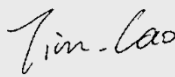
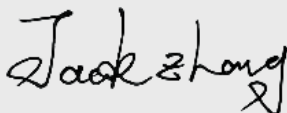


Test report No:
2250816R-RF-US-P06V03

FCC & ISED TEST REPORT

Product Name	Touch All In One Computer
Trademark	Elo
Model and /or type reference	ESY10I4, ESY15I4, ESY22I4, ESY15I4-C
FCC ID	RBWESYI4SV
IC	10757B-ESYI4SV
Applicant's name / address	Elo Touch Solutions, Inc 670 N. McCarthy Blvd., Suite 100, Milpitas, CA 95035, USA.
Test method requested, standard	FCC CFR Title 47 Part 15 Subpart C Section 15.247 ANSI C63.10: 2013 KD558074 D01 15.247 Meas Guidance v05r02 RSS-Gen Issue 5 /RSS-247 Issue 2
Verdict Summary	IN COMPLIANCE
Tested by (name / position & signature)	Tim Cao/Project Engineer 
Approved by (name / position & signature)	Jack Zhang/ Manager 
Date of issue	2022-10-12
Report Version	V1.1
Report template No	Template_FCC 15.247-RF-V1.0

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COMPETENCES AND GUARANTEES

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

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

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

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

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

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

GENERAL CONDITIONS

Test Location	No. 99, Hongye Road, Suzhou Industrial Park Suzhou, 215006, P.R. China
Date(receive sample)	May. 30, 2022
Date (start test)	May. 31, 2022
Date (finish test)	Jul. 15, 2022

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or Competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA.

ENVIRONMENTAL CONDITIONS

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

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

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

POSSIBLE TEST CASE VERDICTS

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

ABBREVIATIONS

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

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

DOCUMENT HISTORY

Report No.	Version	Description	Issued Date
2250816R-RF-US-P06V03	V1.0	Initial issue of report.	2022-09-16
2250816R-RF-US-P06V03	V1.1	Modify report No	2022-10-12

REMARKS AND COMMENTS

1. The equipment under test (EUT) does meet the essential requirements of the stated standard(s)/test(s).
2. These test results on a sample of the device are for the purpose of demonstrating Compliance with Part 15 Subpart C Paragraph 15.247, RSS-Gen Issue 5, RSS-247 Issue 2.
3. The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to account the uncertainty associated with the measurement result.
4. The test results presented in this report relate only to the object tested.
5. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification (Suzhou) Co., Ltd.
6. This report will not be used for social proof function in China market.
7. DEKRA declines any responsibility with the following test data provided by customer that may affect the validity of result:
 - Chapter 1.1 General Description of the Item(s);
 - Chapter 1.2 Antenna Information;
 - Chapter 1.3Channel List.
8. Four models have the same circuit and layout, the difference is the size and antenna, ESY10I4 is 10.1 inch, ESY15I4 is 15.6 inch, ESY15I4-C is 15.6 inch, ESY22I4 is 21.5 inch, model ESY22I4 is evaluated for conducted test items; ESY10I4, ESY15I4, ESY22I4, ESY15I4-C is evaluated for radiated test items and conducted emission, shown in the report is the worst data of four models.

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	100726	2021.10.30	2022.10.29
Two-Line V-Network	R&S	ENV216	101044	2022.03.12	2023.03.11
50ohm Termination	SHX	TF2	7081403	2021.09.04	2022.09.03
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	N/A	N/A
Temperature/Humidity Meter	RTS	RTS-8S	TR1-TH	2022.07.07	2023.07.06
Dekra test software	Dekra	-	-	-	-

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

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2021.12.15	2022.12.14
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2021.08.12	2022.08.11
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2022.07.14	2023.07.13
4TX MIMO Power Sensor	Keysight	X8750A	MY59400102	2022.03.16	2023.03.15
Coaxial Cable	Woken	N/A	N/A	2022.01.18	2023.01.17
Temperature/Humidity Meter	RTS	RTS-8S	RF08	2022.07.07	2023.07.06

Radiated Emission(30MHz-1GHz) / AC3

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EMI Test Receiver	R&S	ESCI	100176	2021.08.15	2022.08.14
Loop Antenna	R&S	HFH2-Z2	833799/003	2022.04.15	2023.04.14
Bilog Antenna	Teseq GmbH	CBL6112D	27613	2021.08.23	2022.08.22
Coaxial Cable	Huber+Suhner	RG 214	AC3-C	2022.03.30	2023.03.29
Temperature/Humidity Meter	RTS	RTS-8S	AC3-TH	2022.07.07	2023.07.06
Dekra test software	Dekra	-	-	-	-

Radiated Emission(1GHz-40GHz) / AC5

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2021.08.12	2022.08.11
Amplifier	SKET	LNPA_0118G-45	SK2021041201	2022.04.15	2023.04.14
Preamplifier	EMCI	EMC184045SE	980263	2022.05.21	2023.05.20
DRG Horn Antenna	ETS-Lindgren	3117	00167055	2021.08.23	2022.08.22
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2022.05.19	2023.05.18
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2022.05.22	2023.05.21
Coaxial Cable	ROSENBERGER	LA1-C011-2000/3000	AC5-40G	2022.03.21	2023.03.20
High-Pass Filter	Wainwright	WHKX3.0/18G-12SS	AC5&AC6	2022.06.07	2023.06.06
Temperature/Humidity Meter	RTS	RTS-8S	AC5-TH	2022.07.07	2023.07.06
Dekra test software	Dekra	-	-	-	-

UNCERTAINTY

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

Test item	Uncertainty
Conducted Emission	± 2.02 dB
Emissions in restricted frequency bands	above 1G : ± 3.9 dB below 1G is : ± 3.8 dB
20dB Bandwidth	± 1 kHz
Carrier Frequency Separation	± 1 kHz
Number of Hopping Frequencies	± 1 kHz
Time of Occupancy (Dwell Time)	± 0.1 us
Peak OutputPower	± 1.0 dB
Emissions in non-restricted frequency bands	± 1.0 dB
Radiated Emission Band Edge	above 1G : ± 3.9 dB below 1G : ± 3.8 dB

1 GENERAL INFORMATION

1.1 General Description of the Item(s)

Product Name..... :	Touch All In One Computer
Model No. :	ESY10I4, ESY15I4, ESY22I4, ESY15I4-C
HVIN..... :	ESYI4SV
FCC ID :	RBWESYI4SV
IC..... :	10757B-ESYI4SV
Manufacturer..... :	Elo Touch Solutions, Inc
Manufacturer Address..... :	670 N. McCarthy Blvd., Suite 100, Milpitas, CA 95035, USA.
Model Differences :	Four models have the same circuit and layout, the difference is the size and antenna, ESY10I4 is 10.1 inch, ESY15I4 is 15.6 inch, ESY15I4-C is 15.6 inch, ESY22I4 is 21.5 inch

Model and /or type reference	Hardware Version	Software Version
ESY10I4	R05	Android 10
ESY15I4	R05	Android 10
ESY22I4	R05	Android 10
ESY15I4-C	R04	Android 10

Wireless specification..... :	Bluetooth				
Bluetooth Specification..... :	V3.0				
Operating frequency range(s)..... :	2400~2483.5MHz				
Type of Modulation..... :	GFSK				
PHYs :	☒	GFSK	☒	Pi/4 DQPSK	☒ 8DPSK
Data Rate :	☒	1Mbit/s	☒	2Mbit/s	☒ 3Mbit/s
Number of channel..... :	79				
Operating Temperature Range..... :	0℃~40℃				

Rated power supply	Voltage and Frequency				
	☐	AC: 220 – 240 V, 50/60 Hz			
	☐	AC: 100 – 240 V, 50/60 Hz			
	☒	19 Vdc and POE 44-57V for ESY10I4, ESY15I4, ESY22I4, 19 Vdc for ESY15I4-C			
	☐	Battery:			

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	☒ PIFA
			☐ PCB
			☐ Dipole
			☐ Others:.....
Antenna Gain	1.66 dBi for ESY10I4 1.98 dBi for ESY15I4 2.76 dBi for ESY15I4-C 2.9 dBi for ESY22I4		

1.3 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

Note: The general description of the Item(s), antenna information and channel list in clause 1 are provided and confirmed by the client.

2 DESCRIPTION OF TEST SETUP

2.1 Operating mode(s) used for tests

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

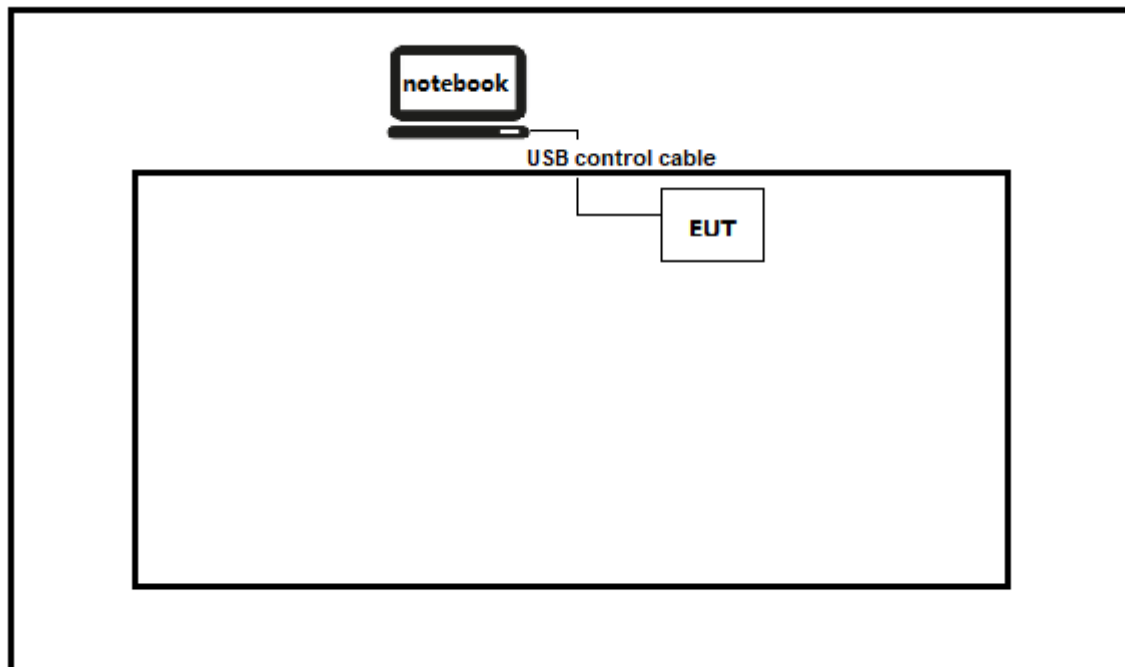
Test Mode For Bluetooth	Mode 1: Transmitter-1Mbps(GFSK_DH5)
	Mode 2: Transmitter-2Mbps(Pi/4 DQPSK_DH5)
	Mode 3: Transmitter-3Mbps(8DPSK_DH5)
	Mode 4: Transmitter-Hopping-1Mbps(GFSK_DH5)
	Mode 5: Transmitter-Hopping-2Mbps(Pi/4 DQPSK_DH5)
	Mode 6: Transmitter-Hopping-3Mbps(8DPSK_DH5)

2.2 Auxiliary equipment / Test software for the EUT

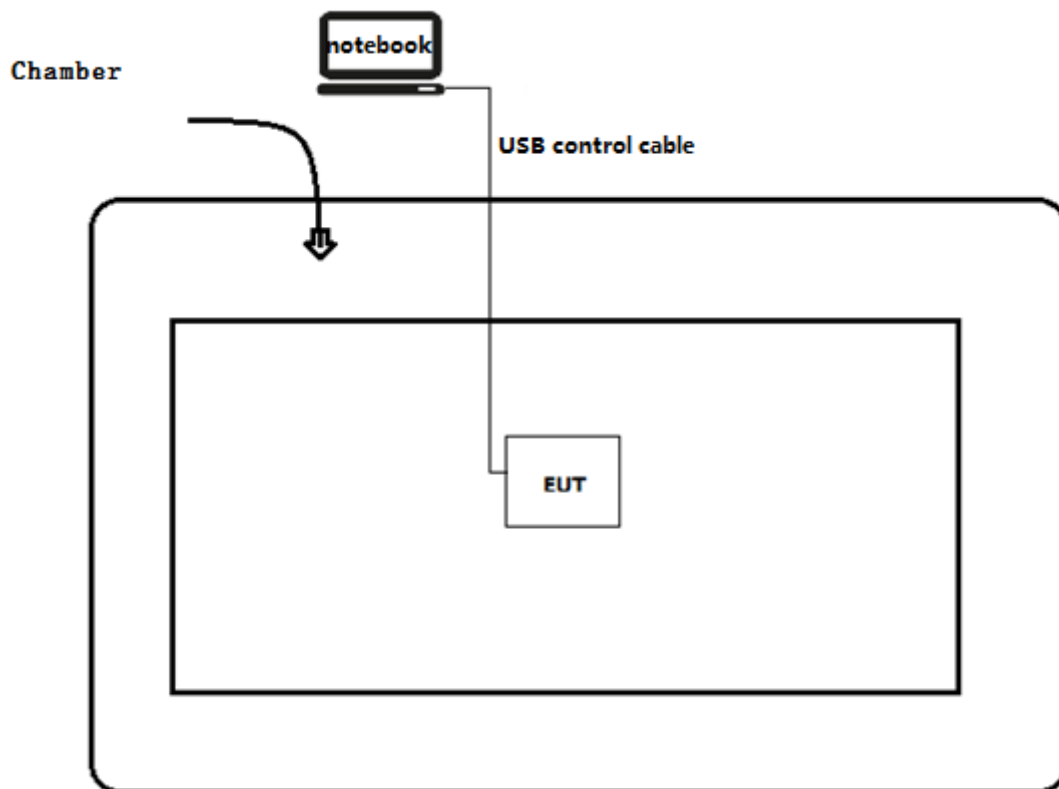
Auxiliary equipment	Type / Version	Manufacturer	Supplied by
Notebook	2526	Think Pad	N/A
Software	Type / Version	Manufacturer	Supplied by
Ampak RFTestTool	N/A	N/A	N/A

2.3 Test Configuration / Block diagram used for tests

Test setup Diagram- AC Line Conducted Emission Test



Test setup Diagram- Radiated Emission



2.4 Testing process

1	Setup the EUT as shown in Section 2.3
2	Execute the test program.
3	Configure the test mode and test channel.
4	Verify that the EUT works properly.

3 VERDICT SUMMARY SECTION

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

3.1 Standards

Standard	Year	Description
FCC CFR Title 47 Part 15 Subpart C Section 15.247	2021	Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz.
ANSI C63.10	2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
KDB558074 D01 v05r02	2019	Guidance for performing compliance measurements on Digital Transmission System (DTS) operating under section 15.247
RSS-Gen Issue 5 Amendment 2	2021	General Requirements for Compliance of Radio Apparatus
RSS-247 Issue 2	2017	Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

3.2 Deviation(s) from the Standard(s) / Test Specification(s)

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

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

3.3 Overview of results

For FCC

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2015Section 15.207	Yes	No
Emissions in restricted frequency bands	FCC CFR Title 47 Part 15 Subpart C: 2015Section 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 OutputPower	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
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 5Section 8.8	Yes	No
Radiated Emission	RSS-Gen Issue 5Section 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 OutputPower	RSS-247 Issue 2 Section 5.4	Yes	No
Emissions in non-restricted frequency bands	RSS-247 Issue 2 Section 5.5	Yes	No
Band Edge	RSS-Gen Issue 5Section 8.10	Yes	No
Antenna Requirement	RSS-Gen Issue 5Section 8.3	Yes	No

3.4 Test Facility

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

4 TEST RESULTS

4.1 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

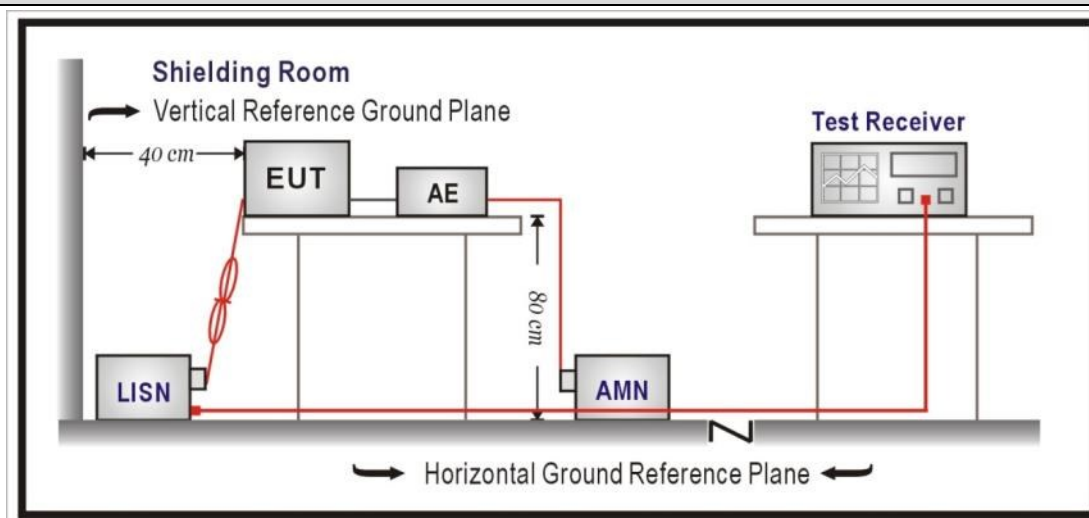
¹⁾ At the transition frequency, the lower limit applies.

