FCC PART 15E
TEST REPORT
No.23T04Z81077-17

for

Wingtech Group (Hong Kong) Limited

5G Mobile Phone

Model Name: TMRV07P5G

FCC ID: 2APXW-TMRV07P5G

with

Hardware Version: V1.0

Software Version: TMRV07P5G_0.03.01

Issued Date: 2024-04-16

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.

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
23T04Z81077-17	Rev.0	1st edition	2024-03-26
23T04Z81077-17	Rev.1	Added antenna requirements.	2024-04-16

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

CONTENTS

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(huayuan North Road)

Address: No. 52, Huayuan North Road, Haidian District, Beijing, P. R. China100191

Radiated testing Location: CTTL(huayuan North Road)

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

1.3. TestingEnvironment

Normal Temperature: 15-35°C

Relative Humidity: 20-75%

1.4. Project date

Testing Start Date: 2024-01-16

Testing End Date: 2024-03-18

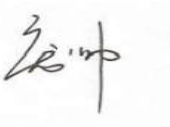
1.5. Signature

Dong Jiaxuan

(Prepared this test report)

Zheng Wei

(Reviewed this test report)



Pang Shuai

(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name:	Wingtech Group (Hong Kong) Limited
Address:	Flat/RM 1903 19/F, Podium Plaza, 5 Hanoi Road, Tsim Sha Tsui, KL, HK
Contact:	sharui
Email:	sharui@wingtech.com
Telephone:	+86-21-53529900
Fax:	/

2.2. Manufacturer Information

Company Name:	Wingtech Group (Hong Kong) Limited
Address:	Flat/RM 1903 19/F, Podium Plaza, 5 Hanoi Road, Tsim Sha Tsui, KL, HK
Contact:	sharui
Email:	sharui@wingtech.com
Telephone:	+86-21-53529900
Fax:	/

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

3.1. About EUT

Description	5G Mobile Phone
Model name	TMRV07P5G
FCC ID	2APXW-TMRV07P5G
WLAN Frequency Band	ISM Band: 5725MHz~5850MHz
Type of modulation	OFDM/OFDMA
Nominal Voltage	3.87V

3.2. Internal Identification of EUT used during the test

EUT ID*	IMEI	HW Version	SW Version	Date of receipt
UT98a	860316070023386 860316070023394	V1.0	TMRV07P5G_0.03.01	2024-02-07
UT25a	860316070002869 860316070002877	V1.0	TMRV07P5G_0.03.01	2024-02-07

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

UT25a is used for Conduction test, UT98a is used for Radiation test.

3.3. Internal Identification of AE used during the test

AE ID*	Description	Model	Manufacture
AE1	Battery	TM002	SCUD (Fujian) Electronics Co.,Ltd.
AE2	Cable	HX-WT-60	Huizhou Washin Electronics 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 5G 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.

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

5. Laboratory Environment

Conducted RF performance testing is performed in shielding room.

EMC performance testing is performed in Semi-anechoic chamber.

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)	/	**P**
Peak Power Spectral Density	15.407 (a)	/	**P**
Occupied 6dB Bandwidth	15.407 (e)	/	**P**
Radiated Unwanted Emission	15.407, 15.205, 15.209	/	**P**
AC Powerline Conducted Emission	15.107, 15.207	/	**P**

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

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.

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	3.87V
Humidity	44%

7. Test Facilities Utilized

Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Vector Signal Analyzer	FSQ40	200089	Rohde & Schwarz	1 year	2024-07-04
2	Vector Signal Analyzer	FSW67	104051	Rohde & Schwarz	1 year	2024-03-06
3	LISN	ENV216	101200	R&S	13 months	2024-07-04
4	Test Receiver	ESCI	100344	R&S	13 months	2024-03-20
5	Attenuator	10dB/2W	/	Rosenberger	/	/
6	Shielding Room	S81	/	ETS-Lindgren	/	/

Note: The equipment was in Calibration Due date when used.

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Test Receiver	ESW44	103023	R&S	13 months	2024-07-08
2	EMI Antenna	VULB9163	01223	SCHWARZBECK	13 months	2024-08-18
3	EMI Antenna	3115	6914	ETS-Lindgren	13 months	2024-06-07
4	EMI Antenna	3116	2663	ETS-Lindgren	13 months	2025-03-21

Test Software

Test Item	Test Software and Version	Software Vendor
Radiated Continuous Emission	EMC32 V11.50.020	R&S
Conducted Emission	EMC32 V8.53.0	R&S

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

Radiated (k=2)

Frequency Range	Uncertainty(dB)
9kHz-30MHz	/
30MHz ≤ f ≤ 1GHz	4.72
1GHz ≤ f ≤18GHz	4.84
18GHz ≤ f ≤40GHz	5.12

8.7. AC Power-line Conducted Emission

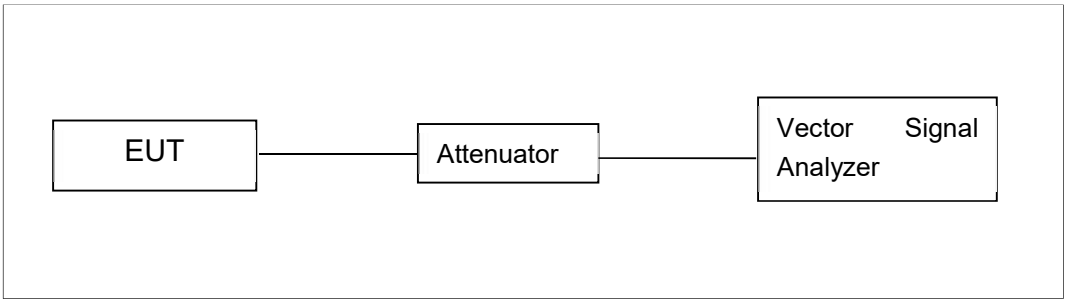
Measurement Uncertainty : 3.08dB,k=2

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 sei-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

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 -1.7/-4.2dBi(ANT6/ANT10) and the value is supplied by the applicant or manufacturer.

A.2.2. Maximum Average Output Power-Conducted

EUT ID: UT25a

Measurement Results:

SISO-ANT10

802.11a mode

Mode	Data Rate (Mbps)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11a	6	19.51	19.50	19.77
	9	\	\	\
	12	\	\	\
	18	\	\	\
	24	\	\	\
	36	\	\	\
	48	\	\	\
	54	\	\	\

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	19.19	19.19	19.43
	MCS1	\	\	\
	MCS2	\	\	\
	MCS3	\	\	\
	MCS4	\	\	\
	MCS5	\	\	\
	MCS6	\	\	\
	MCS7	\	\	\

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

802.11ac-HT20 mode

Mode	Data Rate (Index)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11ac(20MHz)	MCS0	19.24	19.18	19.37
	MCS1	\	\	\
	MCS2	\	\	\
	MCS3	\	\	\
	MCS4	\	\	\
	MCS5	\	\	\
	MCS6	\	\	\
	MCS7	\	\	\
	MCS8	\	\	\

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

802.11ax-HE20 mode

Mode	Data Rate (Index)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11ax(20MHz)	MCS0	19.35	19.34	19.57
	MCS1	\	\	\
	MCS2	\	\	\
	MCS3	\	\	\
	MCS4	\	\	\
	MCS5	\	\	\
	MCS6	\	\	\
	MCS7	\	\	\
	MCS8	\	\	\
	MCS9	\	\	\
	MCS10	\	\	\
	MCS11	\	\	\

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	18.60	18.74
	MCS1	\	\
	MCS2	\	\
	MCS3	\	\
	MCS4	\	\
	MCS5	\	\
	MCS6	\	\
	MCS7	\	\

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

802.11ac-HT40 mode

Mode	Data Rate (Index)	Test Result (dBm)	
		5755MHz (Ch151)	5795MHz (Ch159)
802.11ac(40MHz)	MCS0	18.61	18.73
	MCS1	\	\
	MCS2	\	\
	MCS3	\	\
	MCS4	\	\
	MCS5	\	\
	MCS6	\	\
	MCS7	\	\
	MCS8	\	\
	MCS9	\	\

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

802.11ax-HE40 mode

Mode	Data Rate (Index)	Test Result (dBm)	
		5755MHz (Ch151)	5795MHz (Ch159)
802.11ax(40MHz)	MCS0	18.22	18.35
	MCS1	\	\
	MCS2	\	\
	MCS3	\	\
	MCS4	\	\
	MCS5	\	\
	MCS6	\	\
	MCS7	\	\
	MCS8	\	\
	MCS9	\	\
	MCS10	\	\
	MCS11	\	\

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

802.11ac-HT80 mode

Mode	Data Rate (Index)	Test Result (dBm)
		5775MHz (Ch155)
802.11ac(80MHz)	MCS0	18.08
	MCS1	\
	MCS2	\
	MCS3	\
	MCS4	\
	MCS5	\
	MCS6	\
	MCS7	\
	MCS8	\
	MCS9	\

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

802.11ax-HE80 mode

Mode	Data Rate (Index)	Test Result (dBm) 5775MHz (Ch155)
802.11ax(80MHz)	MCS0	17.41
	MCS1	\
	MCS2	\
	MCS3	\
	MCS4	\
	MCS5	\
	MCS6	\
	MCS7	\
	MCS8	\
	MCS9	\
	MCS10	\
	MCS11	\

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

SISO-ANT7

802.11a mode

Mode	Data Rate (Mbps)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11a	6	17.14	16.88	16.65
	9	\	\	\
	12	\	\	\
	18	\	\	\
	24	\	\	\
	36	\	\	\
	48	\	\	\
	54	\	\	\

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	16.78	16.51	16.37
	MCS1	\	\	\
	MCS2	\	\	\
	MCS3	\	\	\
	MCS4	\	\	\
	MCS5	\	\	\
	MCS6	\	\	\
	MCS7	\	\	\

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

802.11ac-HT20 mode

Mode	Data Rate (Index)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11ac(20MHz)	MCS0	16.78	16.50	16.31
	MCS1	\	\	\
	MCS2	\	\	\
	MCS3	\	\	\
	MCS4	\	\	\
	MCS5	\	\	\
	MCS6	\	\	\
	MCS7	\	\	\
	MCS8	\	\	\

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

802.11ax-HE20 mode

Mode	Data Rate (Index)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11ax(20MHz)	MCS0	16.94	16.65	16.45
	MCS1	\	\	\
	MCS2	\	\	\
	MCS3	\	\	\
	MCS4	\	\	\
	MCS5	\	\	\
	MCS6	\	\	\
	MCS7	\	\	\
	MCS8	\	\	\
	MCS9	\	\	\
	MCS10	\	\	\
	MCS11	\	\	\

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	15.67	15.53
	MCS1	\	\
	MCS2	\	\
	MCS3	\	\
	MCS4	\	\
	MCS5	\	\
	MCS6	\	\
	MCS7	\	\

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

802.11ac-HT40 mode

Mode	Data Rate (Index)	Test Result (dBm)	
		5755MHz (Ch151)	5795MHz (Ch159)
802.11ac(40MHz)	MCS0	15.55	15.50
	MCS1	\	\
	MCS2	\	\
	MCS3	\	\
	MCS4	\	\
	MCS5	\	\
	MCS6	\	\
	MCS7	\	\
	MCS8	\	\
	MCS9	\	\

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

802.11ax-HE40 mode

Mode	Data Rate (Index)	Test Result (dBm)	
		5755MHz (Ch151)	5795MHz (Ch159)
802.11ax(40MHz)	MCS0	15.12	15.06
	MCS1	\	\
	MCS2	\	\
	MCS3	\	\
	MCS4	\	\
	MCS5	\	\
	MCS6	\	\
	MCS7	\	\
	MCS8	\	\
	MCS9	\	\
	MCS10	\	\
	MCS11	\	\

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

802.11ac-HT80 mode

Mode	Data Rate (Index)	Test Result (dBm) 5775MHz (Ch155)
802.11ac(80MHz)	MCS0	17.10
	MCS1	\
	MCS2	\
	MCS3	\
	MCS4	\
	MCS5	\
	MCS6	\
	MCS7	\
	MCS8	\
	MCS9	\

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

802.11ax-HE80 mode

Mode	Data Rate (Index)	Test Result (dBm) 5775MHz (Ch155)
802.11ax(80MHz)	MCS0	15.03
	MCS1	\
	MCS2	\
	MCS3	\
	MCS4	\
	MCS5	\
	MCS6	\
	MCS7	\
	MCS8	\
	MCS9	\
	MCS10	\
	MCS11	\

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

MIMO

802.11n-HT20 mode

Mode	Data Rate (Index)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11n(20MHz)	MCS0	19.83	19.81	19.71
	MCS1	\	\	\
	MCS2	\	\	\
	MCS3	\	\	\
	MCS4	\	\	\
	MCS5	\	\	\
	MCS6	\	\	\
	MCS7	\	\	\

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

802.11ac-HT20 mode

Mode	Data Rate (Index)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11ac(20MHz)	MCS0	19.88	19.79	19.71
	MCS1	\	\	\
	MCS2	\	\	\
	MCS3	\	\	\
	MCS4	\	\	\
	MCS5	\	\	\
	MCS6	\	\	\
	MCS7	\	\	\
	MCS8	\	\	\

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

802.11ax-HE20 mode

Mode	Data Rate (Index)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11ax(20MHz)	MCS0	19.99	19.90	19.90
	MCS1	\	\	\
	MCS2	\	\	\
	MCS3	\	\	\
	MCS4	\	\	\
	MCS5	\	\	\
	MCS6	\	\	\
	MCS7	\	\	\
	MCS8	\	\	\
	MCS9	\	\	\
	MCS10	\	\	\
	MCS11	\	\	\

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	19.14	19.10
	MCS1	\	\
	MCS2	\	\
	MCS3	\	\
	MCS4	\	\
	MCS5	\	\
	MCS6	\	\
	MCS7	\	\

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

802.11ac-HT40 mode

Mode	Data Rate (Index)	Test Result (dBm)	
		5755MHz (Ch151)	5795MHz (Ch159)
802.11ac(40MHz)	MCS0	19.20	19.09
	MCS1	\	\
	MCS2	\	\
	MCS3	\	\
	MCS4	\	\
	MCS5	\	\
	MCS6	\	\
	MCS7	\	\
	MCS8	\	\
	MCS9	\	\

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

802.11ax-HE40 mode

Mode	Data Rate (Index)	Test Result (dBm)	
		5755MHz (Ch151)	5795MHz (Ch159)
802.11ax(40MHz)	MCS0	18.75	18.71
	MCS1	\	\
	MCS2	\	\
	MCS3	\	\
	MCS4	\	\
	MCS5	\	\
	MCS6	\	\
	MCS7	\	\
	MCS8	\	\
	MCS9	\	\
	MCS10	\	\
	MCS11	\	\

