

TEST REPORT FCC PART 15 SUBPART E 15.407

Report Reference No. CTL2409192011-WF01

Compiled by: (position+printed name+signature)

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Product Name: Audio and video wireless extender

Model/Type reference: LY-HE30W

List Model(s).....: LY-HE30W-A,LY-HE30W-B,LY-HE30W-C,LY-HE30W-D

Trade Mark.....: N/A

FCC ID...... 2BKN6-TXHE30W

Applicant's name Shenzhen Laiyu Technology Co., Ltd.

505, Building 0100029, Xiawei Industrial Zone, Zhangxi

Address of applicant : Community, Guanhu Street, Shenzhen City Longhua District,

Shenzhen City, China

Test Firm.....: Shenzhen CTL Testing Technology Co., Ltd.

Address of Test Firm Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road,

Nanshan District, Shenzhen, China 518055

Test specification....::

Standard 47 CFR FCC Part 15 Subpart E 15.407

TRF Originator Shenzhen CTL Testing Technology Co., Ltd.

Master TRF.....: Dated 2011-01

Date of receipt of test item: Aug.26, 2024

Date of Test Date...... Aug.26, 2024-Sep.18, 2024

Date of Issue Sep.25, 2024

Result.....: Pass

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TEST REPORT

Test Report No. :	CTL2409192011-WF01	Sep.25, 2024
	C1L2409192011-WF01	Date of issue

Equipment under Test : Audio and video wireless extender

Sample No : CTL2409192011

Model /Type : LY-HE30W

Address

Listed Models : LY-HE30W-A,LY-HE30W-B,LY-HE30W-C,LY-HE30W-D

Applicant : Shenzhen Laiyu Technology Co., Ltd.

505, Building 0100029, Xiawei Industrial Zone, Zhangxi

Community, Guanhu Street, Shenzhen City Longhua

District, Shenzhen City, China

Manufacturer : Shenzhen Laiyu Technology Co., Ltd.

Address : 505, Building 0100029, Xiawei Industrial Zone, Zhangxi

Community, Guanhu Street, Shenzhen City Longhua

District, Shenzhen City, China

Test result	Pass *

^{*} In the configuration tested, the EUT complied with the standards specified page 5.

The test results presented in this report relate only to the object tested.

This report shall not be reproduced, except in full, without the written approval of the issuing testing laboratory.

** Modified History **

Report No.: CTL2409192011-WF01

Revisions	Description	Issued Data	Report No.	Remark
Version 1.0	Initial Test Report Release	2024-09-25	CTL2409192011-WF01	Tracy Qi
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1. SUMMARY

1.1. TEST STANDARDS

The tests were performed according to following standards:

FCC Rules Part 15 Subpart E—Unlicensed National Information Infrastructure Devices
ANSI C63.10: 2013: American National Standard for Testing Unlicensed Wireless Devices
KDB789033 D02: General UNII Test Procedures New Rules v02r01

1.2. Test Description

FCC Requirement		
FCC Part 15.207	AC Power Conducted Emission	PASS
FCC Part 15.407(a)	Emission Bandwidth(26dBm Bandwidth)	PASS
FCC Part 15.407(e)	Minimum Emission Bandwidth(6dBm Bandwidth)	PASS
FCC Part 15.407(a)	Maximum Conducted Output Power	PASS
FCC Part 15.407(a)	Peak Power Spectral Density	PASS
FCC Part 15.407(g)	Frequency Stability	PASS
FCC Part 15.407(b)	Undesirable emission	PASS
FCC Part 15.407(b)/15.205/15.209	Radiated Emissions	PASS
FCC Part 15.203/15.247(b)	Antenna Requirement	PASS
FCC Part 15.407(c)	Operation in the absence of information to the transmit	PASS

1.3. Test Facility

1.3.1 Address of the test laboratory

Shenzhen CTL Testing Technology Co.,Ltd.

Floor 1-A, Baisha Technology Park, No. 3011, Shahexi Road, Nanshan, Shenzhen 518055 China

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.10 and CISPR 16-1-4:2010 SVSWR requirement for radiated emission above 1GHz.

1.3.2 Laboratory accreditation

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L7497

Shenzhen CTL Testing Technology Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2017 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No. 4343.01

Shenzhen CTL Testing Technology Co., Ltd, EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

IC Registration No.: 9618B

CAB identifier: CN0041

The 3m alternate test site of Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements with Registration No.: 9618B.

FCC-Registration No.: 399832

Designation No.: CN1216

Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 399832.

1.4. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods — Part 4: Uncertainty in EMC Measurements" and is documented in the Shenzhen CTL Testing Technology Co., Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CTL laboratory is reported:

Test	Measurement Uncertainty	Notes
Transmitter power conducted	±0.57 dB	(1)
Transmitter power Radiated	±2.20 dB	(1)
Conducted spurious emission 9KHz-40 GHz	±2.20 dB	(1)
Occupied Bandwidth	±0.01ppm	(1)
Radiated Emission9KHz~30MHz	±3.66dB	(1)
Radiated Emission 30~1000MHz	±4.08dB	(1)
Radiated Emission Above 1GHz	±4.32dB	(1)
Conducted Disturbance0.15~30MHz	±3.20dB	(1)
20dB Emission Bandwidth	±1.9%	(1)
Carrier Frequency Separation	±1.9%	(1)
Maximum Power Spectral Density Level	±0.98 dB	(1)
Number of Hopping Channel	±1.9%	(1)
Time of Occupancy	±0.11%	(1)
Max Peak Conducted Output Power	±0.98 dB	(1)
Band-edge Spurious Emission	±1.21dB	(1)
Conducted RF Spurious Emission	9kHz-7GHz:±1.09dB 7GHz-26.5GHz: ±3.27dB	(1)

⁽¹⁾ This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

1.5. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

- - supplied by the manufacturer
- O supplied by the lab

0	Notebook computer	Manufacturer :	Huawei Technologies Co Ltd	
		Model No. :	KPL-W00	
0	HUAWEI SuperCharge	Manufacturer:	Huawei Technologies Co Ltd.	
		Model No.:	HW-200200CP1	

2. GENERAL INFORMATION

2.1. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Normal Temperature:	25°C
Relative Humidity:	55 %
Air Pressure:	101 kPa

2.2. General Description of EUT

Product Name: Audio and video wireless extender			
Model/Type reference:	: LY-HE30W		
Power supply:	DC 5V		
5G Wi-Fi :	•		
	20MHz system		
Supported type:	802.11a 802.11n		
Operation frequency:	5180-5240MHz 5260-5320MHz 5500-5700MHz		
	5745-5825MHz		
Modulation:	OFDM		
Channel number:	24		
Channel separation:	20MHz		
Antenna type:	PCB Antenna		
Antenna gain:	2.0dBi		
MIMO:	Not Supported		
TPC:	Not Supported		
DFS Type:	Slave without Radar Detection		

Note1: For more details, please refer to the user's manual of the EUT. Note2: Antenna gain provided by the applicant.

2.3. Description of Test Modes and Test Frequency

The Applicant provides communication tools software to control the EUT for staying in continuous transmitting (Duty Cycle more than 98%) and receiving mode for testing.

All test performed at the low, middle and high of operational frequency range of each mode. Operation Frequency List Wi-Fi on 5G Band:

Operating hand	20MHz		
Operating band	Channel	Frequency (MHz)	
	36	5180	
U-NII 1	40	5200	
(5150MHz-5250MHz)	44	5220	
- 10	48	5240	
	52	5260	
U-NII 2A	56	5280	
(5120MHz-5350MHz)	60	5300	
	64	5320	
1000	100	5500	
	104	5520	
	108	5540	
U-NII 2C	112	5560	
(5470MHz-5725MHz)	116	5580	
`	132	5660	
	136	5680	
	140	5700	
and the second	149	5745	
LLAULO	153	5765	
U-NII 3	157	5785	
(5725MHz-5850MHz)	161	5805	
	165	5825	

Note:

- 1. "--"Means no channel(s) available any more.
- 2. The line display in grey is those Channels/Frequencies select to test in this report for each operation mode.

Data Rate Used:

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode	Data Rate
Maximum Conducted Output Power Power Spectral Density Emission Bandwidth(26dBm Bandwidth) Minimum Emission Bandwidth(6dBm Bandwidth) Undesirable emission Frequency Stability	11a/OFDM	6 Mbps
	11n(20MHz), /OFDM	7.2 Mbps

2.4. Equipments Used during the Test

Conduc	Conducted Emission						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due	
EMI	Test Receiver	ROHDE & SCHWARZ	ESCI	1166.5950.03	2024/04/30	2025/04/29	
LISN ROHDE & SCHWARZ ESH		ESH2-Z5	860014/010	2024/04/30	2025/04/29		
Limitator		ROHDE & SCHWARZ	ESH3-Z2	100408	2024/04/30	2025/04/29	
Software:							
Name of Software:			Version:				
ES-K1				V1.71	100		

Radiated Emissions and E	and Edge							
Test Equipment	Manufacturer	Mode	l No.	Serial No.	Calibration Date	Calibration Due Date		
Active Loop Antenna	Da Ze	ZN30900A		/	2024/04/30	2025/04/29		
Double cone logarithmic antenna	Schwarzbeck	VULB 9168		824	2023/02/13	2026/02/12		
Horn Antenna	Sunol Sciences Corp.	DRH	-118	A062013	2021/12/23	2024/12/22		
Horn Antenna	Ocean Microwave	OBH 0		26999002	2021/12/22	2024/12/21		
Amplifier	MRT Technology(S uzhou)Co., Ltd	MRT- 1M		S-001	2024/04/30	2025/04/29		
Amplifier	Agilent	844	9B	3008A02306	2024/04/30	2025/04/29		
Amplifier	Brief&Smart	LNA-	4018	2104197	2024/05/03	2025/05/02		
EMI Test Receiver	ROHDE & SCHWARZ	ES	CI	1166.5950.03	2024/04/30	2025/04/29		
Spectrum Analyzer	RS	FS	SP	1164.4391.38	2024/05/03	2025/05/02		
Test software								
Name of So	Name of Software EZ_EMC(Below 1GHz)				Version			
EZ_EMC(Beld					V1.1.4.2			
EZ_EMC(Above 1GHz)				V1.1.4.2				

Maximum Peak Output Power & 20dB Bandwidth & Frequency Separation & Number of h frequency & Dwell Time & Out-of-band Emissions								
Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date			
Spectrum Analyzer	Keysight	N9020A	MY53420874	2024/05/01	2025/04/30			
Temperature/Humidity Meter	Ji Yu	MC501	/	2024/05/04	2025/05/03			
Test Software	- 47							

Name of Software	Version
TST-PASS	V2.0

2.5. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended to comply with Section 15.407 of the FCC Part 15, Subpart E Rules.

2.6. Modifications

No modifications were implemented to meet testing criteria.

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3. TEST CONDITIONS AND RESULTS

3.1. Conducted Emissions Test

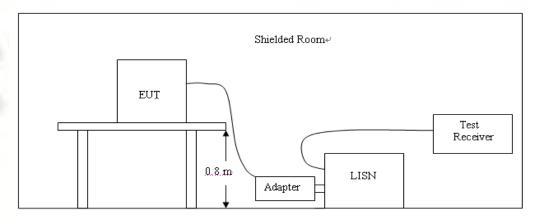
LIMIT

According to FCC CFR Title 47 Part 15 Subpart C Section 15.207, AC Power Line Conducted Emissions Limits for Licence-Exempt Radio Apparatus as below:

Fragues as region (NALLE)	Limit (c	IBuV)
Frequency range (MHz)	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

^{*} Decreases with the logarithm of the frequency.

TEST CONFIGURATION

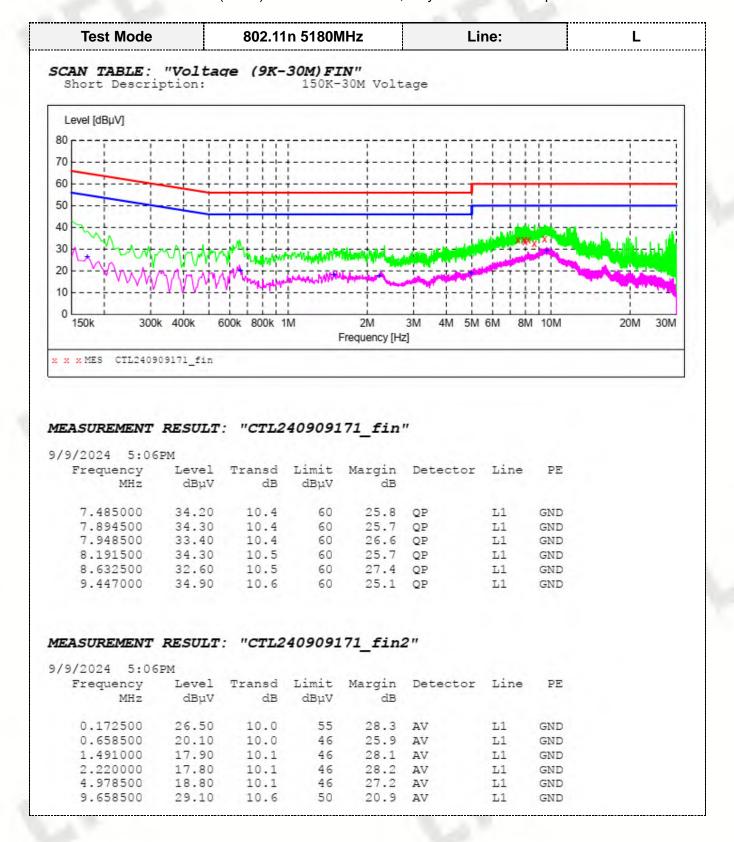


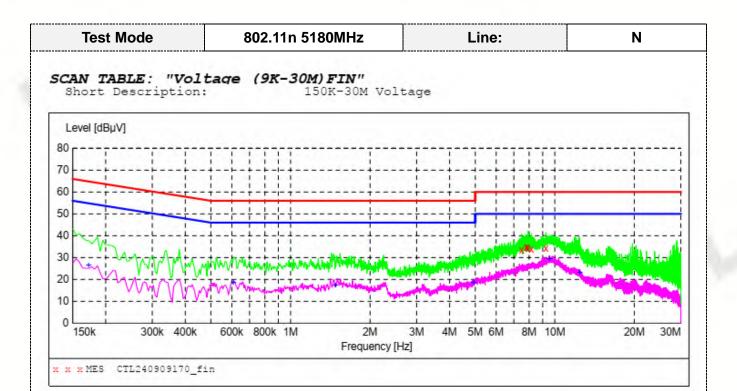
TEST PROCEDURE

- The equipment was set up as per the test configuration to simulate typical actual usage per the
 user's manual. The EUT is a Laser Projector op system; a wooden table with a height of 0.8
 meters is used and is placed on the ground plane as per ANSI C63.10:2013.
- 2. Support equipment, if needed, was placed as per ANSI C63.10:2013.
- 3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10:2013.
- 4. The adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
- 5. All support equipments received AC power from a second LISN, if any.
- 6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
- 8. During the above scans, the emissions were maximized by cable manipulation.

