



Test report No:  
20A0396R-RF-US-P06V01

## FCC & ISED TEST REPORT

Product Name	Dual mode Full Color A19
Trademark	GE
Model and /or type reference	CLEDA199CD1
FCC ID	PUU-A19-DMFCII
IC	10798A-DMFCA19II
Applicant's name / address	Savant Technologies LLC, dba GE Lighting, a Savant Company 1975 Noble Road, Cleveland, Ohio, United States, 44112
Test method requested, standard	FCC CFR Title 47 Part 15 Subpart C Section 15.247 ANSI C63.10: 2013 KD558074 D01 15.247 Meas Guidance v05r02 RSS-Gen Issue 5 / RSS-247 Issue 2
Verdict Summary	IN COMPLIANCE
Documented by (name / position & signature)	Kitty Li/Project Assistant 
Reviewed by (name / position & signature)	Frank He/ Technical Supervisor 
Approved by (name / position & signature)	Jack Zhang/ Supervisor 
Date of issue	2020-12-02
Report template No	Template_FCC Part 15C-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.

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## GENERAL CONDITIONS

Test Location	No. 99, Hongye Road, Suzhou Industrial Park Suzhou, 215006, P.R. China
Date(receive sample)	Oct. 16, 2020
Date (start test)	Oct. 17, 2020
Date (finish test)	Dec. 02, 2020

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.
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## 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
20A0396R-RF-US-P06V01	V1.0	Initial issue of report.	2020-11-10
20A0396R-RF-US-P06V01	V1.1	P32-33, added simultaneous transmission test data in emissions in restricted frequency bands test item.	2020-12-02

## 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 Channel List.

## USED EQUIPMENT

### AC Power Line Conducted Emission / TR1

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EMI Test Receiver	R&S	ESCI	100906	2020.04.20	2021.04.19
Two-Line V-Network	R&S	ENV216	101190	2019.12.28	2020.12.27
Two-Line V-Network	R&S	ENV216	101044	2019.12.28	2020.12.27
Current Probe	R&S	EZ-17	100678	2020.03.12	2021.04.11
50ohm Termination	SHX	TF2	07081402	2020.09.23	2021.09.22
50ohm Termination	SHX	TF2	07081403	2020.09.23	2021.09.22
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	N/A	N/A
Temperature/Humidity Meter	RTS	RTS-8S	TR1-TH	2020.08.13	2021.08.12
Coaxial Cable	Suhner	RG 223	TR1-C1	2020.08.13	2021.08.12
Coaxial Cable	Suhner	RG 223	TR1-C2	2020.08.13	2021.08.12
Dekra test software	Dekra	-	-	-	-

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

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2020.08.15	2021.08.14
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.17	2021.04.16
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2020.08.15	2021.08.14
Temperature/Humidity Meter	RTS	RTS-8S	RF08	2020.08.13	2021.08.12
Dekra test software	Dekra	-	-	-	-

### Radiated Emission(30MHz-1GHz) / AC3

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EMI Test Receiver	R&S	ESCI	100573	2020.03.03	2021.03.02
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2020.08.19	2021.08.18
Temperature/Humidity Meter	RTS	RTS-8S	AC2-TH	2020.08.13	2021.08.12
Coaxial Cable	Huber+Suhner	RG 214	AC2-C	2020.04.05	2021.04.04
Dekra test software	Dekra	-	-	-	-

## Radiated Emission / AC5

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2020.05.08	2021.05.07
Preamplifier	Miteq	NSP1800-25	1364185	2020.05.06	2021.05.05
Preamplifier	QuieTek	AP-040G	CHM-0906001	2020.05.06	2021.05.05
DRG Horn	ETS-Lindgren	3117	00123988	2020.01.22	2021.01.21
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2020.08.13	2021.08.12
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2020.04.05	2021.04.04
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2020.04.05	2021.04.04
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2020.04.05	2021.04.04
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	9kHz~150kHz: 2.80dB 150kHz~30MHz: 2.40dB
Peak Power Output	$\pm 1.27$ 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	$\pm 1.27$ dB
Radiated Emission Band Edge	$\pm 3.9$ dB
DTS Bandwidth	$\pm 150$ Hz
Occupied Bandwidth	$\pm 1$ kHz
Power Density	$\pm 1.27$ dB

# 1 GENERAL INFORMATION

## 1.1 General Description of the Item(s)

Product Name .....	Dual mode Full Color A19
Model No. ....	CLEDA199CD1
Trademark .....	GE
FCC ID .....	PUU-A19-DMFCII
IC .....	10798A-DMFCA19II
Manufacturer .....	Savant Technologies LLC, dba GE Lighting, a Savant Company
Manufacturer address .....	1975 Noble Road, Cleveland, Ohio, United States, 44112
Hardware version .....	V2.0
Software version .....	V2.0

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 checked="" type="checkbox"/>	AC: 120 V, 60 Hz				
	<input type="checkbox"/>	DC: 5 V				
	<input type="checkbox"/>	Battery: 3.7 V				
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: .....				

## 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"/> Ceramic Chip
			<input type="checkbox"/> PIFA
			<input checked="" type="checkbox"/> Monopole
			<input type="checkbox"/> Others.....
Antenna Gain .....	1.62 dBi		

### 1.3 Channel List

Bluetooth 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.

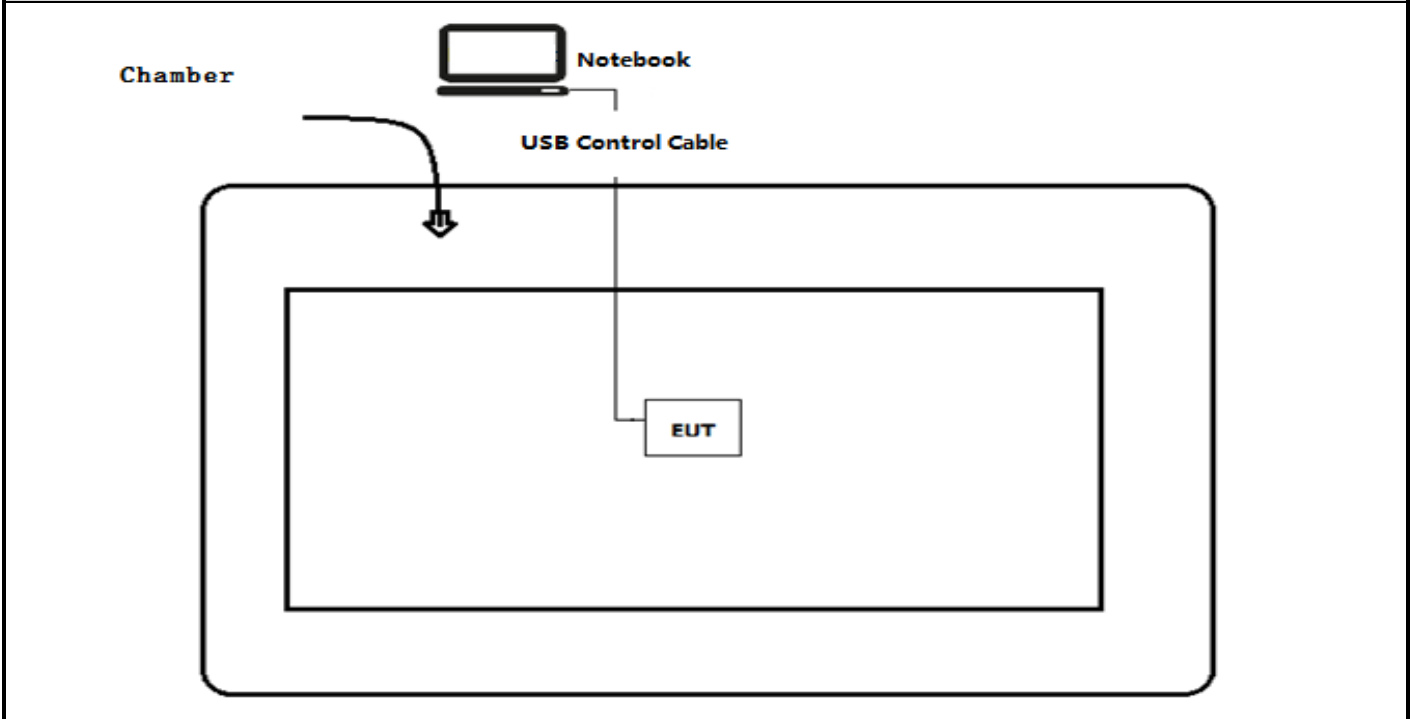
Test Mode For Bluetooth	Mode 1: Transmit by LE_1Mbps(GFSK_LE)
-------------------------	---------------------------------------

### 2.2 Auxiliary equipment / Test software for the EUT

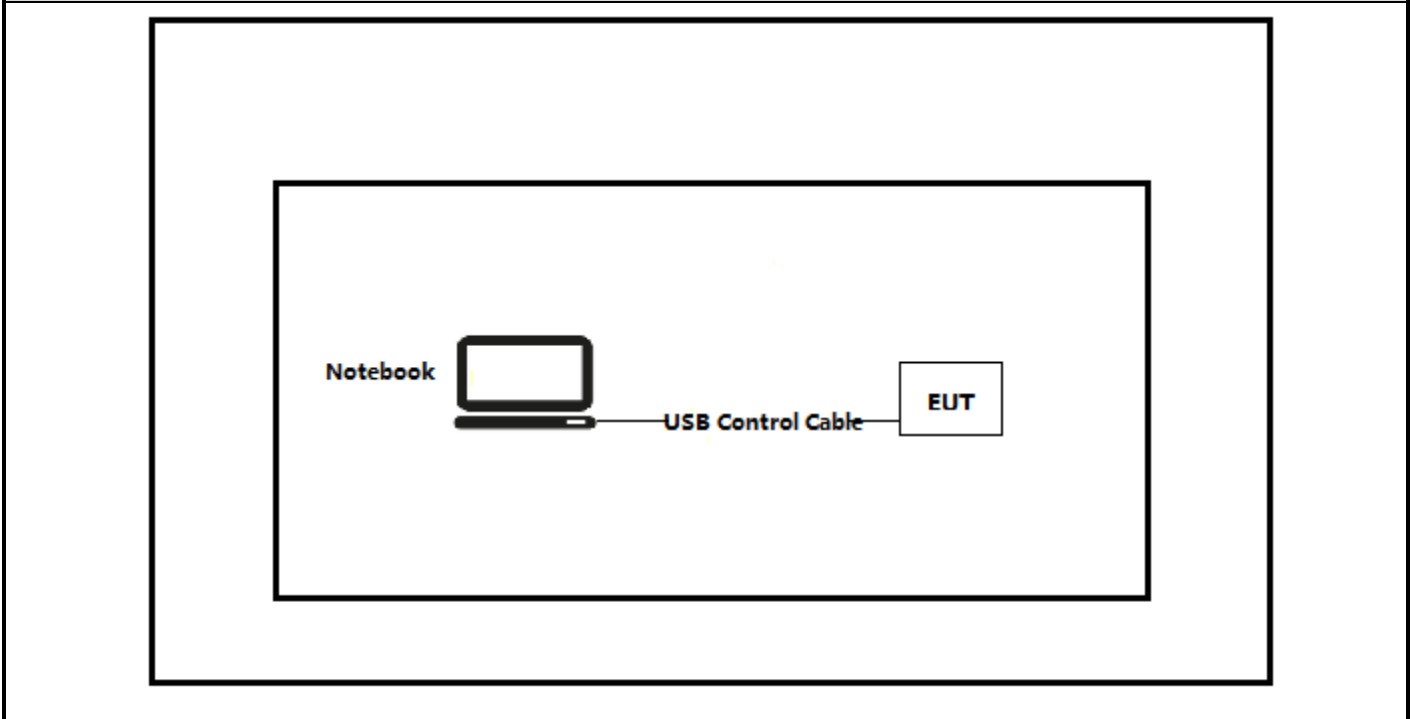
Auxiliary equipment	Type / Version	Manufacturer	Supplied by
Notebook	Think pad x220	Lenovo	Adapter
software	Type / Version	Manufacturer	Supplied by
UartAssist	N/A	N/A	N/A

### 2.3 Test Configuration / Block diagram used for tests

Test setup Diagram- Radiated Test



Test setup Diagram- Conducted test



## 2.4 Testing process

1	Setup the EUT as shown in Section 2.3.
2	Execute test software.
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	2019	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 D01 v05r02	2019	Guidance for performing compliance measurements on Digital Transmission System (DTS) operating under section 15.247
RSS-Gen Issue 5 Amendment 1	2019	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	PASS	---
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	---
Radiated Emission 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	PASS	---
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	---
Radiated Emission 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: PASS

#### 4.1.1 Limit

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

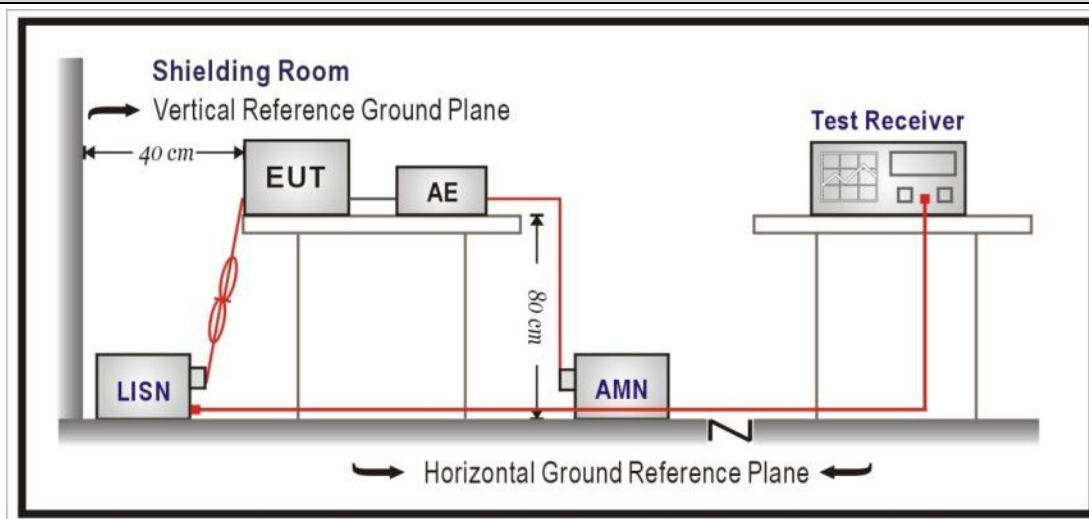
<sup>1)</sup> At the transition frequency, the lower limit applies.

