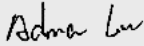
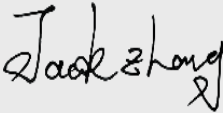




Test report No:
2180545R-RF-US-P06V01

FCC & ISSED TEST REPORT

Product Name	LPS Module
Trademark	Murata
Model and /or type reference	LBES0ZZ1VG
FCC ID	VPYLB1VG
IC	772C-LB1VG
Applicant's name / address	Murata Manufacturing Co., Ltd. 10-1, Higashikotari 1-chome, Nagaokakyo-shi, Kyoto 617-8555, Japan
Test method requested, standard	FCC CFR Title 47 Part 15 Subpart C Section 15.247 ANSI C63.10: 2013 KDB 558074 D01v05r02 KDB 662911 D01 Multiple Transmitter Output v02r01 RSS-Gen Issue 5 /RSS-247 Issue 2
Verdict Summary	IN COMPLIANCE
Tested By (name / position & signature)	Adma Lu/Project Engineer 
Approved by (name / position & signature)	Jack Zhang/ Supervisor 
Date of issue	2022-01-06
Report Version	V1.0
Report template No	Template_FCC Part 15C-RF-V1.0

INDEX

	page
Competences and Guarantees.....	4
General conditions.....	4
Environmental conditions.....	4
Possible test case verdicts	5
Abbreviations	5
Document History	6
Remarks and Comments	6
Used Equipment	7
Uncertainty.....	9
1 General Information.....	10
1.1 General Description of the Item(s)	10
1.2 Antenna Information.....	11
1.3 Test Data Rate	12
1.4 Channel List	13
2 Description of Test Setup	14
2.1 Operating mode(s) used for tests.....	14
2.2 Accessories Information.....	14
2.3 Support / Auxiliary equipment / unit / Test software for the EUT	14
2.4 Test Configuration / Block diagram used for tests	15
2.5 Testing process.....	16
3 Verdict summary section	17
3.1 Standards	17
3.2 Overview of results.....	18
3.3 Test Facility	19
4 Test Results.....	20
4.1 AC Power Line Conducted Emission	20
4.1.1 Limit.....	20
4.1.2 Test Setup.....	20
4.1.3 Test Procedure	20
4.1.4 Test Data.....	21
4.2 Emissions in restricted frequency bands	22
4.2.1 Limit.....	22
4.2.2 Test Setup.....	24
4.2.3 Test Procedure	25

4.2.4	Test Data.....	26
4.3	Emissions in non-restricted frequency band	42
4.3.1	Limit.....	42
4.3.2	Test Setup.....	42
4.3.3	Test Procedure	42
4.3.4	Test Data.....	43
4.4	Duty cycle	45
4.4.1	Limit.....	45
4.4.2	Test Setup.....	45
4.4.3	Test Procedure	45
4.4.4	Test Data.....	46
4.5	Radiated Emission Band Edge	47
4.5.1	Limit.....	47
4.5.2	Test Setup.....	47
4.5.3	Test Procedure	48
4.5.4	Test Data.....	49
4.6	DTS Bandwidth	81
4.6.1	Limit.....	81
4.6.2	Test Setup.....	81
4.6.3	Test Procedure	81
4.6.4	Test Data.....	82
4.7	Fundamental emission output power	83
4.7.1	Limit.....	83
4.7.2	Test Setup.....	83
4.7.3	Test Procedure	84
4.7.4	Test Data.....	86
4.8	Power Density	87
4.8.1	Limit.....	87
4.8.2	Test Setup.....	87
4.8.3	Test Procedure	87
4.8.4	Test Data.....	89
4.9	Antenna Requirement	91
4.9.1	Limit.....	91
4.9.2	Antenna Connector Construction:.....	91
5	Test setup photo and EUT Photo	92

COMPETENCES AND GUARANTEES

DEKRA is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

IMPORTANT: No parts of this report may be reproduced or quoted out of context, in any form or by any means, except in full, without the previous written permission of DEKRA.

GENERAL CONDITIONS

Test Location	No. 99, Hongye Road, Suzhou Industrial Park Suzhou, 215006, P.R. China
Date(receive sample)	Oct.16, 2021
Date (start test)	Oct.19, 2021
Date (finish test)	Dec.12, 2021

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or Competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA.
5. The 2.4G WLAN part of AirEngine6761-21T is exactly the same as AirEngine5761-11, so we only verified the power and AC Power Line Conducted Emission, and other data are quoted from AirEngine5761-11.

ENVIRONMENTAL CONDITIONS

The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment. The climatic conditions during the tests were within the following limits:

Ambient temperature	15 °C – 35 °C
Relative Humidity air	30% - 60%

If explicitly required in the basic standard or applied product / product family standard the climatic values are recorded and documented separately in this test report.

POSSIBLE TEST CASE VERDICTS

Test case does not apply to test object	N/A
Test object does meet requirement	P (Pass) / PASS
Test object does not meet requirement	F (Fail) / FAIL
Not measured	N/M

ABBREVIATIONS

For the purposes of the present document, the following abbreviations apply:

EUT	: Equipment Under Test
QP	: Quasi-Peak
CAV	: CISPR Average
AV	: Average
CDN	: Coupling Decoupling Network
SAC	: Semi-Anechoic Chamber
OATS	: Open Area Test Site
BW	: Bandwidth
AM	: Amplitude Modulation
PM	: Pulse Modulation
HCP	: Horizontal Coupling Plane
VCP	: Vertical Coupling Plane
U_N	: Nominal voltage
T_x	: Transmitter
R_x	: Receiver
N/A	: Not Applicable
N/M	: Not Measured

DOCUMENT HISTORY

Report No.	Version	Description	Issued Date
2180545R-RF-US-P06V01	V1.0	Initial issue of report.	2022-01-06

REMARKS AND COMMENTS

1. The equipment under test (EUT) does meet the essential requirements of the stated standard(s)/test(s).
2. These test results on a sample of the device are for the purpose of demonstrating Compliance with Part 15 Subpart C Paragraph 15.247, RSS-Gen Issue 5, RSS-247 Issue 2.
3. The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to account the uncertainty associated with the measurement result.
4. The test results presented in this report relate only to the object tested.
5. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification (Suzhou) Co., Ltd.
6. This report will not be used for social proof function in China market.
7. DEKRA declines any responsibility with the following test data provided by customer that may affect the validity of result:
 - Chapter 1.1 General Description of the Item(s);
 - Chapter 1.2 Antenna Informaion;
 - Chapter 1.3 Test Data Rate;
 - Chapter 1.4 Channel List;

USED EQUIPMENT

Emissions in non-restricted frequency bands/ Occupied Bandwidth/ Fundamental emission output power/ Power Spectral Density/Band Edge/ TR8

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2021.07.11	2022.07.10
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2021.03.20	2022.03.19
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2021.07.11	2022.07.12
4TX MIMO Power Sensor	Keysight	X8750A	MY59400102	2021.02.11	2022.02.10
Coaxial Cable	Woken	SFL402	F02-150410-044	2021.01.01	2021.12.31
Temperature/Humidity Meter	RTS	RTS-8S	RF08	2021.07.09	2022.07.08

Radiated Emission(30MHz-1GHz) / AC3

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EMI Test Receiver	R&S	ESCI	100176	2021.07.11	2022.07.10
Loop Antenna	R&S	HFH2-Z2	833799/003	2021.03.04	2022.03.03
Bilog Antenna	Teseq GmbH	CBL6112D	27613	2021.08.23	2022.08.22
Coaxial Cable	Huber+Suhner	RG 214	AC3-C	2021.03.31	2022.03.30
Temperature/Humidity Meter	RTS	RTS-8S	AC3-TH	2021.07.09	2022.07.08
Dekra test software	Dekra	-	-	-	-

Radiated Emission(1GHz-40GHz) / AC5

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2021.03.20	2022.03.19
Preamplifier	EMCI	EMC184045SE	980263	2021.05.24	2022.05.23
DRG Horn Antenna	ETS-Lindgren	3117	00167055	2021.08.23	2022.08.22
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2021.04.14	2023.04.13
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2021.03.31	2022.03.30
Coaxial Cable	ROSENBERGER	LA1-C011- 2000/3000	AC5-40G	2021.03.20	2022.03.19
Temperature/Humidity Meter	RTS	RTS-8S	AC5-TH	2021.07.09	2022.07.08
High-Pass Filter	Wainwright	WHKX3.0/18G- 12SS	AC5&AC6	2021.06.08	2022.06.07
Dekra test software	Dekra	-	-	-	-

UNCERTAINTY

Uncertainties have been calculated according to the DEKRA internal document. The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

Test item	Uncertainty
AC Power Line Conducted Emission	± 2.92 dB
Peak Power Output	± 1.13 dB
Radiated Emission(30MHz~1GHz)	Horizontal: 30MHz~200MHz: 4.60 dB 200MHz~1GHz: 4.10 dB Vertical: 30MHz~200MHz: 4.80 dB 200MHz~1GHz: 4.10 dB
Radiated Emission(1GHz~40GHz)	Horizontal: 1GHz~18GHz: 5.00 dB Vertical: 1GHz~18GHz: 4.80 dB Horizontal: 18GHz~40GHz: 4.70 dB Vertical: 18GHz~40GHz: 4.60 dB
RF antenna conducted test	± 1.13 dB
Radiated Emission Band Edge	± 5.00 dB
DTS Bandwidth	± 279 Hz
Occupied Bandwidth	± 279 Hz
Power Density	± 1.13 dB

1 GENERAL INFORMATION

1.1 General Description of the Item(s)

Product Name	LPS Module
Model No.....	LBES0ZZ1VG
Hardware Version.	1.0
Software Version.....	N/A
Firmware Version.....	1.0.0
FCC ID	VPYLB1VG
IC	772C-LB1VG
Manufacturer	Murata Manufacturing Co., Ltd.
Manufacturer address	10-1, Higashikotari 1-chome, Nagaokakyo-shi, Kyoto 617-8555, Japan

Wireless specification	WLAN
Operating frequency range(s)	2400~2483.5MHz
Type of modulation	OFDM: BPSK, QPSK, 16QAM, 64QAM
Number of channel.....	802.11n(20MHz): 11 802.11n(40MHz): 7
Data Rate	802.11n: up to 300 Mbps
Device category	☐ Fixed point-to-point
	☐ Emit multiple directional beams, simultaneously or sequentially
	☒ Other cases

Rated power supply	Voltage and Frequency	
	☐	AC: 220 – 240 V, 50/60 Hz
	☐	AC: 100 – 240 V, 50/60 Hz
	☒	DC: 3.0-3.6V
	☐	Adapter: Input: 100-240V,50/60Hz,0.5A Output:5V.3A/9V,2A/12V,1.5A
Mounting position.....	☐	Table top equipment
	☐	Wall/Ceiling mounted equipment
	☐	Floor standing equipment
	☐	Head-mounted equipment
	☒	Other: RF Module

1.2 Antenna Information

Antenna model / type number..... :	Dipole antenna		
Antenna serial number..... :	ANT-DB1-RAF-RPS		
Antenna Delivery	☒	1TX + 1RX	
	☒	2TX + 2RX	
	☐	Others:.....	
Antenna technology	☒	SISO	
	☒	MIMO	☒ CDD
			☐ Beam-forming
Antenna Type..... :	☒	External	☒ Dipole
			☐ Sectorized
	☐	Internal	☐ FPC
			☐ PCB
			☐ Metal Monopole Antenna
			☐ Ceramic chip
			☐ Others.....
SISO Antenna Gain	4.1dBi		
CDD-MIMO(2TX) Antenna Gain :	4.1 dBi for Power ; 7.11dBi for PSD		

Note: SISO on ANT2 only, MIMO on ANT1+ANT2.

1.3 Test Data Rate

Note : WLAN test rate is MCS0

1.4 Channel List

IEEE 802.11n(20MHz)

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412 MHz	2	2417 MHz	3	2422 MHz	4	2427 MHz
5	2432 MHz	6	2437 MHz	7	2442 MHz	8	2447 MHz
9	2452 MHz	10	2457 MHz	11	2462 MHz	-	-

IEEE 802.11n(40MHz)

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
3	2422 MHz	4	2427 MHz	5	2432 MHz	6	2437 MHz
7	2442 MHz	8	2447 MHz	9	2452 MHz	-	-

Note: The General Description of the Item, antenna information, Test Data Rate and Channel List in clause 1 are provided and confirmed by the client.

2 DESCRIPTION OF TEST SETUP

2.1 Operating mode(s) used for tests

During the tests the following operating mode(s) has(have) been used.

Test Mode	Mode 1: Transmit by 802.11n(20MHz)
	Mode 2: Transmit by 802.11n(40MHz)

2.2 Accessories Information

Accessories Information	Brand/model name	Cable		
		Length used during test [m]	Attached during test	Shielded
USB control Cable	N/A	10	☒	☒
USB control Cable	N/A	0.5	☒	☒
			☐	☐
			☐	☐
			☐	☐

2.3 Support / Auxiliary equipment / unit / Test software for the EUT

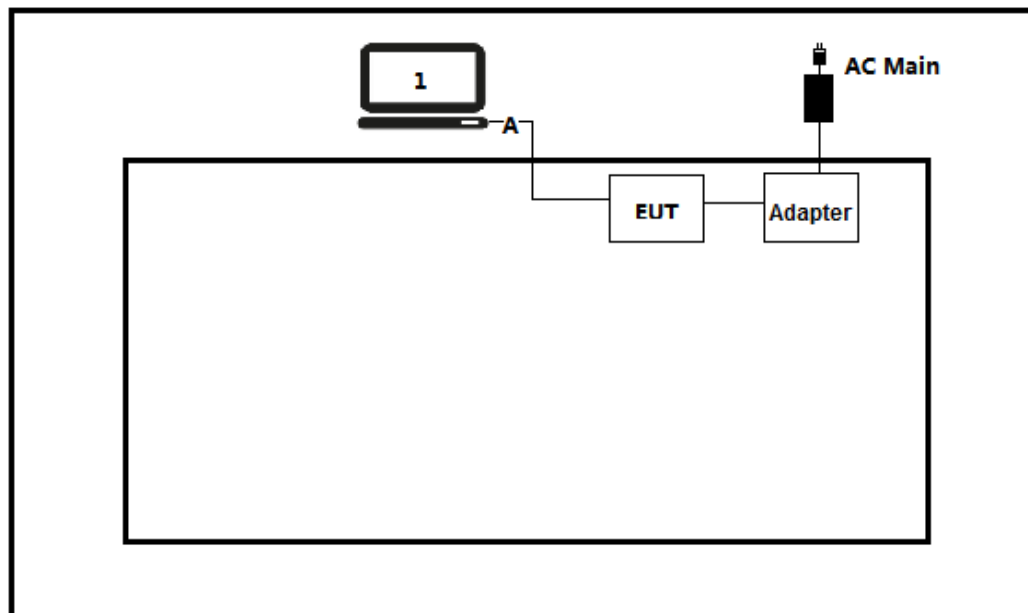
The EUT has been tested with the following auxiliary equipment / unit / software:

Auxiliary equipment	Type / Version	Manufacturer	Supplied by
Notebook	Think pad x220	Lenovo	Adapter
software	Type / Version	Manufacturer	Supplied by
SSCOM	N/A	N/A	N/A

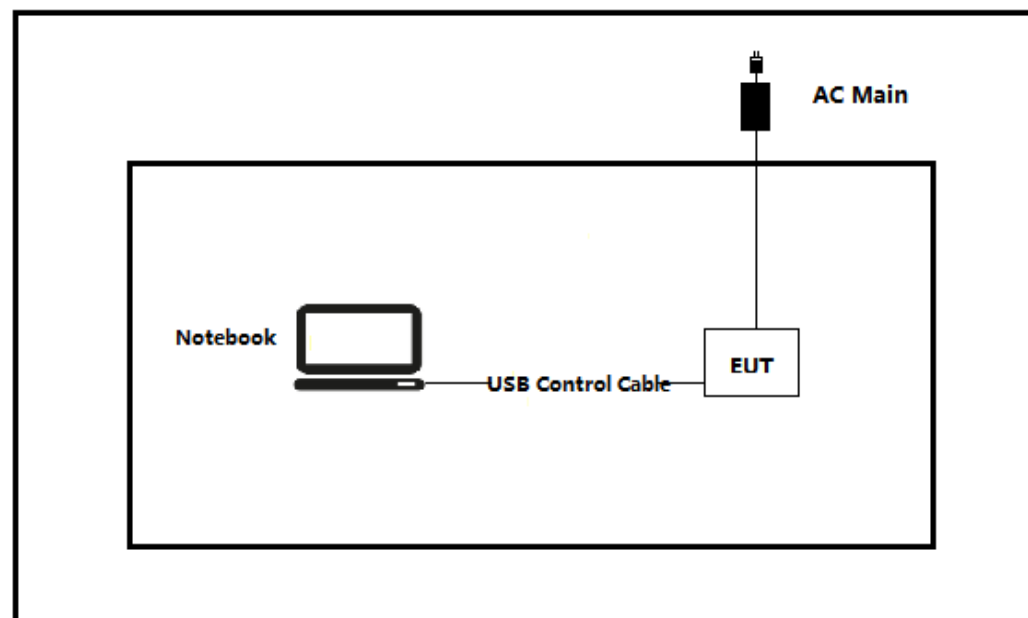
2.4 Test Configuration / Block diagram used for tests

The following test setup / configuration / block diagram has been used during the tests:

Test setup Diagram- AC Line Conducted Emission Test



Test setup Diagram- Radiated Emission



2.5 Testing process

1	Setup the EUT as shown in Section 2.4.
2	Execute the SSCOM on the notebook.
3	Configure the test mode, the test channel, and the data rate.
4	Verify that the EUT works properly.

3 VERDICT SUMMARY SECTION

This chapter presents an overview of standards and results. Refer to the next chapters for details of measured test results and applied test levels.

3.1 Standards

Standard	Year	Description
FCC CFR Title 47 Part 15 Subpart C Section 15.247	2020	Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz.
ANSI C63.10	2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
KDB 558074 D01V05r02	2019	Guidance for performing compliance measurements on Digital Transmission System (DTS) operating under section 15.247
RSS-Gen Issue 5 Amendment 2	2021	General Requirements for Compliance of Radio Apparatus
RSS-247 Issue 2	2017	Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

3.2 Overview of results

For FCC

Requirement – Test case	Basic standard(s)	Verdict	Remark
AC Power Line Conducted Emission	FCC 15.207	N/A	---
Emissions in restricted frequency bands	FCC 15.247(b)(3)	PASS	---
Duty cycle	ANSI C63.10:2013	PASS	---
Emissions in non-restricted frequency bands	FCC 15.247(d), FCC 15.209	PASS	---
Band Edge	FCC 15.247(d)	PASS	---
Fundamental emission output power	FCC 15.247(d), FCC 15.209	PASS	---
DTS Bandwidth	FCC 15.247(a)(2)	PASS	---
Power Spectral Density	FCC 15.247(e)	PASS	---
Antenna Requirement	FCC 15.203	PASS	---

For ISED

Requirement – Test case	Basic standard(s)	Verdict	Remark
AC Power Line Conducted Emission	RSS-Gen Issue 5 Section 8.8	N/A	---
Emissions in restricted frequency bands	RSS-Gen Issue 5 Section 8.9	PASS	---
Duty cycle	ANSI C63.10:2013	PASS	---
Emissions in non-restricted frequency bands	RSS-247 Issue 2 Section 5.5	PASS	---
Band Edge	RSS-Gen Issue 5 Section 8.10	PASS	---
Fundamental emission output power	RSS-247 Issue 2 Section 5.4(d)	PASS	---
DTS Bandwidth	RSS-Gen Issue 5 Section 6.7	PASS	---
Power Spectral Density	RSS-247 Issue 2 Section 5.2(b)	PASS	---
Antenna Requirement	RSS-Gen Issue 5 Section 6.8	PASS	---

3.3 Test Facility

USA	:	FCC Designation Number: CN1199
CA	:	ISED CAB identifier: CN0040

4 TEST RESULTS

4.1 AC Power Line Conducted Emission	VERDICT: N/A
---	---------------------

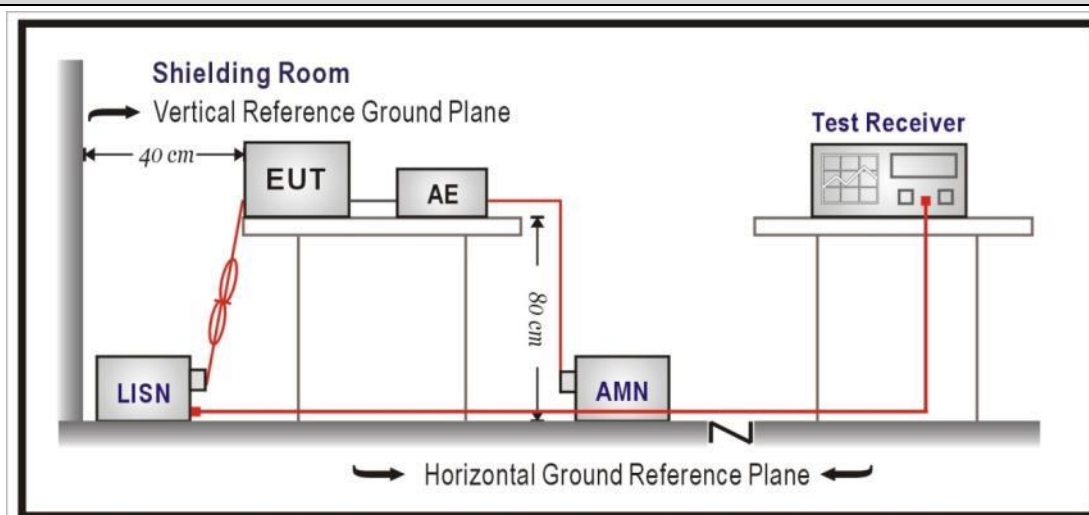
4.1.1 Limit

Standard	FCC Part 15 Subpart C Paragraph 15.207	
Frequency range [MHz]	Limit: QP [dB(μV) ¹⁾]	Limit: AV [dB(μV) ¹⁾]
0,15 - 0,50	66 - 56 ²⁾	56 - 46 ²⁾
0,50 - 5,0	56	46
5,0 - 30	60	50

¹⁾ At the transition frequency, the lower limit applies.

²⁾ The limit decreases linearly with the logarithm of the frequency.

