

TEST REPORT

Product Name : LCX-WK150-011
Brand Mark : N/A
Model No. : LCX-WK150-011
FCC ID : 2A4AOLCX-WK02
Report Number : BLA-EMC-202211-A7002
Date of Sample Receipt : 2022/11/22
Date of Test : 2022/11/22 to 2022/12/02
Date of Issue : 2022/12/02
Test Standard : 47 CFR Part 15, Subpart C 15.247
Test Result : Pass

Prepared for:

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3rd Floor, Building C, Edimonto Industrial Park, Martin Street, Guangming District

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2022/12/02



REPORT REVISE RECORD

Version No.	Date	Description
00	2022/12/02	Original

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TABLE OF CONTENTS

1	TEST SUMMARY	6
2	GENERAL INFORMATION	7
3	GENERAL DESCRIPTION OF E.U.T.	7
4	TEST ENVIRONMENT	8
5	TEST MODE	8
6	MEASUREMENT UNCERTAINTY	8
7	DESCRIPTION OF SUPPORT UNIT	9
8	LABORATORY LOCATION	9
9	TEST INSTRUMENTS LIST	10
10	ANTENNA REQUIREMENT	12
10.1	CONCLUSION	12
11	RADIATED SPURIOUS EMISSIONS	13
11.1	LIMITS	13
11.2	BLOCK DIAGRAM OF TEST SETUP	14
11.3	PROCEDURE	14
11.4	TEST DATA	16
12	RADIATED EMISSIONS WHICH FALL IN THE RESTRICTED BANDS	24
12.1	LIMITS	24
12.2	BLOCK DIAGRAM OF TEST SETUP	25
12.3	PROCEDURE	25
12.4	TEST DATA	27
13	CONDUCTED SPURIOUS EMISSIONS	31
13.1	LIMITS	31
13.2	BLOCK DIAGRAM OF TEST SETUP	31
13.3	TEST DATA	32
14	CONDUCTED BAND EDGES MEASUREMENT	33
14.1	LIMITS	33
14.2	BLOCK DIAGRAM OF TEST SETUP	33
14.3	TEST DATA	34

15 MINIMUM 6DB BANDWIDTH	35
15.1 LIMITS	35
15.2 BLOCK DIAGRAM OF TEST SETUP	35
15.3 TEST DATA.....	35
16 POWER SPECTRUM DENSITY.....	36
16.1 LIMITS	36
16.2 BLOCK DIAGRAM OF TEST SETUP	36
16.3 TEST DATA.....	36
17 CONDUCTED PEAK OUTPUT POWER	37
17.1 LIMITS	37
17.2 BLOCK DIAGRAM OF TEST SETUP	37
17.3 TEST DATA.....	38
18 CONDUCTED EMISSIONS AT AC POWER LINE (150KHZ-30MHZ).....	39
18.1 LIMITS	39
18.2 BLOCK DIAGRAM OF TEST SETUP	39
18.3 PROCEDURE	39
18.4 TEST DATA.....	41
19 APPENDIX	43
19.1 APPENDIX A: DTS BANDWIDTH.....	43
<i>Test Result.....</i>	43
<i>Test Graphs.....</i>	44
19.2 APPENDIX B: OCCUPIED CHANNEL BANDWIDTH	49
<i>Test Result.....</i>	49
<i>Test Graphs.....</i>	50
19.3 APPENDIX C: MAXIMUM CONDUCTED OUTPUT POWER	55
<i>Test Result.....</i>	55
<i>Test Graphs.....</i>	56
19.4 APPENDIX D: MAXIMUM POWER SPECTRAL DENSITY.....	61
<i>Test Result.....</i>	61
<i>Test Graphs.....</i>	62
19.5 APPENDIX E: BAND EDGE MEASUREMENTS.....	67
<i>Test Result.....</i>	67
<i>Test Graphs.....</i>	68
19.6 APPENDIX F: CONDUCTED SPURIOUS EMISSION.....	71

Test Result.....	71
Test Graphs.....	72
APPENDIX A: PHOTOGRAPHS OF TEST SETUP	86
APPENDIX B: PHOTOGRAPHS OF EUT	88

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1 TEST SUMMARY

Test item	Test Requirement	Test Method	Class/Severity	Result
Antenna Requirement	47 CFR Part 15, Subpart C 15.247	N/A	47 CFR Part 15, Subpart C 15.203 & 15.247(c)	Pass
Radiated Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.4,6.5,6.6	47 CFR Part 15, Subpart C 15.209 & 15.247(d)	Pass
Radiated Emissions which fall in the restricted bands	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.10.5	47 CFR Part 15, Subpart C 15.209 & 15.247(d)	Pass
Conducted Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 7.8.6 & Section 11.11	47 CFR Part 15, Subpart C 15.247(d)	Pass
Conducted Band Edges Measurement	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 7.8.8 & Section 11.13.3.2	47 CFR Part 15, Subpart C 15.247(d)	Pass
Minimum 6dB Bandwidth	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.8.1	47 CFR Part 15, Subpart C 15.247a(2)	Pass
Power Spectrum Density	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.10.2	47 CFR Part 15, Subpart C 15.247(e)	Pass
Conducted Peak Output Power	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 7.8.5 & Section 11.9.1	47 CFR Part 15, Subpart C 15.247(b)(1) & 15.247(b)(3)	Pass
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	Pass

2 GENERAL INFORMATION

Applicant	Shenzhen Lingchuangxun Technology Co., Ltd
Address	3rd Floor, Building C, Edimonto Industrial Park, Martin Street, Guangming District
Manufacturer	Shenzhen Lingchuangxun Technology Co., Ltd
Address	3rd Floor, Building C, Edimonto Industrial Park, Martin Street, Guangming District
Factory	Shenzhen Lingchuangxun Technology Co., Ltd
Address	3rd Floor, Building C, Edimonto Industrial Park, Martin Street, Guangming District
Product Name	LCX-WK150-011
Test Model No.	LCX-WK150-011

3 GENERAL DESCRIPTION OF E.U.T.

Hardware Version	V1.0
Software Version	N/A
Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz
Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Channel Spacing:	5MHz
Number of Channels:	802.11b/g/n(HT20):11
Antenna Type:	PCB Antenna
Antenna gain:	Antenna:2dBi
Remark:The Antenna Gain is supplied by the customer.BlueAsia is not responsible for this data	

4 TEST ENVIRONMENT

Environment	Temperature	Voltage
Normal	25°C	DC5V

5 TEST MODE

TEST MODE	TEST MODE DESCRIPTION
Transmitting mode	Keep the EUT in continuously transmitting mode with modulation. (Duty cycle>98%)

Remark: Only the data of the worst mode would be recorded in this report.

6 MEASUREMENT UNCERTAINTY

Parameter	Expanded Uncertainty (Confidence of 95%)
Radiated Emission(9kHz-30MHz)	±4.34dB
Radiated Emission(30MHz-1000MHz)	±4.24dB
Radiated Emission(1GHz-18GHz)	±4.68dB
AC Power Line Conducted Emission(150kHz-30MHz)	±3.45dB

7 DESCRIPTION OF SUPPORT UNIT

Device Type	Manufacturer	Model Name	Serial No.	Remark
PC	N/A	N/A	N/A	N/A

8 LABORATORY LOCATION

All tests were performed at:

BlueAsia of Technical Services(Shenzhen) Co., Ltd.

