



Test Report

FCC Part15 Subpart C& RSS-247 Issue 2

Product Name : Barcode Scanner

Model No. : Voyager 1202g

FCC ID : HD5-1202A

IC : 1693B-1202A

Applicant : HONEYWELL INTERNATIONAL INC
Honeywell Safety and Productivity Solutions

Address : 9680 OLD BAILES RD FORT MILL SC
29707-7539,USA

Date of Receipt : Apr. 08, 2020

Test Date : Apr. 09, 2020 ~ May. 12, 2020

Issued Date : May. 13, 2020

Report No. : 2040166R-RF-US-P06V01

Report Version : V1.0

The test results presented in this report relate only to the object tested.

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

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Test Report Certification

Issued Date: May. 13, 2020

Report No.: 2040166R-RF-US-P06V01



Product Name : Barcode Scanner
Applicant : HONEYWELL INTERNATIONAL INC
Honeywell Safety and Productivity Solutions
Address : 9680 OLD BAILES RD FORT MILL SC 29707-7539,USA
Manufacturer : 1. HONEYWELL INTERNATIONAL INC
Honeywell Safety and Productivity Solutions
2. Metro(Suzhou)Technologies Co.,Ltd
Address : 1. 9680 OLD BAILES RD FORT MILL SC 29707-7539,USA
2. No.221 Xinghai street China-Singapore Suzhou Industrial Park
Model No. : Voyager 1202g
Trademark : Honeywell
FCC ID : HD5-1202A
IC : 1693B-1202A
EUT Voltage : 3.2~4.2 Vdc
Applicable Standard : FCC CFR Title 47 Part 15 Subpart C
KDB 558074 D01v05r02
ANSI C63.10: 2013
RSS-Gen Issue 5/RSS-247 Issue 2
Test Result : Complied
Performed Location : DEKRA Testing & Certification (Suzhou) Co., Ltd.
No.99 Hongye Rd., Suzhou Industrial Park, Suzhou, 215006,
Jiangsu, China
TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098
FCC Designation Number: CN1199;
ISED CAB identifier: CN0040

Documented By

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(Project Assistant: Kitty Li)

Reviewed By

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(Technical Supervisor: Frank He)

Approved By

:



(Supervisor: Jack Zhang)

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
2040166R-RF-US-P06V01	V1.0	Initial Issued Report	May. 13, 2020

1. General Information

1.1. EUT Description

Product Name	Barcode Scanner
Model No.	Voyager 1202g
EUT Voltage	3.2~4.2 Vdc
Test Voltage	Battery 3.7 Vdc
Bluetooth Specification	V3.0
Frequency Range	2402- 2480 MHz
Channel Number	V3.0: 79
Channel Separation	V3.0: 1MHz
Type of Modulation	V3.0: GFSK, Pi/4 DQPSK, 8DPSK
Data Rate	V3.0: 1Mbps(GFSK), 2Mbps(Pi/4 DQPSK), 3Mbps(8DPSK)
Antenna Type	Reference to Antenna List
Peak Antenna Gain	Reference to Antenna 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

1.2 Antenna information

Antenna model	N/A					
Antenna Delivery	☒	1*TX+1*RX	☐	2*TX+2*RX	☐	3*TX+3*RX
Antenna technology	☒	SISO				
	☐	MIMO	☐	Basic		
			☐	CDD		
			☐	Beam-forming		
Antenna Type	☐	External	☐	Dipole		
	☒	Internal	☐	PIFA		
			☒	PCB		
			☐	Ceramic Chip Antenna		
			☐	Stamping Antenna		
			☐	Metal plate type F antenna		
			☐	Monopole antenna		
Antenna Gain	-0.5 dBi					

1.3 Mode of Operation

DEKRA has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

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

Note:

1. For portable device, radiated spurious emission was verified over X, Y, Z Axis, and shown the worst case on this report.
2. Regards to the frequency band operation for systems using FHSS modulation: normal operation (hopping) was selected to test for conducted spurious test.
3. The extreme test condition for voltage and temperature were declared by the manufacturer.
4. The reading values of all the test items contain cable loss.

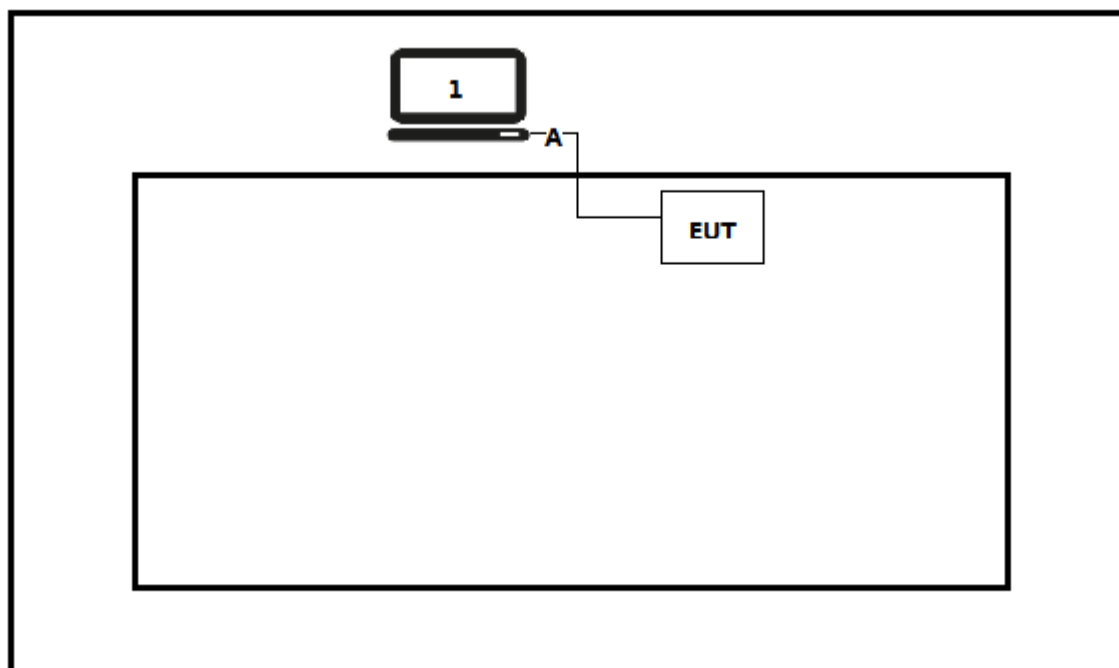
1.4 Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

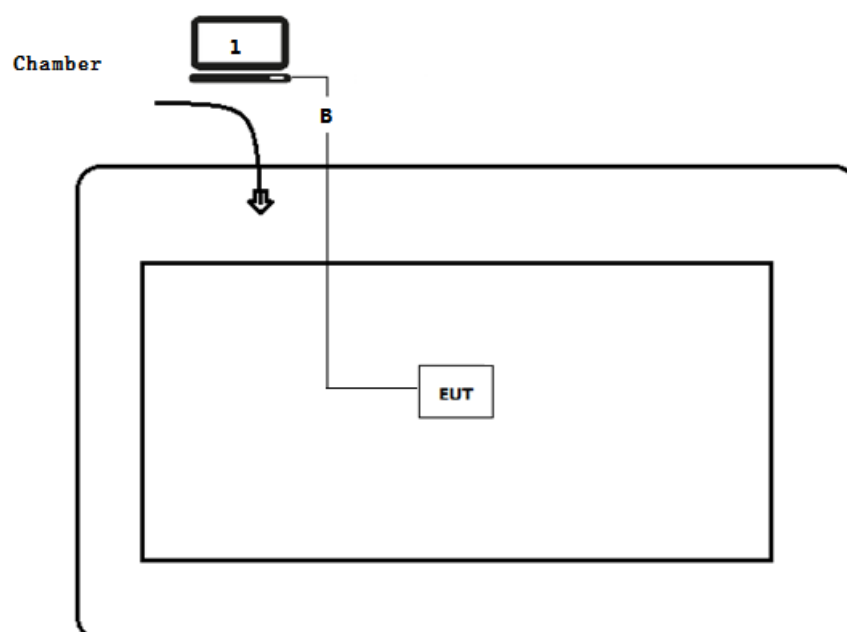
Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook	Think Pad	2526	LV-A3285	Power by adapter
A	USB Cable	N/A	N/A	N/A	Shield, 0.5m
B	USB Cable	N/A	N/A	N/A	Shield, 10m

1.5 Configuration of Tested System

Test setup Diagram- AC Line Conducted Emission Test



Test setup Diagram- Radiated Emission



1.6 EUT Exercise Software

1	Setup the EUT as shown in Section 1.5
2	Execute the test program.
3	Configure the test mode, the test channel, and the data rate.
4	Verify that the EUT works properly.

2. Technical Test

2.1. Summary of Test Result

- ☒ No deviations from the test standards
- ☐ Deviations from the test standards as below description:

For FCC

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.207	No	No
Emissions in restricted frequency bands	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.209	Yes	No
20dB Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(a)(1)	Yes	No
Carrier Frequency Separation	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(a)(1)	Yes	No
Number of Hopping Frequencies	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(a)(1)(iii)	Yes	No
Time of Occupancy (Dwell Time)	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(a)(1)(iii)	Yes	No
Peak Output Power	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(b)(1)	Yes	No
Emissions in non-restricted frequency bands	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.215(c), 15.247(d)	Yes	No
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2015 15.247(d)	Yes	No
Antenna Requirement	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.203	Yes	No

For ISED

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	RSS-Gen Issue 5 Section 8.8	No	No
Radiated Emission	RSS-Gen Issue 5 Section 8.9	Yes	No
20dB Bandwidth	RSS-247 Issue 2 Section 5.1	Yes	No
Carrier Frequency Separation	RSS-247 Issue 2 Section 5.1	Yes	No
Number of Hopping Frequencies	RSS-247 Issue 2 Section 5.1	Yes	No
Time of Occupancy (Dwell Time)	RSS-247 Issue 2 Section 5.1	Yes	No
Peak Output Power	RSS-247 Issue 2 Section 5.4	Yes	No
Emissions in non-restricted frequency bands	RSS-247 Issue 2 Section 5.5	Yes	No
Radiated Emission Band Edge	RSS-Gen Issue 5 Section 8.10	Yes	No
Antenna Requirement	RSS-Gen Issue 5 Section 8.3	Yes	No

2.2. Test Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	21
Humidity (%RH)	25-75	50
Barometric pressure (mbar)	860-1060	950-1000

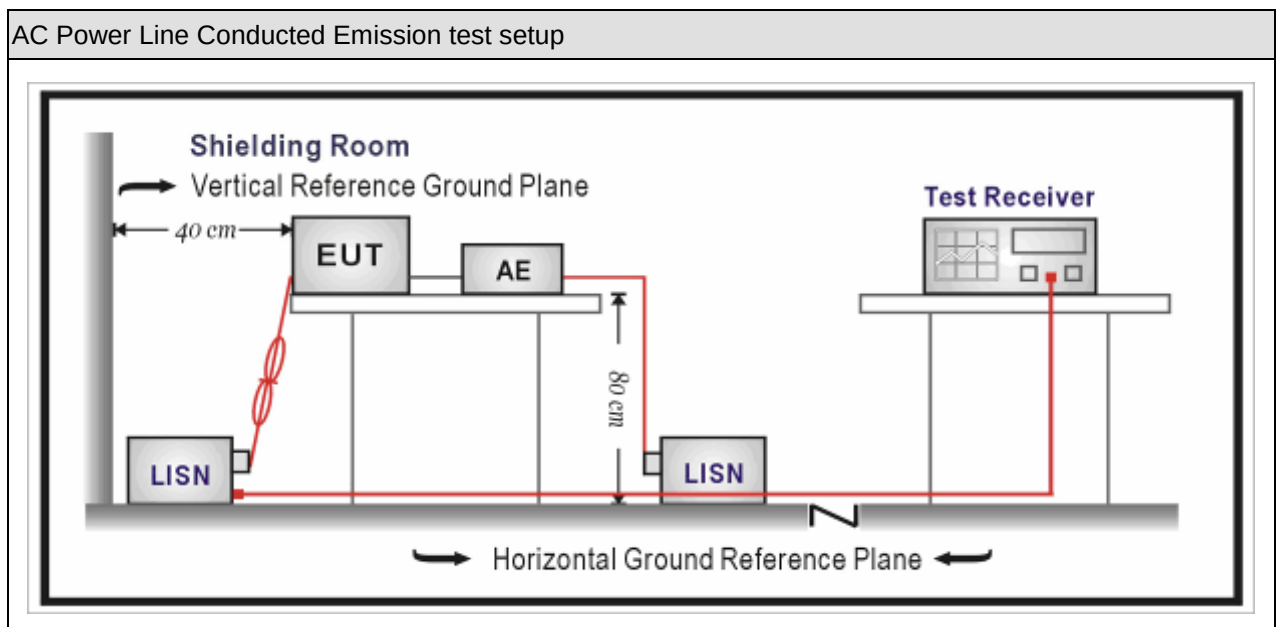
3. Conducted Emission

3.1. Test Equipment

AC Power Line Conducted Emission / TR-1					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100906	2020.04.18	2021.04.17
Two-Line V-Network	R&S	ENV 216	101189	2019.10.16	2020.10.15
Two-Line V-Network	R&S	ENV 216	101044	2020.04.18	2021.04.17
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	N/A	N/A
50ohm Termination	SHX	TF2	7081402	2019.09.02	2020.09.01
Temperature/Humidity Meter	RTS	RTS-8S	TR1-TH	2019.08.21	2020.08.20
Quietek EMI V3(test software)	Quietek	N/A	N/A	N/A	N/A

Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

3.2. Test Setup



3.3. Limit

Frequency of Emission (MHz)	Conducted Limit	
	Quasi-peak (dB μ V)	Average(dB μ V)
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50
Note 1: The lower limit shall apply at the transition frequencies.		
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.		

3.4. Test Procedure

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

3.5. Uncertainty

The measurement uncertainty is defined as ± 2.02 dB

3.6. Test Result

Note: The EUT is powered by battery, so this test item is not applicable

4. Emissions in restricted frequency bands

4.1. Test Equipment

Radiated Emission(Below 1GHz) / AC-2					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100573	2019.12.28	2020.12.27
Loop Antenna	R&S	HFH2-Z2	833799/003	2020.02.17	2021.02.16
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2019.09.23	2020.09.22
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2020.04.13	2021.04.12
Temperature/Humidity Meter	RTS	RTS-8S	AC2-TH	2019.09.02	2020.09.01
Quietek EMI V3(test software)	Quietek	N/A	N/A	N/A	N/A
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

Radiated Emission(Above 1GHz) / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	R&S	FSV	104212	2019.12.28	2020.12.27
Signal analyzer	Agilent	E4446A	MY45300103	2020.05.08	2021.05.07
low Noise Amplifier	BXT	NA2651D	LNA17040209	2020.04.13	2021.04.12
Pre-Amplifier	EMCI	EMC184045SE	980263	2019.06.13	2020.06.12
DRG Horn Antenna	ETS-Lindgren	3117	00167055	2019.05.25	2020.05.24
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2019.03.23	2021.03.22
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2020.04.13	2021.04.12
Coaxial Cable	ROSENBERGER	LA1-C011-2000/3000	AC5-40G	2020.04.18	2021.04.17
Temperature/Humidity Meter	RTS	RTS-8S	AC5-TH	2019.09.02	2020.09.01
Quietek EMI V3(test software)	Quietek	N/A	N/A	N/A	N/A
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

4.3. Limit

For FCC:

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			

For ISED:

Restricted Bands of operation

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090-0.110	13.36-13.41	1645.5-1646.5	13.25-13.4
2.1735-2.1905	16.42-16.423	1660-1710	14.47-14.5
3.020-3.026	16.69475-16.69525	1718.8-1722.2	15.35-16.2
4.125-4.128	16.80425-16.80475	2200-2300	17.7-21.4
4.17725-4.17775	25.5-25.67	2310-2390	22.01-23.12
4.20725-4.20775	37.5-38.25	2655-2900	23.6-24.0
5.677-5.683	73-74.6	3260-3267	31.2-31.8
6.215-6.218	74.8-75.2	3332-3339	36.43-36.5
6.26775-6.26825	108-138	3345.8-3358	Above 38.6
6.31175-6.31225	156.52475-156.52525	3500-4400	
8.291-8.294	156.7-156.9	4500-5150	
8.362-8.366	240-285	5350-5460	
8.37625-8.38675	322-335.4	7250-7750	
8.41425-8.41475	399.9-410	8025-8500	
12.29-12.293	608-614	9.0-9.2	
12.51975-12.52025	960-1427	9.3-9.5	
12.57675-12.57725	1435-1626.5	10.6-12.7	

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 _(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).

4.4. Test Procedure

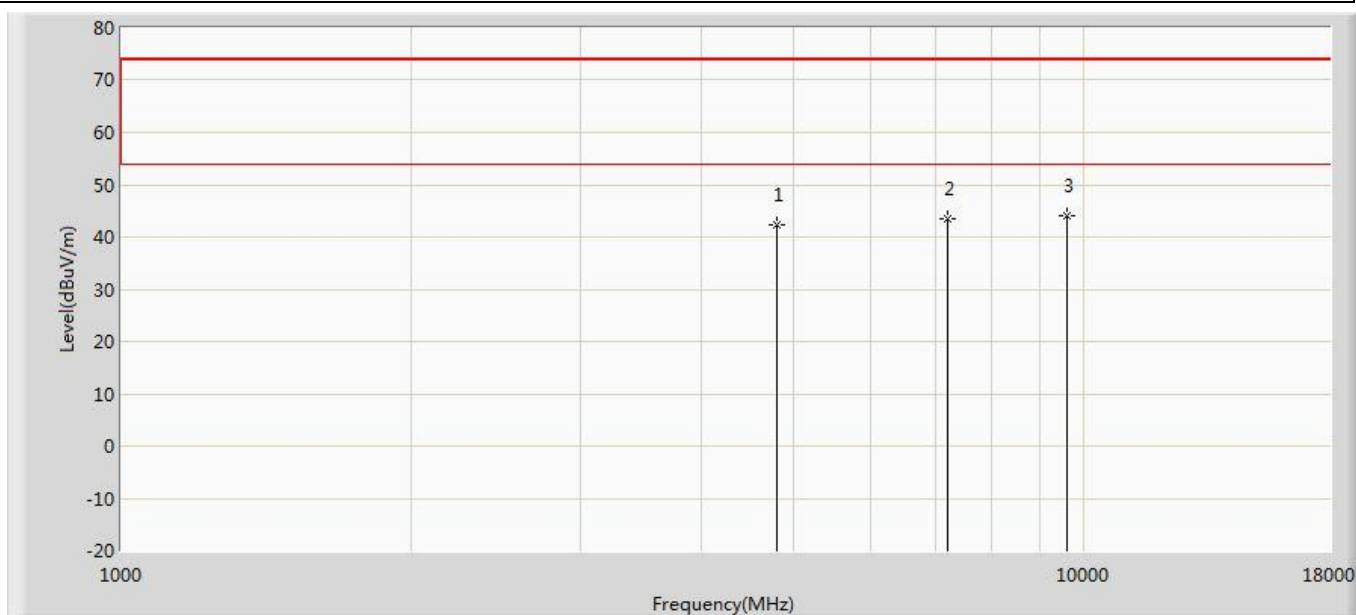
Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
☒	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
☒	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

4.5. Uncertainty

The measurement uncertainty above 1G is defined as ± 3.9 dB
below 1G is defined as ± 3.8 dB

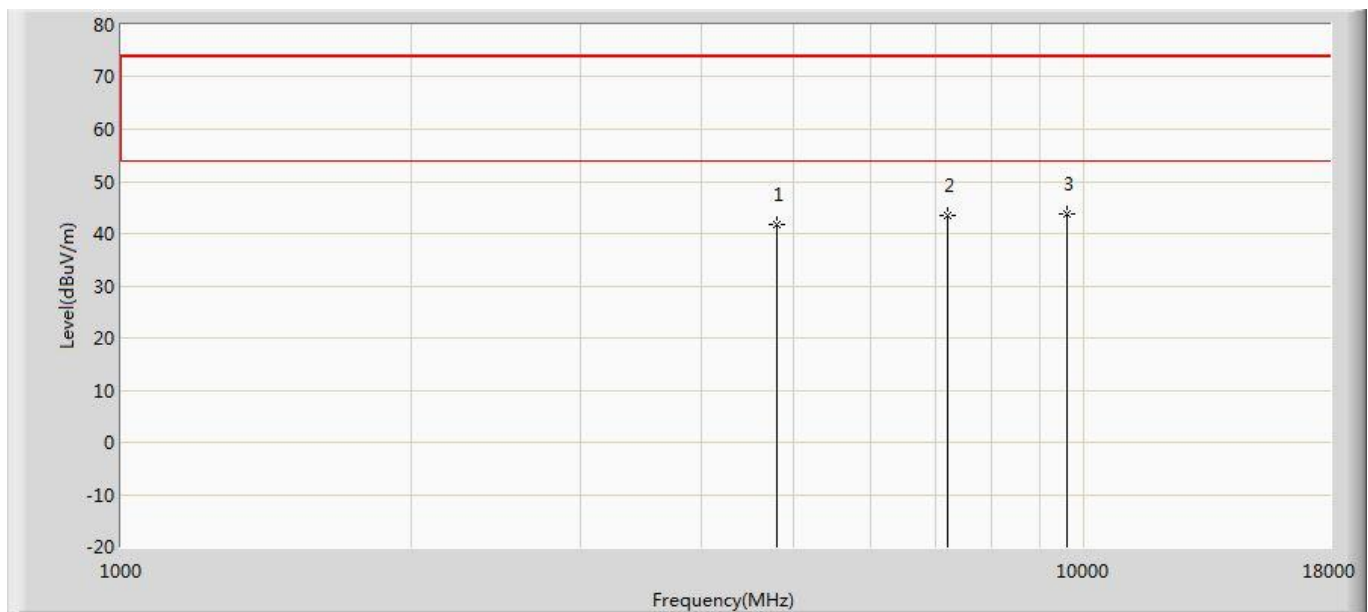
4.6. Test Result

Profile: 2040166R	Page No.: 43
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 20:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: Battery 3.7Vdc
Note: Mode1:Transmit at 2402MHz by DH5	



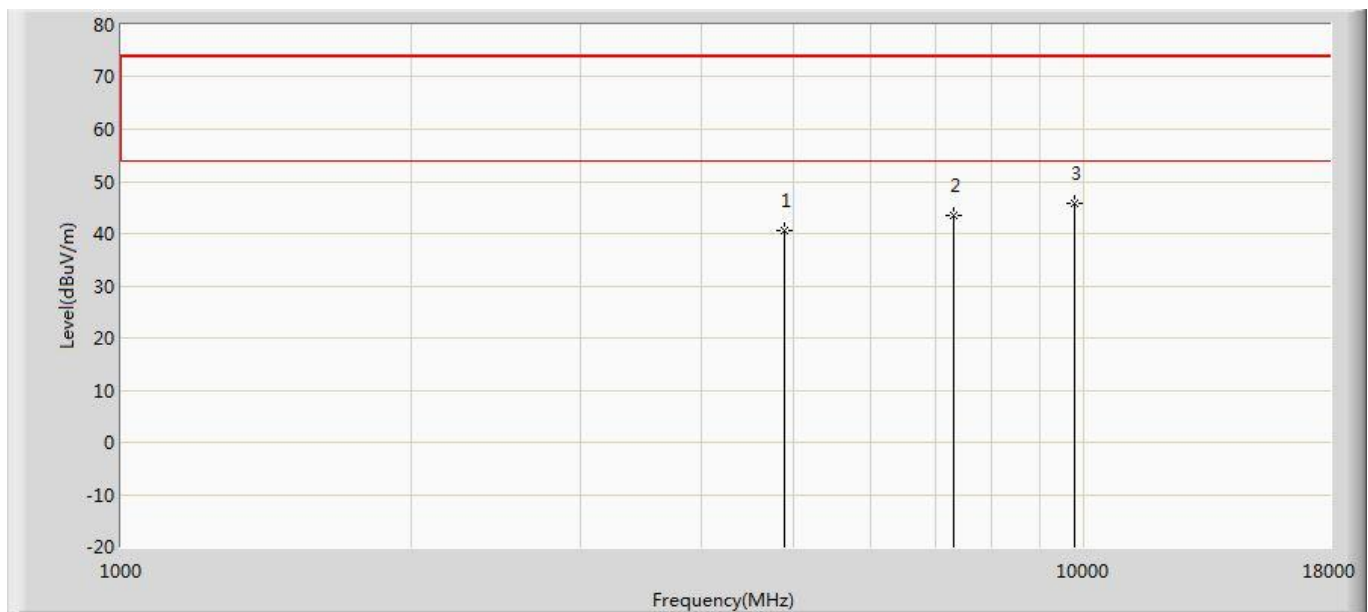
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	42.241	38.580	-31.759	74.000	3.662	PK
2		7206.000	43.342	36.679	-30.658	74.000	6.663	PK
3	*	9608.000	43.917	35.781	-30.083	74.000	8.137	PK

Profile: 2040166R	Page No.: 44
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 20:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: Battery 3.7Vdc
Note: Mode1:Transmit at 2402MHz by DH5	



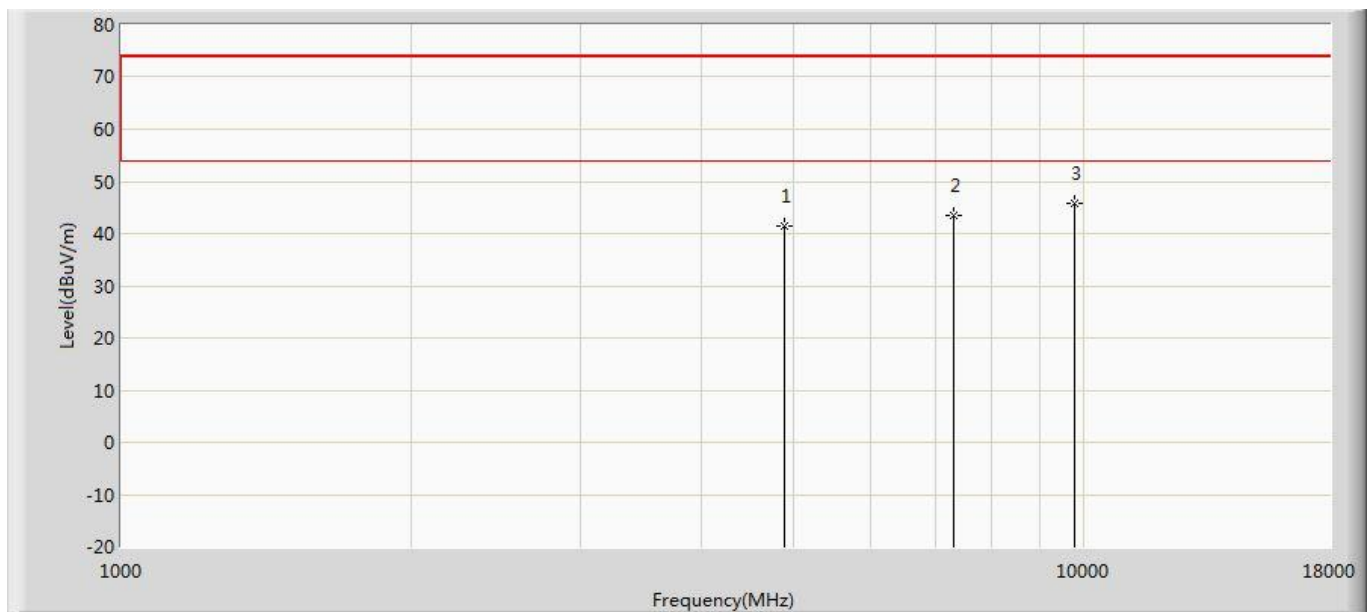
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	41.667	38.006	-32.333	74.000	3.662	PK
2		7206.000	43.445	36.782	-30.555	74.000	6.663	PK
3	*	9608.000	43.766	35.630	-30.234	74.000	8.137	PK

Profile: 2040166R	Page No.: 45
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 20:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: Battery 3.7Vdc
Note: Mode1:Transmit at 2441MHz by DH5	



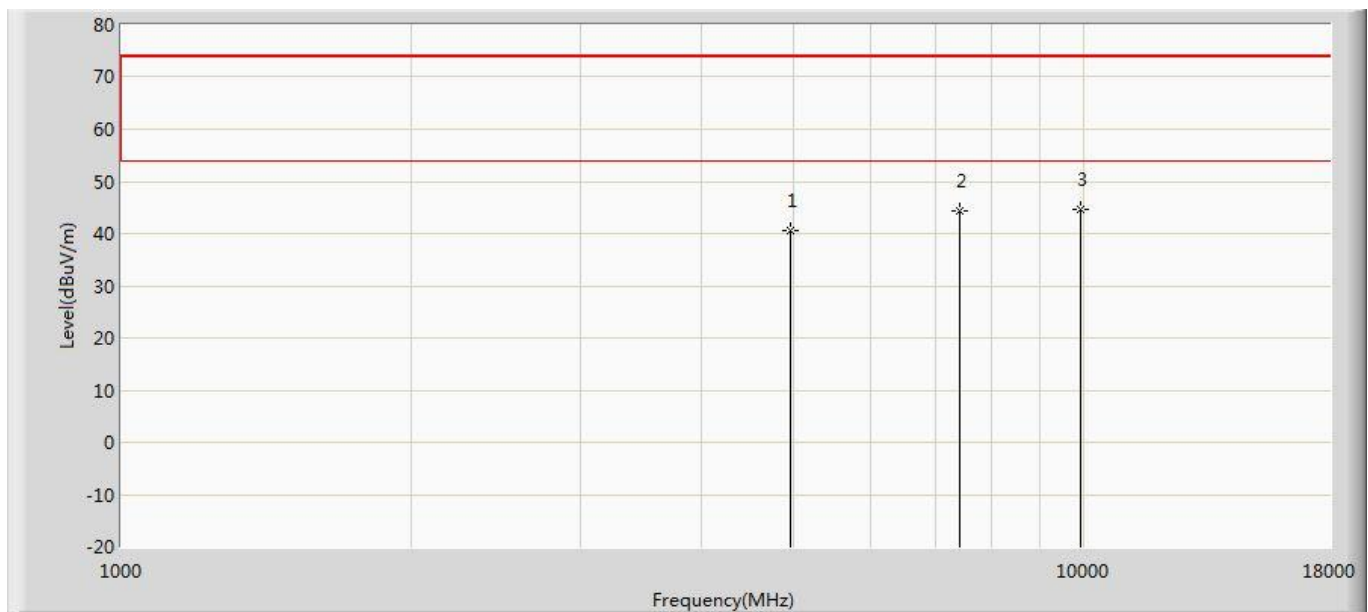
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	40.679	37.061	-33.321	74.000	3.619	PK
2		7323.000	43.386	36.683	-30.614	74.000	6.702	PK
3	*	9764.000	45.747	36.979	-28.253	74.000	8.767	PK

