FCC - TEST REPORT

Report Number	:	709502405776-00D	Date of Issue:	November 19, 2024

Model	:	Refer to page 4
Product Type	:	Acoustic Thermal Imager
Applicant	:	FOTRIC INC.
Address	:	No. 14, Lane 2500, Xiupu Road, Pudong, 201201 Shanghai, PEOPLE'S REPUBLIC OF CHINA
Manufacturer	:	FOTRIC INC.
Address	:	No. 14, Lane 2500, Xiupu Road, Pudong, 201201 Shanghai, PEOPLE'S REPUBLIC OF CHINA
Test Result	:	■ Positive ☐ Negative
Total pages including Appendices	:	73

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2 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

Issue	Description of Change	Date of Issue
709502405776-00D	First Issue	11/19/2024

3 Details about the Test Laboratory

Details about the Test Laboratory
Test Site 1

Company name: TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
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Shanghai 201108,
P.R. China

Telephone: +86 21 6141 0123

Fax: +86 21 6140 8600

FCC Registration No.: 820234

FCC Designation Number: CN1183

ISED CAB identifier: CN0101

IC Registration No.: 31668

4 Description of the Equipment Under Test

Product: Acoustic Thermal Imager

Model no.:

Fotric 330MiX	Fotric 340MiX	Fotric 850MiX	Fotric V0MiX	Fotric EE0VM	Fotric EE0IM
Fotric 331MiX	Fotric 341MiX	Fotric 851MiX	Fotric V1MiX	Fotric EE1VM	Fotric EE1IM
Fotric 332MiX	Fotric 342MiX	Fotric 852MiX	Fotric V2MiX	Fotric EE2VM	Fotric EE2IM
Fotric 333MiX	Fotric 343MiX	Fotric 853MiX	Fotric V3MiX	Fotric EE3VM	Fotric EE3IM
Fotric 334MiX	Fotric 344MiX	Fotric 854MiX	Fotric V4MiX	Fotric EE4VM	Fotric EE4IM
Fotric 335MiX	Fotric 345MiX	Fotric 855MiX	Fotric V5MiX	Fotric EE5VM	Fotric EE5IM
Fotric 336MiX	Fotric 346MiX	Fotric 856MiX	Fotric V6MiX	Fotric EE6VM	Fotric EE6IM
Fotric 337MiX	Fotric 347MiX	Fotric 857MiX	Fotric V7MiX	Fotric EE7VM	Fotric EE7IM
Fotric 338MiX	Fotric 348MiX	Fotric 858MiX	Fotric V8MiX	Fotric EE8VM	Fotric EE8IM
Fotric 339MiX	Fotric 349MiX	Fotric 859MiX	Fotric V9MiX	Fotric EE9VM	Fotric EE9IM
Fotric 3310MiX	Fotric 3410MiX	Fotric 8510MiX	Fotric V10MiX	Fotric EE10VM	Fotric EE10IM
WWZDH2	WVZDH2	RUZDH2	4ZDH2	LLZ4D	LLZHD
WWYDH2	WVYDH2	RUYDH2	4YDH2	LLY4D	LLYHD
WWXDH2	WVXDH2	RUXDH2	4XDH2	LLX4D	LLXHD
WWWDH2	WVWDH2	RUWDH2	4WDH2	LLW4D	LLWHD
WWVDH2	WVVDH2	RUVDH2	4VDH2	LLV4D	LLVHD
WWUDH2	WVUDH2	RUUDH2	4UDH2	LLU4D	LLUHD
WWTDH2	WVTDH2	RUTDH2	4TDH2	LLT4D	LLTHD
WWSDH2	WVSDH2	RUSDH2	4SDH2	LLS4D	LLSHD
WWRDH2	WVRDH2	RURDH2	4RDH2	LLR4D	LLRHD
WWQDH2	WVQDH2	RUQDH2	4QDH2	LLQ4D	LLQHD
WWYZDH2	WVYZDH2	RUYZDH2	4YZDH2	LLYZ4D	LLYZHD
UniC78Mix	5CHNDH2				

FCC ID: 2AZTCFCAC2IN1F

Options and accessories: NA

Rating: DC 7.4V for Acoustic Thermal Imager
Input: AC 100-240V, 50/60Hz, Output DC 12V for adapter

RF Transmission Frequency:
For Bluetooth:2402~2480MHz
For 2.4G Wi-Fi:802.11b/g/n-HT20: 2412~2462 MHz
802.11n-HT40: 2422~2452 MHz
For 5G Wi-Fi:5180~5240 MHz (U-NII-1)
5260~5320 MHz (U-NII-2A)
5500~5720 MHz (U-NII-2C)
5745~5825 MHz (U-NII-3)

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No. of Operated Channel:

79 channels for Bluetooth EDR

Ch	Fre (MH)	Ch	Fre (MH)	Ch	Fre (MH)	Ch	Fre (MH)	Ch	Fre (MHz)
1	2402	17	2418	33	2434	49	2450	65	2466
2	2403	18	2419	34	2435	50	2451	66	2467
3	2404	19	2420	35	2436	51	2452	67	2468
4	2405	20	2421	36	2437	52	2453	68	2469
5	2406	21	2422	37	2438	53	2454	69	2470
6	2407	22	2423	38	2439	54	2455	70	2471
7	2408	23	2424	39	2440	55	2456	71	2472
8	2409	24	2425	40	2441	56	2457	72	2473
9	2410	25	2426	41	2442	57	2458	73	2474
10	2411	26	2427	42	2443	58	2459	74	2475
11	2412	27	2428	43	2444	59	2460	75	2476
12	2413	28	2429	44	2445	60	2461	76	2477
13	2414	29	2430	45	2446	61	2462	77	2478
14	2415	30	2431	46	2447	62	2463	78	2479
15	2416	31	2432	47	2448	63	2464	79	2480
16	2417	32	2433	48	2449	64	2465		

40 channels for Bluetooth 4.2 BLE

Ch	Fre(MHz)	Ch	Fre(MHz)	Ch	Fre(MHz)	Ch	Fre(MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

2.4GHz WIFI: 11 for 802.11b/802.11g/802.11(H20);
7 for 802.11n(HT40)

802.11b/g/n(HT20)					802.11n(HT40)		
Ch	Fre(MHz)	Ch	Fre(MHz)	Ch	Fre(MHz)	Ch	Fre(MHz)
1	2412	7	2442	3	2422	8	2447MHz
2	2417	8	2447	4	2427	9	2452MHz
3	2422	9	2452	5	2432		
4	2427	10	2457	6	2437		
5	2432	11	2462	7	2442		
6	2437						

5180~5240 MHz (U-NII-1):

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220
40	5200	48	5240

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2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	46	5230

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
42	5210

5260~5320 MHz (U-NII-2A)

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency （MHz）	Channel	Frequency （MHz）
52	5260	60	5300
56	5280	64	5320

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency （MHz）	Channel	Frequency （MHz）
54	5270	62	5310

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency （MHz）	Channel	Frequency （MHz）
58	5290		

5500~5720 MHz (U-NII-2C)

12 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency (MHz)	Channel	Frequency(MHz)
100	5500	124	5620
104	5520	128	5640
108	5540	132	5660
112	5560	136	5680
116	5580	140	5700
120	5600	144	5720

6 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency (MHz)	Channel	Frequency(MHz)
102	5510	126	5630
110	5550	134	5670
118	5590	142	5710

3 channels are provided for 802.11ac (VHT80):

Channel	Frequency (MHz)	Channel	Frequency(MHz)
106	5530	138	5690
122	5610		

5745~5825 MHz (U-NII-3): Channel 149 – 165

5 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	161	5805
153	5765	165	5825
157	5785		

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755	159	5795

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
155	5755

Modulation:	Bluetooth EDR FHSS: GFSK, π/4 DQPSK, 8DPSK Bluetooth 4.2+BLE DHSS: GFSK For Wi-Fi: Direct Sequence Spread Spectrum (DSSS) for 802.11b Orthogonal Frequency Division Multiplexing (OFDM) for 802.11a/b/g/n/ac
Hardware Version:	V02
Software Version:	V6.4.2
Data speed:	1. Bluetooth EDR FHSS: 1Mbps, 2Mbps, 3Mbps 2. Bluetooth 4.2+BLE DHSS: 1Mbps 3. Wi-Fi: 11b 1 ~ 11Mbps, 11g/a 6 ~ 54Mbps, 11n HT20 6.5 ~ 72.2Mbps, 11n HT 40 13.5 ~ 150Mbps, 11ac VHT40 13.5 ~ 200Mbps, 11ac VHT80 29.3 ~ 433.3Mbps
Antenna Type:	PIFA Antenna
Antenna Gain:	1.76dBi for 2.4GHz; 5.96dBi for 5GHz
Description of the EUT:	The Equipment Under Test (EUT) is an Acoustic Thermal Imager with Bluetooth and Wi-Fi Module. The EUT support Bluetooth EDR, BLE function, Wi-Fi 2.4GHz and Wi-Fi 5GHz. According to the client's declaration, all the models share the same schematic, hardware circuit, PCB layout, including RF parameters, except for the number of enabled microphone modules. We chose model Fotric V0MiX to perform all the tests and listed the worst data in this report. Only 2.4GHz Bluetooth EDR RF testing results were included in this report.
Test sample no.:	SHA-832647-2 (RF Conducted); SHA-832647-3 (RF Radiated)

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The sample’s mentioned in this report is/are submitted/ supplied/ manufactured by client. The laboratory therefore assumes no responsibility for accuracy of information on the brand name, model number, origin of manufacture, consignment or any information supplied.

