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Report No.: 1607RSU00301 Report Version: V04 Issue Date: 08-06-2016

# **MEASUREMENT REPORT** FCC PART 15.247 / RSS-247 ZigBee 802.15.4

FCC ID:	2ACS5-SR24P
IC:	11554B-SR24P
APPLICANT:	Yuneec Technology Co., Limited
Application Type:	Certification
Product:	Radio Controller Receiver
Model No.:	SR24+
Brand Name:	YUNEEC
FCC Classification:	Digital Transmission System (DTS)
FCC Rule Part(s):	Part 15.247
IC Rule(s):	RSS-247 Issue 1, RSS-GEN Issue 4
Test Procedure(s):	ANSI C63.10-2013, KDB 558074 D01v03r05
Test Date:	July 03 ~ Aug 06, 2016

**Reviewed By** Manager

Approved By CEO

Robin Wu (Robin Wu) Marlinchen

(Marlin Chen)



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in KDB 558074 D01v03r05. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.



## **Revision History**

Report No.	Version	Description	Issue Date	Note
1607RSU00301	Rev. 01	Initial report	07-21-2016	Invalid
1607RSU00301	Rev. 02	Add the measurement uncertainty	07-31-2016	Invalid
1607RSU00301	Rev. 03	Add the passive device equipment and extra 08-03-2016 PSD testing		Invalid
1607RSU00301	Rev. 04	Add the extra occupied bandwidth	08-06-2016	Valid



# CONTENTS

Des	scriptio	n Page
<b>§2.</b> 1	1033 Ge	eneral Information
1.	INTRO	ODUCTION
	1.1.	Scope
	1.2.	MRT Test Location
•		DUCT INFORMATION
2.	PROL	JUCT INFORMATION
	2.1.	Equipment Description7
	2.2.	Product Specification Subjective to this Report7
	2.3.	Operation Frequency / Channel List7
	2.4.	Description of Available Antennas7
	2.5.	Description of Antenna RF Port8
	2.6.	Test Mode8
	2.7.	Test Software 8
	2.8.	Device Capabilities
	2.9.	Test Configuration9
	2.10.	EMI Suppression Device(s)/Modifications
	2.11.	Labeling Requirements
3.	DESC	RIPTION OF TEST11
	3.1.	Evaluation Procedure11
	3.2.	AC Line Conducted Emissions11
	3.3.	Radiated Emissions
4.	ANTE	NNA REQUIREMENTS
5	терт	EQUIPMENT CALIBRATION DATE
5.		
6.	MEAS	SUREMENT UNCERTAINTY 16
7.	TEST	RESULT 17
	7.1.	Summary
	7.2.	6dB Bandwidth Measurement
	7.2.1.	Test Limit
	7.2.2.	Test Procedure used
	7.2.3.	Test Setting
	7.2.4.	Test Setup
	7.2.5.	Test Result19
	7.3.	Output Power Measurement 21



7.3.1.	Test Limit	. 21
7.3.2.	Test Procedure Used	. 21
7.3.3.	Test Setting	. 21
7.3.4.	Test Setup	. 21
7.3.5.	Test Result of Output Power	. 22
7.4.	Power Spectral Density Measurement	. 23
7.4.1.	Test Limit	. 23
7.4.2.	Test Procedure Used	. 23
7.4.3.	Test Setting	. 23
7.4.4.	Test Setup	. 23
7.4.5.	Test Result	. 24
7.5.	Conducted Band Edge and Out-of-Band Emissions	. 25
7.5.1.	Test Limit	. 25
7.5.2.	Test Procedure Used	. 25
7.5.3.	Test Settitng	. 25
7.5.4.	Test Setup	. 26
7.5.5.	Test Result	. 27
7.6.	Radiated Spurious Emission Measurement	. 29
7.6.1.	Test Limit	. 29
7.6.2.	Test Procedure Used	. 29
7.6.3.	Test Setting	. 29
7.6.4.	Test Setup	. 31
7.6.5.	Test Result	. 33
7.7.	Radiated Restricted Band Edge Measurement	. 42
7.7.1.	Test Result	. 42
7.1.	AC Conducted Emissions Measurement	. 50
7.1.1.	Test Limit	. 50
7.1.2.	Test Setup	. 50
7.1.3.	Test Result	. 50
CONC	CLUSION	. 51

8.



## §2.1033 General Information

Applicant:	Yuneec Technology Co., Limited				
Applicant Address:	2/F Man Shung Industrial Building, 7 Lai Yip Street, Kwun Tong, Hong				
	Kong				
Manufacturer:	Yuneec International (China) Co., Ltd.				
Manufacturer Address:	No.388 East Zhengwei Road, Jinxi Town, Kunshan, Jiangsu 215324,				
	China				
Test Site:	MRT Technology (Suzhou) Co., Ltd				
Test Site Address:	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development				
	Zone, Suzhou, China				
MRT Registration No.:	809388				
IC Registration No.:	11384A				
FCC Rule Part(s):	Part 15.247				
IC Rule:	RSS-247 Issue 1, RSS-GEN Issue 4				
FCC ID:	2ACS5-SR24P				
IC:	11554B-SR24P				
Test Device Serial No.:	N/A Droduction Pre-Production Engineering				
FCC Classification:	Digital Transmission System (DTS)				

## **Test Facility / Accreditations**

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- MRT facility is a FCC registered (MRT Reg. No. 809388) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules.
- MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.
- MRT facility is a VCCI registered (R-4179, G-814, C-4664, T-2206) test laboratory with the site description on file at VCCI Council.
- MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications and Radio testing for FCC, Industry Canada, EU and TELEC Rules.

American Association for Laboratory Accreditation
Accredited Laboratory
MRT TECHNOLOGY (SUZHOU) CO., LTD. Suzhou, China tertekated coopenae in the field of
Electrical Testing
This laboratory is accredited in accordance with the recognized International Standard ISO IEC 17025-2005 General requirements for the competence of testing and calibration ideoratories. This accreditation demonstrates technical competence for a defined togen and the operation of a laboratory quality smangement system (of the size ISO IEC). (I-C) Communiqual data (S January 2009).
Presented this 17th day of June 2014.
Etc. Hutpe- Protects 4.510 Protects 4.501 Free States 10,500 Valid to August 31,300
For the texts to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.



## 1. INTRODUCTION

## 1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Industry Canada Certification and Engineering Bureau.

## 1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taihu Lake. These measurement tests were conducted at the MRT Technology (Suzhou) Co., Ltd. Facility located at D8 Building, Youxin Industrial Park, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2009 on September 30, 2013.





## 2. PRODUCT INFORMATION

## 2.1. Equipment Description

Product Name	Radio Controller Receiver		
Model No.	SR24+		
Brand Name	YUNEEC		
ZigBee Specification	802.15.4		

## 2.2. Product Specification Subjective to this Report

Frequency Range	802.15.4: 2405 ~ 2475 MHz
Maximum Peak Output Power	19.56dBm
Type of Modulation	O-QPSK

Note: For other features of this EUT, test report will be issued separately.

## 2.3. Operation Frequency / Channel List

Channel	Frequency	Channel	Frequency	Channel	Frequency
11	2405 MHz	12	2410 MHz	13	2415 MHz
14	2420 MHz	15	2425 MHz	16	2430 MHz
17	2435 MHz	18	2440 MHz	19	2445 MHz
20	2450 MHz	21	2455 MHz	22	2460 MHz
23	2465 MHz	24	2470 MHz	25	2475 MHz

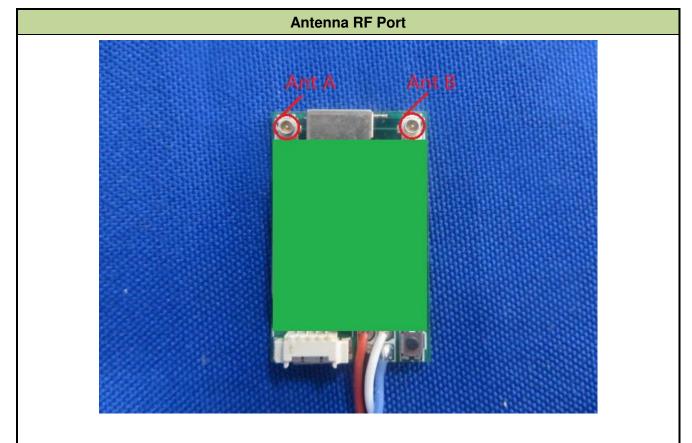
### 2.4. Description of Available Antennas

Antenna No.		Antenna Type	Manufacturer	Frequency Band (GHz)	Max Peak Gain (dBi)
1#	-	Dipole Antenna		2.4	1.5
2#	L/	Dipole Antenna	Yuneec Technology Co., Limited	2.4	1.5
3#		Dipole Antenna		2.4	1.5

Note: We choose the dipole Antenna 1# to do all radiated emission testing.



