

TEST REPORT

FCC DTS ax, be Test for SM-S931B/DS
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-2411-FC001

DATE OF ISSUE
November 4, 2024

Tested by
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TEST REPORT

REPORT NO.

HCT-RF-2411-FC001

DATE OF ISSUE

November 04, 2024

Additional Model

SM-S931B

Applicant

SAMSUNG Electronics Co., Ltd.

129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea

Product Name

Mobile Phone

Model Name

SM-S931B/DS

FCC ID

A3LSMS931B

Date of Test

September 04, 2024 ~ November 04, 2024

FCC Classification

Digital Transmission System(DTS)

Test Standard Used

FCC Rule Part(s): Part 15.247

Test Results

PASS

Location of Test

☒ Permanent Testing Lab ☐ On Site Testing Lab

(Address: 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea)

REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	November 04, 2024	Initial Release

Notice

Content

Engineering Statement:

The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of the FCC Rules under normal use and maintenance.

The results shown in this test report only apply to the sample(s), as received, provided by the applicant, unless otherwise stated.

The test results have only been applied with the test methods required by the standard(s).

The laboratory is not accredited for the test results marked *.

Information provided by the applicant is marked **.

Test results provided by external providers are marked ***.

When confirmation of authenticity of this test report is required, please contact www.hct.co.kr

The test results in this test report are not associated with the ((KS Q) ISO/IEC 17025) accreditation by KOLAS (Korea Laboratory Accreditation Scheme) / A2LA (American Association for Laboratory Accreditation) that are under the ILAC (International Laboratory Accreditation Cooperation) Mutual Recognition Agreement (MRA).

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1. EUT DESCRIPTION

Model	SM-S931B/DS		
Additional Model	SM-S931B		
EUT Type	Mobile Phone		
Power Supply	DC 3.88 V		
Frequency Range	2 412 MHz ~ 2 472 MHz		
Max. RF Output Power	<u>Peak Power</u>	SISO(Ant.1)	24.65 dBm
		SISO(Ant.2)	24.72 dBm
		MIMO_CDD(Ant.1+ Ant.2)	27.70 dBm
	<u>Average Power</u>	SISO(Ant.1)	16.89 dBm
		SISO(Ant.2)	16.88 dBm
		MIMO_CDD(Ant.1+ Ant.2)	19.87 dBm
Modulation Type	OFDM, OFDMA		
Number of Channels	13 Channels		
Antenna Specification	Type: Metal		
Serial number	Conducted : R3CX80PTAZK Radiated : R3CX80PTC6A		

ANTENNA CONFIGURATIONS

1. Antenna configuration

Configurations	SISO		MIMO	
	ANT.1	ANT.2	CDD	SDM
802.11ax(HE20)	O	O	O	O
802.11be(EHT20)	O	O	O	O
802.11be(EHT20)_MRU	O	O	O	O

Note:

- (1) O = Support, X = Not Support
- (2) SISO = Single Input Single Output
- (3) SDM = Spatial Diversity Multiplexing
- (4) CDD = Cyclic Delay Diversity

2.This device supports simultaneous transmission operation, which allows for two channels to operate independent of one another in the 2.4 GHz and 5 GHz or 6 GHz Bands simultaneously on each antenna.

RSDB Scenario	2.4 GHz WiFi Ant.1	2.4 GHz WiFi Ant.2	5 GHz WiFi Ant.1	5 GHz WiFi Ant.2	6 GHz WiFi Ant.1	6 GHz WiFi Ant.2	BT Ant.1	BT Ant.2	Test Case
2.4 GHz WiFi MIMO + 5 GHz WiFi MIMO	on	on	on	on	-	-	-	-	Scenario1
Bluetooth ANT.1 + 2.4 GHz WiFi ANT.2 + 5 GHz WiFi ANT.1	-	on	on	-	-	-	on	-	-
Bluetooth ANT.1 + 2.4 GHz WiFi ANT.2 + 5 GHz WiFi ANT.2	-	on	-	on	-	-	on	-	Scenario2
Bluetooth ANT.1 + 2.4 GHz WiFi ANT.2 + 5 GHz WiFi MIMO	-	on	on	on	-	-	on	-	Scenario3

3. Directional Gain Calculation

According to KDB 662911 D01 Multiple Transmitter Output v02r01 F) 2) e) (iii), f) ii)

$$\text{Directional Gain(CDD)} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left(\sum_{k=1}^{N_{ANT}} g_{j,k} \right)^2}{N_{ANT}} \right]$$

$$\text{Directional gain(SDM)} = G_{\max} + 10 \cdot \text{LOG}(N_{ANT}/N_{SS})$$

Ant Gain (dBi)		N _{ANT} / N _{SS}	Directional Gain (dBi)	
			CDD	SDM
ANT.1	-2.43	2/2	-0.50	-2.43
ANT.2	-4.74			

Note

According to ANSI C63.10-2013 section 14.4.3, the directional gain is calculated using the formula, where G_N is the gain of the nth antenna and N_{ANT} is the total number of antennas used.

$$\text{Directional gain(CDD)} = 10 \cdot \log \left(\left(\frac{10^{(\text{ANT.0 Gain}/20)} + 10^{(\text{ANT.1 Gain}/20)} \right)^2 / 2 \right) \text{ dBi}$$

$$\text{Directional gain(SDM)} = G_{\max} + 10 \cdot \log(N_{ANT}/N_{SS})$$

Sample MIMO Calculation:

Ex) ANT.1 : 11.58 dBm ANT.2 : 12.08 dBm

$$\text{MIMO} = \text{ANT.1} + \text{ANT.2}$$

$$(11.58 \text{ dBm} + 12.08 \text{ dBm}) = (14.387 \text{ mW} + 16.143 \text{ mW}) = 30.53 \text{ mW} = 14.88 \text{ dBm}$$

2. TEST METHODOLOGY

FCC KDB 558074 D01 15.247 Meas Guidance v05r02 dated April 02, 2019 entitled “guidance for compliance measurements on digital transmission system, frequency hopping spread spectrum system, and hybrid system devices and the measurement procedure described in ANSI C63.10 (Version : 2013) ‘the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices’.

EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

EUT EXERCISE

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 6.2 of ANSI C63.10. (Version :2013) Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane below 1 GHz. Above 1 GHz with 1.5 m using absorbers between the EUT and receive antenna. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3 m away from the receiving antenna, which varied from 1 m to 4 m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes according to the requirements in Section 6.6.5 of ANSI C63.10. (Version: 2013)

DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition. Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

3. INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment's, which is traceable to recognized national standards.

Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5 (Version : 2017).

4. FACILITIES AND ACCREDITATIONS

FACILITIES

The SAC(Semi-Anechoic Chamber) and conducted measurement facility used to collect the radiated data are located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA.

The site is constructed in conformance with the requirements of ANSI C63.4. (Version :2014) and CISPR Publication 22.

Detailed description of test facility was submitted to the Commission and accepted dated March 11, 2024 (Registration Number: KR0032).

EQUIPMENT

Radiated emissions are measured with one or more of the following types of Linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers. Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

5. ANTENNA REQUIREMENTS

According to FCC 47 CFR § 15.203:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.”

- (1) The antennas of this E.U.T are permanently attached.
- (2) The E.U.T Complies with the requirement of § 15.203

6. MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013.

All measurement uncertainty values are shown with a coverage factor of $k=2$ to indicate a 95 % level of confidence.

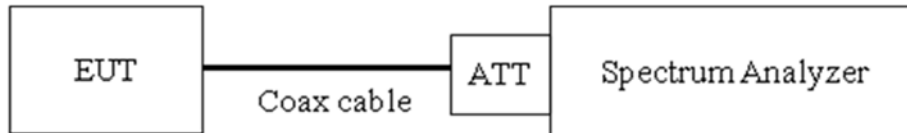
The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded Uncertainty (dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	1.98 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (9 kHz ~ 30 MHz)	4.36 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (30 MHz ~ 1 GHz)	5.70 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.52 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.66 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (Above 40 GHz)	5.58 (Confidence level about 95 %, $k=2$)

7. DESCRIPTION OF TESTS

7.1. Duty Cycle

Test Configuration



Test Procedure

The transmitter output is connected to the Spectrum Analyzer.

We tested according to the zero-span measurement method.

The largest available value of RBW is 8 MHz and VBW is 50 MHz.

The zero-span method of measuring duty cycle shall not be used if $T \leq 6.25$ microseconds. ($50/6.25 = 8$)

The zero-span method was used because all measured T data are > 6.25 microseconds and both RBW and VBW are $> 50/T$.

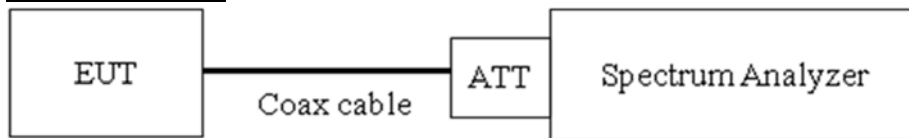
1. RBW = 8 MHz (the largest available value)
2. VBW = 8 MHz ($\geq$ RBW)
3. SPAN = 0 Hz
4. Detector = Peak
5. Number of points in sweep > 100
6. Trace mode = Clear write
7. Measure T_{total} and T_{on}
8. Calculate Duty Cycle = T_{on} / T_{total} and Duty Cycle Factor = $10\log(1/\text{Duty Cycle})$

7.2. 6 dB Bandwidth

Limit

The minimum permissible 6 dB bandwidth is 500 kHz.

Test Configuration



Test Procedure

The transmitter output is connected to the Spectrum Analyzer.

The Spectrum Analyzer is set to (Procedure 11.8.1 in ANSI 63.10-2013)

- 1) RBW = 100 kHz
- 2) VBW $\geq 3 \times$ RBW
- 3) Detector = Peak
- 4) Trace mode = max hold
- 5) Sweep = auto couple
- 6) Allow the trace to stabilize
- 7) We tested 6 dB bandwidth using the automatic bandwidth measurement capability of a spectrum analyzer. X dB is set 6 dB.

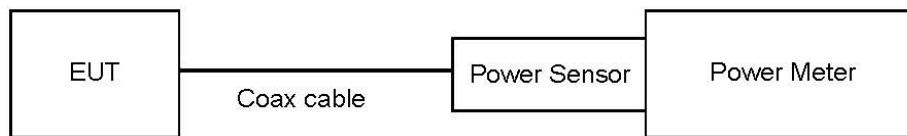
Note : We tested OBW using the automatic bandwidth measurement capability of a spectrum analyzer.

7.3. Output Power

Limit

The maximum permissible conducted output power is 1 Watt.

Test Configuration



Test Procedure

The transmitter output is connected to the Power Meter.

- Peak Power (Procedure 11.9.1.3 in ANSI 63.10-2013)
: Measure the peak power of the transmitter.
- Average Power (Procedure 11.9.2.3 in ANSI 63.10-2013)
 - 1) Measure the duty cycle.
 - 2) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
 - 3) Add $10 \log (1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times.

Sample Calculation

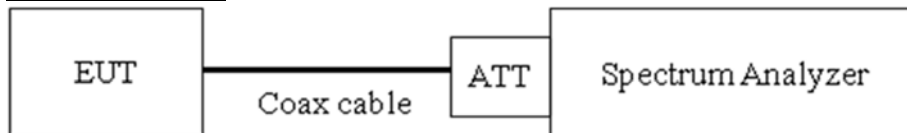
- Conducted Output Power(Peak) = Measured Value + ATT loss + Cable loss
- Conducted Output Power(Average) = Measured Value + ATT loss + Cable loss + Duty Cycle Factor

7.4. Power Spectral Density

Limit

The transmitter power density average over 1-second interval shall not be greater than 8 dBm in any 3 kHz BW.

Test Configuration



Test Procedure

The transmitter output is connected to the Spectrum Analyzer.

We tested according to Procedure 8.4 in KDB 558074 v05r02, Procedure 11.10 in ANSI 63.10-2013.

The spectrum analyzer is set to :

- 1) Set analyzer center frequency to DTS channel center frequency.
- 2) Set span to at least 1.5 times the OBW.
- 3) $RBW = 3 \text{ kHz} \leq RBW \leq 100 \text{ kHz}$.
- 4) $VBW \geq 3 \times RBW$.
- 5) Sweep = auto couple
- 6) Detector = power averaging (rms) or sample detector (when rms not available).
- 7) Ensure that the number of measurement points in the sweep $\geq [2 \times \text{span} / RBW]$.
- 8) Employ trace averaging (rms) mode over a minimum of 100 traces
- 9) Use the peak marker function to determine the maximum amplitude level.
- 10) Use the peak marker function to determine the maximum amplitude level within the RBW.
If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.
- 11) if then duty factor shall be added to adjust the result if the duty cycle is less than 98 %

Sample Calculation

- Power Spectral Density = Measured Value + ATT loss + Cable loss + Duty Cycle Factor

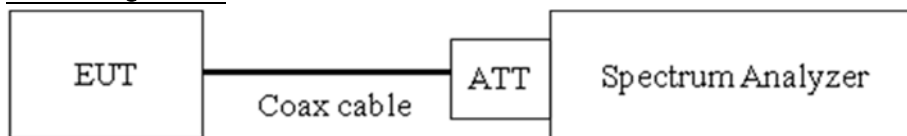
7.5. Conducted Band Edge (Out of Band Emissions) & Conducted Spurious Emissions

Limit

The maximum conducted (Average) output power was used to demonstrate compliance, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least relative to the maximum in-band peak PSD level in 100 kHz.

[Conducted > 30 dBc]

Test Configuration



Test Procedure

The transmitter output is connected to the spectrum analyzer.

(Procedure 11.11 in ANSI 63.10-2013)

- 1) RBW = 100 kHz
- 2) VBW $\geq 3 \times$ RBW
- 3) Set span to encompass the spectrum to be examined
- 4) Detector = Peak
- 5) Trace Mode = max hold
- 6) Sweep time = auto couple
- 7) Allow trace to fully stabilize.
- 8) Use peak marker function to determine the maximum amplitude level.

Measurements are made over the 30 MHz to 25 GHz range with the transmitter set to the lowest, middle, and highest channels.

Factors for frequency

Freq(MHz)	Factor(dB)
30	10.46
100	10.63
200	10.66
300	10.64
400	10.65
500	10.83
600	10.86
700	11.00
800	11.02
900	11.08
1000	11.13
2000	11.14
2400	11.12
2500	11.12
3000	11.74
4000	11.98
5000	12.24
6000	12.24
7000	12.58
8000	12.72
9000	12.77
10000	12.83
11000	13.00
12000	13.30
13000	13.46
14000	13.49
15000	13.39
16000	13.42
17000	13.31
18000	13.57
19000	14.01
20000	13.83
21000	13.96
22000	13.94
23000	14.02
24000	14.04
25000	14.05
26000	14.13

Note : 1. 2400 ~ 2500 MHz is fundamental frequency range.

