APPLICATION FOR CERTIFICATION On Behalf of FUTABA Corporation Radio Control Model No. : R6308SBT FCC ID : AZPR6308SBT-24G Brand: Futaba

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TEST REPORT CERTIFICATION

Applicant	:	FUTABA Corporat	ion	
Manufacturer	:	FUTABA Corporat	ion	
EUT Description	:	Radio Control		
FCC ID	:	AZPR6308SBT-24	G	
		(A) Model No.	:	R6308SBT
		(B) Serial No.	:	N/A
		(C) Brand	:	Futaba
		(D) Power Supply	:	DC 3.5V ~ 8.4V
		(E) Test Voltage	:	DC 8.4V (Via DC Power Supply)

Measurement Procedure Used:

FCC RULES AND REGULATIONS PART 15 SUBPART C, Oct. 2010 AND ANSI C63.4/2003

(FCC CFR 47 Part 15C, §15.207 and §15.209 and §15.247)

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 B & 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 FCC official limits.

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 :	Feb. 21 ~ Apr. 27, 2012	Date of Report :	May 02, 2012	
Producer :	Tina I drung (Tina Huang/Administrator)	_		
Signatory :	(Ben Cheng/Manager)			
	(Ben Cheng/Manager)			

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description	:	Radio Control
Model Number	:	R6308SBT
Serial Number	:	N/A
FCC ID	:	AZPR6308SBT-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.
Radio Technology	:	DSSS
Modulation	:	FSK
Frequency Band	:	2405.376MHz ~ 2472.960MHz
Tested Frequency	:	2405.376MHz (Channel 02) 2439.168MHz (Channel 35) 2472.960MHz (Channel 68)
Frequency Channel	:	23 channels
Antenna Gain	:	-1.16dBi
Date of Receipt of Sample	:	Jan. 30, 2012
Date of Test	:	Feb. 21 ~ Apr. 27, 2012

1.2. Tested Supporting System Details

1.2.1. DC POWER SUPPLY

Model Number	:	3303A
Serial Number	:	721773
Manufacturer	:	TOP WARD
DC Power Cable	:	Non-Shielded, Detachable, 0.8m
AC Power Cord	:	Non-Shielded, Detachable, 1.8m

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, R.O.C.
Test Location & Facility (AC)	:	Semi-Anechoic Chamber No. 53-11, Dingfu, Linkou Dist., New Taipei City 244, Taiwan, R.O.C.
		May 14, 2009 Renewal on 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)
	30MHz~300MHz	± 2.91dB
Radiation Test	300MHz~1000MHz	± 2.74dB
(Distance. 511)	Above 1GHz	± 5.02dB

Remark: Uncertainty = $ku_c(y)$

Test Item	Uncertainty
6dB Bandwidth	± 0.05kHz
Maximum peak output power	± 0.33dBm
Emission Limitations	± 0.13dB
Band edges	± 0.13dB
Power spectral density	± 0.13dB

2. CONDUCTED EMISSION MEASUREMET

【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	Туре	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	E4446A	US44300366	Aug. 04, 11'	Aug. 03, 12'
2.	Test Receiver	R & S	ESCS30	100339	Jun. 23, 11'	Jun. 22, 12'
3.	Amplifier	HP	8447D	2944A06305	Feb. 13, 12'	Feb. 12, 13'
4.	Log Periodic	Sahwarzhaak	UHALP	0810	Mor 03 12'	Mor 02 12'
	Antenna	Schwarzbeck	9108-A	0810	Wiai. 03, 12	Wiai. 02, 13
5.	Biconical Antenna	CHASE	VBA6106A	1264	Mar. 03, 12'	Mar. 02, 13'

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

Item	Туре	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	E4446A	US44300366	Aug. 04, 11'	Aug. 03, 12'
2.	Test Receiver	R & S	ESCS30	100339	Jun. 23, 11'	Jun. 22, 12'
3.	Amplifier	HP	8449B	3008A00529	Dec. 09, 11'	Dec. 08, 12'
4.	Horn Antenna	EMCO	3115	9112-3775	May 09, 11'	May 08, 12'
5.	Horn Antenna	EMCO	3116	2653	Oct. 07, 11'	Oct. 06, 12'
6.	2.4GHz Notch Filter	EWT	EWT-14-007 0-R1	G2	Dec. 05, 11'	Dec. 04, 12'
7.	3.5GHz High Pass Filter	HP	84300-80038	005	Jan. 04, 12'	Jan. 03, 13'

3.2. Test Setup

3.2.1. Block Diagram of connection between EUT and simulators

AC SOURCE		DC POWE	ER SUPPLY
	R	ADIO CON	NTROL (EUT)





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





FREQUENCY	DISTANCE	FIELD STREN	IGTHS LIMITS		
MHz	Meters	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)			

3.3. Radiated Emission Limits (§15.209)

Remark : (1) Emission level ($dB\mu V/m$) = 20 log Emission level ($\mu V/m$)

- (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. Operating Condition of EUT

- 3.4.1. Set up the EUT (Radio Control) as shown on 3.2.
- 3.4.2. To turn on the power of all equipment.
- 3.4.3. The EUT was set the PC system using test program "Futaba Term".
- 3.4.4. The EUT was set to continuously transmit signals at 2405.376MHz 2439.168MHz and 2472.960MHz during testing.

3.5. 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 could be 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 ESCS30 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 resolution bandwidth of test spectrum analyzer is 1MHz and the video bandwidth is 10Hz for average detection (AV) at frequency above 1GHz.

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

Above 1GHz was measured with peak and average detector. For frequency from 18GHz 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.

3.6. Radiated Emission Measurement Results

PASSED.

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

EUT : Radio Control M/N : R6308SBT

Test Date : Apr. 27, 2012 Temperature : 24°C Humidity : 54%

For Frequency Range 30MHz~1000MHz:

R6308SBT has two antennas, but can't transmit simultaneously. We performed all testing at antenna 1 as it has a worst performance.

The EUT with following test modes was performed during this section testing and all the test results are listed in section 3.6.1.

Mode Cha	Channal	Frequency	Test Mode	Reference Test Data			
	Channel		Test Mode	Horizontal	Vertical		
1.	02	2405.376MHz		# 2	# 1		
2.	35	2439.168MHz	Transmit	# 1	# 2		
3.	68	2472.960MHz		# 2	# 1		

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

For Frequency above 1GHz:

The EUT with following test modes was performed during this section testing and all the test results are listed in section 3.6.2.

Mode	Chnnel	Frequency	Test Mode	Test Frequency Range
1.				1000-2680MHz
2.	02			2680-4000MHz
3.		2405 276MUz	Transmit	4000-5500MHz
4.		2403.37011112	Tansiint	5500-11000MHz
5.				11000-18000MHz
6.				18000-25000MHz
7.	-			1000-2680MHz
8.				2680-4000MHz
9.	25	2439.168MHz	Transmit	4000-5500MHz
10.	55			5500-11000MHz
11.				11000-18000MHz
12.				18000-25000MHz
13.				1000-2680MHz
14.				2680-4000MHz
15.	68	2472 060MUz	Transmit	4000-5500MHz
16.		8 2472.960MHz	Transmit	5500-11000MHz
17.				11000-18000MHz
18.				18000-25000MHz

Note: 1. Above all final readings were measured with Peak and Average detector. 2. The emissions (up to 25GHz) not reported are too low to be measured.

