

No.	E2307CE8888-00032-01
Total page	40

# TEST REPORT

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Product Name : Active Speaker

Type and Specification : D300

Test Category : Entrusted Test

Factory : Zhuhai HiVi Technology Co., Ltd.

Client: Zhuhai HiVi Technology Co., Ltd.



China Electronic Product Reliability And  
Environmental Testing Research Institute

China CEPREI Laboratory



# TEST REPORT

Report reference No .....	E2307CE8888-00032-01
Total number of pages .....	40
Test item description .....	<b>Radio Frequency Test</b>
Trademark .....	
Model and/or type reference .....	<b>D300</b>
Factory's Name .....	Zhuhai HiVi Technology Co., Ltd.
Address .....	NO.1, South Dongcheng Road, Liangang Industrial Zone, Zhuhai, Guangdong, P.R.China
Client's Name .....	Zhuhai HiVi Technology Co., Ltd.
Address .....	NO.1, South Dongcheng Road, Liangang Industrial Zone, Zhuhai, Guangdong, P.R.China
Testing Laboratory Name .....	China CEPREI Laboratory/ China Electronic Product Reliability and Environmental Testing Research Institute
Address .....	No.78 Zhucundadao Rd., Zengcheng District, Guangzhou, Guangdong, 510000, China
Testing location .....	China CEPREI Laboratory
Test specification	
Standard .....	ETSI EN 300 328 V2.2.2 (2019-07)
Test category .....	Entrusted Test
Number of test item .....	8
Date of receipt of test item .....	July 11, 2023
Date(s) of performance of test.....	Aug.18, 2023 to Sep.25, 2023
Ambient Condition.....	See test items
Test Instruments and Equipment.....	See Equipment List of This Report.
<b>Summary of Testing and Conclusions</b>	
The sample(s) tested complies with the standards of ETSI EN 300 328 V2.2.2 (2019-07)	
The test standards have been applied to ensure the product conforms with the protection requirements of the council directive 2014/53/EU.	
Tested by (printed name and signature) .....	Zhang shaoyong(张少勇) 
Reviewed by (printed name and signature) .....	Yu Haitao(余海涛) 
Approved by (printed name and signature) .....	Chen hui (陈辉) 
Date of issue.....	



<b>Test case verdicts</b>	
Test case does not apply to the test object..... :	NA
Test item does meet the requirement(Pass) ..... :	P
Test item does not meet the requirement(Fail)..... :	F
<b>General remarks</b>	
<p>1. Report without "specific stamp" of inspection organization or the authority will be regarded as invalid.</p> <p>2. Duplicated report without original "specific stamp" of inspection organization or the authority will be regarded as invalid.</p> <p>3. Report without the signatures of Tester, Reviewer or Approval will be regarded as invalid.</p> <p>4. Test report if altered will be regarded as invalid.</p> <p>5. Any dispute about the report must be submitted to inspection organization within 15 days upon report received, it will be rejected if out of the period.</p> <p>6. Generally, the entrusted test only responsible for the samples.</p>	
<b>General product information:</b>	
<p>EUT complete appearance.</p> <p>The sample model for this test is the D300.</p> <p>The series models are D300, HiVi-Swans D300, HiVi D300, SWAN D300, and Swans D300. The only difference lies in the model names; all other aspects including function, structure, and appearance remain identical.</p>	
<b>Testing Laboratory Contact Info:</b>	
<p><b>China CEPREI Laboratory/ China Electronic Product Reliability and Environmental Testing Research Institute</b></p> <p><b>Address: 78 Zhucun Avenue West, Zhucun Street, Zengcheng District, Guangzhou, Guangdong, China.</b></p> <p><b>Postcode: 511300</b></p> <p><b>TEL: +86-20-85131039</b></p> <p><b>FAX: +86-20-87236171</b></p> <p><b>Business Contact: market@ceprei.biz</b></p> <p><b>Complaint: +86-20-85131208, +86-20-87236881</b></p>	

Summary of Test Results				
Requirements	Technical requirements Clause Number	Test Specification Clause Number	Condition	Compliance
RF Output Power	4.3.1.2	5.4.2		P
Duty cycle, Tx-Sequence, Tx-gap	4.3.1.3	5.4.2	Only for non-adaptive equipment and RF Output Power > 10dBm	N/A
Accumulated Transmit Time, Frequency Occupation and Hopping Sequence	4.3.1.4	5.4.4		P
Hopping Frequency Separation	4.3.1.5	5.4.5		P
Medium Utilization (MU) factor	4.3.1.6	5.4.2	Only for adaptive equipment and RF Output Power > 10dBm	N/A
Adaptivity	4.3.1.7	5.4.6	Only for adaptive equipment and RF Output Power > 10dBm	N/A
Occupied Channel Bandwidth	4.3.1.8	5.4.7		P
Transmitter unwanted emissions in the out-of-band domain	4.3.1.9	5.4.8		P
Transmitter unwanted emissions in the spurious domain	4.3.1.10	5.4.9		P
Receiver spurious emissions	4.3.1.11	5.4.10		P
Receiver Blocking	4.3.1.12	5.4.11		P
Geo-location capability	4.3.2.13	N/A	Only applies to equipment with geo-location capability	N/A

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## Section1. General Information

### 1.1 EUT General and Technical Descriptions

EUT Name:	Active Speaker
EUT Model:	D300
Power:	220-240V~, 50Hz/60Hz, 200W
Adapter:	/
Kind of Device:	BT
Modulation:	BT: BR EDR
Frequency Range:	BT: 2400MHz-2483.5MHz
Antenna:	External antenna

Note: for more details, please refer to the User manual of the EUT.

### 1.2 Description of Available Antennas

Mode	Ant.	Antenna Type	Antenna Gain (dBi)	Technology
BT	1	External	3.25	SISO

### 1.3 EUT Photographs





### 1.4 Product Information (Information as required by ETSI EN 300 328 V2.2.2 (2019), clause 5.4.1)

a)	<b>The type of wide band data transmission equipment:</b>	
	<input checked="" type="checkbox"/> FHSS	
	<input type="checkbox"/> non-FHSS	
b)	<b>Adaptive/non-adaptive equipment:</b>	
	<input checked="" type="checkbox"/> non-adaptive Equipment	
	<input type="checkbox"/> adaptive Equipment without the possibility to switch to a non-adaptive mode	
	<input type="checkbox"/> adaptive Equipment which can also operate in a non-adaptive mode	
c)	<b>Adaptive equipment related description</b>	
	<input type="checkbox"/> The equipment has implemented an LBT based DAA mechanism	
	<input type="checkbox"/> The equipment is Frame Based equipment	
	<input type="checkbox"/> The equipment is Load Based equipment	
	<input type="checkbox"/> The equipment can switch dynamically between Frame Based and Load Based equipment	
	<input type="checkbox"/> The equipment has implemented a non-LBT based DAA mechanism	
	<input type="checkbox"/> The equipment can operate in more than one adaptive mode	
d)	<b>In case of Smart Antenna Systems:</b>	
	The number of Receive chains: 1	
	The number of Transmit chains: 1	<input checked="" type="checkbox"/> symmetrical power distribution
		<input type="checkbox"/> asymmetrical power distribution
	In case of beam forming, the maximum (additional) beam forming gain:      dB	
e)	<b>Type of Equipment</b>	
	<input checked="" type="checkbox"/> Stand-alone	
	<input type="checkbox"/> Combined Equipment (Equipment where the radio part is fully integrated within another type of equipment)	
	<input type="checkbox"/> Plug-in radio device (Equipment intended for a variety of host systems)	
	<input type="checkbox"/> Other	
f)	<b>The worst case operational mode for each of the following tests</b>	
	RF Output Power : GFSK, $\pi/4$ -DQPSK, 8-DPSK	
	Duty Cycle, Tx-sequence, Tx-gap: N/A	
	Accumulated Transmit time, Frequency Occupation & Hopping Sequence (only for FHSS equipment): GFSK, $\pi/4$ -DQPSK, 8-DPSK	
	Hopping Frequency Separation (only for FHSS equipment): GFSK, $\pi/4$ -DQPSK, 8-DPSK	
	Medium Utilization : N/A	
	Adaptivity & Receiver Blocking : GFSK, $\pi/4$ -DQPSK, 8-DPSK	
	Occupied Channel Bandwidth : GFSK, $\pi/4$ -DQPSK, 8-DPSK	
	Transmitter unwanted emissions in the OOB domain : GFSK, $\pi/4$ -DQPSK, 8-DPSK	
	Transmitter unwanted emissions in the spurious domain : GFSK	
	Receiver spurious emissions : GFSK	
g)	<b>The different transmit operating modes (tick all that apply):</b>	
	<input checked="" type="checkbox"/> Operating mode 1: Single Antenna Equipment	<input checked="" type="checkbox"/> Equipment with only one antenna
		<input type="checkbox"/> Equipment with two diversity antennas but only one antenna active at any moment in time
		<input type="checkbox"/> Smart Antenna Systems with two or more antennas, but operating in a (legacy) mode where only one antenna is used (e.g. IEEE 802.11™ legacy mode in smart antenna systems)
	<input type="checkbox"/> Operating mode 2: Smart Antenna Systems - Multiple Antennas without beam	<input type="checkbox"/> Single spatial stream/Standard throughput/(e.g. IEEE 802.11™ legacy mode)

	forming				
			<input type="checkbox"/>	High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 1	
			<input type="checkbox"/>	High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 2	
	<input type="checkbox"/> Operating mode 3: Smart Antenna Systems - Multiple Antennas with beam forming		<input type="checkbox"/>	Single spatial stream/Standard throughput (e.g. IEEE 802.11™ legacy mode)	
			<input type="checkbox"/>	High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 1	
			<input type="checkbox"/>	High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 2	
<b>h)</b>	<b>Operating Frequency Range(s) of the equipment:</b>				
	Operating Frequency Range 1	2400MHz to 2483.5MHz			
	Operating Frequency Range 2	MHz to MHz			
<b>i)</b>	<b>The extreme operating conditions that apply to the equipment:</b>				
	Operating temperature range: 0°C to 40°C				
<b>j)</b>	<b>The intended combination(s) of the radio equipment power settings and one or more antenna assemblies and their corresponding e.i.r.p. levels</b>				
	Antenna Type	<input type="checkbox"/> Integral Antenna	Antenna Gain: 3.0 dBi		
		<input checked="" type="checkbox"/> Dedicated Antennas (equipment with antenna connector)	<input type="checkbox"/> Single power level with corresponding antenna(s)	Gain	ANT1 3.0dBi
			<input type="checkbox"/> Multiple power settings and corresponding antenna(s)	Power Level 1	
				Power Level 2	
				Power Level 3	
<b>k)</b>	<b>The nominal voltages of the stand-alone radio equipment or the nominal voltages of the combined (host) equipment or test jig in case of plug-in devices:</b>				
	Details provided are for the		<input checked="" type="checkbox"/> stand-alone equipment		
			<input type="checkbox"/> combined (or host) equipment		
			<input type="checkbox"/> test jig		
			<input type="checkbox"/> AC mains	State AC voltage 220-230V	
	Supply Voltage	<input type="checkbox"/> AC mains	<input type="checkbox"/> AC voltage	AC230V, 50Hz	
		<input type="checkbox"/> DC State	<input checked="" type="checkbox"/> DC voltage	<input type="checkbox"/> Internal Power Supply	
			<input checked="" type="checkbox"/> External Power Supply or AC/DC adapter		
			<input type="checkbox"/> Battery		
			<input type="checkbox"/> Other:		
<b>l)</b>	<b>Describe the test modes available which can facilitate testing</b>			N/A	
<b>m)</b>	<b>The equipment type (e.g. Bluetooth®, IEEE 802.11™, IEEE 802.15.4™, proprietary, etc.):</b>			Bluetooth®	
<b>n)</b>	<b>Geo-location capability supported by the equipment:</b>			<input type="checkbox"/> Yes	
				<input type="checkbox"/> The geographical location determined by the equipment as defined in clause 4.3.1.13.2 or clause 4.3.2.12.2 is not accessible to the user	
				<input checked="" type="checkbox"/> No	

## Section2. TEST METHODOLOGY AND TEST EQUIPMENT

### 2.1 General Description Of Applied Standards

According to its specifications, the EUT must comply with the requirements of the following standards: ETSI EN 300 328 –Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz band; Harmonised Standard for access to radio spectrum;

Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU

### 2.2 Description Of Test Modes

The EUT has been tested under its typical operating condition.

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

Test of channel included the lowest and highest frequency to perform the test, then record on this report.

Pre-defined engineering program for regulatory testing used to control the EUT for staying in continuous transmitting and receiving mode is programmed.EUT is connected by com port, and transmit the control instruction via test software.

