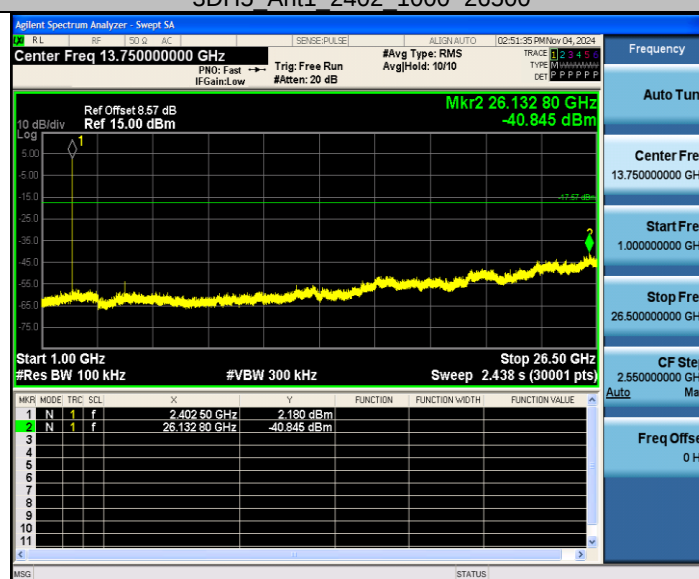
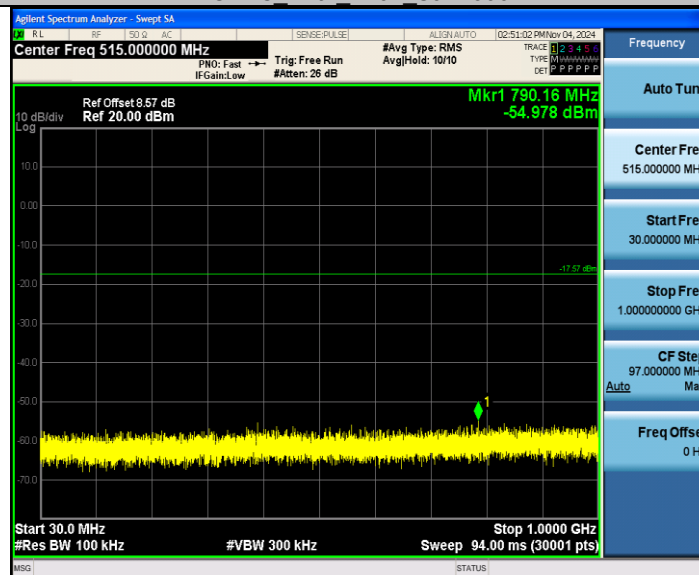




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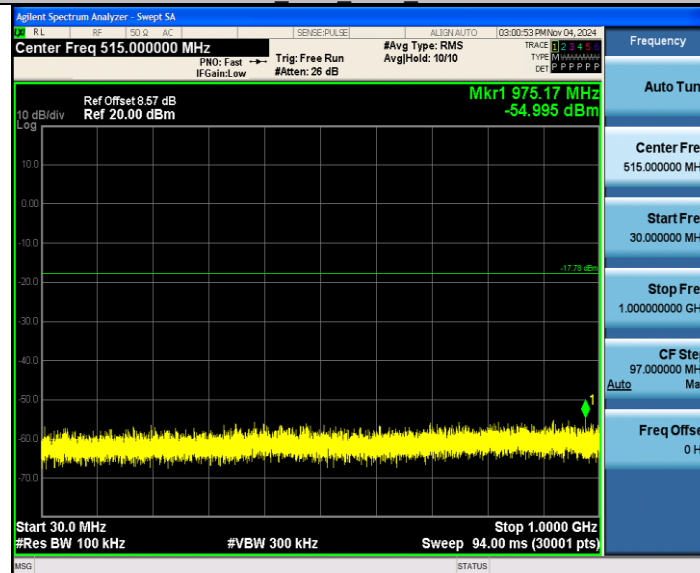
Room 101 Building B, No. 7, Lanqing 1st Road, Luhua Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 Http://www.sz-ctc.org.cn

TRF No: CTC-TR-059_A1

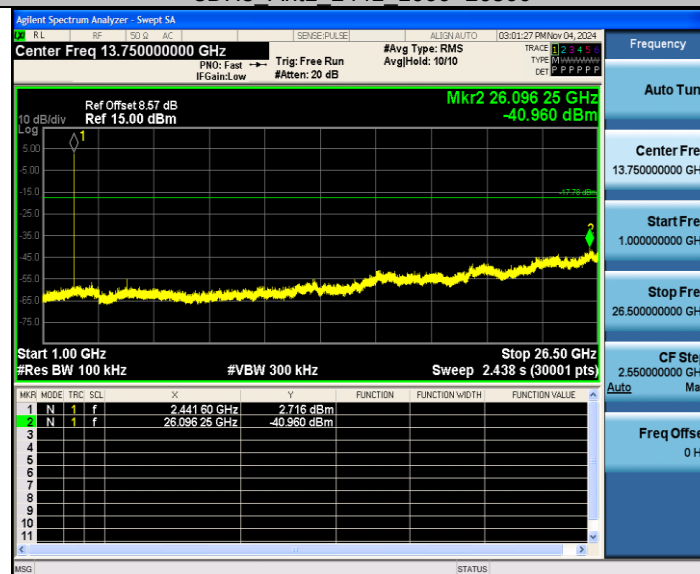
For anti-fake verification, please visit the official website of China Inspection And Testing Society : [yz.cnca.cn](http://www.cnca.cn)



3DH5_Ant1_2441_30~1000



3DH5_Ant1_2441_1000~26500



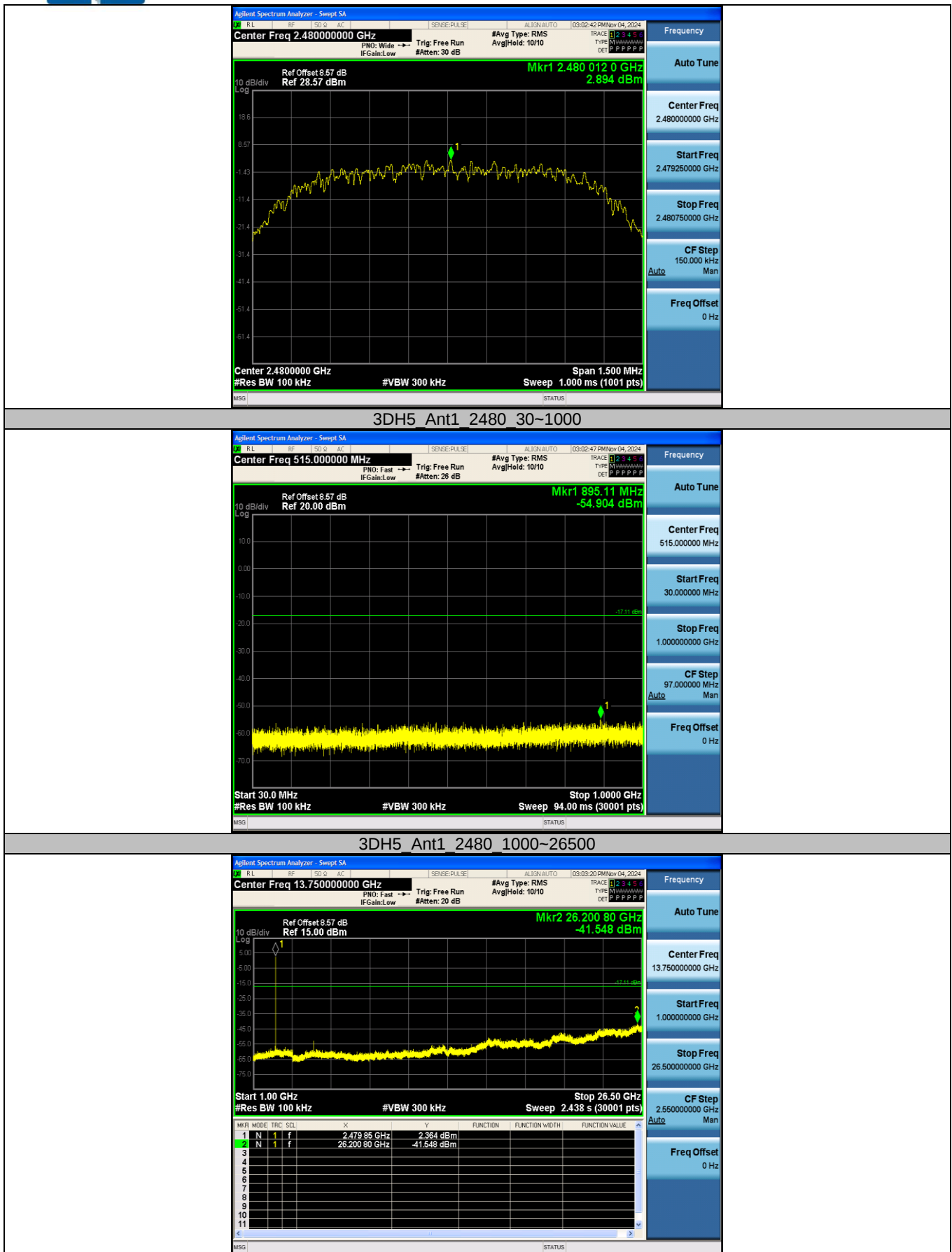
3DH5_Ant1_2480_0~Reference

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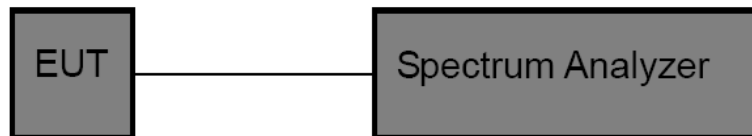