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

802.11ac-HT80 mode

Mode	Data Rate (Index)	Test Result (dBm) 5775MHz (Ch155)
802.11ac(80MHz)	MCS0	18.56
	MCS1	\
	MCS2	\
	MCS3	\
	MCS4	\
	MCS5	\
	MCS6	\
	MCS7	\
	MCS8	\
	MCS9	\

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

802.11ax-HE80 mode

Mode	Data Rate (Index)	Test Result (dBm) 5775MHz (Ch155)
802.11ax(80MHz)	MCS0	18.45
	MCS1	\
	MCS2	\
	MCS3	\
	MCS4	\
	MCS5	\
	MCS6	\
	MCS7	\
	MCS8	\
	MCS9	\
	MCS10	\
	MCS11	\

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

11ax-RU

MIMO

802.11ax-HE20

Mode	Channel	Test Result (dBm)		
		ANT10	ant7	mimo
		MCS0	MCS0	MCS0
RU26-L	5745MHz (Ch149)	7.98	8.17	11.09
	5785MHz (Ch157)	7.94	8.00	10.98
	5825MHz (Ch165)	7.99	8.01	11.01

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

802.11ax-HE20

Mode	Channel	Test Result (dBm)		
		ANT10	ant7	mimo
		MCS0	MCS0	MCS0
RU26-R	5745MHz (Ch149)	8.29	8.40	11.36
	5785MHz (Ch157)	8.35	8.29	11.33
	5825MHz (Ch165)	8.55	8.13	11.36

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

802.11ax-HE20

Mode	Channel	Test Result (dBm)		
		ANT10	ant7	mimo
		MCS0	MCS0	MCS0
RU52-L	5745MHz (Ch149)	11.47	11.23	14.36
	5785MHz (Ch157)	11.35	11.10	14.24
	5825MHz (Ch165)	11.58	10.92	14.27

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

802.11ax-HE20

Mode	Channel	Test Result (dBm)		
		ANT10	ant7	mimo
		MCS0	MCS0	MCS0
RU52-R	5745MHz (Ch149)	11.81	11.37	14.61
	5785MHz (Ch157)	11.68	11.31	14.51
	5825MHz (Ch165)	12.07	11.16	14.65

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

802.11ax-HE20

Mode	Channel	Test Result (dBm)		
		ANT10	ant7	mimo
		MCS0	MCS0	MCS0
RU106-L	5745MHz (Ch149)	14.57	14.40	17.50
	5785MHz (Ch157)	14.60	14.09	17.36
	5825MHz (Ch165)	14.77	13.91	17.37

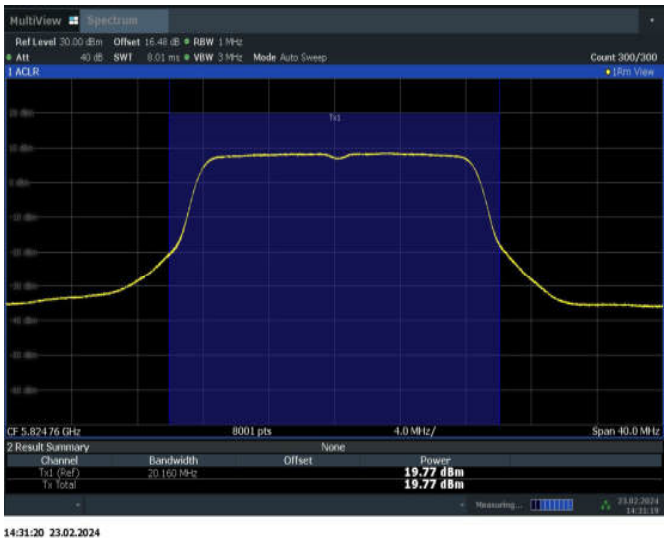
The data rate MCS0 is selected as worst condition, and the following cases are performed with this condition.

802.11ax-HE20

Mode	Channel	Test Result (dBm)		
		ANT10	ant7	mimo
		MCS0	MCS0	MCS0
RU106-R	5745MHz (Ch149)	14.79	14.44	***17.63***
	5785MHz (Ch157)	14.72	14.26	17.51
	5825MHz (Ch165)	14.86	14.02	17.47

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

The duty cycle of all mode are 99%



Maximum output Power：11a 6Mbps 5825 ANT10

Conclusion: PASS

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: UT25a

Measurement Results:

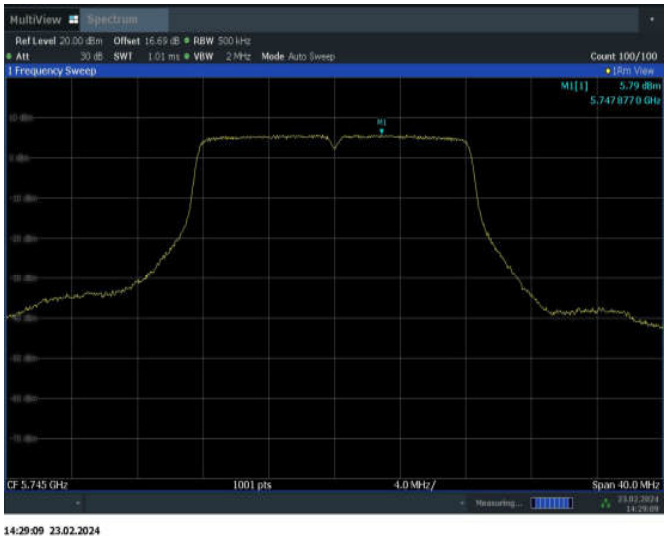
TestMode	Antenna	Frequency[MHz]	Result [dBm/MHz]	Verdict
11A	ANT10	5745	5.79	PASS
		5785	5.79	PASS
		5825	5.84	PASS
11N40SISO	ANT10	5755	1.51	PASS
		5795	1.45	PASS
11AC80SISO	ANT10	5775	-1.86	PASS
11AX20SISO	ANT10	5745	3.86	PASS
		5785	3.12	PASS
		5825	3.25	PASS
11AC40MIMO	ANT10	5755	0.03	PASS
	ANT7	5755	-0.73	PASS
	total	5755	2.68	PASS
	ANT10	5795	-0.41	PASS
	ANT7	5795	-1.05	PASS
	total	5795	2.29	PASS
11AC80MIMO	ANT10	5775	-3.91	PASS
	ANT7	5775	-4.47	PASS
	total	5775	-1.17	PASS
11AX20MIMO	ANT10	5745	3.45	PASS
	ANT7	5745	3.17	PASS

	total	5745	6.32	PASS
	ANT10	5785	3.19	PASS
	ANT7	5785	2.78	PASS
	total	5785	6.00	PASS
	ANT10	5825	3.26	PASS
	ANT7	5825	2.88	PASS
	total	5825	6.08	PASS

11ax-RU

Test Mode	Antenna	Frequency[MHz]	Ru Size	Ru Index	Result [dBm/MHz]	Limit [dBm/MHz]	Verdict
11AX20MIMO	ANT10	5745	26Tone	RU0	3.87	≤30.00	PASS
				RU8	3.66	≤30.00	PASS
			52Tone	RU37	4.18	≤30.00	PASS
				RU40	4.29	≤30.00	PASS
			106Tone	RU53	4.43	≤30.00	PASS
				RU54	4.27	≤30.00	PASS
	ANT7	5745	26Tone	RU0	3.31	≤30.00	PASS
				RU8	3.42	≤30.00	PASS
			52Tone	RU37	3.62	≤30.00	PASS
				RU40	3.57	≤30.00	PASS
			106Tone	RU53	3.82	≤30.00	PASS
				RU54	3.79	≤30.00	PASS
	total	5745	26Tone	RU0	6.61	≤30.00	PASS
				RU8	6.55	≤30.00	PASS
			52Tone	RU37	6.92	≤30.00	PASS
				RU40	6.96	≤30.00	PASS
			106Tone	RU53	7.15	≤30.00	PASS
				RU54	7.05	≤30.00	PASS
	ANT10	5785	26Tone	RU0	2.99	≤30.00	PASS
				RU8	3.25	≤30.00	PASS
			52Tone	RU37	3.68	≤30.00	PASS
				RU40	3.89	≤30.00	PASS
			106Tone	RU53	4.08	≤30.00	PASS
				RU54	4.05	≤30.00	PASS
	ANT7	5785	26Tone	RU0	3.11	≤30.00	PASS
				RU8	3.31	≤30.00	PASS
			52Tone	RU37	3.49	≤30.00	PASS
				RU40	3.40	≤30.00	PASS
			106Tone	RU53	3.62	≤30.00	PASS
				RU54	3.49	≤30.00	PASS
	total	5785	26Tone	RU0	6.06	≤30.00	PASS

				RU8	6.29	≤30.00	PASS
			52Tone	RU37	6.60	≤30.00	PASS
				RU40	6.66	≤30.00	PASS
			106Tone	RU53	6.87	≤30.00	PASS
				RU54	6.79	≤30.00	PASS
	ANT10	5825	26Tone	RU0	3.47	≤30.00	PASS
				RU8	3.86	≤30.00	PASS
			52Tone	RU37	3.55	≤30.00	PASS
				RU40	4.13	≤30.00	PASS
			106Tone	RU53	3.93	≤30.00	PASS
				RU54	4.08	≤30.00	PASS
	ANT7	5825	26Tone	RU0	3.07	≤30.00	PASS
				RU8	3.39	≤30.00	PASS
			52Tone	RU37	3.41	≤30.00	PASS
				RU40	3.43	≤30.00	PASS
			106Tone	RU53	3.37	≤30.00	PASS
				RU54	3.52	≤30.00	PASS
	total	5825	26Tone	RU0	6.28	≤30.00	PASS
				RU8	6.64	≤30.00	PASS
			52Tone	RU37	6.49	≤30.00	PASS
				RU40	6.80	≤30.00	PASS
			106Tone	RU53	6.67	≤30.00	PASS
				RU54	6.82	≤30.00	PASS



Peak Power Spectral Density:11a 5745 ANT10

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:

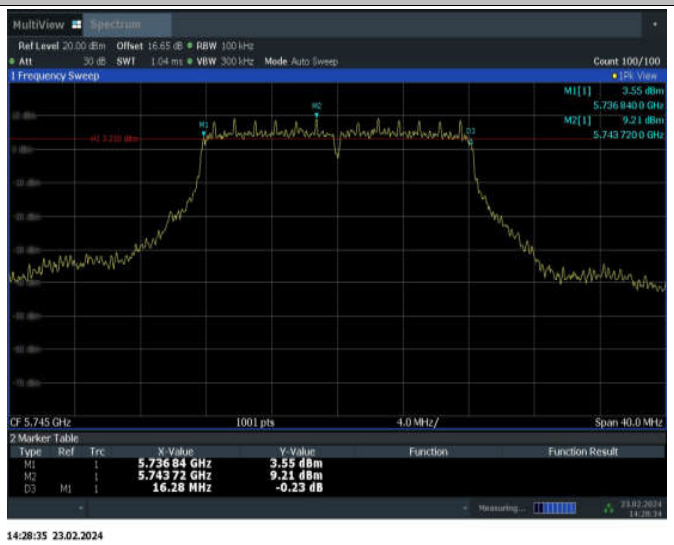
Measurement Uncertainty	60.80Hz

EUT ID: UT25a

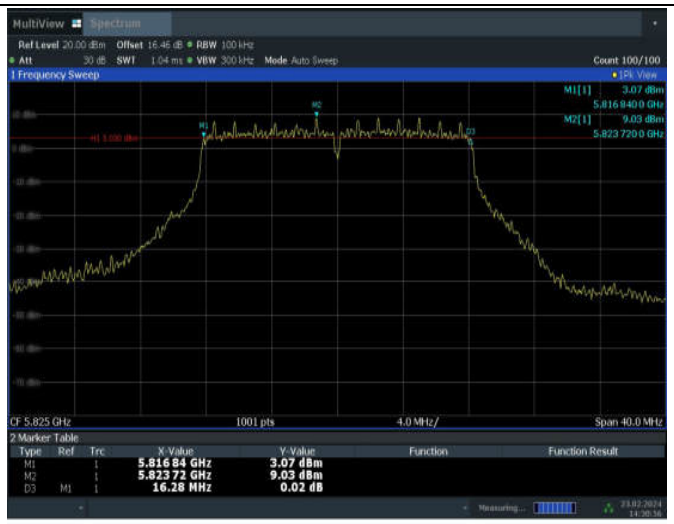
Measurement Result:

TestMode	Antenna	Frequency[MHz]	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	ANT10	5745	16.28	5736.84	5753.12	0.5	PASS
		5785	16.28	5776.84	5793.12	0.5	PASS
		5825	16.28	5816.84	5833.12	0.5	PASS
11N40SISO	ANT10	5755	35.76	5736.84	5772.60	0.5	PASS
		5795	35.76	5777.32	5813.08	0.5	PASS
11AC80SISO	ANT10	5775	75.04	5737.72	5812.76	0.5	PASS
11AX20SISO	ANT10	5745	18.52	5735.80	5754.32	0.5	PASS
		5785	16.80	5776.56	5793.36	0.5	PASS
		5825	18.24	5815.92	5834.16	0.5	PASS
11AC40MIMO	ANT10	5755	35.68	5737.16	5772.84	0.5	PASS
	ANT7	5755	36.00	5737.08	5773.08	0.5	PASS
	ANT10	5795	35.68	5777.16	5812.84	0.5	PASS
	ANT7	5795	36.32	5776.84	5813.16	0.5	PASS
11AC80MIMO	ANT10	5775	73.92	5738.52	5812.44	0.5	PASS
	ANT7	5775	72.64	5737.40	5810.04	0.5	PASS
11AX20MIMO	ANT10	5745	17.76	5736.24	5754.00	0.5	PASS
	ANT7	5745	18.40	5735.84	5754.24	0.5	PASS
	ANT10	5785	18.32	5775.88	5794.20	0.5	PASS
	ANT7	5785	18.56	5775.68	5794.24	0.5	PASS
	ANT10	5825	17.60	5816.44	5834.04	0.5	PASS
	ANT7	5825	17.68	5816.04	5833.72	0.5	PASS

