CERTIFICATION TEST REPORT

Report Number. : 4790136523-E8V2

Applicant	:	SAMSUNG ELECTRONICS CO., LTD. 129 SAMSUNG-RO, YEONGTONG-GU, SUWON-SI, GYEONGGI-DO, 16677, KOREA
Model	:	SM-N986B1/DS, SM-N986B1
FCC ID	:	A3LSMN986B1
EUT Description	:	GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax, NFC, WPT and UWB
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART E

Date Of Issue:
2021-11-17

Prepared by:
UL Korea, Ltd.
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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

IAS ACCREDITED
Testing Laboratory
TL-637

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2021-11-05	Initial issue	Hyunsik Yun
V2	2021-11-17	Updated to address TCB's question	Hyunsik Yun

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	SAMSUNG ELECTRONICS CO., LTD.
EUT DESCRIPTION:	GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax, NFC, WPT and UWB
MODEL NUMBER:	SM-N986B1/DS, SM-N986B1
SERIAL NUMBER:	R3CR90Y67CY, R3CR90Y685M (CONDUCTED); R3CR90Y687N (RADIATED);
DATE TESTED:	2021-10-14 ~ 2021-11-17;

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:

Junwhan Lee
Suwon Lab Engineer
UL Korea, Ltd.

Tested By:

Hyunsik Yun
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 662911 D01 v02r01
7. KDB 291071 DR01-44460(Sept 21, 2021)
8. ANSI C63.10-2013.

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
☒ Chamber 2
☒ Chamber 3

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:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.02 dB
Radiated Disturbance, 30 MHz to 1 GHz	4.05 dB
Radiated Disturbance, 1 GHz to 18 GHz	5.78 dB
Radiated Disturbance, 18 GHz to 40 GHz	5.58 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 Procedure 2, Clause 4.4.3 in IEC Guide 115:2007.

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax, NFC, WPT and UWB. This test report addresses the NII (WLAN) operational mode.

This report covers the Samsung models SM-N986B1/DS, SM-N986B1.
These models are identical in hardware except SM-N986B1/DS is supported dual SIM tray and SM-N986B1 has single SIM tray.
All series model was same hardware thus, SM-N986B1/DS(Dual SIM tray) was set for final test.

WiFi operating mode

Frequency rage	Mode	ANT1	ANT2
5GHz (5180 MHz ~ 5825 MHz)	802.11a MIMO	TX/RX	TX/RX
	802.11n MIMO	TX/RX	TX/RX
	802.11ac MIMO	TX/RX	TX/RX
	802.11ax MIMO	TX/RX	TX/RX

Simultaneous TX Condition

Simultaneous Tx Condition - RSDB

Mode	# of TX	5GHz WLAN		2.4GHz WLAN		Test Case
		ANT1	ANT2	ANT1	ANT2	
2.4GHz + 5GHz RSDB only	2	O	-	O	-	-
	2	-	O	O	-	-
	2	O	-	-	O	-
	2	-	O	-	O	-
2.4GHz + 5GHz RSDB & MIMO	3	O	O	O	-	-
	3	**O**	**O**	**-**	**O**	**O(Worst)**
	3	O	-	O	O	-
	3	-	O	O	O	-
2.4GHz + 5GHz RSDB MIMO	**4**	**O**	**O**	**O**	**O**	**O(Worst)**

Simultaneous Tx Condition - non RSDB

Mode	# of TX	5GHz WLAN		2.4GHz Bluetooth		Test Case
		ANT1	ANT2	ANT1	ANT2	
2.4GHz Bluetooth + 5GHz MIMO	3	O	O	O	-	-

Note. Test was performed in worst case combination.

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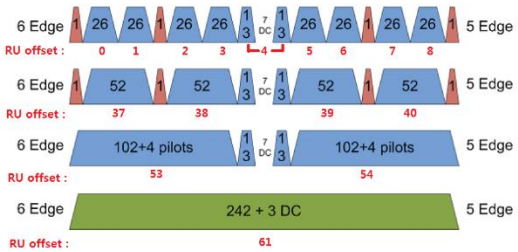
802.11ax RU allocations

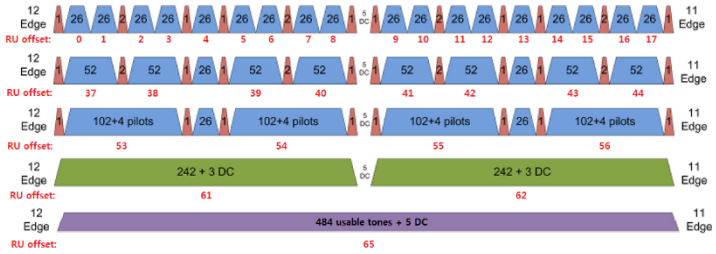
- HE 20 Mode -

20 MHz

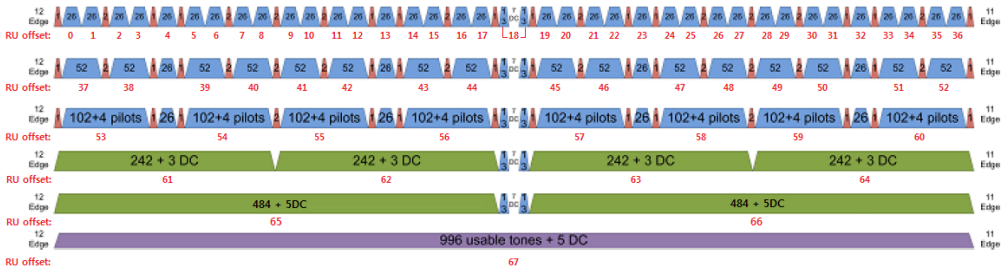


- HE 40 Mode -

40 MHz



- HE 80 Mode



Test RU offset for tones in each modes

Mode	Tones	RU offset
HE20	26T	0
		4
		8
	52T	37
		38
		40
	106T	53
		54
	242T / SU Note	61 / -
HE40	26T	0
		9
		17
	52T	37
		41
		44
	106T	53
		54
		56
	242T	61
		62
	484T / SU Note	63 / -
HE80	26T	0
		18
		36
	52T	37
		45
		52
	106T	53
		57
		60
	242T	61
		62
		64
	484T	65
		66
	996T / SU Note	67 / -

Note: Full RU(Resource Unit) mode and SU(Single Unit) mode have no difference in physical waveform. This report has been reported the SU mode with highest output power in MIMO.

Band portion of RU allocation about straddle channels

Mode	Channel	Tones	RU offset	Portion
HE20	Straddle 5720 MHz	26T	6	UNII 2C & UNII 3
		242T / SU	61 / -	
HE40	Straddle 5710 MHz	26T	15	UNII 2C & UNII 3
		484T / SU	65 / -	
HE80	Straddle 5690 MHz	26T	34	UNII 2C & UNII 3
		996T / SU	67 / -	

Note: In case of RU straddle channel, test was performed overlapping RU position.

MAXIMUM OUTPUT POWER

The transmitter has a maximum total conducted average output power as follows:

Band	Frequency Range [MHz]	Mode	Output Power [dBm]	Output Power [mW]
UNII-1	5180 - 5240	802.11a MIMO	17.75	59.57
		802.11n(HT20) MIMO	17.80	60.26
		802.11ax(HE20) SISO	15.30	33.88
	5190 - 5230	802.11n(HT40) MIMO	17.82	60.53
		802.11ax(HE40) SISO	13.38	21.78
	5210	802.11ac(VHT80) MIMO	16.88	48.75
		802.11ax(HE80) MIMO	12.77	18.92
UNII-2A	5260 - 5320	802.11a MIMO	18.05	63.83
		802.11n(HT20) MIMO	18.06	63.97
		802.11ax(HE20) SISO	15.51	35.56
	5190 - 5230	802.11n(HT40) MIMO	18.12	64.86
		802.11ax(HE40) SISO	13.60	22.91
	5270 - 5310	802.11ac(VHT80) MIMO	17.10	51.29
		802.11ax(HE80) MIMO	12.97	19.82
UNII-2C	5500 - 5720	802.11a MIMO	18.85	76.74
		802.11n(HT20) MIMO	18.89	77.45
		802.11ax(HE20) SISO	15.36	34.36
	5510 - 5710	802.11n(HT40) MIMO	17.99	62.95
		802.11ax(HE40) MIMO	13.91	24.60
	5530 - 5690	802.11ac(VHT80) MIMO	16.93	49.32
		802.11ax(HE80) MIMO	12.90	19.50
UNII-3	5745 - 5825	802.11a MIMO	20.44	110.66
		802.11n(HT20) MIMO	20.41	109.90
		802.11ax(HE20) SISO	15.55	35.89
	5755 - 5795	802.11n(HT40) MIMO	17.71	59.02
		802.11ax(HE40) SISO	13.80	23.99
	5775	802.11ac(VHT80) MIMO	17.42	55.21
		802.11ax(HE80) MIMO	12.89	19.45

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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:

Frequency Band [MHz]	ANT1 Gain [dBi]	ANT2 Gain [dBi]	Correlated Chains Directional Gain [dBi]
UNII 1 5150 - 5250	-5.43	-5.43	-2.42
UNII 2A 5250 - 5350	-5.01	-5.31	-2.15
UNII 2C 5470 - 5725	-5.85	-5.62	-2.72
UNII 3 5725 - 5850	-5.24	-6.85	-3.00

"WiFi 1 INTENNA" and "WiFi 2 INTENNA" as indicated in antenna specification are written as ANT 1 and ANT 2 in this report.

5.3. List of test reduction and modes covering other modes:

The output power on covered modes is equal to or less than one referenced.

Authorized Frequency Band			
Mode	**Antenna Stream**	**Mode**	**Covered by**
802.11a	MIMO	802.11a 2TX	
802.11n HT20		802.11n HT20 2TX	
802.11ac VHT20		802.11ac VHT20 2TX	802.11n HT20 2TX
802.11ax HE20(SU)		802.11ax HE20 RU(242T) 2TX	802.11ax HE20 SU 2TX
802.11n HT40		802.11n HT40 2TX	
802.11ac VHT40		802.11ac VHT40 2TX	802.11n HT40 2TX
802.11ax HE40(SU)		802.11ax HE40 RU(484T) 2TX	802.11ax HE40 SU 2TX
802.11ac VHT80		802.11ac VHT80 2TX	
802.11ax HE80(SU)		802.11ax HE80 RU(996T) 2TX	802.11ax HE80 SU 2TX

5.4. WORST-CASE CONFIGURATION AND 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.

Radiated emission above 1GHz was performed with the EUT set to transmit low/mid/high channels.

For MIMO, the fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z it was determined that Z orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Z orientation.

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

802.11a mode: 6 Mbps 2Tx	802.11n HT20 mode: MCS0 2Tx	802.11ax HE20 mode: MCS0 2Tx
	802.11n HT40 mode: MCS0 2Tx	802.11ax HE40 mode: MCS0 2Tx
	802.11ac VHT80 mode: MCS0 2Tx	802.11ax HE80 mode: MCS0 2Tx

Radiation test for 802.11a / n HT20 & HT40 / ac VHT80 / ax HE20 & HE40 & HE80 were evaluated at MIMO mode.

Note : All radiated and power line conducted tests were performed connected with charger for evaluation of worst case mode.

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Worst-case selection criteria for 802.11ax test items :

- For the 6dB Bandwidth, it was tested at the RU allocation with lowest tones number for each bandwidth.

Note : All radiated and power line conducted tests were performed connected with charger for evaluation of worst case mode.

Test case configuration for 802.11a, 802.11n HT20 & 40, 802.11ac VHT20 & 40 & 80, 802.11ax HE20 & 40 & 80(SU) modes :

Mode	Band	SISO Target[dBm]				MIMO Target[dBm]			
		802.11a	802.11n	802.11ac	802.11ax (SU)	802.11a	802.11n	802.11ac	802.11ax (SU)
5GHz (20 MHz)	UNII-1	15.5	15.5	15.5	15	18.5	18.5	18.5	15
	UNII-2A	15.5	15.5	15.5	15	18.5	18.5	18.5	15
	UNII-2C	16	16	16	15	19	19 140ch: 18	19 140ch: 18	15
	UNII-3	17	17	17	15	20	20	20	15
5GHz (40 MHz)	UNII-1		15 38ch: 14	15 38ch: 14	13		18 38ch: 17	18 38ch: 17	13
	UNII-2A		15	15	13		18	18	13
	UNII-2C		15	15	13		18 102ch:17	18 102ch:17	13
	UNII-3		15	15	13		18	18	13
5GHz (80 MHz)	UNII-1			14	12			17	12
	UNII-2A			14	12			17	12
	UNII-2C			14	12			17	12
	UNII-3			14	12			17	12

Band-Edge & Spurious Emission
Band-Edge & Spurious Emission Spot-Check
Band-Edge

Note1. Compared to the 802.11a mode, target power is the same or lower and the density is low, so only the spot-check test was performed in the 802.11n & 802.11ac & 802.11ax mode. Spot check test was performed in the worst tested UNII band(UNII-3) of 802.11a mode.
Note2. 802.11ax HE20 & HE40 SU mode's target power(both of SISO, MIMO) is lower than 802.11n mode. Therefore, 802.11ax HE20 & HE40 SU mode is covered by 802.11n HT20 & HT40 mode.
Note3. 802.11ax HE80 SU mode's target power(both of SISO, MIMO) is lower than 802.11ac VHT80 mode. Therefore, 802.11ax HE80 SU mode is covered by 802.11ac VHT80 mode.

Test case configuration for 802.11ax HE20 & 40 & 80(RU) modes :

Band	Mode	Freq.	Tone	RU offset	Test Case		
					ANT1	ANT2	MIMO
UNII-1	HE20	5180	26 T	0	O	-	-
				4	-	-	-
				8	-	-	-
		5200		0			
				4			
				8			
		5240		0	-	-	-
				4	-	-	-
				8	-	-	O
UNII-2A	HE20	5260	26 T	0			
				4			
				8			
		5300		0			
				4			
				8			
		5320		0	-	-	-
				4	-	-	-
				8	O	-	O
UNII-2C	HE20	5500	26 T	0	O	-	-
				4	-	-	-
				8	-	-	-
		5580		0	-	-	-
				4	-	-	O
				8	-	-	-
		5700		0	-	-	-
				4	-	-	-
				8	O	-	-
UNII-3	HE20	5745	26 T	0			
				4			
				8			
		5785		0	-	-	-
				4	-	-	O
				8	-	-	-
		5825		0			
				4			
				8			

	Spurious Emission
	Band-Edge

Note1. Radiated spurious test was performed on the lower tone(26T) with worst case mode.
Note2. Radiated band-edge spot-check test was performed on the lower tone(26T) and RU close to the band edge. (Compared ANT1 & ANT2 & MIMO mode, and ANT1 is the worst case)
Note3. Since the target of 26 tones are all the same, spurious test was performed once in each UNII band.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Charger	SAMSUNG	EP-TA800	R37R38J4A28SE3	N/A
Data Cable	SAMSUNG	EP-DG980	N/A	N/A

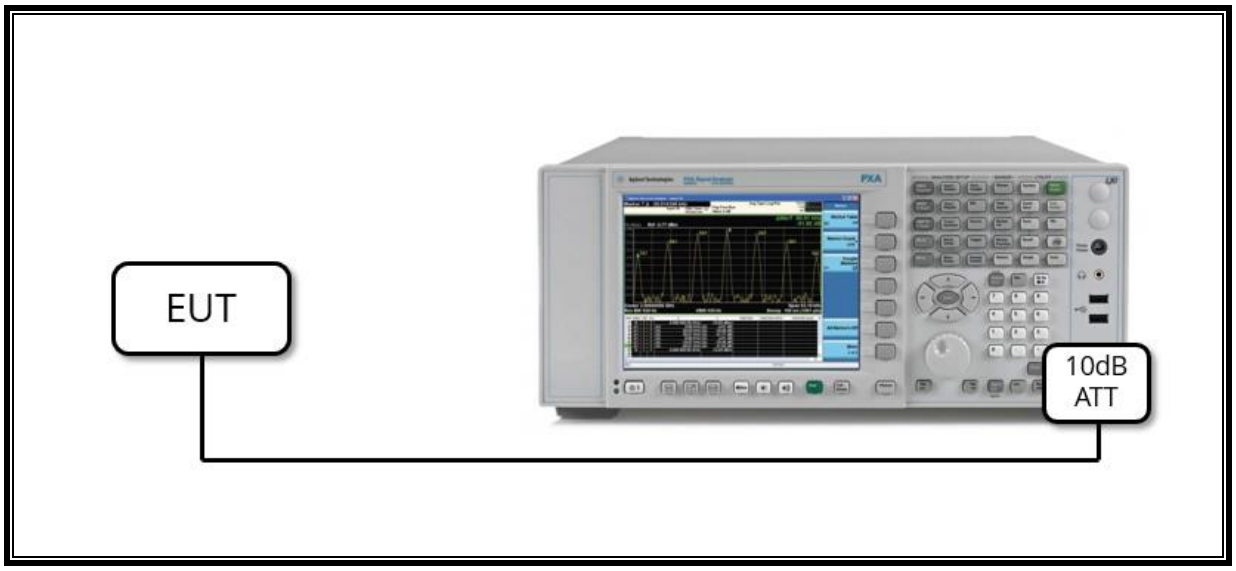
I/O CABLE

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	1.0 m	N/A

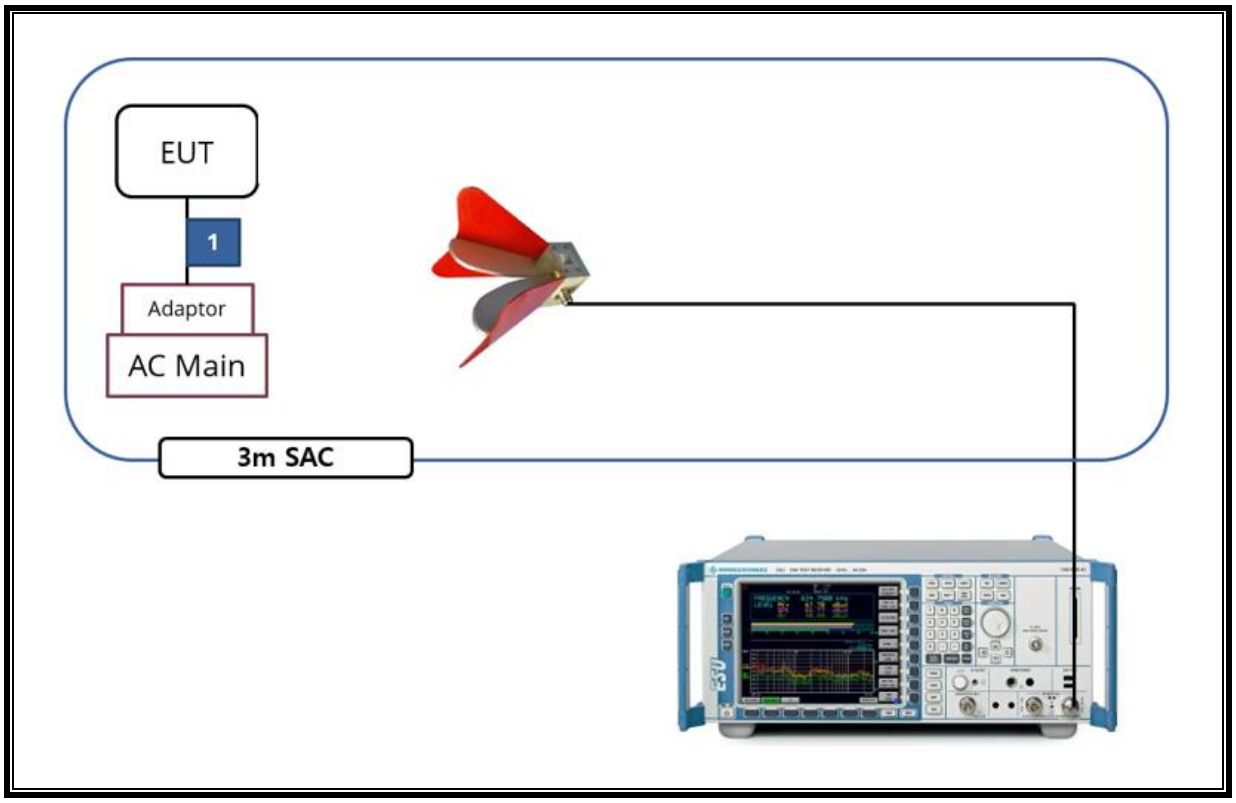
TEST SETUP

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)