2. Factor = Attenuator loss + Cable loss

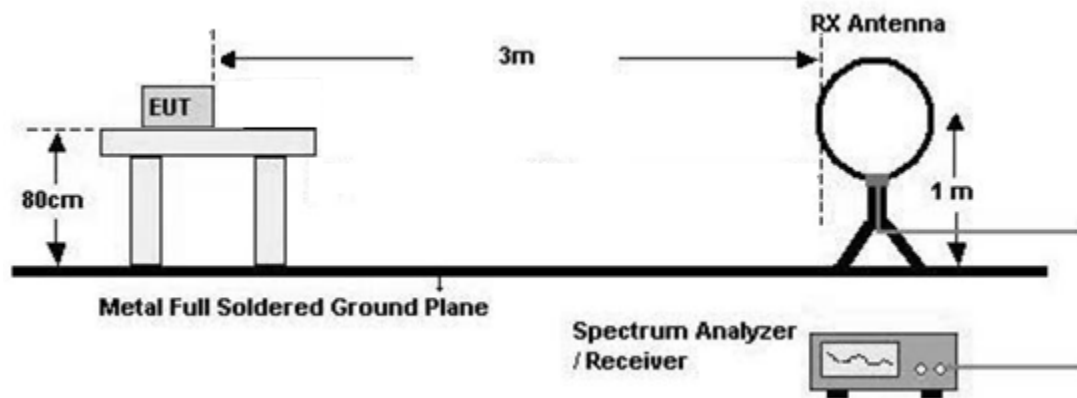
7.6. Radiated Test

Limit

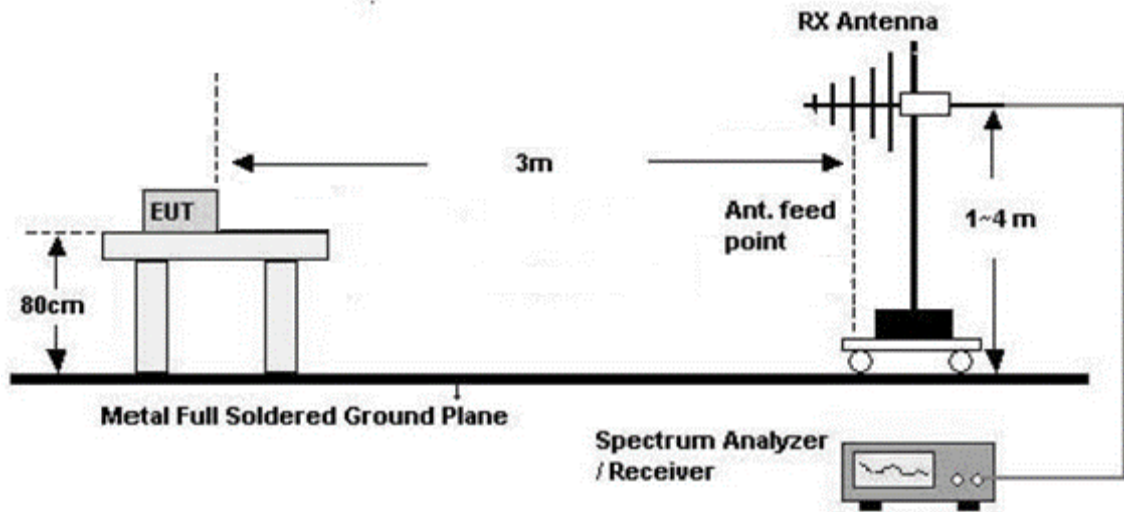
Frequency (MHz)	Field Strength ($\mu\text{V/m}$)	Measurement Distance (m)
0.009 – 0.490	$2400/F(\text{kHz})$	300
0.490 – 1.705	$24000/F(\text{kHz})$	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Configuration

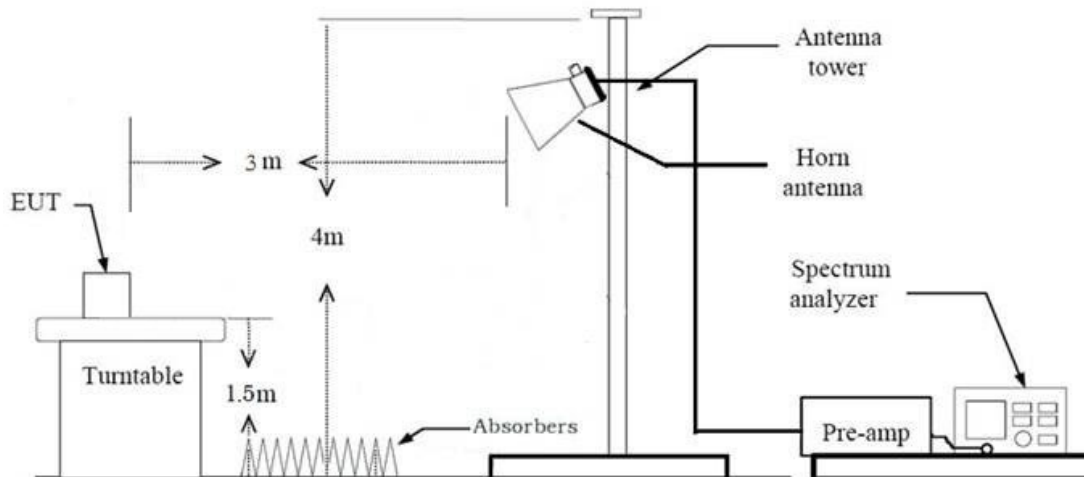
Below 30 MHz



30 MHz - 1 GHz



Above 1 GHz



Test Procedure of Radiated spurious emissions (Below 30 MHz)

1. The EUT was placed on a non-conductive table located on semi-anechoic chamber.
2. The loop antenna was placed at a location 3 m from the EUT
3. The EUT is placed on a turntable, which is 0.8 m above ground plane.
4. We have done x, y, z planes in EUT and horizontal and vertical polarization and Parallel to the ground plane in detecting antenna.
5. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
6. Distance Correction Factor(0.009 MHz – 0.490 MHz) = $40\log(3\text{ m}/300\text{ m}) = -80\text{ dB}$
Measurement Distance : 3 m
7. Distance Correction Factor(0.490 MHz – 30 MHz) = $40\log(3\text{ m}/30\text{ m}) = -40\text{ dB}$
Measurement Distance : 3 m
8. Spectrum Setting
 - Frequency Range = 9 kHz ~ 30 MHz
 - Detector = Peak
 - Trace = Max hold
 - RBW = 9 kHz
 - VBW $\geq 3 \times$ RBW
9. Total = Measured value + Antenna Factor(A.F) + Cable Loss(C.L) + Distance Factor(D.F)
10. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

KDB 414788 OFS and Chamber Correlation Justification

Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

OFS and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

Test Procedure of Radiated spurious emissions (Below 1 GHz)

1. The EUT was placed on a non-conductive table located on semi-anechoic chamber.
2. The EUT is placed on a turntable, which is 0.8 m above ground plane.
3. The Hybrid antenna was placed at a location 3 m from the EUT, which is varied from 1 m to 4 m to find out the highest emissions.
4. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
5. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
6. Spectrum Setting

(1) Measurement Type(Peak):

- Measured Frequency Range : 30 MHz – 1 GHz
- Detector = Peak
- Trace = Max hold
- RBW = 100 kHz
- VBW $\geq$ 3 x RBW

(2) Measurement Type(Quasi-peak):

- Measured Frequency Range : 30 MHz – 1 GHz
- Detector = Quasi-Peak
- RBW = 120 kHz

In general, (1) is used mainly

7. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L)
8. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

Test Procedure of Radiated spurious emissions (Above 1 GHz)

1. The EUT is placed on a turntable, which is 1.5 m above ground plane.
2. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
3. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
4. EUT is set 3 m away from the receiving antenna, which is varied from 1 m to 4 m to find out the highest emissions.
5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
6. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
7. The unit was tested with its standard battery.
8. Spectrum Setting (Method 8.6 in KDB 558074 v05r02, Procedure 11.12 in ANSI 63.10-2013)

(1) Measurement Type(Peak):

- Measured Frequency Range : 1 GHz – 25 GHz
- Detector = Peak

- Trace = Maxhold

- RBW = 1 MHz

- VBW $\geq 3 \times$ RBW

(2) Measurement Type(Average): Duty cycle $\geq 98 \%$

- Measured Frequency Range : 1 GHz – 25 GHz

- Detector = RMS

- Averaging type = power (*i.e.*, RMS)

- RBW = 1 MHz

- VBW $\geq 3 \times$ RBW

- Sweep time = auto.

- Trace mode = average (at least 100 traces).

(3) Measurement Type(Average): Duty cycle $< 98 \%$, duty cycle variations are less than $\pm 2 \%$

- Measured Frequency Range : 1 GHz – 25 GHz

- Detector = RMS

- Averaging type = power (*i.e.*, RMS)

- RBW = 1 MHz

- VBW $\geq 3 \times$ RBW

- Sweep time = auto.

- Trace mode = average (at least 100 traces).

- Correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the emission level that would have been measured had the test been performed at 100 % duty cycle.

- Duty Cycle Factor (dB) : Please refer to the please refer to section 9.1.

9. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

10. Distance extrapolation factor = $20\log$ (test distance / specific distance) (dB)

11. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L) - Amp Gain(G) + Distance Factor(D.F)

Test Procedure of Radiated Restricted Band Edge

1. The EUT is placed on a turntable, which is 1.5 m above ground plane.
2. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
3. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
4. EUT is set 3 m away from the receiving antenna, which is varied from 1 m to 4 m to find out the highest emissions.
5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
6. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
7. The unit was tested with its standard battery.
8. Spectrum Setting
 - (1) Measurement Type(Peak):
 - Measured Frequency Range : 2310 MHz ~ 2390 MHz/ 2483.5 MHz ~ 2500 MHz
 - Detector = Peak
 - Trace = Max hold
 - RBW = 1 MHz
 - VBW $\geq 3 \times$ RBW
 - (2) Measurement Type(Average): Duty cycle $\geq 98 \%$,
 - Measured Frequency Range : 2310 MHz ~ 2390 MHz / 2483.5 MHz ~ 2500 MHz
 - Detector = RMS
 - Averaging type = power (*i.e.*, RMS)
 - RBW = 1 MHz
 - VBW $\geq 3 \times$ RBW
 - Sweep time = auto.
 - Trace mode = average (at least 100 traces).
 - (3) Measurement Type(Average): Duty cycle $< 98 \%$, duty cycle variations are less than $\pm 2 \%$
 - Measured Frequency Range : 2310 MHz ~ 2390 MHz / 2483.5 MHz ~ 2500 MHz
 - Detector = RMS
 - Averaging type = power (*i.e.*, RMS)
 - RBW = 1 MHz
 - VBW $\geq 3 \times$ RBW
 - Sweep time = auto.
 - Trace mode = average (at least 100 traces).
 - Correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the emission level that would have been measured had the test been performed at 100 % duty cycle.
 - Duty Cycle Factor (dB) : Please refer to the please refer to section 9.1.

9. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
10. Distance extrapolation factor = $20\log(\text{test distance} / \text{specific distance})$ (dB)
11. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L) + Distance Factor(D.F)

7.7. AC Power line Conducted Emissions

Limit

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN).

Frequency Range (MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56 ^(a)	56 to 46 ^(a)
0.50 to 5	56	46
5 to 30	60	50

^(a)Decreases with the logarithm of the frequency.

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

Test Configuration

See test photographs attached in Annex A for the actual connections between EUT and support equipment.

Test Procedure

1. The EUT is placed on a wooden table 80 cm above the reference ground plane.
2. The EUT is connected via LISN to a test power supply.
3. The measurement results are obtained as described below:
4. Detectors : Quasi Peak and Average Detector.

Sample Calculation

Quasi-peak (Final Result) = Measured Value + Correction Factor

7.8. Test RU offset for Tones

BW (MHz)	Tones (T)	RU offset	Test RU offset		
			Low	Mid	High
20	26	0~8	0	4	8
	52	37~40	37	38	40
	106	53~54	53	-	54
	242	61	-	61	-
	52 + 26	70 ~ 72	70	71	72
	106 + 26	82 ~ 83	82		83

7.9. Worst case configuration and mode

Conducted test

1. All data rate of operation were investigated and the worst case results are reported.

(Worst case : MCS0)

2. Band Edge (Conducted)

: All Mode (Channel, Tones, RU Offset) of operation were investigated and the worst case configuration results are reported.

Tones	Channel	RU Index
26	1, 11	0, 8
52	1, 11	37, 40
106	1, 11	53, 54
242	1, 11	61
SU	1, 11	-
52T + 26T	1, 11	70, 72
106T + 26T	1, 11	82, 83

3. We performed all tests for both 802.11ax and 802.11be, and to simplify the report, we have included only the 802.11be data.

4. SM-S931B/DS, SM-S931B were tested and the worst case results are reported.

(Worst case: SM-S931B/DS)

Radiated test

1. All modes of operation were investigated and the worst case configuration results are reported.

- Mode : Stand alone, Stand alone + External accessories (Earphone, etc)

- Worst case : Stand alone

2. All data rate of operation were investigated and the worst case results are reported.

(Worst case : MCS 0)

3. All Antenna of operation were investigated and the worst case results are reported

- Antenna Operation Type : SISO, MIMO_CDD(Ant.1+Ant.2), MIMO_SDM(Ant.1+Ant.2)

- Worst case: MIMO_CDD(Ant.1+Ant.2)

4. EUT Axis

- Radiated Spurious Emissions : X

- Radiated Restricted Band Edge : X

5. All position of loop antenna were investigated and the test result is a no critical peak found at all positions.

- Position : Horizontal, Vertical, Parallel to the ground plane

6. All mode(Tone, RU Offset) of operation were investigated and the worst case configuration

results are reported

7. We performed all tests for both 802.11ax and 802.11be, and to simplify the report, we have included only the 802.11be data.

8. SM-S931B/DS, SM-S931B were tested and the worst case results are reported.

(Worst case: SM-S931B/DS)

[RSE Worst case]

BW (MHz)	Test		Tones (T)	Offset
20	RSE	SRU	26	4
			242	61
		MRU	52+26	71
			106+26	82

[Bandedge Worst case]

BW (MHz)	Test		Tones (T)	Offset	
				Lower	Upper
20	Bandedge	SRU	26	0	8
			52	37	40
			106	53	54
			242	61	61
			SU	-	-
		MRU	52+26	70	72
			106+26	82	83

Radiated test(RSDB)

1. Please refer to the [DTS], [BT], [UNII ax, be] Test Report.

2. SM-S931B/DS, SM-S931B were tested and the worst case results are reported.

(Worst case: SM-S931B/DS)

AC Power line Conducted Emissions

1. Please refer to the [DTS] Test Report.

2. SM-S931B/DS, SM-S931B were tested and the worst case results are reported.

(Worst case: SM-S931B/DS)

8. SUMMARY TEST OF RESULTS

Test Description	FCC Part Section(s)	Test Limit	Test Condition	Test Result
6 dB Bandwidth	§ 15.247(a)(2)	> 500 kHz	Conducted	PASS
Conducted Maximum Output Power	§ 15.247(b)(3)	< 1 Watt		PASS
Power Spectral Density	§ 15.247(e)	< 8 dBm / 3 kHz Band		PASS
Band Edge (Out of Band Emissions)	§ 15.247(d)	Conducted > 30 dBc		PASS
AC Power line Conducted Emissions	§ 15.207	cf. Section 7.7		PASS (Note1)
Radiated Spurious Emissions	§ 15.247(d), 15.205, 15.209	cf. Section 7.6	Radiated	PASS
Radiated Restricted Band Edge	§ 15.247(d), 15.205, 15.209	cf. Section 7.6		PASS

Note1:

1. Please refer to the [DTS] Test Report.

9. TEST RESULT

9.1 DUTY CYCLE

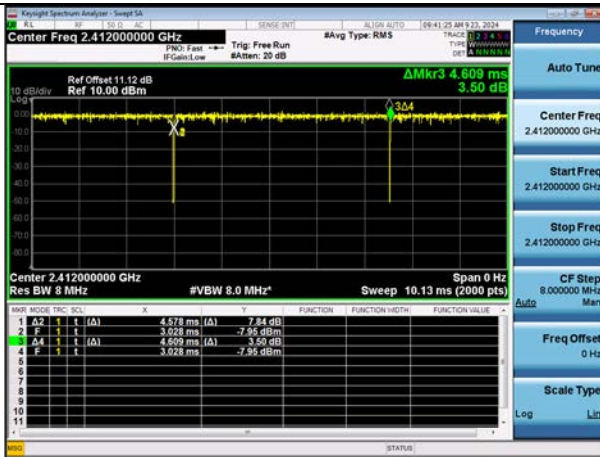
Mode	Tone (T)	Worst Data rate	T _{on} (ms)	T _{total} (ms)	Duty Cycle	Duty Cycle Factor (dB)
802.11be (EHT20)	26	MCS0	4.578	4.609	0.993	0.029
	52	MCS0	4.570	4.601	0.993	0.029
	106	MCS0	2.488	2.514	0.990	0.045
	242	MCS0	1.122	1.145	0.980	0.088
	52+26	MCS0	3.503	3.528	0.993	0.031
	106+26	MCS0	2.032	2.055	0.989	0.048
802.11be (SU)	BW 20	MCS0	5.452	5.466	0.997	0.011

Test Plots

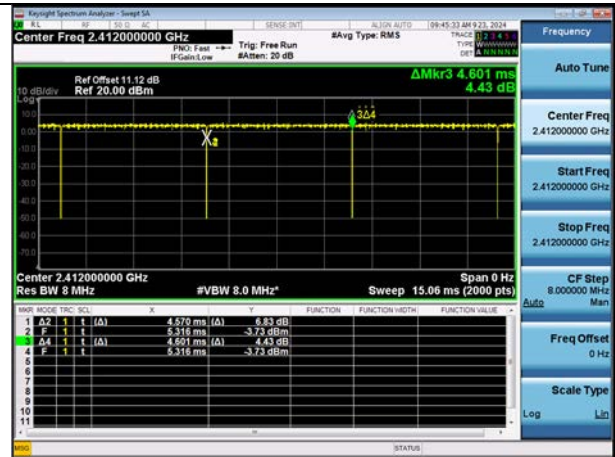
Note:

In order to simplify the report, attached plots were only the lowest data rate.