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

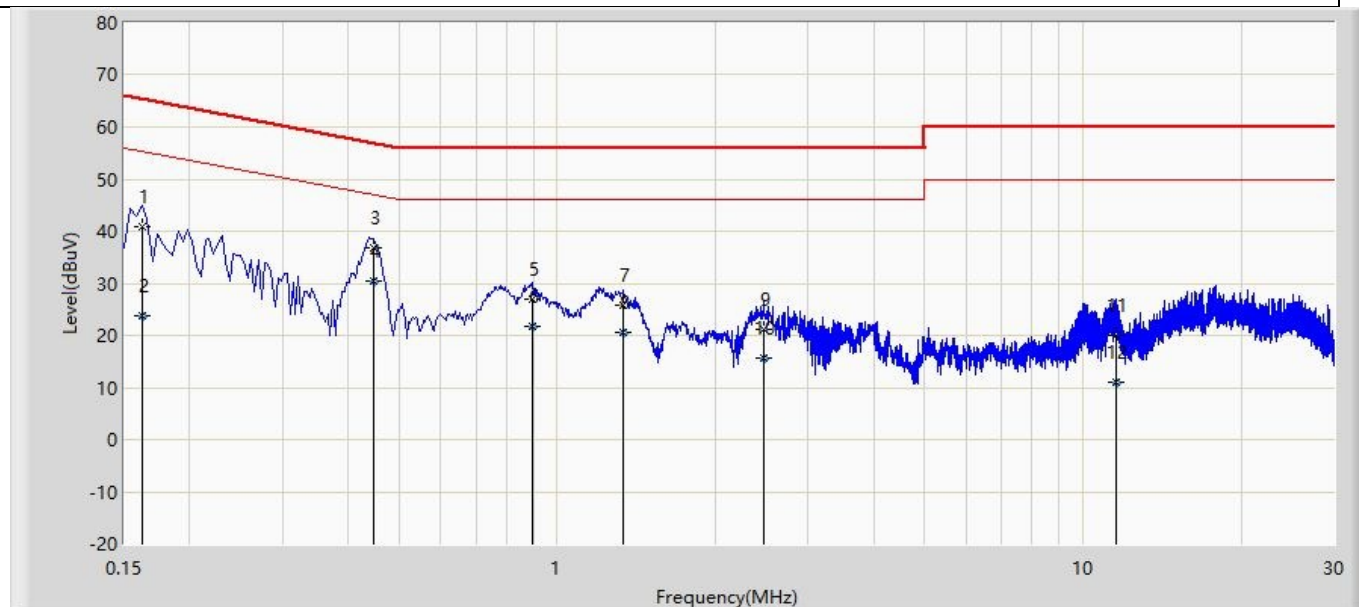


4.1.3 Test Procedure

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

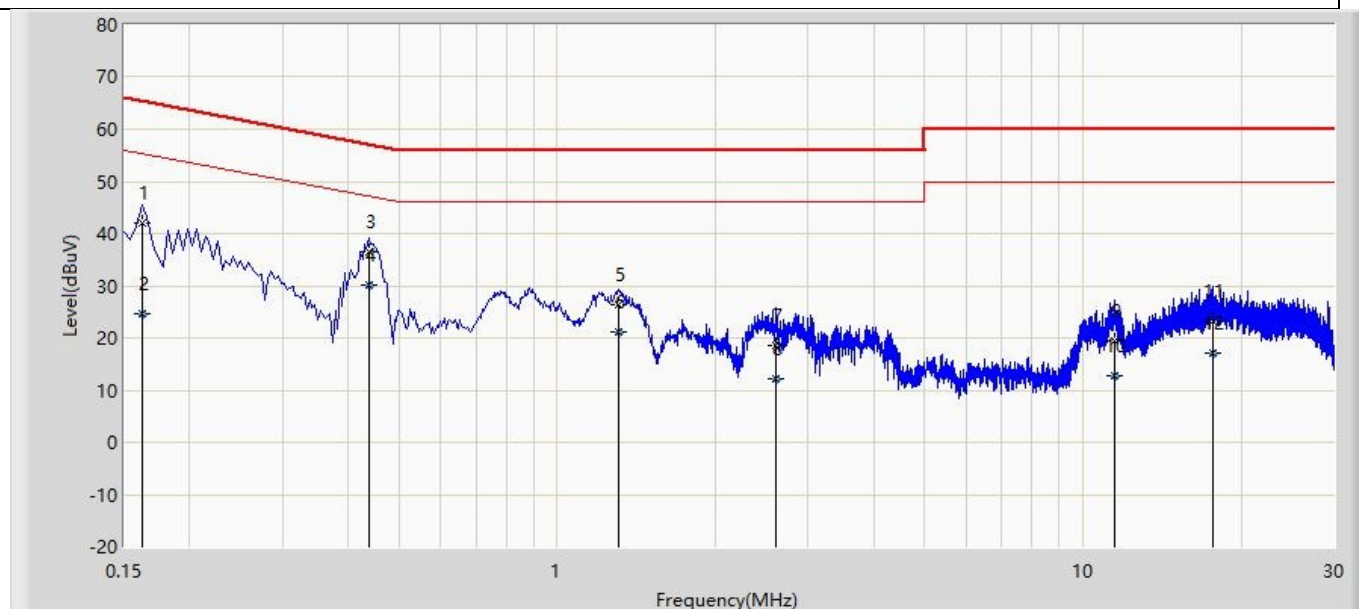
4.1.4 Test Data

Profile: 2250816R	Page No.: 14
Engineer: Yu Liu	
Site: TR1	Time: 2022/06/28 - 19:32
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Line
EUT: Touch All In One Computer	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	40.820	31.239	-24.541	65.361	9.553	0.029	0.000	QP
2		0.162	23.767	14.186	-31.594	55.361	9.553	0.029	0.000	AV
3		0.446	36.705	27.090	-20.245	56.949	9.576	0.039	0.000	QP
4	*	0.446	30.551	20.936	-16.398	46.949	9.576	0.039	0.000	AV
5		0.898	26.992	17.358	-29.008	56.000	9.590	0.044	0.000	QP
6		0.898	21.650	12.016	-24.350	46.000	9.590	0.044	0.000	AV
7		1.334	25.913	16.256	-30.087	56.000	9.590	0.067	0.000	QP
8		1.334	20.597	10.940	-25.403	46.000	9.590	0.067	0.000	AV
9		2.474	21.228	11.529	-34.772	56.000	9.602	0.097	0.000	QP
10		2.474	15.708	6.009	-30.292	46.000	9.602	0.097	0.000	AV
11		11.594	20.013	9.965	-39.987	60.000	9.832	0.216	0.000	QP
12		11.594	11.008	0.959	-38.992	50.000	9.832	0.216	0.000	AV

Profile: 2250816R	Page No.: 19
Engineer: Yu Liu	
Site: TR1	Time: 2022/06/28 - 19:40
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Neutral
EUT: Touch All In One Computer	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	41.941	32.370	-23.420	65.361	9.543	0.029	0.000	QP
2		0.162	24.587	15.016	-30.774	55.361	9.543	0.029	0.000	AV
3		0.438	36.609	26.994	-20.491	57.100	9.574	0.041	0.000	QP
4	*	0.438	30.130	20.515	-16.969	47.100	9.574	0.041	0.000	AV
5		1.310	26.446	16.794	-29.554	56.000	9.590	0.062	0.000	QP
6		1.310	21.187	11.534	-24.813	46.000	9.590	0.062	0.000	AV
7		2.606	18.467	8.766	-37.533	56.000	9.604	0.097	0.000	QP
8		2.606	12.104	2.403	-33.896	46.000	9.604	0.097	0.000	AV
9		11.474	19.529	9.478	-40.471	60.000	9.836	0.215	0.000	QP
10		11.474	12.667	2.616	-37.333	50.000	9.836	0.215	0.000	AV
11		17.618	23.244	13.033	-36.756	60.000	9.942	0.270	0.000	QP
12		17.618	16.982	6.771	-33.018	50.000	9.942	0.270	0.000	AV

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

FCC Part 15 Subpart C Paragraph 15.209

Restricted Bands of operation for FCC

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
0.495 – 0.505	16.69475 – 16.69525	608 – 614	5.35 – 5.46
2.1735 – 2.1905	16.80425 – 16.80475	960 – 1240	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1300 – 1427	8.025 – 8.5
4.17725 – 4.17775	37.5 – 38.25	1435 – 1626.5	9.0 – 9.2
4.20725 – 4.20775	73 – 74.6	1645.5 – 1646.5	9.3 – 9.5
6.215 – 6.218	74.8 – 75.2	1660 – 1710	10.6 – 12.7
6.26775 – 6.26825	108 – 121.94	1718.8 – 1722.2	13.25 – 13.4
6.31175 – 6.31225	123 – 138	2200 – 2300	14.47 – 14.5
8.291 – 8.294	149.9 – 150.05	2310 – 2390	15.35 – 16.2
8.362 – 8.366	156.52475 – 156.52525	2483.5 – 2500	17.7 – 21.4
8.37625 – 8.38675	156.7 – 156.9	2690 – 2900	22.01 – 23.12
8.81425 – 8.81475	162.0125 – 167.17	3260 – 3267	23.6 – 24.0
12.29 – 12.293	167.72 – 173.2	3332 – 3339	31.2 – 31.8
12.51975 – 12.52025	240 – 285	3345.8 – 3358	36.43 – 36.5
12.57675 – 12.57725	322 – 335.4	3600 – 4400	
13.36 – 13.41			

Restricted Bands of operation for ISSED

0.090 - 0.110	13.36 - 13.41	960 - 1427	9.0 - 9.2
0.495 - 0.505	16.42 - 16.423	1435 - 1626.5	9.3 - 9.5
2.1735 - 2.1905	16.69475 - 16.69525	1645.5 - 1646.5	10.6 - 12.7
3.020 - 3.026	16.80425 - 16.80475	1660 - 1710	13.25 - 13.4
4.125 - 4.128	25.5 - 25.67	1718.8 - 1722.2	14.47 - 14.5
4.17725 - 4.17775	37.5 - 38.25	2200 - 2300	15.35 - 16.2
4.20725 - 4.20775	73 - 74.6	2310 - 2390	17.7 - 21.4
5.677 - 5.683	74.8 - 75.2	2483.5 - 2500	22.01 - 23.12
6.215 - 6.218	108 - 138	2655 - 2900	23.6 - 24.0
6.26775 - 6.26825	149.9 - 150.05	3260 - 3267	31.2 - 31.8
6.31175 - 6.31225	156.52475 - 156.52525	3332 - 3339	36.43 - 36.5
8.291 - 8.294	156.7 - 156.9	3345.8 - 3358	Above 38.6
8.362 - 8.366	162.0125 - 167.17	3500 - 4400	
8.37625 - 8.38675	167.72 - 173.2	4500 - 5150	
8.41425 - 8.41475	240 - 285	5350 - 5460	
12.29 - 12.293	322 - 335.4	7250 - 7750	
12.51975 - 12.52025	399.9 - 410	8025 - 8500	
12.57675 - 12.57725	608 - 614	--	

Restricted Band Emissions Limit

Frequency (MHz)	Field strength (μ V/m)	Field strength (dB μ V/m)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300 _(Note 1)
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30 _(Note 1)
1.705 - 30	30	29.5	30 _(Note 1)
30 -88	100	40	3 _(Note 2)
88-216	150	43.5	3 _(Note 2)
216 - 960	200	46	3 _(Note 2)
Above 960	500	54	3 _(Note 2)

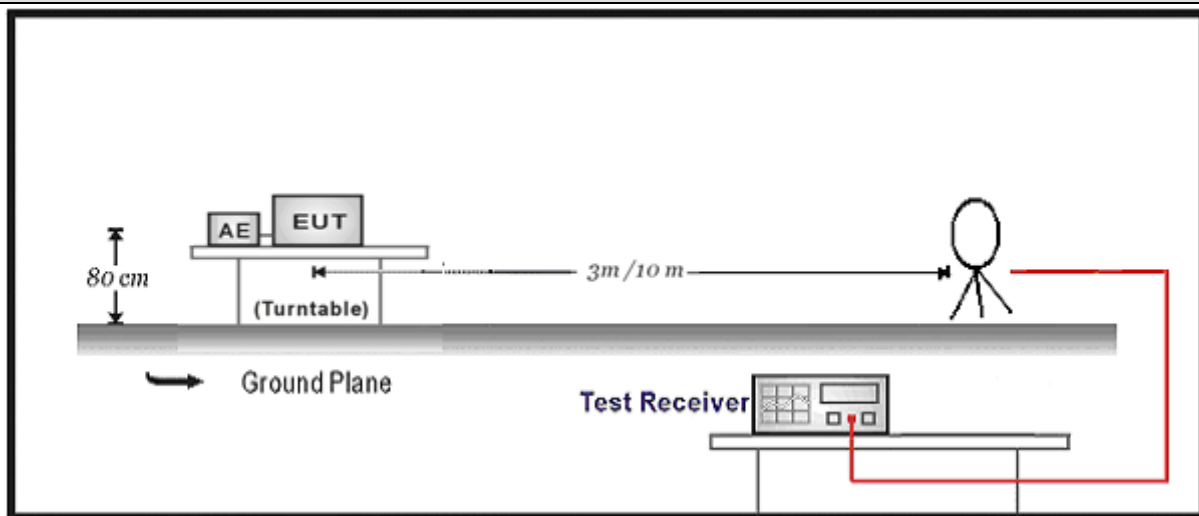
Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade).

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

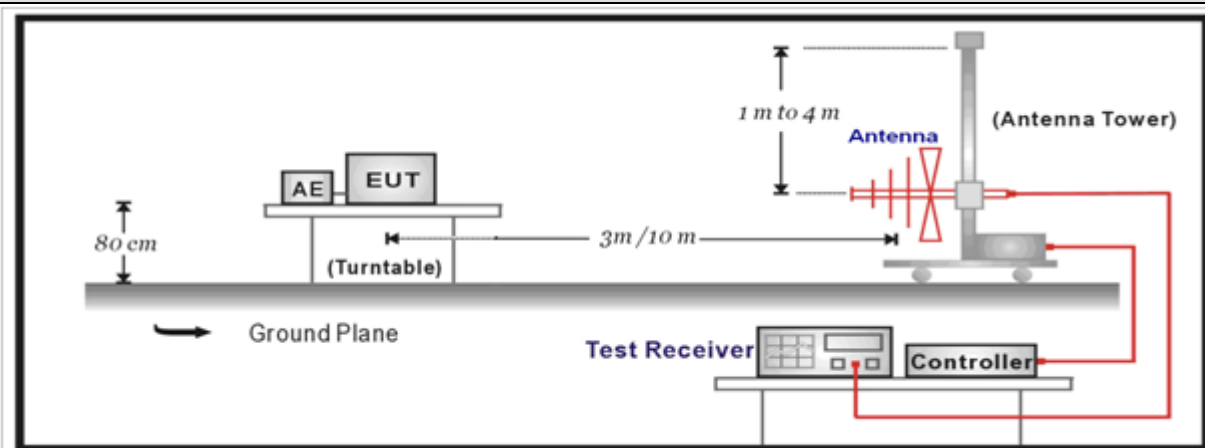
Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

4.2.2 Test Setup

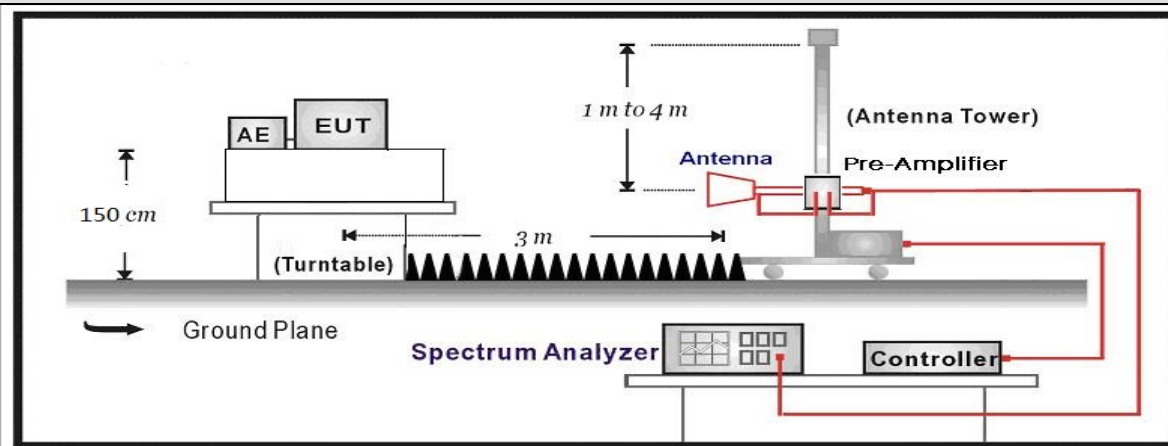
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:

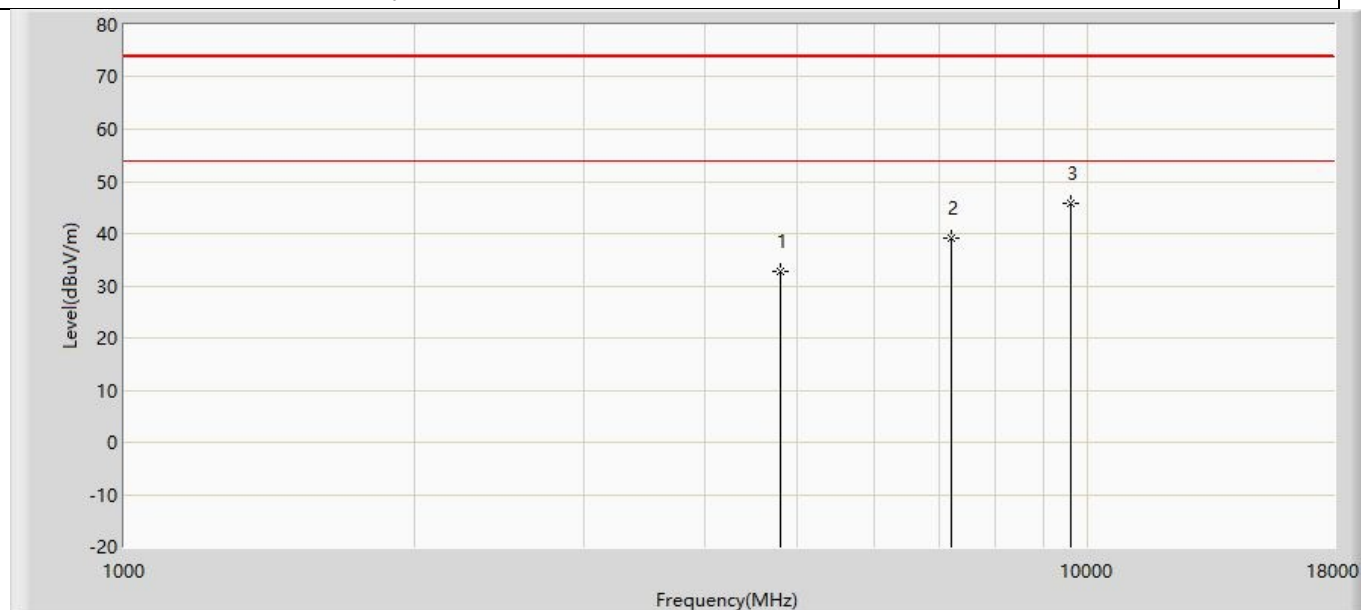


4.2.3 Test Procedure

	References Rule		Chapter	Description
☒	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

