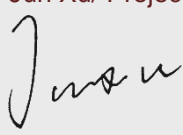
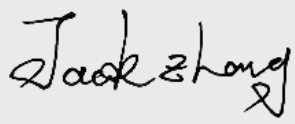




Test report No:
22A0738R-RF-US-P06V03

FCC & ISED TEST REPORT

Product Name	Infotainment Headunit
Trademark	HARMAN
FCC ID	2ACRL-X297
IC	12339A-X297
Applicant's name / address	Harman Automotive Electronic Systems (Suzhou) Co., Ltd. No.125, Fangzhou Road, Suzhou Industrial Park, Jiangsu Province, China 215024
Test method requested, standard	FCC CFR Title 47 Part 15 Subpart C Section 15.247 ANSI C63.10: 2013 RSS-Gen Issue 5 RSS-247 Issue 2
Verdict Summary	IN COMPLIANCE
Tested by (name / position & signature)	Jun Xu/ Project Engineer 
Approved by (name / position & signature)	Jack Zhang/Manager 
Date of issue	2022-12-20
Report Version	V1.0
Report template No	Template_FCC 15.247-RF-V1.0

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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. 19, 2022
Date (start test)	Oct. 21, 2022
Date (finish test)	Nov. 29, 2022

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.

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
22A0738R-RF-US-P06V03	V1.0	Initial issue of report.	2022-12-20

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 Information;
 - Chapter 1.3 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	2021.12.15	2022.12.14
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2022.07.14	2023.07.13
4TX MIMO Power Sensor	Keysight	X8750A	MY59400102	2022.03.16	2023.03.15
Coaxial Cable	Woken	N/A	N/A	2022.01.18	2023.01.17
Temperature/Humidity Meter	RTS	RTS-8S	RF08	2022.08.23	2023.08.22

Radiated Emission(30MHz-1GHz) / AC3

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EMI Test Receiver	R&S	ESCI	100176	2022.07.10	2023.07.09
Loop Antenna	R&S	HFH2-Z2	833799/003	2022.04.15	2023.04.14
Bilog Antenna	Teseq GmbH	CBL6112D	27613	2022.08.28	2023.08.27
Coaxial Cable	Huber+Suhner	RG 214	AC3-C	2022.03.30	2023.03.29
Temperature/Humidity Meter	RTS	RTS-8S	AC3-TH	2022.07.07	2023.07.06
Dekra test software	Dekra	-	-	-	-

Radiated Emission(1GHz-40GHz) / AC5

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
MXA Signal Analyzer	Keysight	N9020B	MY60112218	2022.01.09	2023.01.08
Amplifier	SKET	LNPA_0118G-45	SK2021041201	2022.04.15	2023.04.14
Preamplifier	EMCI	EMC184045SE	980263	2022.07.19	2023.07.18
DRG Horn Antenna	ETS-Lindgren	3117	00167055	2022.08.29	2023.08.28
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2022.05.19	2023.05.18
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2022.05.22	2023.05.21
Coaxial Cable	ROSENBERGER	LA1-C011-2000/3000	AC5-40G	2022.03.21	2023.03.20
High-Pass Filter	Wainwright	WHKX3.0/18G-12SS	AC5&AC6	2022.06.07	2023.06.06
Temperature/Humidity Meter	RTS	RTS-8S	AC5-TH	2022.07.07	2023.07.06
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%. The Uncertainties is comply with standard required as below.

Test item	Uncertainty
AC Power Line Conducted Emission	9kHz~150kHz: 2.80dB 150kHz~30MHz: 2.40dB
Peak Power Output	± 1.27 dB
Radiated Emission(30MHz~1GHz)	Horizontal: 30MHz~200MHz: 3.50 dB 300MHz~1GHz: 3.60 dB Vertical: 30MHz~200MHz: 3.60 dB 300MHz~1GHz: 3.50 dB
Radiated Emission(1GHz~26.5GHz)	Horizontal: 1GHz~18GHz: 5.00 dB Vertical: 1GHz~18GHz: 4.80 dB
RF antenna conducted test	± 1.27 dB
Radiated Emission Band Edge	± 3.9 dB
DTS Bandwidth	± 150 Hz
Occupied Bandwidth	± 1 kHz
Power Density	± 1.27 dB

1 GENERAL INFORMATION

1.1 General Description of the Item(s)

Product Name	Infotainment Headunit
Model No.	X297
Trademark	HARMAN
FCC ID	2ACRL-X297
IC	12339A-X297
Hardware Version	DVx
Software Version	FISKER_MY23_ FISKER_V_DB22304E
Firmware Version	N/A
Manufacturer	Harman Automotive Electronic Systems (Suzhou) Co., Ltd.
Manufacturer Address	No.125, Fangzhou Road, Suzhou Industrial Park, Jiangsu Province, China 215024
Factory	Harman Automotive Electronic Systems (Suzhou) Co., Ltd.
Address	No.125, Fangzhou Road, Suzhou Industrial Park, Jiangsu Province, China 215024

Wireless specification	BLE					
Operating frequency range(s)	2400~2483.5MHz					
Type of Modulation	GFSK					
PHYs	<input checked="" type="checkbox"/>	LE 1M	<input type="checkbox"/>	LE 2M	<input type="checkbox"/>	LE Coded S=2/8
Data Rate	<input checked="" type="checkbox"/>	1Mbit/s	<input type="checkbox"/>	2Mbit/s	<input type="checkbox"/>	500/125 Kbit/s
Number of channel	40					

Rated power supply	Voltage and Frequency					
	<input type="checkbox"/>	AC: 220 – 240 V, 50/60 Hz				
	<input type="checkbox"/>	AC: 110 – 130 Vac, 50/60 Hz				
	<input checked="" type="checkbox"/>	DC:12V				
	<input type="checkbox"/>	Adapter: Input: 100-240V,50/60H, 0.3A Output:5V,2A ,10W				
Mounting position	<input type="checkbox"/>	Table top equipment				
	<input type="checkbox"/>	Wall/Ceiling mounted equipment				
	<input type="checkbox"/>	Floor standing equipment				
	<input type="checkbox"/>	Hand-held equipment				
	<input checked="" type="checkbox"/>	Other: Equipment for vehicular use				

1.2 Antenna Information

Antenna model / type number	N/A		
Antenna serial number	N/A		
Antenna Delivery	<input checked="" type="checkbox"/>	1TX + 1RX	
	<input type="checkbox"/>	2TX + 2RX	
	<input type="checkbox"/>	Others:.....	
Antenna technology	<input checked="" type="checkbox"/>	SISO	
	<input type="checkbox"/>	MIMO	<input type="checkbox"/> CDD
			<input type="checkbox"/> Beam-forming
Antenna Type	<input type="checkbox"/>	External	<input type="checkbox"/> Dipole
			<input type="checkbox"/> Sectorized
	<input checked="" type="checkbox"/>	Internal	<input type="checkbox"/> PIFA
			<input checked="" type="checkbox"/> PCB
			<input type="checkbox"/> Dipole
			<input type="checkbox"/> Others.....
Antenna Gain	-3.29dBi		

1.3 Channel List

BLE Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2404 MHz	02	2406 MHz	03	2408 MHz
04	2410 MHz	05	2412 MHz	06	2414 MHz	07	2416 MHz
08	2418 MHz	09	2420 MHz	10	2422 MHz	11	2424 MHz
12	2426 MHz	13	2428 MHz	14	2430 MHz	15	2432 MHz
16	2434 MHz	17	2436 MHz	18	2438 MHz	19	2440 MHz
20	2442 MHz	21	2444 MHz	22	2446 MHz	23	2448 MHz
24	2450 MHz	25	2452 MHz	26	2454 MHz	27	2456 MHz
28	2458 MHz	29	2460 MHz	30	2462 MHz	31	2464 MHz
32	2466 MHz	33	2468 MHz	34	2470 MHz	35	2472 MHz
36	2474 MHz	37	2476 MHz	38	2478 MHz	39	2480 MHz

Note: The general description of the Item(s), antenna information 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 For Bluetooth	Mode1: Transmit by LE_1Mbps
-------------------------	-----------------------------

Note 1: Regards to the frequency band operation: the lowest, middle and highest frequency channel were selected to perform the test, then shown on this report.

Note 2: For portable device, radiated tests was verified over X, Y, Z axis, and shown the worst case on this report.

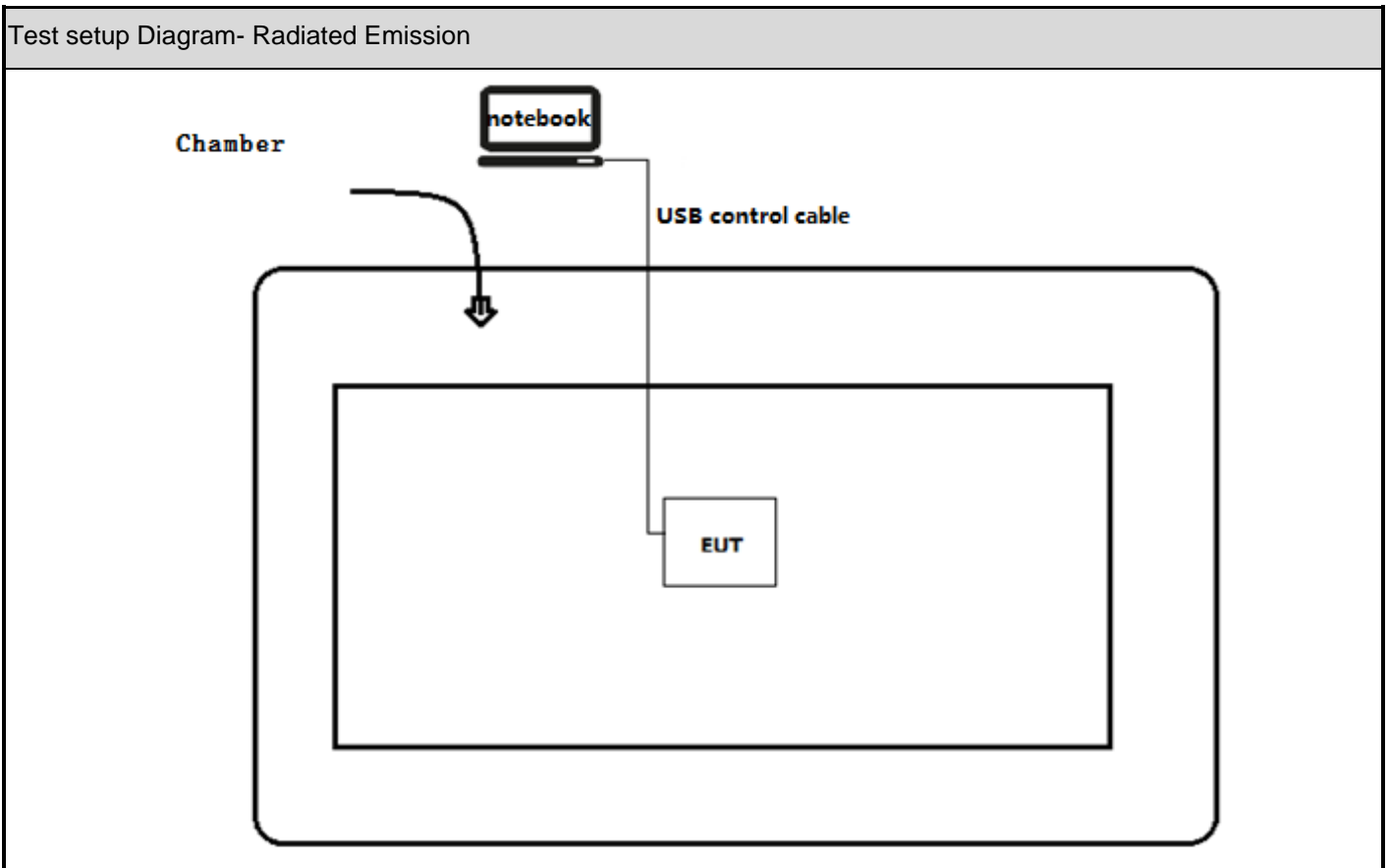
2.2 Accessories Information

Accessories Information	Brand/model name	Cable		
		Length used during test [m]	Attached during test	Shielded
USB Cable	N/A	10	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
USB Cable	N/A	0.5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

2.3 Auxiliary equipment / Test software for the EUT

Auxiliary equipment	Type / Version	Manufacturer	Supplied by
Notebook	2526	Think Pad	N/A
Software	Type / Version	Manufacturer	Supplied by
Putty	N/A	N/A	N/A

2.4 Test Configuration / Block diagram used for tests



2.5 Testing process

1	Setup the EUT as shown in Section 2.4.
2	Run the software "Putty" on the notebook computer.
3	Open the serial port and enter the corresponding commands to configure the test mode, test channel, test power and 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	2021	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
KDB558074 D01 v05r02	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 Deviation(s) from the Standard(s) / Test Specification(s)

The following deviation(s) was / were made from the published requirements of the listed standards: N/A.

(Please define the deviations from the standard(s) if applicable)

3.3 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	---

3.4 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

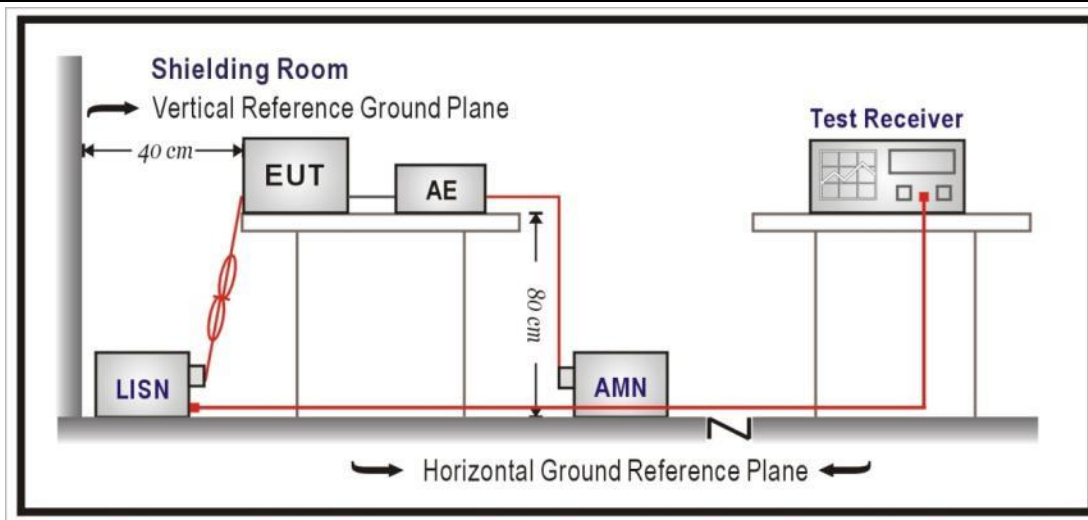
¹⁾ At the transition frequency, the lower limit applies.

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

NOTE 1: The exclusion band for transmitters shall be considered for transmitters operating at frequencies below 30 MHz.

NOTE 2: Where the AC output port is directly connected (or via a circuit breaker) to the AC power input port of the EUT the AC power output port need not to be tested.