Test Frequency and channel:

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	39	2440	79	2480

### 2.3 Test Equipment List and Details

Sequence	Description	Manufacturer	Model	Serial Number	Cal. Effective Date
1	EMI Test Receiver	Rohde & Schwarz	ESR26	101452	2024.04.26
2	Antenna	Schwarzbeek	VULB 9168	01334	2024.07.10
3	Anechoic Chamber	Albatross	RSE-3m	C62128-C333	2024.12.22
5	Antenna	Schwarzbeek	BBHA9120D	7561010015-03	2024.07.10
6	MPF	Tonscend	TAP9K3G40	AP22A806203	2024.06.19
7	MPF	Tonscend	TAP01018050	AP22C806218	2024.06.19
8	EXA Signal Analyzer	KEYSIGHT	N9010A	MY56070812	2024.02.12
9	MXG Vector Signal Generator	KEYSIGHT	N5182B	MY53052302	2024.02.12
10	Analog Signal Generator	KEYSIGHT	N5173B	MY53051662	2024.03.05

### Section3. TEST SYSTEM UNCERTAINTY

Measurement uncertainty			
Parameter	Conditions	Uncertainty	
RF Output Power	Conducted	0.97dB	
Power Spectral Density	Conducted	1.36dB	
Occupied Channel Bandwidth	Conducted	14.0kHz	
Transmitter unwanted emission in the OOB domain	Conducted	1.36dB	
Transmitter unwanted emission in the spurious domain	Radiated	30MHz-200MHz	3.3dB
		200MHz-1GHz	3.7dB
		1GHz-18GHz	4.5dB
Receiver spurious emissions	Radiated	30MHz-200MHz	3.3dB
		200MHz-1GHz	3.7dB
		1GHz-18GHz	4.5dB

Note: Receiver Blocking test are not included in this report as it is a PASS / FAIL verification, and without any quantifiable values.

## Section4. ETSI EN 300 328 REQUIREMENTS

### 4.1 RF OUTPUT POEWR

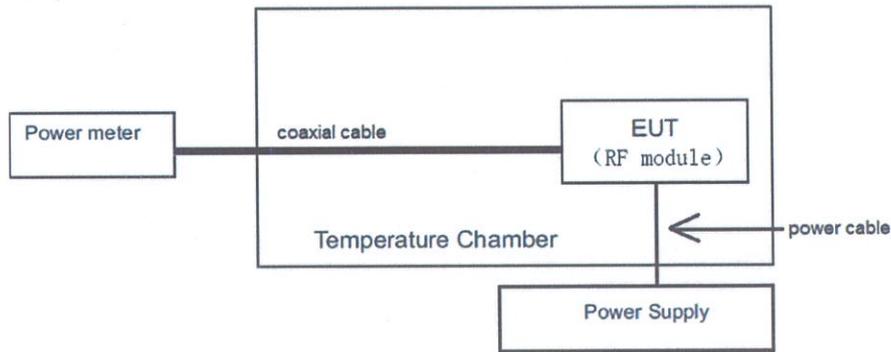
#### 4.1.1 Test Method And Summary

Basic Standard	ETSI EN 300 328 V2.2.2(2019-07)
Clause	5.4.2
Test method	Conducted measurement

#### 4.1.2 Environmental Conditions

Test Date:	Aug. 18, 2023
Address:	No.78 Zhucundadao Rd., Zengcheng District, Guangzhou, Guangdong, 510000, China
Temperature:	24°C
Relative Humidity:	51%
ATM Pressure:	101.0 kPa

#### 4.1.3 Test Setup



#### 4.1.4 Test Result

Test Conditions			Measured Power (dBm)	Limit (dBm)	Verdict
Temperature (°C)	Frequency (MHz)	TestMode			
Ambient	Hop	DH5	-6.62	20	PASS
0°C			-6.64	20	PASS
40°C			-6.93	20	PASS
Ambient		2DH5	-6.73	20	PASS
0°C			-6.68	20	PASS
40°C			-6.99	20	PASS
Ambient		3DH5	-6.69	20	PASS
0°C			-6.64	20	PASS
40°C			-6.81	20	PASS

## 4.2 ACCUMULATED TRANSMIT TIME, FREQUENCY OCCUPATION AND HOPPING SEQUENCE

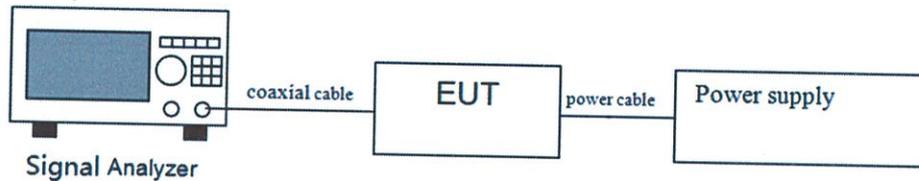
### 4.2.1 Test Method And Summary

Basic Standard	ETSI EN 300 328 V2.2.2(2019-07)
Clause	5.4.4
Test method	Conducted measurement

### 4.2.2 Environmental Conditions

Test Date:	Aug. 18, 2023
Address:	No.78 Zhucundadao Rd., Zengcheng District, Guangzhou, Guangdong, 510000, China
Temperature:	25°C
Relative Humidity:	52%
ATM Pressure:	101.1 kPa

### 4.2.3 Test Setup



### 4.2.4 Test Results

#### Accumulated Transmit Time

TestMode	Freq(MHz)	Result [ms]	Limit[ms]	Verdict
DH5	Hop_2402	307.593	400	PASS
	Hop_2480	305.486	400	PASS
2DH5	Hop_2402	262.297	400	PASS
	Hop_2480	265.457	400	PASS
3DH5	Hop_2402	303.379	400	PASS
	Hop_2480	305.486	400	PASS

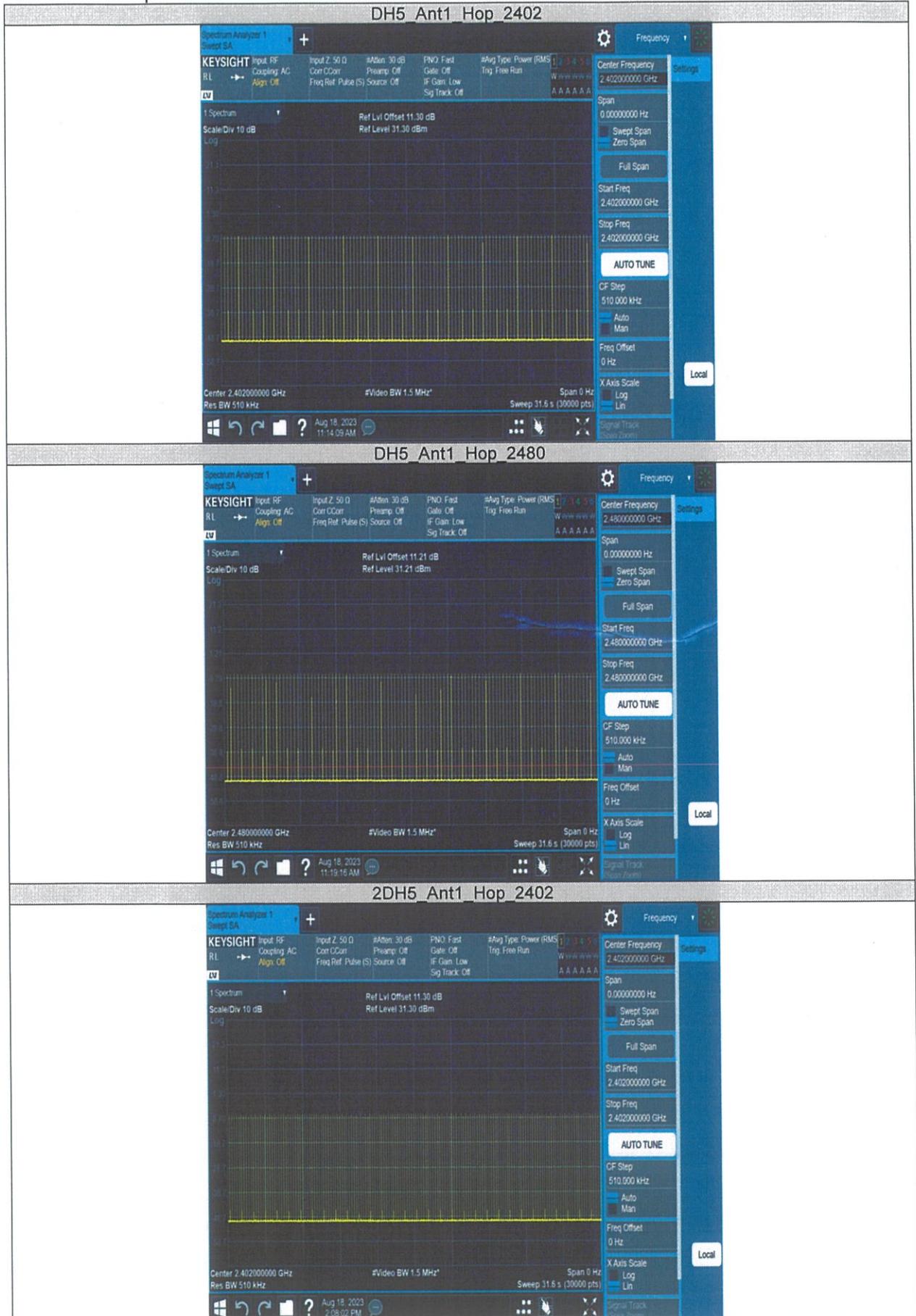
#### Frequency Occupation

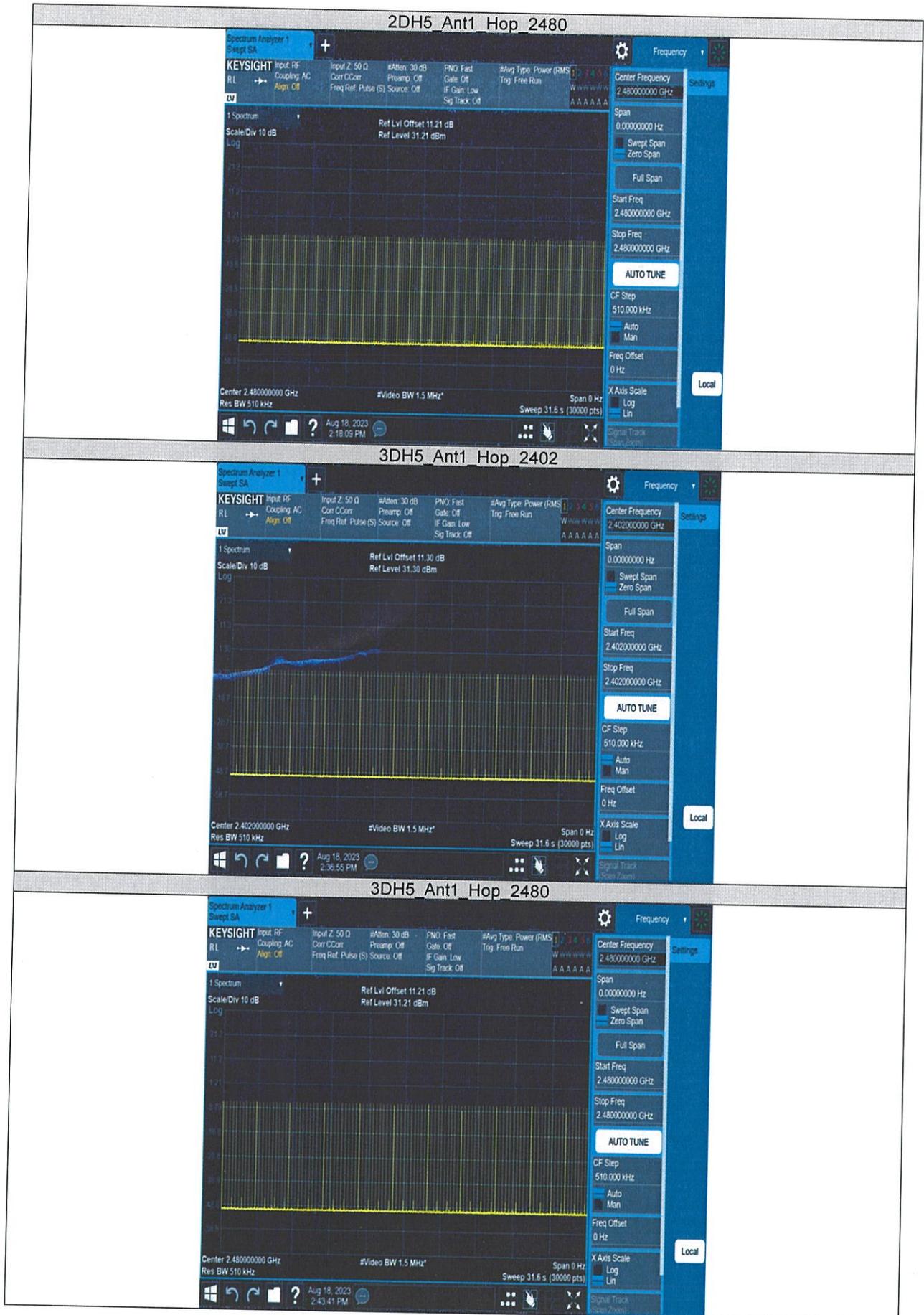
TestMode	Freq(MHz)	Result [Num.]	Limit [Num.]	Verdict
DH5	Hop_2402	3	1	PASS
	Hop_2480	3	1	PASS
2DH5	Hop_2402	3	1	PASS
	Hop_2480	3	1	PASS
3DH5	Hop_2402	3	1	PASS
	Hop_2480	3	1	PASS