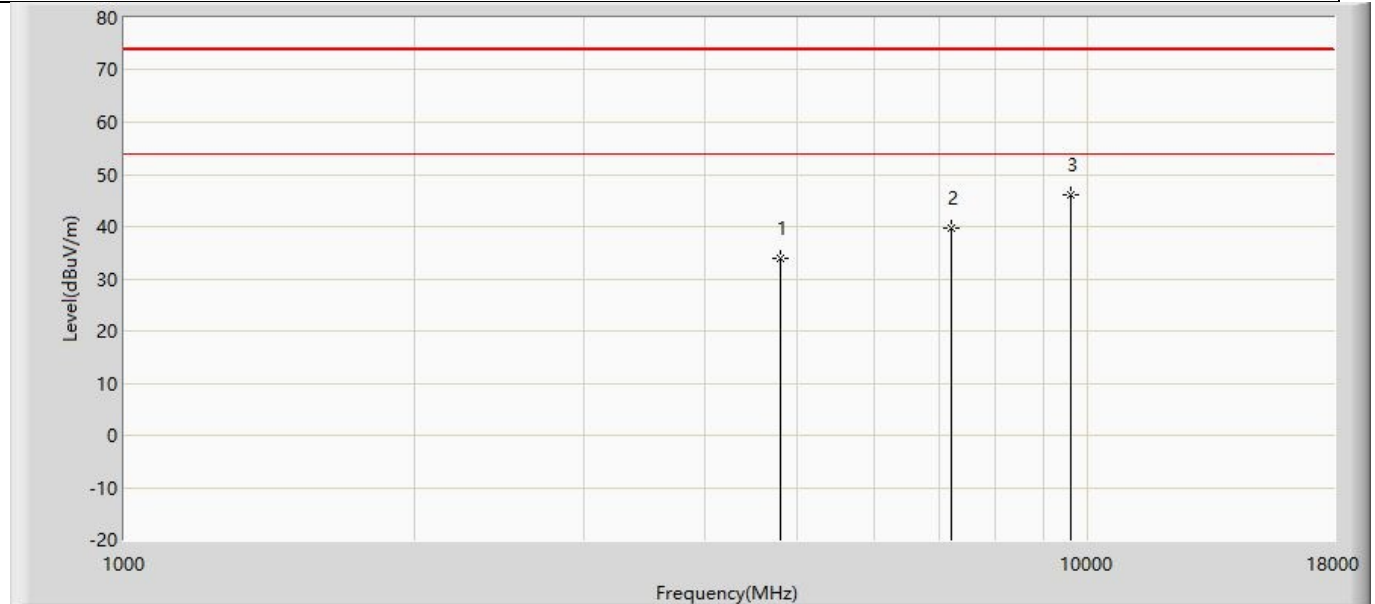
4.2.4 Test Data

Profile: 2250816R	Page No.: 19
Engineer: Yu Liu	
Site: AC5	Time: 2022/06/21 - 22:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: HORN_3117_00167055(1-18GHZ)	Polarity: Horizontal
EUT: Touch All In One Computer	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz by DH5	



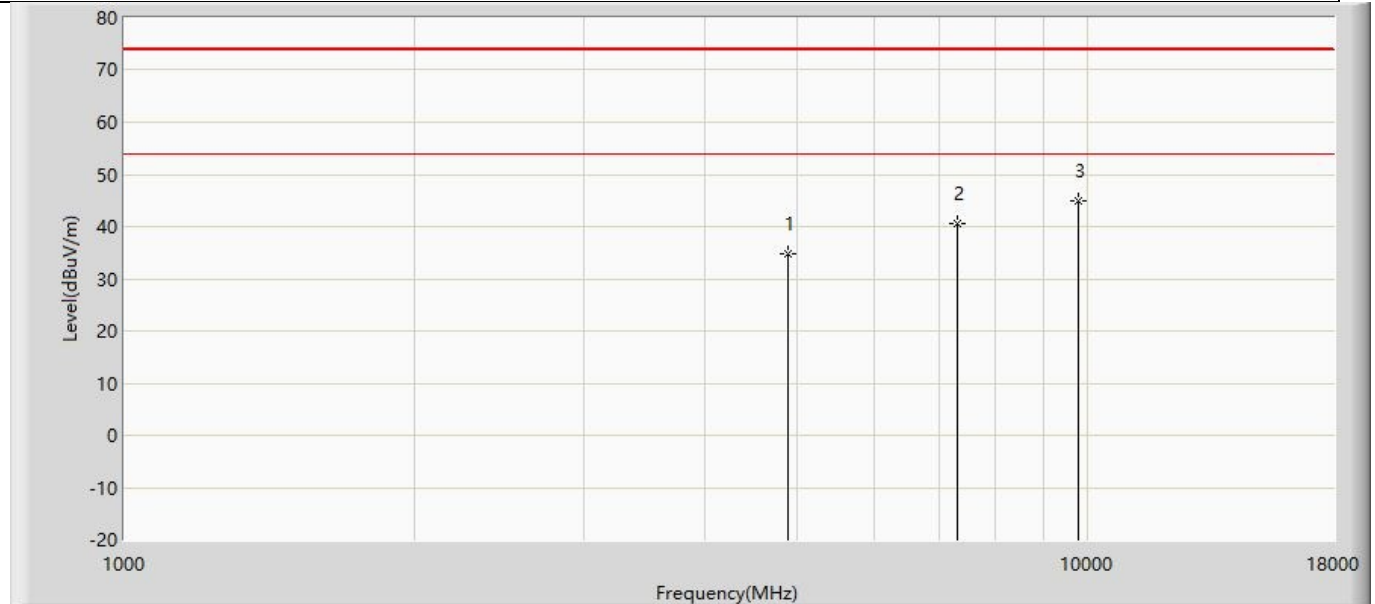
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	32.773	47.431	-41.227	74.000	-14.657	PK
2		7206.000	39.071	47.802	-34.929	74.000	-8.731	PK
3	*	9608.000	45.794	50.616	-28.206	74.000	-4.822	PK

Profile: 2250816R	Page No.: 20
Engineer: Yu Liu	
Site: AC5	Time: 2022/06/21 - 22:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: HORN_3117_00167055(1-18GHZ)	Polarity: Vertical
EUT: Touch All In One Computer	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz by DH5	



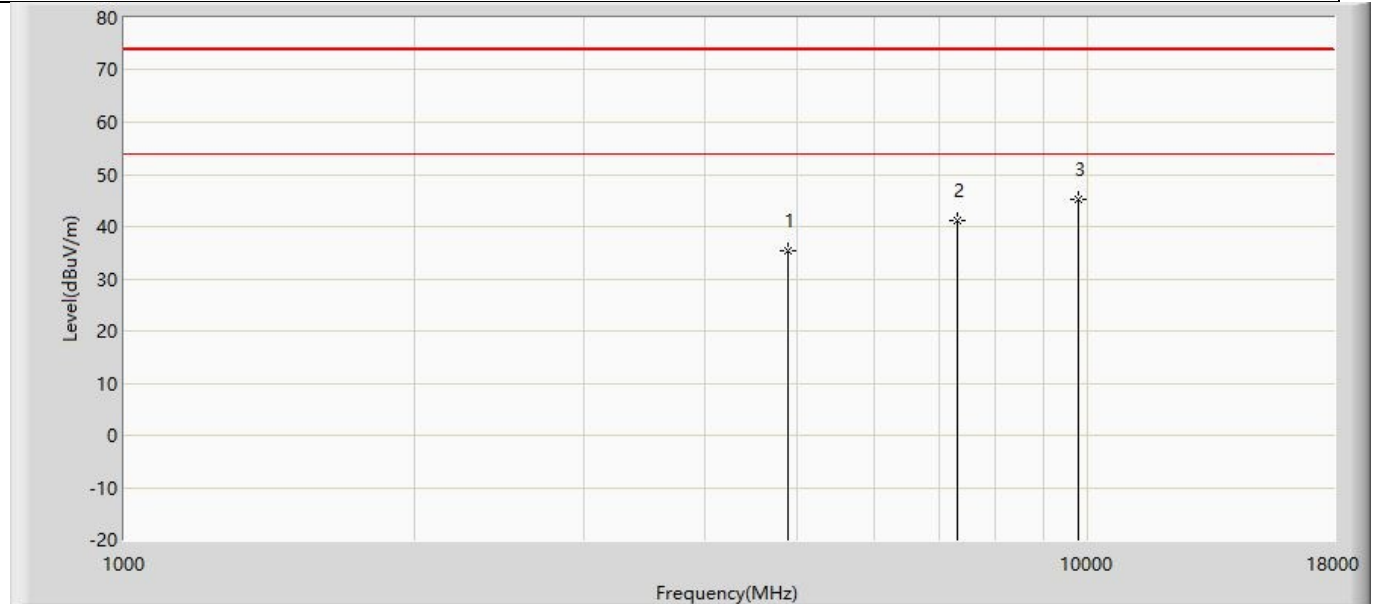
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	33.840	48.498	-40.160	74.000	-14.657	PK
2		7206.000	39.628	48.359	-34.372	74.000	-8.731	PK
3	*	9608.000	46.207	51.029	-27.793	74.000	-4.822	PK

Profile: 2250816R	Page No.: 21
Engineer: Yu Liu	
Site: AC5	Time: 2022/06/21 - 22:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: HORN_3117_00167055(1-18GHZ)	Polarity: Horizontal
EUT: Touch All In One Computer	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2441MHz by DH5	



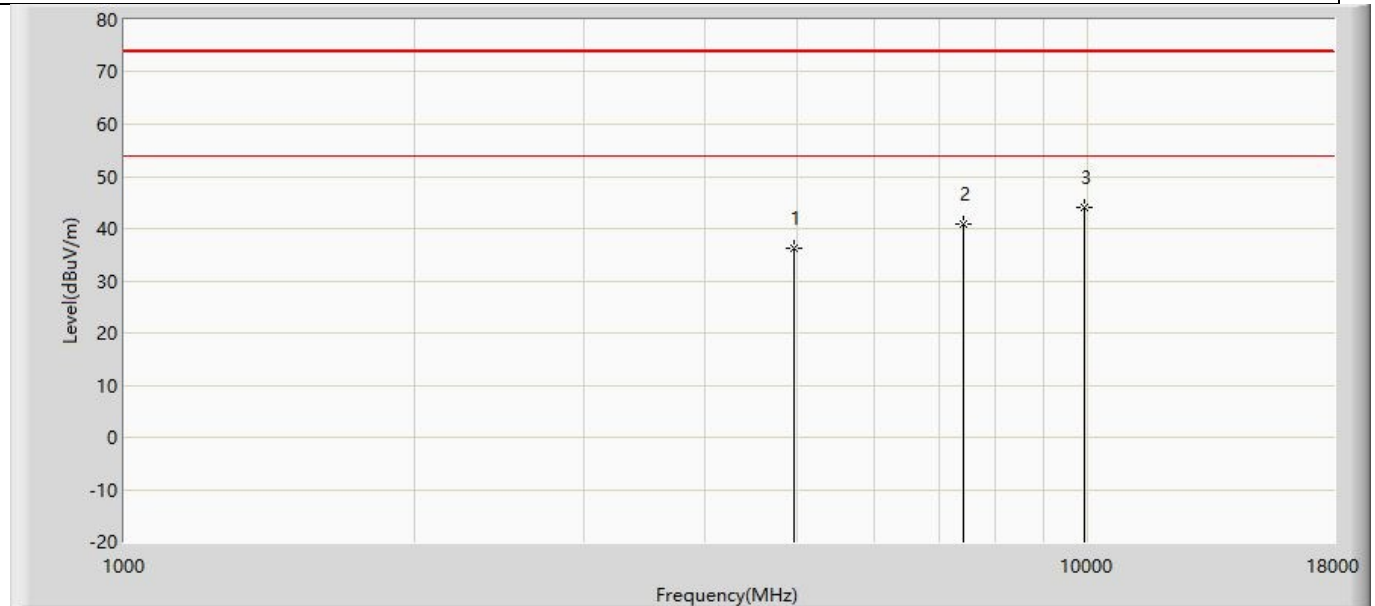
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	34.651	49.018	-39.349	74.000	-14.367	PK
2		7323.000	40.613	48.940	-33.387	74.000	-8.326	PK
3	*	9764.000	44.884	49.546	-29.116	74.000	-4.661	PK

Profile: 2250816R	Page No.: 22
Engineer: Yu Liu	
Site: AC5	Time: 2022/06/21 - 22:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: HORN_3117_00167055(1-18GHZ)	Polarity: Vertical
EUT: Touch All In One Computer	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2441MHz by DH5	



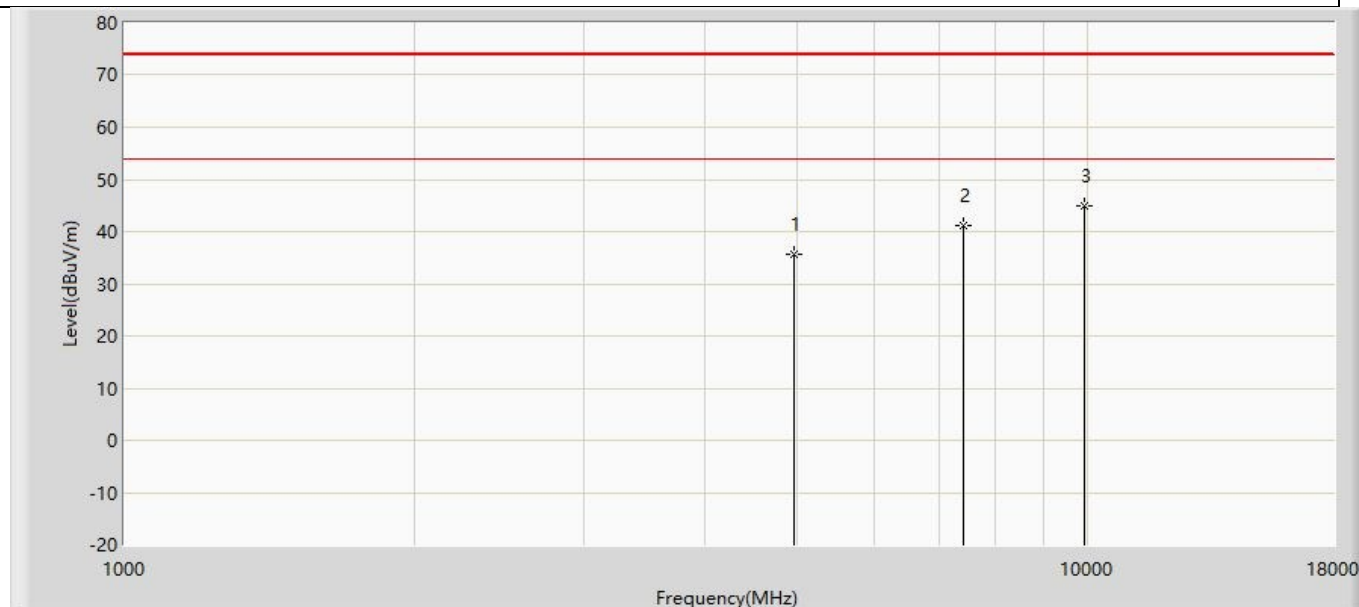
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	35.431	49.798	-38.569	74.000	-14.367	PK
2		7323.000	41.243	49.570	-32.757	74.000	-8.326	PK
3	*	9764.000	45.182	49.844	-28.818	74.000	-4.661	PK

Profile: 2250816R	Page No.: 23
Engineer: Yu Liu	
Site: AC5	Time: 2022/06/21 - 22:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: HORN_3117_00167055(1-18GHZ)	Polarity: Horizontal
EUT: Touch All In One Computer	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by DH5	



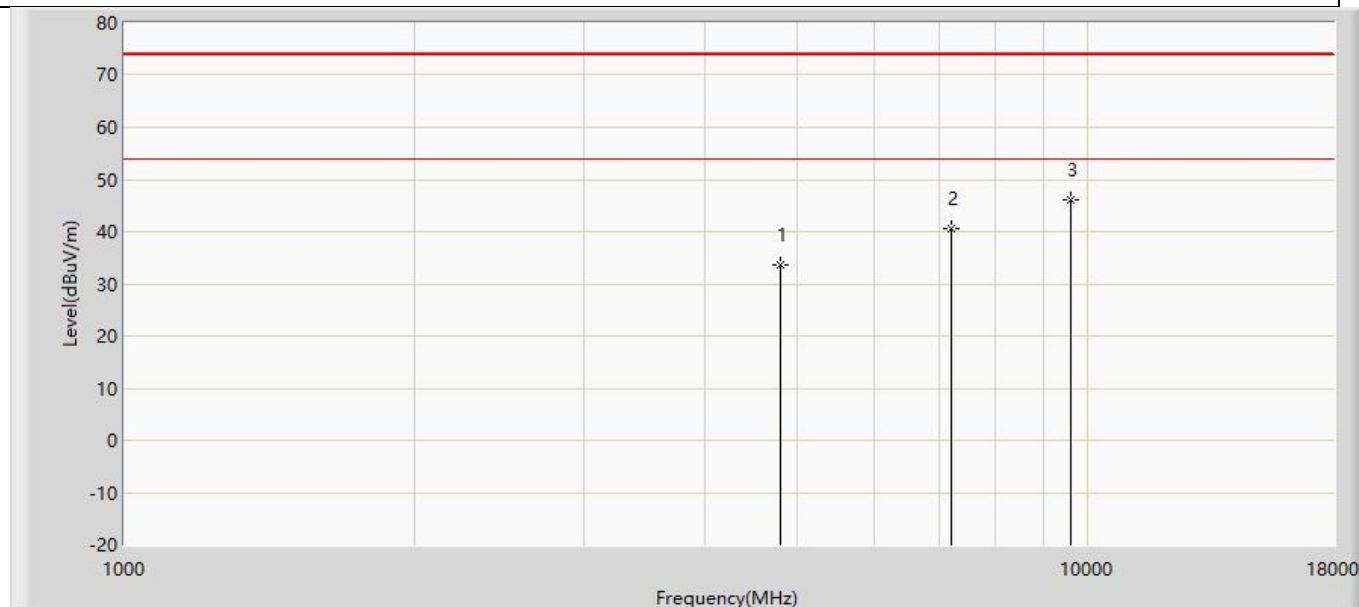
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	36.207	50.327	-37.793	74.000	-14.120	PK
2		7440.000	40.832	48.667	-33.168	74.000	-7.834	PK
3	*	9920.000	44.025	48.096	-29.975	74.000	-4.071	PK

Profile: 2250816R	Page No.: 24
Engineer: Yu Liu	
Site: AC5	Time: 2022/06/21 - 22:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: HORN_3117_00167055(1-18GHZ)	Polarity: Vertical
EUT: Touch All In One Computer	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by DH5	