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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	VULB9163	750	2022-08-19
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	2022-08-13
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	845	2022-08-13
Antenna, Horn, 18 GHz	ETS	3115	00167211	2022-07-27
Antenna, Horn, 18 GHz	ETS	3115	00161451	2022-08-15
Antenna, Horn, 18 GHz	ETS	3117	00168724	2022-07-27
Antenna, Horn, 18 GHz	ETS	3117	00168717	2022-08-15
Antenna, Horn, 18 GHz	ETS	3117	00218957	2023-01-15
Antenna, Horn, 40 GHz	ETS	3116C	00166155	2023-01-15
Antenna, Horn, 40 GHz	ETS	3116C	00168645	2023-10-13
Preamplifier	ETS	3116C-PA	00168841	2022-08-04
Preamplifier, 1000 MHz	Sonoma	310N	341282	2022-08-02
Preamplifier, 1000 MHz	Sonoma	310N	351741	2022-08-02
Preamplifier, 1000 MHz	Sonoma	310N	370599	2022-08-02
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1876511	2022-08-02
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	2022-08-02
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	2029168	2022-08-02
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	2022-08-04
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54490312	2022-08-04
Average Power Sensor	Agilent / HP	U2000	MY54270007	2022-08-04
Average Power Sensor	Agilent / HP	U2000	MY54260010	2022-08-04
Attenuator	PASTERNACK	PE7087-10	A001	2022-08-03
Attenuator	PASTERNACK	PE7087-10	A008	2022-08-03
Attenuator	PASTERNACK	PE7004-10	2	2022-08-02
Attenuator	PASTERNACK	PE7087-10	A009	2022-08-03
EMI Test Receive, 40 GHz	R&S	ESU40	100439	2022-08-02
EMI Test Receive, 40 GHz	R&S	ESU40	100457	2022-08-02
EMI Test Receive, 3 GHz	R&S	ESR3	101832	2022-08-02
Notch Filter	Micro-Tronics	BRM50702-02	G037	2022-08-03
Notch Filter	Micro-Tronics	BRM50716-2	006	2022-08-02
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	009	2022-08-02
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	015	2022-08-02
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	019	2022-08-02
High Pass Filter 3GHz	Micro-Tronics	HPM17543	010	2022-08-02
High Pass Filter 3GHz	Micro-Tronics	HPM17543	015	2022-08-02
High Pass Filter 3GHz	Micro-Tronics	HPM17543	020	2022-08-02
High Pass Filter 6GHz	Micro-Tronics	HPS17542	009	2022-08-02
High Pass Filter 6GHz	Micro-Tronics	HPS17542	016	2022-08-02
High Pass Filter 6GHz	Micro-Tronics	HPS17542	020	2022-08-02
LISN	R&S	ENV-216	101837	2022-08-05
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	2023-10-06
Termination	WEINSCHEL	M1406A	T09	2022-08-03
Attenuator	WEINSCHEL	WA76-30-21	A015	2022-08-03
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)(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
15.207 (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[Note]

Note. This EUT does not support channel puncturing.

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 : KDB 789033 D02 v02r01, Section II.C.1.

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

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

Conducted Output Power for Straddle Channel (ch144/142/138 for 20/40/80MHz BW):

KDB 789033 D02 v02r01, Section II.E.2.b(Method SA-1)

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 C63.10-2013, Section 6.2.

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E(04)
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

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 MIMO	2.792	2.891	0.966	96.576	0.15
802.11n(HT20) MIMO	5.115	5.215	0.981	98.082	-
802.11n(HT40) MIMO	3.611	3.710	0.973	97.332	0.12
802.11ac(VHT80) MIMO	2.104	2.204	0.955	95.463	0.20

Mode	ANT.	Tone	On Time [ms]	Period [ms]	Duty Cycle X [Linear]	Duty Cycle X [%]	Duty Cycle Correction Factor[dB]
802.11ax HE20	SISO	26T	4.882	4.926	0.991	99.107	-
		52T	5.211	5.312	0.981	98.099	-
		106T	2.487	2.587	0.961	96.135	0.17
		SU	1.994	2.095	0.952	95.179	0.21
802.11ax HE40		26T	4.875	4.931	0.989	98.864	-
		52T	5.190	5.315	0.976	97.648	0.10
		106T	2.488	2.589	0.961	96.099	0.17
		242T	1.121	1.221	0.918	91.810	0.37
		SU	1.024	1.123	0.912	91.184	0.40
802.11ax HE80		26T	4.875	4.933	0.988	98.824	-
		52T	5.188	5.323	0.975	97.464	0.11
		106T	2.487	2.590	0.960	96.023	0.18
		242T	1.121	1.222	0.917	91.735	0.37
		484T	0.592	0.693	0.855	85.479	0.68
		SU	0.521	0.622	0.839	83.862	0.76
802.11ax HE20	MIMO	26T	5.215	5.324	0.980	97.953	0.09
		52T	2.648	2.749	0.963	96.326	0.16
		106T	1.283	1.384	0.927	92.702	0.33
		SU	1.033	1.133	0.912	91.174	0.40
802.11ax HE40		26T	5.200	5.324	0.977	97.671	0.10
		52T	2.631	2.759	0.954	95.361	0.21
		106T	1.284	1.384	0.928	92.775	0.33
		242T	0.600	0.701	0.856	85.621	0.67
		SU	0.552	0.651	0.847	84.731	0.72
802.11ax HE80		26T	5.196	5.323	0.976	97.614	0.10
		52T	2.645	2.748	0.963	96.252	0.17
		106T	1.284	1.384	0.928	92.775	0.33
		242T	0.601	0.701	0.857	85.653	0.67
		484T	0.377	0.438	0.861	86.142	0.65
		SU	0.297	0.397	0.749	74.899	1.26

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

LIMITS

None; for reporting purposes only.

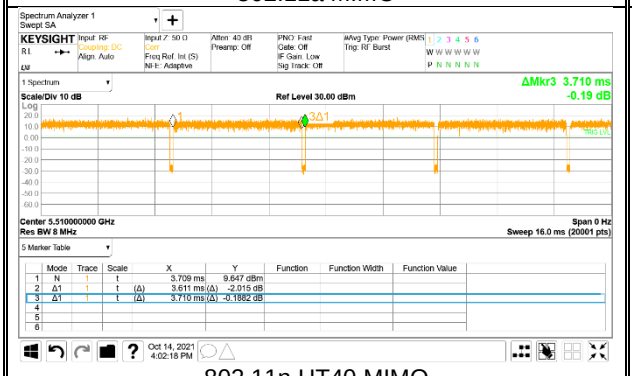
PROCEDURE

KDB 789033 D02 v02r01 Zero-Span Spectrum Analyzer Method.

