FCC/IC - TEST REPORT

Report Number	:	**709502405033-00A**	Date of Issue:	September 5, 2024

Model	:	FL325, FL335, FL625, FL635
Product Type	:	Thermal Monocular
Applicant	:	Zhejiang ULIRVISION Technology Co., Ltd.
Address	:	8F/9F/10F/17F, Block C, No. 581 Huoju Avenue, Puyan Street, Binjiang District, 310000 Hangzhou, Zhejiang, China
Production Facility	:	Zhejiang ULIRVISION Technology Co., Ltd.
Address	:	8F/9F/10F/17F, Block C, No. 581 Huoju Avenue, Puyan Street, Binjiang District, 310000 Hangzhou, Zhejiang, China

Test Result	:	■ **Positive**	☐ **Negative**
Total pages including Appendices	:	61	

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

1 Table of Contents 2
2 Details about the Test Laboratory 3
3 Description of the Equipment under Test 4
4 Summary of Test Standards 6
5 Summary of Test Results 7
6 General Remarks 8
7 Test Setups 10
8 Systems test configuration 13
9 Technical Requirement 14
9.1 Conducted Emission 14
9.2 Conducted peak(average) output power and EIRP 17
9.3 6dB bandwidth and 99% Occupied Bandwidth 23
9.4 Power spectral density 30
9.5 Spurious RF conducted emissions 34
9.6 Band edge 44
9.7 Spurious radiated emissions for transmitter 51
10 Test Equipment List 58
11 System Measurement Uncertainty 59
12 Photographs of Test Set-ups 60
13 Photographs of EUT 61

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 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 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

3 Description of the Equipment under Test

Product:	Thermal Monocular
Model no.:	FL325, FL335, FL625, FL635
Hardware Version Identification No. (HVIN)	FL3251000, FL3351000, FL6251000, FL6351000
Product Marketing Name (PMN)	FL325, FL335, FL625, FL635
FCC ID:	2BE6SHW0003
IC:	32259-HW0003
Options and accessories:	NA
Rating:	5VDC by adaptor: AC 100-240V/50/60Hz 3.6VDC Max by internal battery
RF Transmission Frequency:	For 802.11b/g/n-HT20: 2412~2462 MHz
No. of Operated Channel:	11 for 802.11b/802.11g/802.11n(H20)
Modulation:	Direct Sequence Spread Spectrum (DSSS) for 802.11b Orthogonal Frequency Division Multiplexing (OFDM) for 802.11g
Hardware Version:	1000
Software Version:	V_1.0.0.6
Data speed:	2.4G Wi-Fi: SISO:11b 1-11Mbps 11g 6-54Mbps 11n(H20) 6.5-72.2Mbps

Channel list:

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

Antenna Type:	FPC
Antenna Gain:	1.95 dBi
Description of the EUT:	The Equipment Under Test (EUT) is a Thermal Monocular Wi-Fi Module. The EUT support Wi-Fi operated at 2.4GHz.
Test sample no.:	SHA-827458-3 (Radiated sample)

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

SHA-827458-2 (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.

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

4 Summary of Test Standards

Test Standards	
FCC Part 15 Subpart C 10-1-2023 Edition	PART 15 - RADIO FREQUENCY DEVICES Subpart C - Intentional Radiators
RSS-Gen Issue 5 Amendment 2 February 2021	General Requirements for the Certification of Radio Apparatus
RSS-247 Issue 3 August 2023	Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSS) and License-Exempt Local Area Network (LE-LAN) Devices

All the test methods were according to KDB 558074 D01 15.247 Measurement Guidance v05r02 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

5 Summary of Test Results

Technical Requirements							
FCC Part 15 Subpart C & RSS-247 Issue 3/RSS-Gen Issue 5							
Test Condition			Pages	Test Site	Test Result		
					Pass	Fail	N/A
§15.207	RSS-GEN 8.8	Conducted emission AC power port	14-16	Site 1	☒	☐	☐
§15.247 (b) (3)	RSS-247 5.4(d)	Conducted peak (average) output power	17-22	Site 1	☒	☐	☐
	RSS-247 5.4(d)	Equivalent Isotropic Radiated Power	17-22	Site 1	☒	☐	☐
§15.247(a)(1)	RSS-247 5.1(a) & RSS-Gen 6.7	20dB bandwidth and 99% Occupied Bandwidth	---	---	☐	☐	☒
§15.247(a)(1)	RSS-247 5.1(b)	Carrier frequency separation	---	---	☐	☐	☒
§15.247(a)(1)(iii)	RSS-247 5.1(d)	Number of hopping frequencies	---	---	☐	☐	☒
§15.247(a)(1)(iii)	RSS-247 5.1(d)	Dwell Time - Average Time of Occupancy	---	---	☐	☐	☒
§15.247(a)(2)	RSS-247 5.2(a) & RSS-GEN 6.7	6dB bandwidth and 99% Occupied Bandwidth	23-29	Site 1	☒	☐	☐
§15.247(e)	RSS-247 5.2(b)	Power spectral density	30-33	Site 1	☒	☐	☐
§15.247(e)	RSS-247 5.5	Spurious RF conducted emissions	34-43	Site 1	☒	☐	☐
§15.247(d)	RSS-247 5.5	Band edge	44-50	Site 1	☒	☐	☐
§15.247(d) & §15.209 & §15.205	RSS-247 5.5 & RSS-Gen 6.13	Spurious radiated emissions for transmitter	51-57	Site 1	☒	☐	☐
§15.203	RSS-Gen 6.8	Antenna requirement	See note 1		☒	☐	☐

Remark 1: N/A – Not Applicable.
Note 1: The EUT uses a FPC antenna, which gain is 1.95dBi. In accordance to §15.203, It is considered sufficiently to comply with the provisions of this section.

6 General Remarks

Remarks

This submittal(s) (test report) is intended for FCC ID: 2BE6SHW0003, IC: 32259-HW0003 complies with Section 15.207, 15.209, 15.247 of the FCC Part 15, Subpart C Rules and RSS-247, RSS-GEN.

According to client's declaration, all models are electrically identical with the PCB design, components and electromagnetic compatibility characteristics.
The differences of them are as follows: I.model name 2. IR resolution 3.Optional Lens .

	model	IR resolution	Optional Lens
difference	FL325	384×288	25mm
	FL335	384×288	35mm
	FL625	640×512	25mm
	FL635	640×512	35mm

So model FL335 was chosen to perform all the tests. We tested it and listed the worst data in this report.

SUMMARY:

All tests according to the regulations cited on page 6 were

■ - Performed

☐ - **Not** Performed

The Equipment under Test

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

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

Sample Received Date: July 1, 2024

Testing Start Date: August 1, 2024

Testing End Date: September 5, 2024

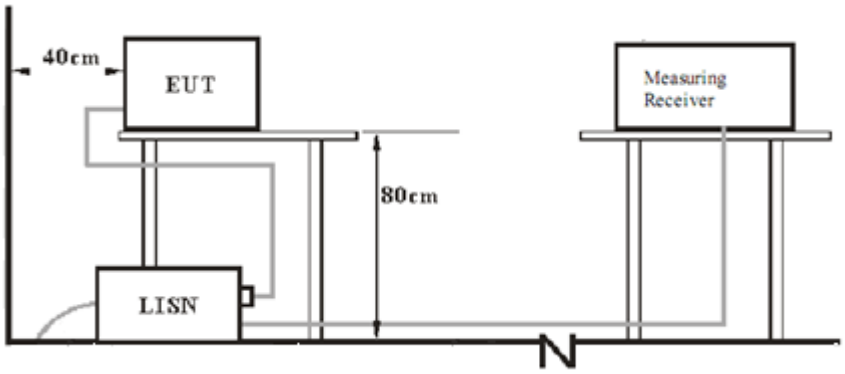
TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

