

Test Report of FCC Part 15 B for FCC Certificate  
On Behalf of  
**ActionXL, LLC**

Product description: Wireless Firepad Dongle

Model No.: FP100WL

FCC ID: V8F-FP100WL-R

**Prepared for:** **ActionXL, LLC**

8150e Smokehouse Trail, Scottsdale AZ85266

**Prepared by:** **Bontek Compliance Testing Laboratory Ltd**

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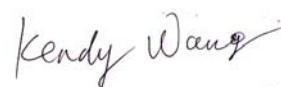
**Report No.:** BCT08DR-280E

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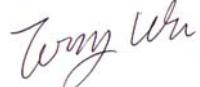
**Test Date:** April 20~28, 2008

**Test by:**

**Reviewed By:**



Kendency Wang



Tony Wu

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# 1. GENERAL INFORMATION

## 1.1 Product Description for Equipment Under Test (EUT)

Applicant:	<b>ActionXL, LLC</b>
Address of applicant:	8150e Smokehouse Trail, Scottsdale AZ85266
Manufacturer:	<b>PATTAT PLASTIC METAL CO., LTD.</b>
Address of manufacturer:	Block 16, Da Jing Tou 1ST Industrial Zone, Dalang, Dongguan, China
EUT Description:	Wireless Firepad Dongle
Trade Name:	N/A
Model No.:	FP100WL
Rated Voltage	DC 3.8V from PC system
Measurement Procedure	ANSI C63.4-2003

Remark: \* The test data gathered are from the production sample provided by the manufacturer.

## 1.2 Related Submittal(s) / Grant (s)

This submittal(s) is a test report based on the Electromagnetic Interference (EMI) tests performed on the EUT. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4 - 2003.

The tests were performed in order to determine compliance with FCC Part 15, Subpart B, section 15.107 and section 15.109 rules.

## 1.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 - 2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz. Radiated testing was performed at an antenna to EUT distance 3 meters.

## **1.4 Test Facility**

All measurement required was performed at laboratory of Bontek Compliance Testing Laboratory Ltd at 1/F, Block East H-3, OCT Eastern Ind. Zone, Qiaocheng East Road, Nanshan, Shenzhen, China

The test facility is recognized, certified, or accredited by the following organizations:

### **FCC – Registration No.: 338263**

Bontek Compliance Testing Laboratory Ltd, EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 338263, March, 2008.

## **2. SYSTEM TEST CONFIGURATION**

The tests documented in this report were performed in accordance with ANSI C63.4-2003 and FCC CFR 47 Part 15 Subpart B, section 15.107 and section 15.109..

### **2.1 EUT Configuration**

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

### **2.2 EUT Exercise**

The calibrated antennas used to sample the radiated field strength are mounted on a non-conductive, motorized antenna mast 3 or 10 meters from the leading edge of the turntable.

### **2.3 General Test Procedures**

**Conducted Emissions** The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 7.1 of ANSI C63.4-2003. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak detector mode.

