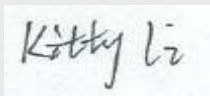
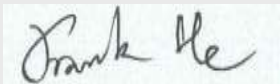
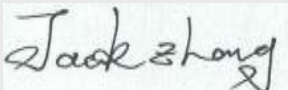




Test report No:
1962139R-RF-US-P06V02

FCC TEST REPORT

Product Name	Barcode Scanner
Trademark	Honeywell
Model and /or type reference	8680i
FCC ID	HD5-8680B
Applicant's name / address	HONEYWELL INTERNATIONAL INC Honeywell Safety and Productivity Solutions 9680 OLD BAILES RD FORT MILL SC 29707-7539,USA
Test method requested, standard	FCC CFR Title 47 Part 15 Subpart C Section 15.247 ANSI C63.10: 2013 KDB558074 D01v05r02
Verdict Summary	IN COMPLIANCE
Documented By	Kitty Li /Project Assistant 
Tested by (name / position & signature)	Frank He/ Technical Supervisor 
Approved by (name / position & signature)	Jack Zhang/ Supervisor 
Date of issue	2019-07-05
Report template No	1962139R-RF-US-P06V02

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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

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
1962139R-RF-US-P06V02		Initial issue of report.	2019-07-05

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.
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, unless the specification, standard or customer have special requirements.
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.

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	2019.03.04	2020.03.04
Two-Line V-Network	R&S	ENV216	101190	2019.06.09	2020.06.09
Two-Line V-Network	R&S	ENV216	101044	2019.06.15	2020.06.15
Current Probe	R&S	EZ-17	100678	2019.03.07	2020.03.07
50ohm Termination	SHX	TF2	07081402	2018.09.08	2019.09.08
50ohm Termination	SHX	TF2	07081403	2018.09.08	2019.09.08
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	N/A	N/A
Temperature/Humidity Meter	RTS	RTS-8S	TR1-TH	2019.01.09	2020.01.09
Coaxial Cable	Suhner	RG 223	TR1-C1	2018.09.11	2019.09.11
Coaxial Cable	Suhner	RG 223	TR1-C2	2018.09.11	2019.09.11
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	2019.02.04	2020.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2019.04.09	2020.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2019.04.09	2020.04.08
Wideband Peak Power Meter	Anritsu	ML2495A	0905006	2018.10.14	2019.10.13
Power Sensor	Anritsu	MA2411B	0846014	2018.10.14	2019.10.13
Coaxial Cable	Woken	SFL402	F02-150410-044	2019.01.01	2019.12.31
Dekra test software	Dekra	-	-	-	-

Radiated Emission(30MHz-1GHz) / AC2

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EMI Test Receiver	R&S	ESCI	100573	2019.03.04	2020.03.04
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2019.06.09	2020.06.09
Temperature/Humidity Meter	RTS	RTS-8S	AC2-TH	2019.01.09	2020.01.09
Coaxial Cable	Huber+Suhner	RG 214	AC2-C	2019.02.28	2020.02.28
Dekra test software	Dekra	-	-	-	-

Radiated Emission / AC5(1GHz-40GHz)(Chamber details)

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2019.01.04	2020.01.03
Preamplifier	Miteq	NSP1800-25	1364185	2019.05.06	2020.05.05
Preamplifier	QuieTek	AP-040G	CHM-0906001	2019.05.06	2020.05.05
DRG Horn	ETS-Lindgren	3117	00123988	2019.01.22	2020.01.21
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2019.01.04	2020.01.03
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2019.03.02	2020.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2019.03.02	2020.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2019.03.02	2020.03.01
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	± 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..... :	Barcode Scanner
Model No. :	8680i
Trademark	Honeywell
Manufacturer..... :	1、 HONEYWELL INTERNATIONAL INC Honeywell Safety and Productivity Solutions 2、 Metro(Suzhou)Technologies Co.,Ltd
Manufacturer Address..... :	1、 9680 OLD BAILES RD FORT MILL SC 29707-7539,USA 2、 No.221 Xinghai street China-Singapore Suzhou Industrial Park

Wireless specifiction..... :	Bluetooth
Operating frequency range(s)	2400~2483.5MHz
Type of Modulation	GFSK, Pi/4 DQPSK, 8DPSK
Channel Separation	1M
Data Rate	1Mbps(GFSK), 2Mbps(Pi/4 DQPSK), 3Mbps(8DPSK)
Number of channel..... :	79

Rated power supply	Voltage and Frequency	
	☐	AC: 220 – 240 V, 50/60 Hz
	☐	AC: 100 – 240 V, 50/60 Hz
	☒	DC: 3.8dc
	☐	Battery:
Mounting position..... :	☐	Table top equipment
	☐	Wall/Ceiling mounted equipment
	☐	Floor standing equipment
	☒	Hand-held equipment
	☐	Other:

1.2 Antenna Information

Antenna model / type number	N/A		
Antenna serial number	N/A		
Antenna Delivery	☒	1TX + 1RX	
	☐	2TX + 2RX	
	☐	Others:.....	
Antenna technology	☒	SISO	
	☐	MIMO	☐ CDD
			☐ Beam-forming
Antenna Type	☐	External	☐ Dipole
			☐ Sectorized
			☒ Internal
	☒	Internal	☐ Monopole
			☒ Type F antenna
☐		☐ Others:.....	
Antenna Gain	4.3dBi		

1.3 Test date

Test Location	No. 99, Hongye Road, Suzhou Industrial Park Suzhou, 215006, P.R. China
Date(receive sample)	Jun. 20, 2019
Date (start test)	Jun. 20, 2019
Date (finish test)	Jul. 08, 2019

1.4 Channel List

Bluetooth Working Frequency of Each Channel: (For V3.0)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2403 MHz	02	2404 MHz	03	2405 MHz
04	2406 MHz	05	2407 MHz	06	2408 MHz	07	2409 MHz
08	2410 MHz	09	2411 MHz	10	2412 MHz	11	2413 MHz
12	2414 MHz	13	2415 MHz	14	2416 MHz	15	2417 MHz
16	2418 MHz	17	2419 MHz	18	2420 MHz	19	2421 MHz
20	2422 MHz	21	2423 MHz	22	2424 MHz	23	2425 MHz
24	2426 MHz	25	2427 MHz	26	2428 MHz	27	2429 MHz
28	2430 MHz	29	2431 MHz	30	2432 MHz	31	2433 MHz
32	2434 MHz	33	2435 MHz	34	2436 MHz	35	2437 MHz
36	2438 MHz	37	2439 MHz	38	2440 MHz	39	2441 MHz
40	2442 MHz	41	2443 MHz	42	2444 MHz	43	2445 MHz
44	2446 MHz	45	2447 MHz	46	2448 MHz	47	2449 MHz
48	2450 MHz	49	2451 MHz	50	2452 MHz	51	2453 MHz
52	2454 MHz	53	2455 MHz	54	2456 MHz	55	2457 MHz
56	2458 MHz	57	2459 MHz	58	2460 MHz	59	2461 MHz
60	2462 MHz	61	2463 MHz	62	2464 MHz	63	2465 MHz
64	2466 MHz	65	2467 MHz	66	2468 MHz	67	2469 MHz
68	2470 MHz	69	2471 MHz	70	2472 MHz	71	2473 MHz
72	2474 MHz	73	2475 MHz	74	2476 MHz	75	2477 MHz
76	2478 MHz	77	2479 MHz	78	2480 MHz	N/A	N/A

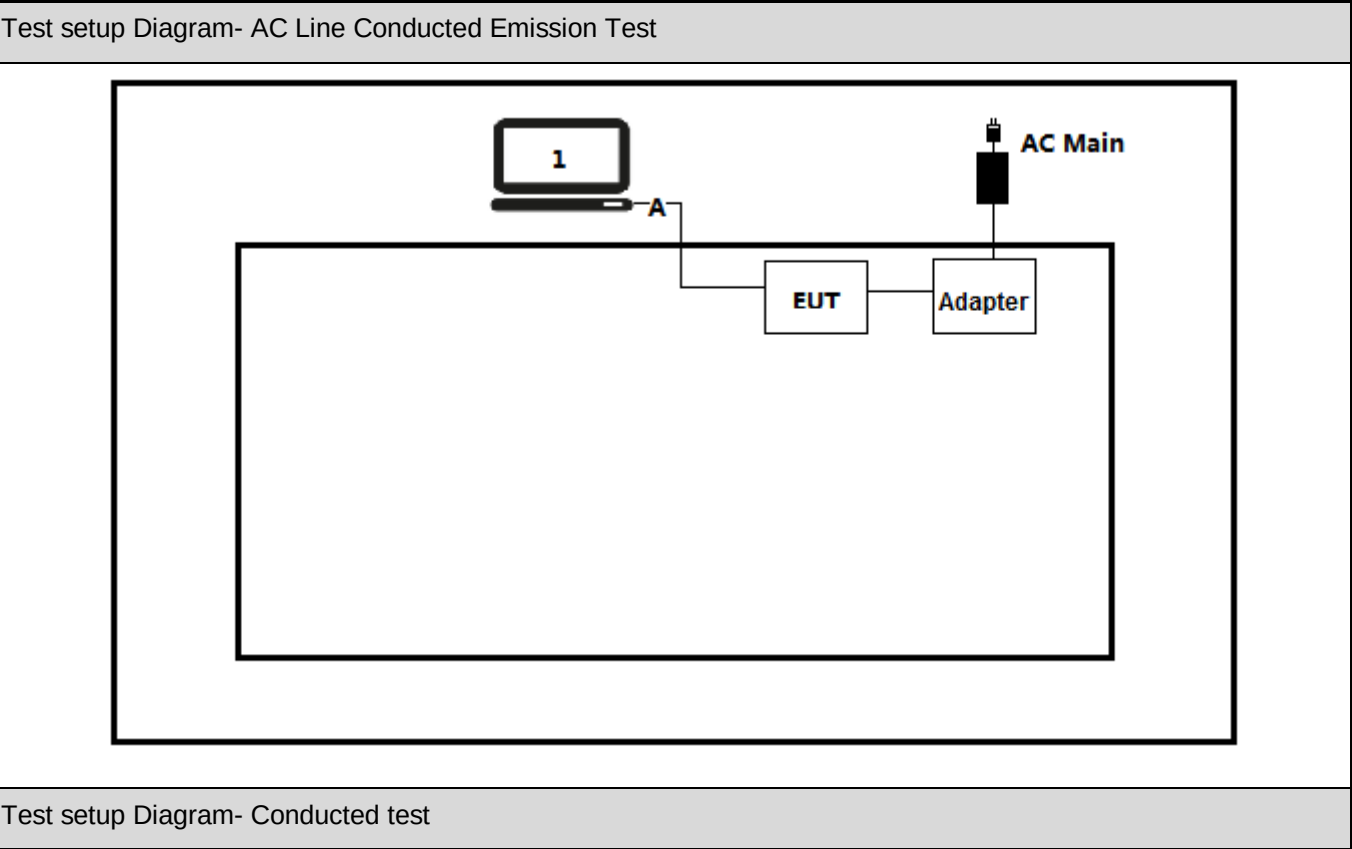
2 DESCRIPTION OF TEST SETUP

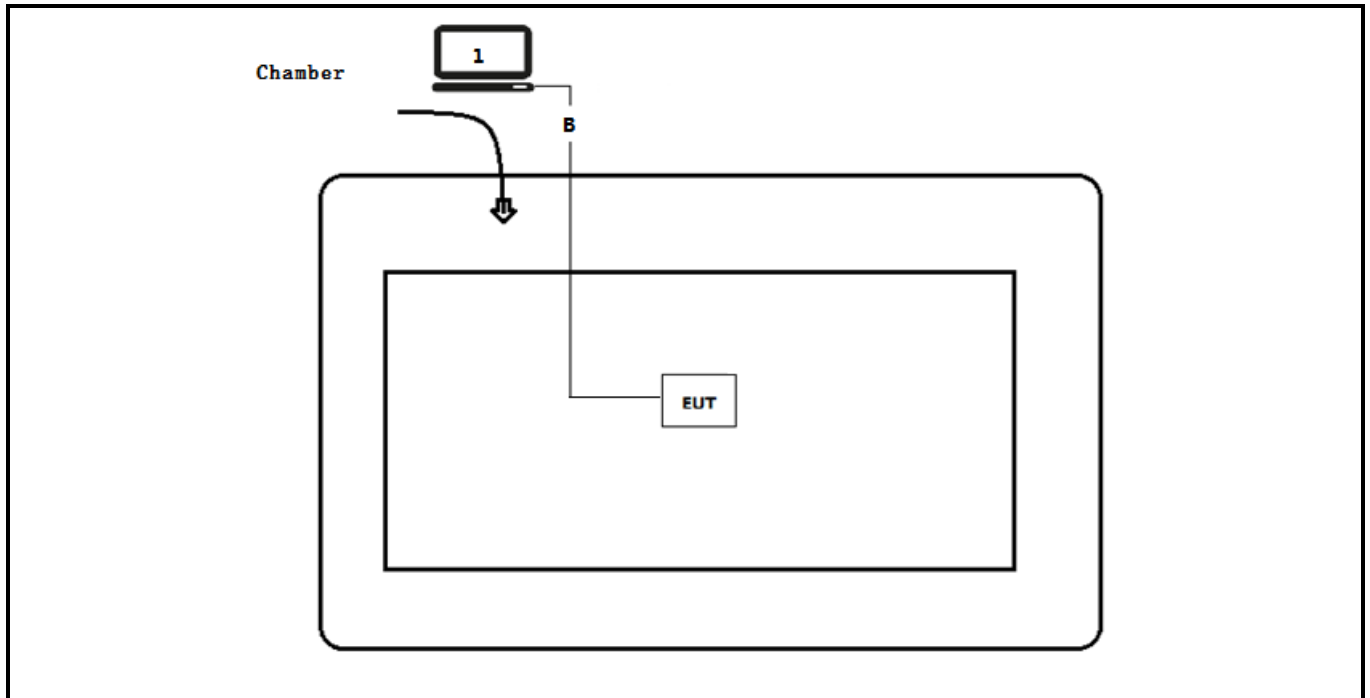
2.1 Operating mode(s) used for tests

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

Test Mode	Mode 1: Transmit-1Mbps(GFSK_DH5)
	Mode 2: Transmit-2Mbps(Pi/4 DQPSK_DH5)
	Mode 3: Transmit-3Mbps(8DPSK_DH5)

2.2 Test Configuration / Block diagram used for tests





2.3 Testing process

1	Setup the EUT as shown in Section 2.4.
2	Input the commands.
3	Configure the test mode, the test channel, and the data rate.
4	Start the continuous Transmitter.
5	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 D01V05r02	2019	Guidance for performing compliance measurements on Digital Transmission System (DTS) operating under section 15.247

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

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	N/A	---
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(b)(1)	PASS	---
20dB Bandwidth	FCC 15.247(a)(1)	PASS	---
Carrier Frequency Separation	FCC 15.247(a)(1)	PASS	---
Number of Hopping Frequencies	FCC 15.247(a)(1)(iii)	PASS	---
Time of Occupancy (Dwell Time)	FCC 15.247(a)(1)(iii)	PASS	---
Antenna Requirement	FCC 15.203	PASS	---

3.4 Test Facility

USA : FCC Designation Number: CN1199

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) 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

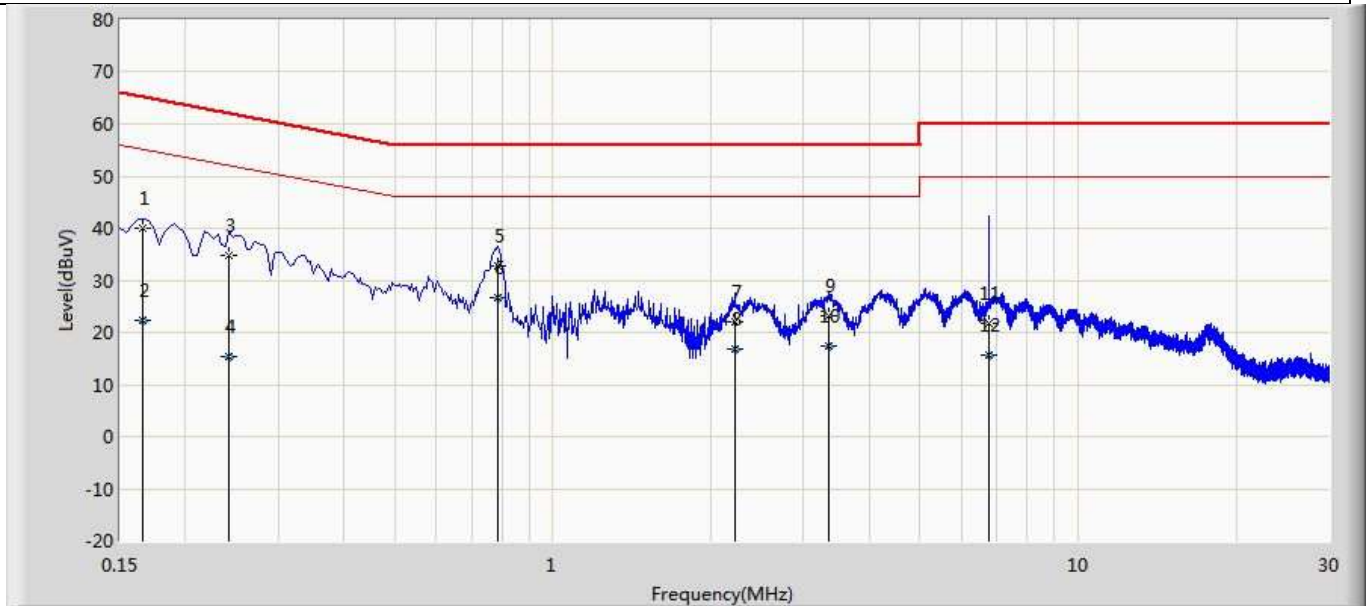
¹⁾ At the transition frequency, the lower limit applies.
²⁾ The limit decreases linearly with the logarithm of the frequency.
NOTE 1: The exclusion band for transmitters shall be considered for transmitters operating at frequencies below 30 MHz.
NOTE 2: Where the AC output port is directly connected (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
☒	ANSI C63.10-2013	6.2	Standard test method for ac power-line conducted emissions from unlicensed wireless devices

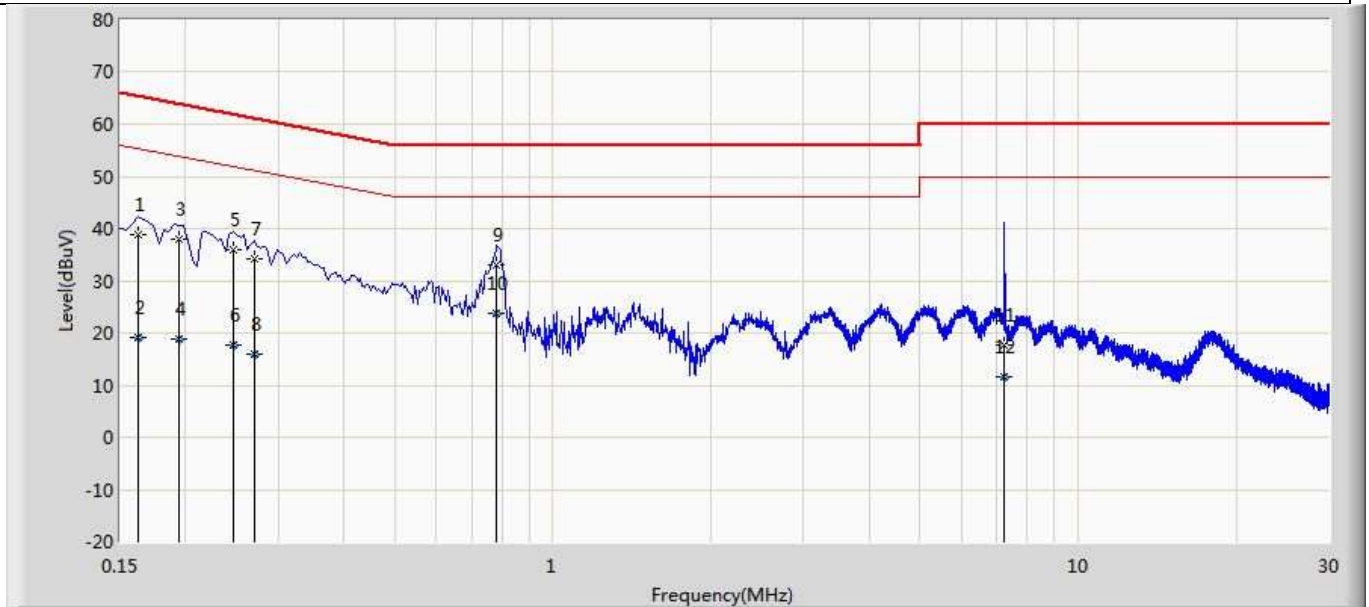
4.1.4 Test Data

Site: TR1	Time: 2019/06/25
Limit: FCC_Part15.207_CE	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Line
EUT: Barcode Scanner	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		0.166	39.891	30.257	-25.268	65.158	9.607	0.027	0.000	QP
2		0.166	22.186	12.553	-32.972	55.158	9.607	0.027	0.000	AV
3		0.242	34.827	25.196	-27.201	62.027	9.600	0.030	0.000	QP
4		0.242	15.337	5.706	-36.691	52.027	9.600	0.030	0.000	AV
5		0.786	32.728	23.072	-23.272	56.000	9.603	0.052	0.000	QP
6	*	0.786	26.739	17.084	-19.261	46.000	9.603	0.052	0.000	AV
7		2.218	22.066	12.360	-33.934	56.000	9.614	0.093	0.000	QP
8		2.218	16.759	7.053	-29.241	46.000	9.614	0.093	0.000	AV
9		3.358	23.271	13.523	-32.729	56.000	9.633	0.115	0.000	QP
10		3.358	17.441	7.693	-28.559	46.000	9.633	0.115	0.000	AV
11		6.770	21.862	12.001	-38.138	60.000	9.695	0.165	0.000	QP
12		6.770	15.721	5.861	-34.279	50.000	9.695	0.165	0.000	AV

Site: TR1	Time: 2019/06/25
Limit: FCC_Part15.207_CE	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Neutral
EUT: Barcode Scanner	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		0.162	38.860	29.241	-26.501	65.361	9.593	0.026	0.000	QP
2		0.162	19.223	9.604	-36.137	55.361	9.593	0.026	0.000	AV
3		0.194	38.004	28.377	-25.860	63.864	9.598	0.028	0.000	QP
4		0.194	18.951	9.325	-34.912	53.864	9.598	0.028	0.000	AV
5		0.246	36.078	26.449	-25.813	61.891	9.598	0.031	0.000	QP
6		0.246	17.681	8.053	-34.210	51.891	9.598	0.031	0.000	AV
7		0.270	34.127	24.496	-26.991	61.118	9.597	0.033	0.000	QP
8		0.270	15.908	6.277	-35.210	51.118	9.597	0.033	0.000	AV
9		0.782	33.040	23.397	-22.960	56.000	9.590	0.052	0.000	QP
10	*	0.782	23.674	14.032	-22.326	46.000	9.590	0.052	0.000	AV
11		7.246	17.825	7.947	-42.175	60.000	9.707	0.171	0.000	QP
12		7.246	11.605	1.727	-38.395	50.000	9.707	0.171	0.000	AV

4.2 Emissions in restricted frequency bands	VERDICT: PASS
--	----------------------

4.2.1 Limit			
Standard		FCC Part 15 Subpart C Paragraph 15.207	
Restricted Bands of operation			
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			

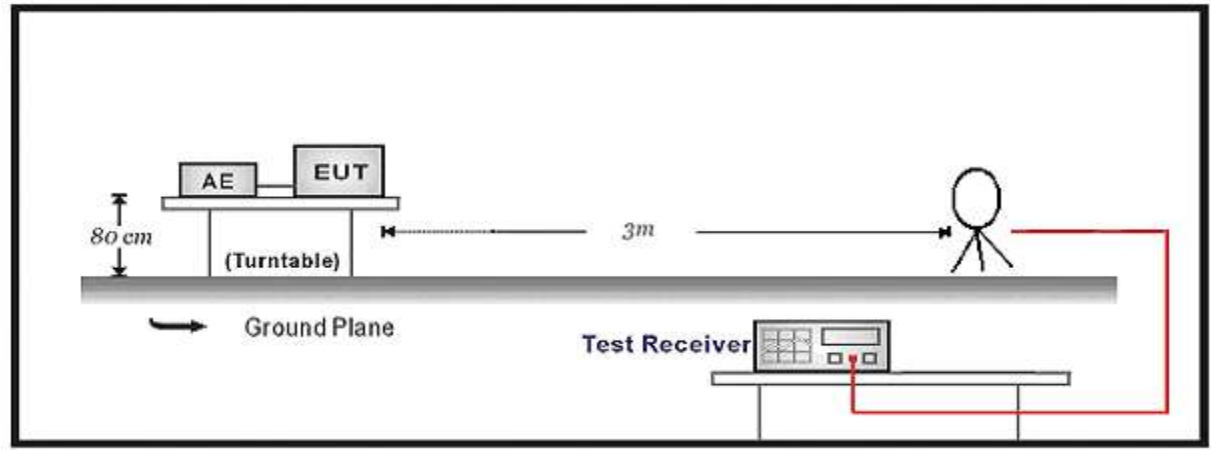
Restricted Band Emissions Limit			
Frequency (MHz)	Field strength (μ V/m)	Field strength (dB μ V/m)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300 _(Note 1)
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30 _(Note 1)
1.705 - 30	30	29.5	30 _(Note 1)
30 - 88	100	40	3 _(Note 2)
88 - 216	150	43.5	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).

