APPLICATION FOR CERTIFICATION

On Behalf of

FUTABA Corporation

Radio Control

Model No.：R304SB-E

FCC ID：AZPR304SB-E-24G

Brand: Futaba

Prepared for : FUTABA Corporation
1080 Yabutsuka Chosei-son Chosei-gun
Chiba, 299-4395 Japan.

Prepared by : AUDIX Technology Corporation
EMC Department
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File Number	：	C1M1309094
Report Number	：	EM-F1020782
Date of Test	：	Oct. 02 ~ 15, 2013
Date of Report	：	Oct. 22, 2013

TABLE OF CONTENTS

TEST REPORT CERTIFICATION

Applicant	:	FUTABA Corporation
Manufacturer	:	FUTABA Corporation
EUT Description	:	Radio Control
FCC ID	:	AZPR304SB-E-24G
	(A) Model No. :	R304SB-E
	(B) Serial No. :	N/A
	(C) Brand :	Futaba
	(D) Power Supply :	DC 6V
	(E) Test Voltage :	DC 6V (Via Batteries)

Measurement Procedure Used:
FCC RULES AND REGULATIONS PART 15 SUBPART C, October 2012
(FCC CFR 47 Part 15C, §15.207, §15.249, §15.209)
AND ANSI C63.4/2003

The device described above was tested by AUDIX Technology Corporation to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the FCC Part 15 subpart C limits.

The measurement results are contained in this test report and AUDIX Technology Corporation is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the requirements of FCC standards.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of AUDIX Technology Corporation.

Date of Test : Oct. 02 ~ 15, 2013 Date of Report : Oct. 22, 2013

Producer : Tina Huang
(Tina Huang/Administrator)

Signatory: Leon Liu
(Leon Liu/Deputy General Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description	:	Radio Control
Model Number	:	R304SB-E
Serial Number	:	N/A
FCC ID	:	AZPR304SB-E-24G
Applicant	:	FUTABA Corporation 1080 Yabutsuka Chosei-son Chosei-gun Chiba, 299-4395 Japan.
Manufacturer	:	FUTABA Corporation 1080 Yabutsuka Chosei-son Chosei-gun Chiba, 299-4395 Japan.
Modulation	:	FHSS
Frequency Band	:	2407.500MHz ~ 2467.500MHz
Tested Frequency	:	2407.500MHz (Channel 1) 2435.500MHz (Channel 15) 2467.500MHz (Channel 31)
Frequency Channel	:	31 channels
Antenna (mono-pole type)	:	Antenna Gain: -4.8dBi
Date of Receipt of Sample	:	Sep. 09, 2013
Date of Test	:	Oct. 02 ~ 15, 2013

1.2. Tested Supporting System Details

1.2.1. NOTEBOOK PC

Model Number	:	N20
Serial Number	:	N/A
FCC ID	:	By DoC
Brand	:	ASUS
AC Adapter	:	ASUS, M/N SADP-65NB BB DC Cord: Non-Shielded, Undetachable, 1.8m
USB to Bus Cable	:	Non-Shielded, Detachable, 0.8m
Power Cord	:	Non-Shielded, Detachable, 1.8m

1.2.2. DIGITAL SERVO #1 (LINK TO EUT)

Part Number	:	S3003
Serial Number	:	N/A
Manufacturer	:	Futaba
Data Cable	:	Non-Shielded, Detachable, 0.15m

1.2.3. DIGITAL SERVO #2 (LINK TO EUT)

Part Number	:	S3003
Serial Number	:	N/A
Manufacturer	:	Futaba
Data Cable	:	Non-Shielded, Detachable, 0.15m

1.2.4. DIGITAL SERVO #3 (LINK TO EUT)

Part Number	:	S3003
Serial Number	:	N/A
Manufacturer	:	Futaba
Data Cable	:	Non-Shielded, Detachable, 0.15m

1.2.5. DIGITAL SERVO #4 (LINK TO EUT)

Part Number	:	S3003
Serial Number	:	N/A
Manufacturer	:	Futaba
Data Cable	:	Non-Shielded, Detachable, 0.15m

1.2.6. SWITCH (LINK TO EUT)

Model Number	:	N/A
Serial Number	:	N/A
Manufacturer	:	N/A
DC Power Cable	:	Non-Shielded, Detachable, 0.15m

1.2.7. Battery (1.5VDC*4)

Model Number	:	N/A
Serial Number	:	N/A
Manufacturer	:	N/A
DC Power Cable	:	Non-Shielded, Detachable, 0.15m

1.3. Description of Test Facility

Name of Firm	:	AUDIX Technology Corporation EMC Department No. 53-11, Dingfu, Linkou Dist., New Taipei City 244, Taiwan
Test Facility & Location (AC)	:	Semi-Anechoic Chamber No. 53-11, Dingfu, Linkou Dist., New Taipei City 244, Taiwan Renewal on May 11, 2012 Federal Communication Commission Registration Number: 90993
NVLAP Lab. Code	:	200077-0
TAF Accreditation No	:	1724

1.4. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty (dB)
Radiation Test (Distance: 3m)	30MHz~300MHz	± 2.91dB
	300MHz~1000MHz	± 2.74dB
	Above 1GHz	± 5.02dB

Remark：Uncertainty = $ku_c(y)$

2. CONDUCTED EMISSION MEASUREMENT

【The EUT only employs battery power for operation, no conductive emission limits are required according to FCC Part 15 Section §15.207】

3. RADIATED EMISSION MEASUREMENT

3.1. Test Equipment

The following test equipment was used during the radiated emission measurement:

3.1.1. For Frequency Range 30MHz~1000MHz (at Semi-Anechoic Chamber)

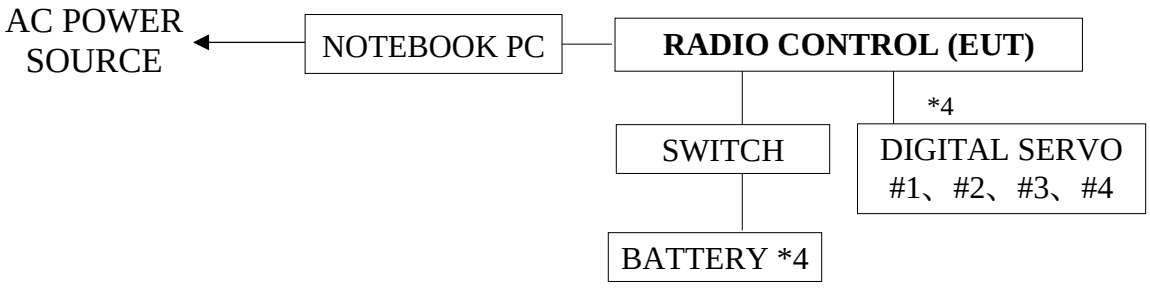
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	8593EM	3826A00272	NCR	NCR	NCR
2.	Test Receiver	R&S	ESCS30	100338	Jul. 01, 13’	Jun. 30, 14’
3.	Amplifier	HP	8447D	2944A06305	Feb. 19, 13’	Feb. 18, 14’
4.	Biconical Antenna	CHASE	VBA6106A	1264	Mar. 03, 13’	Mar. 02, 14’
5.	Log Periodic Antenna	Schwarzbeck	UHALP9108-A	0810	Mar. 03, 13’	Mar. 02, 14’

3.1.2. For Frequency Above 1GHz (at Semi-Anechoic Chamber)

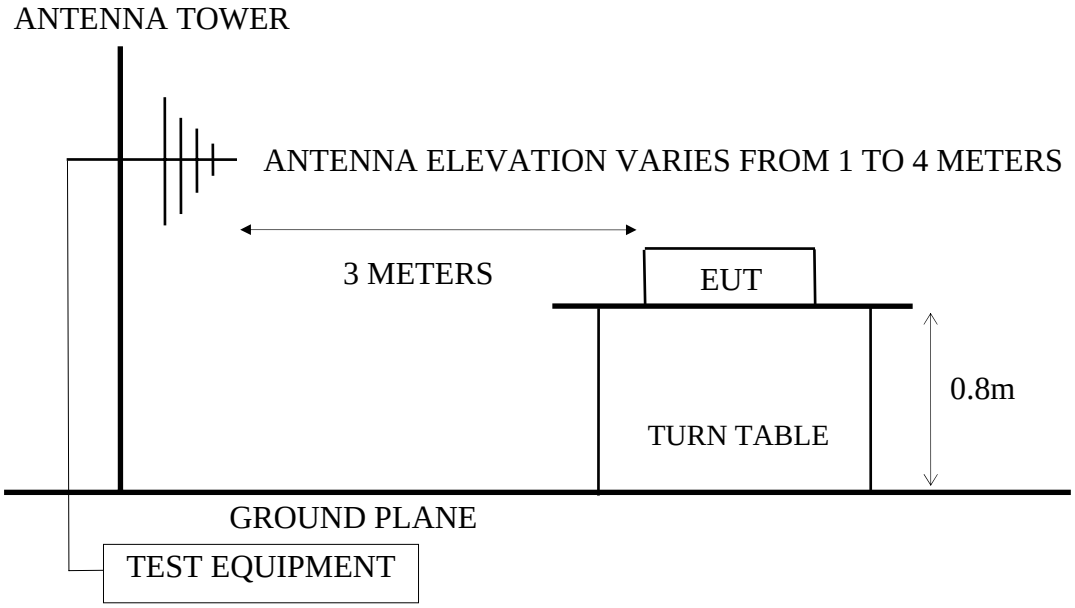
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	E4446A	US44300366	Aug. 18, 13’	Aug. 17, 14’
2.	Pre-Amplifier	HP	8449B	3008A02676	Mar. 01, 13’	Feb. 28, 14’
3.	Horn Antenna	EMCO	3115	9112-3775	May 07, 13’	May 06, 14’

