	360

Site : 03CH03-HY
Condition : FCC CLASS-B 3m HORN-ANT-6741 HORIZONTAL
EUT : TeamPed7500w
Power : 110V/60Hz
Memo : FHTXXXX/Bluetooth Ch39 2441MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	4926.000	42.72	-11.28	54.00	35.22	33.27	10.42	36.19	Average	115	18
2	4926.000	56.42	-17.58	74.00	48.92	33.27	10.42	36.19	Peak	115	18

Site : 03CH03-HY
Condition : FCC CLASS-B 3m HORN-ANT-6741 HORIZONTAL
EUT : TeamPed7500w
Power : 110V/60Hz
Memo : FHTXXXX/Bluetooth Ch39 2441MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	7323.000	59.84	-14.16	74.00	47.12	36.10	13.13	36.51	Peak	115	18
2 !	7323.000	48.22	-5.78	54.00	35.50	36.10	13.13	36.51	Average	115	18

- For 7.323GHz ~ 25GHz
  Remark: Frequency from 7323MHz to 25000MHz, the emission emitted by the EUT is too low to be measured

■ Field strength of fundamental and harmonics

Frequency (MHz)	Polarity	Antenna Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Limits (dBuV/m)	Emission (dBuV/m)	Margin (dB)	Detect Mode
2441.000	V	28.30	7.03	66.45	-	101.78	-	Peak
2441.000	V	28.30	7.03	58.51	-	93.84	-	A.V.
2441.000	H	28.30	7.03	71.34	-	106.67	-	Peak
2441.000	H	28.30	7.03	63.51	-	98.84	-	A.V.
4882.000	V	33.18	10.55	11.53	74.00	55.26	-18.74	Peak
4882.000	V	33.18	10.55	-1.80	54.00	41.93	-12.07	A.V.
7323.000	V	36.11	13.15	10.94	74.00	60.20	-13.80	Peak
7326.000	V	36.10	13.13	-2.29	54.00	46.94	-7.06	A.V.
4926.000	H	33.27	10.42	12.73	74.00	56.42	-17.58	Peak
4926.000	H	33.27	10.42	-0.97	54.00	42.72	-11.28	A.V.
7323.000	H	36.10	13.13	10.61	74.00	59.84	-14.16	Peak
7323.000	H	36.10	13.13	-1.01	54.00	48.22	-5.78	A.V.
7323.000	V/H	-	-	-	-	-	-	Peak, A.V.
9764.000	V/H	-	-	-	-	-	-	Peak, A.V.
12205.000	V/H	-	-	-	-	-	-	Peak, A.V.
14646.000	V/H	-	-	-	-	-	-	Peak, A.V.
17087.000	V/H	-	-	-	-	-	-	Peak, A.V.
19528.000	V/H	-	-	-	-	-	-	Peak, A.V.
21969.000	V/H	-	-	-	-	-	-	Peak, A.V.
24410.000	V/H	-	-	-	-	-	-	Peak, A.V.

Remark: 1.The emission emitted by the EUT is too low to be measured except the emission listed above
2.Reading=Reading on SA-Preamp Factor

Test Engineer: Hendry Yang

Hendry Yang

- Test Mode: Mode 3
- Test Distance: 3 M

- Temperature: 21 °C
- Relative Humidity: 52 %
- Test Date: Jan. 20, 2004
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

■ The test that passed at the minimum margin was marked by the frame in the following test record

