

11. Maximum Peak Output Power

11.1 Block Diagram Of Test Setup



11.2 Limit

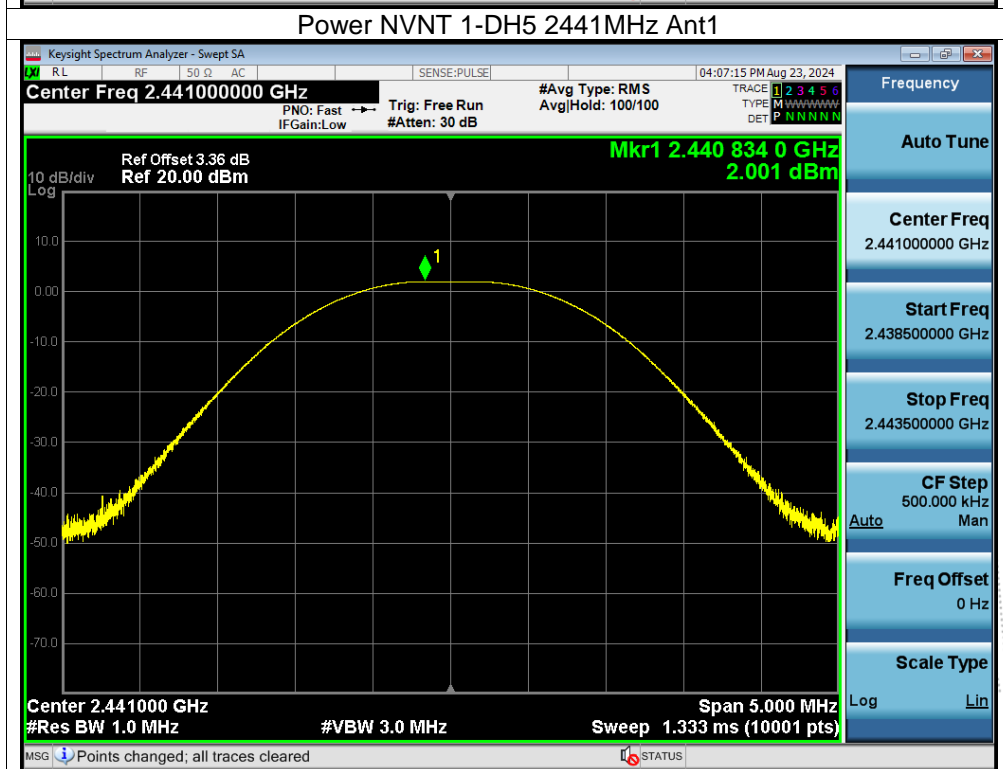
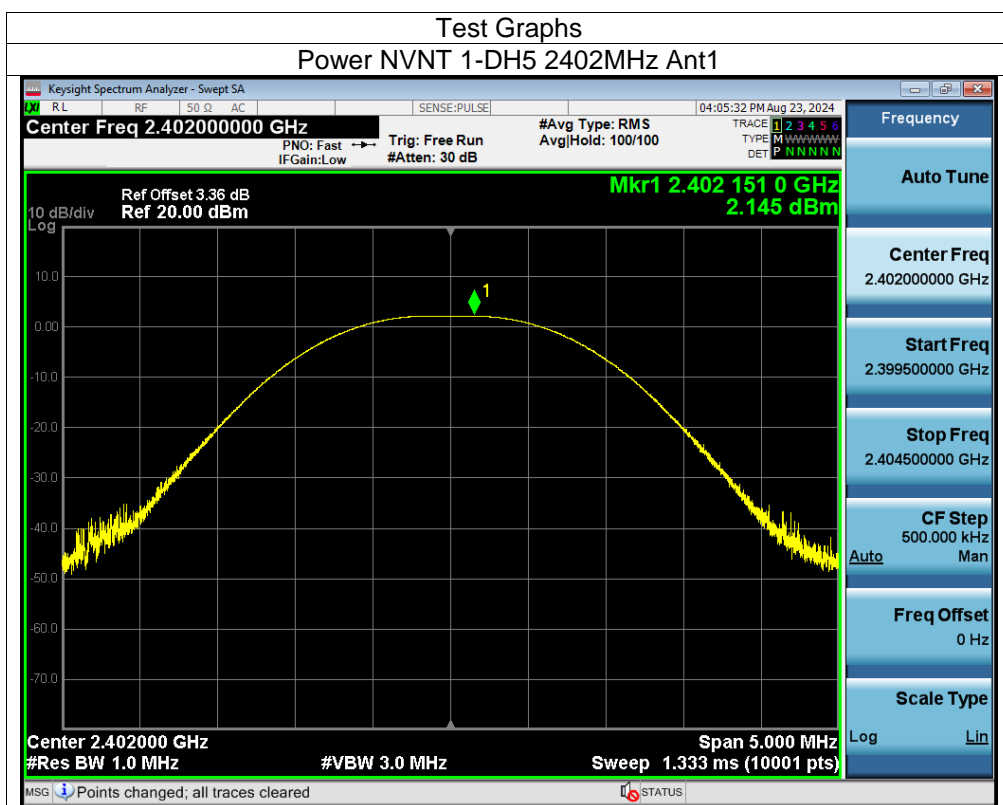
FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(1)	Peak Output Power	0.125 watt or 21dBm	2400-2483.5	PASS

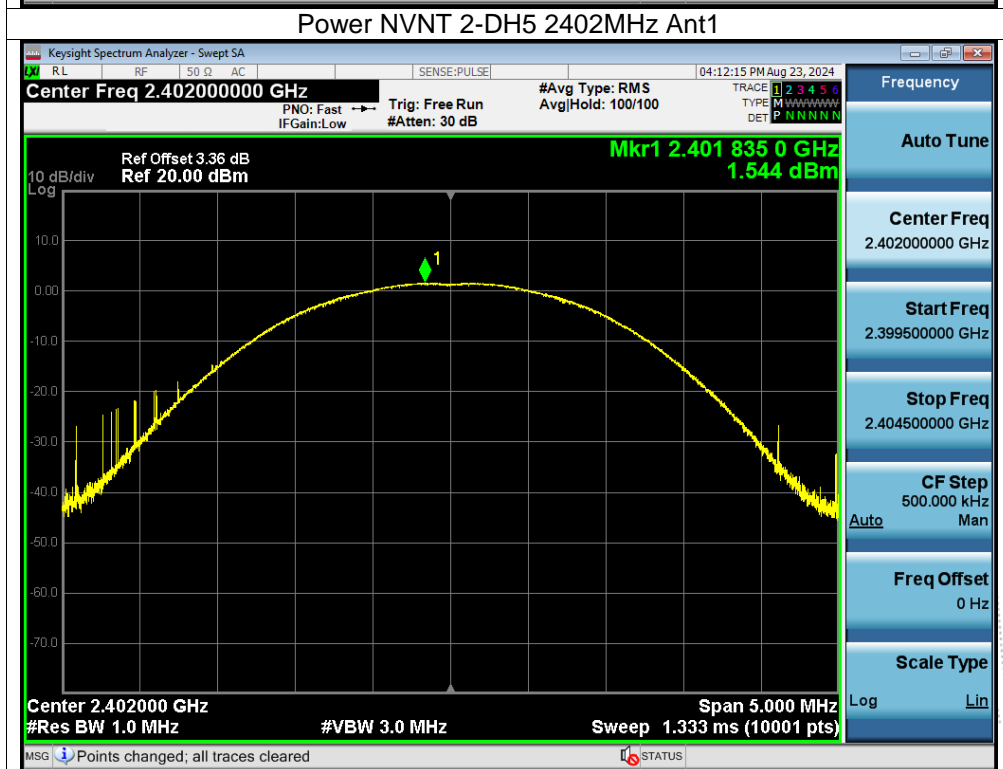
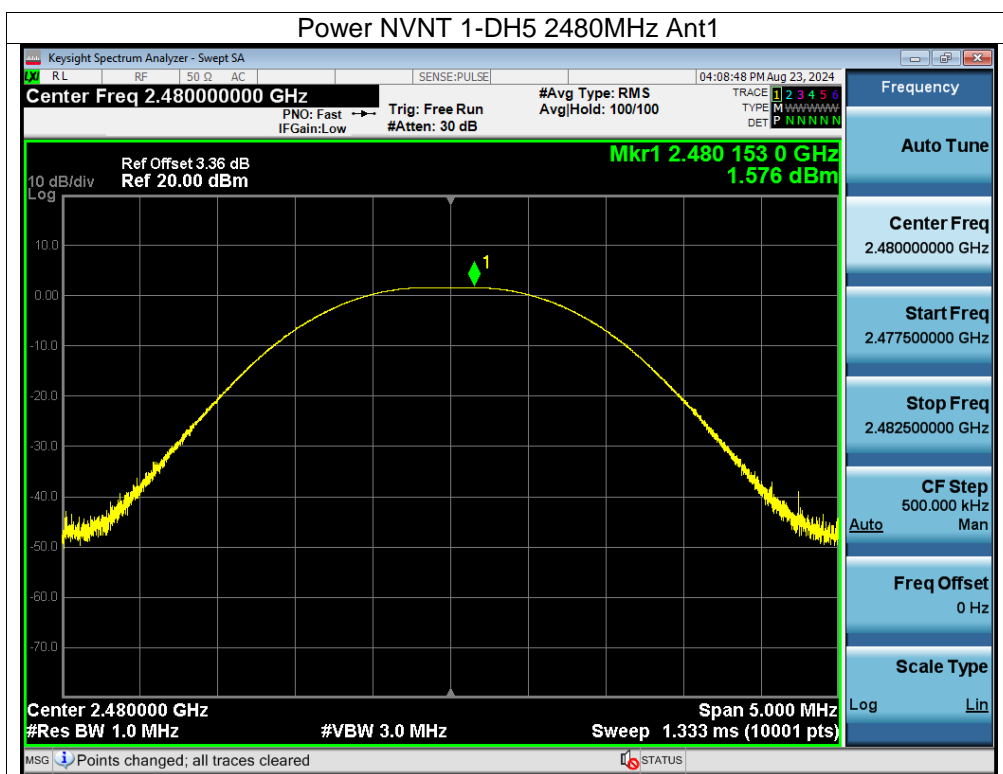
11.3 Test procedure