Building C, No. 107, Shihuan Road, Shiyan Sub-District, Baoan District, Shenzhen, Guangdong Province, China

Telephone: TEL: +86-755-28682673 FAX: +86-755-28682673

No tests were sub-contracted.

9 TEST INSTRUMENTS LIST

Test Equipment Of Radiated Spurious Emissions					
Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Chamber 1	SKET	966	N/A	2020/11/10	2023/11/9
Chamber 2	SKET	966	N/A	2021/07/20	2024/07/19
Spectrum	R&S	FSP40	100817	2022/09/15	2023/09/14
Receiver	R&S	ESR7	101199	2022/09/15	2023/09/14
Receiver	R&S	ESPI7	101477	2022/07/16	2023/07/15
broadband Antenna	Schwarzbeck	VULB9168	00836 P:00227	2022/09/15	2023/09/14
Horn Antenna	Schwarzbeck	BBHA9120D	01892 P:00331	2022/09/13	2025/09/12
Amplifier	SKET	LNPA_30M01G-30	SK2021060801	2022/07/16	2023/07/15
Amplifier	SKET	PA-000318G-45	N/A	2022/09/13	2023/09/12
Amplifier	SKET	LNPA_18G40G-50	SK2022071301	2022/07/14	2023/07/13
Filter group	SKET	2.4G/5G Filter group r	N/A	2022/07/16	2023/07/15
EMI software	EZ	EZ-EMC	EEMC-3A1	N/A	N/A
Loop antenna	SCHNARZBECK	FMZB1519B	00102	2022/9/14	2025/9/13
Controller	SKET	N/A	N/A	N/A	N/A
Coaxial Cable	BlueAsia	BLA-XC-02	N/A	N/A	N/A
Coaxial Cable	BlueAsia	BLA-XC-03	N/A	N/A	N/A
Coaxial Cable	BlueAsia	BLA-XC-01	N/A	N/A	N/A

Test Equipment Of Conducted Emissions at AC Power Line (150kHz-30MHz)					
Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Shield room	SKET	833	N/A	2020/11/25	2023/11/24
Receiver	R&S	ESPI3	101082	2022/09/14	2023/09/13
LISN	R&S	ENV216	3560.6550.15	2022/09/14	2023/09/13
LISN	AT	AT166-2	AKK1806000003	2022/09/14	2023/09/13
ISN	TESEQ	ISNT8-cat6	53580	2022/09/14	2023/09/13
Single-channel vehicle artificial power network	Schwarzbeck	NNBM 8124	01045	2022/08/17	2023/08/16

Single-channel vehicle artificial power network	Schwarzbeck	NNBM 8124	01075	2022/08/17	2023/08/16
EMI software	EZ	EZ-EMC	EEMC-3A1	N/A	N/A

Test Equipment Of RF Conducted Test

Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Spectrum	R&S	FSP40	100817	2022/09/15	2023/09/14
Spectrum	Agilent	N9020A	MY49100060	2022/09/07	2023/09/06
Spectrum	KEYSIGHT	N9030A	MY52350152	2022/07/01	2023/06/30
Spectrum	KEYSIGHT	N9010A	MY54330814	2022/07/01	2023/06/30
Signal Generator	Agilent	N5182A	MY47420955	2022/09/07	2023/09/06
Signal Generator	Agilent	E8257D	MY44320250	2022/07/01	2023/06/30
Signal Generator	Agilent	N5181A	MY46240904	2022/08/02	2023/08/01
Signal Generator	R&S	CMW500	132429	2022/09/07	2023/09/06
BluetoothTester	Anritsu	MT8852B	06262047872	2022/09/07	2023/09/06
Power probe	DARE	RPR3006W	14I00889SN042	2022/09/07	2023/09/06
DCPowersupply	zhaoxin	KXN-305D	20K305D1221363	2022/09/14	2023/09/13
DCPowersupply	zhaoxin	RXN-1505D	19R1505D050168	2022/09/14	2023/09/13
2.4GHz/5GHz RF Test software	MTS	MTS 8310	Version 2.0.0.0	N/A	N/A

10 ANTENNA REQUIREMENT

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	N/A

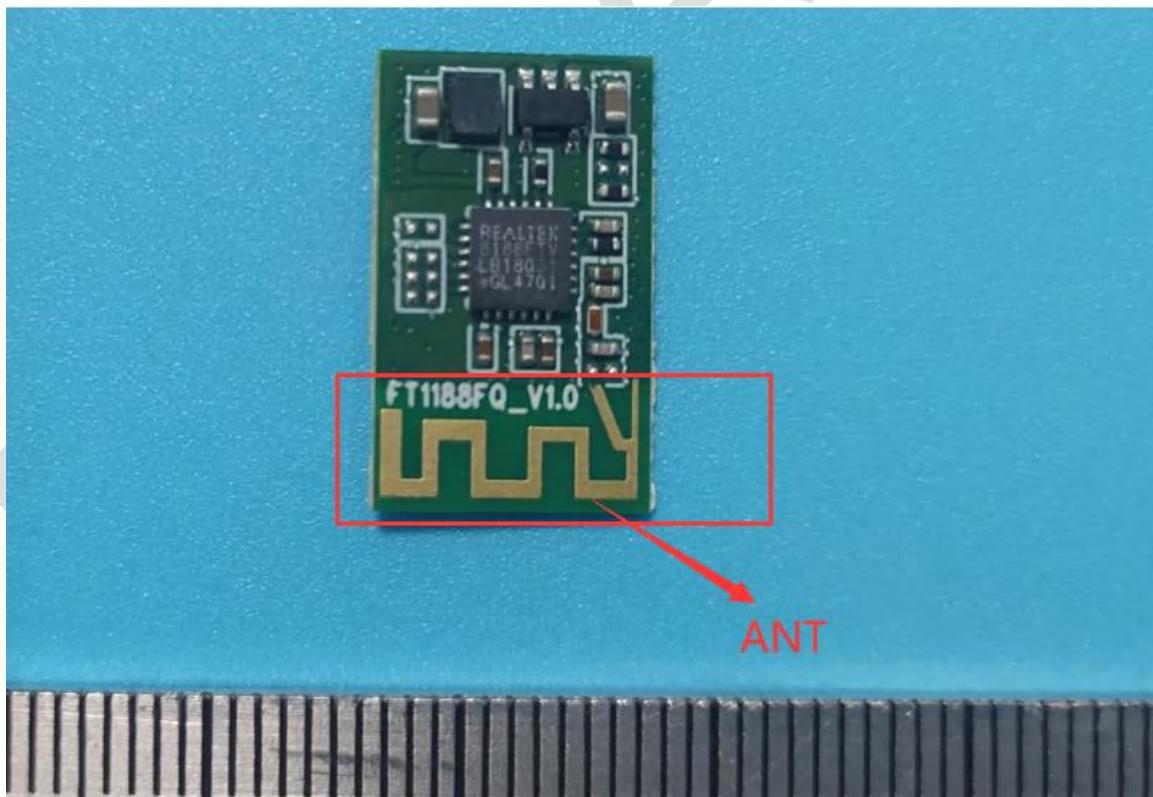
10.1 CONCLUSION

Standard Requirement:

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 antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of an so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 2dBi.



