FCC PART 15E
TEST REPORT
No.25T04Z100234-006

for

TCL Communication Ltd.

GSM/UMTS/LTE mobile phone

Model Name: T517J

FCC ID: 2ACCJB237

with

Hardware Version: 05

Software Version: 3A4G

Issued Date: 2025-03-27

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of CTTL.

Test Laboratory:

CTTL-Telecommunication Technology Labs, CAICT

No. 52, Huayuan North Road, Haidian District, Beijing, P. R. China 100191.

Tel:+86(0)10-62304633-2512, Fax:+86(0)10-62304633-2504

Email: cttl_terminals@caict.ac.cn, website: www.caict.ac.cn

©Copyright. All rights reserved by CTTL.

REPORT HISTORY

Report Number	Revision	Description	Issue Date
25T04Z100234-006	Rev.0	1st edition	2025-03-27

Note: the latest revision of the test report supersedes all previous version.

. ©Copyright. All rights reserved by CTTL.

CONTENTS

1. TEST LABORATORY 5

1.1. INTRODUCTION & ACCREDITATION 5
1.2. TESTING LOCATION 5
1.3. TESTINGENVIRONMENT 5
1.4. PROJECT DATE 5
1.5. SIGNATURE 5

2. CLIENT INFORMATION 6

2.1. APPLICANT INFORMATION 6
2.2. MANUFACTURER INFORMATION 6

3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE) 7

3.1. ABOUT EUT 7
3.2. INTERNAL IDENTIFICATION OF EUT USED DURING THE TEST 7
3.3. INTERNAL IDENTIFICATION OF AE USED DURING THE TEST 7
3.4. GENERAL DESCRIPTION 7

4. REFERENCE DOCUMENTS 8

4.1. DOCUMENTS SUPPLIED BY APPLICANT 8
4.2. REFERENCE DOCUMENTS FOR TESTING 8

NOTE:UNII: KDB 789033 D02 IS NOT IN THE SCOPE OF ISO/IEC 17025 ACCREDITATION BY A2LA. 8

5. LABORATORY ENVIRONMENT 8

6. TEST RESULTS 9

6.1. SUMMARY OF TEST RESULTS 9
6.2. STATEMENTS 9
6.3. TEST CONDITIONS 9

7. TEST FACILITIES UTILIZED 10

8. MEASUREMENT UNCERTAINTY 11

8.1. TRANSMITTER OUTPUT POWER 11
8.2. PEAK POWER SPECTRAL DENSITY 11
8.3. 6DB EMISSION BANDWIDTH 11
8.4. BAND EDGES COMPLIANCE 11
8.5. SPURIOUS EMISSIONS 11
8.6. RADIATED UNWANTED EMISSION 11
8.7. AC POWER-LINE CONDUCTED EMISSION 11

ANNEX A: MEASUREMENT RESULTS 12

A.1. MEASUREMENT METHOD 12

. ©Copyright. All rights reserved by CTTL.

A.2. MAXIMUM PEAK OUTPUT POWER 13
A.2.1 ANTENNA GAIN 13
A.2.2. MAXIMUM AVERAGE OUTPUT POWER-CONDUCTED 13
A.3. PEAK POWER SPECTRAL DENSITY 16
A.4. 6DB EMISSION BANDWIDTH 17
A.5. RADIATED UNWANTED EMISSION 22
A.5.1 LIMITS 22
A.5.2 TEST SETUP 23
A.5.3 TEST PROCEDURES 24
A.5.4 CALCULATION 24
A.6. AC POWERLINE CONDUCTED EMISSION 40
A.6.1 SUMMARY 40
A.6.2 METHOD OF MEASUREMENT 40
A.6.3 TEST CONDITION 40
A.6.4 TEST SETUP 40
A.6.5 MEASUREMENT RESULT AND LIMIT 41
A.7. ANTENNA REQUIREMENT 44

ANNEX B: EUT PARAMETERS 44

ANNEX C: ACCREDITATION CERTIFICATE 44

. ©Copyright. All rights reserved by CTTL.

1. Test Laboratory

1.1. Introduction & Accreditation

Telecommunication Technology Labs, CAICT is an ISO/IEC 17025:2017 accredited test laboratory under American Association for Laboratory Accreditation (A2LA) with lab code 7049.01, and is also an FCC accredited test laboratory (CN1349), and ISED accredited test laboratory (CAB identifier:CN0066). The detail accreditation scope can be found on A2LA website.

1.2. Testing Location

Conducted Testing Location:CTTL(Gaolizhang Road)

Address: Cuihu Cloud Center, No.1, Gaolizhang Road, Wenquan, Haidian District, Beijing, China

Radiated Testing Location: CTTL(BDA)

Address: No.18A, Kangding Street, Beijing Economic-Technology Development Area, Beijing, P. R. China 100176

1.3. TestingEnvironment

Normal Temperature: 15-35°C

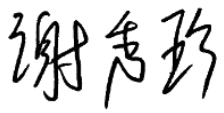
Relative Humidity: 20-75%

1.4. Project date

Testing Start Date: 2025-02-10

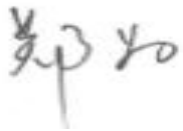
Testing End Date: 2025-03-21

1.5. Signature



Xie Xiuzhen

(Prepared this test report)



Zheng Wei

(Reviewed this test report)

Pang Shuai

(Approved this test report)

. ©Copyright. All rights reserved by CTTL.

2. Client Information

2.1. Applicant Information

Company Name:	TCL Communication Ltd.
Address:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Contact:	Ting Wang
Email:	ting.wang.hz@tcl.com
Telephone:	+86 752 2639091
Fax:	+86 755 36612000-81722

2.2. Manufacturer Information

Company Name:	TCL Communication Ltd.
Address:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Contact:	Ting Wang
Email:	ting.wang.hz@tcl.com
Telephone:	+86 752 2639091
Fax:	+86 755 36612000-81722

. ©Copyright. All rights reserved by CTTL.

3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Description	GSM/UMTS/LTE mobile phone
Model name	T517J
FCC ID	2ACCJB237
WLAN Frequency Band	ISM Band: 5725MHz~5850MHz
Type of modulation	OFDM
Normal Voltage	3.91V
Extreme High Voltage	4.5V
Extreme Low Voltage	3.6V

3.2. Internal Identification of EUT used during the test

EUT ID*	IMEI	HW Version	SW Version	Date of receipt
UT07a (25T04Z100217)	356956250000133/ 356956250000141	05	3A4G	2025-02-10
UT18a (25T04Z100217)	356956250000596/ 356956250000604	05	3A4G	2025-03-10

*EUT ID: is used to identify the test sample in the lab internally.
UT07a is used for Conduction test, UT18a is used for Radiation test.

3.3. Internal Identification of AE used during the test

AE ID*	Description	Model	Manufacturer
AE1	Battery1	TLp050C7	Dongguan Veken Battery Co., Ltd.
AE2	Battery2	TLp050CB	Shenzhen Aerospace Electronic Co., Ltd.
AE3	Charger1	QC13US-N	ShenZhen BajunDa Electronics Co.,Ltd
AE4	USB Cable1	JWUB1686-M01R	Huizhou Juwei Electronics Co.,Ltd
AE5	USB Cable2	FKY-23-367	Qiyang Fukangyuan Electronic Technology Co., Ltd.

*AE ID: is used to identify the test sample in the lab internally.

3.4. General Description

Equipment Under Test (EUT) is a model of GSM/UMTS/LTE mobile phone with integrated antenna.
It consists of normal options: Battery and Charger.
Manual and specifications of the EUT were provided to fulfil the test.
Samples undergoing test were selected by the Client.

. ©Copyright. All rights reserved by CTTL.

4. Reference Documents

4.1. Documents supplied by applicant

EUT feature information is supplied by the applicant or manufacturer, which is the basis of testing.

4.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

FCC Part15	FCC CFR 47, Part 15, Subpart C and E: 15.205 Restricted bands of operation; 15.209 Radiated emission limits, general requirements; 15.407 General technical requirements	2021
ANSI C63.10	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2013
UNII: KDB 789033 D02	General U-NII Test Procedures New Rules v02r01	2017-12

Note:UNII: KDB 789033 D02 is not in the scope of ISO/IEC 17025 accreditation by A2LA.

5. Laboratory Environment

Conducted RF performance testing is performed in shielding room.

EMC performance testing is performed in Semi-anechoic chamber.

. ©Copyright. All rights reserved by CTTL.

6. Test Results

6.1. Summary of Test Results

SUMMARY OF MEASUREMENT RESULTS	Sub-clause of Part15E	Sub-clause of IC	Verdict
Maximum Peak Output Power	15.407 (a)	/	BR
Peak Power Spectral Density	15.407 (a)	/	BR
6dB Emission Bandwidth	15.407 (e)	/	BR
Radiated Unwanted Emission	15.407, 15.205, 15.209	/	BR
AC Powerline Conducted Emission	15.107, 15.207	/	BR

Please refer to **ANNEX A** for detail.

Terms used in Verdict column

P	Pass, The EUT complies with the essential requirements in the standard.
NM	Not measured, The test was not measured by CTTL
NA	Not Applicable, The test was not applicable
F	Fail, The EUT does not comply with the essential requirements in the standard
BR	Re-use test data from basic model report.

6.2. Statements

CTTL has evaluated the test cases as listed in section 6.1 of this report for the EUT specified in section 3 according to the standards or reference documents listed in section 4.

This report only deals with the WLAN function among the features described in section 3.

The Equipment Under Test (EUT) model T517J (FCC ID: 2ACCJB237) is a variant product of T517H (FCC ID: 2ACCJB237), according to the declaration of changes provided by the applicant and FCC KDB publication 178919 D01, all results are derived from test report No.25T04Z100217-065.

For detail differences between two models please refer the Declaration of Changes document.

6.3. Test Conditions

For this report, all the test cases are tested under normal temperature and normal voltage, and also under norm humidity, the specific condition is shown as follows:

Temperature 26°C

Voltage 3.91V

Humidity 44%

. ©Copyright. All rights reserved by CTTL.

7. Test Facilities Utilized

Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Vector Signal Analyzer	FSW67	104051	Rohde & Schwarz	1 year	2025-04-30
2	Test Receiver	ESCI	100766	R&S	1 year	2025-04-18
3	LISN	ENV216	101459	R&S	1 year	2025-05-16
4	Attenuator	10dB/2W	/	Rosenberger	/	/
5	Shielding Room	S81	/	ETS-Lindgren	/	/

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Test Receiver	ESW44	103015	R&S	1 year	2026-01-15
2	EMI Antenna	VULB 9163	01176	SCHWARZBECK	1 year	2025-04-07
3	EMI Antenna	3117	00058888	ETS-Lindgren	1 year	2025-09-18
4	EMI Antenna	LB-180400-25-C-KF	2110084000006	A-INFO	1 year	2025-04-07

. ©Copyright. All rights reserved by CTTL.