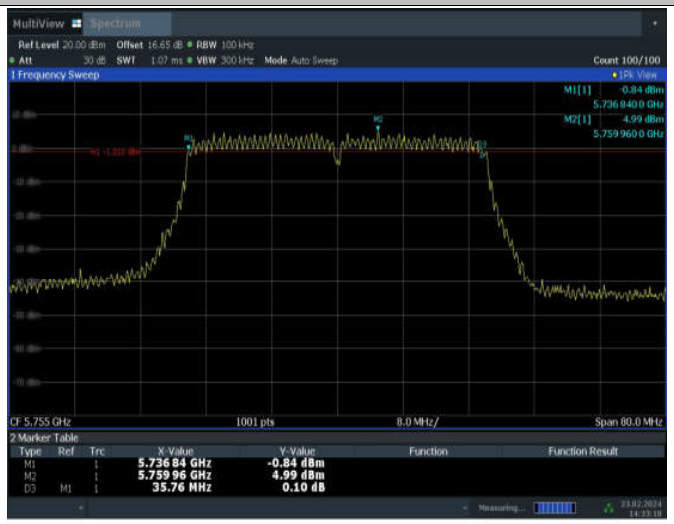
Test graphs as below:

11A_ANT10_5745

11A_ANT10_5785

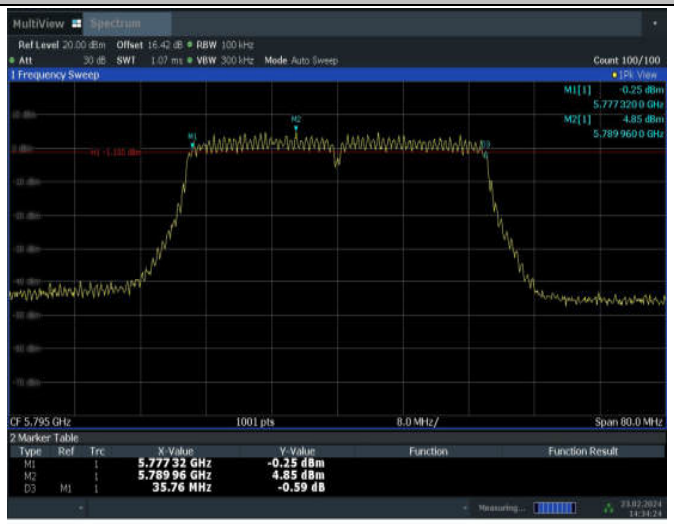
11A_ANT10_5825



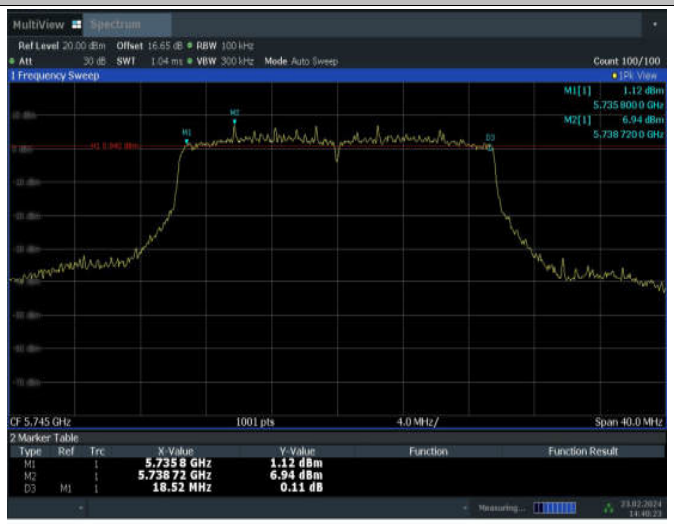
11N40SISO_ANT10_5755

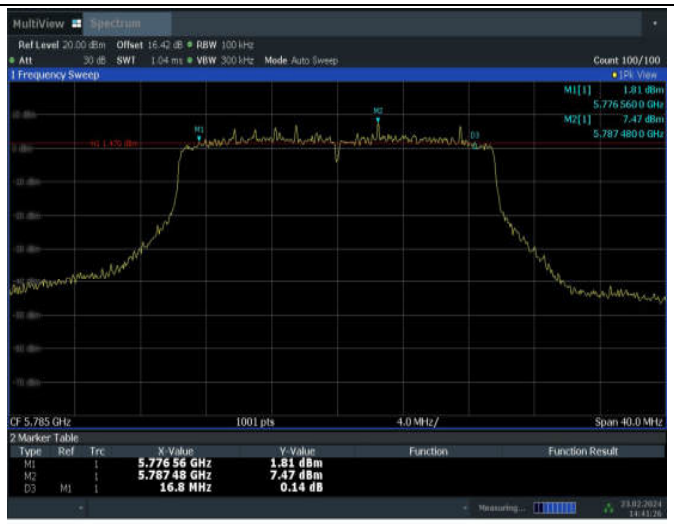


11N40SISO_ANT10_5795

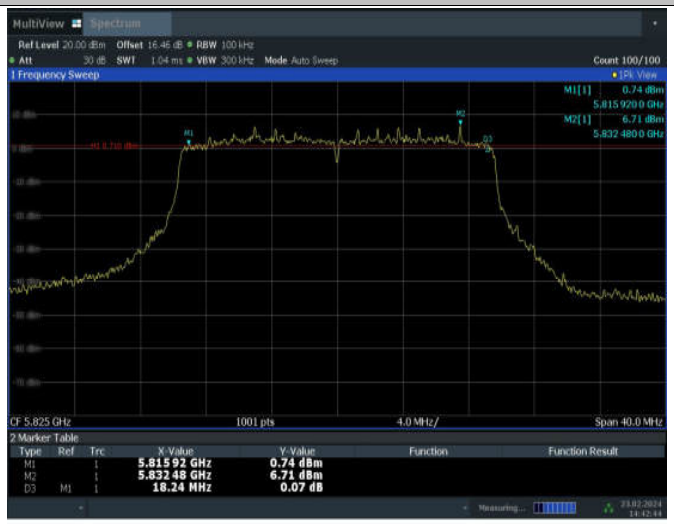


11AC80SISO_ANT10_5775

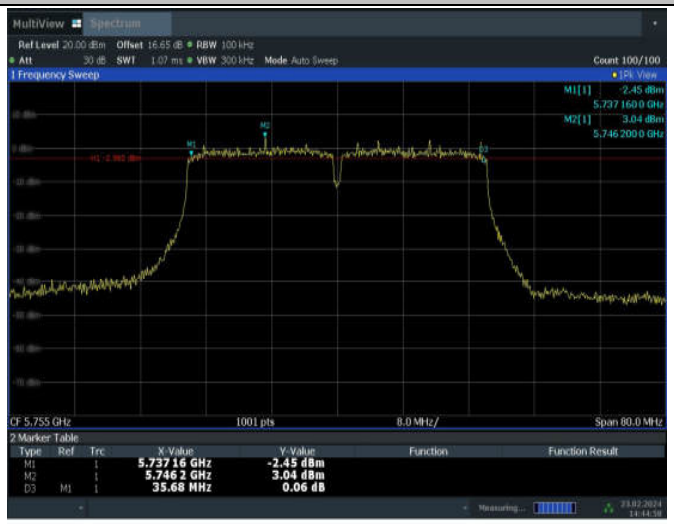
11AX20SISO_ANT10_5745

11AX20SISO_ANT10_5785

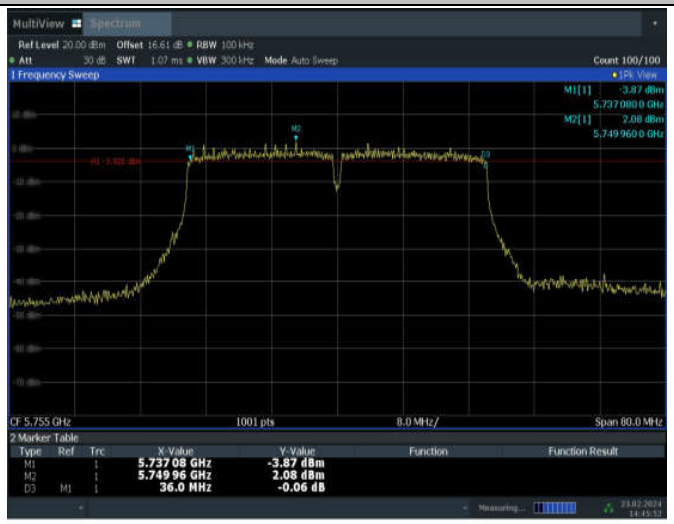
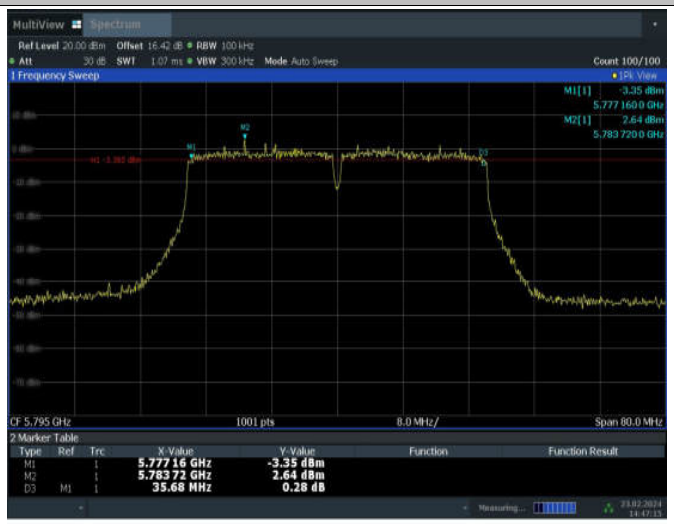


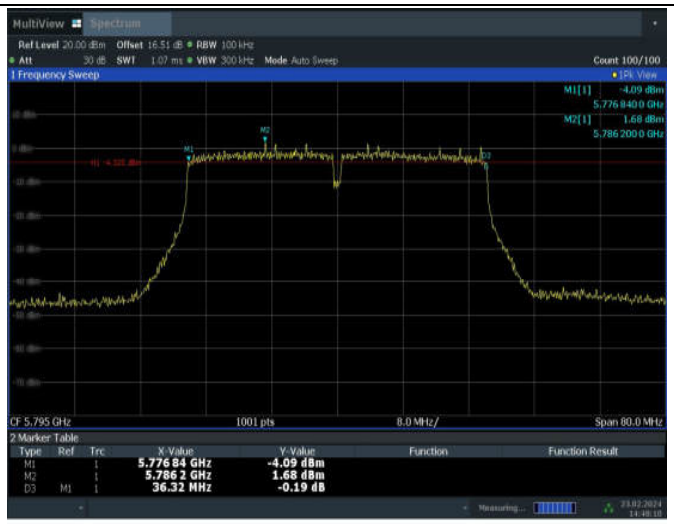
11AX20SISO_ANT10_5825



11AC40MIMO_ANT10_5755

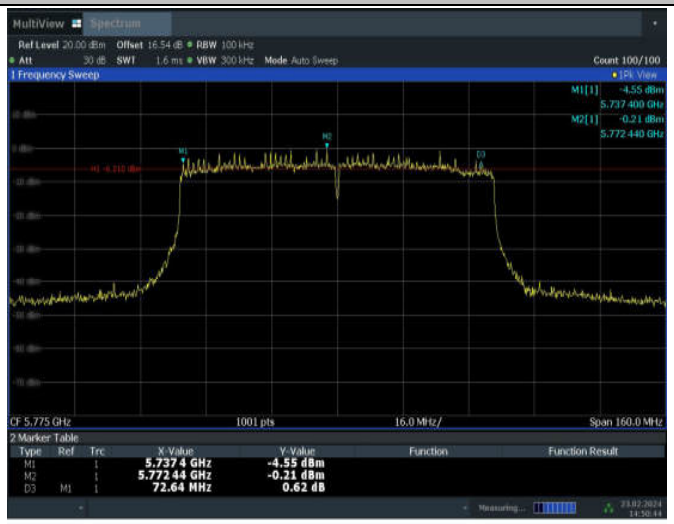


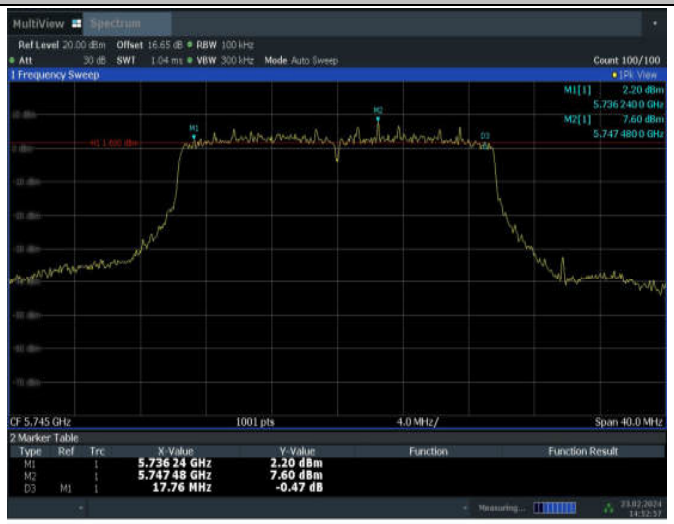
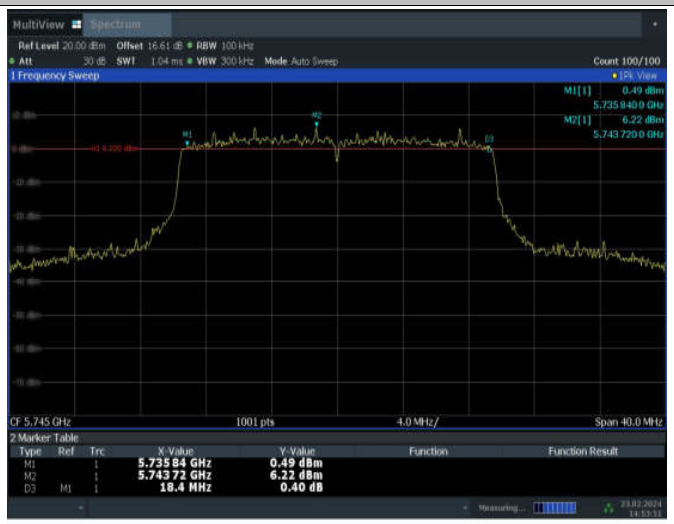
11AC40MIMO_ANT7_5755

