

CERTIFICATION TEST REPORT

Report Number. : S-4791706661-E8V1

Applicant : SAMSUNG ELECTRONICS CO., LTD.
129 SAMSUNG-RO, YEONGTONG-GU, SUWON-SI,
GYEONGGI-DO, 16677, KOREA

Model : SM-L505U, SM-L505F

FCC ID : A3LSML505

EUT Description : WCDMA/LTE Smart Wearable + BT/BLE, DTS/UNII a/b/g/n

Test Standard(s) : FCC 47 CFR PART 15 SUBPART E

Date Of Issue:

2025-04-24

Prepared by:

UL KOREA LTD.

26th floor, 152, Teheran-ro, Gangnam-gu Seoul, 06236, Korea

Suwon Test Site: UL KOREA LTD. Suwon Laboratory

218 Maeyeong-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 16675, Korea

TEL: (031) 337-9902

FAX: (031) 213-5433

Revision History

Rev.	Issue Date	Revisions	Revised By
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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.

EUT DESCRIPTION: WCDMA/LTE Smart Wearable + BT/BLE, DTS/UNII a/b/g/n

MODEL NUMBER: SM-L505U, SM-L505F

SERIAL NUMBER: 354907200130332, 354907200130134 (CONDUCTED);
R3AY30059FL, R3AY3005E6Y (RADIATED)

DATE TESTED: 2025-03-18 - 2025-04-22

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart E	Complies

UL KOREA LTD. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL KOREA LTD. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

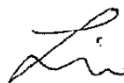
Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL KOREA LTD. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL KOREA LTD. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by IAS, any agency of the Federal Government, or any agency of any government.

Approved & Released For
UL KOREA LTD. By:



Seokhwan Hong
Suwon Lab Engineer
UL KOREA LTD.

Tested By:



Jaejin Lee
Suwon Lab Engineer
UL KOREA LTD.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with following methods.

1. FCC CFR 47 Part 2.
2. FCC CFR 47 Part 15.
3. KDB 789033 D02 General UNII Test Procedures New Rules v02r01
4. KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02
5. KDB 905462 D03 UNII Clients Without Radar Detection New Rules v01r02
6. KDB 291074 D02 v01
7. ANSI C63.10-2020.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea. Line conducted emissions are measured only at the 218 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

218 Maeyeong-ro	
☒	Chamber 1(3m semi-anechoic chamber)
☒	Chamber 2(3m semi-anechoic chamber)
☒	Chamber 3(3m semi-anechoic chamber)
☐	Chamber 4(3m Full-anechoic chamber)
☐	Chamber 5(3m Full-anechoic chamber)

UL KOREA LTD. is accredited by IAS, Laboratory Code TL-637. The full scope of accreditation can be viewed at <https://www.iasonline.org/wp-content/uploads/2017/05/TL-637-cert-New.pdf>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamplifier Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

$$\begin{aligned} \text{AC Corrected Reading (dBuV)} &= \text{Measured Voltage (dBuV)} + \text{Extension Cord} \\ &\text{Loss (dB)} + \text{Cable Loss (dB)} \\ 44.72 \text{ dBuV} &= 34.72 \text{ dBuV} + 9.9 \text{ dB} + 0.1 \text{ dB} \end{aligned}$$

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
RF Output Power	0.69 dB
Power Spectral Density	1.40 dB
Time(Duty cycle and DFS)	0.60 %
Occupied Bandwidth	0.04 %
Conducted Disturbance, 0.15 to 30 MHz	1.84 dB
Radiated Disturbance, 9 kHz to 30 MHz	2.41 dB
Radiated Disturbance, 30 MHz to 1 GHz	3.69 dB
Radiated Disturbance, 1 GHz to 18 GHz	5.18 dB
Radiated Disturbance, 18 GHz to 40 GHz	5.07 dB

Uncertainty figures are valid to a confidence level of 95%.

4.4. DECISION RULE

Decision rule for statement(s) of conformity is based on Clause 4.4.3 in IEC Guide 115:2023.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a WCDMA/LTE Smart Wearable + BT/BLE, DTS/UNII a/b/g/n.
This test report addresses the NII (WLAN) operational mode.

Representative model	Difference	Derivative model
		SM-L505F
SM-L505U	Hardware	Same
	Software	The UI has changed according to Service Provider

The model SM-L505U was used for final testing and is representative of the test results in this report.

WiFi operating mode

Frequency rage	Mode	ANT1
5GHz (5150 MHz ~ 5925 MHz)	802.11a SISO	TX/RX
	802.11n HT20 SISO	TX/RX

MAXIMUM OUTPUT POWER

The transmitter has a maximum total conducted average output power as follows except UNII-4 listed is based on EIRP as noted:

Band	Frequency Range [MHz]	Mode	Output Power [dBm]	Output Power [mW]
UNII-1	5180 - 5240	802.11a SISO	16.19	41.59
		802.11n(HT20) SISO	16.19	41.59
UNII-2A	5260 - 5320	802.11a SISO	16.28	42.46
		802.11n(HT20) SISO	16.31	42.76
UNII-2C	5500 - 5720	802.11a SISO	16.16	41.30
		802.11n(HT20) SISO	16.14	41.11
UNII-3	5745 - 5825	802.11a SISO	16.31	42.76
		802.11n(HT20) SISO	16.15	41.21
UNII-4	5845 - 5885	802.11a SISO	7.25	5.31
		802.11n(HT20) SISO	7.13	5.16

5.2. DESCRIPTION OF AVAILABLE ANTENNAS

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

**The internal antenna was Permanently attached.
Therefore this E.U.T Complies with the requirement of §15.203.**

The radio utilizes a internal antenna, with a maximum gain of:

UNII Band	Frequency Range[MHz]	ANT1 Gain [dBi]
UNII 1	5150 - 5250	-10.60
UNII 2A	5250 - 5350	-10.60
UNII 2C	5470 - 5725	-9.20
UNII 3	5725 - 5850	-9.10
UNII 4	5850 - 5925	-9.10

5.3. WORST-CASE CONFIGURATION AND MODE

The fundamentals of the EUT were investigated in three orthogonal orientations X, Y and Z on 1TX SISO mode. It was determined that Z orientation was the worst-case for 1TX SISO mode.

Worst case of antenna axis: Z

Radiated and power line conducted tests were performed with EUT connected to AC power adapter and strap as the worst-case configuration. Radiated harmonics spurious 1~18 GHz Low/Mid/High channels, 18-40GHz were performed with the EUT set at the worst mode. Radiated emission below 1GHz and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

For Radiated spurious test, 802.11a 1TX mode has equal or higher output power and PSD results than other modes and therefore, it was set for full test. Spot-check was performed in 802.11n 1TX.

For Radiated band-edge test, 802.11a 1TX, 802.11n 1TX.

Simultaneous transmission with the Bluetooth and Wi-Fi were investigated, and no noticeable emission was found.

Based on the baseline scan, the worst-case data rates were:

802.11a mode: 6 Mbps 1TX

802.11n HT20 mode: MCS0 1TX

5.4. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Charger	SAMSUNG	EP-TA800	R37XBMJF8FBDKA	N/A
Wireless Charger	SAMSUNG	EP-OL300	-	-

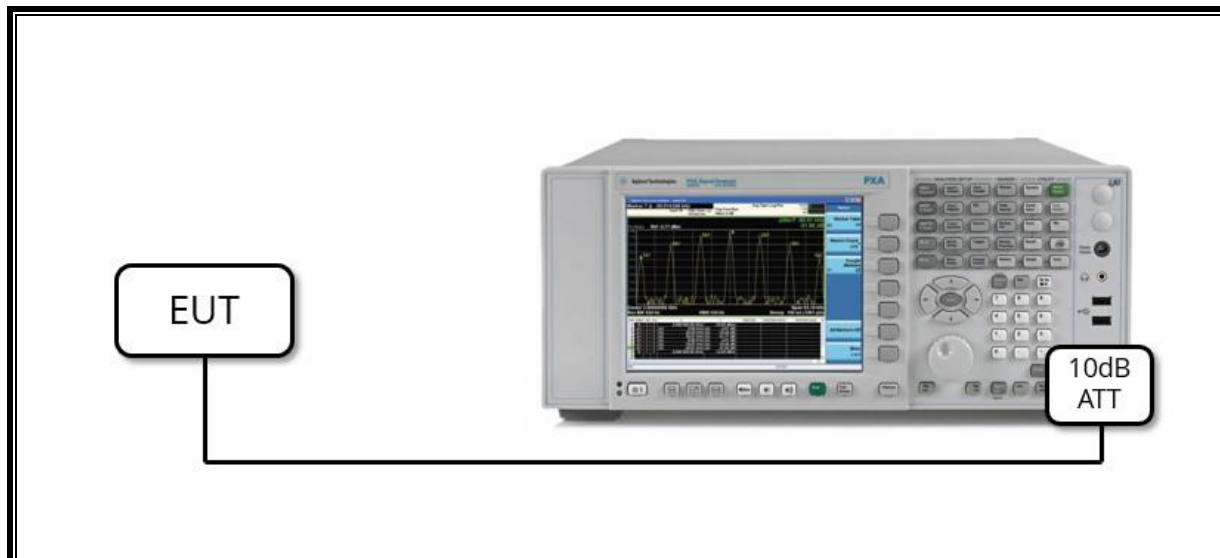
I/O CABLE

I/O Cable List						
Cable No.	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC Power	1	C Type	Shielded	0.8 m	N/A

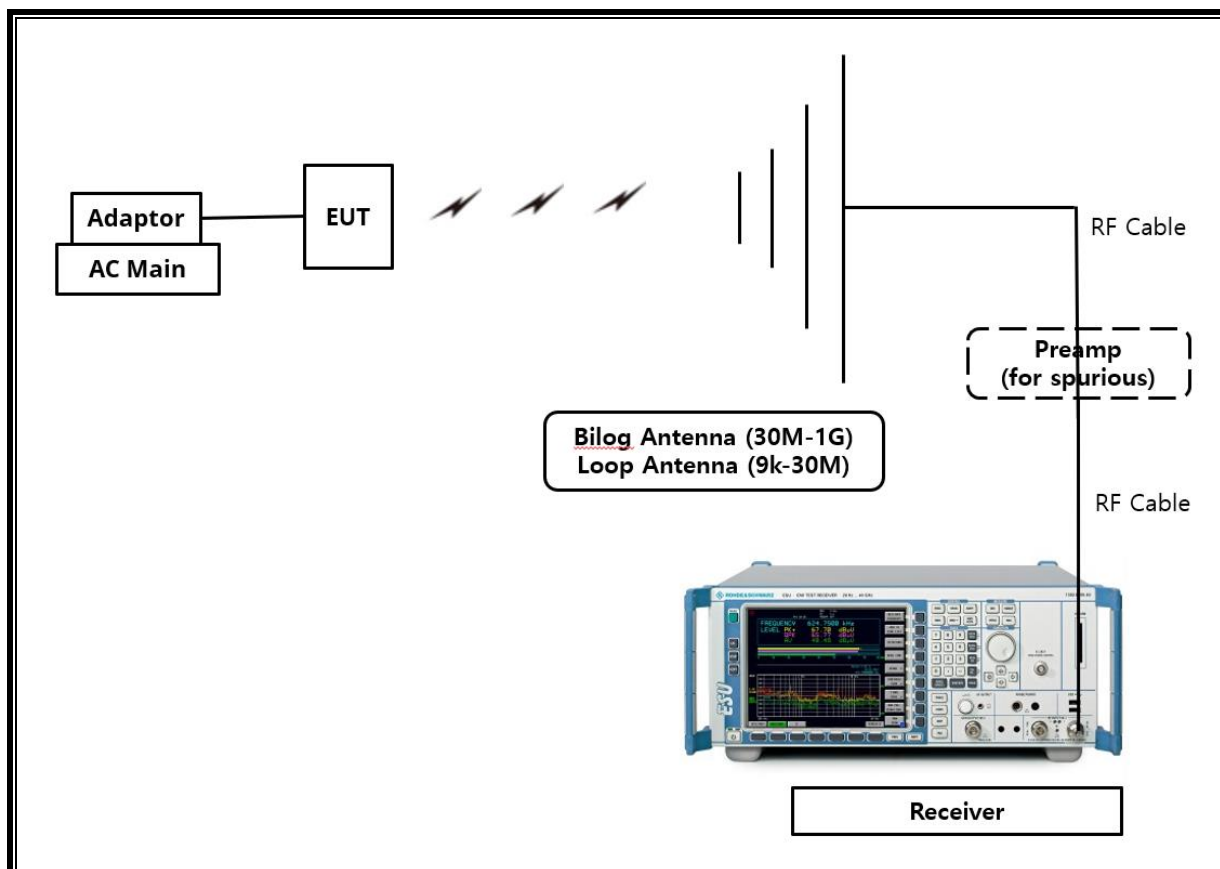
TEST SETUP

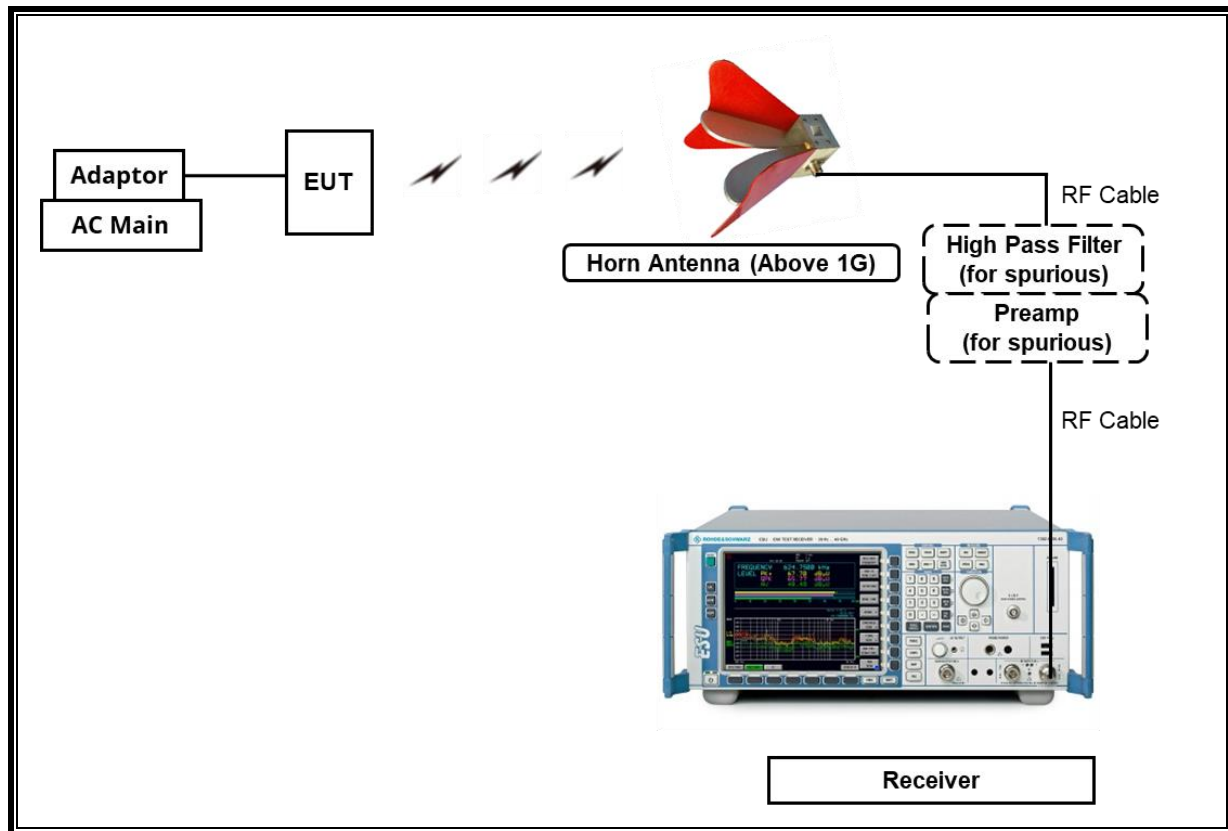
The EUT is a stand-alone unit during the tests.
Test software exercised the EUT to enable NII mode.

SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)





6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment List				
Description	Manufacturer	Model	S/N	Cal Due
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB 9163	749	2026-08-12
Antenna, Horn, 18 GHz	ETS	3117	00168717	2026-07-17
Antenna, Horn, 18 GHz	ETS	3117	00218957	N/A
Antenna, Horn, 40 GHz	ETS	3116C	00166155	2026-07-23
Preamplifier	ETS	3116C-PA	00168841	2025-07-25
Preamplifier, 1000 MHz	Sonoma	310N	341282	2025-07-22
Preamplifier, 18 GHz	B&Z Technologies, LLC	BZR-01001800-231040-181515	23576	2025-07-25
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	2029169	2025-07-23
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	2025-07-24
Spectrum Analyzer, 44 GHz	KEYSIGHT	N9030B	MY60070693	2026-01-02
Power Supply	Agilent	E3640A	MY54286199	2025-07-24
Average Power Sensor	Agilent / HP	U2000A	MY54270007	2025-07-23
Average Power Sensor	Agilent / HP	U2000A	MY54260010	2025-07-23
Attenuator	PASTERNAK	PE7087-10	A001	2025-07-23
Attenuator	PASTERNAK	PE7087-10	A008	2025-07-23
Attenuator	PASTERNAK	PE7004-10	2	2025-07-23
Attenuator	PASTERNAK	PE7087-10	A009	2025-07-23
EMI Test Receive, 40 GHz	R&S	ESU40	100439	2025-07-23
EMI Test Receive, 40 GHz	R&S	ESU40	100457	2025-07-22
EMI Test Receive, 3 GHz	R&S	ESR 3	101832	2025-07-22
Notch Filter	Micro-Tronics	BRM50702-02	G037	2025-07-24
Notch Filter	Micro-Tronics	BRM50716-2	006	2025-07-23
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	020	2025-07-23
High Pass Filter 3GHz	Micro-Tronics	HPM17543	20	2025-07-23
High Pass Filter 6GHz	Micro-Tronics	HPS17542	009	2025-07-22
LISN	R&S	ENV216	101836	2025-07-22
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	2025-09-07
Termination	WEINSCHL	M1406A	T09	2025-07-23
Attenuator	WEINSCHL	WA76-30-21	A015	2025-07-23
UL Software				
Description	Manufacturer	Model	Version	
Radiated software	UL	UL EMC	Ver 9.5	
AC Line Conducted software	UL	UL EMC	Ver 9.5	

7. SUMMARY TABLE

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result
15.407(e)	6dB Band width (5.8GHz)	> 500kHz	Conducted	Complies
15.407 (a)(1)(iv)	TX Cond. Power (5.150-5.250)	< 24dBm		Complies
15.407 (a)(2)	TX Cond. Power (5.250-5.350 & 5.470-5.725)	< 24dBm or 11+10Log(26dB BW)		Complies
15.407 (a)(3)(i)	TX Cond. Power (5.725-5.850)	< 30dBm		Complies
15.407 (a)(3)(iii)	TX Cond. Power (5.850-5.895)	< 30dBm e.i.r.p.		Complies
15.407 (a)(1)(iv) & (a)(2)	PSD (5.150-5.250 5.250-5.350 & 5.470-5.725)	< 11dBm/MHz		Complies
15.407 (a)(3)	PSD (5.725-5.850)	< 30dBm/500kHz		Complies
15.407 (a)(3)(iii)	PSD (5.850-5.895)	< 14dBm/MHz e.i.r.p.		Complies
15.207 (a)	AC Power Line conducted emissions	Section 13	Radiated	Complies
15.407 (b) & 15.209	Radiated Spurious Emission	< 74dBuV/m PK < 54dBuV/m AV		Complies
15.407 (h)(2)	Dynamic Frequency Selection	N/A	Condcuted	Complies

8. MEASUREMENT METHODS

On-Time and Duty Cycle : KDB 789033 D02 v02r01, Section II.B.

6dB Emission BW : KDB 789033 D02 v02r01, Section II.C.2.

26dB Emission BW : ANSI C63.10-2020, Section 12.5.2.

99% Occupied BW : KDB 789033 D02 v02r01, Section II.D.

Conducted Output Power : KDB 789033 D02 v02r01, Section II.E.3.a(Method PM)

Power Spectral Density : KDB 789033 D02 v02r01, Section II.F.

Unwanted emissions in restricted bands : KDB 789033 D02 v02r01, Section II.G.3 – II.G.6.

Unwanted emissions in non-restricted bands : KDB 789033 D02 v02r01, Section II.G.3 – II.G.6.

AC Power Line Conducted Emission : ANSI C63.10-2020, Section 6.2.