8. Measurement Uncertainty

8.1. Transmitter Output Power

Measurement Uncertainty: 0.387dB,k=1.96

8.2. Peak Power Spectral Density

Measurement Uncertainty: 0.705dB,k=1.96

8.3. 6dB Emission Bandwidth

Measurement Uncertainty: 60.80Hz,k=1.96

8.4. Band Edges Compliance

Measurement Uncertainty : 0.62dB,k=1.96

8.5. Spurious Emissions

Conducted (k=1.96)

Frequency Range	Uncertainty(dB)
30MHz ≤ f ≤ 2GHz	1.22
2GHz ≤ f ≤3.6GHz	1.22
3.6GHz ≤ f ≤8GHz	1.22
8GHz ≤ f ≤12.75GHz	1.51
12.75GHz ≤ f ≤26GHz	1.51
26GHz ≤ f ≤40GHz	1.59

8.6. Radiated Unwanted Emission

Frequency Range	Uncertainty(dB)
9kHz-30MHz	3.96
30MHz ≤ f ≤ 1GHz	5.29
1GHz ≤ f ≤18GHz	5.62
18GHz ≤ f ≤40GHz	3.52

8.7. AC Power-line Conducted Emission

Measurement Uncertainty : 3.10 dB,k=2

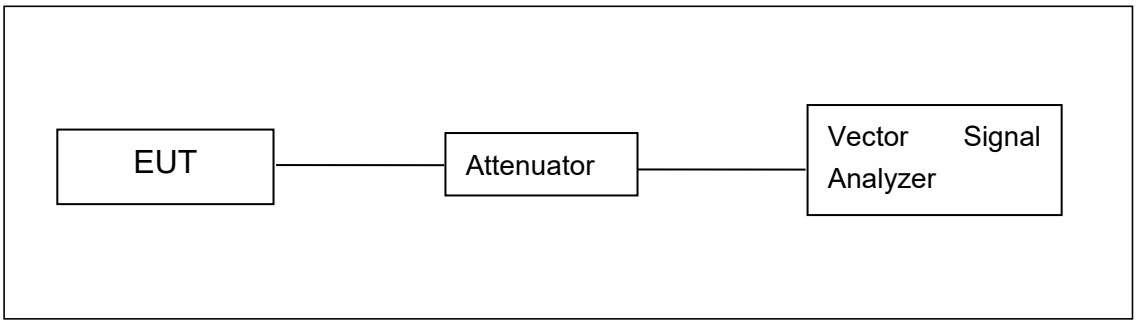
. ©Copyright. All rights reserved by CTTL.

ANNEX A: MEASUREMENT RESULTS

A.1. Measurement Method

A.1.1. Conducted Measurements

1). Connect the EUT to the test system correctly.
2). Set the EUT to the required work mode.
3). Set the EUT to the required channel.
4). Set the spectrum analyzer to start measurement.
5). Record the values. Vector Signal Analyzer



A.1.2. Radiated Emission Measurements

Measurement performed according to Clause 6.4, 6.5, 6.6 in ANSI C63.10-2013 and II.G.4, II.G.5, II.G.6 in KDB 789033.

The radiated emission test is performed in semi-anechoic chamber. The EUT was placed on a non-conductive table with 80cm above the ground plane for measurement below 1GHz and 1.5m above the ground plane for measurement above 1GHz. The measurement antenna was placed at a distance of 3 meters from the EUT. The test is carried out on both vertical and horizontal polarization and only maximization result of both polarizations is kept. During the test, the turntable is rotated from 0° to 360°and the measurement antenna is moved from 1m to 4m to get the maximization result. The maximization process was repeated with the EUT positioned in each of its three orthogonal orientations

. ©Copyright. All rights reserved by CTTL.

A.2. Maximum Peak Output Power

Measurement Limit and Method:

Standard	Limit (dBm)
FCC CRF Part 15.407(a)	< 30

Set span to encompass the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
Set RBW = 1 MHz.
Set VBW ≥ 3 MHz.
Number of points in sweep ≥ 2 × span / RBW.
Sweep time = auto.
Detector = power averaging (rms)
Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 as needed to ensure that the average accurately represents the true average over the on and off periods of the transmitter.
Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument's band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal. Add 10 log (1/x), where x is the duty cycle

A.2.1 Antenna Gain

Antenna gain is 1.2dBi and the value is supplied by the applicant or manufacturer.

A.2.2. Maximum Average Output Power-Conducted

EUT ID: UT07a

Measurement Results:

802.11a mode

Mode	Data Rate (Mbps)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11a	6	17.76	17.66	17.52

The data rate 6Mbps is selected as worst condition, and the following cases are performed with this condition.

802.11n-HT20 mode

Mode	Data Rate (Index)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11n (20MHz)	MCS0	17.15	16.91	16.94

The data rate MCS0 is selected as worst condition, and the following cases are performed with

. ©Copyright. All rights reserved by CTTL.

this condition.

802.11ac-VHT20 mode

Mode	Data Rate (Index)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11ac (20MHz)	MCS0	15.15	14.84	14.81

The data rate MCS0 is selected as worst condition, and the following cases are performed with this condition.

802.11n-HT40 mode

Mode	Data Rate (Index)	Test Result (dBm)	
		5755MHz (Ch151)	5795MHz (Ch159)
802.11n (40MHz)	MCS0	16.91	16.74

The data rate MCS0 is selected as worst condition, and the following cases are performed with this condition.

802.11ac-VHT40 mode

Mode	Data Rate (Index)	Test Result (dBm)	
		5755MHz (Ch151)	5795MHz (Ch159)
802.11ac (40MHz)	MCS0	14.98	14.80

The data rate MCS0 is selected as worst condition, and the following cases are performed with this condition.

802.11ac-VHT80 mode

Mode	Data Rate (Index)	Test Result (dBm)
		5775MHz (Ch155)
802.11ac (80MHz)	MCS0	14.96

The data rate is selected as worst condition, and the following cases are performed with this condition.

The duty cycle of all mode are 100%

. ©Copyright. All rights reserved by CTTL.

20:16:17 24.02.2025

Maximum output Power：11a CH149

Conclusion: PASS

. ©Copyright. All rights reserved by CTTL.

A.3. Peak Power Spectral Density

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.407(a)	< 30 dBm/500 kHz

Set span to encompass the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
Set RBW = 500 kHz.
Set VBW ≥ 3 MHz.
Number of points in sweep ≥ 2 × span / RBW.
Sweep time = auto.
Detector = power averaging (rms)
Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 as needed to ensure that the average accurately represents the true average over the on and off periods of the transmitter. Use the peak search function on the instrument to find the peak of the spectrum and record its value. Add 10 log (1/x), where x is the duty cycle.

Measurement Uncertainty:

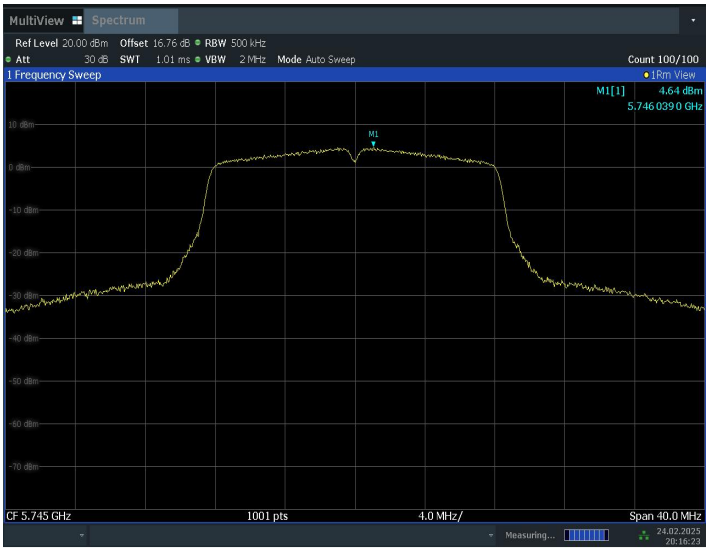
Measurement Uncertainty	0.75dB

EUT ID: UT07a

Measurement Results:

TestMode	Frequency[MHz]	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	5745	4.64	≤30.00	PASS
	5785	4.55	≤30.00	PASS
	5825	4.47	≤30.00	PASS
11N20SISO	5745	3.97	≤30.00	PASS
	5785	3.52	≤30.00	PASS
	5825	3.79	≤30.00	PASS
11N40SISO	5755	0.77	≤30.00	PASS
	5795	0.49	≤30.00	PASS
11AC80SISO	5775	-4.60	≤30.00	PASS

. ©Copyright. All rights reserved by CTTL.



20:16:24 24.02.2025

Peak Power Spectral Density:11a CH149

Conclusion: PASS

A.4. 6dB Emission Bandwidth

Measurement Limit:

Standard	Limit (kHz)
FCC 47 CFR Part 15.407 (e)	≥ 500

Set RBW = 100 kHz.

Set the video bandwidth (VBW) ≥ 3 × RBW.

Detector = Peak.

Trace mode = max hold.

Sweep = auto couple.

Allow the trace to stabilize.

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.

Measurement Uncertainty:

Measurement Uncertainty	60.80Hz

EUT ID: UT07a

Measurement Result:

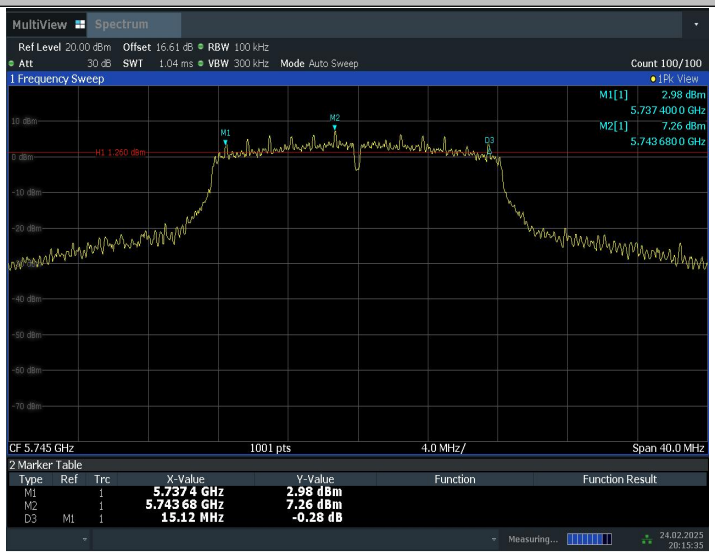
TestMode	Frequency[MHz]	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	5745	15.12	5737.40	5752.52	0.5	PASS
	5785	15.12	5777.40	5792.52	0.5	PASS
	5825	15.12	5817.40	5832.52	0.5	PASS
11N20SISO	5745	15.12	5737.40	5752.52	0.5	PASS

. ©Copyright. All rights reserved by CTTL.

