FCC - TEST REPORT

Report Number	:	**709502402457-00B**	Date of Issue:	July 01,2024

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	:	76

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch is a subcontractor to TÜV SÜD Product Service GmbH according to the principles outlined in ISO 17025.

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch reports apply only to the specific samples tested under stated test conditions. Construction of the actual test samples has been documented. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. The manufacturer/importer is responsible to the Competent Authorities in Europe for any modifications made to the production units which result in non-compliance to the relevant regulations. TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch shall have no liability for any deductions, inferences or generalizations drawn by the client or others from TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch issued reports.

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

1 Table of Contents

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

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
709502402457-00C	First Issue	07/01/2024

3 Details about the Test Laboratory

Test Site 1

Company name:	TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch No.16 Lane, 1951 Du Hui Road, 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 P0MiX	Fotric 360MiX	Fotric 350MiX	Fotric 860MiX
Fotric P1MiX	Fotric 361MiX	Fotric 351MiX	Fotric 861MiX
Fotric P2MiX	Fotric 362MiX	Fotric 352MiX	Fotric 862MiX
Fotric P3MiX	Fotric 363MiX	Fotric 353MiX	Fotric 863MiX
Fotric P4MiX	Fotric 364MiX	Fotric 354MiX	Fotric 864MiX
Fotric P5MiX	Fotric 365MiX	Fotric 355MiX	Fotric 865MiX
Fotric P6MiX	Fotric 366MiX	Fotric 356MiX	Fotric 866MiX
Fotric P7MiX	Fotric 367MiX	Fotric 357MiX	Fotric 867MiX
Fotric P8MiX	Fotric 368MiX	Fotric 358MiX	Fotric 868MiX
Fotric P9MiX	Fotric 369MiX	Fotric 359MiX	Fotric 869MiX
Fotric P10MiX	Fotric 3610MiX	Fotric 3510MiX	Fotric 8610MiX

FCC ID: 2AZTCJGACF

Options and accessories: NA

Rating: DC 3.6V for Acoustic Thermal Imager
AC 100-240V, 50/60Hz 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)

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		

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

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

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		

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

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: V6.0.0

Software Version: V6.0.1

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

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:	1.79dBi for 2.4GHz; 7.19dBi 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 have the same schematic and hardware circuit, except pixel, lens size differences. Detail model list refer to page 4 and Fotric 860MiX is chosen to perform all the tests and listed the worst data in this report. Only 2.4GHz Wi-Fi RF testing results were included in this report.
Test sample no.:	SHA-801877-1 (RF Conducted); SHA-801877-2 (RF Radiated)

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.

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

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 C63.10-2013.

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

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	15-19	Site 1	☒	☐	☐
§15.247 (b) (3)	Conducted peak output power	20-30	Site 1	☒	☐	☐
§15.247(a)(1)	20dB bandwidth	---	---	☐	☐	☒
§15.247(a)(1)	Carrier frequency separation	---	---	☐	☐	☒
§15.247(a)(1)(iii)	Number of hopping frequencies	---	---	☐	☐	☒
§15.247(a)(1)(iii)	Dwell Time	---	---	☐	☐	☒
§15.247(a)(2)	6dB bandwidth	31-35	Site 1	☒	☐	☐
§15.247(e)	Power spectral density	36-40	Site 1	☒	☐	☐
§15.247(d)	Spurious RF conducted emissions	41-53	Site 1	☒	☐	☐
§15.247(d)	Band edge	54-62	Site 1	☒	☐	☐
§15.247(d) & §15.209	Spurious radiated emissions for transmitter	63-72	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 1.79dBi for 2.4GHz. In accordance to §15.203, It is considered sufficiently to comply with the provisions of this section.

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

7 General Remarks

Remarks

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

This report is only for the 2.4GHz Wi-Fi test report

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:	April 1, 2024
Testing Start Date:	April 16, 2024
Testing End Date:	June 28, 2024

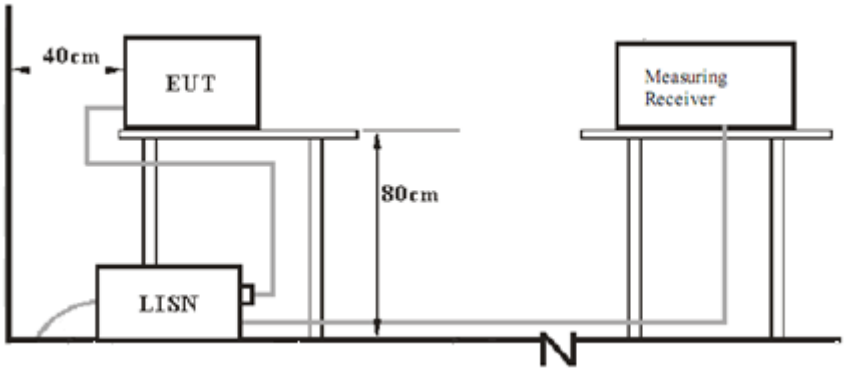
-TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch

Reviewed by:	Prepared by:	Tested by:
Hui TONG	Jiaxi XU	Cheng Huali
Review Engineer	Project Engineer	Test Engineer

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

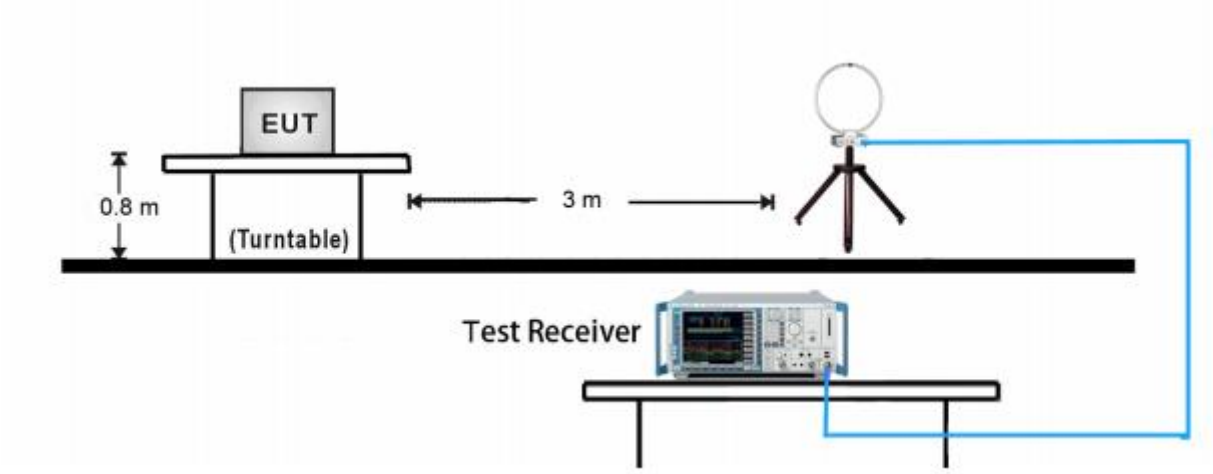
8 Test Setups

7.1 AC Power Line Conducted Emission test setups



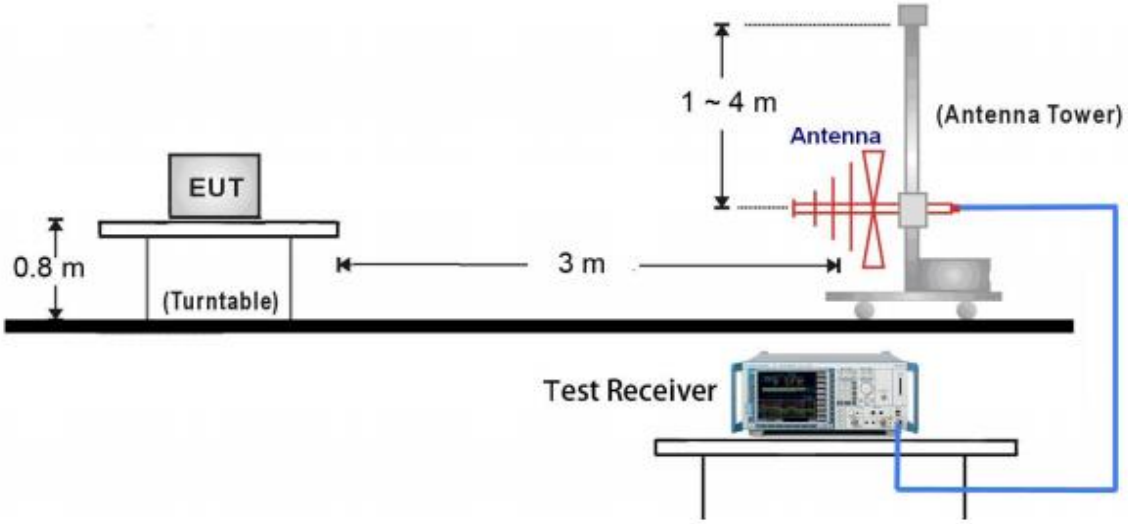
7.2 Radiated test setups

9kHz ~ 30MHz Test Setup:

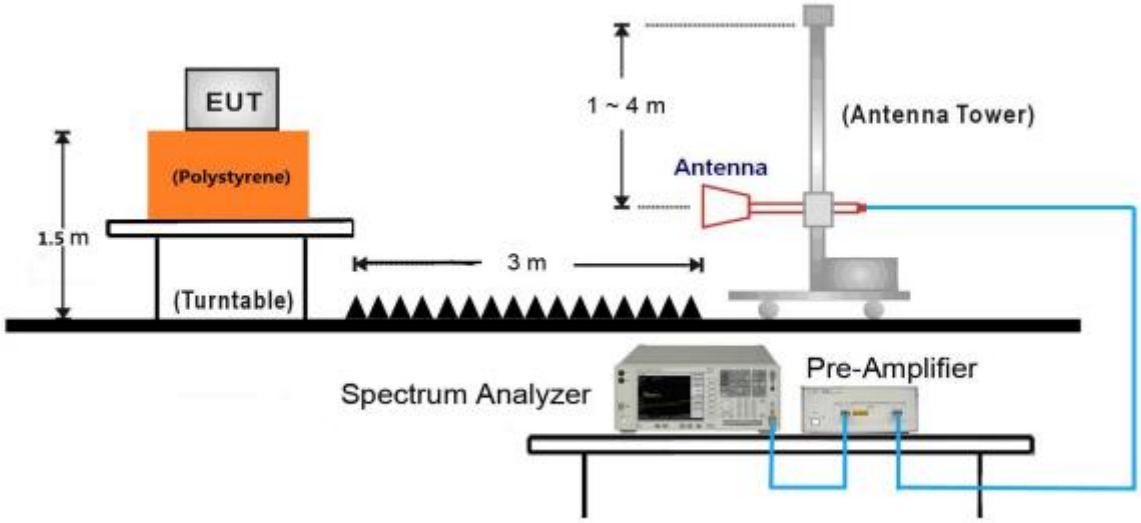


TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

30MHz ~ 1GHz Test Setup:

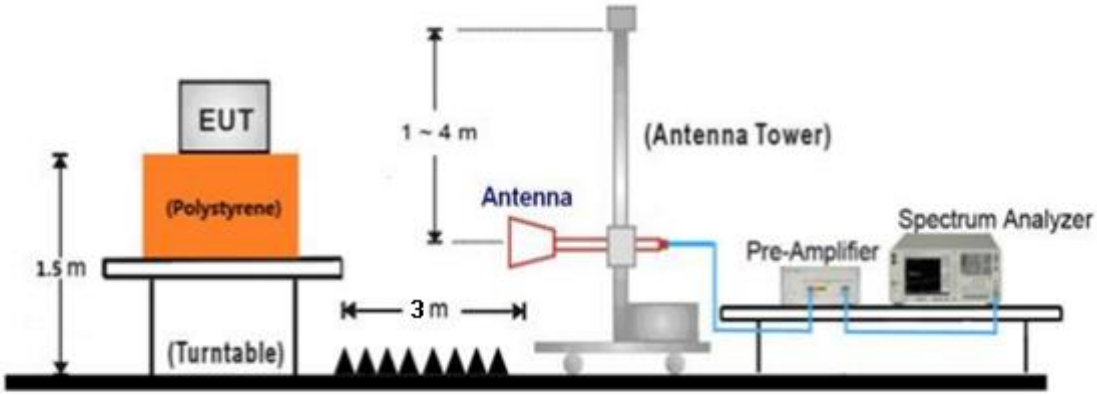


1GHz ~ 18GHz Test Setup:



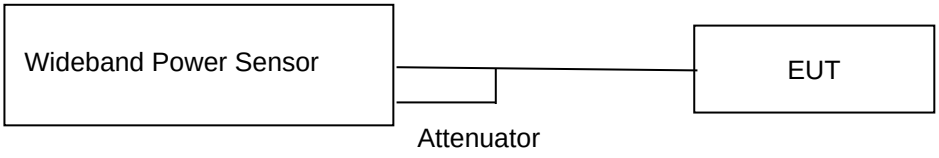
TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

18GHz ~ 25GHz Test Setup:

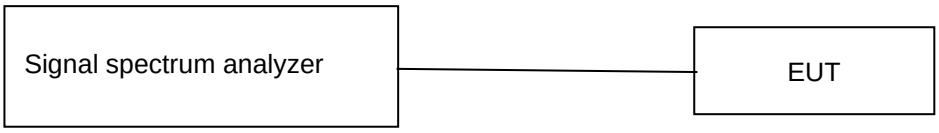


7.3 Conducted RF test setups

For Conducted peak output power



For other test items



TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

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

Test Mode Applicability and Tested Channel Detail:

Mode	Tested Channel	Data Rate (Mbps)	Modulation	Index Value (Power level setting)
802.11b	1	1	CCK	17
	6	1	CCK	17
	11	1	CCK	17
802.11g	1	6	OFDM	14
	6	6	OFDM	14
	11	6	OFDM	14
802.11n HT20	1	MCS0	OFDM	13
	6	MCS0	OFDM	13
	11	MCS0	OFDM	13
802.11n HT40	3	MCS0	OFDM	13
	6	MCS0	OFDM	13
	9	MCS0	OFDM	13

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.

