DEKRA Testing and Certification (Suzhou) Co., Ltd.
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Test report No:
2290461R-RF-US-P06V01

FCC TEST REPORT

Product Name	DVR Module
Trademark	HISINGY 星奇世界
Model and /or type reference	wd010101
FCC ID	2BAIV-WD010101
Applicant´s name / address	Cockatoo & Friends Co., Ltd. Dongxiaojing Industrial Park, No. 205 Zone B, Unit 1277, Dongba Township, Chaoyang District, Beijing, China.
Test method requested, standard	CFR 47, FCC Part 15 C § 15.247 ANSI C63.10: 2013
Verdict Summary	IN COMPLIANCE
Documented by (name / position & signature)	Jun Xu/ Project Engineer
Approved by (name / position & signature)	Jack Zhang/ Manager
Date of issue	2023-07-25
Report Version	V1.0
Report template No	Template_FCC Part 15C-RF-V1.0

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COMPETENCES AND GUARANTEES

DEKRA is a testing laboratory competent to carry out the tests described in this report.
In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

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

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

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

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GENERAL CONDITIONS

Test Location	No. 99, Hongye Road, Suzhou Industrial Park Suzhou, 215006, P.R. China
Date(receive sample)	Sep. 15, 2022
Date (start test)	Oct. 10, 2022
Date (finish test)	Nov. 21, 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
2290461R-RF-US-P06V01	V1.0	Initial issue of report.	2023-07-25

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 CFR 47, FCC Part 15 C, ANSI C63.10:2013.
3. The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to account the uncertainty associated with the measurement result.
4. The test results presented in this report relate only to the object tested.
5. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification (Suzhou) Co., Ltd.
6. This report will not be used for social proof function in China market.
7. DEKRA declines any responsibility with the following test data provided by customer that may affect the validity of result:

- Chapter 1.1 General Description of the Item(s);
- Chapter 1.2 Antenna Informaion;
- Chapter 1.3 Data Rate.
- Chapter 1.4 Channel List.

USED EQUIPMENT

Conducted Test/ TR8

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Wireless Connectivity Tester	R&S	CMW 270	102593	2022.05.21	2023.05.20
Coaxial Cable	N/A	N/A	2187	2022.06.09	2023.06.08
High and low temperature and fast temperature change test box	ASTUOD	ASTD-FBT-225K	N/A	2022.07.13	2023.07.12
Temperature/Humidity Meter	RTS	RTS-8S	RF08	2022.07.07	2023.07.06
Test system					
4TX MIMO Power Sensor	Keysight	X8750A	MY59400102	2022.03.16	2023.03.15
MAX Signal Analyzer	Keysight	N9020B	MY59050482	2022.09.17	2023.09.16
Switch Box	Keysight	X8749A	N/A	N/A	N/A
High and low temperature and fast temperature change test box	ASTUOD	ASTD-FBT-225K	N/A	2022.07.13	2023.07.12
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY61252529	2022.07.14	2023.07.13
Frequency extender for EXG or MXG	Keysight	N5182BX07	MY59362500	2022.07.14	2023.07.13
EXG-B MW Analog Signal Generator	Keysight	N5173B	MY61252566	2022.09.28	2023.09.27

Radiated Emission(9kHz-1GHz) / AC3

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EMI Test Receiver	R&S	ESCI	100573	2022.07.10	2023.07.09
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2022.08.28	2023.08.27
Coaxial Cable	Huber+Suhner	RG 214	AC2-C	2022.03.30	2023.03.29
Loop Antenna	R&S	HFH2-Z2	833799/003	2022.04.15	2023.04.14
Temperature/Humidity Meter	RTS	RTS-8S	AC2-TH	2022.07.07	2023.07.06

Radiated Emission (1GHz-40GHz) / AC5

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
MXA Signal Analyzer	Keysight	N9020B	MY60112218	2022.12.08	2023.12.07
Preamplifier	Chengyi	EMC184045SE	980263	2022.07.19	2023.07.18
Preamplifier	SKET	LNPA_0118G-45	SK2021041201	2022.04.15	2023.04.14
DRG Horn	ETS-Lindgren	3117	00123988	2022.08.29	2023.08.28
Broad-Band Horn Antenna	SCHWARZBECK	BBHA 9170	01249	2022.09.22	2023.09.21
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2022.03.30	2023.03.29
Coaxial Cable	ROSENBERGER	LA1-C011-2000/3000	AC5-40G	2022.03.21	2023.03.20
Notch Filter	Micro-mve	MFN-2400.2485.S1	AN0003N	2022.07.18	2023.07.17
High-Pass Filter	Wainwright	WHKX3.0/18G-12SS	81	2022.06.07	2023.06.06

UNCERTAINTY

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

Test item	Uncertainty
AC Power Line Conducted Emission	9kHz~150kHz: 2.80dB 150kHz~30MHz: 2.40dB
Peak Power Output	± 1.27 dB
Radiated Emission(30MHz~1GHz)	Horizontal: 30MHz~200MHz: 3.50 dB 300MHz~1GHz: 3.60 dB Vertical: 30MHz~200MHz: 3.60 dB 300MHz~1GHz: 3.50 dB
Radiated Emission(1GHz~26.5GHz)	Horizontal: 1GHz~18GHz: 5.00 dB Vertical: 1GHz~18GHz: 4.80 dB Horizontal: 18GHz~26.5GHz: 5.20 dB Vertical: 18GHz~26.5GHz: 4.90 dB
RF antenna conducted test	± 1.27dB
Radiated Emission Band Edge	± 3.9 dB
DTS Bandwidth	±1kHz
Occupied Bandwidth	±1kHz
Power Density	±1.27dB

1 GENERAL INFORMATION

1.1 General Description of the Item(s)

Product Name ..... :	DVR Module
Model No. ..... :	wd010101
Trademark ..... :	HISINGY 星奇世界
FCC ID ..... :	2BAIV-WD010101
Hardware Version ..... :	2.0
Software Version ..... :	1.1
Manufacturer ..... :	Goertek Robotics Co,Ltd
Manufacturer address ..... :	A218, Building A, No. 35, Lane 799, Jiasongzhong Road, Qingpu District, Shanghai
Factory ..... :	Goertek Robotics Co,Ltd
Factory address..... :	A218, Building A, No. 35, Lane 799, Jiasongzhong Road, Qingpu District, Shanghai

Wireless specification..... :	802.11b/g/n
Operating frequency range(s) ..... :	802.11b/g/n(20MHz): 2412~2462MHz 802.11n(40MHz): 2422~2452MHz
Type of Modulation..... :	802.11b: DSSS-DBPSK, DQPSK, CCK 802.11g/n: OFDM-BPSK, QPSK, 16QAM, 64QAM
Number of channels ..... :	802.11b/g/n(20MHz): 11 802.11b/g/n(40MHz): 7

Rated power supply ..... :	Voltage and Frequency	
	☐	AC: 220 – 240 V, 50/60 Hz
	☐	Adapter: Input:100-240V,50/60Hz,0.5A Output:5.0V,3A /9.0V,2.23A /12V,1.67A/3.3-5.9V,3A/3.3-11V,2.2A
	☐	HMD: 9V,2.23A or 5V,3A
	☒	DC:5V
Mounting position ..... :	☐	Table top equipment
	☐	Wall/Ceiling mounted equipment
	☐	Floor standing equipment
	☐	Head-mounted equipment
	☒	Other: RF Module

1.2 Antenna Information

Antenna model / type number ..... :	N/A			
Antenna serial number ..... :	GT11-DVR.V2.C113.50B.1			
Antenna Delivery ..... :	☒	1TX + 1RX		
	☐	2TX + 2RX		
	☐	Others:……		
Antenna technology ..... :	☒	SISO		
	☐	MIMO	☐	CDD
			☐	Beam-forming
Antenna Type ..... :	☐	External	☐	Dipole
			☐	Sectorized
	☒	Internal	☒	FPC
			☐	PCB
			☐	Metal Monopole Antenna
			☐	Ceramic chip
			☐	Others……..
Antenna Gain ..... :	2.04dBi			

1.3 Date Rate

IEEE 802.11b

Modulation	Data Rate(Mb/s)
DSSS	1
DSSS	2
CCK	5.5
CCK	11

IEEE 802.11g

Modulation	R	Data Rate(Mb/s)
BPSK	1/2	6
BPSK	3/4	9
QPSK	1/2	12
QPSK	3/4	18
16-QAM	1/2	24
16-QAM	3/4	36
64-QAM	2/3	48
64-QAM	3/4	54

IEEE 802.11n

Spatial streames	MCS Index	Modulation	R	Data Rate(Mb/s)			
				800ns GI		400ns GI	
				20MHz	40MHz	20MHz	40MHz
1	0	BPSK	1/2	6.5	13.5	7.2	15.0
1	1	QPSK	1/2	13.0	27.0	14.4	30.0
1	2	QPSK	3/4	19.5	40.5	21.7	45.0
1	3	16-QAM	1/2	26.0	54.0	28.9	60.0
1	4	16-QAM	3/4	39.0	81.0	43.3	90.0
1	5	64-QAM	2/3	52.0	108.0	57.8	120.0
1	6	64-QAM	3/4	58.5	121.5	65.0	135.0
1	7	64-QAM	5/6	65.0	135.0	72.2	150.0
Note 1: Support of 400ns GI is optional on transmit and receive.							

Symbol	Explanation
R	Code rate
GI	guard interval

Note: The data rate marks blue are the worst.

1.4 Channel List

IEEE 802.11b/g & IEEE 802.11n(20MHz)

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
001	2412 MHz	002	2417 MHz	003	2422 MHz	004	2427 MHz
005	2432 MHz	006	2437 MHz	007	2442 MHz	008	2447 MHz
009	2452 MHz	010	2457 MHz	011	2462 MHz	N/A	N/A

IEEE 802.11n(40MHz)

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
003	2422 MHz	004	2427 MHz	005	2432 MHz	006	2437 MHz
007	2442 MHz	008	2447 MHz	009	2452 MHz	N/A	N/A

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

2 DESCRIPTION OF TEST SETUP

2.1 Operating mode(s) used for tests

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

Test Mode For Bluetooth	Mode 1: Transmit by 802.11b
	Mode 2: Transmit by 802.11g
	Mode 3: Transmit by 802.11n(20MHz)
	Mode 4: Transmit by 802.11n(40MHz)

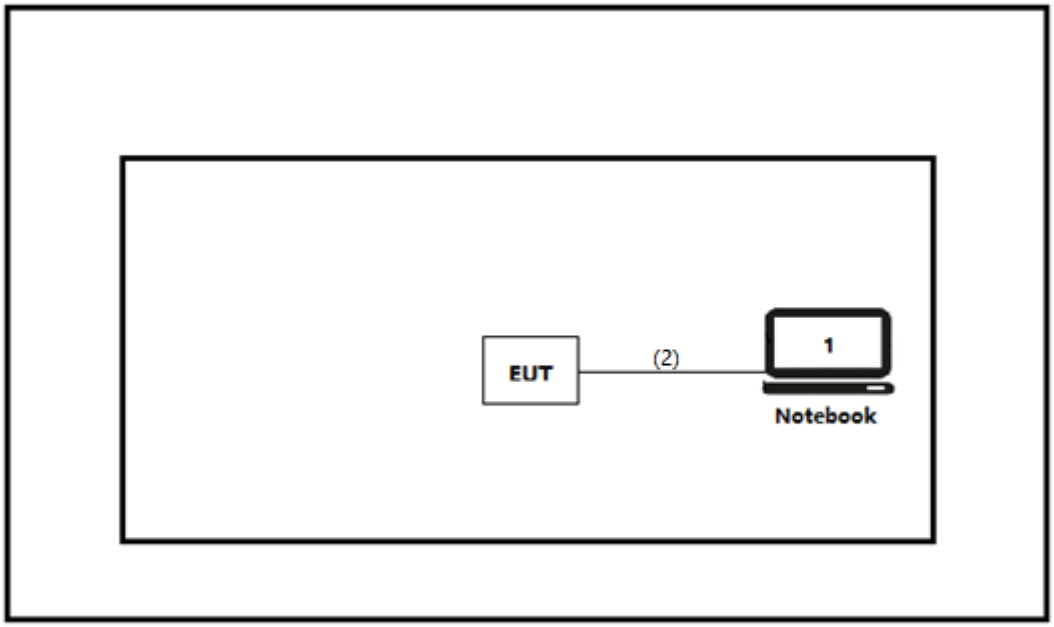
2.2 Auxiliary equipment / Test software for the EUT

Auxiliary equipment	Type / Version	Manufacturer	Supplied by
(1) Notebook	Think pad x220	Lenovo	Adapter
(2) USB Control Cable	N/A	N/A	N/A
(3) USB Control Cable	N/A	N/A	N/
software	Type / Version	Manufacturer	Supplied by
MT_Tool	N/A	N/A	N/A

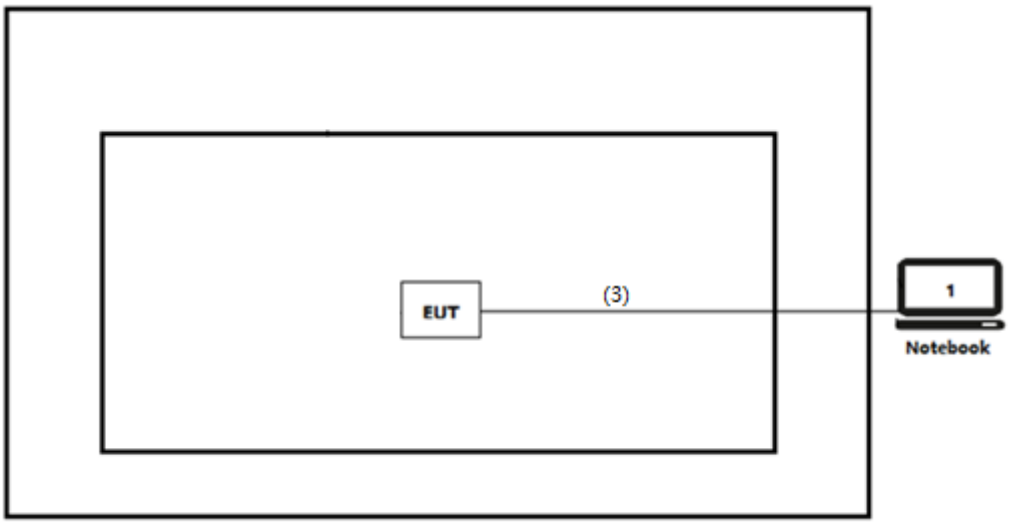
Accessories Information	Cable		
	Length used during test [m]	Attached during test	Shielded
(2)USB Control Cable	1	☒	☒
(3)USB Control Cable	8	☒	☒

2.3 Test Configuration / Block diagram used for tests

Test setup Diagram- Conducted test



Test setup Diagram- Ratiated test



2.4 Testing process

1	Setup the EUT shown in Section 2.3.
2	Execute the “MT_Tool” on the notebook.
3	Configure the test mode, the test channel, and the data rate.
4	Verify that the EUT works properly.

3 VERDICT SUMMARY SECTION

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

3.1 Standards

Standard	Year	Description
CFR 47, FCC Part 15 C	2023	Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz.
ANSI C63.10	2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
KDB 558074 D01V05r02	2019	Guidance for performing compliance measurements on Digital Transmission System (DTS) operating under section 15.247

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

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

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

3.3 Overview of results

Requirement – Test Item of FCC	Standard(s)	Verdict	Remark
DTS Bandwidth	FCC 15.247(a)(2)	PASS	Test data please refer to **Appendix A**
Maximum conducted output power	15.247 (b)(3)	PASS	Test data please refer to **Appendix B**
Maximum power spectral density	FCC 15.247(e)	PASS	Test data please refer to **Appendix C**
Band edge measurements	FCC 15.247(d) FCC 15.205 FCC 15.209	PASS	Test data please refer to **Appendix D**
Conducted Spurious Emission	FCC 15.247(d), FCC 15.209	PASS	Test data please refer to **Appendix E**
Duty cycle	ANSI C63.10:2013	PASS	Test data please refer to **Appendix F**
Emissions in Restricted Bands	FCC 15.205 FCC 15.209	PASS	Test data please refer to **Appendix G**
AC Power Line Conducted Emission	FCC 15.207	PASS	EUT is battery powered.
Antenna Requirement	FCC 15.203	PASS	---

3.4 Power setting in test

Mode	Channel	Frequency (MHz)	Power setting
802.11b	1	2412	45
	6	2437	45
	11	2462	45
802.11g	1	2412	55
	6	2437	55
	11	2462	55
802.11n(20MHz)	1	2412	55
	6	2437	55
	11	2462	55
802.11n(40MHz)	3	2422	60
	6	2437	60
	9	2452	60

3.5 Test Matrix

Test item	wd010101	
	1(#1)	2(#2)
DTS Bandwidth	☒	☐
Maximum conducted output power	☒	☐
Maximum power spectral density	☒	☐
Band edge measurements	☐	☒
Conducted Spurious Emission	☒	☐
Duty cycle	☒	☐
Emissions in Restricted Bands	☐	☒

3.6 Test Facility

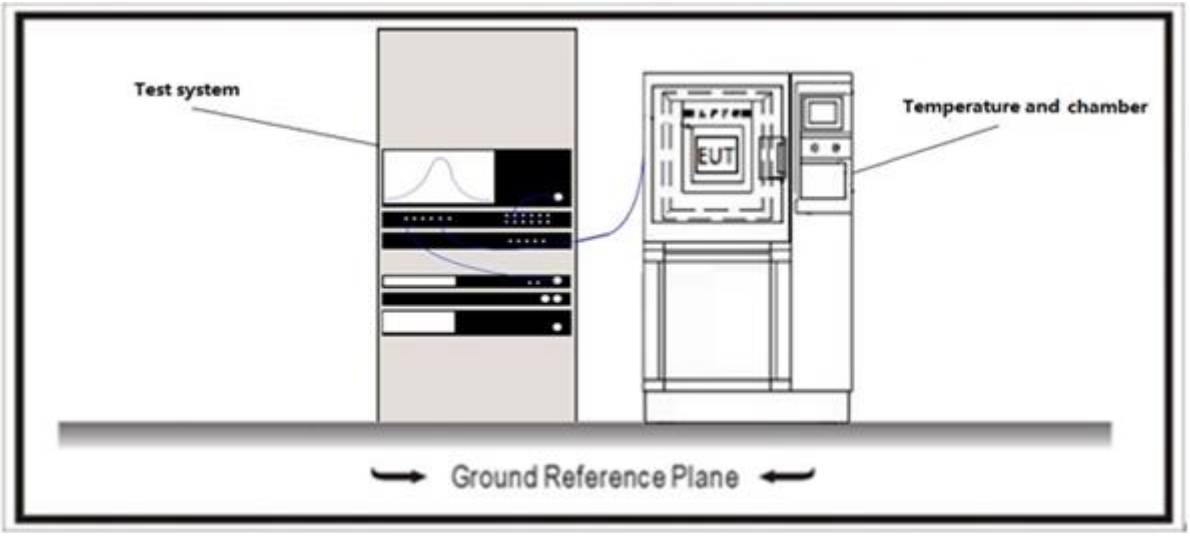
USA	**:**	**FCC Designation Number: CN1199**

4 TEST ITEMS OF LIMIT/SETUP/PROCEDURE

4.1 DTS Bandwidth	VERDICT: PASS

4.1.1 Limit	
Standard	FCC Part 15 Subpart C Paragraph 15.247 (a)(2);
Systems using digital modulation techniques operate in the2400-2483.5 MHz .The minimum 6 dB bandwidth shall be at least 500 kHz	

4.1.2 Test Setup



4.1.3 Test Procedure

	Reference Rule		Chapter	Description
☒	ANSI C63.10		11.8	DTS bandwidth
	☐	ANSI C63.10	11.8.1	Option 1
	☒	ANSI C63.10	11.8.2	Option 2

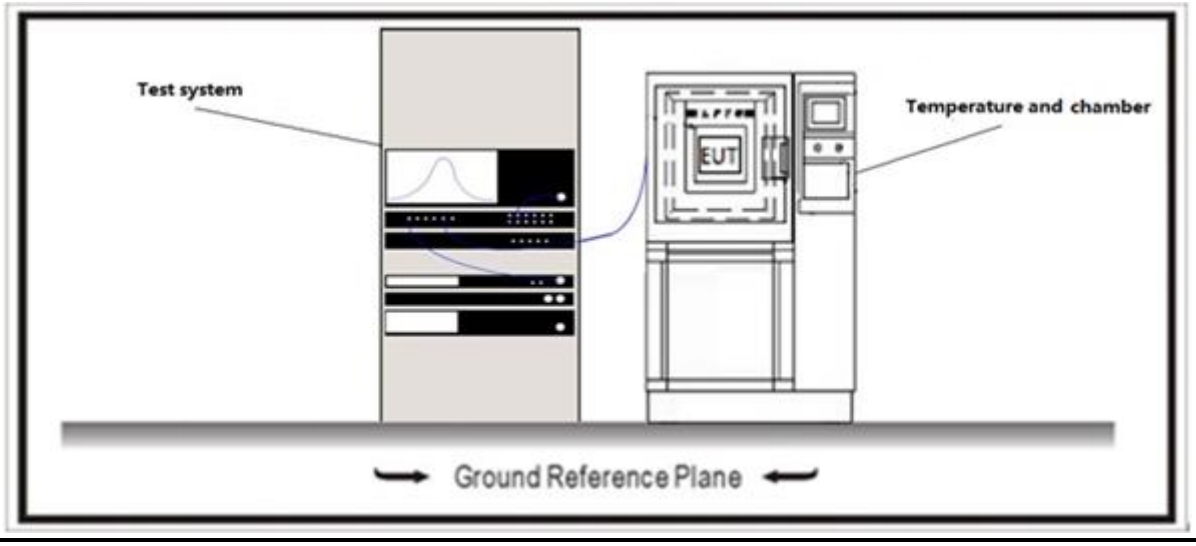
4.2 Maximum Conducted Output Power	VERDICT: PASS

4.2.1 Limit

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

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

4.2.2 Test Setup

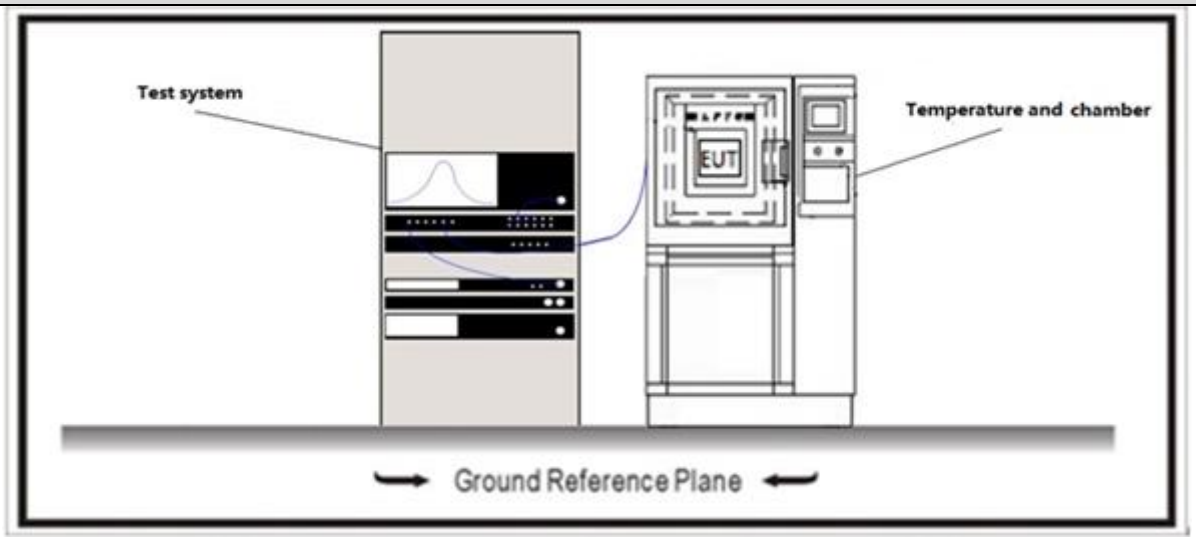


4.2.3 Test Procedure						
	References Rule				Chapter	Description
☒	ANSI C63.10				11.9	Fundamental emission output power
	☒	ANSI C63.10			11.9.1	Maximum peak conducted output power
		☐	ANSI C63.10		11.9.1.1	RBW ≥ DTS bandwidth
		☒	ANSI C63.10		11.9.1.2	Integrated band power method
		☐	ANSI C63.10	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

4.3 Maximum Power Spectral Density	VERDICT: PASS

4.3.1 Limit	
Standard	FCC Part 15 Subpart C Paragraph 15.247 (b)(3);
Power Spectral Density≤8dBm/3kHz	

4.3.2 Test Setup



4.3.3 Test Procedure

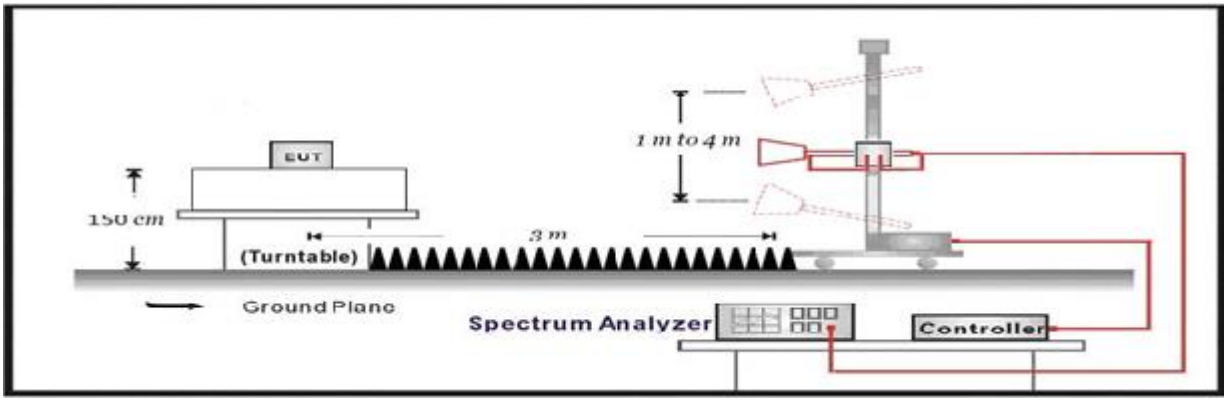
	References Rule		Chapter	Description
☒	ANSI C63.10		11.10	Maximum power spectral density level in the fundamental emission
	☒	ANSI C63.10	11.10.2	Method PKPSD (peak PSD)
	☐	ANSI C63.10	11.10.3	Method AVGPSD-1(Duty cycle≥98%)
	☐	ANSI C63.10	11.10.4	Method AVGPSD-1A(Duty cycle≥98%)
	☐	ANSI C63.10	11.10.5	Method AVGPSD-2(Duty cycle＜98%)
	☐	ANSI C63.10	11.10.6	Method AVGPSD-2A(Duty cycle＜98%)
	☐	ANSI C63.10	11.10.7	Method AVGPSD-3
	☐	ANSI C63.10	11.10.8	Method AVGPSD-3A

4.4 Band Edge Measurements	VERDICT: PASS

4.4.1 Limit

Standard	FCC Part 15 Subpart C Paragraph 15.247(d) , 15.209;			
Frequency bands (MHz)	Detector	Limit (dBμV/m)	RBW (MHz)	Distance (m)
2310-2390 2483.5-2500	PK	74	1	3
	AV	54	1	3
Note: The field strength of emissions appearing within these frequency bands shall not exceed the limits.				

4.4.2 Test Setup



4.4.3 Test Procedure

	References Rule	Chapter	Description
☒	ANSI C63.10	6.10	Band-edge testing
	☒ ANSI C63.10	6.10.5	Restricted-band band-edge measurements
	☐ ANSI C63.10	6.10.6	Marker-delta method
☒	ANSI C63.10	11.12	Emissions in restricted frequency bands
	☒ ANSI C63.10	11.12.1	Radiated emission measurements
	☒ ANSI C63.10	11.12.2.7	Radiated spurious emission test
☐	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
☐	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency rangeof 30 MHz to 1000 MHz
☒	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

4.5 Conducted Spurious Emission	VERDICT: PASS

4.5.1 Limit

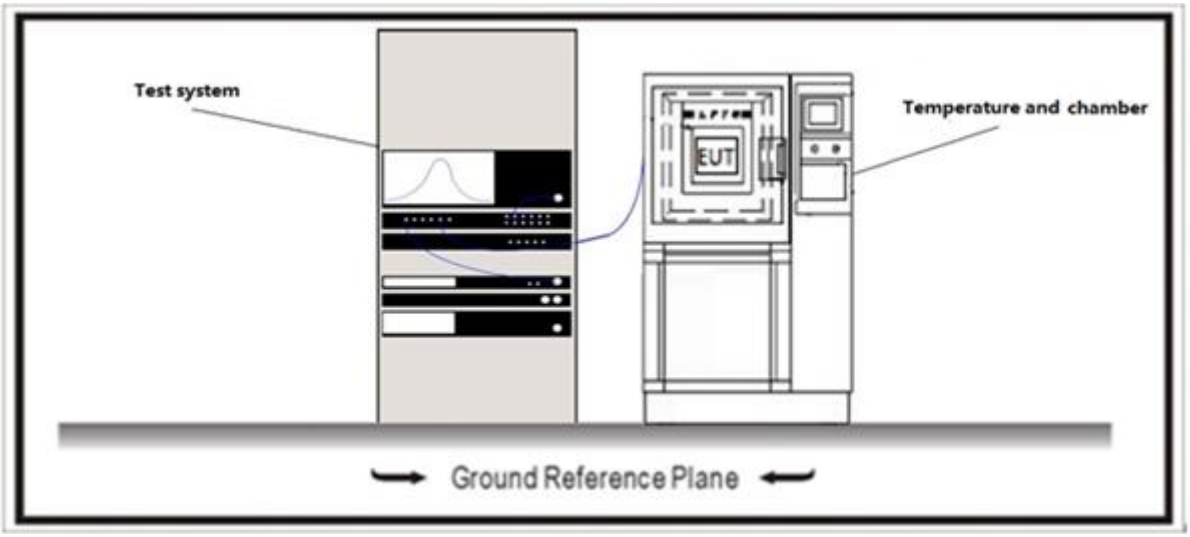
Standard	FCC Part 15 Subpart C Paragraph 15.247(d); RSS-247 Issue 2 Paragraph 5.5.

