MRT Technology (Suzhou) Co., Ltd
Phone: +86-512-66308358
Fax: +86-512-66308368
Web: www.mrt-cert.com

Report No.: 1512RSU00502
Report Version: V01
Issue Date: 12-20-2015

MEASUREMENT REPORT
FCC PART 15.407 & RSS-247

FCC ID:	2ABX8SH-000000012
IC:	12219A-00000000012
APPLICANT:	Zhejiang shenghui lighting Co., Ltd. Shanghai Branch
Application Type:	Certification
Product:	sengled pulse flex
Model No.:	C02-BR30NAE26
Brand Name:	Sengled
FCC Classification:	Unlicensed National Information Infrastructure (UNII)
FCC Rule Part(s):	Part 15.407
IC Rule(s):	RSS-247 Issue 1
Test Procedure(s):	ANSI C63.10-2013, KDB 789033 D02v01
Test Date:	December 04 ~ 14, 2015

Reviewed By : Robin Wu
(Robin Wu)

Approved By : Marlin Chen
(Marlin Chen)

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

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 789033 D02v01. Test results reported herein relate only to the item(s) tested.

Revision History

Report No.	Version	Description	Issue Date
1512RSU00502	Rev. 01	Initial report	12-20-2015

Note: This report is based on the original report no. 1509RSU02902. The EUT changes the position of antenna 1, the others are same. We assess the conducted power and radiated emission of Ant 1 on this report.

CONTENTS

Description Page

§2.1033 General Information

Applicant:	Zhejiang shenghui lighting Co., Ltd. Shanghai Branch
Applicant Address:	Rm. 801, 1st Xinye Building,388 Tianlin Rd., Caohejing Development Zone, Shanghai, 200233, China
Manufacturer:	ZHEJIANG SHENGHUI LIGHTING Co., Ltd
Manufacturer Address:	South Jiachuang Rd., Xiuzhou Industrial Park Jiaxing, Zhejiang 314015 P.R. China
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, Youxin Industrial Park, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
MRT FCC Registration No.:	809388
MRT IC Registration No.:	11384A
FCC Rule Part(s):	Part 15.407
IC Rule(s):	RSS-247
Model No.:	C02-BR30NAE26
FCC ID:	2ABX8SH-000000012
IC:	12219A-00000000012
Test Device Serial No.:	N/A ☐ Production ☒ Pre-Production ☐ Engineering
FCC Classification:	Unlicensed National Information Infrastructure (UNII)

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.**

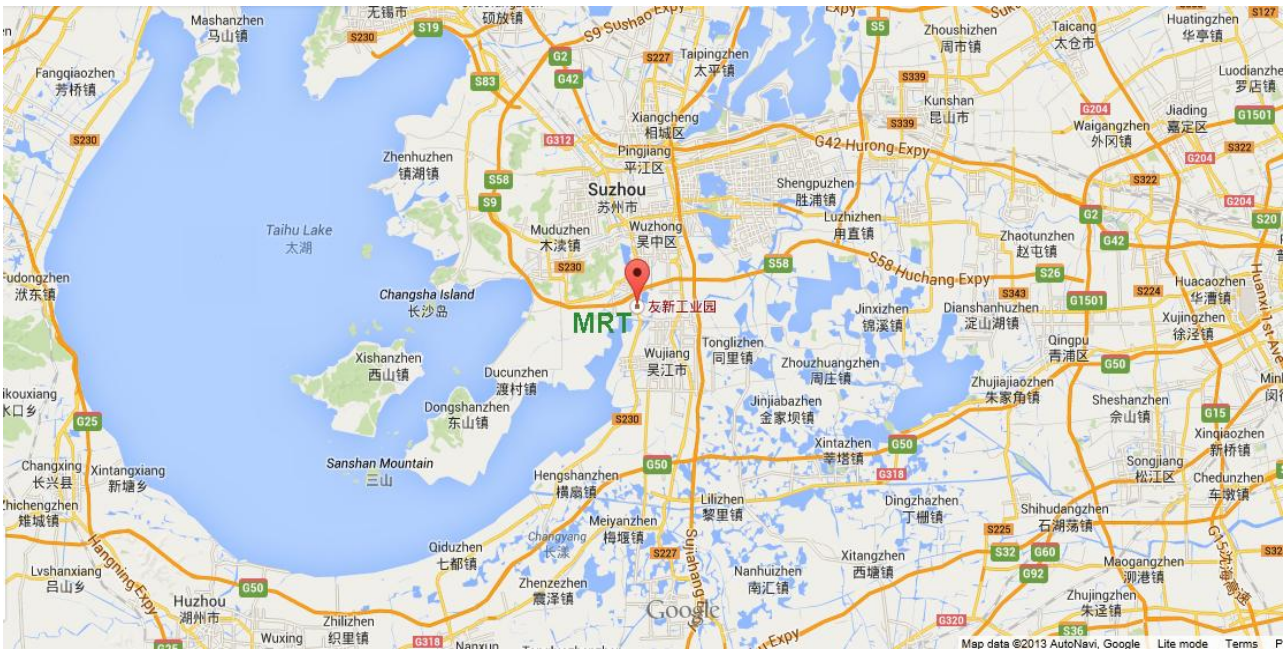
1. INTRODUCTION

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	sengled pulse flex
Model No.	C02-BR30NAE26
Brand Name	sengled
Wi-Fi Specification	802.11a/b/g/n

2.2. Product Specification Subjective to this Report

Frequency Range	802.11a/n-HT20: 5180~5240MHz, 5745~5825MHz 802.11n-HT40: 5190~5230MHz, 5755~5795MHz
Maximum Average Output Power	802.11a: 11.33dBm 802.11n-HT20: 11.01dBm 802.11n-HT40: 10.57dBm
Type of Modulation	802.11a/n: OFDM

2.3. Operation Frequency / Channel list

802.11a/n-HT20

Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180 MHz	40	5200 MHz	44	5220 MHz
48	5240 MHz	149	5745 MHz	153	5765 MHz
157	5785 MHz	161	5805 MHz	165	5825 MHz

802.11n-HT40

Channel	Frequency	Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz	151	5755 MHz
159	5795 MHz	--	--	--	--

2.4. Description of Available Antennas

Antenna No.	Antenna Type	Frequency Band (GHz)	Manufacturer	Max Peak Gain (dBi)
Ant 1	PCB Antenna	2412~2462	Zhejiang shenghui lighting Co., Ltd. Shanghai Branch	4.04
		5180~5240		4.00
		5745~5825		4.53
Ant 2	PCB Antenna	2412~2462		4.43
		5180~5240		3.34
		5745~5825		5.87

2.5. Device Capabilities

This device contains the following capabilities:
2.4GHz WLAN (DTS) and 5GHz WLAN (UNII)

2.6. Test Configuration

The **sengled pulse flex FCC ID: 2ABX8SH-000000012** was tested per the guidance of KDB 789033 D02v01. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing.

2.7. EMI Suppression Device(s)/Modifications

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

2.8. 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 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

The measurement procedures described in the American National Standard for Testing Unlicensed Wireless Devices (ANSI C63.10-2013), and the guidance provided in KDB 789033 D02v01 were used in the measurement of the **sengled pulse flex FCC ID: 2ABX8SH-000000012.**

Deviation from measurement procedure…….....None

3.2. 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 1-40GHz 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 **sengled pulse flex** is **permanently attached.**
- There are no provisions for connection to an external antenna.

Conclusion:

The **sengled pulse flex FCC ID: 2ABX8SH-000000012** unit complies with the requirement of §15.203.

5. Test Equipment Calibration Date

Radiated Emission – AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	E4447A	MRTSUE06028	1 year	2016/06/23
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2016/11/03
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2016/03/29
Preamplifier	Agilent	83017A	MRTSUE06019	1 year	2016/04/15
Loop Antenna	Schwarzbeck	FMZB1519	MRTSUE06025	1 year	2016/12/15
TRILOG Antenna	Schwarzbeck	VULB9162	MRTSUE06022	1 year	2016/11/07
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06023	1 year	2016/11/07
Broadband Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06024	1 year	2016/01/05
Temperature/Humidity Meter	Ouleinuo	N/A	MRTSUE06115	1 year	2016/11/20

Conducted Test Equipment – TR3

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2016/05/08
USB Wideband Power Sensor	Boonton	55006	MRTSUE06109	1 year	2016/05/08
Temperature/Humidity Meter	Ouleinuo	N/A	MRTSUE06112	1 year	2016/11/20

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.

Radiated Emission Measurement
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 9kHz ~ 1GHz: 4.18dB 1GHz ~ 40GHz: 4.76dB

7. TEST RESULT

7.1. Summary

Company Name: **Zhejiang shenghui lighting Co., Ltd. Shanghai Branch**

FCC ID: **2ABX8SH-000000012**

IC **12219A-000000012**

Data Rate(s) Tested: **6Mbps ~ 54Mbps (a);**
6.5/7.2Mbps ~ 65.0/72.2Mbps (n-HT20);
13.5/15.0Mbps ~ 135.0/150.0Mbps (n-HT40)

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.407(a)(1)(iv), (3)	Maximum Conducted Output Power	≤ 24 dBm U-NII-1 ≤ 30 dBm U-NII-3	Conducted	Pass	Section 7.2
15.407(b)(1), (4)	Undesirable Emissions	≤ -27dBm/MHz EIRP ≤ -17dBm/MHz EIRP	Radiated	Pass	Section 7.3 & 7.4
15.205, 15.209 15.407(b)(5), (6), (7)	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209		Pass	

RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
RSS-247 §6.2.1, §6.2.4	Max Conducted Output Power	5725~5850MHz ≤ 30 dBm	Conducted	Pass	Section 7.2
	Maximum E.I.R.P	5150~5250MHz ≤ 23 dBm or 10 + 10 log10(99% B)			
RSS-247 §6.2.1,§6.2.4	Out-of-Band Emissions	≤ -27dBm/MHz EIRP ≤ -17dBm/MHz EIRP	Radiated	Pass	Section 7.3 & 7.4
RSS-247 §6.2.1, §6.2.4	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in RSS-Gen [8.9]		Pass	

Notes:

1) All channels, modes, and modulations/data rates were investigated among all UNII bands. 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.

7.2. Output Power Measurement

7.2.1. Test Limit

For FCC

For mobile and portable client devices operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm).

For IC

For the band 5.15-5.25 GHz, the maximum e.i.r.p. shall not exceed 200 mW (23.01dBm) or 10 + 10 $\log_{10}$ B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.

For the 5.725-5.85 GHz band, the maximum conducted output power shall not exceed 1 W.

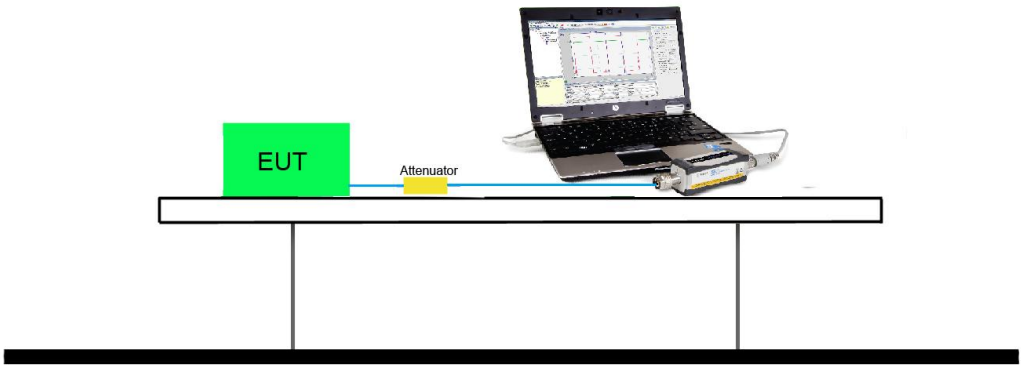
7.2.2. Test Procedure Used

KDB 789033 D02v01 - Section E) 3) b) Method PM-G

7.2.3. Test Setting

Average power measurements were perform only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter. The trace was averaged over 100 traces to obtain the final measured average power.

7.2.4. Test Setup



7.2.5. Test Result

For 5180~5240MHz Band

Test Mode	Data Rate (Mbps)	Channel No.	Freq. (MHz)	Average Power (dBm)	Average Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)	Result
Ant 1								
802.11a	6	36	5180	10.35	≤ 24.00	14.35	≤ 23.01	Pass
802.11a	6	44	5220	10.58	≤ 24.00	14.58	≤ 23.01	Pass
802.11a	6	48	5240	10.45	≤ 24.00	14.45	≤ 23.01	Pass
802.11n-HT20	6.5	36	5180	10.67	≤ 24.00	14.67	≤ 23.01	Pass
802.11n-HT20	6.5	44	5220	10.88	≤ 24.00	14.88	≤ 23.01	Pass
802.11n-HT20	6.5	48	5240	10.25	≤ 24.00	14.25	≤ 23.01	Pass
802.11n-HT40	13.5	38	5190	9.64	≤ 24.00	13.64	≤ 23.01	Pass
802.11n-HT40	13.5	46	5230	9.59	≤ 24.00	13.59	≤ 23.01	Pass
Ant 2								
802.11a	6	36	5180	11.25	≤ 30.00	14.59	≤ 23.01	Pass
802.11a	6	40	5200	11.33	≤ 30.00	14.67	≤ 23.01	Pass
802.11a	6	44	5220	11.09	≤ 30.00	14.43	≤ 23.01	Pass
802.11n-HT20	6.5	36	5180	10.07	≤ 30.00	13.41	≤ 23.01	Pass
802.11n-HT20	6.5	40	5200	10.47	≤ 30.00	13.81	≤ 23.01	Pass
802.11n-HT20	6.5	44	5220	11.01	≤ 30.00	14.35	≤ 23.01	Pass
802.11n-HT40	13.5	38	5190	10.47	≤ 30.00	13.81	≤ 23.01	Pass
802.11n-HT40	13.5	46	5230	10.57	≤ 30.00	13.91	≤ 23.01	Pass

For 5745~5825MHz Band

Test Mode	Data Rate (Mbps)	Channel No.	Freq. (MHz)	Average Power (dBm)	Average Power Limit (dBm)	Result
Ant 1						
802.11a	6	149	5745	9.26	≤ 30.00	Pass
802.11a	6	157	5785	8.43	≤ 30.00	Pass
802.11a	6	165	5825	8.21	≤ 30.00	Pass
802.11n-HT20	6.5	149	5745	8.32	≤ 30.00	Pass
802.11n-HT20	6.5	157	5785	6.64	≤ 30.00	Pass
802.11n-HT20	6.5	165	5825	6.65	≤ 30.00	Pass
802.11n-HT40	13.5	151	5755	6.71	≤ 30.00	Pass
802.11n-HT40	13.5	159	5795	6.47	≤ 30.00	Pass
Ant 2						
802.11a	6	149	5745	9.14	≤ 30.00	Pass
802.11a	6	157	5785	8.25	≤ 30.00	Pass
802.11a	6	165	5825	8.18	≤ 30.00	Pass
802.11n-HT20	6.5	149	5745	8.24	≤ 30.00	Pass
802.11n-HT20	6.5	157	5785	7.14	≤ 30.00	Pass
802.11n-HT20	6.5	165	5825	7.21	≤ 30.00	Pass
802.11n-HT40	13.5	151	5755	7.29	≤ 30.00	Pass
802.11n-HT40	13.5	159	5795	7.27	≤ 30.00	Pass

7.3. Radiated Spurious Emission Measurement

7.3.1. 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.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [V/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

7.3.2. Test Procedure Used

KDB 789033 D02v01 – Section G

7.3.3. Test Setting

Peak Measurements above 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Quasi-Peak Measurements below 1GHz

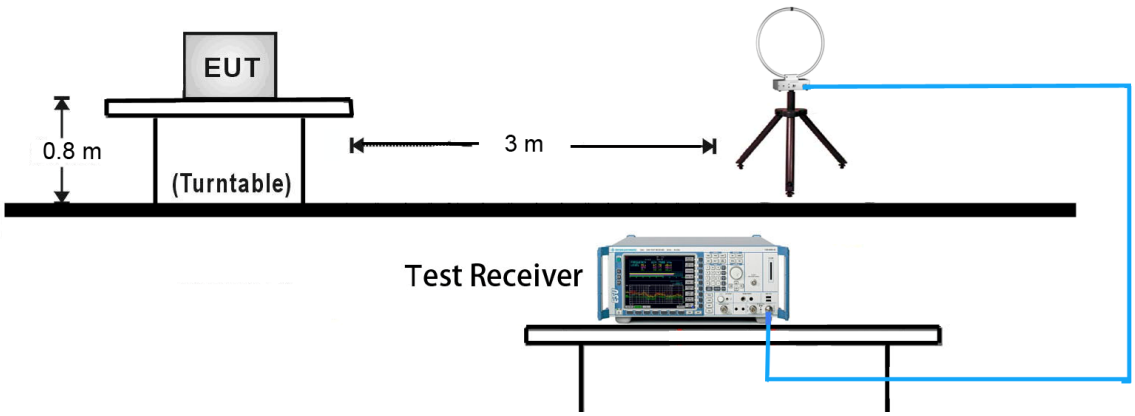
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = 120 kHz
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

Average Measurements above 1GHz (Method AD)

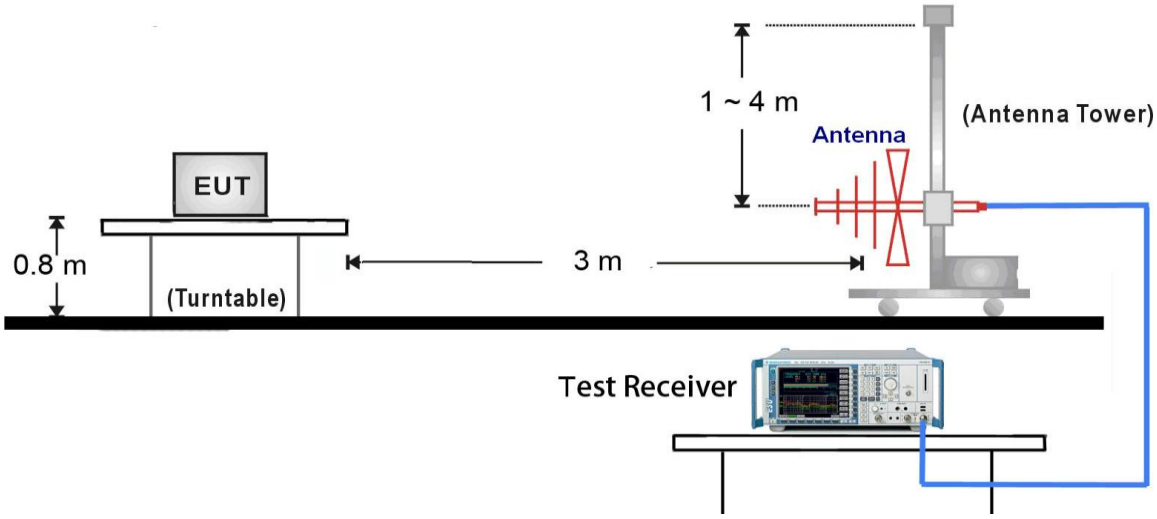
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = power average (RMS)
5. Number of measurement points = 1001 (Number of points must be > 2 x span/RBW)
6. Sweep time = auto
7. Trace was averaged over at 100 sweeps