9. REFERENCE MEASUREMENTS RESULTS

9.1. ON TIME AND DUTY CYCLE RESULTS

Mode	On Time [ms]	Period [ms]	Duty Cycle X [Linear]	Duty Cycle X [%]	Duty Cycle Correction Factor[dB]
802.11a SISO	2.792	2.936	0.9510	95.10	0.22
802.11n(HT20) SISO	5.368	5.520	0.9725	97.25	0.12

Note. If the duty cycle is over 98%, compensation is not included in average measurement.

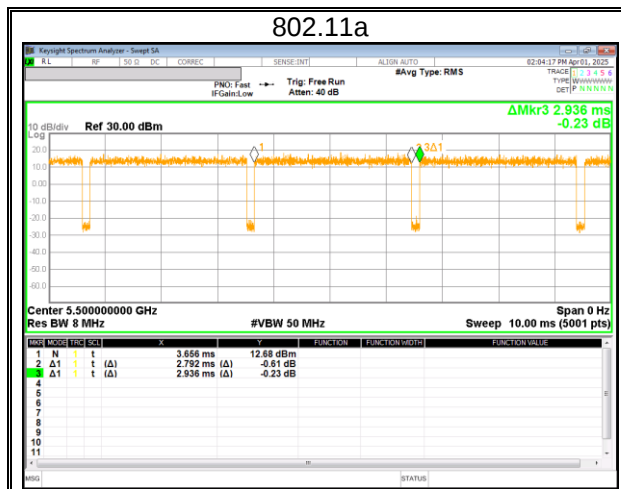
LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 789033 D02 v02r01 Zero-Span Spectrum Analyzer Method.

DUTY CYCLE SAMPLE PLOTS



9.2. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

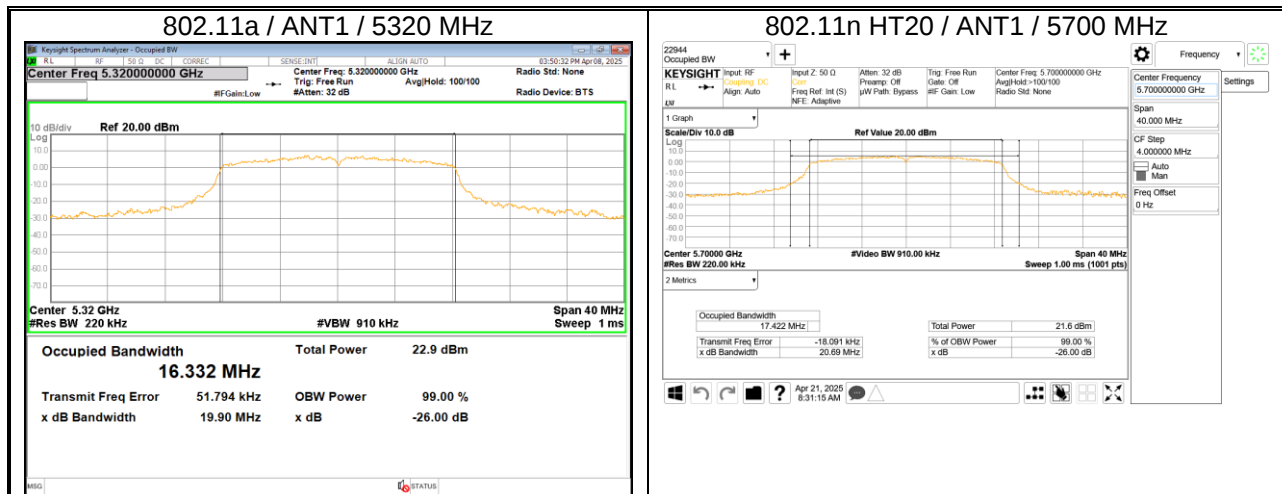
TEST PROCEDURE

Reference to ANSI C63.10-2020, Section 12.5.2: The transmitter output is connected to a spectrum analyzer with the RBW set to a value in the range of 1% to 5% of the emission bandwidth, the VBW > RBW, peak detector and max hold.

RESULTS

- Please refer to the next page

WORST CASE TEST PLOTS



9.2.1. 802.11a

Band	Channel	Center Freq. [MHz]	26 dB BW [MHz]	Worst	99% BW [MHz]
			ANT1		ANT1
UNII-1 ^{Note}	36	5180	20.69	20.08	16.36
	40	5200	20.08		16.34
	48	5240	20.17		16.37
UNII-2A ^{Note}	52	5260	20.48	19.90	16.37
	60	5300	19.97		16.33
	64	5320	19.90		16.33
UNII-2C	100	5500	20.02	19.93	
	116	5580	20.19		
	140	5700	19.93		

Note. As a result of 99% bandwidth test, the bandwidth of UNII-1 does not interfere with UNII-2A.

9.2.2. 802.11n HT20

Band	Channel	Center Freq. [MHz]	26 dB BW [MHz]	Worst	99% BW [MHz]
			ANT1		ANT1
UNII-1 ^{Note}	36	5180	24.42	22.10	17.57
	40	5200	22.21		17.50
	48	5240	22.10		17.50
UNII-2A ^{Note}	52	5260	24.00	21.81	17.57
	60	5300	21.98		17.48
	64	5320	21.81		17.46
UNII-2C	100	5500	21.30	20.69	
	116	5580	21.10		
	140	5700	20.69		

Note. As a result of 99% bandwidth test, the bandwidth of UNII-1 does not interfere with UNII-2A.

9.2.3. STRADDLE CHANNEL

Mode	Channel	Center Freq. [MHz]	26 dB BW [MHz]	
			ANT1	
			UNII-2C	UNII-3
802.11a	Straddle	5720	15.15	5.21
802.11n HT20	Straddle	5720	15.70	6.33

10. ANTENNA PORT TEST RESULTS

10.1. 6 dB BANDWIDTH

LIMITS

FCC §15.407

The minimum 6 dB bandwidth shall be at least 500 kHz.

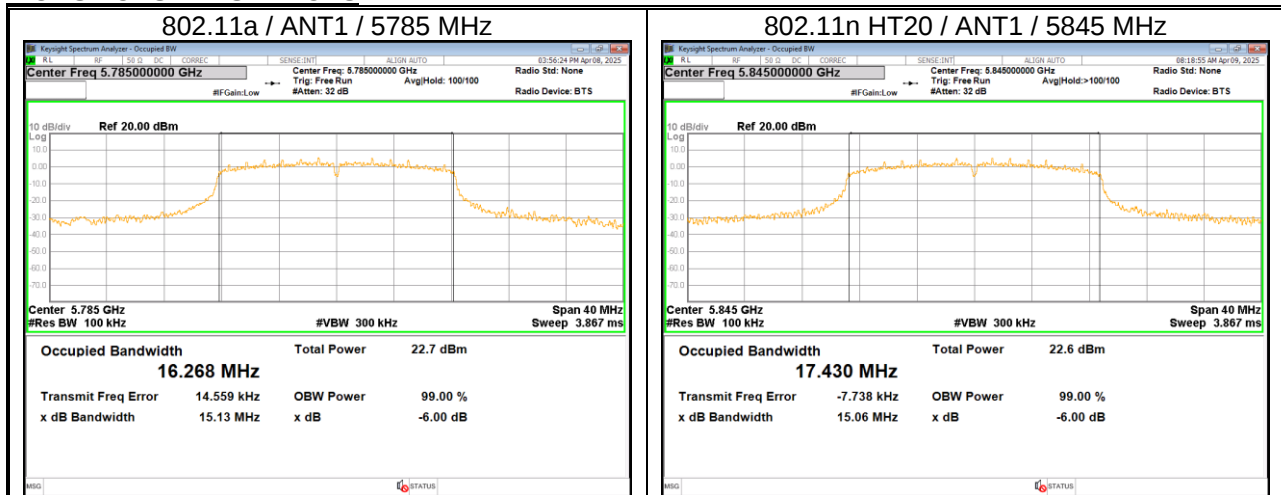
TEST PROCEDURE

Reference to 789033 D02 General UNII Test Procedures New Rules v02r01: The transmitter output is connected to a spectrum analyzer with the RBW set to 100 kHz, the VBW $\geq 3 \times$ RBW, peak detector and max hold.

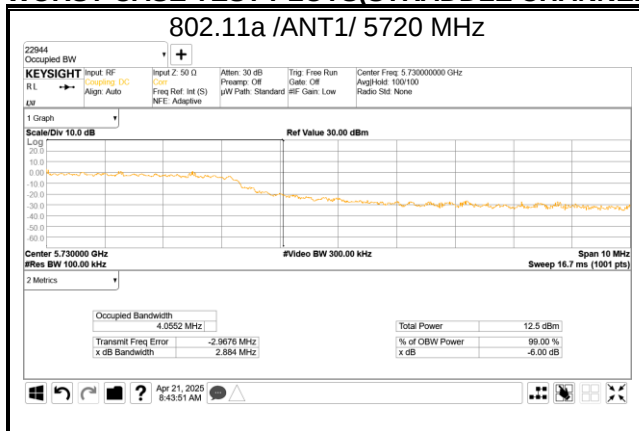
RESULTS

- Please refer to the next page

WORST CASE TEST PLOTS



WORST CASE TEST PLOTS(STRADDLE CHANNELS)



10.1.1. STRADDLE CHANNEL

Mode	Channel	Center Freq. [MHz]	6 dB BW [MHz]
			UNII-3
			ANT1
802.11a	Straddle	5720	2.88
802.11n HT20	Straddle	5720	2.89

10.1.2. UNII-3 BAND & 4 BAND

Mode	Channel	Center Freq. [MHz]	6 dB BW [MHz]	Worst	Minimum Limit [MHz]
			ANT1		
802.11a	149	5745	15.14	15.13	0.5
	157	5785	15.13		
	165	5825	15.15		
	169	5845	15.14		
	173	5865	15.15		
	177	5885	15.15		
802.11n HT20	149	5745	15.13	15.06	
	157	5785	15.12		
	165	5825	15.15		
	169	5845	15.06		
	173	5865	15.13		
	177	5885	15.13		

10.2. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a)(1)(iv), (a)(2), (a)(3)(i)

FCC

For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For client devices operating under the control of an indoor access point in the 5.850-5.895 GHz band, the maximum power spectral density must not exceed 14 dBm e.i.r.p. in any 1-megahertz band, and the maximum e.i.r.p. over the frequency band of operation must not exceed 30 dBm. Client devices operating on a channel that spans the 5.725-5.850 GHz and 5.850-5.895 GHz bands must not exceed an e.i.r.p. of 30 dBm.

TEST PROCEDURE

KDB 789033 Method PM is used for output power. Duty correction factor has already been applied to the power meter and the average power value is measured.

KDB 789033 Method SA-2 is used for PSD. RBW set to 1MHz(500kHz for the band 5.725-5.85 GHz, the VBW $\geq 3 \times$ RBW, RMS detector and trace averaging).

Straddle Channel(UNII-2C&3)

KDB 789033 Method PM is used for output power of straddle channel.
(verification that both limit of UNII-2C and UNII-3 power are satisfied)

KDB 789033 Method SA-2 is used for PSD of straddle channel. RBW set to 1MHz, VBW $\geq 3 \times$ RBW, RMS detector and trace averaging. Peak marker value of the spectrum is used for PSD. Considering the PSD's RBW setting and test limit, the UNII-2C measurement method (RBW 1MHz) covers UNII-3 (RBW 500kHz).

Straddle Channel(UNII-3&4)

KDB 789033 Method PM is used for total power of straddle channel.
(verification that both limit of UNII-3 and UNII-4 power & e.i.r.p. are satisfied)

KDB 789033 Method SA-2 is used for PSD of straddle channel. RBW set to 1MHz, VBW $\geq 3 \times$ RBW, RMS detector and trace averaging. Peak marker value of the spectrum is used for PSD. Considering the PSD's RBW setting and test limit, the UNII-4 measurement method (RBW 1MHz) covers UNII-3 (RBW 500kHz).

DIRECTIONAL ANTENNA GAIN

For OUTPUT POWER and PSD: The TX chains are correlated and the antenna gains are unequal among the chains. The directional gain is:

Frequency Band [MHz]	ANT Gain [dBi]
UNII 1 5150 - 5250	-10.60
UNII 2A 5250 - 5350	-10.60
UNII 2C 5470 - 5725	-9.20
UNII 3 5725 - 5850	-9.10
UNII 4 5850 - 5925	-9.10

OUTPUT POWER AND PSD CALCULATION FORMULA

For OUTPUT POWER :

Average Power(dBm)
= Meas Power(dBm) + DCCF(dB)

Average Power(dBm)(e.i.r.p.) (in case of UNII-4: added directional gain)
= Meas Power(dBm) + DCCF(dB) + Directional Gain(dBi)

For PSD :

PSD (conducted)
= Meas PSD + DCCF(dB)

PSD(e.i.r.p.) (in case of UNII-4: added directional gain)
= Meas PSD + DCCF(dB) + Directional Gain(dBi)

10.2.1. 802.11a MODE

Output Power Results

Band	Channel	Center Freq. [MHz]	Average Power [dBm]	Direct. Gain [dBi]	Corr'd Power [dBm]	Limit [dBm]
			ANT1			
UNII-1	36	5180	15.83		15.83	23.98
	40	5200	16.19		16.19	
	48	5240	16.15		16.15	
UNII-2A	52	5260	16.23		16.23	23.98
	60	5300	16.28		16.28	
	64	5320	16.21		16.21	
UNII-2C	100	5500	16.11		16.11	23.98
	116	5580	15.97		15.97	
	140	5700	16.16		16.16	
UNII-2C&3	144 Straddle	5720	16.07		16.07	23.98 or 30.00
UNII-3	149	5745	15.98		15.98	30.00
	157	5785	16.29		16.29	
	165	5825	16.31		16.31	
UNII-3&4	169	5845	16.29		16.29	30.00
		5845	16.29	-9.10	7.19	30.00 _(e.i.r.p)
UNII-4	173	5865	16.35	-9.10	7.25	30.00 _(e.i.r.p)
	177	5885	16.21	-9.10	7.11	

PSD Results

Band	Channel	Center Freq. [MHz]	Meas PSD [dBm/MHz]	DCCF.	Direct. Gain [dBi]	Corr'd PSD [dBm]	Limit [dBm/ MHz]
			ANT1				
UNII-1	36	5180	5.28	0.22		5.50	11.00
	40	5200	5.43	0.22		5.65	
	48	5240	5.76	0.22		5.98	
UNII-2A	52	5260	5.92	0.22		6.13	11.00
	60	5300	5.72	0.22		5.94	
	64	5320	5.69	0.22		5.91	
UNII-2C	100	5500	5.44	0.22		5.65	11.00
	116	5580	5.61	0.22		5.83	
	140	5700	5.52	0.22		5.74	
UNII-2C&3	144 Straddle	5720	5.44	0.22		5.66	11.00 or 30.00/500kHz
UNII-3	149	5745	2.61	0.22		2.83	30.00/500kHz
	157	5785	3.05	0.22		3.27	
	165	5825	2.84	0.22		3.06	
UNII-3&4	169	5845	5.53	0.22		5.75	30.00/500kHz
		5845	5.53	0.22	-9.10	-3.35	14.00 _(e.i.r.p)
UNII-4	173	5865	5.67	0.22	-9.10	-3.21	14.00 _(e.i.r.p)
	177	5885	5.59	0.22	-9.10	-3.29	

10.2.1. 802.11n HT20 MODE

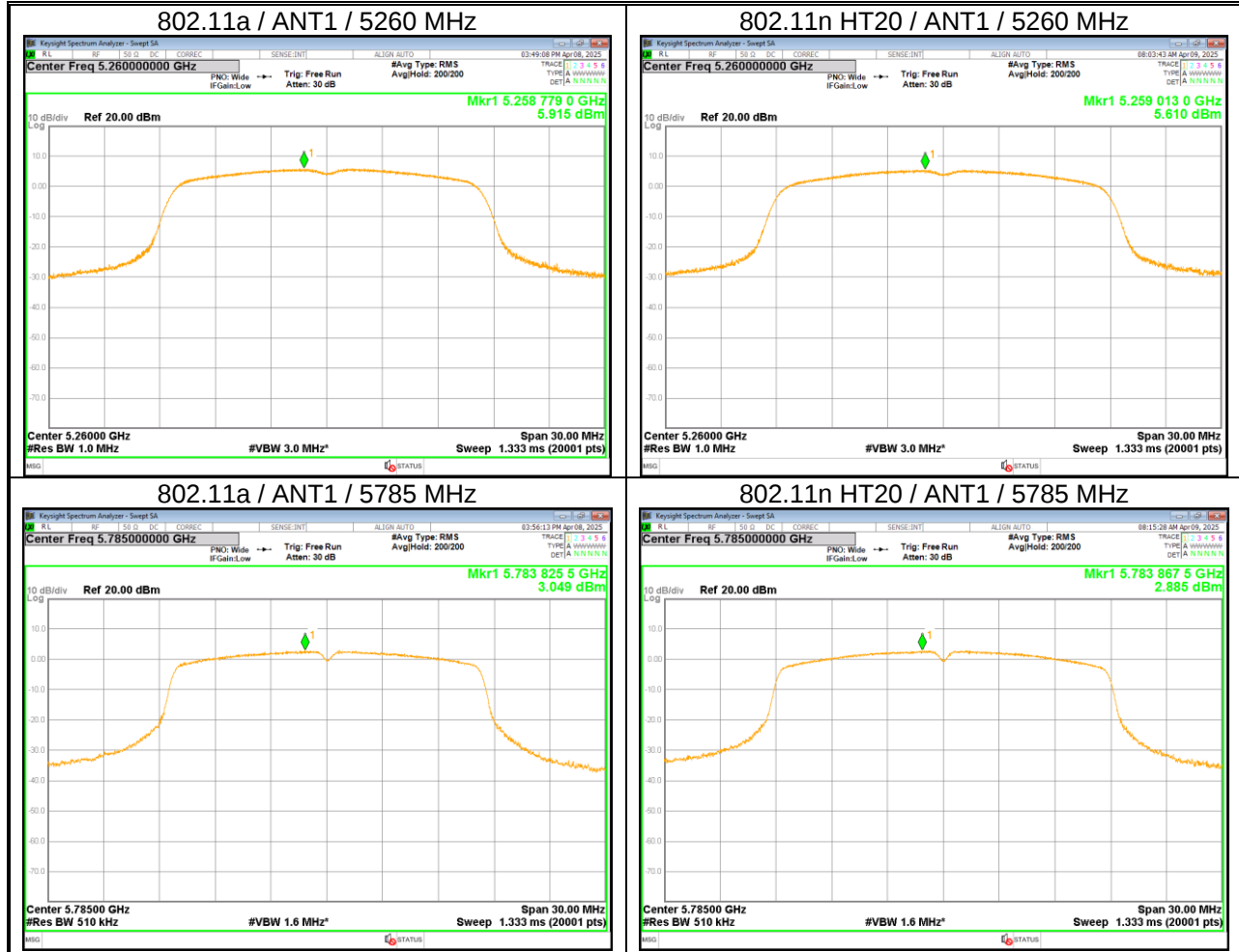
Output Power Results

Band	Channel	Center Freq. [MHz]	Average Power [dBm]	Direct. Gain [dBi]	Corr'd Power [dBm]	Limit [dBm]
			ANT1			
UNII-1	36	5180	15.78		15.78	23.98
	40	5200	15.86		15.86	
	48	5240	16.19		16.19	
UNII-2A	52	5260	16.31		16.31	23.98
	60	5300	16.15		16.15	
	64	5320	15.88		15.88	
UNII-2C	100	5500	15.99		15.99	23.98
	116	5580	15.92		15.92	
	140	5700	14.95		14.95	
UNII-2C&3	144 Straddle	5720	16.14		16.14	23.98 or 30.00
UNII-3	149	5745	15.94		15.94	30.00
	157	5785	16.13		16.13	
	165	5825	16.15		16.15	
UNII-3&4	169	5845	16.17		16.17	30.00
		5845	16.17	-9.10	7.07	30.00 _(e.i.r.p.)
UNII-4	173	5865	16.23	-9.10	7.13	30.00 _(e.i.r.p.)
	177	5885	16.10	-9.10	7.00	

PSD Results

Band	Channel	Center Freq. [MHz]	Meas PSD [dBm/MHz]	DCCF.	Direct. Gain [dBi]	Corr'd PSD [dBm]	Limit [dBm/MHz]
			ANT1				
UNII-1	36	5180	5.12	0.12		5.24	11.00
	40	5200	5.35	0.12		5.47	
	48	5240	5.25	0.12		5.37	
UNII-2A	52	5260	5.61	0.12		5.73	11.00
	60	5300	5.51	0.12		5.63	
	64	5320	5.17	0.12		5.29	
UNII-2C	100	5500	5.12	0.12		5.25	11.00
	116	5580	5.16	0.12		5.28	
	140	5700	4.35	0.12		4.48	
UNII-2C&3	144 Straddle	5720	5.17	0.12		5.29	11.00 or 30.00/500kHz
UNII-3	149	5745	2.51	0.12		2.63	30.00/500kHz
	157	5785	2.89	0.12		3.01	
	165	5825	2.73	0.12		2.85	
UNII-3&4	169	5845	5.27	0.12		5.39	30.00/500kHz
		5845	5.27	0.12	-9.10	-3.71	14.00 _(e.i.r.p.)
UNII-4	173	5865	5.56	0.12	-9.10	-3.42	14.00 _(e.i.r.p.)
	177	5885	5.30	0.12	-9.10	-3.68	

10.2.2. OUTPUT POWER AND PPSD PLOTS(WORST CASE)



11. TRANSMITTER ABOVE 1 GHz

LIMITS

FCC §15.205 and §15.209

Limits for radiated disturbance of an intentional radiator		
Frequency range (MHz)	Limits (µV/m)	Measurement Distance (m)
0.009 – 0.490	2400 / F (kHz)	300
0.490 – 1.705	24000 / F (kHz)	30
1.705 – 30.0	30	30
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. §§ 15.231 and 15.241.