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

Reviewed by:	Prepared by:	Tested by:
Hui TONG	Wenqiang LU	Huali CHENG
Review Engineer	Project Engineer	Test Engineer

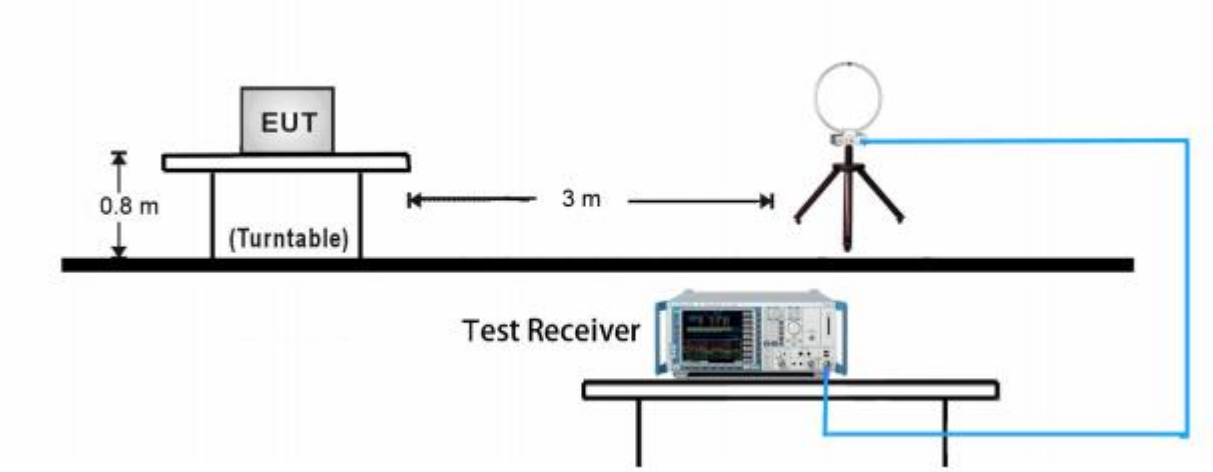
7 Test Setups

7.1 AC Power Line Conducted Emission test setups



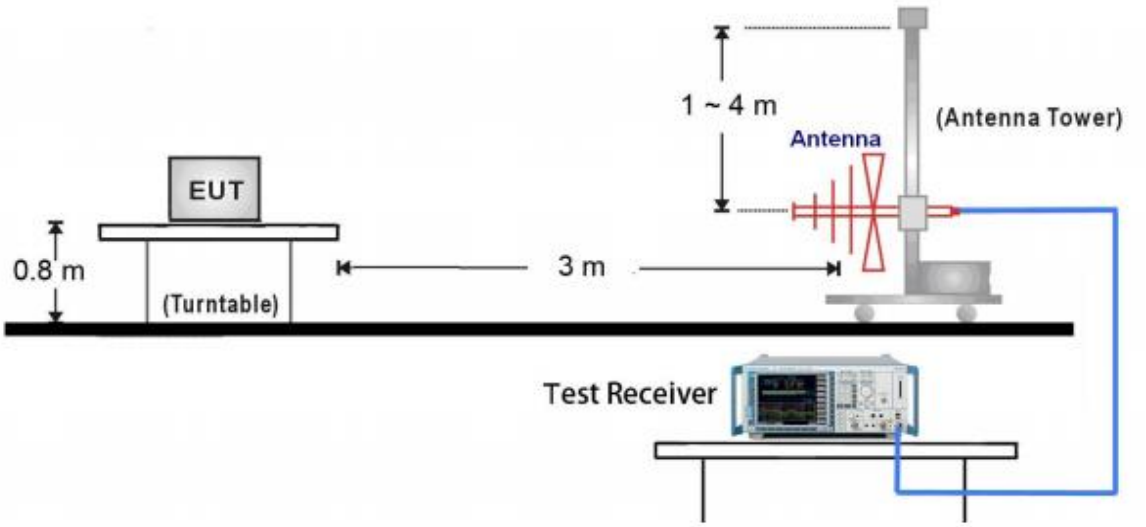
7.2 Radiated test setups

9kHz ~ 30MHz Test Setup:

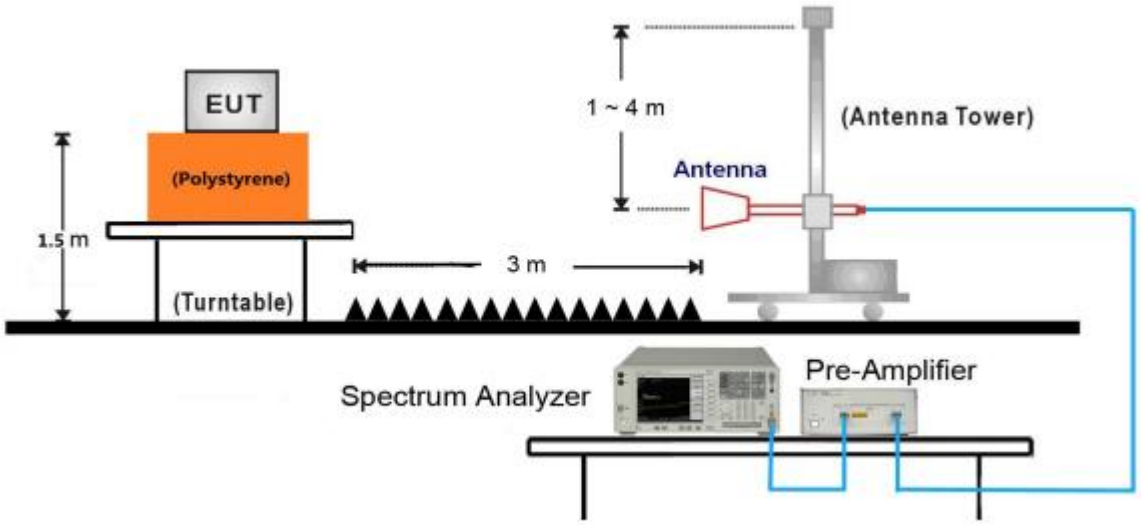


TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

30MHz ~ 1GHz Test Setup:

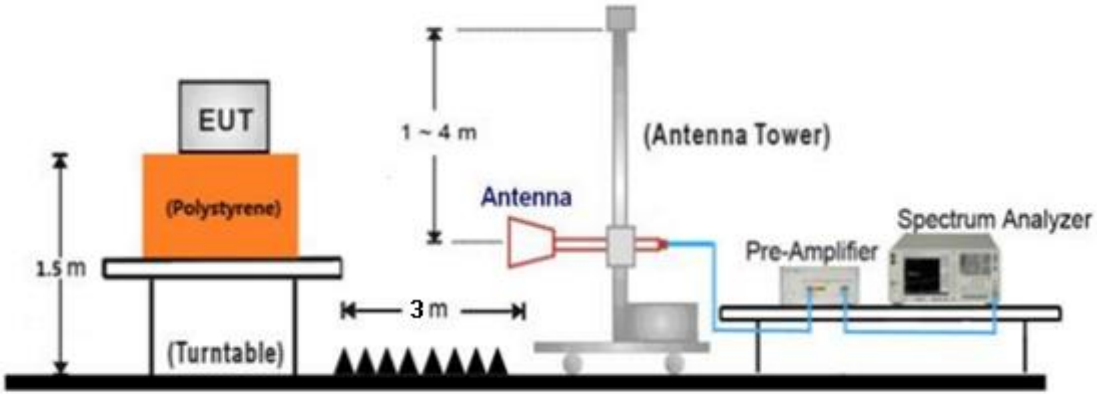


1GHz ~ 18GHz Test Setup:



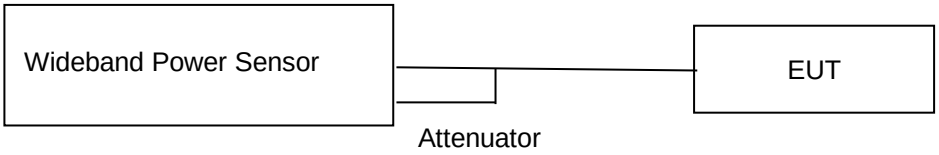
TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

18GHz ~ 25GHz Test Setup:

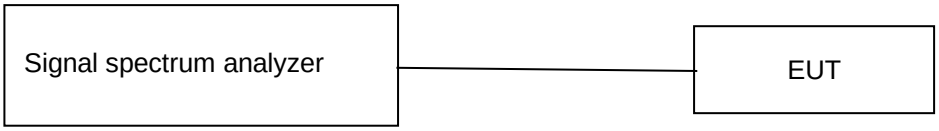


7.3 Conducted RF test setups

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

8 Systems test configuration

Auxiliary Equipment Used during Test:

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

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

The system was configured to channel 1(2412MHz), 6(2437MHz), and 11(2462MHz) for the test.

Test Mode Applicability and Tested Channel Detail:

Mode	Tested Channel	Data Rate (Mbps)	Modulation	Index Value (Power level setting)
802.11b	1	1	CCK	default
	6	1	CCK	default
	11	1	CCK	default
802.11g	1	6	OFDM	default
	6	6	OFDM	default
	11	6	OFDM	default
802.11n HT20	1	MCS0	OFDM	default
	6	MCS0	OFDM	default
	11	MCS0	OFDM	default

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

9 Technical Requirement

9.1 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

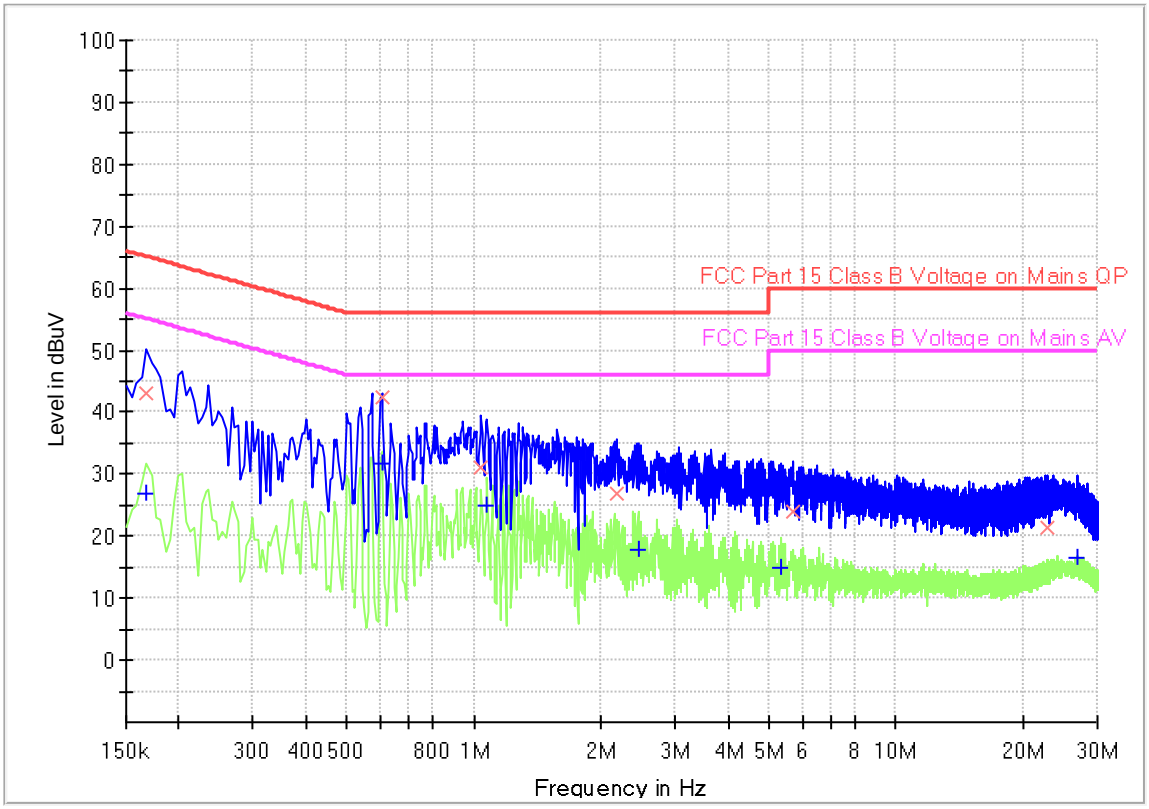
According to §15.207 & RSS-GEN 8.8, conducted emissions limit as below:

Frequency MHz	QP Limit 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

Product Type	:	Thermal Monocular
M/N	:	FL335
Operating Condition	:	Mode 1: Tx_2462MHz for 802.11HT20 (worst case)
Test Specification	:	L-line
Comment	:	AC 120V/60Hz



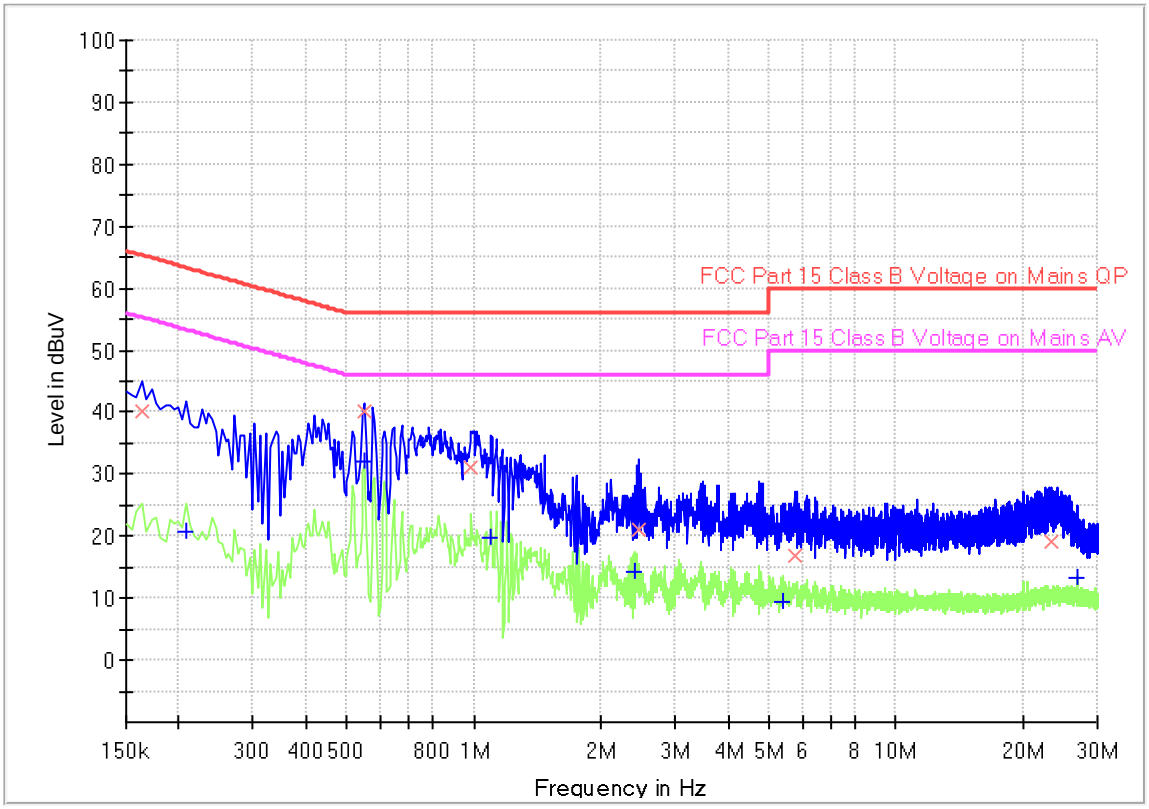
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.168000	---	26.74	55.06	28.32	1000.0	9.000	L1	19.4
0.168000	43.05	---	65.06	22.01	1000.0	9.000	L1	19.4
0.604500	---	31.84	46.00	14.16	1000.0	9.000	L1	19.4
0.604500	42.28	---	56.00	13.72	1000.0	9.000	L1	19.4
1.041000	31.07	---	56.00	24.93	1000.0	9.000	L1	19.5
1.077000	---	24.85	46.00	21.15	1000.0	9.000	L1	19.5
2.184000	26.92	---	56.00	29.08	1000.0	9.000	L1	19.5
2.449500	---	17.87	46.00	28.13	1000.0	9.000	L1	19.5
5.316000	---	14.88	50.00	35.12	1000.0	9.000	L1	19.6
5.676000	23.92	---	60.00	36.08	1000.0	9.000	L1	19.6
22.771500	21.48	---	60.00	38.52	1000.0	9.000	L1	20.8
26.997000	---	16.57	50.00	33.43	1000.0	9.000	L1	21.1