7.3.4. Test Setup

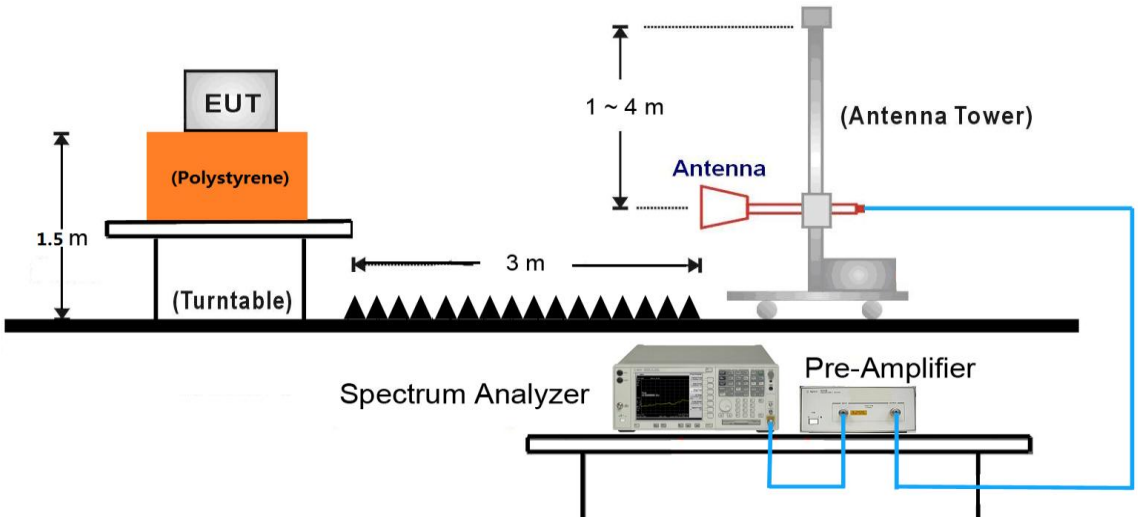
9kHz ~ 30MHz Test Setup:



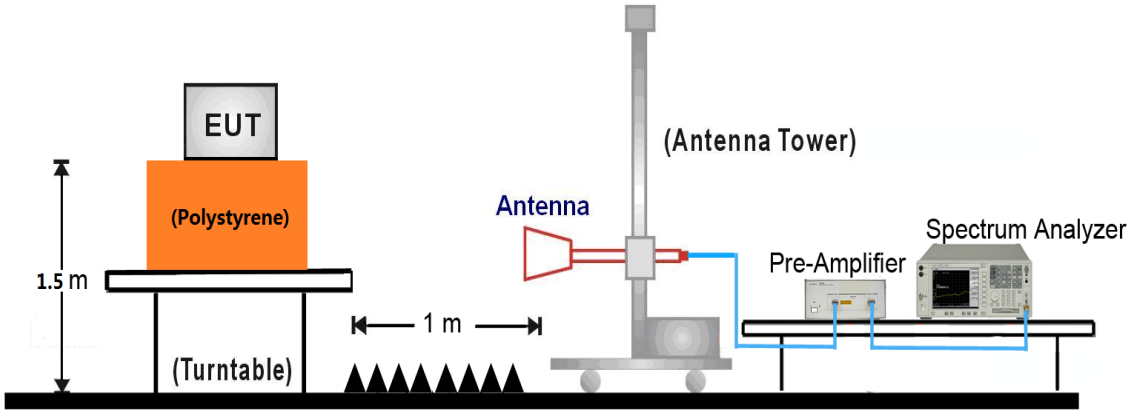
30MHz ~ 1GHz Test Setup:



1GHz ~18GHz Test Setup:



18GHz ~40GHz Test Setup:



7.3.5. Test Result

Test Mode:	802.11a - Ant 1	Test Site:	AC1
Test Channel:	36	Test Engineer:	Lewis Huang
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	7859.5	37.2	8.4	45.6	68.2	-22.6	Peak	Horizontal
*	8667.0	36.2	8.9	45.1	68.2	-23.1	Peak	Horizontal
	9415.0	35.7	10.6	46.3	74.0	-27.7	Peak	Horizontal
	10902.5	35.1	13.0	48.1	74.0	-25.9	Peak	Horizontal
*	7783.0	36.9	8.3	45.2	68.2	-23.0	Peak	Vertical
*	8692.5	36.0	9.0	45.0	68.2	-23.2	Peak	Vertical
	9364.0	35.6	10.5	46.1	74.0	-27.9	Peak	Vertical
	11064.0	35.8	12.8	48.6	74.0	-25.4	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Test Mode:	802.11a - Ant 1	Test Site:	AC1
Test Channel:	44	Test Engineer:	Lewis Huang
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	7834.0	36.5	8.4	44.9	68.2	-23.3	Peak	Horizontal
*	8718.0	36.1	9.0	45.1	68.2	-23.1	Peak	Horizontal
	9389.5	35.6	10.5	46.1	74.0	-27.9	Peak	Horizontal
	10877.0	36.4	12.9	49.3	74.0	-24.7	Peak	Horizontal
*	7825.5	36.8	8.4	45.2	68.2	-23.0	Peak	Vertical
*	8956.0	36.2	9.0	45.2	68.2	-23.0	Peak	Vertical
	9347.0	34.6	10.5	45.1	74.0	-28.9	Peak	Vertical
	10970.5	35.5	13.1	48.6	74.0	-25.4	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Test Mode:	802.11a - Ant 1	Test Site:	AC1
Test Channel:	48	Test Engineer:	Lewis Huang
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	7757.5	37.4	8.1	45.5	68.2	-22.7	Peak	Horizontal
*	8896.5	35.7	9.2	44.9	68.2	-23.3	Peak	Horizontal
	9381.0	35.0	10.5	45.5	74.0	-28.5	Peak	Horizontal
	10945.0	35.7	13.1	48.8	74.0	-25.2	Peak	Horizontal
*	7808.5	36.8	8.4	45.2	68.2	-23.0	Peak	Vertical
*	8735.0	35.9	8.9	44.8	68.2	-23.4	Peak	Vertical
	9355.5	35.3	10.5	45.8	74.0	-28.2	Peak	Vertical
	10936.5	35.8	13.0	48.8	74.0	-25.2	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Test Mode:	802.11a - Ant 1	Test Site:	AC1
Test Channel:	149	Test Engineer:	Lewis Huang
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	7783.0	37.2	8.3	45.5	68.2	-22.7	Peak	Horizontal
*	8675.5	36.8	8.9	45.7	68.2	-22.5	Peak	Horizontal
	9355.5	35.6	10.5	46.1	74.0	-27.9	Peak	Horizontal
	11004.5	35.3	13.0	48.3	74.0	-25.7	Peak	Horizontal
*	7783.0	36.7	8.3	45.0	68.2	-23.2	Peak	Vertical
*	8556.5	36.4	8.6	45.0	68.2	-23.2	Peak	Vertical
	9168.5	36.6	9.9	46.5	74.0	-27.5	Peak	Vertical
	10894.0	34.7	13.0	47.7	74.0	-26.3	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Test Mode:	802.11a - Ant 1	Test Site:	AC1
Test Channel:	157	Test Engineer:	Lewis Huang
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	7800.0	37.7	8.4	46.1	68.2	-22.1	Peak	Horizontal
*	8582.0	35.9	8.7	44.6	68.2	-23.6	Peak	Horizontal
	9406.5	36.2	10.6	46.8	74.0	-27.2	Peak	Horizontal
	11412.5	36.2	12.6	48.8	74.0	-25.2	Peak	Horizontal
*	7885.0	36.3	8.3	44.6	68.2	-23.6	Peak	Vertical
*	8633.0	36.3	8.8	45.1	68.2	-23.1	Peak	Vertical
	9389.5	35.0	10.5	45.5	74.0	-28.5	Peak	Vertical
	10868.5	34.9	12.8	47.7	74.0	-26.3	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Test Mode:	802.11a - Ant 1	Test Site:	AC1
Test Channel:	165	Test Engineer:	Lewis Huang
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	7995.5	35.5	8.7	44.2	68.2	-24.0	Peak	Horizontal
*	8828.5	35.6	9.1	44.7	68.2	-23.5	Peak	Horizontal
	9474.5	34.1	10.6	44.7	74.0	-29.3	Peak	Horizontal
	10673.0	36.0	12.4	48.4	74.0	-25.6	Peak	Horizontal
*	7851.0	36.7	8.4	45.1	68.2	-23.1	Peak	Vertical
*	8565.0	36.3	8.7	45.0	68.2	-23.2	Peak	Vertical
	9177.0	36.8	10.0	46.8	74.0	-27.2	Peak	Vertical
	11004.5	35.2	13.0	48.2	74.0	-25.8	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Test Mode:	802.11n-HT20 - Ant 1	Test Site:	AC1
Test Channel:	36	Test Engineer:	Lewis Huang
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	7817.0	36.2	8.4	44.6	68.2	-23.6	Peak	Horizontal
*	8760.5	35.7	9.0	44.7	68.2	-23.5	Peak	Horizontal
	9483.0	35.3	10.6	45.9	74.0	-28.1	Peak	Horizontal
	11055.5	35.3	12.9	48.2	74.0	-25.8	Peak	Horizontal
*	7817.0	36.5	8.4	44.9	68.2	-23.3	Peak	Vertical
*	8641.5	35.8	8.8	44.6	68.2	-23.6	Peak	Vertical
	9338.5	35.3	10.4	45.7	74.0	-28.3	Peak	Vertical
	11506.0	35.3	12.8	48.1	74.0	-25.9	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Test Mode:	802.11n-HT20 - Ant 1	Test Site:	AC1
Test Channel:	44	Test Engineer:	Lewis Huang
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	7783.0	37.6	8.3	45.9	68.2	-22.3	Peak	Horizontal
*	8718.0	35.7	9.0	44.7	68.2	-23.5	Peak	Horizontal
	9466.0	35.9	10.5	46.4	74.0	-27.6	Peak	Horizontal
	10894.0	34.7	13.0	47.7	74.0	-26.3	Peak	Horizontal
*	7927.5	36.0	8.5	44.5	68.2	-23.7	Peak	Vertical
*	8675.5	35.5	8.9	44.4	68.2	-23.8	Peak	Vertical
	9474.5	35.0	10.6	45.6	74.0	-28.4	Peak	Vertical
	11225.5	35.3	12.4	47.7	74.0	-26.3	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Test Mode:	802.11n-HT20 - Ant 1	Test Site:	AC1
Test Channel:	48	Test Engineer:	Lewis Huang
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	7783.0	36.2	8.3	44.5	68.2	-23.7	Peak	Horizontal
*	8718.0	35.1	9.0	44.1	68.2	-24.1	Peak	Horizontal
	9364.0	35.0	10.5	45.5	74.0	-28.5	Peak	Horizontal
	11506.0	36.3	12.8	49.1	74.0	-24.9	Peak	Horizontal
*	7995.5	35.6	8.7	44.3	68.2	-23.9	Peak	Vertical
*	8565.0	36.8	8.7	45.5	68.2	-22.7	Peak	Vertical
	9304.5	34.7	10.4	45.1	74.0	-28.9	Peak	Vertical
	10817.5	35.3	12.7	48.0	74.0	-26.0	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Test Mode:	802.11n-HT20 - Ant 1	Test Site:	AC1
Test Channel:	149	Test Engineer:	Lewis Huang
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	7808.5	36.4	8.4	44.8	68.2	-23.4	Peak	Horizontal
*	8684.0	36.3	9.0	45.3	68.2	-22.9	Peak	Horizontal
	9483.0	35.0	10.6	45.6	74.0	-28.4	Peak	Horizontal
	11081.0	35.3	12.9	48.2	74.0	-25.8	Peak	Horizontal
*	7893.5	35.9	8.4	44.3	68.2	-23.9	Peak	Vertical
*	8879.5	35.5	9.2	44.7	68.2	-23.5	Peak	Vertical
	9347.0	34.8	10.5	45.3	74.0	-28.7	Peak	Vertical
	11616.5	35.8	12.5	48.3	74.0	-25.7	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Test Mode:	802.11n-HT20 - Ant 1	Test Site:	AC1
Test Channel:	157	Test Engineer:	Lewis Huang
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	7936.0	35.8	8.5	44.3	68.2	-23.9	Peak	Horizontal
*	8658.5	35.6	8.8	44.4	68.2	-23.8	Peak	Horizontal
	9347.0	35.3	10.5	45.8	74.0	-28.2	Peak	Horizontal
	10868.5	35.1	12.8	47.9	74.0	-26.1	Peak	Horizontal
*	7842.5	36.2	8.4	44.6	68.2	-23.6	Peak	Vertical
*	8854.0	35.6	9.1	44.7	68.2	-23.5	Peak	Vertical
	9483.0	35.6	10.6	46.2	74.0	-27.8	Peak	Vertical
	12101.0	36.0	12.0	48.0	74.0	-26.0	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Test Mode:	802.11n-HT20 - Ant 1	Test Site:	AC1
Test Channel:	165	Test Engineer:	Lewis Huang
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	7766.0	36.8	8.2	45.0	68.2	-23.2	Peak	Horizontal
*	8684.0	35.1	9.0	44.1	68.2	-24.1	Peak	Horizontal
	10877.0	35.7	12.9	48.6	74.0	-25.4	Peak	Horizontal
	11667.5	35.8	12.2	48.0	74.0	-26.0	Peak	Horizontal
*	7919.0	37.4	8.4	45.8	68.2	-22.4	Peak	Vertical
*	8735.0	35.8	8.9	44.7	68.2	-23.5	Peak	Vertical
	9423.5	35.3	10.6	45.9	74.0	-28.1	Peak	Vertical
	10953.5	35.6	13.1	48.7	74.0	-25.3	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Test Mode:	802.11n-HT40 - Ant 1	Test Site:	AC1
Test Channel:	38	Test Engineer:	Lewis Huang
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	7774.5	36.7	8.2	44.9	68.2	-23.3	Peak	Horizontal
*	8641.5	35.9	8.8	44.7	68.2	-23.5	Peak	Horizontal
	9364.0	35.1	10.5	45.6	74.0	-28.4	Peak	Horizontal
	11217.0	35.6	12.4	48.0	74.0	-26.0	Peak	Horizontal
*	7808.5	35.7	8.4	44.1	68.2	-24.1	Peak	Vertical
*	8633.0	36.1	8.8	44.9	68.2	-23.3	Peak	Vertical
	9109.0	36.3	9.4	45.7	74.0	-28.3	Peak	Vertical
	10800.5	35.1	12.6	47.7	74.0	-26.3	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Test Mode:	802.11n-HT40 - Ant 1	Test Site:	AC1
Test Channel:	46	Test Engineer:	Lewis Huang
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	7774.5	38.1	8.2	46.3	68.2	-21.9	Peak	Horizontal
*	8845.5	34.9	9.1	44.0	68.2	-24.2	Peak	Horizontal
	10766.5	35.6	12.5	48.1	74.0	-25.9	Peak	Horizontal
	12101.0	36.1	12.0	48.1	74.0	-25.9	Peak	Horizontal
*	7978.5	36.6	8.7	45.3	68.2	-22.9	Peak	Vertical
*	8905.0	35.4	9.2	44.6	68.2	-23.6	Peak	Vertical
	9330.0	35.6	10.4	46.0	74.0	-28.0	Peak	Vertical
	11514.5	35.7	12.8	48.5	74.0	-25.5	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Test Mode:	802.11n-HT40 - Ant 1	Test Site:	AC1
Test Channel:	151	Test Engineer:	Lewis Huang
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	7944.5	34.2	8.5	42.7	68.2	-25.5	Peak	Horizontal
*	8862.5	35.2	9.1	44.3	68.2	-23.9	Peak	Horizontal
	9355.5	35.8	10.5	46.3	74.0	-27.7	Peak	Horizontal
	11574.0	35.3	12.6	47.9	74.0	-26.1	Peak	Horizontal
*	7791.5	36.8	8.3	45.1	68.2	-23.1	Peak	Vertical
*	8786.0	35.7	8.9	44.6	68.2	-23.6	Peak	Vertical
	9338.5	33.9	10.4	44.3	74.0	-29.7	Peak	Vertical
	10970.5	35.0	13.1	48.1	74.0	-25.9	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Test Mode:	802.11n-HT40 - Ant 1	Test Site:	AC1
Test Channel:	159	Test Engineer:	Lewis Huang
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	7842.5	36.6	8.4	45.0	68.2	-23.2	Peak	Horizontal
*	8633.0	36.3	8.8	45.1	68.2	-23.1	Peak	Horizontal
	9372.5	34.8	10.5	45.3	74.0	-28.7	Peak	Horizontal
	10885.5	36.0	12.9	48.9	74.0	-25.1	Peak	Horizontal
*	7825.5	36.0	8.4	44.4	68.2	-23.8	Peak	Vertical
*	8624.5	36.1	8.8	44.9	68.2	-23.3	Peak	Vertical
	9347.0	35.0	10.5	45.5	74.0	-28.5	Peak	Vertical
	11055.5	35.5	12.9	48.4	74.0	-25.6	Peak	Vertical

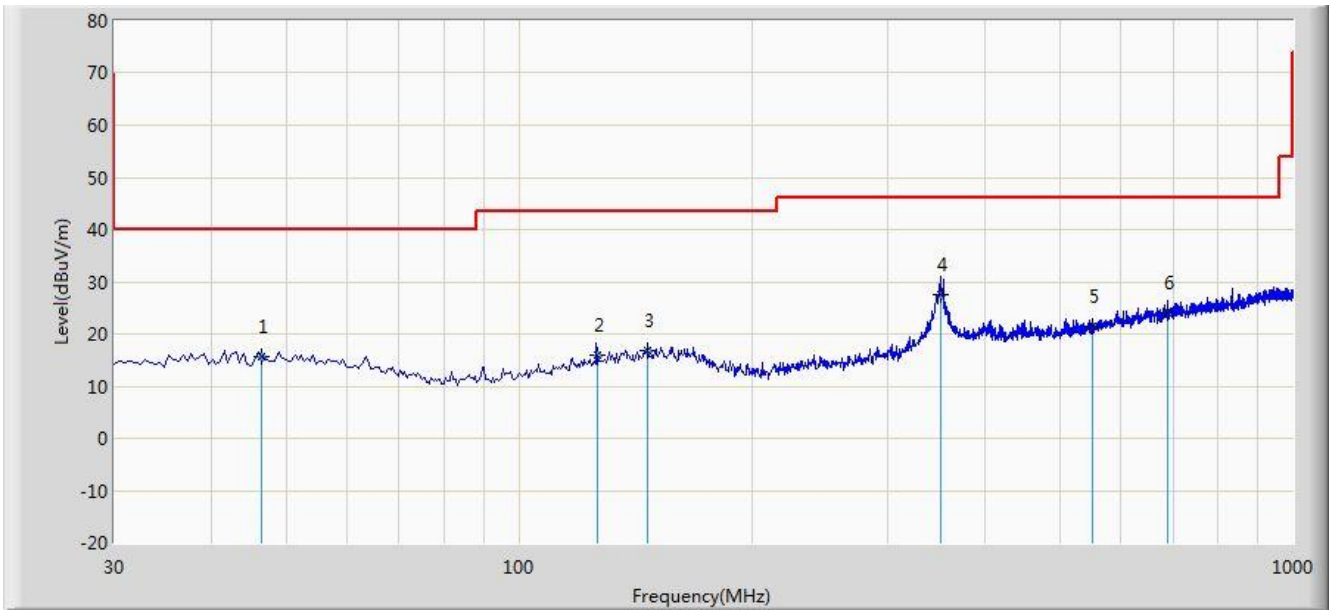
Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + 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	Time: 2015/12/13 - 18:56
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: VULB9162_0.03-8GHz	Polarity: Horizontal
EUT: sengled pulse flex	Power: AC 120V/60Hz
Worst Mode: Transmit at channel 5180MHz by 802.11a Ant1	