3.2. Block Diagram of Test Setup

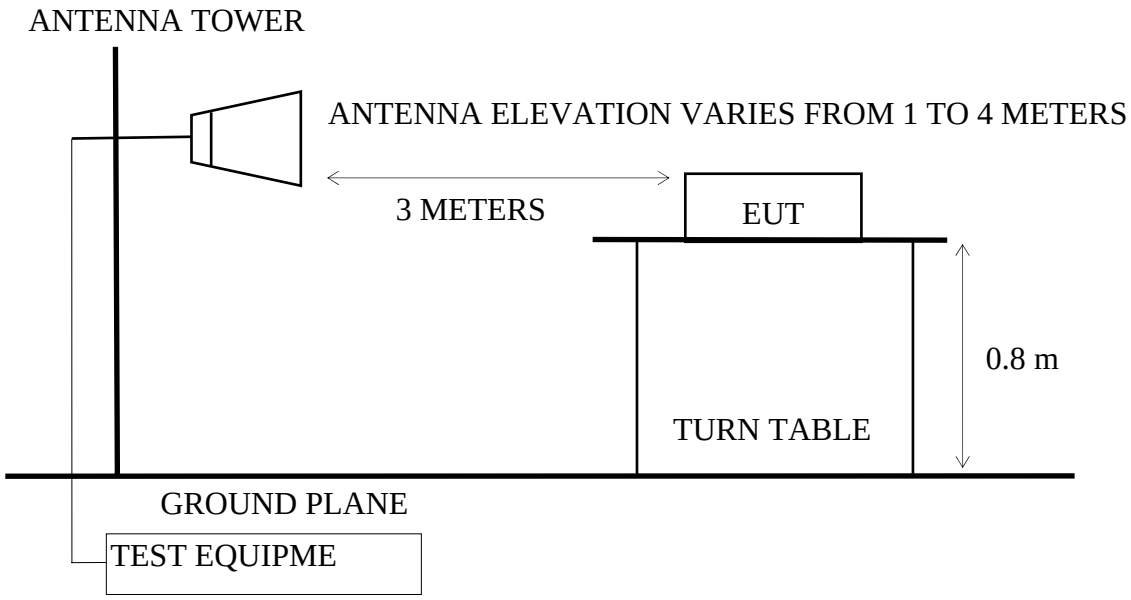
3.2.1. Block Diagram of connection between EUT and simulators



3.2.2. Semi-Anechoic Chamber (3m) Setup Diagram for 30-1000MHz



3.2.3. Semi-Anechoic Chamber (3m) Setup Diagram for above 1GHz



3.3. Radiated Emission Limits (§15.209)

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMITS	
		μV/m	dBμV/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
Above 1000	3	74.0 dBμV/m (Peak) 54.0 dBμV/m (Average)	

Remark：(1) Emission level (dBμV/m) = 20 log Emission level (μV/m)

(2) The tighter limit applies at the edge between two frequency bands.

(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.

(4) The limits in this table are based on CFR 47 Part 15.205(a)(b) and Part 15.209 (a).

(5) The over 1GHz limit, FCC limit is used based on CFR 47 Part 15.35 (b) and Part 15.205(b) & Part 15.209(e) and Part 15.207(c).

3.4. Fundamental Frequency Limits [§15.249(a)]

FUNDAMENTAL FREQUENCY MHZ	LIMITS
2400-2485	114 dBμV/m (Peak)
	94 dBμV/m (Average)

3.5. Operating Condition of EUT

3.5.1. Set up the EUT (Radio Control) as shown on 3.2.

3.5.2. To turn on the power of all equipment.

3.5.3. The EUT was set the notebook PC using test program “Futaba Term”.

3.5.4. The EUT was set to continuously transmit signals at 2407.500MHz、2435.500MHz and 2467.500MHz during testing.

3.6. Test Procedure

The EUT and its simulators were placed on a turn table which was 0.8 meter above the ground. The turn table rotated 360 degrees to determine the position of the maximum emission level. EUT was set to 3 meters away from the receiving antenna which was mounted on an antenna tower. The antenna moved up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna such as calibrated biconical and log-periodical antenna or horn antenna were used as a receiving antenna. Both horizontal and vertical polarization of the antenna were set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to FCC ANSI C63.4-2003 regulation.

The bandwidth of the R & S Test Receiver ESCS 30 was set at 120kHz.
(For 30MHz to 1000MHz)

The resolution bandwidth and video bandwidth of test spectrum analyzer is 1MHz for peak detection (PK) at frequency above 1GHz.

The frequency range from 30MHz to 25GHz (Up to 10^{th} harmonics from fundamental frequency) was checked.

Above 1GHz was measured with peak and average detector. For frequency from 1GHz to 25GHz, we checked it in 1 meter distance and with a shorter cable 2 meter instead of original's. There is no signal exist

3.7. Radiated Emission Measurement Test Results

PASSED. All emissions not reported below are too low against the prescribed limits.

EUT：Radio Control Model No.：R304SB-E

Test Date：Oct. 15, 2013 Temperature：26℃ Humidity：54%

For Frequency Range 30MHz~1000MHz:

The EUT was measured during this section testing and all the test results are listed in section 3.7.1.

Mode	Channel	Frequency	Test Mode	Reference Test Data	
				Horizontal	Vertical
1.	01	2407.5MHz	Transmit	# 4	# 1
2.	15	2435.5MHz		# 5	# 2
3.	31	2467.5MHz		# 6	# 3

* Above all final readings were measured with Quasi-Peak detector.

For Frequency above 1GHz:
There is no emission be found from 1GHz to up to 10^{th} harmonics.

For Restricted Bands:

The EUT was tested in restricted bands and all the test results are listed in section 3.7.2. (The restricted bands defined in part 15.205(a))

Mode	Channel	Frequency	Test Mode	Reference Test Data	
				Horizontal	Vertical
1.	01	2407.5MHz	Transmit	# 1	# 2
2.	31	2467.5MHz		# 3	# 4

For Fundamental Frequency:

The EUT was measured during this section testing and all the test results are listed in section 3.7.3.

Mode	Channel	Frequency	Test Mode	Reference Test Data	
				Horizontal	Vertical
1.	01	2407.5MHz	Transmit	# 2	# 1
2.	15	2435.5MHz		# 4	# 3
3.	31	2467.5MHz		# 5	# 6

3.7.1. Frequency Range 30-1000MHz

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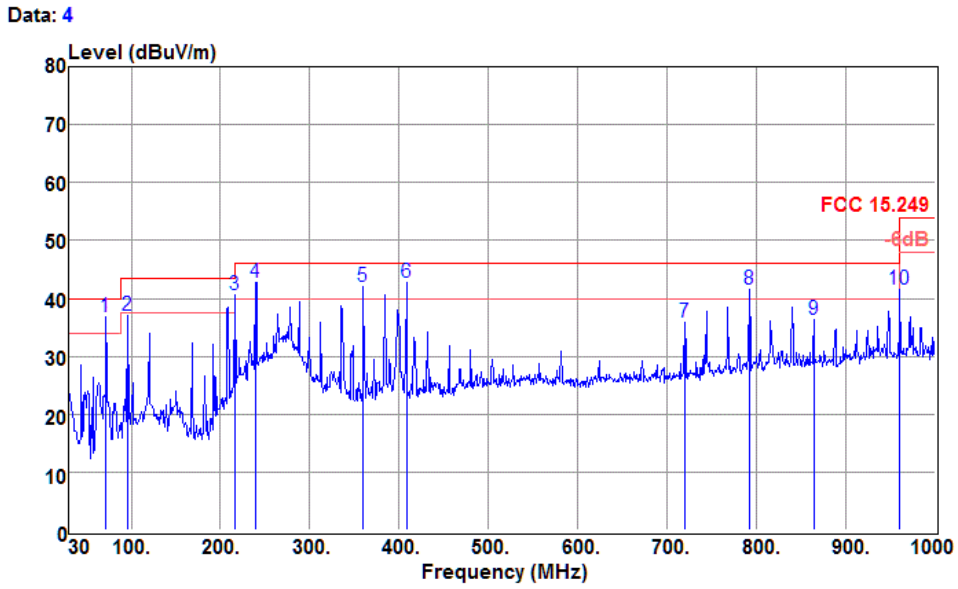