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).

4.5.2 Test Setup



4.5.3 Test Procedure

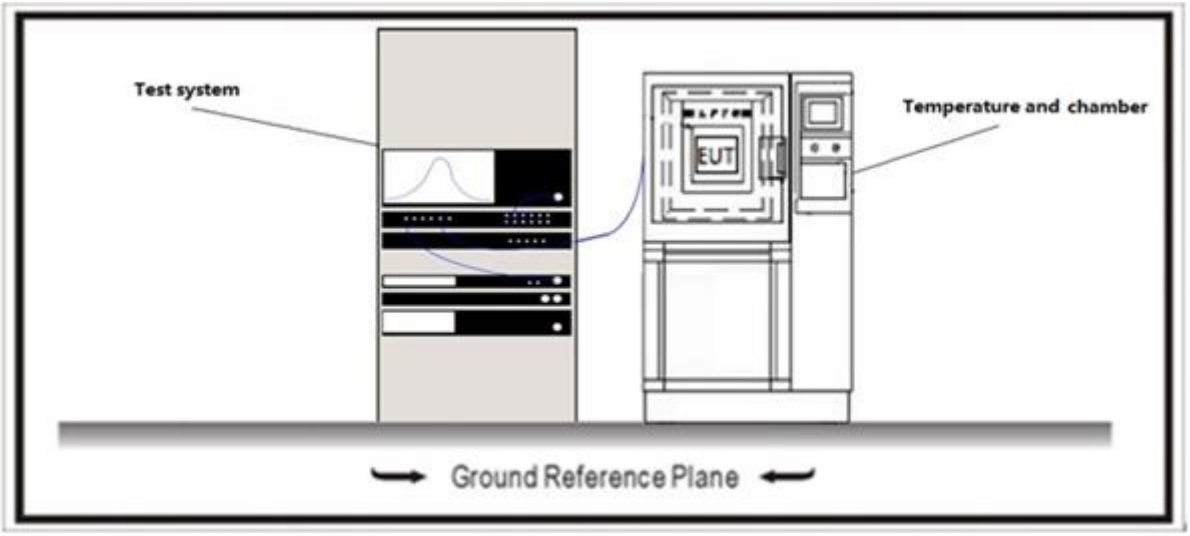
References Rule			Chapter	Description
☒	ANSI C63.10		11.11	Emissions in non-restricted frequency bands
	☒	ANSI C63.10	11.11.1	General
	☒	ANSI C63.10	11.11.2	Reference level measurement
	☒	ANSI C63.10	11.11.3	Emission level measurement

4.6 Duty cycle	VERDICT: PASS

4.6.1 Limit

N/A

4.6.2 Test Setup



4.6.3 Test Procedure

References Rule		Chapter	Description
☒	ANSI C63.10	11.6	Duty cycle (D), transmission duration (T), and maximum power control level

4.7 Emissions in Restricted Bands — VERDICT: PASS

4.7.1 Limit

Standard | FCC Part 15 Subpart C Paragraph 15.205

Restricted Bands of operation

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

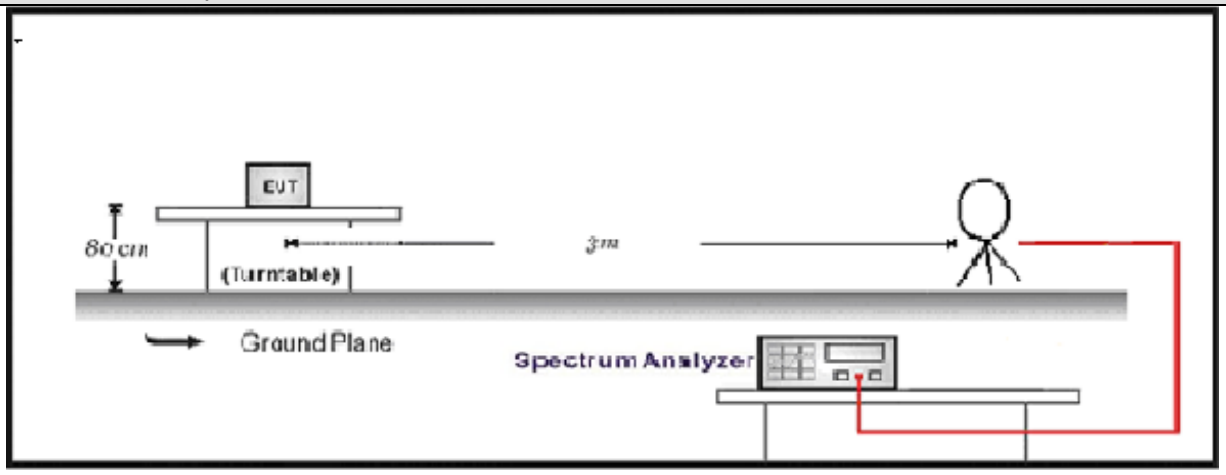
Restricted Band Emissions Limit			
FCC Part 15 Subpart C Paragraph 15.209			
Frequency (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300(Note 1)
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30(Note 1)
1.705 - 30	30	29.5	30(Note 1)
30 - 88	100	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).

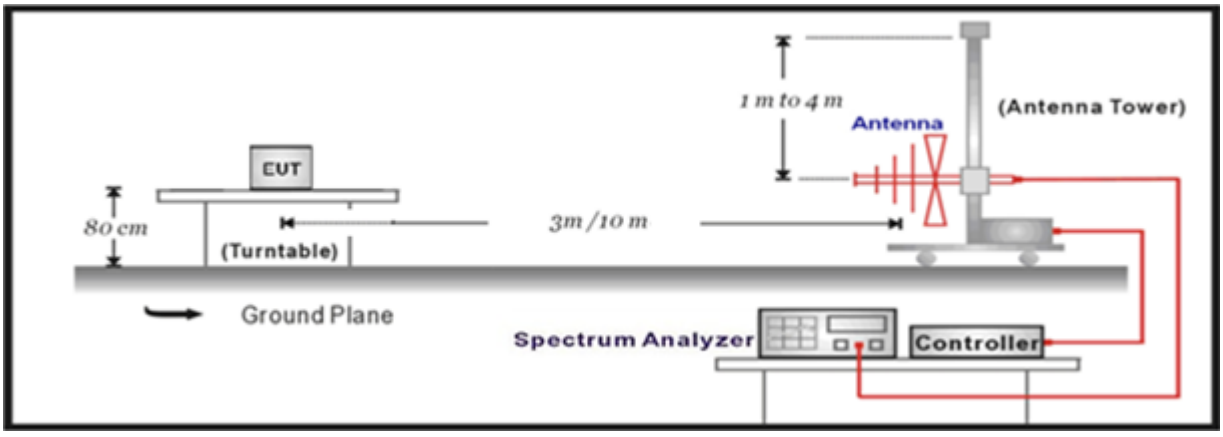
Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated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

4.7.2 Test Setup

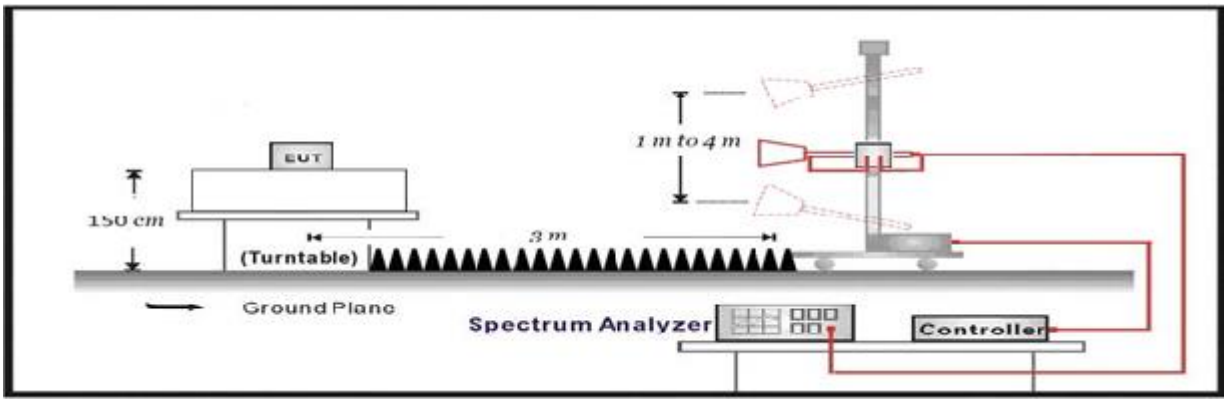
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:



4.7.3 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

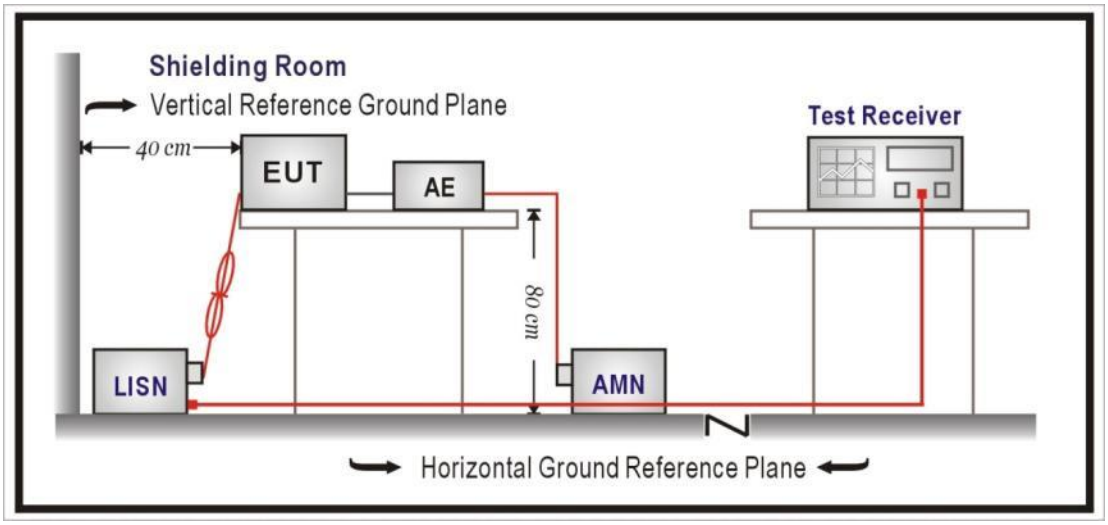
4.8 AC Power Line Conducted Emission	VERDICT: N/A

4.8.1 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.

4.8.2 Test Setup



4.8.3 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

4.9 Antenna Requirement	VERDICT: PASS

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

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

5 TEST SETUP PHOTO AND EUT PHOTO

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

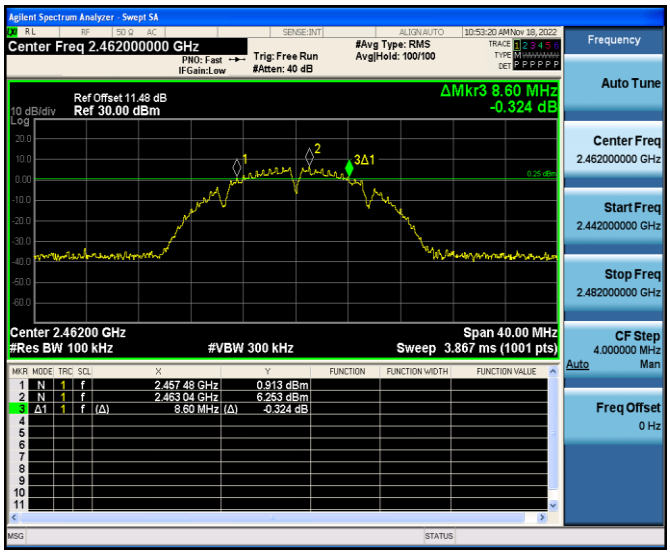
6 TEST RESULT

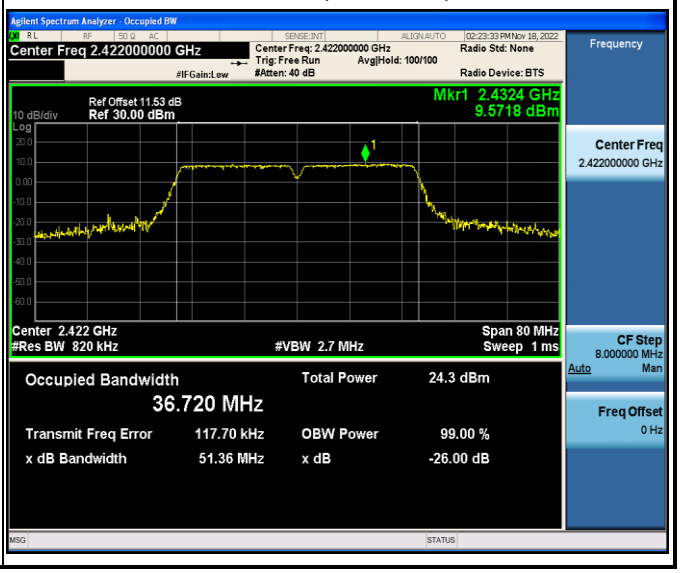
Appendix A: DTS Bandwidth

Mode	CH.	Test Freq. (MHz)	6dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit For 6dB (kHz)	Result
1	1	2412	9.040	13.707	≥500	Pass
	6	2437	9.080	13.623	≥500	Pass
	11	2462	8.600	13.743	≥500	Pass
2	1	2412	16.560	17.114	≥500	Pass
	6	2437	16.560	16.984	≥500	Pass
	11	2462	16.560	17.111	≥500	Pass
3	1	2412	17.760	18.079	≥500	Pass
	6	2437	17.720	17.969	≥500	Pass
	11	2462	17.800	18.100	≥500	Pass
4	3	2422	36.480	36.720	≥500	Pass
	6	2437	36.480	36.577	≥500	Pass
	9	2452	36.480	36.548	≥500	Pass

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

6dB Occupied Bandwidth	99% Occupied Bandwidth
Mode 1 (2462MHz)	Mode 4 (2422MHz)





Appendix B: Maximum conducted output power

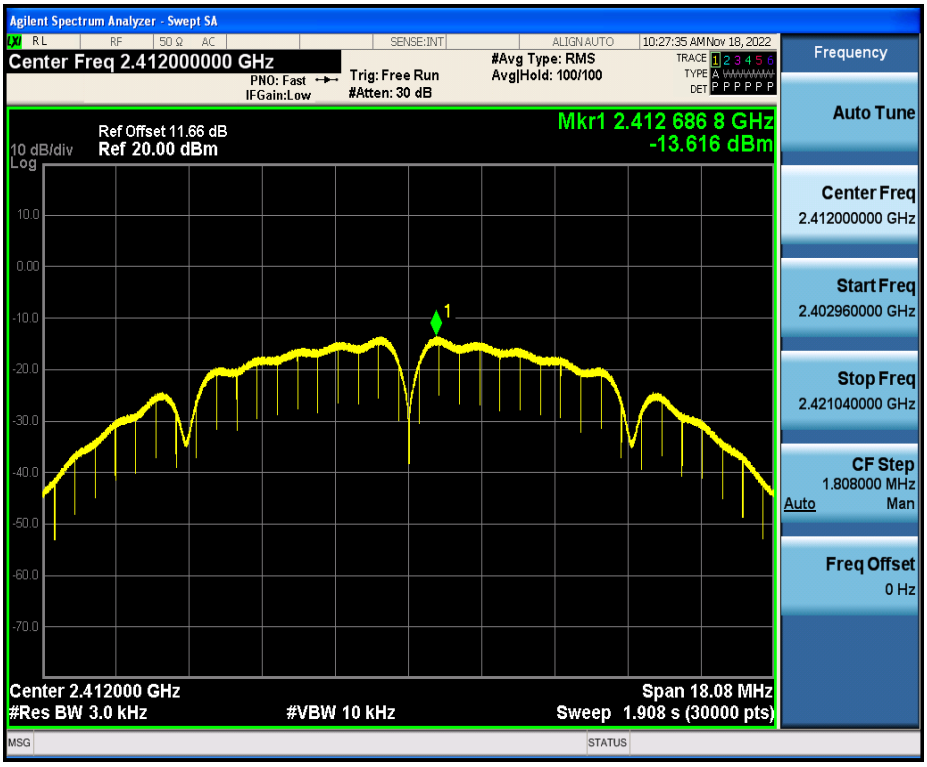
Mode	Channel	Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power Limit (dBm)	Result
Mode 1	1	2412	18.73	⩽30	Pass
	6	2437	18.67	⩽30	Pass
	11	2462	17.54	⩽30	Pass
Mode 2	1	2412	17.28	⩽30	Pass
	6	2437	17.89	⩽30	Pass
	11	2462	17.79	⩽30	Pass
Mode 3	1	2412	17.85	⩽30	Pass
	6	2437	18.26	⩽30	Pass
	11	2462	17.50	⩽30	Pass
Mode 4	3	2422	20.16	⩽30	Pass
	6	2437	20.26	⩽30	Pass
	9	2452	20.10	⩽30	Pass

Appendix C: Maximum power spectral density

Mode	Channel	Test Frequency (MHz)	Measurement PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
1	1	2412	-13.62	≤8	Pass
	6	2437	-14.17	≤8	Pass
	11	2462	-14.94	≤8	Pass
2	1	2412	-16.12	≤8	Pass
	6	2437	-15.49	≤8	Pass
	11	2462	-15.8	≤8	Pass
3	1	2412	-16.01	≤8	Pass
	6	2437	-15.62	≤8	Pass
	11	2462	-15.81	≤8	Pass
4	3	2422	-15.13	≤8	Pass
	6	2437	-14.78	≤8	Pass
	9	2452	-14.74	≤8	Pass

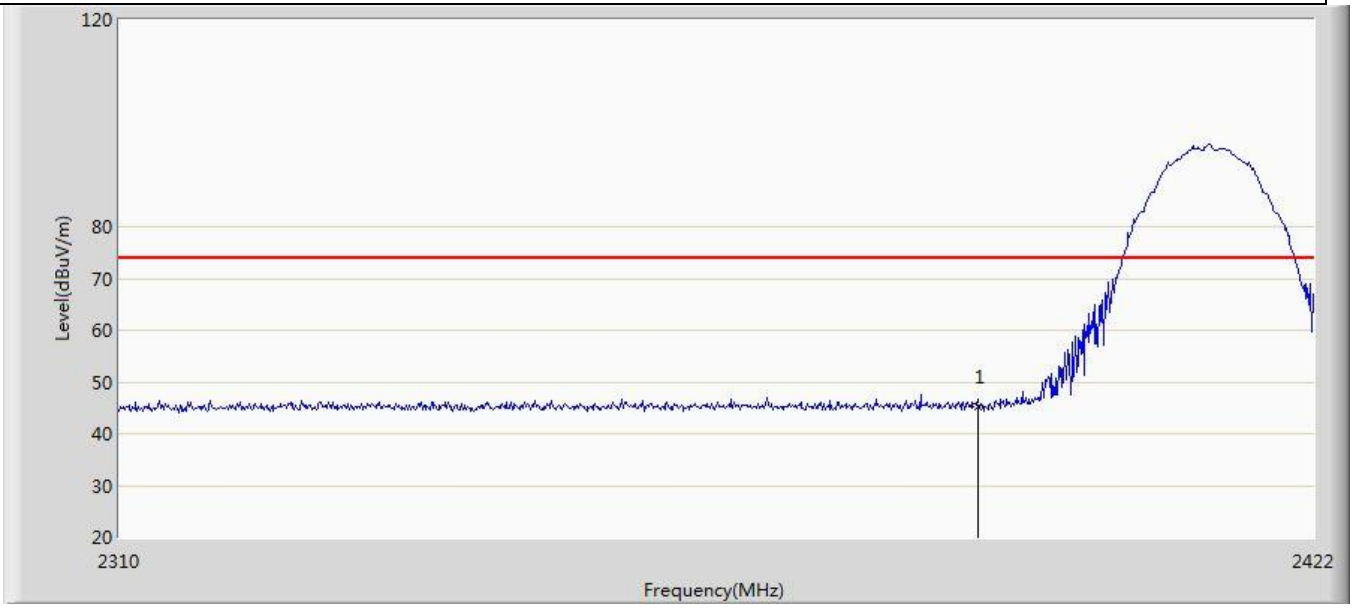
Note : The worst case of Power Density as below in below:

Mode1（2412MHz）



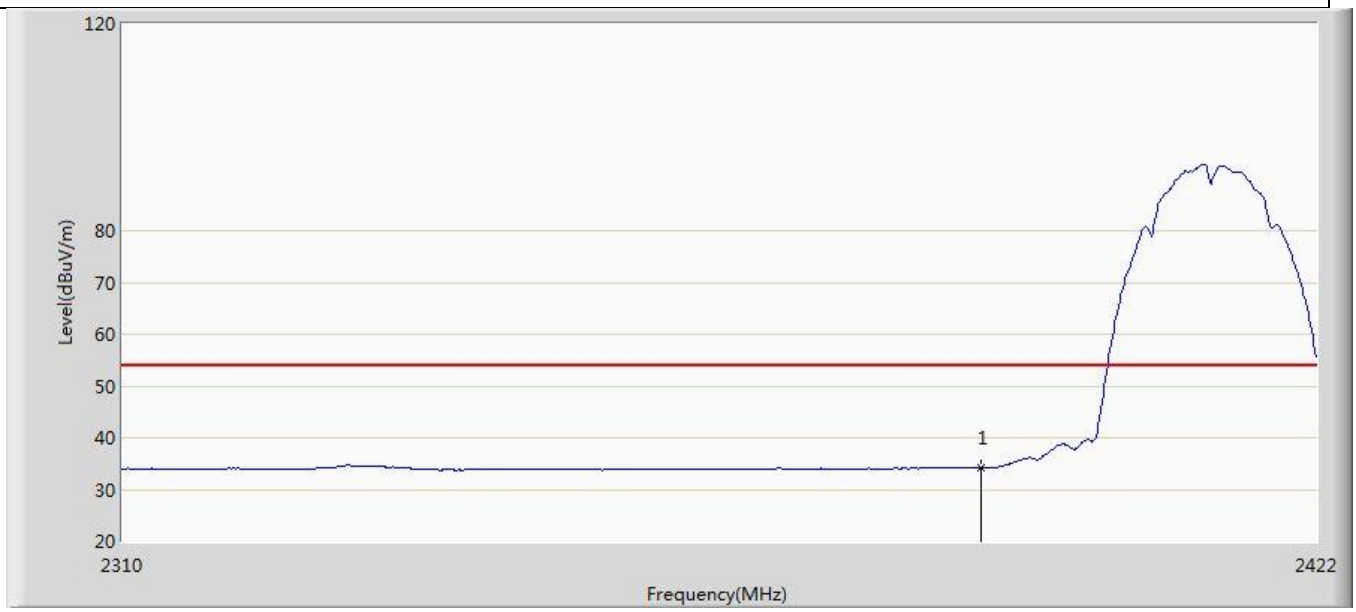
Appendix D: Band edge measurements

Profile: 2290461R	Page No.: 25
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 02:56
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: DVR Module	Power: DC 3.3V
Note: Mode1: Transmit at 2412MHz by 11b	



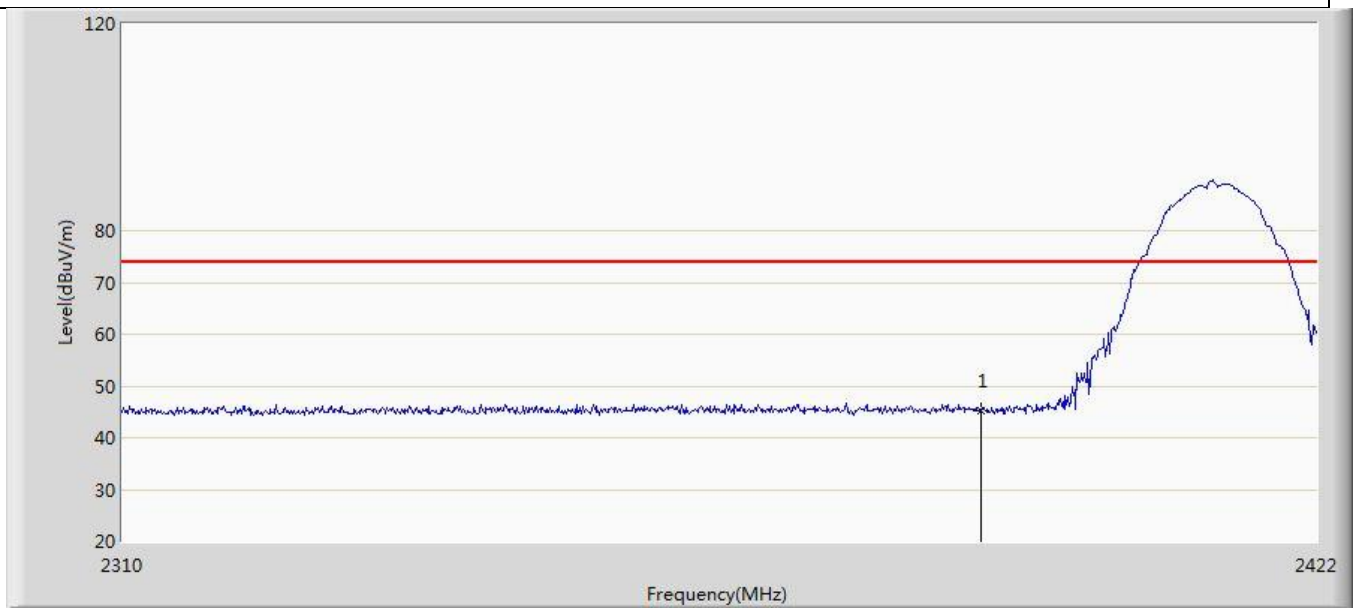
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	45.194	11.110	-28.806	74.000	34.084	PK

Profile: 2290461R	Page No.: 26
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT: DVR Module	Power: DC 3.3V
Note: Mode1: Transmit at 2412MHz by 11b	



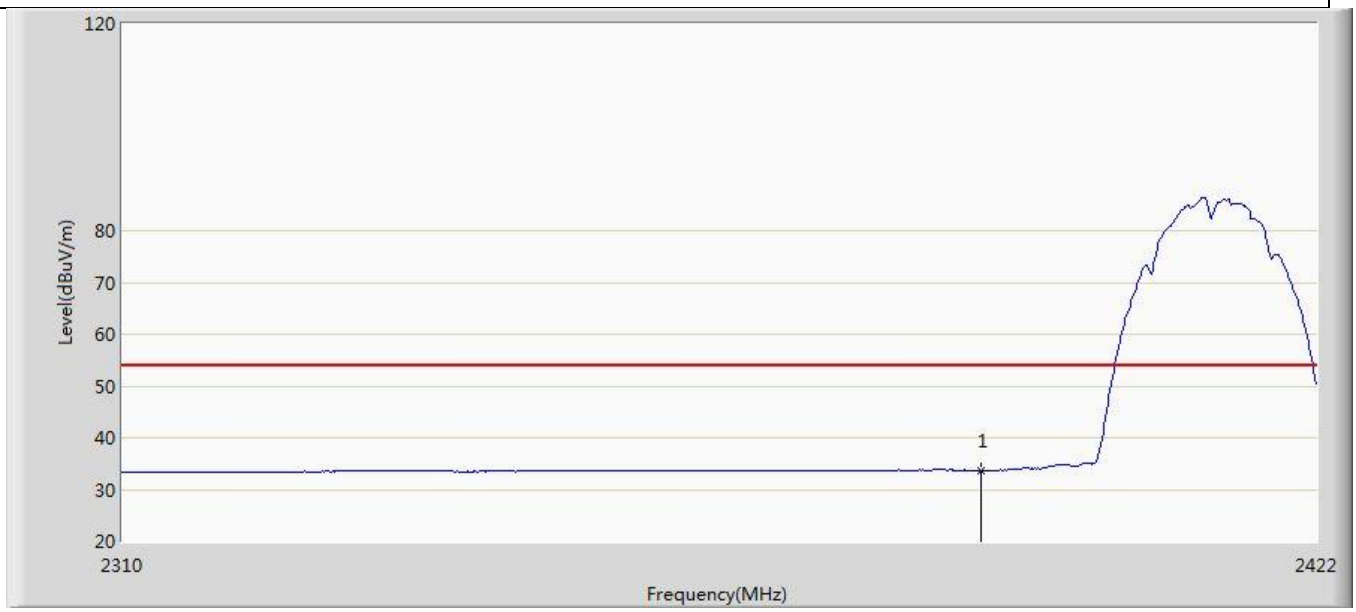
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	34.137	0.053	-19.863	54.000	34.084	AV