9.2. DUTY CYCLE PLOTS

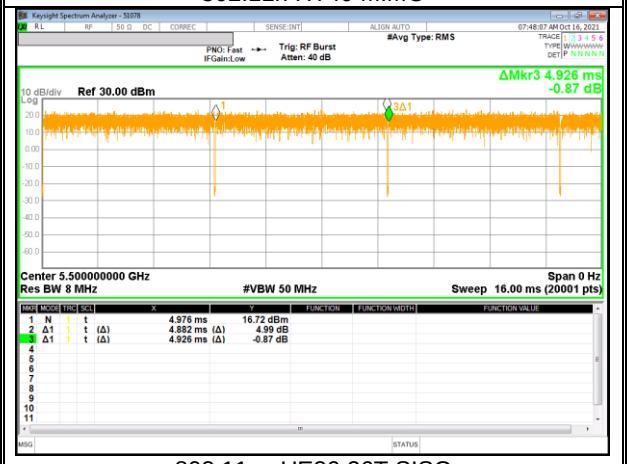
802.11a MIMO

802.11n HT20 MIMO

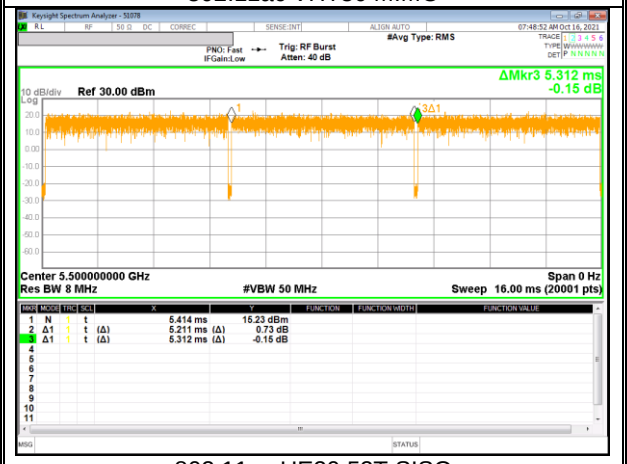


802.11n HT40 MIMO

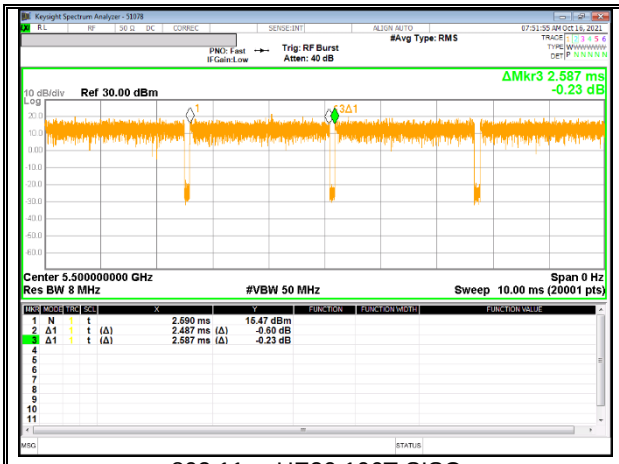
802.11ac VHT80 MIMO



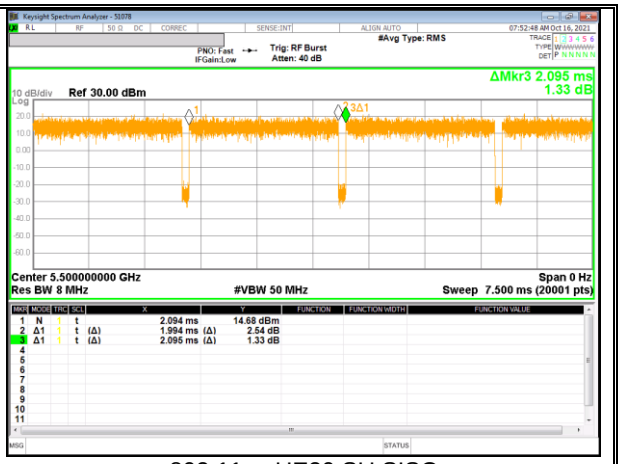
802.11ax HE20 26T SISO



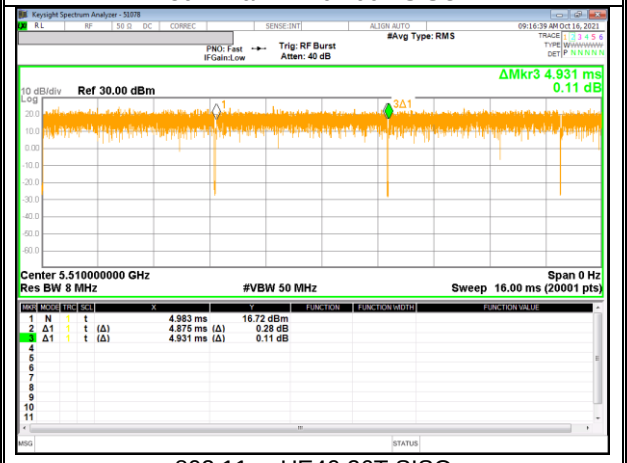
802.11ax HE20 52T SISO



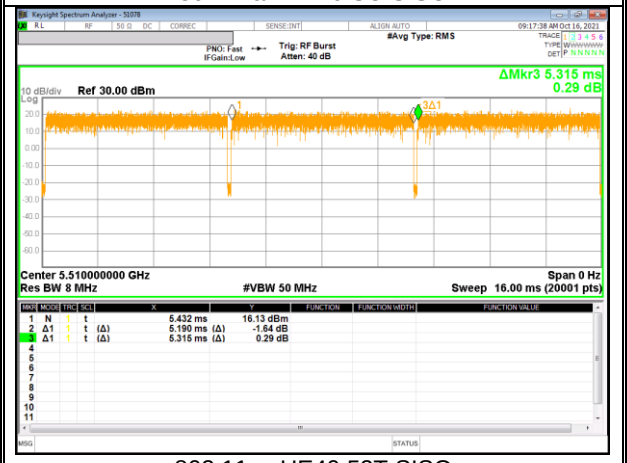
802.11ax HE20 106T SISO



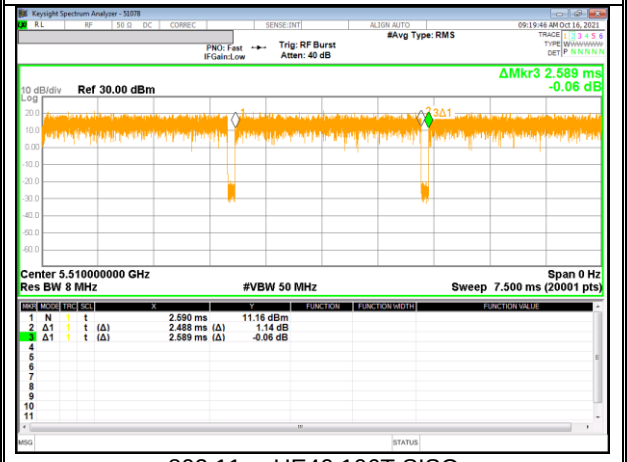
802.11ax HE20 SU SISO



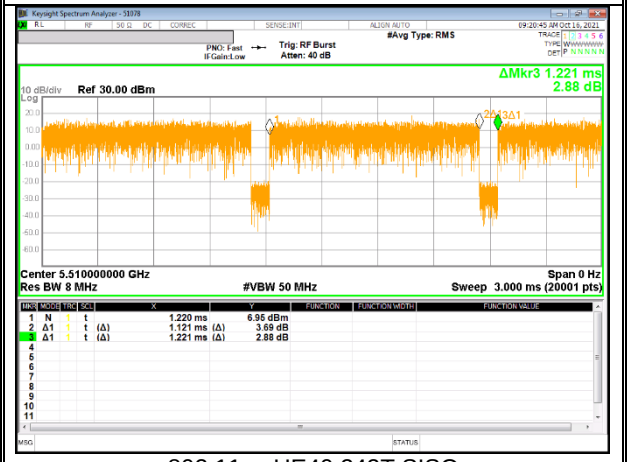
802.11ax HE40 26T SISO



802.11ax HE40 52T SISO



802.11ax HE40 106T SISO

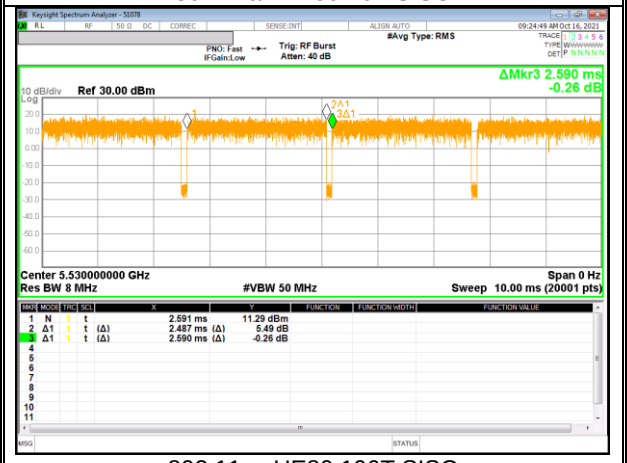


802.11ax HE40 242T SISO

802.11ax HE40 SU SISO

802.11ax HE80 26T SISO

802.11ax HE80 52T SISO

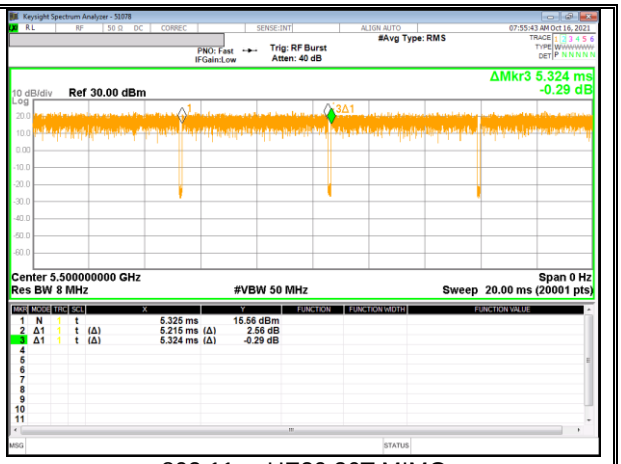


802.11ax HE80 106T SISO

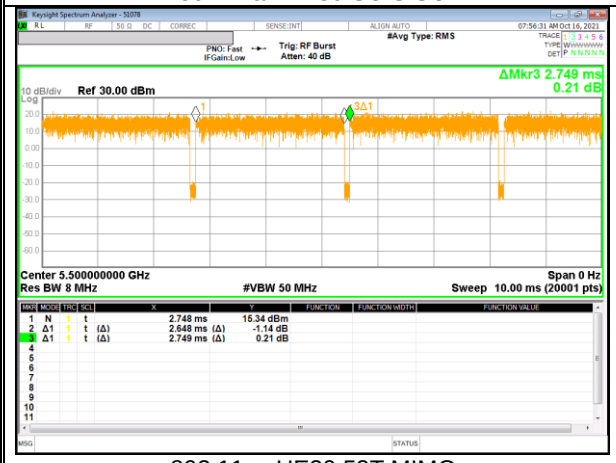
802.11ax HE80 242T SISO

802.11ax HE80 484T SISO

802.11ax HE80 SU SISO



802.11ax HE20 26T MIMO



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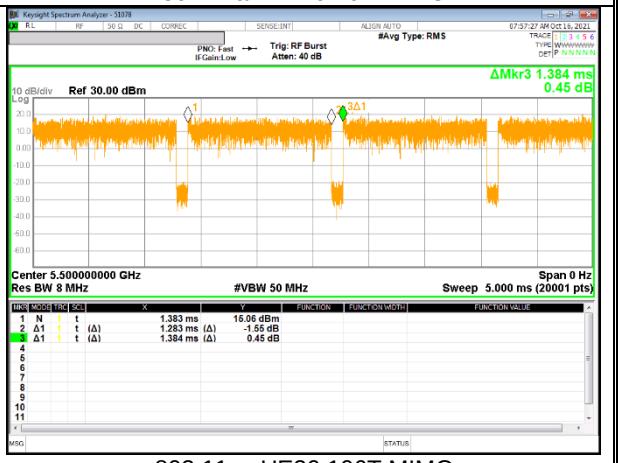
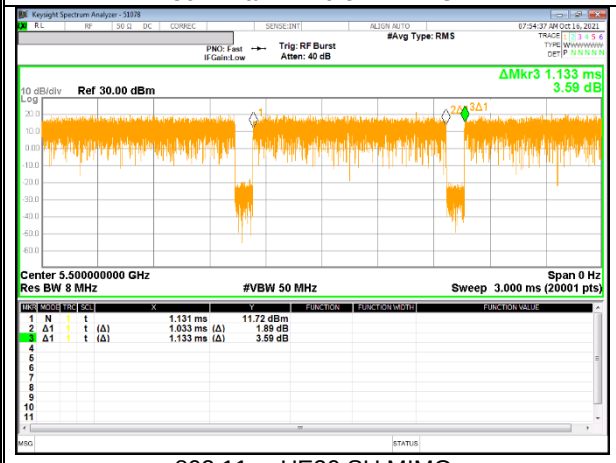
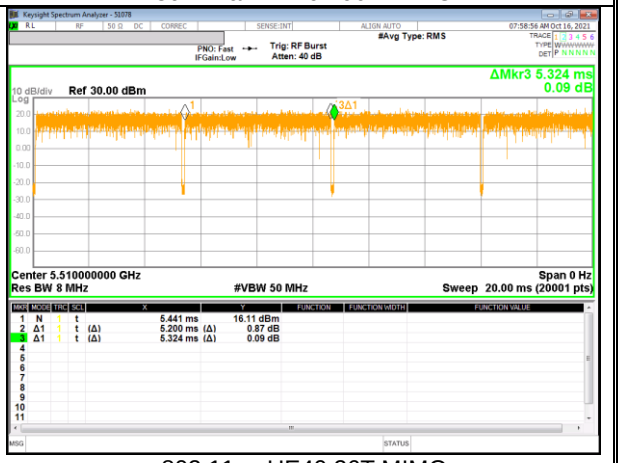


802.11ax HE20 106T MIMO



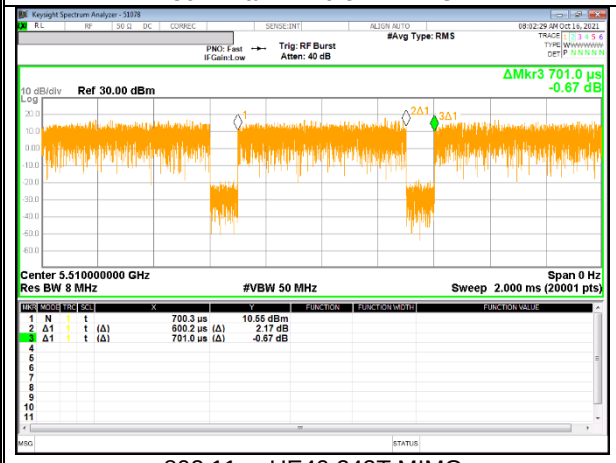
802.11ax HE20 SU MIMO



802.11ax HE40 26T MIMO

802.11ax HE40 52T MIMO

802.11ax HE40 106T MIMO

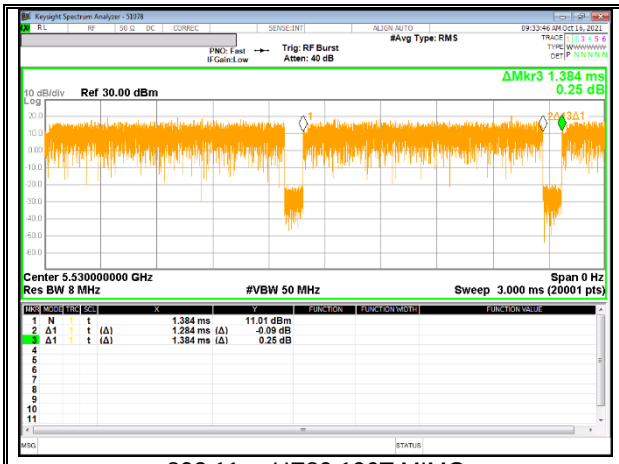


802.11ax HE40 242T MIMO

802.11ax HE40 SU MIMO

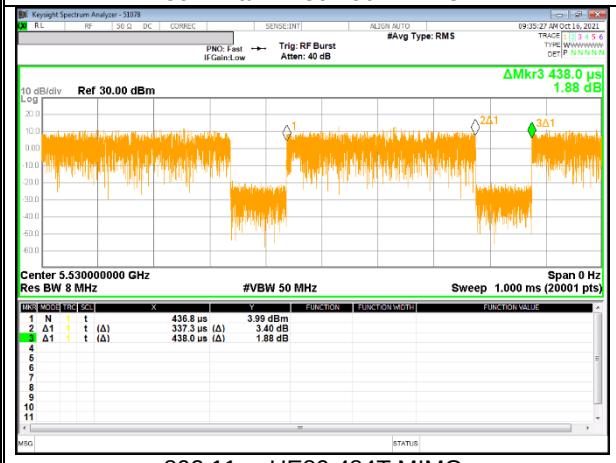
802.11ax HE80 26T MIMO

802.11ax HE80 52T MIMO

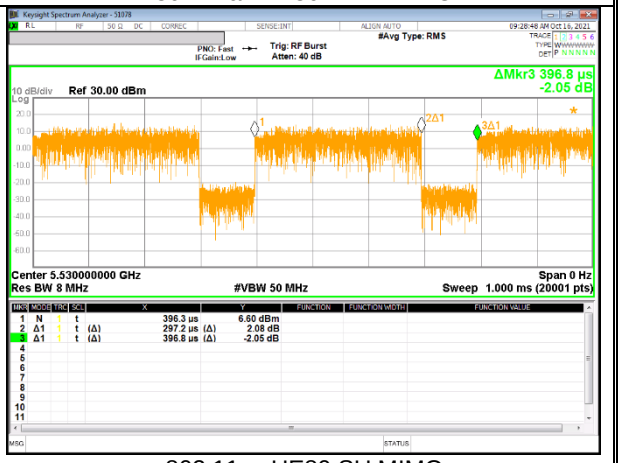


802.11ax HE80 106T MIMO

802.11ax HE80 242T MIMO



802.11ax HE80 484T MIMO



802.11ax HE80 SU MIMO

9.3. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

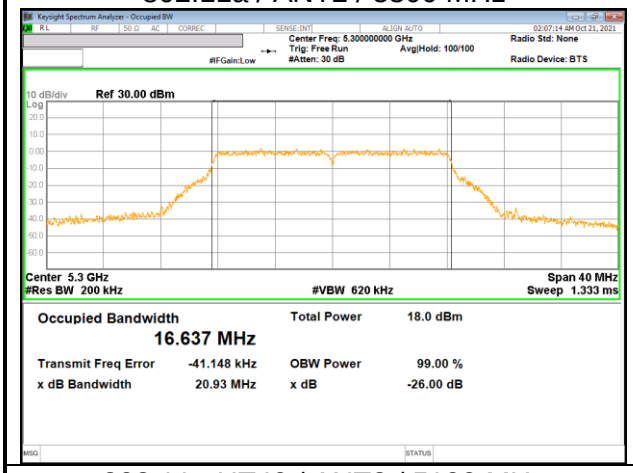
Reference to 789033 D02 General UNII Test Procedures New Rules v02r01: The transmitter output is connected to a spectrum analyzer with the RBW set to approximately 1% of EBW, the VBW > RBW, peak detector and max hold.