TEST RESULTS

Remark: 802.11a / 802.11n (HT20) all have been tested, only worse case is reported



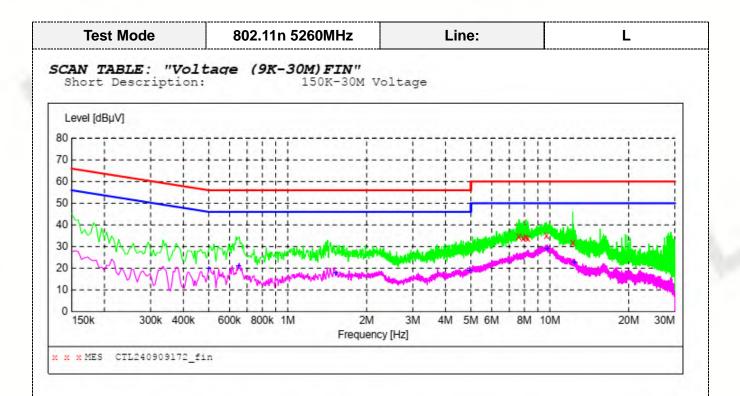


MEASUREMENT RESULT: "CTL240909170 fin"

9/9/2024 5:	03PM						
Frequency MHz		Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
7.485000	33.60	10.4	60	26.4	QP	N	GND
7.818000	34.90	10.4	60	25.1	QP	N	GND
7.831500	34.50	10.4	60	25.5	QP	N	GND
7.885500	34.40	10.4	60	25.6	QP	N	GND
8.142000	33.80	10.5	60	26.2	QP	N	GND
9.258000	34.30	10.6	60	25.7	QP	N	GND

MEASUREMENT RESULT: "CTL240909170 fin2"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.172500	26.20	10.0	55	28.6	AV	N	GND
0.609000	18.40	10.0	46	27.6	AV	N	GND
1.482000	17.20	10.1	46	28.8	AV	N	GND
4.942500	18.50	10.1	46	27.5	AV	N	GND
9.573000	29.10	10.6	50	20.9	AV	N	GND
12.435000	23.10	10.9	50	26.9	AV	N	GND

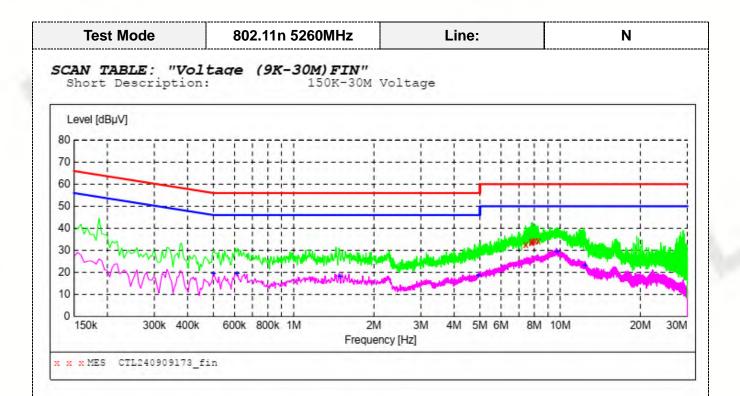


MEASUREMENT RESULT: "CTL240909172_fin"

9/2024 5:10	PM						
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
7.615500	34.50	10.4	60	25.5	QP	L1	GND
7.881000	34.00	10.4	60	26.0	QP	L1	GND
8.115000	34.10	10.5	60	25.9	QP	L1	GND
8.227500	34.00	10.5	60	26.0	QP	L1	GND
9.694500	35.00	10.6	60	25.0	QP	L1	GND
12.237000	31.90	10.9	60	28.1	QP	L1	GND
	7.615500 7.881000 8.115000 8.227500 9.694500	MHz dBμV 7.615500 34.50 7.881000 34.00 8.115000 34.10 8.227500 34.00 9.694500 35.00	Frequency MHz Level dBμV Transd dB 7.615500 34.50 10.4 7.881000 34.00 10.4 8.115000 34.10 10.5 8.227500 34.00 10.5 9.694500 35.00 10.6	Frequency MHz Level dBμV Transd dB dBμV Limit dB dBμV 7.615500 34.50 10.4 60 7.881000 34.00 10.4 60 8.115000 34.10 10.5 60 8.227500 34.00 10.5 60 9.694500 35.00 10.6 60	Frequency MHz Level dBμV Transd dB dBμV Limit dBμV Margin dB 7.615500 34.50 10.4 60 25.5 7.881000 34.00 10.4 60 26.0 8.115000 34.10 10.5 60 25.9 8.227500 34.00 10.5 60 26.0 9.694500 35.00 10.6 60 25.0	Frequency MHz dBμV dB dBμV dB Detector dBμV dB dBμV dB Detector dBμV dB dBμV dB Detector dBμV dBμV dB Detector dBμV dBμV dBμV dBμV dBμV dBμV dBμV dBμV	Frequency MHz Level dBμV Transd dB dBμV Limit dBμV Margin dB Detector Line dB dBμV 7.615500 34.50 10.4 60 25.5 QP L1 7.881000 34.00 10.4 60 26.0 QP L1 8.115000 34.10 10.5 60 25.9 QP L1 8.227500 34.00 10.5 60 26.0 QP L1 9.694500 35.00 10.6 60 25.0 QP L1

MEASUREMENT RESULT: "CTL240909172 fin2"

9/9/2024 5:10	PM						
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.501000	19.70	10.0	46	26.3	AV	L1	GND
0.649500	20.90	10.0	46	25.1	AV	L1	GND
1.527000	17.80	10.1	46	28.2	AV	L1	GND
4.960500	18.70	10.1	46	27.3	AV	L1	GND
9.802500	28.90	10.6	50	21.1	AV	L1	GND
12.448500	22.70	10.9	50	27.3	AV	L1	GND

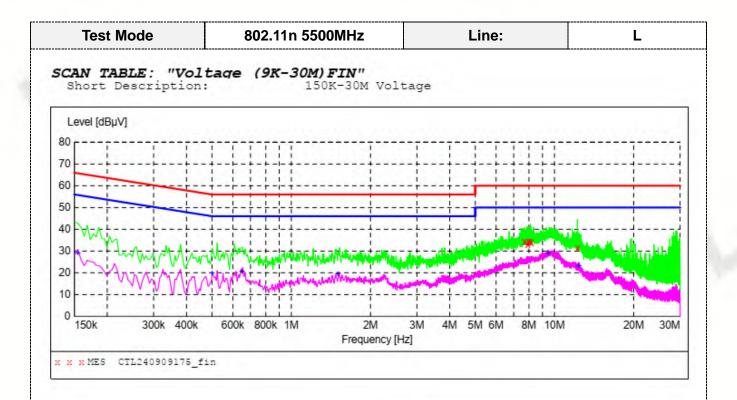


MEASUREMENT RESULT: "CTL240909173_fin"

9/9/2024 5:14	PM						
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
7.422000	32.80	10.4	60	27.2	QP	N	GND
7.782000	33.40	10.4	60	26.6	QP	N	GND
7.813500	34.00	10.4	60	26.0	QP	N	GND
7.876500	33.70	10.4	60	26.3	QP	N	GND
8.038500	34.40	10.4	60	25.6	QP	N	GND
8.241000	34.10	10.5	60	25.9	QP	N	GND

MEASUREMENT RESULT: "CTL240909173 fin2"

		_	- 1 1				
Frequency	Level	Transd	Limit	Margin	Detector	Line	PE
MHz	dBµV	dB	dΒμV	dB			
0.501000	19.10	10.0	46	26.9	AV	N	GND
0.613500	19.20	10.0	46	26.8	AV	N	GND
1.491000	17.90	10.1	46	28.1	AV	N	GND
4.956000	18.40	10.1	46	27.6	AV	N	GND
9.739500	29.10	10.6	50	20.9	AV	N	GND
12.417000	22.90	10.9	50	27.1	AV	N	GND

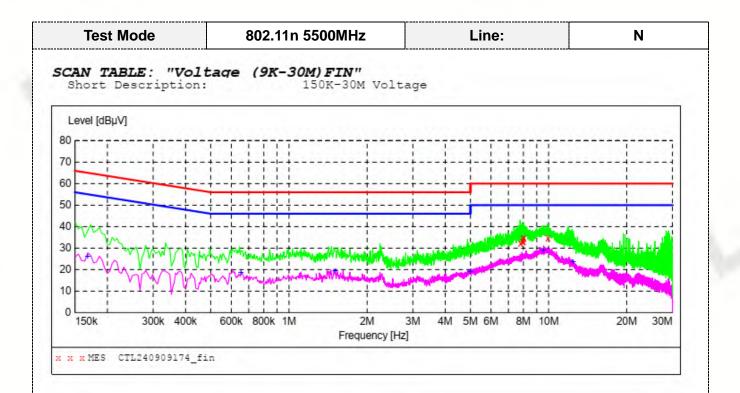


MEASUREMENT RESULT: "CTL240909175_fin"

9	/9/2024 5:21	PM						
	Frequency MHz		Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
	7.692000	34.10	10.4	60	25.9	QP	L1	GND
	7.921500	33.10	10.4	60	26.9	QP	L1	GND
	7.966500	34.40	10.4	60	25.6	QP	L1	GND
	8.092500	34.40	10.4	60	25.6	QP	L1	GND
	8.178000	33.90	10.5	60	26.1	QP	L1	GND
	12.246000	31.40	10.9	60	28.6	QP	L1	GND

MEASUREMENT RESULT: "CTL240909175_fin2"

9/9/2024 5:21	PM						
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.154500	28.70	10.0	56	27.1	AV	L1	GND
0.501000	19.80	10.0	46	26.2	AV	L1	GND
0.649500	20.70	10.0	46	25.3	AV	L1	GND
1.504500	19.10	10.1	46	26.9	AV	L1	GND
9.469500	28.90	10.6	50	21.1	AV	L1	GND
12.376500	23.20	10.9	50	26.8	AV	L1	GND

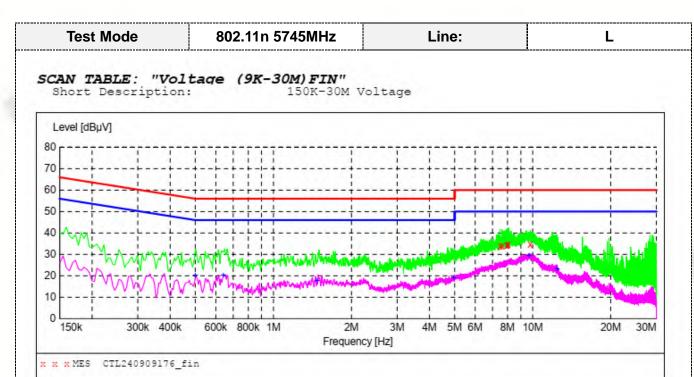


MEASUREMENT RESULT: "CTL240909174_fin"

9/9/2024 5:17	PM						
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
7.800000	32.30	10.4	60	27.7	QP	N	GND
7.930500	33.10	10.4	60	26.9	QP	N	GND
7.980000	34.40	10.4	60	25.6	QP	N	GND
7.998000	33.10	10.4	60	26.9	QP	N	GND
8.034000	34.50	10.4	60	25.5	QP	N	GND
9.924000	34.50	10.6	60	25.5	QP	N	GND

MEASUREMENT RESULT: "CTL240909174 fin2"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.168000	25.90	10.0	55	29.2	AV	N	GND
0.654000	18.40	10.0	46	27.6	AV	N	GND
1.509000	19.10	10.1	46	26.9	AV	N	GND
4.992000	18.70	10.1	46	27.3	AV	N	GND
9.582000	28.90	10.6	50	21.1	AV	N	GND
12.435000	23.40	10.9	50	26.6	AV	N	GND

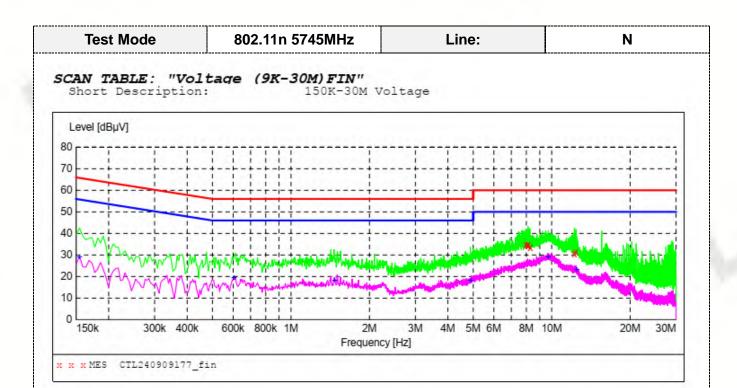


MEASUREMENT RESULT: "CTL240909176_fin"

9/9/2024 5:24	DM						
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
7.476000	33.90	10.4	60	26.1	QP	L1	GND
7.629000	33.80	10.4	60	26.2	QP	L1	GND
7.953000	34.40	10.4	60	25.6	QP	L1	GND
7.980000	34.30	10.4	60	25.7	QP	L1	GND
8.034000	34.60	10.4	60	25.4	QP	L1	GND
9.789000	34.90	10.6	60	25.1	QP	L1	GND

MEASUREMENT RESULT: "CTL240909176_fin2"

9/9/2024 5:24	DM						
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.501000	20.00	10.0	46	26.0	AV	L1	GND
0.640500	20.30	10.0	46	25.7	AV	L1	GND
1.477500	17.60	10.1	46	28.4	AV	L1	GND
4.974000	18.80	10.1	46	27.2	AV	L1	GND
9.690000	29.10	10.6	50	20.9	AV	L1	GND
12.439500	22.80	10.9	50	27.2	AV	L1	GND