**Radiated Emissions** The EUT is placed on a turntable, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4-2003.

## 2.4 List of Measuring Equipments Used

Items	Equipment	Manufacturer	Model No.	Serial No.	Last Cal	Calibration Period
1	EMI Test Receiver	R&S	ESCI	100687	2007/11/17	1 Year
2	EMI Test Receiver	R&S	ESPI7	100097	2007/11/17	1 Year
3	Spectrum Analyzer	Agilent	E4408	82547	2008/2/26	1 Year
4	Amplifier	HP	8447D	1937A024 92	2007/11/17	1 Year
5	Single Power Conductor Module	FCC	FCC-LISN-5-50-1-01-CISPR25	07101	2007/11/17	1 Year
6	3 phase Artificial Mains (L.I.S.N)	SCHWARZBECK	NSLK 8128	8128247	2007/11/17	1 Year
7	TRILOG Broadband Test-Antenna	SCHWARZBECK	VULB9163	9163-324	2007/11/17	1 Year
8	Horn Antenna	SCHWARZBECK	BBHA9120A	D69250	2007/11/17	1 Year
9	Loop Antenna	DAZE	ZN30900A	8411	2008/2/26	1 Year
10	High Field Biconical Antenna	ELECTRO-METRICS	EM-6913	166	2007/11/17	1 Year
11	Log Periodic Antenna	ELECTRO-METRICS	EM-6950	811	2007/11/17	1 Year
12	Remote Active Vertical Antenna	ELECTRO-METRICS	EM-6892	304	2007/11/17	1 Year
13	Power Clamp	SCHWARZBECK	MDS-21	3812	2007/11/17	1 Year
14	Single Power Conductor Module	FCC	FCC-LISN-5-50-1-01-CISPR25	07102	2007/11/17	1 Year
15	Teo Line Single Phase Module	FCC	FCC-LISN-50-25-2-01	06061	2007/11/17	1 Year

### 3. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
15.107	Disturbance Voltage at The Mains Terminals	Pass
15.109	Radiation Emission	Pass

## 4 - DISTURBANCE VOLTAGE AT THE MAINS TERMINALS

### 4.1 Limit of Disturbance Voltage at The Mains Terminals (Class B)

Frequency Range (MHz)	Limits ( dBuV)	
	Quasi-Peak	Average
0.150~0.500	66~56	56~46
0.500~5.000	56	46
5.000~30.00	60	50

Note: (1)The tighter limit shall apply at the edge between two frequency bands.

### 4.2 EUT Setup

The setup of EUT is according with ANSI C63.4-2003 measurement procedure. The specification used was the FCC Rules and Regulations Part 15 Subpart B Section 15.107 Class B limits.

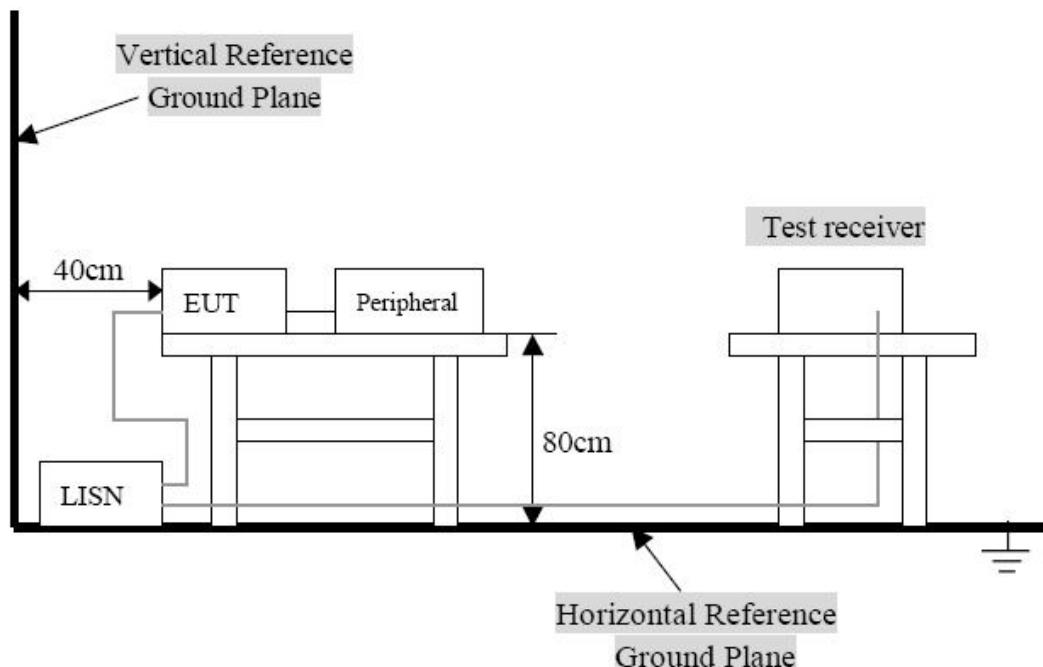
The EUT was placed center and the back edge of the test table.