RESULTS

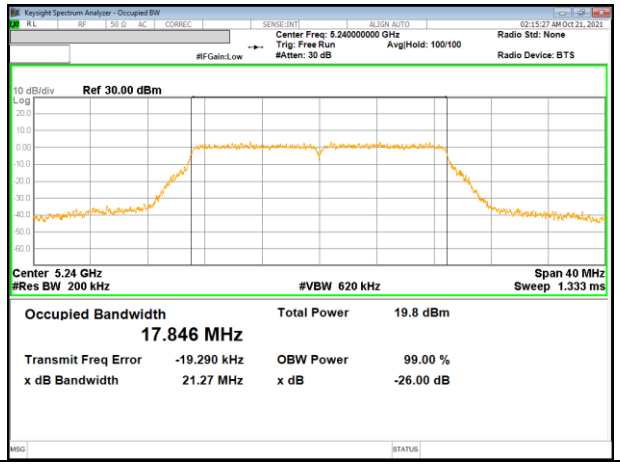
- Please refer to the next page

WORST CASE TEST PLOTS

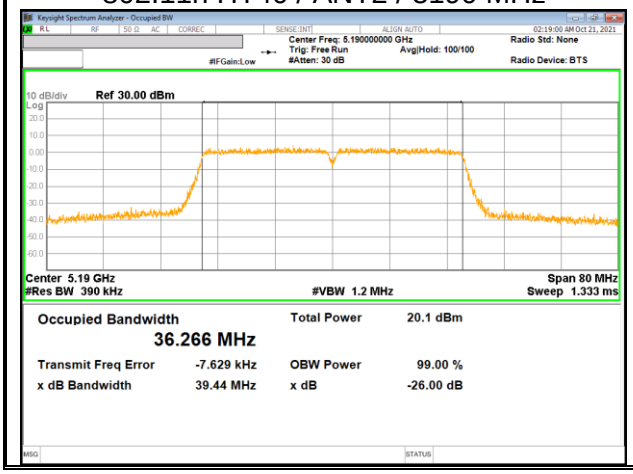
802.11a / ANT2 / 5300 MHz



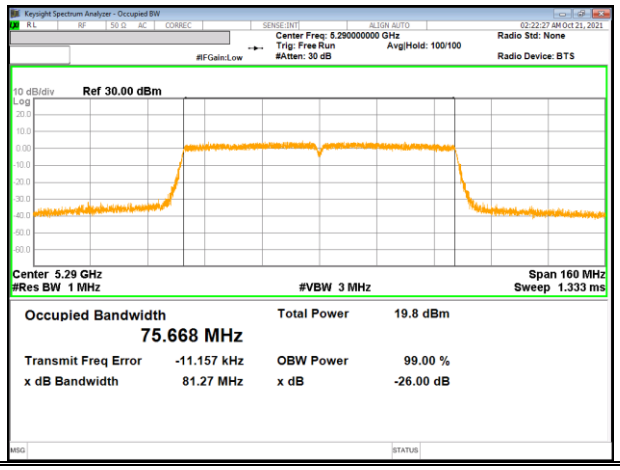
802.11n HT20 / ANT2 / 5240 MHz



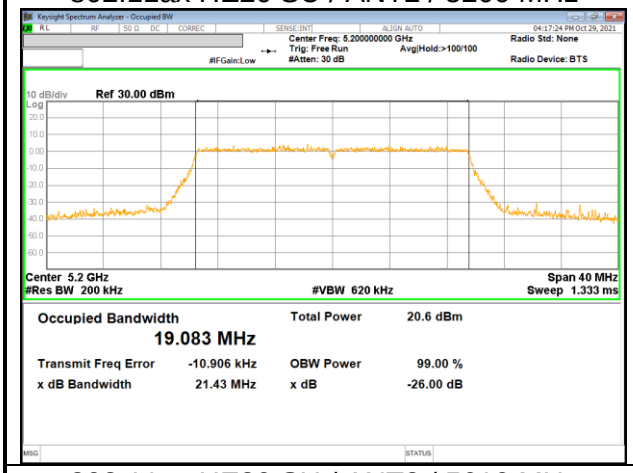
802.11n HT40 / ANT2 / 5190 MHz



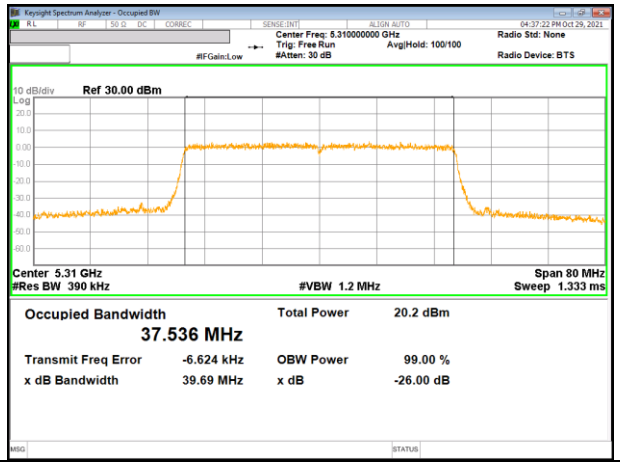
802.11ac VHT80 / ANT2 / 5290 MHz



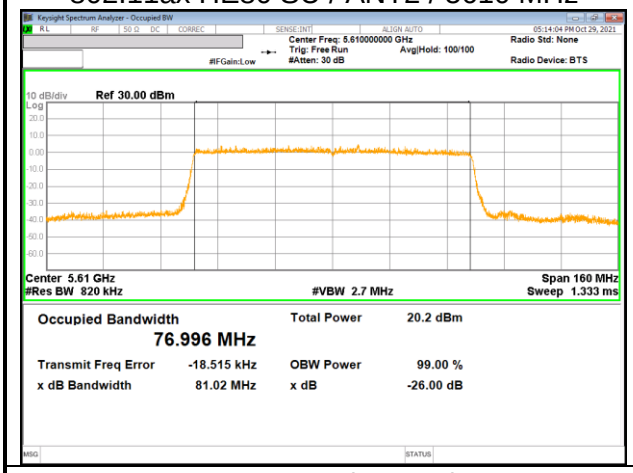
802.11ax HE20 SU / ANT2 / 5200 MHz



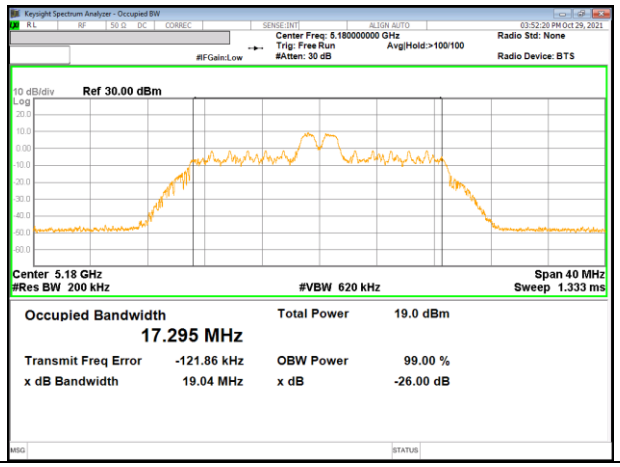
802.11ax HE40 SU / ANT2 / 5310 MHz



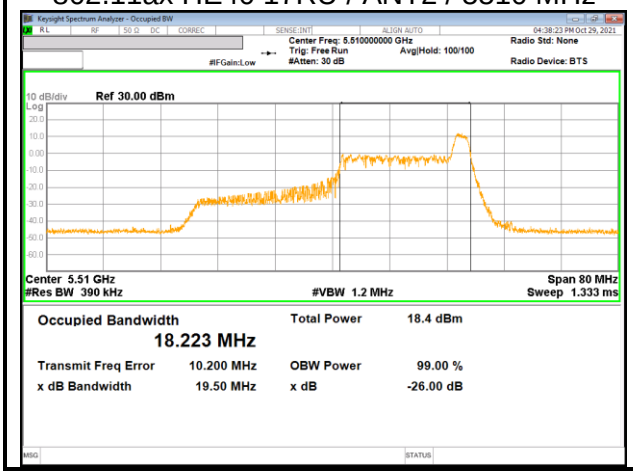
802.11ax HE80 SU / ANT2 / 5610 MHz



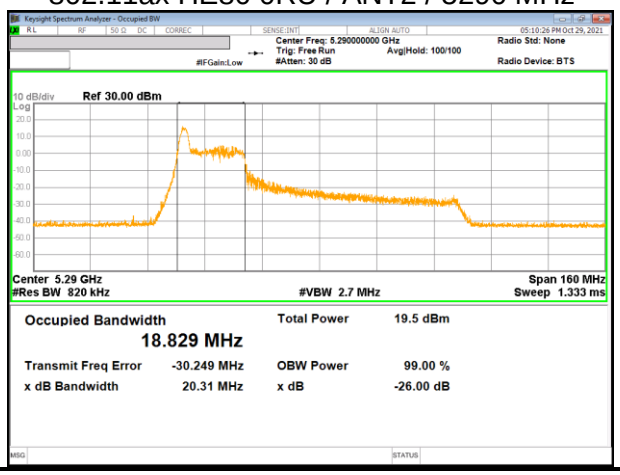
802.11ax HE20 4RU / ANT1 / 5180 MHz



802.11ax HE40 17RU / ANT2 / 5510 MHz



802.11ax HE80 0RU / ANT2 / 5290 MHz



9.3.1. 802.11a

Band	Channel	Center Freq. [MHz]	26 dB BW [MHz]		Worst	99% BW [MHz]	
			ANT1	ANT2		ANT1	ANT2
UNII-1Note	36	5180	21.32	21.34	21.00	16.73	16.68
	40	5200	21.32	21.55		16.73	16.69
	48	5240	21.36	21.00		16.72	16.64
UNII-2A Note	52	5260	21.16	21.07	20.93	16.73	16.64
	60	5300	21.26	20.93		16.73	16.64
	64	5320	21.29	21.04		16.71	16.66
UNII-2C	100	5500	21.32	21.27	20.97		
	116	5580	21.26	20.97			
	140	5700	21.24	21.22			

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

9.3.2. 802.11n HT20

Band	Channel	Center Freq. [MHz]	26 dB BW [MHz]		Worst	99% BW [MHz]	
			ANT1	ANT2		ANT1	ANT2
UNII-1 Note	36	5180	21.60	21.46	21.27	17.88	17.85
	40	5200	21.67	21.71		17.91	17.82
	48	5240	21.67	21.27		17.89	17.85
UNII-2A Note	52	5260	21.47	21.40	21.40	17.87	17.86
	60	5300	21.57	21.67		17.91	17.87
	64	5320	21.80	21.44		17.92	17.86
UNII-2C	100	5500	21.62	21.47	21.38		
	116	5580	21.81	21.38			
	140	5700	21.45	21.50			

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

9.3.3. 802.11n HT40

Band	Channel	Center Freq. [MHz]	26 dB BW [MHz]		Worst	99% BW [MHz]	
			ANT1	ANT2		ANT1	ANT2
UNII-1 Note	38	5190	40.00	39.44	39.44	36.30	36.27
	46	5230	40.26	39.72		36.27	36.23
UNII-2A Note	54	5270	40.07	39.85	39.68	36.29	36.25
	62	5310	39.94	39.68		36.28	36.23
UNII-2C	102	5510	39.72	39.71	39.63		
	118	5590	40.04	39.84			
	134	5670	39.80	39.63			

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

9.3.4. 802.11ac VHT80

Band	Channel	Center Freq. [MHz]	26 dB BW [MHz]		Worst	99% BW [MHz]	
			ANT1	ANT2		ANT1	ANT2
UNII-1 Note	42	5210	81.88	81.84	81.84	75.71	75.75
UNII-2A Note	58	5290	81.66	81.27	81.27	75.70	75.67
UNII-2C	106	5530	82.40	81.31	81.27		
	122	5610	81.27	81.53			

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

9.3.5. 802.11ax HE20

Band	Channel	Center Freq. [MHz]	26 dB BW [MHz]		Worst	99% BW [MHz](Note)	
			ANT1	ANT2		ANT1	ANT2
UNII-1 Note	36	5180	21.61	21.53	21.43	19.07	19.08
	40	5200	21.55	21.43		19.10	19.08
	48	5240	21.63	21.56		19.06	19.09
UNII-2A Note	52	5260	21.60	21.48	21.48	19.08	19.08
	60	5300	21.60	21.51		19.06	19.09
	64	5320	21.51	21.55		19.14	19.09
UNII-2C	100	5500	21.43	21.49	21.43		
	116	5580	21.57	21.50			
	140	5700	21.49	21.57			

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

9.3.6. 802.11ax HE40

Band	Channel	Center Freq. [MHz]	26 dB BW [MHz]		Worst	99% BW [MHz](Note)	
			ANT1	ANT2		ANT1	ANT2
UNII-1 Note	38	5190	39.69	39.89	39.69	37.56	37.56
	46	5230	39.90	39.75		37.57	37.52
UNII-2A Note	54	5270	39.95	39.93	39.69	37.50	37.58
	62	5310	39.89	39.69		37.53	37.54
UNII-2C	102	5510	39.98	39.95	39.86		
	118	5590	39.99	39.92			
	134	5670	39.86	39.94			

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

9.3.7. 802.11ax HE80

Band	Channel	Center Freq. [MHz]	26 dB BW [MHz]		Worst	99% BW [MHz](Note)	
			ANT1	ANT2		ANT1	ANT2
UNII-1 Note	42	5210	81.67	80.88	80.88	76.99	76.97
UNII-2A Note	58	5290	81.19	81.26	81.19	77.00	77.01
UNII-2C	106	5530	81.44	81.49	81.02		
	122	5610	81.86	81.02			

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

9.3.8. STRADDLE CHANNEL

Mode	Channel	Center Freq. [MHz]	26 dB BW [MHz]			
			ANT1		ANT2	
			UNII-2C	UNII-3	UNII-2C	UNII-3
802.11a	Straddle	5720	15.76	5.49	15.68	5.76
802.11n HT20	Straddle	5720	15.95	5.89	15.85	5.72
802.11n HT40	Straddle	5710	35.08	5.04	34.97	4.91
802.11ac VHT80	Straddle	5690	76.41	5.88	76.36	6.13
802.11ax HE20(SU)	Straddle	5720	15.90	5.73	15.81	5.68
802.11ax HE40(SU)	Straddle	5710	34.82	4.94	35.22	5.08
802.11ax HE80(SU)	Straddle	5690	75.88	5.56	75.93	5.59

9.3.9. 802.11ax HE20(RU)

Band Mode	Center Freq. [MHz]	Tones	RU offset	26 dB BW [MHz]		99% BW [MHz]	
				ANT1	ANT2	ANT1	ANT2
UNII-1 Note	5180	26T	0	19.90	19.73	18.39	18.35
			4	19.04	19.16	17.30	17.23
			8	20.66	20.64	18.55	18.56
	5200		0	19.74	19.92	18.38	18.38
			4	19.17	19.27	17.35	17.30
			8	20.66	20.49	18.66	18.65
	5240		0	19.95	19.90	18.38	18.35
			4	19.09	19.12	17.31	17.27
			8	20.63	20.64	18.64	18.56
UNII-2A Note	5260	26T	0	19.88	19.93	18.40	18.37
			4	19.21	19.20	17.23	17.24
			8	20.61	20.57	18.62	18.59
	5300		0	19.92	20.00	18.41	18.42
			4	19.09	19.10	17.28	17.20
			8	20.62	20.35	18.69	18.56
	5320		0	19.98	19.97	18.35	18.40
			4	19.24	19.09	17.27	17.26
			8	20.42	20.67	18.55	18.66
UNII-2C	5500	26T	0	19.88	19.99		
			4	19.13	19.20		
			8	20.76	20.65		
	5580		0	20.10	19.96		
			4	19.25	19.22		
			8	20.78	20.56		
	5700		0	19.91	19.85		
			4	19.17	19.20		
			8	20.55	20.68		

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

9.3.10. 802.11ax HE40(RU)

Band	Center Freq. [MHz]	Tones	RU offset	26 dB BW [MHz]		99% BW [MHz]	
				ANT1	ANT2	ANT1	ANT2
UNII-1 Note	5190	26T	0	19.99	19.83	18.19	18.13
			9	23.51	22.26	20.81	20.67
			17	20.24	20.29	18.29	18.30
	5230		0	19.86	19.79	18.08	18.08
			9	22.89	23.26	21.03	20.96
			17	20.19	20.24	18.22	18.28
UNII-2A Note	5270	26T	0	19.64	19.76	18.06	18.11
			9	22.79	22.74	20.82	21.21
			17	20.45	20.27	18.34	18.29
	5310		0	20.24	20.02	18.19	18.38
			9	22.79	23.37	21.02	21.10
			17	20.31	20.46	18.31	18.29
UNII-2C	5510	26T	0	20.02	19.89		
			9	22.85	24.09		
			17	20.20	19.50		
	5590		0	20.08	19.97		
			9	23.60	23.24		
			17	20.14	19.71		
	5670		0	20.21	20.00		
			9	24.05	23.86		
			17	20.34	20.14		

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

9.3.11. 802.11ax HE80(RU)

Band	Center Freq. [MHz]	Tones	RU offset	26 dB BW [MHz]		99% BW [MHz]	
				ANT1	ANT2	ANT1	ANT2
UNII-1 Note	5210	26T	0	20.76	20.41	18.85	18.97
			18	39.93	40.24	36.95	36.99
			36	22.22	22.45	19.55	19.46
UNII-2A Note	5290	26T	0	20.35	20.31	18.77	18.83
			18	40.41	40.06	37.23	37.09
			36	22.55	22.31	19.90	19.44
UNII-2C	5530	26T	0	20.66	20.97		
			18	39.78	40.78		
			36	22.20	22.26		
	5610	26T	0	20.44	20.55		
			18	40.64	40.05		
			36	22.76	22.50		

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

9.3.12. 802.11ax STRADDLE CHANNEL(RU)

Band	Mode	Center Freq. [MHz]	Tones	RU offset	26 dB BW [MHz]			
					ANT1		ANT2	
					UNII-2C	UNII-3	UNII-2C	UNII-3
Straddle Channel	HE20	5720	26T	6	14.83	4.10	14.92	4.18
	HE40	5710		15	15.27	4.00	15.39	4.31
	HE80	5690		34	14.57	4.23	17.38	4.10

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

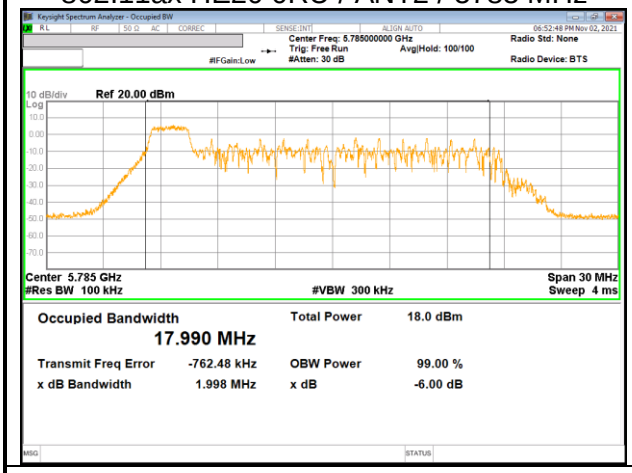
Reference to 789033 D02 General UNII Test Procedures New Rules v02r01: The transmitter output is connected to a spectrum analyzer with the RBW set to100KHz, the VBW >= 3 x RBW, peak detector and max hold.

RESULTS

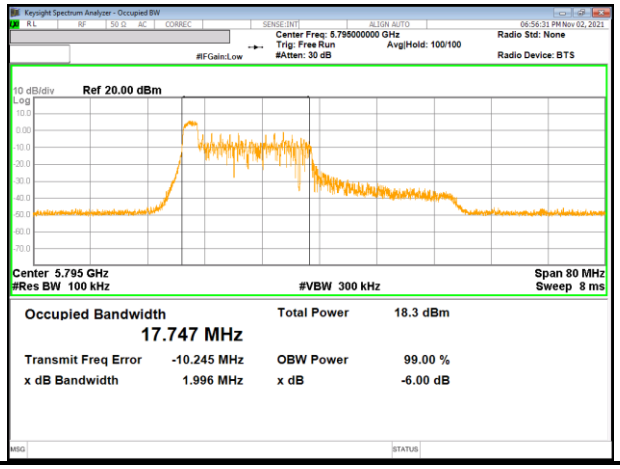
- Please refer to the next page

WORST CASE TEST PLOTS

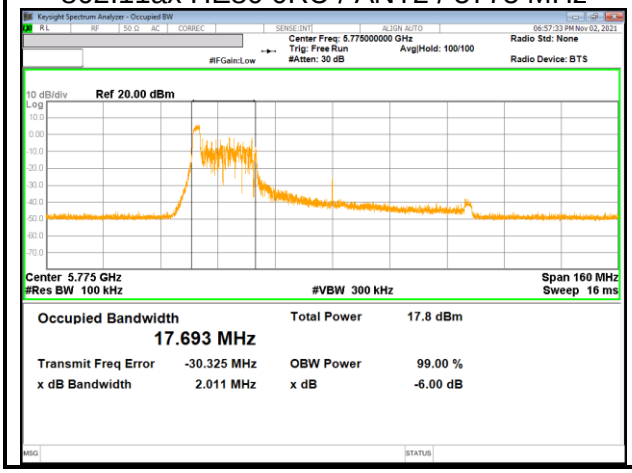
802.11ax HE20 0RU / ANT2 / 5785 MHz



802.11ax HE40 0RU / ANT2 / 5795 MHz



802.11ax HE80 0RU / ANT2 / 5775 MHz



10.1.1. UNII-3

Mode	Channel	Center Freq. [MHz]	6 dB BW [MHz]		Worst	Minimum Limit [MHz]
			ANT1	ANT2		
802.11a	149	5745	16.37	16.37	16.33	0.5
	157	5785	16.36	16.33		
	165	5825	16.36	16.37		
802.11n HT20	149	5745	17.61	17.74	17.58	
	157	5785	17.60	17.59		
	165	5825	17.59	17.58		
802.11n HT40	151	5755	36.32	36.31	36.05	
	159	5795	36.06	36.05		
802.11ac VHT80	155	5775	75.66	75.42	75.42	
802.11ax HE20(SU)	149	5745	18.99	19.00	18.99	
	157	5785	18.99	19.01		
	165	5825	19.02	19.01		
802.11ax HE40(SU)	151	5755	37.57	37.60	37.52	
	159	5795	37.55	37.52		
802.11ax HE80(SU)	155	5775	76.72	77.14	76.72	

10.1.2. UNII-3 (RU)

Mode	Channel	Center Freq. [MHz]	Tones	RU offset	6 dB BW [MHz]		Minimum Limit [MHz]
					ANT1	ANT2	
HE20	149	5745	26T	0	2.01	2.05	0.5
	157	5785			2.06	2.00	
	165	5825			2.10	2.10	
	Minimum 6dB Bandwidth				2.00		
HE40	151	5755	26T	0	2.03	2.02	
	159	5795			2.02	2.00	
	Minimum 6dB Bandwidth				2.00		
HE80	155	5775	26T	0	2.06	2.01	
	Minimum 6dB Bandwidth				2.01		

10.2. OUTPUT POWER AND PPSD

LIMITS

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

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 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.

TEST PROCEDURE

KDB 789033 Method PM is used for output power.
KDB 789033 Method SA-2 is used for only power of straddle Ch. and PPSD. RBW set to 1MHz(500kHz for the band 5.725-5.85 GHz, the VBW >= 3 x RBW, RMS detector and trace averaging). Band power function used for power and peak marker value of the spectrum is used for PSD. For the band 5.850-5.895 GHz, The correlated gain is added to the result to convert e.i.r.p.

