

TEST REPORT

FCC DTS ax, be Test for SC-51F
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-2412-FC016

DATE OF ISSUE
December 3, 2024

Tested by
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TEST REPORT

REPORT NO.

HCT-RF-2412-FC016

DATE OF ISSUE

December 03, 2024

Additional Model

SCG31

Applicant

SAMSUNG Electronics Co., Ltd.

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

Product Name

Mobile Phone

Model Name

SC-51F

FCC ID

A3LSMS931JPN

Date of Test

August 26, 2024 ~ December 03, 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	December 03, 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).

Data referencing : DTS ax, be Report (Ch.1~Ch.11) (FCC ID : A3LSMS931U)

Full test : Ch.12~Ch.13

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1. EUT DESCRIPTION

Model	SC-51F		
Additional Model	SCG31		
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)	24.82 dBm
		SISO(Ant.2)	24.50 dBm
		MIMO_CDD(Ant.1+ Ant.2)	27.56 dBm
	<u>Average Power</u>	SISO(Ant.1)	16.63 dBm
		SISO(Ant.2)	16.57 dBm
		MIMO_CDD(Ant.1+ Ant.2)	19.61 dBm
Modulation Type	OFDM, OFDMA		
Number of Channels	13 Channels		
Antenna Specification	Type: Metal		
Serial number (Data Referencing)	Conducted : R3CX70H9HTJ Radiated : R3CX80BGARJ		
Serial number (Full Test)	Conducted : R3CX9061L9A Radiated : R3CX90KCCPR		

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 6GHz 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
Dual Bluetooth + 5 GHz WiFi MIMO			on	on			on	on	Scenario1
Dual Bluetooth + 6 GHz WiFi MIMO					on	on	on	on	
2.4 GHz WiFi MIMO + 5 GHz WiFi MIMO	on	on	on	on					Scenario2
2.4 GHz WiFi MIMO + 6 GHz WiFi MIMO	on	on			on	on			
Bluetooth ANT.1 + 2.4 GHz WiFi ANT.2 + 5 GHz WiFi MIMO		on	on	on			on		Scenario3
Bluetooth ANT.1 + 2.4 GHz WiFi ANT.2 + 6 GHz WiFi MIMO		on			on	on	on		

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	-1.05	2/2	0.31	-1.05
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.

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

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

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.

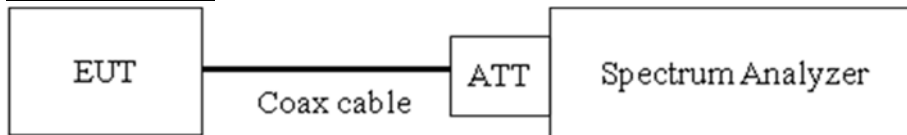
The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

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 $> 50/T$.

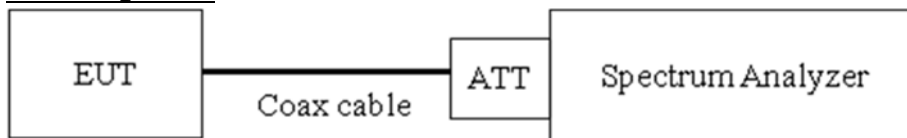
1. RBW = 8 MHz (the largest available value)
2. VBW = 8 MHz ($\geq$ RBW)
3. SPAN = 0 Hz
4. Detector = Peak
5. Number of points in sweep > 100
6. Trace mode = Clear write
7. Measure T_{total} and T_{on}
8. Calculate Duty Cycle = $T_{\text{on}} / T_{\text{total}}$ and Duty Cycle Factor = $10\log(1/\text{Duty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

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.

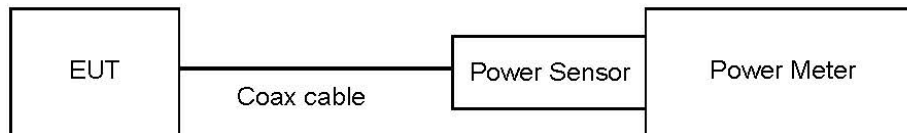
Note : We tested OBW using the automatic bandwidth measurement capability of a spectrum analyzer.

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

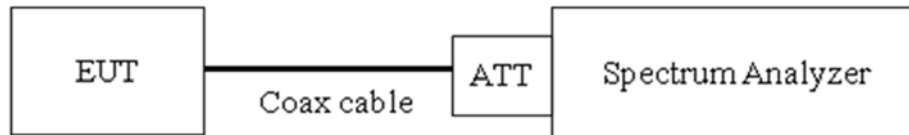
- Conducted Output Power(Peak) = Measured Value + ATT loss + Cable loss
- Conducted Output Power(Average) = Measured Value + ATT loss + Cable loss + Duty Cycle Factor

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

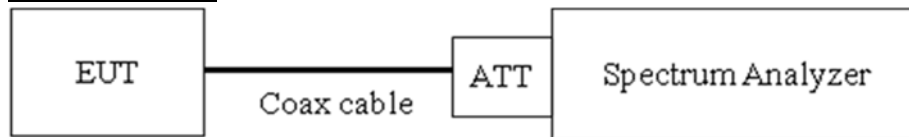
7.5. Conducted Band Edge (Out of Band Emissions) & Conducted Spurious Emissions

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	10.13
100	10.29
200	10.36
300	10.40
400	10.43
500	10.57
600	10.60
700	10.73
800	10.74
900	10.79
1000	10.80
2000	10.83
2400	10.98
2500	10.98
3000	11.26
4000	11.29
5000	12.11
5850	12.11
6000	12.22
7000	12.25
8000	12.39
9000	12.40
10000	12.55
11000	12.57
12000	12.72
13000	12.75
14000	12.76
15000	12.89
16000	12.94
17000	12.95
18000	13.00
19000	12.98
20000	13.05
21000	13.06
22000	13.12
23000	13.15
24000	13.15
25000	13.19

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

2. Factor = Attenuator loss + Cable loss

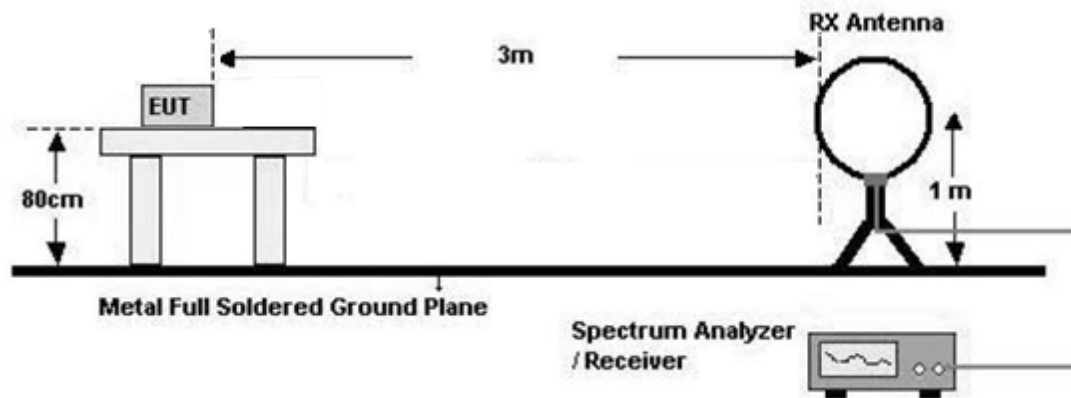
7.6. Radiated Test

Limit

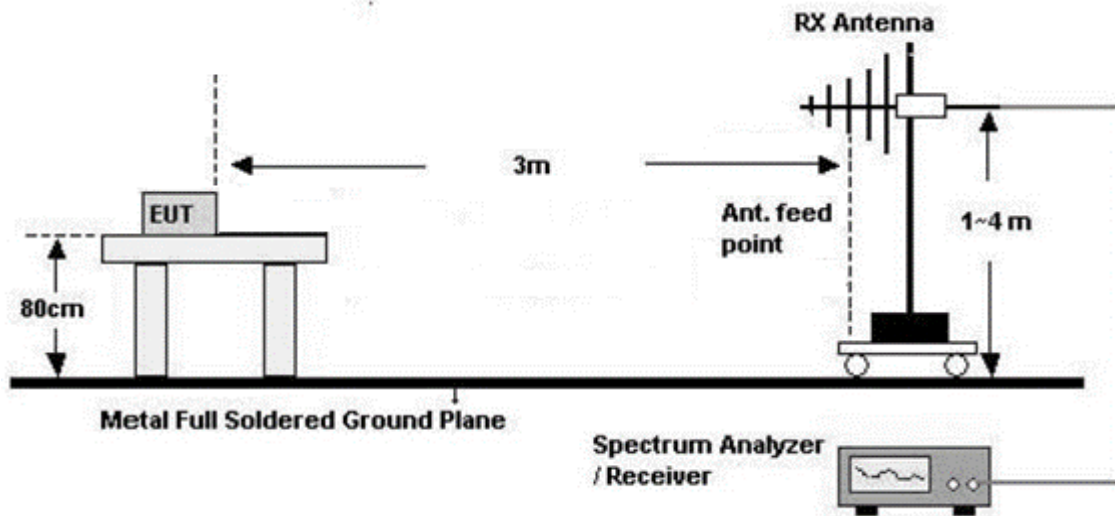
Frequency (MHz)	Field Strength ($\mu\text{V/m}$)	Measurement Distance (m)
0.009 – 0.490	$2400/F(\text{kHz})$	300
0.490 – 1.705	$24000/F(\text{kHz})$	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Configuration

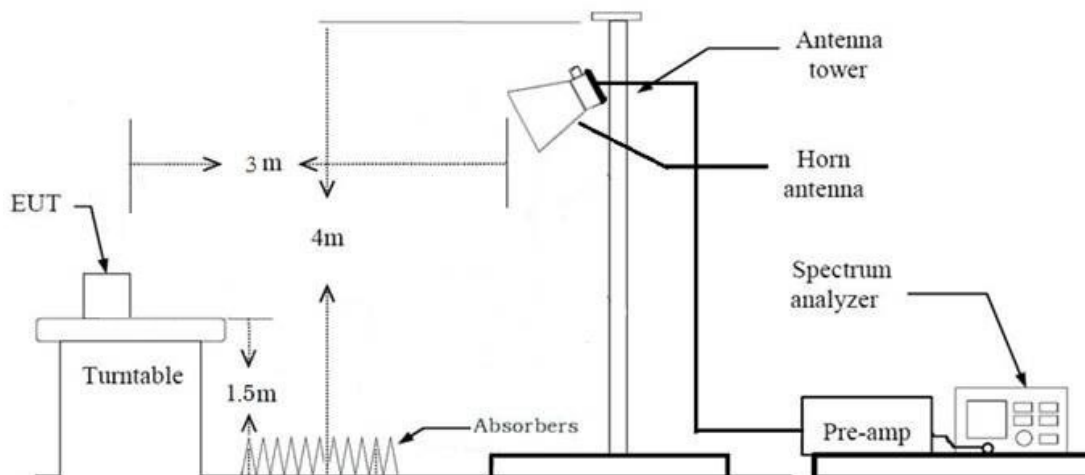
Below 30 MHz



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 $\geq 3 \times$ 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(Measurement Type : Peak)

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

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

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

Total(Measurement Type : Average, Duty cycle $< 98 \%$)

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

+ Duty Cycle Factor

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 (Measurement Type : Peak)

= Peak Measured Value

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

= Average Measured Value

Total(Measurement Type : Average, Duty cycle < 98 %)

= Average Measured Value + Duty Cycle Factor

- We apply to the offset in the range 1 GHz - 18 GHz.
- The offset = 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)	SRU/MRU	Tones (T)	RU offset	Test RU offset		
				Low	Mid	High
20	SRU	26	0~8	0	4	8
		52	37~40	37	38	40
		106	53~54	53	-	54
		242	61	-	61	-
	MRU	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	SRU/MRU	Channel	RU Index
26	SRU	1, 11, 12, 13	0, 8
52		1, 11, 12, 13	37, 40
106		1, 11, 12, 13	53, 54
242		1, 11, 12, 13	61
SU		1, 11, 12, 13	-
52T + 26T	MRU	1, 11, 12, 13	70, 72
106T + 26T		1, 11, 12, 13	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. SC-51F, SCG31 were tested and the worst case results are reported.