Site no. : Audix NO.1 Chamber Data no. : 4
Dis. / Ant. : 3m CBL6112D 33821 Ant. pol. : HORIZONTAL
Limit : FCC 15.249
Env. / Ins. : 26*C / 54% E4446A Engineer : Johnny_Hsueh
EUT : Radio Control M/N:R304SB-E
Power Rating : DC 6.0V
Test Mode : Tx2407.5MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remarl
1	71.71	6.91	1.80	27.99	36.70	40.00	3.30	
2	95.96	10.54	2.00	24.56	37.10	43.50	6.40	
3	216.24	10.66	3.20	26.76	40.62	46.00	5.38	
4	239.52	12.10	3.40	27.19	42.69	46.00	3.31	
5	359.80	15.54	4.40	22.11	42.05	46.00	3.95	
6	408.30	16.60	4.90	21.26	42.76	46.00	3.24	
7	719.67	19.77	6.60	9.52	35.89	46.00	10.11	
8	792.42	20.54	6.90	14.23	41.67	46.00	4.33	
9	864.20	21.32	7.20	7.81	36.33	46.00	9.67	
10	960.23	22.14	7.60	11.88	41.62	54.00	12.38	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reporte

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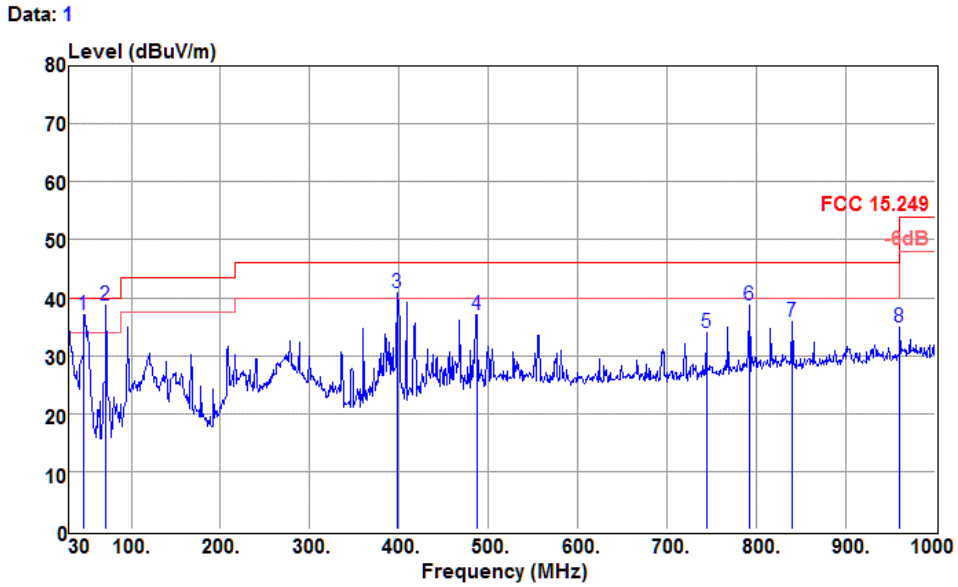

Site no. : Audix NO.1 Chamber Data no. : 1
Dis. / Ant. : 3m CBL6112D 33821 Ant. pol. : VERTICAL
Limit : FCC 15.249
Env. / Ins. : 26*C / 54% E4446A Engineer : Johnny_Hsueh
EUT : Radio Control M/N:R304SB-E
Power Rating : DC 6.0V
Test Mode : Tx2407.5MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remarl
1	47.46	10.30	1.40	25.38	37.08	40.00	2.92	
2	71.71	6.91	1.80	29.95	38.66	40.00	1.34	
3	398.60	16.48	4.80	19.64	40.92	46.00	5.08	
4	486.87	17.61	6.20	13.25	37.06	46.00	8.94	
5	743.92	20.12	6.70	7.23	34.05	46.00	11.95	
6	792.42	20.54	6.90	11.32	38.76	46.00	7.24	
7	839.95	21.08	7.10	7.59	35.77	46.00	10.23	
8	960.23	22.14	7.60	5.06	34.80	54.00	19.20	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reporte

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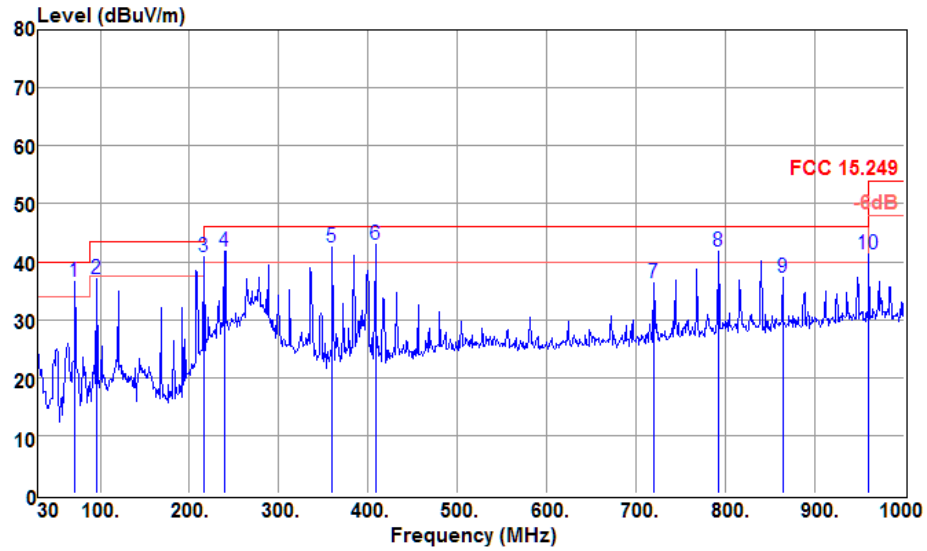
Data: 5



Site no. : Audix NO.1 Chamber Data no. : 5
Dis. / Ant. : 3m CBL6112D 33821 Ant. pol. : HORIZONTAL
Limit : FCC 15.249
Env. / Ins. : 26*C / 54% E4446A Engineer : Johnny_Hsueh
EUT : Radio Control M/N:R304SB-E
Power Rating : DC 6.0V
Test Mode : Tx2435.5MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remarl
1	71.71	6.91	1.80	27.95	36.66	40.00	3.34	
2	95.96	10.54	2.00	24.43	36.97	43.50	6.53	
3	216.24	10.66	3.20	26.94	40.80	46.00	5.20	
4	239.52	12.10	3.40	26.40	41.90	46.00	4.10	
5	359.80	15.54	4.40	22.47	42.41	46.00	3.59	
6	408.30	16.60	4.90	21.48	42.98	46.00	3.02	
7	719.67	19.77	6.60	9.90	36.27	46.00	9.73	
8	792.42	20.54	6.90	14.24	41.68	46.00	4.32	
9	864.20	21.32	7.20	8.84	37.36	46.00	8.64	
10	960.23	22.14	7.60	11.58	41.32	54.00	12.68	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reporte

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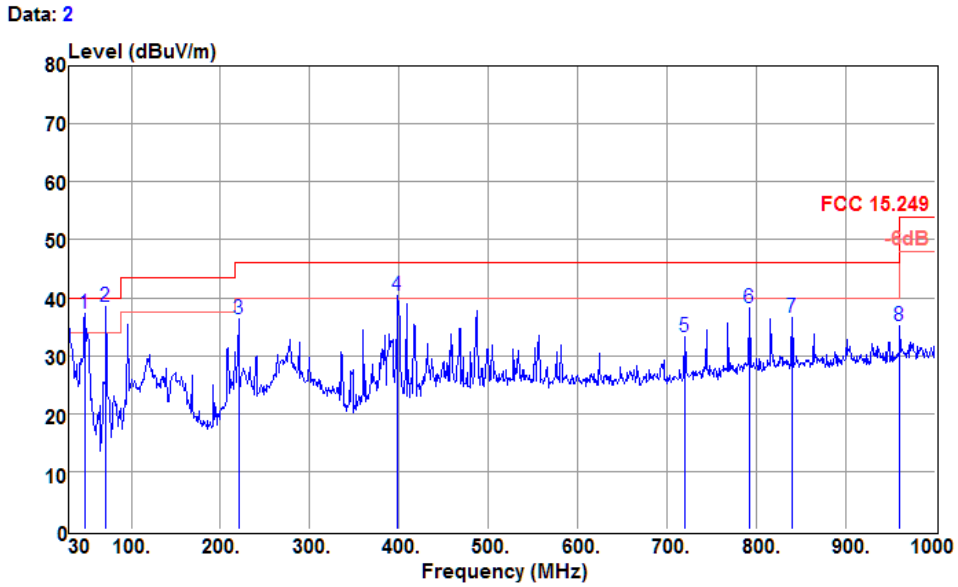