The AV cables were draped along the test table and bundled to 30-40cm in the middle.

The spacing between the peripherals was 10 cm.

Maximum emission emitted from EUT was determined by manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation and the levels in the final result of the test were recorded with the EUT running in the operating mode that maximum emission was emitted.

### 4.3 Test Setup Diagram



## 4.4 Instrument Setup

The test receiver was set with the following configurations:

Test Receiver Setting:

Frequency Range.....150 KHz to 30 MHz  
Detector.....Peak & Quasi-Peak & Average  
Sweep Speed.....Auto  
IF Band Width.....9 KHz

## 4.5 Test Procedure

During the conducted emission test, the EUT power cord was connected to the auxiliary outlet of the first Artificial Mains.

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance using all installation combination.

All data was recorded in the peak detection mode. Quasi-peak and Average readings were only performed when an emission was found to be marginal (within  $-10 \text{ dB}\mu\text{V}$  of specification limits). Quasi-peak readings are distinguished with a "QP". Average readings are distinguished with a "Av".

## 4.6 Disturbance Voltage Test Data

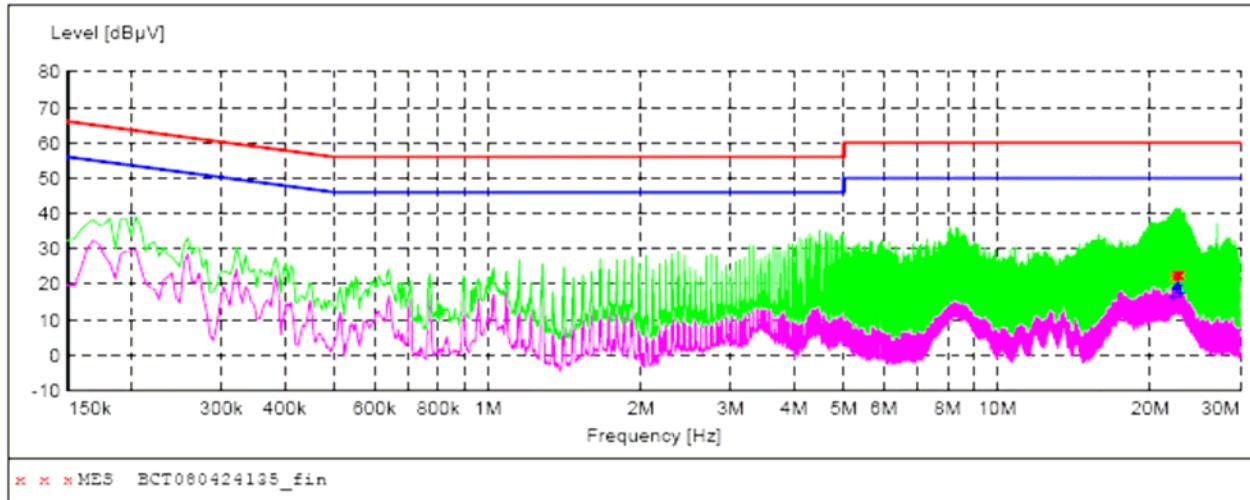
Temperature ( °C ) : 22~23	EUT: Wireless Firepad Dongle
Humidity (%RH ): 50~54	M/N: FP100WL
Barometric Pressure ( mbar ): 950~1000	Operation Condition: Normal Operation

**Remark:** (1) When PK reading is less than relevant limit 20dB, the QP reading and AV reading will not be recorded.  
(2) Where QP reading is less than relevant AV limit, the AV reading will not be measured

## Conducted Emission Test Data

EUT: Wireless Firepad Dongle  
Operating Condition: Normal Operating  
Operator: Andy  
Test Specification: AC 110V/60Hz  
Comment: Neutral Line  
Start of Test: 4/26/08 18:28