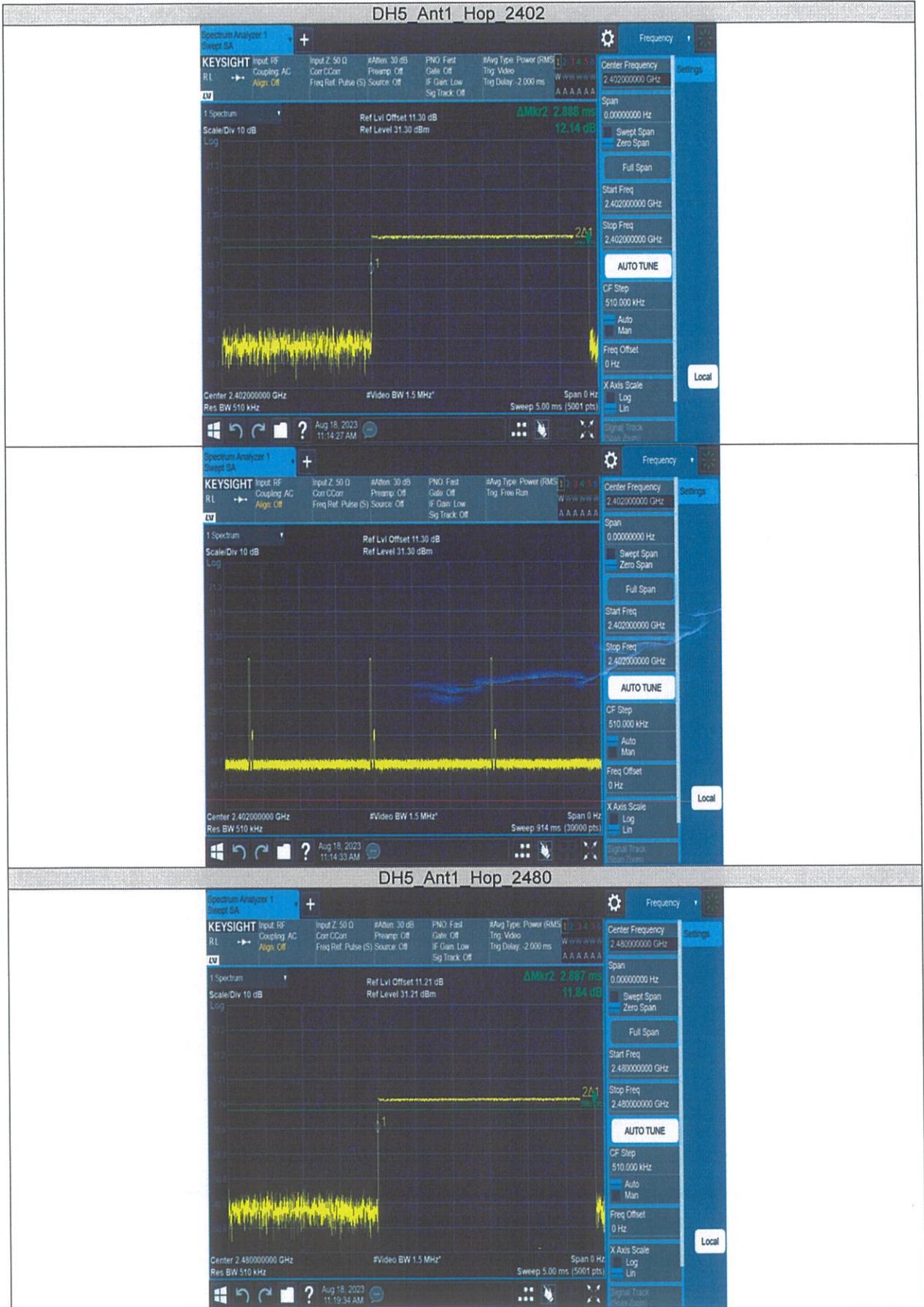
#### Hopping Sequence

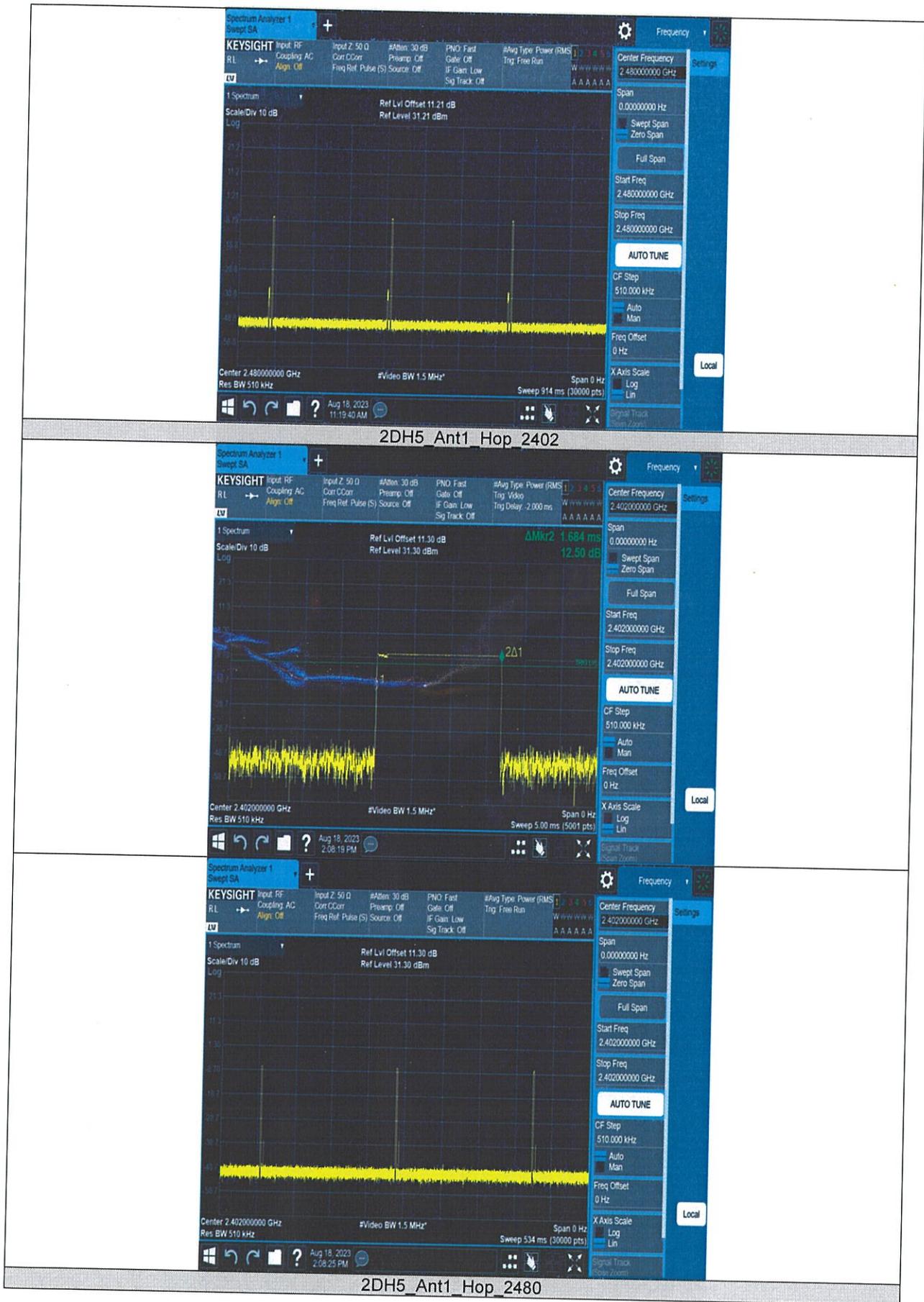
TestMode	Freq(MHz)	Hop. [Num.]	Limit[Num.]	Band Use [%]	Limit [%]	Verdict
DH5	Hop_2402	79	15	95.60	70	PASS
	Hop_2480	79	15	95.60	70	PASS
2DH5	Hop_2402	79	15	95.50	70	PASS
	Hop_2480	79	15	95.50	70	PASS
3DH5	Hop_2402	79	15	95.60	70	PASS
	Hop_2480	79	15	95.20	70	PASS