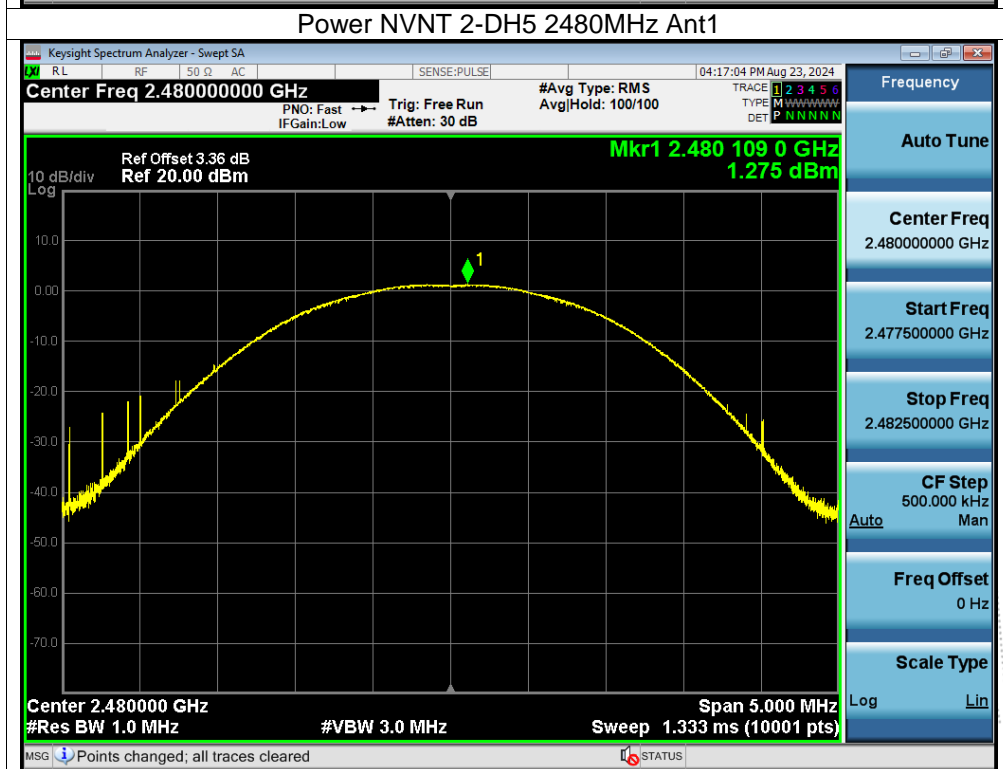
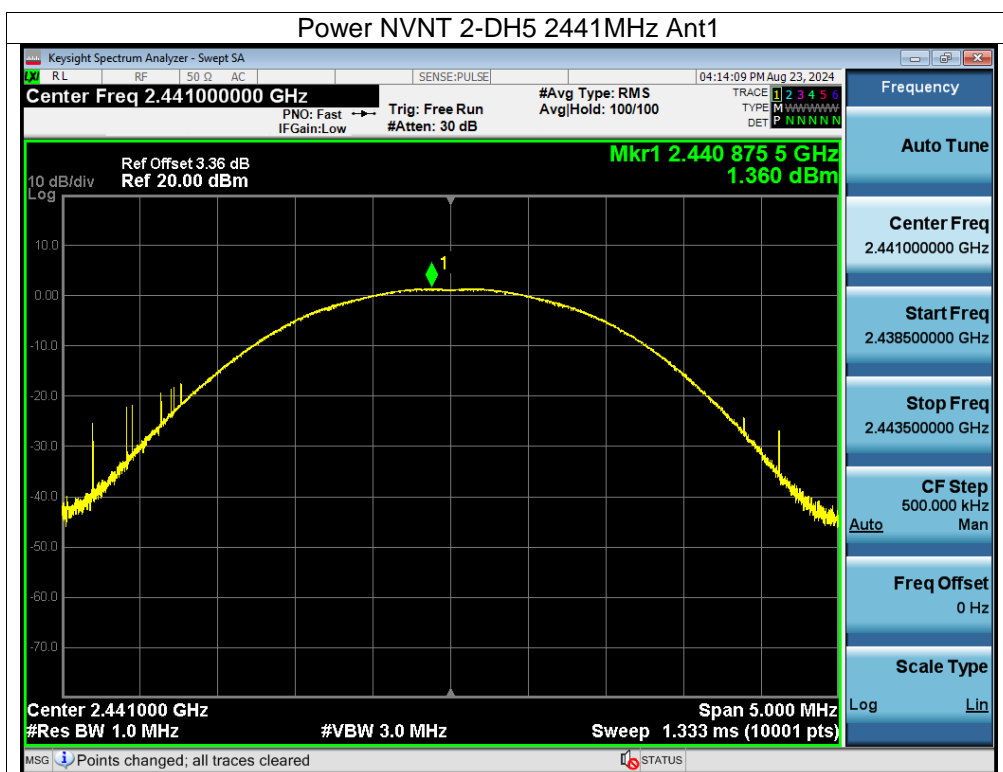
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 2MHz. VBW = 6MHz. Sweep = auto; Detector Function = Peak.
3. Keep the EUT in transmitting at lowest, medium and highest channel individually. Record the max value.

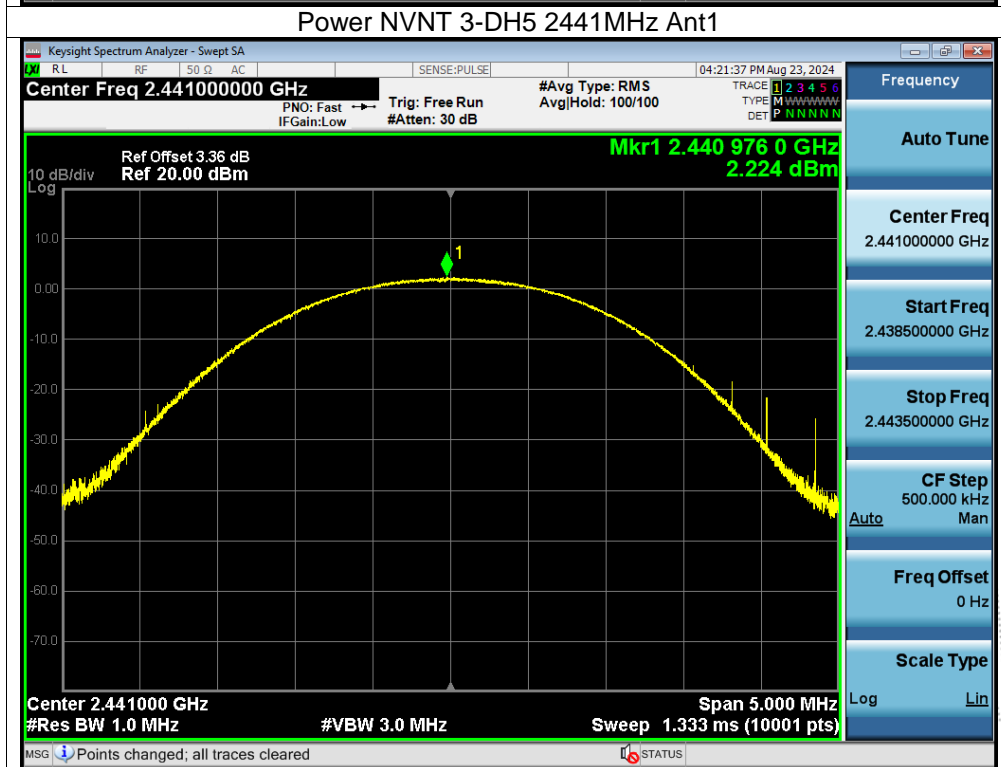
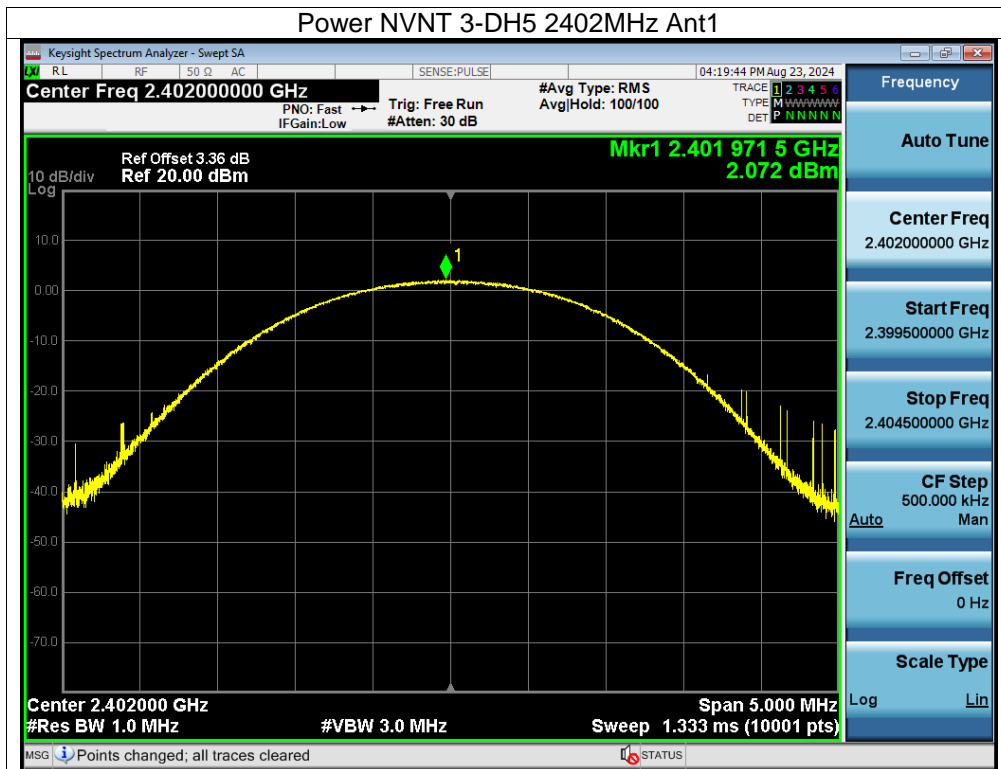
11.4 Test Result

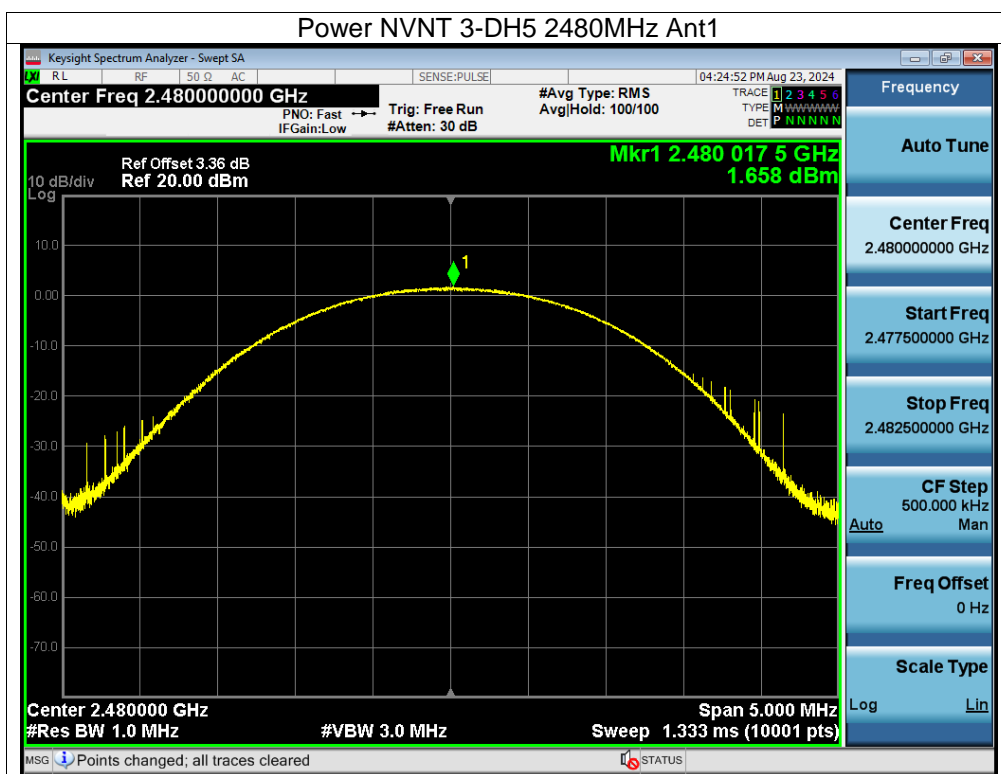
Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	2.15	21	Pass
NVNT	1-DH5	2441	2	21	Pass
NVNT	1-DH5	2480	1.58	21	Pass
NVNT	2-DH5	2402	1.54	21	Pass
NVNT	2-DH5	2441	1.36	21	Pass
NVNT	2-DH5	2480	1.27	21	Pass
NVNT	3-DH5	2402	2.07	21	Pass
NVNT	3-DH5	2441	2.22	21	Pass
NVNT	3-DH5	2480	1.66	21	Pass