Profile: 2290461R	Page No.: 27
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: DVR Module	Power: DC 3.3V
Note: Mode1: Transmit at 2412MHz by 11b	



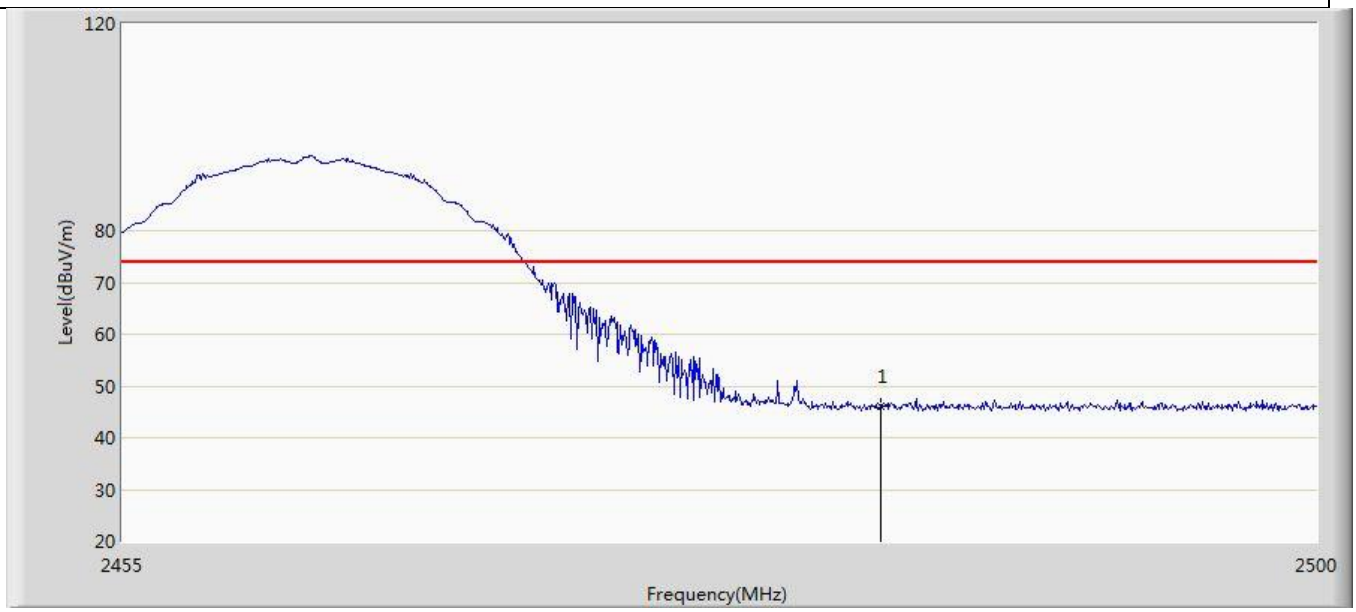
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	45.359	11.275	-28.641	74.000	34.084	PK

Profile: 2290461R	Page No.: 28
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:05
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: DVR Module	Power: DC 3.3V
Note: Mode1: Transmit at 2412MHz by 11b	



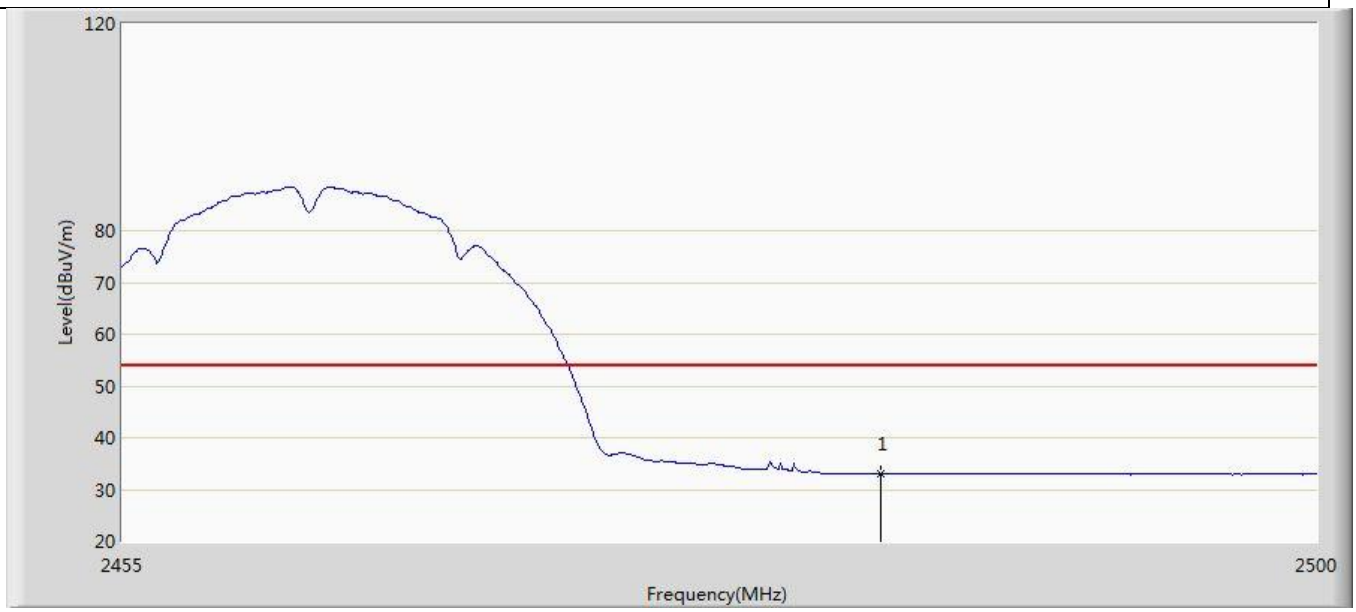
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	33.721	-0.363	-20.279	54.000	34.084	AV

Profile: 2290461R	Page No.: 29
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:06
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT: DVR Module	Power: DC 3.3V
Note: Mode1: Transmit at 2462MHz by 11b	



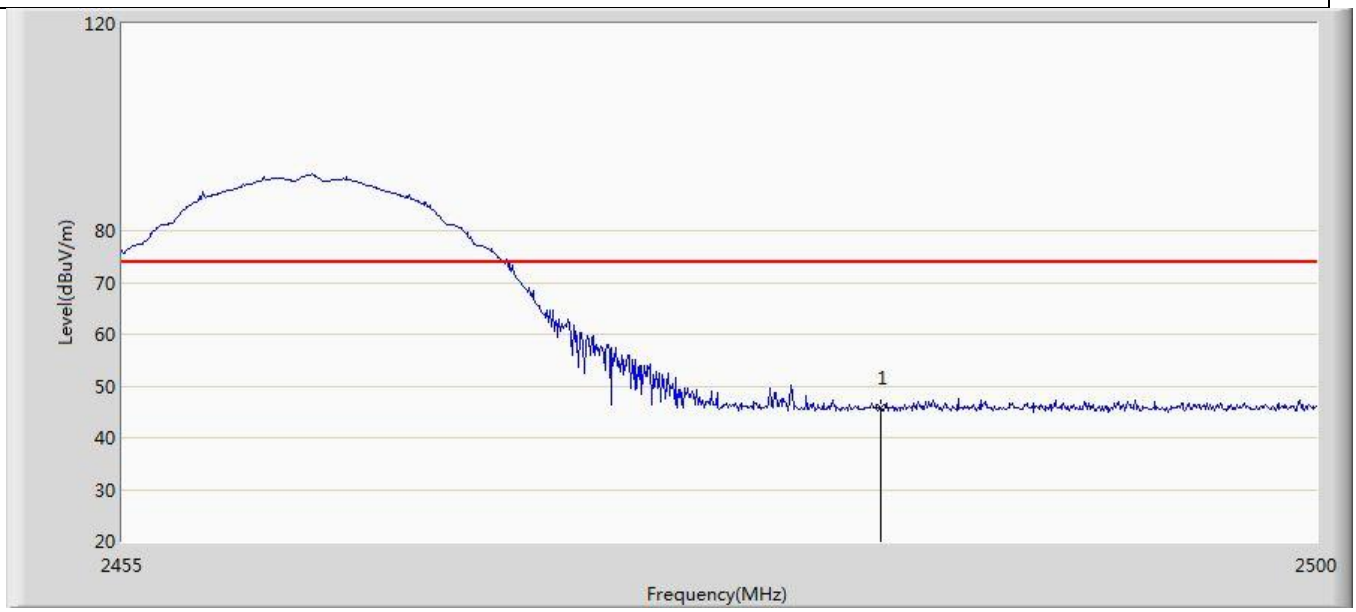
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	46.140	11.649	-27.860	74.000	34.491	PK

Profile: 2290461R	Page No.: 30
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:08
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT: DVR Module	Power: DC 3.3V
Note: Mode1: Transmit at 2462MHz by 11b	



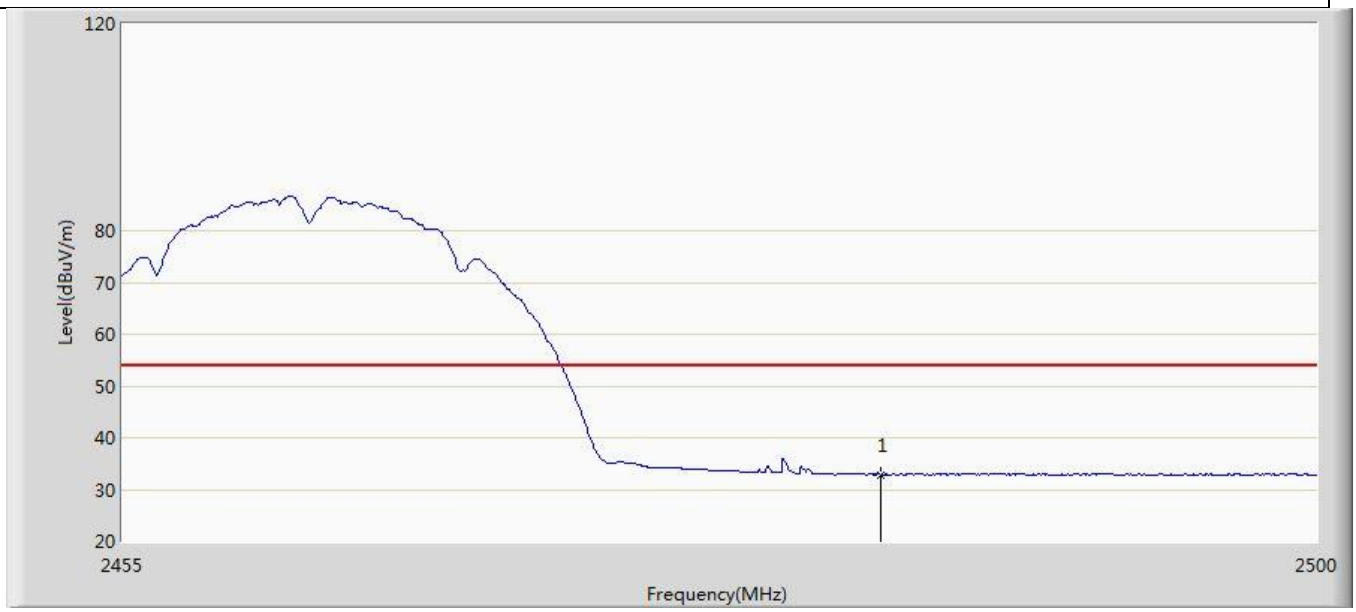
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	33.044	-1.447	-20.956	54.000	34.491	AV

Profile: 2290461R	Page No.: 31
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: DVR Module	Power: DC 3.3V
Note: Mode1: Transmit at 2462MHz by 11b	



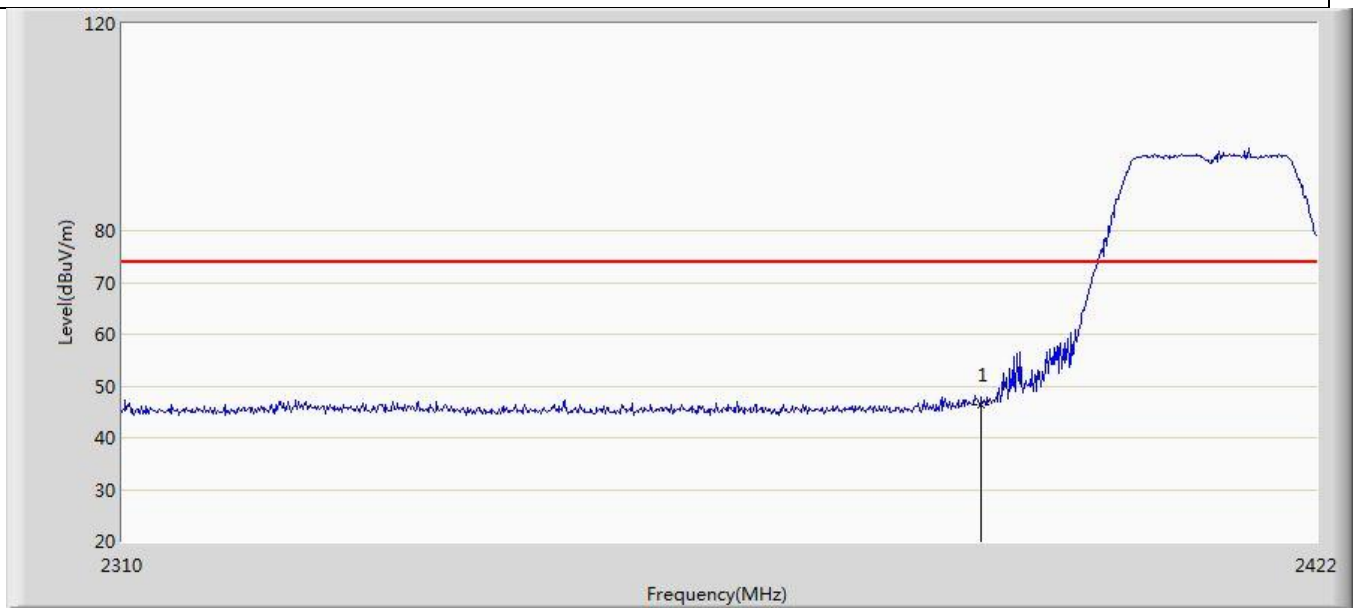
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	45.711	11.220	-28.289	74.000	34.491	PK

Profile: 2290461R	Page No.: 32
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:12
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: DVR Module	Power: DC 3.3V
Note: Mode1: Transmit at 2462MHz by 11b	



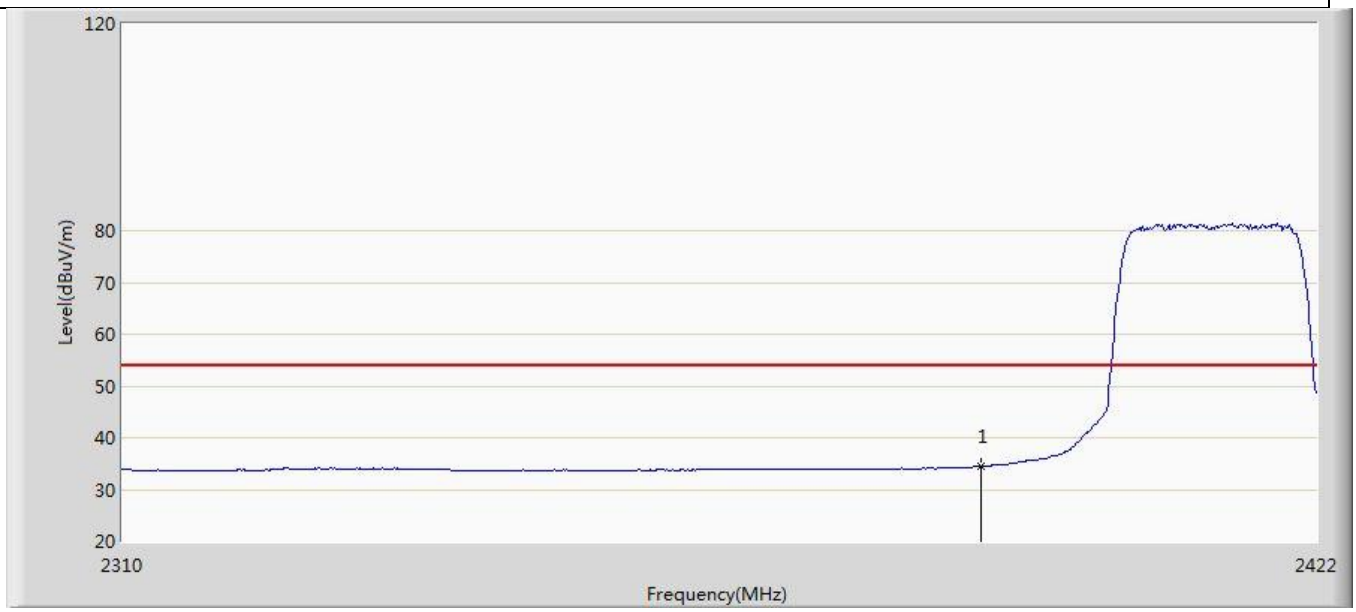
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	32.873	-1.618	-21.127	54.000	34.491	AV

Profile: 2290461R	Page No.: 33
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT: DVR Module	Power: DC 3.3V
Note: Mode2: Transmit at 2412MHz by 11g	



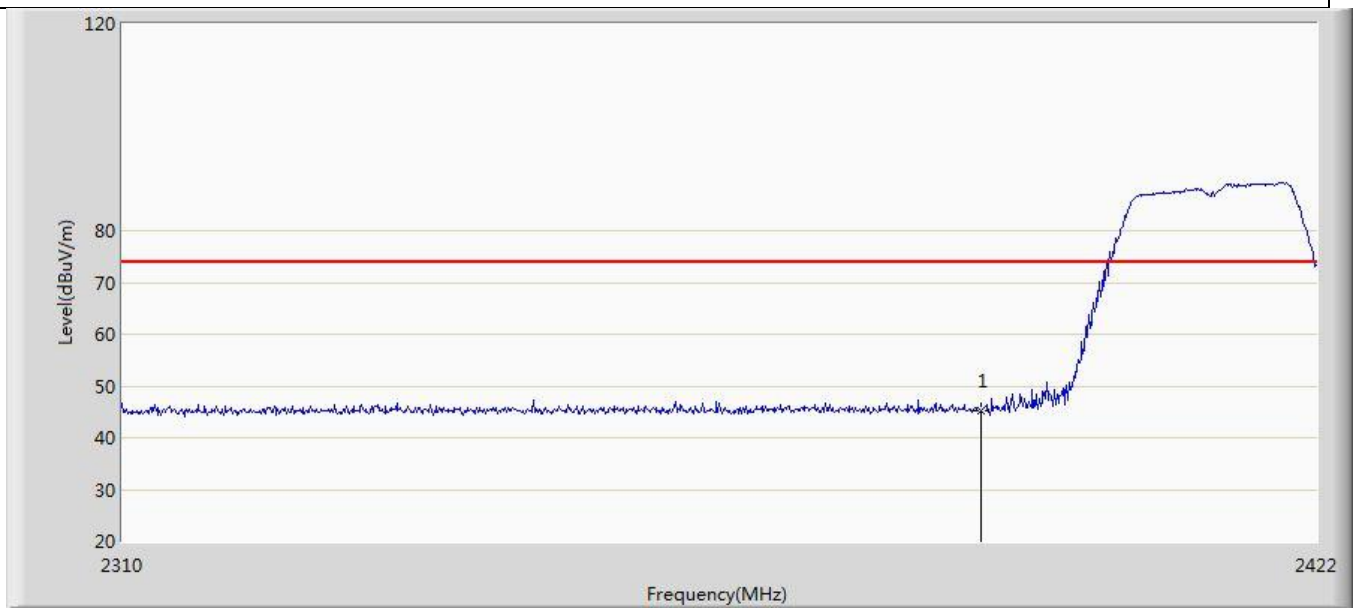
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	46.252	12.168	-27.748	74.000	34.084	PK

Profile: 2290461R	Page No.: 34
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT: DVR Module	Power: DC 3.3V
Note: Mode2: Transmit at 2412MHz by 11g	



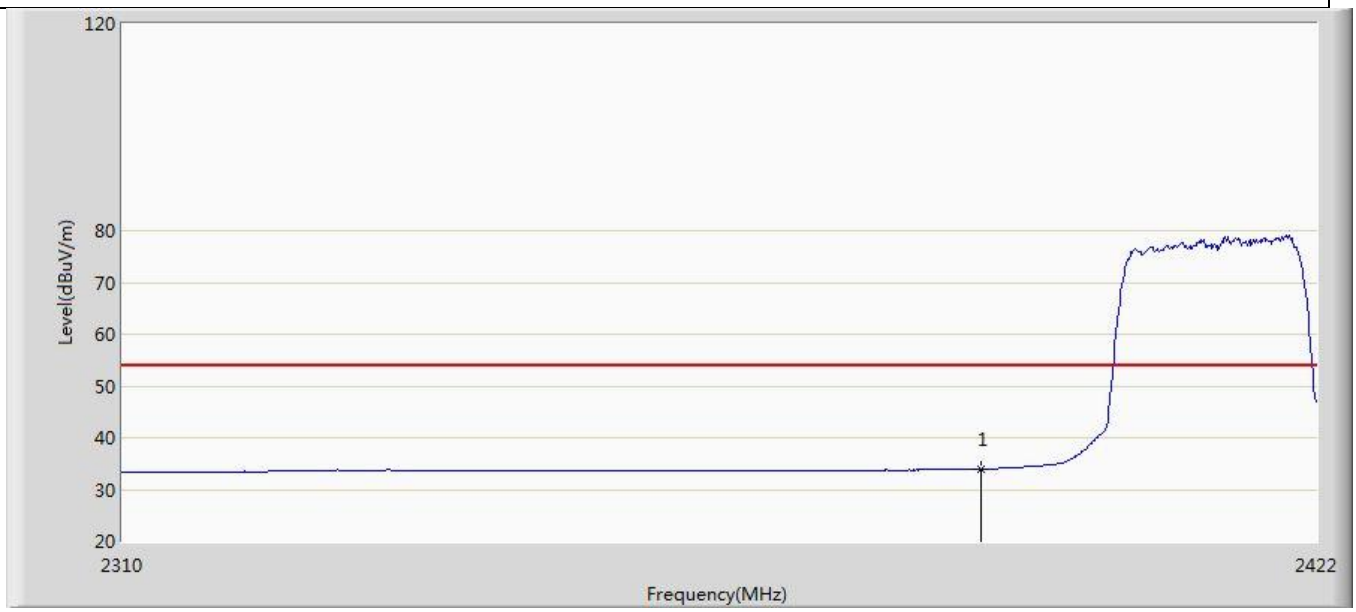
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	34.432	0.348	-19.568	54.000	34.084	AV

Profile: 2290461R	Page No.: 35
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: DVR Module	Power: DC 3.3V
Note: Mode2: Transmit at 2412MHz by 11g	



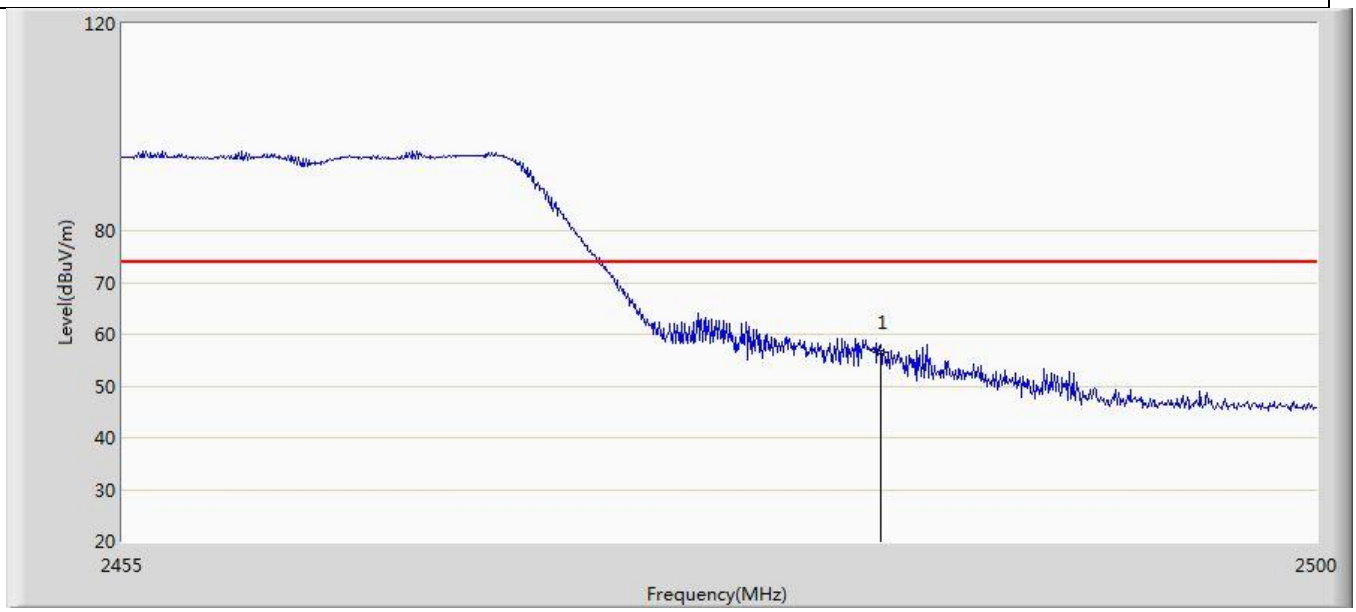
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	45.084	11.000	-28.916	74.000	34.084	PK

Profile: 2290461R	Page No.: 36
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: DVR Module	Power: DC 3.3V
Note: Mode2: Transmit at 2412MHz by 11g	



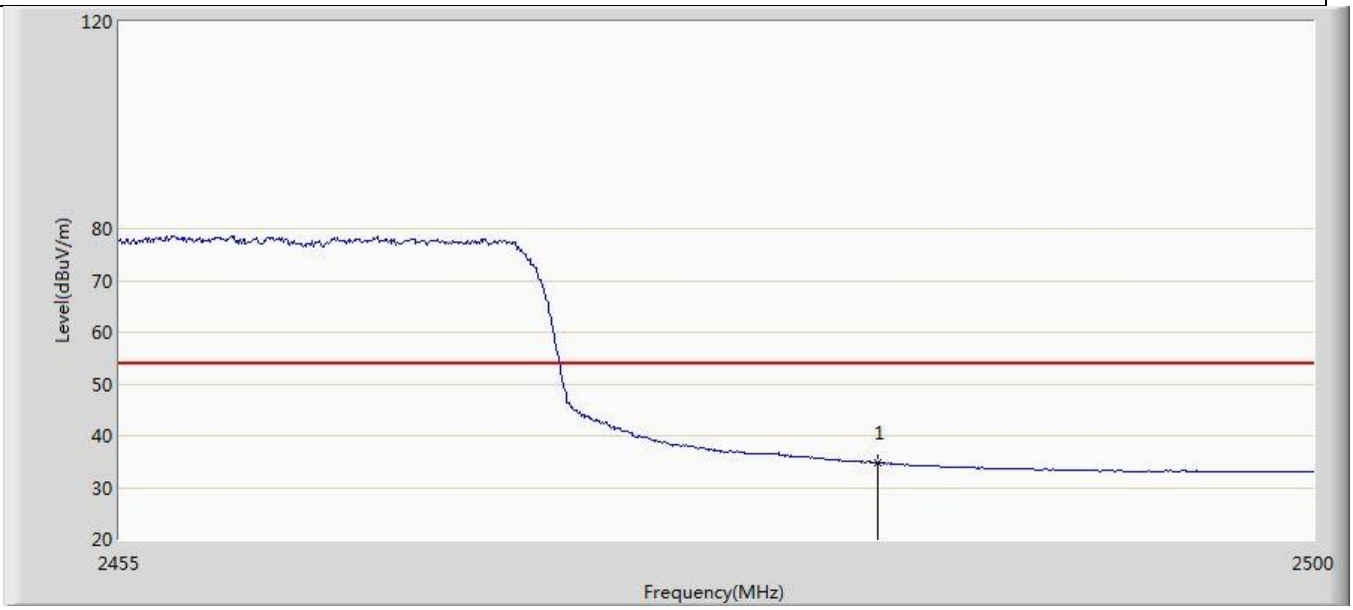
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	34.001	-0.083	-19.999	54.000	34.084	AV