(Worst case: SC-51F)

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 : Z

- 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. SC-51F, SCG31 were tested and the worst case results are reported.

(Worst case: SC-51F)

[RSE Worst case]

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

[Bandedge Worst case]

BW (MHz)	Test		Tones (T)	Offset	
				Lower	Upper
20	Band Edge	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] Test Report.

2. SC-51F, SCG31 were tested and the worst case results are reported.

(Worst case: SC-51F)

AC Power line Conducted Emissions

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

2. SC-51F, SCG31 were tested and the worst case results are reported.

(Worst case: SC-51F)

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

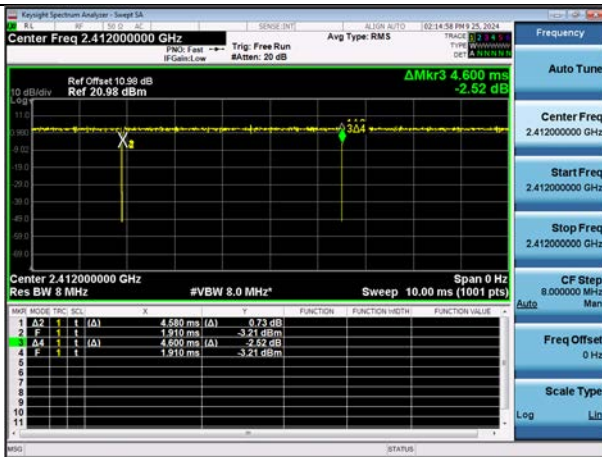
Mode	Tone (T)	Worst Data rate	T _{on} (ms)	T _{total} (ms)	Duty Cycle	Duty Cycle Factor (dB)
802.11be (EHT20)	26	MCS0	4.580	4.600	0.996	0.019
	52	MCS0	4.560	4.590	0.993	0.028
	106	MCS0	2.486	2.509	0.991	0.040
	242	MCS0	1.124	1.146	0.981	0.084
	52+26	MCS0	3.495	3.526	0.991	0.038
	106+26	MCS0	2.025	2.055	0.985	0.064
802.11be (SU)	BW 20	MCS0	5.450	5.470	0.996	0.016

Test Plots

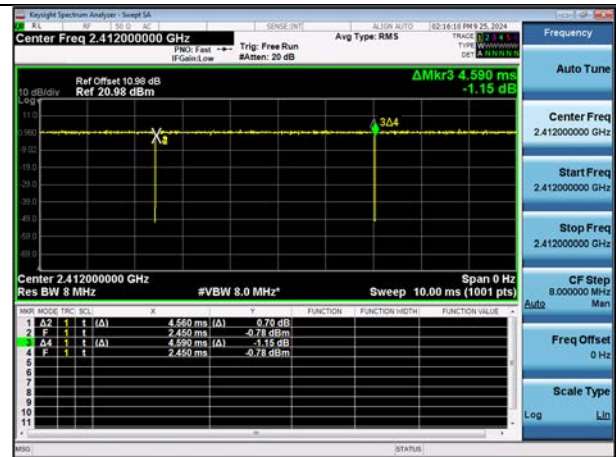
Note:

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

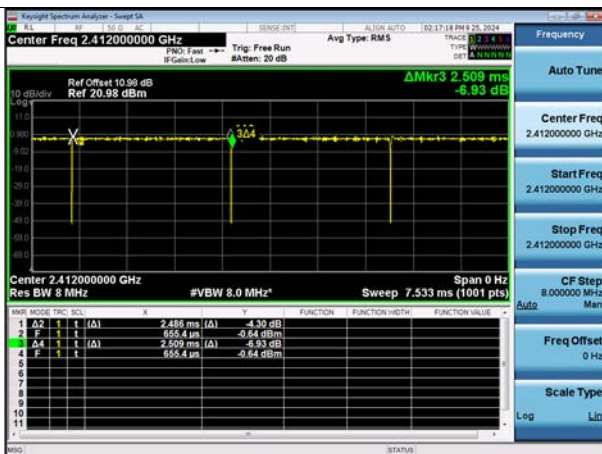
26 Tones (MCS 0)



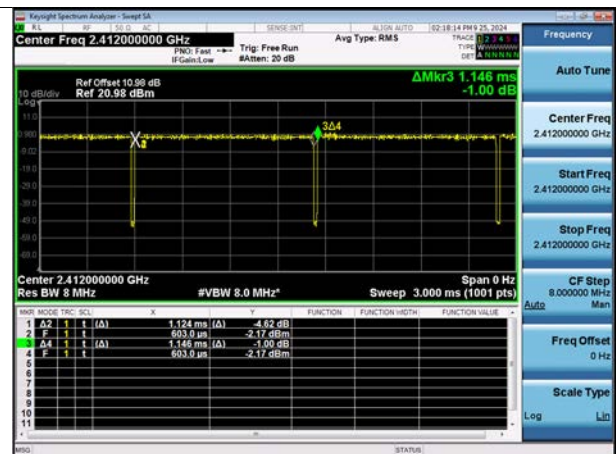
52 Tones (MCS 0)



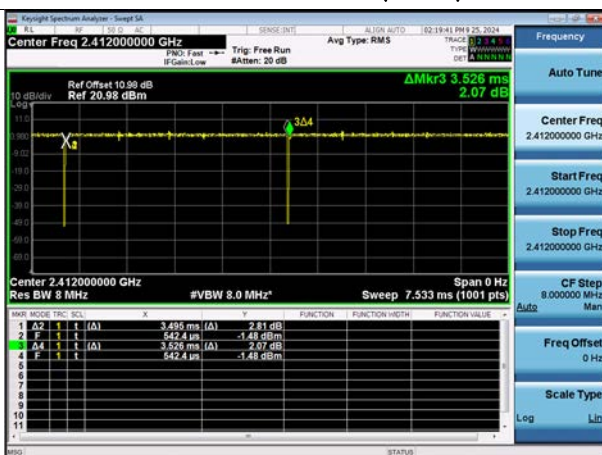
106 Tones (MCS 0)



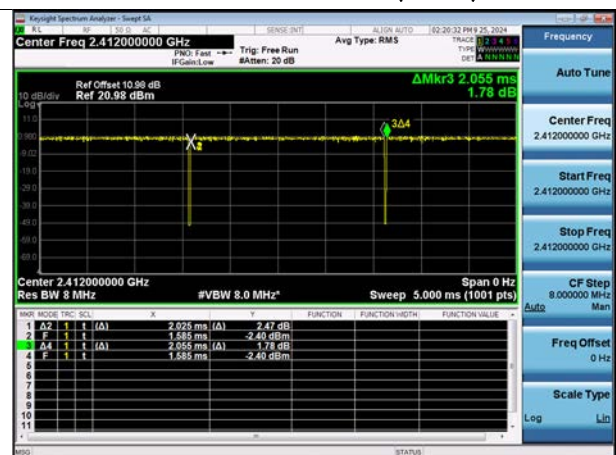
242 Tones (MCS 0)



52 Tones + 26 Tones (MCS 0)



106 Tones + 26 Tones (MCS 0)



SU



9.2 6 dB BANDWIDTH

Limit : > 500 kHz

[ANT.1]

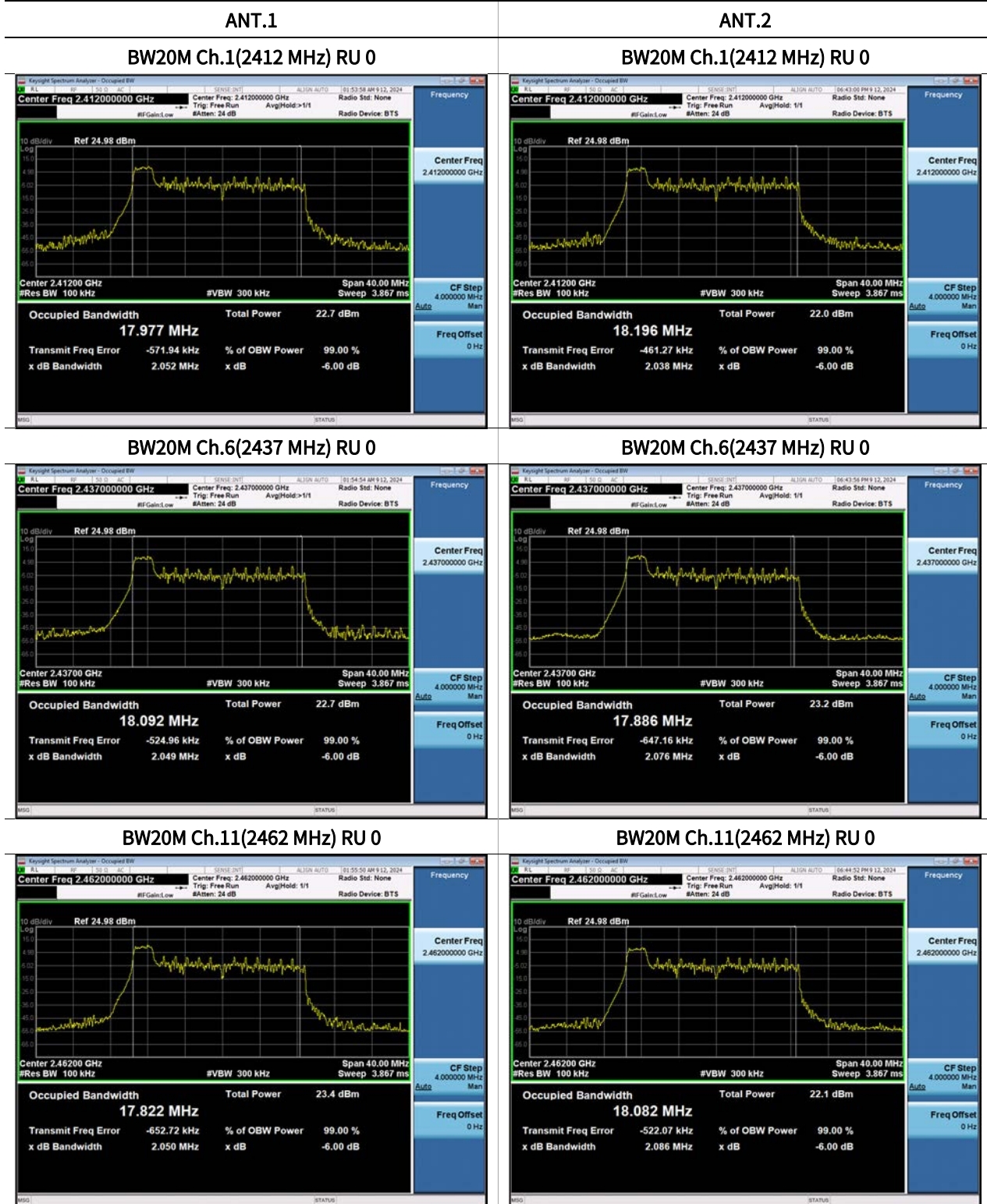
Mode	Freq. [MHz]	CH.	6dB Bandwidth [MHz]			99% Occupied Bandwidth [MHz]		
			RU Index : Low	RU Index : Mid	RU Index : High	RU Index : Low	RU Index : Mid	RU Index : High
			ANT1	ANT1	ANT1	ANT1	ANT1	ANT1
EHT20 26T	2412	1	2.052	2.656	2.099	17.977	16.822	18.002
	2437	6	2.049	2.700	2.065	18.092	17.045	17.990
	2462	11	2.050	2.701	2.108	17.822	16.855	18.212
	2467	12	2.052	2.699	2.077	17.903	16.982	18.188
	2472	13	2.113	2.700	2.094	17.884	17.055	18.228
EHT20 52T	2412	1	14.47	6.718	16.96	17.973	16.877	17.986
	2437	6	17.03	15.05	17.01	18.099	17.164	17.947
	2462	11	4.480	6.199	17.02	17.788	16.805	18.120
	2467	12	4.060	8.780	17.02	17.896	16.913	18.144
	2472	13	4.100	8.830	17.04	17.870	17.095	18.177
EHT20 106T	2412	1	17.16	-	17.18	18.004	-	18.035
	2437	6	18.39	-	17.17	18.233	-	18.058
	2462	11	17.16	-	18.36	17.911	-	18.195
	2467	12	17.18	-	18.35	17.976	-	18.187
	2472	13	17.19	-	18.35	18.012	-	18.213
EHT20 242T	2412	1	-	18.97	-	-	18.896	-
	2437	6	-	19.00	-	-	19.008	-
	2462	11	-	18.95	-	-	18.903	-
	2467	12	-	18.96	-	-	18.918	-
	2472	13	-	18.99	-	-	18.937	-
EHT20 SU	2412	1	-	18.99	-	-	18.877	-
	2437	6	-	19.02	-	-	18.949	-
	2462	11	-	18.99	-	-	18.893	-
	2467	12	-	18.94	-	-	18.901	-
	2472	13	-	18.95	-	-	18.908	-