12. Hopping Channel Separation

12.1 Block Diagram Of Test Setup



12.2 Limit

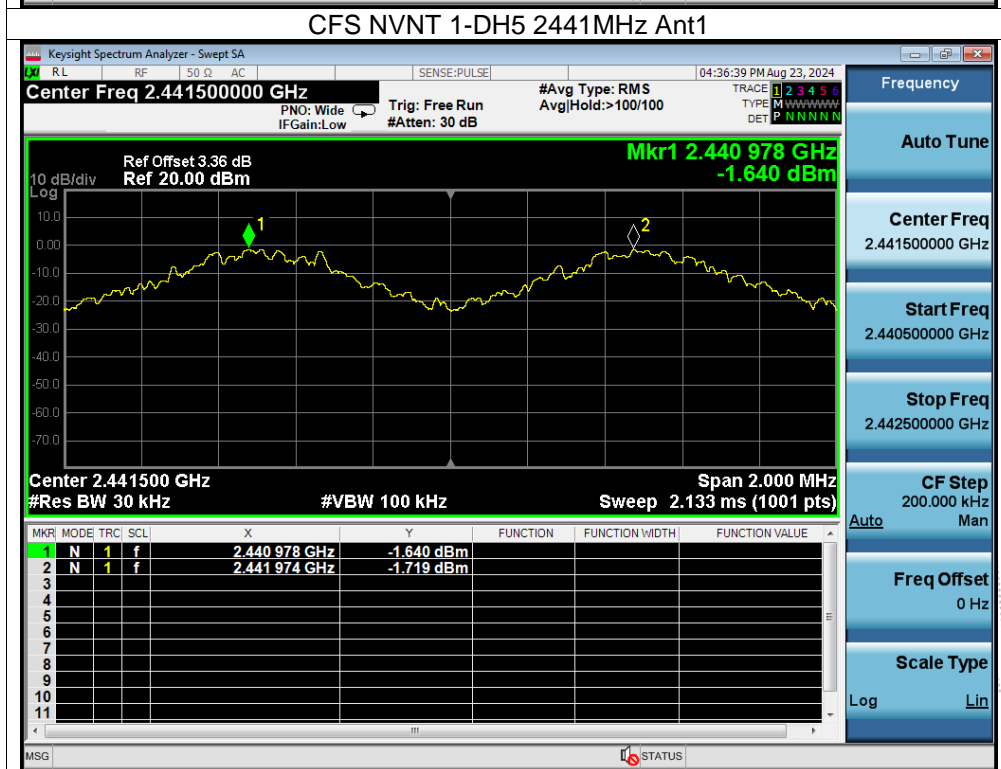
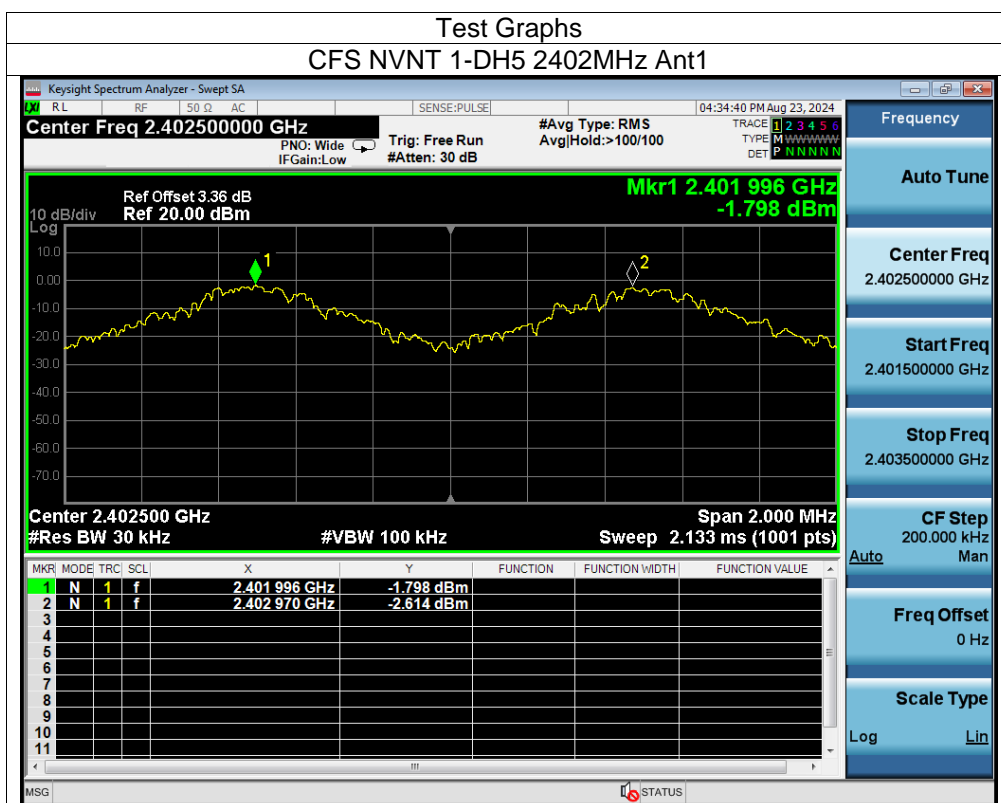
Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 0.125W.

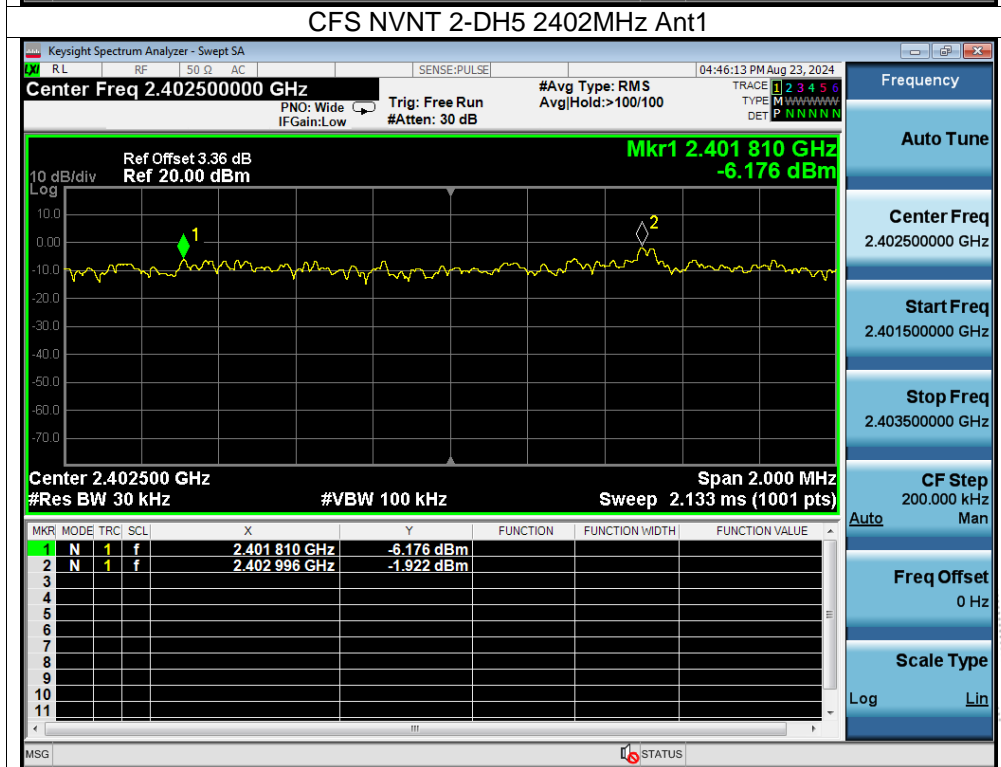
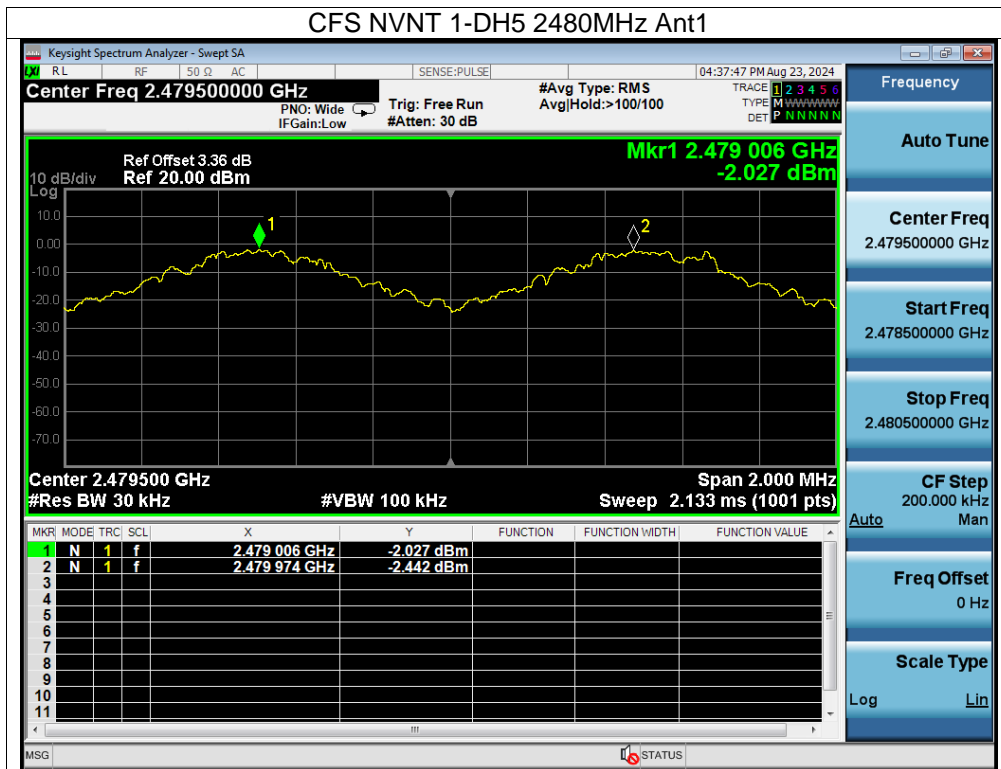
12.3 Test procedure