Profile: 2040166R	Page No.: 46
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 20:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: Battery 3.7Vdc
Note: Mode1:Transmit at 2441MHz by DH5	



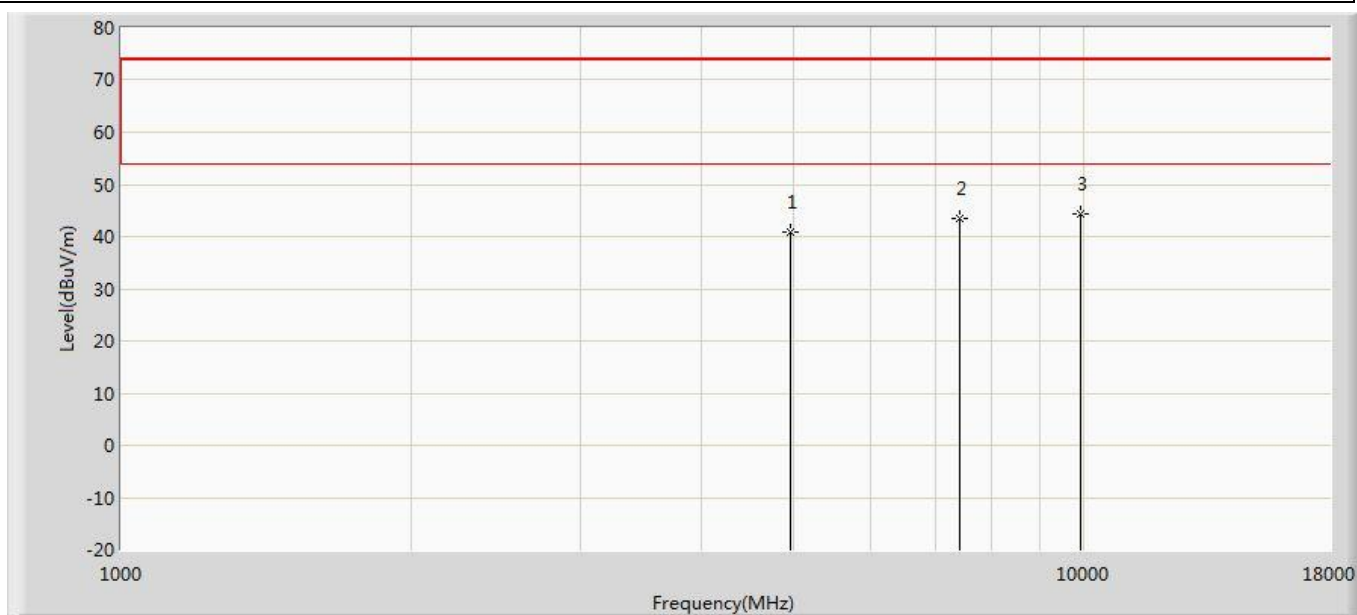
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	41.355	37.737	-32.645	74.000	3.619	PK
2		7323.000	43.620	36.917	-30.380	74.000	6.702	PK
3	*	9764.000	45.805	37.037	-28.195	74.000	8.767	PK

Profile: 2040166R	Page No.: 47
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 20:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: Battery 3.7Vdc
Note: Mode1:Transmit at 2480MHz by DH5	



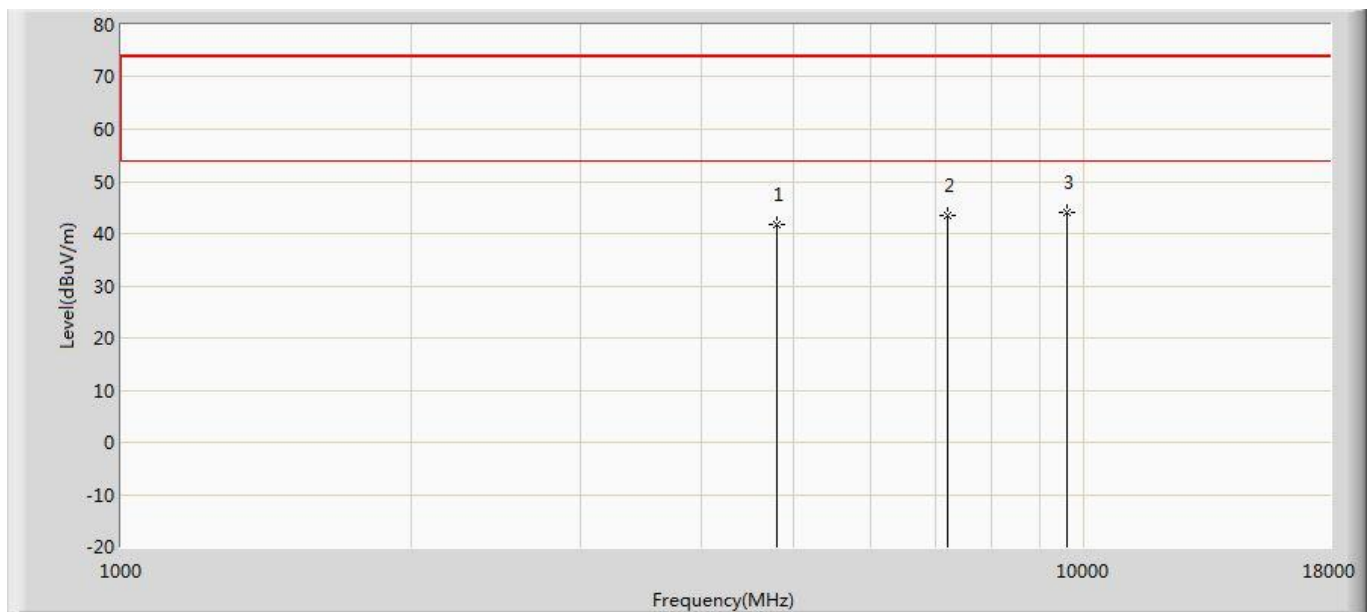
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	40.528	36.917	-33.472	74.000	3.611	PK
2		7440.000	44.255	37.670	-29.745	74.000	6.585	PK
3	*	9920.000	44.530	35.805	-29.470	74.000	8.725	PK

Profile: 2040166R	Page No.: 48
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 20:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: Battery 3.7Vdc
Note: Mode1:Transmit at 2480MHz by DH5	



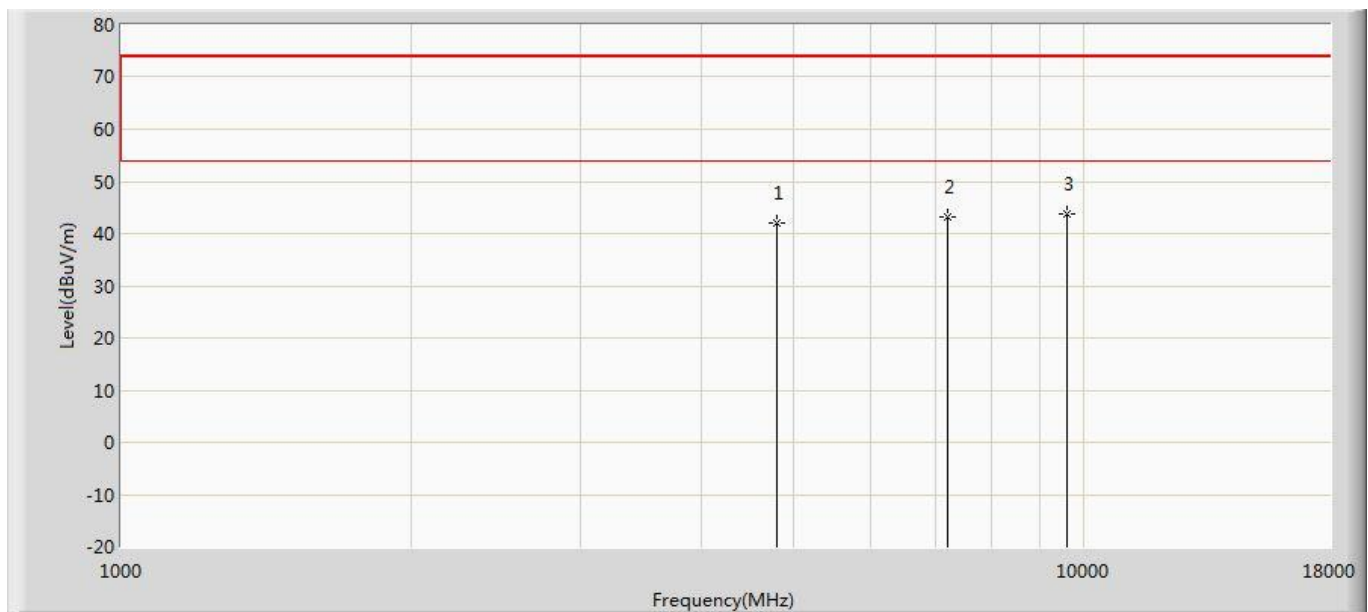
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	40.997	37.386	-33.003	74.000	3.611	PK
2		7440.000	43.358	36.773	-30.642	74.000	6.585	PK
3	*	9920.000	44.402	35.677	-29.598	74.000	8.725	PK

Profile: 2040166R	Page No.: 49
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 20:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: Battery 3.7Vdc
Note: Mode2:Transmit at 2402MHz by 2DH5	



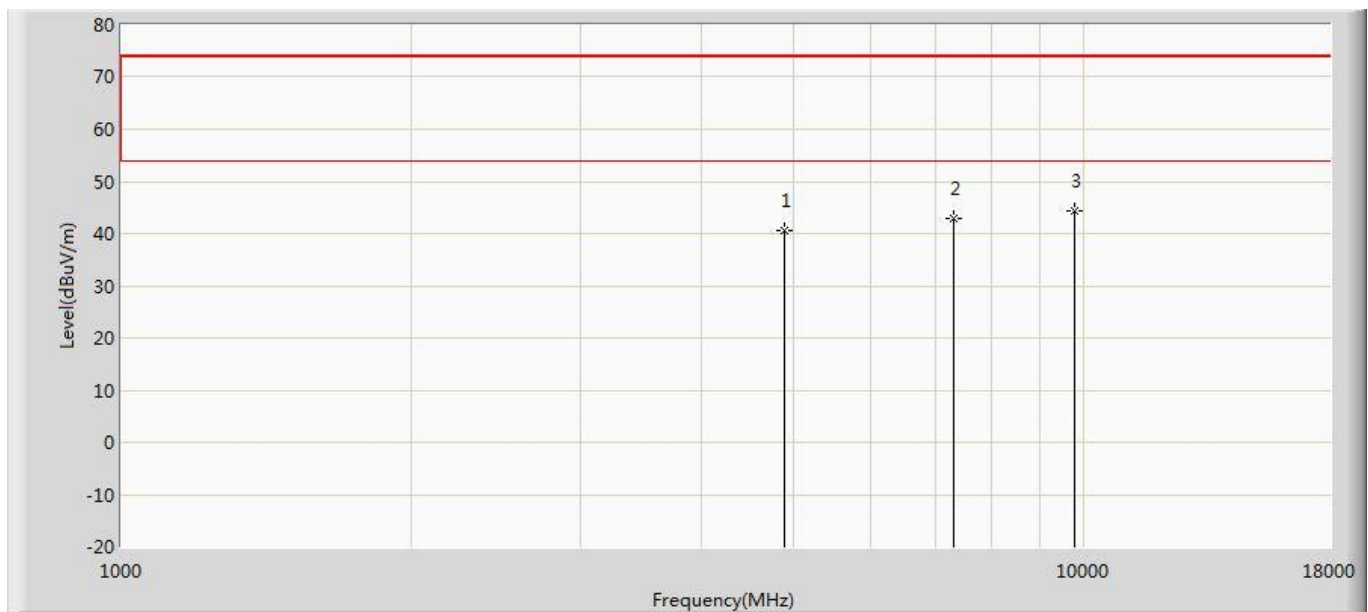
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	41.672	38.011	-32.328	74.000	3.662	PK
2		7206.000	43.346	36.683	-30.654	74.000	6.663	PK
3	*	9608.000	43.927	35.791	-30.073	74.000	8.137	PK

Profile: 2040166R	Page No.: 50
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 20:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: Battery 3.7Vdc
Note: Mode2:Transmit at 2402MHz by 2DH5	



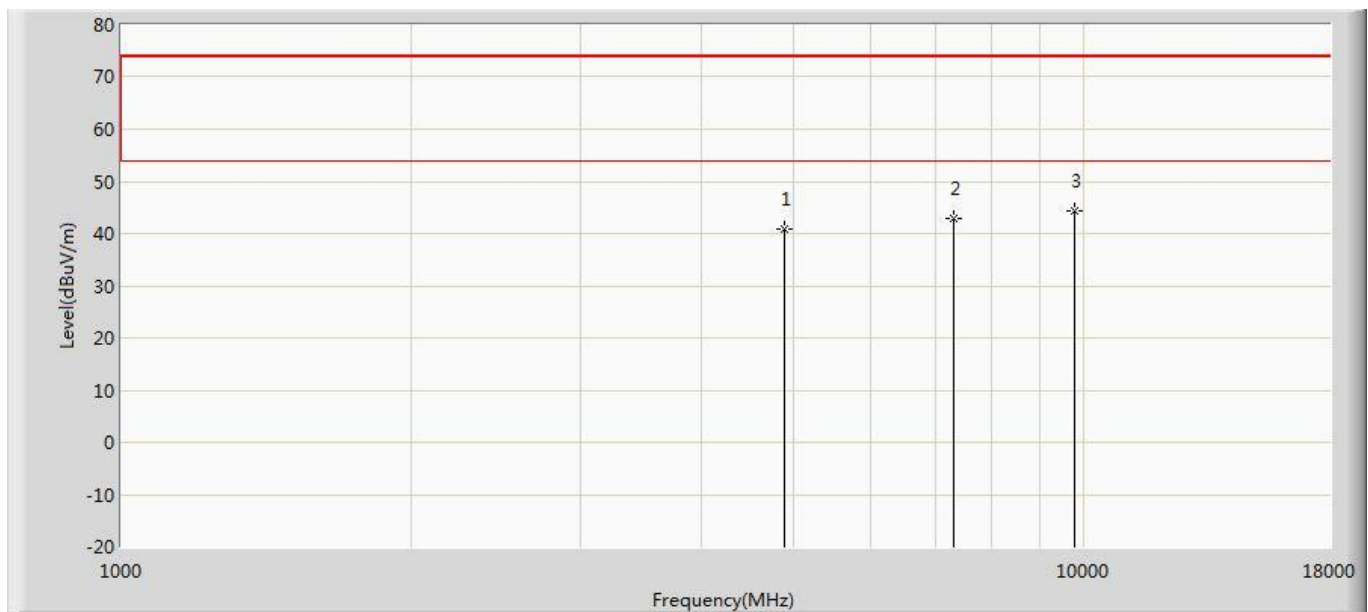
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	41.895	38.234	-32.105	74.000	3.662	PK
2		7206.000	43.123	36.460	-30.877	74.000	6.663	PK
3	*	9608.000	43.825	35.689	-30.175	74.000	8.137	PK

Profile: 2040166R	Page No.: 51
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 20:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: Battery 3.7Vdc
Note: Mode2:Transmit at 2441MHz by 2DH5	



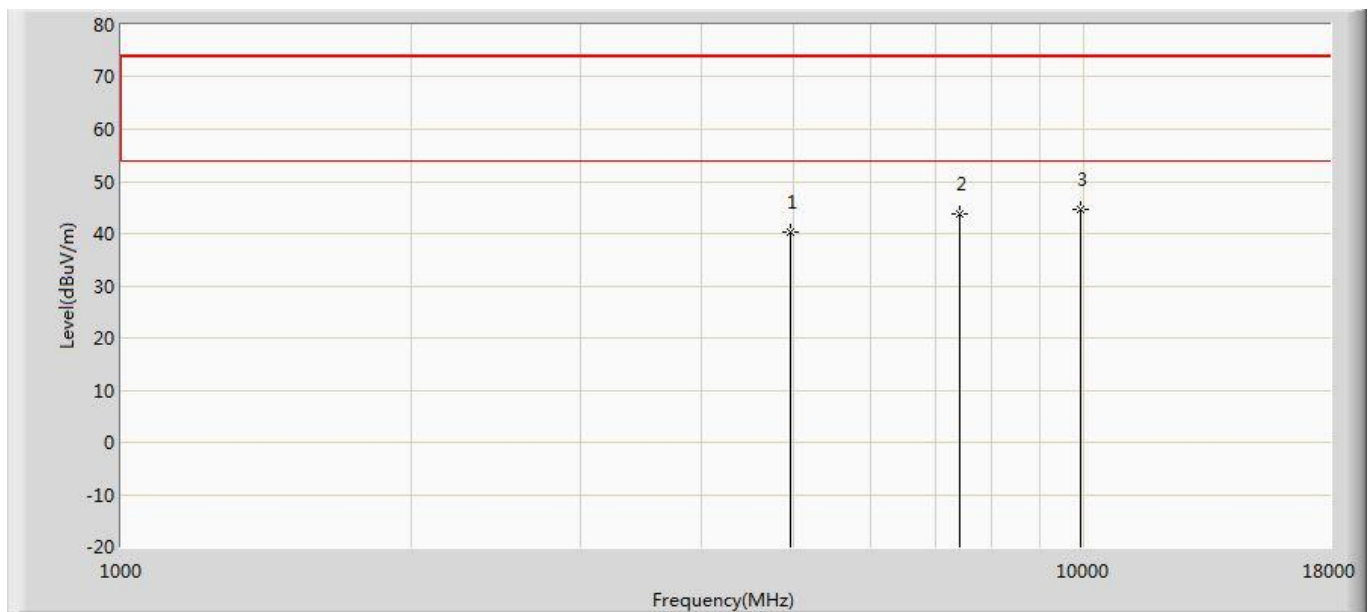
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	40.671	37.053	-33.329	74.000	3.619	PK
2		7323.000	42.886	36.183	-31.114	74.000	6.702	PK
3	*	9764.000	44.252	35.484	-29.748	74.000	8.767	PK

Profile: 2040166R	Page No.: 52
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 20:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: Battery 3.7Vdc
Note: Mode2:Transmit at 2441MHz by 2DH5	



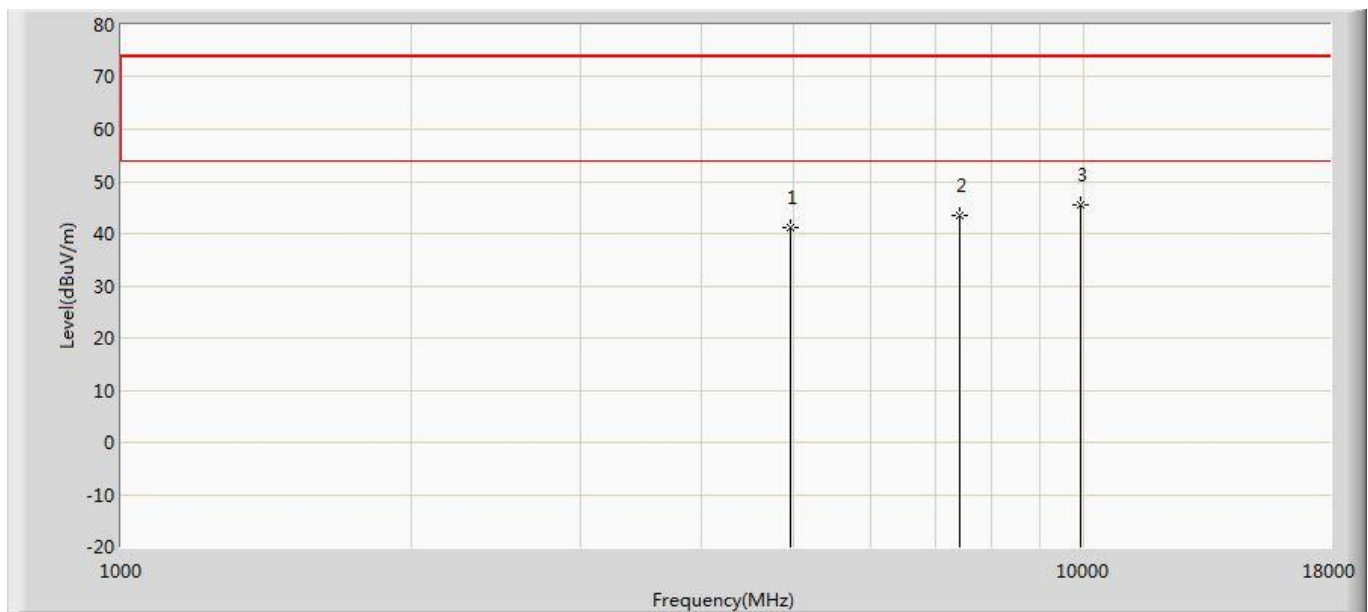
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	40.919	37.301	-33.081	74.000	3.619	PK
2		7323.000	42.976	36.273	-31.024	74.000	6.702	PK
3	*	9764.000	44.430	35.662	-29.570	74.000	8.767	PK

Profile: 2040166R	Page No.: 53
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 20:03
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: Battery 3.7Vdc
Note: Mode2:Transmit at 2480MHz by 2DH5	



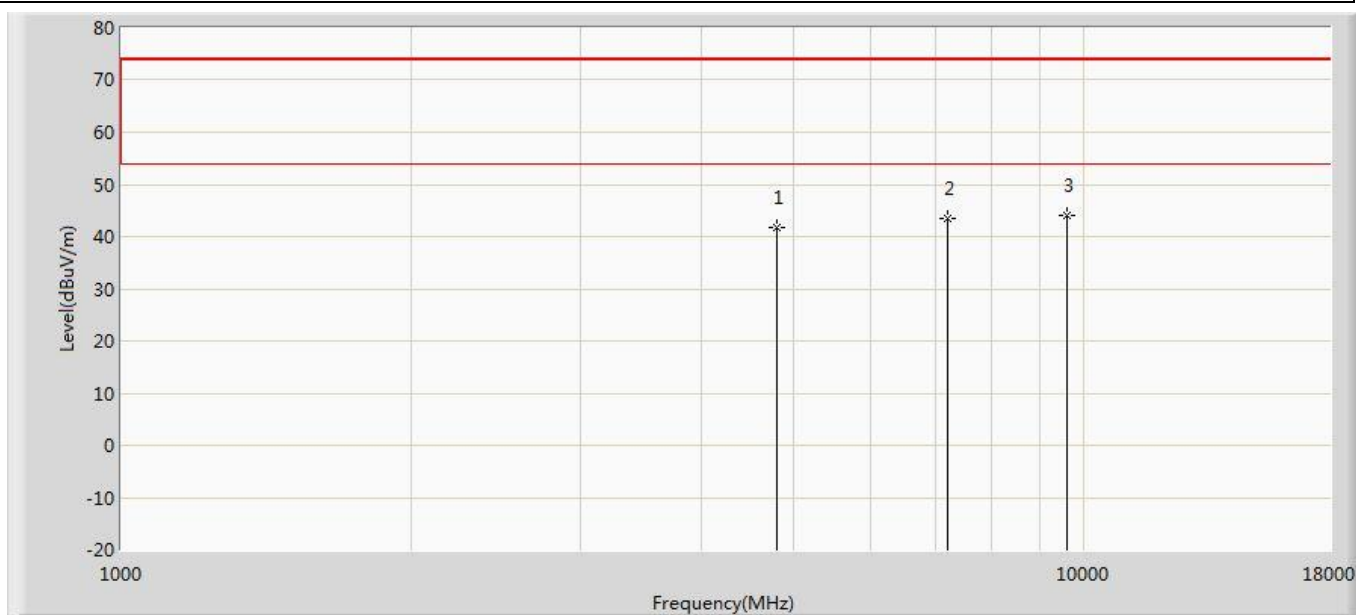
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	40.358	36.747	-33.642	74.000	3.611	PK
2		7440.000	43.902	37.317	-30.098	74.000	6.585	PK
3	*	9920.000	44.652	35.927	-29.348	74.000	8.725	PK

Profile: 2040166R	Page No.: 54
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 20:03
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: Battery 3.7Vdc
Note: Mode2:Transmit at 2480MHz by 2DH5	



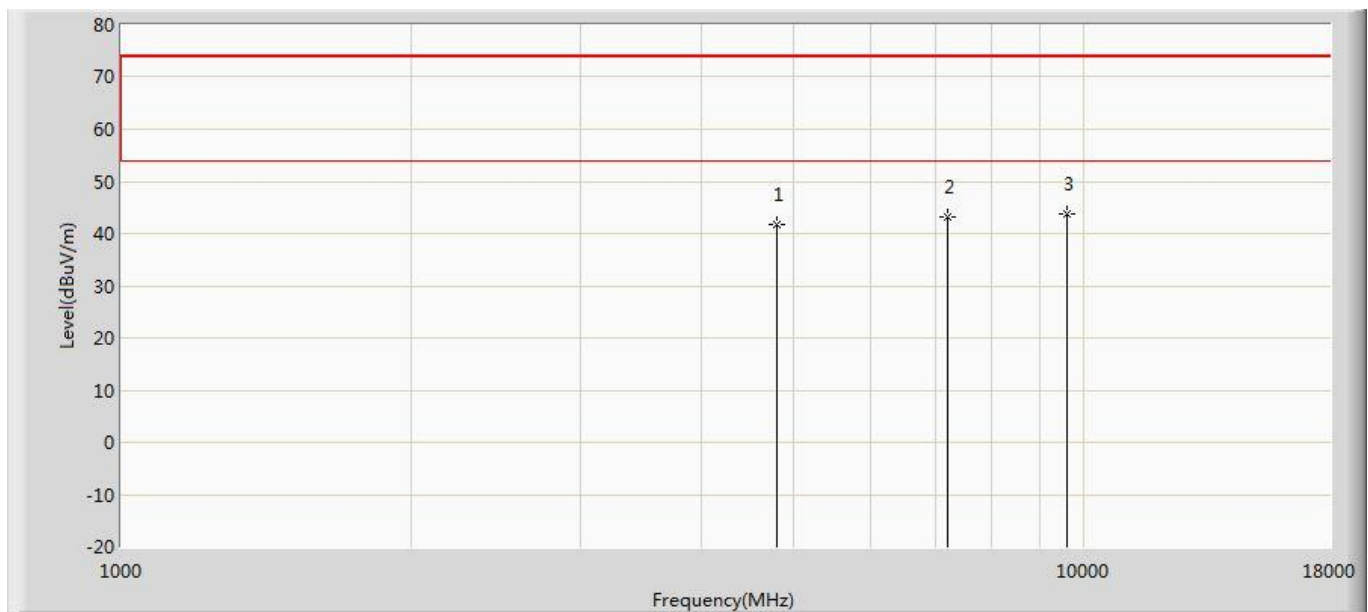
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	41.253	37.642	-32.747	74.000	3.611	PK
2		7440.000	43.417	36.832	-30.583	74.000	6.585	PK
3	*	9920.000	45.484	36.759	-28.516	74.000	8.725	PK

Profile: 2040166R	Page No.: 55
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 20:03
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: Battery 3.7Vdc
Note: Mode3:Transmit at 2402MHz by 3DH5	



