



FCC/ISED - TEST REPORT

Report Number : **709502605195-00C** Date of Issue: July 17, 2026

Model : Smart Kit

Product Type : MDWBRCU2D

Applicant : Hangzhou Tuya Information Technology Co.,Ltd

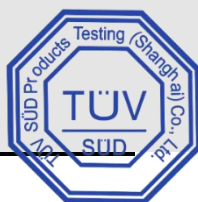
Address : Room 301,Building 1,Huace Center,Xihu District,
Hangzhou,Zhejiang, China

Manufacturer : Hangzhou Tuya Information Technology Co.,Ltd

Address : Room 301,Building 1,Huace Center,Xihu District,
Hangzhou,Zhejiang, China

Test Result : ☒ **Positive** ☐ **Negative**

Total pages including
Appendices : 68



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2 Report Version

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

Report No.	Description of Change	Date of Issue
709502605195-00C	First Issue	July 17, 2026



3 Details about the Test Laboratory

Details about the Test Laboratory

Test Site 1

Company name: TÜV SÜD Products Testing (Shanghai) Co., Ltd.
1F, No.16, Lane 1951 Duhui Road, Shanghai,
201108, People's Republic of China

Telephone: +86 21 6037 6300

FCC Registration No.: 820234

FCC Designation Number: CN1183

ISED CAB identifier: CN0101

IC Registration No.: 31668

4 Description of the Equipment under Test

Product: Smart Kit

Model no.: MDWBRCU2D

Identification No. (HVIN) MDWBRCU2D

Product Marketing Name (PMN) MDWBRCU2D

FCC ID: 2ANDL-MDWBRCU2D

IC: 23243-MDWBRCU2D

Options and accessories: N/A

Rating: DC 4.5~5.5V, Normal: DC 5V

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: 40 channels for Bluetooth 5.0 BLE

Bluetooth Low Energy							
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):

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

2 channels are provided for 802.11n (HT40):

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

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

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

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

2 channels are provided for 802.11n (HT40):

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

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

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

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):

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

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

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

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

2 channels are provided for 802.11n (HT40)

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

Modulation:

Bluetooth 5.0: GFSK

For Wi-Fi: Direct Sequence Spread Spectrum (DSSS) for 802.11b

Orthogonal Frequency Division Multiplexing (OFDM) for 802.11a/g/n



Data speed:	1. Bluetooth: 1Mbps, 2Mbps 2. Wi-Fi: 11b 1 ~ 11Mbps, 11g/a 6 ~ 54Mbps, 11n HT20 6.5 ~ 65Mbps, 11n HT 40 13.5 ~ 135Mbps
Hardware Version:	V101
Software Version:	V3.5.0
Antenna Type:	PCB Antenna
Antenna Gain:	0.88dBi for 2.4GHz 1.53dBi for 5.0GHz
Description of the EUT:	The Equipment Under Test (EUT) is a Smart Kit which supports 2.4GHz & 5GHz Wi-Fi and Low Energy Bluetooth (1Mbps & 2Mbps data rate). This report is only for 2.4GHz BLE.
Test sample no.:	SHA-1041093-2 (Radiated sample) SHA-1041093-3 (Conducted sample)

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, antenna gain or any information supplied.



5 Summary of Test Standards

Test Standards	
FCC Part 15 Subpart C 10-1-2024 Edition	PART 15 - RADIO FREQUENCY DEVICES Subpart C - Intentional Radiators
RSS-Gen Issue 5 April 2018 + Amendment 1 March 2019 + Amendment 2 February 2021	General Requirements for Compliance of Radio Apparatus
RSS-247 Issue 4 July 2025	Digital Transmission Systems, Frequency Hopping Systems and Licence-Exempt Local Area Network Devices in 902-928 MHz, 2400-2483.5 MHz, 5150-5350 MHz, and 5470-5895 MHz bands

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

Note: For ISED, this report is also performed according to ANSI C63.10-2020 + Cor.1-2023 + C63.10a-2024 + Errata to C63.10a-2024 standards.

6 Summary of Test Results

Technical Requirements						
FCC Part 15 Subpart C & RSS-247 Issue 4/RSS-Gen Issue 5						
Test Condition			Test Site	Test Result		
				Pass	Fail	N/A
§15.207	RSS-GEN 8.8	Conducted emission AC power port	Site 1	☒	☐	☐
§15.247 (b) (3)	RSS-247 6.3.2	Conducted peak output power	Site 1	☒	☐	☐
	RSS-247 6.3.2	Equivalent Isotropic Radiated Power	Site 1	☒	☐	☐
§15.247(a)(1)	RSS-247 6.2.1(a) & RSS-Gen 6.7	20dB bandwidth and 99% Occupied Bandwidth	---	☐	☐	☒
§15.247(a)(1)	RSS-247 6.2.3.1(a)	Carrier frequency separation	---	☐	☐	☒
§15.247(a)(1)(iii)	RSS-247 6.2.3.1(b)	Number of hopping frequencies	---	☐	☐	☒
§15.247(a)(1)(iii)	RSS-247 6.2.3.1(b)	Dwell Time - Average Time of Occupancy	---	☐	☐	☒
§15.247(a)(2)	RSS-247 6.3.1(a) & RSS-GEN 6.7	6dB bandwidth and 99% Occupied Bandwidth	Site 1	☒	☐	☐
§15.247(e)	RSS-247 6.3.1 (b)	Power spectral density	Site 1	☒	☐	☐
§15.247(d)	RSS-247 6.6	Spurious RF conducted emissions	Site 1	☒	☐	☐
§15.247(d)	RSS-247 6.6	Band edge	Site 1	☒	☐	☐
§15.247(d) & §15.209 & §15.205	RSS-247 6.6 & RSS-Gen 6.13	Spurious radiated emissions for transmitter	Site 1	☒	☐	☐
§15.203	RSS-Gen 6.8	Antenna requirement	See note 1	☒	☐	☐
--	--	Duty Cycle	Site 1	☒	☐	☐

Remark 1: N/A – Not Applicable.

Note 1: The EUT uses a PCB Antenna, which gain is 0.88dBi for 2.4GHz and 1.53dBi for 5.0GHz. In accordance to §15.203 and RSS-Gen 6.8, it is considered sufficiently to comply with the provisions of this section.

7 General Remarks

Remarks

This submittal(s) (test report) is intended for FCC ID:2ANDL-MDWBRCU2D, IC: 23243-MDWBRCU2D complies with Section 15.207, 15.205, 15.209, 15.247 of the FCC Part 15, Subpart C Rules and RSS-247, RSS-GEN. This report is only for 2.4GHz BLE. For 2.4GHz Wi-Fi report, refer to report No. 709502605195-00B. For 5.0GHz Wi-Fi report, refer to report No. 709502605195-00D.