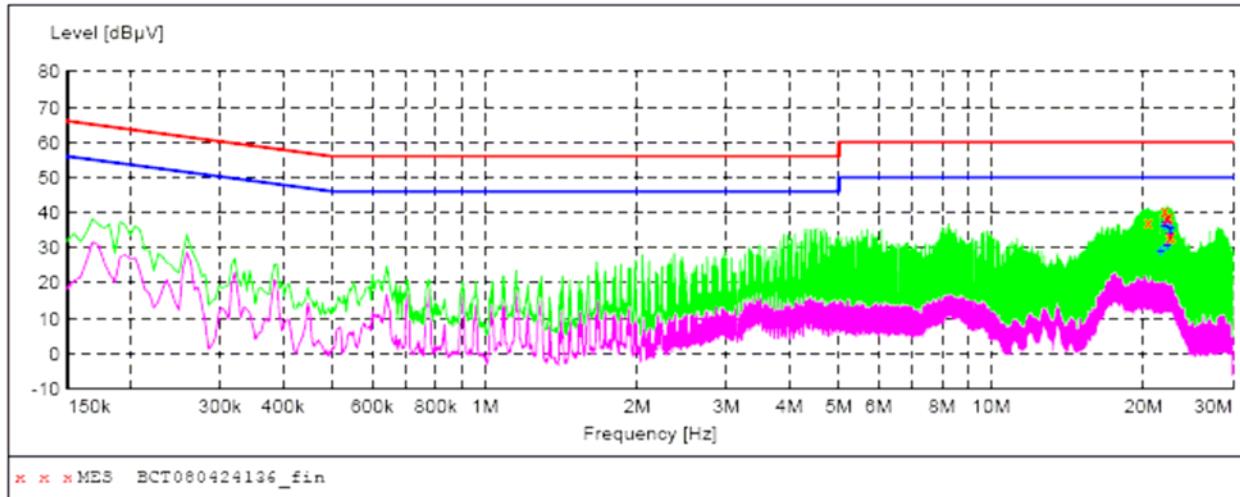
*SCAN TABLE: "Voltage (150K-30M) FIN"*  
Short Description: 150K-30M Voltage



## Conducted Emission Test Data

EUT: Wireless Firepad Dongle  
Operating Condition: Normal Operating  
Operator: Andy  
Test Specification: AC 110V/60Hz for PC system  
Comment: Live Line  
Start of Test: 4/26/08 18:33

**SCAN TABLE: "Voltage (150K-30M) FIN"**  
Short Description: 150K-30M Voltage



### MEASUREMENT RESULT: "BCT080424136\_fin"

4/24/2008 18:35

Frequency MHz	Level dB $\mu$ V	Transd dB	Limit dB $\mu$ V	Margin dB	Detector	Line	PE
20.454000	37.10	10.7	60	22.9	QP	L1	GND
22.011000	40.70	10.8	60	19.3	QP	L1	GND
22.267500	38.50	10.8	60	21.5	QP	L1	GND
22.398000	38.90	10.8	60	21.1	QP	L1	GND
22.524000	32.80	10.8	60	27.2	QP	L1	GND
22.654500	33.40	10.8	60	26.6	QP	L1	GND

### MEASUREMENT RESULT: "BCT080424136\_fin2"

4/24/2008 18:35

Frequency MHz	Level dB $\mu$ V	Transd dB	Limit dB $\mu$ V	Margin dB	Detector	Line	PE
21.619500	28.90	10.8	50	21.1	AV	L1	GND
22.011000	36.20	10.8	50	13.8	AV	L1	GND
22.141500	37.50	10.8	50	12.5	AV	L1	GND
22.267500	30.80	10.8	50	19.2	AV	L1	GND
22.528500	34.30	10.8	50	15.7	AV	L1	GND
22.659000	35.60	10.8	50	14.4	AV	L1	GND

## 5 - RADIATED DISTURBANCES

### 5.1 Limit of Radiated Disturbances (Class B)

Frequency (MHz)	Distance (Meters)	Field Strengths Limits (dB $\mu$ V/m)
30 ~ 88	3	40
88~216	3	43.5
216 ~ 960	3	46
960 ~ 1000	3	54

Note: (1) The tighter limit shall apply at the edge between two frequency bands.  
(2) Distance refers to the distance in meters between the test instrument antenna and the closest point of any part of the E.U.T.