4.1.2 Test Setup



4.1.3 Test Procedure

	References Rule	Chapter	Item
<input checked="" type="checkbox"/>	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 15.209	
Restricted Bands of operationfor 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	
13.36 – 13.41			
Restricted Bands of operationfor IC			
0.090 - 0.110	13.36 - 13.41	960 - 1427	9.0 - 9.2
0.495 - 0.505	16.42 - 16.423	1435 - 1626.5	9.3 - 9.5
2.1735 - 2.1905	16.69475 - 16.69525	1645.5 - 1646.5	10.6 - 12.7
3.020 - 3.026	16.80425 - 16.80475	1660 - 1710	13.25 - 13.4
4.125 - 4.128	25.5 - 25.67	1718.8 - 1722.2	14.47 - 14.5
4.17725 - 4.17775	37.5 - 38.25	2200 - 2300	15.35 - 16.2
4.20725 - 4.20775	73 - 74.6	2310 - 2390	17.7 - 21.4
5.677 - 5.683	74.8 - 75.2	2483.5 - 2500	22.01 - 23.12
6.215 - 6.218	108 - 138	2655 - 2900	23.6 - 24.0
6.26775 - 6.26825	149.9 - 150.05	3260 - 3267	31.2 - 31.8
6.31175 - 6.31225	156.52475 - 156.52525	3332 - 3339	36.43 - 36.5
8.291 - 8.294	156.7 - 156.9	3345.8 - 3358	Above 38.6
8.362 - 8.366	162.0125 - 167.17	3500 - 4400	
8.37625 - 8.38675	167.72 - 173.2	4500 - 5150	
8.81425 - 8.81475	240 - 285	5350 - 5460	
12.29 - 12.293	322 - 335.4	7250 - 7750	
12.51975 - 12.52025	399.9 - 410	8025 - 8500	
12.57675 - 12.57725	608 - 614	--	

Restricted Band Emissions Limit			
Frequency (MHz)	Field strength (μ V/m)	Field strength (dB μ V/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)

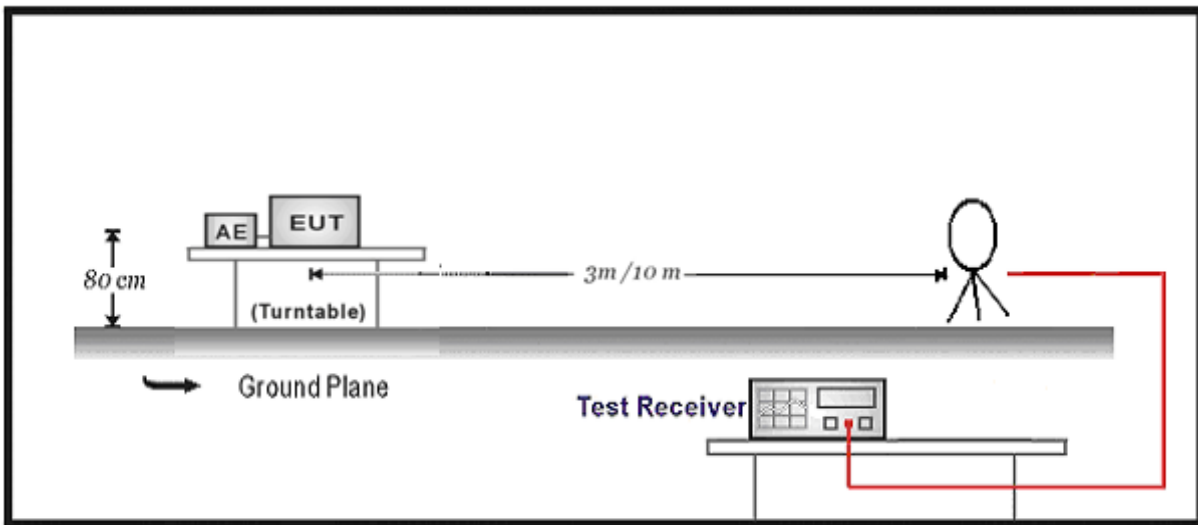
Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed 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.

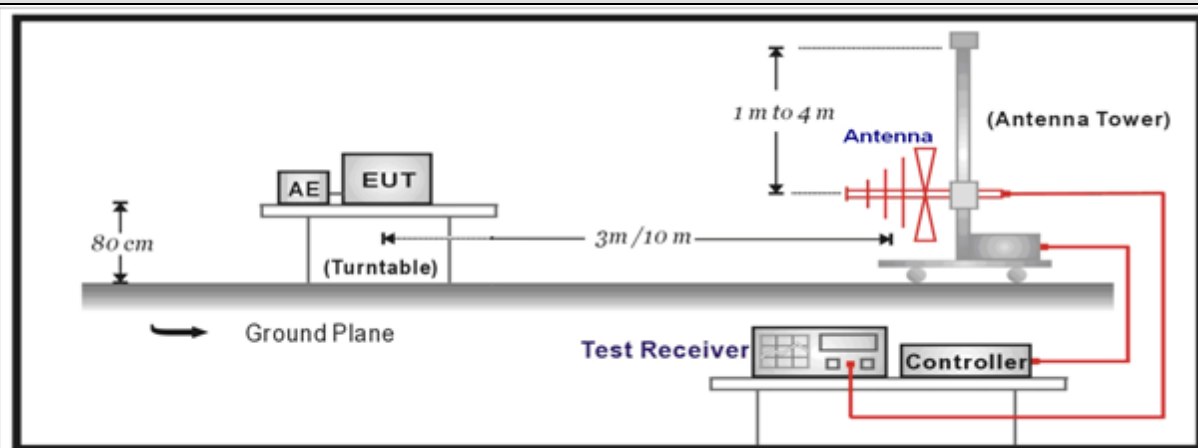
Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified 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

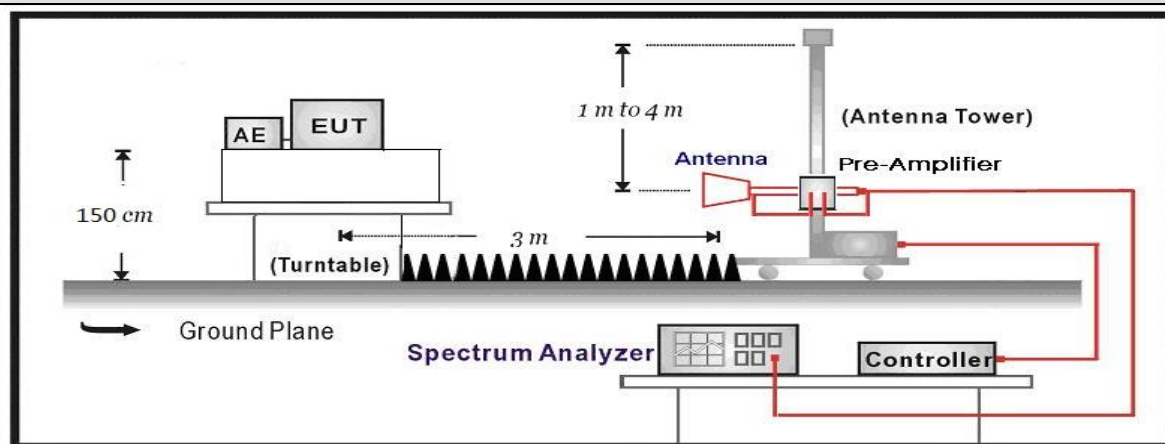
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



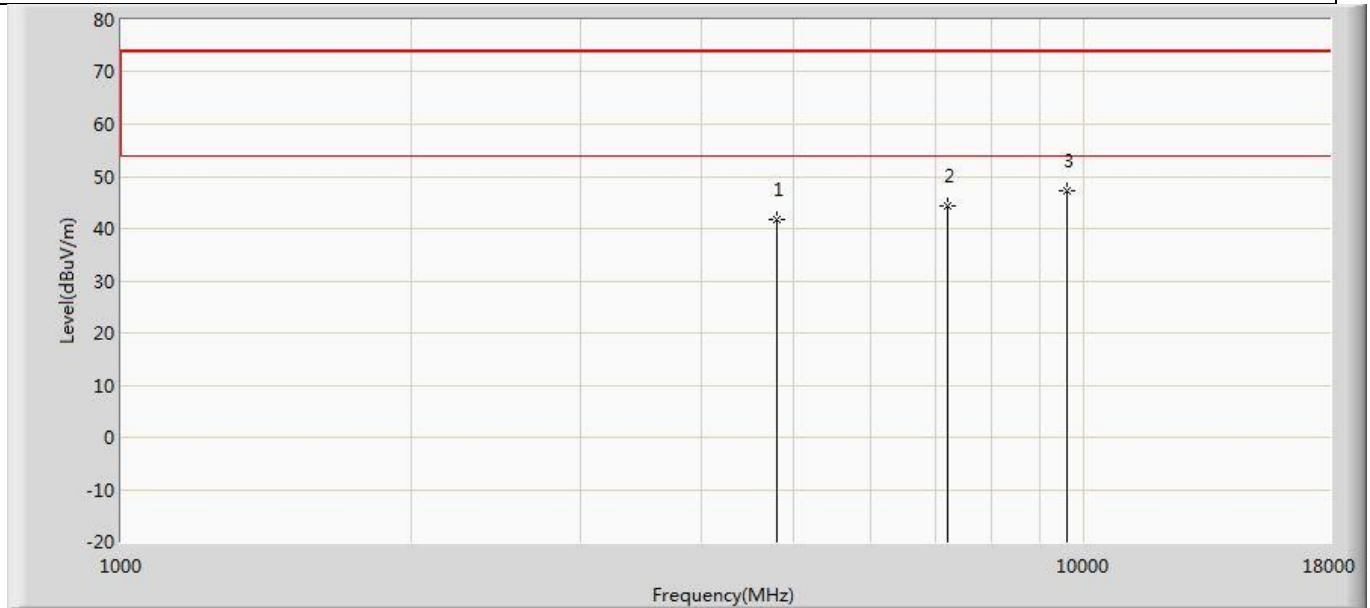
Above 1GHz Test Setup:



4.2.3 Test Procedure			
	References Rule	Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10	11.12	Emissions in restricted frequency bands
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> ANSI C63.10	11.12.1	Radiated emission measurements
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> ANSI C63.10	11.12.2.7	Radiated spurious emission test
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

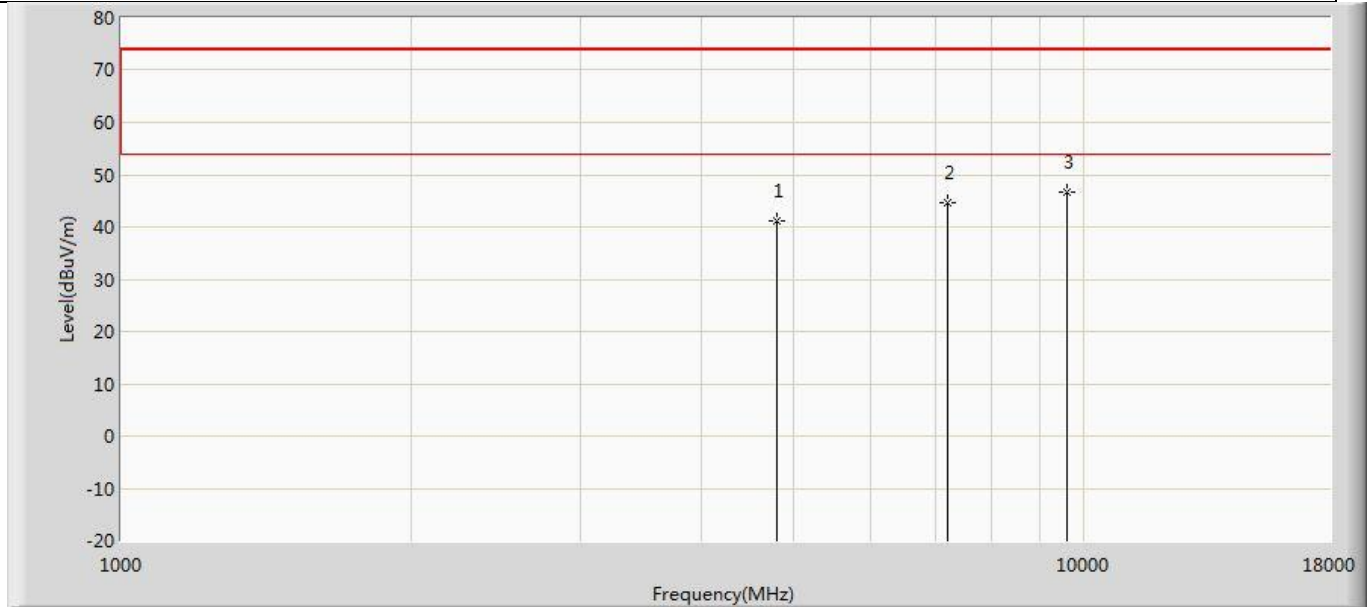
4.2.4 Test Data

Profile: 22A0738R	Page No.: 15
Engineer: YuLiu	
Site: AC5	Time: 2022/11/29 - 22:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT:INFOTAINMENT HEADUNIT	Power: DC 12V
Note: Mode1:Transmit at 2402MHz by BLE	



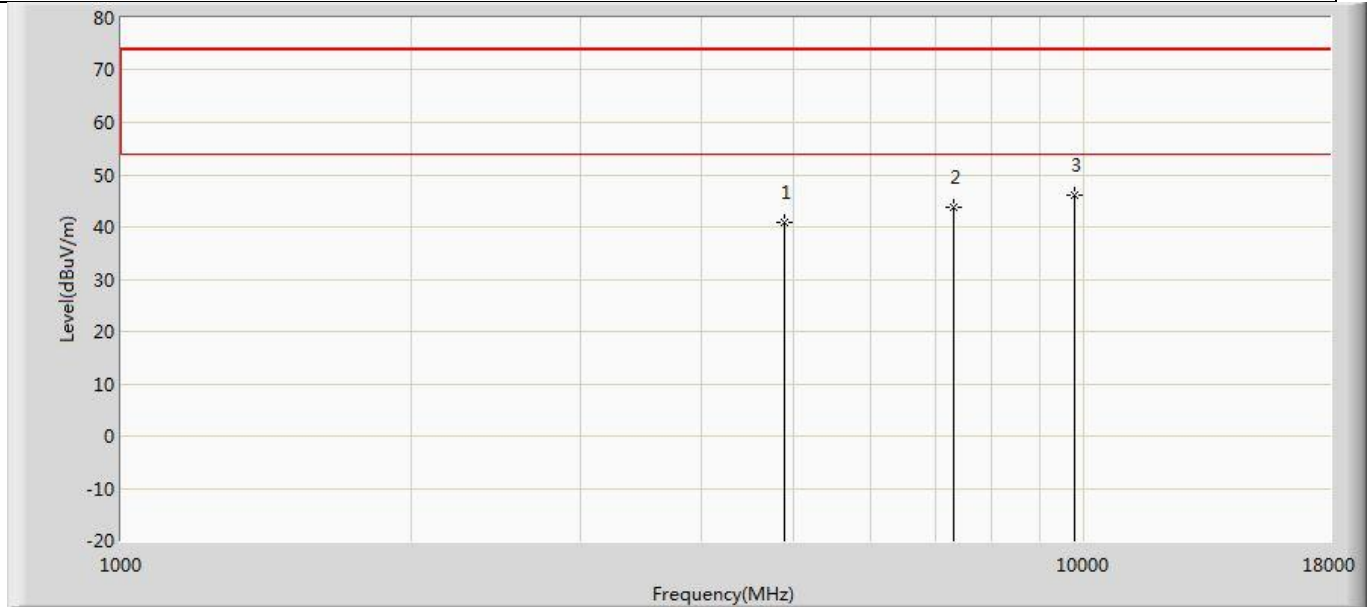
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	41.606	56.586	-32.394	74.000	-14.981	PK
2		7206.000	44.483	55.303	-29.517	74.000	-10.820	PK
3	*	9608.000	47.104	55.198	-26.896	74.000	-8.094	PK

Profile: 22A0738R	Page No.: 16
Engineer: YuLiu	
Site: AC5	Time: 2022/11/29 - 22:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT:INFOTAINMENT HEADUNIT	Power: DC 12V
Note: Mode1:Transmit at 2402MHz by BLE	