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

10 Technical Requirement

10.1 Conducted Emission

Test Method

1. The EUT was placed on a table, which is 0.8m above ground plane
2. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.).
3. Maximum procedure was performed to ensure EUT compliance
4. A EMI test receiver is used to test the emissions from both sides of AC line

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

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

Conducted Emission

150k-30MHz Conducted Emission Test

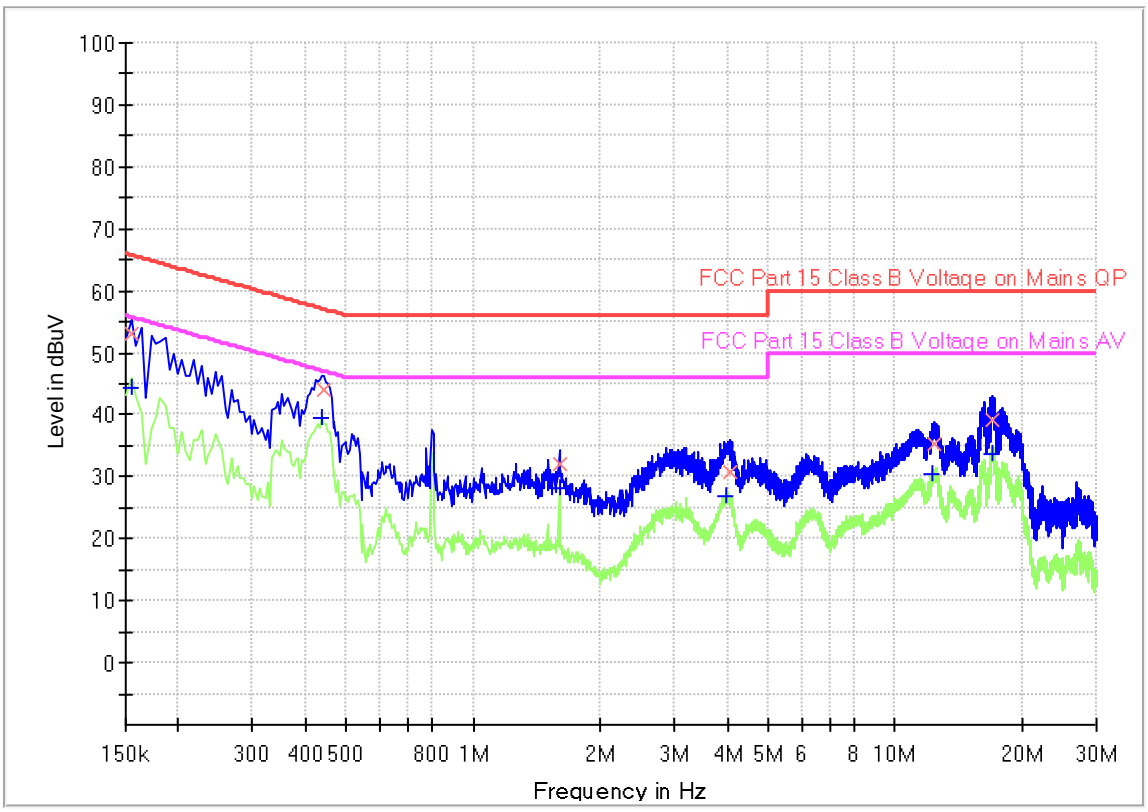
EUT Information

EUT Name:	Acoustic Thermal Imager
Model	Fotric 860MiX
Client:	FOTRIC INC
Op Cond	Power on, TX_2412 at 802.11 B, AC 120V/60Hz
Operator:	Huali CHENG
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



TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.154500	---	44.24	55.75	11.51	1000.0	9.000	L1	19.4
0.154500	53.06	---	65.75	12.69	1000.0	9.000	L1	19.4
0.438000	---	39.55	47.10	7.55	1000.0	9.000	L1	19.5
0.442500	44.03	---	57.01	12.98	1000.0	9.000	L1	19.5
1.599000	31.95	---	56.00	24.05	1000.0	9.000	L1	19.5
1.599000	---	28.15	46.00	17.85	1000.0	9.000	L1	19.5
3.993000	---	26.76	46.00	19.24	1000.0	9.000	L1	19.6
4.078500	30.91	---	56.00	25.09	1000.0	9.000	L1	19.6
12.295500	---	30.51	50.00	19.49	1000.0	9.000	L1	19.9
12.340500	35.36	---	60.00	24.64	1000.0	9.000	L1	19.9
16.939500	39.13	---	60.00	20.87	1000.0	9.000	L1	20.2
17.029500	---	33.63	50.00	16.37	1000.0	9.000	L1	20.2

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)
Factor (dB) = Cable Loss (dB) + LISN Factor (dB) + 10dB Attenuator

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

150k-30MHz Conducted Emission Test

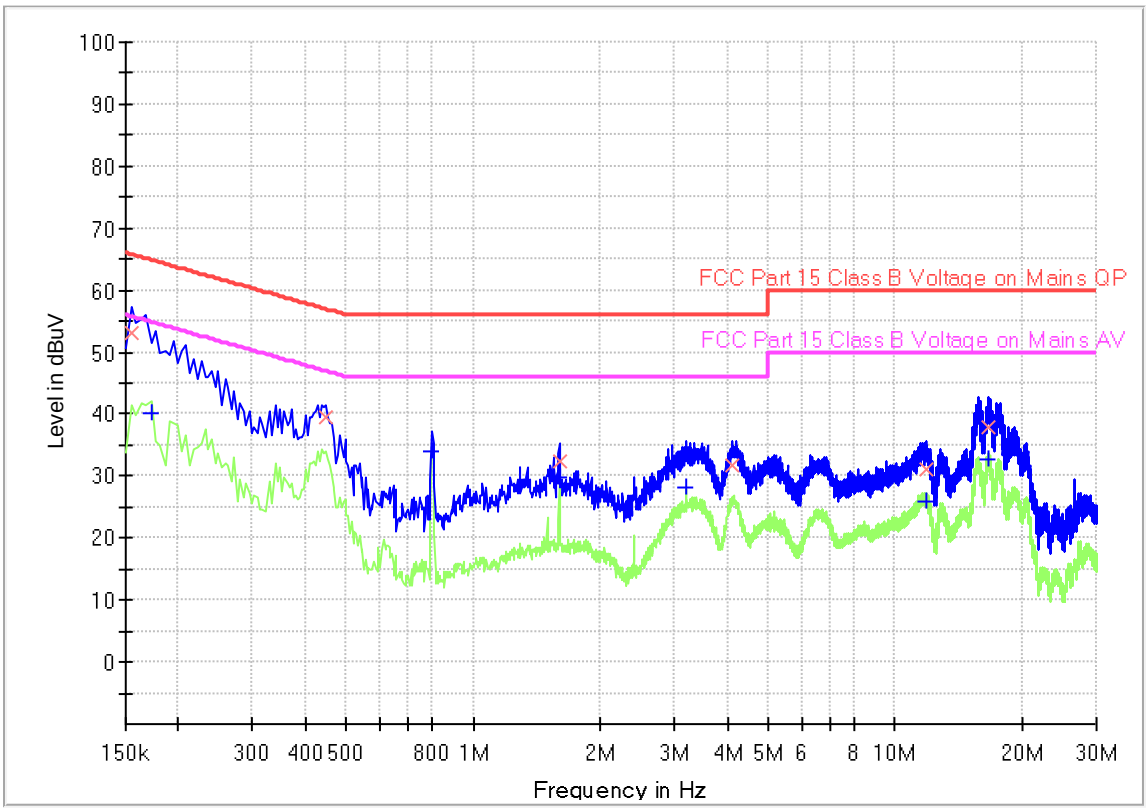
EUT Information

EUT Name:	Acoustic Thermal Imager
Model	Fotric 860MiX
Client:	FOTRIC INC
Op Cond	Power on, TX_2412 at 802.11 B, AC 120V/60Hz
Operator:	Huali CHENG
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



TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.154500	52.93	---	65.75	12.82	1000.0	9.000	N	19.4
0.172500	---	39.99	54.84	14.85	1000.0	9.000	N	19.4
0.447000	39.37	---	56.93	17.56	1000.0	9.000	N	19.5
0.798000	---	34.12	46.00	11.88	1000.0	9.000	N	19.5
1.599000	32.39	---	56.00	23.61	1000.0	9.000	N	19.5
1.599000	---	29.80	46.00	16.20	1000.0	9.000	N	19.5
3.201000	---	28.05	46.00	17.95	1000.0	9.000	N	19.5
4.110000	31.58	---	56.00	24.42	1000.0	9.000	N	19.6
11.823000	31.17	---	60.00	28.83	1000.0	9.000	N	19.8
11.872500	---	25.77	50.00	24.23	1000.0	9.000	N	19.8
16.579500	---	32.83	50.00	17.17	1000.0	9.000	N	20.0
16.674000	37.87	---	60.00	22.13	1000.0	9.000	N	20.0

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)
Factor (dB) = Cable Loss (dB) + LISN Factor (dB) + 10dB Attenuator

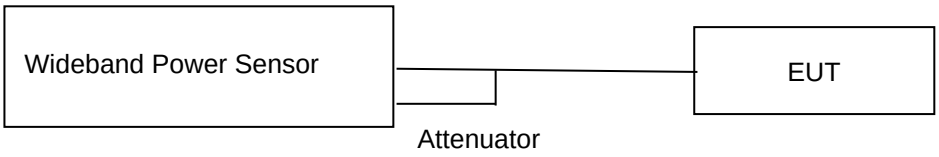
TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

10.2 Conducted peak output power

Test Method (1)

1) The EUT is configured to transmit continuously, or to transmit with a constant duty cycle.
2) At all times when the EUT is transmitting, it shall be transmitting at its maximum power control level.
3) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.

4) Measure the peak power of the transmitter. This measurement is a peak over both the ON and OFF periods of the transmitter.



Wideband Power Sensor conducted test setup

Test Method (2)

1. Measure the duty cycle D of the transmitter output signal.
2. Set span to at least 1.5 times the OBW.
3. Set RBW = 1% to 5% of the OBW, not to exceed 1 MHz.
4. Set VBW ≥ [3 × RBW].
5. Number of points in sweep ≥ [2 × span / RBW]. (This gives bin-to-bin spacing ≤ RBW / 2, so that narrowband signals are not lost between frequency bins.)
6. Sweep time = auto.
7. Detector = RMS (i.e., power averaging), if available. Otherwise, use the sample detector mode.
8. Do not use sweep triggering. Allow the sweep to “free run.”
9. Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 as needed such that the average accurately represents the true average over the ON and OFF periods of the transmitter.
10. Compute power by integrating the spectrum across the OBW of the signal using the instrument’s band power measurement function with band limits set equal to the OBW band edges. If the instrument does not have a band power function, then sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.
11. Add [10 log (1 / D)], where D is the duty cycle, to the measured power to compute the average power during the actual transmission times (because the measurement represents an average over both the ON and OFF times of the transmission).

Limits

According to §15.247 (b) (3) conducted peak output power limit as below:

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

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

Test result (conducted peak) as below:

802.11b

Frequency (MHz)	Conducted Peak Output Power(dBm)	Result
Low channel 2412MHz	17.17	Pass
Middle channel 2437MHz	16.31	Pass
High channel 2462MHz	16.82	Pass

802.11g

Frequency (MHz)	Conducted Peak Output Power(dBm)	Result
Low channel 2412MHz	20.04	Pass
Middle channel 2437MHz	19.53	Pass
High channel 2462MHz	19.84	Pass

802.11n(HT20)

Frequency (MHz)	Conducted Peak Output Power(dBm)	Result
Low channel 2412MHz	20.13	Pass
Middle channel 2437MHz	19.23	Pass
High channel 2462MHz	19.51	Pass

802.11n(HT40)

Frequency (MHz)	Conducted Peak Output Power(dBm)	Result
Low channel 2422MHz	20.23	Pass
Middle channel 2437MHz	20.46	Pass
High channel 2452MHz	19.84	Pass

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

Test result (average power) as below table:

802.11b

Frequency (MHz)	Duty cycle Factor (dB)	Conducted Power (dBm)	Total Power(average) (dBm)	Result
Low channel 2412MHz	0.1	14.15	14.25	Pass
Middle channel 2437MHz	0.1	13.34	13.44	Pass
High channel 2462MHz	0.1	14.04	14.14	Pass

802.11g

Frequency (MHz)	Duty cycle Factor (dB)	Conducted Power (dBm)	Total Power(average) (dBm)	Result
Low channel 2412MHz	0.59	10.7	11.29	Pass
Middle channel 2437MHz	0.58	9.56	10.14	Pass
High channel 2462MHz	0.59	10.5	11.09	Pass

802.11n(HT20)

Frequency (MHz)	Duty cycle Factor (dB)	Conducted Power (dBm)	Total Power(average) (dBm)	Result
Low channel 2412MHz	0.63	9.51	10.14	Pass
Middle channel 2437MHz	0.63	8.95	9.58	Pass
High channel 2462MHz	0.63	9.46	10.09	Pass

802.11n(HT40)

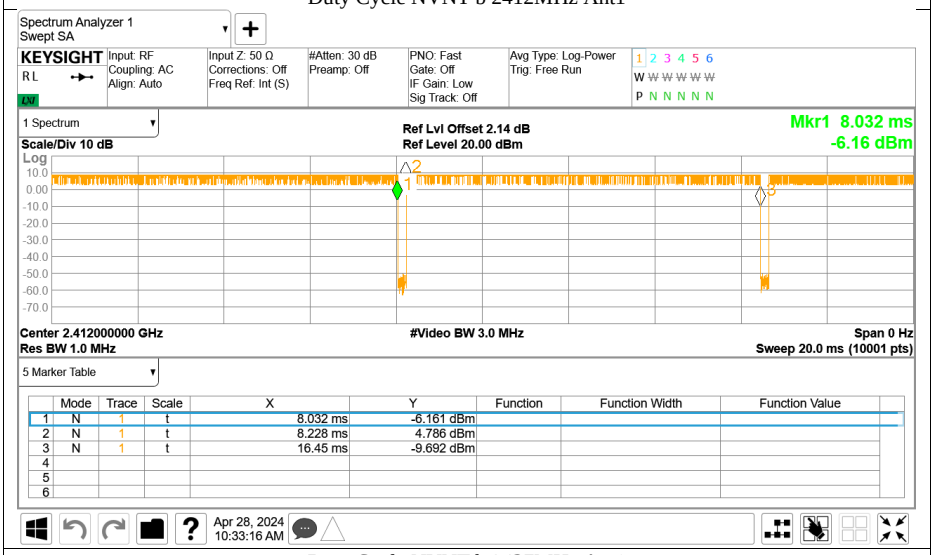
Frequency (MHz)	Duty cycle Factor (dB)	Conducted Power (dBm)	Total Power(average) (dBm)	Result
Low channel 2422MHz	1.17	9.09	10.26	Pass
Middle channel 2437MHz	1.16	9.57	10.73	Pass
High channel 2452MHz	1.16	8.57	9.73	Pass