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5 Summary of Test Standards

Test Standards	
FCC Part 15 Subpart C 10-1-2023 Edition	PART 15 - RADIO FREQUENCY DEVICES Subpart C - Intentional Radiators

All the test methods were according to KDB 558074 D01 15.247 Meas Guidance v05r02 Measurement Guidance and ANSI C63.10-2020.

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6 Summary of Test Results

Technical Requirements						
FCC Part 15 Subpart C						
Test Condition		Pages	Test Site	Test Result		
				Pass	Fail	N/A
§15.207	Conducted emission AC power port	16-20	Site 1	☒	☐	☐
§15.247 (b) (1)	Conducted peak output power	21-25	Site 1	☒	☐	☐
§15.247(a)(1)	20dB bandwidth	26-30	Site 1	☒	☐	☐
§15.247(a)(1)	Carrier frequency separation	31-33	Site 1	☒	☐	☐
§15.247(a)(1)(iii)	Number of hopping frequencies	34-35	Site 1	☒	☐	☐
§15.247(a)(1)(iii)	Dwell Time - Average Time of Occupancy	36-40	Site 1	☒	☐	☐
§15.247(a)(2)	6dB bandwidth	---	---	☐	☐	☒
§15.247(e)	Power spectral density	---	---	☐	☐	☒
§15.247(e)	Spurious RF conducted emissions	41-47	Site 1	☒	☐	☐
§15.247(d)	Band edge	48-60	Site 1	☒	☐	☐
§15.247(d) & §15.209 & §15.205	Spurious radiated emissions for transmitter	61-69	Site 1	☒	☐	☐
§15.203	Antenna requirement	See note 1		☒	☐	☐

Remark 1: N/A – Not Applicable.
Note 1: The EUT uses a PIFA antenna, which gain is 1.76dBi for 2.4GHz and 5.96dBi for 5GHz.
In accordance to §15.203, It is considered sufficiently to comply with the provisions of this section.

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7 General Remarks

Remarks

This submittal(s) (test report) is intended for FCC ID: 2AZTCFCAC2IN1F complies with Section 15.205,15.207, 15.209, 15.247 of the FCC Part 15, Subpart C rules.

This report in only for 2.4GHz Bluetooth+EDR.

SUMMARY:

All tests according to the regulations cited on page 5 were

■ - Performed

☐ - **Not** Performed

The Equipment Under Test

■ - **Fulfills** the general approval requirements.

☐ - **Does not** fulfill the general approval requirements.

Sample Received Date: July 12, 2024

Testing Start Date: July 12, 2024

Testing End Date: October 23, 2024

-TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch

Reviewed by:	Prepared by:	Tested by:
Hui TONG	Wenqiang LU	Chengjie GUO
Review Engineer	Project Engineer	Test Engineer

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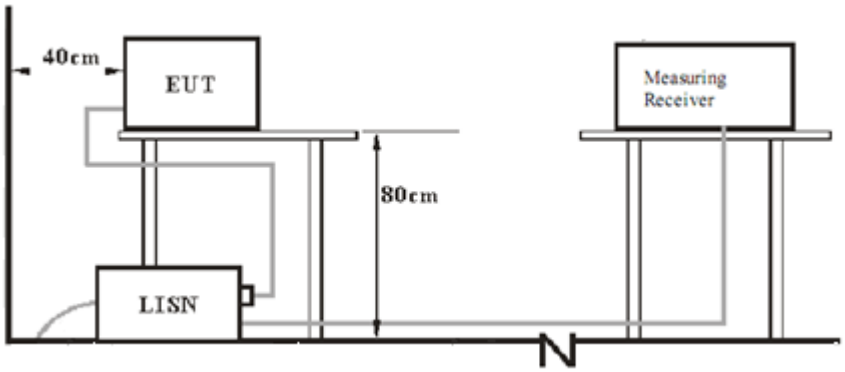
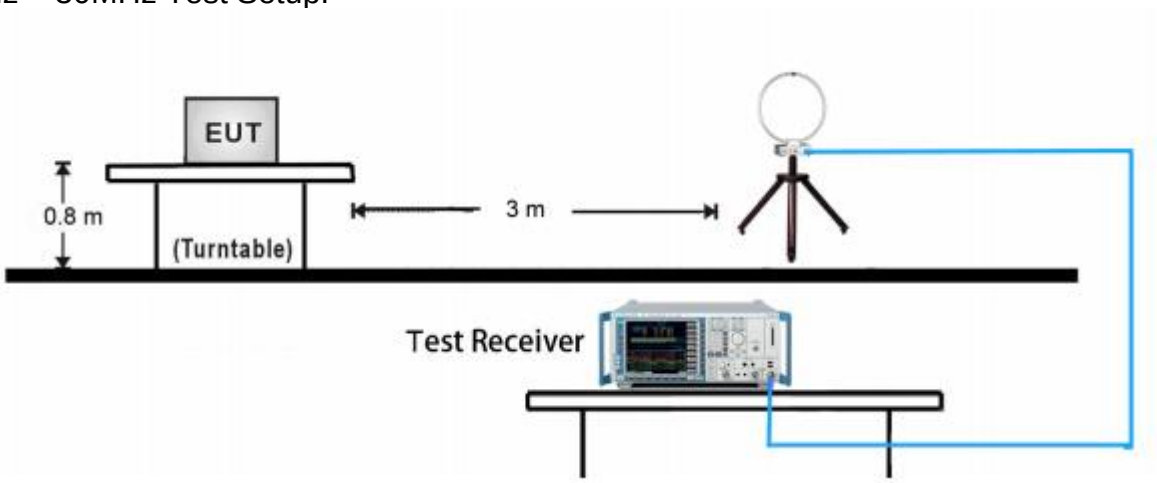
8 Test Setups

8.1 AC Power Line Conducted Emission test setups



8.2 Radiated test setups

9kHz ~ 30MHz Test Setup:



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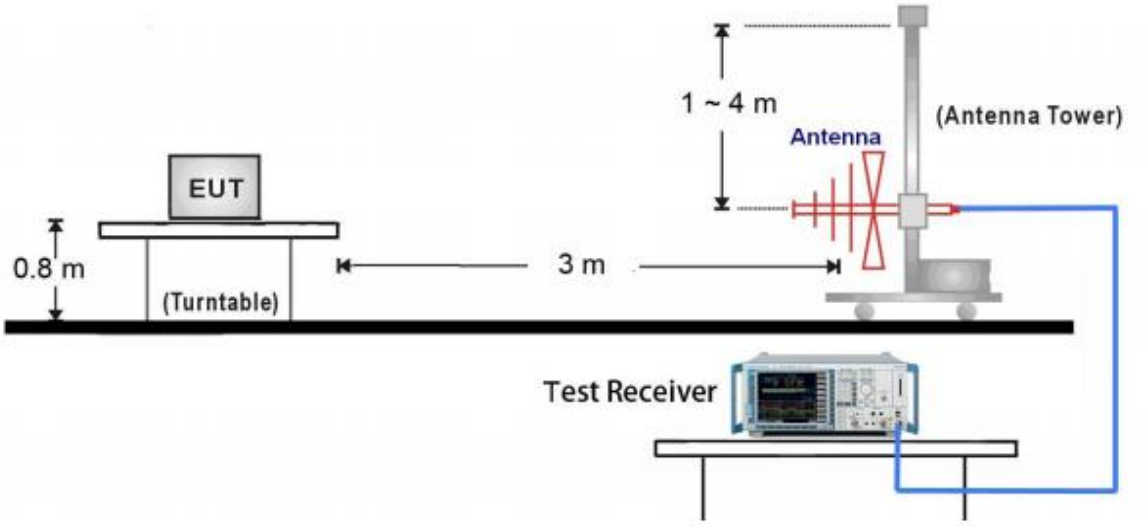
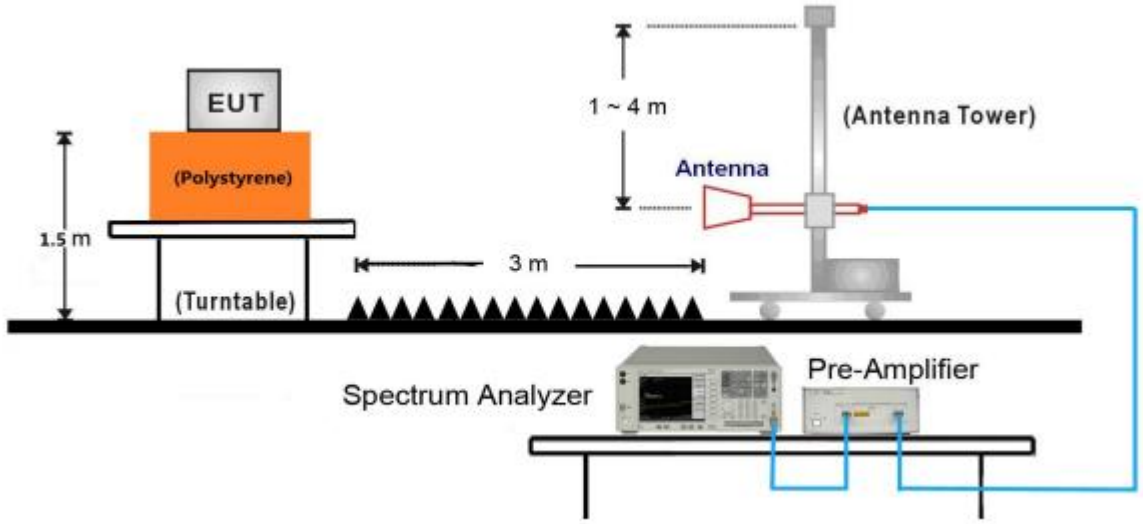
30MHz ~ 1GHz Test Setup:



1GHz ~ 18GHz Test Setup:



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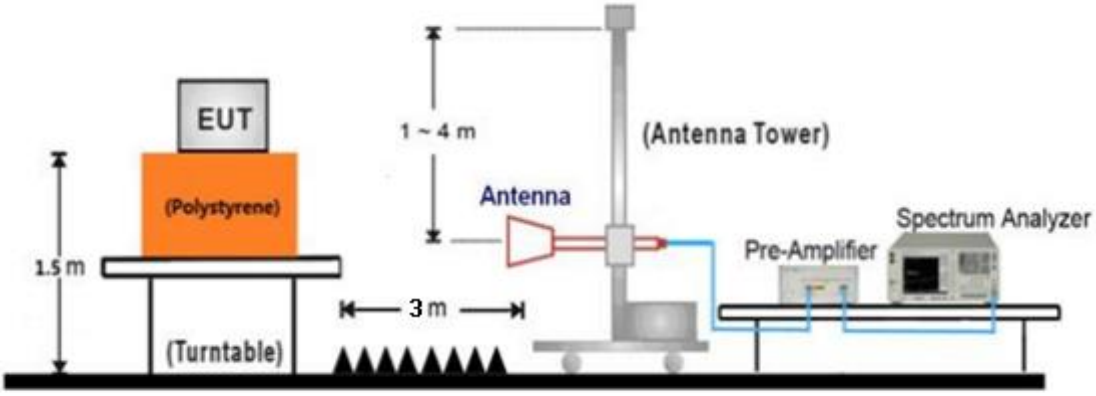
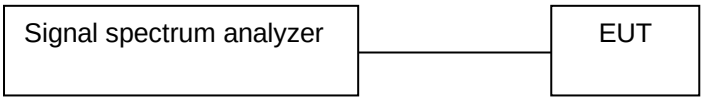
18GHz ~ 25GHz Test Setup:



8.3 Conducted RF test setups



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9 Systems test configuration

Auxiliary Equipment Used during Test:

DESCRIPTION	MANUFACTURER	MODEL NO.(SHIELD)	S/N(LENGTH)
Notebook	Lenovo	E470	PF-OU5TS7 17/09

Test software: QRCT.exe, which used to control the EUT in continues transmitting mode

The system was configured to hopping mode and non-hopping mode.

Hopping mode: typical working mode (normal hopping status)

Mode	Tested Channel	Modulation	Index Value (Power level setting)
DH5	0	GFSK	9
	40	GFSK	9
	78	GFSK	9
2DH5	0	π/4-DQPSK	9
	40	π/4-DQPSK	9
	78	π/4-DQPSK	9
3DH5	0	8DPSK	9
	40	8DPSK	9
	78	8DPSK	9

The system was configured to hopping mode and non-hopping mode.

Hopping mode: typical working mode (normal hopping status)

Non-hopping mode: The system was configured to operate at a signal channel transmitting. The test software allows the configuration and operation at the worst-case duty and the highest transmit power

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10 Technical Requirement

10.1 Conducted Emission

Test Method

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. Both sides of AC line were checked for maximum conducted interference.
6. The frequency range from 150 kHz to 30 MHz was searched.
7. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

Limit

According to §15.207, conducted emissions limit as below:

Frequency MHz	QP Limit dBµV	AV Limit dBµV
0.150-0.500	66-56*	56-46*
0.500-5	56	46
5-30	60	50

*Decreasing linearly with logarithm of the frequency

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Conducted Emission

Conducted Emission worse case test result as below:

150k-30MHz Conducted Emission Test

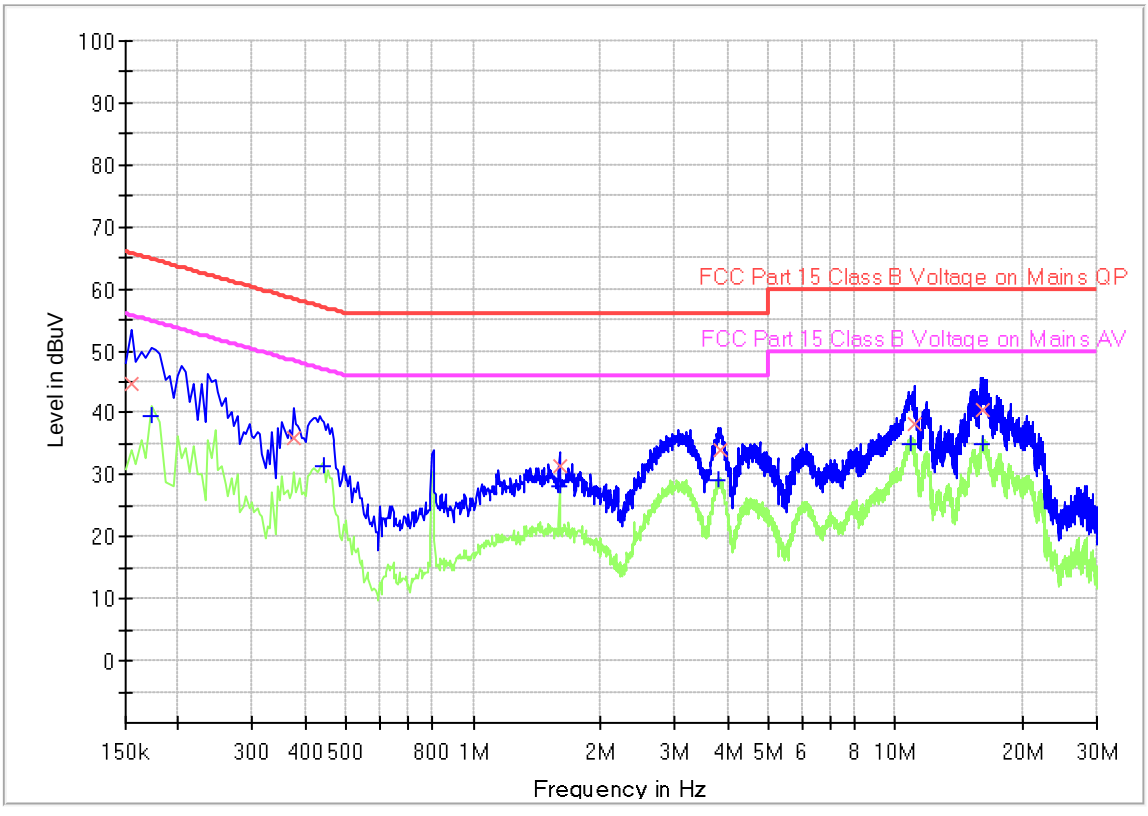
EUT Information

EUT Name:	Acoustic Thermal Imager
Model	Fotric V0MiX
Client:	FOTRIC INC
Op Cond	Power on, TX_2441 at 3DH5 mode, AC120V/60Hz (worse case)
Operator:	Chengjie GUO
Standard	FCC Part 15.207(a)
Comment:	Phase L
Sample No.:	SHA-801877-2

Scan Setup: Voltage with 2-Line-LISN pre [EMI conducted]

Hardware Setup:	Voltage with 2-Line-LISN
Receiver:	[ESR 3]
Level Unit:	dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0.02 s	0 dB
150 kHz - 30 MHz	4.5 kHz	PK+; AVG	9 kHz	0.01 s	0 dB



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Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.154500	44.68	---	65.75	21.07	1000.0	9.000	L1	19.4
0.172500	---	39.50	54.84	15.34	1000.0	9.000	L1	19.4
0.375000	35.85	---	58.39	22.54	1000.0	9.000	L1	19.5
0.442500	---	31.37	47.01	15.64	1000.0	9.000	L1	19.5
1.599000	31.40	---	56.00	24.60	1000.0	9.000	L1	19.5
1.599000	---	28.10	46.00	17.90	1000.0	9.000	L1	19.5
3.826500	---	29.01	46.00	16.99	1000.0	9.000	L1	19.6
3.844500	34.07	---	56.00	21.93	1000.0	9.000	L1	19.6
10.842000	---	35.05	50.00	14.95	1000.0	9.000	L1	19.8
11.139000	38.13	---	60.00	21.87	1000.0	9.000	L1	19.9
16.066500	---	34.99	50.00	15.01	1000.0	9.000	L1	20.1
16.066500	40.49	---	60.00	19.51	1000.0	9.000	L1	20.1

Note 1: Measure Level = Reading Level + Factor
Factor = Cable Loss + LISN Factor + 10dB Attenuator
(The Reading Level is recorded by software which is not shown in the sheet)

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150k-30MHz Conducted Emission Test