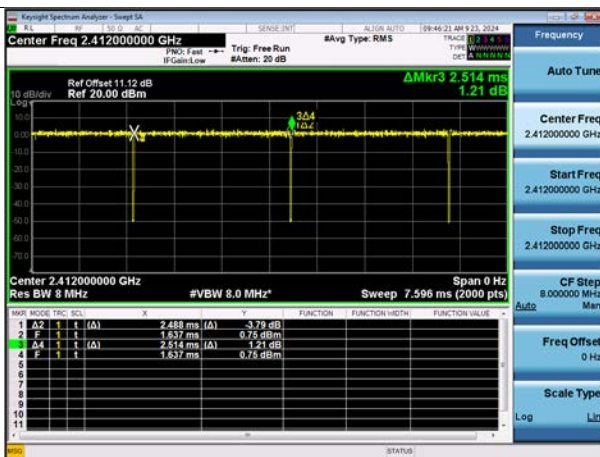
26 Tones (MCS 0)



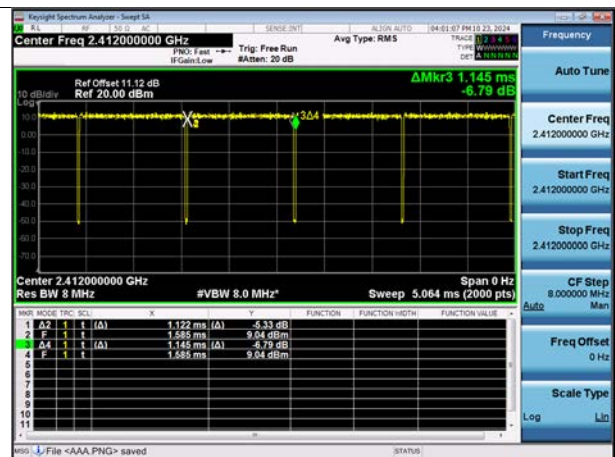
52 Tones (MCS 0)



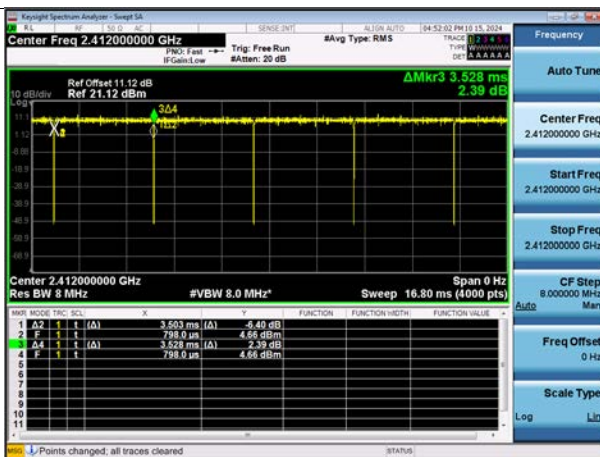
106 Tones (MCS 0)



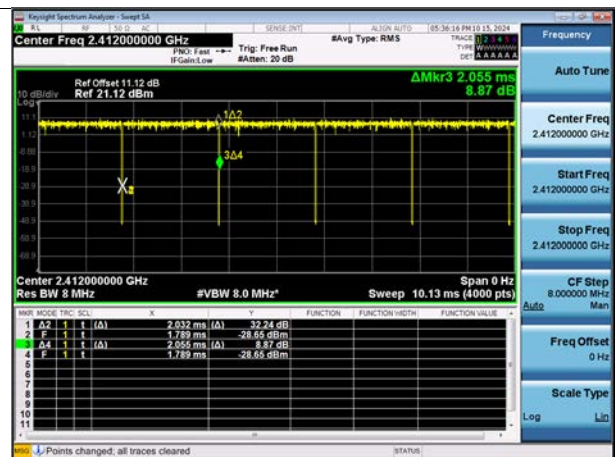
242 Tones (MCS 0)



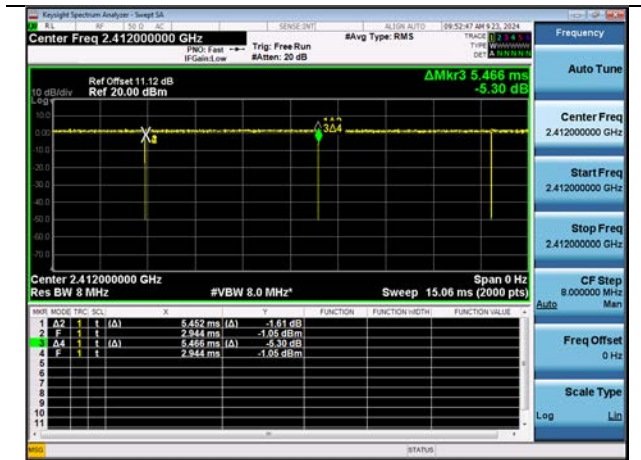
52 Tones + 26 Tones (MCS 0)



106 Tones + 26 Tones (MCS 0)



SU



9.2 6 dB BANDWIDTH

Limit : > 500 kHz

[ANT.1]

Mode	Freq. [MHz]	CH.	6dB Bandwidth [MHz]			99% Occupied Bandwidth [MHz]		
			RU Index : Low	RU Index : Mid	RU Index : High	RU Index : Low	RU Index : Mid	RU Index : High
			ANT1	ANT1	ANT1	ANT1	ANT1	ANT1
EHT20 26T	2412	1	2.095	2.701	2.109	18.067	16.954	17.851
	2437	6	2.057	2.698	2.074	18.087	17.079	18.043
	2462	11	2.050	2.703	2.036	17.935	16.887	18.053
	2467	12	2.043	2.687	2.097	17.778	17.017	18.256
	2472	13	2.083	2.676	2.068	17.890	17.149	18.249
EHT20 52T	2412	1	17.01	13.81	8.230	18.006	16.932	17.960
	2437	6	15.74	15.10	17.00	18.049	17.122	17.998
	2462	11	10.76	10.01	17.01	17.900	16.929	18.079
	2467	12	4.484	6.288	17.03	17.774	16.818	18.176
	2472	13	4.077	6.282	17.01	17.814	16.998	18.177
EHT20 106T	2412	1	17.19	-	17.17	18.086	-	17.970
	2437	6	17.21	-	17.18	18.205	-	18.147
	2462	11	17.19	-	17.19	17.962	-	18.152
	2467	12	17.18	-	18.37	17.901	-	18.211
	2472	13	17.19	-	18.36	18.001	-	18.219
EHT20 242T	2412	1	-	18.98	-	-	18.911	-
	2437	6	-	19.06	-	-	18.974	-
	2462	11	-	18.97	-	-	18.903	-
	2467	12	-	18.96	-	-	18.916	-
	2472	13	-	18.99	-	-	18.948	-
EHT20 SU	2412	1	-	19.03	-	-	18.902	-
	2437	6	-	19.06	-	-	18.945	-
	2462	11	-	18.99	-	-	18.878	-
	2467	12	-	18.94	-	-	18.894	-
	2472	13	-	18.98	-	-	18.929	-
EHT20 52T+26T	2412	1	15.12	15.13	15.08	16.962	16.991	16.999
	2437	6	15.14	15.13	15.14	17.206	17.222	17.165
	2462	11	15.06	15.11	15.14	16.951	16.899	17.121
	2467	12	15.08	15.10	15.16	17.008	17.018	17.194
	2472	13	15.12	15.11	15.13	17.071	17.153	17.229
EHT20 106T+26T	2412	1	17.33	-	17.19	18.124	-	18.028
	2437	6	17.33	-	17.21	18.206	-	18.203
	2462	11	17.16	-	17.15	17.985	-	18.163
	2467	12	17.16	-	18.35	17.968	-	18.196
	2472	13	17.12	-	18.38	18.002	-	18.231

[ANT.2]

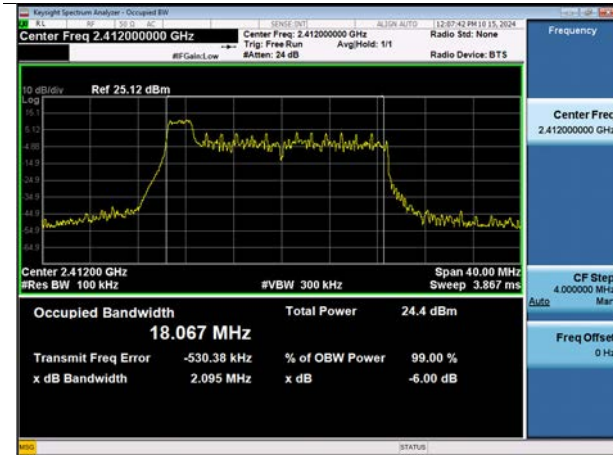
Mode	Freq. [MHz]	CH.	6dB Bandwidth [MHz]			99% Occupied Bandwidth [MHz]		
			RU Index : Low	RU Index : Mid	RU Index : High	RU Index : Low	RU Index : Mid	RU Index : High
			ANT2	ANT2	ANT2	ANT2	ANT2	ANT2
EHT20 26T	2412	1	2.058	2.657	2.106	18.165	16.970	17.927
	2437	6	2.056	2.692	2.113	17.843	17.139	18.104
	2462	11	2.123	2.671	2.112	18.096	16.917	17.985
	2467	12	2.047	2.667	2.108	17.940	16.834	17.983
	2472	13	2.065	2.706	17.00	17.796	16.874	18.231
EHT20 52T	2412	1	17.02	14.99	4.520	18.151	17.030	17.885
	2437	6	4.484	15.02	17.03	17.923	17.136	17.985
	2462	11	17.03	15.07	4.073	18.046	17.020	17.895
	2467	12	14.48	13.80	16.98	17.910	16.937	17.980
	2472	13	4.477	6.240	17.03	17.746	16.812	18.192
EHT20 106T	2412	1	17.19	-	17.16	18.214	-	17.967
	2437	6	17.21	-	17.20	18.045	-	18.225
	2462	11	17.20	-	17.16	18.161	-	18.008
	2467	12	17.19	-	17.16	18.018	-	18.083
	2472	13	17.17	-	18.36	17.900	-	18.198
EHT20 242T	2412	1	-	18.99	-	-	18.921	-
	2437	6	-	19.01	-	-	18.958	-
	2462	11	-	19.03	-	-	18.924	-
	2467	12	-	18.99	-	-	18.906	-
	2472	13	-	18.93	-	-	18.904	-
EHT20 SU	2412	1	-	18.98	-	-	18.899	-
	2437	6	-	19.00	-	-	18.929	-
	2462	11	-	19.00	-	-	18.892	-
	2467	12	-	18.98	-	-	18.873	-
	2472	13	-	18.76	-	-	18.890	-
EHT20 52T+26T	2412	1	15.15	15.13	15.09	17.123	17.086	17.029
	2437	6	15.15	15.12	15.15	17.154	17.162	17.244
	2462	11	15.15	15.13	15.12	17.079	17.008	17.015
	2467	12	15.11	15.13	15.15	16.977	16.978	17.057
	2472	13	15.09	15.10	15.15	16.912	16.979	17.169
EHT20 106T+26T	2412	1	18.36	-	17.18	18.193	-	17.932
	2437	6	17.13	-	18.39	18.092	-	18.222
	2462	11	18.33	-	17.17	18.168	-	18.046
	2467	12	17.18	-	17.18	18.019	-	18.138
	2472	13	17.09	-	18.32	17.923	-	18.200

Test Plots

Note: In order to simplify the report, attached plots were only the most narrow 6 dB BW channel.