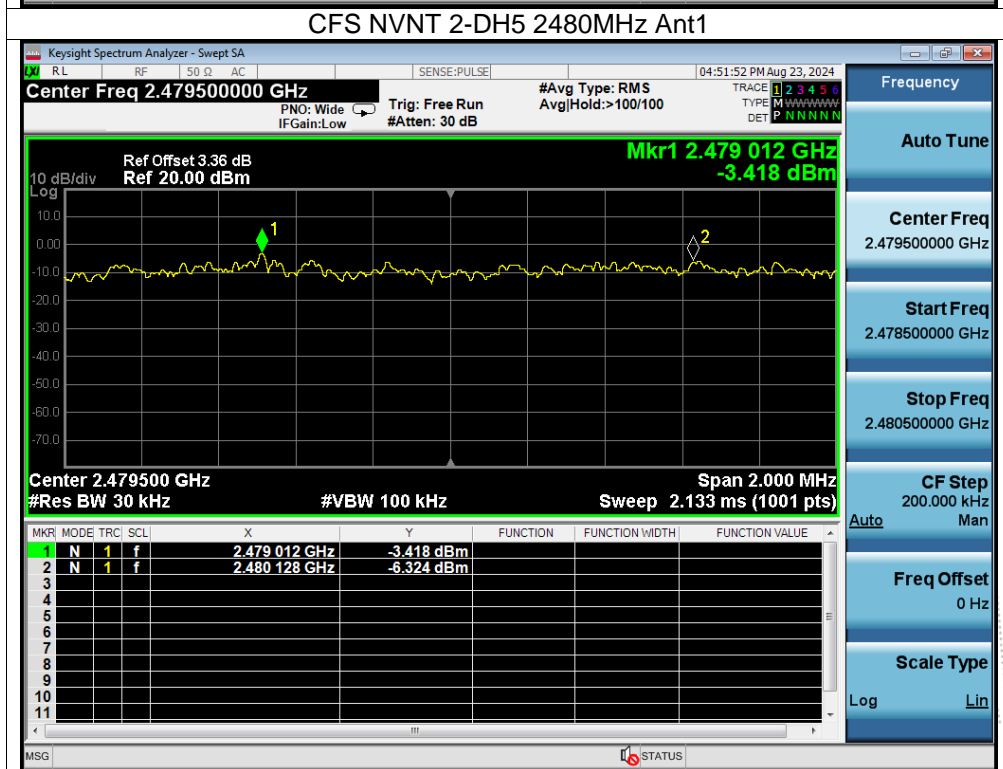
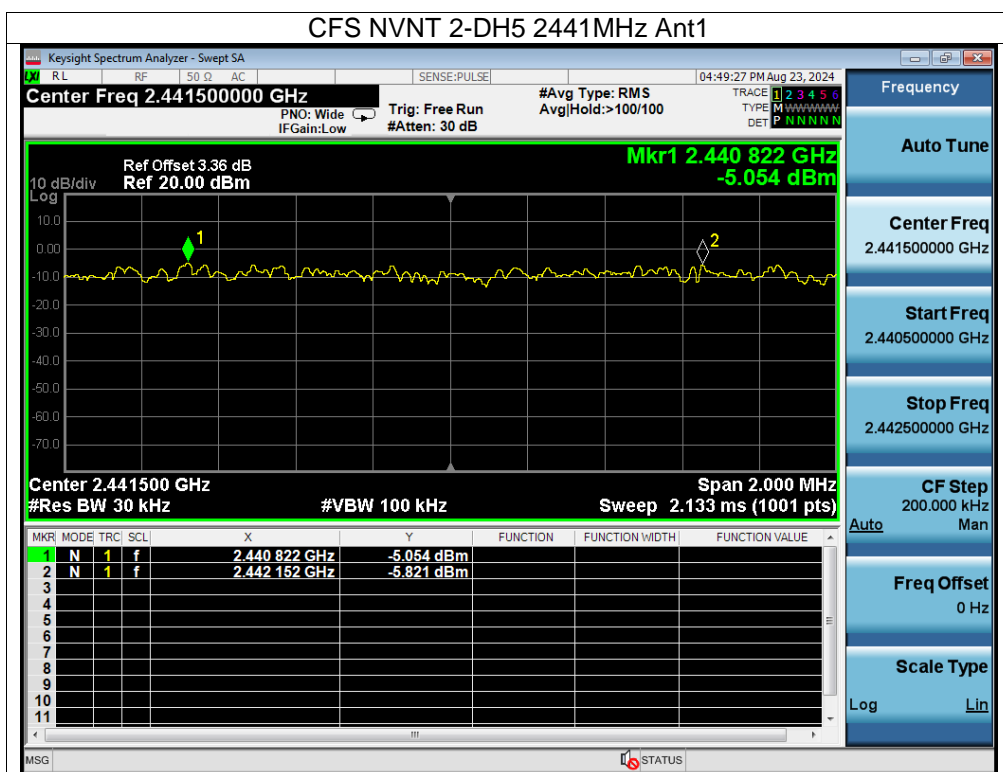
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 30kHz. VBW = 100kHz , Span = 2.0MHz. Sweep = auto; Detector Function = Peak. Trace = Max hold.
3. Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section Submit this plot.

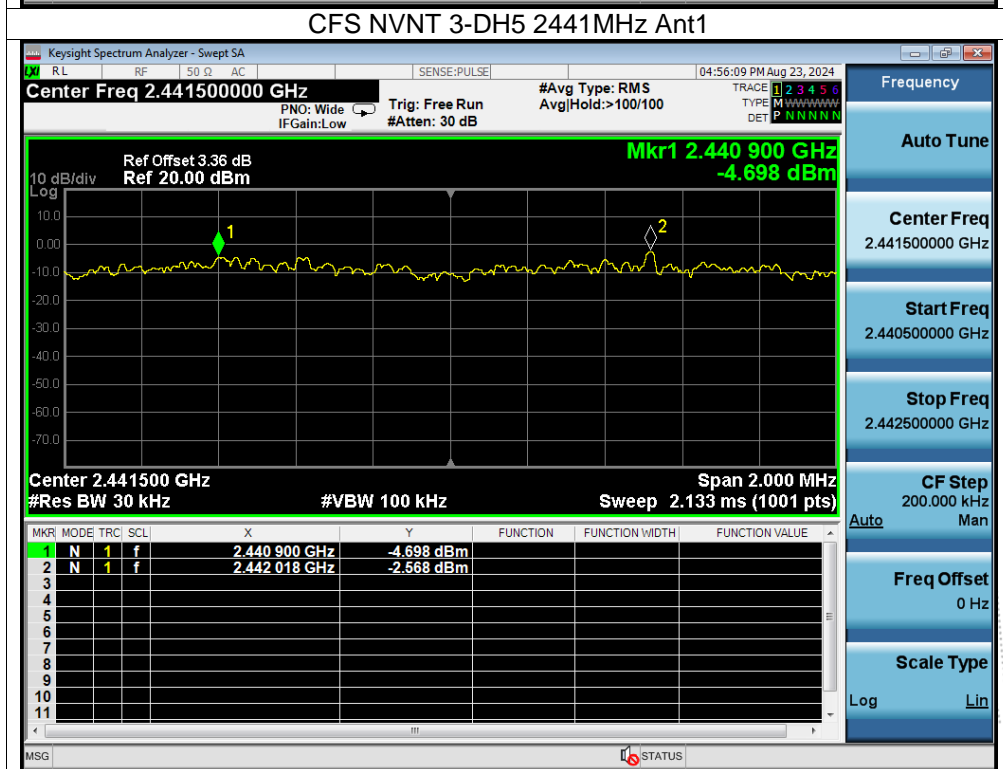
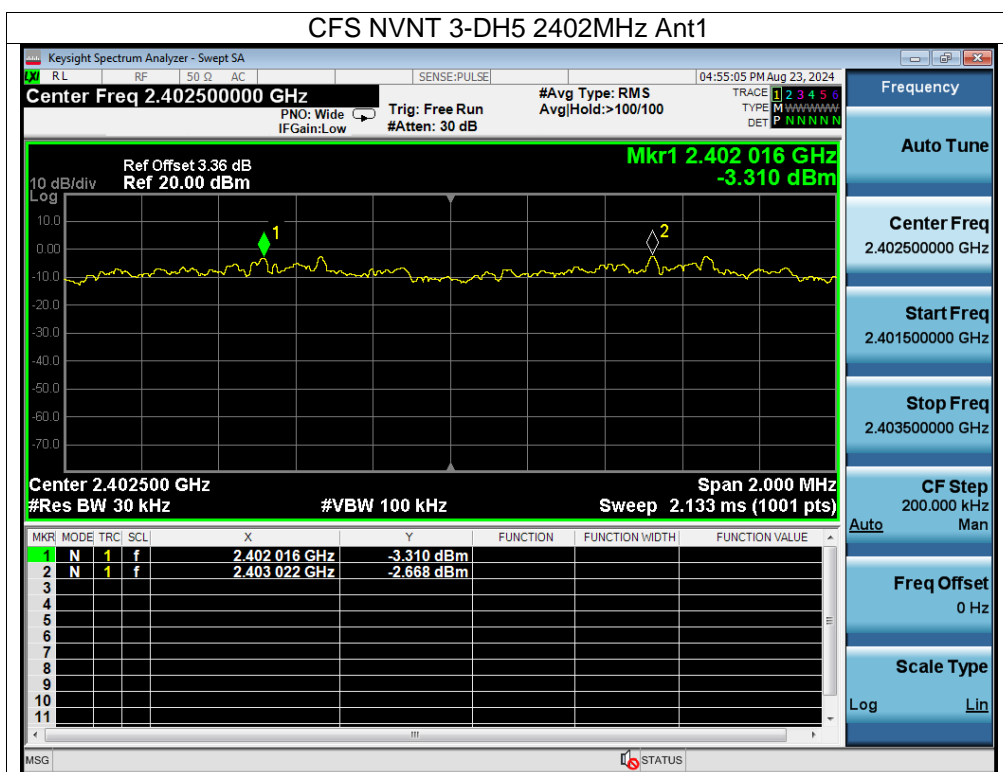
12.4 Test Result