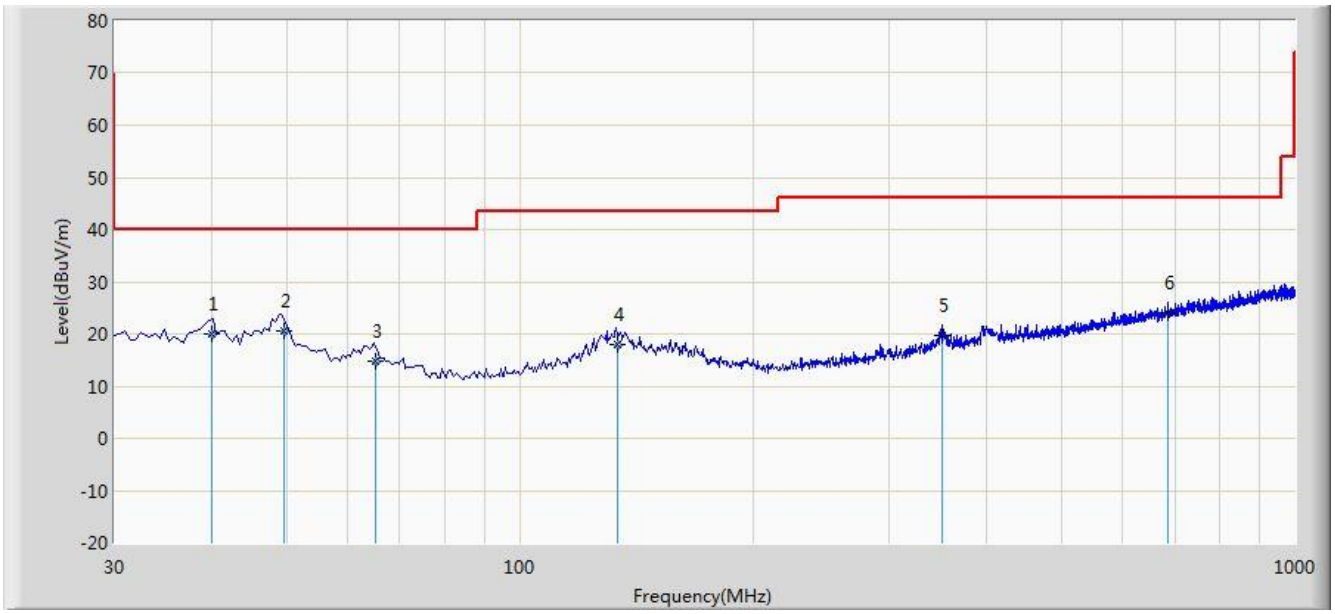


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			46.583	15.698	1.562	-24.302	40.000	14.136	QP
2			126.325	16.077	2.563	-27.423	43.500	13.513	QP
3			146.532	16.781	1.833	-26.719	43.500	14.948	QP
4		*	350.258	27.533	12.058	-18.467	46.000	15.475	QP
5			551.469	21.326	1.834	-24.674	46.000	19.492	QP
6			688.965	24.043	2.165	-21.957	46.000	21.878	QP

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Site: AC1	Time: 2015/12/13 - 18:56
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: VULB9162_0.03-8GHz	Polarity: Vertical
EUT: sengled pulse flex	Power: AC 120V/60Hz
Worst Mode: Transmit at channel 5180MHz by 802.11a Ant1	

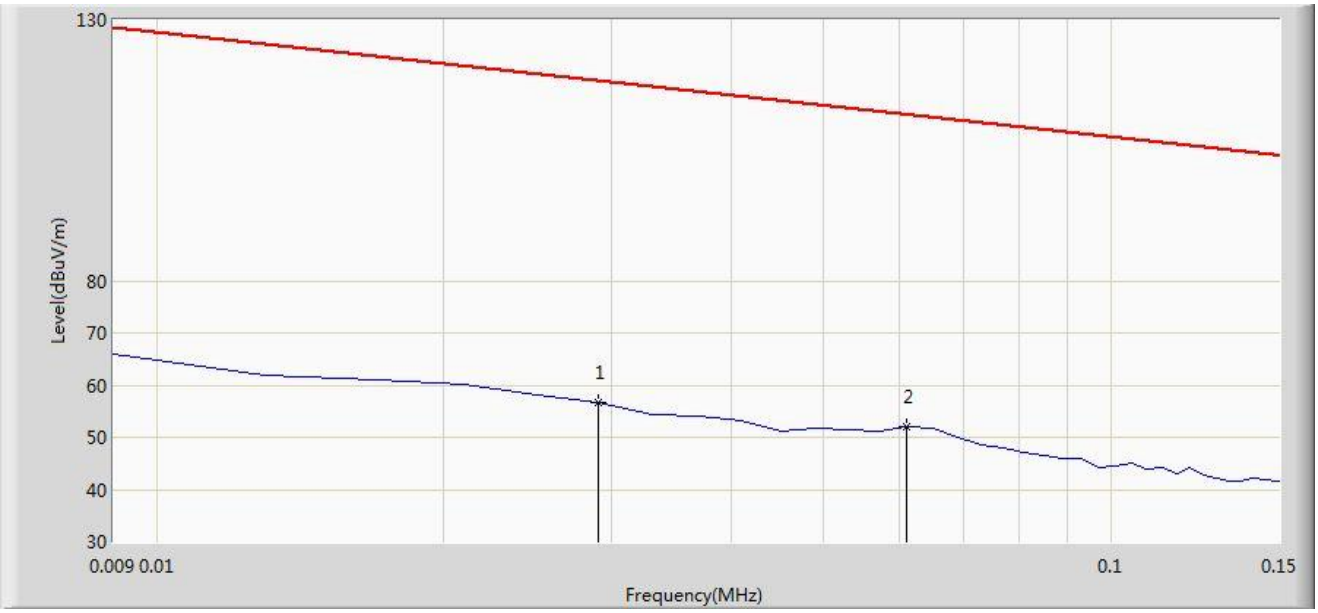


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			40.032	19.886	5.375	-20.114	40.000	14.511	QP
2		*	49.683	20.484	6.403	-19.516	40.000	14.080	QP
3			65.052	14.831	2.398	-25.169	40.000	12.433	QP
4			133.450	18.083	4.085	-25.417	43.500	13.998	QP
5			350.155	19.789	4.315	-26.211	46.000	15.473	QP
6			686.345	24.182	2.337	-21.818	46.000	21.845	QP

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Site: AC1	Time: 2015/12/13 - 19:18
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: FMZB1519_0.009-30MHz	Polarity: Face on
EUT: sengled pulse flex	Power: AC 120V/60Hz
Note: There is the ambient noise within frequency range 9kHz~30MHz.	

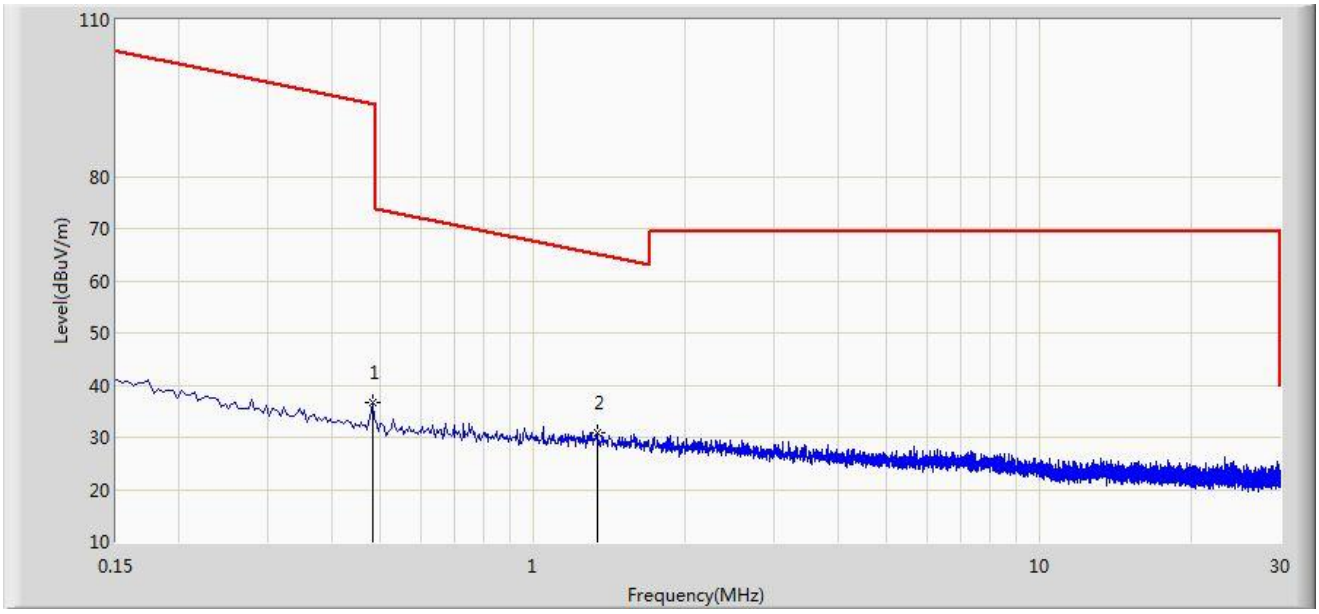


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			0.029	56.610	35.660	-61.732	118.342	21.049	QP
2		*	0.061	51.899	31.588	-59.988	111.887	20.311	QP

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Site: AC1	Time: 2015/12/13 - 19:19
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: FMZB1519_0.009-30MHz	Polarity: Face on
EUT: sengled pulse flex	Power: AC 120V/60Hz
Note: There is the ambient noise within frequency range 9kHz~30MHz.	

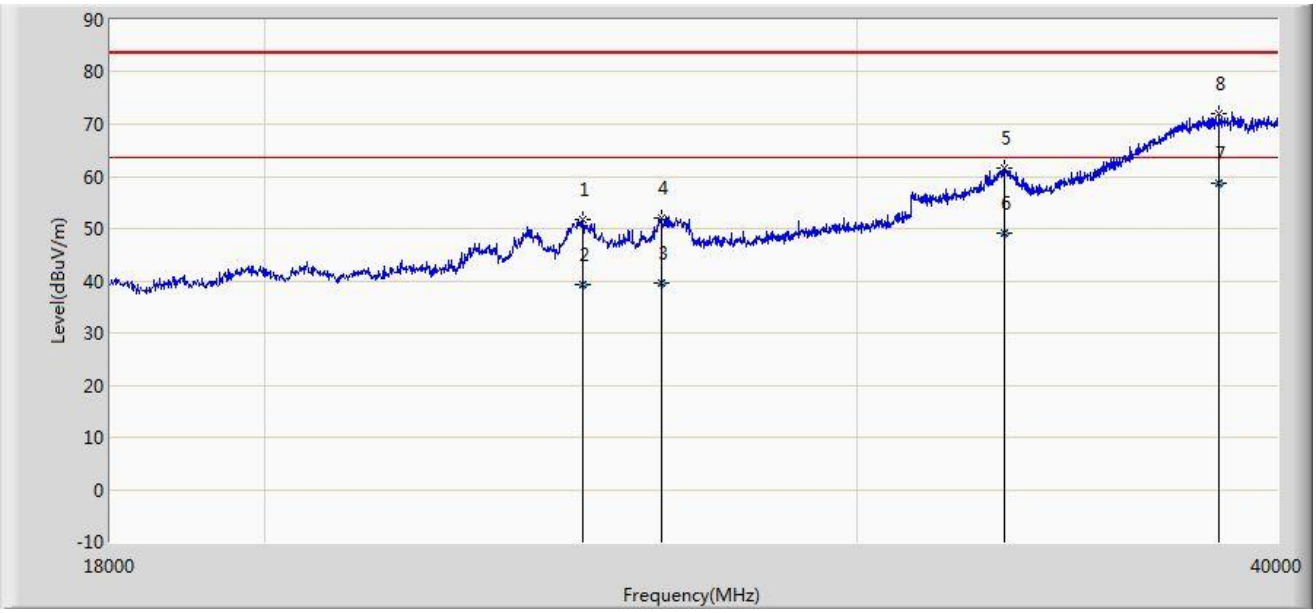


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			0.482	36.584	16.183	-57.359	93.943	20.401	QP
2		*	1.338	31.001	10.512	-34.098	65.099	20.489	QP

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Site: AC1	Time: 2015/12/13 - 21:25
Limit: FCC_Part15.209_RE(1m)	Engineer: Roy Cheng
Probe: BBHA9170_18-40GHz	Polarity: Horizontal
EUT: sengled pulse flex	Power: AC 120V/60Hz
Note: There is the ambient noise within frequency range 18GHz~40GHz.	



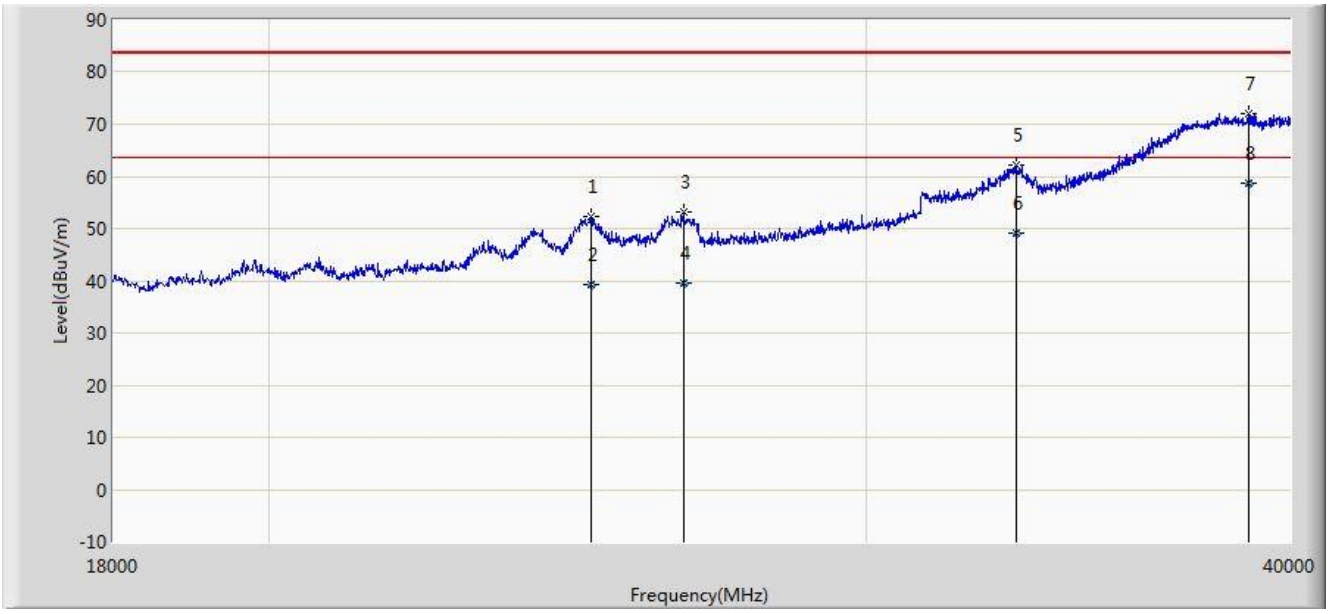
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			24864.000	51.836	37.061	-31.664	83.500	14.775	PK
2			24864.088	39.225	24.450	-24.275	63.500	14.775	AV
3			26260.988	39.469	24.050	-24.031	63.500	15.419	AV
4			26261.000	51.956	36.537	-31.544	83.500	15.419	PK
5			33180.000	61.461	39.940	-22.039	83.500	21.521	PK
6			33180.361	49.061	27.540	-14.439	63.500	21.521	AV
7		*	38437.980	58.523	31.190	-4.977	63.500	27.333	AV
8			38438.000	72.021	44.688	-11.479	83.500	27.333	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Limit@1m = 20*Log(500uV/m) + 20*Log(3m/1m) = 63.5dBμv/m (Average detector), and 83.5dBμv/m (Peak detector).

Site: AC1	Time: 2015/12/13 - 21:28
Limit: FCC_Part15.209_RE(1m)	Engineer: Roy Cheng
Probe: BBHA9170_18-40GHz	Polarity: Vertical
EUT: sengled pulse flex	Power: AC 120V/60Hz
Note: There is the ambient noise within frequency range 18GHz~40GHz.	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			24886.000	52.313	37.528	-31.187	83.500	14.785	PK
2			24886.970	39.234	24.449	-24.266	63.500	14.785	AV
3			26503.000	53.227	37.207	-30.273	83.500	16.020	PK
4			26503.872	39.572	23.550	-23.928	63.500	16.022	AV
5			33213.000	62.110	40.572	-21.390	83.500	21.538	PK
6			33213.984	49.098	27.560	-14.402	63.500	21.538	AV
7			38900.000	72.096	44.211	-11.404	83.500	27.885	PK
8		*	38900.755	58.705	30.820	-4.795	63.500	27.885	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Limit@1m = 20*Log(500uV/m) + 20*Log(3m/1m) = 63.5dBμv/m (Average detector), and 83.5dBμv/m (Peak detector).

7.4. Radiated Restricted Band Edge Measurement

7.4.1. Test Limit

For 15.205 requirement:

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a).

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.009 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.525225	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	35.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])

For RSS-Gen Section 8.10 requirement:

Radiated emissions which fall in the restricted bands, as defined in Section 8.10 of RSS-Gen, must also comply with the radiated emission limits specified in Section 8.9.

Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.009 - 0.110	240 - 285	9.0 - 9.2
2.1735 - 2.1905	322 - 335.4	9.3 - 9.5
3.020 - 3.026	399.9 - 410	10.6 - 12.7
4.125 - 4.128	608 - 614	13.25 - 13.4
4.17725 - 4.17775	960 - 1427	14.47 - 14.5
4.20725 - 4.20775	1435 - 1626.5	15.35 - 16.2
5.677 - 5.683	1645.5 - 1646.5	17.7 - 21.4
6.215 - 6.218	1660 - 1710	22.01 - 23.12

6.26775 - 6.26825	1718.8 -1722.2	23.6 - 24.0
6.31175 - 6.31225	2200 - 2300	31.2 - 31.8
8.291 - 8.294	2310 -2390	36.43 - 36.5
8.362 - 8.366	2655 - 2900	Above 38.6
8.37625 - 8.38675	3260 - 3267	--
8.41425 - 8.41475	3332 -3339	
12.29 - 12.293	334.5 - 3358	
12.51975 - 12.52025	3500 - 4400	
12.57675 - 12.57725	4500 - 5150	
13.36 -13.41	5350 - 5460	
16.42 - 16.423	7250 - 7750	
16.69475 - 16.69525	8025 - 8500	
16.80425 - 16.80475	--	
25.5 - 25.67		
37.5 - 38.25		
73 - 74.6		
74.8 - 75.2		
108 - 138		
156.52475 - 156.525225		
156.7 - 156.9		

For 15.407(b) requirement:

For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz.

