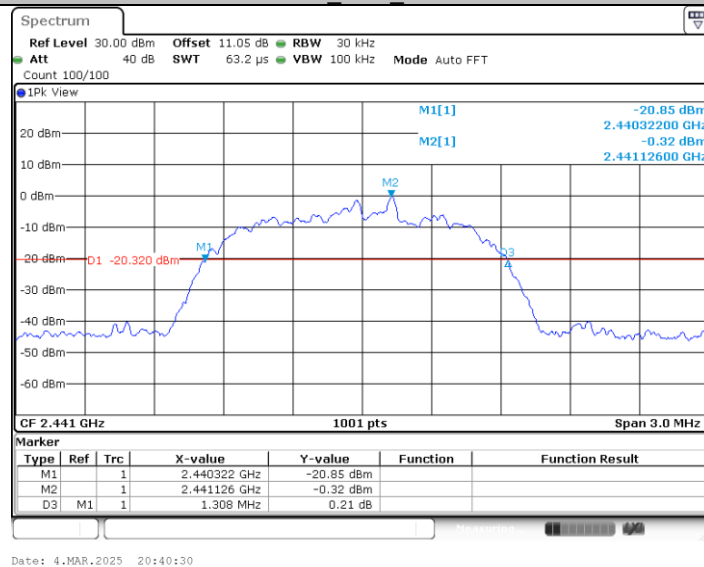
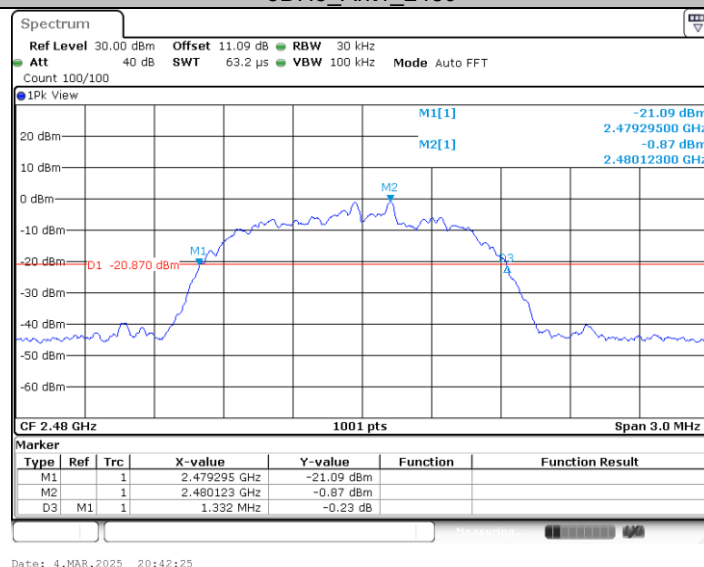


## 3DH5\_Ant1\_2441



## 3DH5\_Ant1\_2480



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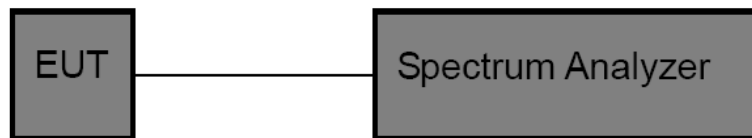
### 3.6. Channel Separation

#### Limit

#### FCC CFR Title 47 Part 15 Subpart C Section 15.247 (a)(1)

Test Item	Limit	Frequency Range (MHz)
Channel Separation	>25kHz or >two-thirds of the 20 dB bandwidth Which is greater	2400~2483.5

#### Test Configuration



#### Test Procedure

1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
2. Spectrum Setting:
  - (1) Set RBW = 100 kHz.
  - (2) Set the video bandwidth (VBW)  $\geq 3$  RBW.
  - (3) Detector = Peak.
  - (4) Trace mode = Max hold.
  - (5) Sweep = Auto couple.

#### Test Mode

Please refer to the clause 2.4.

#### Test Result

Test Mode	Frequency (MHz)	Carrier Frequencies Separation (MHz)	Limit (MHz)	Verdict
GFSK	Hop_2441	1.035	>0.633	Pass
$\pi/4$ -DQPSK	Hop_2441	0.991	>0.897	Pass
8-DPSK	Hop_2441	0.988	>0.887	Pass



Test plot as follows:



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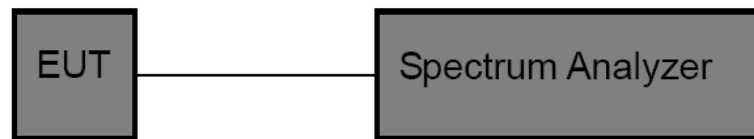
### 3.7. Number of Hopping Channel

#### Limit

#### FCC CFR Title 47 Part 15 Subpart C Section 15.247 (a)(iii)

Section	Test Item	Limit
15.247 (a)(iii) RSS-247 5.1 d	Number of Hopping Channel	$\geq 15$

#### Test Configuration



#### Test Procedure

1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
2. Spectrum Setting:
  - (1) Peak Detector: RBW=100 kHz, VBW $\geq$ RBW, Sweep time= Auto.

#### Test Mode

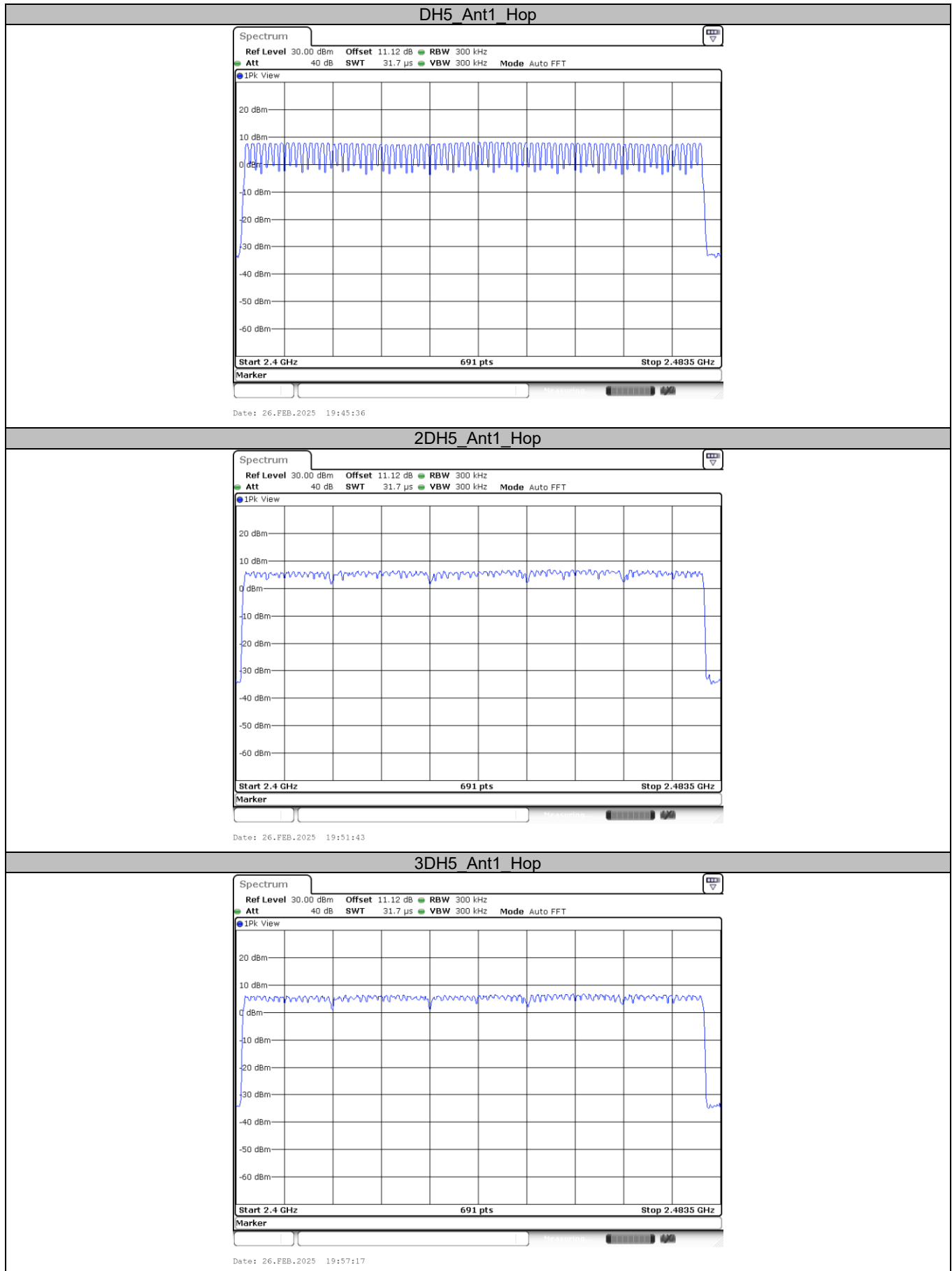
Please refer to the clause 2.4.

