

Application for FCC Certificate  
On Behalf of  
Jiaxing SHUFUDE Electrics Bed Co., Ltd.

Remote Controller

Model No.: SFD-Y-05-02

Serial No.: E2009102201

FCC ID : WKZSFDY0502

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## TEST REPORT FOR FCC CERTIFICATION

Applicant : Jiaxing SHUFUDE Electrics Bed Co., Ltd.  
Manufacturer : Jiaxing SHUFUDE Electrics Bed Co., Ltd..  
EUT Description : Remote Controller  
(A) Model No. : SFD-Y-05-02  
(B) Serial No. : E2009102201  
(C) Power Supply : DC 4.5V (AAA Battery\*3)

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 15 SUBPART C OCTOBER 2008  
AND ANSI C63.4:2003*

The device described above is tested by Audix Technology (Shanghai) Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C limits radiated emission.

The test results are contained in this test report and Audix Technology (Shanghai) Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. This report shows that the EUT (M/N: SFD-Y-05-02; S/N: E2009102201), which was tested in 3m anechoic chamber on Oct. 26 – 30, 2009 to be technically compliant with the FCC official limits also.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Technology (Shanghai) Co., Ltd.

This report contains data that are not covered by the NVLAP accreditation.

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government by the client.

Date of Test : Oct. 26 – 30, 2009 Date of Report : Nov. 04, 2009

Producer : DIO YANG  
DIO YANG / Deputy Assistant Manager

Review : SAMMY CHEN  
SAMMY CHEN / Assistant Manager



For and on behalf of  
Audix Technology (Shanghai) Co., Ltd.

Signatory : BYRON KWO  
Authorized Signature EMC BYRON KWO / Manager

# 1 SUMMARY OF STANDARDS AND RESULTS

## 1.1 Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below:

Description / Test Item	Test Standard	Meets Limit	Results
Conducted Emission at the Mains Terminal	FCC RULES AND REGULATIONS PART 15 SUBPART C OCTOBER 2008 AND ANSI C63.4:2003	15.207	N/A
Radiated Emission	FCC RULES AND REGULATIONS PART 15 SUBPART C OCTOBER 2008 AND ANSI C63.4:2003	15.209	Pass
Fundamental and Harmonics Emission	FCC RULES AND REGULATIONS PART 15 SUBPART C OCTOBER 2008 AND ANSI C63.4:2003	15.249	Pass
Bandwidth Measurement	FCC RULES AND REGULATIONS PART 15 SUBPART C OCTOBER 2008 AND ANSI C63.4:2003	15.215	Pass
Band-Edge Measurement	FCC RULES AND REGULATIONS PART 15 SUBPART C OCTOBER 2008 AND ANSI C63.4:2003	15.249	Pass
N/A is an abbreviation for Not Applicable.			

## 2 GENERAL INFORMATION

### 2.1 Description of Equipment Under Test

Description	:	Remote Controller
Type of EUT	:	<input checked="" type="checkbox"/> Production <input type="checkbox"/> Pre-product <input type="checkbox"/> Pro-type
Model No.	:	SFD-Y-05-02
Serial No.	:	E2009102201
Applicant	:	Jiaxing SHUFUDE Electrics Bed Co., Ltd. East No.07 Provincial Road, Tengyun Village, Wangjiangjing Development Area, Jiaxing, Zhejiang, China
Manufacturer	:	Jiaxing SHUFUDE Electrics Bed Co., Ltd. No.773 Furun Road, Dongshan Industrial Park, Jiaxing, Zhejiang, China
Power Supply	:	Battery Operated DC 4.5V (AAA Battery*3) The tests were performed using new batteries
Modulation	:	MSK 500kbps
Operation Frequency	:	2402.399 MHz – 2437.79 MHz The above frequencies can be set through the 6-dip SW on the back of the Remote Control  $f = (26/2^{16}) * (6049476 + i * 3 * 504) \text{ MHz}$ where $i = 4, 5, 6, \dots, 63$ adjust through the 6-dip SW
Frequency Channel	:	Total 60 Channels
Tested Frequency	:	2402.399 MHz (Channel 05) 2419.195 MHz (Channel 33) 2437.79 MHz (Channel 64)
Antenna Location	:	Top of the RF module Please see Figure 6 & Figure 9 in APPENDIX III, Photographs of EUT for further information.
Antenna Type	:	Internal permanently attached antenna

## 2.2 Description of Test Facility

Site Description (Semi-Anechoic Chamber)	:	Sept. 17, 1998 file on April 29, 2009 Renewed Federal Communications Commission FCC Engineering Laboratory 7435 Oakland Mills Road Columbia, MD 21046, USA
Name of Firm	:	Audix Technology (Shanghai) Co., Ltd.
Site Location	:	3F 34Bldg 680 Guiping Rd., Caohejing Hi-Tech Park, Shanghai 200233, China
FCC registration Number	:	91789
Accredited by NVLAP, Lab Code	:	200371-0

## 2.3 Measurement Uncertainty

Radiated Emission Expanded Uncertainty	:	U = 3.02dB
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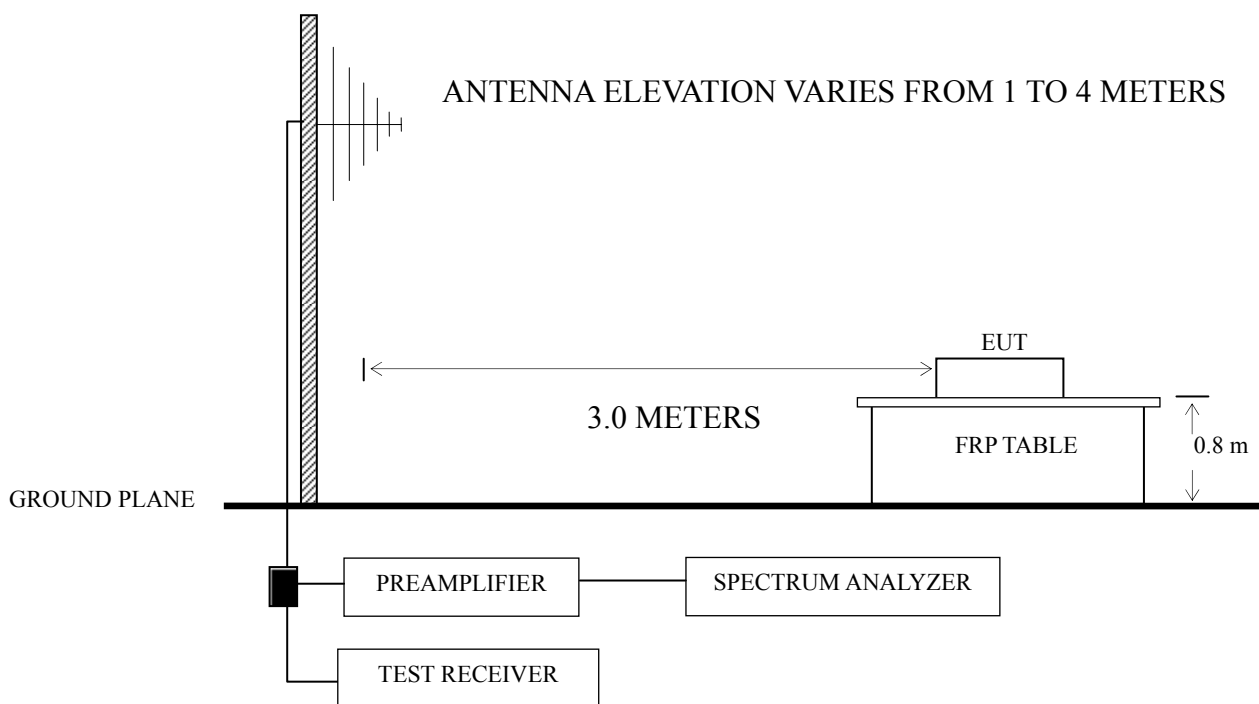
### 3 RADIATED EMISSION TEST

#### 3.1 Test Equipment

The following test equipments are used during the radiated emission test in a semi-anechoic chamber:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Preamplifier	HP	8447D	2944A06849	Mar 18, 2009	Sep 19, 2010
2.	Preamplifier	HP	8449B	3008A00864	May 19, 2009	May 19, 2010
3.	Spectrum Analyzer	Agilent	E7405A	MY45106600	May 19, 2009	May 19, 2010
4.	Test Receiver	R&S	ESVS10	832699/004	Apr 02, 2009	Apr 02, 2010
5.	Bilog Antenna	TESEQ	CBL6112D	23193	May 14, 2008	May 14, 2010
6.	Horn Antenna	EMCO	3115	9607-4878	Apr 24, 2009	Apr 24, 2010
7.	Horn Antenna	EMCO	3116	00062643	Apr 24, 2009	Apr 24, 2010
8.	50Ω Coaxial Switch	Anritsu	MP59B	6200426390	Sep 19, 2009	Mar 20, 2010
9.	Software	Audix	E3	SET00200 9912M295-2	-	-

#### 3.2 Block Diagram of Test Setup



■ : 50 ohm Coaxial Switch

### 3.3 Radiated Emission Limit [FCC Part 15 Subpart C 15.209]

Frequency (MHz)	Distance (m)	Field strength limits (μV/m)	
		(μV/m)	dB (μV/m)
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
Above 960	3	500	54.0
NOTE 1 - Emission Level dB (μV/m) = 20 lg Emission Level (μV/m) NOTE 2 - The tighter limit applies at the band edges. NOTE 3 - Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system. NOTE 4 - The limits shown are based on Quasi-peak value detector below or equal to 1GHz and Average value detector above 1GHz. NOTE 5 - Above 1 GHz, the limit on peak emission is 20 dB above the maximum permitted average emission limit applicable to the EUT			

### 3.4 Test Configuration

The EUT was installed as show on Sec. 3.2 in radiated emission test to meet FCC requirement and operating in a manner, which tend to maximize emission level in a normal application.

### 3.5 Operating Condition of EUT

- 3.5.1 Setup the EUT as shown in Sec. 3.2.
- 3.5.2 Turn on the power of all equipment.
- 3.5.3 Set the EUT on the test mode (Transmitting).
- 3.5.4 Configured the EUT in three axis: Lying, Side, Stand, and test separately.



### 3.6 Test Procedures

The EUT was placed on a FRP turntable that is 0.8 meter above ground. The FRP turntable rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna, which was mounted on an antenna tower. Broadband antenna (Calibrated Bilog Antenna) and horn antenna was used as receiving antenna. The antenna moved up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarizations of the antenna were set on measurement. In order to find the maximum emission, all of the interference cables were manipulated according to ANSI C63.4:2003 requirements during radiated emission test.

The bandwidth of Test Receiver R&S ESVS10 was set at 120 kHz for frequency range from 30MHz to 1000MHz.

The bandwidth of the VBW was set at 1MHz and RBW was set at 1MHz for peak emission measurement above 1GHz and 1MHz RBW, 10Hz VBW for average emission above 1GHz for Spectrum Agilent E7405A.

The frequency range from 30 MHz to 25 GHz (Up to 10<sup>th</sup> harmonics from fundamental frequency) was checked.

The EUT was tested under the following test modes:

Mode	Operation	Channel	Fundamental Frequency
1.	Transmitting	05	2402.399 MHz
2.		33	2419.195 MHz
3.		64	2437.79 MHz

The test mode (Transmitting) was done on radiated emission test.

Please refer to Sec.3.7.

### 3.7 Test Results

#### <PASS>

The frequency and amplitude of the highest radiated emission relative the limit is reported. All the emissions not reported below are too low against the FCC limit.