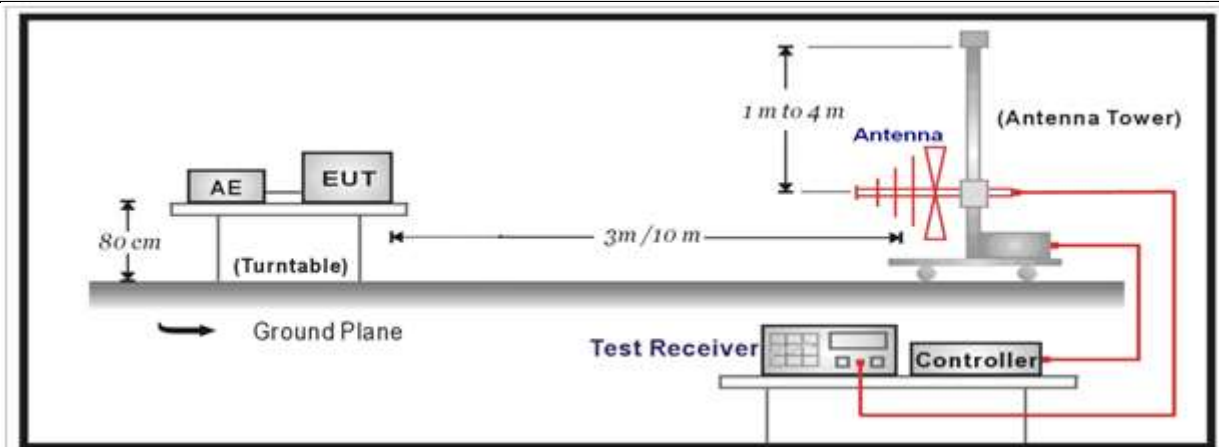
Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated 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

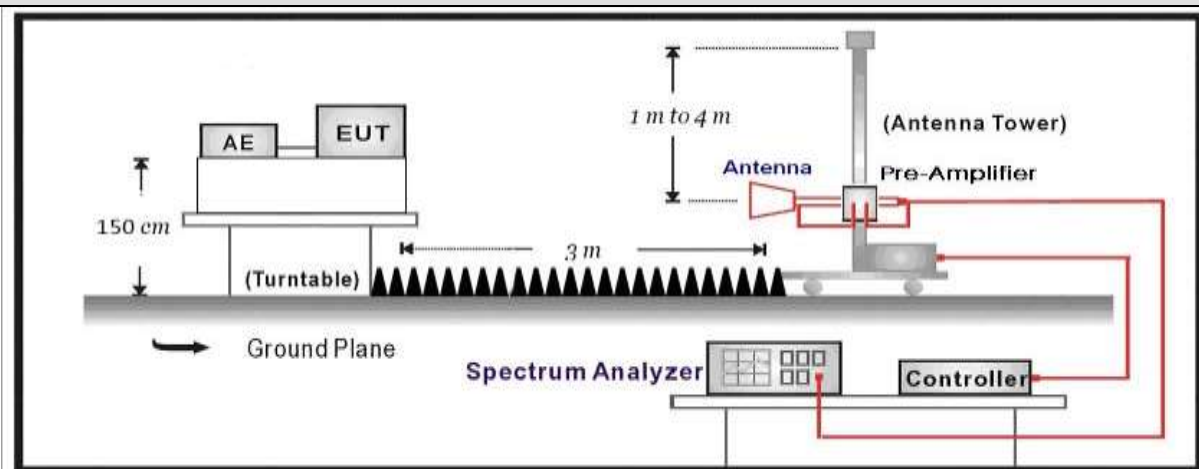
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:

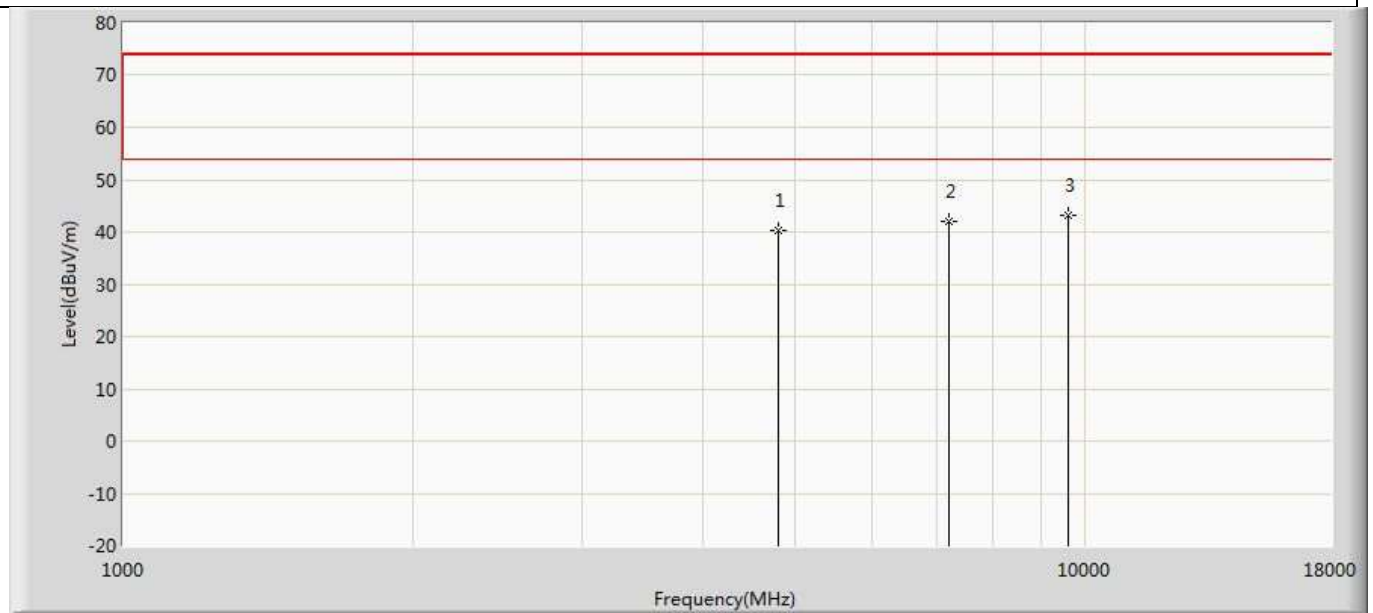


4.2.3 Test Procedure

	References Rule		Chapter	Description
☒	ANSI C63.10		11.12	Emissions in restricted frequency bands
	☒	ANSI C63.10	11.12.1	Radiated emission measurements
	☒	ANSI C63.10	11.12.2.7	Radiated spurious emission test
	☒	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
	☒	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
	☒	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

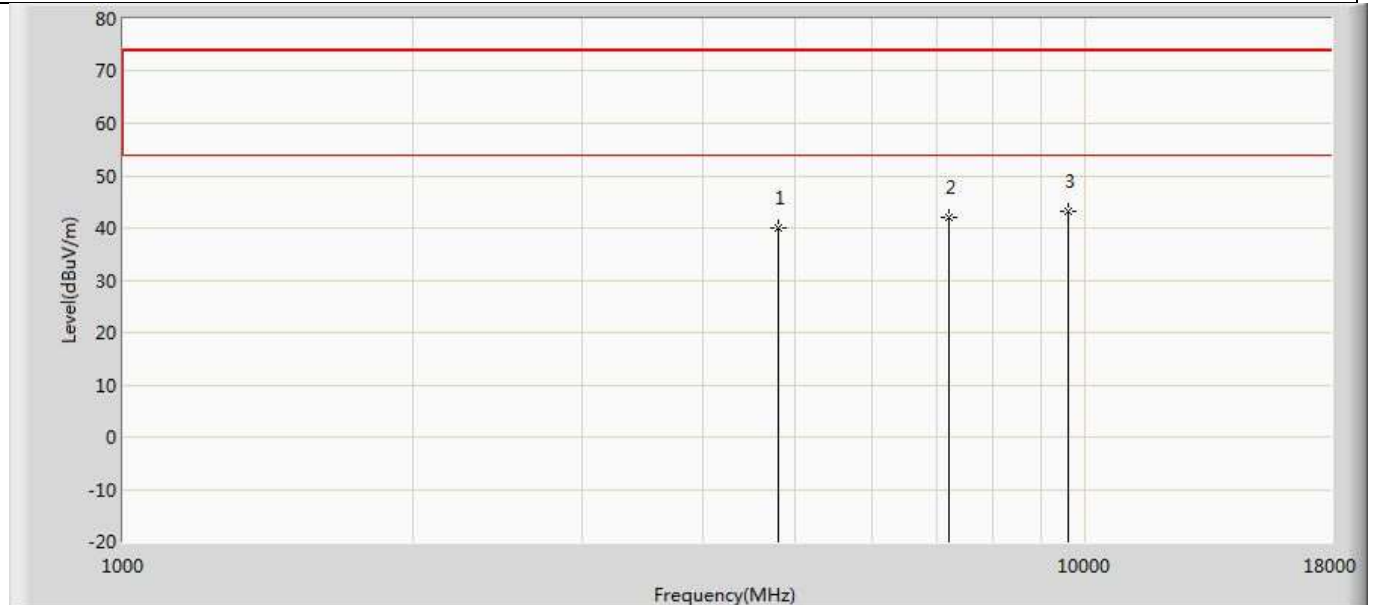
4.2.4 Test Data

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 22:15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 1:Transmit at 2402MHz by DH5	



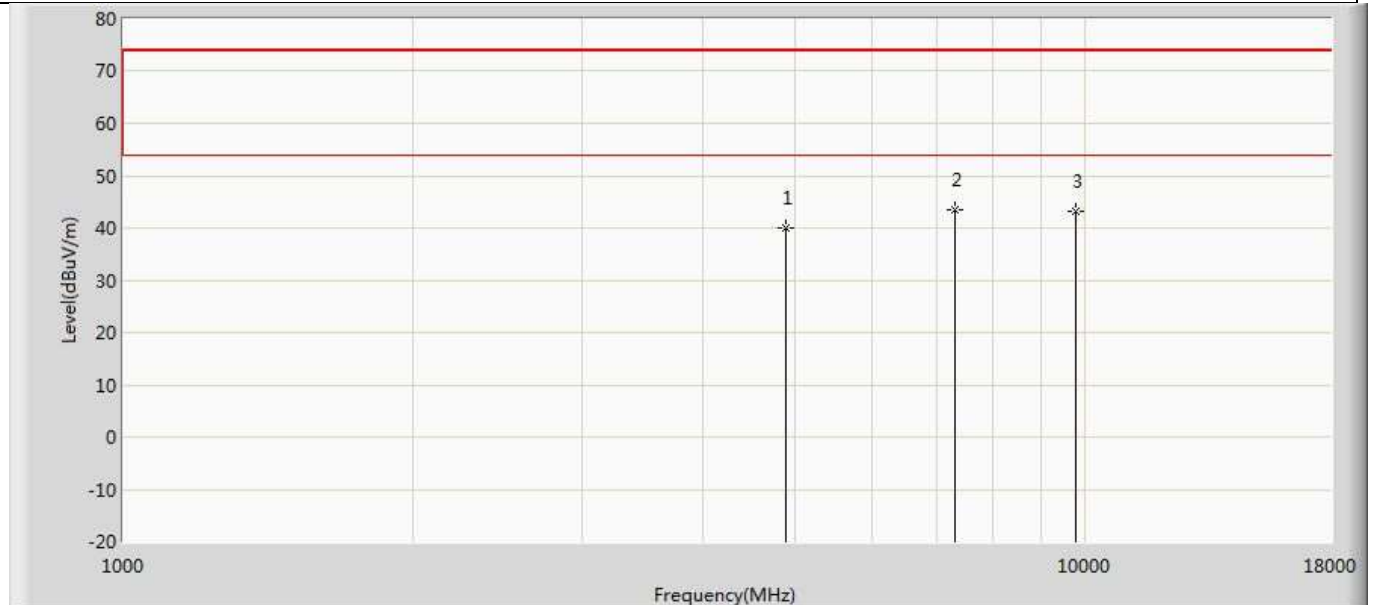
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	40.250	35.610	-33.750	74.000	4.639	PK
2		7206.000	42.170	34.045	-31.830	74.000	8.125	PK
3	*	9608.000	43.151	32.769	-30.849	74.000	10.382	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 22:15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 1:Transmit at 2402MHz by DH5	



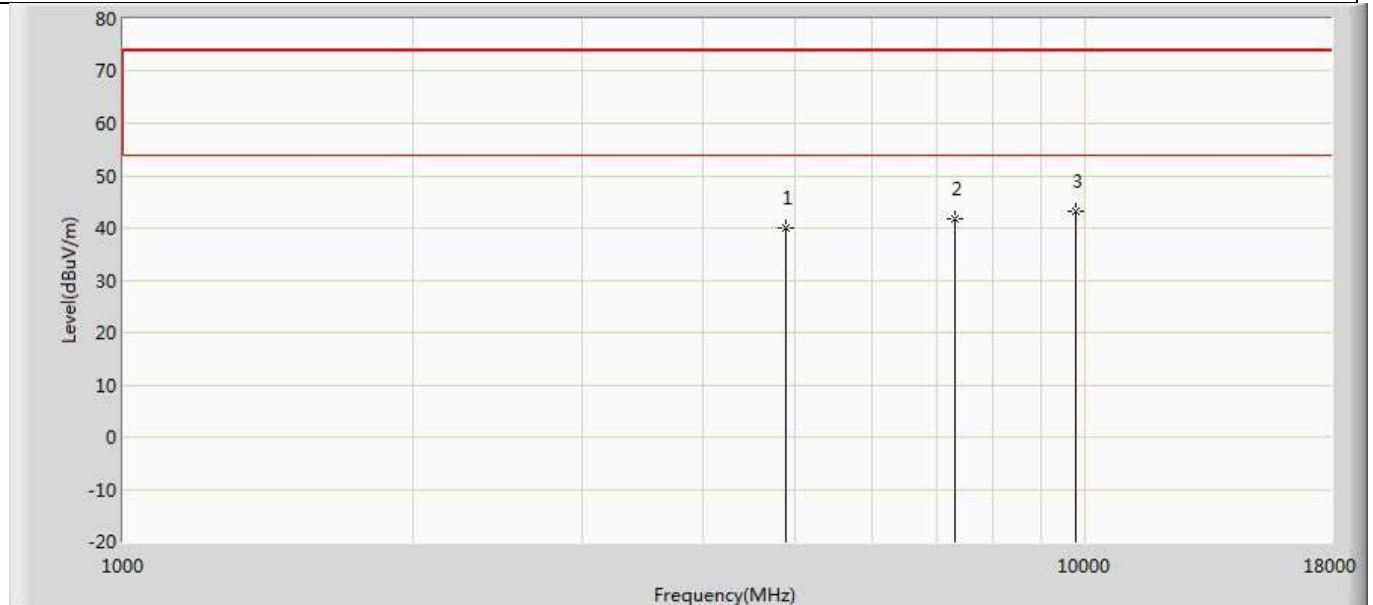
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	40.005	35.365	-33.995	74.000	4.639	PK
2		7206.000	42.161	34.036	-31.839	74.000	8.125	PK
3	*	9608.000	43.179	32.797	-30.821	74.000	10.382	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 22:15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 1:Transmit at 2441MHz by DH5	



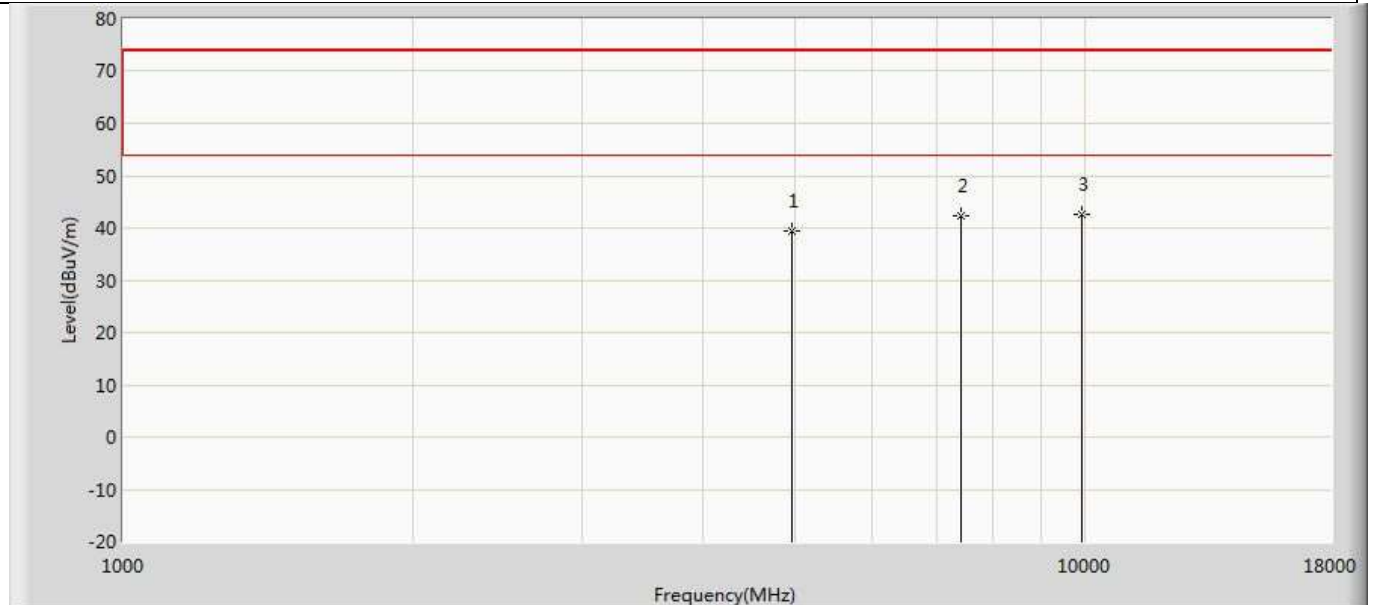
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	40.093	35.209	-33.907	74.000	4.884	PK
2	*	7323.000	43.602	35.356	-30.398	74.000	8.246	PK
3		9764.000	43.277	32.620	-30.723	74.000	10.658	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 22:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 1:Transmit at 2441MHz by DH5	



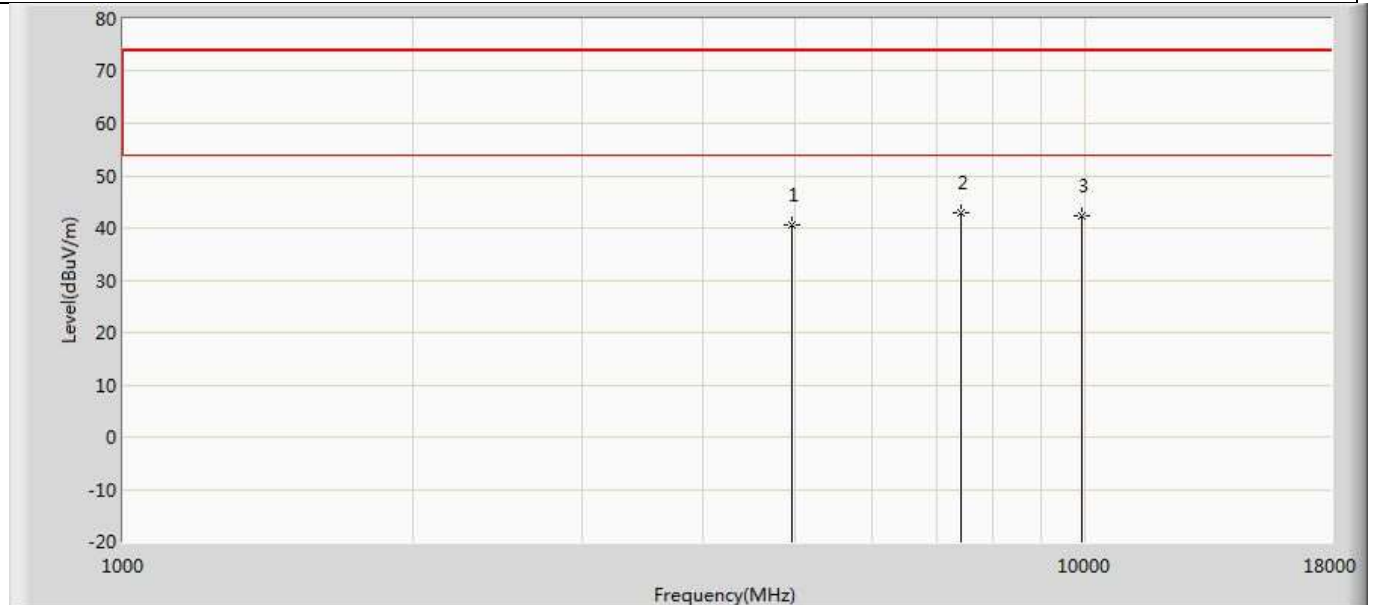
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	40.019	35.135	-33.981	74.000	4.884	PK
2		7323.000	41.743	33.497	-32.257	74.000	8.246	PK
3	*	9764.000	43.206	32.549	-30.794	74.000	10.658	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 22:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 1:Transmit at 2480MHz by DH5	



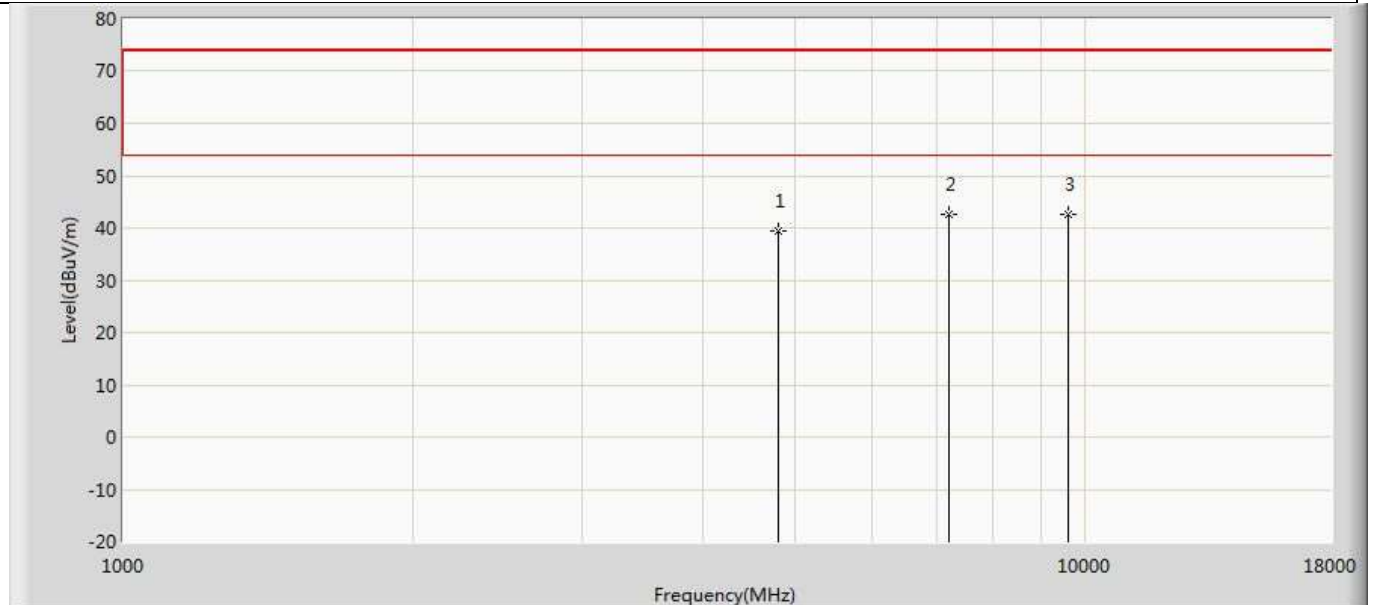
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	39.461	34.452	-34.539	74.000	5.009	PK
2		7440.000	42.417	34.045	-31.583	74.000	8.372	PK
3	*	9920.000	42.660	31.974	-31.340	74.000	10.686	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 22:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 1:Transmit at 2480MHz by DH5	



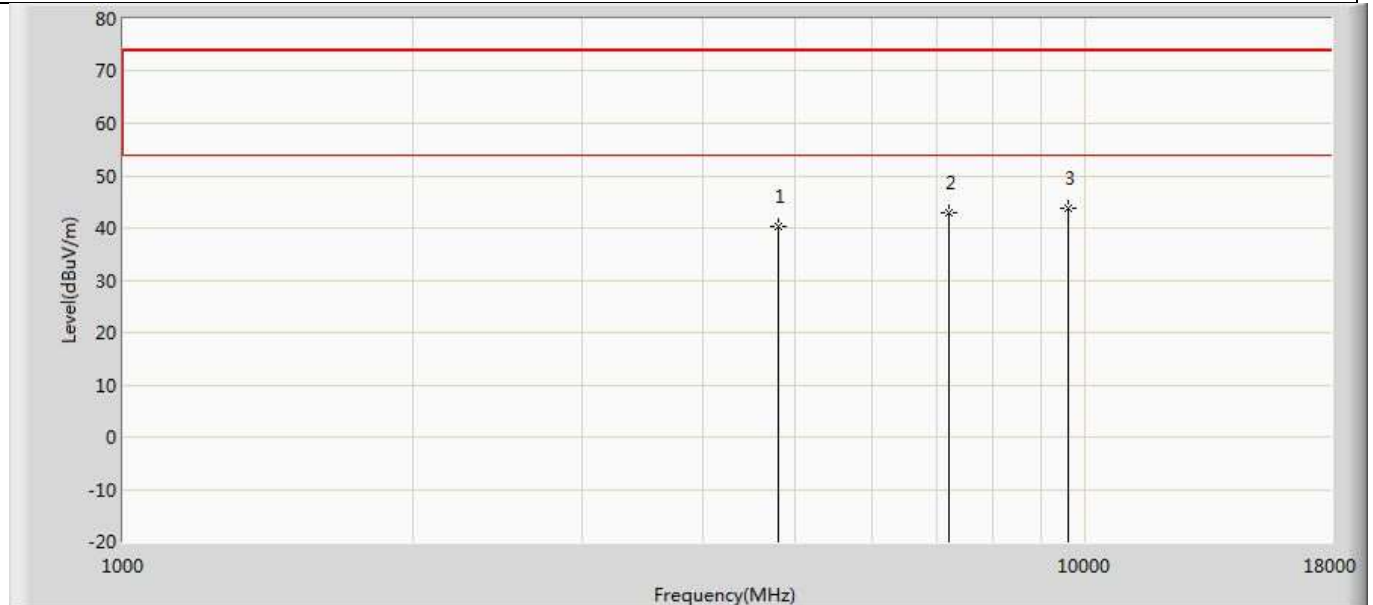
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	40.472	35.463	-33.528	74.000	5.009	PK
2	*	7440.000	42.762	34.390	-31.238	74.000	8.372	PK
3		9920.000	42.404	31.718	-31.596	74.000	10.686	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 22:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 2:Transmit at 2402MHz by 2DH5	



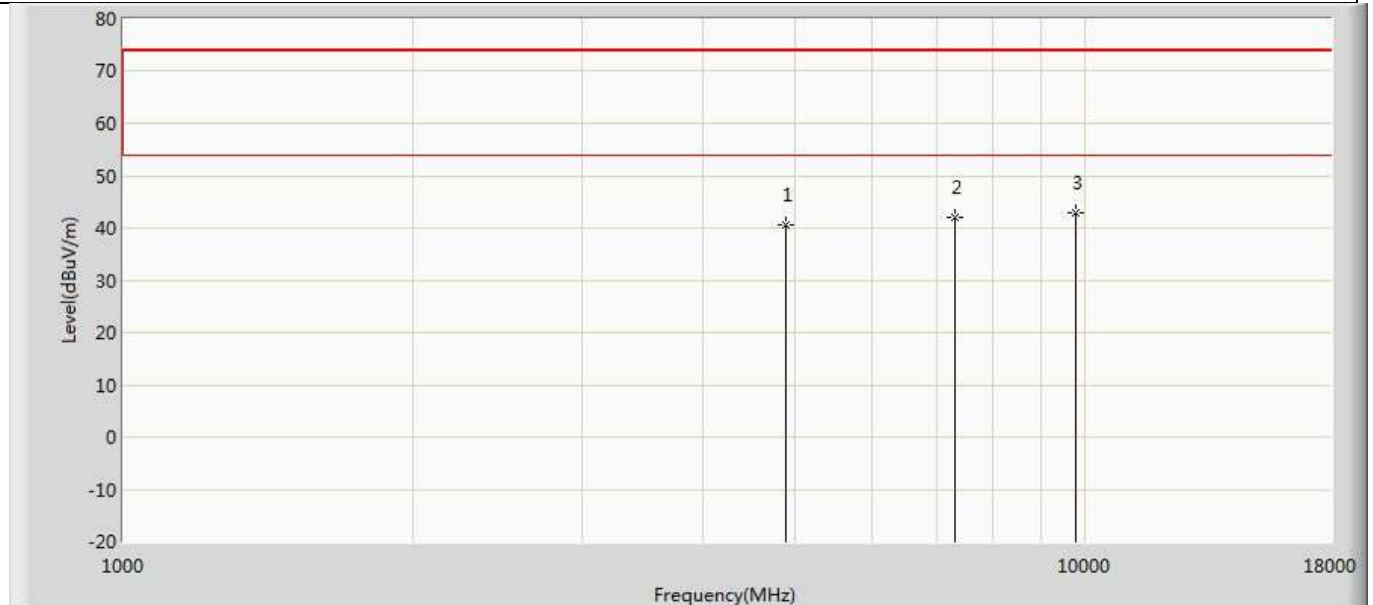
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	39.475	34.835	-34.525	74.000	4.639	PK
2		7206.000	42.469	34.344	-31.531	74.000	8.125	PK
3	*	9608.000	42.541	32.159	-31.459	74.000	10.382	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 22:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 2:Transmit at 2402MHz by 2DH5	