11AC40MIMO_ANT10_5795

11AC40MIMO_ANT7_5795

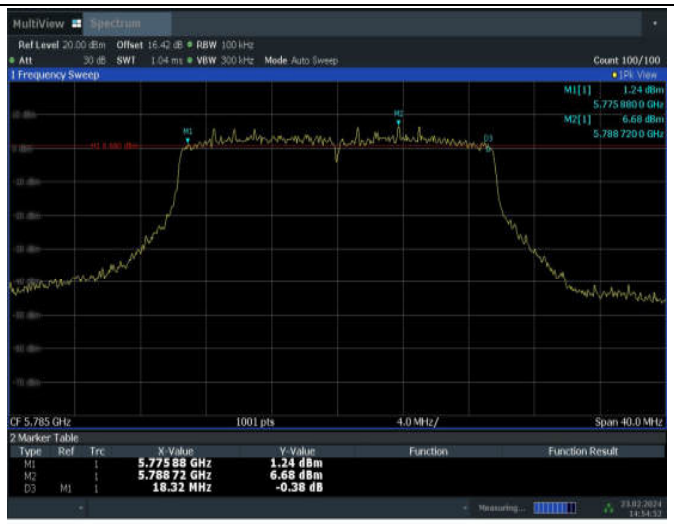


11AC80MIMO_ANT10_5775

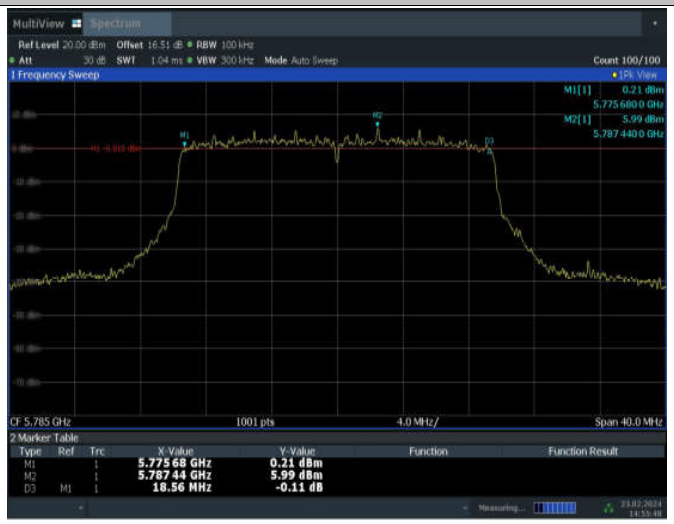
11AC80MIMO_ANT7_5775



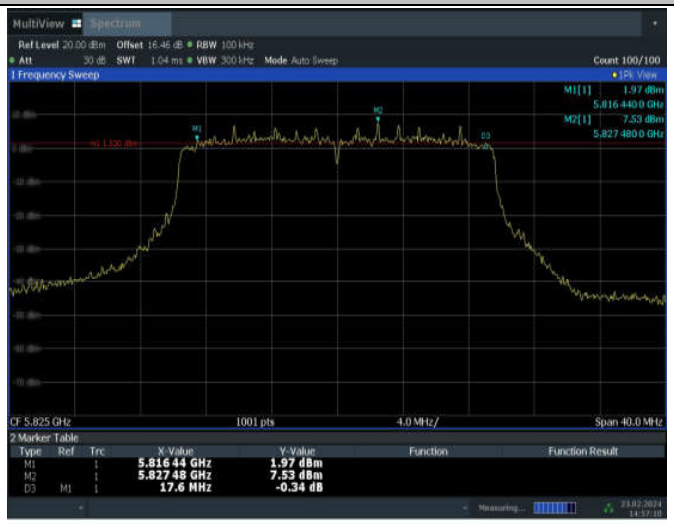
11AX20MIMO_ANT10_5745

11AX20MIMO_ANT7_5745

11AX20MIMO_ANT10_5785

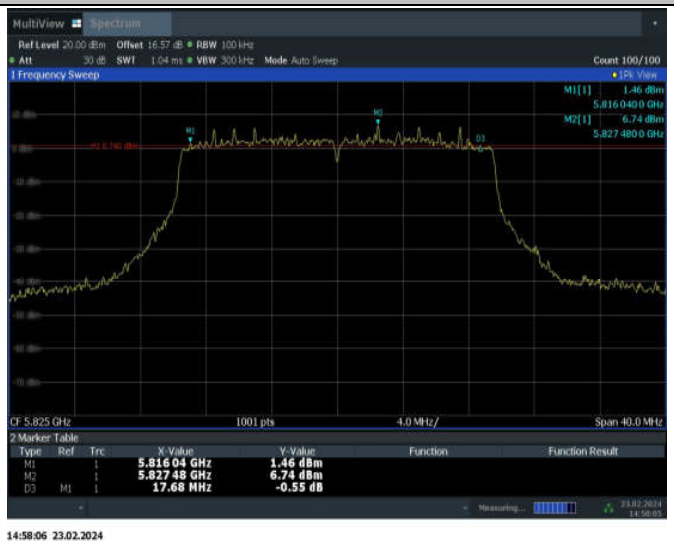


11AX20MIMO_ANT7_5785



11AX20MIMO_ANT10_5825



11AX20MIMO_ANT7_5825


Conclusion: PASS

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.	

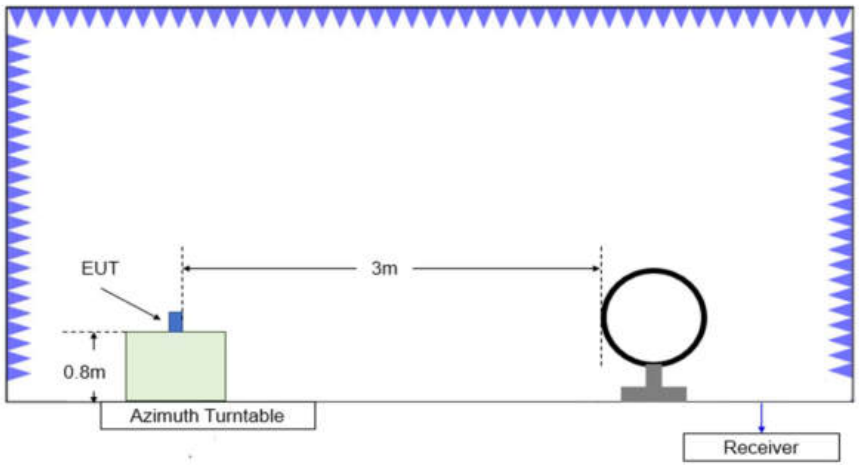
In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c))

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

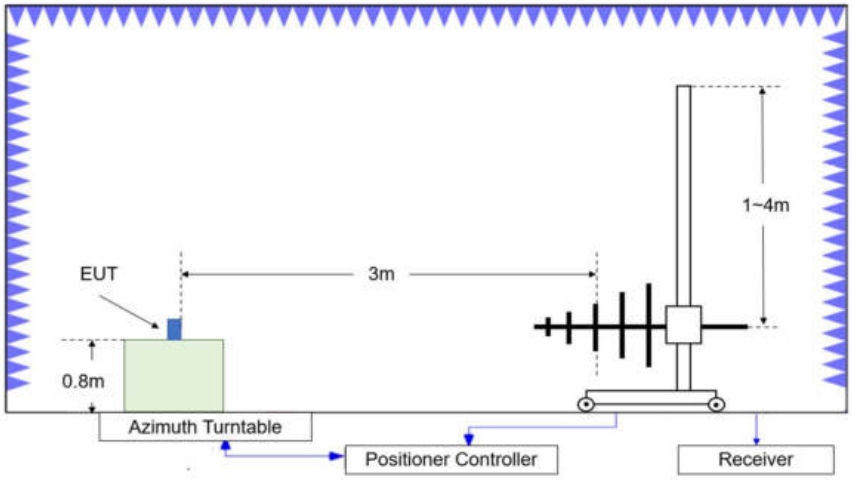
Frequency of emission (MHz)	Field strength (uV/m)	Field strength (dBuV/m)	Measurement distance (m)
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

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).

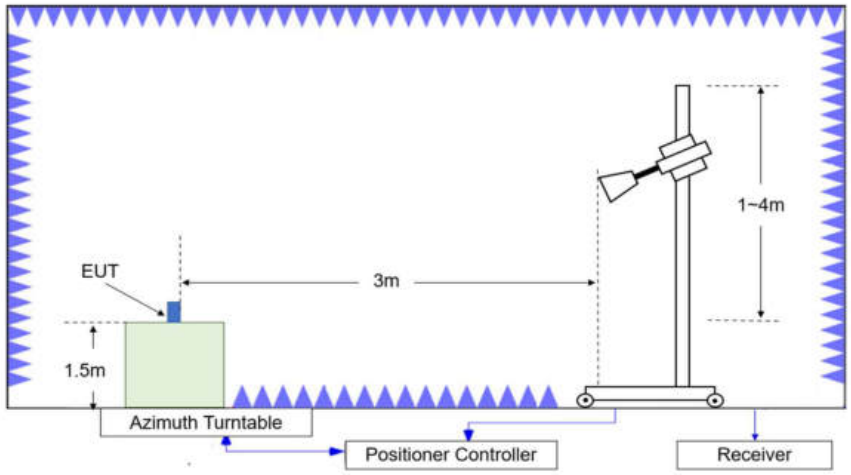
A.5.2 Test setup



Test Site Diagram (9kHz-30MHz)



Test Site Diagram (30MHz-1GHz)



Test Site Diagram (1GHz-40GHz)

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 10^{th} 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)
8. Both full RU and partial RU modes were tested, and the test results in spurious domain were basically noises with no suspicious emission. In this case, the test results for full RU were reported and represents the worst cases. The bandedge emission results for both full RU and small RU

were reported.

Note:

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)
17992.850	36.33	-29.59	45.95	19.97	54.00	17.67	H
17997.250	36.28	-29.59	45.95	19.92	54.00	17.72	H
13318.950	33.57	-31.19	40.65	24.11	54.00	20.43	H
13281.550	33.48	-31.40	40.60	24.28	54.00	20.52	H
11852.650	32.88	-32.73	39.15	26.46	54.00	21.12	H
11904.350	32.87	-32.53	39.10	26.30	54.00	21.13	H

Channel 157

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)
17998.350	34.93	-29.59	45.95	18.57	54.00	19.07	H
17989.000	34.53	-29.59	45.95	18.17	54.00	19.47	H
13293.650	31.72	-31.40	40.60	22.52	54.00	22.28	H
13282.100	31.66	-31.40	40.60	22.46	54.00	22.34	H
11862.000	31.04	-32.73	39.15	24.62	54.00	22.96	H
11319.150	30.93	-32.41	38.70	24.64	54.00	23.07	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)
17987.350	35.10	-29.59	45.95	18.74	54.00	18.90	H
17950.500	34.94	-29.59	45.95	18.58	54.00	19.06	H
13276.600	32.08	-31.40	40.60	22.88	54.00	21.92	H
13294.200	32.06	-31.40	40.60	22.86	54.00	21.94	H
11907.650	31.40	-32.53	39.10	24.83	54.00	22.60	H
11867.500	31.15	-32.73	39.15	24.73	54.00	22.85	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)
17968.100	34.67	-29.59	45.95	18.31	54.00	19.33	H
17991.750	34.59	-29.59	45.95	18.23	54.00	19.41	V
13303.550	32.13	-31.40	40.60	22.93	54.00	21.87	H
13299.700	31.84	-31.40	40.60	22.64	54.00	22.16	H
11884.550	30.83	-32.53	39.10	24.26	54.00	23.17	H
11884.000	30.81	-32.53	39.10	24.24	54.00	23.19	H

Channel 157

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)
17996.150	34.94	-29.59	45.95	18.58	54.00	19.06	H
17992.300	34.85	-29.59	45.95	18.49	54.00	19.15	H
13312.900	32.07	-31.40	40.60	22.87	54.00	21.93	H
13296.400	31.83	-31.40	40.60	22.63	54.00	22.17	H
11874.100	31.15	-32.73	39.15	24.73	54.00	22.85	H
11909.850	30.88	-32.53	39.10	24.31	54.00	23.12	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)
17959.300	35.04	-29.59	45.95	18.68	54.00	18.96	H
17985.150	35.03	-29.59	45.95	18.67	54.00	18.97	H
13290.350	32.03	-31.40	40.60	22.83	54.00	21.97	H
13298.050	31.84	-31.40	40.60	22.64	54.00	22.16	V
11879.050	31.40	-32.73	39.15	24.98	54.00	22.60	H
11904.350	31.40	-32.53	39.10	24.83	54.00	22.60	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)
17981.300	35.42	-29.59	45.95	19.06	54.00	18.58	H
17993.400	35.06	-29.59	45.95	18.70	54.00	18.94	V
13294.200	32.26	-31.40	40.60	23.06	54.00	21.74	H
13305.750	32.23	-31.40	40.60	23.03	54.00	21.77	H
11292.750	31.34	-32.41	38.70	25.05	54.00	22.66	H
11877.950	31.31	-32.73	39.15	24.89	54.00	22.69	H

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)
17968.650	35.36	-29.59	45.95	19.00	54.00	18.64	H
17969.200	35.06	-29.59	45.95	18.70	54.00	18.94	V
13298.050	32.35	-31.40	40.60	23.15	54.00	21.65	H
13309.050	32.34	-31.40	40.60	23.14	54.00	21.66	H
11842.200	31.43	-32.73	39.15	25.01	54.00	22.57	H
11912.600	31.35	-32.53	39.10	24.78	54.00	22.65	H

802.11ac-VHT20

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)
17968.650	34.75	-29.59	45.95	18.39	54.00	19.25	H
17986.800	34.64	-29.59	45.95	18.28	54.00	19.36	H
13277.150	31.74	-31.40	40.60	22.54	54.00	22.26	V
13300.250	31.71	-31.40	40.60	22.51	54.00	22.29	V
11901.050	30.97	-32.53	39.10	24.40	54.00	23.03	V
11910.950	30.95	-32.53	39.10	24.38	54.00	23.05	H

Channel 157

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)
17954.350	34.94	-29.59	45.95	18.58	54.00	19.06	H
17991.750	34.68	-29.59	45.95	18.32	54.00	19.32	H
13295.850	32.01	-31.40	40.60	22.81	54.00	21.99	H
13296.950	31.86	-31.40	40.60	22.66	54.00	22.14	V
11892.800	30.87	-32.53	39.10	24.30	54.00	23.13	H
11899.950	30.84	-32.53	39.10	24.27	54.00	23.16	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)
17996.700	35.18	-29.59	45.95	18.82	54.00	18.82	H
17997.250	34.94	-29.59	45.95	18.58	54.00	19.06	H
13272.200	32.09	-31.40	40.60	22.89	54.00	21.91	H
13273.300	31.95	-31.40	40.60	22.75	54.00	22.05	H
11878.500	31.35	-32.73	39.15	24.93	54.00	22.65	H
11906.000	31.32	-32.53	39.10	24.75	54.00	22.68	H