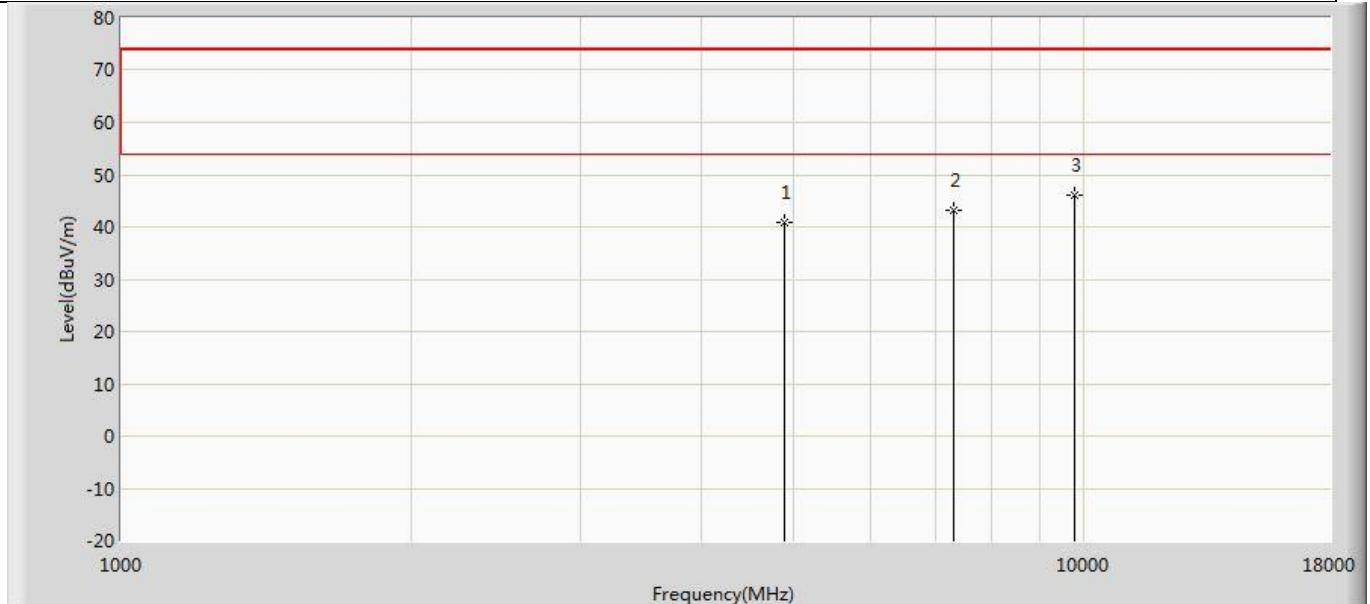
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	41.194	56.174	-32.806	74.000	-14.981	PK
2		7206.000	44.593	55.413	-29.407	74.000	-10.820	PK
3	*	9608.000	46.580	54.674	-27.420	74.000	-8.094	PK

Profile: 22A0738R	Page No.: 17
Engineer: YuLiu	
Site: AC5	Time: 2022/11/29 - 22:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT:INFOTAINMENT HEADUNIT	Power: DC 12V
Note: Mode1:Transmit at 2440MHz by BLE	



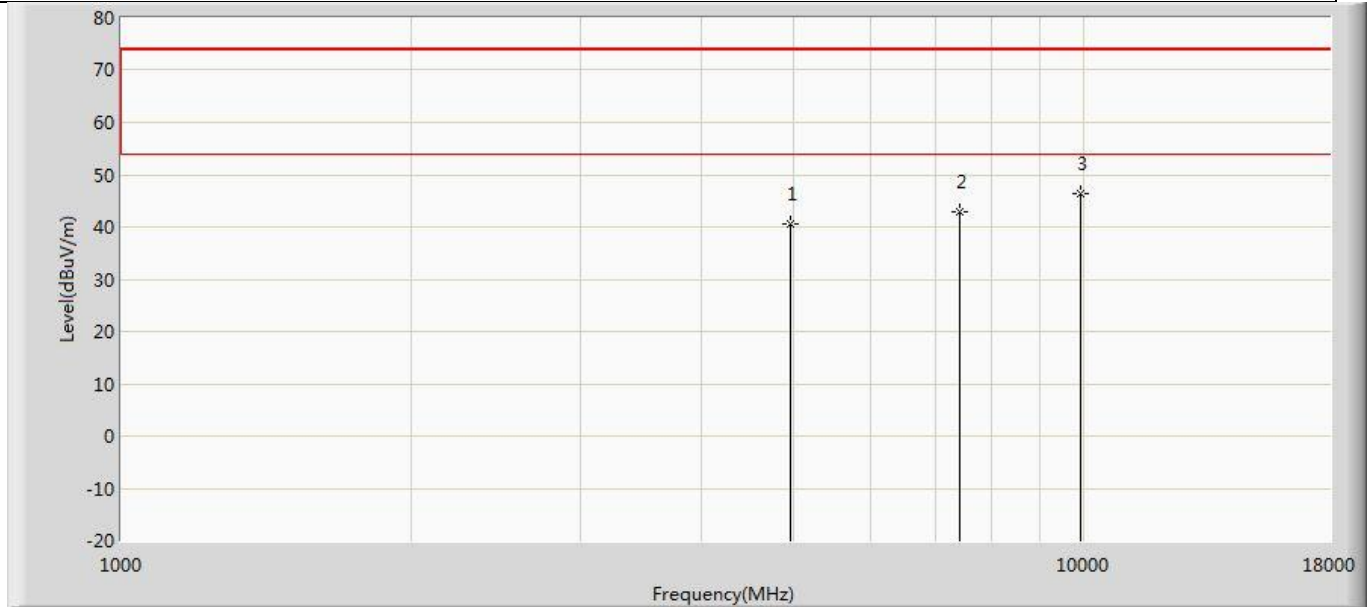
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4880.000	40.922	55.522	-33.078	74.000	-14.600	PK
2		7320.000	43.783	54.651	-30.217	74.000	-10.868	PK
3	*	9760.000	46.156	53.953	-27.844	74.000	-7.797	PK

Profile: 22A0738R	Page No.: 18
Engineer: YuLiu	
Site: AC5	Time: 2022/11/29 - 22:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT:INFOTAINMENT HEADUNIT	Power: DC 12V
Note: Mode1:Transmit at 2440MHz by BLE	



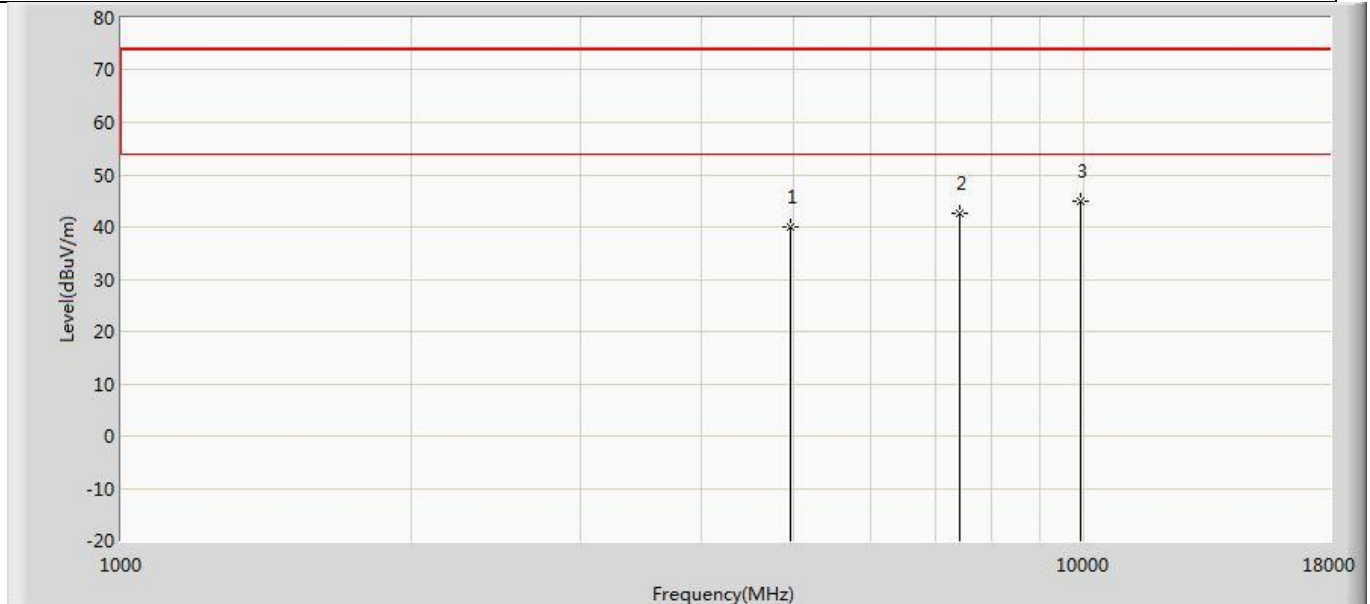
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4880.000	40.905	55.505	-33.095	74.000	-14.600	PK
2		7320.000	43.141	54.009	-30.859	74.000	-10.868	PK
3	*	9760.000	46.054	53.851	-27.946	74.000	-7.797	PK

Profile: 22A0738R	Page No.: 19
Engineer: YuLiu	
Site: AC5	Time: 2022/11/29 - 22:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT:INFOTAINMENT HEADUNIT	Power: DC 12V
Note: Mode1:Transmit at 2480MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	40.653	55.217	-33.347	74.000	-14.565	PK
2		7440.000	42.997	53.728	-31.003	74.000	-10.731	PK
3	*	9920.000	46.488	54.065	-27.512	74.000	-7.578	PK

Profile: 22A0738R	Page No.: 20
Engineer: YuLiu	
Site: AC5	Time: 2022/11/29 - 22:20
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT:INFOTAINMENT HEADUNIT	Power: DC 12V
Note: Mode1:Transmit at 2480MHz by BLE	



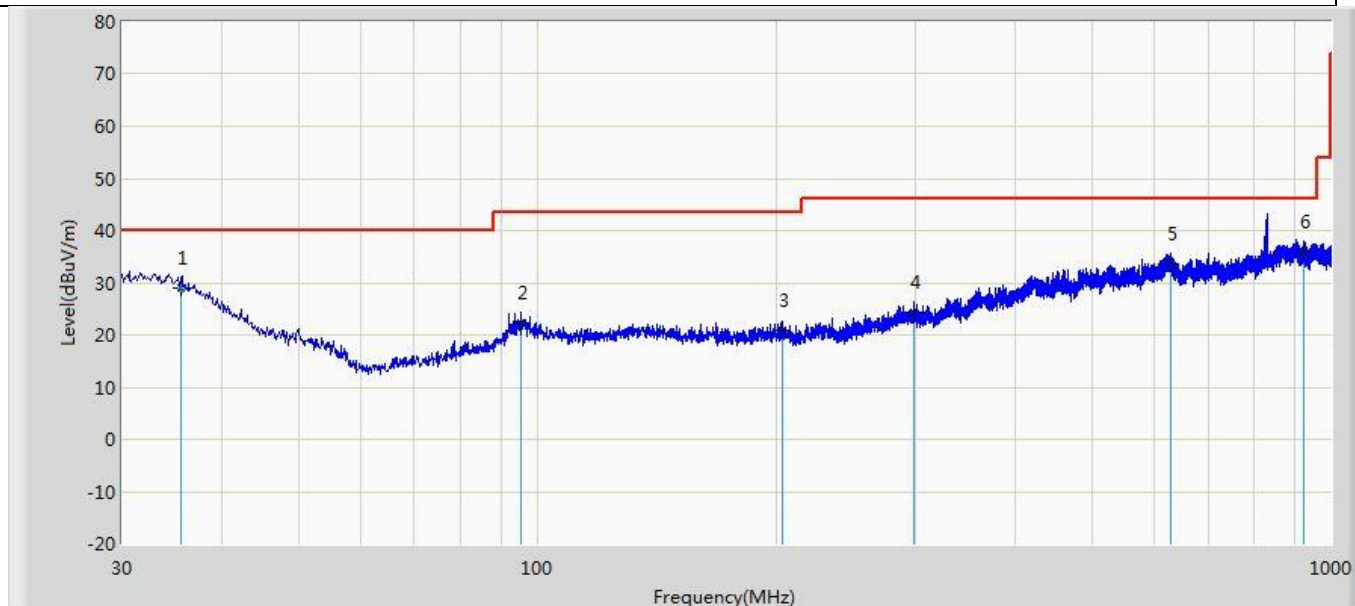
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	39.962	54.526	-34.038	74.000	-14.565	PK
2		7440.000	42.687	53.418	-31.313	74.000	-10.731	PK
3	*	9920.000	45.066	52.643	-28.934	74.000	-7.578	PK

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.

The worst case of Radiated Emission below 1GHz:

Profile: 22A0738R	Page No.: 50
Engineer: YuLiu	
Site: AC3	Time: 2022/11/28 - 21:11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC3_3m(30-1000M)	Polarity: Horizontal
EUT: INFOTAINMENT HEADUNIT	Power: DC 12V
Note: Mode 1: Transmit at 2440MHz by ble	

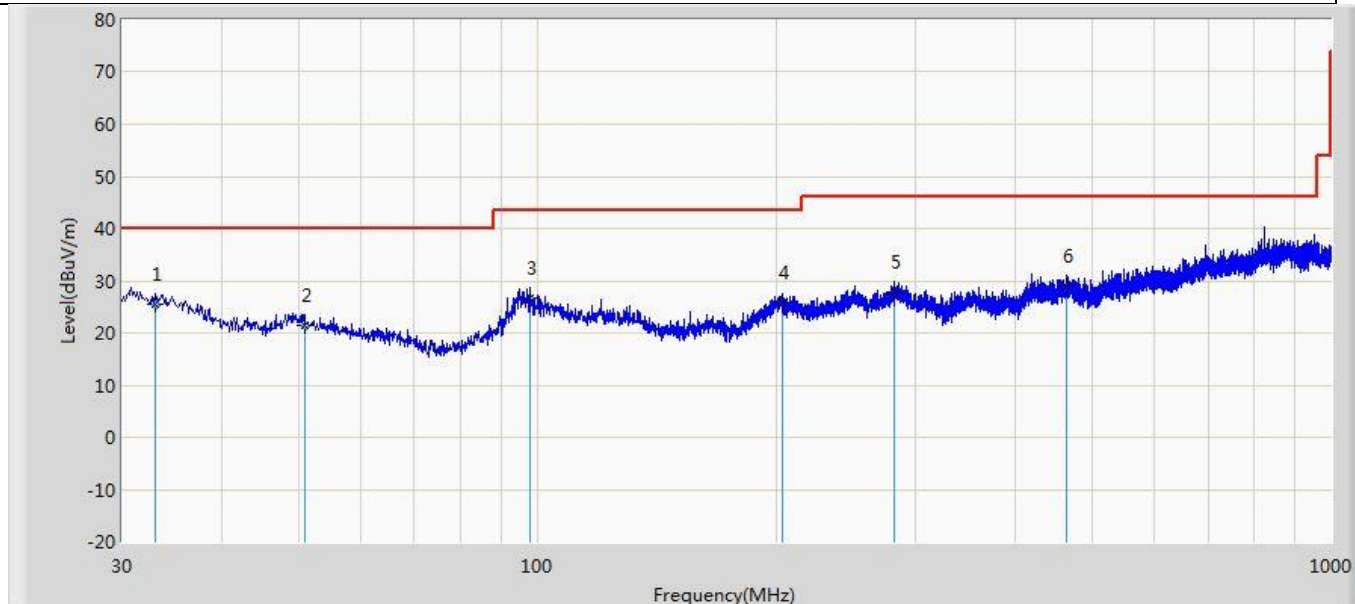


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		35.577	28.877	2.421	-11.123	40.000	26.456	QP
2		95.475	22.437	7.261	-21.063	43.500	15.176	QP
3		203.630	20.748	3.130	-22.752	43.500	17.618	QP
4		298.326	24.418	3.797	-21.582	46.000	20.622	QP
5		629.339	33.646	3.307	-12.354	46.000	30.339	QP
6	*	924.825	35.927	3.378	-10.073	46.000	32.549	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: 22A0738R	Page No.: 51
Engineer: YuLiu	
Site: AC3	Time: 2022/11/28 - 21:13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC3_3m(30-1000M)	Polarity: Vertical
EUT: INFOTAINMENT HEADUNIT	Power: DC 12V
Note: Mode 1: Transmit at 2440MHz by ble	