4.1.2 Test Setup



4.1.3 Test Procedure

	References Rule	Chapter	Item
☒	ANSI C63.10-2013	6.2	Standard test method for ac power-line conducted emissions from unlicensed wireless devices

4.1.4 Test Data

Note: EUT is DC powered

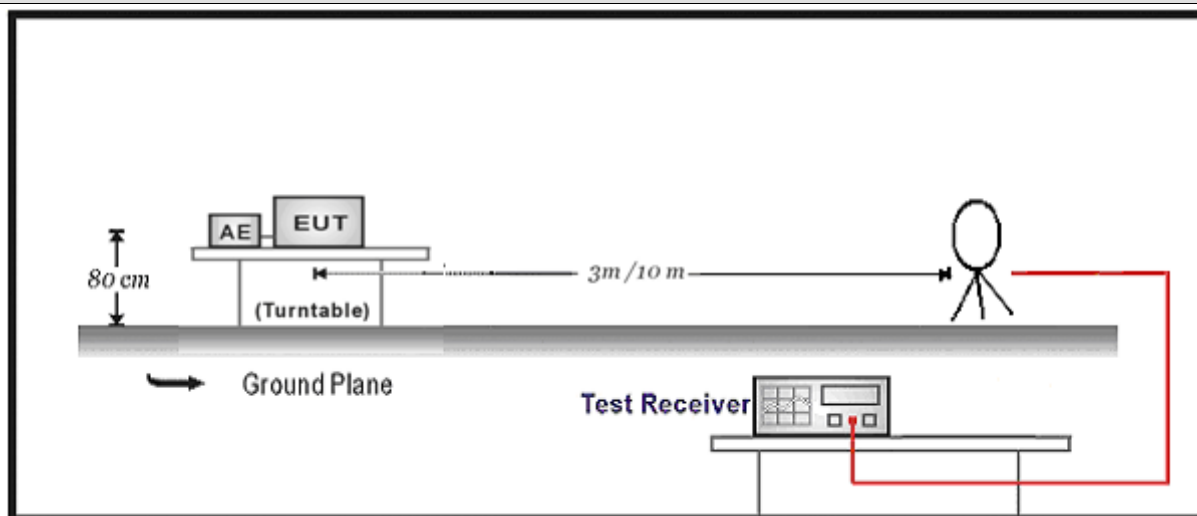
4.2 Emissions in restricted frequency bands**VERDICT: PASS****4.2.1 Limit**

Standard		FCC Part 15 Subpart C Paragraph 15.205; 15.209	
Restricted Bands of operation for FCC			
Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
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 – 156.52525	2483.5 – 2500	17.7 – 21.4
8.37625 – 8.38675	156.7 – 156.9	2690 – 2900	22.01 – 23.12
8.81425 – 8.81475	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	36.43 – 36.5
12.57675–12.57725	322 – 335.4	3600 – 4400	Above 38.6
13.36 – 13.41	--	--	--
Restricted Band Emissions Limit			
Frequency (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300 ^(Note 1)
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30 ^(Note 1)
1.705 - 30	30	29.5	30 ^(Note 1)
30 - 88	100	40	3 ^(Note 2)
88 - 216	150	43.5	3 ^(Note 2)
216 - 960	200	46	3 ^(Note 2)
Above 960	500	54	3 ^(Note 2)
Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade).			
Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated			

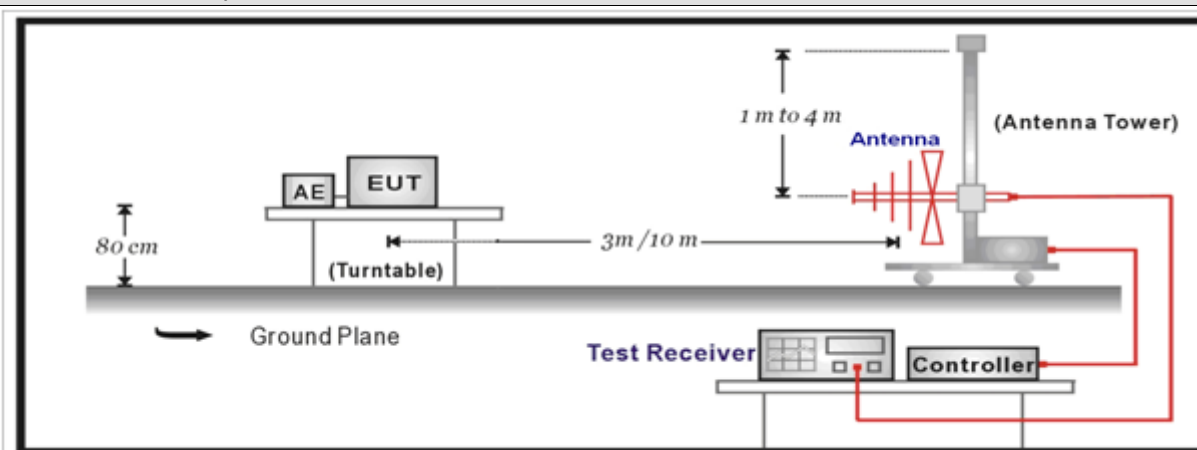
that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

4.2.2 Test Setup

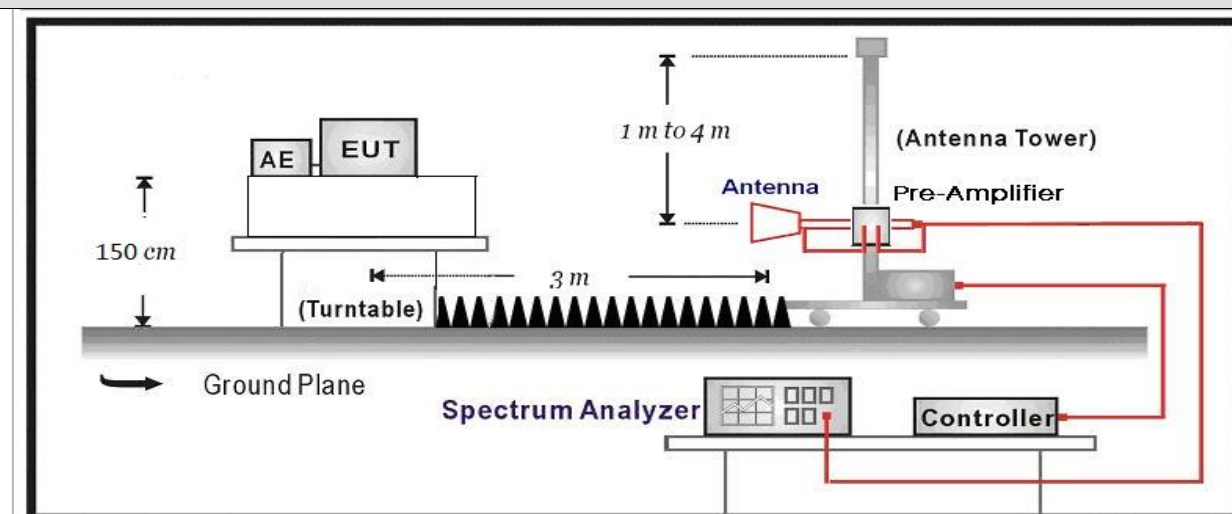
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:

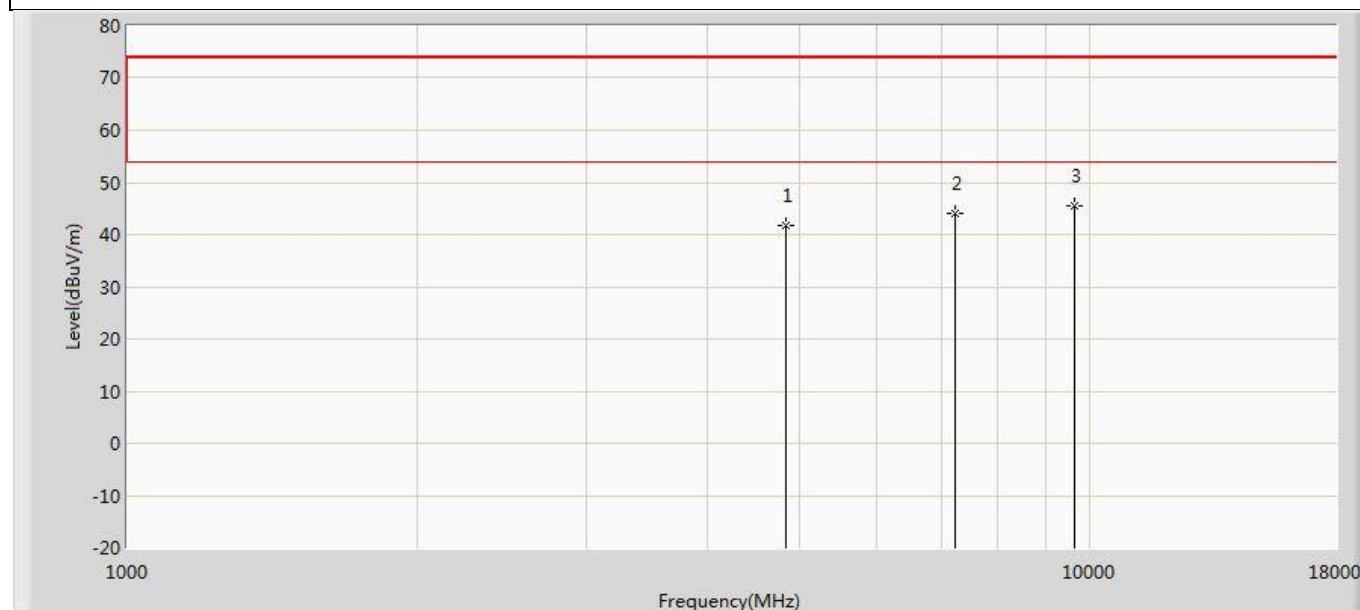


4.2.3 Test Procedure				
	References Rule		Chapter	Description
☒	ANSI C63.10		11.12	Emissions in restricted frequency bands
	☒	ANSI C63.10	11.12.1	Radiated emission measurements
	☒	ANSI C63.10	6.3	Radiated spurious emission test
	☒	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
	☒	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
	☒	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz
	☐	ANSI C63.10	11.12.2	Antenna-port conducted measurements
	☐	ANSI C63.10	11.12.2.3	Quasi-peak measurement procedure
	☐	ANSI C63.10	11.12.2.4	Peak power measurement procedure
	☐	ANSI C63.10	11.12.2.5	Average power measurement procedures
	☐	ANSI C63.10	11.12.2.5.1	Trace averaging with continuous EUT transmission at full power
	☐	ANSI C63.10	11.12.2.5.2	Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction
	☐	ANSI C63.10	11.12.2.5.3	Reduced VBW averaging across ON and OFF times of the EUT transmissions with max hold

4.2.4 Test Data

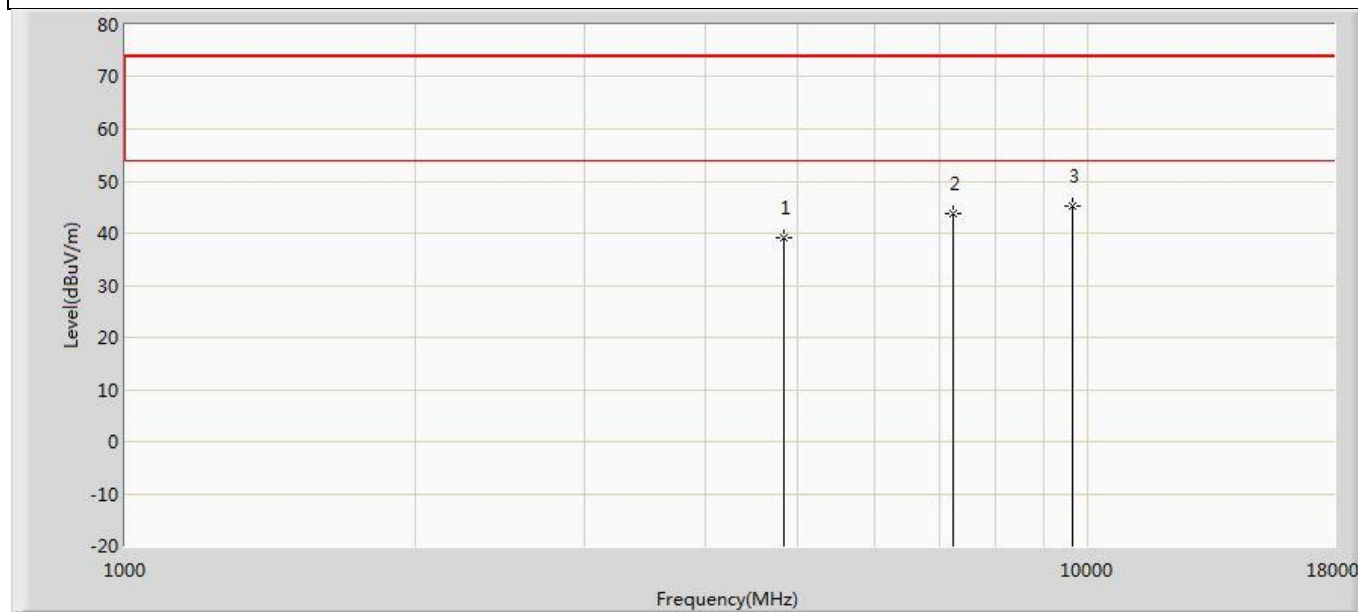
MIMO:ANT1+2

Profile: 2180545R	Page No.: 37
Engineer: Juliuszhou	
Site: AC5	Time: 2021/12/06 - 00:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LPS (LOCAL POSITIONING SYSTEM)	Power: DC3.3V
Note: Mode 1:Transmit at 2412MHz 11n (20MHz)	



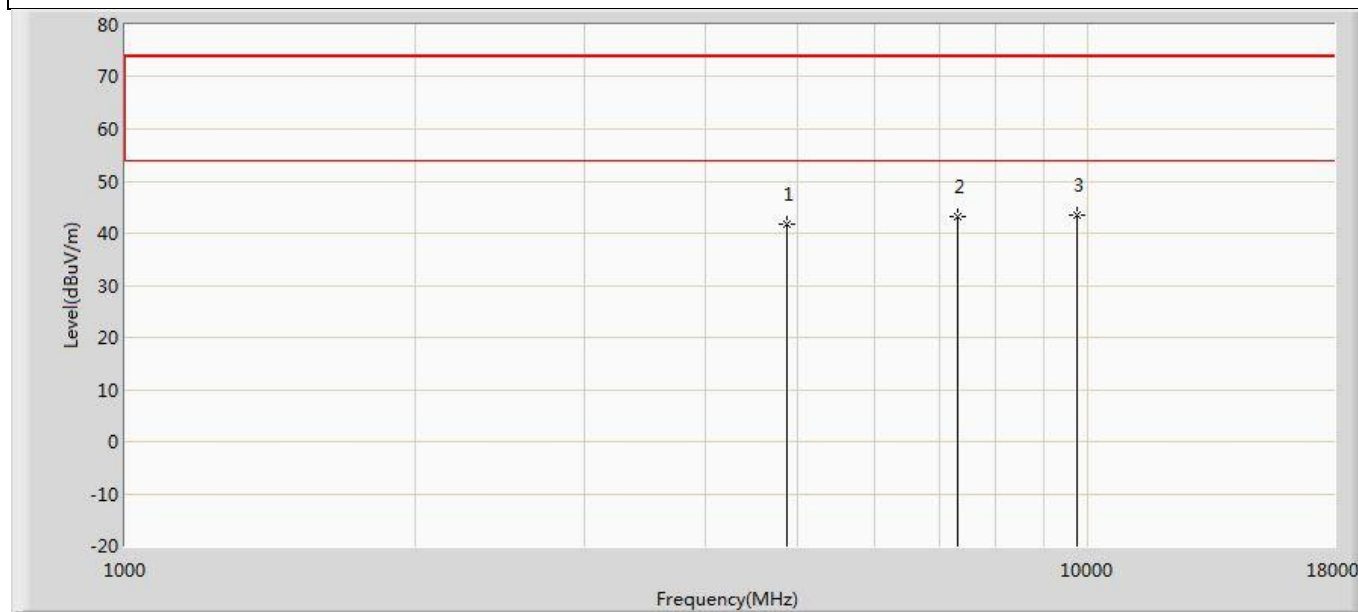
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4824.000	41.795	46.954	-32.205	74.000	-5.159	PK
2		7236.000	44.097	44.985	-29.903	74.000	-0.888	PK
3	*	9648.000	45.409	41.723	-28.591	74.000	3.686	PK

Profile: 2180545R	Page No.: 38
Engineer: Juliuszhou	
Site: AC5	Time: 2021/12/06 - 00:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LPS (LOCAL POSITIONING SYSTEM)	Power: DC3.3V
Note: Mode 1:Transmit at 2412MHz 11n (20MHz)	



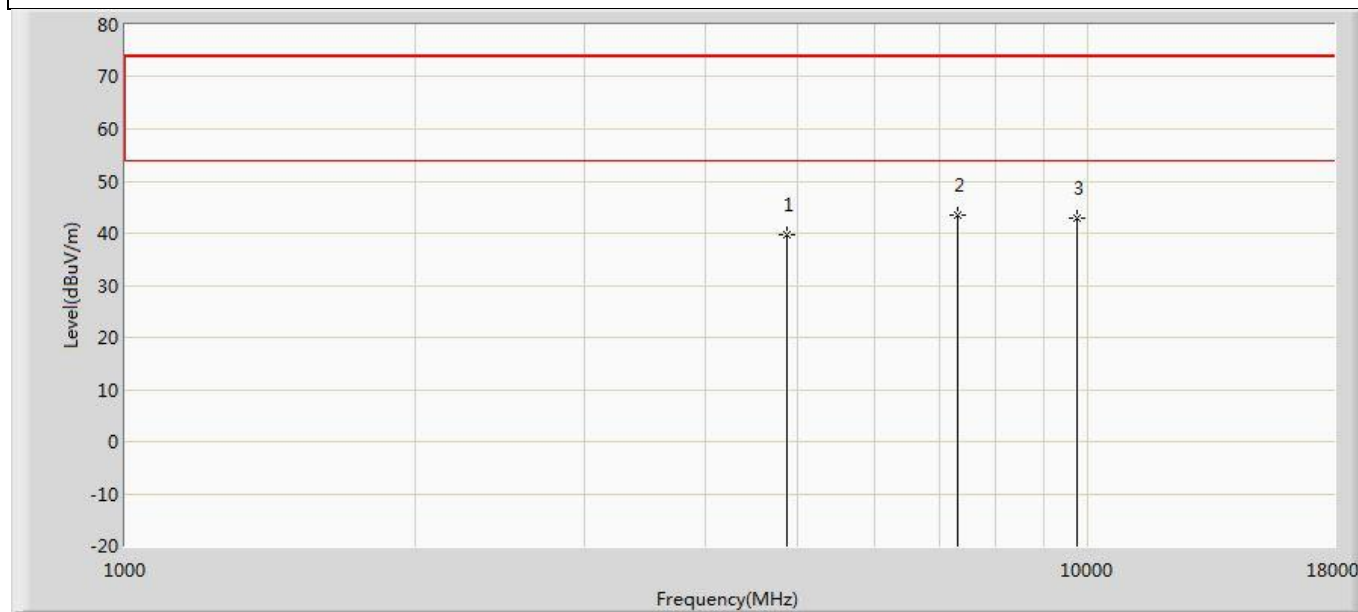
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4824.000	39.019	44.178	-34.981	74.000	-5.159	PK
2		7236.000	43.661	44.549	-30.339	74.000	-0.888	PK
3	*	9648.000	45.167	41.481	-28.833	74.000	3.686	PK

Profile: 2180545R	Page No.: 39
Engineer: Juliuszhou	
Site: AC5	Time: 2021/12/06 - 00:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LPS (LOCAL POSITIONING SYSTEM)	Power: DC3.3V
Note: Mode 1:Transmit at 2437MHz 11n (20MHz)	



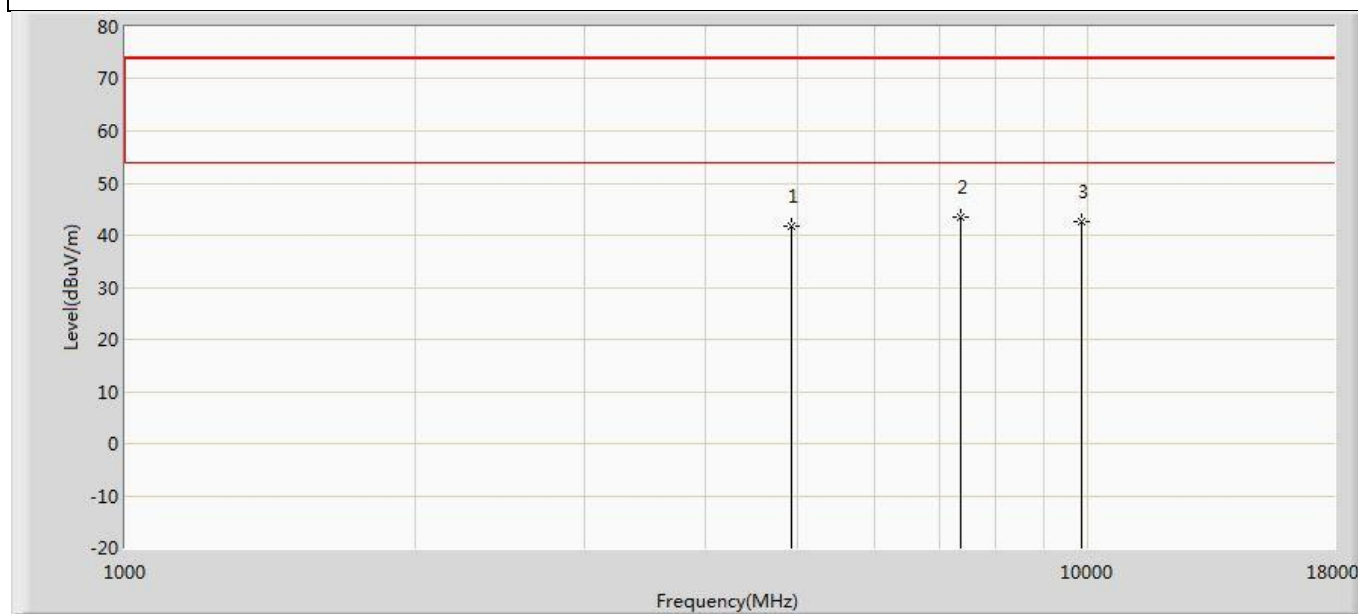
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4874.000	41.684	46.461	-32.316	74.000	-4.777	PK
2		7311.000	43.296	44.256	-30.704	74.000	-0.960	PK
3	*	9748.000	43.570	40.543	-30.430	74.000	3.027	PK

Profile: 2180545R	Page No.: 40
Engineer: Juliuszhou	
Site: AC5	Time: 2021/12/06 - 00:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LPS (LOCAL POSITIONING SYSTEM)	Power: DC3.3V
Note: Mode 1:Transmit at 2437MHz 11n (20MHz)	



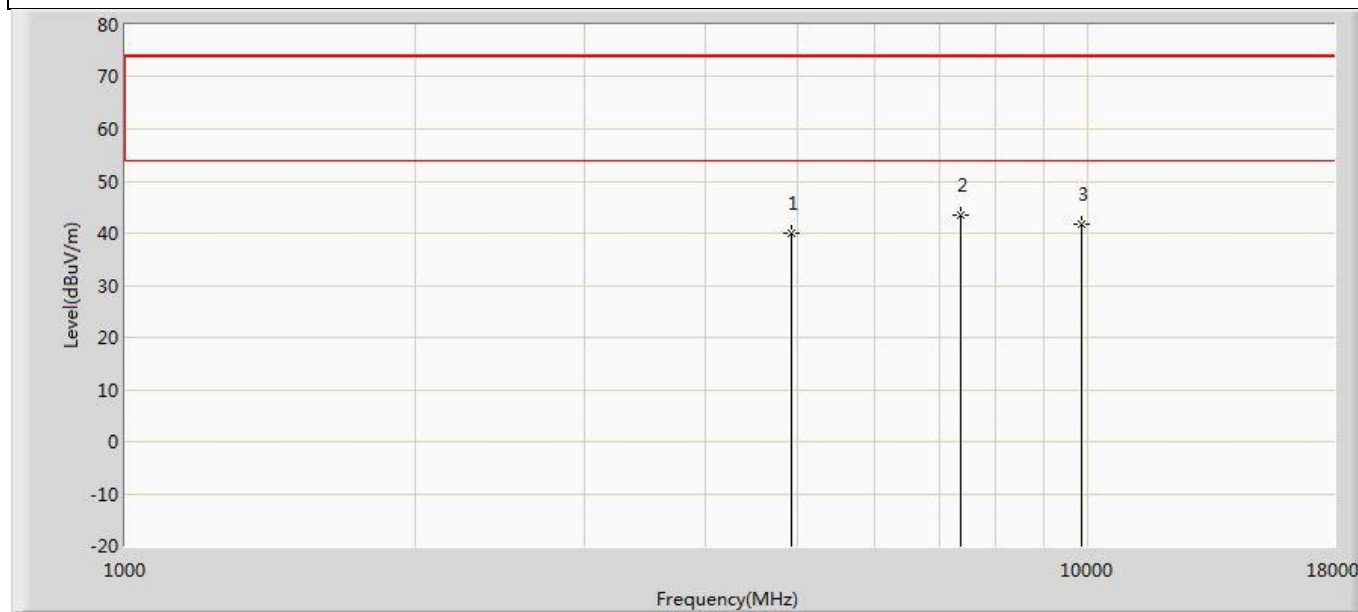
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4874.000	39.787	44.564	-34.213	74.000	-4.777	PK
2	*	7311.000	43.425	44.385	-30.575	74.000	-0.960	PK
3		9748.000	42.763	39.736	-31.237	74.000	3.027	PK

Profile: 2180545R	Page No.: 41
Engineer: Juliuszhou	
Site: AC5	Time: 2021/12/06 - 00:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LPS (LOCAL POSITIONING SYSTEM)	Power: DC3.3V
Note: Mode 1:Transmit at 2462MHz 11n (20MHz)	



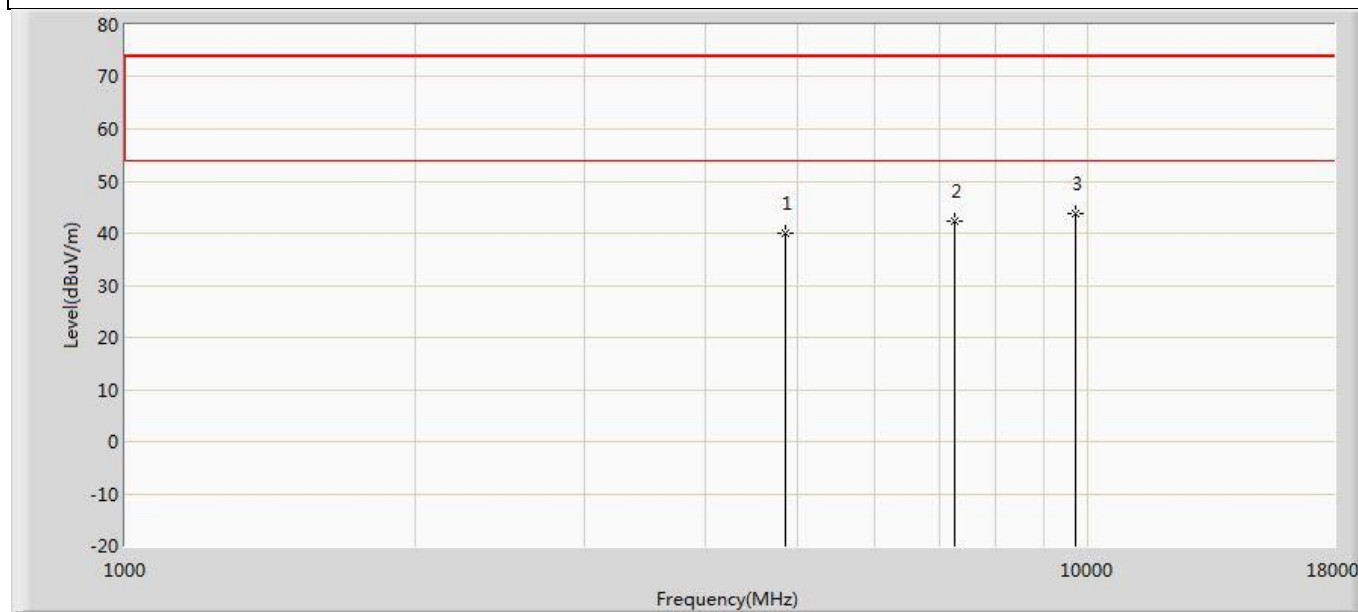
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4924.000	41.718	46.601	-32.282	74.000	-4.883	PK
2	*	7386.000	43.477	44.538	-30.523	74.000	-1.061	PK
3		9848.000	42.597	39.480	-31.403	74.000	3.116	PK