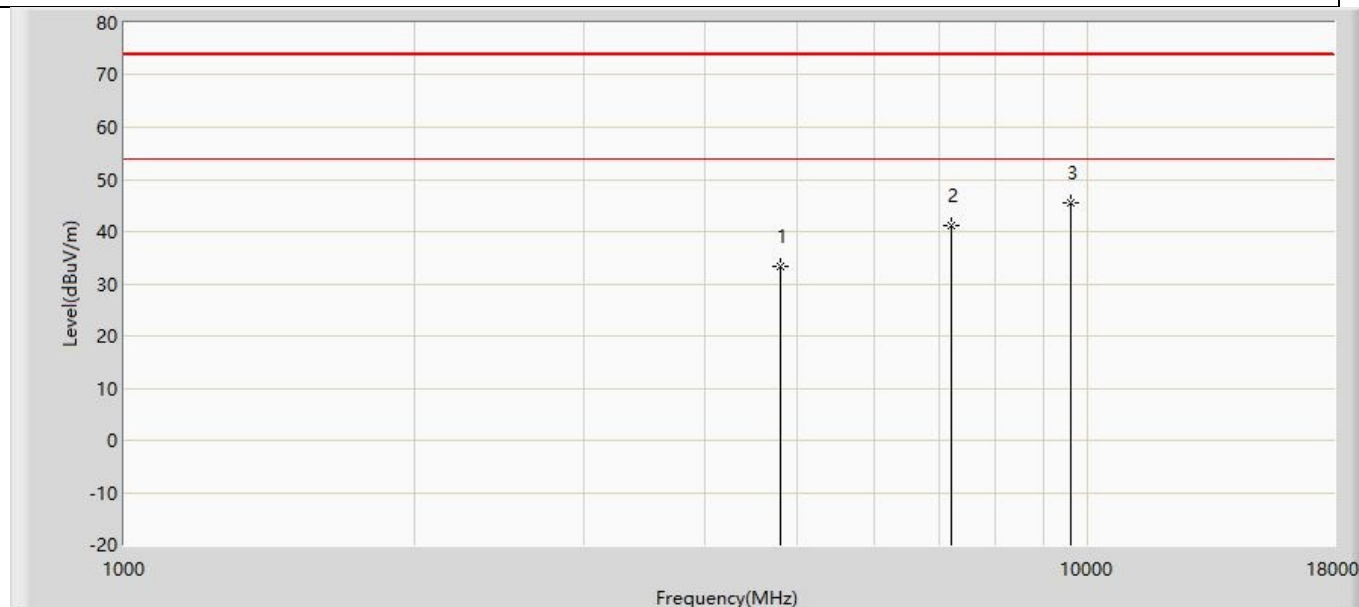
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	35.675	49.795	-38.325	74.000	-14.120	PK
2		7440.000	41.193	49.028	-32.807	74.000	-7.834	PK
3	*	9920.000	44.865	48.936	-29.135	74.000	-4.071	PK

Profile: 2250816R	Page No.: 25
Engineer: Yu Liu	
Site: AC5	Time: 2022/06/21 - 22:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: HORN_3117_00167055(1-18GHZ)	Polarity: Horizontal
EUT: Touch All In One Computer	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz by 2DH5	



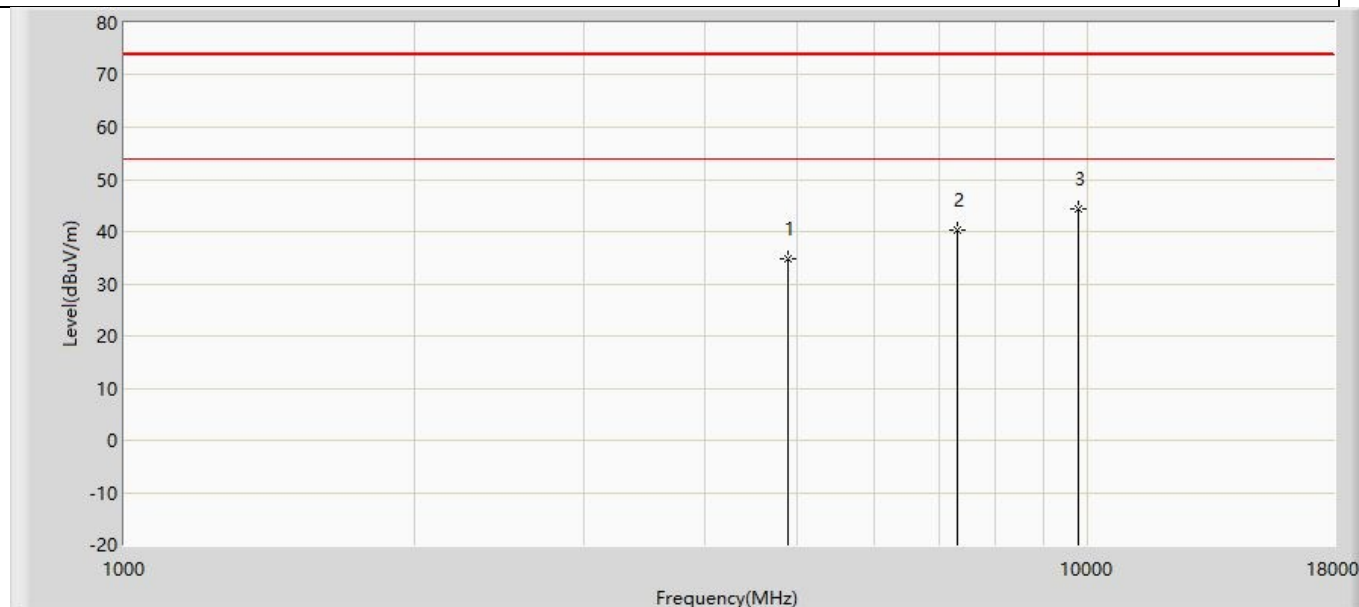
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	33.732	48.390	-40.268	74.000	-14.657	PK
2		7206.000	40.641	49.372	-33.359	74.000	-8.731	PK
3	*	9608.000	46.155	50.977	-27.845	74.000	-4.822	PK

Profile: 2250816R	Page No.: 26
Engineer: Yu Liu	
Site: AC5	Time: 2022/06/21 - 22:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: HORN_3117_00167055(1-18GHZ)	Polarity: Vertical
EUT: Touch All In One Computer	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz by 2DH5	



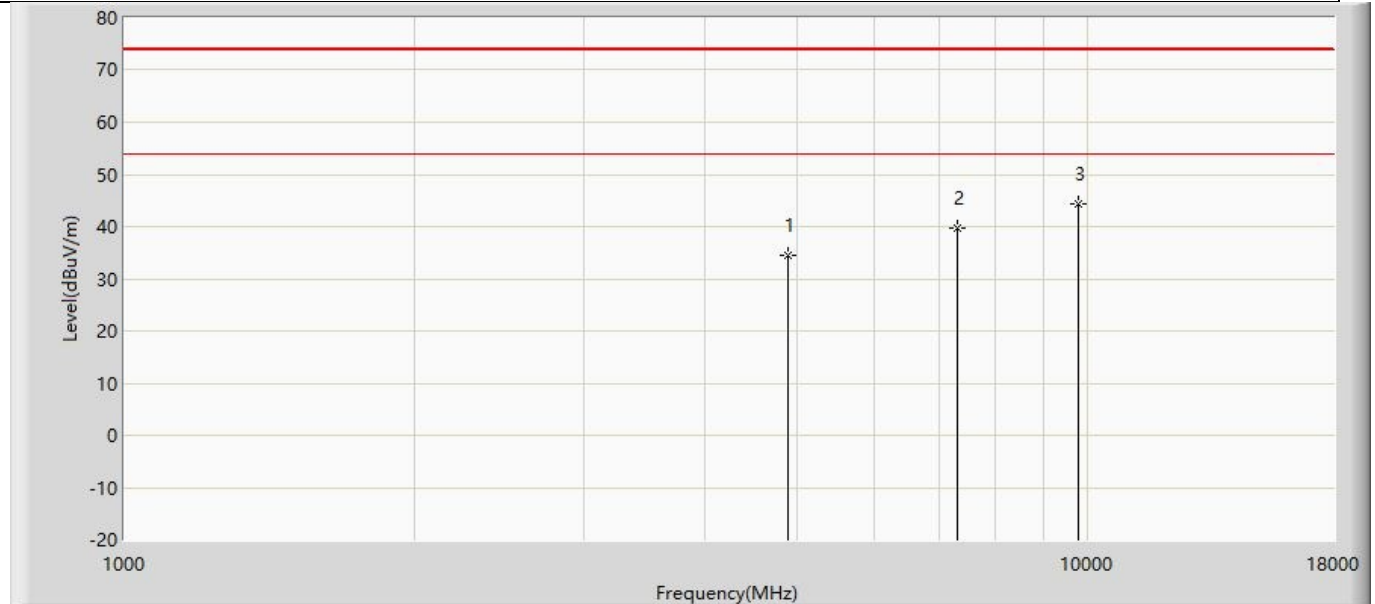
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	33.221	47.879	-40.779	74.000	-14.657	PK
2		7206.000	41.109	49.840	-32.891	74.000	-8.731	PK
3	*	9608.000	45.411	50.233	-28.589	74.000	-4.822	PK

Profile: 2250816R	Page No.: 27
Engineer: Yu Liu	
Site: AC5	Time: 2022/06/21 - 22:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: HORN_3117_00167055(1-18GHZ)	Polarity: Horizontal
EUT: Touch All In One Computer	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2441MHz by 2DH5	



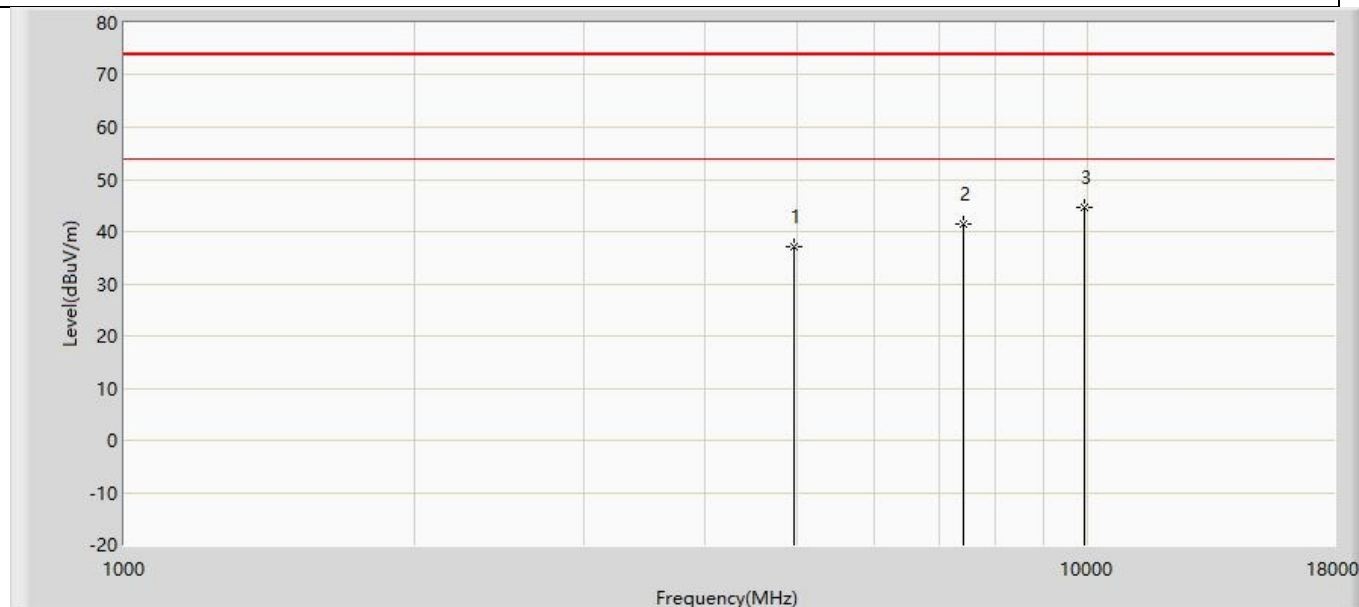
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	34.885	49.252	-39.115	74.000	-14.367	PK
2		7323.000	40.348	48.675	-33.652	74.000	-8.326	PK
3	*	9764.000	44.486	49.148	-29.514	74.000	-4.661	PK

Profile: 2250816R	Page No.: 28
Engineer: Yu Liu	
Site: AC5	Time: 2022/06/21 - 22:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: HORN_3117_00167055(1-18GHZ)	Polarity: Vertical
EUT: Touch All In One Computer	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2441MHz by 2DH5	



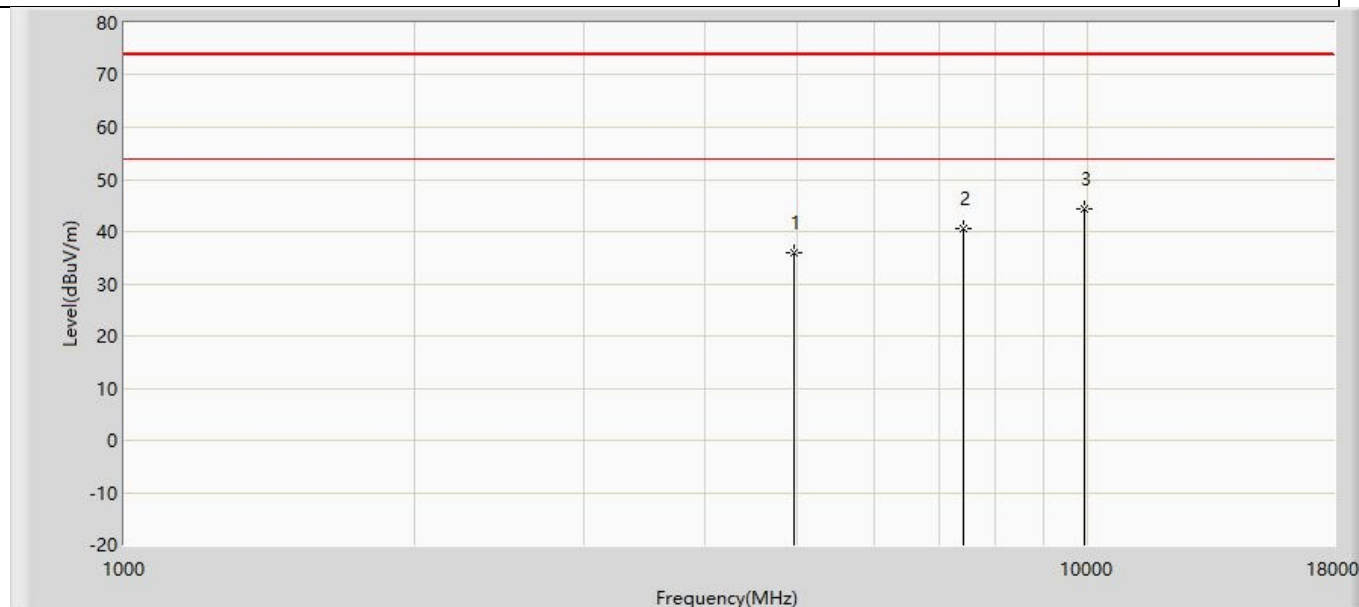
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	34.484	48.851	-39.516	74.000	-14.367	PK
2		7323.000	39.714	48.041	-34.286	74.000	-8.326	PK
3	*	9764.000	44.350	49.012	-29.650	74.000	-4.661	PK

Profile: 2250816R	Page No.: 29
Engineer: Yu Liu	
Site: AC5	Time: 2022/06/21 - 22:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: HORN_3117_00167055(1-18GHZ)	Polarity: Horizontal
EUT: Touch All In One Computer	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by 2DH5	



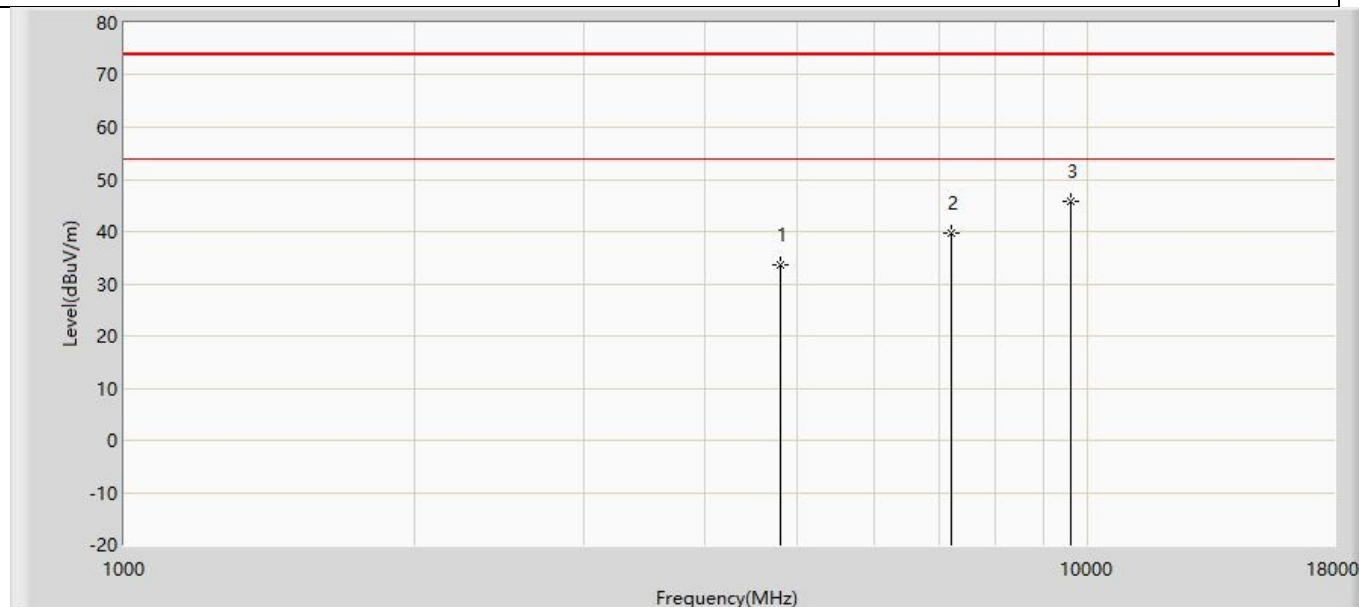
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	37.243	51.363	-36.757	74.000	-14.120	PK
2		7440.000	41.351	49.186	-32.649	74.000	-7.834	PK
3	*	9920.000	44.664	48.735	-29.336	74.000	-4.071	PK

Profile: 2250816R	Page No.: 30
Engineer: Yu Liu	
Site: AC5	Time: 2022/06/21 - 22:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: HORN_3117_00167055(1-18GHZ)	Polarity: Vertical
EUT: Touch All In One Computer	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by 2DH5	