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: June 9, 2026

Testing Start Date: June 11, 2026

Testing End Date: July 7, 2026

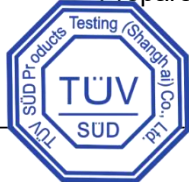
TÜV SÜD Products Testing (Shanghai) Co., Ltd.

Reviewed by:



Hui TONG
Review Engineer

Prepared by:



Jiayi XU
Project Engineer

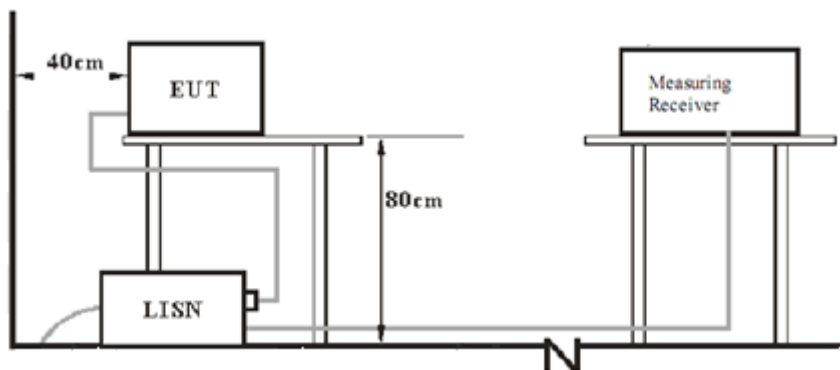
Tested by:



Doujun XU
Test Engineer

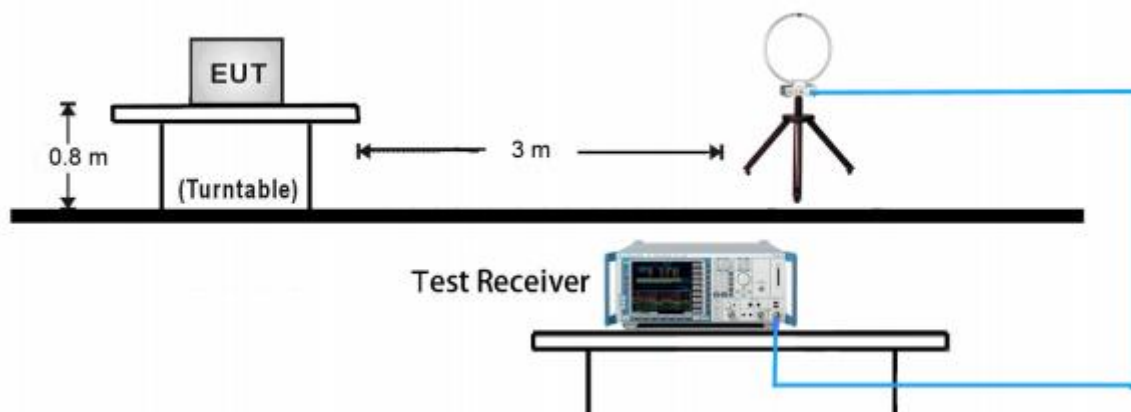
8 Test Setups

8.1 AC Power Line Conducted Emission test setups

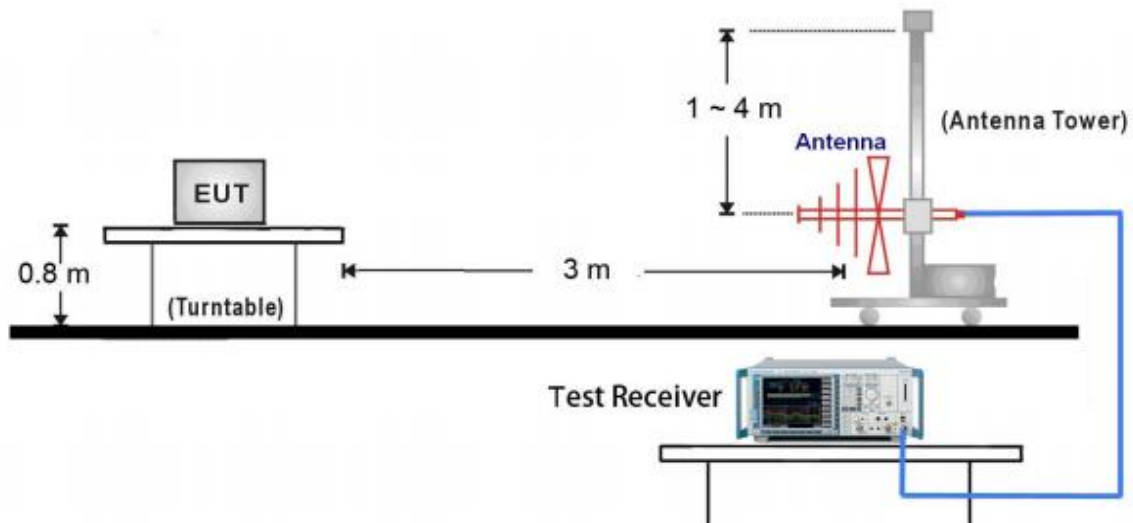


8.2 Radiated test setups

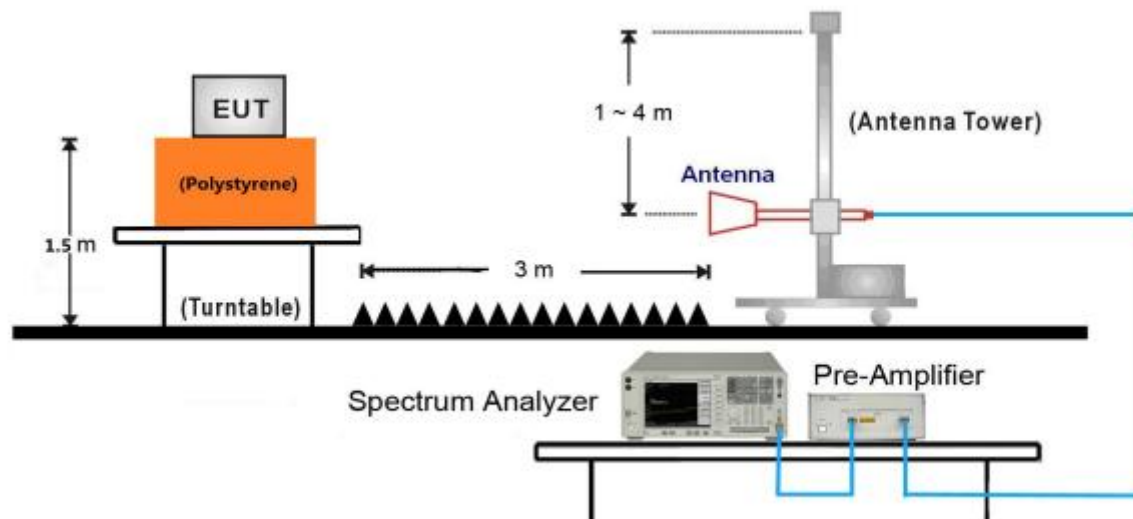
9kHz ~ 30MHz Test Setup:



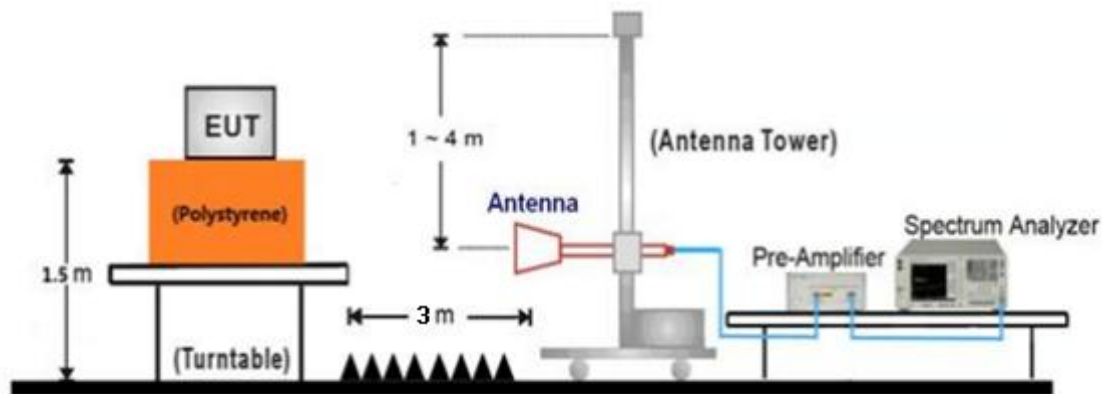
30MHz ~ 1GHz Test Setup:



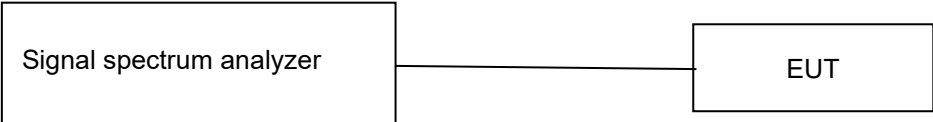
1GHz ~ 18GHz Test Setup:



18GHz ~ 25GHz Test Setup:



7.3 Conducted RF test setups



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: Ameba BluetoothRFTTool_v99

The system was configured to channel 0, 19, and 39 for the test.

Test Mode Applicability and Tested Channel Detail:

Mode	Tested Channel	Data Rate (Mbps)	Modulation	Power level setting
Bluetooth LE	0	1	GFSK	0x3b
	19	1	GFSK	0x3b
	39	1	GFSK	0x3b
Bluetooth LE	0	2	GFSK	0x3b
	19	2	GFSK	0x3b
	39	2	GFSK	0x3b

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 & RSS-GEN 8.8, conducted emissions limit as below:

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

Decreasing linearly with logarithm of the frequency

150k-30MHz Conducted Emission Test

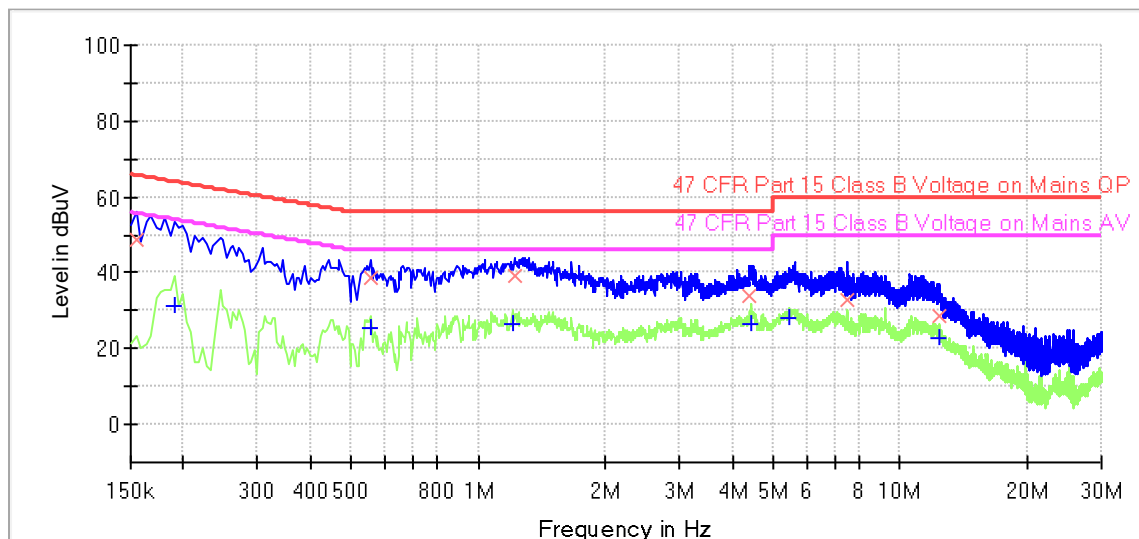
EUT Information

EUT Name: Smart Kit
 Model: MDWBRCU2D
 Client: Hangzhou Tuya Information Technology Co., Ltd
 Op Cond: Power on, TX_2402MHz at 2Mbps
 Operator: Doujun XU
 Standard: FCC part 15.207
 Sample No.: SHA-1041093-2

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



Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.154500	48.67	---	65.75	17.08	1000.0	9.000	L1	19.5
0.190500	---	30.99	54.01	23.02	1000.0	9.000	L1	19.4
0.555000	---	25.17	46.00	20.83	1000.0	9.000	L1	19.4
0.555000	38.71	---	56.00	17.29	1000.0	9.000	L1	19.4
1.203000	---	26.73	46.00	19.27	1000.0	9.000	L1	19.4
1.216500	39.20	---	56.00	16.80	1000.0	9.000	L1	19.4
4.393500	34.04	---	56.00	21.96	1000.0	9.000	L1	19.5
4.416000	---	26.41	46.00	19.59	1000.0	9.000	L1	19.5
5.482500	---	27.82	50.00	22.18	1000.0	9.000	L1	19.5
7.503000	32.69	---	60.00	27.31	1000.0	9.000	L1	19.6
12.412500	---	22.62	50.00	27.38	1000.0	9.000	L1	19.7
12.444000	28.86	---	60.00	31.14	1000.0	9.000	L1	19.7