Mode	Operation	Channel	Fundamental Frequency	Position	Data Page
1.	Transmitting	05	2402.399 MHz	Lying	P11
2.				Side	P12
3.				Stand	P13
4.		33	2419.195 MHz	Lying	P14
5.				Side	P15
6.				Stand	P16
7.		64	2437.79 MHz	Lying	P17
8.				Side	P18
9.				Stand	P19

NOTE 1 – Level = Read Level + Antenna Factor + Cable Loss (<1GHz)

NOTE 2 – Level = Read Level + Antenna Factor + Cable Loss

- Preamp Factor (>1GHz)

NOTE 3 – 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.

NOTE 4 – The emission levels which not reported are too low against the official limit.

NOTE 5 – All reading are Quasi-Peak values below or equal to 1GHz and Peak values above 1GHz. For measurements above 1 GHz, the peak measured value complies with the average limit, it is unnecessary to perform an average measurement.

EUT	:	<u>Remote Controller</u>	Temperature :	<u>24°C</u>
Model No.	:	<u>SFD-Y-05-02</u>	Humidity :	<u>50%RH</u>
Serial No.	:	<u>E2009102201</u>	Date of Test :	<u>Nov. 12, 2009</u>
Test Mode	:	<u>Transmitting Ch05 2402.399MHz</u>	Position :	<u>Lying</u>

Polarization	Frequency (MHz)	Read Level dB (μV)	Antenna Factor (dB/m)	Preamplifier Factor (dB)	Cable Loss (dB)	Factor (dB/m)	Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	31.94	0.96	18.49	--	0.64	19.13	20.09	40.00	19.91	QP
	122.15	0.53	12.91	--	1.15	14.06	14.59	43.50	28.91	
	259.89	2.43	13.10	--	1.74	14.84	17.27	46.00	28.73	
	457.77	7.60	17.35	--	2.33	19.68	27.28	46.00	18.72	
	710.94	1.92	19.82	--	2.96	22.78	24.70	46.00	21.30	
	782.72	1.86	20.55	--	3.17	23.72	25.58	46.00	20.42	
	1374.00	45.70	25.70	34.14	4.56	-3.88	41.82	74.00	32.18	PK
	3363.00	39.90	31.34	34.20	7.31	4.45	44.35	74.00	29.65	
	5284.00	36.83	33.70	34.33	10.01	9.38	46.21	74.00	27.79	
	7256.00	40.11	35.53	35.17	12.04	12.40	52.51	74.00	21.49	
Vertical	30.97	0.23	19.03	--	0.63	19.66	19.89	40.00	20.11	QP
	210.42	4.44	11.18	--	1.57	12.75	17.19	43.50	26.31	
	315.18	10.74	14.32	--	1.93	16.25	26.99	46.00	19.01	
	579.99	1.19	18.97	--	2.68	21.65	22.84	46.00	23.16	
	801.15	1.56	20.70	--	3.21	23.91	25.47	46.00	20.53	
	960.23	3.20	22.13	--	3.55	25.68	28.88	54.00	25.12	
	1510.00	46.42	26.19	34.15	4.82	-3.14	43.28	74.00	30.72	PK
	3941.00	38.66	32.47	34.20	8.46	6.73	45.39	74.00	28.61	
	4332.00	37.62	32.88	34.23	9.42	8.07	45.69	74.00	28.31	
	7222.00	40.60	35.49	35.15	11.96	12.30	52.90	74.00	21.10	

TEST ENGINEER: DIO YANG

EUT : Remote Controller Temperature : 24°C

Model No. : SFD-Y-05-02 Humidity : 50%RH

Serial No. : E2009102201 Date of Test : Nov. 12, 2009

Test Mode : Transmitting Ch05  
2402.399MHz Position : Side

Polarization	Frequency (MHz)	Read Level dB (μV)	Antenna Factor (dB/m)	Preamplifier Factor (dB)	Cable Loss (dB)	Factor (dB/m)	Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	32.91	0.96	17.95	--	0.64	18.59	19.55	40.00	20.45	QP
	115.36	-0.76	12.71	--	1.13	13.84	13.08	43.50	30.42	
	281.23	9.54	13.57	--	1.81	15.38	24.92	46.00	21.08	
	416.06	3.55	16.72	--	2.24	18.96	22.51	46.00	23.49	
	572.23	2.19	18.88	--	2.66	21.54	23.73	46.00	22.27	
	784.66	2.44	20.55	--	3.17	23.72	26.16	46.00	19.84	
	1391.00	45.44	25.76	34.14	4.59	-3.79	41.65	74.00	32.35	PK
	2989.00	40.87	30.48	34.20	6.99	3.27	44.14	74.00	29.86	
	5352.00	35.91	33.77	34.34	10.04	9.47	45.38	74.00	28.62	
	7579.00	39.27	35.79	35.37	12.47	12.89	52.16	74.00	21.84	
Vertical	31.94	0.28	18.49	--	0.64	19.13	19.41	40.00	20.59	QP
	107.60	-0.23	12.10	--	1.10	13.20	12.97	43.50	30.53	
	281.23	9.09	13.57	--	1.81	15.38	24.47	46.00	21.53	
	390.84	6.00	16.30	--	2.18	18.48	24.48	46.00	21.52	
	526.64	4.45	18.24	--	2.51	20.75	25.20	46.00	20.80	
	752.65	2.49	20.23	--	3.09	23.32	25.81	46.00	20.19	
	1272.00	46.26	25.31	34.13	4.34	-4.48	41.78	74.00	32.22	PK
	2768.00	40.94	29.92	34.20	6.57	2.29	43.23	74.00	30.77	
	4043.00	37.94	32.63	34.20	8.68	7.11	45.05	74.00	28.95	
	6712.00	39.54	35.06	34.80	11.49	11.75	51.29	74.00	22.71	

TEST ENGINEER: DIO YANG

EUT	:	Remote Controller	Temperature :	24°C
Model No.	:	SFD-Y-05-02	Humidity :	50%RH
Serial No.	:	E2009102201	Date of Test :	Nov. 12, 2009
Test Mode	:	Transmitting Ch05 2402.399MHz	Position :	Stand

Polarization	Frequency (MHz)	Read Level dB (μV)	Antenna Factor (dB/m)	Preamplifier Factor (dB)	Cable Loss (dB)	Factor (dB/m)	Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	32.91	1.38	17.95	--	0.64	18.59	19.97	40.00	20.03	QP
	129.91	-0.82	12.52	--	1.17	13.69	12.87	43.50	30.63	
	312.27	4.19	14.24	--	1.92	16.16	20.35	46.00	25.65	
	416.06	3.35	16.72	--	2.24	18.96	22.31	46.00	23.69	
	519.85	3.32	18.15	--	2.49	20.64	23.96	46.00	22.04	
	719.67	2.62	19.91	--	2.99	22.90	25.52	46.00	20.48	
	1255.00	46.33	25.25	34.12	4.31	-4.56	41.77	74.00	32.23	PK
	2037.00	44.34	27.72	34.20	5.63	-0.85	43.49	74.00	30.51	
	2972.00	41.15	30.44	34.20	6.96	3.20	44.35	74.00	29.65	
	5522.00	36.35	33.94	34.36	10.11	9.69	46.04	74.00	27.96	
Vertical	31.94	1.07	18.49	--	0.64	19.13	20.20	40.00	19.80	QP
	164.83	9.75	10.35	--	1.32	11.67	21.42	43.50	22.08	
	228.85	3.65	12.07	--	1.64	13.71	17.36	46.00	28.64	
	353.01	8.35	15.41	--	2.06	17.47	25.82	46.00	20.18	
	574.17	2.07	18.91	--	2.66	21.57	23.64	46.00	22.36	
	792.42	2.27	20.64	--	3.19	23.83	26.10	46.00	19.90	
	2037.00	44.41	27.72	34.20	5.63	-0.85	43.56	74.00	30.44	PK
	3788.00	39.41	32.20	34.20	8.14	6.14	45.55	74.00	28.45	
	5556.00	37.69	33.97	34.36	10.14	9.75	47.44	74.00	26.56	
	7732.00	40.01	35.91	35.45	12.60	13.06	53.07	74.00	20.93	

TEST ENGINEER: DIO YANG

EUT : Remote Controller Temperature : 24°C

Model No. : SFD-Y-05-02 Humidity : 50%RH

Serial No. : E2009102201 Date of Test : Oct. 27, 2009

Test Mode : Transmitting Ch33  
2419.195 MHz Position : Lying

Polarization	Frequency (MHz)	Read Level dB (μV)	Antenna Factor (dB/m)	Preamplifier Factor (dB)	Cable Loss (dB)	Factor (dB/m)	Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	30.97	1.68	19.03	--	0.63	19.66	21.34	40.00	18.66	QP
	107.60	0.49	12.10	--	1.10	13.20	13.69	43.50	29.81	
	281.23	3.87	13.57	--	1.81	15.38	19.25	46.00	26.75	
	468.44	3.86	17.49	--	2.36	19.85	23.71	46.00	22.29	
	572.23	3.77	18.88	--	2.66	21.54	25.31	46.00	20.69	
	960.23	2.26	22.13	--	3.55	25.68	27.94	54.00	26.06	
	1221.00	47.62	25.11	34.12	4.24	-4.77	42.85	74.00	31.15	PK
	2037.00	42.95	27.72	34.20	5.63	-0.85	42.10	74.00	31.90	
	2972.00	42.48	30.44	34.20	6.96	3.20	45.68	74.00	28.32	
	7188.00	39.57	35.46	35.14	11.90	12.22	51.79	74.00	22.21	
Vertical	31.94	1.03	18.49	--	0.64	19.13	20.16	40.00	19.84	QP
	107.60	0.97	12.10	--	1.10	13.20	14.17	43.50	29.33	
	164.83	7.56	10.35	--	1.32	11.67	19.23	43.50	24.27	
	199.75	6.44	10.67	--	1.54	12.21	18.65	43.50	24.85	
	315.18	11.18	14.32	--	1.93	16.25	27.43	46.00	18.57	
	667.29	2.03	19.55	--	2.87	22.42	24.45	46.00	21.55	
	1306.00	47.88	25.44	34.13	4.42	-4.27	43.61	74.00	30.39	PK
	2989.00	42.24	30.48	34.20	6.99	3.27	45.51	74.00	28.49	
	4468.00	39.01	32.99	34.24	9.74	8.49	47.50	74.00	26.50	
	7290.00	40.33	35.54	35.20	12.07	12.41	52.74	74.00	21.26	

TEST ENGINEER: DIO YANG

EUT : Remote Controller Temperature : 24°C

Model No. : SFD-Y-05-02 Humidity : 50%RH

Serial No. : E2009102201 Date of Test : Oct. 27, 2009

Test Mode : Transmitting Ch33  
2419.195 MHz Position : Side

Polarization	Frequency (MHz)	Read Level dB (μV)	Antenna Factor (dB/m)	Preamplifier Factor (dB)	Cable Loss (dB)	Factor (dB/m)	Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	30.97	-0.16	19.03	--	0.63	19.66	19.50	40.00	20.50	QP
	35.82	0.67	16.45	--	0.65	17.10	17.77	40.00	22.23	
	107.60	-0.30	12.10	--	1.10	13.20	12.90	43.50	30.60	
	281.23	1.27	13.57	--	1.81	15.38	16.65	46.00	29.35	
	569.32	1.89	18.84	--	2.66	21.50	23.39	46.00	22.61	
	871.96	1.16	21.42	--	3.37	24.79	25.95	46.00	20.05	
	1748.00	45.14	26.91	34.18	5.29	-1.98	43.16	74.00	30.84	PK
	2972.00	41.43	30.44	34.20	6.96	3.20	44.63	74.00	29.37	
	5437.00	36.98	33.86	34.35	10.08	9.59	46.57	74.00	27.43	
	7528.00	39.26	35.73	35.34	12.42	12.81	52.07	74.00	21.93	
Vertical	31.94	0.81	18.49	--	0.64	19.13	19.94	40.00	20.06	QP
	121.18	-0.60	12.95	--	1.15	14.10	13.50	43.50	30.00	
	164.83	6.61	10.35	--	1.32	11.67	18.28	43.50	25.22	
	315.18	10.86	14.32	--	1.93	16.25	27.11	46.00	18.89	
	569.32	7.61	18.84	--	2.66	21.50	29.11	46.00	16.89	
	769.14	1.54	20.40	--	3.12	23.52	25.06	46.00	20.94	
	1544.00	45.96	26.29	34.16	4.88	-2.99	42.97	74.00	31.03	PK
	2972.00	41.93	30.44	34.20	6.96	3.20	45.13	74.00	28.87	
	4723.00	38.12	33.19	34.27	9.85	8.77	46.89	74.00	27.11	
	7171.00	39.70	35.46	35.12	11.90	12.24	51.94	74.00	22.06	