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

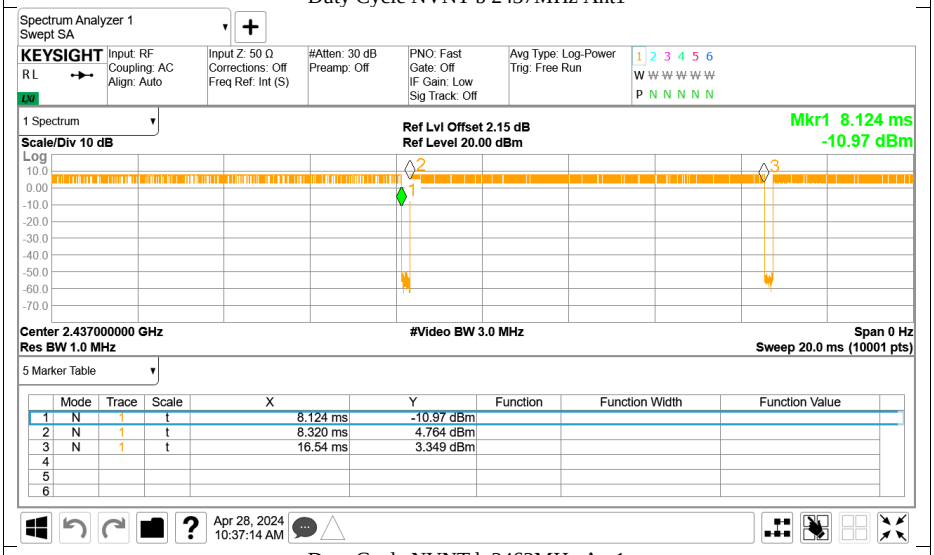
Duty cycle

Test Graphs

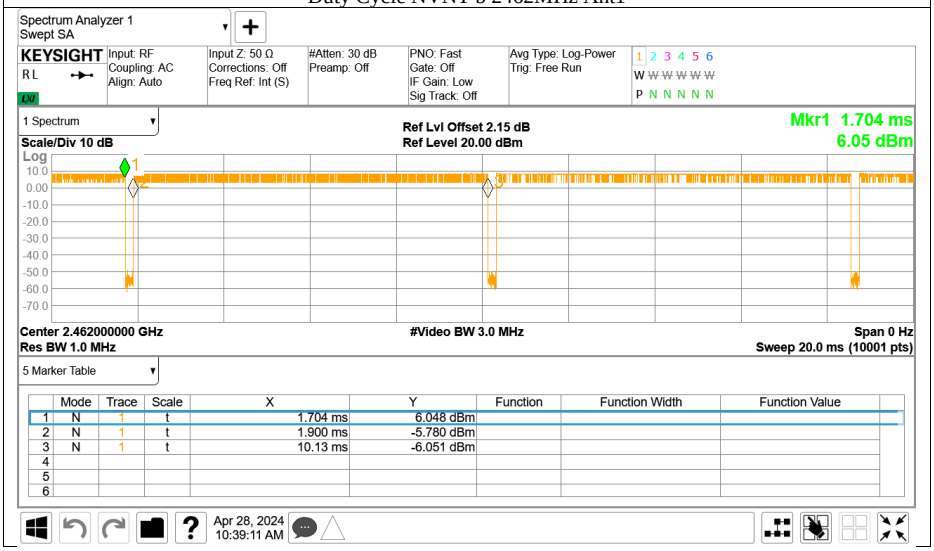
Duty Cycle NVNT b 2412MHz Ant1



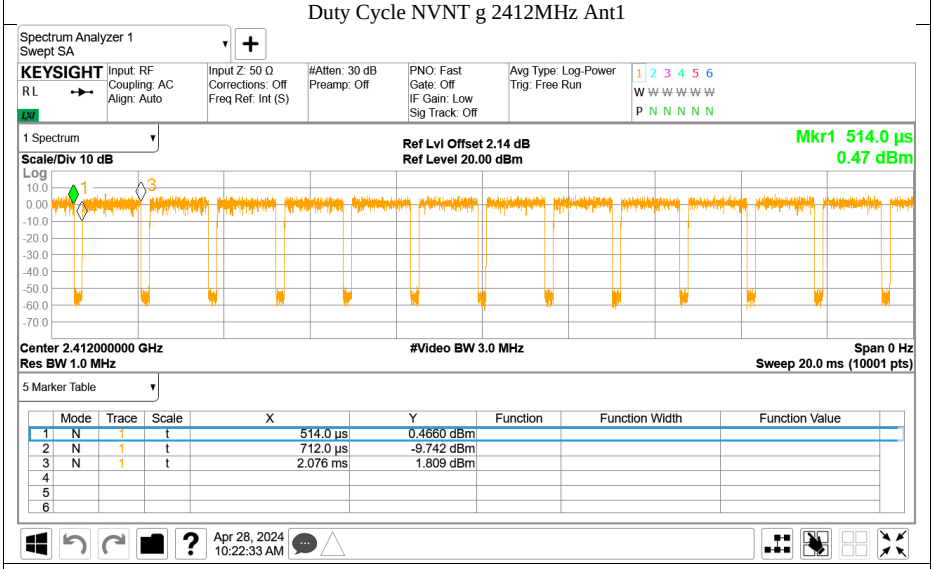
Duty Cycle NVNT b 2437MHz Ant1



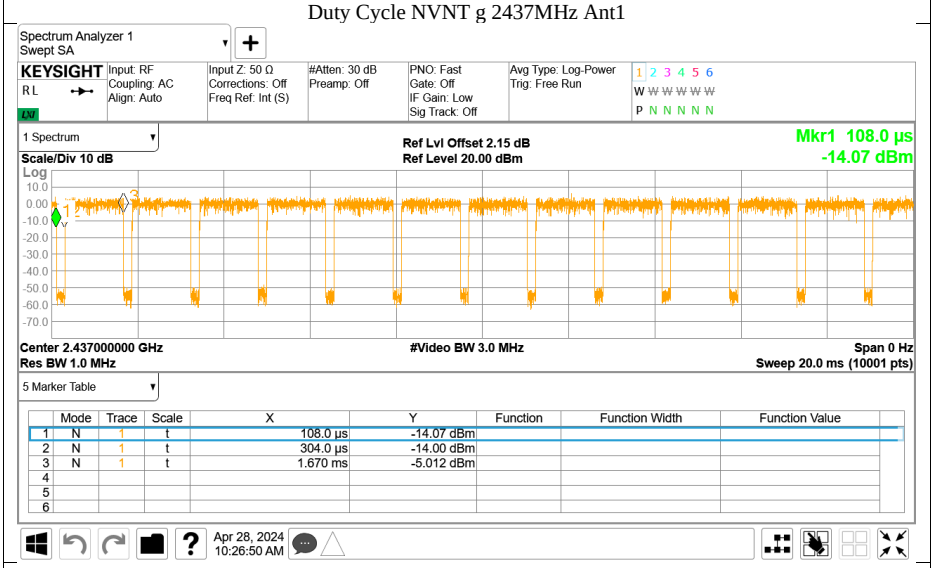
Duty Cycle NVNT b 2462MHz Ant1



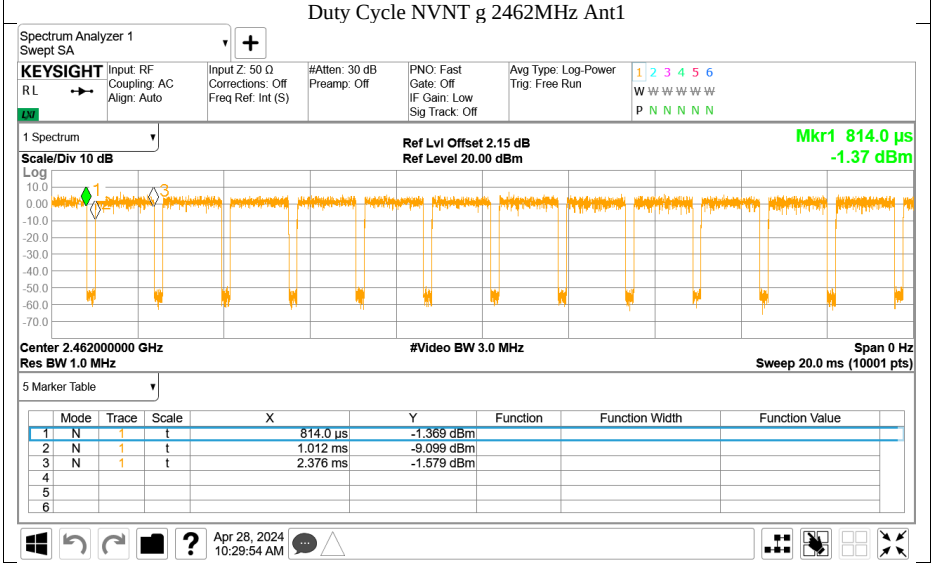
Duty Cycle NVNT g 2412MHz Ant1



Duty Cycle NVNT g 2437MHz Ant1

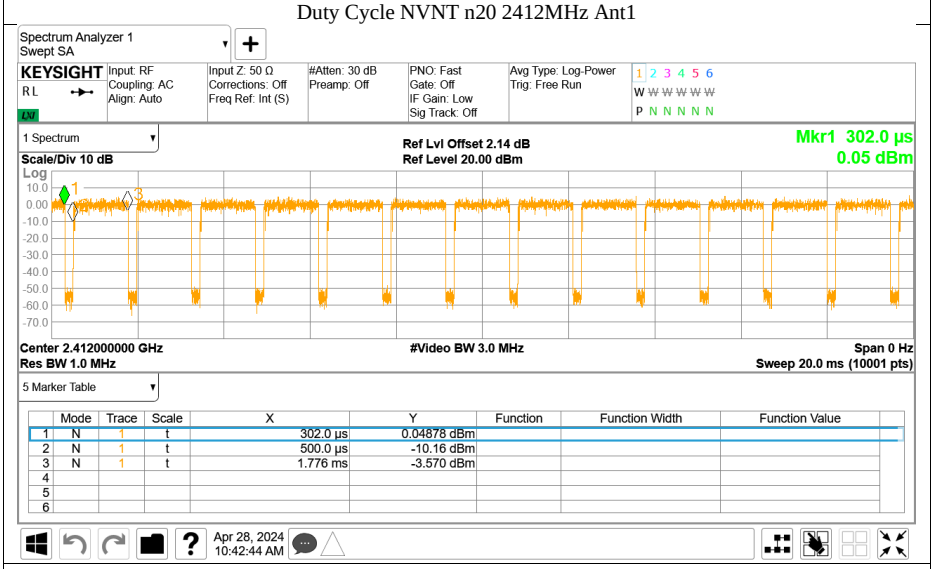


Duty Cycle NVNT g 2462MHz Ant1

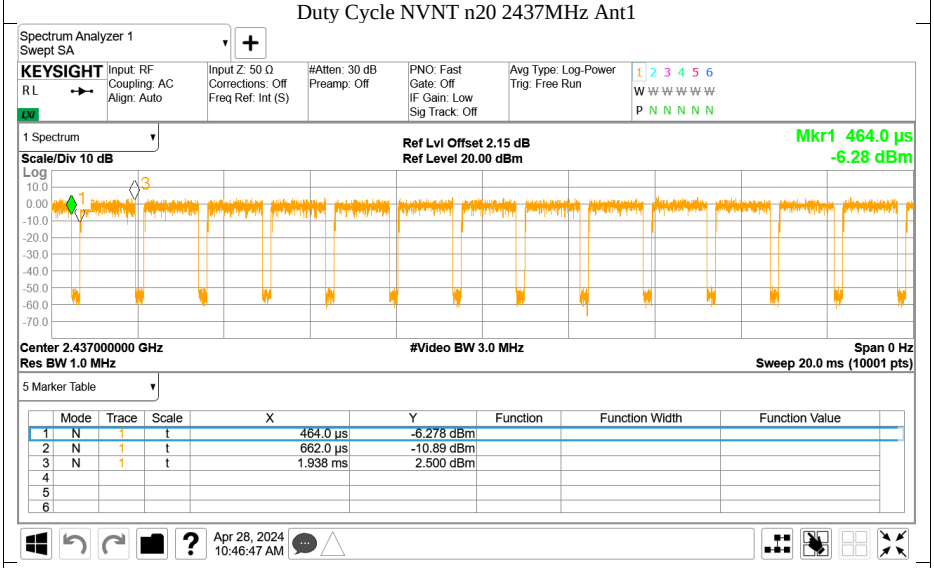


TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

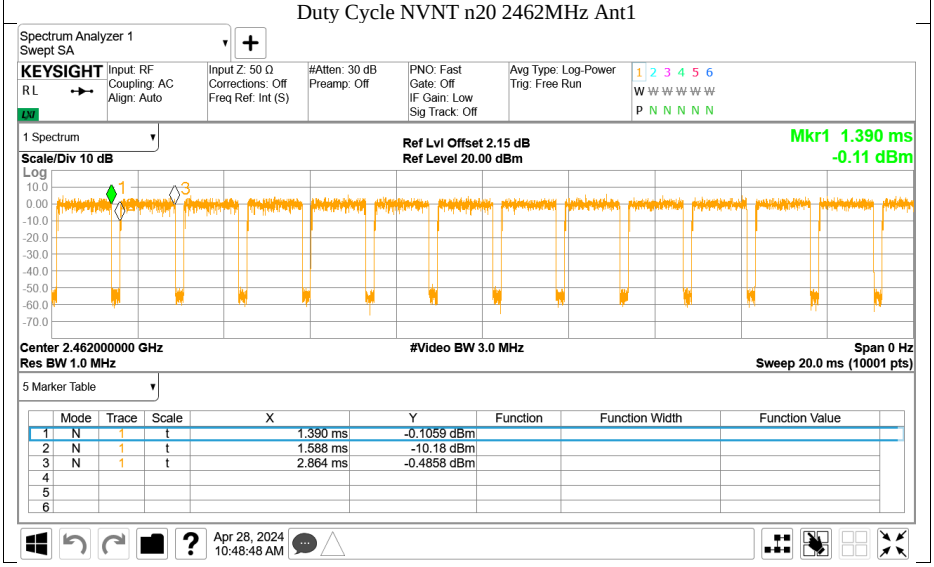
Duty Cycle NVNT n20 2412MHz Ant1



Duty Cycle NVNT n20 2437MHz Ant1

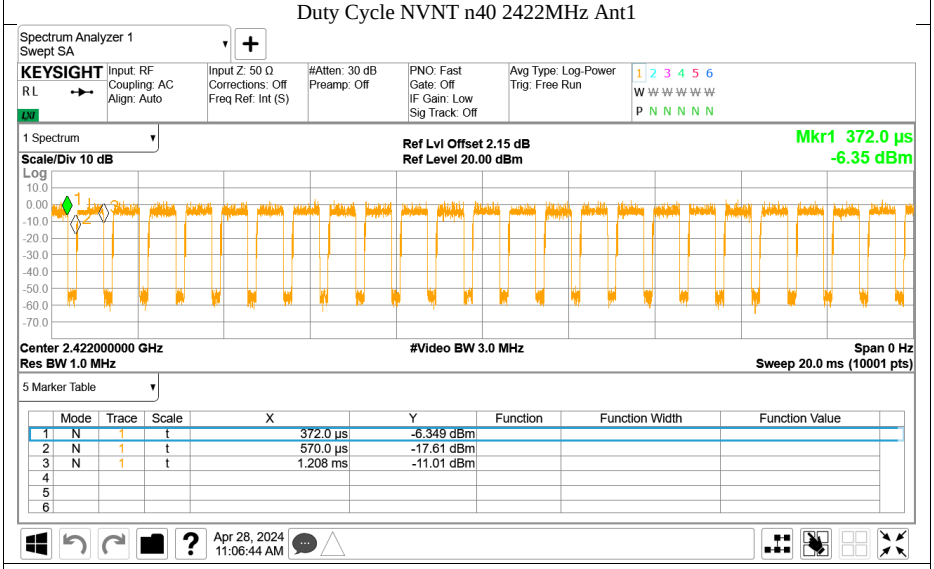


Duty Cycle NVNT n20 2462MHz Ant1

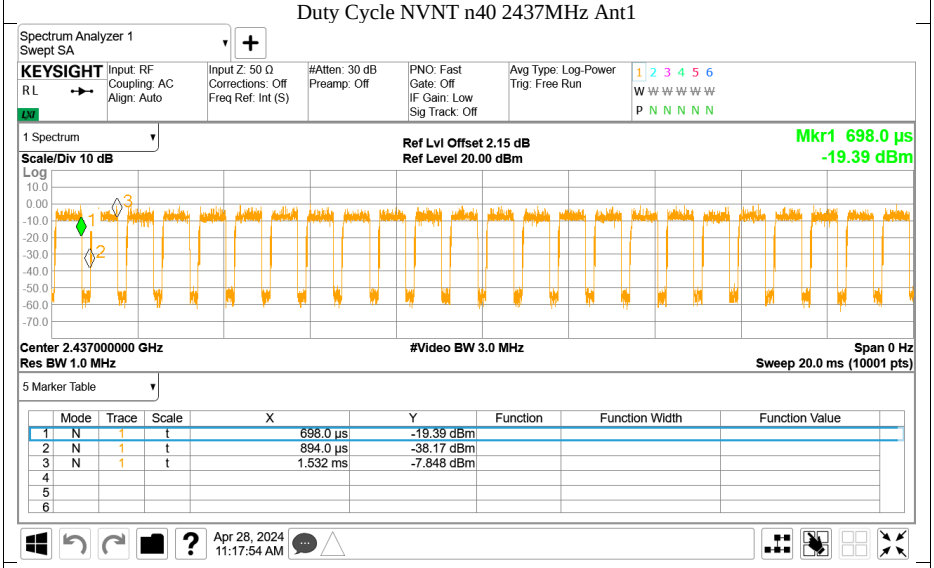


TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