11 RADIATED SPURIOUS EMISSIONS

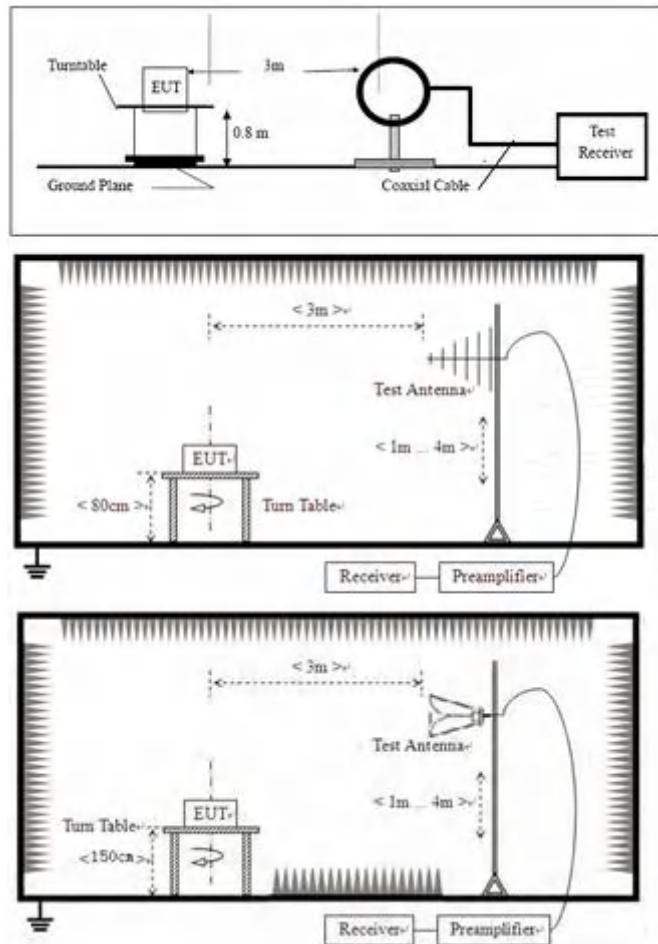
Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 6.4,6.5,6.6
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Charlie
Temperature	25 °C
Humidity	60%

11.1 LIMITS

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

11.2 BLOCK DIAGRAM OF TEST SETUP



11.3 PROCEDURE

- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

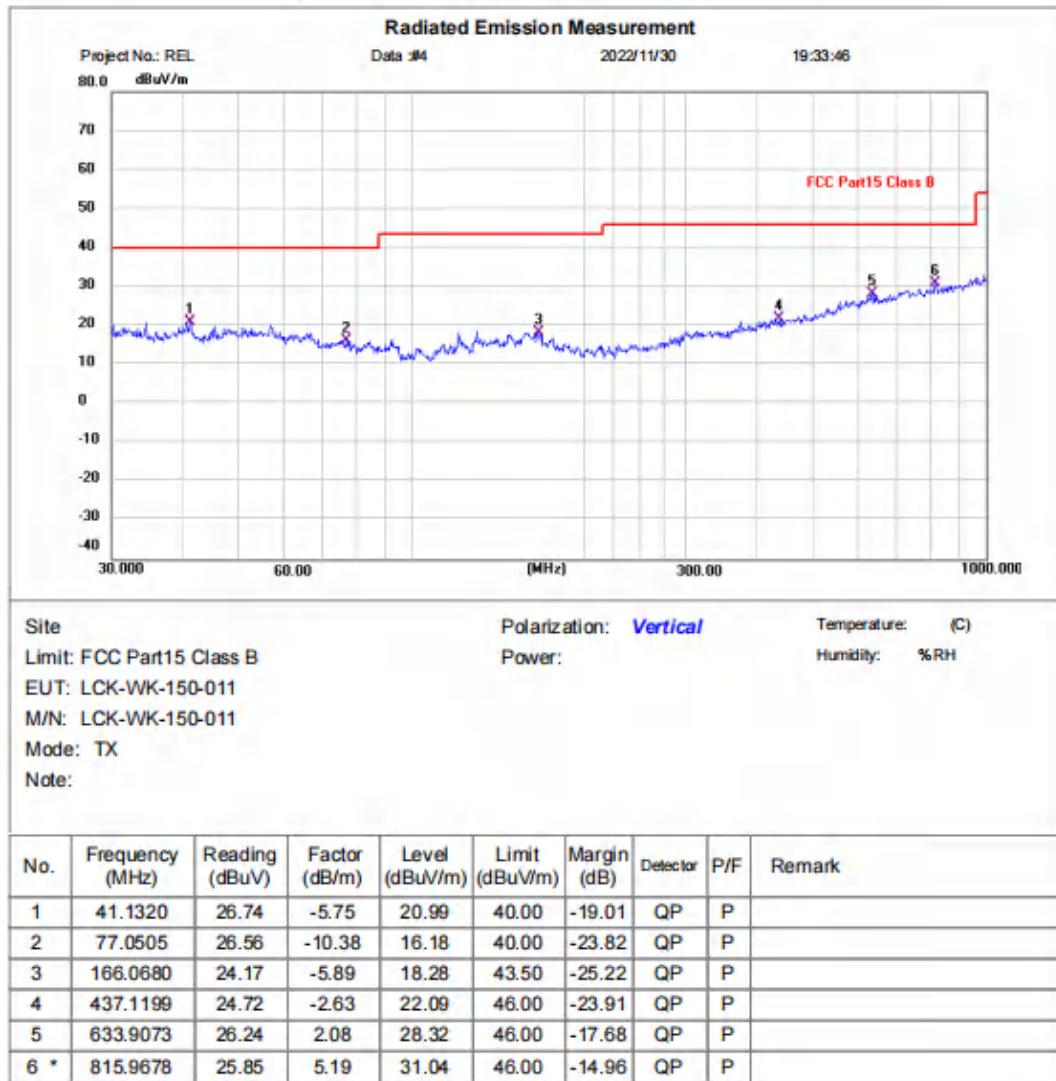
Remark:

- 1) For emission below 1GHz, through pre-scan found the worst case is the lowest channel. Only the worst case is recorded in the report.
- 2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
Final Test Level = Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor
- 3) Scan from 9kHz to 25GHz, the disturbance above 12.75GHz and below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. fundamental frequency is blocked by filter, and only spurious emission is shown.
- 4) For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