MEASUREMENT RESULT: "CTL240909177_fin"

9/9/2024 5:27	PM						
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
7.962000	34.60	10.4	60	25.4	QP	N	GND
8.110500	34.60	10.5	60	25.4	QP	N	GND
8.115000	34.10	10.5	60	25.9	QP	N	GND
8.290500	33.60	10.5	60	26.4	QP	N	GND
12.210000	30.40	10.9	60	29.6	QP	N	GND
12.381000	31.50	10.9	60	28.5	QP	N	GND

MEASUREMENT RESULT: "CTL240909177_fin2"

9/9/2024 5:27	PM						
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.154500	28.90	10.0	56	26.9	AV	N	GND
0.604500	19.10	10.0	46	26.9	AV	N	GND
1.477500	18.00	10.1	46	28.0	AV	N	GND
4.906500	18.20	10.1	46	27.8	AV	N	GND
9.730500	29.00	10.6	50	21.0	AV	N	GND
12.457500	23.20	10.9	50	26.8	AV	N	GND

Remark: Level(dBuV)=Reading(dBuV)+Transd.(dB)
Margin=Limit(dBuV)- Level(dBuV)

3.2. Radiated Emissions

Limit

The maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
- (4) For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

Undesirable emission limits

Requirement	Limit(EIRP)	Limit (Field strength at 3m) Note1		
15.407(b)(1)				
15.407(b)(2)	PK:-27(dBm/MHz)	PK:68.2(dBμV/m)		
15.407(b)(3)	PK27 (UBIT/IVIFIZ)			
15.407(b)(4)				

Note1: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3} \mu V/m$$
, where P is the eirp (Watts)

- (5) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209
- (6)In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a)

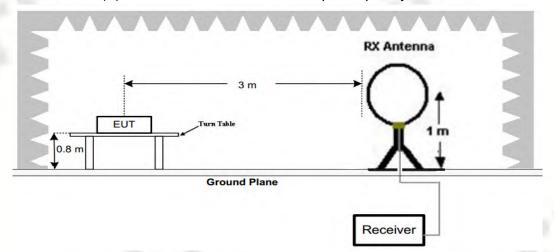
Radiated emission limits

	radiated officion limits									
Frequency (MHz)	Distance (Meters)	Radiated (dBµV/m)	Radiated (µV/m)							
0.009-0.49	3	20log(2400/F(KHz))+40log(300/3)	2400/F(KHz)							
0.49-1.705	3	20log(24000/F(KHz))+ 40log(30/3)	24000/F(KHz)							
1.705-30 3		20log(30)+ 40log(30/3)	30							
30-88	3	40.0	100							
88-216	3	43.5	150							
216-960	3	46.0	200							
Above 960	3	54.0	500							

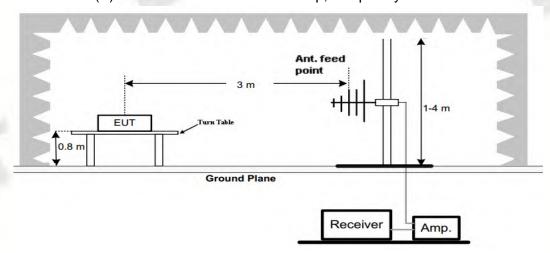
TEST CONFIGURATION

V1.0

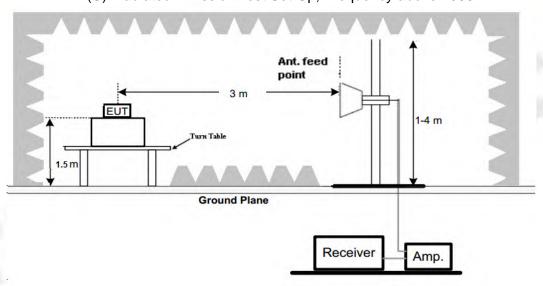
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency below 1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1000MHz



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Test Procedure

- Below 1GHz measurement the EUT is placed on a turntable which is 0.8m above ground plane, and above 1GHz measurement EUT was placed on a low permittivity and low loss tangent turn table which is 1.5m above ground plane.
- Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0°C to 360°C to acquire the highest emissions from EUT
- 3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 4. Repeat above procedures until all frequency measurements have been completed.
- 5. Radiated emission test frequency band from 9KHz to 40GHz.
- 6. The distance between test antenna and EUT as following table states:

Test Frequency range	Test Antenna Type	Test Distance
9KHz-30MHz	Active Loop Antenna	3
30MHz-1GHz	Bilog Antenna	3
1GHz-18GHz	Horn Antenna	3
18GHz-25GHz	Horn Anternna	1

7. Setting test receiver/spectrum as following table states:

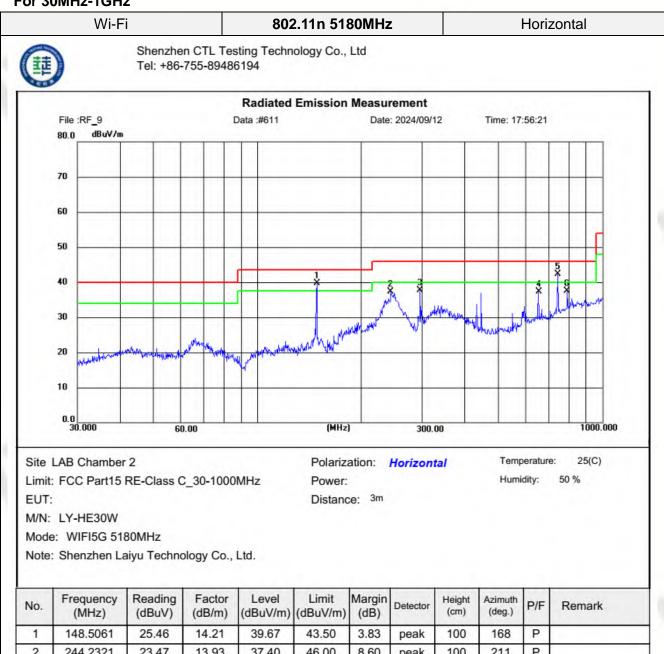
Test Frequency	Test Receiver/Spectrum Setting	Detector	
range			
9KHz-150KHz	RBW=200Hz/VBW=3KHz,Sweep time=Auto	QP	
150KHz-30MHz	RBW=9KHz/VBW=100KHz,Sweep time=Auto	QP	
30MHz-1GHz	RBW=120KHz/VBW=1000KHz,Sweep	QP	
SUIVITZ-TGTZ	time=Auto	QP	
	Peak Value: RBW=1MHz/VBW=3MHz,		
1GHz-40GHz	Sweep time=Auto	Book	
IGHZ-40GHZ	Average Value: RBW=1MHz/VBW=10Hz,	Peak	
	Sweep time=Auto		

TEST RESULTS

Remark:

- This test was performed with EUT in X, Y, Z position and the worse case was found when EUT in X position.
- 2. All modes U-NII 1,U-NII 2A,U-NII 2C,U-NII 3 All modulations 802.11a / 802.11n (HT20) have been tested have been tested for below 1GHz test, only the worst case 802.11n (HT20) low channel of U-NII 1 band was recorded.
- 3. All modes U-NII 1,U-NII 2A,U-NII 2C,U-NII 3 All modulations 802.11a / 802.11n (HT20) have been tested for above 1GHz test, only the worst case 802.11n (HT20) was recorded.
- 4. Radiated emission test from 9 KHz to 10th harmonic of fundamental was verified, and no emission found except system noise floor in 9 KHz to 30MHz and not recorded in this report.

For 30MHz-1GHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	148.5061	25.46	14.21	39.67	43.50	3.83	peak	100	168	Р	
2	244.2321	23.47	13.93	37.40	46.00	8.60	peak	100	211	Р	
3	297.0938	22.71	14.96	37.67	46.00	8.33	peak	100	232	Р	
4	653.6584	14.06	23.29	37.35	46.00	8.65	peak	100	51	Р	
5	742.5841	17.45	24.95	42.40	46.00	3.60	peak	100	51	Р	
6	792.0061	11.05	26.45	37.50	46.00	8.50	peak	100	179	Р	

Temperature:

Humidity:

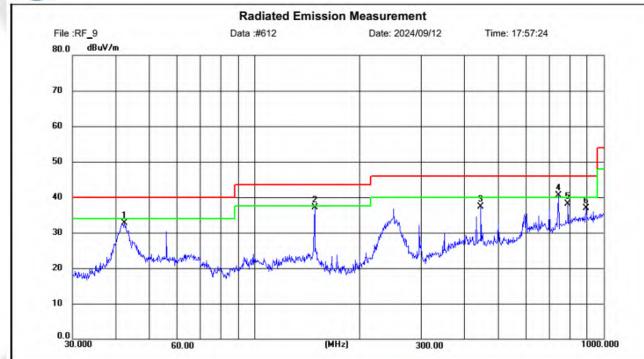
25(C)

50 %

Wi-Fi **802.11n 5180MHz** Vertical



Shenzhen CTL Testing Technology Co., Ltd Tel: +86-755-89486194



Site LAB Chamber 2

Limit: FCC Part15 RE-Class C_30-1000MHz

EUT: Distance: 3m

M/N: LY-HE30W

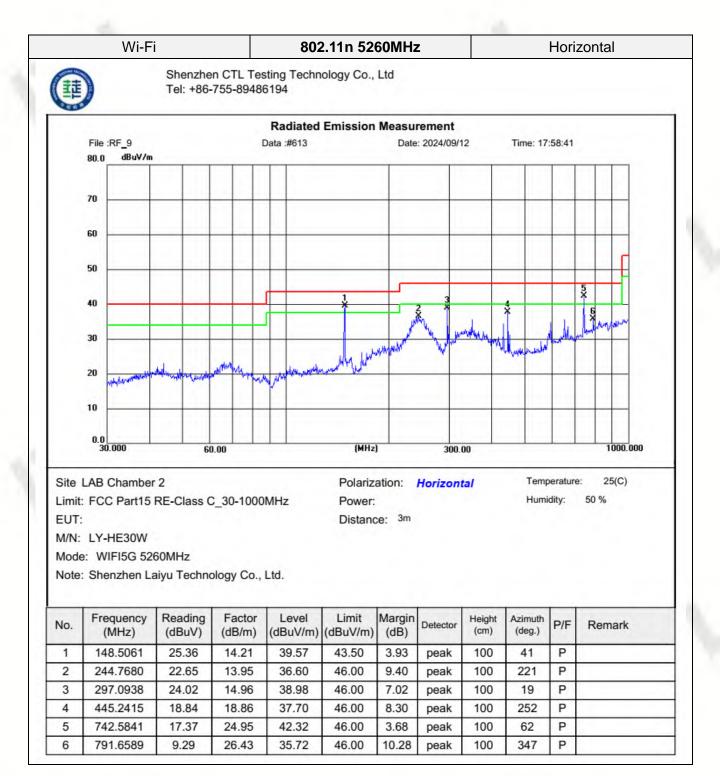
Mode: WIFI5G 5180MHz

Note: Shenzhen Laiyu Technology Co., Ltd.

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	42.3765	17.98	14.79	32.77	40.00	7.23	peak	100	192	Р	
2	148.5061	22.82	14.21	37.03	43.50	6.47	peak	100	161	Р	
3	445.2416	18.40	18.86	37.26	46.00	8.74	peak	100	139	Р	
4	742.9097	15.56	24.96	40.52	46.00	5.48	peak	100	129	Р	
5	791.6591	11.75	26.43	38.18	46.00	7.82	peak	100	267	Р	
6	891.5090	9.25	27.56	36.81	46.00	9.19	peak	100	1	Р	

Power:

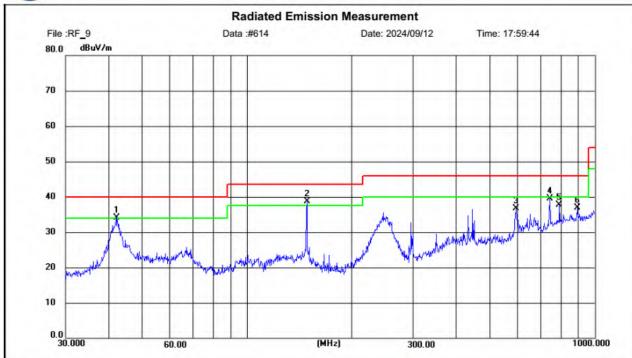
Polarization: Vertical



Wi-Fi 802.11n 5260MHz Vertical



Shenzhen CTL Testing Technology Co., Ltd Tel: +86-755-89486194



Site LAB Chamber 2

Limit: FCC Part15 RE-Class C_30-1000MHz

EUT:

M/N: LY-HE30W Mode: WIFI5G 5260MHz

Note: Shenzhen Laiyu Technology Co., Ltd.

