



TEST REPORT

KCTL Eurofins KCTL Co.,Ltd. 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea TEL: 82-70-5008-1021 FAX: 82-505-299-8311 www.kctl.co.kr	Report No.: KR24-SRF0007 Page (1) of (112)	
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1. Client

- Name : Samsung Electronics Co., Ltd.
- Address : 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
- Date of Receipt : 2023-07-31

2. Use of Report : Certification

3. Name of Product / Model : Wi-Fi/BLE combo module / CCAT710R

4. Manufacturer / Country of Origin : Samsung Electronics Co., Ltd. / Korea

5. FCC ID : A3LCCAT710R

6. IC Certificate No. : 649E-CCAT710R

7. Date of Test : 2023-10-23 to 2023-12-10

8. Location of Test : ☒ Permanent Testing Lab ☐ On Site Testing (Address: 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea)

9. Test method used : FCC Part 15 Subpart E, 15.407

RSS-247 Issue 3 August 2023

RSS-Gen Issue 5 February 2021

10. Test Result : Refer to the test result in the test report

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

Affirmation	Tested by	Technical Manager
	Name : Euijung Kim (Signature)	Name : Heesu Ahn (Signature)

The above testing certificate is the accredited test result by Korea Laboratory Accreditation Scheme, which signed the ILAC-MRA.

2024-01-23

Accredited by KOLAS, Republic of KOREA

Eurofins KCTL Co.,Ltd.

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REPORT REVISION HISTORY

Date	Revision	Page No
2024-01-23	Originally issued	-

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General remarks for test reports

Statement concerning the uncertainty of the measurement systems used for the tests

(may be required by the product standard or client)

☐ Internal procedure used for type testing through which traceability of the measuring uncertainty has been established:

Procedure number, issue date and title:

Calculations leading to the reported values are on file with the testing laboratory that conducted the testing.

☒ Statement not required by the standard or client used for type testing

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1. General information

Client : Samsung Electronics Co., Ltd.
 Address : 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
 Manufacturer : Samsung Electronics Co., Ltd.
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 Laboratory : Eurofins KCTL Co.,Ltd.
 Address : 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea
 Accreditations : FCC Site Designation No: KR0040, FCC Site Registration No: 687132
 VCCI Registration No. : R-20080, G-20078, C-20059, T-20056
 CAB Identifier: KR0040
 ISED Number: 8035A
 KOLAS No.: KT231

2. Device information

Equipment under test : Wi-Fi/BLE combo module
 Model : CCAT710R
 Frequency range : Bluetooth(BDR/EDR, BLE): 2 402 MHz ~ 2 480 MHz
 802.11 b/g/n/ax_HT20/HE20: 2 412 MHz ~ 2 462 MHz
 UNII-1 : 5 180 MHz ~ 5 240 MHz
 UNII-2A : 5 260 MHz ~ 5 320 MHz
 UNII-2C : 5 500 MHz ~ 5 720 MHz
 UNII-3 : 5 745 MHz ~ 5 825 MHz
 Modulation technique : Bluetooth(BDR/EDR)_GFSK, $\pi/4$ DQPSK, 8DPSK
 Bluetooth(BLE)_GFSK
 WIFI(802.11a/b/g/n HT20/ac VHT20/ax HE20)_DSSS, OFDM, OFDMA
 Number of channels : Bluetooth(BDR/EDR)_79ch
 Bluetooth(BLE)_40ch
 2.4 GHz band : 11 ch (20 MHz)
 UNII-1 : 4 ch (20 MHz)
 UNII-2A : 4 ch (20 MHz)
 UNII-2C : 12 ch (20 MHz)
 UNII-3 : 5 ch (20 MHz)
 Power source : DC 5.0 V, DC 12.0 V
 Antenna type : Chip antenna
 Antenna gain : Bluetooth(BDR/EDR/BLE) : -0.1 dBi
 2.4 GHz band : -0.1 dBi
 UNII-1 : 0.9 dBi
 UNII-2A : 0.2 dBi
 UNII-2C : -0.4 dBi
 UNII-3 : -0.7 dBi
 Software version : v1.0
 Hardware version : v1.0
 Operation temperature : -20 °C ~ 85 °C
 Test device serial No. : Conducted : 700CXACR02000013R
 Radiated : 700CXI9FR02000009R

2.1. Frequency/channel operations

This device contains the following capabilities:

Bluetooth (BDR/EDR/BLE), WLAN 2.4 GHz_802.11b/g/n(HT20)/ax(HE20),
 WLAN 5 GHz_802.11a/n(HT20)/ac(VHT20)/ax(HE20)

UNII-1		UNII-2A		UNII-2C		UNII-3	
Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)
36	5 180	52	5 260	100	5 500	149	5 745
40	5 200	56	5 280	120	5 600	157	5 785
48	5 240	64	5 320	140	5 700	165	5 825
				144	5 720		

Table 2.1.1. 802.11ax(HE20) mode

2.2. Test RU offset for tones in each modes

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 / SU	-	61 / -	-

2.3. Band portion of RU allocation about straddle channels

Mode	Channel	Tone number in RU	RU offset	Portion
HE20	Straddle 5720 MHz	26T	0	UNII-2C
			4	UNII-2C
			8	UNII-3
		52T	37	UNII-2C
			38	UNII-2C
			40	UNII-3
		106T	53	UNII-2C
			54	UNII-2C & UNII-3
		242T / SU	61 / -	UNII-2C & UNII-3

2.4. Duty Cycle Factor

Test mode	Tone	Period (ms)	On time (ms)	Duty cycle		Duty Cycle Factor (dB)
				(Linear)	(%)	
802.11ax HE 20 SISO	26T	4.832	4.825	0.998 7	99.87	0.01
	52T	4.846	4.840	0.998 8	99.88	0.01
	106T	4.846	4.841	0.998 9	99.89	0.00
	242T	4.846	4.841	0.999 0	99.90	0.00
	SU	18.663	18.655	0.999 6	99.96	0.00

1. Duty cycle (Linear) = $T_{on} \text{ time} / \text{Period}$
2. DCF(Duty cycle factor) = $10\log(1/\text{duty cycle})$
3. DCF is not compensated to average result if duty cycle is more than 98%
4. Please refer to Appendix A for plots,

3. Antenna requirement

Requirement of FCC part section 15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a 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.

Requirement of RSS-Gen Section 6.8:

The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list.

For expediting the testing, measurements may be performed using only the antenna with highest gain of each combination of transmitter and antenna type, with the transmitter output power set at the maximum level. However, the transmitter shall comply with the applicable requirements under all operational conditions and when in combination with any type of antenna from the list provided in the test report (and in the notice to be included in the user manual, provided below).

When measurements at the antenna port are used to determine the RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna's manufacturer.

The test report shall state the RF power, output power setting and spurious emission measurements with each antenna type that is used with the transmitter being tested.

Immediately following the above notice, the manufacturer shall provide a list of all antenna types which can be used with the transmitter, indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna type.

- The transmitter has permanently attached Chip antenna (Internal antenna) on board.
- The E.U.T Complies with the requirement of §15.203, §15.247, §15.407.

4. Summary of tests

FCC Part section(s)	IC Rule Reference	Parameter	Test Condition	Test results
15.407(a)	RSS-247 Issue 2, 6.2	Maximum conducted output power	Conducted	Pass
15.407(a)	RSS-247 Issue 2, 6.2	Maximum power spectral density		Pass
15.407(a)	RSS-Gen Issue 5, 6.7	26 dB Channel Bandwidth		Pass
15.407(e)	RSS-247 Issue 2, 6.2.4	6 dB Channel Bandwidth		Pass
-	RSS-Gen Issue 5, 6.7	Occupied Bandwidth		Pass
15.207(a)	RSS-Gen Issue 5, 8.8	AC Conducted Emissions		Pass
15.407(b), 15.205(a), 15.209(a)	RSS-Gen Issue 5, 8.9, 8.10 RSS-247 Issue 2, 6.2,	Spurious emission	Radiated	Pass
		Band-edge, restricted band		Pass

Notes.

- All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
- According to exploratory test no any obvious emission were detected from 9 kHz to 30 MHz. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30 m open field site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.
- EUT was investigated in three orthogonal orientations X, Y and Z. it was determined that **X** orientation was worst-case orientation. Therefore, all final radiated testing was performed with the EUT in **X** orientation.
- The test procedure(s) in this report were performed in accordance as following.
 - ANSI C63.10-2013
 - KDB 662911 D01 v02r01
 - KDB 789033 D02 v02r01
- Based on the baseline scan, the worst-case data rates were:
802.11ax HE20 mode: MCS0
- For AC Conducted emission and spurious emission below 1 GHz, please refer to 15.407 legacy test report.

5. 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 indicated 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 ($\pm$)	
Conducted RF power	0.9 dB	
Conducted spurious emissions	1.3 dB	
Radiated spurious emissions	9 kHz ~ 30 MHz	2.3 dB
	30 MHz ~ 1 000 MHz	2.5 dB
	Above 1 GHz	4.7 dB
Conducted emissions	9 kHz ~ 150 kHz	4.8 dB
	150 kHz ~ 30 MHz	2.7 dB

6. Measurement results explanation example

The offset level is set in the spectrum analyzer to compensate the RF cable loss factor between EUT conducted output port and spectrum analyzer.

With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Frequency (MHz)	Factor(dB)	Frequency (MHz)	Factor(dB)
30	10.12	9 000	12.03
50	10.27	10 000	12.12
100	10.33	11 000	12.13
200	10.42	12 000	12.36
300	10.51	13 000	12.45
400	10.56	14 000	12.60
500	10.61	15 000	13.01
600	10.66	16 000	12.92
700	10.70	17 000	13.28
800	10.73	18 000	13.16
900	10.75	19 000	13.48
1 000	10.76	20 000	13.39
2 000	10.93	21 000	13.64
3 000	11.12	22 000	13.75
4 000	11.24	23 000	13.87
5 000	11.36	24 000	13.90
6 000	11.56	25 000	14.06
7 000	11.59	26 000	14.25
8 000	11.71	26 500	14.07

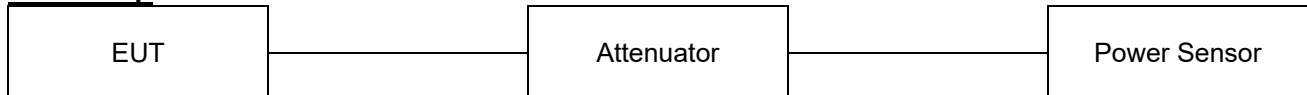
Notes:

Offset(dB) = RF cable loss(dB) + Attenuator(dB)

7. Test results

7.1. Maximum conducted output power

Test setup



Limit

According to §15.407(a), RSS-247(6.2)

FCC

Band	EUT category	Conducted output power limit
UNII-1	Outdoor access point	1 W (30 dBm)
	Indoor access point	
	Fixed point-to-point access point	
	✓ Client device	250 mW (23.98 dBm)
UNII-2A	✓	250 mW or 11 dBm + 10logB ¹⁾
UNII-2C	✓	250 mW or 11 dBm + 10logB ¹⁾
UNII-3	✓	1 W (30 dBm)

IC

Band	Maximum e.i.r.p. limit
UNII-1	200 mW or 10 + 10 logB ²⁾ , dBm
UNII-2A	1 W or 17 dBm + 10logB ²⁾
UNII-2C	1 W or 17 dBm + 10logB ²⁾
UNII-3	1 W (30 dBm)

Note:

- 1) Conducted output power limit B is the 26 dB emission bandwidth.
- 2) Maximum e.i.r.p. limit B is the 99% emission bandwidth.

Test procedure

ANSI C63.10-2013-Section 12.3.3.2 and 14.2
 KDB 789033 D02 v02r01 - Section E.2.d) or E.3.a)
 KDB 662911 D01 v02r01 – Section F)

Test settings

Used test method is Section E.2.d) and Section E.3.a)

◆ KDB 789033 D02 v02r01

Section E.2.d)

Method SA-2 (trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction):

- (i) Measure the duty cycle, x , of the transmitter output signal as described in II.B..
- (ii) Set span to encompass the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
- (iii) Set RBW = 1 MHz
- (iv) Set RBW $\geq$ 3 MHz
- (v) Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$. (This ensures that bin-to-bin spacing is $\leq \text{RBW} / 2$, so that narrowband signals are not lost between frequency bins.)
- (vi) Sweep time = auto.
- (vii) Detector = power averaging (rms), if available. Otherwise use sample detector mode.
- (viii) Do not use sweep triggering. Allow the sweep to “free run.”
- (ix) Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 as needed to ensure that the average accurately represents the true average over the on and off periods of the transmitter.
- (x) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument’s band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
- (xi) 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 (because the measurement represents an average over both the on and off times of the transmission). For example, add $10 \log (1/0.25) = 6 \text{ dB}$ if the duty cycle is 25%.

Section E.3.a)

Method PM (Measurement using an RF average power meter):

- (i) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied.
 - The EUT is configured to transmit continuously or to transmit with a constant duty cycle.
 - At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.
 - The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five
- (ii) If the transmitter does not transmit continuously, measure the duty cycle, x , of the transmitter output signal as described in II
- (iii) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
- (iv) Adjust the measurement in dBm by adding $10 \log (1/x)$ where x is the duty cycle (e.g., $10 \log (1/0.25)$ if the duty cycle is 25%).

Notes: All channels except the straddle channel which RU allocation included in the straddle band were measured with a power meter.

Test results

[DC 5 V]

802.11ax HE20 SISO in the UNII-1 band

Conducted Output Power

Channel	Frequency (MHz)	Tones	RU offset	Measured output power			FCC Limit (dBm)	IC Limit (dBm)
				Reading (dBm)	DCF (dB)	Result (dBm)		
				ANT				
Low	5 180	26T	0	10.87	-	10.87	23.98	22.60
			4	11.72	-	11.72	23.98	22.23
			8	11.21	-	11.21	23.98	22.61
		52T	37	14.37	-	14.37	23.98	22.55
			38	14.89	-	14.89	23.98	22.23
			40	14.67	-	14.67	23.98	22.55
		106T	53	14.68	-	14.68	23.98	22.54
			54	14.89	-	14.89	23.98	22.56
		242T	61	14.75	-	14.75	23.98	22.76
		SU	-	14.83	-	14.83	23.98	22.76
Mid	5 200	26T	0	11.18	-	11.18	23.98	22.61
			4	11.84	-	11.84	23.98	22.23
			8	10.90	-	10.90	23.98	22.62
		52T	37	14.64	-	14.64	23.98	22.56
			38	15.04	-	15.04	23.98	22.23
			40	14.31	-	14.31	23.98	22.56
		106T	53	14.86	-	14.86	23.98	22.55
			54	14.60	-	14.60	23.98	22.56
		242T	61	14.76	-	14.76	23.98	22.76
		SU	-	14.74	-	14.74	23.98	22.75
High	5 240	26T	0	6.39	-	6.39	23.98	22.61
			4	7.40	-	7.40	23.98	22.22
			8	6.75	-	6.75	23.98	22.62
		52T	37	9.15	-	9.15	23.98	22.56
			38	9.80	-	9.80	23.98	22.25
			40	9.53	-	9.53	23.98	22.57
		106T	53	12.51	-	12.51	23.98	22.52
			54	12.71	-	12.71	23.98	22.56
		242T	61	14.89	-	14.89	23.98	22.76
		SU	-	14.91	-	14.91	23.98	22.76

Note:

1. Conducted Output power(dB m) = Average Reading (dB m) + DCF(dB)

E.I.R.P.

Channel	Frequency (MHz)	Tones	RU offset	Conducted Output Power (dBm)	ANT gain (dBi)	MAX e.i.r.p (dBm)	MAX e.i.r.p Limit (dBm)
Low	5 180	26T	0	10.87	0.90	11.77	22.60
			4	11.72		12.62	22.23
			8	11.21		12.11	22.61
		52T	37	14.37		15.27	22.55
			38	14.89		15.79	22.23
			40	14.67		15.57	22.55
		106T	53	14.68		15.58	22.54
			54	14.89		15.79	22.56
		242T	61	14.75		15.65	22.76
		SU	-	14.83		15.73	22.76
Mid	5 200	26T	0	11.18	0.90	12.08	22.61
			4	11.84		12.74	22.23
			8	10.90		11.80	22.62
		52T	37	14.64		15.54	22.56
			38	15.04		15.94	22.23
			40	14.31		15.21	22.56
		106T	53	14.86		15.76	22.55
			54	14.60		15.50	22.56
		242T	61	14.76		15.66	22.76
		SU	-	14.74		15.64	22.75
High	5 240	26T	0	6.39	0.90	7.29	22.61
			4	7.40		8.30	22.22
			8	6.75		7.65	22.62
		52T	37	9.15		10.05	22.56
			38	9.80		10.70	22.25
			40	9.53		10.43	22.57
		106T	53	12.51		13.41	22.52
			54	12.71		13.61	22.56
		242T	61	14.89		15.79	22.76
		SU	-	14.91		15.81	22.76

Notes:

1. E.I.R.P. Calculation: E.I.R.P. (dBm) = Conducted output power (dBm) + Antenna gain (dBi)

802.11ax HE20 SISO in the UNII-2A band
Conducted Output Power

Channel	Frequency (MHz)	Tones	RU offset	Measured output power			FCC Limit (dBm)	IC Limit (dBm)
				Reading (dBm)	DCF (dB)	Result (dBm)		
				ANT				
Low	5 260	26T	0	8.43	-	8.43	23.97	23.61
			4	9.03	-	9.03	23.60	23.23
			8	7.97	-	7.97	23.98	23.62
		52T	37	11.23	-	11.23	23.95	23.55
			38	11.57	-	11.57	23.64	23.23
			40	10.76	-	10.76	23.98	23.56
		106T	53	13.81	-	13.81	23.98	23.54
			54	13.57	-	13.57	23.98	23.56
		242T	61	14.86	-	14.86	23.98	23.76
		SU	-	14.97	-	14.97	23.98	23.75
Mid	5 280	26T	0	8.24	-	8.24	23.98	23.61
			4	8.91	-	8.91	23.58	23.23
			8	8.38	-	8.38	23.98	23.63
		52T	37	10.98	-	10.98	23.96	23.55
			38	11.47	-	11.47	23.64	23.25
			40	11.08	-	11.08	23.98	23.57
		106T	53	13.77	-	13.77	23.98	23.54
			54	13.87	-	13.87	23.98	23.57
		242T	61	14.97	-	14.97	23.98	23.76
		SU	-	15.00	-	15.00	23.98	23.76
High	5 320	26T	0	8.52	-	8.52	23.97	23.61
			4	8.93	-	8.93	23.60	23.22
			8	8.04	-	8.04	23.98	23.62
		52T	37	11.23	-	11.23	23.96	23.55
			38	11.55	-	11.55	23.64	23.25
			40	10.77	-	10.77	23.98	23.56
		106T	53	13.74	-	13.74	23.98	23.54
			54	13.59	-	13.59	23.98	23.56
		242T	61	14.91	-	14.91	23.98	23.77
		SU	-	14.94	-	14.94	23.98	23.75

Note:

1. Conducted Output power(dB m) = Average Reading (dB m) + DCF(dB)

E.I.R.P.

Channel	Frequency (MHz)	Tones	RU offset	Conducted Output Power (dBm)	ANT gain (dBi)	MAX e.i.r.p (dBm)	MAX e.i.r.p Limit (dBm)
Low	5 260	26T	0	8.43	0.20	8.63	29.61
			4	9.03		9.23	29.23
			8	7.97		8.17	29.62
		52T	37	11.23		11.43	29.55
			38	11.57		11.77	29.23
			40	10.76		10.96	29.56
		106T	53	13.81		14.01	29.54
			54	13.57		13.77	29.56
		242T	61	14.86		15.06	29.76
		SU	-	14.97		15.17	29.75
Mid	5 280	26T	0	8.24	0.20	8.44	29.61
			4	8.91		9.11	29.23
			8	8.38		8.58	29.63
		52T	37	10.98		11.18	29.55
			38	11.47		11.67	29.25
			40	11.08		11.28	29.57
		106T	53	13.77		13.97	29.54
			54	13.87		14.07	29.57
		242T	61	14.97		15.17	29.76
		SU	-	15.00		15.20	29.76
High	5 320	26T	0	8.52	0.20	8.72	29.61
			4	8.93		9.13	29.22
			8	8.04		8.24	29.62
		52T	37	11.23		11.43	29.55
			38	11.55		11.75	29.25
			40	10.77		10.97	29.56
		106T	53	13.74		13.94	29.54
			54	13.59		13.79	29.56
		242T	61	14.91		15.11	29.77
		SU	-	14.94		15.14	29.75

Notes:

1. E.I.R.P. Calculation: E.I.R.P. (dBm) = Conducted output power (dBm) + Antenna gain (dBi)

802.11ax HE20 SISO in the UNII-2C band
Conducted Output Power

Channel	Frequency (MHz)	Tones	RU offset	Measured output power			FCC Limit (dBm)	IC Limit (dBm)
				Reading (dBm)	DCF (dB)	Result (dBm)		
				ANT				
Low	5 500	26T	0	12.36	-	12.36	23.97	23.61
			4	13.16	-	13.16	23.60	23.23
			8	12.67	-	12.67	23.98	23.63
		52T	37	14.46	-	14.46	23.95	23.55
			38	14.80	-	14.80	23.64	23.23
			40	14.63	-	14.63	23.98	23.57
		106T	53	14.66	-	14.66	23.98	23.55
			54	14.79	-	14.79	23.98	23.56
		242T	61	14.74	-	14.74	23.98	23.76
		SU	-	14.80	-	14.80	23.98	23.83
Mid	5 580	26T	0	12.74	-	12.74	23.98	23.61
			4	13.41	-	13.41	23.60	23.23
			8	12.80	-	12.80	23.98	23.62
		52T	37	14.87	-	14.87	23.96	23.56
			38	15.21	-	15.21	23.97	23.23
			40	14.74	-	14.74	23.98	23.56
		106T	53	15.00	-	15.00	23.98	23.54
			54	14.95	-	14.95	23.98	23.56
		242T	61	14.94	-	14.94	23.98	23.76
		SU	-	15.00	-	15.00	23.98	23.76
High	5 700	26T	0	13.07	-	13.07	23.97	23.67
			4	13.55	-	13.55	23.60	23.23
			8	12.66	-	12.66	23.98	23.63
		52T	37	15.04	-	15.04	23.96	23.55
			38	15.38	-	15.38	23.63	23.23
			40	14.56	-	14.56	23.98	23.57
		106T	53	15.22	-	15.22	23.98	23.54
			54	14.85	-	14.85	23.98	23.56
		242T	61	15.05	-	15.05	23.98	23.76
		SU	-	15.04	-	15.04	23.98	23.76
Straddle	5 720	26T	0	12.08	-	12.08	22.79	23.60
			4	12.65	-	12.65	22.47	23.22
		52T	37	13.95	-	13.95	22.77	23.55
			38	14.43	-	14.43	22.50	23.23
		106T	53	14.25	-	14.25	22.77	23.54

Note:

1. Conducted Output power(dB m) = Average Reading (dB m) + DCF(dB)

E.I.R.P.

Channel	Frequency (MHz)	Tones	RU offset	Conducted Output Power (dBm)	ANT gain (dBi)	MAX e.i.r.p (dBm)	MAX e.i.r.p Limit (dBm)
Low	5 500	26T	0	12.36	-0.40	11.96	29.61
			4	13.16		12.76	29.23
			8	12.67		12.27	29.63
		52T	37	14.46		14.06	29.55
			38	14.80		14.40	29.23
			40	14.63		14.23	29.57
		106T	53	14.66		14.26	29.55
			54	14.79		14.39	29.56
		242T	61	14.74		14.34	29.76
		SU	-	14.80		14.40	29.83
Mid	5 580	26T	0	12.74		12.34	29.61
			4	13.41		13.01	29.23
			8	12.80		12.40	29.62
		52T	37	14.87		14.47	29.56
			38	15.21		14.81	29.23
			40	14.74		14.34	29.56
		106T	53	15.00		14.60	29.54
			54	14.95		14.55	29.56
		242T	61	14.94		14.54	29.76
		SU	-	15.00		14.60	29.76
High	5 700	26T	0	13.07		12.67	29.67
			4	13.55		13.15	29.23
			8	12.66		12.26	29.63
		52T	37	15.04		14.64	29.55
			38	15.38		14.98	29.23
			40	14.56		14.16	29.57
		106T	53	15.22		14.82	29.54
			54	14.85		14.45	29.56
		242T	61	15.05		14.65	29.76
		SU	-	15.04		14.64	29.76
Straddle	5 720	26T	0	12.08		11.68	29.60
			4	12.65		12.25	29.22
		52T	37	13.95		13.55	29.55
			38	14.43		14.03	29.23
		106T	53	14.25		13.85	29.54

Notes:

1. e.i.r.p. Calculation: e.i.r.p. (dBm) = Conducted output power (dBm) + Antenna gain (dBi)

802.11ax HE20 SISO in the UNII-3 band
Conducted Output Power

Channel	Frequency (MHz)	Tones	RU offset	Measured output power			FCC Limit (dBm)	IC Limit (dBm)
				Reading (dBm)	DCF (dB)	Result (dBm)		
				ANT				
Straddle	5 720	26T	8	12.96	-	12.96	30.00	30.00
		52T	40	14.80	-	14.80	30.00	30.00
Low	5 745	26T	0	11.28	-	11.28	30.00	30.00
			4	12.10	-	12.10	30.00	30.00
			8	11.11	-	11.11	30.00	30.00
		52T	37	11.64	-	11.64	30.00	30.00
			38	11.99	-	11.99	30.00	30.00
			40	11.38	-	11.38	30.00	30.00
		106T	53	11.81	-	11.81	30.00	30.00
			54	11.67	-	11.67	30.00	30.00
		242T	61	11.76	-	11.76	30.00	30.00
		SU	-	11.72	-	11.72	30.00	30.00
Mid	5 785	26T	0	11.09	-	11.09	30.00	30.00
			4	11.80	-	11.80	30.00	30.00
			8	11.13	-	11.13	30.00	30.00
		52T	37	11.35	-	11.35	30.00	30.00
			38	11.83	-	11.83	30.00	30.00
			40	11.36	-	11.36	30.00	30.00
		106T	53	11.60	-	11.60	30.00	30.00
			54	11.60	-	11.60	30.00	30.00
		242T	61	11.61	-	11.61	30.00	30.00
		SU	-	11.58	-	11.58	30.00	30.00
High	5 825	26T	0	10.92	-	10.92	30.00	30.00
			4	11.39	-	11.39	30.00	30.00
			8	10.73	-	10.73	30.00	30.00
		52T	37	11.12	-	11.12	30.00	30.00
			38	11.49	-	11.49	30.00	30.00
			40	10.93	-	10.93	30.00	30.00
		106T	53	11.31	-	11.31	30.00	30.00
			54	11.16	-	11.16	30.00	30.00
		242T	61	11.25	-	11.25	30.00	30.00
SU	-	11.26	-	11.26	30.00	30.00		

Note:

1. Conducted Output power(dB m) = Average Reading (dB m) + DCF(dB)

E.I.R.P.