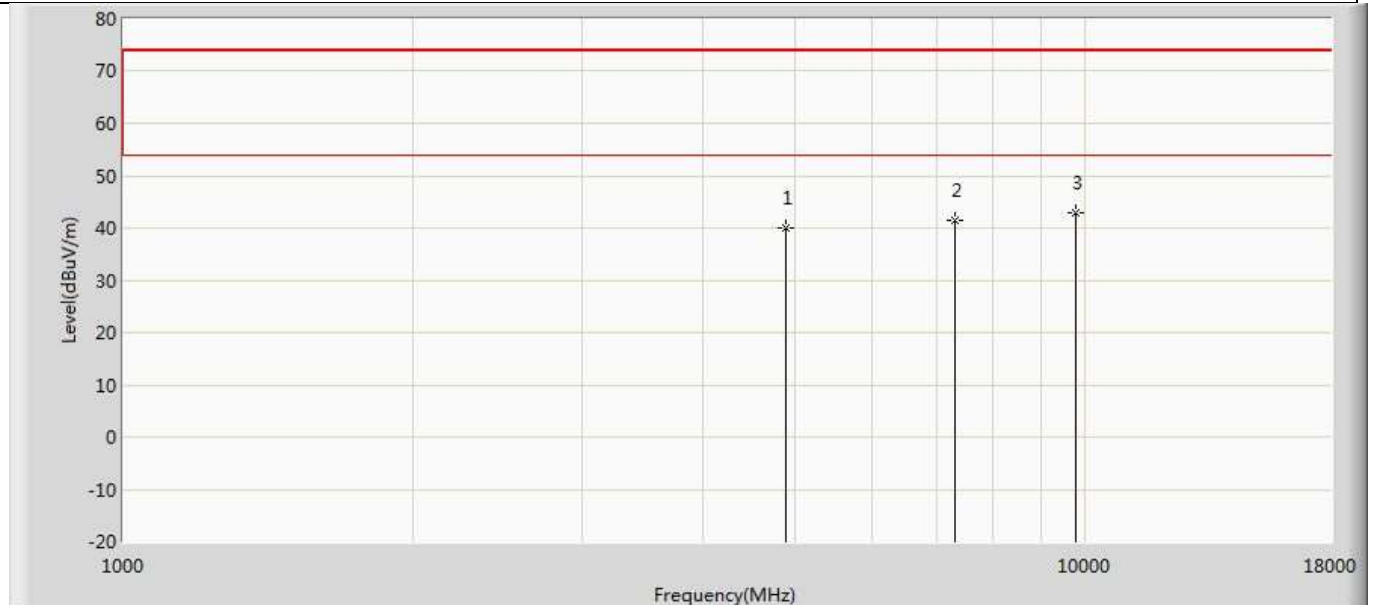
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	40.215	35.575	-33.785	74.000	4.639	PK
2		7206.000	42.937	34.812	-31.063	74.000	8.125	PK
3	*	9608.000	43.840	33.458	-30.160	74.000	10.382	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 22:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 2:Transmit at 2441MHz by 2DH5	



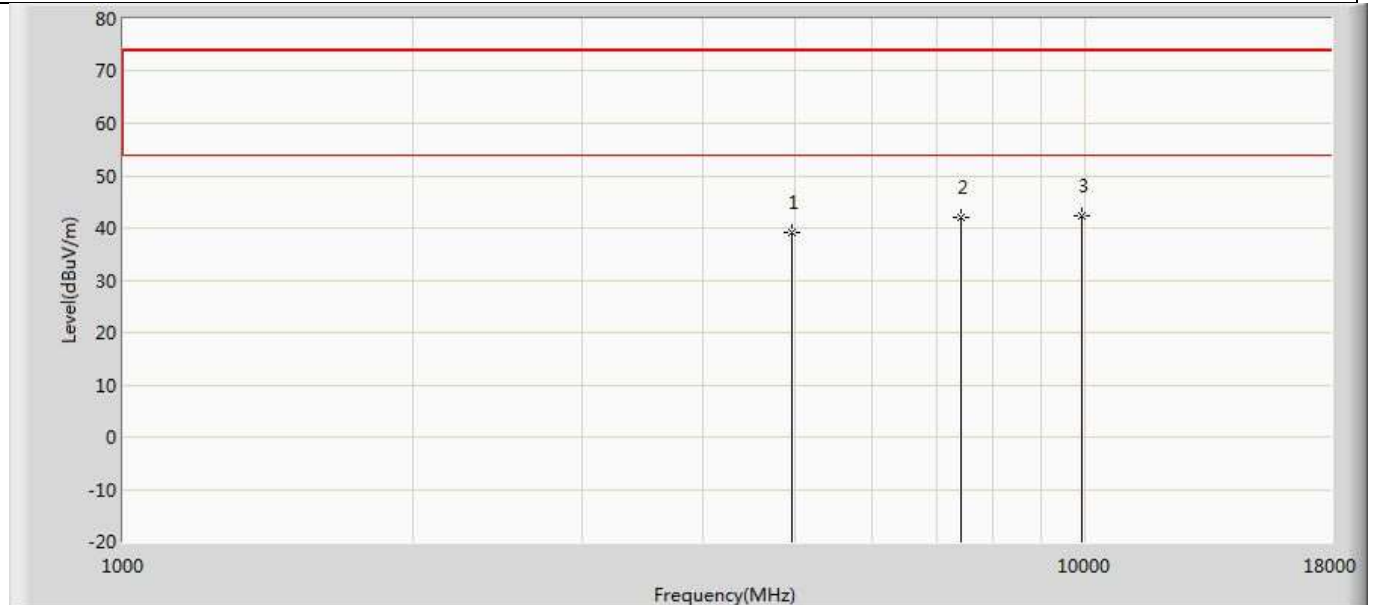
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	40.545	35.661	-33.455	74.000	4.884	PK
2		7323.000	42.140	33.894	-31.860	74.000	8.246	PK
3	*	9764.000	42.995	32.338	-31.005	74.000	10.658	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 22:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 2:Transmit at 2441MHz by 2DH5	



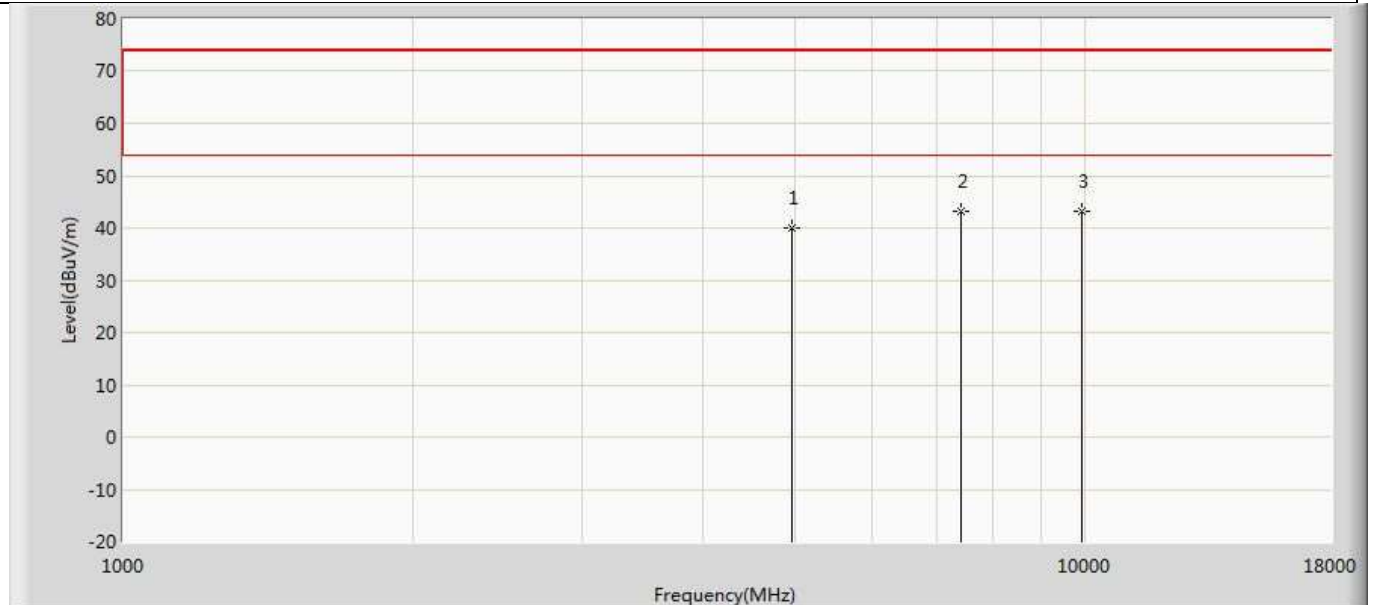
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	39.889	35.005	-34.111	74.000	4.884	PK
2		7323.000	41.437	33.191	-32.563	74.000	8.246	PK
3	*	9764.000	42.879	32.222	-31.121	74.000	10.658	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 22:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 2:Transmit at 2480MHz by 2DH5	



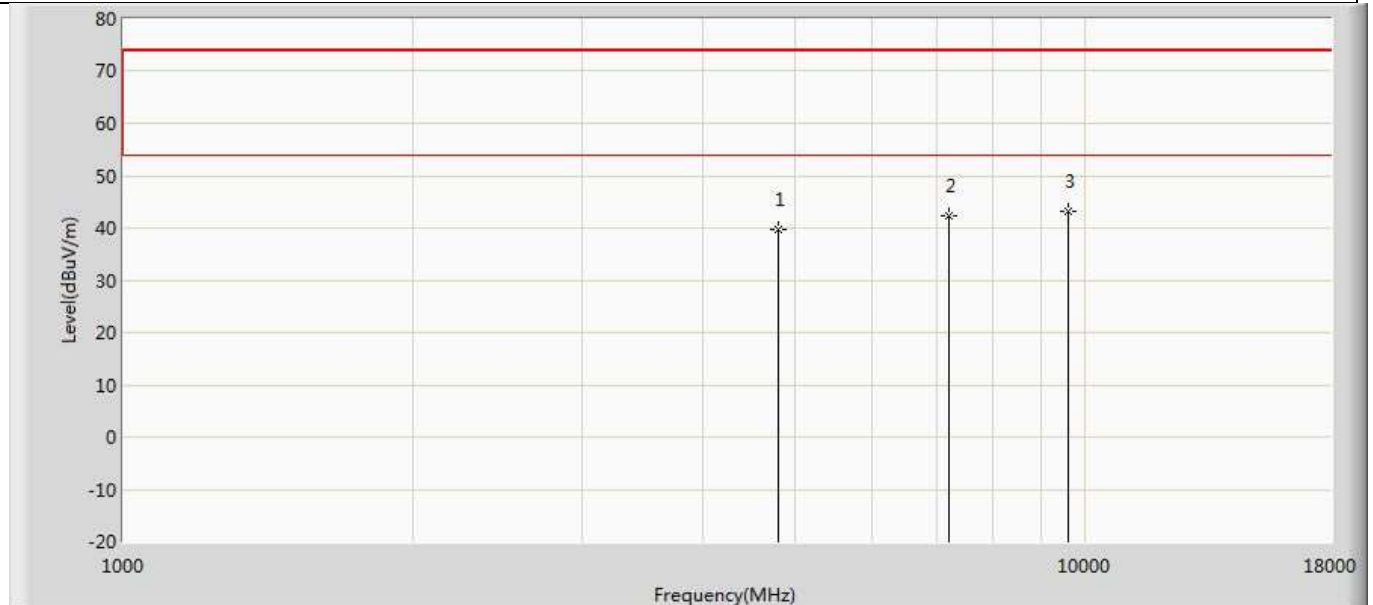
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	39.223	34.214	-34.777	74.000	5.009	PK
2		7440.000	41.963	33.591	-32.037	74.000	8.372	PK
3	*	9920.000	42.270	31.584	-31.730	74.000	10.686	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 22:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 2:Transmit at 2480MHz by 2DH5	



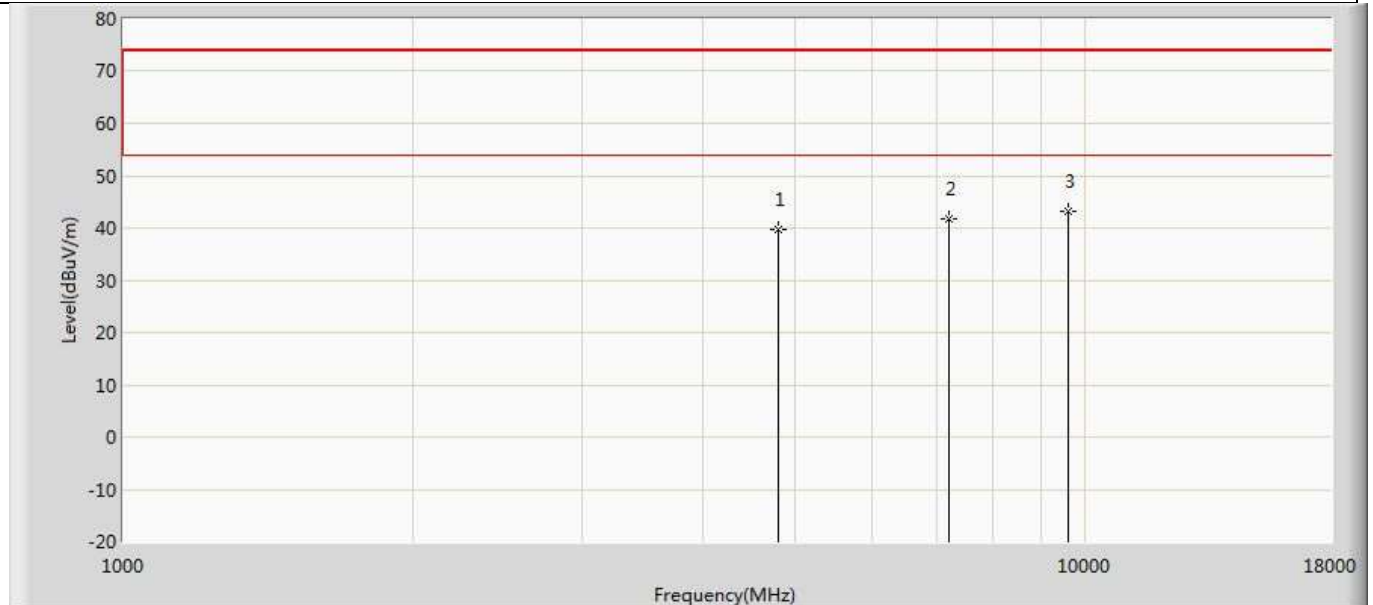
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	40.071	35.062	-33.929	74.000	5.009	PK
2		7440.000	43.091	34.719	-30.909	74.000	8.372	PK
3	*	9920.000	43.172	32.486	-30.828	74.000	10.686	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 22:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 3:Transmit at 2402MHz by 3DH5	



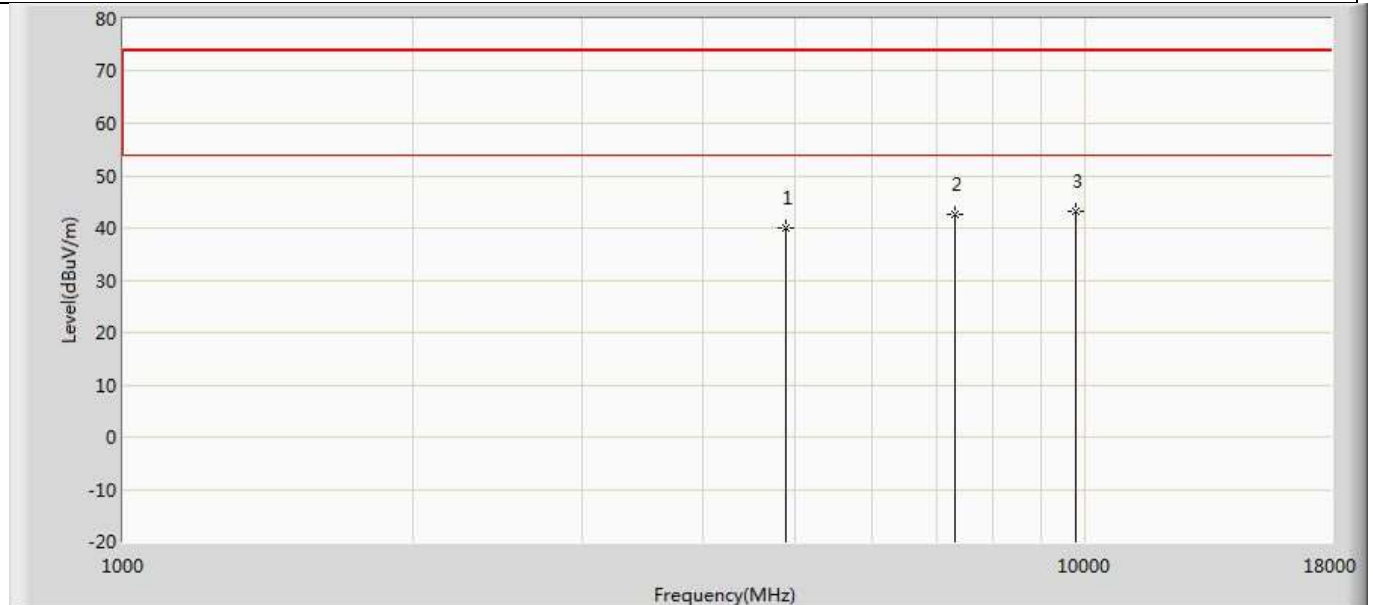
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	39.636	34.996	-34.364	74.000	4.639	PK
2		7206.000	42.327	34.202	-31.673	74.000	8.125	PK
3	*	9608.000	43.096	32.714	-30.904	74.000	10.382	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 22:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 3:Transmit at 2402MHz by 3DH5	



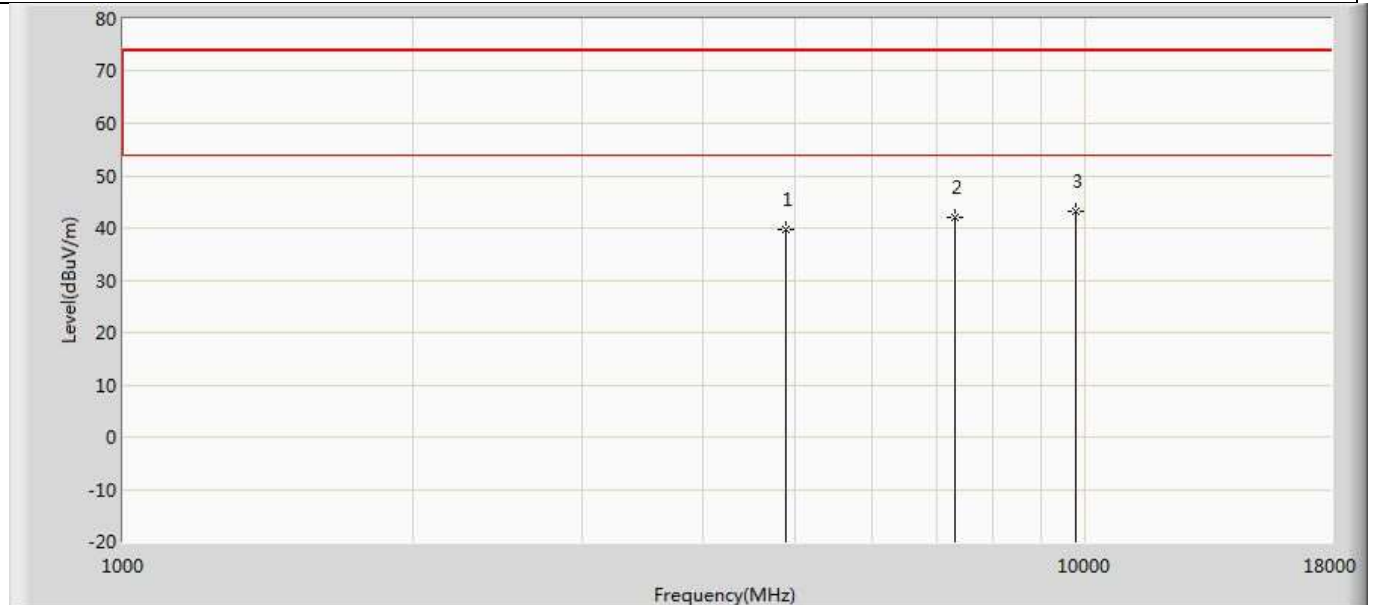
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	39.790	35.150	-34.210	74.000	4.639	PK
2		7206.000	41.782	33.657	-32.218	74.000	8.125	PK
3	*	9608.000	43.313	32.931	-30.687	74.000	10.382	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 22:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 3:Transmit at 2441MHz by 3DH5	



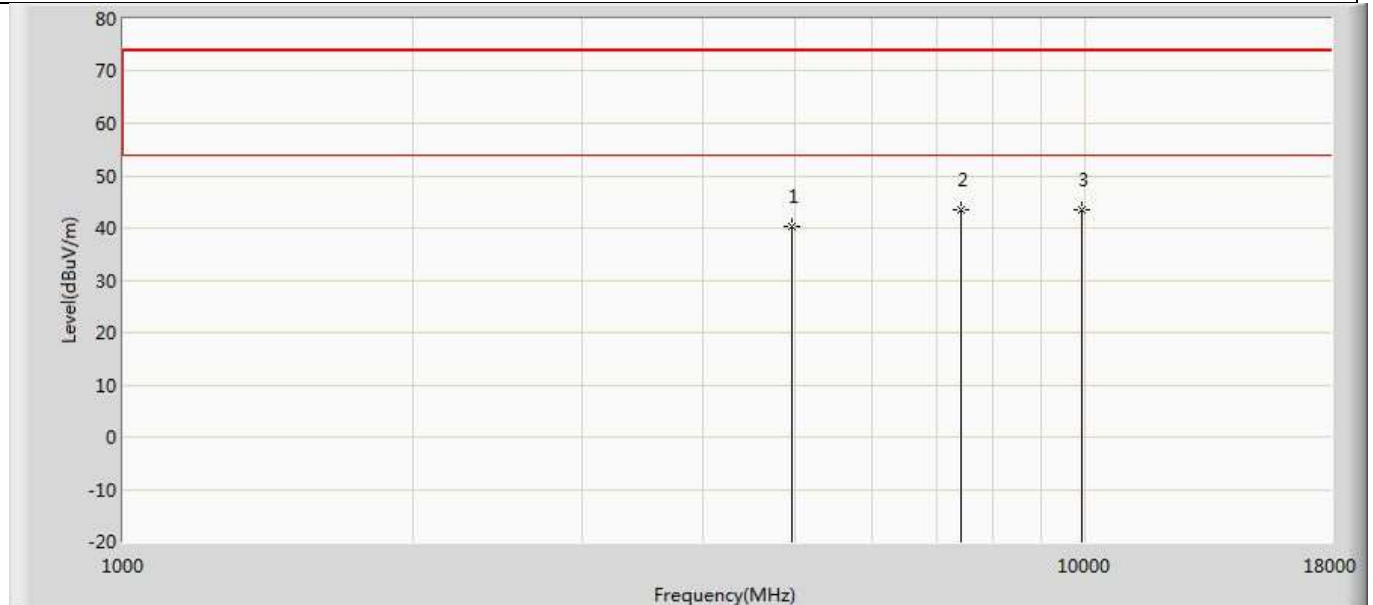
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	39.922	35.038	-34.078	74.000	4.884	PK
2		7323.000	42.564	34.318	-31.436	74.000	8.246	PK
3	*	9764.000	43.132	32.475	-30.868	74.000	10.658	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 22:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 3:Transmit at 2441MHz by 3DH5	



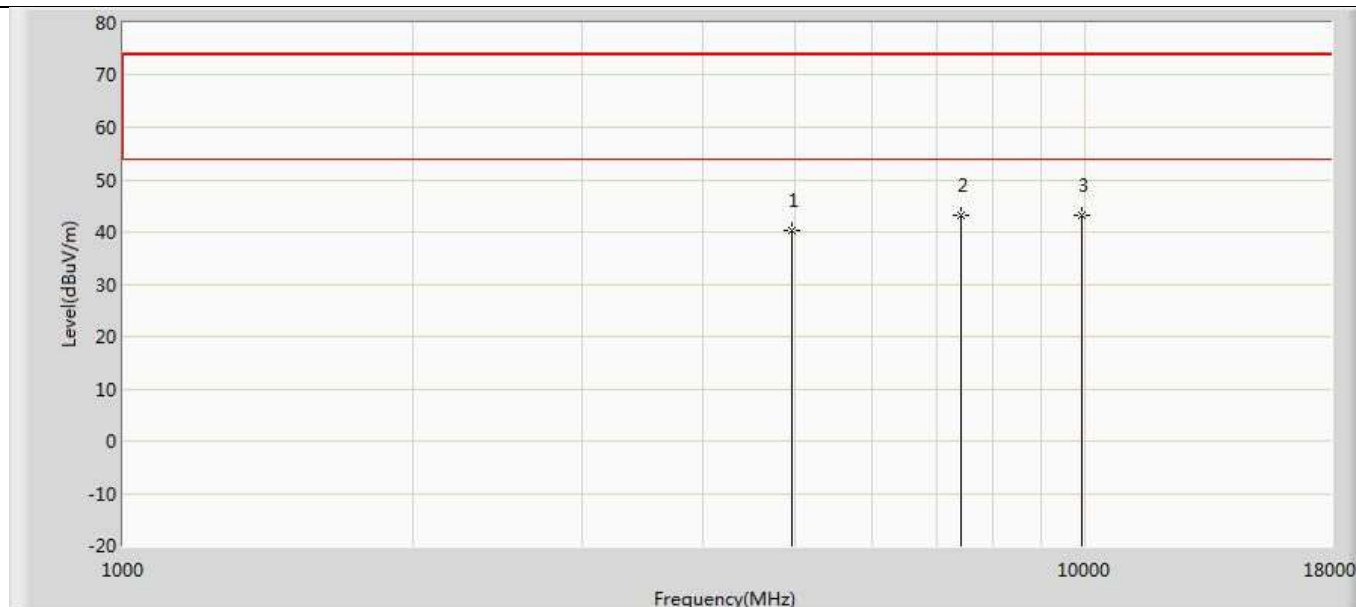
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	39.612	34.728	-34.388	74.000	4.884	PK
2		7323.000	42.071	33.825	-31.929	74.000	8.246	PK
3	*	9764.000	43.124	32.467	-30.876	74.000	10.658	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 22:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 3:Transmit at 2480MHz by 3DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	40.249	35.240	-33.751	74.000	5.009	PK
2	*	7440.000	43.495	35.123	-30.505	74.000	8.372	PK
3		9920.000	43.462	32.776	-30.538	74.000	10.686	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 22:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 3:Transmit at 2480MHz by 3DH5	



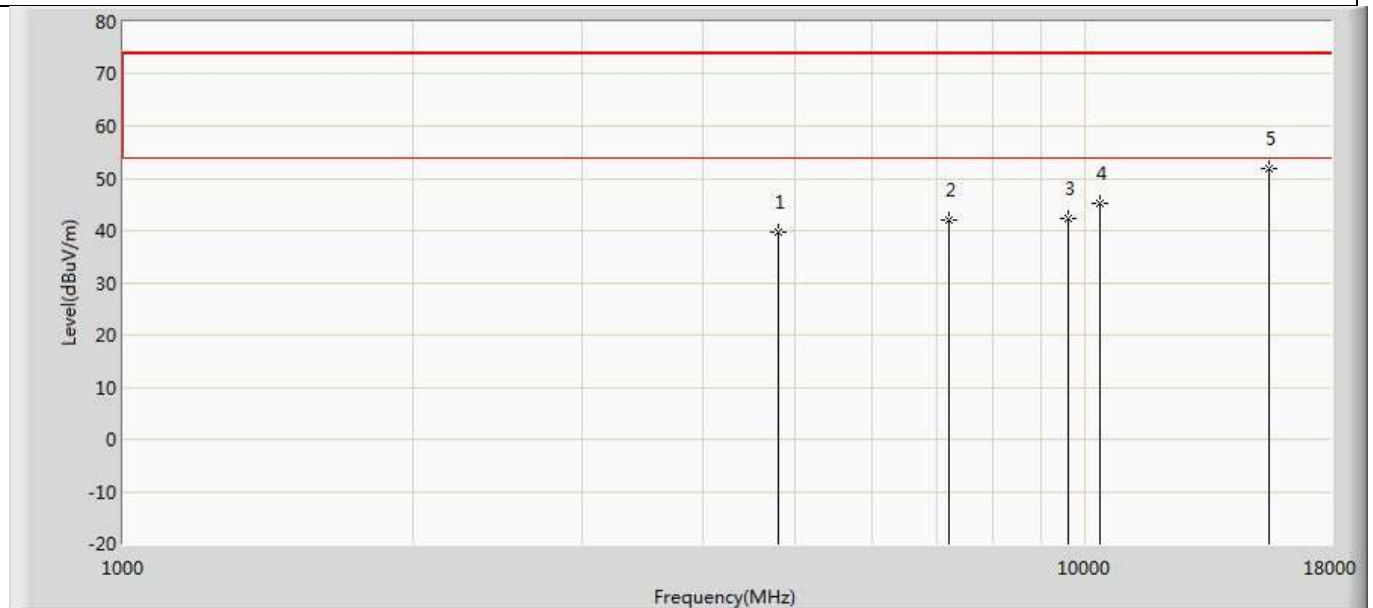
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	40.233	35.224	-33.767	74.000	5.009	PK
2	*	7440.000	43.281	34.909	-30.719	74.000	8.372	PK
3		9920.000	43.183	32.497	-30.817	74.000	10.686	PK

Note:

1. Measured Level = Reading Level + Factor.
2. The test frequency range, 9kHz~30MHz, 18GHz~26GHz, both of the worst case are 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.