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

Product Type	:	Thermal Monocular
M/N	:	FL335
Operating Condition	:	Mode 1: Tx_2462MHz for 802.11HT20 (worst case)
Test Specification	:	N-line
Comment	:	AC 120V/60Hz



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.163500	40.07	---	65.28	25.21	1000.0	9.000	N	19.4
0.208500	---	20.69	53.26	32.57	1000.0	9.000	N	19.4
0.550500	---	32.22	46.00	13.78	1000.0	9.000	N	19.5
0.550500	40.21	---	56.00	15.79	1000.0	9.000	N	19.5
0.987000	31.17	---	56.00	24.83	1000.0	9.000	N	19.5
1.099500	---	19.75	46.00	26.25	1000.0	9.000	N	19.5
2.395500	---	14.25	46.00	31.75	1000.0	9.000	N	19.5
2.454000	20.95	---	56.00	35.05	1000.0	9.000	N	19.5
5.406000	---	9.52	50.00	40.48	1000.0	9.000	N	19.6
5.793000	16.81	---	60.00	43.19	1000.0	9.000	N	19.6
23.356500	19.18	---	60.00	40.82	1000.0	9.000	N	20.5
27.001500	---	13.27	50.00	36.73	1000.0	9.000	N	20.6

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

9.2 Conducted peak(average) output power and EIRP

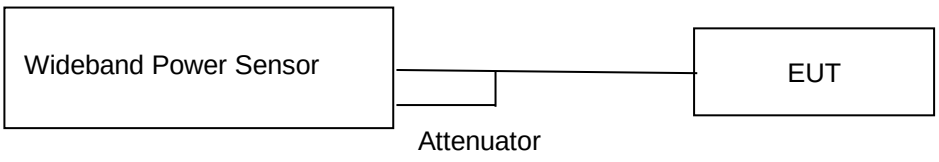
Test Method (1)

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).

Test Method (2)

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

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

Limits

According to §15.247 (b) (3) & RSS-247 5.4(d), conducted peak (average) 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 (average power) as below table

802.11B

Frequency	Duty cycle Factor	Conducted Power	Total Power(average)	Result
MHz	**dB**	**dBm**	**dBm**	
Low channel 2412MHz	0	12.06	12.06	Pass
Middle channel 2437MHz	0	12.38	12.38	Pass
High channel 2462MHz	0	12.66	12.66	Pass

802.11G

Frequency	Duty cycle Factor	Conducted Power	Total Power(average)	Result
MHz	**dB**	**dBm**	**dBm**	
Low channel 2412MHz	0.31	12.26	12.57	Pass
Middle channel 2437MHz	0.31	12.73	13.04	Pass
High channel 2462MHz	0.31	12.83	13.14	Pass

802.11N20

Frequency	Duty cycle Factor	Conducted Power	Total Power(average)	Result
MHz	**dB**	**dBm**	**dBm**	
Low channel 2412MHz	0.33	12.72	13.05	Pass
Middle channel 2437MHz	0.33	13.28	13.61	Pass
High channel 2462MHz	0.33	13.56	**13.89**	Pass

Test result (conducted peak) as below table

802.11b: Antenna gain= 1.95dBi						
Frequency (MHz)	Conducted Peak Output Power (dBm) §15.247 (b) (3)			e.i.r.p. (dBm) RSS-247 5.4(d)		
	Result	limit	Verdict	Result	limit	Verdict
2412MHz	15.79	≤30	Pass	17.74	≤36	Pass
2437MHz	16.23	≤30	Pass	18.18	≤36	Pass
2462MHz	16.52	≤30	Pass	18.47	≤36	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

802.11g: Antenna gain= 1.95dBi						
Frequency (MHz)	Conducted Peak Output Power (dBm) §15.247 (b) (3)			e.i.r.p. (dBm) RSS-247 5.4(d)		
	Result	limit	Verdict	Result	limit	Verdict
2412MHz	21.81	≤30	Pass	23.76	≤36	Pass
2437MHz	22.41	≤30	Pass	24.36	≤36	Pass
2462MHz	22.79	≤30	Pass	24.74	≤36	Pass

802.11n(HT20): Antenna gain= 1.95dBi						
Frequency (MHz)	Conducted Peak Output Power (dBm) §15.247 (b) (3)			e.i.r.p. (dBm) RSS-247 5.4(d)		
	Result	limit	Verdict	Result	limit	Verdict
2412MHz	22.15	≤30	Pass	24.1	≤36	Pass
2437MHz	22.78	≤30	Pass	24.73	≤36	Pass
2462MHz	**23.26**	≤30	Pass	**25.21**	≤36	Pass

Duty Cycle

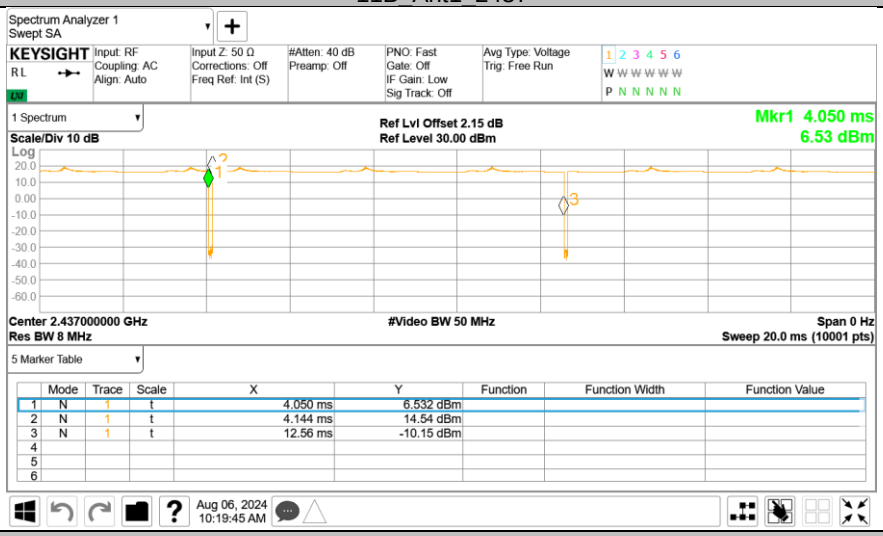
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)
NVNT	b	2412	Ant1	98.9	0
NVNT	b	2437	Ant1	98.9	0
NVNT	b	2462	Ant1	98.9	0
NVNT	g	2412	Ant1	93.2	0.31
NVNT	g	2437	Ant1	93.19	0.31
NVNT	g	2462	Ant1	93.2	0.31
NVNT	n20	2412	Ant1	92.77	0.33
NVNT	n20	2437	Ant1	92.77	0.33
NVNT	n20	2462	Ant1	92.77	0.33