## 2.5. Description of Antenna RF Port



Note: It has two diversity antennas (TX and RX) which are used to avoid dropouts due to multipath fading. Only one antenna is selected for use at any time through the on-board RF switch.

## 2.6. Test Mode

Test Mode	Mode 1: Transmit by 802.15.4
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### 2.7. Test Software

The test utility software used during testing was engineering directive ordered by applicant.

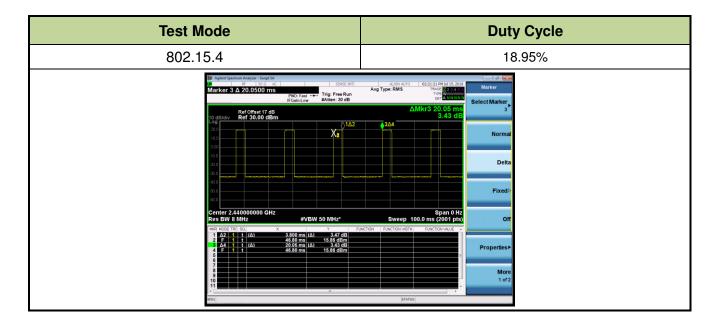


## 2.8. Device Capabilities

This device contains the following capabilities:

2.4GHz ZigBee (DTS)

**Note:** 2.4GHz ZigBee (DTS) operation is possible in 3MHz channel bandwidth. The maximum achievable duty cycle was determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:



### 2.9. Test Configuration

The **Radio Controller Receiver FCC ID: 2ACS5-SR24P Mode Number: SR24+** was tested per the guidance of KDB 558074 D01v03r05. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing.

## 2.10. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.



## 2.11. Labeling Requirements

#### Per 2.1074 & 15.19; Docket 95-19

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practical, only the FCC ID must be displayed on the device per Section 15.19(a)(5). Please see attachment for FCC ID label and label location.



## 3. DESCRIPTION OF TEST

## 3.1. Evaluation Procedure

## 3.2. AC Line Conducted Emissions

The line-conducted facility is located inside an 8'x4'x4' shielded enclosure. A 1m x 2m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz,  $50\Omega/50$ uH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference ground-plane. Power cables for support equipment were routed down to the second LISN while ensuring that that cables were not draped over the second LISN.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the receiver and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The receiver was scanned from 150kHz to 30MHz. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 9kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Each emission was also maximized by varying: power lines, the mode of operation or data exchange speed, or support equipment whichever determined the worst-case emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions are used for final measurements on the same test site. The analyzer is set to CISPR quasi-peak and average detectors with a 9kHz resolution bandwidth for final measurements.

An extension cord was used to connect to a single LISN which powered by EUT. The extension cord was calibrated with LISN, the impedance and insertion loss are compliance with the requirements as stated in ANSI C63.10-2013.

Line conducted emissions test results are shown in Section 7.8.



## 3.3. Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. A MF Model 210SS turntable is used for radiated measurement. It is a continuously rotatable, remote controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm high PVC support structure is placed on top of the turntable. For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33(b)(1) depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up for frequencies below 1GHz was placed on top of the 0.8 meter high, 1 x 1.5 meter table; and test set-up for frequencies 1-25GHz was placed on top of the 1.5 meter high, 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, if applicable, turntable azimuth, and receive antenna height was noted for each frequency found.

Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions. According to 3dB Beam-Width of horn antenna, the horn antenna should be always directed to the EUT when rising height.



## 4. ANTENNA REQUIREMENTS

#### Excerpt from §15.203 of the FCC Rules/Regulations:

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section."

- The antenna of the Radio Controller Receiver uses a reversed connector.
- There are no provisions for connection to an external antenna.

#### Conclusion:

The Radio Controller Receiver FCC ID: 2ACS5-SR24P Mode Number: SR24+ unit complies with the requirement of §15.203.



## 5. TEST EQUIPMENT CALIBRATION DATE

#### Conducted Emissions - SR2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2016/11/03
Two-Line V-Network	R&S	ENV216	MRTSUE06002	1 year	2016/11/03
Two-Line V-Network	R&S	ENV216	MRTSUE06003	1 year	2016/11/03
Temperature/Humidity Meter	Yuhuaze	N/A	MRTSUE06182	1 year	2016/12/20
Shielding Anechoic Chamber	MIX-BEP	Chamber-SR2	MRTSUE06215	1 year	2017/05/10

## Radiated Emission - AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
MXE EMI Receiver	Agilent	N9038A	MRTSUE06125	1 year	2016/08/03
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2016/11/03
Preamplifier	Agilent	83017A	MRTSUE06076	1 year	2017/03/28
Loop Antenna	Schwarzbeck	FMZB1519	MRTSUE06025	1 year	2016/12/14
TRILOG Antenna	Schwarzbeck	VULB9168	MRTSUE06172	1 year	2016/12/11
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06023	1 year	2016/11/07
Broadband Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06024	1 year	2017/01/04
RF Cable	HUBER+SUH NER	Cable 01	MRTSUE06055-1	1 year	2017/03/29
RF Cable	HUBER+SUH NER	Cable 02	MRTSUE06055-2	1 year	2017/03/29
Digital Thermometer & Hygrometer	Yuhuaze	HTC-2	MRTSUE06183	1 year	2016/12/20
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06212	1 year	2017/05/10



## Conducted Test Equipment - TR3

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2017/05/08
USB Wideband Power Sensor	Boonton	55006	MRTSUE06109	1 year	2017/05/08
RF Cable	HUBER+SUH NER	Cable 03	MRTSUE06055-3	1 year	2017/03/29
Attenuator	Woken	WATT-218FS- 15	MRTSUE06220	1 year	2017/03/29
DC Block	Woken	00900A1A2A1 01A	MRTSUE06221	1 year	2017/03/29
Temperature/Humidity Meter	Yuhuaze	HTC-2	MRTSUE06180	1 year	2016/12/20

Software	Version	Function
e3	V8.3.5	EMI Test Software



## 6. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

AC Conducted Emission Measurement - SR2
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)):
150kHz~30MHz: 3.46dB
Radiated Emission Measurement - AC1
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)):
9kHz ~ 1GHz: 4.18dB
1GHz ~ 25GHz: 4.76dB
Spurious Emissions, Conducted - TR3
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)):
0.78dB
Output Power - TR3
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)):
1.13dB
Power Spectrum Density - TR3
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)):
1.15dB
Occupied Bandwidth - TR3
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)):
0.28%



## 7. TEST RESULT

### 7.1. Summary

Company Name:	Yuneec Technology Co., Limited
FCC ID:	2ACS5-SR24P
IC:	11554B-SR24P
FCC Classification:	Digital Transmission System (DTS)
Data Rate(s) Tested:	<u>250kbps</u>

FCC Part Section(s)	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.247(a)(2)	RSS-247 [5.2]	6dB Bandwidth	≥ 500kHz		Pass	Section 7.2
15.247(b)(3)	RSS-247 [5.4(4)]	Output Power	≤ 1Watt & EIRP ≤ 4Watt	Conducted	Pass	Section 7.3
15.247(e)	RSS-247 [5.2]	Power Spectral Density	≤ 8dBm / 3kHz Band	Conducted	Pass	Section 7.4
15.247(d)	RSS-247 [5.5]	Band Edge / Out-of-Band Emissions	≥ 20dBc(Peak)		Pass	Section 7.5
15.205 15.209	RSS-247 [5.5]	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209	Radiated	Pass	Section 7.6&7.7
15.207	RSS-Gen [8.8]	AC Conducted Emissions 150kHz - 30MHz	< FCC 15.207 limits	Line Conducted	N/A	Section 7.8

#### Notes:

- All modes of operation and data rates were investigated. For radiated emission test, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst case emissions.
- 2) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
- 3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables and attenuators.
- 4) For the test item 6dB Bandwidth & Power Spectral Density & Band Edge / Out-of-Band Emissions & Radiated Spurious Emission & Radiated Restricted Band Edge, we selected the worst-case antenna port A to perform testing.