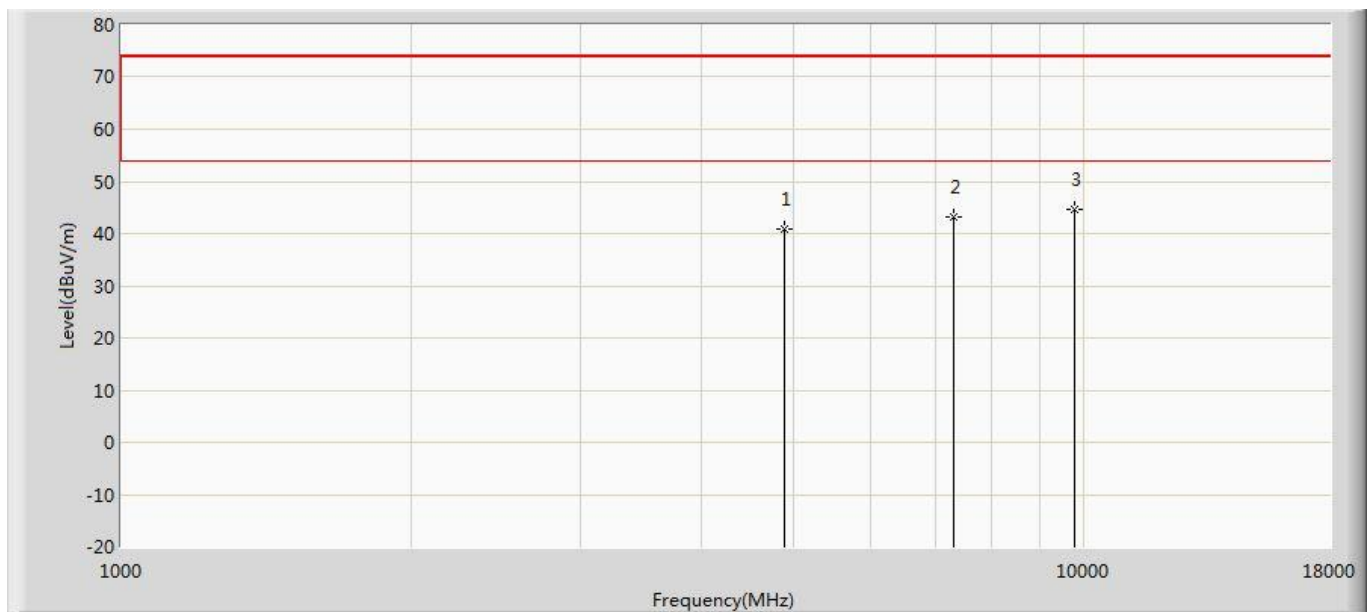
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	41.736	38.075	-32.264	74.000	3.662	PK
2		7206.000	43.601	36.938	-30.399	74.000	6.663	PK
3	*	9608.000	44.179	36.043	-29.821	74.000	8.137	PK

Profile: 2040166R	Page No.: 56
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 20:03
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: Battery 3.7Vdc
Note: Mode3:Transmit at 2402MHz by 3DH5	



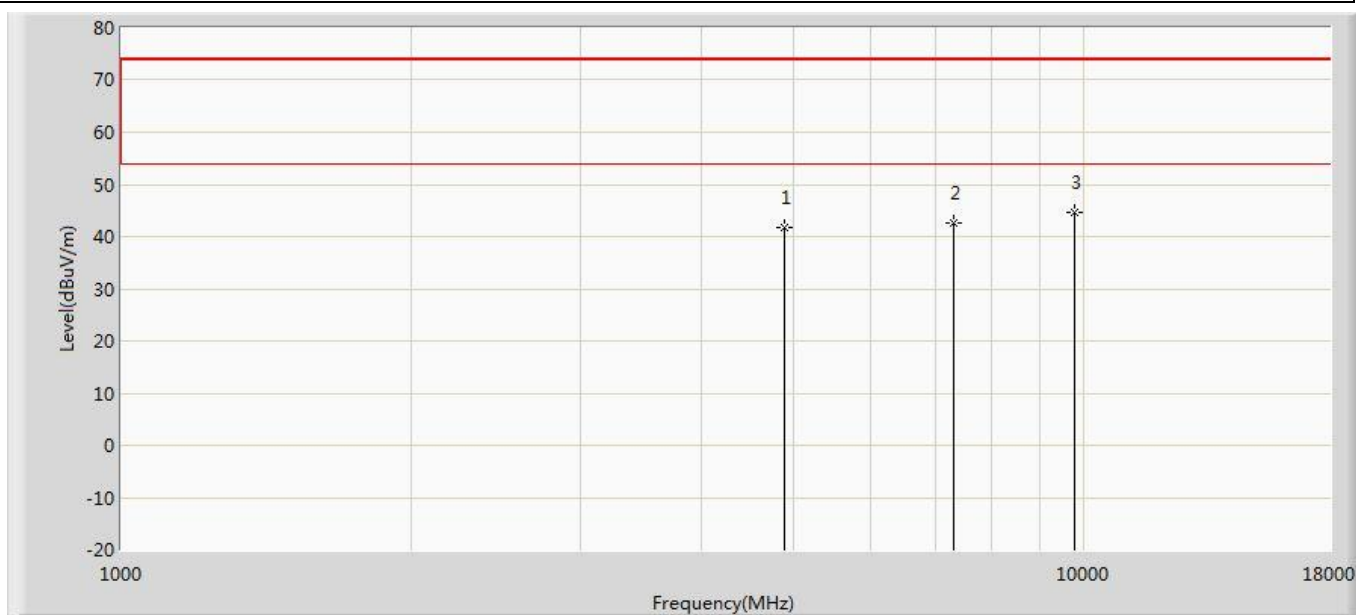
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	41.779	38.118	-32.221	74.000	3.662	PK
2		7206.000	43.202	36.539	-30.798	74.000	6.663	PK
3	*	9608.000	43.732	35.596	-30.268	74.000	8.137	PK

Profile: 2040166R	Page No.: 57
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 20:03
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: Battery 3.7Vdc
Note: Mode3:Transmit at 2441MHz by 3DH5	



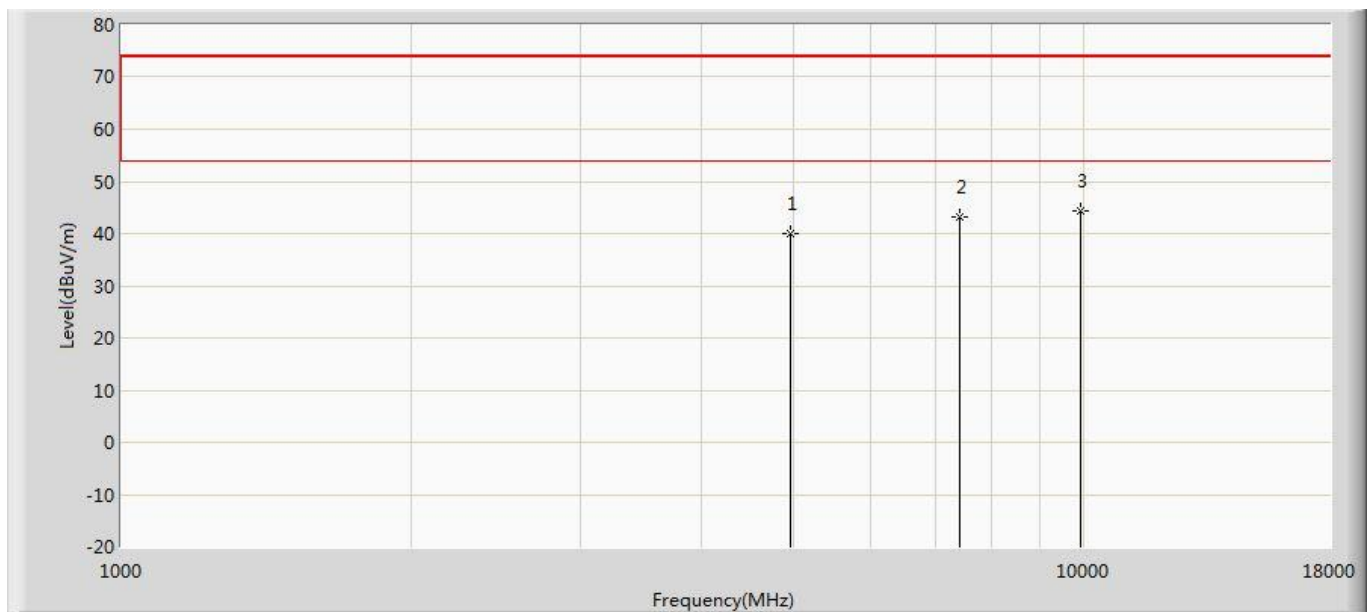
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	40.800	37.182	-33.200	74.000	3.619	PK
2		7323.000	43.066	36.363	-30.934	74.000	6.702	PK
3	*	9764.000	44.741	35.973	-29.259	74.000	8.767	PK

Profile: 2040166R	Page No.: 58
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 20:03
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: Battery 3.7Vdc
Note: Mode3:Transmit at 2441MHz by 3DH5	



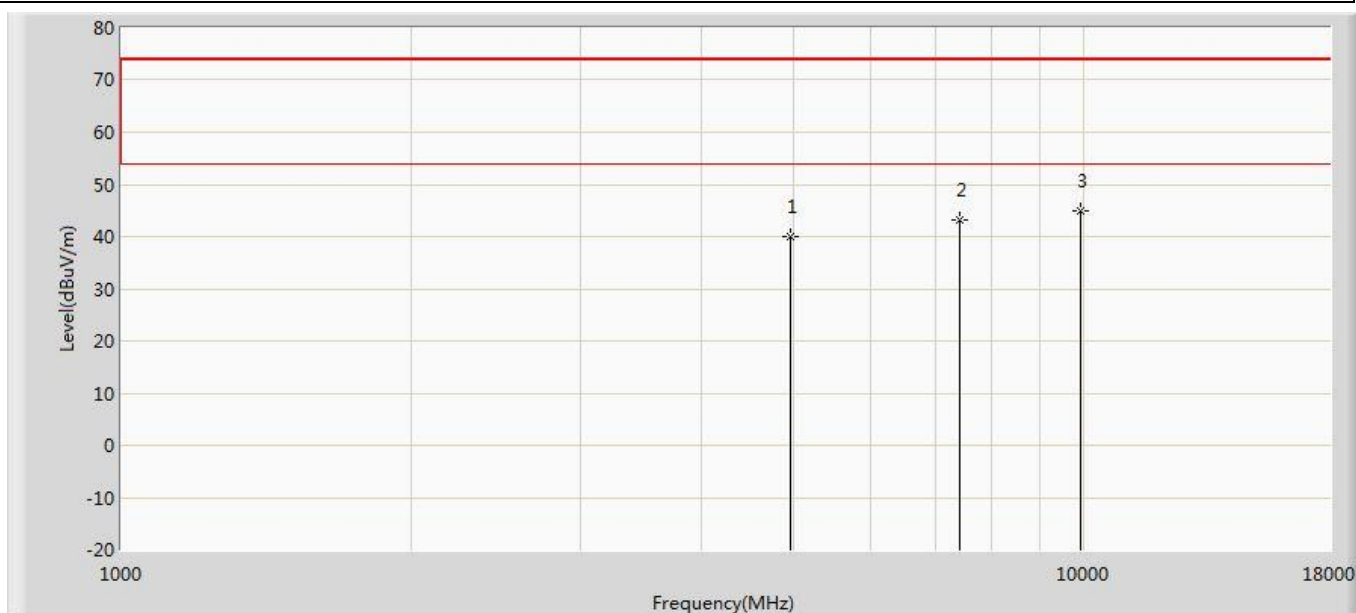
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	41.866	38.248	-32.134	74.000	3.619	PK
2		7323.000	42.745	36.042	-31.255	74.000	6.702	PK
3	*	9764.000	44.603	35.835	-29.397	74.000	8.767	PK

Profile: 2040166R	Page No.: 59
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 20:03
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: Battery 3.7Vdc
Note: Mode3: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	39.892	36.281	-34.108	74.000	3.611	PK
2		7440.000	43.198	36.613	-30.802	74.000	6.585	PK
3	*	9920.000	44.274	35.549	-29.726	74.000	8.725	PK

Profile: 2040166R	Page No.: 60
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 20:03
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: Battery 3.7Vdc
Note: Mode3:Transmit at 2480MHz by 3DH5	



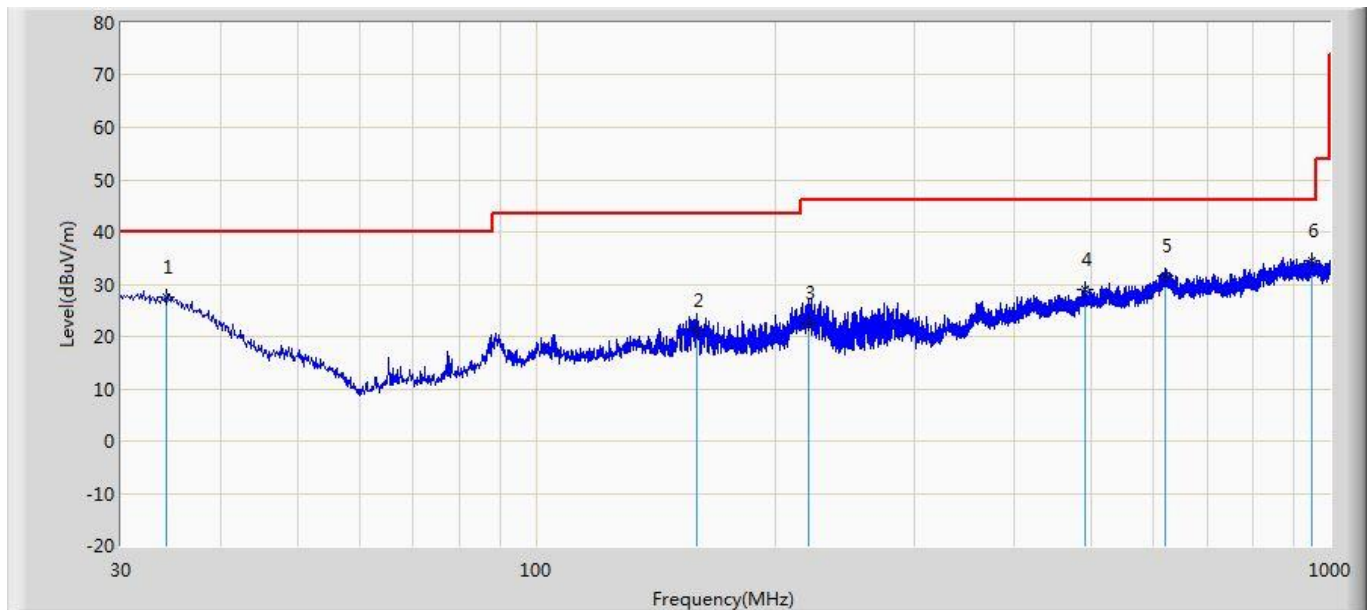
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	39.971	36.360	-34.029	74.000	3.611	PK
2		7440.000	43.264	36.679	-30.736	74.000	6.585	PK
3	*	9920.000	44.799	36.074	-29.201	74.000	8.725	PK

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: AC2	Time: 2020/04/13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Horizontal
EUT: Barcode Scanner	Power: Battery 3.7Vdc
Note: Mode 1	



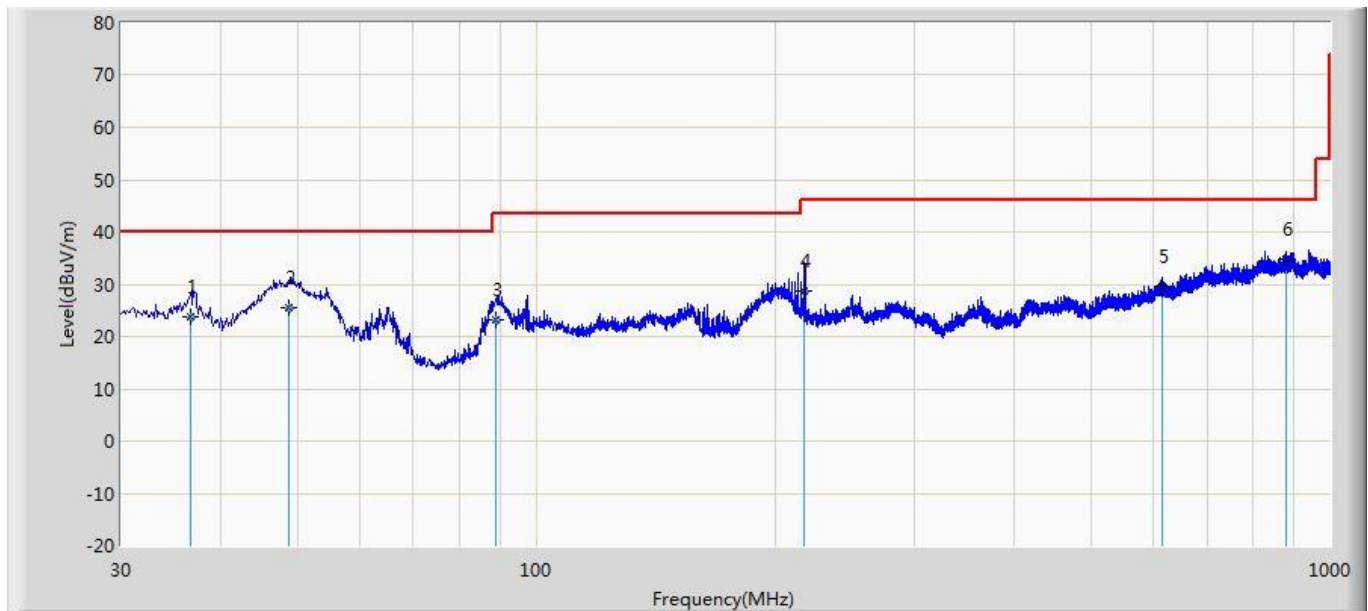
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		34.265	27.628	0.600	-12.372	40.000	20.690	6.338	0.000	100	132	QP
2		159.137	21.142	4.100	-22.358	43.500	10.000	7.043	0.000	100	132	QP
3		220.326	22.574	5.100	-23.426	46.000	10.199	7.276	0.000	100	198	QP
4		490.580	28.976	0.700	-17.024	46.000	20.132	8.144	0.000	100	74	QP
5		619.326	31.577	0.900	-14.423	46.000	22.188	8.489	0.000	200	96	QP
6	*	950.655	34.503	1.200	-11.497	46.000	24.013	9.290	0.000	200	30	QP

Note:

1. " * ", means this data is the worst emission level.

2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Engineer: Pawn	
Site: AC2	Time: 2020/04/13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Vertical
EUT: Barcode Scanner	Power: Battery 3.7Vdc
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		36.647	23.811	2.400	-16.189	40.000	15.043	6.368	0.000	100	135	QP
2		48.898	25.535	6.300	-14.465	40.000	12.750	6.485	0.000	200	32	QP
3		88.798	23.142	6.400	-20.358	43.500	10.028	6.715	0.000	100	128	QP
4		217.798	28.791	6.800	-17.209	46.000	14.725	7.267	0.000	100	98	QP
5		614.266	29.448	1.400	-16.552	46.000	19.572	8.476	0.000	100	47	QP
6	*	880.565	34.671	1.200	-11.329	46.000	24.345	9.126	0.000	200	32	QP

Note:

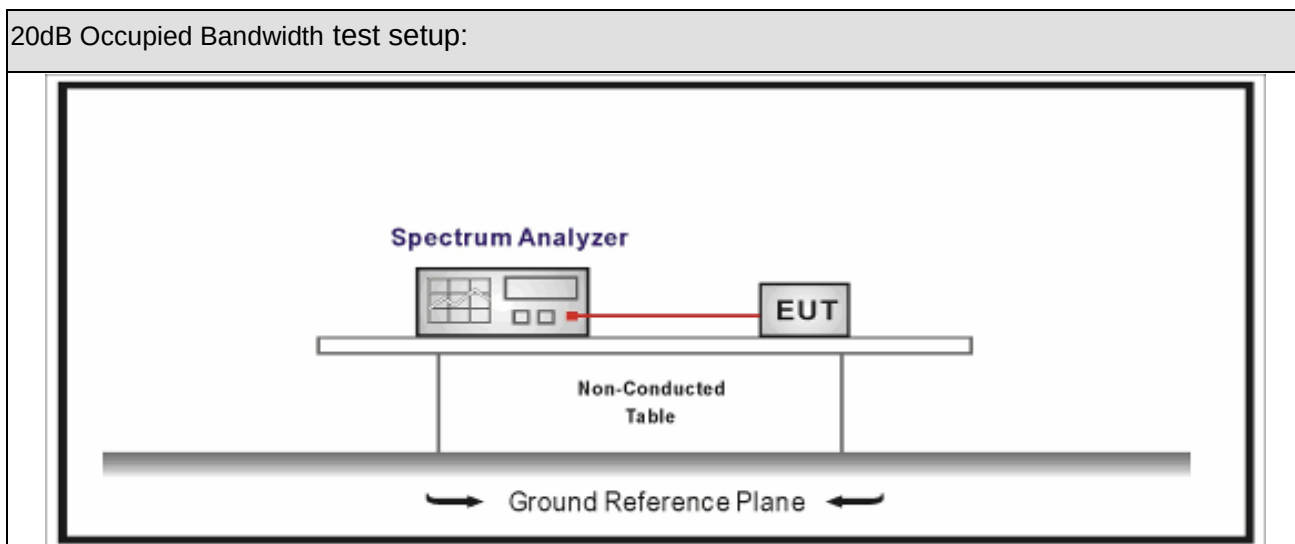
1. " * ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

5. 20dB Bandwidth

5.1 Test Equipment

20dB Occupied Bandwidth / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.09.28	2020.09.27
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.17	2021.04.16
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2019.08.30	2020.08.29
Temperature/Humidity Meter	Zhichen	ZC1-2	TR8-TH	2019.09.02	2020.09.01
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

5.2 Test Setup



5.3 Limit

Carrier Frequency Separation	
☒	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.

5.4 Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	6.9.2	Occupied bandwidth tests

5.5 Uncertainty

The measurement uncertainty is defined as ± 1 kHz

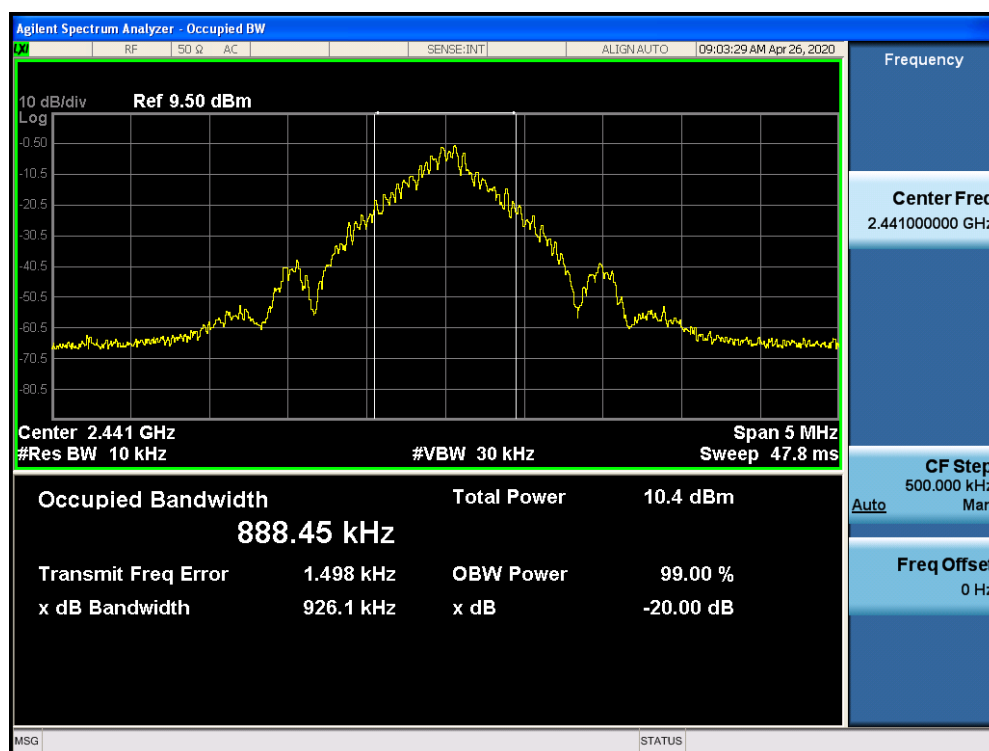
5.6 Test Result

Product Name	: Barcode Scanner	Test Voltage	: Battery 3.7V
Test Mode	: Mode 1	Test Site	: TR-8
Test Date	: 2020.04.26	Test Engineer	: Pawn

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
00	2402	925.6	885.05
39	2441	926.1	888.45
78	2480	924.3	887.19

Note: The worst data was shown below:

Channel 39 (2441MHz)

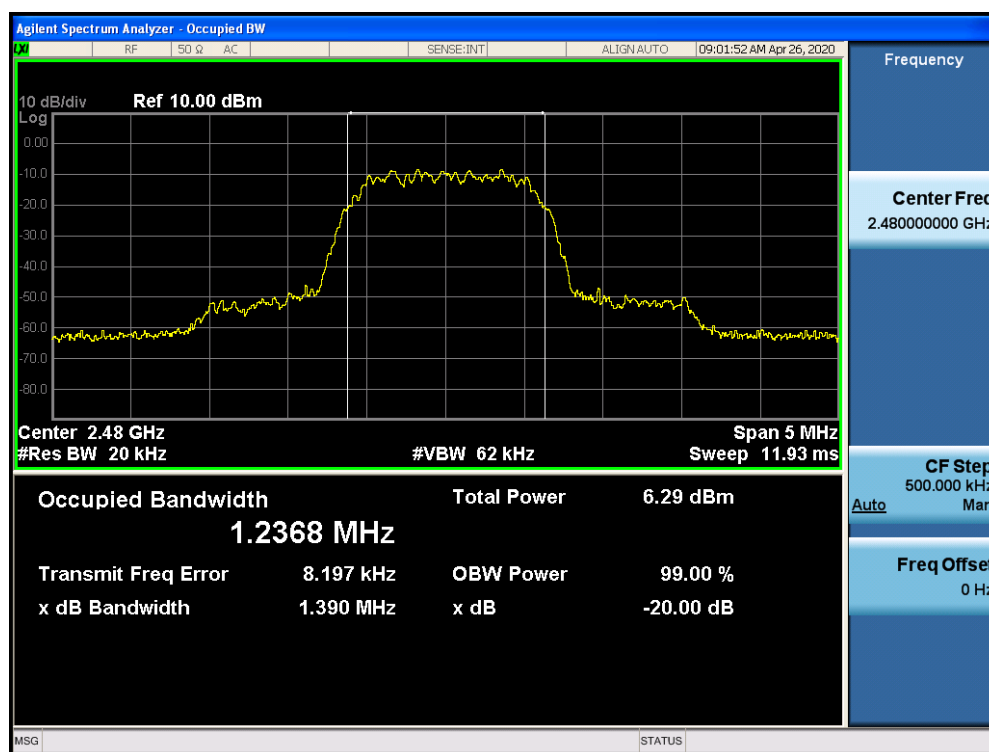


Product Name	: Barcode Scanner	Test Voltage	: Battery 3.7V
Test Mode	: Mode 2	Test Site	: TR-8
Test Date	: 2020.04.26	Test Engineer	: Pawn

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
00	2402	1385	1234.5
39	2441	1388	1236.2
78	2480	1390	1236.8

Note: The worst was shown below:

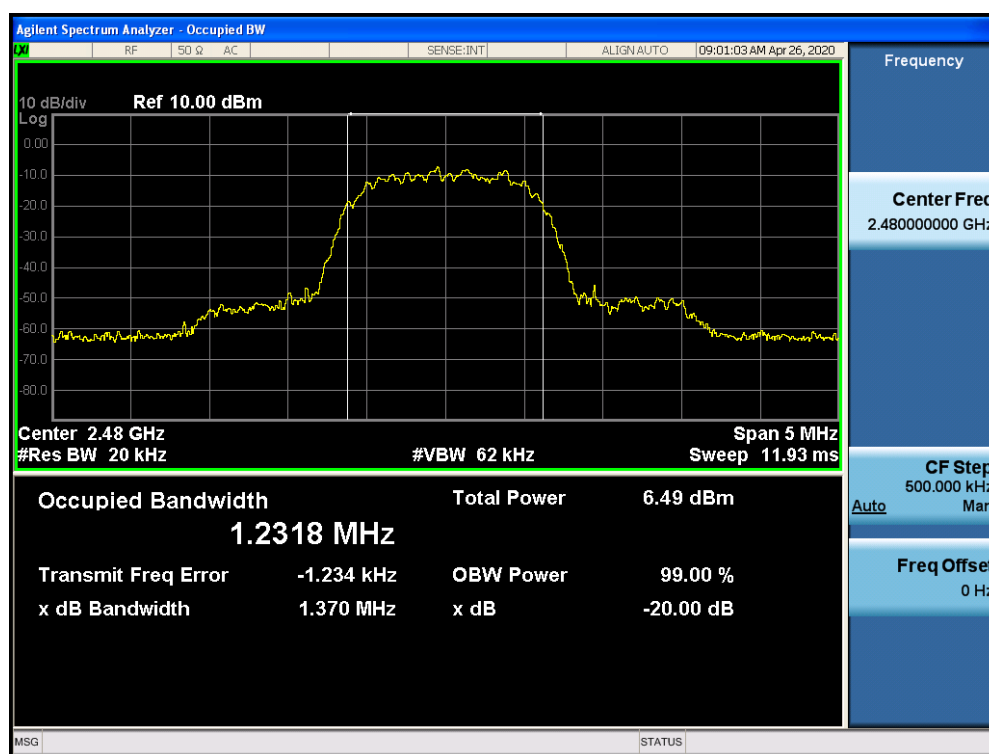
Channel 78 (2480MHz)



Product Name	: Barcode Scanner	Test Voltage	: Battery 3.7V
Test Mode	: Mode 3	Test Site	: TR-8
Test Date	: 2020.04.26	Test Engineer	: Pawn

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
00	2402	1372	1231.7
39	2441	1371	1229.9
78	2480	1370	1231.8

Channel 78 (2480MHz)



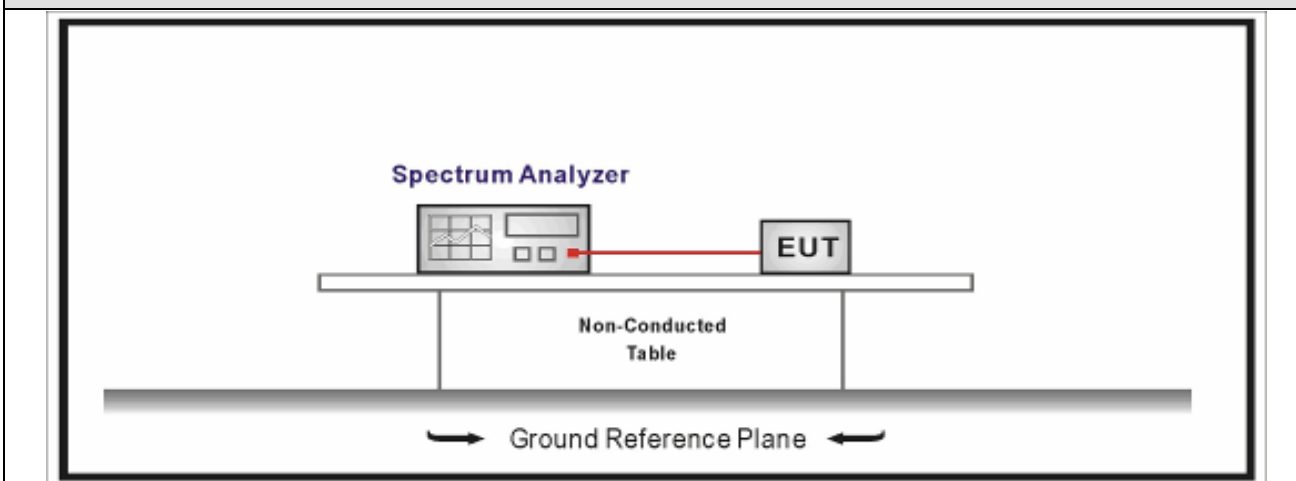
6. Carrier Frequency Separation

6.1. Test Equipment

Carrier Frequency Separation / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.09.28	2020.09.27
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.17	2021.04.16
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2019.08.30	2020.08.29
Temperature/Humidity Meter	Zhichen	ZC1-2	TR8-TH	2019.09.02	2020.09.01
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

6.2. Test Setup

Carrier Frequency Separation test setup:



6.3. Limit

Carrier Frequency Separation	
☒	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, whichever is greater.
☐	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.