Profile: 2180545R	Page No.: 42
Engineer: Juliuszhou	
Site: AC5	Time: 2021/12/06 - 00:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LPS (LOCAL POSITIONING SYSTEM)	Power: DC3.3V
Note: Mode 1:Transmit at 2462MHz 11n (20MHz)	



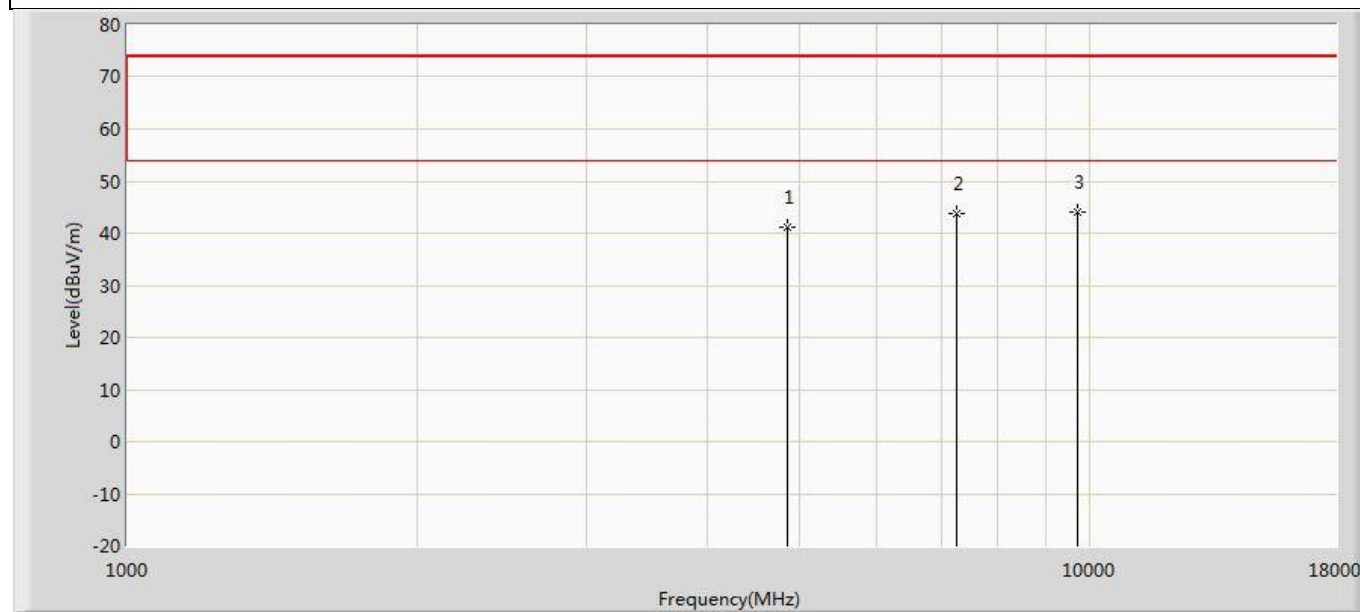
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4924.000	40.130	45.013	-33.870	74.000	-4.883	PK
2	*	7386.000	43.447	44.508	-30.553	74.000	-1.061	PK
3		9848.000	41.730	38.613	-32.270	74.000	3.116	PK

Profile: 2180545R	Page No.: 43
Engineer: Juliuszhou	
Site: AC5	Time: 2021/12/06 - 00:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LPS (LOCAL POSITIONING SYSTEM)	Power: DC3.3V
Note: Mode 2:Transmit at 2422MHz 11n (40MHz)	



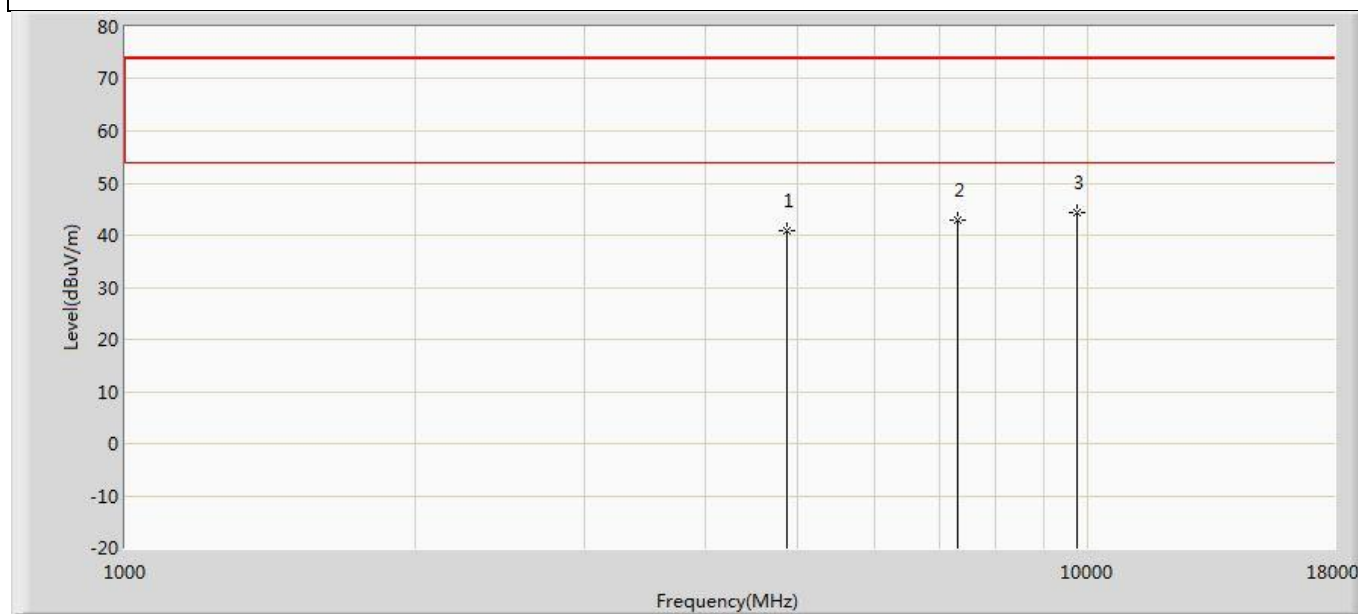
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4844.000	40.082	45.029	-33.918	74.000	-4.946	PK
2		7266.000	42.281	43.098	-31.719	74.000	-0.817	PK
3	*	9688.000	43.838	40.316	-30.162	74.000	3.521	PK

Profile: 2180545R	Page No.: 44
Engineer: Juliuszhou	
Site: AC5	Time: 2021/12/06 - 00:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LPS (LOCAL POSITIONING SYSTEM)	Power: DC3.3V
Note: Mode 2:Transmit at 2422MHz 11n (40MHz)	



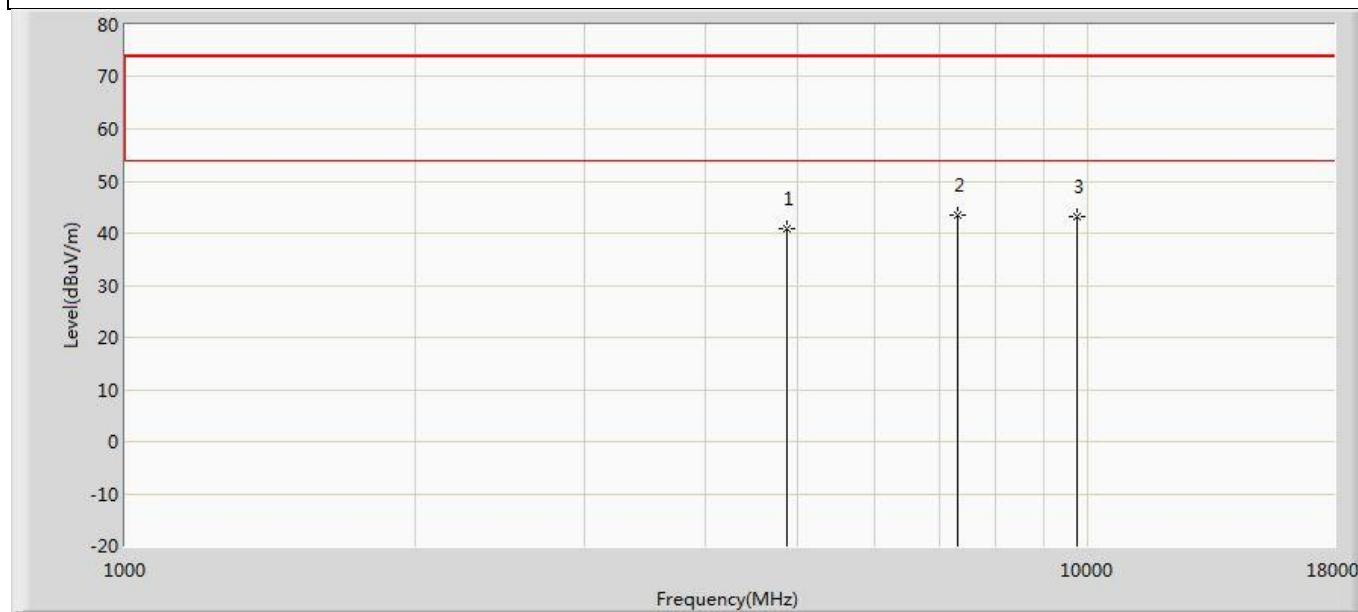
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4844.000	41.141	46.088	-32.859	74.000	-4.946	PK
2		7266.000	43.902	44.719	-30.098	74.000	-0.817	PK
3	*	9688.000	44.115	40.593	-29.885	74.000	3.521	PK

Profile: 2180545R	Page No.: 45
Engineer: Juliuszhou	
Site: AC5	Time: 2021/12/06 - 00:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LPS (LOCAL POSITIONING SYSTEM)	Power: DC3.3V
Note: Mode 2:Transmit at 2437MHz 11n (40MHz)	



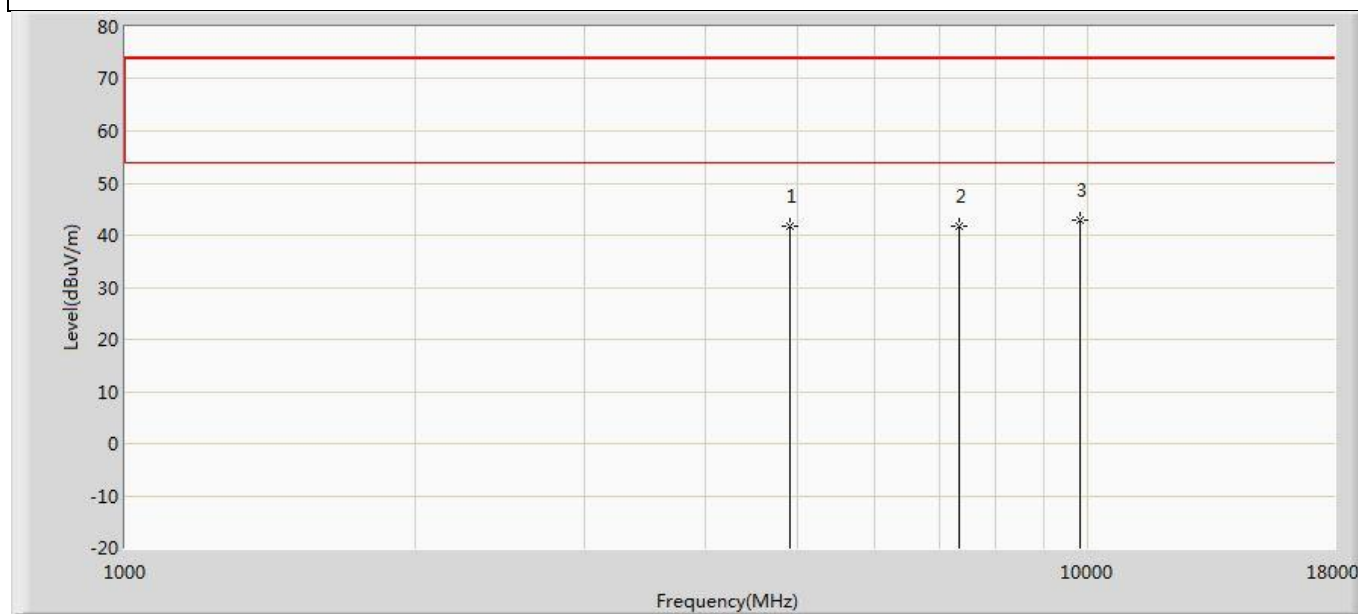
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4874.000	40.895	45.672	-33.105	74.000	-4.777	PK
2		7311.000	42.809	43.769	-31.191	74.000	-0.960	PK
3	*	9748.000	44.232	41.205	-29.768	74.000	3.027	PK

Profile: 2180545R	Page No.: 46
Engineer: Juliuszhou	
Site: AC5	Time: 2021/12/06 - 00:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LPS (LOCAL POSITIONING SYSTEM)	Power: DC3.3V
Note: Mode 2:Transmit at 2437MHz 11n (40MHz)	



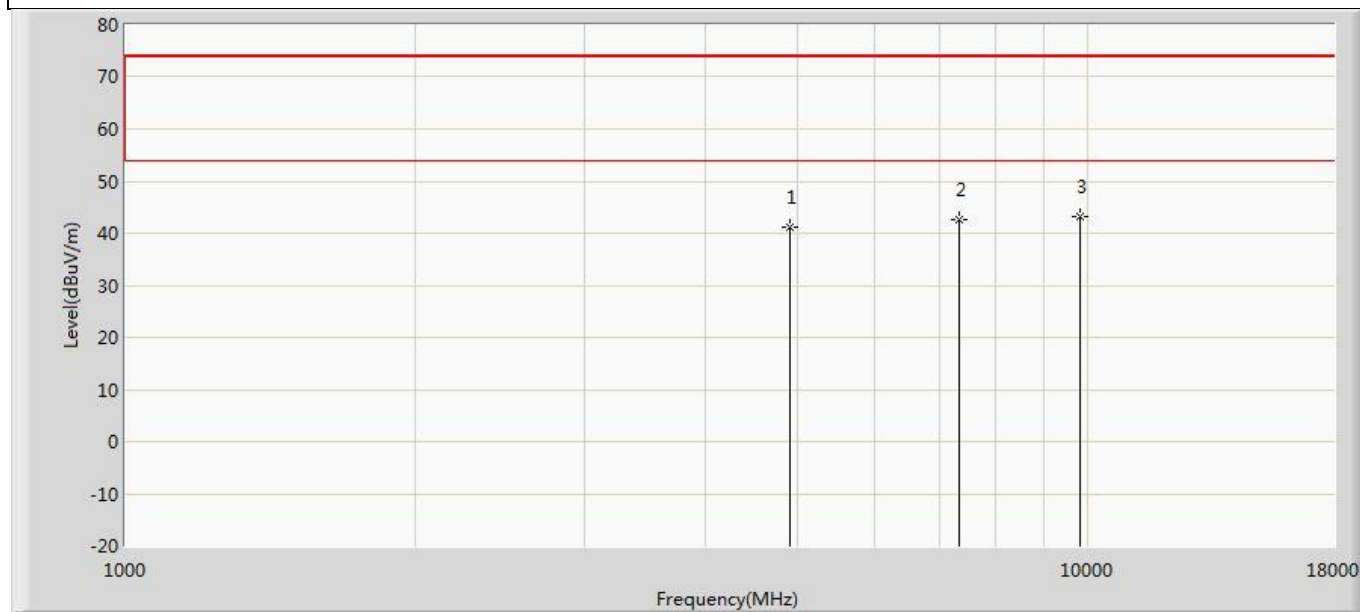
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4874.000	40.980	45.757	-33.020	74.000	-4.777	PK
2	*	7311.000	43.410	44.370	-30.590	74.000	-0.960	PK
3		9748.000	43.093	40.066	-30.907	74.000	3.027	PK

Profile: 2180545R	Page No.: 47
Engineer: Juliuszhou	
Site: AC5	Time: 2021/12/06 - 00:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LPS (LOCAL POSITIONING SYSTEM)	Power: DC3.3V
Note: Mode 2:Transmit at 2452MHz 11n (40MHz)	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4904.000	41.631	46.624	-32.369	74.000	-4.993	PK
2		7356.000	41.871	42.910	-32.129	74.000	-1.038	PK
3	*	9808.000	42.875	40.196	-31.125	74.000	2.678	PK

Profile: 2180545R	Page No.: 48
Engineer: Juliuszhou	
Site: AC5	Time: 2021/12/06 - 00:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LPS (LOCAL POSITIONING SYSTEM)	Power: DC3.3V
Note: Mode 2:Transmit at 2452MHz 11n (40MHz)	



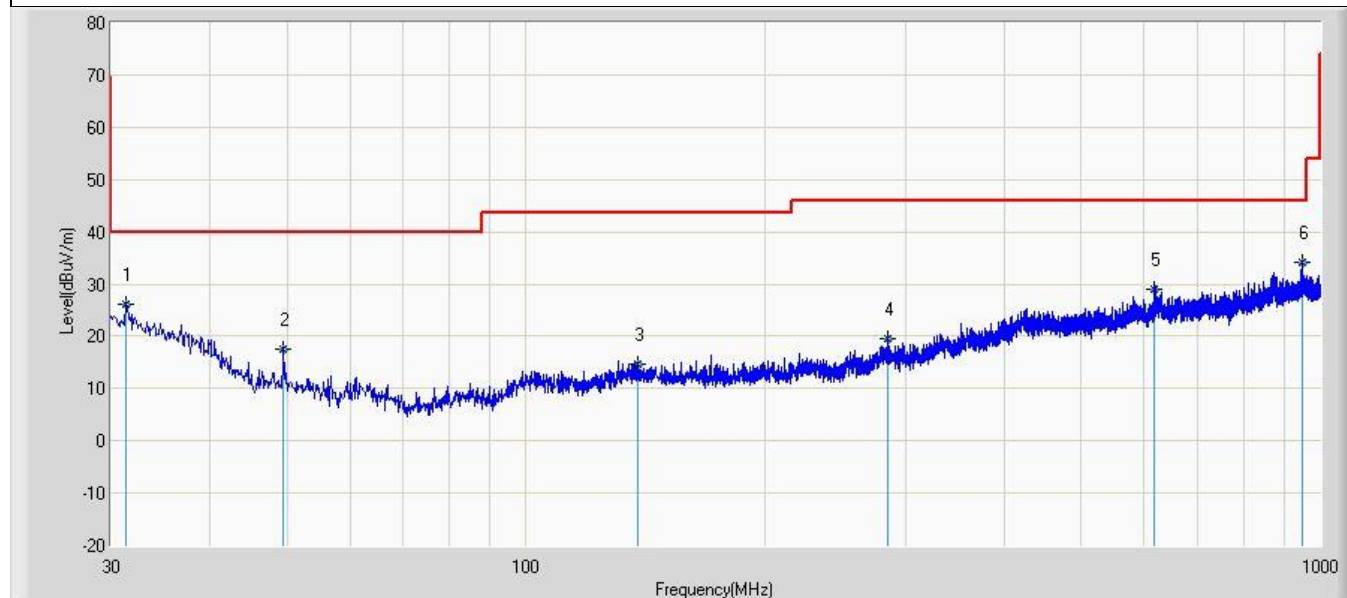
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4904.000	41.078	46.071	-32.922	74.000	-4.993	PK
2		7356.000	42.727	43.766	-31.273	74.000	-1.038	PK
3	*	9808.000	43.189	40.510	-30.811	74.000	2.678	PK

Note:

1. Measured Level = Reading Level + Factor.
2. The test frequency range, 9kHz~30MHz, worst case are at least 20dB below the limits, therefore no data appear in the report.
3. The test frequency range, 18GHz~26GHz test result on peak is lower than average limit, all is the noise base, therefore no data appear in the report.
4. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.
5. As the radiated emission was performed, so conducted emission was not tested.
6. We evaluated SISO MIMO mode, shown in the report is the worst data (MIMO mode 2TX)

The worst case of Radiated Emission below 1GHz:

Profile: 2180545R	Page No.: 3
Engineer: Julius zhou	
Site: AC3	Time: 2021/12/12 - 01:15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC3_3m (30-1000MHz)	Polarity: Horizontal
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode1: Transmit at 2412MHz 11n (20MHz) SISO	

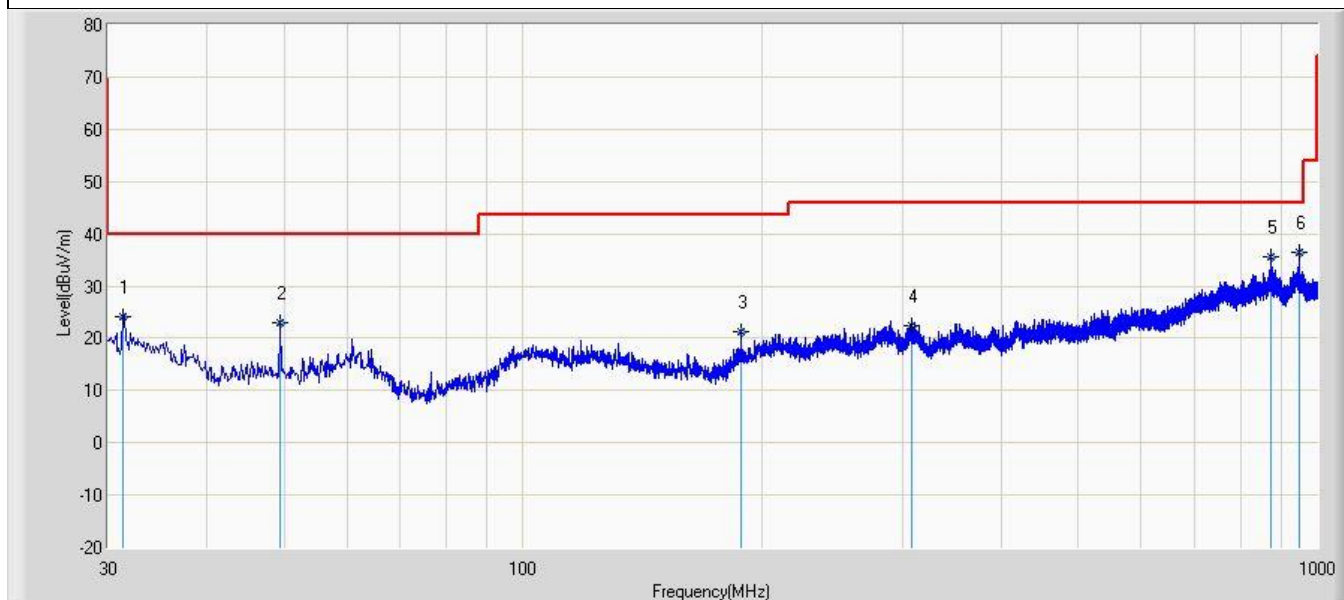


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		31.334	26.025	-1.030	-13.975	40.000	27.054	QP
2		49.521	17.541	2.029	-22.459	40.000	15.511	QP
3		138.034	14.599	-2.966	-28.901	43.500	17.566	QP
4		284.867	19.548	-1.428	-26.452	46.000	20.977	QP
5		618.062	28.984	-0.139	-17.016	46.000	29.123	QP
6	*	948.469	34.025	1.477	-11.975	46.000	32.548	QP

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Profile: 2180545R	Page No.: 4
Engineer: Julius zhou	
Site: AC3	Time: 2021/12/12 - 01:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC3_3m (30-1000MHz)	Polarity: Vertical
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode1: Transmit at 2412MHz 11n (20MHz) SISO	