For Restricted Bands:

The EUT was tested in restricted bands and all the test results are listed in section 3.6.3. (The restricted bands defined in part 15.205(a))

Mode	Channal	Fraguanau	Test Mode	Reference Test Data			
	Channel	Frequency	Test Mode	Horizontal	Vertical		
1.	02	2405.376MHz	Transmit	#3	# 1		
2.	68	2472.960MHz	Transmit	#7	# 5		

3.6.1. Frequency Range 30-1000MHz

Frequency: 2405.376MHz

Site no.	: A/C Chamber	Data no.	: 2
Dis. / Ant.	: 3m VBA6106A/UHALP9108A	Ant. pol.	: HORIZONTAL
Limit	: FCC PART-15C		
Env. / Ins.	: E4446A 24°C/54%		🛛 🛛 Jarwei Wang
EUT	: R6308SBT		
Power Rating	: DC8.4V		
Test Mode	: TX2405.376		

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
48.090	17.32	1.40	5.97	24.68	40.00	15.32	QP
57.540	13.77	1.60	6.63	22.00	40.00	18.00	QP
105.330	17.65	2.15	6.28	26.08	43.50	17.42	QP
166.890	20.96	2.70	1.87	25.53	43.50	17.97	QP
803.300	24.20	6.90	8.69	39.79	46.00	6.21	QP
Remarks: 1. Em	ission :	Level=	Antenna	Factor + C	able Los:	 з + Read	ling.

 The emission levels that are 20dB below the official limit are not reported.

Site no.	:	A/C Chamber	Data	no.	:	1
Dis. / Ant.	:	3m VBA6106A/UHALP9108A	Ant.	pol.	:	VERTICAL
Limit	:	FCC PART-15C				
Env. / Ins.	:	E4446A 24℃/54%				🛛 Jarwei Wang
EUT	:	R6308SBT				
Power Rating	:	DC8.4V				
Test Mode	:	TX2405.376				

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark	
58.890	13.16	1.60	14.70	29.46	40.00	10.54	QP	
93.990	16.37	2.00	5.03	23.39	43.50	20.11	QP	
130.440	19.79	2.40	2.29	24.49	43.50	19.01	QP	
166.890	20.96	2.70	1.81	25.47	43.50	18.03	QP	
803.300	24.20	6.90	3.01	34.11	46.00	11.89	QP	
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading. 2. The emission levels that are 20dB below the official limit are not reported.								

Frequency: 2439.168MHz

Site no.	:	A/C Chamber	Data	no.	:	1
Dis. / Ant.	:	3m VBA6106A/UHALP9108A	Ant.	pol.	:	HORIZONTAL
Limit	:	FCC PART-15C				
Env. / Ins.	:	E4446A 24°C/54%				🛛 Jarwei Wang
EUT	:	R6308SBT				
Power Rating	:	DC8.4V				
Test Mode	:	ТХ2439.168				

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
56.730	13.77	1.60	8.29	23.66	40.00	16.34	 OP
93.990	16.37	2.00	5.87	24.23	43.50	19.27	QP
166.890	20.96	2.70	1.37	25.03	43.50	18.47	QP
813.800	23.98	7.00	6.89	37.87	46.00	8.13	QP
Remarks: 1. E	mission 3	Level=	Antenna	Factor + C	able Los:	s + Read	ding.
2. т	he emiss.	ion le	vels that	; are 20dB	below th	e offic:	ial
1	imit are	not re	eported.				

Site no.	:	A/C Chamber	Data	no.	:	2
Dis. / Ant.	:	3m VBA6106A/UHALP9108A	Ant.	pol.	:	VERTICAL
Limit	:	FCC PART-15C				
Env. / Ins.	:	E4446A 24°C/54%				🛛 Jarwei Wang
EUT	:	R6308SBT				
Power Rating	:	DC8.4V				
Test Mode	:	TX2439.168				
Power Rating Test Mode	:	DC8.4V TX2439.168				

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
48.090 93.990 254.640 325 900	17.32 16.37 24.19	1.40 2.00 3.56	4.50 4.29 10.24	23.21 22.65 37.99	40.00 43.50 46.00	16.79 20.85 8.01	QP QP QP
813.800	23.98	4.20	1.11	32.09	46.00	13.91	QP QP

Frequency: 2472.960MHz

Site no.	:	A/C Chamber	Data	no.	:	2
Dis. / Ant.	:	3m VBA6106A/UHALP9108A	Ant.	pol.	:	HORIZONTAL
Limit	:	FCC PART-15C				
Env. / Ins.	:	E4446A 24℃/54%				🛛 Jarwei Wang
EUT	:	R6308SBT				
Power Rating	:	DC8.4V				
Test Mode	:	TX2472.960				

 Ant. Cable
 Emission

 Freq.
 Factor Loss Reading Level
 Limits Margin Remark (MHz)

 (dB/m)
 (dB)
 (dBµV)
 (dBµV/m)

 48.090
 17.32
 1.40
 5.00
 23.71
 40.00
 16.29 QP

 48.080
 13.43
 1.60
 6.43
 21.47
 40.00
 18.53 QP

 93.990
 16.37
 2.00
 6.24
 24.60
 43.50
 18.90 QP

 166.890
 20.96
 2.70
 1.21
 24.87
 43.50
 18.63 QP

 Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.

 2. The emission levels that are 20dB below the official limit are not reported.

Site no.	:	A/C Chamber	Data	no.	:	1
Dis. / Ant.	:	3m VBA6106A/UHALP9108A	Ant.	pol.	:	VERTICAL
Limit	:	FCC PART-15C				
Env. / Ins.	:	E4446A 24°C/54%				🗆 Jarwei Wang
EUT	:	R6308SBT				
Power Rating	:	DC8.4V				
Test Mode	:	TX2472.960				

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
51.330 56.190 102.090 166.890	15.96 14.11 17.29 20.96	1.50 1.60 2.10 2.70	16.20 15.44 4.17 2.88	33.66 31.16 23.56 26.54	40.00 40.00 43.50 43.50	6.34 8.84 19.94 16.96	QP QP QP QP QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.

 The emission levels that are 20dB below the official limit are not reported.

Temperature :

24°C

		-				
EUT:		Radio C	control	Hu	midity :	54%
Test Mode :		Transm	itting Mode, I	Frequency: 24	05.376MHz	
Emission Frequency	Antenna Factor	Cable Loss	Meter Reading Horizontal	Emission Level Horizontal	Limits	Margin
(MHz)	(dB/m)	(dB)	(dBµV)	$(dB\mu V/m)$	$(dB\mu V/m)$	(dB)
1818.160	26.90	6.80	17.58	51.29	74.00	22.71
3210.640	30.77	7.36	17.61	55.74	74.00	18.26
4813.000	33.06	9.14	12.34	54.54	74.00	19.46
7227.000	35.88	11.25	8.22	55.36	74.00	18.64
				1 T D		

3.6.2. Above 1GHz Frequency Range Measurement Results

May 17, 2012

Date of Test :

Remarks: 1. Emission level=Antenna Factor + Cable Loss + Reading.