	5785	15.12	5777.40	5792.52	0.5	PASS
	5825	15.12	5817.40	5832.52	0.5	PASS
11N40SISO	5755	35.12	5737.40	5772.52	0.5	PASS
	5795	35.12	5777.40	5812.52	0.5	PASS
11AC80SISO	5775	75.04	5737.40	5812.44	0.5	PASS

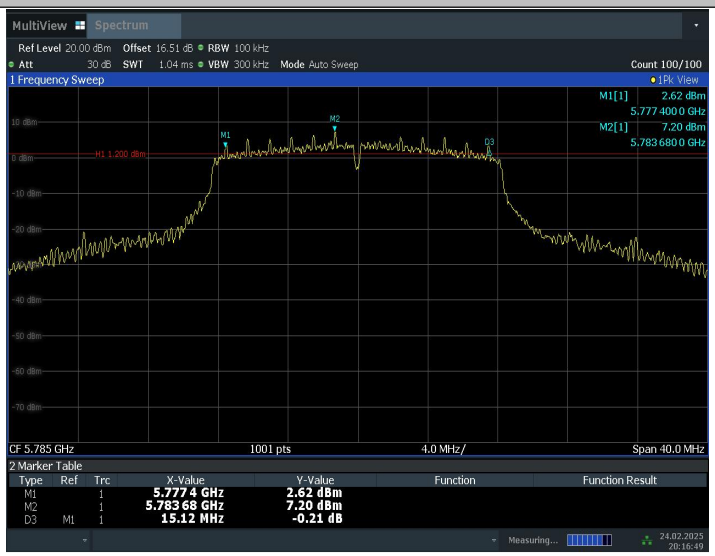
Test graphs as below:

11A_5745



20:15:35 24.02.2025

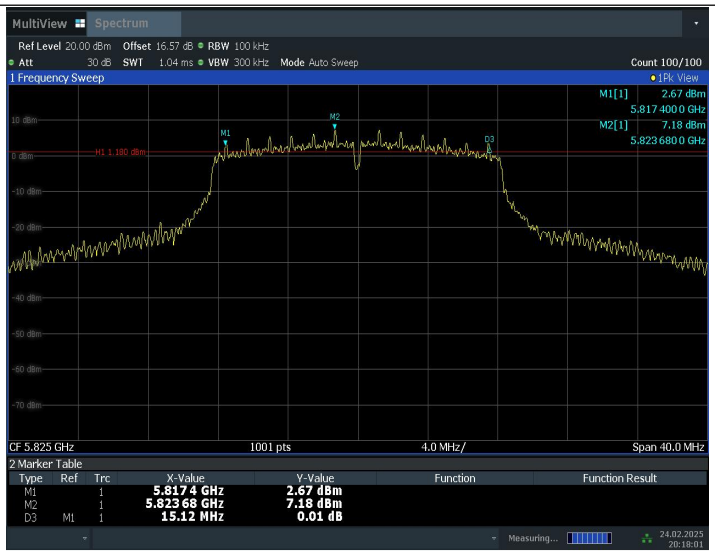
11A_5785



20:16:49 24.02.2025

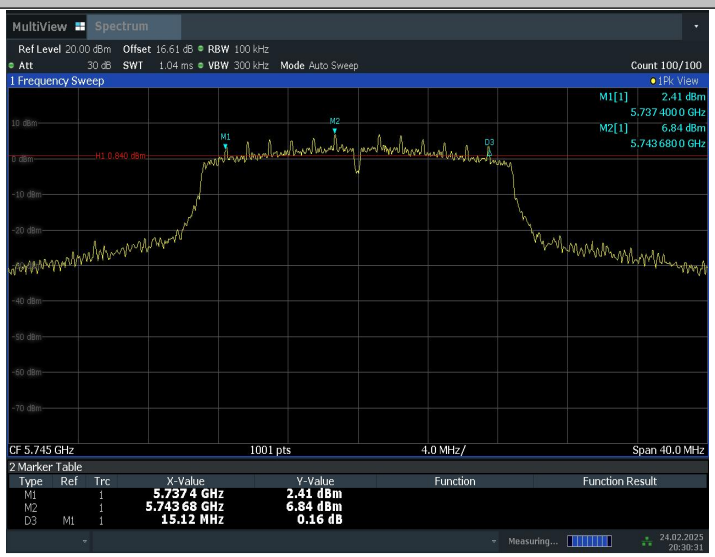
11A_5825

. ©Copyright. All rights reserved by CTTL.



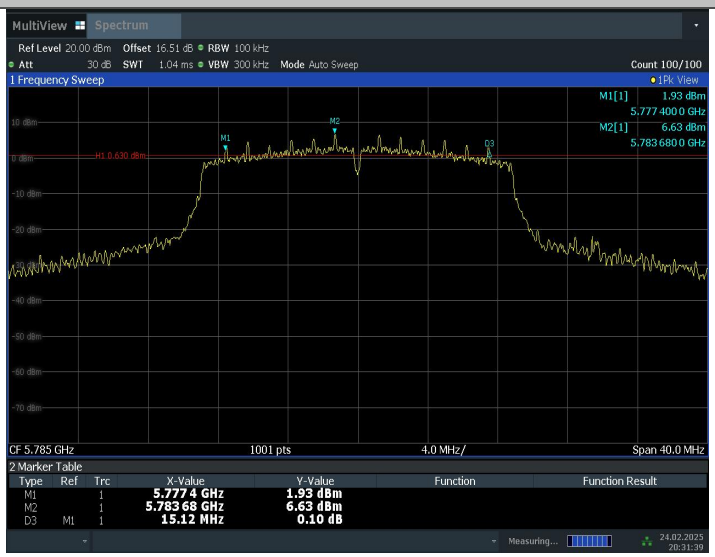
20:18:02 24.02.2025

11N20SISO_5745



20:30:31 24.02.2025

11N20SISO_5785



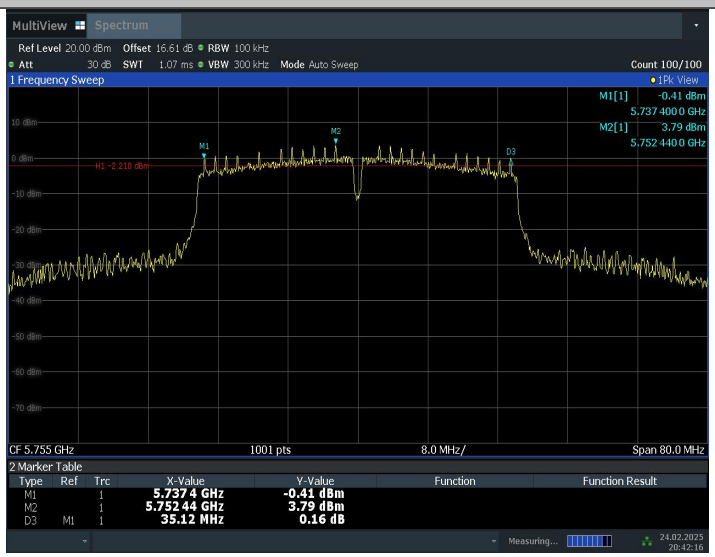
20:31:40 24.02.2025

. ©Copyright. All rights reserved by CTTL.

11N20SISO_5825

20:32:48 24.02.2025

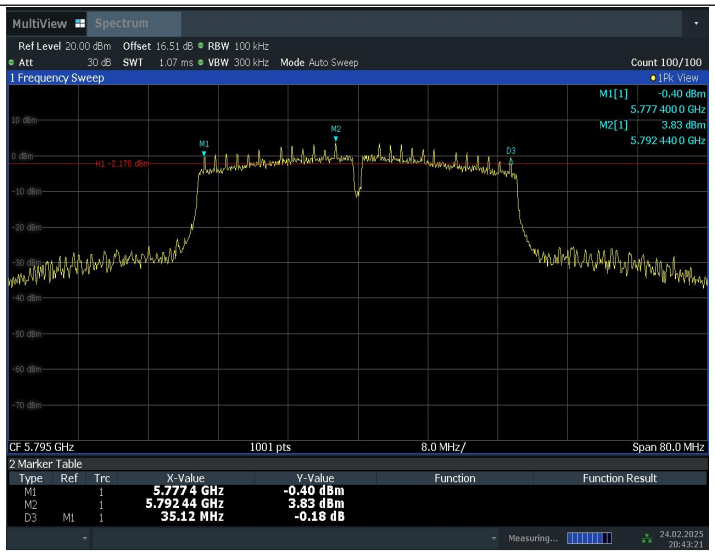
11N40SISO_5755



20:42:16 24.02.2025

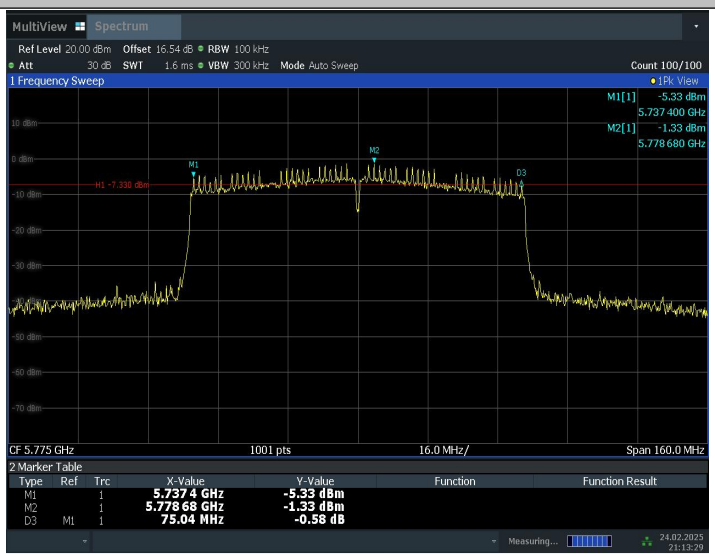
11N40SISO_5795

. ©Copyright. All rights reserved by CTTL.



20:43:21 24.02.2025

11AC80SISO_5775



21:13:29 24.02.2025

Conclusion: PASS

. ©Copyright. All rights reserved by CTTL.

A.5. Radiated Unwanted Emission

A.5.1 Limits

Unwanted Emissions in the unrestricted bands shall not exceed the limits that shown in 15.407:

Standard	Limit (dBm/MHz)	
FCC 47 CFR Part 15.407	at the band edge	27
	at 5 MHz above or below the band edge	15.6
	at 25 MHz above or below the band edge	10
	at 75 MHz or more above or below the band edge	-27
	Note：Increasing linearly from point to point.	

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))

Frequency (MHz)	Field strength(μV/m)	Measurement distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30

Frequency of emission (MHz)	Field strength (uV/m)	Field strength (dBuV/m)	Measurement distance (m)
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Note: When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor (as defined in KDB 789033 II.G.2.d).

. ©Copyright. All rights reserved by CTTL.