<sup>2)</sup> 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

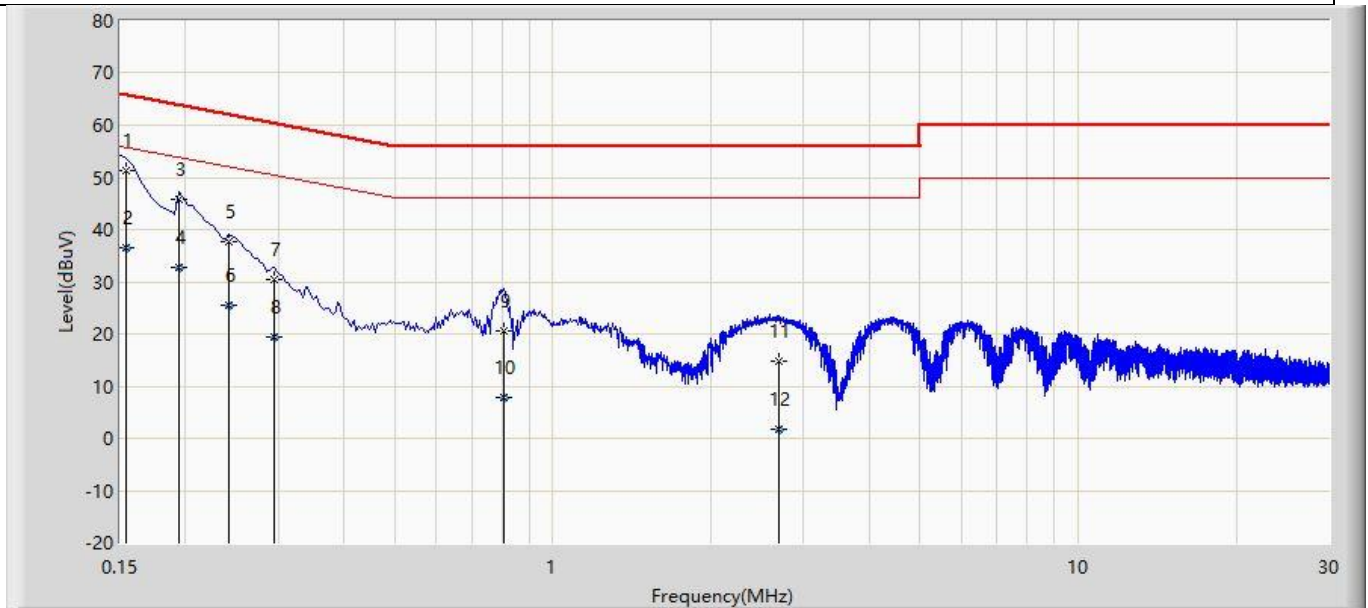


#### 4.1.3 Test Procedure

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**

Profile: 20A0396R	Page No.: 1
Engineer: Adele	
Site: TR1	Time: 2020/10/21
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101189(0.009-30MHz)	Polarity: Line
EUT: Dual mode Full Color A19	Power: AC 120V/60Hz
Note: Mode 1	

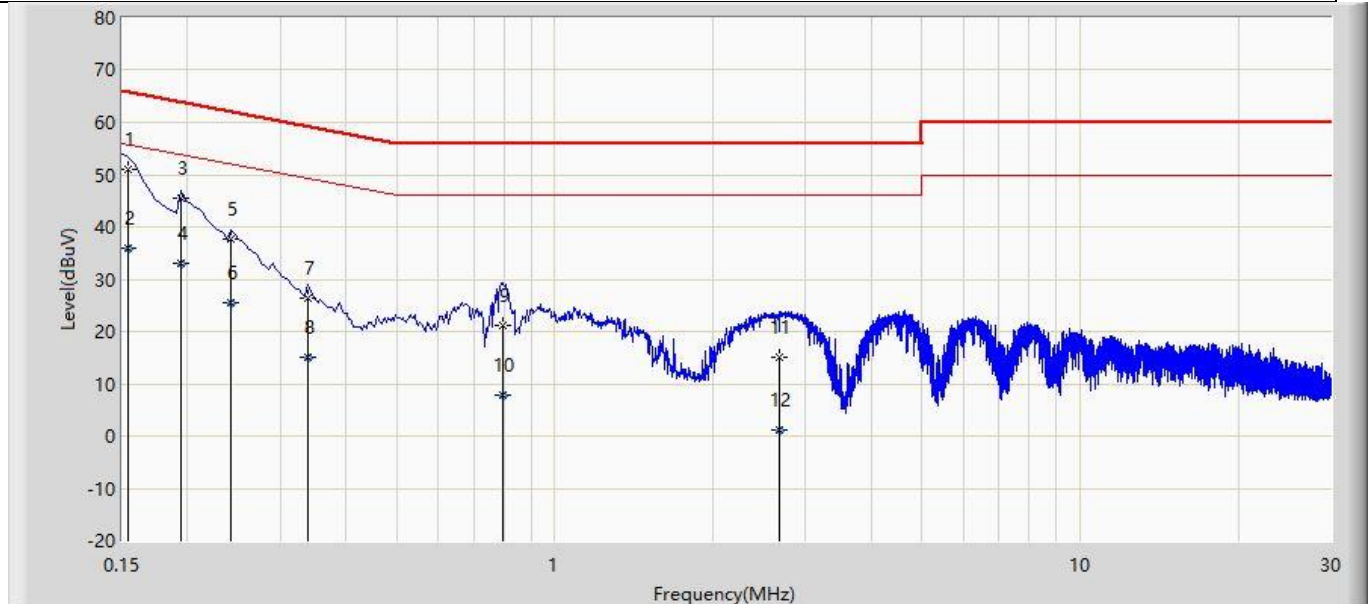


No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Probe (dB)	Cable (dB)	Amp (dB)	Type
1	*	0.154	51.388	41.722	-14.393	65.781	9.642	0.025	0.000	QP
2		0.154	36.428	26.761	-19.353	55.781	9.642	0.025	0.000	AV
3		0.194	45.728	36.052	-18.135	63.864	9.648	0.028	0.000	QP
4		0.194	32.882	23.207	-20.981	53.864	9.648	0.028	0.000	AV
5		0.242	37.659	27.981	-24.369	62.027	9.648	0.029	0.000	QP
6		0.242	25.364	15.687	-26.663	52.027	9.648	0.029	0.000	AV
7		0.294	30.375	20.695	-30.035	60.411	9.646	0.034	0.000	QP
8		0.294	19.355	9.675	-31.056	50.411	9.646	0.034	0.000	AV
9		0.806	20.707	11.014	-35.293	56.000	9.640	0.053	0.000	QP
10		0.806	7.705	-1.989	-38.295	46.000	9.640	0.053	0.000	AV
11		2.694	14.917	5.163	-41.083	56.000	9.652	0.102	0.000	QP
12		2.694	1.701	-8.053	-44.299	46.000	9.652	0.102	0.000	AV

Note:

1. " \* ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Profile: 20A0396R	Page No.: 2
Engineer: Adele	
Site: TR1	Time: 2020/10/21
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101189(0.009-30MHz)	Polarity: Neutral
EUT: Dual mode Full Color A19	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Probe (dB)	Cable (dB)	Amp (dB)	Type
1	*	0.154	51.111	41.456	-14.671	65.781	9.629	0.025	0.000	QP
2		0.154	35.900	26.246	-19.881	55.781	9.629	0.025	0.000	AV
3		0.194	45.634	35.984	-18.230	63.864	9.622	0.028	0.000	QP
4		0.194	32.931	23.281	-20.933	53.864	9.622	0.028	0.000	AV
5		0.242	37.590	27.941	-24.437	62.027	9.620	0.029	0.000	QP
6		0.242	25.546	15.897	-26.481	52.027	9.620	0.029	0.000	AV
7		0.338	26.472	16.817	-32.780	59.252	9.620	0.035	0.000	QP
8		0.338	15.128	5.472	-34.125	49.252	9.620	0.035	0.000	AV
9		0.798	21.292	11.617	-34.708	56.000	9.623	0.052	0.000	QP
10		0.798	7.779	-1.896	-38.221	46.000	9.623	0.052	0.000	AV
11		2.682	14.934	5.192	-41.066	56.000	9.641	0.102	0.000	QP
12		2.682	1.194	-8.549	-44.806	46.000	9.641	0.102	0.000	AV

Note:

1. " \* ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

<b>4.2 Emissions in restricted frequency bands</b>	<b>VERDICT: PASS</b>
--	----------------------

4.2.1 Limit			
Standard		FCC Part 15 Subpart C Paragraph 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	
13.36 – 13.41			
Restricted Bands of operation for 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 ( $\mu\text{V/m}$ )	Field strength ( $\text{dB}\mu\text{V/m}$ )	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300 <sub>(Note 1)</sub>
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30 <sub>(Note 1)</sub>
1.705 - 30	30	29.5	30 <sub>(Note 1)</sub>
30 - 88	100	40	3 <sub>(Note 2)</sub>
88 - 216	150	43.5	3 <sub>(Note 2)</sub>
216 - 960	200	46	3 <sub>(Note 2)</sub>
Above 960	500	54	3 <sub>(Note 2)</sub>

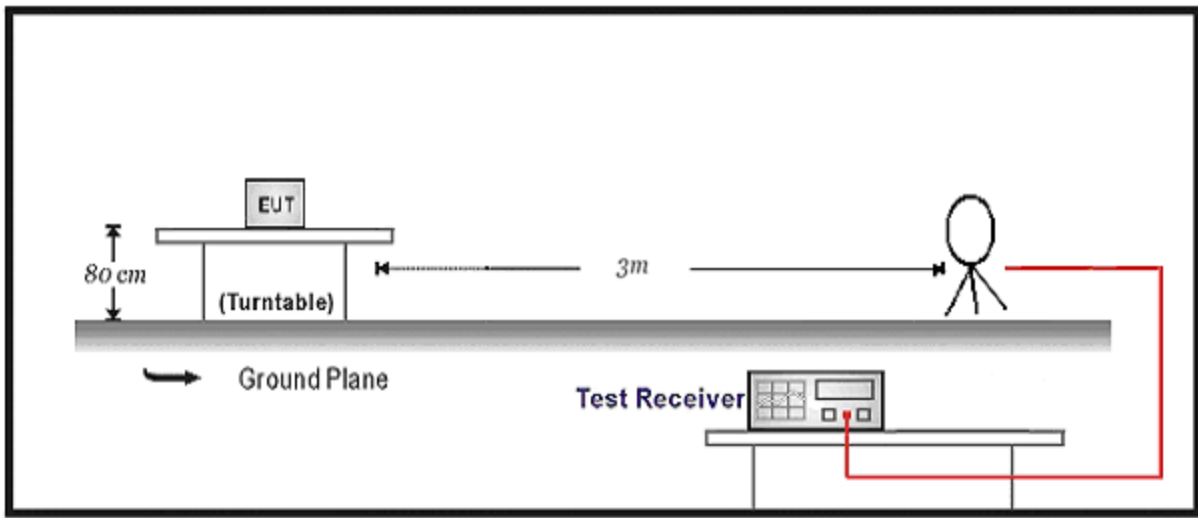
Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed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

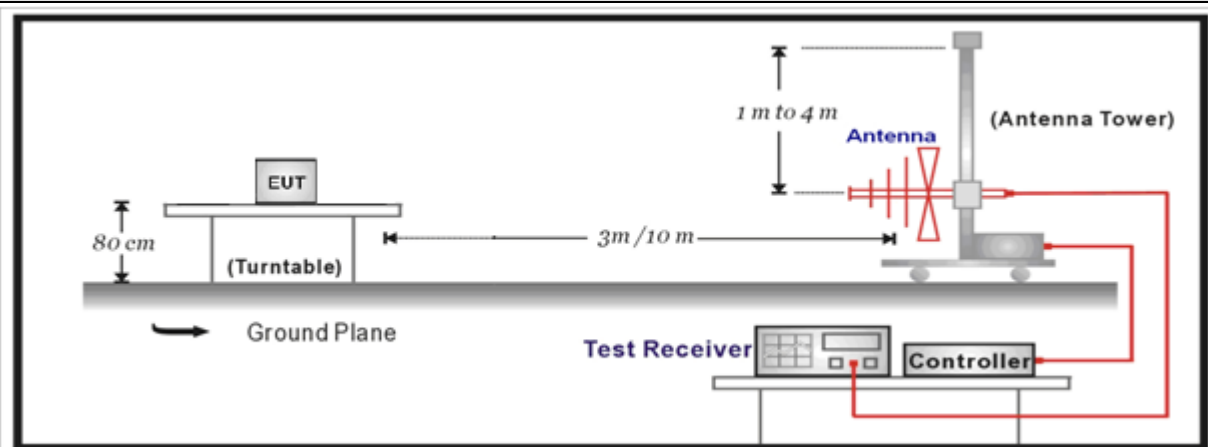
Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified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

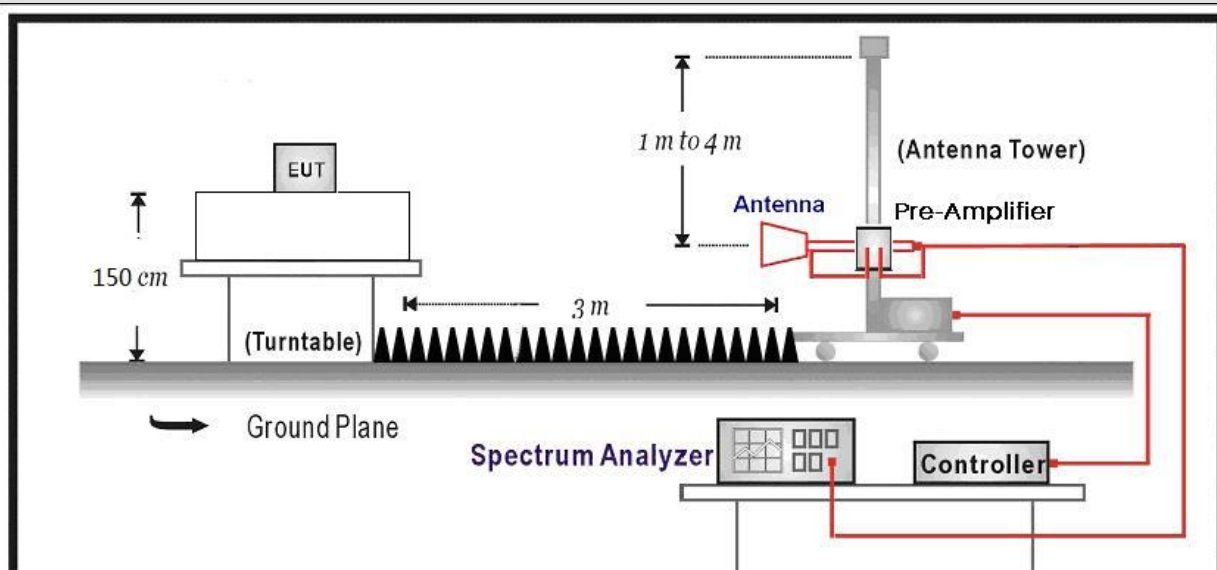
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:

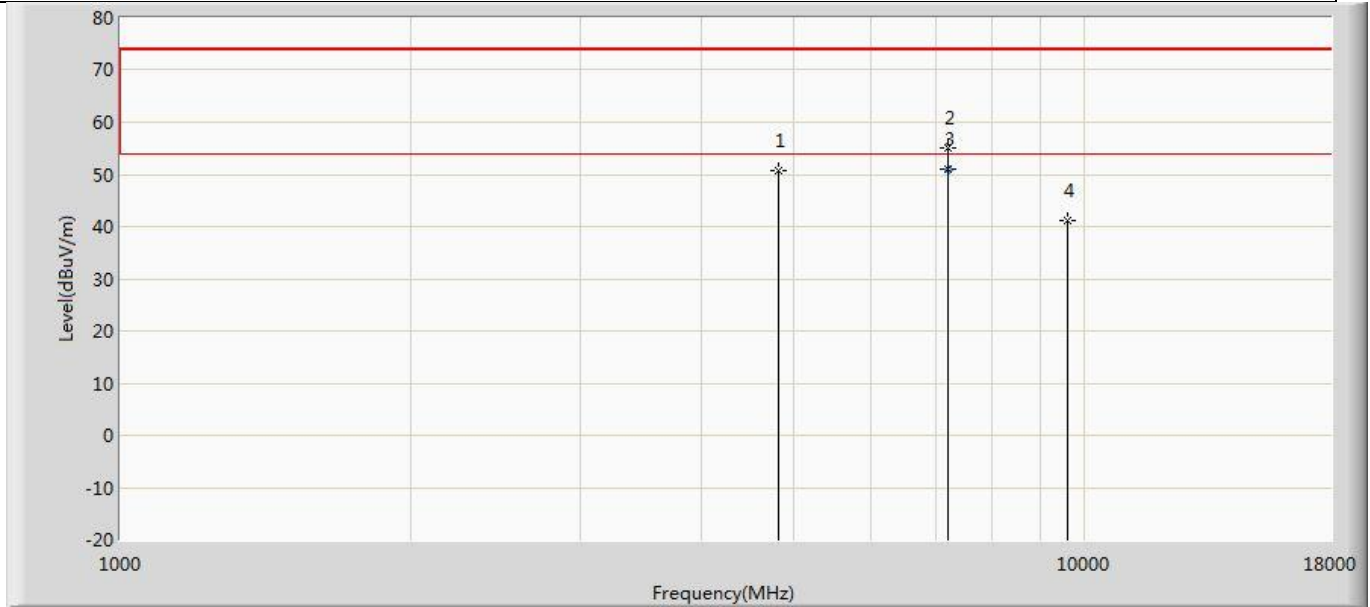




4.2.3 Test Procedure			
	References Rule	Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10	11.12	Emissions in restricted frequency bands
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> ANSI C63.10	11.12.1	Radiated emission measurements
<input checked="" type="checkbox"/>	<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