Temperature: 25(C) Polarization: Vertical 50 %

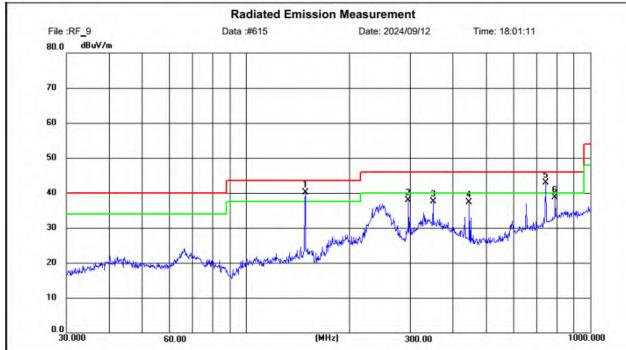
Humidity: Power: Distance: 3m

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	42.0434	19.27	14.83	34.10	40.00	5.90	peak	100	298	Р	
2	148.5061	24.56	14.21	38.77	43.50	4.73	peak	100	98	Р	
3	593.8300	14.44	22.23	36.67	46.00	9.33	peak	100	2	Р	
4	742.5841	14.62	24.95	39.57	46.00	6.43	peak	100	24	Р	
5	792.0062	11.34	26.45	37.79	46.00	8.21	peak	100	330	Р	
6	891.5090	9.40	27.56	36.96	46.00	9.04	peak	100	2	Р	

Wi-Fi **802.11n 5500MHz** Horizontal



Shenzhen CTL Testing Technology Co., Ltd Tel: +86-755-89486194



Site LAB Chamber 2

Limit: FCC Part15 RE-Class C_30-1000MHz

EUT:

M/N: LY-HE30W

Mode: WIFI5G 5500MHz

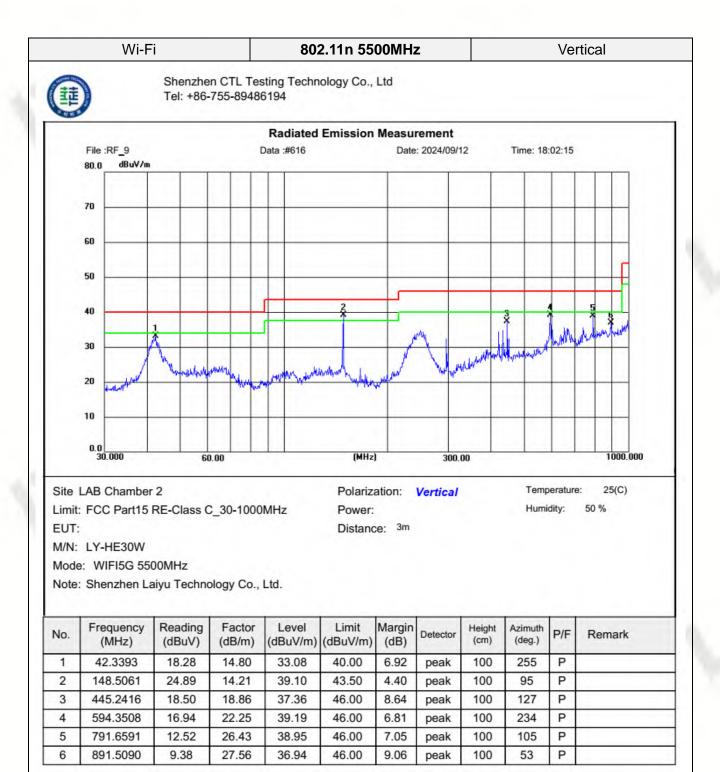
Note: Shenzhen Laiyu Technology Co., Ltd.

Polarization: Horizontal Temperature:

Power: Humidity: 50 %
Distance: 3m

25(C)

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	148.5061	25.97	14.21	40.18	43.50	3.32	peak	100	62	Р	
2	297.0938	22.99	14.96	37.95	46.00	8.05	peak	100	9	Р	
3	350.0162	21.13	16.46	37.59	46.00	8.41	peak	100	338	Р	
4	445.2415	18.48	18.86	37.34	46.00	8.66	peak	100	253	Р	
5	742.5841	18.02	24.95	42.97	46.00	3.03	peak	100	52	Р	
6	792.0061	12.29	26.45	38.74	46.00	7.26	peak	100	338	Р	

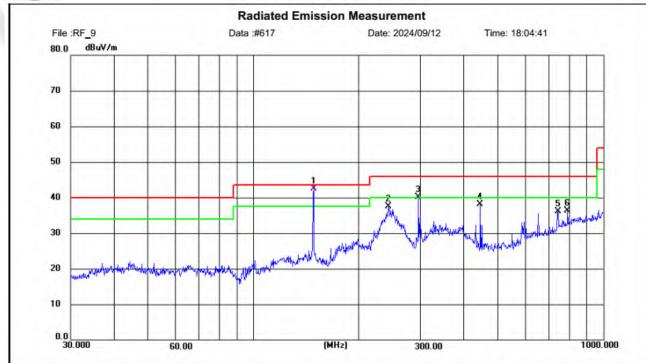


Report No.: CTL2409192011-WF01

Wi-Fi **802.11n 5745MHz** Horizontal



Shenzhen CTL Testing Technology Co., Ltd Tel: +86-755-89486194



Site LAB Chamber 2

Limit: FCC Part15 RE-Class C_30-1000MHz

EUT:

M/N: LY-HE30W Mode: WIFI5G 5745MHz

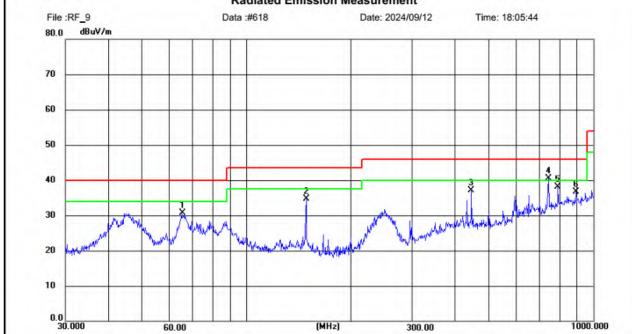
Note: Shenzhen Laiyu Technology Co., Ltd.

Polarization: Horizontal Temperature: 25(C)
Power: Humidity: 50 %

Power: Humidity: Distance: 3m

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	148.5286	28.32	14.21	42.53	43.50	0.97	QP	100	360	Р	
2	242.5252	23.59	13.90	37.49	46.00	8.51	peak	100	234	Р	
3	297.0938	25.13	14.96	40.09	46.00	5.91	peak	100	319	Р	
4	445.2415	19.18	18.86	38.04	46.00	7.96	peak	100	255	Р	
5	742.5841	11.24	24.95	36.19	46.00	9.81	peak	100	52	Р	
6	791.6589	9.86	26.43	36.29	46.00	9.71	peak	100	9	Р	

Wi-Fi 802.11n 5745MHz Vertical Shenzhen CTL Testing Technology Co., Ltd Tel: +86-755-89486194 **Radiated Emission Measurement** File:RF_9 Data:#618 Date: 2024/09/12 Time: 18:05:44



Polarization: Vertical

Power:

Level

(dBuV/m)

30.69

34.78

37.20

40.41

38.08

36.69

46.00

Factor

(dB/m)

13.34

14.21

18.86

24.95

26.43

27.56

Distance: 3m

Site LAB Chamber 2

Limit: FCC Part15 RE-Class C_30-1000MHz

EUT:

M/N: LY-HE30W

Mode: WIFI5G 5745MHz

Frequency

(MHz)

65.1145

148.5061

445.2416

742.5841

791.6591

891.5090

No.

1

2

3

4

5

6

Note: Shenzhen Laiyu Technology Co., Ltd.

Reading

(dBuV)

17.35

20.57

18.34

15.46

11.65

9.13

Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
40.00	9.31	peak	100	267	Р	
43.50	8.72	peak	100	330	Р	
46.00	8.80	peak	100	129	Р	
46.00	5.59	peak	100	129	Р	
46.00	7.92	peak	100	192	Р	

100

peak

9.31

25(C)

50 %

Temperature: Humidity:

Р

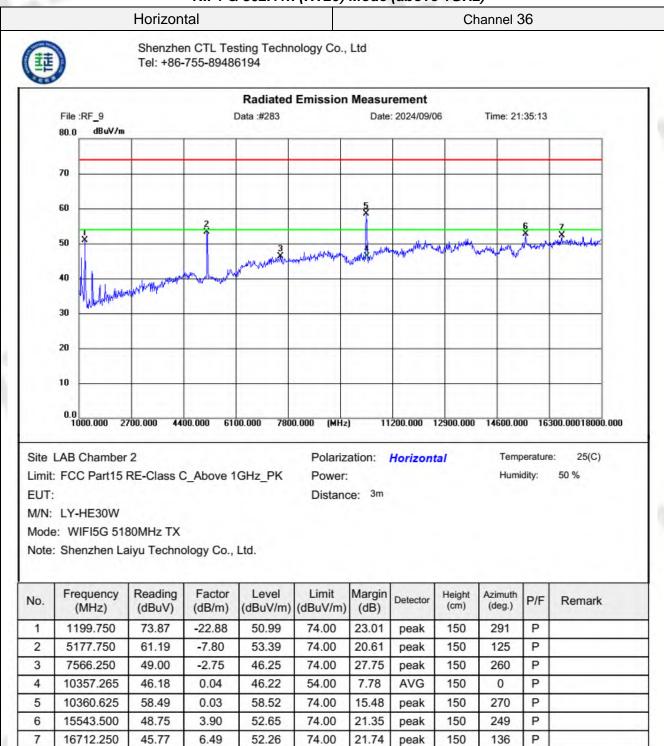
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Report No.: CTL2409192011-WF01

For 1GHz to 40GHz

Note: 1. All 802.11a / 802.11n (HT20) modes have been tested for above 1GHz test, only the worst case 802.11n (HT20) was recorded.

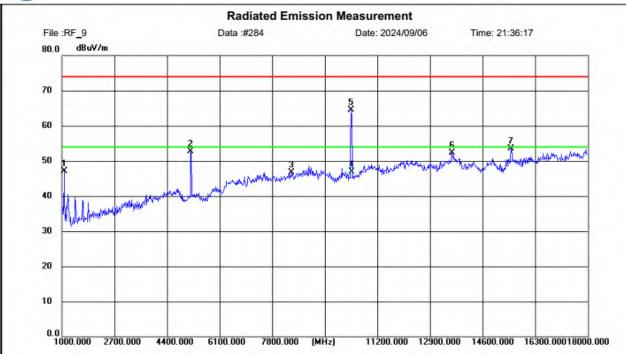
NII 1 & 802.11n (HT20) Mode (above 1GHz)



Vertical Channel 36



Shenzhen CTL Testing Technology Co., Ltd Tel: +86-755-89486194



Site LAB Chamber 2

Polarization: Vertical

Temperature:

25(C)

Limit: FCC Part15 RE-Class C_Above 1GHz_PK

Power:

Humidity: 50 %

EUT:

Distance: 3m

M/N: LY-HE30W

Mode: WIFI5G 5180MHz TX

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	1080.750	70.45	-23.35	47.10	74.00	26.90	peak	150	287	Р	
2	5179.875	60.52	-7.80	52.72	74.00	21.28	peak	150	204	Р	
3	8416.250	48.66	-1.97	46.69	74.00	27.31	peak	150	91	Р	
4	10360.210	46.80	0.04	46.84	54.00	7.16	AVG	150	360	Р	
5	10360.625	64.52	0.03	64.55	74.00	9.45	peak	150	173	Р	
6	13622.500	48.44	3.95	52.39	74.00	21.61	peak	150	338	Р	
7	15532.875	49.66	3.88	53.54	74.00	20.46	peak	150	204	Р	

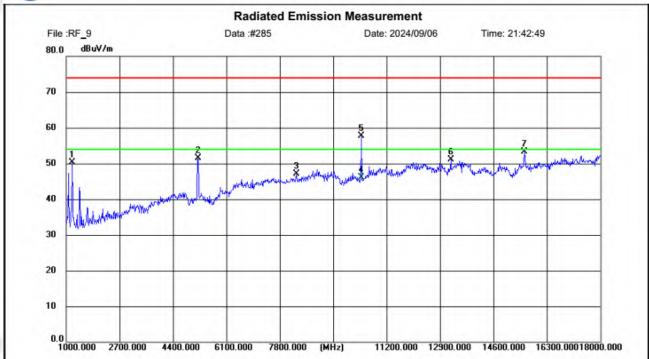
25(C)

Temperature:

Horizontal Channel 40



Shenzhen CTL Testing Technology Co., Ltd Tel: +86-755-89486194



Site LAB Chamber 2 Polarization: Horizontal

Limit: FCC Part15 RE-Class C_Above 1GHz_PK Power: Humidity: 50 %

EUT: Distance: 3m

M/N: LY-HE30W

Mode: WIFI5G 5200MHz TX

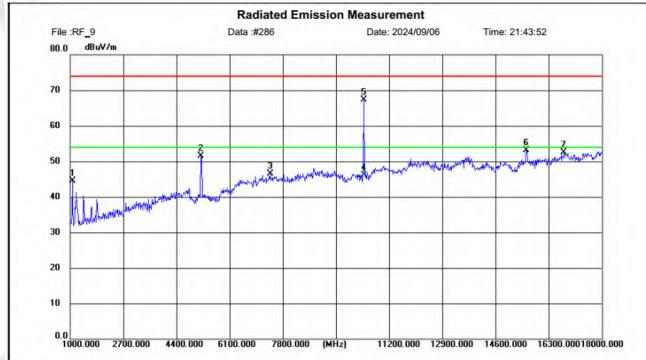
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	1199.750	73.28	-22.88	50.40	74.00	23.60	peak	150	311	Р	
2	5201.125	59.35	-7.82	51.53	74.00	22.47	peak	150	126	Р	
3	8339.750	49.25	-2.14	47.11	74.00	26.89	peak	150	2	Р	
4	10395.140	46.17	-0.01	46.16	54.00	7.84	AVG	150	0	Р	
5	10401.000	57.78	-0.02	57.76	74.00	16.24	peak	150	270	Р	
6	13252.750	48.10	3.05	51.15	74.00	22.85	peak	150	42	Р	
7	15598.750	49.39	3.94	53.33	74.00	20.67	peak	150	95	Р	

Report No.: CTL2409192011-WF01

Vertical Channel 40



Shenzhen CTL Testing Technology Co., Ltd Tel: +86-755-89486194



Site LAB Chamber 2

Polarization: Vertical

Temperature: 25(C)

Limit: FCC Part15 RE-Class C_Above 1GHz_PK

Power:

Distance: 3m

Humidity: 50 %

M/N: LY-HE30W

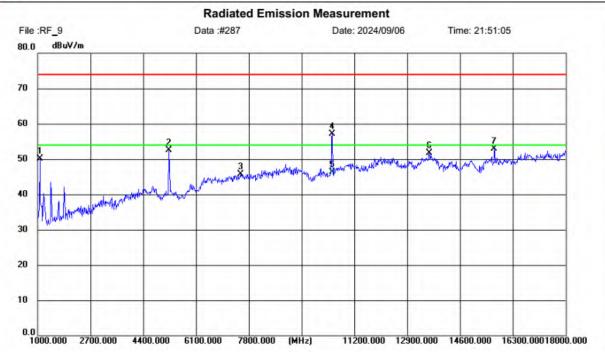
Mode: WIFI5G 5200MHz TX

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	1080.750	67.87	-23.35	44.52	74.00	29.48	peak	150	162	Р	
2	5196.875	59.41	-7.81	51.60	74.00	22.40	peak	150	204	Р	
3	7400.500	49.30	-2.79	46.51	74.00	27.49	peak	150	110	Р	
4	10398.086	46.04	-0.01	46.03	54.00	7.97	AVG	150	360	Р	
5	10398.875	67.27	-0.01	67.26	74.00	6.74	peak	150	121	Р	
6	15600.875	49.08	3.94	53.02	74.00	20.98	peak	150	142	Р	
7	16795.125	45.93	6.57	52.50	74.00	21.50	peak	150	89	Р	