## 7.2. 6dB Bandwidth Measurement

#### 7.2.1. Test Limit

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

#### 7.2.2. Test Procedure used

KDB 558074 D01v03r05 - Section 8.2 Option 2

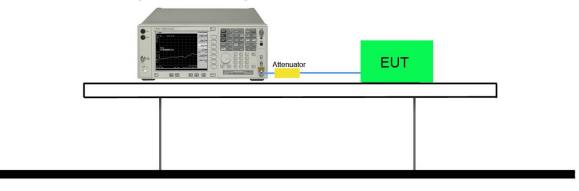
RSS-Gen Issue 4 Section 6.6

#### 7.2.3. Test Setting

- The Spectrum's automatic bandwidth measurement capability was used to perform the 6dB bandwidth measurement. The "X" dB bandwidth parameter was set to X = 6. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
- 2. Set RBW = 100 kHz / RBW = 1% to 5% of the 6dB bandwidth
- 3. VBW  $\geq$  3 × RBW
- 4. Detector = Peak
- 5. Trace mode = max hold
- 6. Sweep = auto couple
- 7. Allow the trace was allowed to stabilize

#### 7.2.4. Test Setup

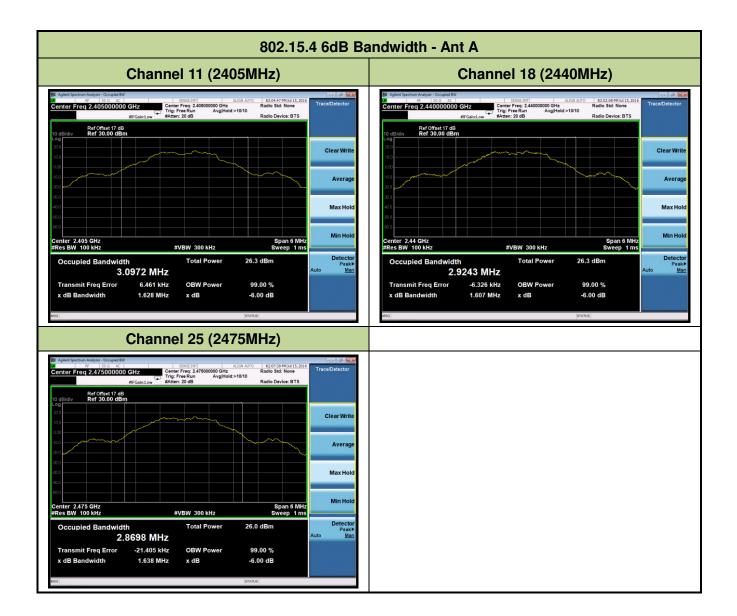
#### Spectrum Analyzer





#### 7.2.5. Test Result

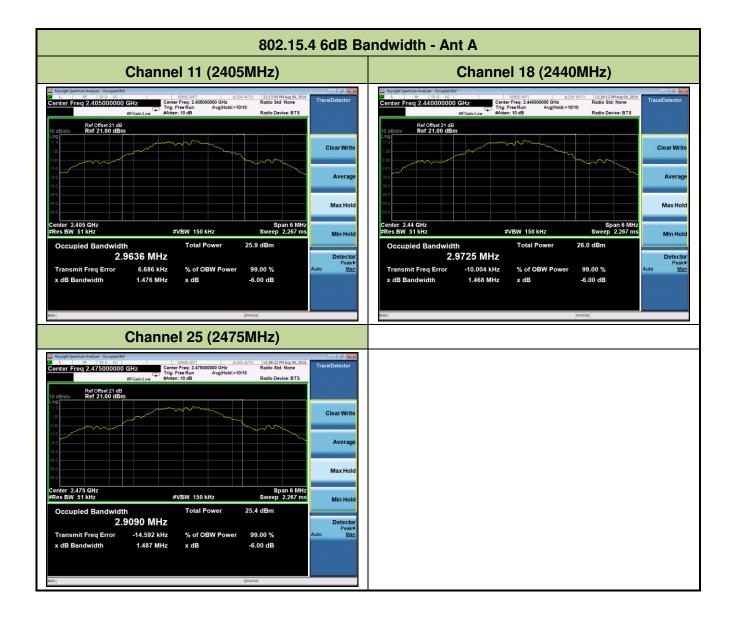
Test Mode	Modulation Mode	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Result
802.15.4	O-QPSK	11	2405	1.63	≥ 0.5	Pass
802.15.4	O-QPSK	18	2440	1.61	≥ 0.5	Pass
802.15.4	O-QPSK	25	2475	1.64	≥ 0.5	Pass





#### Refer to RSS-Gen

Test Mode	Modulation Mode	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Result
802.15.4	O-QPSK	11	2405	1.48	≥ 0.5	Pass
802.15.4	O-QPSK	18	2440	1.47	≥ 0.5	Pass
802.15.4	O-QPSK	25	2475	1.49	≥ 0.5	Pass





## 7.3. Output Power Measurement

#### 7.3.1. Test Limit

The maximum output power shall be less 1 Watt (30dBm).

#### 7.3.2. Test Procedure Used

KDB 558074 D01v03r05 - Section 9.1.2 PKPM1 Peak Power Method (for signals with BW ≤

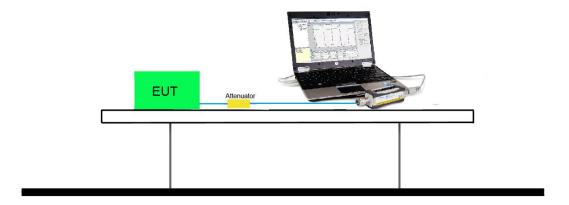
50MHz)

#### 7.3.3. Test Setting

#### Method PKPM1 (Peak Power Measurement of Signals with DTS BW ≤ 50MHz)

Peak power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The pulse sensor employs a VBW = 50MHz so this method was only used for signals whose DTS bandwidth was less than or equal to 50MHz.

#### 7.3.4. Test Setup





## 7.3.5. Test Result of Output Power

Test Result of Peak Output Power

Т	est Mode	Modulation	Channel	Frequency	Peak	Output	Limit	E.I.	R.P	Limit	Result
		Mode	No.	(MHz)	Power	(dBm)	(dBm)	(dE	Bm)	(dBm)	
					Ant A	Ant B		Ant A	Ant B		
;	802.15.4	O-QPSK	11	2405	19.29	19.27	≤ 30	20.79	20.77	≤ 36	Pass
;	802.15.4	O-QPSK	18	2440	19.56	19.55	≤ 30	21.06	21.05	≤ 36	Pass
1	802.15.4	O-QPSK	25	2475	19.02	19.01	≤ 30	20.52	20.51	≤ 36	Pass

Note: E.I.R.P (dBm) = Peak Output Power (dBm) + Antenna Gain (dBi).

### Test Result of Average Output Power for Report Only

٦	Fest Mode	Modulation	Channel	Frequency	Average	e Output	Limit	E.I.	R.P	Limit	Result
		Mode	No.	(MHz)	Power	(dBm)	(dBm)	(dE	Bm)	(dBm)	
					Ant A	Ant B		Ant A	Ant B		
	802.15.4	O-QPSK	11	2405	18.98	18.97	≤ 30	20.48	20.47	≤ 36	Pass
	802.15.4	O-QPSK	18	2440	19.31	19.32	≤ 30	20.81	20.82	≤ 36	Pass
	802.15.4	O-QPSK	25	2475	18.74	18.73	≤ 30	20.24	20.23	≤ 36	Pass

Note: E.I.R.P (dBm) = Average Output Power (dBm) + Antenna Gain (dBi).