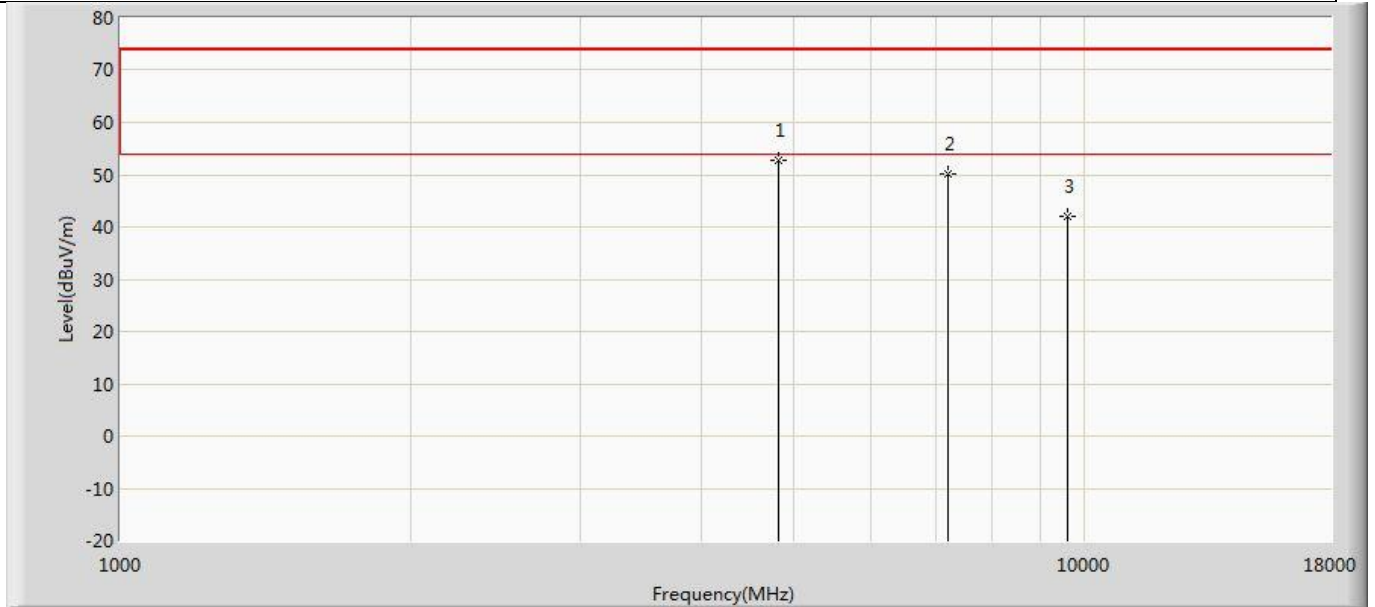
**4.2.4 Test Data**

Profile: 20A0396R	Page No.: 44
Engineer: YULIU	
Site: AC5	Time: 2020/10/29 - 23:06
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Dual mode Full Color A19	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz	



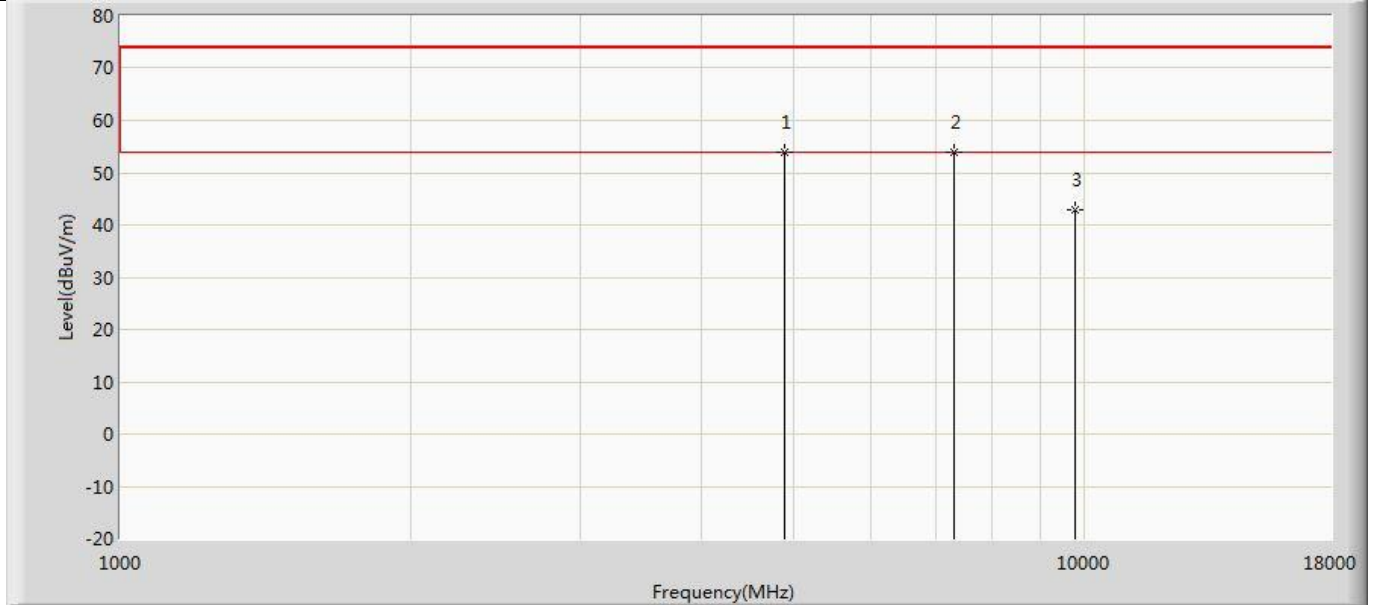
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4808.000	50.806	56.950	-23.194	74.000	-6.145	PK
2		7205.000	54.940	57.810	-19.060	74.000	-2.870	PK
3	*	7205.000	51.142	54.012	-2.858	54.000	-2.870	AV
4		9608.000	41.273	42.701	-32.727	74.000	-1.427	PK

Profile: 20A0396R	Page No.: 45
Engineer: YULIU	
Site: AC5	Time: 2020/10/29 - 23:06
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Dual mode Full Color A19	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz	



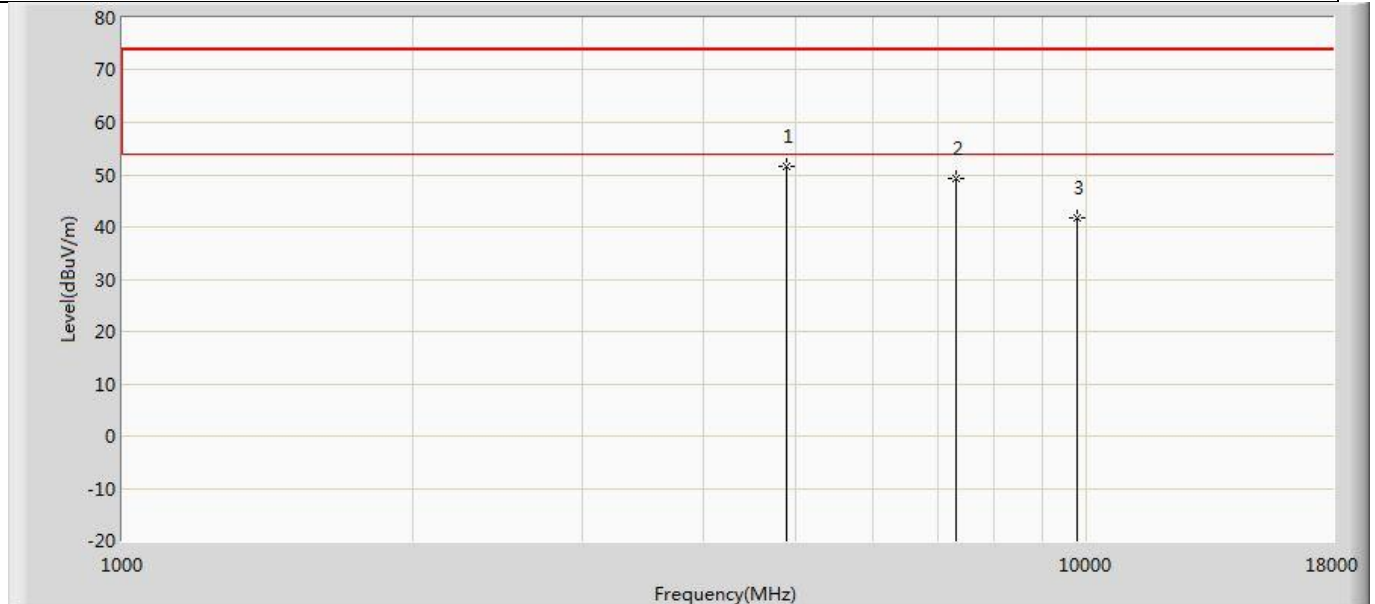
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4808.000	52.736	58.880	-21.264	74.000	-6.145	PK
2		7205.000	50.049	52.919	-23.951	74.000	-2.870	PK
3		9608.000	41.999	43.427	-32.001	74.000	-1.427	PK

Profile: 20A0396R	Page No.: 46
Engineer: YULIU	
Site: AC5	Time: 2020/10/29 - 23:07
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Dual mode Full Color A19	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2442MHz	



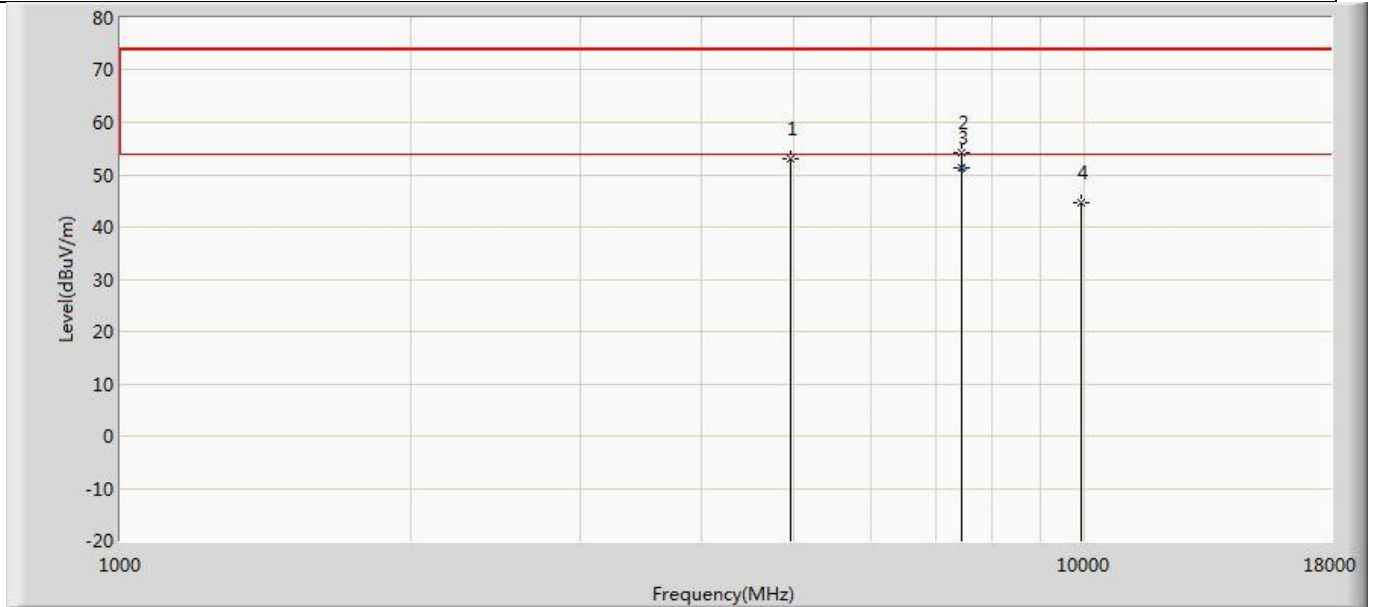
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4884.500	53.920	59.808	-20.080	74.000	-5.888	PK
2	*	7324.000	53.987	57.056	-20.013	74.000	-3.069	PK
3		9768.000	42.968	43.733	-31.032	74.000	-0.765	PK

Profile: 20A0396R	Page No.: 47
Engineer: YULIU	
Site: AC5	Time: 2020/10/29 - 23:07
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Dual mode Full Color A19	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2442MHz	



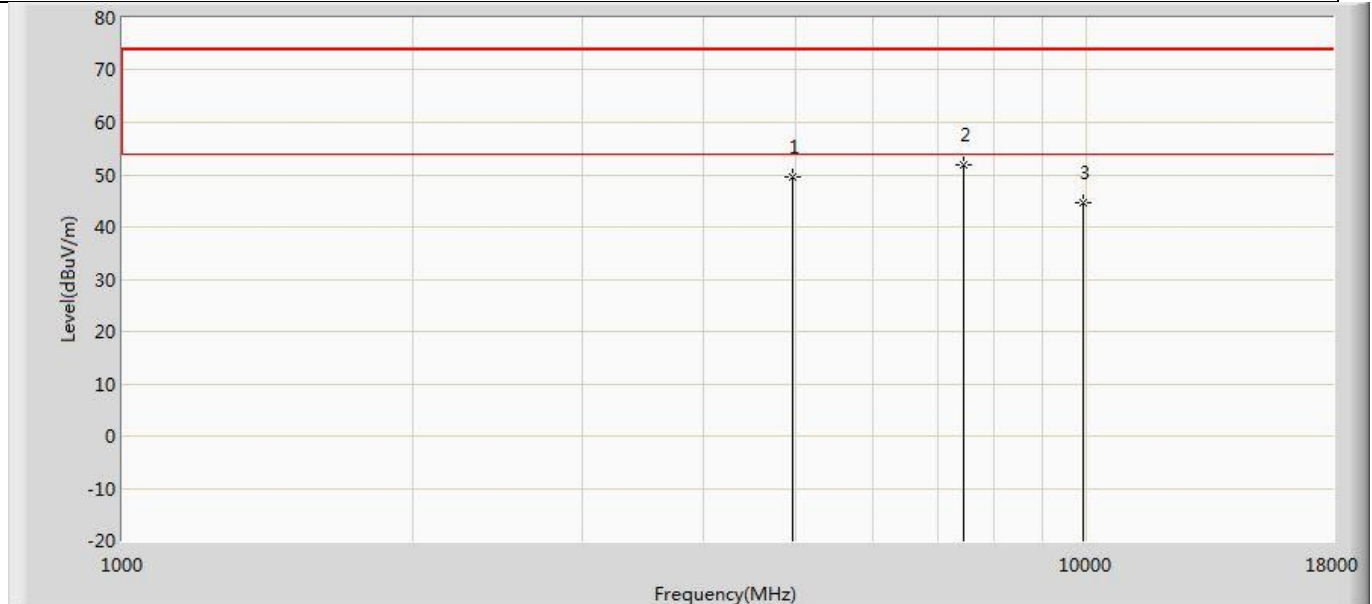
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4884.500	51.600	57.488	-22.400	74.000	-5.888	PK
2		7324.000	49.372	52.441	-24.628	74.000	-3.069	PK
3		9768.000	41.771	42.536	-32.229	74.000	-0.765	PK

Profile: 20A0396R	Page No.: 48
Engineer: YULIU	
Site: AC5	Time: 2020/10/29 - 23:07
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Dual mode Full Color A19	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4961.000	53.104	58.836	-20.896	74.000	-5.732	PK
2		7443.000	54.313	57.263	-19.687	74.000	-2.950	PK
3	*	7443.000	51.197	54.147	-2.803	54.000	-2.950	AV
4		9920.000	44.703	45.120	-29.297	74.000	-0.418	PK

Profile: 20A0396R	Page No.: 49
Engineer: YULIU	
Site: AC5	Time: 2020/10/29 - 23:07
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Dual mode Full Color A19	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz	