FCC Part 15.205 (a) : Only spurious emissions are permitted in any of the frequency bands listed below :

MHz	MHz	MHz	MHz	GHz	GHz
0.009 ~ 0.110	8.41425 ~ 8.41475	108 ~ 121.94	1300 ~ 1427	4.5 ~ 5.15	14.47 ~ 14.5
0.495 ~ 0.505	12.29 ~ 12.293	123 ~ 138	1435 ~ 1626.5	5.35 ~ 5.46	15.35 ~ 16.2
2.1735 ~ 2.1905	12.51975 ~ 12.52025	149.9 ~ 150.05	1645.5 ~ 1646.5	7.25 ~ 7.75	17.7 ~ 21.4
4.125 ~ 4.128	12.57675 ~ 12.57725	156.52475 ~ 156.52525	1660 ~ 1710	8.025 ~ 8.5	22.01 ~ 23.12
4.17725 ~ 4.17775	13.36 ~ 13.41	156.7 ~ 156.9	1718.8 ~ 1722.2	9.0 ~ 9.2	23.6 ~ 24.0
4.20725 ~ 4.20775	16.42 ~ 16.423	162.0125 ~ 167.17	2200 ~ 2300	9.3 ~ 9.5	31.2 ~ 31.8
6.215 ~ 6.218	16.69475 ~ 16.69525	167.72 ~ 173.2	2310 ~ 2390	10.6 ~ 12.7	36.43 ~ 36.5
6.26775 ~ 6.26825	16.80425 ~ 16.80475	240 ~ 285	2483.5 ~ 2500	13.25 ~ 13.4	Above 38.6
6.31175 ~ 6.31225	25.5 ~ 25.67	322 ~ 335.4	2655 ~ 2900		
8.291 ~ 8.294	37.5 ~ 38.25	399.90 ~ 410	3260 ~ 3267		
8.362 ~ 8.366	73 ~ 74.6	608 ~ 614	3332 ~ 3339		
8.37625 ~ 8.38675	74.8 ~ 75.2	960 ~ 1240	3345.8 ~ 3358		
			3600 ~ 4400		

▪ FCC Part 15.205(b) : The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.

FCC §15.407 (b)

(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:

- (1) 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.
- (2) 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.
- (3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (4) For transmitters operating solely in the 5.725–5.850 GHz band:
 - (i) 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.
- (5) For transmitters operating solely in the 5.850-5.895 GHz band or operating on a channel that spans across 5.725-5.895 GHz:
 - (ii) For a client device, all emissions at or above 5.895 GHz shall not exceed an e.i.r.p. of -5 dBm/MHz and shall decrease linearly to an e.i.r.p. of -27 dBm/MHz at or above 5.925 GHz.
 - (iii) For a client device or indoor access point or subordinate device, all emissions below 5.725 GHz shall not exceed an e.i.r.p. of -27 dBm/MHz at 5.65 GHz increasing linearly to 10 dBm/MHz at 5.7 GHz, and from 5.7 GHz increasing linearly to a level of 15.6 dBm/MHz at 5.72 GHz, and from 5.72 GHz increasing linearly to a level of 27 dBm/MHz at 5.725 GHz.
- (6) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
- (7) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.
- (8) The provisions of §15.205 apply to intentional radiators operating under this section.
- (9) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

Note

- Limit translation to field strength level (FCC §15.407)

$$E[\text{dBuV/m}] = \text{EIRP}[\text{dBm}] + 95.2 = -27\text{dBm} + 95.2 = 68.2\text{dBuV/m}$$

$$E[\text{dBuV/m}] = \text{EIRP}[\text{dBm}] + 95.2 = -17\text{dBm} + 95.2 = 78.2\text{dBuV/m}$$

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1GHz and 150 cm for above 1GHz. EUT is set 3 meters away from the receiving antenna and scan from 1m to 4m to find out the highest emission.

The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

Reference to KDB 789033 D02 v02r01 UNII part G) 6) c) Method AD:

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and add duty cycle factor to the reading offset for average measurements. In UNII-4, unwanted emissions outside of restricted bands are measured with an RMS detector.

Pre-scans 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.

The spectrum from 1GHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

(From 30MHz to 1GHz, test was performed with the EUT set to transmit at the channel with highest output power)

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

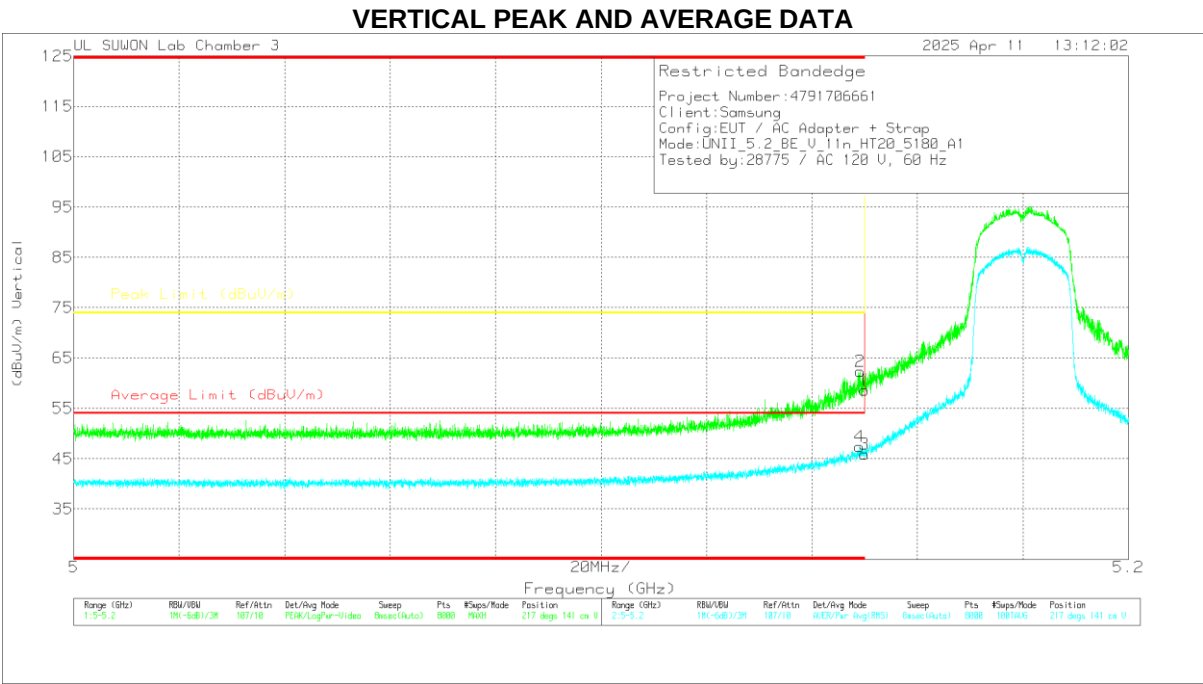
Note : Emission was pre-scanned from 9kHz to 30MHz; No emissions were detected which was at least 20dB below the specification limit (consider distance correction factor).
Per FCC part 15.31(o), test results were not reported.

Although these tests were performed other than open field test site, adequate comparison measurements were confirmed against 30 m open area test site.

Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the one of tests made in an open field based on KDB 414788.

11.1. TX ABOVE 1GHz 1TX MODE IN THE 5.2GHz BAND

BANDEDGE (WORST CASE: 802.11n HT20 / 5180 MHz)



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Antenna_Factor (dBm)	10dB_Path Loss(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	* 5.14999	44.67	Pk	34.4	-20.5	0	58.57	-	-	74	-15.43	217	141	V
2	* 5.14912	48.49	Pk	34.4	-20.5	0	62.39	-	-	74	-11.61	217	141	V
3	* 5.14999	31.92	RMS	34.4	-20.5	.12	45.94	54	-8.06	-	-	217	141	V
4	* 5.14907	33.37	RMS	34.4	-20.5	.12	47.39	54	-6.61	-	-	217	141	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

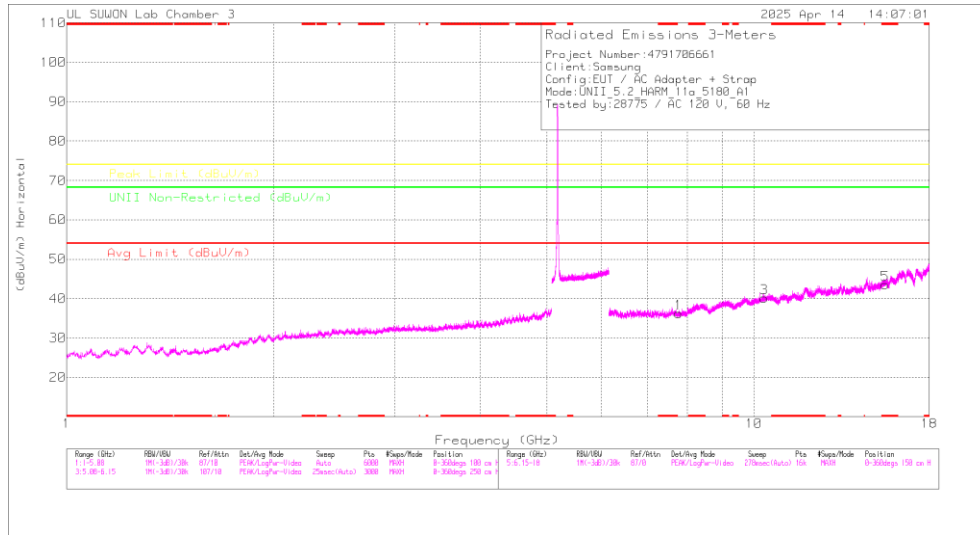
BANDEDGE TEST DATA

Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB/m]	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
802.11a	5180	ANT1	* 5.14999	46.95	Pk	34.40	-20.50	0.00	60.85	-	-	74.00	-13.15	114	100	H
			* 5.14887	48.83	Pk	34.40	-20.50	0.00	62.73	-	-	74.00	-11.27	114	100	H
			* 5.14999	32.74	RMS	34.40	-20.50	0.12	46.76	54.00	-7.24	-	-	114	100	H
			* 5.14909	33.09	RMS	34.40	-20.50	0.12	47.11	54.00	-6.89	-	-	114	100	H
			* 5.14999	42.97	Pk	34.40	-20.50	0.00	56.87	-	-	74.00	-17.13	220	106	V
			* 5.14922	44.73	Pk	34.40	-20.50	0.00	58.63	-	-	74.00	-15.37	220	106	V
			* 5.14999	31.85	RMS	34.40	-20.50	0.22	45.97	54.00	-8.03	-	-	220	106	V
			* 5.14944	32.24	RMS	34.40	-20.50	0.22	46.36	54.00	-7.64	-	-	220	106	V
			* 5.14999	41.32	Pk	34.40	-20.50	0.00	55.22	-	-	74.00	-18.78	273	100	H
802.11n (HT20)	5180	ANT1	* 5.14972	42.35	Pk	34.40	-20.50	0.00	56.25	-	-	74.00	-17.75	273	100	H
			* 5.14999	29.16	RMS	34.40	-20.50	0.22	43.28	54.00	-10.72	-	-	273	100	H
			* 5.14979	30.48	RMS	34.40	-20.50	0.22	44.60	54.00	-9.40	-	-	273	100	H
			* 5.14999	44.67	Pk	34.40	-20.50	0.00	58.57	-	-	74.00	-15.43	217	141	V
			* 5.14912	48.49	Pk	34.40	-20.50	0.00	62.39	-	-	74.00	-11.61	217	141	V
			* 5.14999	31.92	RMS	34.40	-20.50	0.12	45.94	54.00	-8.06	-	-	217	141	V
			* 5.14907	33.37	RMS	34.40	-20.50	0.12	47.39	54.00	-6.61	-	-	217	141	V

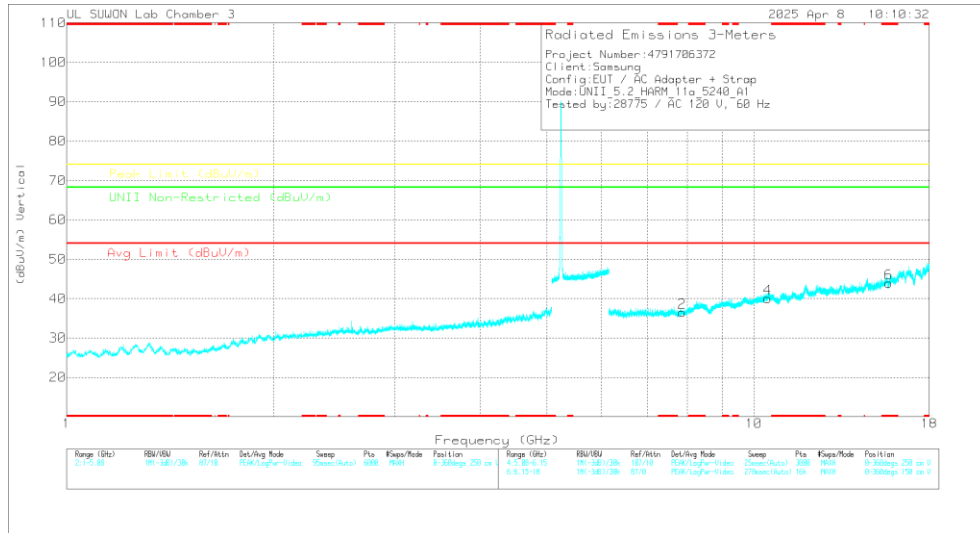
Note1. Pk - Peak detector, RMS - RMS detector

Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 802.11a / 5180 MHz)
5180 MHz HORIZONTAL



5180 MHz VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

5180 MHz DATA

Radiated Emissions

Frequency (GHz)	Meas Reading (dBuV)	Det	Antenna Factor (dBm)	ISRC_HF_Pwr Loss(dB)	DC Cor (dB)	Corrected Reading (dBuV)	Avg Limit (dBuV)	Margin (dB)	Peak Limit (dBuV)	Margin (dB)	UNII Non-Restricted (dBuV)	Margin (dB)	Antenna (Drops)	Height (cm)	Power
7.76826	35.35	PK-U	35.9	-24.5	0	46.75	-	-	-	-	68.2	-21.45	0	100	H
7.77217	35.42	PK-U	35.9	-24.5	0	46.78	-	-	-	-	68.2	-21.48	0	100	V
10.35772	34.19	PK-U	37.5	-20.8	0	50.59	-	-	-	-	68.2	-17.31	0	100	H
10.35923	34.5	PK-U	37.5	-20.8	0	51.2	-	-	-	-	68.2	-17	0	100	V
* 15.53752	34.92	PK-U	40.1	-20.9	0	54.12	-	-	74	-19.88	-	-	0	100	H
* 15.53812	23.58	ADR	40.1	-20.9	22	43	54	-11	-	-	-	-	0	100	H
* 15.54015	35.3	PK-U	40.1	-21	0	54.4	-	-	74	-19.6	-	-	0	100	V
* 15.54053	23.7	ADR	40.1	-21	22	43.02	54	-10.98	-	-	-	-	0	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

HARMONICS AND SPURIOUS EMISSIONS TEST DATA

Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB/m]	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Non-Restricted [dBuV/m]	Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
802.11a	5180	MIMO	7.768	35.35	PK-U	35.90	-24.50	0.00	46.75	-	-	-	-	68.20	-21.45	0	100	H
			7.772	35.42	PK-U	35.90	-24.60	0.00	46.72	-	-	-	-	68.20	-21.48	0	100	V
			10.358	34.19	PK-U	37.50	-20.80	0.00	50.89	-	-	-	-	68.20	-17.31	0	100	H
			10.359	34.50	PK-U	37.50	-20.80	0.00	51.20	-	-	-	-	68.20	-17.00	0	100	V
			* 15.53752	34.92	PK-U	40.10	-20.90	0.00	54.12	-	-	74.00	-19.88	-	-	0	100	H
			* 15.53812	23.58	ADR	40.10	-20.90	0.22	43.00	54.00	-11.00	-	-	-	-	0	100	H
			* 15.54015	35.30	PK-U	40.10	-21.00	0.00	54.40	-	-	74.00	-19.60	-	-	0	100	V
			* 15.54053	23.70	ADR	40.10	-21.00	0.22	43.02	54.00	-10.98	-	-	-	-	0	100	V
			7.798	34.48	PK-U	35.90	-24.30	0.00	46.08	-	-	-	-	68.20	-22.12	0	100	H
			7.800	34.73	PK-U	35.90	-24.30	0.00	46.33	-	-	-	-	68.20	-21.87	0	100	V
	5200	MIMO	10.403	33.58	PK-U	37.50	-20.80	0.00	50.28	-	-	-	-	68.20	-17.92	0	100	H
			10.405	34.24	PK-U	37.50	-20.80	0.00	50.94	-	-	-	-	68.20	-17.26	0	100	V
			* 15.59931	35.22	PK-U	40.20	-20.80	0.00	54.62	-	-	74.00	-19.38	-	-	0	100	H
			* 15.60126	23.27	ADR	40.20	-20.80	0.22	42.89	54.00	-11.11	-	-	-	-	0	100	H
			* 15.59964	35.01	PK-U	40.20	-20.80	0.00	54.41	-	-	74.00	-19.59	-	-	0	100	V
			* 15.59952	23.31	ADR	40.20	-20.80	0.22	42.93	54.00	-11.07	-	-	-	-	0	100	V
			7.863	34.91	PK-U	35.90	-23.90	0.00	46.91	-	-	-	-	68.20	-21.29	0	100	H
			7.859	35.12	PK-U	35.90	-24.00	0.00	47.02	-	-	-	-	68.20	-21.18	0	100	V
			10.480	34.14	PK-U	37.60	-20.90	0.00	50.84	-	-	-	-	68.20	-17.36	0	100	H
			10.483	33.76	PK-U	37.60	-20.90	0.00	50.46	-	-	-	-	68.20	-17.74	0	100	V
	5240	MIMO	* 15.72199	34.14	PK-U	40.40	-20.50	0.00	54.04	-	-	74.00	-19.96	-	-	0	100	H
			* 15.72006	22.78	ADR	40.40	-20.50	0.22	42.90	54.00	-11.10	-	-	-	-	0	100	H
			* 15.7185	34.27	PK-U	40.40	-20.50	0.00	54.17	-	-	74.00	-19.83	-	-	0	100	V
			* 15.72305	22.68	ADR	40.40	-20.50	0.22	42.80	54.00	-11.20	-	-	-	-	0	100	V