TEST ENGINEER: DIO YANG

EUT	:	<u>Remote Controller</u>	Temperature :	<u>24°C</u>
Model No.	:	<u>SFD-Y-05-02</u>	Humidity :	<u>50%RH</u>
Serial No.	:	<u>E2009102201</u>	Date of Test :	<u>Oct. 27, 2009</u>
Test Mode	:	<u>Transmitting Ch33 2419.195 MHz</u>	Position :	<u>Stand</u>

Polarization	Frequency (MHz)	Read Level dB (μV)	Antenna Factor (dB/m)	Preamplifier Factor (dB)	Cable Loss (dB)	Factor (dB/m)	Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	33.88	2.35	17.44	--	0.64	18.08	20.43	40.00	19.57	QP
	115.36	-0.51	12.71	--	1.13	13.84	13.33	43.50	30.17	
	281.23	2.63	13.57	--	1.81	15.38	18.01	46.00	27.99	
	457.77	4.70	17.35	--	2.33	19.68	24.38	46.00	21.62	
	572.23	4.40	18.88	--	2.66	21.54	25.94	46.00	20.06	
	809.88	2.14	20.80	--	3.21	24.01	26.15	46.00	19.85	
	1544.00	45.97	26.29	34.16	4.88	-2.99	42.98	74.00	31.02	PK
	2972.00	42.09	30.44	34.20	6.96	3.20	45.29	74.00	28.71	
	5590.00	36.48	34.00	34.36	10.16	9.80	46.28	74.00	27.72	
	7766.00	36.58	35.93	35.48	12.62	13.07	49.65	74.00	24.35	
Vertical	31.94	0.14	18.49	--	0.64	19.13	19.27	40.00	20.73	QP
	117.30	1.02	12.84	--	1.14	13.98	15.00	43.50	28.50	
	136.70	5.09	12.23	--	1.19	13.42	18.51	43.50	24.99	
	353.01	8.60	15.41	--	2.06	17.47	26.07	46.00	19.93	
	664.38	1.84	19.54	--	2.87	22.41	24.25	46.00	21.75	
	918.52	0.80	21.84	--	3.46	25.30	26.10	46.00	19.90	
	1170.00	46.17	24.89	34.12	4.13	-5.10	41.07	74.00	32.93	PK
	3584.00	38.36	31.80	34.20	7.62	5.22	43.58	74.00	30.42	
	5437.00	36.14	33.86	34.35	10.08	9.59	45.73	74.00	28.27	
	7171.00	39.22	35.46	35.12	11.90	12.24	51.46	74.00	22.54	

TEST ENGINEER: DIO YANG



EUT	:	<u>Remote Controller</u>	Temperature :	<u>24°C</u>
Model No.	:	<u>SFD-Y-05-02</u>	Humidity :	<u>50%RH</u>
Serial No.	:	<u>E2009102201</u>	Date of Test :	<u>Oct. 27, 2009</u>
Test Mode	:	<u>Transmitting Ch64 2437.79MHz</u>	Position :	<u>Lying</u>

Polarization	Frequency (MHz)	Read Level dB (μV)	Antenna Factor (dB/m)	Preamplifier Factor (dB)	Cable Loss (dB)	Factor (dB/m)	Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	32.91	0.30	17.95	--	0.64	18.59	18.89	40.00	21.11	QP
	110.51	0.23	12.32	--	1.11	13.43	13.66	43.50	29.84	
	234.67	0.72	12.32	--	1.66	13.98	14.70	46.00	31.30	
	389.87	-0.78	16.30	--	2.18	18.48	17.70	46.00	28.30	
	698.33	-0.24	19.69	--	2.94	22.63	22.39	46.00	23.61	
	914.64	0.07	21.81	--	3.46	25.27	25.34	46.00	20.66	
	1153.00	47.33	24.81	34.11	4.10	-5.20	42.13	74.00	31.87	PK
	2292.00	48.72	28.57	34.20	5.85	0.22	48.94	74.00	25.06	
	2921.00	47.47	30.31	34.20	6.87	2.98	50.45	74.00	23.55	
	6797.00	40.24	35.13	34.86	11.52	11.79	52.03	74.00	21.97	
Vertical	30.97	-0.12	19.03	--	0.63	19.66	19.54	40.00	20.46	QP
	109.54	0.94	12.25	--	1.11	13.36	14.30	43.50	29.20	
	210.42	4.75	11.18	--	1.57	12.75	17.50	43.50	26.00	
	390.84	5.09	16.30	--	2.18	18.48	23.57	46.00	22.43	
	571.26	0.68	18.88	--	2.66	21.54	22.22	46.00	23.78	
	706.09	1.08	19.76	--	2.96	22.72	23.80	46.00	22.20	
	1153.00	46.94	24.81	34.11	4.10	-5.20	41.74	74.00	32.26	PK
	1952.00	46.14	27.47	34.20	5.55	-1.18	44.96	74.00	29.04	
	3788.00	45.08	32.20	34.20	8.14	6.14	51.22	74.00	22.78	
	6661.00	39.99	35.01	34.77	11.47	11.71	51.70	74.00	22.30	

TEST ENGINEER: DIO YANG

EUT	:	<u>Remote Controller</u>	Temperature :	<u>24°C</u>
Model No.	:	<u>SFD-Y-05-02</u>	Humidity :	<u>50%RH</u>
Serial No.	:	<u>E2009102201</u>	Date of Test :	<u>Oct. 27, 2009</u>
Test Mode	:	<u>Transmitting Ch64 2437.79MHz</u>	Position :	<u>Side</u>

Polarization	Frequency (MHz)	Read Level dB (μV)	Antenna Factor (dB/m)	Preamplifier Factor (dB)	Cable Loss (dB)	Factor (dB/m)	Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	34.85	1.75	16.97	--	0.65	17.62	19.37	40.00	20.63	QP
	120.21	-0.07	12.98	--	1.15	14.13	14.06	43.50	29.44	
	246.31	0.79	12.75	--	1.69	14.44	15.23	46.00	30.77	
	393.75	0.55	16.37	--	2.19	18.56	19.11	46.00	26.89	
	573.20	1.49	18.88	--	2.66	21.54	23.03	46.00	22.97	
	935.01	0.41	21.96	--	3.51	25.47	25.88	46.00	20.12	
	1391.00	46.69	25.76	34.14	4.59	-3.79	42.90	74.00	31.10	PK
	2292.00	48.81	28.57	34.20	5.85	0.22	49.03	74.00	24.97	
	5335.00	41.19	33.75	34.34	10.03	9.44	50.63	74.00	23.37	
	7222.00	39.12	35.49	35.15	11.96	12.30	51.42	74.00	22.58	
Vertical	32.91	-0.03	17.95	--	0.64	18.59	18.56	40.00	21.44	QP
	107.60	1.78	12.10	--	1.10	13.20	14.98	43.50	28.52	
	210.42	6.09	11.18	--	1.57	12.75	18.84	43.50	24.66	
	372.41	6.64	15.92	--	2.12	18.04	24.68	46.00	21.32	
	579.02	2.18	18.97	--	2.68	21.65	23.83	46.00	22.17	
	792.42	0.93	20.64	--	3.19	23.83	24.76	46.00	21.24	
	1374.00	47.05	25.70	34.14	4.56	-3.88	43.17	74.00	30.83	PK
	2309.00	47.65	28.64	34.20	5.87	0.31	47.96	74.00	26.04	
	3788.00	45.82	32.20	34.20	8.14	6.14	51.96	74.00	22.04	
	6525.00	40.86	34.89	34.69	11.41	11.61	52.47	74.00	21.53	

TEST ENGINEER: DIO YANG

EUT	:	<u>Remote Controller</u>	Temperature :	<u>24°C</u>
Model No.	:	<u>SFD-Y-05-02</u>	Humidity :	<u>50%RH</u>
Serial No.	:	<u>E2009102201</u>	Date of Test :	<u>Oct. 27, 2009</u>
Test Mode	:	<u>Transmitting Ch64 2437.79MHz</u>	Position :	<u>Stand</u>

Polarization	Frequency (MHz)	Read Level dB (μV)	Antenna Factor (dB/m)	Preamplifier Factor (dB)	Cable Loss (dB)	Factor (dB/m)	Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	30.97	0.48	19.03	--	0.63	19.66	20.14	40.00	19.86	QP
	121.18	0.33	12.95	--	1.15	14.10	14.43	43.50	29.07	
	312.27	4.21	14.24	--	1.92	16.16	20.37	46.00	25.63	
	507.24	3.70	17.98	--	2.46	20.44	24.14	46.00	21.86	
	729.37	1.01	20.00	--	3.01	23.01	24.02	46.00	21.98	
	954.41	1.27	22.11	--	3.53	25.64	26.91	46.00	19.09	
	1901.00	45.57	27.34	34.19	5.50	-1.35	44.22	74.00	29.78	PK
	2887.00	45.98	30.23	34.20	6.81	2.84	48.82	74.00	25.18	
	3771.00	45.82	32.16	34.20	8.08	6.04	51.86	74.00	22.14	
	7171.00	39.04	35.46	35.12	11.90	12.24	51.28	74.00	22.72	
Vertical	31.94	-0.03	18.49	--	0.64	19.13	19.10	40.00	20.90	QP
	117.30	1.50	12.84	--	1.14	13.98	15.48	43.50	28.02	
	199.75	8.07	10.67	--	1.54	12.21	20.28	43.50	23.22	
	390.84	5.60	16.30	--	2.18	18.48	24.08	46.00	21.92	
	607.15	1.81	19.24	--	2.76	22.00	23.81	46.00	22.19	
	808.91	1.86	20.77	--	3.21	23.98	25.84	46.00	20.16	
	1204.00	46.82	25.03	34.12	4.21	-4.88	41.94	74.00	32.06	PK
	2751.00	46.20	29.88	34.20	6.54	2.22	48.42	74.00	25.58	
	4825.00	42.51	33.28	34.28	9.87	8.87	51.38	74.00	22.62	
	7341.00	39.44	35.60	35.23	12.17	12.54	51.98	74.00	22.02	

TEST ENGINEER: DIO YANG

## 4 FUNDAMENTAL AND HARMONICS EMISSIONS TEST

### 4.1 Test Equipment

The following test equipments are used during the fundamental and spurious emission test in a semi-anechoic chamber:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Preamplifier	HP	8449B	3008A00864	May 19, 2009	May 19,2010
2.	Spectrum Analyzer	Agilent	E7405A	MY45106600	May 19, 2009	May 19,2010
3.	Horn Antenna	EMCO	3115	9607-4878	Apr 24, 2009	Apr 24, 2010
4.	Horn Antenna	EMCO	3116	00062643	Apr 24, 2009	Apr 24, 2010

### 4.2 Block Diagram of Test Setup

Same as Sec 3.2

### 4.3 Fundamental and Harmonics Emission Limit [FCC Part 15 Subpart C 15.249(a)]

Fundamental Frequency (MHz)	Distance (m)	Field Strength of Fundamental		Field Strength of Harmonics	
		(millivolts/meter)	dB ( $\mu\text{V/m}$ )	(microvolts/meter)	dB ( $\mu\text{V/m}$ )
2400 ~ 2483.5	3	50	94	500	54
NOTE 1 - Emission Level dB ( $\mu\text{V/m}$ ) = 20 lg Emission Level ( $\mu\text{V/m}$ ) NOTE 2 - Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system. NOTE 3 - The limits shown are based on Average value detector. NOTE 4 - The limit on peak emission is 20 dB above the maximum permitted average emission limit applicable to the EUT					

### 4.4 Test Configuration

The EUT was installed as show on Sec. 3.2 in fundamental and spurious emission test to meet ANSI C63.4:2003 requirements and operating in a manner that tend to maximize emission level in a normal application.