ANT.1

BW20M Ch.1(2412 MHz) RU 0

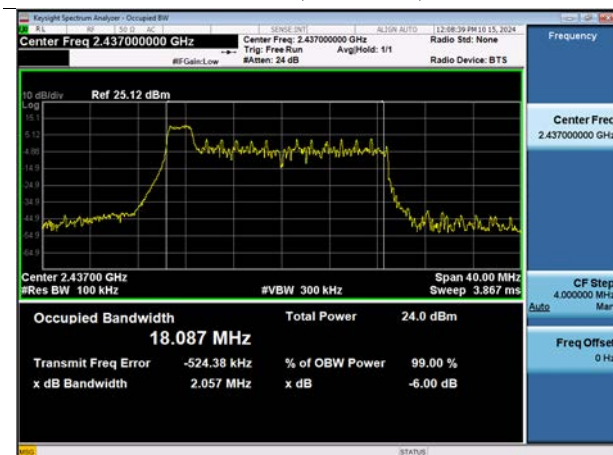


ANT.2

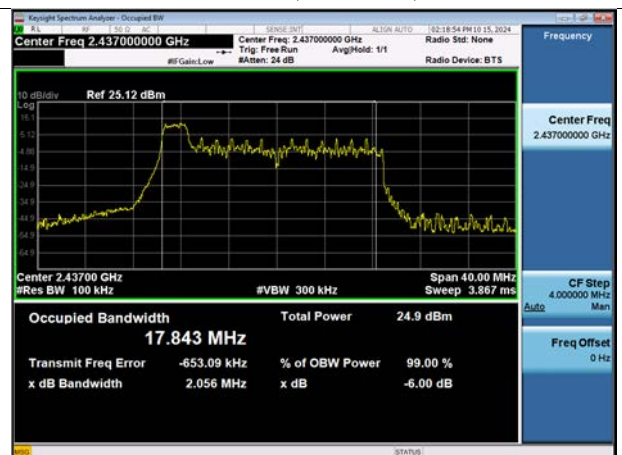
BW20M Ch.1(2412 MHz) RU 0



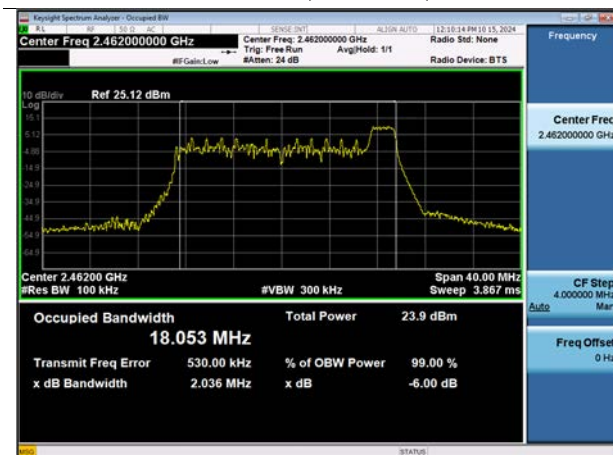
BW20M Ch.6(2437 MHz) RU 0



BW20M Ch.6(2437 MHz) RU 0

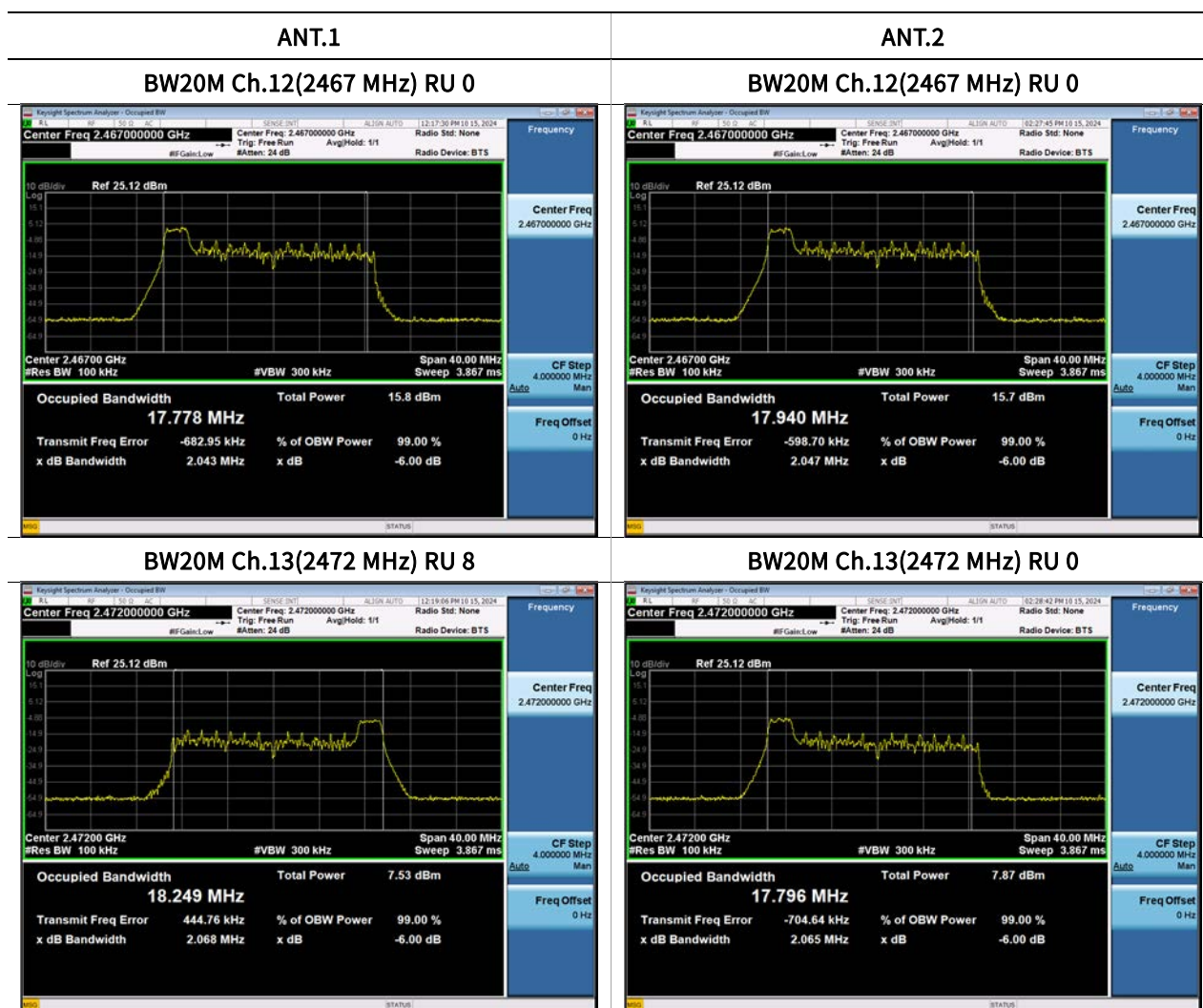


BW20M Ch.11(2462 MHz) RU 8



BW20M Ch.11(2462 MHz) RU 8





9.3 OUTPUT POWER

Note:

1. MIMO Peak Power = $10 \cdot \log((10^{\text{Ant.1 Peak power}/10}) + (10^{\text{Ant.2 Peak power}/10}))$

Peak Power

[MIMO_CDD(Ant.1+Ant.2)]

Mode	Freq. [MHz]	CH.	Total Peak Power [dBm]									Limit [dBm]
			RU Index : Low			RU Index : Mid			RU Index : High			
			ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	
EHT20 26T	2412	1	22.87	22.11	25.52	23.05	22.69	25.88	23.00	23.13	26.07	30
	2437	6	22.36	23.06	25.73	21.81	22.04	24.94	22.61	22.18	25.41	30
	2462	11	22.92	22.30	25.63	22.61	22.37	25.50	22.38	23.04	25.73	30
	2467	12	14.09	13.85	16.98	13.37	13.89	16.65	12.78	13.48	16.15	30
	2472	13	7.01	5.91	9.51	5.88	5.20	8.57	6.04	4.43	8.32	30
EHT20 52T	2412	1	23.75	22.64	26.24	23.93	22.96	26.48	24.03	24.08	27.06	30
	2437	6	22.94	23.92	26.47	22.66	23.35	26.03	23.48	23.27	26.39	30
	2462	11	23.82	23.34	26.60	23.81	23.43	26.64	23.28	23.98	26.65	30
	2467	12	13.99	13.85	16.93	13.76	13.67	16.73	12.97	13.62	16.32	30
	2472	13	6.97	5.84	9.45	6.46	5.43	8.99	6.08	4.61	8.42	30
EHT20 106T	2412	1	24.60	23.68	27.18	-	-	-	24.65	24.72	27.70	30
	2437	6	23.84	24.36	27.12	-	-	-	23.98	23.96	26.98	30
	2462	11	24.59	24.12	27.37	-	-	-	24.20	24.65	27.44	30
	2467	12	13.71	13.59	16.66	-	-	-	12.73	13.53	16.16	30
	2472	13	7.16	6.12	9.88	-	-	-	6.57	5.38	9.03	30
EHT20 242T	2412	1	-	-	-	22.26	21.71	25.01	-	-	-	30
	2437	6	-	-	-	22.56	22.78	25.69	-	-	-	30
	2462	11	-	-	-	21.60	21.69	24.65	-	-	-	30
	2467	12	-	-	-	12.06	12.36	15.22	-	-	-	30
	2472	13	-	-	-	5.89	5.15	8.55	-	-	-	30
EHT20 SU	2412	1	-	-	-	22.89	22.50	25.71	-	-	-	30
	2437	6	-	-	-	22.28	22.65	25.48	-	-	-	30
	2462	11	-	-	-	22.94	22.81	25.88	-	-	-	30
	2467	12	-	-	-	11.65	11.99	14.84	-	-	-	30
	2472	13	-	-	-	5.94	5.13	8.56	-	-	-	30
EHT20 52T+26T	2412	1	23.34	23.50	26.43	23.45	23.56	26.52	23.38	23.83	26.62	30
	2437	6	23.36	23.87	26.63	23.26	23.84	26.57	23.49	23.65	26.58	30
	2462	11	23.47	23.83	26.66	23.32	23.85	26.60	23.95	23.81	26.89	30
	2467	12	15.52	15.26	18.40	15.12	15.17	18.16	14.61	15.09	17.87	30
	2472	13	8.02	7.05	10.57	7.71	6.86	10.32	7.52	6.25	9.94	30
EHT20 106T+26T	2412	1	23.62	23.85	26.75	-	-	-	23.78	23.59	26.70	30
	2437	6	23.76	23.25	26.52	-	-	-	23.12	23.59	26.37	30
	2462	11	23.66	23.05	26.38	-	-	-	23.42	23.64	26.54	30
	2467	12	14.55	14.61	17.59	-	-	-	14.22	14.81	17.53	30
	2472	13	7.94	7.31	10.65	-	-	-	7.38	6.69	10.06	30

Average Power

[MIMO_CDD(Ant.1+Ant.2)]

Note:

1. Total Power [dBm] = Measured Power [dBm] + Duty Cycle Factor [dB]

Mode	Freq. [MHz]	CH.	Total Average Power [dBm]									Limit [dBm]
			RU Index : Low			RU Index : Mid			RU Index : High			
			ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	
EHT20 26T	2412	1	14.52	13.80	17.19	14.82	14.44	17.64	14.64	14.89	17.78	30
	2437	6	14.35	15.29	17.86	13.76	14.33	17.06	14.62	14.45	17.55	30
	2462	11	14.85	14.38	17.63	14.59	14.65	17.63	13.82	14.88	17.39	30
	2467	12	5.88	3.12	7.73	4.22	2.98	6.65	3.51	2.24	5.93	30
	2472	13	-0.53	-1.92	1.84	-1.71	-2.69	0.84	-1.90	-4.13	0.14	30
EHT20 52T	2412	1	15.70	14.73	18.25	15.89	15.04	18.50	15.87	15.83	18.86	30
	2437	6	15.35	15.81	18.60	15.06	15.80	18.46	15.56	15.23	18.41	30
	2462	11	15.85	15.45	18.66	15.87	15.55	18.72	15.09	15.89	18.52	30
	2467	12	5.89	3.27	7.78	4.59	3.06	6.90	3.55	2.39	6.02	30
	2472	13	-0.73	-1.81	1.77	-1.48	-2.19	1.19	-2.40	-3.99	-0.11	30
EHT20 106T	2412	1	16.89	15.95	19.46	-	-	-	16.85	16.87	19.87	30
	2437	6	16.05	16.88	19.50	-	-	-	16.30	16.34	19.33	30
	2462	11	16.83	16.51	19.68	-	-	-	16.32	16.86	19.61	30
	2467	12	5.85	2.72	7.57	-	-	-	3.05	2.16	5.64	30
	2472	13	-0.34	-0.94	2.38	-	-	-	-1.68	-2.54	0.92	30
EHT20 242T	2412	1	-	-	-	15.75	15.40	18.59	-	-	-	30
	2437	6	-	-	-	16.09	16.59	19.36	-	-	-	30
	2462	11	-	-	-	15.05	15.18	18.13	-	-	-	30
	2467	12	-	-	-	5.38	5.70	8.55	-	-	-	30
	2472	13	-	-	-	-0.67	-1.50	1.95	-	-	-	30
EHT20 SU	2412	1	-	-	-	16.45	15.86	19.18	-	-	-	30
	2437	6	-	-	-	15.57	16.13	18.87	-	-	-	30
	2462	11	-	-	-	16.24	16.20	19.23	-	-	-	30
	2467	12	-	-	-	4.90	5.16	8.04	-	-	-	30
	2472	13	-	-	-	-0.95	-1.65	1.72	-	-	-	30
EHT20 52T+26T	2412	1	15.78	15.24	18.53	15.84	15.40	18.64	15.86	15.85	18.87	30
	2437	6	15.04	15.86	18.48	14.90	15.85	18.41	15.11	15.52	18.33	30
	2462	11	15.83	15.82	18.84	15.79	15.88	18.85	15.44	15.89	18.68	30
	2467	12	5.77	5.86	8.83	5.65	5.83	8.75	4.81	5.87	8.38	30
	2472	13	-1.30	-1.94	1.40	-1.63	-2.02	1.19	-2.15	-2.59	0.65	30
EHT20 106T+26T	2412	1	16.84	15.21	19.11	-	-	-	16.88	16.07	19.50	30
	2437	6	16.18	16.12	19.16	-	-	-	16.23	15.50	18.89	30
	2462	11	16.87	15.79	19.37	-	-	-	16.37	16.23	19.31	30
	2467	12	5.77	5.88	8.84	-	-	-	4.83	5.83	8.37	30
	2472	13	-0.51	-1.29	2.13	-	-	-	-1.67	-2.25	1.06	30

9.4 POWER SPECTRAL DENSITY

Note :

1. MIMO Total PSD = $10 \cdot \log(((10^{\text{Ant.1 PSD}/10}) + (10^{\text{Ant.2 PSD}/10})))$
2. Total PSD = Measured Value + Duty Cycle Factor

[MIMO_CDD(Ant.1+Ant.2)]

Mode	Freq. [MHz]	CH.	Total Power Spectral Density [dBm/MHz]									Limit [dBm/3 kHz]
			RU Index : Low			RU Index : Mid			RU Index : High			
			ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	
EHT20 26T	2412	1	-2.446	-3.583	0.033	-2.003	-2.658	0.692	-2.282	-1.981	0.881	8
	2437	6	-2.807	-1.711	0.786	-3.508	-2.827	-0.144	-2.542	-2.683	0.398	8
	2462	11	-2.186	-2.769	0.543	-2.450	-2.414	0.578	-3.308	-1.999	0.406	8
	2467	12	-10.745	-11.286	-7.997	-11.796	-11.303	-8.532	-12.779	-11.579	-9.127	8
	2472	13	-17.708	-18.811	-15.214	-19.437	-19.882	-16.644	-19.598	-20.992	-17.229	8
EHT20 52T	2412	1	-4.348	-5.324	-1.798	-4.248	-5.030	-1.611	-4.052	-3.837	-0.933	8
	2437	6	-4.854	-3.640	-1.194	-5.202	-4.220	-1.673	-4.644	-4.512	-1.567	8
	2462	11	-4.027	-4.553	-1.272	-4.089	-4.336	-1.200	-4.857	-3.829	-1.302	8
	2467	12	-13.718	-14.042	-10.867	-14.269	-13.996	-11.120	-15.559	-14.379	-11.919	8
	2472	13	-20.801	-21.874	-18.294	-21.552	-22.156	-18.833	-22.454	-23.851	-20.086	8
EHT20 106T	2412	1	-5.776	-6.693	-3.200	-	-	-	-6.026	-5.491	-2.740	8
	2437	6	-6.574	-5.549	-3.021	-	-	-	-6.130	-6.412	-3.258	8
	2462	11	-5.749	-6.376	-3.041	-	-	-	-6.531	-5.574	-3.016	8
	2467	12	-16.471	-16.825	-13.634	-	-	-	-18.152	-17.094	-14.581	8
	2472	13	-23.128	-24.020	-20.541	-	-	-	-24.551	-25.220	-21.862	8
EHT20 242T	2412	1	-	-	-	-9.856	-9.969	-6.902	-	-	-	8
	2437	6	-	-	-	-9.636	-8.958	-6.273	-	-	-	8
	2462	11	-	-	-	-10.608	-10.127	-7.351	-	-	-	8
	2467	12	-	-	-	-19.695	-20.103	-16.884	-	-	-	8
	2472	13	-	-	-	-25.307	-26.313	-22.771	-	-	-	8
EHT20 SU	2412	1	-	-	-	-10.318	-10.423	-7.360	-	-	-	8
	2437	6	-	-	-	-11.104	-10.301	-7.674	-	-	-	8
	2462	11	-	-	-	-10.521	-10.409	-7.454	-	-	-	8
	2467	12	-	-	-	-21.398	-21.312	-18.344	-	-	-	8
	2472	13	-	-	-	-26.813	-27.716	-24.231	-	-	-	8
EHT20 52T+26T	2412	1	-6.423	-6.423	-2.934	-5.505	-6.278	-2.864	-5.698	-5.495	-2.585	8
	2437	6	-6.380	-5.464	-2.888	-6.692	-6.009	-3.327	-6.324	-6.465	-3.384	8
	2462	11	-5.247	-5.974	-2.585	-5.493	-6.007	-2.732	-6.250	-5.599	-2.902	8
	2467	12	-15.308	-15.335	-12.311	-15.711	-15.808	-12.749	-16.814	-16.095	-13.429	8
	2472	13	-22.663	-23.805	-20.186	-23.126	-24.081	-20.567	-23.949	-24.931	-21.402	8
EHT20 106T+26T	2412	1	-6.923	-7.496	-4.190	-	-	-	-6.670	-6.658	-3.654	8
	2437	6	-7.323	-6.557	-3.913	-	-	-	-7.179	-7.573	-4.361	8
	2462	11	-6.733	-7.306	-4.000	-	-	-	-6.965	-6.796	-3.869	8
	2467	12	-17.495	-17.808	-14.638	-	-	-	-18.519	-17.704	-15.082	8
	2472	13	-23.940	-24.717	-21.301	-	-	-	-25.283	-25.806	-22.526	8

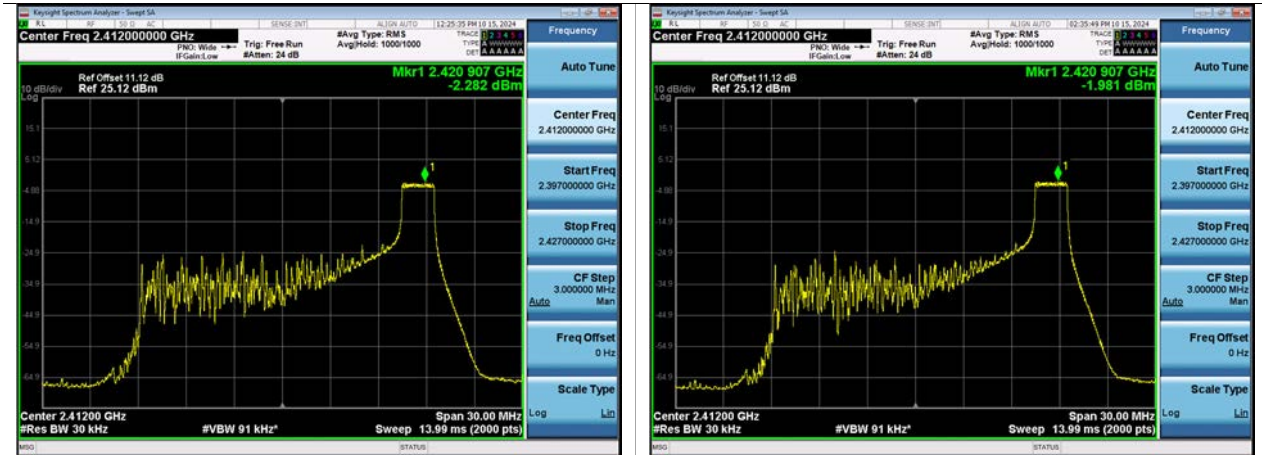
Test Plots

Note: In order to simplify the report, attached plots were only the worst case PSD channel.