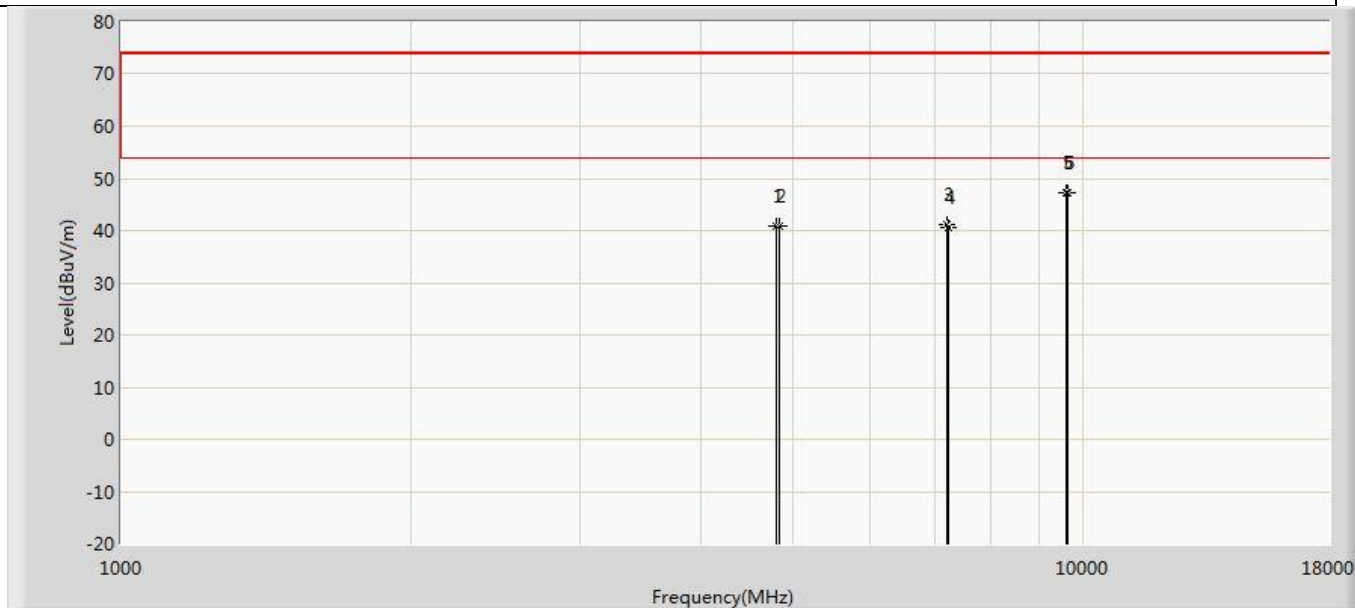
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	33.031	25.628	2.535	-14.372	40.000	23.093	QP
2		50.976	21.381	2.190	-18.619	40.000	19.191	QP
3		97.779	26.767	5.803	-16.733	43.500	20.964	QP
4		204.115	25.658	2.176	-17.842	43.500	23.481	QP
5		282.079	27.772	2.711	-18.228	46.000	25.062	QP
6		465.288	29.069	2.228	-16.931	46.000	26.841	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)

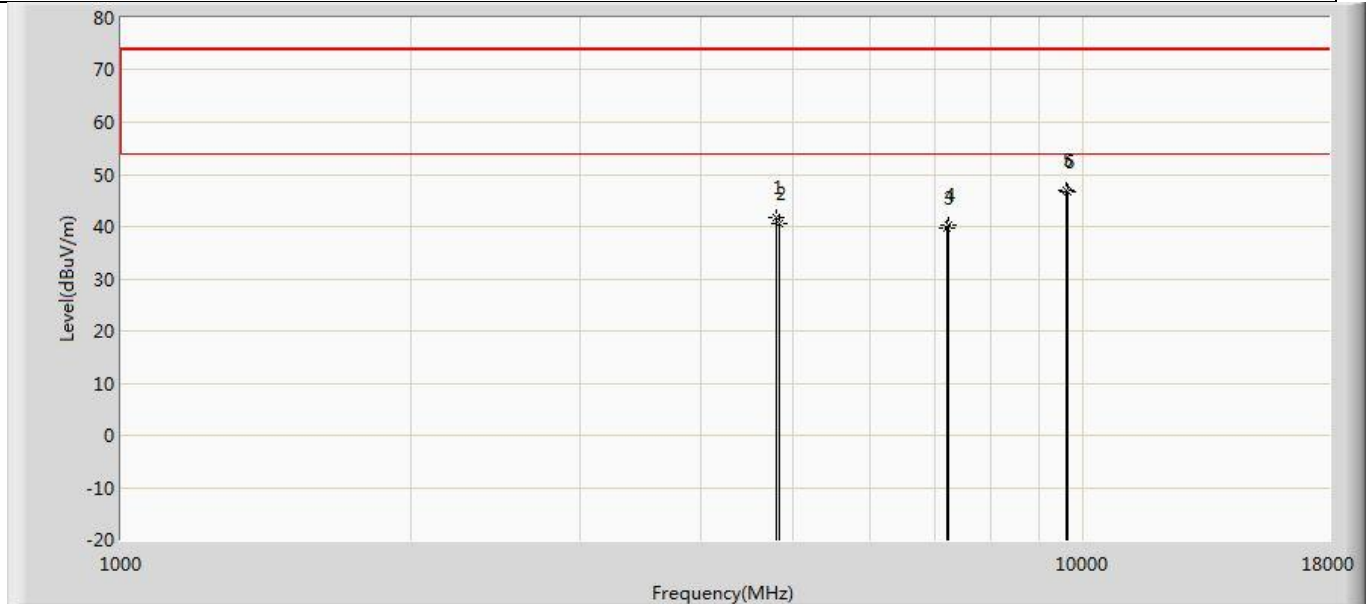
The worst case of Simultaneous Radiated Emission:

Profile: 22A0738R	Page No.: 13
Engineer: YuLiu	
Site: AC5	Time: 2022/12/04 - 20:14
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT: INFOTAINMENT HEADUNIT	Power: DC 12V
Note: Mode1: Transmit at BLE 2402MHz and 2.4G WIFI 11b 2412MHz	



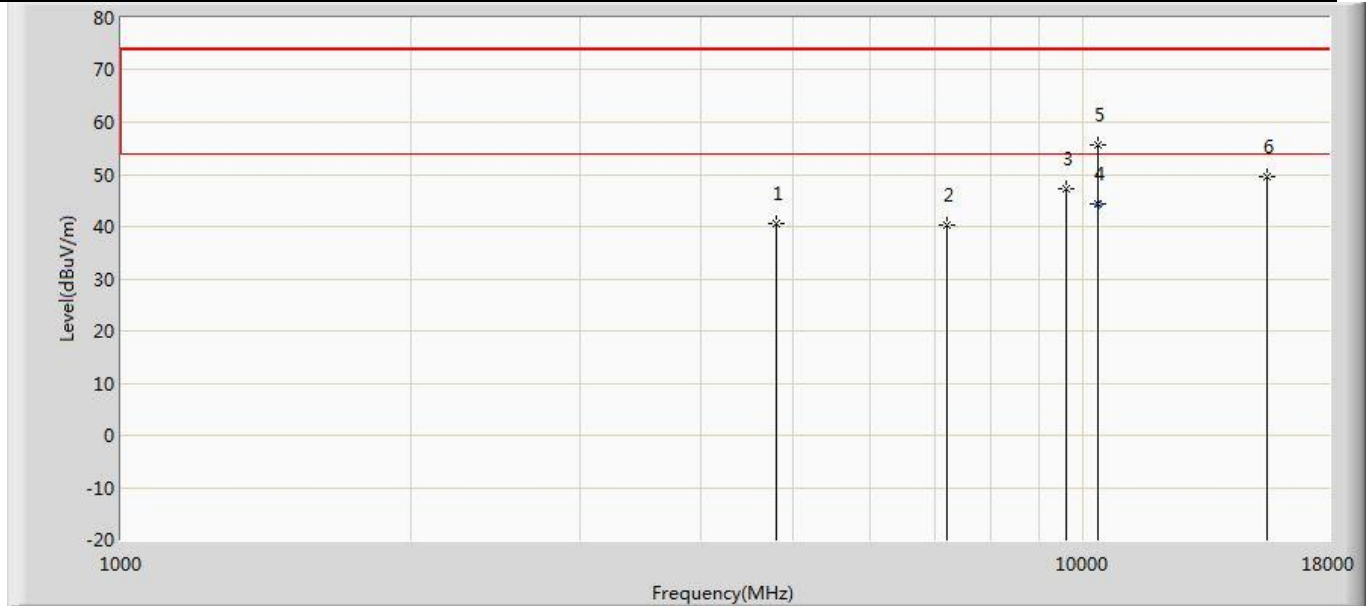
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	40.828	55.808	-33.172	74.000	-14.981	PK
2		4824.000	40.862	55.754	-33.138	74.000	-14.892	PK
3		7206.000	41.175	51.995	-32.825	74.000	-10.820	PK
4		7236.000	40.479	51.323	-33.521	74.000	-10.844	PK
5	*	9608.000	47.164	55.258	-26.836	74.000	-8.094	PK
6		9648.000	47.142	55.003	-26.858	74.000	-7.860	PK

Profile: 22A0738R	Page No.: 14
Engineer:YuLiu	
Site: AC5	Time: 2022/12/04 - 20:14
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: INFOTAINMENT HEADUNIT	Power: DC 12V
Note: Mode1: Transmit at BLE 2402MHz and 2.4G WIFI 11b 2412MHz	



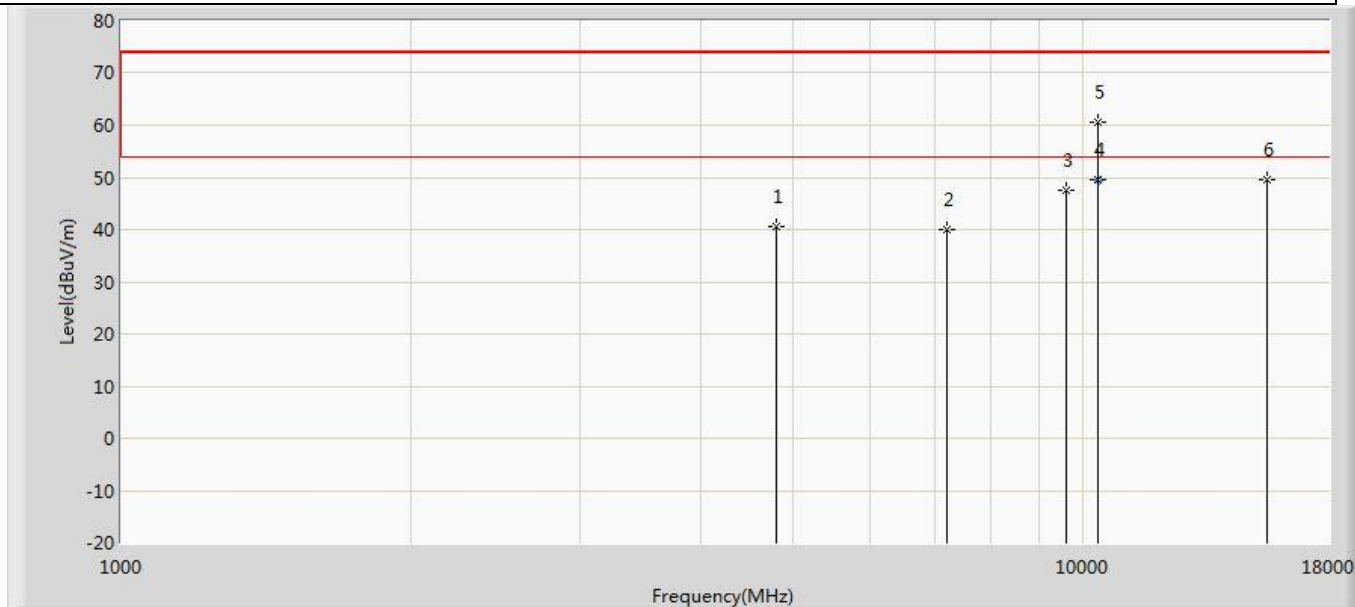
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	41.602	56.582	-32.398	74.000	-14.981	PK
2		4824.000	40.637	55.529	-33.363	74.000	-14.892	PK
3		7206.000	39.742	50.562	-34.258	74.000	-10.820	PK
4		7236.000	40.292	51.136	-33.708	74.000	-10.844	PK
5	*	9608.000	47.020	55.114	-26.980	74.000	-8.094	PK
6		9648.000	46.631	54.492	-27.369	74.000	-7.860	PK

Profile: 22A0738R	Page No.: 9
Engineer: YuLiu	
Site: AC5	Time: 2022/12/04 - 20:14
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT: INFOTAINMENT HEADUNIT	Power: DC 12V
Note: Mode1:Transmit at BLE 2402MHz and 5G WIFI 11a 5180MHz	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	40.480	55.460	-33.520	74.000	-14.981	PK
2		7206.000	40.322	51.142	-33.678	74.000	-10.820	PK
3		9608.000	47.106	55.200	-26.894	74.000	-8.094	PK
4	*	10358.640	44.442	51.898	-9.558	54.000	-7.456	AV
5		10367.000	55.603	62.788	-18.397	74.000	-7.185	PK
6		15540.000	49.605	53.718	-24.395	74.000	-4.113	PK

Profile: 22A0738R	Page No.: 10
Engineer:YuLiu	
Site: AC5	Time: 2022/12/04 - 20:14
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: INFOTAINMENT HEADUNIT	Power: DC 12V
Note:Mode1: Transmit at BLE 2402MHz and 5G WIFI 11a 5180MHz	

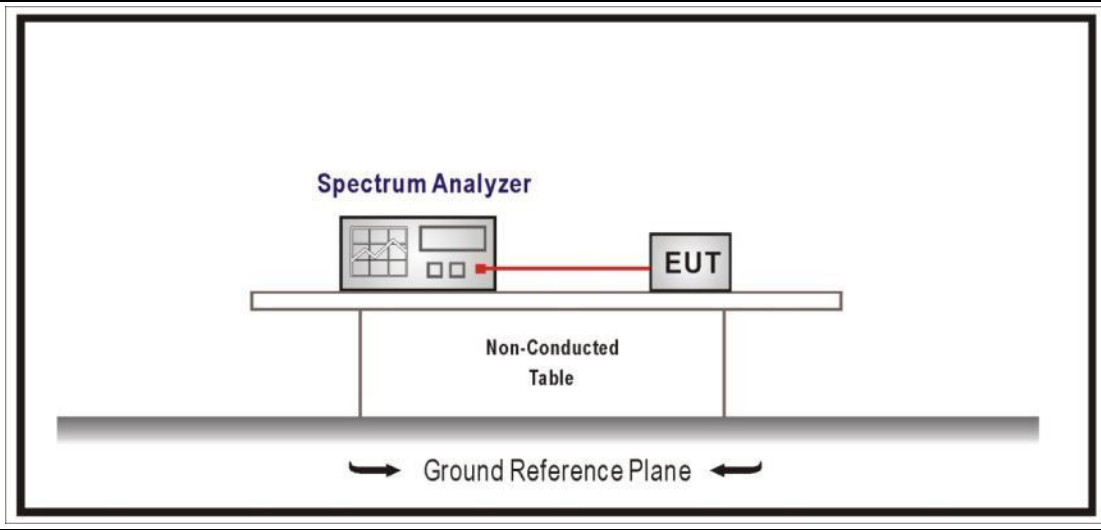


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	40.572	55.552	-33.428	74.000	-14.981	PK
2		7206.000	40.036	50.856	-33.964	74.000	-10.820	PK
3		9608.000	47.455	55.549	-26.545	74.000	-8.094	PK
4	*	10360.440	49.613	57.011	-4.387	54.000	-7.398	AV
5		10367.000	60.503	67.688	-13.497	74.000	-7.185	PK
6		15540.000	49.619	53.732	-24.381	74.000	-4.113	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)
<p>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).</p> <p>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).</p>	