## 4.5 Operating Condition of EUT

- 4.5.1 Setup the EUT as shown in Sec. 3.2.
- 4.5.2 Turn on the power of all equipment.
- 4.5.3 Set the EUT on the test mode (Transmitting).
- 4.5.4 Configured the EUT in three axis: Lying, Side, Stand, and test separately.

## 4.6 Test Procedures

The EUT was placed on a FRP turntable that is 0.8 meter above ground. The turntable rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna, which was mounted on an antenna tower. Both horizontal and vertical polarization of the antenna was set on measurement. In order to find the maximum emission, all of the interference cables were manipulated according to FCC PART 15 Subpart C and ANSI C63.4:2003 requirements during fundamental and harmonics emission test.

The frequency range from 2.4 GHz to 25 GHz (Up to 10<sup>th</sup> harmonics from fundamental frequency) was checked.

The EUT was tested under the following test modes:

Mode	Operation	Channel	Fundamental Frequency	Position
1.	Transmitting	05	2402.399 MHz	Lying
2.				Side
3.				Stand
4.		33	2419.195 MHz	Lying
5.				Side
6.				Stand
7.		64	2437.79 MHz	Lying
8.				Side
9.				Stand

The test mode (Transmitting) was done on Fundamental and Harmonics Emission test.

## 4.7 Test Results

<PASS>

The frequency and amplitude of the highest radiated emission relative the limit is reported. All the emissions not reported below are too low against the FCC limit.

Mode	Operation	Channel	Fundamental Frequency	Position	Data Page
1.	Transmitting	05	2402.399 MHz	Lying	P23
2.				Side	P24
3.				Stand	P25
4.		33	2419.195 MHz	Lying	P26
5.				Side	P27
6.				Stand	P28
7.		64	2437.79 MHz	Lying	P29
8.				Side	P30
9.				Stand	P31

NOTE 1 - All readings are Peak values.

NOTE 2 - The harmonics emission levels which not reported are too low against the official limit.

NOTE 3 – PK Level = Read Level + Factor

AV Level = PK Level – Correction Factor.

NOTE 4 - Factor = Antenna Factor + Cable Loss - Preamp Factor

NOTE 5 - Correction factor is measured as follows:

Duty Cycle $x = T_x \text{ on} / (T_x \text{ on} + T_x \text{ off}) = 7.236 / 15.69 = 0.46$
Correction Factor = $ 20\log(\text{Duty Cycle})  = 6.74 \text{ dB}$

NOTE 6 – The duty cycle was calculated according to the plot in Appendix I

EUT : Remote Controller Temperature : 24°C

Model No. : SFD-Y-05-02 Humidity : 52% RH

Serial No. : E2009102201 Date of Test : Nov. 12, 2009

Test Mode Transmitting Ch05  
2402.399 MHz Position : Lying

Polarization	Frequency (MHz)	Read Level dB (μV)	Factor (dB/m)	Correction factor (dB)	Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	2402.399	91.57	0.65	--	92.22	114	21.78	PK
	4804.798	47.43	8.83	--	56.26	74	17.74	
	7207.197	43.74	12.26	--	56.00	74	18.00	
	9609.596	37.66	16.42	--	54.08	74	19.92	
	2402.399	91.57	0.65	6.74	85.48	94	8.52	AV
	4804.798	47.43	8.83	6.74	49.52	54	4.48	
	7207.197	43.74	12.26	6.74	49.26	54	4.74	
	9609.596	37.66	16.42	6.74	47.34	54	6.66	
Vertical	2402.399	96.82	0.65	--	97.47	114	16.53	PK
	4804.798	50.33	8.83	--	59.16	74	14.84	
	7207.197	44.21	12.26	--	56.47	74	17.53	
	9609.596	39.09	16.42	--	55.51	74	18.49	
	2402.399	96.82	0.65	6.74	90.73	94	3.27	AV
	4804.798	50.33	8.83	6.74	52.42	54	1.58	
	7207.197	44.21	12.26	6.74	49.73	54	4.27	
	9609.596	39.09	16.42	6.74	48.77	54	5.23	

TEST ENGINEER: DIO YANG

EUT : Remote Controller Temperature : 24°C

Model No. : SFD-Y-05-02 Humidity : 52% RH

Serial No. : E2009102201 Date of Test : Nov. 12, 2009

Test Mode Transmitting Ch05 Position : Side  
2402.399 MHz

Polarization	Frequency (MHz)	Read Level dB (μV)	Factor (dB/m)	Correction factor (dB)	Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	2402.399	88.62	0.65	--	89.27	114	24.73	PK
	4804.798	45.46	8.83	--	54.29	74	19.71	
	7207.197	43.67	12.26	--	55.93	74	18.07	
	9609.596	39.4	16.42	--	55.82	74	18.18	
	2402.399	88.62	0.65	6.74	82.53	94	11.47	AV
	4804.798	45.46	8.83	6.74	47.55	54	6.45	
	7207.197	43.67	12.26	6.74	49.19	54	4.81	
	9609.596	39.40	16.42	6.74	49.08	54	4.92	
Vertical	2402.399	91.25	0.65	--	91.90	114	22.10	PK
	4804.798	50.05	8.83	--	58.88	74	15.12	
	7207.197	44.12	12.26	--	56.38	74	17.62	
	9609.596	39.38	16.42	--	55.80	74	18.20	
	2402.399	91.25	0.65	6.74	85.16	94	8.84	AV
	4804.798	50.05	8.83	6.74	52.14	54	1.86	
	7207.197	44.12	12.26	6.74	49.64	54	4.36	
	9609.596	39.38	16.42	6.74	49.06	54	4.94	

TEST ENGINEER: DIO YANG



EUT : Remote Controller Temperature : 24°C

Model No. : SFD-Y-05-02 Humidity : 52% RH

Serial No. : E2009102201 Date of Test : Nov. 12, 2009

Test Mode Transmitting Ch05 Position : Stand  
2402.399 MHz

Polarization	Frequency (MHz)	Read Level dB (μV)	Factor (dB/m)	Correction factor (dB)	Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	2402.399	92.32	0.65	--	92.97	114	21.03	PK
	4804.798	50.61	8.83	--	59.44	74	14.56	
	7207.197	44.84	12.26	--	57.10	74	16.90	
	9609.596	39.47	16.42	--	55.89	74	18.11	
	2402.399	92.32	0.65	6.74	86.23	94	7.77	AV
	4804.798	50.61	8.83	6.74	52.70	54	1.30	
	7207.197	44.84	12.26	6.74	50.36	54	3.64	
	9609.596	39.47	16.42	6.74	49.15	54	4.85	
Vertical	2402.399	90.16	0.65	--	90.81	114	23.19	PK
	4804.798	50.29	8.83	--	59.12	74	14.88	
	7207.197	43.97	12.26	--	56.23	74	17.77	
	9609.596	39.05	16.42	--	55.47	74	18.53	
	2402.399	90.16	0.65	6.74	84.07	94	9.93	AV
	4804.798	50.29	8.83	6.74	52.38	54	1.62	
	7207.197	43.97	12.26	6.74	49.49	54	4.51	
	9609.596	39.05	16.42	6.74	48.73	54	5.27	

TEST ENGINEER: DIO YANG

EUT : Remote Controller Temperature : 24°C

Model No. : SFD-Y-05-02 Humidity : 52% RH

Serial No. : E2009102201 Date of Test : Oct. 30, 2009

Test Mode Transmitting Ch33 Position : Lying  
2419.195 MHz

Polarization	Frequency (MHz)	Read Level dB (μV)	Factor (dB/m)	Correction factor (dB)	Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	2419.195	90.30	0.72	--	91.02	114	22.98	PK
	4838.390	49.01	8.83	--	57.84	74	16.16	
	7257.585	43.24	12.40	--	55.64	74	18.36	
	9676.780	38.26	16.56	--	54.82	74	19.18	
	2419.195	90.30	0.72	6.74	84.28	94	9.72	AV
	4838.390	49.01	8.83	6.74	51.10	54	2.90	
	7257.585	43.24	12.40	6.74	48.90	54	5.10	
	9676.780	38.26	16.56	6.74	48.08	54	5.92	
Vertical	2419.195	93.24	0.72	--	93.96	114	20.04	PK
	4838.390	50.32	8.83	--	59.15	74	14.85	
	7257.585	42.55	12.40	--	54.95	74	19.05	
	9676.780	38.48	16.56	--	55.04	74	18.96	
	2419.195	93.24	0.72	6.74	87.22	94	6.78	AV
	4838.390	50.32	8.83	6.74	52.41	54	1.59	
	7257.585	42.55	12.40	6.74	48.21	54	5.79	
	9676.780	38.48	16.56	6.74	48.30	54	5.70	

TEST ENGINEER: DIO YANG

EUT : Remote Controller Temperature : 24°C

Model No. : SFD-Y-05-02 Humidity : 52% RH

Serial No. : E2009102201 Date of Test : Oct. 30, 2009

Test Mode Transmitting Ch33 Position : Side  
2419.195 MHz

Polarization	Frequency (MHz)	Read Level dB (μV)	Factor (dB/m)	Correction factor (dB)	Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	2419.195	89.37	0.72	--	90.09	114	23.91	PK
	4838.390	46.29	8.83	--	55.12	74	18.88	
	7257.585	43.17	12.40	--	55.57	74	18.43	
	9676.780	38.29	16.56	--	54.85	74	19.15	
	2419.195	89.37	0.72	6.74	83.35	94	10.65	AV
	4838.390	46.29	8.83	6.74	48.38	54	5.62	
	7257.585	43.17	12.40	6.74	48.83	54	5.17	
	9676.780	38.29	16.56	6.74	48.11	54	5.89	
Vertical	2419.195	90.15	0.72	--	90.87	114	23.13	PK
	4838.390	50.88	8.83	--	59.71	74	14.29	
	7257.585	43.76	12.40	--	56.16	74	17.84	
	9676.780	39.25	16.56	--	55.81	74	18.19	
	2419.195	90.15	0.72	6.74	84.13	94	9.87	AV
	4838.390	50.88	8.83	6.74	52.97	54	1.03	
	7257.585	43.76	12.40	6.74	49.42	54	4.58	
	9676.780	39.25	16.56	6.74	49.07	54	4.93	