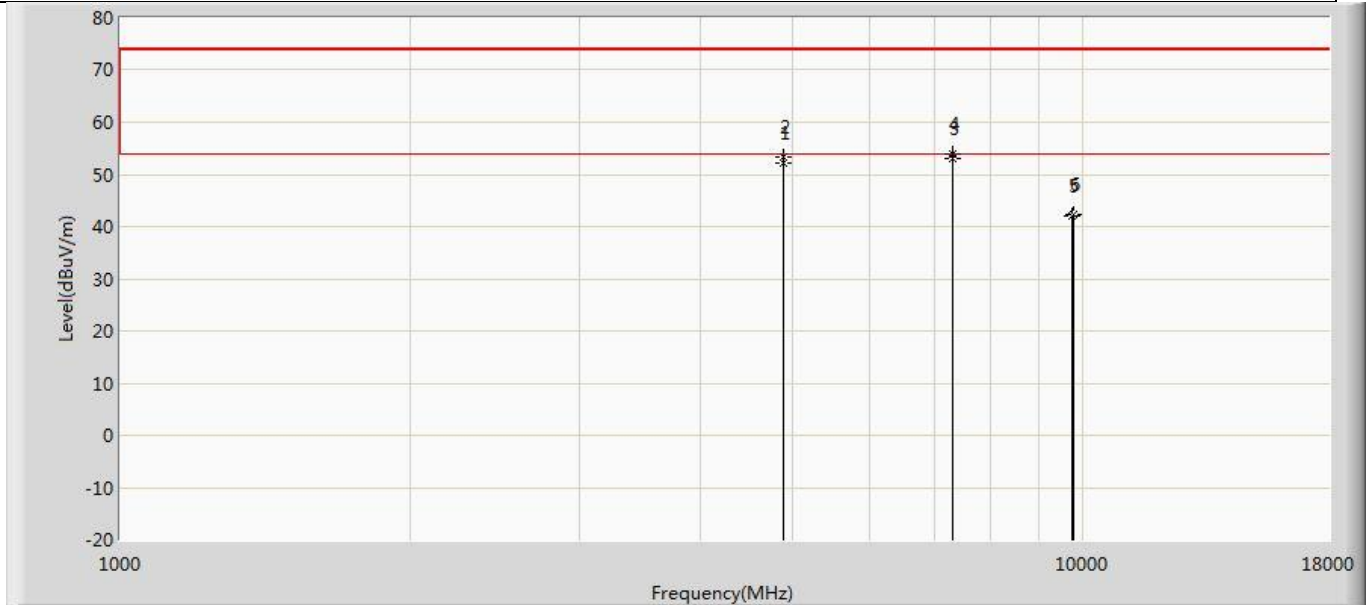
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4961.000	49.623	55.355	-24.377	74.000	-5.732	PK
2	*	7443.000	51.986	54.936	-22.014	74.000	-2.950	PK
3		9920.000	44.503	44.920	-29.497	74.000	-0.418	PK

Note:

1. Measured Level = Reading Level + Factor.
2. The test frequency range 9kHz~30MHz. the worst case is at least 20dB below the limits, therefore no data appear in the report.
3. 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.
4. As the radiated emission was performed, so conducted emission was not tested.

**The worst case of simultaneous transmission:**

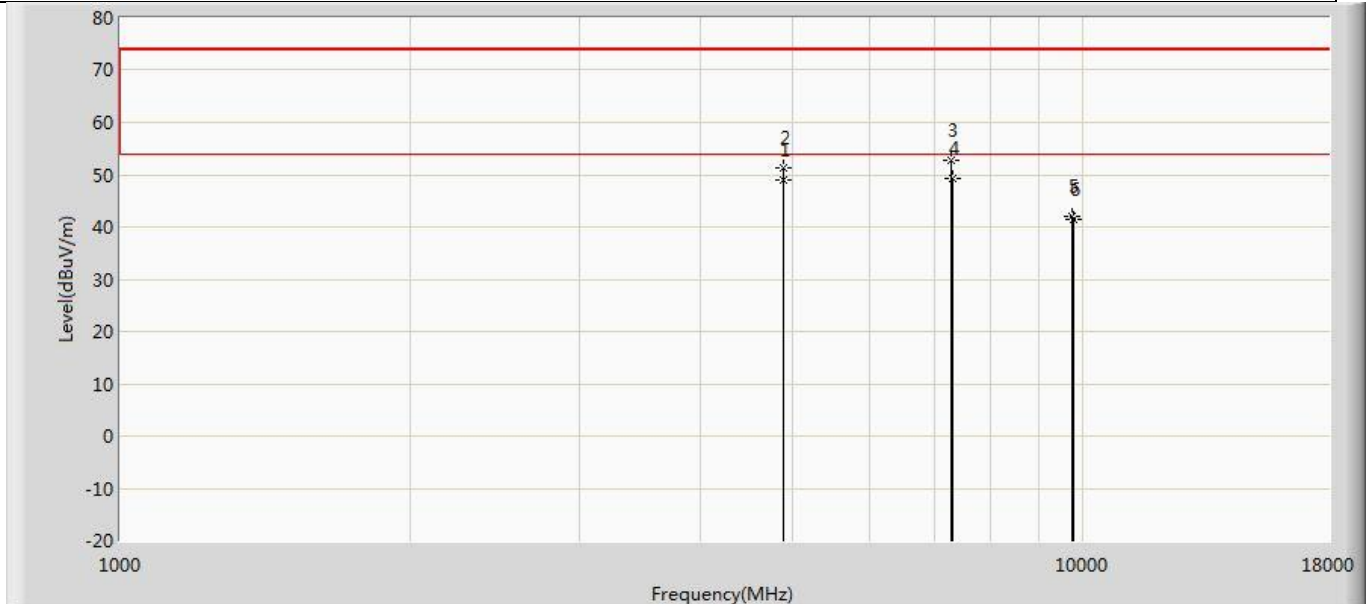
Profile: 20A0396R	Page No.: 3
Engineer: YULIU	
Site: AC5	Time: 2020/12/01 - 18:40
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Dual mode Full Color A19	Power: AC 120V/60Hz
Note: Simultaneous transmission with WIFI + BT	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4876.000	52.248	58.107	-21.752	74.000	-5.859	PK
2		4884.500	53.370	59.258	-20.630	74.000	-5.888	PK
3		7315.500	53.055	56.114	-20.945	74.000	-3.059	PK
4	*	7324.000	53.916	56.985	-20.084	74.000	-3.069	PK
5		9748.000	42.135	43.229	-31.865	74.000	-1.095	PK
6		9768.000	42.337	43.102	-31.663	74.000	-0.765	PK



Profile: 20A0396R	Page No.: 4
Engineer: YULIU	
Site: AC5	Time: 2020/12/01 - 18:40
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Dual mode Full Color A19	Power: AC 120V/60Hz
Note: Simultaneous transmission with WIFI + BT	



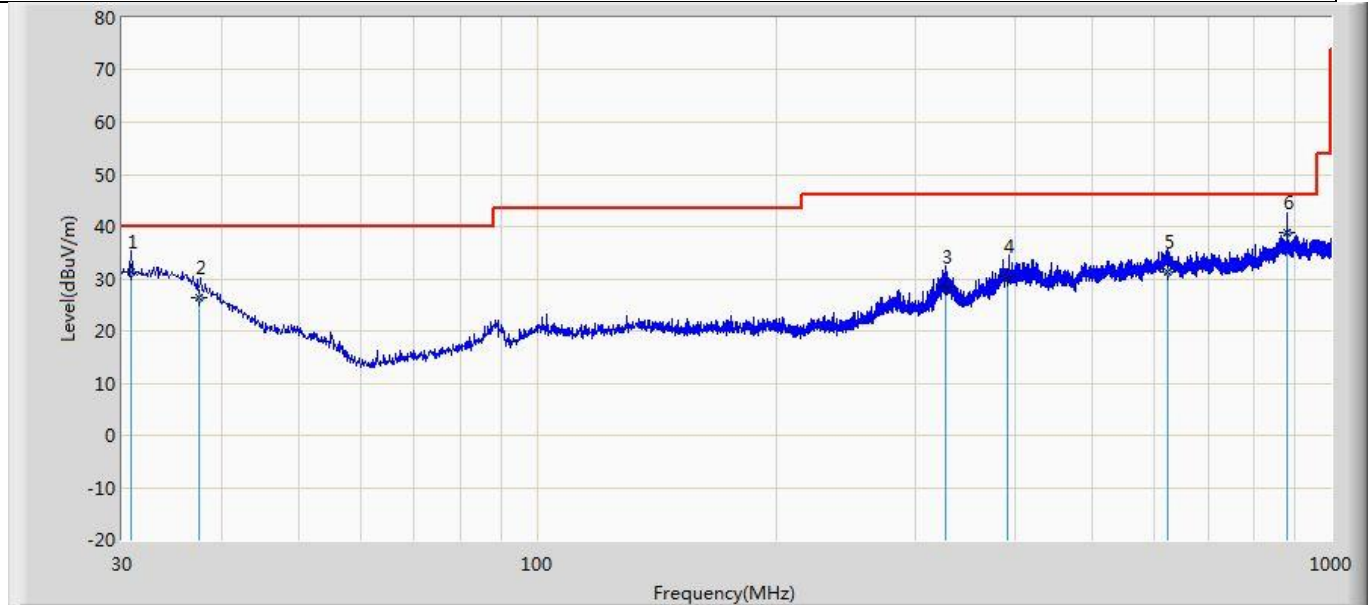
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4876.000	49.119	54.978	-24.881	74.000	-5.859	PK
2		4884.500	51.231	57.119	-22.769	74.000	-5.888	PK
3	*	7307.000	52.897	55.945	-21.103	74.000	-3.048	PK
4		7324.000	49.132	52.201	-24.868	74.000	-3.069	PK
5		9748.000	41.904	42.998	-32.096	74.000	-1.095	PK
6		9768.000	41.438	42.203	-32.562	74.000	-0.765	PK

Note:

1. " \* ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

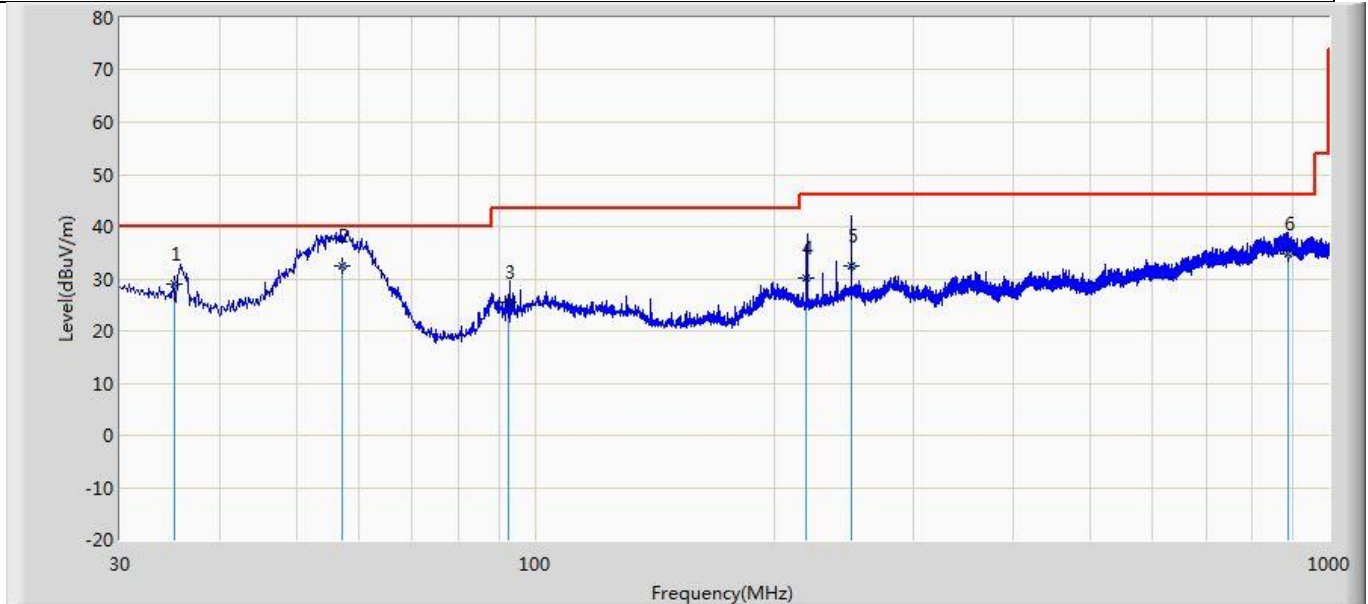
**The worst case of Radiated Emission below 1GHz:**

Profile: 20A0396R	Page No.: 1
Engineer: Donald	
Site: AC2	Time: 2020/10/22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Horizontal
EUT: Dual mode Full Color A19	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		30.846	31.259	4.015	-8.741	40.000	20.935	6.309	0.000	100	114	QP
2		37.460	26.428	1.789	-13.572	40.000	18.282	6.357	0.000	100	348	QP
3		327.156	28.317	6.144	-17.683	46.000	14.563	7.610	0.000	100	33	QP
4		392.042	30.438	5.799	-15.562	46.000	16.839	7.800	0.000	100	125	QP
5		622.015	31.441	0.789	-14.559	46.000	22.239	8.413	0.000	100	157	QP
6	*	879.648	38.844	6.456	-7.156	46.000	23.398	8.990	0.000	100	32	QP

Profile: 20A0396R	Page No.: 2
Engineer: Donald	
Site: AC2	Time: 2020/10/22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Vertical
EUT: Dual mode Full Color A19	Power: AC 120V/60Hz
Note: Mode 1	



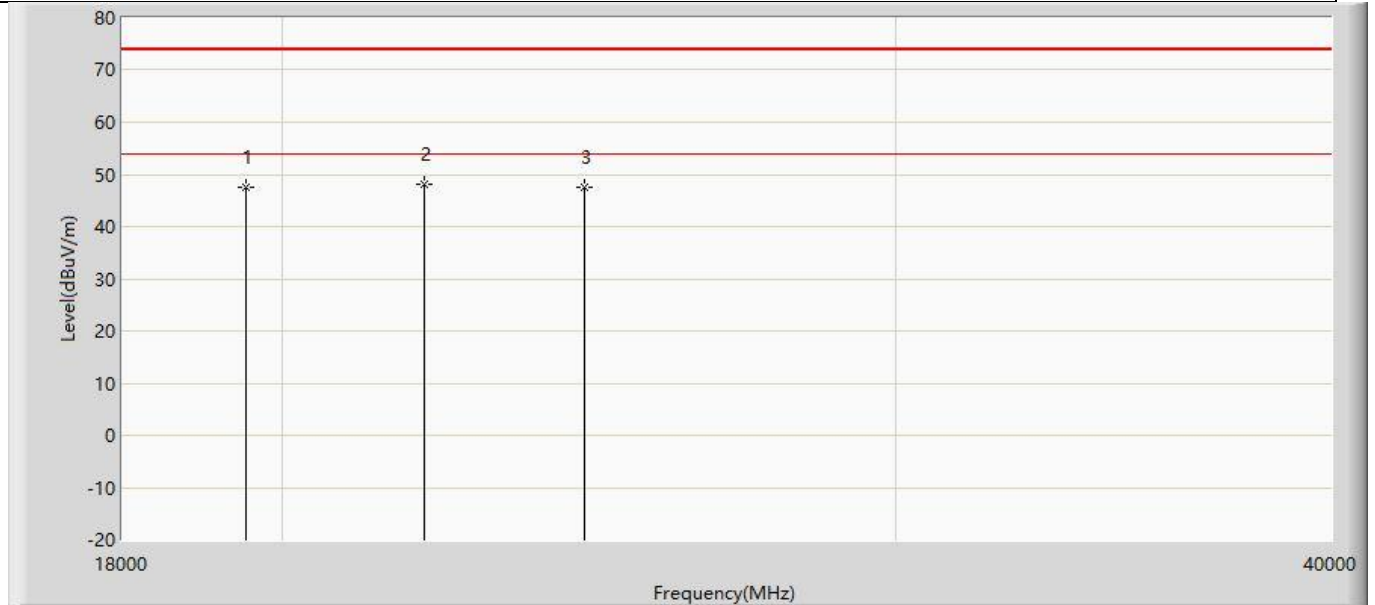
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		35.158	28.977	6.548	-11.023	40.000	16.086	6.343	0.000	100	311	QP
2	*	57.035	32.552	15.700	-7.448	40.000	10.353	6.499	0.000	100	187	QP
3		92.646	25.396	7.041	-18.104	43.500	11.655	6.700	0.000	100	144	QP
4		219.460	30.037	8.145	-15.963	46.000	14.649	7.243	0.000	100	116	QP
5		250.011	32.585	8.145	-13.415	46.000	17.090	7.350	0.000	100	16	QP
6		888.186	34.847	1.790	-11.153	46.000	24.047	9.010	0.000	100	169	QP