Horizontal Channel 48



Shenzhen CTL Testing Technology Co., Ltd Tel: +86-755-89486194



Site LAB Chamber 2

Polarization: Horizontal

Temperature: 25(C)

Limit: FCC Part15 RE-Class C_Above 1GHz_PK

Power:

Humidity: 50 %

EUT:

Distance: 3m

M/N: LY-HE30W

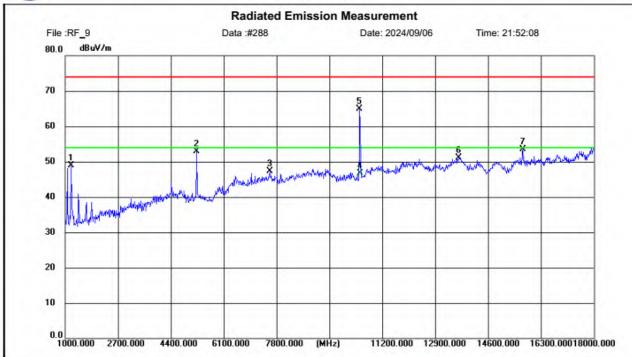
Mode: WIFI5G 5240MHz TX

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	1080.750	73.52	-23.35	50.17	74.00	23.83	peak	150	208	Р	
2	5239.375	60.26	-7.77	52.49	74.00	21.51	peak	150	166	Р	
3	7542.875	48.52	-2.72	45.80	74.00	28.20	peak	150	290	Р	
4	10486.000	57.17	-0.13	57.04	74.00	16.96	peak	150	125	Р	
5	10486.590	46.40	-0.13	46.27	54.00	7.73	AVG	150	125	Р	
6	13626.750	47.72	3.95	51.67	74.00	22.33	peak	150	270	Р	
7	15715.625	48.75	4.06	52.81	74.00	21.19	peak	150	83	Р	

Vertical Channel 48



Shenzhen CTL Testing Technology Co., Ltd Tel: +86-755-89486194



Site LAB Chamber 2

Polarization: Vertical

Temperature: 25(C)

Limit: FCC Part15 RE-Class C_Above 1GHz_PK

Power:

Humidity: 50 %

EUT:

Distance: 3m

M/N: LY-HE30W

Mode: WIFI5G 5240MHz TX

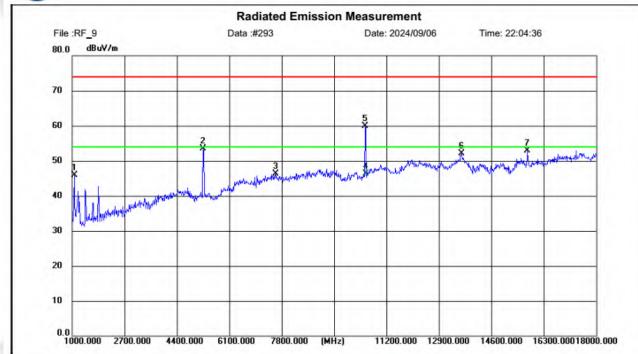
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	1197.625	71.73	-22.89	48.84	74.00	25.16	peak	150	318	Р	
2	5233.000	60.66	-7.77	52.89	74.00	21.11	peak	150	204	Р	
3	7589.625	50.09	-2.80	47.29	74.00	26.71	peak	150	122	Р	
4	10481.230	46.88	-0.13	46.75	54.00	7.25	AVG	150	111	Р	
5	10481.750	65.06	-0.13	64.93	74.00	9.07	peak	150	111	Р	
6	13654.375	47.18	3.93	51.11	74.00	22.89	peak	150	50	Р	
7	15728.375	49.36	4.07	53.43	74.00	20.57	peak	150	204	Р	

U-NII 2A & 802.11n (HT20) Mode (above 1GHz)

Horizontal Channel 52



Shenzhen CTL Testing Technology Co., Ltd Tel: +86-755-89486194



Site LAB Chamber 2

Polarization: Horizontal

Temperature: 25(C)

Limit: FCC Part15 RE-Class C_Above 1GHz_PK

Power:

Distance: 3m

Humidity: 50 %

EUT:

M/N: LY-HE30W

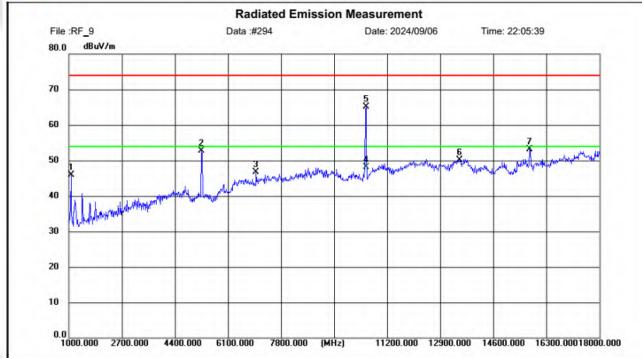
Mode: WIFI5G 5260MHz TX

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	1080.750	69.27	-23.35	45.92	74.00	28.08	peak	150	146	Р	
2	5258.500	61.34	-7.76	53.58	74.00	20.42	peak	150	167	Р	
3	7627.875	49.23	-2.93	46.30	74.00	27.70	peak	150	2	Р	
4	10513.608	46.39	-0.13	46.26	54.00	7.74	AVG	150	0	Р	
5	10515.750	60.03	-0.12	59.91	74.00	14.09	peak	150	126	Р	
6	13645.875	48.08	3.94	52.02	74.00	21.98	peak	150	229	Р	
7	15787.875	48.76	4.18	52.94	74.00	21.06	peak	150	249	Р	

Vertical Channel 52



Shenzhen CTL Testing Technology Co., Ltd Tel: +86-755-89486194



Site LAB Chamber 2

Polarization: Vertical

Temperature: 25(C)

Limit: FCC Part15 RE-Class C_Above 1GHz_PK

Power: Humidity: 50 %

EUT: Distance: 3m

M/N: LY-HE30W

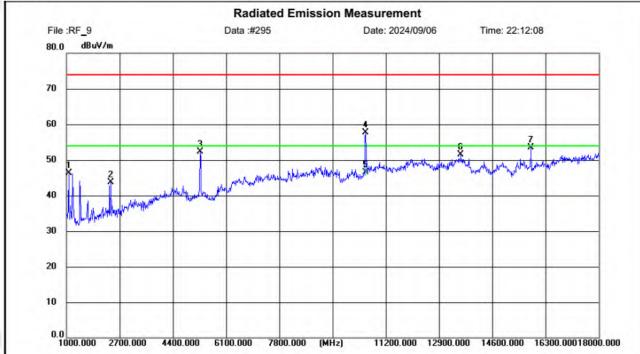
Mode: WIFI5G 5260MHz TX

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	1080.750	69.33	-23.35	45.98	74.00	28.02	peak	150	225	Р	
2	5260.625	60.51	-7.76	52.75	74.00	21.25	peak	150	235	Р	
3	7013.750	50.65	-3.91	46.74	74.00	27.26	peak	150	132	Р	
4	10520.587	48.39	-0.32	48.07	54.00	5.93	AVG	150	360	Р	
5	10522.125	65.35	-0.33	65.02	74.00	8.98	peak	150	111	Р	
6	13537.500	46.09	3.94	50.03	74.00	23.97	peak	150	245	Р	
7	15768.750	48.99	4.15	53.14	74.00	20.86	peak	150	204	Р	

Horizontal Channel 56



Shenzhen CTL Testing Technology Co., Ltd Tel: +86-755-89486194



Site LAB Chamber 2

Polarization: Horizontal

Temperature: 25(C)

Limit: FCC Part15 RE-Class C_Above 1GHz_PK

Power: Humidity: 50 %

EUT:

Distance: 3m

M/N: LY-HE30W

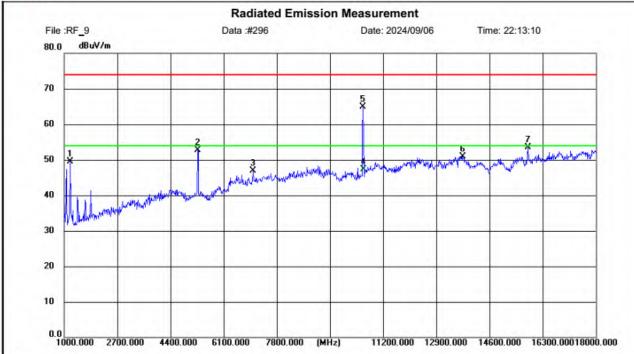
Mode: WIFI5G 5280MHz TX

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	1080.750	69.65	-23.35	46.30	74.00	27.70	peak	150	168	Р	
2	2411.000	60.59	-16.91	43.68	74.00	30.32	peak	150	43	Р	
3	5279.750	60.10	-7.78	52.32	74.00	21.68	peak	150	54	Р	
4	10566.750	57.80	-0.02	57.78	74.00	16.22	peak	150	148	Р	
5	10567.290	46.45	-0.02	46.43	54.00	7.57	AVG	150	0	Р	
6	13609.750	47.50	3.96	51.46	74.00	22.54	peak	150	54	Р	
7	15841.000	49.19	4.32	53.51	74.00	20.49	peak	150	263	Р	

Vertical Channel 56



Shenzhen CTL Testing Technology Co., Ltd Tel: +86-755-89486194



Site LAB Chamber 2 Polarization: Vertical Temperature: 25(C)
Limit: FCC Part15 RE-Class C_Above 1GHz_PK Power: Humidity: 50 %

EUT: Distance: 3m

M/N: LY-HE30W

Mode: WIFI5G 5280MHz TX

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	1199.750	72.38	-22.88	49.50	74.00	24.50	peak	150	317	Р	
2	5277.625	60.47	-7.78	52.69	74.00	21.31	peak	150	87	Р	
3	7039.250	50.75	-3.87	46.88	74.00	27.12	peak	150	130	Р	
4	10559.724	47.85	-0.64	47.21	54.00	6.79	AVG	150	360	Р	
5	10562.500	65.53	-0.66	64.87	74.00	9.13	peak	150	119	Р	
6	13760.625	47.15	3.80	50.95	74.00	23.05	peak	150	97	Р	
7	15836.750	49.24	4.32	53.56	74.00	20.44	peak	150	130	Р	

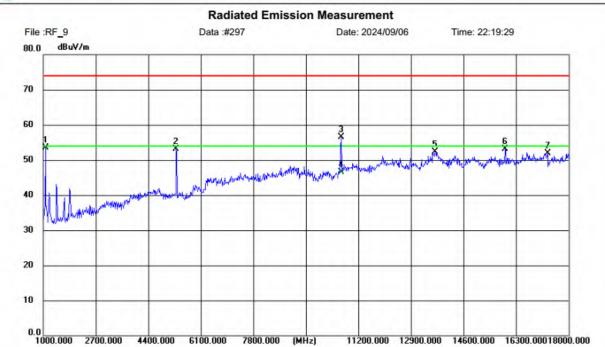
Temperature:

25(C)

Horizontal Channel 64



Shenzhen CTL Testing Technology Co., Ltd Tel: +86-755-89486194



Site LAB Chamber 2 Polarization: Horizontal

Limit: FCC Part15 RE-Class C_Above 1GHz_PK Power: Humidity: 50 %

EUT: Distance: 3m

M/N: LY-HE30W

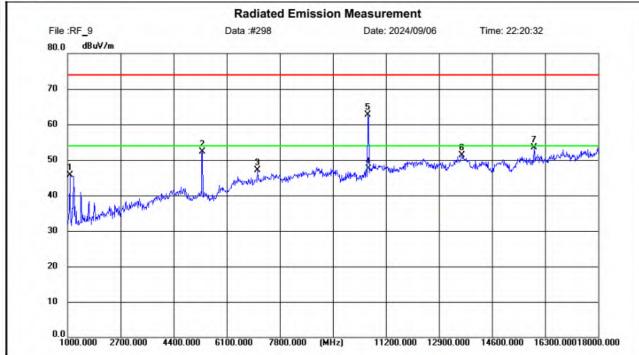
Mode: WIFI5G 5320MHz TX

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	1080.750	76.79	-23.35	53.44	74.00	20.56	peak	150	200	Р	
2	5315.875	60.81	-7.78	53.03	74.00	20.97	peak	150	210	Р	
3	10639.000	56.33	0.12	56.45	74.00	17.55	peak	150	273	Р	
4	10639.170	46.31	0.12	46.43	54.00	7.57	AVG	150	0	Р	
5	13696.875	48.38	3.90	52.28	74.00	21.72	peak	150	33	Р	
6	15955.750	48.43	4.65	53.08	74.00	20.92	peak	150	263	Р	
7	17328.500	43.52	8.33	51.85	74.00	22.15	peak	150	64	Р	

Vertical Channel 64



Shenzhen CTL Testing Technology Co., Ltd Tel: +86-755-89486194



Site LAB Chamber 2

. 1

Polarization: Vertical

Temperature: 25(C)

Limit: FCC Part15 RE-Class C_Above 1GHz_PK

Power:

Humidity: 50 %

EUT:

Distance: 3m

M/N: LY-HE30W

Mode: WIFI5G 5320MHz TX

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	1080.750	69.13	-23.35	45.78	74.00	28.22	peak	150	213	Р	
2	5322.250	60.14	-7.77	52.37	74.00	21.63	peak	150	181	Р	
3	7092.375	50.87	-3.70	47.17	74.00	26.83	peak	150	128	Р	
4	10634.580	48.13	-0.54	47.59	54.00	6.41	AVG	150	360	Р	
5	10634.750	63.24	-0.54	62.70	74.00	11.30	peak	150	118	Р	
6	13637.375	47.36	3.94	51.30	74.00	22.70	peak	150	97	Р	
7	15957.875	48.75	4.66	53.41	74.00	20.59	peak	150	149	Р	