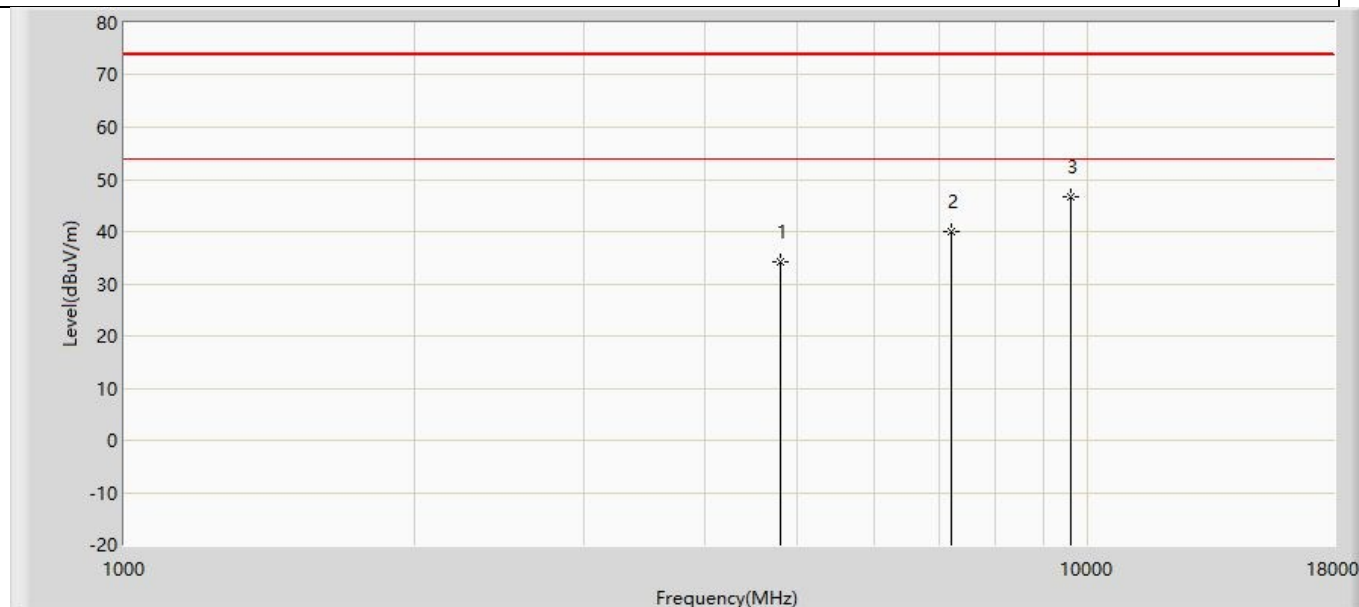
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	35.961	50.081	-38.039	74.000	-14.120	PK
2		7440.000	40.609	48.444	-33.391	74.000	-7.834	PK
3	*	9920.000	44.323	48.394	-29.677	74.000	-4.071	PK

Profile: 2250816R	Page No.: 31
Engineer: Yu Liu	
Site: AC5	Time: 2022/06/21 - 22:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: HORN_3117_00167055(1-18GHZ)	Polarity: Horizontal
EUT: Touch All In One Computer	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2402MHz by 3DH5	



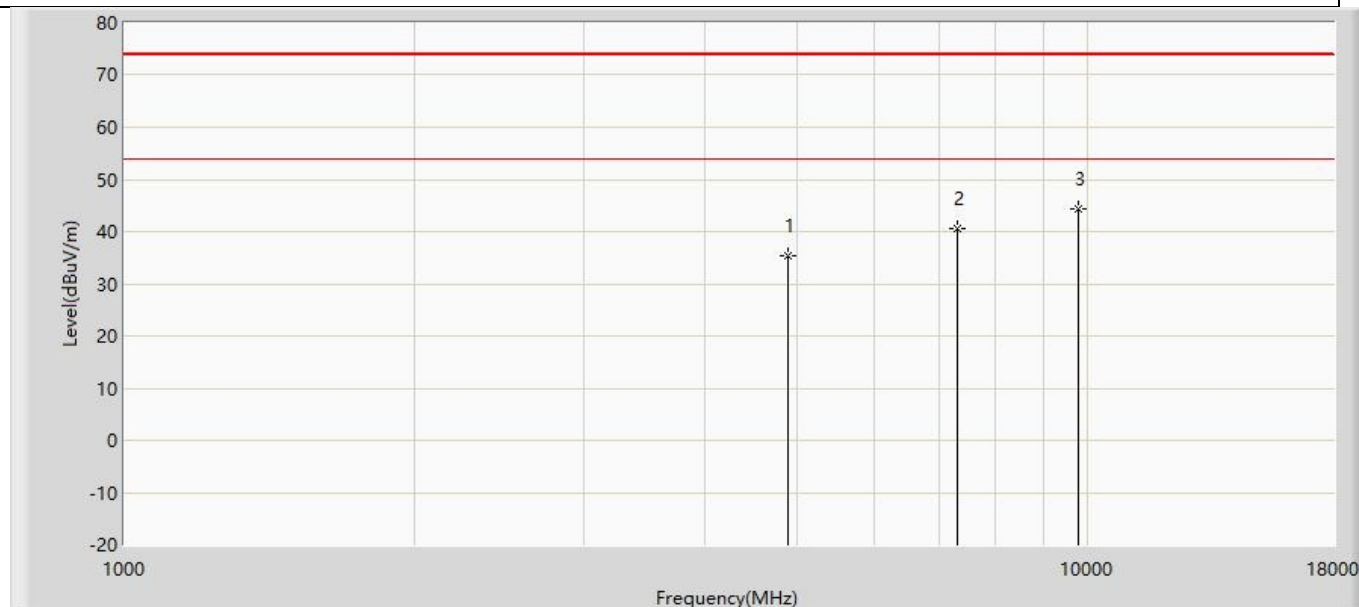
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	33.566	48.224	-40.434	74.000	-14.657	PK
2		7206.000	39.840	48.571	-34.160	74.000	-8.731	PK
3	*	9608.000	45.862	50.684	-28.138	74.000	-4.822	PK

Profile: 2250816R	Page No.: 32
Engineer: Yu Liu	
Site: AC5	Time: 2022/06/21 - 22:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: HORN_3117_00167055(1-18GHZ)	Polarity: Vertical
EUT: Touch All In One Computer	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2402MHz by 3DH5	



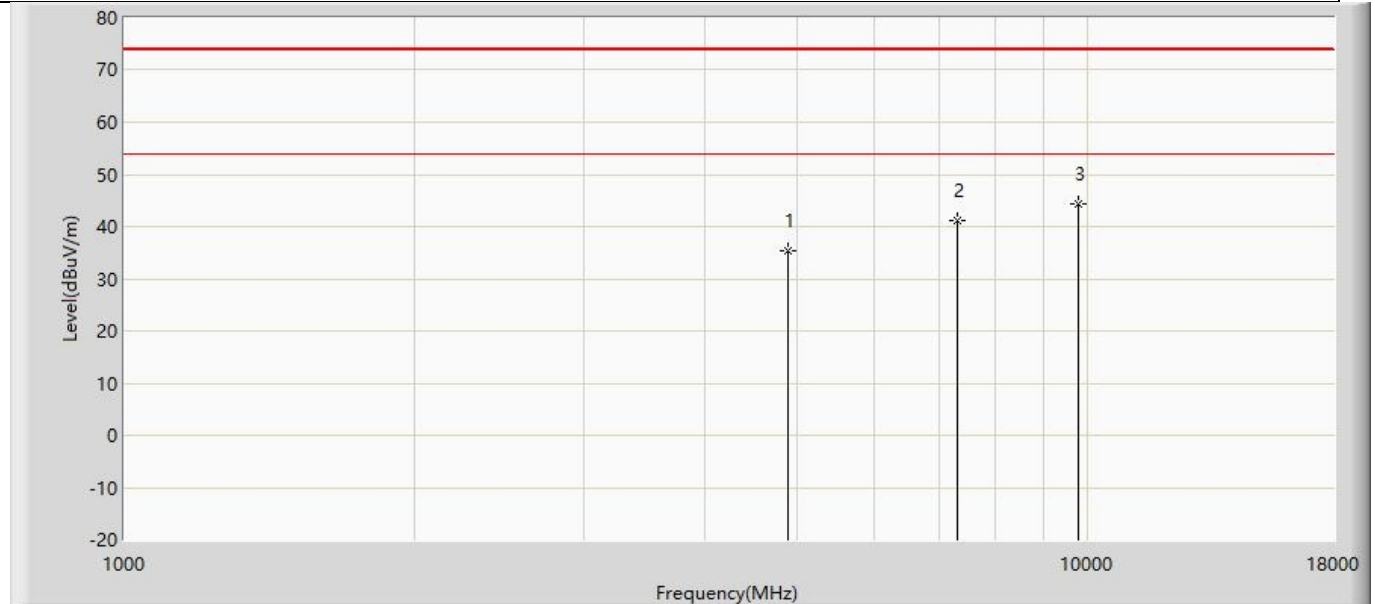
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	34.261	48.919	-39.739	74.000	-14.657	PK
2		7206.000	40.084	48.815	-33.916	74.000	-8.731	PK
3	*	9608.000	46.692	51.514	-27.308	74.000	-4.822	PK

Profile: 2250816R	Page No.: 33
Engineer: Yu Liu	
Site: AC5	Time: 2022/06/21 - 22:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: HORN_3117_00167055(1-18GHZ)	Polarity: Horizontal
EUT: Touch All In One Computer	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2441MHz by 3DH5	



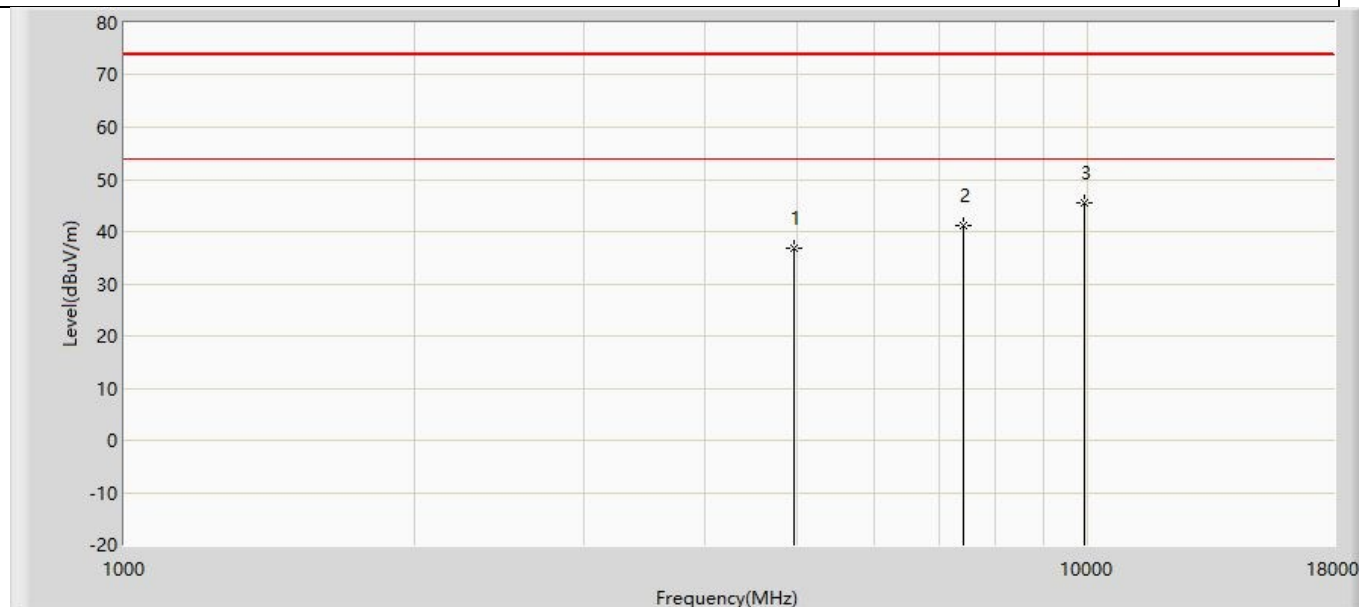
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	35.298	49.665	-38.702	74.000	-14.367	PK
2		7323.000	40.437	48.764	-33.563	74.000	-8.326	PK
3	*	9764.000	44.225	48.887	-29.775	74.000	-4.661	PK

Profile: 2250816R	Page No.: 34
Engineer: Yu Liu	
Site: AC5	Time: 2022/06/21 - 22:35
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: HORN_3117_00167055(1-18GHZ)	Polarity: Vertical
EUT: Touch All In One Computer	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2441MHz by 3DH5	



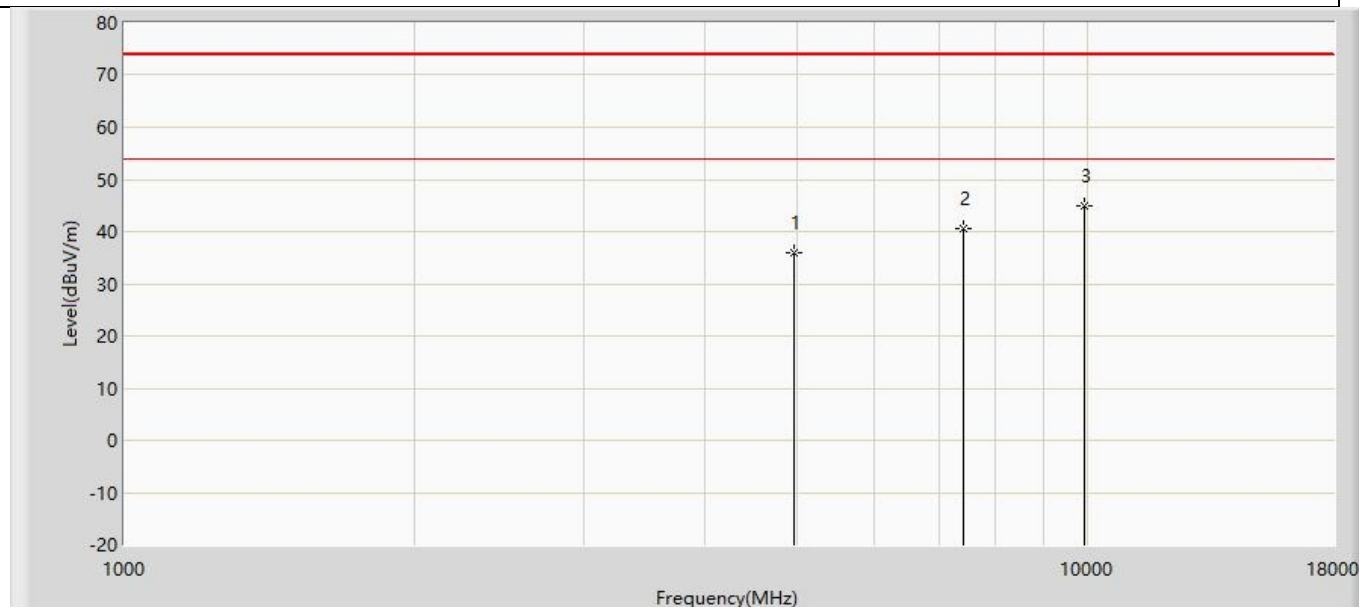
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	35.415	49.782	-38.585	74.000	-14.367	PK
2		7323.000	41.270	49.597	-32.730	74.000	-8.326	PK
3	*	9764.000	44.313	48.975	-29.687	74.000	-4.661	PK

Profile: 2250816R	Page No.: 35
Engineer: Yu Liu	
Site: AC5	Time: 2022/06/21 - 22:35
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: HORN_3117_00167055(1-18GHZ)	Polarity: Horizontal
EUT: Touch All In One Computer	Power: AC 120V/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	36.857	50.977	-37.143	74.000	-14.120	PK
2		7440.000	41.275	49.110	-32.725	74.000	-7.834	PK
3	*	9920.000	45.524	49.595	-28.476	74.000	-4.071	PK

Profile: 2250816R	Page No.: 36
Engineer: Yu Liu	
Site: AC5	Time: 2022/06/21 - 22:35
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: HORN_3117_00167055(1-18GHZ)	Polarity: Vertical
EUT: Touch All In One Computer	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2480MHz by 3DH5	



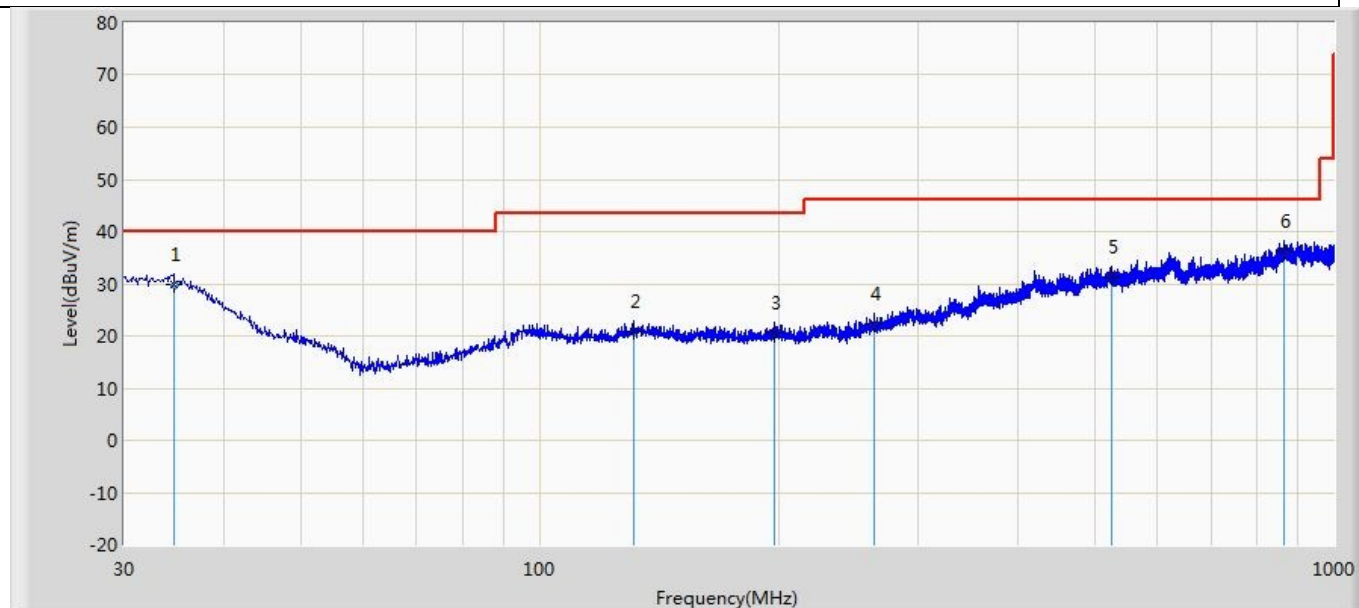
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	35.874	49.994	-38.126	74.000	-14.120	PK
2		7440.000	40.691	48.526	-33.309	74.000	-7.834	PK
3	*	9920.000	44.952	49.023	-29.048	74.000	-4.071	PK