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]	ANT1 Gain [dBi]	ANT2 Gain [dBi]	Correlated Chains Directional Gain [dBi]
UNII 1 5150 - 5250	-5.43	-5.43	-2.42
UNII 2A 5250 - 5350	-5.01	-5.31	-2.15
UNII 2C 5470 - 5725	-5.85	-5.62	-2.72
UNII 3 5725 - 5850	-5.24	-6.85	-3.00

10.2.1. 802.11a MODE

Output Power Results

Band	Channel	Center Freq. [MHz]	Average Power [dBm]		Corr'd Power [dBm]	Limit [dBm]
			ANT1	ANT2		
UNII-1	36	5180	15.14	14.30	17.75	23.98
	40	5200	15.08	14.31	17.72	
	48	5240	15.00	14.34	17.69	
UNII-2A	52	5260	15.33	14.73	18.05	23.98
	60	5300	15.26	14.70	18.00	
	64	5320	15.10	14.71	17.92	
UNII-2C	100	5500	15.50	16.16	18.85	23.98
	116	5580	15.58	16.08	18.85	
	140	5700	15.53	15.91	18.73	
UNII-3	149	5745	16.81	17.98	20.44	30.00
	157	5785	17.00	17.78	20.42	
	165	5825	17.10	17.57	20.35	

* Calculation of Output Power : Average Power = Meas Power + Duty CF[dB]
Corr'd Power = Ant1 Average Power + Ant2 Average Power

PSD Results

Band	Channel	Center Freq. [MHz]	Meas PSD [dBm/MHz]		DCCF.	Corr'd PSD [dBm]	Limit [dBm/ MHz]
			ANT1	ANT2			
UNII-1	36	5180	3.56	3.61	0.15	6.74	11.00
	40	5200	3.43	3.52	0.15	6.63	
	48	5240	**3.47**	**3.55**	0.15	**6.67**	
UNII-2A	52	5260	3.63	3.98	0.15	6.97	11.00
	60	5300	3.77	3.66	0.15	6.88	
	64	5320	3.73	3.75	0.15	6.90	
UNII-2C	100	5500	4.08	4.11	0.15	7.25	11.00
	116	5580	4.44	4.17	0.15	7.47	
	140	5700	4.19	3.99	0.15	7.25	
UNII-3	149	5745	2.35	2.23	0.15	5.45	30.00/500kHz
	157	5785	2.65	2.66	0.15	5.81	
	165	5825	2.45	2.60	0.15	5.69	

* Calculation of PSD: Corr'd PSD = Ant1 PSD + Ant2 PSD + Duty CF [dB]

10.2.2. 802.11n HT20 MODE

Output Power Results

Band	Channel	Center Freq. [MHz]	Average Power [dBm]		Corr'd Power [dBm]	Limit [dBm]
			ANT1	ANT2		
UNII-1	36	5180	15.22	14.32	17.80	23.98
	40	5200	15.10	14.33	17.74	
	48	5240	15.02	14.39	17.73	
UNII-2A	52	5260	15.35	14.73	18.06	23.98
	60	5300	15.31	14.71	18.03	
	64	5320	15.18	14.77	17.99	
UNII-2C	100	5500	15.53	16.21	18.89	23.98
	116	5580	15.61	16.09	18.87	
	140	5700	15.53	15.96	18.76	
UNII-3	149	5745	16.77	17.95	20.41	30.00
	157	5785	16.90	17.73	20.35	
	165	5825	17.00	17.50	20.27	

* Calculation of Output Power : Average Power = Meas Power + Duty CF[dB]
Corr'd Power = Ant1 Average Power + Ant2 Average Power

PSD Results

Band	Channel	Center Freq. [MHz]	Meas PSD [dBm/MHz]		DCCF.	Corr'd PSD [dBm]	Limit [dBm/ MHz]
			ANT1	ANT2			
UNII-1	36	5180	3.47	3.68	0.00	6.59	11.00
	40	5200	3.19	3.35	0.00	6.28	
	48	5240	3.42	3.44	0.00	6.44	
UNII-2A	52	5260	4.02	3.66	0.00	6.85	11.00
	60	5300	3.69	3.50	0.00	6.61	
	64	5320	3.76	3.48	0.00	6.64	
UNII-2C	100	5500	3.98	4.07	0.00	7.04	11.00
	116	5580	3.98	3.98	0.00	6.99	
	140	5700	2.58	2.64	0.00	5.62	
UNII-3	149	5745	2.11	2.02	0.00	5.07	$30.00_{/500kHz}$
	157	5785	2.23	2.27	0.00	5.26	
	165	5825	2.10	2.37	0.00	5.25	

* Calculation of PSD: Corr'd PSD = Ant1 PSD + Ant2 PSD + Duty CF [dB]

10.2.3. 802.11n HT40 MODE

Output Power Results

Band	Channel	Center Freq. [MHz]	Average Power [dBm]		Corr'd Power [dBm]	Limit [dBm]
			ANT1	ANT2		
UNII-1	38	5190	14.29	13.25	16.81	23.98
	46	5230	15.15	14.44	17.82	
UNII-2A	54	5270	15.39	14.80	18.12	23.98
	62	5310	15.21	14.88	18.06	
UNII-2C	102	5510	13.82	14.17	17.01	23.98
	118	5590	14.65	15.29	17.99	
	134	5670	14.60	15.10	17.87	
UNII-3	151	5755	14.08	15.25	17.71	30.00
	159	5795	14.16	15.12	17.68	

* Calculation of Output Power : Average Power = Meas Power + Duty CF[dB]
Corr'd Power = Ant1 Average Power + Ant2 Average Power

PSD Results

Band	Channel	Center Freq. [MHz]	Meas PSD [dBm/MHz]		DCCF.	Corr'd PSD [dBm]	Limit [dBm/ MHz]
			ANT1	ANT2			
UNII-1	38	5190	0.56	0.61	0.12	3.71	11.00
	46	5230	**0.67**	**0.32**	0.12	**3.63**	
UNII-2A	54	5270	1.00	1.02	0.12	4.14	11.00
	62	5310	0.78	0.55	0.12	3.80	
UNII-2C	102	5510	0.19	0.08	0.12	3.26	11.00
	118	5590	0.09	0.17	0.12	3.26	
	134	5670	-0.08	-0.10	0.12	3.04	
UNII-3	151	5755	-3.24	-3.52	0.12	-0.25	$30.00_{/500kHz}$
	159	5795	-2.25	-2.08	0.12	0.97	

* Calculation of PSD: Corr'd PSD = Ant1 PSD + Ant2 PSD + Duty CF [dB]

10.2.4. 802.11ac VHT80 MODE

Output Power Results

Band	Channel	Center Freq. [MHz]	Average Power [dBm]		Corr'd Power [dBm]	Limit [dBm]
			ANT1	ANT2		
UNII-1	42	5210	14.27	13.42	16.88	23.98
UNII-2A	58	5290	14.15	14.02	17.10	23.98
UNII-2C	106	5530	13.56	14.25	16.93	23.98
	122	5610	13.51	14.11	16.83	
UNII-3	155	5775	14.01	14.77	17.42	30.00

* Calculation of Output Power : Average Power = Meas Power + Duty CF[dB]
Corr'd Power = Ant1 Average Power + Ant2 Average Power

PSD Results

Band	Channel	Center Freq. [MHz]	Meas PSD [dBm/MHz]		DCCF.	Corr'd PSD [dBm]	Limit [dBm/ MHz]
			ANT1	ANT2			
UNII-1	42	5210	-3.63	-3.86	0.20	-0.53	11.00
UNII-2A	58	5290	-3.56	-3.53	0.20	-0.34	11.00
UNII-2C	106	5530	-3.91	-4.01	0.20	-0.75	11.00
	122	5610	-4.33	-4.35	0.20	-1.13	
UNII-3	155	5775	-6.71	-6.96	0.20	-3.62	30.00/500kHz

* Calculation of PSD: Corr'd PSD = Ant1 PSD + Ant2 PSD + Duty CF [dB]

10.2.5. STRADDLE CHANNEL

Output Power Results

Mode	Band	Center Freq. [MHz]	Meas Power [dBm]		DCCF.	Corr'd Power [dBm]	Limit [dBm]
			ANT1	ANT2			
802.11a	UNII-2C	5720	14.52	14.95	0.15	17.90	22.95
	UNII-3		8.37	8.78	0.15	11.74	30.00
802.11n HT20	UNII-2C	5720	13.50	13.90	0.00	16.72	23.00
	UNII-3		7.84	8.17	0.00	11.02	30.00
802.11n HT40	UNII-2C	5710	14.48	14.61	0.12	17.68	23.98
	UNII-3		3.87	4.24	0.12	7.19	30.00
802.11ac VHT80	UNII-2C	5690	13.26	13.81	0.20	16.75	23.98
	UNII-3		-1.65	-1.04	0.20	1.88	30.00

* Calculation of Output Power : Corr'd Power = Ant1 meas. Power + Ant2 meas. Power + Duty CF [dB]

PSD Results

Mode	Band	Center Freq. [MHz]	Meas PSD [dBm/MHz]		DCCF.	Corr'd PSD [dBm]	Limit [dBm/ MHz]
			ANT1	ANT2			
802.11a	UNII-2C	5720	3.92	4.51	0.15	7.38	11.00
	UNII-3		0.91	1.26	0.15	4.25	30.00/500kHz
802.11n HT20	UNII-2C	5720	4.28	4.22	0.00	7.26	11.00
	UNII-3		0.53	1.21	0.00	3.90	30.00/500kHz
802.11n HT40	UNII-2C	5710	-0.05	0.79	0.12	3.52	11.00
	UNII-3		-3.81	-3.10	0.12	-0.31	30.00/500kHz
802.11ac VHT80	UNII-2C	5690	-4.31	-3.73	0.20	-0.80	11.00
	UNII-3		-9.11	-8.57	0.20	-5.62	30.00/500kHz

* Calculation of PSD: Corr'd PSD = Ant1 PSD + Ant2 PSD + Duty CF [dB]

10.2.6. 802.11ax HE20 MODE

10.2.6.1. 1Tx MODE

Output Power Results

Band	Channel	Center Freq. [MHz]	Tones	RU offset	Average Power [dBm]		Limit [dBm]
					ANT1	ANT2	
UNII-1	36	5180	26T	0	9.82	9.65	23.98
				4	10.11	9.27	
				8	9.98	9.50	
			52T	37	12.35	12.05	
				38	12.47	12.22	
				40	12.30	12.07	
			106T	53	14.46	14.31	
				54	14.48	14.24	
			SU	-	15.30	15.23	
	40	5200	26T	0	9.83	9.52	
				4	10.05	8.80	
				8	9.81	9.64	
			52T	37	12.24	12.09	
				38	12.40	12.20	
				40	12.22	12.01	
			106T	53	14.31	14.28	
				54	14.30	14.23	
			SU	-	15.16	15.22	
	48	5240	26T	0	9.80	9.68	
				4	9.96	8.80	
				8	9.81	9.51	
			52T	37	12.17	12.01	
				38	12.32	12.20	
				40	12.15	11.98	
			106T	53	14.30	14.30	
				54	14.26	14.22	
			SU	-	15.17	15.17	

* Calculation of Output Power : Average Power = Meas Power + Duty CF[dB]

Band	Channel	Center Freq. [MHz]	Tones	RU offset	Average Power [dBm]		Limit [dBm]
					ANT1	ANT2	
UNII-2A	52	5260	26T	0	10.43	10.35	23.81
				4	10.57	9.90	
				8	10.26	10.32	
			52T	37	12.59	12.69	
				38	12.70	12.79	
				40	12.50	12.52	
			106T	53	14.65	14.63	
				54	14.48	14.43	
			SU	-	15.47	15.51	
	60	5300	26T	0	10.41	10.32	
				4	10.67	9.89	
				8	10.29	10.25	
			52T	37	12.57	12.64	
				38	12.71	12.80	
				40	12.45	12.55	
			106T	53	14.56	14.50	
				54	14.47	14.42	
			SU	-	15.48	15.48	
	64	5320	26T	0	10.38	10.20	
				4	10.51	9.77	
				8	10.20	10.06	
			52T	37	12.57	12.62	
				38	12.59	12.65	
				40	12.37	12.40	
			106T	53	14.47	14.39	
				54	14.40	14.34	
			SU	-	15.36	15.36	

* Calculation of Output Power : Average Power = Meas Power + Duty CF[dB]

Band	Channel	Center Freq. [MHz]	Tones	RU offset	Average Power [dBm]		Limit [dBm]
					ANT1	ANT2	
UNII-2C	100	5500	26T	0	10.08	9.95	23.82
				4	9.94	9.42	
				8	9.62	9.73	
			52T	37	12.14	12.15	
				38	12.16	12.28	
				40	11.84	11.99	
			106T	53	13.96	14.12	
				54	13.80	13.99	
			SU	-	14.83	15.09	
	116	5580	26T	0	10.03	9.72	
				4	10.11	9.18	
				8	9.78	9.47	
			52T	37	12.23	11.90	
				38	12.28	11.96	
				40	11.99	11.70	
			106T	53	14.08	13.82	
				54	13.92	13.66	
			SU	-	14.95	14.78	
	140	5700	26T	0	10.09	9.31	
				4	10.25	8.68	
				8	9.87	9.09	
			52T	37	12.26	11.50	
				38	12.34	11.51	
				40	12.01	11.25	
			106T	53	14.11	13.38	
				54	13.94	13.28	
			SU	-	14.95	15.36	

* Calculation of Output Power : Average Power = Meas Power + Duty CF[dB]

Band	Channel	Center Freq. [MHz]	Tones	RU offset	Average Power [dBm]		Limit [dBm]
					ANT1	ANT2	
UNII-3	149	5745	26T	0	10.60	10.93	30.00
				4	10.61	10.02	
				8	10.25	10.70	
			52T	37	12.62	12.78	
				38	12.68	12.84	
				40	12.37	12.55	
			106T	53	14.50	14.62	
				54	14.29	14.44	
			SU	-	15.33	15.43	
	157	5785	26T	0	10.66	10.69	
				4	10.81	10.18	
				8	10.39	10.48	
			52T	37	12.68	12.48	
				38	12.81	12.64	
				40	12.51	12.32	
			106T	53	14.60	14.44	
				54	14.45	14.30	
			SU	-	15.46	15.29	
	165	5825	26T	0	10.75	10.31	
				4	10.96	9.70	
				8	10.52	10.25	
			52T	37	12.75	12.13	
				38	12.92	12.40	
				40	12.60	12.16	
			106T	53	14.58	14.07	
				54	14.48	14.03	
			SU	-	15.55	15.01	

* Calculation of Output Power : Average Power = Meas Power + Duty CF[dB]

PSD Results

Band	Channel	Center Freq. [MHz]	Tones	RU offset	Meas PSD [dBm/MHz]		Corr'd PSD [dBm/MHz]		PSD Limit [dBm/MHz]
					ANT1	ANT2	ANT1	ANT2	
UNII-1	36	5180	26T	0	5.96	5.94	5.96	5.94	11.00
				4	5.48	3.60	5.48	3.60	
				8	6.15	6.04	6.15	6.04	
			SU	-	2.42	2.22	2.63	2.43	
	40	5200	26T	0	6.27	5.66	6.27	5.66	
				4	5.03	4.08	5.03	4.08	
				8	6.31	5.68	6.31	5.68	
			SU	-	2.33	2.24	2.54	2.45	
	48	5240	26T	0	6.16	5.95	6.16	5.95	
				4	5.42	4.23	5.42	4.23	
				8	6.32	6.11	6.32	6.11	
			SU	-	2.27	2.18	2.48	2.39	
UNII-2A	52	5260	26T	0	7.02	6.61	7.02	6.61	11.00
				4	6.97	5.31	6.97	5.31	
				8	6.92	6.71	6.92	6.71	
			SU	-	2.86	2.58	3.07	2.79	
	60	5300	26T	0	6.72	6.62	6.72	6.62	
				4	6.25	5.08	6.25	5.08	
				8	6.73	6.59	6.73	6.59	
			SU	-	2.85	2.70	3.06	2.91	
	64	5320	26T	0	**6.89**	**6.44**	6.89	6.44	
				4	6.03	5.03	6.03	5.03	
				8	6.60	6.39	6.60	6.39	
			SU	-	2.51	2.55	2.72	2.76	
UNII-2C	100	5500	26T	0	6.22	6.75	6.22	6.75	11.00
				4	5.36	6.26	5.36	6.26	
				8	6.29	6.25	6.29	6.25	
			SU	-	2.32	2.51	2.53	2.72	
	116	5580	26T	0	6.57	6.07	6.57	6.07	
				4	5.66	4.84	5.66	4.84	
				8	6.26	5.98	6.26	5.98	
			SU	-	2.48	2.18	2.69	2.39	
	140	5700	26T	0	6.07	5.66	6.07	5.66	
				4	5.32	4.05	5.32	4.05	
				8	6.03	5.38	6.03	5.38	
			SU	-	2.11	2.49	2.32	2.70	
UNII-3	149	5745	26T	0	4.28	4.57	4.28	4.57	30.00 /500kHz
				4	4.05	3.70	4.05	3.70	
				8	4.11	4.32	4.11	4.32	
			SU	-	-0.19	-0.10	0.02	0.11	
	157	5785	26T	0	4.21	4.40	4.21	4.40	
				4	4.31	3.26	4.31	3.26	
				8	4.01	3.98	4.01	3.98	
			SU	-	-0.07	-0.43	0.14	-0.22	
	165	5825	26T	0	4.30	3.64	4.30	3.64	
				4	4.40	2.94	4.40	2.94	
				8	4.09	3.60	4.09	3.60	
			SU	-	-0.09	-0.83	0.12	-0.62	

* Calculation of PSD: Corr'd PSD = Ant1 PSD + Duty CF [dB](26T= 0 dB, SU=0.21 dB)
Note. In 11ax, MIMO sum power is same as the power of SISO single antenna(example:SISO ANT1 = 10 dBm, MIMO ANT1+2=7 dBm + 7 dBm=10 dBm). PSD was tested in SISO mode, and even the sum of SISO mode meets the limit, so MIMO mode test is excluded.