3.5. 20dB Bandwidth

Limit

N/A

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. OCB and 20dB Spectrum Setting:
 - (1) Set RBW = 1% ~ 5% occupied bandwidth.
 - (2) Set the video bandwidth (VBW) ≥ 3 RBW.
 - (3) Detector = Peak.
 - (4) Trace mode = Max hold.
 - (5) Sweep = Auto couple.

Note: The EUT was set to continuously transmitting in each mode and low, Middle and high channel for the test.

Test Mode

Please refer to the clause 2.4.

Test Result

Test Mode	Frequency (MHz)	99% Bandwidth (MHz)	20dB Bandwidth (MHz)	20dB Bandwidth *2/3 (MHz)
GFSK	2402	0.88374	1.062	0.708
	2441	0.88935	1.062	0.708
	2480	0.90053	0.984	0.656
$\pi/4$ -DQPSK	2402	1.1958	1.359	0.906
	2441	1.1959	1.374	0.916
	2480	1.2010	1.353	0.902
8-DPSK	2402	1.2056	1.368	0.912
	2441	1.2079	1.368	0.912
	2480	1.2063	1.347	0.898



99% Bandwidth:



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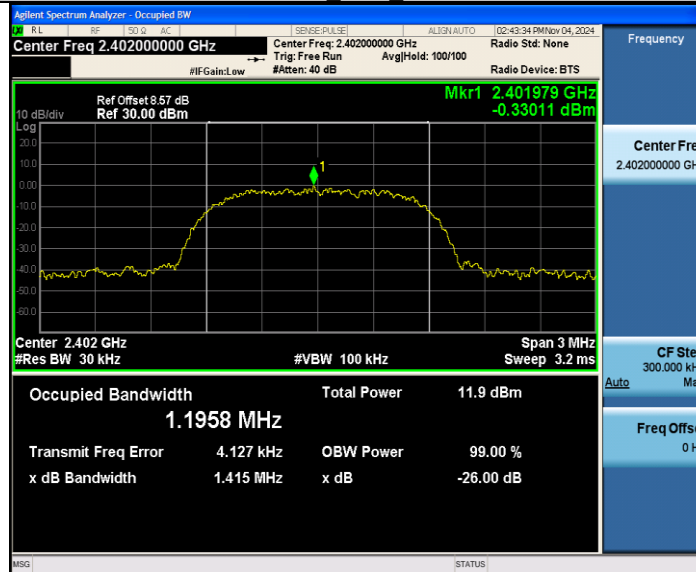
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Tel.: (86)755-27521059 Fax: (86)755-27521011 Http://www.sz-ctc.org.cn

TRF No: CTC-TR-059_A1

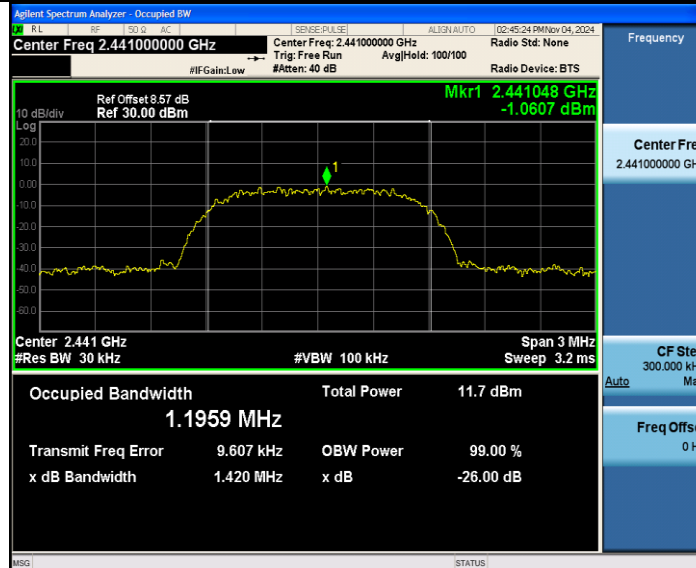
For anti-fake verification, please visit the official website of China Inspection And Testing Society : yz.cnca.cn



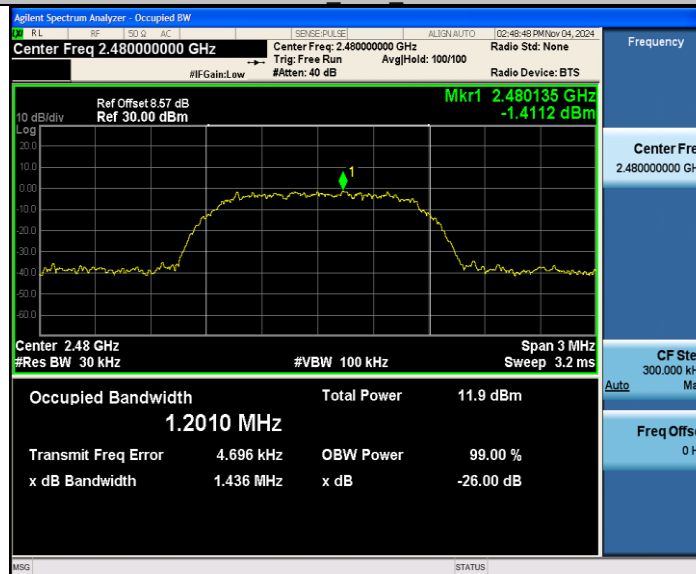
2DH5 Ant1 2402



2DH5 Ant1 2441



2DH5 Ant1 2480



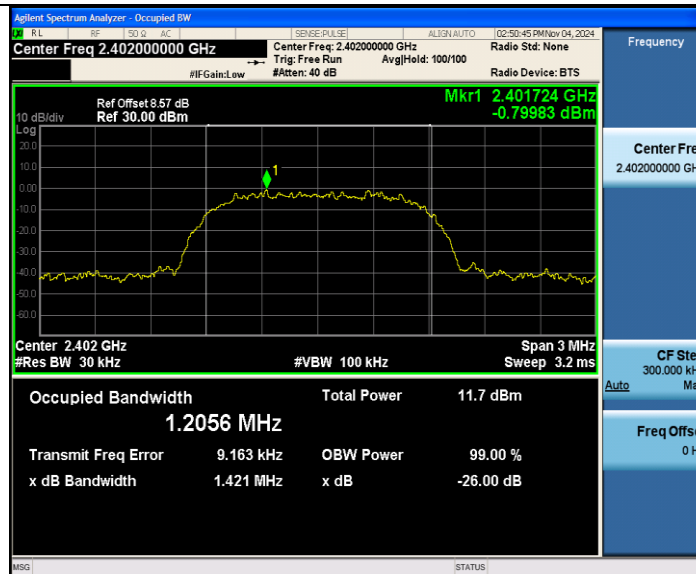
3DH5 Ant1 2402

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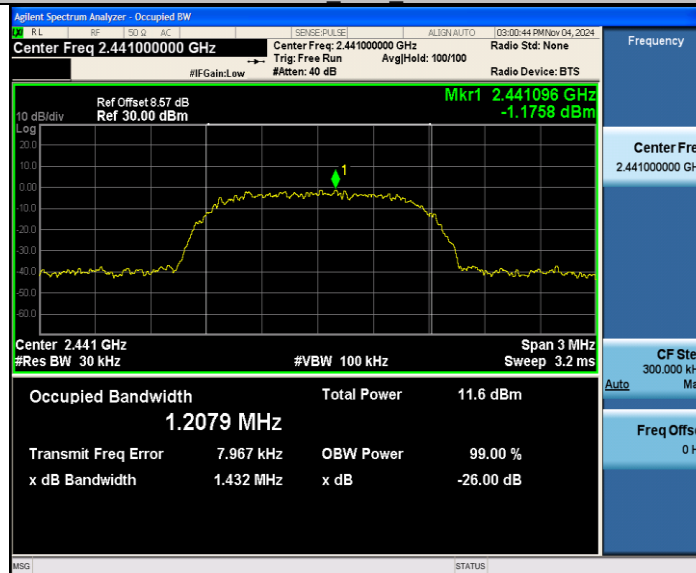
Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
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TRF No: CTC-TR-059_A1