Profile: 2290461R	Page No.: 37
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT: DVR Module	Power: DC 3.3V
Note: Mode2: Transmit at 2462MHz by 11g	



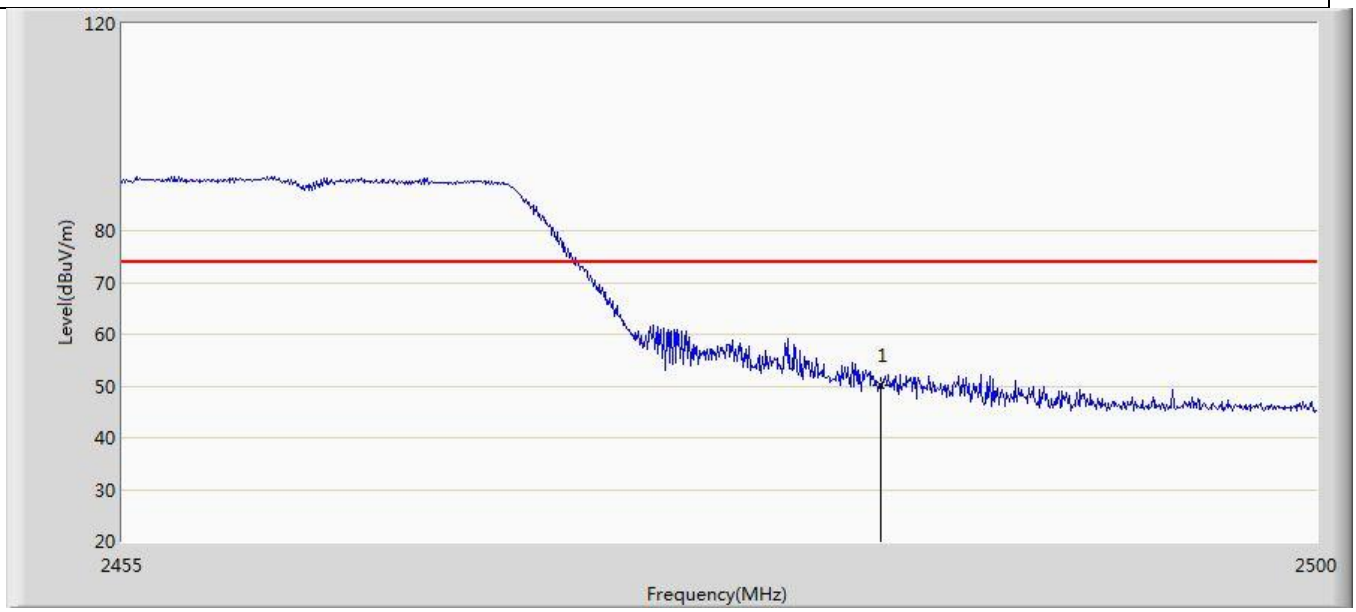
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	56.512	22.021	-17.488	74.000	34.491	PK

Profile: 2290461R	Page No.: 38
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT: DVR Module	Power: DC 3.3V
Note: Mode2: Transmit at 2462MHz by 11g	



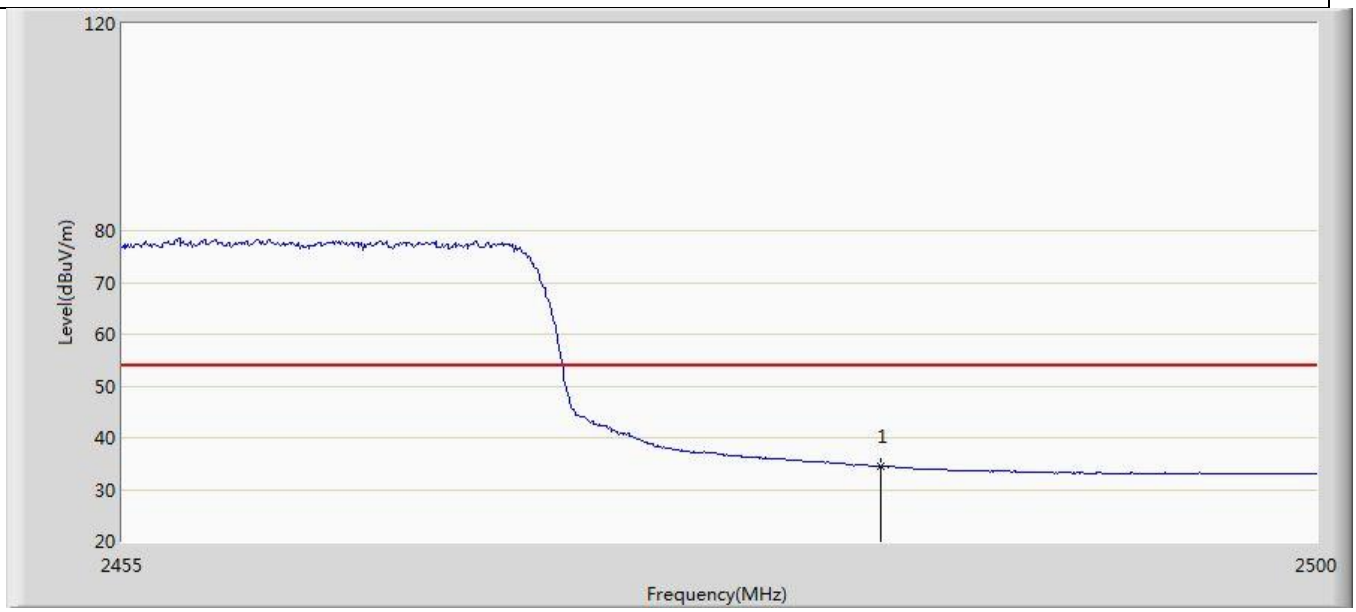
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	34.779	0.288	-19.221	54.000	34.491	AV

Profile: 2290461R	Page No.: 39
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: DVR Module	Power: DC 3.3V
Note: Mode2: Transmit at 2462MHz by 11g	



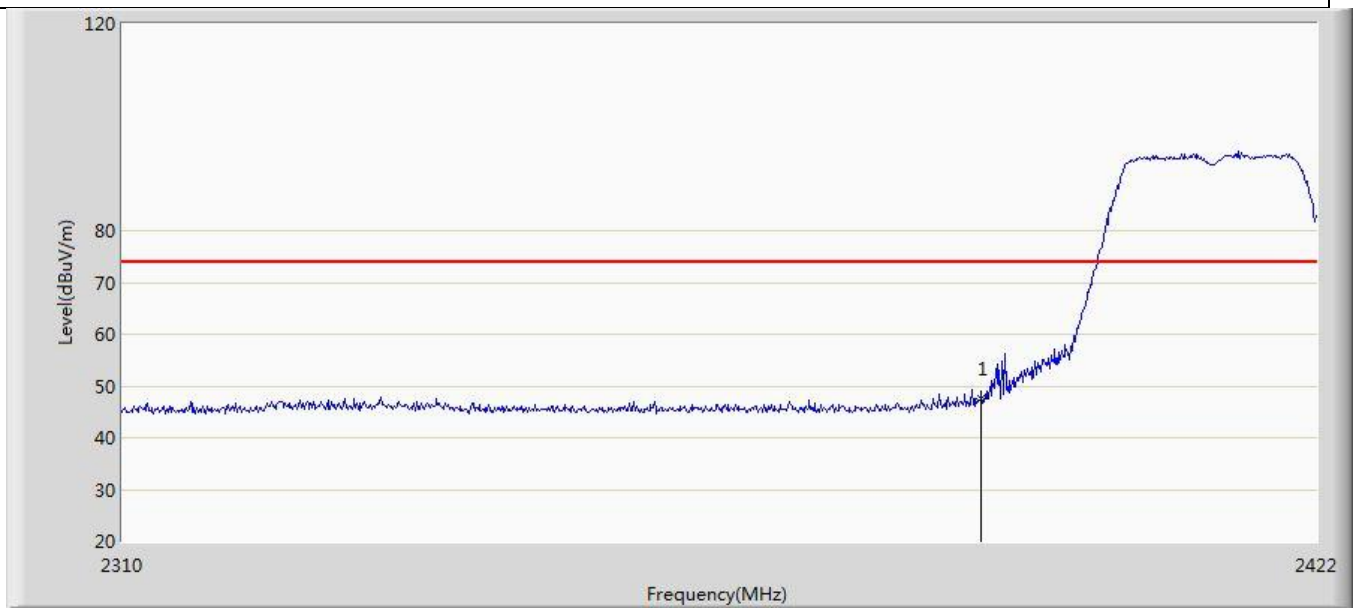
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	50.267	15.776	-23.733	74.000	34.491	PK

Profile: 2290461R	Page No.: 40
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: DVR Module	Power: DC 3.3V
Note: Mode2: Transmit at 2462MHz by 11g	



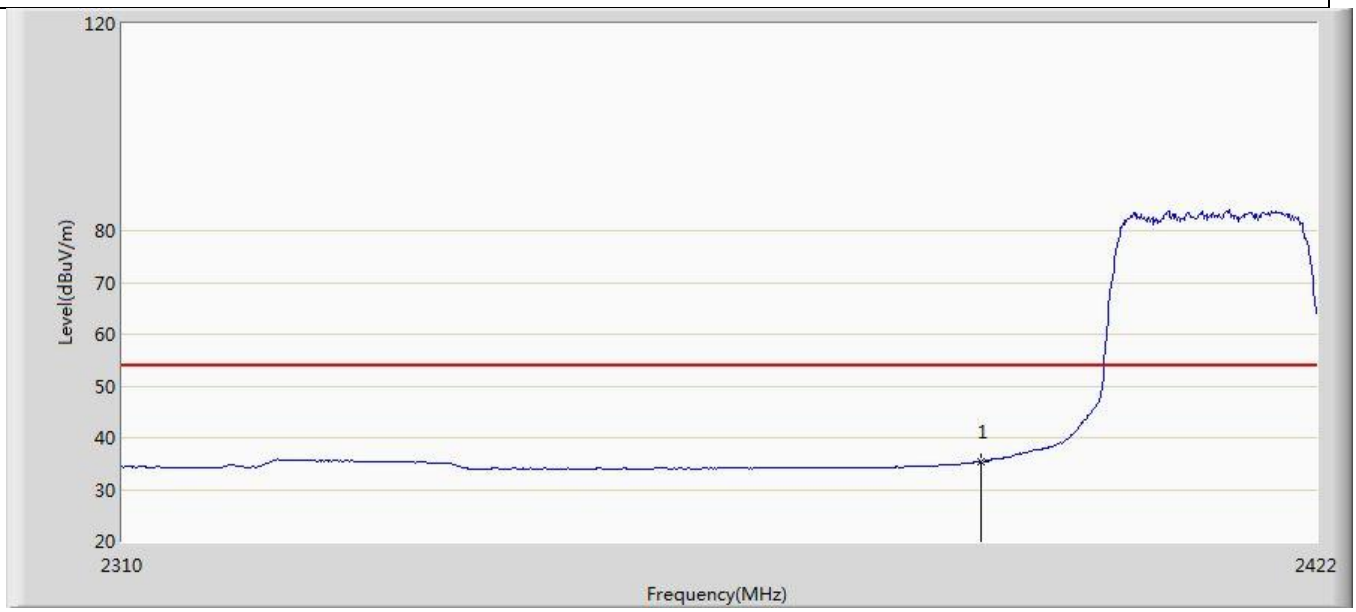
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	34.504	0.013	-19.496	54.000	34.491	AV

Profile: 2290461R	Page No.: 41
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:27
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT: DVR Module	Power: DC 3.3V
Note: Mode3: Transmit at 2412MHz by 11n20	



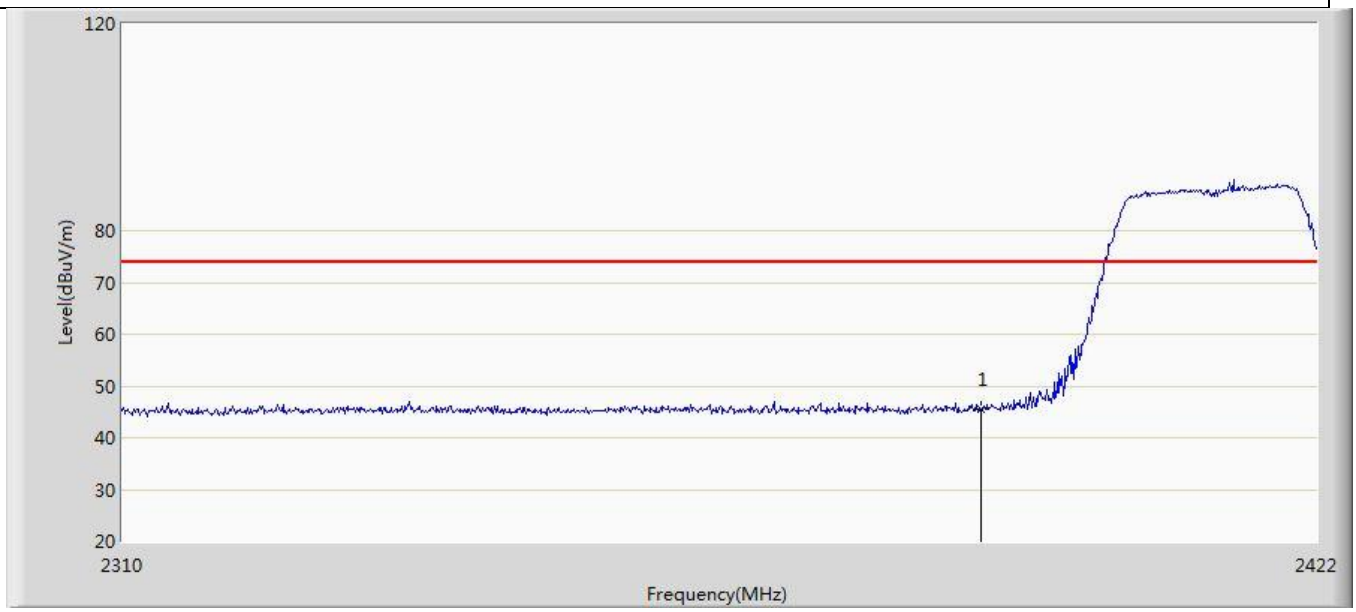
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	47.570	13.486	-26.430	74.000	34.084	PK

Profile: 2290461R	Page No.: 42
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:29
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT: DVR Module	Power: DC 3.3V
Note: Mode3: Transmit at 2412MHz by 11n20	



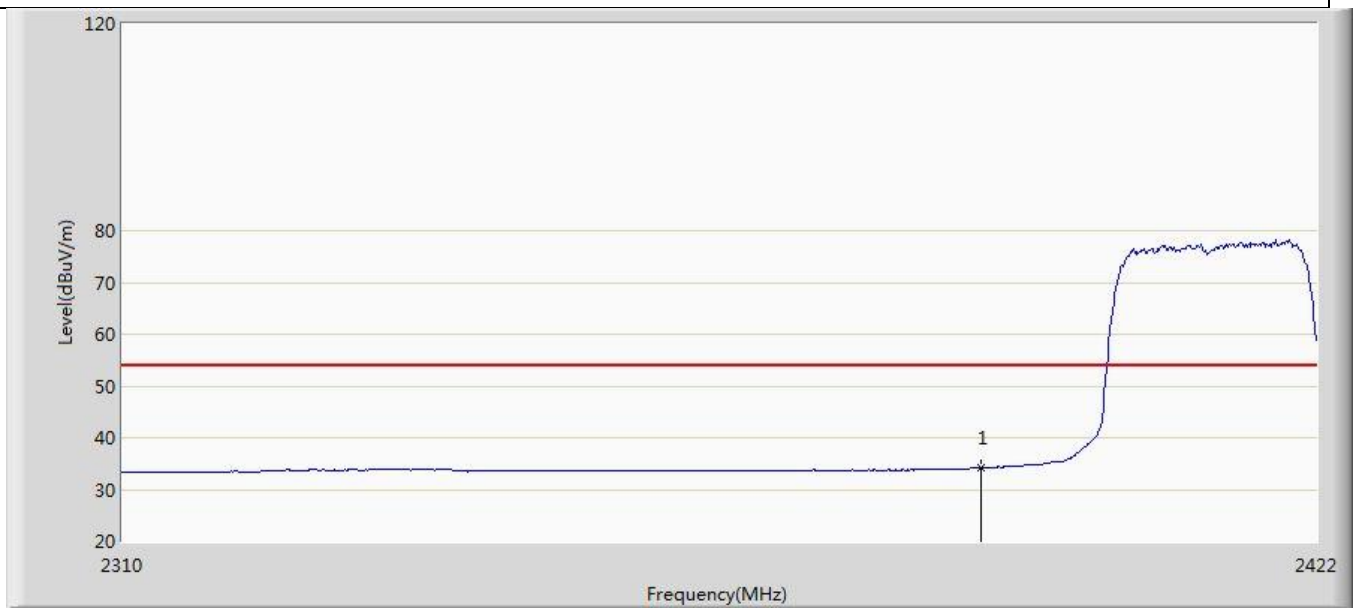
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	35.370	1.286	-18.630	54.000	34.084	AV

Profile: 2290461R	Page No.: 43
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: DVR Module	Power: DC 3.3V
Note: Mode3: Transmit at 2412MHz by 11n20	



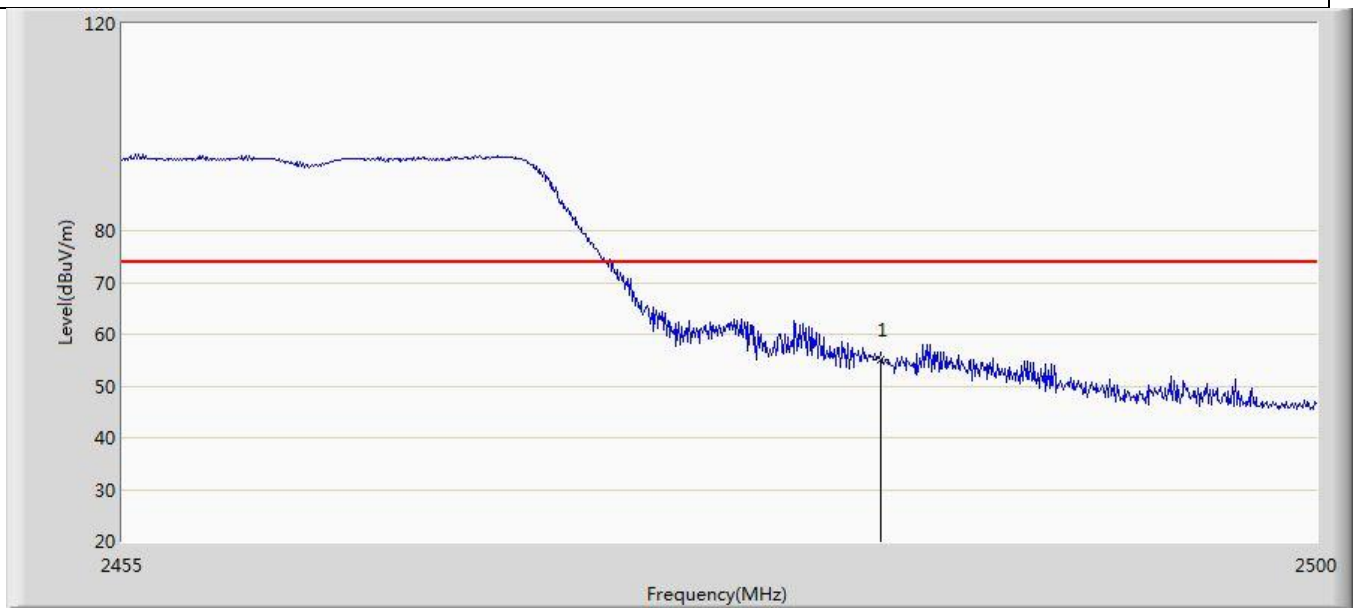
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	45.433	11.349	-28.567	74.000	34.084	PK

Profile: 2290461R	Page No.: 44
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: DVR Module	Power: DC 3.3V
Note: Mode3: Transmit at 2412MHz by 11n20	



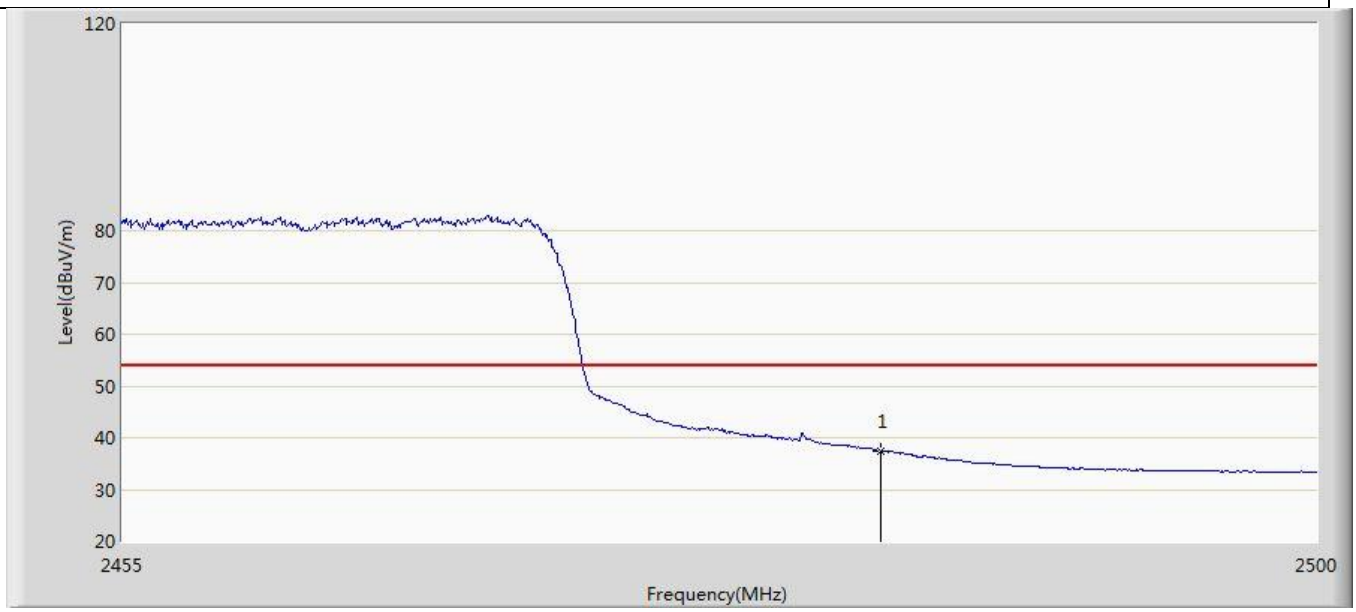
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	34.142	0.058	-19.858	54.000	34.084	AV

Profile: 2290461R	Page No.: 45
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT: DVR Module	Power: DC 3.3V
Note: Mode3: Transmit at 2462MHz by 11n20	



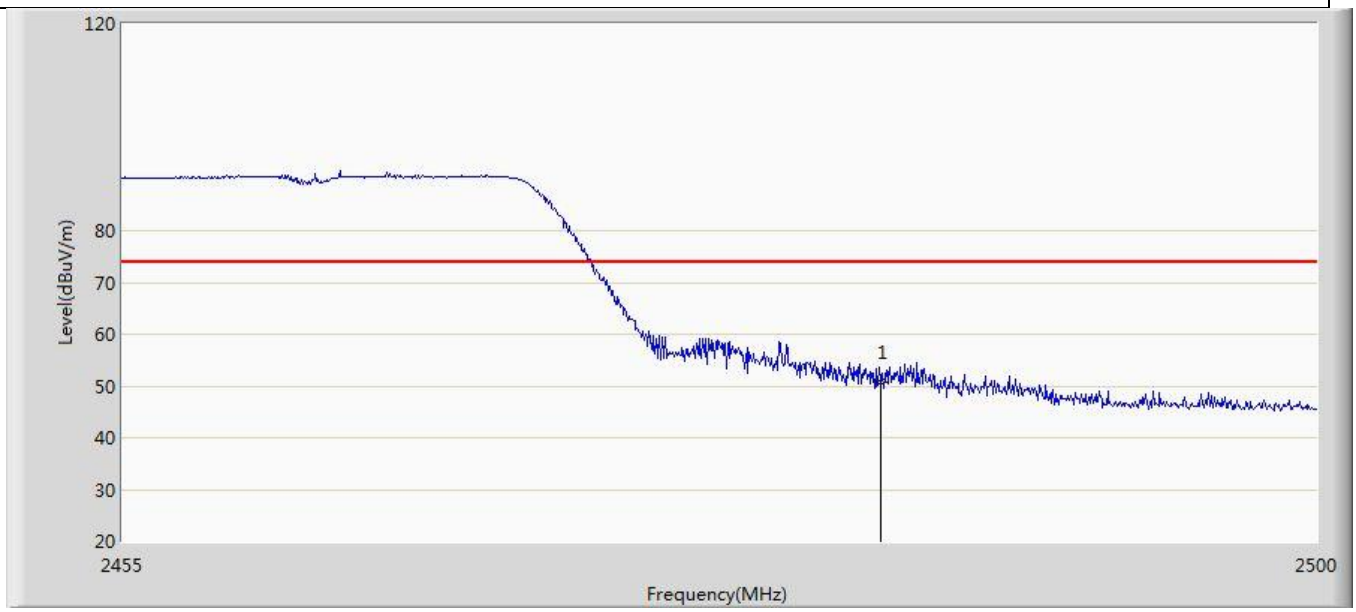
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	54.961	20.470	-19.039	74.000	34.491	PK

Profile: 2290461R	Page No.: 46
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:35
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT: DVR Module	Power: DC 3.3V
Note: Mode3: Transmit at 2462MHz by 11n20	



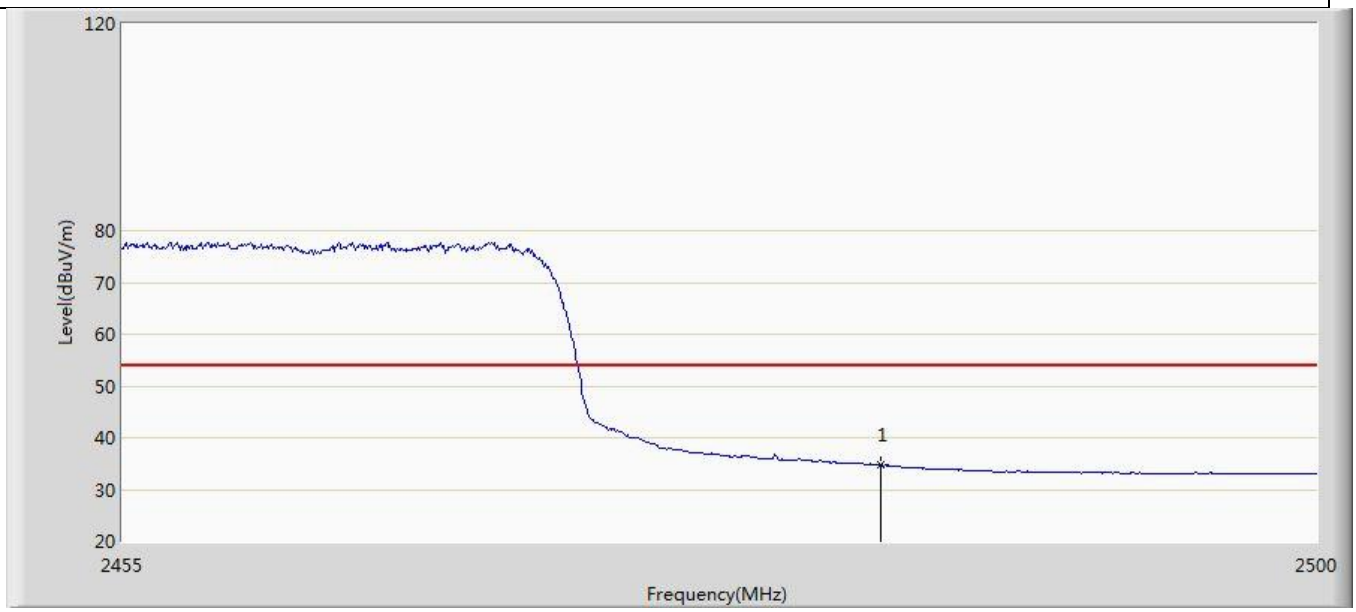
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	37.484	2.993	-16.516	54.000	34.491	AV

Profile: 2290461R	Page No.: 47
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: DVR Module	Power: DC 3.3V
Note: Mode3: Transmit at 2462MHz by 11n20	