6.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	7.8.2	Carrier frequency separation

6.5. Uncertainty

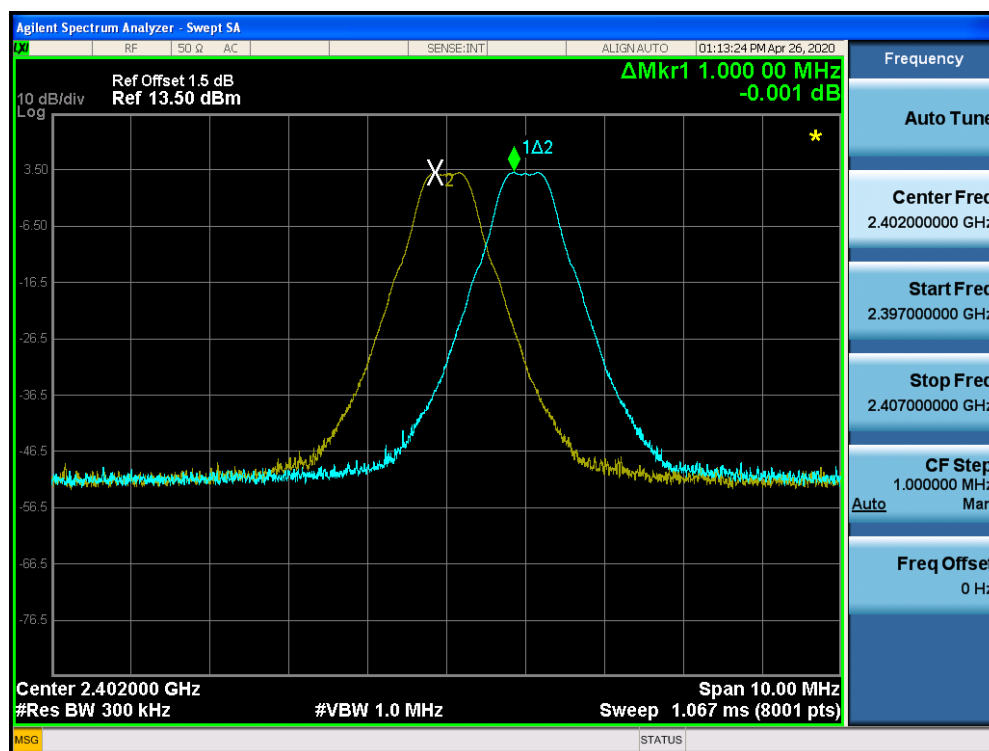
The measurement uncertainty is defined as ± 1 kHz

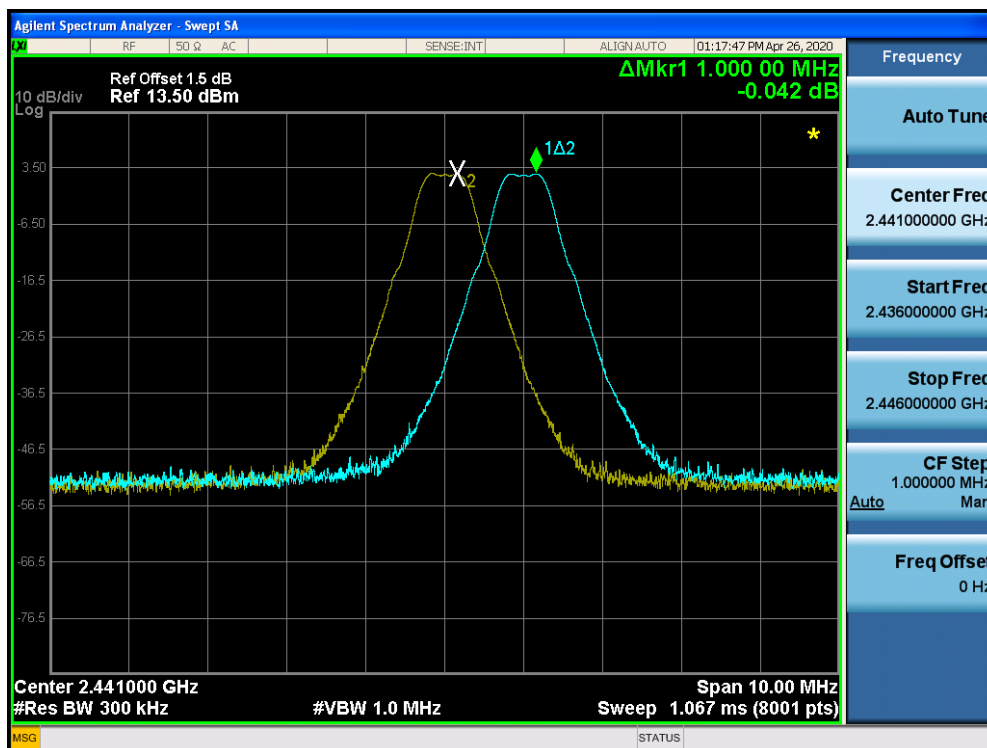
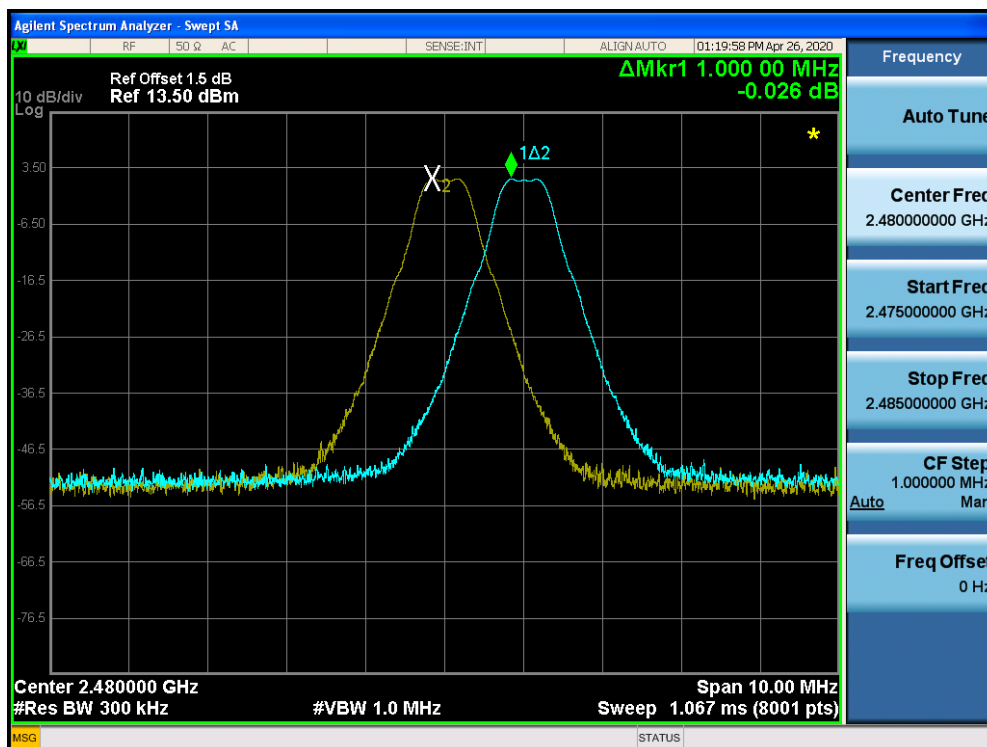
6.6. Test Result

Product Name	: Barcode Scanner	Test Voltage	: Battery 3.7V
Test Mode	: Mode 1	Test Site	: TR-8
Test Date	: 2020.04.26	Test Engineer	: Pawn

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
00	2402	1000	925.6	Pass
39	2441	1000	926.1	Pass
78	2480	1000	924.3	Pass

Channel 00 (2402MHz)

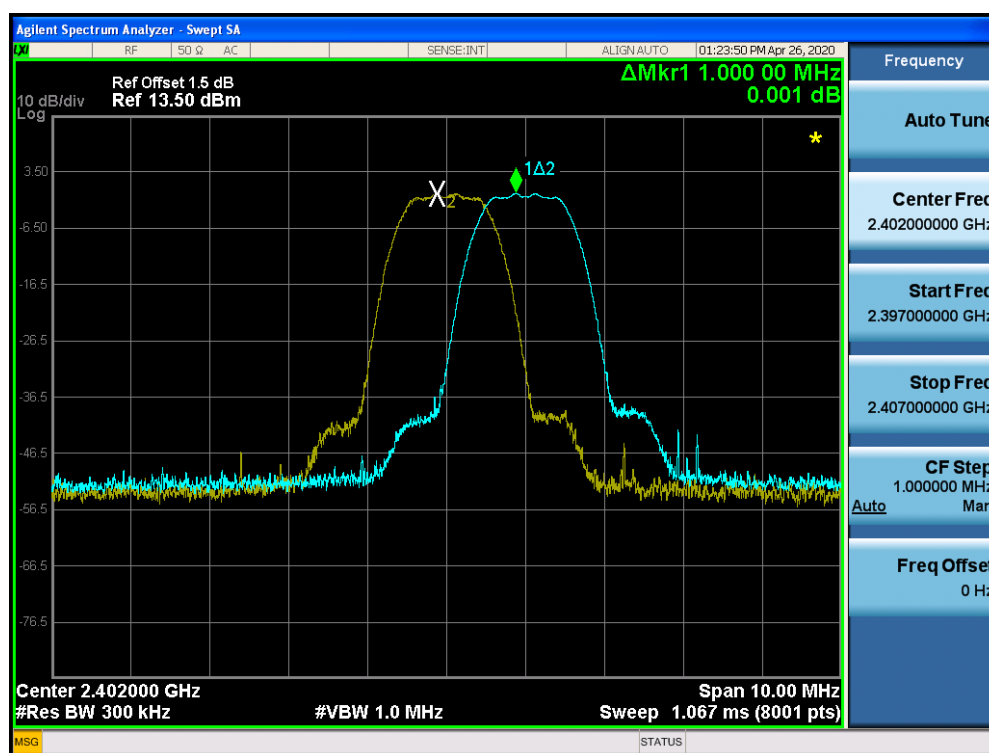


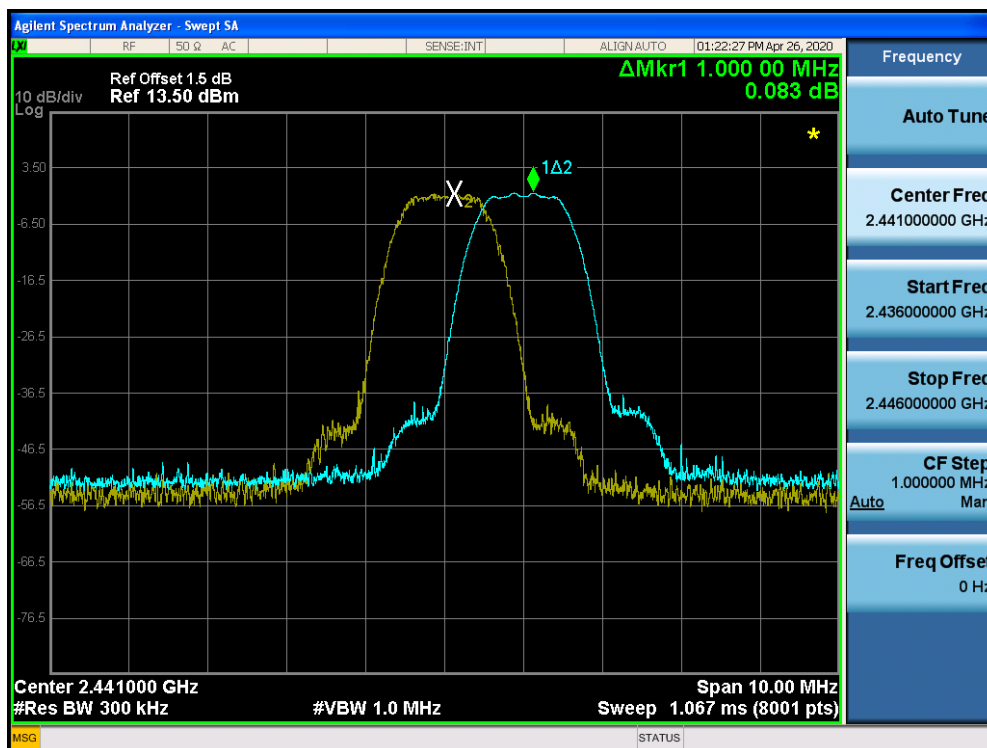
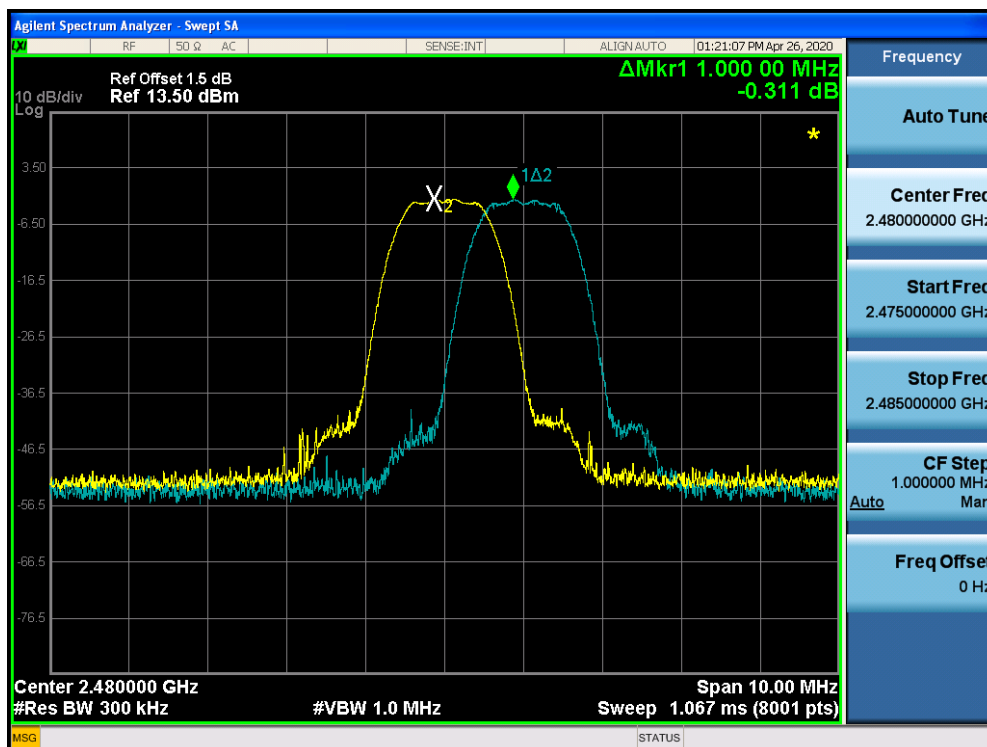
Channel 39 (2441MHz)**Channel 78 (2480MHz)**

Product Name	: Barcode Scanner	Test Voltage	: Battery 3.7V
Test Mode	: Mode 2	Test Site	: TR-8
Test Date	: 2020.04.26	Test Engineer	: Pawn

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
00	2402	1000	923.3	Pass
39	2441	1000	925.3	Pass
78	2480	1000	926.7	Pass

Channel 00 (2402MHz)

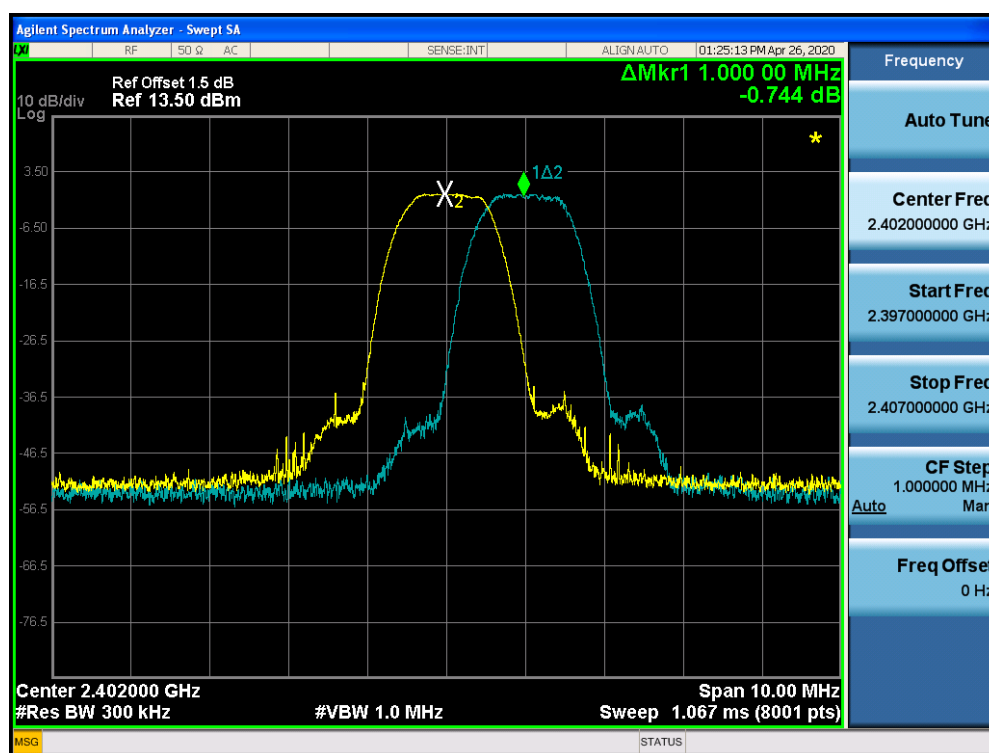


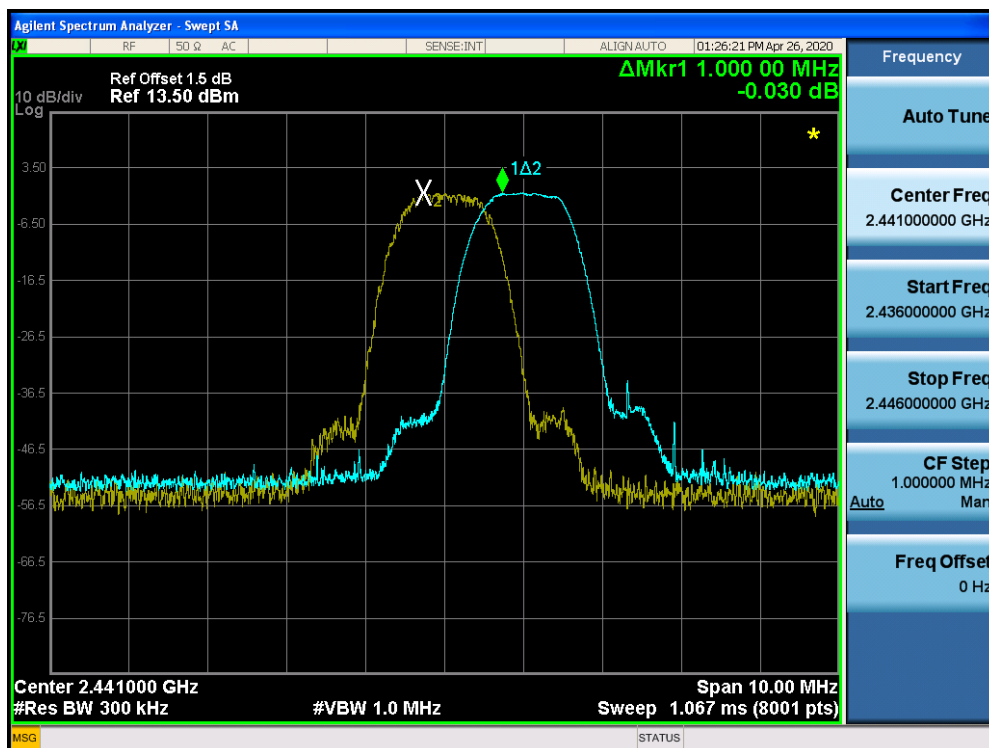
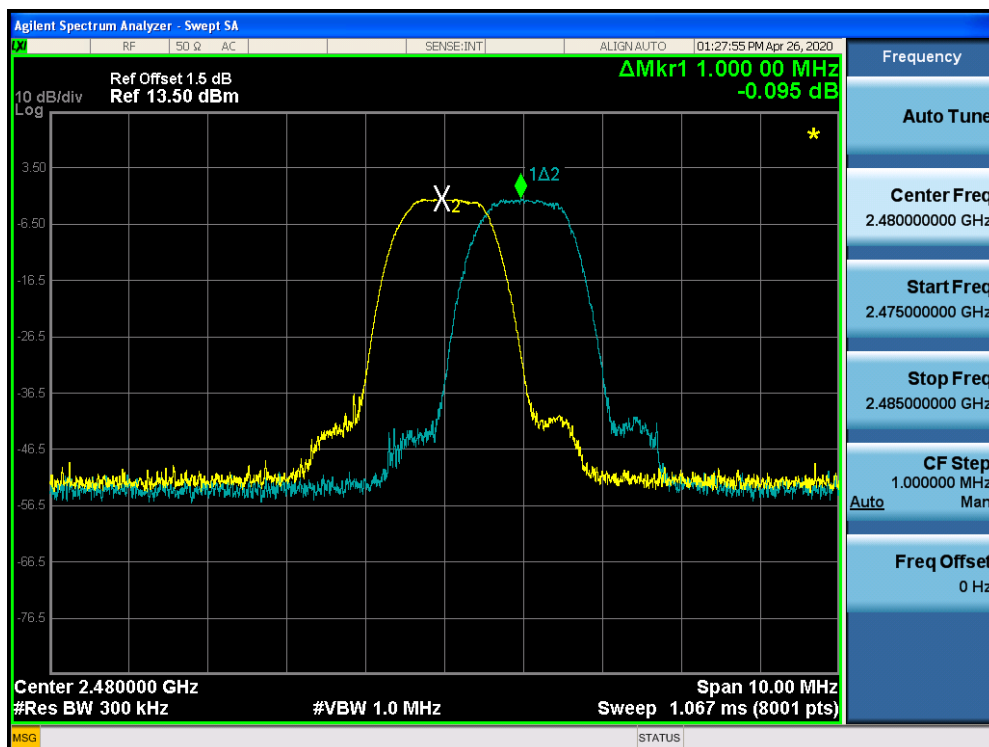
Channel 39 (2441MHz)**Channel 78 (2480MHz)**

Product Name	: Barcode Scanner	Test Voltage	: Battery 3.7V
Test Mode	: Mode 3	Test Site	: TR-8
Test Date	: 2020.04.26	Test Engineer	: Pawn

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
00	2402	1000	914.7	Pass
39	2441	1000	914.0	Pass
78	2480	1000	913.3	Pass

Channel 00 (2402MHz)



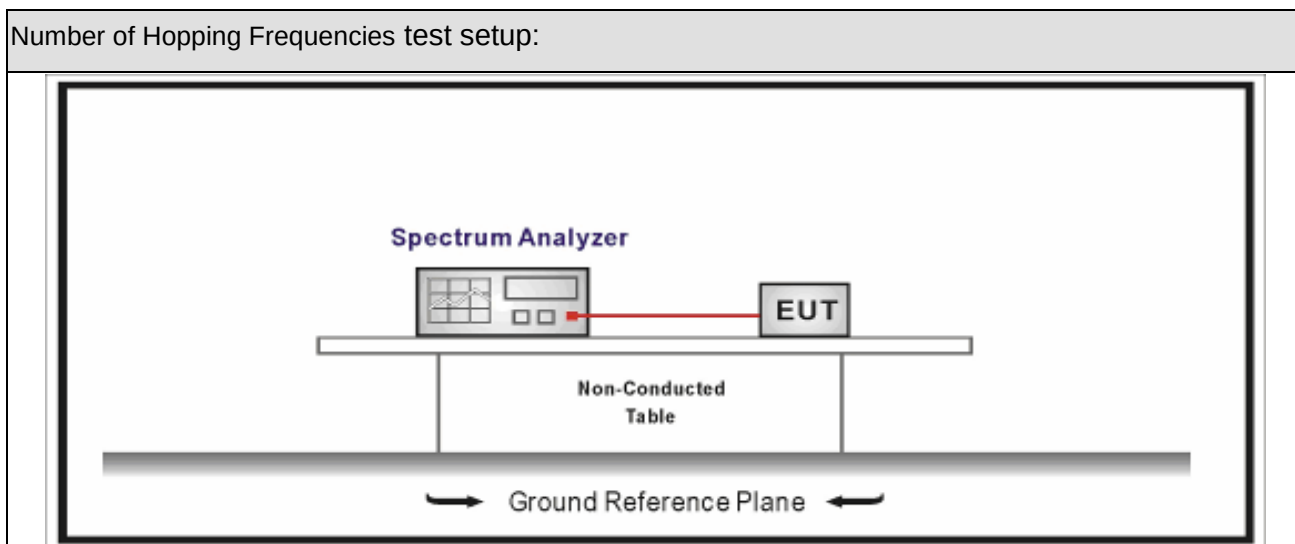
Channel 39 (2441MHz)**Channel 78 (2480MHz)**

7. Number of Hopping Frequencies

7.1. Test Equipment

Number of Hopping Frequencies / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.09.28	2020.09.27
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.17	2021.04.16
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2019.08.30	2020.08.29
Temperature/Humidity Meter	Zhichen	ZC1-2	TR8-TH	2019.09.02	2020.09.01
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

7.2. Test Setup



7.3. Limit

Carrier Frequency Separation	
☒	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.