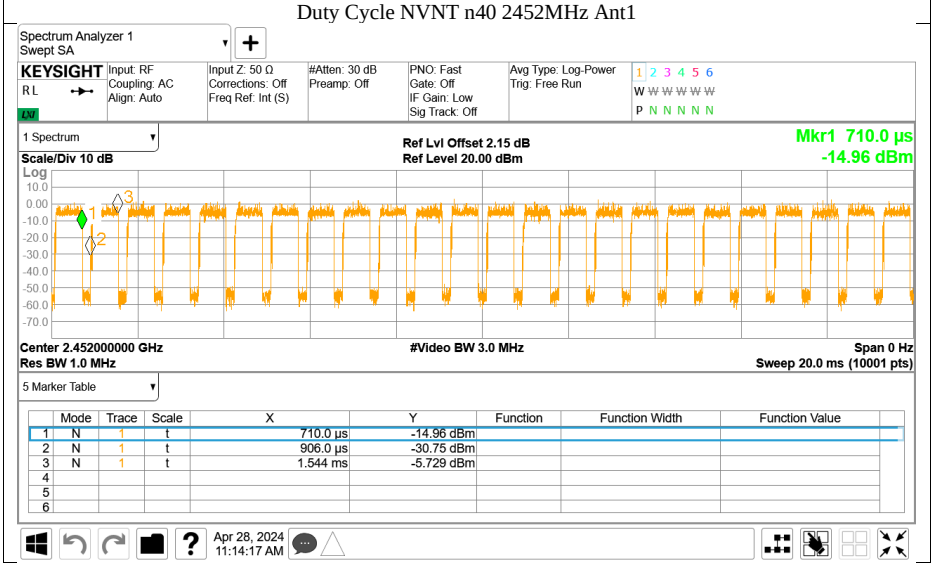
Duty Cycle NVNT n40 2422MHz Ant1



Duty Cycle NVNT n40 2437MHz Ant1



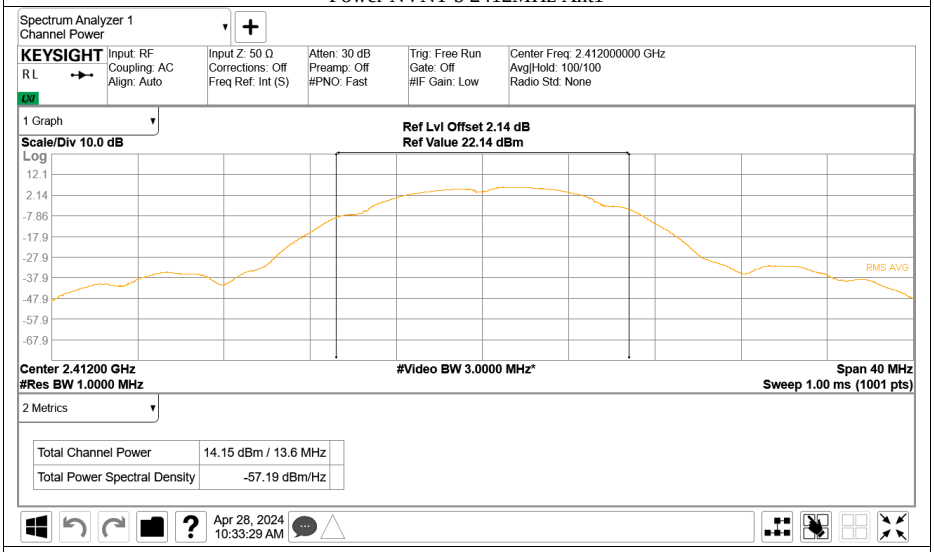
Duty Cycle NVNT n40 2452MHz Ant1



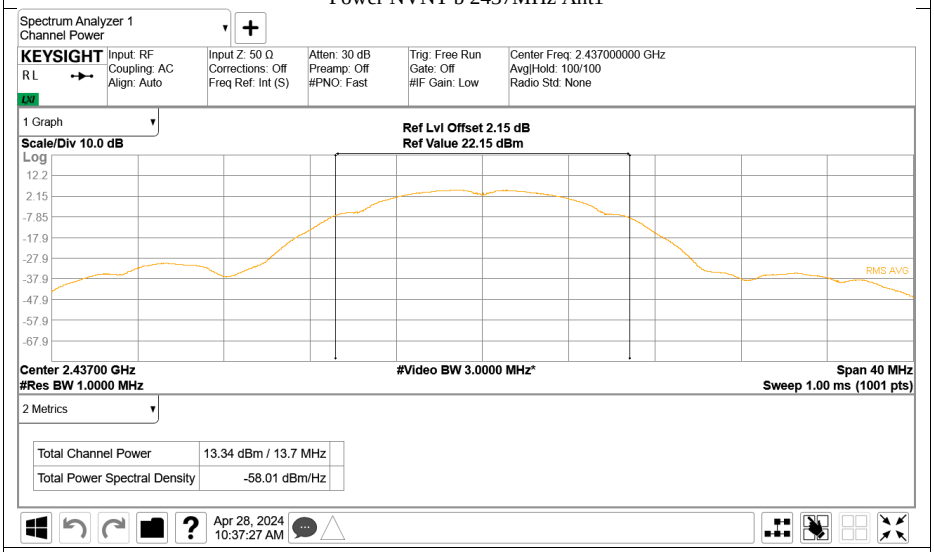
Conducted Output Power

Test Graphs

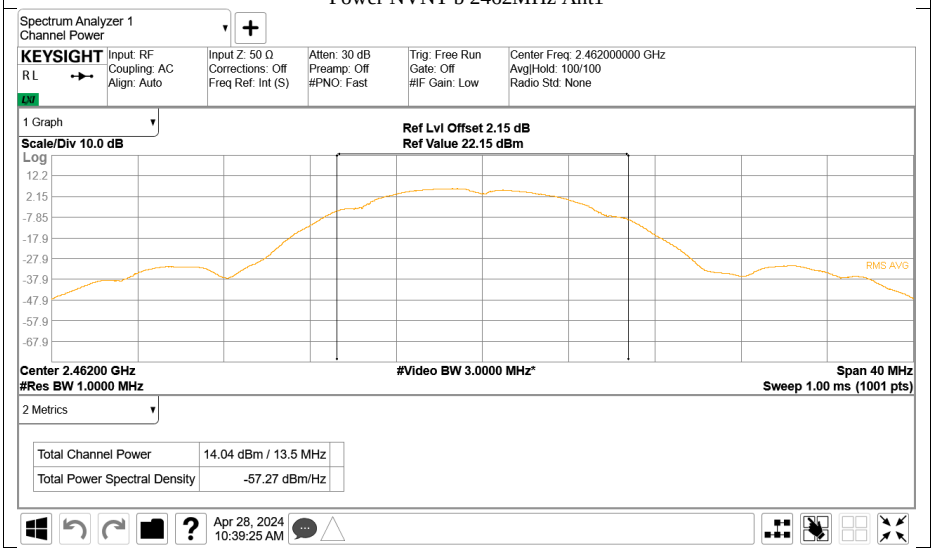
Power NVNT b 2412MHz Ant1



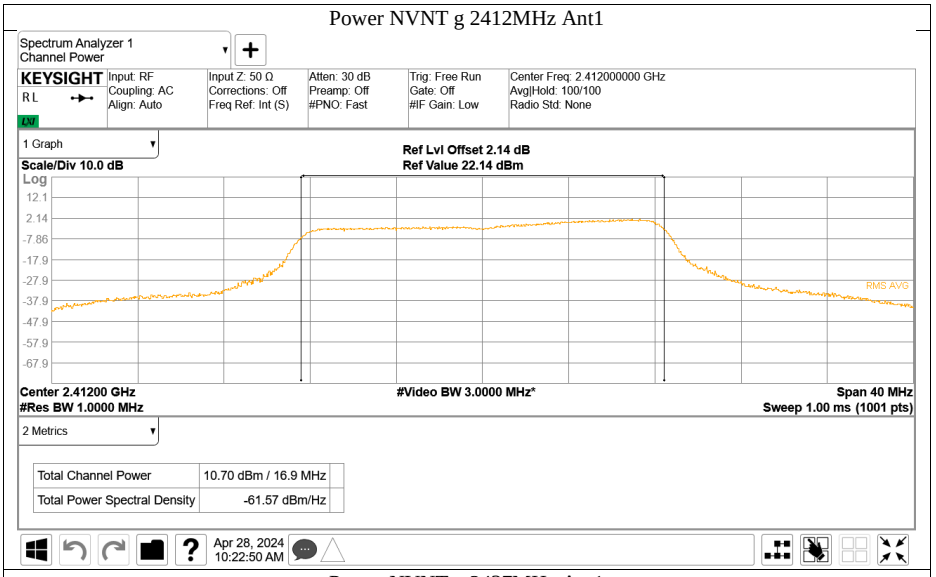
Power NVNT b 2437MHz Ant1



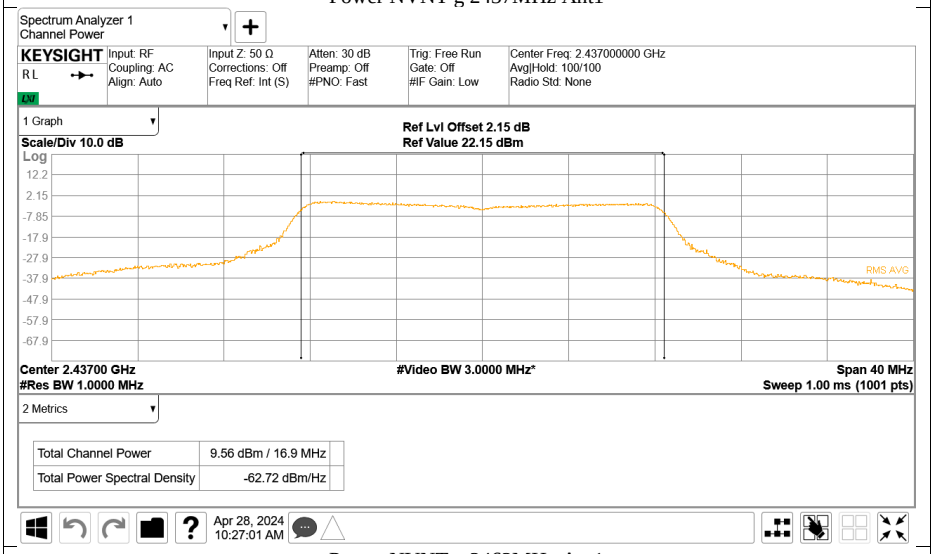
Power NVNT b 2462MHz Ant1



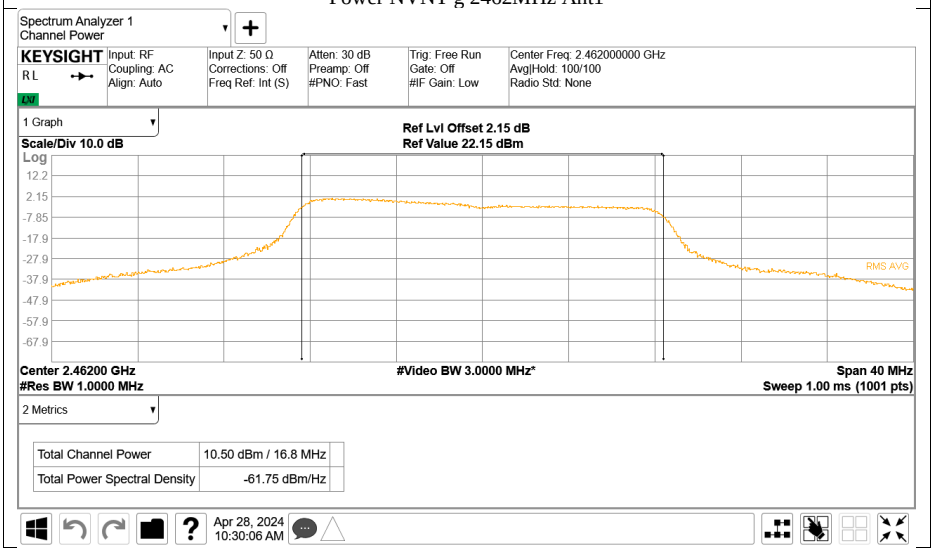
Power NVNT g 2412MHz Ant1



Power NVNT g 2437MHz Ant1

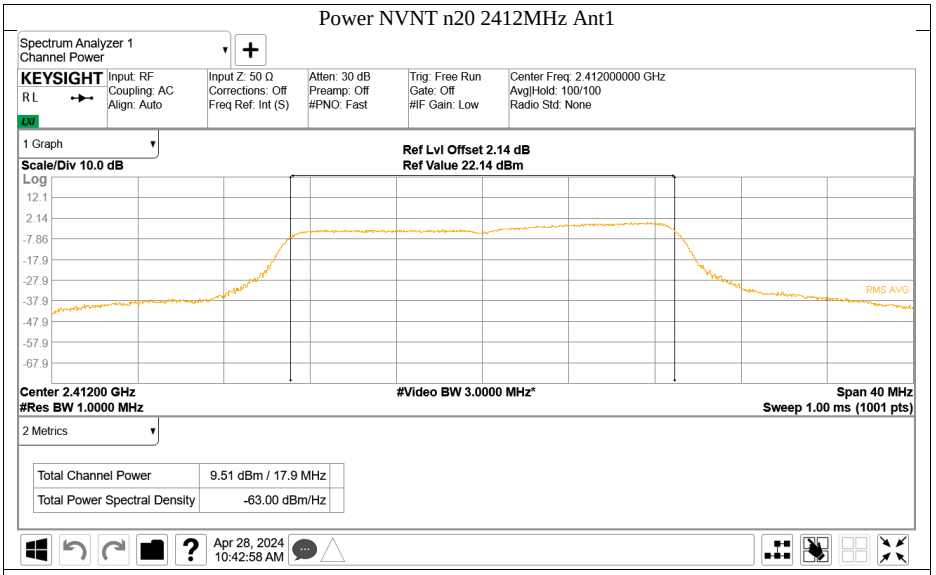


Power NVNT g 2462MHz Ant1

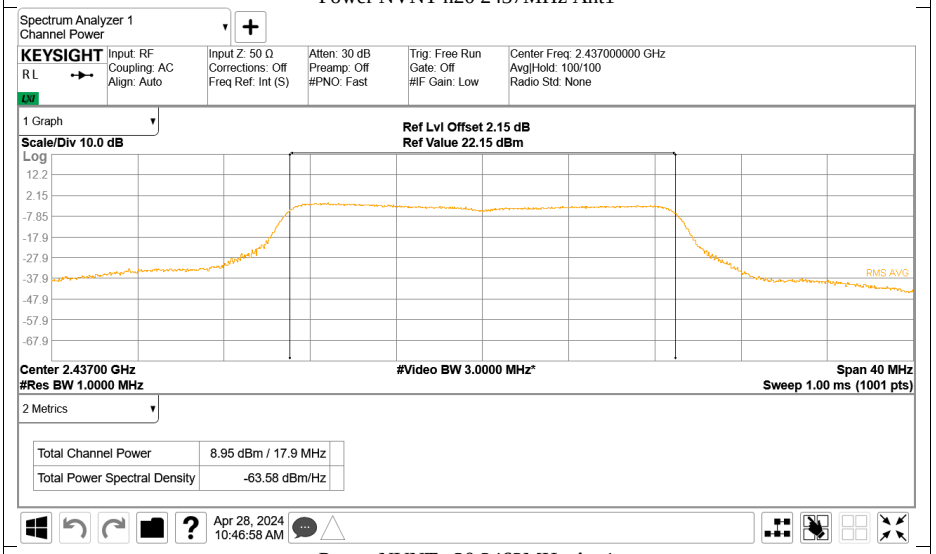


TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

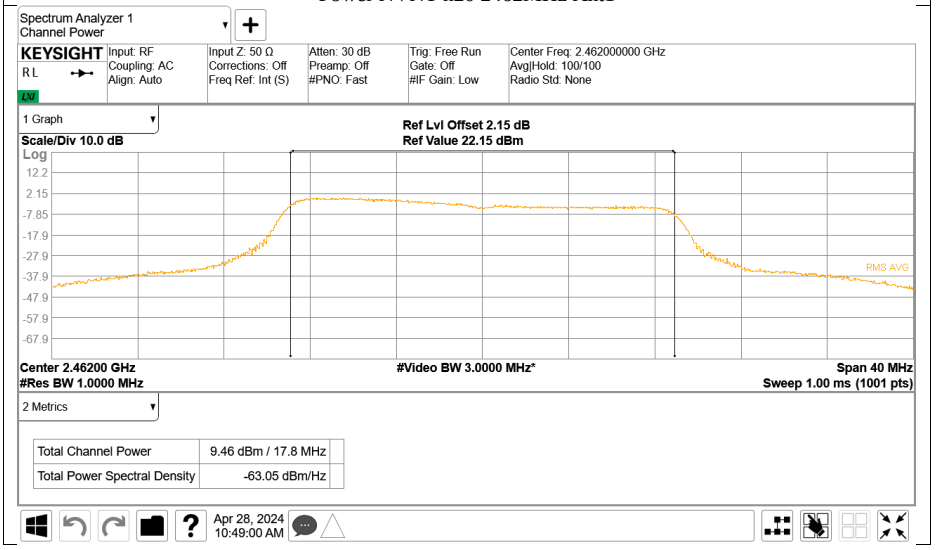
Power NVNT n20 2412MHz Ant1



Power NVNT n20 2437MHz Ant1

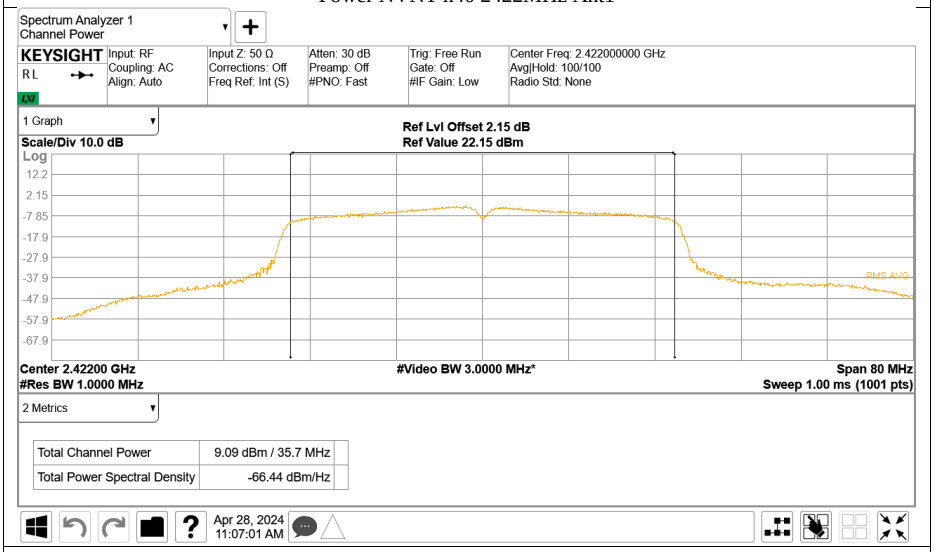