Channel	Frequency (MHz)	Tones	RU offset	Conducted Output Power (dBm)	ANT gain (dBi)	MAX e.i.r.p (dBm)	MAX e.i.r.p Limit (dBm)
Straddle	5 720	26T	8	12.96	-0.70	12.26	30.00
		52T	40	14.80		14.10	30.00
Low	5 745	26T	0	11.28		10.58	30.00
			4	12.10		11.40	30.00
			8	11.11		10.41	30.00
		52T	37	11.64		10.94	30.00
			38	11.99		11.29	30.00
			40	11.38		10.68	30.00
		106T	53	11.81		11.11	30.00
			54	11.67		10.97	30.00
		242T	61	11.76		11.06	30.00
		SU	-	11.72		11.02	30.00
Mid	5 785	26T	0	11.09		10.39	30.00
			4	11.80		11.10	30.00
			8	11.13		10.43	30.00
		52T	37	11.35		10.65	30.00
			38	11.83		11.13	30.00
			40	11.36		10.66	30.00
		106T	53	11.60		10.90	30.00
			54	11.60		10.90	30.00
		242T	61	11.61		10.91	30.00
		SU	-	11.58		10.88	30.00
High	5 825	26T	0	10.92		10.22	30.00
			4	11.39		10.69	30.00
			8	10.73		10.03	30.00
		52T	37	11.12		10.42	30.00
			38	11.49		10.79	30.00
			40	10.93		10.23	30.00
		106T	53	11.31		10.61	30.00
			54	11.16		10.46	30.00
		242T	61	11.25		10.55	30.00
		SU	-	11.26		10.56	30.00

Note:

1. e.i.r.p. Calculation: e.i.r.p. (dBm) = Conducted output power (dBm) + Antenna gain (dBi)

802.11ax HE20 SISO in the Straddle Conducted Output Power

Channel	Frequency (MHz)	Tones	RU offset	Measured output power			FCC Limit (dBm)	IC Limit (dBm)
				Reading (dBm)	DCF (dB)	Result (dBm)		
				ANT				
UNII-2C	5 720	106T	54	11.08	-	11.08	22.89	22.30
		242T	61	13.35	-	13.35	22.61	22.58
		SU	-	13.38	-	13.38	22.80	22.58
UNII-3		106T	54	11.48	-	11.48	30.00	30.00
		242T	61	7.97	-	7.97	30.00	30.00
		SU	-	8.02	-	8.02	30.00	30.00

Note:

1. Conducted Output power(dBm) = Average Reading (dBm) + DCF(dB)

802.11ax HE20 SISO in the Straddle E.I.R.P.

Band	Frequency (MHz)	Tones	RU offset	Conducted Output Power (dBm)	ANT gain (dBi)	MAX e.i.r.p (dBm)	MAX e.i.r.p Limit (dBm)
UNII-2C	5 720	106T	54	11.08	-0.40	11.14	28.30
		242T	61	13.35		13.37	28.58
		SU	-	13.38		13.42	28.58
UNII-3		106T	54	11.48	-0.70	11.53	30.00
		242T	61	7.97		7.99	30.00
		SU	-	8.02		8.06	30.00

Notes:

1. e.i.r.p. Calculation: e.i.r.p. (dBm) = Conducted output power (dBm) + Antenna gain (dBi)

[DC 12 V]
802.11ax HE20 SISO in the UNII-1 band
Conducted Output Power

Channel	Frequency (MHz)	Tones	RU offset	Measured output power			FCC Limit (dBm)	IC Limit (dBm)
				Reading (dBm)	DCF (dB)	Result (dBm)		
				ANT				
Low	5 180	26T	0	10.94	-	10.94	23.98	22.61
			4	11.74	-	11.74	23.98	22.22
			8	11.21	-	11.21	23.98	22.63
		52T	37	14.37	-	14.37	23.98	22.56
			38	14.93	-	14.93	23.98	22.25
			40	14.64	-	14.64	23.98	22.56
		106T	53	14.71	-	14.71	23.98	22.54
			54	14.86	-	14.86	23.98	22.57
		242T	61	14.76	-	14.76	23.98	22.76
		SU	-	14.78	-	14.78	23.98	22.76
Mid	5 200	26T	0	11.27	-	11.27	23.98	22.60
			4	11.79	-	11.79	23.98	22.21
			8	10.88	-	10.88	23.98	22.54
		52T	37	14.61	-	14.61	23.98	22.56
			38	15.07	-	15.07	23.98	22.23
			40	14.26	-	14.26	23.98	22.56
		106T	53	14.87	-	14.87	23.98	22.55
			54	14.62	-	14.62	23.98	22.57
		242T	61	14.73	-	14.73	23.98	22.76
		SU	-	14.77	-	14.77	23.98	22.76
High	5 240	26T	0	6.46	-	6.46	23.98	22.61
			4	7.34	-	7.34	23.98	22.23
			8	6.78	-	6.78	23.98	22.63
		52T	37	9.21	-	9.21	23.98	22.55
			38	9.79	-	9.79	23.98	22.23
			40	9.50	-	9.50	23.98	22.57
		106T	53	12.48	-	12.48	23.98	22.54
			54	12.74	-	12.74	23.98	22.56
		242T	61	14.88	-	14.88	23.98	22.76
		SU	-	14.91	-	14.91	23.98	22.74

Note:

1. Conducted Output power(dB m) = Average Reading (dB m) + DCF(dB)

E.I.R.P.

Channel	Frequency (MHz)	Tones	RU offset	Conducted Output Power (dBm)	ANT gain (dBi)	MAX e.i.r.p (dBm)	MAX e.i.r.p Limit (dBm)
Low	5 180	26T	0	10.94	0.90	11.84	22.61
			4	11.74		12.64	22.22
			8	11.21		12.11	22.63
		52T	37	14.37		15.27	22.56
			38	14.93		15.83	22.25
			40	14.64		15.54	22.56
		106T	53	14.71		15.61	22.54
			54	14.86		15.76	22.57
		242T	61	14.76		15.66	22.76
		SU	-	14.78		15.68	22.76
Mid	5 200	26T	0	11.27	0.90	12.17	22.60
			4	11.79		12.69	22.21
			8	10.88		11.78	22.54
		52T	37	14.61		15.51	22.56
			38	15.07		15.97	22.23
			40	14.26		15.16	22.56
		106T	53	14.87		15.77	22.55
			54	14.62		15.52	22.57
		242T	61	14.73		15.63	22.76
		SU	-	14.77		15.67	22.76
High	5 240	26T	0	6.46	0.90	7.36	22.61
			4	7.34		8.24	22.23
			8	6.78		7.68	22.63
		52T	37	9.21		10.11	22.55
			38	9.79		10.69	22.23
			40	9.50		10.40	22.57
		106T	53	12.48		13.38	22.54
			54	12.74		13.64	22.56
		242T	61	14.88		15.78	22.76
		SU	-	14.91		15.81	22.74

Notes:

1. E.I.R.P. Calculation: E.I.R.P. (dBm) = Conducted output power (dBm) + Antenna gain (dBi)

802.11ax HE20 SISO in the UNII-2A band
Conducted Output Power

Channel	Frequency (MHz)	Tones	RU offset	Measured output power			FCC Limit (dBm)	IC Limit (dBm)
				Reading (dBm)	DCF (dB)	Result (dBm)		
				ANT				
Low	5 260	26T	0	8.52	-	8.52	23.98	23.61
			4	8.96	-	8.96	23.58	23.23
			8	7.96	-	7.96	23.98	23.63
		52T	37	11.24	-	11.24	23.95	23.55
			38	11.57	-	11.57	23.64	23.23
			40	10.79	-	10.79	23.98	23.57
		106T	53	13.88	-	13.88	23.98	23.54
			54	13.55	-	13.55	23.98	23.56
		242T	61	14.94	-	14.94	23.98	23.76
		SU	-	14.96	-	14.96	23.98	23.75
Mid	5 280	26T	0	8.33	-	8.33	23.97	23.61
			4	8.94	-	8.94	23.58	23.23
			8	8.35	-	8.35	23.98	23.63
		52T	37	10.95	-	10.95	23.96	23.56
			38	11.44	-	11.44	23.64	23.23
			40	11.10	-	11.10	23.98	23.57
		106T	53	13.81	-	13.81	23.98	23.54
			54	13.85	-	13.85	23.98	23.57
		242T	61	15.01	-	15.01	23.98	23.76
		SU	-	15.01	-	15.01	23.98	23.76
High	5 320	26T	0	8.57	-	8.57	23.96	23.61
			4	8.97	-	8.97	23.60	23.23
			8	8.03	-	8.03	23.98	23.63
		52T	37	11.26	-	11.26	23.96	23.56
			38	11.63	-	11.63	23.64	23.23
			40	10.78	-	10.78	23.98	23.56
		106T	53	13.92	-	13.92	23.98	23.54
			54	13.57	-	13.57	23.98	23.56
		242T	61	14.94	-	14.94	23.98	23.76
		SU	-	14.96	-	14.96	23.98	23.76

Note:

1. Conducted Output power(dB m) = Average Reading (dB m) + DCF(dB)

E.I.R.P.

Channel	Frequency (MHz)	Tones	RU offset	Conducted Output Power (dBm)	ANT gain (dBi)	MAX e.i.r.p (dBm)	MAX e.i.r.p Limit (dBm)
Low	5 260	26T	0	8.52	0.20	8.72	29.61
			4	8.96		9.16	29.23
			8	7.96		8.16	29.63
		52T	37	11.24		11.44	29.55
			38	11.57		11.77	29.23
			40	10.79		10.99	29.57
		106T	53	13.88		14.08	29.54
			54	13.55		13.75	29.56
		242T	61	14.94		15.14	29.76
		SU	-	14.96		15.16	29.75
Mid	5 280	26T	0	8.33	0.20	8.53	29.61
			4	8.94		9.14	29.23
			8	8.35		8.55	29.63
		52T	37	10.95		11.15	29.56
			38	11.44		11.64	29.23
			40	11.10		11.30	29.57
		106T	53	13.81		14.01	29.54
			54	13.85		14.05	29.57
		242T	61	15.01		15.21	29.76
		SU	-	15.01		15.21	29.76
High	5 320	26T	0	8.57	0.20	8.77	29.61
			4	8.97		9.17	29.23
			8	8.03		8.23	29.63
		52T	37	11.26		11.46	29.56
			38	11.63		11.83	29.23
			40	10.78		10.98	29.56
		106T	53	13.92		14.12	29.54
			54	13.57		13.77	29.56
		242T	61	14.94		15.14	29.76
		SU	-	14.96		15.16	29.76

Notes:

1. E.I.R.P. Calculation: E.I.R.P. (dBm) = Conducted output power (dBm) + Antenna gain (dBi)

802.11ax HE20 SISO in the UNII-2C band Conducted Output Power

Channel	Frequency (MHz)	Tones	RU offset	Measured output power			FCC Limit (dBm)	IC Limit (dBm)
				Reading (dBm)	DCF (dB)	Result (dBm)		
				ANT				
Low	5 500	26T	0	12.43	-	12.43	23.97	23.61
			4	13.13	-	13.13	23.60	23.22
			8	12.70	-	12.70	23.98	23.63
		52T	37	14.42	-	14.42	23.95	23.55
			38	14.84	-	14.84	23.64	23.25
			40	14.57	-	14.57	23.98	23.57
		106T	53	14.67	-	14.67	23.98	23.55
			54	14.81	-	14.81	23.98	23.57
		242T	61	14.72	-	14.72	23.98	23.76
SU	-	14.73	-	14.73	23.98	23.76		
Mid	5 580	26T	0	12.93	-	12.93	23.98	23.61
			4	13.37	-	13.37	23.60	23.23
			8	12.85	-	12.85	23.98	23.63
		52T	37	14.81	-	14.81	23.96	23.56
			38	15.20	-	15.20	23.97	23.23
			40	14.68	-	14.68	23.98	23.56
		106T	53	15.06	-	15.06	23.98	23.54
			54	14.94	-	14.94	23.98	23.56
		242T	61	15.01	-	15.01	23.98	23.76
SU	-	15.01	-	15.01	23.98	23.75		
High	5 700	26T	0	13.13	-	13.13	23.97	23.61
			4	13.51	-	13.51	23.60	23.23
			8	12.67	-	12.67	23.98	23.63
		52T	37	15.00	-	15.00	23.96	23.56
			38	15.36	-	15.36	23.63	23.23
			40	14.54	-	14.54	23.98	23.56
		106T	53	15.19	-	15.19	23.98	23.54
			54	14.87	-	14.87	23.98	23.57
		242T	61	15.03	-	15.03	23.98	23.76
SU	-	15.04	-	15.04	23.98	23.74		
Straddle	5 720	26T	0	12.15	-	12.15	22.79	23.60
			4	12.70	-	12.70	22.47	23.22
		52T	37	13.99	-	13.99	22.77	23.55
			38	14.41	-	14.41	22.50	23.23
		106T	53	14.25	-	14.25	22.77	23.52

Note:

1. Conducted Output power(dB m) = Average Reading (dB m) + DCF(dB)

E.I.R.P.

Channel	Frequency (MHz)	Tones	RU offset	Conducted Output Power (dBm)	ANT gain (dBi)	MAX e.i.r.p (dBm)	MAX e.i.r.p Limit (dBm)
Low	5 500	26T	0	12.43	-0.40	12.03	29.61
			4	13.13		12.73	29.22
			8	12.70		12.30	29.63
		52T	37	14.42		14.02	29.55
			38	14.84		14.44	29.25
			40	14.57		14.17	29.57
		106T	53	14.67		14.27	29.55
			54	14.81		14.41	29.57
		242T	61	14.72		14.32	29.76
		SU	-	14.73		14.33	29.76
Mid	5 580	26T	0	12.93	-0.40	12.53	29.61
			4	13.37		12.97	29.23
			8	12.85		12.45	29.63
		52T	37	14.81		14.41	29.56
			38	15.20		14.80	29.23
			40	14.68		14.28	29.56
		106T	53	15.06		14.66	29.54
			54	14.94		14.54	29.56
		242T	61	15.01		14.61	29.76
		SU	-	15.01		14.61	29.75
High	5 700	26T	0	13.13	-0.40	12.73	29.61
			4	13.51		13.11	29.23
			8	12.67		12.27	29.63
		52T	37	15.00		14.60	29.56
			38	15.36		14.96	29.23
			40	14.54		14.14	29.56
		106T	53	15.19		14.79	29.54
			54	14.87		14.47	29.57
		242T	61	15.03		14.63	29.76
		SU	-	15.04		14.64	29.74
Straddle	5 720	26T	0	12.15	-0.40	11.75	29.60
			4	12.70		12.30	29.22
		52T	37	13.99		13.59	29.55
			38	14.41		14.01	29.23
		106T	53	14.25		13.85	29.52

Notes:

1. e.i.r.p. Calculation: e.i.r.p. (dBm) = Conducted output power (dBm) + Antenna gain (dBi)

802.11ax HE20 SISO in the UNII-3 band

Conducted Output Power

Channel	Frequency (MHz)	Tones	RU offset	Measured output power			FCC Limit (dBm)	IC Limit (dBm)
				Reading (dBm)	DCF (dB)	Result (dBm)		
				ANT				
Straddle	5 720	26T	8	12.94	-	12.94	30.00	30.00
		52T	40	14.82	-	14.82	30.00	30.00
Low	5 745	26T	0	11.34	-	11.34	30.00	30.00
			4	12.05	-	12.05	30.00	30.00
			8	11.14	-	11.14	30.00	30.00
		52T	37	11.60	-	11.60	30.00	30.00
			38	12.08	-	12.08	30.00	30.00
			40	11.39	-	11.39	30.00	30.00
		106T	53	11.79	-	11.79	30.00	30.00
			54	11.68	-	11.68	30.00	30.00
		242T	61	11.73	-	11.73	30.00	30.00
		SU	-	11.75	-	11.75	30.00	30.00
Mid	5 785	26T	0	11.14	-	11.14	30.00	30.00
			4	11.83	-	11.83	30.00	30.00
			8	11.14	-	11.14	30.00	30.00
		52T	37	11.36	-	11.36	30.00	30.00
			38	11.80	-	11.80	30.00	30.00
			40	11.35	-	11.35	30.00	30.00
		106T	53	11.58	-	11.58	30.00	30.00
			54	11.62	-	11.62	30.00	30.00
		242T	61	11.59	-	11.59	30.00	30.00
		SU	-	11.61	-	11.61	30.00	30.00
High	5 825	26T	0	10.91	-	10.91	30.00	30.00
			4	11.41	-	11.41	30.00	30.00
			8	10.72	-	10.72	30.00	30.00
		52T	37	11.15	-	11.15	30.00	30.00
			38	11.46	-	11.46	30.00	30.00
			40	10.96	-	10.96	30.00	30.00
		106T	53	11.29	-	11.29	30.00	30.00
			54	11.19	-	11.19	30.00	30.00
		242T	61	11.27	-	11.27	30.00	30.00
		SU	-	11.24	-	11.24	30.00	30.00

Note:

1. Conducted Output power(dB m) = Average Reading (dB m) + DCF(dB)

E.I.R.P.

Channel	Frequency (MHz)	Tones	RU offset	Conducted Output Power (dBm)	ANT gain (dBi)	MAX e.i.r.p (dBm)	MAX e.i.r.p Limit (dBm)
Straddle	5 720	26T	8	12.94	-0.70	12.24	30.00
		52T	40	14.82		14.12	30.00
Low	5 745	26T	0	11.34		10.83	30.00
			4	12.05		7.29	30.00
			8	11.14		7.36	30.00
		52T	37	11.60		10.64	30.00
			38	12.08		11.35	30.00
			40	11.39		10.44	30.00
		106T	53	11.79		10.90	30.00
			54	11.68		11.38	30.00
		242T	61	11.73		10.69	30.00
		SU	-	11.75		11.09	30.00
Mid	5 785	26T	0	11.14		10.98	30.00
			4	11.83		11.03	30.00
			8	11.14		11.05	30.00
		52T	37	11.36		10.44	30.00
			38	11.80		11.13	30.00
			40	11.35		10.44	30.00
		106T	53	11.58		10.66	30.00
			54	11.62		11.10	30.00
		242T	61	11.59		10.65	30.00
		SU	-	11.61		10.88	30.00
High	5 825	26T	0	10.91		10.92	30.00
			4	11.41		10.89	30.00
			8	10.72		10.91	30.00
		52T	37	11.15		10.21	30.00
			38	11.46		10.71	30.00
			40	10.96		10.02	30.00
		106T	53	11.29		10.45	30.00
			54	11.19		10.76	30.00
		242T	61	11.27		10.26	30.00
		SU	-	11.24		10.59	30.00

Note:

1. e.i.r.p. Calculation: e.i.r.p. (dBm) = Conducted output power (dBm) + Antenna gain (dBi)

802.11ax HE20 SISO in the Straddle Conducted Output Power

Channel	Frequency (MHz)	Tones	RU offset	Measured output power			FCC Limit (dBm)	IC Limit (dBm)
				Reading (dBm)	DCF (dB)	Result (dBm)		
				ANT				
UNII-2C	5 720	106T	54	11.14	-	11.14	22.87	22.30
		242T	61	13.37	-	13.37	22.89	22.58
		SU	-	13.42	-	13.42	22.80	22.58
UNII-3		106T	54	11.53	-	11.53	30.00	30.00
		242T	61	7.99	-	7.99	30.00	30.00
		SU	-	8.06	-	8.06	30.00	30.00

Note:

1. Conducted Output power(dB m) = Average Reading (dB m) + DCF(dB)

802.11ax HE20 SISO in the Straddle E.I.R.P.

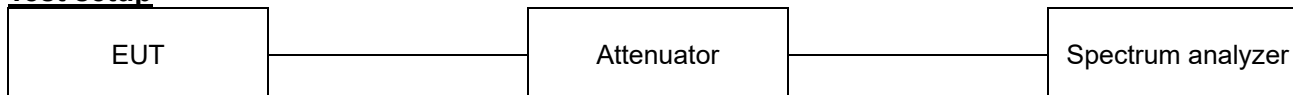
Band	Frequency (MHz)	Tones	RU offset	Conducted Output Power (dBm)	ANT gain (dBi)	MAX e.i.r.p (dBm)	MAX e.i.r.p Limit (dBm)
UNII-2C	5 720	106T	54	11.14	-0.40	10.74	28.30
		242T	61	13.37		12.97	28.58
		SU	-	13.42		13.02	28.58
UNII-3		106T	54	11.53	-0.70	10.83	30.00
		242T	61	7.99		7.29	30.00
		SU	-	8.06		7.36	30.00

Notes:

1. e.i.r.p. Calculation: e.i.r.p. (dBm) = Conducted output power (dBm) + Antenna gain (dBi)

7.2. Maximum Power Spectral Density

Test setup



Limit

According to §15.407(a), RSS-247(6.2)

Band	EUT category		Limit
UNII-1		Outdoor access point	17dBm/MHz
		Indoor access point	
		Fixed point-to-point access point	
	√	Client device	11 dBm /MHz
UNII-2A		√	11 dBm /MHz
UNII-2C		√	11 dBm /MHz
UNII-3		√	30 dBm /500 kHz

Test procedure

ANSI C63.10-2013 Section 12.3.2.2, 14.3.2.2

KDB 789033 D02 v02r01 - Section E and F

KDB 662911 D01 v02r01 - Section E). 2) and Section F)

Test settings

Section F

The rules requires “maximum power spectral density” measurements where the intent is to measure the maximum value of the time average of the power spectral density measured during a period of continuous transmission. Refer to III.A for additional guidance for devices that use channel aggregation.

- Create an average power spectrum for the EUT operating mode being tested by following the instructions in II.E.2. for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA-1, SA-2, SA-3, or alternatives to each) and apply it up to, but not including, the step labeled, “Compute power...” (This procedure is required even if the maximum conducted output power measurement was performed using a power meter, method PM.)
- Search function on the instrument to find the peak of the spectrum and record its value.
- Adjustments to the peak value of the spectrum, if applicable:
 - If Method SA-2 or SA-2 Alternative was used, add $10 \log (1/x)$, where x is the duty cycle, to the peak of the spectrum.
 - If Method SA-3 Alternative was used and the linear mode was used in II.E.2.g) (viii), add 1 dB to the final result to compensate for the difference between linear averaging and power averaging.
- The result is the Maximum PSD over 1MHz reference bandwidth
- For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the preceding procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in Section 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of RBWs less than 1MHz, or 500 kHz, “provided that the measured power is integrated over the full

reference bandwidth” to show the total power over the specified measurement bandwidth(i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 kHz bandwidth, the following adjustments to the procedures apply:

- a) Set $RBW \geq 1/T$, where T is defined in II.B.I.a).
- b) Set $VBW \geq 3 RBW$.
- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10 \log (500 \text{ kHz} / RBW)$ to the measured result, whereas RBW (<500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
- d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add $10 \log (1\text{MHz}/RBW)$ to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.
- e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note:

- As a practical matter, it is recommended to use reduced RBW of 100 kHz for the II.F.5.c) and II.F.5.d), since $RBW=100 \text{ kHz}$ is available on nearly all spectrum analyzers.
- Method SA-2 is used.
- Please refer to Appendix A for plots

Test results

[DC 5 V]

802.11ax HE20 SISO in the UNII-1 band

Channel	Frequency (MHz)	Tones	RU offset	Measured PSD ANT (dBm/MHz)	DCF (dB)	Maximum PSD (dBm/MHz)	Maximum PSD Limit (dBm/MHz)
						Average	
Low	5 180	26T	0	7.39	-	7.39	11.00
			4	7.05	-	7.05	11.00
			8	7.48	-	7.48	11.00
		52T	37	8.95	-	8.95	11.00
			38	9.16	-	9.16	11.00
			40	9.02	-	9.02	11.00
		106T	53	6.09	-	6.09	11.00
			54	6.26	-	6.26	11.00
		242T	61	2.64	-	2.64	11.00
		SU	-	2.69	-	2.69	11.00
Mid	5 200	26T	0	7.52	-	7.52	11.00
			4	7.10	-	7.10	11.00
			8	7.47	-	7.47	11.00
		52T	37	8.98	-	8.98	11.00
			38	9.26	-	9.26	11.00
			40	9.06	-	9.06	11.00
		106T	53	6.12	-	6.12	11.00
			54	6.23	-	6.23	11.00
		242T	61	2.79	-	2.79	11.00
		SU	-	2.77	-	2.77	11.00
High	5 240	26T	0	3.02	-	3.02	11.00
			4	2.59	-	2.59	11.00
			8	2.83	-	2.83	11.00
		52T	37	3.07	-	3.07	11.00
			38	3.28	-	3.28	11.00
			40	2.90	-	2.90	11.00
		106T	53	3.74	-	3.74	11.00
			54	3.69	-	3.69	11.00
		242T	61	2.65	-	2.65	11.00
		SU	-	2.64	-	2.64	11.00

Note:

1. Maximum PSD(dB m/MHz) = Reading (dB m/MHz) + DCF(dB)

802.11ax HE20 SISO in the UNII-2A band

Channel	Frequency (MHz)	Tones	RU offset	Measured PSD ANT (dBm/MHz)	DCF (dB)	Maximum PSD (dBm/MHz)	Maximum PSD Limit (dBm/MHz)
						Average	
Low	5 260	26T	0	4.67	-	4.67	11.00
			4	4.38	-	4.38	11.00
			8	4.63	-	4.63	11.00
		52T	37	4.79	-	4.79	11.00
			38	4.99	-	4.99	11.00
			40	4.74	-	4.74	11.00
		106T	53	5.38	-	5.38	11.00
			54	5.45	-	5.45	11.00
		242T	61	2.91	-	2.91	11.00
Mid	5 280	26T	-	2.96	-	2.96	11.00
			0	4.86	-	4.86	11.00
			4	4.32	-	4.32	11.00
		52T	8	4.75	-	4.75	11.00
			37	4.84	-	4.84	11.00
			38	5.09	-	5.09	11.00
		106T	40	4.88	-	4.88	11.00
			53	5.40	-	5.40	11.00
		242T	54	5.38	-	5.38	11.00
High	5 320	26T	61	3.01	-	3.01	11.00
			SU	-	-	3.04	11.00
		52T	0	4.79	-	4.79	11.00
			4	4.46	-	4.46	11.00
			8	4.80	-	4.80	11.00
		106T	37	4.90	-	4.90	11.00
			38	5.10	-	5.10	11.00
			40	4.98	-	4.98	11.00
		242T	53	5.52	-	5.52	11.00
			54	5.55	-	5.55	11.00
			53	5.52	-	5.52	11.00
			54	5.55	-	5.55	11.00
			53	5.52	-	5.52	11.00
			54	5.55	-	5.55	11.00
			53	5.52	-	5.52	11.00
			54	5.55	-	5.55	11.00
			53	5.52	-	5.52	11.00
			54	5.55	-	5.55	11.00

Note:

1. Maximum PSD(dB m/MHz) = Reading (dB m/MHz) + DCF(dB)

802.11ax HE20 SISO in the UNII-2C band

Channel	Frequency (MHz)	Tones	RU offset	Measured PSD ANT (dBm/MHz)	DCF (dB)	Maximum PSD (dBm/MHz)	Maximum PSD Limit (dBm/MHz)
						Average	
Low	5 500	26T	0	9.65	-	9.65	11.00
			4	9.26	-	9.26	11.00
			8	9.57	-	9.57	11.00
		52T	37	8.94	-	8.94	11.00
			38	9.21	-	9.21	11.00
			40	8.91	-	8.91	11.00
		106T	53	6.05	-	6.05	11.00
			54	6.10	-	6.10	11.00
		242T	61	2.66	-	2.66	11.00
Mid	5 580	26T	0	9.80	-	9.80	11.00
			4	9.49	-	9.49	11.00
			8	9.95	-	9.95	11.00
		52T	37	9.05	-	9.05	11.00
			38	9.30	-	9.30	11.00
			40	9.21	-	9.21	11.00
		106T	53	6.30	-	6.30	11.00
			54	6.31	-	6.31	11.00
		242T	61	2.74	-	2.74	11.00
High	5 700	26T	0	9.73	-	9.73	11.00
			4	9.15	-	9.15	11.00
			8	9.54	-	9.54	11.00
		52T	37	8.83	-	8.83	11.00
			38	9.04	-	9.04	11.00
			40	8.80	-	8.80	11.00
		106T	53	6.01	-	6.01	11.00
			54	5.96	-	5.96	11.00
		242T	61	2.57	-	2.57	11.00
Straddle	5 720	26T	0	9.29	-	9.29	11.00
			4	8.73	-	8.73	11.00
		52T	37	8.56	-	8.56	11.00
			38	8.79	-	8.79	11.00
		106T	53	5.69	-	5.69	11.00

Note:

1. Maximum PSD(dB m/MHz) = Reading (dB m/MHz) + DCF(dB)

802.11ax HE20 SISO in the UNII-3 band

Channel	Frequency (MHz)	Tones	RU offset	Measured PSD ANT (dBm/500kHz)	DCF (dB)	Maximum PSD (dBm/500kHz)	Maximum PSD Limit (dBm/500kHz)
						Average	
Straddle	5 720	26T	8	6.27	-	6.27	30.00
		52T	40	5.35	-	5.35	30.00
Low	5 745	26T	0	5.07	-	5.07	30.00
			4	5.35	-	5.35	30.00
			8	4.79	-	4.79	30.00
		52T	37	2.51	-	2.51	30.00
			38	2.57	-	2.57	30.00
			40	2.53	-	2.53	30.00
		106T	53	-0.36	-	-0.36	30.00
			54	-0.52	-	-0.52	30.00
		242T	61	-3.93	-	-3.93	30.00
		SU	-	-3.92	-	-3.92	30.00
Mid	5 785	26T	0	5.02	-	5.02	30.00
			4	5.52	-	5.52	30.00
			8	4.76	-	4.76	30.00
		52T	37	2.46	-	2.46	30.00
			38	2.66	-	2.66	30.00
			40	2.26	-	2.26	30.00
		106T	53	-0.34	-	-0.34	30.00
			54	-0.52	-	-0.52	30.00
		242T	61	-3.98	-	-3.98	30.00
		SU	-	-3.93	-	-3.93	30.00
High	5 825	26T	0	4.78	-	4.78	30.00
			4	5.02	-	5.02	30.00
			8	4.54	-	4.54	30.00
		52T	37	2.25	-	2.25	30.00
			38	2.36	-	2.36	30.00
			40	2.09	-	2.09	30.00
		106T	53	-0.70	-	-0.70	30.00
			54	-0.66	-	-0.66	30.00
		242T	61	-4.20	-	-4.20	30.00
		SU	-	-4.14	-	-4.14	30.00

Note:

1. Maximum PSD(dB m/MHz) = Reading (dB m/500 kHz) + DCF(dB)

802.11ax HE20 SISO in the Straddle

Band	Frequency (MHz)	Tones	RU offset	Measured PSD ANT	DCF (dB)	Maximum PSD	Maximum PSD Limit
						Average	
UNII-2C	5 720	106T	54	5.90	-	5.90	11.00
		242T	61	2.46	-	2.46	11.00
		SU	-	2.44	-	2.44	11.00
UNII-3		106T	54	2.74	-	2.74	30.00
		242T	61	-0.62	-	-0.62	30.00
		SU	-	-0.66	-	-0.66	30.00

Note:

1. Maximum PSD(dB m/MHz) = Reading (dB m/MHz) + DCF(dB)
2. The Unit of UNII-2C is (dB m / MHz) and Unit of UNII-3 is (dB m / 500 kHz)

[DC 12 V]

802.11ax HE20 SISO in the UNII-1 band

Channel	Frequency (MHz)	Tones	RU offset	Measured PSD ANT (dBm/MHz)	DCF (dB)	Maximum PSD (dBm/MHz)	Maximum PSD Limit (dBm/MHz)
						Average	
Low	5 180	26T	0	7.52	-	7.52	11.00
			4	7.15	-	7.15	11.00
			8	7.64	-	7.64	11.00
		52T	37	8.98	-	8.98	11.00
			38	9.30	-	9.30	11.00
			40	9.09	-	9.09	11.00
		106T	53	6.26	-	6.26	11.00
			54	6.29	-	6.29	11.00
		242T	61	2.83	-	2.83	11.00
Mid	5 200	26T	0	7.64	-	7.64	11.00
			4	7.33	-	7.33	11.00
			8	7.59	-	7.59	11.00
		52T	37	9.17	-	9.17	11.00
			38	9.42	-	9.42	11.00
			40	9.21	-	9.21	11.00
		106T	53	6.36	-	6.36	11.00
			54	6.41	-	6.41	11.00
		242T	61	2.86	-	2.86	11.00
High	5 240	26T	0	3.11	-	3.11	11.00
			4	2.82	-	2.82	11.00
			8	2.97	-	2.97	11.00
		52T	37	3.17	-	3.17	11.00
			38	3.49	-	3.49	11.00
			40	3.15	-	3.15	11.00
		106T	53	3.85	-	3.85	11.00
			54	3.85	-	3.85	11.00
		242T	61	2.77	-	2.77	11.00
		26T	0	2.75	-	2.75	11.00
			4				
			8				
		52T	37				
			38				
			40				
		106T	53				
			54				
		242T	61				

Note:

1. Maximum PSD(dB m/MHz) = Reading (dB m/MHz) + DCF(dB)

802.11ax HE20 SISO in the UNII-2A band

Channel	Frequency (MHz)	Tones	RU offset	Measured PSD ANT (dBm/MHz)	DCF (dB)	Maximum PSD (dBm/MHz)	Maximum PSD Limit (dBm/MHz)
						Average	
Low	5 260	26T	0	5.06	-	5.06	11.00
			4	4.61	-	4.61	11.00
			8	4.83	-	4.83	11.00
		52T	37	4.95	-	4.95	11.00
			38	5.28	-	5.28	11.00
			40	4.95	-	4.95	11.00
		106T	53	5.53	-	5.53	11.00
			54	5.55	-	5.55	11.00
		242T	61	3.19	-	3.19	11.00
		SU	-	3.16	-	3.16	11.00
Mid	5 280	26T	0	5.02	-	5.02	11.00
			4	4.53	-	4.53	11.00
			8	4.80	-	4.80	11.00
		52T	37	4.95	-	4.95	11.00
			38	5.26	-	5.26	11.00
			40	4.96	-	4.96	11.00
		106T	53	5.54	-	5.54	11.00
			54	5.53	-	5.53	11.00
		242T	61	3.23	-	3.23	11.00
		SU	-	3.12	-	3.12	11.00
High	5 320	26T	0	4.95	-	4.95	11.00
			4	4.62	-	4.62	11.00
			8	5.00	-	5.00	11.00
		52T	37	5.00	-	5.00	11.00
			38	5.31	-	5.31	11.00
			40	5.03	-	5.03	11.00
		106T	53	5.64	-	5.64	11.00
			54	5.70	-	5.70	11.00
		242T	61	3.19	-	3.19	11.00
		SU	-	3.21	-	3.21	11.00

Note:

1. Maximum PSD(dB m/MHz) = Reading (dB m/MHz) + DCF(dB)

802.11ax HE20 SISO in the UNII-2C band

Channel	Frequency (MHz)	Tones	RU offset	Measured PSD ANT (dBm/MHz)	DCF (dB)	Maximum PSD (dBm/MHz)	Maximum PSD Limit (dBm/MHz)
						Average	
Low	5 500	26T	0	9.81	-	9.81	11.00
			4	9.43	-	9.43	11.00
			8	9.81	-	9.81	11.00
		52T	37	8.98	-	8.98	11.00
			38	9.20	-	9.20	11.00
			40	8.97	-	8.97	11.00
		106T	53	6.27	-	6.27	11.00
			54	6.26	-	6.26	11.00
		242T	61	2.69	-	2.69	11.00
Mid	5 580	26T	0	9.92	-	9.92	11.00
			4	9.55	-	9.55	11.00
			8	9.98	-	9.98	11.00
		52T	37	9.05	-	9.05	11.00
			38	9.36	-	9.36	11.00
			40	9.20	-	9.20	11.00
		106T	53	6.24	-	6.24	11.00
			54	6.43	-	6.43	11.00
		242T	61	2.89	-	2.89	11.00
High	5 700	26T	0	9.60	-	9.60	11.00
			4	9.07	-	9.07	11.00
			8	9.59	-	9.59	11.00
		52T	37	8.78	-	8.78	11.00
			38	9.11	-	9.11	11.00
			40	8.81	-	8.81	11.00
		106T	53	6.01	-	6.01	11.00
			54	5.96	-	5.96	11.00
		242T	61	2.44	-	2.44	11.00
Straddle	5 720	26T	0	9.27	-	9.27	11.00
			4	8.85	-	8.85	11.00
		52T	37	8.64	-	8.64	11.00
			38	8.67	-	8.67	11.00
		106T	53	5.71	-	5.71	11.00

Note:

1. Maximum PSD(dB m/MHz) = Reading (dB m/MHz) + DCF(dB)

802.11ax HE20 SISO in the UNII-3 band

Channel	Frequency (MHz)	Tones	RU offset	Measured PSD ANT (dBm/500kHz)	DCF (dB)	Maximum PSD (dBm/500kHz)	Maximum PSD Limit (dBm/500kHz)
						Average	
Straddle	5 720	26T	8	6.25	-	6.25	30.00
		52T	40	5.39	-	5.39	30.00
Low	5 745	26T	0	5.14	-	5.14	30.00
			4	5.32	-	5.32	30.00
			8	4.87	-	4.87	30.00
		52T	37	2.54	-	2.54	30.00
			38	2.61	-	2.61	30.00
			40	2.32	-	2.32	30.00
		106T	53	-0.39	-	-0.39	30.00
			54	-0.52	-	-0.52	30.00
		242T	61	-3.89	-	-3.89	30.00
		SU	-	-3.90	-	-3.90	30.00
Mid	5 785	26T	0	5.18	-	5.18	30.00
			4	5.34	-	5.34	30.00
			8	4.87	-	4.87	30.00
		52T	37	2.58	-	2.58	30.00
			38	2.74	-	2.74	30.00
			40	2.42	-	2.42	30.00
		106T	53	-0.36	-	-0.36	30.00
			54	-0.48	-	-0.48	30.00
		242T	61	-3.81	-	-3.81	30.00
		SU	-	-3.80	-	-3.80	30.00
High	5 825	26T	0	5.00	-	5.00	30.00
			4	5.13	-	5.13	30.00
			8	4.54	-	4.54	30.00
		52T	37	2.38	-	2.38	30.00
			38	2.49	-	2.49	30.00
			40	2.13	-	2.13	30.00
		106T	53	-0.62	-	-0.62	30.00
			54	-0.75	-	-0.75	30.00
		242T	61	-4.06	-	-4.06	30.00
		SU	-	-4.09	-	-4.09	30.00

Note:

1. Maximum PSD(dB m/MHz) = Reading (dB m/500 kHz) + DCF(dB)

802.11ax HE20 SISO in the Straddle

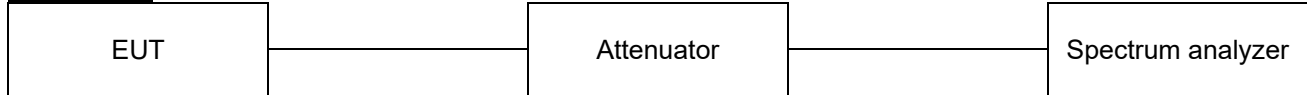
Band	Frequency (MHz)	Tones	RU offset	Measured PSD ANT	DCF (dB)	Maximum PSD	Maximum PSD Limit
						Average	
UNII-2C	5 720	106T	54	5.89	-	5.89	11.00
		242T	61	2.44	-	2.44	11.00
		SU	-	2.48	-	2.48	11.00
UNII-3		106T	54	2.80	-	2.80	30.00
		242T	61	-0.67	-	-0.67	30.00
		SU	-	-0.61	-	-0.61	30.00

Note:

- Maximum PSD(dB m/MHz) = Reading (dB m/MHz) + DCF(dB)
- The Unit of UNII-2C is (dB m / MHz) and Unit of UNII-3 is (dB m / 500 kHz)

7.3. 26 dB Bandwidth & 99% Bandwidth

Test setup



Limit

N/A

Test procedure

ANSI C63.10-2013 Section 12.4

KDB 789033 D02 v02r01 - Section C.1 (26dBbandwidth)

KDB 789033 D02 v02r01 - Section D (99% bandwidth)

Test settings

1. 26 dB Bandwidth

- Set RBW = approximately 1% of the emission bandwidth.
- Set the VBW > RBW.
- Detector = Peak.
- Trace mode = max hold.
- Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

2. 99% Occupied Bandwidth

- Set center frequency to the nominal EUT channel center frequency.
- Set span = 1.5 times to 5.0 times the OBW.
- Set RBW = 1% to 5% of the OBW
- Set VBW $\geq 3 \times$ RBW
- Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
- Use the 99% power bandwidth function of the instrument (if available).
- If the instrument does not have a 99% power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

Note:

- Please refer to Appendix A for plots
- Straddle channels: For 99% Bandwidth, measured 99% occupied bandwidth is separated as below.
 - For UNII-2C = 5 725 MHz – T1 (Measured frequency on the marker table)
 - For UNII 3 = T2 (Measured frequency on the marker table) - 5 725 MHz

Test results

[DC 5 V]

Band	Mode	Frequency (MHz)	Tones	RU offset	26 dB bandwidth (MHz)	99% bandwidth (MHz)
UNII-1	HE20	5 180	26T	0	19.93	18.18
				4	18.13	16.73
				8	20.23	18.23
			52T	37	19.83	17.98
				38	18.38	16.73
				40	20.18	17.98
			106T	53	20.53	17.93
				54	20.38	18.03
			242T	61	21.08	18.88
			SU	-	20.73	18.88
		5 200	26T	0	21.18	18.23
				4	18.18	16.73
				8	20.23	18.28
			52T	37	19.68	18.03
				38	18.33	16.73
				40	20.18	18.03
			106T	53	20.48	17.98
				54	21.08	18.03
			242T	61	20.88	18.88
			SU	-	20.68	18.83
		5 240	26T	0	19.78	18.23
				4	18.13	16.68
				8	20.23	18.28
			52T	37	19.73	18.03
				38	18.38	16.78
				40	20.23	18.08
			106T	53	20.48	17.88
				54	21.03	18.03
			242T	61	21.13	18.88
			SU	-	20.83	18.88

Band	Mode	Frequency (MHz)	Tones	RU offset	26 dB bandwidth (MHz)	99% bandwidth (MHz)
UNII-2A	HE20	5 260	26T	0	19.83	18.23
				4	18.18	16.73
				8	20.13	18.28
			52T	37	19.73	17.98
				38	18.38	16.73
				40	20.23	18.03
			106T	53	20.53	17.93
				54	21.03	18.03
			242T	61	21.18	18.88
			SU	-	20.78	18.83
		5 280	26T	0	19.88	18.23
				4	18.13	16.73
				8	20.13	18.33
			52T	37	19.78	17.98
				38	18.38	16.78
				40	20.13	18.08
			106T	53	20.53	17.93
				54	21.08	18.08
			242T	61	21.03	18.88
			SU	-	20.83	18.88
		5 320	26T	0	19.83	18.23
				4	18.18	16.68
				8	20.13	18.28
			52T	37	19.78	17.98
				38	18.38	16.78
				40	20.18	18.03
			106T	53	20.58	17.93
				54	21.03	18.03
			242T	61	21.18	18.93
			SU	-	20.78	18.83

Band	Mode	Frequency (MHz)	Tones	RU offset	26 dB bandwidth (MHz)	99% bandwidth (MHz)
UNII-2C	HE20	5 500	26T	0	19.83	18.23
				4	18.18	16.73
				8	20.53	18.33
			52T	37	19.73	17.98
				38	18.38	16.73
				40	20.18	18.08
			106T	53	20.53	17.98
				54	21.03	18.03
			242T	61	21.23	18.88
			SU	-	20.83	19.18
		5 600	26T	0	19.88	18.23
				4	18.18	16.73
				8	20.18	18.28
			52T	37	19.78	18.03
				38	19.83	16.73
				40	20.23	18.03
			106T	53	20.53	17.93
				54	20.43	18.03
			242T	61	21.18	18.88
			SU	-	20.73	18.88
		5 700	26T	0	19.83	18.48
				4	18.18	16.73
				8	20.13	18.33
			52T	37	19.78	17.98
				38	18.33	16.73
				40	20.18	18.08
			106T	53	20.53	17.93
				54	21.03	18.03
			242T	61	21.13	18.88
			SU	-	20.83	18.88



Band	Mode	Frequency (MHz)	Tones	RU offset	26 dB bandwidth (MHz)	99% bandwidth (MHz)
UNII-2C	HE20	Straddle 5 720	26T	0	15.09	18.18
				4	14.04	16.68
			52T	37	15.04	17.98
				38	14.14	16.73
			106T	53	15.04	17.93
				54*	15.44	13.49
			242T	61*	14.49	14.39
			SU	-*	15.14	14.39

* RU Allocation included in the straddle band



[DC 12 V]

Band	Mode	Frequency (MHz)	Tones	RU offset	26 dB bandwidth (MHz)	99% bandwidth (MHz)
UNII-1	HE20	5 180	26T	0	19.83	18.23
				4	18.13	16.68
				8	20.13	18.33
			52T	37	19.73	18.03
				38	18.33	16.78
				40	20.13	18.03
			106T	53	20.38	17.93
				54	21.03	18.08
			242T	61	21.13	18.88
			SU	-	20.73	18.88
		5 200	26T	0	19.78	18.18
				4	18.13	16.63
				8	20.08	17.93
			52T	37	19.68	18.03
				38	18.38	16.73
				40	20.13	18.03
			106T	53	20.53	17.98
				54	21.03	18.08
			242T	61	21.08	18.88
			SU	-	20.73	18.88
		5 240	26T	0	19.83	18.23
				4	18.13	16.73
				8	20.23	18.33
			52T	37	19.73	17.98
				38	18.33	16.73
				40	20.18	18.08
			106T	53	20.53	17.93
				54	21.08	18.03
			242T	61	21.23	18.88
			SU	-	20.78	18.78

Band	Mode	Frequency (MHz)	Tones	RU offset	26 dB bandwidth (MHz)	99% bandwidth (MHz)
UNII-2A	HE20	5 260	26T	0	19.88	18.23
				4	18.13	16.73
				8	20.13	18.33
			52T	37	19.73	17.98
				38	18.38	16.73
				40	20.18	18.08
			106T	53	20.53	17.93
				54	21.08	18.03
			242T	61	21.18	18.88
			SU	-	20.78	18.83
		5 280	26T	0	19.83	18.23
				4	18.13	16.73
				8	20.18	18.33
			52T	37	19.78	18.03
				38	18.38	16.73
				40	20.18	18.08
			106T	53	20.58	17.93
				54	21.08	18.08
			242T	61	21.13	18.88
			SU	-	20.78	18.88
		5 320	26T	0	19.78	18.23
				4	18.18	16.73
				8	20.38	18.33
			52T	37	19.78	18.03
				38	18.38	16.73
				40	20.13	18.03
			106T	53	20.53	17.93
				54	21.08	18.03
			242T	61	21.23	18.88
			SU	-	20.83	18.88

Band	Mode	Frequency (MHz)	Tones	RU offset	26 dB bandwidth (MHz)	99% bandwidth (MHz)
UNII-2C	HE20	5 500	26T	0	19.83	18.23
				4	18.18	16.68
				8	20.28	18.33
			52T	37	19.83	17.98
				38	18.38	16.78
				40	20.23	18.08
			106T	53	20.53	17.98
				54	21.08	18.08
			242T	61	21.18	18.88
			SU	-	20.83	18.88
		5 600	26T	0	19.83	18.23
				4	18.08	16.73
				8	20.18	18.33
			52T	37	19.78	18.03
				38	18.38	16.73
				40	20.18	18.03
			106T	53	20.53	17.93
				54	20.48	18.03
			242T	61	21.13	18.88
			SU	-	20.73	18.83
		5 700	26T	0	19.93	18.23
				4	18.18	16.73
				8	20.13	18.33
			52T	37	19.78	18.03
				38	18.38	16.73
				40	20.28	18.03
			106T	53	20.53	17.93
				54	21.08	18.08
			242T	61	21.23	18.88
			SU	-	20.78	18.78



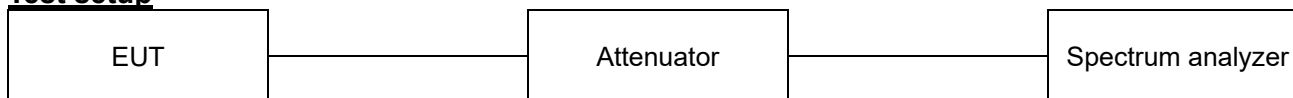
Band	Mode	Frequency (MHz)	Tones	RU offset	26 dB bandwidth (MHz)	99% bandwidth (MHz)
UNII-2C	HE20	Straddle 5 720	26T	0	15.09	18.18
				4	14.04	16.68
			52T	37	15.04	17.98
				38	14.14	16.73
			106T	53	15.04	17.88
				54*	15.39	13.49
			242T	61*	15.44	14.39
			SU	-*	15.14	14.39

* RU Allocation included in the straddle band



7.4. 6 dB Bandwidth & 99% Bandwidth

Test setup



Limit

According to §15.407(e), Within the 5.725-5.850 GHz and 5.850-5.895 GHz bands, the minimum 6 dB bandwidth of U-NII devices shall be at least 500kHz.

Test procedure

ANSI C63.10-2013 Section 6.9.2

KDB 789033 D02 v02r01 - Section C.2

Test settings

Minimum Emission Bandwidth for the band 5.725–5.85 GHz.

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 kHz for the band 5.725–5.85 GHz and 5.850-5.895 GHz band. The following procedure shall be used for measuring this Bandwidth:

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Note:

1. For the 6dB Bandwidth, it was tested at the RU allocation with lowest tones number for each bandwidth
2. * RU Allocation included in the straddle band
3. Straddle channels: For 99% Bandwidth, measured 99% occupied bandwidth is separated as below.
 - For UNII-2C = 5 725 MHz – T1 (Measured frequency on the marker table)
 - For UNII 3 = T2 (Measured frequency on the marker table) - 5 725 MHz
4. Please refer to Appendix A for plots

Test results

[DC 5 V]

Band	Mode	Frequency (MHz)	Tones	RU offset	6 dB bandwidth (MHz)	99% bandwidth (MHz)
					ANT	ANT
UNII-3	HE20	Straddle 5 720	26T	8	2.20	18.38
			52T	40	17.03	18.08
			106T	54*	4.59	4.59
			242T	61*	4.49	4.49
			SU	-*	4.49	4.49
		5 745	26T	0	2.05	18.18
		5 785	26T	0	2.05	18.23
		5 825	26T	0	2.10	18.23
		Minimum Bandwidth			2.05	4.49
Minimum Limit (MHz)				0.5	-	

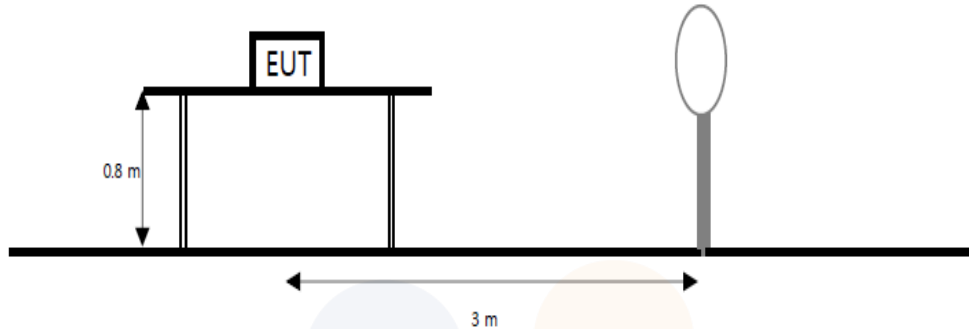
[DC 12 V]

Band	Mode	Frequency (MHz)	Tones	RU offset	6 dB bandwidth (MHz)	99% bandwidth (MHz)
					ANT 2	ANT 2
UNII-3	HE20	Straddle 5 720	26T	8	2.20	18.38
			52T	40	15.83	18.08
			106T	54*	4.54	4.59
			242T	61*	4.54	4.44
			SU	-*	4.54	4.44
		5 745	26T	0	2.10	18.18
		5 785	26T	8	2.05	18.18
		5 825	26T	8	2.15	18.23
		Minimum Bandwidth			2.05	4.44
Minimum Limit (MHz)				0.5	-	

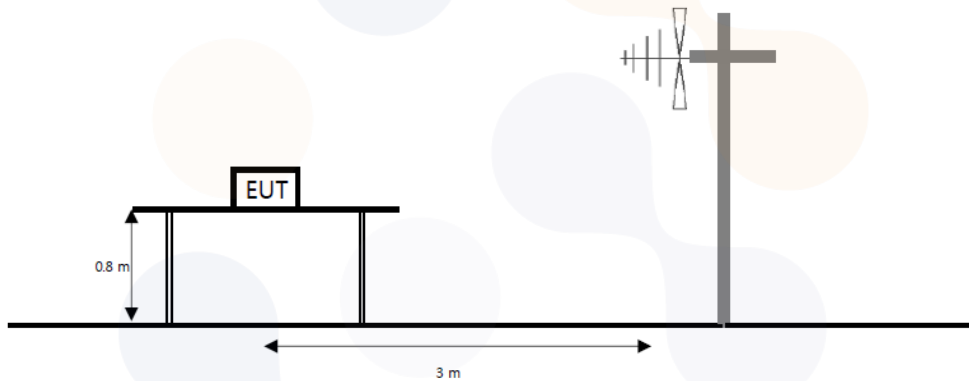
7.5. Spurious Emission, Band Edge and Restricted bands

Test setup

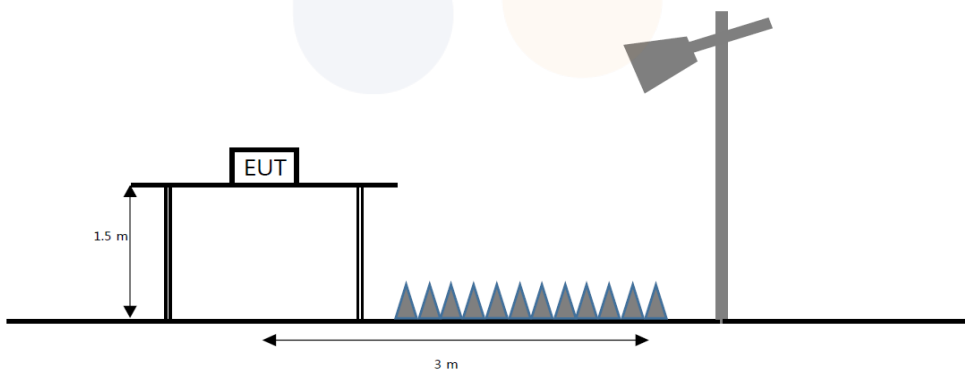
The diagram below shows the test setup that is utilized to make the measurements for emission from 9 kHz to 30 MHz Emissions



The diagram below shows the test setup that is utilized to make the measurements for emission from 30 MHz to 1 GHz emissions.