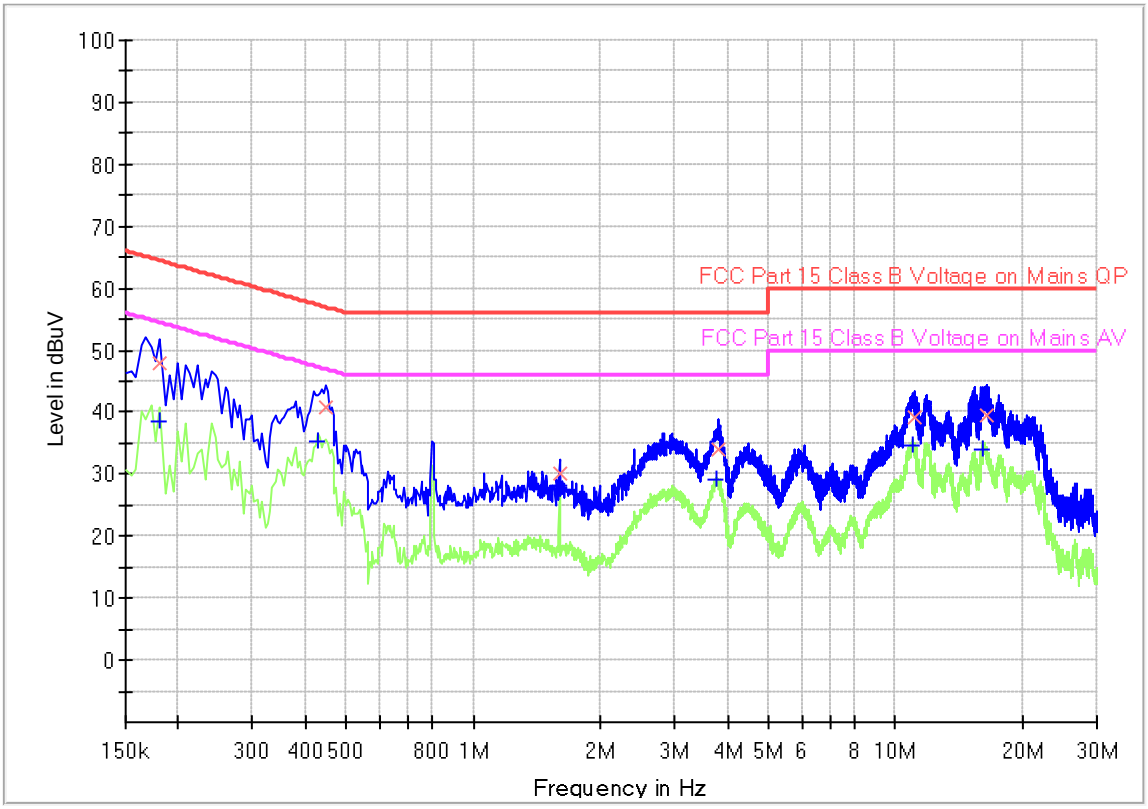
EUT Information

EUT Name:	Acoustic Thermal Imager
Model	Fotric V0MiX
Client:	FOTRIC INC
Op Cond	Power on, TX_2441 at 3DH5 mode, AC120V/60Hz (worse case)
Operator:	Chengjie GUO
Standard	FCC Part 15.207(a)
Comment:	Phase N
Sample No.:	SHA-801877-2

Scan Setup: Voltage with 2-Line-LISN pre [EMI conducted]

Hardware Setup:	Voltage with 2-Line-LISN
Receiver:	[ESR 3]
Level Unit:	dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0.02 s	0 dB
150 kHz - 30 MHz	4.5 kHz	PK+; AVG	9 kHz	0.01 s	0 dB



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Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.181500	---	38.57	54.42	15.85	1000.0	9.000	N	19.4
0.181500	47.82	---	64.42	16.60	1000.0	9.000	N	19.4
0.429000	---	35.20	47.27	12.07	1000.0	9.000	N	19.5
0.447000	40.67	---	56.93	16.26	1000.0	9.000	N	19.5
1.599000	30.24	---	56.00	25.76	1000.0	9.000	N	19.5
1.599000	---	28.31	46.00	17.69	1000.0	9.000	N	19.5
3.777000	---	29.04	46.00	16.96	1000.0	9.000	N	19.6
3.822000	33.94	---	56.00	22.06	1000.0	9.000	N	19.6
10.963500	---	34.77	50.00	15.23	1000.0	9.000	N	19.7
11.085000	39.21	---	60.00	20.79	1000.0	9.000	N	19.7
16.111500	---	33.90	50.00	16.10	1000.0	9.000	N	20.0
16.368000	39.40	---	60.00	20.60	1000.0	9.000	N	20.0

Note 1: Measure Level = Reading Level + Factor
Factor = Cable Loss + LISN Factor + 10dB Attenuator
(The Reading Level is recorded by software which is not shown in the sheet)

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10.2 Conducted Peak Output Power

Test Method

1. The RF output of EUT was connected to the spectrum analyzer by RF cable. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously
3. Use the following test receiver settings:
   Span = approximately 5 times the 20dB bandwidth, centered on a hopping channel
   RBW > the 20dB bandwidth of the emission being measured, VBW≥RBW,
   Sweep = auto, Detector function = peak, Trace = max hold
4. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power and record the results in the test report.
5. Repeat above procedures until all frequencies measured were complete.

Limits

According to §15.247 (b) (1), conducted peak output power limit as below:

Frequency Range MHz	Limit W	Limit dBm
2400-2483.5	≤1	≤30

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Conducted Peak Output Power

Bluetooth Mode GFSK modulation Test Result

Frequency MHz	Conducted Peak Output Power dBm	Limit dBm	Result
Low channel 2402MHz	7.83	30	Pass
Middle channel 2441MHz	8.37	30	Pass
High channel 2480MHz	8.61	30	Pass

Bluetooth Mode π/4-DQPSK modulation Test Result

Frequency MHz	Conducted Peak Output Power dBm	Limit dBm	Result
Low channel 2402MHz	7.79	30	Pass
Middle channel 2441MHz	8.41	30	Pass
High channel 2480MHz	8.63	30	Pass

Bluetooth Mode 8DPSK modulation Test Result

Frequency MHz	Conducted Peak Output Power dBm	Limit dBm	Result
Low channel 2402MHz	8.23	30	Pass
Middle channel 2441MHz	8.66	30	Pass
High channel 2480MHz	**8.92**	30	Pass

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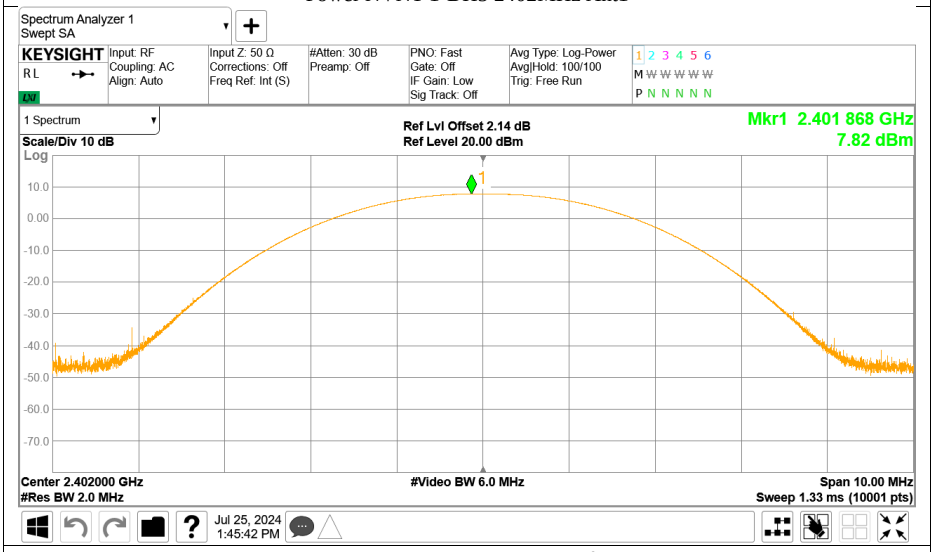
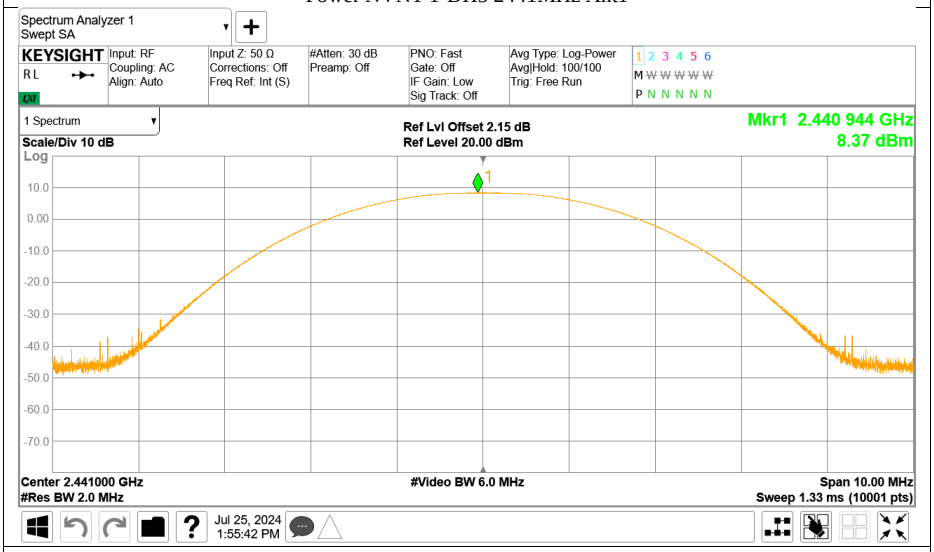
Test Graphs