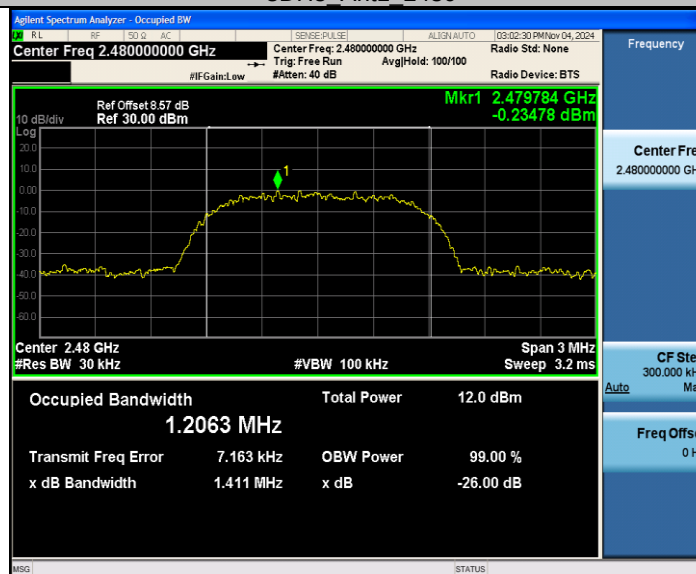
For anti-fake verification, please visit the official website of China Inspection And Testing Society : yz.cnca.cn



3DH5 Ant1 2441



3DH5 Ant1 2480



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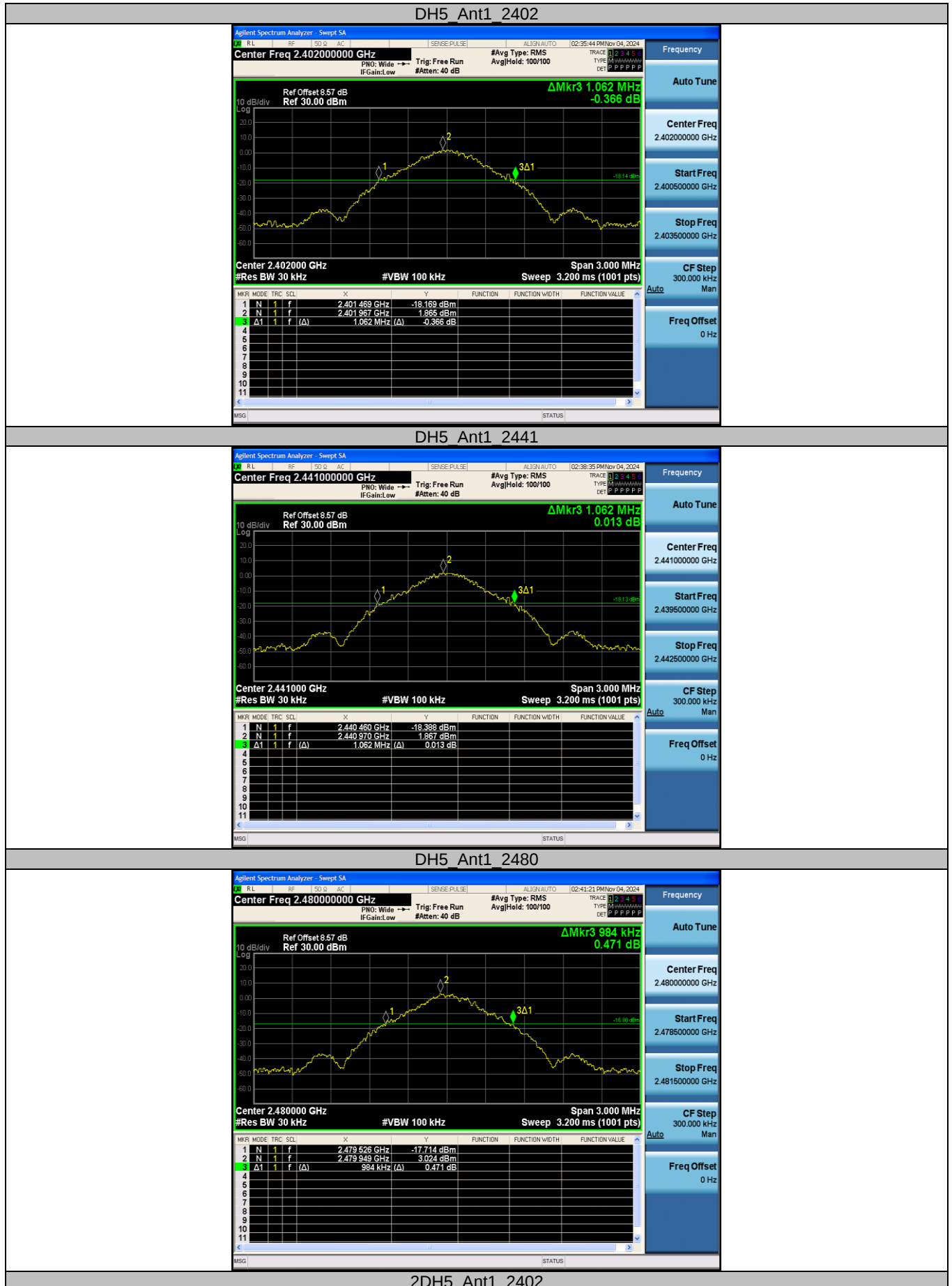
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TRF No: CTC-TR-059_A1

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20dB Bandwidth:

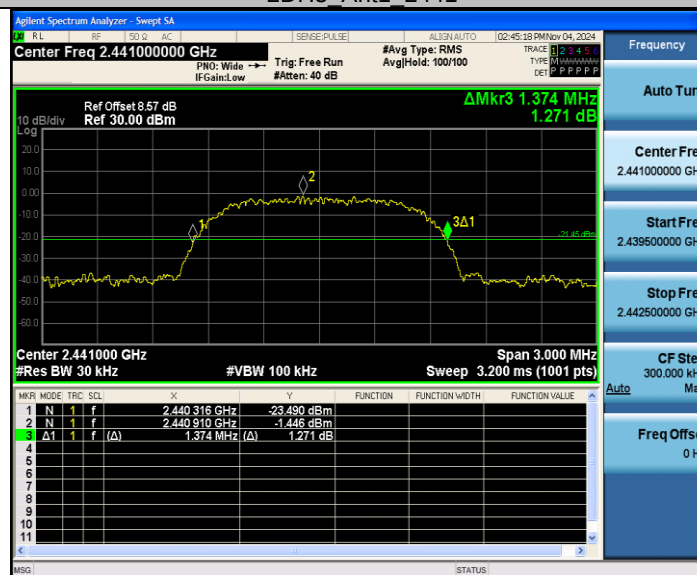
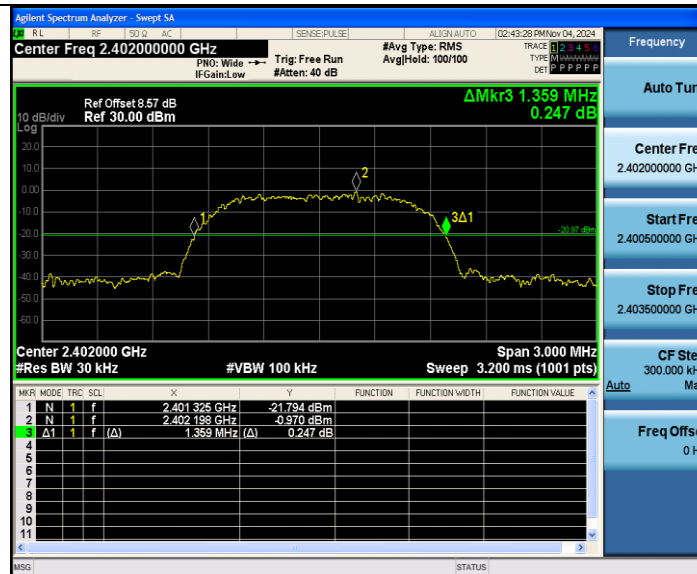