The diagram below shows the test setup that is utilized to make the measurements for emission from 1 GHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz emissions, whichever is lower.



Limit

FCC

According to section 15.209(a) except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field strength ($\mu\text{V/m}$)	Measurement distance (m)
0.009 - 0.490	2 400/F(kHz)	300
0.490 - 1.705	24 000/F(kHz)	30
1.705 - 30	30	30
30 - 88	100**	3
88 - 216	150**	3
216 - 960	200**	3
Above 960	500	3

**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54–72 MHz, 76–88 MHz, 174–216 MHz or 470–806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., Section 15.231 and 15.241.

According to section 15.205(a) and (b) only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.009 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
0.495 - 0.505	16.694 75 - 16.695 25	608 - 614	5.35 - 5.46
2.173 5 - 2.190 5	16.804 25 - 16.804 75	960 - 1 240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1 300 - 1 427	8.025 - 8.5
4.177 25 - 4.177 75	37.5 - 38.25	1 435 - 1 626.5	9.0 - 9.2
4.207 25 - 4.207 75	73 - 74.6	1 645.5 - 1 646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1 660 - 1 710	10.6 - 12.7
6.267 75 - 6.268 25	108 - 121.94	1 718.8 - 1 722.2	13.25 - 13.4
6.311 75 - 6.312 25	123 - 138	2 200 - 2 300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2 310 - 2 390	15.35 - 16.2
8.362 - 8.366	156.524 75 - 156.525	2 483.5 - 2 500	17.7 - 21.4
8.376 25 - 8.386 75	25	2 690 - 2 900	22.01 - 23.12
8.414 25 - 8.414 75	156.7 - 156.9	3 260 - 3 267	23.6 - 24.0
12.29 - 12.293	162.012 5 - 167.17	3 332 - 3 339	31.2 - 31.8
12.519 75 - 12.520 25	167.72 - 173.2	3 345.8 - 3 358	36.43 - 36.5
12.576 75 - 12.577 25	240 - 285	3 600 - 4 400	Above 38.6
13.36 - 13.41	322 - 335.4		

The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in section 15.209. At frequencies equal to or less than 1 000 MHz, compliance with the limits in section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1 000 MHz, compliance with the emission limits in section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in section 15.35 apply to these measurements.

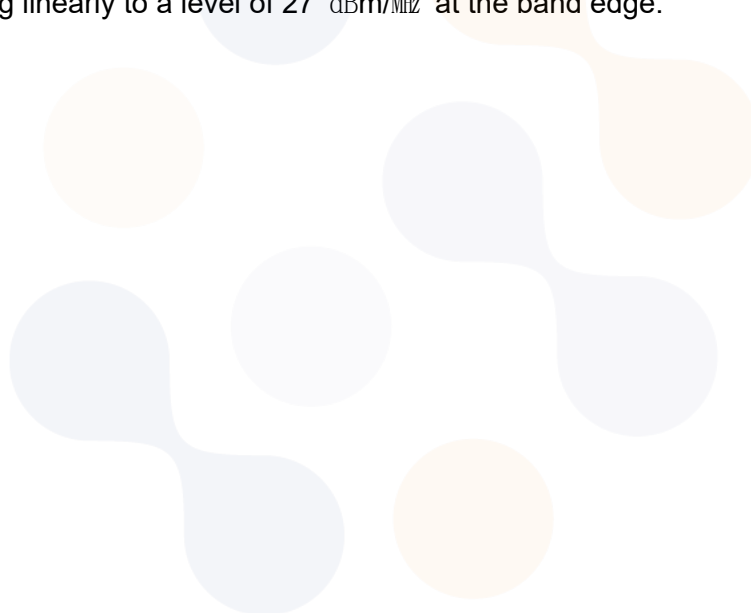
According to section 15.407(b), undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz

For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.



IC

According to RSS-247(5.5), In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

According to RSS-Gen(8.9), Except where otherwise indicated in the applicable RSS, radiated emissions shall comply with the field strength limits shown in table 5 and table 6. Additionally, the level of any transmitter unwanted emission shall not exceed the level of the transmitter's fundamental emission.

Table 5- General field strength limits at frequencies above 30 MHz

Frequency(MHz)	Field strength ($\mu V/m$ at 3 m)
30 to 88	100
88 to 216	150
216 to 960	200
Above 960	500

Table 6- General field strength limits at frequencies below 30 MHz

Frequency	Magnetic field strength (H-Field) ($\mu A/m$)	Measurement distance(m)
9 – 490 kHz ¹⁾	6.37/F (F in kHz)	300
490 – 1705 kHz	63.7/F (F in kHz)	30
1.705 - 30 MHz	0.08	30

According to RSS-Gen(8.10), Restricted frequency bands, identified in table 7, are designated primarily for safety-of-life services (distress calling and certain aeronautical activities), certain satellite downlinks, radio astronomy and some government uses. Except where otherwise indicated, the following conditions related to the restricted frequency bands apply:

- The transmit frequency, including fundamental components of modulation, of licence-exempt radio apparatus shall not fall within the restricted frequency bands listed in table 7 except for apparatus compliant with RSS-287, Emergency Position Indicating Radio Beacons (EPIRB), Emergency Locator Transmitters (ELT), Personal Locator Beacons (PLB), and Maritime Survivor Locator Devices (MSLD).
- Unwanted emissions that fall into restricted frequency bands listed in table 7 shall comply with the limits specified in table 5 and table 6.
- Unwanted emissions that do not fall within the restricted frequency bands listed in table 7 shall comply either with the limits specified in the applicable RSS or with those specified in table 5 and table 6.

Table 7- Restricted frequency bands*

MHz	MHz	GHz
0.090 - 0.110	149.9 - 150.05	9.0 - 9.2
0.495 - 0.505	156.52475 - 156.52525	9.3 - 9.5
2.1735 - 2.1905	156.7 - 156.9	10.6 - 12.7
3.020 - 3.026	162.0125 - 167.17	13.25 - 13.4
4.125 - 4.128	167.72 - 173.2	14.47 - 14.5
4.17725 - 4.17775	240 - 285	15.35 - 16.2
4.20725 - 4.20775	322 - 335.4	17.7 - 21.4
5.677 - 5.683	399.9 - 410	22.01 - 23.12
6.215 - 6.218	608 - 614	23.6 - 24.0
6.26775 - 6.26825	960 - 1427	31.2 - 31.8
6.31175 - 6.31225	1435 - 1626.5	36.43 - 36.5
8.291 - 8.294	1645.5 - 1646.5	Above 38.6
8.362 - 8.366	1660 - 1710	
8.37625 - 8.38675	1718.8 - 1722.2	
8.41425 - 8.41475	2200 - 2300	
12.29 - 12.293	2310 - 2390	
12.51975 - 12.52025	2483.5 - 2500	
12.57675 - 12.57725	2655 - 2900	
13.36 - 13.41	3260 - 3267	
16.42 - 16.423	3332 - 3339	
16.69475 - 16.69525	3345.8 - 3358	
16.80425 - 16.80475	3500 - 4400	
25.5 - 25.67	4500 - 5150	
37.5 - 38.25	5350 - 5460	
73 - 74.6	7250 - 7750	
74.8 - 75.2	8025 - 8500	
108 - 138	--	

* Certain frequency
 bands listed in table 7
 and in bands above
 38.6 GHz are
 designated for licence-
 exempt applications.
 These frequency bands
 and the requirements
 that apply to related
 devices are set out in
 the 200 and 300 series
 of RSSs.

Test procedure

ANSI C63.10-2013 Section 12.7.7.2, 12.7.5, 12.7.6
 KDB 789033 D02 v02r01 – Section G

Test settings

Peak field strength measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = as specified in table
3. VBW $\geq$ (3 $\times$ RBW)
4. Detector = peak
5. Sweep time = auto
6. Trace mode = max hold
7. Allow sweeps to continue until the trace stabilizes

Table. RBW as a function of frequency

Frequency	RBW
9 kHz to 150 kHz	200 Hz to 300 Hz
0.15 MHz to 30 MHz	9 kHz to 10 kHz
30 MHz to 1 000 MHz	100 kHz to 120 kHz
> 1 000 MHz	1 MHz

Average field strength measurements

Trace averaging with continuous EUT transmission at full power

If the EUT can be configured or modified to transmit continuously ($D \geq 98\%$), then the average emission levels shall be measured using the following method (with EUT transmitting continuously):

1. RBW = 1 MHz (unless otherwise specified).
2. VBW $\geq (3 \times \text{RBW})$.
3. Detector = RMS (power averaging), if $[\text{span} / (\# \text{ of points in sweep})] \leq (\text{RBW} / 2)$. Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If this condition cannot be satisfied, then the detector mode shall be set to peak.
4. Averaging type = power (i.e., rms):
 - 1) As an alternative, the detector and averaging type may be set for linear voltage averaging.
 - 2) Some instruments require linear display mode to use linear voltage averaging. Log or dB averaging shall not be used.
5. Sweep time = auto.
6. Perform a trace average of at least 100 traces.

Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction

If continuous transmission of the EUT ($D \geq 98\%$) cannot be achieved and the duty cycle is constant (duty cycle variations are less than $\pm 2\%$), then the following procedure shall be used:

1. The EUT shall be configured to operate at the maximum achievable duty cycle.
2. Measure the duty cycle D of the transmitter output signal as described in 11.6.
3. RBW = 1 MHz (unless otherwise specified).
4. VBW $\geq [3 \times \text{RBW}]$.
5. Detector = RMS (power averaging), if $[\text{span} / (\# \text{ of points in sweep})] \leq (\text{RBW} / 2)$. Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If this condition cannot be satisfied, then the detector mode shall be set to peak.
6. Averaging type = power (i.e., rms):
 - 1) As an alternative, the detector and averaging type may be set for linear voltage averaging.
 - 2) Some instruments require linear display mode to use linear voltage averaging. Log or dB averaging shall not be used.
7. Sweep time = auto.
8. Perform a trace average of at least 100 traces.
9. A correction factor shall be added to the measurement results prior to comparing with the emission limit to compute the emission level that would have been measured had the test been performed at 100% duty cycle. The correction factor is computed as follows:
 - 1) If power averaging (rms) mode was used in step f), then the applicable correction factor is $[10 \log (1 / D)]$, where D is the duty cycle.
 - 2) If linear voltage averaging mode was used in step f), then the applicable correction factor is $[20 \log (1 / D)]$, where D is the duty cycle.
 - 3) If a specific emission is demonstrated to be continuous ($D \geq 98\%$) rather than turning ON and OFF with the transmit cycle, then no duty cycle correction is required for that emission.

Notes:

1. $f < 30$ MHz, extrapolation factor of 40 dB/decade of distance. $F_d = 40 \log(D_m/D_s)$
 $f \geq 30$ MHz, extrapolation factor of 20 dB/decade of distance. $F_d = 20 \log(D_m/D_s)$
 Where:
 F_d = Distance factor in dB
 D_m = Measurement distance in meters
 D_s = Specification distance in meters
2. Factors(dB) = Antenna factor(dB/m) + Cable loss(dB) + or Amp. gain(dB) + or F_d (dB)
3. The worst-case emissions are reported however emissions whose levels were not within 20 dB of respective limits were not reported.
4. Average test would be performed if the peak result were greater than the average limit.
5. ¹⁾ means restricted band.
6. Above 1 GHz the worst results between two antenna polarizations (H and V) were documented in the test report.
7. Below 30 MHz frequency range, In order to search for the worst result, all orientations about parallel, perpendicular, and ground-parallel were investigated then reported. when the emission level was higher than 20 dB of the limit, then the following statement shall be made: "No spurious emissions were detected within 20 dB of the limit."
8. For above 1 GHz pre-scan to detect harmonic and spurious emissions, the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 kHz for peak measurements.
9. The limits in CFR 47, Part 15, Subpart C, paragraph 15.209 (a), are identical to those in RSS-GEN Section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of 377Ω. For example, the measurement frequency X kHz resulted in a level of Y dBμV/m, which is equivalent to $Y - 51.5 = Z$ dBμA/m, which has the same margin, W dB, to the corresponding RSS-GEN Table 6 limit as it has to be 15.209(a) limit.
10. Measurement configuration for 11ax RU allocations
 - 1) For the radiated band-edge test, it was tested at 11ax RU allocations near the band edge.
 - The target power of 20 MHz RU tone is the same or higher than other bandwidth (40/80 MHz), Therefore, it was tested as a representative at 20 MHz bandwidth and additional full tone cases were tested for the remaining bandwidth.
 - 2) The pre-scan was performed for all modes, and then only the RU allocation with actual highest output power considering each bandwidth was reported as a representative.

Test results (Above 1 000 MHz)

[DC 5 V]

UNII-1 SISO Restricted Band edge (Lowest Channel)

802.11ax_HE20 SU mode_Lowest Channel (5 180 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 141.15 ¹⁾	V	44.90	33.28	-27.43	-	50.75	74.00	23.25
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (26T / RU offset 0)_Lowest Channel (5 180 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 144.88 ¹⁾	H	44.30	33.29	-27.43	-	50.16	74.00	23.84
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (52T / RU offset 37)_Lowest Channel (5 180 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 083.85 ¹⁾	V	44.90	33.17	-27.45	-	50.62	74.00	23.38
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (106T / RU offset 53)_Lowest Channel (5 180 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 143.75 ¹⁾	H	44.80	33.29	-27.43	-	50.66	74.00	23.34
Average Data								
No spurious emissions were detected within 20 dB of the limit								

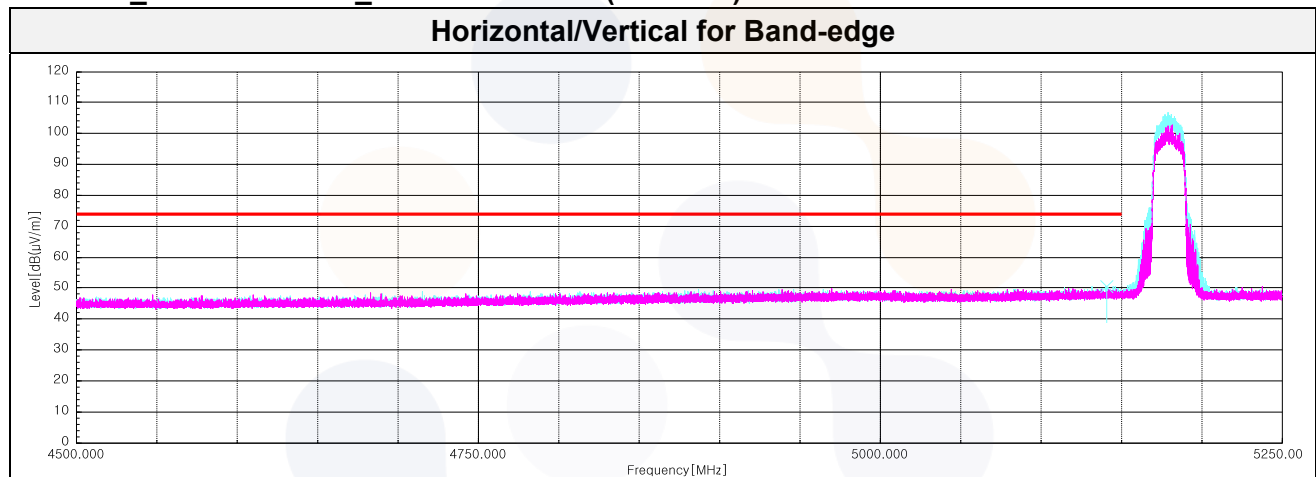
802.11ax_HE20 RU mode (242T / RU offset 61)_Lowest Channel (5 180 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 110.95 ¹⁾	H	44.70	33.22	-27.44	-	50.48	74.00	23.52
Average Data								
No spurious emissions were detected within 20 dB of the limit								

Plot of Band edge

In order to simplify the report, attached plots were only the lowest margin condition

802.11ax_HE20 SU mode_Lowest Channel (5 180 MHz)



UNII-2A SISO Restricted Band edge (Highest Channel)

802.11ax_HE20 SU mode_Highest Channel (5 320 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 363.07 ¹⁾	V	45.20	33.00	-27.03	-	51.17	74.00	22.83
Average Data								
5 363.07 ¹⁾	V	33.71	33.00	-27.03	-	39.68	54.00	14.32

802.11ax_HE20 RU mode (26T / RU offset 8)_Highest Channel (5 320 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 401.56 ¹⁾	V	45.60	33.00	-26.91	-	51.69	74.00	22.31
Average Data								
5 401.56 ¹⁾	V	33.68	33.00	-26.91	-	39.77	54.00	14.23

802.11ax_HE20 RU mode (52T / RU offset 40)_Highest Channel (5 320 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 382.46 ¹⁾	V	46.10	33.00	-26.97	-	52.13	74.00	21.87
Average Data								
5 382.46 ¹⁾	V	33.53	33.00	-26.97	-	39.56	54.00	14.44

802.11ax_HE20 RU mode (106T / RU offset 54)_Highest Channel (5 320 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 383.48 ¹⁾	V	45.30	33.00	-26.97	-	51.33	74.00	22.67
Average Data								
5 383.48 ¹⁾	V	33.73	33.00	-26.97	-	39.76	54.00	14.24

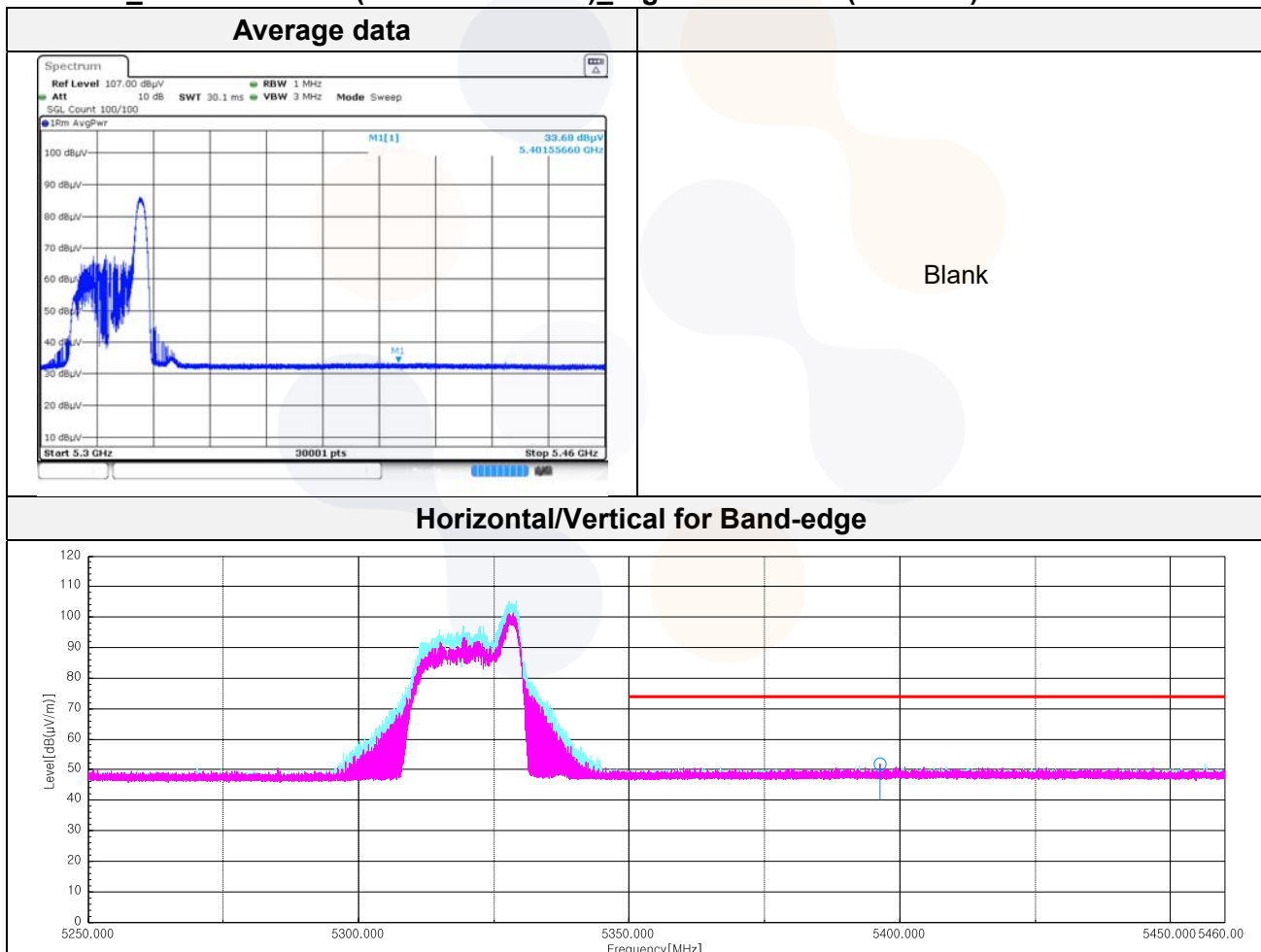
802.11ax_HE20 RU mode (242T / RU offset 61)_Highest Channel (5 320 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 387.26 ¹⁾	V	45.40	33.00	-26.96	-	51.44	74.00	22.56
Average Data								
5 387.26 ¹⁾	V	33.70	33.00	-26.96	-	39.74	54.00	14.26

Plot of Band edge

In order to simplify the report, attached plots were only the lowest margin condition

802.11ax_HE20 RU mode (26T / RU offset 8)_Highest Channel (5 320 MHz)



UNII-2C SISO Restricted Band edge (Lowest Channel)

802.11ax_HE20 SU mode_Lowest Channel (5 500 MHz)

Frequency (MHz)	Pol. (V/H)	Reading (dB(μV))	Ant. Factor (dB)	Amp.+Cable (dB)	DCF (dB)	Result (dB(μV/m))	Limit (dB(μV/m))	Margin (dB)
Peak data								
5 401.99 ¹⁾	H	45.30	33.00	-26.91	-	51.39	74.00	22.61
Average Data								
5 401.99 ¹⁾	H	33.80	33.00	-26.91	-	39.89	54.00	14.11

802.11ax_HE20 RU mode (26T / RU offset 0)_Lowest Channel (5 500 MHz)

Frequency (MHz)	Pol. (V/H)	Reading (dB(μV))	Ant. Factor (dB)	Amp.+Cable (dB)	DCF (dB)	Result (dB(μV/m))	Limit (dB(μV/m))	Margin (dB)
Peak data								
5 448.81 ¹⁾	V	44.50	33.00	-26.77	-	50.73	74.00	23.27
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (52T / RU offset 37)_Lowest Channel (5 500 MHz)

Frequency (MHz)	Pol. (V/H)	Reading (dB(μV))	Ant. Factor (dB)	Amp.+Cable (dB)	DCF (dB)	Result (dB(μV/m))	Limit (dB(μV/m))	Margin (dB)
Peak data								
5 370.50 ¹⁾	V	45.00	33.00	-27.01	-	50.99	74.00	23.01
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (106T / RU offset 53)_Lowest Channel (5 500 MHz)

Frequency (MHz)	Pol. (V/H)	Reading (dB(μV))	Ant. Factor (dB)	Amp.+Cable (dB)	DCF (dB)	Result (dB(μV/m))	Limit (dB(μV/m))	Margin (dB)
Peak data								
5 439.94 ¹⁾	V	45.00	33.00	-26.79	-	51.21	74.00	22.79
Average Data								
5 439.94 ¹⁾	V	33.78	33.00	-26.79	-	39.99	54.00	14.01

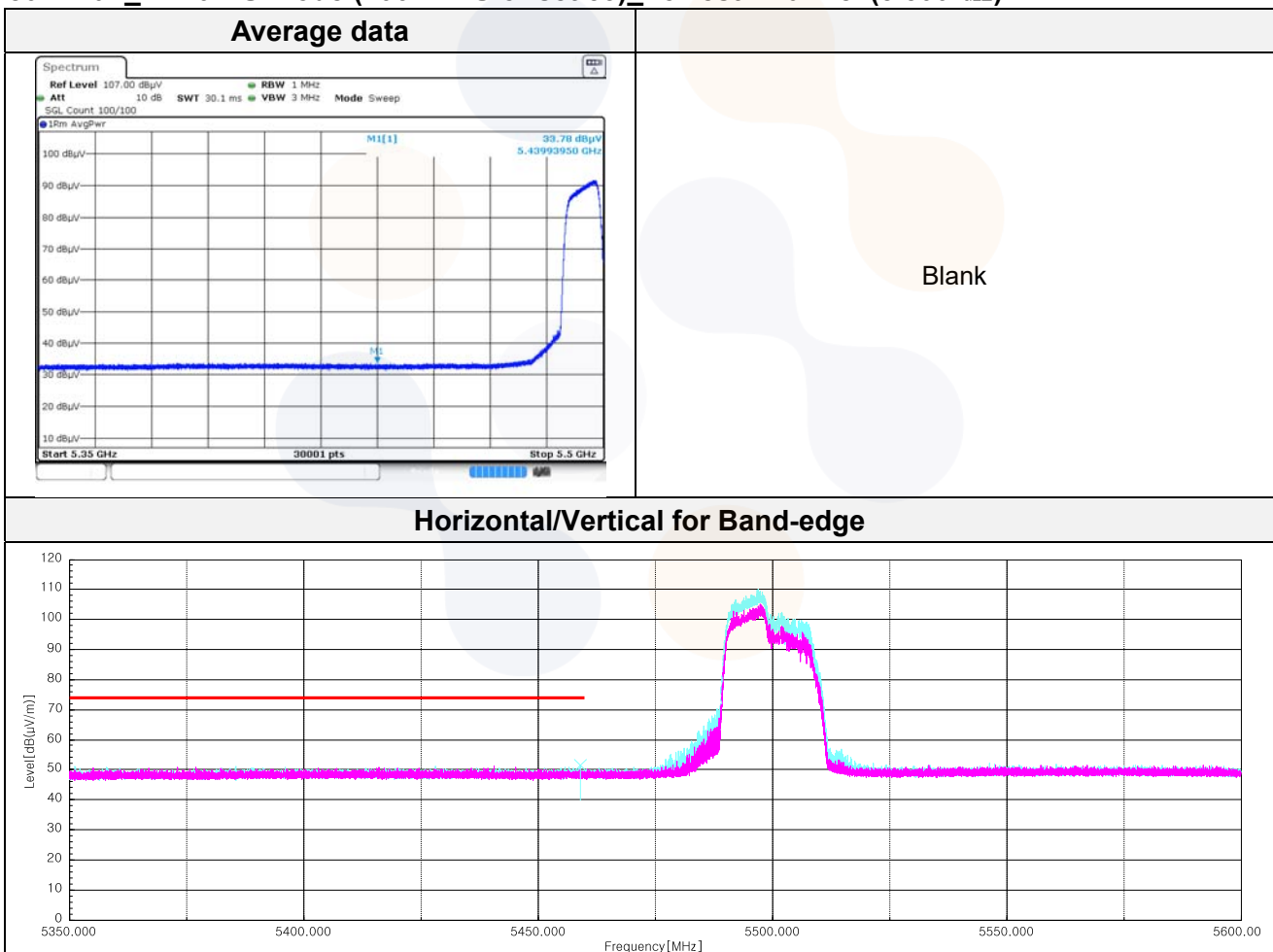
802.11ax_HE20 RU mode (242T / RU offset 61)_Lowest Channel (5 500 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 422.06 ¹⁾	V	47.00	33.00	-26.85	-	53.15	74.00	20.85
Average Data								
5 422.06 ¹⁾	V	33.77	33.00	-26.85	-	39.92	54.00	14.08