Power NVNT n20 2462MHz Ant1

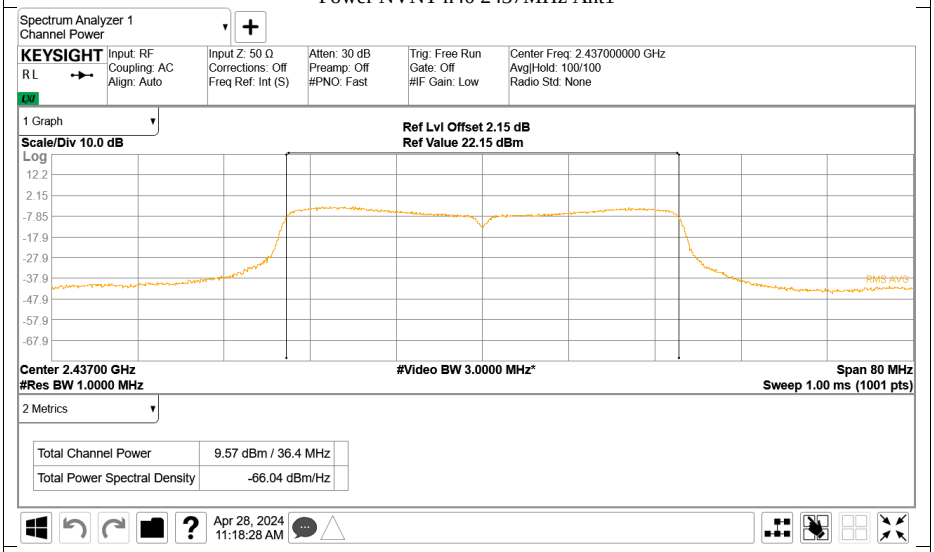


TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

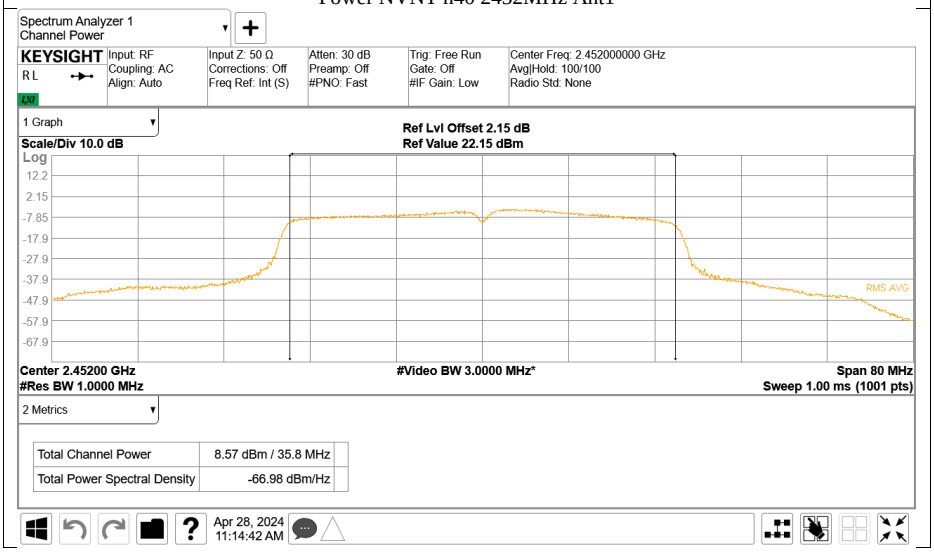
Power NVNT n40 2422MHz Ant1



Power NVNT n40 2437MHz Ant1



Power NVNT n40 2452MHz Ant1



TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

10.3 6dB bandwidth

Test Method

1. The RF output of EUT was connected to the spectrum analyzer. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting, the instrument center frequency is set to the nominal EUT channel center frequency enable the EUT transmit continuously.
3. Use the following spectrum analyzer settings:
   RBW=100KHz, VBW≥3RBW, Sweep = auto, Detector function = peak, Trace = max hold
4. Use the automatic bandwidth measurement capability of an instrument, use the X dB bandwidth mode with X set to 6 dB.
5. Allow the trace to stabilize, record the 6 dB Bandwidth value.