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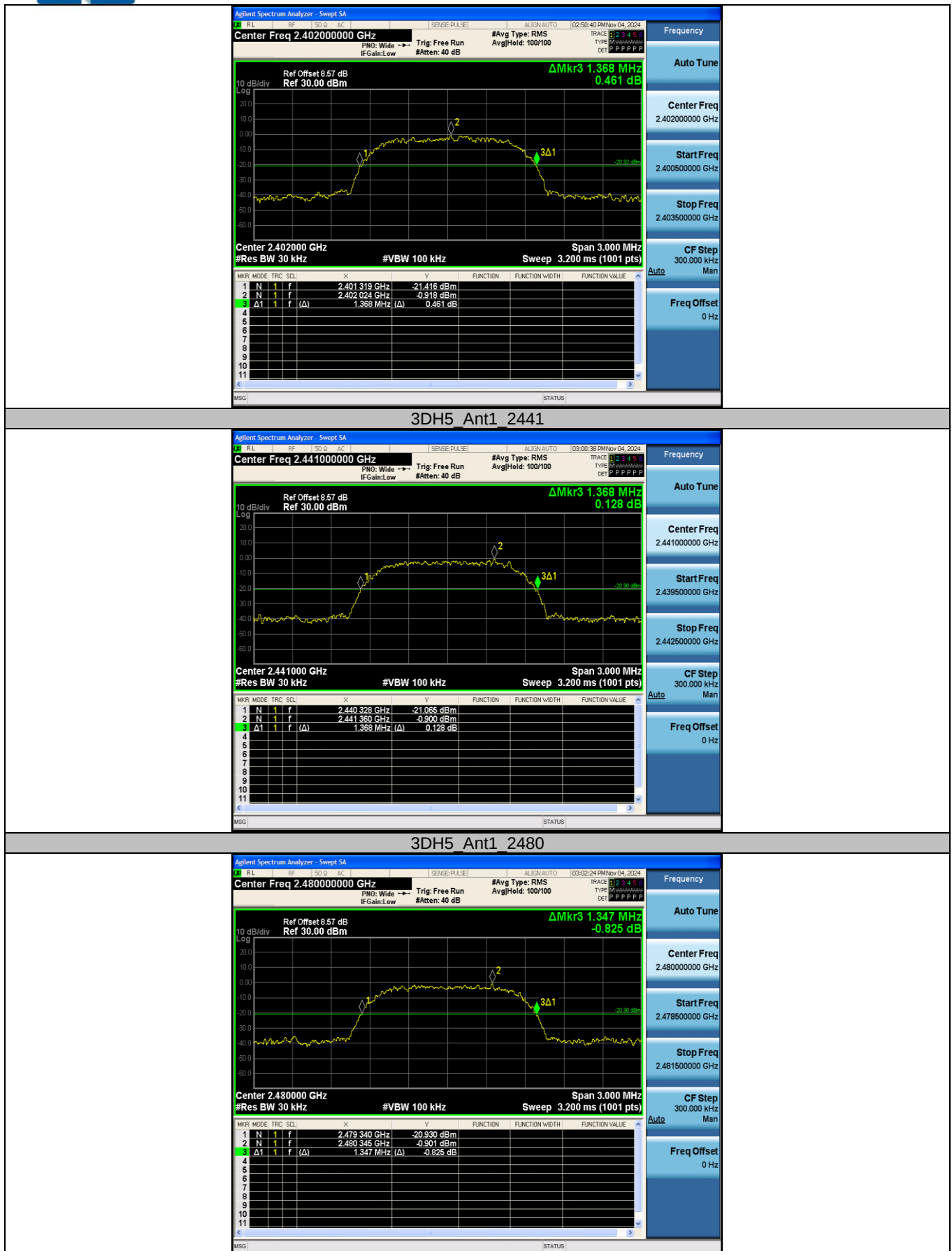


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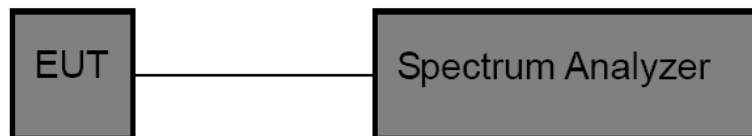
3.6. Channel Separation

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) ≥ 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	1.002	≥ 0.708	Pass
$\pi/4$ -DQPSK	Hop_2441	1.004	≥ 0.916	Pass
8-DPSK	Hop_2441	0.99	≥ 0.912	Pass



Test plot as follows:



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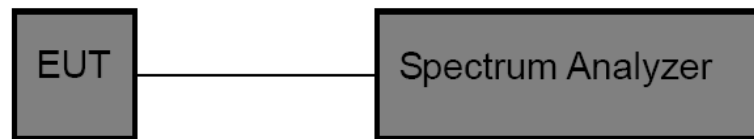
3.7. Number of Hopping Channel

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	≥ 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

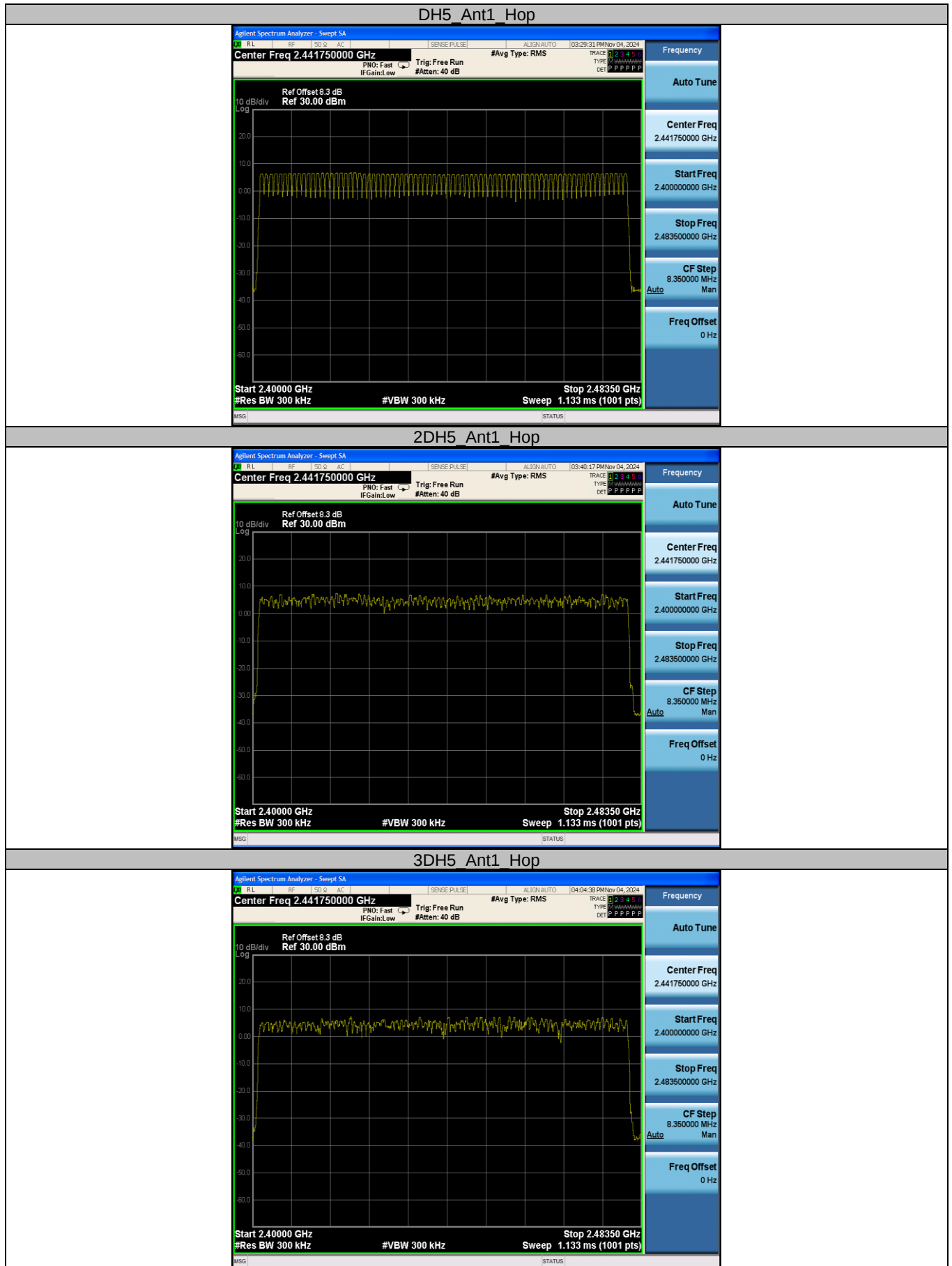
Please refer to the clause 2.4.