Plot of Band edge

In order to simplify the report, attached plots were only the lowest margin condition

802.11ax_HE20 RU mode (106T / RU offset 53)_Lowest Channel (5 500 MHz)



UNII-2C SISO Band edge (Highest Channel)

802.11ax_HE20 SU mode_Highest Channel (5 700 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 770.87	H	46.50	33.88	-26.58	-	53.80	68.20	14.40

802.11ax_HE20 RU mode (26T / RU offset 8)_Highest Channel (5 700 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 817.64	V	45.40	34.07	-26.39	-	53.08	68.20	15.12

802.11ax_HE20 RU mode (52T / RU offset 40)_Highest Channel (5 700 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 815.26	V	46.30	34.06	-26.40	-	53.96	68.20	14.24

802.11ax_HE20 RU mode (106T / RU offset 54)_Highest Channel (5 700 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 822.58	H	45.60	34.09	-26.37	-	53.32	68.20	14.88

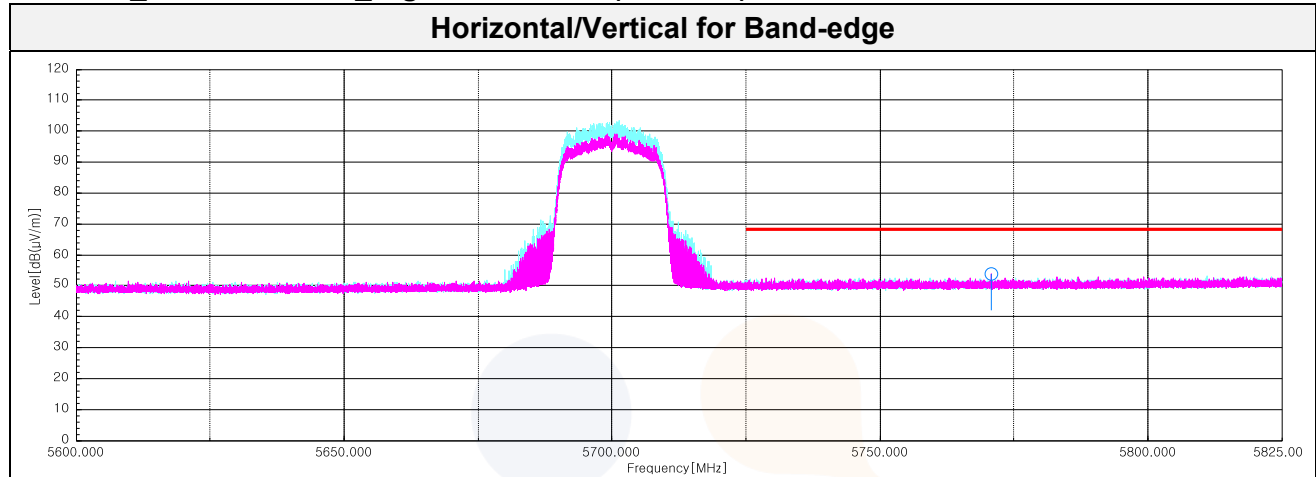
802.11ax_HE20 RU mode (242T / RU offset 61)_Highest Channel (5 700 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 793.88	H	45.80	33.98	-26.49	-	53.29	68.20	14.91

Plot of Band edge

In order to simplify the report, attached plots were only the lowest margin condition

802.11ax_HE20 SU mode_Highest Channel (5 700 MHz)



UNII-3 SISO Band edge (Lowest Channel)

802.11ax_HE20 SU mode_Lowest Channel (5 745 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 724.57	V	44.00	33.75	-26.65	-	51.10	121.20	70.10

802.11ax_HE20 RU mode (26T / RU offset 0)_Lowest Channel (5 745 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 722.90	V	42.10	33.74	-26.65	-	49.19	117.40	68.21

802.11ax_HE20 RU mode (52T / RU offset 37)_Lowest Channel (5 745 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 722.24	V	42.80	33.73	-26.65	-	49.88	115.90	66.02

802.11ax_HE20 RU mode (106T / RU offset 53)_Lowest Channel (5 745 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 722.31	V	39.40	33.73	-26.65	-	46.48	116.10	69.62

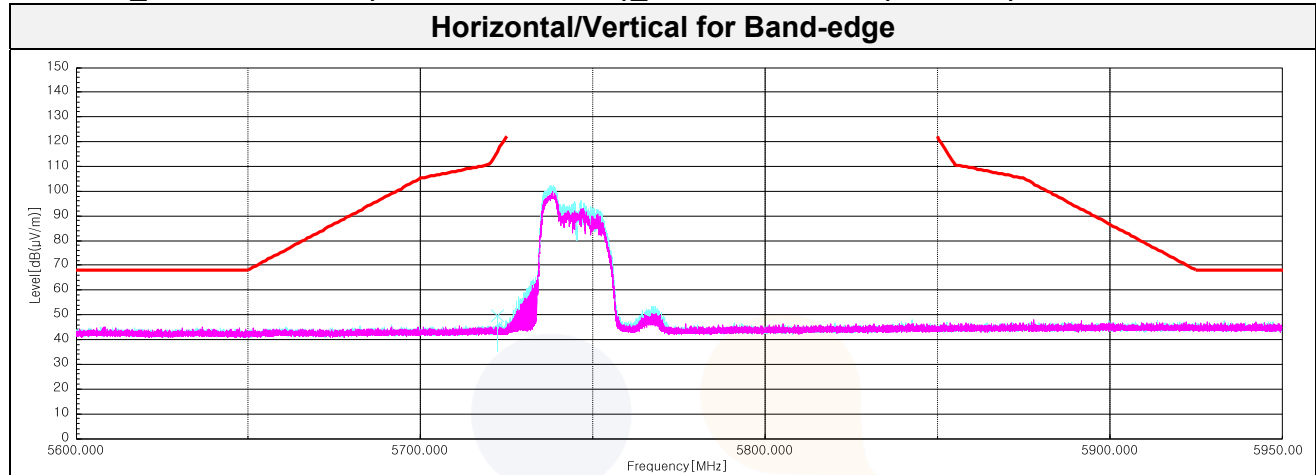
802.11ax_HE20 RU mode (242T / RU offset 61)_Lowest Channel (5 745 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 724.94	V	44.70	33.75	-26.65	-	51.80	122.10	70.30

Plot of Band edge

In order to simplify the report, attached plots were only the lowest margin condition

802.11ax_HE20 RU mode (52T / RU offset 37)_Lowest Channel (5 745 MHz)



UNII-3 SISO Restricted Band edge (Highest Channel)

802.11ax_HE20 SU mode_Highest Channel (5 825 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 850.26	V	40.40	34.20	-26.26	-	48.34	121.60	73.26

802.11ax_HE20 RU mode (26T / RU offset 8)_Highest Channel (5 825 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 850.06	H	42.50	34.20	-26.26	-	50.44	122.10	71.66

802.11ax_HE20 RU mode (52T / RU offset 40)_Highest Channel (5 825 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 916.04	V	39.40	34.33	-26.00	-	47.73	74.80	27.07

802.11ax_HE20 RU mode (106T / RU offset 54)_Highest Channel (5 825 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 895.24	H	39.30	34.38	-26.08	-	47.60	90.20	42.60

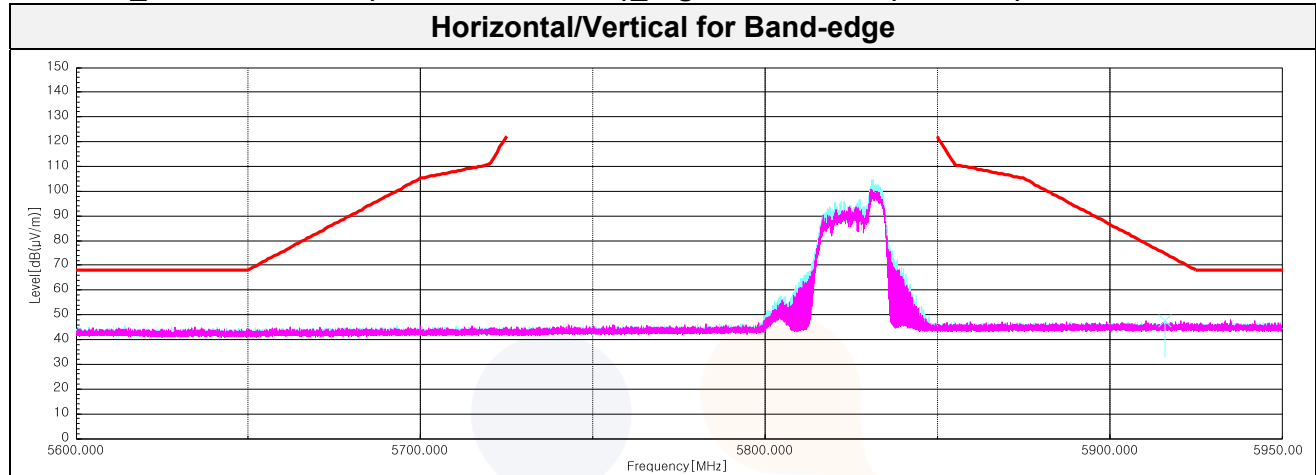
802.11ax_HE20 RU mode (242T / RU offset 61)_Highest Channel (5 825 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 885.15	H	40.00	34.34	-26.12	-	48.22	97.70	49.48

Plot of Band edge

In order to simplify the report, attached plots were only the lowest margin condition

802.11ax_HE20 RU mode (52T / RU offset 40)_Highest Channel (5 825 MHz)



UNII-1 SISO Harmonics and Spurious Emissions

802.11ax_HE20 SU mode_Lowest Channel (5 180 MHz)

Frequency (MHz)	Pol. (V/H)	Reading (dB(μV))	Ant. Factor (dB)	Amp.+Cable (dB)	DCF (dB)	Result (dB(μV/m))	Limit (dB(μV/m))	Margin (dB)
Peak data								
10 359.02	H	53.40	38.88	-43.85	-	48.43	68.20	19.77
15 395.63 ¹⁾	V	51.90	38.62	-41.60	-	48.92	74.00	25.08
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 SU mode_Middle Channel (5 200 MHz)

Frequency (MHz)	Pol. (V/H)	Reading (dB(μV))	Ant. Factor (dB)	Amp.+Cable (dB)	DCF (dB)	Result (dB(μV/m))	Limit (dB(μV/m))	Margin (dB)
Peak data								
10 398.12	H	54.30	38.80	-43.84	-	49.26	68.20	18.94
15 594.58 ¹⁾	H	52.90	38.11	-41.53	-	49.48	74.00	24.52
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 SU mode_Highest Channel (5 240 MHz)

Frequency (MHz)	Pol. (V/H)	Reading (dB(μV))	Ant. Factor (dB)	Amp.+Cable (dB)	DCF (dB)	Result (dB(μV/m))	Limit (dB(μV/m))	Margin (dB)
Peak data								
10 477.85	V	55.00	39.00	-43.84	-	50.16	68.20	18.04
15 718.78 ¹⁾	H	53.50	38.10	-41.51	-	50.09	74.00	23.91
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (52T / RU offset 38)_Lowest Channel (5 180 MHz)

Frequency (MHz)	Pol. (V/H)	Reading (dB(μV))	Ant. Factor (dB)	Amp.+Cable (dB)	DCF (dB)	Result (dB(μV/m))	Limit (dB(μV/m))	Margin (dB)
Peak data								
10 359.02	V	53.80	38.88	-43.85	-	48.83	68.20	19.37
15 549.35 ¹⁾	V	52.20	38.20	-41.54	-	48.86	74.00	25.14
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (52T / RU offset 38)_Middle Channel (5 200 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 405.78	V	55.00	39.01	-43.84	-	50.17	68.20	18.03
15 600.33 ¹⁾	H	52.50	38.00	-41.53	-	48.97	74.00	25.03
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (242T / RU offset 61)_Lowest Channel (5 240 MHz)

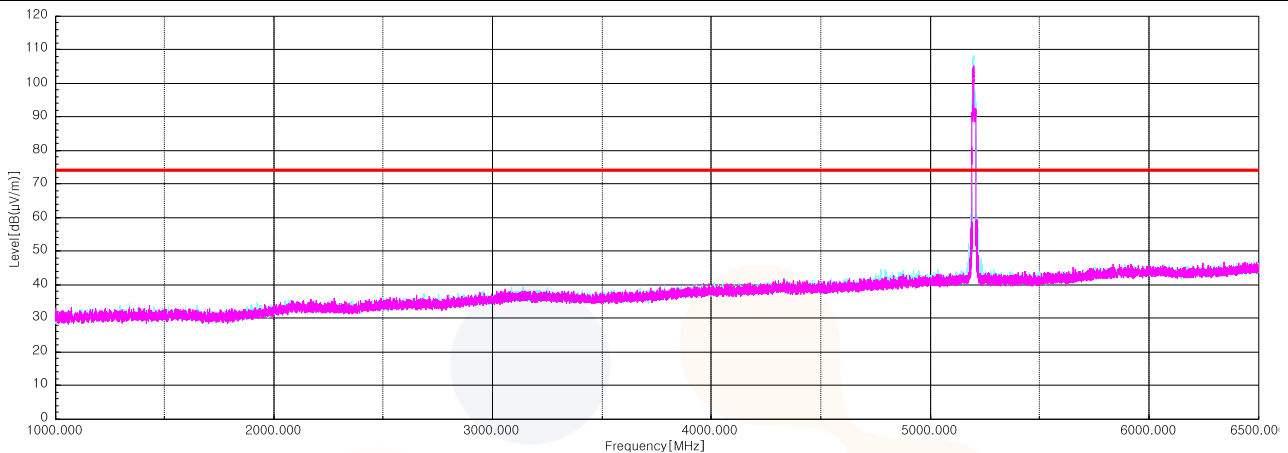
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 480.15	H	55.20	39.00	-43.84	-	50.36	68.20	17.84
15 718.02 ¹⁾	V	53.20	38.10	-41.52	-	49.78	74.00	24.22
Average Data								
No spurious emissions were detected within 20 dB of the limit								

Plot of Harmonics and Spurious Emissions

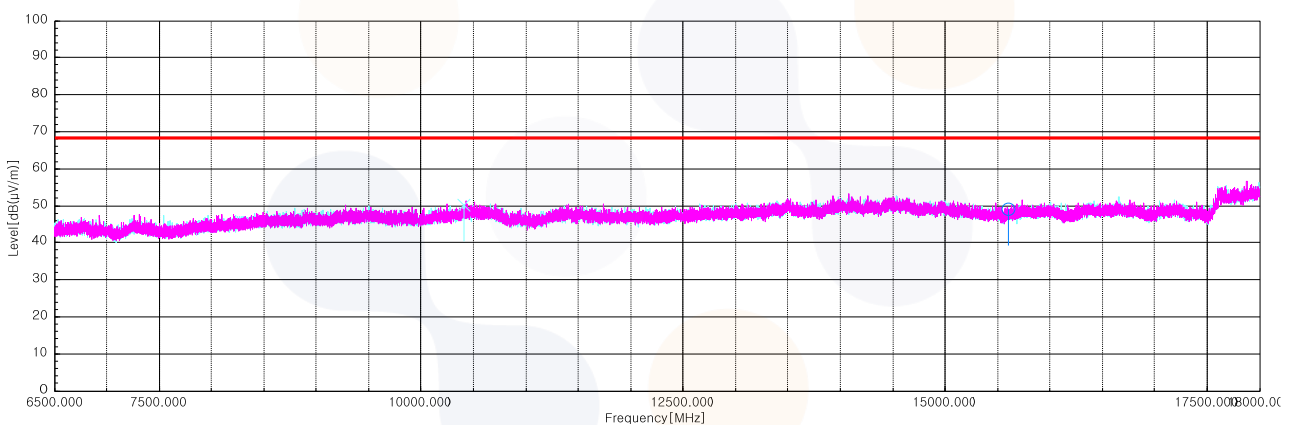
In order to simplify the report, attached plots were only the lowest margin condition

802.11ax_HE20 RU mode (52T / RU offset 38)_Middle Channel (5 200 MHz)

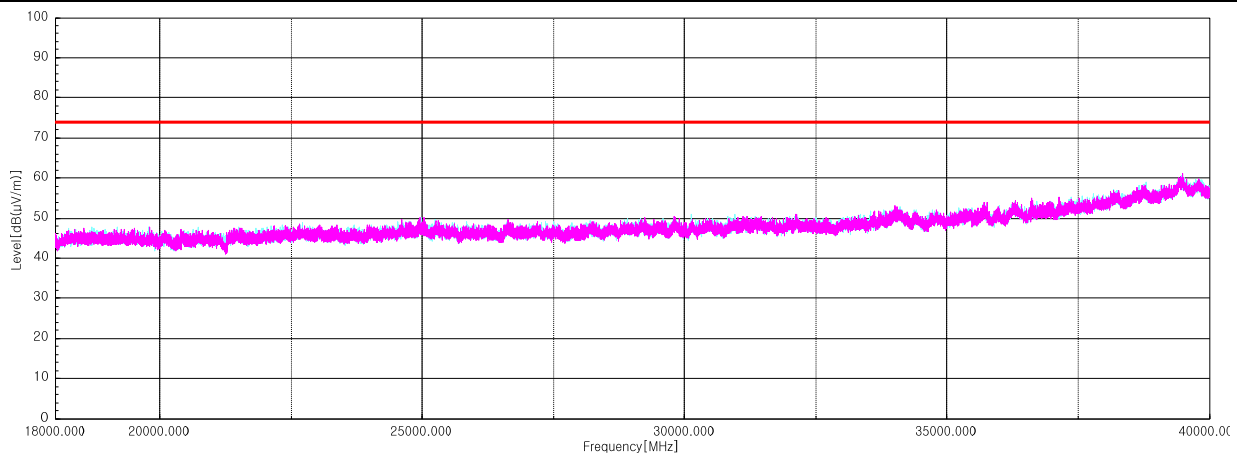
Horizontal/Vertical for 1 GHz ~ 6.5 GHz



Horizontal/Vertical for 6.5 GHz ~ 18 GHz



Horizontal/Vertical for 18 GHz ~ 40 GHz



UNII-2A SISO Harmonics and Spurious Emissions

802.11ax_HE20 SU mode_Lowest Channel (5 260 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 517.33	V	54.80	39.00	-43.88	-	49.92	68.20	18.28
15 785.87 ¹⁾	V	52.90	38.10	-41.47	-	49.53	74.00	24.47
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 SU mode_Middle Channel (5 280 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 560.27	V	54.00	39.12	-43.98	-	49.14	68.20	19.06
15 847.97 ¹⁾	V	53.30	38.30	-41.41	-	50.19	74.00	23.81
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 SU mode_Highest Channel (5 320 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 636.17 ¹⁾	V	54.90	39.27	-44.16	-	50.01	74.00	23.99
15 957.22 ¹⁾	V	52.70	38.20	-41.30	-	49.60	74.00	24.40
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (242T / RU offset 61)_Lowest Channel (5 260 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 518.87	H	54.60	39.00	-43.88	-	49.72	68.20	18.48
15 781.65 ¹⁾	V	53.30	38.10	-41.48	-	49.92	74.00	24.08
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (242T / RU offset 61)_Middle Channel (5 280 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 559.12	H	53.90	39.12	-43.98	-	49.04	68.20	19.16
15 800.82 ¹⁾	H	53.20	38.20	-41.46	-	49.94	74.00	24.06
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (242T / RU offset 61)_Highest Channel (5 320 MHz)

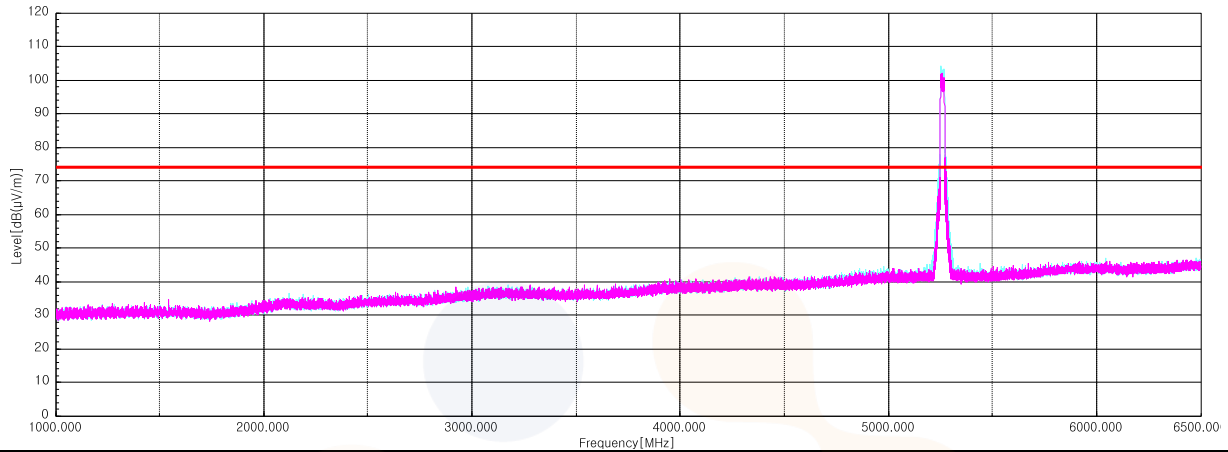
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 635.40 ¹⁾	H	55.00	39.27	-44.16	-	50.11	74.00	23.89
15 967.18 ¹⁾	H	53.10	38.20	-41.29	-	50.01	74.00	23.99
Average Data								
No spurious emissions were detected within 20 dB of the limit								

Plot of Harmonics and Spurious Emissions

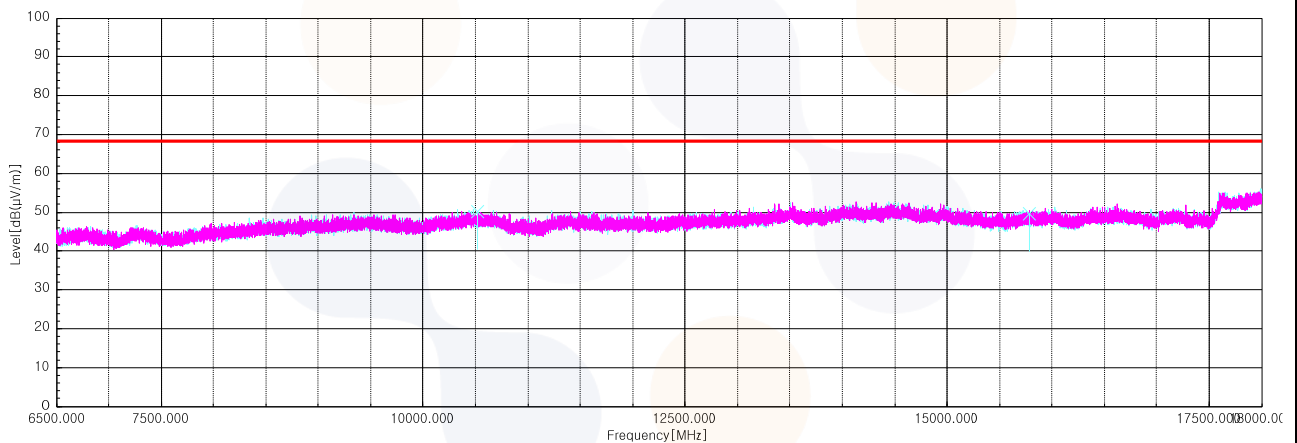
In order to simplify the report, attached plots were only the lowest margin condition

802.11ax_HE20 SU mode_Lowest Channel (5 260 MHz)

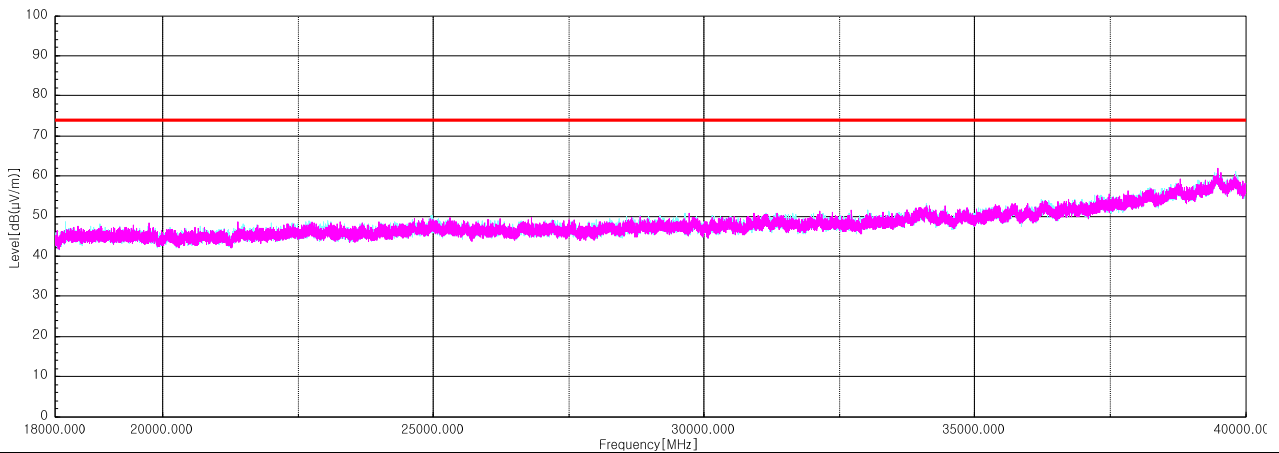
Horizontal/Vertical for 1 GHz ~ 6.5 GHz



Horizontal/Vertical for 6.5 GHz ~ 18 GHz



Horizontal/Vertical for 18 GHz ~ 40 GHz



UNII-2C SISO Harmonics and Spurious Emissions

802.11ax_HE20 SU mode_Lowest Channel (5 500 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 004.55 ¹⁾	H	52.30	39.09	-43.77	-	47.62	74.00	26.38
16 496.57	H	54.30	38.10	-41.39	-	51.01	68.20	17.19
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 SU mode_Middle Channel (5 600 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 202.35 ¹⁾	H	52.50	39.10	-43.57	-	48.03	74.00	25.97
16 800.55	H	54.60	38.10	-41.81	-	50.89	68.20	17.31
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 SU mode_Highest Channel (5 700 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 404.37 ¹⁾	H	53.60	39.20	-43.04	-	49.76	74.00	24.24
17 102.62	H	53.70	38.10	-41.93	-	49.87	68.20	18.33
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (52T / RU offset 38)_Lowest Channel (5 500 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 996.50 ¹⁾	H	52.20	39.11	-43.78	-	47.53	74.00	26.47
16 500.40	H	53.30	38.10	-41.38	-	50.02	68.20	18.18
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (52T / RU offset 38)_Middle Channel (5 600 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 206.18 ¹⁾	V	52.70	39.11	-43.56	-	48.25	74.00	25.75
16 802.47	H	54.20	38.10	-41.81	-	50.49	68.20	17.71
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (52T / RU offset 38)_Highest Channel (5 700 MHz)