#### Test Result

Test Mode	Channel Number	Limit	Verdict
GFSK	79	$\geq 15$	Pass
$\pi/4$ -DQPSK	79	$\geq 15$	Pass
8-DPSK	79	$\geq 15$	Pass



Test plot as follows:



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TRF No: CTC-TR-059\_A2



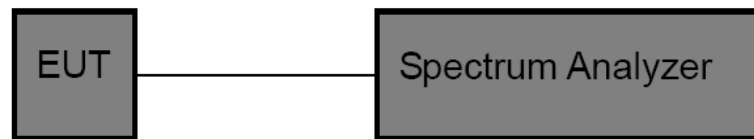
### 3.8. Dwell Time

#### Limit

#### FCC CFR Title 47 Part 15 Subpart C Section 15.247 (a)(iii)

Section	Test Item	Limit
15.247 (a)(iii) RSS-247 5.1 d	Average Time of Occupancy	0.4 sec

#### Test Configuration



#### Test Procedure

1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
2. Spectrum Setting:
  - (1) Spectrum Setting: RBW=1MHz, VBW $\geq$ RBW.
  - (2) Use video trigger with the trigger level set to enable triggering only on full pulses.
  - (3) Sweep Time is more than once pulse time.
  - (4) Set the center frequency on any frequency would be measure and set the frequency span to zero.
  - (5) Measure the maximum time duration of one single pulse.
  - (6) Set the EUT for packet transmitting.

#### Test Mode

Please refer to the clause 2.4.

**Test Result**

TestMode	Antenna	Freq(MHz)	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Hop	0.366	320	0.117	≤0.4	PASS
DH3	Ant1	Hop	1.623	180	0.292	≤0.4	PASS
DH5	Ant1	Hop	2.885	100	0.289	≤0.4	PASS
2DH1	Ant1	Hop	0.373	320	0.119	≤0.4	PASS
2DH3	Ant1	Hop	1.625	170	0.276	≤0.4	PASS
2DH5	Ant1	Hop	2.888	90	0.26	≤0.4	PASS
3DH1	Ant1	Hop	0.373	330	0.123	≤0.4	PASS
3DH3	Ant1	Hop	1.624	200	0.325	≤0.4	PASS
3DH5	Ant1	Hop	2.888	120	0.347	≤0.4	PASS

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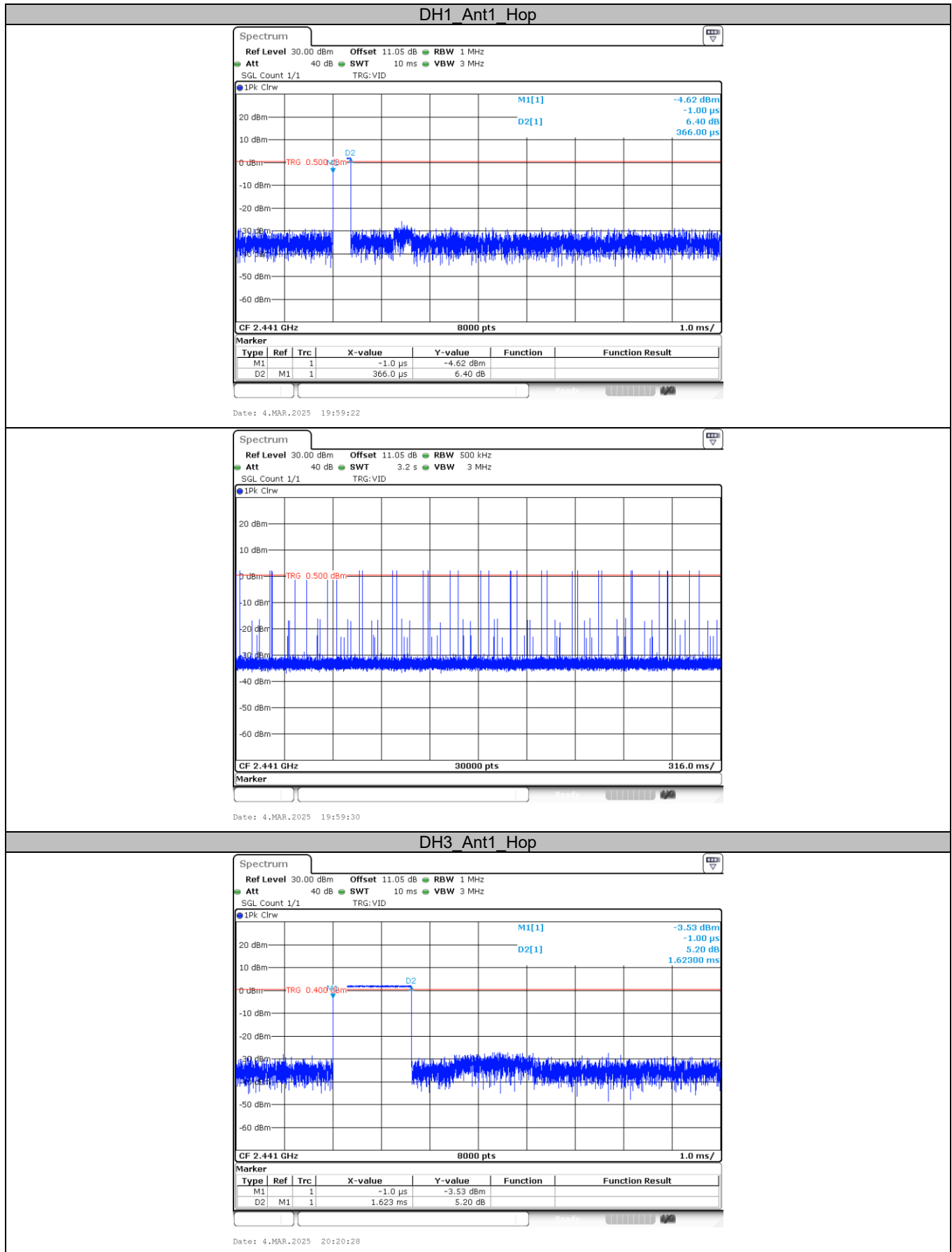
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Test plot as follows:



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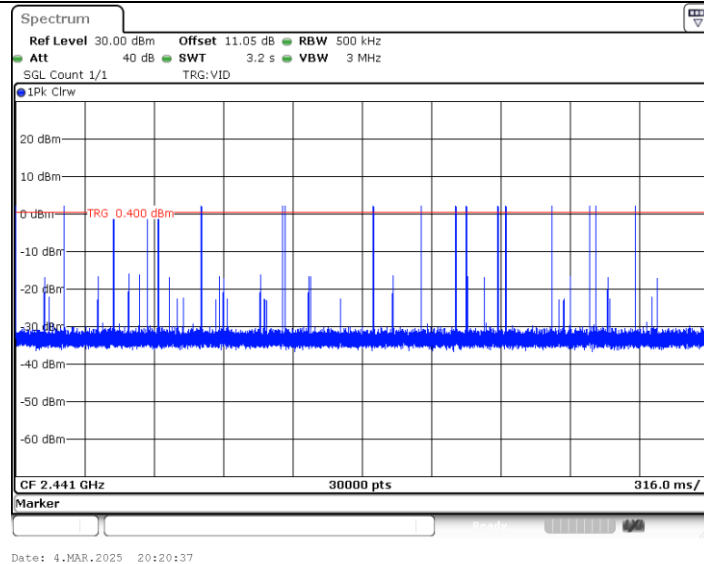
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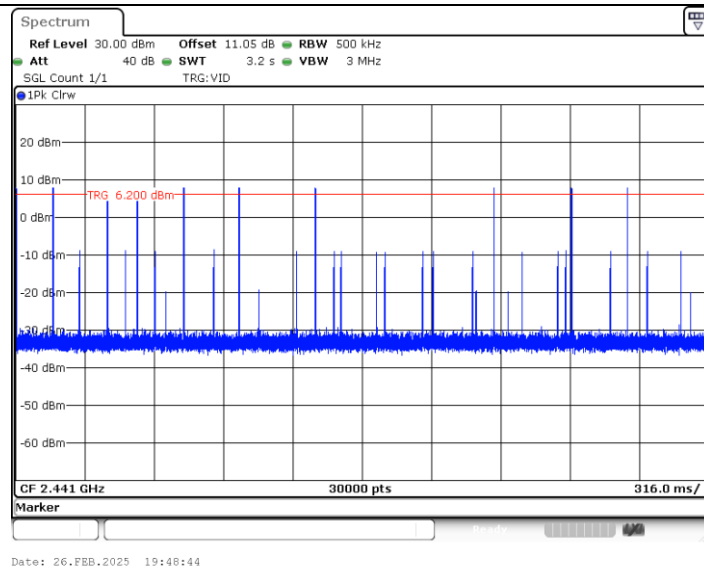
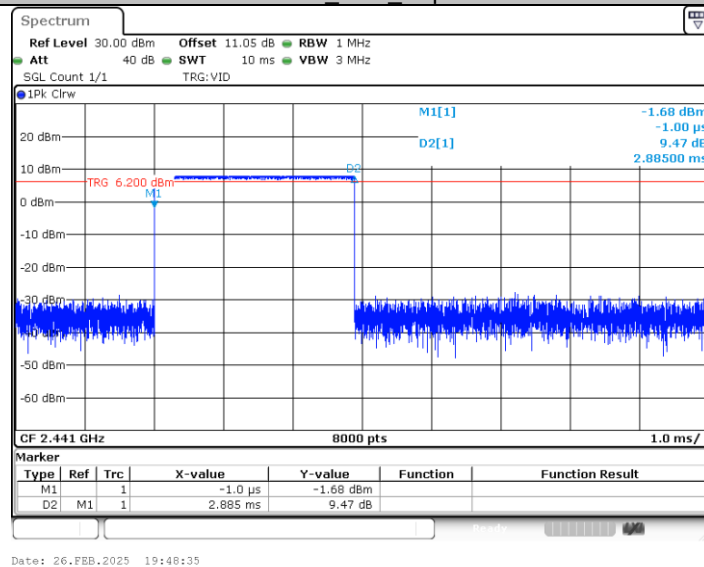
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Society : [yz.cncaq.com](http://yz.cncaq.com)





## DH5\_Ant1\_Hop



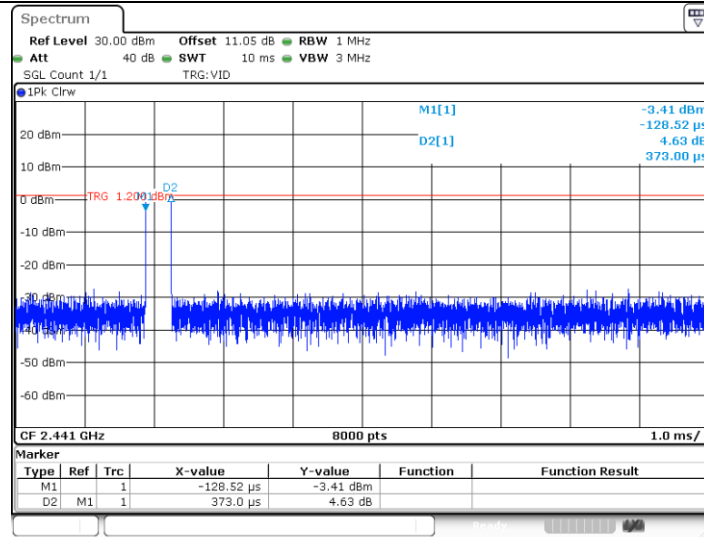
## 2DH1\_Ant1\_Hop

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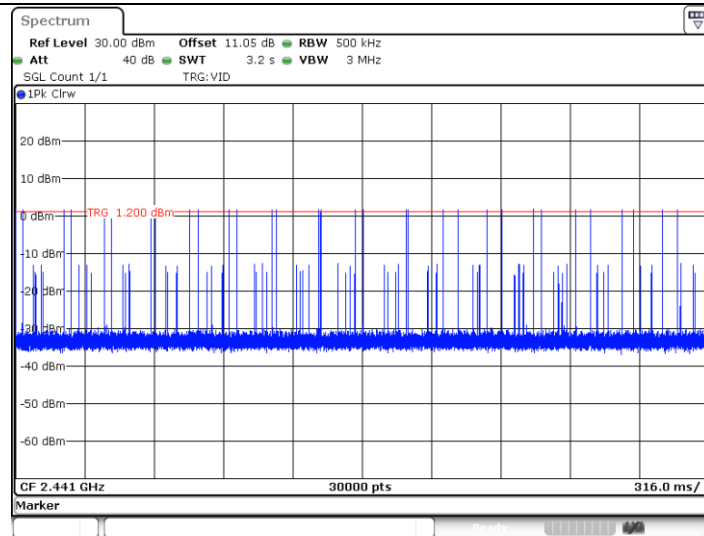
Room 107, 108, 207, 208, 303 of Building A, Room 101 of Building B, No.7, Lanqing 1st Road, Luhua Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China Tel.: (86)755-27521059 Fax: (86)755-27521011 Http://www.sz-ctc.org.cn

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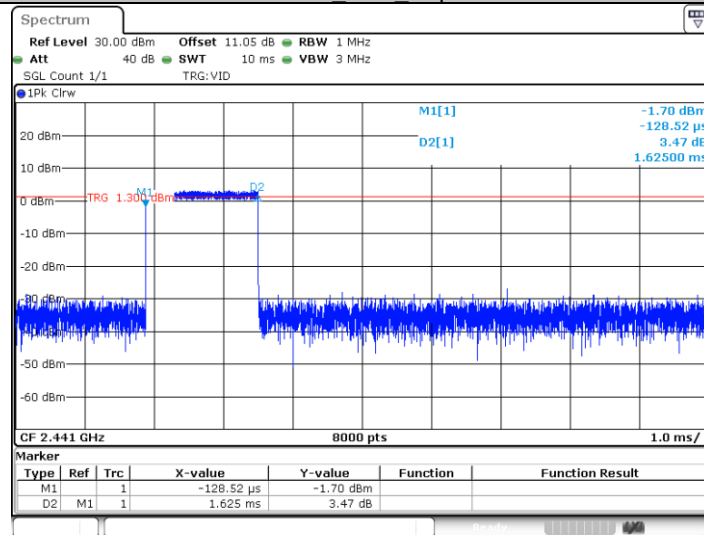