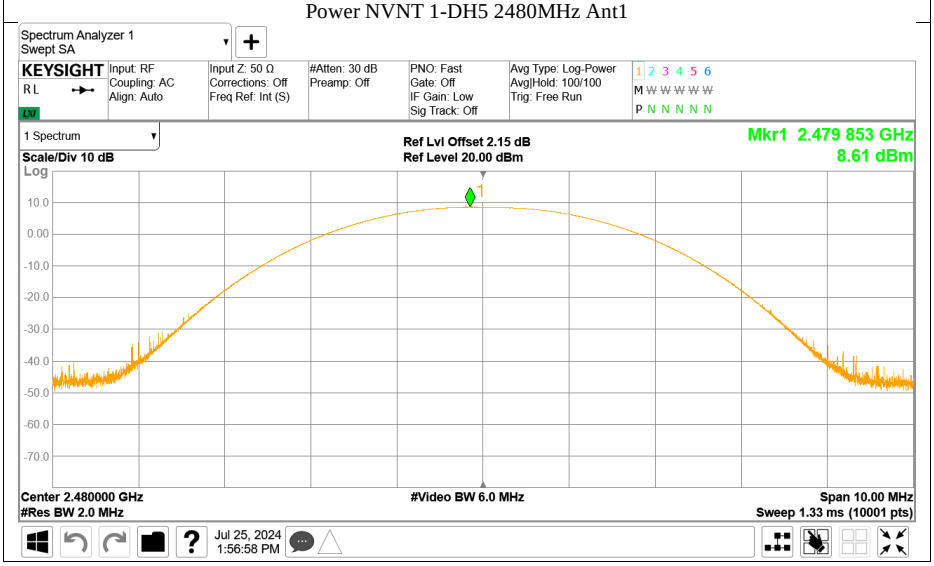
Power NVNT 1-DH5 2402MHz Ant1



Power NVNT 1-DH5 2441MHz Ant1



Power NVNT 1-DH5 2480MHz Ant1



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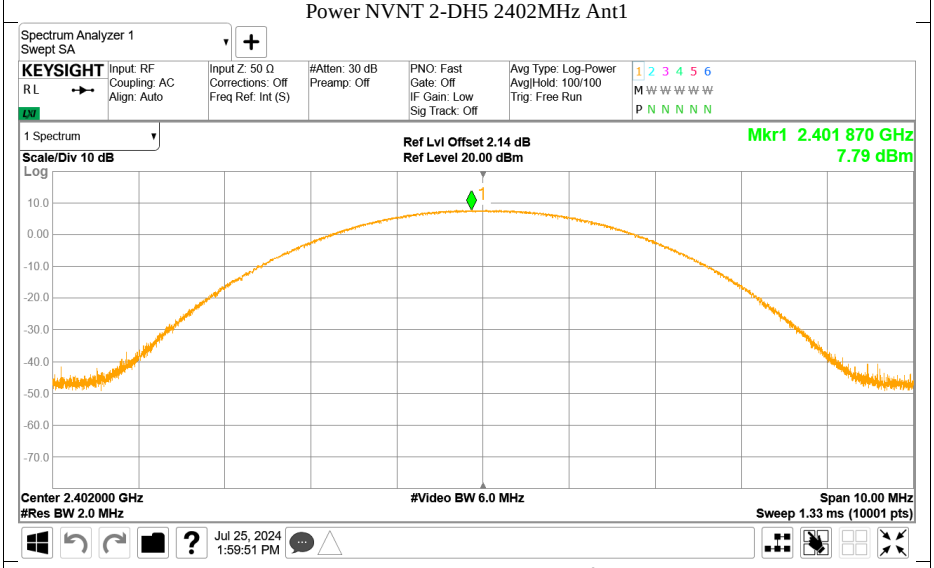
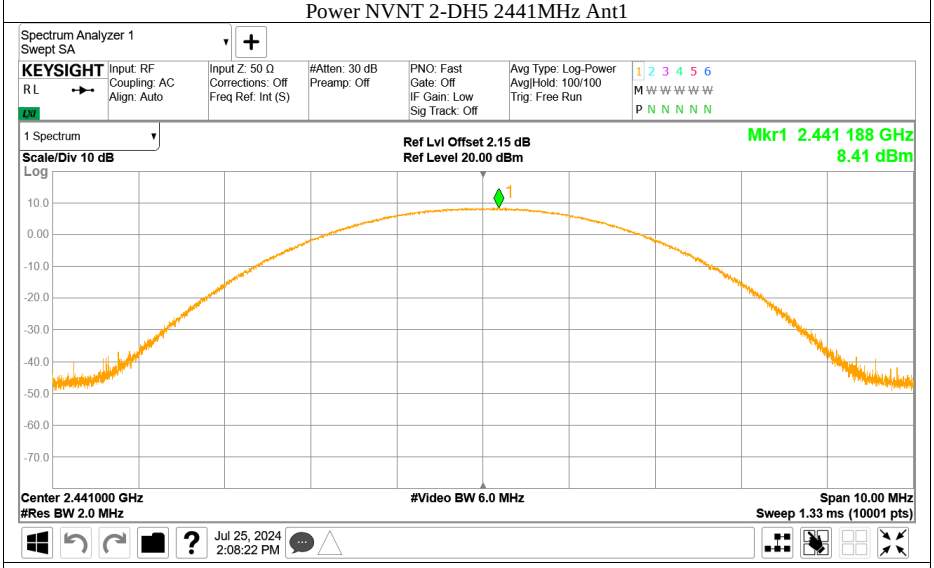
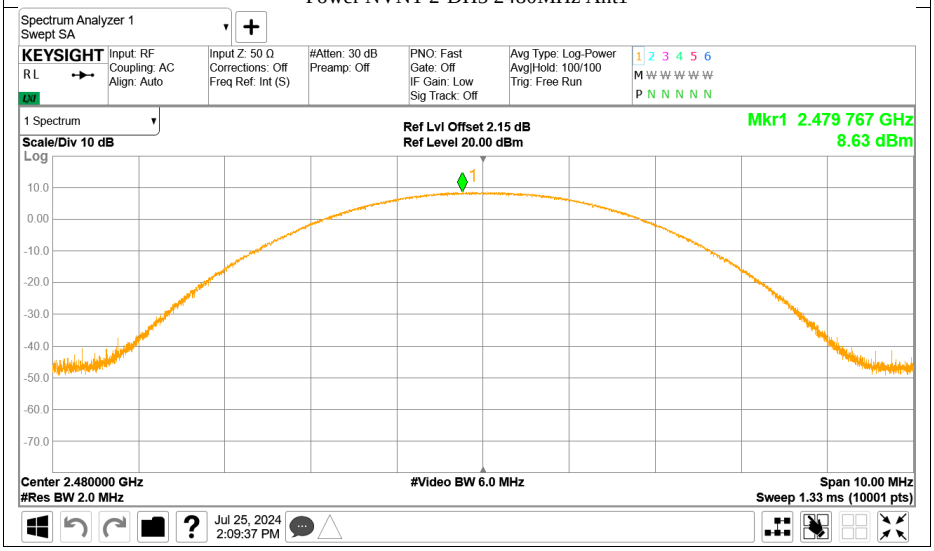
Power NVNT 2-DH5 2402MHz Ant1