A.5.2 Test setup

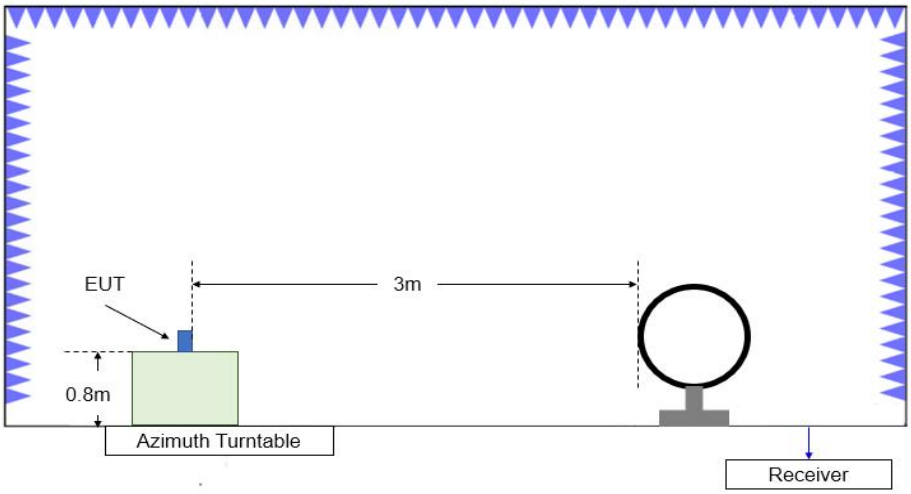


Figure A.5.1. Test Site Diagram (9kHz-30MHz)

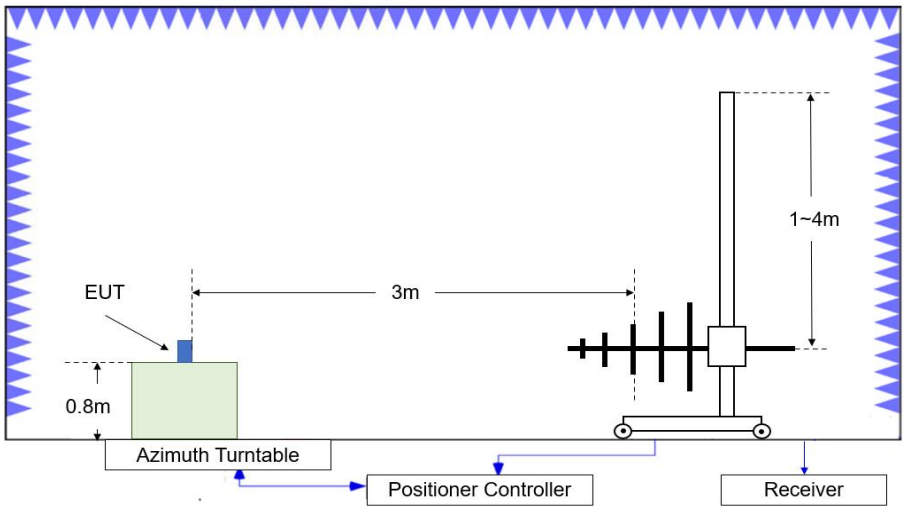


Figure A.5.2. Test Site Diagram (30MHz-1GHz)

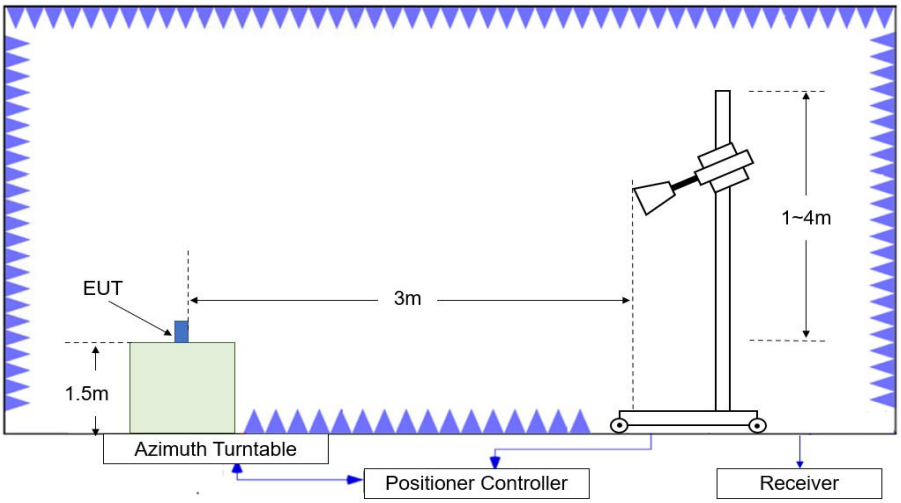


Figure A.5.3. Test Site Diagram (1GHz-40GHz)

. ©Copyright. All rights reserved by CTTL.

A.5.3 Test Procedures

Radiated unwanted emissions from the EUT were measured according to ANSI C63.10and KDB 789033 D02 v02r01.

Test setting

Frequency of emission (MHz)	RBW/VBW
30-1000	100kHz/300kHz
1000-4000	1MHz/3MHz
4000-18000	1MHz/3MHz
18000-26500	1MHz/3MHz
26500-40000	1MHz/3MHz

A.5.4 Calculation

1. The measurement results reported below is calculated by:

Measurement Results (dBμV/m) = $P_{measurement}$ (dBμV) + Cable Loss(dB) + Antenna Factor (dB/m)

Where: $P_{measurement}$ is the field strength recorded from the instrument

2. Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:

E=EIRP- 20log (*D*) +104.77

Where:

E is the field strength in dBμV/m

D is the measurement distance in meters

EIRP is the equivalent isotropically radiated power in dBm

Test note

1. The EUT is operating at its maximum duty cycle and its maximum power control level.
2. Investigation has been done on all modes and modulations/data rates. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.
3. Spurious emissions for all channels were investigated and almost the same below 1GHz. According to FCC 47 CFR §15.31, emission levels are not report much lower than the limit by over 20dB
4. The test is carried out on both vertical and horizontal polarization and only maximization result of both polarizations is kept.
5. EUT in each of three orthogonal axis emissions had been tested out only the worst case (axis data) recorded in the report.
6. Measurement frequencies were performed from 9 kHz to the 10th harmonic of highest fundamental frequency or 40GHz, whichever is lower.
7. No spurious emissions were detected within 20dBof the limit below 30MHz. OFS and semi-chamber comparison testing had been performed and the result came out very similar. (KDB 414788)

Note:

. ©Copyright. All rights reserved by CTTL.

A "reference path loss" is established and the A_{Rpl} is the attenuation of “reference path loss”, and including the gain of receive antenna, the gain of the preamplifier, the cable loss.
P_{Mea} is the field strength recorded from the instrument.

Conclusion: PASS

Average Results：

802.11a

Channel 149

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5395.200	47.76	-20.78	34.58	33.96	54.00	6.24	V
5400.400	47.97	-21.05	34.60	34.43	54.00	6.03	V
11490.000	35.79	-27.33	38.10	25.02	54.00	18.21	V
17711.500	41.99	-21.26	41.81	21.44	54.00	12.02	V
17860.500	42.52	-21.07	41.96	21.63	54.00	11.48	H
17920.500	42.28	-20.38	41.96	20.70	54.00	11.72	H

Channel 165

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5393.200	47.64	-20.67	34.57	33.74	54.00	6.36	V
5415.600	47.70	-20.97	34.63	34.04	54.00	6.30	V
11650.000	34.52	-27.74	38.25	24.00	54.00	19.49	H
17710.000	41.82	-21.24	41.81	21.24	54.00	12.19	H
17832.500	42.09	-21.15	41.93	21.31	54.00	11.91	V
17920.000	42.24	-20.39	41.96	20.67	54.00	11.76	H

802.11n-HT20

Channel 149

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5375.200	47.99	-20.98	34.50	34.46	54.00	6.01	V
5386.400	47.63	-20.65	34.55	33.73	54.00	6.37	V
11490.000	35.51	-27.33	38.10	24.74	54.00	18.49	V
17929.500	43.10	-20.19	41.94	21.35	54.00	10.90	V
17958.500	43.27	-19.94	41.88	21.33	54.00	10.73	H
17986.000	42.93	-20.56	41.83	21.66	54.00	11.07	H

. ©Copyright. All rights reserved by CTTL.

Channel 165

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5372.000	47.53	-21.01	34.49	34.05	54.00	6.47	V
5387.200	47.63	-20.61	34.55	33.69	54.00	6.37	V
11650.000	35.02	-27.74	38.25	24.50	54.00	18.99	H
17927.000	42.75	-20.24	41.95	21.05	54.00	11.25	V
17953.500	42.86	-19.83	41.89	20.80	54.00	11.14	V
17991.500	42.38	-20.68	41.82	21.24	54.00	11.62	H

802.11n-HT40

Channel 151

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5385.600	47.71	-20.68	34.54	33.85	54.00	6.29	V
5403.600	47.98	-21.09	34.61	34.46	54.00	6.02	V
11510.000	35.28	-27.43	38.11	24.59	54.00	18.73	V
17711.000	42.20	-21.26	41.81	21.64	54.00	11.80	V
17887.500	42.63	-20.90	41.99	21.55	54.00	11.37	V
17944.000	43.03	-19.88	41.91	21.00	54.00	10.97	V

Channel 159

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5374.800	47.92	-20.98	34.50	34.40	54.00	6.08	V
5412.000	47.77	-21.09	34.62	34.23	54.00	6.23	V
11590.000	35.39	-27.91	38.19	25.11	54.00	18.61	V
17912.500	43.04	-20.55	41.97	21.62	54.00	10.96	V
17927.500	43.18	-20.23	41.94	21.47	54.00	10.82	H
17957.000	43.10	-19.91	41.89	21.12	54.00	10.90	V

. ©Copyright. All rights reserved by CTTL.

802.11ac-HT20

Channel 149

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5371.200	47.78	-21.02	34.49	34.31	54.00	6.22	V
5390.800	47.91	-20.53	34.56	33.88	54.00	6.09	V
11490.000	35.83	-27.33	38.10	25.06	54.00	18.17	V
17791.500	42.11	-21.30	41.89	21.51	54.00	11.89	H
17927.000	42.84	-20.24	41.95	21.14	54.00	11.16	V
17957.500	43.47	-19.92	41.88	21.50	54.00	10.53	V

Channel 165

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5389.600	47.59	-20.51	34.56	33.54	54.00	6.41	V
5458.000	47.62	-20.61	34.67	33.56	54.00	6.39	V
11650.000	34.09	-27.74	38.25	23.58	54.00	19.91	V
17889.500	42.53	-20.89	41.99	21.43	54.00	11.47	V
17923.500	42.87	-20.32	41.95	21.24	54.00	11.13	V
17952.000	42.84	-19.80	41.90	20.74	54.00	11.16	V

802.11ac-HT40

Channel 151

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5365.200	47.96	-21.28	34.46	34.78	54.00	6.04	V
5390.000	47.78	-20.49	34.56	33.71	54.00	6.22	V
11650.000	34.30	-27.74	38.25	23.78	54.00	19.70	H
17868.500	42.42	-21.02	41.97	21.47	54.00	11.58	H
17935.500	42.49	-20.06	41.93	20.62	54.00	11.51	H
17961.000	42.57	-20.00	41.88	20.69	54.00	11.43	H

. ©Copyright. All rights reserved by CTTL.

Channel 159

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5372.000	47.56	-21.01	34.49	34.07	54.00	6.45	V
5390.800	47.69	-20.53	34.56	33.66	54.00	6.31	V
11590.000	34.89	-27.91	38.19	24.61	54.00	19.11	V
15928.000	40.96	-21.99	40.66	22.30	54.00	13.04	V
17878.000	42.50	-20.96	41.98	21.48	54.00	11.50	V
17963.000	41.88	-20.04	41.87	20.05	54.00	12.12	V

802.11ac-HT80

Channel 155

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5374.800	47.7	-21.0	34.5	34.21	54.0	6.3	V
5459.600	48.1	-20.5	34.7	33.94	54.0	5.9	V
11550.000	34.5	-28.3	38.2	24.64	54.0	19.5	V
15861.000	40.8	-22.3	40.6	22.52	54.0	13.2	H
17787.500	41.5	-21.4	41.9	20.95	54.0	12.5	V
17967.000	42.3	-20.1	41.9	20.61	54.0	11.7	H

. ©Copyright. All rights reserved by CTTL.