Date: 4.MAR.2025 20:08:17



Date: 4.MAR.2025 20:08:26

## 2DH3 Ant1 Hop



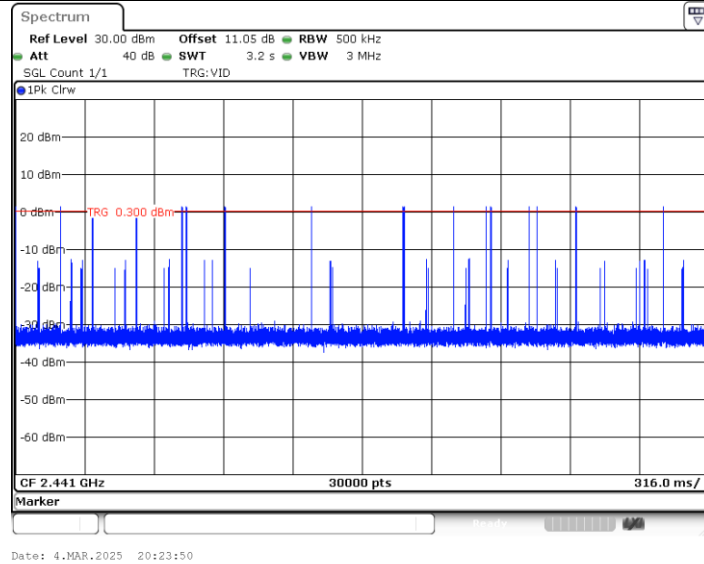
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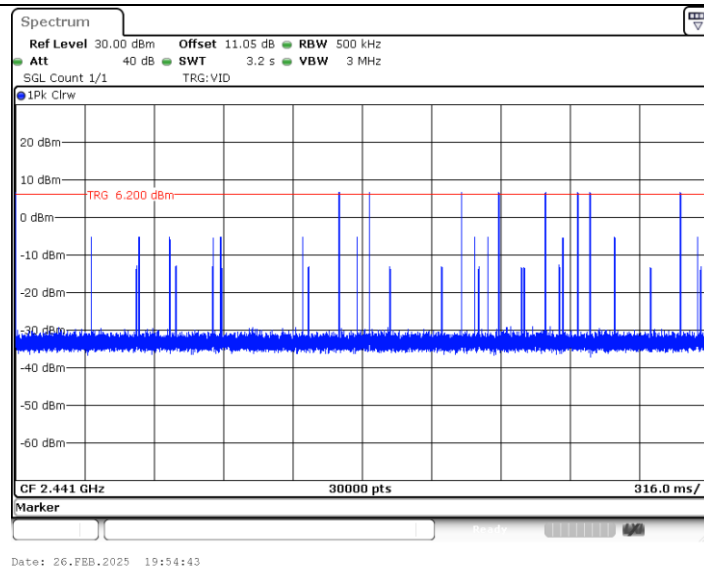
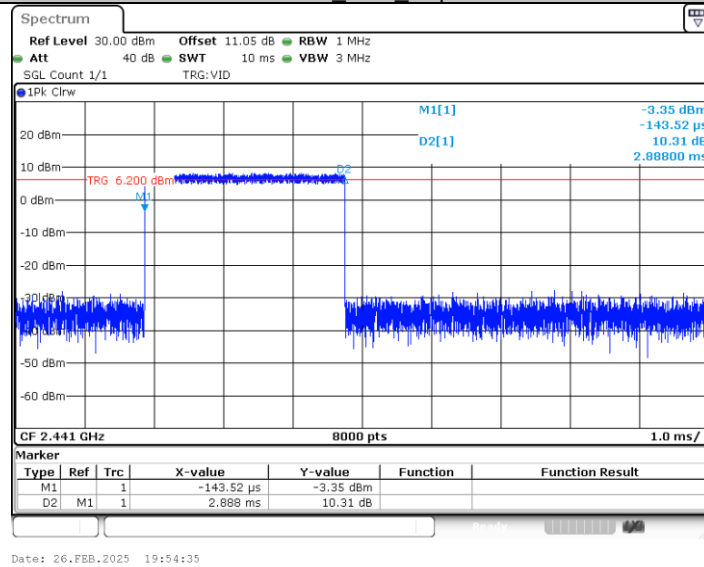
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## 2DH5\_Ant1\_Hop



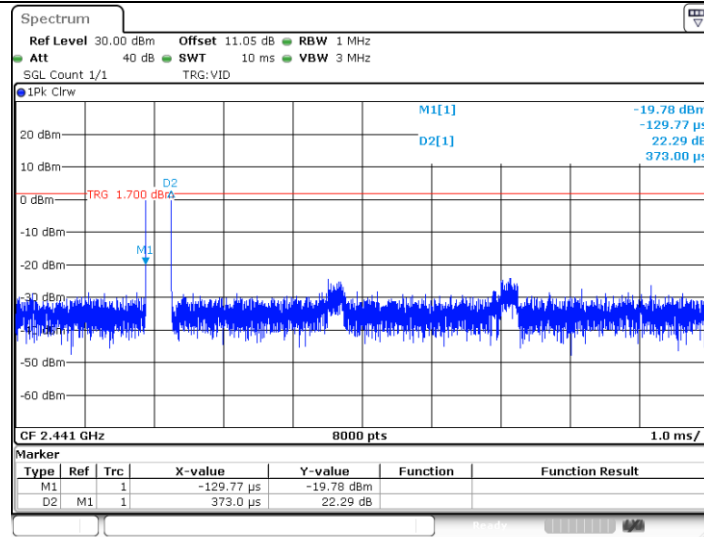
## 3DH1\_Ant1\_Hop

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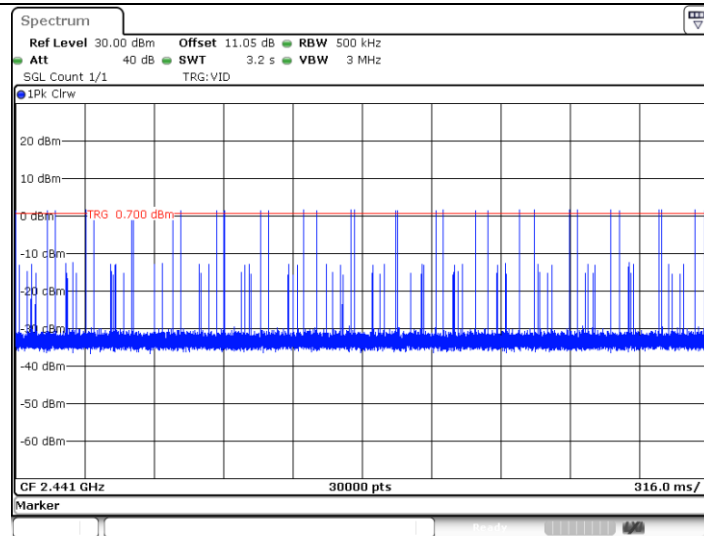
Room 107, 108, 207, 208, 303 of Building A, Room 101 of Building B, No.7, Lanqing 1st Road, Luhua Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China Tel.: (86)755-27521059 Fax: (86)755-27521011 Http://www.sz-ctc.org.cn

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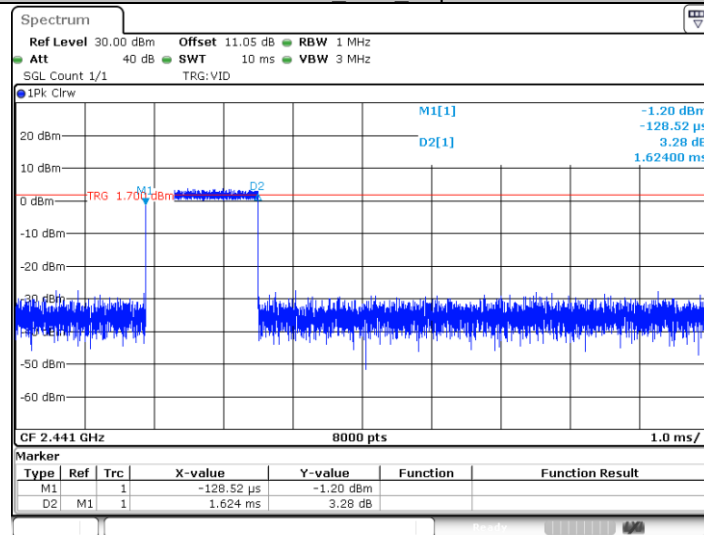