## 7.4. Power Spectral Density Measurement

#### 7.4.1. Test Limit

The maximum permissible power spectral density is 8dBm in any 3 kHz band.

#### 7.4.2. Test Procedure Used

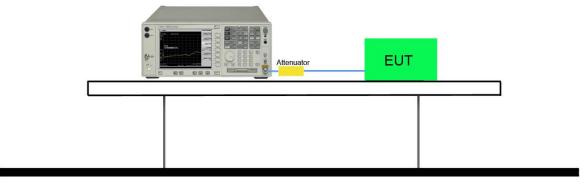
KDB 558074 D01v03r05 - Section 10.2 Method PKPSD

#### 7.4.3. Test Setting

- 1. Analyzer was set to the center frequency of the DTS channel under investigation
- 2. Span = 1.5 times the DTS channel bandwidth
- 3. RBW = 3kHz
- 4. VBW = 10kHz
- 5. Detector = peak
- 6. Sweep time = auto couple
- 7. Trace mode = max hold
- 8. Trace was allowed to stabilize

#### 7.4.4. Test Setup

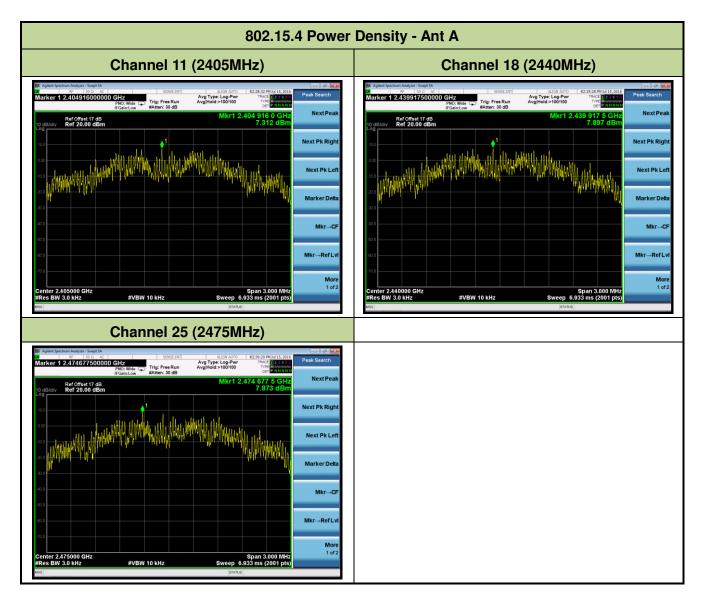
#### Spectrum Analyzer





#### 7.4.5. Test Result

Test Mode	Modulation Mode	Channel No.	Frequency (MHz)	Measured PSD (dBm / 3kHz)	Limit (dBm / 3kHz)	Result
802.15.4	O-QPSK	11	2405	7.31	<u>≤</u> 8	Pass
802.15.4	O-QPSK	18	2445	7.90	≤ 8	Pass
802.15.4	O-QPSK	25	2480	7.87	≤ 8	Pass





## 7.5. Conducted Band Edge and Out-of-Band Emissions

#### 7.5.1. Test Limit

The limit for out-of-band spurious emissions at the band edge is 20dB below the fundamental emission level, as determined from the in-band power measurement of the DTS channel performed in a 100 kHz bandwidth per the PSD procedure.

#### 7.5.2. Test Procedure Used

KDB 558074 D01v03r05 - Section 11.2 & Section 11.3

#### 7.5.3. Test Settitng

#### 1. Reference level measurement

- (a) Set instrument center frequency to DTS channel center frequency
- (b) Set the span to  $\geq$  1.5 times the DTS bandwidth
- (c) Set the RBW = 100 kHz
- (d) Set the VBW  $\ge$  3 x RBW
- (e) Detector = peak
- (f) Sweep time = auto couple
- (g) Trace mode = max hold
- (h) Allow trace to fully stabilize

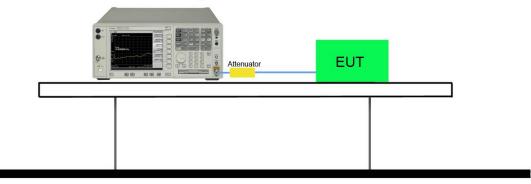
#### 2. Emission level measurement

- (a) Set the center frequency and span to encompass frequency range to be measured
- (b) RBW = 100kHz
- (c) VBW = 300kHz
- (d) Detector = Peak
- (e) Trace mode = max hold
- (f) Sweep time = auto couple
- (g) The trace was allowed to stabilize



## 7.5.4. Test Setup

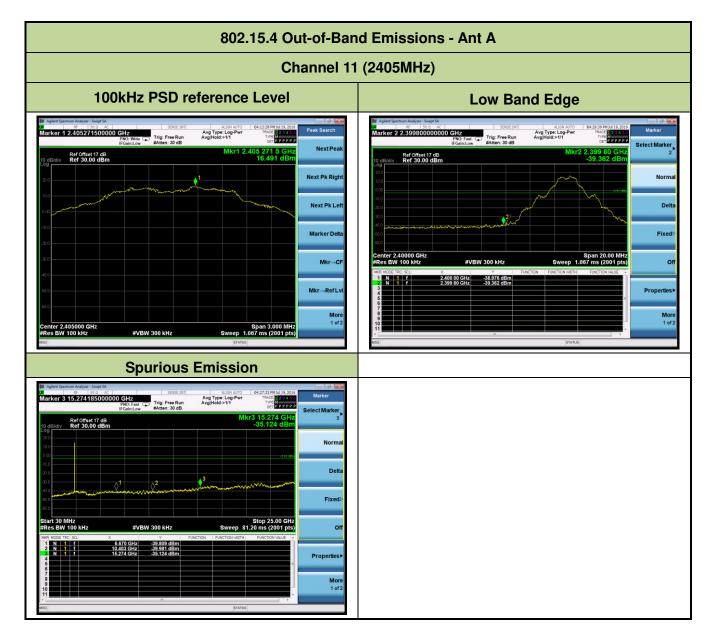
## Spectrum Analyzer



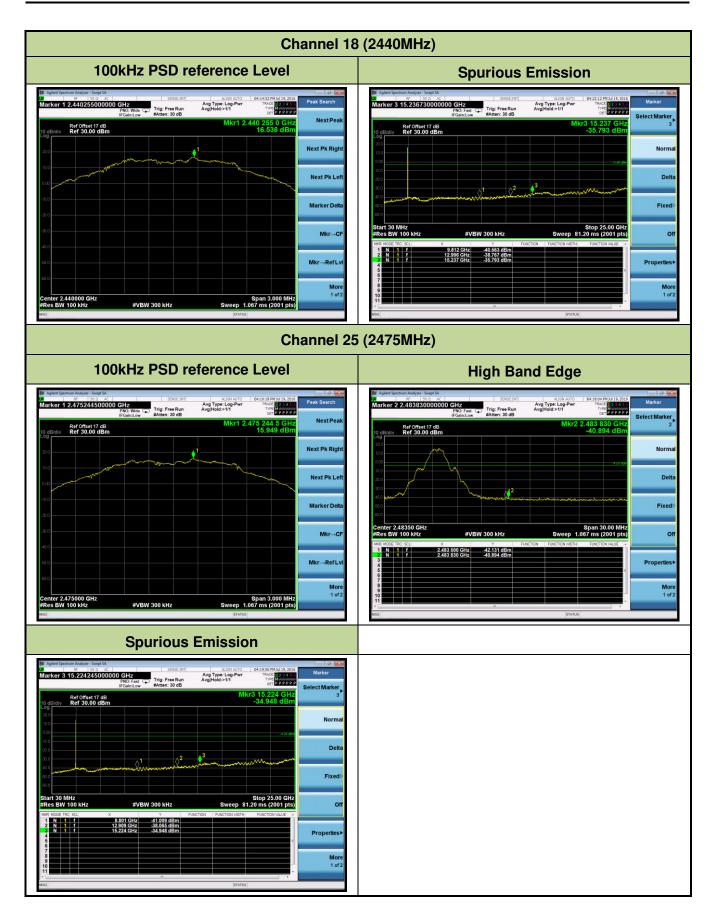


#### 7.5.5. Test Result

Test Mode	Modulation Mode	Channel No.	Frequency (MHz)	Limit	Result
802.15.4	O-QPSK	11	2405	20dBc	Pass
802.15.4	O-QPSK	18	2440	20dBc	Pass
802.15.4	O-QPSK	25	2475	20dBc	Pass









## 7.6. Radiated Spurious Emission Measurement

#### 7.6.1. Test Limit

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table per Section 15.209.