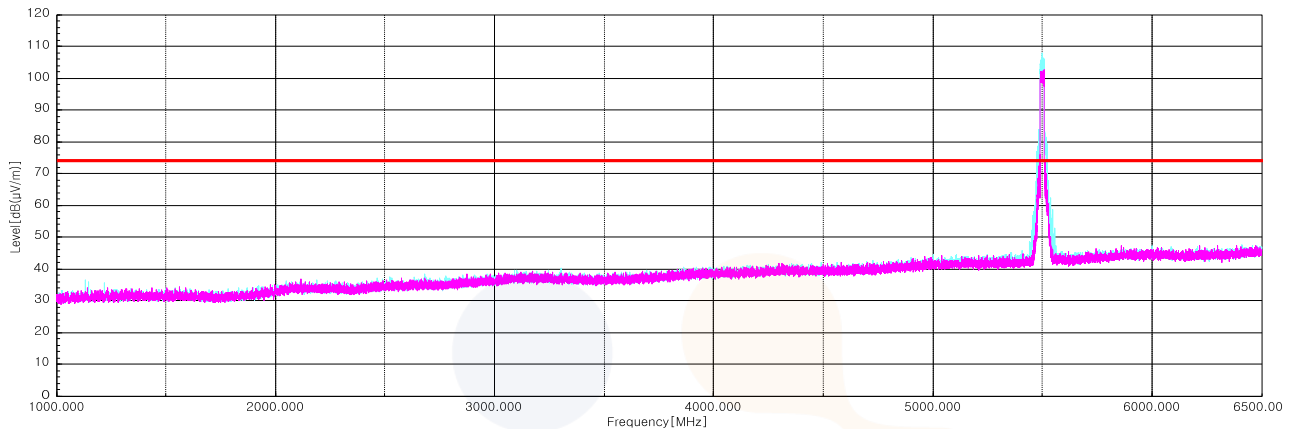
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 406.28 ¹⁾	V	53.10	39.20	-43.03	-	49.27	74.00	24.73
17 101.47	H	53.80	38.10	-41.93	-	49.97	68.20	18.23
Average Data								
No spurious emissions were detected within 20 dB of the limit								

Plot of Harmonics and Spurious Emissions

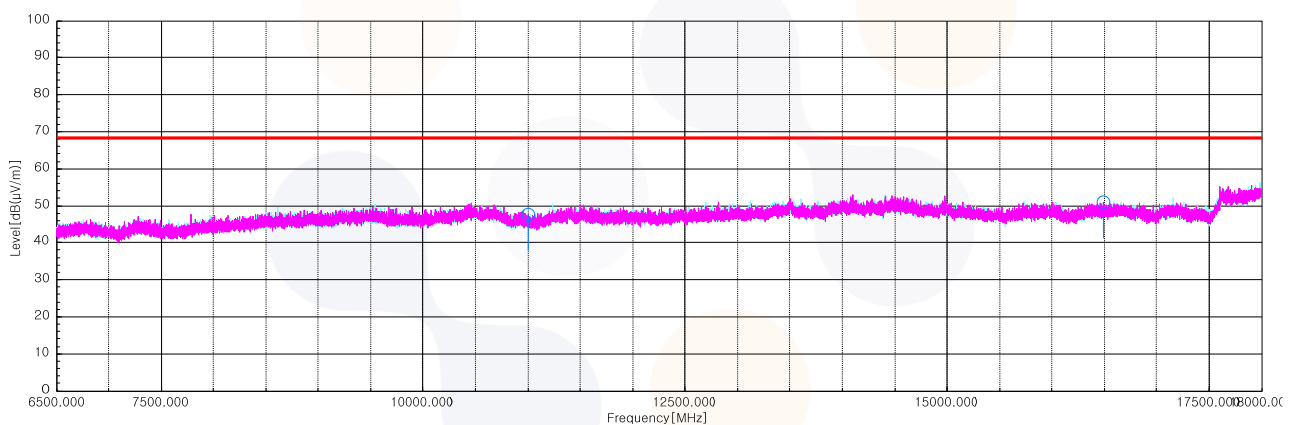
In order to simplify the report, attached plots were only the lowest margin condition

802.11ax_HE20 SU mode_Lowest Channel (5 500 MHz)

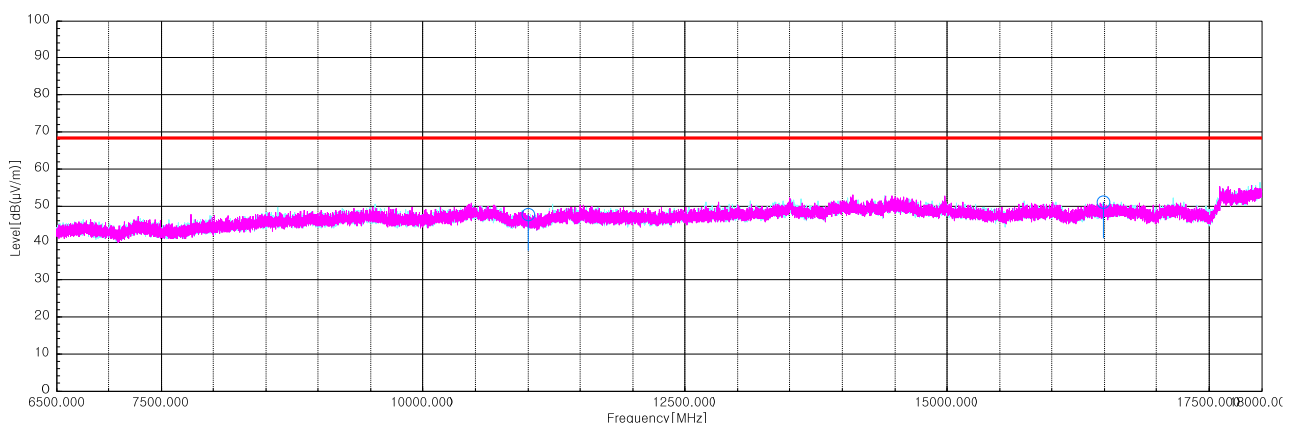
Horizontal/Vertical for 1 GHz ~ 6.5 GHz



Horizontal/Vertical for 6.5 GHz ~ 18 GHz



Horizontal/Vertical for 18 GHz ~ 40 GHz



UNII-2C&3 Straddle Channel SISO Harmonics and Spurious Emissions

802.11ax_HE20 SU mode_Middle Channel (5 720 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 435.42 ¹⁾	V	52.00	39.20	-42.94	-	48.26	74.00	25.74
17 163.57	H	54.70	38.10	-41.61	-	51.19	68.20	17.01
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (52T / RU offset 38)_Lowest Channel (5 720 MHz)

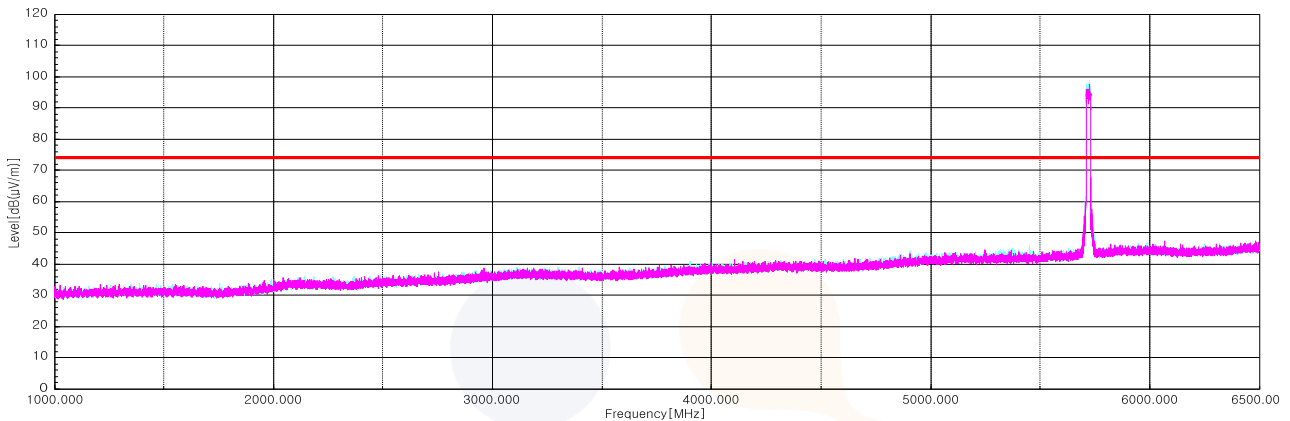
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 434.27 ¹⁾	V	51.80	39.20	-42.95	-	48.05	74.00	25.95
17 160.50	V	53.80	38.10	-41.62	-	50.28	68.20	17.92
Average Data								
No spurious emissions were detected within 20 dB of the limit								

Plot of Harmonics and Spurious Emissions

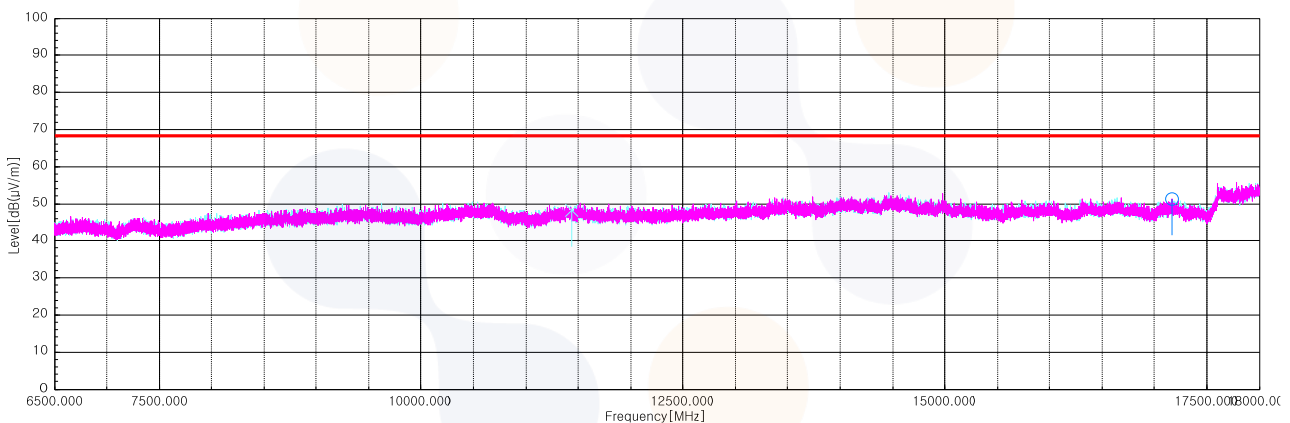
In order to simplify the report, attached plots were only the lowest margin condition

802.11ax_HE20 SU mode_Middle Channel (5 720 MHz)

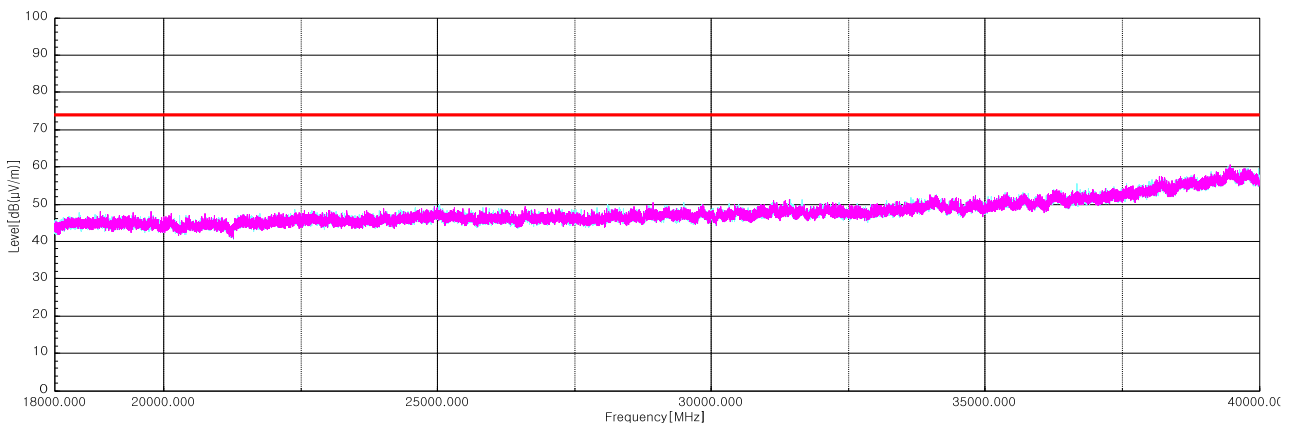
Horizontal/Vertical for 1 GHz ~ 6.5 GHz



Horizontal/Vertical for 6.5 GHz ~ 18 GHz



Horizontal/Vertical for 18 GHz ~ 40 GHz



UNII-3 SISO Harmonics and Spurious Emissions

802.11ax_HE20 SU mode_Lowest Channel (5 745 MHz)

Frequency (MHz)	Pol. (V/H)	Reading (dB(μV))	Ant. Factor (dB)	Amp.+Cable (dB)	DCF (dB)	Result (dB(μV/m))	Limit (dB(μV/m))	Margin (dB)
Peak data								
11 490.62 ¹⁾	H	52.10	39.02	-42.77	-	48.35	74.00	25.65
17 235.63	H	53.80	38.44	-41.23	-	51.01	68.20	17.19
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 SU mode_Middle Channel (5 785 MHz)

Frequency (MHz)	Pol. (V/H)	Reading (dB(μV))	Ant. Factor (dB)	Amp.+Cable (dB)	DCF (dB)	Result (dB(μV/m))	Limit (dB(μV/m))	Margin (dB)
Peak data								
11 564.22 ¹⁾	V	52.80	38.87	-42.56	-	49.11	74.00	24.89
17 357.53	H	52.40	38.73	-41.48	-	49.65	68.20	18.55
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 SU mode_Highest Channel (5 825 MHz)

Frequency (MHz)	Pol. (V/H)	Reading (dB(μV))	Ant. Factor (dB)	Amp.+Cable (dB)	DCF (dB)	Result (dB(μV/m))	Limit (dB(μV/m))	Margin (dB)
Peak data								
11 653.53 ¹⁾	V	52.20	38.80	-42.30	-	48.70	74.00	25.30
17 470.62	V	51.10	39.28	-41.82	-	48.56	68.20	19.64
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (26T / RU offset 4)_Lowest Channel (5 745 MHz)

Frequency (MHz)	Pol. (V/H)	Reading (dB(μV))	Ant. Factor (dB)	Amp.+Cable (dB)	DCF (dB)	Result (dB(μV/m))	Limit (dB(μV/m))	Margin (dB)
Peak data								
11 497.52 ¹⁾	V	53.80	39.00	-42.75	-	50.05	74.00	23.95
17 231.80	H	53.40	38.43	-41.25	-	50.58	68.20	17.62
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (52T / RU offset 38)_Middle Channel (5 785 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 501.73 ¹⁾	V	52.70	39.00	-42.74	-	48.96	74.00	25.04
17 348.33	H	52.30	38.60	-41.45	-	49.45	68.20	18.75
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (52T / RU offset 38)_Highest Channel (5 825 MHz)

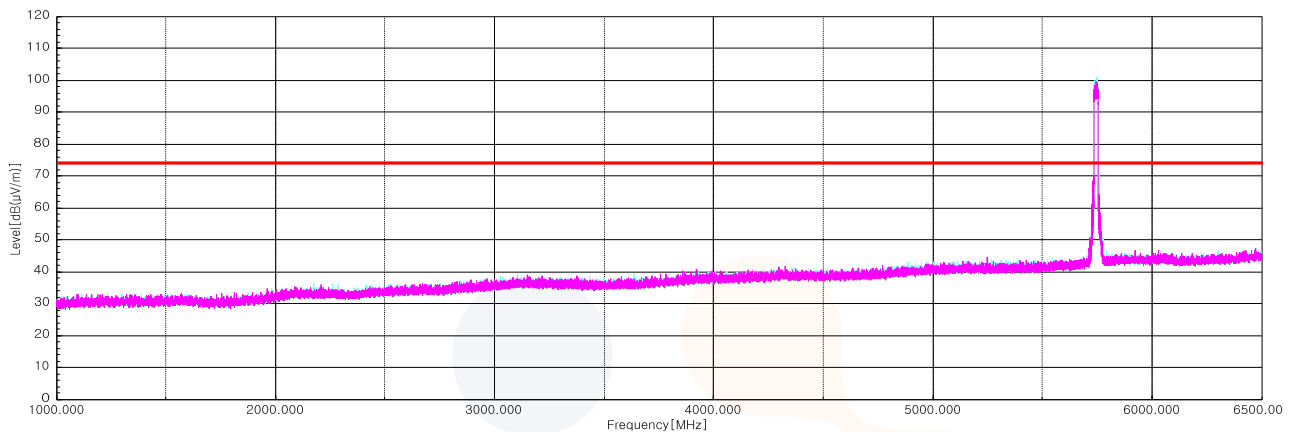
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 645.48 ¹⁾	V	52.20	38.71	-42.33	-	48.58	74.00	25.42
17 481.35	V	51.40	39.33	-41.85	-	48.88	68.20	19.32
Average Data								
No spurious emissions were detected within 20 dB of the limit								

Plot of Harmonics and Spurious Emissions

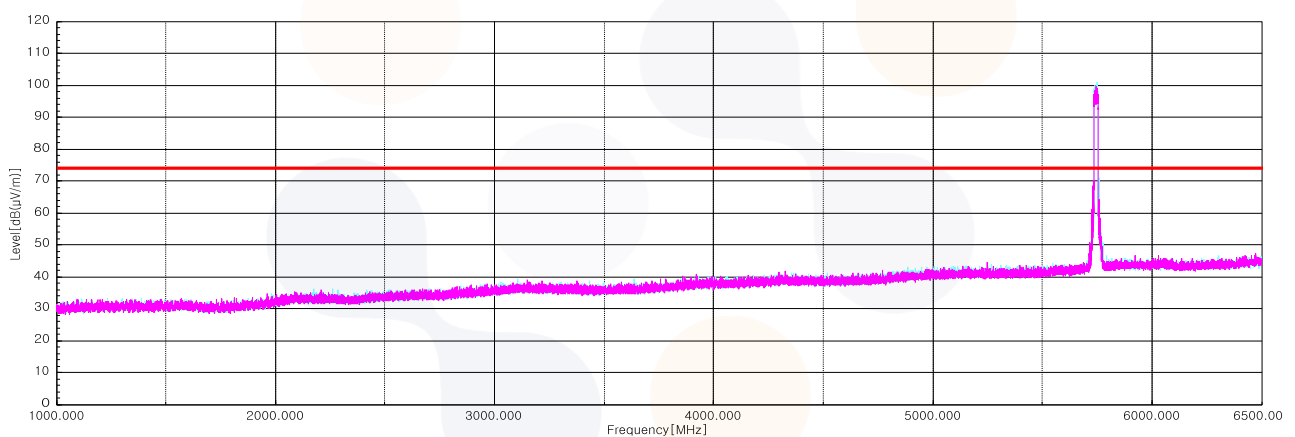
In order to simplify the report, attached plots were only the lowest margin condition

802.11ax_HE20 SU mode_Lowest Channel (5 745 MHz)

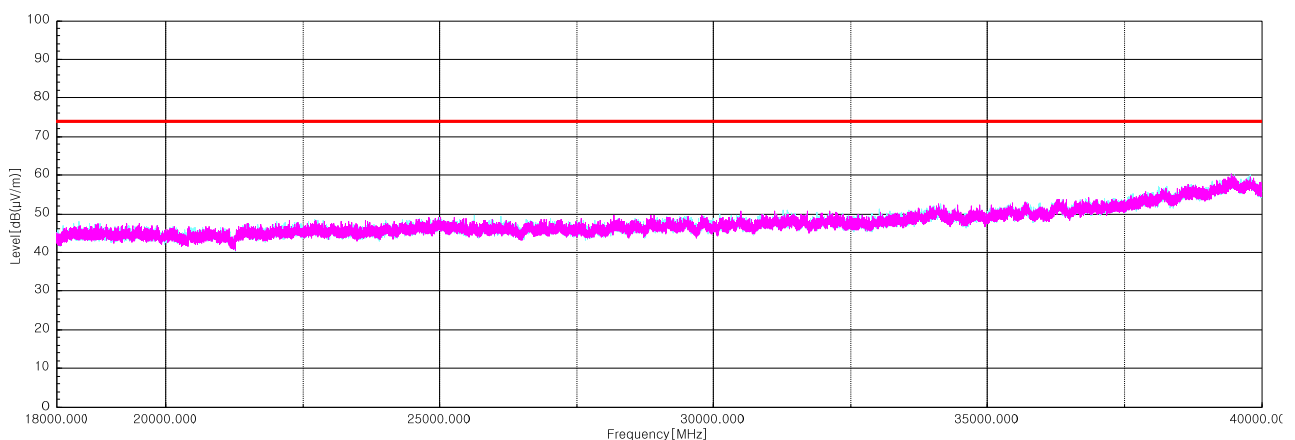
Horizontal/Vertical for 1 GHz ~ 6.5 GHz



Horizontal/Vertical for 6.5 GHz ~ 18 GHz



Horizontal/Vertical for 18 GHz ~ 40 GHz



[DC 12 V]

UNII-1 SISO Restricted Band edge (Lowest Channel)

802.11ax_HE20 SU mode_Lowest Channel (5 180 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 115.95 ¹⁾	V	44.50	33.23	-27.44	-	50.29	74.00	23.71
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (26T / RU offset 0)_Lowest Channel (5 180 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 145.55 ¹⁾	V	44.20	33.29	-27.43	-	50.06	74.00	23.94
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (52T / RU offset 37)_Lowest Channel (5 180 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 002.85 ¹⁾	V	44.40	33.01	-27.49	-	49.92	74.00	24.08
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (106T / RU offset 53)_Lowest Channel (5 180 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 123.18 ¹⁾	V	43.80	33.25	-27.44	-	49.61	74.00	24.39
Average Data								
No spurious emissions were detected within 20 dB of the limit								

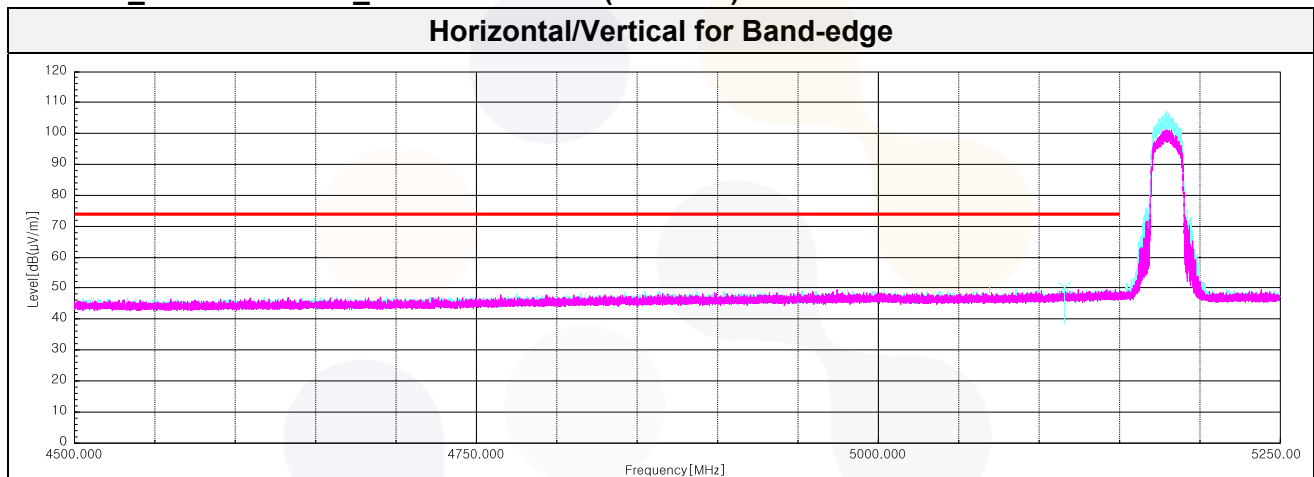
802.11ax_HE20 RU mode (242T / RU offset 61)_Lowest Channel (5 180 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 149.28 ¹⁾	V	44.00	33.30	-27.42	-	49.88	74.00	24.12
Average Data								
No spurious emissions were detected within 20 dB of the limit								

Plot of Band edge

In order to simplify the report, attached plots were only the lowest margin condition

802.11ax_HE20 SU mode_Lowest Channel (5 180 MHz)



UNII-2A SISO Restricted Band edge (Highest Channel)

802.11ax_HE20 SU mode_Highest Channel (5 320 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 424.63 ¹⁾	V	44.60	33.00	-26.84	-	50.76	74.00	23.24
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (26T / RU offset 8)_Highest Channel (5 320 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 369.42 ¹⁾	V	44.60	33.00	-27.01	-	50.59	74.00	23.41
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (52T / RU offset 40)_Highest Channel (5 320 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 428.58 ¹⁾	V	44.00	33.00	-26.83	-	50.17	74.00	23.83
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (106T / RU offset 54)_Highest Channel (5 320 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 428.40 ¹⁾	H	44.40	33.00	-26.83	-	50.57	74.00	23.43
Average Data								
No spurious emissions were detected within 20 dB of the limit								

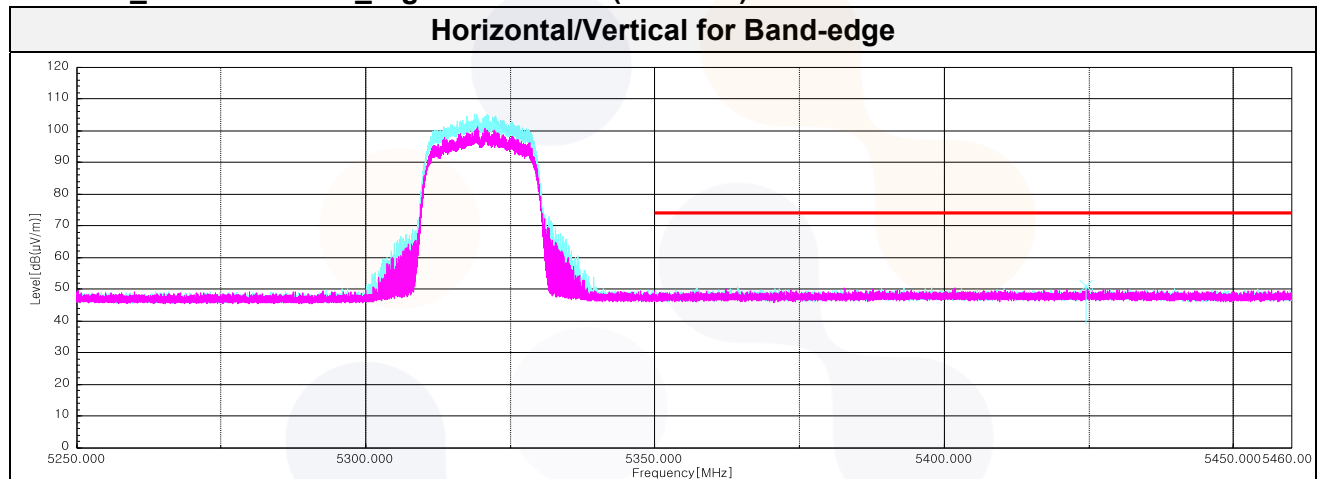
802.11ax_HE20 RU mode (242T / RU offset 61)_Highest Channel (5 320 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 351.65 ¹⁾	V	44.60	33.00	-27.07	-	50.53	74.00	23.47
Average Data								
No spurious emissions were detected within 20 dB of the limit								