7.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	7.8.3	Number of Hopping Frequencies

7.5. Uncertainty

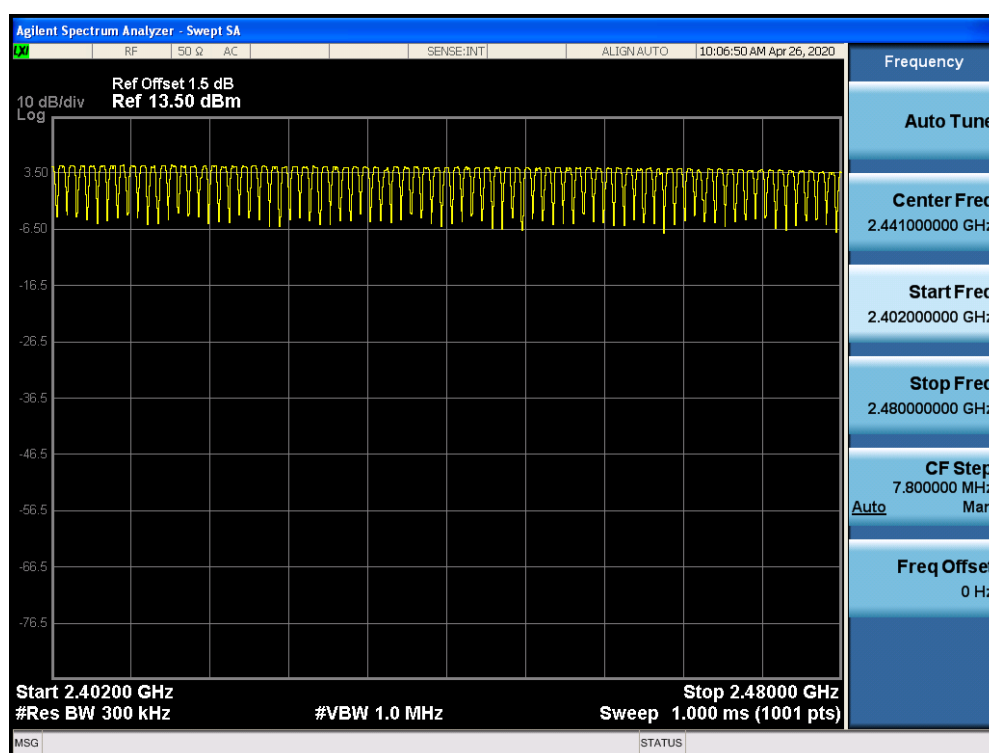
The measurement uncertainty is defined as ± 1 kHz

7.6. Test Result

Product Name	: Barcode Scanner	Test Voltage	: Battery 3.7V
Test Mode	: Mode 4(GFSK_DH5)	Test Site	: TR-8
Test Date	: 2020.04.26	Test Engineer	: Pawn

Frequency Band (MHz)	Number of Hopping Frequencies	Limit	Result
2400 - 2483.5	79	>15	Pass

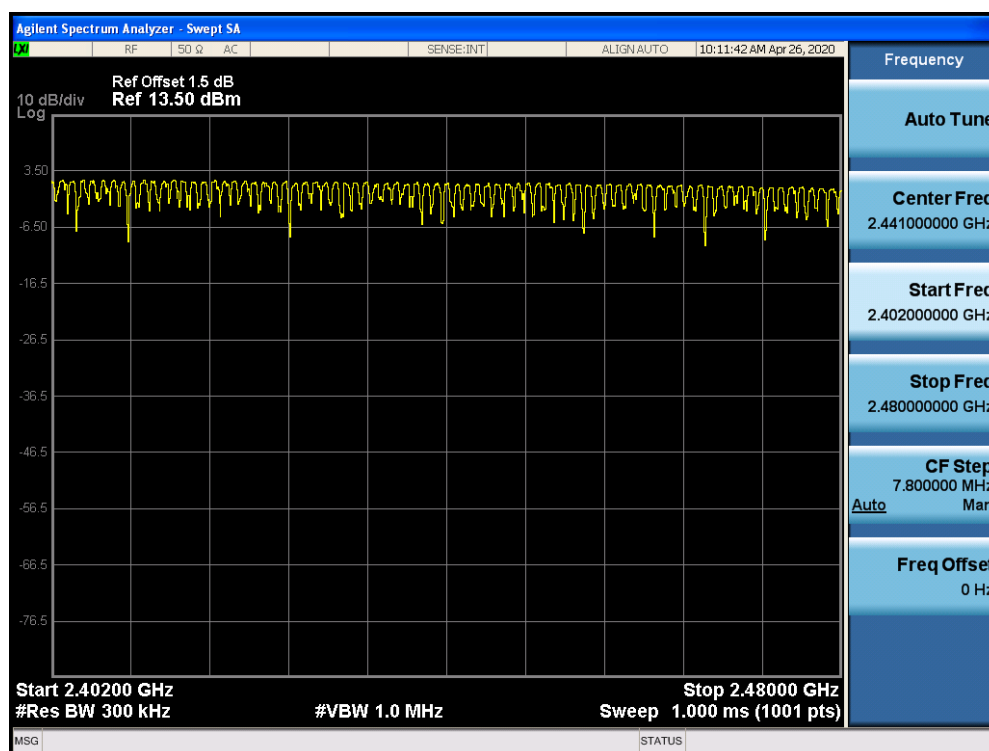
2402 - 2480MHz



Product Name	: Barcode Scanner	Test Voltage	: Battery 3.7V
Test Mode	: Mode 4(Pi/4 DQPSK_DH5)	Test Site	: TR-8
Test Date	: 2020.04.26	Test Engineer	: Pawn

Frequency Band (MHz)	Number of Hopping Frequencies	Limit	Result
2400 - 2483.5	79	>15	Pass

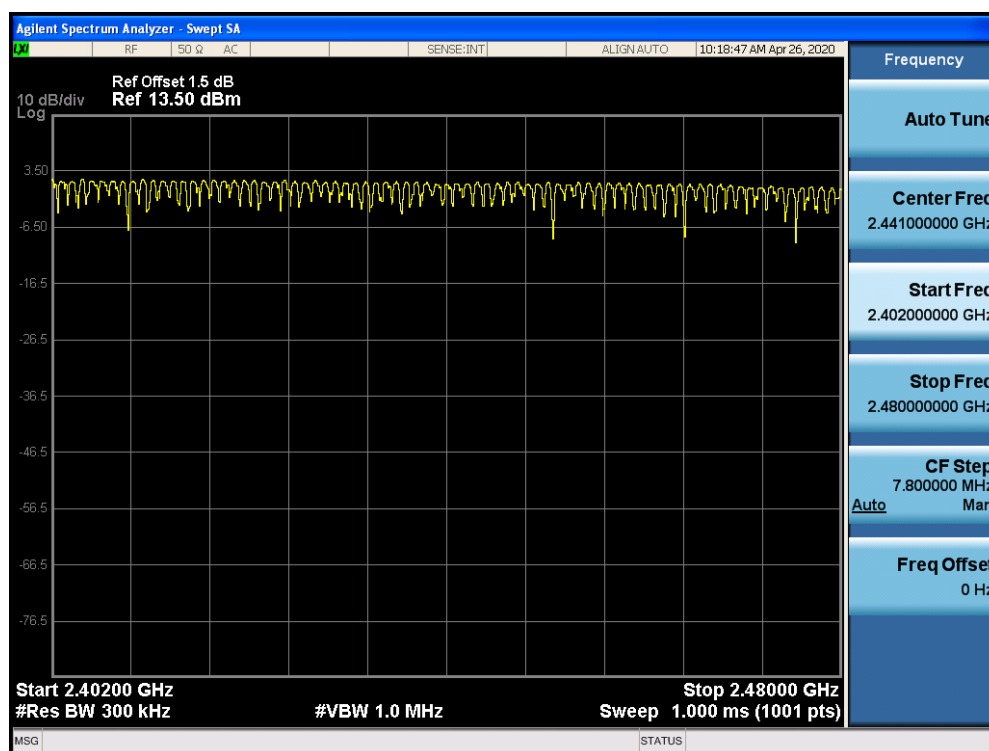
2402 - 2480 MHz



Product Name	: Barcode Scanner	Test Voltage	: Battery 3.7V
Test Mode	: Mode 4(8DPSK_DH5)	Test Site	: TR-8
Test Date	: 2020.04.26	Test Engineer	: Pawn

Frequency Band (MHz)	Number of Hopping Frequencies	Limit	Result
2400 - 2483.5	79	>15	Pass

2402 - 2480 MHz

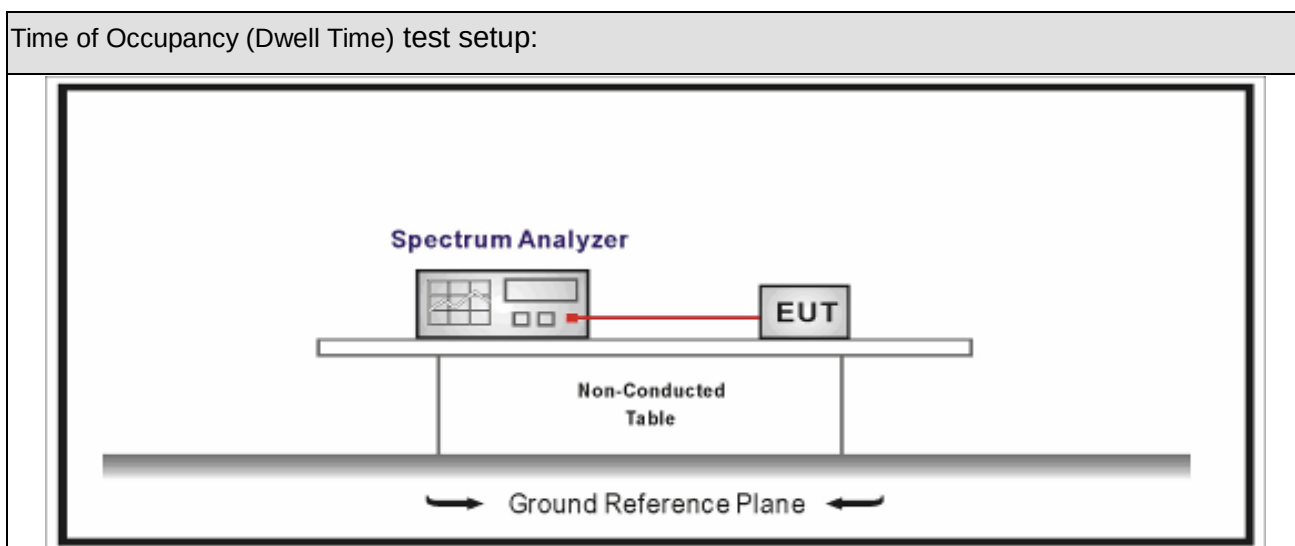


8. Time of Occupancy (Dwell Time)

8.1. Test Equipment

Number of Hopping Frequencies / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.09.28	2020.09.27
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.17	2021.04.16
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2019.08.30	2020.08.29
Temperature/Humidity Meter	Zhichen	ZC1-2	TR8-TH	2019.09.02	2020.09.01
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

8.2. Test Setup



8.3. Limit

Time of Occupancy (Dwell Time)	
☒	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.

8.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	7.8.4	Time of Occupancy (Dwell Time)

8.5. Uncertainty

The measurement uncertainty is defined as $\pm 0.1 \text{ us}$

8.6. Test Result

Product Name	: Barcode Scanner	Test Voltage	: Battery 3.7V
Test Mode	: Mode 1(GFSK_DH1)	Test Site	: TR-8
Test Date	: 2020.05.06	Test Engineer	: Pawn

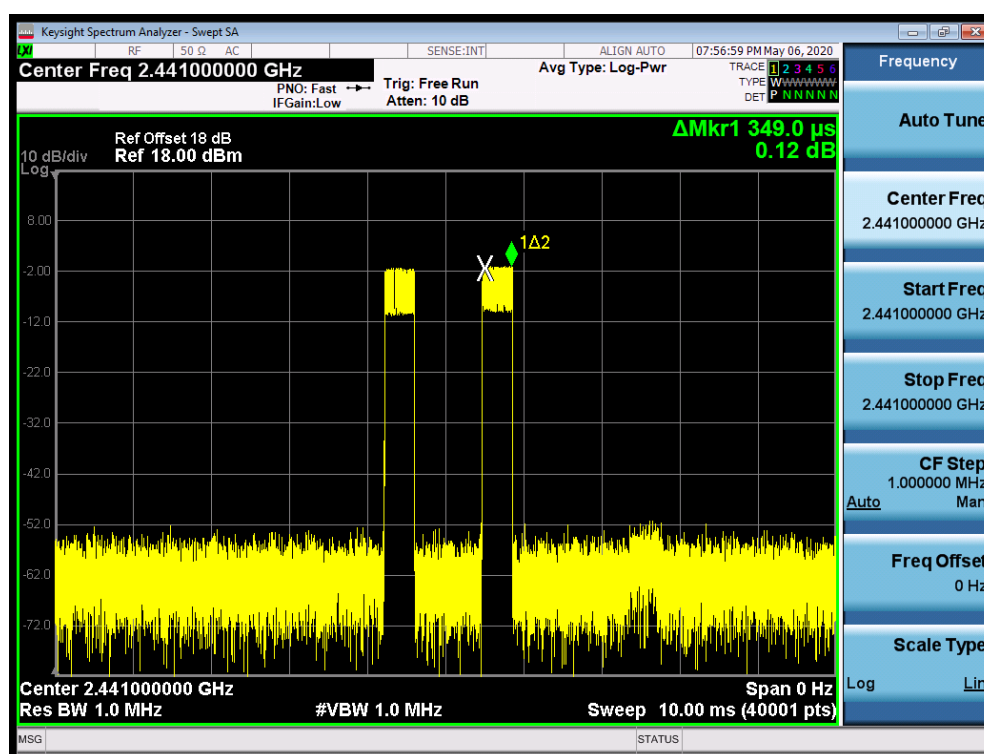
Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
39	2441	111.68	< 400	Pass

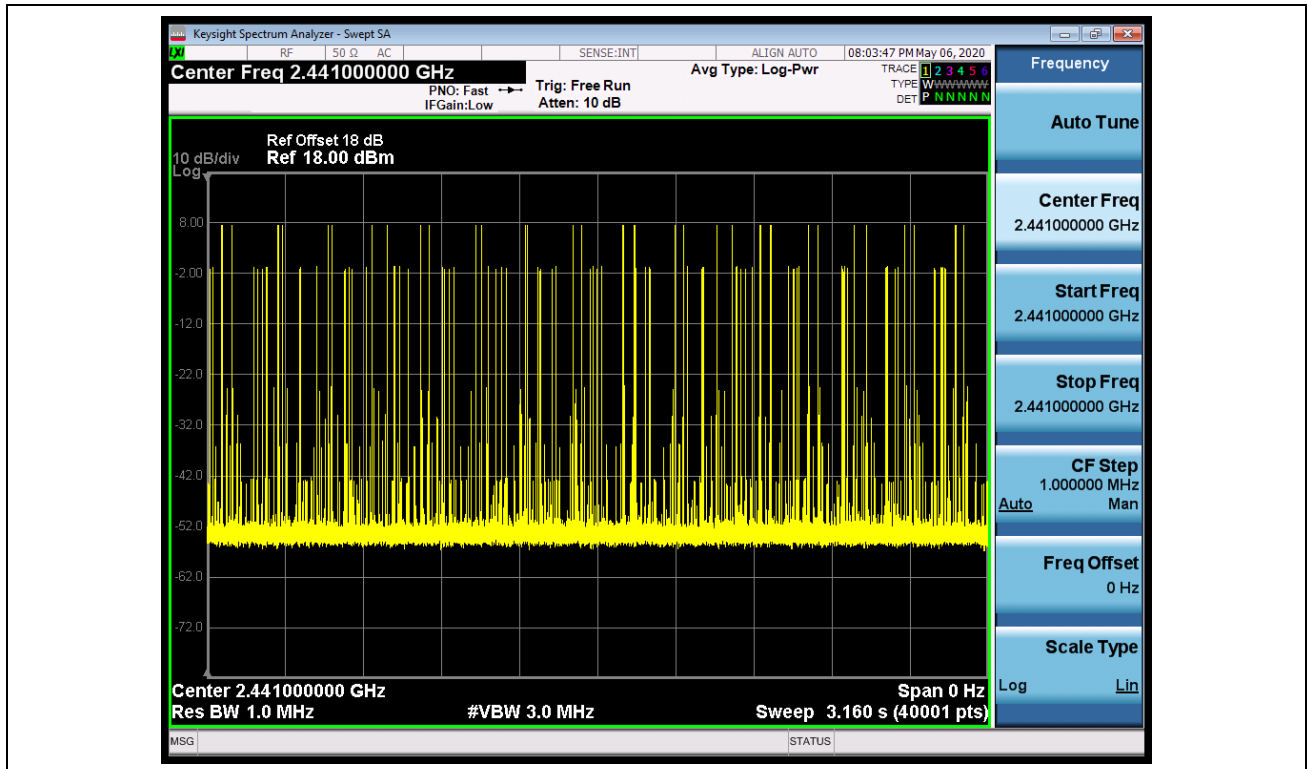
Note1: Test Time Period: $0.4 \times 79 = 31.6s$

Note2: Time of Occupancy = $0.349 \times 32 \times 31.6 / 3.16 = 111.68ms$

Note3: We have evaluated different packet type, shown in the report is the worst data.

Channel 39 (2441MHz) - (DH1)





Product Name	: Barcode Scanner	Test Voltage	: Battery 3.7V
Test Mode	: Mode 1(GFSK_DH3)	Test Site	: TR-8
Test Date	: 2020.05.06	Test Engineer	: Pawn

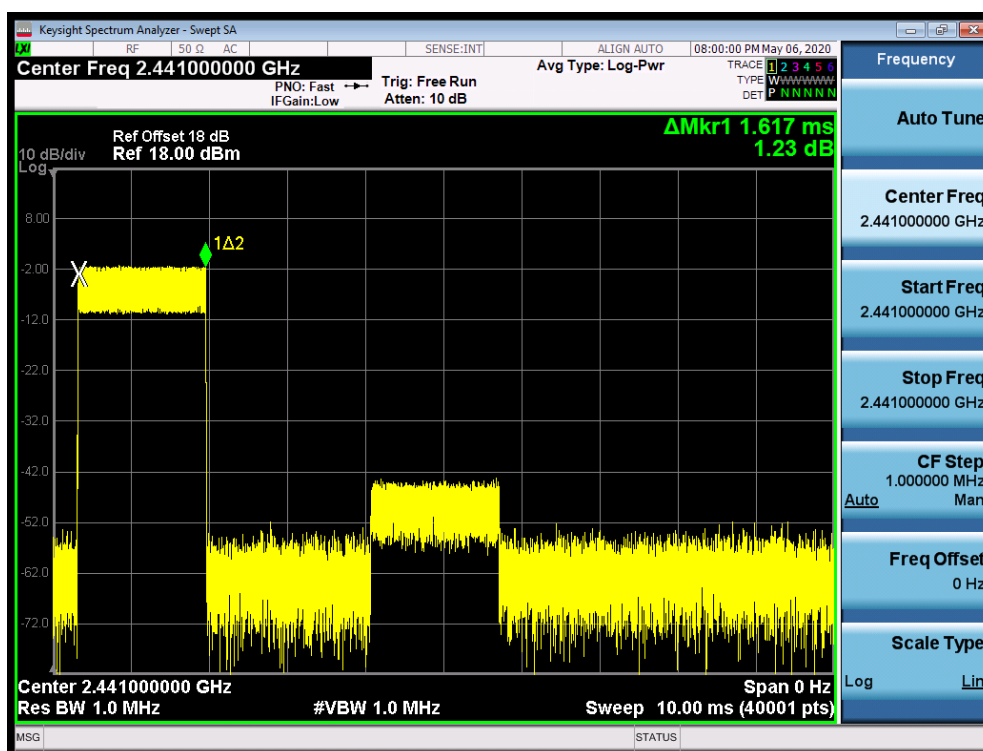
Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
39	2441	242.55	< 400	Pass

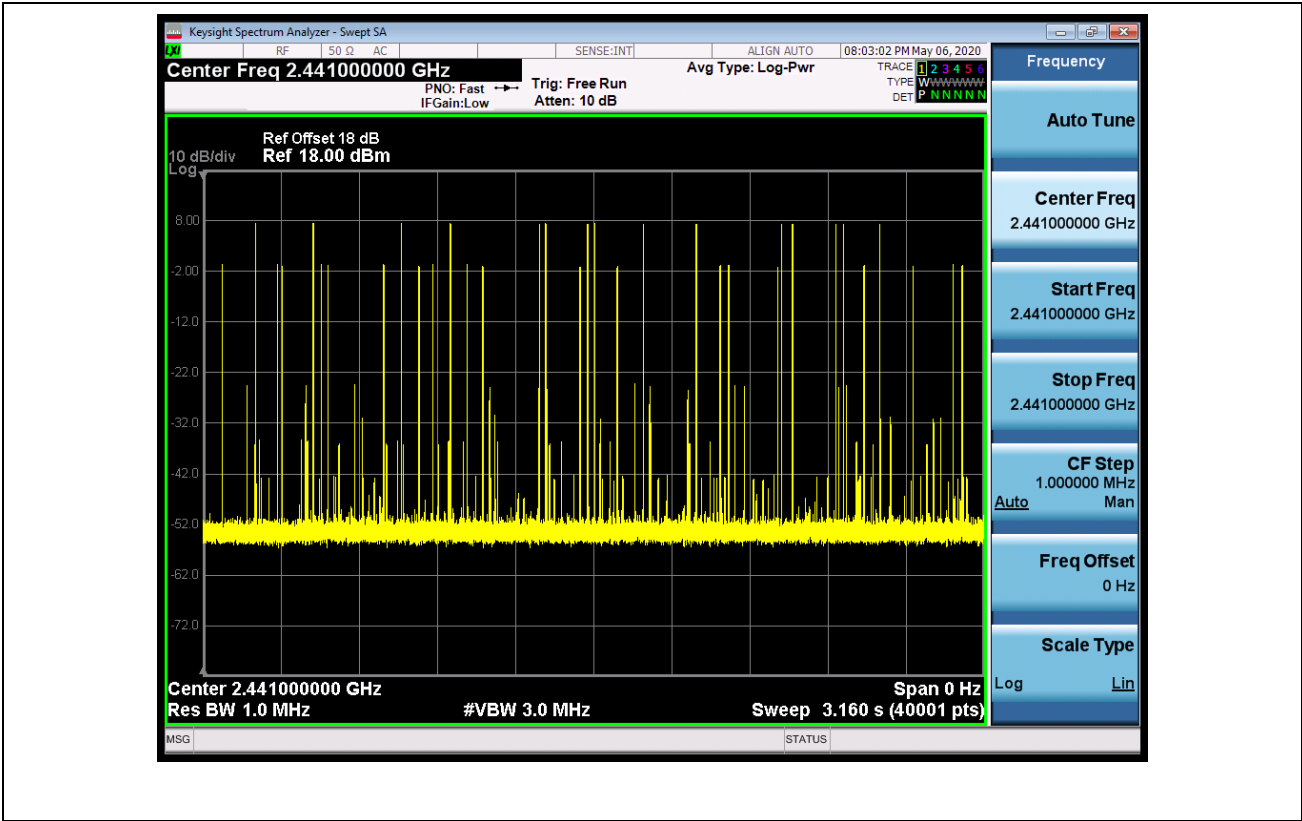
Note1: Test Time Period: $0.4 \times 79 = 31.6s$

Note2: Time of Occupancy = $1.617 \times 15 \times 31.6 / 3.16 = 242.55ms$

Note3: We have evaluated different packet type, shown in the report is the worst data.

Channel 39 (2441MHz) - (DH3)





Product Name	: Barcode Scanner	Test Voltage	: Battery 3.7V
Test Mode	: Mode 1(GFSK_DH5)	Test Site	: TR-8
Test Date	: 2020.05.06	Test Engineer	: Pawn

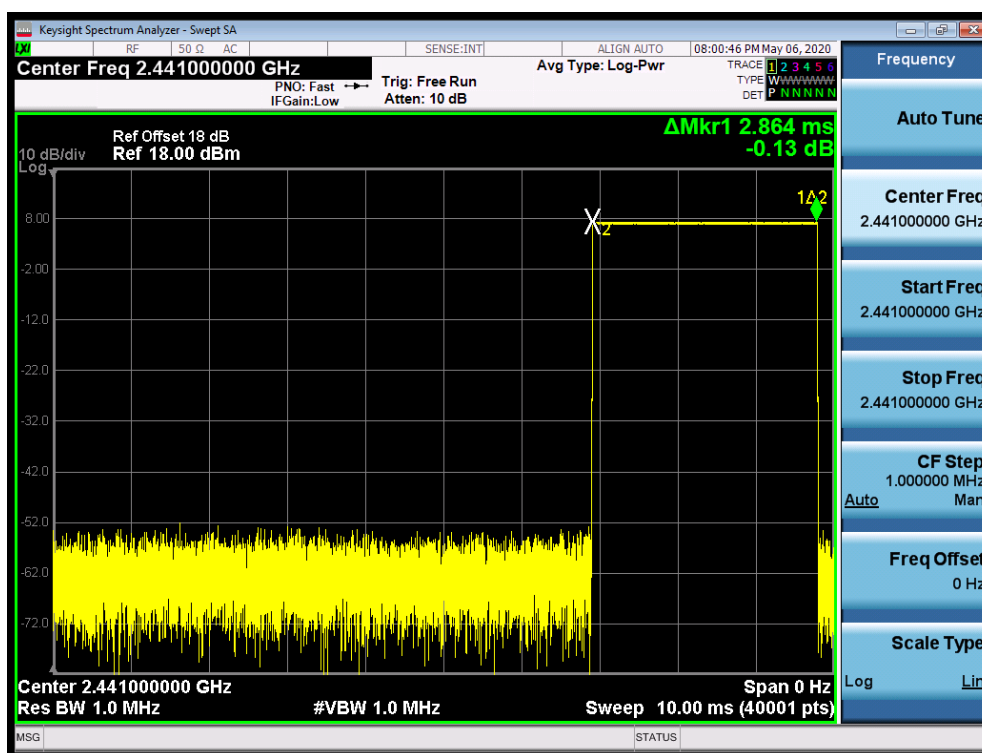
Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
39	2441	229.12	< 400	Pass

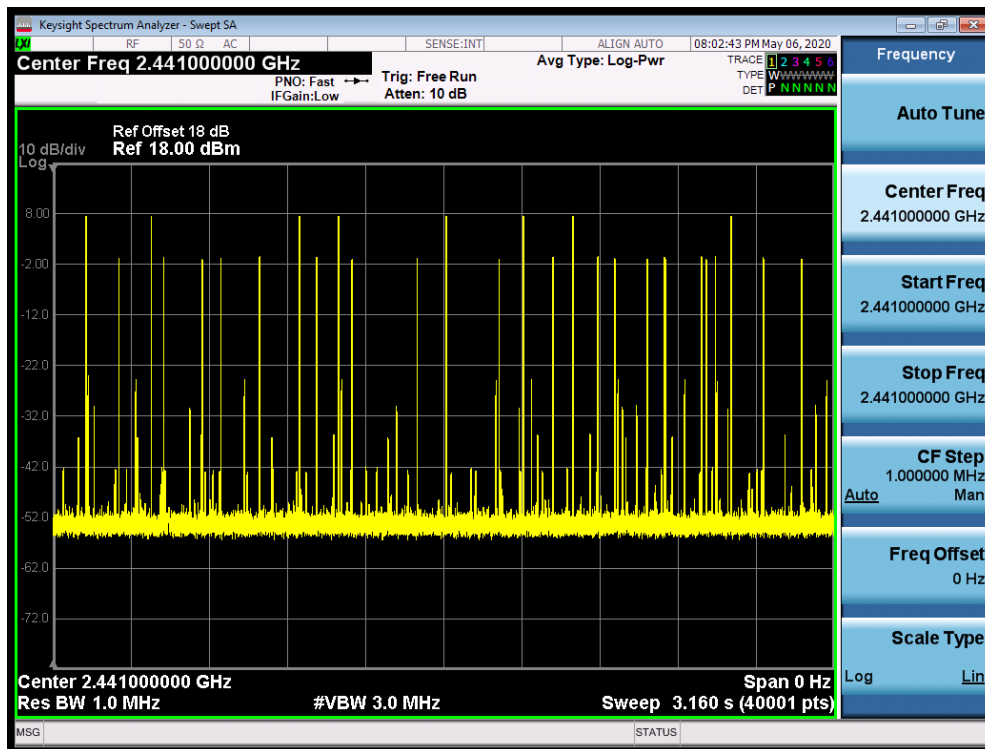
Note1: Test Time Period: $0.4 \times 79 = 31.6s$

Note2: Time of Occupancy = $2.864 \times 8 \times 31.6 / 3.16 = 229.12ms$

Note3: We have evaluated different packet type, shown in the report is the worst data.

Channel 39 (2441MHz) - (DH5)





Note: The packet time of AFH mode is same as normal mode, due to the packet time of AFH mode multiply with lesser factor is dwell time of $0.4 \times 20 = 8$ s, the dwell time of AFH mode comply with the limit.