■ Spurious Emission

Site : 03CH03-HY
Condition : FCC CLASS-B 3m HORN-ANT-6741 VERTICAL
EUT : TeamPed7500w
Power : 110V/60Hz
Memo : FHTXXXX/Bluetooth Ch78 2480MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1012.000	38.15	-15.85	54.00	46.43	24.15	4.20	36.63	Average	115	18
2	1190.000	47.69	-26.31	74.00	55.21	24.58	4.51	36.61	Peak	115	360
3	1590.000	40.33	-25.67	74.00	53.55	25.73	5.50	36.53	Peak	115	360
4	2390.000	45.39	-28.61	74.00	46.46	28.20	6.97	36.24	Peak	---	---
5	2390.000	39.41	-14.59	54.00	40.48	28.20	6.97	36.24	Average	---	---
6 X	2480.000	102.62	28.62	74.00	103.33	28.38	7.13	36.22	Peak	100	20
7 X	2480.000	94.78	40.78	54.00	95.49	28.38	7.13	36.22	Average	100	20
8	2483.500	46.61	-27.39	74.00	47.28	28.39	7.16	36.22	Peak	---	---
9	2483.500	42.58	-11.42	54.00	43.25	28.39	7.16	36.22	Average	---	---

Site : 03CH03-HY
Condition : FCC CLASS-B 3m HORN-ANT-6741 VERTICAL
EUT : TeamPed7500w
Power : 110V/60Hz
Memo : FHTXXXX/Bluetooth Ch78 2480MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	3834.000	39.29	-14.71	54.00	34.55	32.17	8.72	36.15	Average	115	18
2	3834.000	54.10	-19.90	74.00	49.36	32.17	8.72	36.15	Peak	115	18
3	4960.000	42.15	-11.85	54.00	34.86	33.34	10.13	36.18	Average	115	18
4	4960.000	54.69	-19.31	74.00	47.40	33.34	10.13	36.18	Peak	115	18

Site : 03CH03-HY
Condition : FCC CLASS-B 3m HORN-ANT-6741 VERTICAL
EUT : TeamPed7500w
Power : 110V/60Hz
Memo : FHTXXXX/Bluetooth Ch78 2480MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	7440.000	59.99	-14.01	74.00	46.50	36.38	13.68	36.57	Peak	115	360
2 !	7440.000	48.99	-5.01	54.00	35.50	36.38	13.68	36.57	Average	115	360

Site : 03CH03-HY
Condition : FCC CLASS-B 3m HORN-ANT-6741 HORIZONTAL
EUT : TeamPed7500w
Power : 110V/60Hz
Memo : FHTXXXX/Bluetooth Ch78 2480MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1012.000	50.85	-23.15	74.00	59.13	24.15	4.20	36.63	Peak	115	360
2	1062.000	48.54	-25.46	74.00	56.53	24.27	4.36	36.62	Peak	115	360
3	1190.000	49.21	-24.79	74.00	56.73	24.58	4.51	36.61	Peak	115	360
4	1390.000	50.41	-23.59	74.00	56.85	25.07	5.08	36.59	Peak	115	360
5	1590.000	48.28	-25.72	74.00	53.50	25.73	5.58	36.53	Peak	115	360
6	2390.000	46.15	-27.85	74.00	47.22	28.20	6.97	36.24	Peak	115	360
7	2390.000	39.80	-14.20	54.00	40.87	28.20	6.97	36.24	Average	115	360
8 X	2480.000	106.35	32.35	74.00	107.06	28.38	7.13	36.22	Peak	100	3
9 X	2480.000	98.47	44.47	54.00	99.18	28.38	7.13	36.22	Average	100	3
10	2483.500	47.89	-26.11	74.00	48.56	28.39	7.16	36.22	Peak	---	---
11	2483.500	42.20	-11.80	54.00	42.87	28.39	7.16	36.22	Average	---	---

Site : 03CH03-HY
Condition : FCC CLASS-B 3m HORN-ANT-6741 HORIZONTAL
EUT : TeamPed7500w
Power : 110V/60Hz
Memo : FHTXXXX/Bluetooth Ch78 2480MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	4960.000	43.23	-10.77	54.00	35.94	33.34	10.13	36.18	Average	115	360
2	4960.000	54.76	-19.24	74.00	47.47	33.34	10.13	36.18	Peak	115	360