Peak Results：

802.11a

Channel 149

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5650.978	58.98	-20.92	34.89	45.01	68.20	9.22	V
5652.588	58.48	-20.99	34.88	44.58	68.20	9.73	V
11490.000	44.98	-27.33	38.10	34.21	74.00	29.02	V
16814.500	53.03	-21.26	42.79	31.49	68.20	15.18	H
17233.000	52.26	-21.76	41.77	32.25	68.20	15.94	V
17372.500	53.54	-20.76	41.63	32.67	68.20	14.66	V

Channel 165

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5923.505	58.73	-21.08	34.95	44.86	69.31	10.57	H
5924.310	58.42	-21.04	34.95	44.51	68.71	10.29	V
11650.000	44.73	-27.74	38.25	34.22	74.00	29.27	H
16821.000	53.71	-21.32	42.79	32.24	68.20	14.49	H
17292.500	52.92	-20.88	41.71	32.09	68.20	15.28	V
17475.000	51.09	-21.04	41.68	30.46	68.20	17.11	V

802.11n-HT20

Channel 149

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5651.208	59.02	-20.93	34.89	45.06	69.09	10.07	V
5652.070	58.24	-20.97	34.89	44.33	69.73	11.49	V
11490.000	45.33	-27.33	38.10	34.56	74.00	28.67	H
16791.000	53.24	-21.32	42.77	31.78	68.20	14.96	H
17235.000	50.40	-21.75	41.76	30.39	68.20	17.80	H
17617.000	53.35	-20.79	41.80	32.34	68.20	14.85	V

. ©Copyright. All rights reserved by CTTL.

Channel 165

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5923.678	58.56	-21.07	34.95	44.68	69.18	10.62	H
5924.713	58.68	-21.02	34.95	44.75	68.41	9.73	H
11650.000	44.96	-27.74	38.25	34.44	74.00	29.04	H
16914.000	53.55	-21.59	42.74	32.39	68.20	14.65	H
17234.000	53.36	-21.75	41.77	33.35	68.20	14.84	H
17475.000	51.03	-21.04	41.68	30.39	68.20	17.17	V

802.11n-HT40

Channel 151

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5650.805	58.77	-20.92	34.90	44.79	68.80	10.02	V
5651.610	58.23	-20.95	34.89	44.29	69.39	11.16	H
11510.000	45.68	-27.43	38.11	35.00	74.00	28.32	H
16596.000	53.77	-21.81	41.89	33.69	68.20	14.43	H
17082.000	54.73	-21.00	42.21	33.52	68.20	13.47	H
17289.500	53.28	-20.93	41.71	32.51	68.20	14.92	V

Channel 159

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5922.068	59.37	-21.14	34.94	45.56	70.37	11.00	V
5923.448	58.49	-21.08	34.95	44.62	69.35	10.86	H
11590.000	45.01	-27.91	38.19	34.74	74.00	28.99	H
16818.500	53.50	-21.29	42.79	32.00	68.20	14.70	H
17035.000	53.34	-21.22	42.49	32.07	68.20	14.86	V
17384.000	53.02	-20.49	41.62	31.89	68.20	15.18	V

. ©Copyright. All rights reserved by CTTL.

802.11ac-HT20

Channel 149

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5650.518	58.47	-20.90	34.90	44.48	68.58	10.11	H
5651.380	58.62	-20.94	34.89	44.66	69.22	10.61	H
11490.000	45.26	-27.33	38.10	34.49	74.00	28.74	V
16581.500	53.31	-21.58	41.84	33.05	68.20	14.89	H
16883.500	53.72	-21.49	42.76	32.45	68.20	14.48	V
17233.500	52.29	-21.76	41.77	32.28	68.20	15.91	V

Channel 165

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5923.160	58.55	-21.09	34.95	44.69	69.56	11.01	V
5924.943	58.76	-21.01	34.95	44.83	68.24	9.48	H
11650.000	43.85	-27.74	38.25	33.34	74.00	30.15	H
16824.500	53.63	-21.35	42.79	32.19	68.20	14.57	V
17297.500	53.67	-20.78	41.70	32.74	68.20	14.53	H
17475.000	50.95	-21.04	41.68	30.32	68.20	17.25	H

802.11ac-HT40

Channel 151

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5650.345	58.62	-20.90	34.90	44.62	68.46	9.83	V
5651.208	58.41	-20.93	34.89	44.45	69.09	10.69	H
11510.000	45.07	-27.43	38.11	34.39	74.00	28.93	H
17265.000	51.45	-21.42	41.73	31.13	68.20	16.75	V
17310.000	54.62	-20.84	41.69	33.77	68.20	13.58	H
17419.000	53.68	-20.42	41.62	32.49	68.20	14.52	H

. ©Copyright. All rights reserved by CTTL.

Channel 159

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5924.195	58.30	-21.05	34.95	44.40	68.80	10.49	H
5924.943	58.49	-21.01	34.95	44.56	68.24	9.75	V
11590.000	43.93	-27.91	38.19	33.65	74.00	30.07	V
17385.000	51.75	-20.47	41.61	30.61	68.20	16.45	V
17573.000	51.79	-20.78	41.77	30.79	68.20	16.41	H
17655.000	51.78	-21.12	41.80	31.10	68.20	16.42	H

802.11ac-HT80

Channel 155

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5923.505	59.0	-21.1	34.9	45.17	69.3	10.3	H
5924.253	58.8	-21.0	34.9	44.85	68.8	10.0	V
11550.000	44.5	-28.3	38.2	34.67	74.0	29.5	H
17325.000	51.6	-21.0	41.7	30.93	68.2	16.6	H
17574.000	53.1	-20.8	41.8	32.11	68.2	15.1	H
17643.000	52.9	-21.1	41.8	32.11	68.2	15.3	H

. ©Copyright. All rights reserved by CTTL.

Band edge compliance

Mode	Channel	Test Results	Conclusion
802.11a	5745 MHz	Fig.1	P
	5825 MHz	Fig.2	P
802.11n HT20	5745 MHz	Fig.3	P
	5825 MHz	Fig.4	P
802.11n HT40	5755 MHz	Fig.5	P
	5795 MHz	Fig.6	P
802.11ac HT20	5745 MHz	Fig.7	P
	5825 MHz	Fig.8	P
802.11ac HT40	5755 MHz	Fig.9	P
	5795 MHz	Fig.10	P
802.11ac HT80	5775 MHz	Fig.11 Fig.12	P

Conclusion: PASS

Test graphs as below:

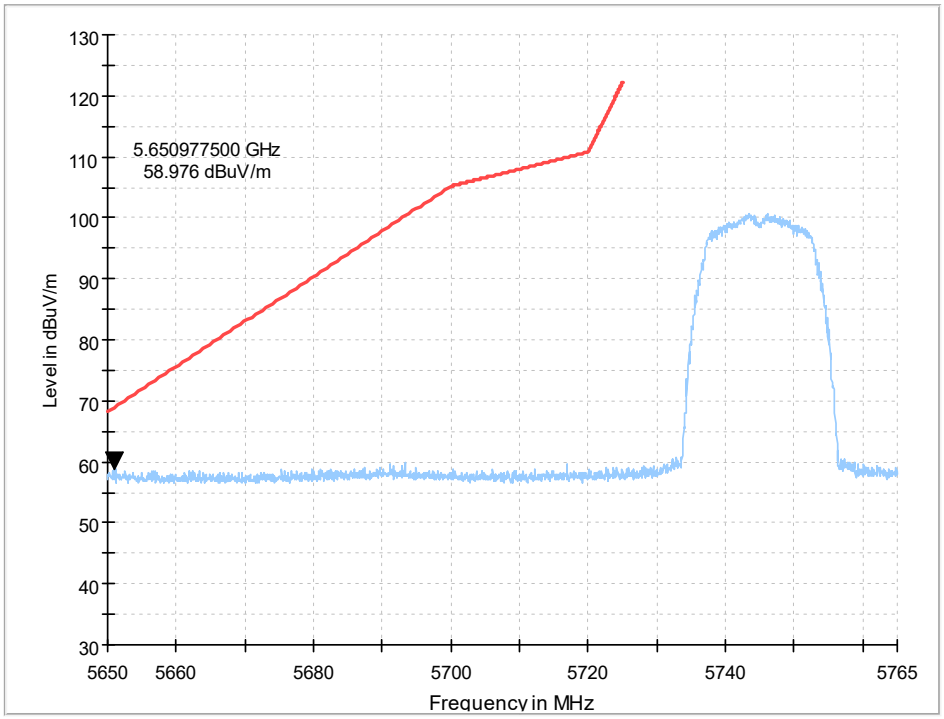


Fig. 1 Band Edges (802.11a Ch149,5745MHz)

. ©Copyright. All rights reserved by CTTL.

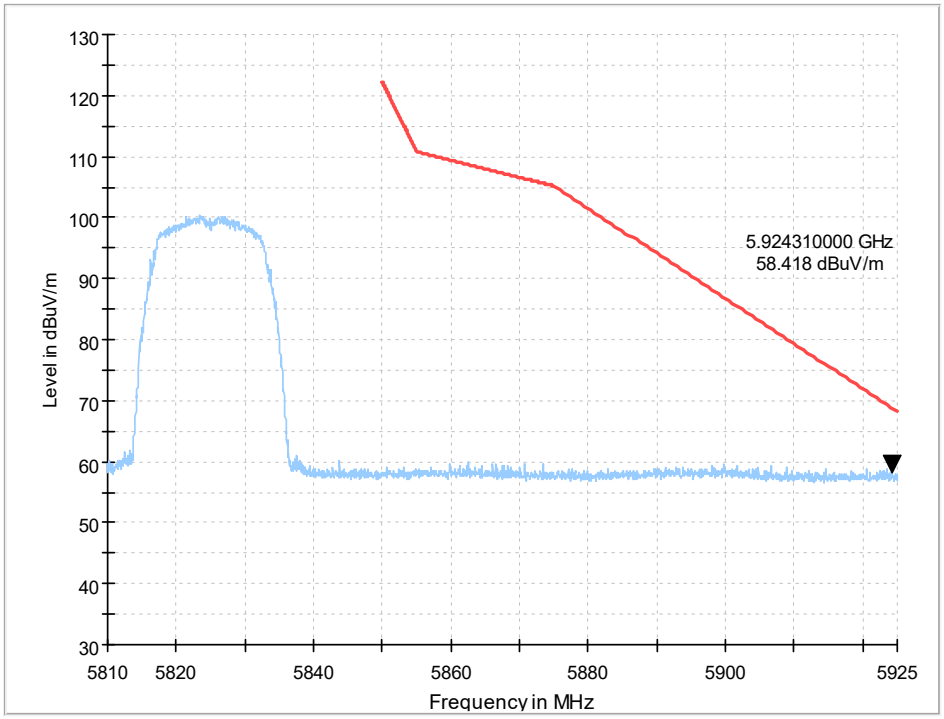


Fig. 2 Band Edges (802.11a Ch165, 5825MHz)

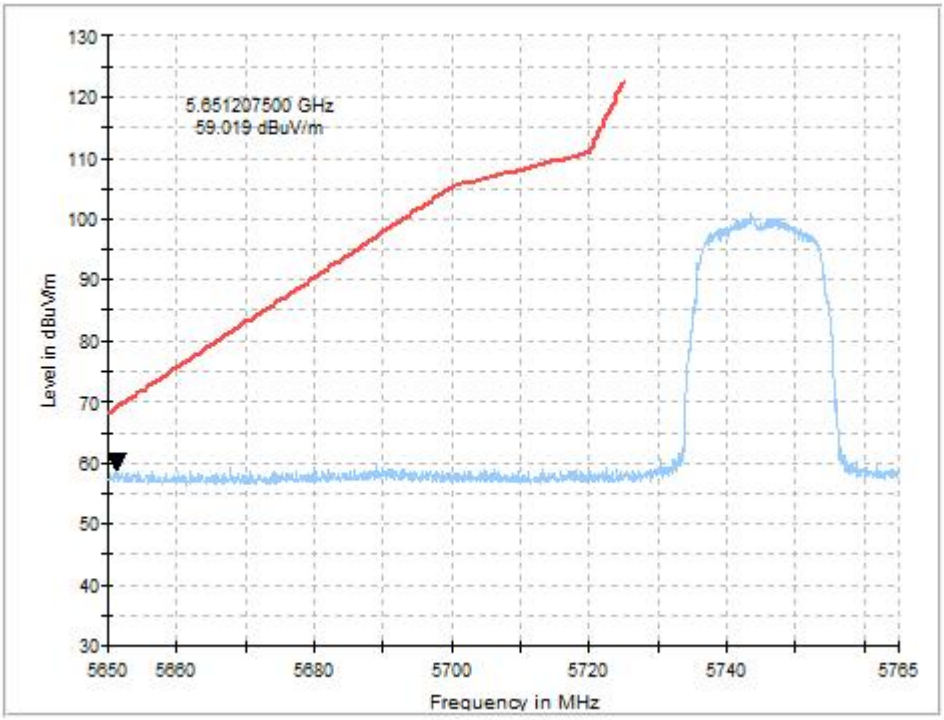


Fig. 3 Band Edges (802.11n-HT20 Ch149, 5745MHz)

. ©Copyright. All rights reserved by CTTL.