150k-30MHz Conducted Emission Test

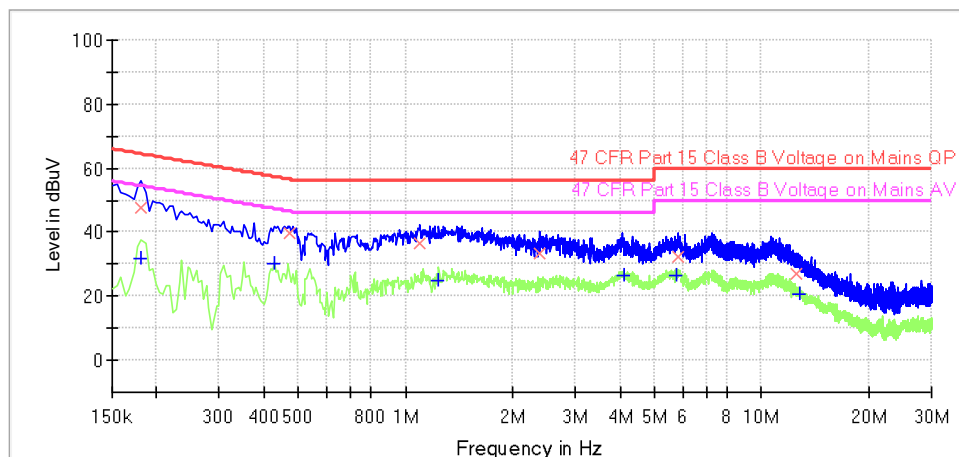
EUT Information

EUT Name: Smart Kit
 Model: MDWBRCU2D
 Client: Hangzhou Tuya Information Technology Co., Ltd
 Op Cond: Power on, TX_2402MHz at 2Mbps
 Operator: Doujun XU
 Standard: FCC part 15.207
 Sample No.: SHA-1041093-2

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	Preamplifier
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



Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.181500	47.85	---	64.42	16.57	1000.0	9.000	N	19.5
0.181500	---	31.81	54.42	22.61	1000.0	9.000	N	19.5
0.429000	---	30.10	47.27	17.17	1000.0	9.000	N	19.5
0.474000	39.81	---	56.44	16.63	1000.0	9.000	N	19.5
1.099500	36.38	---	56.00	19.62	1000.0	9.000	N	19.4
1.239000	---	25.11	46.00	20.89	1000.0	9.000	N	19.4
2.377500	33.43	---	56.00	22.57	1000.0	9.000	N	19.4
4.114500	---	26.62	46.00	19.38	1000.0	9.000	N	19.5
5.784000	---	26.36	50.00	23.64	1000.0	9.000	N	19.5
5.833500	32.39	---	60.00	27.61	1000.0	9.000	N	19.5
12.489000	27.16	---	60.00	32.84	1000.0	9.000	N	19.7
12.831000	---	20.54	50.00	29.46	1000.0	9.000	N	19.7

Remark:

*Level=Reading Level + Correction Factor

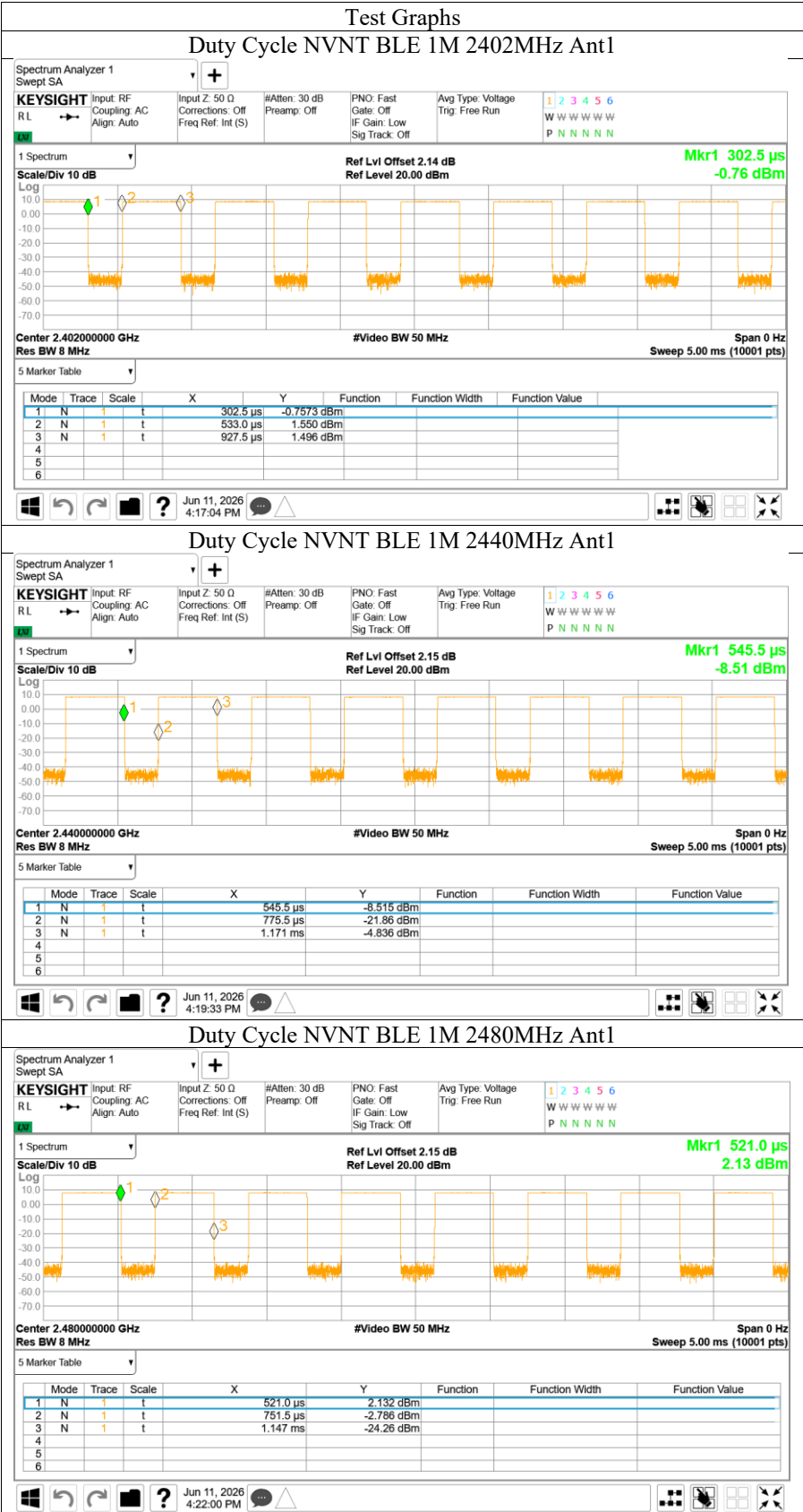
**Correction Factor=Cable Loss + LISN Factor