Site : 03CH03-HY
Condition : FCC CLASS-B 3m HORN-ANT-6741 HORIZONTAL
EUT : TeamPed7500w
Power : 110V/60Hz
Memo : FHTXXXX/Bluetooth Ch78 2480MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	7440.000	60.50	-13.50	74.00	47.01	36.38	13.68	36.57	Peak	115	360
2	7440.000	48.52	-5.48	54.00	35.03	36.38	13.68	36.57	Average	115	360

- For 7.440GHz ~ 25GHz
  Remark: Frequency from 7440MHz to 25000MHz, the emission emitted by the EUT is too low to be measured

■ Field strength of fundamental and harmonics

Frequency (MHz)	Polarity	Antenna Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Limits (dBuV/m)	Emission (dBuV/m)	Margin (dB)	Detect Mode
2480.000	V	28.38	7.13	67.11	-	102.62	-	Peak
2480.000	V	28.38	7.13	59.27	-	94.78	-	A.V.
2480.000	H	28.38	7.13	70.84	-	106.35	-	Peak
2480.000	H	28.38	7.13	62.96	-	98.47	-	A.V.
3834.000	V	32.17	8.72	13.21	74.00	54.10	-19.90	Peak
3834.000	V	32.17	8.72	-1.60	54.00	39.29	-14.71	Av
4960.000	V	33.34	10.13	11.22	74.00	54.69	-19.31	Peak
4960.000	V	33.34	10.13	-1.32	54.00	42.15	-11.85	Av
7440.000	V	36.38	13.68	9.93	74.00	59.99	-14.01	Peak
7440.000	V	36.38	13.68	-1.07	54.00	48.99	-5.01	Av
4960.000	H	33.34	10.13	11.29	74.00	54.76	-19.24	Peak
4960.000	H	33.34	10.13	-0.24	54.00	43.23	-10.77	Av
7440.000	H	36.38	13.68	10.44	74.00	60.50	-13.50	Peak
7440.000	H	36.38	13.68	-1.54	54.00	48.52	-5.48	Av
7323.000	V/H	-	-	-	-	-	-	Peak, A.V.
9764.000	V/H	-	-	-	-	-	-	Peak, A.V.
12205.000	V/H	-	-	-	-	-	-	Peak, A.V.
14646.000	V/H	-	-	-	-	-	-	Peak, A.V.
17087.000	V/H	-	-	-	-	-	-	Peak, A.V.
19528.000	V/H	-	-	-	-	-	-	Peak, A.V.
21969.000	V/H	-	-	-	-	-	-	Peak, A.V.
24410.000	V/H	-	-	-	-	-	-	Peak, A.V.

Remark: 1.The emission emitted by the EUT is too low to be measured except the emission listed above
2.Reading =Reading on SA-Preamp Factor

Test Engineer Hendry Yang

Hendry Yang

- Test Mode: Mode 4
- Test Distance: 3 M
- Temperature: 21 °C
- Relative Humidity: 56 %
- Test Date: Jan. 20, 2004
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

■ The test that passed at the minimum margin was marked by the frame in the following test record

■ Spurious Emission

Site : 03CH03-HY
Condition : FCC CLASS-B 3m BIC-9124--301 VERTICAL
EUT : TeamPed7500w
Power : 110V/60Hz
Memo : FHTXXXX/Bluetooth Ch78 2480MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1 !	48.020	35.71	-4.29	40.00	53.17	10.25	0.29	28.00	Peak	100	360
2	99.190	35.26	-8.24	43.50	52.95	9.72	0.49	27.90	Peak	100	360
3 !	167.870	40.43	-3.07	43.50	54.32	13.13	0.74	27.76	QP	100	360