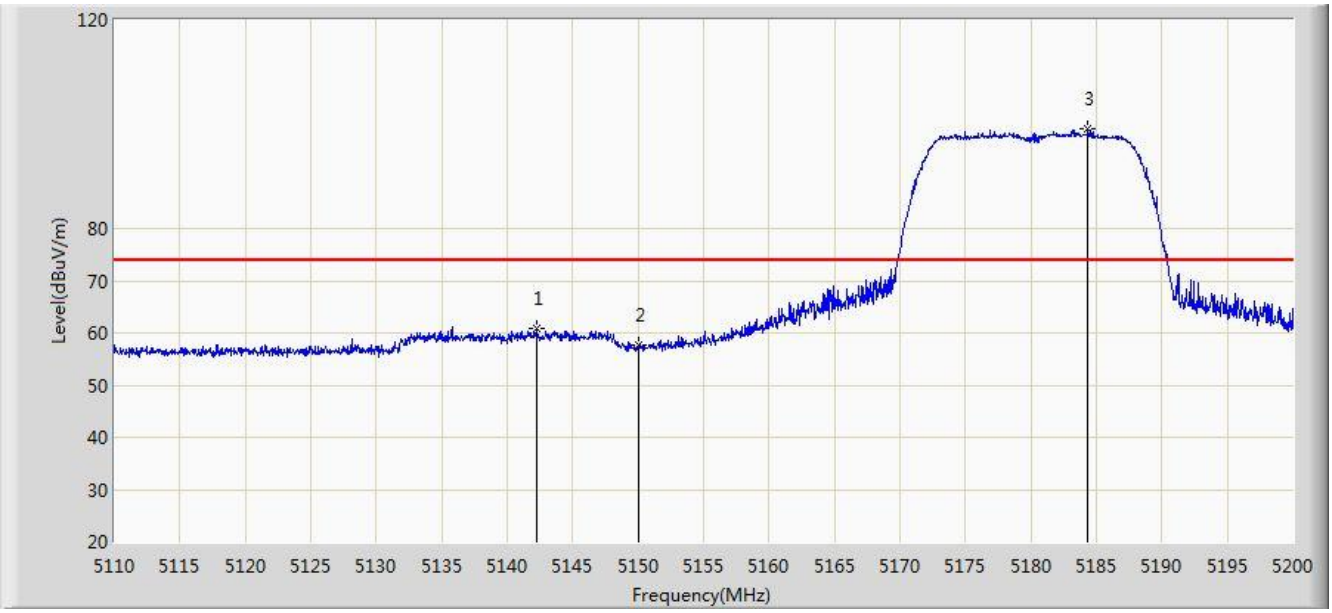
Note: Refer to KDB 789033 D02v01 G)2)c), as specified in § 15.407(b), emissions above 1000 MHz that are outside of the restricted bands are subject to a maximum emission limit of -27 dBm/MHz (or -17 dBm/MHz as specified in § 15.407(b)(4)). However, an out-of-band emission that complies with both the peak and average limits of § 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz maximum emission 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.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [V/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

7.4.2. Test Result of Radiated Restricted Band Edge

Site: AC1	Time: 2015/12/09 - 04:53
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at Channel 5180MHz Ant 1	

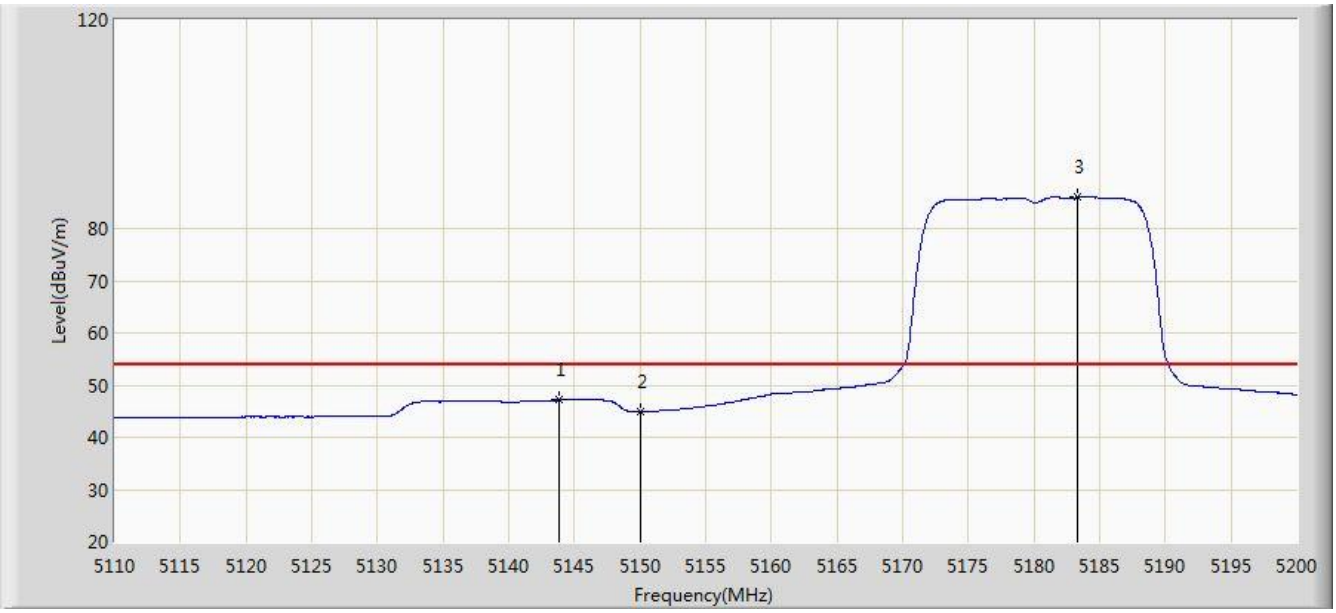


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5142.220	60.943	57.634	-13.057	74.000	3.310	PK
2			5150.000	57.752	54.443	-16.248	74.000	3.309	PK
3		*	5184.340	99.179	95.911	N/A	N/A	3.268	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 04:54
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at Channel 5180MHz Ant 1	

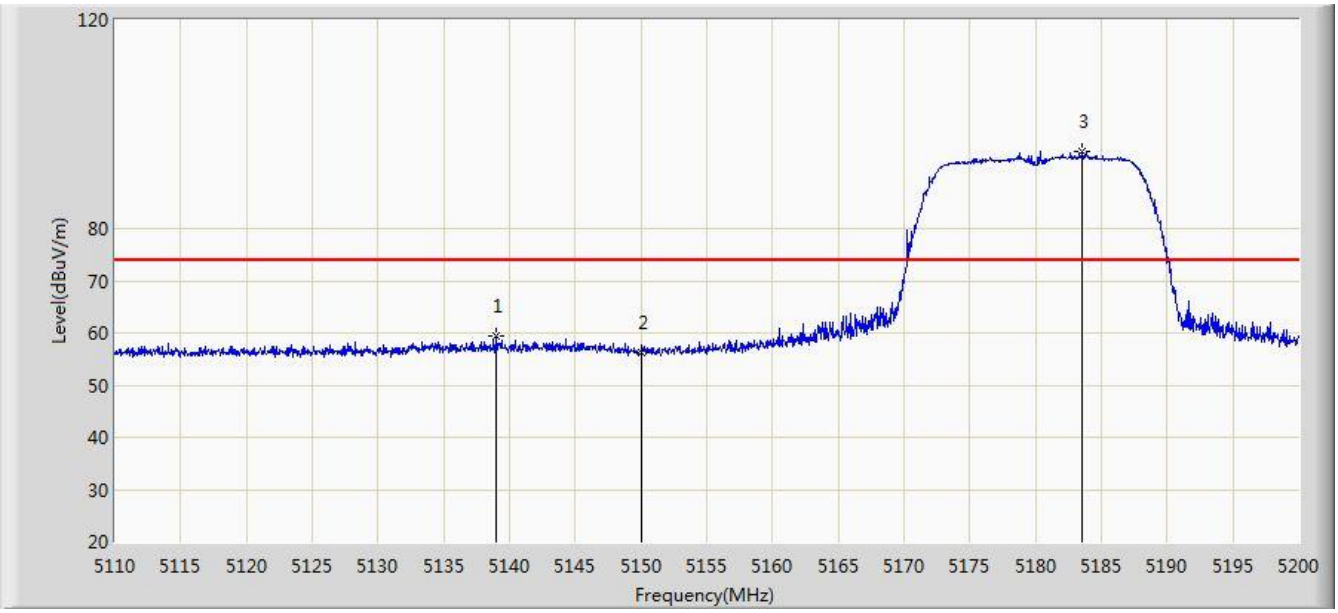


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5143.795	47.176	43.867	-6.824	54.000	3.310	AV
2			5150.000	44.834	41.525	-9.166	54.000	3.309	AV
3		*	5183.350	86.013	82.744	N/A	N/A	3.270	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 04:54
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at Channel 5180MHz Ant 1	

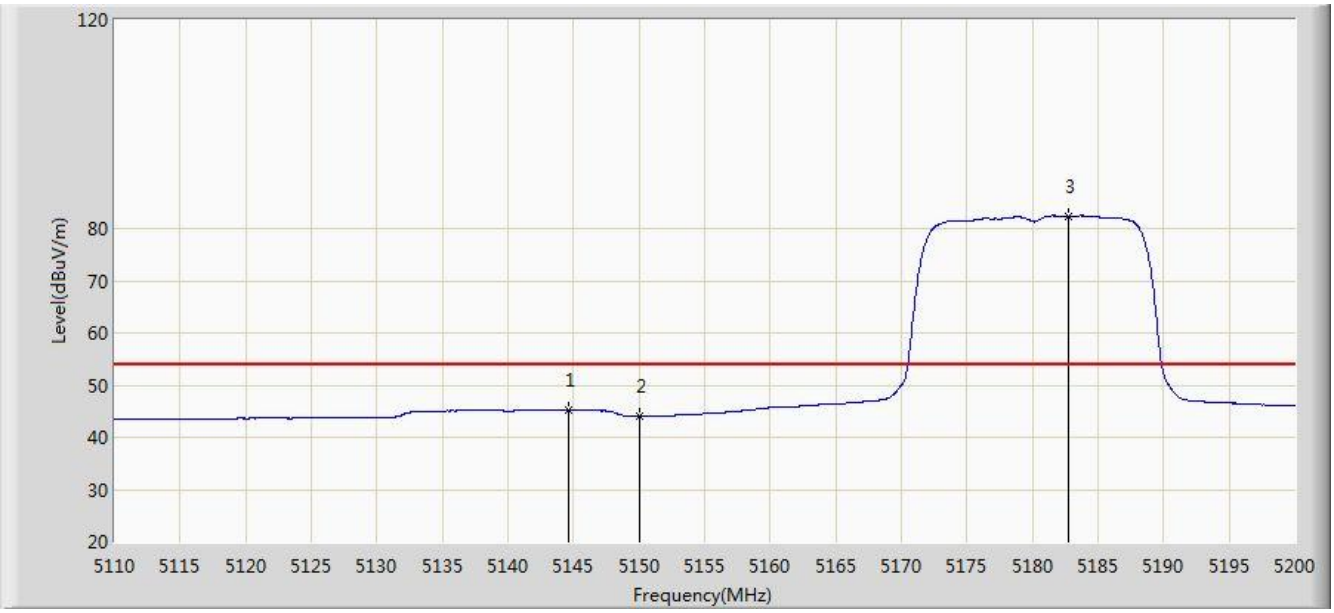


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5139.025	59.304	55.994	-14.696	74.000	3.310	PK
2			5150.000	56.277	52.968	-17.723	74.000	3.309	PK
3		*	5183.530	94.849	91.580	N/A	N/A	3.269	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 04:56
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at Channel 5180MHz Ant 1	

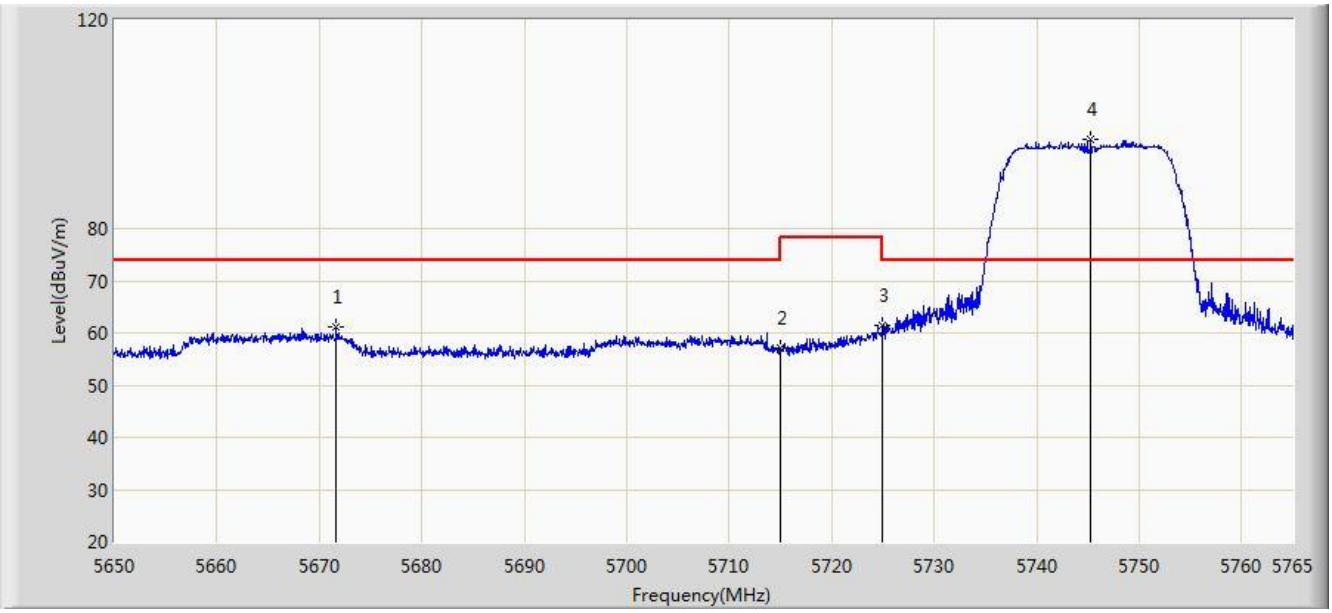


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5144.650	45.120	41.811	-8.880	54.000	3.309	AV
2			5150.000	43.986	40.677	-10.014	54.000	3.309	AV
3		*	5182.720	82.320	79.050	N/A	N/A	3.271	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 04:56
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at Channel 5745MHz Ant 1	

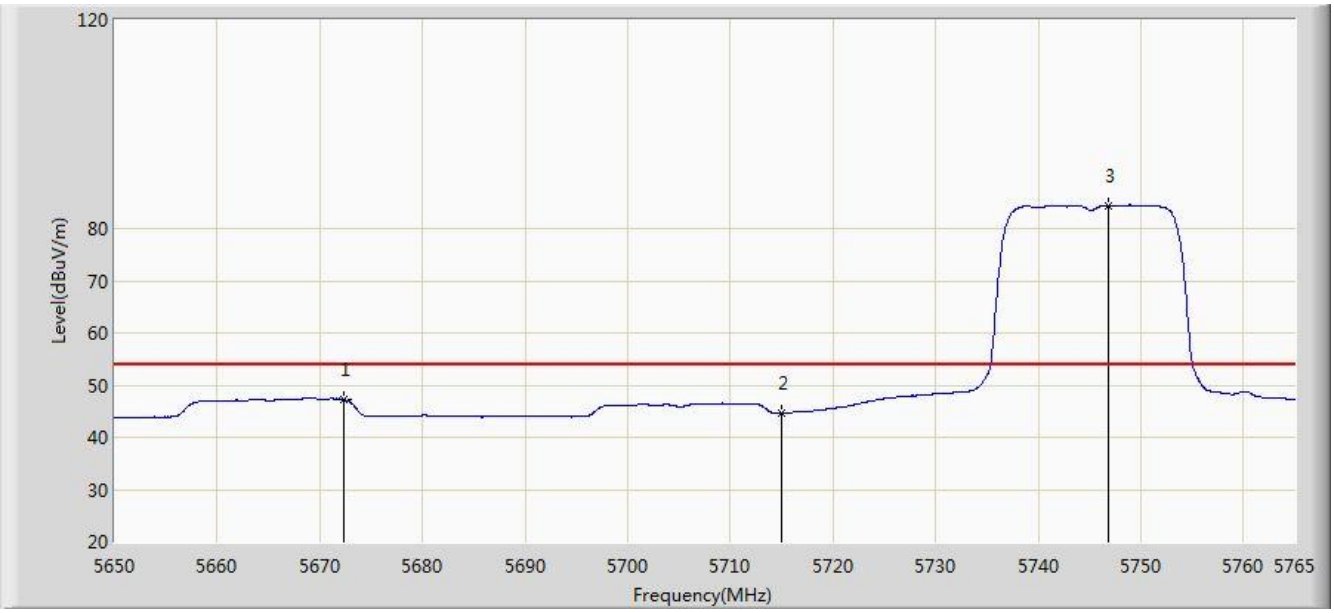


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5671.678	61.087	57.423	-12.913	74.000	3.664	PK
2			5715.000	57.099	53.338	-16.901	74.000	3.761	PK
3			5725.000	61.420	57.629	-16.780	78.200	3.791	PK
4		*	5745.277	97.006	93.152	N/A	N/A	3.854	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 04:57
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at Channel 5745MHz Ant 1	

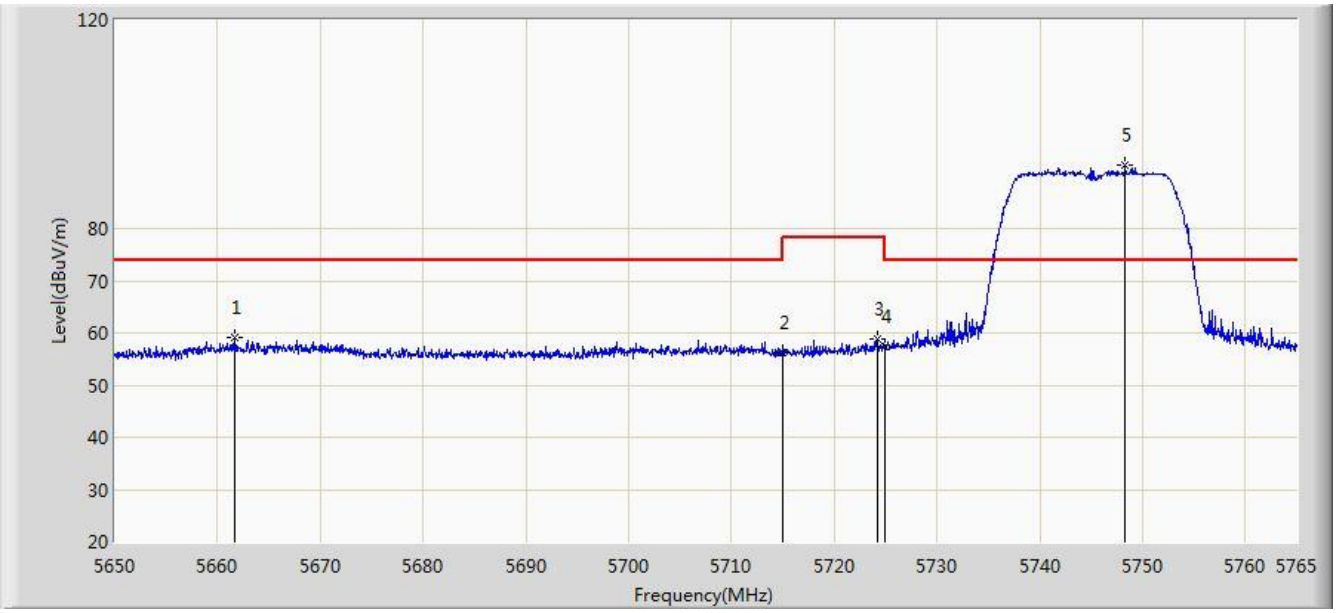


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5672.310	47.182	43.517	-6.818	54.000	3.665	AV
2			5715.000	44.616	40.855	-9.384	54.000	3.761	AV
3		*	5746.772	84.451	80.592	N/A	N/A	3.859	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 04:58
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at Channel 5745MHz Ant 1	