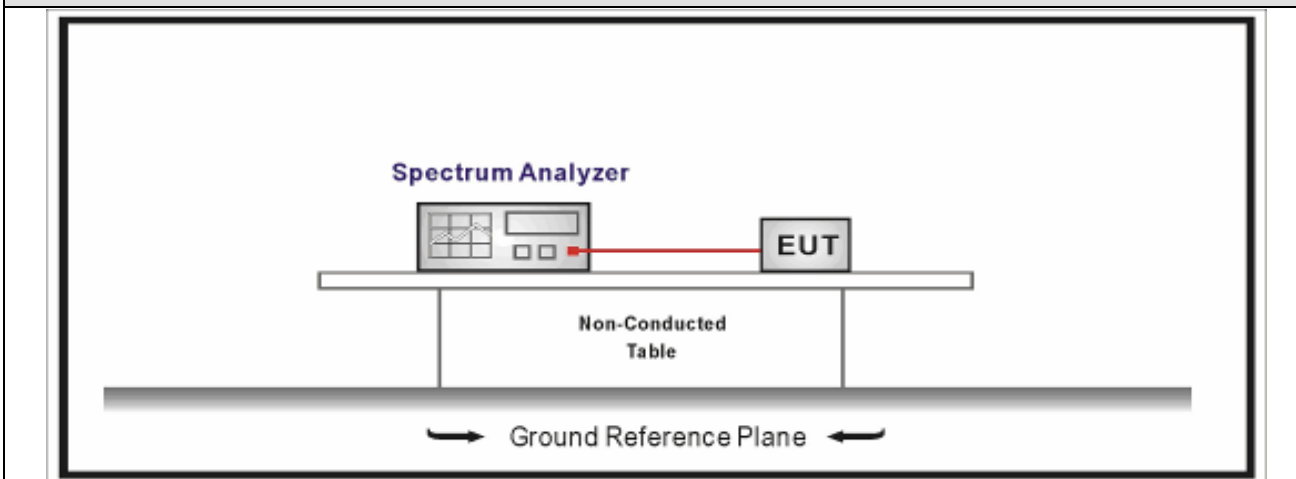
9. Peak Output Power

9.1. Test Equipment

Peak Output Power / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.09.28	2020.09.27
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.17	2021.04.16
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2019.08.30	2020.08.29
Temperature/Humidity Meter	Zhichen	ZC1-2	TR8-TH	2019.09.02	2020.09.01
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

9.2. Test Setup

Peak Output Power test setup:



9.3. Limit

Peak Output Power	
☒	Frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.
☒	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, whichever is greater, provided the systems operate with an output power no greater than 125 mW.
☐	For frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels

9.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	7.8.5	Output power test procedure for frequency-hopping spread-spectrum (FHSS) devices

9.5. Uncertainty

The measurement uncertainty is defined as ± 1.0 dB

9.6. Test Result

Product Name	:	Barcode Scanner	Test Voltage	:	Battery 3.7V
Test Mode	:	Mode 1	Test Site	:	TR-8
Test Date	:	2020.05.06	Test Engineer	:	Pawn

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Conducted Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)	Result
00	2402	5.40	30	4.90	36	Pass
39	2441	5.09	30	4.59	36	Pass
78	2480	4.32	30	3.82	36	Pass

Product Name	:	Barcode Scanner	Test Voltage	:	Battery 3.7V
Test Mode	:	Mode 2	Test Site	:	TR-8
Test Date	:	2020.05.06	Test Engineer	:	Pawn

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Conducted Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)	Result
00	2402	3.84	21	3.34	27	Pass
39	2441	3.38	21	2.88	27	Pass
78	2480	2.43	21	1.93	27	Pass

Product Name	:	Barcode Scanner	Test Voltage	:	Battery 3.7V
Test Mode	:	Mode 3	Test Site	:	TR-8
Test Date	:	2020.05.06	Test Engineer	:	Pawn

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Conducted Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)	Result
00	2402	4.29	21	3.79	27	Pass
39	2441	3.80	21	3.30	27	Pass
78	2480	2.90	21	2.40	27	Pass

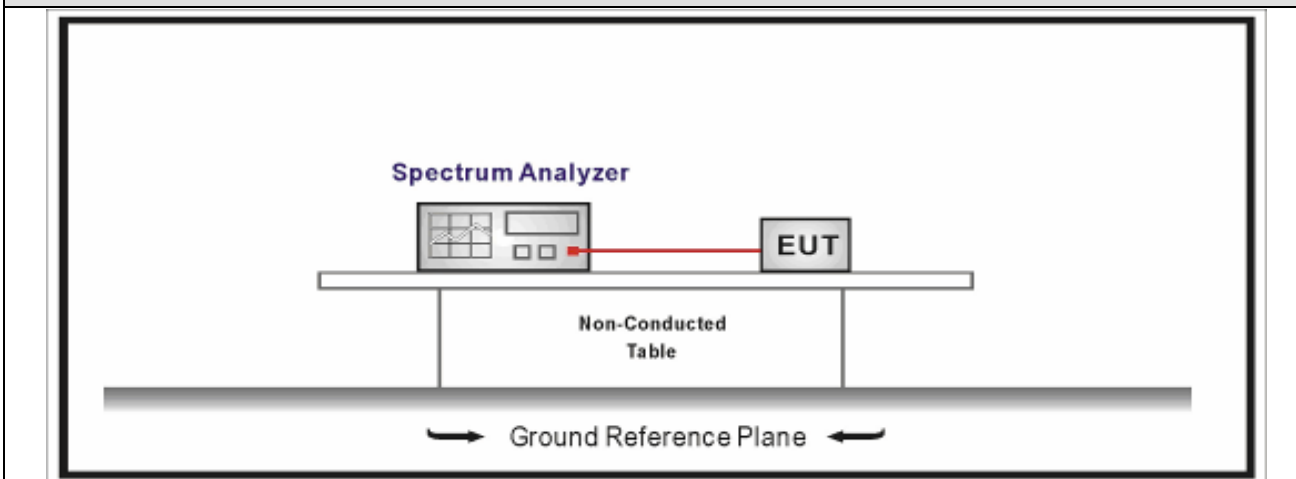
10. Emissions in non-restricted frequency bands

10.1. Test Equipment

Emissions in non-restricted frequency bands / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.09.28	2020.09.27
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.17	2021.04.16
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2019.08.30	2020.08.29
Temperature/Humidity Meter	Zhichen	ZC1-2	TR8-TH	2019.09.02	2020.09.01
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

10.2. Test Setup

Emissions in non-restricted frequency bands test setup:



10.3. Limit

Un-Restricted Band Emissions Limit	
RF Output power (Detection methods)	Limit(dB)
RF Output power(Average detector)	30c(Note1)
RF Output power(PK detector)	20c(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).	

10.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	7.8.6	Band-edge Compliance of RF Conducted Emissions

10.5. Uncertainty

The measurement uncertainty is defined as ± 1.0 dB

10.6. Test Result

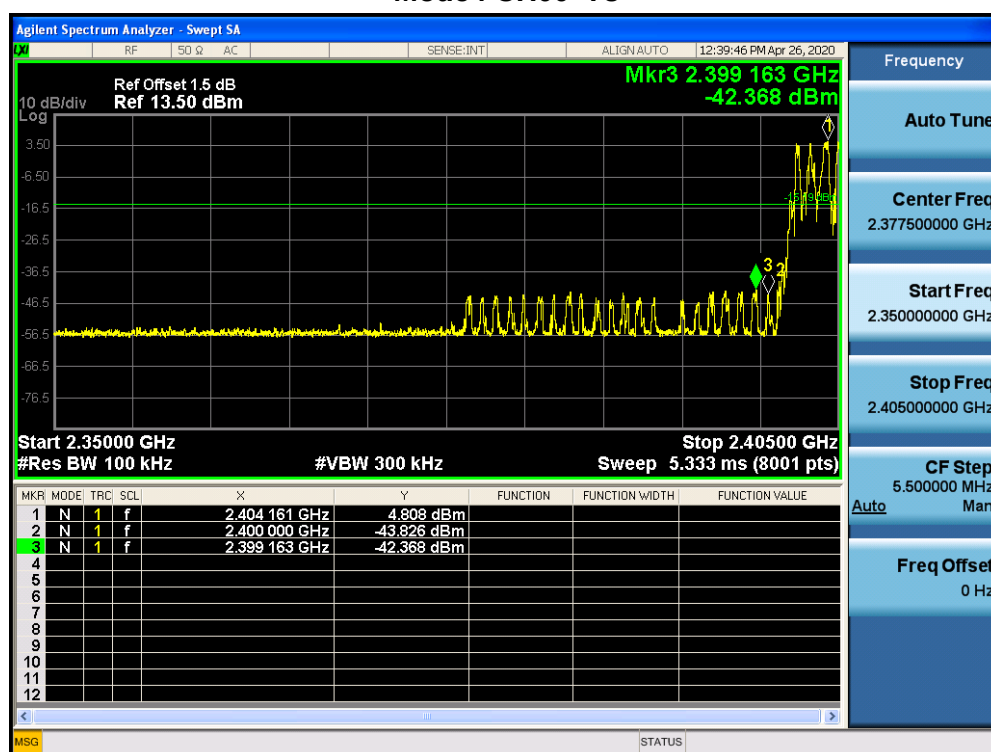
Product Name	:	Barcode Scanner	Test Voltage	:	Battery 3.7V
Test Mode	:	Mode 1/2/3/4	Test Site	:	TR-8
Test Date	:	2020.04.26	Test Engineer	:	Pawn

Mode	Channel	Test Frequency (MHz)	In-Band PSD[a] (dBm/100kHz)	Frequency (MHz)	Out-Band PSD[b] (dBm/100kHz)	[a]-[b] (dB)	Limit (dB)	Result
1	00	2402	2.866	2400.00	-51.500	54.366	>20	Pass
1	78	2480	2.189	2500.00	-48.416	50.605	>20	Pass
2	00	2402	-1.709	2400.00	-55.601	53.892	>20	Pass
2	78	2480	-2.989	2500.00	-51.974	48.985	>20	Pass
3	00	2402	-1.499	2400.00	-52.405	50.906	>20	Pass
3	78	2480	-3.055	2500.00	-52.957	49.902	>20	Pass
4	00~78	00~78	4.808	2400.00	-42.368	47.176	>20	Pass

Note1: The worst case of Emissions in non-restricted frequency bands as below:

2: Mode 1-3, The In-Band PSD is the highest PSD of All channels.

Mode4 CH00~78



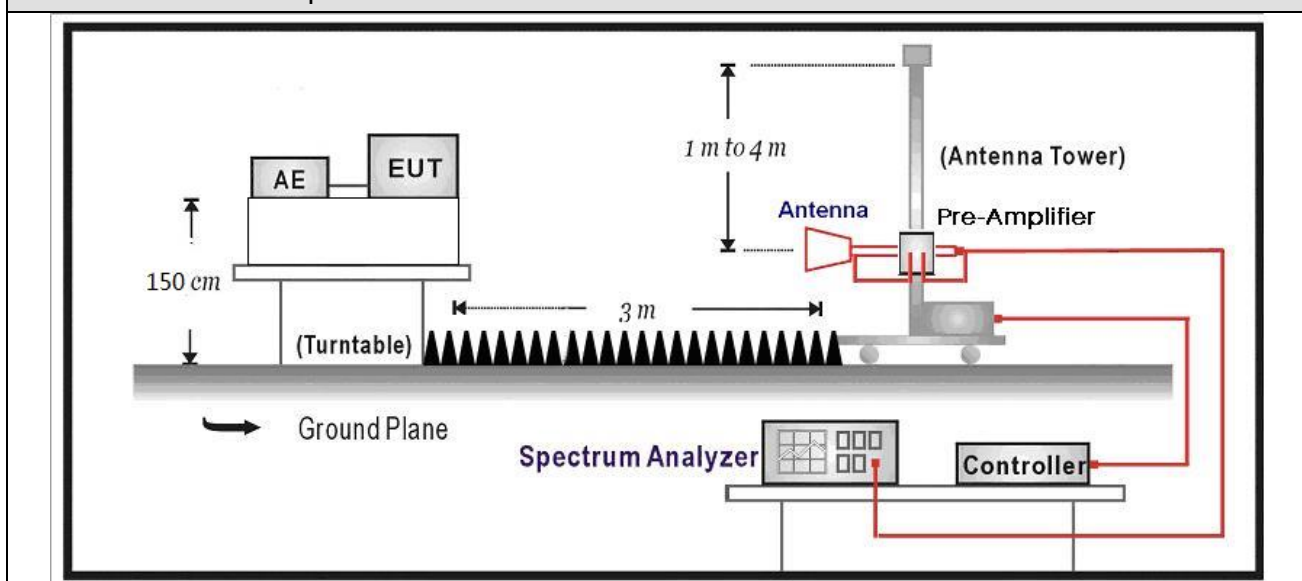
11. Radiated Emission Band Edge

11.1. Test Equipment

Radiated Emission Band Edge / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	R&S	FSV	104212	2019.12.28	2020.12.27
Signal analyzer	Agilent	E4446A	MY45300103	2020.05.08	2021.05.07
low Noise Amplifier	BXT	NA2651D	LNA17040209	2020.04.13	2021.04.12
Pre-Amplifier	EMCI	EMC184045SE	980263	2019.06.13	2020.06.12
DRG Horn Antenna	ETS-Lindgren	3117	00167055	2019.05.25	2020.05.24
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2019.03.23	2021.03.22
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2020.04.13	2021.04.12
Coaxial Cable	ROSENBERGER	LA1-C011-2000/3000	AC5-40G	2020.04.18	2021.04.17
Temperature/Humidity Meter	RTS	RTS-8S	AC5-TH	2019.09.02	2020.09.01
Quietek EMI V3(test software)	Quietek	N/A	N/A	N/A	N/A
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

11.2. Test Setup

Above 1GHz Test Setup:



11.3. Limit

Band edge Limit				
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.

11.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☐	DA 00-705	N/A	duty cycle correction factor
☒	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	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

11.5. Uncertainty

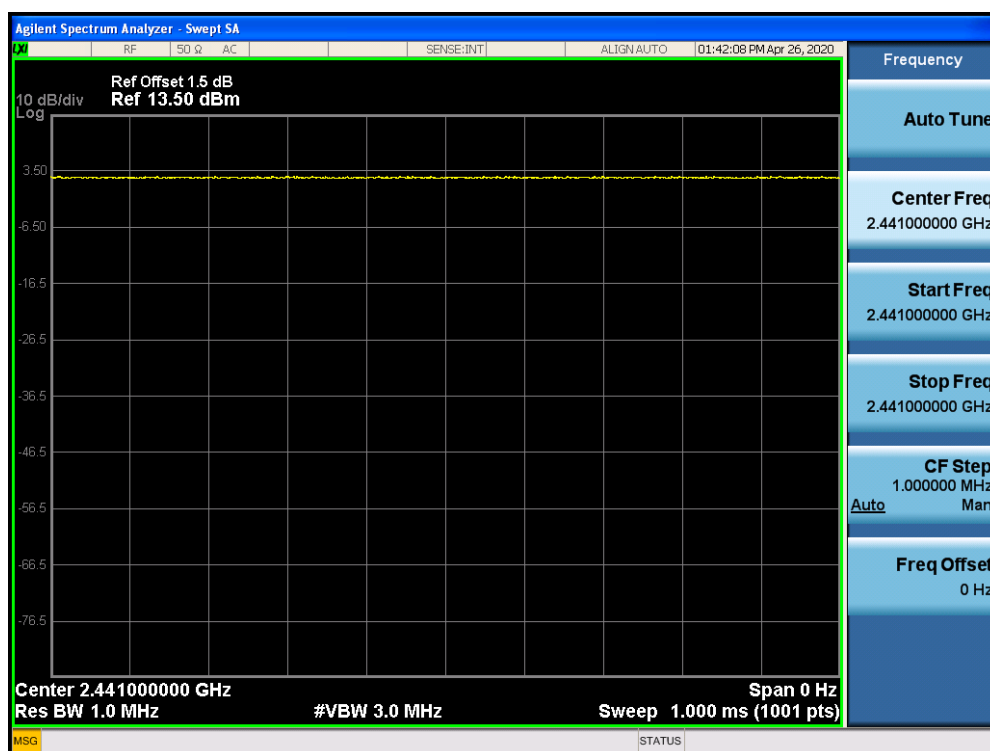
The measurement uncertainty above 1G is defined as ± 3.9 dB

below 1G is defined as ± 3.8 dB

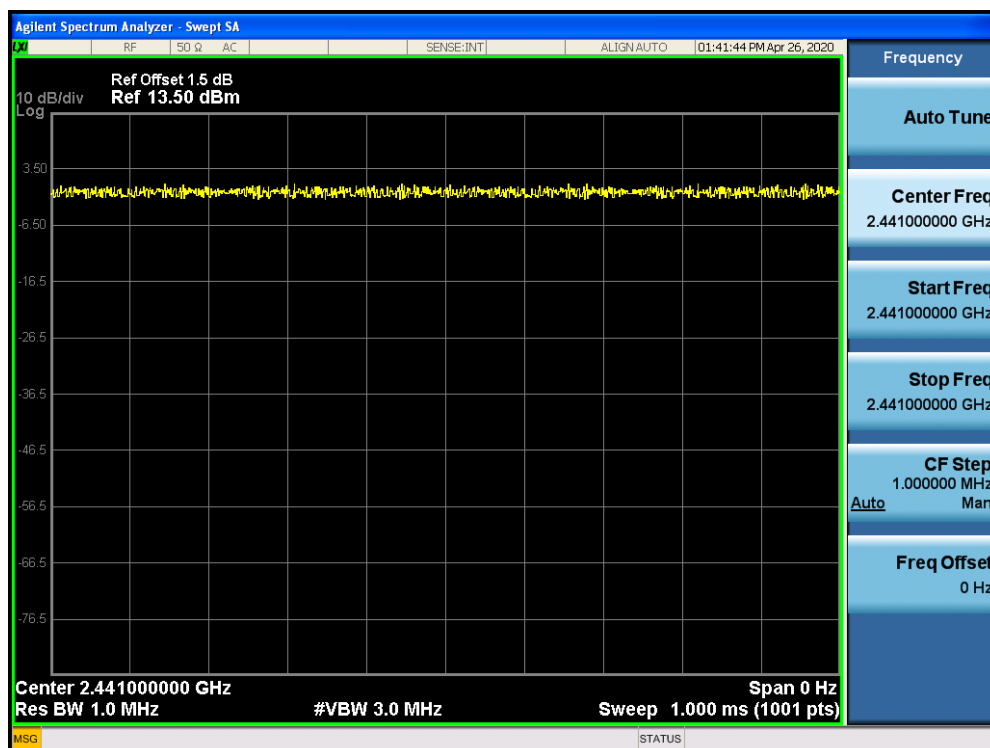
11.6. Duty Cycle

Test Mode	Tx On (ms)	Tx Off (ms)	Reduced VBW (Hz)	Tx On + Tx Off (ms)	Duty Cycle
Mode 1	N/A	N/A	10	N/A	100%
Mode 2	N/A	N/A	10	N/A	100%
Mode 3	N/A	N/A	10	N/A	100%

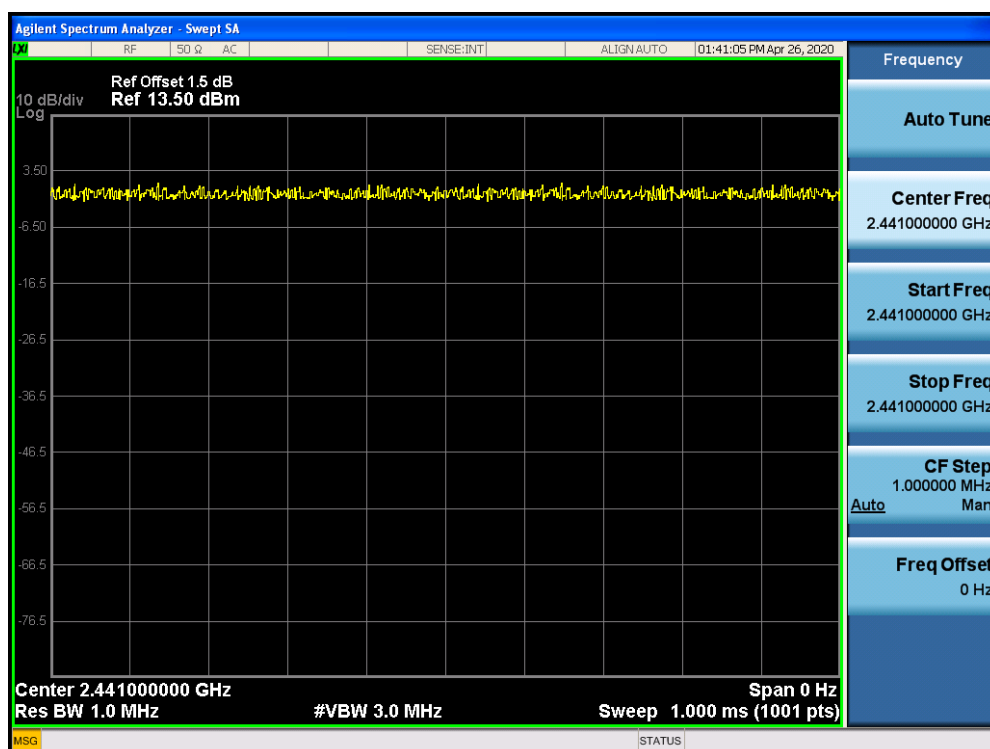
Mode 1



Mode 2

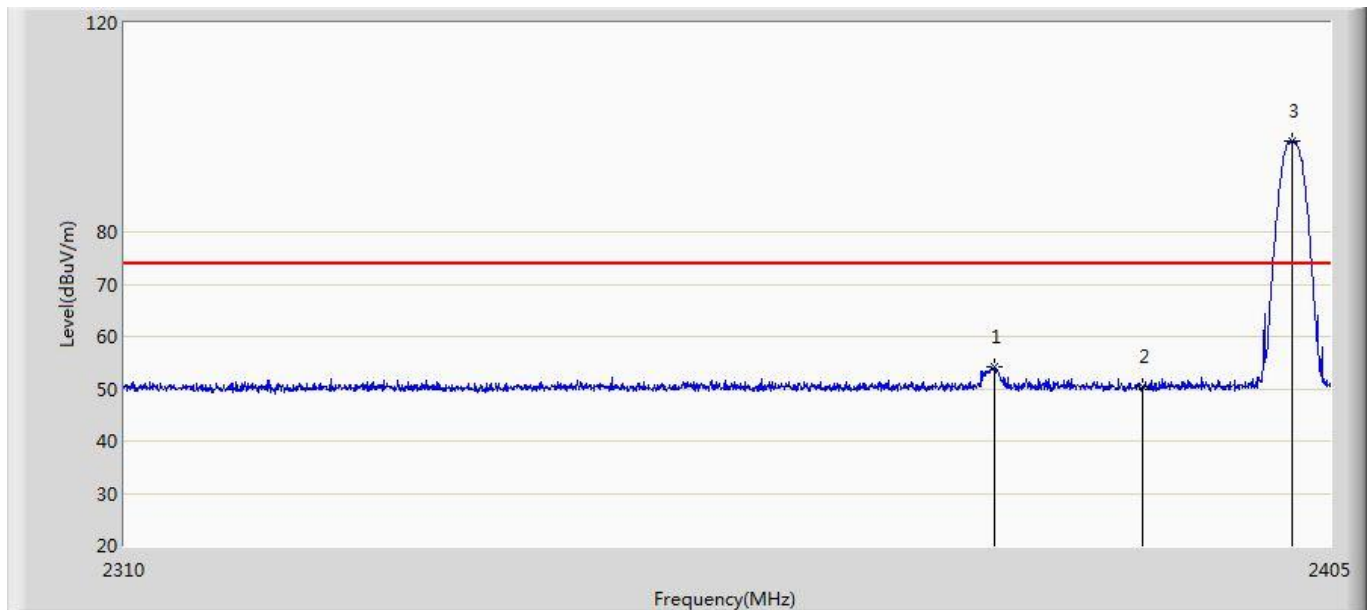


Mode 3



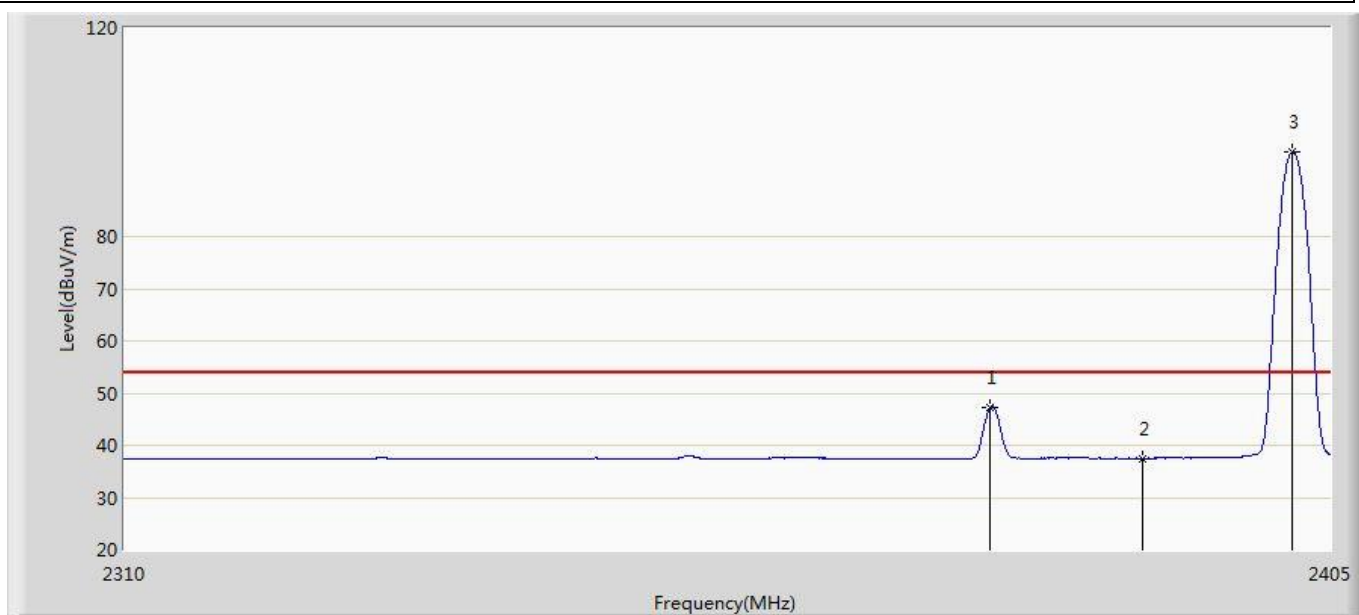
11.7. Test Result

Profile: 2040166R	Page No.: 1
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 18:25
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: Battery 3.7V
Note: Mode1:Transmit at 2402MHz by DH5	



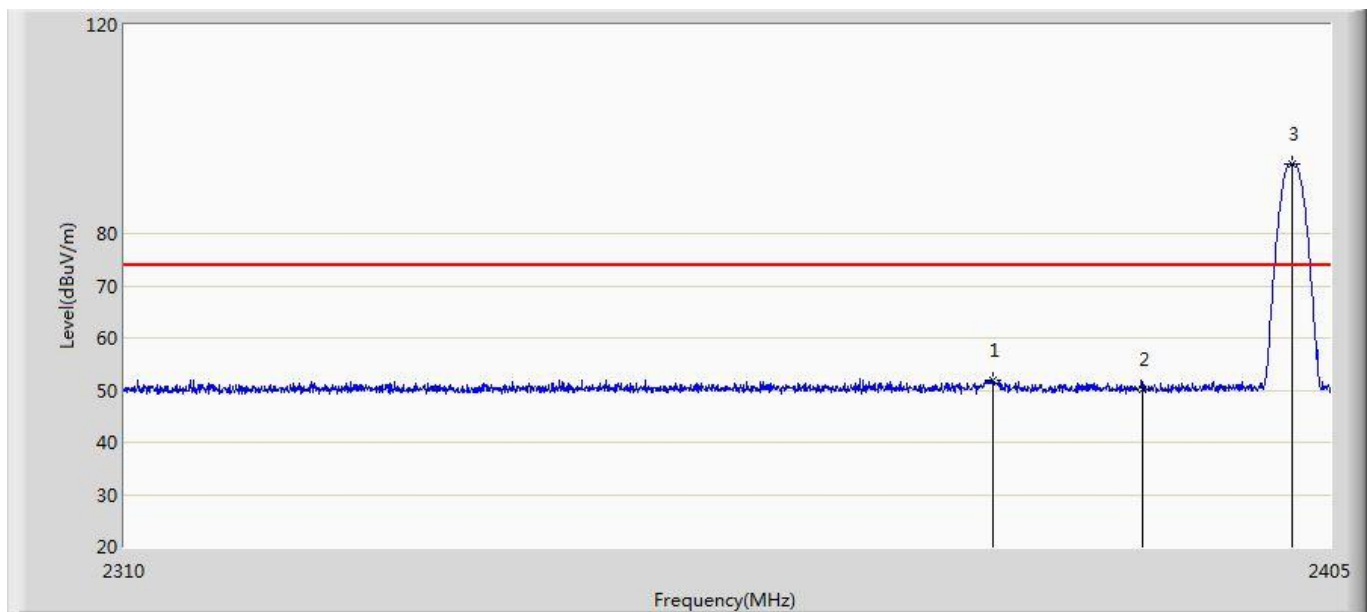
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2378.210	54.300	18.990	-19.700	74.000	35.311	PK
2		2390.000	50.473	15.158	-23.527	74.000	35.315	PK
3	*	2401.913	97.293	61.980	23.293	74.000	35.312	PK

Profile: 2040166R	Page No.: 2
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 18:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: Battery 3.7V
Note: Mode1:Transmit at 2402MHz by DH5	



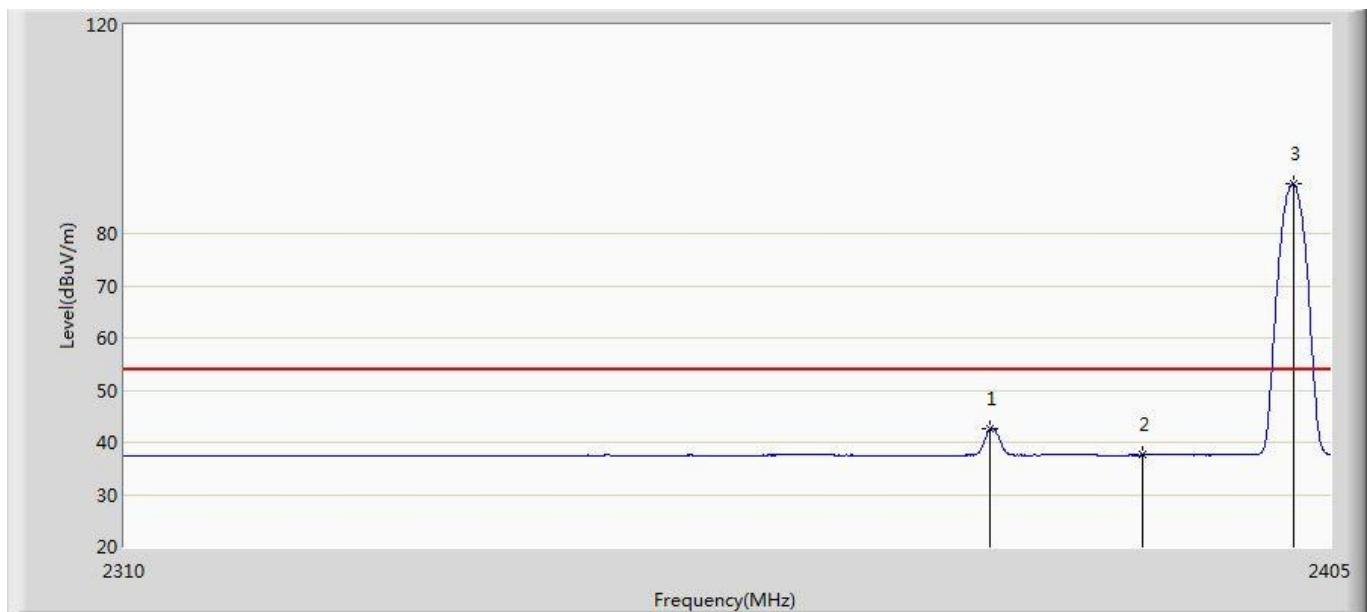
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2377.877	47.269	11.959	-6.731	54.000	35.311	AV
2		2390.000	37.514	2.199	-16.486	54.000	35.315	AV
3	*	2401.913	96.140	60.827	42.140	54.000	35.312	AV

Profile: 2040166R	Page No.: 3
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 18:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: Battery 3.7V
Note: Mode1:Transmit at 2402MHz by DH5	