4.3.2 Test Setup



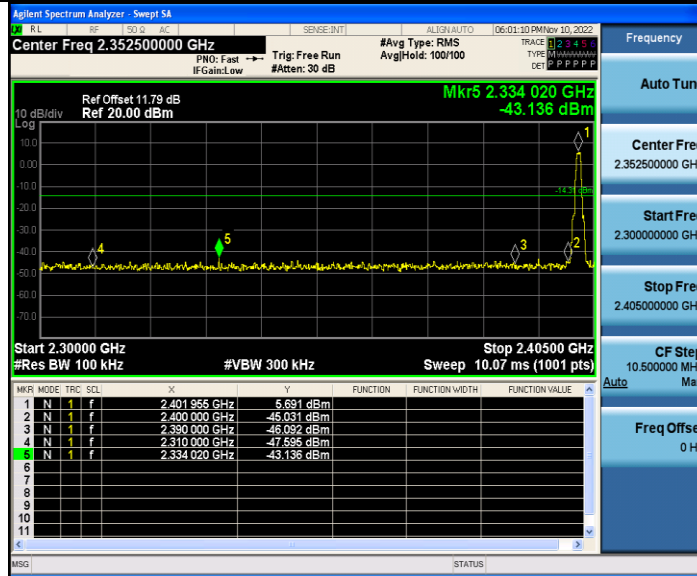
4.3.3 Test Procedure

References Rule	Chapter	Description
<input checked="" type="checkbox"/> ANSI C63.10	11.11	Emissions in non-restricted frequency bands
<input checked="" type="checkbox"/> ANSI C63.10	11.11.1	General
<input checked="" type="checkbox"/> ANSI C63.10	11.11.2	Reference level measurement
<input checked="" type="checkbox"/> ANSI C63.10	11.11.3	Emission level measurement

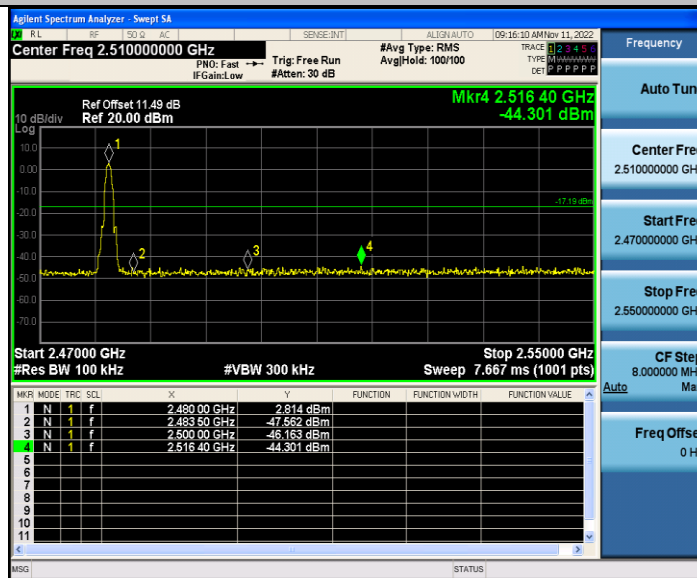
4.3.4 Test Data

TestMode	Antenna	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	5.69	-43.14	≤-14.31	PASS
		High	2480	2.81	-44.3	≤-17.19	PASS

BLE_1M_Ant1_Low_2402



BLE_1M_Ant1_High_2480



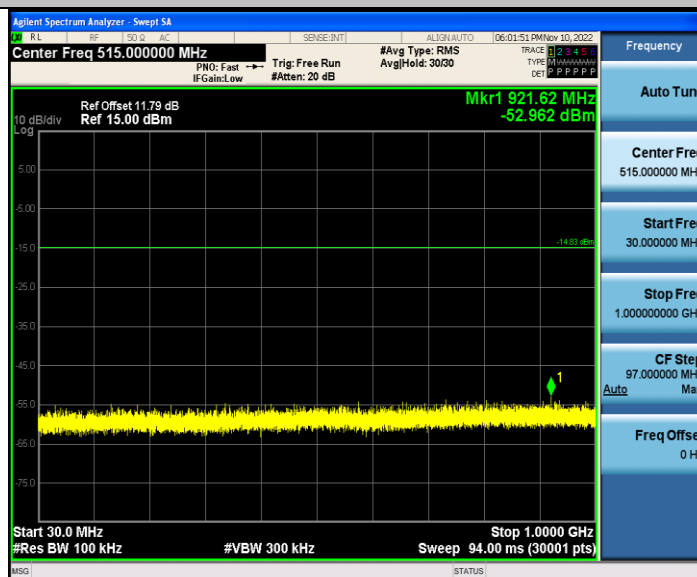
The data of entire corresponding spectrum:

TestMode	Antenna	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	5.17	5.17	---	PASS
			30~1000	5.17	-52.96	≤-14.83	PASS
			1000~26500	5.17	-37.96	≤-14.83	PASS
		2440	Reference	3.29	3.29	---	PASS
			30~1000	3.29	-54.02	≤-16.71	PASS
			1000~26500	3.29	-38.24	≤-16.71	PASS
		2480	Reference	1.68	1.68	---	PASS
			30~1000	1.68	-53.56	≤-18.32	PASS
			1000~26500	1.68	-38.22	≤-18.32	PASS

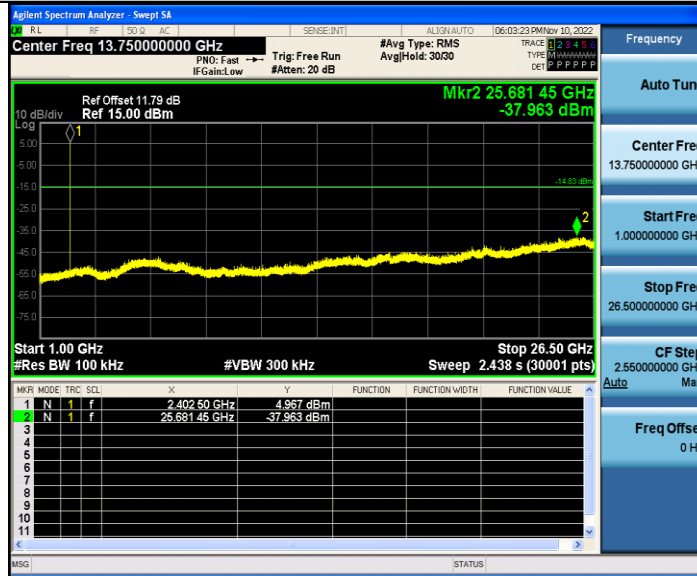
BLE_1M_Ant1_2402_0~Reference



BLE_1M_Ant1_2402_30~1000



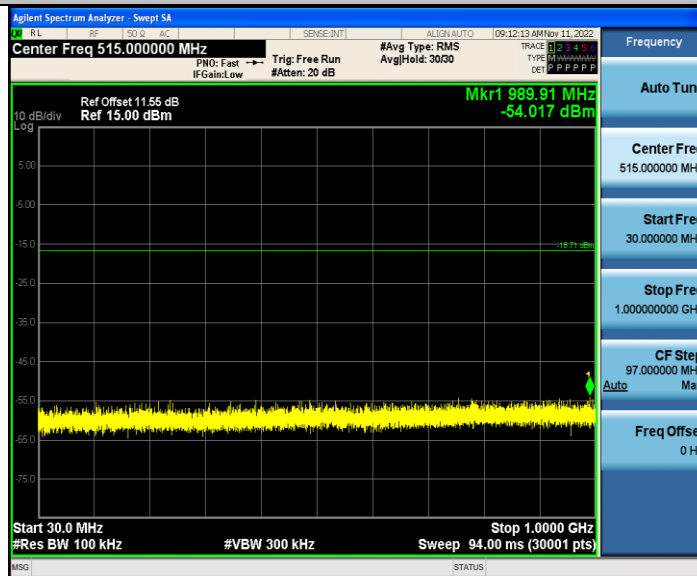
BLE_1M_Ant1_2402_1000~26500



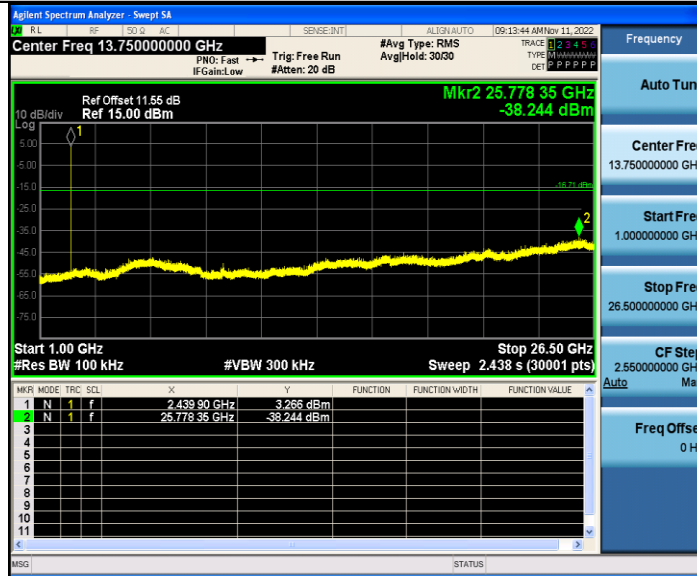
BLE_1M_Ant1_2440_0~Reference



BLE_1M_Ant1_2440_30~1000



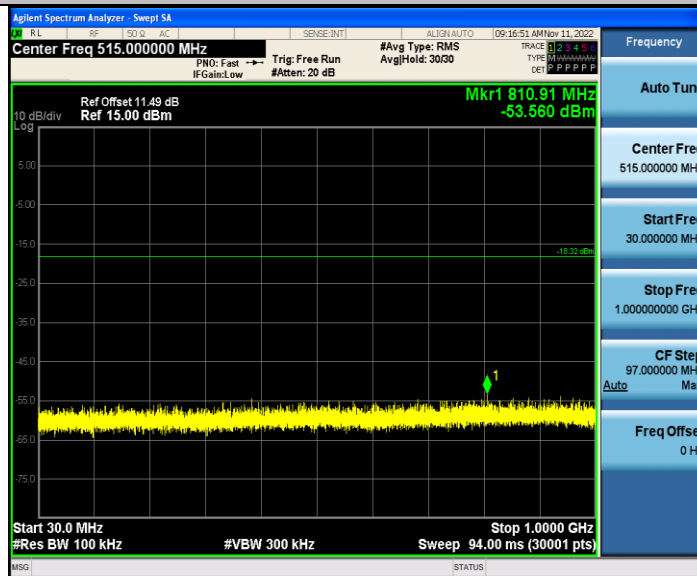
BLE_1M_Ant1_2440_1000~26500



BLE_1M_Ant1_2480_0~Reference



BLE_1M_Ant1_2480_30~1000



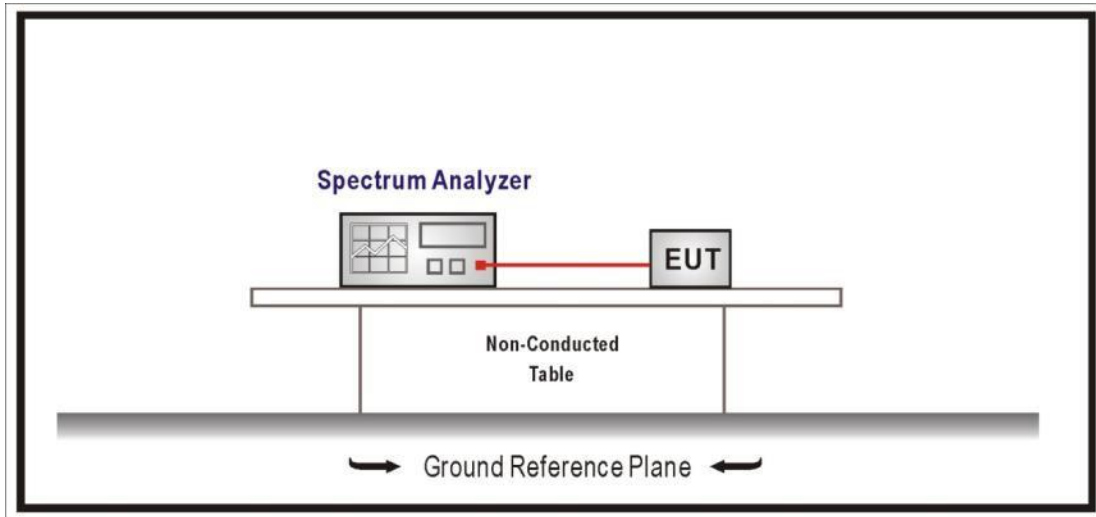
BLE_1M_Ant1_2480_1000~26500



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

4.4.1 Limit
N/A

4.4.2 Test Setup



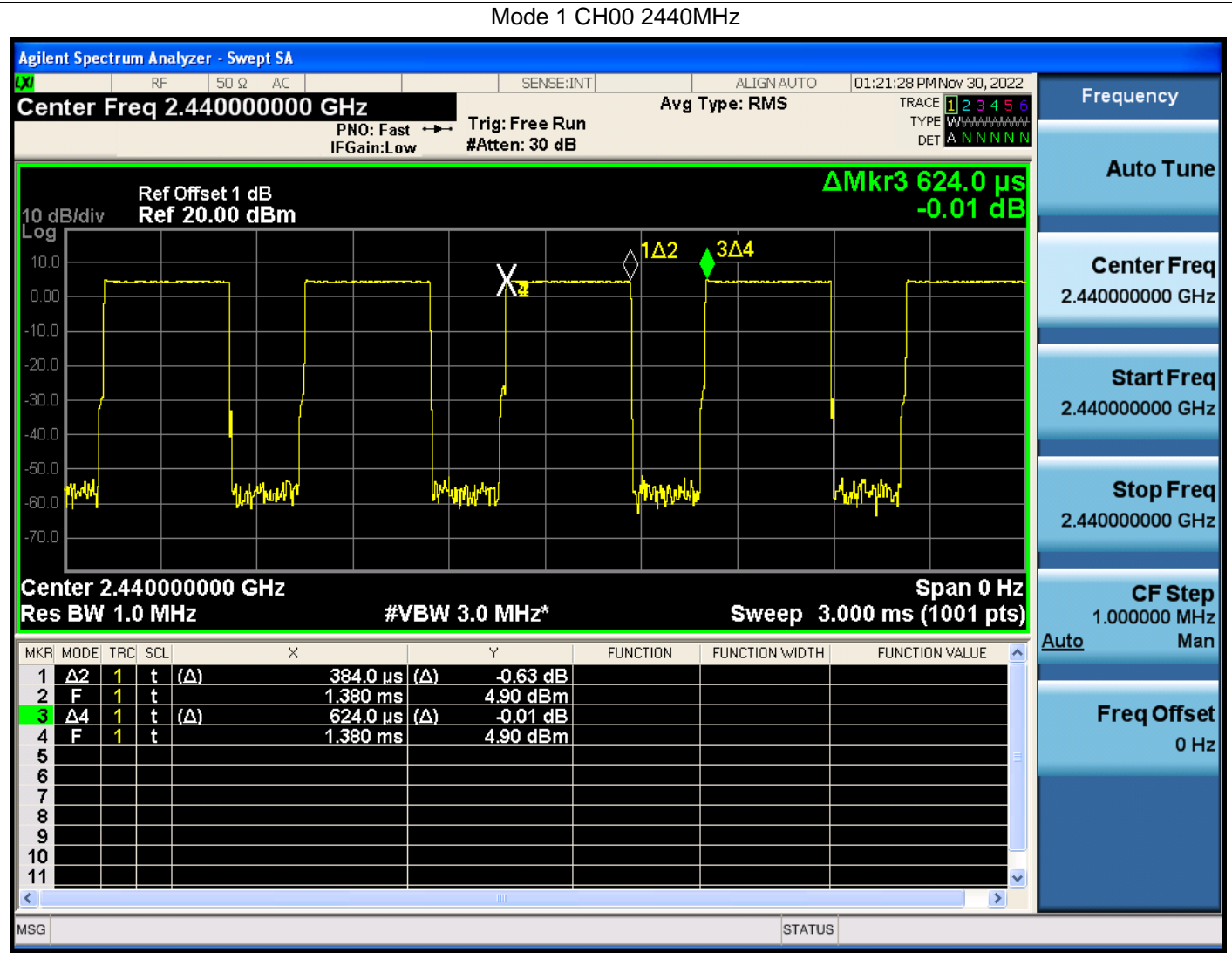
4.4.3 Test Procedure

References Rule	Chapter	Description
<input checked="" type="checkbox"/> ANSI C63.10	11.6	Duty cycle (D), transmission duration (T), and maximum power control level

4.4.4 Test Data

Test Mode	Tx On (us)	Tx Off (us)	VBW (kHz)	Tx On + Tx Off (us)	Duty Cycle (%)
Mode 1	384	240	3	624	61.54

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.