2. The emission levels that are 20dB below the official limit are not reported.

3. All final readings of measurement were with Peak values.

Emission Frequency	Peak Value	Duty Cycle Correction Factor	Average Value Horizontal	Limit	Margin
(MHz)	(dB/m)	(dB)	$(dB\mu V/m)$	$(dB\mu V/m)$	(dB)
1818.160	51.29	-25.34	25.95	54.00	28.05
3210.640	55.74	-25.34	30.40	54.00	23.60
4813.000	54.54	-25.34	29.20	54.00	24.80
7227.000	55.36	-25.34	30.02	54.00	23.98

Remarks: 1. Duty Cycle Correction Factor = 20log (cumulative on/T) =

20log (1.52ms/28.12ms)=-25.34

"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

74.00

74.00

74.00

15.21

11.30

10.12

Date of Test :	May 17, 2012			Tempe	erature :	24°C	
EUT:	Radio Control			Hu	midity :	54%	
Test Mode :		Transmitting Mode, Frequency: 2405.376MHz					
Emission	Antenna	Cable	Meter	Emission	Limits	Margin	
Frequency	Factor	Loss	Reading	Level			
			Vertical	Vertical			
(MHz)	(dB/m)	(dB)	(dBµV)	$(dB\mu V/m)$	$(dB\mu V/m)$	(dB)	
1821.520	26.90	6.80	17.42	51.12	74.00	22.88	
3210.640	30.77	7.36	16.39	54.52	74.00	19.48	

16.59

15.56

9.56

Remarks: 1. Emission level=Antenna Factor + Cable Loss + Reading.

9.14

11.25

14.96

4813.000

7227.000

12029.000

33.06

35.88

39.35

2. The emission levels that are 20dB below the official limit are not reported.

58.79

62.70

63.88

3. All final readings of measurement were with Peak values.

Emission Frequency	Peak Value	Duty Cycle Correction Factor	Average Value Vertical	Limit	Margin
(MHz)	(dB/m)	(dB)	(dBµV/m)	$(dB\mu V/m)$	(dB)
1821.520	51.12	-25.34	25.78	54.00	28.22
3210.640	54.25	-25.34	29.18	54.00	24.82
4813.000	58.79	-25.34	33.45	54.00	20.55
7227.000	62.70	-25.34	37.36	54.00	16.64
12029.00	63.88	-25.34	38.54	54.00	15.46

Remarks: 1. Duty Cycle Correction Factor = $20\log (\text{cumulative on/T}) =$

20log (1.52ms/28.12ms)=-25.34

"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

Date of Test :	May 17, 2012			Temp	erature :	24°C
EUT:		Radio C	ontrol	Hu	midity :	54%
Test Mode :		Transmi	39.168MHz			
Emission Frequency	Antenna Factor	Cable Loss	Meter Reading Horizontal	Emission Level Horizontal	Limits	Margin
(MHz)	(dB/m)	(dB)	(dBµV)	$(dB\mu V/m)$	$(dB\mu V/m)$	(dB)
1821.520	26.90	6.80	16.40	50.10	74.00	23.90
3252.880	30.87	7.40	16.34	54.60	74.00	19.40
4880.500	33.18	9.15	12.70	55.02	74.00	18.98
7326.000	36.15	11.44	11.30	58.89	74.00	15.11

Remarks: 1. Emission level=Antenna Factor + Cable Loss + Reading.

2. The emission levels that are 20dB below the official limit are not reported.

3. All final readings of measurement were with Peak values.

Emission Frequency	Peak Value	Duty Cycle Correction Factor	Average Value Horizontal	Limit	Margin
(MHz)	(dB/m)	(dB)	$(dB\mu V/m)$	$(dB\mu V/m)$	(dB)
181.520	50.10	-25.34	24.74	54.00	29.24
3252.880	54.60	-25.34	29.26	54.00	24.74
4880.500	55.02	-25.34	29.68	54.00	24.32
7326.000	58.89	-25.34	33.55	54.00	20.45

Remarks: 1. Duty Cycle Correction Factor = 20log (cumulative on/T) =

20log (1.52ms/28.12ms)=-25.34

"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

74.00

74.00

74.00

10.22

15.48

12.09

Date of Test :	May 17, 2012			Tempe	erature :	24°C	
EUT:	Radio Control				midity :	54%	
Test Mode :		Transmitting Mode, Frequency: 2439.168MF					
Emission	Antenna	Cable	Meter	Emission	Limits	Margin	
Frequency	Factor	Loss	Reading	Level			
			vertical	vertical			
(MHz)	(dB/m)	(dB)	$(dB\mu V)$	$(dB\mu V/m)$	$(dB\mu V/m)$	(dB)	
1818.160	26.90	6.80	16.67	50.38	74.00	23.62	
3252.880	30.87	7.40	15.71	53.97	74.00	20.03	
4880.500	33.18	9.15	15.12	57.44	74.00	16.56	

Remarks: 1. Emission level=Antenna Factor + Cable Loss + Reading.

11.44

12.94

15.01

7326.000

9757.000

12183.000

36.15

38.31

39.13

2. The emission levels that are 20dB below the official limit are not reported.3. All final readings of measurement were with Peak values.

63.78

58.52

61.91

5. Thi mui readings of measurement were with reak values.

16.19

7.26

7.77

Emission Frequency	Peak Value	Duty Cycle Correction Factor	Average Value Vertical	Limit	Margin
(MHz)	(dB/m)	(dB)	$(dB\mu V/m)$	$(dB\mu V/m)$	(dB)
1818.160	50.38	-25.34	25.04	54.00	28.96
3252.880	53.97	-25.34	28.63	54.00	25.37
4880.500	57.44	-25.34	32.10	54.00	21.90
7326.000	63.78	-25.34	38.44	54.00	15.56
9757.000	58.52	-25.34	33.18	54.00	20.82
12183.000	61.91	-25.34	36.57	54.00	17.43

Remarks: 1. Duty Cycle Correction Factor = 20log (cumulative on/T) =

20log (1.52ms/28.12ms)=-25.34

"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

Date of Test :		May 17, 2012			erature :	24°C
EUT:		Radio C	ontrol	Hu	midity :	54%
Test Mode :		Transmi	tting Mode, F	Frequency: 24	72.960MHz	
Emission Frequency	Antenna Factor	Cable Loss	Meter Reading Horizontal	Emission Level Horizontal	Limits	Margin
(MHz)	(dB/m)	(dB)	(dBµV)	$(dB\mu V/m)$	(dBµV/m)	(dB)
1821.520	26.90	6.80	12.86	46.56	74.00	27.44
3299.080 4948 000	30.93 33 31	7.45 9 10	13.84 14 71	52.22 57 12	74.00	21.78 16 88
7436.000	36.47	11.61	10.89	58.97	74.00	15.03
14143.000	44.47	10.37	0.60	67.43	/4.00	0.37

Remarks: 1. Emission level=Antenna Factor + Cable Loss + Reading.

The emission levels that are 20dB below the official limit are not reported.
 All final readings of measurement were with Peak values.