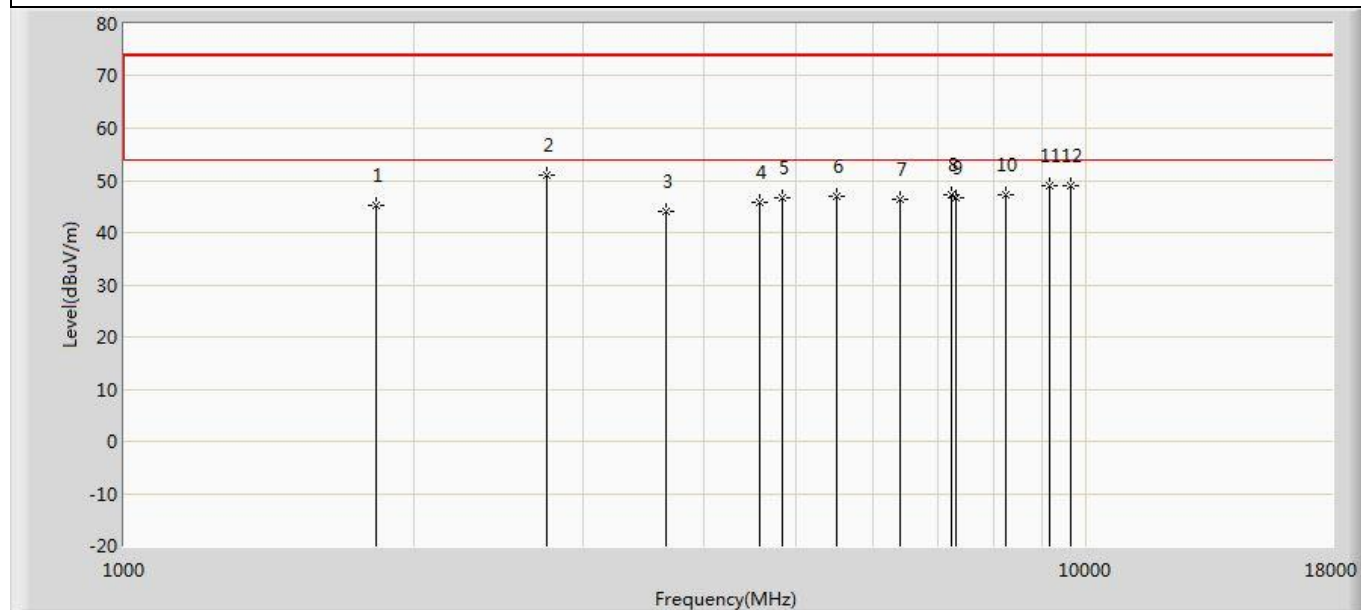
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		31.334	24.215	0.669	-15.785	40.000	23.546	QP
2		49.521	22.890	4.944	-17.110	40.000	17.946	QP
3		187.867	21.125	0.262	-22.375	43.500	20.863	QP
4		308.996	22.358	-2.853	-23.642	46.000	25.212	QP
5		874.264	35.551	2.786	-10.449	46.000	32.766	QP
6	*	948.833	36.589	1.897	-9.411	46.000	34.692	QP

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

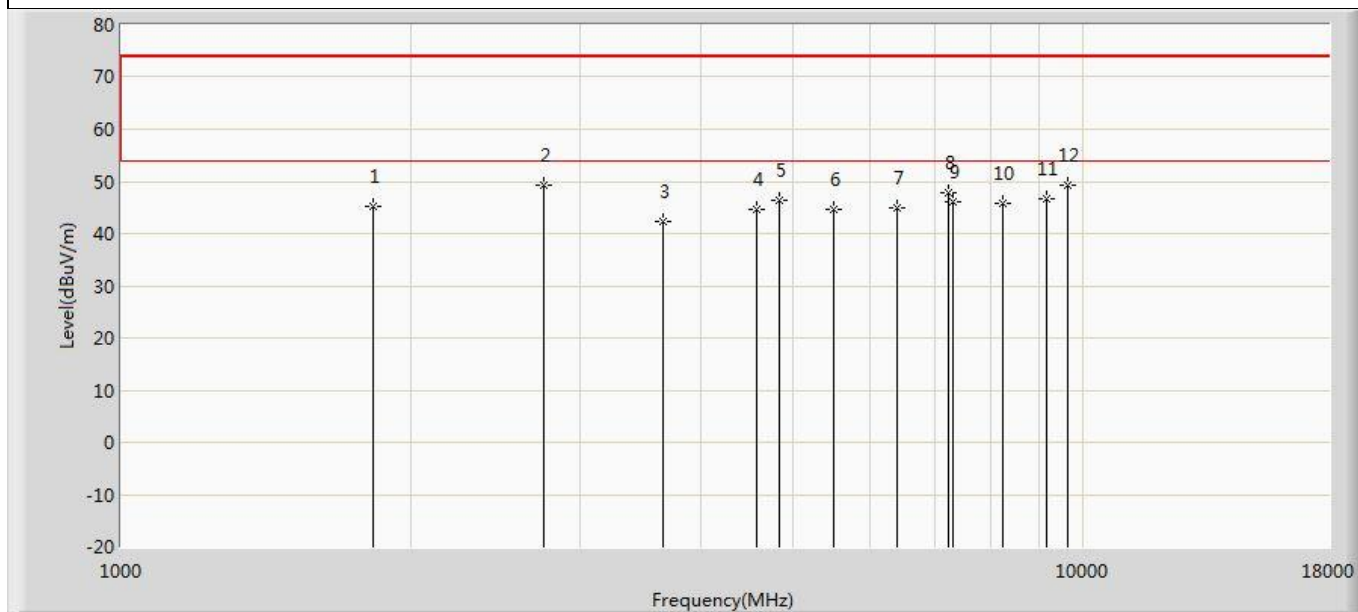
The worst case of Simultaneous Radiated Emission:

Profile: 2180545R	Page No.: 25
Engineer: YULIU	
Site: AC5	Time: 2022/01/04 - 10:50
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 1: Simultaneous transmission with Sub-G (915.6MHz) +2.4G WLAN 11n20 (2412MHz) MIMO	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		1831.200	45.261	44.661	-28.739	74.000	0.600	PK
2	*	2746.000	51.152	47.410	-22.848	74.000	3.742	PK
3		3662.400	44.101	38.164	-29.899	74.000	5.937	PK
4		4578.000	45.759	37.329	-28.241	74.000	8.430	PK
5		4824.000	46.648	36.786	-27.352	74.000	9.862	PK
6		5493.600	47.024	35.172	-26.976	74.000	11.852	PK
7		6409.200	46.363	34.354	-27.637	74.000	12.009	PK
8		7236.000	47.113	34.670	-26.887	74.000	12.443	PK
9		7324.800	46.684	33.949	-27.316	74.000	12.735	PK
10		8240.400	47.184	33.425	-26.816	74.000	13.759	PK
11		9156.000	48.851	32.234	-25.149	74.000	16.617	PK
12		9648.000	49.058	33.089	-24.942	74.000	15.970	PK

Profile: 2180545R	Page No.: 26
Engineer: YULIU	
Site: AC5	Time: 2022/01/04 - 10:50
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 1: Simultaneous transmission with Sub-G (915.6MHz) +2.4G WLAN 11n20 (2412MHz) MIMO	



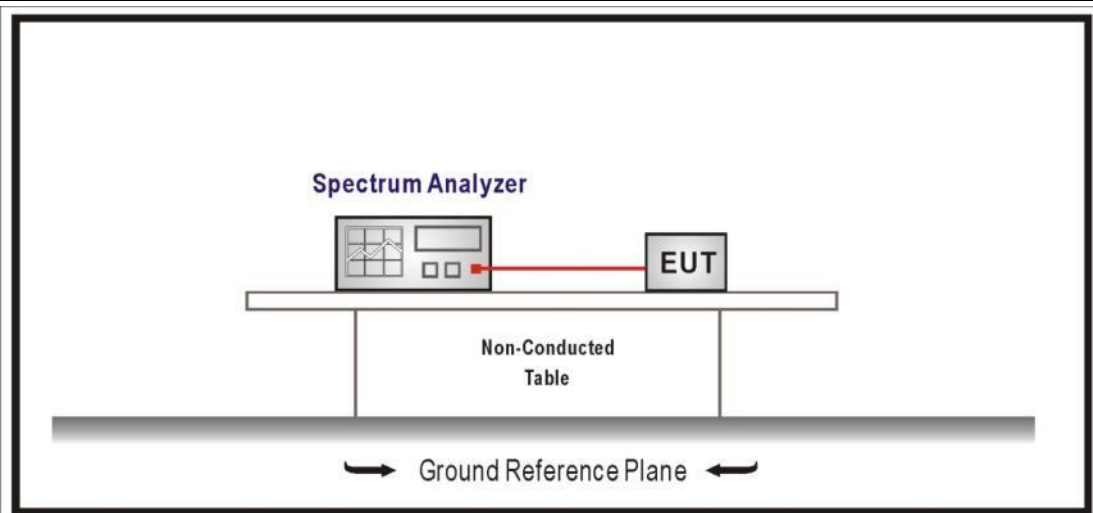
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		1831.200	45.165	44.565	-28.835	74.000	0.600	PK
2	*	2746.000	49.359	45.617	-24.641	74.000	3.742	PK
3		3662.400	42.268	36.331	-31.732	74.000	5.937	PK
4		4578.000	44.700	36.270	-29.300	74.000	8.430	PK
5		4824.000	46.259	36.397	-27.741	74.000	9.862	PK
6		5493.600	44.501	32.649	-29.499	74.000	11.852	PK
7		6409.200	44.801	32.792	-29.199	74.000	12.009	PK
8		7236.000	47.732	35.289	-26.268	74.000	12.443	PK
9		7324.800	46.006	33.271	-27.994	74.000	12.735	PK
10		8240.400	45.728	31.969	-28.272	74.000	13.759	PK
11		9156.000	46.679	30.062	-27.321	74.000	16.617	PK
12		9648.000	49.332	33.363	-24.668	74.000	15.970	PK

4.3 Emissions in non-restricted frequency band**VERDICT: PASS****4.3.1 Limit**

Standard	FCC Part 15 Subpart C Paragraph 15.247(d)
RF Output power (Detection methods)	Limit(dB)
RF Output power(Average detector)	30dBc(Note1)
RF Output power(PK detector)	20dBc(Note2)

Note 1: If maximum conducted (average) output power was used to demonstrate compliance as described in 9.2, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 30 dBc).

Note 2: If the maximum peak conducted output power procedure was used, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 20 dBc).

4.3.2 Test Setup**4.3.3 Test Procedure**

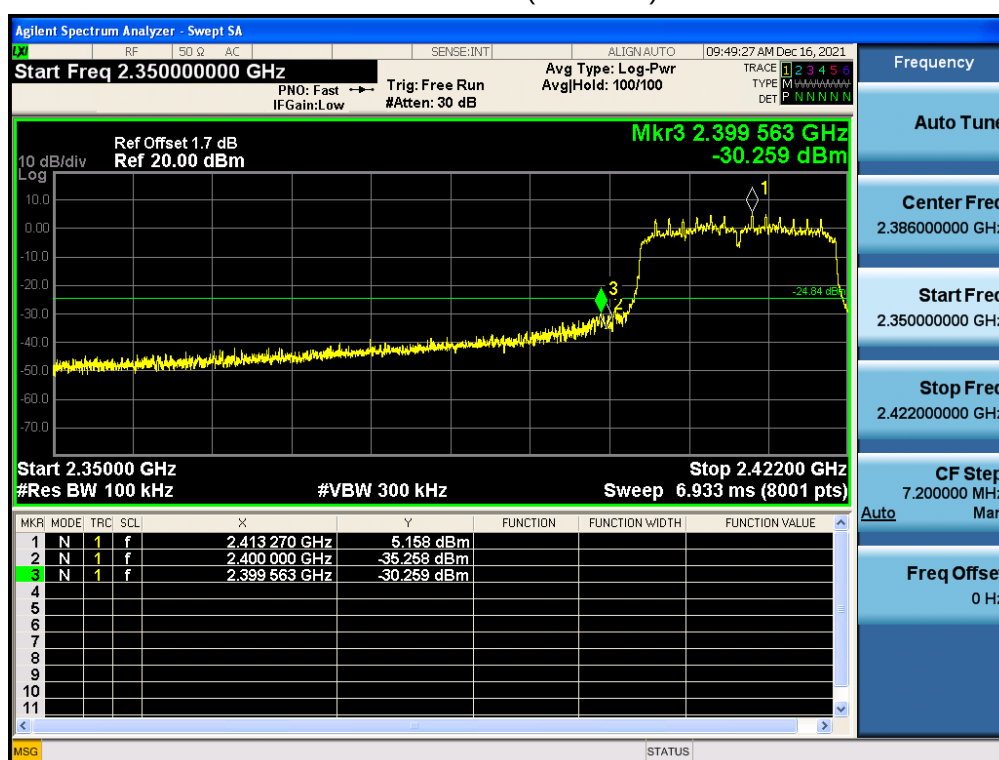
References Rule	Chapter	Description
☒ ANSI C63.10	11.11	Emissions in non-restricted frequency bands
☒ ANSI C63.10	11.11.1	General
☒ ANSI C63.10	11.11.2	Reference level measurement
☒ ANSI C63.10	11.11.3	Emission level measurement

4.3.4 Test Data

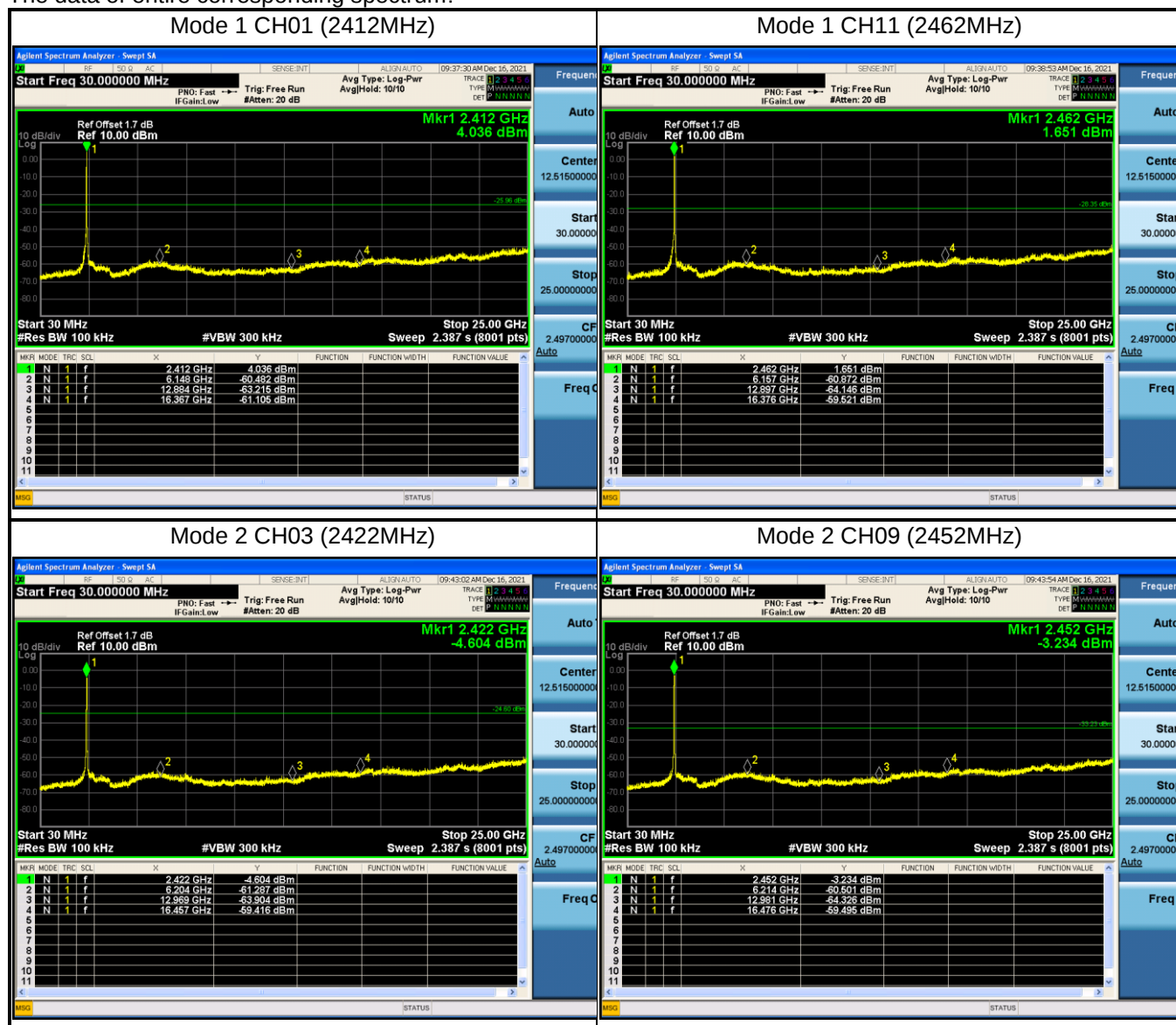
Mode	Channel	Test Frequency (MHz)	Maximum In-Band PSD[a] (dBm/100kHz)	Frequency (MHz)	Out-Band PSD[b] (dBm/100kHz)	[a]-[b] (dB)	Limit (dB)	Result
1	1	2412	5.158	2399.563	-30.259	35.417	≥30	Pass
	11	2462	5.335	2500	-45.758	51.093	≥30	Pass
2	3	2422	1.220	2398.287	-36.277	37.497	≥30	Pass
	9	2452	1.640	2500	-47.670	49.31	≥30	Pass

Note: The worst case of emissions in non-restricted frequency bands as below:

Mode 1 CH01(2412MHz)



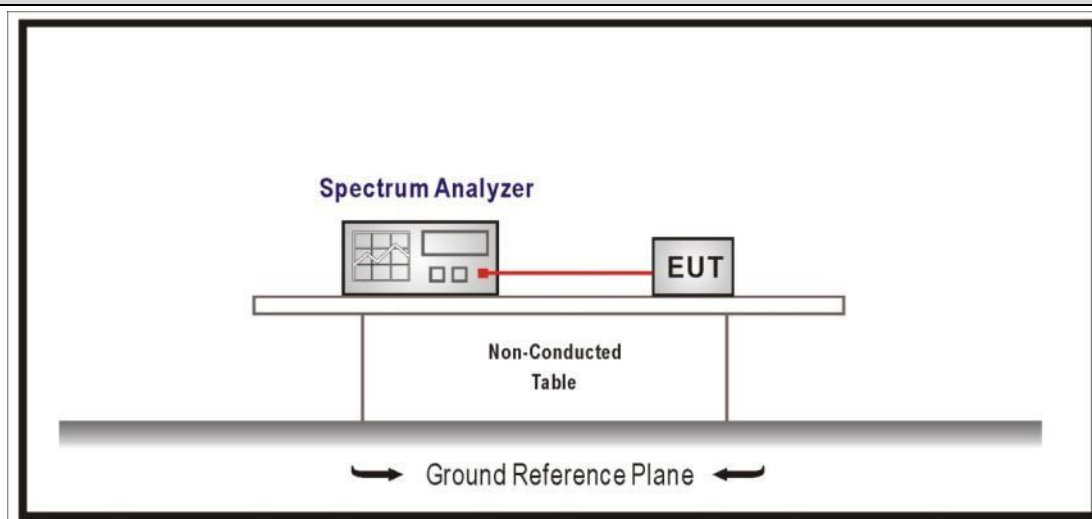
The data of entire corresponding spectrum:



4.4 Duty cycle	VERDICT: PASS
-----------------------	----------------------

4.4.1 Limit

N/A

4.4.2 Test Setup**4.1.1 Test Procedure**

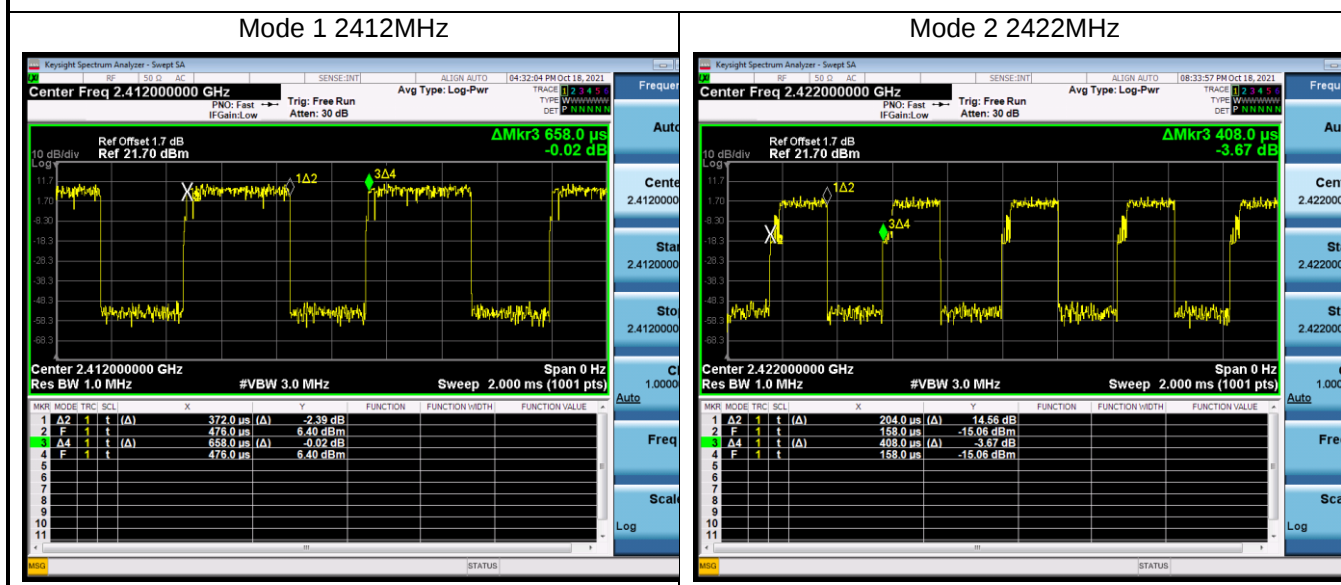
References Rule	Chapter	Description
☒ ANSI C63.10	11.6	Duty cycle (D), transmission duration (T), and maximum power control level

4.4.3 Test Data

Test Mode	Tx On (us)	VBW (KHz)	Tx On + Tx Off (us)	Duty Cycle (%)
Mode 1	0.372	3	0.658	56.53
Mode 2	0.204	5	0.408	50.00

Note 1: T means the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

Note 2: According to KDB 558074, when test for Radiated Emission Band Edge and Radiated Emission, for average detector set: $VBW \geq 1/T$ will be used.



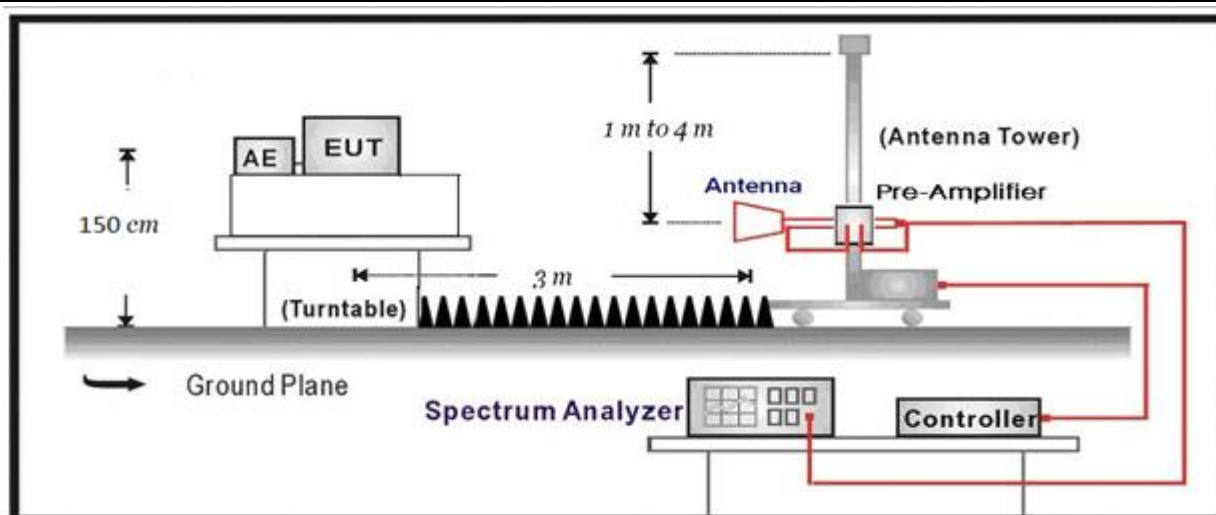
4.5 Radiated Emission Band Edge**VERDICT: PASS****4.5.1 Limit**

Standard		FCC Part 15 Subpart C Paragraph 15.247(d) , 15.205, 15.209		
Frequency bands (MHz)	Detector	Limit (dB μ V/m)	RBW (MHz)	Distance (m)
2310-2390 2483.5-2500	PK	74	1	3
	AV	54	1	3

Note: The field strength of emissions appearing within these frequency bands shall not exceed the limits.