Note:

- " \* ", means this data is the worst emission level.
- Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

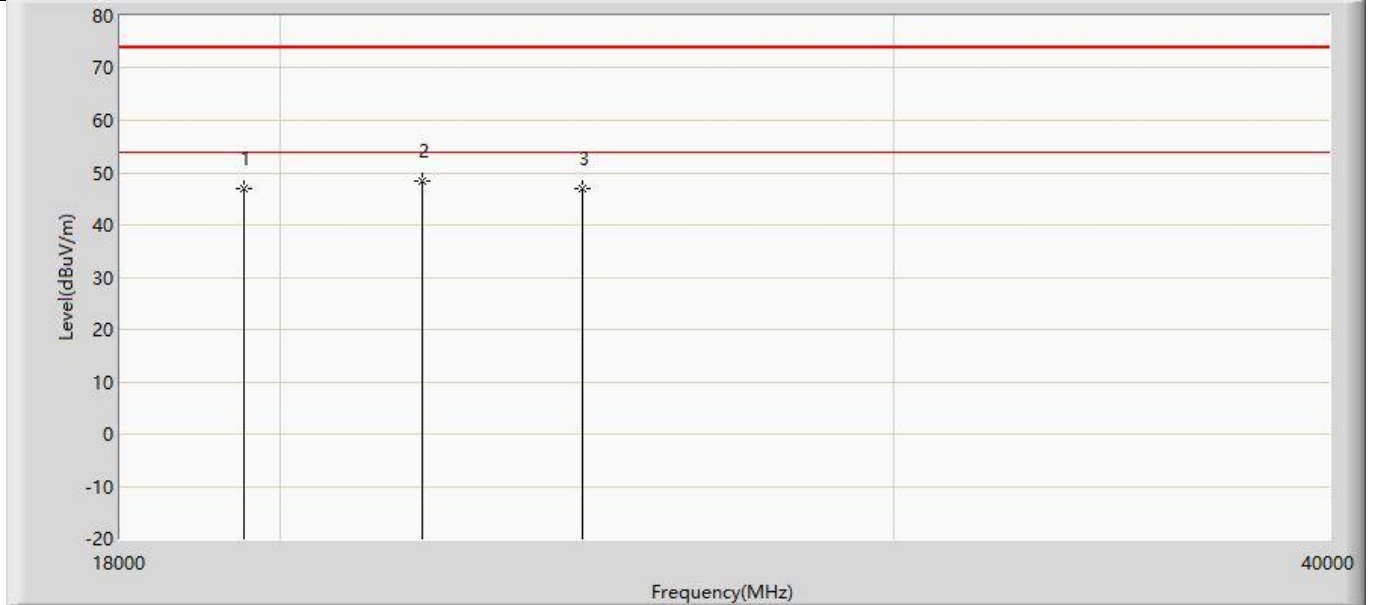
**The worst case of Radiated Emission above 18GHz:**

Profile: 20A0396R	Page No.: 13
Engineer: Lynee	
Site: AC5	Time: 2020/11/10 - 16:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9170_294(18-40GHz)	Polarity: Horizontal
EUT: Dual mode Full Color A19	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		19536.000	47.589	53.328	-26.411	74.000	-5.738	PK
2	*	21978.000	48.001	51.648	-25.999	74.000	-3.646	PK
3		24420.000	47.412	49.508	-26.588	74.000	-2.097	PK

Profile: 20A0396R	Page No.: 14
Engineer: Lynee	
Site: AC5	Time: 2020/11/10 - 16:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9170_294(18-40GHz)	Polarity: Vertical
EUT: Dual mode Full Color A19	Power: AC 120V/60Hz
Note: Mode 1	



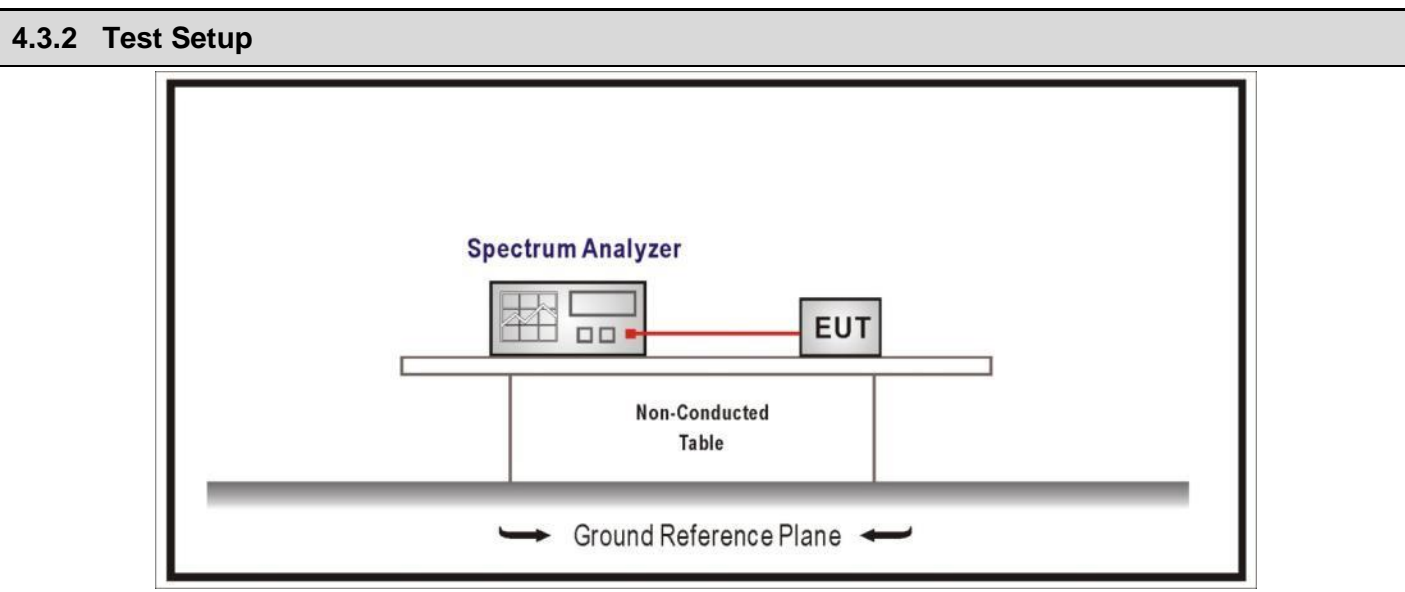
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		19536.000	46.944	52.683	-27.056	74.000	-5.738	PK
2	*	21978.000	48.269	51.916	-25.731	74.000	-3.646	PK
3		24420.000	47.039	49.135	-26.961	74.000	-2.097	PK

Note:

1. " \* ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

<b>4.3 Emissions in non-restricted frequency band</b>	<b>VERDICT: PASS</b>
---	----------------------

<b>4.3.1 Limit</b>	
<b>Standard</b>	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>	



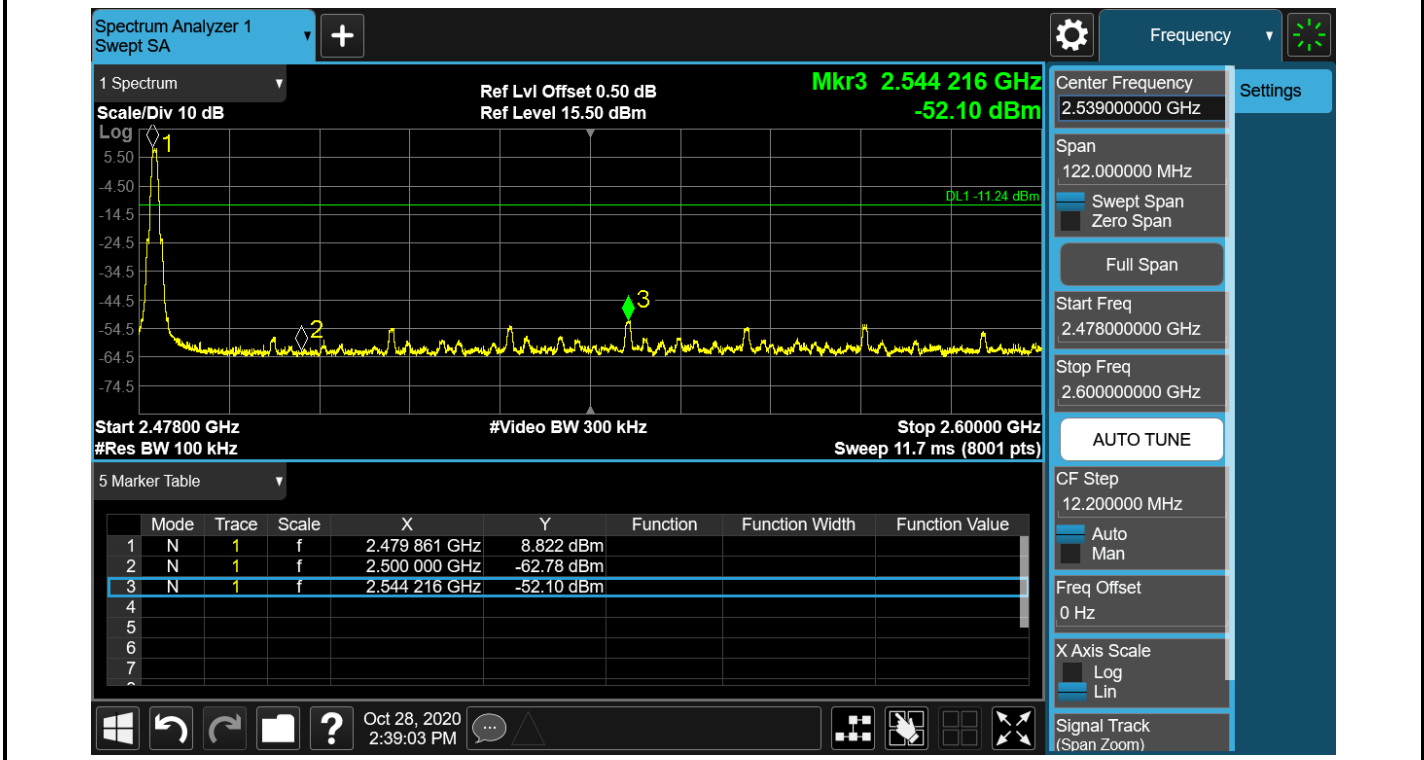
<b>4.3.3 Test Procedure</b>			
References Rule	Chapter	Description	
<input checked="" type="checkbox"/>	ANSI C63.10	11.11	Emissions in non-restricted frequency bands
	<input checked="" type="checkbox"/>	ANSI C63.10	11.11.1 General
	<input checked="" type="checkbox"/>	ANSI C63.10	11.11.2 Reference level measurement
	<input checked="" type="checkbox"/>	ANSI C63.10	11.11.3 Emission level measurement

**4.3.4 Test Data**

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	00	2402	8.509	2400.000	-55.21	63.719	>20	Pass
	39	2480	8.822	2544.216	-52.10	60.922	>20	Pass

Note : The worst case of Emissions in non-restricted frequency band as below:

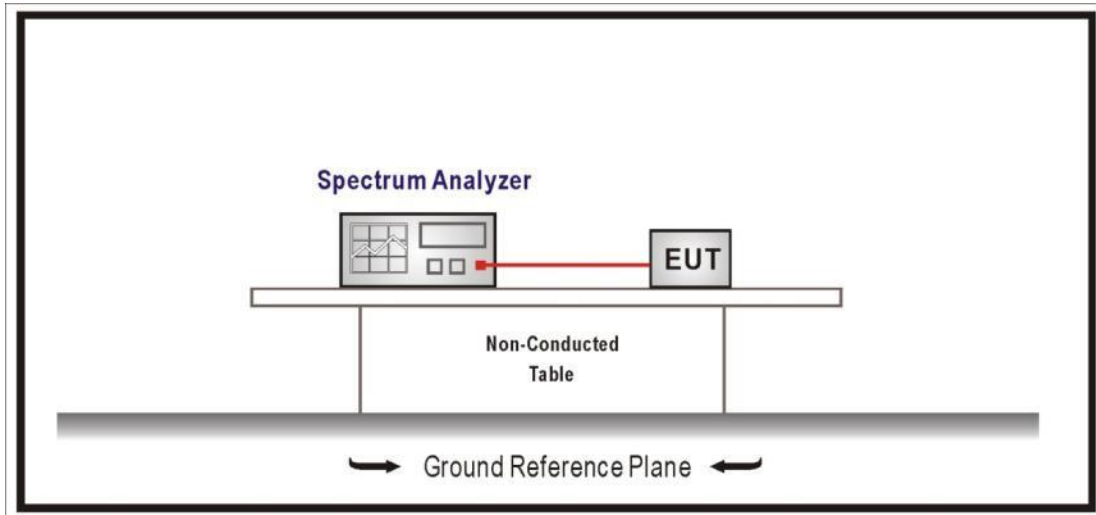
Mode 1 / CH39(2480 MHz)



<b>4.4 Duty cycle</b>	<b>VERDICT: PASS</b>
-----------------------	----------------------

<b>4.4.1 Limit</b>
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

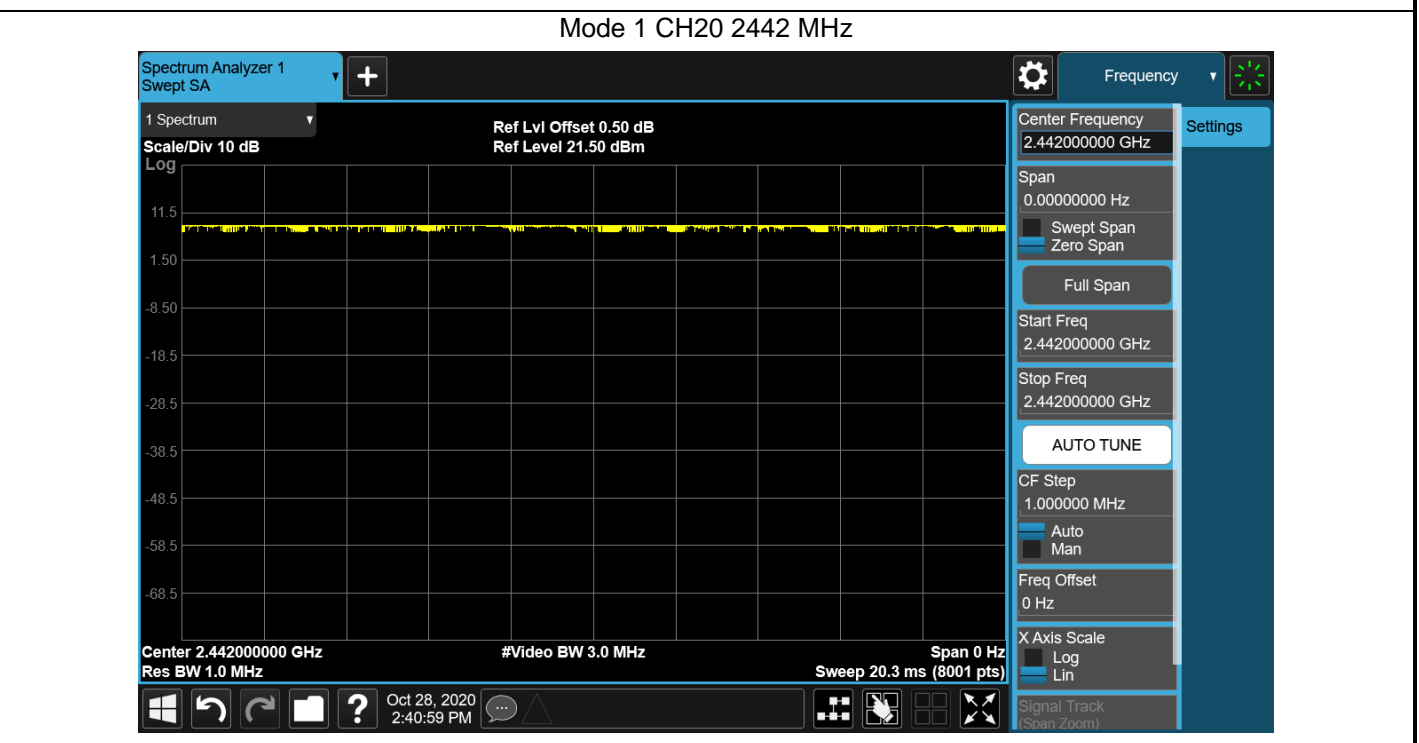


#### 4.4.4 Test Data

Test Mode	Tx On (ms)	Tx Off (ms)	VBW (Hz)	Tx On + Tx Off (ms)	Duty Cycle
Mode 1	N/A	N/A	10	N/A	100 %

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.