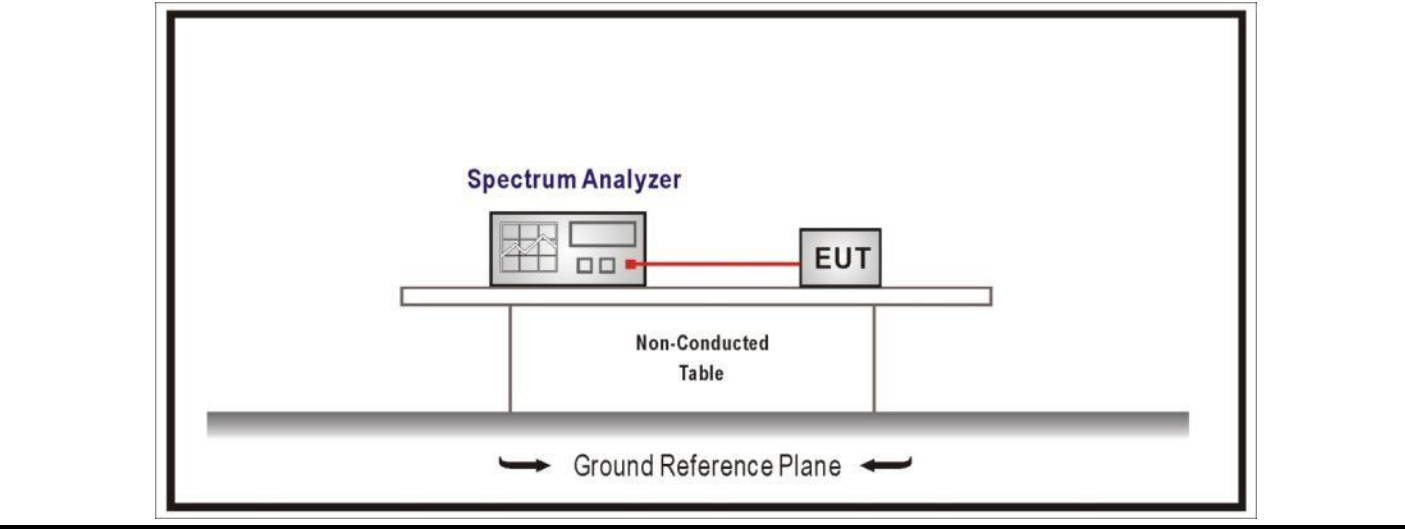
4.5 Band Edge	VERDICT: PASS
----------------------	----------------------

4.5.1 Limit

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

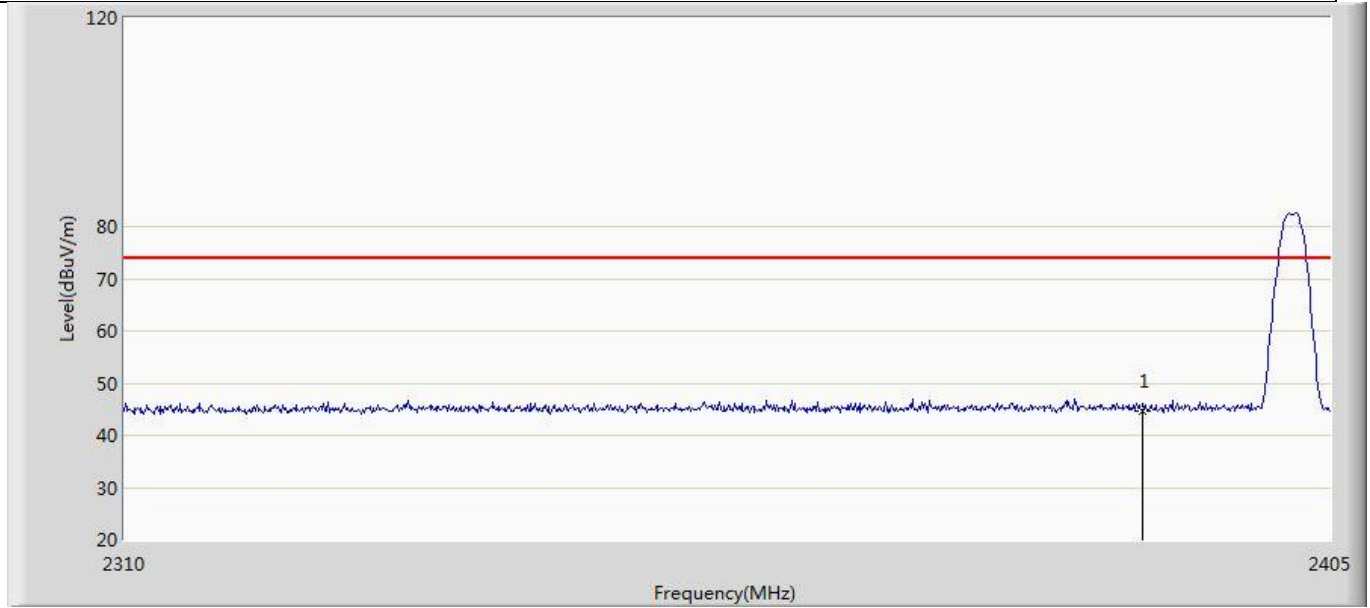


4.5.3 Test Procedure

	References Rule	Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10	6.10	Band-edge testing
	<input checked="" type="checkbox"/> ANSI C63.10	6.10.5	Restricted-band band-edge measurements
	<input type="checkbox"/> ANSI C63.10	6.10.6	Marker-delta method
<input checked="" type="checkbox"/>	ANSI C63.10	11.12	Emissions in restricted frequency bands
	<input checked="" type="checkbox"/> ANSI C63.10	11.12.2	Antenna-port conducted measurements
	<input type="checkbox"/> ANSI C63.10	11.12.2.3	Quasi-peak measurement procedure
	<input checked="" type="checkbox"/> ANSI C63.10	11.12.2.4	Peak power measurement procedure
	<input checked="" type="checkbox"/> ANSI C63.10	11.12.2.5	Average power measurement procedures

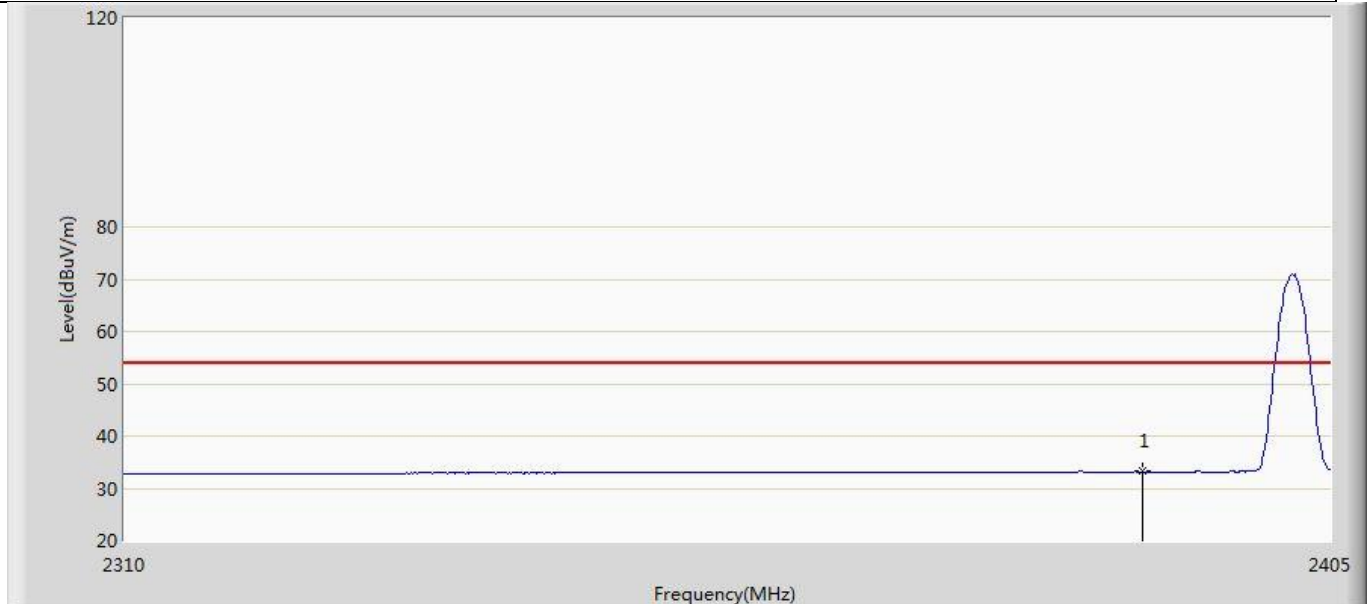
4.5.4 Test Data

Profile: 22A0738R	Page No.: 1
Engineer: YuLiu	
Site: AC5	Time: 2022/11/29 - 21:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT: INFOTAINMENT HEADUNIT	Power: DC 12V
Note: Mode1:Transmit at 2402MHz by BLE	



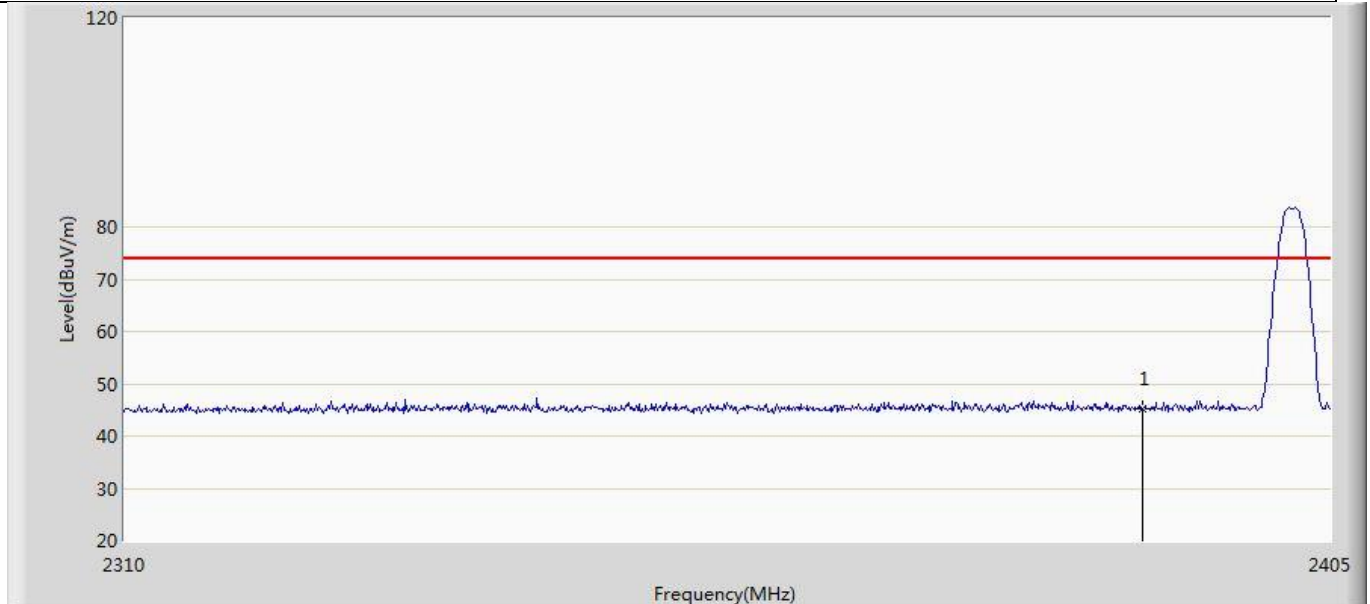
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	44.644	10.560	-29.356	74.000	34.084	PK

Profile: 22A0738R	Page No.: 2
Engineer: YuLiu	
Site: AC5	Time: 2022/11/29 - 21:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT: INFOTAINMENT HEADUNIT	Power: DC 12V
Note: Mode1: Transmit at 2402MHz by BLE	



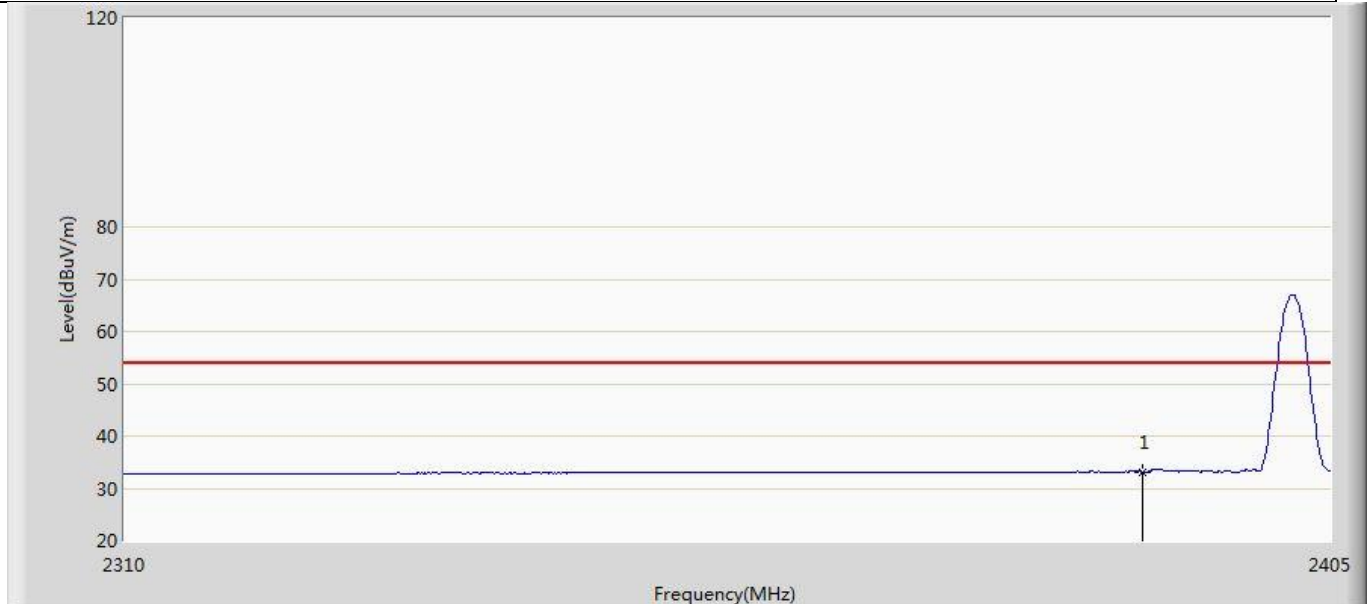
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	33.212	-0.872	-20.788	54.000	34.084	AV