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:

Profile: 2250816R	Page No.: 9
Engineer: Yu Liu	
Site: AC3	Time: 2021/04/27 - 22:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC3_3m (30-1000MHz)	Polarity: Horizontal
EUT: Touch All In One Computer	Power: AC 120V/60Hz
Note: Mode 1	

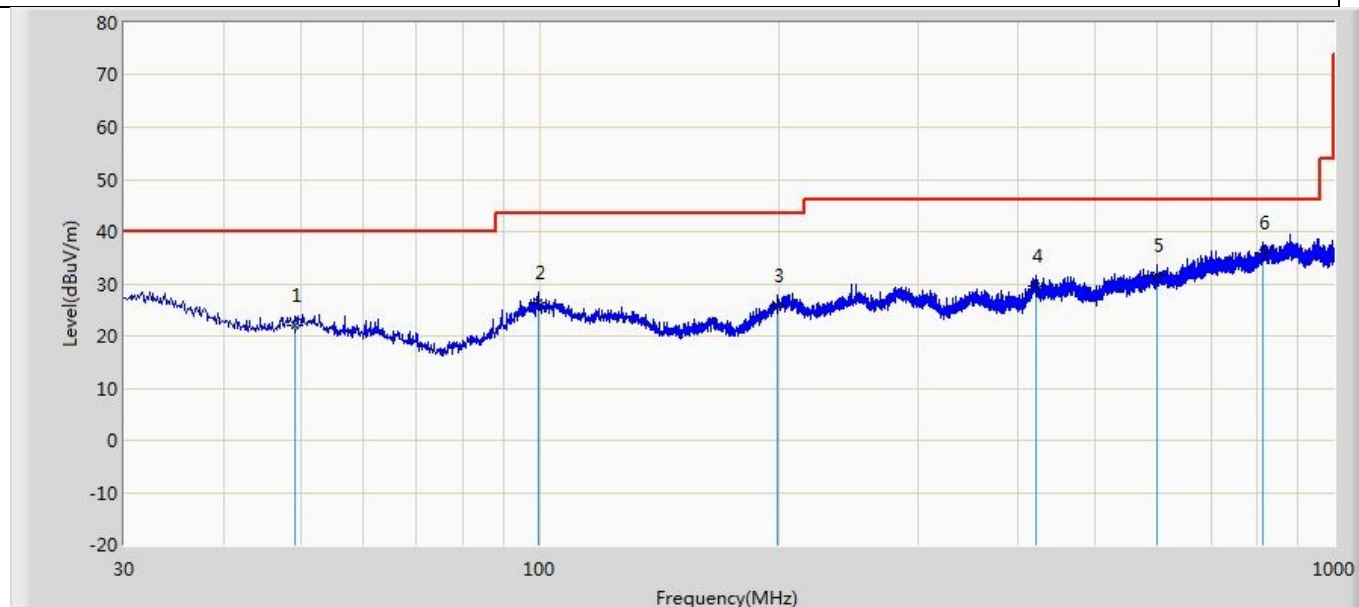


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		34.607	29.836	2.786	-10.164	40.000	27.050	QP
2		131.244	20.849	3.274	-22.651	43.500	17.575	QP
3		197.446	20.619	2.962	-22.881	43.500	17.657	QP
4		264.255	22.350	3.518	-23.650	46.000	18.832	QP
5		524.215	31.300	2.269	-14.700	46.000	29.030	QP
6	*	866.140	36.178	3.254	-9.822	46.000	32.924	QP

Note:

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

Profile: 2250816R	Page No.: 14
Engineer: Yu Liu	
Site: AC3	Time: 2021/04/27 - 22:26
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC3_3m (30-1000MHz)	Polarity: Vertical
EUT: Touch All In One Computer	Power: AC 120V/60Hz
Note: Mode 1	



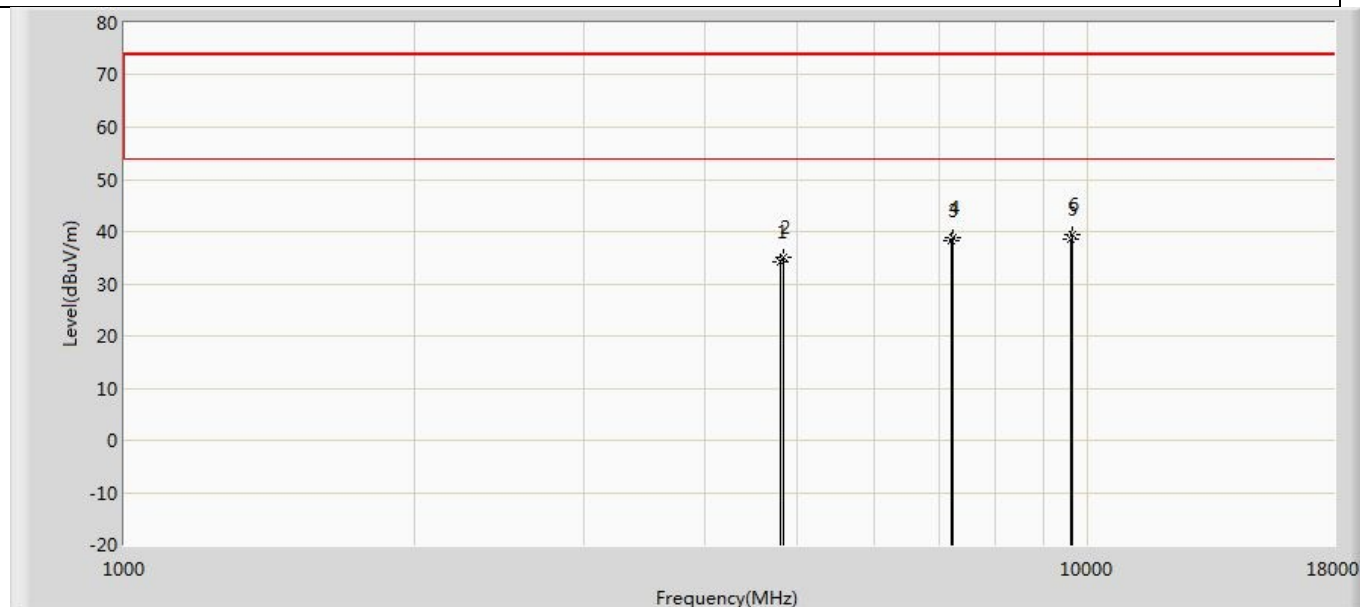
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		49.279	21.902	2.534	-18.098	40.000	19.367	QP
2		99.598	26.390	4.629	-17.110	43.500	21.761	QP
3		199.629	25.688	2.292	-17.812	43.500	23.396	QP
4		421.638	29.695	3.117	-16.305	46.000	26.578	QP
5		599.875	31.580	3.893	-14.420	46.000	27.687	QP
6	*	813.760	35.927	3.162	-10.073	46.000	32.765	QP

Note:

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

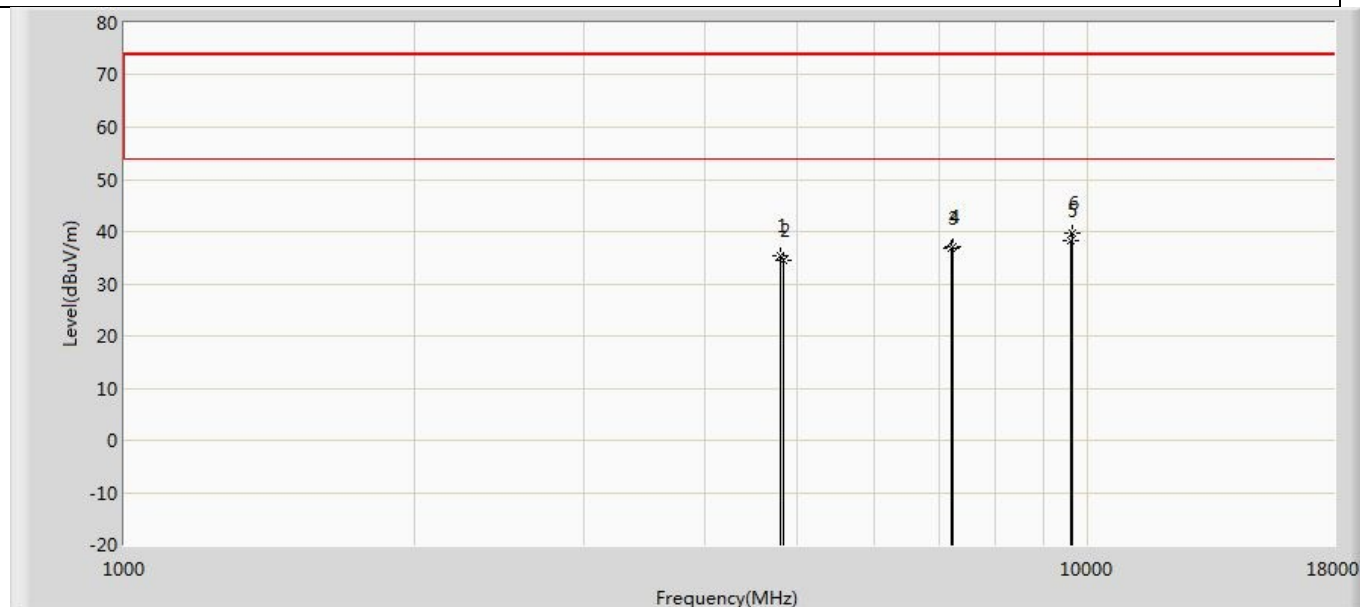
The worst case of Simultaneous Radiated Emission:

Profile: 2250816R	Page No.: 238
Engineer: Yu Liu	
Site: AC5	Time: 2022/06/28- 11:54
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Touch All In One Computer	Power: AC 120V/60Hz
Note: Simultaneous transmission with BT + 2.4G WIFI	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	34.161	46.592	-39.839	74.000	-12.431	PK
2		4824.000	35.164	47.577	-38.836	74.000	-12.414	PK
3		7206.000	38.131	45.928	-35.869	74.000	-7.796	PK
4		7236.000	38.862	46.235	-35.138	74.000	-7.373	PK
5		9608.000	38.670	44.929	-35.330	74.000	-6.258	PK
6	*	9648.000	39.488	45.224	-34.512	74.000	-5.735	PK

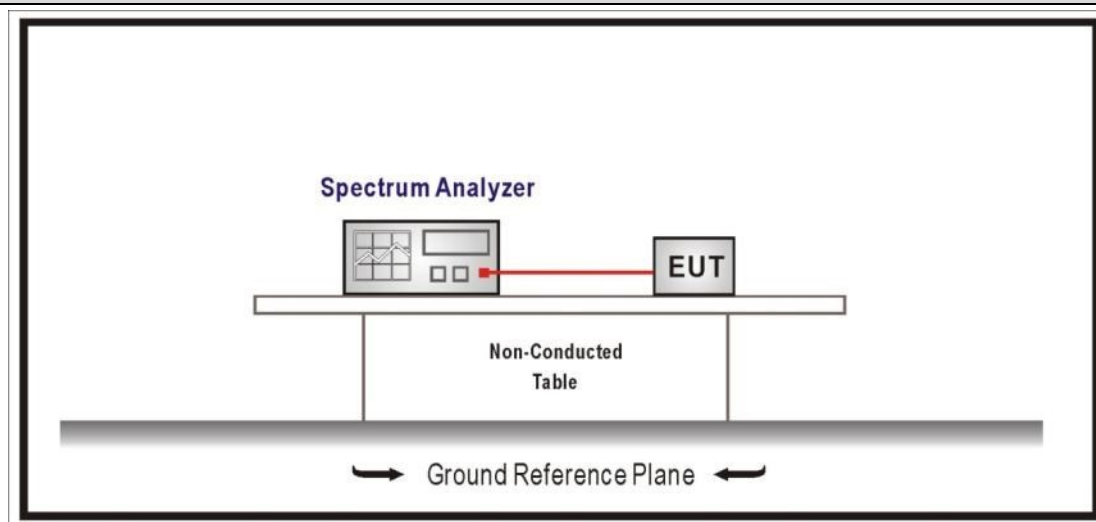
Profile: 2250816R	Page No.: 239
Engineer: Yu Liu	
Site: AC5	Time: 2022/06/28- 11:54
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Touch All In One Computer	Power: AC 120V/60Hz
Note: Simultaneous transmission with BT + 2.4G WIFI	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	35.424	47.855	-38.576	74.000	-12.431	PK
2		4824.000	34.361	46.774	-39.639	74.000	-12.414	PK
3		7206.000	36.761	44.558	-37.239	74.000	-7.796	PK
4		7236.000	37.230	44.603	-36.770	74.000	-7.373	PK
5		9608.000	38.330	44.589	-35.670	74.000	-6.258	PK
6	*	9648.000	39.576	45.312	-34.424	74.000	-5.735	PK

4.3 20dB Bandwidth**VERDICT: PASS****4.3.1 Limit**

Standard		FCC Part 15 Subpart C Paragraph 15.247(a)
☒	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.	

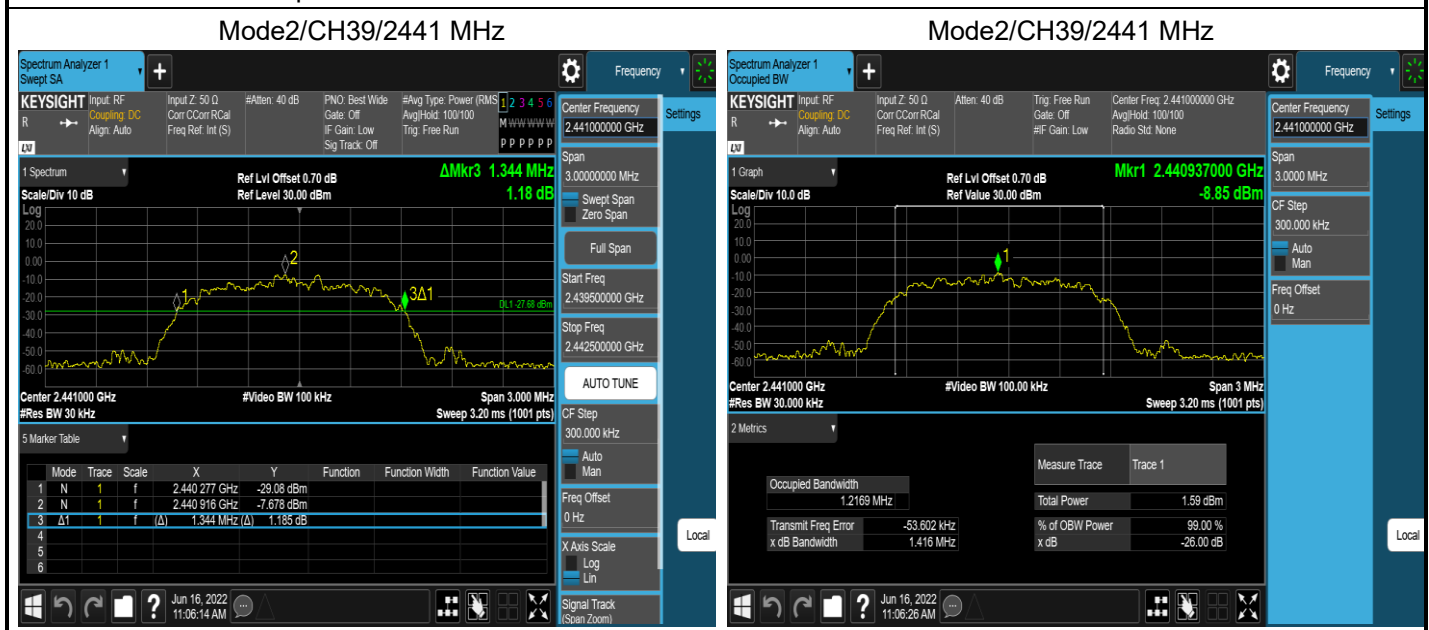
4.3.2 Test Setup**4.3.3 Test Procedure**

References Rule		Chapter	Description
☒	ANSI C63.10	6.9	Occupied bandwidth tests
☒	ANSI C63.10	6.9.2	Occupied bandwidth—relative measurement procedure

4.3.4 Test Data

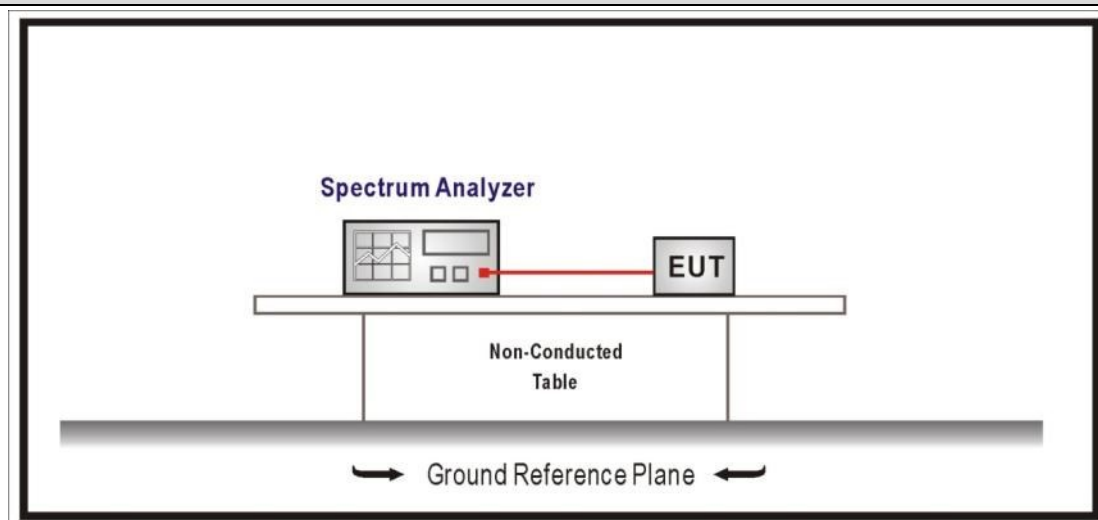
Mode	Channel	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
1	00	2402	965	913.06
	39	2441	948	886.39
	79	2480	972	892.10
2	00	2402	1344	1207.9
	39	2441	1344	1216.9
	79	2480	1320	1205.5
3	00	2402	1314	1216.1
	39	2441	1287	1185.8
	79	2480	1293	1215.1

Note 1: The worst data plot as below:



4.4 CarrierFrequencySeparation**VERDICT: PASS****4.4.1 Limit**

Standard	FCC Part 15 Subpart C Paragraph 15.247(a)
☐	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
☐	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
☐	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.