<b>4.5 Radiated Emission Band Edge</b>	<b>VERDICT: PASS</b>
--	----------------------

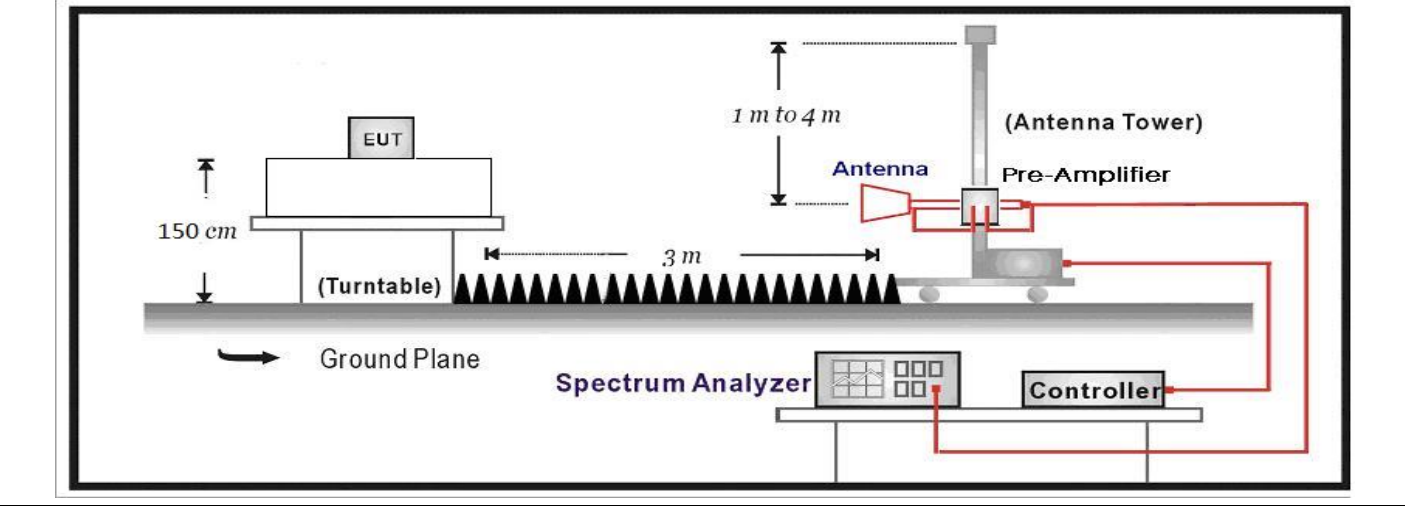
**4.5.1 Limit**

<b>Standard</b>		FCC Part 15 Subpart C Paragraph 15.247(d) , 15.209		
Frequency bands (MHz)	Detector	Limit (dBµV/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**

Above 1GHz Test Setup:

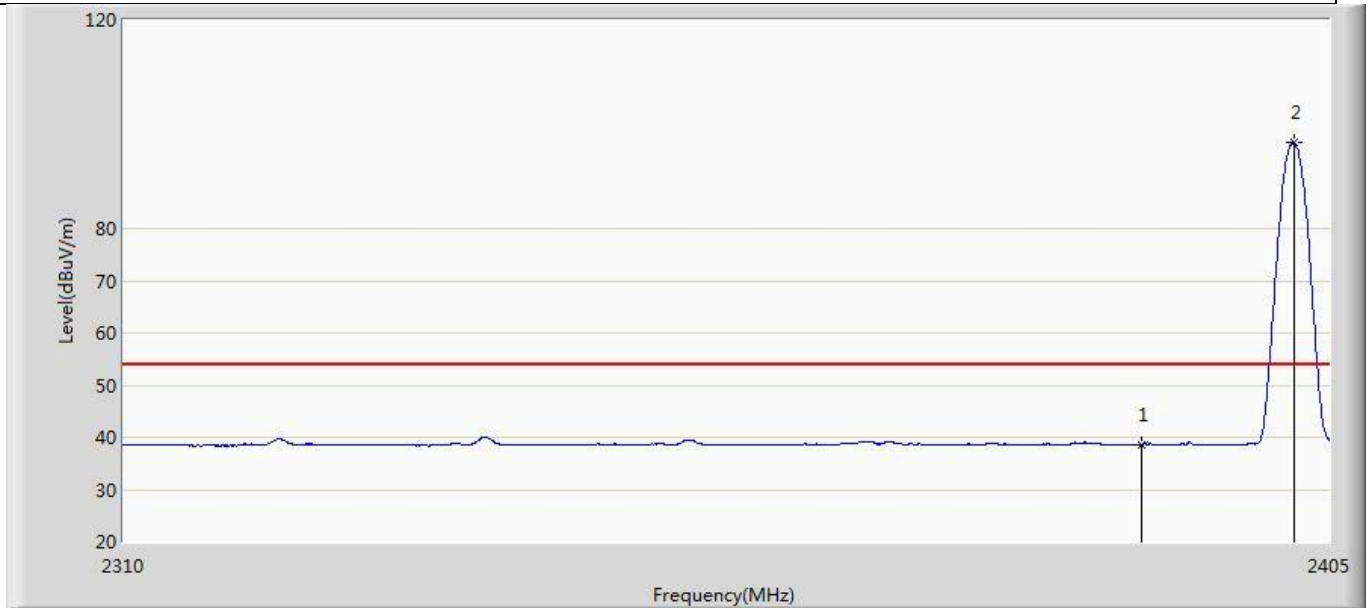


**4.5.3 Test Procedure**

	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	11.12.1	Radiated emission measurements
	<input checked="" type="checkbox"/> ANSI C63.10	11.12.2.7	Radiated spurious emission test
<input type="checkbox"/>	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
<input 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"/>	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

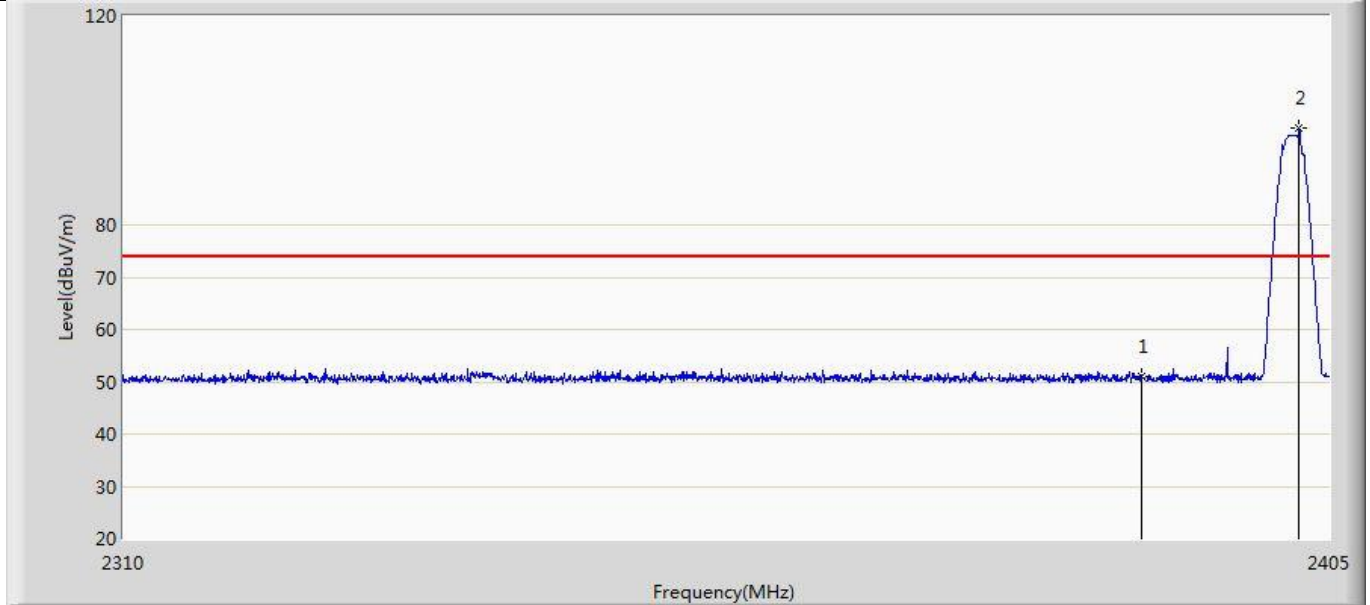
**4.5.4 Test Data**

Profile: 20A0396R	Page No.: 1
Engineer: YULIU	
Site: AC5	Time: 2020/10/29 - 21:00
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Dual mode Full Color A19	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz	



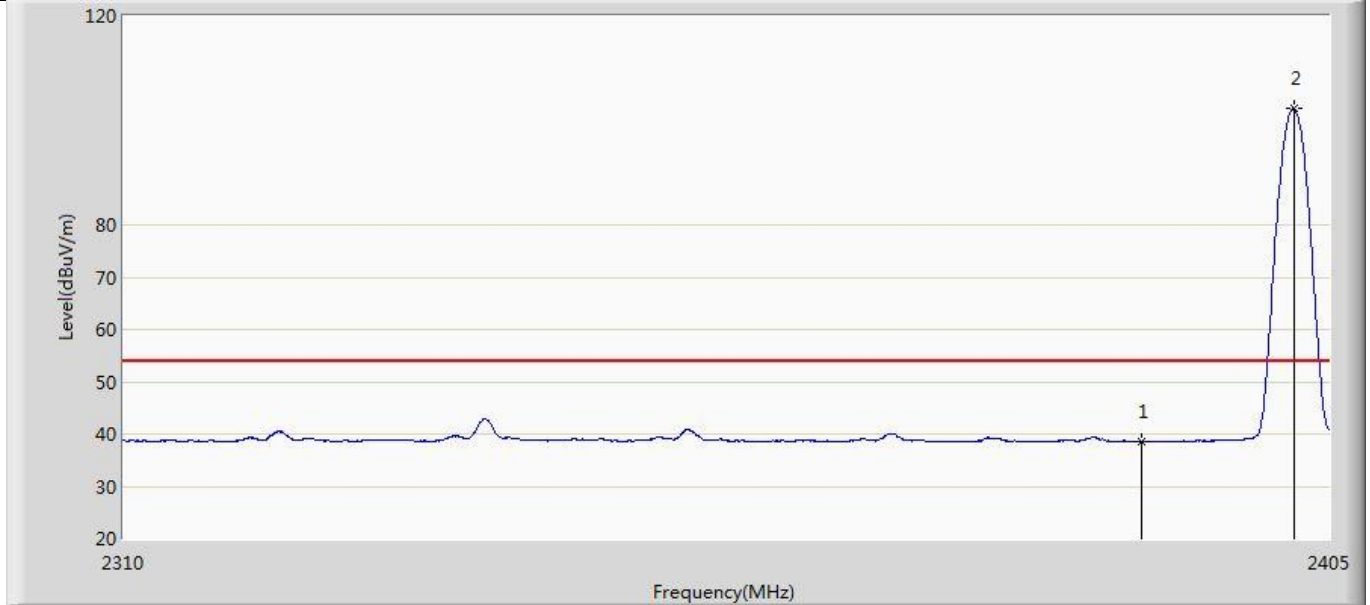
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	38.624	3.167	-15.376	54.000	35.458	AV
2	*	2402.198	96.531	61.061	42.531	54.000	35.470	AV

Profile: 20A0396R	Page No.: 2
Engineer: YULIU	
Site: AC5	Time: 2020/10/29 - 21:03
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Dual mode Full Color A19	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz	



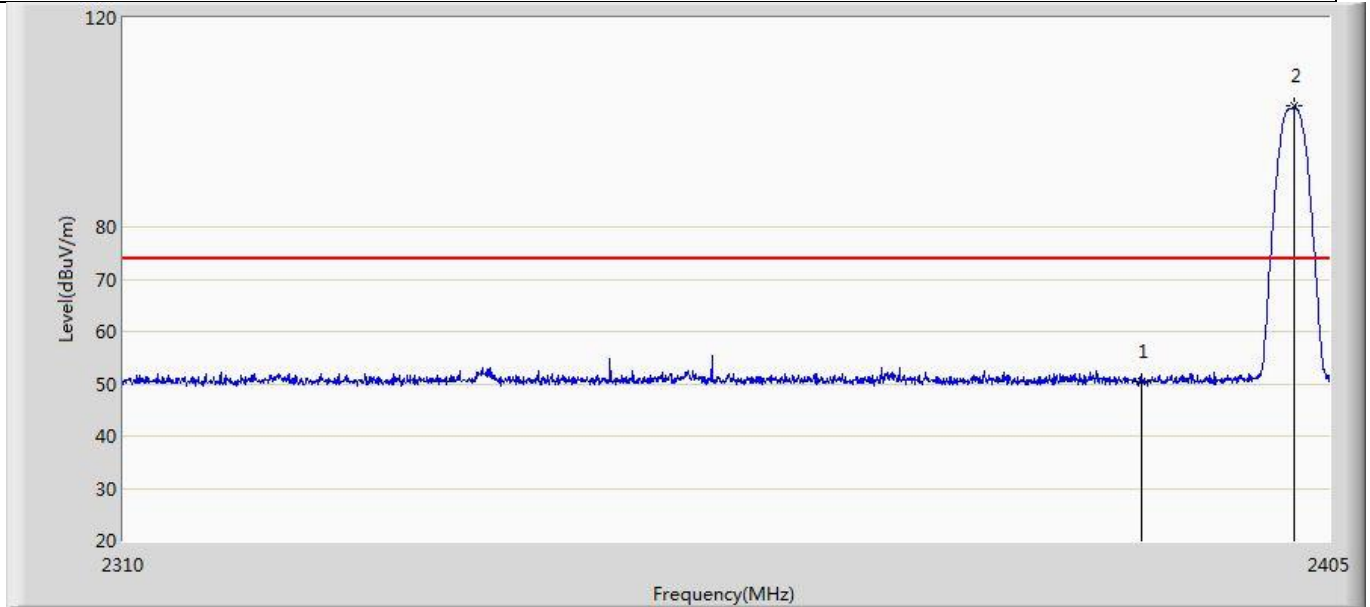
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.958	15.501	-23.042	74.000	35.458	PK
2	*	2402.577	98.642	63.172	24.642	74.000	35.470	PK

Profile: 20A0396R	Page No.: 3
Engineer: YULIU	
Site: AC5	Time: 2020/10/29 - 21:05
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Dual mode Full Color A19	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz	