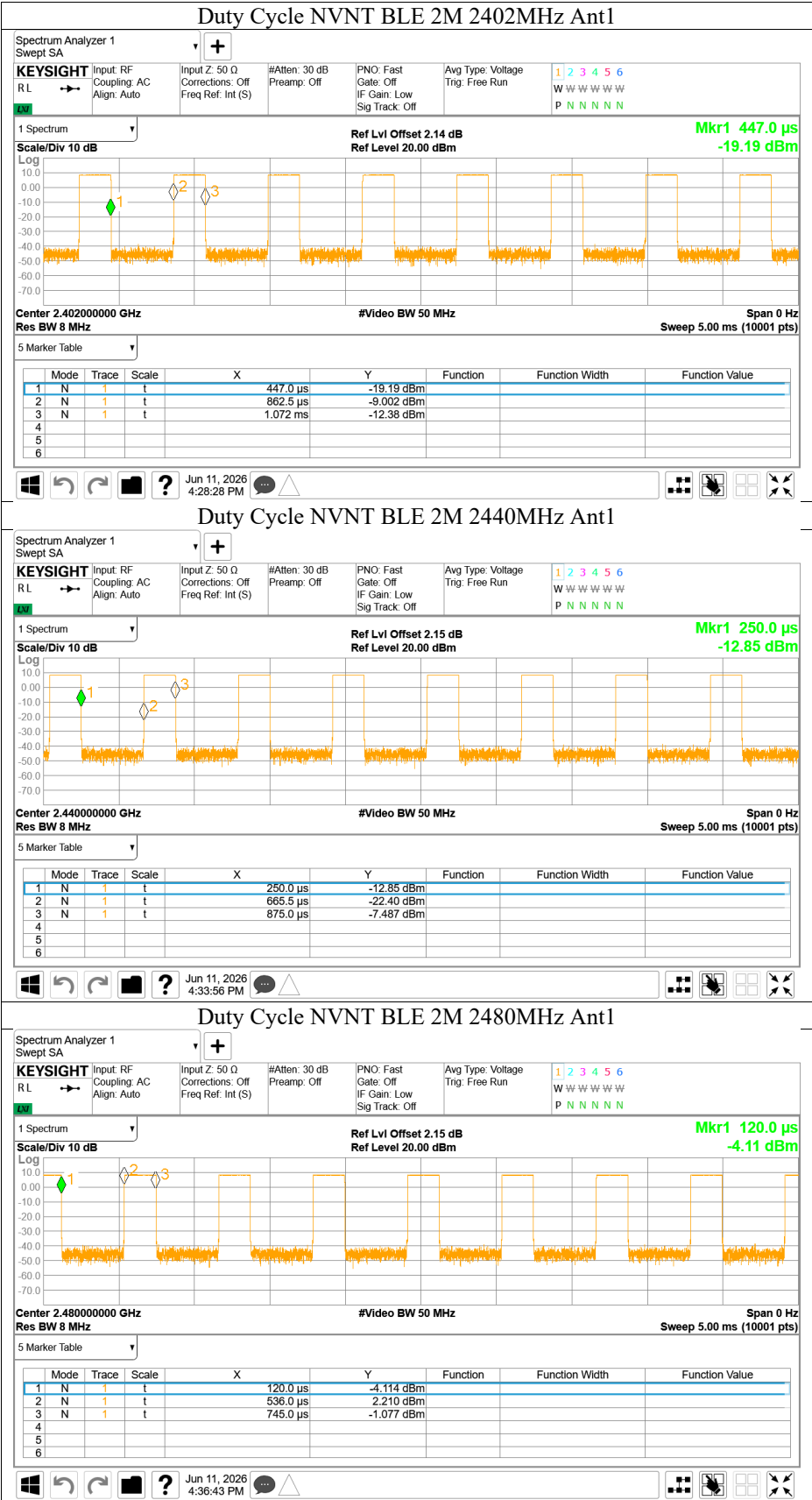
(The Reading Level is recorded by software which is not shown in the sheet)

10.2 Duty Cycle

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	BLE 1M	2402	Ant1	63.12	2	2.53
NVNT	BLE 1M	2440	Ant1	63.2	1.99	2.53
NVNT	BLE 1M	2480	Ant1	63.15	2	2.53
NVNT	BLE 2M	2402	Ant1	33.52	4.75	4.77
NVNT	BLE 2M	2440	Ant1	33.52	4.75	4.77
NVNT	BLE 2M	2480	Ant1	33.44	4.76	4.78

Test Graph





10.3 Conducted Peak Output Power & EIRP

Test Method

1. Use the following spectrum analyzer settings:
RBW > the 6 dB bandwidth of the emission being measured, VBW $\geq$ 3RBW, Span $\geq$ 3RBW
Sweep = auto, Detector function = peak, Trace = max hold.
2. Add a correction factor to the display.
3. 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.

Limits

According to §15.247 (b) (3) & RSS-247 6.3.2, conducted peak output power limit as below:

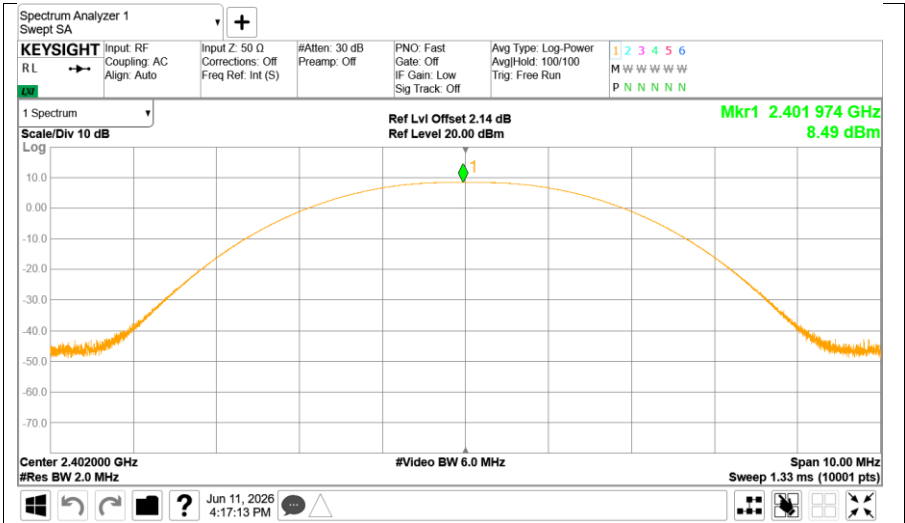
	Frequency Range	Limit	Limit
	MHz	W	dBm
Conducted peak output power	2400-2483.5	≤ 1	≤ 30
e.i.r.p.	2400-2483.5	≤ 4	≤ 36