Date: 4.MAR.2025 20:17:34



Date: 4.MAR.2025 20:17:49

## 3DH3 Ant1 Hop



Date: 4.MAR.2025 20:26:09

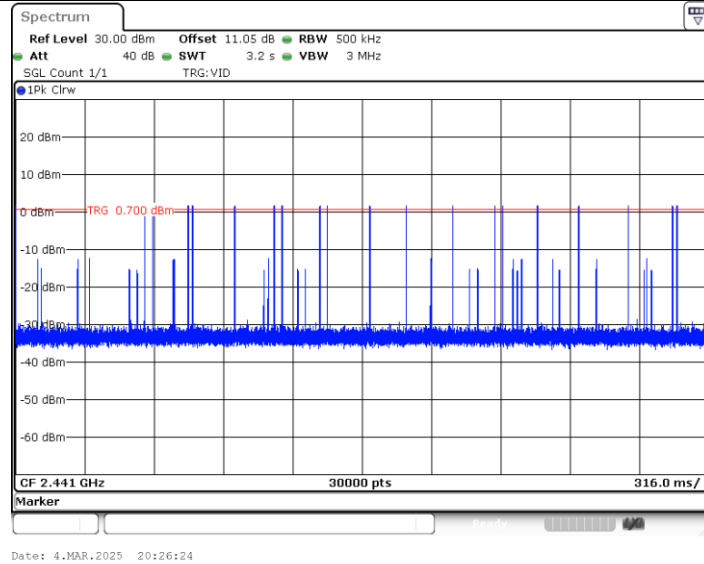
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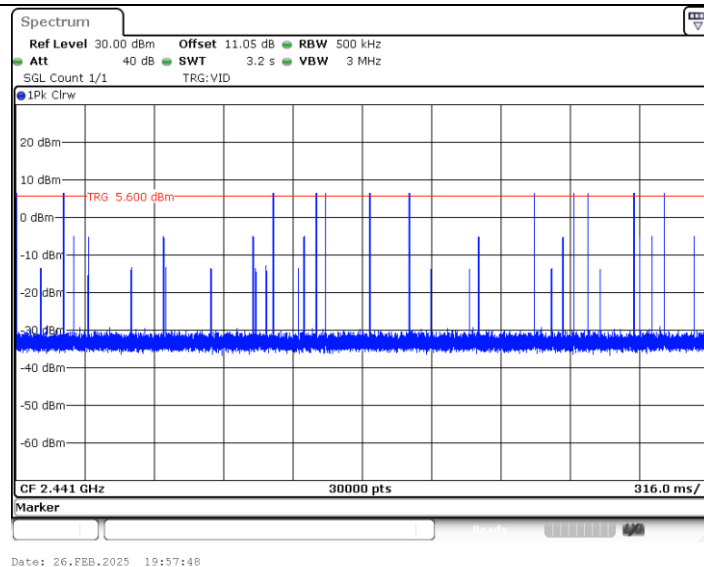
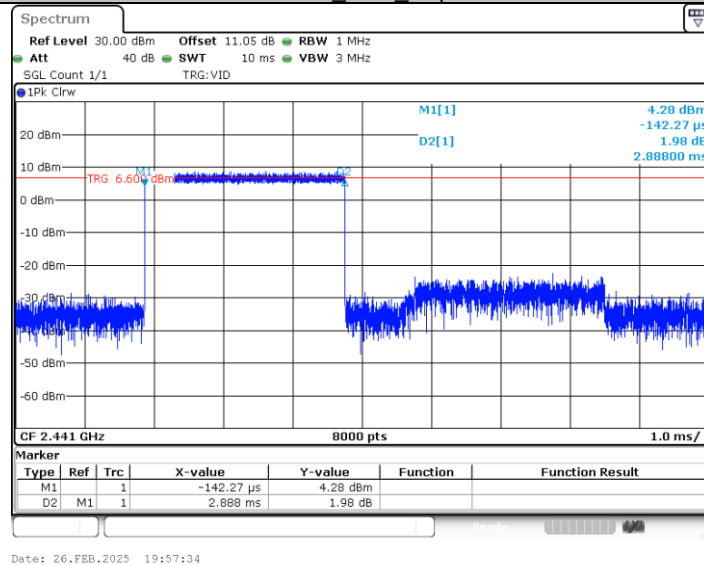
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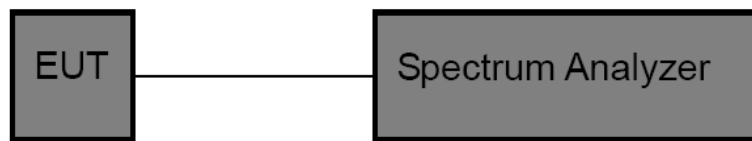
### 3.9. Peak Output Power

#### Limit

#### FCC CFR Title 47 Part 15 Subpart C Section 15.247 (b)(1)

Section	Test Item	Limit	Frequency Range (MHz)
FCC CFR 47 Part15.247 (b)(1)	Maximum Conducted Output Power	Hopping Channels $\geq$ 75, Power <1W(30dBm); Others <125mW(21dBm)	2400~2483.5

#### Test Configuration



#### Test Procedure

1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
2. Spectrum Setting:
  - (1) Set RBW > 20dB Bandwidth.
  - (2) Set VBW  $\geq$  RBW.
  - (3) Detector = Peak.
  - (4) Trace mode = Max hold.
  - (5) Sweep = Auto couple.
  - (6) Span = Approximately five times the 20dB bandwidth, centered on a hopping channel.

#### Test Mode

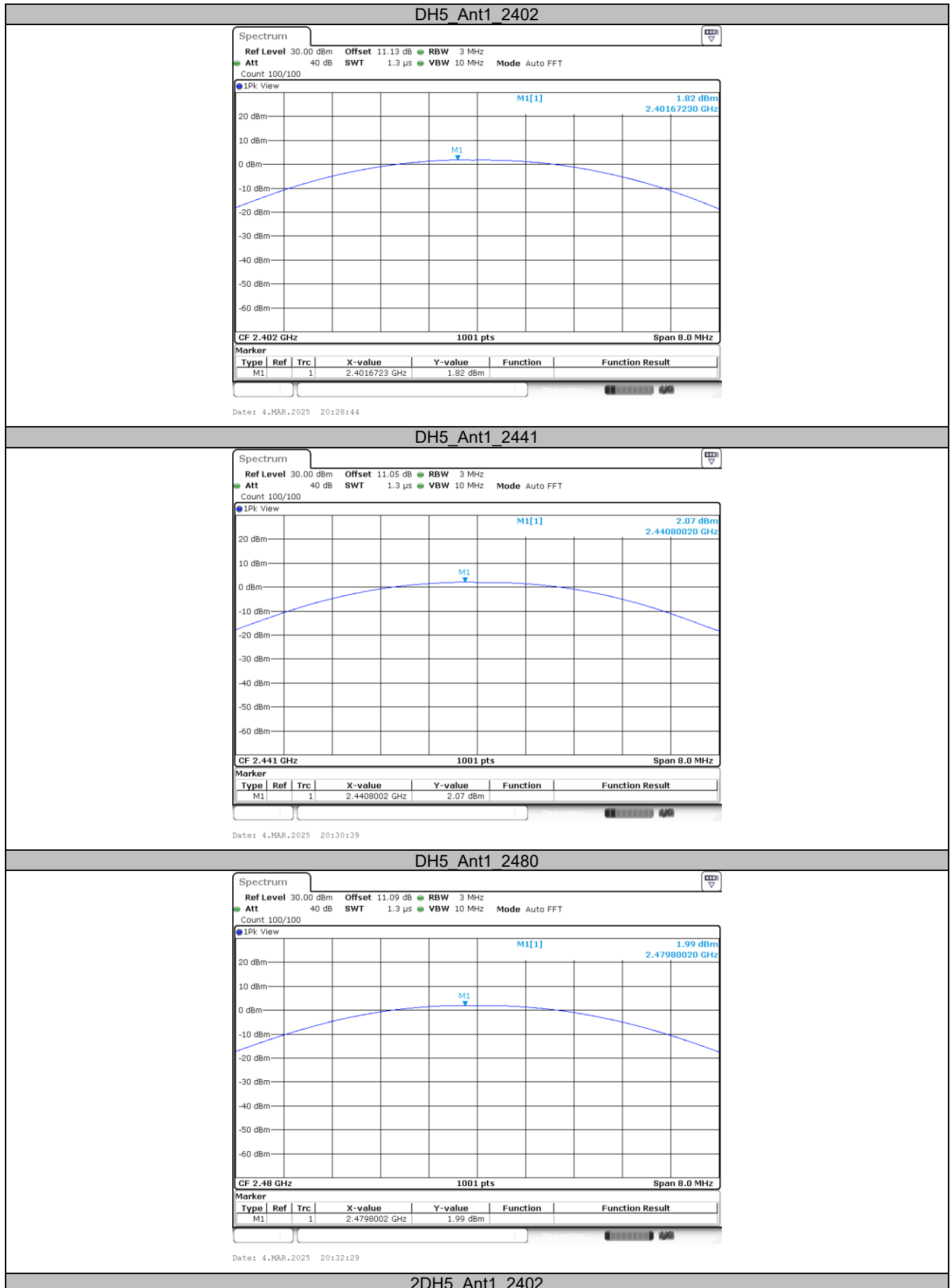
Please refer to the clause 2.4.