Emission Frequency	Peak Value	Duty Cycle Correction Factor	Average Value Horizontal	Limit	Margin
(MHz)	(dB/m)	(dB)	(dBµV/m)	$(dB\mu V/m)$	(dB)
1821.520	46.56	-25.34	21.22	54.00	32.78
3299.080	52.22	-25.34	26.88	54.00	27.12
4948.000	57.12	-25.34	31.78	54.00	22.22
7436.000	58.97	-25.34	33.63	54.00	20.37
14143.000	67.43	-25.34	42.09	54.00	11.91

Remarks: 1. Duty Cycle Correction Factor = 20log (cumulative on/T) =

20log (1.52ms/28.12ms)=-25.34

"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

74.00

10.36

May 17, 2012			Tempe	erature :	24°C	
	Radio Co	ontrol	Hu	midity :	54%	
	Transmi	tting Mode, F	Frequency: 24	72.960MHz		
Antenna Factor	Cable Loss	Meter Reading Vertical	Emission Level Vertical	Limits	Margin	
(dB/m)	(dB)	(dBµV)	$(dB\mu V/m)$	(dBµV/m)	(dB)	
26.90	6.80	13.50	47.20	74.00	26.80	
30.93	7.45	15.98	54.36	74.00	19.64	
	Antenna Factor (dB/m) 26.90 30.93	May 17, Radio Co Transmi Antenna Cable Loss (dB/m) (dB) 26.90 6.80 30.93 7.45	May 17, 2012Radio ControlTransmitting Mode, HAntenna FactorCable LossMeter Reading Vertical(dB/m)(dB)(dBµV)26.906.8013.5030.937.4515.98	May 17, 2012TemperRadio ControlHuTransmitting Mode, Frequency: 24AntennaCableFactorMeterLossReadingVerticalVertical(dB/m)(dB)(dB,m)6.8013.5047.2030.937.4515.9854.36	May 17, 2012 Temperature : Radio Control Humidity : Transmitting Mode, Frequency: 2472.960MHz Antenna Cable Meter Emission Loss Reading Vertical Vertical (dB/m) (dB) 26.90 6.80 13.50 30.93 7.45 15.98	

Remarks: 1. Emission level=Antenna Factor + Cable Loss + Reading.

36.42 11.58 15.64

7419.500

2. The emission levels that are 20dB below the official limit are not reported.

63.64

3. All final readings of measurement were with Peak values.

4. *: Measured at 1m and limit is transformed to 83.5dBµV/m by adding a factor 9.5 which is calculated from 20log(3/1).

Emission Frequency	Peak Value	Duty Cycle Correction Factor	Average Value Vertical	Limit	Margin
(MHz)	(dB/m)	(dB)	(dBµV/m)	$(dB\mu V/m)$	(dB)
1821.520	47.20	-25.34	21.86	54.00	32.14
3299.080	54.36	-25.34	29.02	54.00	24.98
4948.000	58.59	-25.34	33.25	54.00	20.75
7419.500	63.34	-25.34	38.30	54.00	15.70

Remarks: 1. Duty Cycle Correction Factor = $20\log (\text{cumulative on/T}) =$

20log (1.52ms/28.12ms)=-25.34

"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

Date of Test : May 17, 2012	Temperature : 24° C	
EUT : Radio Control	Humidity : 54%	
Test Mode : Transmit, Channel: 02,	Frequency: 2405.376MHz	
Emission Antenna Cable Meter Frequency Factor Loss Reading Horizontal	Emission Limits Margi Level Horizontal	in
(MHz) (dB/m) (dB) $(dB\mu V)$	$(dB\mu V/m)$ $(dB\mu V/m)$ (dB))
Peak* 2388.480 28.47 6.34 12.67	47.48 74.00 26.52	2
3. '*' The field strength of emission appe exceed the limits shown in section 15.209 Emission Frequency Peak Value Duty Cycle A Correction	earing within Part 15.205(a) shall n 9. Average Value Limit Marg Horizontal	not gin
$(\mathbf{MHz}) \qquad (\mathbf{dP}/\mathbf{m}) \qquad (\mathbf{dP})$	$(d\mathbf{P}_{11}\mathbf{V}_{m})$ $(d\mathbf{P}_{11}\mathbf{V}_{m})$ $(d\mathbf{P}_{21}\mathbf{V}_{m})$	2)
Average* 2388 480 47 48 -25 34	$(dB\mu v/m)$ $(dB\mu v/m)$ $(dB\mu v/m)$ $(dB\mu v/m)$	86
 a. Average value=Peak value+ Duty Cyc b. Low frequency section (spurious in the section of emission appendix of emission appendix shown in section (section of exceed the limits section of exceed the limits section of exceed the limits section (section of exceed the limits section of exceed the limits section of exceed the limits section (section of exceed the limits sectio	ccle Correction Factor the restricted band 2310-2430MHz) pearing within Part 15.205(a) shall on 15.209.	:). I
Tel-+856-2609013 Emailteme@tteme.	33 Fax:+886-2-26099303 tw 4 EAN 401	
115 115 115 115 115 115 115 115	ART-15C (1G-PK) -6dB 	
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONT Limit : FCC PARF-15C (16-PK) Env. / Ins. : E4446A 24°C/548 DJarwei EUT : R63083B7 Power Rating : DC8.4V Test Mode : TX2405.376 Ant. Cable Emission Freq. Factor Loss Reading Level Limits Margin F (MHz) (dB/m) (dB) (dBµU) (dBµU/m) (dBµU/m) (dB)	TAL . Wang Remark	
1 2388.480 28.47 6.34 12.67 47.48 74.00 26.52 E 2 2390.040 28.47 6.34 10.22 45.04 74.00 28.96 E 3 2406.240 28.51 6.36 78.70 113.57 74.00 -39.57 E 	Peak Peak Peak Ling. al	

	Date of Test :		May 17	, 2012	Tem	perature :	24°C	
	EUT:		Radio C	Control	Н	umidity :	54%	
	Test Mode :	T	Fransmit, (Channel: 02,	Frequency: 24	05.376MHz		
	Emission Frequency	Antenna Factor	Cable Loss	Meter Reading Vertical	Emission Level Vertical	Limits	Margin	
	(MHz)	(dB/m)	(dB)	(dBµV)	$(dB\mu V/m)$	(dBµV/m)	(dB)	
Peak*	2386.680	28.47	6.33	11.24	46.04	74.00	27.96	
	Emission Fr	the limits sl	hown in so	Duty Cycle Correction Factor	9. Average Value Vertical	Limit	Margin	
	(MH	z)	(dB/m)	(dB)	$(dB\mu V/m)$	$(dB\mu V/m)$	(dB)	
Averag	ge* 2386.	68	46.04	-25.34	20.70	54.00	33.30	
	2. Av 3. Lo 4. '* no	ow frequency The field st t exceed the	y section (trength of limits sho	spurious in a emission ap own in sectio	the restricted b pearing within on 15.209.	and 2310-24 Part 15.205	30MHz). (a) shall	
	AUDI	Š		No.53-11, Tin-fu T County, Taiwan F Tel:+886-2-260921 Email:ttem@tten	Fsun, Lin-kou Hsiang, Taipei 2.O.C. Post Code:24443 33 Fax:+886-2-26099303 15 com tw			
	Data: 1 115 58 58 0 2310 Site no. : Dis. / Ant. : Limit Env. / Ins. : EUT ating : Power Rating : Test Mode :	File: C:Documents BuV(m) File: C:Documents 2004 200	and Settings RF-3 & T	2382. 2406 2382. 2406 21 to no. : 1 to no. : 1 to no. : VERTIC.	ART-15C (16-PK) 			
	Freq. (MHz) 2 2390.040 3 2405.880 Remarks: 1. Em 2. Th 1i	Ant. Cable Factor Loss Rea (dB/m) (dB) (dB 28.47 6.33 11 28.47 6.34 8 28.51 6.36 72 ission Level= Ant e emission levels mit are not repor	Emission ding Level µV) (dBµV/m) .24 46.05 .89 43.71 .48 107.35 enna Factor + that are 20dH ted.	Limits Margin (dBµV/m) (dB) 74.00 27.95 74.00 30.29 74.00 -33.35 Cable Loss + Rea below the offic:	Remark Peak Peak Peak ding. ial			