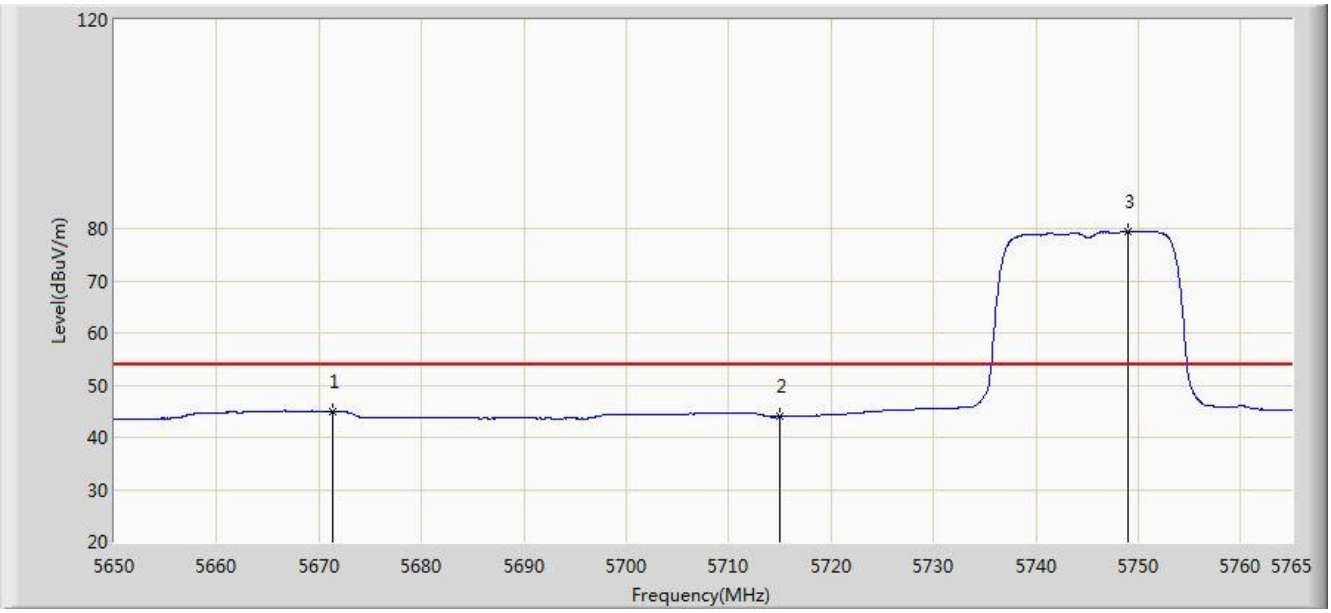


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5661.730	59.044	55.395	-14.956	74.000	3.649	PK
2			5715.000	56.092	52.331	-17.908	74.000	3.761	PK
3			5724.175	58.778	54.990	-19.422	78.200	3.789	PK
4			5725.000	57.506	53.715	-20.694	78.200	3.791	PK
5		*	5748.325	92.098	88.233	N/A	N/A	3.865	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 04:58
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at Channel 5745MHz Ant 1	

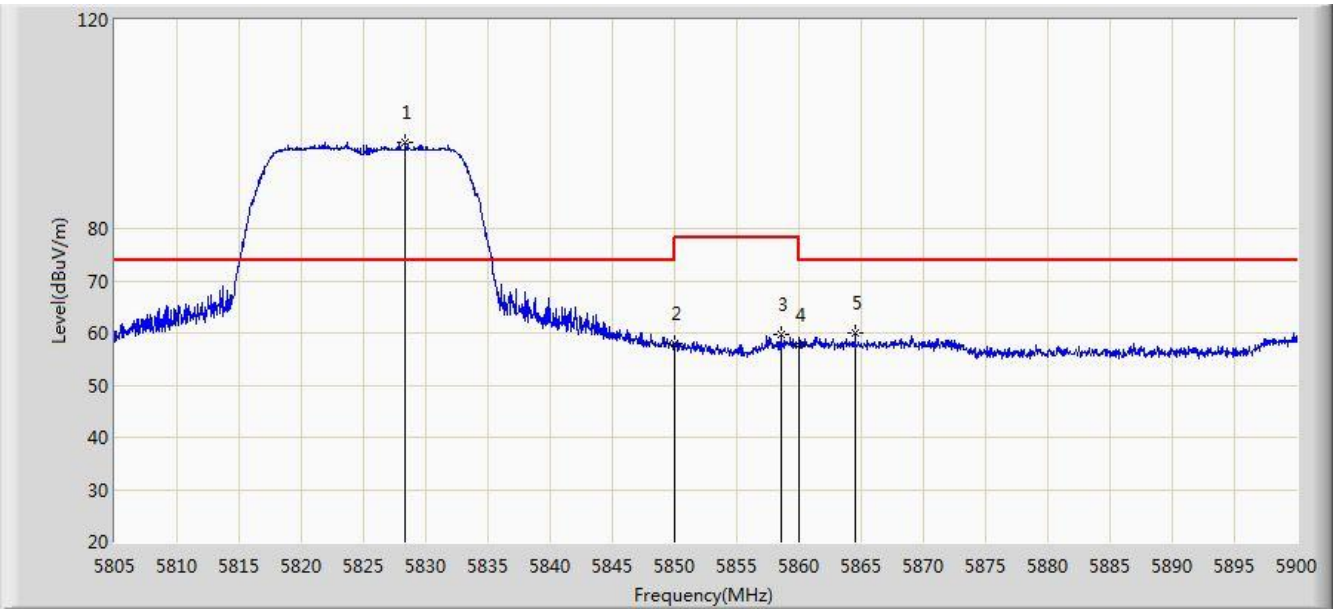


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5671.390	45.028	41.365	-8.972	54.000	3.663	AV
2			5715.000	43.922	40.161	-10.078	54.000	3.761	AV
3		*	5748.958	79.481	75.614	N/A	N/A	3.868	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 04:59
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at Channel 5825MHz Ant 1	

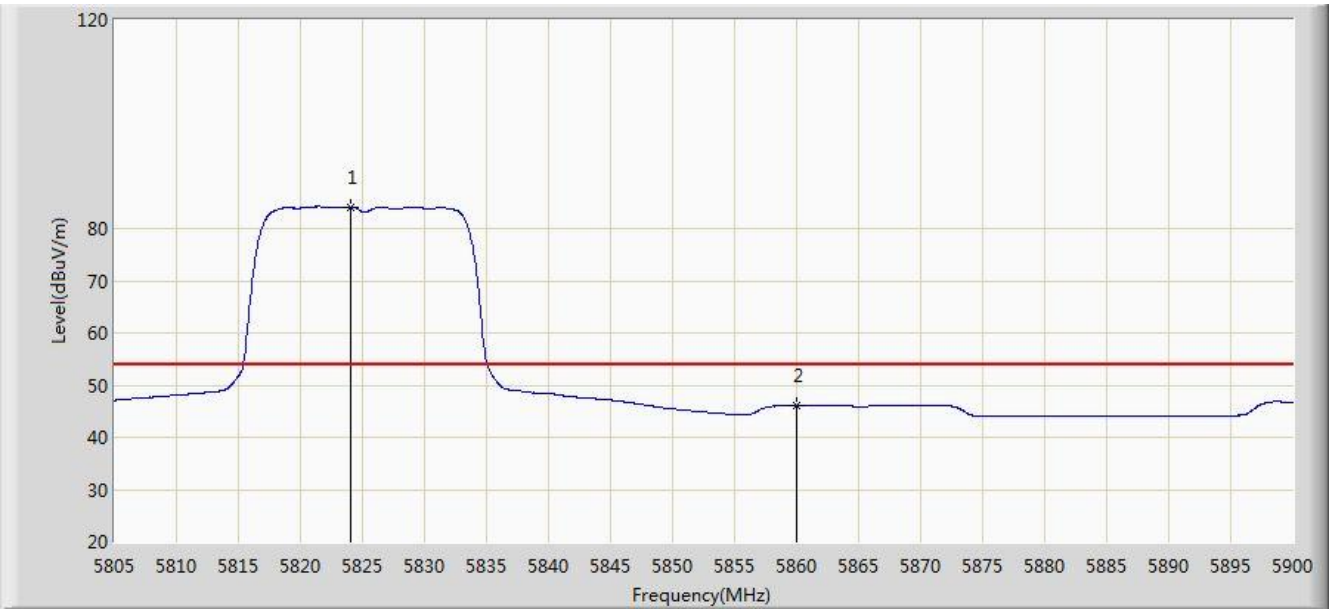


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5828.370	96.600	92.587	N/A	N/A	4.012	PK
2			5850.000	57.876	53.819	-20.324	78.200	4.058	PK
3			5858.533	59.765	55.703	-18.435	78.200	4.063	PK
4			5860.000	57.670	53.607	-16.330	74.000	4.064	PK
5			5864.518	60.004	55.931	-13.996	74.000	4.072	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 05:00
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at Channel 5825MHz Ant 1	

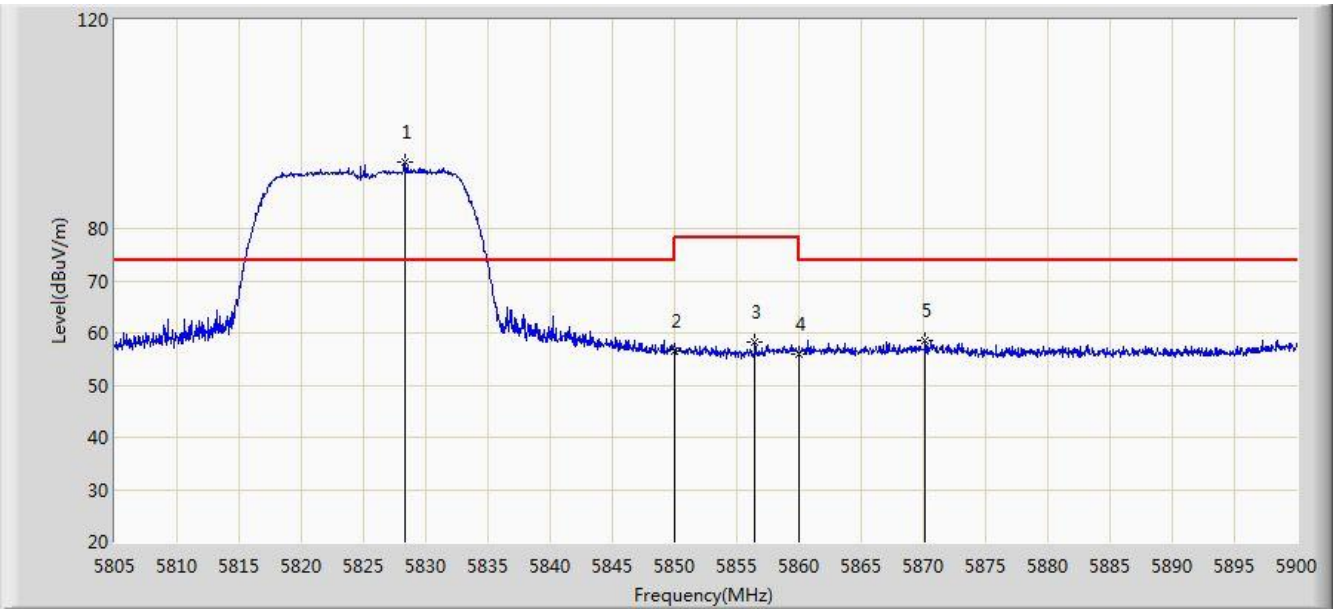


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5824.000	84.136	80.133	N/A	N/A	4.004	AV
2			5860.000	46.013	41.950	-7.987	54.000	4.064	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 05:00
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at Channel 5825MHz Ant 1	

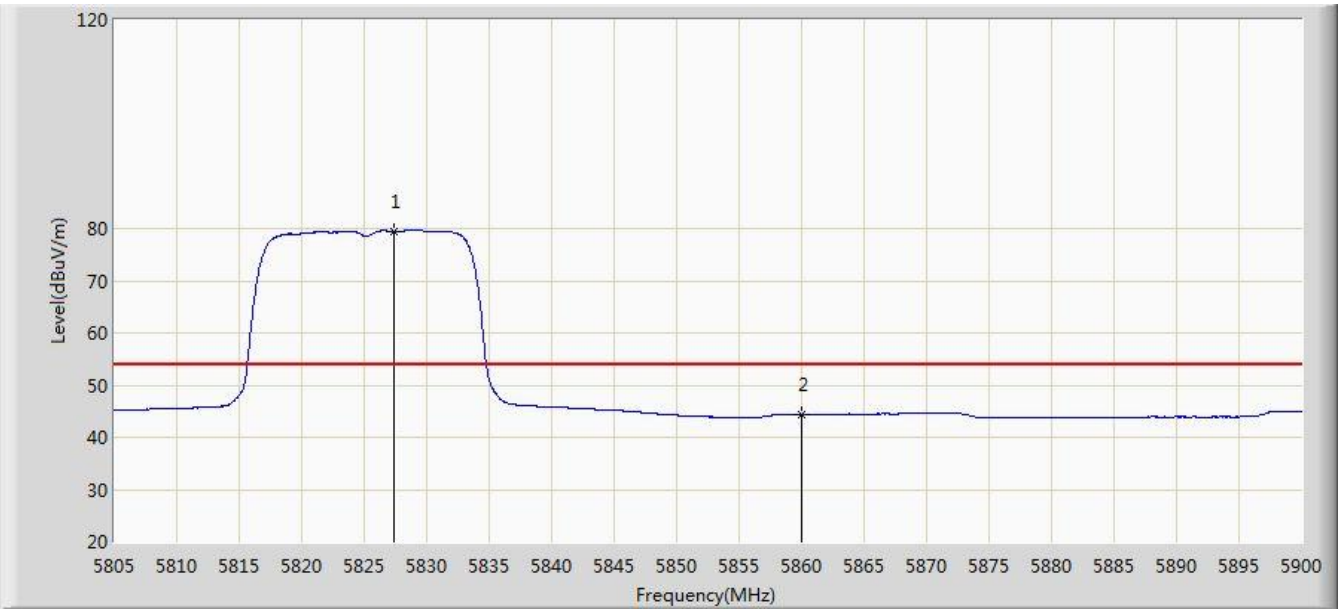


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5828.275	92.691	88.678	N/A	N/A	4.012	PK
2			5850.000	56.645	52.588	-21.555	78.200	4.058	PK
3			5856.442	58.231	54.170	-19.969	78.200	4.061	PK
4			5860.000	56.033	51.970	-17.967	74.000	4.064	PK
5			5870.170	58.623	54.533	-15.377	74.000	4.089	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 05:01
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at Channel 5825MHz Ant 1	

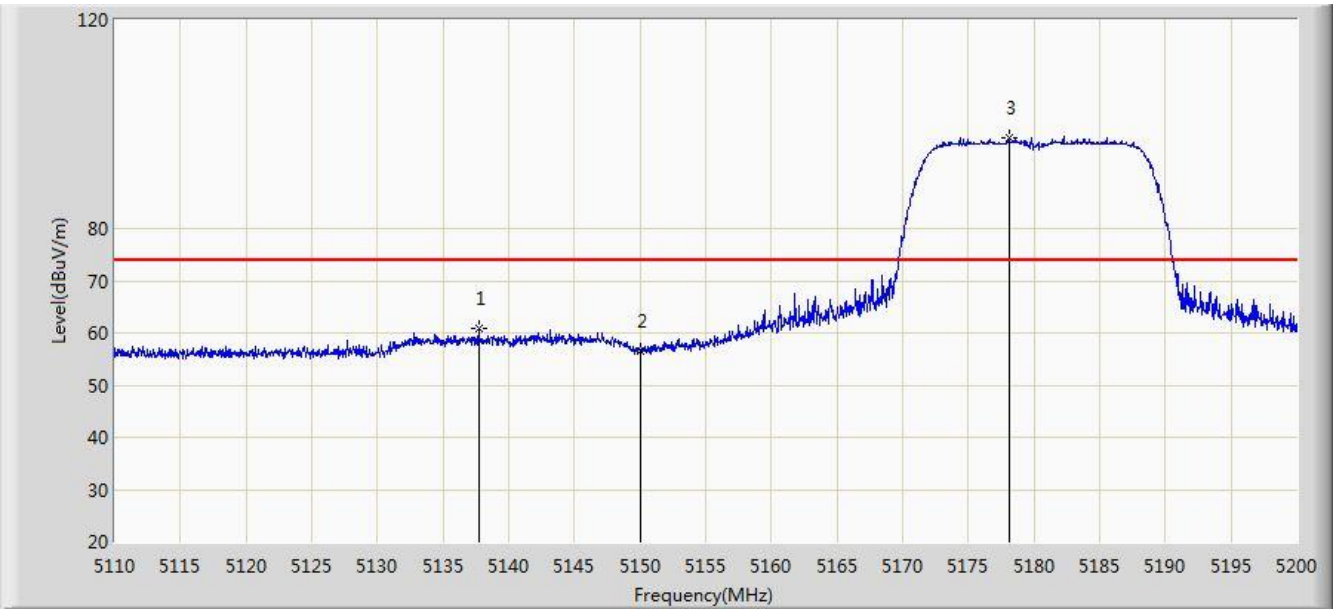


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5827.420	79.501	75.490	N/A	N/A	4.011	AV
2			5860.000	44.359	40.296	-9.641	54.000	4.064	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 05:02
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 5180MHz Ant 1	

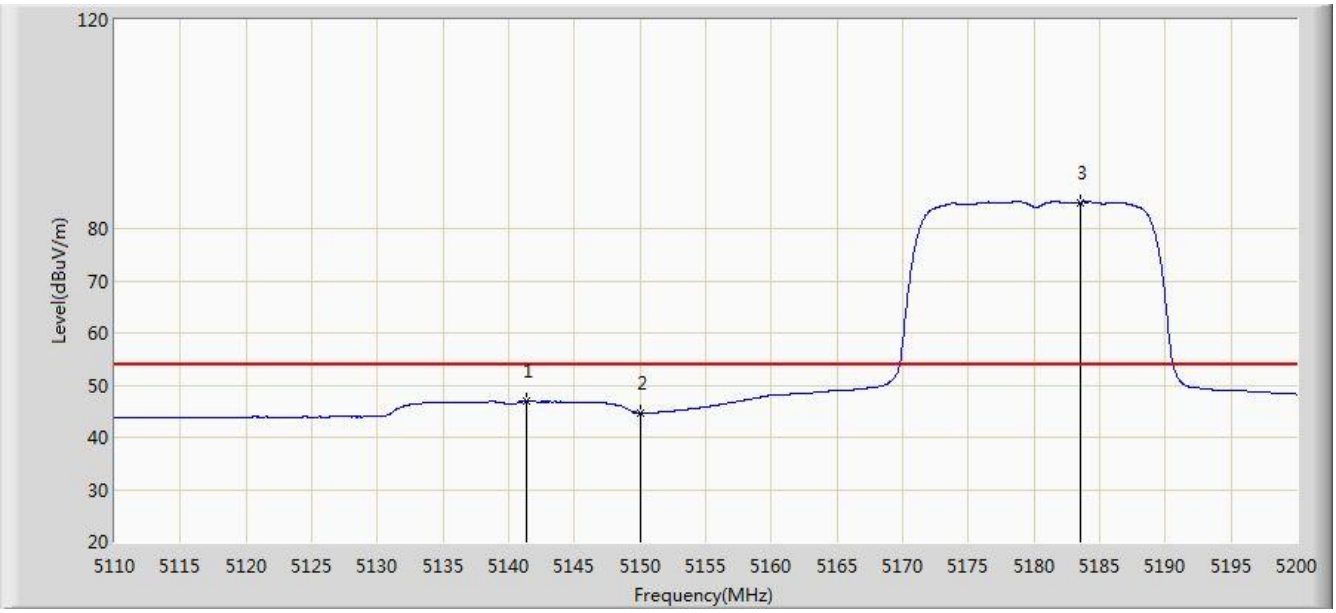


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5137.720	60.918	57.608	-13.082	74.000	3.310	PK
2			5150.000	56.564	53.255	-17.436	74.000	3.309	PK
3		*	5178.085	97.363	94.088	N/A	N/A	3.274	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 05:02
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 5180MHz Ant 1	