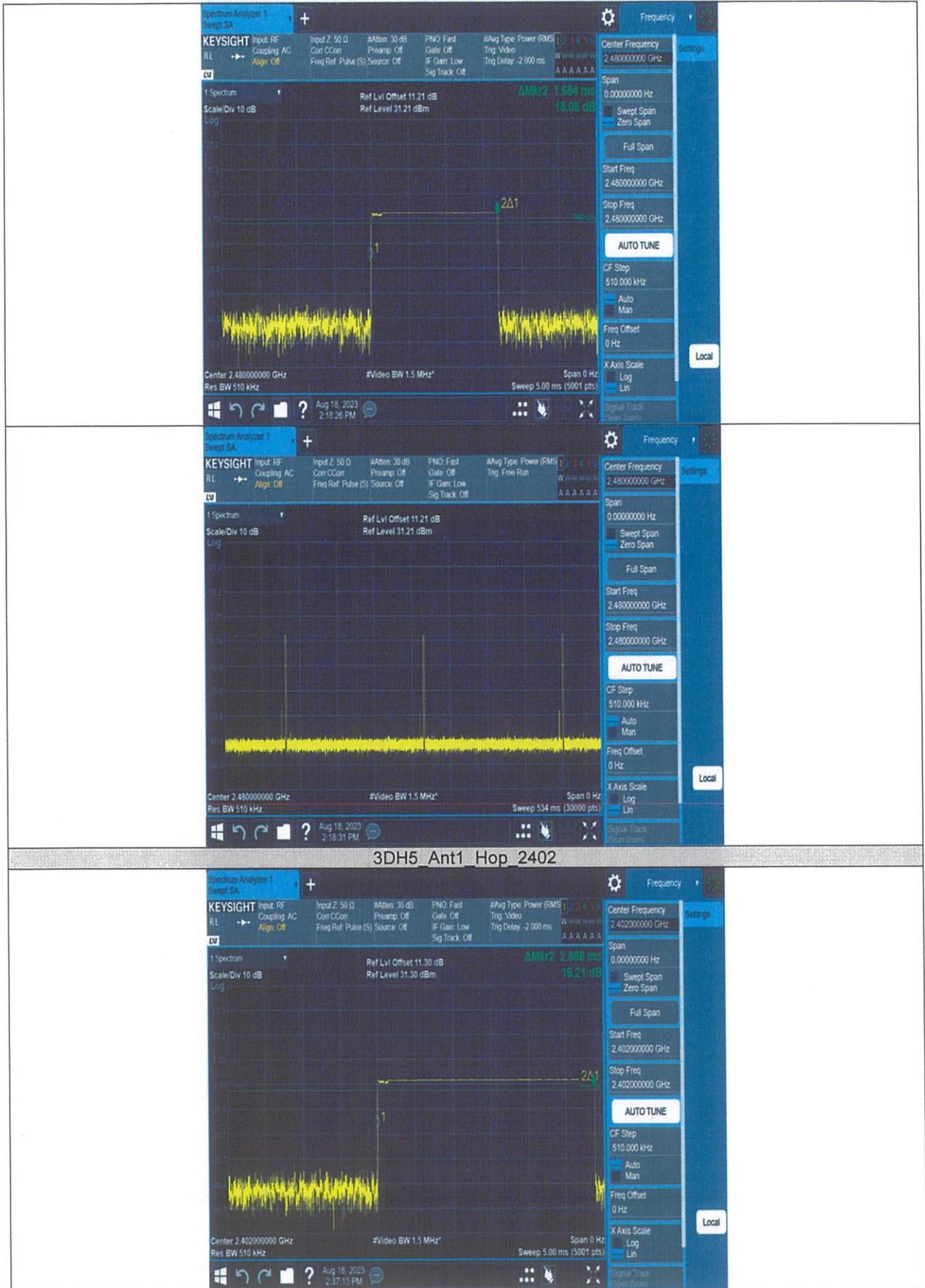
### 4.2.5 Test Graphs



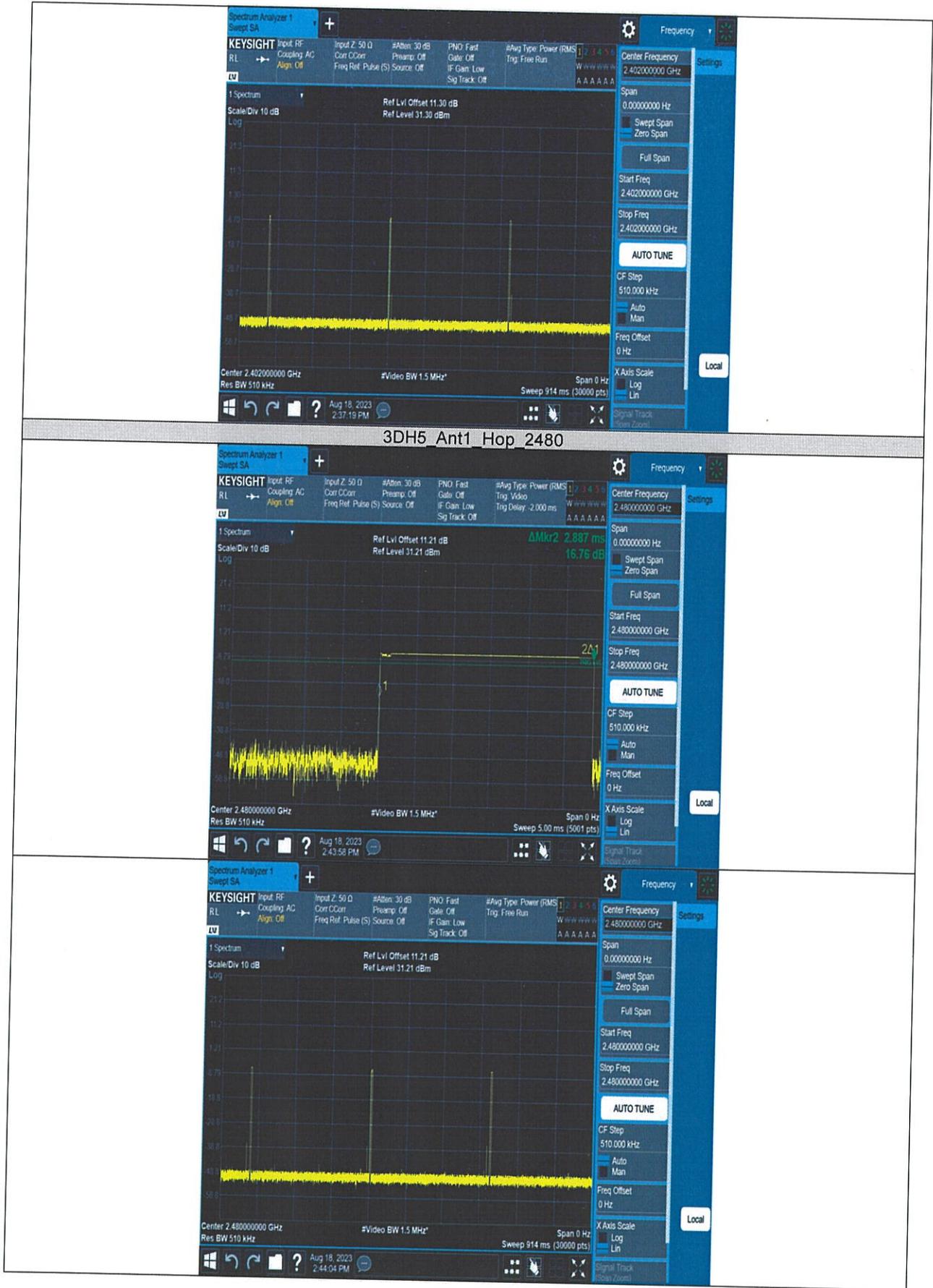




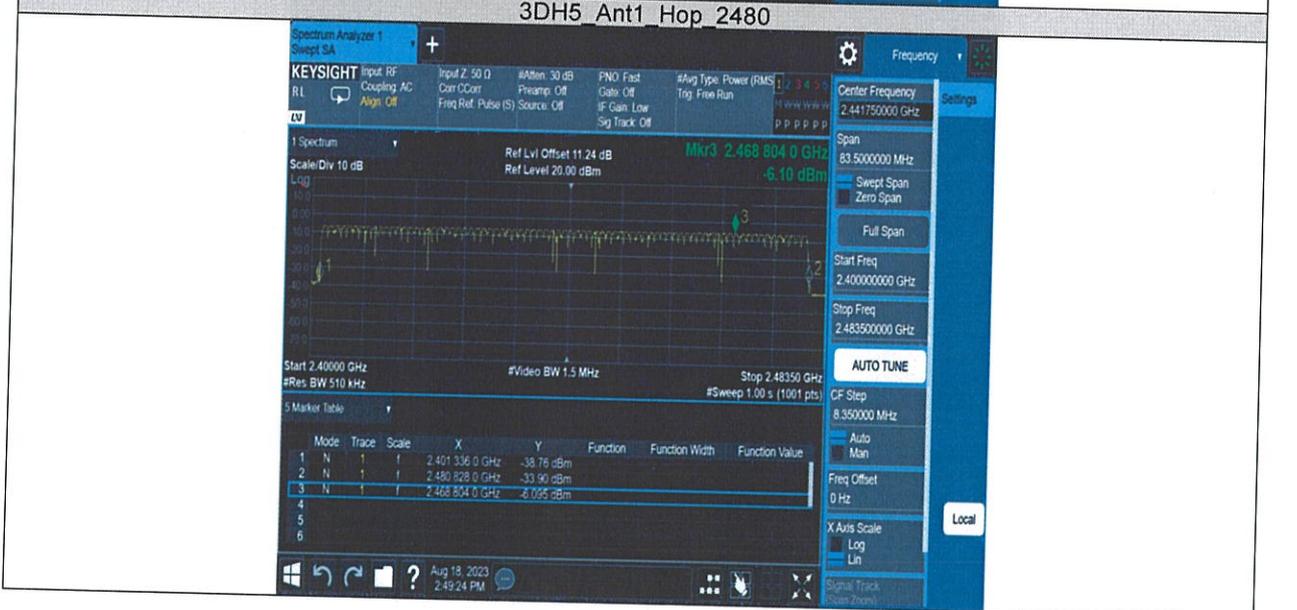
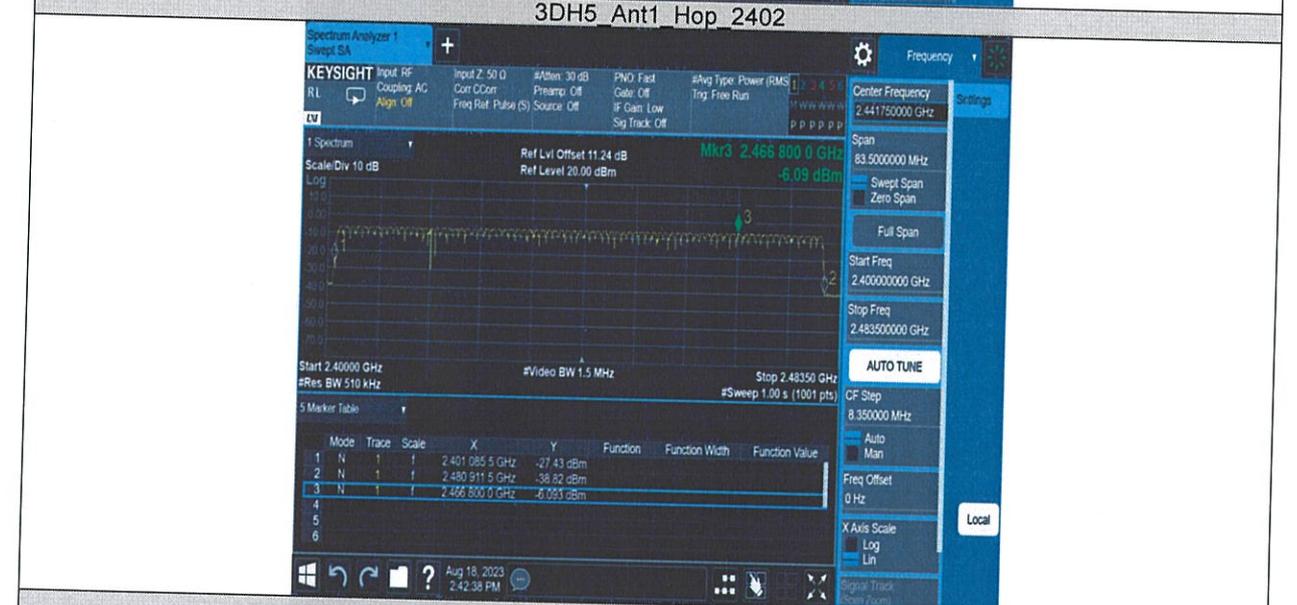




3DH5\_Ant1\_Hop\_2402







### 4.3 HOPPING FREQUENCY SEPARATION

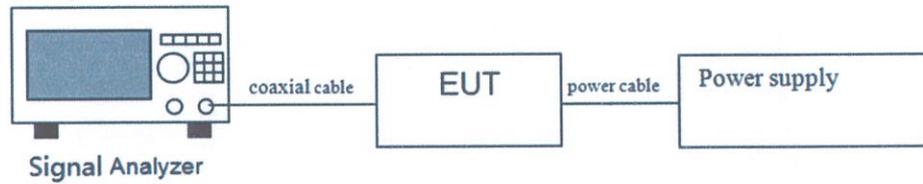
#### 4.3.1 Test Method And Summary

Basic Standard	ETSI EN 300 328 V2.2.2(2019-07)
Clause	5.4.5
Test method	Conducted measurement

#### 4.3.2 Environmental Conditions

Test Date:	Aug. 18, 2023
Address:	No.78 Zhucundadao Rd., Zengcheng District, Guangzhou, Guangdong, 510000, China
Temperature:	25°C
Relative Humidity:	52%
ATM Pressure:	101.1 kPa

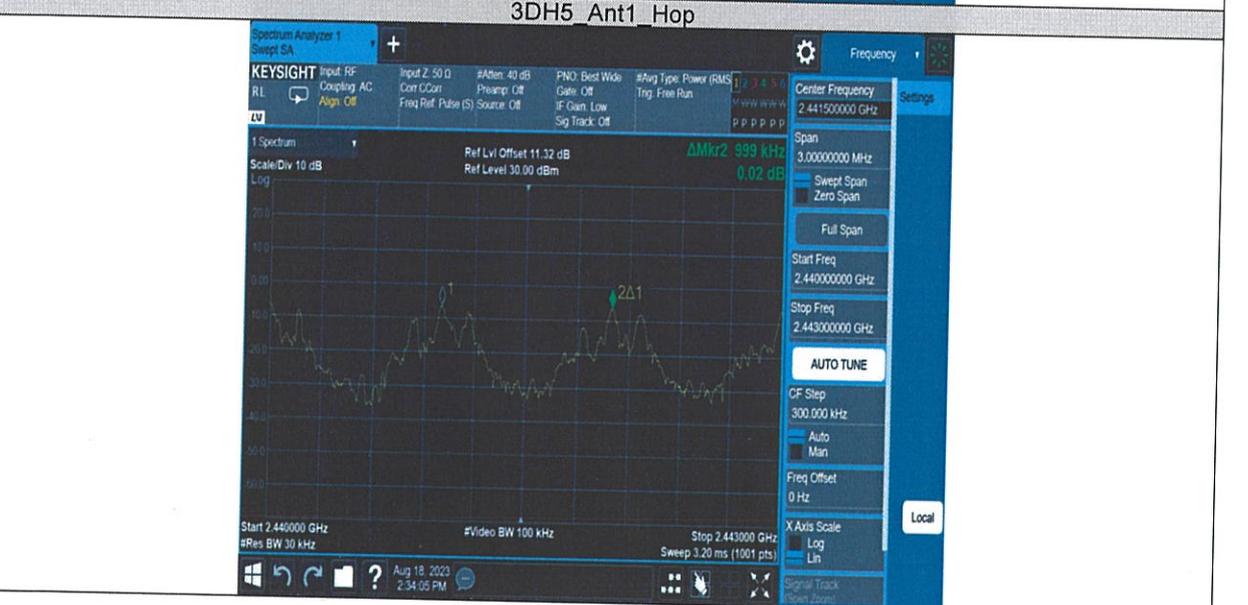
#### 4.3.3 Test Setup



#### 4.3.4 Test Results

TestMode	Freq(MHz)	Result [MHz]	Limit[MHz]	Verdict
DH5	Hop	0.84	0.100	PASS
2DH5	Hop	1.002	0.100	PASS
3DH5	Hop	0.999	0.100	PASS

### 4.3.5 Test Graphs



## 4.4 OCCUPIED CHANNEL BANDWIDTH

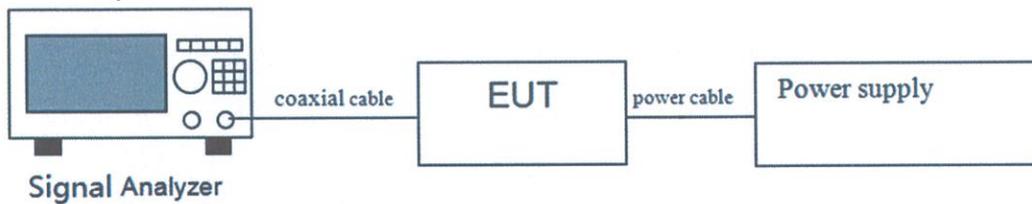
### 4.4.1 Test Method And Summary

Basic Standard	ETSI EN 300 328 V2.2.2(2019-07)
Clause	5.4.7
Test method	Conducted measurement

### 4.4.2 Environmental Conditions

Test Date:	Aug.18, 2023
Address:	No.78 Zhucundadao Rd., Zengcheng District, Guangzhou, Guangdong, 510000, China
Temperature:	24°C
Relative Humidity:	51%
ATM Pressure:	101.0 kPa