TEST ENGINEER: DIO YANG

EUT : Remote Controller Temperature : 24°C

Model No. : SFD-Y-05-02 Humidity : 52% RH

Serial No. : E2009102201 Date of Test : Oct. 30, 2009

Test Mode Transmitting Ch33 Position : Stand  
2419.195 MHz

Polarization	Frequency (MHz)	Read Level dB (μV)	Factor (dB/m)	Correction factor (dB)	Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	2419.195	90.14	0.72	--	90.86	114	23.14	PK
	4838.390	50.78	8.83	--	59.61	74	14.39	
	7257.585	45.54	12.40	--	57.94	74	16.06	
	9676.780	39.21	16.56	--	55.77	74	18.23	
	2419.195	90.14	0.72	6.74	84.12	94	9.88	AV
	4838.390	50.78	8.83	6.74	52.87	54	1.13	
	7257.585	45.54	12.40	6.74	51.20	54	2.80	
	9676.780	39.21	16.56	6.74	49.03	54	4.97	
Vertical	2419.195	83.85	0.72	--	84.57	114	29.43	PK
	4838.390	49.69	8.83	--	58.52	74	15.48	
	7257.585	44.87	12.40	--	57.27	74	16.73	
	9676.780	39.21	16.56	--	55.77	74	18.23	
	2419.195	83.85	0.72	6.74	77.83	94	16.17	AV
	4838.390	49.69	8.83	6.74	51.78	54	2.22	
	7257.585	44.87	12.40	6.74	50.53	54	3.47	
	9676.780	39.21	16.56	6.74	49.03	54	4.97	

TEST ENGINEER: DIO YANG

EUT : Remote Controller Temperature : 24°C

Model No. : SFD-Y-05-02 Humidity : 52% RH

Serial No. : E2009102201 Date of Test : Oct. 30, 2009

Test Mode Transmitting Ch64 Position : Lying  
2437.79MHz

Polarization	Frequency (MHz)	Read Level dB (μV)	Factor (dB/m)	Correction factor (dB)	Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	2437.79	91.93	0.77	--	92.70	114	21.30	PK
	4875.58	48.99	8.9	--	57.89	74	16.11	
	7313.37	43.39	12.44	--	55.83	74	18.17	
	9751.16	38.43	16.75	--	55.18	74	18.82	
	2437.79	91.93	0.77	6.74	85.96	94	8.04	AV
	4875.58	48.99	8.90	6.74	51.15	54	2.85	
	7313.37	43.39	12.44	6.74	49.09	54	4.91	
	9751.16	38.43	16.75	6.74	48.44	54	5.56	
Vertical	2437.79	88.29	0.77	--	89.06	114	24.94	PK
	4875.58	49.63	8.9	--	58.53	74	15.47	
	7313.37	42.47	12.44	--	54.91	74	19.09	
	9751.16	38.58	16.75	--	55.33	74	18.67	
	2437.79	88.29	0.77	6.74	82.32	94	11.68	AV
	4875.58	49.63	8.90	6.74	51.79	54	2.21	
	7313.37	42.47	12.44	6.74	48.17	54	5.83	
	9751.16	38.58	16.75	6.74	48.59	54	5.41	

TEST ENGINEER: DIO YANG

EUT : Remote Controller Temperature : 24°C

Model No. : SFD-Y-05-02 Humidity : 52% RH

Serial No. : E2009102201 Date of Test : Oct. 30, 2009

Test Mode Transmitting Ch64 Position : Side  
2437.79MHz

Polarization	Frequency (MHz)	Read Level dB (μV)	Factor (dB/m)	Correction factor (dB)	Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	2437.79	88.83	0.77	--	89.60	114	24.40	PK
	4875.58	46.73	8.90	--	55.63	74	18.37	
	7313.37	44.88	12.44	--	57.32	74	16.68	
	9751.16	39.10	16.75	--	55.85	74	18.15	
	2437.79	88.83	0.77	6.74	82.86	94	11.14	AV
	4875.58	46.73	8.90	6.74	48.89	54	5.11	
	7313.37	44.88	12.44	6.74	50.58	54	3.42	
	9751.16	39.10	16.75	6.74	49.11	54	4.89	
Vertical	2437.79	89.55	0.77	--	90.32	114	23.68	PK
	4875.58	48.17	8.90	--	57.07	74	16.93	
	7313.37	42.85	12.44	--	55.29	74	18.71	
	9751.16	38.55	16.75	--	55.30	74	18.70	
	2437.79	89.55	0.77	6.74	83.58	94	10.42	AV
	4875.58	48.17	8.90	6.74	50.33	54	3.67	
	7313.37	42.85	12.44	6.74	48.55	54	5.45	
	9751.16	38.55	16.75	6.74	48.56	54	5.44	

TEST ENGINEER: DIO YANG

EUT : Remote Controller Temperature : 24°C

Model No. : SFD-Y-05-02 Humidity : 52% RH

Serial No. : E2009102201 Date of Test : Oct. 30, 2009

Test Mode Transmitting Ch64 Position : Stand  
2437.79MHz

Polarization	Frequency (MHz)	Read Level dB (μV)	Factor (dB/m)	Correction factor (dB)	Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	2437.79	91.06	0.77	--	91.83	114	22.17	PK
	4875.58	46.01	8.90	--	54.91	74	19.09	
	7313.37	42.35	12.44	--	54.79	74	19.21	
	9751.16	38.63	16.75	--	55.38	74	18.62	
	2437.79	91.06	0.77	6.74	85.09	94	8.91	AV
	4875.58	46.01	8.90	6.74	48.17	54	5.83	
	7313.37	42.35	12.44	6.74	48.05	54	5.95	
	9751.16	38.63	16.75	6.74	48.64	54	5.36	
Vertical	2437.79	89.03	0.77	--	89.80	114	24.20	PK
	4875.58	50.89	8.90	--	59.79	74	14.21	
	7313.37	43.95	12.44	--	56.39	74	17.61	
	9751.16	39.18	16.75	--	55.93	74	18.07	
	2437.79	89.03	0.77	6.74	83.06	94	10.94	AV
	4875.58	50.89	8.90	6.74	53.05	54	0.95	
	7313.37	43.95	12.44	6.74	49.65	54	4.35	
	9751.16	39.18	16.75	6.74	49.19	54	4.81	

TEST ENGINEER: DIO YANG

## 5 BANDWIDTH MEASUREMENT

### 5.1 Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	E7405A	MY45106600	May 19, 2009	May 19,2010
2.	Horn Antenna	EMCO	3115	9607-4878	Apr 24, 2009	Apr 24, 2010
3.	Preamplifier	HP	8449B	3008A00864	May 19, 2009	May 19,2010
4.	Software	Audix	E3	SET00200 9912M295-2	--	--

### 5.2 Bandwidth Limit [FCC Part 15 Subpart C 15.215(c)]

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

### 5.3 Test Results

<PASS>

Channel	Fundamental Frequency	20dB Bandwidth $F_{start} / F_{end}$	20dB Bandwidth Limit	Result
05	2402.399 MHz	2402.070 MHz	2400 MHz	Pass
64	2437.79 MHz	2439.062 MHz	2483.5 MHz	Pass

All the test results are attached in next pages.

Channel	Fundamental Frequency	Pages
05	2402.399 MHz	P33
64	2437.79 MHz	P34

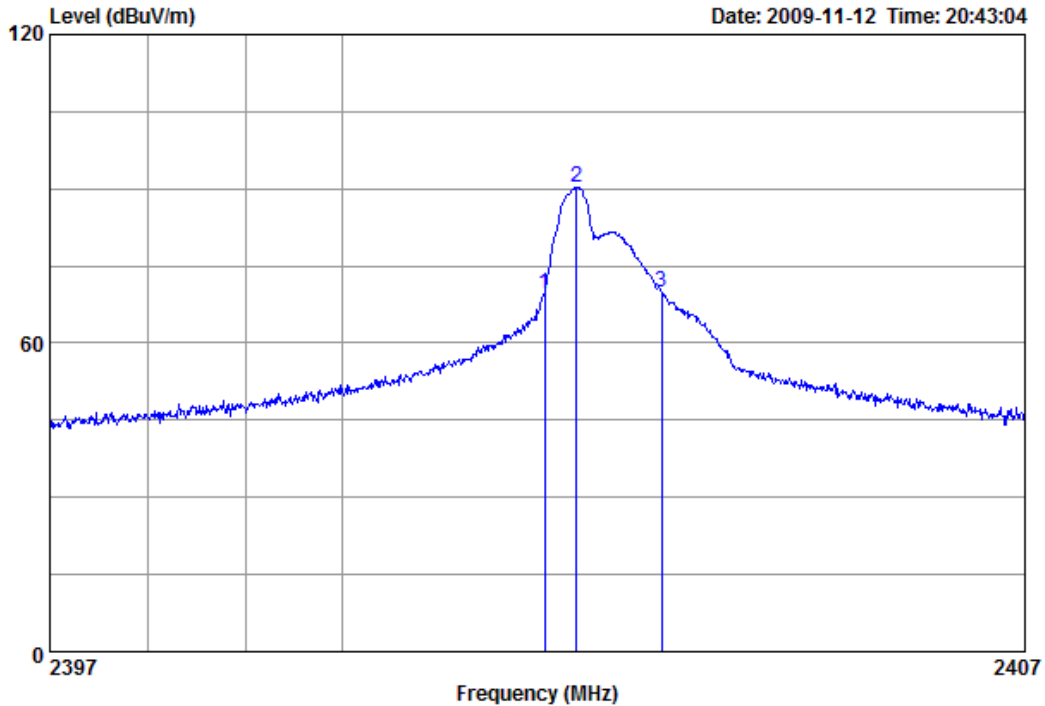




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Data: 411

File: D:\TEST DATA\D\TINGFENG RF 200910.EM6 (414)



Site no : Audix ACI (3m Chamber)  
Env. / Ins. : 24'C 55% / E7405A  
EUT : Remote Controller  
M/N : SFD-Y-05-02  
S/N : E2009102201  
Power Rating: DC 4.5V  
Test Mode : CH05

Data no. : 411  
Engineer : Dio

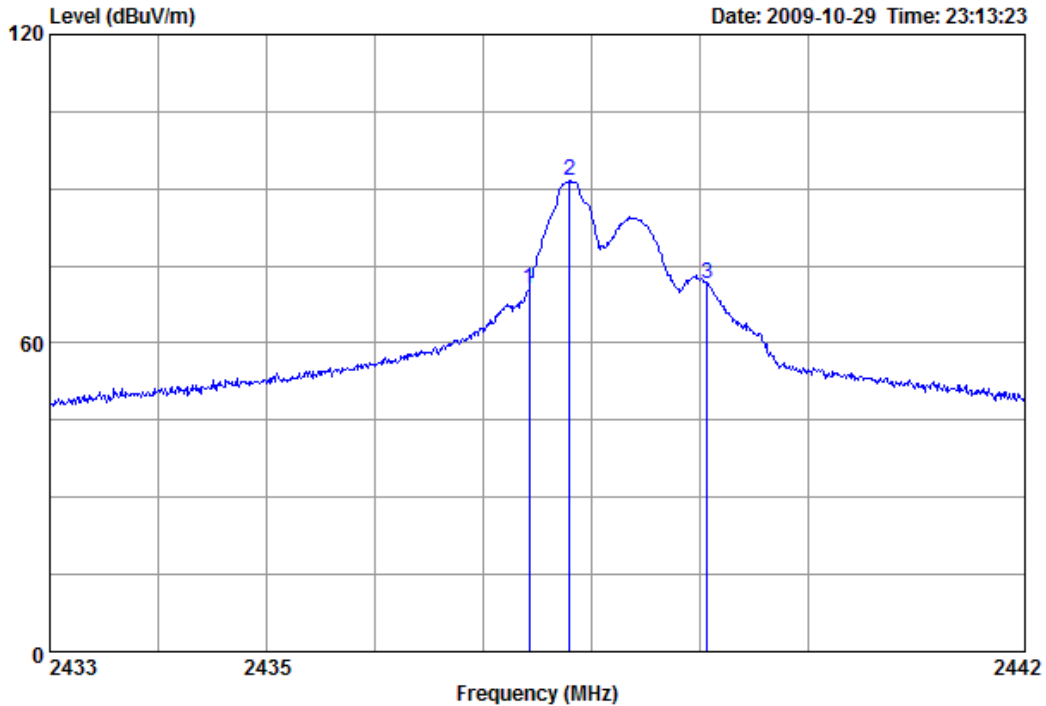
	Freq.	Reading	Emission
	(MHz)	(dBuV)	Level
			(dBuV/m)
1	2402.070	68.79	69.44
2	2402.400	89.47	90.12
3	2403.270	69.15	69.80