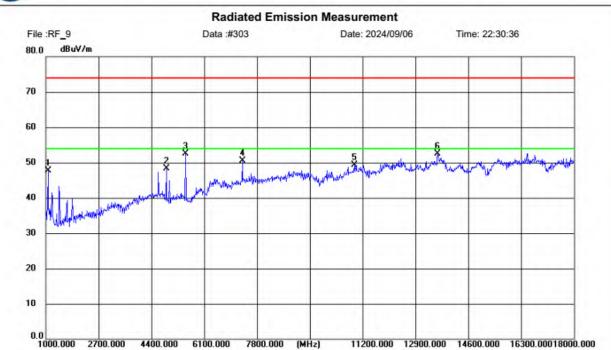
U-NII 2C & 802.11n (HT20) Mode (above 1GHz)

Horizontal

Channel 100



Shenzhen CTL Testing Technology Co., Ltd Tel: +86-755-89486194



Site LAB Chamber 2

Polarization: Horizontal

Temperature: 25(C)

Limit: FCC Part15 RE-Class C_Above 1GHz_PK

Power:

Humidity: 50 %

EUT:

Distance: 3m

M/N: LY-HE30W

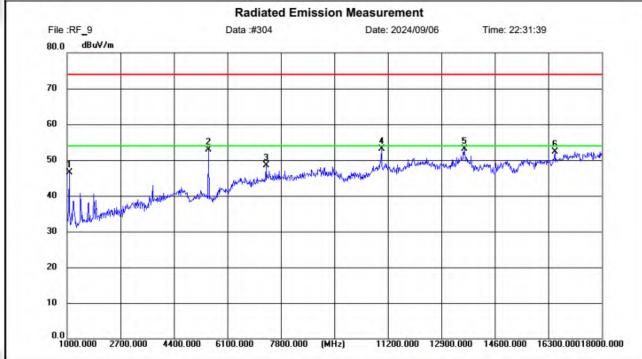
Mode: WIFI5G 5500MHz TX

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	1080.750	70.96	-23.35	47.61	74.00	26.39	peak	150	158	Р	
2	4882.375	56.28	-7.96	48.32	74.00	25.68	peak	150	294	Р	
3	5505.000	60.22	-7.72	52.50	74.00	21.50	peak	150	231	Р	
4	7332.500	53.42	-2.94	50.48	74.00	23.52	peak	150	117	Р	
5	10930.125	48.65	0.68	49.33	74.00	24.67	peak	150	336	Р	
6	13628.875	48.52	3.94	52.46	74.00	21.54	peak	150	336	Р	

Vertical Channel 100



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Site LAB Chamber 2 Polarization: Vertical Temperature: 25(C)
Limit: FCC Part15 RE-Class C Above 1GHz PK Power: Humidity: 50 %

Limit: FCC Part15 RE-Class C_Above 1GHz_PK Power:

EUT: Power: 3m

M/N: LY-HE30W

Mode: WIFI5G 5500MHz TX

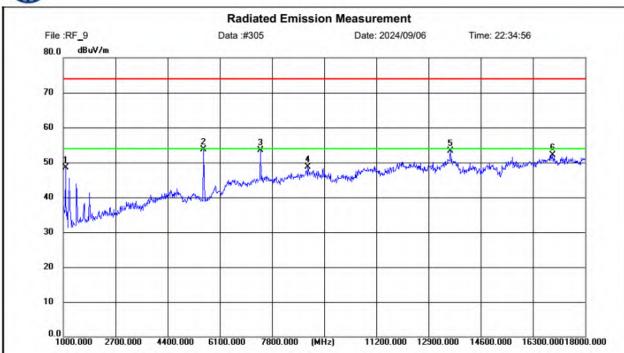
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	1080.750	69.77	-23.35	46.42	74.00	27.58	peak	150	244	Р	
2	5502.875	60.73	-7.73	53.00	74.00	21.00	peak	150	150	Р	
3	7332.500	51.38	-2.94	48.44	74.00	25.56	peak	150	128	Р	
4	11002.375	52.25	0.81	53.06	74.00	20.94	peak	150	171	Р	
5	13635.250	49.16	3.94	53.10	74.00	20.90	peak	150	35	Р	
6	16504.000	46.18	6.20	52.38	74.00	21.62	peak	150	139	Р	

Channel 120

Horizontal



Shenzhen CTL Testing Technology Co., Ltd Tel: +86-755-89486194



Site LAB Chamber 2 Polarization: Horizontal Temperature: 25(C)
Limit: FCC Part15 RE-Class C Above 1GHz PK Power: Humidity: 50 %

Limit: FCC Part15 RE-Class C_Above 1GHz_PK Power:

EUT: Distance: 3m

M/N: LY-HE30W

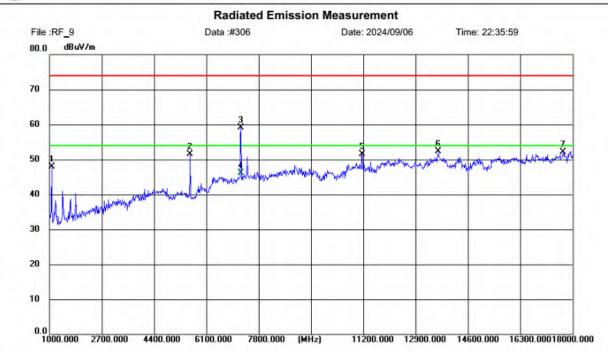
Mode: WIFI5G 5580MHz TX

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	1080.750	71.78	-23.35	48.43	74.00	25.57	peak	150	210	Р	
2	5577.250	61.17	-7.39	53.78	74.00	20.22	peak	150	210	Р	
3	7440.875	56.29	-2.81	53.48	74.00	20.52	peak	150	116	Р	
4	8987.875	48.95	-0.31	48.64	74.00	25.36	peak	150	2	Р	
5	13622.500	49.28	3.95	53.23	74.00	20.77	peak	150	12	Р	11 2 -
6	16952.375	45.46	6.71	52.17	74.00	21.83	peak	150	283	Р	

Vertical Channel 120



Shenzhen CTL Testing Technology Co., Ltd Tel: +86-755-89486194



Site LAB Chamber 2

Polarization: Vertical

Temperature: 25(C)

Limit: FCC Part15 RE-Class C_Above 1GHz_PK

Power:

Humidity: 50 %

EUT:

Distance: 3m

M/N: LY-HE30W

Mode: WIFI5G 5580MHz TX

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	1080.750	71.28	-23.35	47.93	74.00	26.07	peak	150	192	Р	
2	5579.375	58.88	-7.38	51.50	74.00	22.50	peak	150	181	Р	
3	7228.375	62.31	-3.21	59.10	74.00	14.90	peak	150	244	Р	
4	7230.734	49.28	-3.20	46.08	54.00	7.92	AVG	150	0	Р	
5	11168.125	50.65	0.82	51.47	74.00	22.53	peak	150	140	Р	
6	13631.000	48.34	3.95	52.29	74.00	21.71	peak	150	160	Р	
7	17698.250	42.94	9.15	52.09	74.00	21.91	peak	150	181	Р	

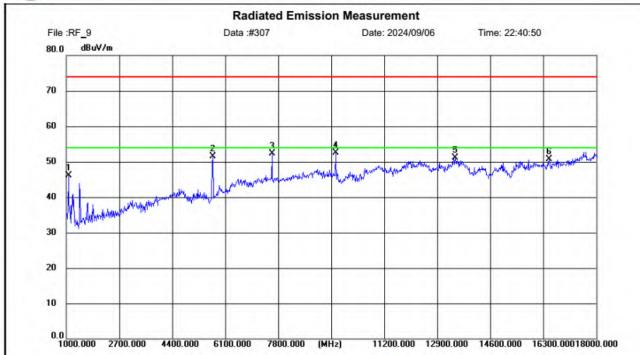
Humidity:

50 %

Horizontal Channel 140



Shenzhen CTL Testing Technology Co., Ltd Tel: +86-755-89486194



Site LAB Chamber 2 Polarization: Horizontal Temperature: 25(C)

Power:

EUT: Distance: 3m

M/N: LY-HE30W

Mode: WIFI5G 5700MHz TX

Note: Shenzhen Laiyu Technology Co., Ltd.

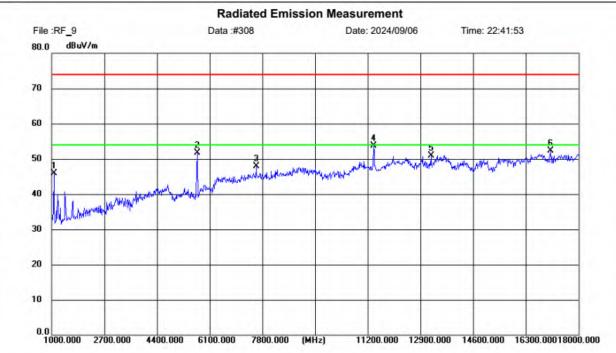
Limit: FCC Part15 RE-Class C_Above 1GHz_PK

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	1080.750	69.51	-23.35	46.16	74.00	27.84	peak	150	306	Р	
2	5709.000	58.20	-6.74	51.46	74.00	22.54	peak	150	85	Р	
3	7600.250	55.14	-2.81	52.33	74.00	21.67	peak	150	117	Р	
4	9648.750	52.03	0.46	52.49	74.00	21.51	peak	150	200	Р	
5	13484.375	47.27	3.86	51.13	74.00	22.87	peak	150	2	Р	
6	16495.500	44.43	6.18	50.61	74.00	23.39	peak	150	54	Р	

Vertical Channel 140



Shenzhen CTL Testing Technology Co., Ltd Tel: +86-755-89486194



Site LAB Chamber 2

Polarization: Vertical

Temperature: 25(C)

Limit: FCC Part15 RE-Class C_Above 1GHz_PK

Power:

Distance: 3m

Humidity: 50 %

M/N: LY-HE30W

EUT:

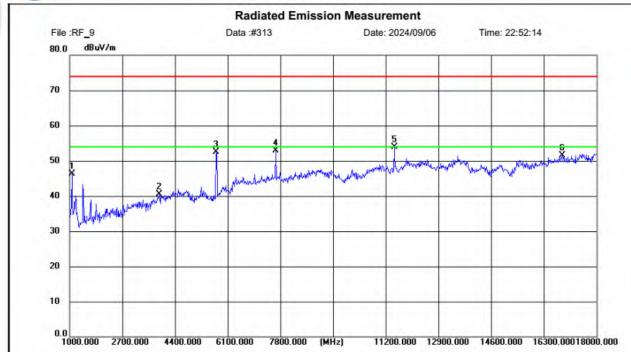
Mode: WIFI5G 5700MHz TX

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	1080.750	69.29	-23.35	45.94	74.00	28.06	peak	150	25	Р	
2	5704.750	58.49	-6.75	51.74	74.00	22.26	peak	150	140	Р	
3	7600.250	50.69	-2.81	47.88	74.00	26.12	peak	150	203	Р	
4	11399.750	52.90	0.76	53.66	74.00	20.34	peak	150	203	Р	
5	13244.250	47.88	3.03	50.91	74.00	23.09	peak	150	358	Р	
6	17099.000	45.09	7.15	52.24	74.00	21.76	peak	150	358	Р	

U-NII 3 & 802.11n (HT20) Mode (above 1GHz)

Horizontal

Shenzhen CTL Testing Technology Co., Ltd Tel: +86-755-89486194



Site LAB Chamber 2

Polarization: Horizontal

Temperature: 25(C)

Limit: FCC Part15 RE-Class C_Above 1GHz_PK

Power:

Humidity: 50 %

Report No.: CTL2409192011-WF01

Channel 149

EUT:

Distance: 3m

M/N: LY-HE30W

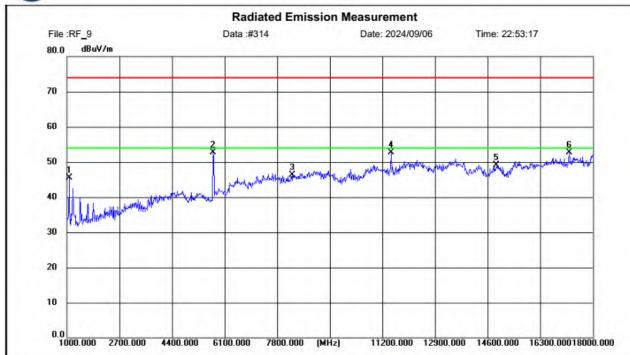
Mode: WIFI5G 5745MHz TX

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	1080.750	69.61	-23.35	46.26	74.00	27.74	peak	150	360	Р	
2	3896.375	51.14	-10.67	40.47	74.00	33.53	peak	150	211	Р	
3	5740.875	59.11	-6.63	52.48	74.00	21.52	peak	150	221	Р	
4	7659.750	55.96	-2.98	52.98	74.00	21.02	peak	150	127	Р	
5	11484.750	53.05	0.81	53.86	74.00	20.14	peak	150	95	Р	
6	16897.125	44.75	6.66	51.41	74.00	22.59	peak	150	357	Р	

Vertical Channel 149



Shenzhen CTL Testing Technology Co., Ltd Tel: +86-755-89486194



Site LAB Chamber 2

Polarization: Vertical
Power:

Temperature:

25(C)

Limit: FCC Part15 RE-Class C_Above 1GHz_PK

Humidity: 50 %

EUT:

Distance: 3m

M/N: LY-HE30W

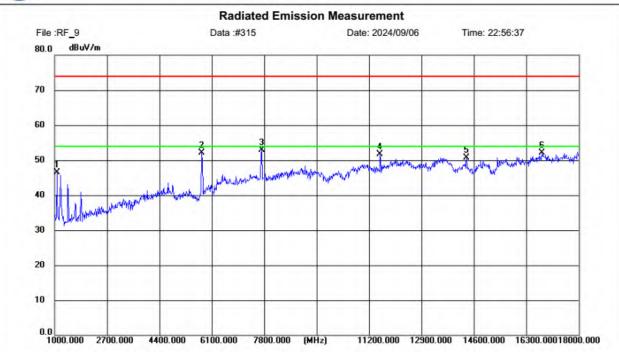
Mode: WIFI5G 5745MHz TX

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	1080.750	68.78	-23.35	45.43	74.00	28.57	peak	150	23	Р	
2	5740.875	59.43	-6.63	52.80	74.00	21.20	peak	150	139	Р	
3	8307.875	48.46	-2.19	46.27	74.00	27.73	peak	150	358	Р	
4	11484.750	51.92	0.81	52.73	74.00	21.27	peak	150	181	Р	
5	14899.625	45.98	3.14	49.12	74.00	24.88	peak	150	97	Р	
6	17249.875	44.80	7.90	52.70	74.00	21.30	peak	150	160	Р	