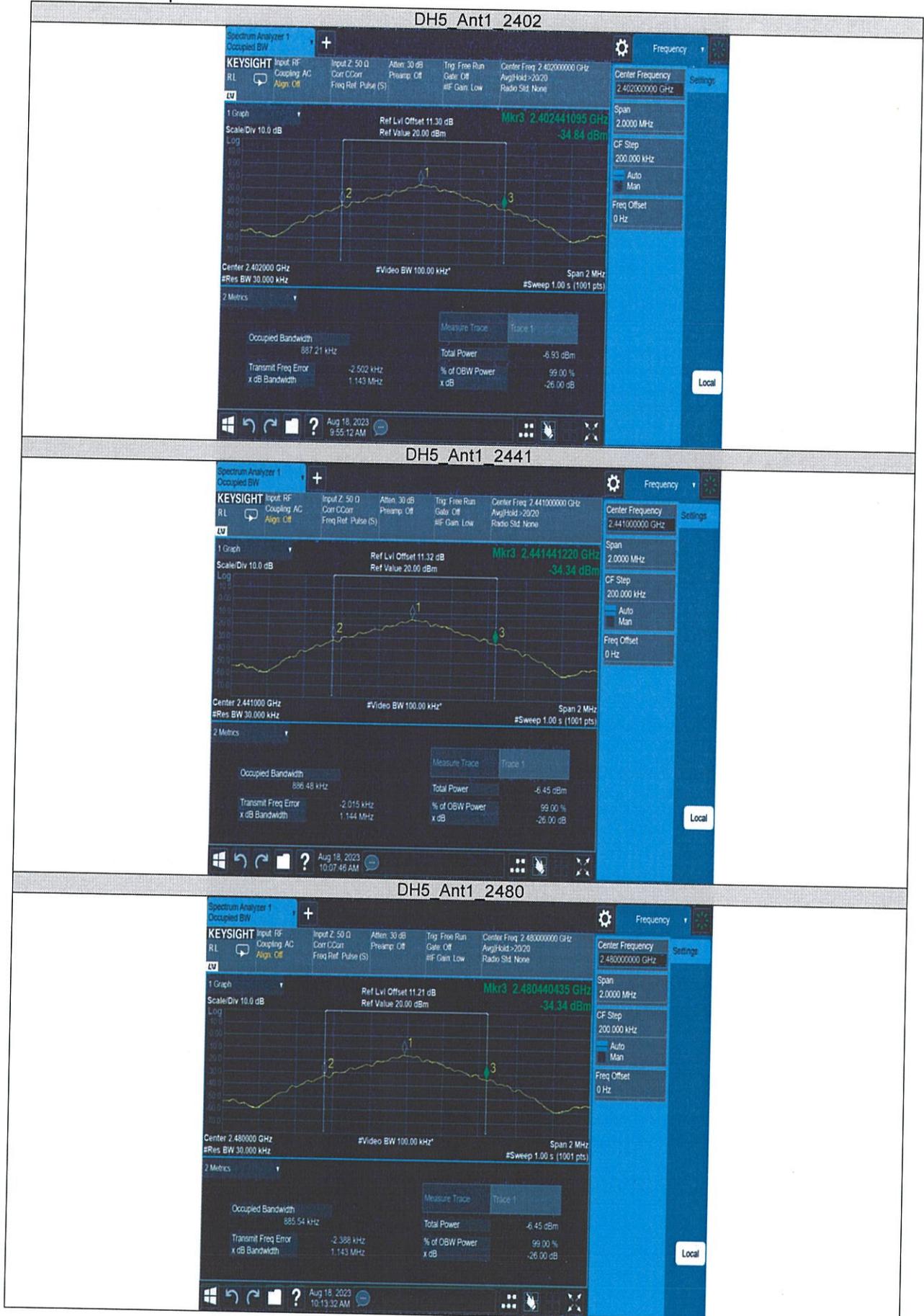
### 4.4.3 Test Setup

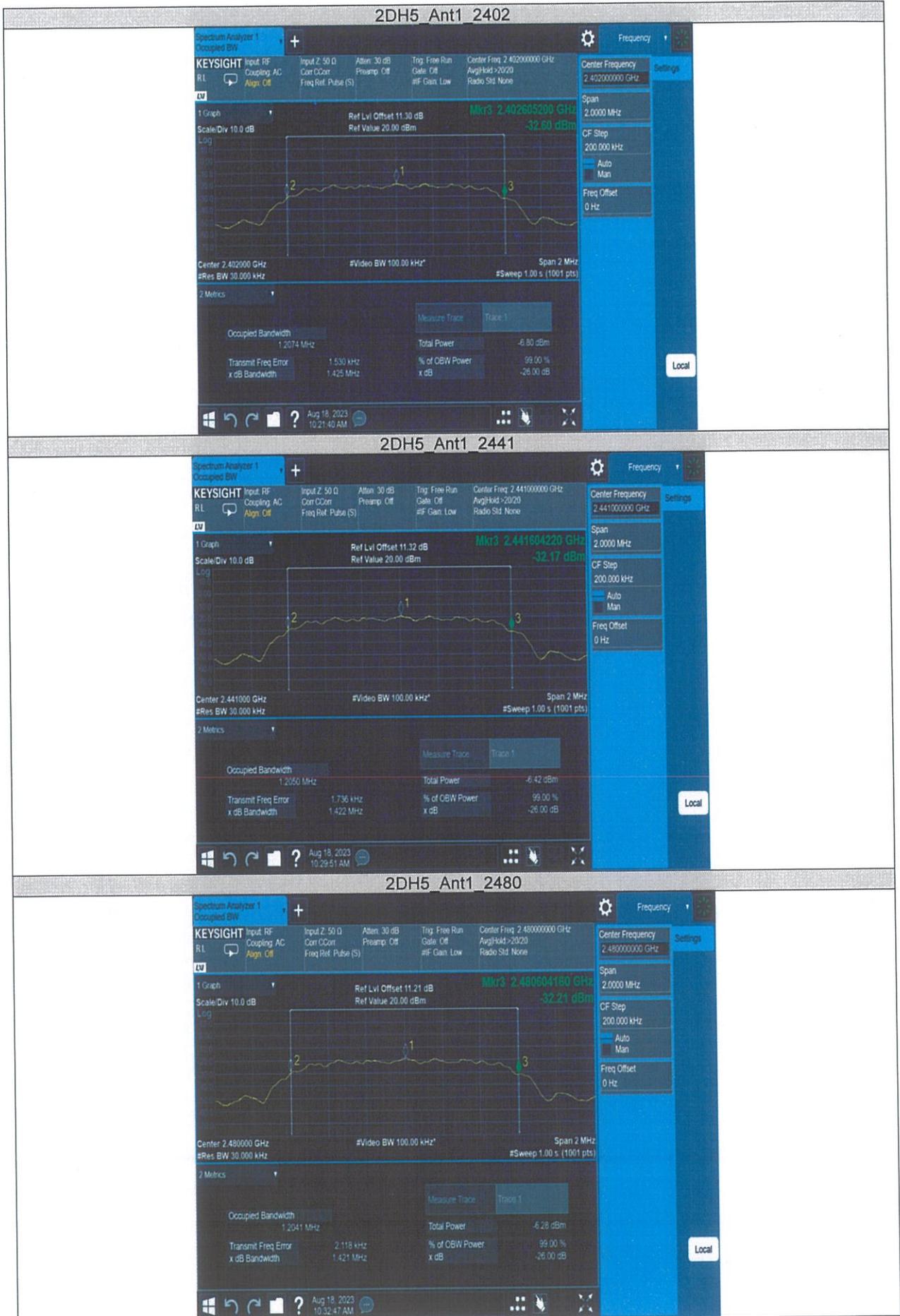


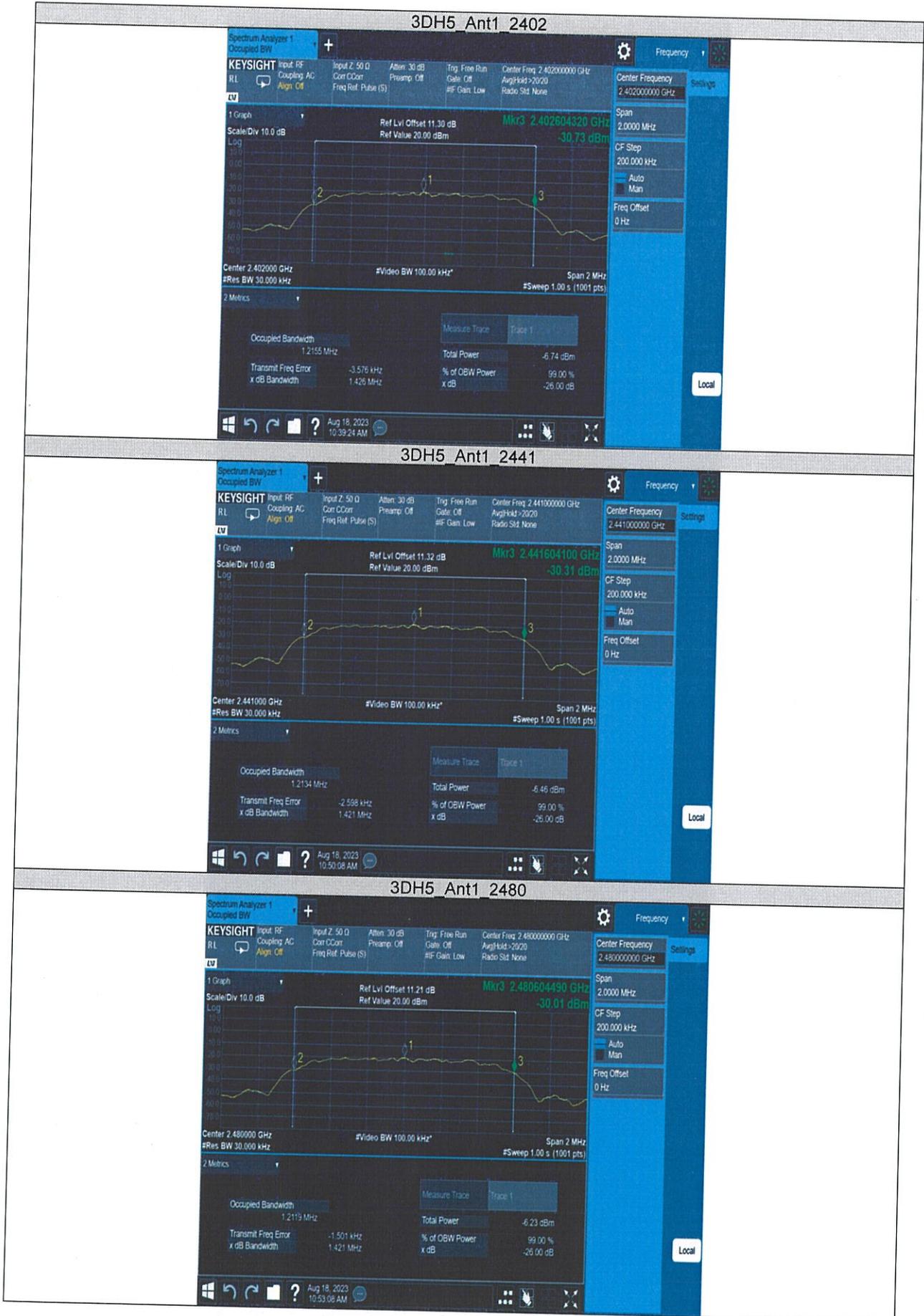
### 4.4.4 Test Results

TestMode	Freq(MHz)	OCB[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	2402	0.88721	2401.5539	2402.4411	2400 to 2483.5	PASS
	2441	0.88648	2440.5547	2441.4412	2400 to 2483.5	PASS
	2480	0.88563	2479.5548	2480.4404	2400 to 2483.5	PASS
2DH5	2402	1.2074	2401.3978	2402.6052	2400 to 2483.5	PASS
	2441	1.2050	2440.3992	2441.6042	2400 to 2483.5	PASS
	2480	1.2041	2479.4001	2480.6042	2400 to 2483.5	PASS
3DH5	2402	1.2158	2401.3885	2402.6043	2400 to 2483.5	PASS
	2441	1.2134	2440.3907	2441.6041	2400 to 2483.5	PASS
	2480	1.2120	2479.3925	2480.6045	2400 to 2483.5	PASS

### 4.4.5 Test Graphs







## 4.5 TRANSMITTER UNWANTED EMISSION IN THE OUT-OF BAND

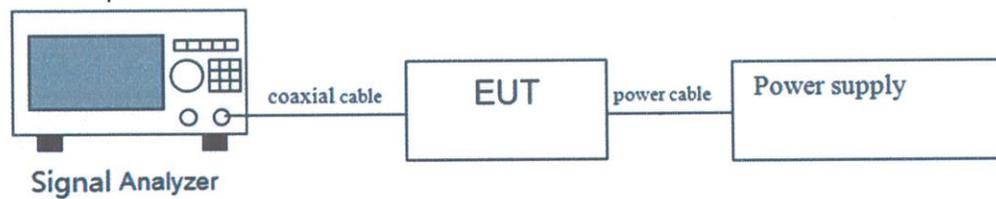
### 4.5.1 Test Method And Summary

Basic Standard	ETSI EN 300 328 V2.2.2(2019-07)
Clause	5.4.8
Test method	Conducted measurement

### 4.5.2 Environmental Conditions

Test Date:	Aug.20, 2023
Address:	No.78 Zhucundadao Rd., Zengcheng District, Guangzhou, Guangdong, 510000, China
Temperature:	24°C
Relative Humidity:	51%
ATM Pressure:	101.0 kPa