Power NVNT 2-DH5 2441MHz Ant1



Power NVNT 2-DH5 2480MHz Ant1



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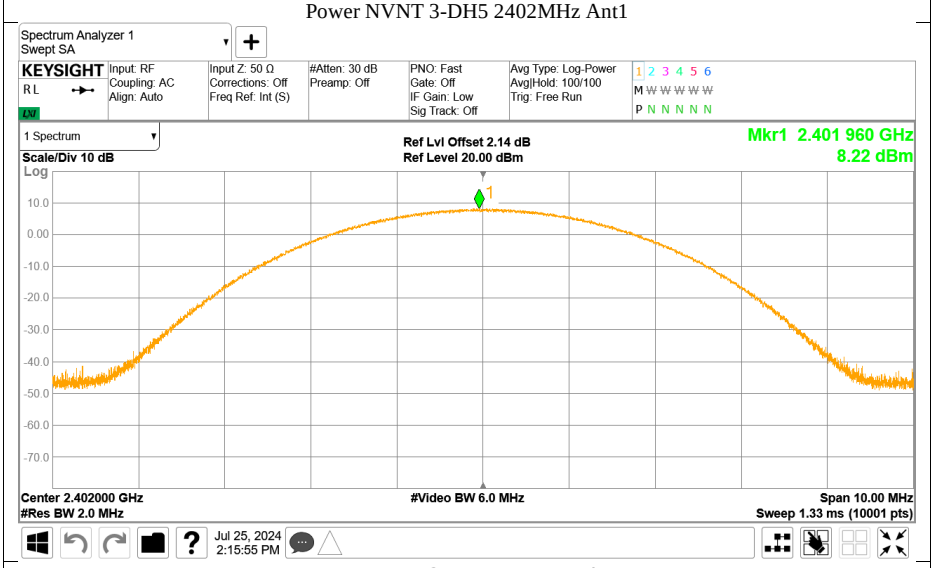
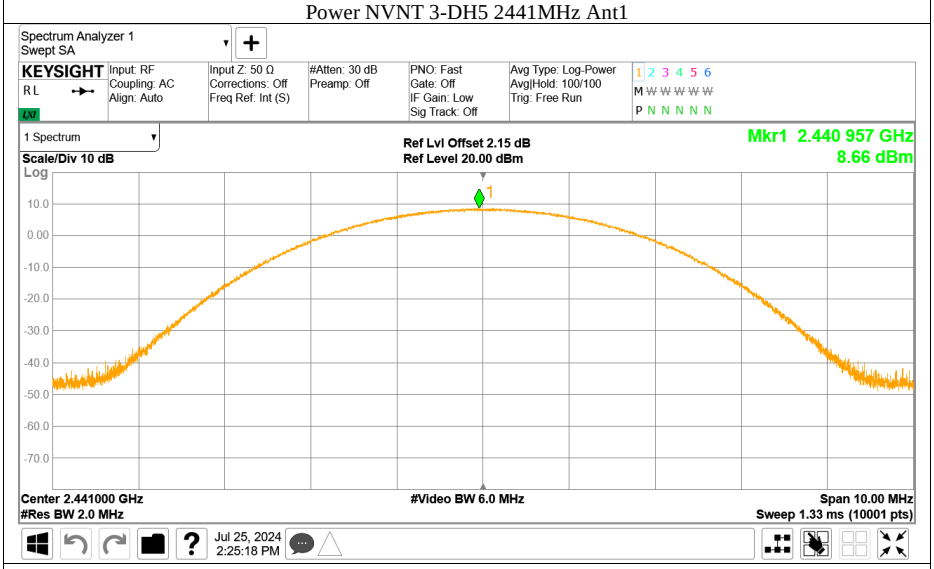
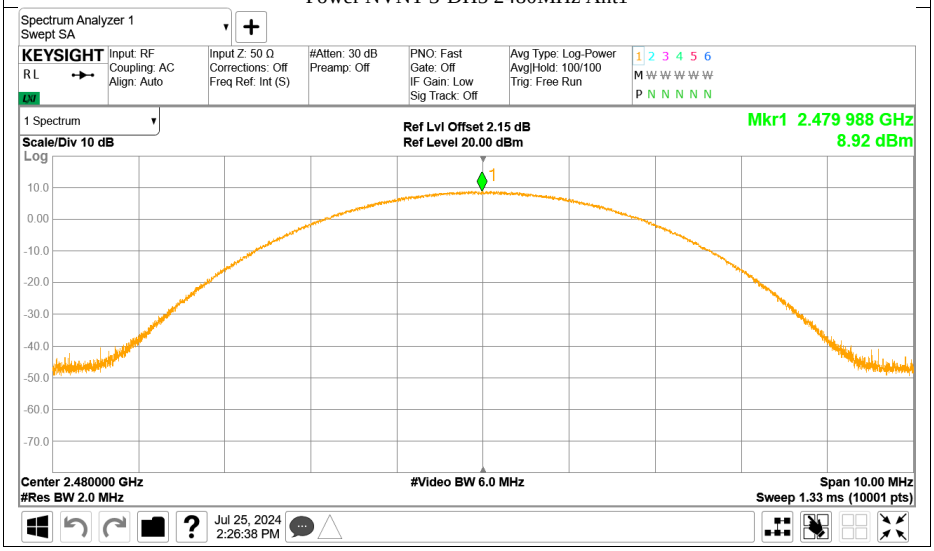
Power NVNT 3-DH5 2402MHz Ant1



Power NVNT 3-DH5 2441MHz Ant1



Power NVNT 3-DH5 2480MHz Ant1



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10.3 20 dB bandwidth

Test Method

1. The RF output of EUT was connected to the spectrum analyzer by RF cable. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously.
3. Use the following test receiver settings:
   Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel
   RBW ≥ 1% to 5% of the 20 dB bandwidth/99% OBW, VBW≥3RBW,
   Sweep = auto, Detector function = peak, Trace = max hold
4. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. Measure the frequency difference of two frequencies that were attenuated 20 dB/99% OBW from the reference level. Record the frequency difference as the emission bandwidth. Record the results.
5. Repeat above procedures until all frequencies measured were complete.

Limit

Limit [MHz]
N/A

20 dB bandwidth

Bluetooth Mode GFSK Modulation test result

Frequency MHz	20 dB Bandwidth MHz	Result
2402	0.95	Pass
2441	0.962	Pass
2480	0.947	Pass

20 dB bandwidth

Bluetooth Mode π/4-DQPSK Modulation test result

Frequency MHz	20 dB Bandwidth MHz	Result
2402	1.306	Pass
2441	1.283	Pass
2480	1.298	Pass

20 dB bandwidth

Bluetooth Mode 8DPSK Modulation test result

Frequency MHz	20 dB Bandwidth MHz	Result
2402	1.288	Pass
2441	1.288	Pass
2480	1.302	Pass

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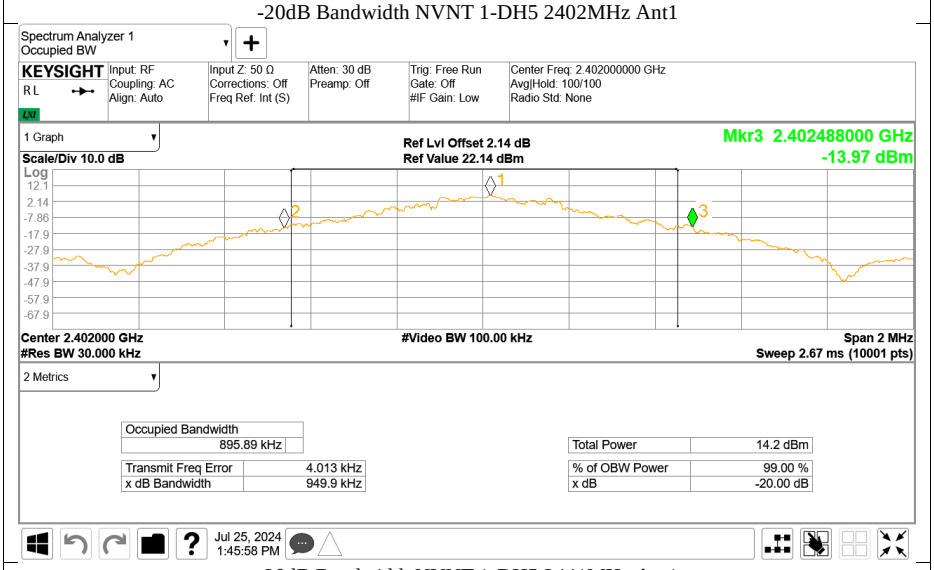
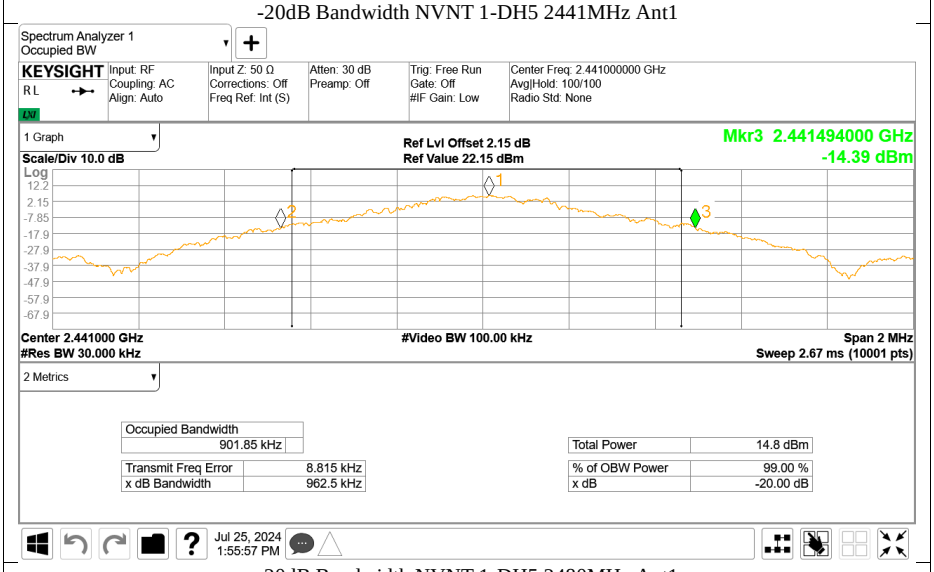
-20dB Bandwidth