10.2.6.2. 2Tx MODE

Output Power Results

Band	Channel	Center Freq. [MHz]	Tones	RU offset	Average Power [dBm]		Corr'd Power [dBm]	Limit [dBm]
					ANT1	ANT2		
UNII-1	36	5180	26T	0	6.40	6.02	9.22	23.98
				4	7.12	6.58	9.87	
				8	7.11	7.20	10.17	
			52T	37	8.30	8.42	11.37	
				38	8.36	8.48	11.43	
				40	8.18	8.12	11.16	
			106T	53	11.16	10.95	14.07	
				54	11.08	10.97	14.04	
			SU	-	12.20	11.88	15.05	
	40	5200	26T	0	6.42	6.00	9.23	
				4	7.30	6.40	9.88	
				8	7.01	6.80	9.92	
			52T	37	8.12	8.00	11.07	
				38	8.46	8.05	11.27	
				40	8.02	7.90	10.97	
			106T	53	11.16	10.91	14.05	
				54	11.11	10.96	14.05	
			SU	-	12.06	11.94	15.01	
	48	5240	26T	0	6.36	5.98	9.18	
				4	6.76	6.01	9.41	
				8	7.10	7.15	10.14	
			52T	37	8.22	8.01	11.13	
				38	8.36	8.05	11.22	
				40	8.16	7.86	11.02	
			106T	53	11.06	10.94	14.01	
				54	11.01	10.86	13.95	
			SU	-	12.10	11.86	14.99	

* Calculation of Output Power : Average Power = Meas Power + Duty CF[dB]
Corr'd Power = Ant1 Average Power + Ant2 Average Power

Band	Channel	Center Freq. [MHz]	Tones	RU offset	Average Power [dBm]		Corr'd Power [dBm]	Limit [dBm]
					ANT1	ANT2		
UNII-2A	52	5260	26T	0	7.20	6.65	9.94	23.81
				4	7.96	6.98	10.51	
				8	7.26	7.28	10.28	
			52T	37	9.20	9.17	12.20	
				38	9.26	9.18	12.23	
				40	9.01	8.89	11.96	
			106T	53	11.53	11.25	14.40	
				54	11.36	11.24	14.31	
			SU	-	12.41	12.45	15.44	
	60	5300	26T	0	6.81	6.54	9.69	
				4	7.90	7.31	10.63	
				8	7.48	7.49	10.50	
			52T	37	8.82	8.84	11.84	
				38	9.28	8.89	12.10	
				40	8.62	8.61	11.63	
			106T	53	11.38	11.20	14.30	
				54	11.36	1.06	11.75	
			SU	-	12.33	12.25	15.30	
	64	5320	26T	0	6.64	6.52	9.59	
				4	7.62	6.51	10.11	
				8	7.48	7.21	10.36	
			52T	37	8.82	8.36	11.61	
				38	9.08	8.42	11.77	
				40	8.78	8.40	11.60	
			106T	53	11.36	11.14	14.26	
				54	11.29	11.04	14.18	
			SU	-	12.25	12.18	15.23	

* Calculation of Output Power : Average Power = Meas Power + Duty CF[dB]
Corr'd Power = Ant1 Average Power + Ant2 Average Power

Band	Channel	Center Freq. [MHz]	Tones	RU offset	Average Power [dBm]		Corr'd Power [dBm]	Limit [dBm]
					ANT1	ANT2		
UNII-2C	100	5500	26T	0	6.31	6.50	9.42	23.82
				4	7.16	6.44	9.83	
				8	6.68	6.67	9.69	
			52T	37	8.20	7.76	11.00	
				38	8.18	8.10	11.15	
				40	7.97	7.90	10.95	
			106T	53	10.74	10.84	13.80	
				54	10.61	10.73	13.68	
			SU	-	11.70	11.84	14.78	
	116	5580	26T	0	6.88	6.01	9.48	
				4	7.38	6.30	9.88	
				8	7.07	6.44	9.78	
			52T	37	8.40	8.00	11.21	
				38	8.42	8.01	11.23	
				40	8.20	7.77	11.00	
			106T	53	11.06	10.58	13.84	
				54	10.80	10.38	13.61	
			SU	-	12.01	11.63	14.83	
	140	5700	26T	0	6.70	5.75	9.26	
				4	7.28	6.01	9.70	
				8	7.18	6.25	9.75	
			52T	37	8.60	7.52	11.10	
				38	8.71	7.64	11.22	
				40	8.28	7.41	10.88	
			106T	53	11.05	10.15	13.63	
				54	10.92	10.02	13.50	
			SU	-	12.05	11.25	14.68	

* Calculation of Output Power : Average Power = Meas Power + Duty CF[dB]
Corr'd Power = Ant1 Average Power + Ant2 Average Power

Band	Channel	Center Freq. [MHz]	Tones	RU offset	Average Power [dBm]		Corr'd Power [dBm]	Limit [dBm]
					ANT1	ANT2		
UNII-3	149	5745	26T	0	6.80	6.78	9.80	30.00
				4	7.90	7.60	10.76	
				8	7.47	7.77	10.63	
			52T	37	8.86	9.18	12.03	
				38	8.91	9.19	12.06	
				40	8.52	8.89	11.72	
			106T	53	11.54	11.65	14.61	
				54	11.28	11.50	14.40	
			SU	-	12.21	12.61	15.42	
	157	5785	26T	0	6.82	6.58	9.71	
				4	7.96	7.50	10.75	
				8	7.68	7.70	10.70	
			52T	37	8.79	8.82	11.82	
				38	8.70	9.05	11.89	
				40	8.42	8.88	11.67	
			106T	53	11.67	11.42	14.56	
				54	11.46	11.29	14.39	
			SU	-	12.50	12.25	15.39	
	165	5825	26T	0	7.18	6.16	9.71	
				4	6.85	6.04	9.47	
				8	7.89	7.61	10.76	
			52T	37	9.04	8.68	11.87	
				38	9.18	8.80	12.00	
				40	9.10	8.52	11.83	
			106T	53	11.70	11.14	14.44	
				54	11.64	11.10	14.39	
			SU	-	12.50	12.03	15.28	

* Calculation of Output Power : Average Power = Meas Power + Duty CF[dB]
Corr'd Power = Ant1 Average Power + Ant2 Average Power

10.2.7. 802.11ax HE40 MODE

10.2.7.1. 1Tx MODE

Output Power Results

Band	Channel	Center Freq. [MHz]	Tones	RU offset	Average Power [dBm]		Limit [dBm]
					ANT1	ANT2	
UNII-1	38	5190	26T	0	9.34	10.41	23.98
				9	10.15	9.90	
				17	10.37	10.32	
			52T	37	10.94	10.69	
				41	10.80	11.36	
				44	10.65	10.57	
			106T	53	12.11	11.80	
				54	12.65	12.47	
				56	11.86	11.70	
			242T	61	13.30	13.08	
				62	13.15	12.91	
			SU	-	13.38	13.23	
	46	5230	26T	0	9.23	10.50	
				9	10.20	9.90	
				17	10.36	10.26	
			52T	37	10.70	10.61	
				41	10.76	11.30	
				44	10.59	10.43	
			106T	53	11.96	11.85	
				54	12.55	12.35	
				56	11.90	11.68	
			242T	61	13.16	12.95	
				62	13.12	12.90	
			SU	-	13.33	13.18	

* Calculation of Output Power : Average Power = Meas Power + Duty CF[dB]

Band	Channel	Center Freq. [MHz]	Tones	RU offset	Average Power [dBm]		Limit [dBm]
					ANT1	ANT2	
UNII-2A	54	5270	26T	0	9.66	10.72	23.93
				9	10.60	10.61	
				17	10.56	10.45	
			52T	37	11.10	10.90	
				41	11.15	11.70	
				44	10.76	10.80	
			106T	53	12.25	12.35	
				54	12.69	12.83	
				56	12.02	12.07	
			242T	61	13.35	13.40	
				62	13.23	13.25	
			SU	-	13.46	13.60	
	62	5310	26T	0	9.75	10.80	
				9	10.54	10.52	
				17	10.57	10.36	
			52T	37	11.07	11.05	
				41	11.10	11.57	
				44	10.75	10.55	
			106T	53	12.28	12.39	
				54	12.70	12.80	
				56	11.92	12.00	
			242T	61	13.40	13.35	
				62	13.21	13.20	
			SU	-	13.50	13.48	

* Calculation of Output Power : Average Power = Meas Power + Duty CF[dB]

Band	Channel	Center Freq. [MHz]	Tones	RU offset	Average Power [dBm]		Limit [dBm]
					ANT1	ANT2	
UNII-2C	102	5510	26T	0	9.34	10.65	23.90
				9	10.39	10.50	
				17	10.28	10.40	
			52T	37	10.69	10.83	
				41	10.99	11.59	
				44	10.51	10.55	
			106T	53	11.83	12.07	
				54	12.16	12.50	
				56	11.79	11.89	
			242T	61	12.87	13.04	
				62	12.97	13.01	
			SU	-	13.22	13.33	
	118	5590	26T	0	9.41	10.22	
				9	10.41	10.12	
				17	10.17	9.97	
			52T	37	10.67	10.36	
				41	10.99	11.20	
				44	10.42	10.11	
			106T	53	11.92	11.66	
				54	12.28	11.98	
				56	11.71	11.43	
			242T	61	12.89	12.60	
				62	12.87	12.53	
			SU	-	13.17	13.00	
	134	5670	26T	0	9.52	10.01	
				9	10.45	9.84	
				17	10.18	9.65	
			52T	37	10.77	10.25	
				41	11.02	10.85	
				44	10.41	9.76	
			106T	53	11.98	11.47	
				54	12.27	11.80	
				56	11.72	11.19	
			242T	61	13.02	12.41	
				62	12.92	12.28	
			SU	-	13.20	12.61	

* Calculation of Output Power : Average Power = Meas Power + Duty CF[dB]

Band	Channel	Center Freq. [MHz]	Tones	RU offset	Average Power [dBm]		Limit [dBm]
					ANT1	ANT2	
UNII-3	151	5755	26T	0	10.01	10.40	30.00
				9	9.36	9.52	
				17	10.97	10.22	
			52T	37	11.32	11.40	
				41	11.53	11.20	
				44	11.20	11.23	
			106T	53	12.35	12.54	
				54	12.70	12.95	
				56	12.32	12.41	
			242T	61	13.32	13.44	
				62	13.41	13.42	
			SU	-	13.65	13.80	
	159	5795	26T	0	9.71	10.73	
				9	9.62	9.36	
				17	10.75	10.41	
			52T	37	11.05	10.87	
				41	11.84	11.17	
				44	10.93	10.70	
			106T	53	12.18	12.08	
				54	12.90	12.80	
				56	12.19	11.98	
			242T	61	13.31	13.17	
				62	13.50	13.13	
			SU	-	13.70	13.51	

* Calculation of Output Power : Average Power = Meas Power + Duty CF[dB]

PSD Results

Band	Channel	Center Freq. [MHz]	Tones	RU offset	Meas PSD [dBm/MHz]		Corr'd PSD [dBm/MHz]		PSD Limit [dBm/MHz]
					ANT1	ANT2	ANT1	ANT2	
UNII-1	38	5190	26T	0	6.18	6.59	6.18	6.59	11.00
				9	6.18	5.96	6.18	5.96	
				17	6.95	6.76	6.95	6.76	
			SU	-	-2.46	-2.92	-2.06	-2.52	
	46	5230	26T	0	5.84	6.68	5.84	6.68	
				9	6.49	6.14	6.49	6.14	
				17	7.11	6.59	7.11	6.59	
			SU	-	-2.44	-2.65	-2.04	-2.25	
UNII-2A	54	5270	26T	0	6.52	7.42	6.52	7.42	11.00
				9	7.11	7.17	7.11	7.17	
				17	7.55	6.88	7.55	6.88	
			SU	-	-2.07	-2.15	-1.67	-1.75	
	62	5310	26T	0	**6.34**	**7.17**	6.34	7.17	
				9	6.94	6.63	6.94	6.63	
				17	7.20	6.88	7.20	6.88	
			SU	-	-2.09	-2.23	-1.69	-1.83	
UNII-2C	102	5510	26T	0	6.35	6.99	6.35	6.99	11.00
				9	6.75	6.77	6.75	6.77	
				17	6.93	6.82	6.93	6.82	
			SU	-	-2.55	-2.70	-2.15	-2.30	
	118	5590	26T	0	6.06	6.77	6.06	6.77	
				9	6.89	5.98	6.89	5.98	
				17	6.64	6.24	6.64	6.24	
			SU	-	-2.47	-3.02	-2.07	-2.62	
	134	5670	26T	0	6.34	6.65	6.34	6.65	
				9	6.50	6.00	6.50	6.00	
				17	6.81	5.77	6.81	5.77	
			SU	-	-2.34	-3.28	-1.94	-2.88	
UNII-3	151	5755	26T	0	3.92	4.24	3.92	4.24	30.00 /500kHz
				9	3.16	3.82	3.16	3.82	
				17	5.03	4.07	5.03	4.07	
			SU	-	-5.08	-4.56	-4.68	-4.16	
	159	5795	26T	0	4.18	4.62	4.18	4.62	
				9	3.16	3.00	3.16	3.00	
				17	4.69	4.53	4.69	4.53	
			SU	-	-4.72	-4.95	-4.32	-4.55	

* Calculation of PSD: Corr'd PSD = Ant1 PSD + Duty CF [dB](26T= 0 dB, SU=0.40 dB)
Note. In 11ax, MIMO sum power is same as the power of SISO single antenna(example:SISO ANT1 = 10 dBm, MIMO ANT1+2=7 dBm + 7 dBm=10 dBm). PSD was tested in SISO mode, and even the sum of SISO mode meets the limit, so MIMO mode test is excluded.

10.2.7.2.2Tx MODE

Output Power Results

Band	Channel	Center Freq. [MHz]	Tones	RU offset	Average Power [dBm]		Corr'd Power [dBm]	Limit [dBm]
					ANT1	ANT2		
UNII-1	38	5190	26T	0	6.32	7.03	9.70	23.98
				9	7.20	7.42	10.32	
				17	7.42	7.65	10.55	
			52T	37	8.05	7.74	10.91	
				41	7.90	8.55	11.25	
				44	7.50	7.72	10.62	
			106T	53	9.54	9.31	12.44	
				54	9.98	9.84	12.92	
				56	9.36	9.39	12.39	
			242T	61	9.56	9.26	12.42	
				62	9.33	9.40	12.38	
			SU	-	9.44	9.32	12.39	
	46	5230	26T	0	6.01	6.60	9.33	
				9	7.32	7.40	10.37	
				17	7.38	7.41	10.41	
			52T	37	7.62	7.30	10.47	
				41	7.88	8.42	11.17	
				44	7.51	7.54	10.54	
			106T	53	9.50	9.23	12.38	
				54	9.95	9.71	12.84	
				56	9.31	9.20	12.27	
			242T	61	9.45	9.02	12.25	
				62	9.35	9.26	12.32	
			SU	-	9.50	9.24	12.38	

* Calculation of Output Power : Average Power = Meas Power + Duty CF[dB]
Corr'd Power = Ant1 Average Power + Ant2 Average Power

Band	Channel	Center Freq. [MHz]	Tones	RU offset	Average Power [dBm]		Corr'd Power [dBm]	Limit [dBm]
					ANT1	ANT2		
UNII-2A	54	5270	26T	0	6.20	7.35	9.82	23.93
				9	7.55	7.76	10.67	
				17	7.90	7.79	10.86	
			52T	37	8.59	8.32	11.47	
				41	8.26	8.94	11.62	
				44	8.12	7.88	11.01	
			106T	53	9.91	9.85	12.89	
				54	9.04	8.86	11.96	
				56	9.66	9.70	12.69	
			242T	61	9.82	9.73	12.79	
				62	9.70	9.72	12.72	
			SU	-	9.90	9.93	12.93	
	62	5310	26T	0	6.70	7.91	10.36	
				9	7.74	7.86	10.81	
				17	7.96	7.53	10.76	
			52T	37	8.51	8.29	11.41	
				41	8.72	8.96	11.85	
				44	7.89	7.86	10.89	
			106T	53	9.95	9.86	12.92	
				54	8.96	8.77	11.88	
				56	9.71	9.53	12.63	
			242T	61	9.80	9.75	12.79	
				62	9.58	9.60	12.60	
			SU	-	9.90	9.87	12.90	

* Calculation of Output Power : Average Power = Meas Power + Duty CF[dB]
Corr'd Power = Ant1 Average Power + Ant2 Average Power

Band	Channel	Center Freq. [MHz]	Tones	RU offset	Average Power [dBm]		Corr'd Power [dBm]	Limit [dBm]
					ANT1	ANT2		
UNII-2C	102	5510	26T	0	6.12	7.30	9.76	23.90
				9	7.52	7.56	10.55	
				17	7.61	7.74	10.69	
			52T	37	8.25	7.94	11.11	
				41	8.20	8.42	11.32	
				44	7.70	7.42	10.57	
			106T	53	9.59	9.80	12.71	
				54	8.62	8.36	11.50	
				56	9.43	9.64	12.55	
			242T	61	10.49	10.74	13.63	
				62	10.56	10.75	13.67	
			SU	-	10.80	10.99	13.91	
	118	5590	26T	0	6.36	6.92	9.66	
				9	7.58	7.26	10.43	
				17	7.42	7.08	10.26	
			52T	37	8.11	7.75	10.94	
				41	7.90	8.68	11.32	
				44	8.03	7.69	10.87	
			106T	53	9.58	9.30	12.45	
				54	9.86	9.80	12.84	
				56	9.41	9.20	12.32	
			242T	61	10.60	10.29	13.46	
				62	10.68	10.35	13.53	
			SU	-	10.78	10.62	13.71	
	134	5670	26T	0	6.50	6.53	9.53	
				9	7.56	6.61	10.12	
				17	7.51	6.46	10.03	
			52T	37	7.60	6.90	10.27	
				41	8.21	7.59	10.92	
				44	7.72	6.70	10.25	
			106T	53	9.66	9.04	12.37	
				54	8.60	7.80	11.23	
				56	9.34	8.84	12.11	
			242T	61	10.60	9.88	13.27	
				62	10.59	9.98	13.31	
			SU	-	10.88	10.21	13.57	

* Calculation of Output Power : Average Power = Meas Power + Duty CF[dB]
Corr'd Power = Ant1 Average Power + Ant2 Average Power