F	CC Part 15 Subpart C Paragraph	15.209
Frequency [MHz]	Field Strength [uV/m]	Measured Distance [Meters]
0.009 – 0.490	2400/F (kHz)	300
0.490 – 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

#### 7.6.2. Test Procedure Used

KDB 558074 D01v03r05 - Section 12.2.3 (quasi-peak measurements)

KDB 558074 D01v03r05 – Section 12.2.4 (peak power measurements)

KDB 558074 D01v03r05 - Section 12.2.5 (average power measurements)

#### 7.6.3. Test Setting

#### Peak Field Strength Measurements per Section 12.2.4 of KDB 558074 D01v03r05

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest

- 2. RBW = as specified in Table 1
- 3. VBW = 3MHz
- 4. Detector = peak
- 5. Sweep time = auto couple





- 6. Trace mode = max hold
- 7. Trace was allowed to stabilize

#### Table 1 - RBW as a function of frequency

Frequency	RBW
9 ~ 150 kHz	200 ~ 300 Hz
0.15 ~ 30 MHz	9 ~ 10 kHz
30 ~ 1000 MHz	100 ~ 120 kHz
> 1000 MHz	1 MHz

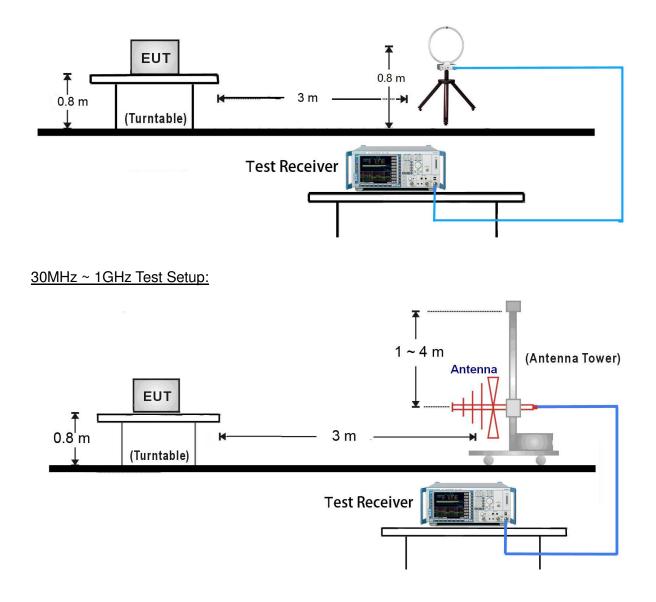
#### Average Field Strength Measurements per Section 12.2.5.3 of KDB 558074 D01v03r05

- 1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
- 2. RBW = 1MHz
- 3. VBW ≥ 1/T
- 4. De As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to "Voltage" regardless of the display mode
- 5. Detector = Peak
- 6. Sweep time = auto
- 7. Trace mode = max hold
- 8. Allow max hold to run for at least 50 times (1/duty cycle) traces



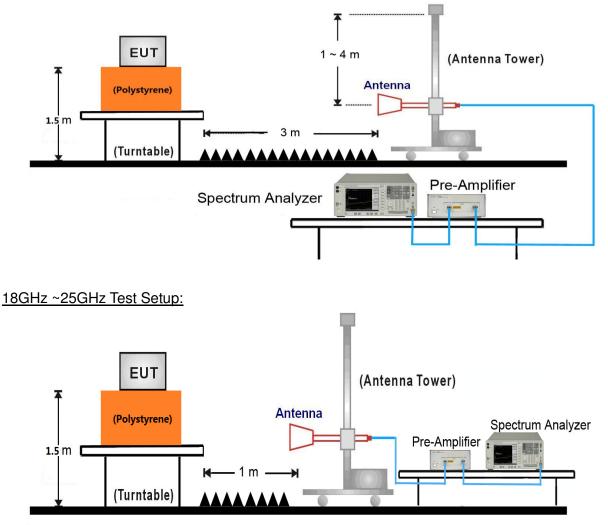
## 7.6.4. Test Setup

9kHz ~ 30MHz Test Setup:





#### <u>1GHz ~ 18GHz Test Setup:</u>





### 7.6.5. Test Result

Test Mode:	802.15.4 - Ant A	Test Site:	AC1
Test Channel:	11	Test Engineer:	Vince Yu
Remark:	<ol> <li>Average measurement was no limit.</li> <li>Other frequency was 20dB bel in the report.</li> </ol>		

Mark	Frequency	Reading	Factor	Measure	Limit	Margin	Detector	Polarization
	(MHz)	Level	(dB)	Level	(dBµV/m)	(dB)		
		(dBµV)		(dBµV/m)				
*	3431.0	37.7	-1.5	36.2	94.1	-57.9	Peak	Horizontal
	4808.0	41.9	2.7	44.6	74.0	-29.4	Peak	Horizontal
*	7213.5	42.3	7.8	50.1	94.1	-44.0	Peak	Horizontal
*	9619.0	35.8	10.9	46.7	94.1	-47.4	Peak	Horizontal
*	3473.5	38.4	-1.3	37.1	94.1	-57.0	Peak	Vertical
	4808.0	43.7	2.7	46.4	74.0	-27.6	Peak	Vertical
*	7213.5	38.5	7.8	46.3	94.1	-47.8	Peak	Vertical
	12024.5	37.5	12.0	49.5	74.0	-24.5	Peak	Vertical
Note 1	: "*" is not in r	estricted ban	d, its limit i	s 20dBc of th	ne fundamental	emissior	level (11	4.1dBµV/m)
or 15.2	09 which is h	igher.						
Note 2	: Measure Le	vel (dBµV/m)	= Reading	g Level (dBµ∖	/) + Factor (dB	)		

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre\_Amplifier Gain (dB)



Test Mode:	802.15.4 - Ant A	Test Site:	AC1
Test Channel:	18	Test Engineer:	Vince Yu
Remark:	1. Average measurement was no	t performed if peak l	evel lower than average
	limit.		
	2. Other frequency was 20dB bel	ow limit line within 1	-18GHz, there is not show
	in the report.		

Mark	Frequency	Reading	Factor	Measure	Limit	Margin	Detector	Polarization
	(MHz)	Level	(dB)	Level	(dBµV/m)	(dB)		
		(dBµV)		(dBµV/m)				
*	3397.0	37.2	-1.7	35.5	94.3	-58.8	Peak	Horizontal
	4884.5	44.5	2.7	47.2	74.0	-26.8	Peak	Horizontal
*	6482.5	35.4	5.9	41.3	94.3	-53.0	Peak	Horizontal
	12194.5	37.9	11.7	49.6	74.0	-24.4	Peak	Horizontal
*	3422.5	37.7	-1.6	36.1	94.3	-58.2	Peak	Vertical
	4884.5	44.5	2.7	47.2	74.0	-26.8	Peak	Vertical
*	6550.5	35.9	5.9	41.8	94.3	-52.5	Peak	Vertical
	12203.0	37.5	11.7	49.2	74.0	-24.8	Peak	Vertical

Note 1: "\*" is not in restricted band, its limit is 20dBc of the fundamental emission level (114.3dBµV/m) or 15.209 which is higher.

Note 2: Measure Level  $(dB\mu V/m) = Reading Level (dB\mu V) + Factor (dB)$ 

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre\_Amplifier Gain (dB)



Test Mode:	802.15.4 - Ant A	Test Site:	AC1
Test Channel:	25	Test Engineer:	Vince Yu
Remark:	1. Average measurement was no	t performed if peak l	evel lower than average
	limit.		
	2. Other frequency was 20dB bel	ow limit line within 1	-18GHz, there is not show
	in the report.		