Site no. : Audix NO.1 Chamber Data no. : 2
Dis. / Ant. : 3m CBL6112D 33821 Ant. pol. : VERTICAL
Limit : FCC 15.249
Env. / Ins. : 26*C / 54% E4446A Engineer : Johnny_Hsueh
EUT : Radio Control M/N:R304SB-E
Power Rating : DC 6.0V
Test Mode : Tx2435.5MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remarl
1	48.43	9.97	1.40	25.92	37.29	40.00	2.71	
2	71.71	6.91	1.80	29.85	38.56	40.00	1.44	
3	220.12	10.70	3.30	22.23	36.23	46.00	9.77	
4	398.60	16.48	4.80	19.01	40.29	46.00	5.71	
5	719.67	19.77	6.60	6.90	33.27	46.00	12.73	
6	792.42	20.54	6.90	10.90	38.34	46.00	7.66	
7	839.95	21.08	7.10	8.34	36.52	46.00	9.48	
8	960.23	22.14	7.60	5.42	35.16	54.00	18.84	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reporte

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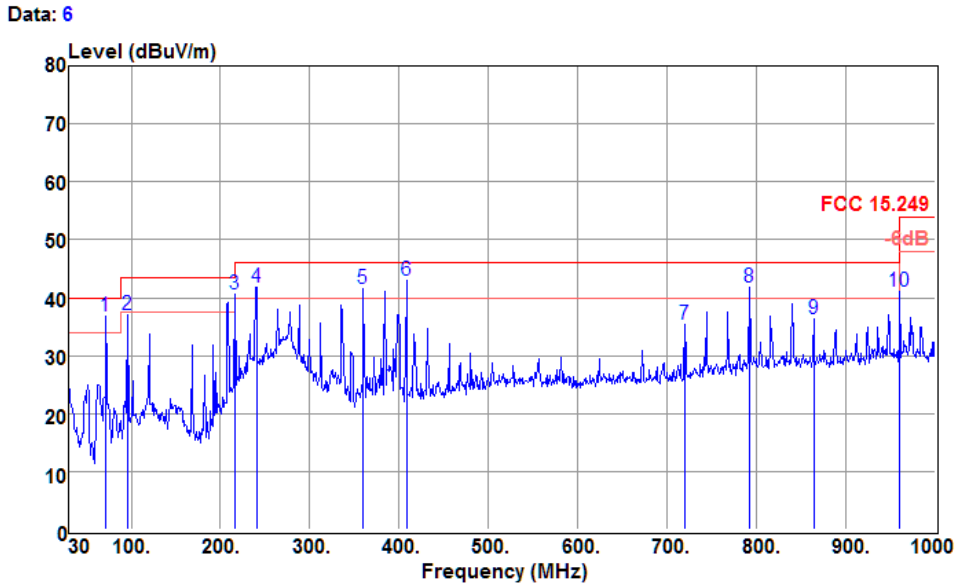

Site no. : Audix NO.1 Chamber Data no. : 6
Dis. / Ant. : 3m CBL6112D 33821 Ant. pol. : HORIZONTAL
Limit : FCC 15.249
Env. / Ins. : 26*C / 54% E4446A Engineer : Johnny_Hsueh
EUT : Radio Control M/N:R304SB-E
Power Rating : DC 6.0V
Test Mode : Tx2467.5MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remarl
1	71.71	6.91	1.80	28.19	36.90	40.00	3.10	
2	95.96	10.54	2.00	24.54	37.08	43.50	6.42	
3	216.24	10.66	3.20	26.72	40.58	46.00	5.42	
4	240.49	12.18	3.40	26.33	41.91	46.00	4.09	
5	359.80	15.54	4.40	21.71	41.65	46.00	4.35	
6	408.30	16.60	4.90	21.58	43.08	46.00	2.92	
7	719.67	19.77	6.60	9.10	35.47	46.00	10.53	
8	792.42	20.54	6.90	14.27	41.71	46.00	4.29	
9	864.20	21.32	7.20	7.80	36.32	46.00	9.68	
10	960.23	22.14	7.60	11.40	41.14	54.00	12.86	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reporte

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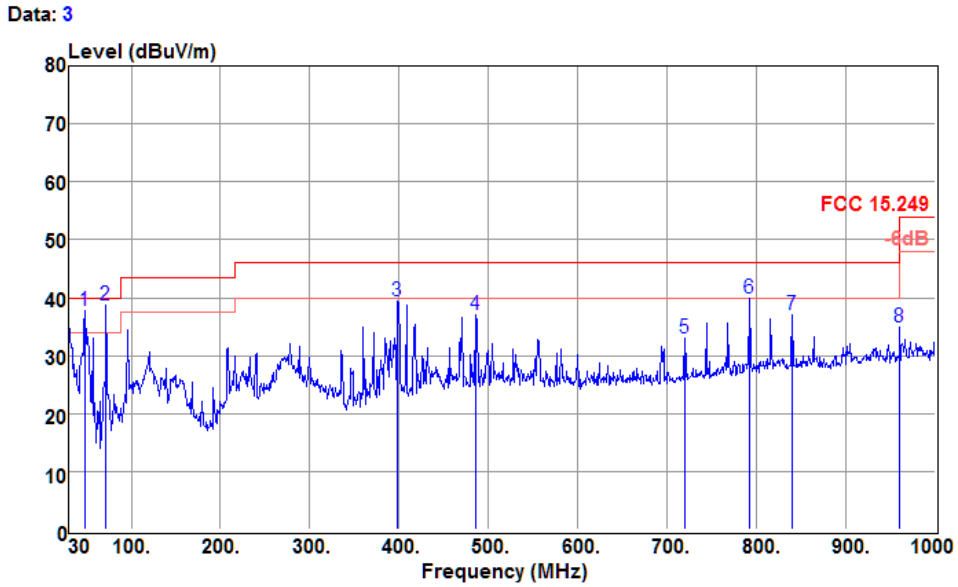


Site no. : Audix NO.1 Chamber Data no. : 3
Dis. / Ant. : 3m CBL6112D 33821 Ant. pol. : VERTICAL
Limit : FCC 15.249
Env. / Ins. : 26*C / 54% E4446A Engineer : Johnny_Hsueh
EUT : Radio Control M/N:R304SB-E
Power Rating : DC 6.0V
Test Mode : Tx2467.5MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remarl
1	48.43	9.97	1.40	26.48	37.85	40.00	2.15	
2	71.71	6.91	1.80	29.99	38.70	40.00	1.30	
3	398.60	16.48	4.80	18.07	39.35	46.00	6.65	
4	484.93	17.58	6.20	13.18	36.96	46.00	9.04	
5	719.67	19.77	6.60	6.61	32.98	46.00	13.02	
6	792.42	20.54	6.90	12.36	39.80	46.00	6.20	
7	839.95	21.08	7.10	8.80	36.98	46.00	9.02	
8	960.23	22.14	7.60	5.27	35.01	54.00	18.99	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reporte

3.7.2. Restricted Bands Measurement Results

Date of Test： Oct. 15, 2013 Temperature： 26℃

EUT： Radio Control Humidity： 54%

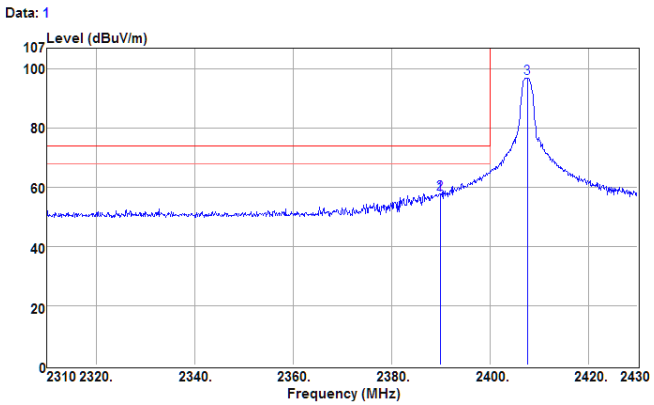
Test Mode： Transmit, Channel: 01, Frequency: 2407.5MHz

	Emission Frequency	Antenna Factor	Cable Loss	Meter Reading Horizontal	Emission Level Horizontal	Limits	Margin
	(MHz)	(dB/m)	(dB)	(dBμV)	(dBμV/m)	(dBμV/m)	(dB)
Peak*	2390.04	28.47	6.34	22.87	57.68	74.00	16.32

Remark: 1.Emission Level = Antenna Factor + Cable Loss + Meter Reading.
2. Low frequency section (spurious in the restricted band 2310-2450MHz).
3. '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.