4.5.2 Test Setup

Above 1GHz Test Setup:

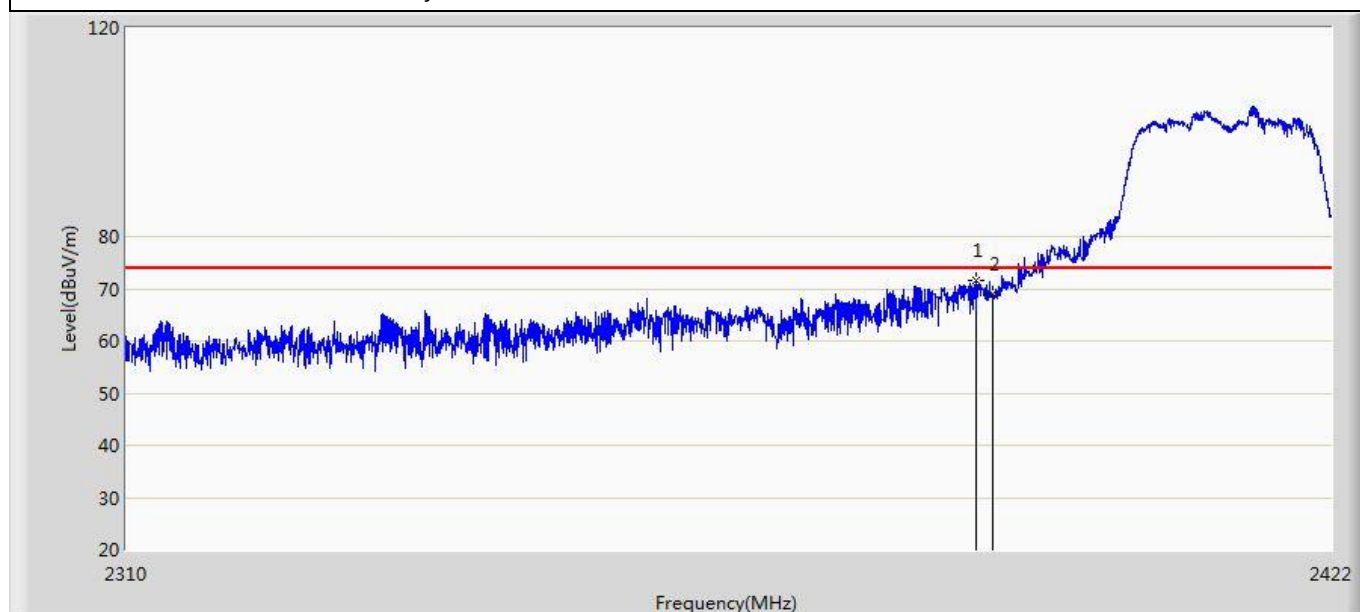


4.5.3 Test Procedure			
	References Rule	Chapter	Description
☒	ANSI C63.10	6.10	Band-edge testing
	☒ ANSI C63.10	6.10.5	Restricted-band band-edge measurements
	☐ ANSI C63.10	6.10.6	Marker-delta method
☒	ANSI C63.10	11.12	Emissions in restricted frequency bands
	☒ ANSI C63.10	11.12.1	Radiated emission measurements
	☒ ANSI C63.10	6.3	Radiated spurious emission test
☐	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
☐	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
☒	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

4.5.4 Test Data

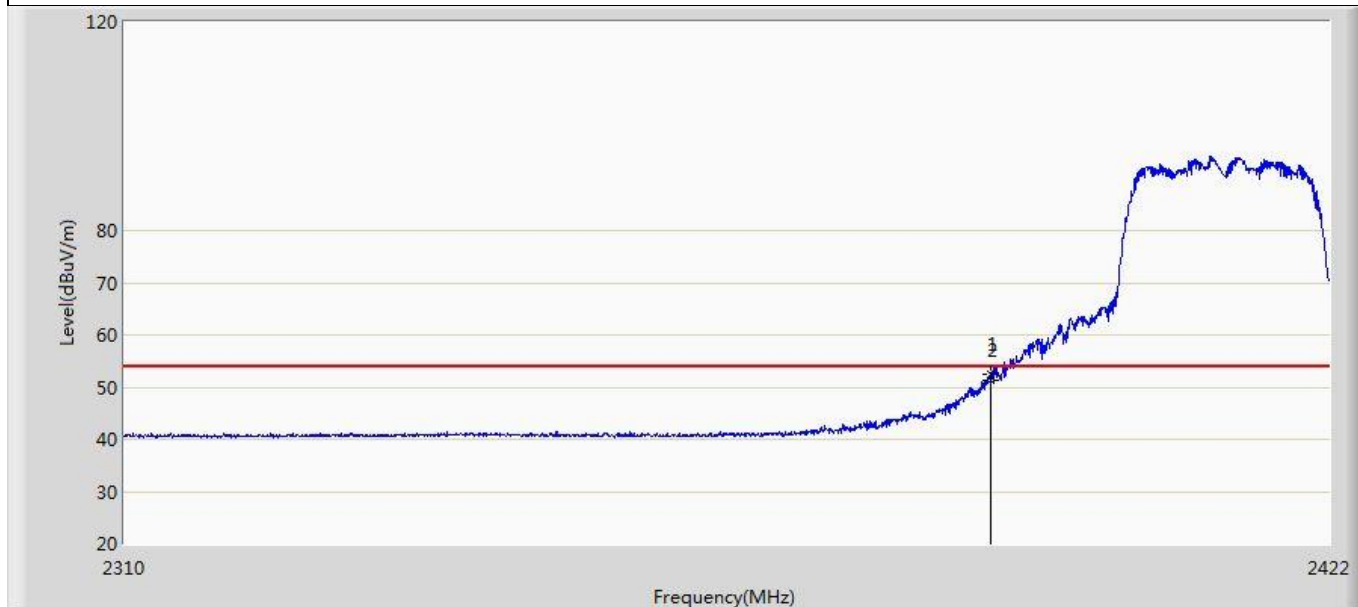
SISO:ANT2

Profile: 2180545R	Page No.: 1
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:29
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 1:Transmit at 2412MHz by 11ac20 SISO	



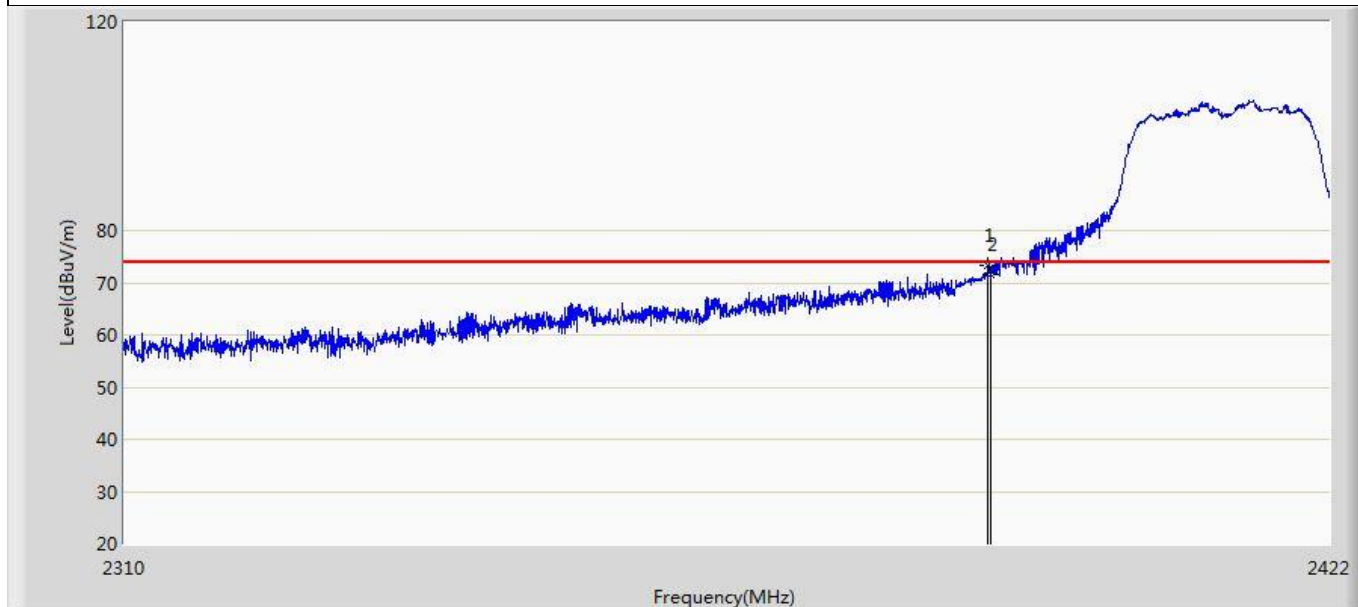
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2388.456	71.505	36.058	-2.495	74.000	35.447	PK
2		2390.000	68.885	33.426	-5.115	74.000	35.459	PK

Profile: 2180545R	Page No.: 2
Engineer: Nile	
Site: AC5	Time: 2021/11/16 - 19:15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 1:Transmit at 2412MHz by 11ac20 SISO	



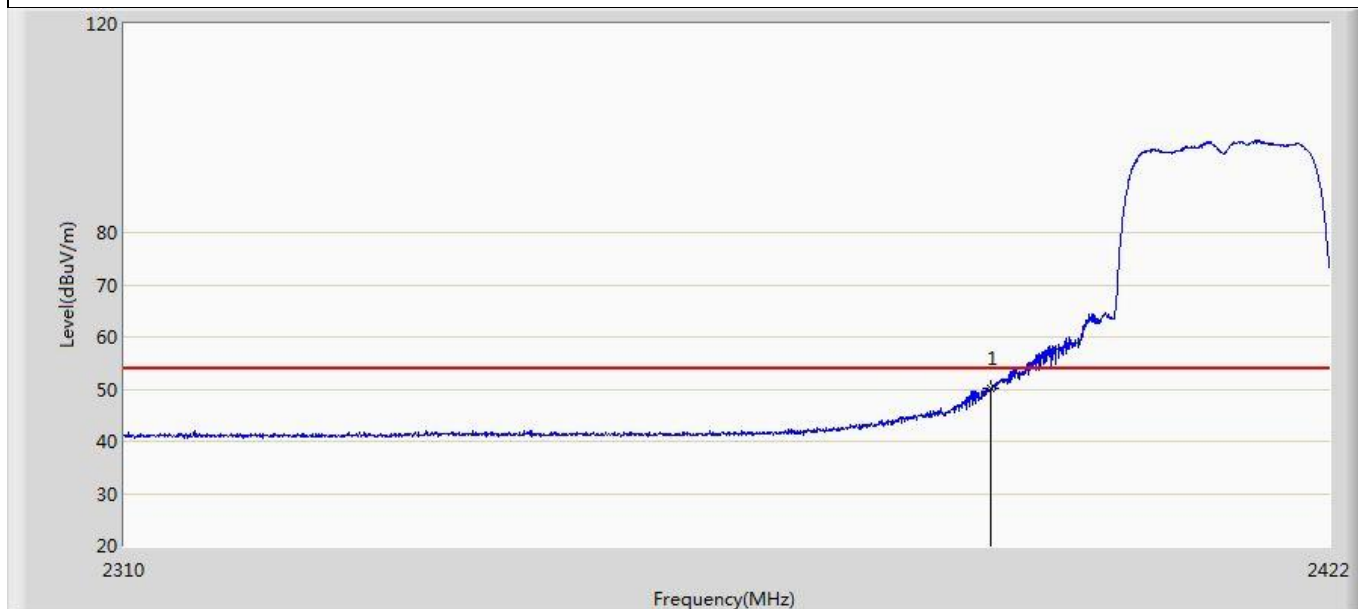
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2389.968	52.370	16.911	-1.630	54.000	35.459	AV
2		2390.000	51.442	15.983	-2.558	54.000	35.459	AV

Profile: 2180545R	Page No.: 3
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:31
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 1:Transmit at 2412MHz by 11ac20 SISO	



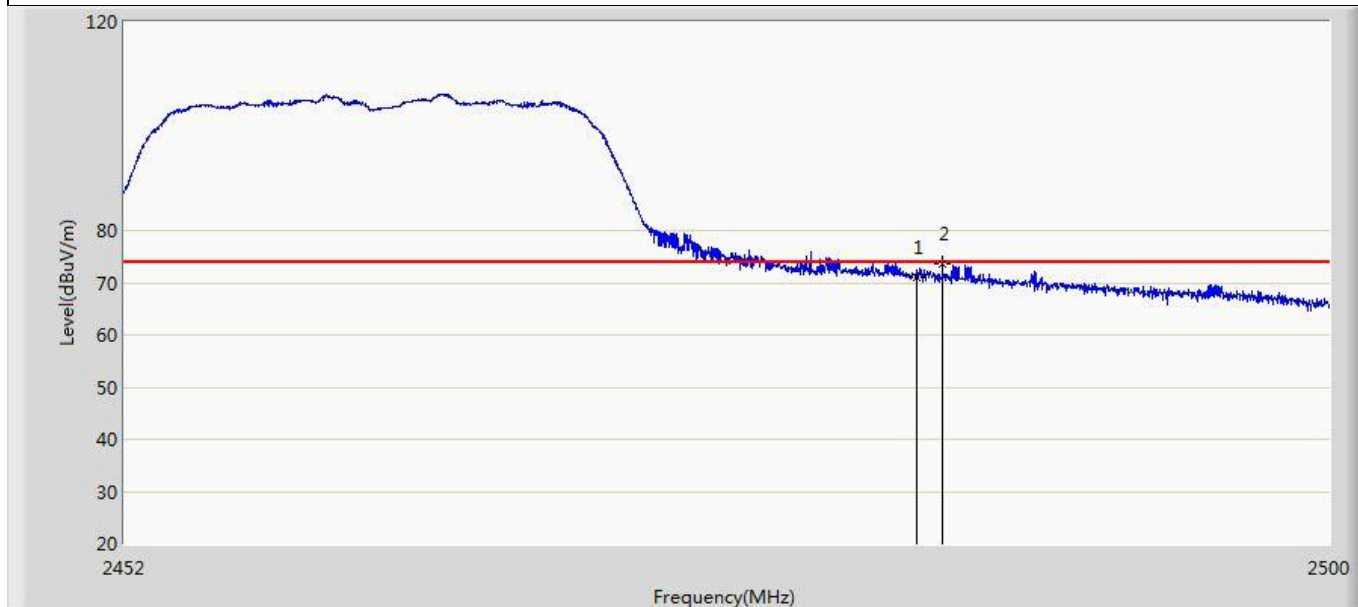
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2389.800	73.384	37.926	-0.616	74.000	35.458	PK
2		2390.000	71.546	36.087	-2.454	74.000	35.459	PK

Profile: 2180545R	Page No.: 4
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 1:Transmit at 2412MHz by 11ac20 SISO	



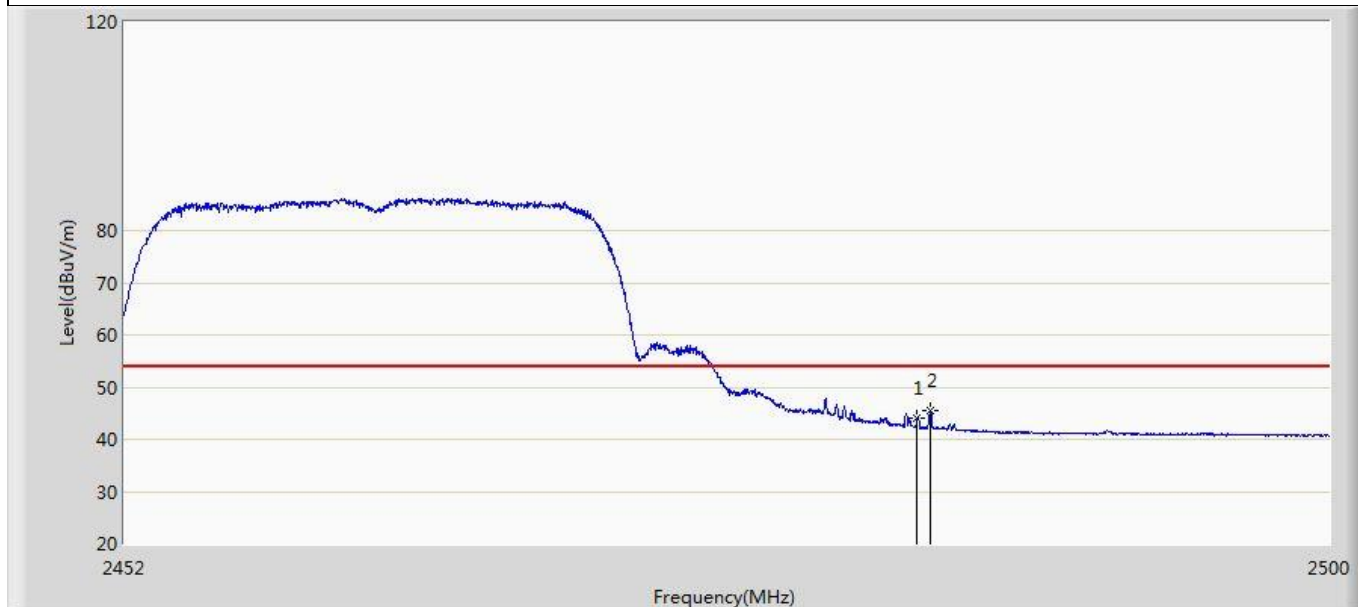
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	50.005	14.546	-3.995	54.000	35.459	AV

Profile: 2180545R	Page No.: 5
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 1:Transmit at 2462MHz by 11ac20 SISO	



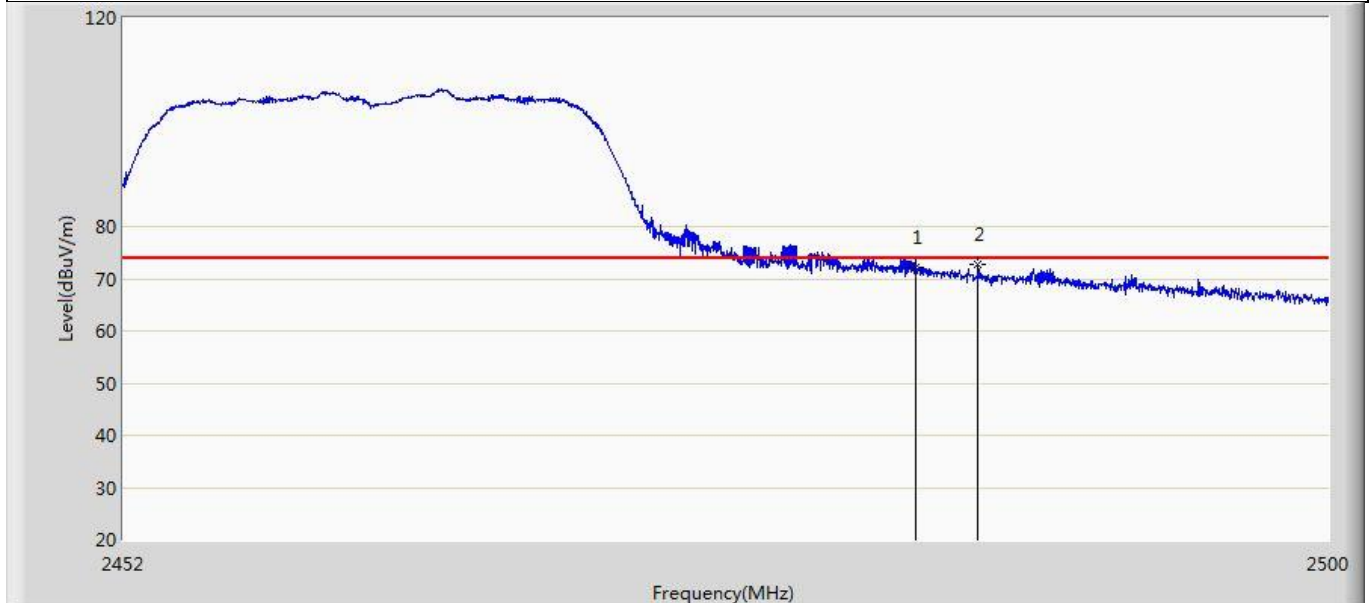
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2483.500	71.017	35.342	-2.983	74.000	35.675	PK
2	*	2484.496	73.669	37.992	-0.331	74.000	35.677	PK

Profile: 2180545R	Page No.: 6
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 1:Transmit at 2462MHz by 11ac20 SISO	



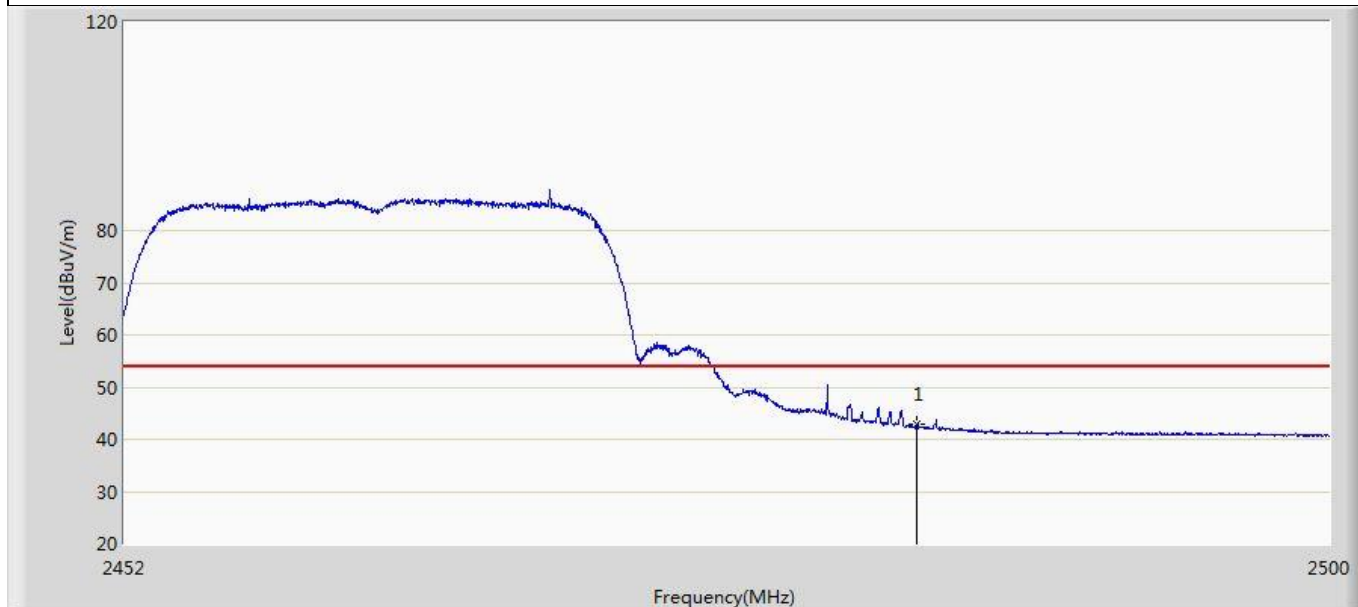
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2483.500	44.153	8.478	-9.847	54.000	35.675	AV
2	*	2484.016	45.393	9.717	-8.607	54.000	35.676	AV

Profile: 2180545R	Page No.: 7
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:39
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 1:Transmit at 2462MHz by 11ac20 SISO	



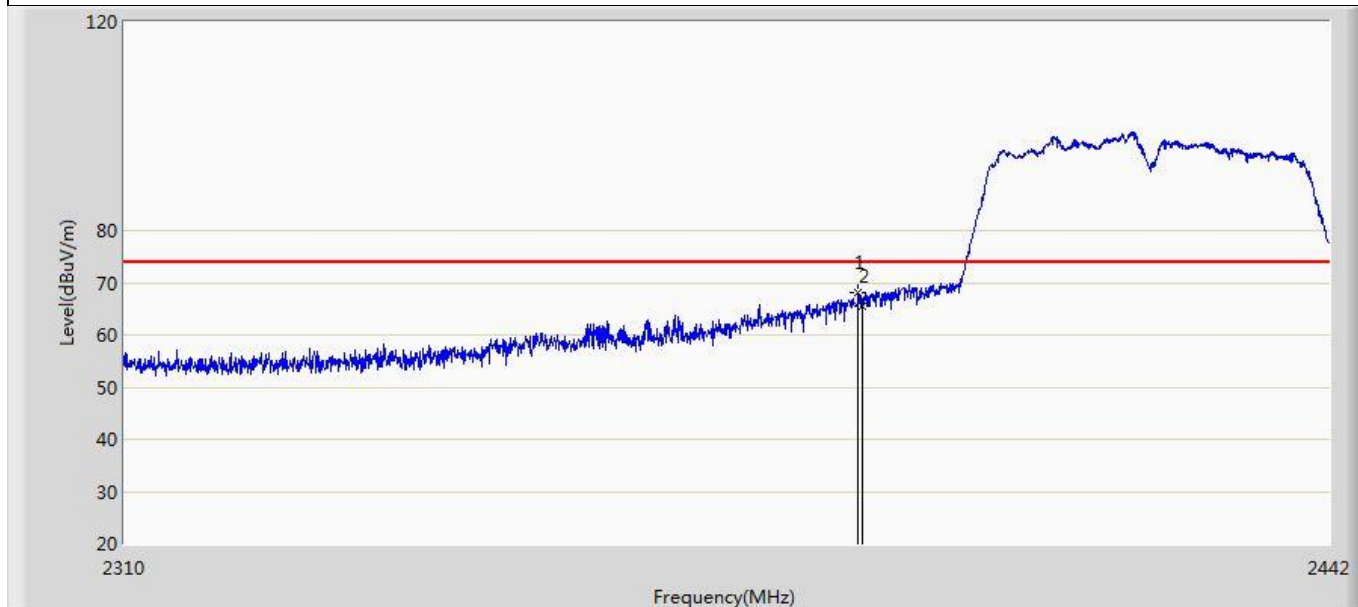
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2483.500	72.070	36.395	-1.930	74.000	35.675	PK
2	*	2485.960	72.666	36.986	-1.334	74.000	35.679	PK