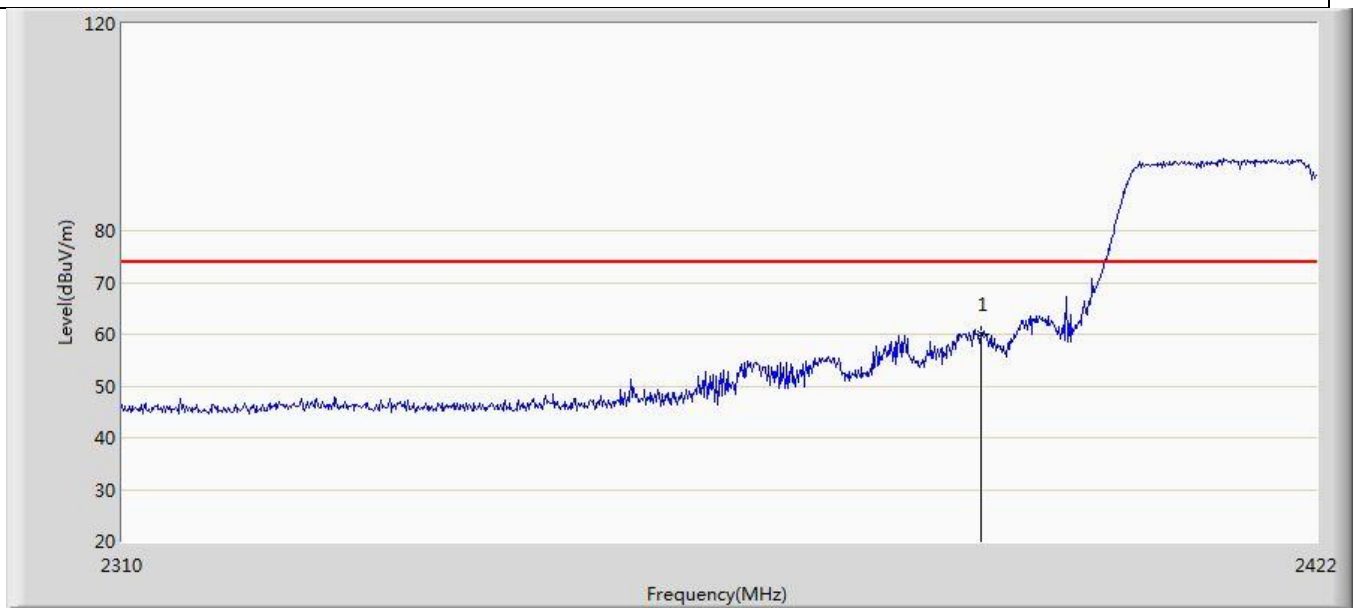
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	50.795	16.304	-23.205	74.000	34.491	PK

Profile: 2290461R	Page No.: 48
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:37
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: DVR Module	Power: DC 3.3V
Note: Mode3: Transmit at 2462MHz by 11n20	



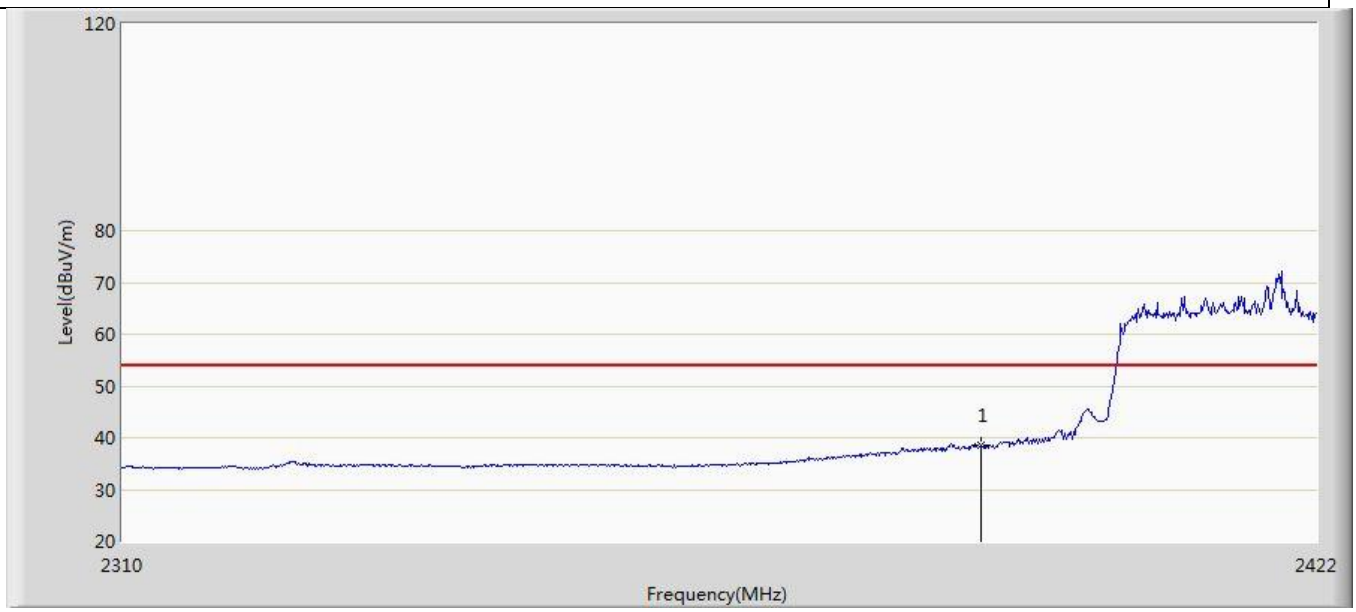
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	34.800	0.309	-19.200	54.000	34.491	AV

Profile: 2290461R	Page No.: 49
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT: DVR Module	Power: DC 3.3V
Note: Mode4: Transmit at 2422MHz by 11n40	



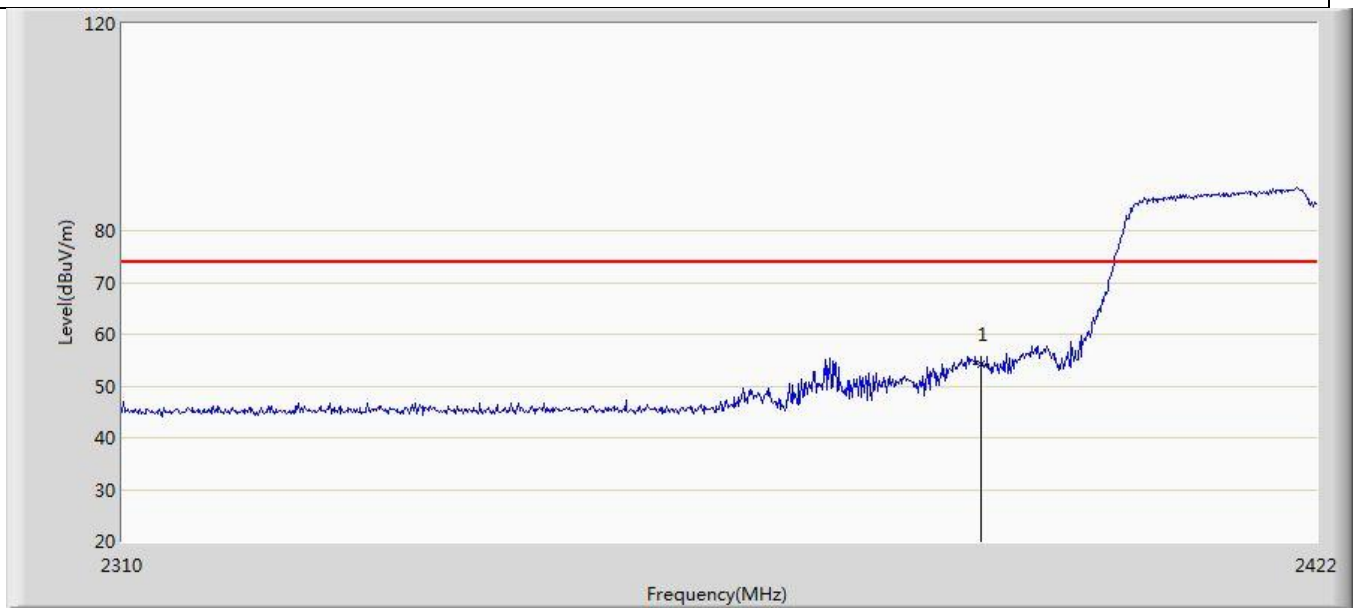
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	60.112	26.028	-13.888	74.000	34.084	PK

Profile: 2290461R	Page No.: 50
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:40
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT: DVR Module	Power: DC 3.3V
Note: Mode4: Transmit at 2422MHz by 11n40	



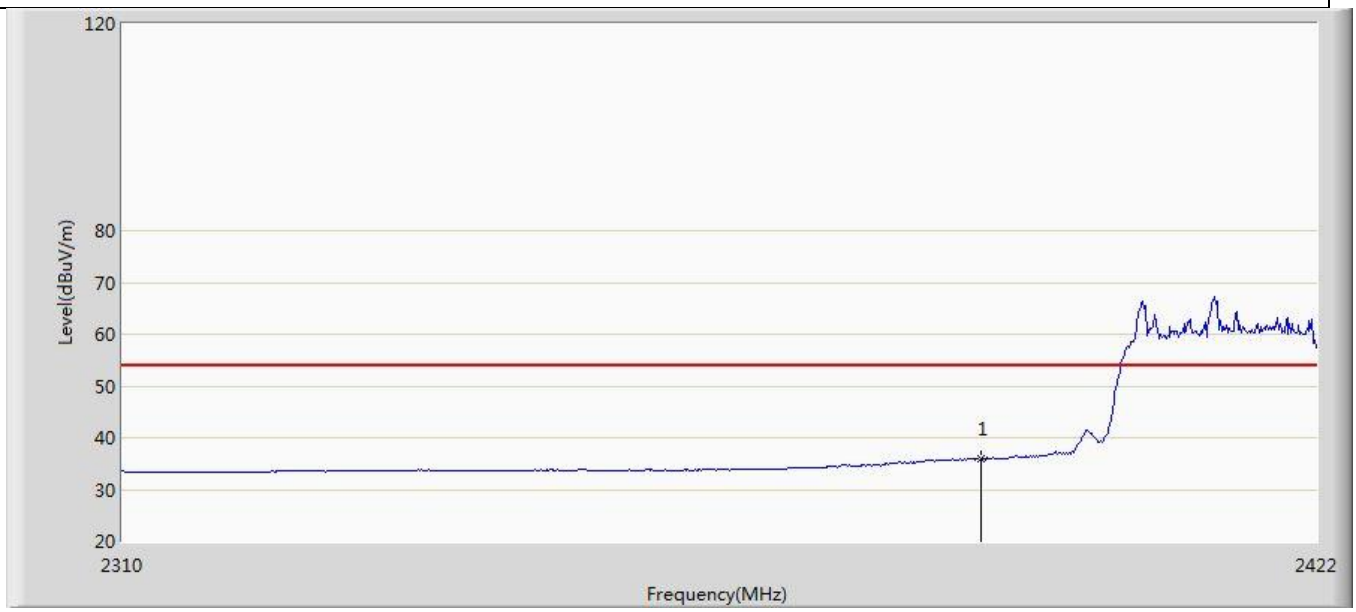
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	38.407	4.323	-15.593	54.000	34.084	AV

Profile: 2290461R	Page No.: 51
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: DVR Module	Power: DC 3.3V
Note: Mode4: Transmit at 2422MHz by 11n40	



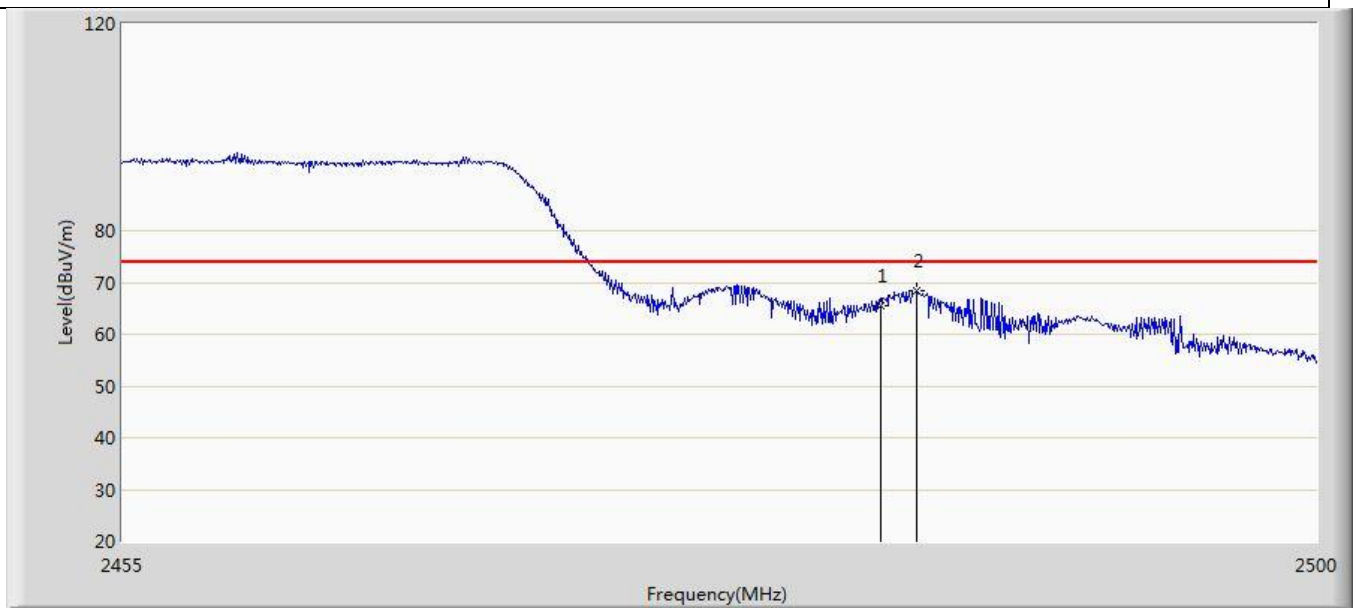
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	54.074	19.990	-19.926	74.000	34.084	PK

Profile: 2290461R	Page No.: 52
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: DVR Module	Power: DC 3.3V
Note: Mode4: Transmit at 2422MHz by 11n40	



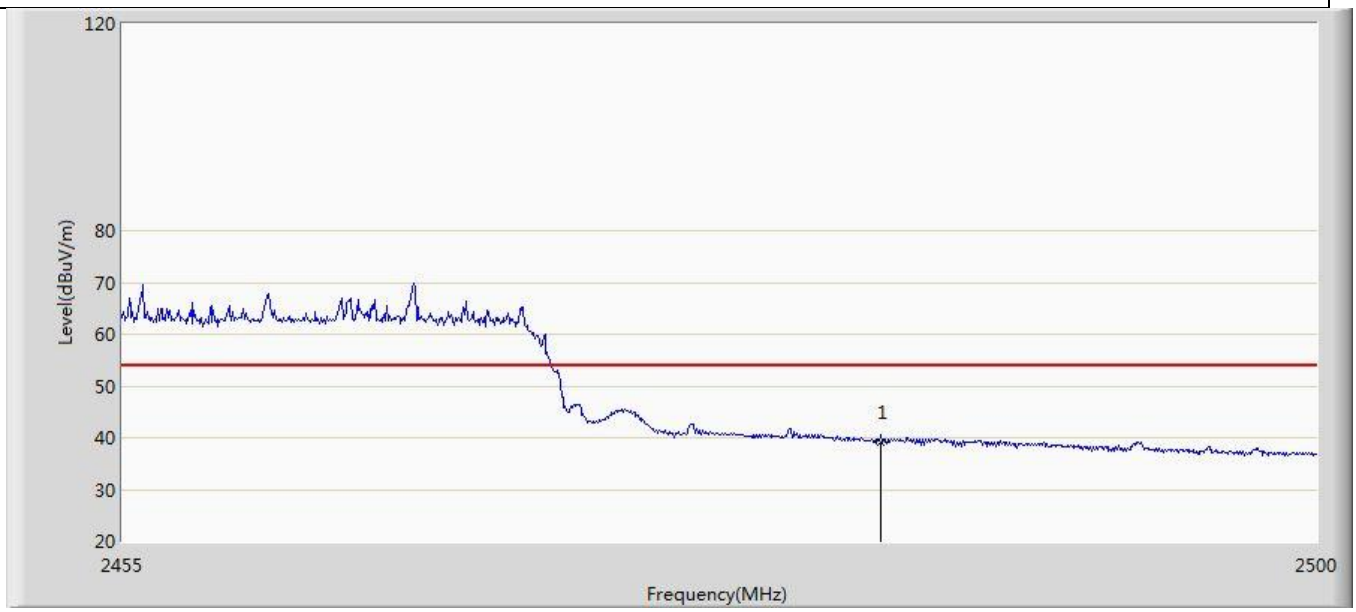
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	35.960	1.876	-18.040	54.000	34.084	AV

Profile: 2290461R	Page No.: 53
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT: DVR Module	Power: DC 3.3V
Note: Mode4: Transmit at 2452MHz by 11n40	



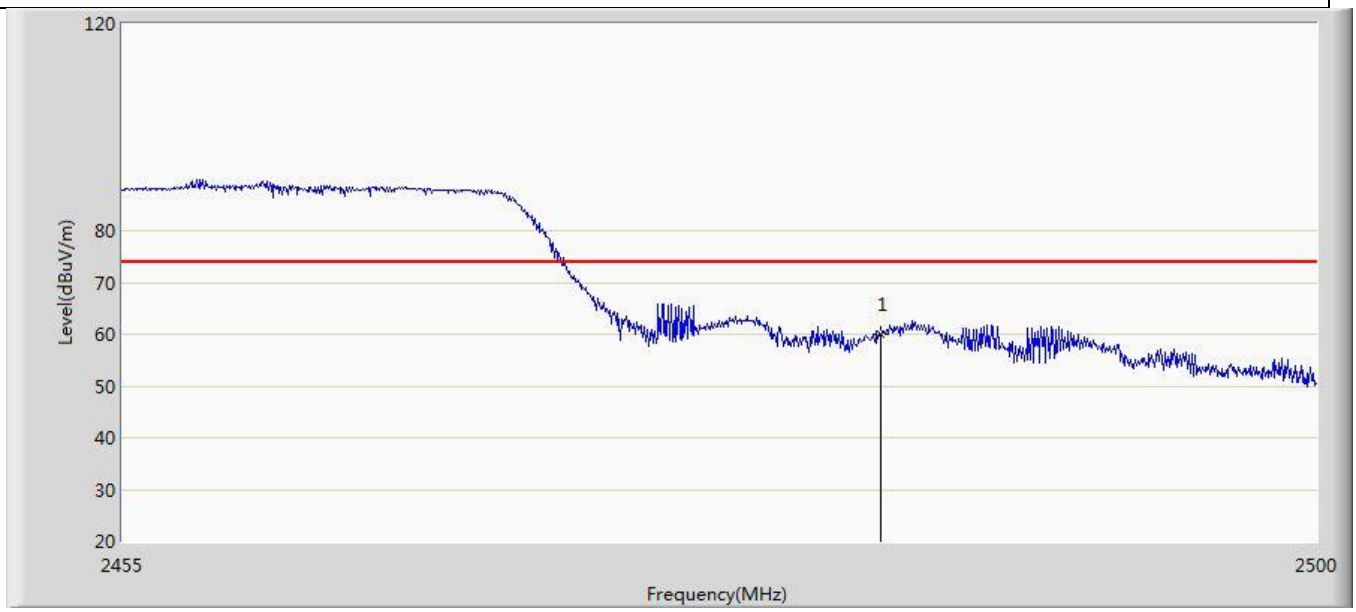
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2483.500	65.435	30.944	-8.565	74.000	34.491	PK
2	*	2484.835	68.519	34.022	-5.481	74.000	34.498	PK

Profile: 2290461R	Page No.: 54
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT: DVR Module	Power: DC 3.3V
Note: Mode4: Transmit at 2452MHz by 11n40	



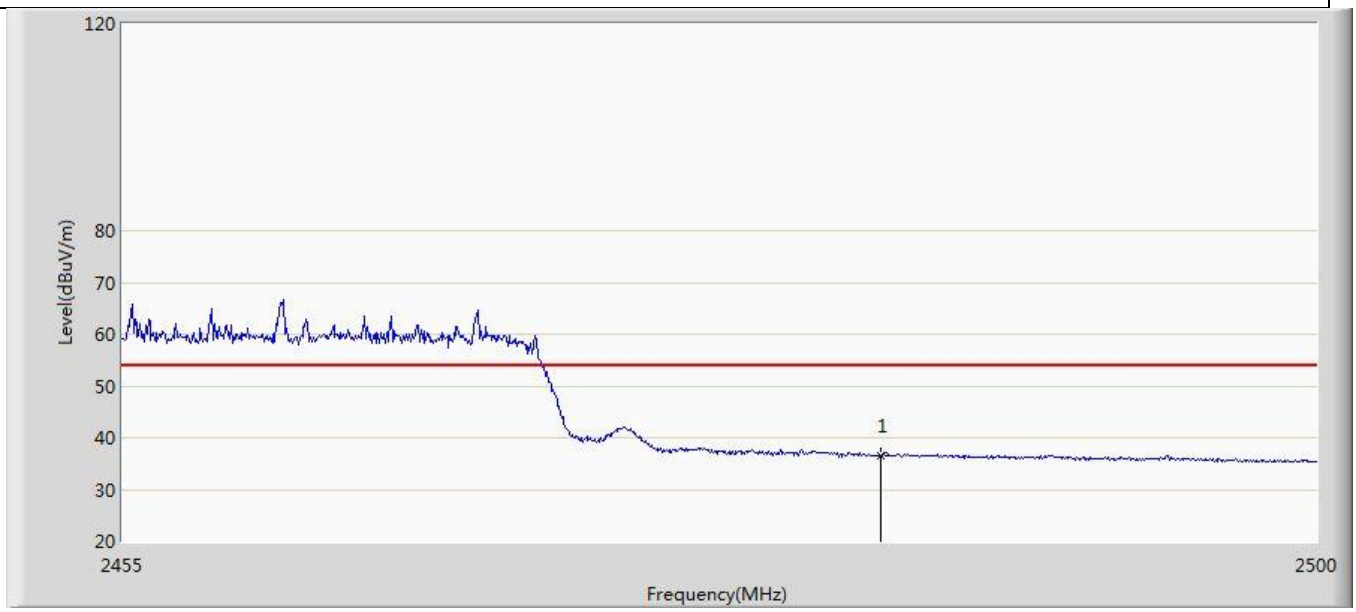
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	39.237	4.746	-14.763	54.000	34.491	AV

Profile: 2290461R	Page No.: 55
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: DVR Module	Power: DC 3.3V
Note: Mode4: Transmit at 2452MHz by 11n40	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	60.065	25.574	-13.935	74.000	34.491	PK

Profile: 2290461R	Page No.: 56
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: DVR Module	Power: DC 3.3V
Note: Mode4: Transmit at 2452MHz by 11n40	



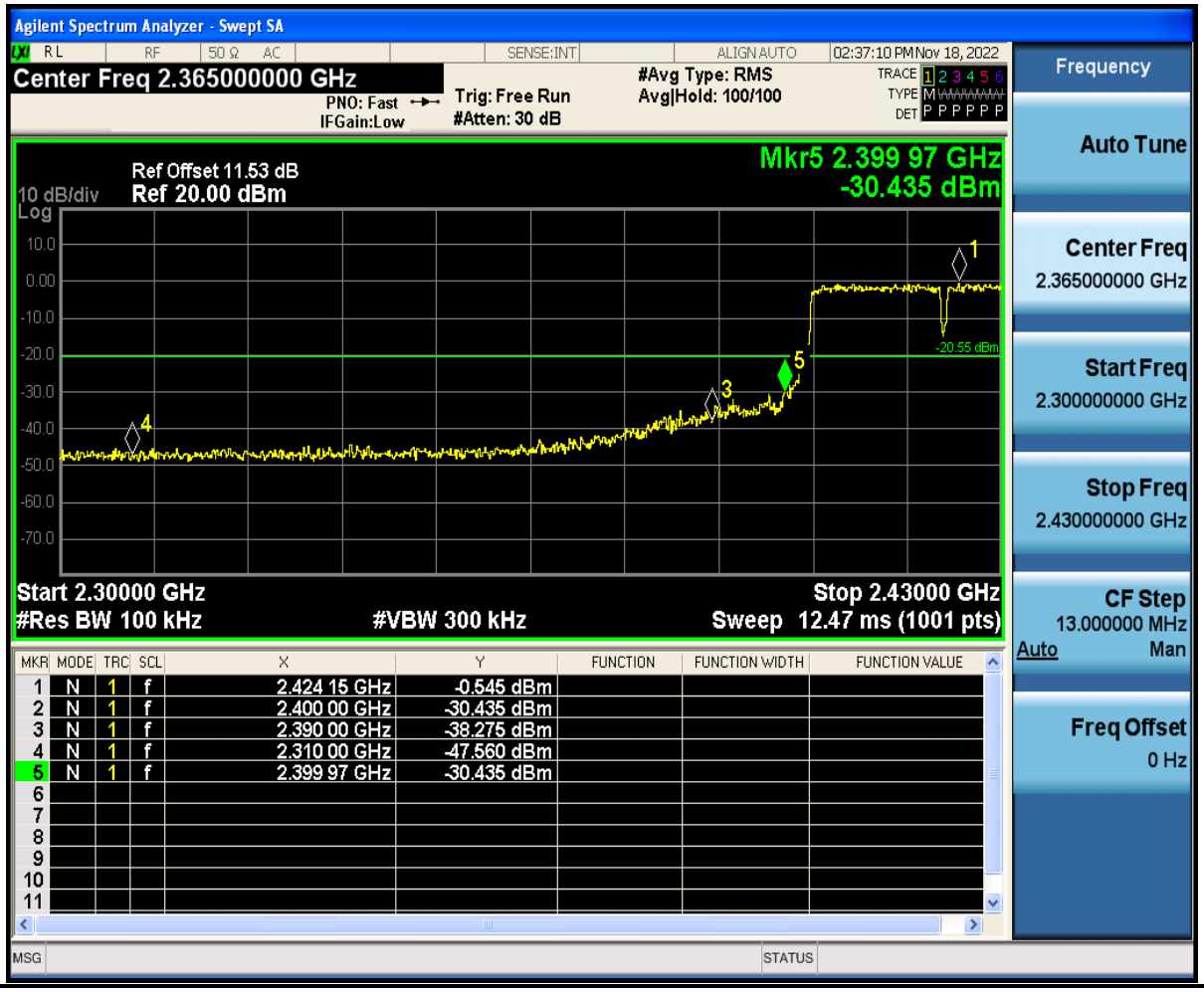
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	36.627	2.136	-17.373	54.000	34.491	AV

Appendix F: Conducted Spurious Emission

Mode	Channel	Test Frequency (MHz)	Maximum In-Band PSD[a] (dBm/100kHz)	Frequency (MHz)	Out-Band PSD[b] (dBm/100kHz)	[a]-[b] (dB)	Limit (dB)	Result
1	1	2412	7.01	2399.97	-39.51	46.52	≥20	Pass
	11	2462	6.74	2500	-48.519	55.259	≥20	Pass
2	1	2412	0.09	2399.84	-34.275	34.365	≥20	Pass
	11	2462	0.38	2500	-46.892	47.272	≥20	Pass
3	1	2412	0.53	2399.84	-35.00	35.53	≥20	Pass
	11	2462	0.84	2513.04	-42.902	43.742	≥20	Pass
4	3	2422	-0.55	2400	-30.435	29.885	≥20	Pass
	9	2452	0.00	2500	-42.778	42.778	≥20	Pass

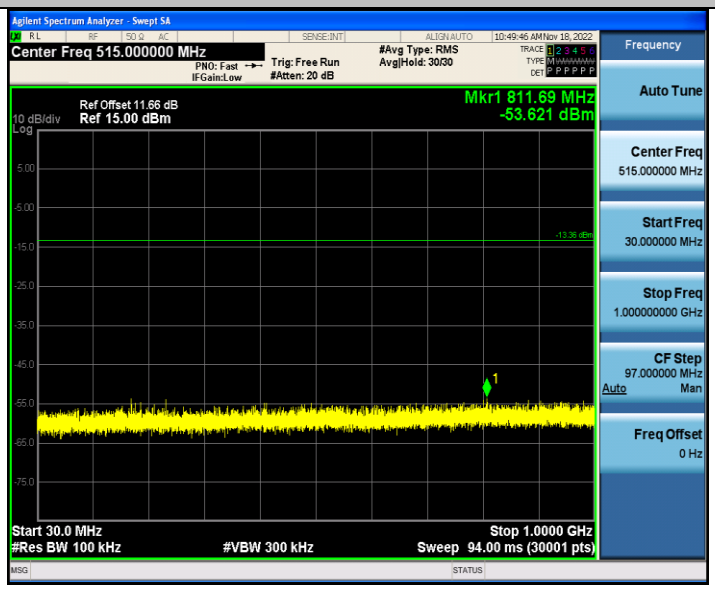
Note: The worst case of emissions in non-restricted frequency bands as below:

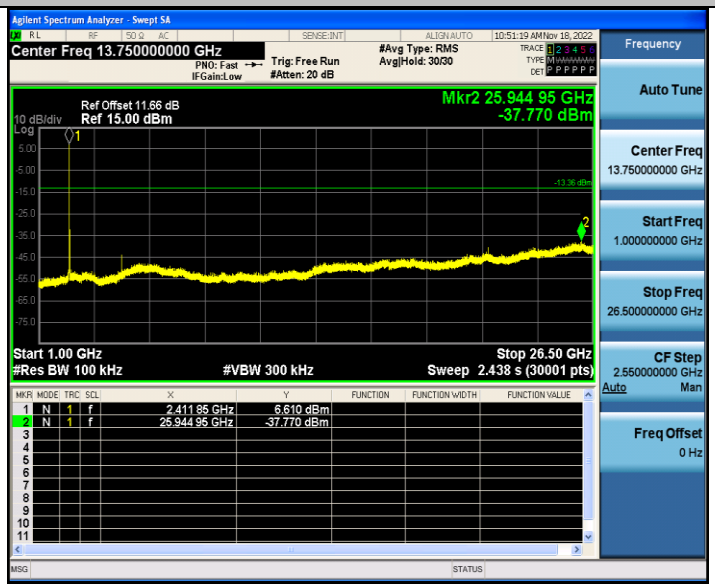
Mode 4 CH03(2422MHz)

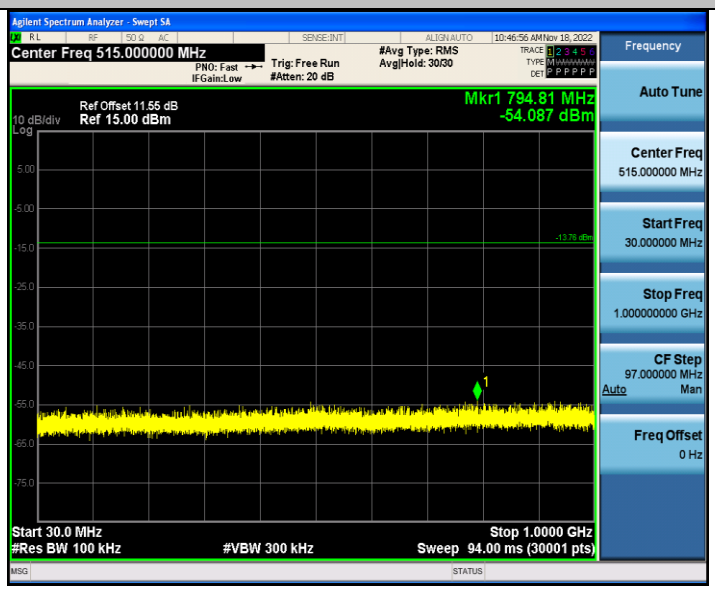


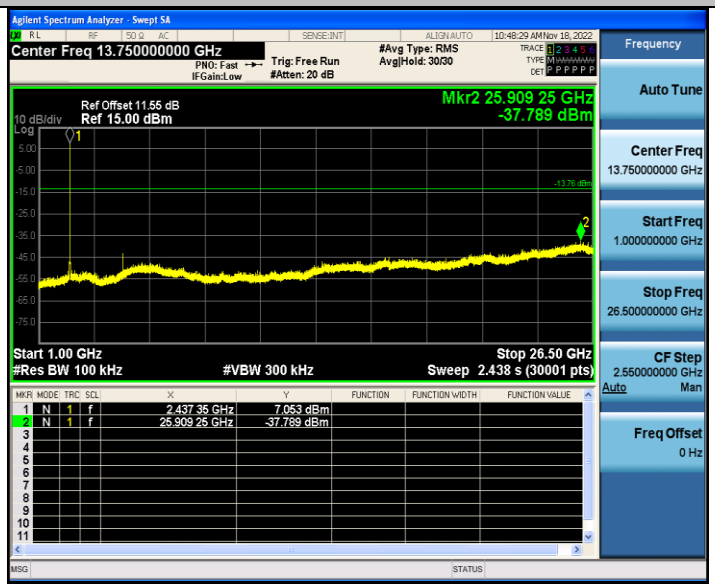
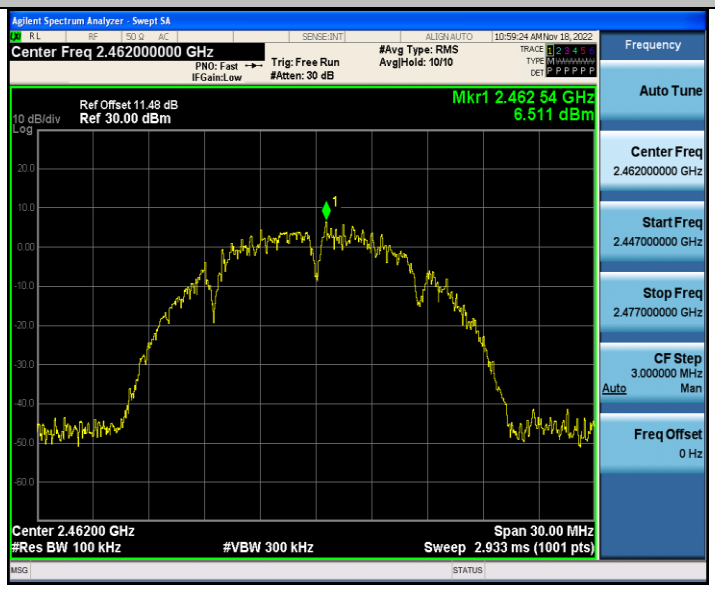
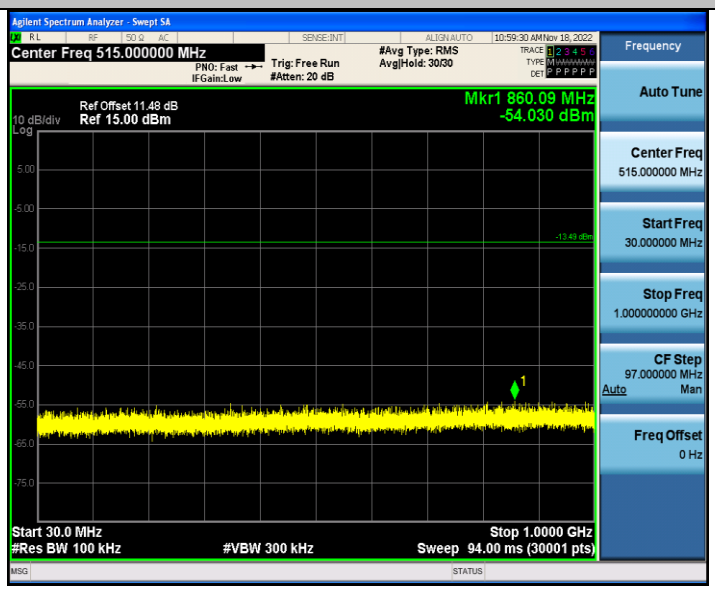
The data of entire corresponding spectrum:

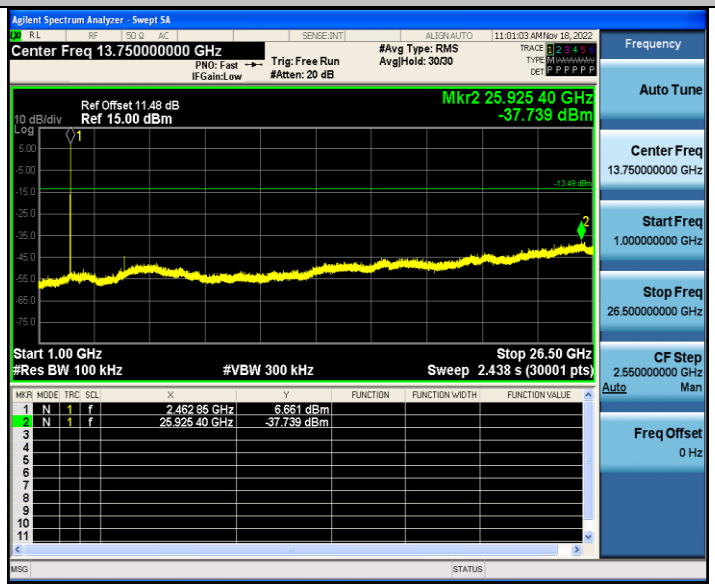
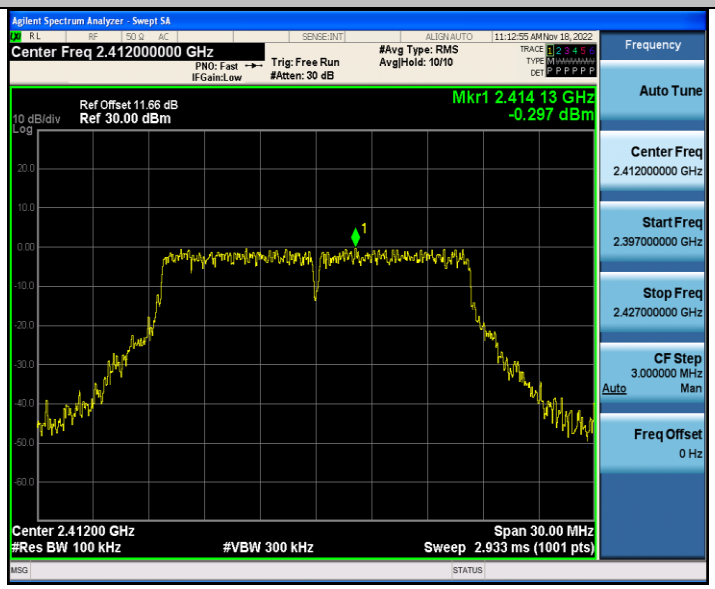
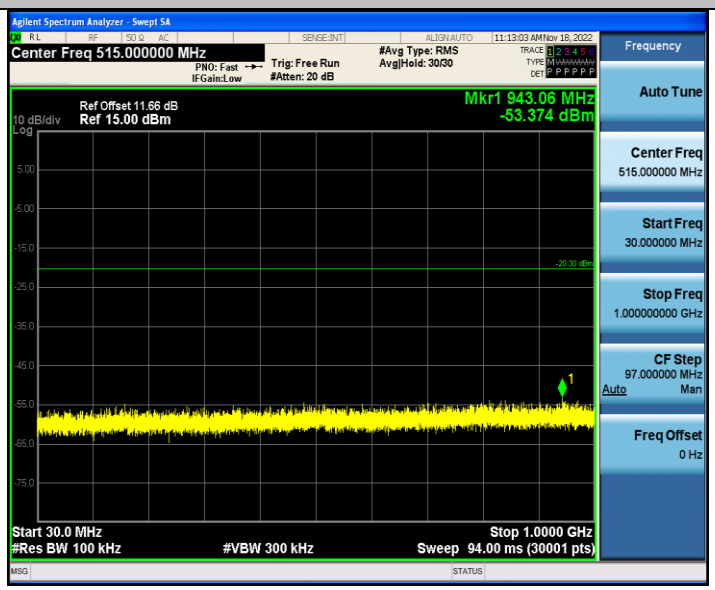
11B_Ant1_2412_0~Reference

11B_Ant1_2412_30~1000


11B_Ant1_2412_1000~26500

11B_Ant1_2437_0~Reference

11B_Ant1_2437_30~1000


11B_Ant1_2437_1000~26500

11B_Ant1_2462_0~Reference

11B_Ant1_2462_30~1000


11B_Ant1_2462_1000~26500

11G_Ant1_2412_0~Reference

11G_Ant1_2412_30~1000


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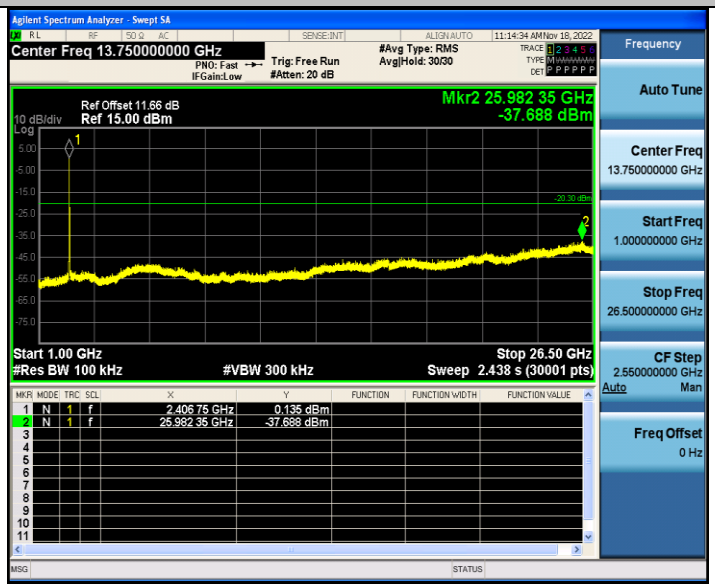
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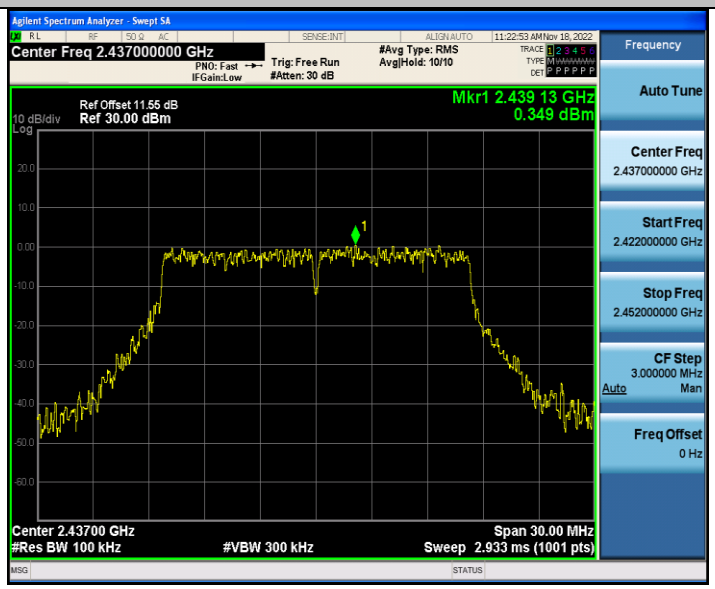
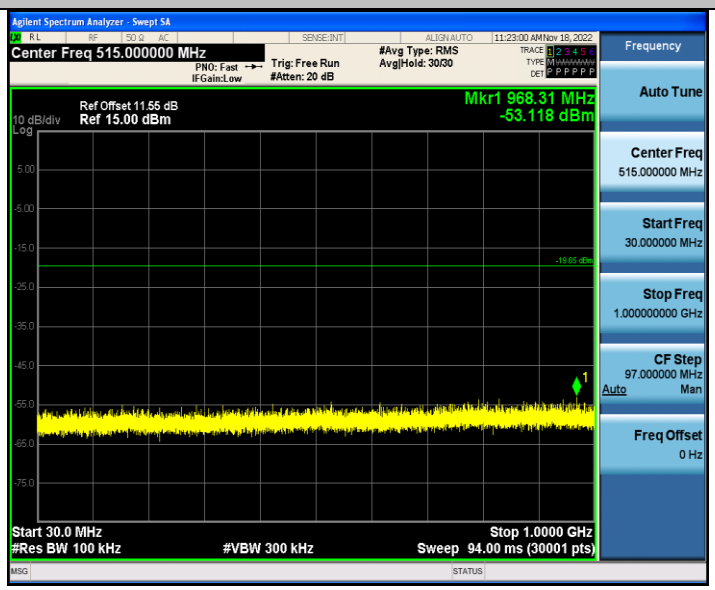

11G_Ant1_2437_30~1000


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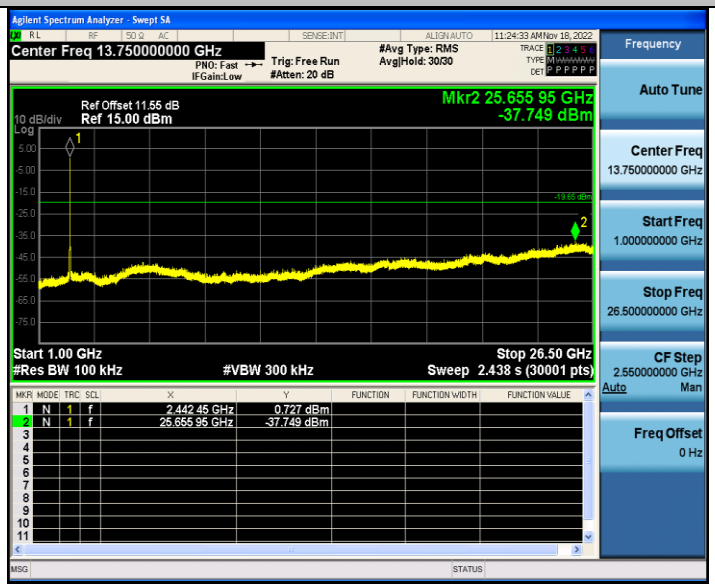
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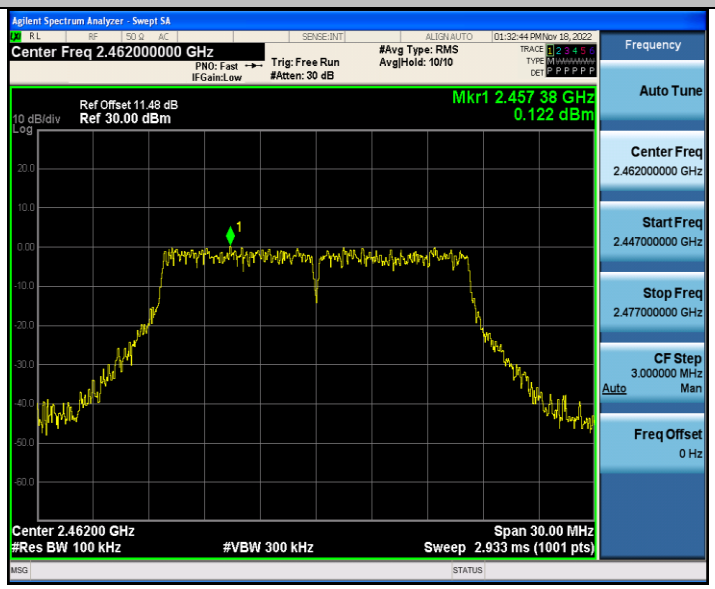
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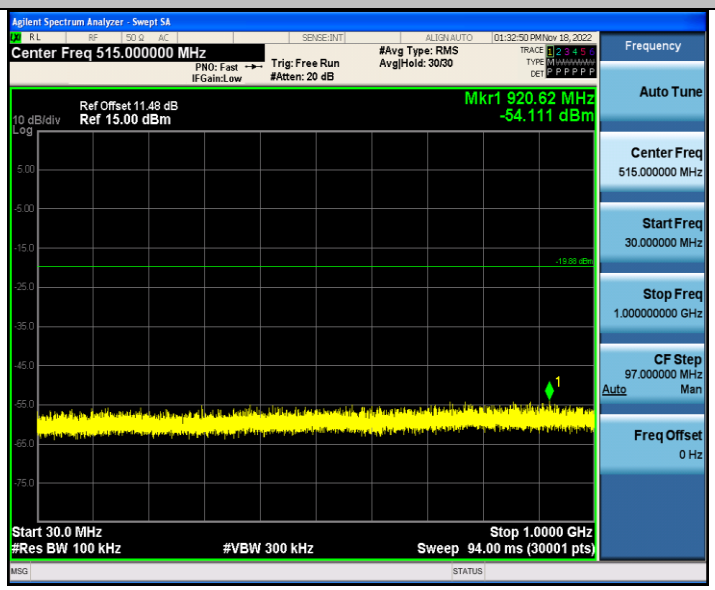
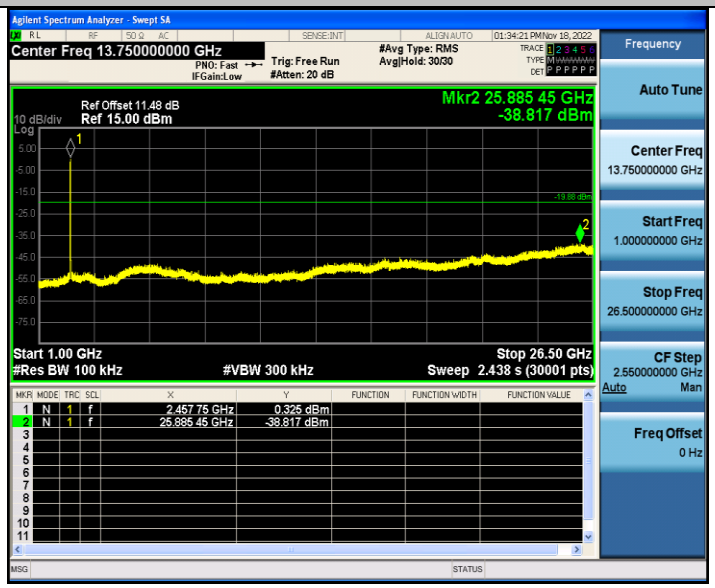
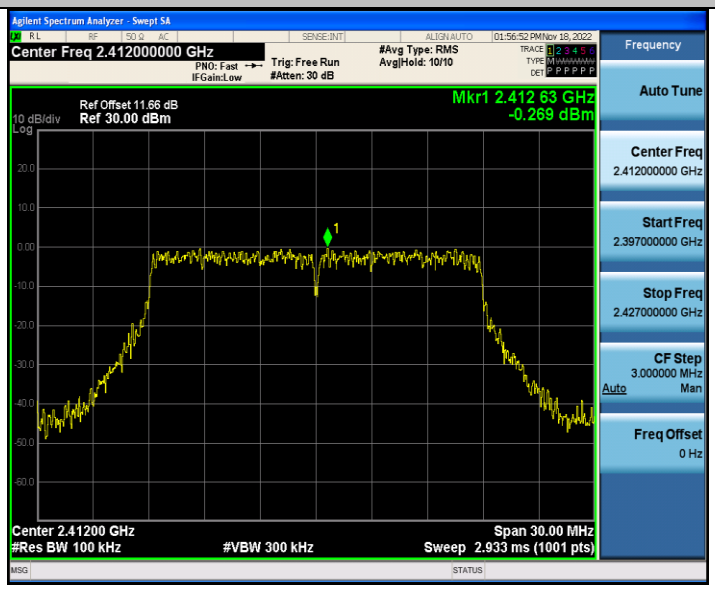
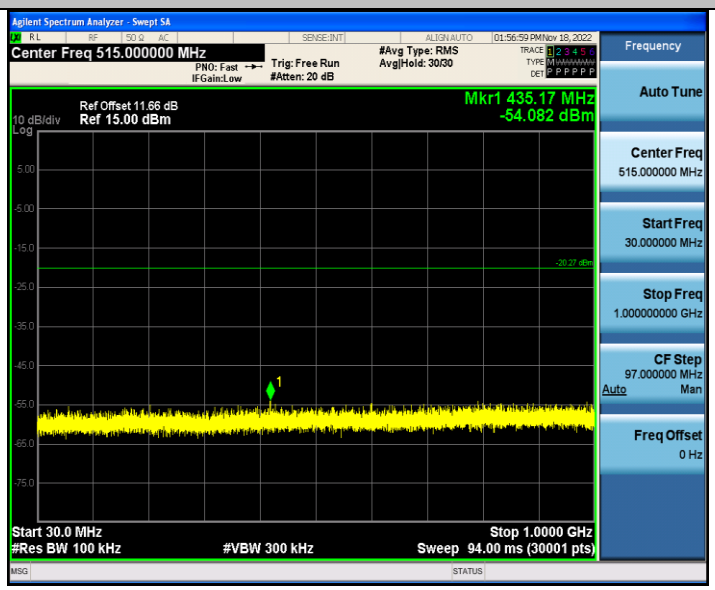
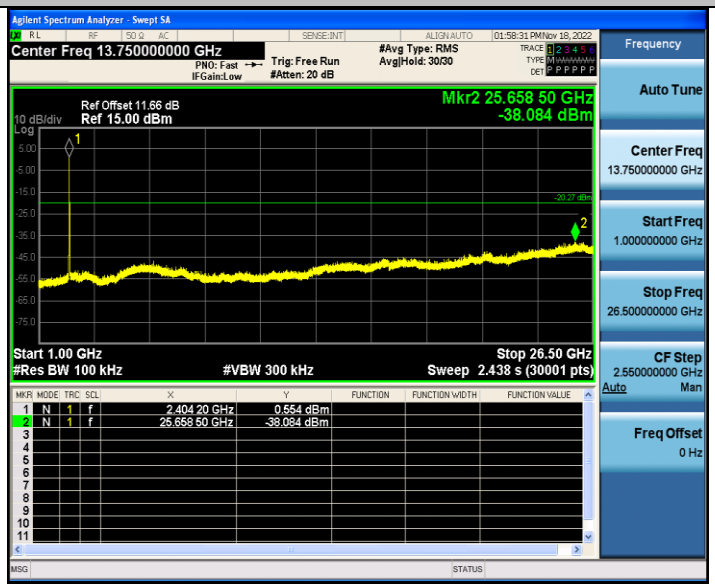
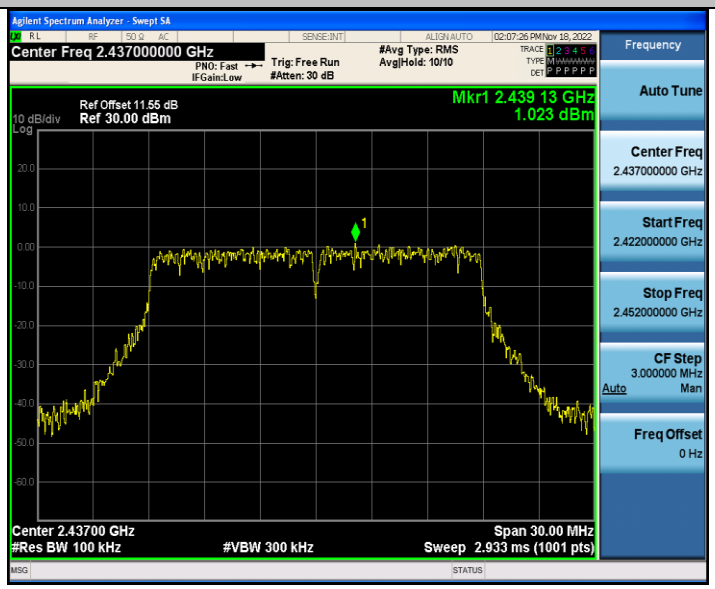


11G_Ant1_2462_1000~26500

11N20SISO_Ant1_2412_0~Reference

11N20SISO_Ant1_2412_30~1000


11N20SISO_Ant1_2412_1000~26500

11N20SISO_Ant1_2437_0~Reference

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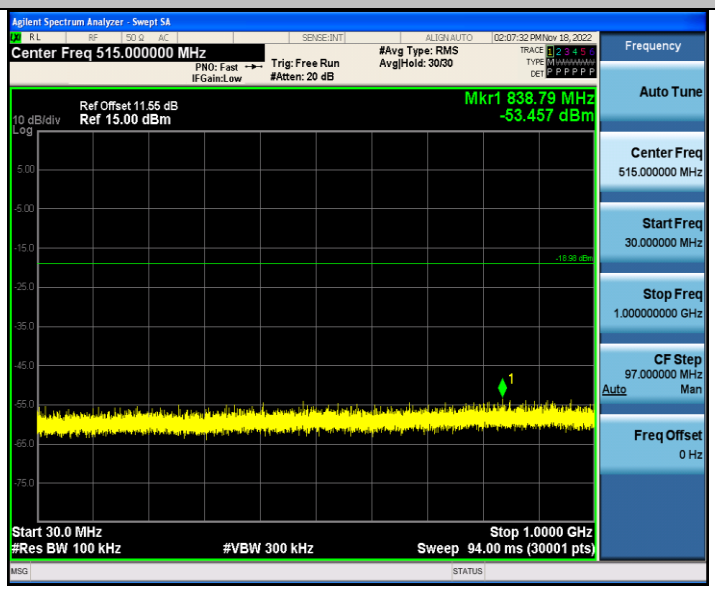
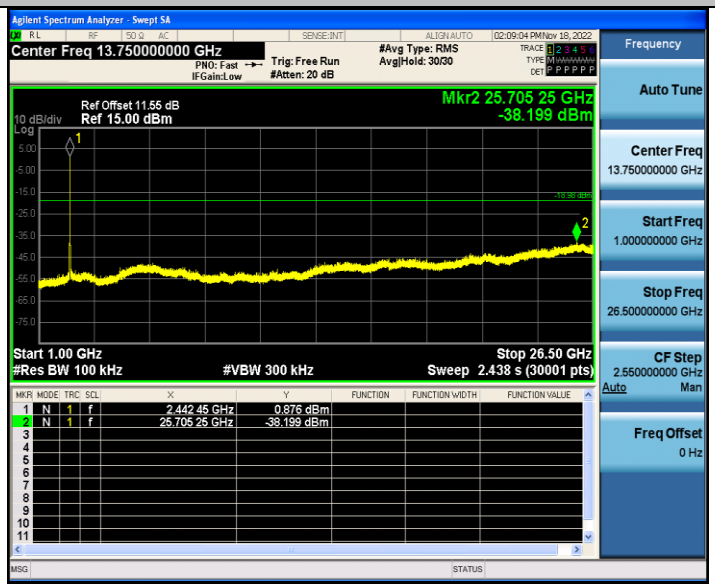
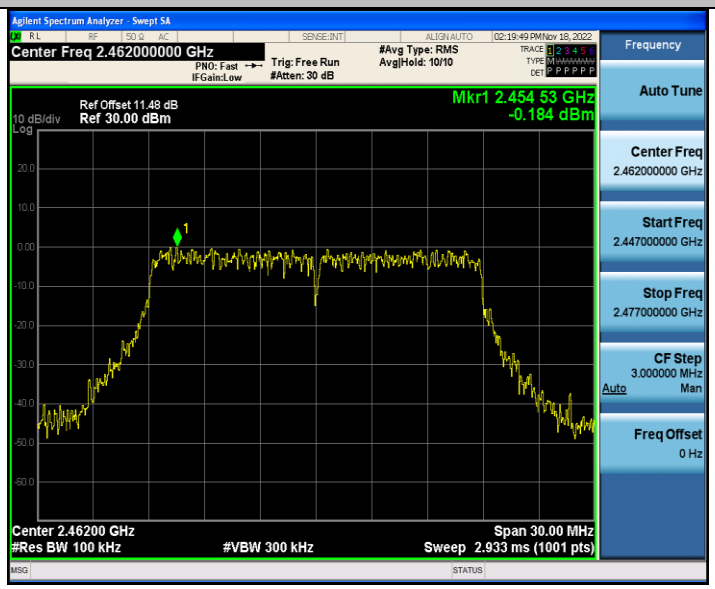