Limit

Limit [kHz]
≥500

Test result

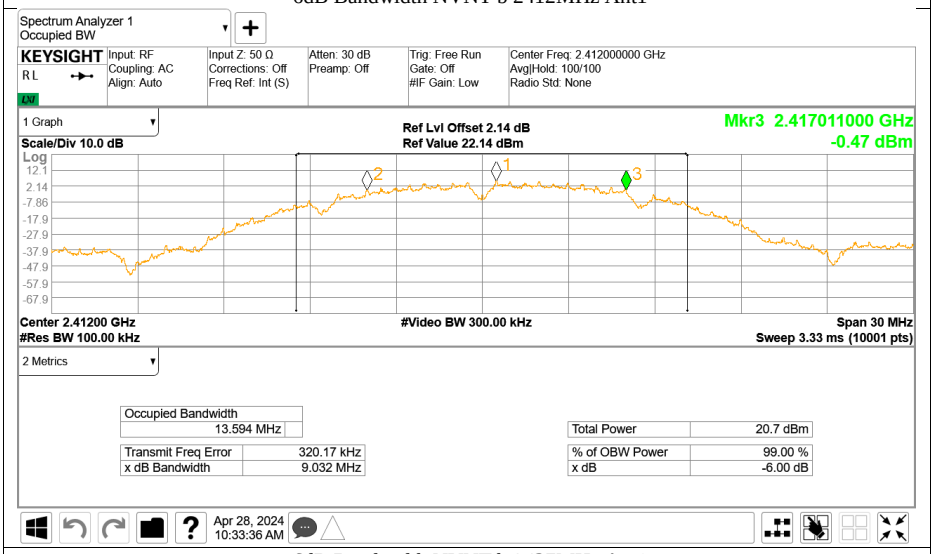
Test Mode	Frequency MHz	6dB bandwidth (MHz)		Result
		result	limit	verdict
802.11b	2412	9.032	≥0.5	Pass
	2437	9.551	≥0.5	Pass
	2462	9.009	≥0.5	Pass
802.11g	2412	15.775	≥0.5	Pass
	2437	16.421	≥0.5	Pass
	2462	15.663	≥0.5	Pass
802.11n(HT20)	2412	16.278	≥0.5	Pass
	2437	17.588	≥0.5	Pass
	2462	16.341	≥0.5	Pass
802.11n(HT40)	2422	33.81	≥0.5	Pass
	2437	35.121	≥0.5	Pass
	2452	35.015	≥0.5	Pass