11.4 TEST DATA

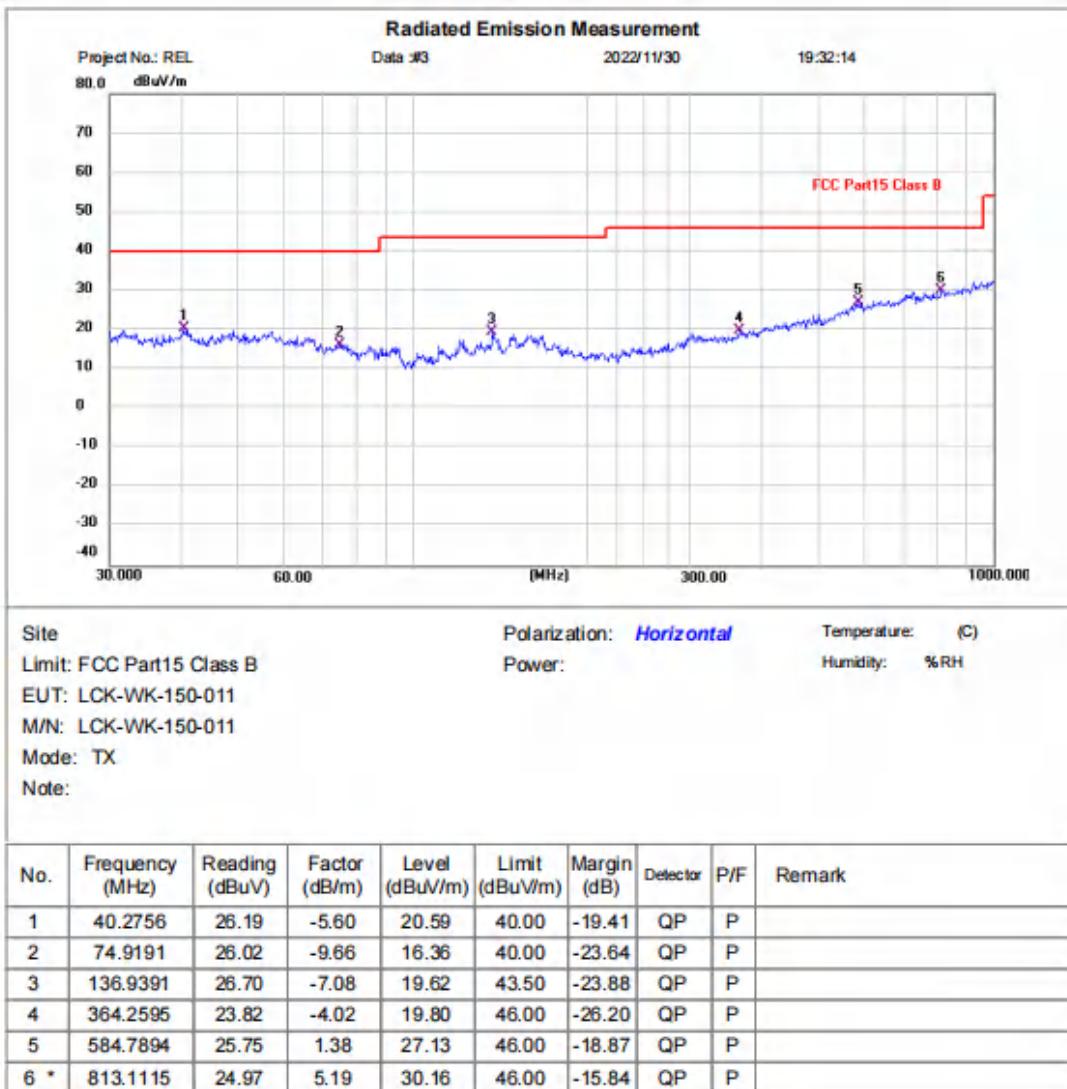
Remark: During the test, pre-scan the 802.11b/g/n mode, and found the 802.11b mode which it is worse case.

[TestMode: TX mode (SE) below 1G]; [Polarity: Vertical]



Test Result: Pass

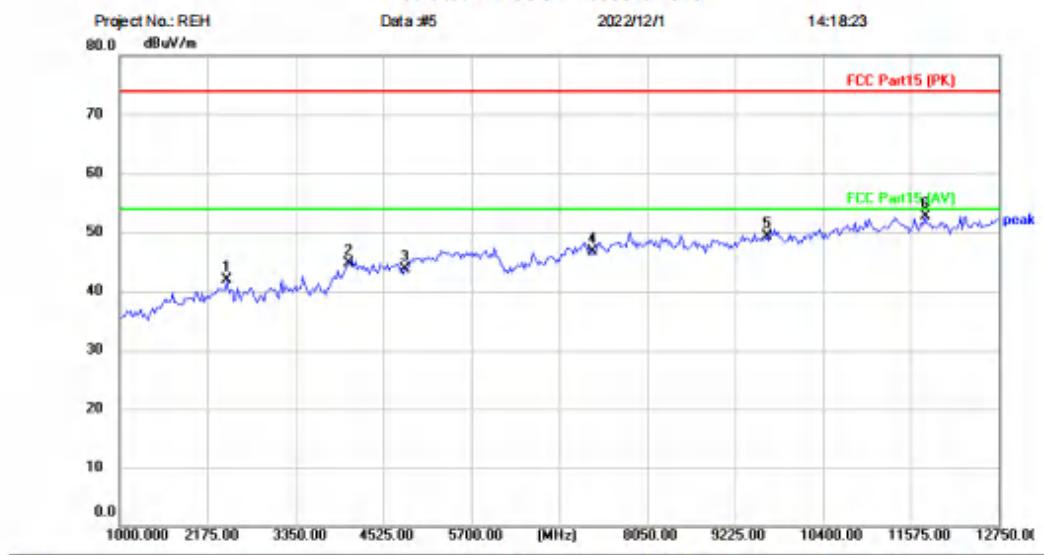
[TestMode: TX mode (SE) below 1G]; [Polarity: Horizontal]


Test Result: Pass

Above 1GHz:

[TestMode: TX B low channel]; [Polarity: Horizontal]

Radiated Emission Measurement



Site	Polarization: <i>Horizontal</i>	Temperature: (C)
Limit: FCC Part15 (PK)	Power:	Humidity: %RH
EUT: LCK-WK150-011		
M/N: LCK-WK150-011		
Mode: TX-L		
Note:		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over							
							MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment
1		2433.500	43.37	-1.52	41.85	74.00	-32.15						peak	
2		4055.000	42.37	2.40	44.77	74.00	-29.23						peak	
3		4824.000	39.66	4.13	43.79	74.00	-30.21						peak	
4		7326.000	38.46	8.21	46.67	74.00	-27.33						peak	
5		9648.000	38.34	11.01	49.35	74.00	-24.65						peak	
6	*	11763.000	38.91	13.80	52.71	74.00	-21.29						peak	

Test Result: Pass

[TestMode: TX B low channel]; [Polarity: Vertical]

Radiated Emission Measurement



Site	Polarization: Vertical	Temperature: (C)
Limit: FCC Part15 (PK)	Power:	Humidity: %RH
EUT: LCK-WK150-011		
M/N: LCK-WK150-011		
Mode: TX-L		
Note:		

No.	Mk.	Reading		Correct Factor	Measure-		Limit	Over		
		Freq.	Level		ment	dBuV/m		dBuV/m	dB	Detector
		MHz								
1		1705.000	47.28	-5.22	42.06	74.00	-31.94	peak		
2		4008.000	43.04	2.09	45.13	74.00	-28.87	peak		
3		4824.000	39.75	4.13	43.88	74.00	-30.12	peak		
4		7326.000	38.47	8.21	46.68	74.00	-27.32	peak		
5		9648.000	37.99	11.01	49.00	74.00	-25.00	peak		
6	*	11622.000	39.29	13.73	53.02	74.00	-20.98	peak		

Test Result: Pass

[TestMode: TX B mid channel]; [Polarity: Horizontal]

Radiated Emission Measurement



Site	Polarization: <i>Horizontal</i>	Temperature: (C)
Limit: FCC Part15 (PK)	Power:	Humidity: %RH
EUT: LCK-WK150-011		
M/N: LCK-WK150-011		
Mode: TX-M		
Note:		