Test result as below table

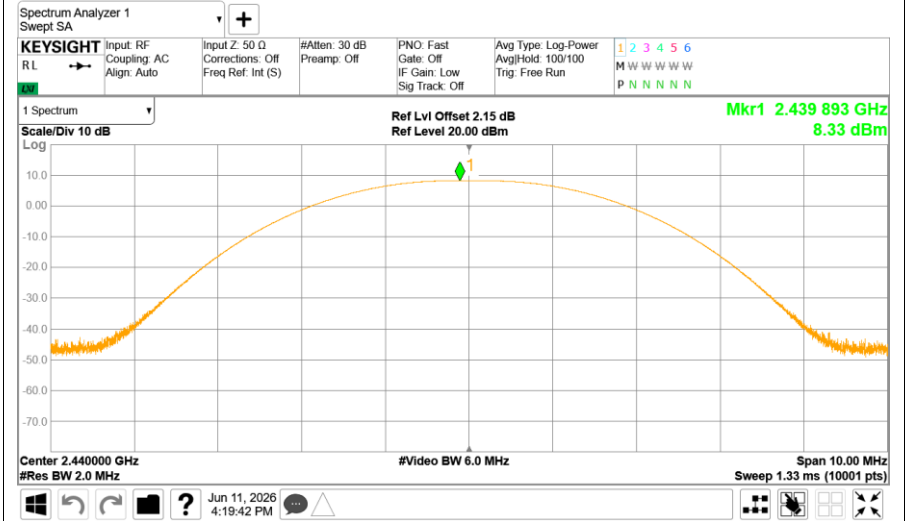
Data Rate	Antenna gain=0.88dBi				
	Frequency MHz	Conducted Peak Output Power(dBm) §15.247 (b) (3)	Result	e.i.r.p.(dBm) RSS-247 6.3.2	Result
1Mbps	2402MHz	8.49	Pass	9.37	Pass
	2440MHz	8.32	Pass	9.2	Pass
	2480MHz	8.06	Pass	8.94	Pass
2Mbps	2402MHz	8.51	Pass	9.39	Pass
	2440MHz	8.41	Pass	9.29	Pass
	2480MHz	8.14	Pass	9.02	Pass

Test Graph

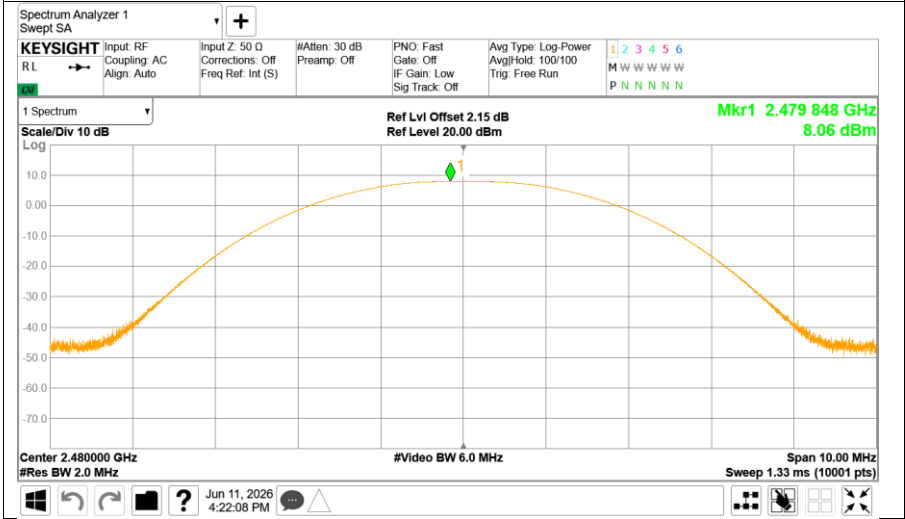
Test Graphs
Power NVNT BLE 1M 2402MHz Ant1