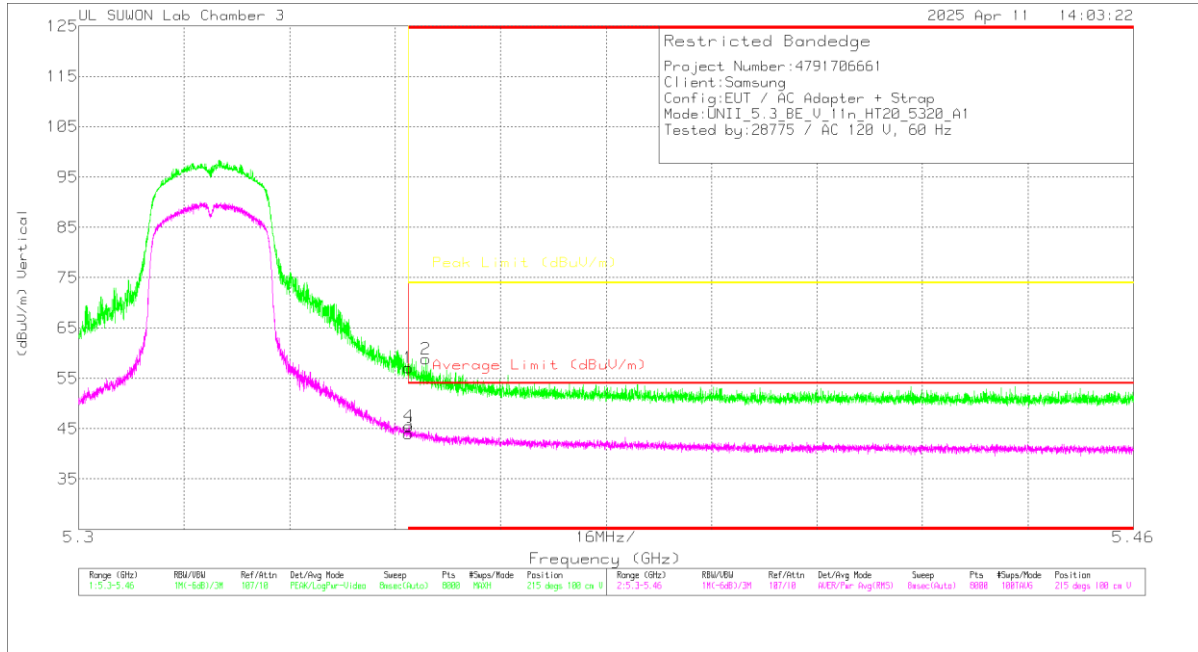
Note1. PK-U - U-NII: Maximum Peak

Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

11.2. TX ABOVE 1GHz 1TX MODE IN THE 5.3GHz BAND

BANDEDGE (WORST CASE: 802.11n HT20 / 5320 MHz Upper)

VERTICAL PEAK AND AVERAGE DATA



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Antenna_Factor (dBm)	10dB_Path Loss(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (feet)	Height (cm)	Polarity
1	* 5.35001	42.54	PK	34.7	-20.1	0	57.14	-	-	74	-16.86	215	100	V
2	* 5.35265	44.36	PK	34.7	-20.2	0	58.86	-	-	74	-15.14	215	100	V
3	* 5.35001	29.26	RMS	34.7	-20.1	.12	43.98	54	-10.02	-	-	215	100	V
4	* 5.35013	30.75	RMS	34.7	-20.1	.12	45.47	54	-8.53	-	-	215	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK - Peak detector

RMS - RMS detection

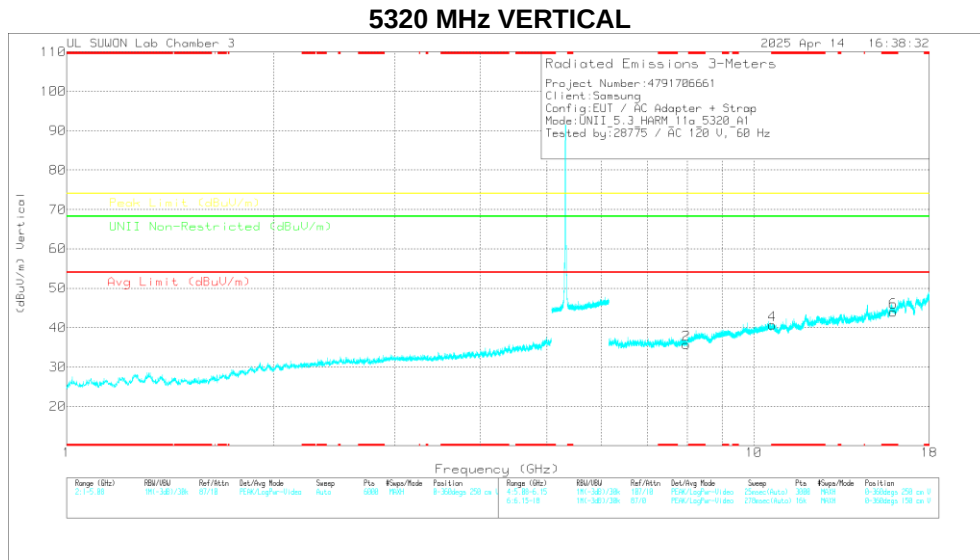
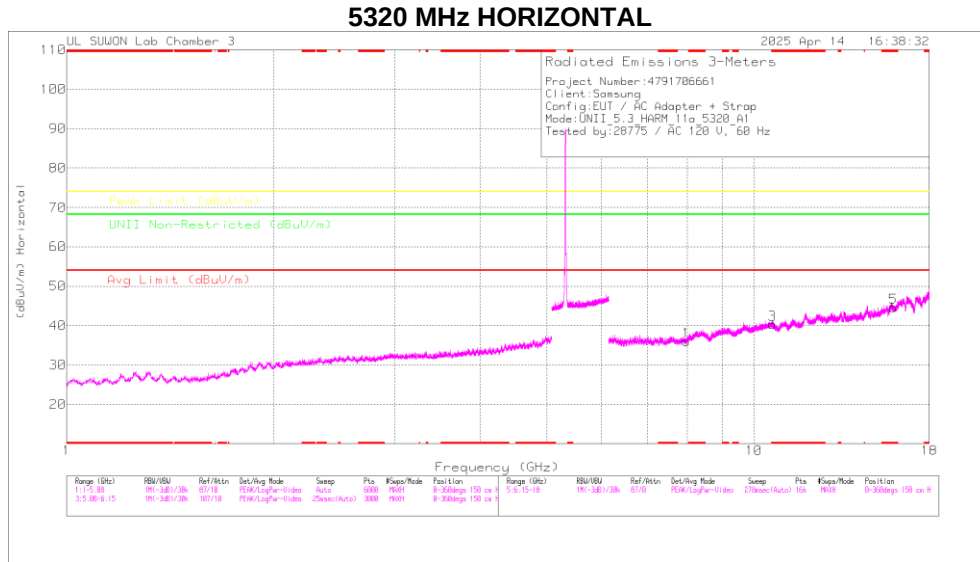
Bandedge Test Data

Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB/m]	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
802.11a	5320	ANT1	* 5.35001	37.21	Pk	34.70	-20.10	0.00	51.81	-	-	74.00	-22.19	71	243	H
			* 5.427	39.26	Pk	34.90	-20.10	0.00	54.06	-	-	74.00	-19.94	71	243	H
			* 5.35001	27.19	RMS	34.70	-20.10	0.22	42.01	54.00	-11.99	-	-	71	243	H
			* 5.35909	27.58	RMS	34.70	-20.10	0.22	42.40	54.00	-11.60	-	-	71	243	H
			* 5.35001	41.61	Pk	34.70	-20.10	0.00	56.21	-	-	74.00	-17.79	214	103	V
			* 5.35025	43.41	Pk	34.70	-20.10	0.00	58.01	-	-	74.00	-15.99	214	103	V
			* 5.35001	29.73	RMS	34.70	-20.10	0.22	44.55	54.00	-9.45	-	-	214	103	V
			* 5.35113	29.77	RMS	34.70	-20.20	0.22	44.49	54.00	-9.51	-	-	214	103	V
			* 5.35001	36.73	Pk	34.70	-20.10	0.00	51.33	-	-	74.00	-22.67	294	110	H
			* 5.36443	39.22	Pk	34.70	-20.20	0.00	53.72	-	-	74.00	-20.28	294	110	H
802.11n (HT20)	5320	ANT1	* 5.35001	26.88	RMS	34.70	-20.10	0.12	41.60	54.00	-12.40	-	-	294	110	H
			* 5.35019	27.77	RMS	34.70	-20.10	0.12	42.49	54.00	-11.51	-	-	294	110	H
			* 5.35001	42.54	Pk	34.70	-20.10	0.00	57.14	-	-	74.00	-16.86	215	100	V
			* 5.35265	44.36	Pk	34.70	-20.20	0.00	58.86	-	-	74.00	-15.14	215	100	V
			* 5.35001	29.26	RMS	34.70	-20.10	0.12	43.98	54.00	-10.02	-	-	215	100	V
			* 5.35013	30.75	RMS	34.70	-20.10	0.12	45.47	54.00	-8.53	-	-	215	100	V

Note1. Pk - Peak detector, RMS - RMS detector

Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 802.11a / 5320 MHz)



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

5320 MHz DATA

Radiated Emissions

Frequency (GHz)	Meas Reading (dBuV)	Det	Antenna Factor (dBm)	5GHz_HP_Path Loss(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Acmmth (dB)	Height (m)	Polarity
7.97789	35.18	PK-U	35.9	-24.3	0	45.78	-	-	-	-	68.2	-21.42	0	100	H
7.98176	34.9	PK-U	35.9	-24.2	0	45.6	-	-	-	-	68.2	-21.6	0	100	V
*10.64275	33.59	PK-U	37.7	-20.7	0	50.59	-	-	74	-23.43	-	-	0	100	H
*10.63831	33.22	PK-U	37.7	-20.7	0	50.22	-	-	74	-23.78	-	-	0	100	V
*15.95866	33.44	PK-U	40.9	-20	0	54.34	-	-	74	-19.66	-	-	0	100	H
*15.96063	22.19	ADR	40.9	-19.9	22	43.43	54	-10.59	-	-	-	-	0	100	H
*15.95676	33.67	PK-U	40.9	-20	0	54.57	-	-	74	-19.43	-	-	0	100	V
*15.95883	22.06	ADR	40.9	-20	22	43.18	54	-10.82	-	-	-	-	0	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

HARMONICS AND SPURIOUS EMISSIONS TEST DATA

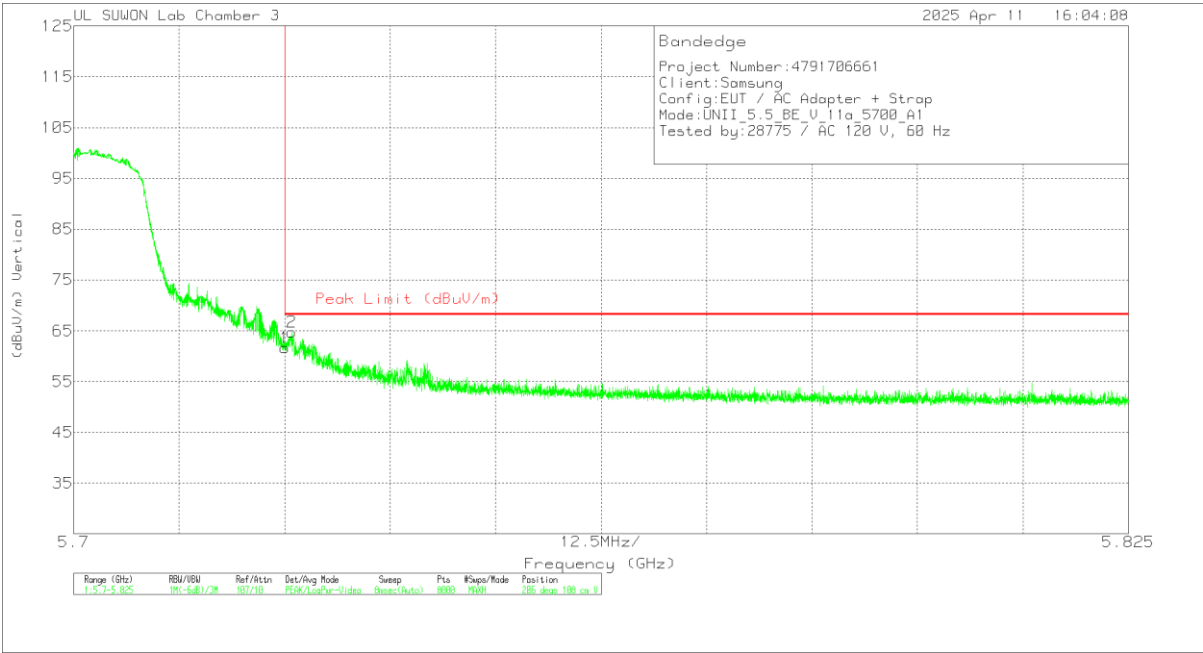
Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB/m]	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Non-Restricted [dBuV/m]	Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
802.11a	5260	ANT1	7.891	35.03	PK-U	35.90	-23.90	0.00	47.03	-	-	-	-	68.20	-21.17	0	100	H
			7.889	34.73	PK-U	35.90	-23.90	0.00	46.73	-	-	-	-	68.20	-21.47	0	100	V
			10.521	33.80	PK-U	37.60	-20.70	0.00	50.70	-	-	-	-	68.20	-17.50	0	100	H
			10.524	33.33	PK-U	37.60	-20.70	0.00	50.23	-	-	-	-	68.20	-17.97	0	100	V
			* 15.77853	33.81	PK-U	40.60	-20.40	0.00	54.01	-	-	74.00	-19.99	-	-	0	100	H
			* 15.7809	22.09	ADR	40.60	-20.30	0.22	42.61	54.00	-11.39	-	-	-	-	0	100	H
			* 15.78439	33.79	PK-U	40.60	-20.30	0.00	54.09	-	-	74.00	-19.91	-	-	0	100	V
			* 15.7833	22.25	ADR	40.60	-20.30	0.22	42.77	54.00	-11.23	-	-	-	-	0	100	V
			7.945	34.86	PK-U	35.90	-24.10	0.00	46.66	-	-	-	-	68.20	-21.54	0	100	H
			7.949	35.08	PK-U	35.90	-24.10	0.00	46.88	-	-	-	-	68.20	-21.32	0	100	V
	5300	ANT1	* 10.60071	33.12	PK-U	37.70	-20.80	0.00	50.02	-	-	74.00	-23.98	-	-	0	100	H
			* 10.60202	33.32	PK-U	37.70	-20.80	0.00	50.22	-	-	74.00	-23.78	-	-	0	100	V
			* 15.89928	32.96	PK-U	40.80	-19.80	0.00	53.96	-	-	74.00	-20.04	-	-	0	100	H
			* 15.90394	21.70	ADR	40.80	-19.90	0.22	42.82	54.00	-11.18	-	-	-	-	0	100	H
			* 15.9034	32.94	PK-U	40.80	-19.90	0.00	53.84	-	-	74.00	-20.16	-	-	0	100	V
			* 15.90414	21.56	ADR	40.80	-19.90	0.22	42.68	54.00	-11.32	-	-	-	-	0	100	V
	5320	ANT1	7.978	35.18	PK-U	35.90	-24.30	0.00	46.78	-	-	-	-	68.20	-21.42	0	100	H
			7.982	34.90	PK-U	35.90	-24.20	0.00	46.60	-	-	-	-	68.20	-21.60	0	100	V
			* 10.64275	33.59	PK-U	37.70	-20.70	0.00	50.59	-	-	74.00	-23.41	-	-	0	100	H
			* 10.63831	33.22	PK-U	37.70	-20.70	0.00	50.22	-	-	74.00	-23.78	-	-	0	100	V
			* 15.95866	33.44	PK-U	40.90	-20.00	0.00	54.34	-	-	74.00	-19.66	-	-	0	100	H
			* 15.96063	22.19	ADR	40.90	-19.90	0.22	43.41	54.00	-10.59	-	-	-	-	0	100	H
			* 15.95676	33.67	PK-U	40.90	-20.00	0.00	54.57	-	-	74.00	-19.43	-	-	0	100	V
			* 15.95883	22.06	ADR	40.90	-20.00	0.22	43.18	54.00	-10.82	-	-	-	-	0	100	V
802.11n (HT20)	5260	MIMO	7.891	34.48	PK-U	35.90	-24.00	0.00	46.38	-	-	-	-	68.20	-21.82	0	100	H
			7.891	34.45	PK-U	35.90	-23.90	0.00	46.45	-	-	-	-	68.20	-21.75	0	100	V
			10.518	33.24	PK-U	37.60	-20.80	0.00	50.04	-	-	-	-	68.20	-18.16	0	100	H
			10.521	33.38	PK-U	37.60	-20.70	0.00	50.28	-	-	-	-	68.20	-17.92	0	100	V
			* 15.78476	33.67	PK-U	40.60	-20.30	0.00	53.97	-	-	74.00	-20.03	-	-	0	100	H
			* 15.78381	22.15	ADR	40.60	-20.30	0.12	42.57	54.00	-11.43	-	-	-	-	0	100	H
			* 15.77972	33.93	PK-U	40.60	-20.40	0.00	54.13	-	-	74.00	-19.87	-	-	0	100	V
			* 15.78258	22.22	ADR	40.60	-20.30	0.12	42.64	54.00	-11.36	-	-	-	-	0	100	V

Note1. PK-U - U-NII: Maximum Peak / ADR - U-NII AD primary method, RMS average
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

11.3. TX ABOVE 1GHz 1TX MODE IN THE 5.5 GHz BAND

BANDEDGE (WORST CASE: 802.11a / 5700 MHz)

VERTICAL PEAK DATA



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Antenna_Factor (dB/m)	10dB_Path Loss(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	46.16	Pk	35	-19.5	0	61.66	68.2	-6.54	206	108	V
2	5.72583	49.2	Pk	35	-19.5	0	64.7	68.2	-3.5	206	108	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

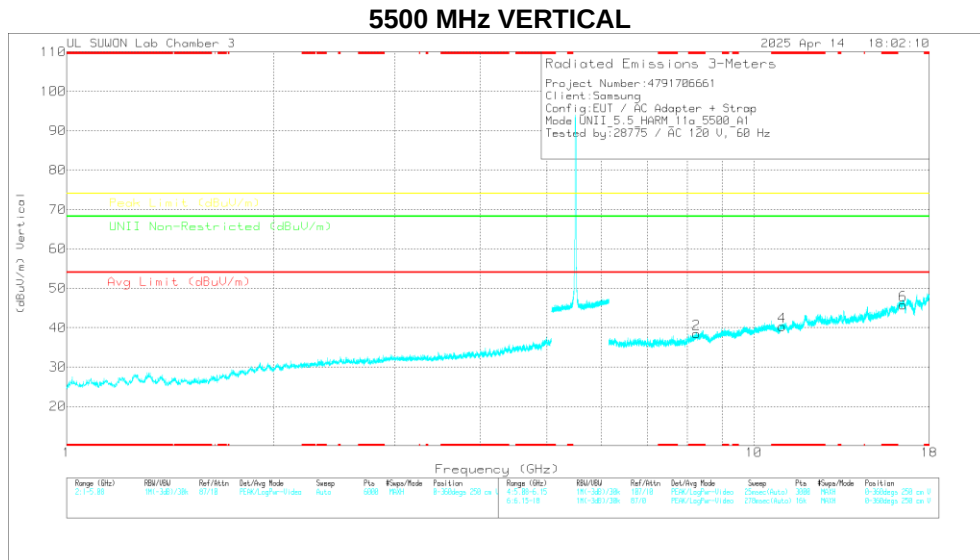
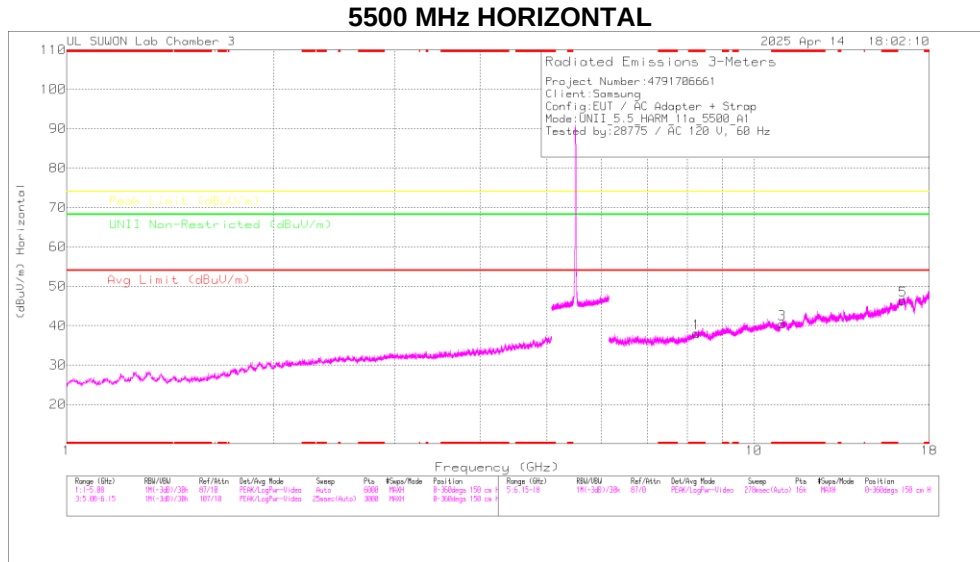
BANDEDGE TEST DATA

Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB/m]	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
802.11a	5500	ANT1	* 5.45998	37.31	Pk	34.90	-20.00	0.00	52.21	-	-	74.00	-21.79	83	381	H
			* 5.45814	39.93	Pk	34.90	-20.10	0.00	54.73	-	-	74.00	-19.27	83	381	H
			5.46998	40.38	Pk	34.90	-20.00	0.00	55.28	-	-	68.20	-12.92	83	381	H
			5.46869	41.50	Pk	34.90	-20.00	0.00	56.40	-	-	68.20	-11.80	83	381	H
			* 5.45998	26.37	RMS	34.90	-20.00	0.22	41.49	54.00	-12.51	-	-	83	381	H
			* 5.45856	27.65	RMS	34.90	-20.00	0.22	42.77	54.00	-11.23	-	-	83	381	H
			5.46998	27.10	RMS	34.90	-20.00	0.22	42.22	-	-	-	-	83	381	H
			5.46635	28.19	RMS	34.90	-20.10	0.22	43.21	-	-	-	-	83	381	H
			* 5.45998	42.05	Pk	34.90	-20.00	0.00	56.95	-	-	74.00	-17.05	190	100	V
			* 5.45799	42.40	Pk	34.90	-20.10	0.00	57.20	-	-	74.00	-16.80	190	100	V
			5.46998	42.43	Pk	34.90	-20.00	0.00	57.33	-	-	68.20	-10.87	190	100	V
			5.46994	45.56	Pk	34.90	-20.00	0.00	60.46	-	-	68.20	-7.74	190	100	V
			* 5.45998	28.93	RMS	34.90	-20.00	0.22	44.05	54.00	-9.95	-	-	190	100	V
			* 5.45733	28.89	RMS	34.90	-20.10	0.22	43.91	54.00	-10.09	-	-	190	100	V
			5.46998	29.62	RMS	34.90	-20.00	0.22	44.74	-	-	-	-	190	100	V
			5.46851	30.78	RMS	34.90	-20.00	0.22	45.90	-	-	-	-	190	100	V
	5700	ANT1	5.72500	39.82	Pk	35.00	-19.50	0.00	55.32	-	-	68.20	-12.88	81	389	H
			5.72585	42.96	Pk	35.00	-19.50	0.00	58.46	-	-	68.20	-9.74	81	389	H
			5.72500	46.16	Pk	35.00	-19.50	0.00	61.66	-	-	68.20	-6.54	206	108	V
			5.72583	49.20	Pk	35.00	-19.50	0.00	64.70	-	-	68.20	-3.50	206	108	V
			5.72583	49.20	Pk	35.00	-19.50	0.00	64.70	-	-	68.20	-3.50	206	108	V
802.11n (HT20)	5500	ANT1	* 5.45998	36.60	Pk	34.90	-20.00	0.00	51.50	-	-	74.00	-22.50	76	381	H
			* 5.45974	40.72	Pk	34.90	-20.00	0.00	55.62	-	-	74.00	-18.38	76	381	H
			5.46998	40.19	Pk	34.90	-20.00	0.00	55.09	-	-	68.20	-13.11	76	381	H
			5.46965	41.96	Pk	34.90	-20.00	0.00	56.86	-	-	68.20	-11.34	76	381	H
			* 5.45998	26.86	RMS	34.90	-20.00	0.12	41.88	54.00	-12.12	-	-	76	381	H
			* 5.4586	27.71	RMS	34.90	-20.00	0.12	42.73	54.00	-11.27	-	-	76	381	H
			5.46998	27.74	RMS	34.90	-20.00	0.12	42.76	-	-	-	-	76	381	H
			5.46983	28.05	RMS	34.90	-20.00	0.12	43.07	-	-	-	-	76	381	H
			* 5.45998	38.92	Pk	34.90	-20.00	0.00	53.82	-	-	74.00	-20.18	213	100	V
			* 5.45965	46.17	Pk	34.90	-20.00	0.00	61.07	-	-	74.00	-12.93	213	100	V
			5.46998	44.37	Pk	34.90	-20.00	0.00	59.27	-	-	68.20	-8.93	213	100	V
			5.46954	46.28	Pk	34.90	-20.00	0.00	61.18	-	-	68.20	-7.02	213	100	V
			* 5.45998	27.56	RMS	34.90	-20.00	0.12	42.58	54.00	-11.42	-	-	213	100	V
			* 5.45727	28.98	RMS	34.90	-20.10	0.12	43.90	54.00	-10.10	-	-	213	100	V
			5.46998	28.40	RMS	34.90	-20.00	0.12	43.42	-	-	-	-	213	100	V
			5.46928	30.57	RMS	34.90	-20.00	0.12	45.59	-	-	-	-	213	100	V
	5700	ANT1	5.72500	40.22	Pk	35.00	-19.50	0.00	55.72	-	-	68.20	-12.48	81	387	H
			5.72625	43.29	Pk	35.00	-19.50	0.00	58.79	-	-	68.20	-9.41	81	387	H
			5.72500	44.30	Pk	35.00	-19.50	0.00	59.80	-	-	68.20	-8.40	194	111	V
			5.72633	47.96	Pk	35.00	-19.50	0.00	63.46	-	-	68.20	-4.74	194	111	V
			5.72633	47.96	Pk	35.00	-19.50	0.00	63.46	-	-	68.20	-4.74	194	111	V

Note1. Pk - Peak detector, RMS - RMS detector

Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 802.11a / 5500 MHz)



Note. Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

5500 MHz DATA

Radiated Emissions

Frequency (GHz)	Meas. Reading (dBuV)	Det	Antenna Factor (dBm)	SGHz_HF_Path Loss(dB)	DC Cor (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Actuals (dBm)	Height (cm)	Polarity
* 8.24984	36.05	PK-U	36	-23.8	0	48.25	-	-	74	-25.75	-	-	0	100	H
* 8.24995	36.11	PK-U	36	-23.8	0	48.31	-	-	74	-25.69	-	-	0	100	V
* 10.99902	33.55	PK-U	36	-20.9	0	50.45	-	-	74	-23.55	-	-	0	100	H
* 10.99947	33.2	PK-U	36	-20.9	0	50.3	-	-	74	-23.7	-	-	0	100	V
16.50313	33.61	PK-U	41.6	-18.8	0	56.41	-	-	-	-	68.2	-11.79	0	100	H
16.49716	34.27	PK-U	41.6	-18.9	0	56.97	-	-	-	-	68.2	-11.23	0	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

HARMONICS AND SPURIOUS EMISSIONS TEST DATA

Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB/m]	Loss [dB]	DC Corr [dB]	Result dBuV/m	AV Limit dBuV/m	AV Margin [dB]	PK Limit dBuV/m	PK Margin [dB]	Non-Restricted [dBuV/m]	Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
802.11a	5500	ANT1	* 8.24984	36.05	PK-U	36.00	-23.80	0.00	48.25	-	-	74.00	-25.75	-	-	0	100	H
			* 8.24695	36.11	PK-U	36.00	-23.80	0.00	48.31	-	-	74.00	-25.69	-	-	0	100	V
			* 10.99903	33.55	PK-U	38.00	-20.90	0.00	50.65	-	-	74.00	-23.35	-	-	0	100	H
			* 10.99947	33.20	PK-U	38.00	-20.90	0.00	50.30	-	-	74.00	-23.70	-	-	0	100	V
			16.503	33.61	PK-U	41.60	-18.80	0.00	56.41	-	-	-	-	68.20	-11.79	0	100	H
			16.497	34.27	PK-U	41.60	-18.90	0.00	56.97	-	-	-	-	68.20	-11.23	0	100	V
	5580	ANT1	* 8.3732	35.88	PK-U	36.00	-23.60	0.00	48.28	-	-	74.00	-25.72	-	-	0	100	H
			* 8.36917	35.68	PK-U	36.00	-23.60	0.00	48.08	-	-	74.00	-25.92	-	-	0	100	V
			* 11.16446	34.00	PK-U	38.10	-21.20	0.00	50.90	-	-	74.00	-23.10	-	-	0	100	H
			* 11.16382	34.13	PK-U	38.10	-21.20	0.00	51.03	-	-	74.00	-22.97	-	-	0	100	V
			16.739	32.34	PK-U	41.80	-18.20	0.00	55.94	-	-	-	-	68.20	-12.26	0	100	H
			16.741	32.64	PK-U	41.80	-18.20	0.00	56.24	-	-	-	-	68.20	-11.96	0	100	V
	5700	ANT1	8.555	34.57	PK-U	36.00	-22.80	0.00	47.77	-	-	-	-	68.20	-20.43	0	100	H
			8.546	34.29	PK-U	36.00	-22.90	0.00	47.39	-	-	-	-	68.20	-20.81	0	100	V
			* 11.40142	33.37	PK-U	38.10	-21.00	0.00	50.47	-	-	74.00	-23.53	-	-	0	100	H
			* 11.40177	33.77	PK-U	38.10	-21.10	0.00	50.77	-	-	74.00	-23.23	-	-	0	100	V
			17.096	31.40	PK-U	41.40	-17.50	0.00	55.30	-	-	-	-	68.20	-12.90	0	100	H
			17.095	31.48	PK-U	41.40	-17.50	0.00	55.38	-	-	-	-	68.20	-12.82	0	100	V
	5720	ANT1	8.576	24.06	PK-U	36.00	-22.80	0.00	37.26	-	-	-	-	68.20	-30.94	0	100	H
			8.583	24.29	PK-U	36.00	-22.90	0.00	37.39	-	-	-	-	68.20	-30.81	0	100	V
			* 11.43889	25.69	PK-U	38.20	-20.90	0.00	42.99	-	-	74.00	-31.01	-	-	0	100	H
			* 11.43944	25.52	PK-U	38.20	-20.90	0.00	42.82	-	-	74.00	-31.18	-	-	0	100	V
			17.156	28.08	PK-U	41.30	-17.30	0.00	52.08	-	-	-	-	68.20	-16.12	0	100	H
			17.160	27.26	PK-U	41.30	-17.30	0.00	51.26	-	-	-	-	68.20	-16.94	0	100	V

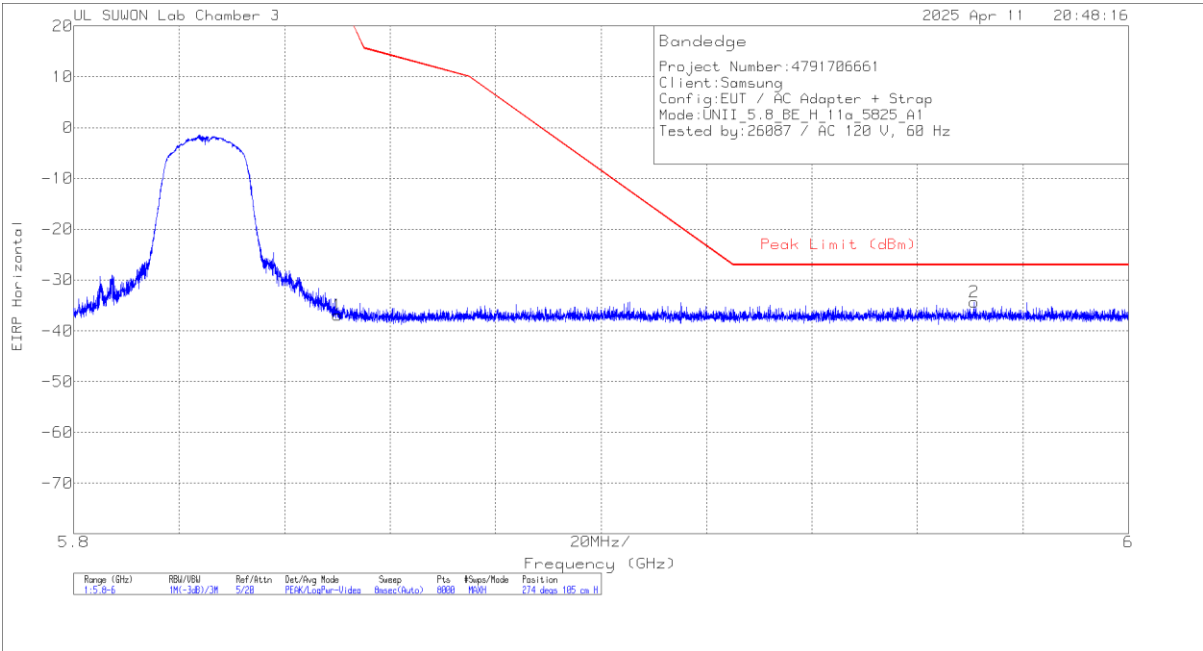
Note1. PK-U - U-NII: Maximum Peak / ADR - U-NII AD primary method, RMS average

Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

11.4. TX ABOVE 1GHz 1TX MODE IN THE 5.8 GHz BAND

BANDEDGE (WORST CASE: 802.11a / 5825 MHz)

HORIZONTAL PEAK DATA



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	Antenna_Factor (dB/m)	10dB_Path Loss(dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85001	-64.55	Pk	35.2	-19.4	11.8	0	-36.95	26.99	-63.94	274	105	H
2	5.97072	-62.4	Pk	35.6	-19.3	11.8	0	-34.3	-27	-7.3	274	105	H

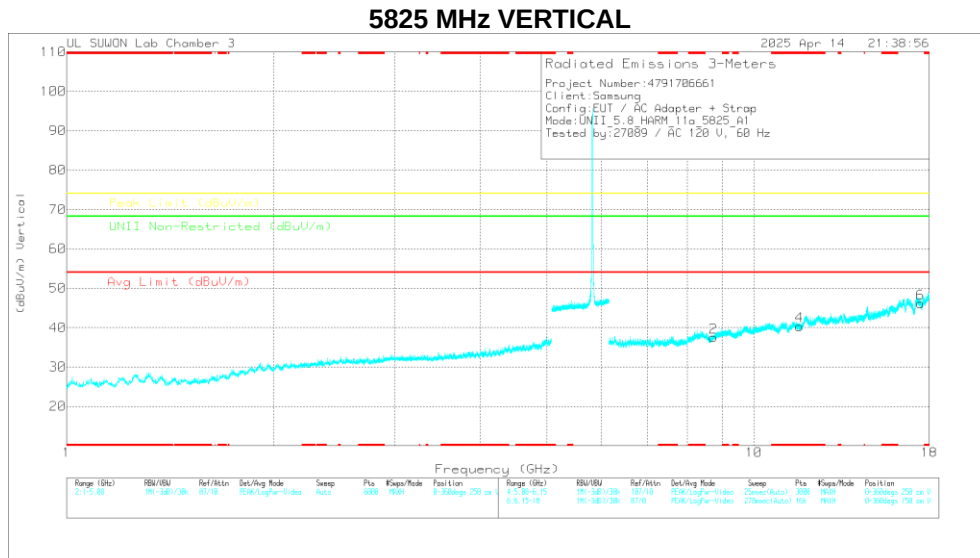
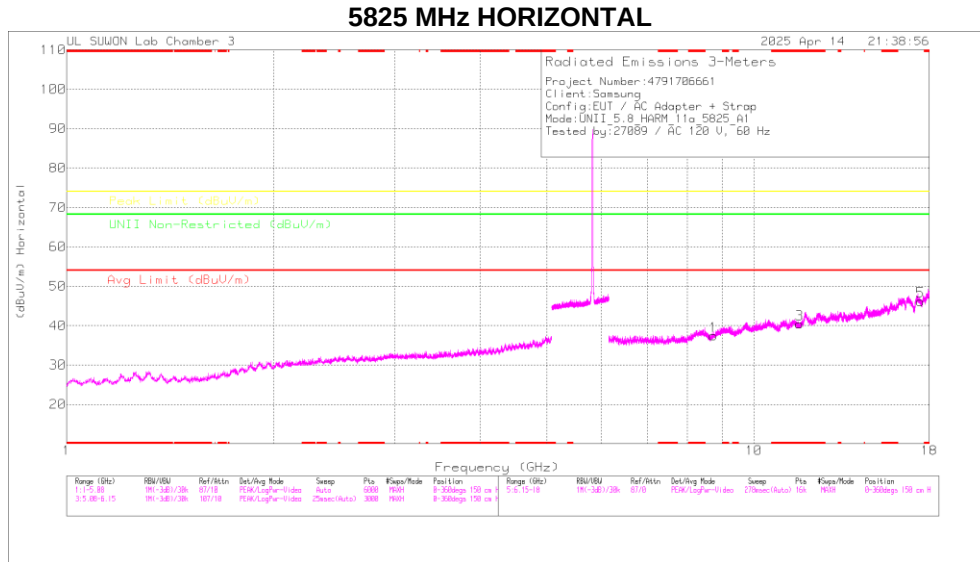
Pk - Peak detector

BANDEDGE TEST DATA

Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBm]	Detector Mode	ANT Factor [dB/m]	Loss [dB]	Conv. F [dB]	DC Corr [dB]	Result [dBm]	PK Limit [dBm]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
802.11a	5745	ANT1	5.72500	-56.84	Pk	34.90	-19.50	11.80	0.00	-29.64	27.00	-56.64	79	381	H
			5.63589	-65.43	Pk	34.90	-19.90	11.80	0.00	-38.63	-27.00	-11.63	79	381	H
			5.72500	-52.62	Pk	34.90	-19.50	11.80	0.00	-25.42	27.00	-52.42	191	104	V
			5.64870	-65.24	Pk	34.90	-19.80	11.80	0.00	-38.34	-27.00	-11.34	191	104	V
			5.85001	-64.55	Pk	35.20	-19.40	11.80	0.00	-36.95	26.99	-63.94	274	105	H
	5825	ANT1	5.97072	-62.40	Pk	35.60	-19.30	11.80	0.00	-34.30	-27.00	-7.30	274	105	H
			5.85001	-59.67	Pk	35.20	-19.40	11.80	0.00	-32.07	26.99	-59.06	192	108	V
			5.93404	-65.34	Pk	35.50	-19.40	11.80	0.00	-37.44	-27.00	-10.44	192	108	V
			5.72500	-58.92	Pk	34.90	-19.50	11.80	0.00	-31.72	27.00	-58.72	79	381	H
			5.63220	-65.30	Pk	34.90	-19.90	11.80	0.00	-38.50	-27.00	-11.50	79	381	H
802.11n (HT20)	5745	ANT1	5.72500	-50.58	Pk	34.90	-19.50	11.80	0.00	-23.38	27.00	-50.38	197	115	V
			5.64232	-64.98	Pk	34.90	-19.80	11.80	0.00	-38.08	-27.00	-11.08	197	115	V
			5.85001	-59.98	Pk	35.20	-19.40	11.80	0.00	-32.38	26.99	-59.37	79	385	H
			5.99192	-62.87	Pk	35.70	-19.30	11.80	0.00	-34.67	-27.00	-7.67	79	385	H
	5825	ANT1	5.85001	-56.47	Pk	35.20	-19.40	11.80	0.00	-28.87	26.99	-55.86	191	100	V
			5.97247	-65.68	Pk	35.60	-19.30	11.80	0.00	-37.58	-27.00	-10.58	191	100	V
			5.72500	-58.92	Pk	34.90	-19.50	11.80	0.00	-31.72	27.00	-58.72	79	381	H

Note. Pk - Peak detector

HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 802.11a / 5825 MHz)



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

5825 MHz DATA

Radiated Emissions

Frequency (GHz)	Meas. Reading (dBuV)	Det	Antenna Factor (dBm)	GHz_HP_Path Loss(dB)	DC Cor (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Acctm (Cm)	Height (cm)	Polarity
8.73849	34.07	PK-U	36.1	-22.6	0	47.57	-	-	-	-	68.2	-20.63	0	100	H
8.73377	35.06	PK-U	36.1	-22.6	0	48.56	-	-	-	-	68.2	-19.64	0	100	V
* 11.64536	33.56	PK-U	38.3	-21	0	50.86	-	-	74	-23.14	-	-	0	100	H
* 11.65332	33.56	PK-U	38.3	-21	0	50.86	-	-	74	-23.24	-	-	0	100	V
17.47049	32.51	PK-U	41.1	-16.3	0	57.31	-	-	-	-	68.2	-10.89	0	100	H
17.47364	32.01	PK-U	41.1	-16.4	0	56.71	-	-	-	-	68.2	-11.49	0	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