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

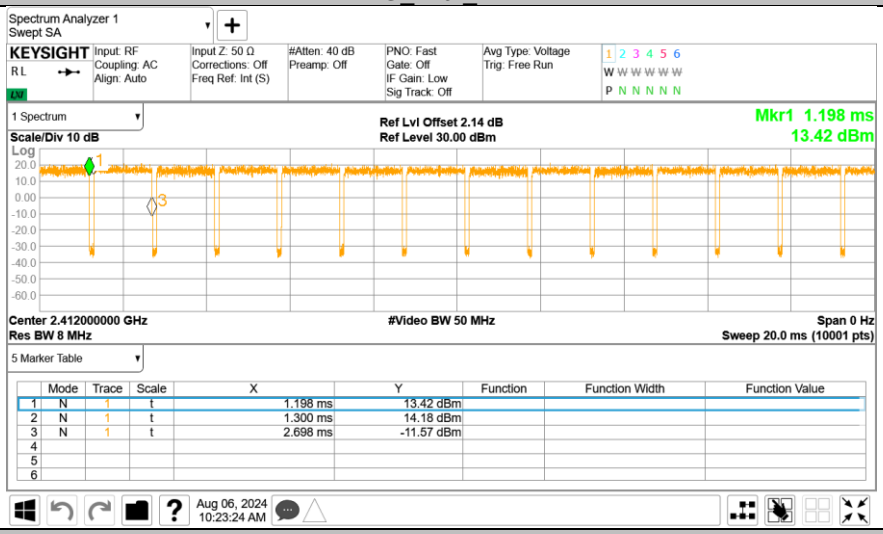
11B_Ant1_2412

11B_Ant1_2437

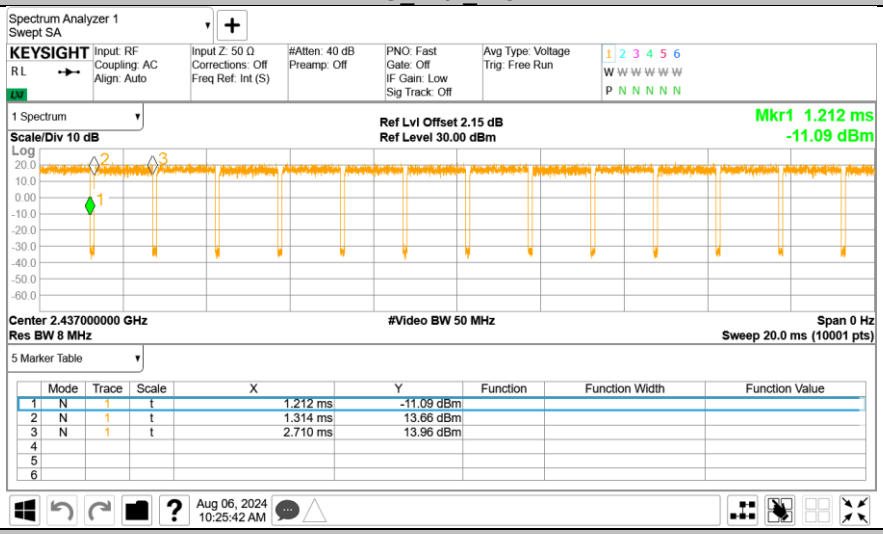


11B_Ant1_2462

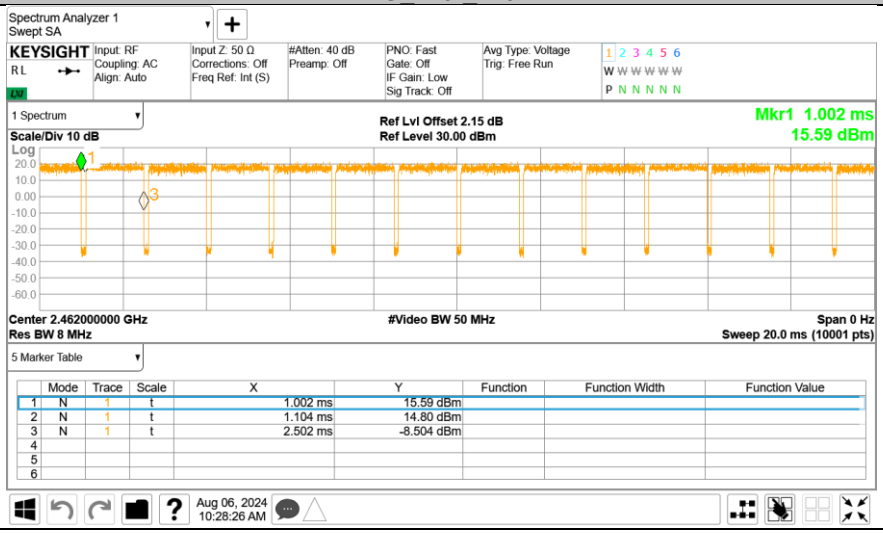
11G_Ant1_2412



11G_Ant1_2437

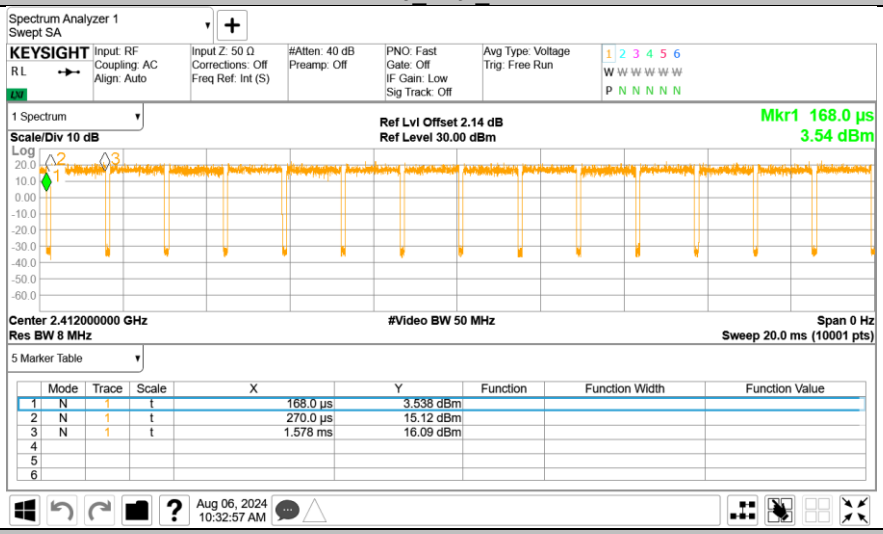


11G_Ant1_2462

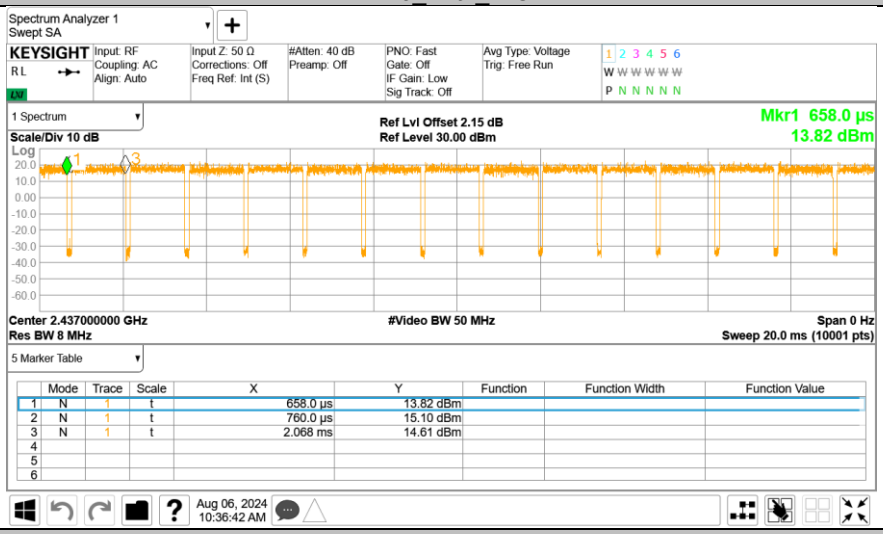


TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

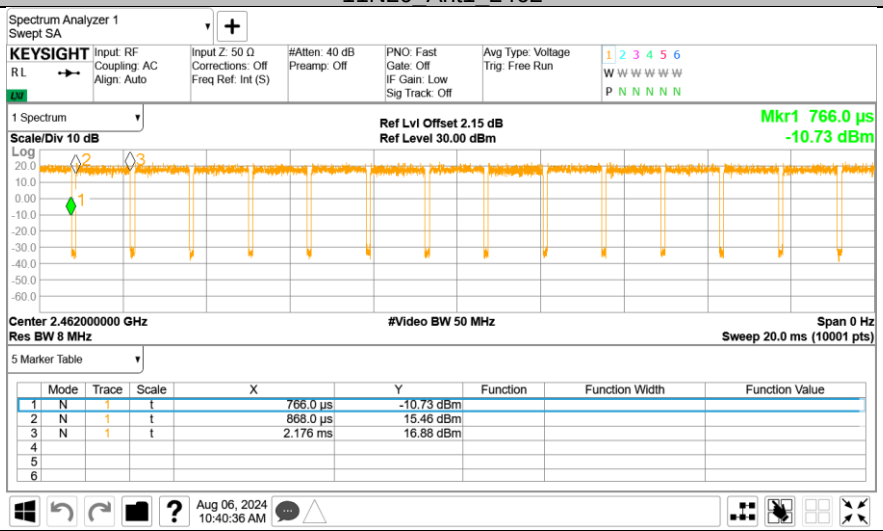
11N20_Ant1_2412



11N20_Ant1_2437



11N20_Ant1_2462



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

9.3 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:
   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.