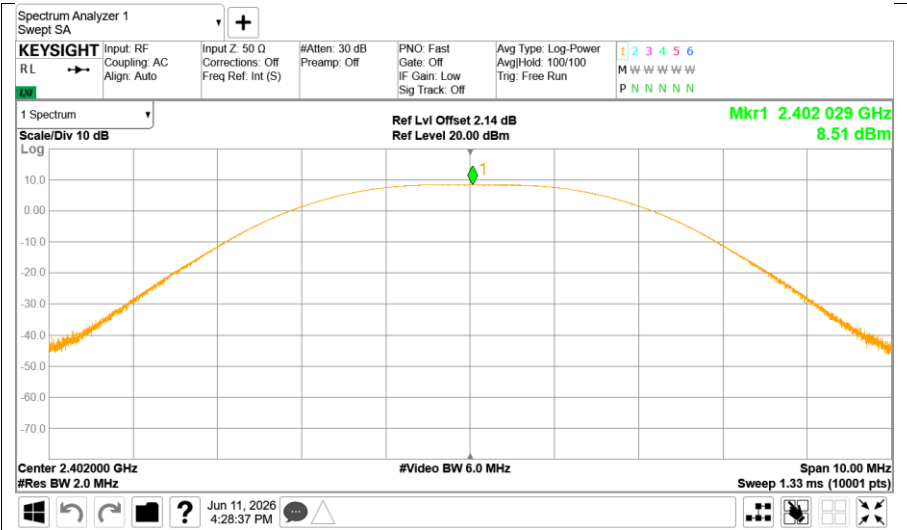
Power NVNT BLE 1M 2440MHz Ant1



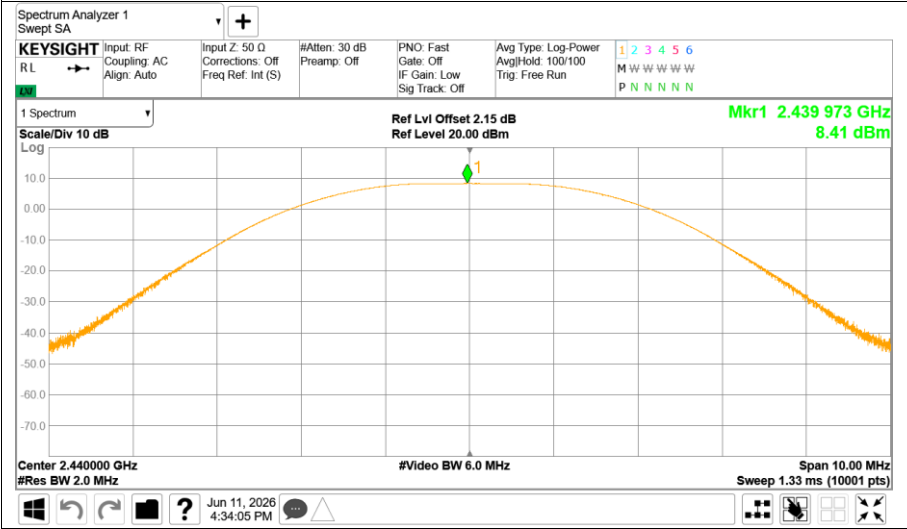
Power NVNT BLE 1M 2480MHz Ant1



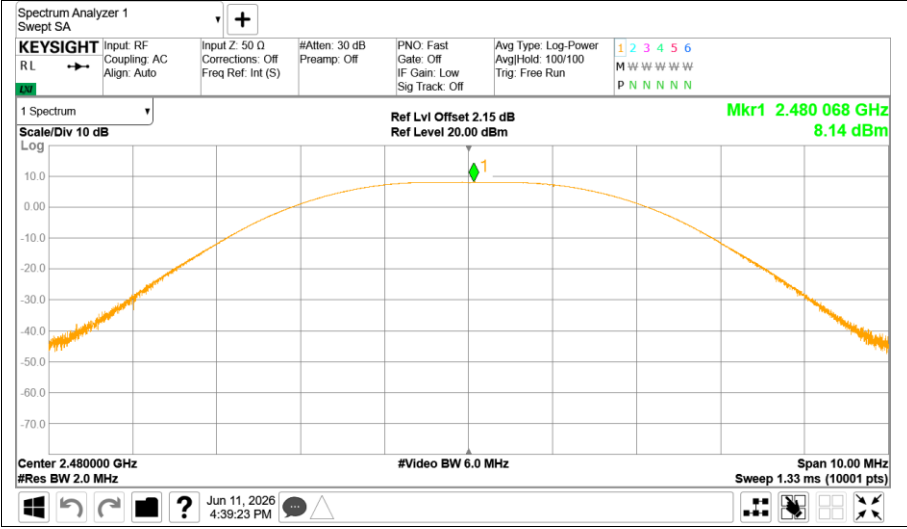
Power NVNT BLE 2M 2402MHz Ant1



Power NVNT BLE 2M 2440MHz Ant1



Power NVNT BLE 2M 2480MHz Ant1



10.4 6dB bandwidth and 99% Occupied Bandwidth

Test Method for 6 dB Bandwidth

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. RBW=1% to 5% of the occupied bandwidth but not less than 100kHz, VBW $\geq$ 3RBW, Sweep = auto, Detector function = peak, Trace = max hold
5. Use the automatic bandwidth measurement capability of an instrument, use the X dB bandwidth mode with X set to 6 dB.
6. Allow the trace to stabilize, record the 6 dB Bandwidth value.

Test Method for 99 % Bandwidth

7. Connect EUT test port to spectrum analyzer.
Use the following spectrum analyzer settings:
RBW=1% to 5% of the actual occupied, VBW $\geq$ 3RBW, Sweep = auto, Detector function = peak, Trace = max hold
8. Use the occupied bandwidth measurement capability of test receiver.
9. Allow the trace to stabilize, record the occupied bandwidth value.

Limit

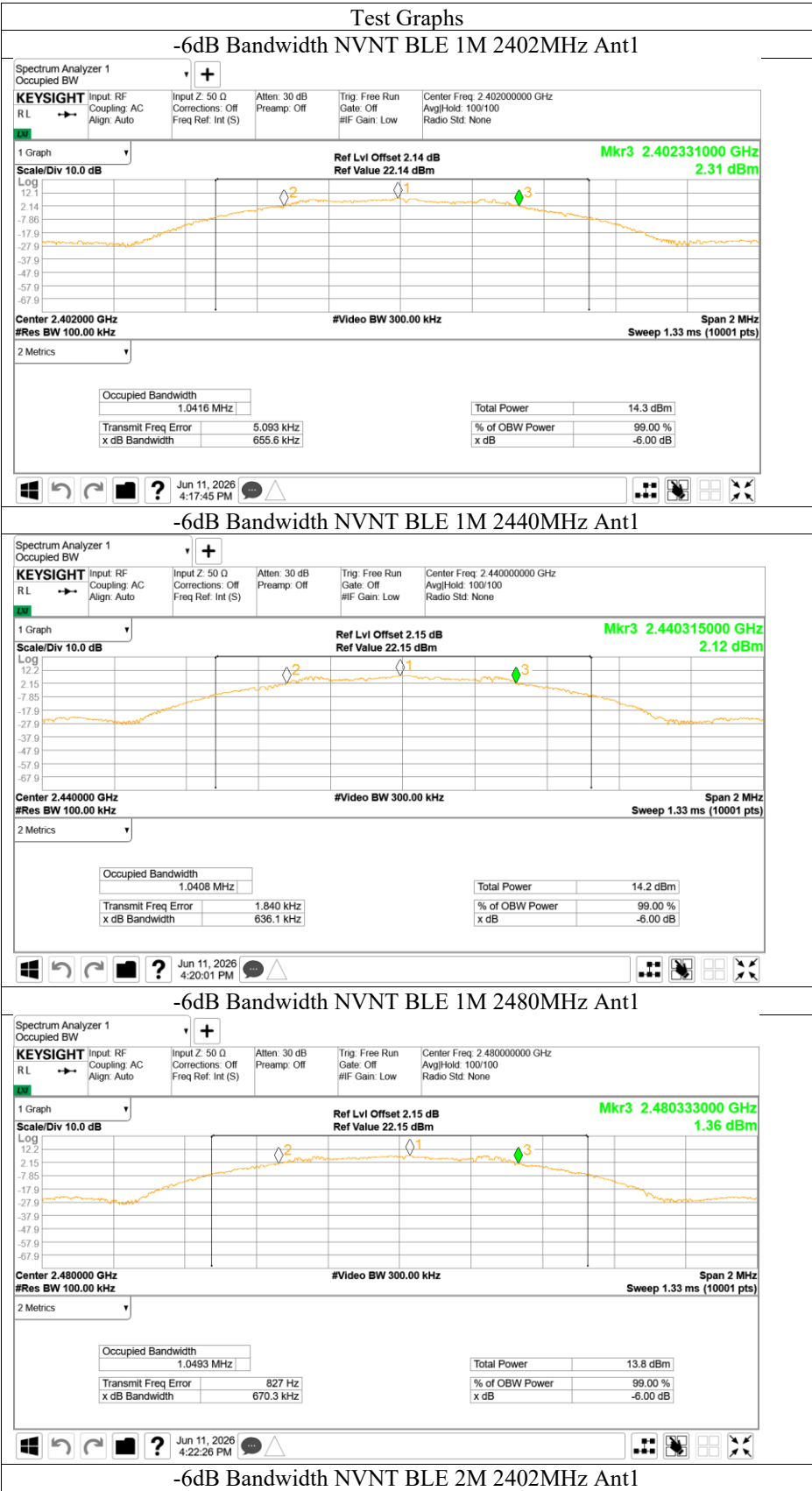
6dB bandwidth Limit [kHz]	99% bandwidth Limit [kHz]
≥ 500	--