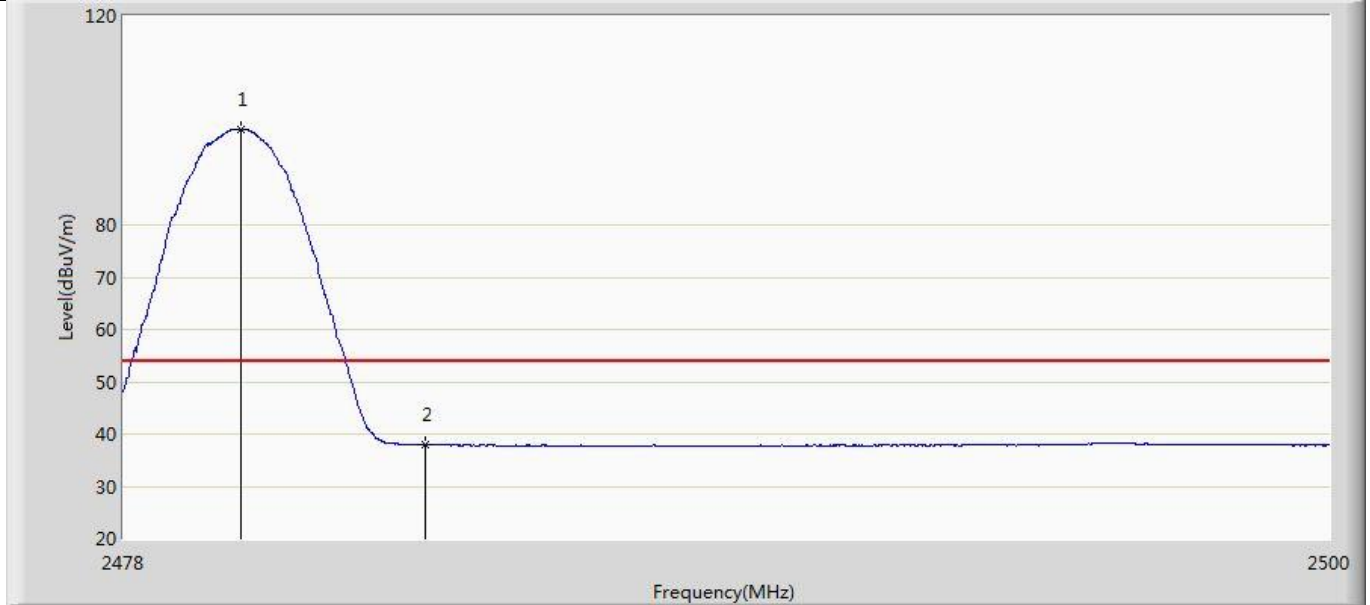
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	38.618	3.161	-15.382	54.000	35.458	AV
2	*	2402.198	102.263	66.793	48.263	54.000	35.470	AV

Profile: 20A0396R	Page No.: 4
Engineer: YULIU	
Site: AC5	Time: 2020/10/29 - 21:07
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Dual mode Full Color A19	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz	



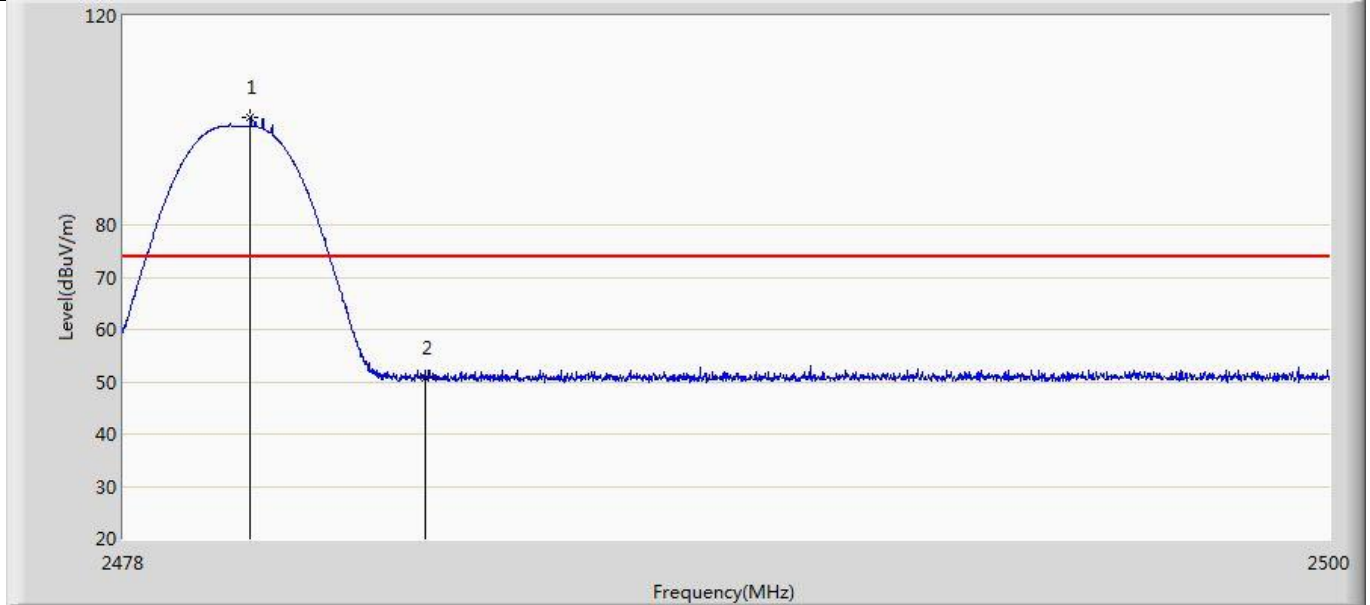
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.433	14.976	-23.567	74.000	35.458	PK
2	*	2402.245	103.155	67.685	29.155	74.000	35.470	PK

Profile: 20A0396R	Page No.: 5
Engineer: YULIU	
Site: AC5	Time: 2020/10/29 - 21:09
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Dual mode Full Color A19	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.145	98.370	62.871	44.370	54.000	35.499	AV
2		2483.500	37.931	2.413	-16.069	54.000	35.517	AV

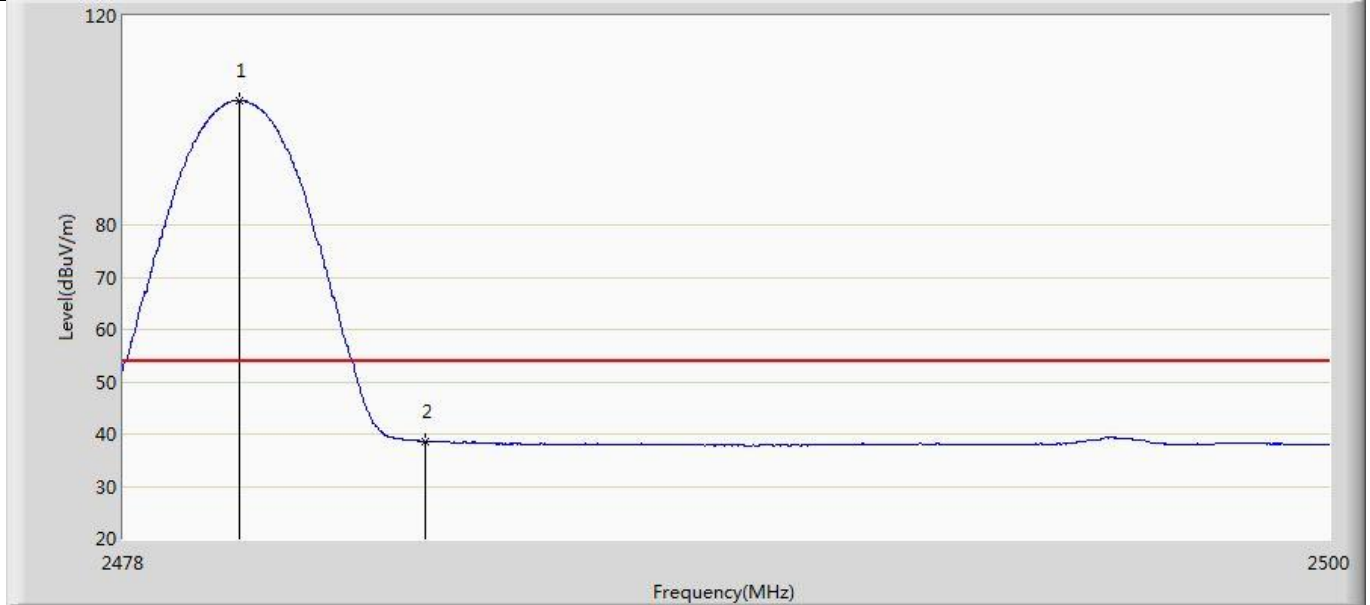
Profile: 20A0396R	Page No.: 6
Engineer: YULIU	
Site: AC5	Time: 2020/10/29 - 21:11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Dual mode Full Color A19	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.310	100.661	65.161	26.661	74.000	35.500	PK
2		2483.500	50.691	15.173	-23.309	74.000	35.517	PK

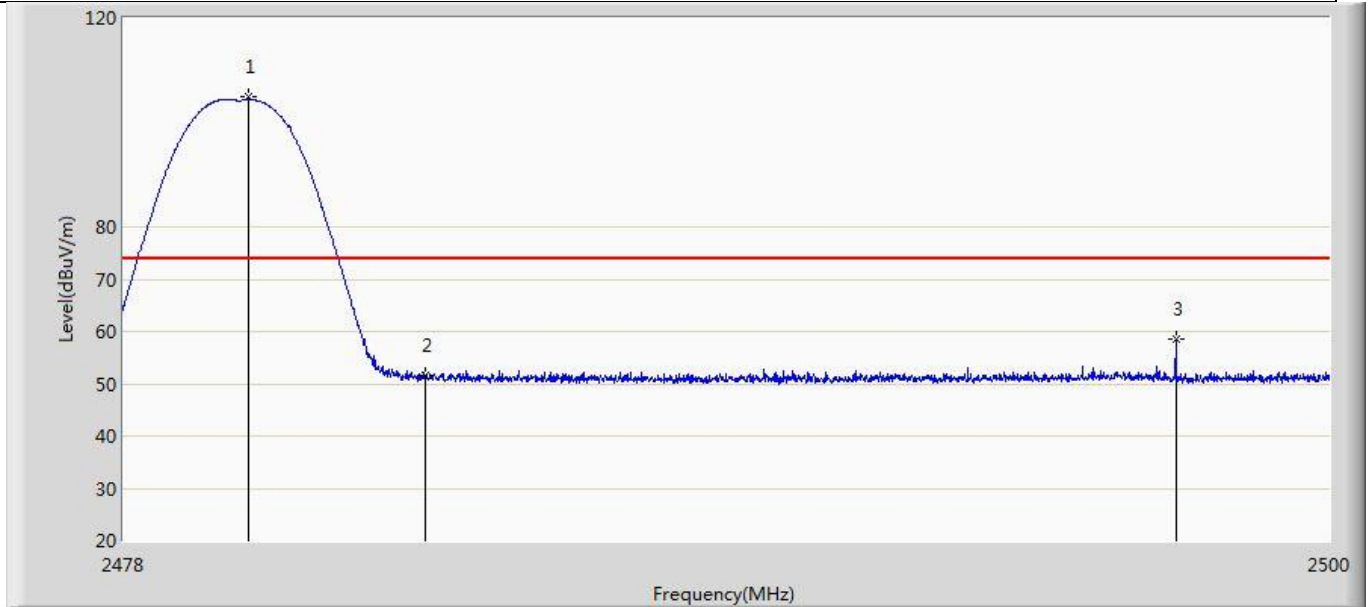


Profile: 20A0396R	Page No.: 7
Engineer: YULIU	
Site: AC5	Time: 2020/10/29 - 21:13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Dual mode Full Color A19	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.112	103.855	68.357	49.855	54.000	35.499	AV
2		2483.500	38.611	3.093	-15.389	54.000	35.517	AV

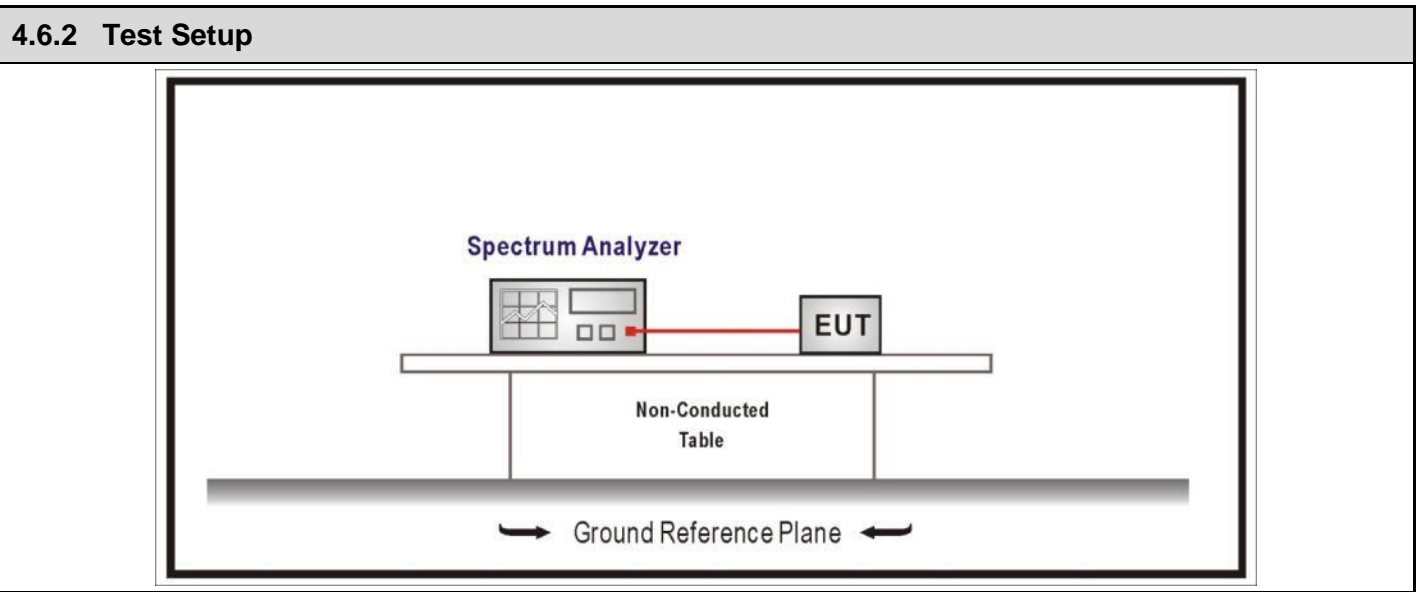
Profile: 20A0396R	Page No.: 8
Engineer: YULIU	
Site: AC5	Time: 2020/10/29 - 21:15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Dual mode Full Color A19	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.266	104.820	69.321	30.820	74.000	35.500	PK
2		2483.500	51.571	16.053	-22.429	74.000	35.517	PK
3		2497.195	58.488	22.904	-15.512	74.000	35.584	PK

<b>4.6 DTS Bandwidth</b>	<b>VERDICT: PASS</b>
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<b>4.6.1 Limit</b>	
<b>Standard</b>	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	



<b>4.6.3 Test Procedure</b>			
	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