Mark	Frequency	Reading	Factor	Measure	Limit	Margin	Detector	Polarization
	(MHz)	Level	(dB)	Level	(dBµV/m)	(dB)		
		(dBµV)		(dBµV/m)				
*	3431.0	38.8	-1.5	37.3	94.4	-57.1	Peak	Horizontal
	4952.5	42.6	2.9	45.5	74.0	-28.5	Peak	Horizontal
*	6576.0	36.2	6.0	42.2	94.4	-52.2	Peak	Horizontal
	7426.0	38.6	8.0	46.6	74.0	-27.4	Peak	Horizontal
*	3388.5	39.0	-1.7	37.3	94.4	-57.1	Peak	Vertical
	4952.5	40.8	2.9	43.7	74.0	-30.3	Peak	Vertical
*	9899.5	39.2	11.6	50.8	94.4	-43.6	Peak	Vertical
	12373.0	37.5	11.5	49.0	74.0	-25.0	Peak	Vertical

Note 1: "\*" is not in restricted band, its limit is 20dBc of the fundamental emission level (114.4dBµV/m) or 15.209 which is higher.

Note 2: Measure Level  $(dB\mu V/m) = Reading Level (dB\mu V) + Factor (dB)$ 

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre\_Amplifier Gain (dB)



#### The worst case of Radiated Emission below 1GHz:

Site	: AC1				1	ime: 2016/07	/19 - 19:16			
Limi	it: FCC	_Part15	.209_RE(3m)	)	E	Engineer: Vinc	e Yu			
Prob	be: VUI	LB 9168	3_20-2000MH	Ηz	F	Polarity: Vertical				
EUT	: Radio	o Contro	ller Receiver		F	Power: By Battery				
Wor	rse Ca	se Mod	e: Transmit a	t Channel 24	75MHz by 80	2.15.4 Ant A				
Level(dBuV/m)	90 80 70 60 50 40	12 A 4	ÅA an		Ş					
Le	20 10 0	V	MMM	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	WHIL	Winner	nownantaniu	annadony when determine		
, e	20 10	V	- WWW	100			Mpiny MAMANA	ann ad son mallen ad a super	1000	
No	20 10 0 -10	Mark	Frequency	Measure		ncy(MHz)	Limit	Factor	1000 Type	
	20 10 0 -10 30				Freque	ncy(MHz)				
	20 10 0 -10 30		Frequency	Measure Level	Freque Reading Level	ncy(MHz) Over Limit	Limit	Factor		
No	20 10 0 -10 30		Frequency (MHz)	Measure Level (dBuV/m)	Freque Reading Level (dBuV)	ncy(MHz) Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Туре	
No 1	20 10 0 -10 30	Mark	Frequency (MHz) 35.335	Measure Level (dBuV/m) 35.244	Freque Reading Level (dBuV) 21.354	Over Limit (dB) -4.756	Limit (dBuV/m) 40.000	Factor (dB) 13.890	Type QP	
No 1 2	20 10 0 -10 30	Mark	Frequency (MHz) 35.335 38.730	Measure Level (dBuV/m) 35.244 36.321	Freque Reading Level (dBuV) 21.354 21.951	Over Limit (dB) -4.756 -3.679	Limit (dBuV/m) 40.000 40.000	Factor (dB) 13.890 14.370	Type     QP     QP	
No 1 2 3	20 10 0 -10 30	Mark	Frequency (MHz) 35.335 38.730 44.550	Measure Level (dBuV/m) 35.244 36.321 32.905	Freque Reading Level (dBuV) 21.354 21.951 18.687	Over Limit (dB) -4.756 -3.679 -7.095	Limit (dBuV/m) 40.000 40.000 40.000	Factor (dB) 13.890 14.370 14.218	Type     QP     QP     QP     QP     QP	

Note: Measure Level  $(dB\mu V/m) = Reading Level (dB\mu V) + Factor (dB)$ 

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

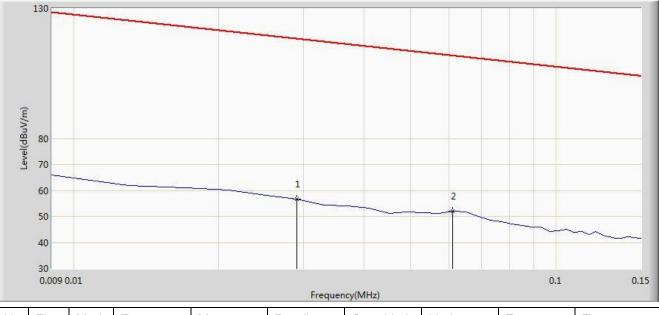


	: AC1				٦	ime: 2016/07	/19 - 19:23			
Limi	t: FCC	_Part15	5.209_RE(3m	)	E	Engineer: Vince Yu				
Prol	be: VUI	_B 9168	3_20-2000MI	Ηz	F	Polarity: Horizontal				
EUT	: Radio	o Contro	oller Receiver		F	Power: By Bat	tery			
Woi	se Ca	se Mod	<b>e</b> : Transmit a	t Channel 24	75MHz by 80	2.15.4 Ant A				
Level(dBuV/m)	1					34 • • • • • • • • • • • • • • • • • • •	5 6 MMMMMM			
	20 / 10 10 10	V	Mar Mar	MMM	W WWWW	A A A A A A A A A A A A A A A A A A A		Winner and the second		
	10		MMM M	100	Freque	ΥΥΥΥΥΥΥΥΥΥΥΥΥΥΥΥΥΥΥΥΥΥΥΥΥΥΥΥΥΥΥΥΥΥΥΥΥ		When the second s	1000	
No	10 0 -10	Mark	Frequency	100 Measure	Freque Reading	ncy(MHz)	Limit	Factor	1000 Type	
No	10 0 -10 30	Mark	Frequency (MHz)				Limit (dBuV/m)	Factor (dB)	1	
No	10 0 -10 30	Mark		Measure	Reading	Over Limit			1	
No 1	10 0 -10 30	Mark		Measure Level	Reading Level	Over Limit			1	
	10 0 -10 30	Mark	(MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	(dBuV/m)	(dB)	Туре	
1	10 0 -10 30	Mark	(MHz) 38.730	Measure Level (dBuV/m) 25.724	Reading Level (dBuV) 11.354	Over Limit (dB) -14.276	(dBuV/m) 40.000	(dB) 14.370	Type QP	
1	10 0 -10 30	Mark	(MHz) 38.730 120.210	Measure Level (dBuV/m) 25.724 30.344	Reading Level (dBuV) 11.354 17.214	Over Limit (dB) -14.276 -13.156	(dBuV/m) 40.000 43.500	(dB) 14.370 13.130	Type QP QP	
1 2 3	10 0 -10 30	Mark	(MHz) 38.730 120.210 180.350	Measure Level (dBuV/m) 25.724 30.344 26.868	Reading Level (dBuV) 11.354 17.214 14.112	Over Limit (dB) -14.276 -13.156 -16.632	(dBuV/m) 40.000 43.500 43.500	(dB) 14.370 13.130 12.756	Type QP QP QP	



Site: AC1	Time: 2016/07/16 - 10:42
Limit: RSS-Gen Issue 4_RE(3m)	Engineer: Vince Yu
Probe: FMZB1519_0.009-30MHz	Polarity: Face on
EUT: Radio Controller Receiver	Power: By Battery

Note: There is the ambient noise within frequency range 9kHz~30MHz.