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

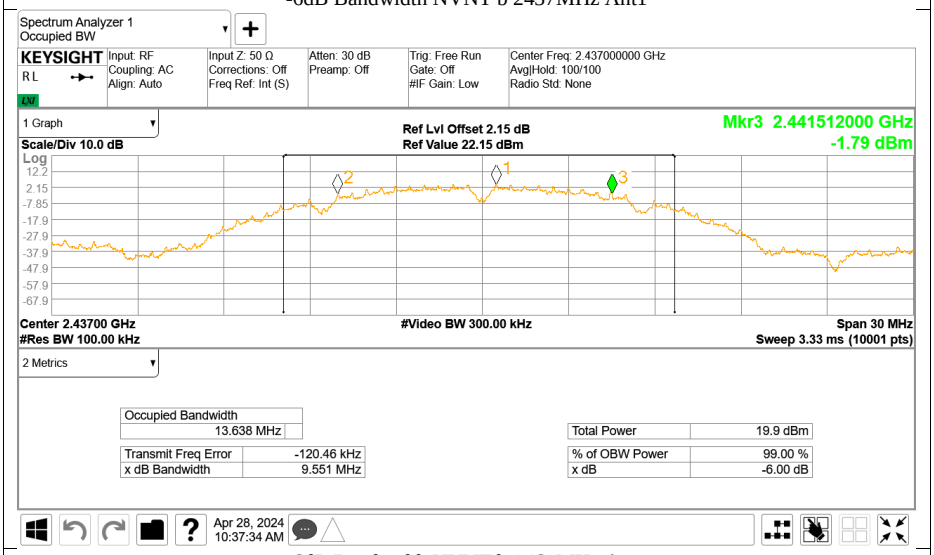
6 dB Bandwidth

Test Graphs

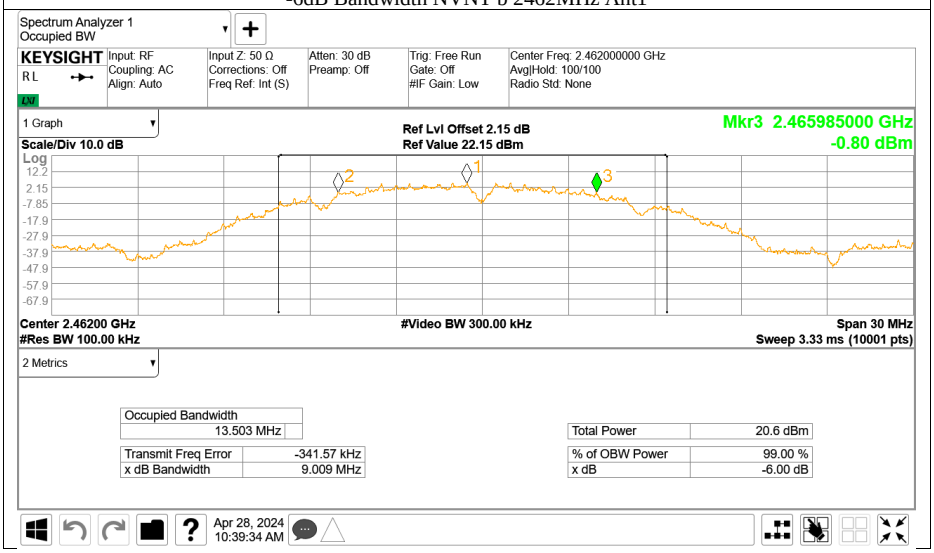
-6dB Bandwidth NVNT b 2412MHz Ant1



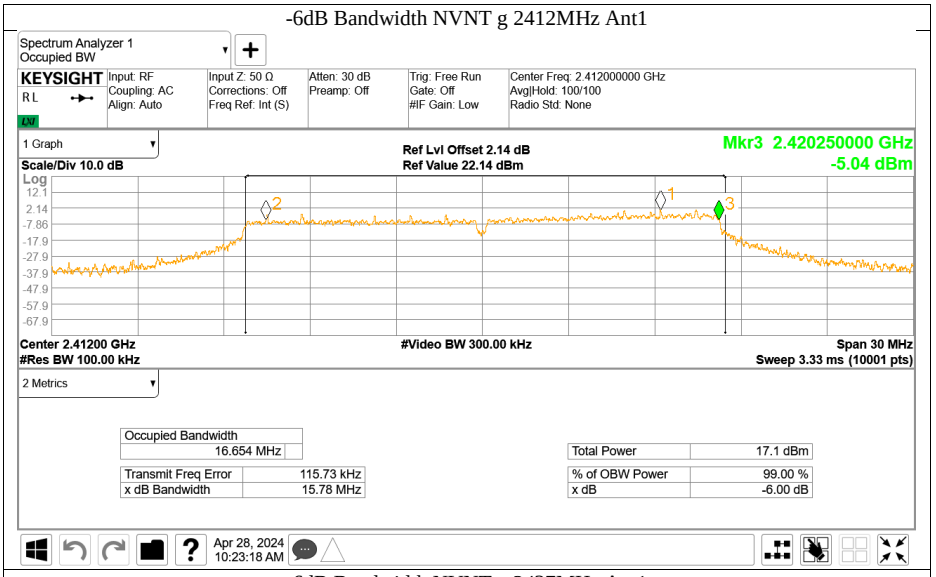
-6dB Bandwidth NVNT b 2437MHz Ant1



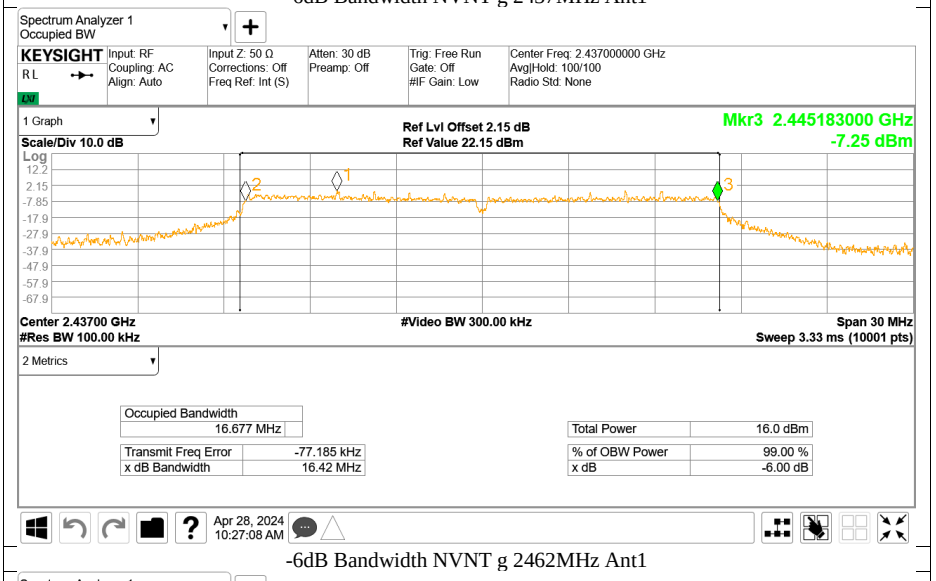
-6dB Bandwidth NVNT b 2462MHz Ant1



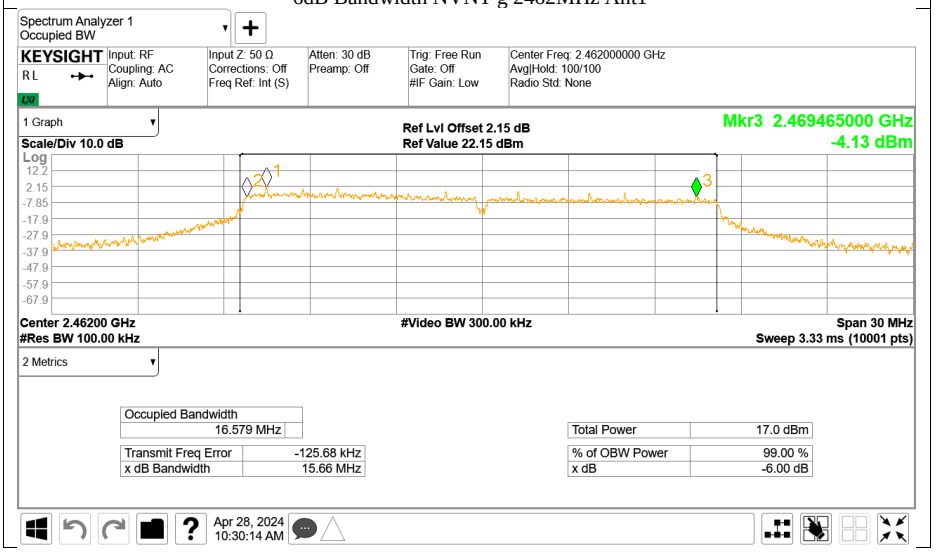
-6dB Bandwidth NVNT g 2412MHz Ant1



-6dB Bandwidth NVNT g 2437MHz Ant1

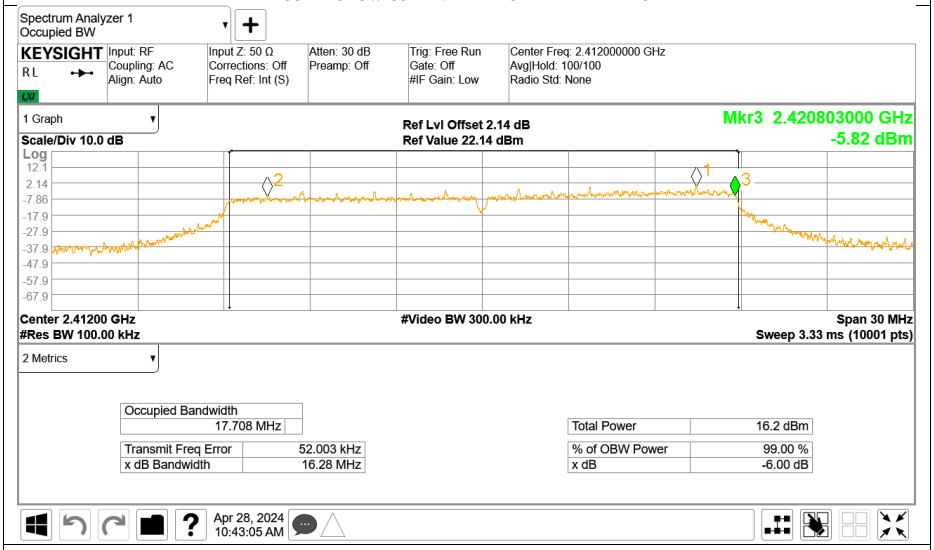


-6dB Bandwidth NVNT g 2462MHz Ant1

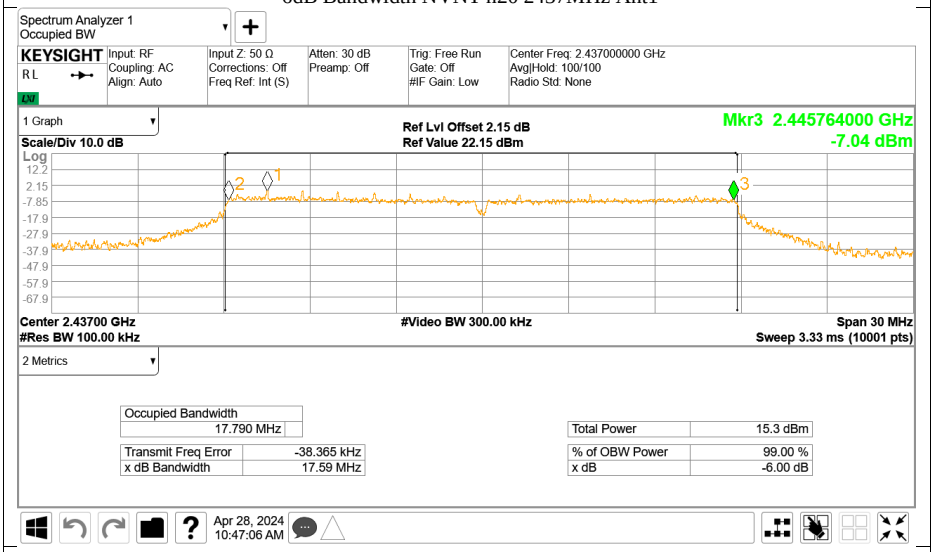


TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

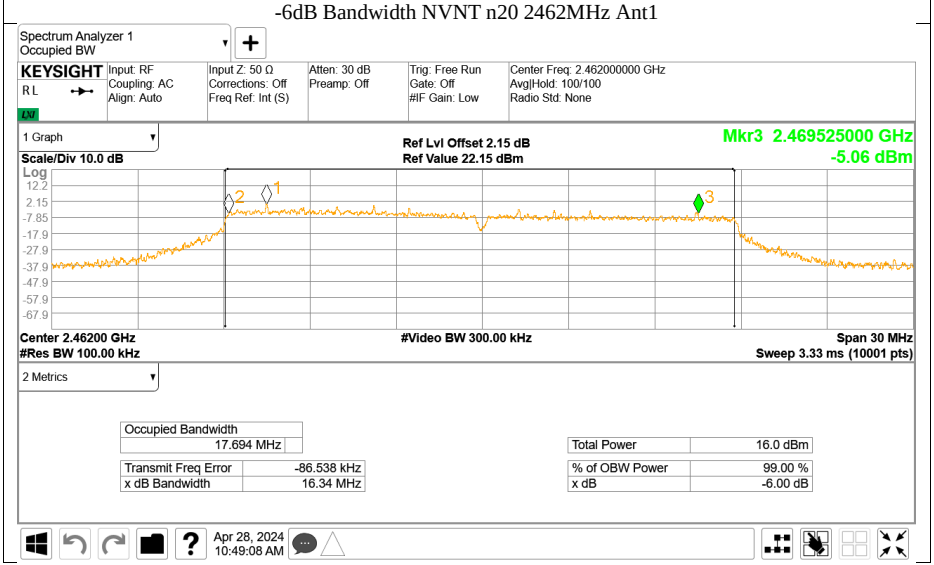
-6dB Bandwidth NVNT n20 2412MHz Ant1



-6dB Bandwidth NVNT n20 2437MHz Ant1

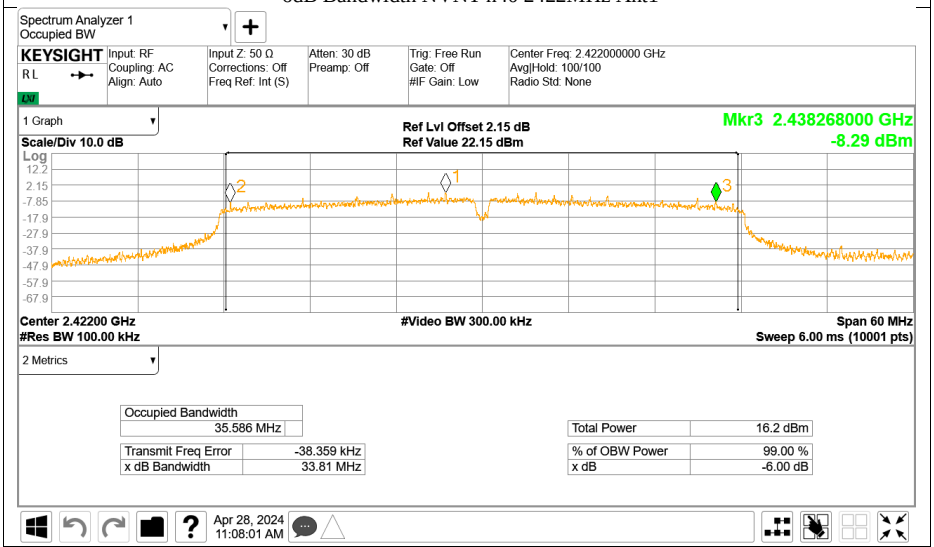


-6dB Bandwidth NVNT n20 2462MHz Ant1

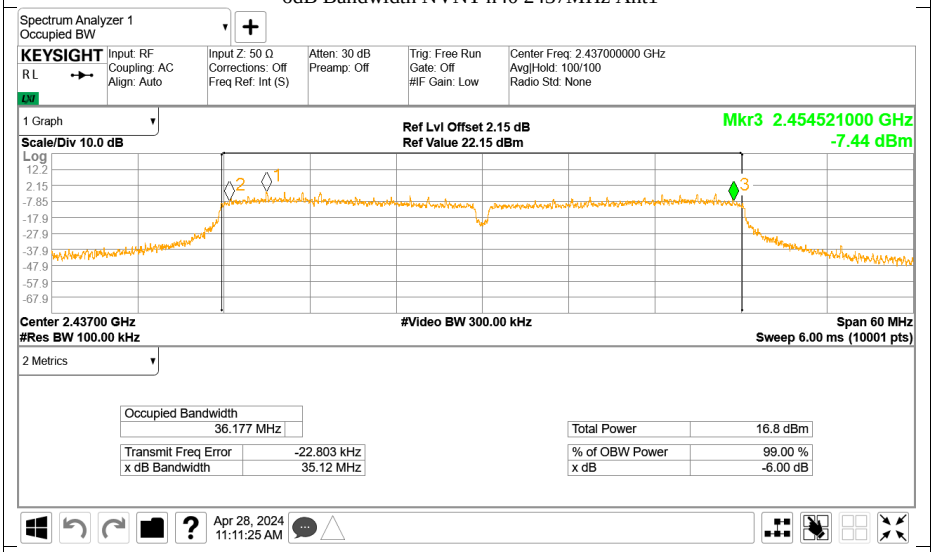


TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

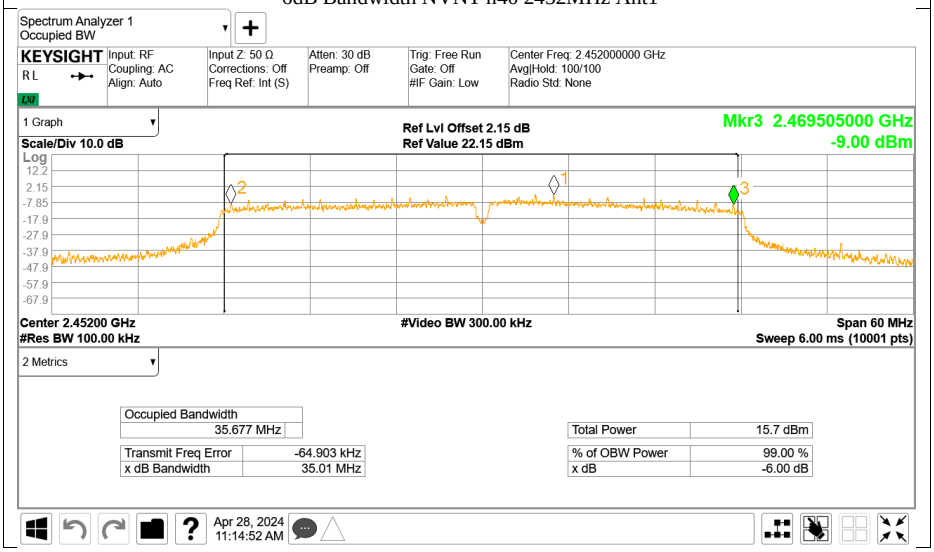
-6dB Bandwidth NVNT n40 2422MHz Ant1



-6dB Bandwidth NVNT n40 2437MHz Ant1



-6dB Bandwidth NVNT n40 2452MHz Ant1



TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

10.4 Power spectral density

Test Method

This procedure shall be used if maximum peak conducted output power was used to demonstrate compliance:

1. The RF output of EUT was connected to the spectrum analyzer. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting, the instrument center frequency is set to the nominal EUT channel center frequency enable the EUT transmit continuously.
3. Use the following spectrum analyzer settings:
4. Set analyzer center frequency to DTS channel center frequency. RBW=3kHz, VBW≥3RBW, Span=1.5 times DTS bandwidth, Detector=Peak, Sweep=auto, Trace= max hold.
5. Allow trace to fully stabilize, use the peak marker function to determine the maximum amplitude level within the RBW.
6. Repeat above procedures until other frequencies measured were completed.

Limit

Limit [dBm/3kHz]
⩽8

Test result

802.11 b

Frequency **MHz**	Power spectral density **dBm/3kHz**	Result
Low channel 2412MHz	-9.08	Pass
Middle channel 2437MHz	-9.32	Pass
High channel 2462MHz	-8.72	Pass

802.11 g

Frequency **MHz**	Power spectral density **dBm/3kHz**	Result
Low channel 2412MHz	-12.65	Pass
Middle channel 2437MHz	-14.62	Pass
High channel 2462MHz	-12.46	Pass

802.11 n (HT20)

Frequency **MHz**	Power spectral density **dBm/3kHz**	Result
Low channel 2412MHz	-13.32	Pass
Middle channel 2437MHz	-16.1	Pass
High channel 2462MHz	-13.05	Pass

802.11 n (HT40)

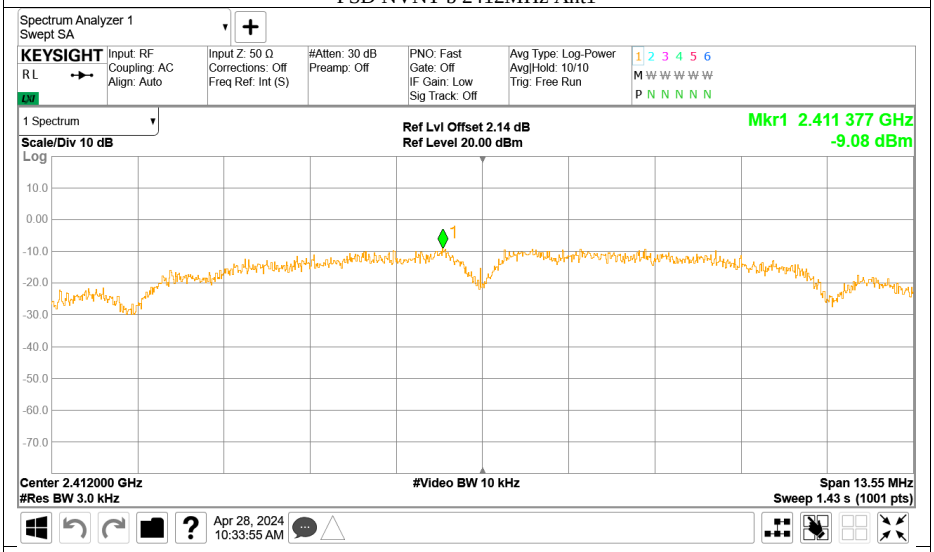
Frequency **MHz**	Power spectral density **dBm/3kHz**	Result
Low channel 2422MHz	-17.11	Pass
Middle channel 2437MHz	-14.84	Pass
High channel 2452MHz	-17.89	Pass