[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	2.038	2.693	2.084	18.196	17.018	17.941
	2437	6	2.076	2.674	2.096	17.886	17.115	18.041
	2462	11	2.086	2.697	2.094	18.082	16.941	17.994
	2467	12	2.055	2.687	2.094	18.132	16.999	17.989
	2472	13	2.047	2.669	2.106	17.846	16.756	18.186
EHT20 52T	2412	1	17.02	13.79	4.060	18.156	17.061	17.891
	2437	6	4.073	12.54	17.03	17.960	17.072	18.139
	2462	11	17.00	15.08	4.056	18.045	16.978	17.980
	2467	12	17.02	15.08	4.06	18.056	17.051	17.920
	2472	13	12.01	12.54	17.01	17.821	16.908	18.048
EHT20 106T	2412	1	17.19	-	17.13	18.220	-	17.957
	2437	6	17.20	-	17.18	18.051	-	18.211
	2462	11	17.20	-	17.16	18.169	-	18.018
	2467	12	17.20	-	17.16	18.146	-	18.002
	2472	13	17.18	-	17.11	17.946	-	18.151
EHT20 242T	2412	1	-	18.97	-	-	18.924	-
	2437	6	-	19.04	-	-	18.966	-
	2462	11	-	18.99	-	-	18.913	-
	2467	12	-	19.01	-	-	18.933	-
	2472	13	-	18.96	-	-	18.893	-
EHT20 SU	2412	1	-	18.97	-	-	18.899	-
	2437	6	-	19.02	-	-	18.936	-
	2462	11	-	19.03	-	-	18.903	-
	2467	12	-	19.01	-	-	18.911	-
	2472	13	-	18.94	-	-	18.859	-