	Date of Test :		May 17	, 2012	Tem	perature :	24°C
	EUT:		Radio C	Control	H	lumidity:	54%
	Test Mode :	Т	Fransmit,	Channel: 68,	Frequency: 24	472.960MHz	
	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*	2484.960	28.66	6.45	11.95	47.06	74.00	26.94
	3. '*' 1 exceed Emission Fr	The field stream the limits since the limits since the limits since the second stream tenders are stream to the stream tenders are stream to the stream tenders are stream tenders. The stream tenders are stream tenders. The stream tenders are stream tenders. The stream tenders are stream tenders are stream tenders are stream tenders are stream tenders. The stream tenders are stream tenders. The stream tenders are stream tenders. The stream tenders are stream tenders. The stream tenders are stream tenders are stream tenders are stream tenders are stream tenders. The stream tenders are stream tenders. The stream tenders are stream tend	ength of e hown in s eak Value	Duty Cycle Correction Factor	Average Value Horizontal	Part 15.205(a)) shall not Margin
	(MHz	z)	(dB/m)	(dB)	$(dB\mu V/m)$	$(dB\mu V/m)$	(dB)
Avera	ge* 2484.9	60	47.06	-25.34	21.72	54.00	32.28
	2. Ave 3. Lo 4. '*'	erage value w frequency The field s t exceed the	=Peak val y section (trength of limits sho	ue+ Duty Cy spurious in t emission ap own in sectio	cle Correction he restricted b pearing within n 15.209.	Factor and 2310-24 Part 15.205(30MHz). (a) shall
	AUDI	×°		A0D1X TECHNOLOG No.53-11, Tin-fu Tsun County, Taiwan R.O.C Tel:+886-2-26092133 Email:ttemc@ttemc.co	r Corp. EMC Laboratory , Lin-kou Hsiang, Taipei . Post Code:24443 Fax:+886-2-26099303 m.tw		
	Site no. Dis. / Ant. Limit Env. / Ins. EUT Fower Rating Test Mode	(038/V/m) 2466. : A/C Chamber : 3m 3115(4927) : PCC PART-15C (10 : E4464.24°C/548 : R6308/BBT : DC8.4% : R5308/BBT : DC8.4% : TX247Z.960 Ant. Cable Factor Loss Rese (dB/m) (dB) (dB	2482. Frequency (MH Da S-PR) Emission Level spuy) (dBpV/m) 5.08 110.17	2498. 2514. 0 ta no. : 7 t. pol. : HORIZONTA UJarwei W Limits Margin Re (dBµV/m) (dB)	15C (16-PK) -64B -2530 2530		
	3 2484.960 Remarks: 1. E	28.66 6.45 10 28.66 6.45 11 mission Level= Ant	J.71 45.83 L.95 47.06 	74.00 28.17 Pe 74.00 26.94 Pe Cable Loss + Readin	ak ak g.		