802.11ac-VHT40

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)
17976.900	34.90	-29.59	45.95	18.54	54.00	19.10	H
17965.900	34.84	-29.59	45.95	18.48	54.00	19.16	H
14493.750	32.39	-29.56	41.90	20.05	54.00	21.61	H
13303.000	32.12	-31.40	40.60	22.92	54.00	21.88	H
11884.550	31.31	-32.53	39.10	24.74	54.00	22.69	H
11854.300	31.30	-32.73	39.15	24.88	54.00	22.70	H

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)
17983.500	35.22	-29.59	45.95	18.86	54.00	18.78	H
17987.900	35.01	-29.59	45.95	18.65	54.00	18.99	H
13301.350	32.56	-31.40	40.60	23.36	54.00	21.44	H
13287.050	32.43	-31.40	40.60	23.23	54.00	21.57	H
10753.750	31.23	-32.42	38.45	25.20	54.00	22.77	H
11887.850	31.14	-32.53	39.10	24.57	54.00	22.86	V

802.11ac-VHT80

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)
17964.800	35.23	-29.59	45.95	18.87	54.00	18.77	H
17972.500	35.21	-29.59	45.95	18.85	54.00	18.79	H
13292.000	32.70	-31.40	40.60	23.50	54.00	21.30	H
13252.950	32.44	-31.62	40.50	23.56	54.00	21.56	H
11822.400	31.71	-32.09	39.20	24.60	54.00	22.29	H
11316.400	31.49	-32.41	38.70	25.20	54.00	22.51	H

802.11ax-HT20 full RU

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)
17991.200	34.56	-29.59	45.95	18.20	54.00	19.44	H
17945.000	34.50	-29.59	45.95	18.14	54.00	19.50	V
13285.950	31.97	-31.40	40.60	22.77	54.00	22.03	H
13299.700	31.65	-31.40	40.60	22.45	54.00	22.35	H
11927.450	30.97	-32.53	39.10	24.40	54.00	23.03	H
11866.400	30.73	-32.73	39.15	24.31	54.00	23.27	H

Channel 157

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)
17982.950	34.92	-29.59	45.95	18.56	54.00	19.08	V
17971.400	34.90	-29.59	45.95	18.54	54.00	19.10	H
11904.350	32.00	-32.53	39.10	25.43	54.00	22.00	V
13388.800	31.92	-31.84	40.70	23.06	54.00	22.08	V
13275.500	31.91	-31.40	40.60	22.71	54.00	22.09	V
11894.450	31.25	-32.53	39.10	24.68	54.00	22.75	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)
17993.950	34.81	-29.59	45.95	18.45	54.00	19.19	H
17995.600	34.63	-29.59	45.95	18.27	54.00	19.37	H
13290.350	32.45	-31.40	40.60	23.25	54.00	21.55	H
13292.550	32.31	-31.40	40.60	23.11	54.00	21.69	V
11894.450	31.20	-32.53	39.10	24.63	54.00	22.80	H
11912.600	31.08	-32.53	39.10	24.51	54.00	22.92	H

802.11ax-HT40 full RU

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)
17991.200	35.08	-29.59	45.95	18.72	54.00	18.92	V
17945.550	34.91	-29.59	45.95	18.55	54.00	19.09	H
13297.500	32.09	-31.40	40.60	22.89	54.00	21.91	H
13291.450	32.07	-31.40	40.60	22.87	54.00	21.93	H
11329.050	31.27	-32.41	38.70	24.98	54.00	22.73	H
11893.350	31.24	-32.53	39.10	24.67	54.00	22.76	H

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)
17969.200	35.40	-29.59	45.95	19.04	54.00	18.60	H
17981.300	35.18	-29.59	45.95	18.82	54.00	18.82	H
13270.550	32.20	-31.40	40.60	23.00	54.00	21.80	H
13274.950	32.14	-31.40	40.60	22.94	54.00	21.86	H
11848.250	31.75	-32.73	39.15	25.33	54.00	22.25	H
11856.500	31.66	-32.73	39.15	25.24	54.00	22.34	H

802.11ax-HT80 full RU

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)
17992.850	35.24	-29.59	45.95	18.88	54.00	18.76	H
17953.250	35.21	-29.59	45.95	18.85	54.00	18.79	H
13293.100	32.81	-31.40	40.60	23.61	54.00	21.19	H
13304.100	32.61	-31.40	40.60	23.41	54.00	21.39	V
11329.600	31.76	-32.41	38.70	25.47	54.00	22.24	H
11302.100	31.67	-32.41	38.70	25.38	54.00	22.33	H

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)
17040.250	47.71	-29.30	41.10	35.91	68.20	20.49	V
17161.800	47.29	-29.31	41.70	34.90	68.20	20.91	V
13235.900	44.88	-31.62	40.50	36.00	68.20	23.32	H
13854.650	44.87	-30.20	41.25	33.82	68.20	23.33	H
10748.250	44.18	-32.42	38.45	38.15	74.00	29.82	H
11835.050	43.76	-32.73	39.15	37.34	74.00	30.24	H

Channel 157

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)
17221.200	45.94	-29.08	42.05	32.97	68.20	22.26	H
16959.400	45.81	-29.68	40.60	34.89	68.20	22.39	H
14159.900	43.10	-30.42	41.70	31.82	68.20	25.10	H
13693.500	42.83	-30.98	41.00	32.81	68.20	25.37	H
11889.500	41.78	-32.53	39.10	35.21	74.00	32.22	H
11862.550	41.52	-32.73	39.15	35.10	74.00	32.48	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)
16953.900	46.48	-29.68	40.60	35.56	68.20	21.72	V
17038.600	46.00	-29.30	41.10	34.20	68.20	22.20	V
14661.500	44.10	-30.04	41.50	32.64	68.20	24.10	V
14194.550	43.78	-30.42	41.70	32.50	68.20	24.42	H
11779.500	41.51	-32.71	39.20	35.02	74.00	32.49	H
11891.150	41.49	-32.53	39.10	34.92	74.00	32.51	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)
17350.450	46.17	-28.74	43.40	31.51	68.20	22.03	V
17040.800	46.11	-29.30	41.10	34.31	68.20	22.09	H
13744.650	43.64	-31.18	41.10	33.72	68.20	24.56	V
13717.700	43.10	-31.18	41.10	33.18	68.20	25.10	H
10386.350	41.39	-33.64	38.10	36.93	68.20	26.81	H
11869.150	41.05	-32.73	39.15	34.63	74.00	32.95	V

Channel 157

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)
16841.700	45.79	-29.50	40.00	35.29	68.20	22.41	H
17047.950	45.46	-29.30	41.10	33.66	68.20	22.74	V
13651.150	44.00	-31.29	40.90	34.39	68.20	24.20	H
13824.950	43.80	-30.20	41.25	32.75	68.20	24.40	V
10557.950	41.54	-33.72	38.25	37.01	68.20	26.66	V
11918.650	41.28	-32.53	39.10	34.71	74.00	32.72	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)
17030.350	46.11	-29.30	41.10	34.31	68.20	22.09	V
17532.500	45.71	-29.39	44.90	30.21	68.20	22.49	H
13834.850	44.14	-30.20	41.25	33.09	68.20	24.06	H
14087.850	43.30	-30.20	41.70	31.80	68.20	24.90	H
11323.550	42.43	-32.41	38.70	36.14	74.00	31.57	V
10476.550	42.25	-33.87	38.20	37.92	68.20	25.95	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)
17982.400	45.61	-29.59	45.95	29.25	74.00	28.39	H
17149.700	45.57	-29.31	41.70	33.18	68.20	22.63	V
13940.450	43.66	-30.81	41.40	33.07	68.20	24.54	H
13941.000	43.61	-30.81	41.40	33.02	68.20	24.59	H
11917.550	41.94	-32.53	39.10	35.37	74.00	32.06	H
10505.150	41.73	-33.31	38.20	36.84	68.20	26.47	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)
17264.650	46.36	-29.33	42.40	33.29	68.20	21.84	H
17963.150	45.99	-29.59	45.95	29.63	74.00	28.01	V
14582.850	43.90	-29.14	41.90	31.14	68.20	24.30	V
13180.900	43.63	-30.73	40.40	33.96	68.20	24.57	H
10485.900	42.03	-33.87	38.20	37.70	68.20	26.17	H
11909.300	41.77	-32.53	39.10	35.20	74.00	32.23	V

802.11ac-VHT20

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)
17229.450	46.41	-29.33	42.40	33.34	68.20	21.79	H
17121.650	45.82	-29.25	41.40	33.67	68.20	22.38	H
13287.600	43.49	-31.40	40.60	34.29	74.00	30.51	H
13816.700	43.00	-30.20	41.25	31.95	68.20	25.20	H
11808.650	41.07	-32.09	39.20	33.96	74.00	32.93	H
11849.900	40.91	-32.73	39.15	34.49	74.00	33.09	H

Channel 157

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)
17252.000	46.08	-29.33	42.40	33.01	68.20	22.12	V
17962.050	45.83	-29.59	45.95	29.47	74.00	28.17	H
13689.650	43.38	-30.98	41.00	33.36	68.20	24.82	H
13870.600	43.27	-31.25	41.30	33.22	68.20	24.93	V
11746.500	42.36	-32.71	39.20	35.87	74.00	31.64	H
11864.750	41.66	-32.73	39.15	35.24	74.00	32.34	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)
17347.700	46.05	-28.74	43.40	31.39	68.20	22.15	V
17101.300	46.04	-29.25	41.40	33.89	68.20	22.16	V
14703.300	43.83	-30.13	41.35	32.61	68.20	24.37	H
13633.550	43.64	-31.29	40.90	34.03	68.20	24.56	H
11899.400	41.77	-32.53	39.10	35.20	74.00	32.23	H
11297.700	41.42	-32.41	38.70	35.13	74.00	32.58	V

802.11ac-VHT40

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)
16548.550	45.95	-29.97	39.20	36.72	68.20	22.25	H
17557.800	45.85	-29.39	44.90	30.35	68.20	22.35	H
14111.500	43.43	-30.93	41.70	32.65	68.20	24.77	H
13893.700	43.27	-31.25	41.30	33.22	68.20	24.93	H
11511.100	42.01	-32.80	39.10	35.71	74.00	31.99	V
11791.050	41.96	-32.09	39.20	34.85	74.00	32.04	H

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)
17310.300	46.02	-29.54	42.90	32.66	68.20	22.18	H
17547.900	45.96	-29.39	44.90	30.46	68.20	22.24	V
13830.450	44.12	-30.20	41.25	33.07	68.20	24.08	V
13815.600	43.64	-30.20	41.25	32.59	68.20	24.56	H
11920.850	42.10	-32.53	39.10	35.53	74.00	31.90	H
11307.050	41.81	-32.41	38.70	35.52	74.00	32.19	H

802.11ac-VHT80

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)
16841.150	46.46	-29.50	40.00	35.96	68.20	21.74	H
16747.650	46.17	-29.73	39.70	36.20	68.20	22.03	H
14671.950	43.84	-30.04	41.50	32.38	68.20	24.36	H
13804.600	43.58	-30.98	41.20	33.36	68.20	24.62	H
11541.350	42.07	-32.86	39.15	35.78	74.00	31.93	H
11873.000	42.06	-32.73	39.15	35.64	74.00	31.94	H

802.11ax-HT20 full RU

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)
17113.950	46.43	-29.25	41.40	34.28	68.20	21.77	H
16982.500	46.17	-29.38	40.85	34.70	68.20	22.03	H
14601.000	43.43	-29.14	41.90	30.67	68.20	24.77	H
13943.200	43.22	-30.81	41.40	32.63	68.20	24.98	H
11925.800	41.82	-32.53	39.10	35.25	74.00	32.18	H
10861.000	41.20	-33.07	38.50	35.77	74.00	32.80	H

Channel 157

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)
17225.050	45.92	-29.08	42.05	32.95	68.20	22.28	H
17533.600	45.85	-29.39	44.90	30.35	68.20	22.35	H
14021.850	43.80	-31.31	41.60	33.51	68.20	24.40	V
13814.500	43.50	-30.20	41.25	32.45	68.20	24.70	H
11038.100	41.71	-33.10	38.60	36.21	74.00	32.29	V
11872.450	41.69	-32.73	39.15	35.27	74.00	32.31	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)
17224.500	45.57	-29.08	42.05	32.60	68.20	22.63	V
16948.400	45.45	-29.68	40.60	34.53	68.20	22.75	V
14611.450	44.00	-30.67	41.70	32.97	68.20	24.20	V
13954.750	43.47	-30.81	41.40	32.88	68.20	24.73	H
11298.800	42.23	-32.41	38.70	35.94	74.00	31.77	H
11787.200	41.66	-32.09	39.20	34.55	74.00	32.34	H

802.11ax-HT40 full RU

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)
17007.800	46.61	-29.38	40.85	35.14	68.20	21.59	H
17028.700	46.41	-29.38	40.85	34.94	68.20	21.79	H
14060.350	43.91	-30.20	41.70	32.41	68.20	24.29	H
13933.300	43.56	-30.81	41.40	32.97	68.20	24.64	H
11902.700	42.19	-32.53	39.10	35.62	74.00	31.81	H
11859.250	41.79	-32.73	39.15	35.37	74.00	32.21	H

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)
17035.850	46.97	-29.30	41.10	35.17	68.20	21.23	H
17375.200	45.92	-28.74	43.40	31.26	68.20	22.28	H
14118.650	44.39	-30.93	41.70	33.61	68.20	23.81	H
14592.750	43.78	-29.14	41.90	31.02	68.20	24.42	H
11888.950	42.56	-32.53	39.10	35.99	74.00	31.44	H
10448.500	42.09	-33.87	38.20	37.76	68.20	26.11	V

802.11ax-HT80 full RU

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)
17025.400	46.69	-29.38	40.85	35.22	68.20	21.51	H
17988.450	46.11	-29.59	45.95	29.75	74.00	27.89	H
13924.500	43.82	-30.81	41.40	33.23	68.20	24.38	H
13920.650	43.75	-30.81	41.40	33.16	68.20	24.45	H
11907.650	41.98	-32.53	39.10	35.41	74.00	32.02	H
11890.600	41.92	-32.53	39.10	35.35	74.00	32.08	H

Conclusion: PASS

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 VHT20	5745 MHz	Fig.7	P
	5825 MHz	Fig.8	P
802.11ac VHT40	5755 MHz	Fig.9	P
	5795 MHz	Fig.10	P
802.11ac VHT80	5775 MHz	Fig.11 Fig.12	P
802.11ax	5745 MHz	Fig.13	P