HARMONICS AND SPURIOUS EMISSIONS TEST DATA

Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB/m]	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Non-Restricted [dBuV/m]	Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
802.11a	5745	ANT1	8.619	34.23	PK-U	36.00	-23.00	0.00	47.23	-	-	-	-	68.20	-20.97	0	100	H
			8.622	34.28	PK-U	36.00	-22.90	0.00	47.38	-	-	-	-	68.20	-20.82	0	100	V
			* 11.4891	33.27	PK-U	38.20	-21.10	0.00	50.37	-	-	74.00	-23.63	-	-	0	100	H
			* 11.48695	33.49	PK-U	38.20	-21.10	0.00	50.59	-	-	74.00	-23.41	-	-	0	100	V
			17.236	31.91	PK-U	41.10	-16.60	0.00	56.41	-	-	-	-	68.20	-11.79	0	100	H
			17.231	31.98	PK-U	41.10	-16.70	0.00	56.38	-	-	-	-	68.20	-11.82	0	100	V
	5785	ANT1	8.679	35.24	PK-U	36.10	-22.80	0.00	48.54	-	-	-	-	68.20	-19.66	0	100	H
			8.679	34.44	PK-U	36.10	-22.80	0.00	47.74	-	-	-	-	68.20	-20.46	0	100	V
			* 11.56925	33.68	PK-U	38.20	-21.20	0.00	50.68	-	-	74.00	-23.32	-	-	0	100	H
			* 11.56755	34.10	PK-U	38.20	-21.30	0.00	51.00	-	-	74.00	-23.00	-	-	0	100	V
			17.356	32.92	PK-U	41.10	-16.80	0.00	57.22	-	-	-	-	68.20	-10.98	0	100	H
			17.355	32.45	PK-U	41.10	-16.80	0.00	56.75	-	-	-	-	68.20	-11.45	0	100	V
	5825	ANT1	8.738	34.07	PK-U	36.10	-22.60	0.00	47.57	-	-	-	-	68.20	-20.63	0	100	H
			8.734	35.06	PK-U	36.10	-22.60	0.00	48.56	-	-	-	-	68.20	-19.64	0	100	V
			* 11.64536	33.56	PK-U	38.30	-21.00	0.00	50.86	-	-	74.00	-23.14	-	-	0	100	H
			* 11.65332	33.56	PK-U	38.30	-21.10	0.00	50.76	-	-	74.00	-23.24	-	-	0	100	V
			17.470	32.51	PK-U	41.10	-16.30	0.00	57.31	-	-	-	-	68.20	-10.89	0	100	H
			17.474	32.01	PK-U	41.10	-16.40	0.00	56.71	-	-	-	-	68.20	-11.49	0	100	V

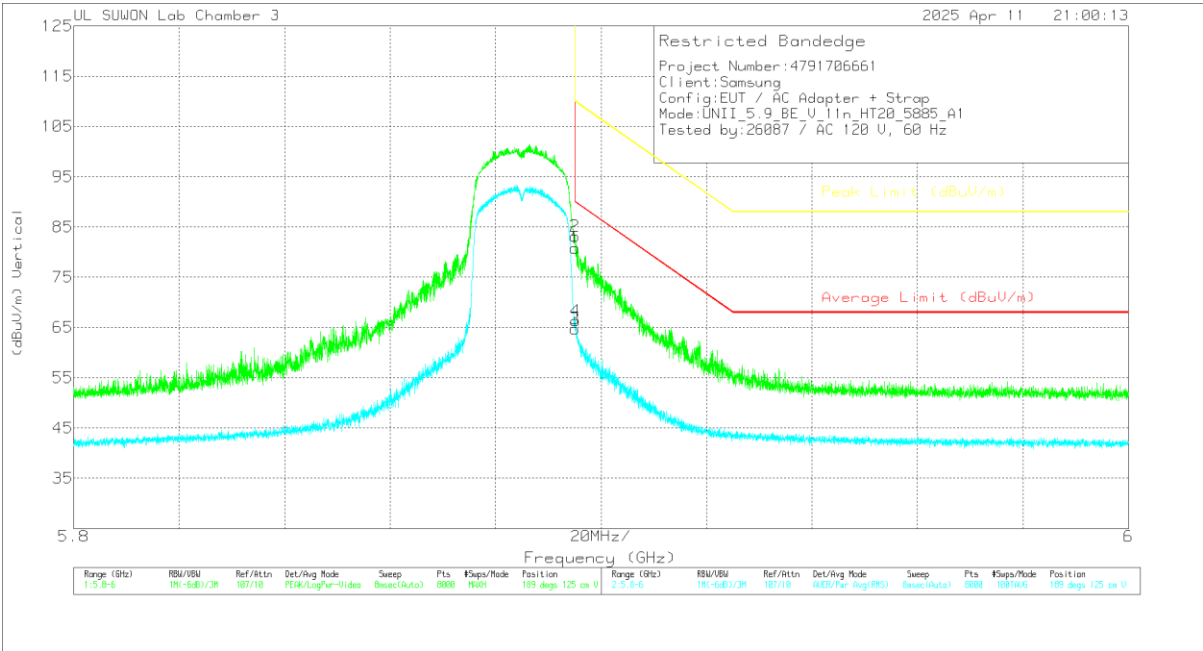
Note1. PK-U - U-NII: Maximum Peak / ADR - U-NII AD primary method, RMS average

Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

11.1. TX ABOVE 1GHz 1TX MODE IN THE 5.9 GHz BAND

BANDEDGE (WORST CASE: 802.11n HT20 / 5885 MHz)

VERTICAL PEAK AND AVERAGE DATA



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Antenna_Factor (dBm)	10dB_Path Loss(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.89501	64.77	Pk	35.4	-19.4	0	80.77	-	-	109.99	-29.22	189	125	V
2	5.89506	67.15	Pk	35.4	-19.4	0	83.15	-	-	109.95	-26.8	189	125	V
3	5.89501	48.95	RMS	35.4	-19.4	.12	64.67	89.99	-25.32	-	-	189	125	V
4	5.89521	50.16	RMS	35.4	-19.4	.12	66.28	89.84	-23.56	-	-	189	125	V

Pk - Peak detector
RMS - RMS detection

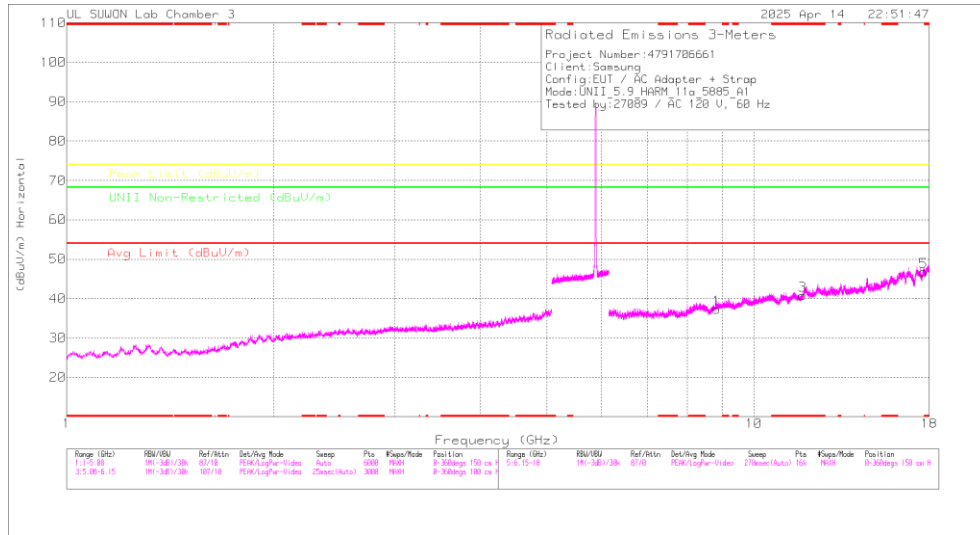
Bandedge Test Data

Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB/m]	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Azimuth [Degr]	Height [cm]	Polarity
802.11a	5885	ANT1	5.895	59.20	Pk	35.40	-19.40	0.00	75.20	-	-	109.99	-34.79	88	394	H
			5.925	38.99	Pk	35.50	-19.40	0.00	55.09	-	-	88.00	-32.91	88	394	H
			5.895	43.48	RMS	35.40	-19.40	0.12	59.60	89.99	-30.39	-	-	88	394	H
			5.930	27.00	RMS	35.50	-19.40	0.12	43.22	68.00	-24.78	-	-	88	394	H
			5.895	62.59	Pk	35.40	-19.40	0.00	78.59	-	-	109.99	-31.40	191	116	V
			5.895	62.68	Pk	35.40	-19.40	0.00	78.68	-	-	109.97	-31.29	191	116	V
			5.895	46.20	RMS	35.40	-19.40	0.22	62.42	89.99	-27.57	-	-	191	116	V
			5.925	27.69	RMS	35.50	-19.40	0.22	44.01	68.00	-23.99	-	-	191	116	V
802.11n (HT20)	5885	ANT1	5.895	57.34	Pk	35.40	-19.40	0.00	73.34	-	-	109.99	-36.65	88	395	H
			5.969	37.57	Pk	35.60	-19.30	0.00	53.87	-	-	88.00	-34.13	88	395	H
			5.895	41.48	RMS	35.40	-19.40	0.22	57.70	89.99	-32.29	-	-	88	395	H
			5.978	26.40	RMS	35.70	-19.20	0.22	43.12	68.00	-24.88	-	-	88	395	H
			5.895	64.77	Pk	35.40	-19.40	0.00	80.77	-	-	109.99	-29.22	189	125	V
			5.895	67.15	Pk	35.40	-19.40	0.00	83.15	-	-	109.95	-26.80	189	125	V
			5.895	48.55	RMS	35.40	-19.40	0.12	64.67	89.99	-25.32	-	-	189	125	V
			5.895	50.16	RMS	35.40	-19.40	0.12	66.28	89.84	-23.56	-	-	189	125	V

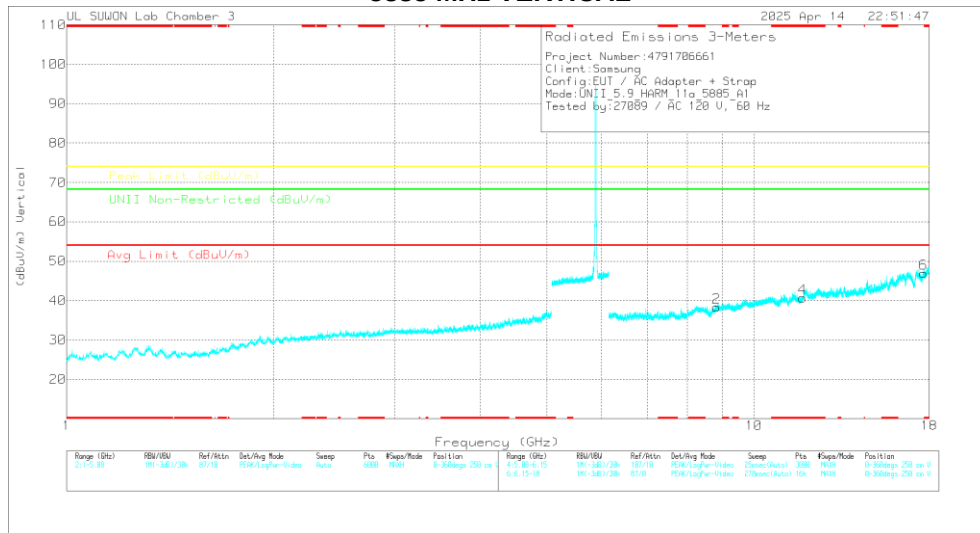
Note. Pk - Peak detector, RMS - RMS detector

HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 802.11a / 5885 MHz)

5885 MHz HORIZONTAL



5885 MHz VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

5885 MHz DATA

Radiated Emissions

Frequency (GHz)	Meas. Reading (dBuV)	Det	Antenna Factor (dBm)	GHz_HF_Path Loss(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Acctm (dBm)	Height (cm)	Polarity
8.82323	34.46	PK-U	36.1	-22.2	0	48.36	-	-	-	-	68.2	-19.84	0	100	H
8.82582	34.35	PK-U	36.1	-22.2	0	48.25	-	-	-	-	68.2	-19.95	0	100	V
*11.76941	34.2	PK-U	36.4	-21.5	0	51.4	-	-	-	-	68.2	-19.95	0	100	H
*11.76122	34.1	PK-U	36.4	-21.5	0	51.2	-	-	-	-	68.2	-19.95	0	100	V
17.65325	31.28	PK-U	41.3	-15.4	0	57.18	-	-	-	-	68.2	-11.02	0	100	H
17.65133	31.01	PK-U	41.3	-15.3	0	57.01	-	-	-	-	68.2	-11.19	0	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

HARMONICS AND SPURIOUS EMISSIONS TEST DATA

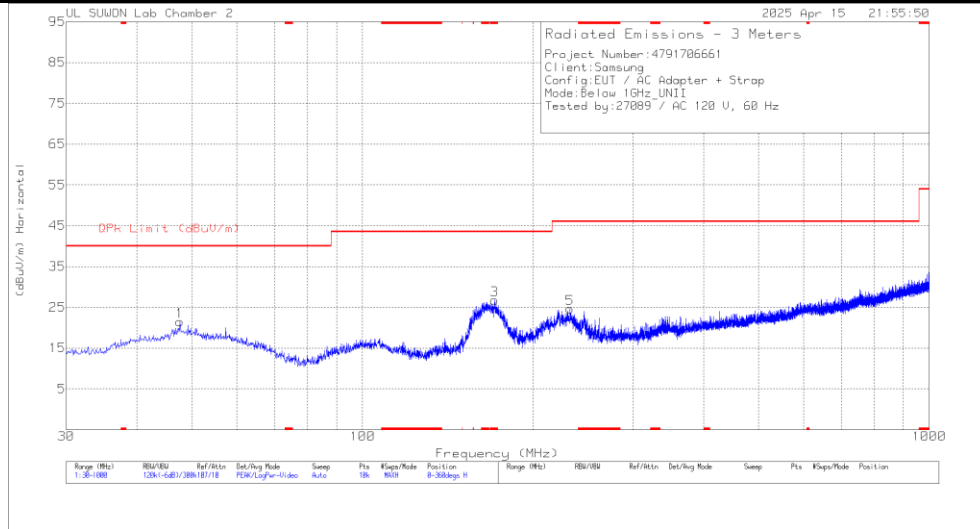
Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB/m]	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Non-Restricted [dBuV/m]	Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
802.11a	5845	ANT1	8.768	34.29	PK-U	36.10	-22.40	0.00	47.99	-	-	-	-	68.20	-20.21	0	100	H
			8.768	34.05	PK-U	36.10	-22.40	0.00	47.75	-	-	-	-	68.20	-20.45	0	100	V
			* 11.69022	34.53	PK-U	38.40	-21.10	0.00	51.83	-	-	74.00	-22.17	-	-	0	100	H
			* 11.68705	33.99	PK-U	38.40	-21.20	0.00	51.19	-	-	74.00	-22.81	-	-	0	100	V
			17.533	31.84	PK-U	41.20	-16.60	0.00	56.44	-	-	-	-	68.20	-11.76	0	100	H
			17.540	31.63	PK-U	41.20	-16.70	0.00	56.13	-	-	-	-	68.20	-12.07	0	100	V
	5865	ANT1	8.797	34.31	PK-U	36.10	-22.30	0.00	48.11	-	-	-	-	68.20	-20.09	0	100	H
			8.797	34.67	PK-U	36.10	-22.30	0.00	48.47	-	-	-	-	68.20	-19.73	0	100	V
			* 11.7284	34.28	PK-U	38.40	-21.40	0.00	51.28	-	-	74.00	-22.72	-	-	0	100	H
			* 11.72745	34.43	PK-U	38.40	-21.40	0.00	51.43	-	-	74.00	-22.57	-	-	0	100	V
			17.591	31.87	PK-U	41.30	-16.30	0.00	56.87	-	-	-	-	68.20	-11.33	0	100	H
			17.593	31.34	PK-U	41.30	-16.20	0.00	56.44	-	-	-	-	68.20	-11.76	0	100	V
	5885	ANT1	8.823	34.46	PK-U	36.10	-22.20	0.00	48.36	-	-	-	-	68.20	-19.84	0	100	H
			8.826	34.35	PK-U	36.10	-22.20	0.00	48.25	-	-	-	-	68.20	-19.95	0	100	V
			* 11.76841	34.20	PK-U	38.40	-21.20	0.00	51.40	-	-	74.00	-22.60	-	-	0	100	H
			* 11.76722	34.10	PK-U	38.40	-21.30	0.00	51.20	-	-	74.00	-22.80	-	-	0	100	V
			17.653	31.28	PK-U	41.30	-15.40	0.00	57.18	-	-	-	-	68.20	-11.02	0	100	H
			17.651	31.01	PK-U	41.30	-15.30	0.00	57.01	-	-	-	-	68.20	-11.19	0	100	V

Note1. PK-U - U-NII: Maximum Peak / ADR - U-NII AD primary method, RMS average

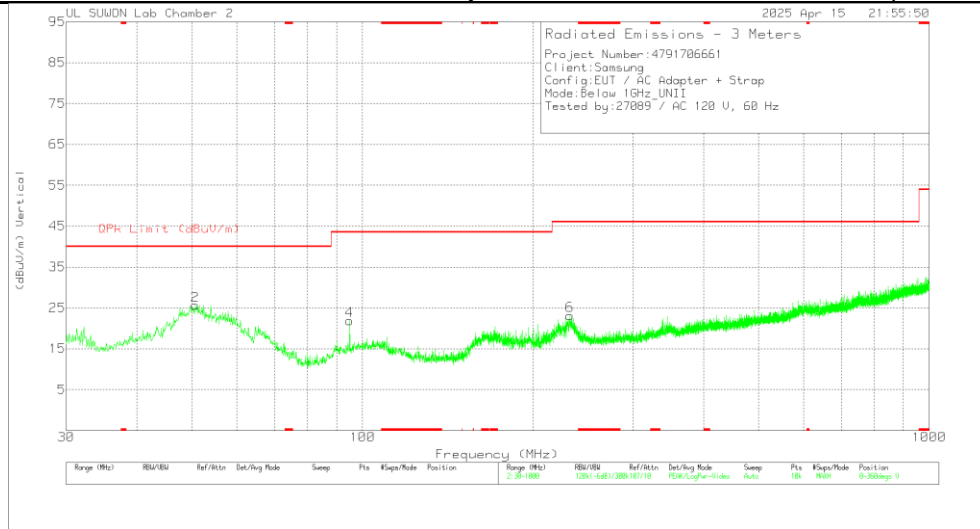
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

12. WORST-CASE BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)



SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Antenna_Factor (dB/m)	Below_1G_Path Loss(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	QPK Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	47.654	33.35	Pk	19.7	-31.6	0	21.45	40	-18.55	0-360	100	H
3	* 170.941	43.26	Pk	14.4	-30.9	0	26.76	43.52	-16.76	0-360	100	H
5	232.342	37.61	Pk	17.7	-30.7	0	24.61	46.02	-21.41	0-360	100	H
2	50.661	37.59	Pk	19.7	-31.7	0	25.59	40	-14.41	0-360	100	V
4	94.893	36.76	Pk	16.5	-31.4	0	21.86	43.52	-21.66	0-360	100	V
6	232.245	36.17	Pk	17.7	-30.7	0	23.17	46.02	-22.85	0-360	100	V

Pk - Peak detector

13. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)
IC RSS-GEN Clause 8.8

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 [*]	56 to 46 [*]
0.5-5	56	46
5-30	60	50

^{*} Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.