Profile: 2180545R	Page No.: 8
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 1:Transmit at 2462MHz by 11ac20 SISO	



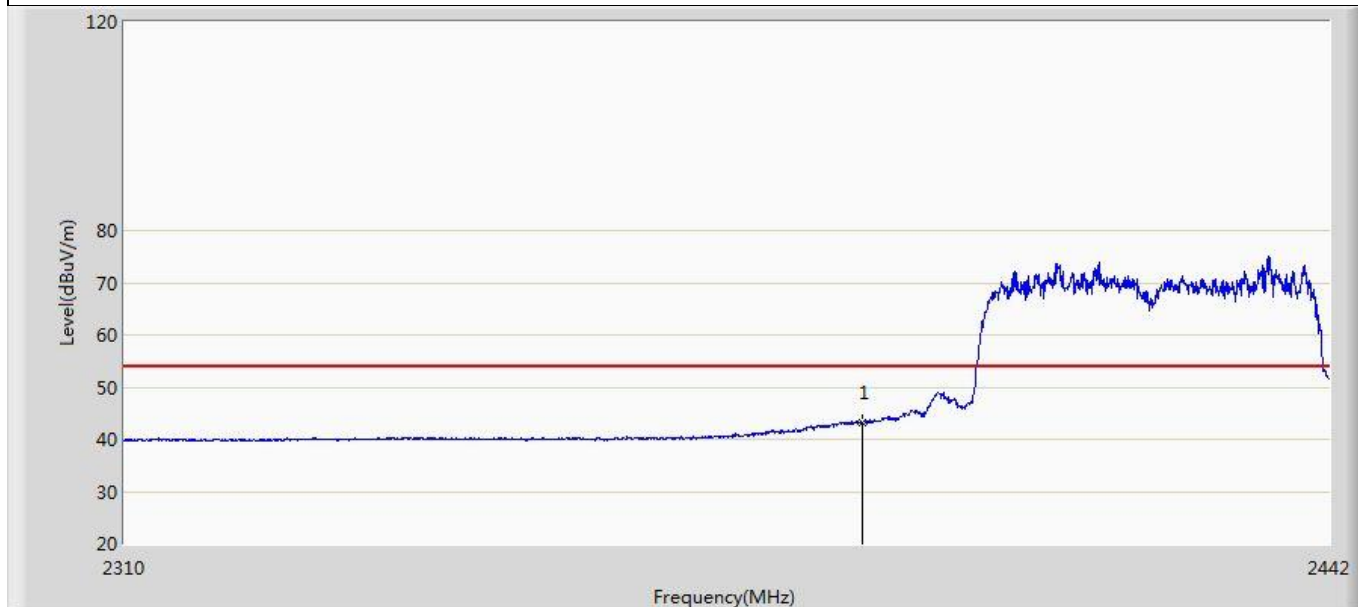
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	43.005	7.330	-10.995	54.000	35.675	AV

Profile: 2180545R	Page No.: 9
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:40
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 2:Transmit at 2422MHz by 11ac40 SISO	



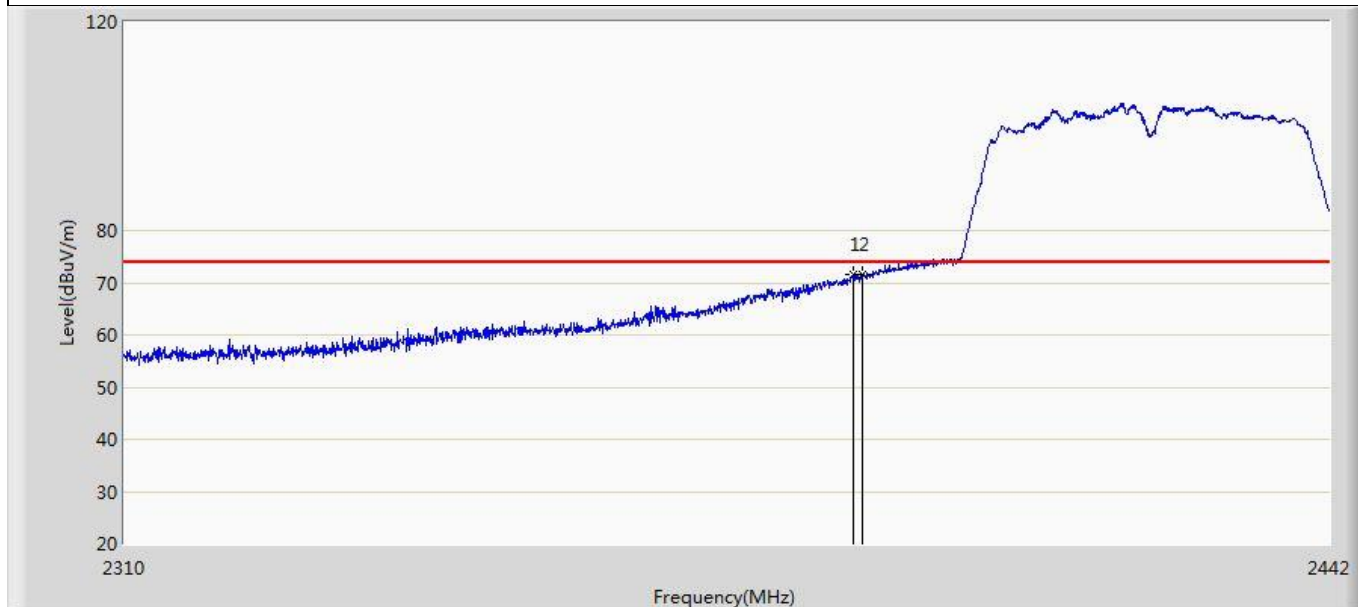
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2389.530	68.094	32.639	-5.906	74.000	35.456	PK
2		2390.000	65.597	30.138	-8.403	74.000	35.459	PK

Profile: 2180545R	Page No.: 10
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:39
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 2:Transmit at 2422MHz by 11ac40 SISO	



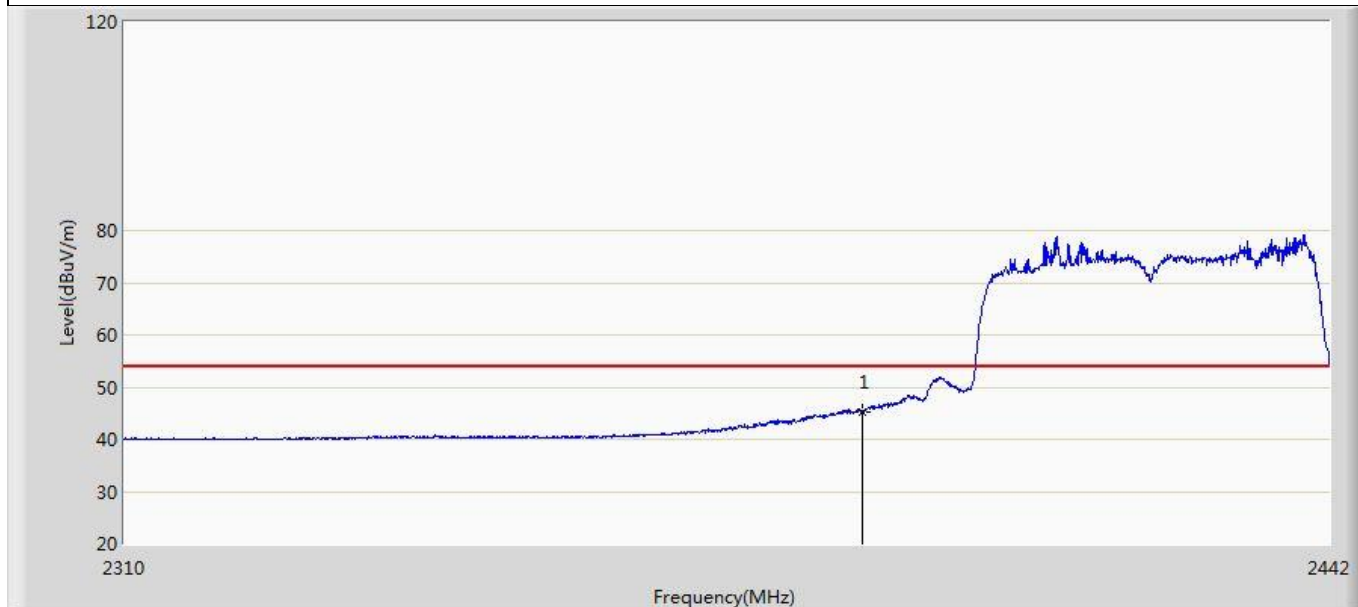
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	43.290	7.831	-10.710	54.000	35.459	AV

Profile: 2180545R	Page No.: 11
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 2:Transmit at 2422MHz by 11ac40 SISO	



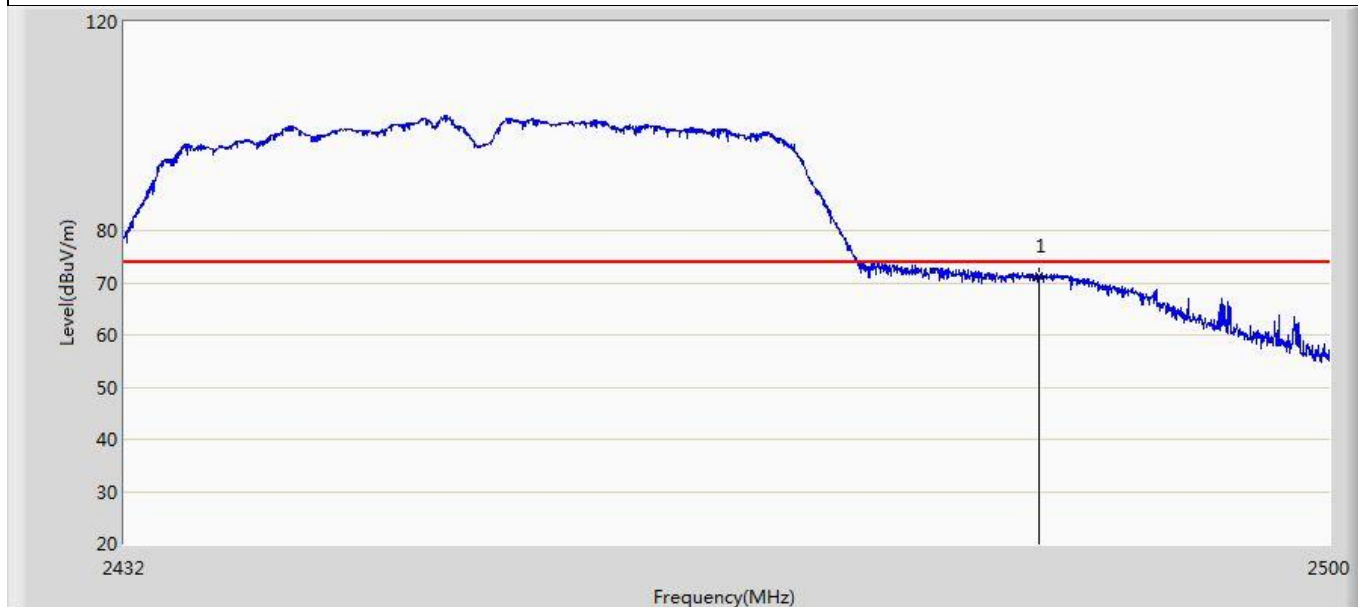
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2389.068	71.487	36.035	-2.513	74.000	35.452	PK
2		2390.000	71.453	35.994	-2.547	74.000	35.459	PK

Profile: 2180545R	Page No.: 12
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 2:Transmit at 2422MHz by 11ac40 SISO	



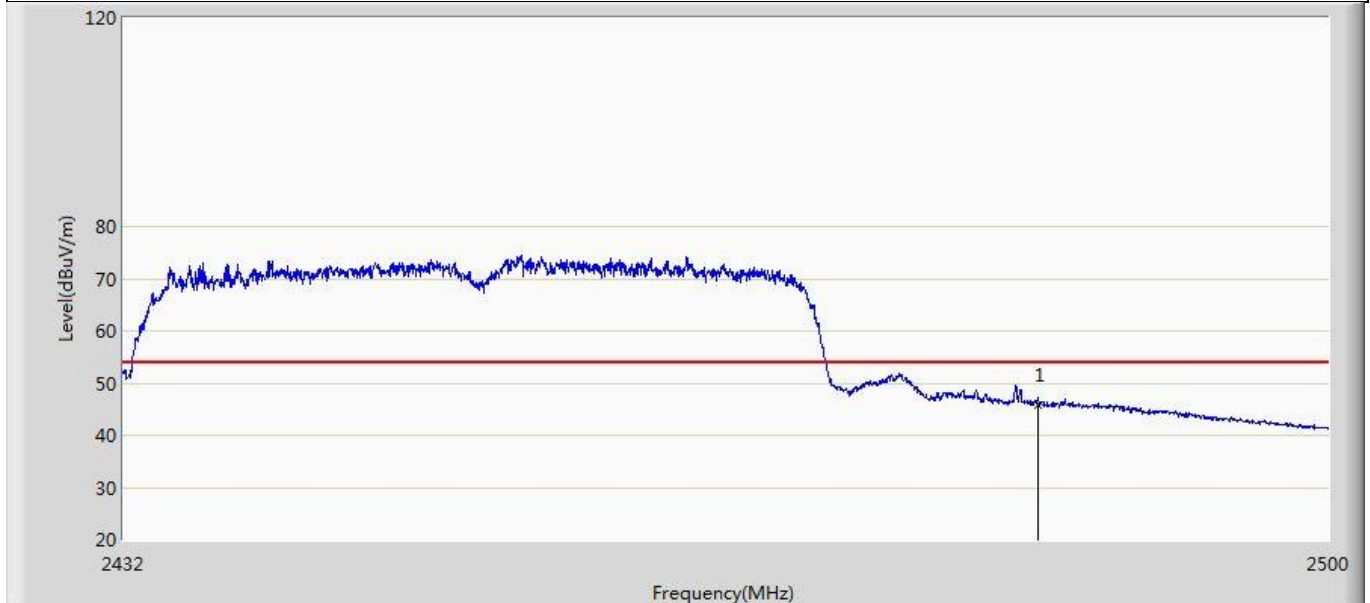
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	45.343	9.884	-8.657	54.000	35.459	AV

Profile: 2180545R	Page No.: 13
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 2:Transmit at 2452MHz by 11ac40 SISO	



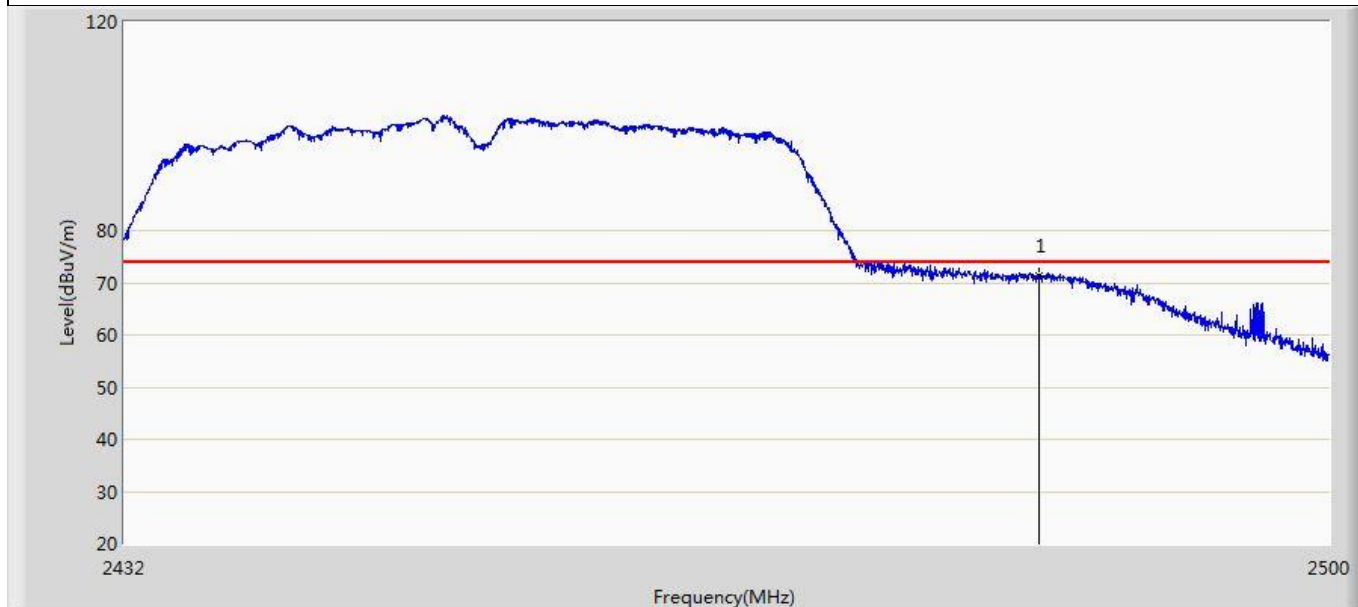
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	71.274	35.599	-2.726	74.000	35.675	PK

Profile: 2180545R	Page No.: 14
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 2:Transmit at 2452MHz by 11ac40 SISO	



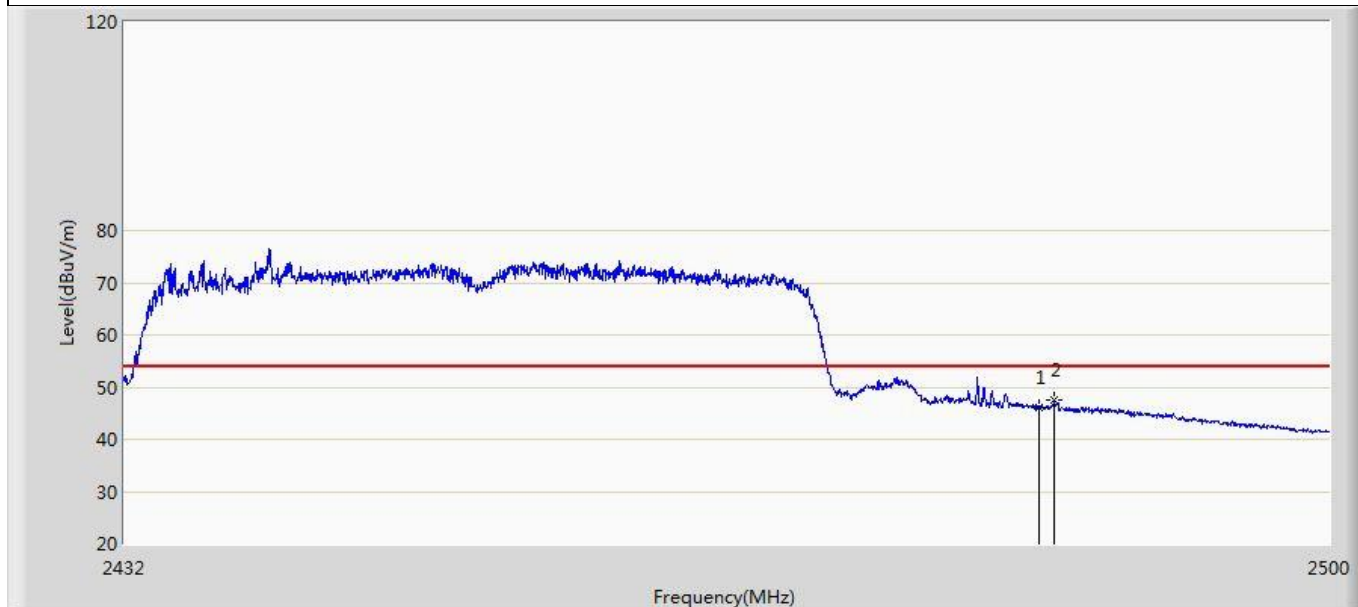
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	45.834	10.159	-8.166	54.000	35.675	AV

Profile: 2180545R	Page No.: 15
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 2:Transmit at 2452MHz by 11ac40 SISO	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	71.414	35.739	-2.586	74.000	35.675	PK

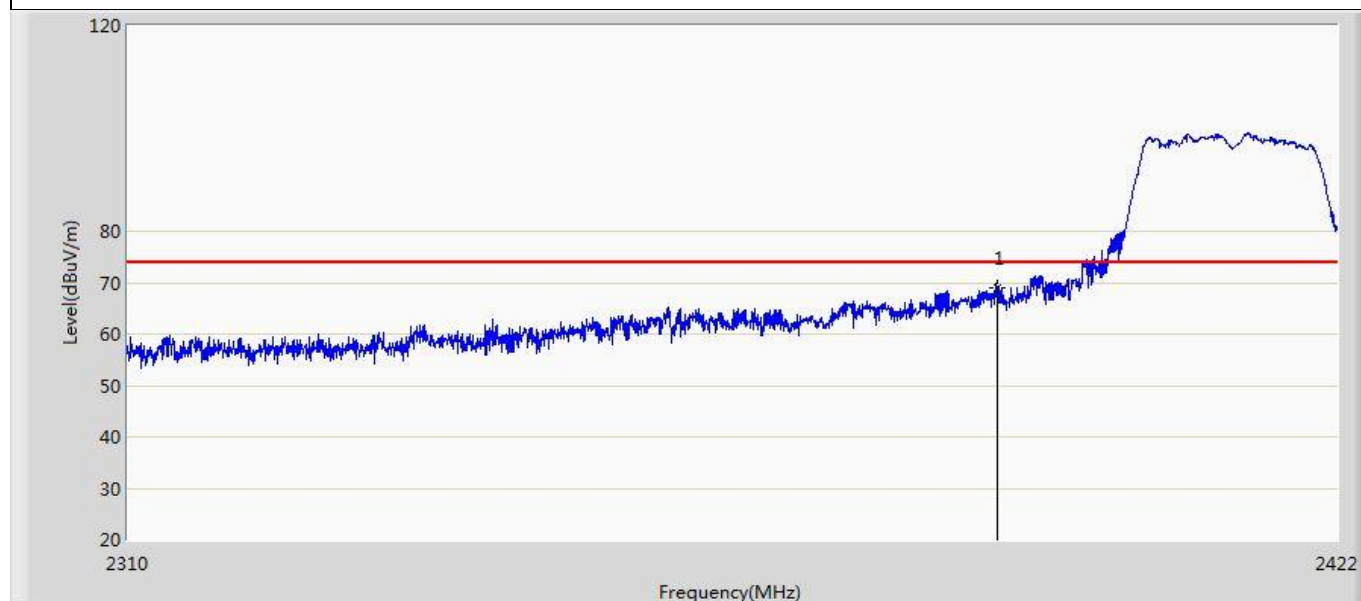
Profile: 2180545R	Page No.: 16
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 2:Transmit at 2452MHz by 11ac40 SISO	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2483.500	46.105	10.430	-7.895	54.000	35.675	AV
2	*	2484.360	47.464	11.787	-6.536	54.000	35.676	AV

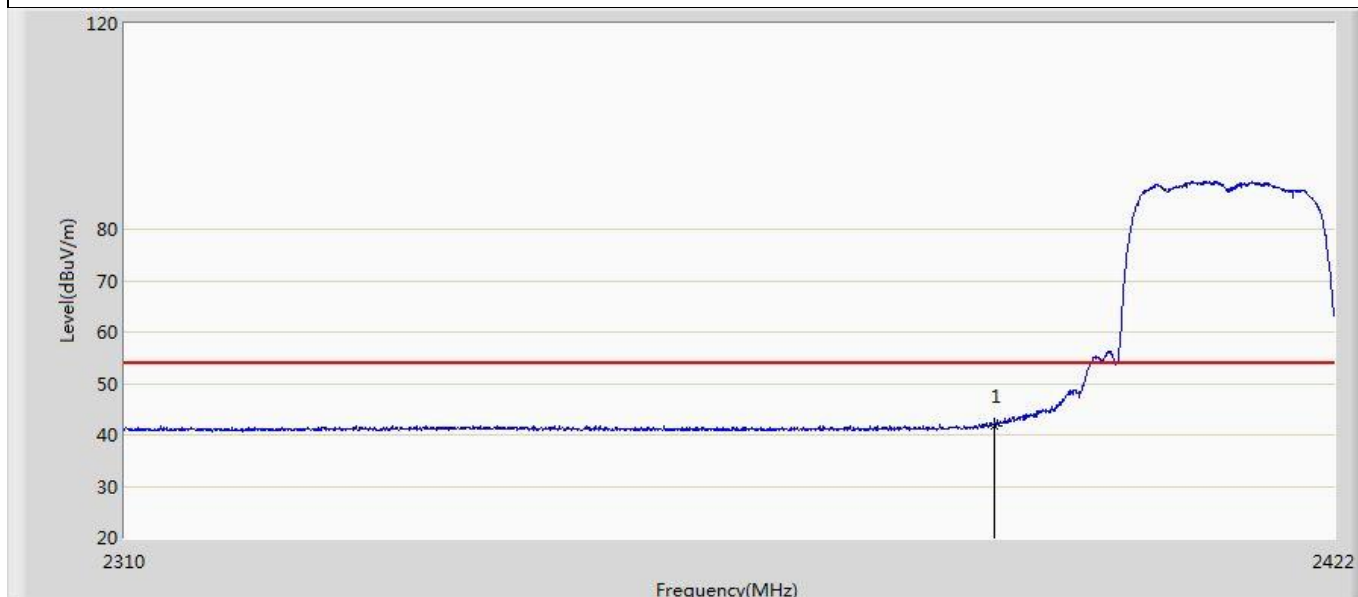
MIMO:ANT1+2

Profile: 2180545R	Page No.: 1
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:29
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 1:Transmit at 2412MHz by 11ac20 MIMO	