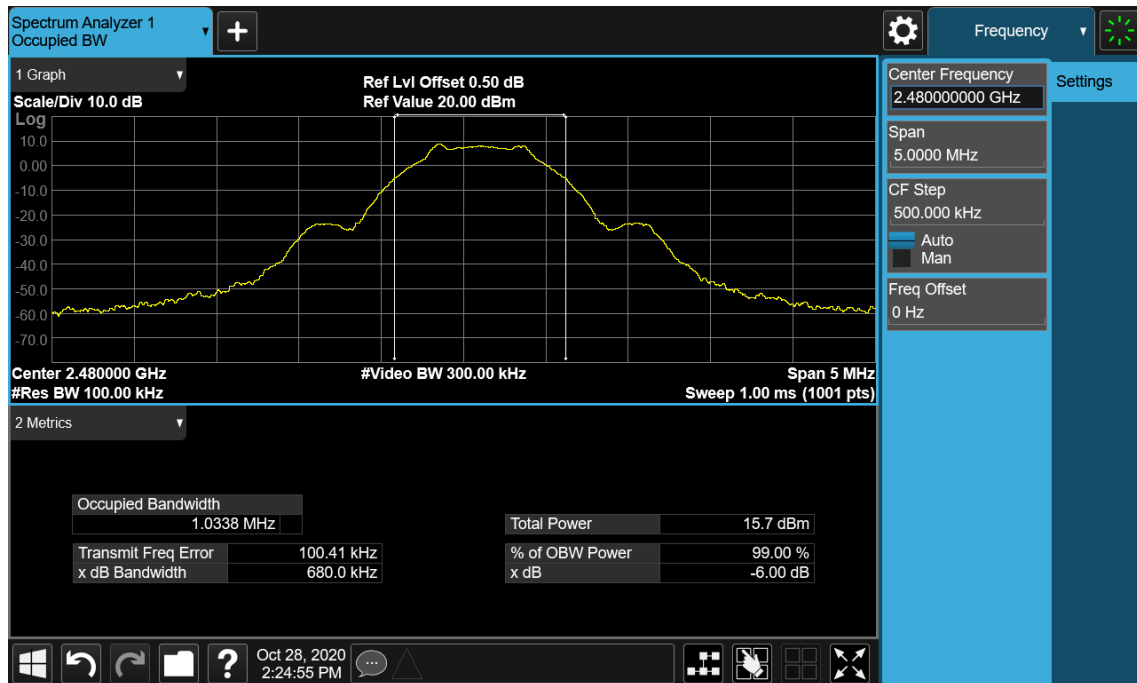
**4.6.4 Test Data**

Mode	CH.	Test Freq. (MHz)	6dB Occupied Bandwidth (kHz)	Limit (kHz)	Result
1	00	2402	685	>500	Pass
	20	2442	699.9	>500	Pass
	39	2480	680	>500	Pass

Note : The worst case of 6dB Occupied Bandwidth as below:

6dB Occupied Bandwidth

Mode 1 / CH39 (2480 MHz)

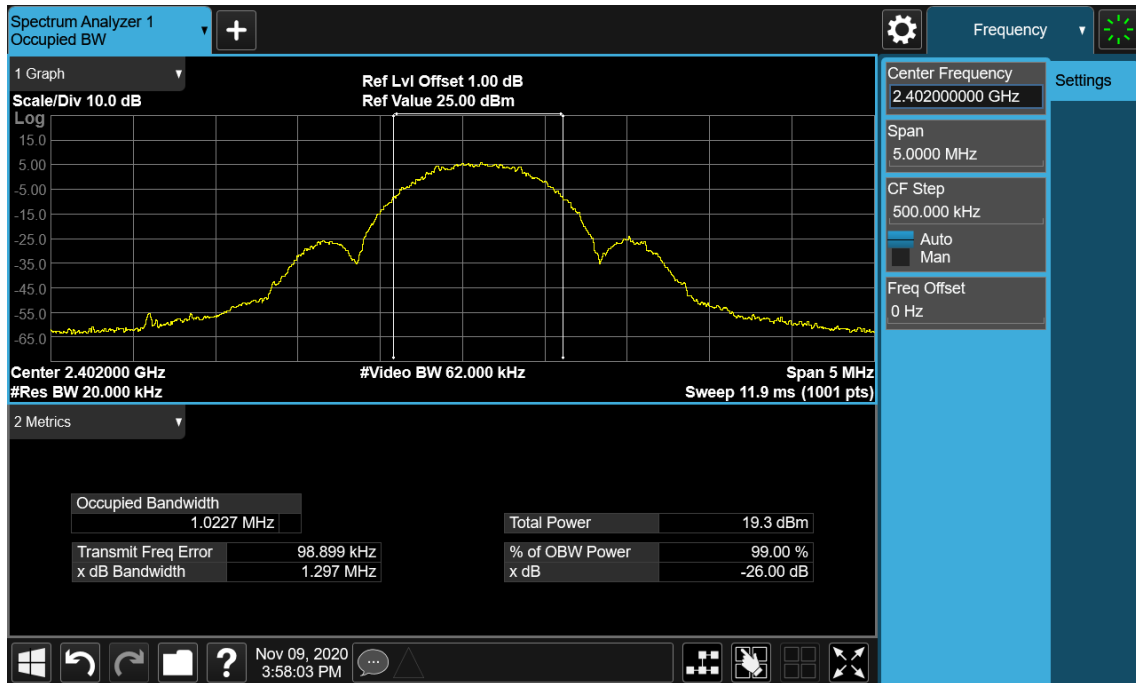


Mode	CH.	Test Freq. (MHz)	99% Occupied Bandwidth (MHz)	Limit	Result
1	00	2402	1.0227	Within frequency range	Pass
	20	2442	1.0238	Within frequency range	Pass
	39	2480	1.0174	Within frequency range	Pass

Note : The worst case of 99% Occupied Bandwidth as below:

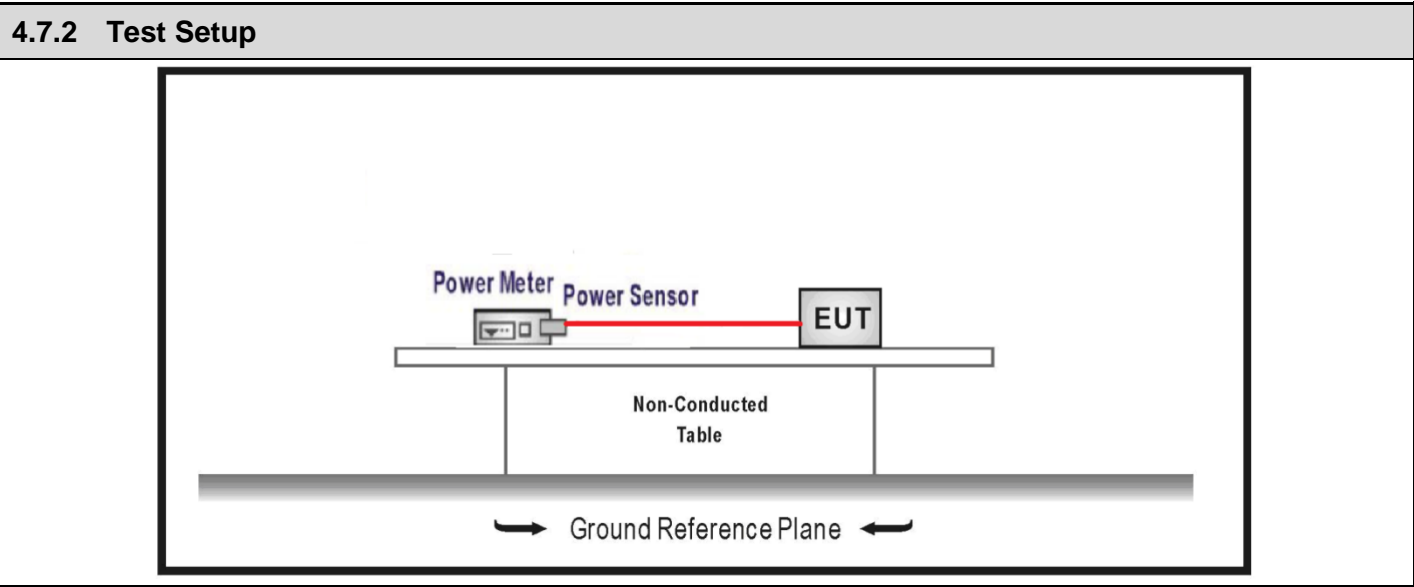
99% Occupied Bandwidth

Mode 1 / CH00 (2402MHz)



<b>4.7 Fundamental emission output power</b>	<b>VERDICT: PASS</b>
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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 .			



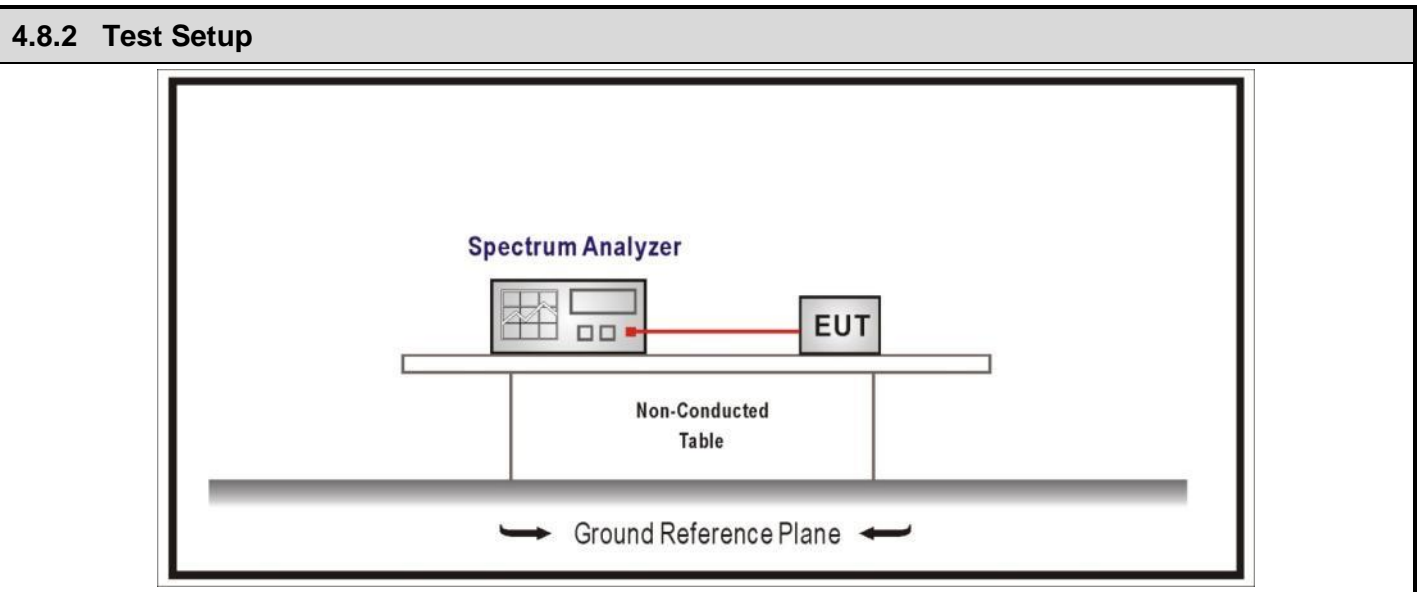
4.7.3 Test Procedure					
	References Rule		Chapter	Description	
<input checked="" type="checkbox"/>	ANSI C63.10		11.9	Fundamental emission output power	
<input checked="" type="checkbox"/>	ANSI C63.10		11.9.1	Maximum peak conducted output power	
	<input type="checkbox"/>	ANSI C63.10	11.9.1.1	RBW ≥ DTS 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 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≥98%)
		<input type="checkbox"/>	ANSI C63.10	11.9.2.2.3	Method AVGSA-1A(Duty cycle≥98%)
		<input type="checkbox"/>	ANSI C63.10	11.9.2.2.4	Method AVGSA-2(Duty cycle≤98%)
		<input type="checkbox"/>	ANSI C63.10	11.9.2.2.5	Method AVGSA-2A(Duty cycle≤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 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							
Mode	Channel	Test Frequency (MHz)	Conducted Power (dBm)	EIRP (dBm)	Conducted Power Limit (dBm)	EIRP Limit (dBm)	Result
Mode 1	00	2402	8.71	10.33	≤30	≤36	Pass
	20	2442	9.07	10.69	≤30	≤36	Pass
	39	2480	9.06	10.68	≤30	≤36	Pass



<b>4.8 Power Density</b>	<b>VERDICT: PASS</b>
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<b>4.8.1 Limit:</b>	
<b>Standard</b>	FCC Part 15 Subpart C Paragraph 15.247 (b)(3)
Power Spectral Density ≤ 8 dBm/3kHz	



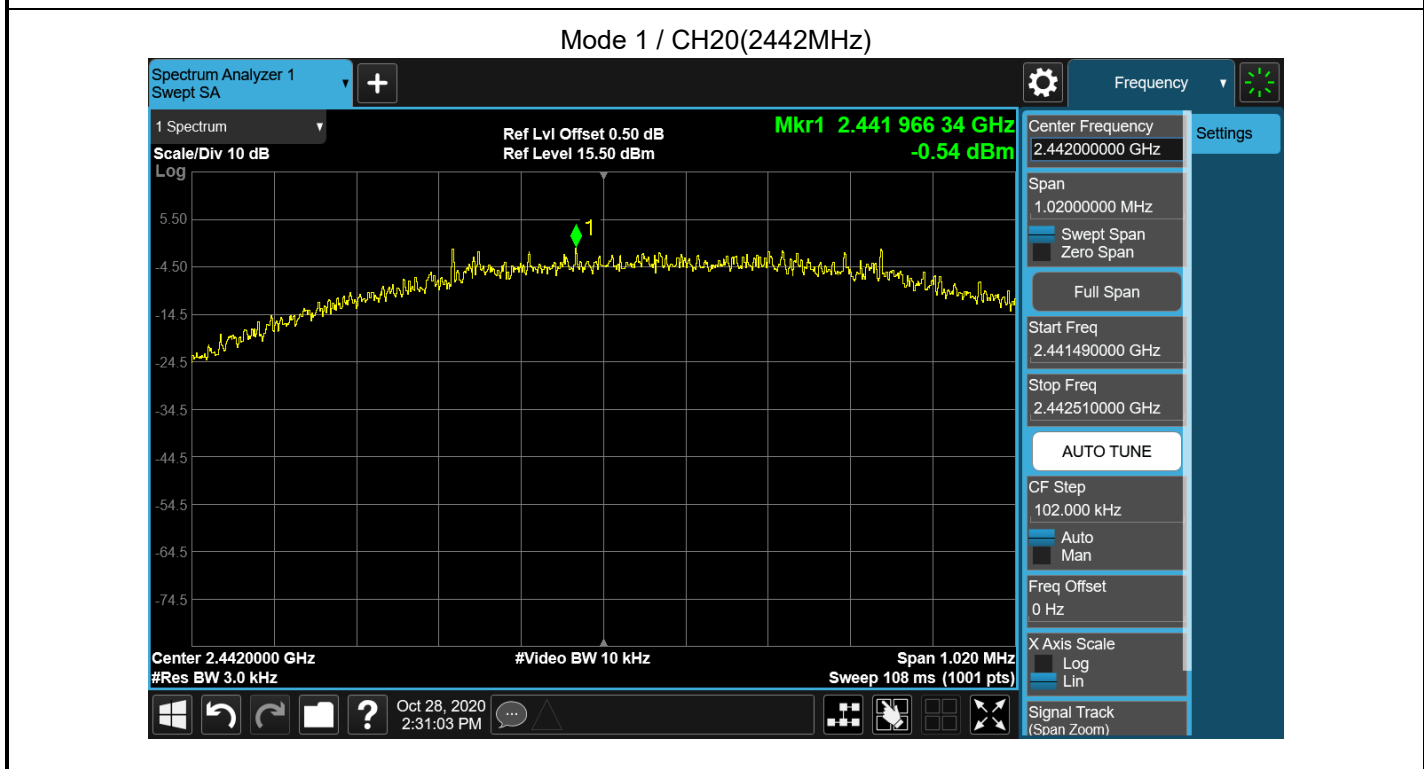
**4.8.3 Test Procedure**

	References Rule	Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10	11.10	Maximum power spectral density level in the fundamental emission
<input checked="" 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 ≥ 98%)
<input type="checkbox"/>	ANSI C63.10	11.10.4	Method AVGPSD-1A(Duty cycle ≥ 98%)
<input 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

Mode	Channel	Test Frequency (MHz)	Measurement PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
Mode 1	00	2402	-1.86	≤8	Pass
	20	2442	-0.54	≤8	Pass
	39	2480	-0.99	≤8	Pass

Note : The worst case of PSD as below:



<b>4.9 Antenna Requirement</b>	<b>VERDICT: PASS</b>
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<b>4.9.1 Limit:</b>	
<b>Standard</b>	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>	

<b>4.9.2 Antenna Connector Construction:</b>	
<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.	

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## 5 TEST SETUP PHOTO AND EUT PHOTO

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

\_\_\_\_\_ The End \_\_\_\_\_