Horizontal Channel 157



Shenzhen CTL Testing Technology Co., Ltd Tel: +86-755-89486194



Site LAB Chamber 2 Polarization: *Horizontal* Temperature: 25(C)
Limit: FCC Part15 RE-Class C_Above 1GHz_PK Power: Humidity: 50 %

EUT: Distance: 3m

M/N: LY-HE30W

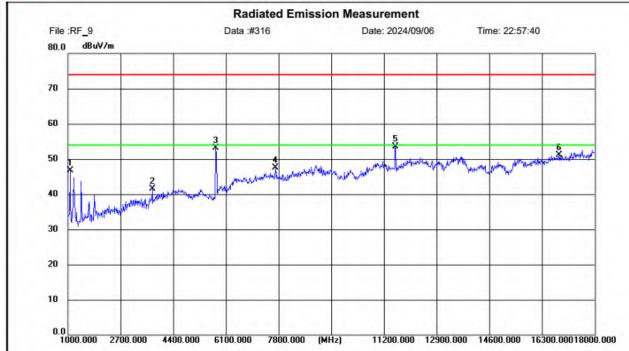
Mode: WIFI5G 5785MHz TX

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	1080.750	69.85	-23.35	46.50	74.00	27.50	peak	150	275	Р	
2	5774.875	58.59	-6.56	52.03	74.00	21.97	peak	150	202	Р	
3	7715.000	55.86	-2.89	52.97	74.00	21.03	peak	150	127	Р	
4	11567.625	50.81	0.99	51.80	74.00	22.20	peak	150	75	Р	
5	14362.000	48.06	2.70	50.76	74.00	23.24	peak	150	2	Р	
6	16824.875	45.44	6.60	52.04	74.00	21.96	peak	150	117	Р	

Vertical Channel 157



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Site LAB Chamber 2

Polarization: Vertical

Temperature: 25(C)

Limit: FCC Part15 RE-Class C_Above 1GHz_PK

Power:

Humidity:

EUT:

Distance: 3m

M/N: LY-HE30W

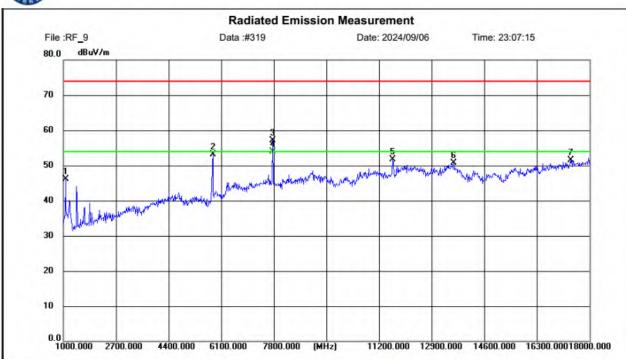
Mode: WIFI5G 5785MHz TX

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	1080.750	70.07	-23.35	46.72	74.00	27.28	peak	150	233	Р	
2	3730.625	52.82	-11.34	41.48	74.00	32.52	peak	150	348	Р	
3	5774.875	59.73	-6.56	53.17	74.00	20.83	peak	150	138	Р	
4	7712.875	50.48	-2.89	47.59	74.00	26.41	peak	150	170	Р	7
5	11576.125	52.44	1.01	53.45	74.00	20.55	peak	150	138	Р	
6	16865.250	44.45	6.63	51.08	74.00	22.92	peak	150	34	Р	

Horizontal Channel 165



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Site LAB Chamber 2

Polarization: Horizontal

Temperature: 25(C)

Limit: FCC Part15 RE-Class C_Above 1GHz_PK

Power:

Humidity: 50 %

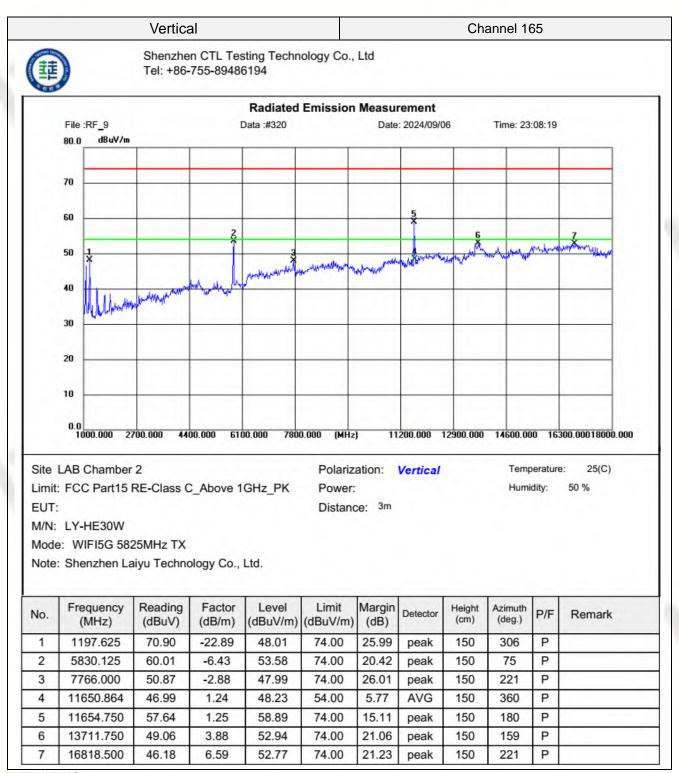
EUT:

Distance: 3m

M/N: LY-HE30W

Mode: WIFI5G 5825MHz TX

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	1080.750	69.38	-23.35	46.03	74.00	27.97	peak	150	137	Р	
2	5828.000	59.55	-6.44	53.11	74.00	20.89	peak	150	200	Р	
3	7766.000	59.91	-2.88	57.03	74.00	16.97	peak	150	127	Р	
4	7766.571	56.83	-2.88	53.95	54.00	0.05	AVG	150	0	Р	
5	11652.625	50.44	1.24	51.68	74.00	22.32	peak	150	85	Р	
6	13622.500	46.67	3.95	50.62	74.00	23.38	peak	150	232	Р	
7	17402.875	42.75	8.77	51.52	74.00	22.48	peak	150	43	Р	



REMARKS:

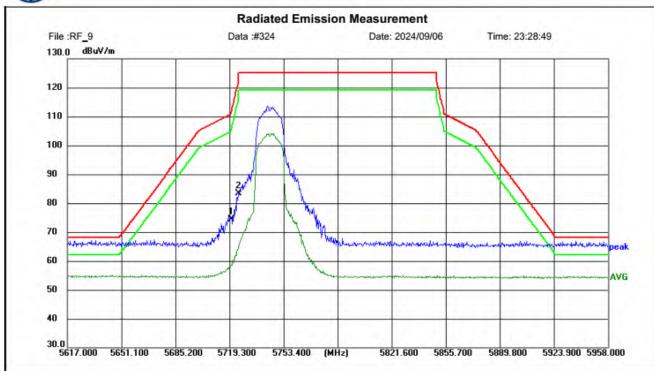
- 1. Emission level (dBuV/m) =Raw Value (dBuV)+Correction Factor (dB/m)
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- Margin value = Limit value- Emission level.
- 4. RBW1MHz VBW3MHz Peak detector is for PK value; RBW 1MHz VBW10Hz Peak detector is for AV value.
- 5. Worst case data at 6Mbps at IEEE 802.11a; MCS0 at IEEE 802.11n HT20,;
- 6. 18GHz-40GHz not recorded for no spurious point have a margin of less than 6 dB with respect to the limits.

Band Edge Test Plots

5745MHz 802.11n (HT20)



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Site LAB Chamber 2

Limit: FCC Part15 Band edge (U-NII-3) PK

EUT:

M/N: LY-HE30W

Mode: WIFI5G 5745MHz TX

Note: Shenzhen Laiyu Technology Co., Ltd.

Polarization: Horizontal Humidity: Power: 50 %

Temperature:

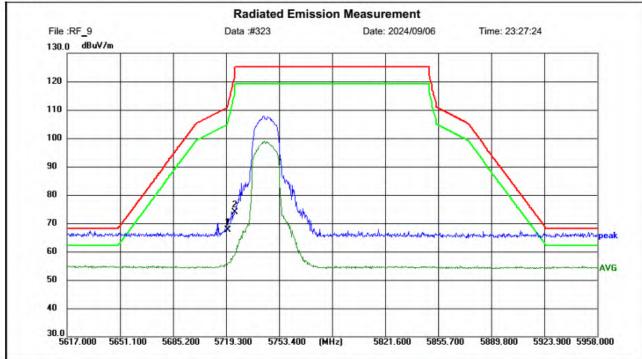
25(C)

Distance: 3m

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	5720.000	46.18	28.15	74.33	110.80	36.47	peak	150	0	Р	
2	5725.000	55.22	28.14	83.36	122.20	38.84	peak	150	0	Р	







Site LAB Chamber 2

Polarization: Vertical

Temperature: 25(C)

50 %

Humidity:

Limit: FCC Part15 Band edge (U-NII-3) PK

Power: Distance: 3m

M/N: LY-HE30W

Mode: WIFI5G 5745MHz TX

EUT:

No.	Frequency (MHz)	Reading (dBuV)			Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	5720.000	39.45	28.15	67.60	110.80	43.20	peak	150	360	Р	
2	5725.000	45.67	28.14	73.81	122.20	48.39	peak	150	360	Р	

Temperature:

Humidity:

25(C)

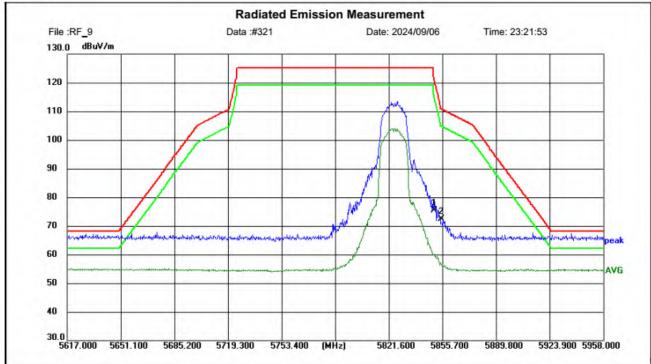
50 %

Band Edge Test Plots

5825MHz 802.11n (HT20)



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Site LAB Chamber 2

Limit: FCC Part15 Band edge (U-NII-3) PK

EUT:

M/N: LY-HE30W

Mode: WIFI5G 5825MHz TX

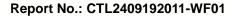
Note: Shenzhen Laiyu Technology Co., Ltd.

No.	Frequency (MHz)	Reading (dBuV)		Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	5850.000	47.51	27.99	75.50	122.20	46.70	peak	150	360	Р	
2	5855.000	44.28	28.02	72.30	110.80	38.50	peak	150	360	Р	

Power:

Distance: 3m

Polarization: Horizontal



Temperature:

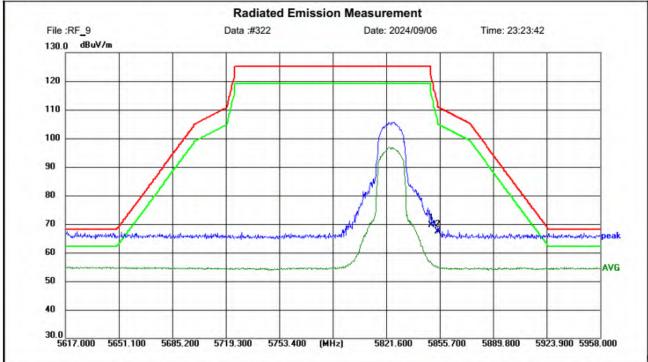
Humidity:

25(C)

50 %



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Site LAB Chamber 2

Limit: FCC Part15 Band edge (U-NII-3) PK

EUT:

M/N: LY-HE30W

Mode: WIFI5G 5825MHz TX

Note: Shenzhen Laiyu Technology Co., Ltd.

No.	Frequency (MHz)	Reading (dBuV)		Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	5850.000	41.66	27.99	69.65	122.20	52.55	peak	150	0	Р	
2	5855.000	39.35	28.02	67.37	110.80	43.43	peak	150	0	Р	

Power:

Distance: 3m

Polarization: Vertical

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3.3. Maximum Conducted Average Output Power

Limit

FCC requirement:

For the band 5.15-5.25 GHz.

- (i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6dBi.
- (ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6dBi.
- (iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.
- (iv) For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250mW provided the maximum antenna gain does not exceed 6dBi.

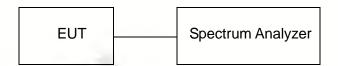
For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250mW or 11dBm + 10log B, where B is the 26 dB emission bandwidth in megahertz.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W

Test Procedure

Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum.

Test Configuration



Test Results

Raw data reference to Section 2 CTL2409192011-WF_5G_BAND_1_Appendix. Raw data reference to Section 2 CTL2409192011-WF_5G_BAND_2A_Appendix. Raw data reference to Section 2 CTL2409192011-WF_5G_BAND_2C_Appendix. Raw data reference to Section 2 CTL2409192011-WF_5G_BAND_3_Appendix.

3.4. Power Spectral Density

Limit

FCC requirement:

For the band 5.15-5.25 GHz.

- (i) For an outdoor access point operating in the band 5.15 5.25 GHz, the maximum power spectral density shall not exceed 17dBm in any 1 MHz band.^{note1}
- (ii) For an indoor access point operating in the band 5.15 5.25 GHz, the maximum power spectral density shall not exceed 17dBm in any 1 MHz band.^{note1}
- (iii) For fixed point-to-point access points operating in the band 5.15 5.25 GHz, transmitters that employ a directional antenna gain greater than 23dBi, a 1 dB reduction in maximum power spectral density is required for each 1 dB of antenna gain in excess of 23dBi.
- (iv) For mobile and portable client devices in the 5.15 5.25 GHz band, the maximum power spectral density shall not exceed 11dBm in any 1 MHz band. note1

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands

The maximum power spectral density shall not exceed 11dBm in any 1 megahertz band.

IC requirement:

For the band 5.15-5.25 GHz.