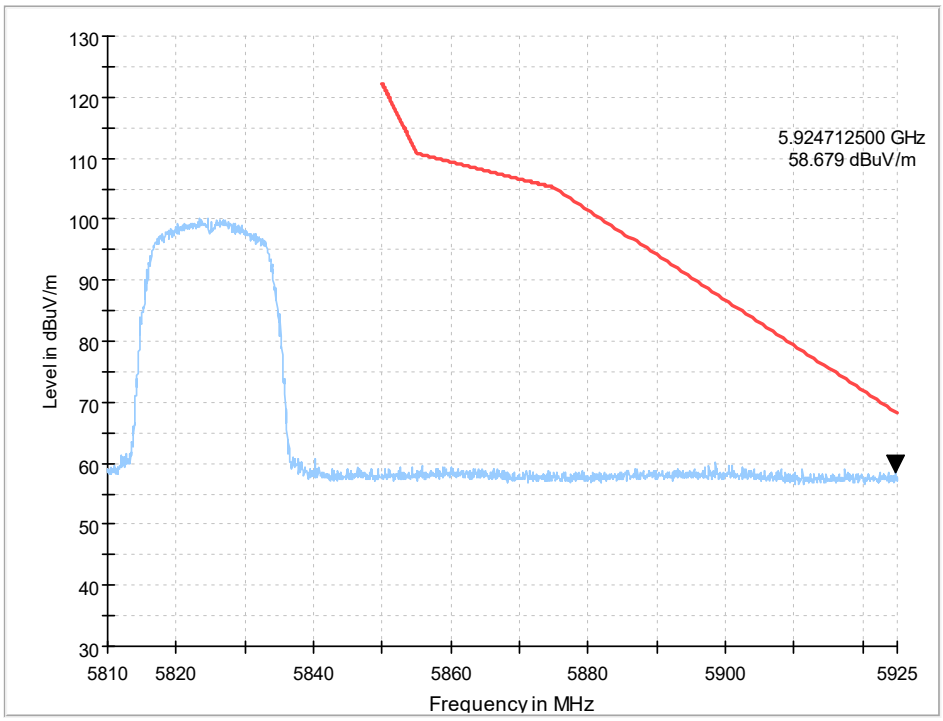


Fig. 4 Band Edges (802.11n-HT20 Ch165, 5825MHz)

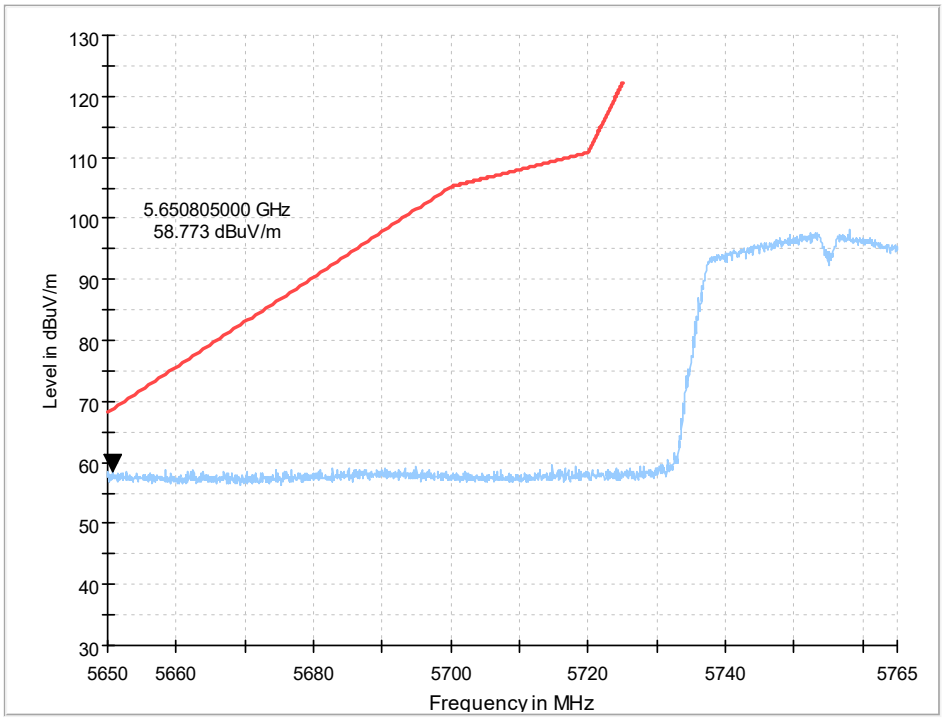


Fig. 5 Band Edges (802.11n-HT40 Ch151, 5755MHz)

. ©Copyright. All rights reserved by CTTL.

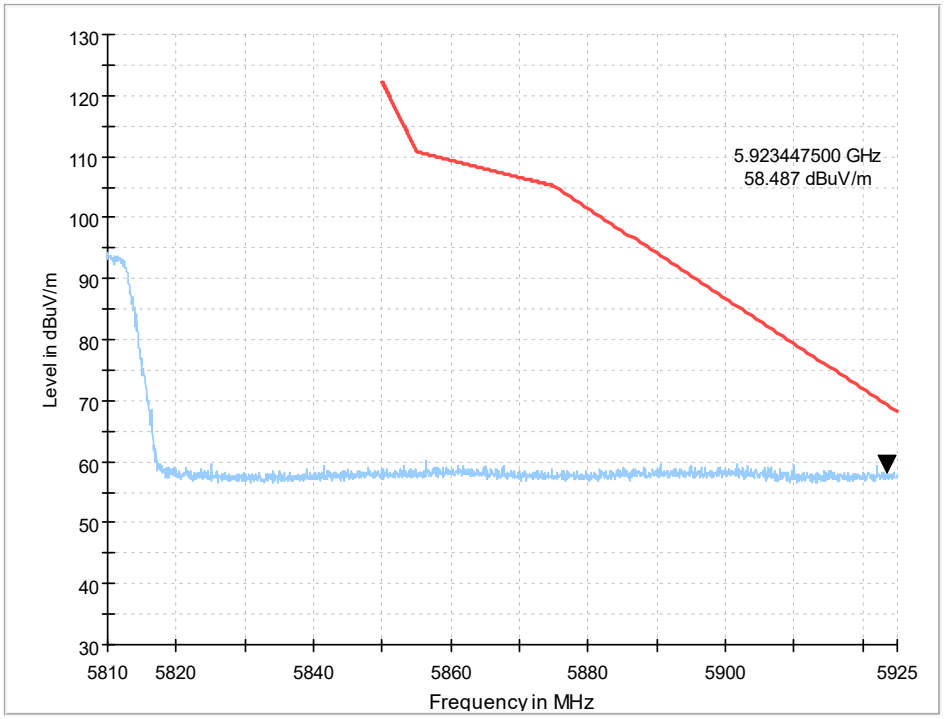


Fig. 6 Band Edges (802.11n-HT40 Ch159, 5795MHz)

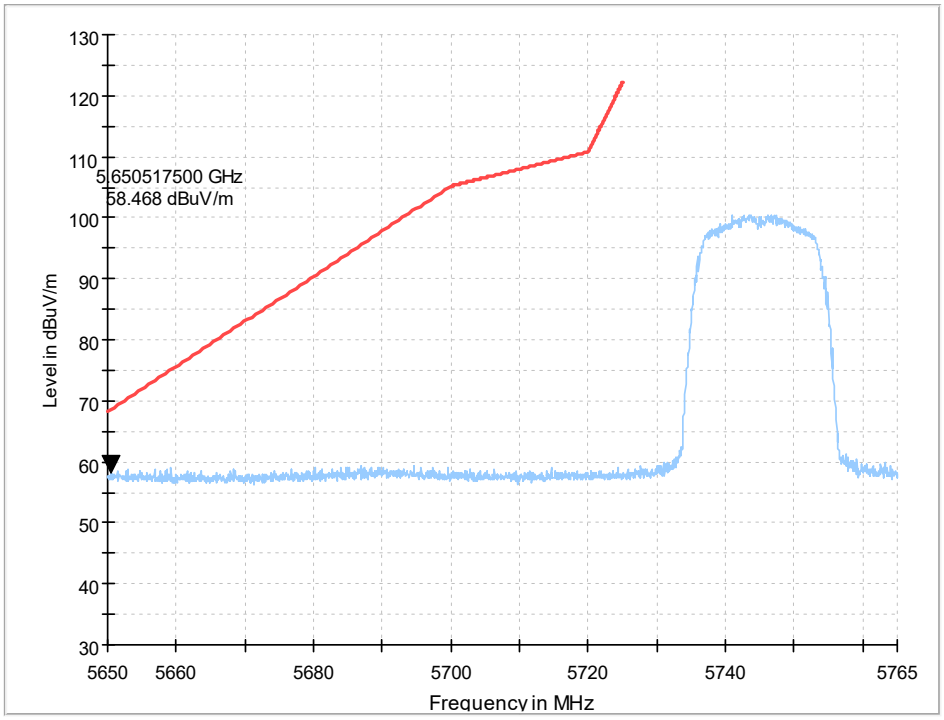


Fig. 7 Band Edges (802.11ac-HT20 Ch149, 5745MHz)

. ©Copyright. All rights reserved by CTTL.

