

Application for FCC Certificate
On Behalf of
Jiaxing Shufude Electric Bed Co. Ltd.

Remote Controller

Model No.: SFD-Y-13, SFD-Y-15

FCC ID : WKZDSDDCSY002

Prepared For : Jiaxing Shufude Electric Bed Co. Ltd.
East No.07 Provincial Road, Tengyun Village
Wangjiangjing Development Zone,
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Date of Report : Nov. 20, 2014

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TEST REPORT FOR FCC CERTIFICATION

Applicant : Jiaxing Shufude Electric Bed Co. Ltd.
Manufacturer : Jiaxing Shufude Electric Bed Co. Ltd.
Factory : Jiaxing YINUO Electronics Technology Co., Ltd.

EUT Description : Remote Controller
(A) Model No. : SFD-Y-13, SFD-Y-15
(B) Power Supply : DC 4.5V (AAA Battery *3)

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 15 SUBPART C OCTOBER 2013
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: Refer to Sec 2.1) 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 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 : Nov. 17, 2014 Date of Report : Nov 20, 2014

Producer : Kathy Wang
KATHY WANG / Supervisor

Review : Dio Yang
DIO YANG / Deputy Manager

AUDIX[®] For and on behalf of
Audix Technology (Shanghai) Co., Ltd.

Signatory : Sammy Chen
Authorized Signature EMC SAMMY CHEN / Deputy 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 2011 AND ANSI C63.4:2003	15.207	N/A
Radiated Emission	FCC RULES AND REGULATIONS PART 15 SUBPART C OCTOBER 2011 AND ANSI C63.4:2003	15.209	Pass
Fundamental and Harmonics Emission	FCC RULES AND REGULATIONS PART 15 SUBPART C OCTOBER 2011 AND ANSI C63.4:2003	15.249	N/A
Band-Edge Measurement	FCC RULES AND REGULATIONS PART 15 SUBPART C OCTOBER 2011 AND ANSI C63.4:2003	15.249	N/A
N/A is an abbreviation for Not Applicable.			

2 GENERAL INFORMATION

2.1 Description of Equipment Under Test

Description : Remote Controller

Type of EUT : ☒ Production ☐ Pre-product ☐ Pro-type

Model No. : SFD-Y-13, SFD-Y-15

Note #1 : The modified histories of report are as follows:

Report No.	Model No.	Rev. Summary	Edition No.	Data of Rev.
ACI-F13125	DS-DDCSY002	Original Report	0	Jul 31, 2013
ACI-F13125A1	SFD-Y-13, SFD-Y-15	To add 2 new models.	Rev. A1	Nov 20, 2014

Note #2 : The SFD-Y-13 has minor circuit change from the original model, the RF part is all the same.
The SFD-Y-15 is all the same as the SFD-Y-13, except for less key function on the enclosure.
Thus, the Radiated Emission was re-performed to the SFD-Y-13 model.

Applicant : Jiaxing Shufude Electric Bed Co. Ltd.
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Zhejiang, China

Manufacturer : Jiaxing Shufude Electric Bed Co. Ltd.
East No.07 Provincial Road, Tengyun Village,
Wangjiangjing Development Zone, Jiaxing,
Zhejiang, China

Factory : Jiaxing YINUO Electronics Technology Co., Ltd.
No.733 FuRun Jiaxing (2 floor 2 house, 2 floor 1 house
in Jiaxing dexun plastic dress Co., Ltd.)

Modulation : MSK 500kbps

Frequency Channel : Total 4 Channel
2402.94MHz, 2422.94MHz, 2442.94MHz,
2462.94MHz

Antenna Location : Top of the RF module

Antenna Type : Internal permanently attached antenna

2.2 Description of Test Facility

Site Description (Semi-Anechoic Chamber)	:	Sept. 17, 1998 file on Mar 16, 2012 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 (30-200MHz):	U = 4.40 dB (Horizontal) U = 4.40 dB (Vertical)
Radiated Emission Expanded Uncertainty (200M-1GHz):	U = 4.40 dB (Horizontal) U = 5.40 dB (Vertical)
Radiated Emission Expanded Uncertainty (Above 1GHz):	U = 5.08 dB