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Data: 384

File: D:\TEST DATA\D\TINGFENG RF 200910.EM6 (406)



Site no : Audix ACI (3m Chamber)  
Env. / Ins. : 24'C 55% / E7405A  
EUT : Remote Controller  
M/N : SFD-Y-05-02  
S/N : E2009102201  
Power Rating: DC 4.5V  
Test Mode : CH64

Data no. : 384  
Engineer : Dio

	Freq.	Reading	Emission
	(MHz)	(dBuV)	Level
			(dBuV/m)
1	2437.422	69.72	70.49
2	2437.792	90.69	91.46
3	2439.062	70.67	71.44

## 6 BAND-EDGE MEASUREMENT

### 6.1 Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	E7405A	MY45106600	May 19, 2009	May 19,2010
2.	Horn Antenna	EMCO	3115	9607-4878	Apr 24, 2009	Apr 24, 2010
3.	Preamplifier	HP	8449B	3008A00864	May 19, 2009	May 19,2010

### 6.2 Band-Edge Limit [FCC Part 15 Subpart C 15.249(d)]

Emissions radiated outside of the specified frequency bands, except for harmonic, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209 whichever is the lesser attenuation.

For peak value, The RBW & VBW of Spectrum Analyzer Agilent E7405A was set at 1MHz. For average value, set RBW = 1MHz, VBW = 10 Hz.

### 6.3 Test Results

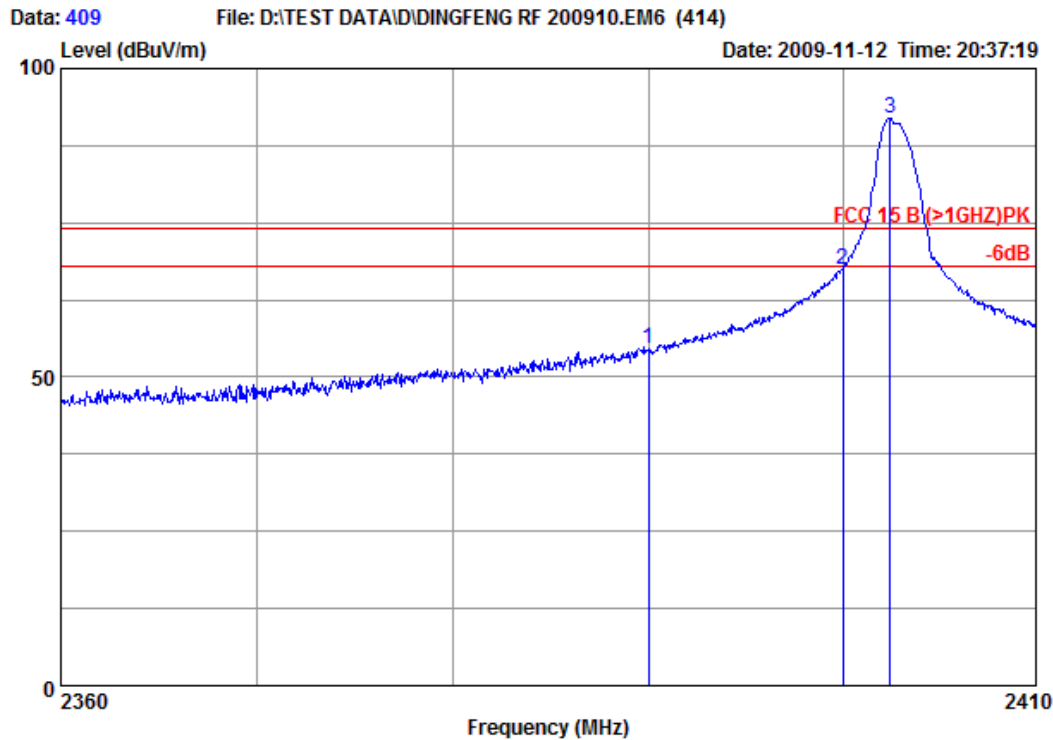
<PASS>

All the test results are attached in next pages.

Channel	Fundamental Frequency	Pages
05	2402.399 MHz	P36-39
64	2437.79 MHz	P40-43



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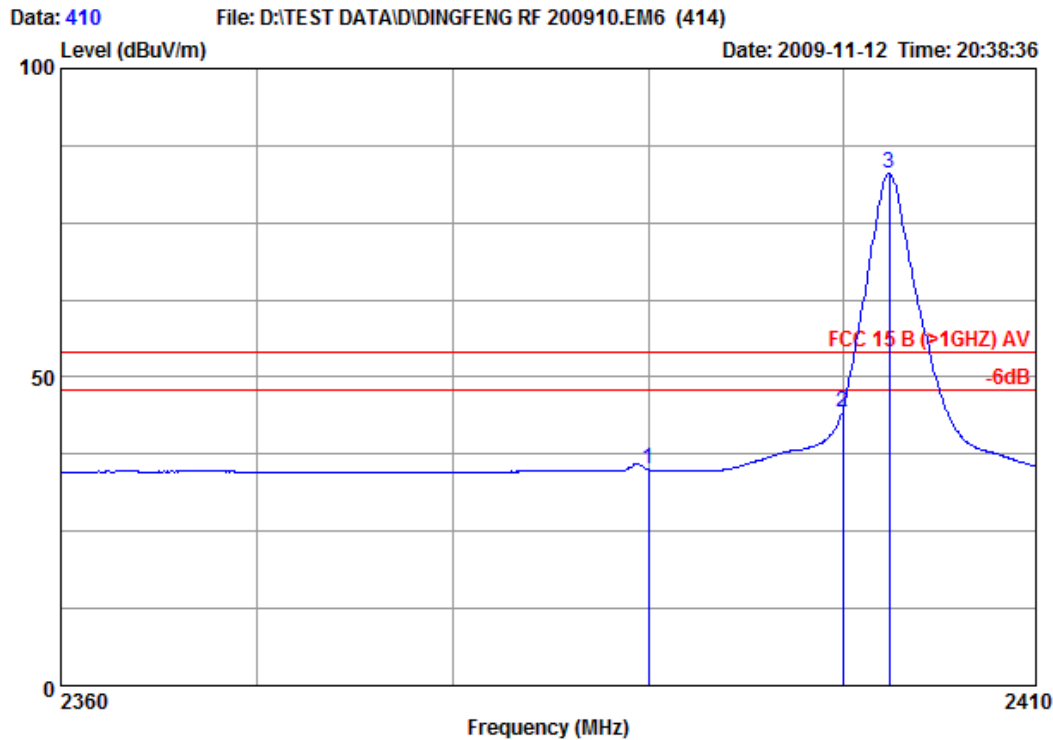
Site no	: Audix ACI (3m Chamber)	Data no.	: 409
Dis. / Ant.	: 3m /EMCO3115	Ant. pol.	: HORIZONTAL
Limit	: FCC 15 B (>1GHz)PK	Engineer	: Dio
Env. / Ins.	: 24'C 55% / E7405A		
EUT	: Remote Controller		
M/N	: SFD-Y-05-02		
S/N	: E2009102201		
Power Rating:	DC 4.5V		
Test Mode	: CH05		

	Freq. (MHz)	Antenna Factor (dB/m)	Preamp Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.000	28.86	34.20	5.93	54.11	54.70	74.00	19.30	Peak
2	2400.000	28.91	34.20	5.94	66.85	67.50	74.00	6.50	Peak
3	2402.450	28.91	34.20	5.94	91.27	91.92	74.00	-17.92	Peak

Remarks: Emission Level= Antenna Factor + Cable Loss - Preamp Factor + Reading.



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Site no : Audix ACI (3m Chamber)  
 Dis. / Ant. : 3m /EMCO3115  
 Limit : FCC 15 B (>1GHZ) AV  
 Env. / Ins. : 24'C 55% / E7405A  
 EUT : Remote Controller  
 M/N : SFD-Y-05-02  
 S/N : E2009102201  
 Power Rating: DC 4.5V  
 Test Mode : CH05

Data no. : 410  
 Ant. pol. : HORIZONTAL  
 Engineer : Dio

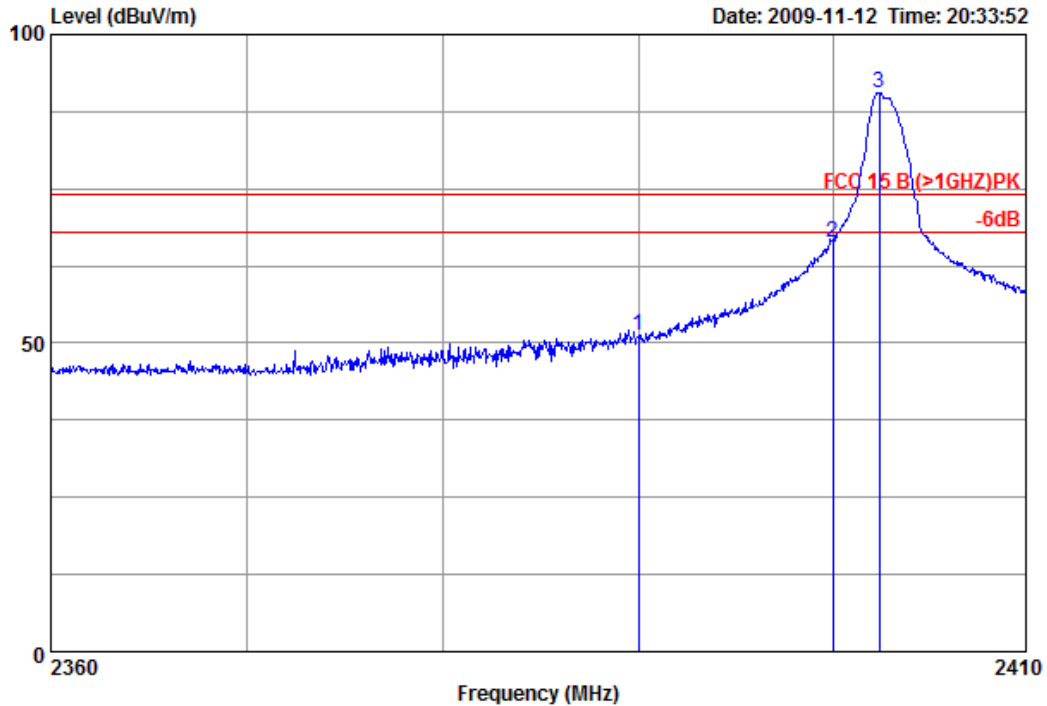
	Freq. (MHz)	Antenna Factor (dB/m)	Preamp Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.000	28.86	34.20	5.93	34.40	34.99	54.00	19.01	Average
2	2400.000	28.91	34.20	5.94	43.69	44.34	54.00	9.66	Average
3	2402.400	28.91	34.20	5.94	82.37	83.02	54.00	-29.02	Average

Remarks: Emission Level= Antenna Factor + Cable Loss - Preamp Factor + Reading.