#### Test Result

Test Mode	Frequency (MHz)	Conducted Output Power (dBm)	FCC Limit (dBm)	Verdict
GFSK	2402	1.82	$\leq 30$	Pass
	2441	2.07	$\leq 30$	Pass
	2480	1.99	$\leq 30$	Pass
$\pi/4$ -DQPSK	2402	3.73	$\leq 30$	Pass
	2441	3.42	$\leq 30$	Pass
	2480	3.65	$\leq 30$	Pass
8-DPSK	2402	4.07	$\leq 30$	Pass
	2441	3.99	$\leq 30$	Pass
	2480	4.19	$\leq 30$	Pass



Test plot as follows:



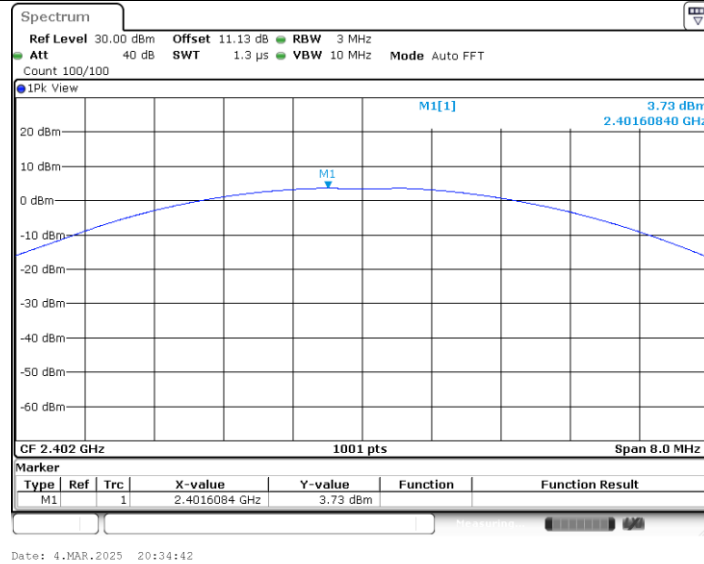
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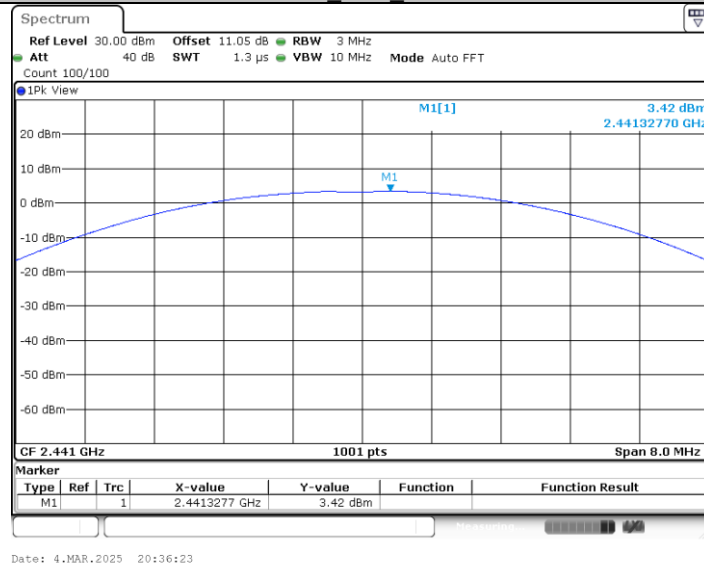
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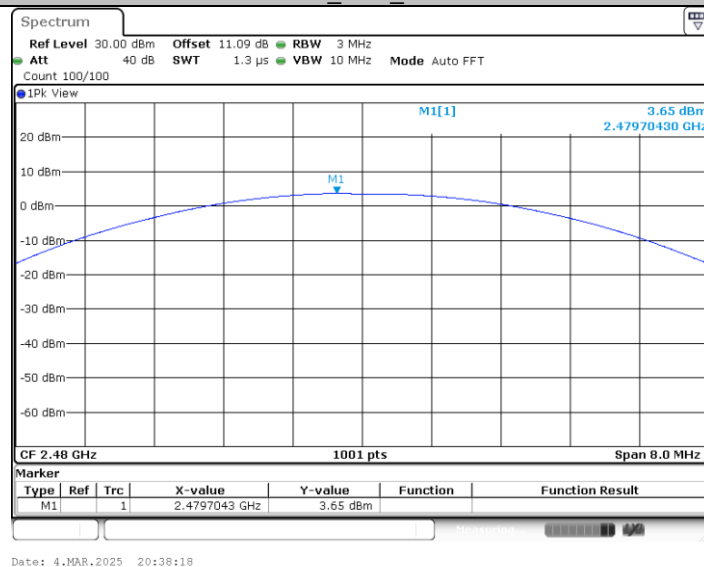
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## 2DH5\_Ant1\_2441