Band	Channel	Center Freq. [MHz]	Tones	RU offset	Average Power [dBm]		Corr'd Power [dBm]	Limit [dBm]
					ANT1	ANT2		
UNII-3	151	5755	26T	0	6.50	7.70	10.15	30.00
				9	7.38	7.11	10.26	
				17	7.18	7.23	10.22	
			52T	37	8.49	8.95	11.74	
				41	7.78	8.26	11.04	
				44	8.50	8.12	11.32	
			106T	53	8.55	8.58	11.58	
				54	8.90	9.00	11.96	
				56	8.30	8.22	11.27	
			242T	61	10.09	10.46	13.29	
				62	10.19	10.40	13.31	
			SU	-	10.32	10.71	13.53	
	159	5795	26T	0	6.12	7.02	9.60	
				9	7.82	7.26	10.56	
				17	7.11	6.63	9.89	
			52T	37	8.42	8.44	11.44	
				41	7.89	7.88	10.90	
				44	8.15	8.13	11.15	
			106T	53	8.26	8.42	11.35	
				54	8.96	9.17	12.08	
				56	8.42	7.77	11.12	
			242T	61	10.07	10.33	13.21	
				62	10.24	10.20	13.23	
			SU	-	10.33	10.60	13.48	

* Calculation of Output Power : Average Power = Meas Power + Duty CF[dB]
Corr'd Power = Ant1 Average Power + Ant2 Average Power

10.2.8. 802.11ax HE80 MODE

10.2.8.1. 1Tx MODE

Output Power Results

Band	Channel	Center Freq. [MHz]	Tones	RU offset	Average Power [dBm]		Limit [dBm]
					ANT1	ANT2	
UNII-1	42	5210	26T	0	9.60	9.06	23.98
				18	9.70	9.37	
				36	9.29	8.85	
			52T	37	10.65	9.19	
				45	10.62	9.58	
				52	9.42	9.01	
			106T	53	11.12	10.68	
				57	11.42	10.90	
				60	10.84	10.50	
			242T	61	12.53	12.01	
				62	12.72	12.23	
				64	12.31	11.86	
			484T	65	12.40	11.95	
				66	12.30	11.88	
			SU	-	12.36	11.98	
UNII-2A	58	5290	26T	0	9.73	9.53	23.98
				18	9.94	9.66	
				36	9.51	9.12	
			52T	37	10.72	9.56	
				45	10.76	9.90	
				52	9.61	9.28	
			106T	53	11.30	10.90	
				57	11.41	11.01	
				60	11.01	10.57	
			242T	61	12.54	12.38	
				62	12.83	12.64	
				64	12.39	12.17	
			484T	65	12.55	12.30	
				66	12.40	12.23	
			SU	-	12.45	12.57	

* Calculation of Output Power : Average Power = Meas Power + Duty CF[dB]

Band	Channel	Center Freq. [MHz]	Tones	RU offset	Average Power [dBm]		Limit [dBm]
					ANT1	ANT2	
UNII-2C	106	5530	26T	0	9.69	9.37	23.98
				18	9.77	9.46	
				36	9.32	8.82	
			52T	37	10.64	9.54	
				45	10.75	9.70	
				52	9.52	9.01	
			106T	53	10.84	10.55	
				57	11.23	10.76	
				60	10.75	10.24	
			242T	61	12.23	11.94	
				62	12.38	12.21	
				64	12..28	11.80	
			484T	65	12.20	11.99	
				66	12.24	11.89	
			SU	-	12.11	11.93	
	122	5610	26T	0	9.74	9.05	
				18	9.88	9.09	
				36	9.39	8.64	
			52T	37	10.74	9.15	
				45	10.79	9.45	
				52	9.50	8.80	
			106T	53	11.00	10.25	
				57	11.23	10.31	
				60	10.82	9.88	
			242T	61	12.27	11.67	
				62	12.41	11.84	
				64	12.33	11.42	
			484T	65	12.27	11.63	
				66	12.31	11.52	
			SU	-	12.23	11.57	

* Calculation of Output Power : Average Power = Meas Power + Duty CF[dB]

Band	Channel	Center Freq. [MHz]	Tones	RU offset	Average Power [dBm]		Limit [dBm]
					ANT1	ANT2	
UNII-3	155	5775	26T	0	10.18	10.24	30.00
				18	10.48	10.55	
				36	10.27	9.80	
			52T	37	9.40	10.33	
				45	9.76	10.55	
				52	9.26	9.91	
			106T	53	10.30	11.32	
				57	10.78	11.42	
				60	10.48	10.93	
			242T	61	11.68	12.62	
				62	11.93	12.86	
				64	12.04	12.32	
			484T	65	12.72	12.62	
				66	12.89	12.46	
			SU	-	12.74	12.21	

* Calculation of Output Power : Average Power = Meas Power + Duty CF[dB]

PSD Results

Band	Channel	Center Freq. [MHz]	Tones	RU offset	Meas PSD [dBm/MHz]		Corr'd PSD [dBm/MHz]		PSD Limit [dBm/MHz]
					ANT1	ANT2	ANT1	ANT2	
UNII-1	42	5210	26T	0	6.01	5.44	6.01	5.44	11.00
				18	4.45	4.15	4.45	4.15	
				36	5.75	5.31	5.75	5.31	
			SU	-	-6.86	-7.05	-6.10	-6.29	
UNII-2A	58	5290	26T	0	6.45	5.87	6.45	5.87	11.00
				18	5.16	4.96	5.16	4.96	
				36	5.78	5.68	5.78	5.68	
			SU	-	-6.34	-6.15	-5.58	-5.39	
UNII-2C	106	5530	26T	0	5.97	5.99	5.97	5.99	11.00
				18	4.80	4.62	4.80	4.62	
				36	5.69	5.11	5.69	5.11	
			SU	-	-6.70	-7.02	-5.94	-6.26	
	122	5610	26T	0	6.10	5.61	6.10	5.61	
				18	4.67	4.59	4.67	4.59	
				36	5.58	5.08	5.58	5.08	
			SU	-	-6.78	-7.69	-6.02	-6.93	
UNII-3	155	5775	26T	0	3.72	4.10	3.72	4.10	30.00 /500kHz
				18	3.52	4.11	3.52	4.11	
				36	4.24	3.89	4.24	3.89	
			SU	-	-9.32	-9.47	-8.56	-8.71	

* Calculation of PSD: Corr'd PSD = Ant1 PSD + Duty CF [dB](26T= 0 dB, SU=0.76 dB)
Note. In 11ax, MIMO sum power is same as the power of SISO single antenna(example:SISO ANT1 = 10 dBm, MIMO ANT1+2=7 dBm + 7 dBm=10 dBm). PSD was tested in SISO mode, and even the sum of SISO mode meets the limit, so MIMO mode test is excluded.

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10.2.8.2.2Tx MODE

Output Power Results

Band	Channel	Center Freq. [MHz]	Tones	RU offset	Average Power [dBm]		Corr'd Power [dBm]	Limit [dBm]
					ANT1	ANT2		
UNII-1	42	5210	26T	0	7.80	7.02	10.44	23.98
				18	6.76	6.14	9.47	
				36	7.81	7.36	10.60	
			52T	37	7.36	6.40	9.92	
				45	7.60	6.76	10.21	
				52	6.60	6.26	9.44	
			106T	53	7.60	7.26	10.44	
				57	8.11	7.68	10.91	
				60	7.36	6.92	10.16	
			242T	61	9.98	9.42	12.72	
				62	9.96	9.56	12.77	
				64	9.81	9.50	12.67	
			484T	65	9.30	8.77	12.05	
				66	9.20	8.84	12.03	
			SU	-	9.90	9.38	12.66	
UNII-2A	58	5290	26T	0	7.80	6.70	10.30	23.98
				18	7.26	7.17	10.23	
				36	7.61	7.40	10.52	
			52T	37	7.90	6.50	10.27	
				45	7.01	6.02	9.55	
				52	6.90	6.82	9.87	
			106T	53	8.62	8.26	11.45	
				57	8.88	8.04	11.49	
				60	8.21	7.78	11.01	
			242T	61	8.71	8.42	11.58	
				62	8.74	8.29	11.53	
				64	8.42	8.46	11.45	
			484T	65	9.60	9.34	12.48	
				66	9.52	9.21	12.38	
			SU	-	9.92	9.99	12.97	

* Calculation of Output Power : Average Power = Meas Power + Duty CF[dB]
Corr'd Power = Ant1 Average Power + Ant2 Average Power

Band	Channel	Center Freq. [MHz]	Tones	RU offset	Average Power [dBm]		Corr'd Power [dBm]	Limit [dBm]
					ANT1	ANT2		
UNII-2C	106	5530	26T	0	7.89	7.36	10.64	23.98
				18	7.70	7.68	10.70	
				36	7.42	7.48	10.46	
			52T	37	7.26	6.14	9.75	
				45	7.50	6.41	10.00	
				52	6.80	6.26	9.55	
			106T	53	8.10	7.22	10.69	
				57	8.28	7.82	11.07	
				60	7.36	7.11	10.25	
			242T	61	9.92	9.85	12.90	
				62	9.96	9.80	12.89	
				64	9.95	9.63	12.80	
			484T	65	9.29	9.18	12.25	
				66	9.38	9.02	12.21	
			SU	-	9.89	9.70	12.81	
	122	5610	26T	0	7.72	6.68	10.24	
				18	7.48	6.52	10.04	
				36	7.78	7.11	10.47	
			52T	37	7.46	5.77	9.71	
				45	7.89	6.10	10.10	
				52	6.70	6.01	9.38	
			106T	53	7.88	7.20	10.56	
				57	8.46	7.59	11.06	
				60	8.19	7.17	10.72	
			242T	61	9.99	9.34	12.69	
				62	9.97	9.40	12.70	
				64	9.98	9.27	12.65	
			484T	65	9.30	8.72	12.03	
				66	9.40	8.59	12.02	
			SU	-	9.89	9.22	12.58	

* Calculation of Output Power : Average Power = Meas Power + Duty CF[dB]
Corr'd Power = Ant1 Average Power + Ant2 Average Power

Band	Channel	Center Freq. [MHz]	Tones	RU offset	Average Power [dBm]		Corr'd Power [dBm]	Limit [dBm]
					ANT1	ANT2		
UNII-3	155	5775	26T	0	7.46	7.16	10.32	30.00
				18	7.36	7.38	10.38	
				36	7.43	6.62	10.05	
			52T	37	7.90	7.02	10.49	
				45	7.02	6.21	9.64	
				52	7.46	6.90	10.20	
			106T	53	8.60	8.29	11.46	
				57	8.92	8.48	11.72	
				60	8.76	7.70	11.27	
			242T	61	8.47	8.73	11.61	
				62	9.16	8.80	11.99	
				64	8.92	8.17	11.57	
			484T	65	8.55	8.27	11.42	
				66	8.96	8.06	11.54	
			SU	-	9.17	8.64	11.92	

* Calculation of Output Power : Average Power = Meas Power + Duty CF[dB]
Corr'd Power = Ant1 Average Power + Ant2 Average Power

10.2.9. STRADDLE CHANNEL(802.11ax) 1Tx MODE

Output Power Results(SU)

Mode	Band	Center Freq. [MHz]	Meas Power [dBm]		Corr'd Power [dBm]		Limit [dBm]
			ANT1	ANT2	ANT1	ANT2	
HE20	UNII-2C	5720	13.86	13.29	14.07	13.50	22.99
	UNII-3		8.48	8.04	8.69	8.25	30.00
HE40	UNII-2C	5710	11.56	11.91	11.96	12.31	23.98
	UNII-3		1.52	1.87	1.92	2.27	30.00
HE80	UNII-2C	5690	10.25	10.58	11.01	11.34	23.98
	UNII-3		-3.95	-3.54	-3.19	-2.78	30.00

* Calculation of Output Power :
Corr'd Power = Ant1&2 meas. Power + Duty CF [dB](HE20=0.21, HE40=0.40, HE80=0.76)

PSD Results(SU)

Mode	Band	Center Freq. [MHz]	Meas PSD [dBm/MHz]		Corr'd PSD [dBm/MHz]		Limit [dBm/ MHz]
			ANT1	ANT2	ANT1	ANT2	
HE20	UNII-2C	5720	2.20	1.55	2.41	1.76	11.00
	UNII-3		-0.90	-1.51	-0.69	-1.30	30.00/500kHz
HE40	UNII-2C	5710	-2.53	-3.46	-2.13	-3.06	11.00
	UNII-3		-6.38	-6.68	-5.98	-6.28	30.00/500kHz
HE80	UNII-2C	5690	-6.83	-7.61	-6.07	-6.85	11.00
	UNII-3		-11.68	-12.10	-10.92	-11.34	30.00/500kHz

* Calculation of PSD: Corr'd PSD = Ant1 PSD + Duty CF [dB](HE20=0.21, HE40=0.40, HE80=0.76)
Note. In 11ax, MIMO sum power is same as the power of SISO single antenna(example:SISO ANT1 = 10 dBm, MIMO ANT1+2=7 dBm + 7 dBm=10 dBm). PSD was tested in SISO mode, and even the sum of SISO mode meets the limit, so MIMO mode test is excluded.

Output Power Results(RU)

Mode	Band	Center Freq. [MHz]	Meas Power [dBm]		Corr'd Power [dBm]		Limit [dBm]
			ANT1	ANT2	ANT1	ANT2	
HE20	UNII-2C	5720 (6RU)	8.18	8.45	8.18	8.45	22.99
	UNII-3		1.55	1.82	1.55	1.82	30.00
HE40	UNII-2C	5710 (15RU)	8.71	8.63	8.71	8.63	23.98
	UNII-3		-4.82	-5.04	-4.82	-5.04	30.00
HE80	UNII-2C	5690 (34RU)	9.51	8.60	9.51	8.60	23.98
	UNII-3		-3.39	-3.95	-3.39	-3.95	30.00

* Calculation of Output Power : Corr'd Power = Ant1&2 meas. Power(Duty CF [dB]=0 dB)

PSD Results(RU)

Mode	Band	Center Freq. [MHz]	Meas PSD [dBm/MHz]		Corr'd PSD [dBm/MHz]		Limit [dBm/ MHz]
			ANT1	ANT2	ANT1	ANT2	
HE20	UNII-2C	5720 (6RU)	6.22	5.65	6.22	5.65	11.00
	UNII-3		2.90	2.11	2.90	2.11	30.00/500kHz
HE40	UNII-2C	5710 (15RU)	6.22	6.03	6.22	6.03	11.00
	UNII-3		-6.09	-5.92	-6.09	-5.92	30.00/500kHz
HE80	UNII-2C	5690 (34RU)	5.70	5.14	5.70	5.14	11.00
	UNII-3		-6.25	-7.07	-6.25	-7.07	30.00/500kHz

* Calculation of PSD: Corr'd PSD = Ant1&2 PSD(Duty CF [dB]=0 dB)
Note. In 11ax, MIMO sum power is same as the power of SISO single antenna(example:SISO ANT1 = 10 dBm, MIMO ANT1+2=7 dBm + 7 dBm=10 dBm). PSD was tested in SISO mode, and even the sum of SISO mode meets the limit, so MIMO mode test is excluded.

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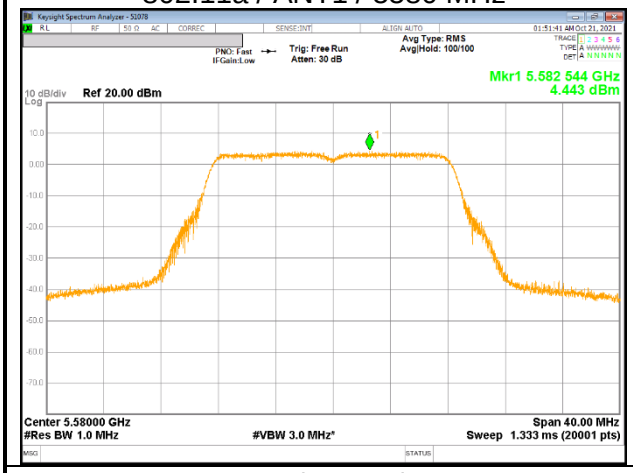
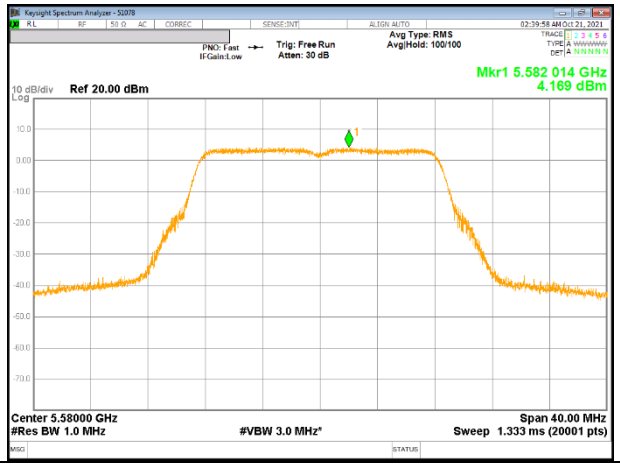
10.2.10. OUTPUT POWER AND PPSD PLOTS(WORST CASE)