Site : 03CH03-HY
Condition : FCC CLASS-B 3m LOG-9111-221 VERTICAL
EUT : TeamPed7500w
Power : 110V/60Hz
Memo : FHTXXXX/Bluetooth Ch78 2480MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	240.000	38.41	-7.59	46.00	52.58	12.85	0.52	27.54	Peak	100	360
2	432.000	37.51	-8.49	46.00	48.04	16.24	1.32	28.09	Peak	100	360
3	493.600	36.03	-9.97	46.00	46.04	17.26	1.37	28.64	Peak	100	360

Site : 03CH03-HY
Condition : FCC CLASS-B 3m BIC-9124--301 HORIZONTAL
EUT : TeamPed7500w
Power : 110V/60Hz
Memo : FHTXXXX/Bluetooth Ch78 2480MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	61.790	32.84	-7.16	40.00	50.66	9.80	0.35	27.97	Peak	100	360
2	99.190	35.08	-8.42	43.50	52.77	9.72	0.49	27.90	Peak	100	360
3	167.870	37.30	-6.20	43.50	51.19	13.13	0.74	27.76	Peak	100	360

Site : 03CH03-HY
Condition : FCC CLASS-B 3m LOG-9111-221 HORIZONTAL
EUT : TeamPed7500w
Power : 110V/60Hz
Memo : FHTXXXX/Bluetooth Ch78 2480MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1 !	215.200	40.37	-3.13	43.50	52.74	14.42	0.85	27.64	Peak	100	360
2	263.200	25.77	-20.23	46.00	40.28	12.48	0.46	27.45	QP	100	38
3 !	288.000	41.56	-4.44	46.00	54.88	12.89	1.14	27.35	Peak	100	360
4 !	432.000	42.79	-3.21	46.00	53.32	16.24	1.32	28.09	Peak	100	360

Test Engineer: Hendry Yang

Hendry Yang

6. Antenna Requirements

The EUT use an embedded chip antenna. It is considered to meet antenna requirement of FCC.

Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that assembled by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if directional gain of transmitting antennas greater than 6dBi are used, the power shall be reduced by the same amount in unit dB comparing to the directional gain of the antenna minus 6dBi.

Antenna Connected Construction

The maximum gain antenna used in this product is embedded chip antenna without connector.

7. RF Exposure

FCC Rules and Regulations Part 1.1307,1.1310,2.1091,2.1093:

RF Exposure Compliance

7.1 Limit For Maximum Permissible Exposure (MPE)

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm^2)	Averaging Time $\|E\|^2$,$\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$,$\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

F=frequency in MHz *Plane-wave equivalent power density

7.1.1 MPE Calculations

Power Density =Pd (mW/cm^2) = EIRP/4 π d^2

EIRP = P. G

P＝Peak output power (mW)

G＝Antenna numeric gain (numeric)

d＝Separation distance (cm)

Because the EUT belongs to General Population/ Uncontrolled Exposure, the Limit of Power Density is 1.0 mW/m^2.

Channel NO.	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated RF Exposure at d=2.5cm (mW/cm^2)	Limit (mW/cm^2)
Channel 00	-2.4	0.58	1.53	1.4223	0.010	1.0
Channel 39	-2.4	0.58	1.94	1.5631	0.011	1.0
Channel 78	-2.4	0.58	0.95	1.2445	0.009	1.0