Test Graphs

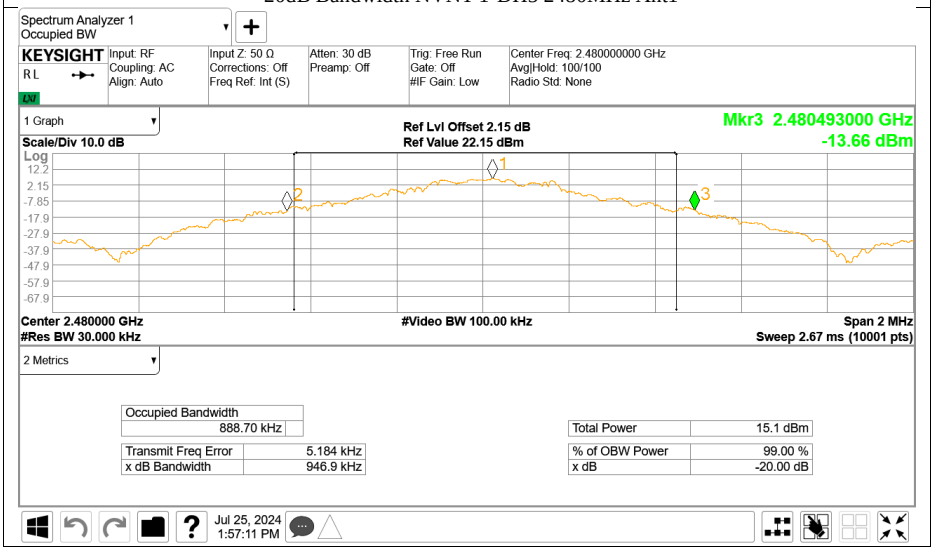
-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1



-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1



-20dB Bandwidth NVNT 1-DH5 2480MHz Ant1



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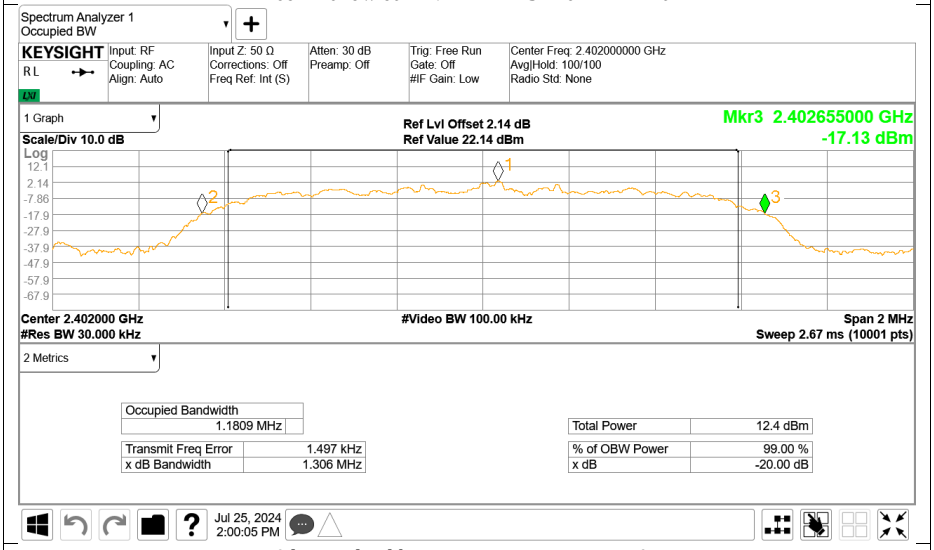
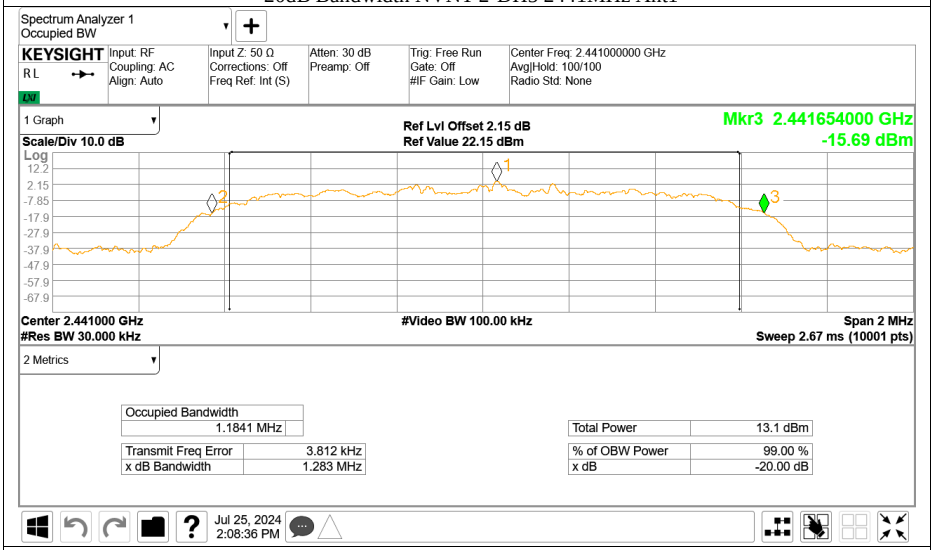
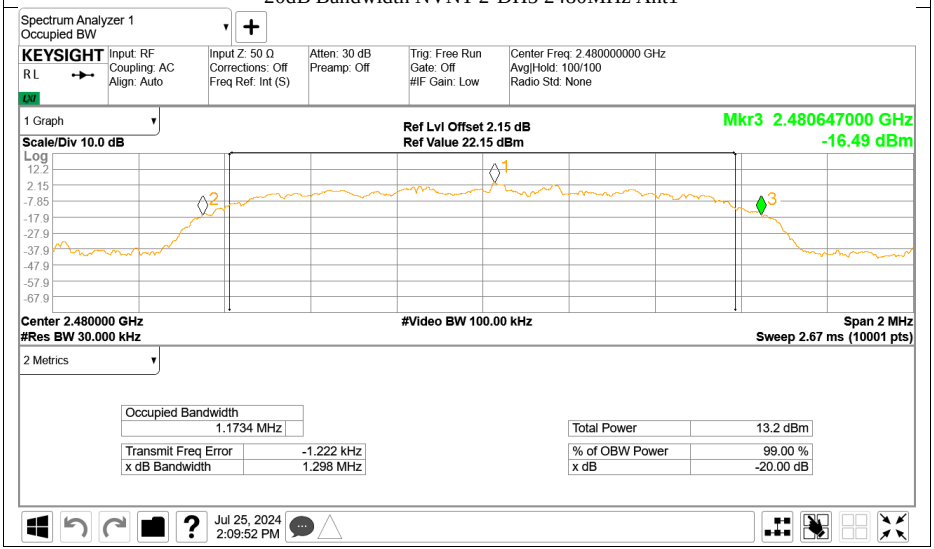
-20dB Bandwidth NVNT 2-DH5 2402MHz Ant1