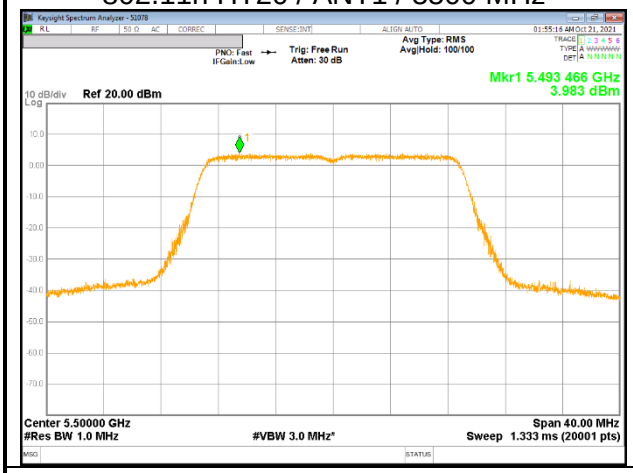
802.11a / ANT1 / 5580 MHz



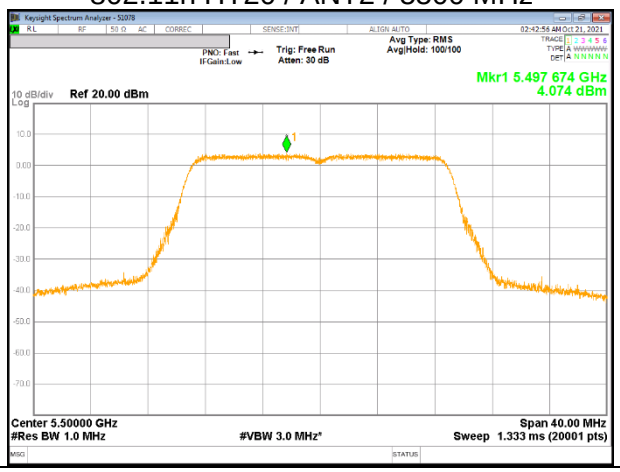
802.11a / ANT2 / 5580 MHz



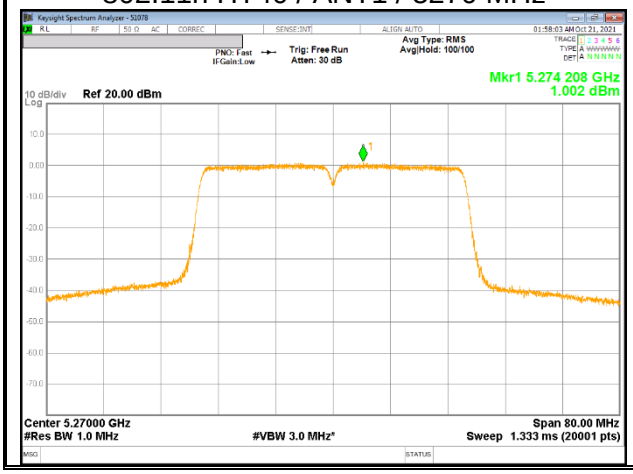
802.11n HT20 / ANT1 / 5500 MHz



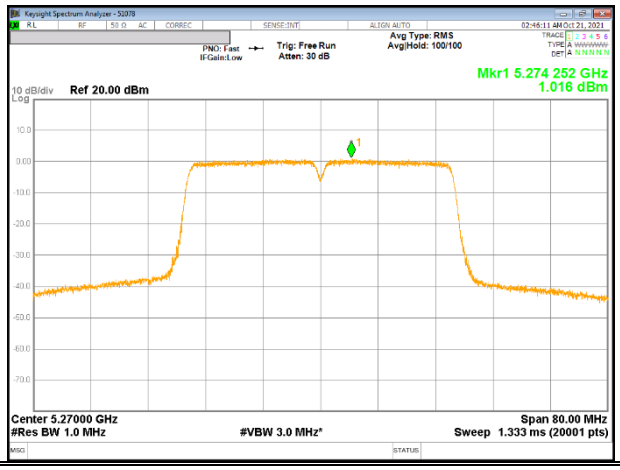
802.11n HT20 / ANT2 / 5500 MHz



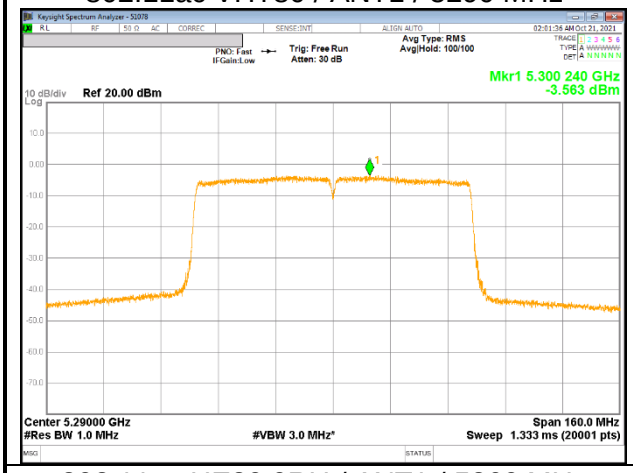
802.11n HT40 / ANT1 / 5270 MHz



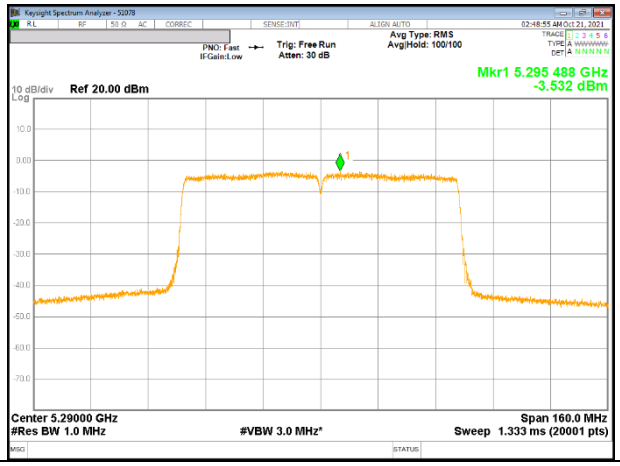
802.11n HT40 / ANT2 / 5270 MHz



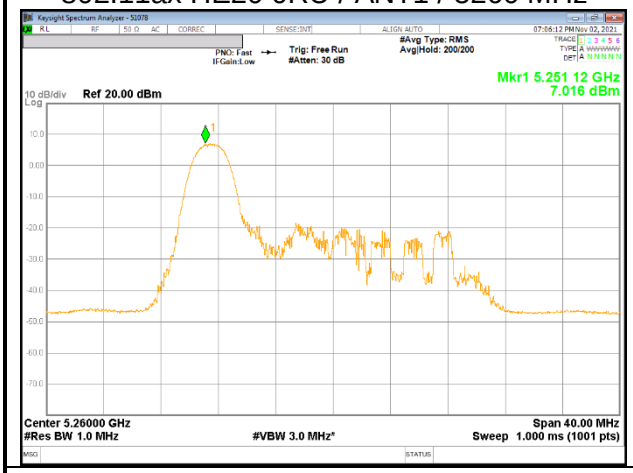
802.11ac VHT80 / ANT1 / 5290 MHz



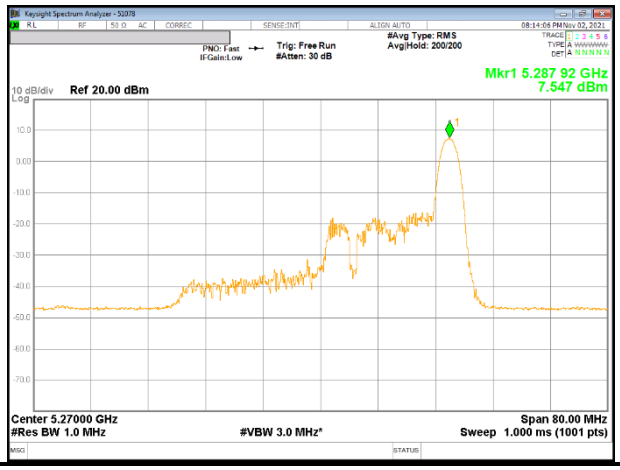
802.11ac VHT80 / ANT2 / 5290 MHz



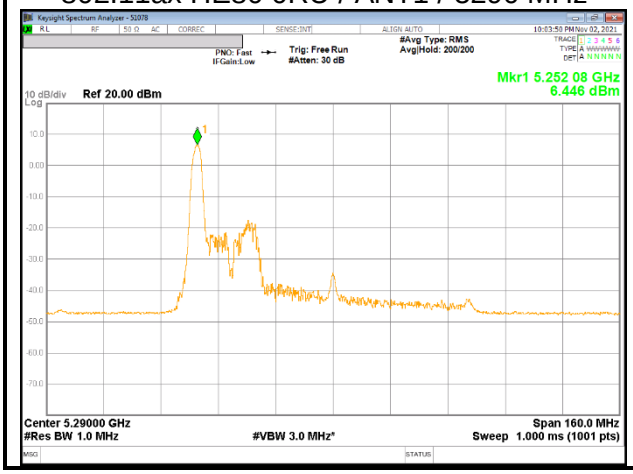
802.11ax HE20 0RU / ANT1 / 5260 MHz



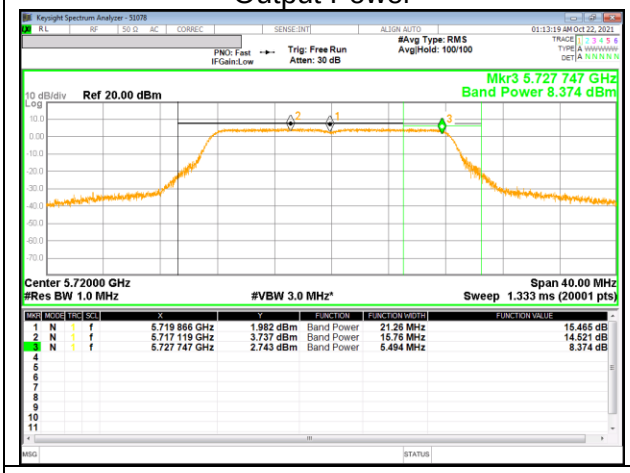
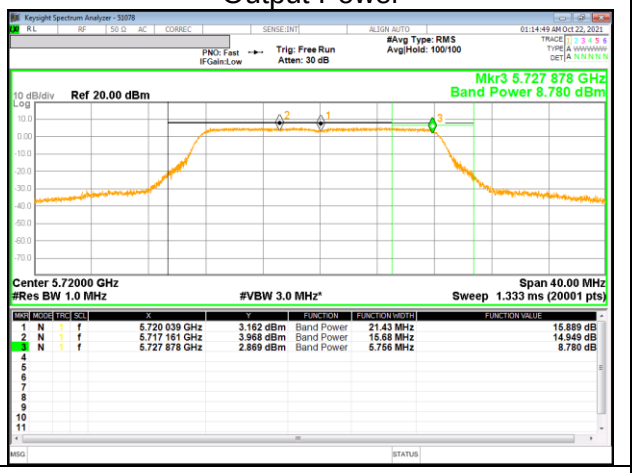
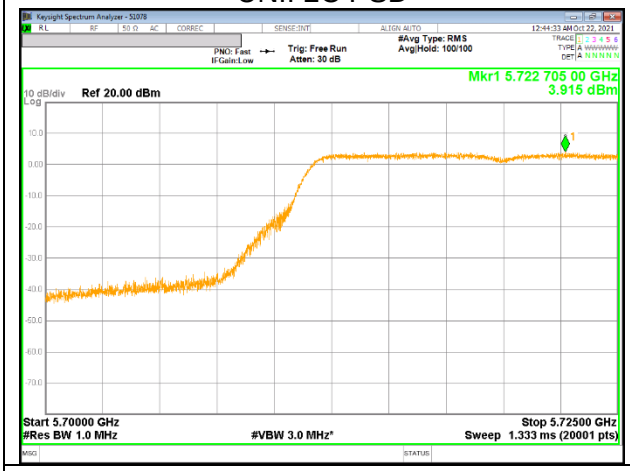
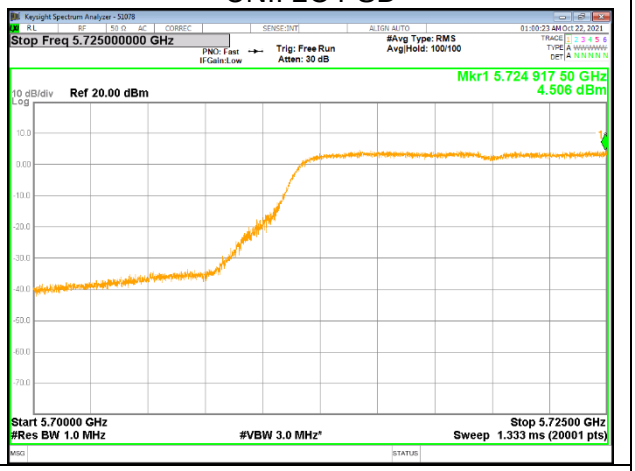
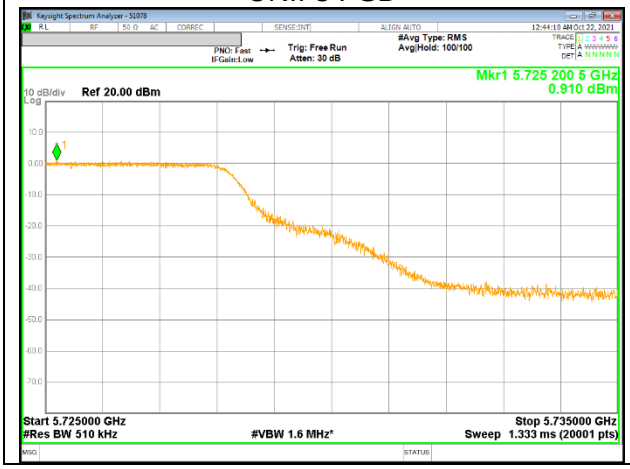
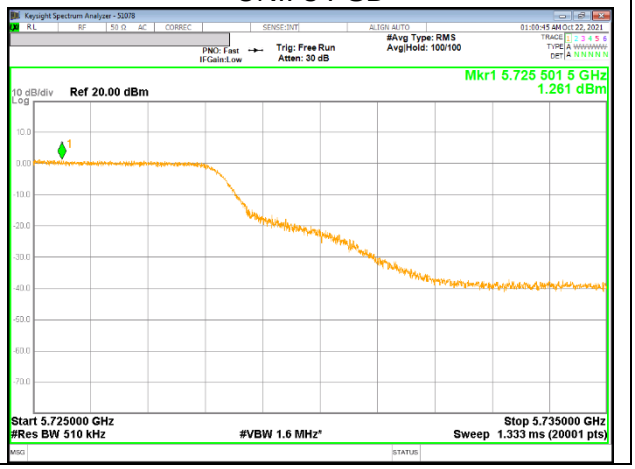
802.11ax HE40 17RU / ANT1 / 5270 MHz



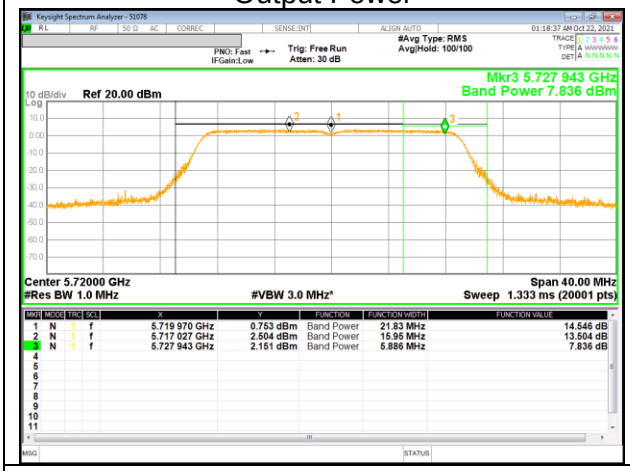
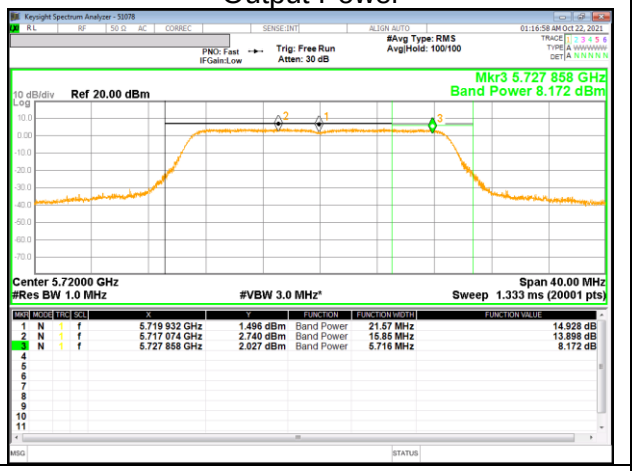
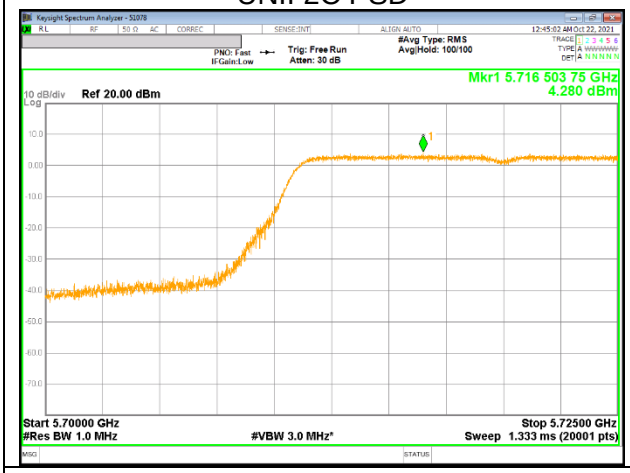
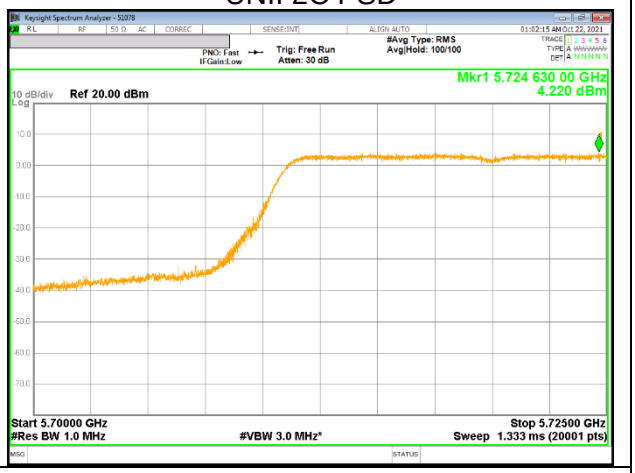
802.11ax HE80 0RU / ANT1 / 5290 MHz



UNII Straddle Ch. IEEE 802.11a mode Output Power and PSD

ANT1	ANT2
Output Power	Output Power
	
UNII 2C PSD	UNII 2C PSD
	
UNII 3 PSD	UNII 3 PSD
	

UNII Straddle Ch. IEEE 802.11n HT20 mode Output Power and PSD

ANT1	ANT2
Output Power	Output Power
	
UNII 2C PSD	UNII 2C PSD
	
UNII 3 PSD	UNII 3 PSD