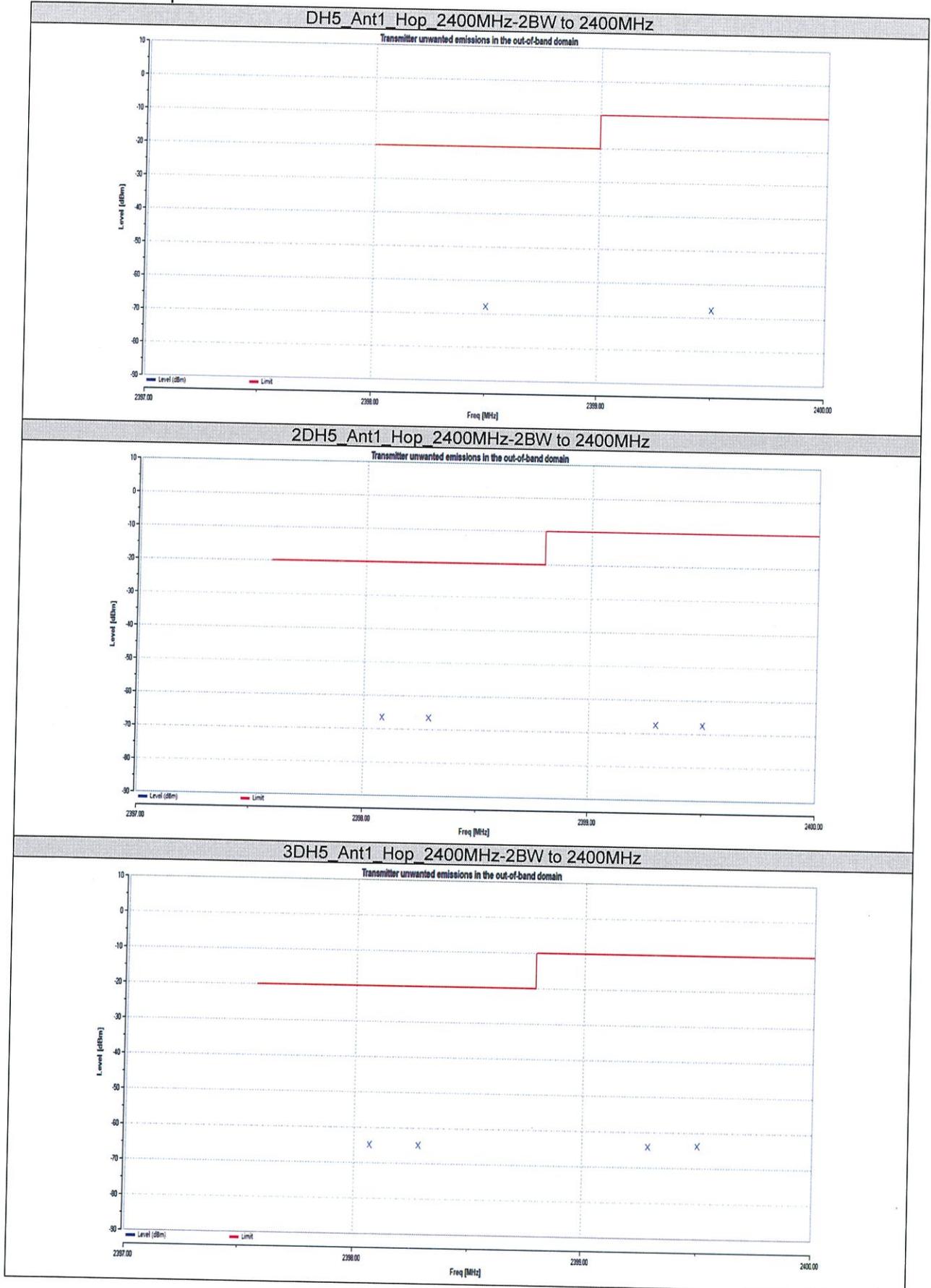
### 4.5.3 Test Setup



### 4.5.4 Test Results

TestMode	Freq(MHz)	Freq. [MHz]	Level[dBm]	Limit[dBm]	Verdict
DH5	Hop	2398.5	-67.72	-20.00	PASS
		2399.5	-67.72	-10.00	PASS
2DH5	Hop	2398.09	-66.43	-20.00	PASS
		2399.29	-67.33	-10.00	PASS
3DH5	Hop	2398.28	-64.73	-20.00	PASS
		2399.5	-63.64	-10.00	PASS

### 4.5.5 Test Graphs



## 4.6 TRANSMITTER UNWANTED EMISSIONS IN THE SPURIOUS DOMAIN

### 4.6.1 Test Method And Summary

Basic Standard	ETSI EN 300 328 V2.2.2(2019-07)
Clause	5.4.9
Test method	Radiated measurement

### 4.6.2 Environmental Conditions

Test Date:	Aug.20, 2023
Address:	No.78 Zhucundadao Rd., Zengcheng District, Guangzhou, Guangdong, 510000, China
Temperature:	24°C
Relative Humidity:	51%
ATM Pressure:	101.1 kPa

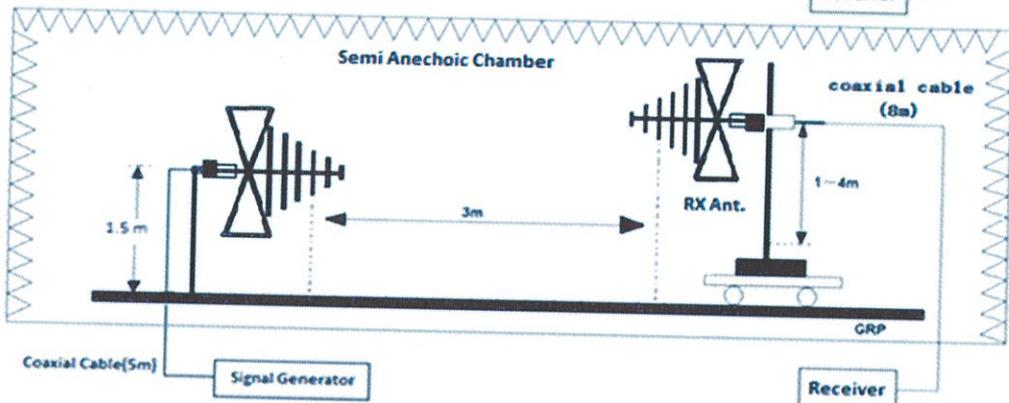
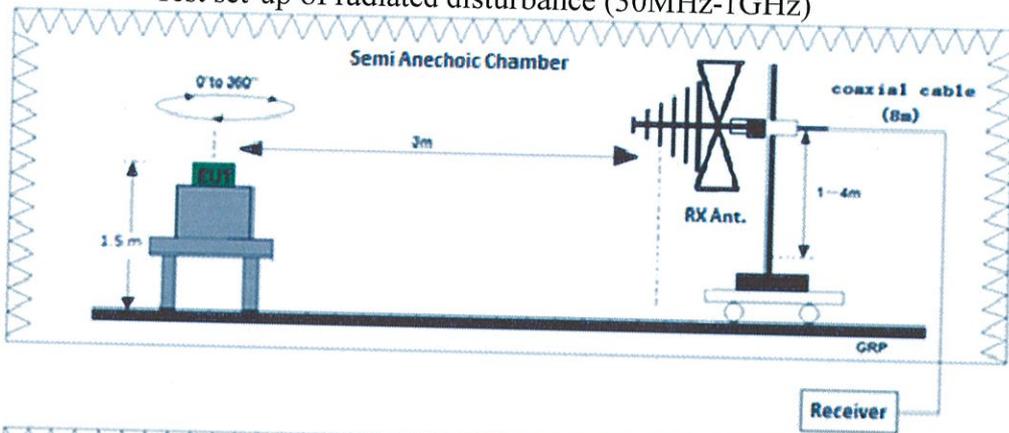
### 4.6.3 Limit

The transmitter unwanted emissions in the spurious domain shall not exceed the values.

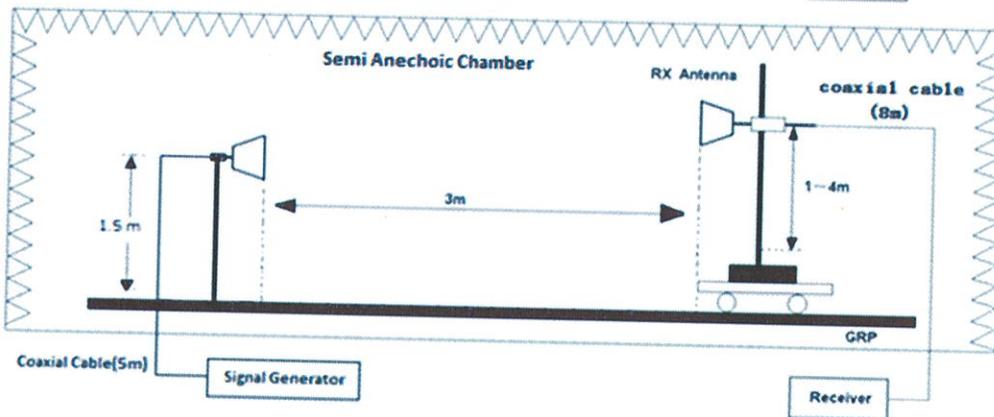
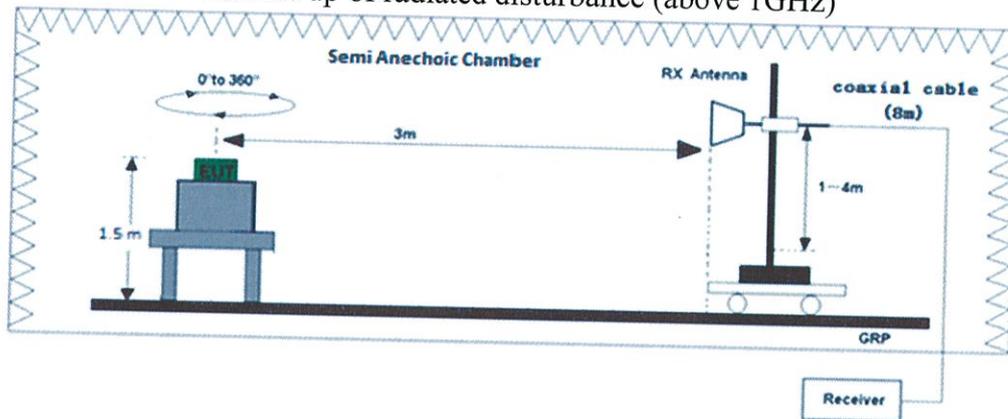
Frequency Range	Maximum power	bandwidth
30 MHz to 47 MHz	-36dBm	100kHz
47 MHz to 74 MHz	-54dBm	100kHz
74 MHz to 87.5 MHz	-36dBm	100kHz
87.5MHz to118 MHz	-54dBm	100kHz
118 MHz to174MHz	-36dBm	100kHz
174MHz to 230MHz	-54dBm	100kHz
230 MHz to 470 MHz	-36dBm	100kHz
470 MHz to 694MHz	-54dBm	100kHz
694 MHz to1 GHz	-36dBm	100kHz
1GHz to12.75 GHz	-30dBm	1MHz

### 4.6.4 Test Setup

Test set-up of radiated disturbance (30MHz-1GHz)



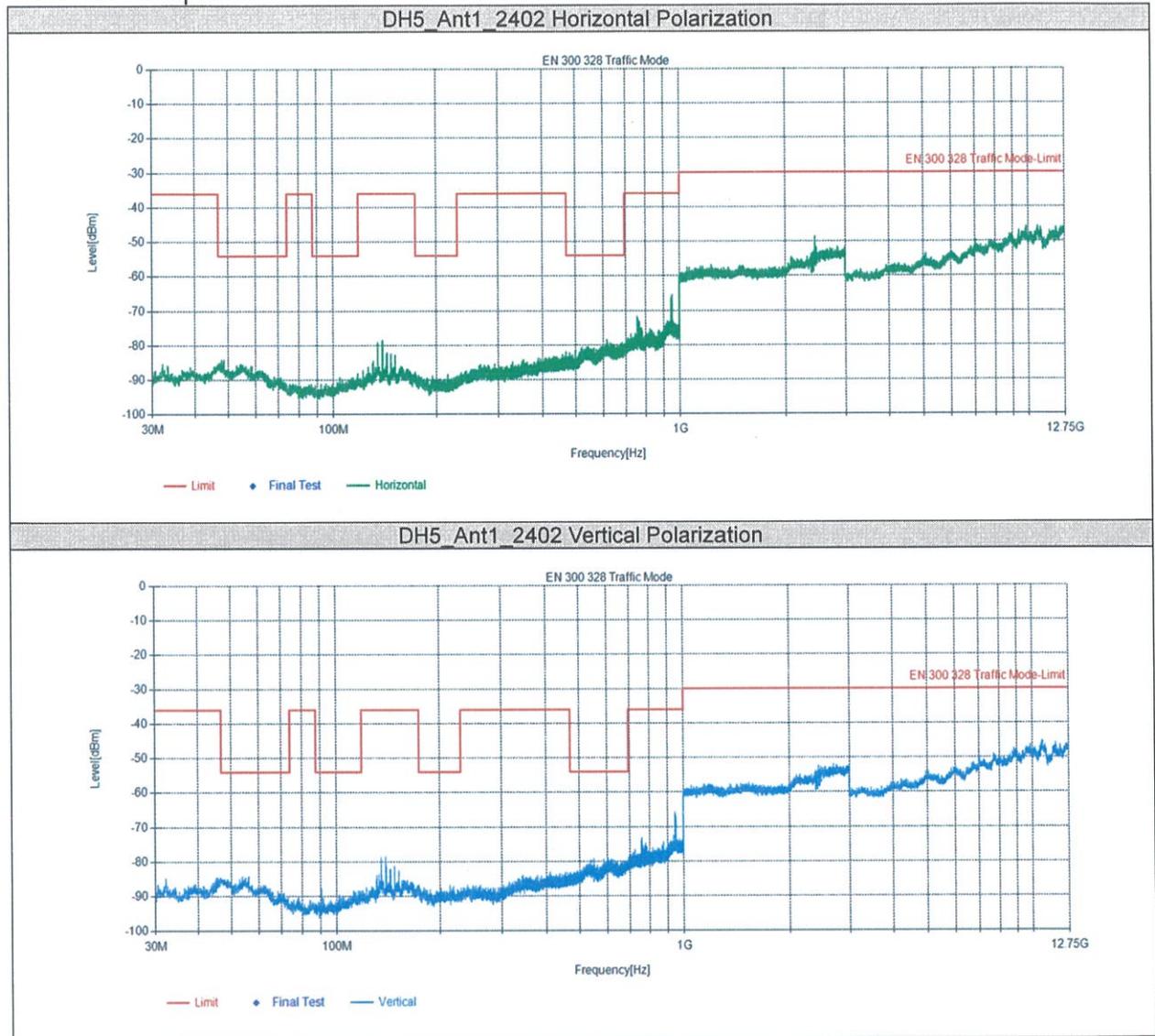
Test set-up of radiated disturbance (above 1GHz)