HT20 full RU	5825 MHz	Fig.14	P
802.11ax HT40 full RU	5755 MHz	Fig.15	P
	5795 MHz	Fig.16	P
802.11ax HT80 full RU	5775 MHz	Fig.17 Fig.18	P
802.11ax HT20 partial RU	5745 MHz	Fig.19	P
	5825 MHz	Fig.20	P
802.11ax HT40 partial RU	5755 MHz	Fig.21	P
	5795 MHz	Fig.22	P
802.11ax HT80 partial RU	5775 MHz	Fig.23 Fig.24	P

Conclusion: PASS

Test graphs as below:

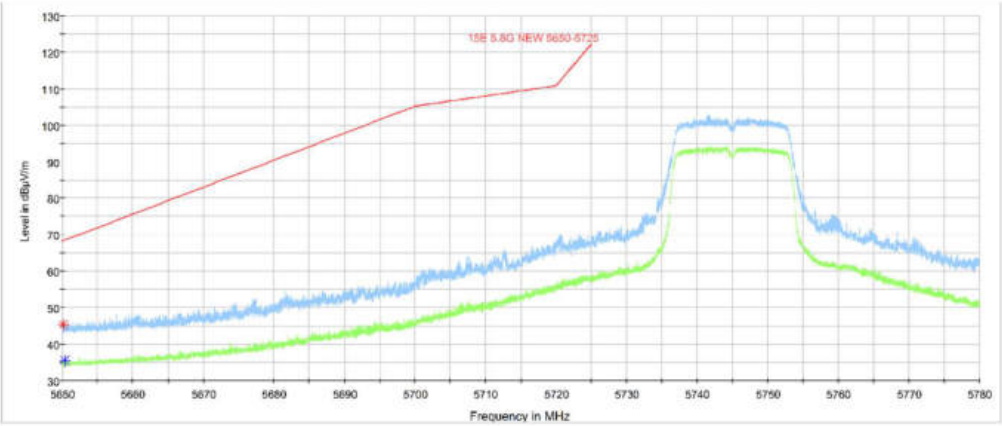


Fig. 1 Band Edges (802.11a Ch149,5745MHz, CHAIN 0)

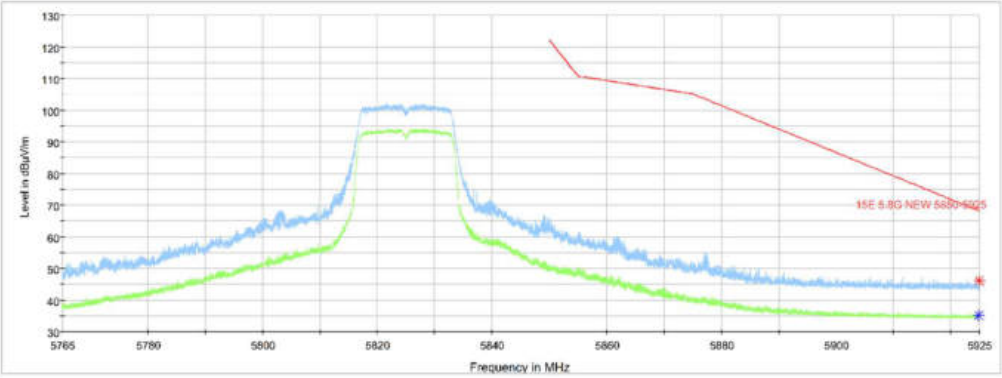


Fig. 2 Band Edges (802.11a Ch165, 5825MHz, CHAIN 0)

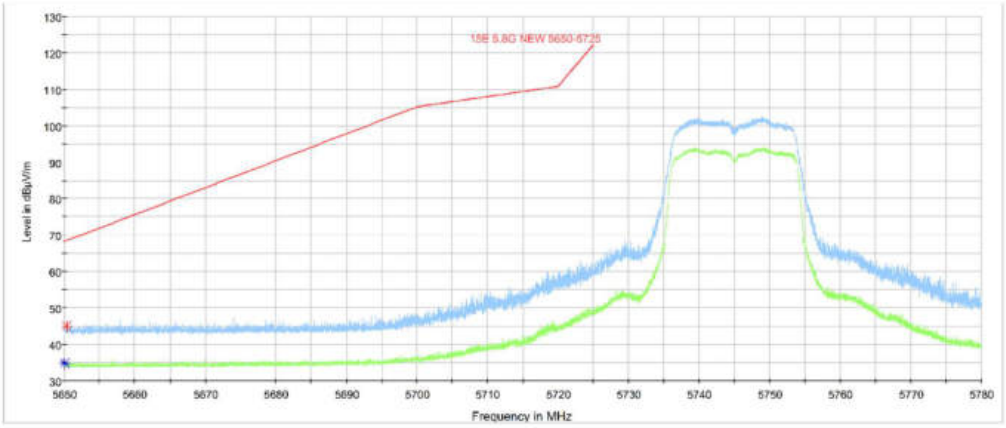


Fig. 3 Band Edges (802.11n-HT20 Ch149, 5745MHz, MIMO)

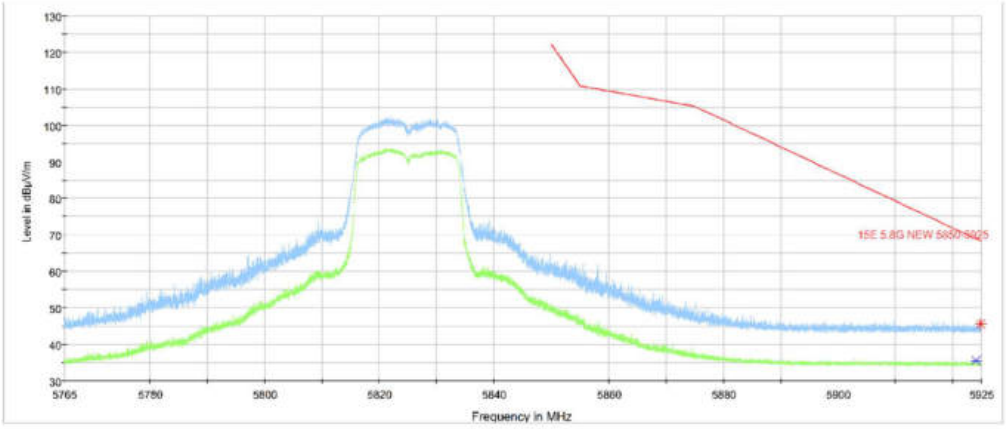


Fig. 4 Band Edges (802.11n-HT20 Ch165, 5825MHz, MIMO)

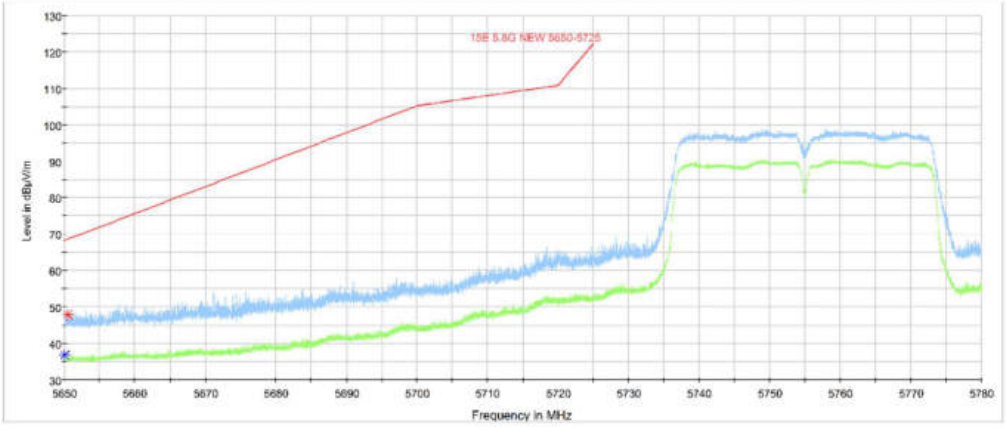


Fig. 5 Band Edges (802.11n-HT40 Ch151, 5755MHz, MIMO)

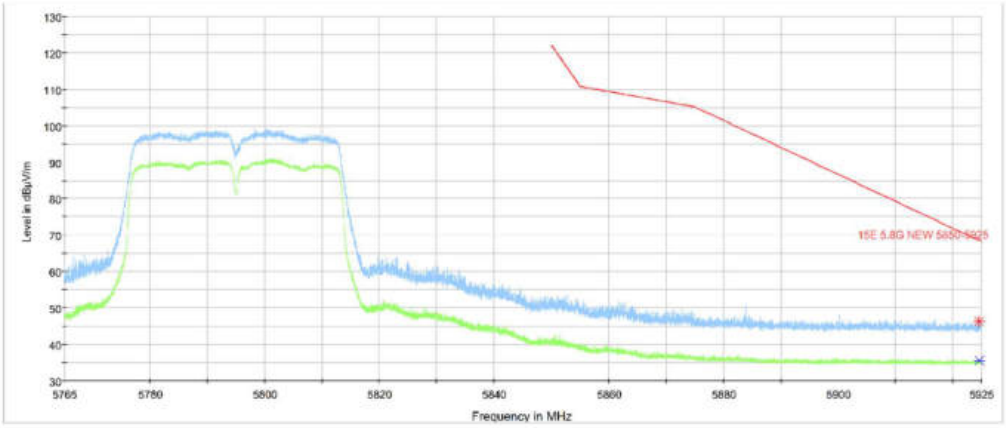


Fig. 6 Band Edges (802.11n-HT40 Ch159, 5795MHz, MIMO)

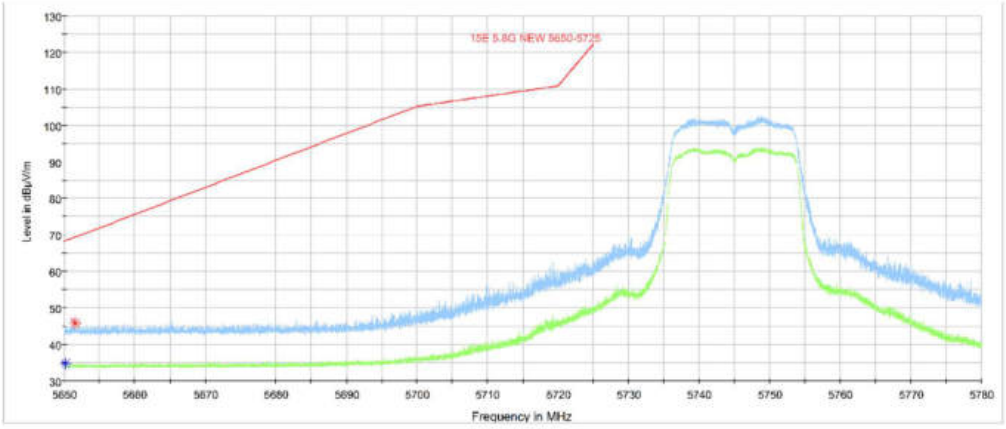


Fig. 7 Band Edges (802.11ac-HT20 Ch149, 5745MHz, MIMO)

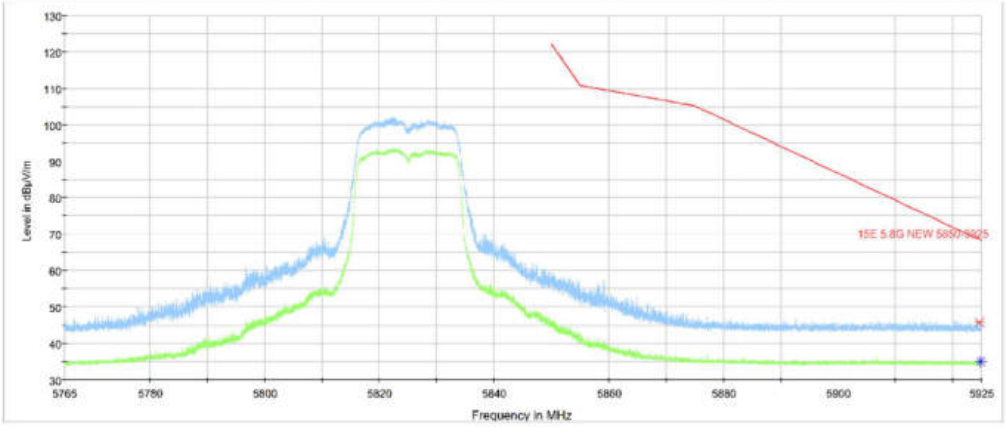


Fig. 8 Band Edges (802.11ac-HT20 Ch165, 5825MHz, MIMO)

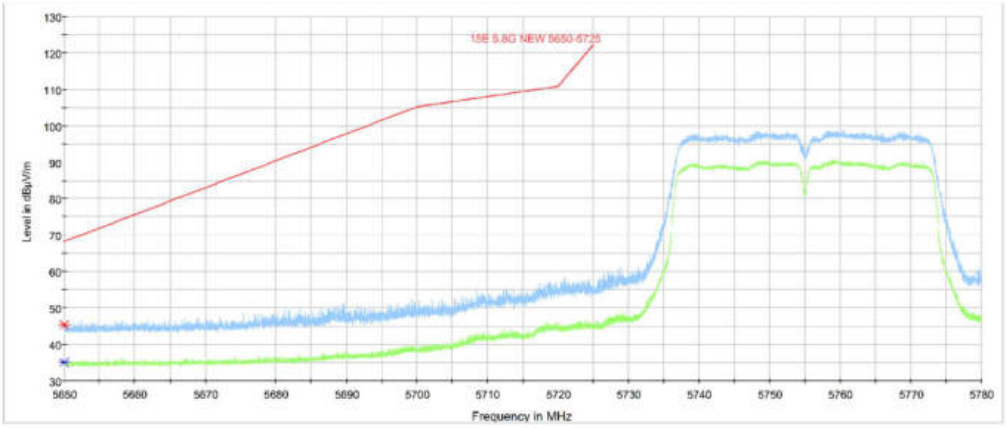


Fig. 9 Band Edges (802.11ac-HT40 Ch151, 5755MHz, MIMO)