Plot of Band edge

In order to simplify the report, attached plots were only the lowest margin condition

802.11ax_HE20 SU mode_Highest Channel (5 320 MHz)



UNII-2C SISO Restricted Band edge (Lowest Channel)

802.11ax_HE20 SU mode_Lowest Channel (5 500 MHz)

Frequency (MHz)	Pol. (V/H)	Reading (dB(μV))	Ant. Factor (dB)	Amp.+Cable (dB)	DCF (dB)	Result (dB(μV/m))	Limit (dB(μV/m))	Margin (dB)
Peak data								
5 406.33 ¹⁾	V	44.40	33.00	-26.90	-	50.50	74.00	23.50
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (26T / RU offset 0)_Lowest Channel (5 500 MHz)

Frequency (MHz)	Pol. (V/H)	Reading (dB(μV))	Ant. Factor (dB)	Amp.+Cable (dB)	DCF (dB)	Result (dB(μV/m))	Limit (dB(μV/m))	Margin (dB)
Peak data								
5 430.05 ¹⁾	H	44.20	33.00	-26.83	-	50.37	74.00	23.63
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (52T / RU offset 37)_Lowest Channel (5 500 MHz)

Frequency (MHz)	Pol. (V/H)	Reading (dB(μV))	Ant. Factor (dB)	Amp.+Cable (dB)	DCF (dB)	Result (dB(μV/m))	Limit (dB(μV/m))	Margin (dB)
Peak data								
5 360.88 ¹⁾	H	44.90	33.00	-27.04	-	50.86	74.00	23.14
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (106T / RU offset 53)_Lowest Channel (5 500 MHz)

Frequency (MHz)	Pol. (V/H)	Reading (dB(μV))	Ant. Factor (dB)	Amp.+Cable (dB)	DCF (dB)	Result (dB(μV/m))	Limit (dB(μV/m))	Margin (dB)
Peak datas								
5 453.93 ¹⁾	V	44.40	33.00	-26.75		50.65	74.00	23.35
Average Data								
No spurious emissions were detected within 20 dB of the limit								

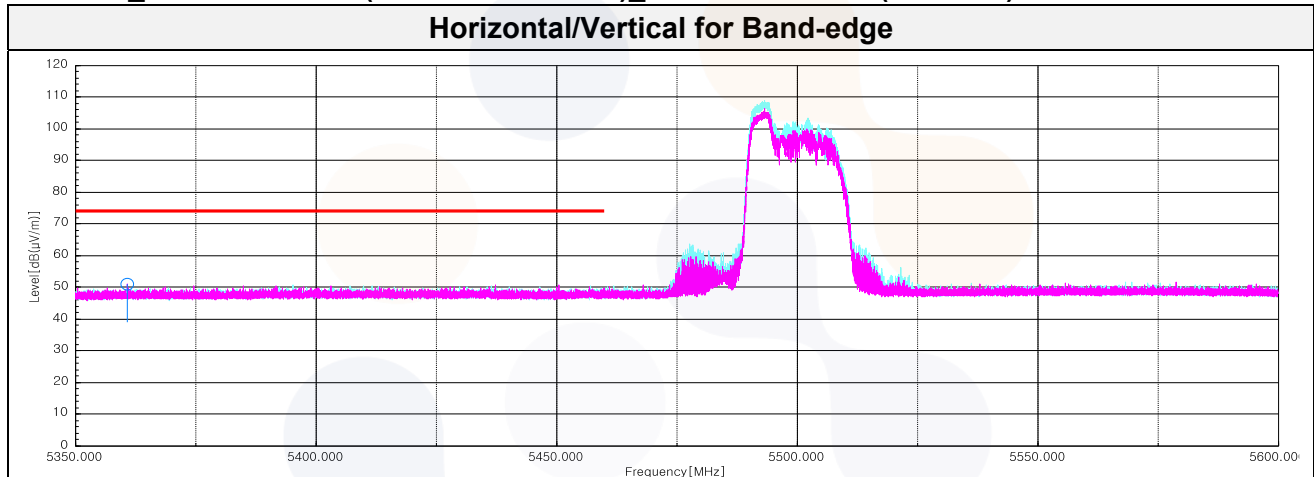
802.11ax_HE20 RU mode (242T / RU offset 61)_Lowest Channel (5 500 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 383.38 ¹⁾	H	44.80	33.00	-26.97	-	50.83	74.00	23.17
Average Data								
No spurious emissions were detected within 20 dB of the limit								

Plot of Band edge

In order to simplify the report, attached plots were only the lowest margin condition

802.11ax_HE20 RU mode (52T / RU offset 37)_Lowest Channel (5 500 MHz)



UNII-2C SISO Band edge (Highest Channel)

802.11ax_HE20 SU mode_Highest Channel (5 700 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 818.12	H	45.90	34.07	-26.39	-	53.58	68.20	14.62

802.11ax_HE20 RU mode (26T / RU offset 8)_Highest Channel (5 700 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 797.33	H	46.30	33.99	-26.47	-	53.82	68.20	14.38

802.11ax_HE20 RU mode (52T / RU offset 40)_Highest Channel (5 700 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 820.82	V	45.20	34.08	-26.38	-	52.90	68.20	15.30

802.11ax_HE20 RU mode (106T / RU offset 54)_Highest Channel (5 700 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 734.47	H	45.60	33.81	-26.66	-	52.75	68.20	15.45

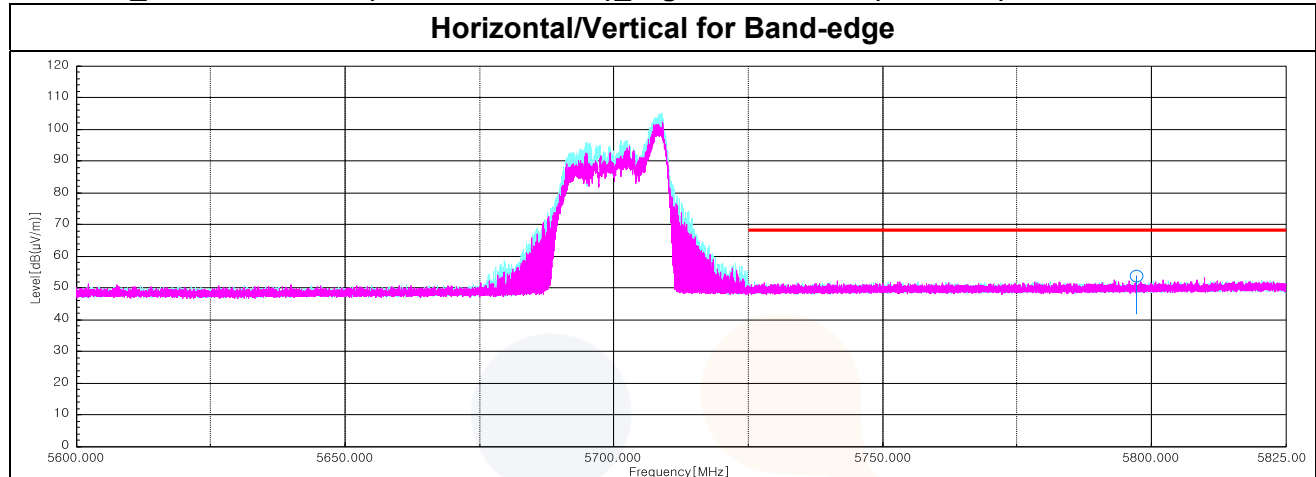
802.11ax_HE20 RU mode (242T / RU offset 61)_Highest Channel (5 700 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 753.07	H	45.80	33.81	-26.65	-	52.96	68.20	15.24

Plot of Band edge

In order to simplify the report, attached plots were only the lowest margin condition

802.11ax_HE20 RU mode (26T / RU offset 8)_Highest Channel (5 700 MHz)



UNII-3 SISO Band edge (Lowest Channel)

802.11ax_HE20 SU mode_Lowest Channel (5 745 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 723.67	V	42.10	33.74	-26.65	-	49.19	119.20	70.01

802.11ax_HE20 RU mode (26T / RU offset 0)_Lowest Channel (5 745 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 724.18	V	42.10	33.75	-26.65	-	49.20	120.30	71.10

802.11ax_HE20 RU mode (52T / RU offset 37)_Lowest Channel (5 745 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 722.31	V	40.60	33.73	-26.65	-	47.68	116.10	68.42

802.11ax_HE20 RU mode (106T / RU offset 53)_Lowest Channel (5 745 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 719.42	V	39.00	33.72	-26.65	-	46.07	110.60	64.53

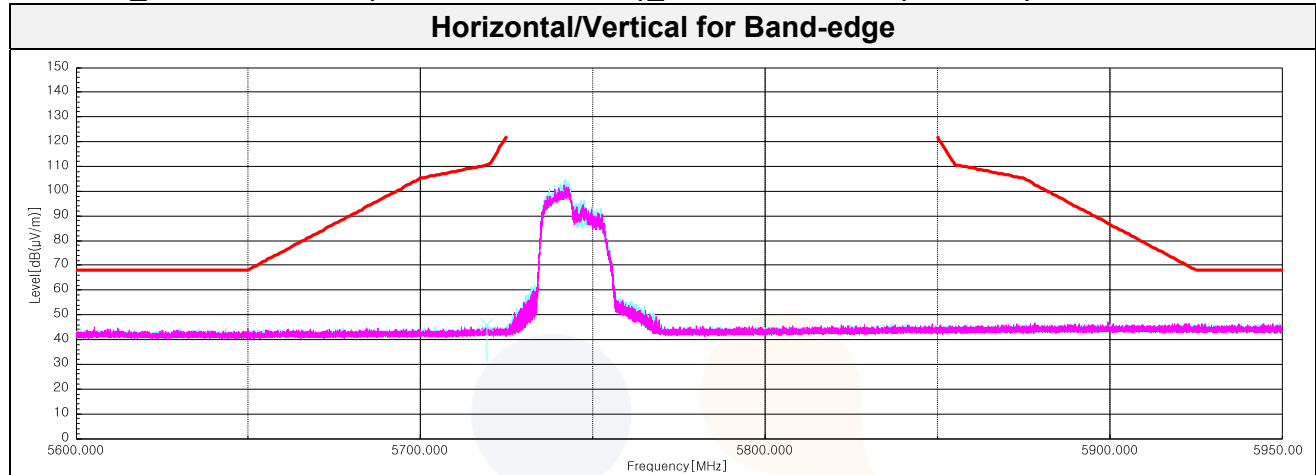
802.11ax_HE20 RU mode (242T / RU offset 61)_Lowest Channel (5 745 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 724.88	V	42.90	33.75	-26.65	-	50.00	121.90	71.90

Plot of Band edge

In order to simplify the report, attached plots were only the lowest margin condition

802.11ax_HE20 RU mode (106T / RU offset 53)_Lowest Channel (5 745 MHz)



UNII-3 SISO Restricted Band edge (Highest Channel)

802.11ax_HE20 SU mode_Highest Channel (5 825 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 877.89	V	38.70	34.31	-26.15	-	46.86	103.10	56.24

802.11ax_HE20 RU mode (26T / RU offset 8)_Highest Channel (5 825 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 850.05	V	43.20	34.20	-26.26	-	51.14	122.10	70.96

802.11ax_HE20 RU mode (52T / RU offset 40)_Highest Channel (5 825 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 860.70	V	38.70	34.24	-26.22	-	46.72	109.20	62.48

802.11ax_HE20 RU mode (106T / RU offset 54)_Highest Channel (5 825 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 899.46	V	39.10	34.40	-26.07	-	47.43	87.10	39.67

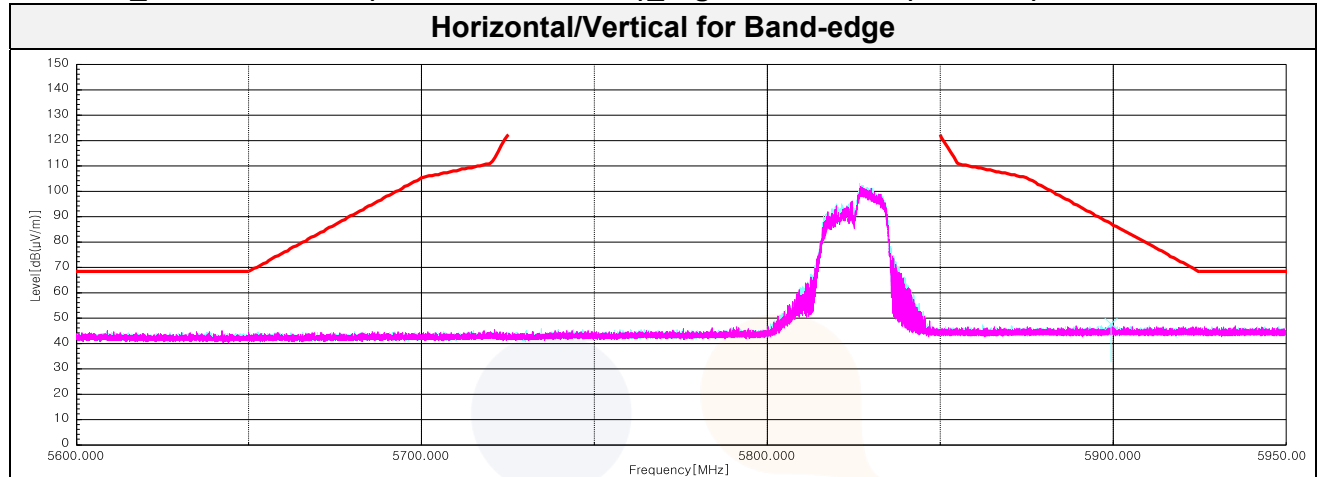
802.11ax_HE20 RU mode (242T / RU offset 61)_Highest Channel (5 825 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 853.49	V	38.50	34.21	-26.25	-	46.46	114.20	67.74

Plot of Band edge

In order to simplify the report, attached plots were only the lowest margin condition

802.11ax_HE20 RU mode (106T / RU offset 54)_Highest Channel (5 825 MHz)



UNII-1 SISO Harmonics and Spurious Emissions

802.11ax_HE20 SU mode_Lowest Channel (5 180 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 356.72	H	54.00	38.89	-43.85	-	49.04	68.20	19.16
15 540.15 ¹⁾	H	51.90	38.22	-41.54	-	48.58	74.00	25.42
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 SU mode_Middle Channel (5 200 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 402.33	H	54.50	39.00	-43.84	-	49.66	68.20	18.54
15 600.72 ¹⁾	V	52.20	38.00	-41.53	-	48.67	74.00	25.33
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 SU mode_Highest Channel (5 240 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 480.15	V	54.50	39.00	-43.84	-	49.66	68.20	18.54
15 725.68 ¹⁾	H	53.40	38.10	-41.51	-	49.99	74.00	24.01
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (52T / RU offset 38)_Lowest Channel (5 180 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 360.17	V	54.80	38.88	-43.85	-	49.83	68.20	18.37
15 534.78 ¹⁾	H	51.80	38.23	-41.54	-	48.49	74.00	25.51
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (52T / RU offset 38)_Middle Channel (5 200 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 403.48	V	54.60	39.01	-43.84	-	49.77	68.20	18.43
15 598.03 ¹⁾	H	53.20	38.10	-41.53	-	49.77	74.00	24.23
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (242T / RU offset 61)_Lowest Channel (5 240 MHz)

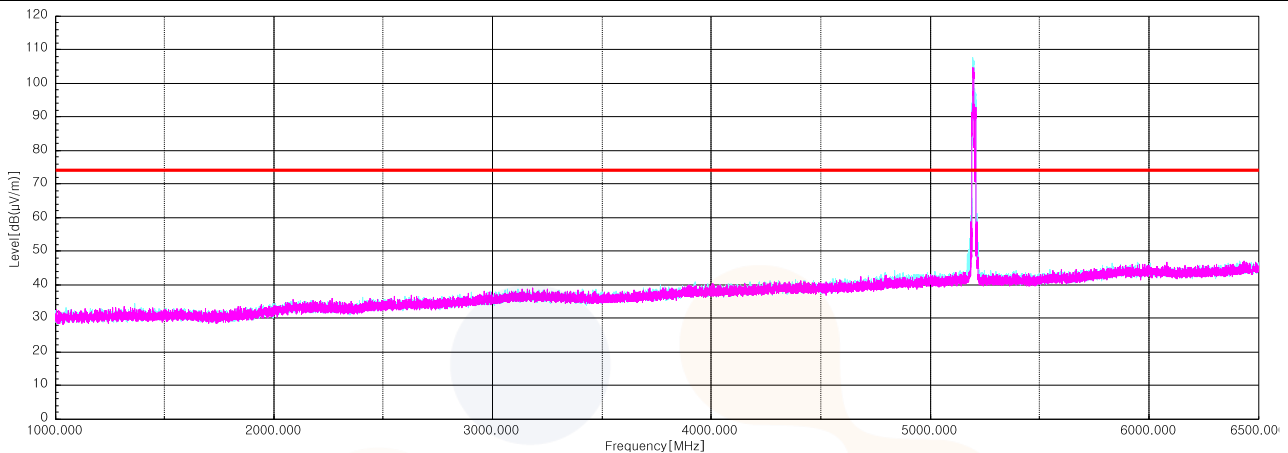
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 479.77	H	54.10	39.00	-43.84	-	49.26	68.20	18.94
15 726.83 ¹⁾	V	54.00	38.10	-41.51	-	50.59	74.00	23.41
Average Data								
No spurious emissions were detected within 20 dB of the limit								

Plot of Harmonics and Spurious Emissions

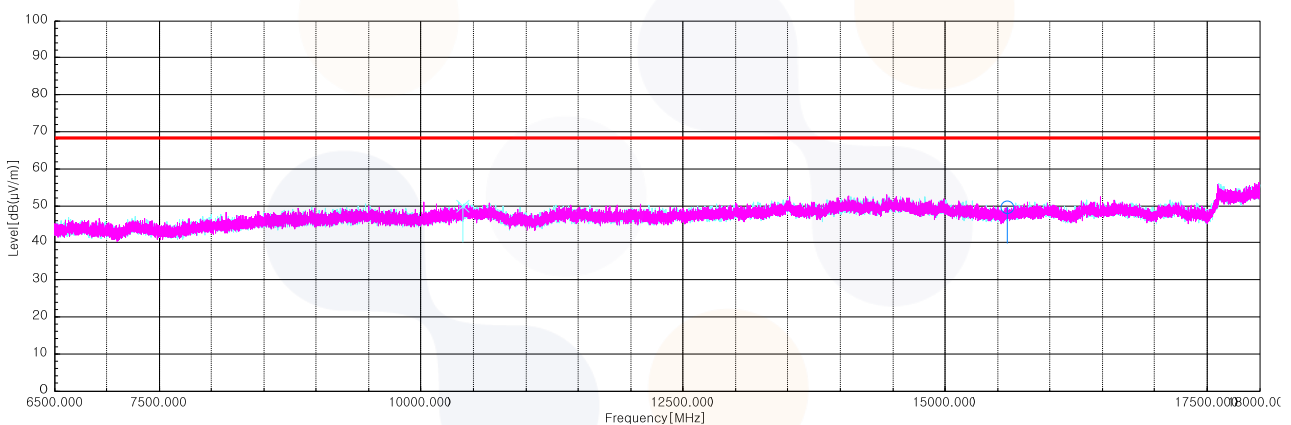
In order to simplify the report, attached plots were only the lowest margin condition

802.11ax_HE20 RU mode (52T / RU offset 38)_Middle Channel (5 200 MHz)

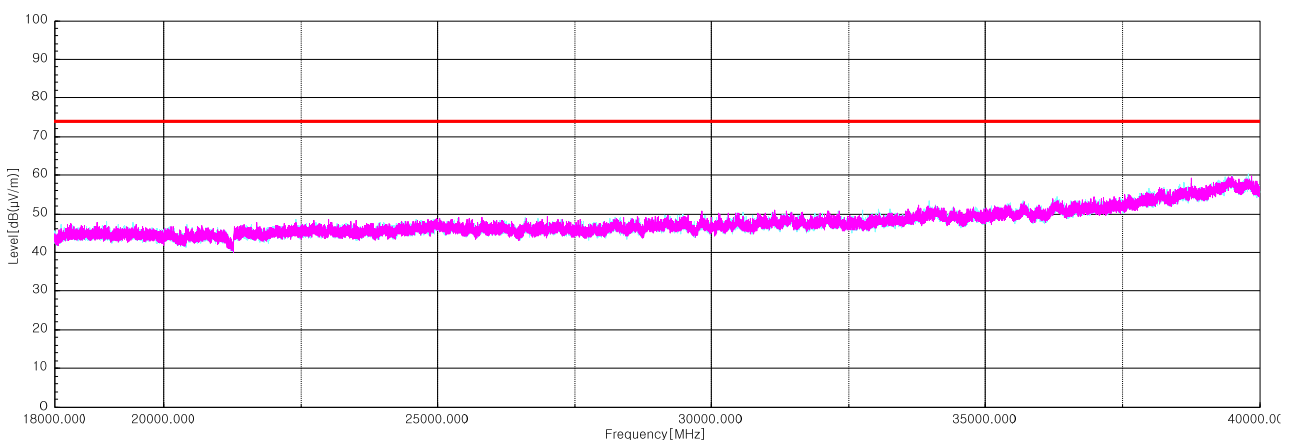
Horizontal/Vertical for 1 GHz ~ 6.5 GHz



Horizontal/Vertical for 6.5 GHz ~ 18 GHz



Horizontal/Vertical for 18 GHz ~ 40 GHz



UNII-2A SISO Harmonics and Spurious Emissions

802.11ax_HE20 SU mode_Lowest Channel (5 260 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 518.48	H	54.70	39.00	-43.88	-	49.82	68.20	18.38
15 791.62 ¹⁾	V	53.40	38.10	-41.47	-	50.03	74.00	23.97
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 SU mode_Middle Channel (5 280 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 558.73	V	54.40	39.12	-43.98	-	49.54	68.20	18.66
15 836.08 ¹⁾	H	52.50	38.27	-41.42	-	49.35	74.00	24.65
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 SU mode_Highest Channel (5 320 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 641.92 ¹⁾	V	55.10	39.28	-44.17	-	50.21	74.00	23.79
15 958.75 ¹⁾	H	52.70	38.20	-41.30	-	49.60	74.00	24.40
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (242T / RU offset 61)_Lowest Channel (5 260 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 519.25	V	54.40	39.00	-43.89	-	49.51	68.20	18.69
15 775.52 ¹⁾	H	53.50	38.10	-41.48	-	50.12	74.00	23.88
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (242T / RU offset 61)_Middle Channel (5 280 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 561.42	H	54.40	39.12	-43.98	-	49.54	68.20	18.66
15 836.08 ¹⁾	H	53.50	38.27	-41.42	-	50.35	74.00	23.65
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (242T / RU offset 61)_Highest Channel (5 320 MHz)

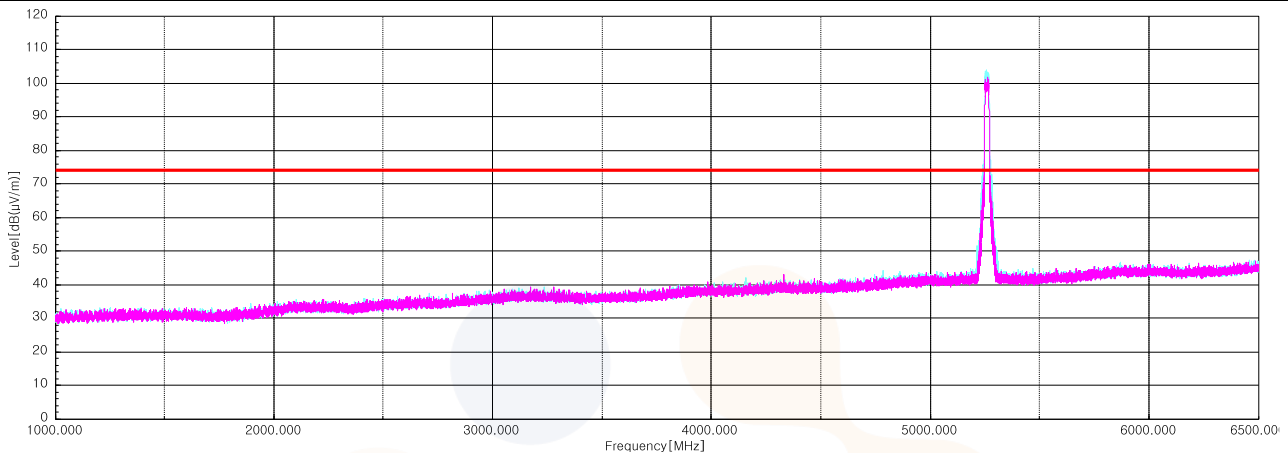
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 638.08 ¹⁾	H	54.30	39.28	-44.17	-	49.41	74.00	24.59
15 958.75 ¹⁾	H	53.30	38.20	-41.30	-	50.20	74.00	23.80
Average Data								
No spurious emissions were detected within 20 dB of the limit								

Plot of Harmonics and Spurious Emissions

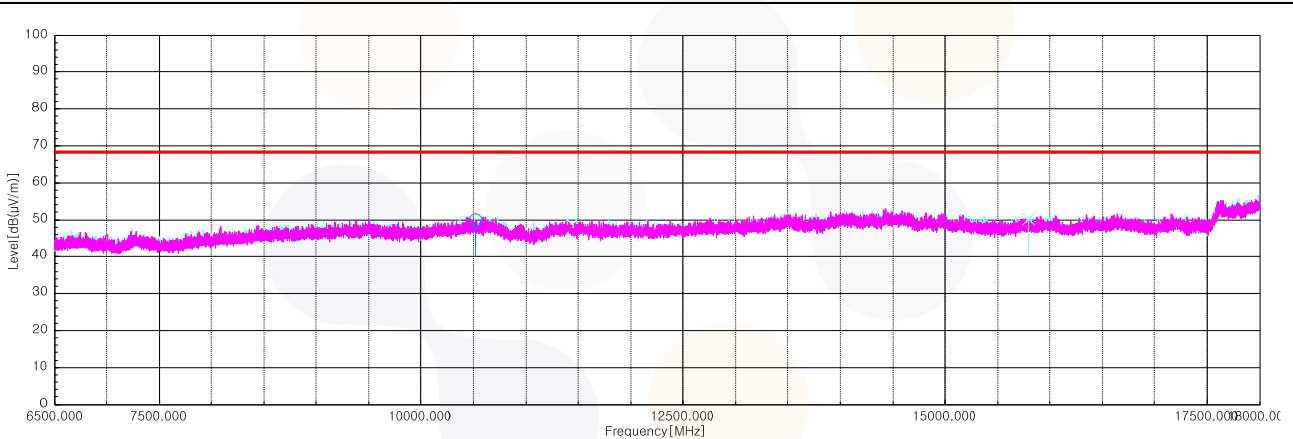
In order to simplify the report, attached plots were only the lowest margin condition