EUT:Radio ControlHumidity: 54% Test Mode:Transmit, Channel: 68, Frequency: 2472.960MHzEmissionAntennaCableMeterEmissionLimitsMarginFrequencyFactorLossMederEmissionLiwelWargin(MHz)(dB/m)(dB)(dB)(dB)VerticalVerticalPeak*2485.20028.666.4510.4645.5774.0028.43Remark: 1.Emission Level = Antenna Factor + Cable Loss + Meter Reading.2.1.0w frequency section (spurious in the restricted band 2310-2430MHz).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 ValueDuty CycleAverage ValueLimitMargin Vertical Factor(MHz)(dB/m)(dB)(dBµV/m)(dB)(dBµV/m)(dB)Average*2485.2045.57-25.3420.2354.0033.77Remarks: 1. Duty Cycle CorrectionFactorWargin Vertical Factor100ms E200g (1.52ms/28.12ms)=-25.34"Temear than berofood fib1.290%(28.12ms)=-25.34"Temears than berofood fib100ms E200.2354.0033.770. Average value=Peak value+Duty Cycle Correction Factor3.101.001.0028.4331.0-2430MHz) *** The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.1.00200.2354.0031.0-2430MHz) *** The field strength of emission appearing		Date of Test :		May 17	, 2012	Temp	perature :	24°C	
Test Mode : Transmit, Channel: 68, Frequency: 2472.960MHz Image: Colspan="2">Image: Colspan="2" Image: Colspan= Colspan="2"		EUT:		Radio C	Control	H	umidity:	54%	
$ \frac{1}{\text{Frequency}} \frac{\text{Antenna}}{\text{Factor}} \frac{\text{Cable}}{\text{Loss}} \frac{\text{Meter}}{\text{Reading}} \frac{\text{Emission}}{\text{Level}} \frac{\text{Limits}}{\text{Vertical}} \frac{\text{Margin}}{\text{Vertical}} \frac{(\text{MHz})}{(\text{dB}\mu\text{V/m})} \frac{(\text{dB}\mu\text{V/m})}{(\text{dB}\mu\text{V/m})} \frac{(\text{dB}\mu\text{V/m})}{(\text{scale})^{-25.34}} \frac{(\text{d}\mu\text{m})}{(\text{d}\mu\text{m})} \frac{(\text{d}\mu$		Test Mode:	7	Fransmit, (Channel: 68,	Frequency: 24	72.960MHz		
$\frac{(MHz) (dB,m) (dB) (dB,\muV) (dB,\muV/m) (dB,\muV/m) (dB,\muV/m) (dB)}{2485.200 28.66 6.45 10.46 45.57 74.00 28.43}$ Remark: 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading. 2. Low frequency section (spurious in the restricted band 2310-2430MHz). 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 Average Value Limit Margin MHz) (dB/m) (dB (dB/µV/m) (dBµV/m) (dB) Average * 2485.20 45.57 -25.34 20.23 54.00 33.77 Remarks: 1. Duty Cycle Correction Factor = 20log (cumulative on/100ms) = 20log (1.52ms/28.12ms)=-25.34 "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 2310-2430MHz). 4. ** The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209. 2. Over face value=Peak value+ 0. Average value=Peak value+ 1. two frequency section (spurious in the restricted band 2310-2430MHz). 4. ** The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209. Margin frequency section (spurious in the restricted band 2310-2430MHz). 4. ** The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209. Mirect frequency section (spurious in the restricted band 2310-2430MHz). 1. ** The field strength of emission appearing within Part 15.205(a) shall not exceed the limits		Emission Frequency	Antenna Factor	Cable Loss	Meter Reading Vertical	Emission Level Vertical	Limits	Margin	
Peak*2485.20028.666.4510.4645.5774.0028.43Remark: 1.Emission Level = Antenna Factor + Cable Loss + Meter Reading. 2. Low frequency section (spurious in the restricted band 2310-2430MHz). 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 Average Value Limit Margin Correction Vertical Factor(MHz)(dB/m)(dB µV/m)(dB µV/m)(dBAverage* 2485.2045.57-25.3420.2354.0033.77Remarks: 1. Duty Cycle Correction Factor = 20log (cumulative on/100ms) = 20log (1.52ms/28.12ms)=-25.34 "T" means the period of the pulse train or 100ms if the pulse train length is greater than 100ms2. Average value=Peak value+ Duty Cycle Correction Factor 3. Low frequency section (spurious in the restricted band 2310-2430MHz). 4. '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.(MIL: '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.(**' **' **' **' **' **' **' **' **' **'		(MHz)	(dB/m)	(dB)	(dBµV)	(dBµV/m)	(dBµV/m)	(dB)	
Remark: 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading. 2. Low frequency section (spurious in the restricted band 2310-2430MHz). 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 Average Value Limit Margin Correction Vertical Factor (MHz) (dB/m) (dB) (dB/µV/m) (dBµV/m) (dB) Average* 2485.20 45.57 -25.34 20.23 54.00 33.77 Remarks: 1. Duty Cycle Correction Factor = 20log (cumulative on/100ms) = 20log (1.52ms/28.12ms)=-25.34 "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 2310-2430MHz). 4. *** The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209. $Method = \frac{1}{2000} Method = \frac{1}{20000} Method = \frac{1}{200000} Method = \frac{1}{200000000000000000000000000000000000$	Peak*	2485.200	28.66	6.45	10.46	45.57	74.00	28.43	
(MHz)(dB/m)(dB)(dB/V/m)(dB/V/m)(dB/V/m)(dB)Average*2485.2045.57-25.3420.2354.0033.77Remarks: 1. Duty Cycle Correction Factor = 20log (cumulative on/100ms) = 20log (1.52ms/28.12ms)=-25.34 "T" means the period of the pulse train or 100ms if the pulse train length is greater than 100ms0.4 verage value=Peak value+ Duty Cycle Correction Factor1. Low frequency section (spurious in the restricted band 2310-2430MHz).*** The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.Difference of the strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.Difference of the strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.Difference of the strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.Difference of the strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.Difference of the strength of emission the strength of emission the strength of emission the strength of the strength of emission the strength of emission the strength of the strength of emission the strength of emission the strength of the strength of emission the strength of the strength		Emission Fr	the field str	ength of e hown in s eak Value	Duty Cycle Factor	Average Value Vertical	Limit) shall not Margin	
Average* 2485.20 45.57 -25.34 20.23 54.00 33.77 Remarks: 1. Duty Cycle Correction Factor = 20log (cumulative on/100ms) = 20log (1.52ms/28.12ms)=-25.34 "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 2310-2430MHz). 4. '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.		(MHz	z)	(dB/m)	(dB)	$(dB\mu V/m)$	$(dB\mu V/m)$	(dB)	
Remarks: 1. Duty Cycle Correction Factor = 20log (cumulative on/100ms) = 20log (1.52ms/28.12ms)=-25.34 "T" means the period of the pulse train or 100ms if the pulse train length is greater than 100ms . Average value=Peak value+ Duty Cycle Correction Factor . Low frequency section (spurious in the restricted band 2310-2430MHz) 's' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209 Untrained to the strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209 Untrained to the strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209 Untrained to the strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209 Untrained to the strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209 Untrained to the strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209 Untrained to the strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209 Untrained to the strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209	Avera	ge* 2485.	20	45.57	-25.34	20.23	54.00	33.77	
Construction Construction		3. Lo 4. '*' no	w frequenc 'The field s t exceed the	y section (strength of limits sho	(spurious in t emission ap own in sectio	the restricted ba pearing within on 15.209.	and 2310-24 Part 15.205(30MHz). (a) shall	
$\frac{Date 5}{Event (dist)^{10}} + \frac{Date 5}{Event (dist)^{10}} $		AOD			County, Taiwan R.O Tel:+886-2-26092133 Email:ttemc@ttemc.o	C. Post Code:24443 Fax:+886-2-26099303 com.tw			
3 2485.200 28.66 6.45 10.46 45.57 74.00 28.43 Peak		115 Leve		23		T-15C (16-PK) -6dB			
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.		v 2450 Site no. Dis. / Ant. Limit BNV. / Ins. EUT Power Rating Test Mode Freq. (MH2) 1 2472.32 2 2403.60	A466. : A/C Chamber : 3m 3115(4927) : FCC PART-15C (1) : B4446A 24°C/544 : R43088BT : DC8.4V : TX2472.960 Ant. Cable Factor Loss R (dB/m) (dB) (c) 0 28.66 6.43 5 0 28.66 6.443 5 0 28.66 6.45 5) 28.66 6.45 5] 28.66 6]	2482. Frequency(MH) (G-PR) (G	2498. 2514. tz) tz no. : 5 nt. pol. : VERTICAL UJarwei Limits Margin R) (dBµV/m) (dB) 74.00 -33.85 F 74.00 28.49 F	2530 Wang emark eak eak			

4. DUTY CYCLE CORRECTION FACTOR

4.1. Test Equipment

The following test equipment was used during the duty cycle factor measurement:

Item	Туре	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	N9030A-544	US51350140	Oct. 14, 11'	Oct. 13, 12'

4.2. Block Diagram of Test Setup



4.3. Test Results

PASSED.

(Test Date: May 17, 2012 Temperature : 22°C Humidity : 51%)

PSO Tar ++-	Trig: Free Run Atten: 20 dB	Arg Type: Log Pwr	00/95.1	11 PPE May 17, 2012 NACE 1, 2, 3, 4, 5, 5, TOTAL CONTRACTOR (01) P. NANIVA N	Marker	1 4 28	1200 ms	PRO(Far #Gain1.rw	. Trig Fre Atten: 30	Run eB	Avg Type: L	leg-Pur	101-561-00 (m	041 May 11, 2011
			ΔMkr1	1.520 ms 1.28 dB	10 dBidiv	Ref 0 Ref 3	ffset 1 dB 20.00 dBm						∆Mkr1	28.12 ms -0.89 dB
			-		10.0	A					_	ſ	-	
					0.00	+	-				_	_		
	_		-		-10.0	+					_			
			-		-30.0	++	-	-	-	-	_			
			-		-30.0	+						_		
_			-		-00	++	_				_			
uphinster to an arrival	at public and a state of the second state of t	بور بور بور الروانيون	Loperton	human		her,	locality	Apply style apply and	apriluit.	erradurante	equilities	-	inthe last	
		1 1. 2 1.1.1			40.0									
	_		-		.765									
#VB#	1.0 MHz	Swe	ep 40.00 m	Span 0 Hz s (1001 pts)	Center 2 Res BW	.405370 1.0 MH	6000 GHz z	sv	BW 1.0 MH	2		Swee	p 40.00 ms	Span 0 Hz (1001 pts
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Duty Cycle Factor=20log(cumulative on/T)=20log (1.52/28.12)=-25.34

T: The period of the pulse train or 100ms if the pulse train length is greater than 100ms

5. 6dB BANDWIDTH MEASUREMENT

5.1. Test Equipment

The following test equipment was used during the 20dB bandwidth measurement:

Item	Туре	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	N9030A-544	US51350140	Oct. 14, 11'	Oct. 13, 12'

5.2. Block Diagram of Test Setup

The same as section.4.2.