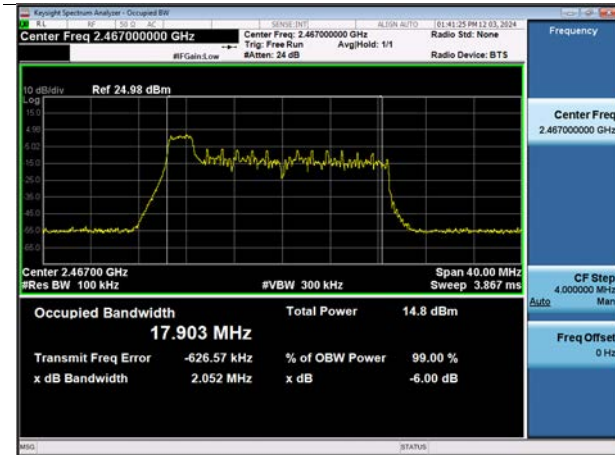
Test Plots

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



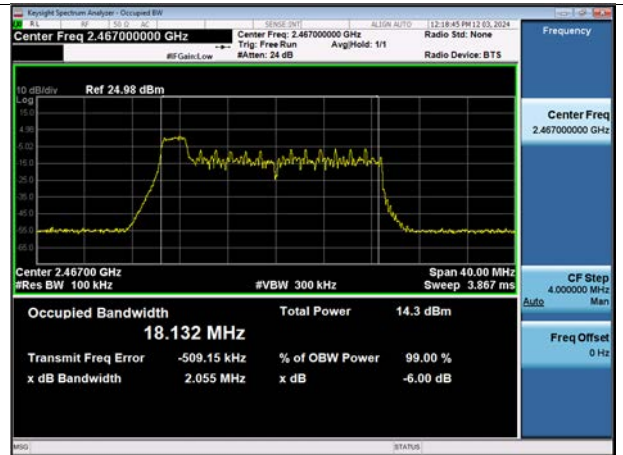
ANT.1

BW20M Ch.12(2467 MHz) RU 0

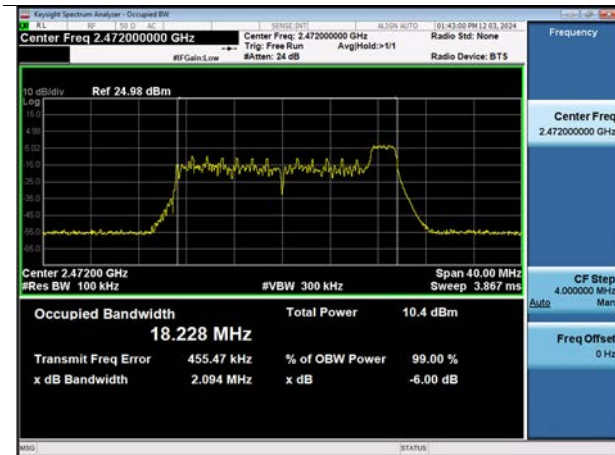


ANT.2

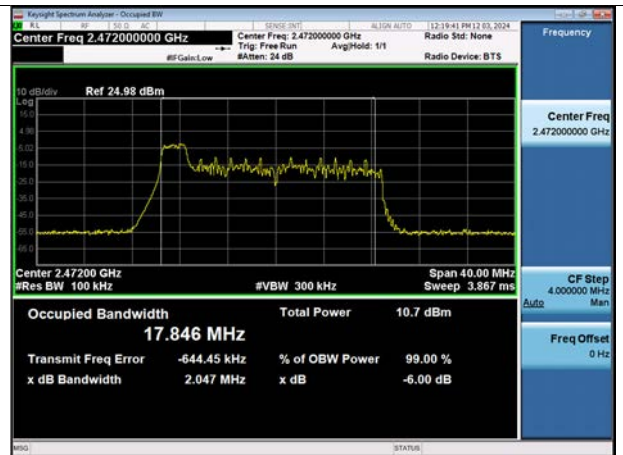
BW20M Ch.12(2467 MHz) RU 0



BW20M Ch.13(2472 MHz) RU 8



BW20M Ch.13(2472 MHz) RU 0



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	22.54	21.29	24.97	22.75	21.80	25.31	22.05	22.53	25.30	30
	2437	6	22.24	22.46	25.36	21.78	21.48	24.64	23.00	21.80	25.45	30
	2462	11	23.15	21.60	25.46	22.78	21.82	25.34	21.84	22.05	24.95	30
	2467	12	15.55	15.46	18.52	14.92	15.16	18.05	14.50	15.65	18.12	30
	2472	13	12.12	11.70	14.93	11.21	11.22	14.23	11.07	10.62	13.86	30
EHT20 52T	2412	1	23.67	22.43	26.10	23.82	22.66	26.29	23.46	23.70	26.59	30
	2437	6	22.88	23.51	26.22	22.66	22.97	25.83	23.90	22.96	26.46	30
	2462	11	24.31	22.63	26.56	23.81	22.36	26.16	23.00	23.12	26.07	30
	2467	12	15.38	14.96	18.19	14.98	14.81	17.91	14.99	15.37	18.19	30
	2472	13	12.15	11.32	14.77	12.09	11.13	14.65	11.97	10.62	14.36	30
EHT20 106T	2412	1	24.45	23.31	26.93	-	-	-	24.22	24.22	27.23	30
	2437	6	23.92	24.09	27.02	-	-	-	24.47	23.70	27.11	30
	2462	11	24.82	23.34	27.15	-	-	-	23.99	23.87	26.94	30
	2467	12	15.53	14.86	18.22	-	-	-	14.84	15.06	17.96	30
	2472	13	11.84	11.36	14.62	-	-	-	11.12	10.45	13.81	30
EHT20 242T	2412	1	-	-	-	21.95	21.50	24.74	-	-	-	30
	2417	2	-	-	-	23.51	22.60	26.09	-	-	-	30
	2437	6	-	-	-	24.60	24.50	27.56	-	-	-	30
	2457	10	-	-	-	24.03	23.19	26.64	-	-	-	30
	2462	11	-	-	-	22.24	21.19	24.76	-	-	-	30
	2467	12	-	-	-	13.32	13.63	16.49	-	-	-	30
	2472	13	-	-	-	10.10	9.55	12.84	-	-	-	30
EHT20 SU	2412	1	-	-	-	22.74	22.17	25.48	-	-	-	30
	2437	6	-	-	-	24.49	24.14	27.33	-	-	-	30
	2462	11	-	-	-	22.80	22.06	25.46	-	-	-	30
	2467	12	-	-	-	13.42	13.59	16.52	-	-	-	30
	2472	13	-	-	-	9.99	9.62	12.82	-	-	-	30
EHT20 52T+26T	2412	1	23.89	23.01	26.48	23.90	23.00	26.49	23.62	23.57	26.61	30
	2437	6	23.00	23.44	26.24	22.75	23.21	26.00	23.20	23.05	26.14	30
	2462	11	24.04	22.94	26.53	23.97	22.91	26.48	23.24	23.04	26.15	30
	2467	12	15.39	15.40	18.41	15.17	15.60	18.40	14.98	15.75	18.39	30
	2472	13	12.19	12.25	15.23	11.49	12.14	14.84	11.35	12.24	14.83	30
EHT20 106T+26T	2412	1	23.94	23.15	26.57	-	-	-	23.89	24.06	26.99	30
	2437	6	23.26	23.68	26.49	-	-	-	24.05	23.70	26.89	30
	2462	11	24.13	23.19	26.70	-	-	-	23.68	23.51	26.61	30
	2467	12	14.52	14.43	17.49	-	-	-	14.26	15.49	17.93	30
	2472	13	11.26	10.93	14.11	-	-	-	10.60	11.10	13.87	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	12.75	12.04	15.42	13.42	12.56	16.02	12.71	13.27	16.01	30
	2437	6	13.05	13.35	16.21	12.51	12.35	15.44	13.61	12.51	16.11	30
	2462	11	13.72	12.01	15.96	13.41	12.09	15.81	12.35	12.43	15.40	30
	2467	12	5.55	4.69	8.15	4.68	4.62	7.66	4.15	5.40	7.83	30
	2472	13	1.91	1.64	4.79	1.21	1.52	4.38	0.83	0.40	3.63	30
EHT20 52T	2412	1	14.10	13.18	16.67	14.52	13.46	17.03	13.89	14.32	17.12	30
	2437	6	13.90	14.46	17.20	13.60	13.92	16.77	14.51	13.57	17.08	30
	2462	11	14.88	13.12	17.10	14.83	13.21	17.11	13.50	13.58	16.55	30
	2467	12	5.50	4.67	8.12	5.13	4.56	7.86	4.22	5.43	7.88	30
	2472	13	1.88	1.60	4.75	1.64	1.59	4.63	0.83	0.72	3.79	30
EHT20 106T	2412	1	15.33	14.37	17.89	-	-	-	15.09	15.22	18.17	30
	2437	6	14.78	15.23	18.02	-	-	-	15.19	14.53	17.88	30
	2462	11	15.87	14.18	18.12	-	-	-	14.72	14.56	17.65	30
	2467	12	5.30	4.61	7.98	-	-	-	4.32	5.26	7.83	30
	2472	13	1.76	1.55	4.67	-	-	-	0.85	1.01	3.94	30
EHT20 242T	2412	1	-	-	-	13.62	13.41	16.53	-	-	-	30
	2417	2	-	-	-	15.96	14.55	18.32	-	-	-	30
	2437	6	-	-	-	16.63	16.57	19.61	-	-	-	30
	2457	10	-	-	-	16.14	15.35	18.77	-	-	-	30
	2462	11	-	-	-	13.82	13.12	16.49	-	-	-	30
	2467	12	-	-	-	4.67	4.75	7.72	-	-	-	30
	2472	13	-	-	-	1.28	1.20	4.25	-	-	-	30
EHT20 SU	2412	1	-	-	-	14.38	13.98	17.19	-	-	-	30
	2437	6	-	-	-	16.38	16.20	19.30	-	-	-	30
	2462	11	-	-	-	14.51	13.74	17.15	-	-	-	30
	2467	12	-	-	-	4.20	4.32	7.27	-	-	-	30
	2472	13	-	-	-	1.00	1.03	4.03	-	-	-	30
EHT20 52T+26T	2412	1	14.32	13.37	16.88	14.42	13.66	17.07	14.12	14.26	17.20	30
	2437	6	13.64	14.09	16.88	13.53	13.80	16.68	13.83	13.42	16.64	30
	2462	11	14.86	13.09	17.07	14.70	13.08	16.98	13.73	13.35	16.55	30
	2467	12	5.28	4.66	7.99	5.04	4.68	7.87	4.45	5.26	7.88	30
	2472	13	1.79	1.72	4.77	1.49	1.70	4.61	0.91	1.40	4.17	30
EHT20 106T+26T	2412	1	15.19	14.45	17.85	-	-	-	15.00	15.17	18.10	30
	2437	6	14.72	15.02	17.88	-	-	-	14.93	14.46	17.71	30
	2462	11	15.78	14.10	18.03	-	-	-	14.75	14.43	17.60	30
	2467	12	5.19	4.67	7.95	-	-	-	4.41	5.20	7.83	30
	2472	13	1.70	1.62	4.67	-	-	-	0.91	1.25	4.09	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	-4.271	-4.928	-1.577	-4.040	-4.627	-1.313	-4.550	-3.621	-1.050	8
	2437	6	-4.200	-3.648	-0.905	-4.449	-4.634	-1.530	-3.272	-4.597	-0.874	8
	2462	11	-3.316	-4.865	-1.012	-3.965	-4.657	-1.287	-5.020	-4.368	-1.671	8
	2467	12	-11.779	-12.443	-9.088	-12.499	-12.497	-9.488	-13.215	-11.863	-9.476	8
	2472	13	-14.876	-16.117	-12.442	-16.340	-16.072	-13.194	-16.581	-17.182	-13.861	8
EHT20 52T	2412	1	-5.931	-6.962	-3.406	-5.594	-6.533	-3.028	-6.302	-5.453	-2.846	8
	2437	6	-6.348	-5.257	-2.758	-6.402	-5.759	-3.058	-5.275	-6.347	-2.768	8
	2462	11	-5.059	-6.721	-2.801	-5.250	-6.468	-2.806	-6.949	-6.033	-3.457	8
	2467	12	-14.838	-15.531	-12.160	-15.167	-15.512	-12.326	-16.160	-14.744	-12.384	8
	2472	13	-17.877	-19.007	-15.395	-18.612	-18.917	-15.752	-19.398	-19.716	-16.544	8
EHT20 106T	2412	1	-7.524	-8.390	-4.925	-	-	-	-7.881	-6.930	-4.369	8
	2437	6	-8.064	-7.354	-4.684	-	-	-	-6.963	-7.871	-4.383	8
	2462	11	-6.968	-8.236	-4.546	-	-	-	-8.294	-7.803	-5.031	8
	2467	12	-17.552	-18.382	-14.937	-	-	-	-18.736	-17.491	-15.059	8
	2472	13	-20.882	-21.740	-18.280	-	-	-	-21.846	-22.123	-18.972	8
EHT20 242T	2412	1	-	-	-	-11.728	-11.663	-8.685	-	-	-	8
	2437	6	-	-	-	-8.758	-8.374	-5.551	-	-	-	8
	2462	11	-	-	-	-11.128	-11.882	-8.478	-	-	-	8
	2467	12	-	-	-	-20.587	-20.721	-17.643	-	-	-	8
	2472	13	-	-	-	-23.921	-24.764	-21.312	-	-	-	8
EHT20 SU	2412	1	-	-	-	-12.077	-11.953	-9.004	-	-	-	8
	2437	6	-	-	-	-9.789	-10.074	-6.919	-	-	-	8
	2462	11	-	-	-	-11.783	-12.597	-9.161	-	-	-	8
	2467	12	-	-	-	-22.232	-22.102	-19.156	-	-	-	8
	2472	13	-	-	-	-25.142	-26.009	-22.544	-	-	-	8
EHT20 52T+26T	2412	1	-7.857	-7.857	-4.265	-7.166	-7.991	-4.549	-7.720	-7.238	-4.462	8
	2437	6	-7.898	-7.120	-4.481	-8.216	-7.580	-4.876	-7.520	-7.917	-4.704	8
	2462	11	-6.538	-8.006	-4.200	-6.985	-8.122	-4.506	-7.910	-7.669	-4.778	8
	2467	12	-15.967	-16.985	-13.436	-16.430	-16.816	-13.608	-17.204	-16.271	-13.702	8
	2472	13	-19.562	-20.120	-16.822	-19.403	-20.153	-16.752	-20.745	-20.784	-17.754	8
EHT20 106T+26T	2412	1	-8.384	-8.885	-5.617	-	-	-	-8.548	-8.333	-5.429	8
	2437	6	-8.931	-8.247	-5.565	-	-	-	-8.122	-8.990	-5.524	8
	2462	11	-7.660	-9.114	-5.316	-	-	-	-8.740	-8.875	-5.797	8
	2467	12	-17.962	-18.786	-15.344	-	-	-	-19.219	-18.201	-15.670	8
	2472	13	-21.269	-21.778	-18.506	-	-	-	-22.565	-22.601	-19.573	8