Test Method for 99 % Bandwidth

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

Limit

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

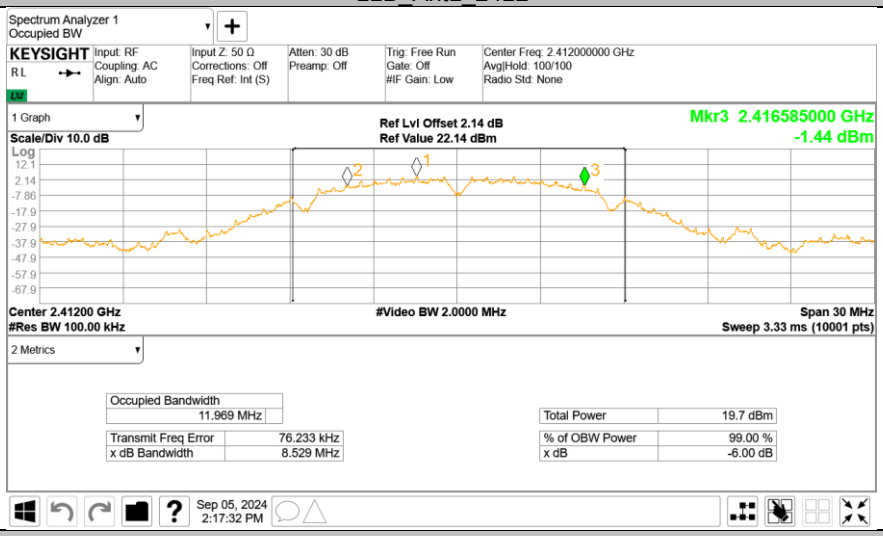
Test result

Test Mode	Frequency MHz	6dB bandwidth (MHz)		Result	99% occupied bandwidth MHz
		result	limit	verdict	
802.11b	2412	8.529	≥0.5	Pass	10.642
	2437	8.551	≥0.5	Pass	10.691
	2462	8.078	≥0.5	Pass	10.713
802.11g	2412	16.036	≥0.5	Pass	16.418
	2437	16.04	≥0.5	Pass	16.4
	2462	15.457	≥0.5	Pass	16.311
802.11n(HT20)	2412	16.417	≥0.5	Pass	17.556
	2437	17.299	≥0.5	Pass	17.544
	2462	15.308	≥0.5	Pass	17.474

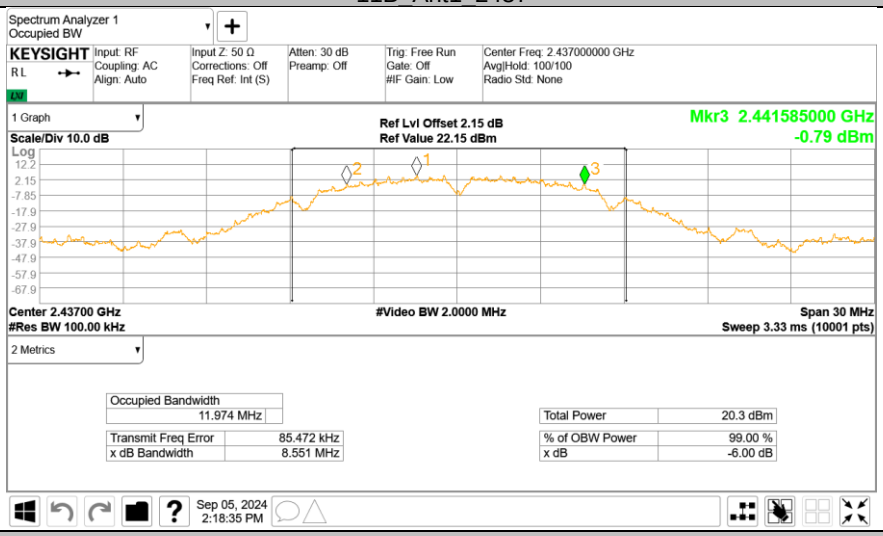
TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