### 5.2 EUT Setup

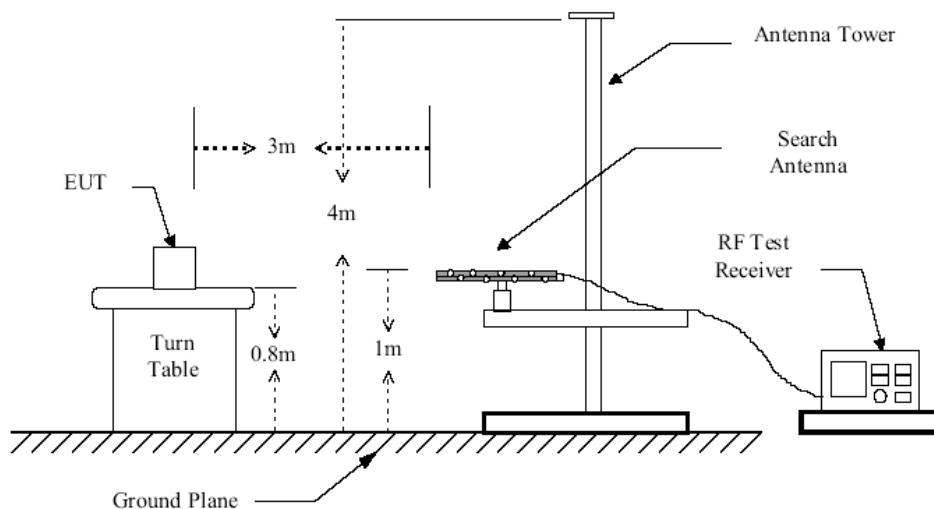


Figure 1 : Frequencies measured below 1 GHz configuration

### 5.3 EUT Setup

The radiated emission tests were performed in the in the 3-meter anechoic chamber, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC Part 15 Subpart B Section 15.109 limits.

The EUT was placed on the center of the test table.

Maximum emission emitted from EUT was determined by manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation and the levels in the final result of the test were recorded with the EUT running in the operating mode that maximum emission was emitted.

## 5.4 Test Receiver Setup

According to FCC Part 15 rule, the frequency was investigated from 30 to 1000 MHz. During the radiated emission test, the test receiver was set with the following configurations:

Test Receiver Setting:

Detector.....Peak & Quasi-Peak  
IF Band Width.....120KHz  
Frequency Range.....30MHz to 1000MHz  
Turntable Rotated.....0 to 360 degrees

Antenna Position:

Height.....1m to 4m  
Polarity.....Horizontal and Vertical

## 5.5 Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the peak detection mode. Quasi-peak readings performed only when an emission was found to be marginal (within  $-10 \text{ dB}\mu\text{V}$  of specification limits), and are distinguished with a "QP" in the data table.

## 5.6 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

The "Margin" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of  $-7 \text{ dB}\mu\text{V}$  means the emission is  $7 \text{ dB}\mu\text{V}$  below the maximum limit for Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{Class B Limit}$$

## 5.7 Radiated Emissions Test Result

Temperature ( °C ) : 22~23	EUT: Wireless Firepad Dongle
Humidity (%RH ) : 50~54	M/N: FP100WL
Barometric Pressure ( mbar ) : 950~1000	Operation Condition: Normal Operation