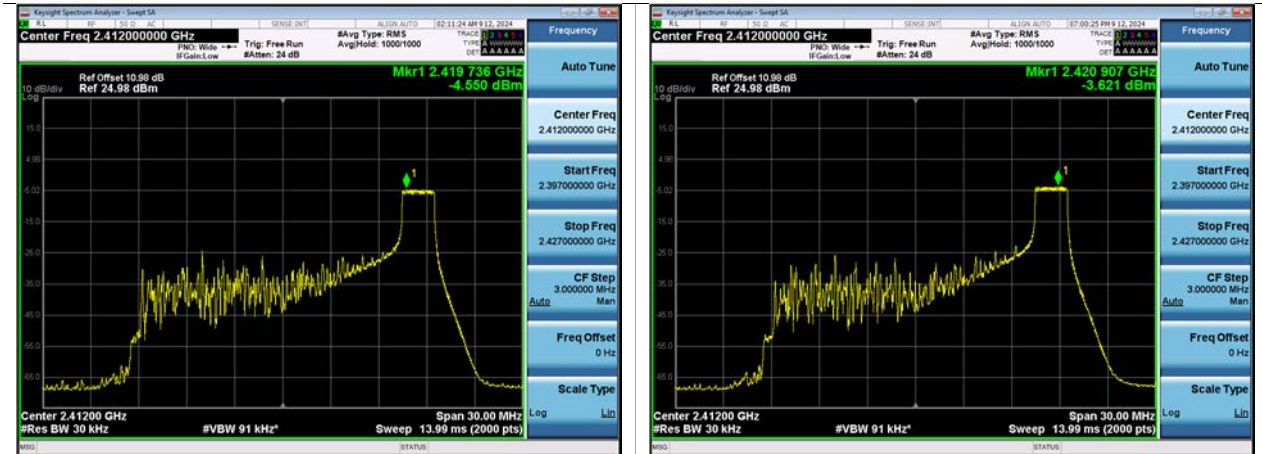
Test Plots

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

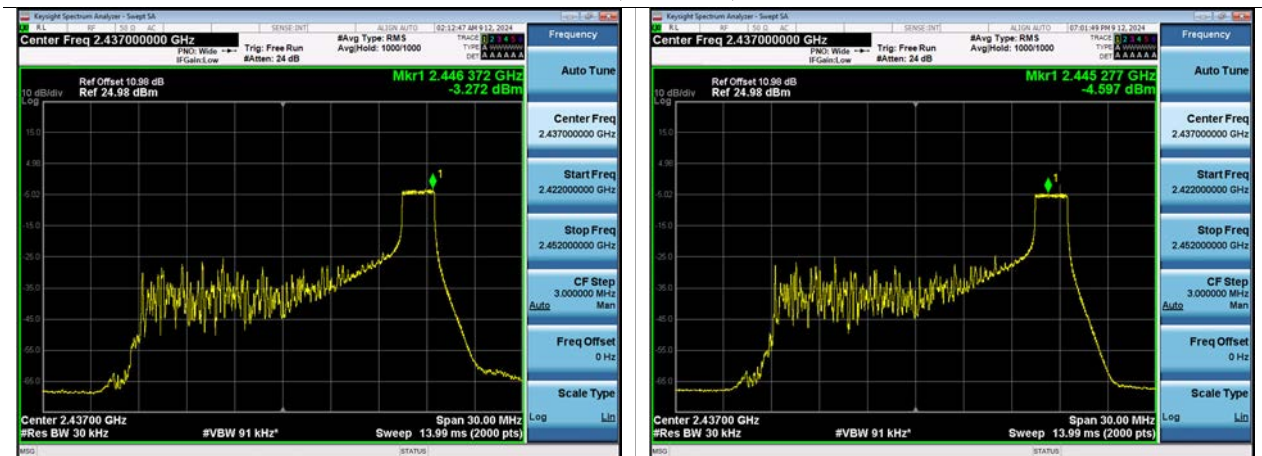
ANT.1

ANT.2

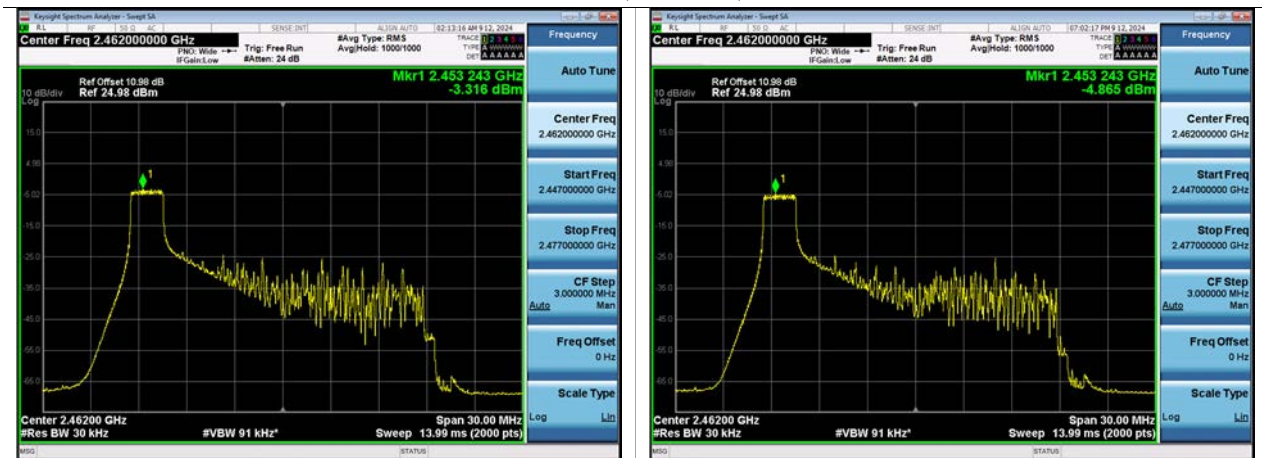
BW20M Ch.1(2412 MHz) RU 8



BW20M Ch.6(2437 MHz) RU 8



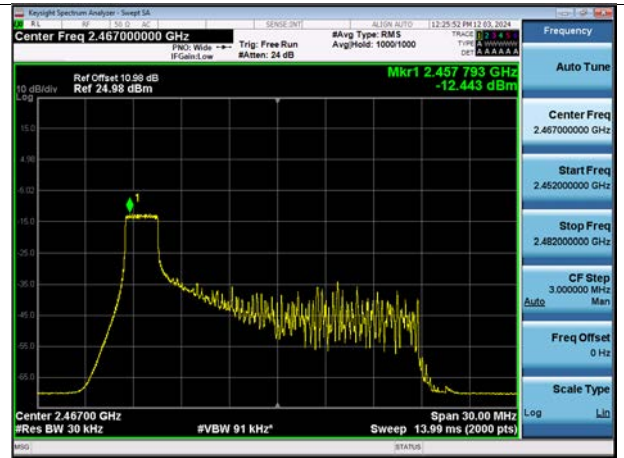
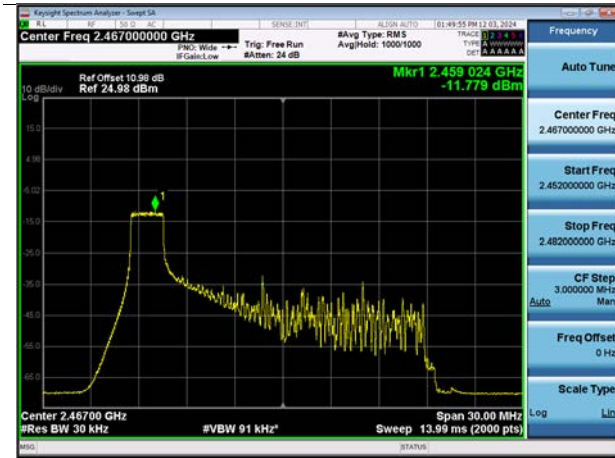
BW20M Ch.11(2462 MHz) RU 0



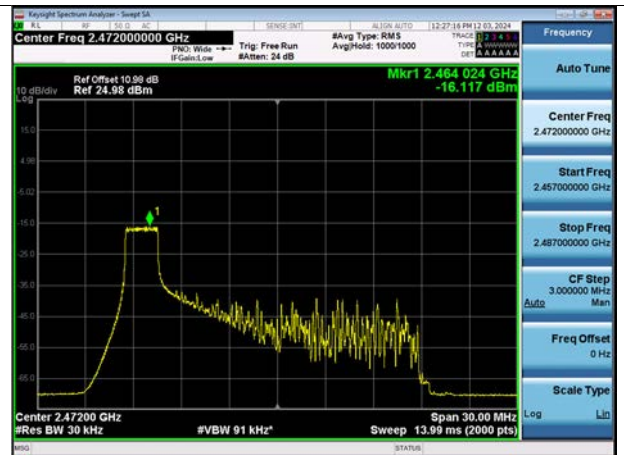
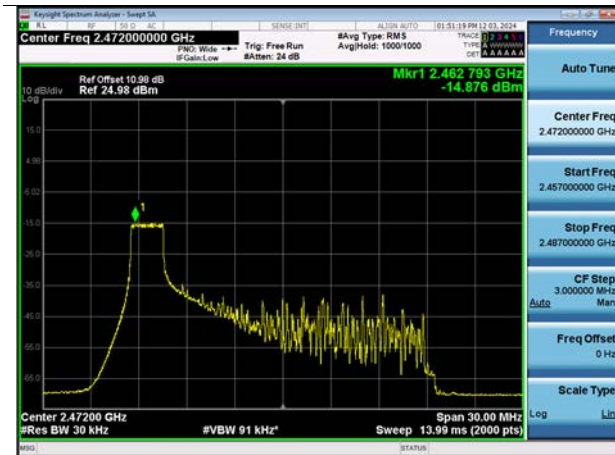
ANT.1

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]

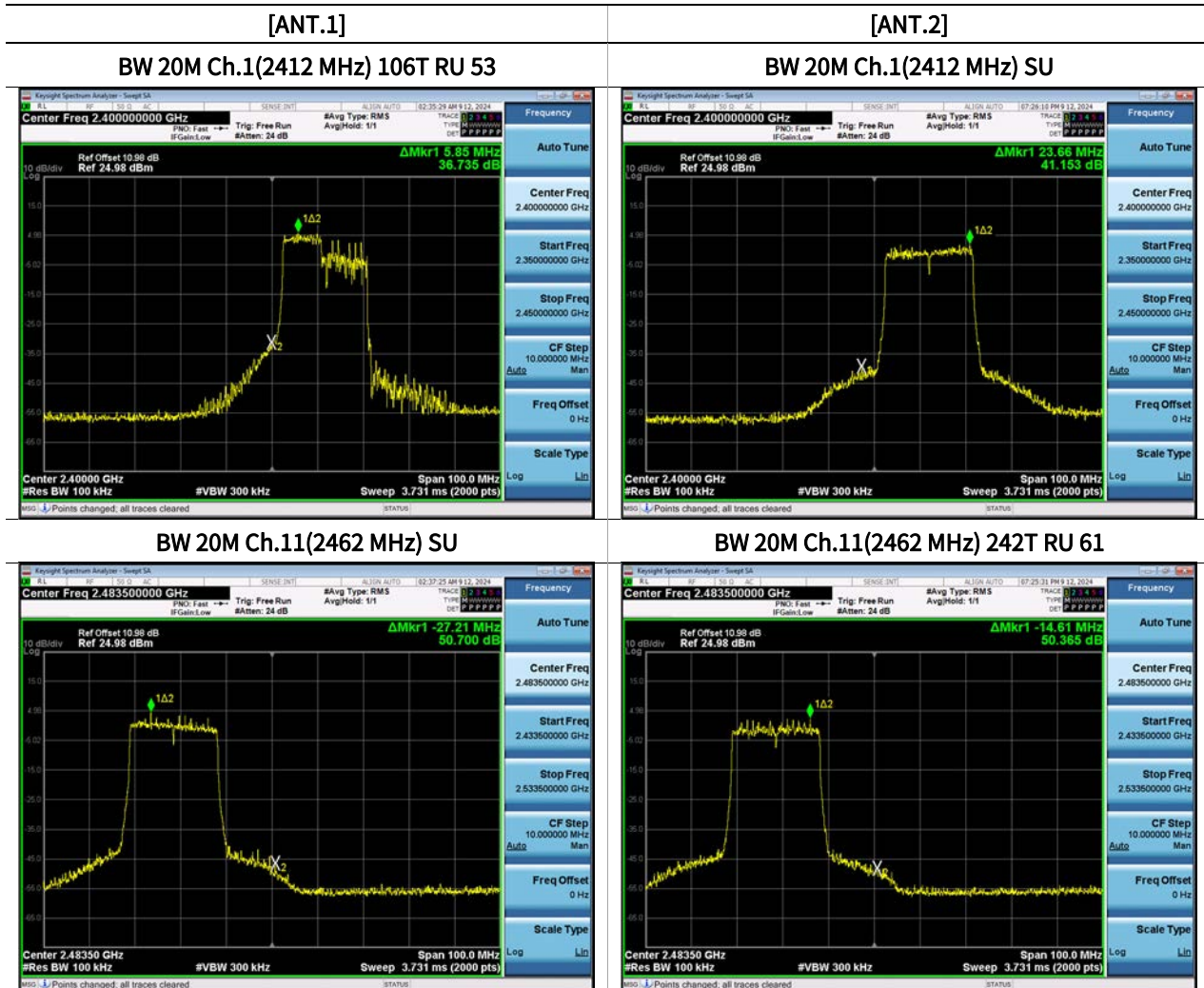
Mode	Freq. [MHz]	CH.	RU Index	Measured Position	Band edge [dB]
EHT20 26T	2412	1	Low	Lowest Bandedge	47.371
	2462	11	High	Highest Bandedge	61.435
	2467	12	High	Highest Bandedge	53.077
	2472	13	High	Highest Bandedge	45.472
EHT20 52T	2412	1	Low	Lowest Bandedge	40.329
	2462	11	High	Highest Bandedge	57.477
	2467	12	High	Highest Bandedge	50.201
	2472	13	High	Highest Bandedge	44.474
EHT20 106T	2412	1	Low	Lowest Bandedge	36.735
	2462	11	High	Highest Bandedge	51.520
	2467	12	High	Highest Bandedge	47.320
	2472	13	High	Highest Bandedge	40.023
EHT20 242T	2412	1	Low	Lowest Bandedge	40.455
	2462	11	High	Highest Bandedge	50.777
	2467	12	High	Highest Bandedge	46.908
	2472	13	High	Highest Bandedge	43.053
EHT20 SU	2412	1	Low	Lowest Bandedge	40.372
	2462	11	High	Highest Bandedge	50.700
	2467	12	High	Highest Bandedge	47.285
	2472	13	High	Highest Bandedge	42.115
EHT20 52T+26T	2412	1	Low	Lowest Bandedge	42.623
	2462	11	High	Highest Bandedge	54.521
	2467	12	High	Highest Bandedge	52.262
	2472	13	High	Highest Bandedge	48.850
EHT20 106T+26T	2412	1	Low	Lowest Bandedge	38.427
	2462	11	High	Highest Bandedge	51.260
	2467	12	High	Highest Bandedge	50.890
	2472	13	High	Highest Bandedge	42.756

[ANT.2]

Mode	Freq. [MHz]	CH.	RU Index	Measured Position	Band edge [dB]
EHT20 26T	2412	1	Low	Lowest Bandedge	49.179
	2462	11	High	Highest Bandedge	60.528
	2467	12	High	Highest Bandedge	54.127
	2472	13	High	Highest Bandedge	46.426
EHT20 52T	2412	1	Low	Lowest Bandedge	42.087
	2462	11	High	Highest Bandedge	59.882
	2467	12	High	Highest Bandedge	52.162
	2472	13	High	Highest Bandedge	45.325
EHT20 106T	2412	1	Low	Lowest Bandedge	41.440
	2462	11	High	Highest Bandedge	56.006
	2467	12	High	Highest Bandedge	48.650
	2472	13	High	Highest Bandedge	42.093
EHT20 242T	2412	1	Low	Lowest Bandedge	42.204
	2462	11	High	Highest Bandedge	50.365
	2467	12	High	Highest Bandedge	46.757
	2472	13	High	Highest Bandedge	43.253
EHT20 SU	2412	1	Low	Lowest Bandedge	41.153
	2462	11	High	Highest Bandedge	52.235
	2467	12	High	Highest Bandedge	47.134
	2472	13	High	Highest Bandedge	42.617
EHT20 52T+26T	2412	1	Low	Lowest Bandedge	45.145
	2462	11	High	Highest Bandedge	53.447
	2467	12	High	Highest Bandedge	52.807
	2472	13	High	Highest Bandedge	49.920
EHT20 106T+26T	2412	1	Low	Lowest Bandedge	41.191
	2462	11	High	Highest Bandedge	53.805
	2467	12	High	Highest Bandedge	52.159
	2472	13	High	Highest Bandedge	45.261