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

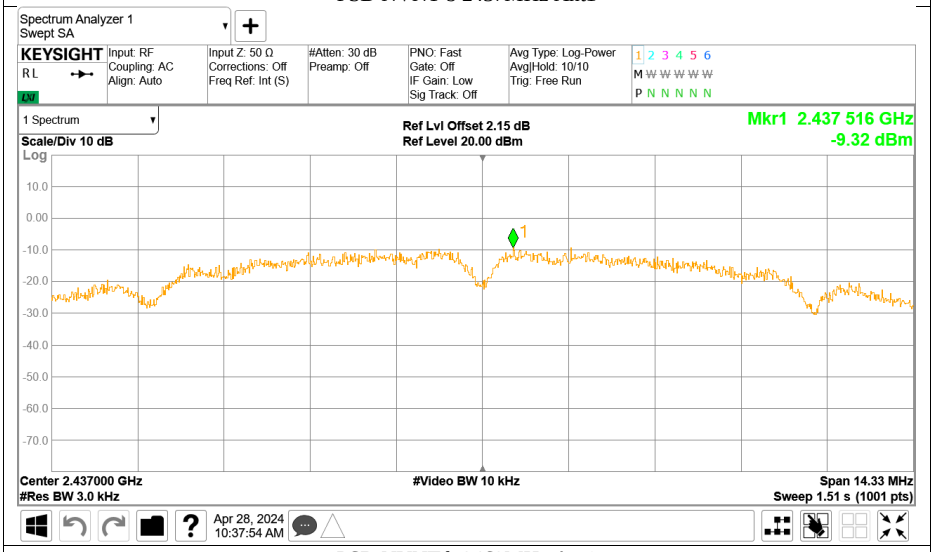
Power spectral density

Test Graphs

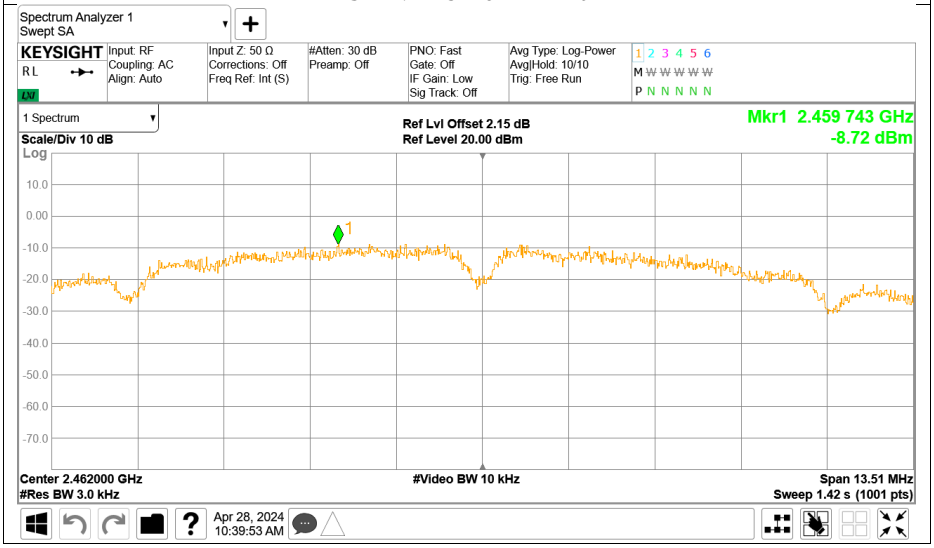
PSD NVNT b 2412MHz Ant1



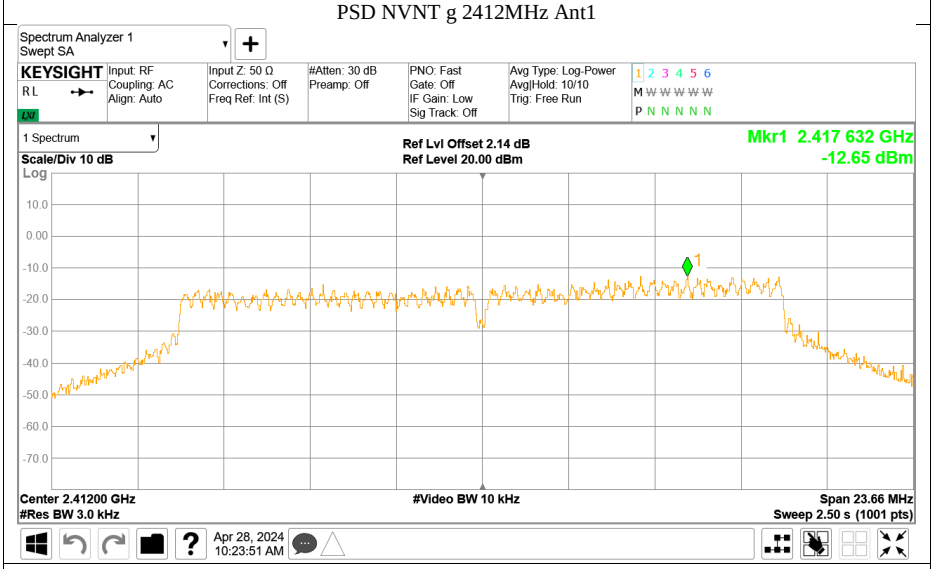
PSD NVNT b 2437MHz Ant1



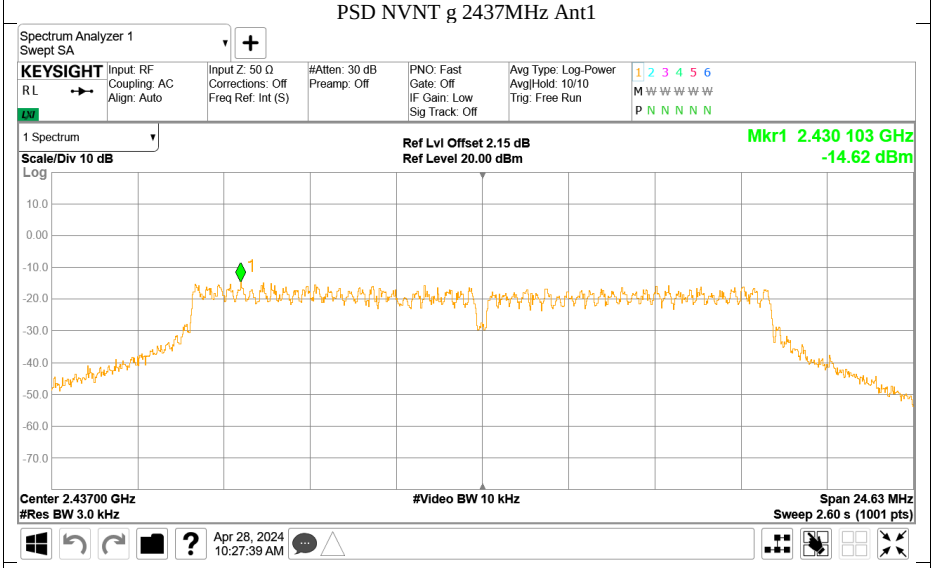
PSD NVNT b 2462MHz Ant1



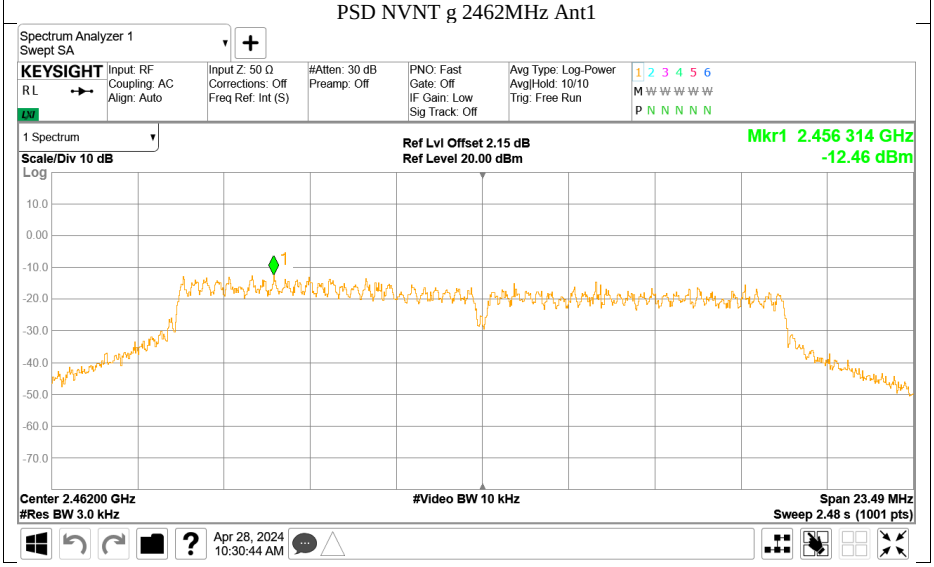
PSD NVNT g 2412MHz Ant1



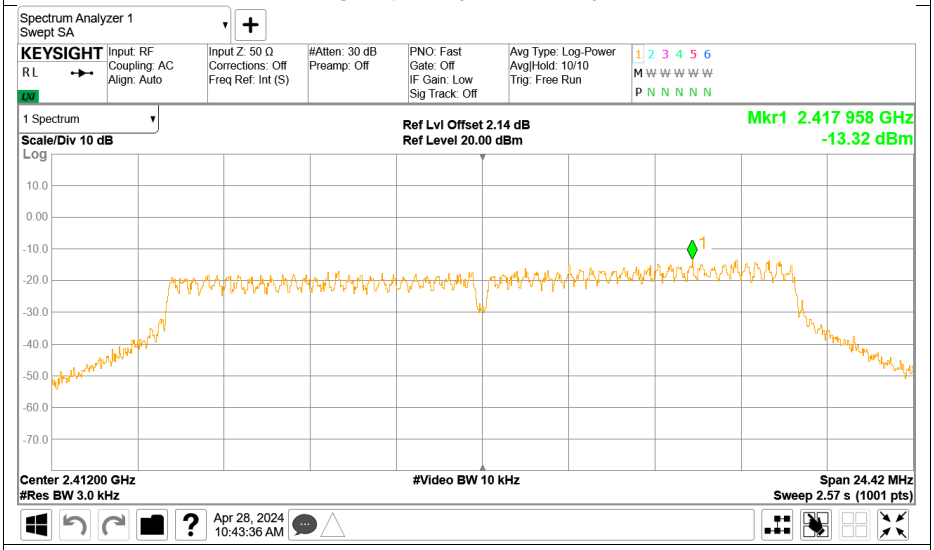
PSD NVNT g 2437MHz Ant1



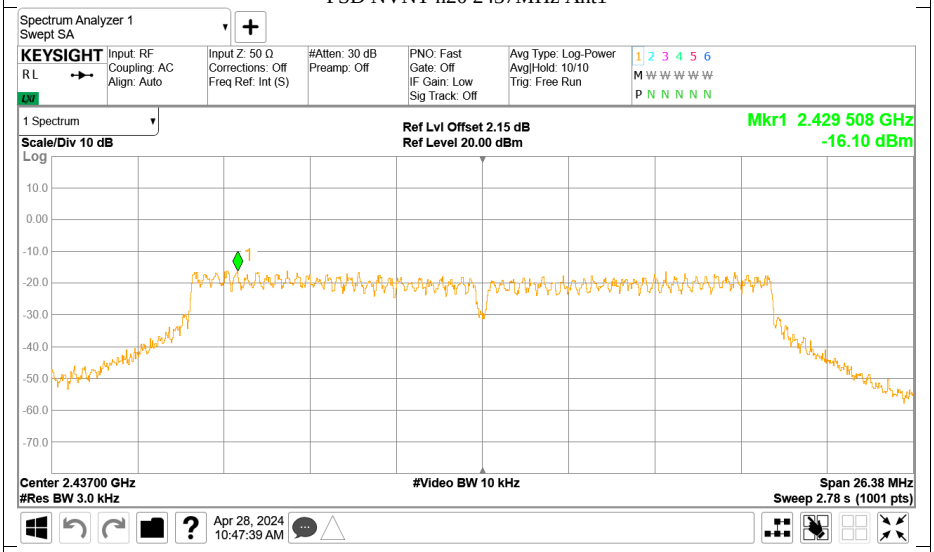
PSD NVNT g 2462MHz Ant1



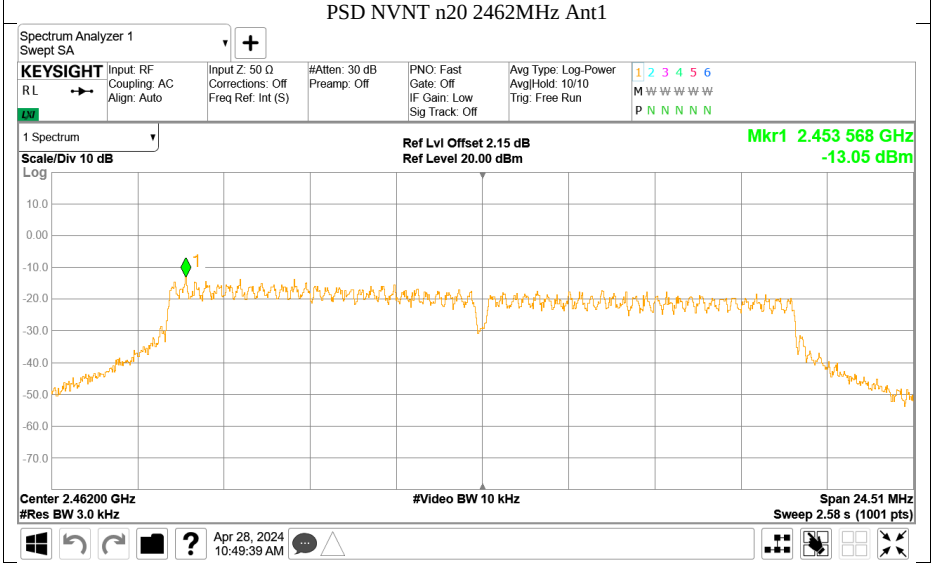
PSD NVNT n20 2412MHz Ant1



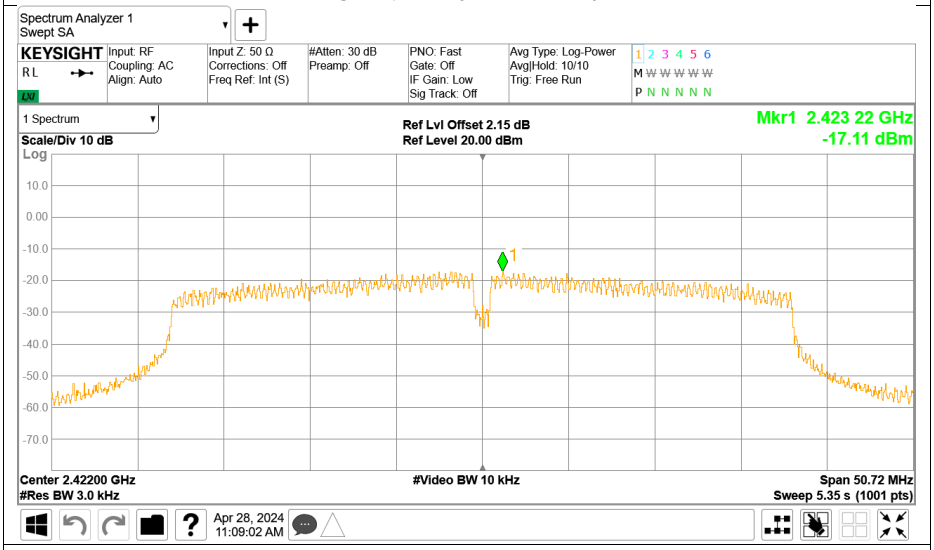
PSD NVNT n20 2437MHz Ant1



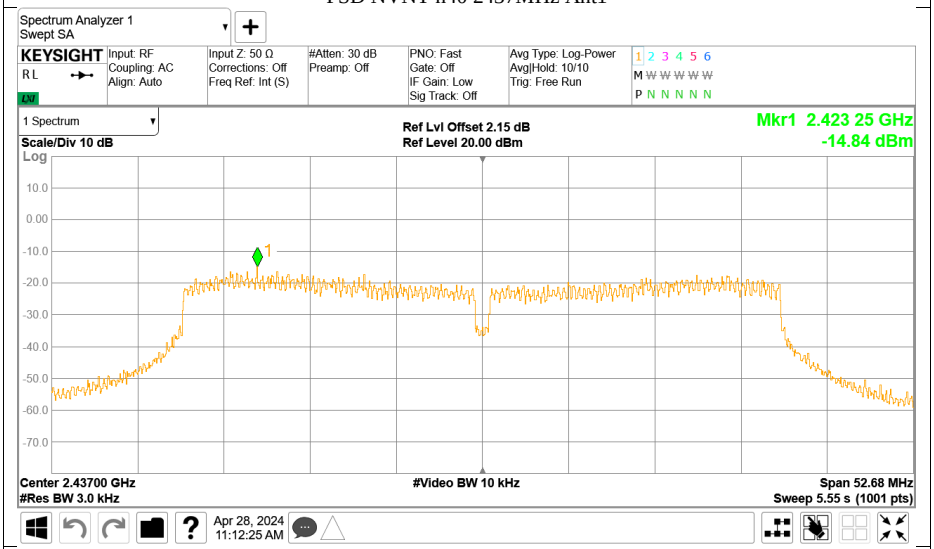
PSD NVNT n20 2462MHz Ant1



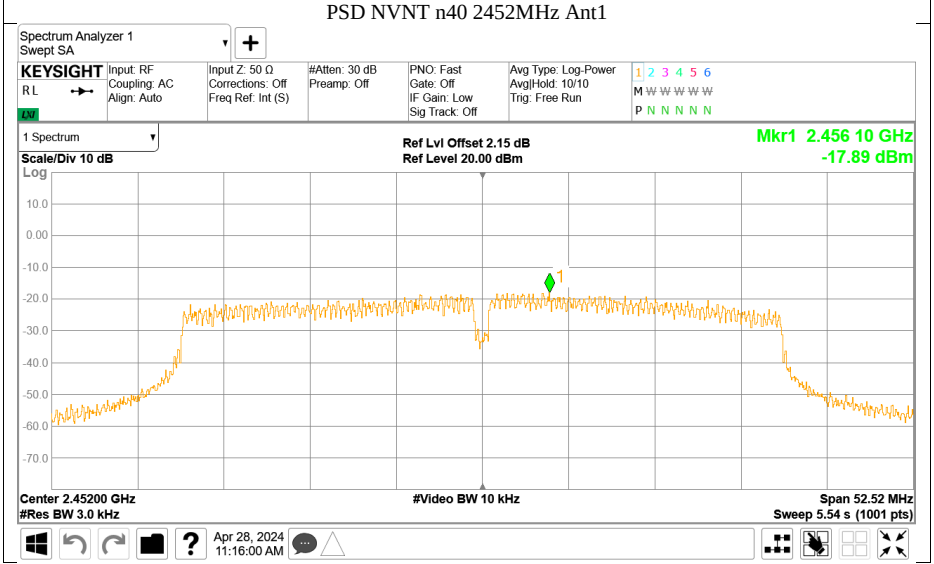
PSD NVNT n40 2422MHz Ant1



PSD NVNT n40 2437MHz Ant1



PSD NVNT n40 2452MHz Ant1



TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600