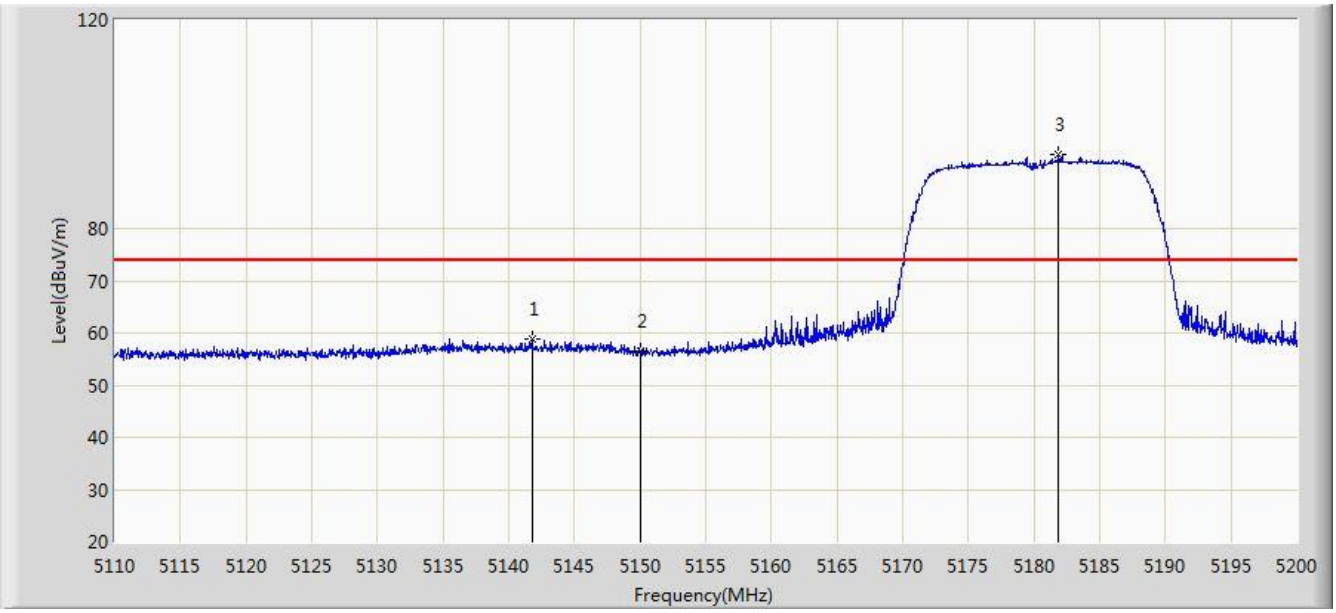


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5141.320	46.873	43.563	-7.127	54.000	3.309	AV
2			5150.000	44.659	41.350	-9.341	54.000	3.309	AV
3		*	5183.530	85.062	81.793	N/A	N/A	3.269	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 05:03
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 5180MHz Ant 1	

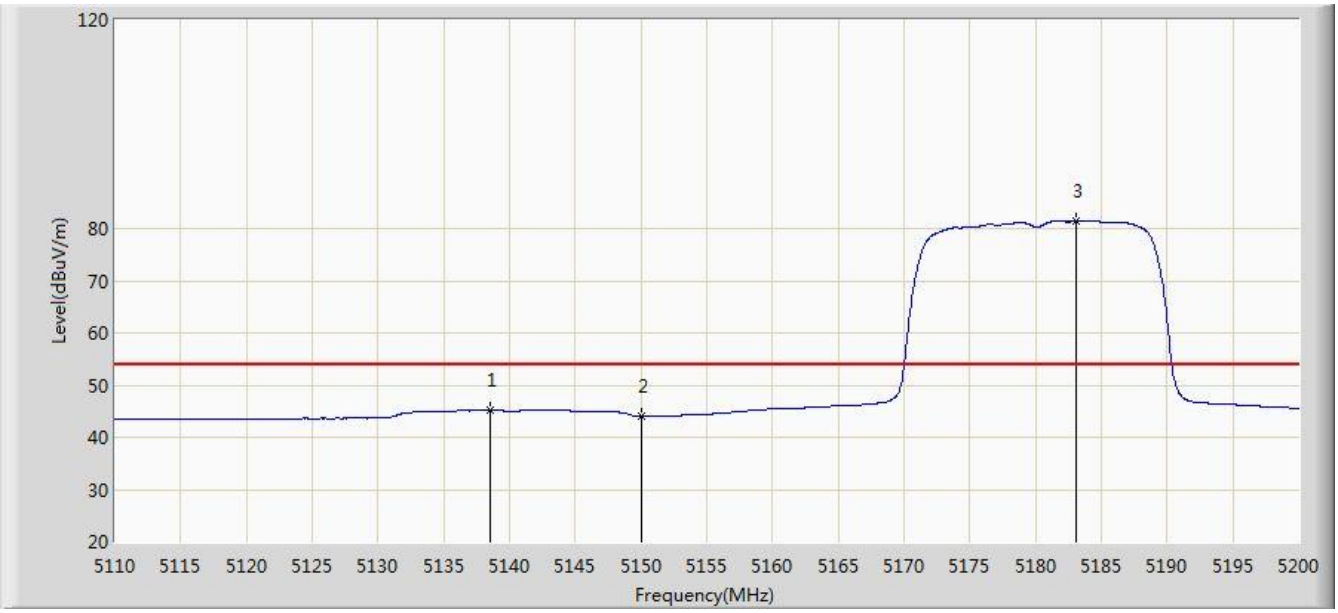


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5141.770	58.870	55.561	-15.130	74.000	3.310	PK
2			5150.000	56.421	53.112	-17.579	74.000	3.309	PK
3		*	5181.865	94.221	90.950	N/A	N/A	3.272	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 05:03
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 5180MHz Ant 1	

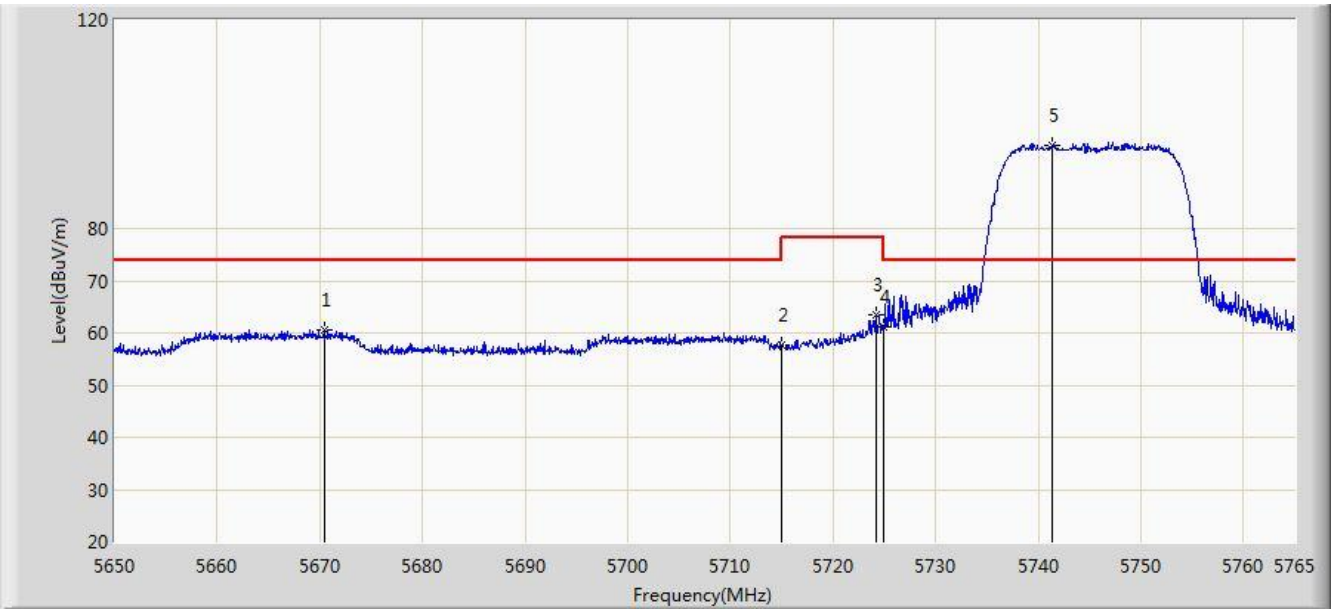


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5138.485	45.173	41.863	-8.827	54.000	3.310	AV
2			5150.000	44.001	40.692	-9.999	54.000	3.309	AV
3		*	5183.035	81.373	78.103	N/A	N/A	3.270	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 05:04
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 5745MHz Ant 1	

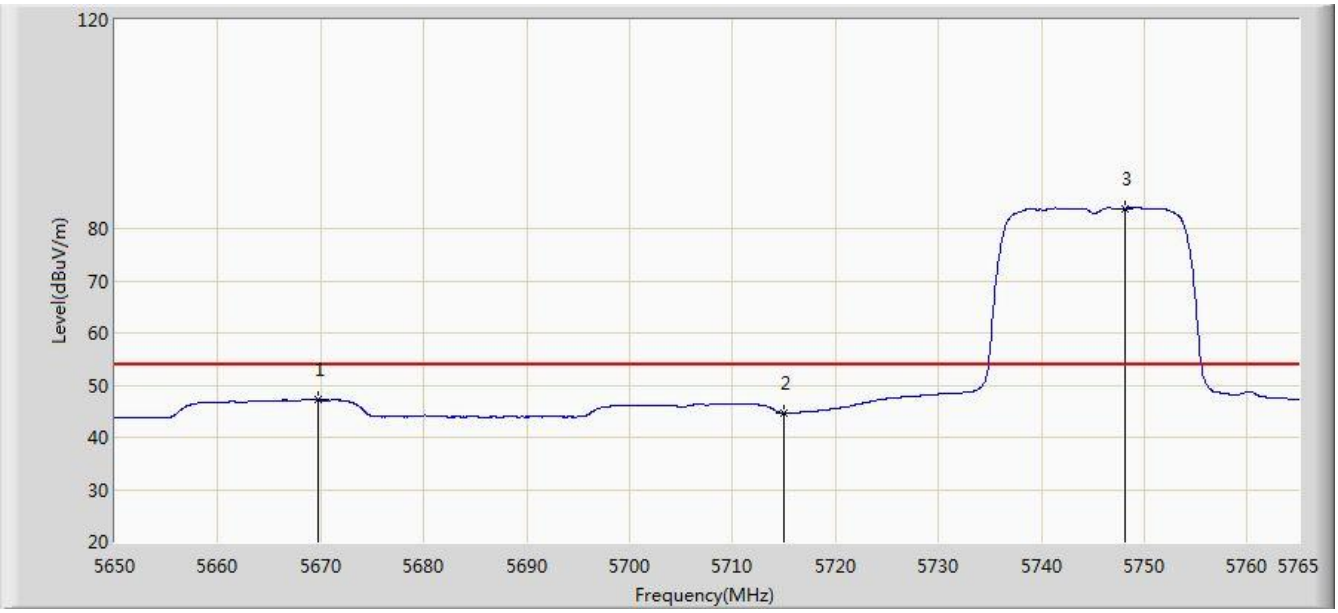


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5670.413	60.666	57.004	-13.334	74.000	3.662	PK
2			5715.000	57.631	53.870	-16.369	74.000	3.761	PK
3			5724.175	63.506	59.718	-14.694	78.200	3.789	PK
4			5725.000	61.233	57.442	-16.967	78.200	3.791	PK
5		*	5741.368	96.039	92.198	N/A	N/A	3.842	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 05:06
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 5745MHz Ant 1	

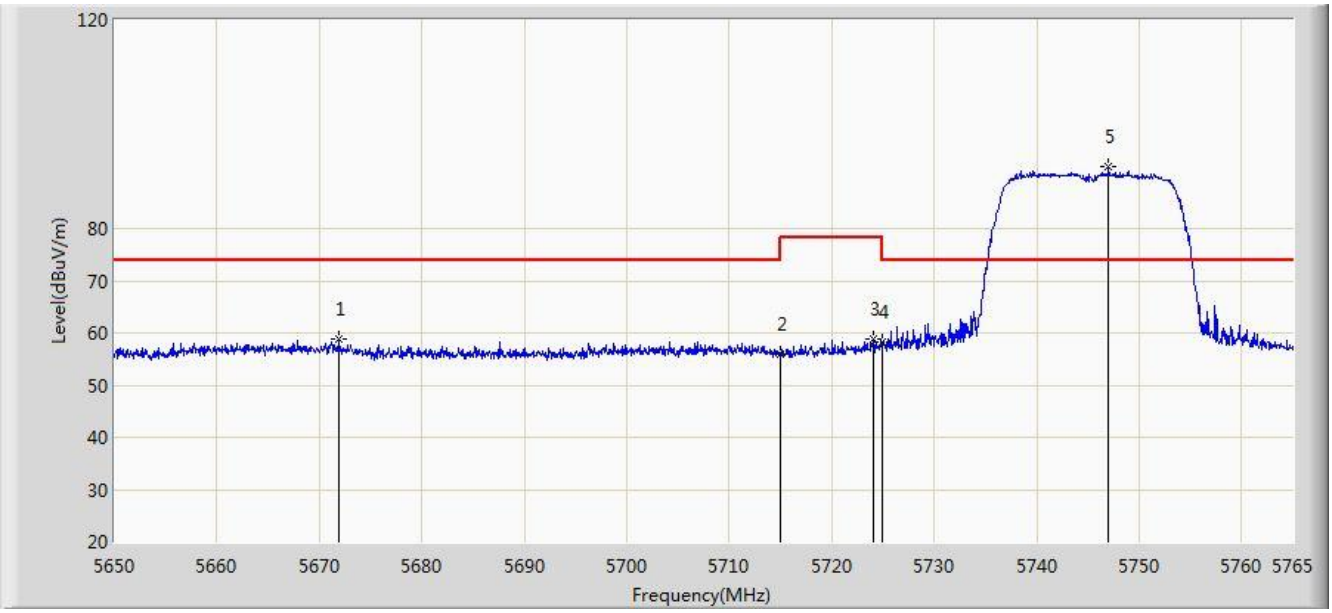


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5669.780	47.186	43.525	-6.814	54.000	3.662	AV
2			5715.000	44.619	40.858	-9.381	54.000	3.761	AV
3		*	5748.152	83.841	79.977	N/A	N/A	3.865	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 05:06
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 5745MHz Ant 1	

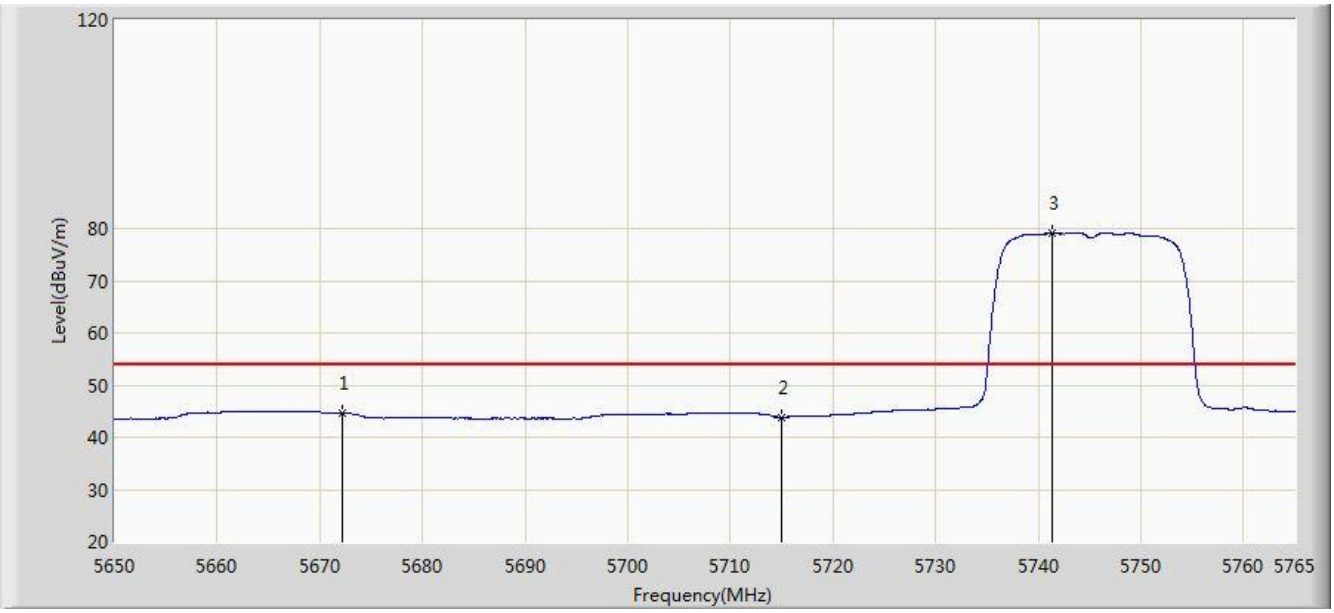


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5671.965	58.748	55.084	-15.252	74.000	3.664	PK
2			5715.000	55.862	52.101	-18.138	74.000	3.761	PK
3			5724.002	58.697	54.909	-19.503	78.200	3.788	PK
4			5725.000	58.364	54.573	-19.836	78.200	3.791	PK
5		*	5747.002	91.883	88.023	N/A	N/A	3.860	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 05:07
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 5745MHz Ant 1	

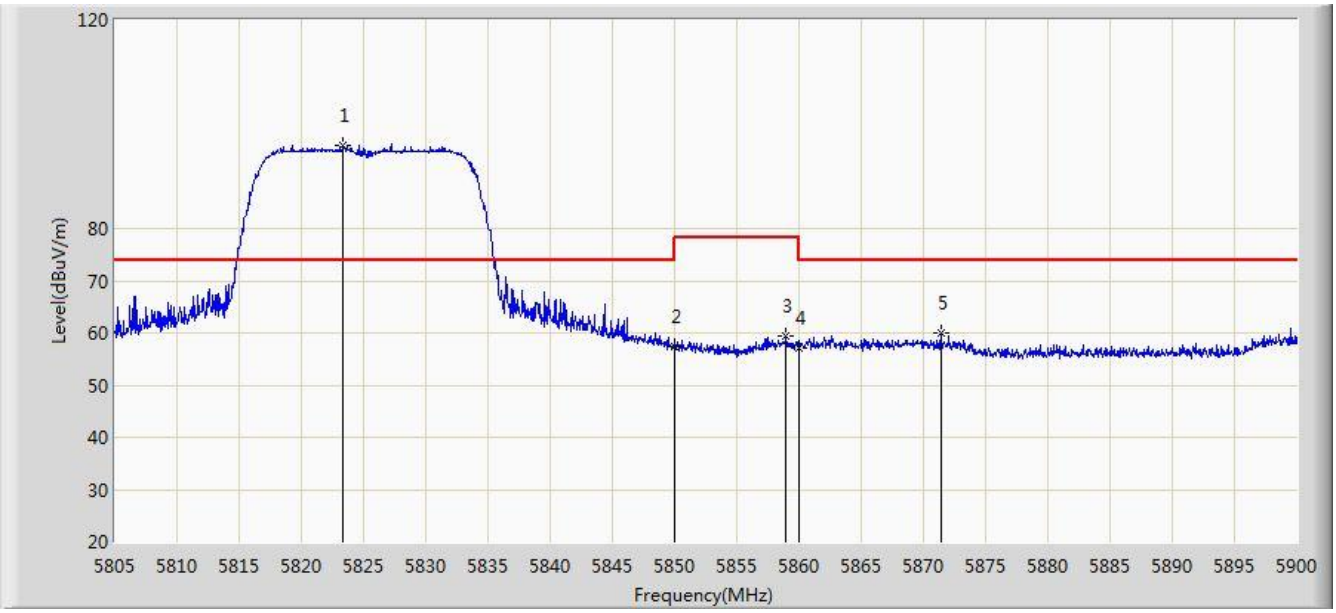


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5672.138	44.704	41.039	-9.296	54.000	3.664	AV
2			5715.000	43.887	40.126	-10.113	54.000	3.761	AV
3		*	5741.310	79.168	75.327	N/A	N/A	3.841	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 05:08
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 5825MHz Ant 1	