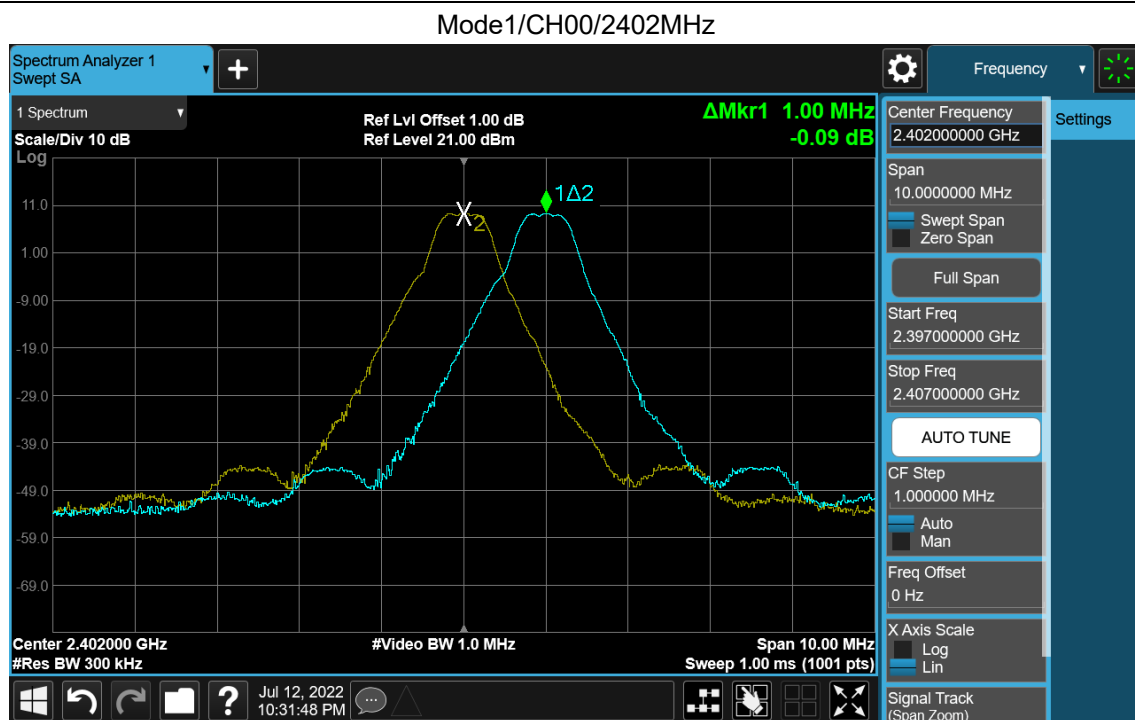
4.4.2 Test Setup**4.4.3 Test Procedure**

References Rule	Chapter	Description
☒ ANSI C63.10	7.8	Evaluation of frequency-hopping device parameters
☒ ANSI C63.10	7.8.2	Carrier frequency separation

4.4.4 Test Data

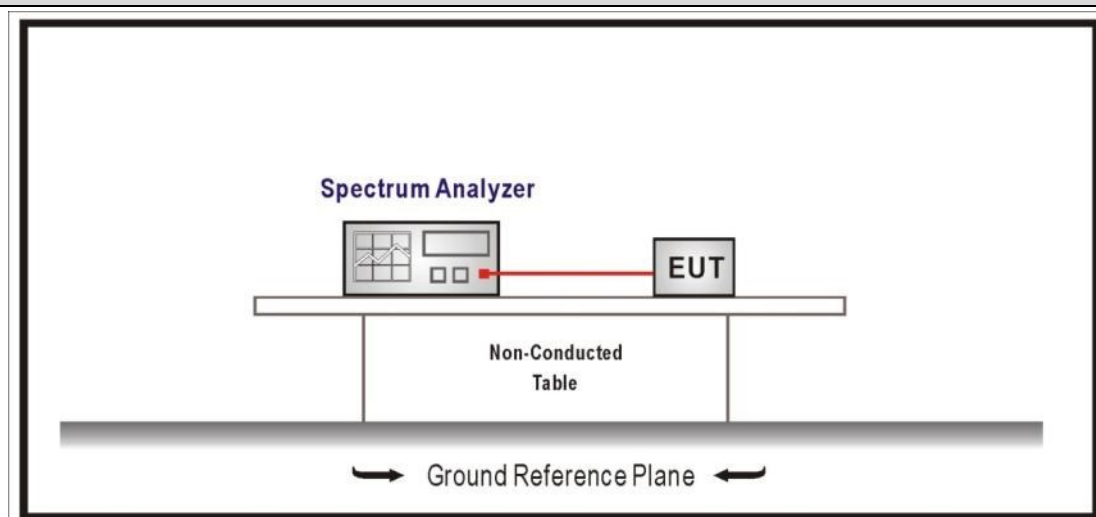
Mode	Channel	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
1	00	2402	1000	926.7	Pass
	39	2441	1000	925.4	Pass
	78	2480	1000	920.0	Pass
2	00	2402	1000	896.67	Pass
	39	2441	1000	897.33	Pass
	78	2480	1000	894.00	Pass
3	00	2402	1000	871.33	Pass
	39	2441	1000	872.67	Pass
	78	2480	1000	894.00	Pass

Note 1: The worst data plot as below:



4.5 Number of hopping Frequencies**VERDICT: PASS****4.5.1 Limit**

Standard		FCC Part 15 Subpart C Paragraph 15.247(a)
☒	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.	

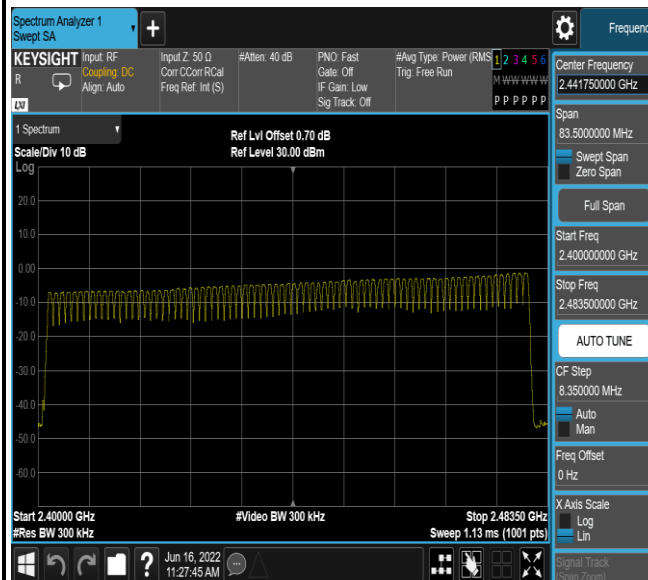
4.5.2 Test Setup**4.5.3 Test Procedure**

References Rule		Chapter	Description
☒	ANSI C63.10	7.8.	Evaluation of frequency-hopping device parameters
☒	ANSI C63.10	7.8.3	Number of Hopping Frequencies

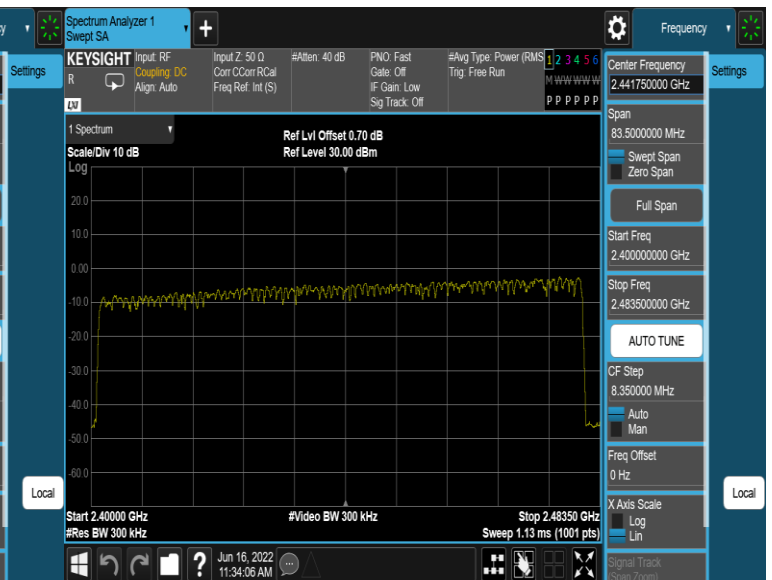
4.5.4 Test Data

Mode	Number of Hopping Frequencies	Limit	Result
1	79	>15	Pass
2	79	>15	Pass
3	79	>15	Pass

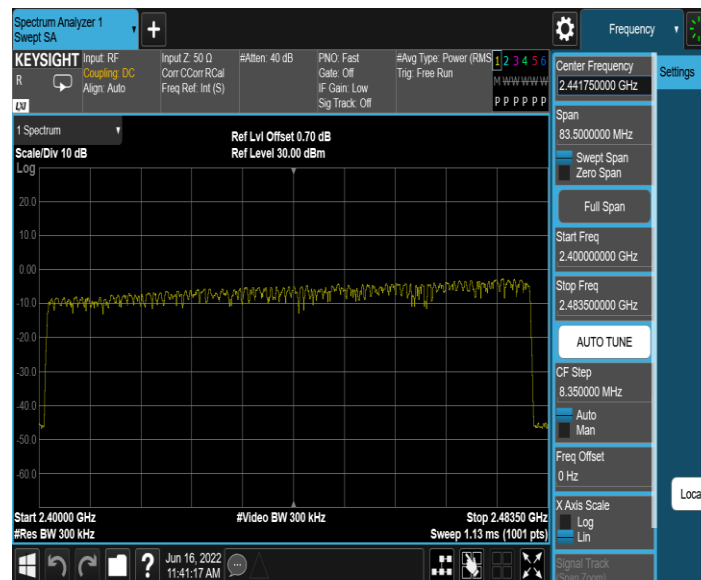
Mode 1



Mode2

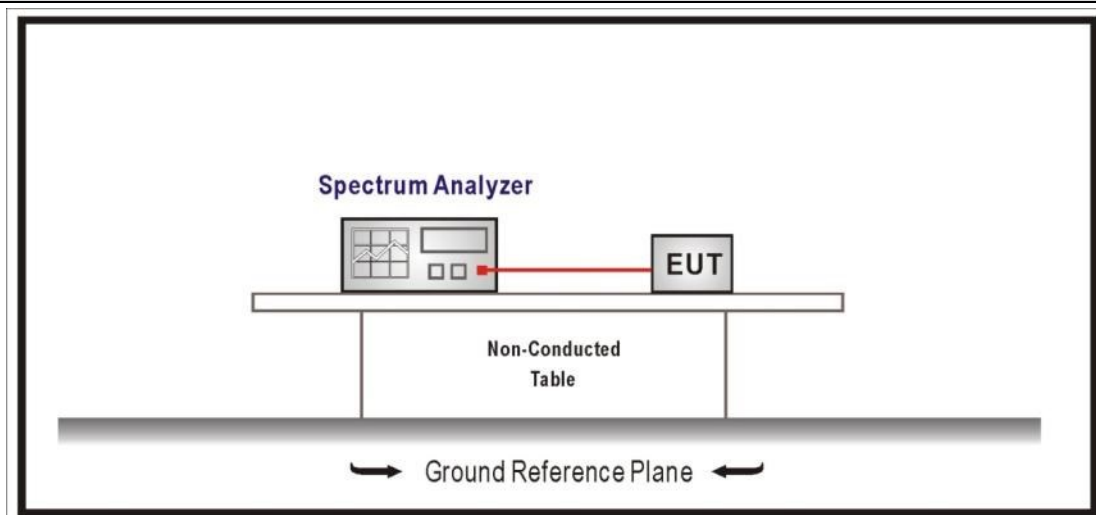


Mode 3



4.6 Time of Occupancy(Dwell Time)**VERDICT: PASS****4.6.1 Limit**

Standard	FCC Part 15 Subpart C Paragraph 15.247(a)
☒	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.

4.6.2 Test Setup**4.6.3 Test Procedure**

References Rule	Chapter	Description
☒ ANSI C63.10	7.8	Evaluation of frequency-hopping device parameters
☒ ANSI C63.10	7.8.4	Time of occupancy (dwell time)

4.6.4 Test Data

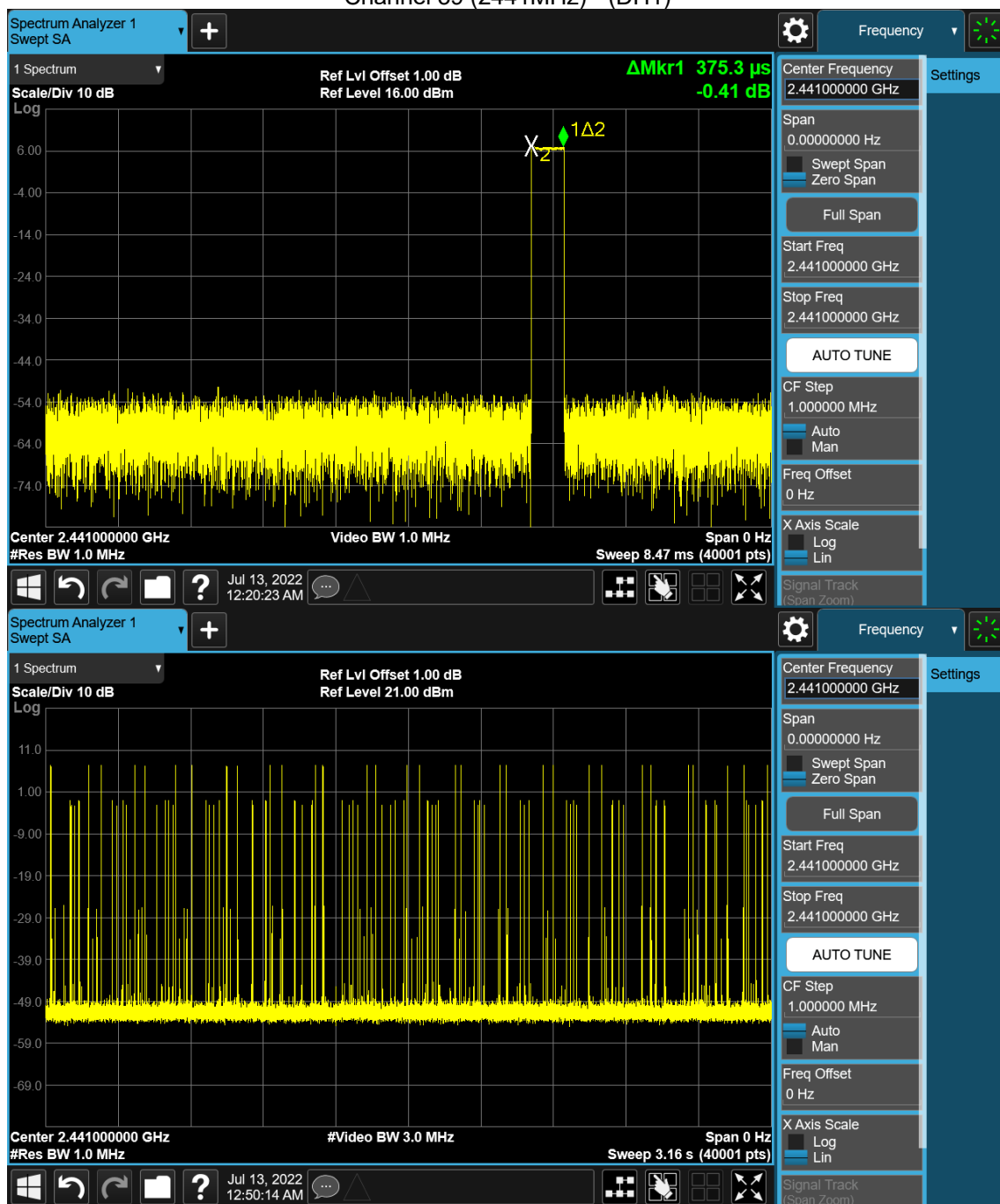
Mode	Channel	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
1	39	2441	120.096	< 400	Pass

Note1: Test Time Period: $0.4 \times 79 = 31.6 \text{ sec}$

Note2: Time of Occupancy = $0.3753 \times 32 \times 31.6 / 3.16 = 120.096 \text{ ms}$

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

Channel 39 (2441MHz) - (DH1)



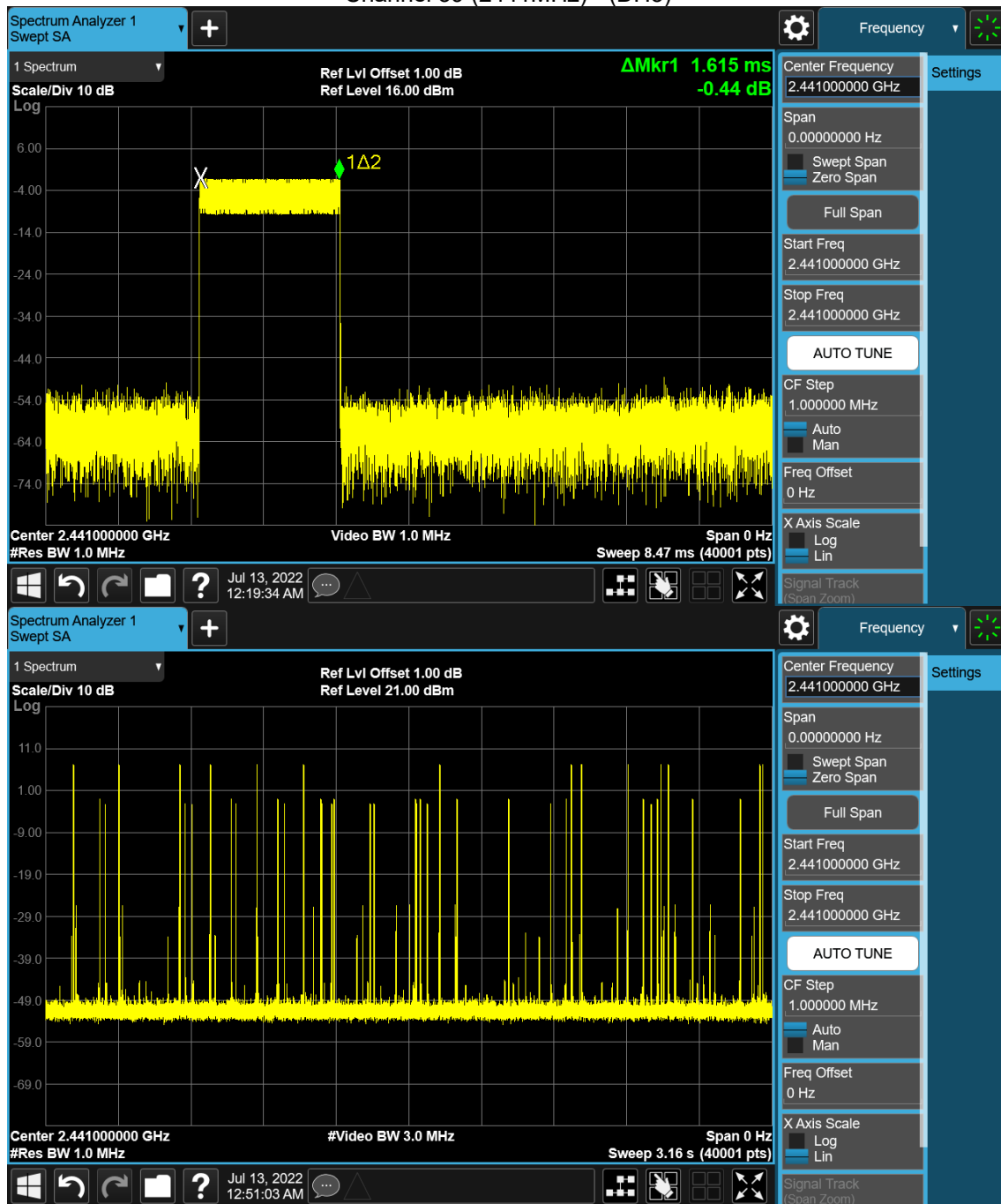
Mode	Channel	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
1	39	2441	226.100	< 400	Pass