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Data: 408 File: D:\TEST DATA\D\TINGFENG RF 200910.EM6 (414) Date: 2009-11-12 Time: 20:33:52



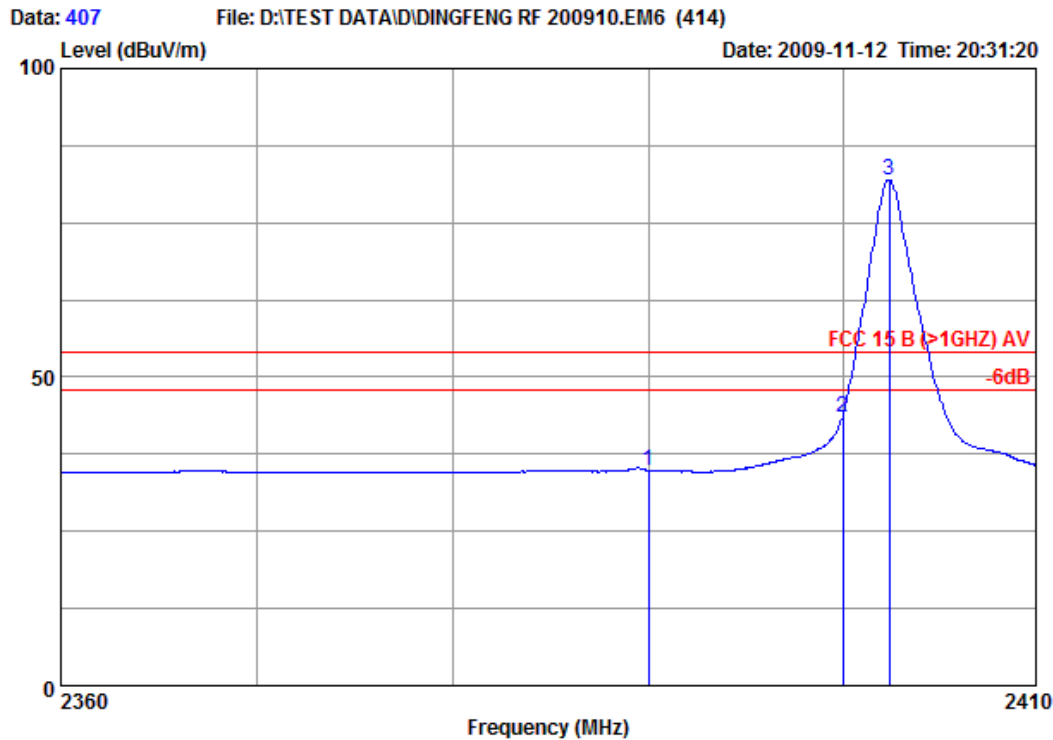
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 Dis. / Ant. : 3m /EMCO3115  
 Limit : FCC 15 B (>1GHz)PK Ant. pol. : VERTICAL  
 Env. / Ins. : 24'C 55% / E7405A Engineer : Dio  
 EUT : Remote Controller  
 M/N : SFD-Y-05-02  
 S/N : E2009102201  
 Power Rating: DC 4.5V  
 Test Mode : CH05

	Freq. (MHz)	Antenna Factor (dB/m)	Preamp Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.000	28.86	34.20	5.93	50.77	51.36	74.00	22.64	Peak
2	2400.000	28.91	34.20	5.94	65.54	66.19	74.00	7.81	Peak
3	2402.400	28.91	34.20	5.94	89.83	90.48	74.00	-16.48	Peak

Remarks: Emission Level= Antenna Factor + Cable Loss - Preamp Factor + Reading.



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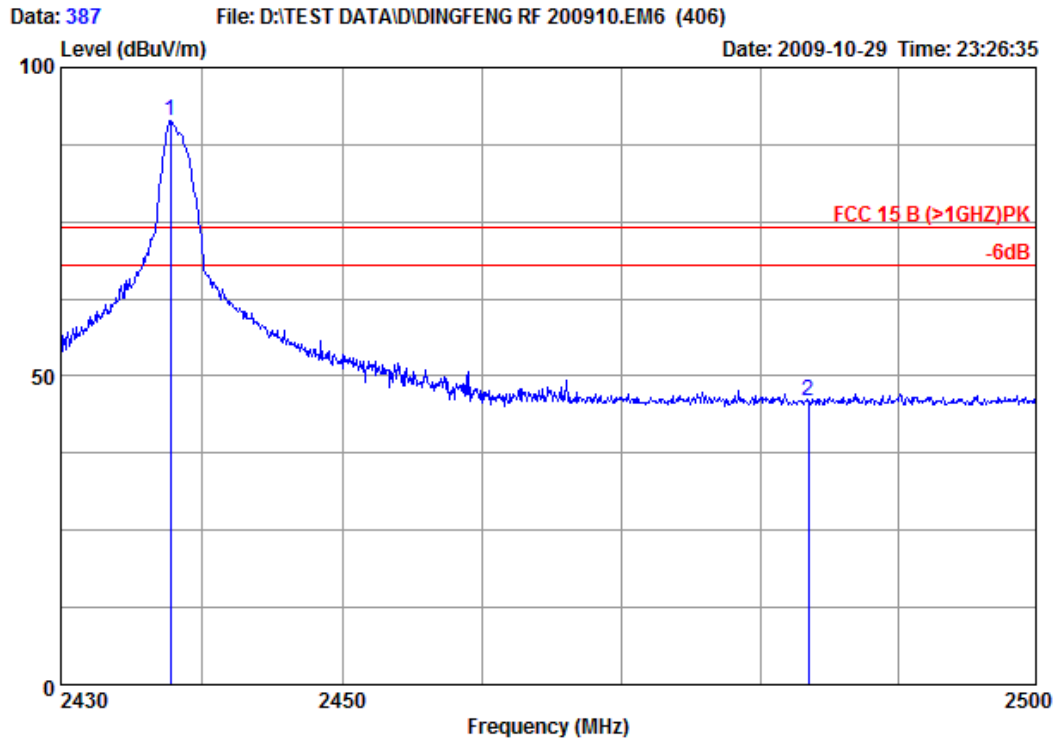
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Dis. / Ant.	: 3m /EMCO3115	Ant. pol.	: VERTICAL
Limit	: FCC 15 B (>1GHZ) AV	Engineer	: Dio
Env. / Ins.	: 24'C 55% / E7405A		
EUT	: Remote Controller		
M/N	: SFD-Y-05-02		
S/N	: E2009102201		
Power Rating:	DC 4.5V		
Test Mode	: CH05		

	Freq. (MHz)	Antenna Factor (dB/m)	Preamp Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.000	28.86	34.20	5.93	34.28	34.87	54.00	19.13	Average
2	2400.000	28.91	34.20	5.94	42.73	43.38	54.00	10.62	Average
3	2402.400	28.91	34.20	5.94	81.37	82.02	54.00	-28.02	Average

Remarks: Emission Level= Antenna Factor + Cable Loss - Preamp Factor + Reading.



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Site no : Audix ACI (3m Chamber)  
Dis. / Ant. : 3m /EMCO3115  
Limit : FCC 15 B (>1GHZ)PK  
Env. / Ins. : 24'C 55% / E7405A  
EUT : Remote Controller  
M/N : SFD-Y-05-02  
S/N : E2009102201  
Power Rating: DC 4.5V  
Test Mode : CH64

Data no. : 387  
Ant. pol. : HORIZONTAL  
Engineer : Dio

	Freq. (MHz)	Antenna Factor (dB/m)	Preamp Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.770	29.01	34.20	5.96	90.52	91.29	74.00	-17.29	Peak
2	2483.500	29.15	34.20	5.99	45.06	46.00	74.00	28.00	Peak

Remarks: Emission Level= Antenna Factor + Cable Loss - Preamp Factor + Reading.

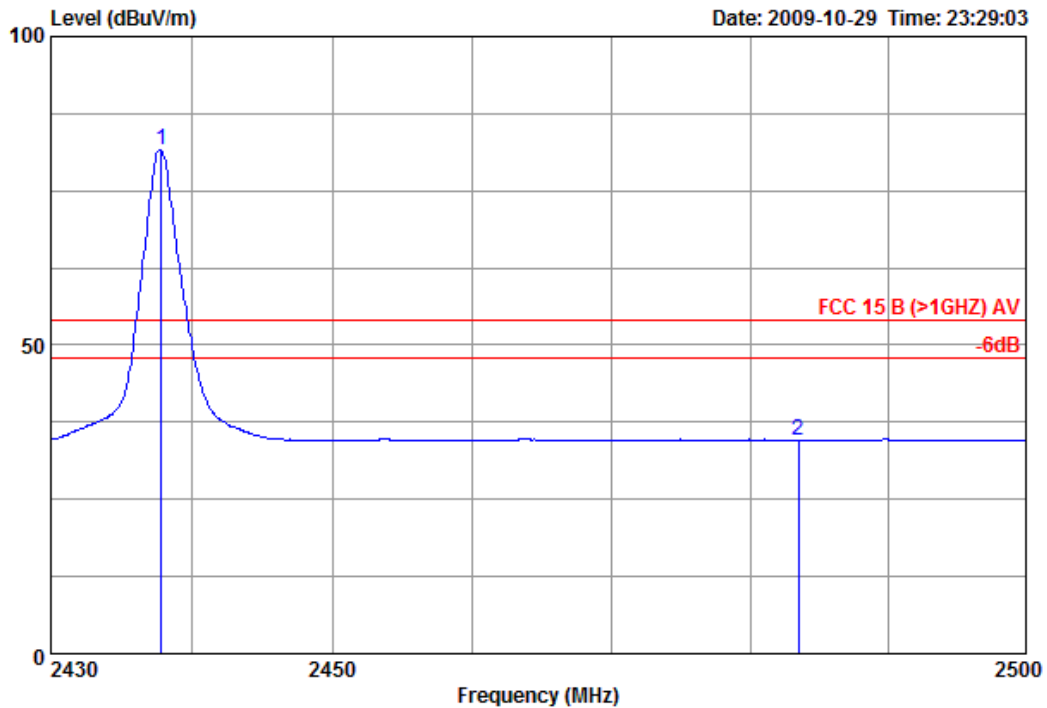




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Data: 388

File: D:\TEST DATA\D\TINGFENG RF 200910.EM6 (406)



Site no : Audix ACI (3m Chamber)  
Dis. / Ant. : 3m /EMC03115  
Limit : FCC 15 B (>1GHZ) AV  
Env. / Ins. : 24'C 55% / E7405A  
EUT : Remote Controller  
M/N : SFD-Y-05-02  
S/N : E2009102201  
Power Rating: DC 4.5V  
Test Mode : CH64