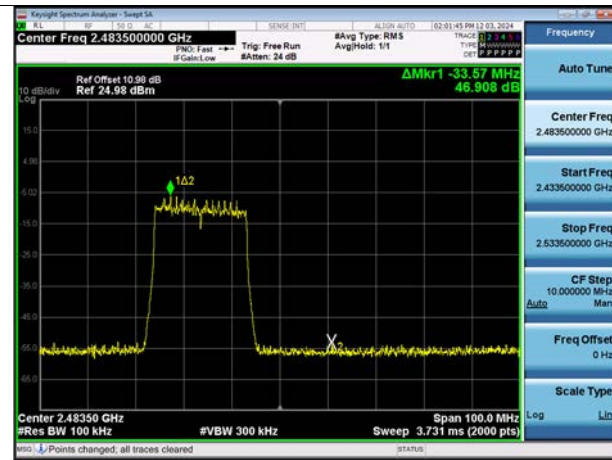
Test Plots

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



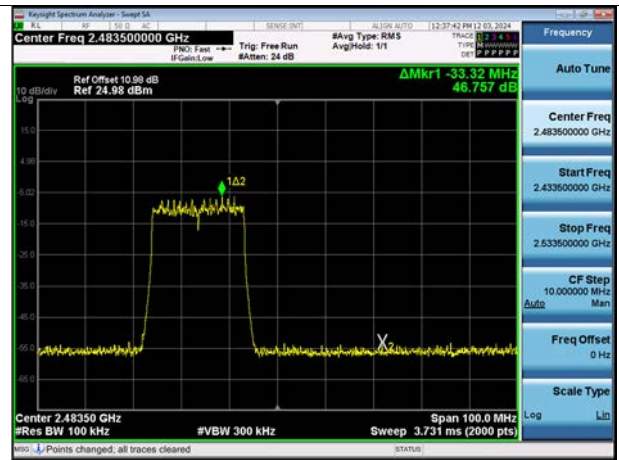
[ANT.1]

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

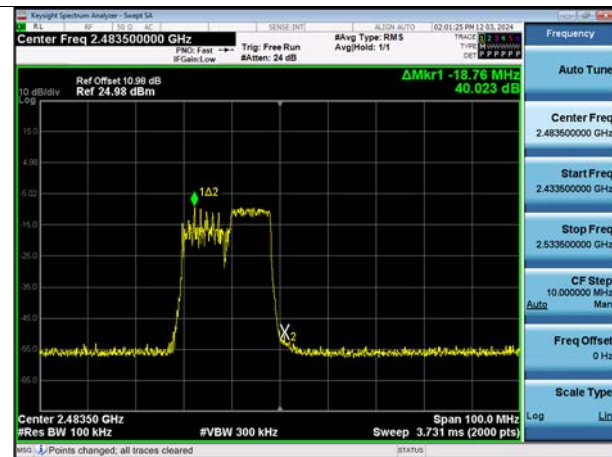


[ANT.2]

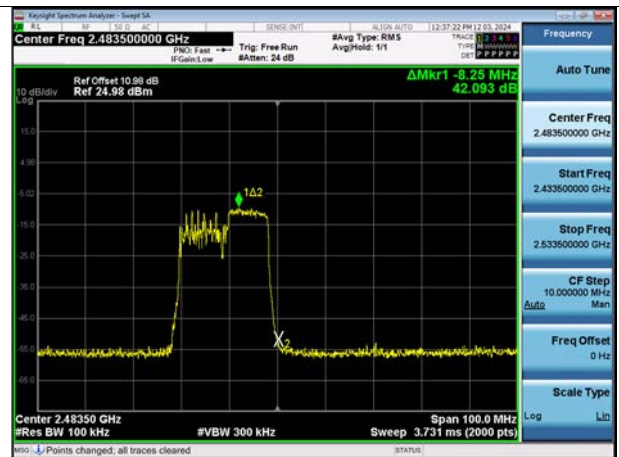
BW 20M Ch.12(2467 MHz) 242T RU 61



BW 20M Ch.13(2472 MHz) 106T RU 54



BW 20M Ch.13(2472 MHz) 106T RU 54



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	61.226	61.157	61.653
	2437	6	60.544	61.616	61.444
	2462	11	61.344	60.065	59.966
	2467	12	48.023	46.675	44.497
	2472	13	43.988	43.424	42.294
EHT20 52T	2412	1	59.789	59.841	59.166
	2437	6	60.807	57.696	58.897
	2462	11	58.726	60.032	58.432
	2467	12	45.644	44.531	43.704
	2472	13	41.628	40.048	39.549
EHT20 106T	2412	1	58.012	-	58.909
	2437	6	57.678	-	60.051
	2462	11	58.878	-	56.293
	2467	12	40.908	-	40.648
	2472	13	40.127	-	37.698
EHT20 242T	2412	1	-	53.868	-
	2437	6	-	57.373	-
	2462	11	-	53.839	-
	2467	12	-	39.480	-
	2472	13	-	36.700	-
EHT20 SU	2412	1	-	54.917	-
	2437	6	-	55.671	-
	2462	11	-	57.271	-
	2467	12	-	39.071	-
	2472	13	-	36.024	-
EHT20 52T+26T	2412	1	58.348	59.394	58.386
	2437	6	56.625	57.916	58.366
	2462	11	58.686	58.823	57.050
	2467	12	49.738	50.104	48.949
	2472	13	46.224	45.334	44.315
EHT20 106T+52T	2412	1	58.598	-	56.139
	2437	6	56.586	-	57.580
	2462	11	58.823	-	56.758
	2467	12	47.511	-	46.681
	2472	13	42.985	-	43.402

[ANT.2]

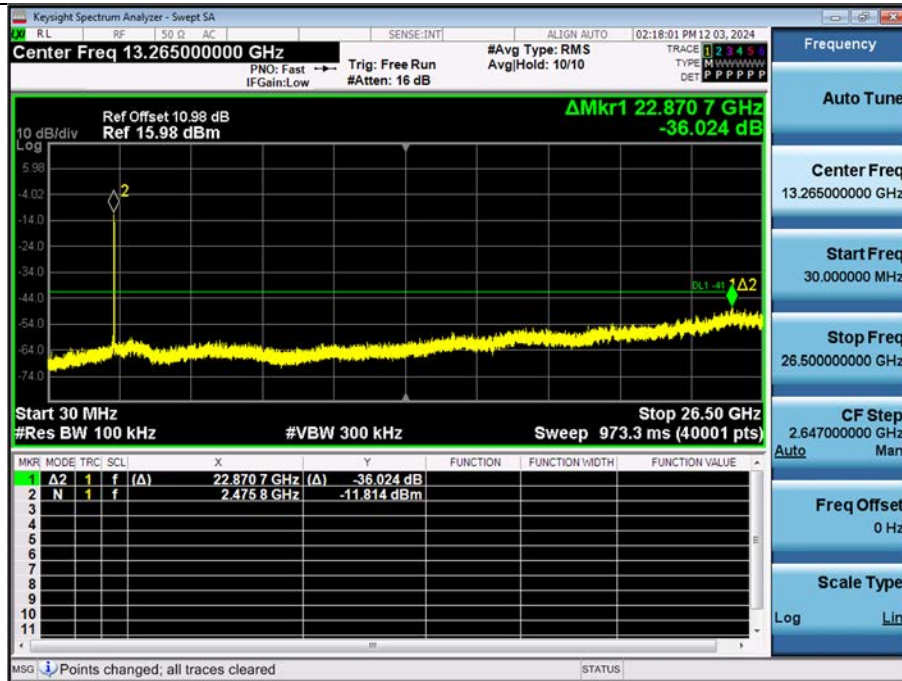
Mode	Freq. [MHz]	CH.	Conducted Spurious Emissions [dB]		
			RU Index : Low	RU Index : Mid	RU Index : High
			ANT2	ANT2	ANT2
EHT20 26T	2412	1	60.649	60.601	62.551
	2437	6	62.346	60.478	59.741
	2462	11	61.462	58.517	60.509
	2467	12	48.062	46.989	45.719
	2472	13	43.797	42.152	42.108
EHT20 52T	2412	1	57.589	59.754	60.029
	2437	6	60.539	60.824	60.043
	2462	11	58.869	58.433	58.697
	2467	12	43.324	43.730	45.265
	2472	13	39.308	40.751	39.034
EHT20 106T	2412	1	56.679	-	57.978
	2437	6	57.518	-	56.977
	2462	11	58.128	-	58.374
	2467	12	40.976	-	42.587
	2472	13	37.953	-	37.052
EHT20 242T	2412	1	-	54.337	-
	2437	6	-	57.581	-
	2462	11	-	54.847	-
	2467	12	-	37.613	-
	2472	13	-	37.655	-
EHT20 SU	2412	1	-	55.695	-
	2437	6	-	58.358	-
	2462	11	-	56.945	-
	2467	12	-	39.027	-
	2472	13	-	34.861	-
EHT20 52T+26T	2412	1	56.990	58.542	56.599
	2437	6	58.903	58.990	57.731
	2462	11	58.223	58.316	56.942
	2467	12	47.081	47.661	48.623
	2472	13	43.796	44.537	44.115
EHT20 106T+52T	2412	1	56.941	-	57.384
	2437	6	57.968	-	57.657
	2462	11	55.655	-	57.292
	2467	12	47.638	-	46.613
	2472	13	42.902	-	43.965

Test Plots

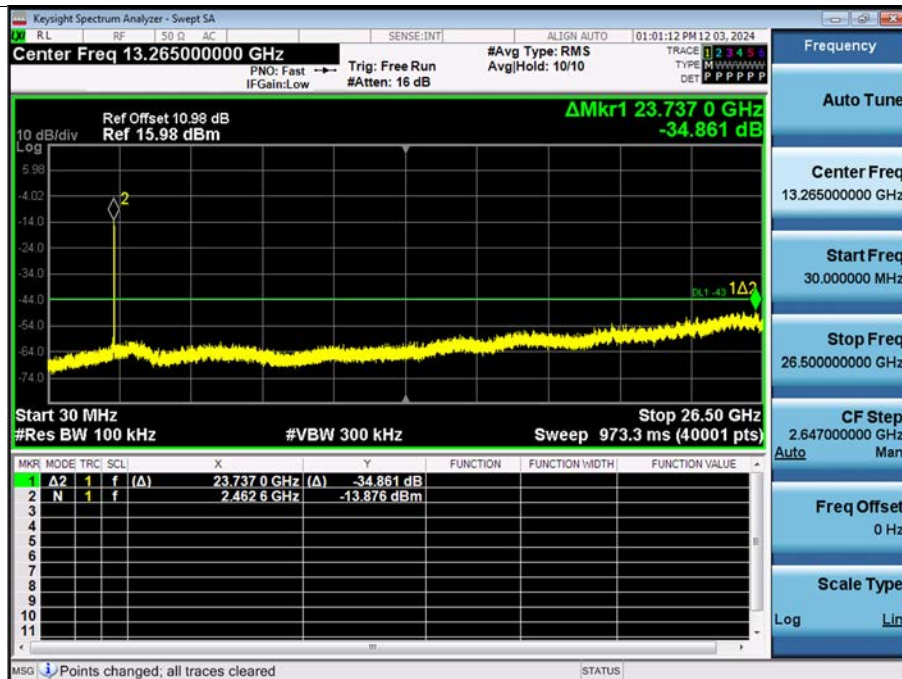
Note:

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

[ANT. 1] BW 20M Ch.13(2 472 MHz) SU



[ANT. 2] BW 20M Ch.13(2 472 MHz) SU



Limit

ANT.1 : -41.814 dBm, ANT.2 : -43.876 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]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/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 μ V) + Distance extrapolation factor