Test Result

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



Test plot as follows:



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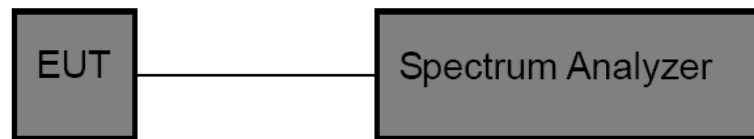
3.8. Dwell Time

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

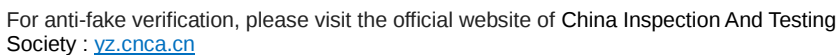
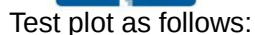
1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
2. Spectrum Setting:
 - (1) Spectrum Setting: RBW=1MHz, VBW $\geq$ RBW.
 - (2) Use video trigger with the trigger level set to enable triggering only on full pulses.
 - (3) Sweep Time 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.

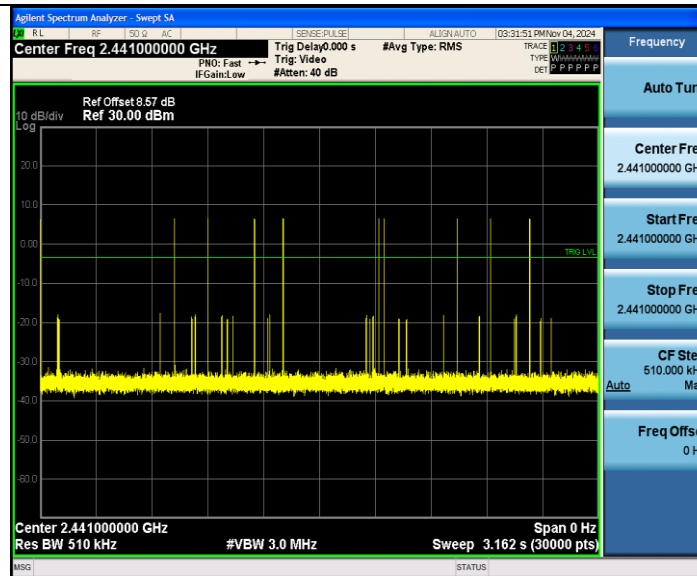
Test Mode

Please refer to the clause 2.4.

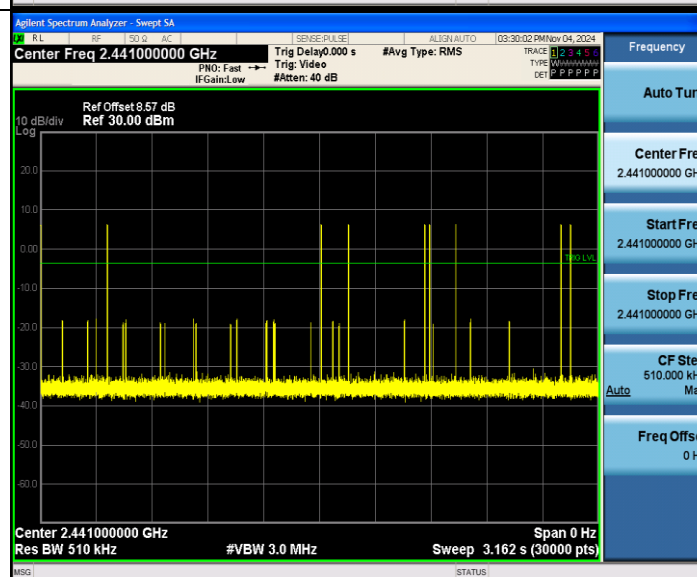
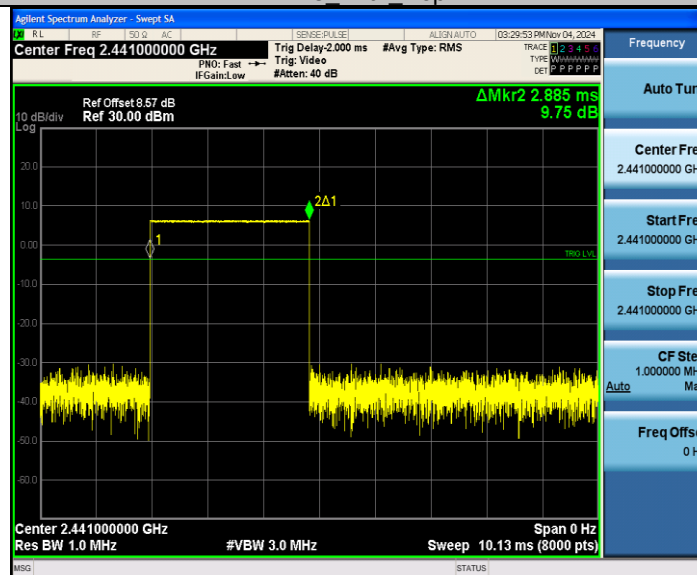
**Test Result**

TestMode	Antenna	Freq(MHz)	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Hop	0.381	320	0.122	≤0.4	PASS
DH3	Ant1	Hop	1.637	100	0.164	≤0.4	PASS
DH5	Ant1	Hop	2.885	90	0.26	≤0.4	PASS
2DH1	Ant1	Hop	0.390	330	0.129	≤0.4	PASS
2DH3	Ant1	Hop	1.642	130	0.213	≤0.4	PASS
2DH5	Ant1	Hop	2.889	90	0.26	≤0.4	PASS
3DH1	Ant1	Hop	0.390	320	0.125	≤0.4	PASS
3DH3	Ant1	Hop	1.642	200	0.328	≤0.4	PASS
3DH5	Ant1	Hop	2.893	90	0.26	≤0.4	PASS