6 dB Bandwidth

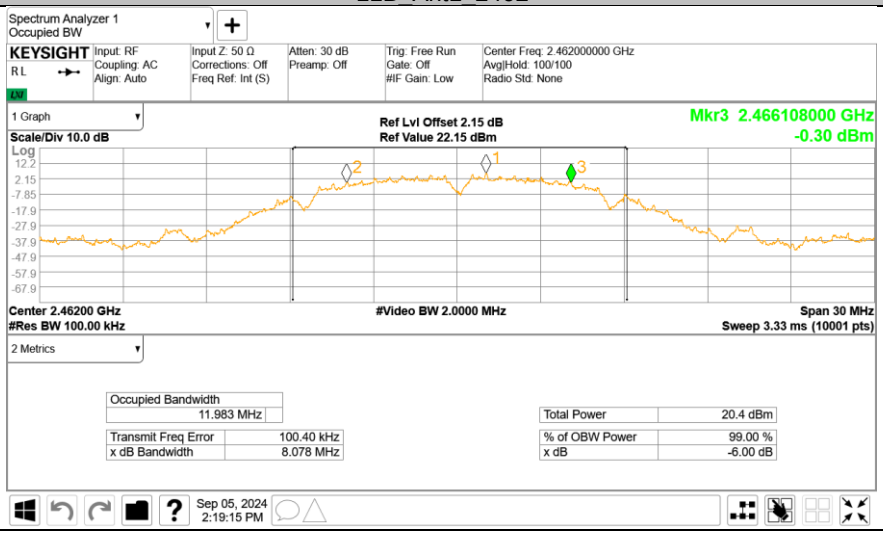
11B_Ant1_2412



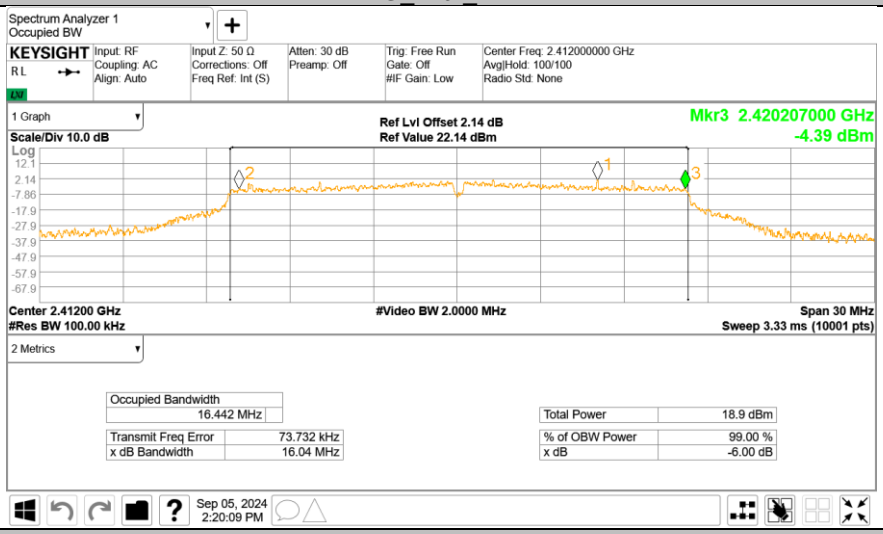
11B_Ant1_2437



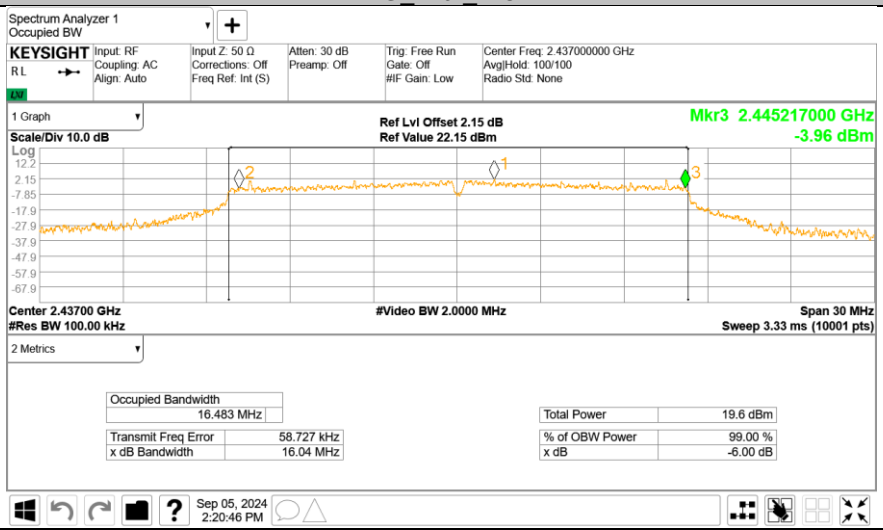
11B_Ant1_2462



11G_Ant1_2412



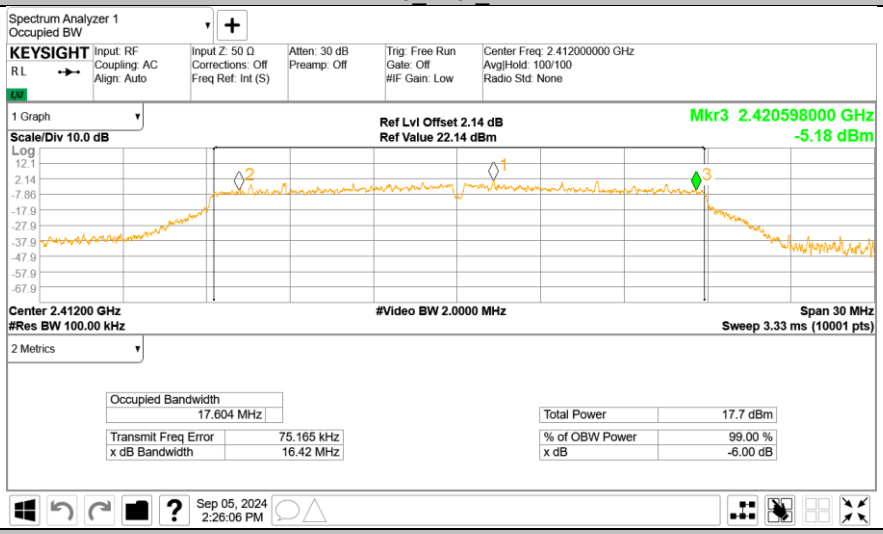
11G_Ant1_2437



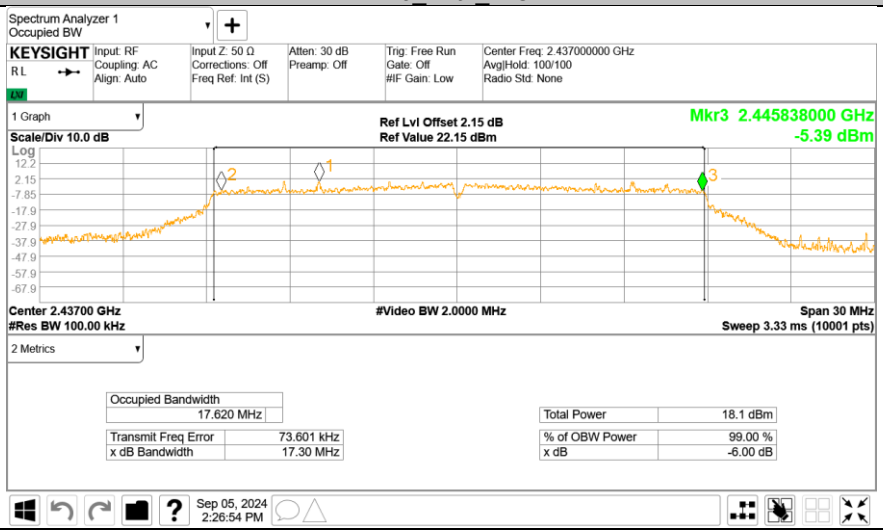
11G_Ant1_2462

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

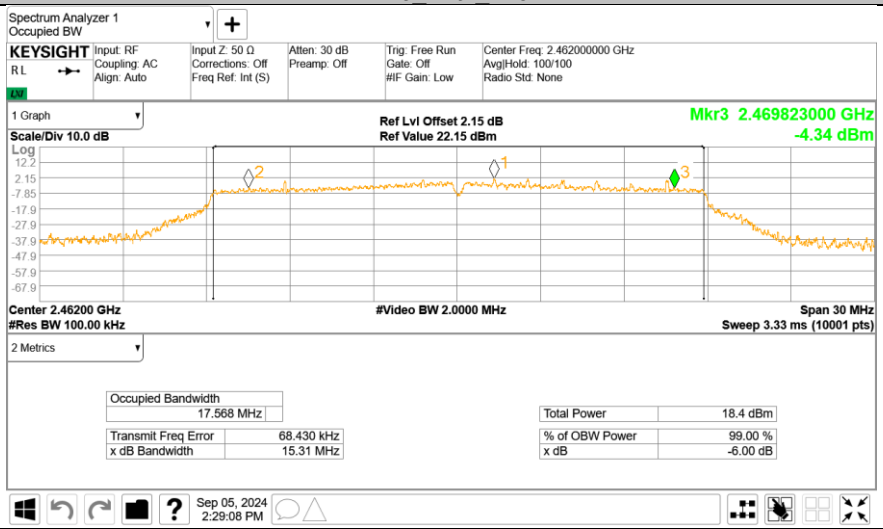
11N20_Ant1_2412



11N20_Ant1_2437



11N20_Ant1_2462



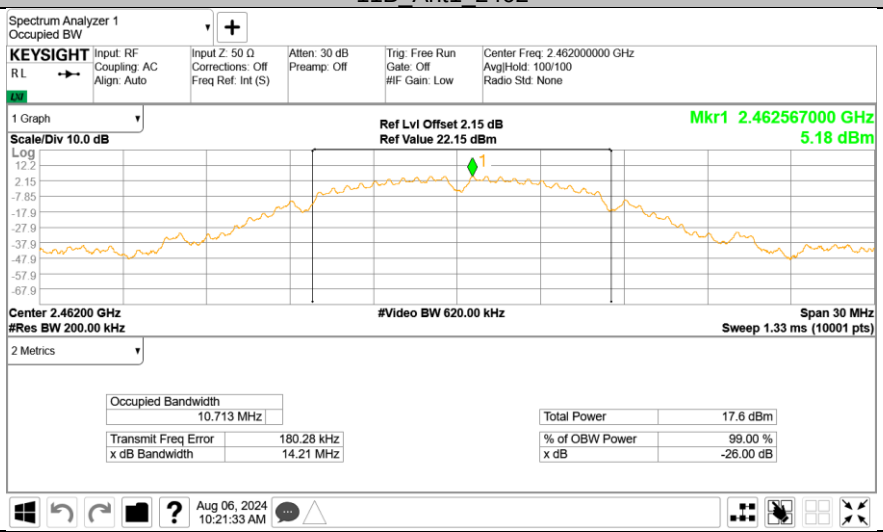
TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

99% Occupied Bandwidth

11B_Ant1_2412

11B_Ant1_2437

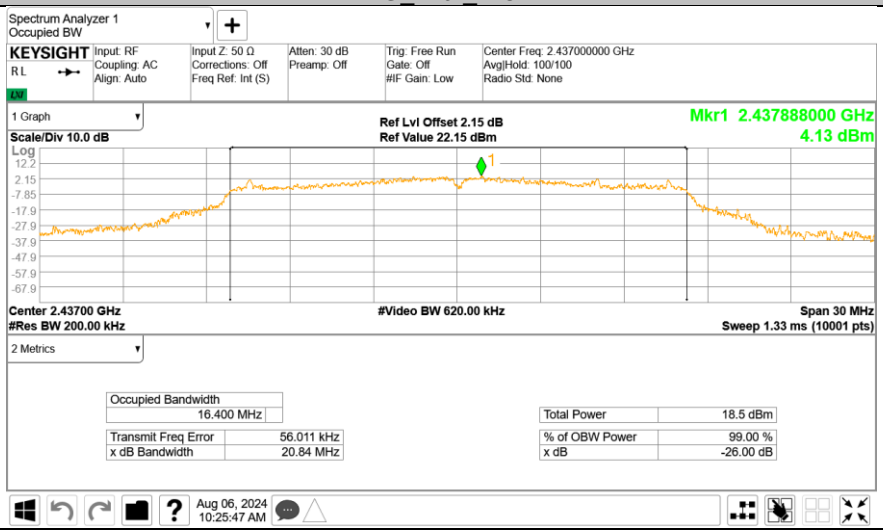
11B_Ant1_2462



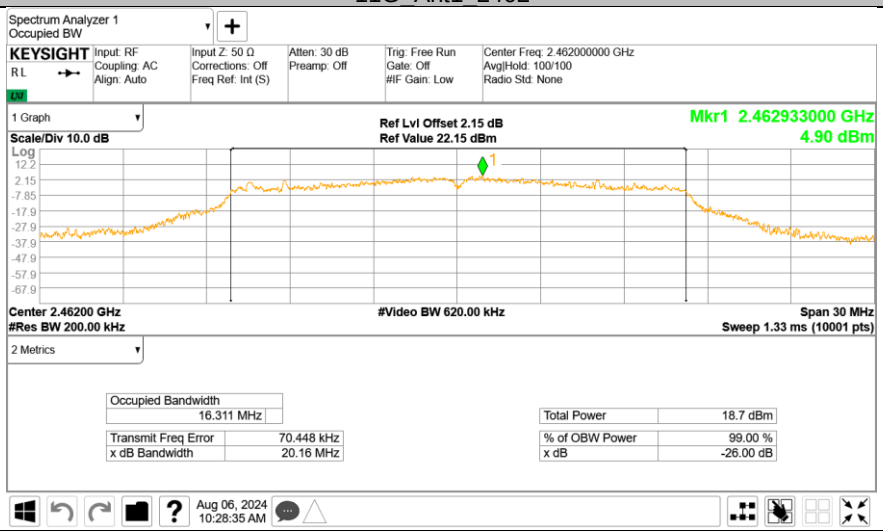
TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China