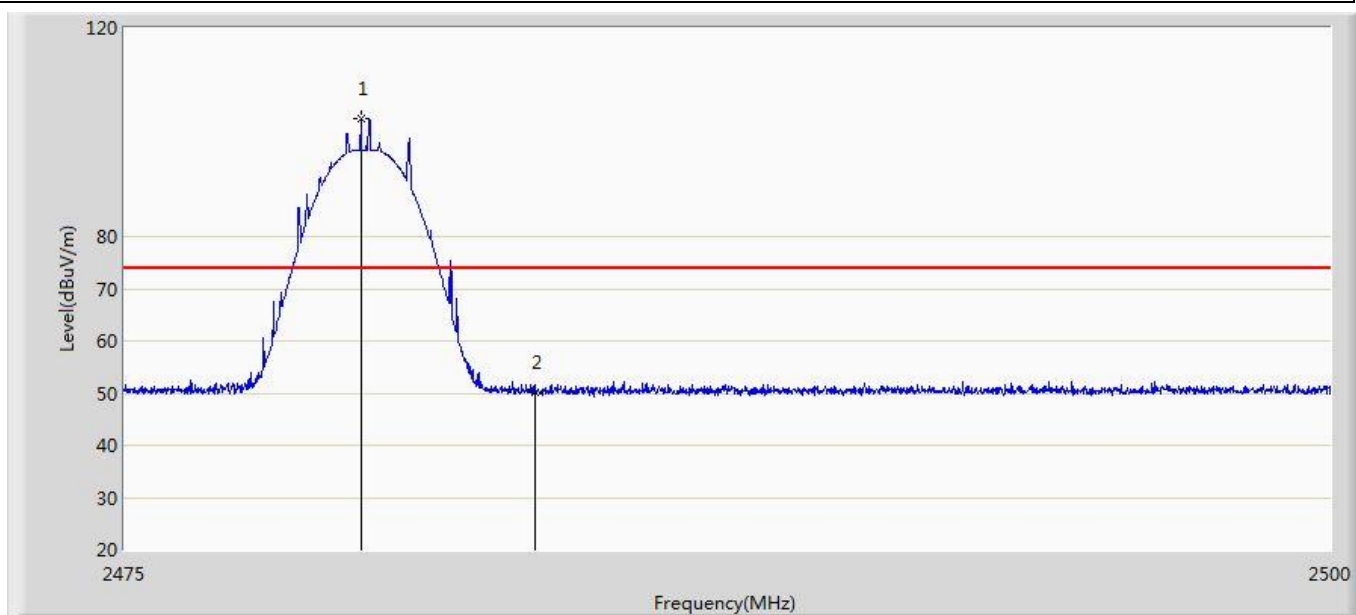
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2378.115	51.934	16.624	-22.066	74.000	35.311	PK
2		2390.000	50.038	14.723	-23.962	74.000	35.315	PK
3	*	2401.913	93.370	58.057	19.370	74.000	35.312	PK

Profile: 2040166R	Page No.: 4
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 18:40
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: Battery 3.7V
Note: Mode1:Transmit at 2402MHz by DH5	



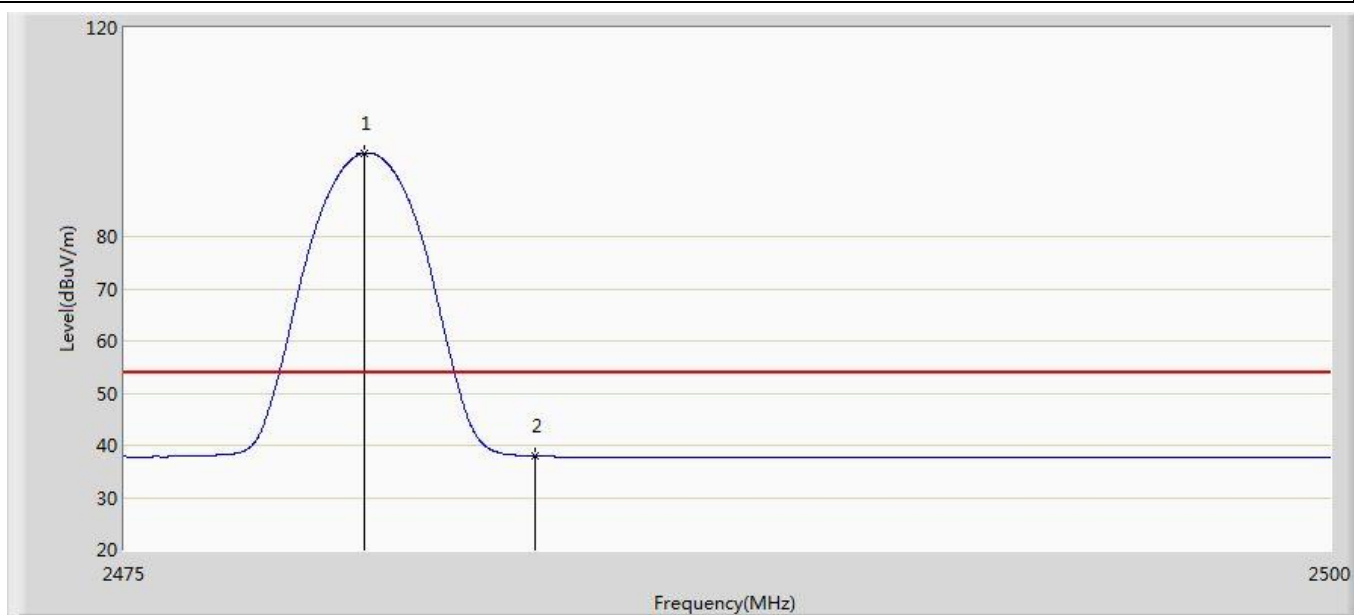
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2377.877	42.608	7.298	-11.392	54.000	35.311	AV
2		2390.000	37.542	2.227	-16.458	54.000	35.315	AV
3	*	2402.055	89.470	54.158	35.470	54.000	35.312	AV

Profile: 2040166R	Page No.: 5
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 18:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: Battery 3.7V
Note: Mode1:Transmit at 2480MHz by DH5	



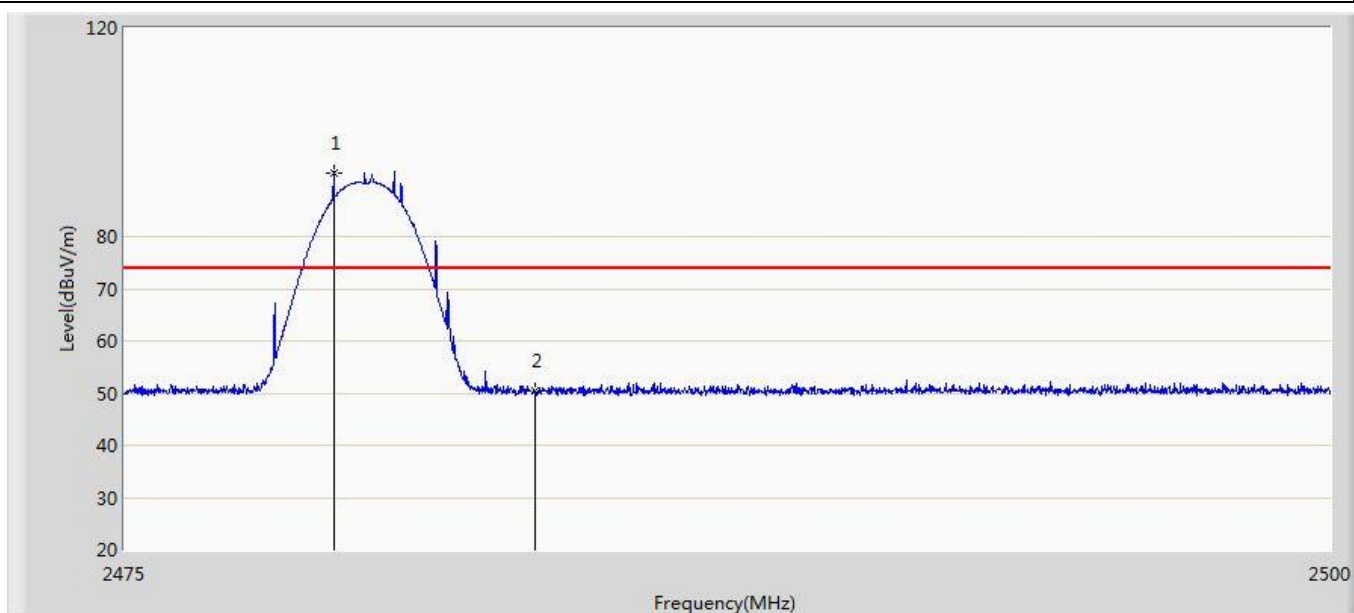
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.887	102.547	67.248	28.547	74.000	35.299	PK
2		2483.500	50.164	14.866	-23.836	74.000	35.297	PK

Profile: 2040166R	Page No.: 6
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 18:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: Battery 3.7V
Note: Mode1:Transmit at 2480MHz by DH5	



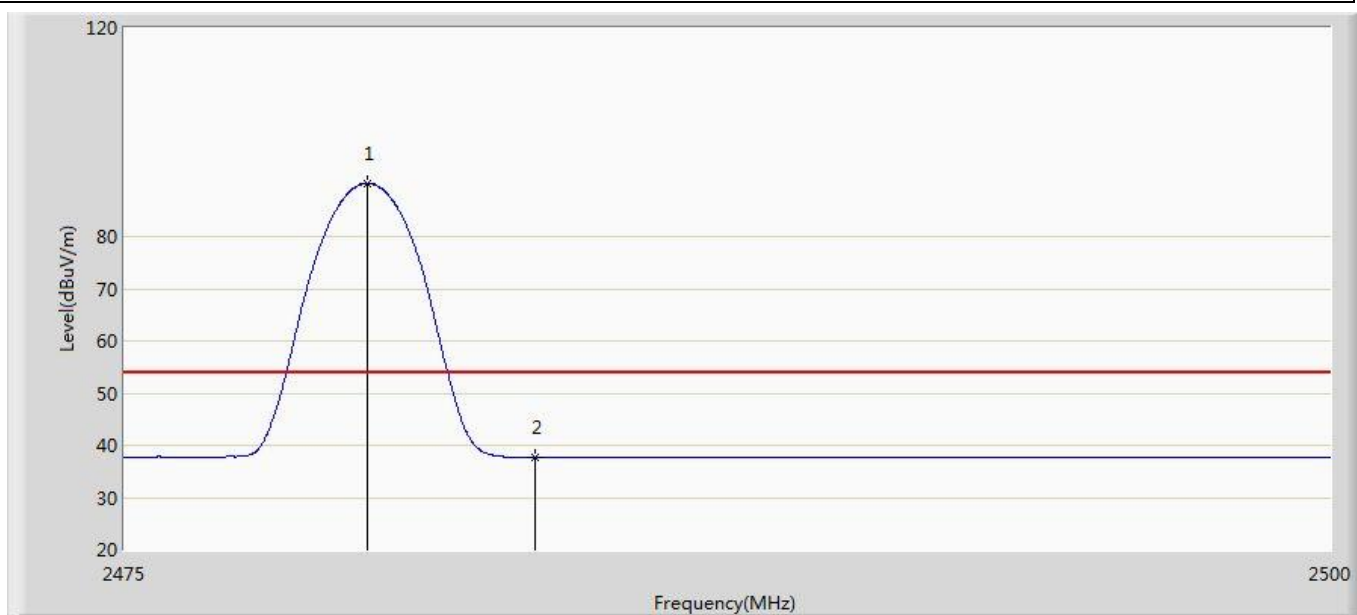
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.975	96.059	60.760	42.059	54.000	35.299	AV
2		2483.500	37.925	2.627	-16.075	54.000	35.297	AV

Profile: 2040166R	Page No.: 7
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 18:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: Battery 3.7V
Note: Mode1:Transmit at 2480MHz by DH5	



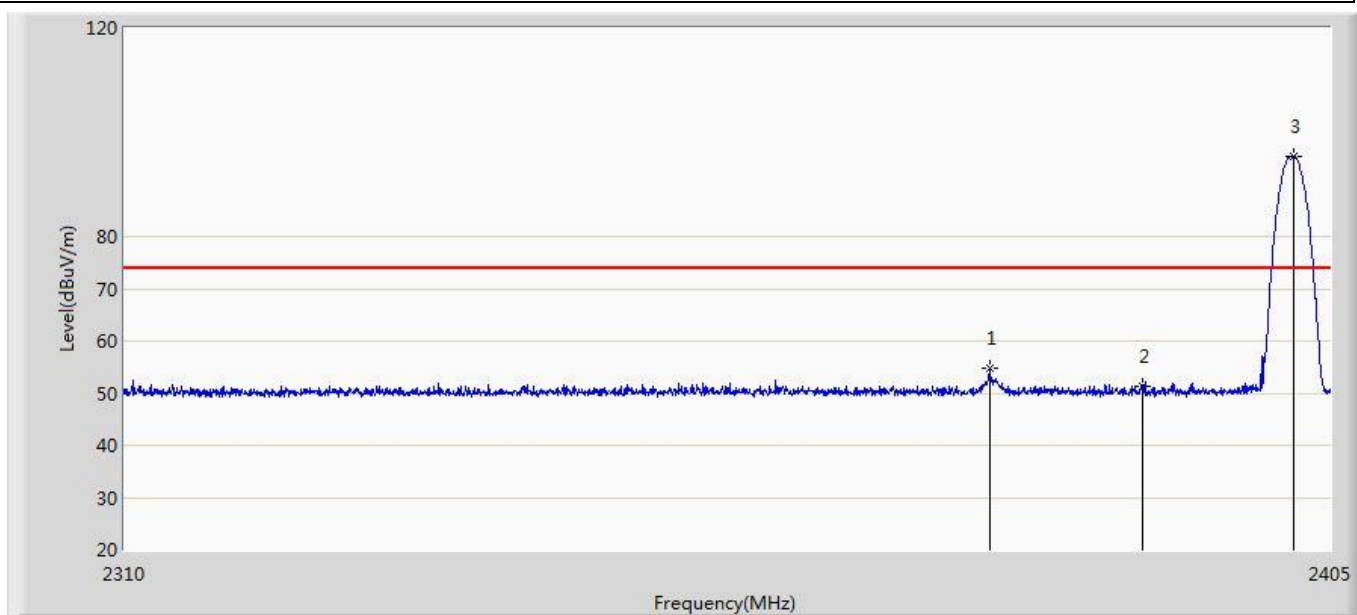
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.325	92.261	56.962	18.261	74.000	35.299	PK
2		2483.500	50.396	15.098	-23.604	74.000	35.297	PK

Profile: 2040166R	Page No.: 8
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 18:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: Battery 3.7V
Note: Mode1:Transmit at 2480MHz by DH5	



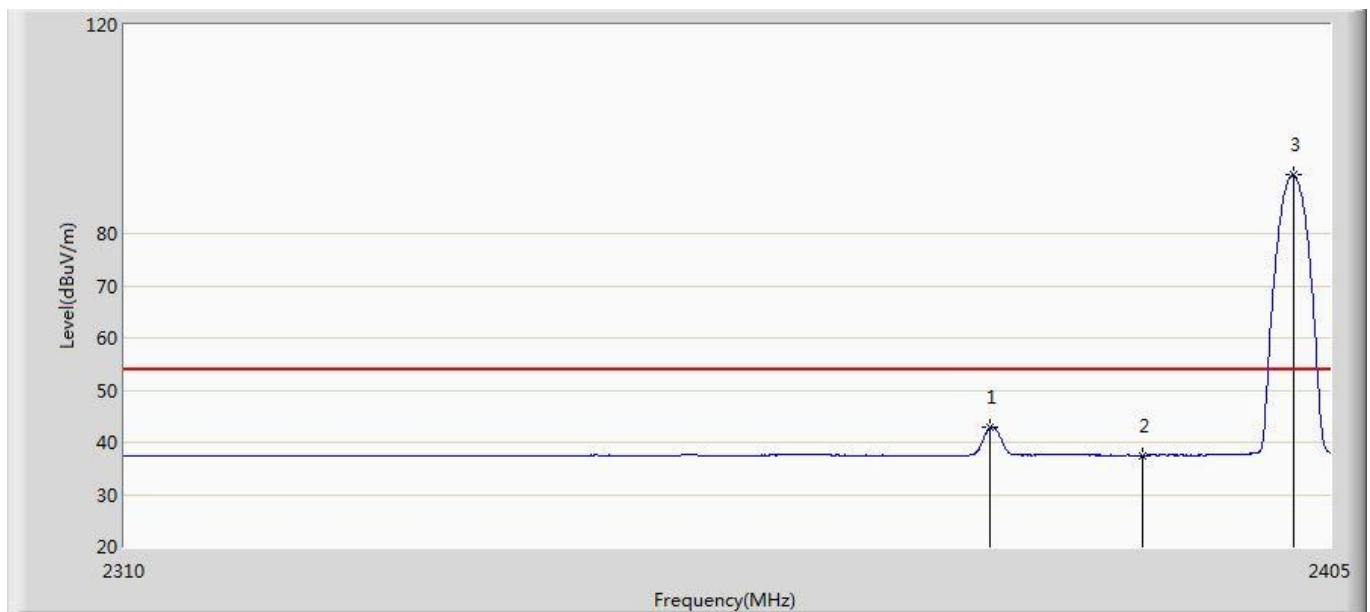
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.012	90.195	54.896	36.195	54.000	35.299	AV
2		2483.500	37.710	2.412	-16.290	54.000	35.297	AV

Profile: 2040166R	Page No.: 9
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 18:50
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: Battery 3.7V
Note: Mode2:Transmit at 2402MHz by 2DH5	



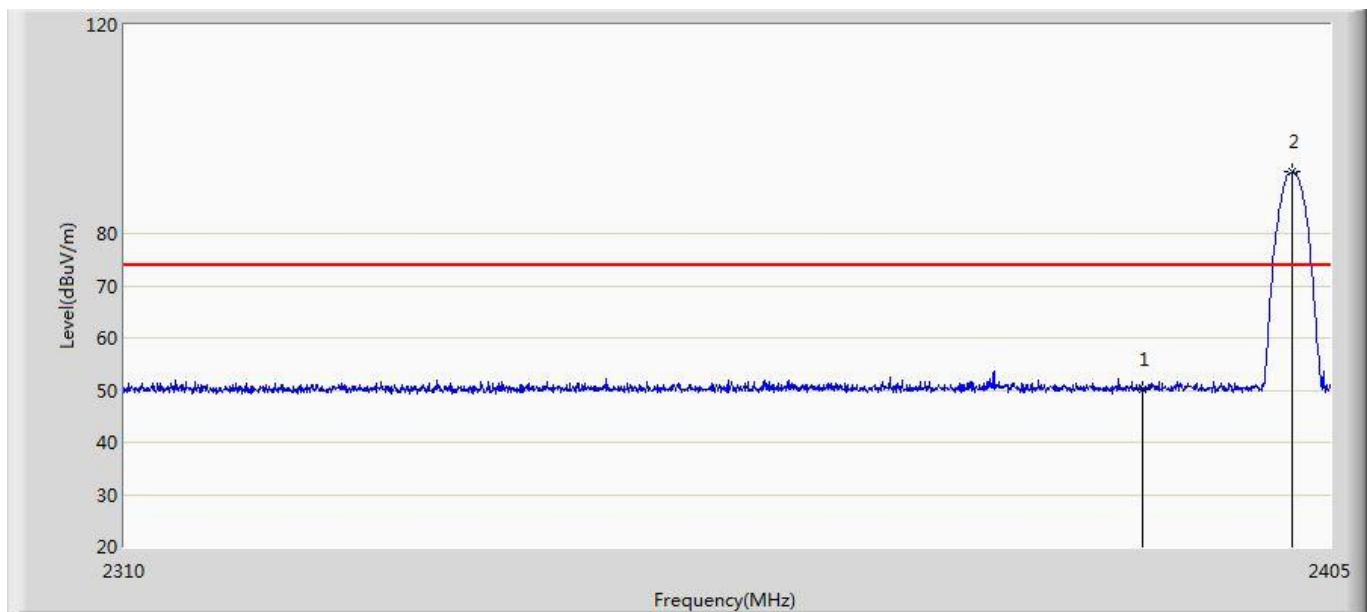
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2377.782	54.802	19.492	-19.198	74.000	35.311	PK
2		2390.000	51.338	16.023	-22.662	74.000	35.315	PK
3	*	2402.055	95.471	60.159	21.471	74.000	35.312	PK

Profile: 2040166R	Page No.: 10
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 18:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: Battery 3.7V
Note: Mode2:Transmit at 2402MHz by 2DH5	



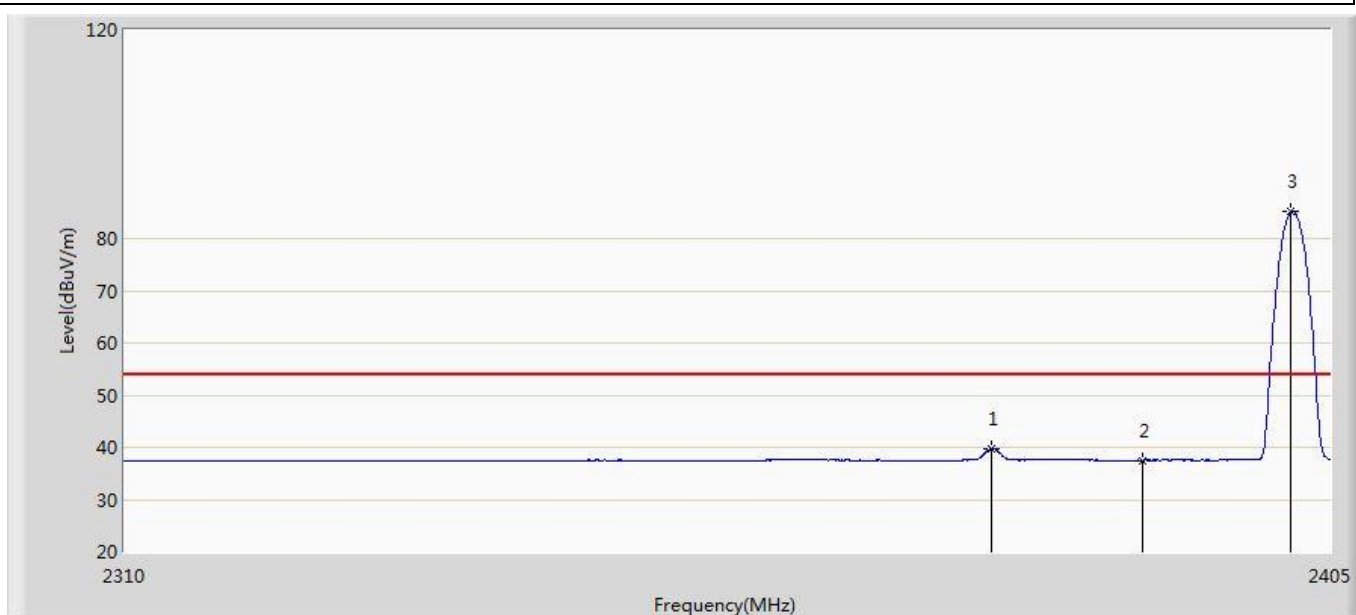
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2377.877	42.860	7.550	-11.140	54.000	35.311	AV
2		2390.000	37.516	2.201	-16.484	54.000	35.315	AV
3	*	2402.055	91.285	55.973	37.285	54.000	35.312	AV

Profile: 2040166R	Page No.: 11
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 18:54
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: Battery 3.7V
Note: Mode2:Transmit at 2402MHz by 2DH5	



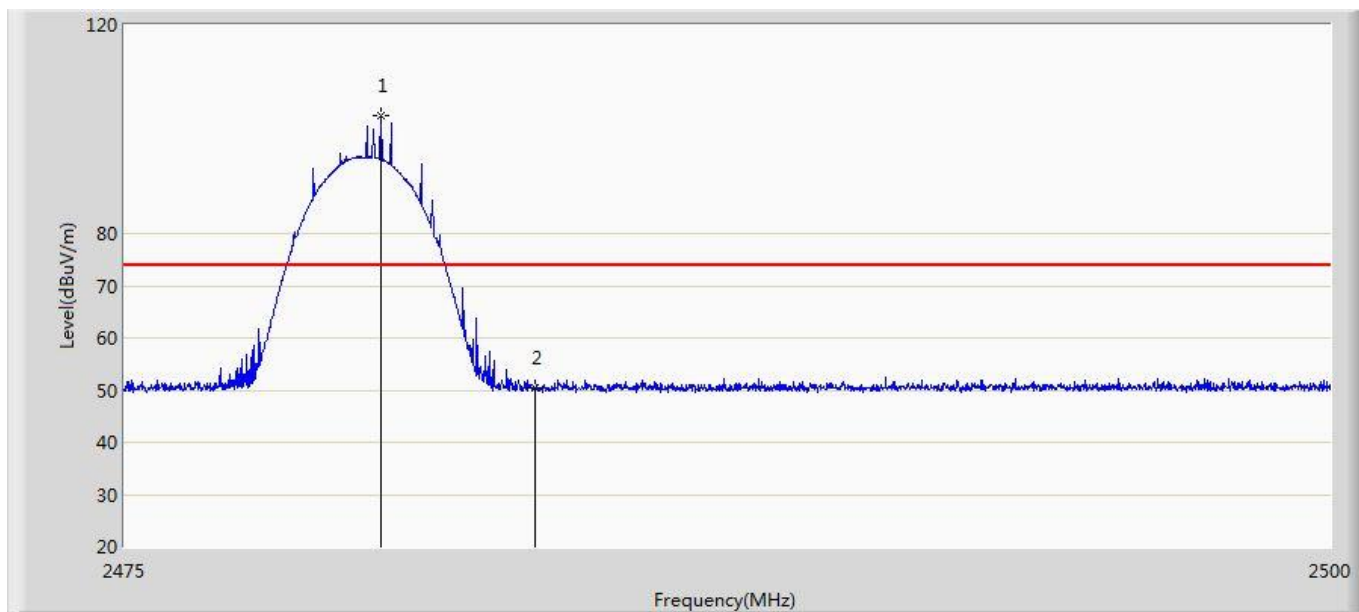
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.279	14.964	-23.721	74.000	35.315	PK
2	*	2401.913	91.831	56.518	17.831	74.000	35.312	PK

Profile: 2040166R	Page No.: 12
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 18:56
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: Battery 3.7V
Note: Mode2:Transmit at 2402MHz by 2DH5	



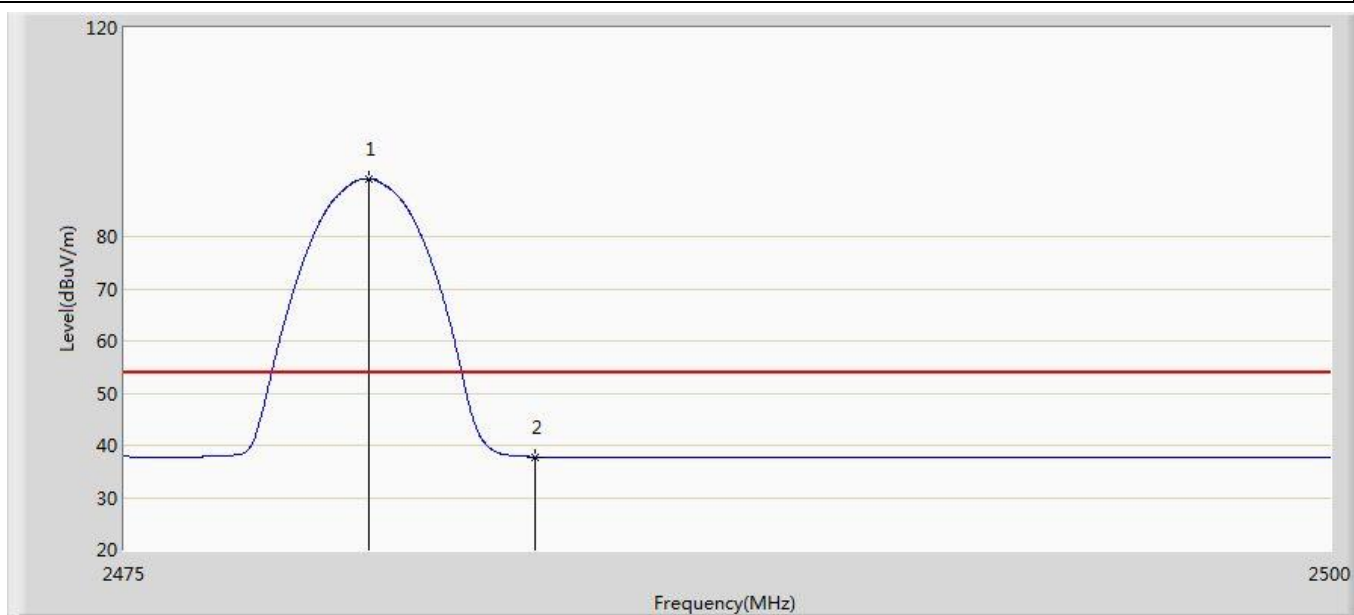
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2377.972	39.674	4.364	-14.326	54.000	35.311	AV
2		2390.000	37.532	2.217	-16.468	54.000	35.315	AV
3	*	2401.865	85.161	49.848	31.161	54.000	35.312	AV

Profile: 2040166R	Page No.: 13
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 18:58
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: Battery 3.7V
Note: Mode2:Transmit at 2480MHz by 2DH5	