	Emission Frequency	Peak Value	Duty Cycle Correction Factor	Average Value Horizontal	Limit	Margin
	(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
Average*	2390.04	57.68	-16.70	40.98	54.00	13.02

Remarks: 1. Duty Cycle Correction Factor = 20log (cumulative on/T) = 20log (0.46ms/3.15ms)=-16.7
"T" means the period of the pulse train or 100ms if the pulse train length is greater than 100ms
2. Average value=Peak value+ Duty Cycle Correction Factor
3. Low frequency section (spurious in the restricted band 2310-2450MHz).
4. '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.



Site no. : Audix NO.1 Chamber Data no. : 1
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : FCC 15.249(PK)
Env. / Ins. : 26*C / 54% E4446A Engineer : Johnny_Hsueh
EUT : Radio Control M/N:R304SB-E
Power Rating : DC 6.0V
Test Mode : Tx2407.5MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2389.92	28.47	6.34	22.53	57.34	74.00	16.66	
2	2390.04	28.47	6.34	22.87	57.68	74.00	16.32	
3	2407.68	28.51	6.36	61.91	96.78	114.00	17.22	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reporte

Date of Test： Oct. 15, 2013 Temperature： 26℃

EUT： Radio Control Humidity： 54%

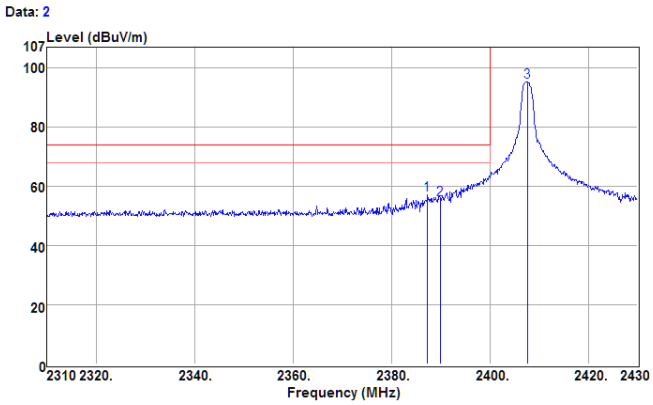
Test Mode： Transmit, Channel: 01, Frequency: 2407.5MHz

	Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading Vertical (dBμV)	Emission Level Vertical (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Peak*	2387.40	28.47	6.33	22.27	57.07	74.00	16.93

Remark: 1.Emission Level = Antenna Factor + Cable Loss + Meter Reading.
2. Low frequency section (spurious in the restricted band 2310-2450MHz).
3. '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.

	Emission Frequency (MHz)	Peak Value (dBμV/m)	Duty Cycle Correction Factor (dB)	Average Value Vertical (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Average*	2387.40	57.07	-16.70	40.37	54.00	13.63

Remarks: 1. Duty Cycle Correction Factor = 20log (cumulative on/T) = 20log (0.46ms/3.15ms)=-16.7
"T" means the period of the pulse train or 100ms if the pulse train length is greater than 100ms
2. Average value=Peak value+ Duty Cycle Correction Factor
3. Low frequency section (spurious in the restricted band 2310-2450MHz).
4. '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.



Site no. : Audix NO.1 Chamber Data no. : 2
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : FCC 15.249(PK)
Env. / Ins. : 26*C / 54% E4446A Engineer : Johnny_Hsueh
EUT : Radio Control M/N:R304SB-E
Power Rating : DC 6.0V
Test Mode : Tx2407.5MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2387.40	28.47	6.33	22.27	57.07	74.00	16.93	
2	2390.04	28.47	6.34	20.68	55.49	74.00	18.51	
3	2407.68	28.51	6.36	60.28	95.15	114.00	18.85	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reporte

Date of Test： Oct. 15, 2013 Temperature： 26℃

EUT： Radio Control Humidity： 54%

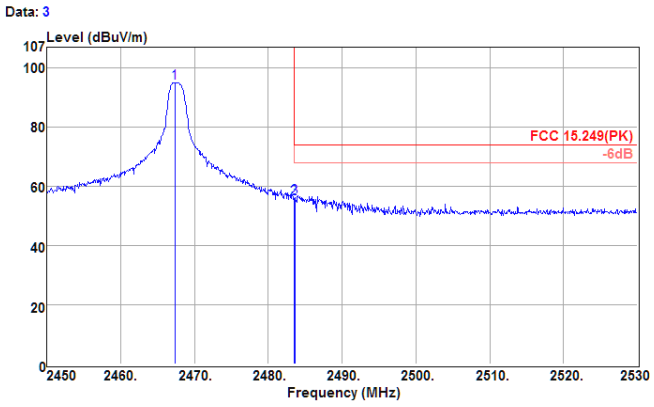
Test Mode： Transmit, Channel: 31, Frequency: 2467.5MHz

	Emission Frequency	Antenna Factor	Cable Loss	Meter Reading Horizontal	Emission Level Horizontal	Limits	Margin
	(MHz)	(dB/m)	(dB)	(dBμV)	(dBμV/m)	(dBμV/m)	(dB)
Peak*	2483.68	28.66	6.45	20.95	56.06	74.00	17.94

Remark: 1.Emission Level = Antenna Factor + Cable Loss + Meter Reading.
2. Low frequency section (spurious in the restricted band 2440-2530MHz).
3. '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.

	Emission Frequency	Peak Value	Duty Cycle Correction Factor	Average Value Horizontal	Limit	Margin
	(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
Average*	2483.68	56.06	-16.70	39.36	54.00	14.64

Remarks: 1. Duty Cycle Correction Factor = 20log (cumulative on/T) = 20log (0.46ms/3.15ms)=-16.7
"T" means the period of the pulse train or 100ms if the pulse train length is greater than 100ms
2. Average value=Peak value+ Duty Cycle Correction Factor
3. Low frequency section (spurious in the restricted band 2440-2530MHz).
4. '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.



Site no. : Audix NO.1 Chamber Data no. : 3
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : FCC 15.249(PK)
Env. / Ins. : 26*C / 54% E4446A Engineer : Johnny_Hsueh
EUT : Radio Control M/N:R304SB-E
Power Rating : DC 6.0V
Test Mode : Tx2467.5MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2467.36	28.62	6.42	60.07	95.11	114.00	18.89	
2	2483.52	28.66	6.45	20.79	55.90	74.00	18.10	
3	2483.68	28.66	6.45	20.95	56.06	74.00	17.94	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reporte

Date of Test： Oct. 15, 2013 Temperature： 26℃

EUT： Radio Control Humidity： 54%

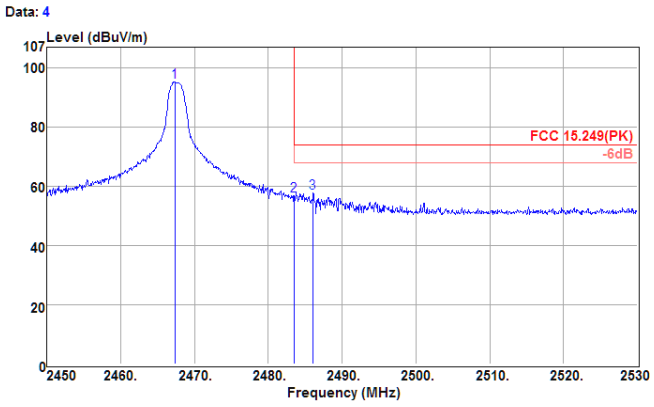
Test Mode： Transmit, Channel: 31, Frequency: 2467.5MHz

	Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading Vertical (dBμV)	Emission Level Vertical (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Peak*	2486.08	28.66	6.45	22.71	57.82	74.00	16.18

Remark: 1.Emission Level = Antenna Factor + Cable Loss + Meter Reading.
2. Low frequency section (spurious in the restricted band 2440-2530MHz).
3. '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.

	Emission Frequency (MHz)	Peak Value (dBμV/m)	Duty Cycle Correction Factor (dB)	Average Value Vertical (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Average*	2486.08	57.82	-16.70	41.12	54.00	12.88

Remarks: 1. Duty Cycle Correction Factor = 20log (cumulative on/T) = 20log (0.46ms/3.15ms)=-16.7
"T" means the period of the pulse train or 100ms if the pulse train length is greater than 100ms
2. Average value=Peak value+ Duty Cycle Correction Factor
3. Low frequency section (spurious in the restricted band 2440-2530MHz).
4. '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.