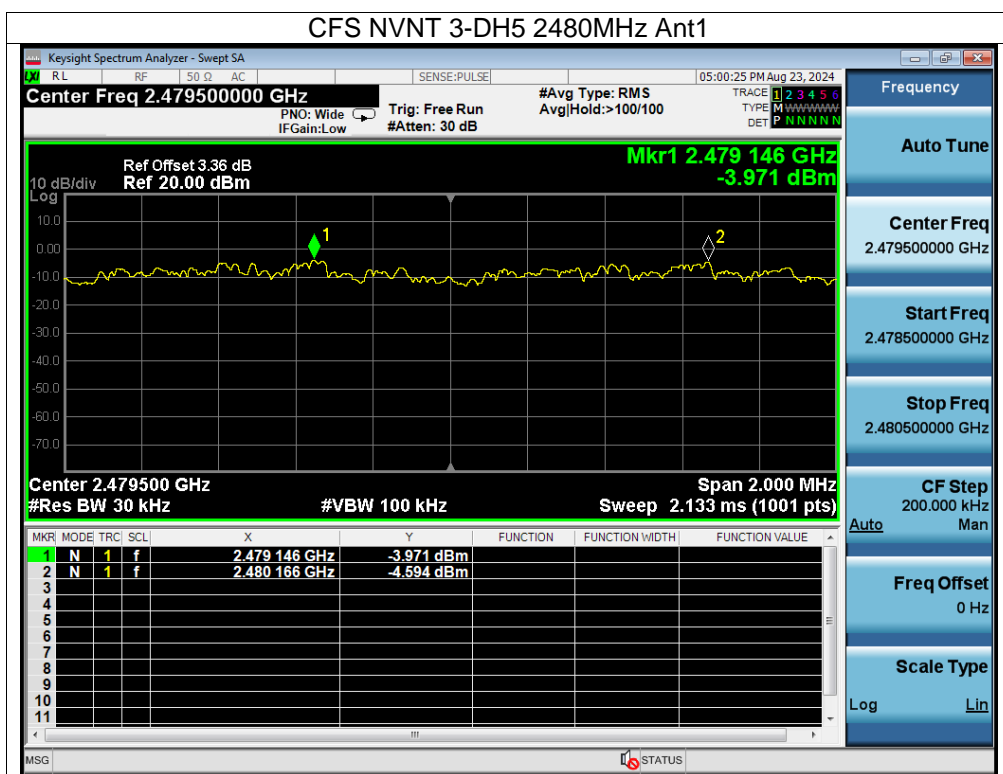
Condition	Mode	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	2401.996	2402.97	0.974	0.631	Pass
NVNT	1-DH5	2440.978	2441.974	0.996	0.637	Pass
NVNT	1-DH5	2479.006	2479.974	0.968	0.634	Pass
NVNT	2-DH5	2401.81	2402.996	1.186	1.006	Pass
NVNT	2-DH5	2440.822	2442.152	1.33	1.009	Pass
NVNT	2-DH5	2479.012	2480.128	1.116	1.008	Pass
NVNT	3-DH5	2402.016	2403.022	1.006	0.980	Pass
NVNT	3-DH5	2440.9	2442.018	1.118	1.047	Pass
NVNT	3-DH5	2479.146	2480.166	1.02	0.995	Pass











13. Number of Hopping Frequency

13.1 Block Diagram Of Test Setup



13.2 Limit

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

13.3 Test procedure

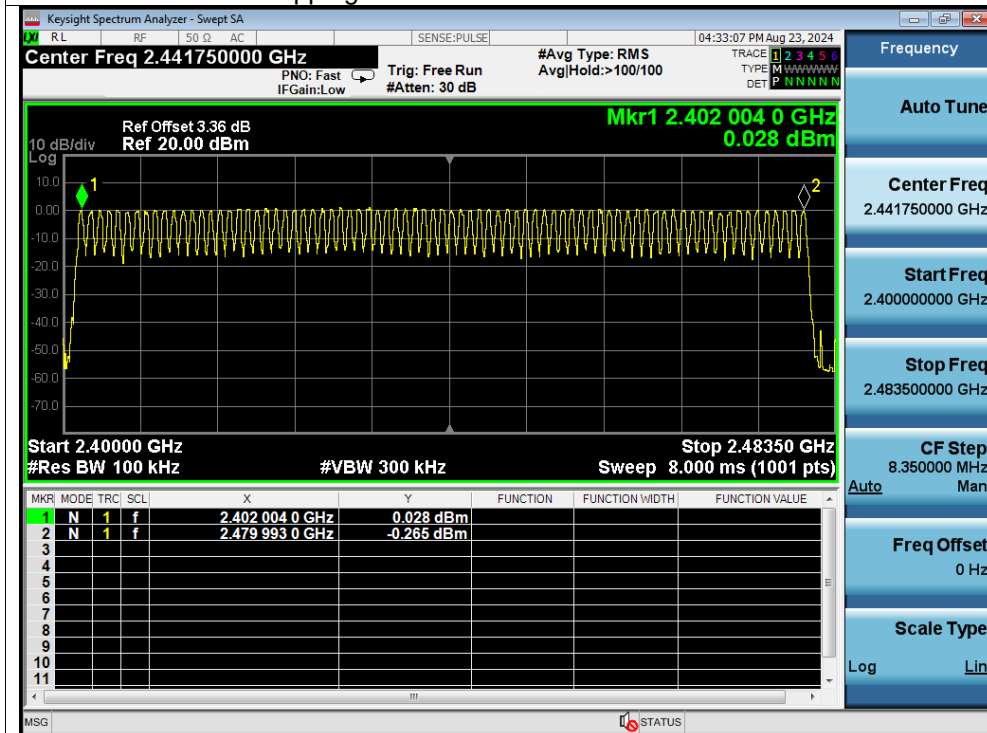
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 100kHz. VBW = 300kHz. Sweep = auto; Detector Function = Peak. Trace = Max hold.
3. Allow the trace to stabilize. It may prove necessary to break the span up to sections. in order to clearly show all of the hopping frequencies. The limit is specified in one of the subparagraphs of this Section.
4. Set the spectrum analyzer: Start Frequency = 2.4GHz, Stop Frequency = 2.4835GHz. Sweep=auto;

13.4 Test Result

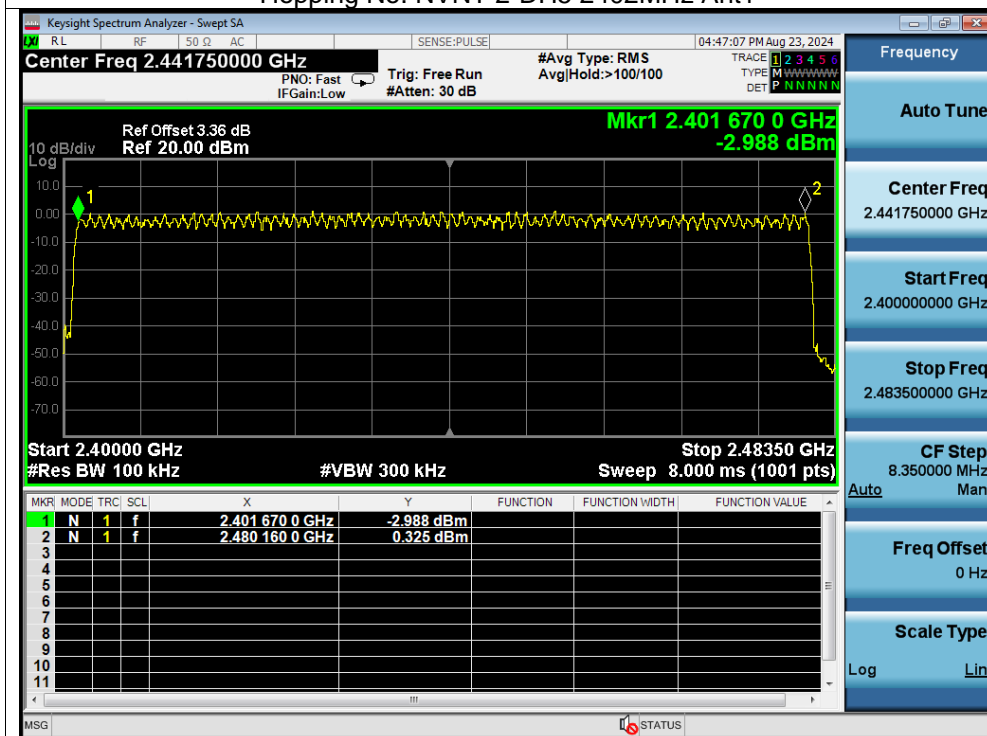
Condition	Mode	Hopping Number	Limit	Verdict
NVNT	1-DH5	79	15	Pass
NVNT	2-DH5	79	15	Pass
NVNT	3-DH5	79	15	Pass