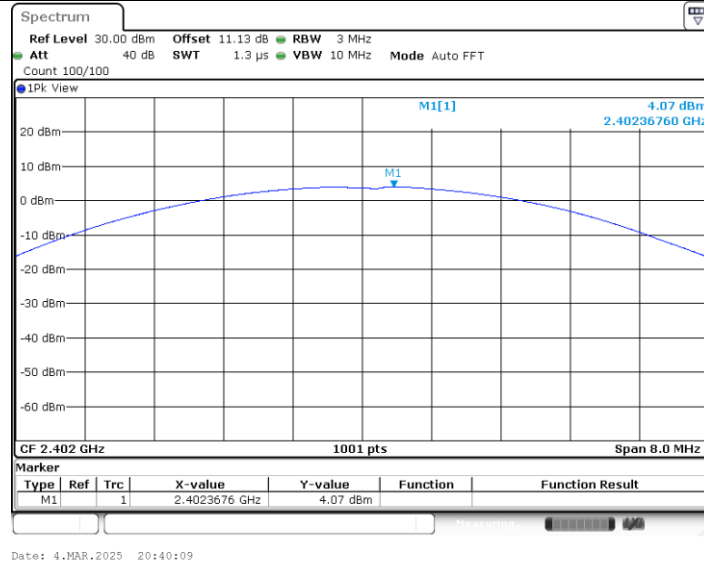


## 2DH5\_Ant1\_2480

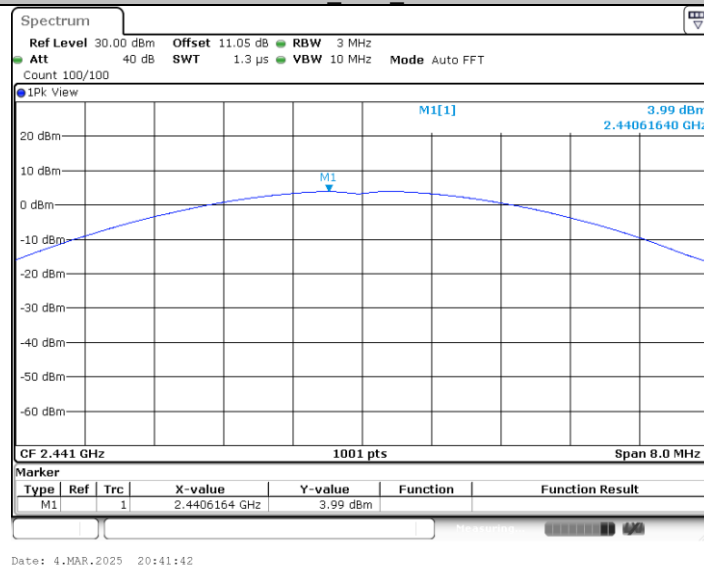


## 3DH5\_Ant1\_2402

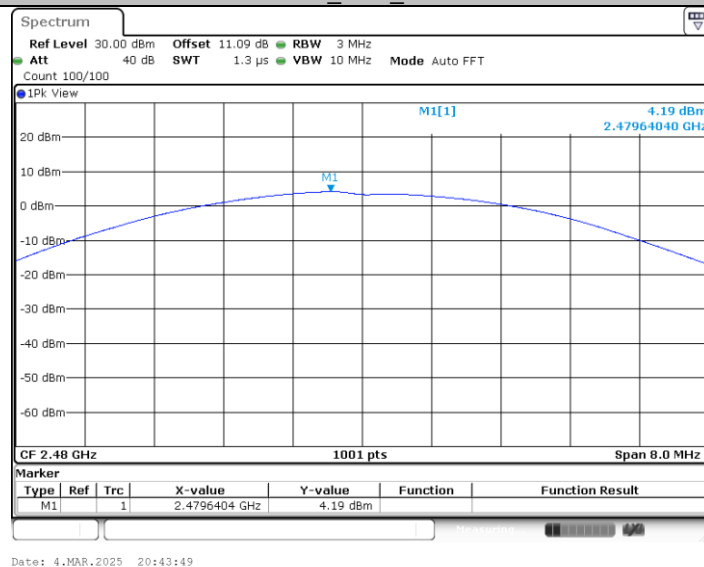




## 3DH5\_Ant1\_2441



## 3DH5\_Ant1\_2480



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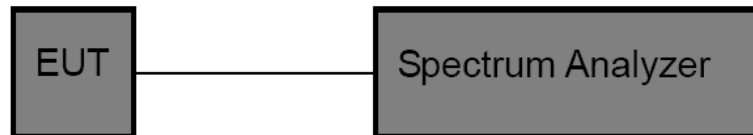


### 3.10. Duty Cycle

#### Limit

None, for report purposes only.

#### Test Configuration



#### Test Procedure

1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
2. The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above. The measurement according to section 10.2 of KDB 558074 D01 DTS Meas Guidance v05r02.
3. Spectrum Setting:  
Set analyzer center frequency to test channel center frequency.  
Set the span to 0Hz.  
Set the RBW to 10MHz.  
Set the VBW to 10MHz.  
Detector: Peak.  
Sweep time: Auto.  
Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.

#### Test Mode

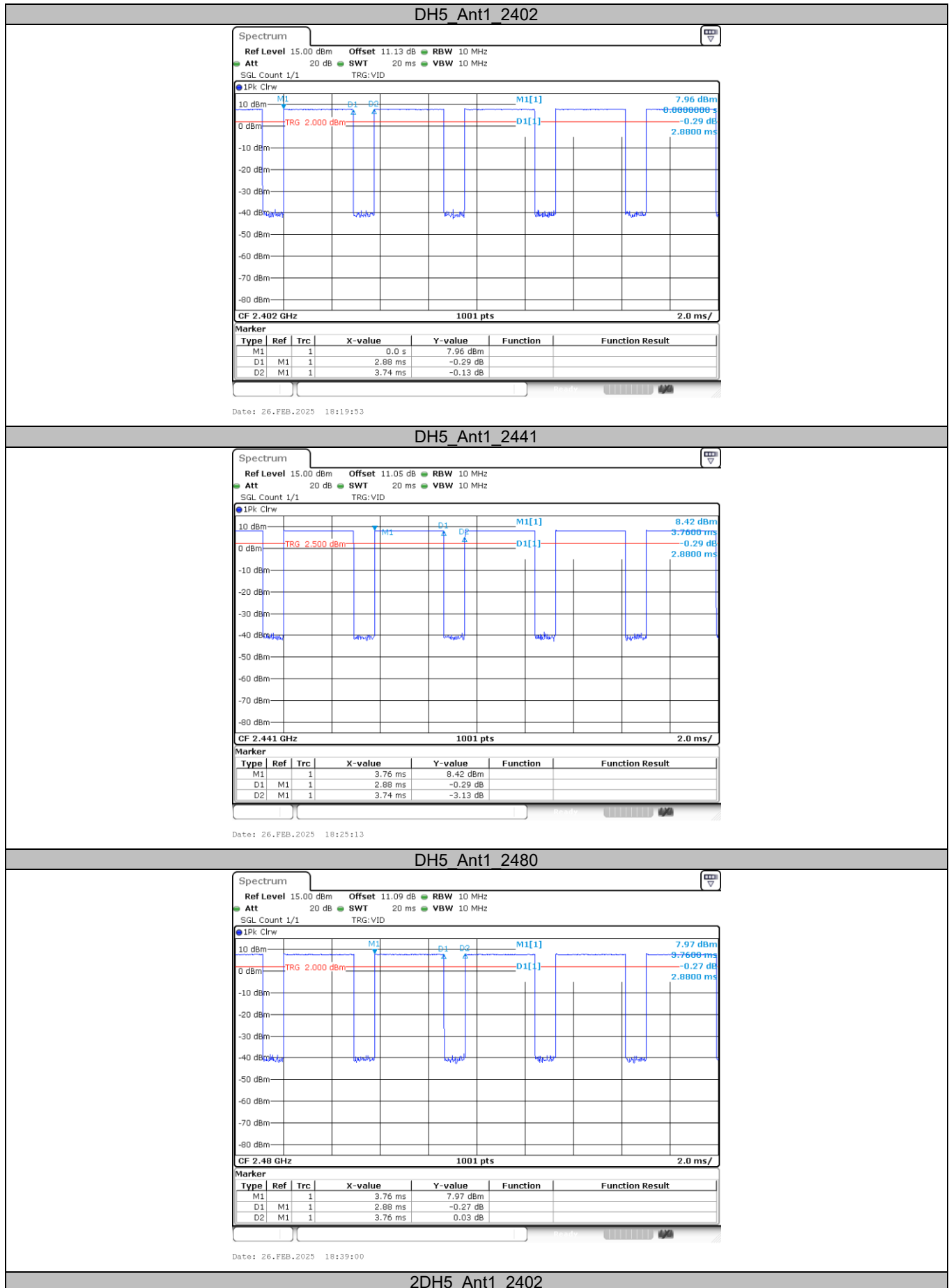
Please refer to the clause 2.4.

#### Test Result

Test Mode	Frequency (MHz)	Transmission Duration (ms)	Transmission Period (ms)	Duty Cycle (%)	1/T Minimum VBW (kHz)	Final Setting for VBW (kHz)
GFSK	2402	2.88	3.74	77.01	0.35	1
	2441	2.88	3.74	77.01	0.35	1
	2480	2.88	3.76	76.60	0.35	1
$\pi/4$ -DQPSK	2402	2.88	3.76	76.60	0.35	1
	2441	2.88	3.76	76.60	0.35	1
	2480	2.88	3.76	76.60	0.35	1
8-DPSK	2402	2.88	3.74	77.01	0.35	1
	2441	2.90	3.76	77.13	0.34	1
	2480	2.88	3.74	77.01	0.35	1



Test plot as follows:



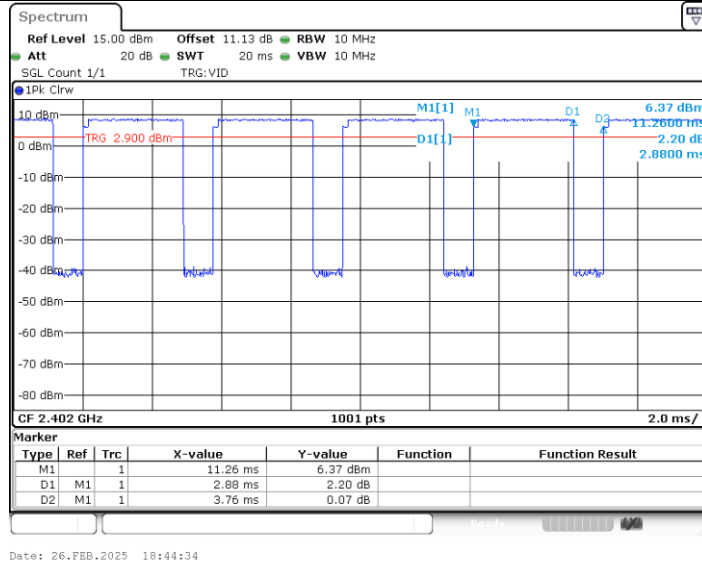
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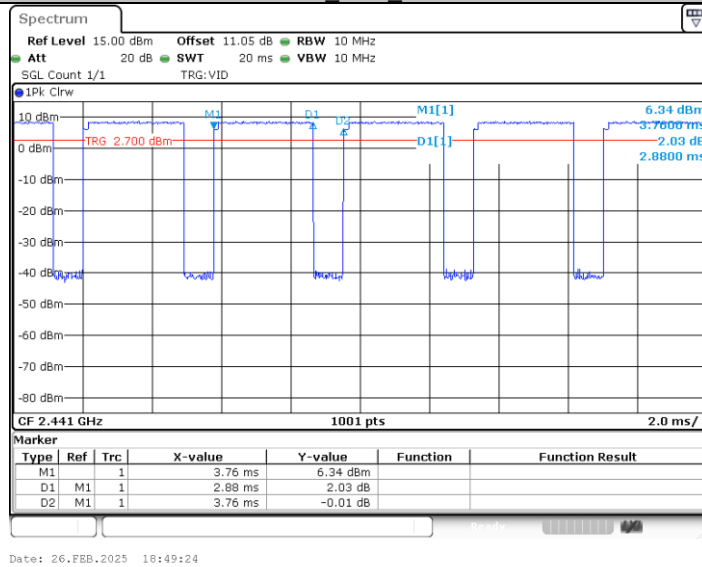
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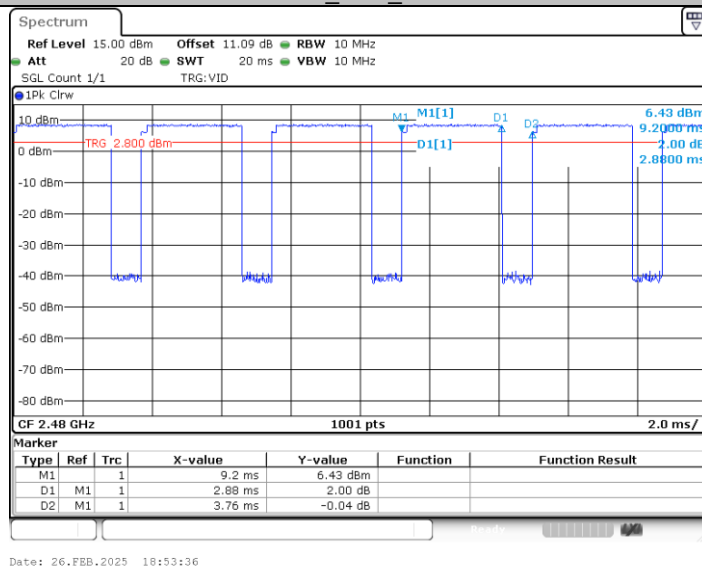
Society : [yz.cncaq.com](http://yz.cncaq.com)



## 2DH5\_Ant1\_2441



## 2DH5\_Ant1\_2480



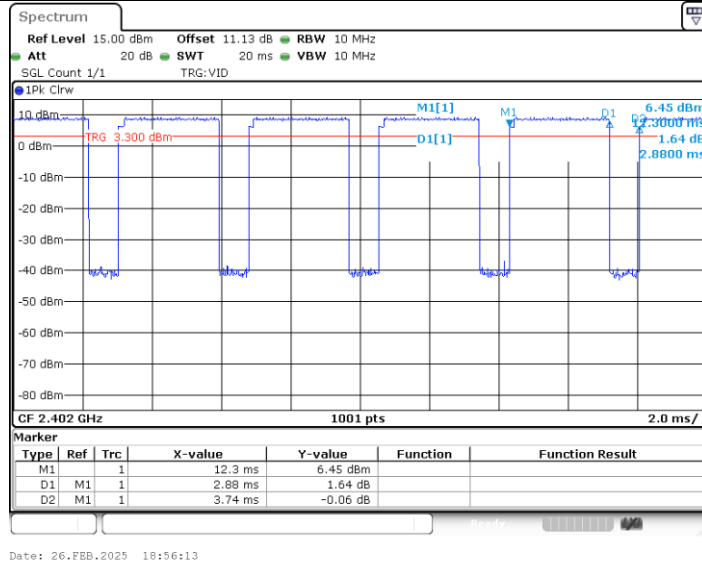
## 3DH5\_Ant1\_2402

CTC Laboratories, Inc.

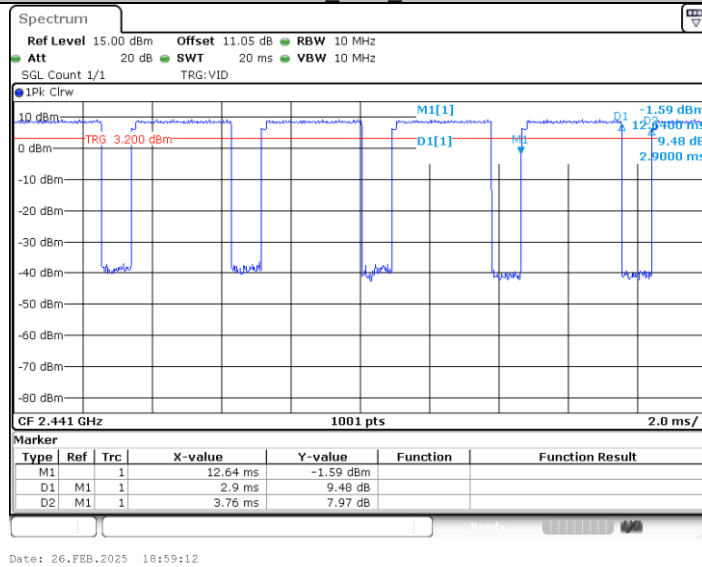
Room 107, 108, 207, 208, 303 of Building A, Room 101 of Building B, No.7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China Tel.: (86)755-27521059 Fax: (86)755-27521011 Http://www.sz-ctc.org.cn

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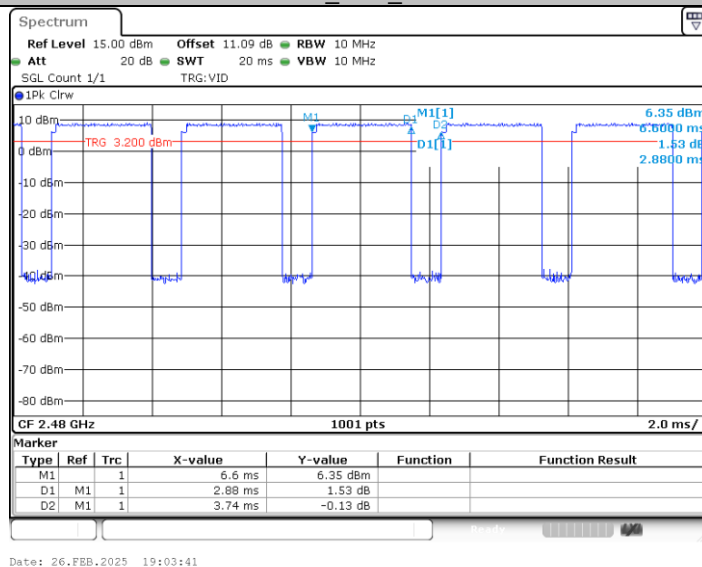
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## 3DH5\_Ant1\_2441



## 3DH5\_Ant1\_2480



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### 3.11. Antenna Requirement

#### Requirement

##### **FCC CFR Title 47 Part 15 Subpart C Section 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 antenna that uses a unique coupling to the intentional radiator, 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.

##### **FCC CFR Title 47 Part 15 Subpart C Section 15.247(c) (1)(i)**

(i) Systems operating in the 2400~2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

#### Test Result

The directional gain of the antenna is less than 6dBi, please refer to the EUT internal photographs antenna photo.

\*\*\*\*\*THE END OF REPORT\*\*\*\*\*