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over		
			Level	Factor	ment				
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment
1		2433.500	43.93	-1.52	42.41	74.00	-31.59	peak	
2		3397.000	46.51	-1.77	44.74	74.00	-29.26	peak	
3		4874.000	41.15	4.32	45.47	74.00	-28.53	peak	
4		7311.000	38.01	8.18	46.19	74.00	-27.81	peak	
5		9748.000	38.10	11.26	49.36	74.00	-24.64	peak	
6	*	11692.500	38.79	13.76	52.55	74.00	-21.45	peak	

Test Result: Pass

[TestMode: TX B mid channel]; [Polarity: Vertical]

Radiated Emission Measurement



Site	Polarization: Vertical	Temperature: (C)
Limit: FCC Part15 (PK)	Power:	Humidity: %RH
EUT: LCK-WK150-011		
M/N: LCK-WK150-011		
Mode: TX-M		
Note:		

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over		
			Level	Factor	ment				
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment
1		2269.000	47.40	-3.21	44.19	74.00	-29.81	peak	
2		4102.000	42.75	2.75	45.50	74.00	-28.50	peak	
3		4874.000	40.84	4.32	45.16	74.00	-28.84	peak	
4		7311.000	38.28	8.18	46.46	74.00	-27.54	peak	
5		9748.000	37.99	11.26	49.25	74.00	-24.75	peak	
6 *		11763.000	39.34	13.80	53.14	74.00	-20.86	peak	

Test Result: Pass

[TestMode: TX B high channel]; [Polarity: Vertical]

Radiated Emission Measurement



Site	Polarization: Vertical	Temperature: (C)
Limit: FCC Part15 (PK)	Power:	Humidity: %RH
EUT: LCK-WK150-011		
M/N: LCK-WK150-011		
Mode: TX-H		
Note:		

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over			
			Level	Factor	ment		dBm	dBuV/m	dB	Detector
1		2222.000	47.65	-3.48	44.17	74.00	-29.83	peak		
2		4196.000	40.94	5.15	46.09	74.00	-27.91	peak		
3		4924.000	40.31	4.82	45.13	74.00	-28.87	peak		
4		7386.000	38.75	8.36	47.11	74.00	-26.89	peak		
5		9848.000	37.12	11.52	48.64	74.00	-25.36	peak		
6	*	11786.500	39.26	13.81	53.07	74.00	-20.93	peak		

Test Result: Pass

[TestMode: TX B high channel]; [Polarity: Horizontal]

Radiated Emission Measurement



Site Polarization: **Horizontal** Temperature: (C)
 Limit: FCC Part15 (PK) Power: Humidity: %RH
 EUT: LCK-WK150-011
 MN: LCK-WK150-011
 Mode: TX-H
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Detector	Comment
		MHz	dBuV	dBm	dBuV/m	dBuV/m	dB		
1		2457.000	45.33	-1.78	43.55	74.00	-30.45	peak	
2		4078.500	43.91	2.55	46.46	74.00	-27.54	peak	
3		4924.000	40.42	4.82	45.24	74.00	-28.76	peak	
4		7386.000	38.97	8.36	47.33	74.00	-26.67	peak	
5		9848.000	37.30	11.52	48.82	74.00	-25.18	peak	
6 *		11833.500	38.25	13.82	52.07	74.00	-21.93	peak	

Test Result: Pass

12 RADIATED EMISSIONS WHICH FALL IN THE RESTRICTED BANDS

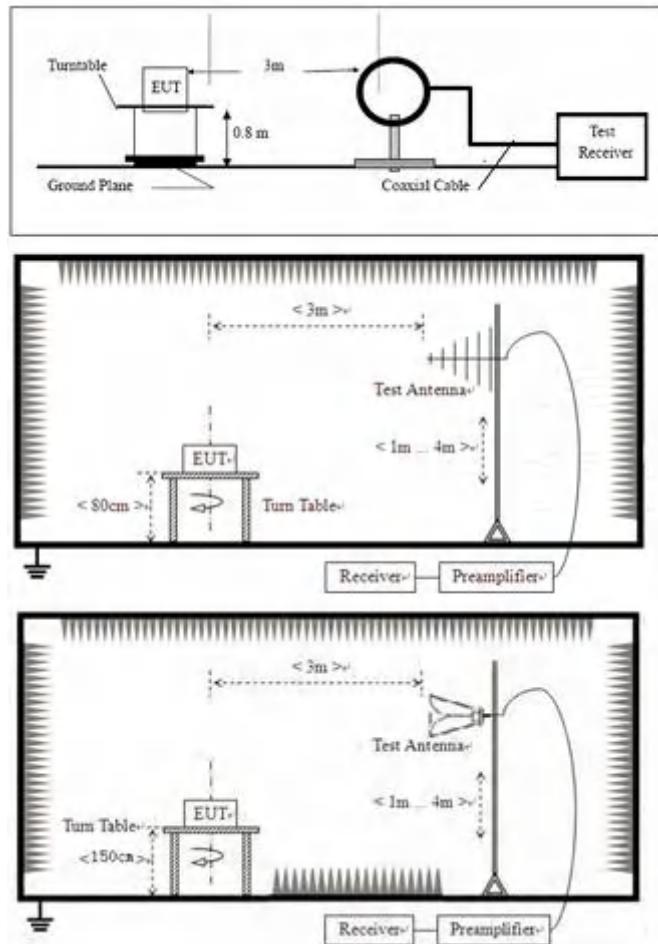
Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 6.10.5
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Charlie
Temperature	25 °C
Humidity	60%

12.1 LIMITS

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

12.2 BLOCK DIAGRAM OF TEST SETUP



12.3 PROCEDURE

- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

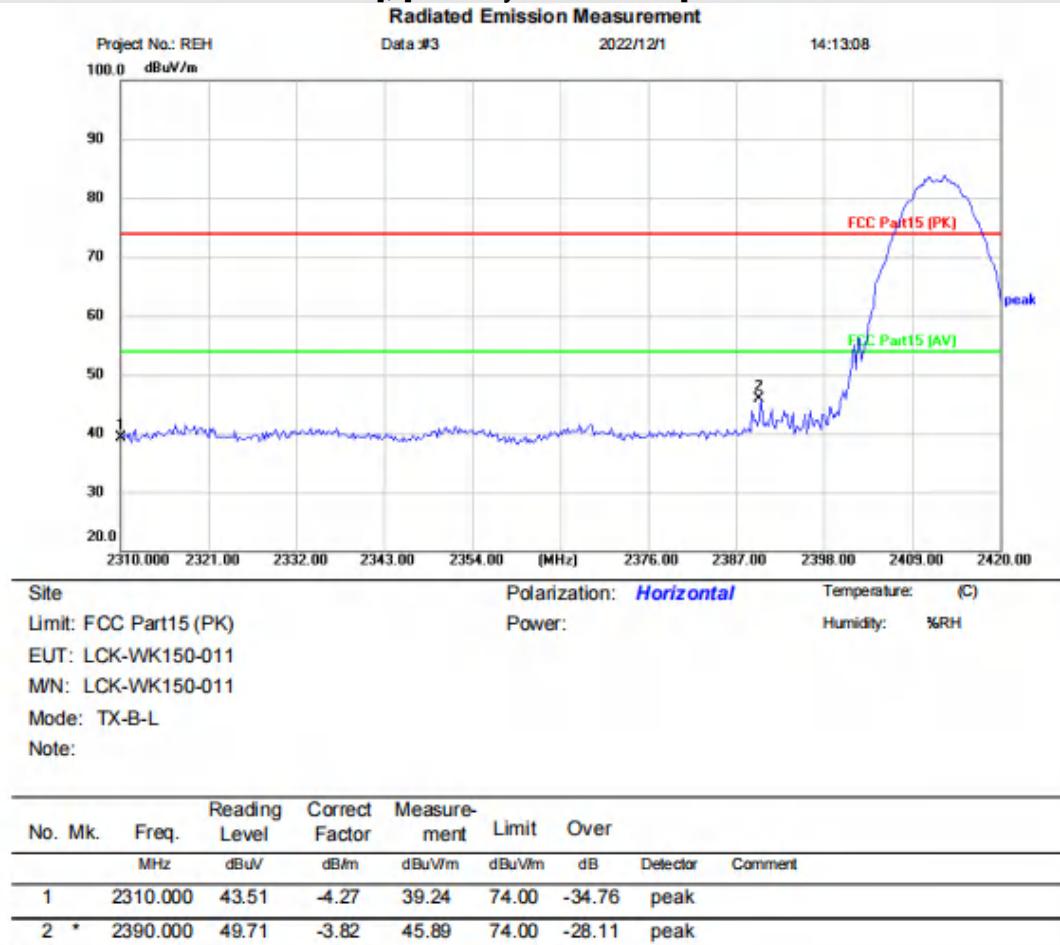
Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