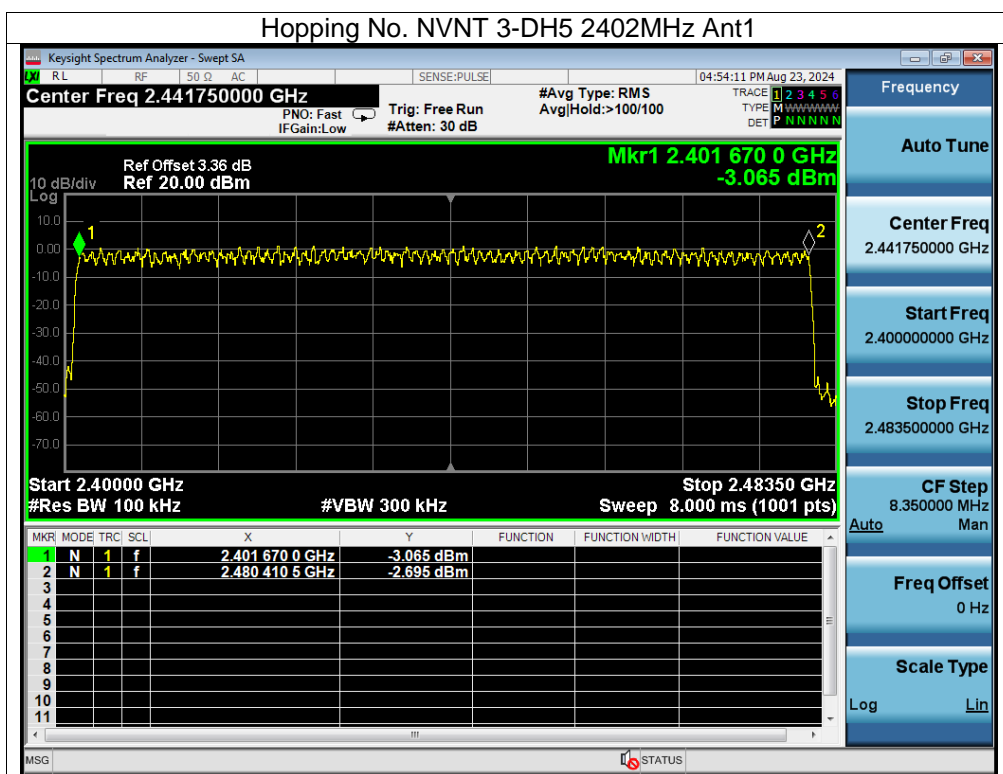
Test Graphs

Hopping No. NVNT 1-DH5 2402MHz Ant1



Hopping No. NVNT 2-DH5 2402MHz Ant1





14. Dwell Time

14.1 Block Diagram Of Test Setup



14.2 Limit

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

14.3 Test procedure

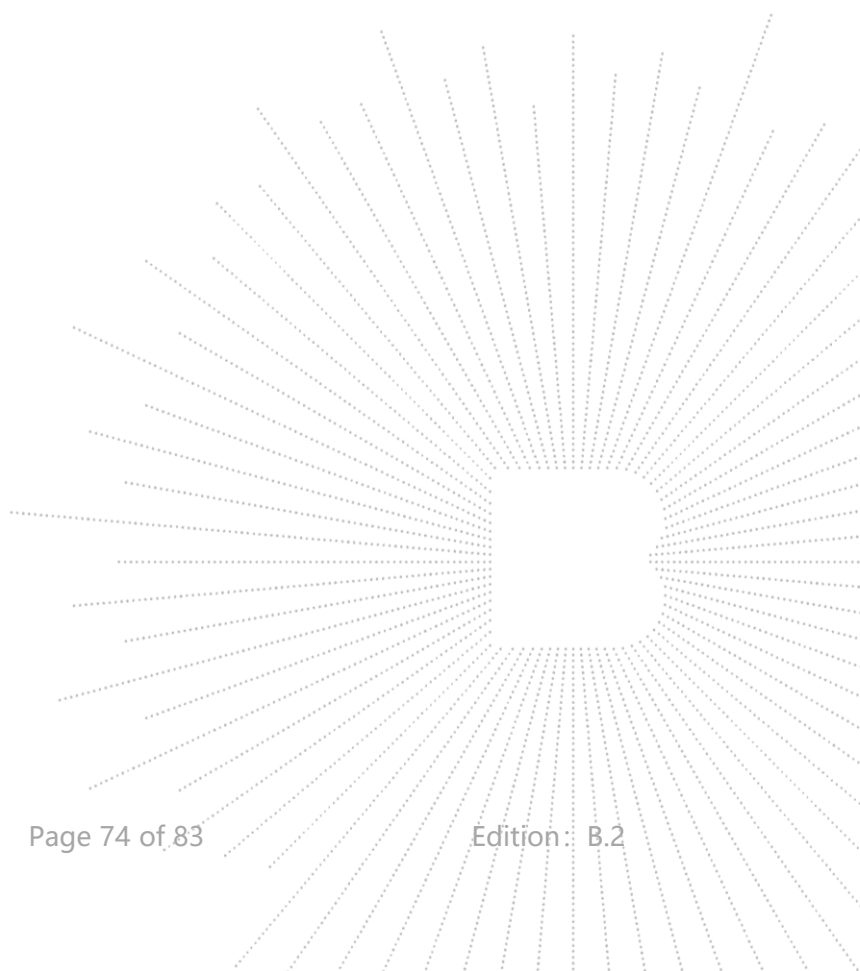
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set spectrum analyzer span = 0. Centred on a hopping channel;
3. Set RBW = 1MHz and VBW = 3MHz. Sweep = as necessary to capture the entire dwell time per hopping channel. Set the EUT for DH5, DH3 and DH1 packet transmitting.
4. Use the marker-delta function to determine the dwell time. If this value varies with different modes of operation (e.g.. data rate. modulation format. etc.). repeat this test for each variation. The limit is specified in one of the subparagraphs of this Section. Submit this plot(s).

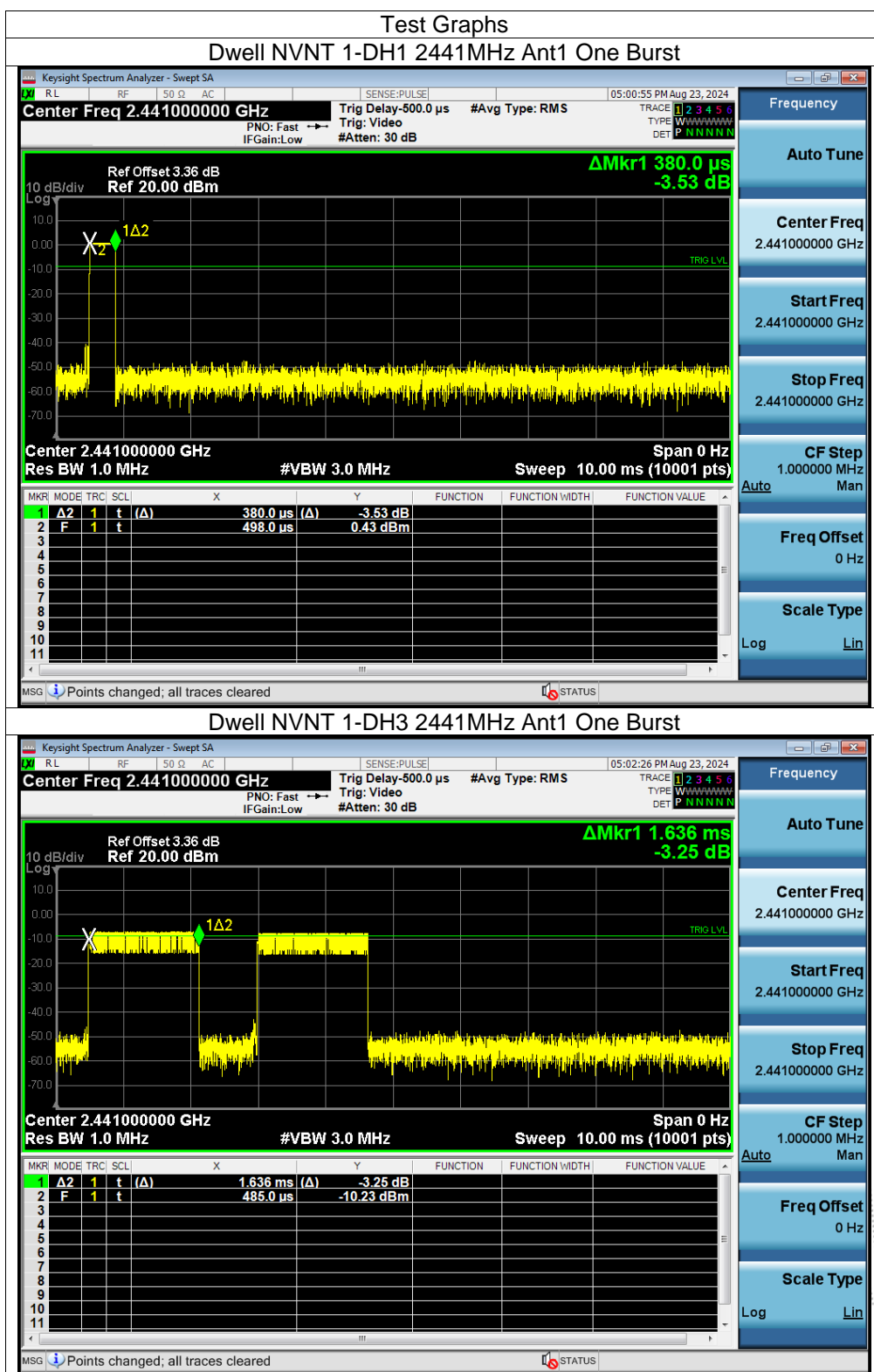
14.4 Test Result

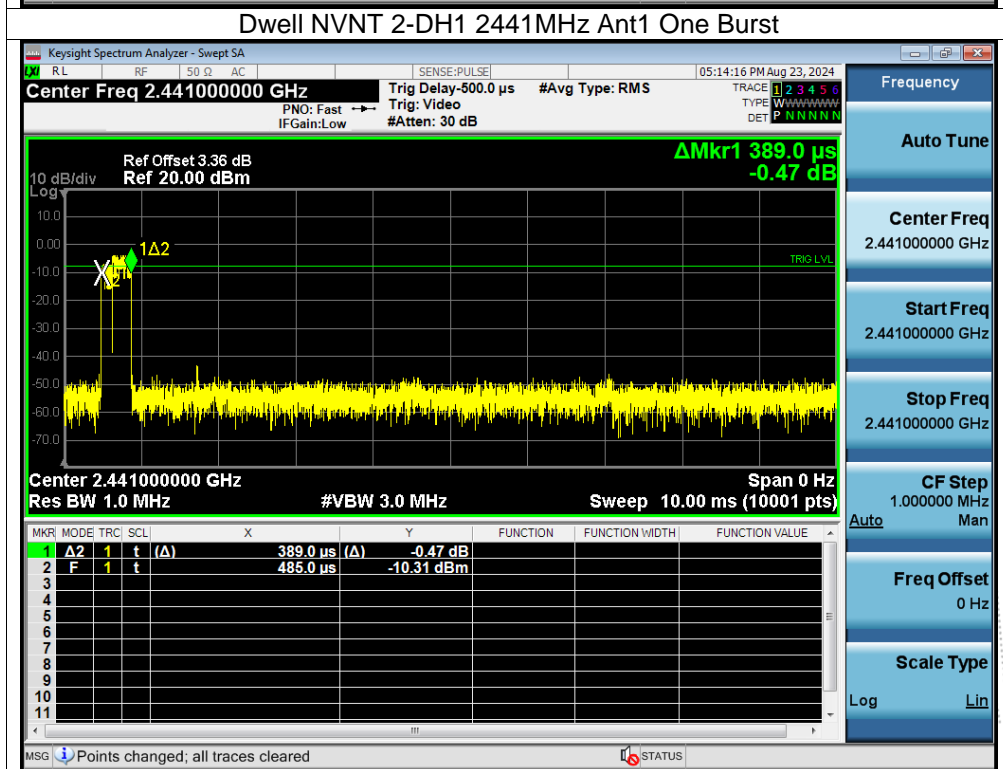
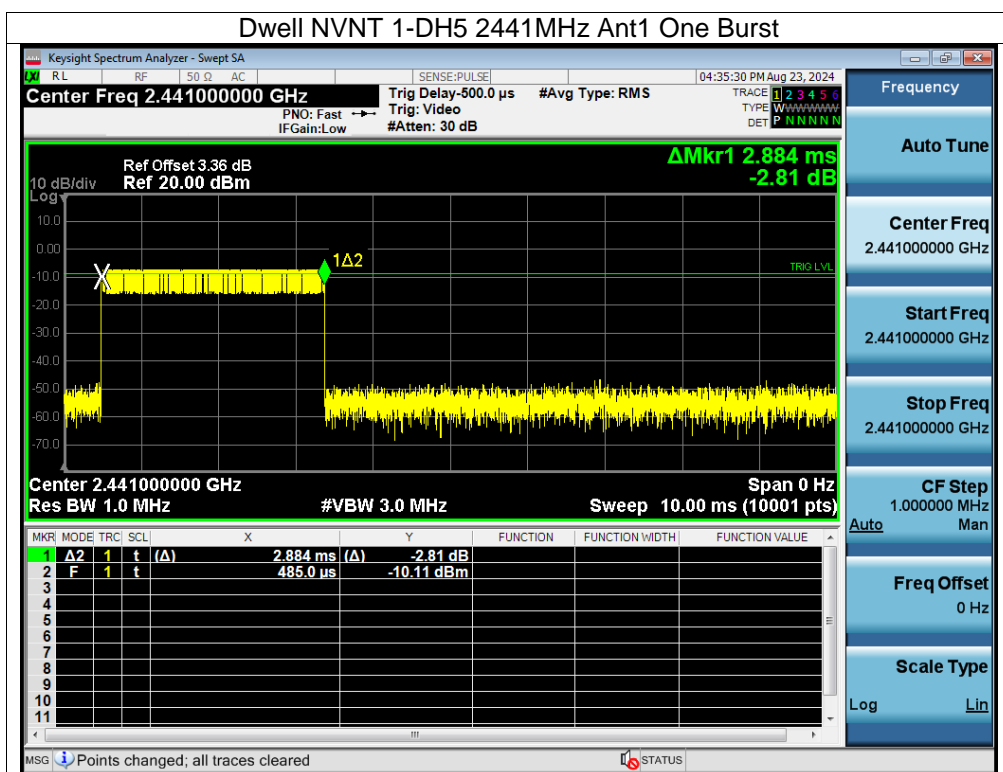
DH5 Packet permit maximum 1600 / 79 / 6 hops per second in each channel
(5 time slots RX, 1 time slot TX).
DH3 Packet permit maximum 1600 / 79 / 4 hops per second in each channel
(3 time slots RX, 1 time slot TX).
DH1 Packet permit maximum 1600 / 79 / 2 hops per second in each channel
(1 time slot RX, 1 time slot TX). So, the Dwell Time can be calculated as follows:

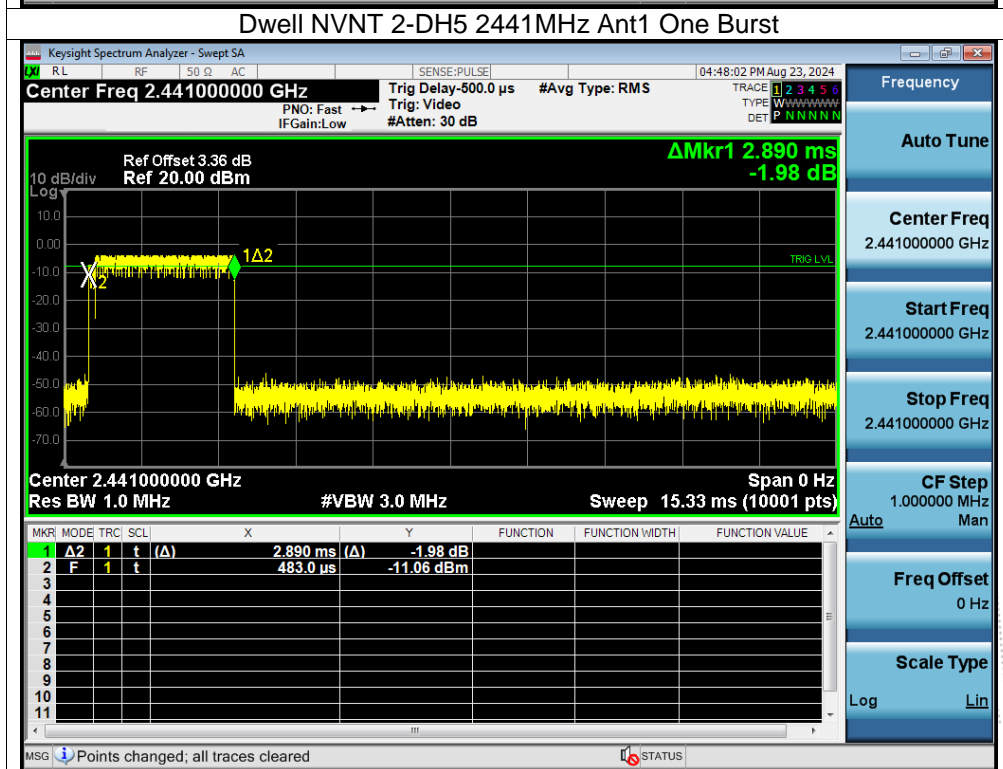
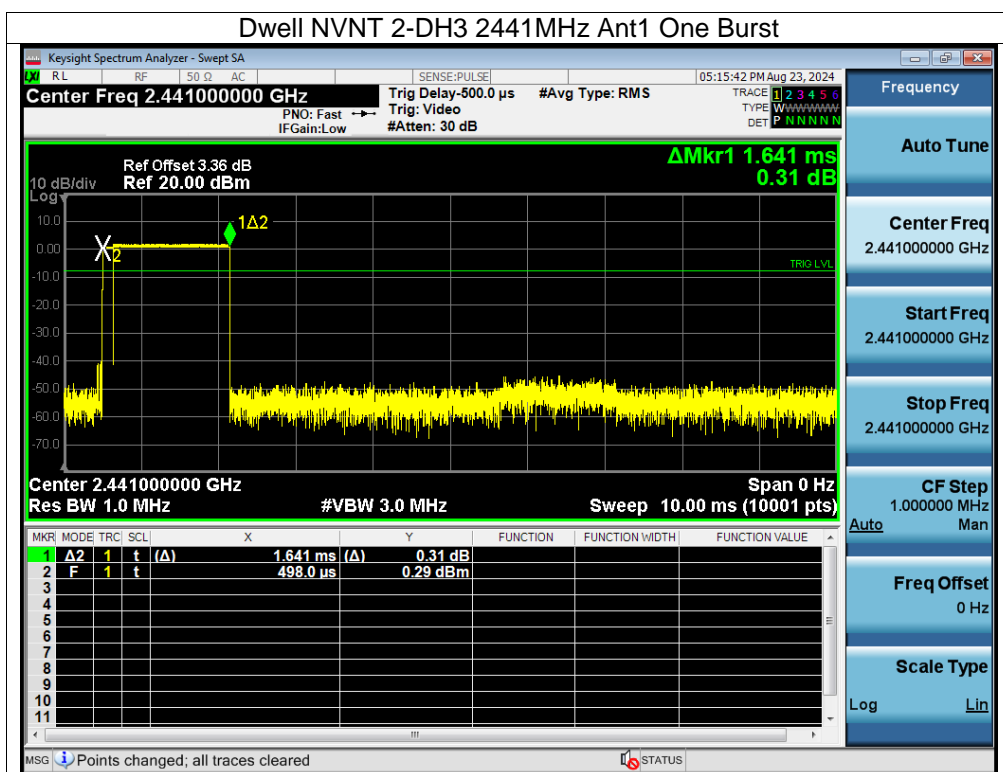
DH5: $1600/79/6 \times 0.4 \times 79 \times (\text{MkrDelta})/1000$
DH3: $1600/79/4 \times 0.4 \times 79 \times (\text{MkrDelta})/1000$
DH1: $1600/79/2 \times 0.4 \times 79 \times (\text{MkrDelta})/1000$
Remark: Mkr Delta is once pulse time.

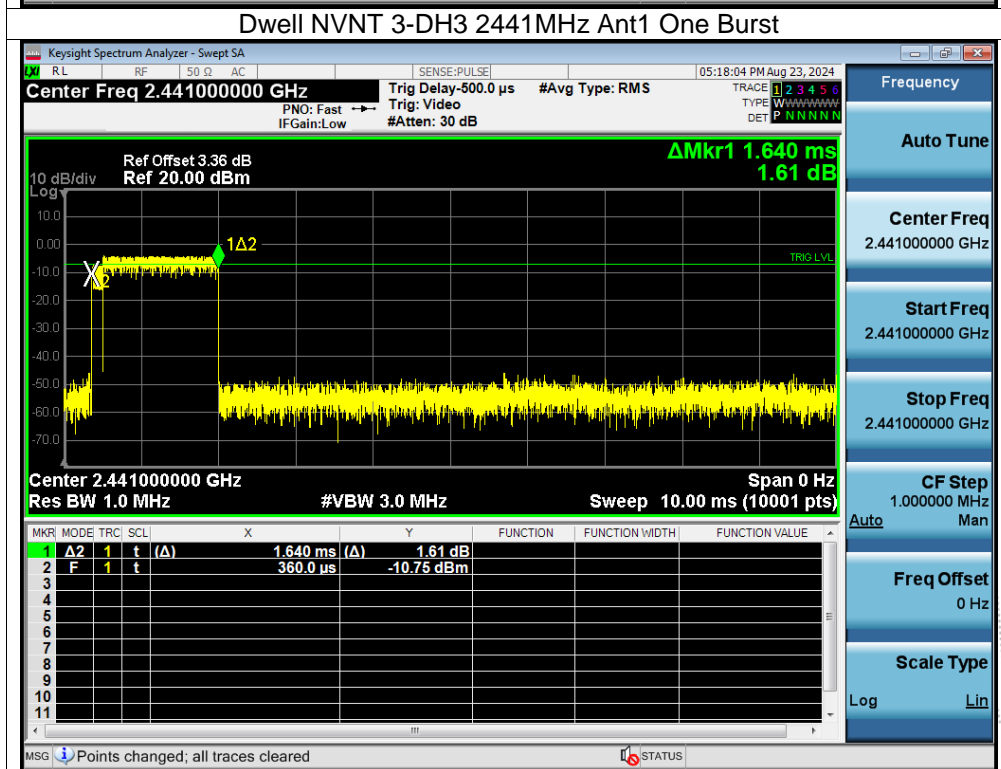
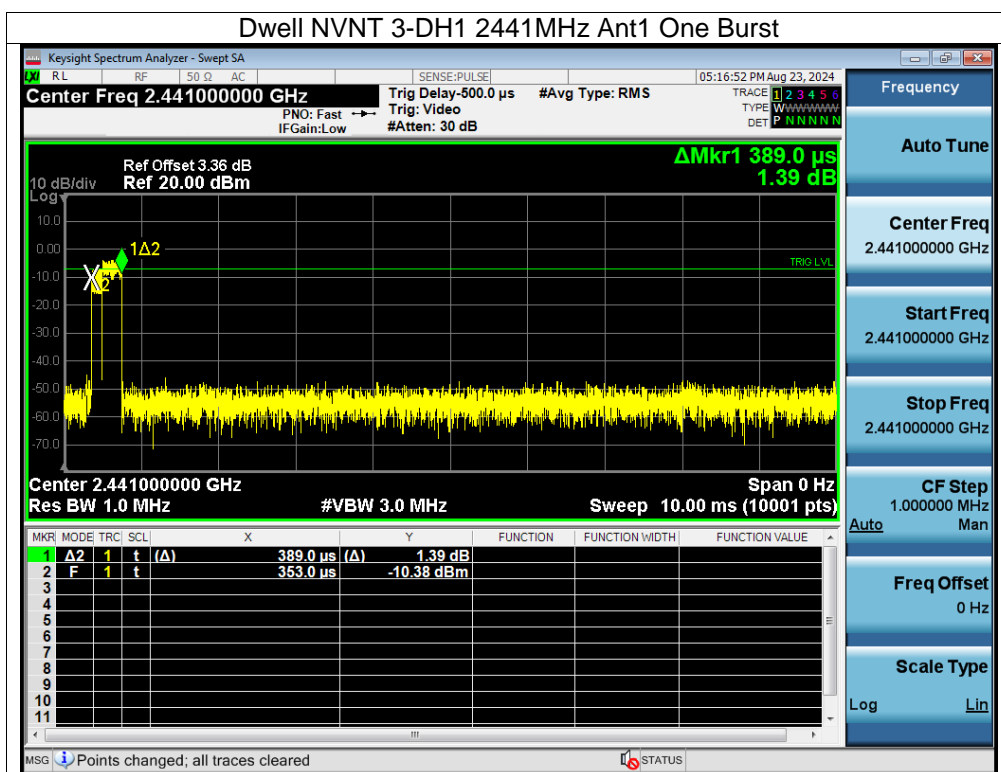
Condition	Mode	Frequency (MHz)	Pulse Time (ms)	Total Dwell Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	0.380	119.7	400	Pass
NVNT	1-DH3	2441	1.636	260.124	400	Pass
NVNT	1-DH5	2441	2.884	299.936	400	Pass
NVNT	2-DH1	2441	0.389	122.924	400	Pass
NVNT	2-DH3	2441	1.641	255.996	400	Pass
NVNT	2-DH5	2441	2.890	268.77	400	Pass
NVNT	3-DH1	2441	0.389	122.146	400	Pass
NVNT	3-DH3	2441	1.640	254.2	400	Pass
NVNT	3-DH5	2441	2.891	300.664	400	Pass