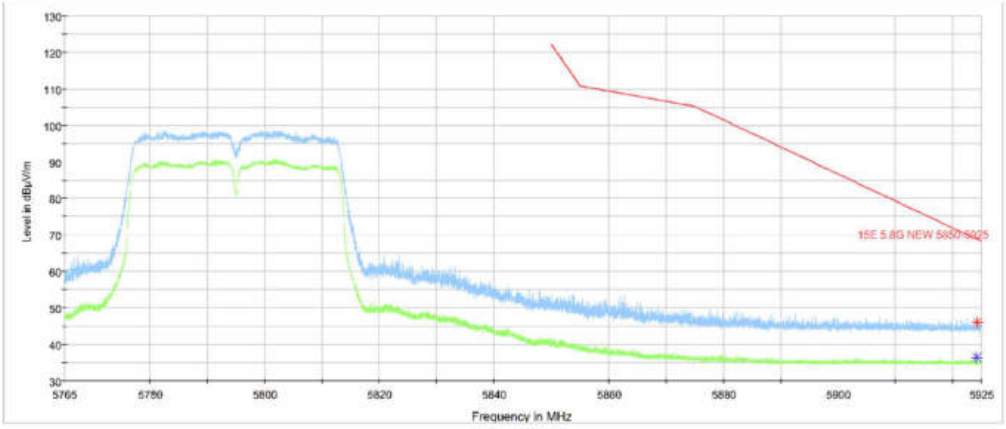


Fig. 10 Band Edges (802.11ac-HT40 Ch159, 5795MHz, MIMO)

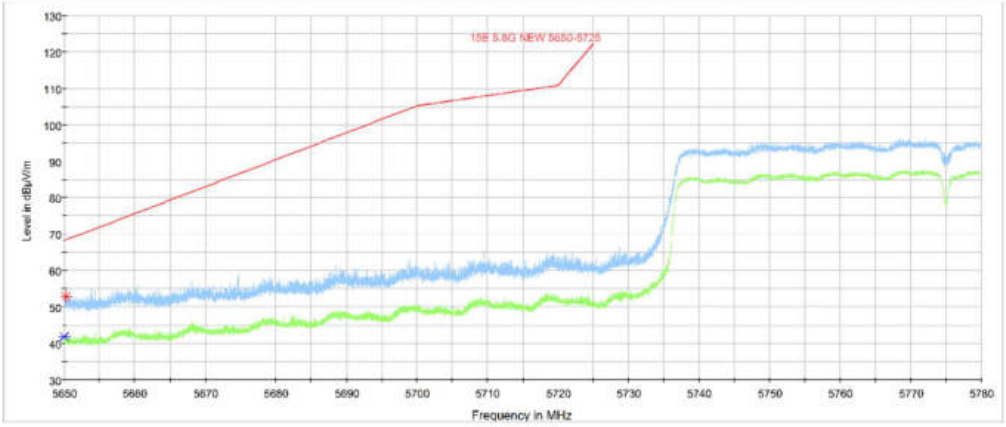


Fig. 11 Band Edges (802.11ac-HT80 Ch155-L, 5775MHz, MIMO)

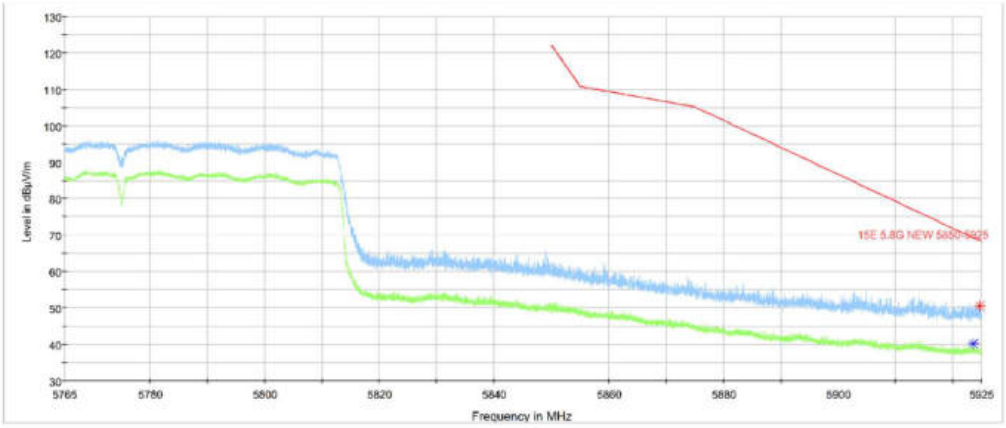


Fig. 12 Band Edges (802.11ac-HT80 Ch155-R, 5775MHz, MIMO)

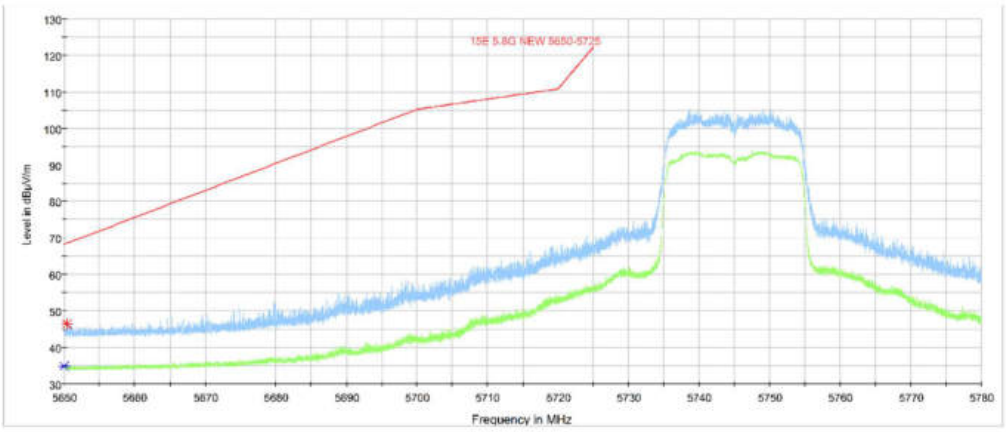


Fig. 13 Band Edges (802.11ax-HT20 Ch149 full RU, 5745MHz, MIMO)

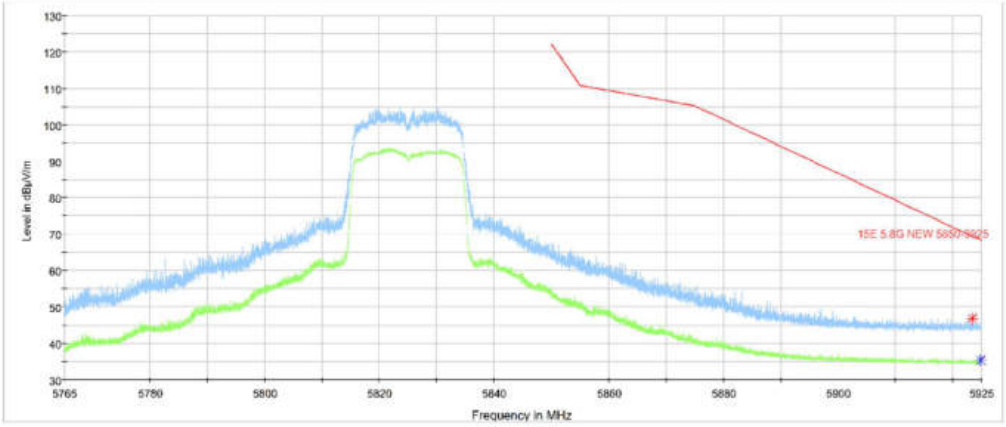


Fig. 14 Band Edges (802.11ax-HT20 Ch165 full RU, 5825MHz, MIMO)

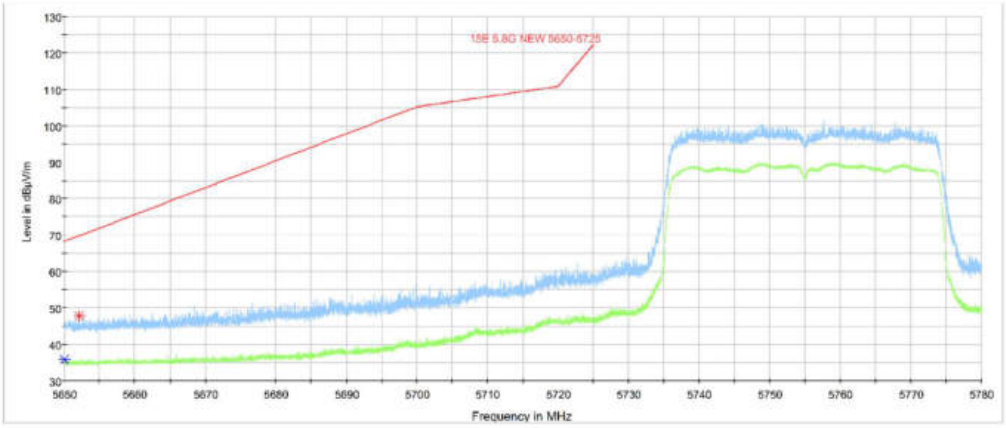


Fig. 15 Band Edges (802.11ax-HT40 Ch151 full RU, 5755MHz, MIMO)

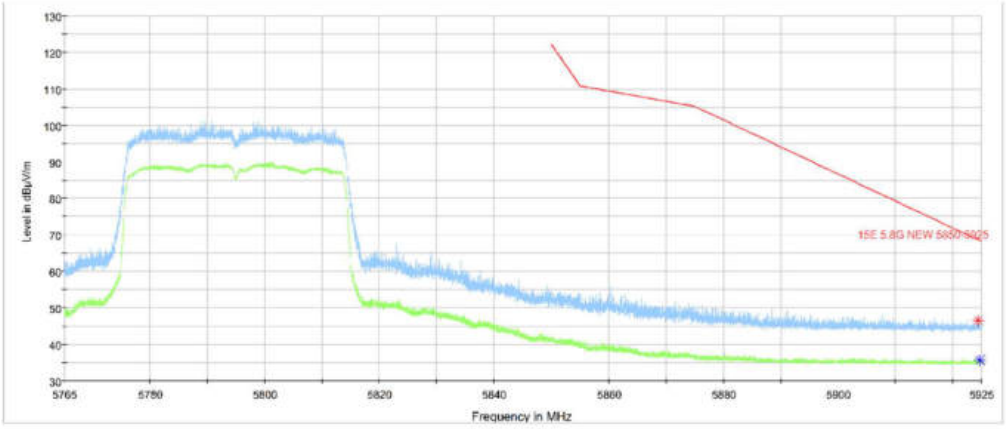


Fig. 16 Band Edges (802.11ax-HT40 Ch159 full RU, 5795MHz, MIMO)

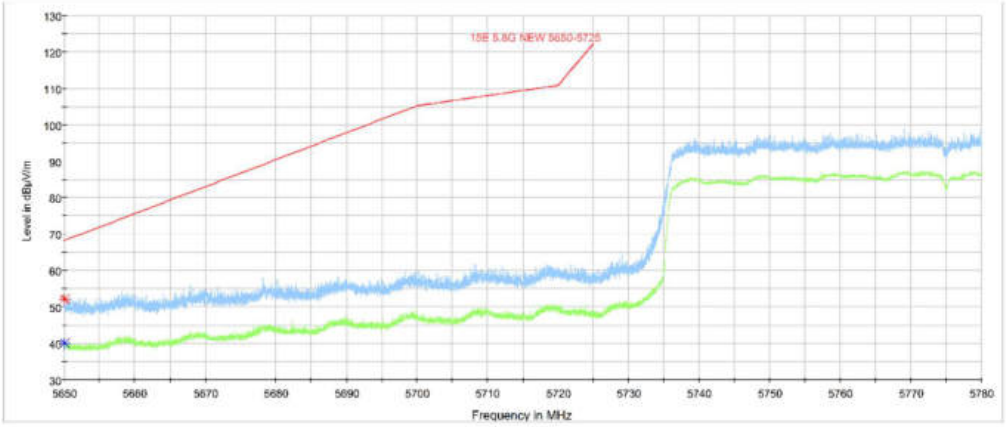


Fig. 17 Band Edges (802.11ax-HT80 Ch155-L full RU, 5775MHz, MIMO)

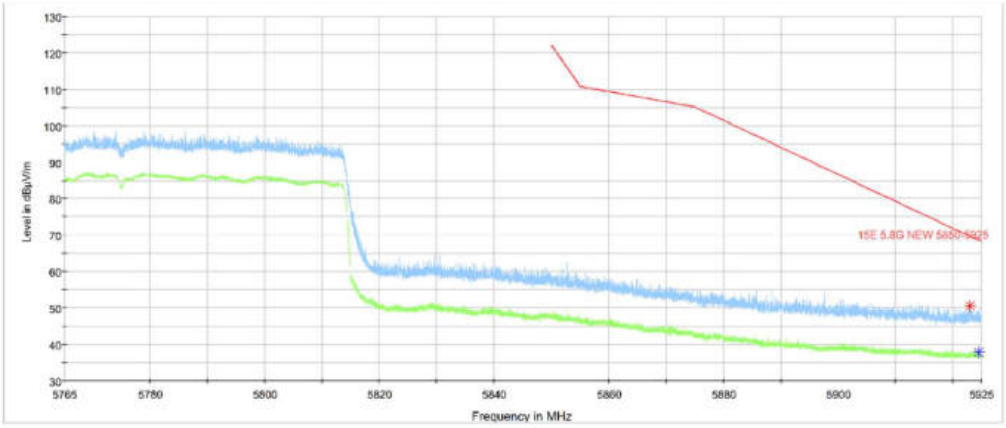


Fig. 18 Band Edges (802.11ax-HT80 Ch155-R full RU, 5775MHz, MIMO)

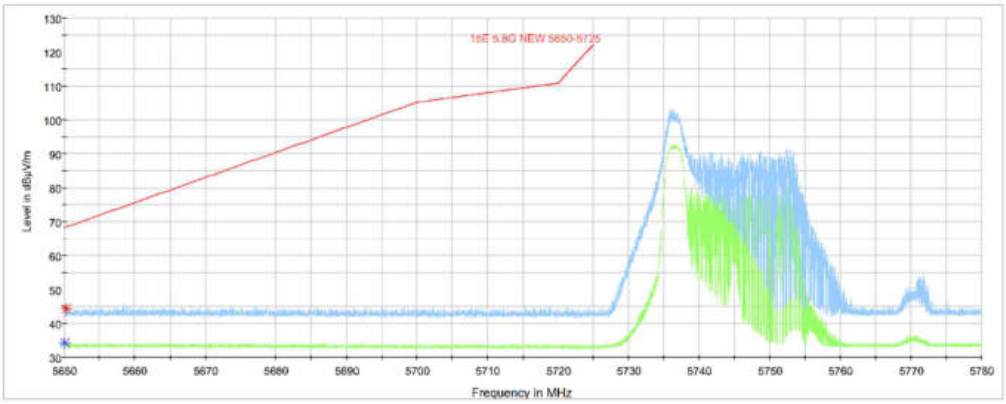


Fig. 19 Band Edges (802.11ax-HT20 Ch149 partial RU, 5745MHz, MIMO)