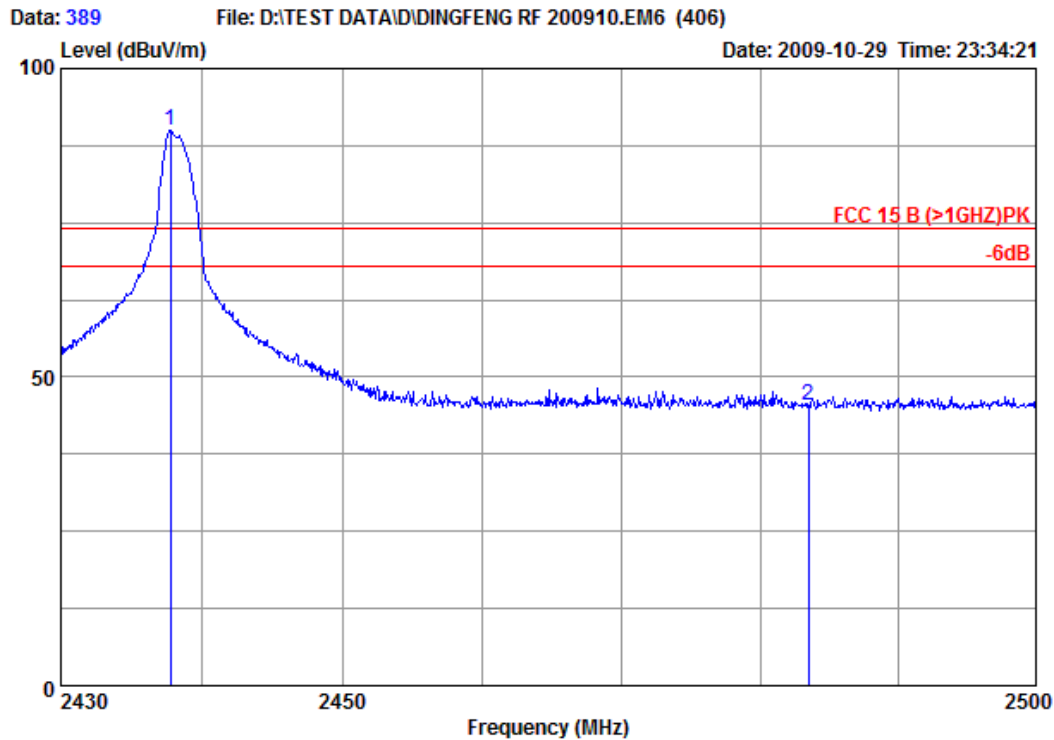
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Ant. pol. : HORIZONTAL  
Engineer : Dio

	Freq. (MHz)	Antenna Factor (dB/m)	Preamp Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.840	29.01	34.20	5.96	80.96	81.73	54.00	-27.73	Average
2	2483.500	29.15	34.20	5.99	33.54	34.48	54.00	19.52	Average

Remarks: Emission Level= Antenna Factor + Cable Loss - Preamp Factor + Reading.



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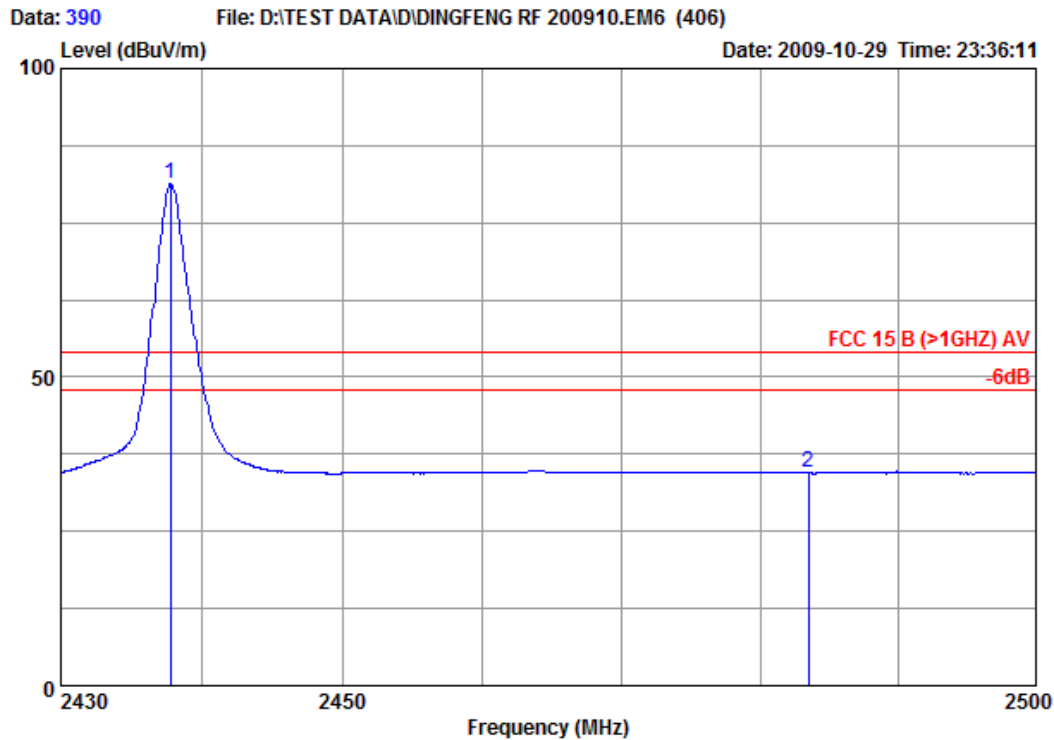
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Dis. / Ant. : 3m /EMCO3115  
Limit : FCC 15 B (>1GHZ)PK Ant. pol. : VERTICAL  
Env. / Ins. : 24'C 55% / E7405A Engineer : Dio  
EUT : Remote Controller  
M/N : SFD-Y-05-02  
S/N : E2009102201  
Power Rating: DC 4.5V  
Test Mode : CH64

	Freq. (MHz)	Antenna Factor (dB/m)	Preamp Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.770	29.01	34.20	5.96	89.21	89.98	74.00	-15.98	Peak
2	2483.500	29.15	34.20	5.99	44.57	45.51	74.00	28.49	Peak

Remarks: Emission Level= Antenna Factor + Cable Loss - Preamp Factor + Reading.



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Site no : Audix ACI (3m Chamber) Data no. : 390  
Dis. / Ant. : 3m /EMCO3115  
Limit : FCC 15 B (>1GHZ) AV Ant. pol. : VERTICAL  
Env. / Ins. : 24'C 55% / E7405A Engineer : Dio  
EUT : Remote Controller  
M/N : SFD-Y-05-02  
S/N : E2009102201  
Power Rating: DC 4.5V  
Test Mode : CH64

	Freq. (MHz)	Antenna Factor (dB/m)	Preamp Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.770	29.01	34.20	5.96	80.64	81.41	54.00	-27.41	Average
2	2483.500	29.15	34.20	5.99	33.49	34.43	54.00	19.57	Average

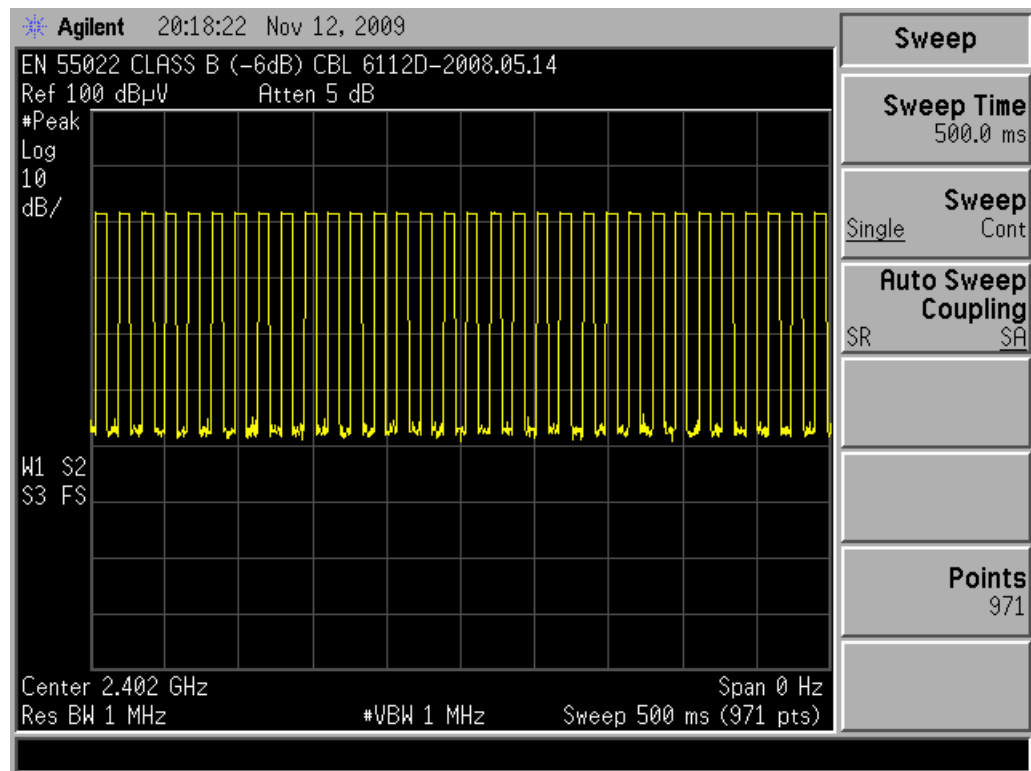
Remarks: Emission Level= Antenna Factor + Cable Loss - Preamp Factor + Reading.

## **7 DEVIATION TO TEST SPECIFICATIONS**

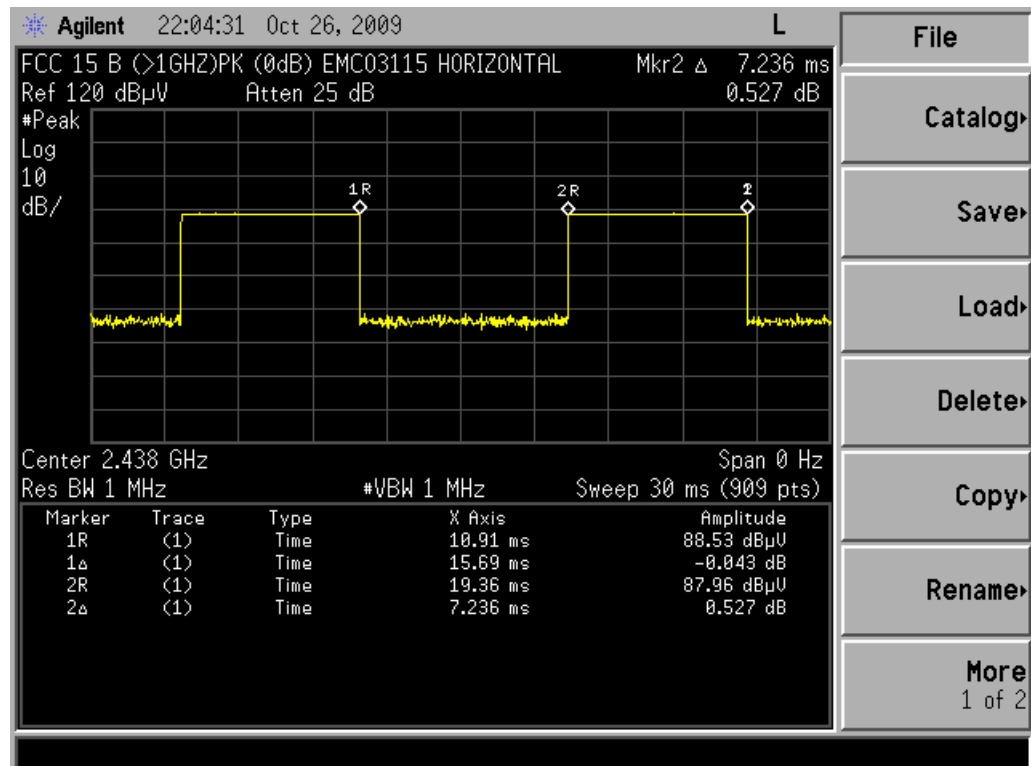
None.

# APPENDIX I

## PLOT OF DUTY CYCLE



DUTY CYCLE #1



DUTY CYCLE #2