DH5_Ant1_Hop



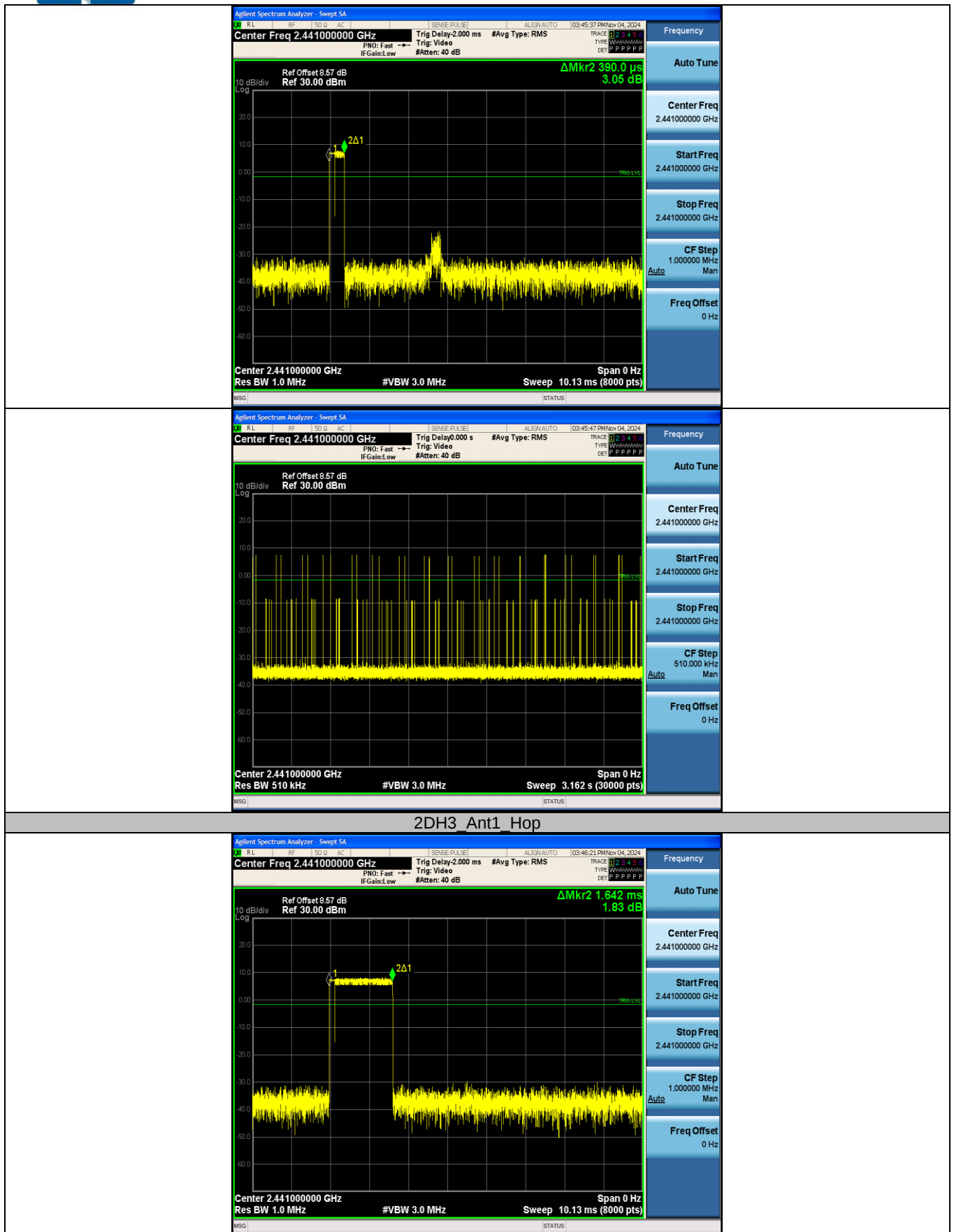
2DH1_Ant1_Hop

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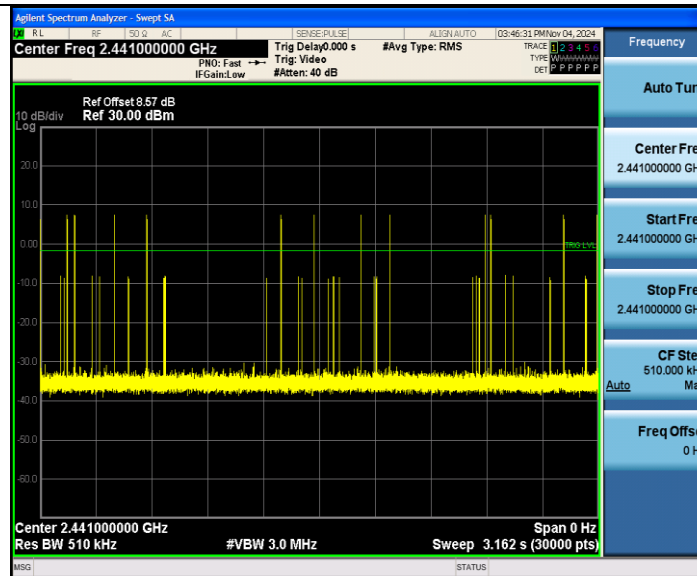


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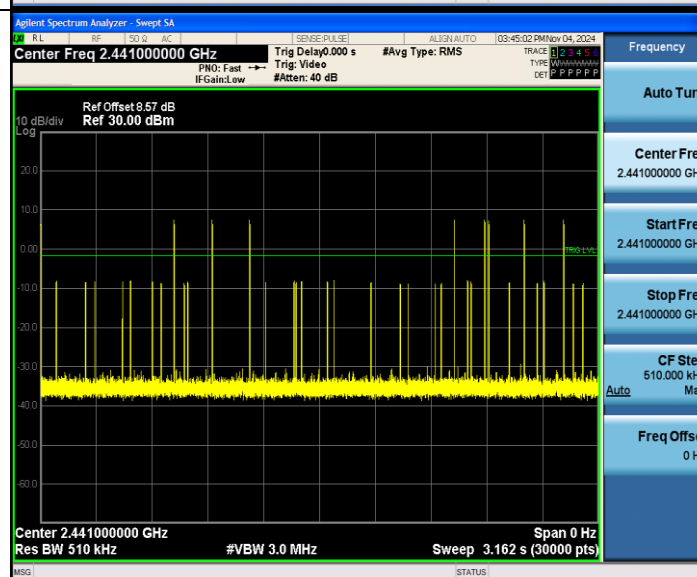
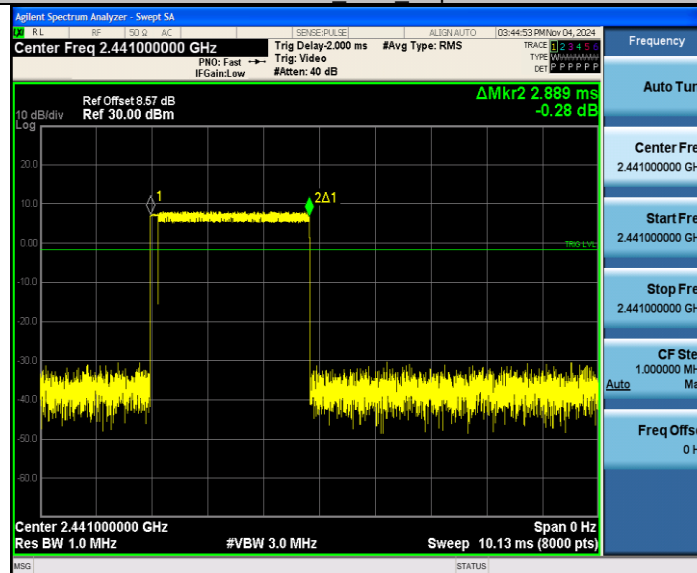
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2DH5_Ant1_Hop