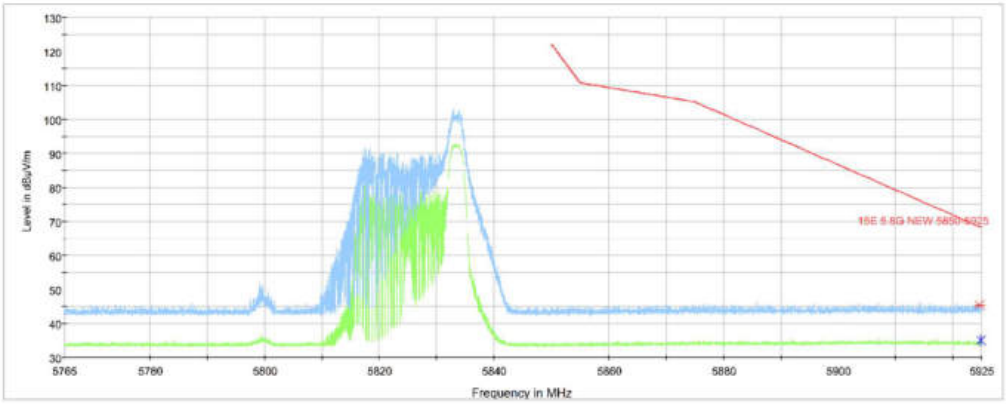


Fig. 20 Band Edges (802.11ax-HT20 Ch165 partial RU, 5825MHz, MIMO)

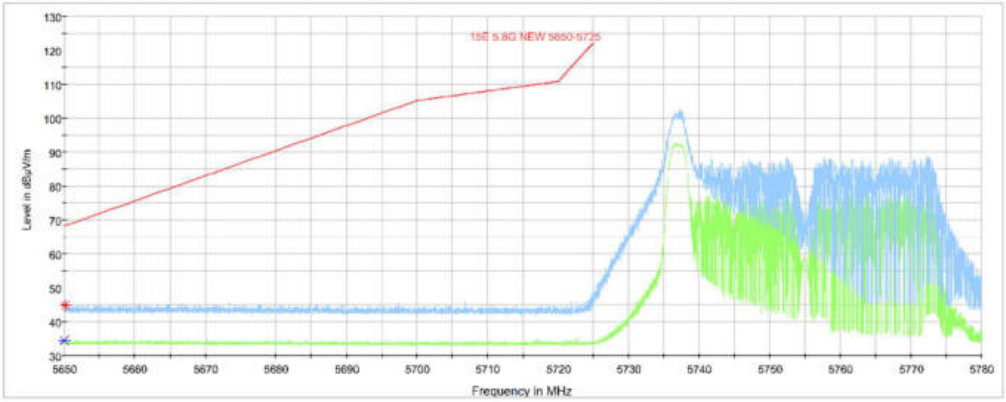


Fig. 21 Band Edges (802.11ax-HT40 Ch151 partial RU, 5755MHz, MIMO)

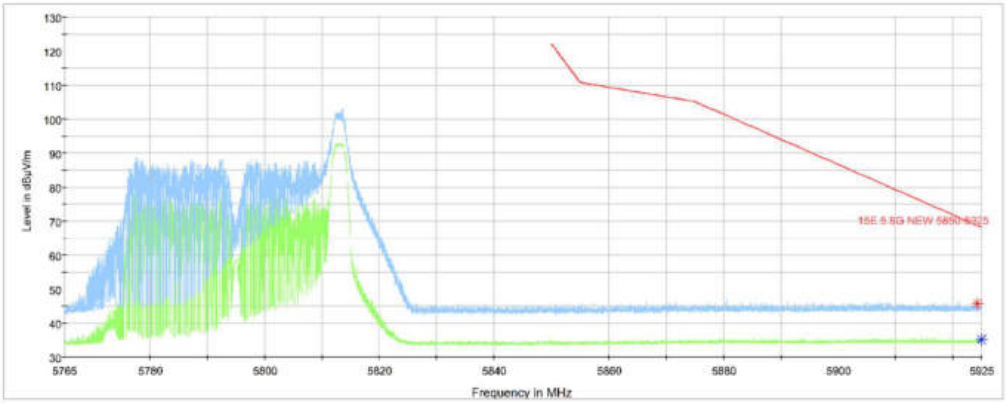


Fig. 22 Band Edges (802.11ax-HT40 Ch159 partial RU, 5795MHz, MIMO)

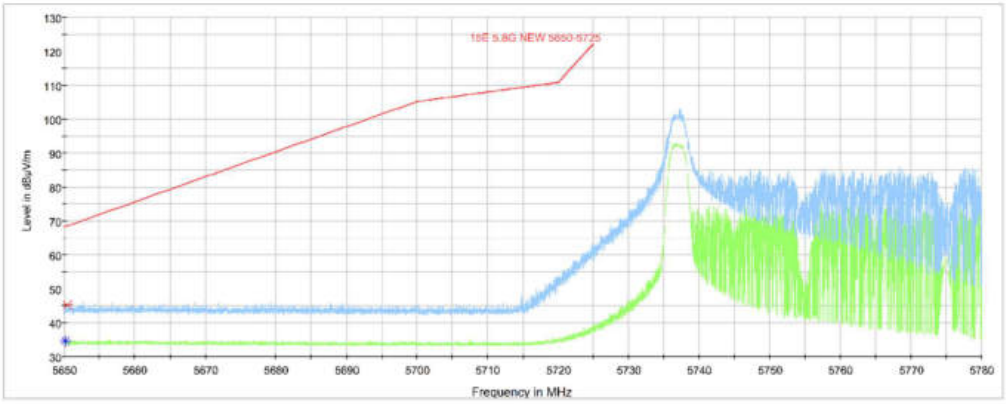


Fig. 23 Band Edges (802.11ax-HT80 Ch155-L partial RU, 5775MHz, MIMO)

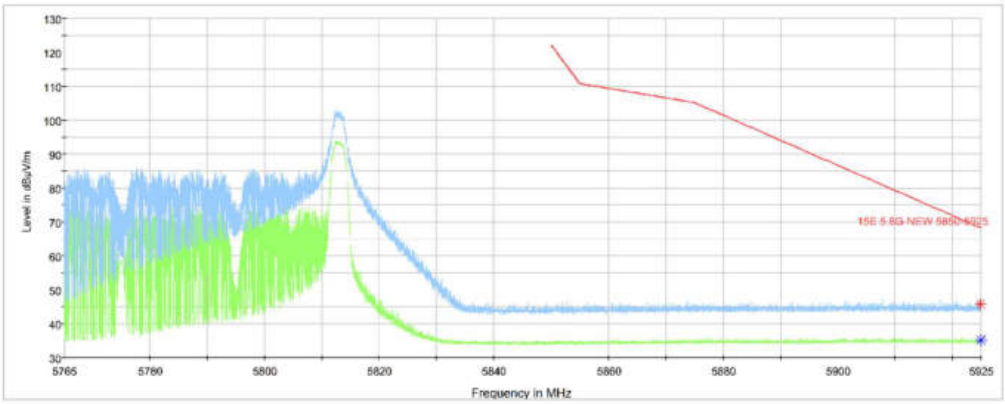


Fig. 24 Band Edges (802.11ax-HT80 Ch155-R partial RU, 5775MHz, MIMO)

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.

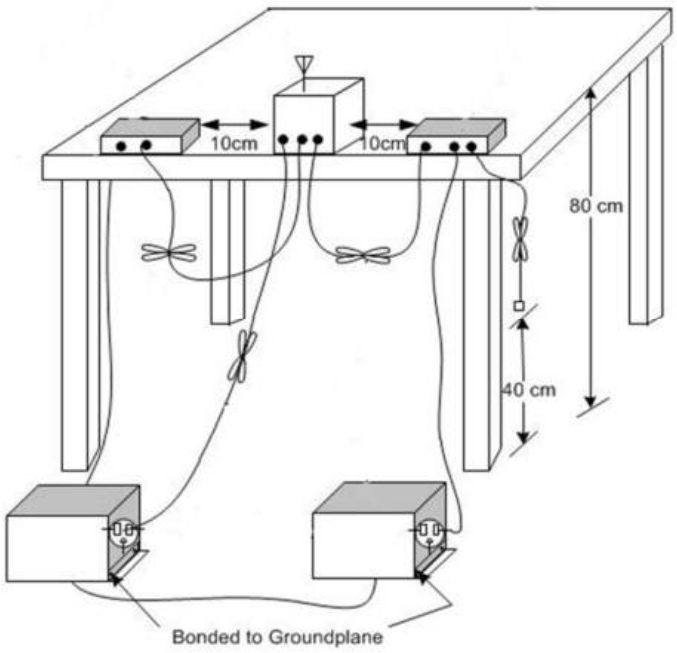
The measurement bandwidth is:

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



A.6.5 Measurement Result and limit

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11a	Idle	
0.15 to 0.5	66 to 56	Fig.25	Fig.26	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.				

WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11a	Idle	
0.15 to 0.5	56 to 46	Fig.25	Fig.26	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.				

The measurement is made according to ANSI C63.10 .

Conclusion: PASS

Test graphs as below:

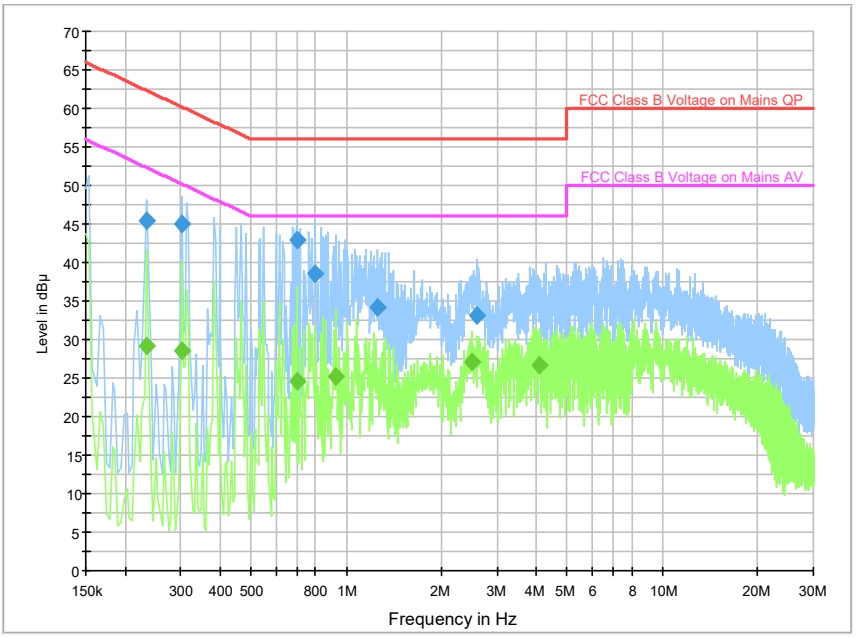


Fig. 25 AC Powerline Conducted Emission-802.11a

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.234000	45.4	2000.0	9.000	On	L1	19.7	16.9	62.3	
0.302000	45.0	2000.0	9.000	On	L1	19.7	15.2	60.2	
0.698000	43.0	2000.0	9.000	On	L1	19.7	13.0	56.0	
0.798000	38.5	2000.0	9.000	On	L1	19.7	17.5	56.0	
1.258000	34.2	2000.0	9.000	On	N	19.6	21.8	56.0	
2.582000	33.1	2000.0	9.000	On	N	19.6	22.9	56.0	

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.234000	29.1	2000.0	9.000	On	L1	19.7	23.2	52.3	
0.302000	28.5	2000.0	9.000	On	L1	19.7	21.7	50.2	
0.698000	24.6	2000.0	9.000	On	L1	19.7	21.4	46.0	
0.930000	25.3	2000.0	9.000	On	L1	19.7	20.7	46.0	
2.506000	27.1	2000.0	9.000	On	N	19.6	18.9	46.0	
4.098000	26.6	2000.0	9.000	On	N	19.6	19.4	46.0	

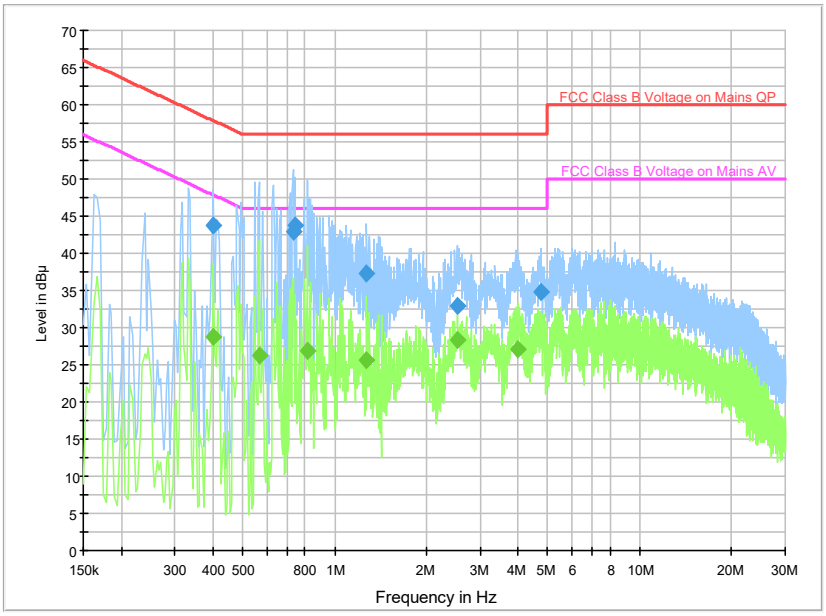


Fig. 26 AC Powerline Conducted Emission-Idle

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.402000	43.7	2000.0	9.000	On	L1	19.7	14.1	57.8	
0.730000	43.0	2000.0	9.000	On	L1	19.7	13.0	56.0	
0.742000	43.8	2000.0	9.000	On	N	19.7	12.2	56.0	
1.274000	37.3	2000.0	9.000	On	N	19.6	18.7	56.0	
2.514000	33.0	2000.0	9.000	On	L1	19.6	23.0	56.0	
4.750000	34.8	2000.0	9.000	On	N	19.6	21.2	56.0	

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.402000	28.7	2000.0	9.000	On	L1	19.7	19.1	47.8	
0.566000	26.3	2000.0	9.000	On	L1	19.7	19.7	46.0	
0.814000	26.9	2000.0	9.000	On	L1	19.7	19.1	46.0	
1.274000	25.7	2000.0	9.000	On	N	19.6	20.3	46.0	
2.534000	28.3	2000.0	9.000	On	N	19.6	17.7	46.0	
4.006000	27.2	2000.0	9.000	On	N	19.6	18.8	46.0	

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 26th day of June 2023.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 7049.01
Valid to July 31, 2024

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

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