No	Flag	Mark	Frequency	Measure	Reading	Over Limit	Limit	Factor	Туре
			(MHz)	Level	Level	(dB)	(dBuV/m)	(dB)	
				(dBuV/m)	(dBuV)				
1			0.029	56.610	35.660	-61.746	118.356	21.049	AV
2		*	0.061	51.899	31.588	-59.999	111.898	20.311	AV

Note: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

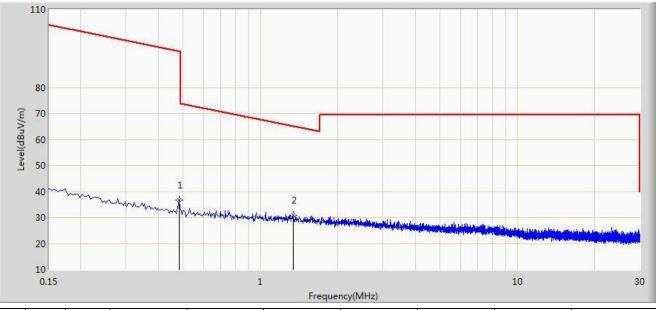
 $Limit@3m = 20*Log((2400/29)uV/m) + 40*Log(300m/3m) = 118.356dB\mu v/m (Average detector)$ 

 $Limit@3m = 20*Log((2400/61)uV/m) + 40*Log(300m/3m) = 111.898dB\mu\nu/m (Average detector)$ 



Site: AC1	Time: 2016/07/16 - 10:45
Limit: RSS-Gen Issue 4_RE(3m)	Engineer: Vince Yu
Probe: FMZB1519_0.009-30MHz	Polarity: Face on
EUT: Radio Controller Receiver	Power: By Battery

Note: There is the ambient noise within frequency range 9kHz~30MHz.



No	Flag	Mark	Frequency	Measure	Reading	Over Limit	Limit	Factor	Туре
			(MHz)	Level	Level	(dB)	(dBuV/m)	(dB)	
				(dBuV/m)	(dBuV)				
1			0.482	36.584	16.183	-57.359	93.943	20.401	AV
2		*	1.338	31.001	10.512	-34.098	65.099	20.489	QP

Note: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

 $Limit@3m = 20*Log((2400/482)uV/m) + 40*Log(300m/3m) = 93.943dB\mu v/m (Average detector)$ 



Site:	AC1					Time: 2016/07/16 - 11:15				
Limit	: RSS	-Gen Iss	sue 4_RE(1m	)		Engineer: Vince Yu				
Prob	e: BB	HA9170	_18-40GHz			Polarity: Horizontal				
EUT	Radi	o Contro	ller Receiver			Power: By Ba	attery			
Note	: The	re is the	e ambient no	ise within fr	equency rar	nge 18GHz~4	0GHz.			
	90									
	80									
	70									
	60								5	
ନ	50			1		3			La strategy and a str	
BuV/r	40	alitication	oblemant the strategiest	and party and provident	and the state of t	when and work have	Manufacture and a second	a provide a stranger	Mar	
Level(o	April 1			*		*				
	30									
	20									
	10									
	0								11	
	-10 18000			J					4000	
					Freque	ncy(MHz)		-		
No	Flag	Mark	Frequency	Measure	Reading	Over Limit	Limit	Factor	Туре	
			(MHz)	Level	Level	(dB)	(dBuV/m)	(dB)		
				(dBuV/m)	(dBuV)					
1			23478.000	47.365	37.708	-36.135	83.500	9.658	PK	
2			23478.200	34.298	24.640	-29.202	63.500	9.658	AV	
3			28934.000	48.749	35.930	-34.751	83.500	12.819	PK	
4			28934.100	36.459	23.640	-27.041	63.500	12.818	AV	
5			39857.000	57.224	38.474	-26.276	83.500	18.751	PK	
6		*	39857.000	45.090	26.340	-18.410	63.500	18.751	AV	

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre\_Amplifier Gain (dB)

 $\label{eq:limit} Limit@1m = 20^{*}Log(500uV/m) + 20^{*}Log(3m/1m) = 63.5dB\mu\nu/m \ (Average \ detector), \ and \ 83.5dB\mu\nu/m \ (Peak \ detector).$ 



Site:	AC1					Time: 2016/07/16 - 11::18							
Limi	t: RSS	-Gen Is	sue 4_RE(1m	)		Engineer: Vince Yu							
Prob	e: BB	HA9170	_18-40GHz			Polarity: Vertical							
EUT	Radio	o Contro	oller Receiver			Power: By Ba	attery						
Note	e: The	re is the	e ambient no	ise within fr	equency rai	nge 18GHz~4	0GHz.						
	90												
	80												
	70												
	60								5				
Ê	50				1		3						
Level(dBuV/m)	40	Ny for the barren line the	when so have a support the house of a	the whome man determined have		the provide and the state of the state	4	and a state of the state of the state of the					
evel(c	30				*		*						
_	20												
	10												
	1000												
	0												
	-10 18000				1		(11)		40000				
			Г_			ncy(MHz)		T_					
No	Flag	Mark	Frequency	Measure	Reading	Over Limit	Limit	Factor	Туре				
			(MHz)	Level	Level	(dB)	(dBuV/m)	(dB)					
				(dBuV/m)	(dBuV)								
1			24600.000	47.827	36.853	-35.673	83.500	10.974	PK				
2			24600.200	35.124	24.150	-28.376	63.500	10.974	AV				
3			29825.000	47.825	34.761	-35.675	83.500	13.064	PK				
4			29825.200	36.594	23.530	-26.906	63.500	13.064	AV				
5			39923.000	57.939	39.179	-25.561	83.500	18.760	PK				
6		*	39923.040	45.610	26.850	-17.890	63.500	18.760	AV				

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre\_Amplifier Gain (dB)

 $\label{eq:limit} Limit@1m = 20^{*}Log(500uV/m) + 20^{*}Log(3m/1m) = 63.5dB\mu\nu/m \ (Average \ detector), \ and \ 83.5dB\mu\nu/m \ (Peak \ detector).$ 

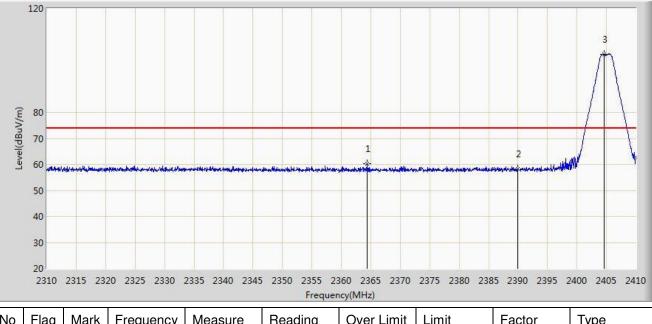


## 7.7. Radiated Restricted Band Edge Measurement

#### 7.7.1. Test Result

Site: AC1	Time: 2016/07/16 - 15:47
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Radio Controller Receiver	Power: By Battery

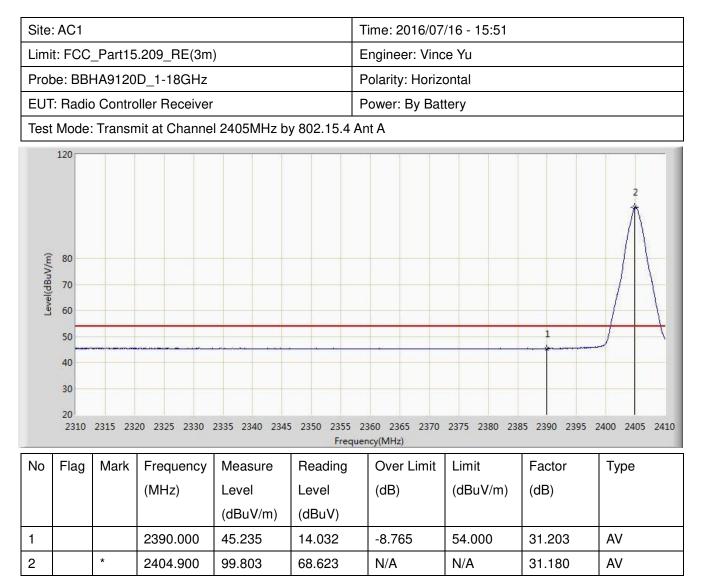
Test Mode: Transmit at Channel 2405MHz by 802.15.4 Ant A