Profile: 22A0738R	Page No.: 3
Engineer: YuLiu	
Site: AC5	Time: 2022/11/29 - 21:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: INFOTAINMENT HEADUNIT	Power: DC 12V
Note: Mode1: Transmit at 2402MHz by BLE	



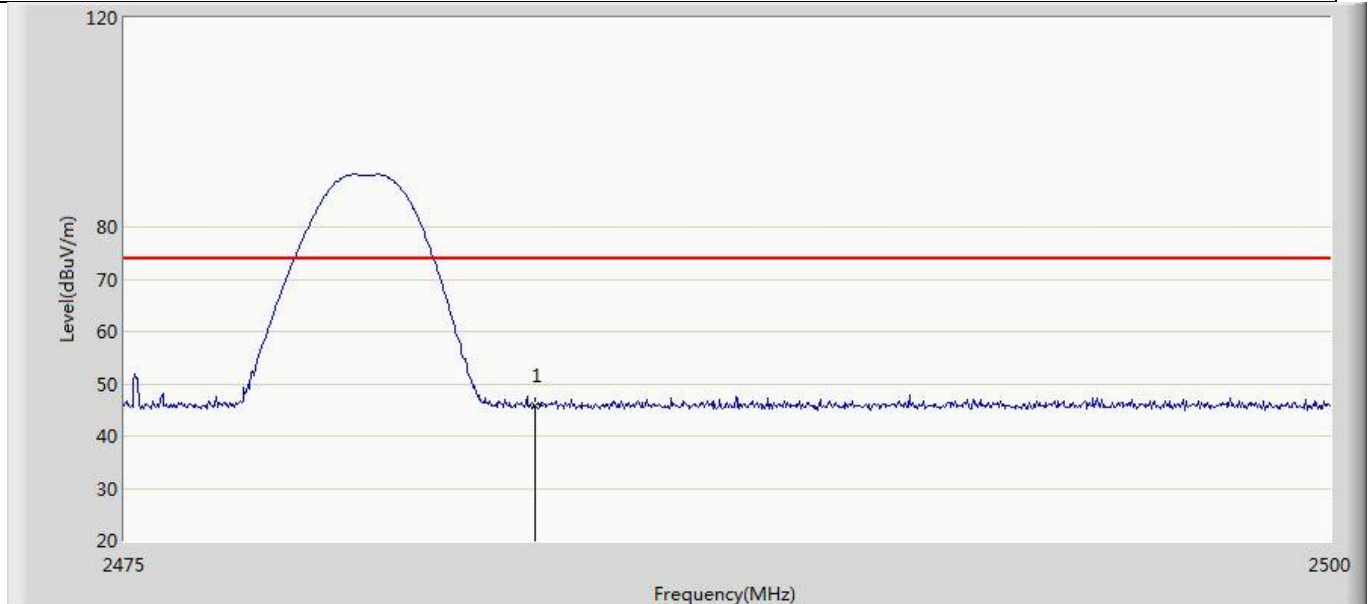
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	45.080	10.996	-28.920	74.000	34.084	PK

Profile: 22A0738R	Page No.: 4
Engineer: YuLiu	
Site: AC5	Time: 2022/11/29 - 21:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: INFOTAINMENT HEADUNIT	Power: DC 12V
Note: Mode1: Transmit at 2402MHz by BLE	



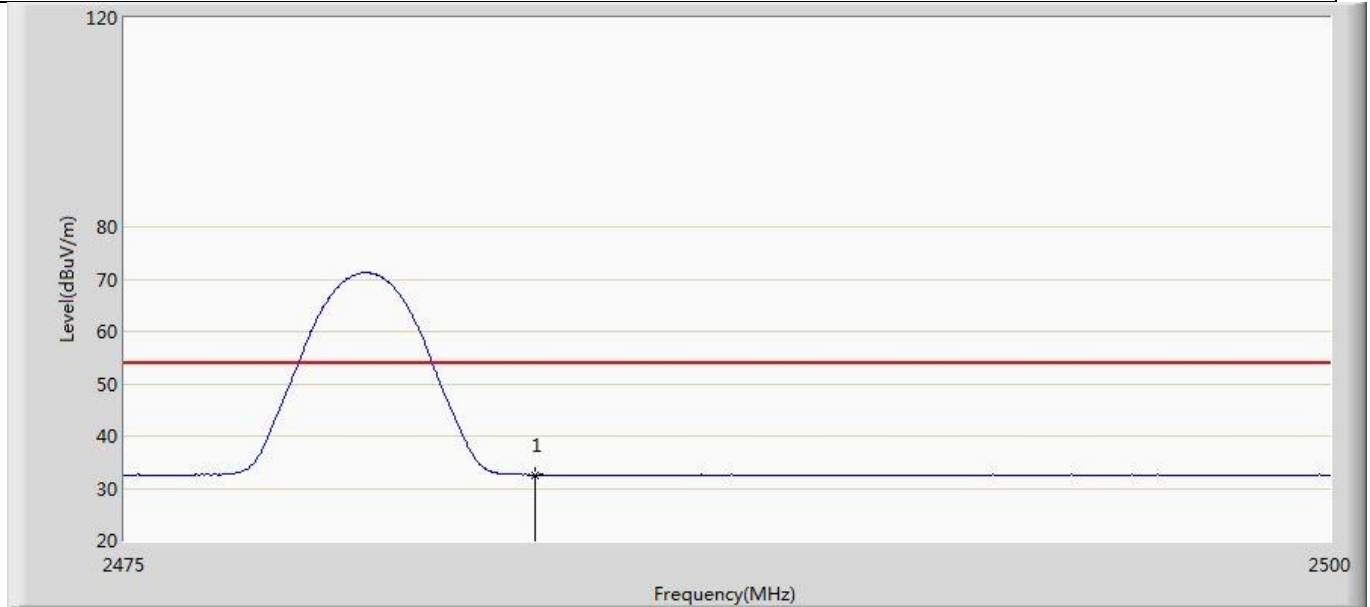
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	33.099	-0.985	-20.901	54.000	34.084	AV

Profile: 22A0738R	Page No.: 5
Engineer: YuLiu	
Site: AC5	Time: 2022/11/29 - 21:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT: INFOTAINMENT HEADUNIT	Power: DC 12V
Note: Mode1: Transmit at 2480MHz by BLE	



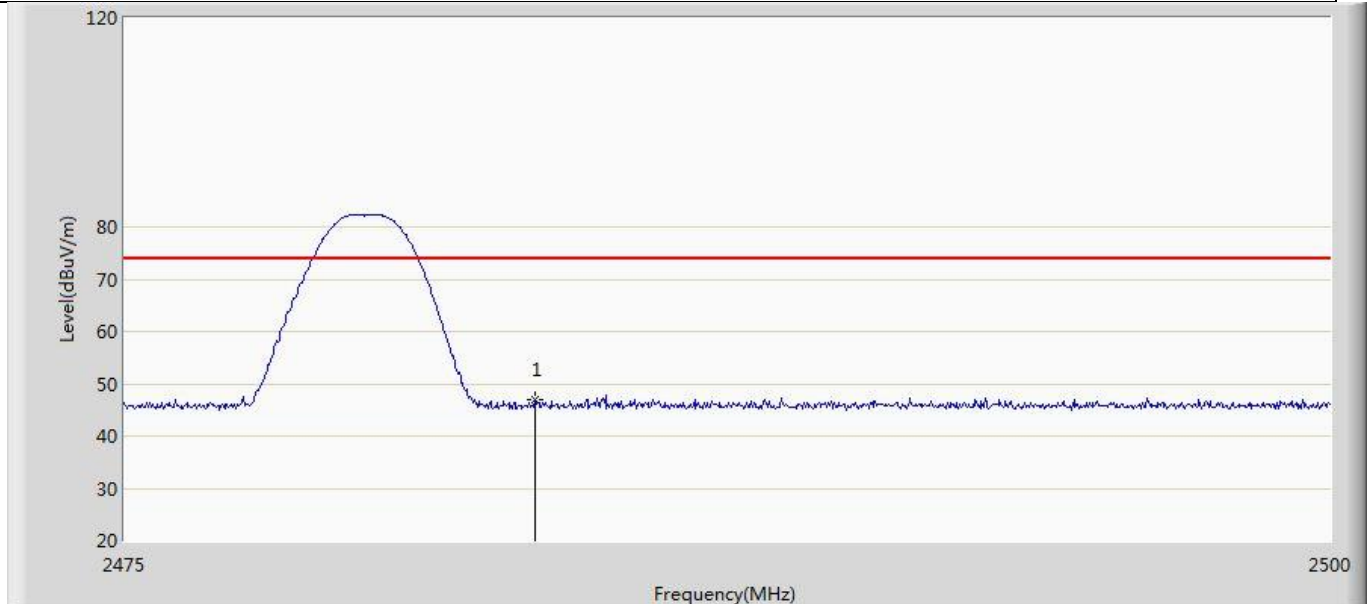
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	45.925	11.434	-28.075	74.000	34.491	PK

Profile: 22A0738R	Page No.: 6
Engineer: YuLiu	
Site: AC5	Time: 2022/11/29 - 21:51
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT: INFOTAINMENT HEADUNIT	Power: DC 12V
Note: Mode1: Transmit at 2480MHz by BLE	



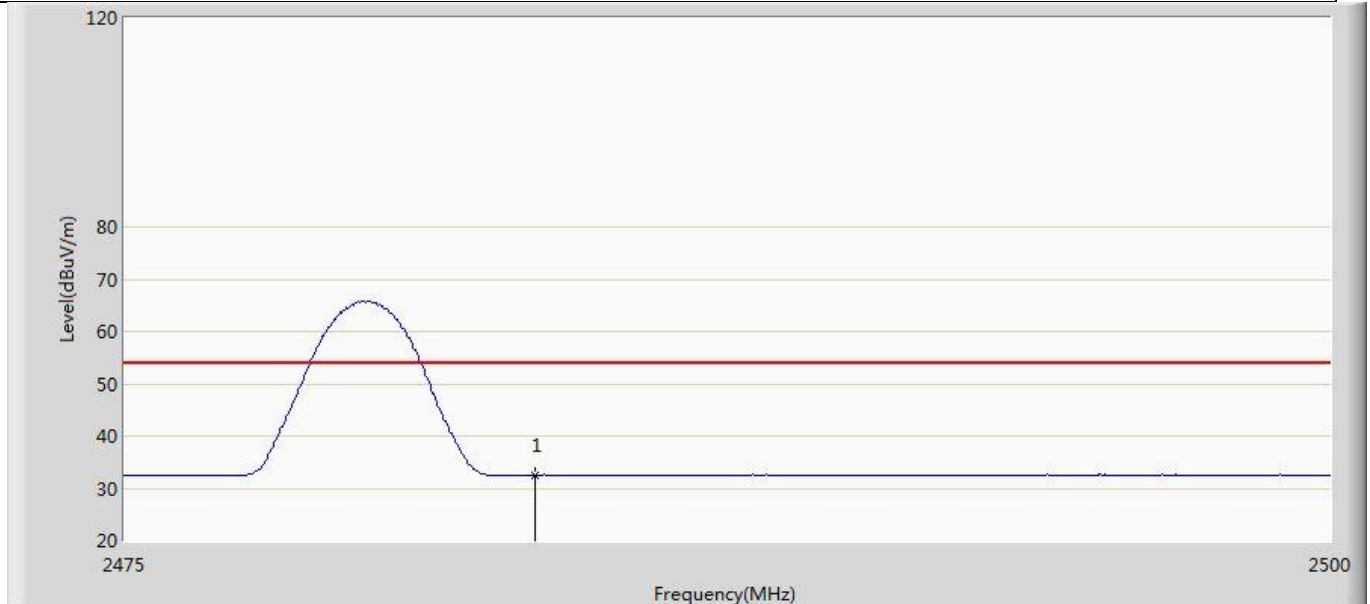
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	32.587	-1.904	-21.413	54.000	34.491	AV

Profile: 22A0738R	Page No.: 7
Engineer: YuLiu	
Site: AC5	Time: 2022/11/29 - 21:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: INFOTAINMENT HEADUNIT	Power: DC 12V
Note: Mode1: Transmit at 2480MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	47.007	12.516	-26.993	74.000	34.491	PK

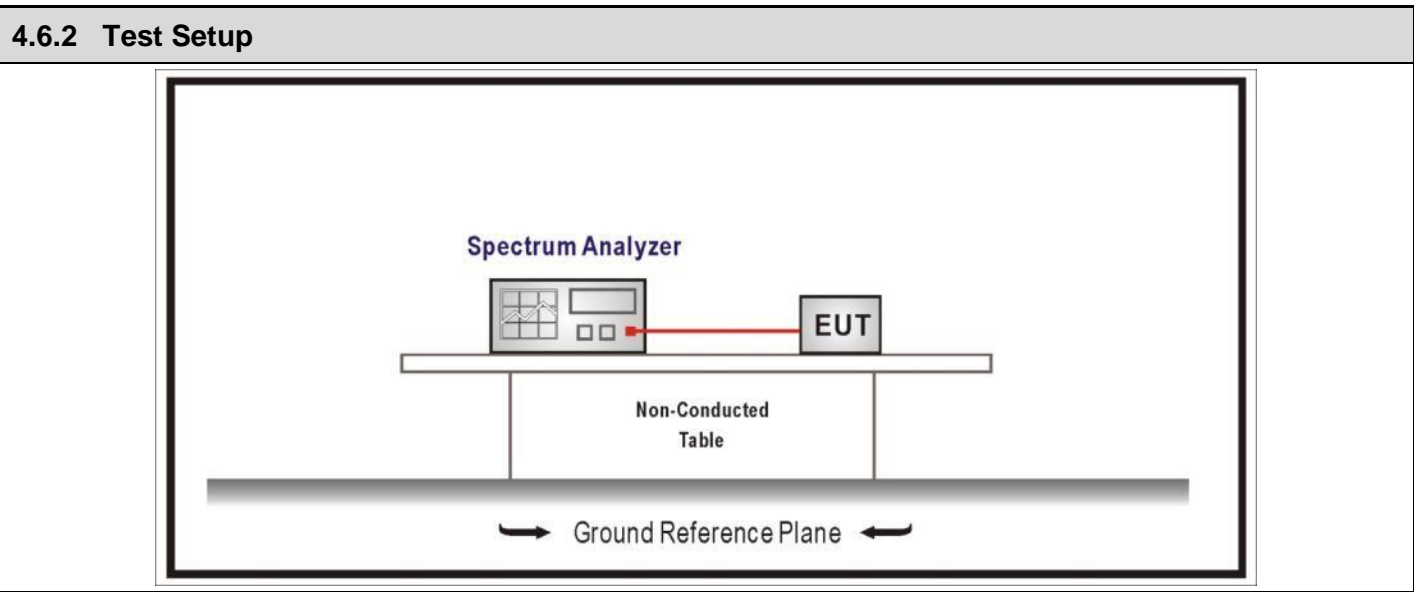
Profile: 22A0738R	Page No.: 8
Engineer: YuLiu	
Site: AC5	Time: 2022/11/29 - 21:54
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: INFOTAINMENT HEADUNIT	Power: DC 12V
Note: Mode1: Transmit at 2480MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	32.514	-1.977	-21.486	54.000	34.491	AV

4.6 DTS Bandwidth	VERDICT: PASS
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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	