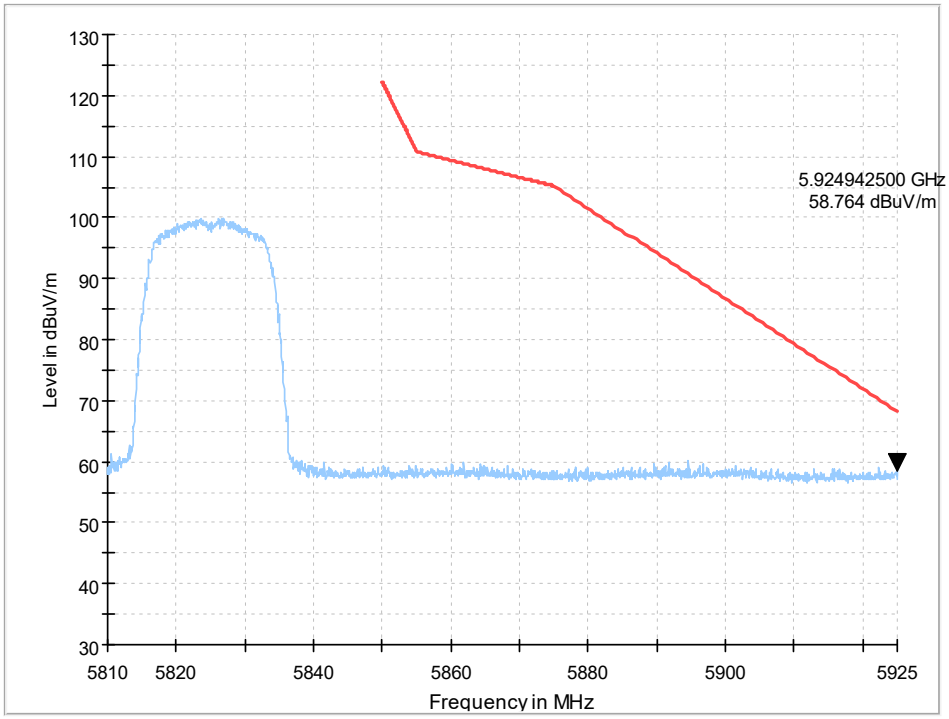


Fig. 8 Band Edges (802.11ac-HT20 Ch165, 5825MHz)

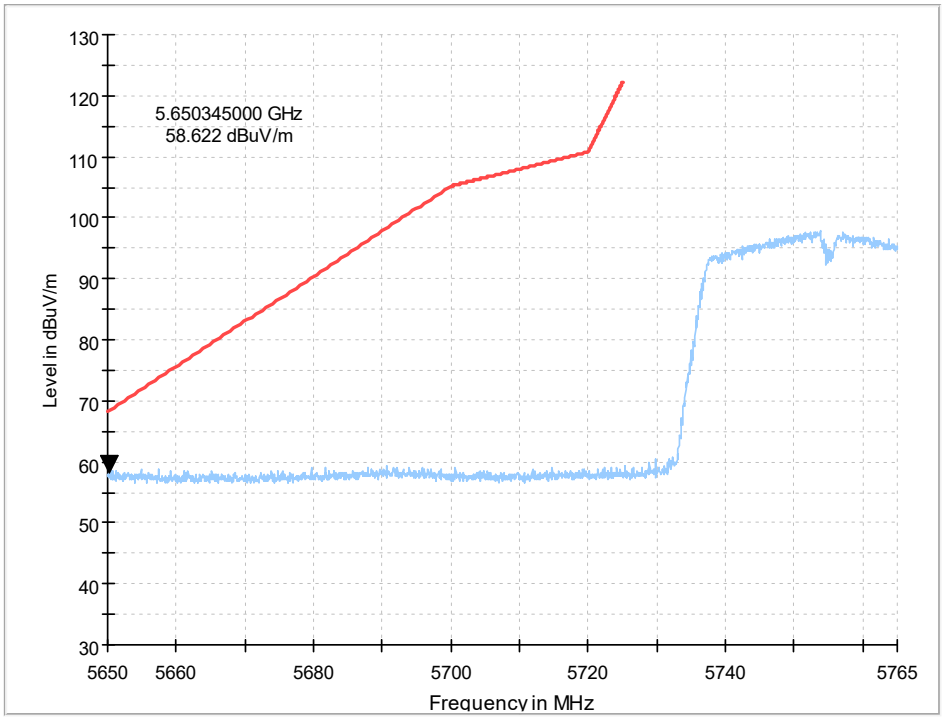


Fig. 9 Band Edges (802.11ac-HT40 Ch151, 5755MHz)

. ©Copyright. All rights reserved by CTTL.

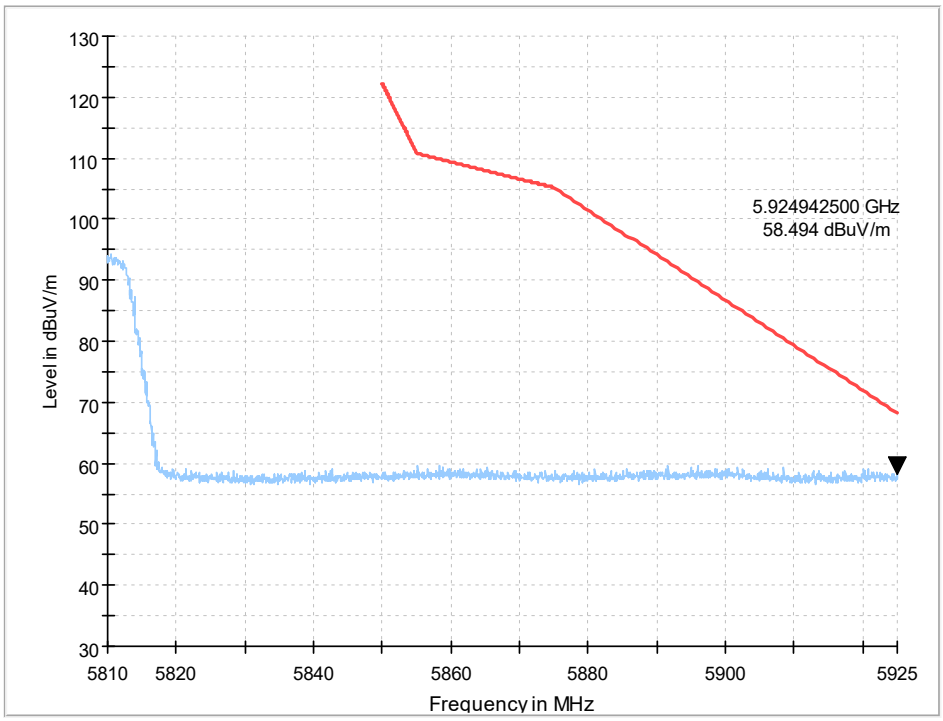


Fig. 10 Band Edges (802.11ac-HT40 Ch159, 5795MHz)

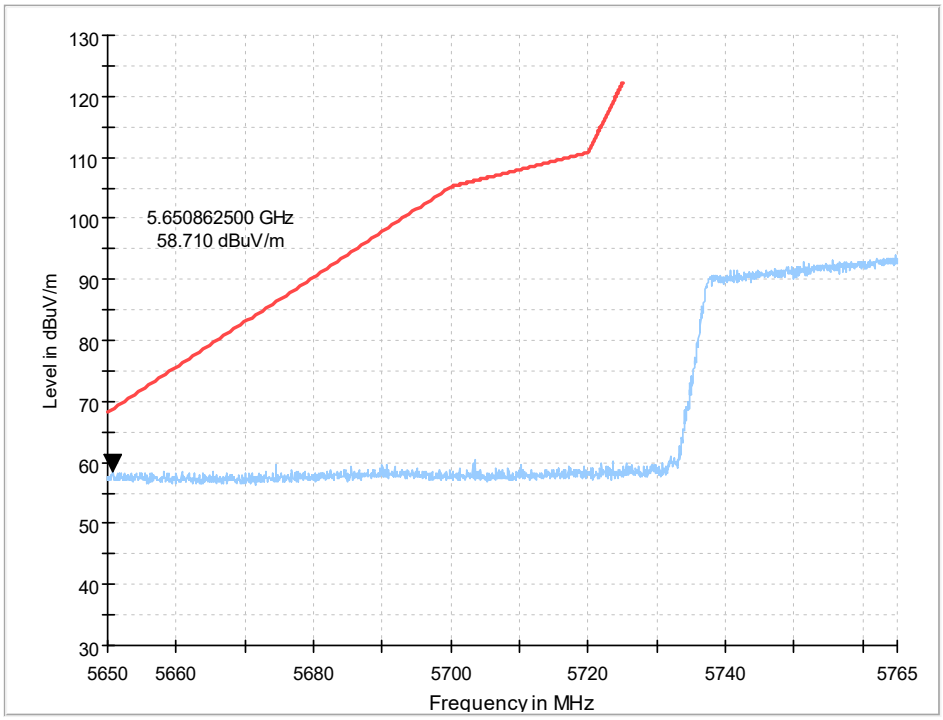


Fig. 11 Band Edges (802.11ac-HT80 Ch155, 5775MHz)

. ©Copyright. All rights reserved by CTTL.

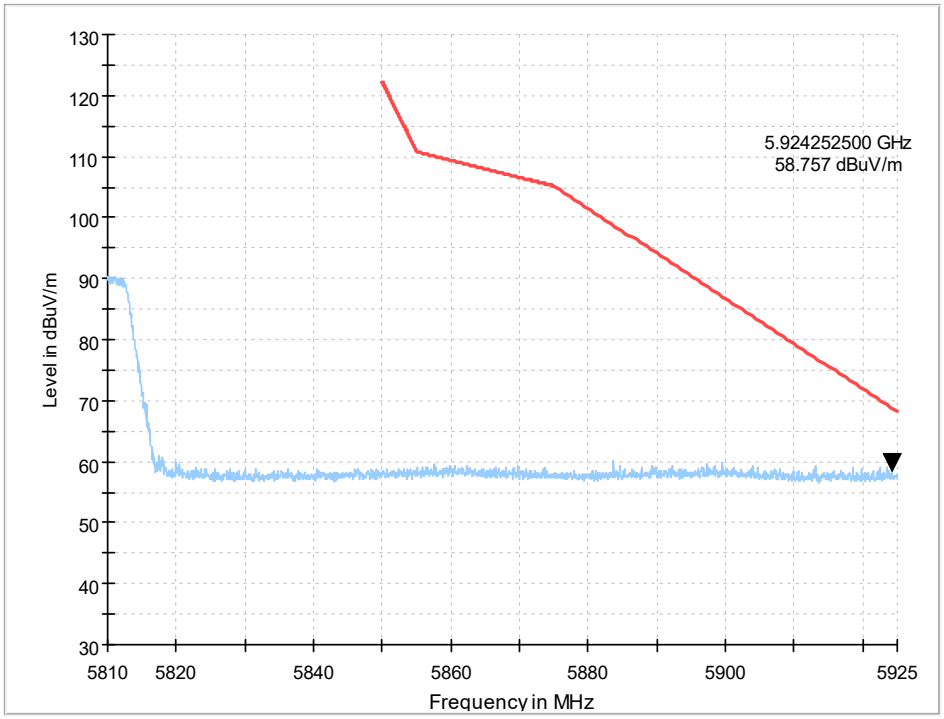


Fig. 12 Band Edges (802.11ac-HT80, 5775MHz)

. ©Copyright. All rights reserved by CTTL.

A.6. AC Powerline Conducted Emission

A.6.1 Summary

All AC line conducted spurious emissions are measured with a receiver connected to a grounded LISN while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates and modes were investigated for conducted spurious emissions. Only the conducted emissions of the configuration that produced the worst case emissions are reported in this section

A.6.2 Method of Measurement

See Clause 6.2 of ANSI C63.10 specifically.

See Clause 4 and Clause 5 of ANSI C63.10 generally.

The conducted emissions from the AC port of the EUT are measured in a shielding room. The EUT is connected to a Line Impedance Stabilization Network (LISN). An overview sweep with peak detection was performed. The measurements were performed with a quasi-peak detector and if required, an average detector.