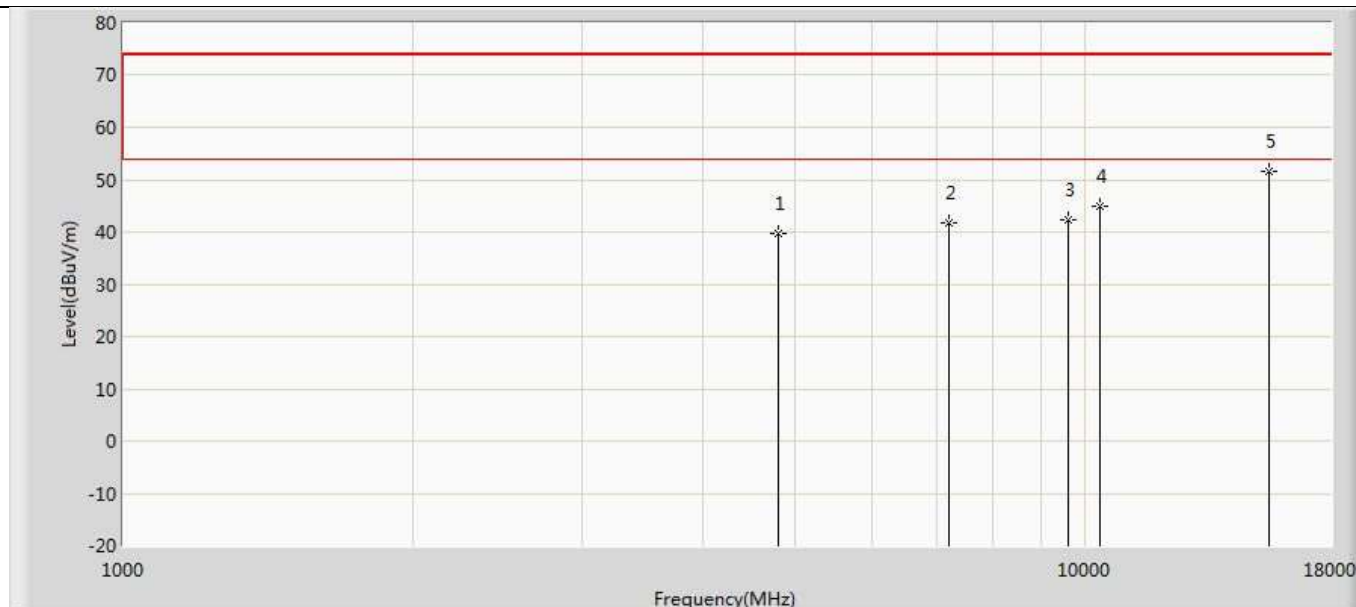
The worst case of Simultaneous Radiated Emission:

Engineer: Pawn	
Site: AC5	Time: 2019/07/03 - 10:59
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT:Barcode Scanner	Power: AC 120V/60Hz
Note: Mode 8:Transmit at 2402MHz by BLE & 5180MHz by 802.11A	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	39.783	35.266	-34.217	74.000	4.517	PK
2		7206.000	42.115	34.568	-31.885	74.000	7.547	PK
3		9608.000	42.456	33.274	-31.544	74.000	9.182	PK
4		10360.000	45.158	33.589	-28.842	74.000	11.569	PK
5	*	15540.000	51.781	34.258	-22.219	74.000	17.523	PK

Engineer: Pawn	
Site: AC5	Time: 2019/07/03 - 12:03
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT:Barcode Scanner	Power: AC 120V/60Hz
Note: Mode 8:Transmit at 2402MHz by BLE & 5180MHz by 802.11A	



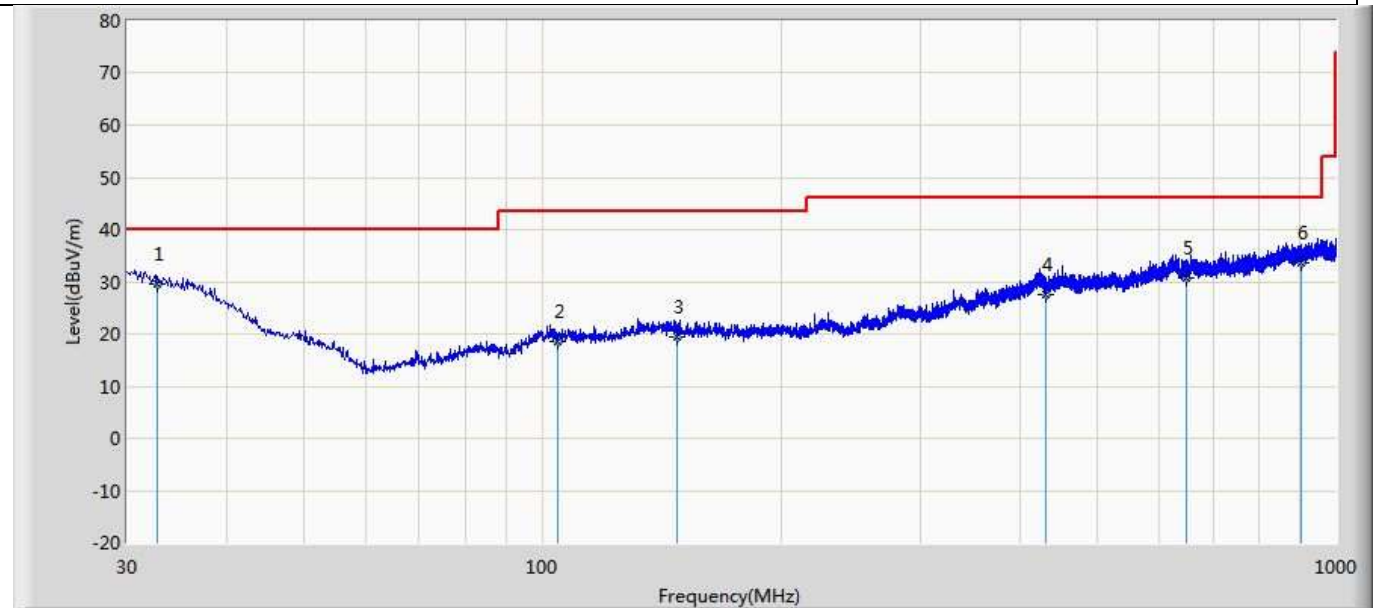
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	39.642	35.125	-34.358	74.000	4.517	PK
2		7206.000	41.878	34.331	-32.122	74.000	7.547	PK
3		9608.000	42.306	33.124	-31.694	74.000	9.182	PK
4		10360.000	45.010	33.441	-28.990	74.000	11.569	PK
5	*	15540.000	51.538	34.015	-22.462	74.000	17.523	PK

Note:

1. Measured Level = Reading Level + Factor.
2. The test frequency range, 9kHz~30MHz, 18GHz~26GHz, both of the worst case are 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.

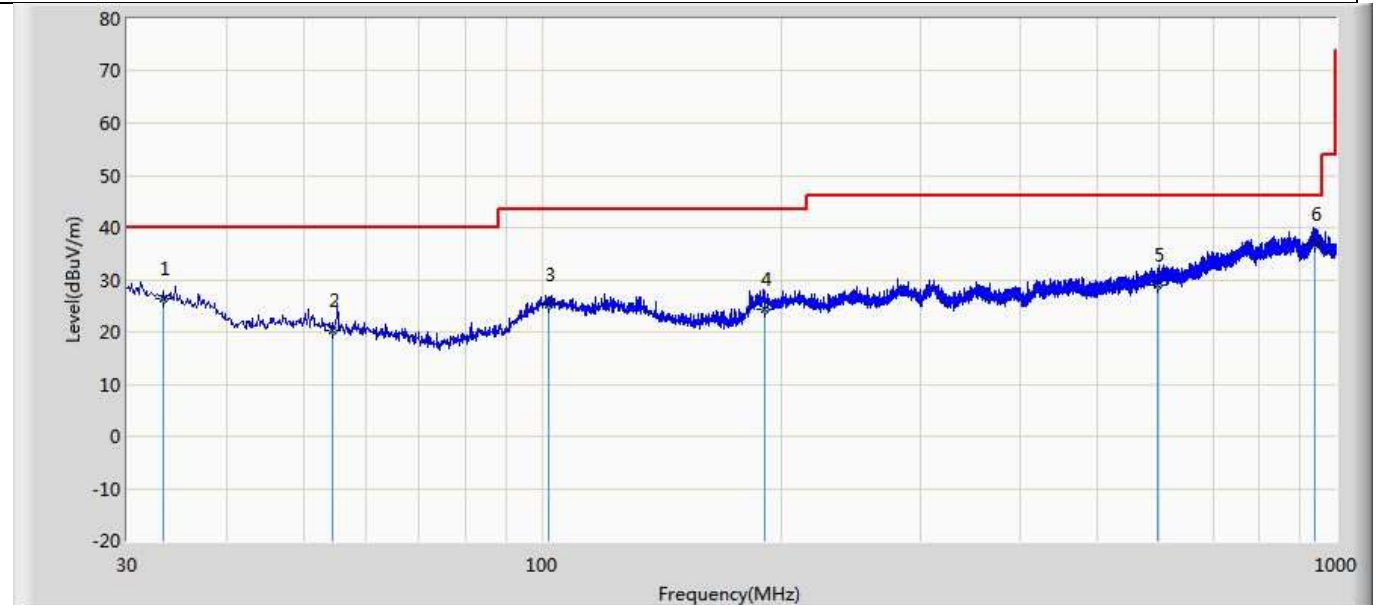
The worst case of Radiated Emission below 1GHz:

Engineer: Pawn	
Site: AC3	Time: 2019/06/25
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC3_3m (30-1000MHz)	Polarity: Horizontal
EUT: Barcode Scanner	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)	Type
1	*	32.789	29.573	3.100	-10.427	40.000	19.968	6.470	QP
2		104.811	18.499	2.300	-25.001	43.500	9.299	6.871	QP
3		148.098	19.406	2.000	-24.094	43.500	10.239	7.071	QP
4		430.367	27.509	0.800	-18.491	46.000	18.646	7.986	QP
5		648.981	30.733	2.000	-15.267	46.000	20.094	8.544	QP
6		904.576	33.737	1.600	-12.263	46.000	22.968	9.105	QP

Engineer: Pawn	
Site: AC3	Time: 2019/06/25
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC3_3m (30-1000MHz)	Polarity: Vertical
EUT: Barcode Scanner	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)	Type
1		33.395	26.325	3.300	-13.675	40.000	16.533	6.475	QP
2		54.493	20.200	3.100	-19.800	40.000	10.430	6.620	QP
3		101.780	25.170	3.000	-18.330	43.500	15.236	6.866	QP
4		190.656	24.264	3.000	-19.236	43.500	14.014	7.249	QP
5		596.480	28.901	1.800	-17.099	46.000	18.678	8.420	QP
6	*	939.739	36.778	2.500	-9.222	46.000	25.039	9.182	QP

Note:

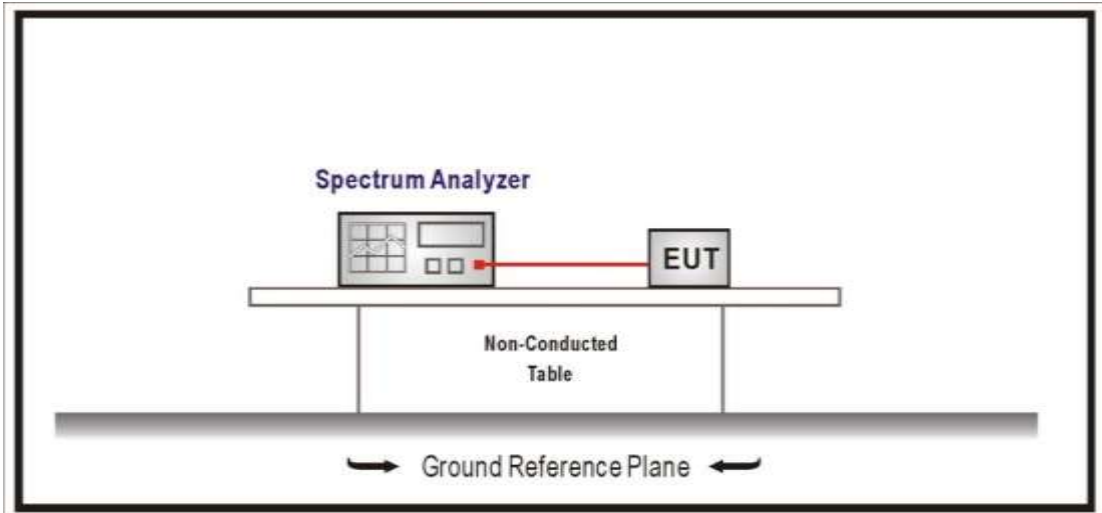
1. " * ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

4.3 Emissions in non-restricted frequency band	VERDICT: PASS
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4.3.1 Limit	
Standard	FCC Part 15 Subpart C Paragraph 15.247(d)
RF Output power (Detection methods)	Limit(dB)
RF Output power(Average detector)	30dBc(Note1)
RF Output power(PK detector)	20dBc(Note2)

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

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

4.3.2 Test Setup


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

4.3.4 Test Data

Mode	Channel	Test Frequency (MHz)	Maximum In-Band PSD[a] (dBm/100kHz)	Frequency (MHz)	Out-Band PSD[b] (dBm/100kHz)	[a]-[b] (dB)	Limit (dB)	Result
1	00	2402	5.960	2400.00	-46.811	52.771	>20	Pass
	79	2480	5.960	2500.00	-46.379	52.339	>20	Pass
2	00	2402	1.119	2400.00	-47.048	48.167	>20	Pass
	79	2480	0.825	2500.00	-48.612	49.437	>20	Pass
3	00	2402	0.998	2400.00	-47.749	48.747	>20	Pass
	79	2480	1.040	2500.00	-47.814	48.854	>20	Pass
4	00	2402	-1.388	2400.00	-44.737	43.349	>20	Pass
	79	2480	-1.045	2500.00	-44.463	43.418	>20	Pass

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

Mode 4 CH00(2402MHz)



Mode 1 CH39(2480MHz)

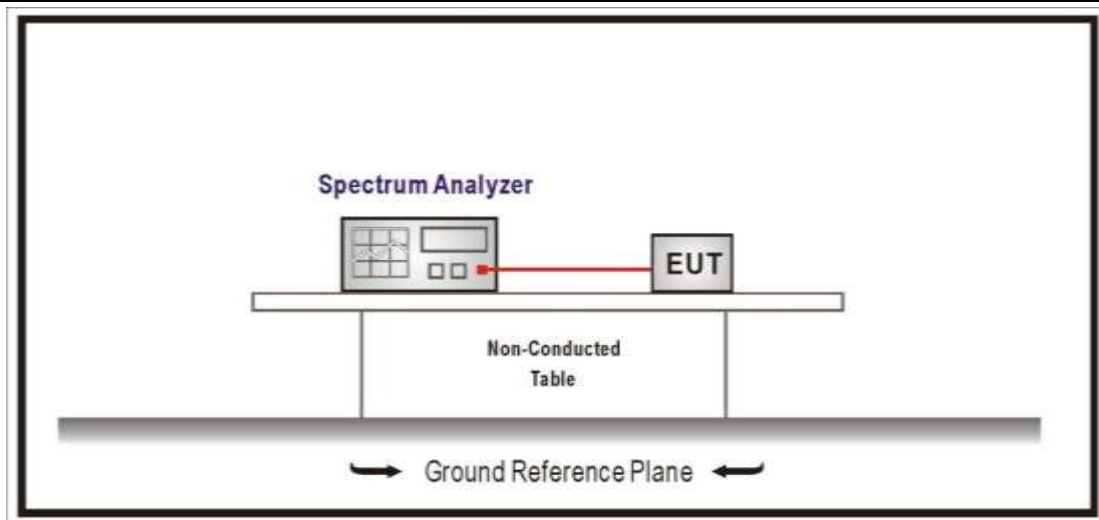


4.4 Duty cycle	VERDICT: PASS
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4.4.1 Limit

N/A

4.4.2 Test Setup



4.4.3 Test Procedure

References Rule	Chapter	Description
☒ 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	Tx On + Tx Off (ms)	Duty Cycle
1	N/A	N/A	10Hz	N/A	N/A
2	N/A	N/A	10Hz	N/A	N/A
3	N/A	N/A	10Hz	N/A	N/A

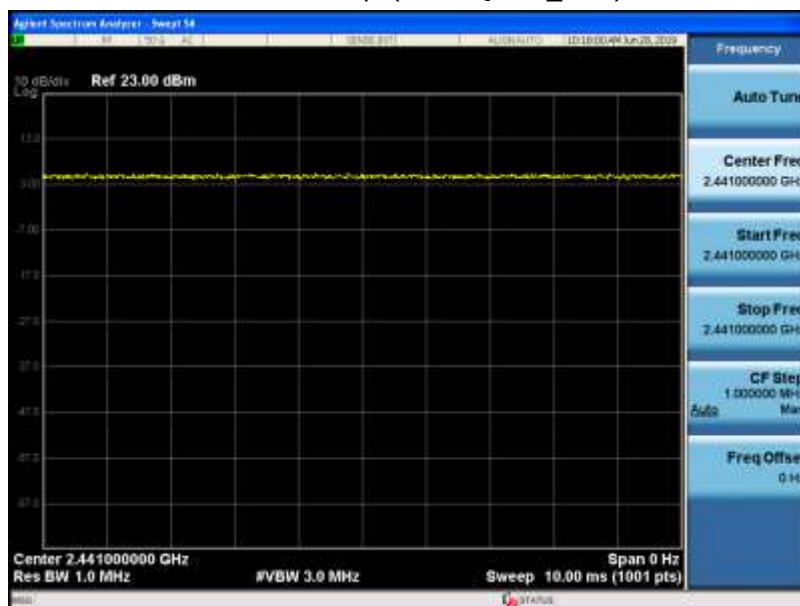
Note 1: T means the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

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.

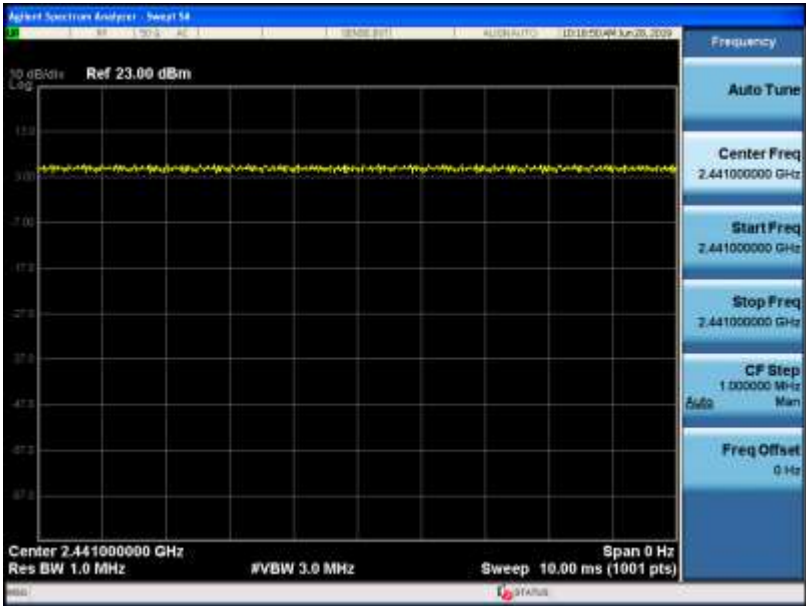
Transmit-1Mbps(GFSK_DH5)



Transmit-2Mbps(Pi/4 DQPSK_DH5)



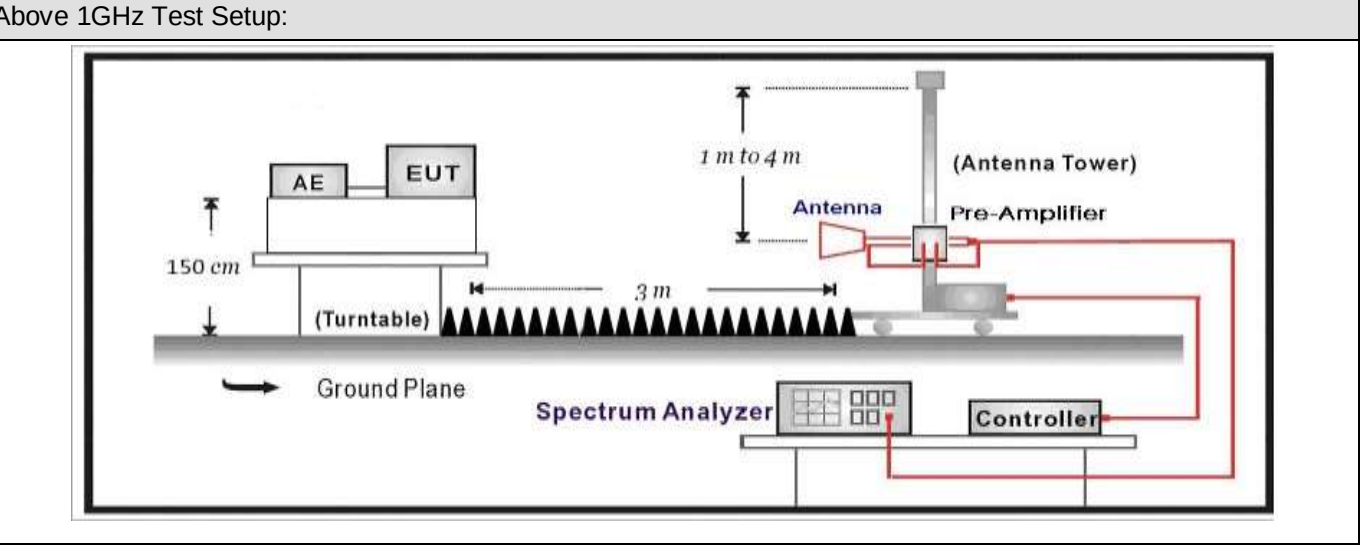
Transmit-3Mbps(8DPSK_DH5)



4.5 Radiated Emission Band Edge	VERDICT: PASS
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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

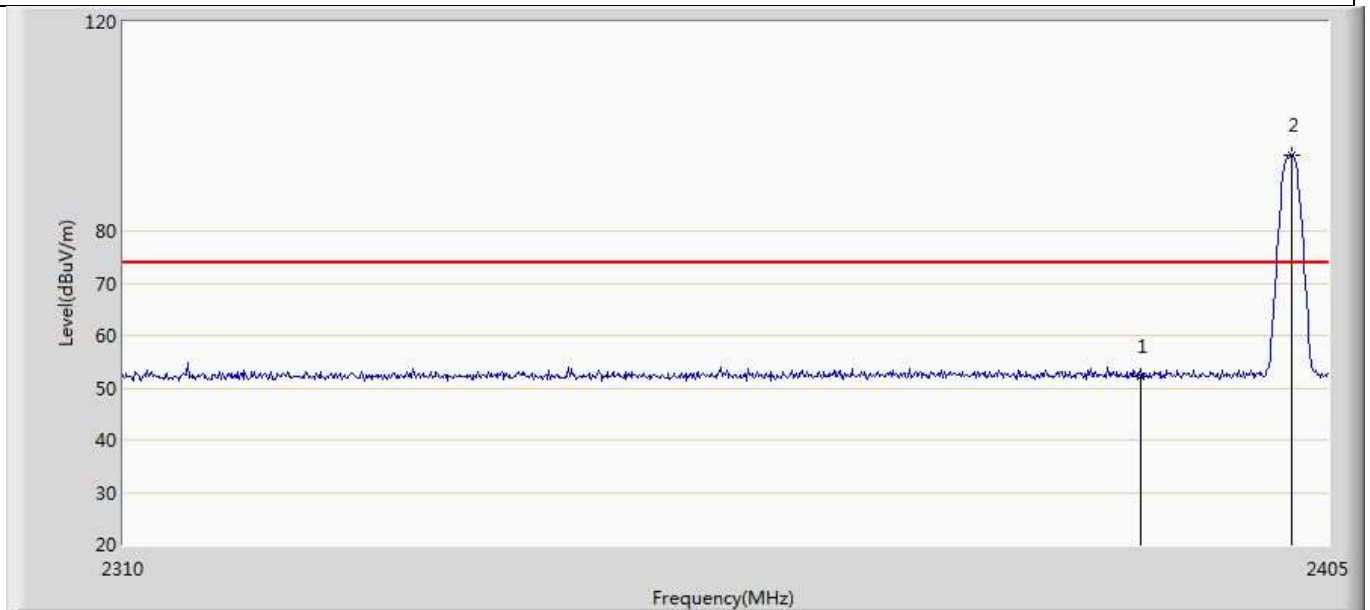


4.5.3 Test Procedure

	References Rule		Chapter	Description
☒	ANSI C63.10		6.10	Band-edge testing
	☒	ANSI C63.10	6.10.5	Restricted-band band-edge measurements
	☐	ANSI C63.10	6.10.6	Marker-delta method
☒	ANSI C63.10		11.12	Emissions in restricted frequency bands
	☒	ANSI C63.10	11.12.1	Radiated emission measurements
	☒	ANSI C63.10	11.12.2.7	Radiated spurious emission test
☐	ANSI C63.10		6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
☐	ANSI C63.10		6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
☒	ANSI C63.10		6.6	Radiated emissions from unlicensed wireless devices above 1 GHz
	☐	ANSI C63.10	11.12.2	Antenna-port conducted measurements
	☐	ANSI C63.10	11.12.2.3	Quasi-peak measurement procedure
		ANSI C63.10	11.12.2.4	Peak power measurement procedure
		ANSI C63.10	11.12.2.5	Average power measurement procedures
	☐	ANSI C63.10	11.12.2.5.1	Trace averaging with continuous EUT transmission at full power
		ANSI C63.10	11.12.2.5.2	Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction
		ANSI C63.10	11.12.2.5.3	Reduced VBW averaging across ON and OFF times of the EUT transmissions with max hold