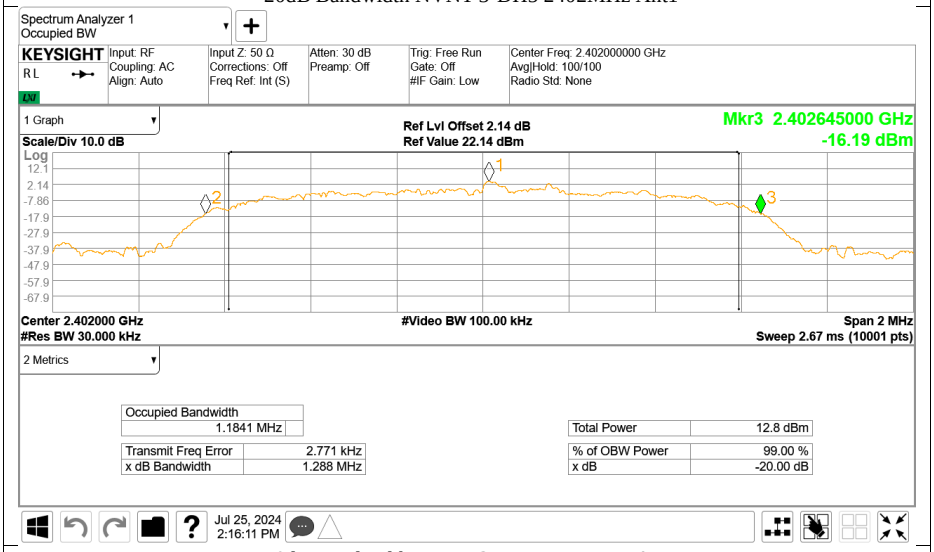
-20dB Bandwidth NVNT 2-DH5 2441MHz Ant1



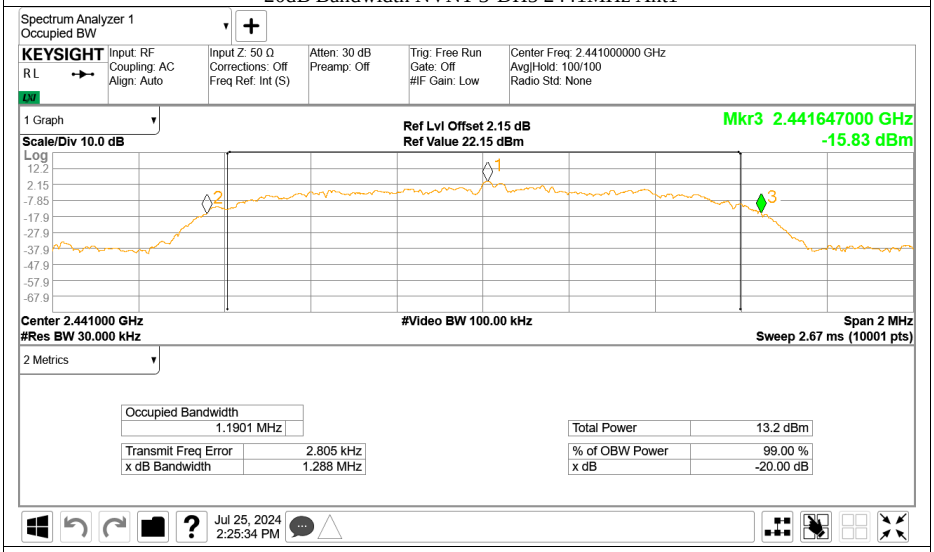
-20dB Bandwidth NVNT 2-DH5 2480MHz Ant1



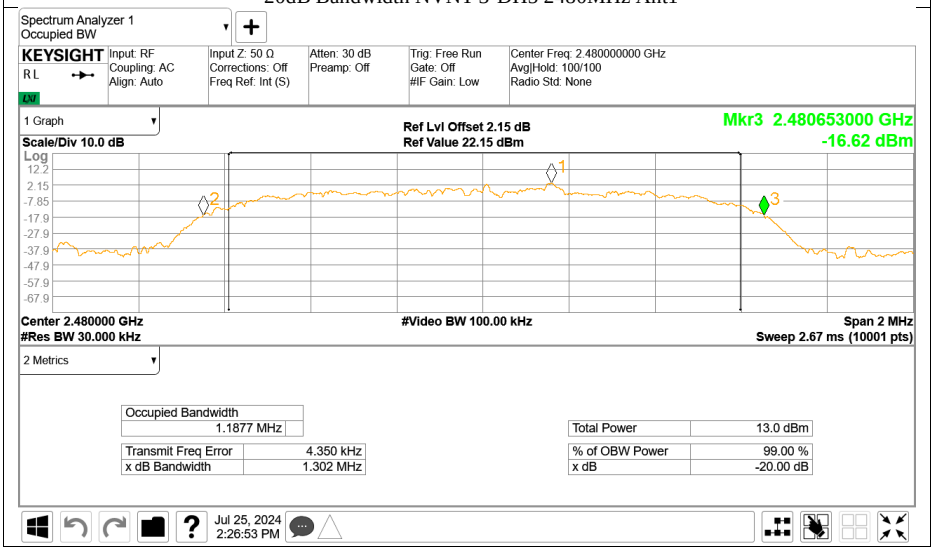
-20dB Bandwidth NVNT 3-DH5 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH5 2441MHz Ant1



-20dB Bandwidth NVNT 3-DH5 2480MHz Ant1



10.4 Carrier Frequency Separation

Test Method

1. The RF output of EUT was connected to the spectrum analyzer by RF cable. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit to hopping mode.
3. Use the following spectrum analyzer settings:
   Span = wide enough to capture the peaks of two adjacent channels, RBW: Start with the RBW set to approximately 30% of the channel spacing; adjust as necessary to best identify the center of each individual channel. VBW ≥RBW, Sweep = auto, Detector function = peak.
4. By using the Max-Hold function record the separation of two adjacent channels.
5. Measure the frequency difference of these two adjacent channels by spectrum analyzer marker function. Record the results.
6. Repeat above procedures until all frequencies measured were complete.

Limit

Limit kHz
⩾25KHz or 2/3 of the 20 dB bandwidth which is greater

Limit

Modulation	2/3 of 20 dB Bandwidth MHz
GFSK	0.633
π/4-DQPSK	0.871
8DPSK	0.859

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Carrier Frequency Separation

Test result: The measurement was performed with the typical configuration (normal hopping status), here GFSK, π/4-DQPSK and 8DPSK modulation mode (low channel) was used to show compliance.

GFSK Modulation test result

Modulation	Frequency MHz	Carrier Frequency Separation MHz	Result
GFSK	2402	1	Pass
π/4-DQPSK	2402	0.996	Pass
8DPSK	2402	0.866	Pass

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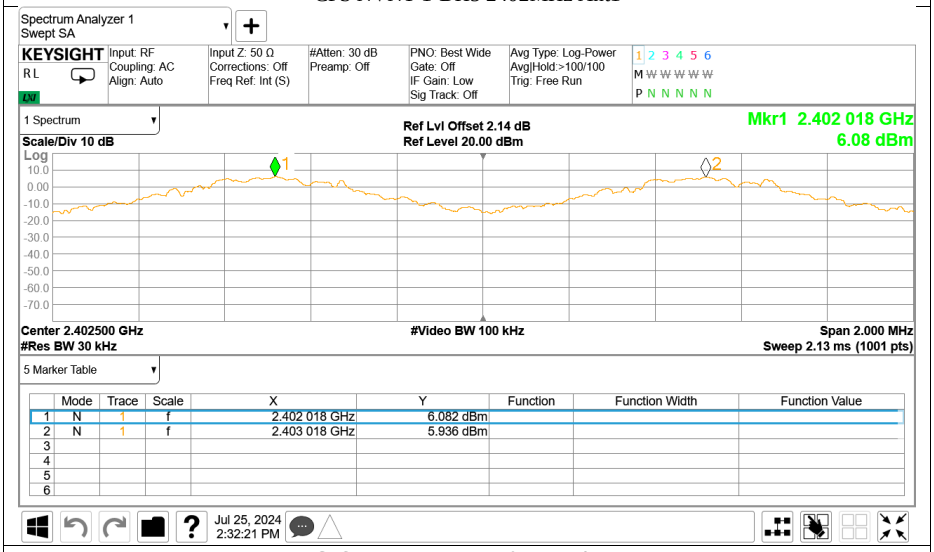
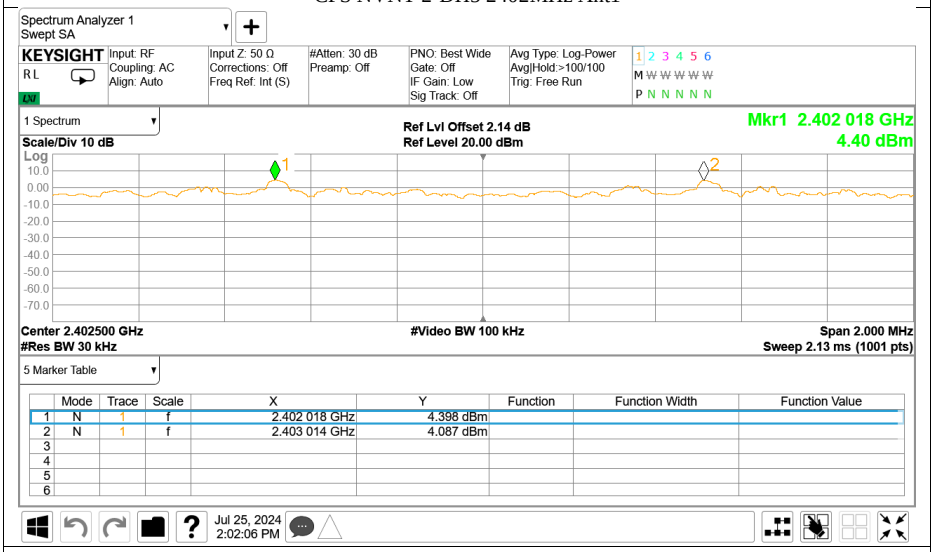
Test Graphs

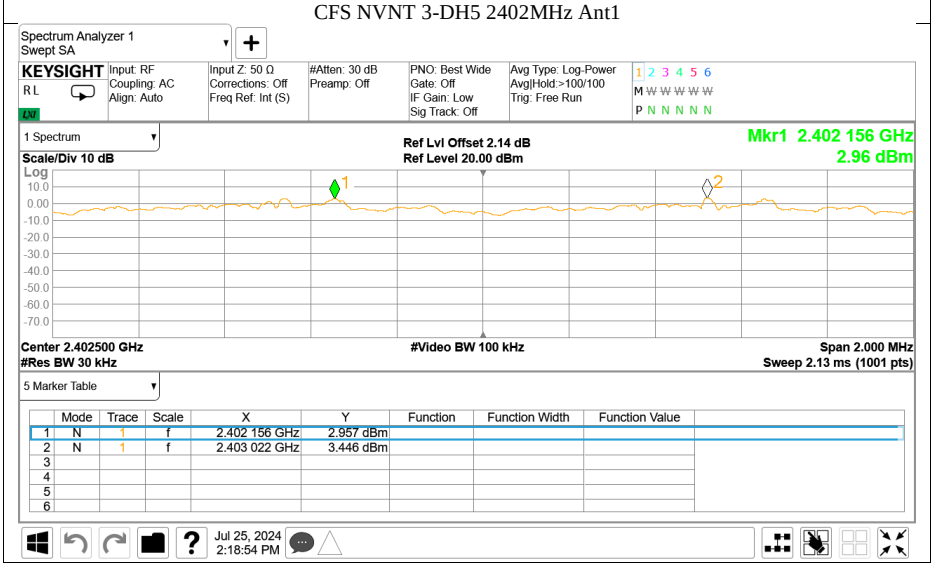
CFS NVNT 1-DH5 2402MHz Ant1



CFS NVNT 2-DH5 2402MHz Ant1



CFS NVNT 3-DH5 2402MHz Ant1



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10.5 Number of hopping frequencies

Test Method

1. The RF output of EUT was connected to the spectrum analyzer by RF cable. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit to hopping mode.
3. Use the following spectrum analyzer settings:
   Span = the frequency band of operation, RBW: To identify clearly the individual channels, set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller, VBW ≥RBW, Sweep = auto, Detector function = peak, Trace=Max hold.
4. 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. Submit this plot(s).

Limit

Limit number
⩾ 15

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