8. List of Measuring Equipments Used

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100132	9 KHz – 2.75 GHz	Jun. 12, 2003	Conduction
LISN	MessTec	NNB-2/16Z	2001-008	9 KHz – 30 MHz	Apr. 30, 2003	Conduction
LISN	MessTec	NNB-2/16Z	2001-009	9 KHz – 30 MHz	Apr. 30, 2003	Conduction
EMI Filter	LINDGREN	LRE-2060	1004	< 450 Hz	N/A	Conduction
EMI Filter	LINDGREN	N6006	201052	0 ~ 60 Hz	N/A	Conduction
RF Cable-CON	Suhner Switzerland	RG223/U	CB029	9KHz~30MHz	Dec. 24, 2003	Conduction
50 ohm BNC type	NOBLE	50ohm	TM013	50 ohm	Apr. 24, 2003	Conduction
3m Semi Anechoic	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz~1GHz	Jun. 21, 2003	Radiation
Spectrum analyzer	R&S	FSP40	100004	9KHZ~40GHz	Aug. 23, 2003	Radiation
Amplifier	HP	8447D	2944A09072	100KHz – 1.3GHz	Nov. 05, 2003	Radiation
Biconical Antenna	SCHWARZBECK	VHBB 9124	301	30MHz –200MHz	Jul. 24, 2003	Radiation
Log Antenna	SCHWARZBECK	VUSLP 9111	221	200MHz -1GHz	Jul. 24, 2003	Radiation
RF Cable-R03m	Jye Bao	RG142	CB021	30MHz~1GHz	Dec. 03, 2003	Radiation
Amplifier	MITEQ	AFS44	879981	100MHz~26.5GHz	Jul. 23, 2003	Radiation
Horn Antenna	COM-POWER	3115	6741	1GHz – 18GHz	Apr. 08, 2003	Radiation
Turn Table	HD	DS 420	420/650/00	0 ~ 360 degree	N/A	Radiation
Antenna Mast	HD	MA 240	240/560/00	1 m - 4 m	N/A	Radiation
Horn Antenna	Schwarzbeck	BBHA9170	154	15GHz~40GHz	Jun. 02, 2003	Radiation
RF Cable-HIGH	Jye Bao	RG142	CB030-HIGH	1GHz~29.5GHz	Dec. 05, 2003	Radiation

※ Calibration Interval of instruments listed above is one year.

※ Calibration Interval of instruments listed above is one year, except for Horn Antenna, BBHA9170.

※ Calibration Interval of Horn Antenna, BBHA9170, is three years.

9. Uncertainty of Test Site

Uncertainty of Radiated Emission Measurement

Contribution	Probability Distribution	3m
Antenna factor calibration	normal(k=2)	±1
cable loss calibration	normal(k=2)	±0.3
RCV/SPA specification	rectangular	±2
Antenna Directivity	rectangular	±3
Antenna Factor V.S. Height	rectangular	±2
Antenna Factor Interpolation for Frequency	rectangular	±0.25
site imperfection	rectangular	±2
Mismatch Receiver VSWR Γ1=0.09 Antenna VSWR Γ2=0.67 Uncertainty=20log(1-Γ1*Γ2)	U-shaped	±0.54
combined standard uncertainty Ue(y)	normal	±2.7
Measuring uncertainty for a level of confidence of 95% U=2Ue(y)	normal (k=2)	±5.4

$U=\sqrt{\{(1/2)^2+(0.3/2)^2+(2^2+0.5^2+2^2+0.25^2+2^2)/3+(0.54)^2/2\}}=2.2$ for 10m test distance

$U=\sqrt{\{(1/2)^2+(0.3/2)^2+(2^2+3^2+2^2+0.25^2+2^2)/3+(0.54)^2/2\}}=2.7$ for 3m test distance

Uncertainty of Conducted Emission Measurement

Contribution	Probability Distribution	150KHz – 30MHz
Cable and I/P attenuator calibration	normal(k=2)	±0.3
RCV/SPA specification	rectangular	±2
LISN coupling specification	rectangular	±1.5
Transducer factor frequency interpolation	rectangular	±0.2
Mismatch Receiver VSWR Γ1=0.09 LISN VSWR Γ2=0.33 Uncertainty=20log(1-Γ1*Γ2)	U-shaped	0.2
combined standard uncertainty Ue(y)	normal	±1.66
Measuring uncertainty for a level of confidence of 95% U=2Ue(y)	normal (k=2)	±3.32

$U=\sqrt{\{(0.3/2)^2+(2^2+1.5^2+0.2^2)/3+(0.2)^2/2\}}=1.66$