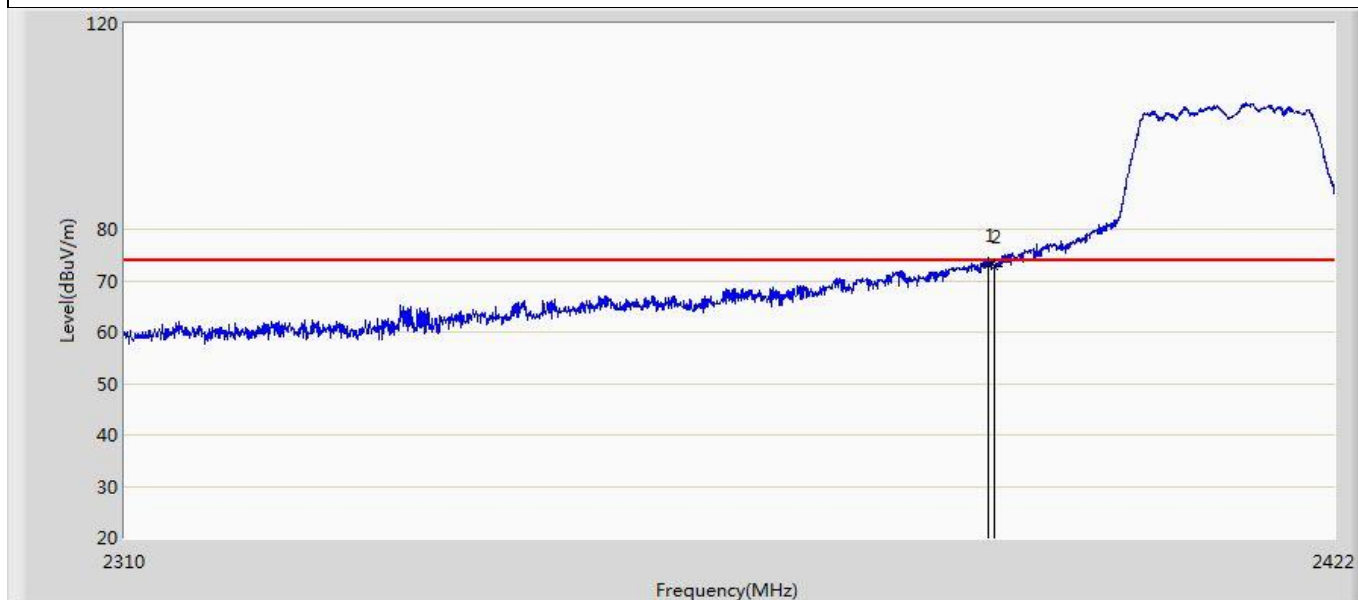
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	69.077	33.618	-4.923	74.000	35.459	PK

Profile: 2180545R	Page No.: 2
Engineer: Nile	
Site: AC5	Time: 2021/11/16 - 19:15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 1:Transmit at 2412MHz by 11ac20 MIMO	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	41.835	6.376	-12.165	54.000	35.459	AV

Profile: 2180545R	Page No.: 3
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:31
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 1:Transmit at 2412MHz by 11ac20 MIMO	



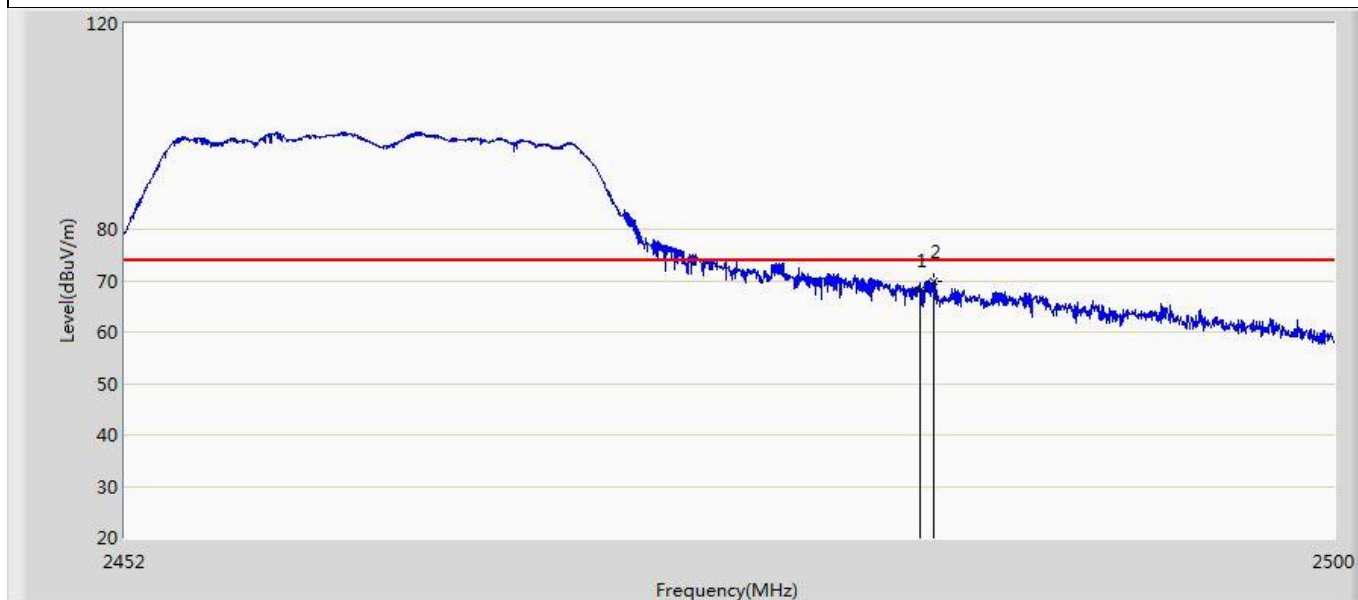
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2389.408	73.168	37.713	-0.832	74.000	35.455	PK
2		2390.000	72.635	37.176	-1.365	74.000	35.459	PK

Profile: 2180545R	Page No.: 4
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 1:Transmit at 2412MHz by 11ac20 MIMO	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	43.828	8.369	-10.172	54.000	35.459	AV

Profile: 2180545R	Page No.: 5
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 1:Transmit at 2462MHz by 11ac20 MIMO	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2483.500	68.227	32.552	-5.773	74.000	35.675	PK
2	*	2484.040	69.928	34.252	-4.072	74.000	35.676	PK

Profile: 2180545R	Page No.: 6
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 1:Transmit at 2462MHz by 11ac20 MIMO	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2483.500	42.022	6.347	-11.978	54.000	35.675	AV
2	*	2483.944	46.416	10.740	-7.584	54.000	35.676	AV

Profile: 2180545R	Page No.: 7
Engineer: Nile	
Site: AC5	Time: 2021/12/02 - 20:59
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 1:Transmit at 2462MHz by 11ac20 MIMO	



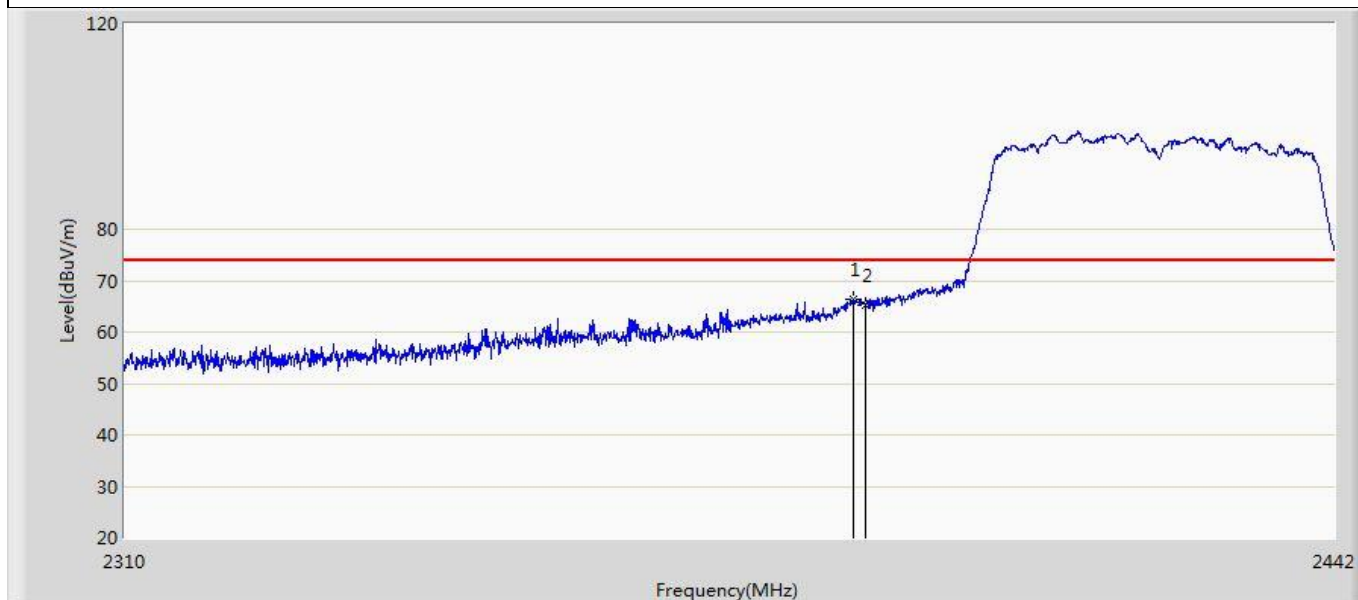
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	73.334	37.659	-0.666	74.000	35.675	PK

Profile: 2180545R	Page No.: 8
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 1:Transmit at 2462MHz by 11ac20 MIMO	



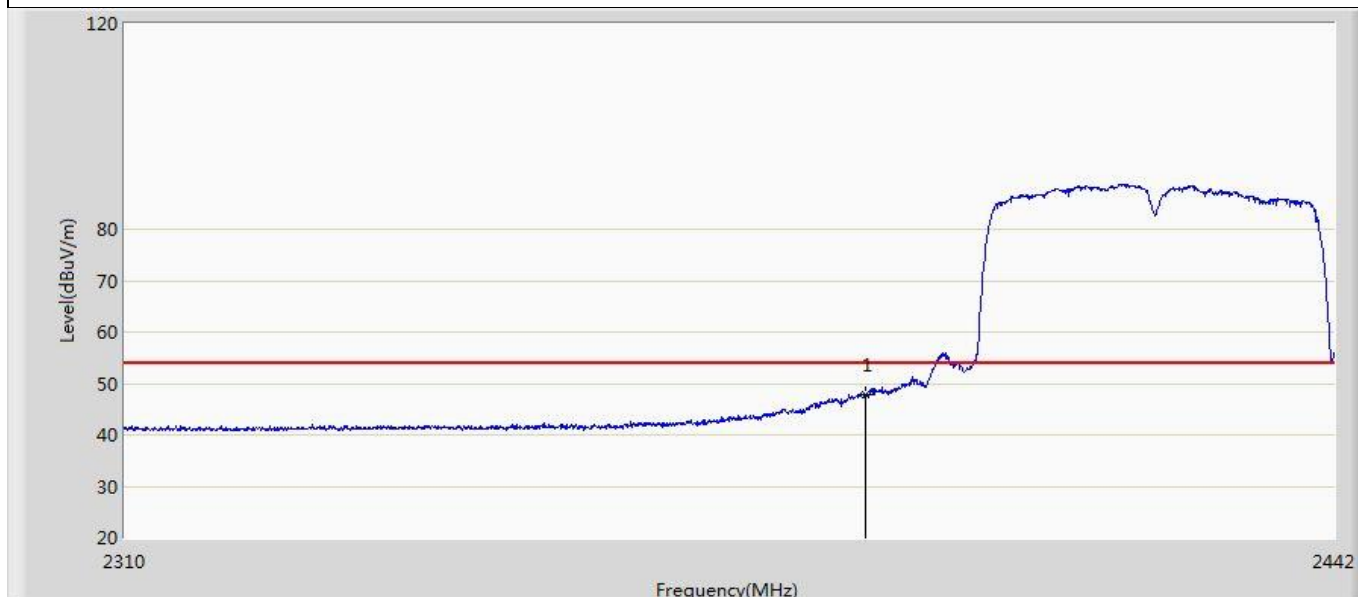
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2483.500	42.950	7.275	-11.050	54.000	35.675	AV
2	*	2483.752	46.345	10.669	-7.655	54.000	35.675	AV

Profile: 2180545R	Page No.: 9
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:40
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 2:Transmit at 2422MHz by 11ac40 MIMO	



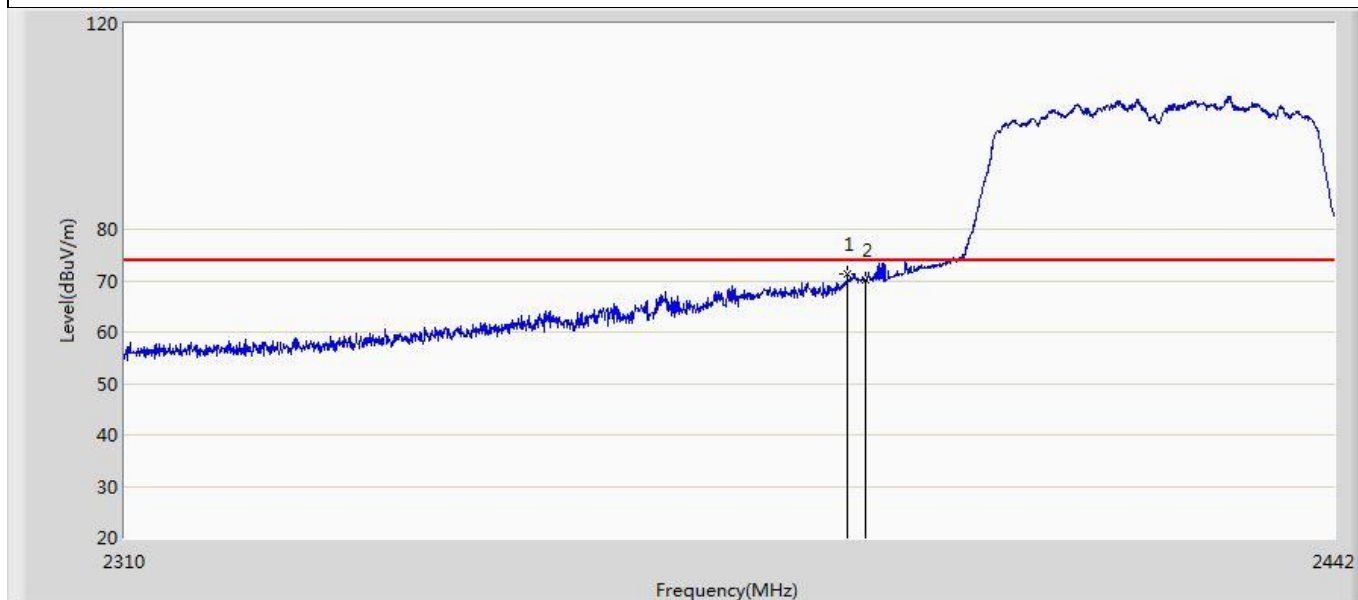
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2388.738	66.263	30.814	-7.737	74.000	35.450	PK
2		2390.000	65.352	29.893	-8.648	74.000	35.459	PK

Profile: 2180545R	Page No.: 10
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:39
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 2:Transmit at 2422MHz by 11ac40 MIMO	



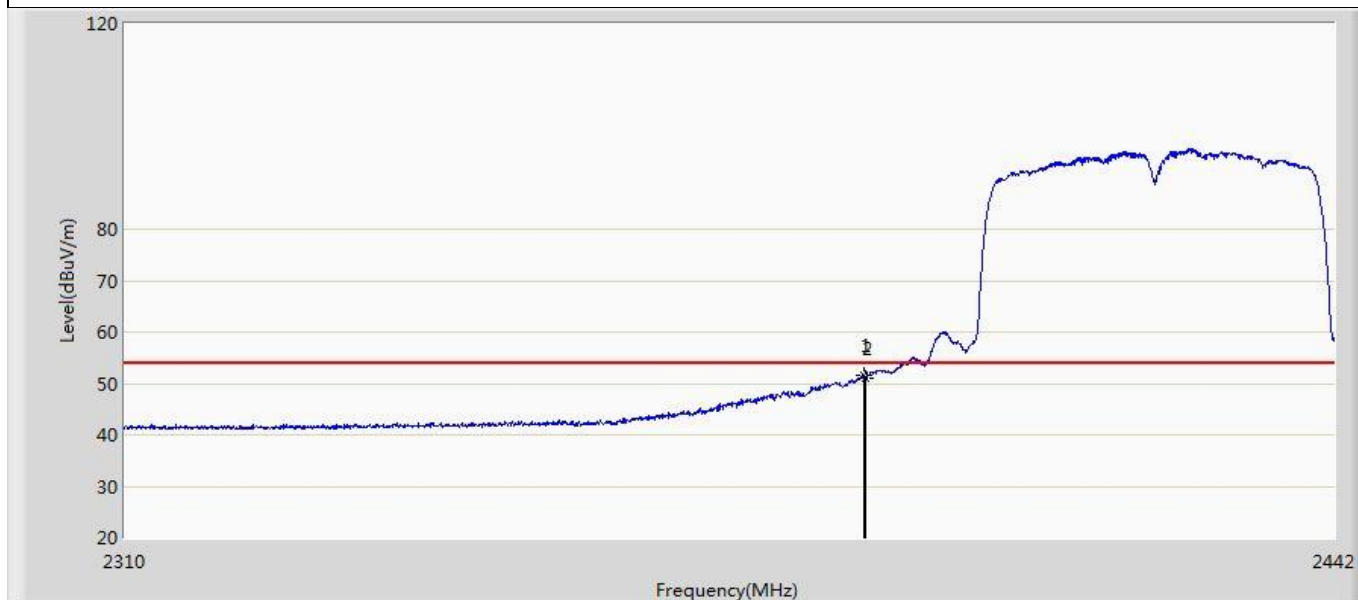
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	47.758	12.299	-6.242	54.000	35.459	AV

Profile: 2180545R	Page No.: 11
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 2:Transmit at 2422MHz by 11ac40 MIMO	



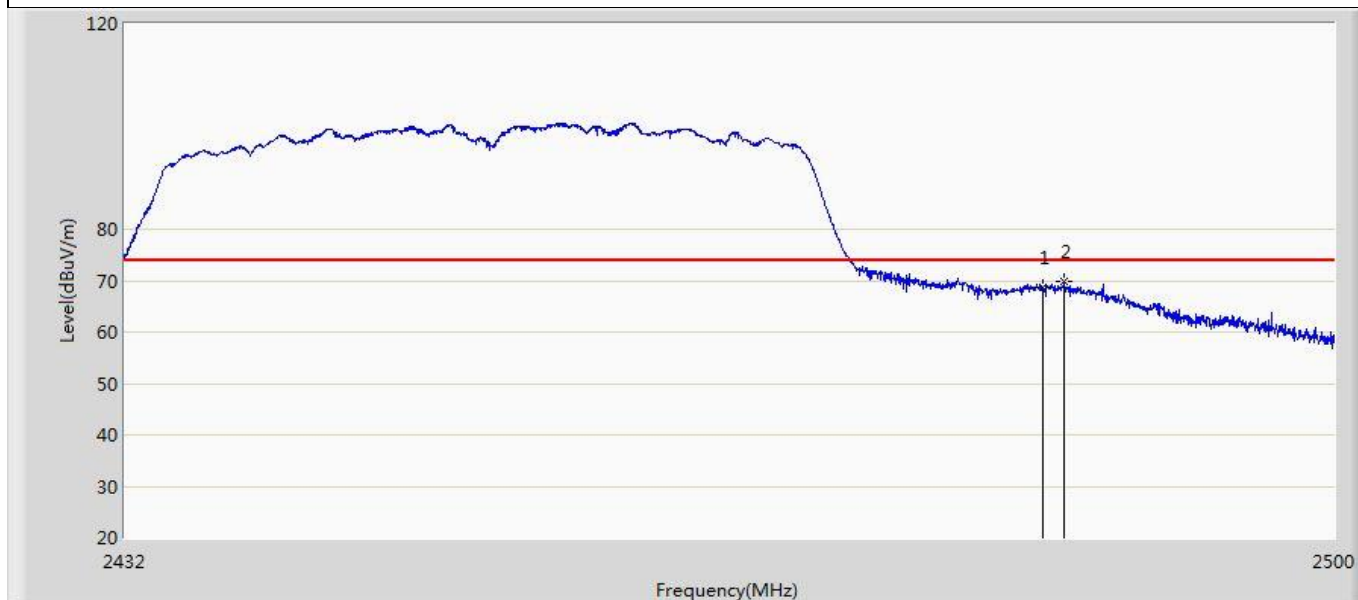
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2388.012	71.348	35.904	-2.652	74.000	35.444	PK
2		2390.000	70.260	34.801	-3.740	74.000	35.459	PK

Profile: 2180545R	Page No.: 12
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 2:Transmit at 2422MHz by 11ac40 MIMO	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2389.926	51.497	16.038	-2.503	54.000	35.458	AV
2		2390.000	51.133	15.674	-2.867	54.000	35.459	AV

Profile: 2180545R	Page No.: 13
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 2:Transmit at 2452MHz by 11ac40 MIMO	



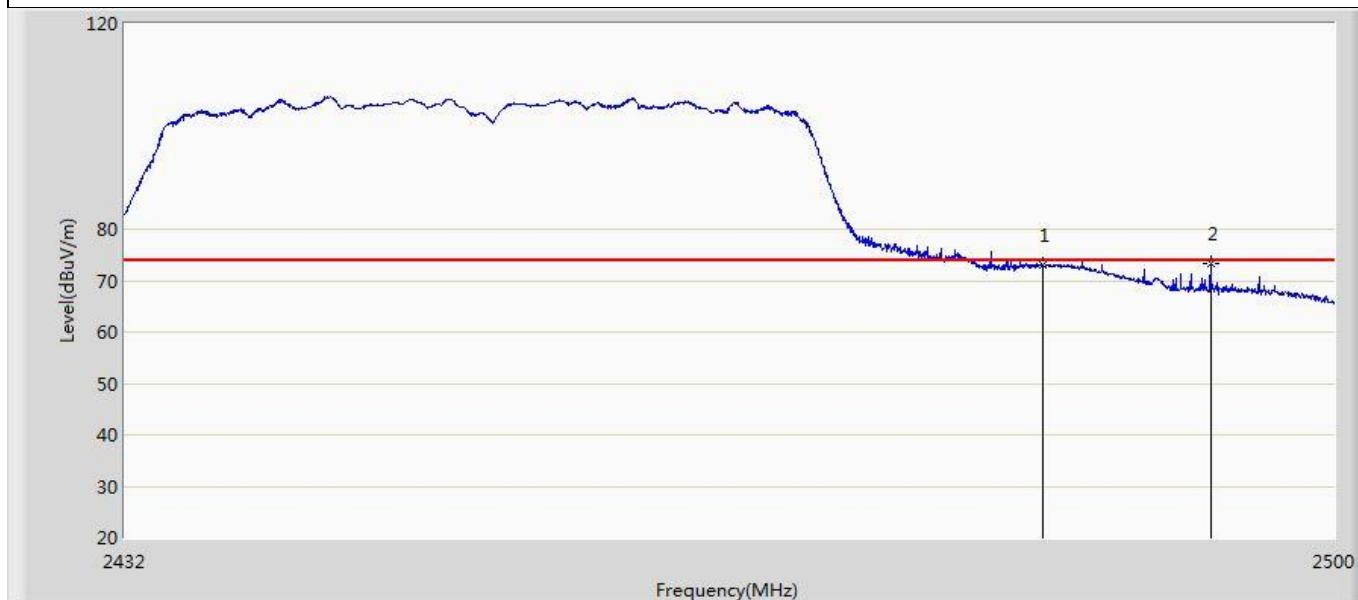
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2483.500	68.718	33.043	-5.282	74.000	35.675	PK
2	*	2484.666	69.770	34.093	-4.230	74.000	35.678	PK