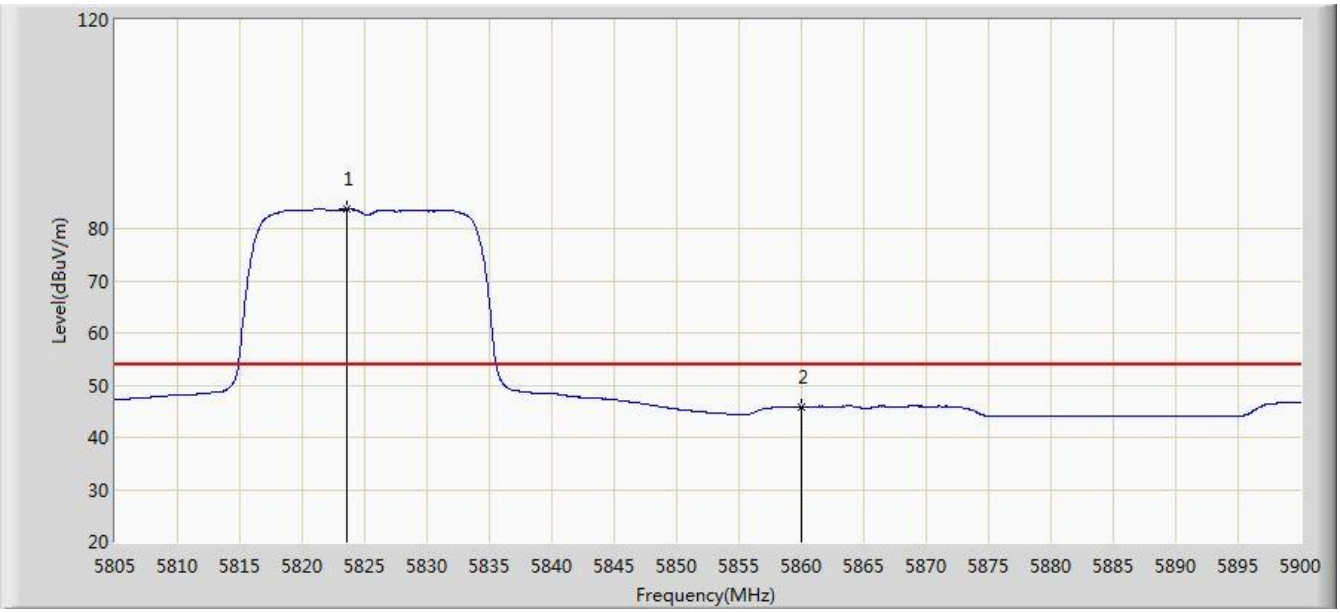


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5823.335	96.047	92.046	N/A	N/A	4.001	PK
2			5850.000	57.320	53.263	-20.880	78.200	4.058	PK
3			5858.960	59.489	55.426	-18.711	78.200	4.063	PK
4			5860.000	57.163	53.100	-16.837	74.000	4.064	PK
5			5871.405	60.063	55.969	-13.937	74.000	4.094	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 05:08
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 5825MHz Ant 1	

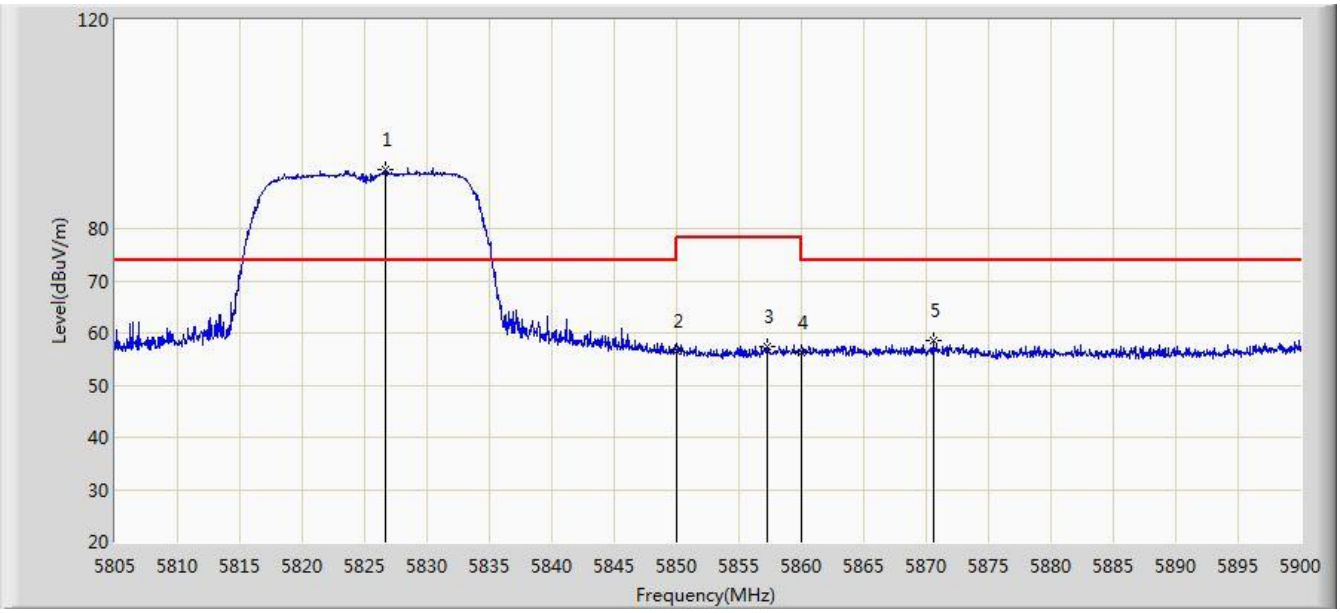


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5823.572	83.718	79.716	N/A	N/A	4.002	AV
2			5860.000	45.853	41.790	-8.147	54.000	4.064	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 05:09
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 5825MHz Ant 1	

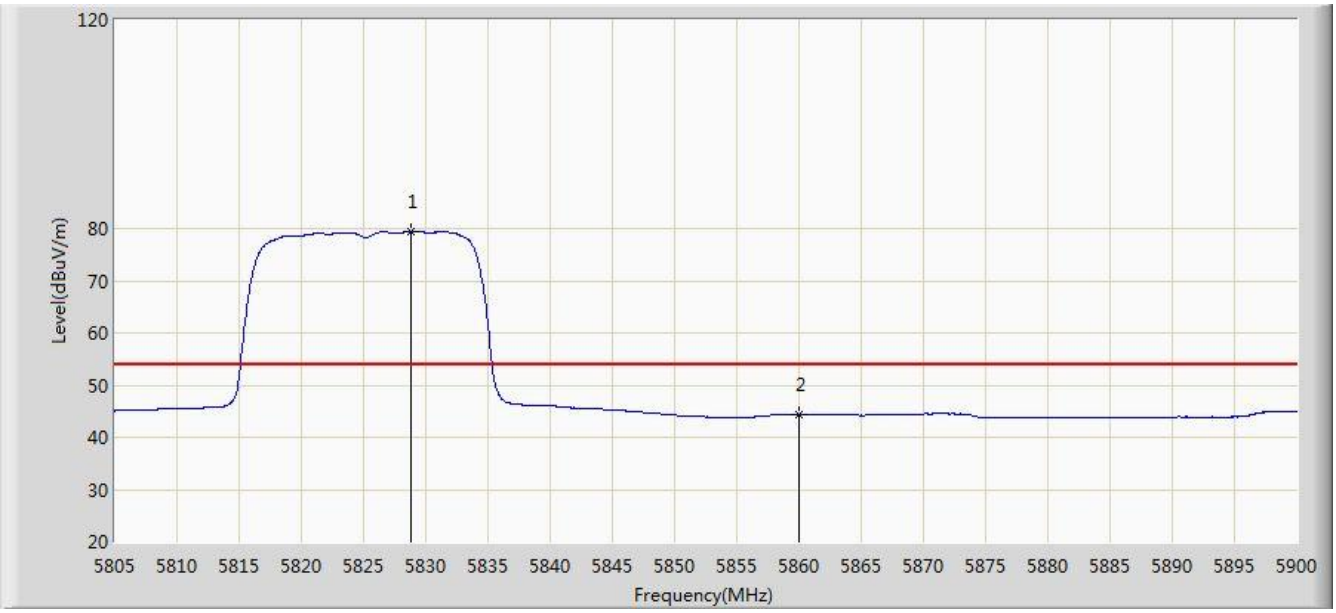


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5826.708	91.283	87.274	N/A	N/A	4.009	PK
2			5850.000	56.594	52.537	-21.606	78.200	4.058	PK
3			5857.203	57.477	53.415	-20.723	78.200	4.062	PK
4			5860.000	56.212	52.149	-17.788	74.000	4.064	PK
5			5870.550	58.468	54.377	-15.532	74.000	4.091	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 05:09
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 5825MHz Ant 1	

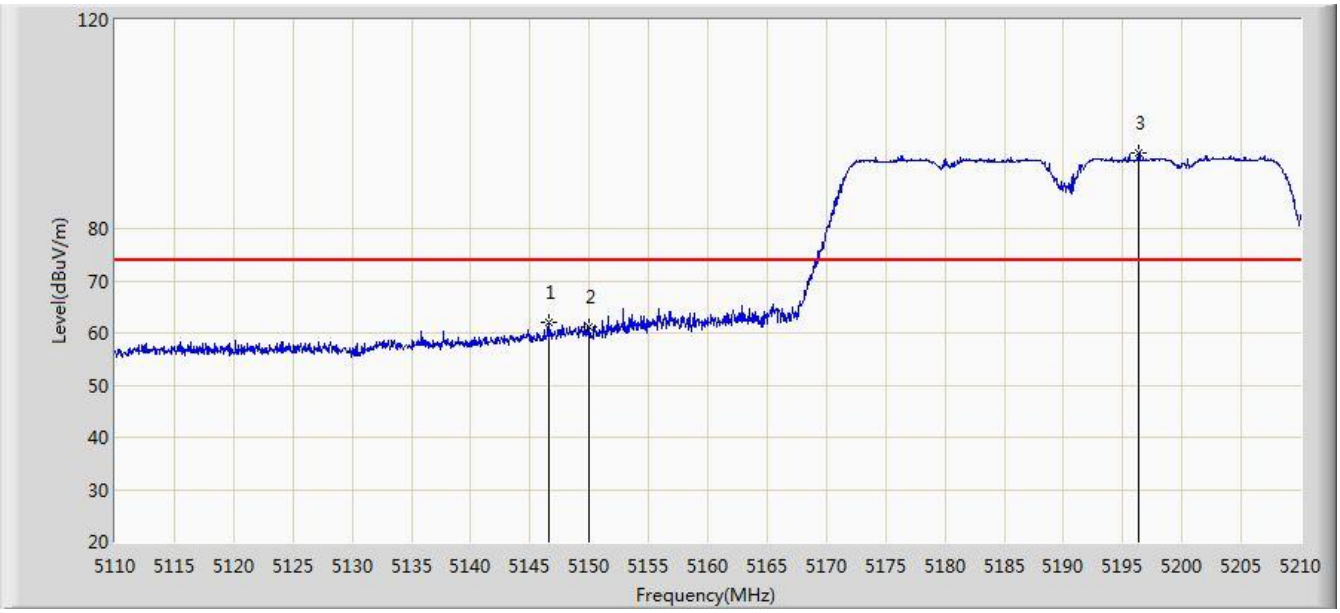


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5828.750	79.523	75.509	N/A	N/A	4.015	AV
2			5860.000	44.283	40.220	-9.717	54.000	4.064	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 05:10
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 5190MHz Ant 1	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5146.550	62.036	58.727	-11.964	74.000	3.309	PK
2			5150.000	61.112	57.803	-12.888	74.000	3.309	PK
3		*	5196.300	94.386	91.132	N/A	N/A	3.254	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

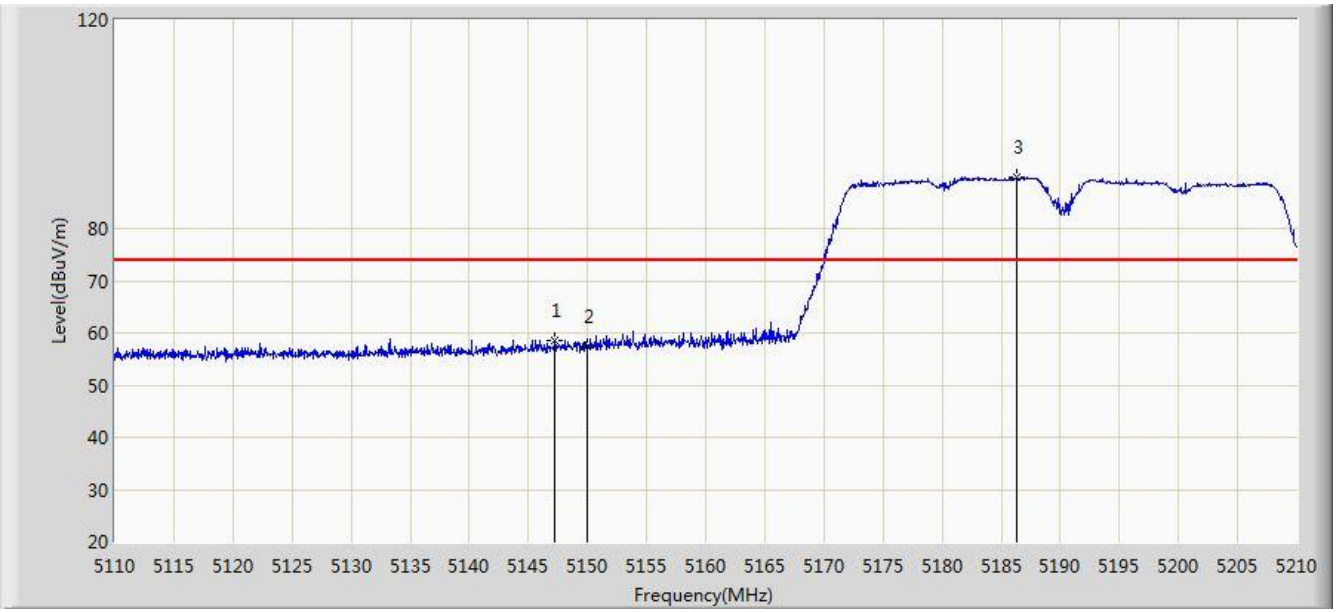
Site: AC1	Time: 2015/12/09 - 05:11
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 5190MHz Ant 1	

No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5150.000	46.957	43.648	-7.043	54.000	3.309	AV
2		*	5194.250	81.727	78.471	N/A	N/A	3.256	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 05:11
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 5190MHz Ant 1	

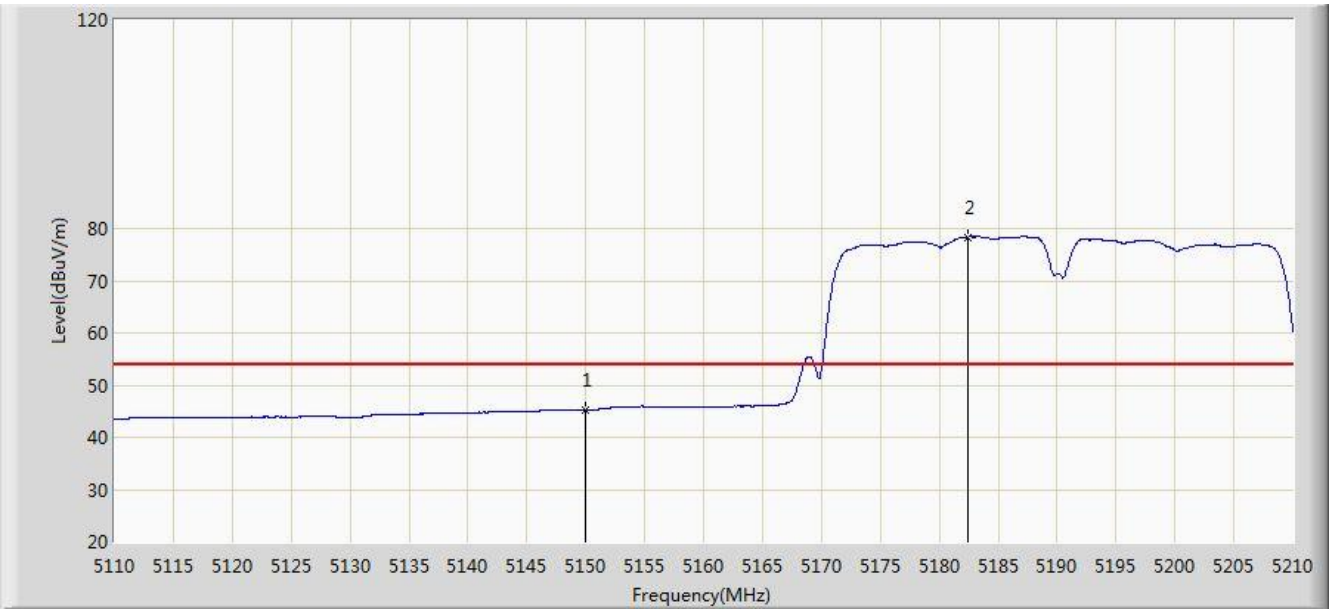


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5147.250	58.684	55.375	-15.316	74.000	3.309	PK
2			5150.000	57.443	54.134	-16.557	74.000	3.309	PK
3		*	5186.350	89.833	86.568	N/A	N/A	3.265	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 05:12
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 5190MHz Ant 1	

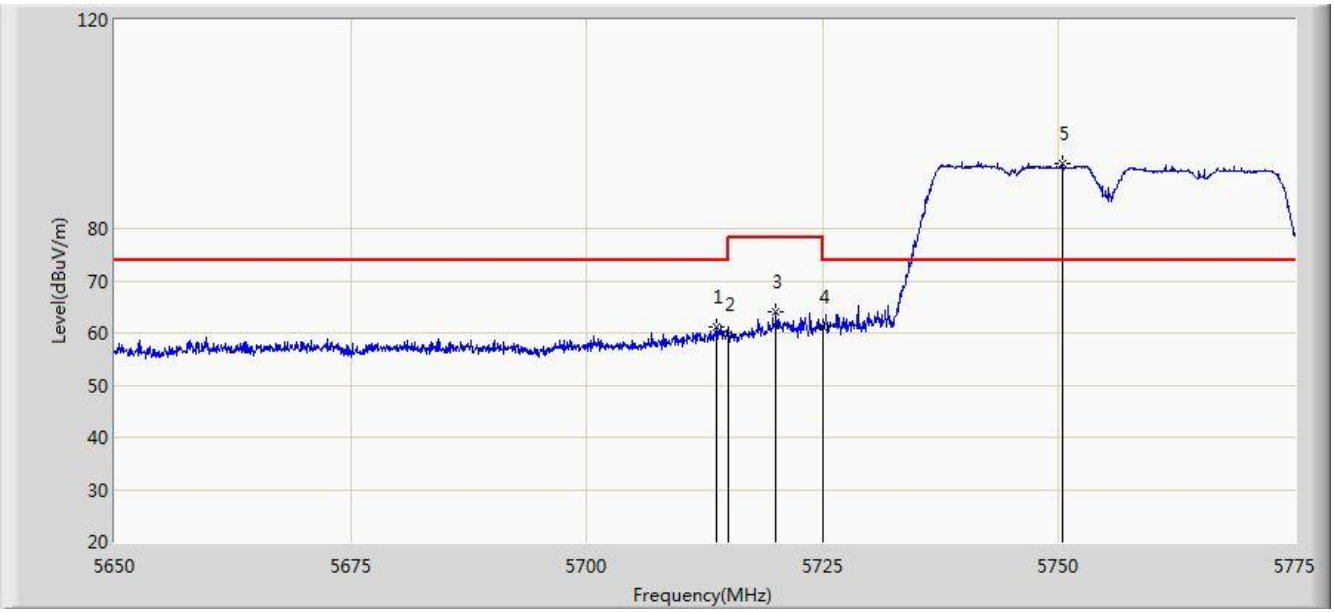


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5150.000	45.103	41.794	-8.897	54.000	3.309	AV
2		*	5182.400	78.403	75.132	N/A	N/A	3.270	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 05:12
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 5755MHz Ant 1	