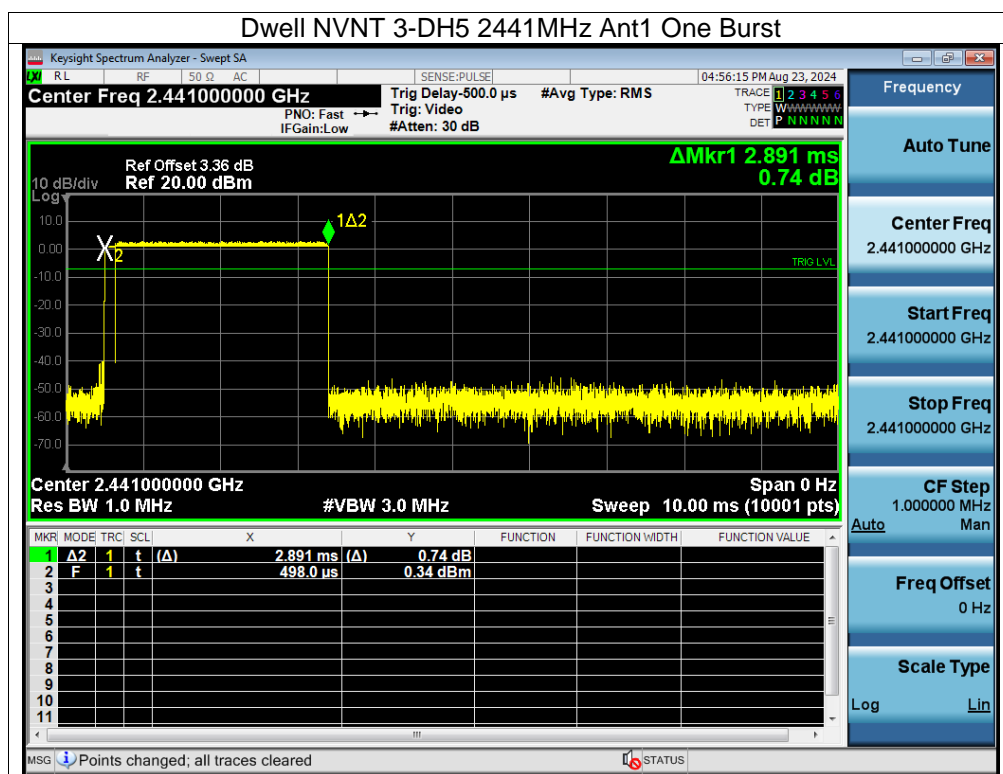












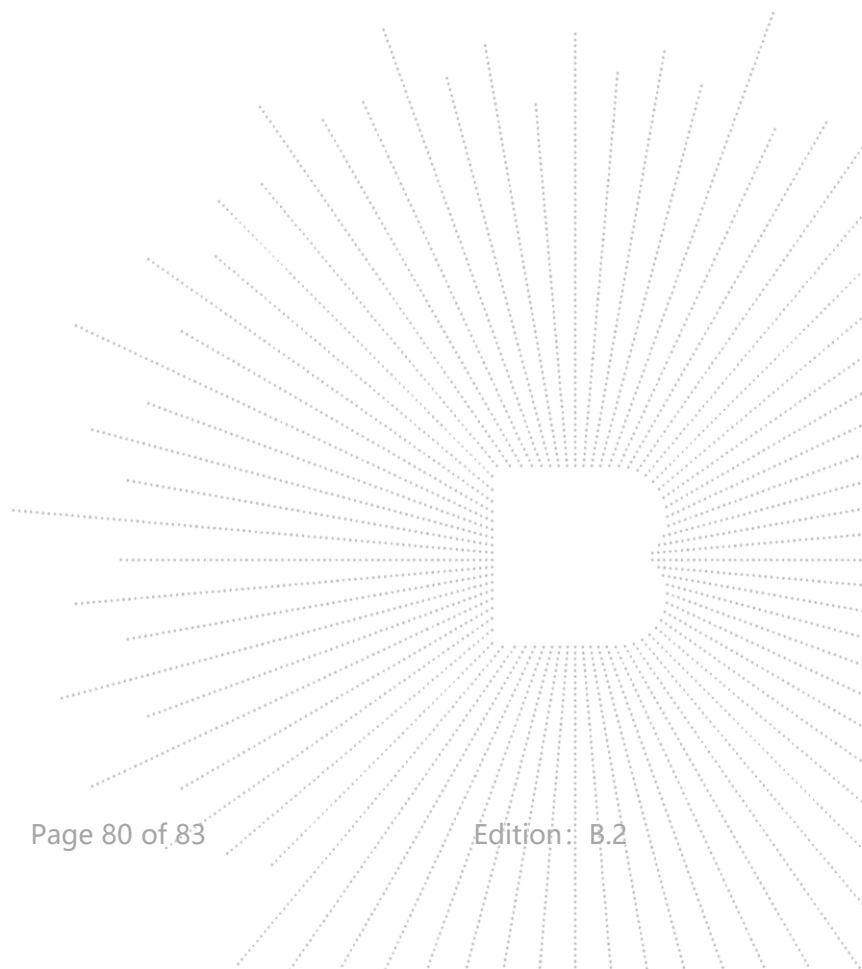
15. Antenna Requirement

15.1 Limit

15.203 requirement: For intentional device, according to 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.

15.2 Test Result

The EUT antenna is internal antenna, fulfill the requirement of this section.

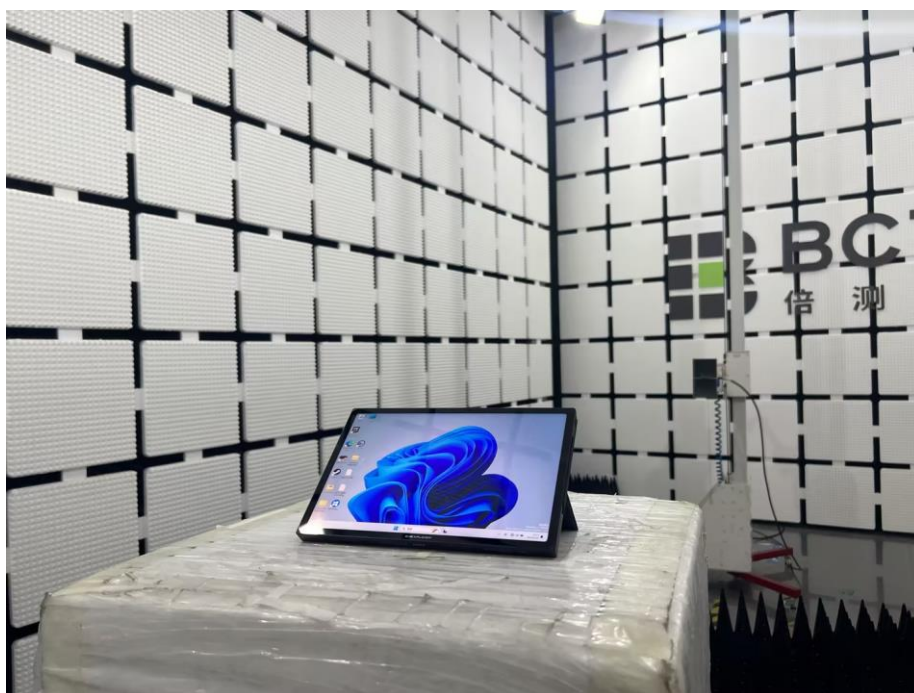
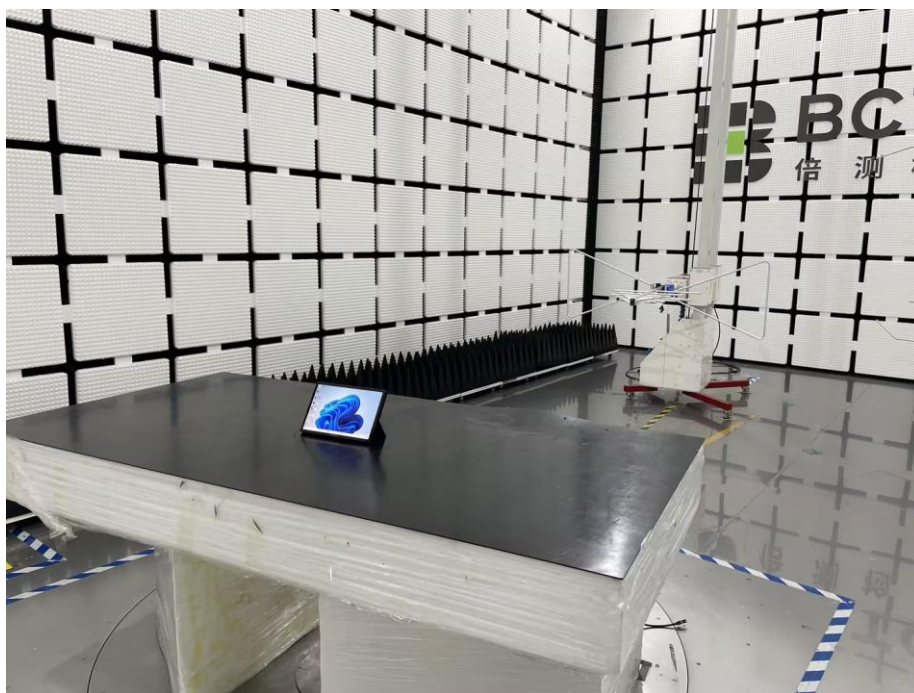


16. EUT Test Setup Photographs

Conducted Emission Measurement Photos



Radiated Measurement Photos



STATEMENT

- 1.The equipment lists are traceable to the national reference standards.
- 2.The test report can not be partially copied unless prior written approval is issued from our lab.
- 3.The test report is invalid without stamp of laboratory.
- 4.The test report is invalid without signature of person(s) testing and authorizing.
- 5.The test process and test result is only related to the Unit Under Test.
- 6.The quality system of our laboratory is in accordance with ISO/IEC17025.
- 7.If there is any objection to report, the client should inform issuing laboratory within 15 days from the date of receiving test report.

Address:

1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Tangwei, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China

TEL: 400-788-9558

P.C.: 518103

FAX: 0755-33229357

Website: <http://www.chnbctc.com>

Consultation E-mail: bctc@bctc-lab.com.cn

Complaint/Advice E-mail: advice@bctc-lab.com.cn

***** END *****