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12.4 TEST DATA

Remark: During the test, pre-scan the 802.11b/g/n mode, and found the 802.11b mode which it is worse case.

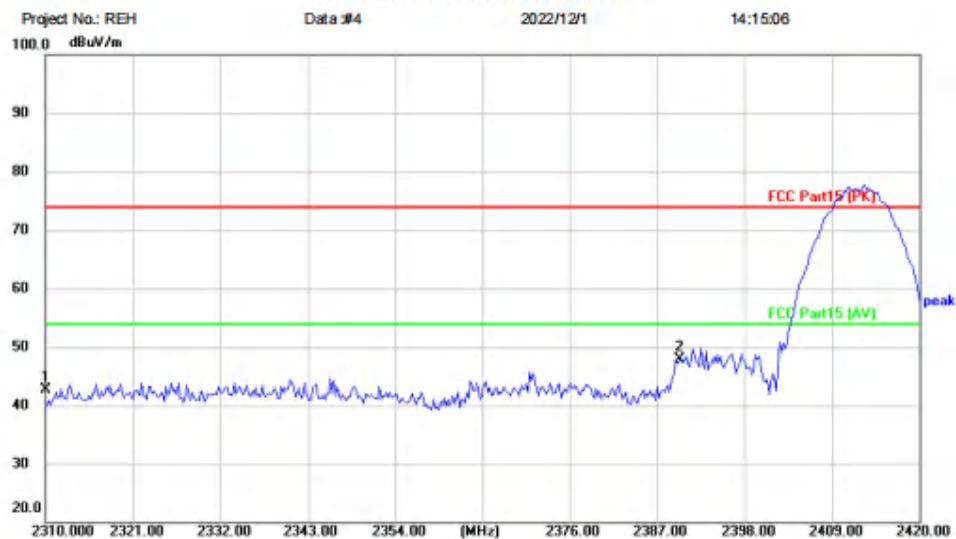
[TestMode: TX B low channel]; [Polarity: Horizontal]



Test Result: Pass

[TestMode: TX B low channel]; [Polarity: Vertical]

Radiated Emission Measurement

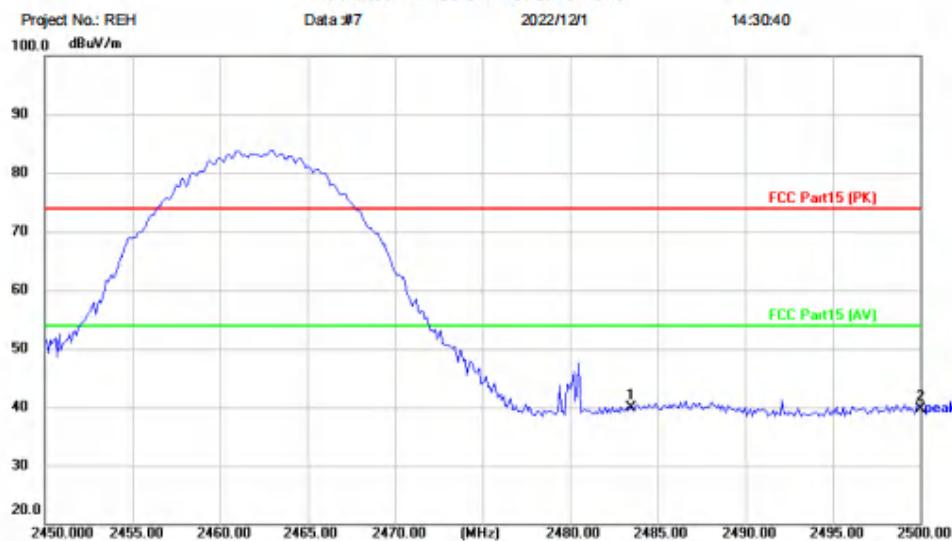


Site	Polarization: Vertical	Temperature: (C)
Limit: FCC Part15 (PK)	Power:	Humidity: %RH
EUT: LCK-WK150-011		
M/N: LCK-WK150-011		
Mode: TX-B-L		
Note:		

No. Mk.	Freq.	Reading	Correct	Measure-	Limit	Over		
		Level	Factor	ment				
	MHz	dBuV	dBm	dBuVm	dBuVm	dB	Detector	Comment
1	2310.000	46.89	-4.27	42.62	74.00	-31.38	peak	
2 *	2390.000	51.68	-3.82	47.86	74.00	-26.14	peak	

Test Result: Pass

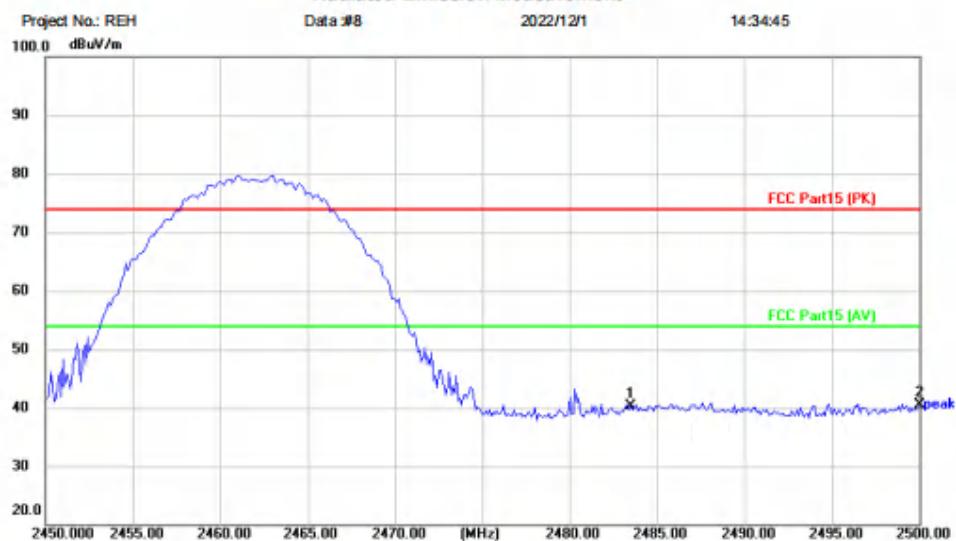
[TestMethod: TX B high channel]; [Polarity: Horizontal]