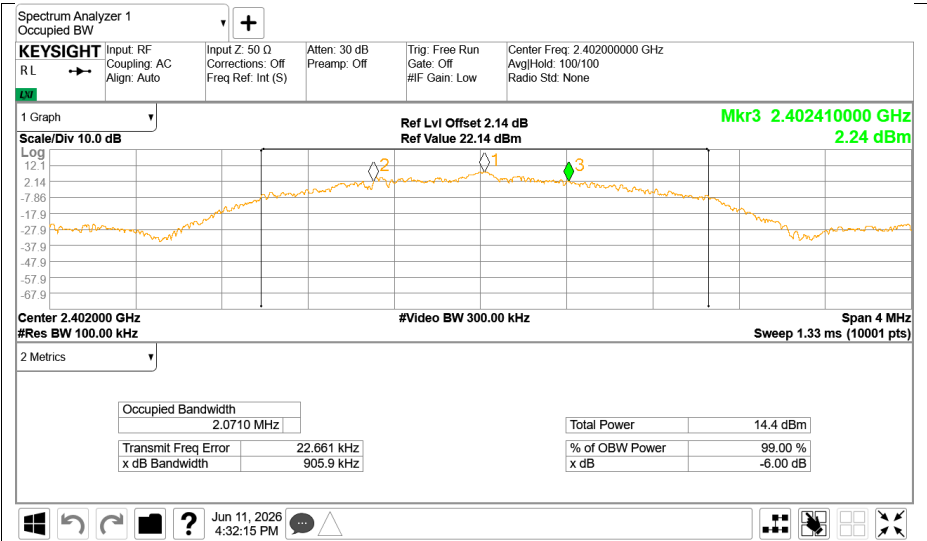
Test result

Data Rate	Frequency MHz	6dB bandwidth (MHz)		Result	99% occupied bandwidth MHz
		result	limit	verdict	
1Mbps	2402	0.656	≥ 0.5	Pass	1.031
	2440	0.636	≥ 0.5	Pass	1.033
	2480	0.67	≥ 0.5	Pass	1.034
2Mbps	2402	0.906	≥ 0.5	Pass	2.067
	2440	1.1	≥ 0.5	Pass	2.043
	2480	1.106	≥ 0.5	Pass	2.066

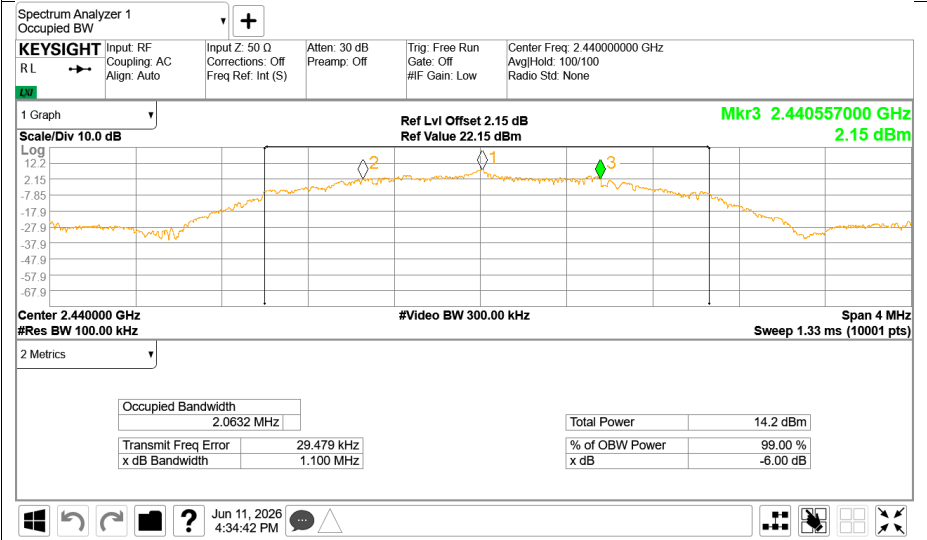


6dB Bandwidth

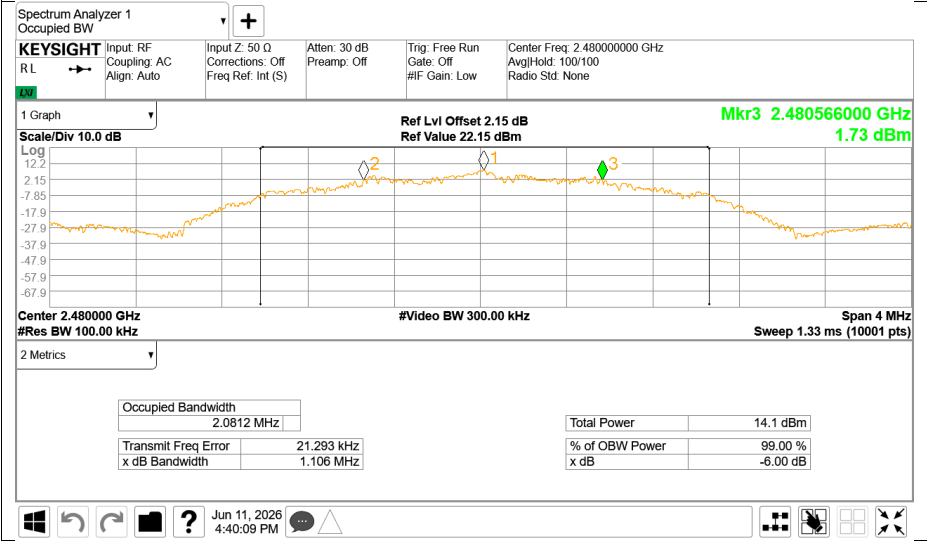




-6dB Bandwidth NVNT BLE 2M 2440MHz Ant1



-6dB Bandwidth NVNT BLE 2M 2480MHz Ant1





99% Occupied Bandwidth