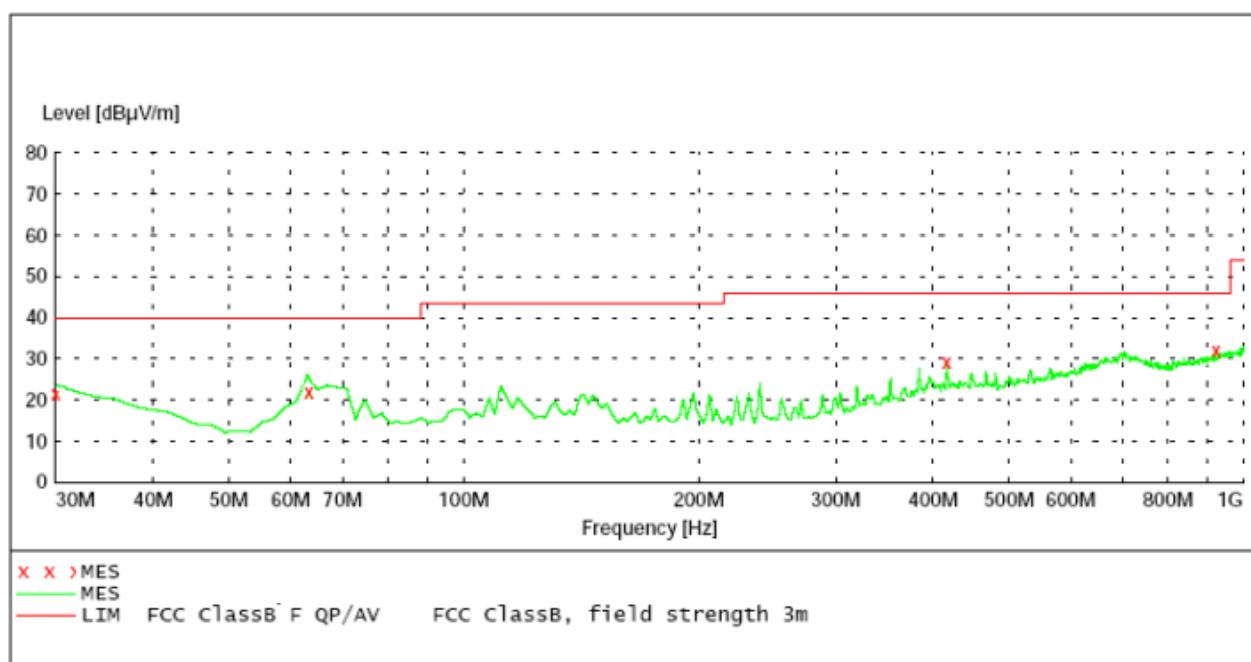
**Remark:** (1) When PK reading is less than relevant limit 20dB, the QP reading and AV reading will not be recorded.  
(2) Where QP reading is less than relevant AV limit, the AV reading will not be measured

## RADIATED EMISSION TEST DATA

EUT: Wireless Firepad Dongle  
 Operating Condition: Normal Operating  
 Test Site: 3m CHAMBER  
 Operator: Kavin  
 Test Specification: AC 110V/60Hz for PC system  
 Comment: Polarisation:H  
 Start of Test: 4/26/08 3:15:19PM

### SCAN TABLE: "test Field(30M-1G)"

Short Description:		Field Strength(30M-1G)			Meas. Time	IF Bandw.	Transducer
Start Frequency	Stop Frequency	Step Width	Detector				
30.0 MHz	1.0 GHz	60.0 kHz	QuasiPeak	1.0 s	120 kHz	HL562new	