Site no. : Audix NO.1 Chamber Data no. : 4
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : FCC 15.249(PK)
Env. / Ins. : 26*C / 54% E4446A Engineer : Johnny_Hsueh
EUT : Radio Control M/N:R304SB-E
Power Rating : DC 6.0V
Test Mode : Tx2467.5MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2467.36	28.62	6.42	60.08	95.12	114.00	18.88	
2	2483.52	28.66	6.45	21.80	56.91	74.00	17.09	
3	2486.08	28.66	6.45	22.71	57.82	74.00	16.18	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reporte

3.7.3. Fundamental Frequency

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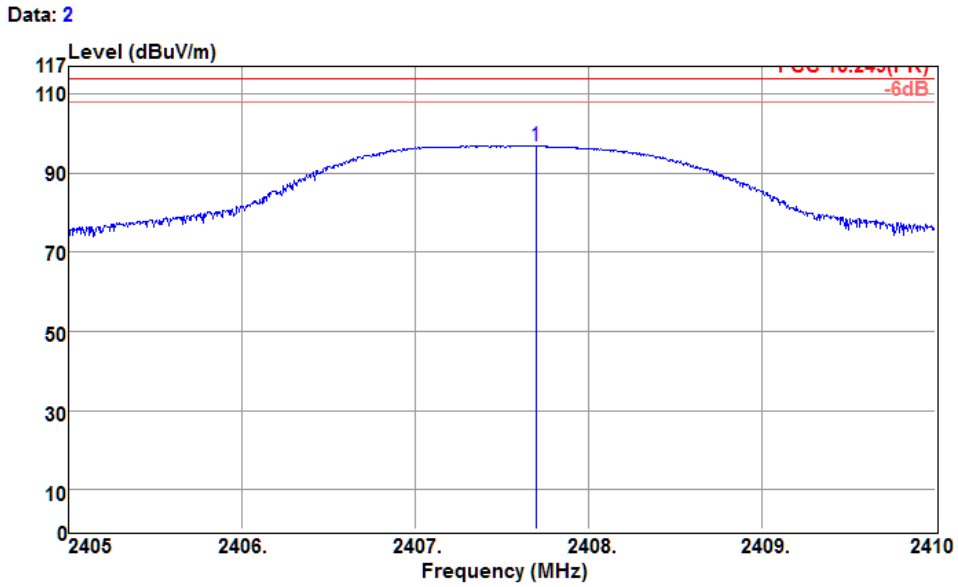
Email:ttemc@ttemc.com.



Site no. : Audix NO.1 Chamber Data no. : 2
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : FCC 15.249(PK)
Env. / Ins. : 26*C / 54% E4446A Engineer : Johnny_Hsueh
EUT : Radio Control M/N:R304SB-E
Power Rating : DC 6.0V
Test Mode : Tx2407.5MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2407.70	28.51	6.36	61.93	96.80	114.00	17.20	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported

	Emission Frequency	Peak Value	Duty Cycle Correction Factor	Average Value Vertical	Limit	Margin
	(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
Average*	2407.70	96.8	-16.70	80.10	94.00	13.90

Remarks: 1. Duty Cycle Correction Factor = 20log (cumulative on/T) =
20log (0.46ms/3.15ms)=-16.7
"T" means the period of the pulse train or 100ms if the pulse train length is greater than 100ms
2. Average value=Peak value+ Duty Cycle Correction Factor
3. Low frequency section (spurious in the restricted band 2440-2530MHz).
4. '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.

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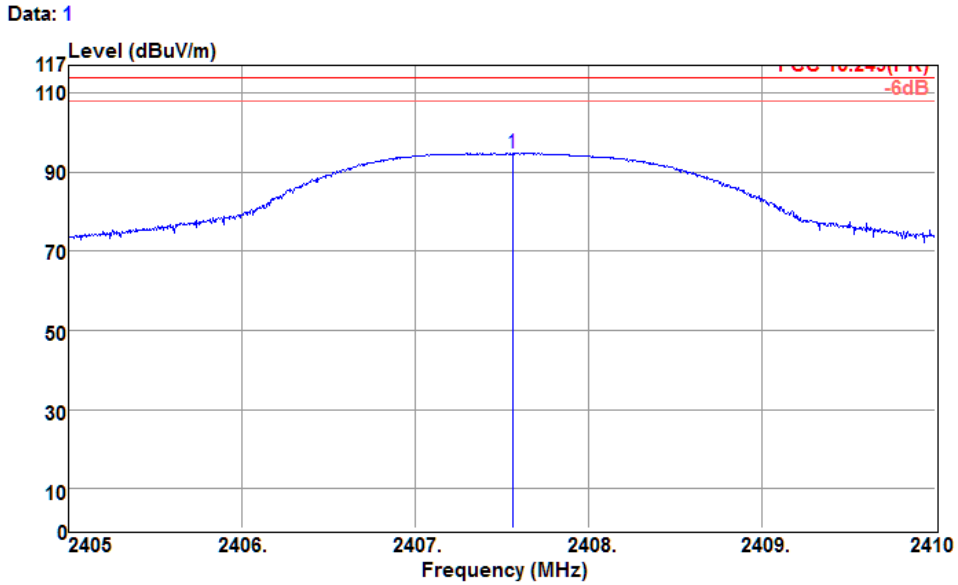
Email:ttemc@ttemc.com.



Site no. : Audix NO.1 Chamber Data no. : 1
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : FCC 15.249(PK)
Env. / Ins. : 26*C / 54% E4446A Engineer : Johnny_Hsueh
EUT : Radio Control M/N:R304SB-E
Power Rating : DC 6.0V
Test Mode : Tx2407.5MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remarl
1	2407.57	28.51	6.36	59.84	94.71	114.00	19.29	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reporte

	Emission Frequency (MHz)	Peak Value (dBμV/m)	Duty Cycle Correction Factor (dB)	Average Value Vertical (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Average*	2407.57	94.71	-16.70	78.01	94.00	15.99

Remarks: 1. Duty Cycle Correction Factor = 20log (cumulative on/T) =
20log (0.46ms/3.15ms)=-16.7
"T" means the period of the pulse train or 100ms if the pulse train length is greater than 100ms
2. Average value=Peak value+ Duty Cycle Correction Factor
3. Low frequency section (spurious in the restricted band 2440-2530MHz).
4. '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.

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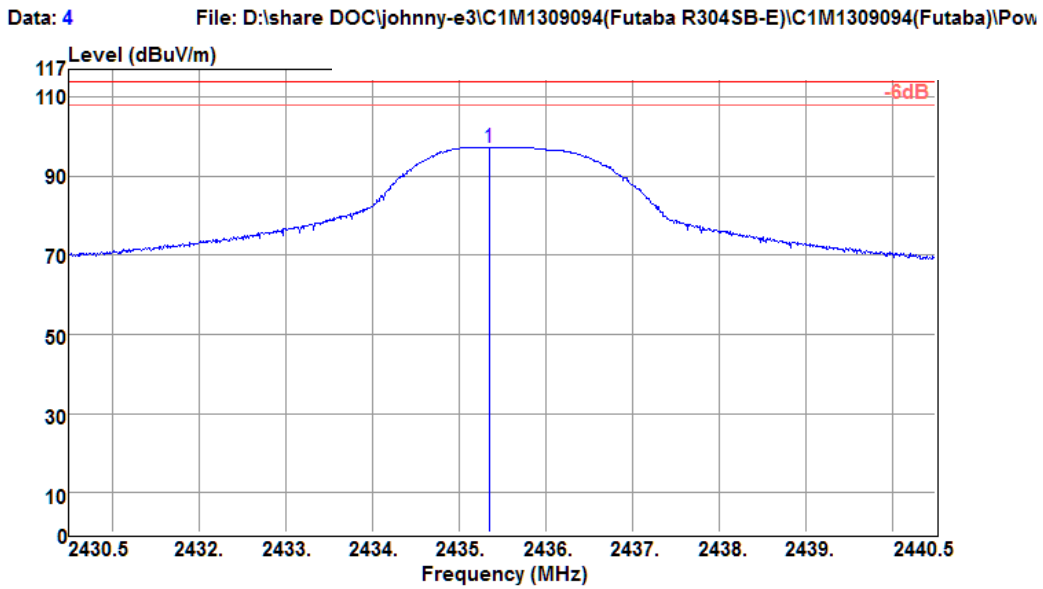
Email:ttemc@ttemc.com.