### 4.6.5 Test Result

TestMode	Antenna	Freq(MHz)	Test Result	Verdict
DH5	Ant1	2402	See Test Graphs	PASS

### 4.6.6 Test Graphs



## 4.7 RECEIVER SPURIOUS EMISSIONS

### 4.7.1 Test Method And Summary

Basic Standard	ETSI EN 300 328 V2.2.2(2019-07)
Clause	5.4.10
Test method	Radiated measurement

### 4.7.2 Environmental Conditions

Test Date:	Sep.16, 2021
Address:	No.46 Tianhui Rd., Tianhe District, Guangzhou, Guangdong, 510663, China
Temperature:	24°C
Relative Humidity:	51%
ATM Pressure:	101.1 kPa

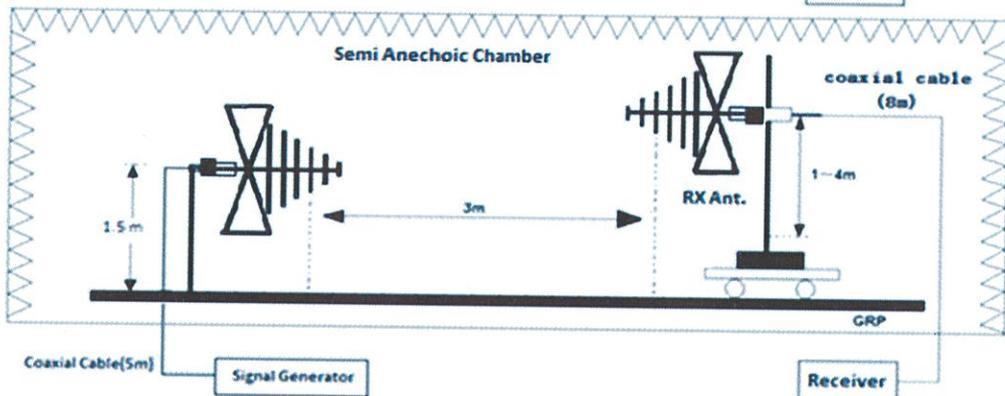
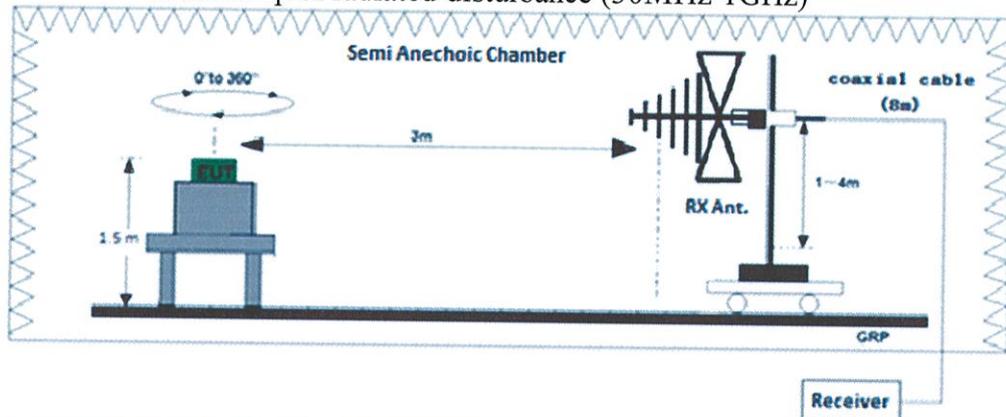
### 4.7.3 Limit

The transmitter unwanted emissions in the spurious domain shall not exceed the values.

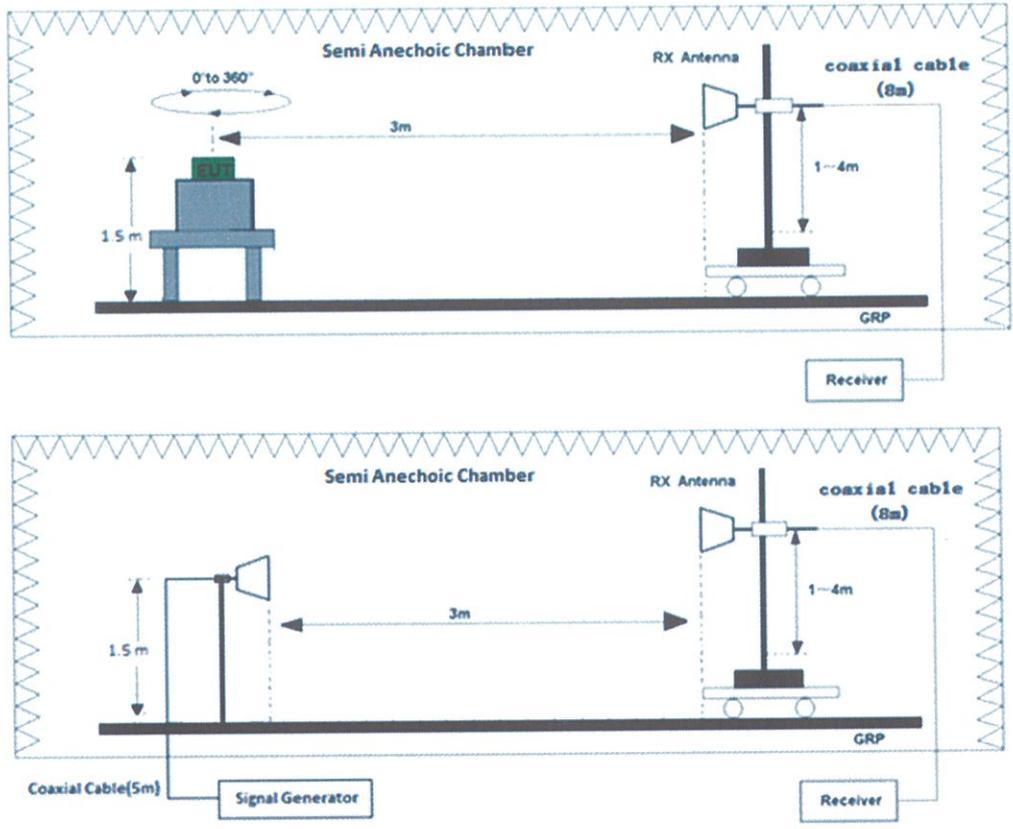
Frequency Range	Maximum power	Measurement Width
30 MHz to 1 GHz	-57 dBm	100kHz
1 GHz to 12.75 GHz	-47 dBm	1MHz

### 4.7.4 Test Setup

Test set-up of radiated disturbance (30MHz-1GHz)



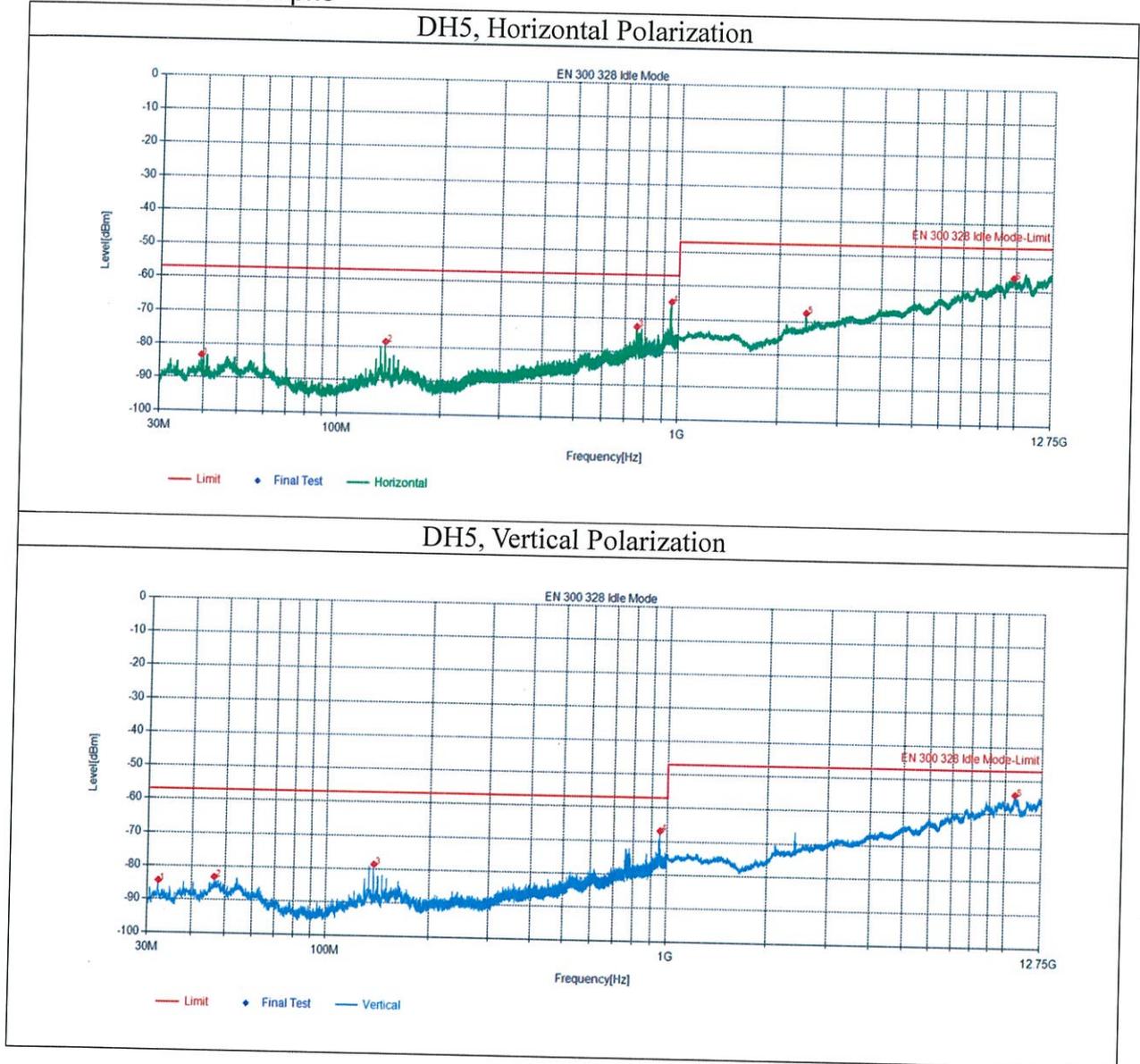
Test set-up of radiated disturbance (above 1GHz)



### 4.7.5 Test Results

TestMode	Antenna	Freq(MHz)	Test Result	Verdict
DH5	Ant1	2402	See Test Graphs	PASS

### 4.7.6 Test Graphs



## 4.8 RECEIVER BLOCKING

### 4.8.1 Test Method And Summary

Basic Standard	ETSI EN 300 328 V2.2.2(2019-07)
Clause	5.4.11
Test method	Conducted measurement

### 4.8.2 Environmental Conditions

Test Date:	Aug.23, 2023
Address:	No.78 Zhucundadao Rd., Zengcheng District, Guangzhou, Guangdong, 510000, China
Temperature:	24°C
Relative Humidity:	51%
ATM Pressure:	101.1 kPa

### 4.8.3 Limit

The minimum performance criterion shall be a PER less than or equal to 10 %. The manufacturer may declare alternative performance criteria as long as that is appropriate for the intended use of the equipment (see clause 5.4.1.t)).

#### ■ General

While maintaining the minimum performance criteria as defined in clause 4.3.2.11.4.1 the blocking levels at specified frequency offsets shall be equal to or greater than the limits defined for the applicable receiver category provided in below.

#### ●Receiver Category 1

Receiver Blocking parameters for Receiver Category 1 equipment

Wanted signal mean power from companion device (dBm) (see notes 1 and 4)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 4)	Type of blocking signal
$(-133 \text{ dBm} + 10 \times \log_{10}(\text{OCBW}))$ or $-68 \text{ dBm}$ whichever is less (see note 2)	2 380 2 504	-34	CW
$(-139 \text{ dBm} + 10 \times \log_{10}(\text{OCBW}))$ or $-74 \text{ dBm}$ whichever is less (see note 3)	2 300 2 330 2 360 2 524 2 584 2 674		

NOTE 1: OCBW is in Hz.