### MEASUREMENT RESULT: " BCT0426101\_fin QP"

4/26/08 3:19PM

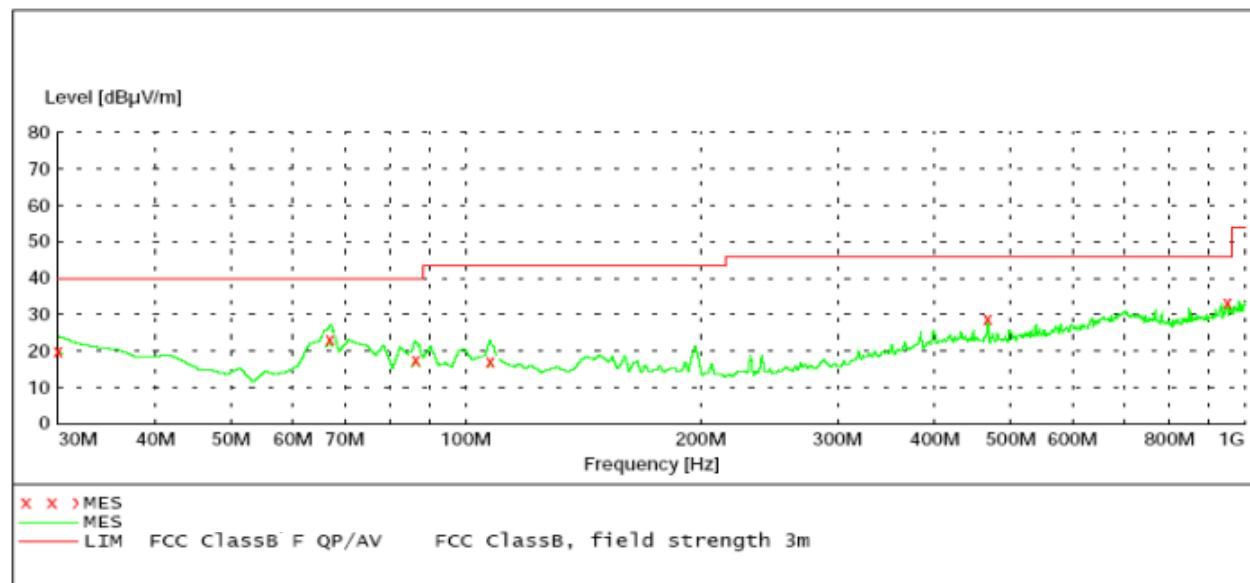
Frequency MHz	Level dB $\mu$ V/m	Azimuth deg	Height cm	Polarisation	Transd dB	Limit dB $\mu$ V/m	Margin dB
30.000000	20.90	169.00	100.0	HOR	17.1	40.0	19.1
62.511022	21.70	38.00	100.0	HOR	15.7	40.0	18.3
428.276553	28.92	70.00	100.0	HOR	21.9	46.0	17.1
923.547094	31.21	38.00	100.0	HOR	22.6	46.0	14.8

## RADIATED EMISSION TEST DATA

EUT: Wireless Firepad Dongle  
 Operating Condition: Normal Operating  
 Test Site: 3m CHAMBER  
 Operator: Kavin  
 Test Specification: AC 110V/60Hz for PC system  
 Comment: Polarisation:V  
 Start of Test: 4/26/08 3:21:54PM

### SCAN TABLE: "test Field(30M-1G)"

Short Description:	Field Strength(30M-1G)					
Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	60.0 kHz	QuasiPeak	1.0 s	120 kHz	HL562new



### MEASUREMENT RESULT: " BCT0426102\_fin QP"

4/26/08 3:25PM

Frequency MHz	Level dB $\mu$ V/m	Azimuth deg	Height cm	Polarisation	Transd dB	Limit dB $\mu$ V/m	Margin dB
30.000000	20.58	102.00	100.0	VER	11.2	40.0	19.4
66.411623	22.34	5.00	100.0	VER	12.1	40.0	17.7
87.276553	18.16	102.00	100.0	VER	11.9	40.0	21.8
112.085760	17.98	98.00	100.0	VER	12.4	43.5	25.5
468.411623	28.84	173.00	100.0	VER	16.1	46.0	17.2
945.276553	32.78	254.00	100.0	VER	18.9	46.0	13.2