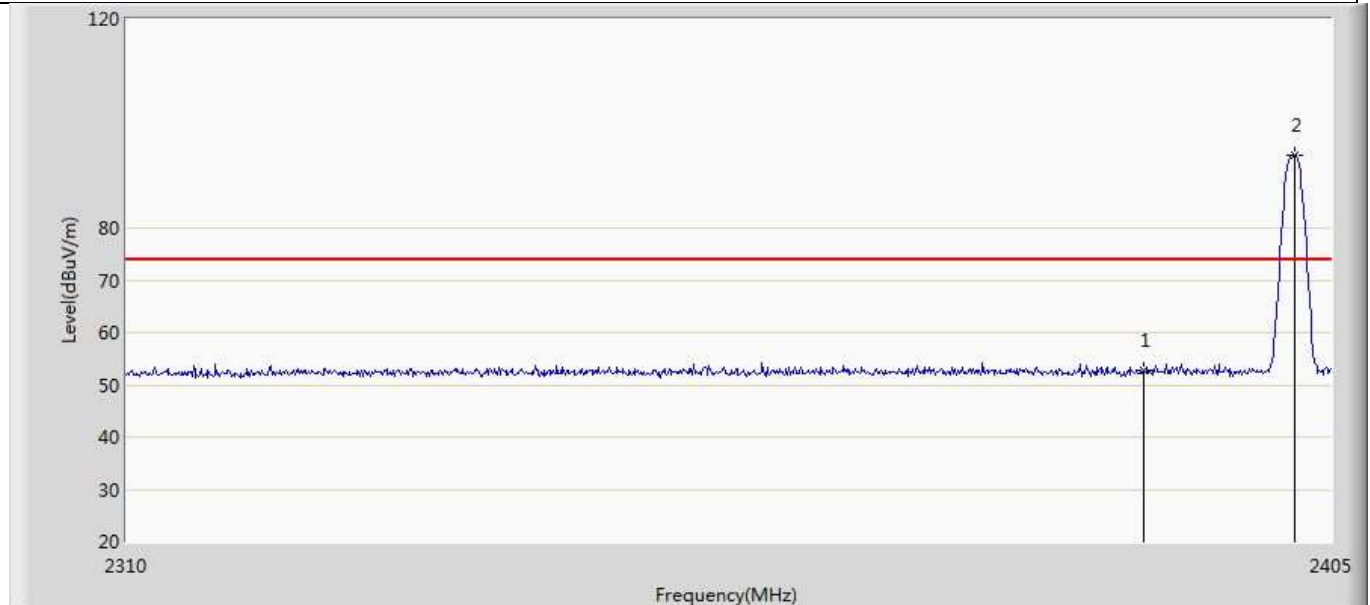
4.5.4 Test Data

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 22:20
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 1:Transmit at 2402MHz by DH5	



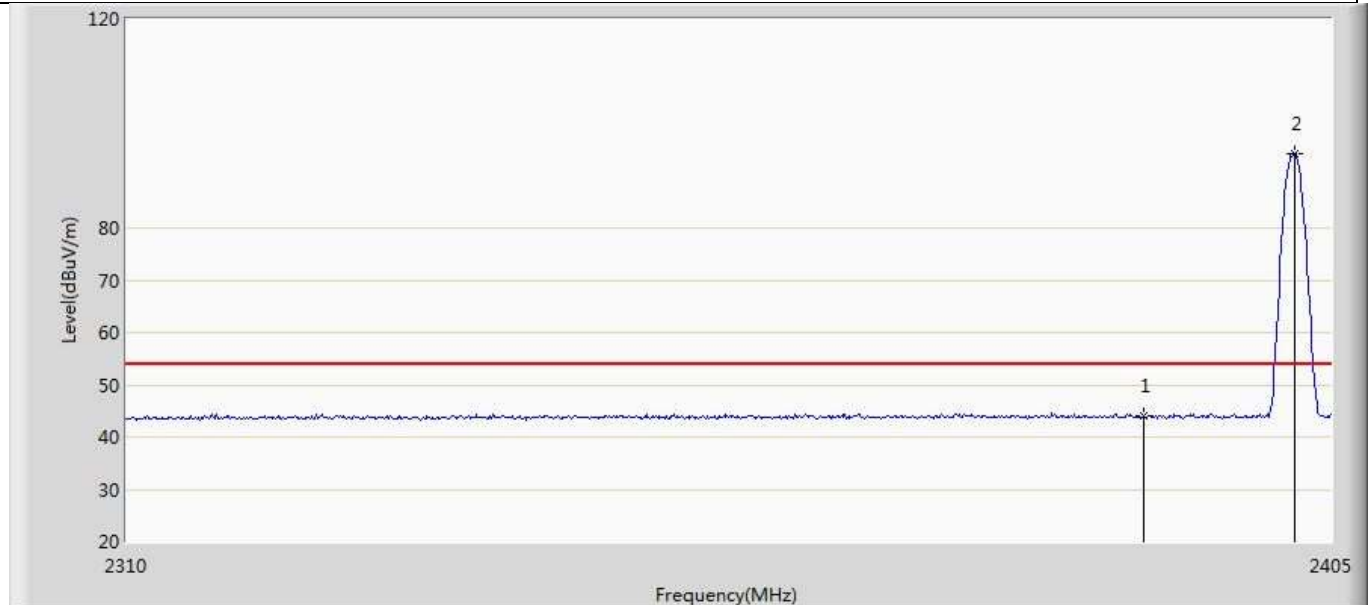
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	52.283	16.601	-21.717	74.000	35.682	PK
2	*	2402.055	94.414	58.701	20.414	74.000	35.712	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 22:31
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 1:Transmit at 2402MHz by DH5	



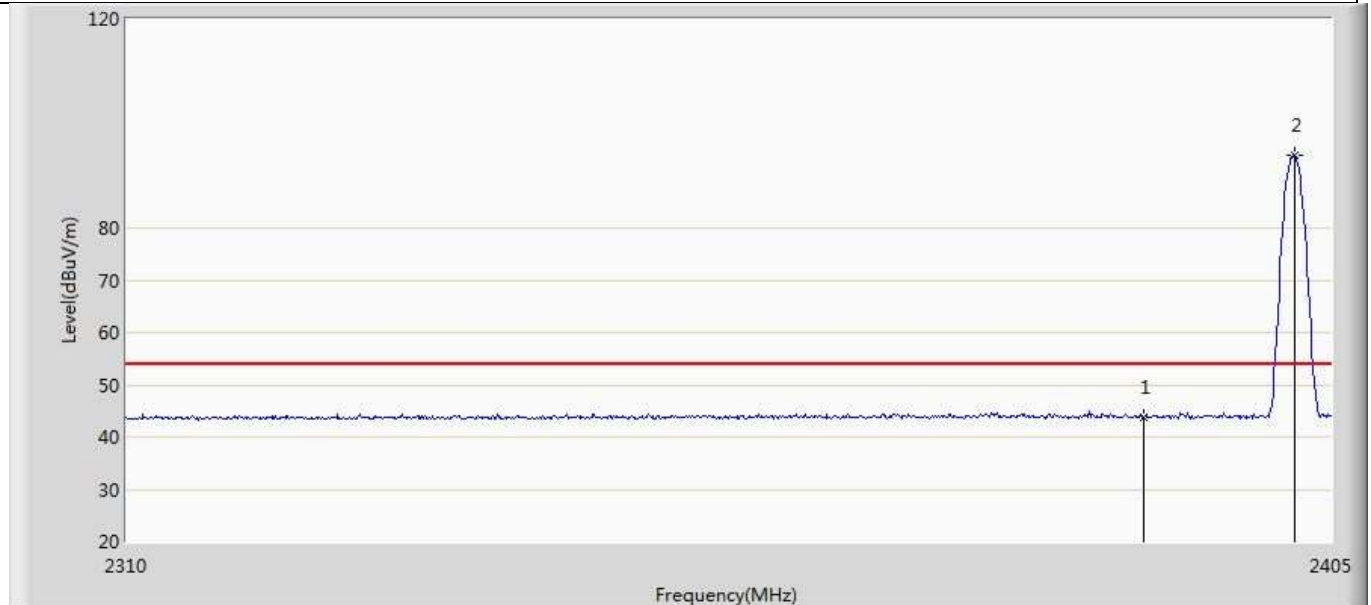
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	52.611	16.929	-21.389	74.000	35.682	PK
2	*	2402.055	93.967	58.254	19.967	74.000	35.712	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 22:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 1:Transmit at 2402MHz by DH5	



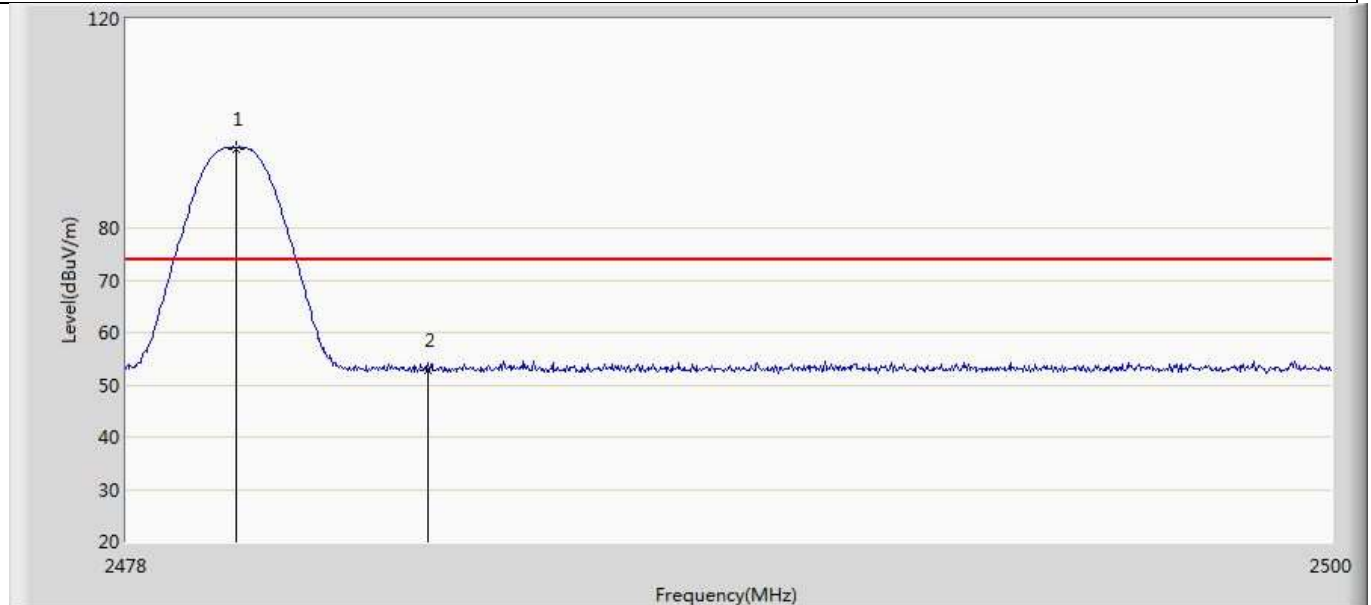
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	44.084	8.402	-9.916	54.000	35.682	AV
2	*	2402.055	94.259	58.546	40.259	54.000	35.712	AV

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 22:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 1:Transmit at 2402MHz by DH5	



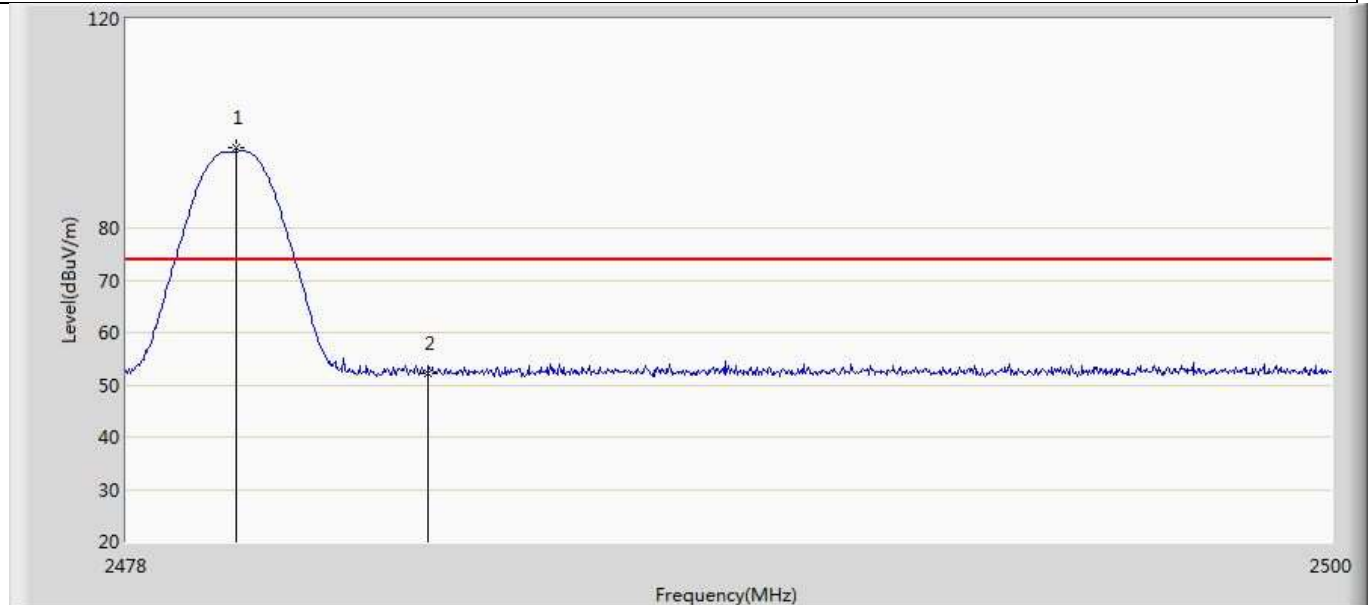
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	43.798	8.116	-10.202	54.000	35.682	AV
2	*	2402.055	93.840	58.127	39.840	54.000	35.712	AV

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 22:56
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 1:Transmit at 2480MHz by DH5	



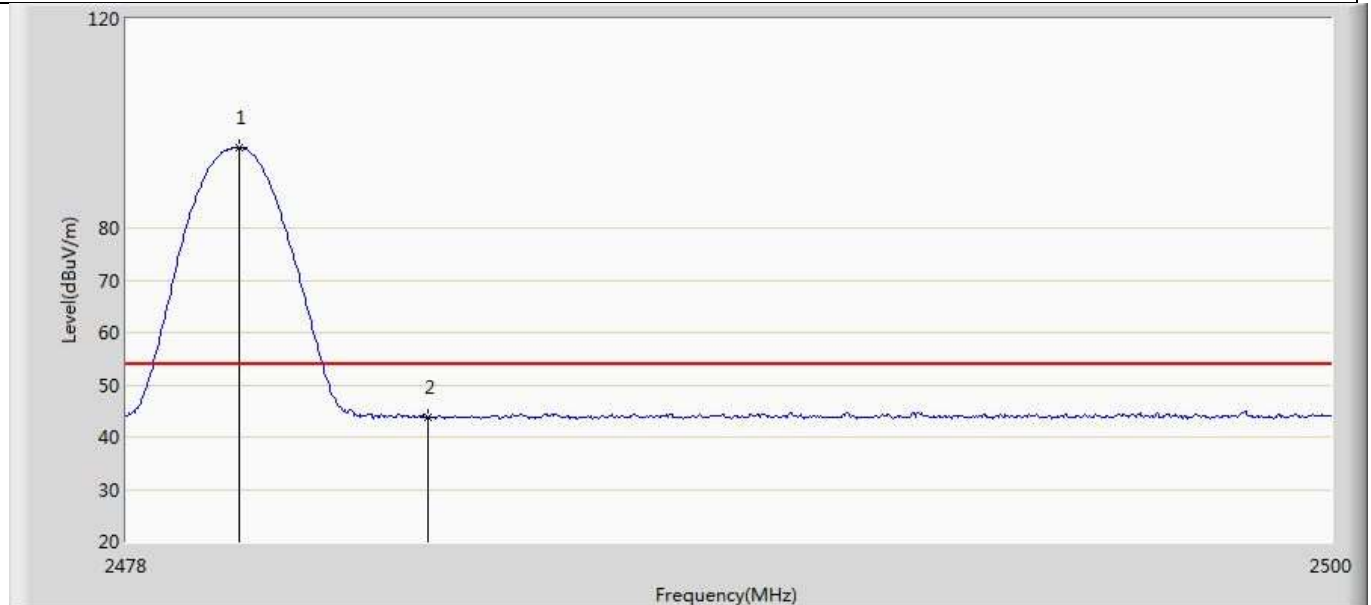
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.002	95.010	59.144	21.010	74.000	35.866	PK
2		2483.500	52.727	16.835	-21.273	74.000	35.891	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 23:07
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 1:Transmit at 2480MHz by DH5	



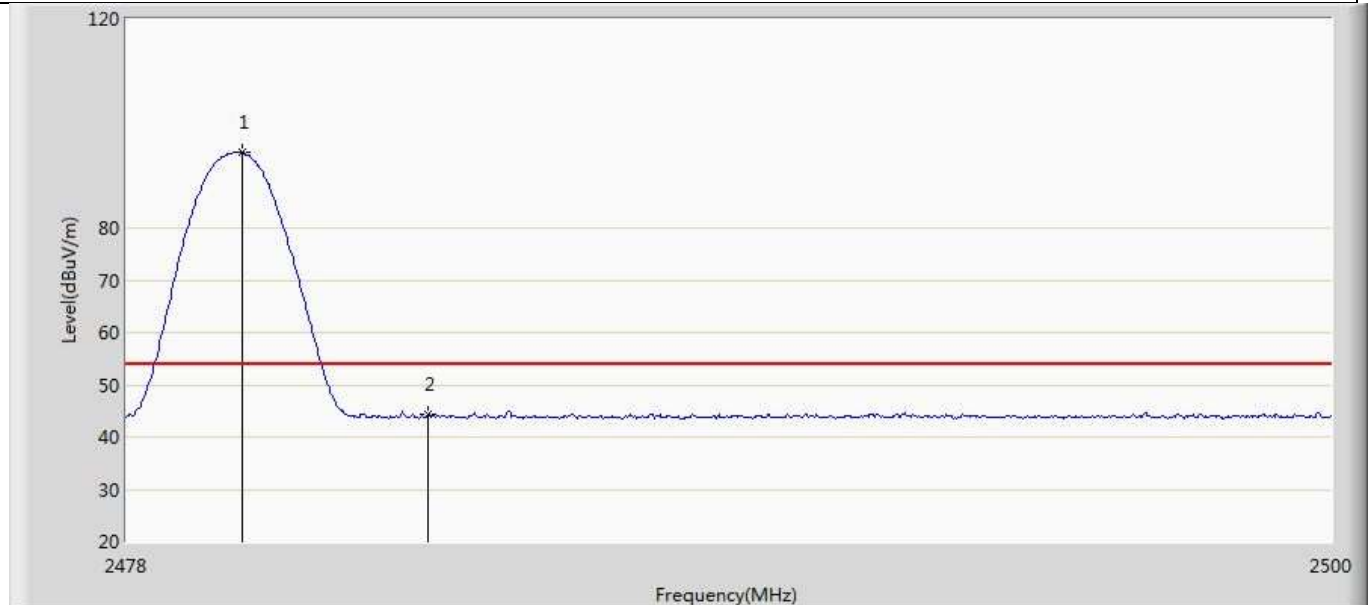
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.002	95.264	59.398	21.264	74.000	35.866	PK
2		2483.500	52.248	16.356	-21.752	74.000	35.891	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 23:09
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 1:Transmit at 2480MHz by DH5	



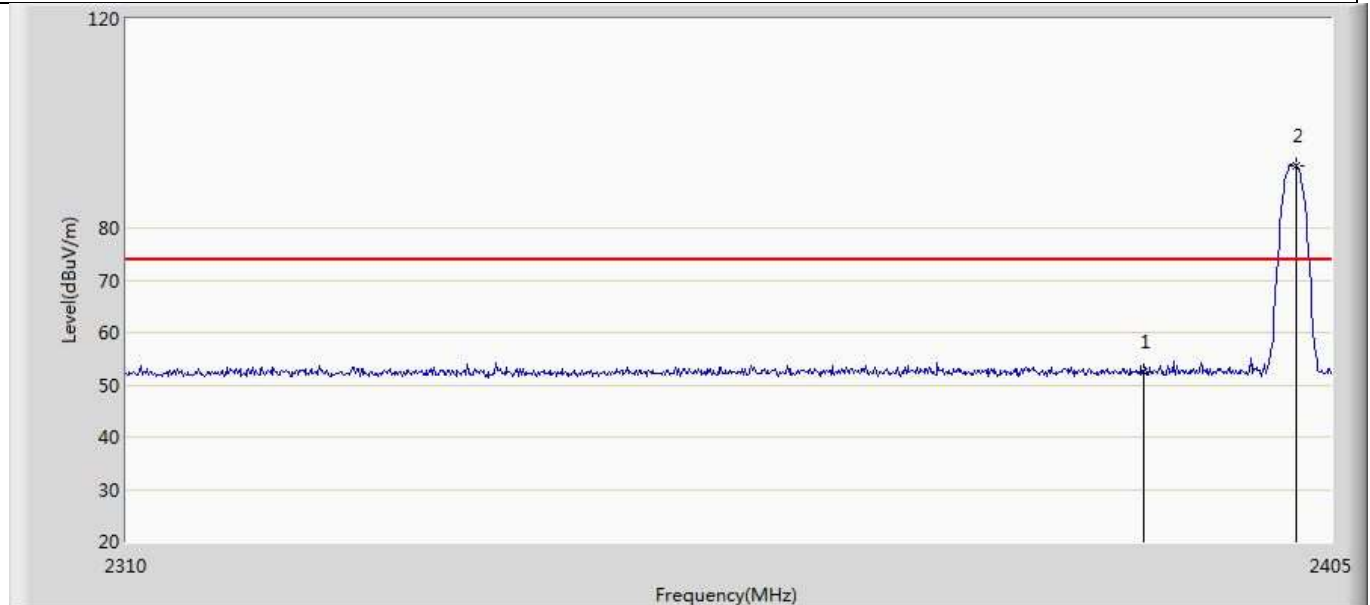
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.046	95.464	59.597	41.464	54.000	35.866	AV
2		2483.500	43.651	7.759	-10.349	54.000	35.891	AV

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 23:10
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 1:Transmit at 2480MHz by DH5	



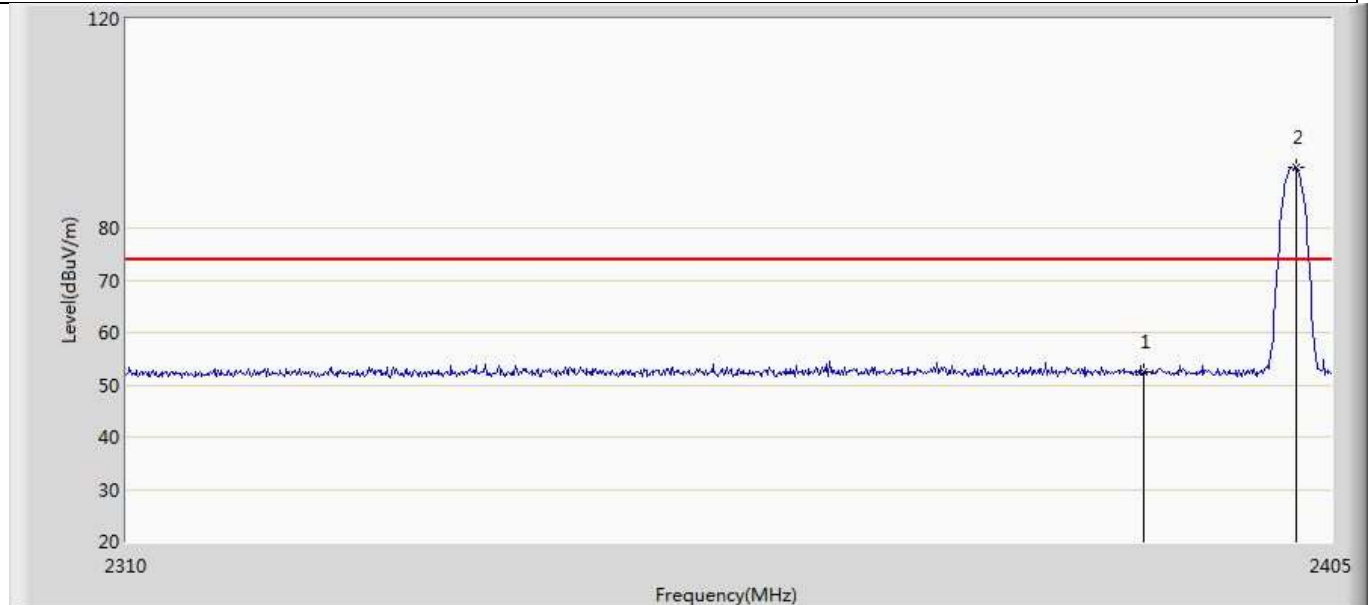
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.112	94.460	58.593	40.460	54.000	35.867	AV
2		2483.500	44.321	8.429	-9.679	54.000	35.891	AV

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 23:14
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 2:Transmit at 2402MHz by 2DH5	



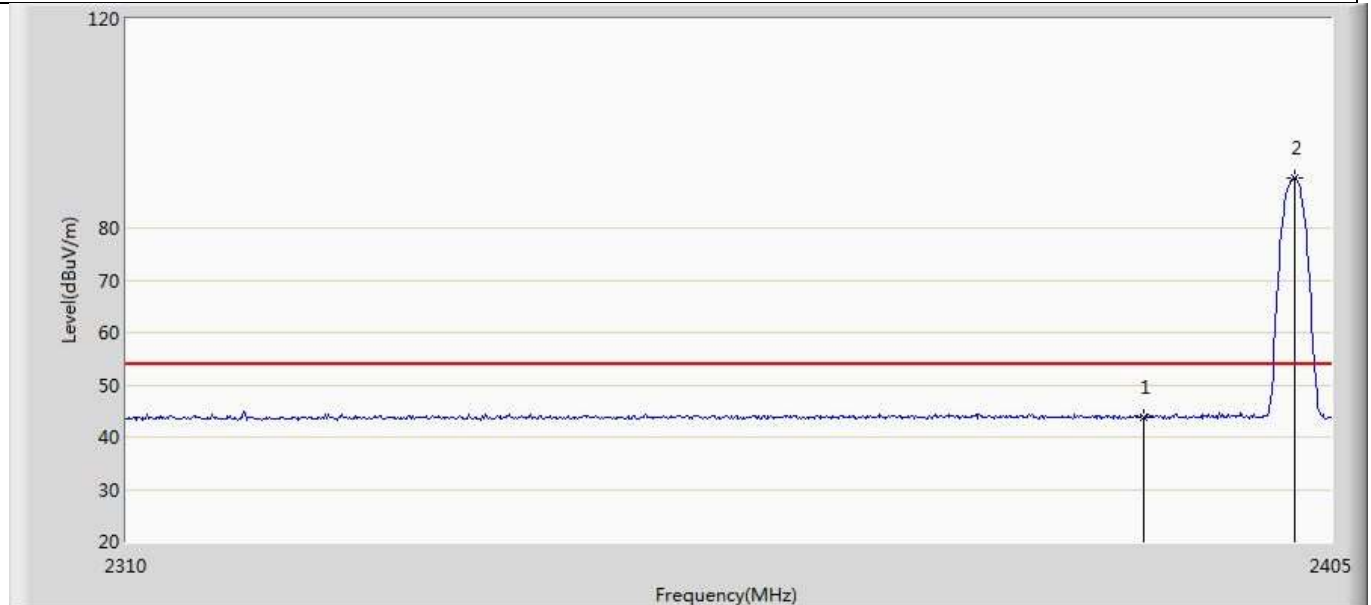
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	52.455	16.773	-21.545	74.000	35.682	PK
2	*	2402.245	91.950	56.237	17.950	74.000	35.714	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 23:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 2:Transmit at 2402MHz by 2DH5	