3 RADIATED EMISSION TEST

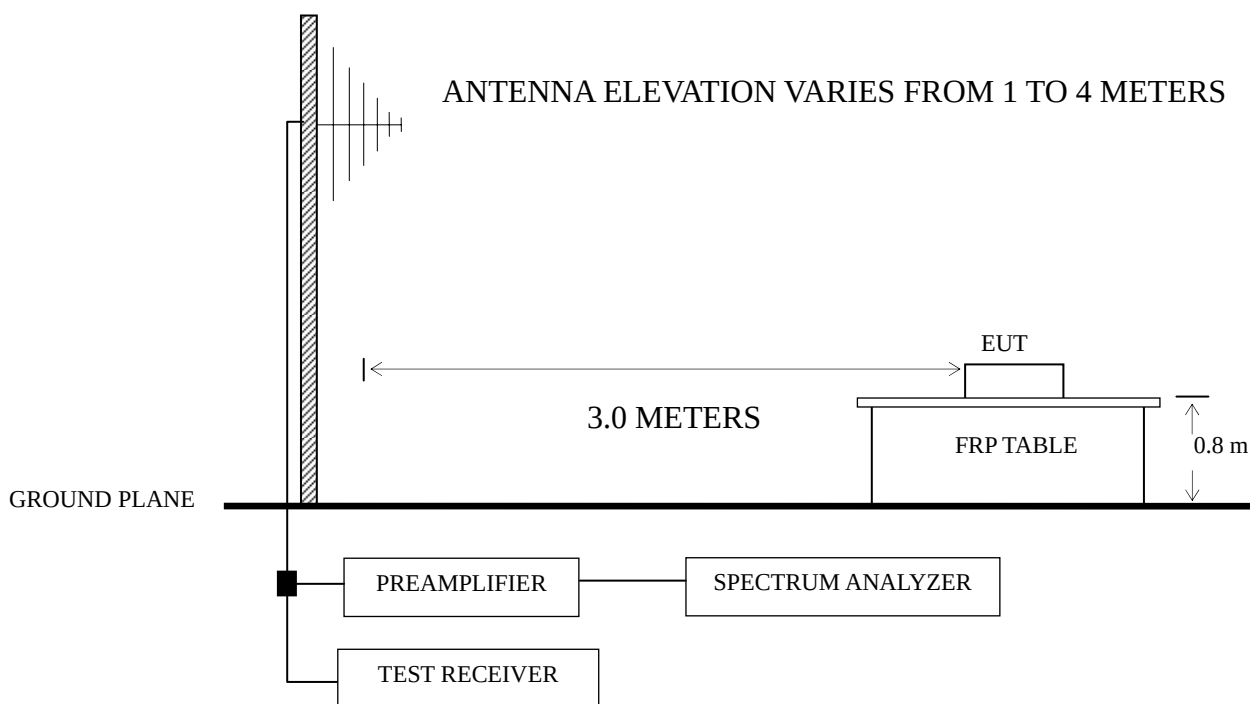
3.1 Test Equipment

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.	Spectrum Analyzer	Agilent	E7405A	MY45106600	Jul 01, 2014	Jun 30, 2015
2.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 03, 2014	May 02, 2015
3.	Horn Antenna	EMCO	3115	9607-4878	Jun 16, 2014	Jun 15, 2015
4.	Horn Antenna	EMCO	3116	00062643	Jul 21, 2014	Jul 20, 2015
5.	Test Receiver	R&S	ESCI	101302	Sep 03, 2014	Sep 02, 2015
6.	Preamplifier	HP	8447D	2944A10548	Sep 18, 2014	Mar 17, 2015
7.	Preamplifier	HP	8449B	3008A00864	Mar 20, 2014	Mar 19, 2015
8.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426390	Sep 18, 2014	Mar 17, 2015
9.	Software	Audix	E3	6.2007-9-10	--	--