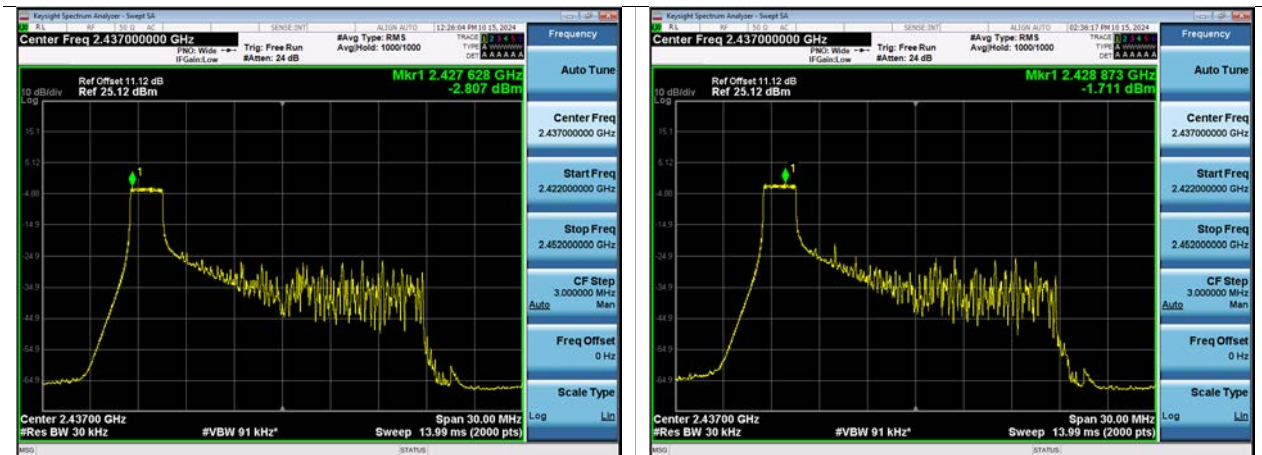
ANT.1

ANT.2

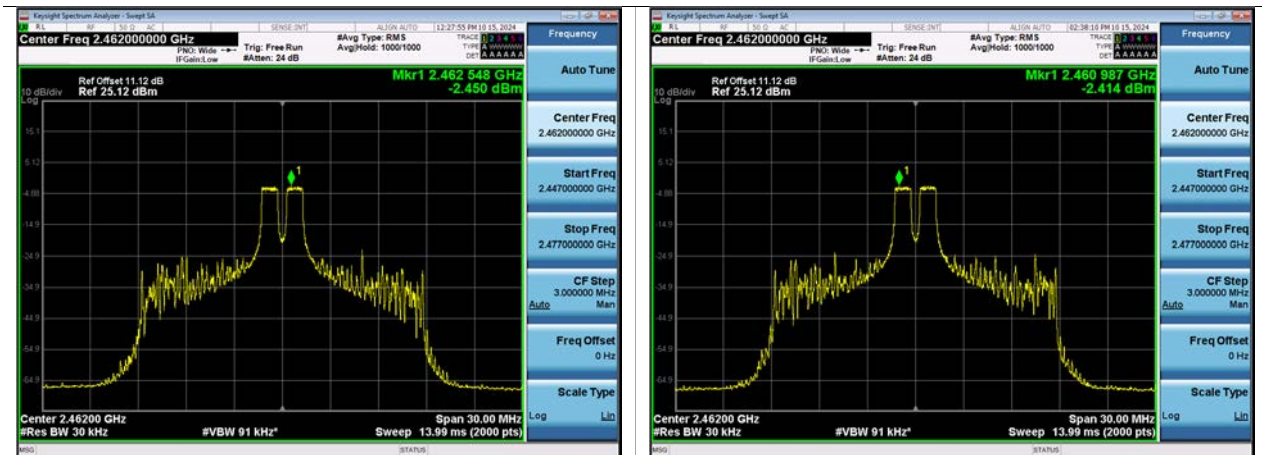
BW20M Ch.1(2412 MHz) RU 8



BW20M Ch.6(2437 MHz) RU 0



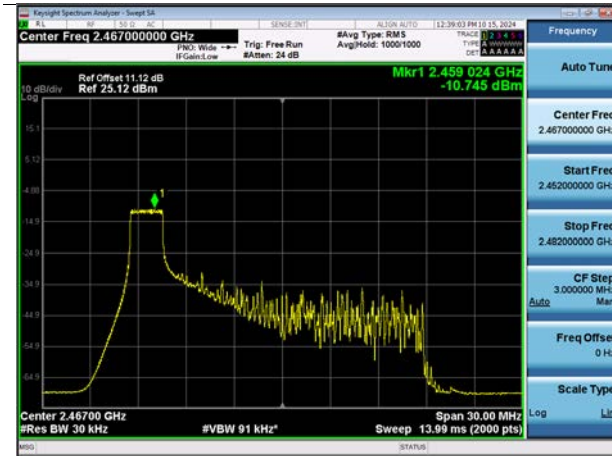
BW20M Ch.11(2462 MHz) RU 4



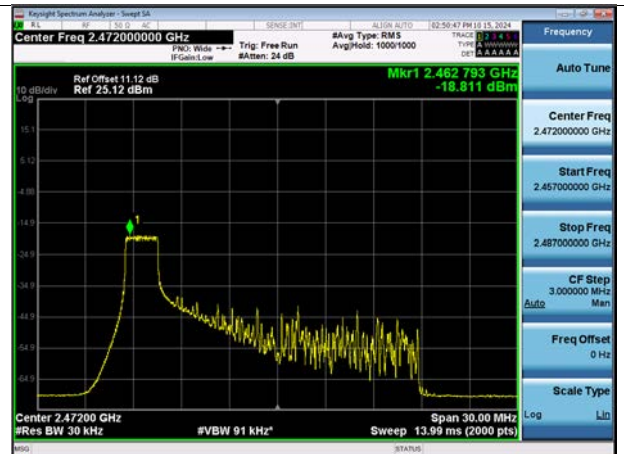
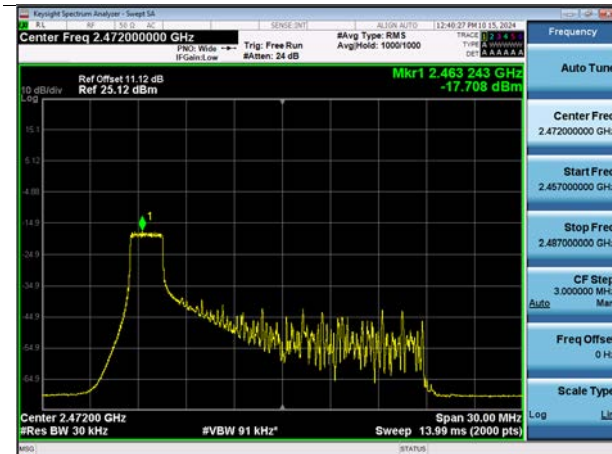
ANT.1

ANT.2

BW20M Ch.12(2467 MHz) RU 0



BW20M Ch.13(2472 MHz) RU 0



9.5 BAND EDGE / CONDUCTED SPURIOUS EMISSIONS

Band Edge

Limit : 30 dBc

[ANT.1]

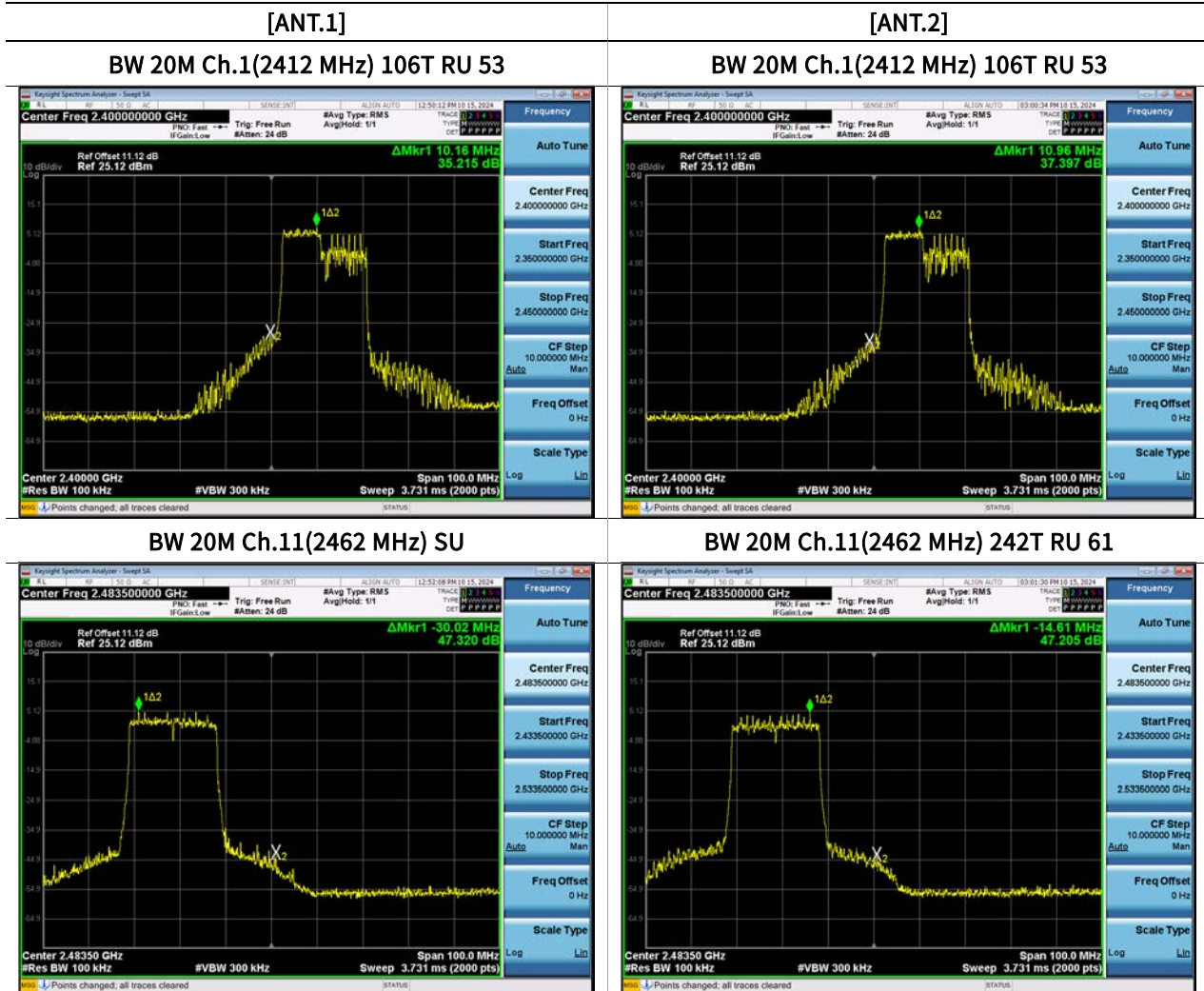
Mode	Freq. [MHz]	CH.	RU Index	Measured Position	Band edge [dB]
EHT20 26T	2412	1	Low	Lowest Bandedge	49.737
	2462	11	High	Highest Bandedge	59.123
	2467	12	High	Highest Bandedge	53.243
	2472	13	High	Highest Bandedge	44.376
EHT20 52T	2412	1	Low	Lowest Bandedge	36.952
	2462	11	High	Highest Bandedge	56.686
	2467	12	High	Highest Bandedge	52.217
	2472	13	High	Highest Bandedge	40.672
EHT20 106T	2412	1	Low	Lowest Bandedge	35.215
	2462	11	High	Highest Bandedge	47.852
	2467	12	High	Highest Bandedge	48.303
	2472	13	High	Highest Bandedge	42.131
EHT20 242T	2412	1	Low	Lowest Bandedge	41.673
	2462	11	High	Highest Bandedge	49.619
	2467	12	High	Highest Bandedge	47.806
	2472	13	High	Highest Bandedge	41.422
EHT20 SU	2412	1	Low	Lowest Bandedge	42.108
	2462	11	High	Highest Bandedge	47.320
	2467	12	High	Highest Bandedge	47.862
	2472	13	High	Highest Bandedge	42.208
EHT20 52T+26T	2412	1	Low	Lowest Bandedge	40.269
	2462	11	High	Highest Bandedge	53.196
	2467	12	High	Highest Bandedge	49.103
	2472	13	High	Highest Bandedge	43.204
EHT20 106T+26T	2412	1	Low	Lowest Bandedge	38.227
	2462	11	High	Highest Bandedge	48.316
	2467	12	High	Highest Bandedge	47.789
	2472	13	High	Highest Bandedge	41.140

[ANT.2]

Mode	Freq. [MHz]	CH.	RU Index	Measured Position	Band edge [dB]
EHT20 26T	2412	1	Low	Lowest Bandedge	50.813
	2462	11	High	Highest Bandedge	61.175
	2467	12	High	Highest Bandedge	54.176
	2472	13	High	Highest Bandedge	45.236
EHT20 52T	2412	1	Low	Lowest Bandedge	38.165
	2462	11	High	Highest Bandedge	56.448
	2467	12	High	Highest Bandedge	51.834
	2472	13	High	Highest Bandedge	43.715
EHT20 106T	2412	1	Low	Lowest Bandedge	37.397
	2462	11	High	Highest Bandedge	48.026
	2467	12	High	Highest Bandedge	49.115
	2472	13	High	Highest Bandedge	41.057
EHT20 242T	2412	1	Low	Lowest Bandedge	42.075
	2462	11	High	Highest Bandedge	47.205
	2467	12	High	Highest Bandedge	47.298
	2472	13	High	Highest Bandedge	41.226
EHT20 SU	2412	1	Low	Lowest Bandedge	41.122
	2462	11	High	Highest Bandedge	48.441
	2467	12	High	Highest Bandedge	47.647
	2472	13	High	Highest Bandedge	40.887
EHT20 52T+26T	2412	1	Low	Lowest Bandedge	43.675
	2462	11	High	Highest Bandedge	53.953
	2467	12	High	Highest Bandedge	50.646
	2472	13	High	Highest Bandedge	41.655
EHT20 106T+26T	2412	1	Low	Lowest Bandedge	39.721
	2462	11	High	Highest Bandedge	47.440
	2467	12	High	Highest Bandedge	48.242
	2472	13	High	Highest Bandedge	40.936

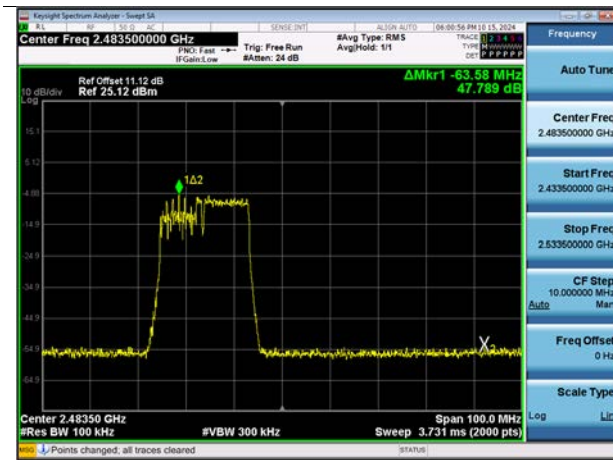
Test Plots

Note: In order to simplify the report, attached plots were only the worst case.