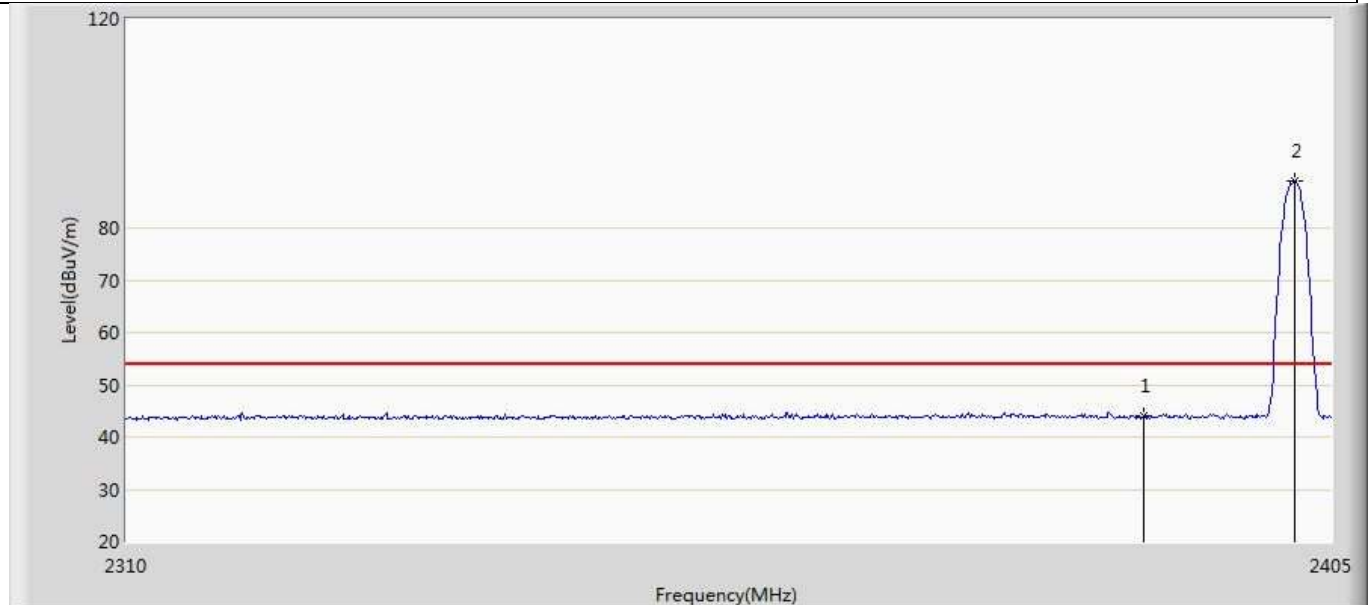
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	52.356	16.674	-21.644	74.000	35.682	PK
2	*	2402.150	91.731	56.018	17.731	74.000	35.713	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 23:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 2:Transmit at 2402MHz by 2DH5	



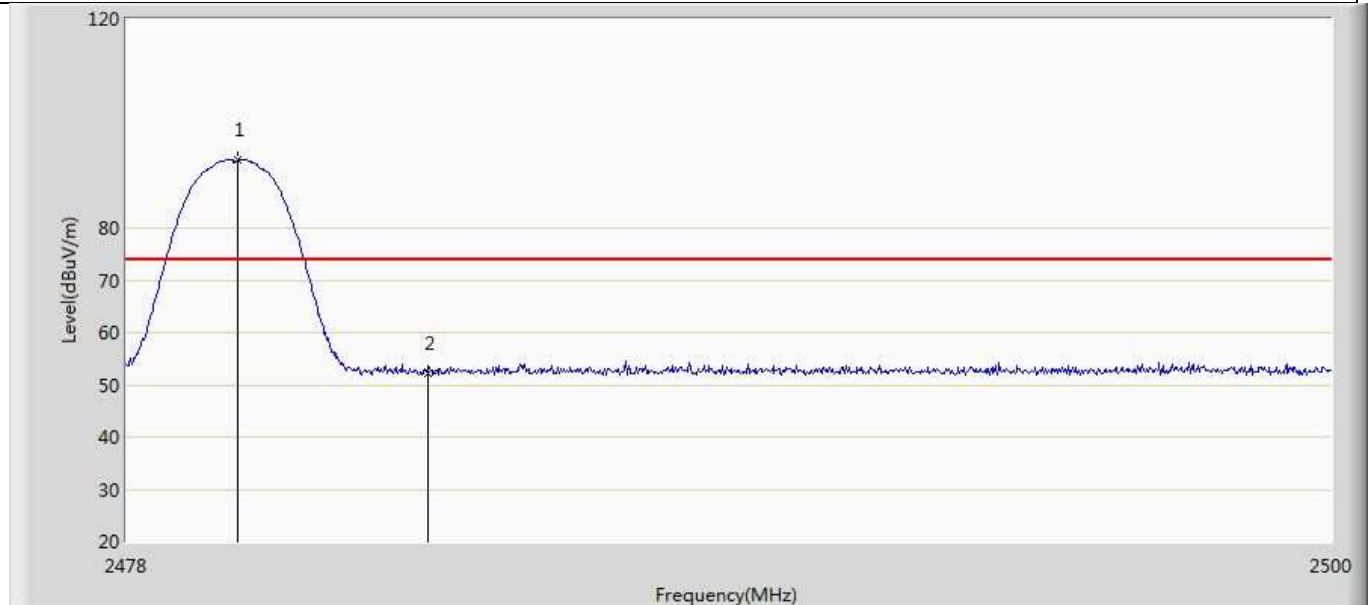
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	43.892	8.210	-10.108	54.000	35.682	AV
2	*	2402.055	89.664	53.951	35.664	54.000	35.712	AV

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 23:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 2:Transmit at 2402MHz by 2DH5	



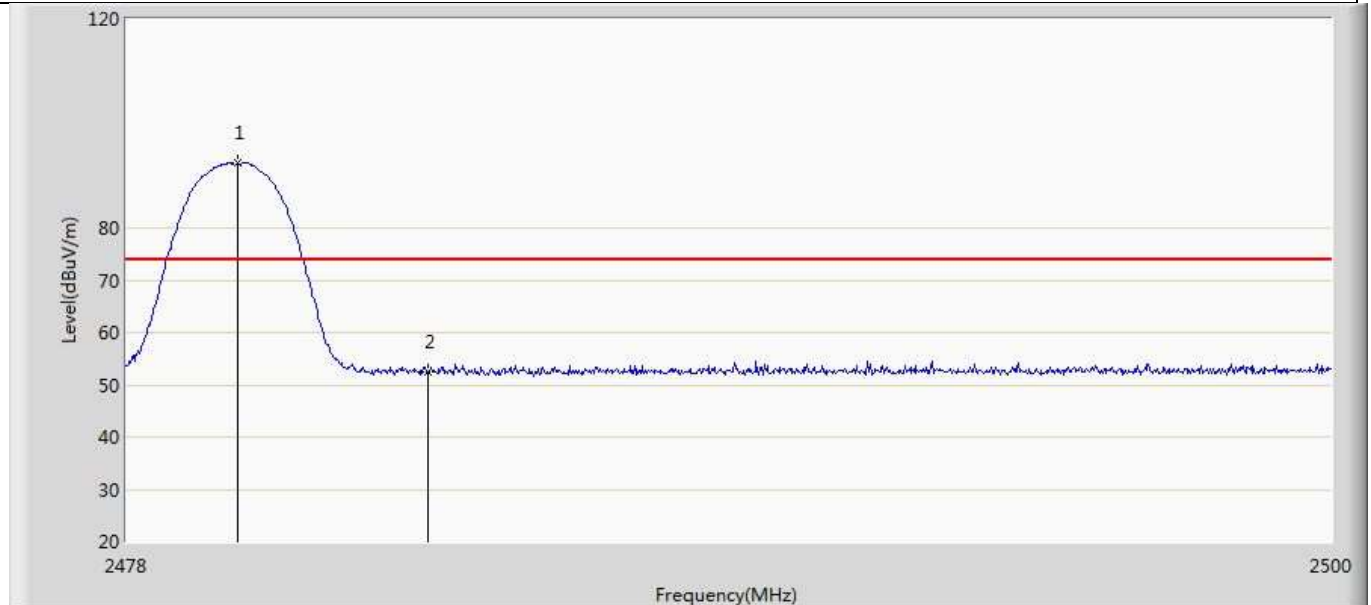
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	44.049	8.367	-9.951	54.000	35.682	AV
2	*	2402.055	89.126	53.413	35.126	54.000	35.712	AV

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 23:26
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 2:Transmit at 2480MHz by 2DH5	



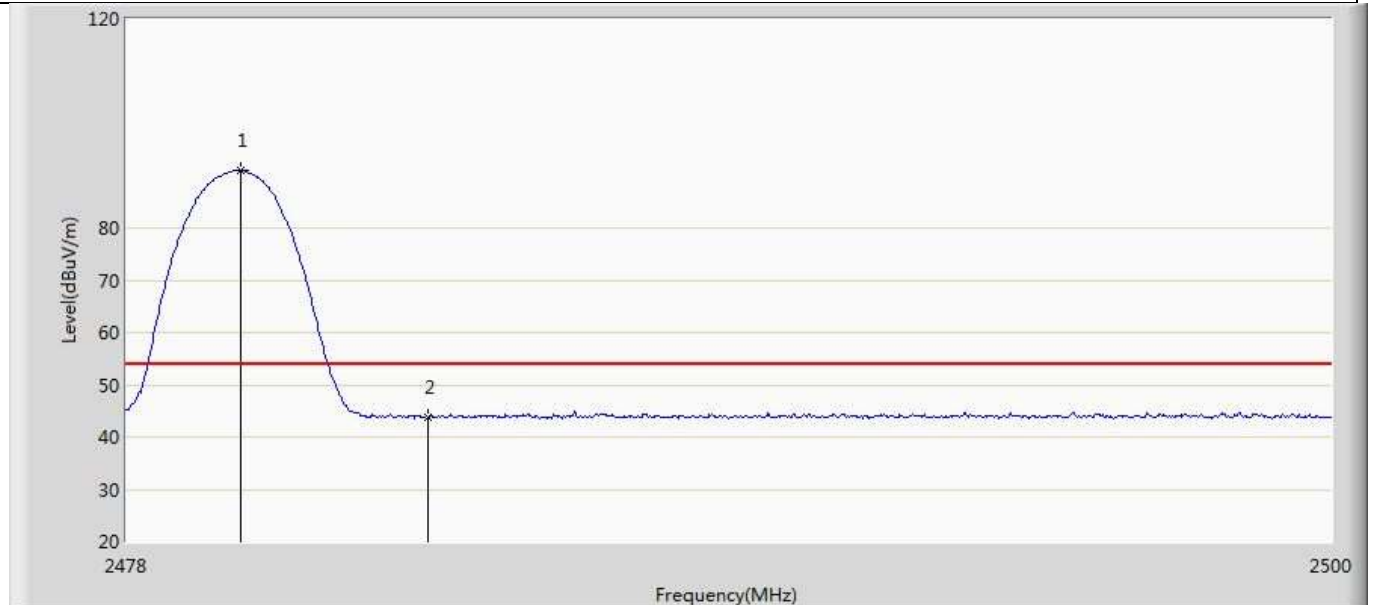
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.024	92.900	57.033	18.900	74.000	35.866	PK
2		2483.500	52.310	16.418	-21.690	74.000	35.891	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 23:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 2:Transmit at 2480MHz by 2DH5	



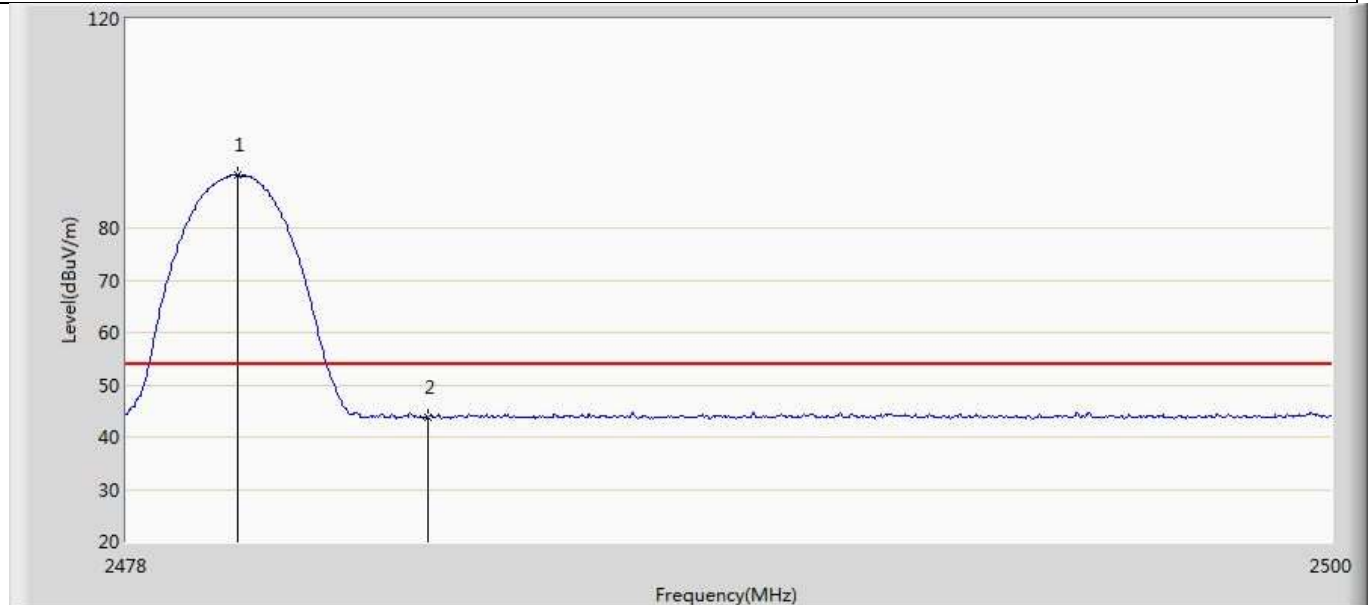
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.024	92.328	56.461	18.328	74.000	35.866	PK
2		2483.500	52.527	16.635	-21.473	74.000	35.891	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 23:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 2:Transmit at 2480MHz by 2DH5	



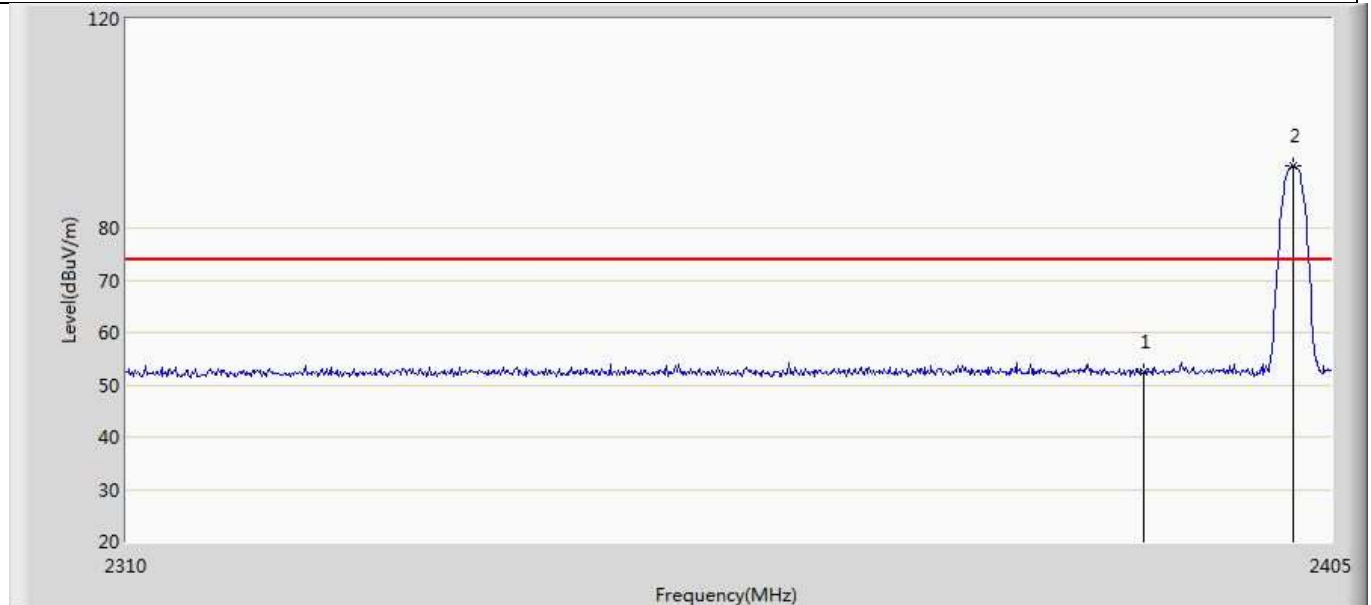
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.090	90.998	55.131	36.998	54.000	35.867	AV
2		2483.500	43.785	7.893	-10.215	54.000	35.891	AV

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 23:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 2:Transmit at 2480MHz by 2DH5	



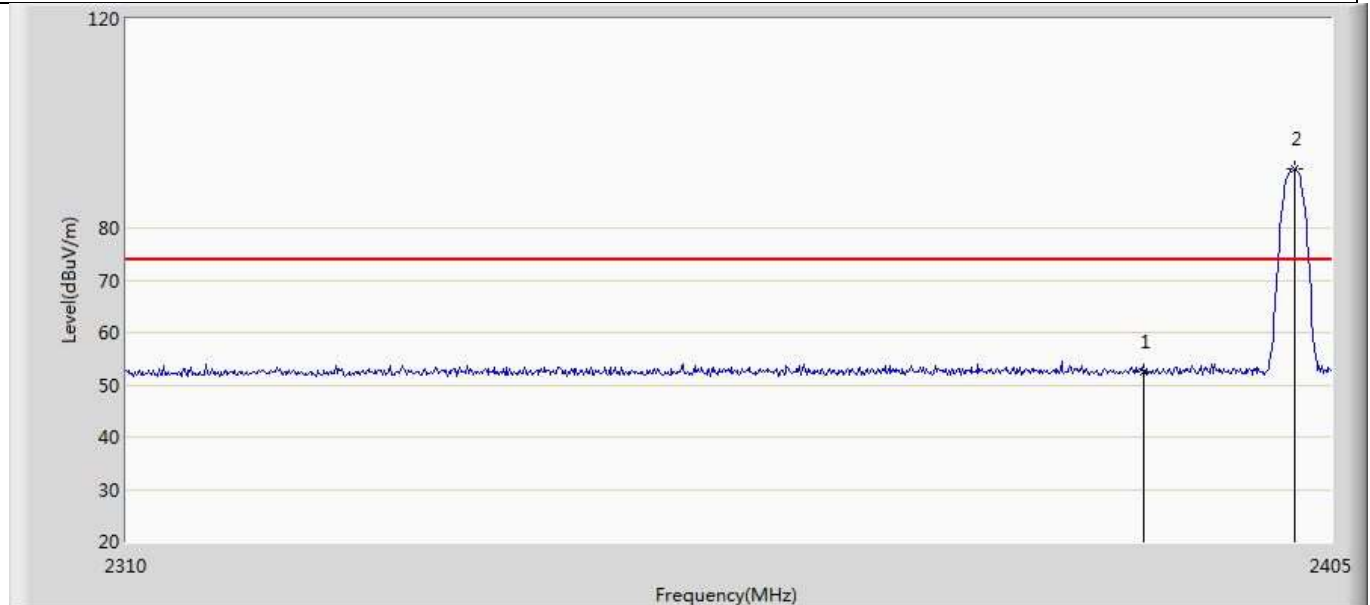
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.024	90.221	54.354	36.221	54.000	35.866	AV
2		2483.500	43.896	8.004	-10.104	54.000	35.891	AV

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 23:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 3:Transmit at 2402MHz by 3DH5	



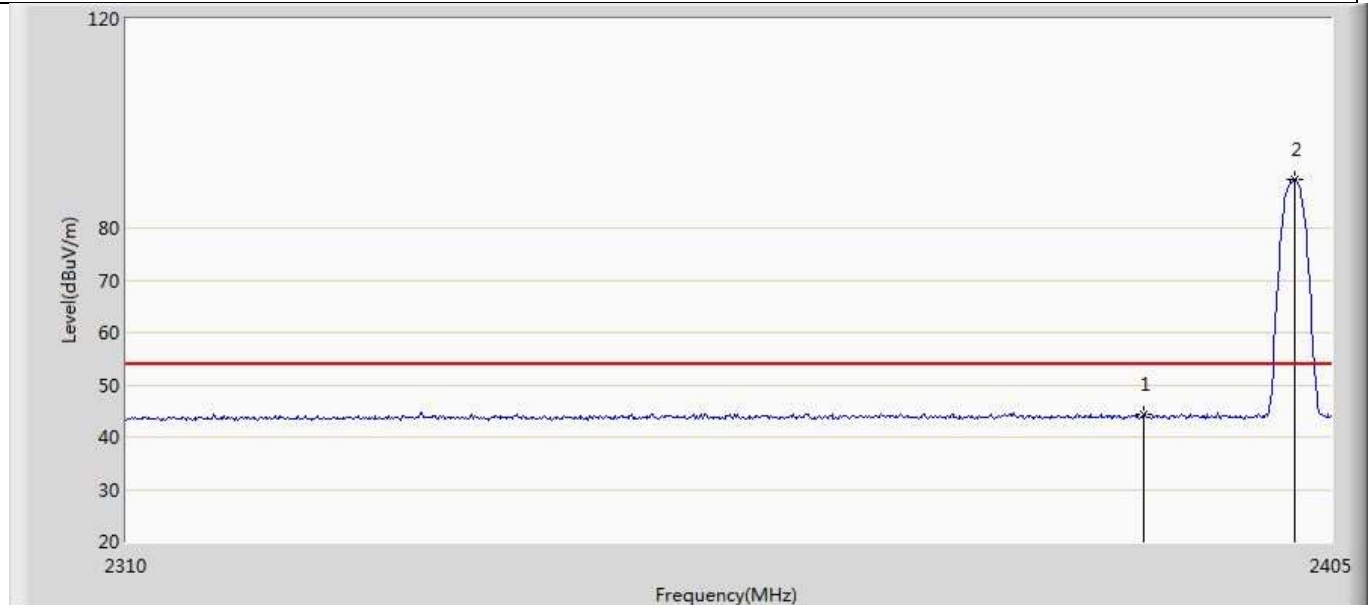
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	52.601	16.919	-21.399	74.000	35.682	PK
2	*	2401.960	91.968	56.255	17.968	74.000	35.712	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 23:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 3:Transmit at 2402MHz by 3DH5	



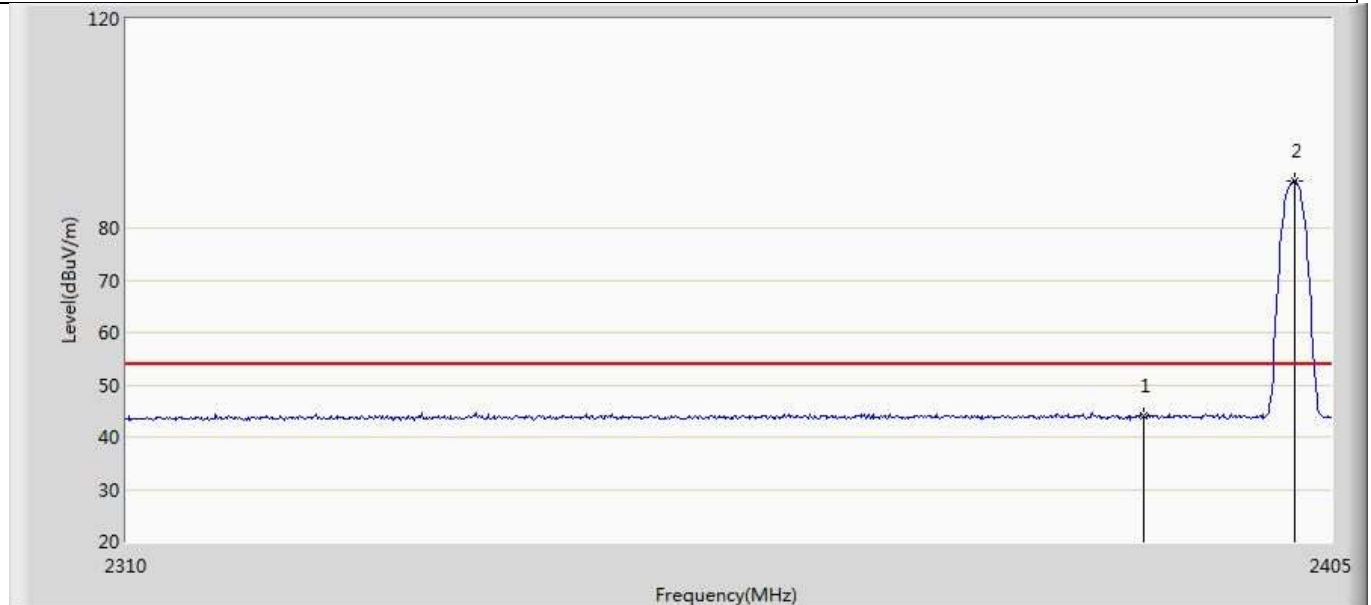
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	52.579	16.897	-21.421	74.000	35.682	PK
2	*	2402.055	91.387	55.674	17.387	74.000	35.712	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 23:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 3:Transmit at 2402MHz by 3DH5	



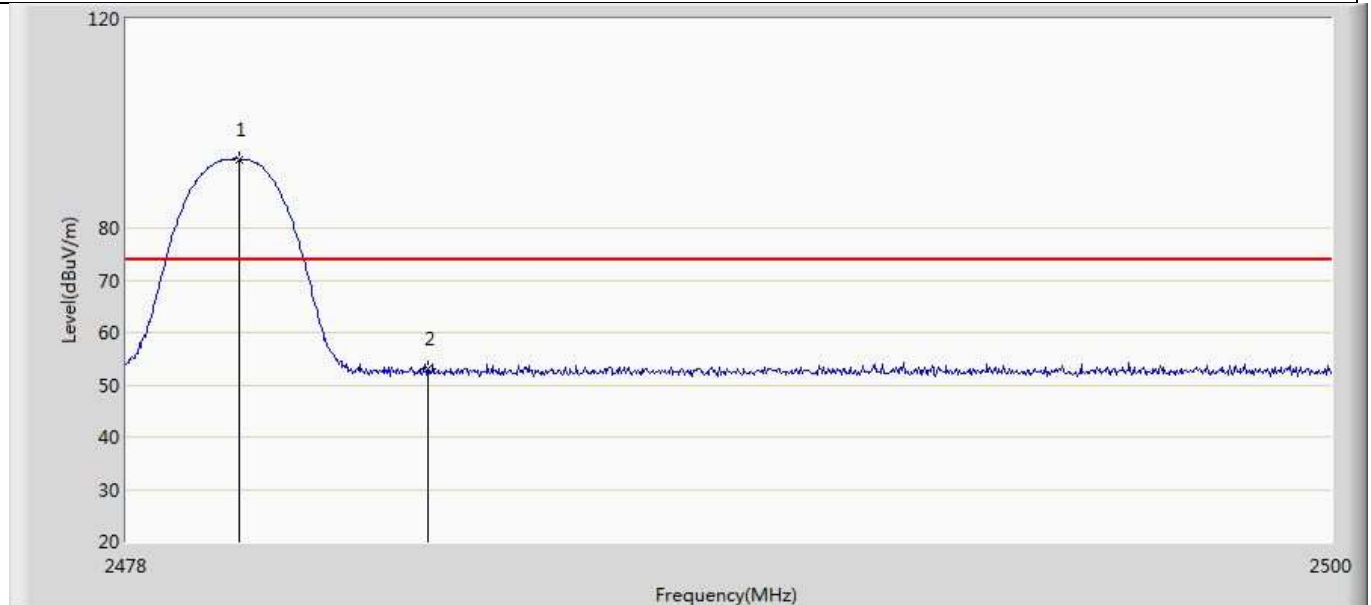
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	44.321	8.639	-9.679	54.000	35.682	AV
2	*	2402.055	89.401	53.688	35.401	54.000	35.712	AV