Site no. : Audix NO.1 Chamber Data no. : 4
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : FCC 15.249(PK)
Env. / Ins. : 26*C / 54% E4446A Engineer : Johnny_Hsueh
EUT : Radio Control M/N:R304SB-E
Power Rating : DC 6.0V
Test Mode : Tx2435.5MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remarl
1	2435.36	28.55	6.39	62.34	97.28	114.00	16.72	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reporte

	Emission Frequency (MHz)	Peak Value (dBμV/m)	Duty Cycle Correction Factor (dB)	Average Value Vertical (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Average*	2435.36	97.28	-16.70	80.58	94.00	15.33

Remarks: 1. Duty Cycle Correction Factor = 20log (cumulative on/T) =
20log (0.46ms/3.15ms)=-16.7
"T" means the period of the pulse train or 100ms if the pulse train length is greater than 100ms
2. Average value=Peak value+ Duty Cycle Correction Factor
3. Low frequency section (spurious in the restricted band 2440-2530MHz).
4. '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.

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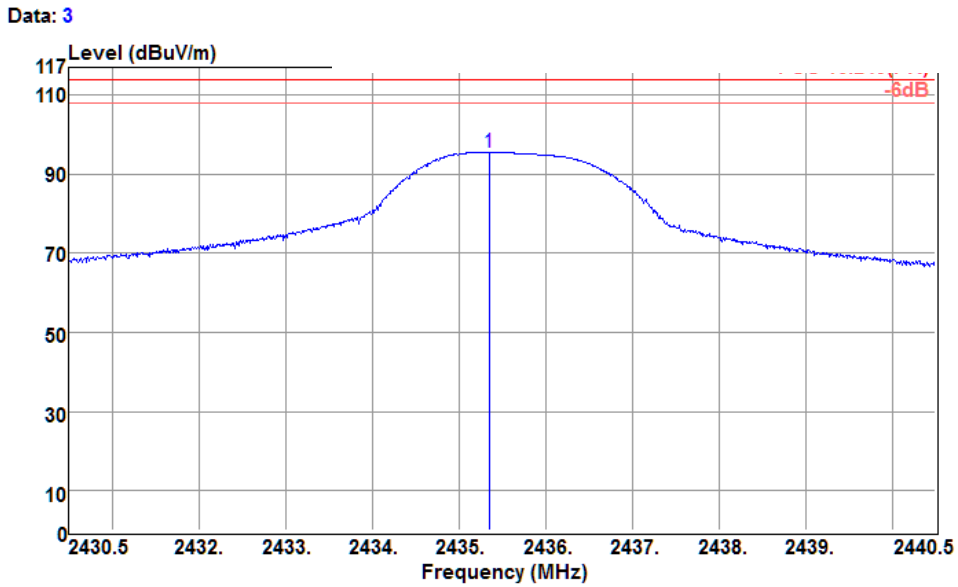
Email:ttemc@ttemc.com.



Site no. : Audix NO.1 Chamber Data no. : 3
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : FCC 15.249(PK)
Env. / Ins. : 26*C / 54% E4446A Engineer : Johnny_Hsueh
EUT : Radio Control M/N:R304SB-E
Power Rating : DC 6.0V
Test Mode : Tx2435.5MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remarl
1	2435.36	28.55	6.39	60.43	95.37	114.00	18.63	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reporte

	Emission Frequency (MHz)	Peak Value (dBμV/m)	Duty Cycle Correction Factor (dB)	Average Value Vertical (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Average*	2435.36	95.37	-16.70	78.67	94.00	15.33

Remarks: 1. Duty Cycle Correction Factor = 20log (cumulative on/T) =
20log (0.46ms/3.15ms)=-16.7
"T" means the period of the pulse train or 100ms if the pulse train length is greater than 100ms
2. Average value=Peak value+ Duty Cycle Correction Factor
3. Low frequency section (spurious in the restricted band 2440-2530MHz).
4. '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.

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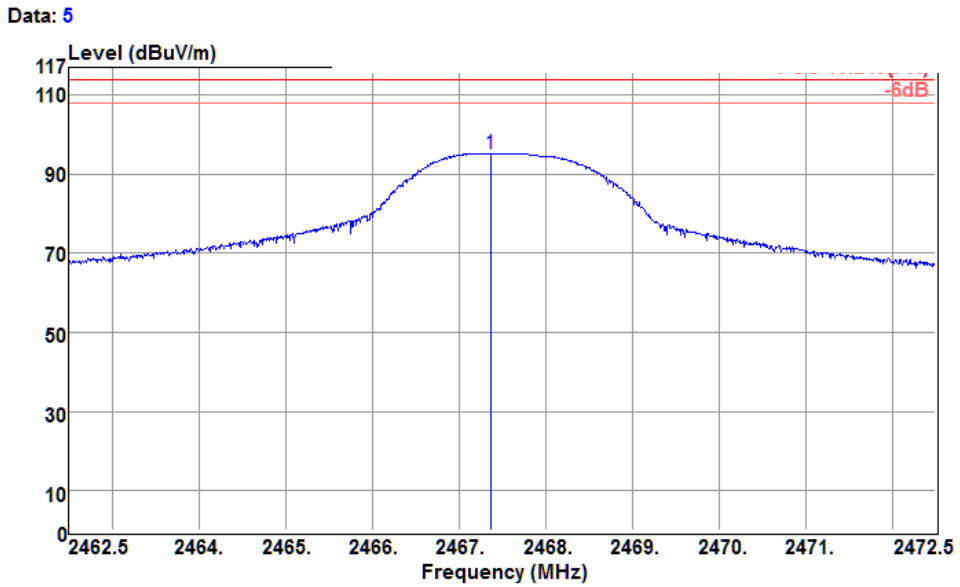

Site no. : Audix NO.1 Chamber Data no. : 5
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : FCC 15.249(PK)
Env. / Ins. : 26*C / 54% E4446A Engineer : Johnny_Hsueh
EUT : Radio Control M/N:R304SB-E
Power Rating : DC 6.0V
Test Mode : Tx2467.5MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2467.37	28.62	6.42	60.03	95.07	114.00	18.93	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reporte

	Emission Frequency (MHz)	Peak Value (dBμV/m)	Duty Cycle Correction Factor (dB)	Average Value Vertical (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Average*	2467.37	95.07	-16.70	78.37	94.00	15.63

Remarks: 1. Duty Cycle Correction Factor = 20log (cumulative on/T) =
20log (0.46ms/3.15ms)=-16.7
"T" means the period of the pulse train or 100ms if the pulse train length is greater than 100ms
2. Average value=Peak value+ Duty Cycle Correction Factor
3. Low frequency section (spurious in the restricted band 2440-2530MHz).
4. '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.

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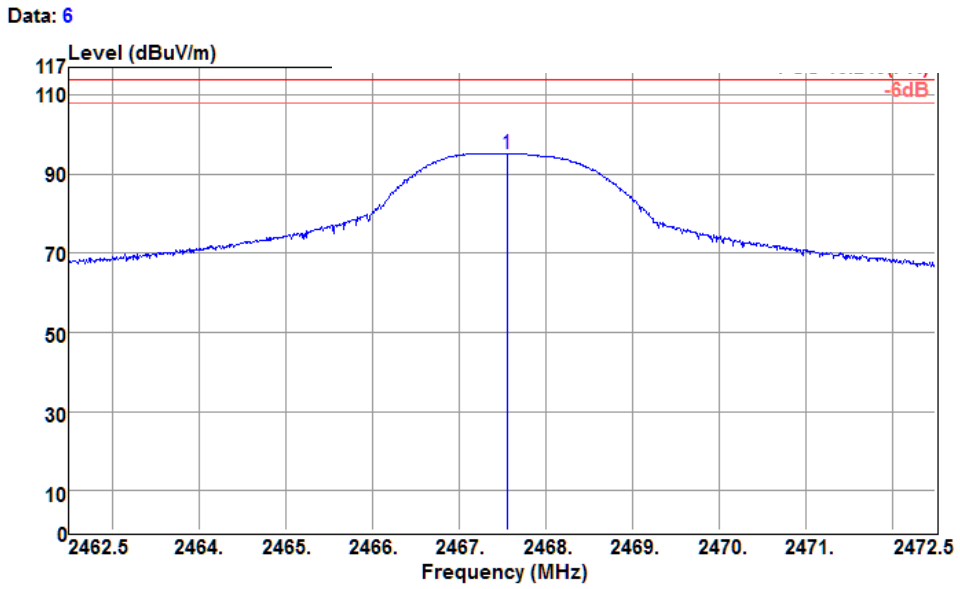
Email:ttemc@ttemc.com.