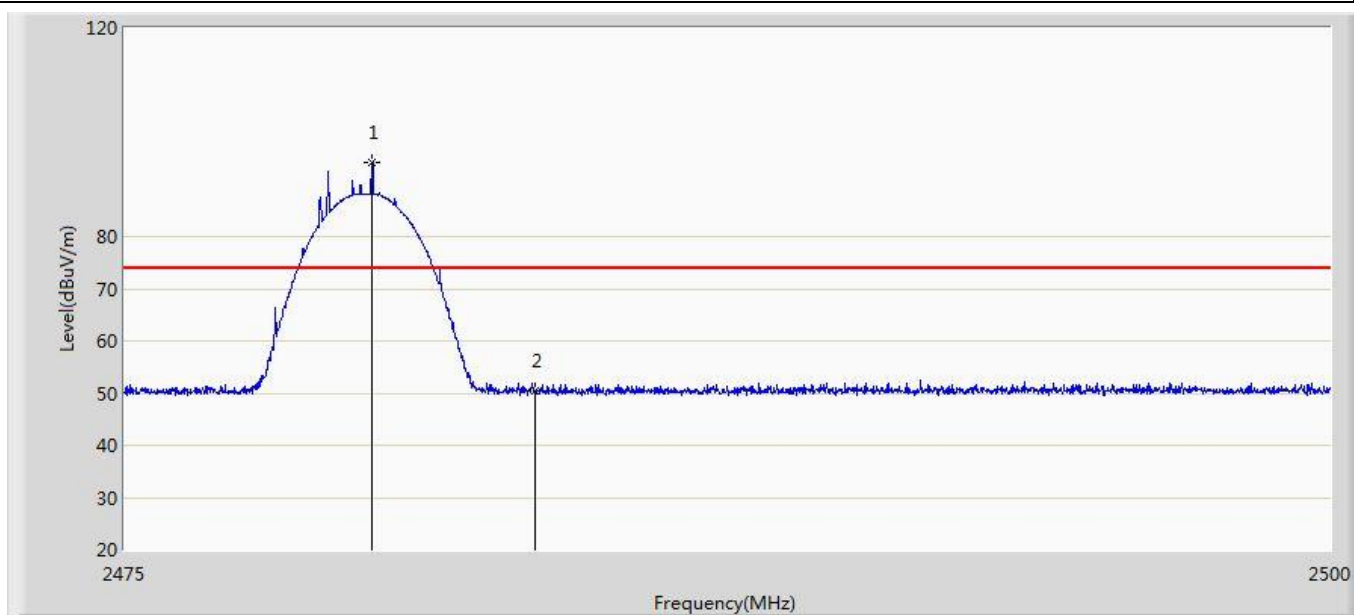
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.300	102.633	67.335	28.633	74.000	35.299	PK
2		2483.500	50.514	15.216	-23.486	74.000	35.297	PK

Profile: 2040166R	Page No.: 14
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 19:00
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: Battery 3.7V
Note: Mode2:Transmit at 2480MHz by 2DH5	



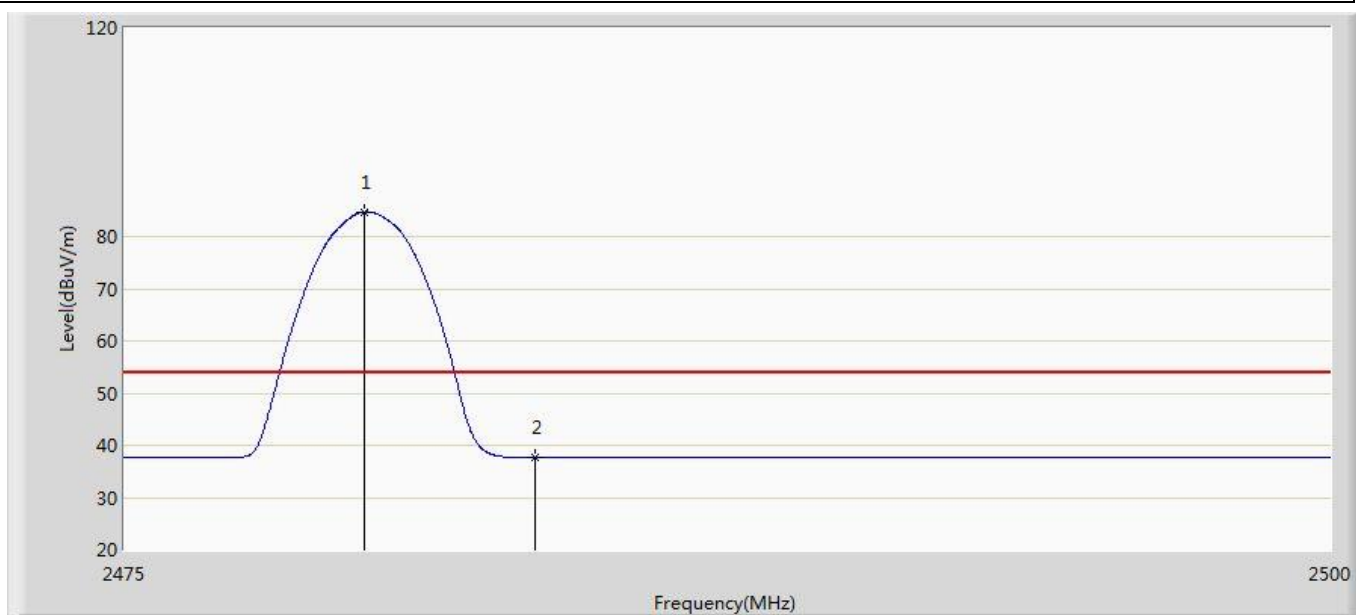
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.050	91.110	55.811	37.110	54.000	35.299	AV
2		2483.500	37.753	2.455	-16.247	54.000	35.297	AV

Profile: 2040166R	Page No.: 15
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 19:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: Battery 3.7V
Note: Mode2:Transmit at 2480MHz by 2DH5	



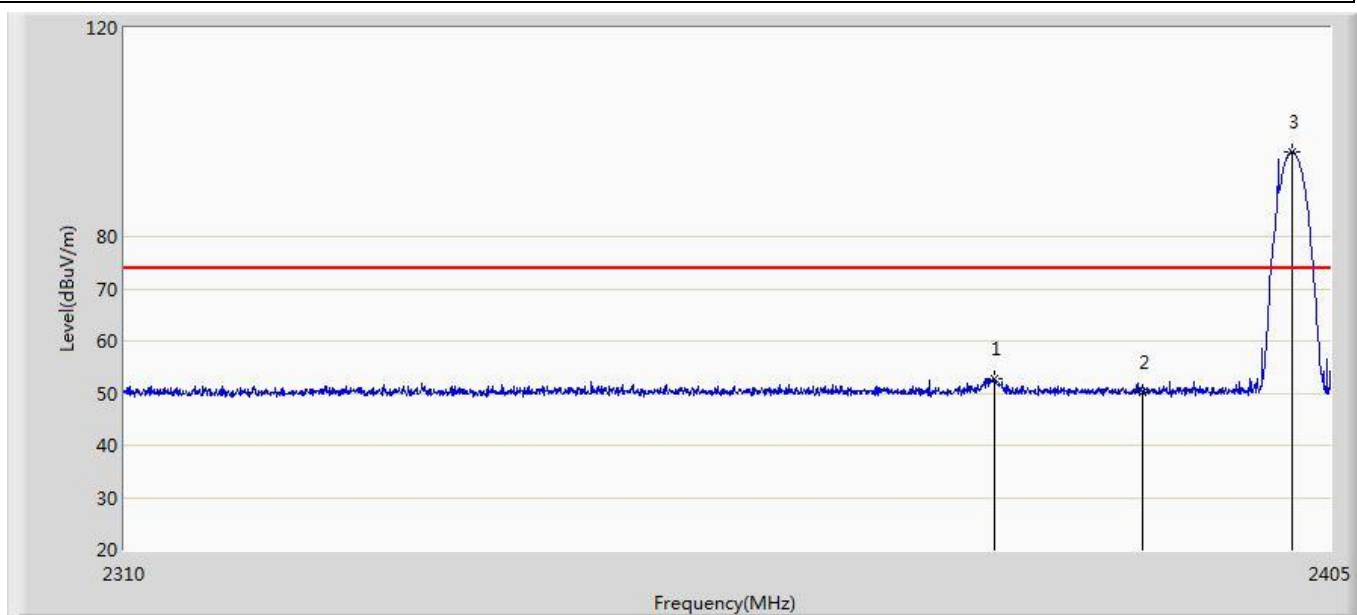
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.125	94.223	58.924	20.223	74.000	35.299	PK
2		2483.500	50.441	15.143	-23.559	74.000	35.297	PK

Profile: 2040166R	Page No.: 16
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 19:03
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: Battery 3.7V
Note: Mode2:Transmit at 2480MHz by 2DH5	



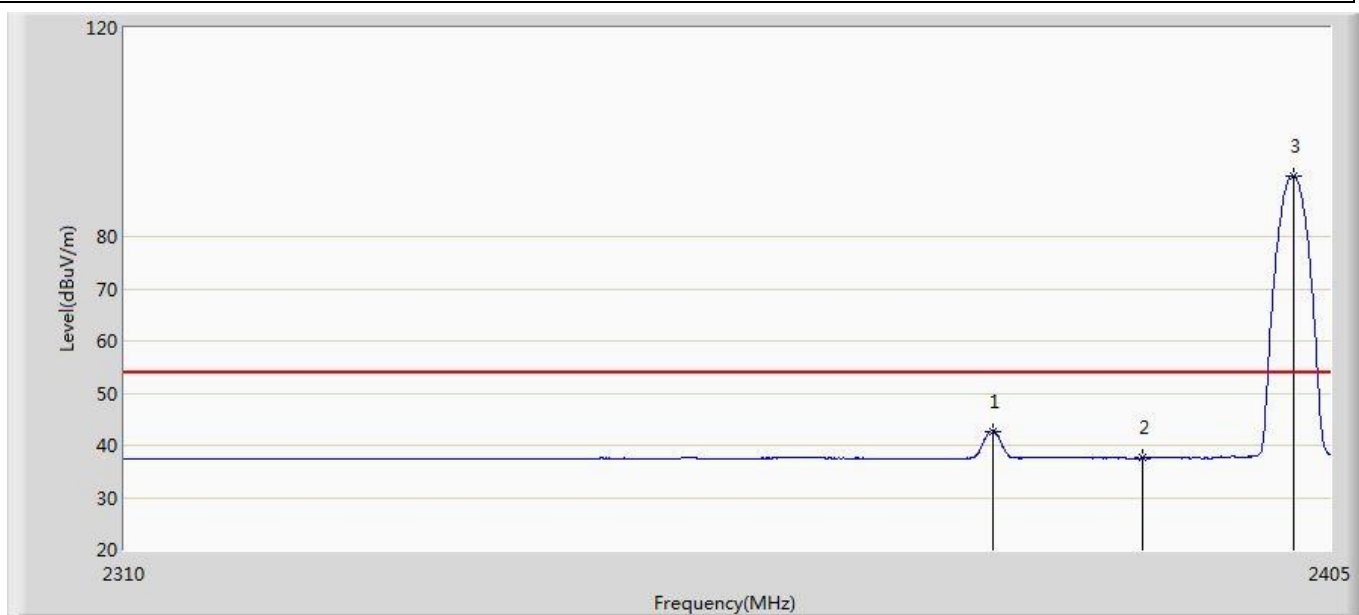
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.962	84.760	49.461	30.760	54.000	35.299	AV
2		2483.500	37.605	2.307	-16.395	54.000	35.297	AV

Profile: 2040166R	Page No.: 17
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 19:07
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: Battery 3.7V
Note: Mode3:Transmit at 2402MHz by 3DH5	



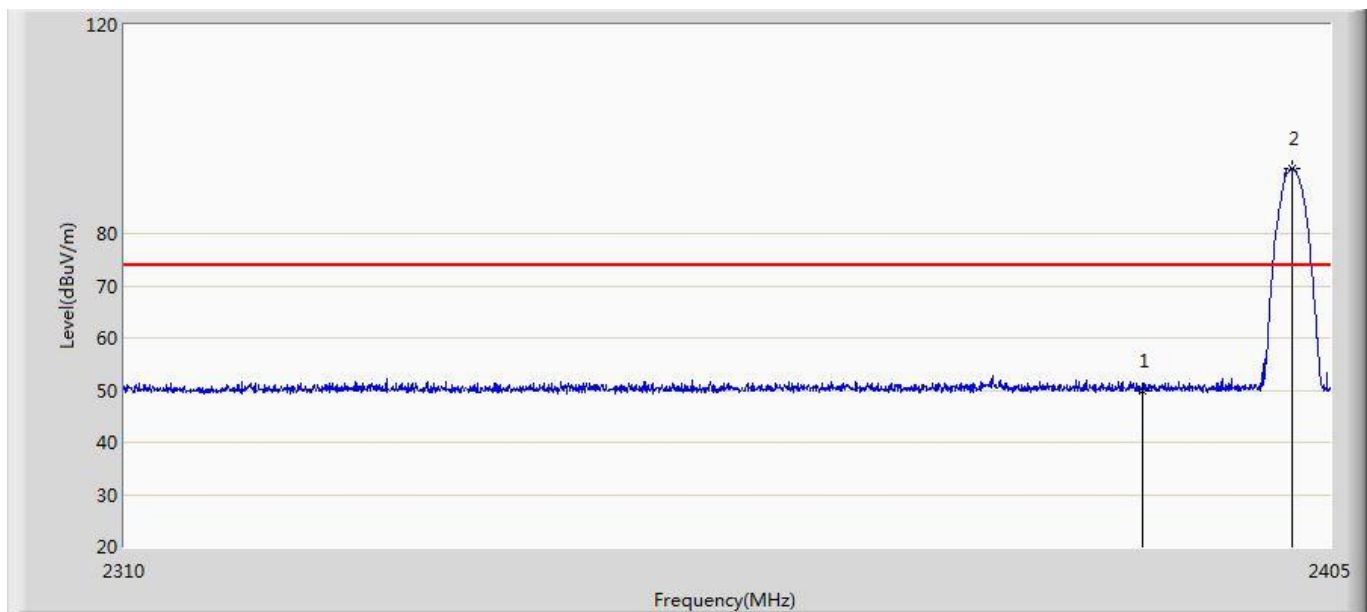
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2378.163	52.774	17.464	-21.226	74.000	35.311	PK
2		2390.000	50.219	14.904	-23.781	74.000	35.315	PK
3	*	2402.008	96.251	60.939	22.251	74.000	35.312	PK

Profile: 2040166R	Page No.: 18
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 19:10
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: Battery 3.7V
Note: Mode3:Transmit at 2402MHz by 3DH5	



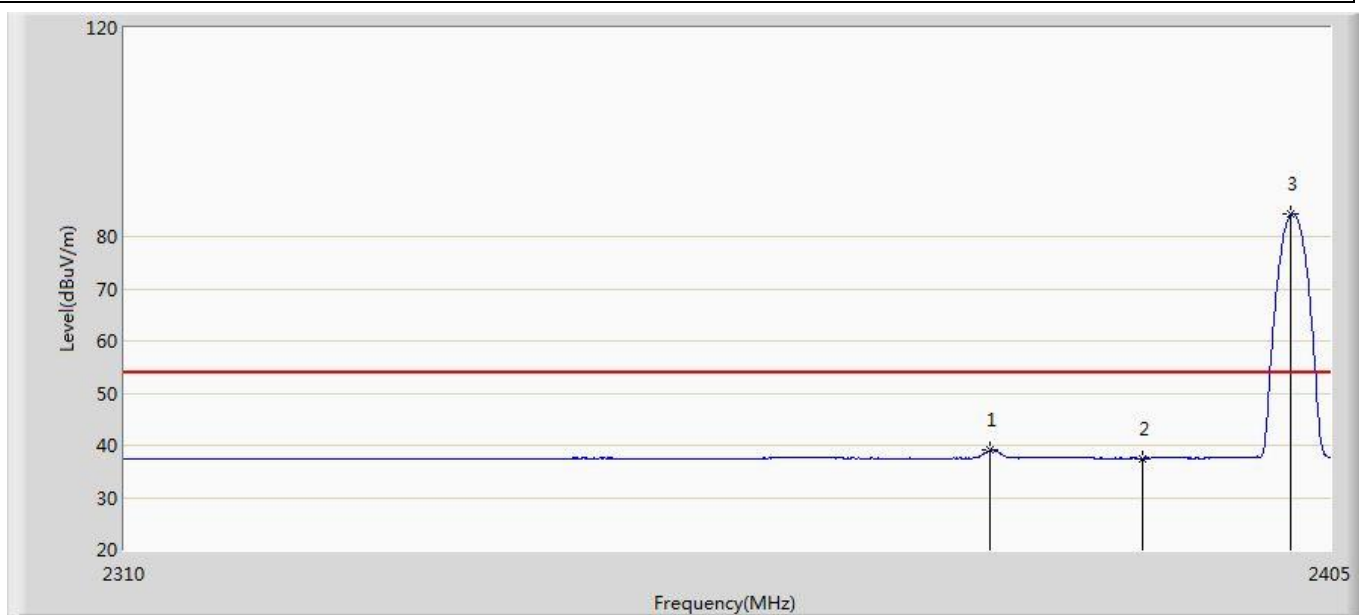
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2378.115	42.728	7.418	-11.272	54.000	35.311	AV
2		2390.000	37.539	2.224	-16.461	54.000	35.315	AV
3	*	2402.055	91.722	56.410	37.722	54.000	35.312	AV

Profile: 2040166R	Page No.: 19
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 19:12
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: Battery 3.7V
Note: Mode3:Transmit at 2402MHz by 3DH5	



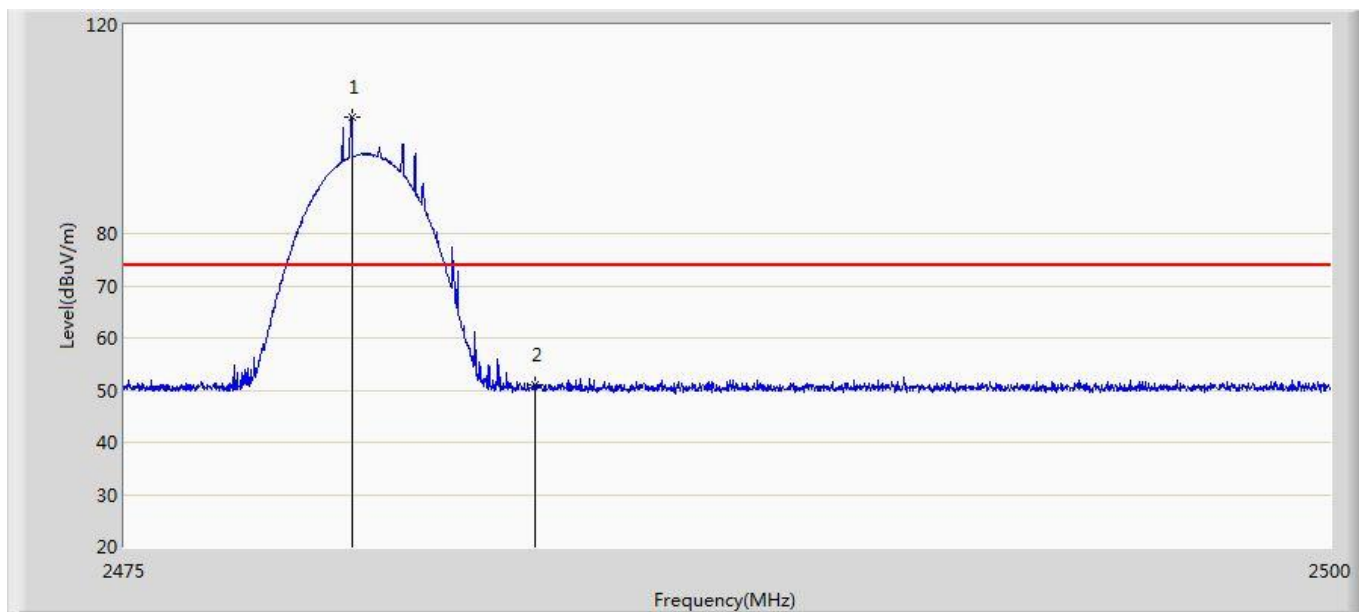
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	49.985	14.670	-24.015	74.000	35.315	PK
2	*	2401.913	92.519	57.206	18.519	74.000	35.312	PK

Profile: 2040166R	Page No.: 20
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 19:13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: Battery 3.7V
Note: Mode3:Transmit at 2402MHz by 3DH5	



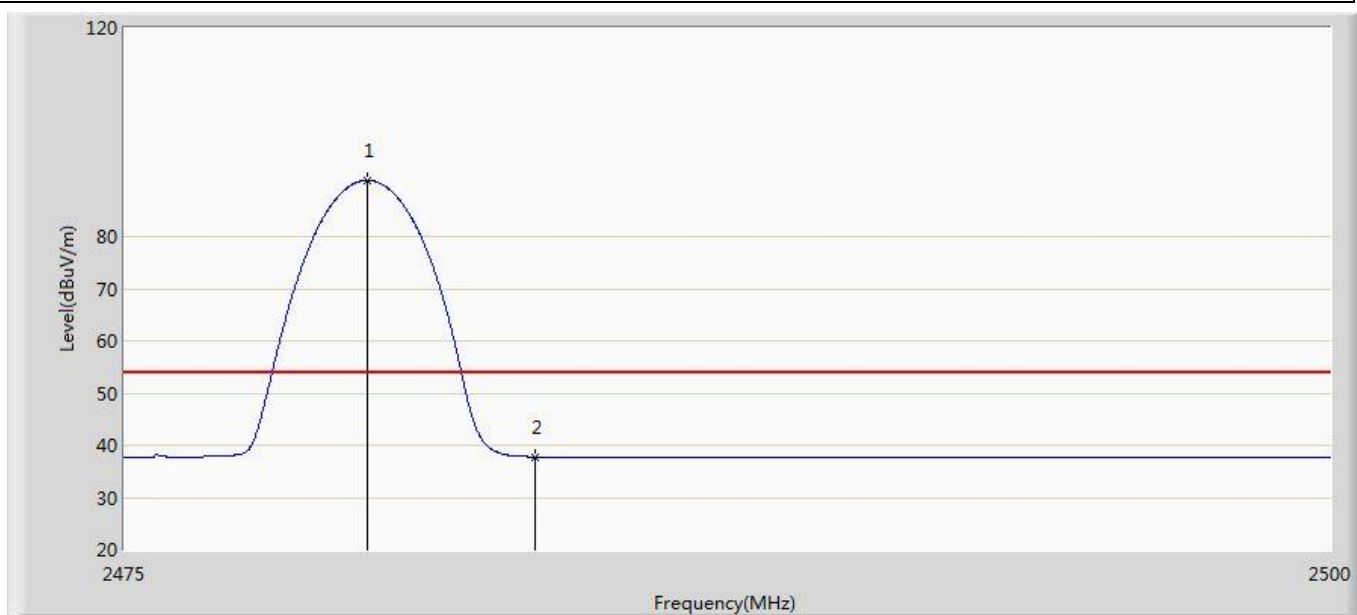
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2377.782	38.990	3.680	-15.010	54.000	35.311	AV
2		2390.000	37.521	2.206	-16.479	54.000	35.315	AV
3	*	2401.865	84.224	48.911	30.224	54.000	35.312	AV

Profile: 2040166R	Page No.: 21
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 19:15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: Battery 3.7V
Note: Mode3:Transmit at 2480MHz by 3DH5	



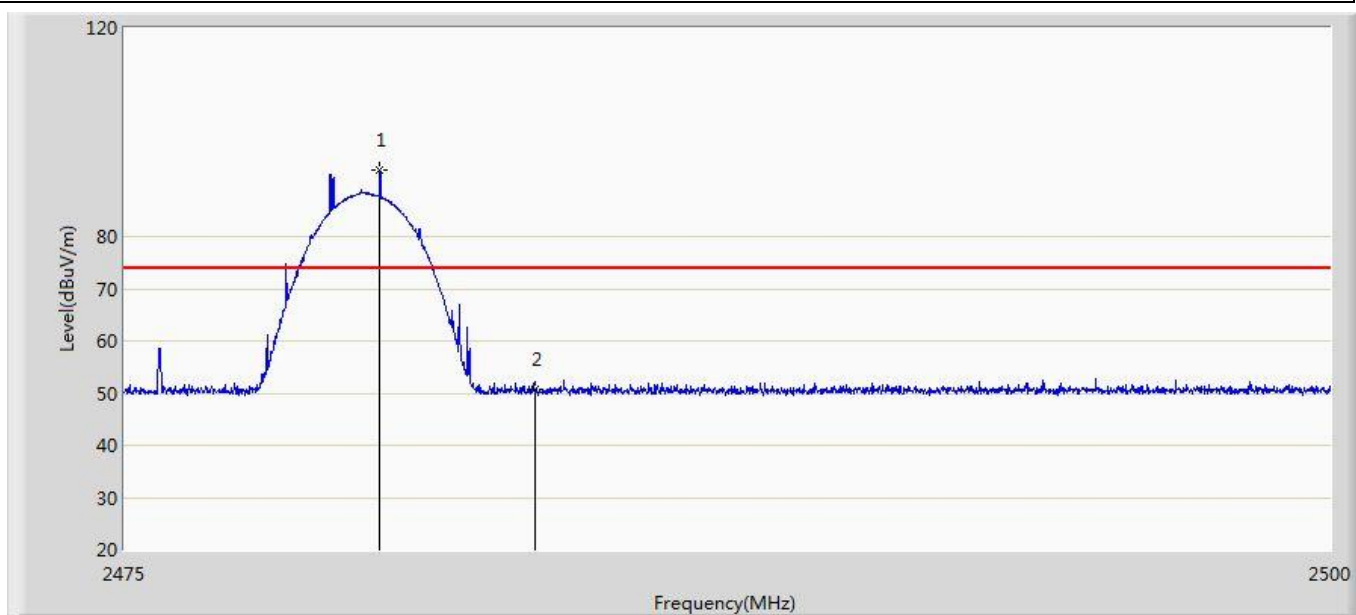
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.700	102.197	66.898	28.197	74.000	35.299	PK
2		2483.500	50.942	15.644	-23.058	74.000	35.297	PK

Profile: 2040166R	Page No.: 22
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 19:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Barcode Scanner	Power: Battery 3.7V
Note: Mode3:Transmit at 2480MHz by 3DH5	



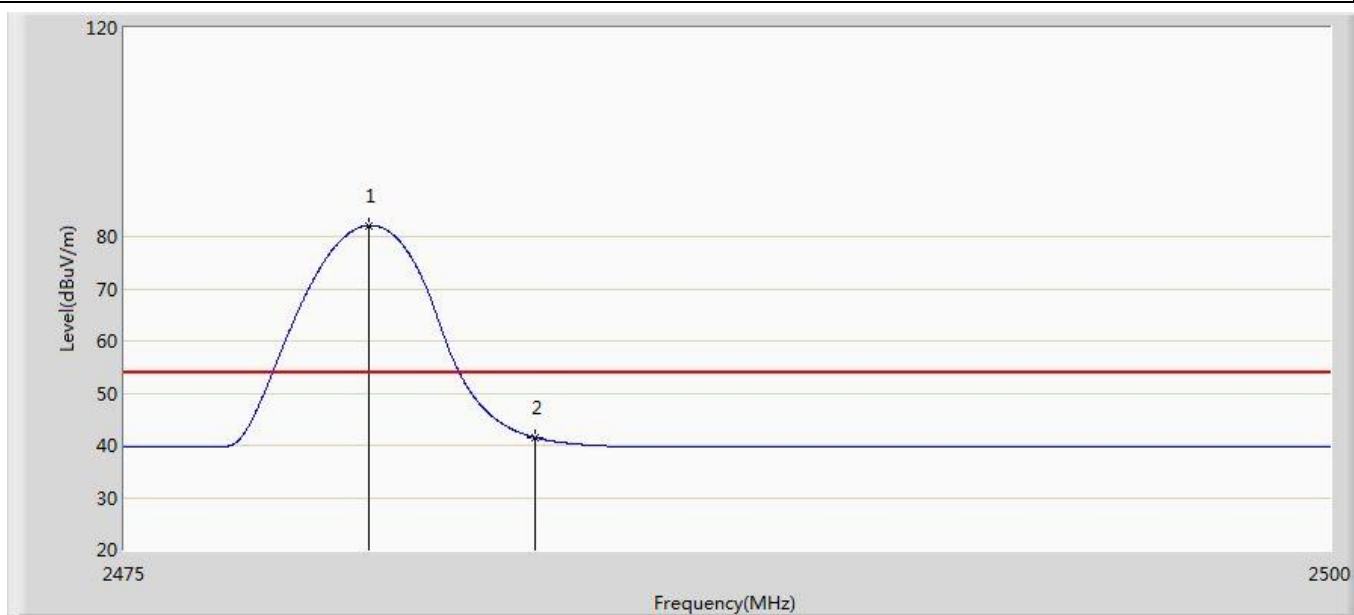
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.012	90.738	55.439	36.738	54.000	35.299	AV
2		2483.500	37.814	2.516	-16.186	54.000	35.297	AV

Profile: 2040166R	Page No.: 23
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 19:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: Battery 3.7V
Note: Mode3: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	*	2480.275	92.688	57.390	18.688	74.000	35.299	PK
2		2483.500	50.845	15.547	-23.155	74.000	35.297	PK

Profile: 2040166R	Page No.: 24
Engineer: Pawn	
Site: AC5	Time: 2020/04/28 - 19:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Barcode Scanner	Power: Battery 3.7V
Note: Mode3: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	*	2480.050	82.146	46.847	28.146	54.000	35.299	AV
2		2483.500	41.466	6.168	-12.534	54.000	35.297	AV

12. Antenna Requirement

12.1. Limit

Antenna Requirement Limit	
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.	

12.2. Antenna Connector Construction

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.	

_____ The End _____