Frequency Range : Below 1 GHz

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

802.11be EHT20 MCS 0							
Band :	DTS		Operation Mode : 802.11be EHT20			RU Tone&offset	
CH.1	2412	MHz	Transfer Rate : MCS 0			26T	4
Frequency	Measured value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
4824	43.99	3.91	V	47.90	73.98	26.08	PK
4824	31.87	3.91	V	35.78	53.98	18.20	AV
7236	43.44	9.99	V	53.43	73.98	20.55	PK
7236	30.72	9.99	V	40.71	53.98	13.27	AV
4824	43.58	3.91	H	47.49	73.98	26.49	PK
4824	31.81	3.91	H	35.72	53.98	18.26	AV
7236	42.96	9.99	H	52.95	73.98	21.03	PK
7236	30.56	9.99	H	40.55	53.98	13.43	AV

Band :	DTS		Operation Mode : 802.11be EHT20			RU Tone&offset	
CH.6	2437	MHz	Transfer Rate : MCS 0			26T	4
Frequency	Measured value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
4874	42.09	4.16	V	46.25	73.98	27.73	PK
4874	31.10	4.16	V	35.26	53.98	18.72	AV
7311	42.59	10.47	V	53.06	73.98	20.92	PK
7311	30.11	10.47	V	40.58	53.98	13.40	AV
4874	43.54	4.16	H	47.70	73.98	26.28	PK
4874	31.36	4.16	H	35.52	53.98	18.46	AV
7311	43.01	10.47	H	53.48	73.98	20.50	PK
7311	30.71	10.47	H	41.18	53.98	12.80	AV

Band :	DTS		Operation Mode : 802.11be EHT20			RU Tone&offset	
CH.11	2462	MHz	Transfer Rate : MCS 0			26T	4
Frequency	Measured value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
4924	42.80	3.45	V	46.25	73.98	27.73	PK
4924	30.95	3.45	V	34.40	53.98	19.58	AV
7386	42.90	11.22	V	54.12	73.98	19.86	PK
7386	30.16	11.22	V	41.38	53.98	12.60	AV
4924	43.19	3.45	H	46.64	73.98	27.34	PK
4924	31.80	3.45	H	35.25	53.98	18.73	AV
7386	43.96	11.22	H	55.18	73.98	18.80	PK
7386	30.94	11.22	H	42.16	53.98	11.82	AV

802.11be EHT20 MCS 0							
Band :	DTS		Operation Mode : 802.11be EHT20			RU Tone&offset	
CH.1	2412	MHz	Transfer Rate : MCS 0			SU	
Frequency	Measured value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
4824	44.21	3.91	V	48.12	73.98	25.86	PK
4824	31.55	3.91	V	35.46	53.98	18.52	AV
7236	42.96	9.99	V	52.95	73.98	21.03	PK
7236	30.26	9.99	V	40.25	53.98	13.73	AV
4824	44.46	3.91	H	48.37	73.98	25.61	PK
4824	31.91	3.91	H	35.82	53.98	18.16	AV
7236	43.15	9.99	H	53.14	73.98	20.84	PK
7236	30.52	9.99	H	40.51	53.98	13.47	AV

Band :	DTS		Operation Mode : 802.11be EHT20			RU Tone&offset	
CH.6	2437	MHz	Transfer Rate : MCS 0			SU	
Frequency	Measured value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
4874	42.75	4.16	V	46.91	73.98	27.07	PK
4874	31.15	4.16	V	35.31	53.98	18.67	AV
7311	42.91	10.47	V	53.38	73.98	20.60	PK
7311	30.58	10.47	V	41.05	53.98	12.93	AV
4874	43.08	4.16	H	47.24	73.98	26.74	PK
4874	31.26	4.16	H	35.42	53.98	18.56	AV
7311	43.30	10.47	H	53.77	73.98	20.21	PK
7311	30.96	10.47	H	41.43	53.98	12.55	AV

Band :	DTS		Operation Mode : 802.11be EHT20			RU Tone&offset	
CH.11	2462	MHz	Transfer Rate : MCS 0			SU	
Frequency	Measured value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
4924	42.88	3.45	V	46.33	73.98	27.65	PK
4924	30.96	3.45	V	34.41	53.98	19.57	AV
7386	42.28	11.22	V	53.50	73.98	20.48	PK
7386	30.16	11.22	V	41.38	53.98	12.60	AV
4924	43.56	3.45	H	47.01	73.98	26.97	PK
4924	31.17	3.45	H	34.62	53.98	19.36	AV
7386	43.09	11.22	H	54.31	73.98	19.67	PK
7386	30.50	11.22	H	41.72	53.98	12.26	AV

802.11be EHT20 MCS 0							
Band :	DTS		Operation Mode : 802.11be EHT20			RU Tone&offset	
CH.1	2412	MHz	Transfer Rate : MCS 0			26+52T	71
Frequency	Measured value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
4824	43.96	3.91	V	47.87	73.98	26.11	PK
4824	32.11	3.91	V	36.02	53.98	17.96	AV
7236	42.16	9.99	V	52.15	73.98	21.83	PK
7236	30.50	9.99	V	40.49	53.98	13.49	AV
4824	44.19	3.91	H	48.10	73.98	25.88	PK
4824	32.17	3.91	H	36.08	53.98	17.90	AV
7236	42.33	9.99	H	52.32	73.98	21.66	PK
7236	30.67	9.99	H	40.66	53.98	13.32	AV

Band :	DTS		Operation Mode : 802.11be EHT20			RU Tone&offset	
CH.6	2437	MHz	Transfer Rate : MCS 0			26+52T	71
Frequency	Measured value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
4874	42.92	4.16	V	47.08	73.98	26.90	PK
4874	30.50	4.16	V	34.66	53.98	19.32	AV
7311	41.16	10.47	V	51.63	73.98	22.35	PK
7311	30.50	10.47	V	40.97	53.98	13.01	AV
4874	43.52	4.16	H	47.68	73.98	26.30	PK
4874	30.82	4.16	H	34.98	53.98	19.00	AV
7311	41.91	10.47	H	52.38	73.98	21.60	PK
7311	30.75	10.47	H	41.22	53.98	12.76	AV

Band :	DTS		Operation Mode : 802.11be EHT20			RU Tone&offset	
CH.11	2462	MHz	Transfer Rate : MCS 0			26+52T	71
Frequency	Measured value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
4924	43.80	3.45	V	47.25	73.98	26.73	PK
4924	30.46	3.45	V	33.91	53.98	20.07	AV
7386	41.94	11.22	V	53.16	73.98	20.82	PK
7386	30.05	11.22	V	41.27	53.98	12.71	AV
4924	44.10	3.45	H	47.55	73.98	26.43	PK
4924	31.00	3.45	H	34.45	53.98	19.53	AV
7386	42.72	11.22	H	53.94	73.98	20.04	PK
7386	30.60	11.22	H	41.82	53.98	12.16	AV

802.11be EHT20 MCS 0							
Band :	DTS		Operation Mode : 802.11be EHT20			RU Tone&offset	
CH.1	2412	MHz	Transfer Rate : MCS 0			26+106T	82
Frequency	Measured value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
4824	44.05	3.91	V	47.96	73.98	26.02	PK
4824	32.16	3.91	V	36.07	53.98	17.91	AV
7236	41.86	9.99	V	51.85	73.98	22.13	PK
7236	30.18	9.99	V	40.17	53.98	13.81	AV
4824	44.17	3.91	H	48.08	73.98	25.90	PK
4824	32.24	3.91	H	36.15	53.98	17.83	AV
7236	42.10	9.99	H	52.09	73.98	21.89	PK
7236	30.63	9.99	H	40.62	53.98	13.36	AV

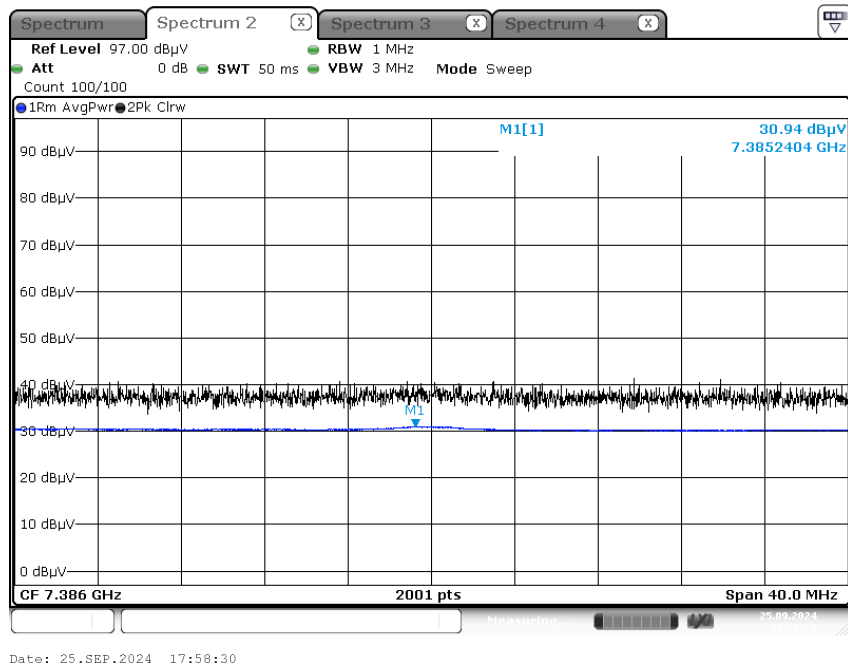
Band :	DTS		Operation Mode : 802.11be EHT20			RU Tone&offset	
CH.6	2437	MHz	Transfer Rate : MCS 0			26+106T	82
Frequency	Measured value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
4874	42.17	4.16	V	46.33	73.98	27.65	PK
4874	30.28	4.16	V	34.44	53.98	19.54	AV
7311	43.06	10.47	V	53.53	73.98	20.45	PK
7311	30.42	10.47	V	40.89	53.98	13.09	AV
4874	42.66	4.16	H	46.82	73.98	27.16	PK
4874	30.82	4.16	H	34.98	53.98	19.00	AV
7311	43.79	10.47	H	54.26	73.98	19.72	PK
7311	30.77	10.47	H	41.24	53.98	12.74	AV

Band :	DTS		Operation Mode : 802.11be EHT20			RU Tone&offset	
CH.11	2462	MHz	Transfer Rate : MCS 0			26+106T	82
Frequency	Measured value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
4924	42.18	3.45	V	45.63	73.98	28.35	PK
4924	30.86	3.45	V	34.31	53.98	19.67	AV
7386	42.50	11.22	V	53.72	73.98	20.26	PK
7386	30.06	11.22	V	41.28	53.98	12.70	AV
4924	43.10	3.45	H	46.55	73.98	27.43	PK
4924	31.07	3.45	H	34.52	53.98	19.46	AV
7386	42.61	11.22	H	53.83	73.98	20.15	PK
7386	30.29	11.22	H	41.51	53.98	12.47	AV