5.3. Specification Limits (§15.247(a)(2))

The minimum 6dB bandwidth shall be at least 500kHz.

5.4. Operating Condition of EUT

- 5.4.1. Set up the EUT and simulator as shown on 5.2.
- 5.4.2. To turn on the power of all equipment.
- 5.4.3. EUT (Radio Control) was on transmitting frequency function during the testing.

5.5. Test Procedure

The transmitter output was connected to the spectrum analyzer. The bandwidth of the fundamental frequency was measure by spectrum analyzer and RBW=1-5% of OBW and VBW > 3*RBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB. The measurement guideline was according to 558074 D01

The measurement guideline was according to 558074 D01.

5.6. Test Results

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

(Test Date: Feb. 21, 2012 Temperature : 23°C Humidity : 55%)

Mode	Channel	Frequency	6dB Bandwidth
1.	CH 02	2405.376MHz	1.258MHz
2.	CH 35	2439.168MHz	1.269MHz
3.	CH 68	2472.960MHz	1.482MHz

[Limit: least 500kHz]



5.6.1. Channel 02, Frequency: 2405.376MHz





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			#11	FGain:Low	#Atten: 30	dB			Radio Devic	e: BTS		
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5.6.3. Channel 68, Frequency: 2472.960MHz

6. MAXIMUM PEAK OUTPUT POWER MEASUREMENT

6.1. Test Equipment

The following test equipment was used during the maximum peak output power measurement:

Item	Туре	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Power Meter	Anritsu	ML2495A	1145008	Nov. 11, 11'	Nov. 10, 12'
2.	Power Sensor	Anritsu	MA2411B	1126096	Oct. 24, 11'	Oct. 23, 12'

6.2. Block Diagram of Test Setup



6.3. Specification Limits (§15.247(b)-(3))

The Limits of maximum Peak Output Power for digital modulation in 2400-2483.5MHz is : 1Watt. (30dBm)

6.4. Operating Condition of EUT

Same as 6dB bandwidth measurement which was listed in 5.4 except the test set up replaced by section 6.2.

6.5. Test Procedure

The transmitter output was connected to the power sensor and record the reading of power meter.

The measurement guideline was according to 558074 D01.

6.6. Test Results

PASSED. All the test results are listed below. (Test Date: Feb. 21, 2012 Temperature : 23°C Humidity : 55%)

Antenna 1:

No.	Channel	Test Frequency	Peak Output Power	Limit
1.	CH 02	2405.376MHz	13.46dBm	30dBm
2.	CH 35	2439.168MHz	13.18dBm	30dBm
3.	CH 68	2472.960MHz	13.00dBm	30dBm

Antenna 2:

No.	Channel	Test Frequency	Peak Output Power	Limit
1.	CH 02	2405.376MHz	13.34dBm	30dBm
2.	CH 35	2439.168MHz	13.07dBm	30dBm
3.	CH 68	2472.960MHz	12.98dBm	30dBm

7. EMISSION LIMITATIONS MEASUREMENT

7.1. Test Equipment

The following test equipment was used during the emission limitations test:

Item	Туре	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	N9030A-544	US51350140	Oct. 14, 11'	Oct. 13, 12'

7.2. Block Diagram of Test Setup

The same as section.4.2.

7.3. Specification Limits (§15.247(c))

- 7.3.1. In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (See Section 15.205(c)).(%This test result attaching to §3.6.3)
- 7.3.2. The reference level for determining limit of emission limitations is according to the value measured indicated in plots at section 9.6.

7.4. Operating Condition of EUT

Same as 6dB bandwidth measurement which was listed in 5.4 except the test set up replaced by section 7.2.

7.5. Test Procedure

The transmitter output was connected to the spectrum analyzer. The bandwidth of the fundamental frequency was measure by spectrum analyzer with 100kHz RBW and 1MHz VBW.

The measurement guideline was according to 558074 D01.

7.6. Test Results

PASSED. The testing data was attached in the next pages.

(Test Date: Feb. 21, 2012 Temperature : 23°C Humidity : 55%)

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AUDIX Technology Corporation Report No. EM-F1010321

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7.6.2. Channel 35, Frequency: 2439.168MHz

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7.6.3. Channel 68, Frequency: 2472.960MHz

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				PNO: Fast Gain:Low	Trig: Free Atten: 30 d	Run 18	Avg Hold: 6	3/100		DET P P N N N N
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Sta #Re	rt 30.0 M s BW 1	AHz 00 kHz		#VB	W 1.0 MHz			Swee	Stop 1 ep 89.5 ms	1.0000 GHz s (1001 pts)
MSG							STATUS			

Agilen Vi	it Spectrum	Analyzer - RF 5	Swept SA อ.ร. DC			SENSE:INT	AL	IGNAUTO		03.08.2	7 AM Feb 21, 2012
Sto	p Freq	10.000	00000	0 GHz	PNO: Fast Gain:Low	Trig: Free Atten: 30 d	Run 18	Avg Type: Avg Hold>	Log-Pwr 100/100		DET P P N N N N
10 di	F B/div F	Ref Offset Ref 20.0	1 dB 0 dBm							Mkr1 3	296 GHz dBm
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-70.0											
Star	t 5 000 1	GH7								Stop 1	0.000 GHz
#Re	s BW 10	0 kHz			#VB	W 1.0 MHz			Swe	ep 462 ms	(1001 pts)
MSG								STATUS			

Agilen	it Spectri	ım Analı	yzer - Swept SA								
8	_	RF	50 g DC			SENSE:INT	AL	IGN AUTO	a con Denne	03:10:5	9 AM Feb 21, 2012
Stop	p Frec	15.	00000000	IO GHZ	PNO: Fast Gain:Low	Trig: Free Atten: 30 d	Run 18	Avg Type: Avg Hold: 3	2/100		DET P P N N N N
10 de	B/div	Ref 0 Ref 2	ffset1dB 20.00dBm	l						Mkr1 3	296 GHz dBm
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Star	t 10.00	00 GH	z							Stop 1	5.000 GHz
#Re: MSG	s BW '	100 K	HZ		#VB	SW 1.0 MHz		STATUS	Swe	ep 462 ms	(1001 pts)