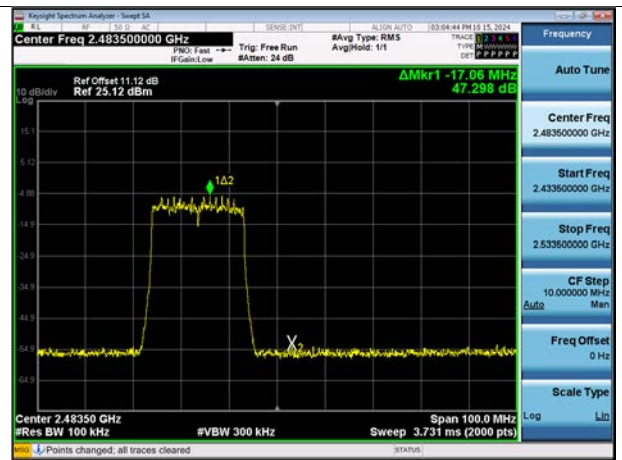
[ANT.1]

BW 20M Ch.12(2467 MHz) 106T+26T RU 83

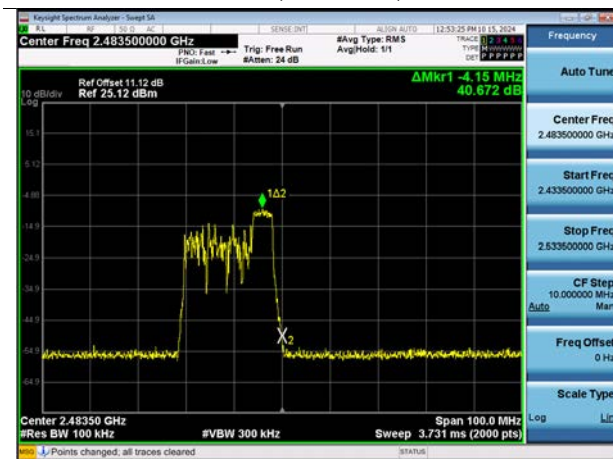


[ANT.2]

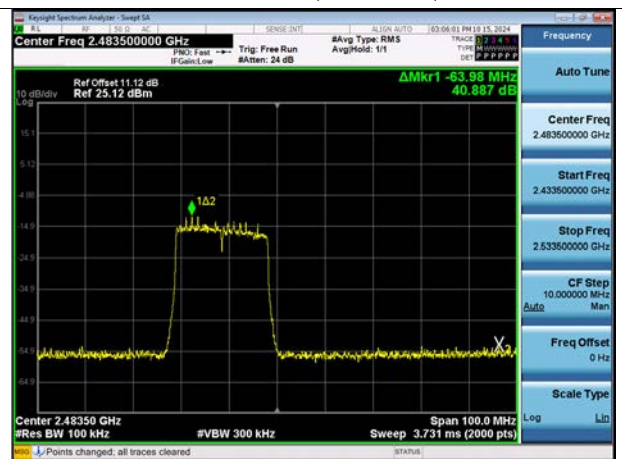
BW 20M Ch.12(2467 MHz) 242T RU 61



BW 20M Ch.13(2472 MHz) 52T RU 40



BW 20M Ch.13(2472 MHz) SU



Conducted Spurious Emissions

Limit : 30 dBc

[ANT.1]

Mode	Freq. [MHz]	CH.	Conducted Spurious Emissions [dB]		
			RU Index : Low	RU Index : Mid	RU Index : High
			ANT1	ANT1	ANT1
EHT20 26T	2412	1	63.212	65.405	63.428
	2437	6	62.429	60.719	62.257
	2462	11	62.224	61.778	62.858
	2467	12	53.249	54.124	53.272
	2472	13	45.916	46.242	46.029
EHT20 52T	2412	1	60.599	62.269	62.504
	2437	6	61.273	60.771	61.885
	2462	11	60.555	61.394	60.737
	2467	12	53.137	51.798	51.368
	2472	13	43.502	45.676	43.874
EHT20 106T	2412	1	59.849	-	59.539
	2437	6	59.109	-	58.487
	2462	11	60.302	-	59.328
	2467	12	49.970	-	47.973
	2472	13	42.860	-	42.013
EHT20 242T	2412	1	-	56.324	-
	2437	6	-	58.357	-
	2462	11	-	53.623	-
	2467	12	-	46.625	-
	2472	13	-	41.812	-
EHT20 SU	2412	1	-	59.263	-
	2437	6	-	57.320	-
	2462	11	-	59.342	-
	2467	12	-	44.428	-
	2472	13	-	40.262	-
EHT20 52T+26T	2412	1	53.271	54.113	53.525
	2437	6	52.228	53.464	51.673
	2462	11	53.451	52.986	53.155
	2467	12	45.961	44.449	41.901
	2472	13	36.408	36.796	36.086
EHT20 106T+52T	2412	1	52.756	-	52.883
	2437	6	54.213	-	52.928
	2462	11	52.793	-	52.615
	2467	12	42.527	-	41.578
	2472	13	35.796	-	34.802

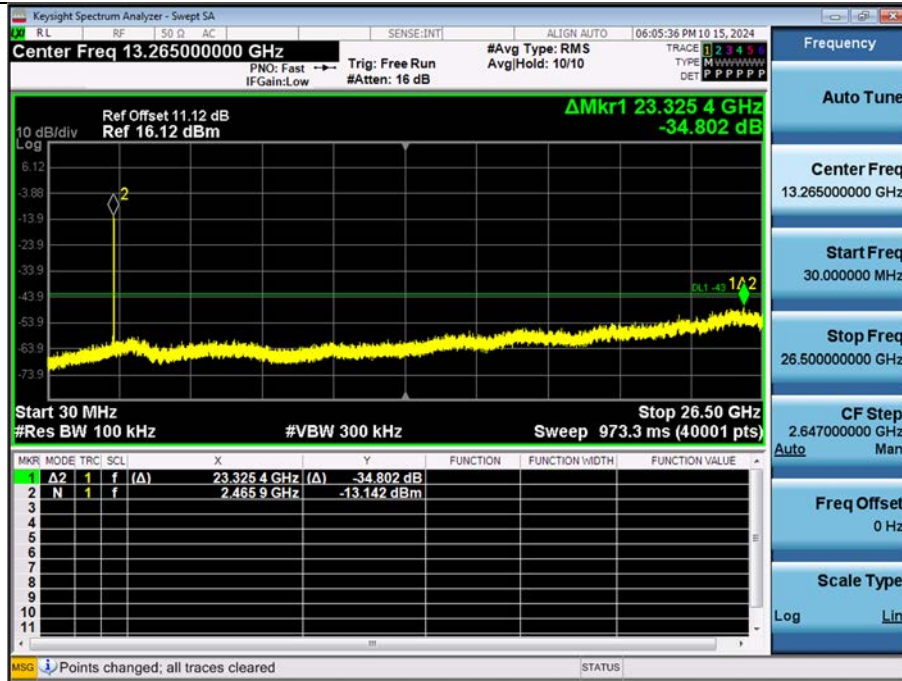
[ANT.2]

Mode	Freq. [MHz]	CH.	Conducted Spurious Emissions [dB]		
			RU Index : Low	RU Index : Mid	RU Index : High
			ANT2	ANT2	ANT2
EHT20 26T	2412	1	55.568	55.025	55.944
	2437	6	57.619	56.091	55.309
	2462	11	55.847	55.215	54.795
	2467	12	47.268	49.584	48.543
	2472	13	37.883	38.883	37.735
EHT20 52T	2412	1	55.941	53.269	56.838
	2437	6	55.820	55.193	54.329
	2462	11	54.608	54.244	53.988
	2467	12	45.328	45.467	44.699
	2472	13	37.446	36.340	35.240
EHT20 106T	2412	1	50.124	-	53.039
	2437	6	53.290	-	52.895
	2462	11	55.106	-	53.556
	2467	12	43.528	-	42.185
	2472	13	34.431	-	34.683
EHT20 242T	2412	1	-	46.197	-
	2437	6	-	50.886	-
	2462	11	-	49.302	-
	2467	12	-	41.058	-
	2472	13	-	34.035	-
EHT20 SU	2412	1	-	47.456	-
	2437	6	-	48.149	-
	2462	11	-	53.421	-
	2467	12	-	39.542	-
	2472	13	-	34.449	-
EHT20 52T+26T	2412	1	51.874	52.835	52.933
	2437	6	54.730	54.185	52.077
	2462	11	52.337	53.715	53.806
	2467	12	44.011	43.720	44.829
	2472	13	35.849	34.291	34.641
EHT20 106T+52T	2412	1	51.630	-	52.919
	2437	6	53.864	-	52.188
	2462	11	52.685	-	54.434
	2467	12	41.643	-	42.208
	2472	13	35.631	-	33.380

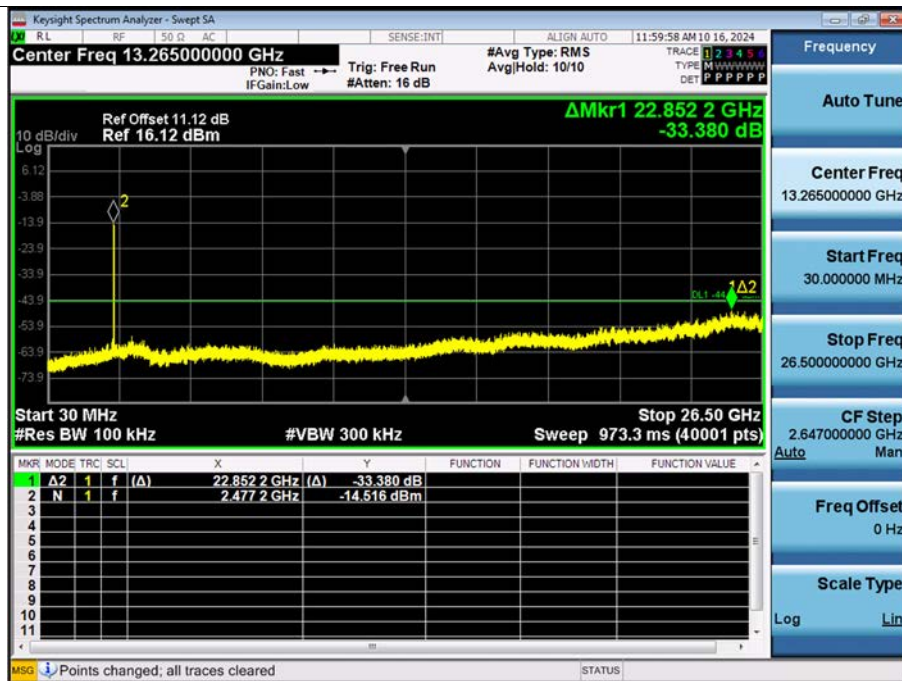
Test Plots

Note: In order to simplify the report, attached plots were only the worst case.

[ANT.1] BW 20M Ch.13(2 472 MHz) 106T+52T RU 83



[ANT.2] BW 20M Ch.13(2 472 MHz) 106T+52T RU 83



Limit

ANT.1 : -43.142 dBm, ANT.2 : -44.516 dBm

9.6 RADIATED SPURIOUS EMISSIONS

Frequency Range : 9 kHz – 30 MHz

Frequency	Measured Value	A.F+C.L+D.F	POL	Total	Limit	Margin
[MHz]	[dBμV/m]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]

No Critical peaks found

Note:

1. The Measured of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
2. Distance extrapolation factor = $40\log(\text{specific distance} / \text{test distance})$ (dB)
3. Limit line = specific Limits (dB V) + Distance extrapolation factor

Frequency Range : Below 1 GHz

Frequency	Measured Value	A.F+C.L	POL	Total	Limit	Margin
[MHz]	[dBμV/m]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]

No Critical peaks found

Note:

1. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Quasi peak detector mode.

Frequency Range : Above 1 GHz

[MIMO_CDD(Ant.1+Ant.2)]

[SRU]

Band :		Operation Mode :		802.11be_EHT20 MCS0 26T RU 4			
CH.1		Transfer Rate :		MCS0			
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4824	43.84	4.15	V	47.99	73.98	25.99	PK
4824	32.47	4.15	V	36.62	53.98	17.36	AV
7236	39.07	13.01	V	52.08	73.98	21.90	PK
7236	26.78	13.01	V	39.79	53.98	14.19	AV
4824	44.06	4.15	H	48.21	73.98	25.77	PK
4824	32.67	4.15	H	36.82	53.98	17.16	AV
7236	38.71	13.01	H	51.72	73.98	22.26	PK
7236	26.77	13.01	H	39.78	53.98	14.20	AV

Band :		Operation Mode :		802.11be_EHT20 MCS0 26T RU 4			
CH.6		Transfer Rate :		MCS0			
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4874	44.66	4.11	V	48.77	73.98	25.21	PK
4874	32.67	4.11	V	36.78	53.98	17.20	AV
7311	40.09	12.33	V	52.42	73.98	21.56	PK
7311	27.52	12.33	V	39.85	53.98	14.13	AV
4874	44.93	4.11	H	49.04	73.98	24.94	PK
4874	32.82	4.11	H	36.93	53.98	17.05	AV
7311	39.92	12.33	H	52.25	73.98	21.73	PK
7311	27.33	12.33	H	39.66	53.98	14.32	AV

Band :		Operation Mode :		802.11be_EHT20 MCS0 26T RU 4			
CH.11		Transfer Rate :		MCS0			
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4924	44.41	5.10	V	49.51	73.98	24.47	PK
4924	32.05	5.10	V	37.15	53.98	16.83	AV
7386	39.46	12.74	V	52.20	73.98	21.78	PK
7386	27.76	12.74	V	40.50	53.98	13.48	AV
4924	43.83	5.10	H	48.93	73.98	25.05	PK
4924	32.08	5.10	H	37.18	53.98	16.80	AV
7386	39.38	12.74	H	52.12	73.98	21.86	PK
7386	27.52	12.74	H	40.26	53.98	13.72	AV

Band :		Operation Mode :		802.11be_EHT20 MCS0 242T RU 61			
CH.1		Transfer Rate :		MCS0			
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4824	44.36	4.15	V	48.51	73.98	25.47	PK
4824	32.56	4.15	V	36.71	53.98	17.27	AV
7236	38.82	13.01	V	51.83	73.98	22.15	PK
7236	26.89	13.01	V	39.90	53.98	14.08	AV
4824	43.78	4.15	H	47.93	73.98	26.05	PK
4824	32.87	4.15	H	37.02	53.98	16.96	AV
7236	39.36	13.01	H	52.37	73.98	21.61	PK
7236	26.93	13.01	H	39.94	53.98	14.04	AV