The conducted emission measurements were made with the following detector of the test receiver: Quasi-Peak / Average Detector.

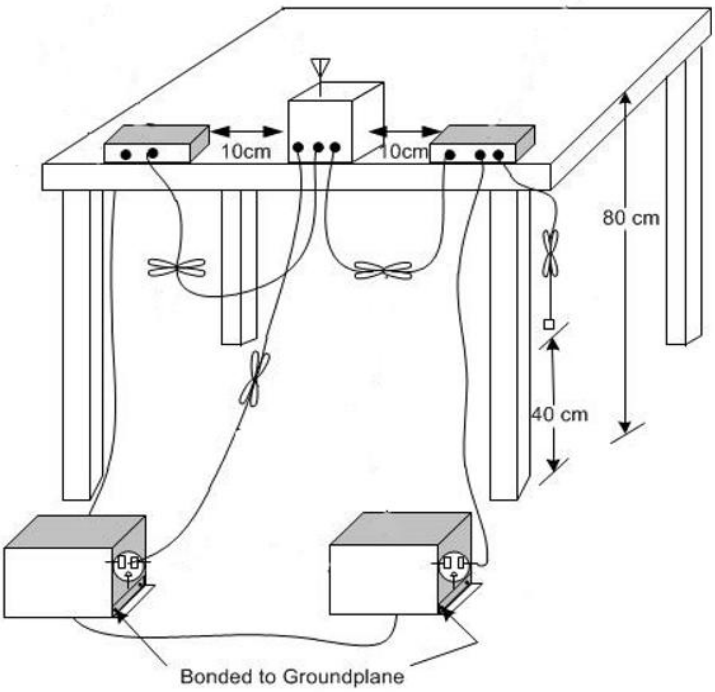
The measurement bandwidth is:

Frequency of Emission (MHz)	RBW/IF bandwidth
0.15-30	9kHz

A.6.3 Test Condition

Voltage（V）	Frequency（Hz）
120	60

A.6.4 Test setup



. ©Copyright. All rights reserved by CTTL.

A.6.5 Measurement Result and limit

Wi-Fi (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV) With charger		Conclusion
		Wi-Fi	Idle	
0.15 to 0.5	66 to 56	Fig.13	Fig. 14	P
0.5 to 5	56			
5 to 30	60			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

Wi-Fi (Average Limit)

Frequency range (MHz)	Average Limit (dBμV)	Result (dBμV) With charger		Conclusion
		Wi-Fi	Idle	
0.15 to 0.5	56 to 46	Fig.13	Fig. 14	P
0.5 to 5	46			
5 to 30	50			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

Conclusion: Pass

Test graphs as below:

. ©Copyright. All rights reserved by CTTL.

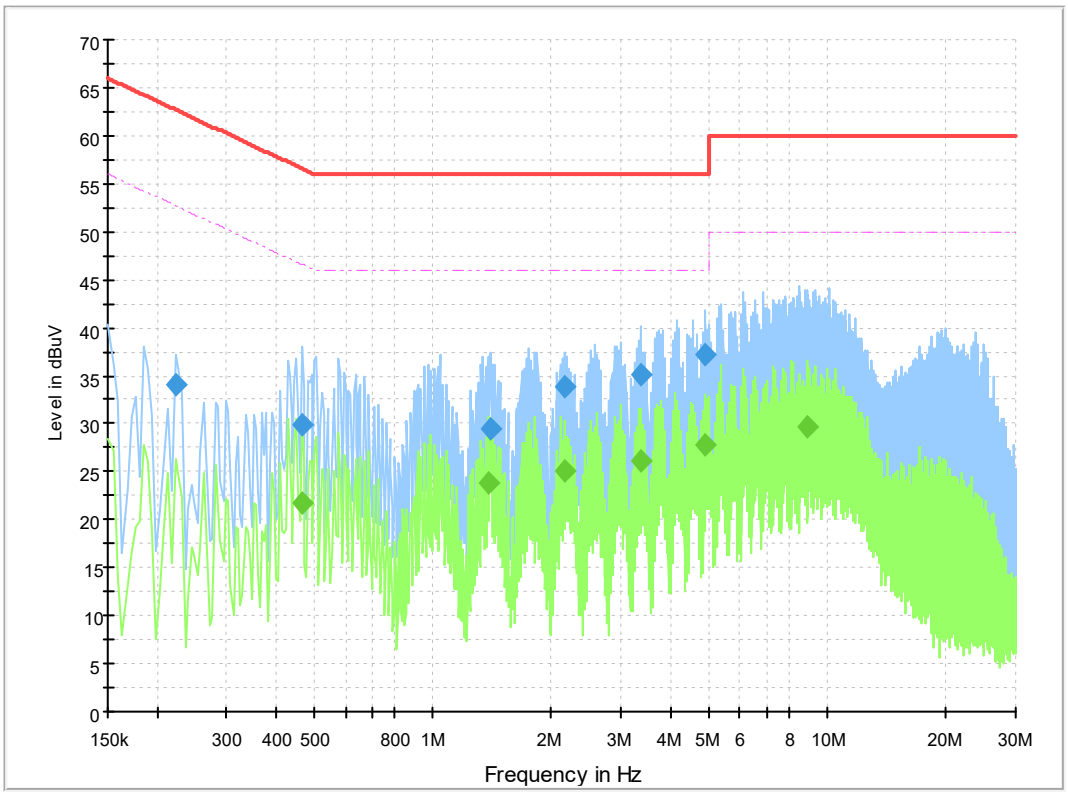


Fig. 13 AC Powerline Conducted Emission-802.11a CH149

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.222000	34.0	2000.0	9.000	On	N	20.0	28.8	62.7	
0.465000	29.9	2000.0	9.000	On	L1	20.1	26.7	56.6	
1.396500	29.6	2000.0	9.000	On	N	20.0	26.4	56.0	
2.166000	33.9	2000.0	9.000	On	L1	19.8	22.1	56.0	
3.358500	35.2	2000.0	9.000	On	L1	19.8	20.8	56.0	
4.902000	37.1	2000.0	9.000	On	L1	19.9	18.9	56.0	

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.465000	21.7	2000.0	9.000	On	L1	20.1	24.9	46.6	
1.378500	23.9	2000.0	9.000	On	L1	19.9	22.1	46.0	
2.166000	25.0	2000.0	9.000	On	L1	19.8	21.0	46.0	
3.376500	26.1	2000.0	9.000	On	L1	19.8	19.9	46.0	
4.888500	27.8	2000.0	9.000	On	L1	19.9	18.2	46.0	
8.929500	29.6	2000.0	9.000	On	L1	19.9	20.4	50.0	

. ©Copyright. All rights reserved by CTTL.

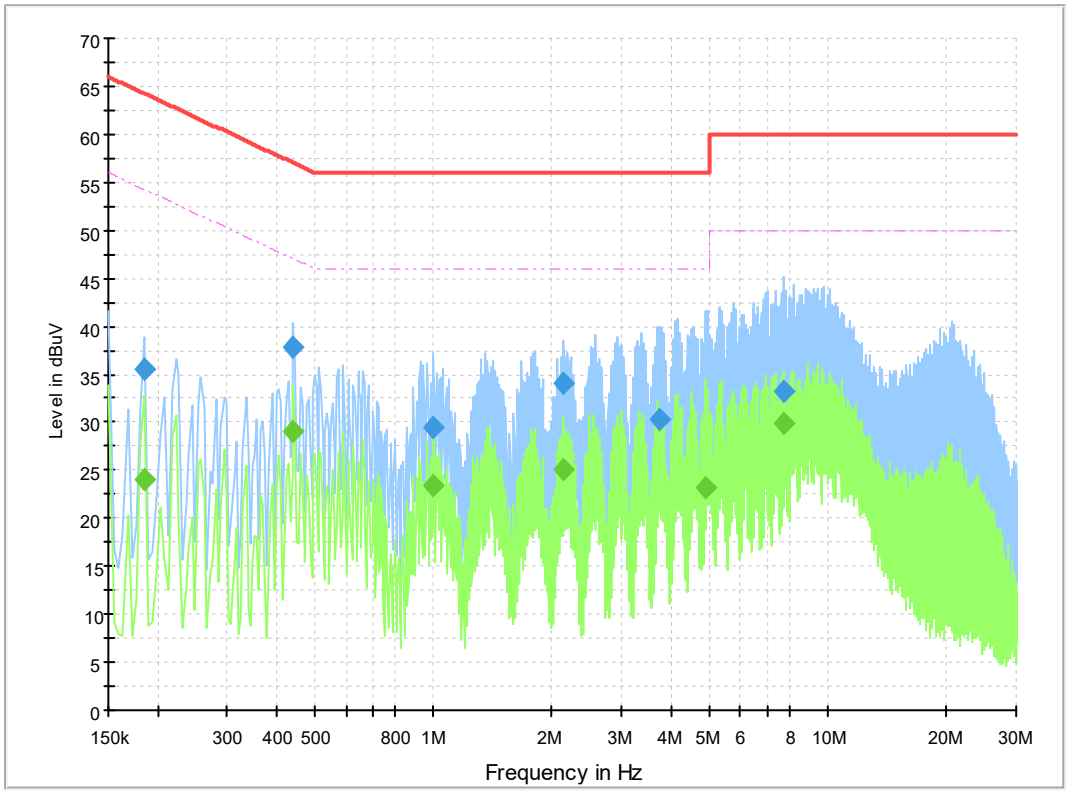


Fig. 14 AC Powerline Conducted Emission-Idle

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.186000	35.6	2000.0	9.000	On	L1	20.0	28.6	64.2	
0.442500	37.7	2000.0	9.000	On	L1	20.1	19.3	57.0	
1.000500	29.4	2000.0	9.000	On	N	20.0	26.6	56.0	
2.130000	34.0	2000.0	9.000	On	L1	19.8	22.0	56.0	
3.736500	30.2	2000.0	9.000	On	N	20.0	25.8	56.0	
7.723500	33.2	2000.0	9.000	On	N	20.1	26.8	60.0	

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.186000	24.1	2000.0	9.000	On	L1	20.0	30.1	54.2	
0.442500	29.0	2000.0	9.000	On	L1	20.1	18.0	47.0	
1.000500	23.5	2000.0	9.000	On	L1	19.8	22.5	46.0	
2.130000	25.1	2000.0	9.000	On	L1	19.8	20.9	46.0	
4.915500	23.2	2000.0	9.000	On	N	20.0	22.8	46.0	
7.723500	30.0	2000.0	9.000	On	L1	19.9	20.0	50.0	

. ©Copyright. All rights reserved by CTTL.

A.7. Antenna Requirement

The antenna of the device is permanently attached. There are no provisions for connection to an external antenna.

The unit complies with the requirement of FCC Part 15.203.

ANNEX B: EUT parameters

Disclaimer: The antenna gain and worse case provided by the client may affect the validity of the measurement results in this report, and the client shall bear the impact and consequences arising therefrom.

ANNEX C: Accreditation Certificate

Accredited Laboratory

A2LA has accredited

TELECOMMUNICATION TECHNOLOGY LABS, CAICT

Beijing, People's Republic of China

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated April 2017*).

Presented this 23rd day of July 2024.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 7049.01
Valid to July 31, 2026

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

***** END OF REPORT BODY *****

. ©Copyright. All rights reserved by CTTL.