The e.i.r.p. spectral density shall not exceed 10dBm in any 1.0 MHz band.

Frequency band 5250-5350 MHz

The power spectral density shall not exceed 11dBm in any 1.0 MHz band

Frequency bands 5470-5600 MHz and 5650-5725 MHz

The power spectral density shall not exceed 11dBm in any 1.0 MHz band.

For the band 5.725 - 5.85 GHz

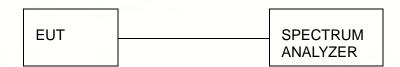
The maximum power spectral density shall not exceed 30dBm in any 500 kHz band. note1, note2

Note1: If transmitting antennas of directional gain greater than 6dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi. Note2: Fixed point - to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information.

Test Procedure

- 1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
- 2. Set the RBW = 1MHz for U-NII 1, U-NII 2A, U-NII C band and 510KHz for U-NII 3 band.
- 3. Set the VBW ≥ 3× RBW.
- 4. Set the span to encompass the entire EBW.
- 5. Detector = peak.
- 6. Sweep time = auto couple.
- 7. Trace mode = max hold.
- 8. Allow trace to fully stabilize.
- 9. Use the peak marker function to determine the maximum power level.

Test Configuration



Test Results

Raw data reference to Section 3 CTL2409192011-WF_5G_BAND_1_Appendix. Raw data reference to Section 3 CTL2409192011-WF_5G_BAND_2A_Appendix. Raw data reference to Section 3 CTL2409192011-WF_5G_BAND_2C_Appendix. Raw data reference to Section 3 CTL2409192011-WF_5G_BAND_3_Appendix.

3.5. Emission Bandwidth (26dBm Bandwidth)

Limit

N/A

Test Procedure

- 1. Set resolution bandwidth (RBW) = approximately 1 % of the EBW.
- 2. Set the video bandwidth (VBW) > RBW.
- 3. Detector = Peak.
- 4. Trace mode = Max hold.
- 5. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW / EBW ratio is approximately 1 %.

Test Configuration



Test Results

Raw data reference to Section 1 CTL2409192011-WF_5G_BAND_1_Appendix. Raw data reference to Section 1 CTL2409192011-WF_5G_BAND_2A_Appendix.

Raw data reference to Section 1 CTL2409192011-WF_5G_BAND_2C_Appendix.

Raw data reference to Section 1 CTL2409192011-WF_5G_BAND_3_Appendix.

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3.6. Minimum Emission Bandwidth (6dBm Bandwidth)

Limit

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 kHz for the band 5.725-5.85 GHz

Test Procedure

- 1. Set resolution bandwidth (RBW) = 100 kHz
- 2. Set the video bandwidth 3 x RBW.
- 3. Detector = Peak.
- 4. Trace mode = Max hold.
- 5. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Test Configuration



Test Results

Raw data reference to Section 1 CTL2409192011-WF_5G_BAND_1_Appendix. Raw data reference to Section 1 CTL2409192011-WF_5G_BAND_2A_Appendix. Raw data reference to Section 1 CTL2409192011-WF_5G_BAND_2C_Appendix. Raw data reference to Section 1 CTL2409192011-WF_5G_BAND_3_Appendix.

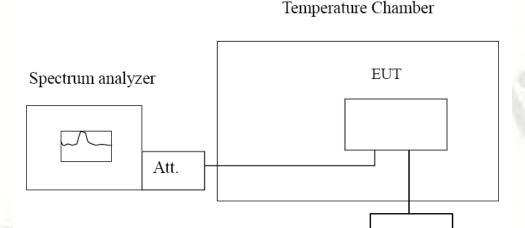
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3.7. Frequency Stability

LIMIT

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

TEST CONFIGURATION



Variable Power Supply

TEST PROCEDURE

Frequency Stability under Temperature Variations:

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

Frequency Stability under Voltage Variations:

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation (±15%) and endpoint, record the maximum frequency change.

TEST RESULTS

Raw data reference to Section 4 CTL2409192011-WF_5G_BAND_1_Appendix. Raw data reference to Section 4 CTL2409192011-WF_5G_BAND_2A_Appendix. Raw data reference to Section 4 CTL2409192011-WF_5G_BAND_2C_Appendix. Raw data reference to Section 4 CTL2409192011-WF_5G_BAND_3_Appendix.

3.8. Antenna Requirement

Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited

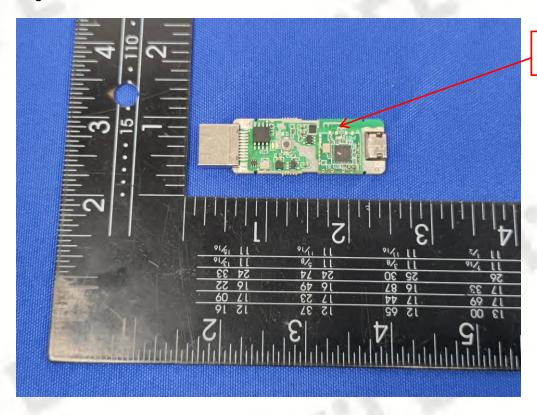
And according to FCC 47 CFR Section 15.407 (a), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

Refer to statement below for compliance

The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

Antenna Connected Construction

The maximum gain of 5G_Wi-Fi Antenna was 2dBi.



WIFI Antenna V1.0 Page 67 of 76 Report No.: CTL2409192011-WF01

3.9. Operation in the absence of information to the transmit

Standard Applicable

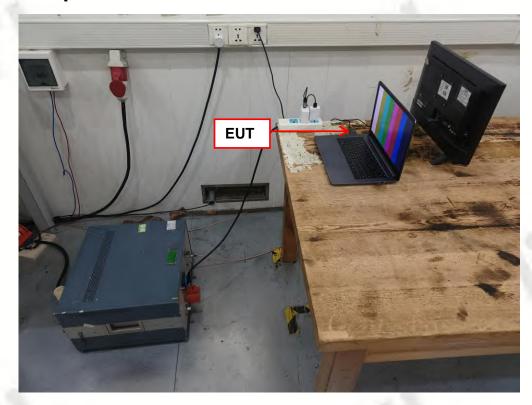
15.407(c) requirement:

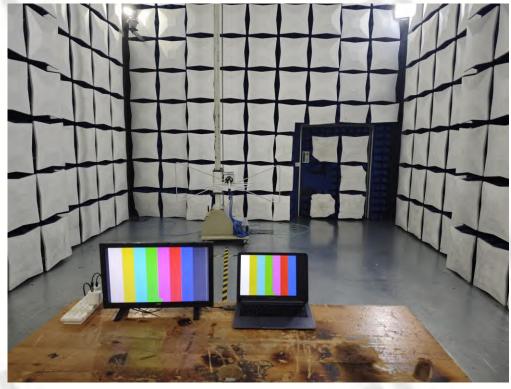
The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signal ling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met.

Results

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ASK message transmitting from remote device and verify whether it shall resend or discontinue transmission. (manufacturer declare)

4. Test Setup Photos of the EUT





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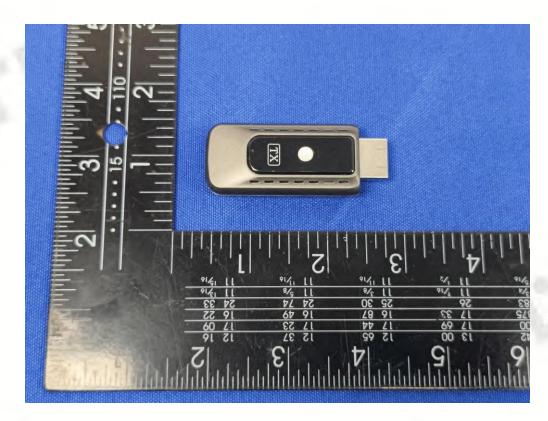
5. Photos of the EUT

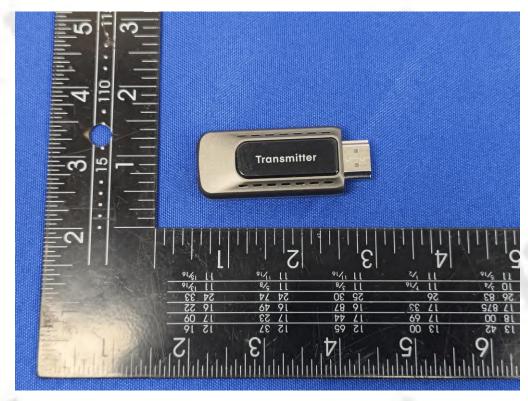
External Photos of EUT



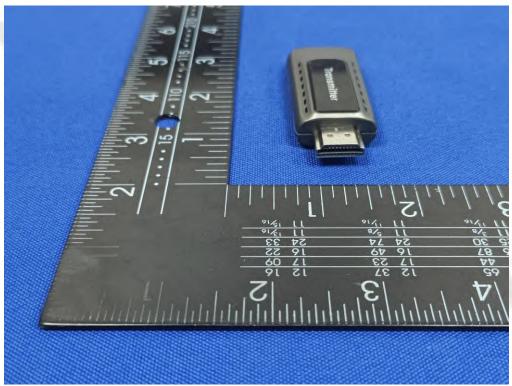


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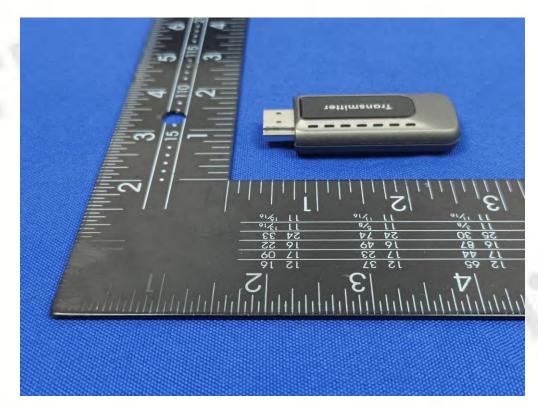


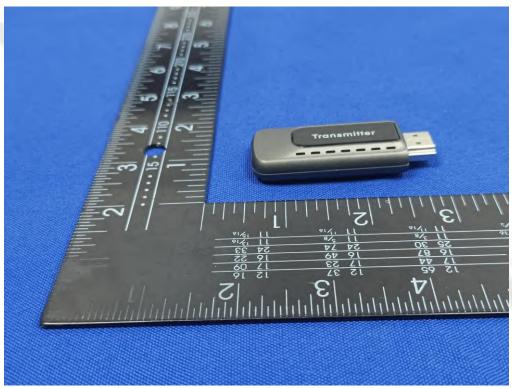






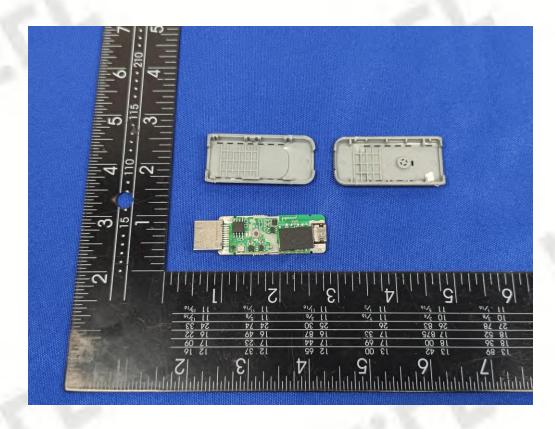
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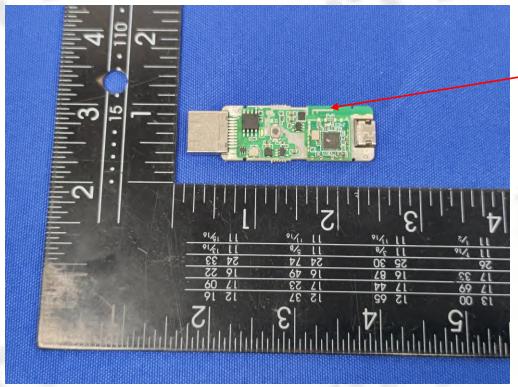




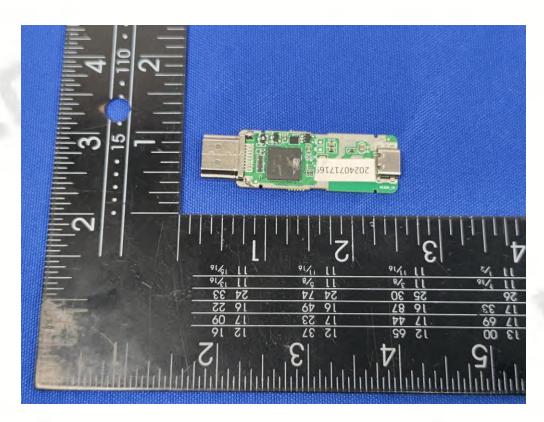
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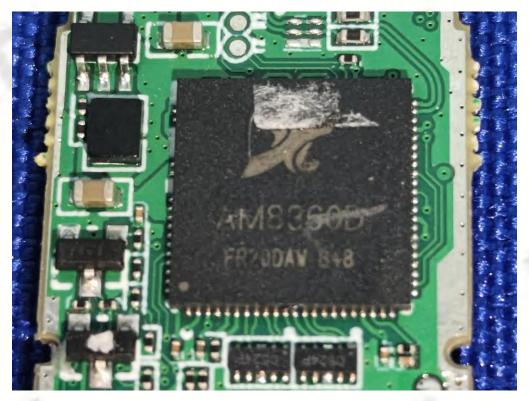
Internal Photos of EUT



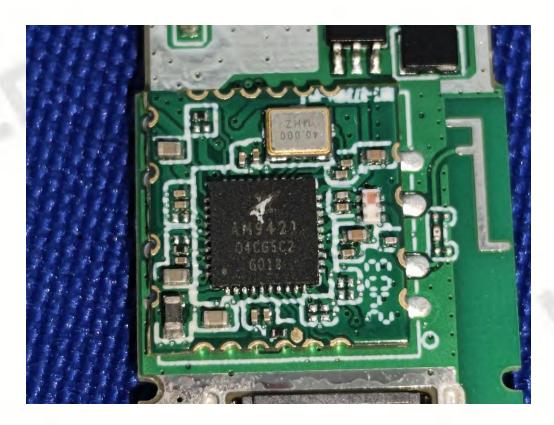


Antenna





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****************** End of Report ***************