802.11ax_HE20 SU mode_Lowest Channel (5 260 MHz)

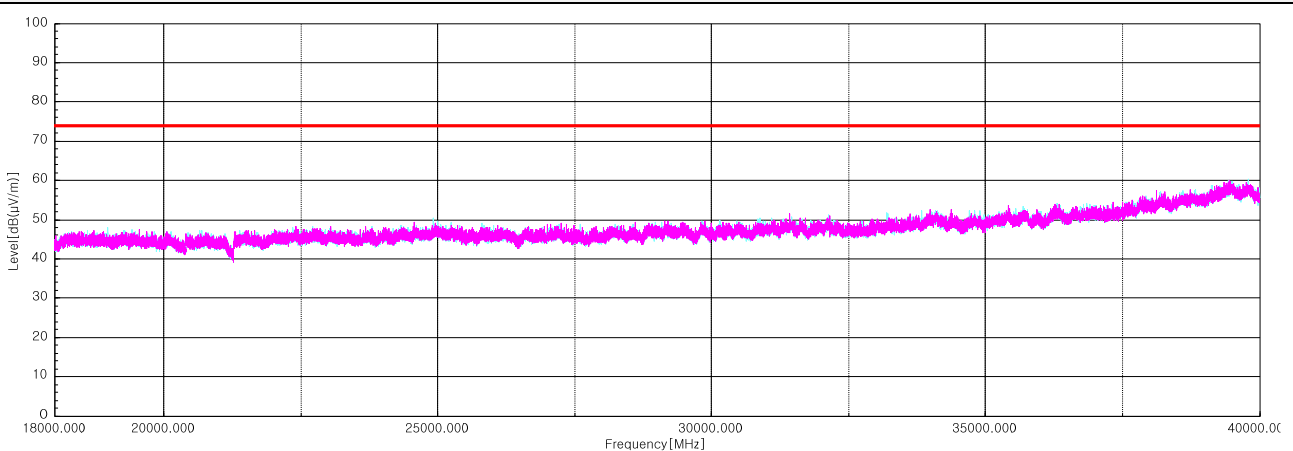
Horizontal/Vertical for 1 GHz ~ 6.5 GHz



Horizontal/Vertical for 6.5 GHz ~ 18 GHz



Horizontal/Vertical for 18 GHz ~ 40 GHz



UNII-2C SISO Harmonics and Spurious Emissions

802.11ax_HE20 SU mode_Lowest Channel (5 500 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 004.17 ¹⁾	V	52.00	39.09	-43.77	-	47.32	74.00	26.68
16 503.85	V	53.40	38.10	-41.38	-	50.12	68.20	18.08
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 SU mode_Middle Channel (5 600 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 202.35 ¹⁾	H	52.50	39.10	-43.57	-	48.03	74.00	25.97
16 808.60	H	54.40	38.10	-41.83	-	50.67	68.20	17.53
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 SU mode_Highest Channel (5 700 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 413.57 ¹⁾	H	54.00	39.20	-43.01	-	50.19	74.00	23.81
17 102.23	H	54.20	38.10	-41.93	-	50.37	68.20	17.83
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (52T / RU offset 38)_Lowest Channel (5 500 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 004.17 ¹⁾	V	52.10	39.09	-43.77	-	47.42	74.00	26.58
16 496.18	V	54.10	38.10	-41.39	-	50.81	68.20	17.39
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (52T / RU offset 38)_Middle Channel (5 600 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 205.80 ¹⁾	H	53.30	39.11	-43.56	-	48.85	74.00	25.15
16 808.22	V	53.80	38.10	-41.83	-	50.07	68.20	18.13
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (52T / RU offset 38)_Highest Channel (5 700 MHz)

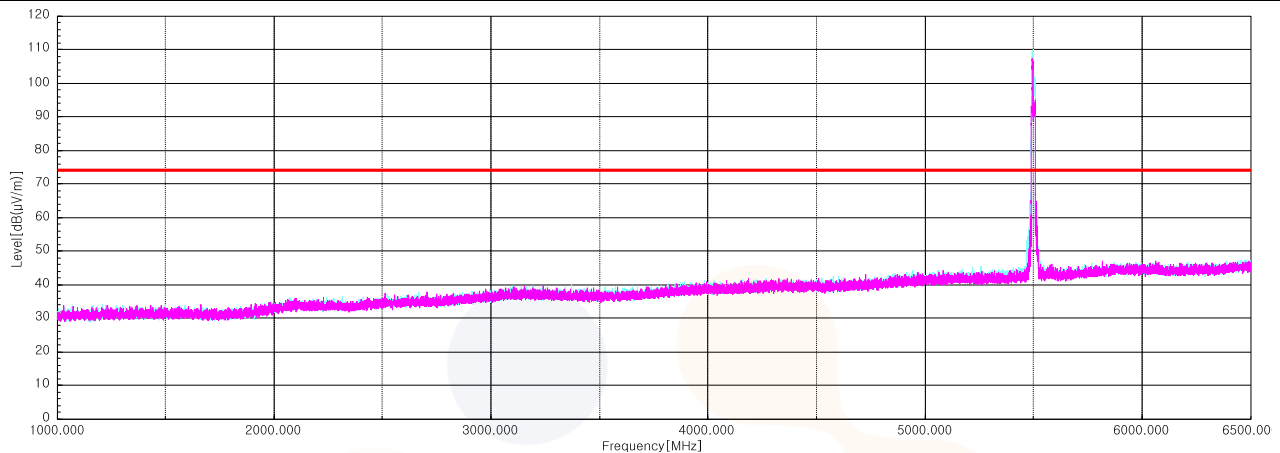
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 411.65 ¹⁾	V	52.90	39.20	-43.02	-	49.08	74.00	24.92
17 106.07	H	54.40	38.10	-41.91	-	50.59	68.20	17.61
Average Data								
No spurious emissions were detected within 20 dB of the limit								

Plot of Harmonics and Spurious Emissions

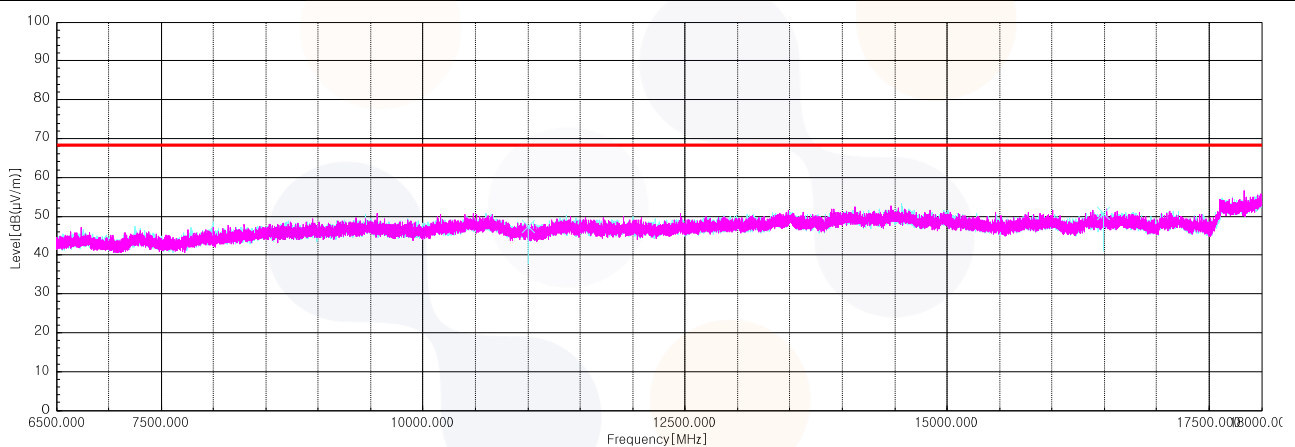
In order to simplify the report, attached plots were only the lowest margin condition

802.11ax_HE20 RU mode (52T / RU offset 38)_Lowest Channel (5 500 MHz)

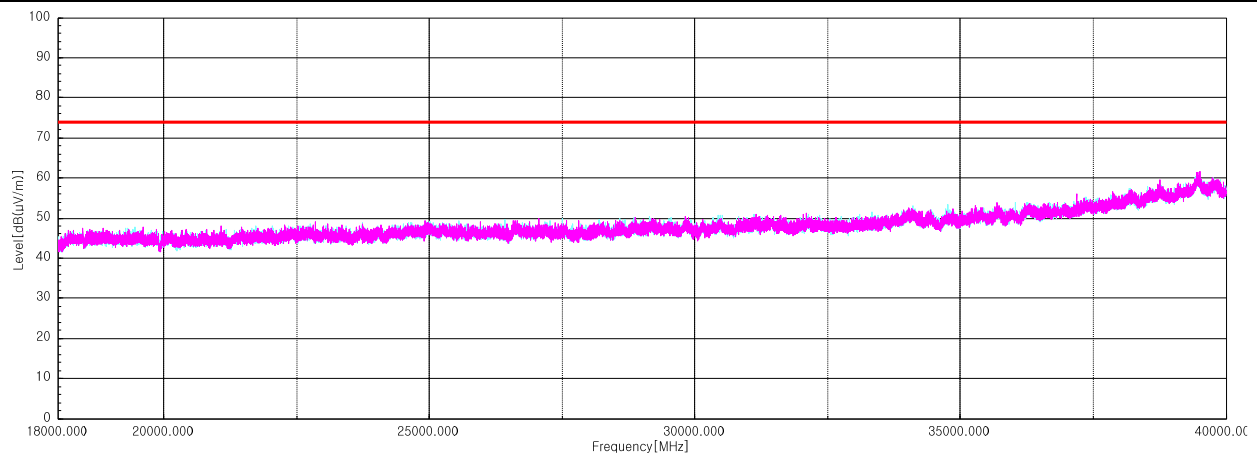
Horizontal/Vertical for 1 GHz ~ 6.5 GHz



Horizontal/Vertical for 6.5 GHz ~ 18 GHz



Horizontal/Vertical for 18 GHz ~ 40 GHz



UNII-2C&3 Straddle Channel SISO Harmonics and Spurious Emissions

802.11ax_HE20 SU mode_Middle Channel (5 720 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 437.72 ¹⁾	H	52.00	39.20	-42.93	-	48.27	74.00	25.73
17 132.52	H	56.00	38.10	-41.77	-	52.33	68.20	15.87
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (52T / RU offset 38)_Lowest Channel (5 720 MHz)

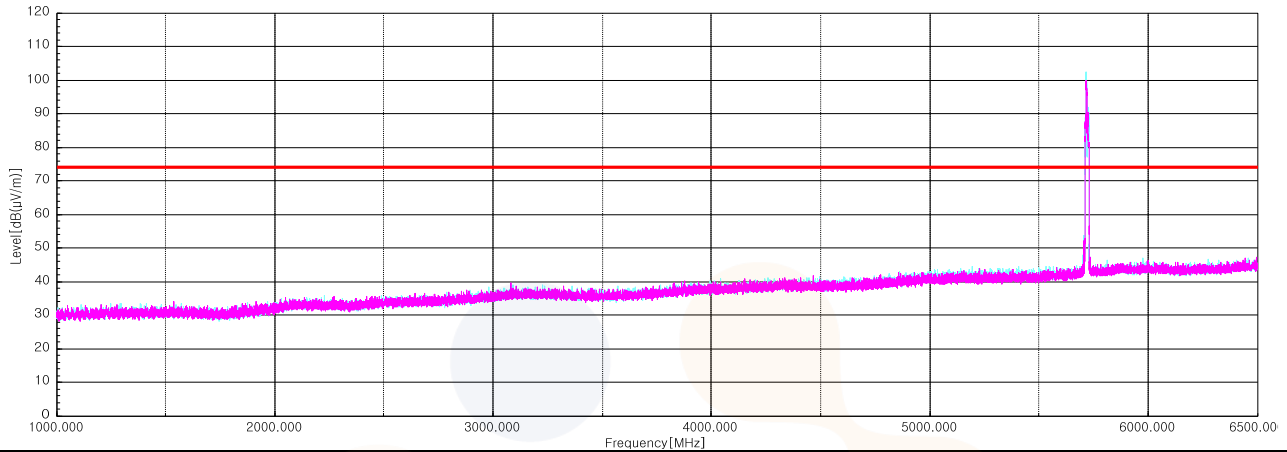
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 428.90 ¹⁾	H	52.80	39.20	-42.96	-	49.04	74.00	24.96
17 162.03	H	56.00	38.10	-41.61	-	52.49	68.20	15.71
Average Data								
No spurious emissions were detected within 20 dB of the limit								

Plot of Harmonics and Spurious Emissions

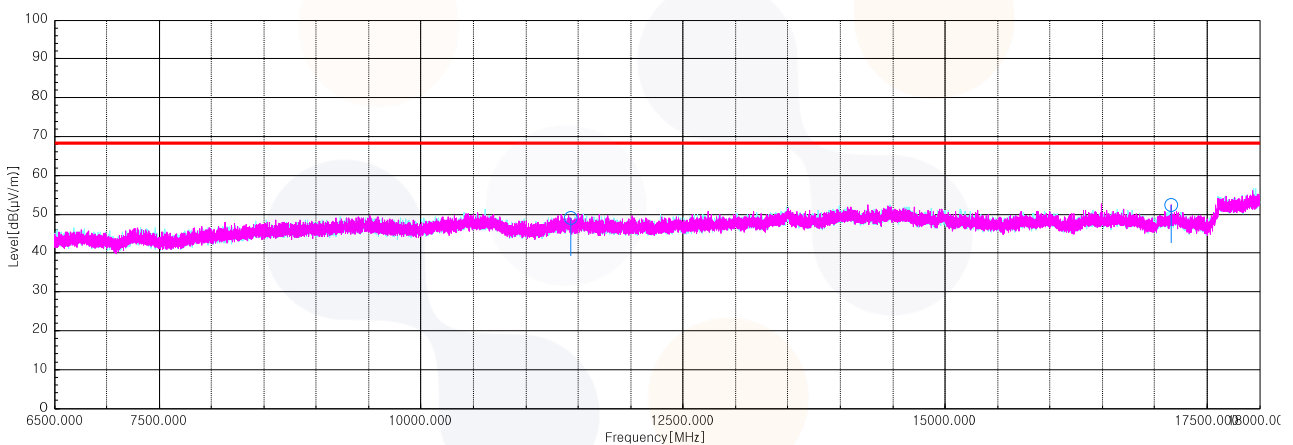
In order to simplify the report, attached plots were only the lowest margin condition

802.11ax_HE20 RU mode (52T / RU offset 38)_Lowest Channel (5 720 MHz)

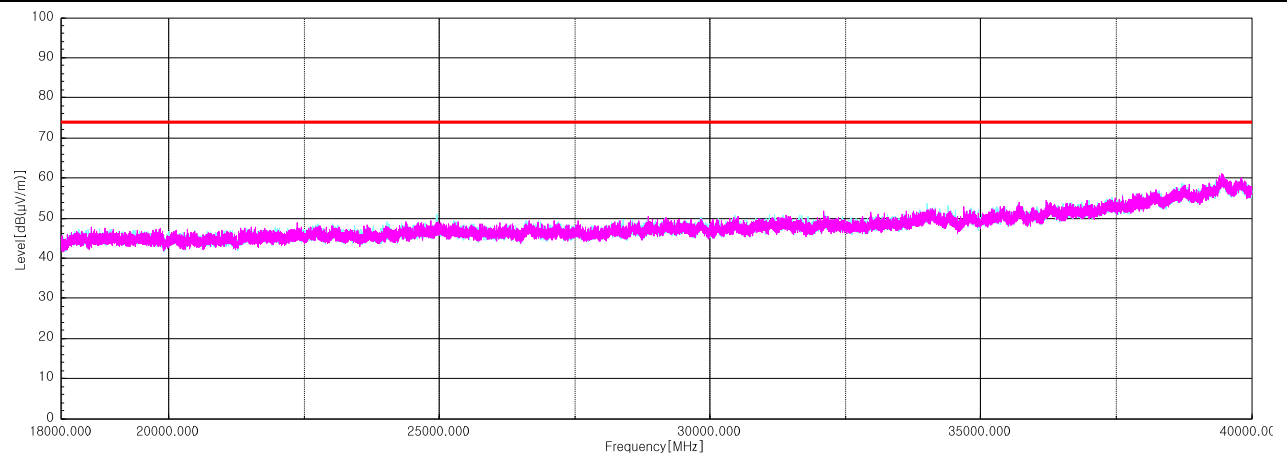
Horizontal/Vertical for 1 GHz ~ 6.5 GHz



Horizontal/Vertical for 6.5 GHz ~ 18 GHz



Horizontal/Vertical for 18 GHz ~ 40 GHz



UNII-3 SISO Harmonics and Spurious Emissions

802.11ax_HE20 SU mode_Lowest Channel (5 745 MHz)

Frequency (MHz)	Pol. (V/H)	Reading (dB(μV))	Ant. Factor (dB)	Amp.+Cable (dB)	DCF (dB)	Result (dB(μV/m))	Limit (dB(μV/m))	Margin (dB)
Peak data								
11 500.97 ¹⁾	V	54.00	39.00	-42.74	-	50.26	74.00	23.74
17 228.73	V	53.60	38.41	-41.26	-	50.75	68.20	17.45
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 SU mode_Middle Channel (5 785 MHz)

Frequency (MHz)	Pol. (V/H)	Reading (dB(μV))	Ant. Factor (dB)	Amp.+Cable (dB)	DCF (dB)	Result (dB(μV/m))	Limit (dB(μV/m))	Margin (dB)
Peak data								
11 576.10 ¹⁾	V	52.20	38.85	-42.52	-	48.53	74.00	25.47
17 355.62	V	53.20	38.72	-41.47	-	50.45	68.20	17.75
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 SU mode_Highest Channel (5 825 MHz)

Frequency (MHz)	Pol. (V/H)	Reading (dB(μV))	Ant. Factor (dB)	Amp.+Cable (dB)	DCF (dB)	Result (dB(μV/m))	Limit (dB(μV/m))	Margin (dB)
Peak data								
11 650.47 ¹⁾	V	52.30	38.80	-42.31	-	48.79	74.00	25.21
17 469.08	V	51.30	39.28	-41.82	-	48.76	68.20	19.44
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (52T / RU offset 38)_Lowest Channel (5 745 MHz)

Frequency (MHz)	Pol. (V/H)	Reading (dB(μV))	Ant. Factor (dB)	Amp.+Cable (dB)	DCF (dB)	Result (dB(μV/m))	Limit (dB(μV/m))	Margin (dB)
Peak data								
11 491.38 ¹⁾	V	52.50	39.02	-42.77	-	48.75	74.00	25.25
17 233.33	V	54.00	38.43	-41.24	-	51.19	68.20	17.01
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (26T / RU offset 4)_Middle Channel (5 785 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 566.90 ¹⁾	H	52.80	38.87	-42.55	-	49.12	74.00	24.88
17 358.68	V	51.60	38.73	-41.48	-	48.85	68.20	19.35
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ax_HE20 RU mode (52T / RU offset 38)_Highest Channel (5 825 MHz)

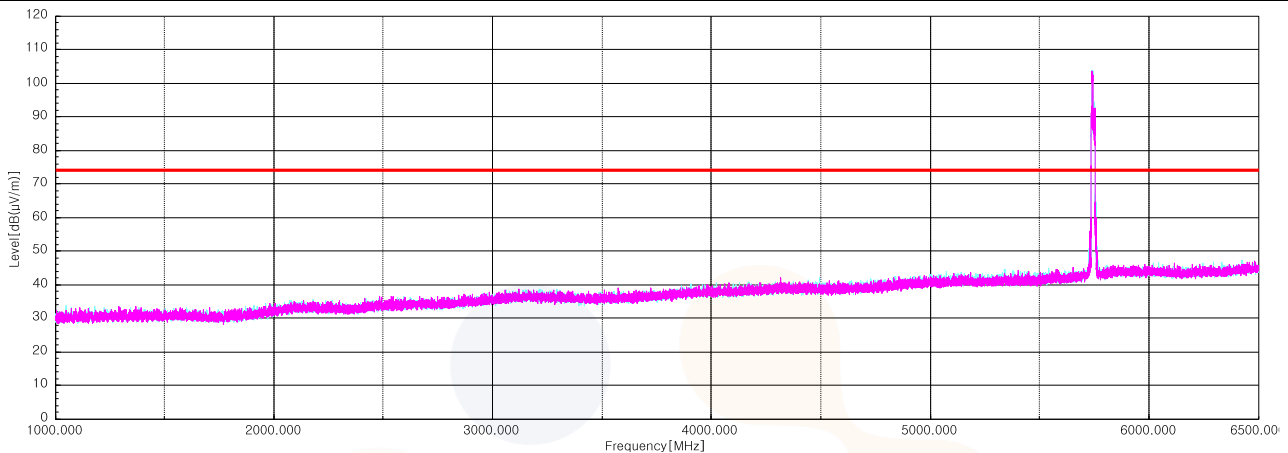
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 650.85 ¹⁾	H	53.50	38.80	-42.31	-	49.99	74.00	24.01
17 478.67	V	51.70	39.31	-41.85	-	49.16	68.20	19.04
Average Data								
No spurious emissions were detected within 20 dB of the limit								

Plot of Harmonics and Spurious Emissions

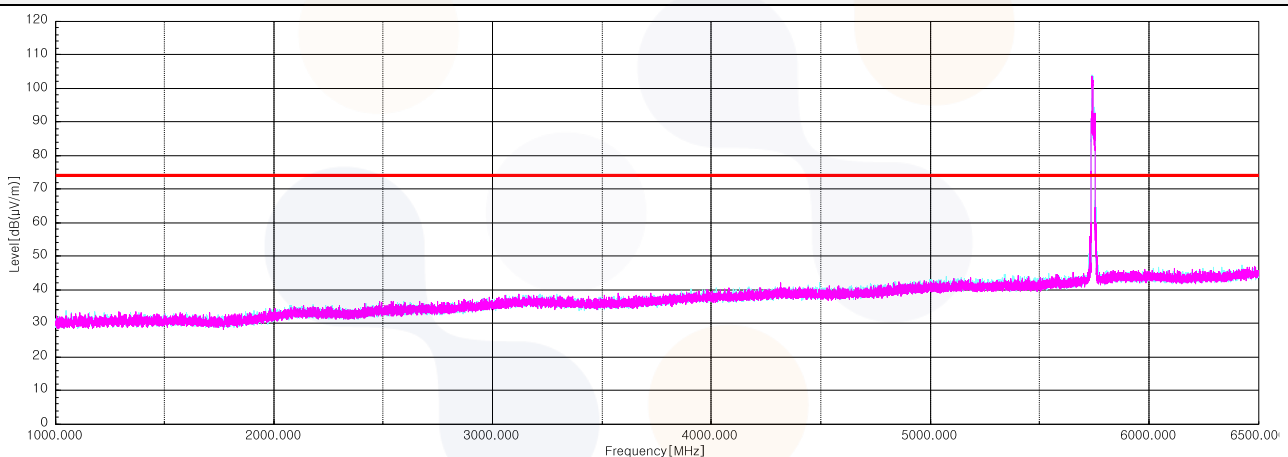
In order to simplify the report, attached plots were only the lowest margin condition

802.11ax_HE20 RU mode (52T / RU offset 38)_Lowest Channel (5 745 MHz)

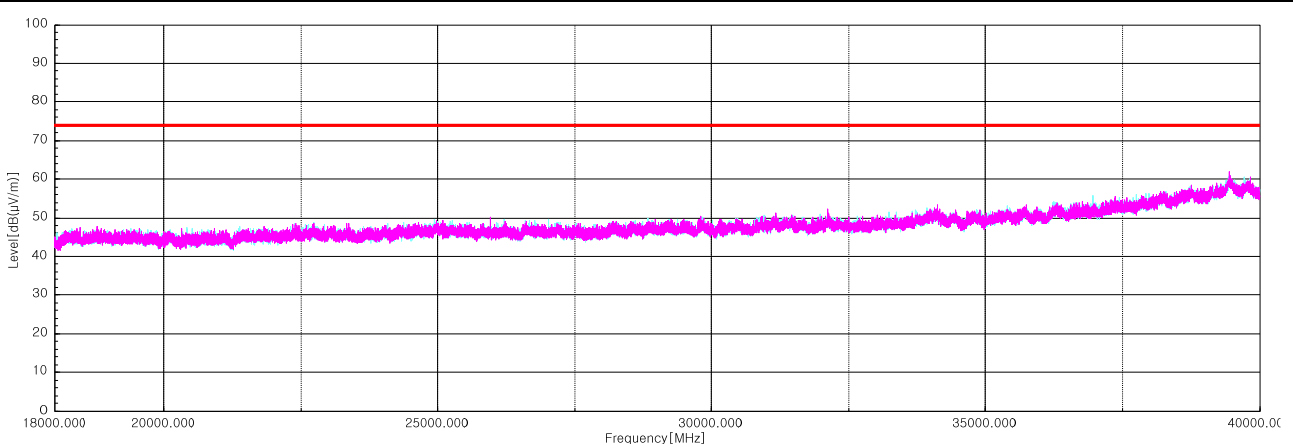
Horizontal/Vertical for 1 GHz ~ 6.5 GHz



Horizontal/Vertical for 6.5 GHz ~ 18 GHz



Horizontal/Vertical for 18 GHz ~ 40 GHz



8. Measurement equipment

Equipment Name	Manufacturer	Model No.	Serial No.	Next Cal. Date
Controller	INNCO SYSTEMS	CO3000	1441/54370322/P	-
Antenna Mast	INNCO SYSTEMS	MA4640-XP-ET	-	-
Turn Device	INNCO SYSTEMS	DS1200-S-1t	-	-
Spectrum Analyzer	R&S	FSVA40	101575	24.06.19
PSA Spectrum Analyzer	Agilent	E4440A	MY46186407	24.03.22
Amplifier	SONOMA INSTRUMENT	310N	421821	24.10.12
Bilog Antenna	Teseq GmbH	CBL 6112D	63756	24.11.17
Loop Antenna	R&S	HFH2-Z2	100355	24.08.10
Signal & Spectrum Analyzer	R&S	FSV3030	1330.5000K30-101710-Wt	24.07.03
Spectrum Analyzer	R&S	FSV40	100989	24.10.12
Power Sensor	R&S	NRP-Z81	1137.9009.02-106223-bB	24.04.25
Signal Generator	R&S	SMB100A	176206	25.01.18
Vector Signal Generator	R&S	SMBV100A	257566	24.07.04
Broadband PreAmplifier	SCHWARZBECK	BBV9718D	57	24.03.17
Low Noise Amplifier	TESTEK	TK-PA18H	220124-L	24.10.12
Low Noise Amplifier	TESTEK	TK-PA1840H	220133-L	24.10.17
Horn Antenna	SCHWARZBECK	BBHA9120D	2763	24.10.18
Horn Antenna	SCHWARZBECK	BBHA9170	1267	24.10.16
High Pass Filter	Wainwright Instruments GmbH	WHKX8-5655-6500-18000-40SS	SN8	24.10.16
TWO-LINE V - NETWORK	R&S	ENV216	101358	24.09.27
EMI TEST RECEIVER	R&S	ESC13	101428	24.08.18
Attenuator	HP	8491A	18591	25.01.18

End of test report