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 23:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 3:Transmit at 2402MHz by 3DH5	



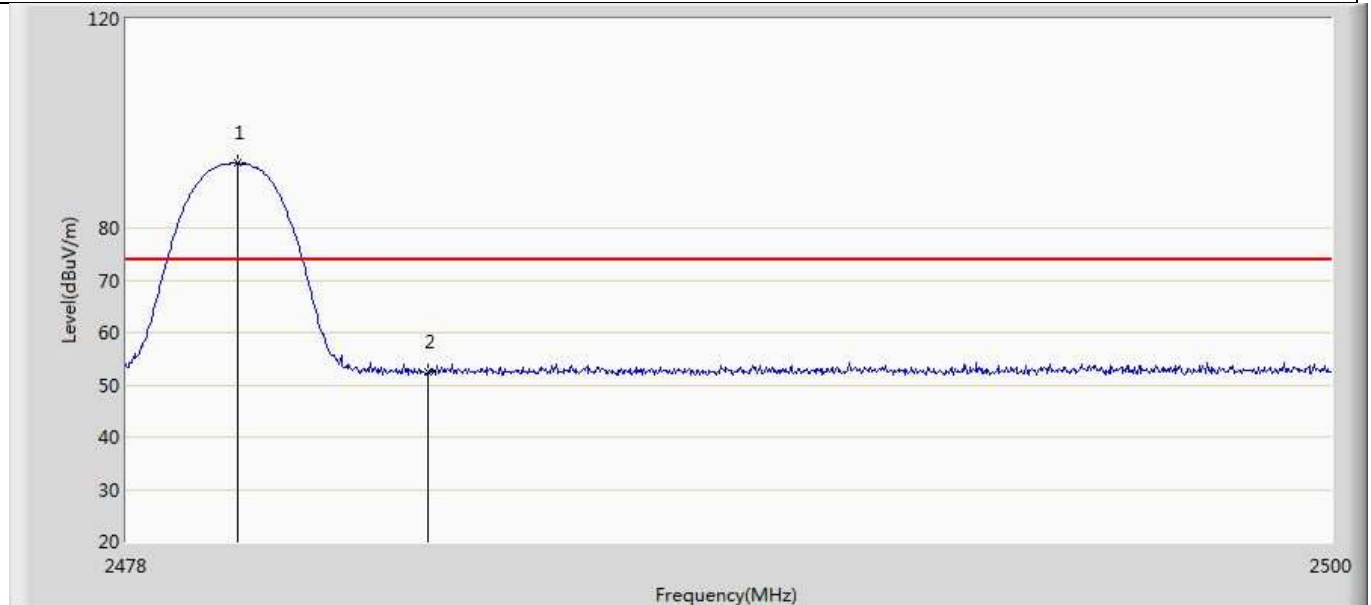
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	43.971	8.289	-10.029	54.000	35.682	AV
2	*	2402.055	88.961	53.248	34.961	54.000	35.712	AV

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 23:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 3:Transmit at 2480MHz by 3DH5	



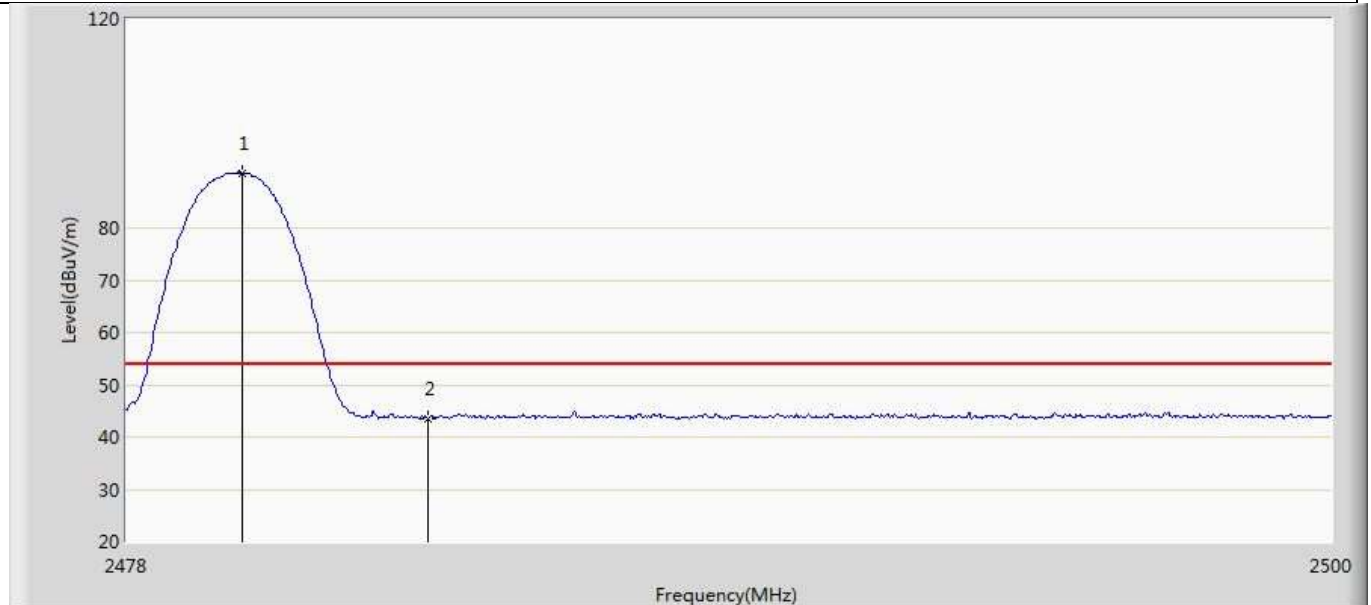
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.046	93.178	57.311	19.178	74.000	35.866	PK
2		2483.500	52.998	17.106	-21.002	74.000	35.891	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 23:50
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 3:Transmit at 2480MHz by 3DH5	



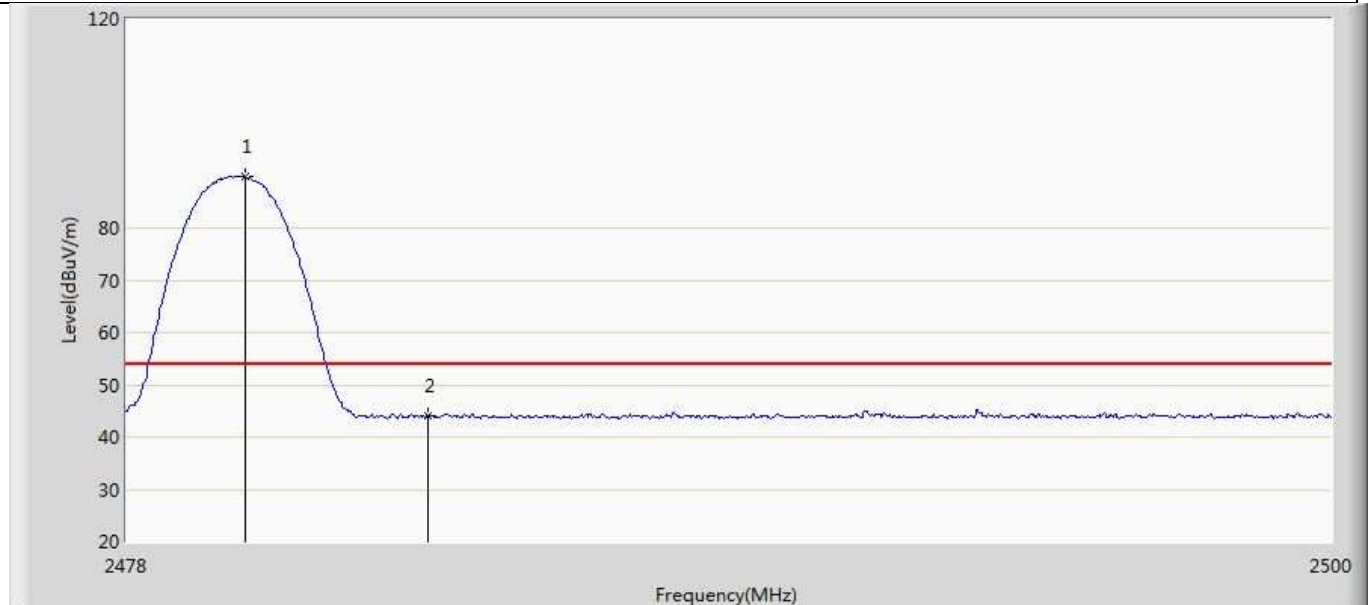
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.024	92.432	56.565	18.432	74.000	35.866	PK
2		2483.500	52.479	16.587	-21.521	74.000	35.891	PK

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 23:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 3:Transmit at 2480MHz by 3DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.112	90.511	54.644	36.511	54.000	35.867	AV
2		2483.500	43.602	7.710	-10.398	54.000	35.891	AV

Engineer: Tongben	
Site: AC5	Time: 2019/07/01 - 23:54
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: AC 110V/60Hz
Note: Mode 3:Transmit at 2480MHz by 3DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.156	89.843	53.976	35.843	54.000	35.867	AV
2		2483.500	44.027	8.135	-9.973	54.000	35.891	AV

4.6 Fundamental emission output power

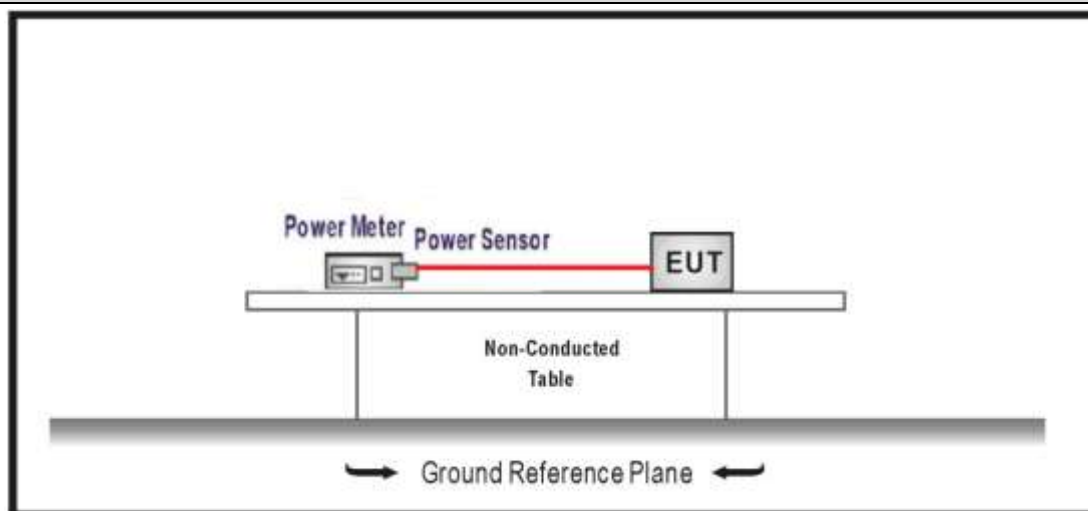
VERDICT: PASS

4.6.1 Limit

Standard		FCC Part 15 Subpart C Paragraph 15.247 (b)(3)
☒	GTX < 6dBi	$P_{out} \leq 30\text{dBm}$
☐	GTX > 6dBi	
☐	Non-Fix point-point	$P_{out} \leq 30 - (GTX - 6)$
☐	Fix point-point	$P_{out} \leq 30 - [(GTX - 6)]/3$
☐	Point-to-multipoint	$P_{out} \leq 30 - (GTX - 6)$
☐	Overlap Beams	$P_{out} \leq 30 - [(GTX - 6)]/3$
☐	Aggregate power transmitted simultaneously on all beams	$P_{out} \leq 30 - [(GTX - 6)]/3$
☐	single directional beam	$P_{out} \leq 30 - [(GTX - 6)]/3 + 8\text{dB}$

Note 1 : GTX directional gain of transmitting antennas.
 Note 2 : Pout is maximum peak conducted output power .

4.6.2 Test Setup



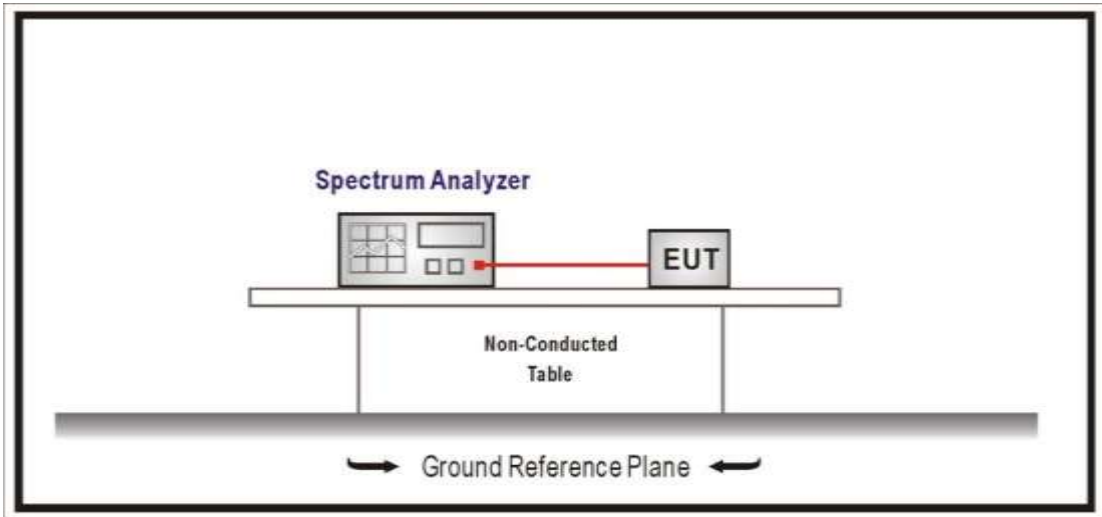
4.6.3 Test Procedure

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

4.6.4 Test Data					
Mode	Channel	Test Frequency (MHz)	Power Output (dBm)	Limit (dBm)	Result
1	00	2402	7.27	≤ 30	Pass
	39	2441	8.13	≤ 30	Pass
	78	2480	7.79	≤ 30	Pass
2	00	2402	5.94	≤ 30	Pass
	39	2441	6.62	≤ 30	Pass
	78	2480	6.17	≤ 30	Pass
3	00	2402	6.14	≤ 30	Pass
	39	2441	7.21	≤ 30	Pass
	78	2480	6.91	≤ 30	Pass

4.7 20dB Bandwidth	VERDICT: PASS
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4.7.1 Limit	
Standard	FCC Part 15 Subpart C Paragraph 15.247 (a)(1)
☒	For frequency hopping systems operating in 2400-2483.5 MHz band, within frequency range
☐	For frequency hopping systems operating in 902-928 MHz band, the maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.
☐	For frequency hopping systems operating in 5725-5850 MHz band, the maximum 20 dB bandwidth of the hopping channel is 1 MHz.

4.7.2 Test Setup


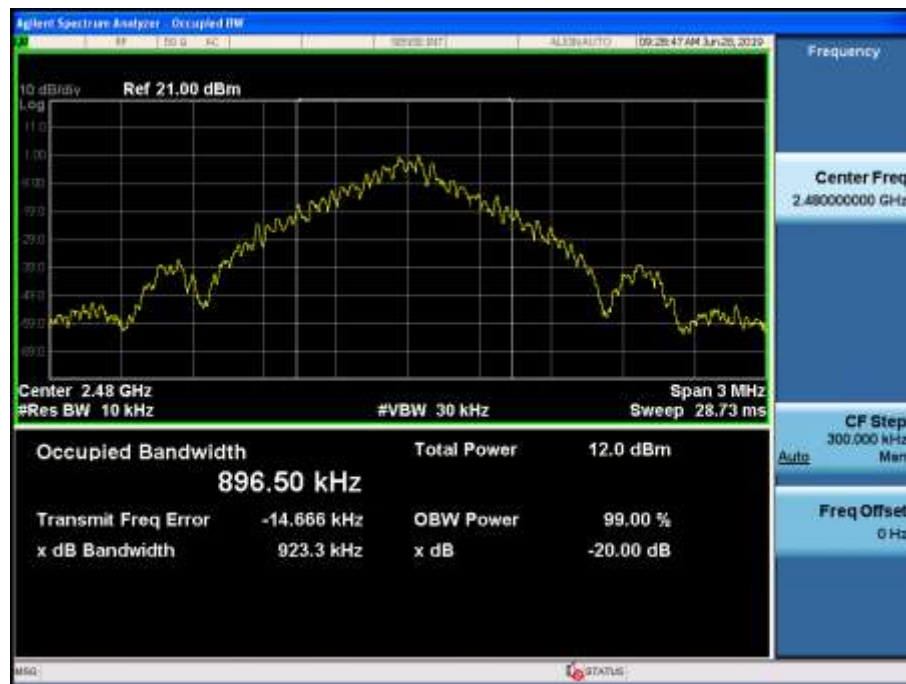
4.7.3 Test Procedure			
	Reference Rule	Chapter	Description
☒	ANSI C63.10	6.9.2	Occupied bandwidth—relative measurement procedure

4.7.4 Test Data

Mode	CH.	Test Freq. (MHz)	99% Occupied Bandwidth (MHz)	20dB Occupied Bandwidth (MHz)	Limit (kHz)	Result
1	00	2402	0.904	0.924	>500	Pass
	19	2441	0.900	0.924	>500	Pass
	39	2480	0.897	0.923	>500	Pass
2	00	2402	1.200	1.352	>500	Pass
	19	2441	1.200	1.352	>500	Pass
	39	2480	1.199	1.349	>500	Pass
3	00	2402	1.204	1.342	>500	Pass
	19	2441	1.207	1.343	>500	Pass
	39	2480	1.206	1.341	>500	Pass

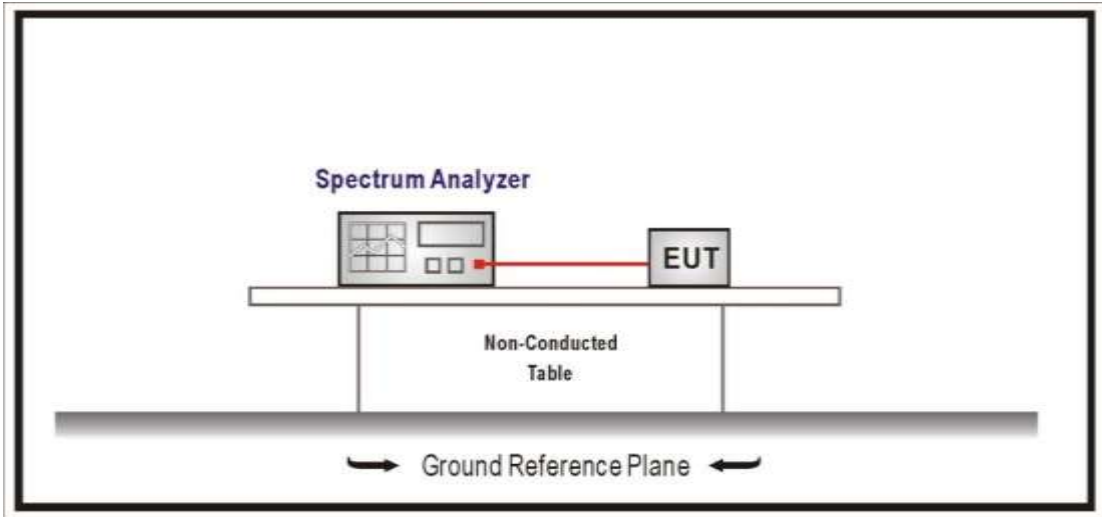
Note : The worst case of Occupied Bandwidth as below in next page:

Mode 1 CH39 (2480MHz)



4.8 Carrier Frequency Separation	VERDICT: PASS
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4.8.1 Limit	
Standard	FCC Part 15 Subpart C Paragraph 15.247 (a)(1)
☐	Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.
☒	Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel.
☐	The 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period;
☐	The 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.
☐	Frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies. The maximum 20 dB bandwidth of the hopping channel is 1 MHz.

4.8.2 Test Setup


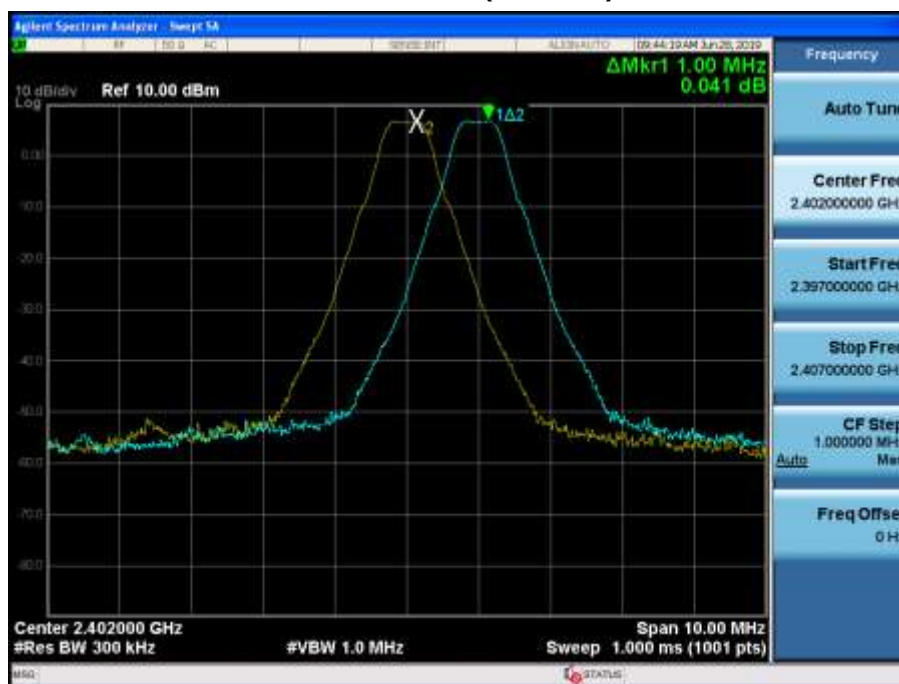
4.8.3 Test Procedure			
	Reference Rule	Chapter	Description
☒	ANSI C63.10	7.8.2	Carrier frequency separation

4.8.4 Test Data

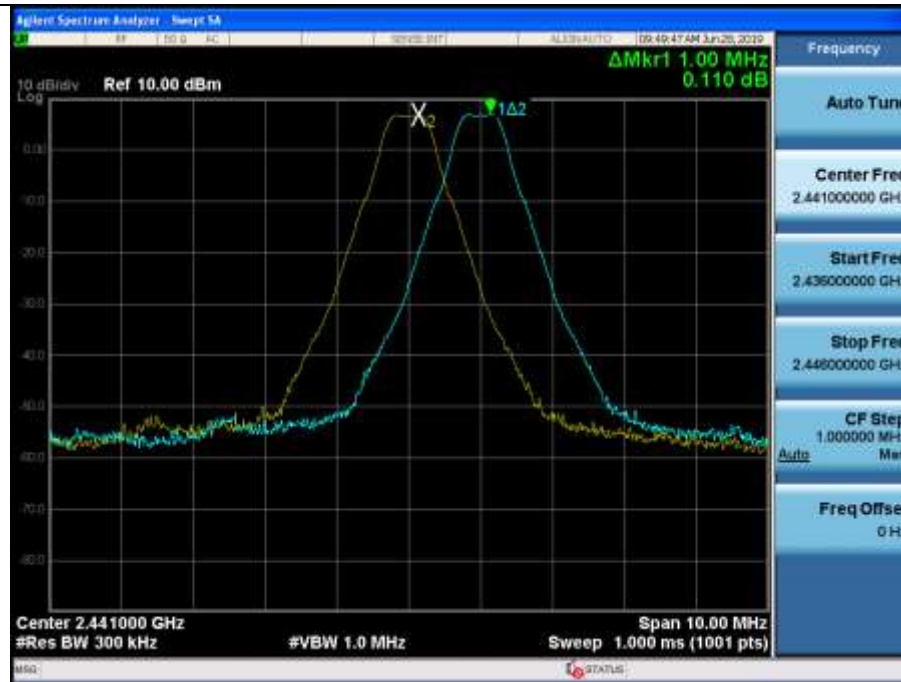
Mode	CH.	Test Freq. (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
1	00	2402	1000	602.67	Pass
	39	2441	1000	600.00	Pass
	78	2480	1000	598.00	Pass
2	00	2402	1000	800.00	Pass
	39	2441	1000	800.00	Pass
	78	2480	1000	799.33	Pass
3	00	2402	1000	802.67	Pass
	39	2441	1000	804.67	Pass
	78	2480	1000	804.00	Pass

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

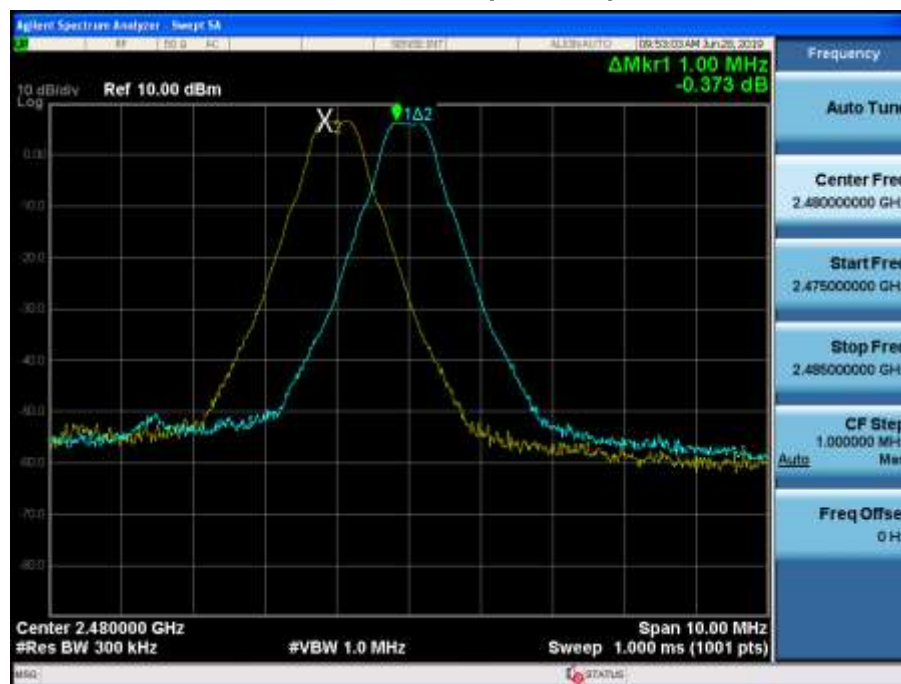
Mode 1 CH00 (2402MHz)



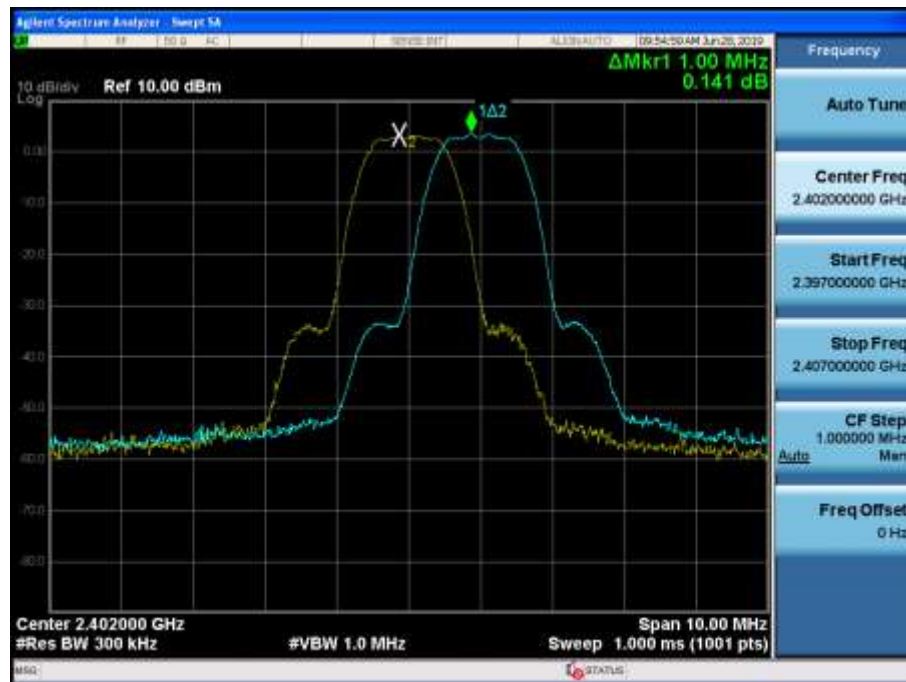
Mode 1 CH39 (2441MHz)