Site no. : Audix NO.1 Chamber Data no. : 6
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : FCC 15.249(PK)
Env. / Ins. : 26*C / 54% E4446A Engineer : Johnny_Hsueh
EUT : Radio Control M/N:R304SB-E
Power Rating : DC 6.0V
Test Mode : Tx2467.5MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2467.57	28.62	6.43	60.02	95.07	114.00	18.93	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reporte

	Emission Frequency (MHz)	Peak Value (dBμV/m)	Duty Cycle Correction Factor (dB)	Average Value Vertical (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Average*	2467.57	95.07	-16.70	78.37	94.00	15.63

Remarks: 1. Duty Cycle Correction Factor = 20log (cumulative on/T) =
20log (0.46ms/3.15ms)=-16.7
"T" means the period of the pulse train or 100ms if the pulse train length is greater than 100ms
2. Average value=Peak value+ Duty Cycle Correction Factor
3. Low frequency section (spurious in the restricted band 2440-2530MHz).
4. '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.

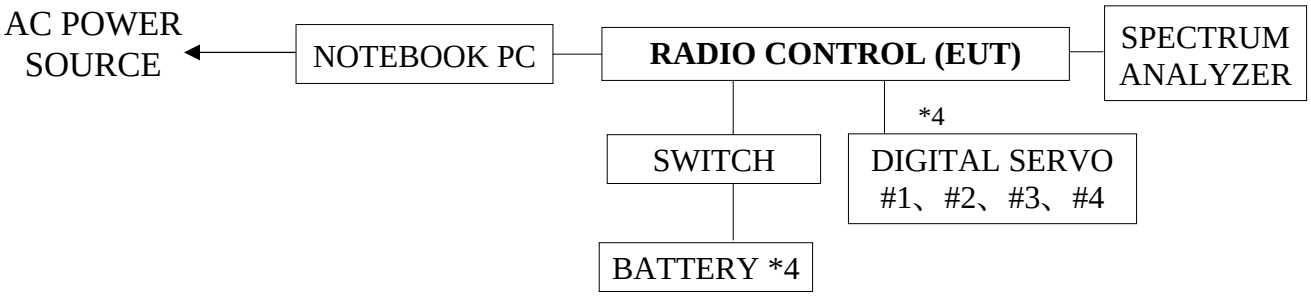
4. DUTY CYCLE CORRECTION FACTOR

4.1. Test Equipment

The following test equipment was used during the occupied bandwidth 99% power measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	N9010A-507	MY49061167	Mar. 11, 13’	Mar. 10, 14’

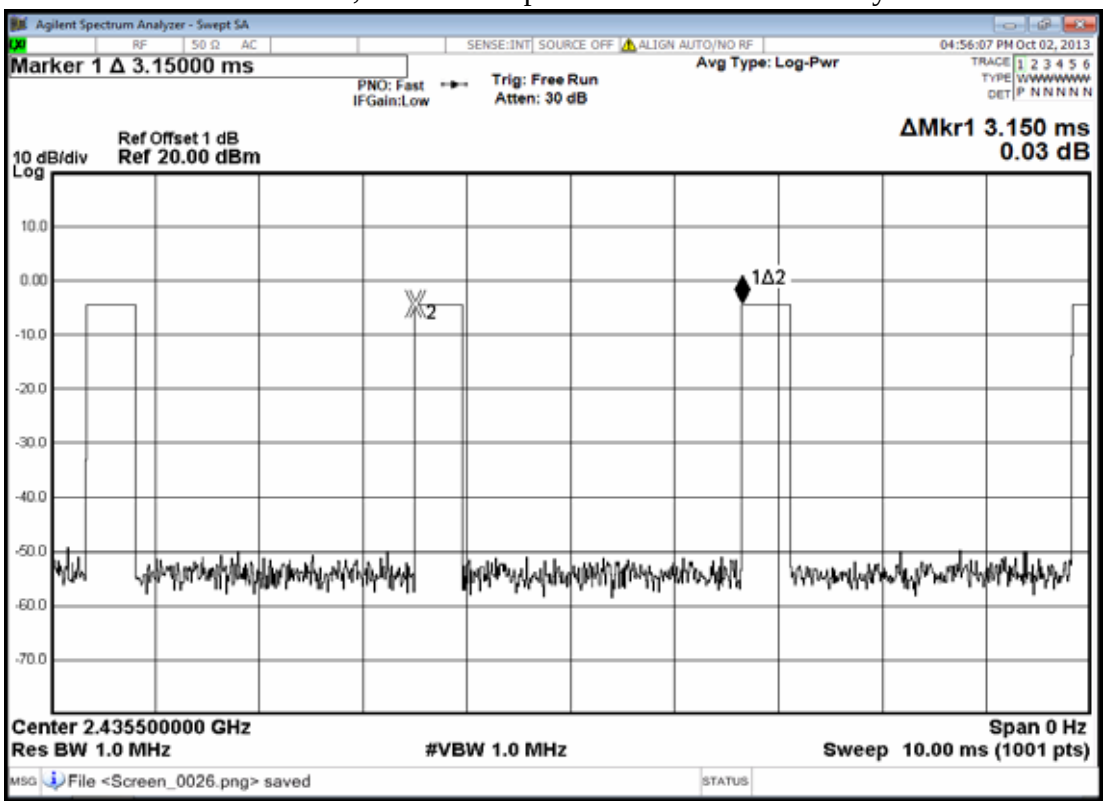
4.2. Block Diagram of Test Setup

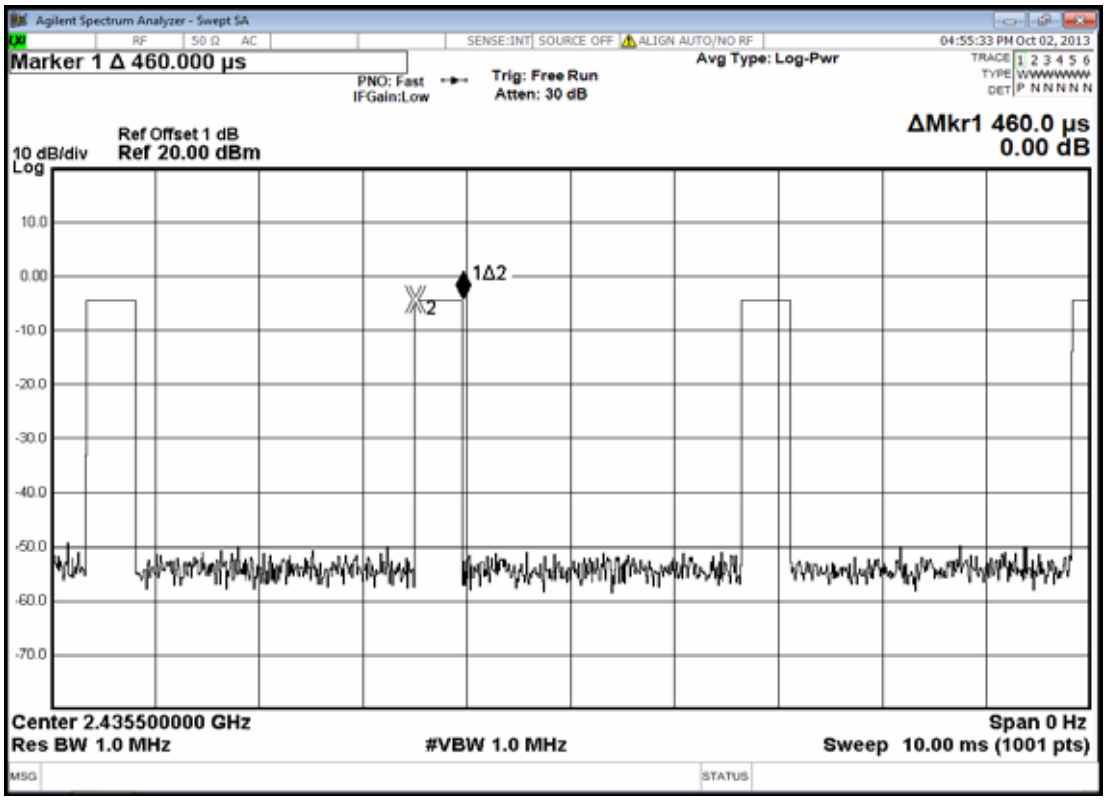


4.3. Test Results

PASSED. All the test results are attached in next pages.

Test Date: Oct. 02, 2013 Temperature : 25℃ Humidity : 55 %





Duty Cycle Correction Factor = 20log(dwell time/3.150ms)
= 20log(0.460ms/3.150ms)=-16.7

5. DEVIATION TO TEST SPECIFICATIONS

【NONE】

6. PHOTOGRAPHS

6.1. Photos of Radiated Emission Measurement at Semi-Anechoic Chamber

6.1.1. For Frequency Range 30MHz~1GHz

6.1.2. For Frequency Above 1GHz