Agilon	t Spectri	am Anal	lyzer - Swept SA								
Mar	ker 1	20.4	85000000	000 GHz		SENSE:INT	ALI	Avg Type	Log-Pwr	03:11:4 TF	AM Feb 21, 2012 ACE 1 2 3 4 5 6
				1	PNO: Fast 🕞 Gain:Low	Atten: 30 d	iB	Avg Hold:	49/100		DET P P N N N N
10 de	3/div	Ref (offset 1 dB 20.00 dBm						_	Mkr1 20	.485 GHz dBm
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0.00											
-10.0											-9.05 dDm
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-70.0											
Star	t 15.0	00 GI	łz							Stop 2	20.000 GHz
#Re	s BW	100 k	Hz		#VB	W 1.0 MHz		0.001.001.00	Swe	ep 462 ms	: (1001 pts)
MSG								STATUS			

Agiler	it Spectri	ım Ana	lyzer - Swept SA								
(20		RF	50 g DC			SENSE:INT	AL	IGNAUTO		03:14:2	2 AM Feb 21, 2012
Mar	ker 1	26.1	10000000	1000 GHz	PNO: Fast Gain:Low	Trig: Freel Atten: 30 d	Run 18	Avg Type: Avg Hold:>	Log-Pwr 100/100	1	ACE 1 2 3 4 5 6 TYPE MMWWWW DET P P N N N N
10 di Log	B/div	Ref (Ref	offset 1 dB 20.00 dBm							Mkr1 26.	110 GHz dBm
10.0											
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-70.0											
Star	1 20.00	10 C	47							Stop 2	5 000 GHz
#Re	s BW	100 k	Hz		#VB	W 1.0 MHz			Swe	ep 462 ms	(1001 pts)
MSG								STATUS			

8. BAND EDGES MEASUREMENT

8.1. Test Equipment

The following test equipment was used during the band edges measurement:

Item	Туре	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	N9030A-544	US51350140	Oct. 14, 11'	Oct. 13, 12'

8.2. Block Diagram of Test Setup

The same as section.4.2.

8.3. Specification Limits (§15.247(c))

- 8.3.1. The highest level should be at least 20 dB below that in the 100kHz bandwidth.
- 8.3.2. The reference level for determining limit of emission limitations is according to the value measured indicated in plots at section 9.6.

8.4. Operating Condition of EUT

Same as 6dB bandwidth measurement which was listed in 5.4 except the test set up replaced by section 8.2.

8.5. Test Procedure

The transmitter output was connected to the spectrum analyzer. Set both RBW and VBW of spectrum analyzer to 1MHz with suitable frequency span including 100kHz bandwidth from band edge.

The measurement guideline was according to 558074 D01.

8.6. Test Results

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

(Test Date: Feb. 21, 2012 Temperature : 23°C Humidity : 55%)

Below Band edge: The highest emission level is -52.241dBm on 2.39998GHz. Upper Band edge : The highest emission level is -56.002dBm on 2.48360GHz.

Below Band edge



Upper Band edge



9. POWER SPECTRAL DENSITY MEASUREMENT

9.1. Test Equipment

The following test equipment was used during the power spectral density measurement:

Item	Туре	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	N9030A-544	US51350140	Oct. 14, 11'	Oct. 13, 12'

9.2. Block Diagram of Test Setup

The same as section.4.2.

9.3. Specification Limits (§15.247(d))

The peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band.

9.4. Operating Condition of EUT

Same as 6dB bandwidth measurement which was listed in 5.4 except the test set up replaced by section 9.2.

9.5. Test Procedure

The transmitter output was connected to the spectrum analyzer. The bandwidth of the fundamental frequency was measured with the spectrum analyzer using 100kHz RBW and 1MHz VBW, set sweep time = Auto. The measurement guideline was according to KDB 558074.

9.6. Test Results

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

(Test Date: Feb. 21, 2012	Temperature : 23 ℃	Humidity : 55%)
	1	

No.	Channel	Test Frequency	Power Spectral Density	BWCF	Final Power Spectral Density	Limit
1.	CH 02	2405.376MHz	10.894dBm	-15.2dB	-4.672dBm	8dBm
2.	CH 35	2439.168MHz	10.528dBm	-15.2dB	-4.306dBm	8dBm
3.	CH 68	2472.960MHz	10.141dBm	-15.2dB	-5.059dBm	8dBm

1

Agilent Spectro	am Analyzer - Swept SA							
()	RF 50 9 DC		SENSE:INT	AL	JGN AUTO		01:50:2	4 AM Feb 21, 2012
Marker 1	2.405613120000 GH	Z PNO: Far IFGain:Low	Trig: Free Atten: 30 d	Run 18	Avg Type: Avg Hold:>	Log-Pwr 100/100	TF	ACE 123456 TYPE MMWWWW DET PPNNNN
10 dB/div	Ref Offset 1 dB Ref 20.00 dBm					Mkr1	2.405 61 10.	3 12 GHz 894 dBm
10.0					↓ ¹			
0.00								
-10.0								
-20.0								
-30.0								
-40.0								
-60.0								
-70.0								
Center 2.4	053760 GHz						Span	1.560 MHz
#Res BW	100 KHZ	VBV	V 1.0 MHz		STATUS	#Swe	ep 1.00 ms	: (1001 pts)

9.6.1. Channel 02, Frequency: 2405.376MHz



Agilen	Agilent Spectrum Analyzer - Swept SA										
Mark	ker 1	2.43	94082400)00 GHz		SENSE:INT	AL	Avg Type:	Log-Pwr	01:52:0	4 AM Feb 21, 2012 ACE 1 2 3 4 5 6
					PNO: Far Trig: Free Run / IFGain:Low Atten: 30 dB			Avg Hold:>100/100			DET P P N N N N
		Ref	Offset 1 dB						Mkr1	2.439 40	8 24 GHz
10 dE Log	3/div	Ref	20.00 dBm							10.	528 dBm
10.0		_							\sim		<u> </u>
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Cent #Rec	ter 2.4 s BW	3916	80 GHz		Vev	N 10 MHz			#Swe	Span	1.560 MHz
MSG		100 1			VB1	• 1.0 Mill2		STATUS	#04/6	eb 1.00 IIIs	, (1001 pts)

Agilent S	Spectru	m Anal	lyzer - Swept SJ	Ļ							
(X)		RF	50 g DC			SENSE:INT	AL	IGNAUTO		01:54:1	7 AM Feb 21, 2012
Marke	er 1	2.47	31940000)00 GHz	PN0: Far Trig: Free Run IFGain:Low Atten: 30 dB			Avg Type: Log-Pwr Avg Hold>100/100		TRACE 123456 TYPE MMMMMMM DET P P NNNN	
10 dB/	div	Ref C Ref	ffset 1 dB 20.00 dBm	1					Mkr1	2.473 19 10.	4 00 GHz 141 dBm
10.0 -											
0.00				\sim					<u> </u>		
-10.0											
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-60.0 —											
-70.0											
Cente #Res	er 2.4 BW 1	7296 100 k	00 GHz Hz		VB	W 1.0 MHz			#Swe	Span ep 1.00 ms	1.560 MHz : (1001 pts)
MSG								STATUS			

9.6.3. Channel 68, Frequency: 2472.960MHz

10.DEVIATION TO TEST SPECIFICATIONS

[NONE]