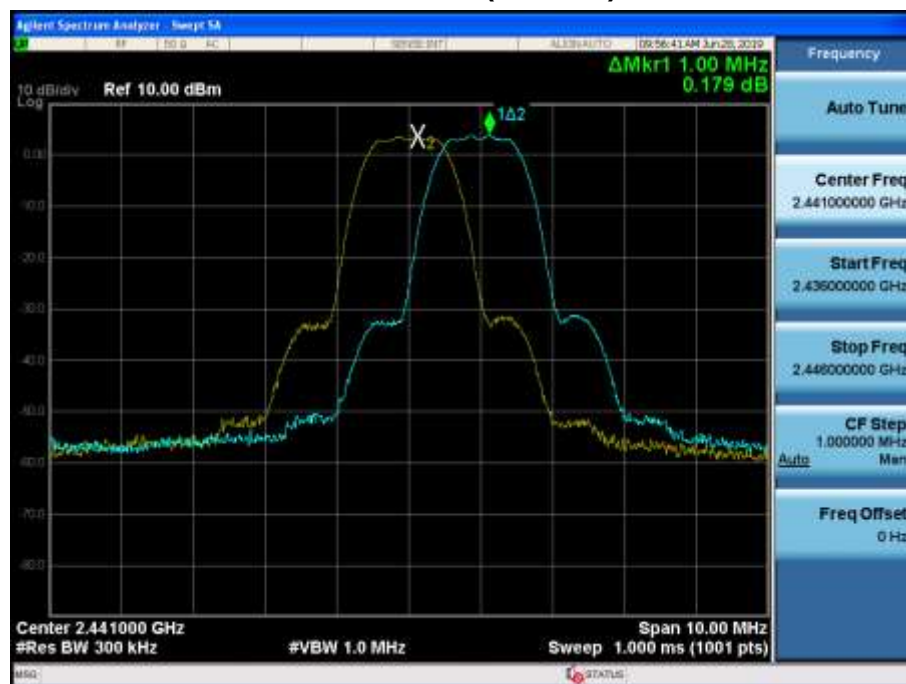
Mode 1 CH78 (2480MHz)



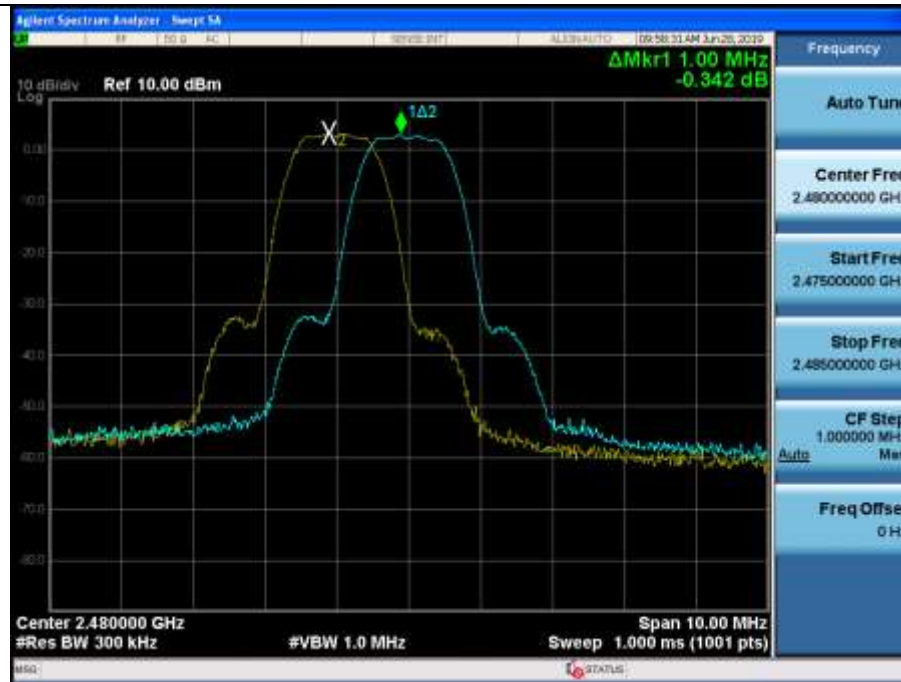
Mode 2 CH00 (2402MHz)



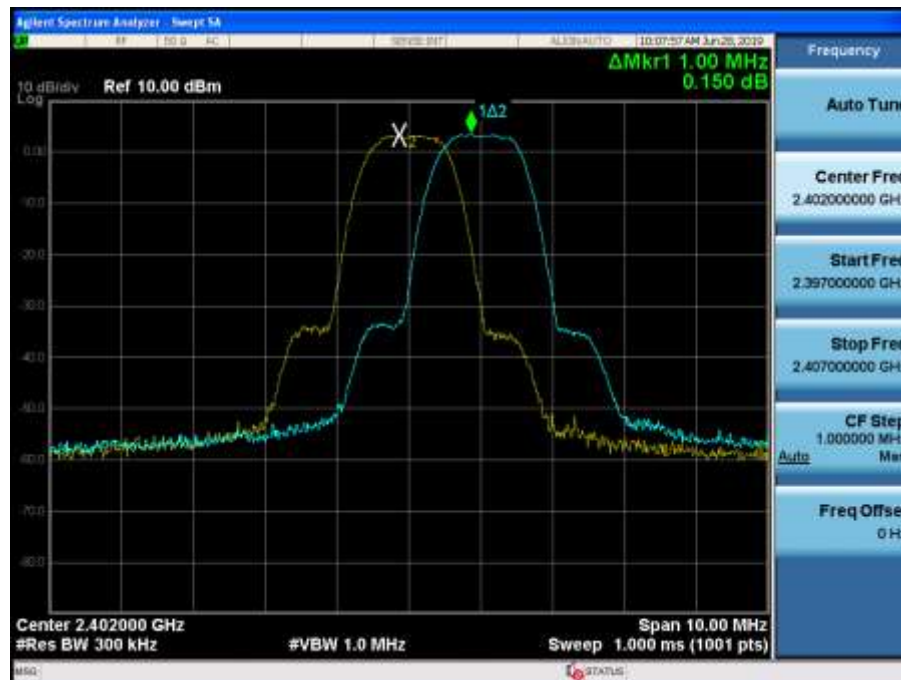
Mode 2 CH39 (2441MHz)



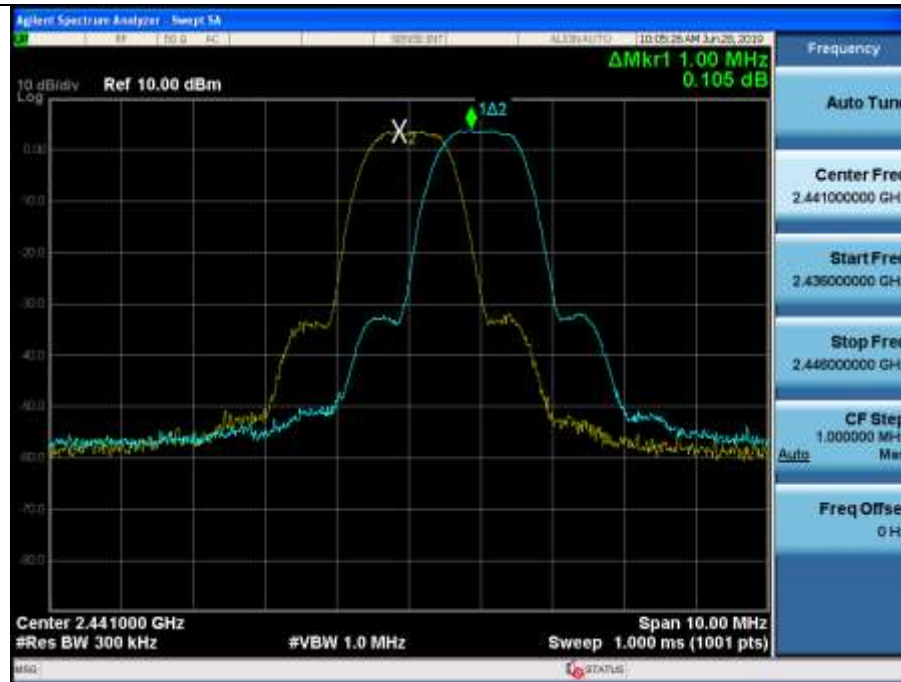
Mode 2 CH78 (2480MHz)



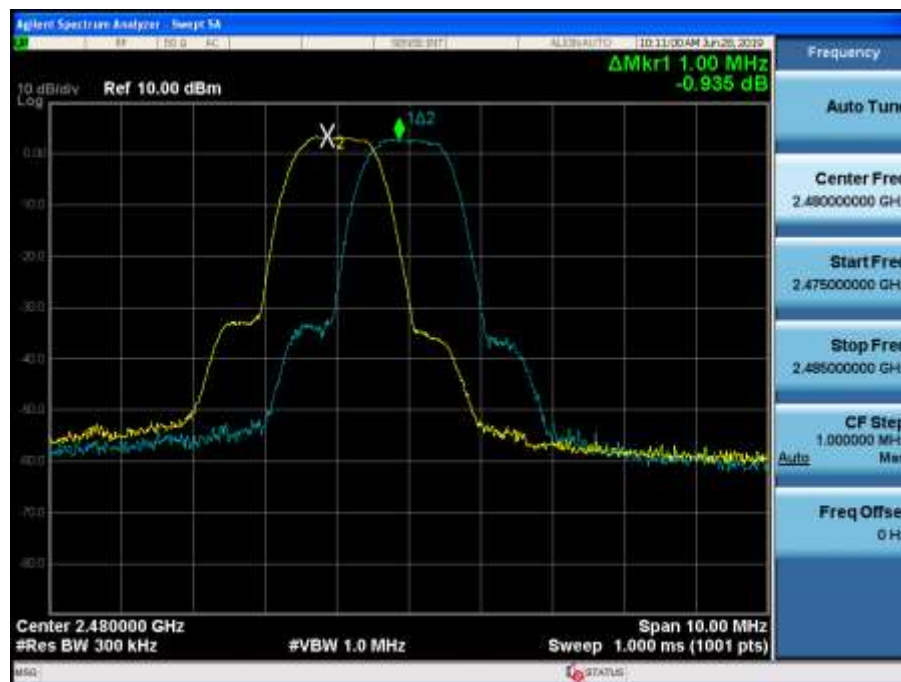
Mode 3 CH00 (2402MHz)



Mode 1 CH39 (2441MHz)

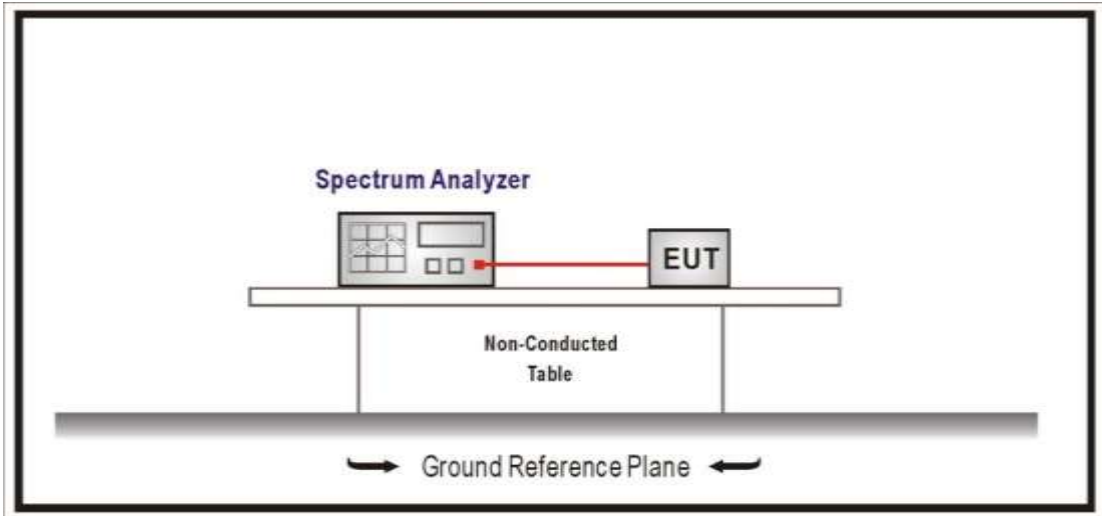


Mode 1 CH78 (2480MHz)



4.9 Number of Hopping Frequencies	VERDICT: PASS
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4.9.1 Limit	
Standard	FCC Part 15 Subpart C Paragraph 15.247(a)(1)(iii)
☒	For frequency hopping systems operating in the 2400-2483.5 MHz band shall use at least 15 hopping frequencies.
☐	For frequency hopping systems operating in 902-928 MHz band, if the 20 dB bandwidth of the hopping channel is less than 250 kHz, shall use at least 50 hopping frequencies.
☐	For frequency hopping systems operating in 902-928 MHz band, if the 20 dB bandwidth of the hopping channel is higher than 250 kHz, shall use at least 25 hopping frequencies.
☐	For frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies.

4.9.2 Test Setup
 The diagram illustrates the test setup. A Spectrum Analyzer and an EUT (Equipment Under Test) are placed on a Non-Conducted Table. They are connected by a red cable. Below the table is a Ground Reference Plane, indicated by a horizontal line with arrows pointing outwards.

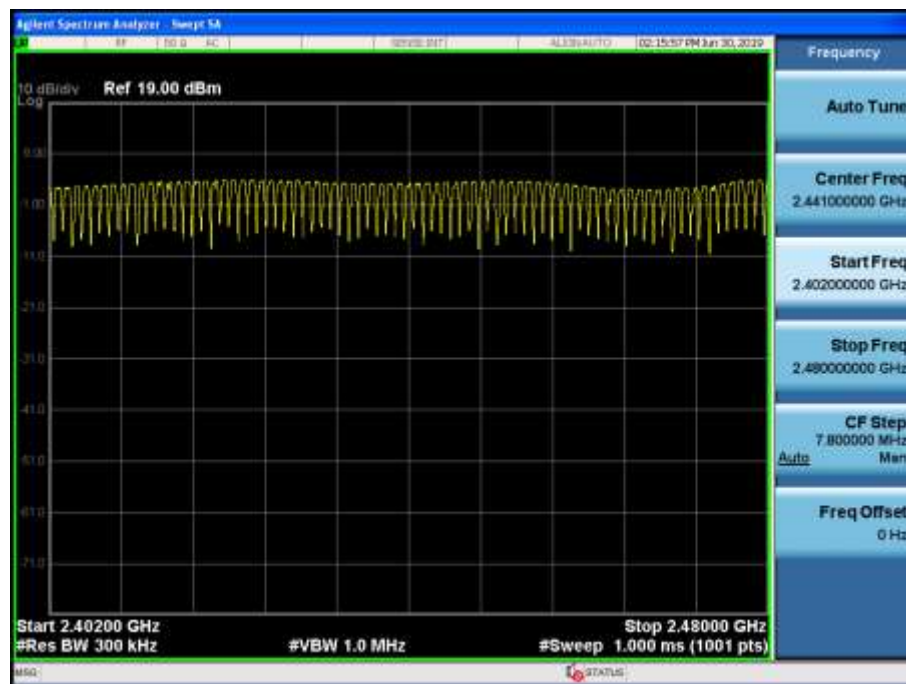
4.9.3 Test Procedure			
	Reference Rule	Chapter	Description
☒	ANSI C63.10	7.8.3	Number of Hopping Frequencies

4.9.4 Test Data

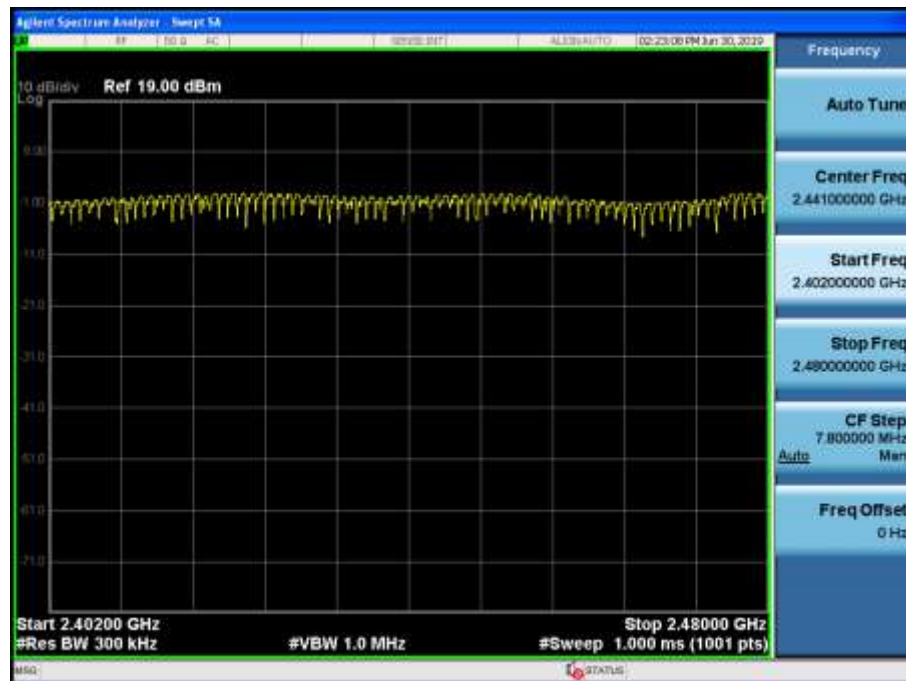
Mode	CH.	Freq. band (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
1	00	2400~2483.5	79	>15	Pass
2	00	2400~2483.5	79	>15	Pass
3	00	2400~2483.5	79	>15	Pass

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

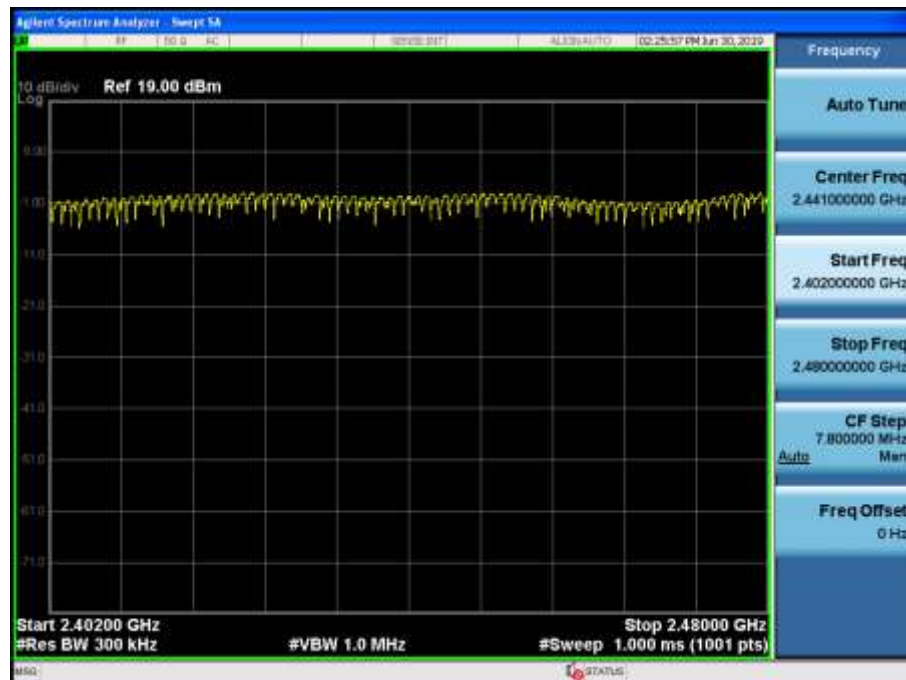
Mode 1



Mode 2

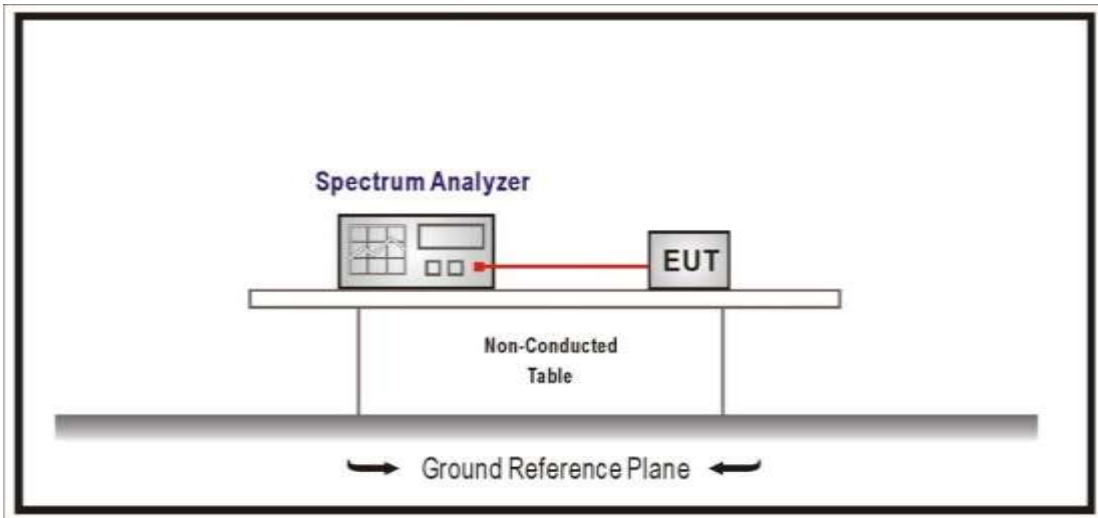


Mode 3



4.10 Time of Occupancy (Dwell Time)	VERDICT: PASS
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4.10.1 Limit	
Standard	FCC Part 15 Subpart C Paragraph 15.247(a)(1)(iii)
☒	Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.
☐	For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period
☐	For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period.
☐	Frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies. The maximum 20 dB bandwidth of the hopping channel is 1 MHz. The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 30 second period.

4.10.2 Test Setup
 The diagram illustrates the test setup. A Spectrum Analyzer and the Equipment Under Test (EUT) are connected by a red cable. They are positioned on a Non-Conducted Table. Below the table, a Ground Reference Plane is indicated by a double-headed arrow.

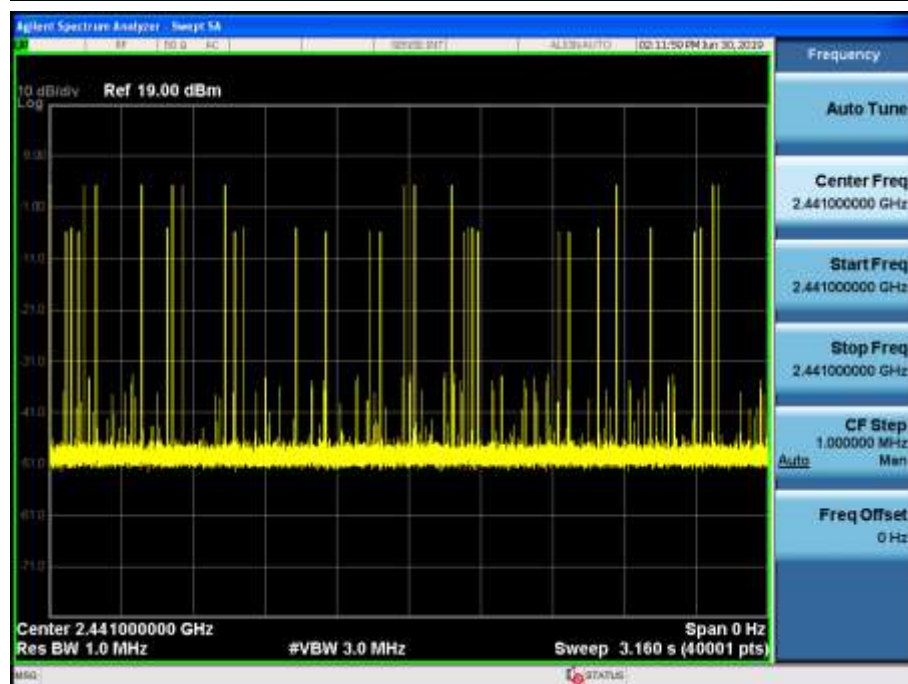
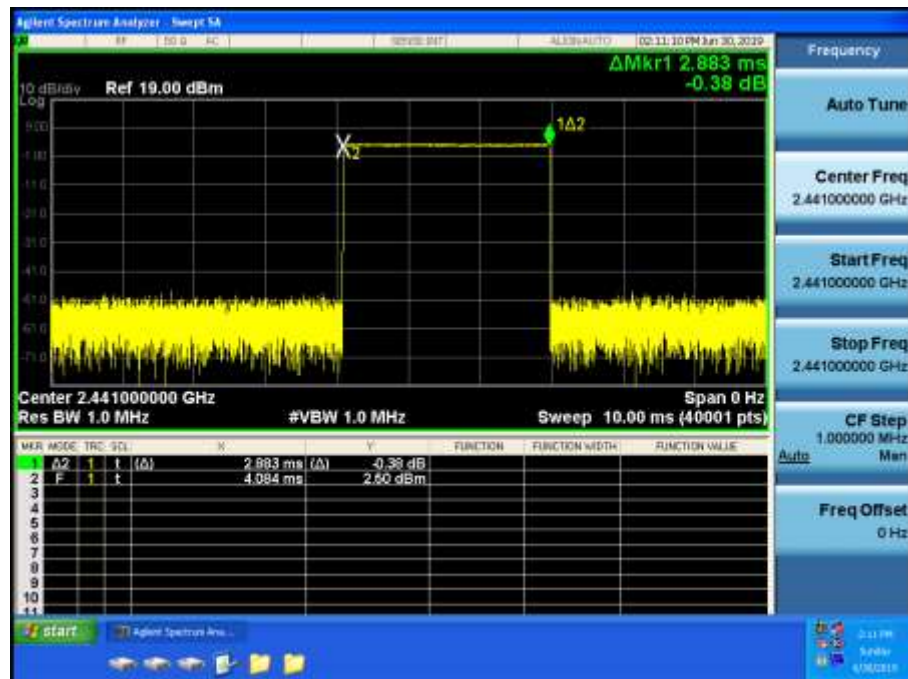
4.10.3 Test Procedure			
	Reference Rule	Chapter	Description
☒	ANSI C63.10	7.8.4	Time of Occupancy (Dwell Time)

4.10.4 Test Data

Mode	CH.	Test Freq.	Time of Occupancy (ms)	Limit (ms)	Result
1	00	2402	123.23	≤400	Pass
2	00	2402	212.16	≤400	Pass
3	00	2402	345.96	≤400	Pass

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

Mode 3



4.11 Antenna Requirement	VERDICT: PASS
---------------------------------	----------------------

4.11.1 Limit:	
Standard	FCC Part 15 Subpart C Paragraph 15.203
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.	

4.11.2 Antenna Connector Construction:	
☒	The use of a permanently attached antenna
☐	The antenna use of a unique coupling to the intentional radiator
☐	The use of a nonstandard antenna jack or electrical connector
Please refer to the attached document "Internal Photograph" to show the antenna connector.	



4.12 Test setup photo and EUT Photo	VERDICT: PASS
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Remark: The test setup photo and EUT Photo please see appendix.

_____ The End _____