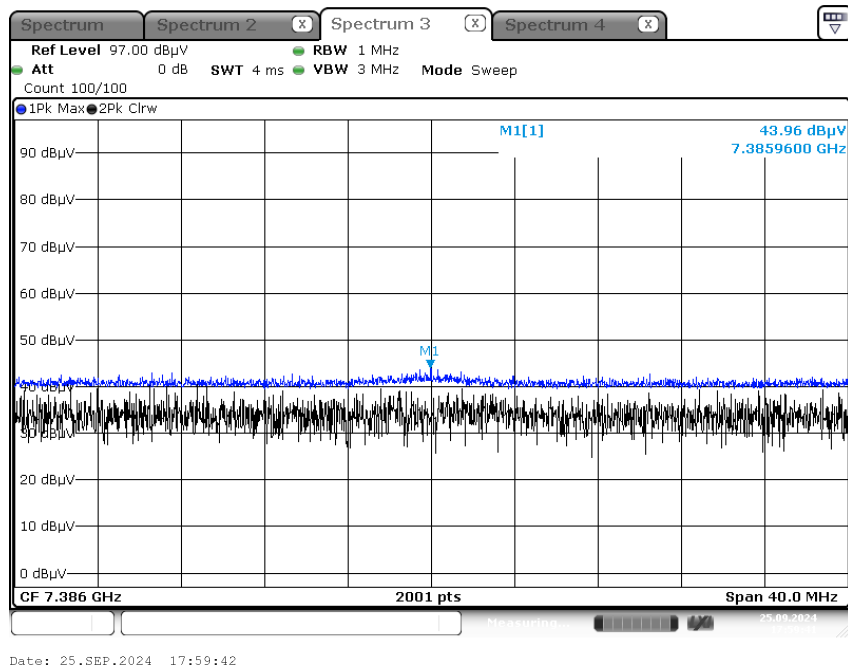
Test Plots(26T RU 4)

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, Z-H)



Radiated Spurious Emissions plot – Peak result (802.11be(EHT20), Ch.11 3rd Harmonic, Z-H)



9.7 RADIATED RESTRICTED BAND EDGES

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

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

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
2390	65.95	-	H	65.95	73.98	8.03	PK
2390	45.55	-	H	45.55	53.98	8.43	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	66.51	-	H	66.51	73.98	7.47	PK
2483.5	45.40	-	H	45.40	53.98	8.58	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	56.02	-	H	56.02	73.98	17.96	PK
2483.5	43.72	-	H	43.72	53.98	10.26	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	70.65	-	H	70.65	73.98	3.33	PK
2483.5	50.12	-	H	50.12	53.98	3.86	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
2390	64.25	-	H	64.25	73.98	9.73	PK
2390	45.81	-	H	45.81	53.98	8.17	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	69.79	-	H	69.79	73.98	4.19	PK
2483.5	45.63	-	H	45.63	53.98	8.35	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	55.80	-	H	55.80	73.98	18.18	PK
2483.5	43.67	-	H	43.67	53.98	10.31	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	68.38	-	H	68.38	73.98	5.60	PK
2483.5	49.02	-	H	49.02	53.98	4.96	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
2390	67.87	-	H	67.87	73.98	6.11	PK
2390	49.07	-	H	49.07	53.98	4.91	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	63.94	-	H	63.94	73.98	10.04	PK
#2483.5	47.40	-	H	47.40	53.98	6.58	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	56.12	-	H	56.12	73.98	17.86	PK
2483.5	43.66	-	H	43.66	53.98	10.32	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	67.43	-	H	67.43	73.98	6.55	PK
2483.5	48.23	-	H	48.23	53.98	5.75	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
#2390	62.52	-	H	62.52	73.98	11.46	PK
#2390	51.66	-	H	51.66	53.98	2.32	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
#2390	61.33	-	H	61.33	73.98	12.65	PK
#2390	51.38	-	H	51.38	53.98	2.60	AV

802.11be(MCS0)		EHT20	242T				
Channel	CH 3	Freq	2422 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
#2390	61.47	-	H	61.47	73.98	12.51	PK
#2390	51.72	-	H	51.72	53.98	2.26	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	61.91	-	H	61.91	73.98	12.07	PK
#2483.5	51.43	-	H	51.43	53.98	2.55	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	62.87	-	H	62.87	73.98	11.11	PK
#2483.5	51.86	-	H	51.86	53.98	2.12	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	55.86	-	H	55.86	73.98	18.12	PK
2483.5	43.78	-	H	43.78	53.98	10.20	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	62.15	-	H	62.15	73.98	11.83	PK
2483.5	45.58	-	H	45.58	53.98	8.40	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
#2390	61.54	-	H	61.54	73.98	12.44	PK
#2390	51.68	-	H	51.68	53.98	2.30	AV

802.11be(MCS0)		EHT20			SU		
Channel	CH 2	Freq	2417 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
#2390	61.84	-	H	61.84	73.98	12.14	PK
#2390	51.60	-	H	51.60	53.98	2.38	AV

802.11be(MCS0)		EHT20			SU		
Channel	CH 10	Freq	2457 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	61.13	-	H	61.13	73.98	12.85	PK
#2483.5	51.53	-	H	51.53	53.98	2.45	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	62.02	-	H	62.02	73.98	11.96	PK
#2483.5	51.78	-	H	51.78	53.98	2.20	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	55.32	-	H	55.32	73.98	18.66	PK
2483.5	43.67	-	H	43.67	53.98	10.31	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	63.40	-	H	63.40	73.98	10.58	PK
2483.5	46.76	-	H	46.76	53.98	7.22	AV

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
2390	69.86	-	H	69.86	73.98	4.12	PK
2390	46.68	-	H	46.68	53.98	7.30	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	66.73	-	H	66.73	73.98	7.25	PK
2483.5	45.52	-	H	45.52	53.98	8.46	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
2390	55.88	-	H	55.88	73.98	18.10	PK
2390	43.67	-	H	43.67	53.98	10.31	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	59.86	-	H	59.86	73.98	14.12	PK
2483.5	44.45	-	H	44.45	53.98	9.53	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
#2390	65.62	-	H	65.62	73.98	8.36	PK
#2390	51.37	-	H	51.37	53.98	2.61	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	69.46	-	H	69.46	73.98	4.52	PK
2483.5	49.40	-	H	49.40	53.98	4.58	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
#2390	55.86	-	H	55.86	73.98	18.12	PK
#2390	43.66	-	H	43.66	53.98	10.32	AV

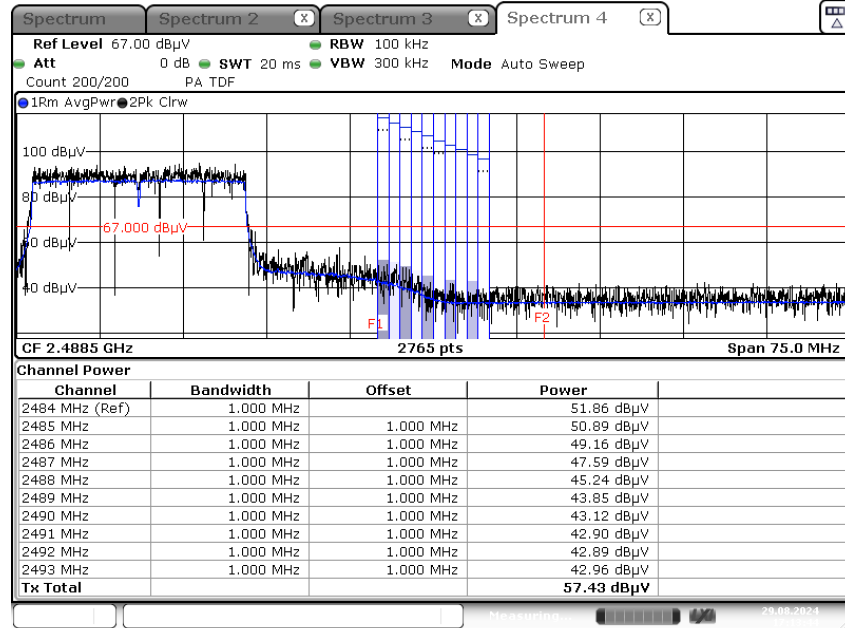
802.11be(MCS0)		EHT20	106T+26T				
Channel	CH 13	Freq	2472 MHz		MRU offset	83	
Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
2483.5	65.40	-	H	65.40	73.98	8.58	PK
2483.5	47.58	-	H	47.58	53.98	6.40	AV

Test Plots

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

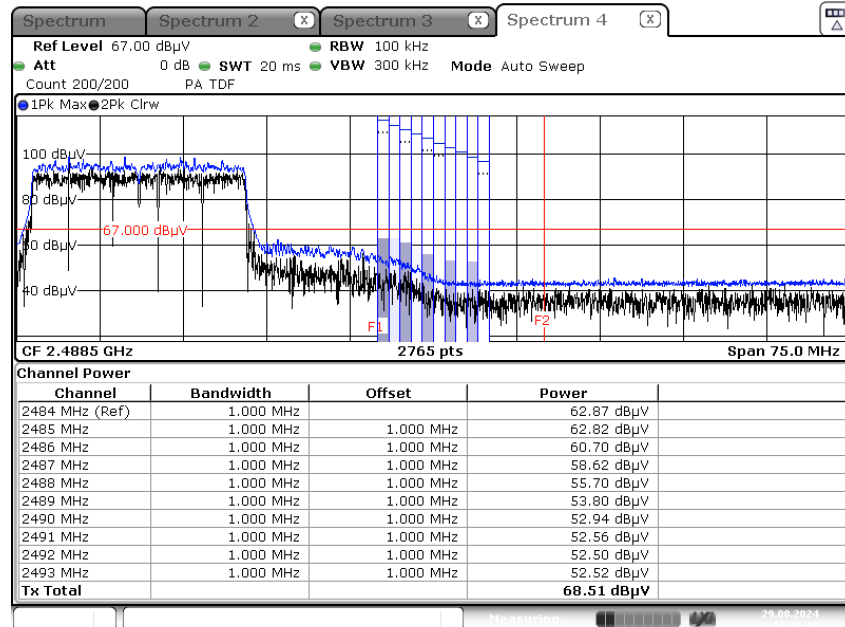
Note: In order to simplify the report, Plots of worst case are only reported.

Integration method Used_ Average result(802.11be EHT20, MCS0, 242 Tone, RU 61 ch.11, X-H)



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Integration method Used_ Peak result(802.11be EHT20, MCS0, 242 Tone, RU 61 ch.11, X-H)



Date: 29.AUG.2024 17:15:10

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	KR75305528	01/02/2025	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	S3AM	07/30/2025	Annual
Controller	EM2090	Emco	060520	N/A	N/A
Turn Table	N/A	Ets	N/A	N/A	N/A
Amp & Filter Bank Switch Controller	FBSM-01A	TNM system	0	N/A	N/A
Loop Antenna	FMZB 1513	Rohde & Schwarz	1513-333	03/07/2026	Biennial
Hybrid Antenna	VULB 9168	Schwarzbeck	9168-0895	08/28/2026	Biennial
Horn Antenna	BBHA 9120D	Schwarzbeck	9120D-1191	11/07/2025	Biennial
Horn Antenna(15 GHz ~ 40 GHz)	BBHA9170	Schwarzbeck	BBHA9170124	03/28/2025	Biennial
Band Reject Filter	WRCJV2400/2483.5-2370/2520-60/12SS	Wainwright Instruments	2	01/02/2025	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	WRCJV5100/5850-40/50-8EEK	Wainwright Instruments	1	02/14/2025	Annual
RF Switching System	FBSR-03A (3G HPF+LNA)	T&M SYSTEM	S3L1	10/31/2025	Annual
RF Switching System	FBSR-03A (10dB ATT+LNA)	T&M SYSTEM	S3L2	10/31/2025	Annual
RF Switching System	FBSR-03A (7G HPF+LNA)	T&M SYSTEM	S3L3	10/31/2025	Annual
RF Switching System	FBSR-03A (3dB ATT+LNA)	T&M SYSTEM	S3L4	10/31/2025	Annual
Power Amplifier	CBL18265035	CERNEX	22966	11/07/2025	Annual
Power Amplifier	CBL26405040	CERNEX	25956	02/26/2025	Annual
Bluetooth Tester	TC-3000C	TESCOM	3000C000175	03/19/2025	Annual
Spectrum Analyzer	FSV40 (9 kHz ~ 40 GHz)	Rohde & Schwarz	100900	08/27/2025	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-2412-FC016-P