Profile: 2180545R	Page No.: 14
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 2:Transmit at 2452MHz by 11ac40 MIMO	



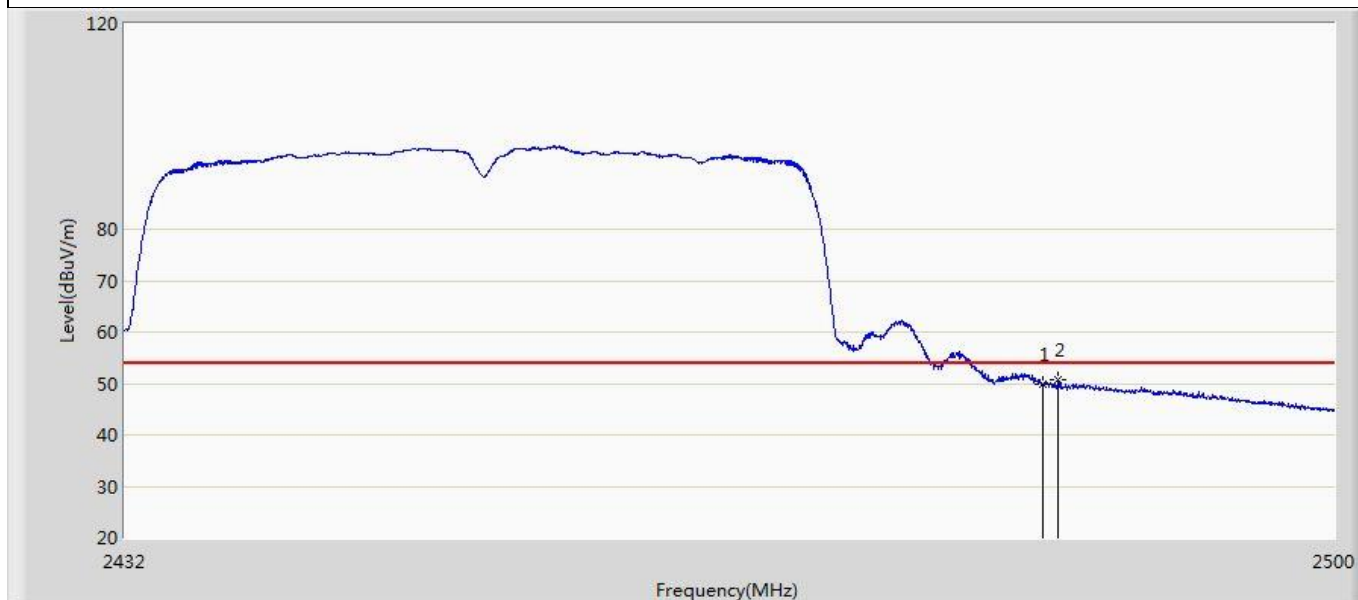
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	46.792	11.117	-7.208	54.000	35.675	AV

Profile: 2180545R	Page No.: 15
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 2:Transmit at 2452MHz by 11ac40 MIMO	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2483.500	73.030	37.355	-0.970	74.000	35.675	PK
2	*	2492.996	73.389	37.696	-0.611	74.000	35.693	PK

Profile: 2180545R	Page No.: 16
Engineer: Nile	
Site: AC5	Time: 2021/11/23 - 20:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LPS (Local Positioning System)	Power: DC3.3V
Note: Mode 2:Transmit at 2452MHz by 11ac40 MIMO	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2483.500	49.858	14.183	-4.142	54.000	35.675	AV
2	*	2484.360	50.602	14.925	-3.398	54.000	35.676	AV

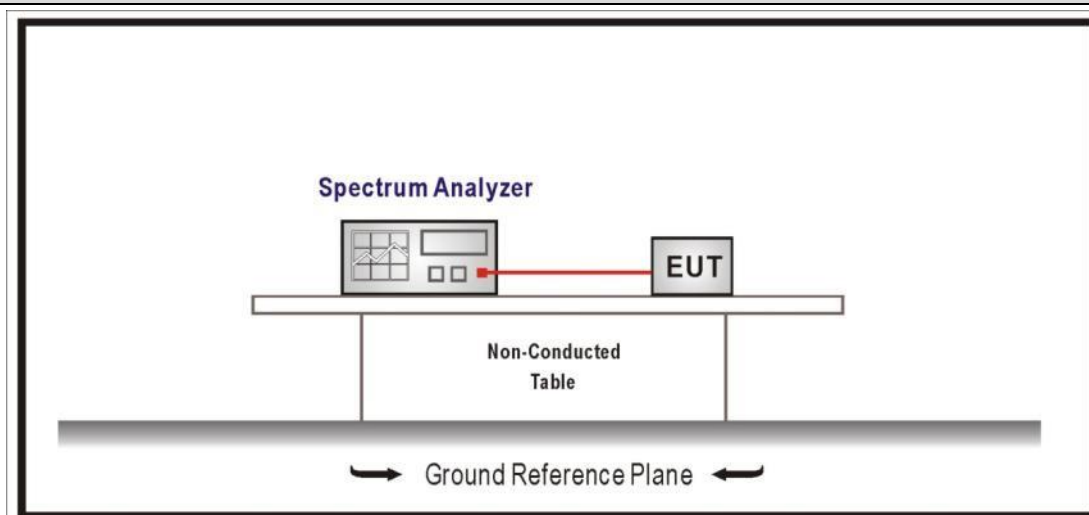
4.6 DTS Bandwidth**VERDICT: PASS****4.6.1 Limit**

Standard	FCC Part 15 Subpart C Paragraph 15.247 (a)(2)
-----------------	---

Systems using digital modulation techniques operate in the 2400-2483.5 MHz. The minimum 6 dB bandwidth shall be at least 500 kHz

Standard	ANSI C63.10 Paragraph 6.7
-----------------	---------------------------

The occupied bandwidth or the "99% emission bandwidth" is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained. The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs. The occupied bandwidth should be within the required frequency range.

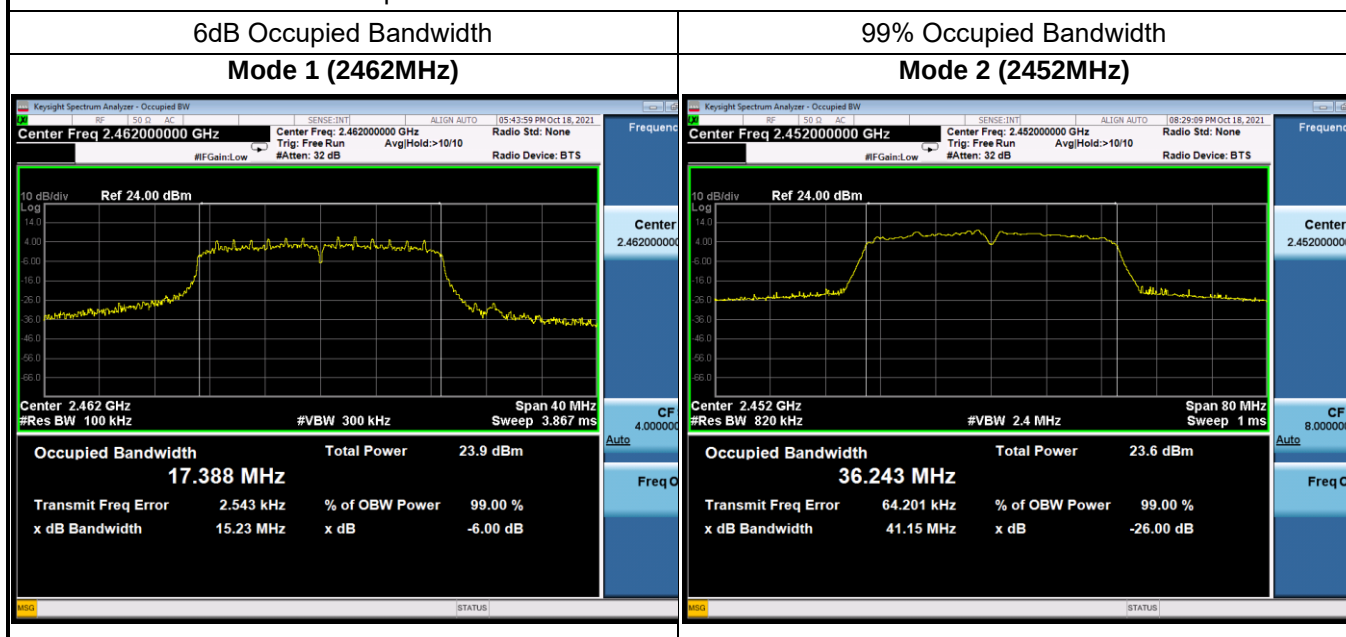
4.6.2 Test Setup**4.6.3 Test Procedure**

	Reference Rule	Chapter	Description
☒	ANSI C63.10	11.8	DTS bandwidth
	☐ ANSI C63.10	11.8.1	Option 1
	☒ ANSI C63.10	11.8.2	Option 2
☒	ANSI C63.10	6.9	Occupied bandwidth
	☐ ANSI C63.10	6.9.2	relative measurement procedure
	☒ ANSI C63.10	6.9.3	power bandwidth (99%) measurement procedure

4.6.4 Test Data

Mode	CH.	Test Freq. (MHz)	6dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit For 6dB (kHz)	Result
1	1	2412	15.23	17.624	≥500	Pass
	6	2437	15.43	17.524	≥500	Pass
	11	2462	15.23	17.563	≥500	Pass
2	3	2422	35.13	36.146	≥500	Pass
	6	2437	35.18	36.186	≥500	Pass
	9	2452	35.16	36.243	≥500	Pass

Note : The worst case of Occupied Bandwidth as below in below:

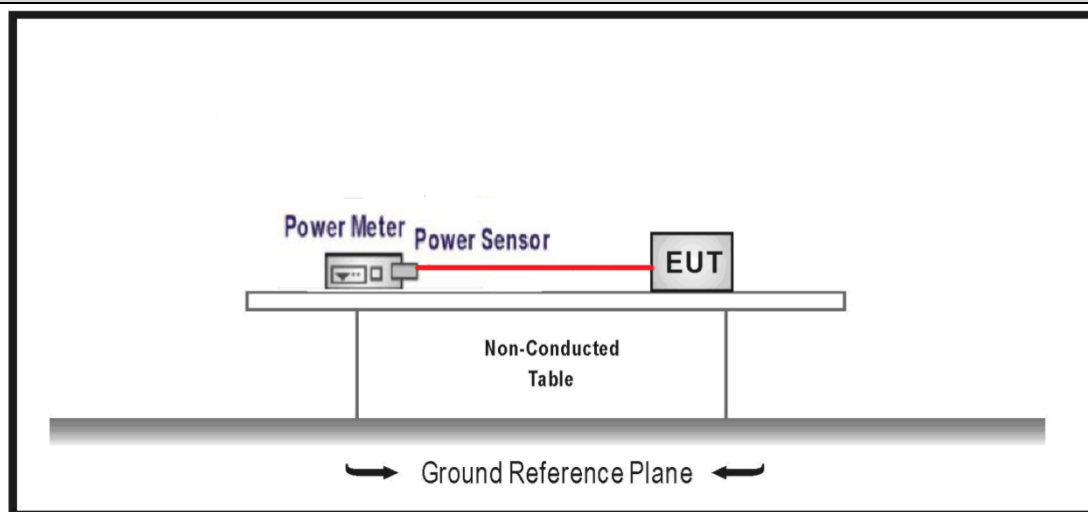


4.7 Fundamental emission output power**VERDICT: PASS****4.7.1 Limit**

Standard		FCC Part 15 Subpart C Paragraph 15.247 (b)(3)
☒	GTX <6dBi	Pout≤30dBm
☐	GTX >6dBi	
☐	Non-Fix point-point	Pout≤30-(GTX -6)
☐	Fix point-point	Pout≤30-[(GTX-6)]/3
☐	Point-to-multipoint	Pout≤30-(GTX-6)
☐	Overlap Beams	Pout≤30-[(GTX-6)]/3
☐	Avgregate power transmitted simultaneously on all beams	Pout≤30-[(GTX-6)]/3
☐	single directional beam	Pout≤30-[(GTX-6)]/3+8dB

Note 1 : GTX directional gain of transmitting antennas.

Note 2 : Pout is maximum conducted output power .

4.7.2 Test Setup

4.7.3 Test Procedure							
	References Rule			Chapter	Description		
☒	ANSI C63.10			11.9	Fundamental emission output power		
	☐	ANSI C63.10			11.9.1	Maximum peak conducted output power	
		☐	ANSI C63.10	11.9.1.1	RBW ≥ DTS bandwidth		
		☐	ANSI C63.10	11.9.1.2	Integrated band power method		
		☐	ANSI C63.10	11.9.1.3	PKPM1 Peak power meter method		
	☒	ANSI C63.10			11.9.2	Maximum conducted (average) output power	
		☐	ANSI C63.10			11.9.2.2	Measurement using a spectrum analyzer (SA)
			☐	ANSI C63.10	11.9.2.2.2	Method AVGSA-1(Duty cycle≥98%)	
			☐	ANSI C63.10	11.9.2.2.3	Method AVGSA-1A(Duty cycle≥98%)	
			☐	ANSI C63.10	11.9.2.2.4	Method AVGSA-2(Duty cycle≤98%)	
			☐	ANSI C63.10	11.9.2.2.5	Method AVGSA-2A(Duty cycle≤98%)	
			☐	ANSI C63.10	11.9.2.2.4	Method AVGSA-3	
			☐	ANSI C63.10	11.9.2.2.5	Method AVGSA-3A	
		☒	ANSI C63.10			11.9.2.3	Measurement using a power meter (PM)
			☒	ANSI C63.10	11.9.2.3.1	Method AVGPM	
	☐		ANSI C63.10	11.9.2.3.2	Method AVGPM-G		

Directional Gain Calculations for In-Band test method

	References Rule		Chapter	Description
☐	KDB 662911		F2)a)	Basic methodology
	☐	KDB 662911	F2)a) (i)	transmit signals are correlated
	☐	KDB 662911	F2)a) (ii)	transmit signals are uncorrelated
☐	KDB 662911		F2)b)	Sectorized antenna systems.
☐	KDB 662911		F2)c)	Cross-polarized antennas
	☐	ANSI C63.10	F2)c) (i)	Cross-polarized antennas
	☐	ANSI C63.10	F2)c) (ii)	Multiple antennas
☒	KDB 662911		F2)e)	Spatial stream
	☒	KDB 662911	F2)e) (i)	Antennas have the same gain
	☐	KDB 662911	F2)e) (ii)	Antenna have the different gain with one spatial stream
	☐	KDB 662911	F2)e) (iii)	Antenna have the different gain with more than one spatial stream
☒	KDB 662911		F2)f)	Cyclic Delay Diversity (CDD)
	☒	KDB 662911	F2)f) (i)	Antennas have the same gain
	☐	KDB 662911	F2)f) (ii)	Antenna have the different gain with one spatial stream
	☐	KDB 662911	F2)f) (iii)	Antenna have the different gain with more than one spatial stream

4.7.4 Test Data**SISO:Ant 2**

Mode	Channel	Test Frequency (MHz)	Conducted Power (dBm)	EIRP (dBm)	Conducted Power Limit (dBm)	EIRP Limit (dBm)	Result
Mode 1	1	2412	14.85	18.95	≤30	≤36	Pass
	6	2437	14.89	18.99	≤30	≤36	Pass
	11	2462	14.81	18.91	≤30	≤36	Pass
Mode 2	3	2422	14.72	18.82	≤30	≤36	Pass
	6	2437	14.79	18.89	≤30	≤36	Pass
	9	2452	14.83	18.93	≤30	≤36	Pass

MIMO:Ant1+2

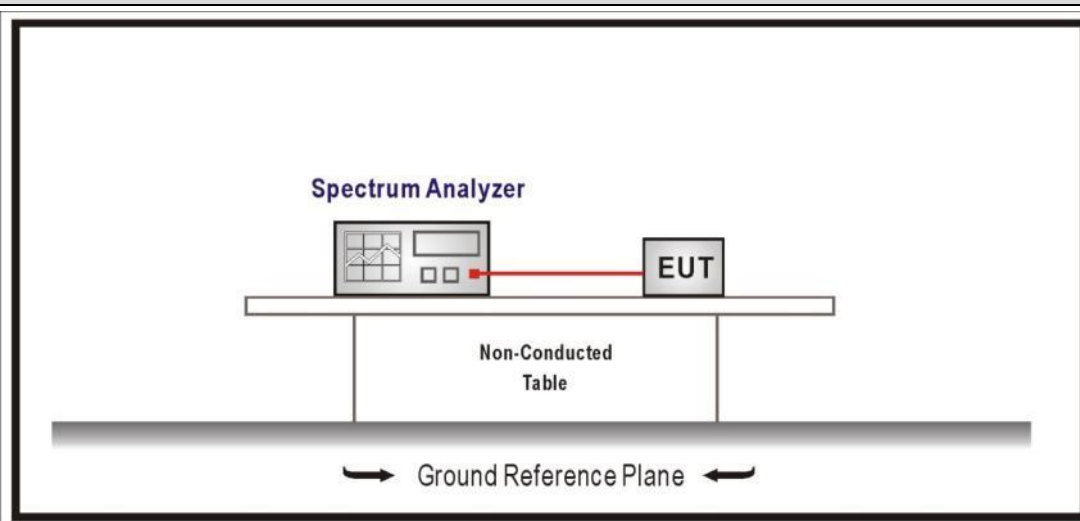
Mode	Channel	Test Frequency (MHz)	Conducted Power (dBm)	EIRP (dBm)	Conducted Power Limit (dBm)	EIRP Limit (dBm)	Result
Mode 1	1	2412	17.70	21.80	≤30	≤36	Pass
	6	2437	17.76	21.86	≤30	≤36	Pass
	11	2462	17.61	21.71	≤30	≤36	Pass
Mode 2	3	2422	16.65	20.75	≤30	≤36	Pass
	6	2437	16.72	20.82	≤30	≤36	Pass
	9	2452	16.78	20.88	≤30	≤36	Pass

Power setting parameter

Test Mode	Frequency	Power Setting	
		SISO(Ant2)	MIMO(Ant1+2)
Mode 1	2412	15	18
	2437	15	18
	2462	15	18
Mode 2	2422	15	17
	2437	15	17
	2452	15	17

4.8 Power Density**VERDICT: PASS****4.8.1 Limit:****Standard**

FCC Part 15 Subpart C Paragraph 15.247 (e)

Power Spectral Density $\leq 8\text{dBm}/3\text{kHz}$ **4.8.2 Test Setup****4.8.3 Test Procedure**

	References Rule		Chapter	Description
☒	ANSI C63.10		11.10	Maximum power spectral density level in the fundamental emission
☐	ANSI C63.10	11.10.2	Method PKPSD (peak PSD)	
☐	ANSI C63.10	11.10.3	Method AVGPS-1(Duty cycle $\geq 98\%$)	
☐	ANSI C63.10	11.10.4	Method AVGPS-1A(Duty cycle $\geq 98\%$)	
☒	ANSI C63.10	11.10.5	Method AVGPS-2(Duty cycle $< 98\%$)	
☐	ANSI C63.10	11.10.6	Method AVGPS-2A(Duty cycle $< 98\%$)	
☐	ANSI C63.10	11.10.7	Method AVGPS-3	
☐	ANSI C63.10	11.10.8	Method AVGPS-3A	

Directional Gain Calculations for In-Band test method				
	References Rule		Chapter	Description
☐	KDB 662911		F2)a)	Basic methodology
	☐	KDB 662911	F2)a) (i)	transmit signals are correlated
	☐	KDB 662911	F2)a) (ii)	transmit signals are uncorrelated
☐	KDB 662911		F2)b)	Sectorized antenna systems.
☐	KDB 662911		F2)c)	Cross-polarized antennas
	☐	ANSI C63.10	F2)c) (i)	Cross-polarized antennas
	☐	ANSI C63.10	F2)c) (ii)	Multiple antennas
☒	KDB 662911		F2)e)	Spatial stream
	☒	KDB 662911	F2)e) (i)	Antennas have the same gain
	☐	KDB 662911	F2)e) (ii)	Antenna have the different gain with one spatial stream
	☐	KDB 662911	F2)e) (iii)	Antenna have the different gain with more than one spatial stream
☒	KDB 662911		F2)f)	Cyclic Delay Diversity (CDD)
	☒	KDB 662911	F2)f) (i)	Antennas have the same gain
	☐	KDB 662911	F2)f) (ii)	Antenna have the different gain with one spatial stream
	☐	KDB 662911	F2)f) (iii)	Antenna have the different gain with more than one spatial stream

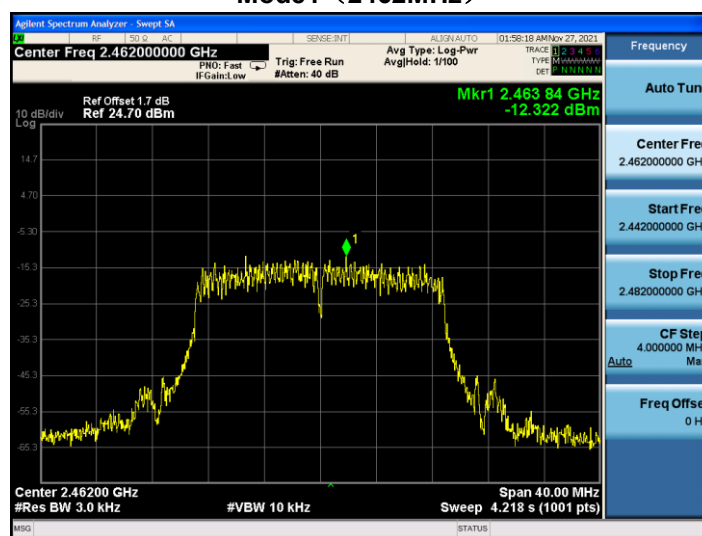
4.8.4 Test Data

SISO(Ant2)

Mode	Channel	Test Frequency (MHz)	Measurement PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
1	1	2412	-13.023	≤8	Pass
	6	2437	-13.243	≤8	Pass
	11	2462	-12.322	≤8	Pass
2	3	2422	-15.220	≤8	Pass
	6	2437	-15.225	≤8	Pass
	9	2452	-15.061	≤8	Pass

Note : The worst case of Power Density as below in below:

Mode1 (2462MHz)



MIMO(Ant1+2)

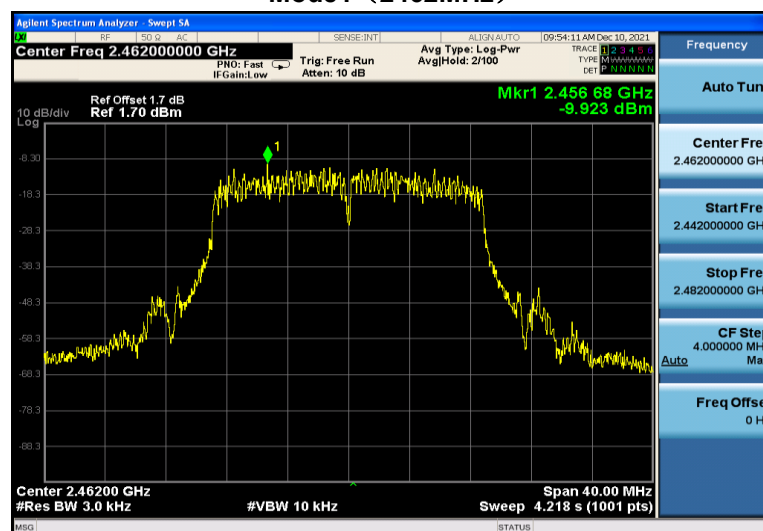
Mode	Channel	Test Frequency (MHz)	Measurement PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
1	1	2412	-10.449	≤3.88	Pass
	6	2437	-10.730	≤3.88	Pass
	11	2462	-9.923	≤3.88	Pass
2	3	2422	-13.588	≤3.88	Pass
	6	2437	-13.242	≤3.88	Pass
	9	2452	-13.034	≤3.88	Pass

Note 1: The worst data as below:

Note 2: All chains are tested and only the worst chain of the PSD was showed.

Note 3: PSD limit = 8dBm/3KHz - 10Log(Ant number) - (4.1 + 10Log(Ant number))

Note : The worst case of Power Density as below in below:

Mode1 (2462MHz)

4.9 Antenna Requirement**VERDICT: PASS****4.9.1 Limit:**

Standard	FCC Part 15 Subpart C Paragraph 15.203
----------	--

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall 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 manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

4.9.2 Antenna Connector Construction:

- | | |
|-------------------------------------|--|
| ☐ | The use of a permanently attached antenna |
| ☐ | The antenna use of a unique coupling to the intentional radiator |
| ☒ | The use of a nonstandard antenna jack or electrical connector |

Please refer to the attached document "Internal Photograph" to show the antenna connector.

5 TEST SETUP PHOTO AND EUT PHOTO

Remark: The test setup photo and EUT Photo please see appendix.

_____ The End _____