Band :		Operation Mode :		802.11be_EHT20 MCS0 242T RU 61			
CH.6		Transfer Rate :		MCS0			
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4874	44.05	4.11	V	48.16	73.98	25.82	PK
4874	32.82	4.11	V	36.93	53.98	17.05	AV
7311	39.70	12.33	V	52.03	73.98	21.95	PK
7311	27.45	12.33	V	39.78	53.98	14.20	AV
4874	43.95	4.11	H	48.06	73.98	25.92	PK
4874	33.22	4.11	H	37.33	53.98	16.65	AV
7311	39.35	12.33	H	51.68	73.98	22.30	PK
7311	27.64	12.33	H	39.97	53.98	14.01	AV

Band :		Operation Mode :		802.11be_EHT20 MCS0 242T RU 61			
CH.11		Transfer Rate :		MCS0			
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4924	43.70	5.10	V	48.80	73.98	25.18	PK
4924	32.21	5.10	V	37.31	53.98	16.67	AV
7386	40.12	12.74	V	52.86	73.98	21.12	PK
7386	27.69	12.74	V	40.43	53.98	13.55	AV
4924	43.91	5.10	H	49.01	73.98	24.97	PK
4924	32.17	5.10	H	37.27	53.98	16.71	AV
7386	39.87	12.74	H	52.61	73.98	21.37	PK
7386	27.50	12.74	H	40.24	53.98	13.74	AV

[MRU]

Band :		DTS		Operation Mode :		802.11be_EHT20 MCS0 52+26T RU 71	
CH.1		2412		Transfer Rate :		MCS0	
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4824	44.66	4.15	V	48.81	73.98	25.17	PK
4824	32.42	4.15	V	36.57	53.98	17.41	AV
7236	38.95	13.01	V	51.96	73.98	22.02	PK
7236	26.79	13.01	V	39.80	53.98	14.18	AV
4824	43.95	4.15	H	48.10	73.98	25.88	PK
4824	32.93	4.15	H	37.08	53.98	16.90	AV
7236	38.61	13.01	H	51.62	73.98	22.36	PK
7236	26.84	13.01	H	39.85	53.98	14.13	AV

Band :		DTS		Operation Mode :		802.11be_EHT20 MCS0 52+26T RU 71	
CH.6		2437		Transfer Rate :		MCS0	
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4874	44.42	4.11	V	48.53	73.98	25.45	PK
4874	32.87	4.11	V	36.98	53.98	17.00	AV
7311	40.39	12.33	V	52.72	73.98	21.26	PK
7311	27.57	12.33	V	39.90	53.98	14.08	AV
4874	44.30	4.11	H	48.41	73.98	25.57	PK
4874	32.81	4.11	H	36.92	53.98	17.06	AV
7311	39.93	12.33	H	52.26	73.98	21.72	PK
7311	27.38	12.33	H	39.71	53.98	14.27	AV

Band :		DTS		Operation Mode :		802.11be_EHT20 MCS0 52+26T RU 71	
CH.11		2462		Transfer Rate :		MCS0	
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4924	43.99	5.10	V	49.09	73.98	24.89	PK
4924	32.24	5.10	V	37.34	53.98	16.64	AV
7386	39.75	12.74	V	52.49	73.98	21.49	PK
7386	27.61	12.74	V	40.35	53.98	13.63	AV
4924	43.42	5.10	H	48.52	73.98	25.46	PK
4924	32.15	5.10	H	37.25	53.98	16.73	AV
7386	39.26	12.74	H	52.00	73.98	21.98	PK
7386	27.46	12.74	H	40.20	53.98	13.78	AV

Band :		Operation Mode :		802.11be_EHT20 MCS0 106+26T RU 82			
CH.1		Transfer Rate :		MCS0			
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4824	43.96	4.15	V	48.11	73.98	25.87	PK
4824	32.37	4.15	V	36.52	53.98	17.46	AV
7236	38.86	13.01	V	51.87	73.98	22.11	PK
7236	26.76	13.01	V	39.77	53.98	14.21	AV
4824	43.97	4.15	H	48.12	73.98	25.86	PK
4824	32.96	4.15	H	37.11	53.98	16.87	AV
7236	39.28	13.01	H	52.29	73.98	21.69	PK
7236	26.77	13.01	H	39.78	53.98	14.20	AV

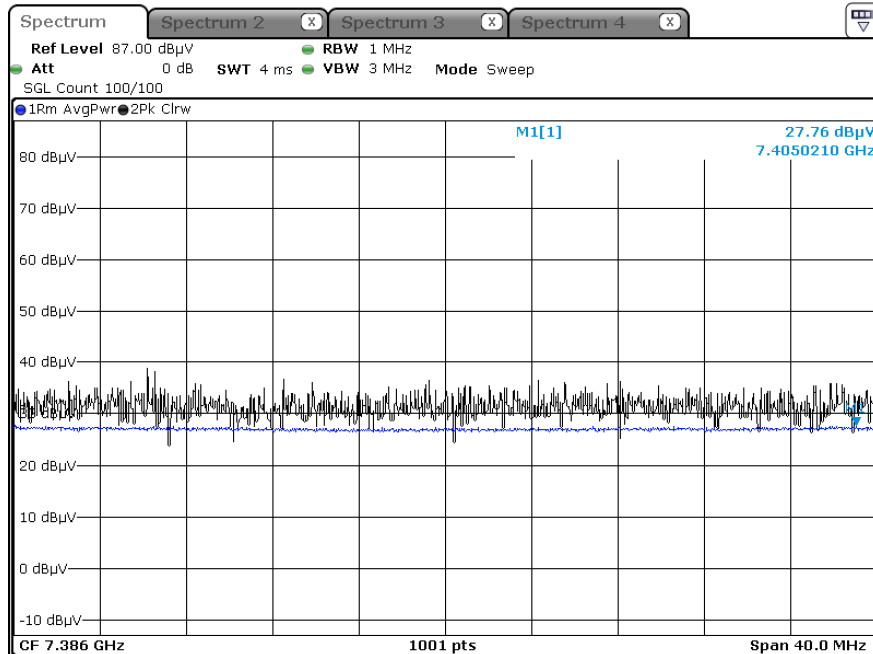
Band :		Operation Mode :		802.11be_EHT20 MCS0 106+26T RU 82			
CH.6		Transfer Rate :		MCS0			
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4874	44.27	4.11	V	48.38	73.98	25.60	PK
4874	32.84	4.11	V	36.95	53.98	17.03	AV
7311	40.07	12.33	V	52.40	73.98	21.58	PK
7311	27.56	12.33	V	39.89	53.98	14.09	AV
4874	44.06	4.11	H	48.17	73.98	25.81	PK
4874	32.81	4.11	H	36.92	53.98	17.06	AV
7311	39.23	12.33	H	51.56	73.98	22.42	PK
7311	27.44	12.33	H	39.77	53.98	14.21	AV

Band :		Operation Mode :		802.11be_EHT20 MCS0 106+26T RU 82			
CH.11		Transfer Rate :		MCS0			
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4924	43.64	5.10	V	48.74	73.98	25.24	PK
4924	32.06	5.10	V	37.16	53.98	16.82	AV
7386	39.75	12.74	V	52.49	73.98	21.49	PK
7386	27.63	12.74	V	40.37	53.98	13.61	AV
4924	43.93	5.10	H	49.03	73.98	24.95	PK
4924	31.97	5.10	H	37.07	53.98	16.91	AV
7386	40.01	12.74	H	52.75	73.98	21.23	PK
7386	27.50	12.74	H	40.24	53.98	13.74	AV

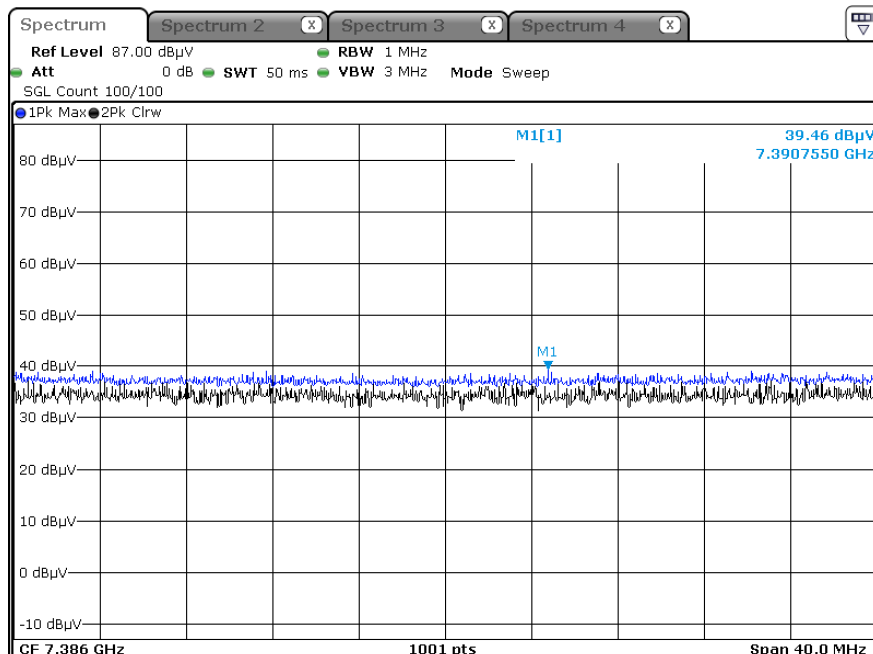
Test Plots(26T RU 4)

Note: In order to simplify, Plots of worst case are only reported.

Radiated Spurious Emissions plot – Average result (802.11be(EHT20), Ch.11 3rd Harmonic, X-V)



Radiated Spurious Emissions plot – Peak result (802. 11be(EHT20), Ch.11 3rd Harmonic, X-V)



9.7 RADIATED RESTRICTED BAND EDGES

Note : # integration method Used (ANSI C63.10 Section11.13.3)

[MIMO_CDD(Ant.1+Ant.2)]

[SRU]

802.11be(MCS0)		EHT20	26T				
Channel	CH 1	Freq	2412 MHz		SRU offset	0	
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
#2380.0~2390.0	26.77	34.73	H	61.50	73.98	12.48	PK
#2380.0~2390.0	10.55	34.73	H	45.28	53.98	8.70	AV
2310.0~2380.0	26.53	34.73	H	61.26	73.98	12.72	PK
2310.0~2380.0	9.87	34.73	H	44.60	53.98	9.38	AV

802.11be(MCS0)		EHT20	26T				
Channel	CH 11	Freq	2462 MHz		SRU offset	8	
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
2483.5	25.62	35.59	H	61.21	73.98	12.77	PK
2483.5	10.18	35.59	H	45.77	53.98	8.21	AV

802.11be(MCS0)		EHT20	26T				
Channel	CH 12	Freq	2467 MHz		SRU offset	8	
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
2483.5	21.51	35.59	H	57.10	73.98	16.88	PK
2483.5	9.79	35.59	H	45.38	53.98	8.60	AV

802.11be(MCS0)		EHT20	26T				
Channel	CH 13	Freq	2472 MHz		SRU offset	8	
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
2483.5	34.79	35.59	H	70.38	73.98	3.60	PK
2483.5	12.63	35.59	H	48.22	53.98	5.76	AV

802.11be(MCS0)		EHT20	52T				
Channel	CH 1	Freq	2412 MHz		SRU offset	37	
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
#2380.0~2390.0	31.40	34.73	H	66.13	73.98	7.85	PK
#2380.0~2390.0	12.63	34.73	H	47.36	53.98	6.62	AV
2310.0~2380.0	26.62	34.73	H	61.35	73.98	12.63	PK
2310.0~2380.0	10.37	34.73	H	45.10	53.98	8.88	AV

802.11be(MCS0)		EHT20	52T				
Channel	CH 11	Freq	2462 MHz		SRU offset	40	
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
2483.5	29.49	35.59	H	65.08	73.98	8.90	PK
2483.5	10.46	35.59	H	46.05	53.98	7.93	AV

802.11be(MCS0)		EHT20	52T				
Channel	CH 12	Freq	2467 MHz		SRU offset	40	
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
2483.5	21.39	35.59	H	56.98	73.98	17.00	PK
2483.5	9.41	35.59	H	45.00	53.98	8.98	AV

802.11be(MCS0)		EHT20	52T				
Channel	CH 13	Freq	2472 MHz		SRU offset	40	
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
2483.5	30.78	35.59	H	66.37	73.98	7.61	PK
2483.5	11.44	35.59	H	47.03	53.98	6.95	AV

802.11be(MCS0)		EHT20	106T				
Channel	CH 1	Freq	2412 MHz		SRU offset	53	
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
#2380.0~2390.0	30.93	34.73	H	65.66	73.98	8.32	PK
#2380.0~2390.0	12.54	34.73	H	47.27	53.98	6.71	AV
2310.0~2380.0	22.02	34.73	H	56.75	73.98	17.23	PK
2310.0~2380.0	9.83	34.73	H	44.56	53.98	9.42	AV

802.11be(MCS0)		EHT20	106T				
Channel	CH 11	Freq	2462 MHz		SRU offset	54	
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
2483.5	32.90	35.59	H	68.49	73.98	5.49	PK
2483.5	11.61	35.59	H	47.20	53.98	6.78	AV

802.11be(MCS0)		EHT20	106T				
Channel	CH 12	Freq	2467 MHz		SRU offset	54	
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
2483.5	21.42	35.59	H	57.01	73.98	16.97	PK
2483.5	9.34	35.59	H	44.93	53.98	9.05	AV

802.11be(MCS0)		EHT20	106T				
Channel	CH 13	Freq	2472 MHz		SRU offset	54	
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
2483.5	29.56	35.59	H	65.15	73.98	8.83	PK
2483.5	11.21	35.59	H	46.80	53.98	7.18	AV

802.11be(MCS0)		EHT20	242T				
Channel	CH 1	Freq	2412 MHz		SRU offset	61	
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
#2380.0~2390.0	30.35	34.73	H	65.08	73.98	8.90	PK
#2380.0~2390.0	16.39	34.73	H	51.12	53.98	2.86	AV
2310.0~2380.0	22.65	34.73	H	57.38	73.98	16.60	PK
2310.0~2380.0	10.30	34.73	H	45.03	53.98	8.95	AV

802.11be(MCS0)		EHT20	242T				
Channel	CH 2	Freq	2417 MHz		SRU offset	61	
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
#2380.0~2390.0	27.19	34.73	H	61.92	73.98	12.06	PK
#2380.0~2390.0	16.41	34.73	H	51.14	53.98	2.84	AV
2310.0~2380.0	22.46	34.73	H	57.19	73.98	16.79	PK
2310.0~2380.0	10.16	34.73	H	44.89	53.98	9.09	AV

802.11be(MCS0)		EHT20	242T				
Channel	CH 10	Freq	2457 MHz		SRU offset	61	
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
#2483.5~2493.5	21.50	35.59	H	57.09	73.98	16.89	PK
#2483.5~2493.5	12.07	35.59	H	47.66	53.98	6.32	AV
2493.5~2500	21.48	35.59	H	57.07	73.98	16.91	PK
2493.5~2500	9.34	35.59	H	44.93	53.98	9.05	AV

802.11be(MCS0)		EHT20	242T				
Channel	CH 11	Freq	2462 MHz		SRU offset	61	
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
#2483.5~2493.5	26.26	35.59	H	61.85	73.98	12.13	PK
#2483.5~2493.5	15.22	35.59	H	50.81	53.98	3.17	AV
2493.5~2500	20.86	35.59	H	56.45	73.98	17.53	PK
2493.5~2500	9.37	35.59	H	44.96	53.98	9.02	AV

802.11be(MCS0)		EHT20	242T				
Channel	CH 12	Freq	2467 MHz		SRU offset	61	
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
2483.5	21.31	35.59	H	56.90	73.98	17.08	PK
2483.5	9.40	35.59	H	44.99	53.98	8.99	AV

802.11be(MCS0)		EHT20	242T				
Channel	CH 13	Freq	2472 MHz		SRU offset	61	
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
2483.5	25.61	35.59	H	61.20	73.98	12.78	PK
2483.5	10.02	35.59	H	45.61	53.98	8.37	AV