Phone: +86 21 61410123, Fax:+86 21 61408600

11G_Ant1_2412

11G_Ant1_2437



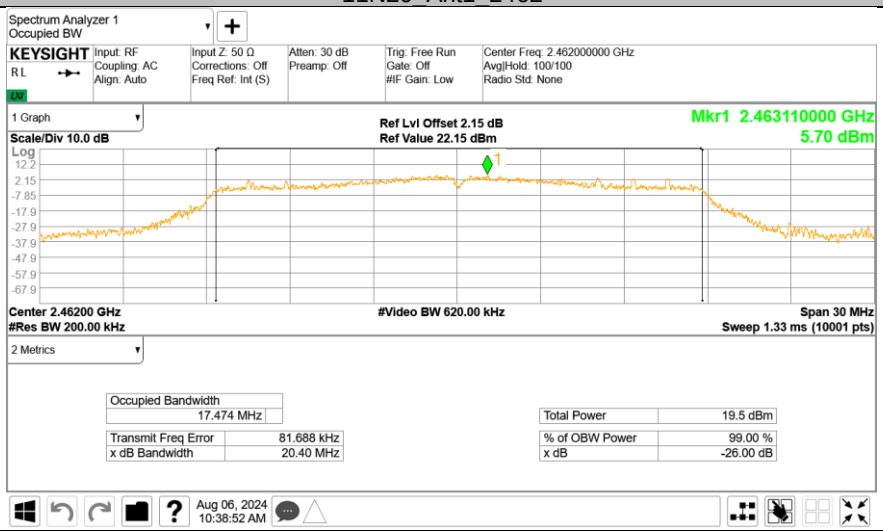
11G_Ant1_2462



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

11N20_Ant1_2412


11N20_Ant1_2437


11N20_Ant1_2462


9.4 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	-8.96	Pass
Middle channel 2437MHz	-9	Pass
High channel 2462MHz	-8.43	Pass

802.11 G

Frequency MHz	Power spectral density dBm/3kHz	Result
Low channel 2412MHz	-10.53	Pass
Middle channel 2437MHz	-11.04	Pass
High channel 2462MHz	-9.04	Pass

802.11 N20

Frequency MHz	Power spectral density dBm/3kHz	Result
Low channel 2412MHz	-10.35	Pass
Middle channel 2437MHz	-8.94	Pass
High channel 2462MHz	-8.57	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