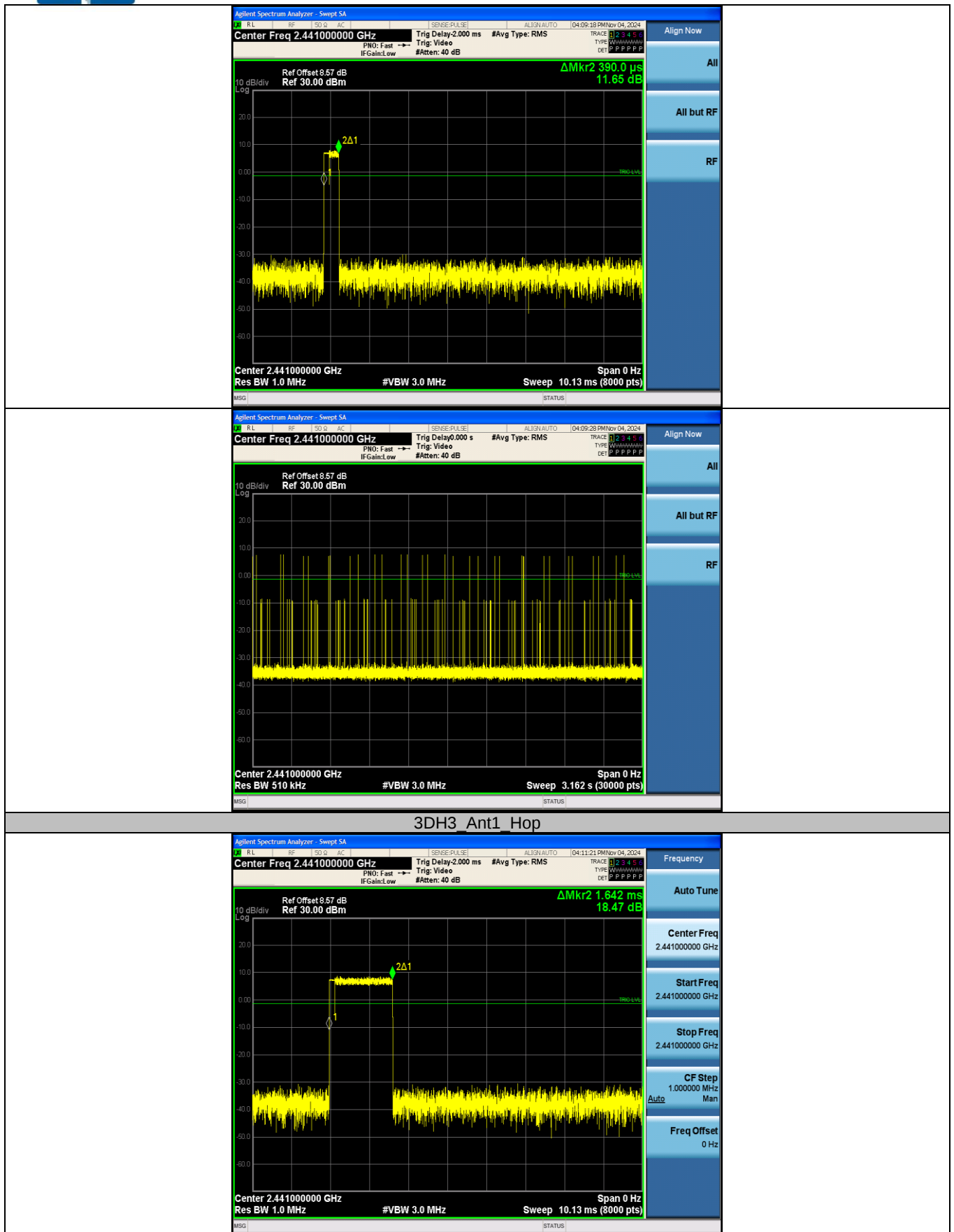
3DH1_Ant1_Hop

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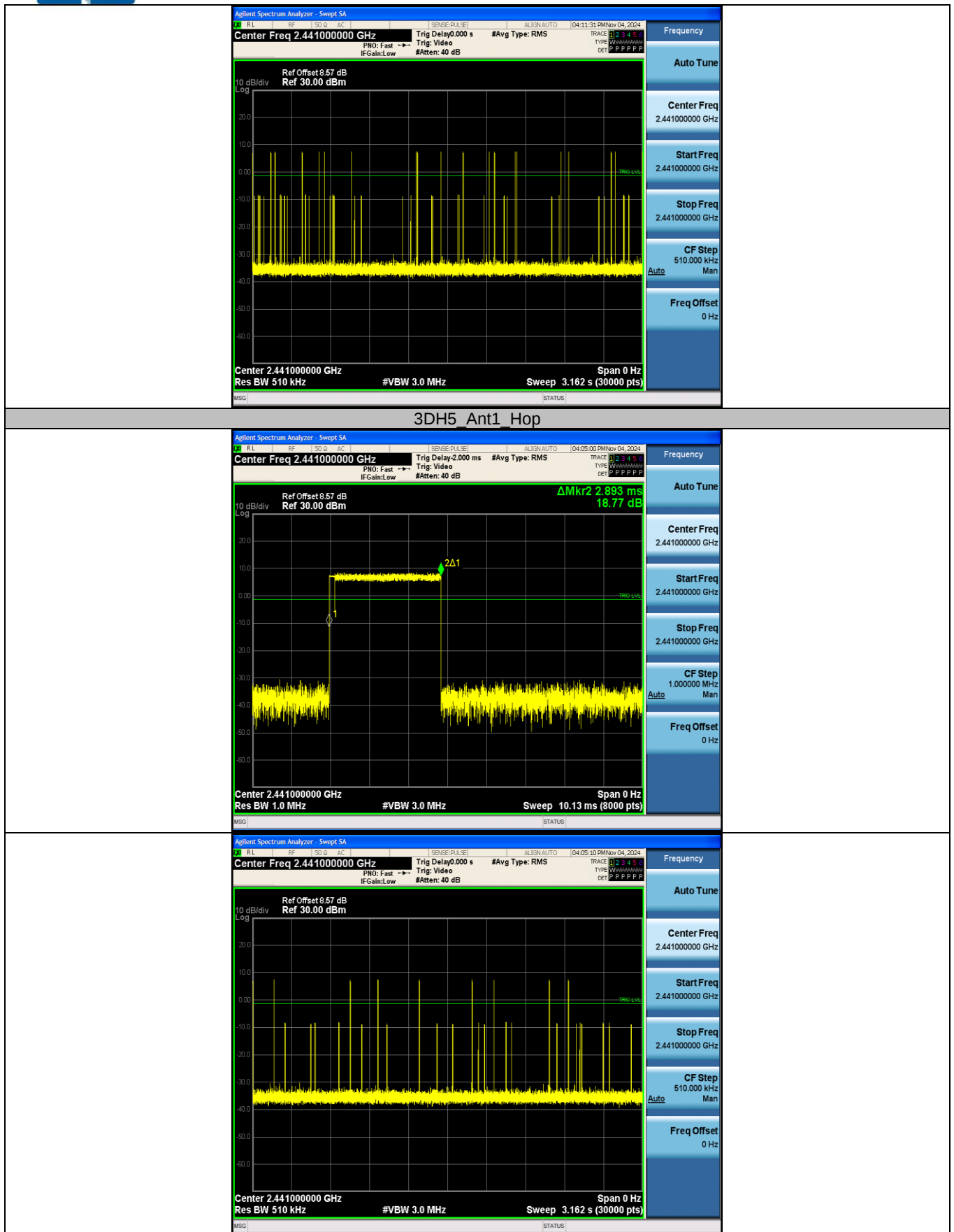


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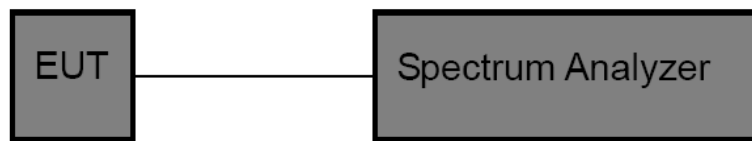
3.9. Peak Output Power

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

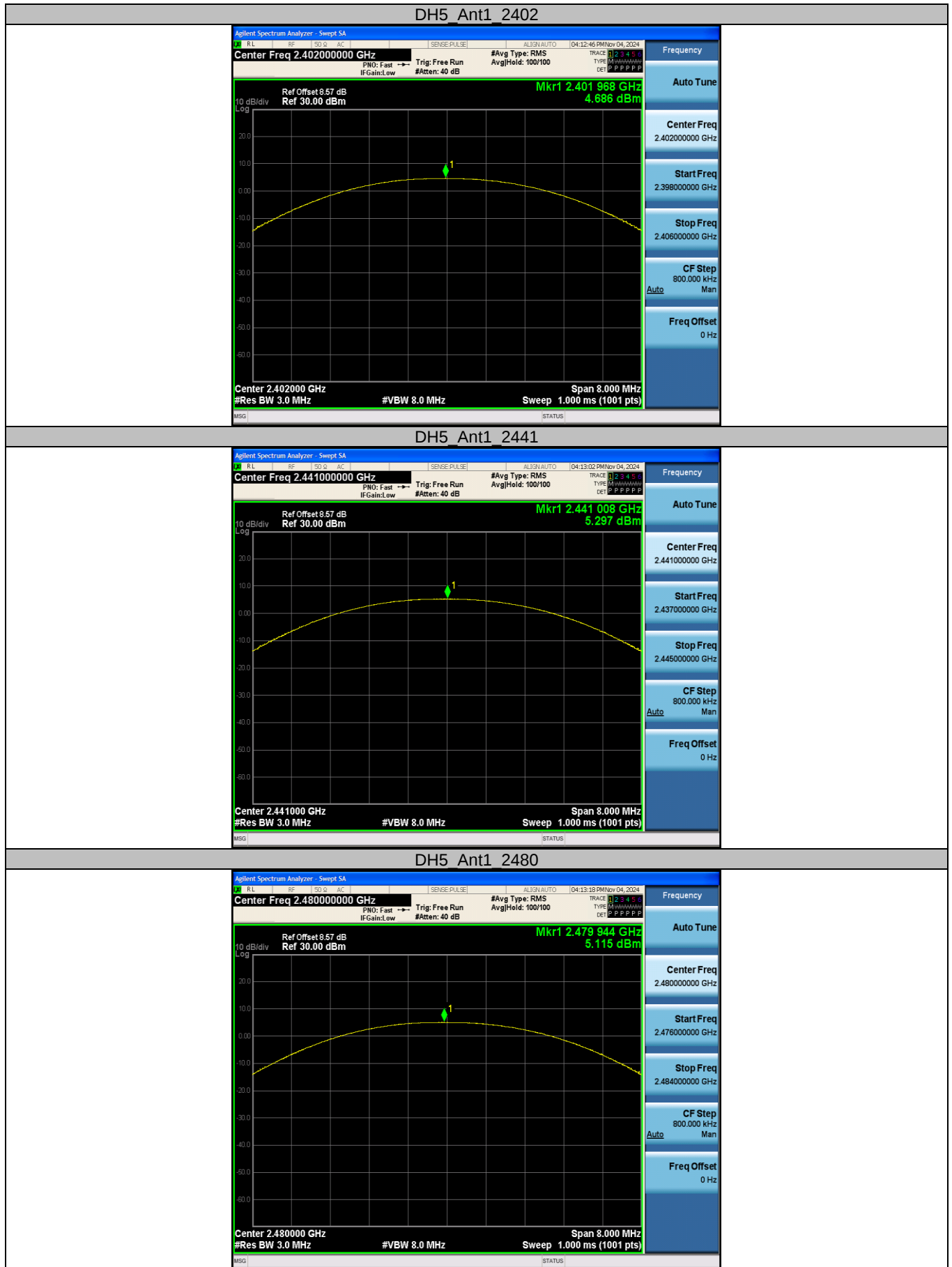
Please refer to the clause 2.4.