Radiated Emission Measurement


Site: Polarization: **Horizontal** Temperature: (C)
 Limit: FCC Part15 (PK) Power: Humidity: %RH
 EUT: LCK-WK150-011
 MN: LCK-WK150-011
 Mode: TX-B-H
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector	Comment
		MHz	dBuV	dB/m	dBuVm	dBuVm	dB		
1	*	2483.500	43.88	-3.96	39.92	74.00	-34.08	peak	
2		2500.000	43.75	-4.00	39.75	74.00	-34.25	peak	

Test Result: Pass

[TestMode: TX B high channel]; [Polarity: Vertical]
Radiated Emission Measurement


Site: FCC Part15 (PK) Polarization: **Vertical** Temperature: (C)
 Limit: FCC Part15 (PK) Power: Humidity: %RH
 EUT: LCK-WK150-011
 MN: LCK-WK150-011
 Mode: TX-B-H
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dB	Detector	Comment
1		2483.500	44.22	-3.96	40.26	74.00	-33.74	peak
2	*	2500.000	44.53	-4.00	40.53	74.00	-33.47	peak

Test Result: Pass

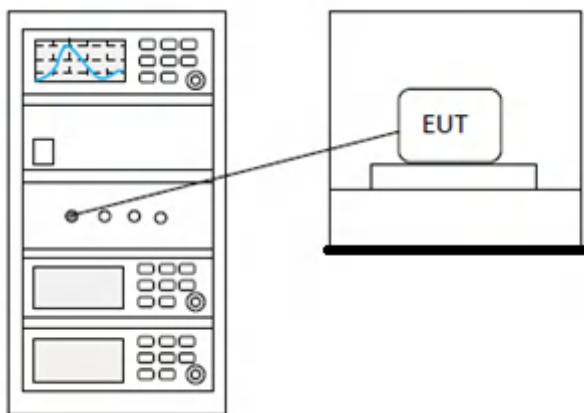
13 CONDUCTED SPURIOUS EMISSIONS

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.6 & Section 11.11
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Charlie
Temperature	25 °C
Humidity	60%

13.1 LIMITS

Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. 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) (see §15.205(c)).
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13.2 BLOCK DIAGRAM OF TEST SETUP



13.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

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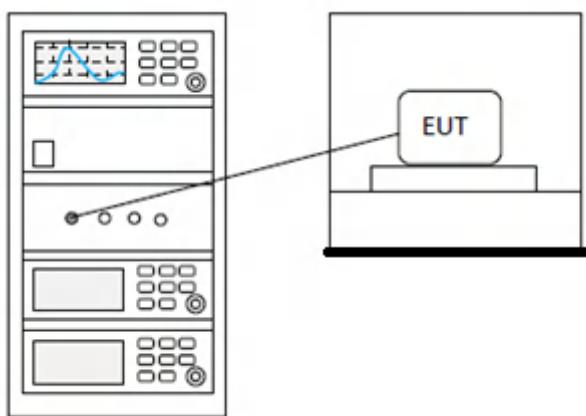
14 CONDUCTED BAND EDGES MEASUREMENT

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.8 & Section 11.13.3.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Charlie
Temperature	25 °C
Humidity	60%

14.1 LIMITS

Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. 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) (see §15.205(c)).
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14.2 BLOCK DIAGRAM OF TEST SETUP



14.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details
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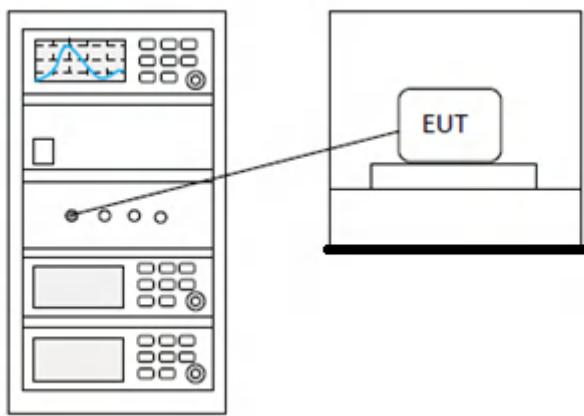
15 MINIMUM 6DB BANDWIDTH

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 11.8.1
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Charlie
Temperature	25 °C
Humidity	60%

15.1 LIMITS

Limit: ≥ 500 kHz

15.2 BLOCK DIAGRAM OF TEST SETUP



15.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

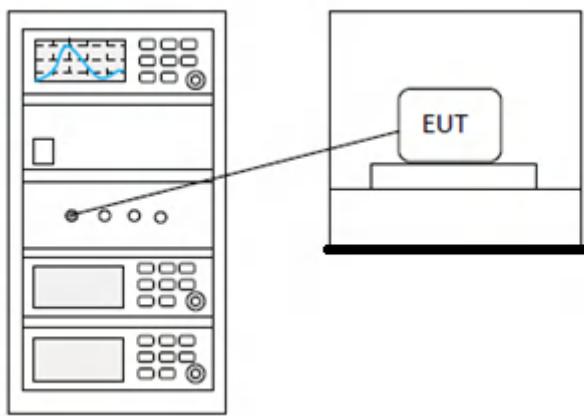
16 POWER SPECTRUM DENSITY

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 11.10.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Charlie
Temperature	25 °C
Humidity	60%

16.1 LIMITS

Limit: $\leq 8\text{dBm}$ in any 3 kHz band during any time interval of continuous transmission

16.2 BLOCK DIAGRAM OF TEST SETUP



16.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

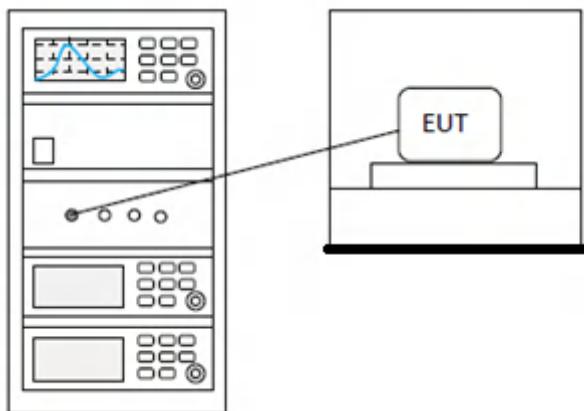
17 CONDUCTED PEAK OUTPUT POWER

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.5 & Section 11.9.1
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Charlie
Temperature	25 °C
Humidity	60%

17.1 LIMITS

Frequency range(MHz)	Output power of the intentional radiator(watt)
902-928	1 for ≥ 50 hopping channels
	0.25 for $25 \leq$ hopping channels < 50
	1 for digital modulation
2400-2483.5	1 for ≥ 75 non-overlapping hopping channels
	0.125 for all other frequency hopping systems
	1 for digital modulation
5725-5850	1 for frequency hopping systems and digital modulation

17.2 BLOCK DIAGRAM OF TEST SETUP



17.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details
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18 CONDUCTED EMISSIONS AT AC POWER LINE (150KHZ-30MHZ)

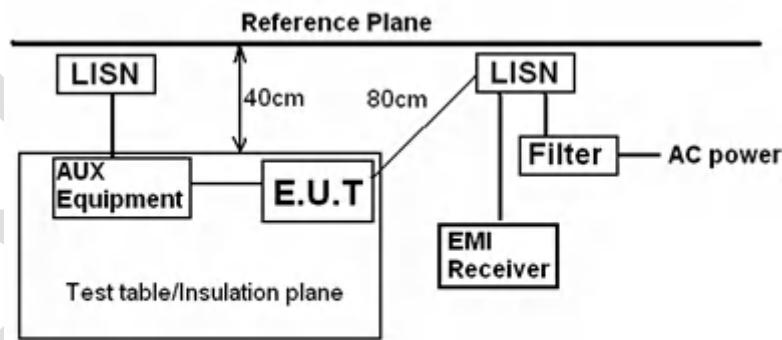
Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 6.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Charlie
Temperature	25 °C
Humidity	60%

18.1 LIMITS

Frequency of emission(MHz)	Conducted limit(dB μ V)	
	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.