NOTE 2: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to  $P_{\text{min}} + 26 \text{ dB}$  where  $P_{\text{min}}$  is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.

NOTE 3: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to  $P_{\text{min}} + 20 \text{ dB}$  where  $P_{\text{min}}$  is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.

NOTE 4: The level specified is the level at the UUT receiver input assuming a 0 dBi antenna assembly gain. In case of conducted measurements, this level has to be corrected for the (in-band) antenna assembly gain (G). In case of radiated measurements, this level is equivalent to a power flux density (PFD) in front of the UUT antenna with the UUT being configured/positioned as recorded in clause 5.4.3.2.2.

●Receiver Category 2

Receiver Blocking parameters receiver category 2 equipment

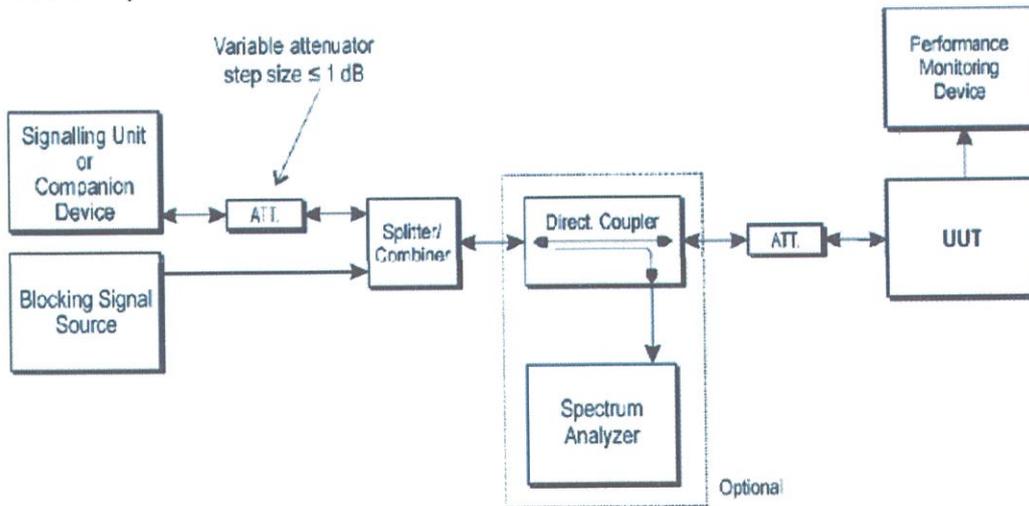
Wanted signal mean power from companion device (dBm) (see notes 1 and 3)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 3)	Type of blocking signal
$(-139 \text{ dBm} + 10 \times \log_{10}(\text{OCBW}) + 10 \text{ dB})$ or $(-74 \text{ dBm} + 10 \text{ dB})$ whichever is less (see note 2)	2 380 2 504 2 300 2 584	-34	CW
NOTE 1: OCBW is in Hz. NOTE 2: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to $P_{\min} + 26 \text{ dB}$ where $P_{\min}$ is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal. NOTE 3: The level specified is the level at the UUT receiver input assuming a 0 dBi antenna assembly gain. In case of conducted measurements, this level has to be corrected for the (in-band) antenna assembly gain (G). In case of radiated measurements, this level is equivalent to a power flux density (PFD) in front of the UUT antenna with the UUT being configured/positioned as recorded in clause 5.4.3.2.2.			

●Receiver Category 3

Receiver Blocking parameters receiver category 3 equipment

Wanted signal mean power from companion device (dBm) (see notes 1 and 3)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 3)	Type of blocking signal
$(-139 \text{ dBm} + 10 \times \log_{10}(\text{OCBW}) + 20 \text{ dB})$ or $(-74 \text{ dBm} + 20 \text{ dB})$ whichever is less (see note 2)	2 380 2 504 2 300 2 584	-34	CW
NOTE 1: OCBW is in Hz. NOTE 2: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to $P_{\min} + 30 \text{ dB}$ where $P_{\min}$ is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal. NOTE 3: The level specified is the level at the UUT receiver input assuming a 0 dBi antenna assembly gain. In case of conducted measurements, this level has to be corrected for the (in-band) antenna assembly gain (G). In case of radiated measurements, this level is equivalent to a power flux density (PFD) in front of the UUT antenna with the UUT being configured/positioned as recorded in clause 5.4.3.2.2.			

### 4.8.4 Test Setup



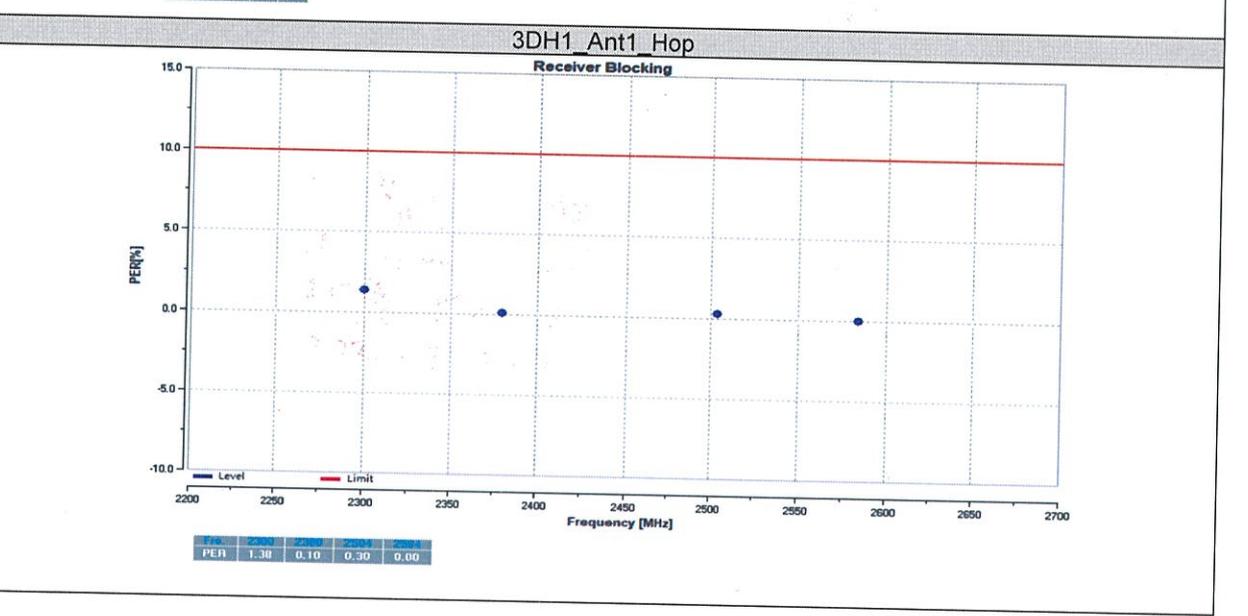
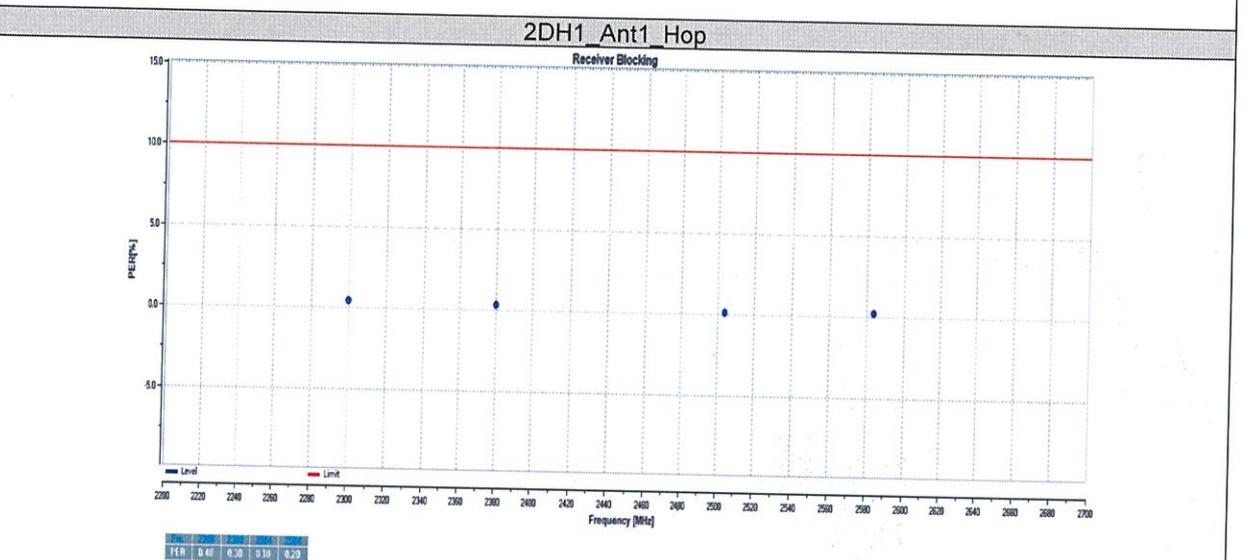
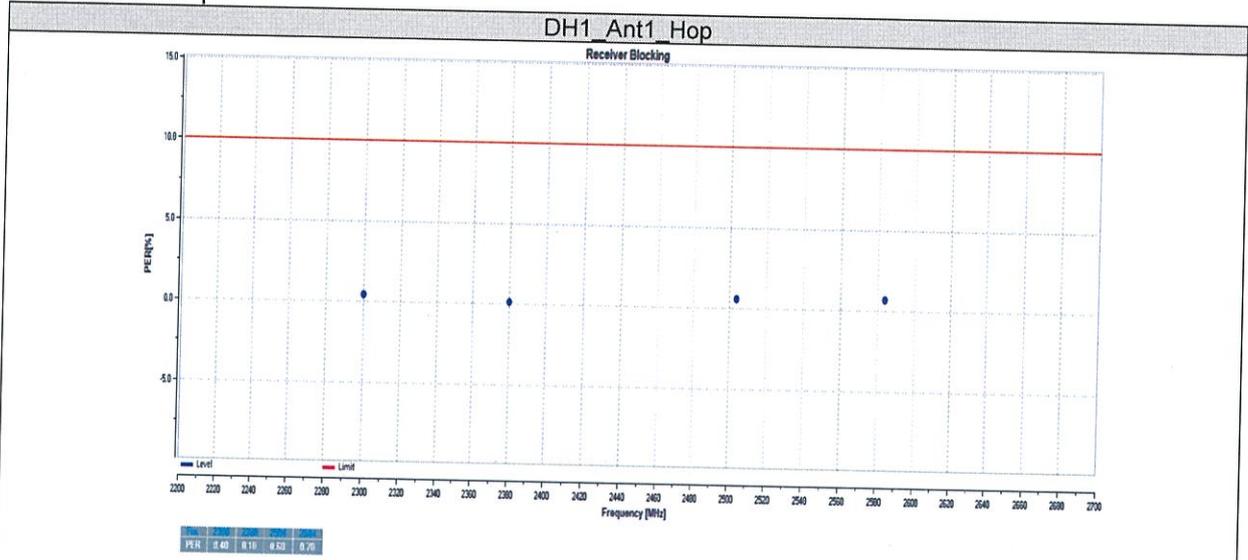
### 4.8.5 Test Results

#### Receiver category

<input type="checkbox"/>	Receiver category 1	Adaptive equipment with a maximum RF output power greater than 10 dBm e.i.r.p. shall be considered as receiver category 1 equipment.
<input type="checkbox"/>	Receiver category 2	Non-adaptive equipment with a Medium Utilization (MU) factor greater than 1 % and less than or equal to 10 % or adaptive equipment with a maximum RF output power of 10 dBm e.i.r.p. shall be considered as receiver category 2 equipment.
<input checked="" type="checkbox"/>	Receiver category 3	Non-adaptive equipment with a maximum Medium Utilization (MU) factor of 1 % or adaptive equipment with a maximum RF output power of 0dBm e.i.r.p. shall be considered as receiver category 3 equipment.

TestMode	Antenna	Freq(MHz)	Pmin [dBm]	Wanted signal [dBm]	Freq. [MHz]	CW [dBm]	PER [%]	Limit [%]	Verdict
DH5	Ant1	Hop	---	-69.61	2300	-34	0.40	$\leq 10$	PASS
			---	-69.61	2380	-34	0.10	$\leq 10$	PASS
			---	-69.61	2504	-34	0.60	$\leq 10$	PASS
			---	-69.61	2584	-34	0.70	$\leq 10$	PASS
2DH5	Ant1	Hop	---	-60.97	2300	-34	0.40	$\leq 10$	PASS
			---	-60.97	2380	-34	0.30	$\leq 10$	PASS
			---	-60.97	2504	-34	0.10	$\leq 10$	PASS
			---	-60.97	2584	-34	0.20	$\leq 10$	PASS
3DH5	Ant1	Hop	---	-61.22	2300	-34	1.38	$\leq 10$	PASS
			---	-61.22	2380	-34	0.12	$\leq 10$	PASS
			---	-61.22	2504	-34	0.35	$\leq 10$	PASS
			---	-61.22	2584	-34	0.01	$\leq 10$	PASS

### 4.8.6 Test Graphs



END OF THE TEST REPORT