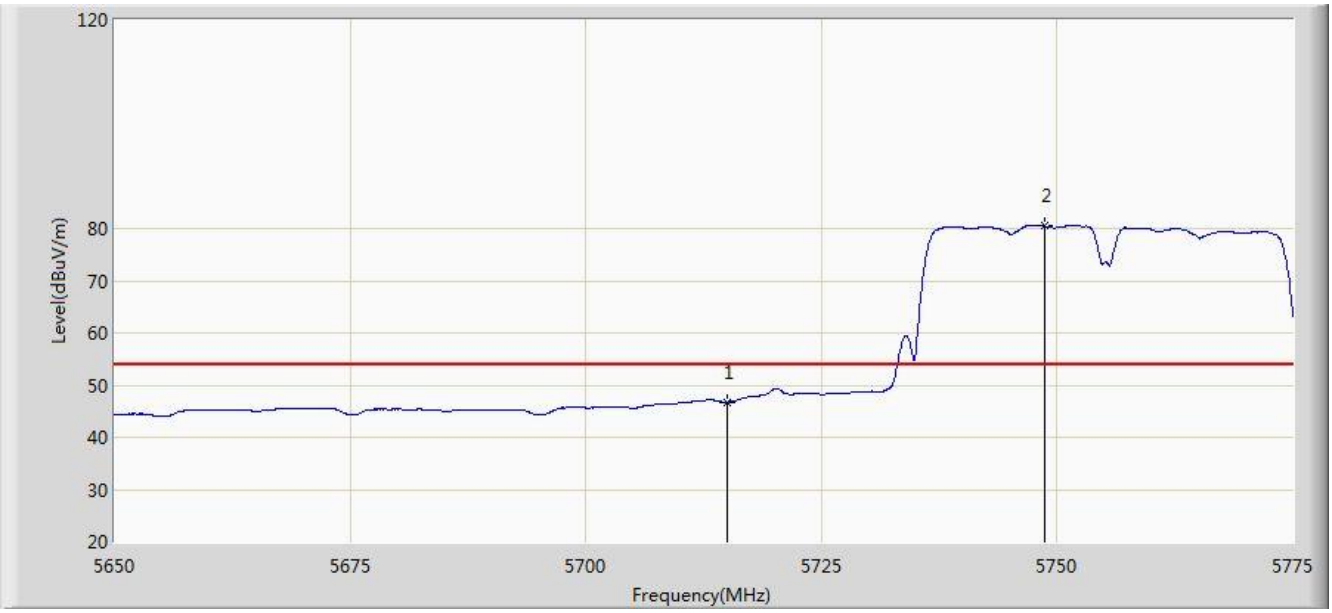


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5713.812	61.217	57.460	-12.783	74.000	3.757	PK
2			5715.000	59.705	55.944	-14.295	74.000	3.761	PK
3			5720.062	64.027	60.251	-14.173	78.200	3.776	PK
4			5725.000	61.199	57.408	-17.001	78.200	3.791	PK
5		*	5750.375	92.550	88.677	N/A	N/A	3.873	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 05:13
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 5755MHz Ant 1	

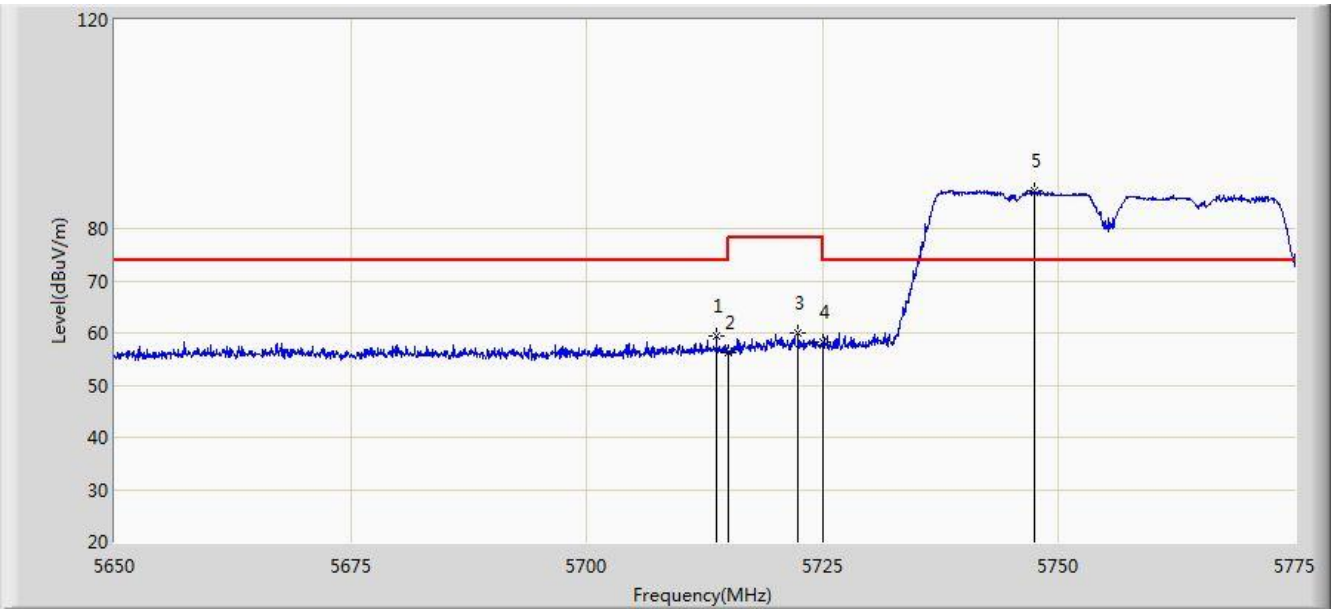


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5715.000	46.746	42.985	-7.254	54.000	3.761	AV
2		*	5748.687	80.486	76.620	N/A	N/A	3.867	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 05:13
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 5755MHz Ant 1	

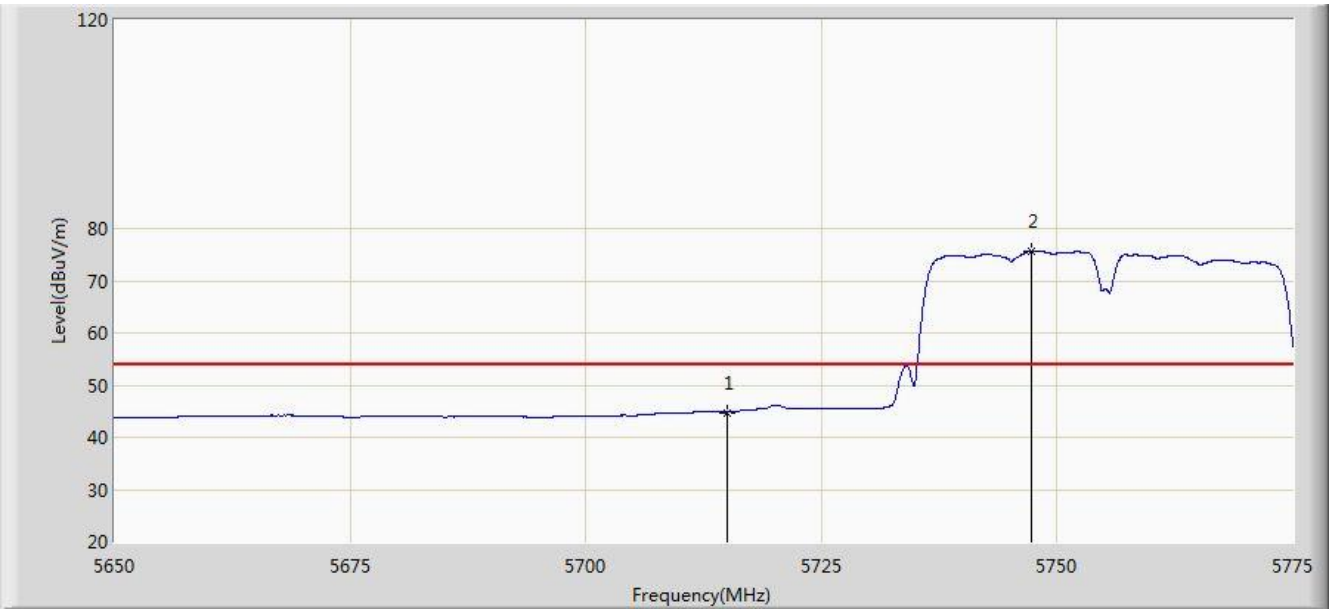


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5713.750	59.418	55.661	-14.582	74.000	3.757	PK
2			5715.000	56.351	52.590	-17.649	74.000	3.761	PK
3			5722.437	60.071	56.288	-18.129	78.200	3.783	PK
4			5725.000	58.190	54.399	-20.010	78.200	3.791	PK
5		*	5747.437	87.293	83.431	N/A	N/A	3.861	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 05:14
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 5755MHz Ant 1	

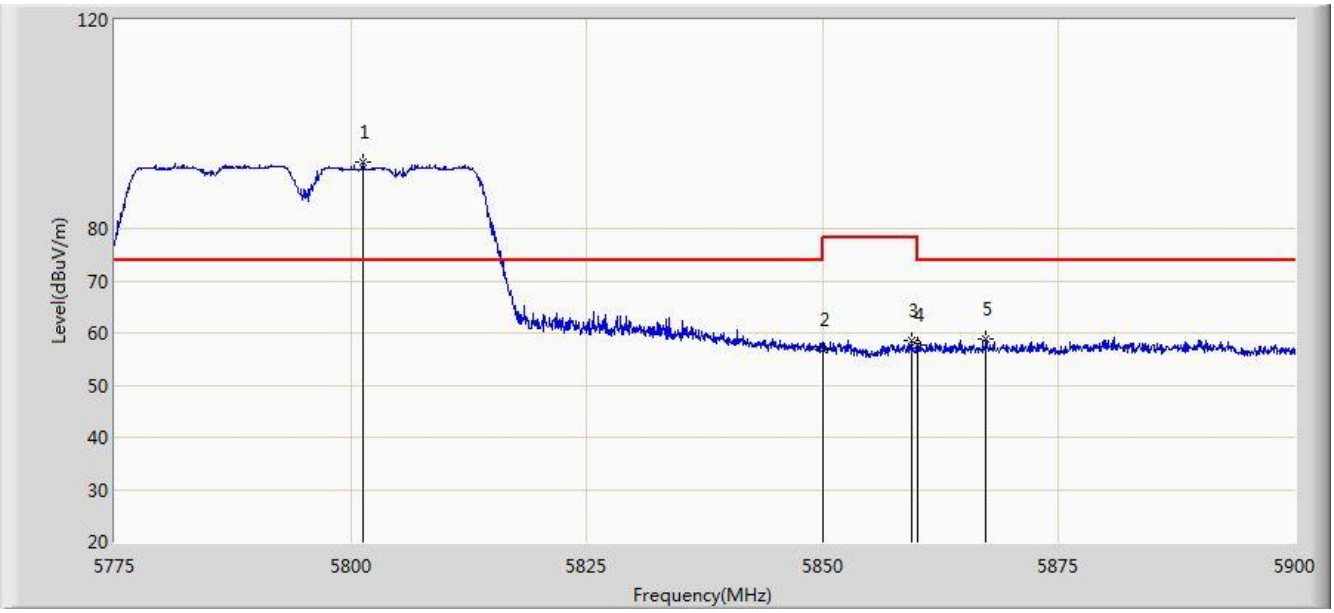


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5715.000	44.763	41.002	-9.237	54.000	3.761	AV
2		*	5747.312	75.590	71.729	N/A	N/A	3.861	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 05:15
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 5795MHz Ant 1	

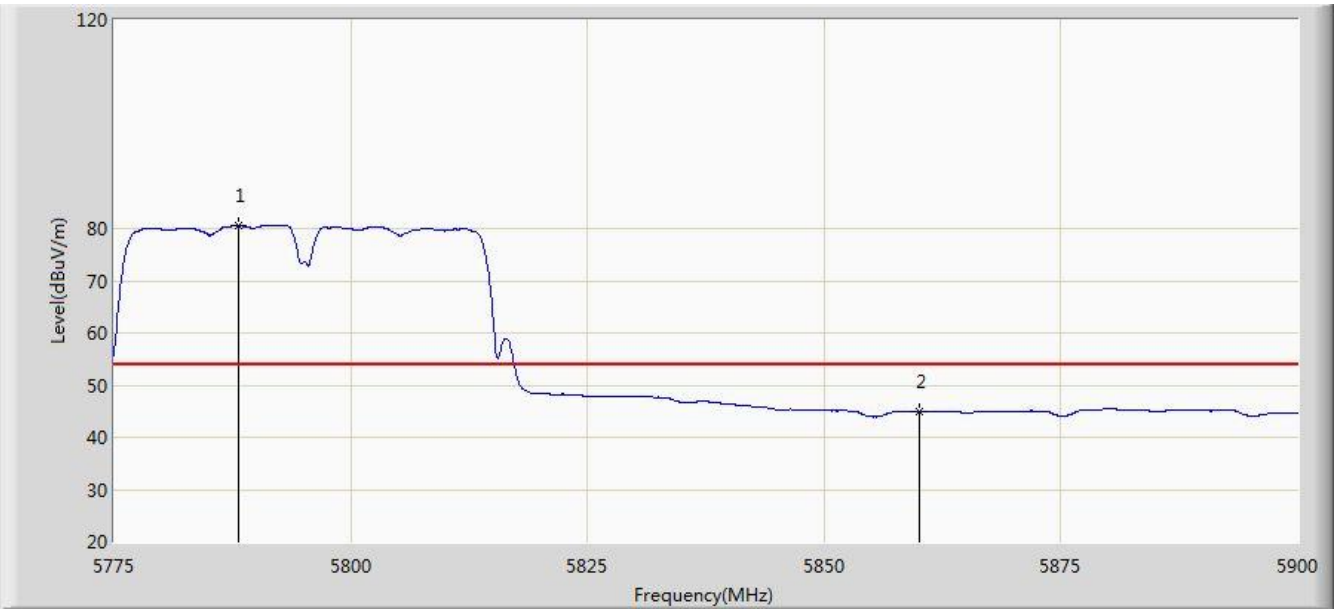


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5801.375	92.752	88.790	N/A	N/A	3.962	PK
2			5850.000	56.804	52.747	-21.396	78.200	4.058	PK
3			5859.437	58.421	54.358	-19.779	78.200	4.063	PK
4			5860.000	57.558	53.495	-16.442	74.000	4.064	PK
5			5867.312	58.752	54.671	-15.248	74.000	4.081	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 05:15
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 5795MHz Ant 1	

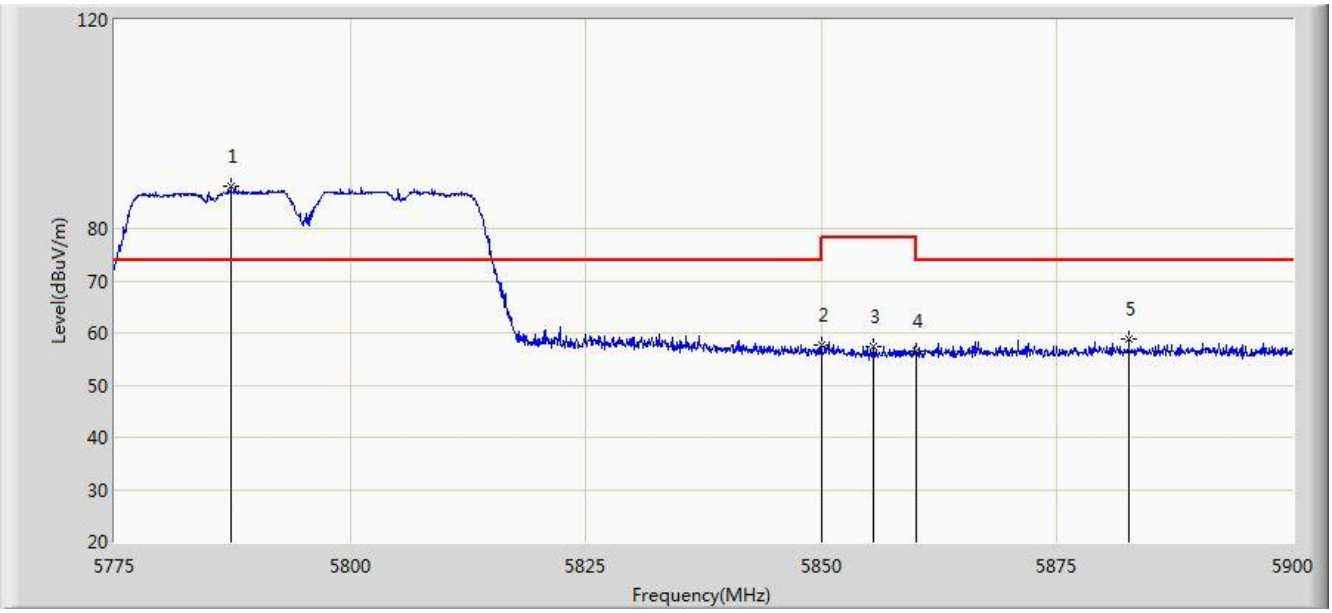


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5788.125	80.530	76.588	N/A	N/A	3.942	AV
2			5860.000	44.885	40.822	-9.115	54.000	4.064	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 05:16
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 5795MHz Ant 1	

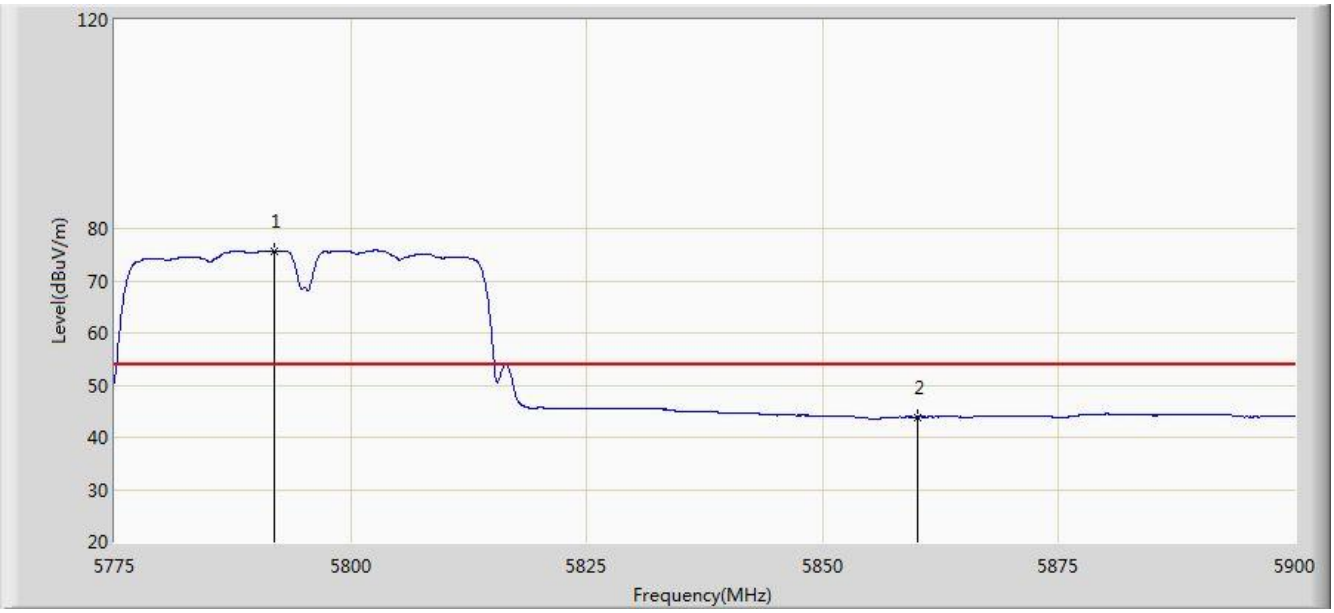


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5787.375	87.974	84.034	N/A	N/A	3.941	PK
2			5850.000	57.771	53.714	-20.429	78.200	4.058	PK
3			5855.437	57.430	53.370	-20.770	78.200	4.060	PK
4			5860.000	56.599	52.536	-17.401	74.000	4.064	PK
5			5882.625	58.764	54.636	-15.236	74.000	4.128	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

Site: AC1	Time: 2015/12/09 - 05:16
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: sengled pulse flex	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 5795MHz Ant 1	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5791.937	75.762	71.813	N/A	N/A	3.949	AV
2			5860.000	43.879	39.816	-10.121	54.000	4.064	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre_Amplifier Gain (dB)

8. CONCLUSION

The data collected relate only the item(s) tested and showed that the **sengled pulse flex FCC ID:**

2ABX8SH-000000012 is in compliance with Part 15E of the FCC Rules.

The End