18.2 BLOCK DIAGRAM OF TEST SETUP



Remark
E.U.T: Equipment Under Test
LISN: Line Impedance Stabilization Network
Test table height=0.8m

18.3 PROCEDURE

- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50H + 50hm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.

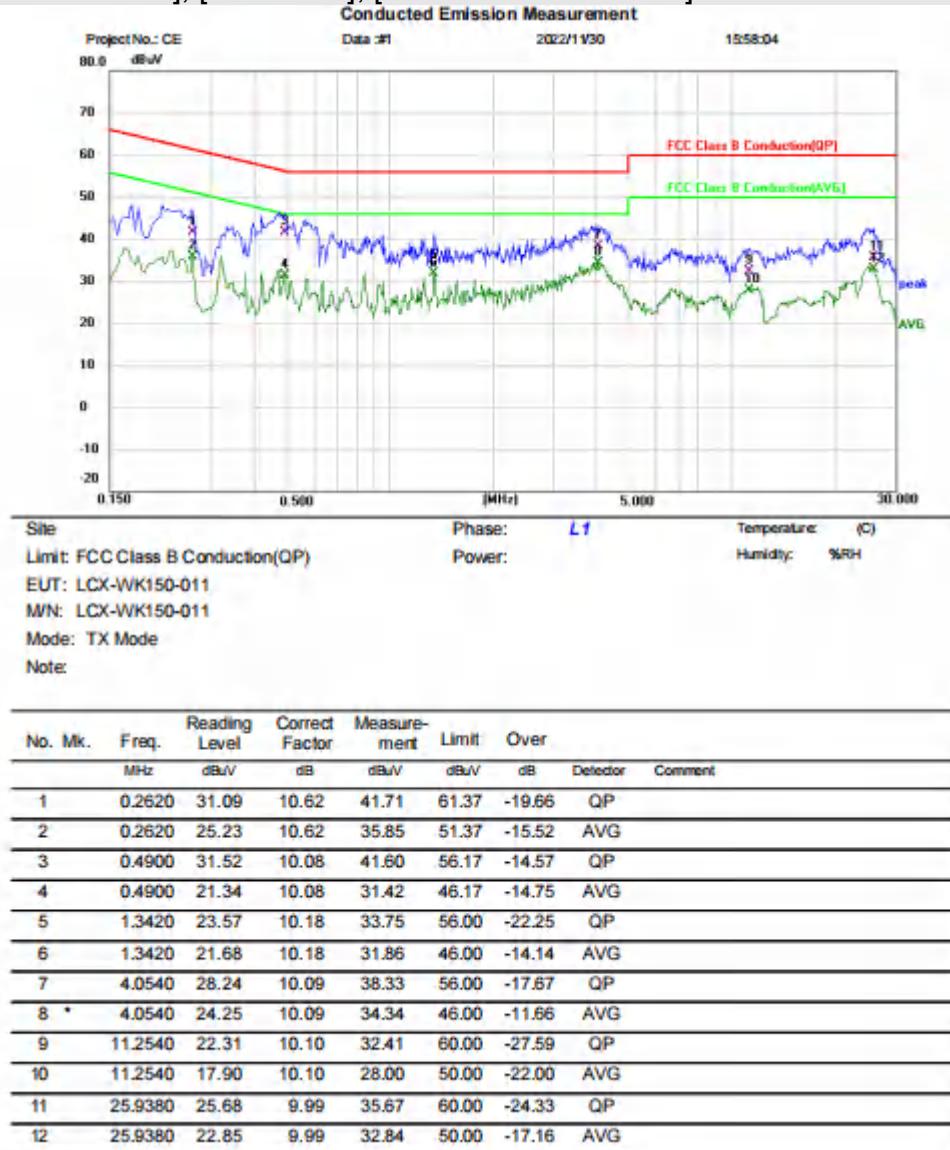
- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Remark: LISN=Read Level+ Cable Loss+ LISN Factor

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18.4 TEST DATA

[TestMode: TX]; [Line: Line]; [Power: AC120V/60Hz]



Test Result: Pass

[TestMode: TX]; [Line: Nutral] ;[Power:AC120V/60Hz]

Conducted Emission Measurement


Site: FCC Class B Conduction(QP) Phase: **N** Temperature: (C)

Limit: FCC Class B Conduction(QP) Power: Humidity: %RH

EUT: LCX-WK150-011

M/N: LCX-WK150-011

Mode: TX Mode

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dB	Over Detector	Comment	
								Over	Detector
1		0.2420	39.48	10.55	50.03	62.03	-12.00	QP	
2	*	0.2420	32.35	10.55	42.90	52.03	-9.13	AVG	
3		0.4780	36.06	10.05	46.11	56.37	-10.26	QP	
4		0.4780	24.53	10.05	34.58	46.37	-11.79	AVG	
5		1.2180	20.36	10.03	30.39	56.00	-25.61	QP	
6		1.2180	12.39	10.03	22.42	46.00	-23.58	AVG	
7		2.7980	21.06	10.04	31.10	56.00	-24.90	QP	
8		2.7980	15.58	10.04	25.62	46.00	-20.38	AVG	
9		5.8500	22.78	9.84	32.62	60.00	-27.38	QP	
10		5.8500	17.59	9.84	27.43	50.00	-22.57	AVG	
11		16.5940	20.78	10.03	30.81	60.00	-29.19	QP	
12		16.5940	17.28	10.03	27.31	50.00	-22.69	AVG	

Test Result: Pass

19 APPENDIX

19.1 APPENDIX A: DTS BANDWIDTH

Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	8.160	2407.920	2416.080	≥ 0.5	PASS
		2437	7.680	2432.920	2440.600	≥ 0.5	PASS
		2462	8.200	2457.400	2465.600	≥ 0.5	PASS
11G	Ant1	2412	16.000	2403.760	2419.760	≥ 0.5	PASS
		2437	16.520	2428.800	2445.320	≥ 0.5	PASS
		2462	16.040	2453.760	2469.800	≥ 0.5	PASS
11N20SISO	Ant1	2412	17.280	2403.160	2420.440	≥ 0.5	PASS
		2437	16.760	2429.080	2445.840	≥ 0.5	PASS
		2462	17.240	2453.160	2470.400	≥ 0.5	PASS

Test Graphs