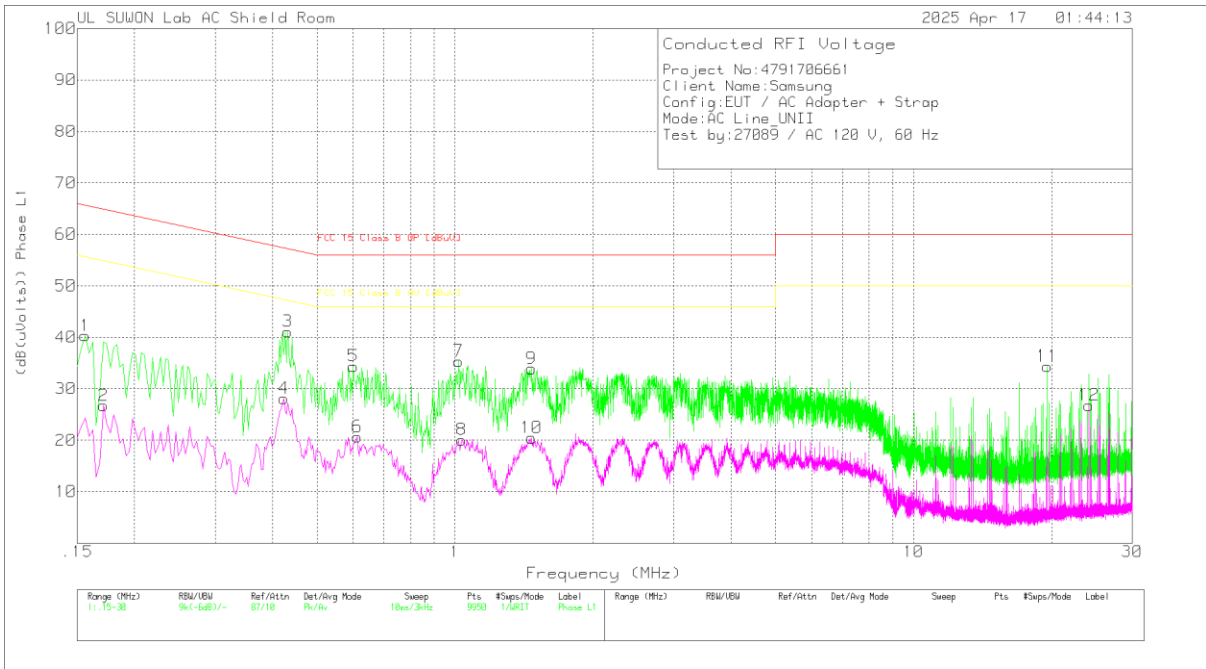
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

WORST EMISSIONS

LINE 1 DATA



Trace Markers

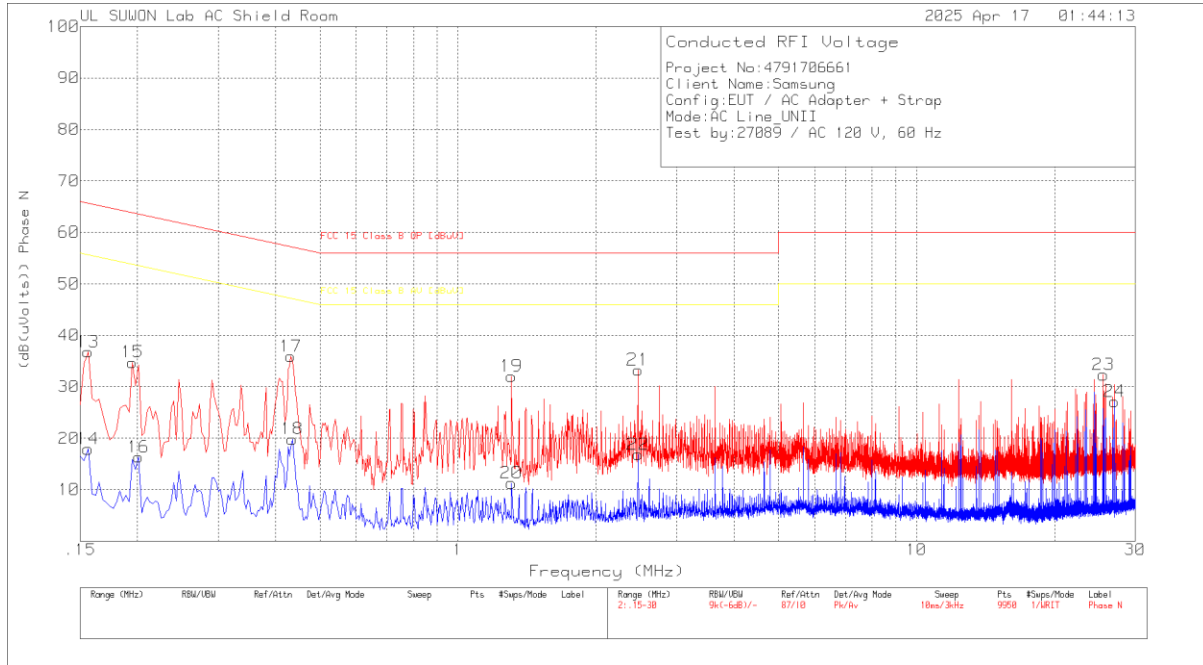
Range 1: Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_Wit h EX_L1 [dB]	Cable Loss [dB]	Corrected Reading (dB(uVolts))	FCC 15 Class B QP [dBuV]	Margin (dB)	FCC 15 Class B AV [dBuV]	Margin (dB)
1	.156	30.4	Pk	9.8	.1	40.3	65.67	-25.37	-	-
2	.171	16.65	Av	10	.1	26.75	-	-	54.91	-28.16
3	.432	31.21	Pk	9.8	.1	41.11	57.21	-16.1	-	-
4	.423	18.21	Av	9.8	.1	28.11	-	-	47.39	-19.28
5	.6	24.49	Pk	9.8	.1	34.39	56	-21.61	-	-
6	.612	10.77	Av	9.8	.1	20.67	-	-	46	-25.33
7	1.017	25.54	Pk	9.7	.1	35.34	56	-20.66	-	-
8	1.035	10.29	Av	9.7	.1	20.09	-	-	46	-25.91
9	1.467	24.13	Pk	9.7	.1	33.93	56	-22.07	-	-
10	1.467	10.66	Av	9.7	.1	20.46	-	-	46	-25.54
11	19.605	23.85	Pk	10.2	.3	34.35	60	-25.65	-	-
12	24.114	16.11	Av	10.4	.3	26.81	-	-	50	-23.19

Pk - Peak detector

Av - Average detection

LINE 2 DATA



Trace Markers

Range 2: Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_Wit h EX_N [dB]	Cable Loss [dB]	Corrected Reading (dB(uVolts))	FCC 15 Class B QP [dBuV]	Margin (dB)	FCC 15 Class B AV [dBuV]	Margin (dB)
13	.156	26.88	Pk	9.8	.1	36.78	65.67	-28.89	-	-
14	.156	8	Av	9.8	.1	17.9	-	-	55.67	-37.77
15	.195	24.76	Pk	9.9	.1	34.76	63.82	-29.06	-	-
16	.201	6.35	Av	9.9	.1	16.35	-	-	53.57	-37.22
17	.432	26	Pk	9.8	.1	35.9	57.21	-21.31	-	-
18	.435	9.94	Av	9.8	.1	19.84	-	-	47.16	-27.32
19	1.308	22.25	Pk	9.7	.1	32.05	56	-23.95	-	-
20	1.308	1.49	Av	9.7	.1	11.29	-	-	46	-34.71
21	2.469	23.46	Pk	9.7	.1	33.26	56	-22.74	-	-
22	2.469	7.02	Av	9.7	.1	16.82	-	-	46	-29.18
23	25.566	21.53	Pk	10.5	.3	32.33	60	-27.67	-	-
24	27.015	16.24	Av	10.6	.3	27.14	-	-	50	-22.86

Pk - Peak detector

Av - Average detection

14. DYNAMIC FREQUENCY SELECTION

14.1. OVERVIEW

14.1.1. LIMITS

FCC

§15.407 (h), FCC KDB 905462 D02 “COMPLIANCE MEASUREMENT PROCEDURES FOR UNLICENSED-NATIONAL INFORMATION INFRASTRUCTURE DEVICES OPERATING IN THE 5250-5350 MHz AND 5470-5725 MHz BANDS INCORPORATING DYNAMIC FREQUENCY SELECTION” and KDB 905462 D03 “U-NII CLIENT DEVICES WITHOUT RADAR DETECTION CAPABILITY”.

Table 1: Applicability of DFS requirements prior to use of a channel

Requirement	Operational Mode		
	Master	Client (without radar detection)	Client (with radar detection)
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
U-NII Detection Bandwidth	Yes	Not required	Yes

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode		
	Master	Client (without DFS)	Client (with DFS)
DFS Detection Threshold	Yes	Not required	Yes
Channel Closing Transmission Time	Yes	Yes	Yes
Channel Move Time	Yes	Yes	Yes
U-NII Detection Bandwidth	Yes	Not required	Yes

Additional requirements for devices with multiple bandwidth modes	Master Device or Client with Radar DFS	Client (without DFS)
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link
All other tests	Any single BW mode	Not required

Note: Frequencies selected for statistical performance check (Section 7.8.4) should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in all 20 MHz channel blocks and a null frequency between the bonded 20 MHz channel blocks.

Table 3: Interference Threshold values, Master or Client incorporating In-Service Monitoring

Maximum Transmit Power	Value (see notes)
E.I.R.P. $\geq$ 200 mill watt	-64 dBm
E.I.R.P. < 200 mill watt and power spectral density < 10 dBm/MHz	-62 dBm
E.I.R.P. < 200 mill watt that do not meet power spectral density requirement	-64 dBm
Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response. Note 3: E.I.R.P. is based on the highest antenna gain. For SISO devices refer to KDB publication 662911 D01.	

Table 4: DFS Response requirement values

Parameter	Value
<i>Non-occupancy period</i>	30 minutes
<i>Channel Availability Check Time</i>	60 seconds
<i>Channel Move Time</i>	10 seconds (See Note 1)
<i>Channel Closing Transmission Time</i>	200 milliseconds + approx. 60 milliseconds over remaining 10 second period. (See Notes 1 and 2)
<i>U-NII Detection Bandwidth</i>	Minimum 100% of the U- NII 99% transmission power bandwidth. (See Note 3)
Note 1: <i>Channel Move Time</i> and the <i>Channel Closing Transmission Time</i> should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst. Note 2: The <i>Channel Closing Transmission Time</i> is comprised of 200 milliseconds starting at the beginning of the <i>Channel Move Time</i> plus any additional intermittent control signals required to facilitate a <i>Channel</i> move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions. Note 3: During the <i>U-NII Detection Bandwidth</i> detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.	

Table 5 – Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (usec)	PRI (usec)	Pulses	Minimum Percentage of Successful Detection	Minimum Trials
0	1	1428	18	See Note 1	See Note 1
1	1	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in table 5a	Roundup: $(1/360) \times (19 \times 10^6 \text{ PRI}_{\text{usec}})$	60%	30
		Test B: 15 unique PRI values randomly selected within the range of 518-3066 usec. With a minimum increment of 1 usec, excluding PRI values selected in Test A			
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120
Note 1: Short Pulse Radar Type 0 should be used for the <i>Detection Bandwidth</i> test, <i>Channel Move Time</i> , and <i>Channel Closing Time</i> tests.					

Table 6 – Long Pulse Radar Test Signal

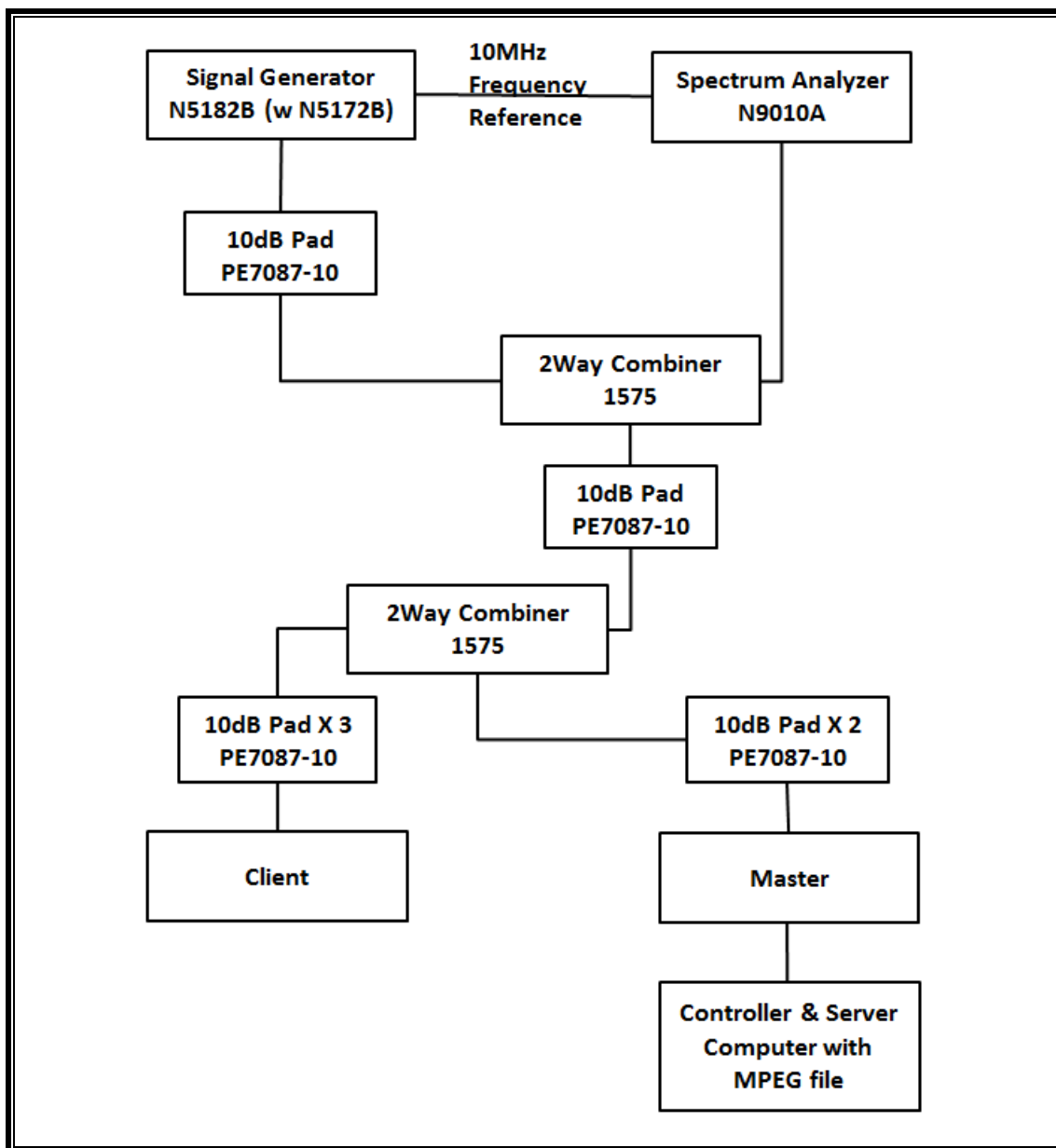
Radar Waveform Type	Pulse Width (μsec)	Chirp Width (MHz)	PRI (μsec)	Pulses per Burst	Number of Bursts	Minimum Percentage of Successful Detection	Minimum Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

Table 7 – Frequency Hopping Radar Test Signal

Radar Waveform Type	Pulse Width (μsec)	PRI (μsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Minimum Percentage of Successful Detection	Minimum Trials
6	1	333	9	0.333	300	70%	30

14.1.2. TEST AND MEASUREMENT SYSTEM

CONDUCTED METHOD SYSTEM BLOCK DIAGRAM



SYSTEM OVERVIEW

The short pulse and long pulse signal generating system utilizes the Keysite Signal Studio for Pulse Building as N5172B. The Vector Signal Generator has been validated by the NTIA. The hopping signal generating system utilizes the CCS simulated hopping method and system, which has been validated by the DoD, FCC and NTIA. The software selects waveform parameters from within the bounds of the signal type on a random basis using uniform distribution.

The short pulse types 1, 2, 3 and 4, and the long pulse type 5 parameters are randomized at run-time.

The hopping type 6 pulse parameters are fixed while the hopping sequence is based on the August 2005 NTIA Hopping Frequency List. The initial starting point randomized at run-time and each subsequent starting point is incremented by 475. Each frequency in the 100-length segment is compared to the boundaries of the EUT Detection Bandwidth and the software creates a hopping burst pattern in accordance with Section 7.4.1.3 Method #2 Simulated Frequency Hopping Radar Waveform Generating Subsystem of KDB 905462 D02. The frequency of the signal generator is incremented in 1 MHz steps from F_L to F_H for each successive trial. This incremental sequence is repeated as required to generate a minimum of 30 total trials and to maintain a uniform frequency distribution over the entire Detection Bandwidth.

The signal monitoring equipment consists of a spectrum analyzer. The aggregate ON time is calculated by multiplying the number of bins above a threshold during a particular observation period by the dwell time per bin, with the analyzer set to peak detection and max hold.

SYSTEM CALIBRATION

A 50-ohm load is connected in place of the spectrum analyzer, and the spectrum analyzer is connected to a horn antenna via a coaxial cable, with the reference level offset set to (horn antenna gain – coaxial cable loss). The signal generator is set to CW mode. The amplitude of the signal generator is adjusted to yield a level of –64 dBm as measured on the spectrum analyzer.

Without changing any of the instrument settings, the spectrum analyzer is reconnected to the Common port of the Spectrum Analyzer Combiner/Divider. The Reference Level Offset of the spectrum analyzer is adjusted so that the displayed amplitude of the signal is –64 dBm.

The spectrum analyzer displays the level of the signal generator as received at the antenna ports of the Master Device. The interference detection threshold may be varied from the calibrated value of –64 dBm and the spectrum analyzer will still indicate the level as received by the Master Device.

ADJUSTMENT OF DISPLAYED TRAFFIC LEVEL

A link is established between the Master and Slave and the distance between the units is adjusted as needed to provide a suitable received level at the Master and Slave devices. The video test file is streamed to generate WLAN traffic. The monitoring antenna is adjusted so that the WLAN traffic level, as displayed on the spectrum analyzer, is at lower amplitude than the radar detection threshold.

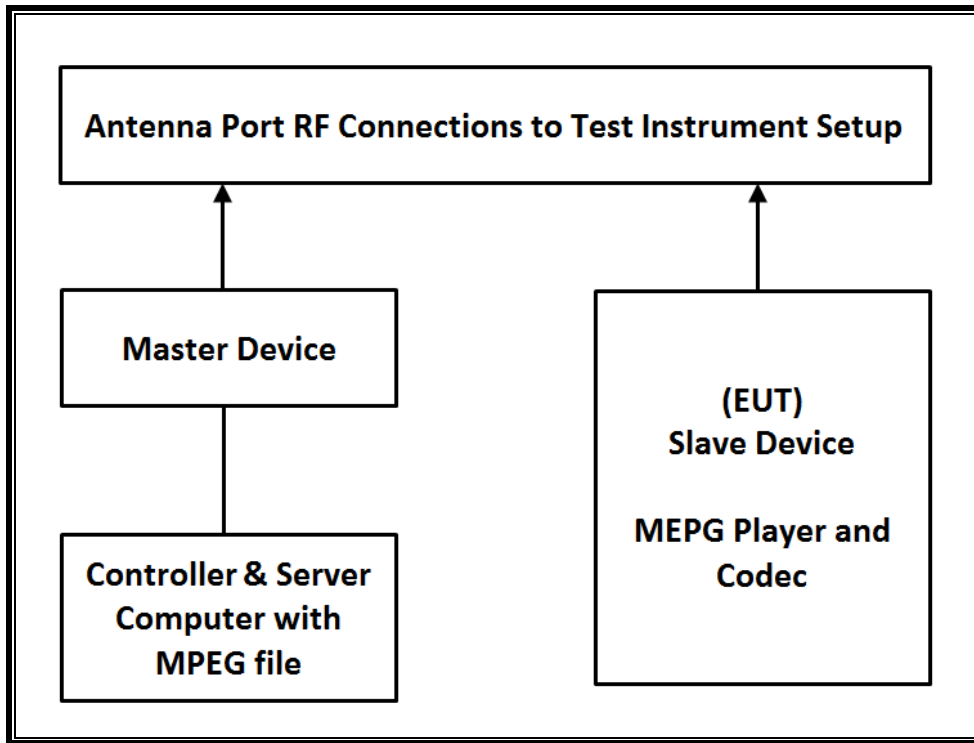
TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the DFS tests documented in this report:

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	S/N	Next Cal Due
Spectrum Analyzer, 44 GHz	KEYSIGHT	N9030B	MY60070693	2026-01-02
Vector Signal Generator, 6GHz	Agilent / HP	N5182B	MY53051241	2025-07-24
Combiner	WEINSCHEL	WA1534	UL001	2026-01-03
Combiner	WEINSCHEL	WA1534	UL003	2026-01-03

14.1.3. SETUP OF EUT

CONDUCTED METHOD EUT TEST SETUP



SUPPORT EQUIPMENT

The following support equipment was utilized for the DFS tests documented in this report:

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Wireless Access Point	Cisco	AIR-CAP3702E-A-K9	FTX182276QX	LDK102087
Notebook PC (Controller/Server)	HP	HP EliteDesk 800 G1 TWR	CZC4125J25	DoC

14.1.4. DESCRIPTION OF EUT

The EUT operates over the 5250-5350 MHz and 5470-5725 MHz ranges.

The EUT is a Slave Device without Radar Detection.