Test Result

Test Mode	Frequency (MHz)	Conducted Output Power (dBm)	FCC Limit (dBm)	Verdict
GFSK	2402	4.69	$\leq$ 30	Pass
	2441	5.30	$\leq$ 30	Pass
	2480	5.12	$\leq$ 30	Pass
$\pi/4$ -DQPSK	2402	6.61	$\leq$ 30	Pass
	2441	7.22	$\leq$ 30	Pass
	2480	6.99	$\leq$ 30	Pass
8-DPSK	2402	7.08	$\leq$ 30	Pass
	2441	7.75	$\leq$ 30	Pass
	2480	7.38	$\leq$ 30	Pass



Test plot as follows:



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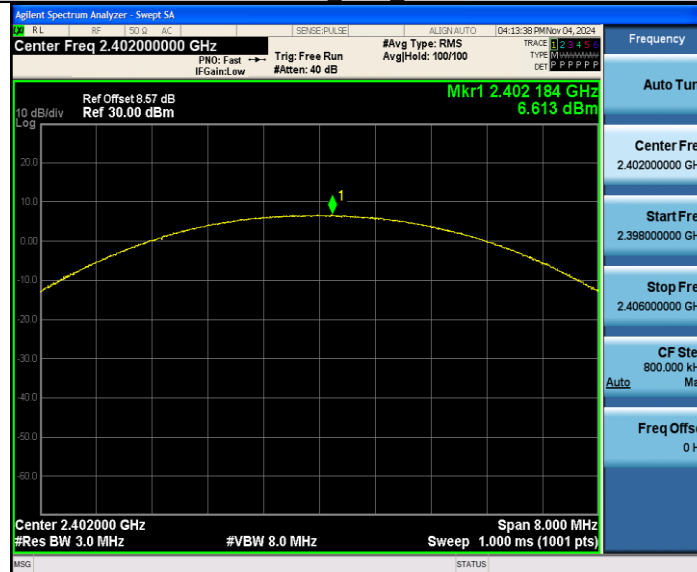
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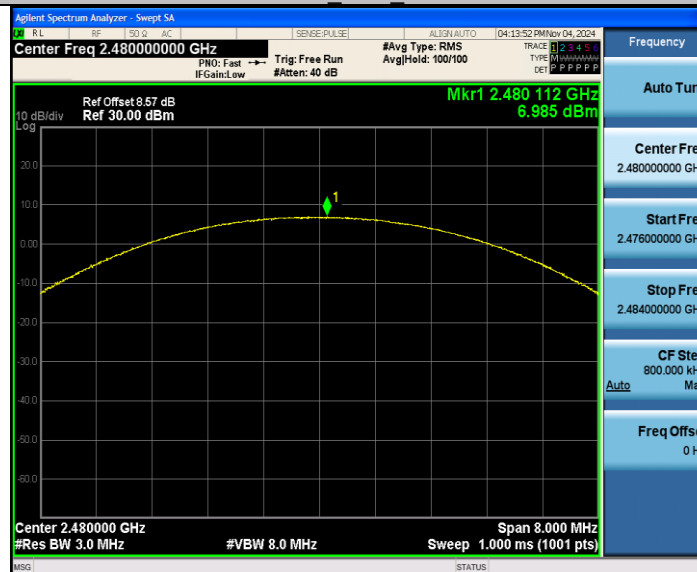
2DH5 Ant1 2402



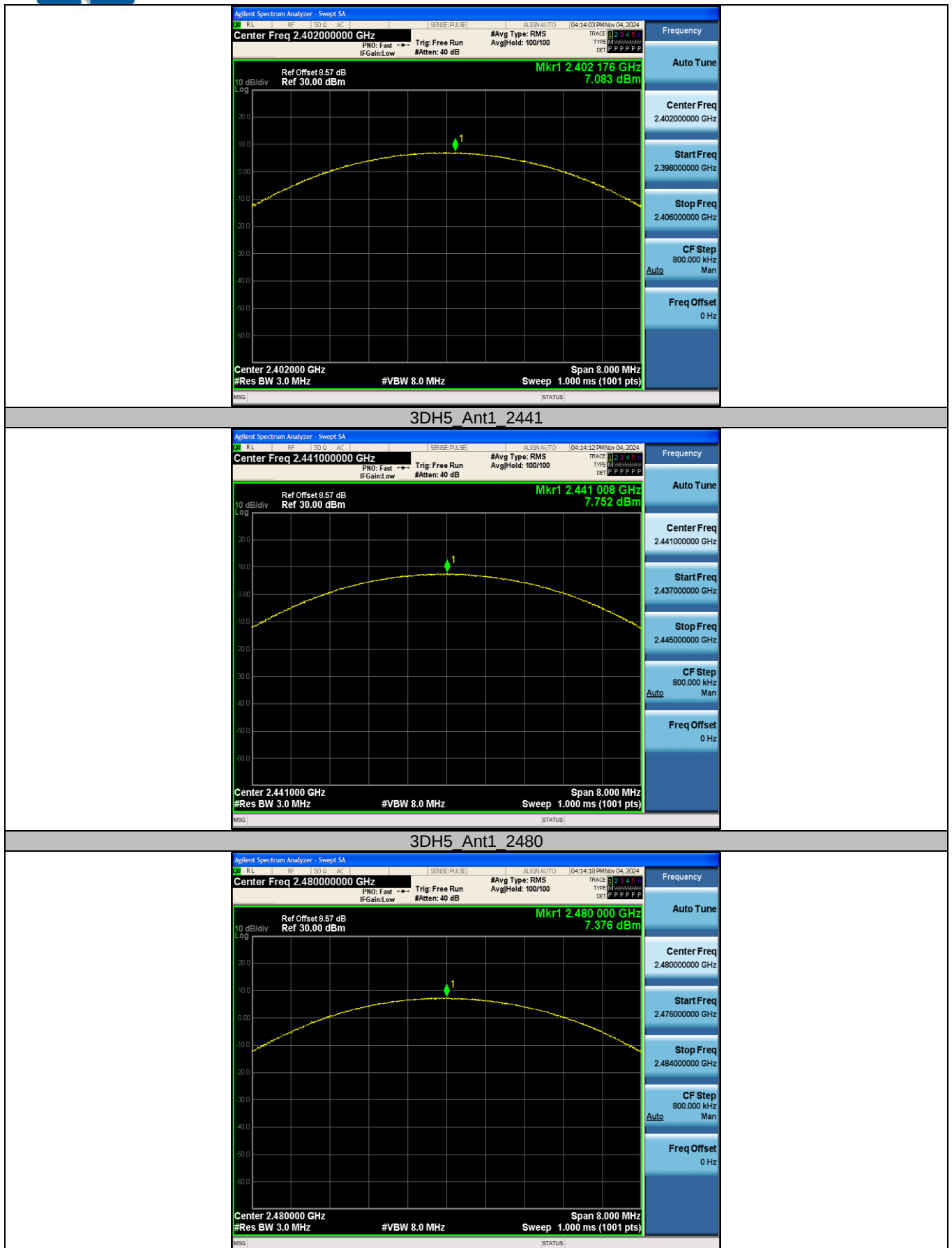
2DH5 Ant1 2441



2DH5 Ant1 2480



3DH5 Ant1 2402



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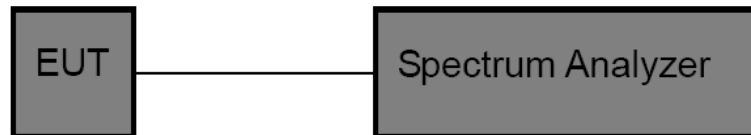


3.10. Duty Cycle

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 (%)	Final Setting for VBW (kHz)
GFSK	2402	0.00	0.00	100	1
	2441	0.00	0.00	100	1
	2480	0.00	0.00	100	1
$\pi/4$ -DQPSK	2402	0.00	0.00	100	1
	2441	0.00	0.00	100	1
	2480	0.00	0.00	100	1
8-DPSK	2402	0.00	0.00	100	1
	2441	0.00	0.00	100	1
	2480	0.00	0.00	100	1