802.11be(MCS0)		EHT20			SU		
Channel	CH 1	Freq	2412 MHz				
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
#2380.0~2390.0	31.51	34.73	H	66.24	73.98	7.74	PK
#2380.0~2390.0	12.95	34.73	H	47.68	53.98	6.30	AV
2310.0~2380.0	29.65	34.73	H	64.38	73.98	9.60	PK
2310.0~2380.0	9.96	34.73	H	44.69	53.98	9.29	AV

802.11be(MCS0)		EHT20			SU		
Channel	CH 11	Freq	2462 MHz				
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
#2483.5~2493.5	26.64	35.59	H	62.23	73.98	11.75	PK
#2483.5~2493.5	16.21	35.59	H	51.80	53.98	2.18	AV
2493.5~2500	21.00	35.59	H	56.59	73.98	17.39	PK
2493.5~2500	9.37	35.59	H	44.96	53.98	9.02	AV

802.11be(MCS0)		EHT20			SU		
Channel	CH 12	Freq	2467 MHz				
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
2483.5	21.67	35.59	H	57.26	73.98	16.72	PK
2483.5	9.32	35.59	H	44.91	53.98	9.07	AV

802.11be(MCS0)		EHT20			SU		
Channel	CH 13	Freq	2472 MHz				
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
2483.5	26.21	35.59	H	61.80	73.98	12.18	PK
2483.5	10.88	35.59	H	46.47	53.98	7.51	AV

[MRU]

802.11be(MCS0)		EHT20	52T+26T				
Channel	CH 1	Freq	2412 MHz		MRU offset	70	
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
#2380.0~2390.0	27.93	34.73	H	62.66	73.98	11.32	PK
#2380.0~2390.0	12.35	34.73	H	47.08	53.98	6.90	AV
2310.0~2380.0	23.58	34.73	H	58.31	73.98	15.67	PK
2310.0~2380.0	9.84	34.73	H	44.57	53.98	9.41	AV

802.11be(MCS0)		EHT20	52T+26T				
Channel	CH 11	Freq	2462 MHz		MRU offset	72	
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
2483.5	29.48	35.59	H	65.07	73.98	8.91	PK
2483.5	10.39	35.59	H	45.98	53.98	8.00	AV

802.11be(MCS0)		EHT20	52T+26T				
Channel	CH 12	Freq	2467 MHz		MRU offset	72	
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
2483.5	21.54	35.59	H	57.13	73.98	16.85	PK
2483.5	9.35	35.59	H	44.94	53.98	9.04	AV

802.11be(MCS0)		EHT20	52T+26T				
Channel	CH 13	Freq	2472 MHz		MRU offset	72	
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
2483.5	21.42	35.59	H	57.01	73.98	16.97	PK
2483.5	9.38	35.59	H	44.97	53.98	9.01	AV

802.11be(MCS0)		EHT20	106T+26T				
Channel	CH 1	Freq	2412 MHz		MRU offset	82	
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
#2380.0~2390.0	31.46	34.73	H	66.19	73.98	7.79	PK
#2380.0~2390.0	15.64	34.73	H	50.37	53.98	3.61	AV
2310.0~2380.0	23.33	34.73	H	58.06	73.98	15.92	PK
2310.0~2380.0	9.90	34.73	H	44.63	53.98	9.35	AV

802.11be(MCS0)		EHT20	106T+26T				
Channel	CH 11	Freq	2462 MHz		MRU offset	83	
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
2483.5	34.95	35.59	H	70.54	73.98	3.44	PK
2483.5	13.17	35.59	H	48.76	53.98	5.22	AV

802.11be(MCS0)		EHT20	106T+26T				
Channel	CH 12	Freq	2467 MHz		MRU offset	83	
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
2483.5	21.61	35.59	H	57.20	73.98	16.78	PK
2483.5	9.37	35.59	H	44.96	53.98	9.02	AV

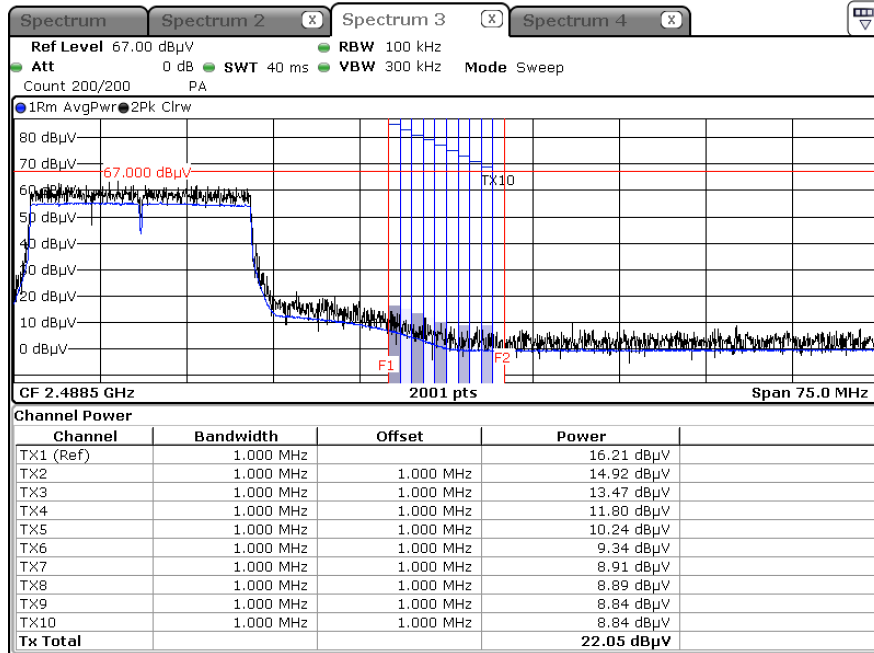
802.11be(MCS0)		EHT20	106T+26T				
Channel	CH 13	Freq	2472 MHz		MRU offset	83	
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
2483.5	27.98	35.59	H	63.57	73.98	10.41	PK
2483.5	10.78	35.59	H	46.37	53.98	7.61	AV

Test Plots

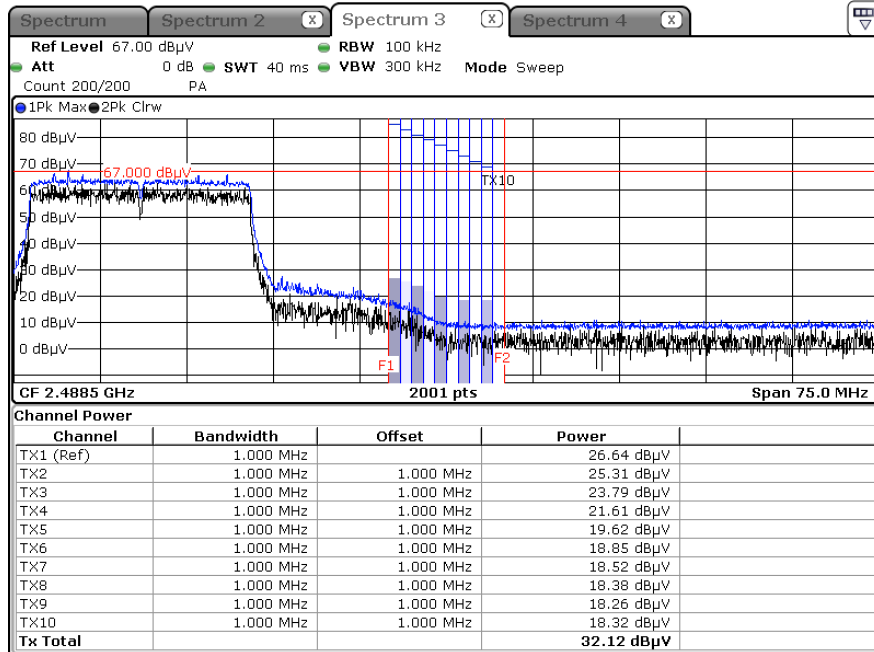
[MIMO_CDD(Ant.1+Ant.2)]

Note: In order to simplify the report, Plots of worst case are only reported.

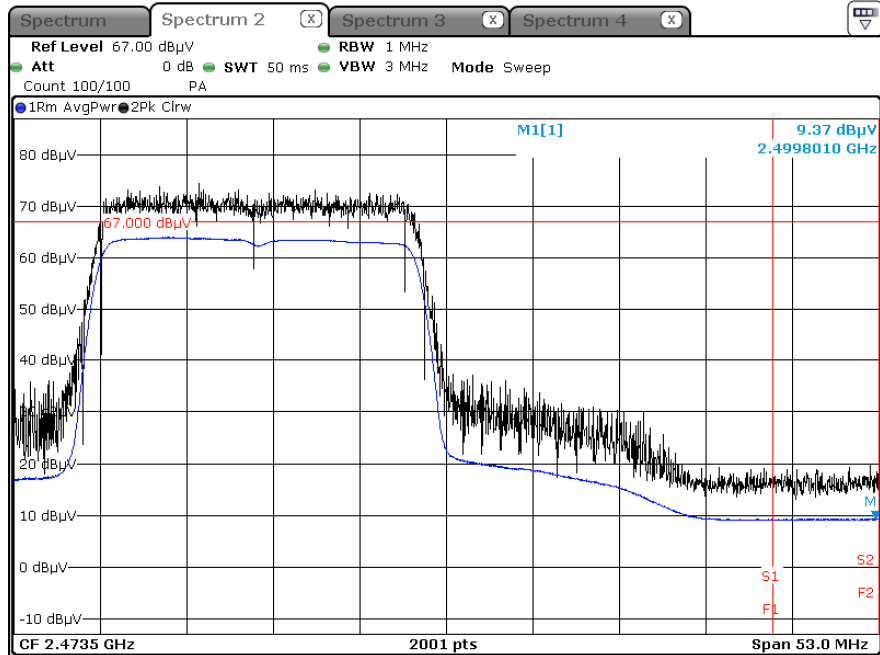
Integration method Used_ Average result(802.11be EHT20, MCS0, SU, ch.11, X-H)



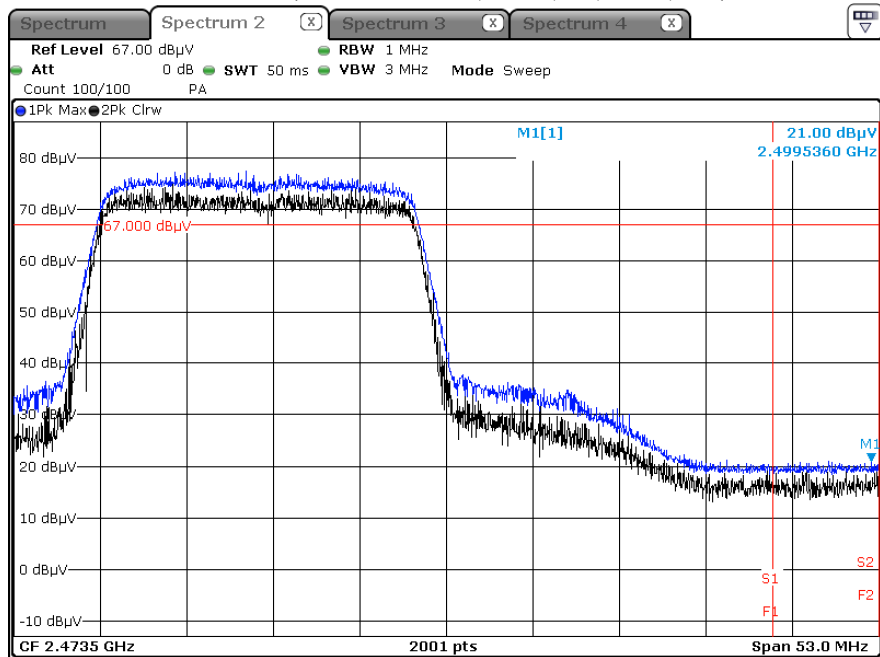
Integration method Used_ Peak result(802.11be EHT20, MCS0, SU, ch.11, X-H)



Average result(802.11be EHT20, MCS0, SU, ch.11, X-H)



Peak result(802.11be EHT20, MCS0, SU, ch.11, X-H)



10. LIST OF TEST EQUIPMENT

Conducted Test

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
LISN	ENV216	Rohde & Schwarz	102245	07/17/2025	Annual
EMI Test Receiver	ESR	Rohde & Schwarz	101910	07/02/2025	Annual
Temperature Chamber	SU-642	ESPEC	93008124	02/19/2025	Annual
Signal Analyzer	N9030A	Keysight	MY55410508	08/23/2025	Annual
Power Meter	N1911A	Agilent	MY45100523	02/28/2025	Annual
Power Sensor	N1921A	Agilent	MY57820067	02/22/2025	Annual
Directional Coupler	87300B	Agilent	3116A03621	10/21/2025	Annual
Power Splitter	11667B	Hewlett Packard	10545	02/06/2025	Annual
DC Power Supply	E3632A	Agilent	KR01009150	04/18/2025	Annual
Attenuator(10 dB)(DC-26.5 GHz)	8493C-010	Agilent	08285	05/28/2025	Annual
Attenuator(20 dB)	18N-20dB	Rohde & Schwarz	8	02/20/2025	Annual
Software	EMC32	Rohde & Schwarz	N/A	N/A	N/A
FCC WLAN&BT&BLE Conducted Test Software v3.0	N/A	HCT CO., LTD.	N/A	N/A	N/A
Bluetooth Tester	CBT	Rohde & Schwarz	100808	02/15/2025	Annual

Note:

1. Equipment listed above that calibrated during the testing period was set for test after the calibration.
2. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.

Radiated Test

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
Controller(Antenna mast)	CO3000	Innco system	CO3000-4p	N/A	N/A
Antenna Position Tower	MA4640/800-XP-EP	Innco system	N/A	N/A	N/A
Controller	EM1000	Audix	060520	N/A	N/A
Turn Table	N/A	Audix	N/A	N/A	N/A
Loop Antenna	FMZB 1513	Rohde & Schwarz	1513-333	03/07/2026	Biennial
Hybrid Antenna	VULB 9168	Schwarzbeck	760	02/24/2025	Biennial
Horn Antenna	BBHA 9120D	Schwarzbeck	02299	01/29/2026	Biennial
Horn Antenna (15GHz ~ 40 GHz)	BBHA9170	Schwarzbeck	BBHA9170342	09/20/2026	Biennial
Spectrum Analyzer	FSV40	Rohde & Schwarz	100901	02/22/2025	Annual
Signal Analyzer	N9030A	Agilent	MY52350879	04/05/2025	Annual
Band Reject Filter	WRCJV12-4900-5100-5900-6100-50SS	Wainwright Instruments	5	06/04/2025	Annual
Band Reject Filter	WRCJV12-4900-5100-5900-6100-50SS	Wainwright Instruments	6	06/04/2025	Annual
Band Reject Filter	WRCJV2400/2483.5-2370/2520-60/12SS	Wainwright Instruments	2	01/02/2025	Annual
Band Reject Filter	WRCJV5100/5850-40/50-8EEK	Wainwright Instruments	1	02/14/2025	Annual
RF Switching System	FMSR-04B (3G HPF+LNA)	T&M SYSTEM	S2L1	12/27/2024	Annual
RF Switching System	FMSR-04B (10dB ATT+LNA)	T&M SYSTEM	S2L2	12/27/2024	Annual
RF Switching System	FMSR-04B (3dB ATT+LNA)	T&M SYSTEM	S2L3	12/27/2024	Annual
RF Switching System	FMSR-04B (LNA)	T&M SYSTEM	S2L4	12/27/2024	Annual
RF Switching System	FMSR-04B (7G HPF+LNA)	T&M SYSTEM	S2L5	12/27/2024	Annual
Power Amplifier	CBL18265035	CERNEX	22966	11/17/2024	Annual
Power Amplifier	CBL26405040	CERNEX	25956	02/26/2025	Annual

Note:

1. Equipment listed above that calibrated during the testing period was set for test after the calibration.
2. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.
3. Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5(Version : 2017).

11. ANNEX A_ TEST SETUP PHOTO

Please refer to test setup photo file no. as follows;

No.	Description
1	HCT-RF-2411-FC001-P