The highest power level of the widest bandwidth (802.11n HT20) within these bands is 16.31 dBm in the 5250-5350 MHz band and 5470-5725 MHz band.

The antenna assembly utilized two antenna.

Gain of ANT1 : -10.60 dBi for UNII 2A and -9.20 dBi for UNII 2C.

The rated output power of the Master unit is > 23dBm (EIRP). Therefore the required interference threshold level is -64 dBm. After correction for procedural adjustments, the required conducted threshold at the antenna port is $-64 + 1 = -63$ dBm.

The calibrated radiated DFS Detection Threshold level is set to -64 dBm. The tested level is lower than the required level hence it provides a margin to the limit.

The EUT uses one transmitter/receiver chain connected to an antenna to perform radiated tests. WLAN traffic that meets or exceeds the minimum required loading was generated by transferring a data stream from the controller/server PC to the EUT using iPerf version 2.0.5 software package.

TPC is not required since the maximum EIRP is less than 500 mW (27 dBm).

The EUT utilizes the 802.11 architecture. 1 nominal channel bandwidth are implemented: 20 MHz.

The software installed in the access point is 12.4(25d)JA1.

UNIFORM CHANNEL SPREADING

This requirement is not applicable to Slave radio devices.

OVERVIEW OF MASTER DEVICE WITH RESPECT TO §15.407 (h) REQUIREMENTS

The Master Device is a Cisco Access Point, FCC ID: LDK102087. The minimum antenna gain for the Master Device is 6 dBi.

The rated output power of the Master unit is > 23dBm (EIRP). Therefore the required interference threshold level is -64 dBm. After correction for procedural adjustments, the required radiated threshold at the antenna port is $-64 + 1 = -63$ dBm.

The calibrated radiated DFS Detection Threshold level is set to -64 dBm. The tested level is lower than the required level hence it provides a margin to the limit.

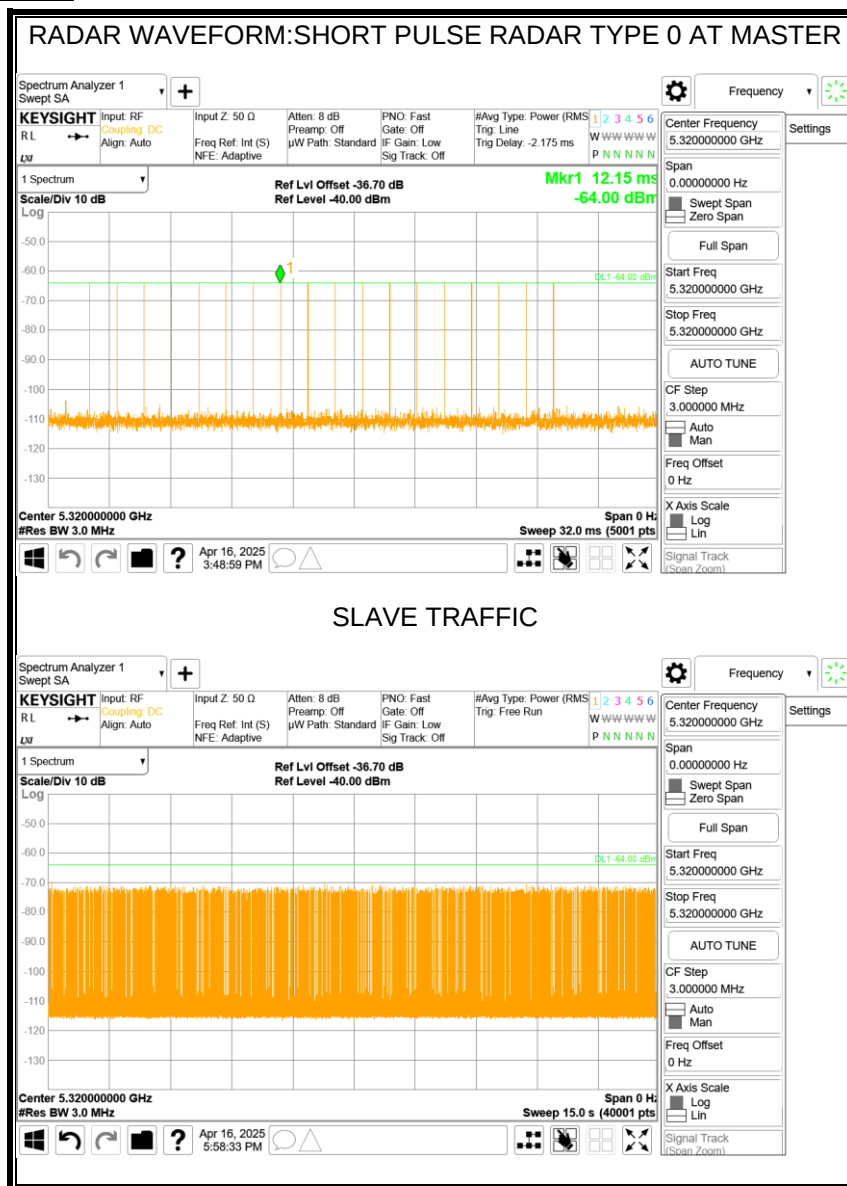
14.2. RESULTS FOR 20 MHz BANDWIDTH (UNII-2A BAND)

14.2.1. TEST CHANNEL

All tests were performed at a channel center frequency of 5320 MHz.

14.2.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



14.2.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

14.2.4. MOVE AND CLOSING TIME

REPORTING NOTES

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =
(Number of analyzer bins showing transmission) * (dwell time per bin)

The observation period over which the aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

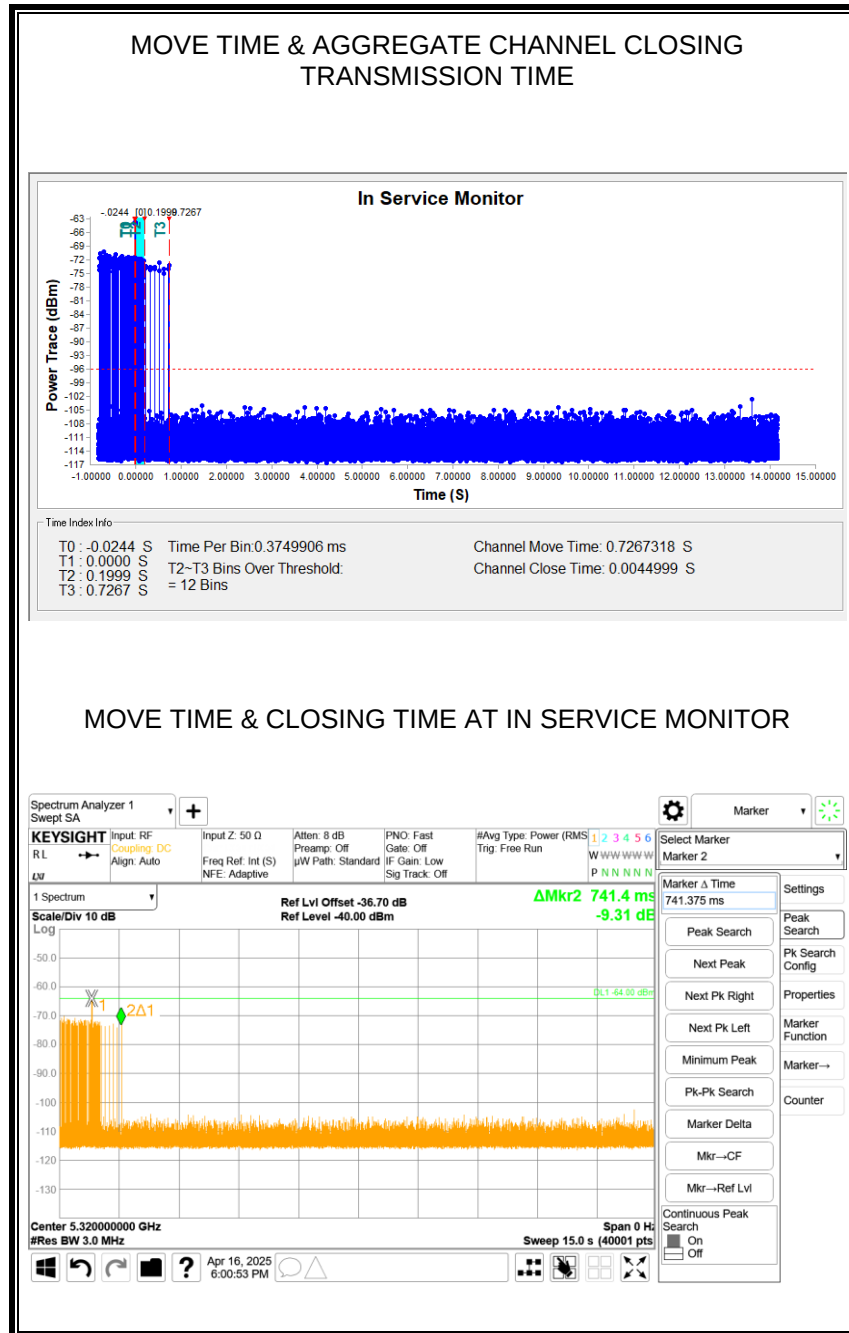
Channel Move Time (sec)	Limit (sec)
0.727	10

Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
4.500	60

MOVE TIME & CHANNEL CLOSING TIME

AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

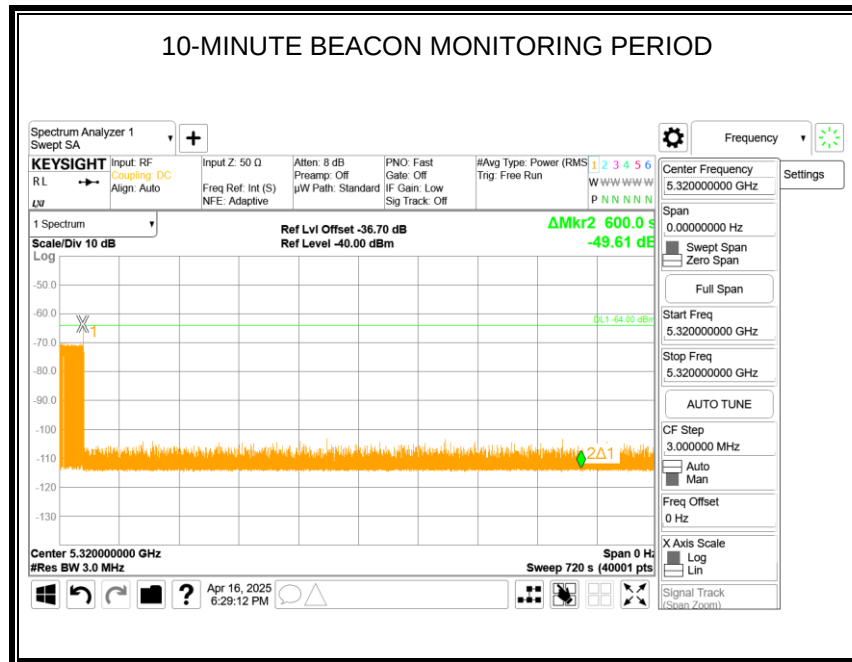
No transmissions are observed during the aggregate monitoring period.



NON-OCCUPANCY PERIOD

RESULTS

No EUT transmissions were observed on the test channel during the 10-minute observation time.



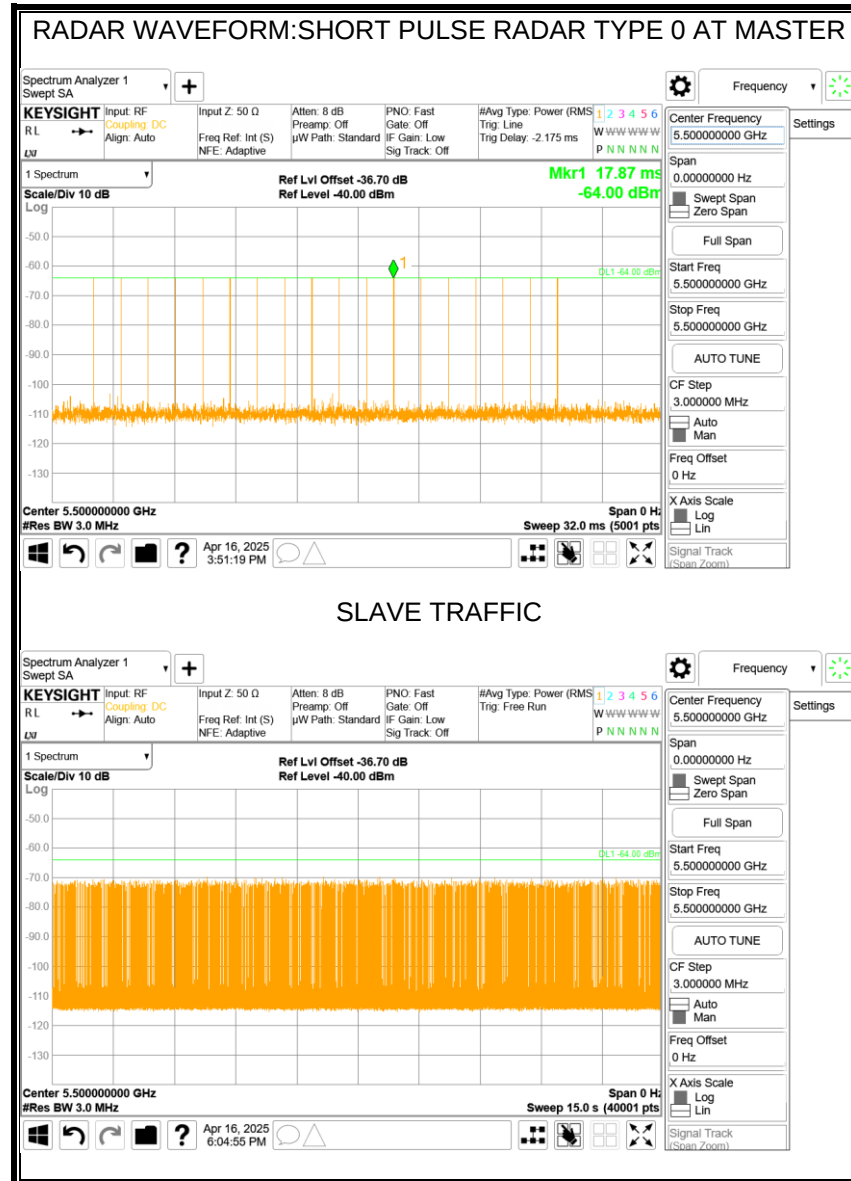
14.1. RESULTS FOR 20 MHz BANDWIDTH (UNII-2C BAND)

14.1.1. TEST CHANNEL

All tests were performed at a channel center frequency of 5500 MHz.

14.1.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



14.1.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

14.1.4. MOVE AND CLOSING TIME

REPORTING NOTES

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =
(Number of analyzer bins showing transmission) * (dwell time per bin)

The observation period over which the aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

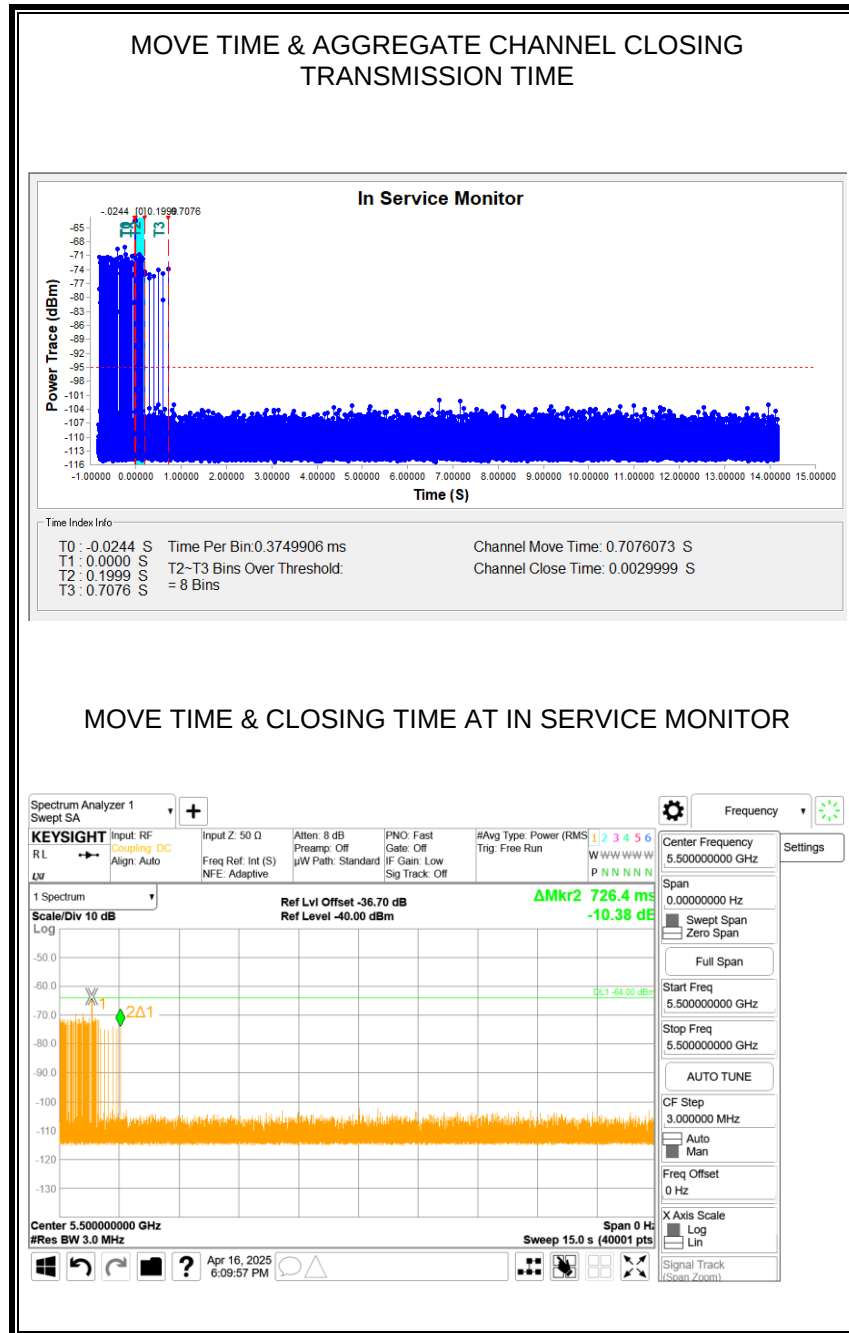
Channel Move Time (sec)	Limit (sec)
0.708	10

Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
3.000	60

MOVE TIME & CHANNEL CLOSING TIME

AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

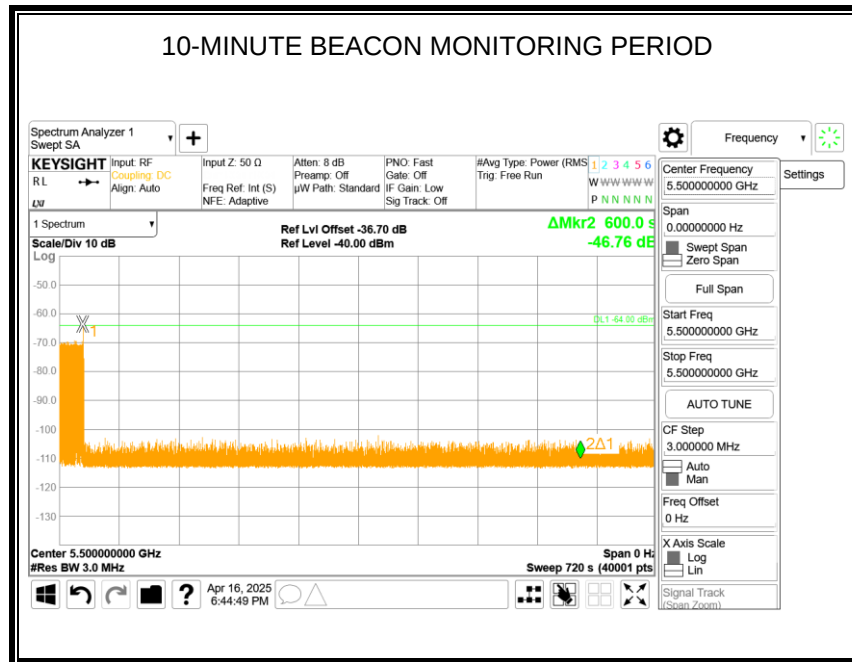
No transmissions are observed during the aggregate monitoring period.



NON-OCCUPANCY PERIOD

RESULTS

No EUT transmissions were observed on the test channel during the 10-minute observation time.



END OF TEST REPORT