11N20SISO_Ant1_2437_1000~26500

11N20SISO_Ant1_2462_0~Reference

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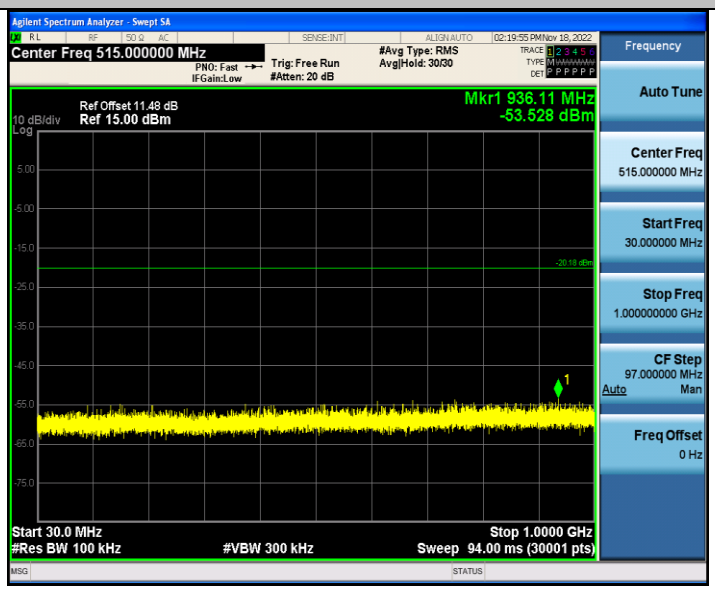

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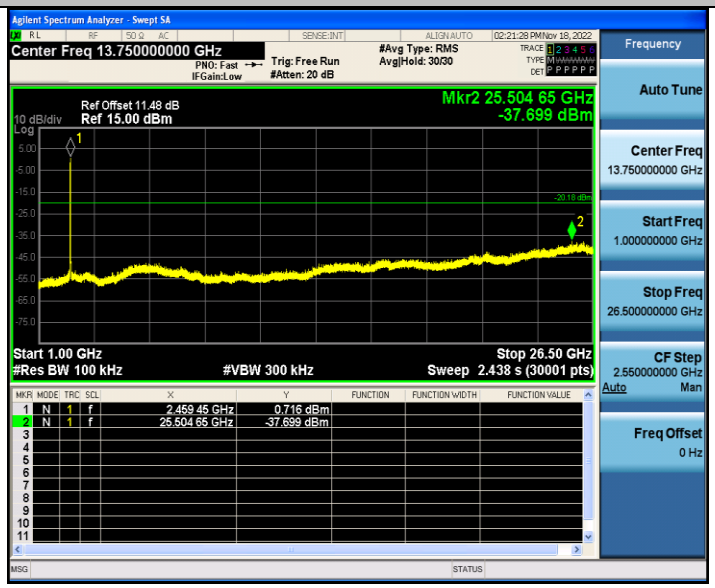
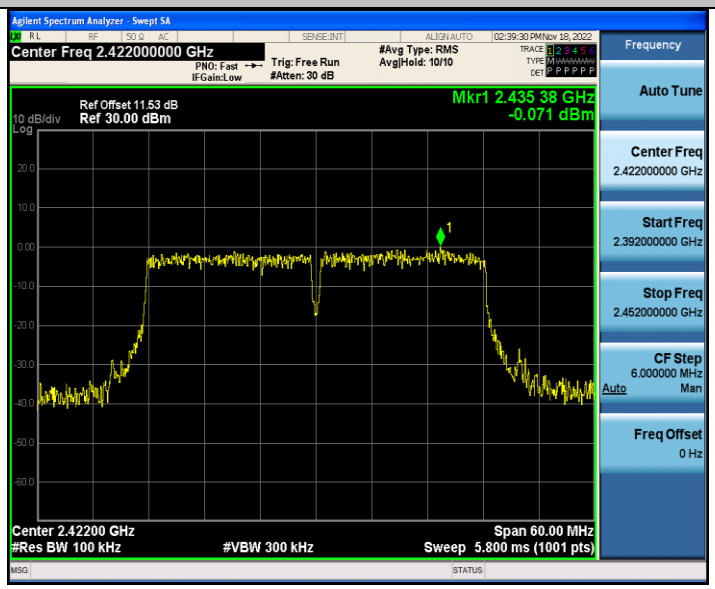


11N40SISO_Ant1_2422_0~Reference


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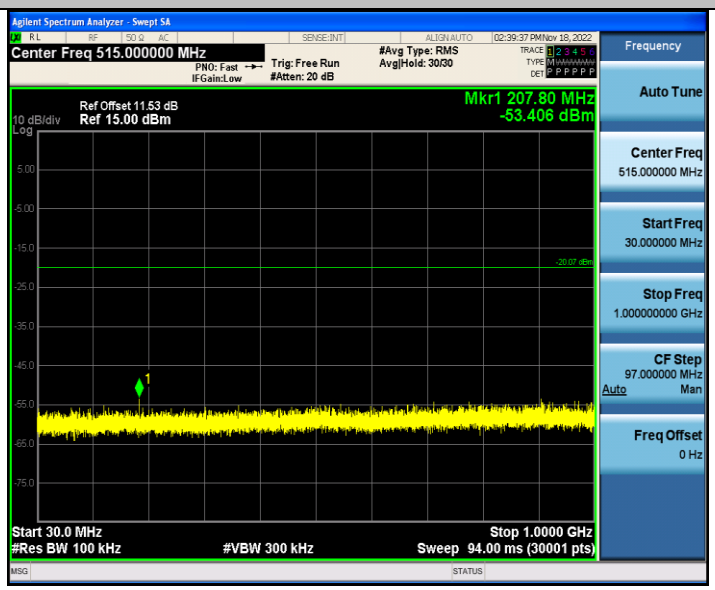
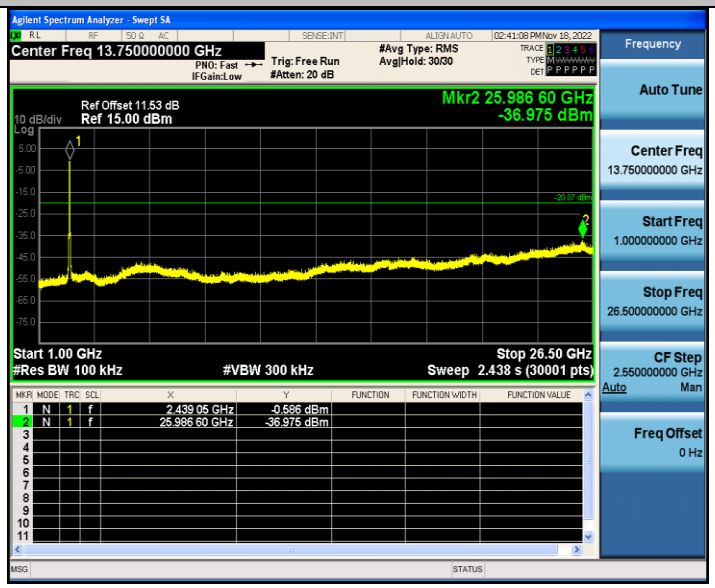
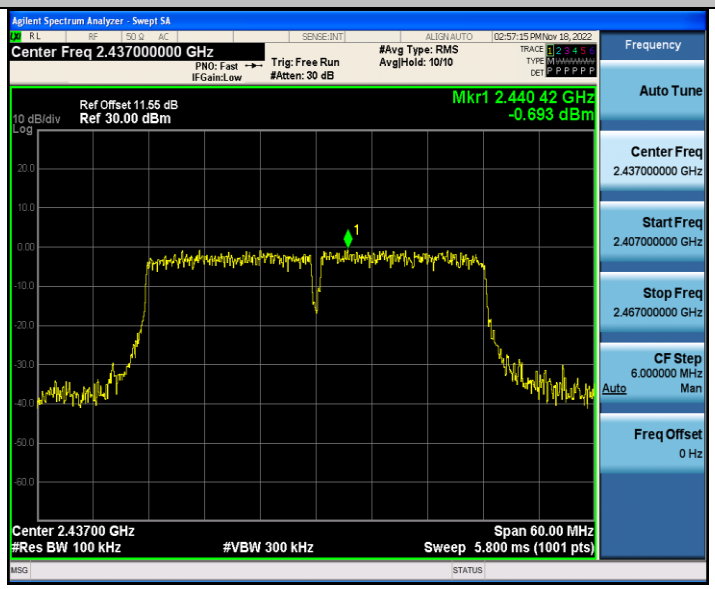
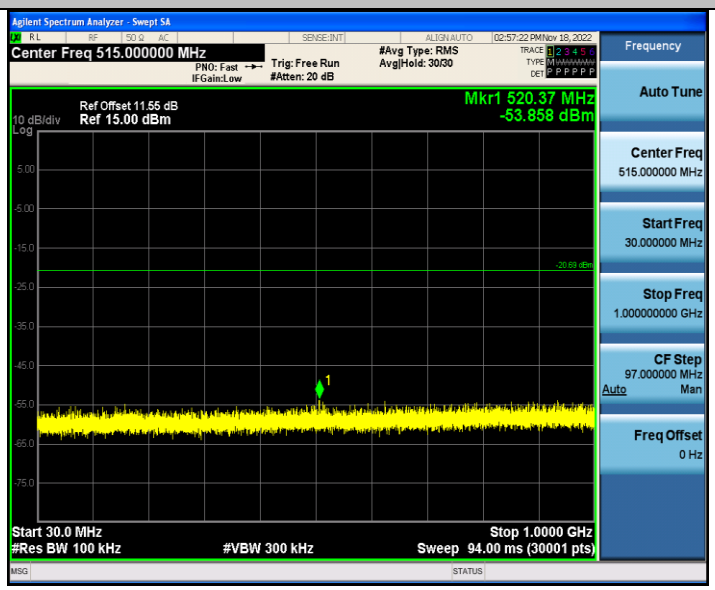
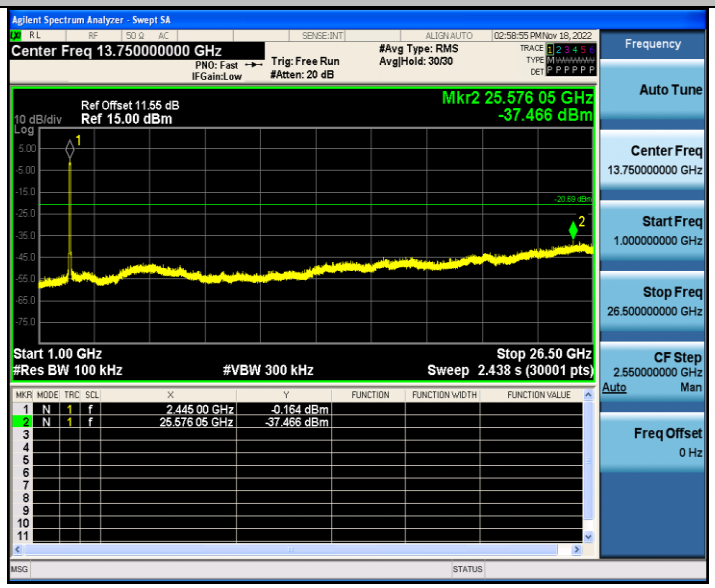
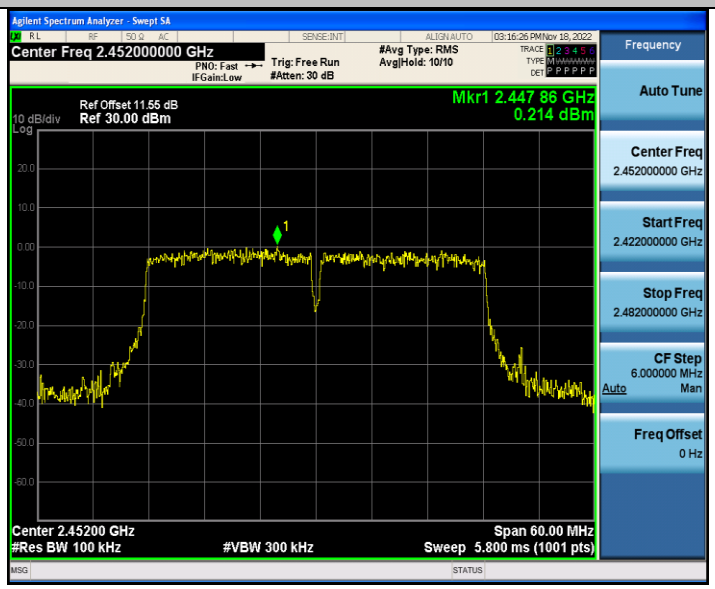


11N40SISO_Ant1_2422_1000~26500


11N40SISO_Ant1_2437_0~Reference


11N40SISO_Ant1_2437_30~1000


11N40SISO_Ant1_2437_1000~26500


11N40SISO_Ant1_2452_0~Reference


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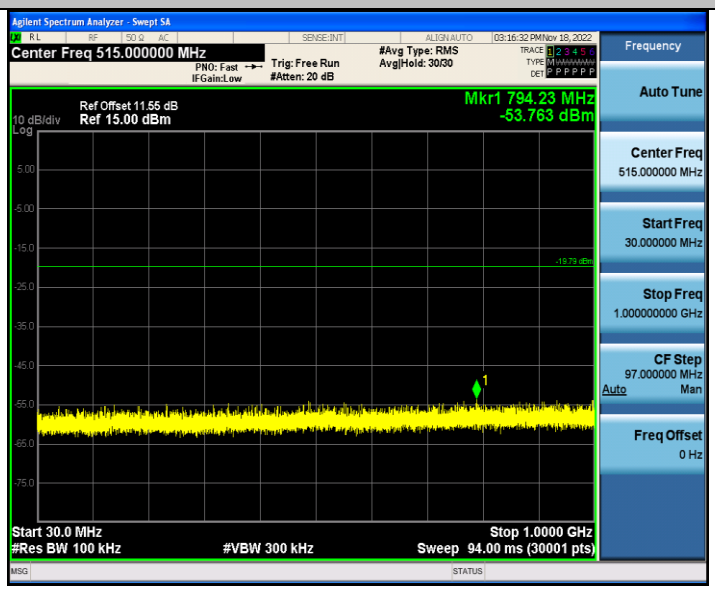
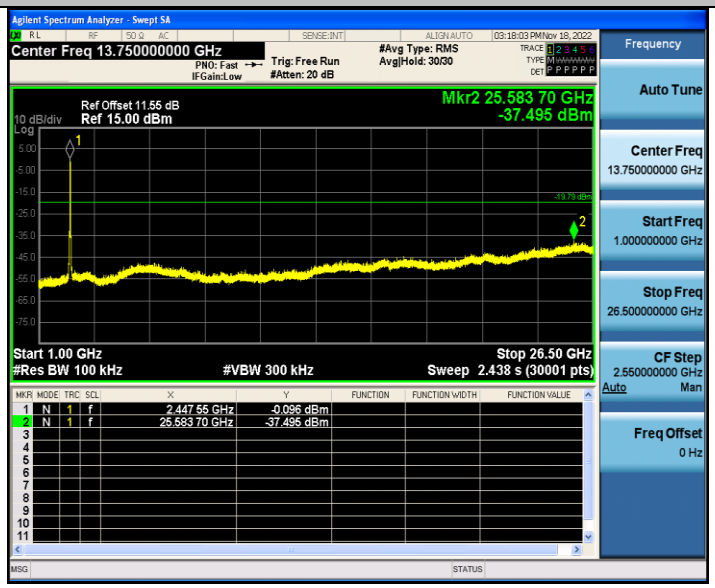


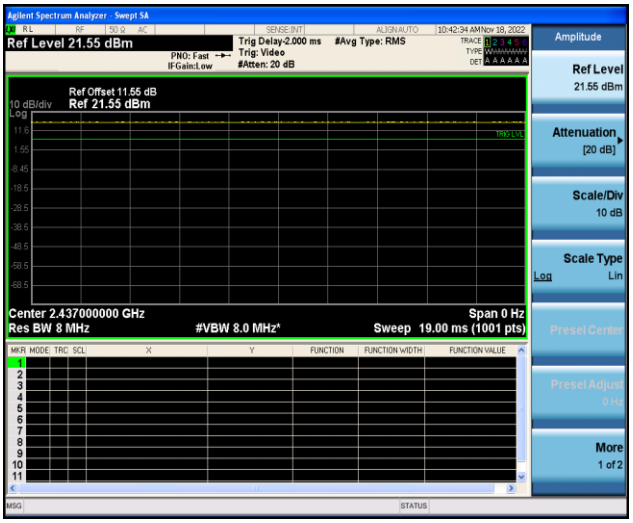
11N40SISO_Ant1_2452_1000~26500


Appendix G: Duty Cycle

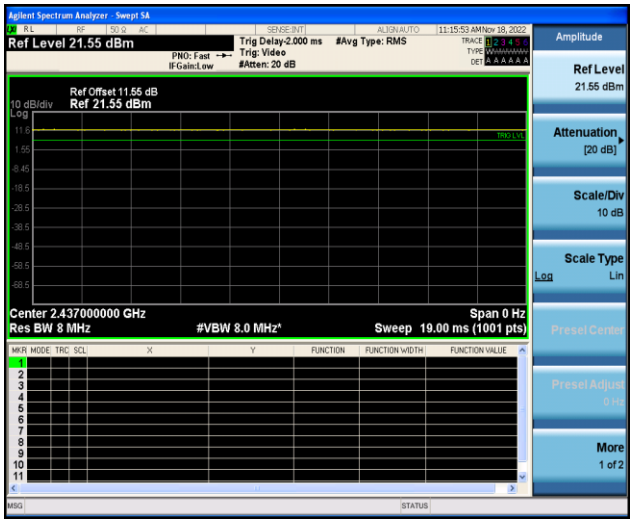
Test Mode	Tx On (ms)	Tx On + Tx Off (ms)	Duty Cycle (%)
Mode 1	N/A	N/A	100
Mode 2	N/A	N/A	100
Mode 3	N/A	N/A	100
Mode 4	N/A	N/A	100

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

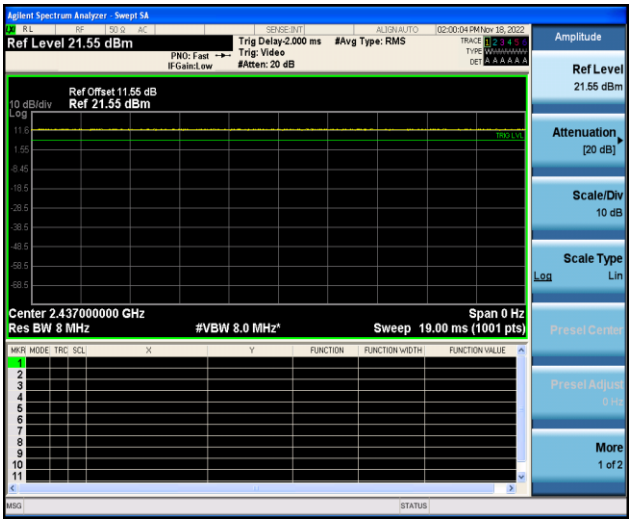
Mode 1 2437MHz



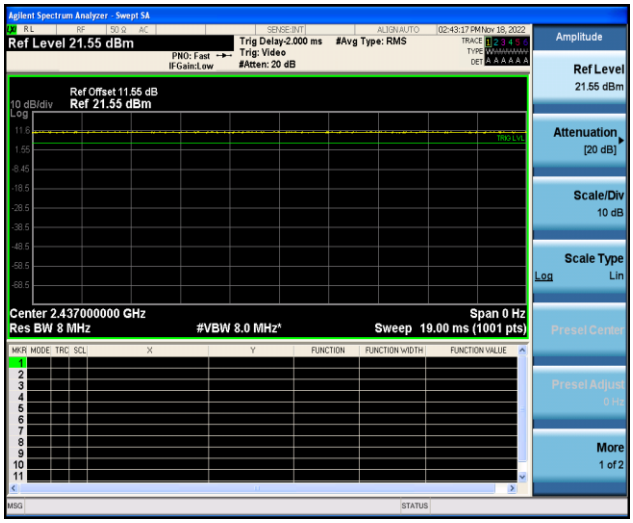
Mode 2 2437MHz



Mode 3 2437MHz

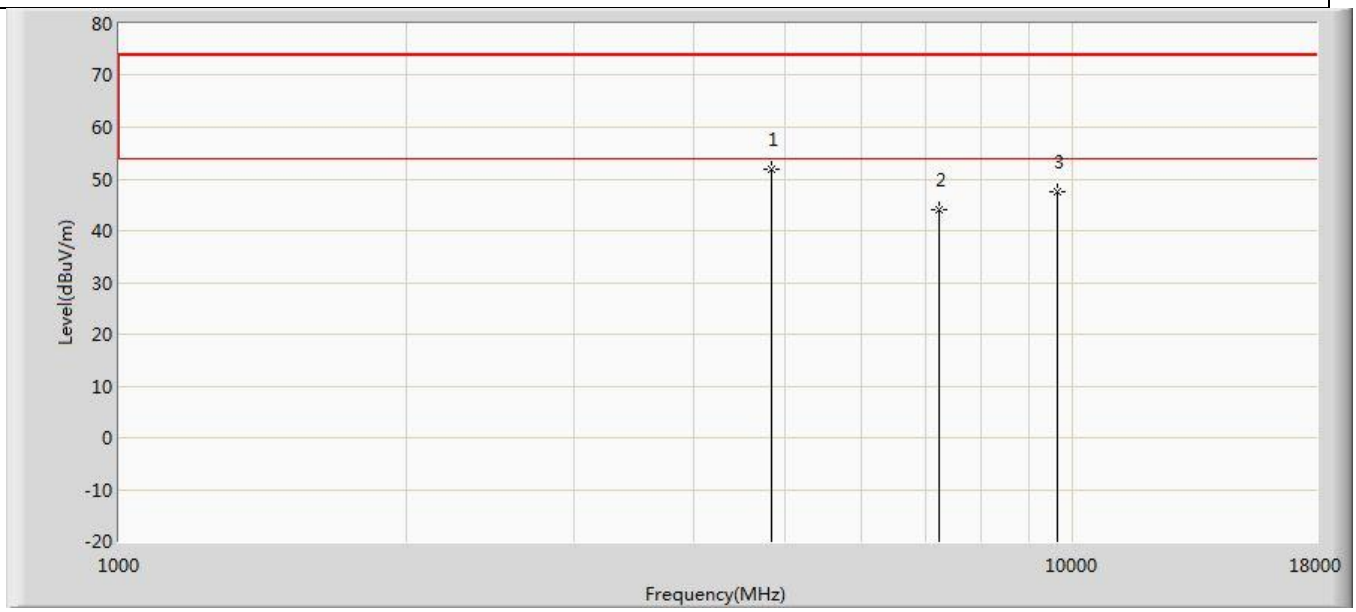


Mode 4 2437MHz



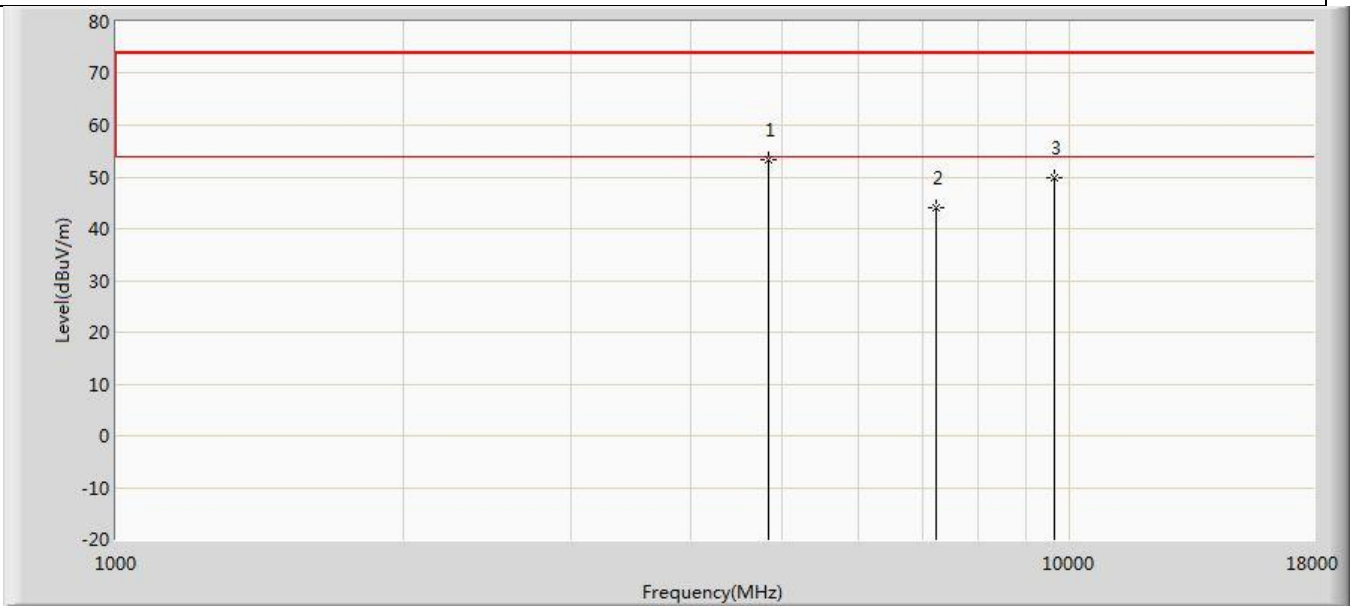
Appendix H: Emissions in Restricted Bands

Profile: 2290461R	Page No.: 57
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT: DVR Module	Power: DC5V
Note: Mode1:Transmit at 2412MHz by 11b	



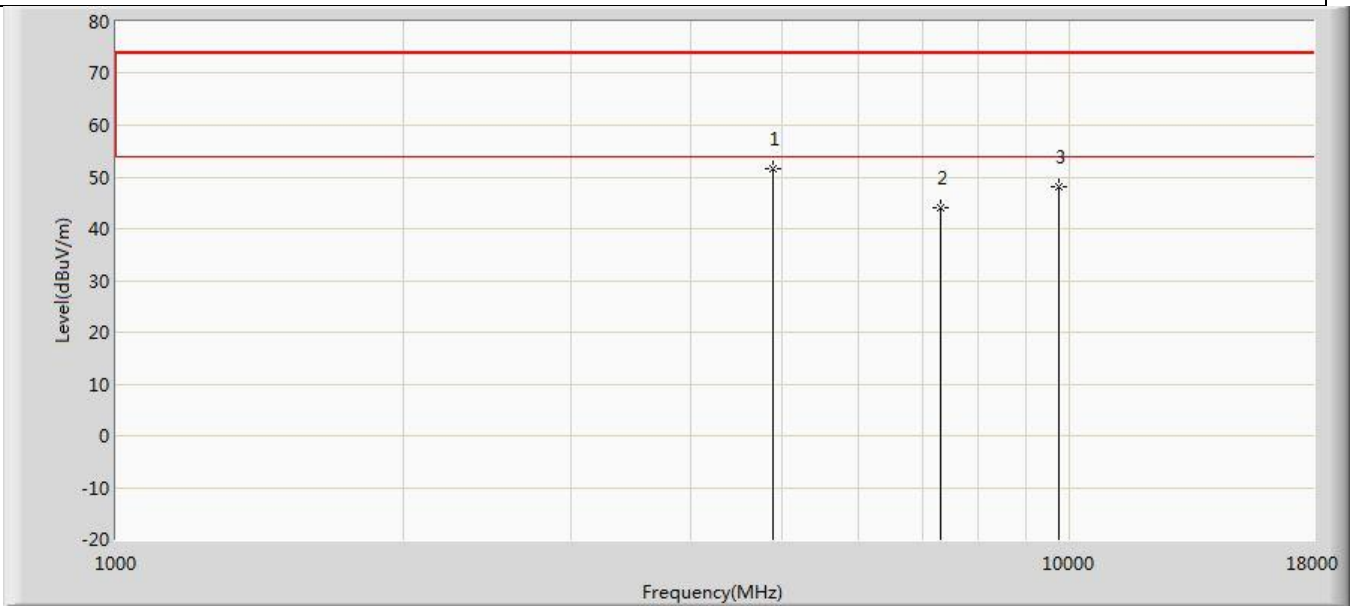
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4825.000	51.983	66.869	-22.017	74.000	-14.886	PK
2		7236.000	43.961	54.805	-30.039	74.000	-10.844	PK
3		9648.000	47.447	55.308	-26.553	74.000	-7.860	PK