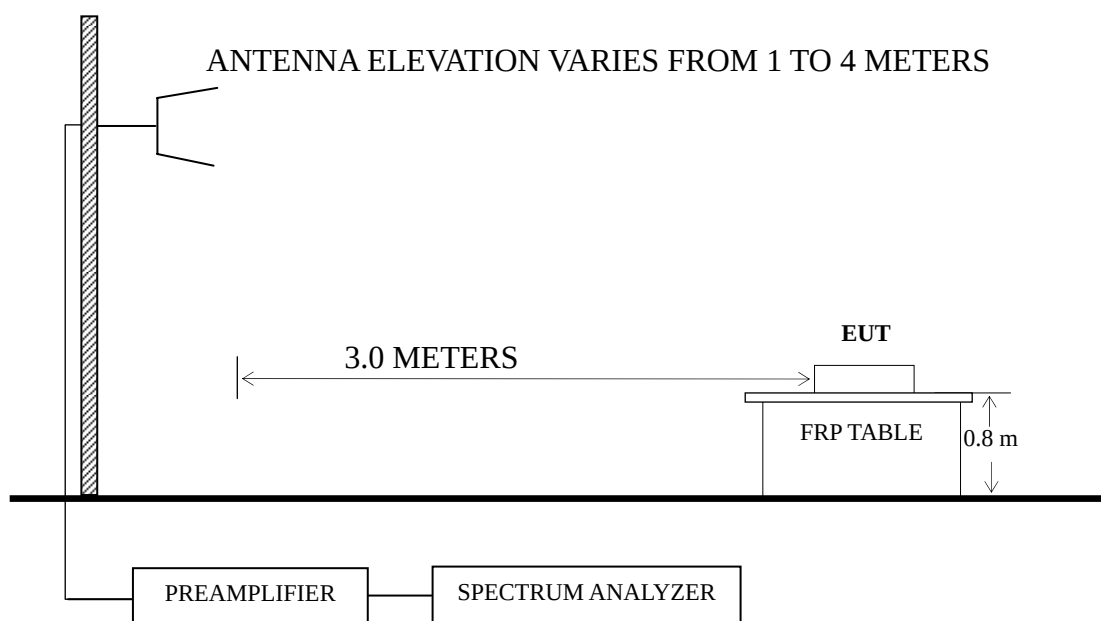
3.2 Block Diagram of Test Setup

3.2.1 Below 1GHz



■ : 50 ohm Coaxial Switch

3.2.2 Above 1GHz



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

Frequency (MHz)	Distance (m)	Field strength limits ($\mu\text{V/m}$)	
		($\mu\text{V/m}$)	dB ($\mu\text{V/m}$)
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 ($\mu\text{V/m}$) = 20 lg Emission Level ($\mu\text{V/m}$)

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) and then test.

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 ESCI 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 10th harmonics from fundamental frequency) was checked.

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.

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 – EUT configured in Lying, Side & Stand direction were all evaluated. The emission levels recorded below is data of EUT configured in **Lying** direction, for Lying direction was the maximum emission direction during the test.

NOTE 5 – The emission levels which not reported are too low against the official limit.

NOTE 6 – All reading are Quasi-Peak values below or equal to 1GHz and Peak values and Average values above 1GHz. For above 1GHz test, if the peak measured value complies with the average limit, it is unnecessary to perform an average measurement.

Radiated Emission below 1GHz

EUT : Remote Controller Temperature : 21°C

Model No. : SFD-Y-13 Humidity : 41% RH

Test Mode : Transmitting Date of Test : Nov. 17, 2014

Polarization	Frequency (MHz)	Read Level dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	36.00	2.62	16.20	0.59	--	19.41	40.00	20.59	QP
	107.89	4.14	12.11	1.03	--	17.28	43.50	26.22	
	319.94	5.66	14.70	1.84	--	22.20	46.00	23.80	
	543.27	0.78	19.40	2.38	--	22.56	46.00	23.44	
	691.99	-1.48	20.60	2.68	--	21.80	46.00	24.20	
	958.79	3.42	19.10	3.12	--	25.64	46.00	20.36	
Vertical	36.00	5.97	16.20	0.59	--	22.76	40.00	17.24	QP
	150.01	8.91	10.70	1.23	--	20.84	43.50	22.66	
	183.84	8.55	8.78	1.36	--	18.69	43.50	24.81	
	432.55	2.60	18.06	2.13	--	22.79	46.00	23.21	
	711.67	0.47	19.77	2.72	--	22.96	46.00	23.04	
	958.79	5.74	19.10	3.12	--	27.96	46.00	18.04	

TEST ENGINEER: BILL WU

Radiated Emission above 1GHz

EUT : Remote Controller Temperature : 21°C

Model No. : SFD-Y-13 Humidity : 41% RH

Test Mode : Transmitting Date of Test : Nov. 17, 2014

Transmitting 2402.94 MHz

Polarization	Frequency (MHz)	Read Level dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	1880.00	47.24	27.07	4.41	35.39	43.33	74.00	30.67	PK
	3365.00	46.73	31.67	6.13	35.13	49.40	74.00	24.60	
	5380.00	43.48	34.46	8.21	34.98	51.17	74.00	22.83	
Vertical	1280.00	47.75	24.78	3.67	36.26	39.94	74.00	34.06	PK
	3195.00	46.41	31.32	5.94	35.26	48.41	74.00	25.59	
	4175.00	45.10	32.84	7.09	34.73	50.30	74.00	23.70	

Transmitting 2442.94 MHz

Polarization	Frequency (MHz)	Read Level dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	1485.00	47.76	25.66	3.95	35.86	41.51	74.00	32.49	PK
	3145.00	46.97	31.19	5.88	35.29	48.75	74.00	25.25	
	5450.00	44.20	34.61	8.27	34.99	52.09	74.00	21.91	
Vertical	1865.00	46.47	27.03	4.41	35.41	42.50	74.00	31.50	PK
	3010.00	46.55	30.92	5.69	35.39	47.77	74.00	26.23	
	4055.00	45.82	32.74	6.96	34.71	50.81	74.00	23.19	

Transmitting 2462.94 MHz

Polarization	Frequency (MHz)	Read Level dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	1260.00	47.28	24.67	3.64	36.29	39.30	74.00	34.70	PK
	3610.00	46.35	32.08	6.45	34.93	49.95	74.00	24.05	
	5765.00	44.23	34.70	8.47	35.06	52.34	74.00	21.66	
Vertical	1585.00	47.64	25.98	4.09	35.71	42.00	74.00	32.00	PK
	2885.00	46.11	30.43	5.57	35.39	46.72	74.00	27.28	
	4280.00	45.96	32.93	7.22	34.76	51.35	74.00	22.65	

TEST ENGINEER: BILL WU

4 DEVIATION TO TEST SPECIFICATIONS

None.