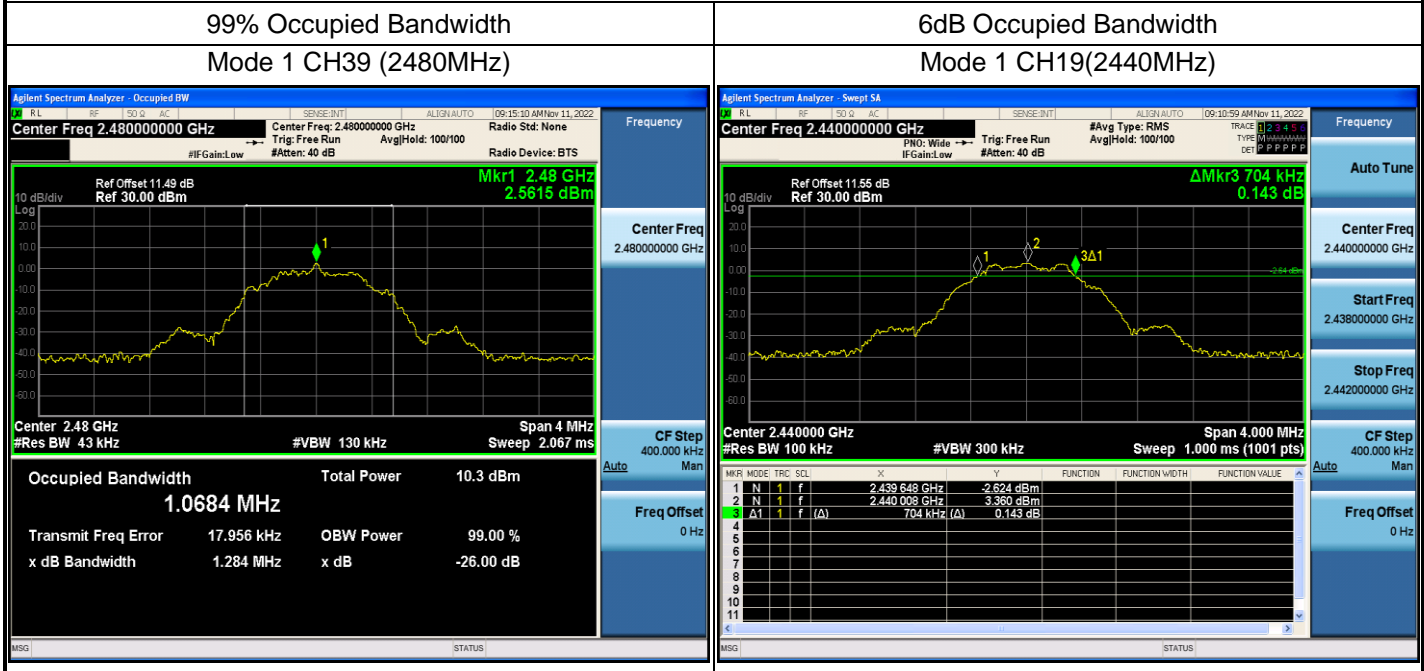
4.6.3 Test Procedure

	Reference Rule	Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10	11.8	DTS bandwidth
<input type="checkbox"/>	ANSI C63.10	11.8.1	Option 1
<input checked="" type="checkbox"/>	ANSI C63.10	11.8.2	Option 2

4.6.4 Test Data

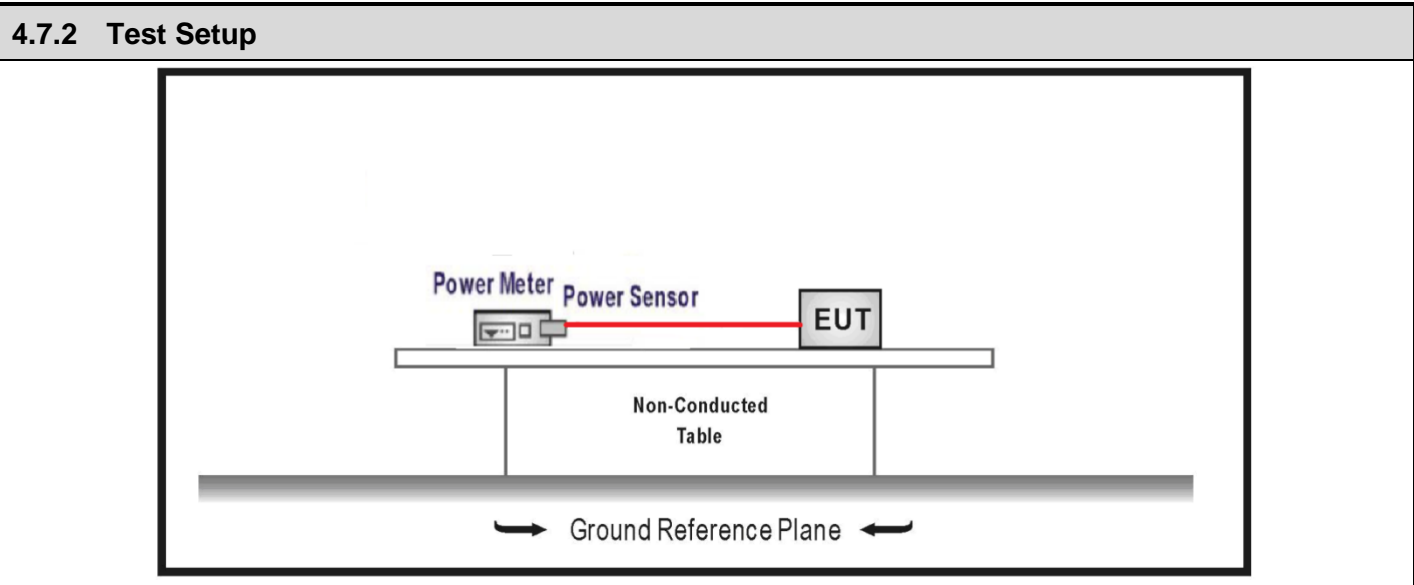
Mode	CH.	Test Freq. (MHz)	99% Occupied Bandwidth (MHz)	6dB Occupied Bandwidth (KHz)	Limit (kHz)	Result
1	00	2402	1.0665	716	>500	Pass
	19	2440	1.0595	704	>500	Pass
	39	2480	1.0684	712	>500	Pass

Note : The worst case of Occupied Bandwidth as below:



4.7 Fundamental emission output power	VERDICT: PASS
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4.7.1 Limit		
Standard	FCC Part 15 Subpart C Paragraph 15.247 (b)(3)	
<input checked="" type="checkbox"/>	GTX < 6dBi	Pout ≤ 30dBm
<input type="checkbox"/>	GTX > 6dBi	
<input type="checkbox"/>	Non-Fix point-point	Pout ≤ 30 - (GTX - 6)
<input type="checkbox"/>	Fix point-point	Pout ≤ 30 - [(GTX - 6)]/3
<input type="checkbox"/>	Point-to-multipoint	Pout ≤ 30 - (GTX - 6)
<input type="checkbox"/>	Overlap Beams	Pout ≤ 30 - [(GTX - 6)]/3
<input type="checkbox"/>	Aggregate power transmitted simultaneously on all beams	Pout ≤ 30 - [(GTX - 6)]/3
<input type="checkbox"/>	single directional beam	Pout ≤ 30 - [(GTX - 6)]/3 + 8dB
Note 1 : GTX directional gain of transmitting antennas. Note 2 : Pout is maximum peak conducted output power .		



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

4.7.4 Test Data

peak output power :

Mode	Channel	Test Frequency (MHz)	Conducted Power (dBm)	EIRP (dBm)	Conducted Power Limit (dBm)	EIRP Limit (dBm)	Result
Mode 1	00	2402	5.08	1.79	≤30	≤36	Pass
	19	2440	4.89	1.60	≤30	≤36	Pass
	39	2480	4.23	0.94	≤30	≤36	Pass

average output power :

Mode	Channel	Test Frequency (MHz)	Conducted Power (dBm)	EIRP (dBm)	Conducted Power Limit (dBm)	EIRP Limit (dBm)	Result
Mode 1	00	2402	4.70	1.41	≤30	≤36	Pass
	19	2440	4.71	1.42	≤30	≤36	Pass
	39	2480	4.05	0.76	≤30	≤36	Pass

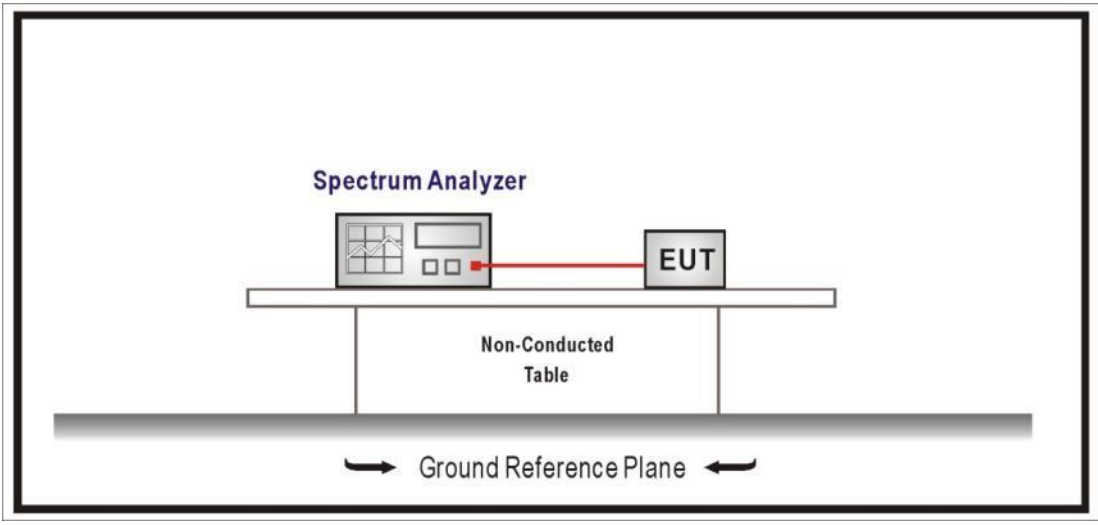
Power Setting:

Mode	Channel	Test Frequency (MHz)	Power Setting
Mode 1	00	2402	default
	19	2440	default
	39	2480	default

4.8 Power Density	VERDICT: PASS
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4.8.1 Limit:	
Standard	FCC Part 15 Subpart C Paragraph 15.247 (b)(3)
Power Spectral Density $\leq 8\text{dBm}/3\text{kHz}$	

4.8.2 Test Setup



4.8.3 Test Procedure

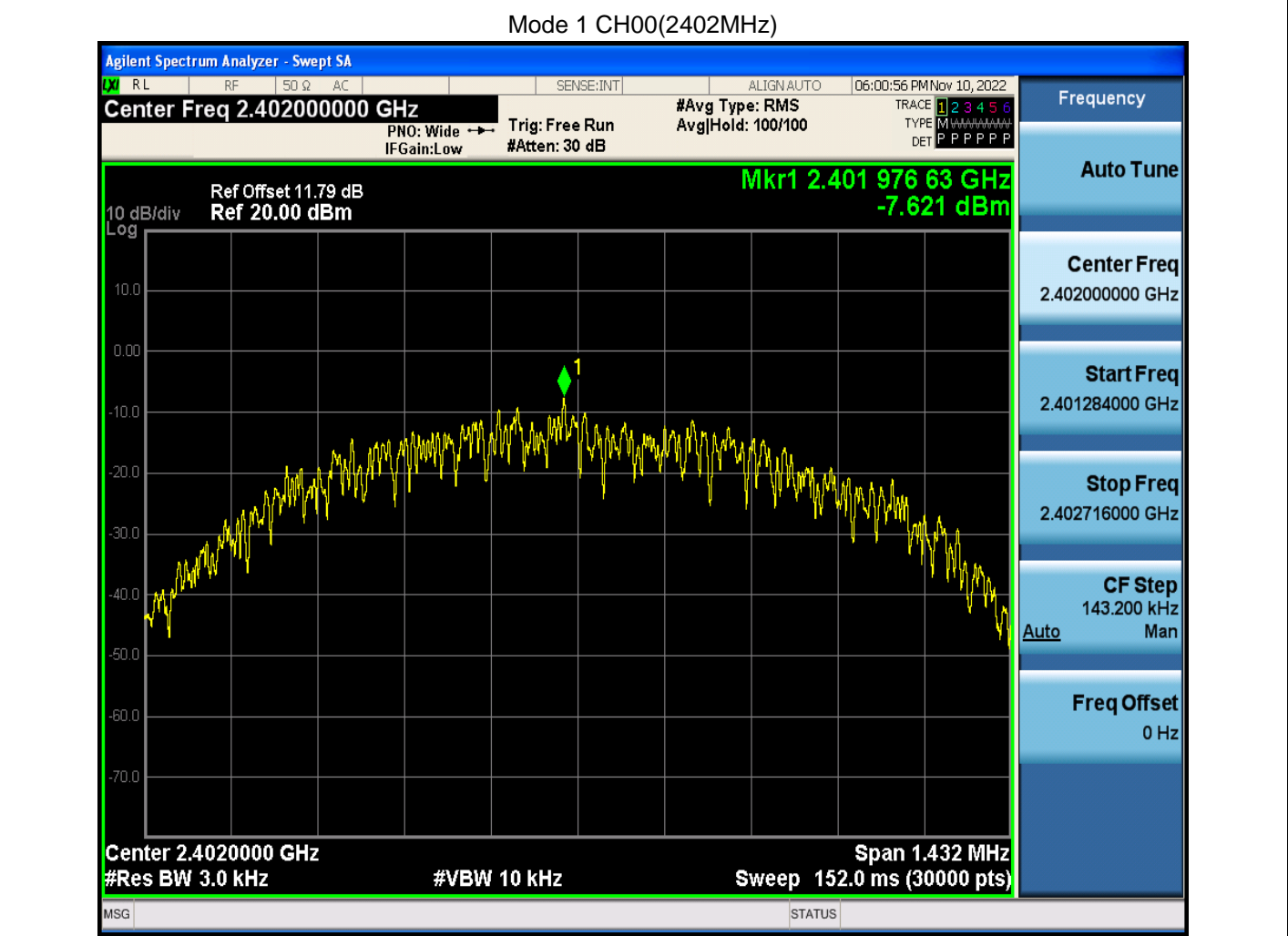
	References Rule	Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10	11.10	Maximum power spectral density level in the fundamental emission
<input type="checkbox"/>	ANSI C63.10	11.10.2	Method PKPSD (peak PSD)
<input type="checkbox"/>	ANSI C63.10	11.10.3	Method AVGPSD-1(Duty cycle $\geq 98\%$)
<input type="checkbox"/>	ANSI C63.10	11.10.4	Method AVGPSD-1A(Duty cycle $\geq 98\%$)
<input checked="" type="checkbox"/>	ANSI C63.10	11.10.5	Method AVGPSD-2(Duty cycle $< 98\%$)
<input type="checkbox"/>	ANSI C63.10	11.10.6	Method AVGPSD-2A(Duty cycle $< 98\%$)
<input type="checkbox"/>	ANSI C63.10	11.10.7	Method AVGPSD-3
<input type="checkbox"/>	ANSI C63.10	11.10.8	Method AVGPSD-3A

4.8.4 Test Data

Left controller:

Mode	Channel	Test Frequency (MHz)	Measurement PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
Mode 1	00	2402	-7.62	≤8	Pass
	19	2440	-9.94	≤8	Pass
	39	2480	-10.41	≤8	Pass

Note : The worst case of PSD as below:



4.9 Antenna Requirement	VERDICT: PASS
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4.9.1 Limit:	
Standard	FCC Part 15 Subpart C Paragraph 15.203
<p>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.</p>	

4.9.2 Antenna Connector Construction:	
<input checked="" type="checkbox"/>	The use of a permanently attached antenna
<input type="checkbox"/>	The antenna use of a unique coupling to the intentional radiator
<input type="checkbox"/>	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 _____