Profile: 2290461R	Page No.: 58
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: DVR Module	Power: DC5V
Note: Mode1:Transmit at 2412MHz by 11b	



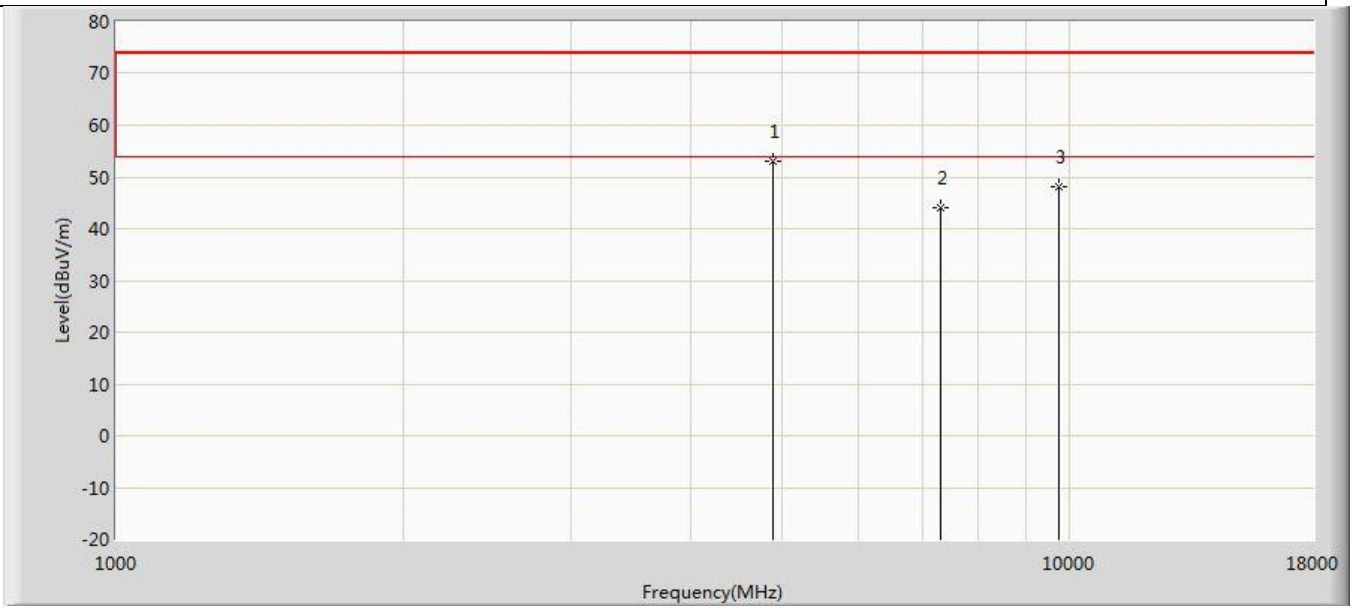
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4825.000	53.454	68.340	-20.546	74.000	-14.886	PK
2		7236.000	43.919	54.763	-30.081	74.000	-10.844	PK
3		9648.000	49.992	57.853	-24.008	74.000	-7.860	PK

Profile: 2290461R	Page No.: 59
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT: DVR Module	Power: DC5V
Note: Mode1:Transmit at 2437MHz by 11b	



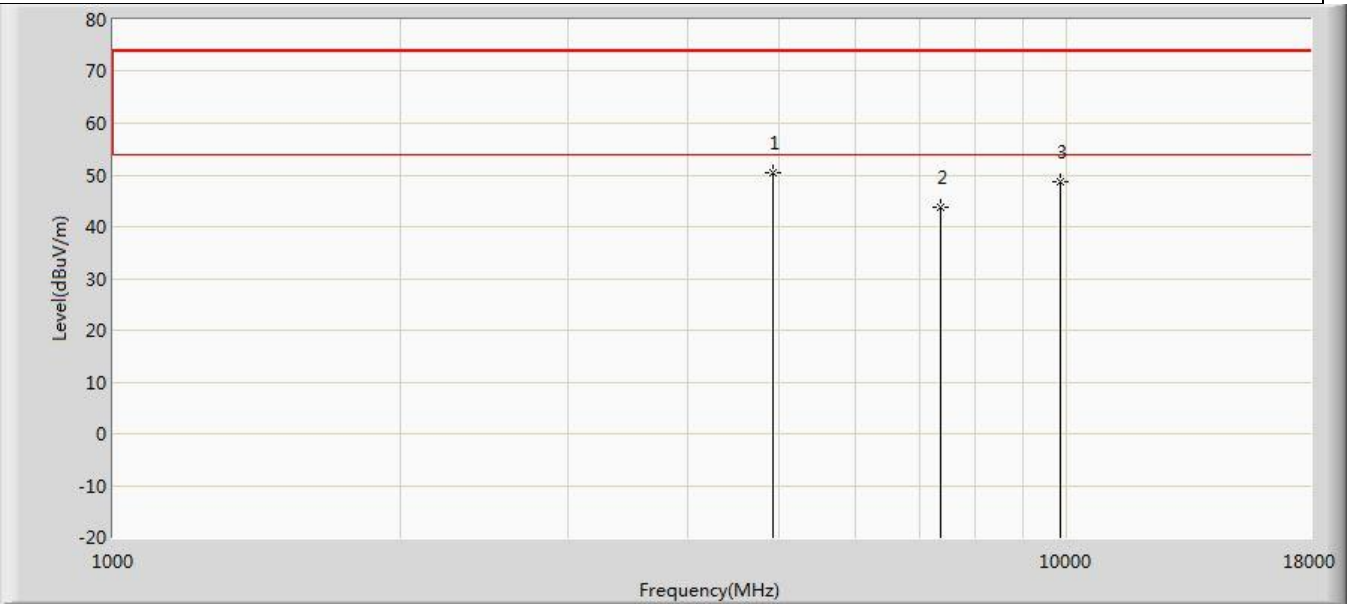
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4876.000	51.472	66.047	-22.528	74.000	-14.575	PK
2		7311.000	44.139	54.984	-29.861	74.000	-10.844	PK
3		9748.000	48.196	55.987	-25.804	74.000	-7.791	PK

Profile: 2290461R	Page No.: 60
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: DVR Module	Power: DC5V
Note: Mode1:Transmit at 2437MHz by 11b	



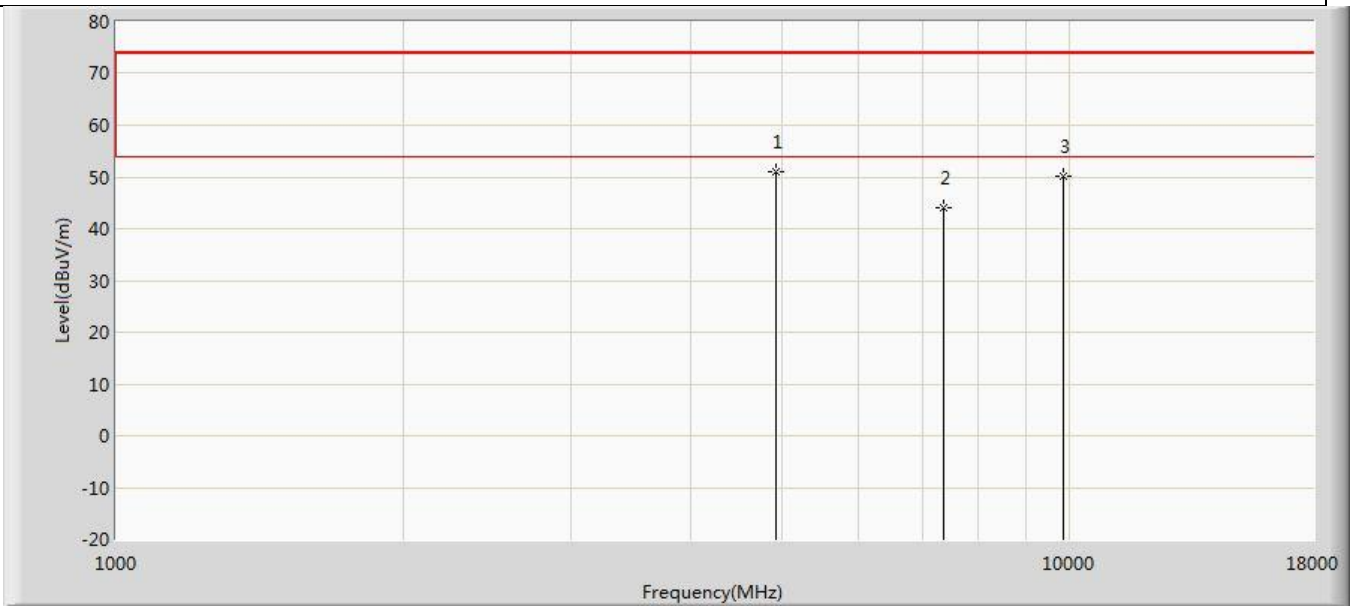
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4876.000	52.972	67.547	-21.028	74.000	-14.575	PK
2		7311.000	44.168	55.013	-29.832	74.000	-10.844	PK
3		9748.000	48.177	55.968	-25.823	74.000	-7.791	PK

Profile: 2290461R	Page No.: 61
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT: DVR Module	Power: DC5V
Note: Mode1:Transmit at 2462MHz by 11b	



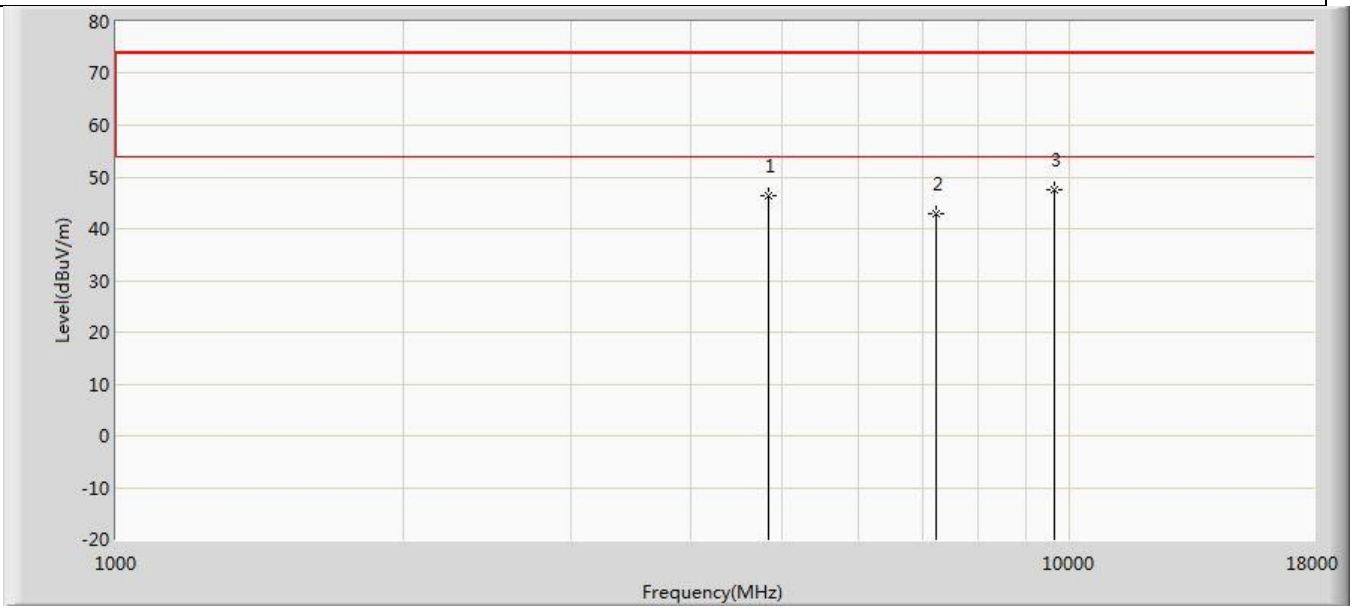
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4927.000	50.459	65.216	-23.541	74.000	-14.758	PK
2		7386.000	43.808	54.673	-30.192	74.000	-10.866	PK
3		9848.000	48.579	56.204	-25.421	74.000	-7.625	PK

Profile: 2290461R	Page No.: 62
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: DVR Module	Power: DC5V
Note: Mode1:Transmit at 2462MHz by 11b	



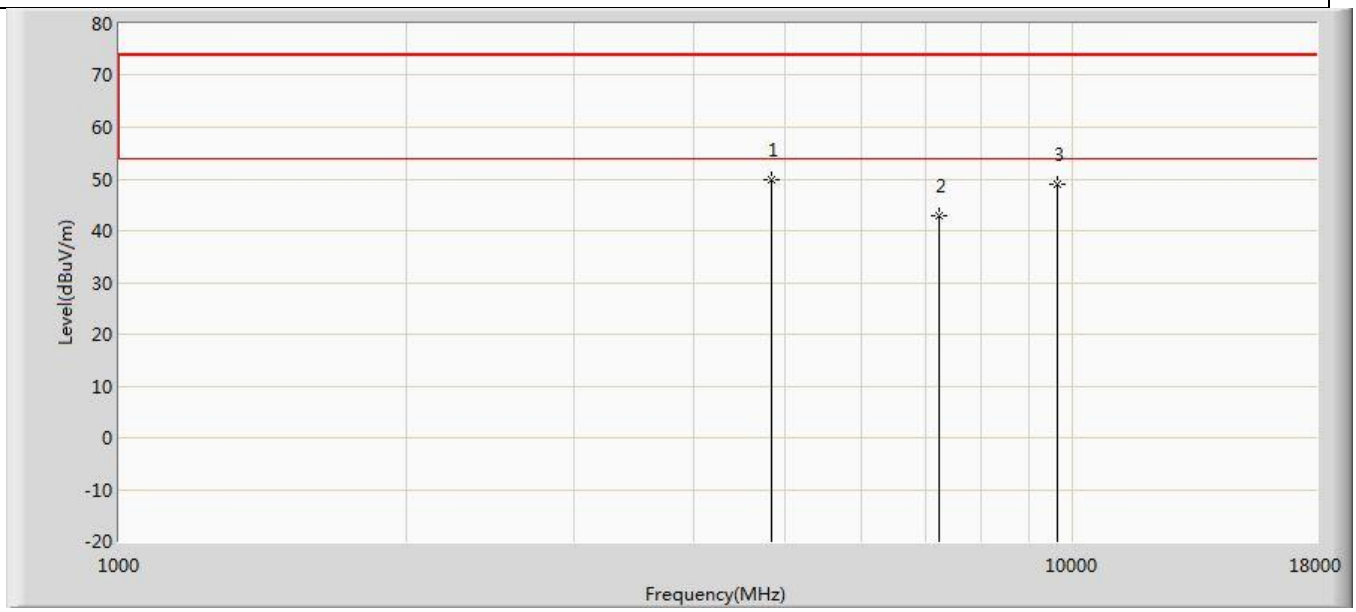
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4927.000	51.135	65.892	-22.865	74.000	-14.758	PK
2		7386.000	43.993	54.858	-30.007	74.000	-10.866	PK
3		9848.000	50.198	57.823	-23.802	74.000	-7.625	PK

Profile: 2290461R	Page No.: 63
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT: DVR Module	Power: DC5V
Note: Mode2:Transmit at 2412MHz by 11g	



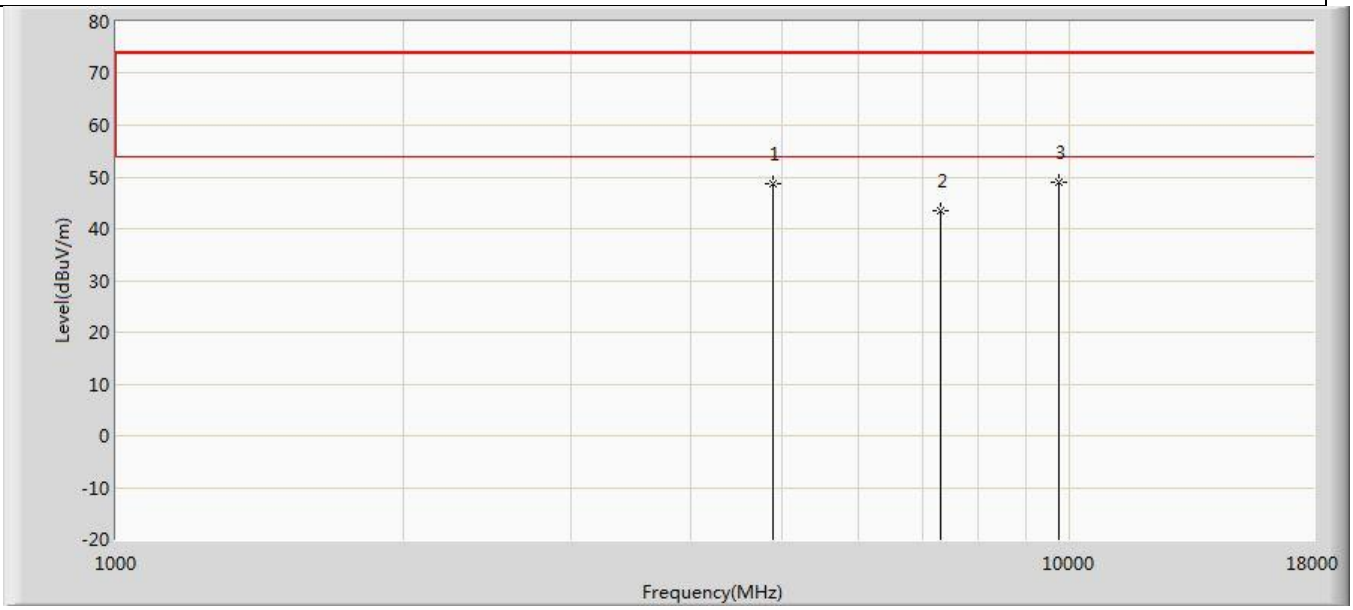
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4825.000	46.449	61.335	-27.551	74.000	-14.886	PK
2		7236.000	42.974	53.818	-31.026	74.000	-10.844	PK
3	*	9648.000	47.531	55.392	-26.469	74.000	-7.860	PK

Profile: 2290461R	Page No.: 64
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: DVR Module	Power: DC5V
Note: Mode2:Transmit at 2412MHz by 11g	



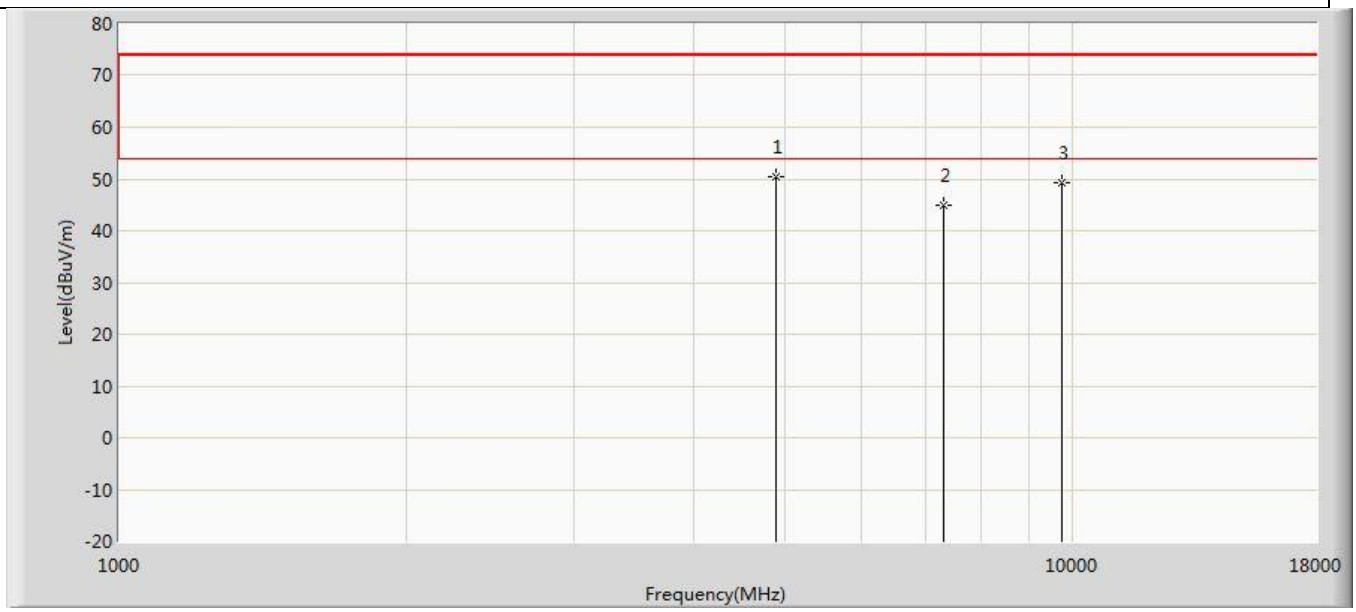
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4825.000	49.896	64.782	-24.104	74.000	-14.886	PK
2		7236.000	42.947	53.791	-31.053	74.000	-10.844	PK
3		9648.000	48.847	56.708	-25.153	74.000	-7.860	PK

Profile: 2290461R	Page No.: 65
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT: DVR Module	Power: DC5V
Note: Mode2:Transmit at 2437MHz by 11g	



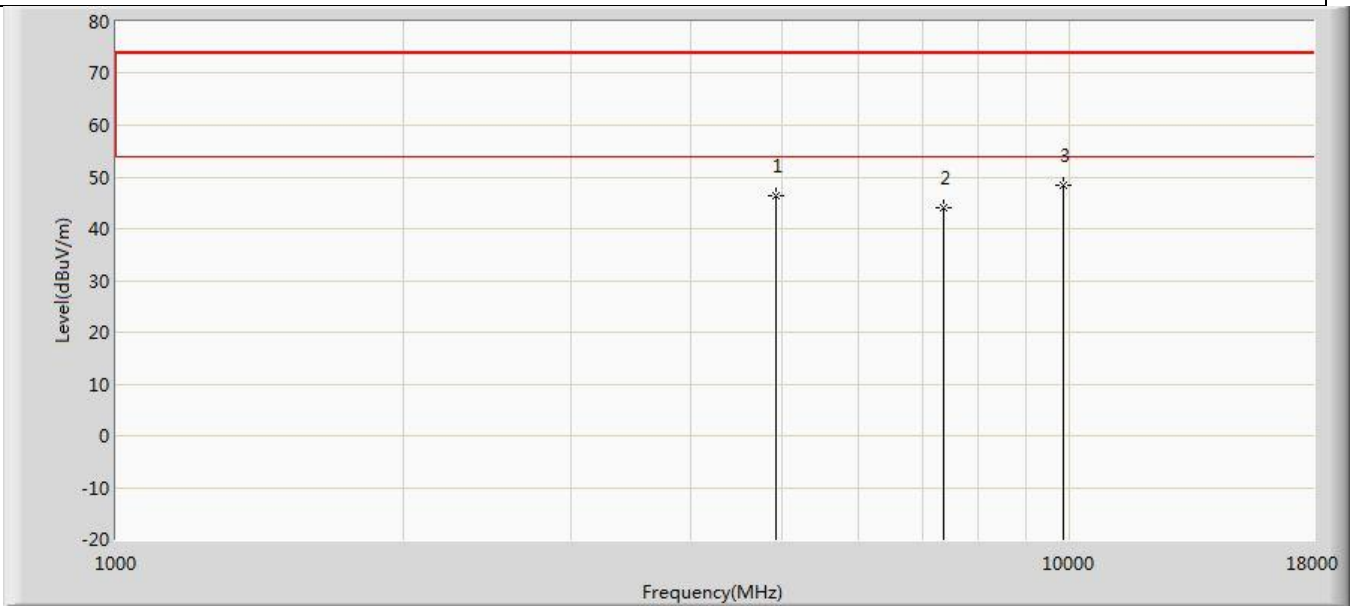
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4876.000	48.663	63.238	-25.337	74.000	-14.575	PK
2		7311.000	43.476	54.321	-30.524	74.000	-10.844	PK
3	*	9748.000	49.113	56.904	-24.887	74.000	-7.791	PK

Profile: 2290461R	Page No.: 66
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: DVR Module	Power: DC5V
Note: Mode2:Transmit at 2437MHz by 11g	



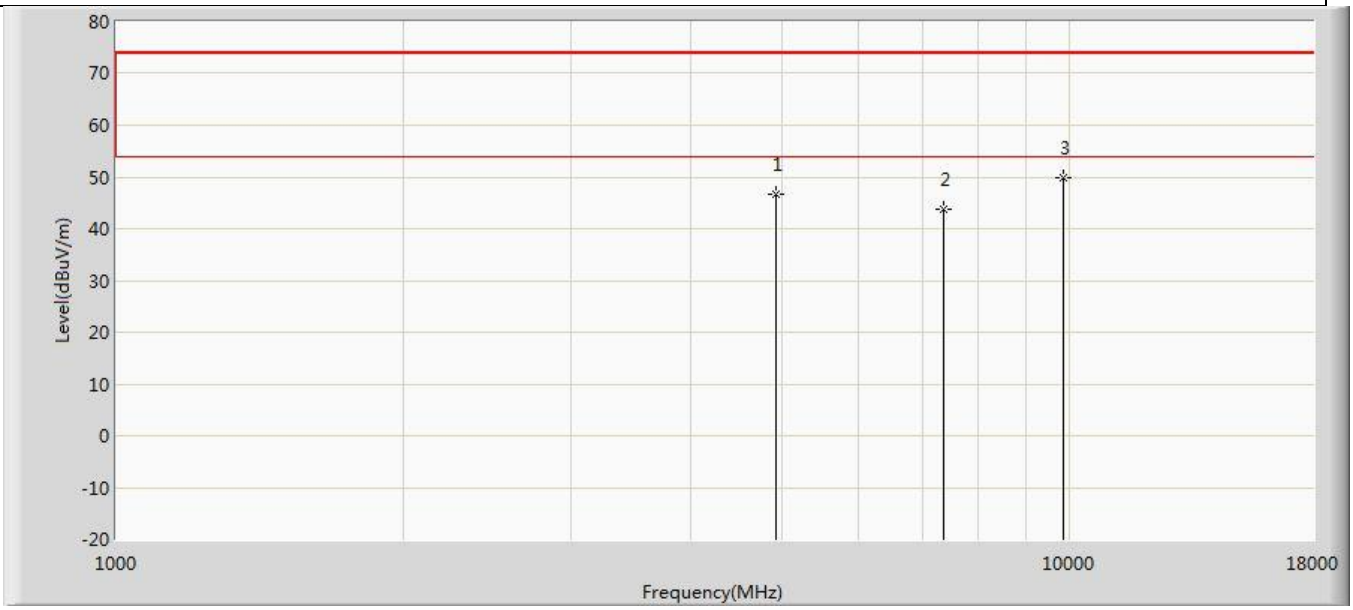
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4876.000	50.554	65.129	-23.446	74.000	-14.575	PK
2		7311.000	45.039	55.884	-28.961	74.000	-10.844	PK
3		9748.000	49.359	57.150	-24.641	74.000	-7.791	PK

Profile: 2290461R	Page No.: 67
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Horizontal
EUT: DVR Module	Power: DC5V
Note: Mode2:Transmit at 2462MHz by 11g	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4927.000	46.385	61.142	-27.615	74.000	-14.758	PK
2		7386.000	44.150	55.015	-29.850	74.000	-10.866	PK
3	*	9848.000	48.536	56.161	-25.464	74.000	-7.625	PK

Profile: 2290461R	Page No.: 68
Engineer: YuLiu	
Site: AC5	Time: 2022/11/16 - 03:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)2022	Polarity: Vertical
EUT: DVR Module	Power: DC5V
Note: Mode2:Transmit at 2462MHz by 11g	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4927.000	46.639	61.396	-27.361	74.000	-14.758	PK
2		7386.000	43.654	54.519	-30.346	74.000	-10.866	PK
3	*	9848.000	49.949	57.574	-24.051	74.000	-7.625	PK