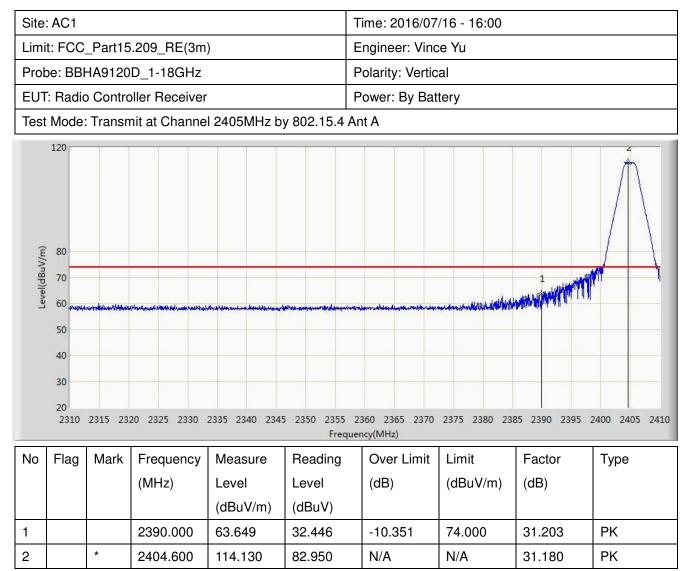
No	Flag	Mark	Frequency	Measure	Reading	Over Limit	Limit	Factor	Туре
			(MHz)	Level	Level	(dB)	(dBuV/m)	(dB)	
				(dBuV/m)	(dBuV)				
1			2364.400	60.195	28.945	-13.805	74.000	31.250	PK
2			2390.000	58.252	27.049	-15.748	74.000	31.203	PK
3		*	2404.550	102.456	71.276	N/A	N/A	31.180	PK

Note: Measure Level  $(dB\mu V/m)$  = Reading Level  $(dB\mu V)$  + Factor (dB)











Site	AC1				-	Time: 2016/07/16 - 16:02			
Limi	t: FCC	_Part15	.209_RE(3m	)	E	Engineer: Vinc	e Yu		
Prob	be: BBH	HA9120	D_1-18GHz		F	Polarity: Vertic	al		
EUT	Radio	o Contro	oller Receiver		F	Power: By Bat	tery		
Test	Mode:	Transn	nit at Channe	l 2405MHz by	y 802.15.4 A	nt A			
Level(dBuV/m)	120 80 70 60 50 40 30 20 2310	2315 23:	20 2325 2330	2335 2340 2345		:360 2365 2370 ncy(MHz)	2375 2380 238	1	2
No	Flag	Mark	Frequency	Measure	Reading	Over Limit	Limit	Factor	Туре
			(MHz)	Level	Level	(dB)	(dBuV/m)	(dB)	
				(dBuV/m)	(dBuV)				
1			2390.000	45.985	14.782	-8.015	54.000	31.203	AV
2		*	2405.000	111.182	80.002	N/A	N/A	31.180	AV

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)



Site:	AC1					Time: 2016/07/16 - 16:03				
Limi	t: FCC	_Part15	.209_RE(3m)	)		Engineer: Vince Yu				
Prob	be: BBH	HA9120	D_1-18GHz			Polarity: Horiz	ontal			
EUT	Radic	Contro	ller Receiver			Power: By Bat	ttery			
Test	Mode:	Transn	nit at Channe	l 2475MHz by	y 802.15.4 A	Int A				
Level(dBuV/m)	120 80 70 60 40 30 20 2470	2472	2474 2476	2478 2480	2 2 2 2 2 2 2 2 2 4 8 4 Frequ	3 	2490 2492	2494 2496	2498 2500	
No	Flag	Mark	Frequency	Measure	Reading	Over Limit	Limit	Factor	Туре	
			(MHz)	Level	Level	(dB)	(dBuV/m)	(dB)		
				(dBuV/m)	(dBuV)					
1		*	2474.710	99.593	68.424	N/A	N/A	31.170	PK	
2			2483.500	58.606	27.413	-15.394	74.000	31.194	PK	
3			2486.965	60.190	28.988	-13.810	74.000	31.203	РК	



Site: AC1				1	Time: 2016/07/16 - 16:11			
Limit: FCC_P	art15.2	209_RE(3m)		E	Engineer: Vince Yu			
Probe: BBHA	9120D	0_1-18GHz		F	Polarity: Horiz	ontal		
EUT: Radio C	ontroll	ler Receiver		F	Power: By Bat	tery		
Test Mode: Tr	ransmi	it at Channel	2475MHz by	/ 802.15.4 A	nt A			
120 (EU, N BP) 70 60 50 40 30 20 2470 2	2472	2474 2476	2478 2480	2 2 2 2 4 82 2484 Freque	2486 2488 ncy(MHz)	2490 2492	2494 2496	2498 2500
No Flag M	/lark	Frequency	Measure	Reading	Over Limit	Limit	Factor	Туре
		(MHz)	Level	Level	(dB)	(dBuV/m)	(dB)	
			(dBuV/m)	(dBuV)				
1 *		2475.025	95.701	64.531	N/A	N/A	31.170	AV
2		2483.500	45.503	14.310	-8.497	54.000	31.194	AV



Site	Site: AC1				Т	Time: 2016/07/16 - 16:13			
Limi	Limit: FCC_Part15.209_RE(3m) Probe: BBHA9120D_1-18GHz					Engineer: Vince Yu			
Prot						Polarity: Vertical			
EUT	EUT: Radio Controller Receiver					Power: By Battery			
Test Mode: Transmit at Channel 2475MHz by 802.15.4 Ant A									
Test Mode: Transmit at Channel 2475MHz by 802.15.4 Ant A									
No	Flag	Mark	Frequency	Measure	Reading	Over Limit	Limit	Factor	Туре
	5		(MHz)	Level	Level	(dB)	(dBuV/m)	(dB)	
				(dBuV/m)	(dBuV)				
1		*	2474.545	114.412	83.243	N/A	N/A	31.169	РК
2			2483.500	64.100	32.907	-9.900	74.000	31.194	РК
3			2484.415	64.758	33.562	-9.242	74.000	31.195	PK



Site: AC1				Time: 2016/07/16 - 16:16					
Limit: FCC_Part15.209_RE(3m)				Engineer: Vince Yu					
Probe: BBHA9120D_1-18GHz						Polarity: Vertical			
EUT: F	EUT: Radio Controller Receiver					Power: By Battery			
Test Mode: Transmit at Channel 2475MHz by 802.15.4 Ant A									
7 7 Fevel(dBn// 3 2	20 80 70 60 50 40 30 20 2470	2472	2474 2476	2478 2480	2 2 2482 2484 Freque	2486 2488 ency(MHz)	2490 2492	2494 2496	2498 2500
No F	-lag	Mark	Frequency	Measure	Reading	Over Limit	Limit	Factor	Туре
			(MHz)	Level	Level	(dB)	(dBuV/m)	(dB)	
				(dBuV/m)	(dBuV)				
1		*	2475.025	111.993	80.823	N/A	N/A	31.170	AV
2			2483.500	49.834	18.641	-4.166	54.000	31.194	AV



## 7.1. AC Conducted Emissions Measurement

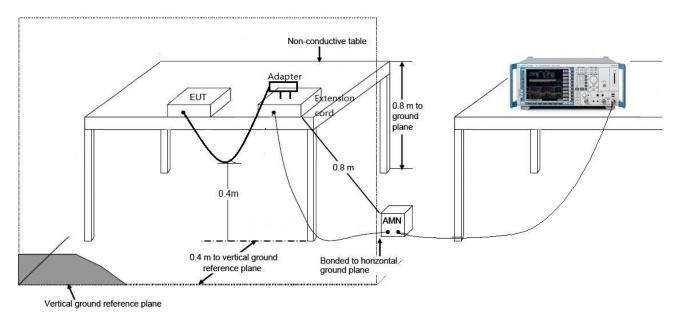
#### 7.1.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.207 Limits							
Frequency (MHz)	QP (dBuV)	AV (dBuV)					
0.15 - 0.50	66 - 56	56 – 46					
0.50 - 5.0	56	46					
5.0 - 30	60	50					

Note 1: The lower limit shall apply at the transition frequencies.

Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

### 7.1.2. Test Setup



## 7.1.3. Test Result

This EUT is powered by battery, so this test item is not applicable.



# 8. CONCLUSION

The data collected relate only the item(s) tested and show that the Radio Controller Receiver FCC

ID: 2ACS5-SR24P Mode Number: SR24+ is in compliance with Part 15C of the FCC Rules.

The End