Note1: Test Time Period: $0.4 \times 79 = 31.6 \text{ sec}$

Note2: Time of Occupancy = $1.615 \times 14 \times 31.6 / 3.16 = 226.100 \text{ ms}$

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

Channel 39 (2441MHz) - (DH3)

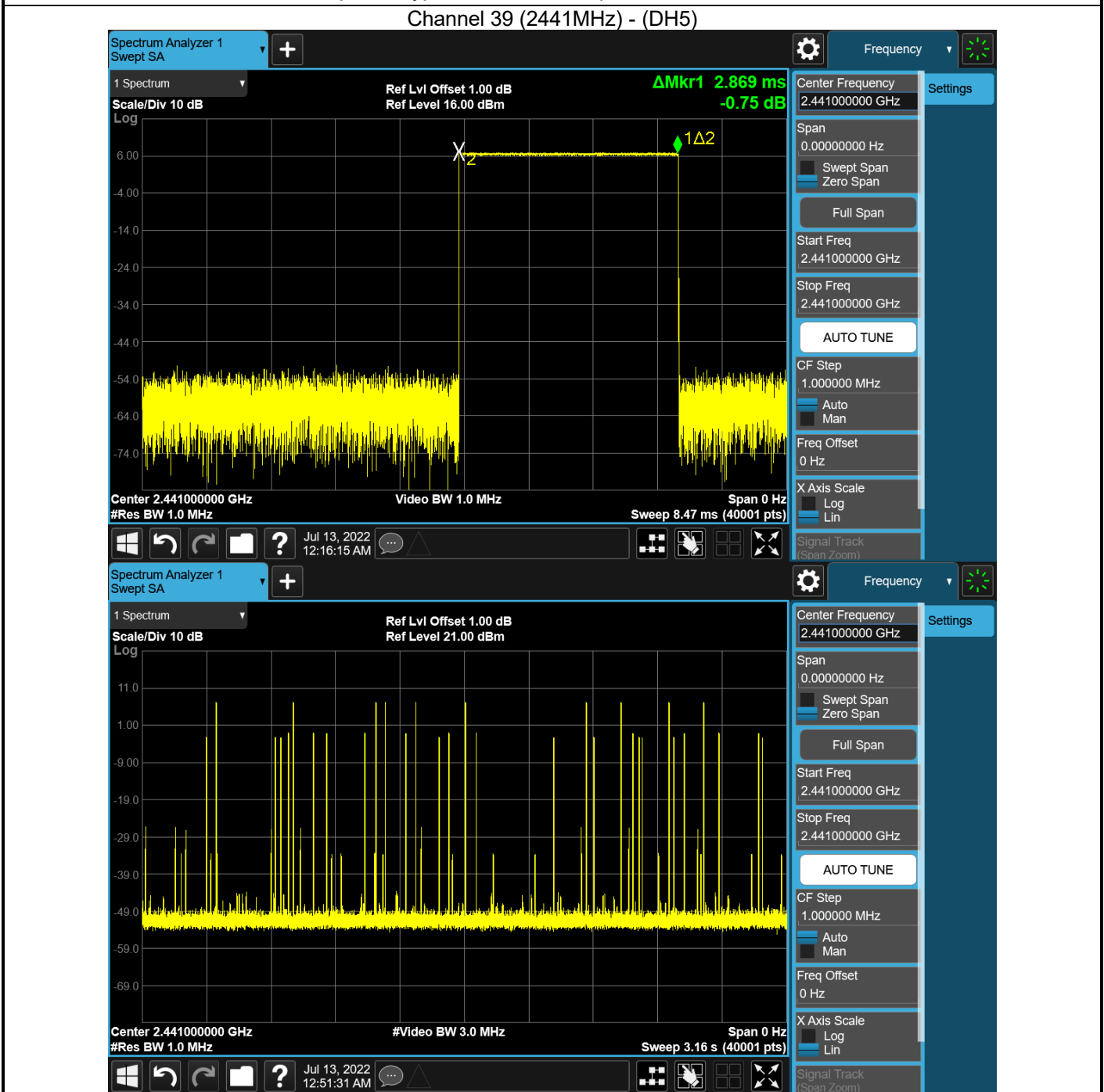


Mode	Channel	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
1	39	2441	286.900	< 400	Pass

Note1: Test Time Period: $0.4 \times 79 = 31.6 \text{ sec}$

Note2: Time of Occupancy = $2.869 \times 10 \times 31.6 / 3.16 = 286.900 \text{ ms}$

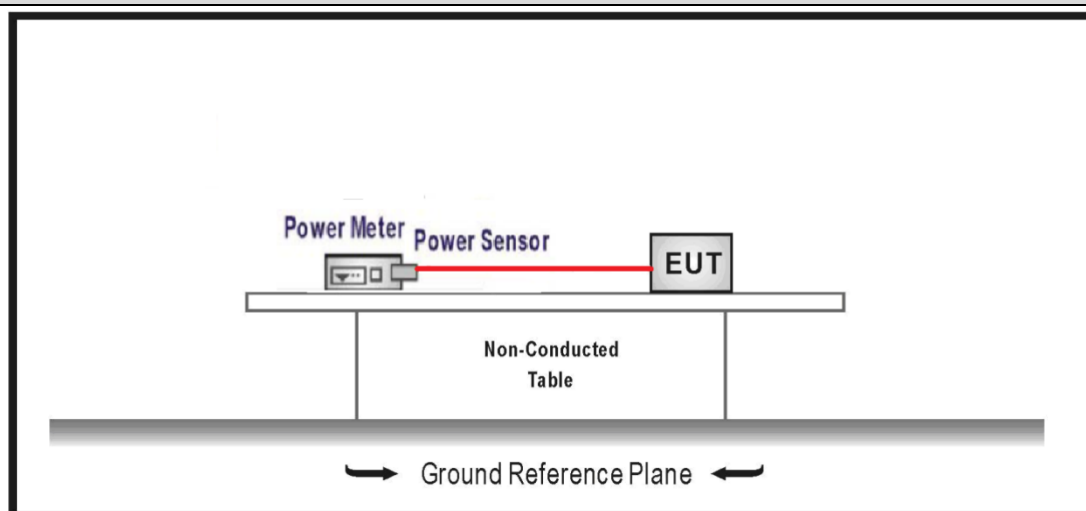
Note3: We have evaluated different packet type, shown in the report is the worst data.



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 $0.4 \times 20 = 8 \text{ S}$, the dwell time of AFH mode comply with the limit.

4.7 Peak Output Power**VERDICT: PASS****4.7.1 Limit**

Standard	FCC Part 15 Subpart C Paragraph 15.247 (a)(1)
☒	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

4.7.2 Test Setup

4.7.3 Test Procedure

	References Rule		Chapter	Description
☒	ANSI C63.10		7.8	Evaluation of frequency-hopping device parameters
	☒	ANSI C63.10	7.8.5	Output power test procedure for frequency-hopping spread-spectrum (FHSS) devices

4.7.4 Test Data

ESY10I4

Mode	Channel	Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)	Result
Mode 1	00	2402	1.35	≤30	3.01	≤36	Pass
	39	2441	1.58	≤30	3.24	≤36	Pass
	78	2480	1.34	≤30	3.00	≤36	Pass
Mode 2	00	2402	4.32	≤21	5.98	≤36	Pass
	39	2441	4.12	≤21	5.78	≤36	Pass
	78	2480	4.33	≤21	5.99	≤36	Pass
Mode 3	00	2402	4.35	≤21	6.01	≤36	Pass
	39	2441	4.03	≤21	5.69	≤36	Pass
	78	2480	4.43	≤21	6.09	≤36	Pass

ESY15I4

Mode	Channel	Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)	Result
Mode 1	00	2402	1.35	≤30	3.33	≤36	Pass
	39	2441	1.58	≤30	3.56	≤36	Pass
	78	2480	1.34	≤30	3.32	≤36	Pass
Mode 2	00	2402	4.32	≤21	6.30	≤36	Pass
	39	2441	4.12	≤21	6.10	≤36	Pass
	78	2480	4.33	≤21	6.31	≤36	Pass
Mode 3	00	2402	4.35	≤21	6.33	≤36	Pass
	39	2441	4.03	≤21	6.01	≤36	Pass
	78	2480	4.43	≤21	6.41	≤36	Pass

ESY15I4-C

Mode	Channel	Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)	Result
Mode 1	00	2402	1.35	≤30	4.11	≤36	Pass
	39	2441	1.58	≤30	4.34	≤36	Pass
	78	2480	1.34	≤30	4.10	≤36	Pass
Mode 2	00	2402	4.32	≤21	7.08	≤36	Pass
	39	2441	4.12	≤21	6.88	≤36	Pass
	78	2480	4.33	≤21	7.09	≤36	Pass
Mode 3	00	2402	4.35	≤21	7.11	≤36	Pass
	39	2441	4.03	≤21	6.79	≤36	Pass
	78	2480	4.43	≤21	7.19	≤36	Pass

ESY22I4

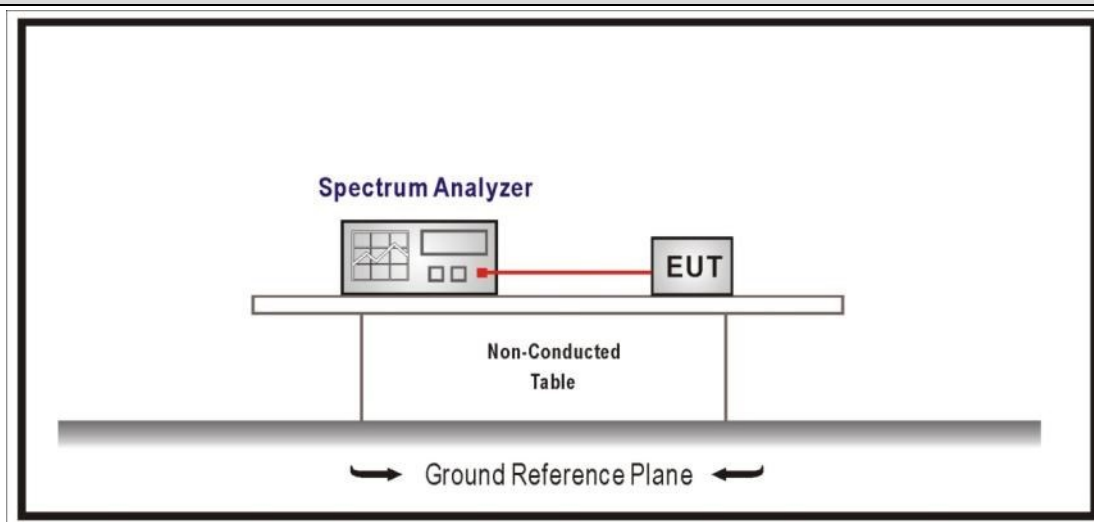
Mode	Channel	Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)	Result
Mode 1	00	2402	1.35	≤30	4.25	≤36	Pass
	39	2441	1.58	≤30	4.48	≤36	Pass
	78	2480	1.34	≤30	4.24	≤36	Pass
Mode 2	00	2402	4.32	≤21	7.22	≤36	Pass
	39	2441	4.12	≤21	7.02	≤36	Pass
	78	2480	4.33	≤21	7.23	≤36	Pass
Mode 3	00	2402	4.35	≤21	7.25	≤36	Pass
	39	2441	4.03	≤21	6.93	≤36	Pass
	78	2480	4.43	≤21	7.33	≤36	Pass

4.8 Emissions in non-restricted frequency band**VERDICT: PASS****4.8.1 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).

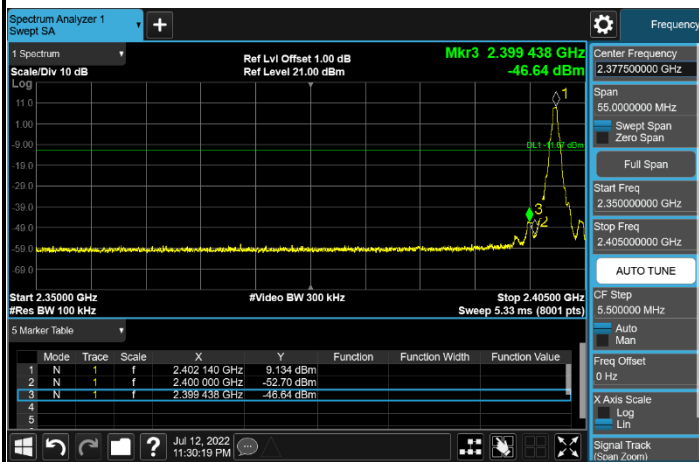
Note 2: If the maximum peak conducted output power procedure was used, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 20 dBc).

4.8.2 Test Setup**4.8.3 Test Procedure**

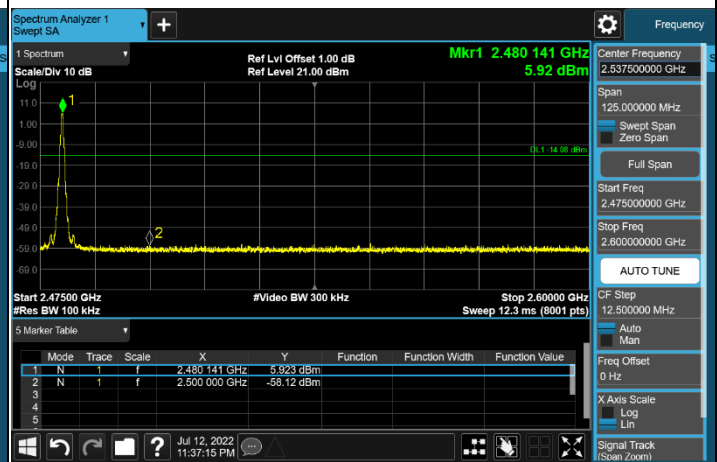
References Rule	Chapter	Description
☒ ANSI C63.10	7.8	Evaluation of frequency-hopping device parameters
☒ ANSI C63.10	7.8.6	Band-edge measurements for RF conducted emissions

4.8.4 Test Data

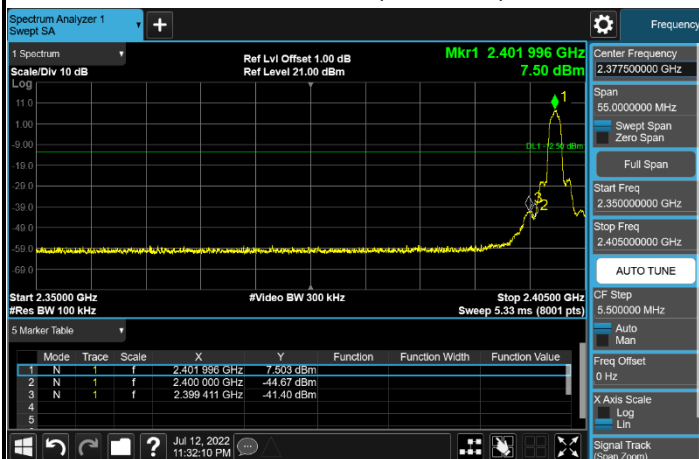
Mode 1 CH00(2402MHz)



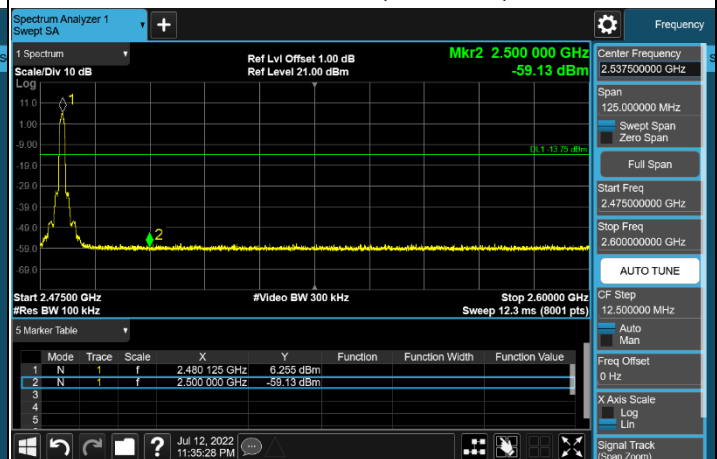
Mode 1 CH78(2480MHz)



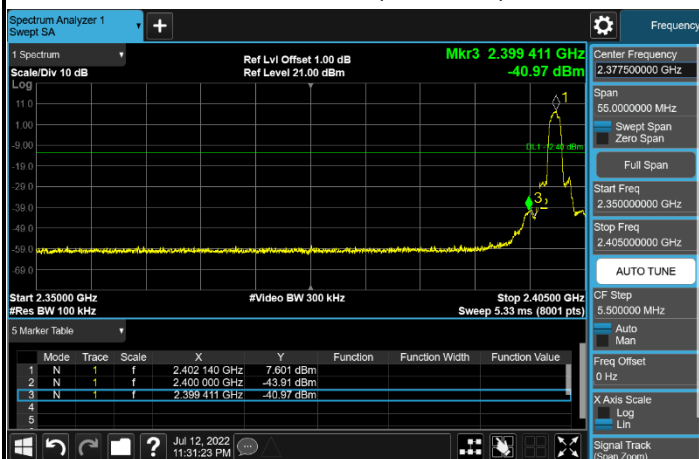
Mode 2 CH00(2402MHz)



Mode 2 CH78(2480MHz)



Mode 3 CH00(2402MHz)



Mode 3 CH78(2480MHz)

