CERTIFICATION TEST REPORT

Report Number. : 4789551399-E8V2

Applicant	:	SAMSUNG ELECTRONICS CO., LTD. 129 SAMSUNG-RO, YEONGTONG-GU, SUWON-SI, GYEONGGI-DO, 16677, KOREA
Model	:	SM-G780F/DSM, SM-G780F/DS, SM-G780F
FCC ID	:	A3LSMG780F
EUT Description	:	GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax, NFC and WPT
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART E

Date Of Issue:
August 24, 2020

Prepared by:
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IAS ACCREDITED
Testing Laboratory
TL-637

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	08/13/20	Initial issue	Robby Lee
V2	08/24/20	Updated about the TCB's question	Robby Lee

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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 and WPT
MODEL NUMBER:	SM-G780F/DSM, SM-G780F/DS, SM-G780F
SERIAL NUMBER:	R38N605FLJW (CONDUCTED) R38N705CCLH (RADIATED);
DATE TESTED:	JUL 22, 2020 – AUG 11, 2020;

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart E	Pass

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:

Robby 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. ANSI C63.10-2013.
5. KDB 662911 D01 v02r01

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)

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

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	2.35 dB
Radiated Disturbance, 30 MHz to 1 GHz	3.49 dB
Radiated Disturbance, 1 GHz to 18 GHz	5.82 dB
Radiated Disturbance, 18 GHz to 40 GHz	5.49 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 1, Clause 4.4.2 in IEC Guide 115:2007.

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 and WPT.
This test report addresses the 802.11ax WLAN (UNII) operational mode.

WiFi Operating mode

Frequency rage	Mode	Antenna 1	Antenna 2
5GHz (5180 MHz ~ 5825 MHz)	802.11ax(HE20) SISO	TX/RX	TX/RX
	802.11ax(HE20) MIMO	TX/RX	TX/RX
	802.11ax(HE40) SISO	TX/RX	TX/RX
	802.11ax(HE40) MIMO	TX/RX	TX/RX
	802.11ax(HE80) SISO	TX/RX	TX/RX
	802.11ax(HE80) MIMO	TX/RX	TX/RX

Simultaneous TX Condition

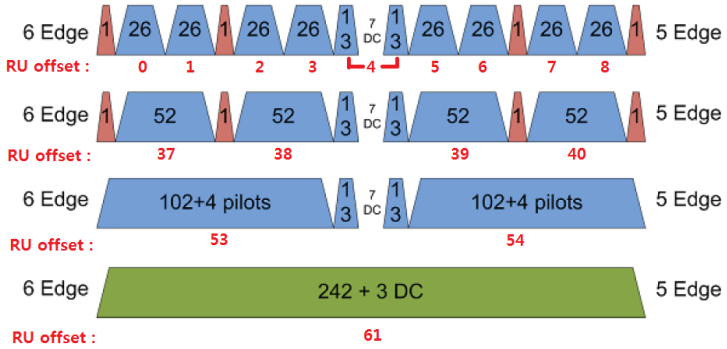
Simultaneous Tx Condition - RSDB

Mode	# of TX	5GHz WLAN		2.4GHz WLAN		Test Case
		ANT1	ANT2	ANT1	ANT2	
2.4GHz + 5GHz RSDB MIMO	4	**O**	**O**	**O**	**O**	**O**

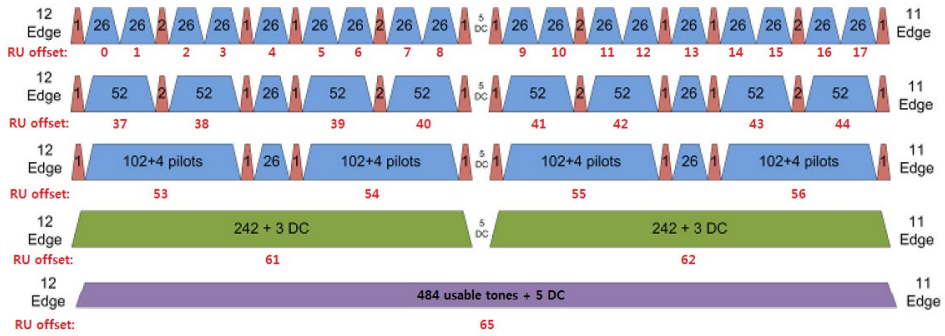
Simultaneous Tx Condition - RSDB + Bluetooth

Mode	# of TX	5GHz WLAN		2.4GHz Bluetooth	2.4GHz WLAN	Test Case
		ANT1	ANT2	ANT1	ANT2	
5GHz MIMO RSDB & Bluetooth	3	O	O	O	-	-
2.4GHz + 5GHz MIMO RSDB & Bluetooth	4	**O**	**O**	**O**	**O**	**O**

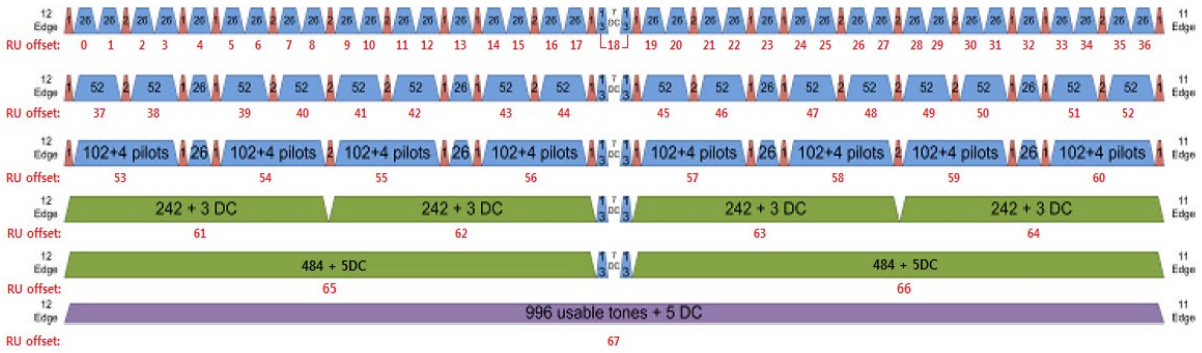
802.11ax RU allocations



- HE 20 Mode -



- HE 40 Mode -



- 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 1	61 / -
HE40	26T	0
		9
		17
	52T	37
		41
		44
	106T	53
		54
		56
	242T	61
		62
	484T / SU Note 1	63 / -
HE80	26T	0
		18
		36
	52T	37
		45
		52
	106T	53
		57
		60
	242T	61
		62
		64
	484T	65
		66
	996T / SU Note 1	67 / -

Note: Full RU(Resource Unit) 242T 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 SISO and 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	16	UNII 2C & UNII 3
		484T / SU	65 / -	
HE80	Straddle 5690 MHz	26T	35	UNII 2C & UNII 3
		996T / SU	67 / -	

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

5.2. MAXIMUM OUTPUT POWER

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

Frequency Range [MHz]	Mode	Output Power [dBm]		Output Power [mW]	
		Antenna1	Antenna2	Antenna1	Antenna2
5180 - 5240	802.11ax HE20 SISO	16.45	16.13	44.16	41.02
	802.11ax HE20 MIMO	18.86		76.91	
5190 - 5230	802.11ax HE40 SISO	14.88	15.85	30.76	38.46
	802.11ax HE40 MIMO	18.55		71.61	
5210	802.11ax HE80 SISO	13.75	13.88	23.71	24.43
	802.11ax HE80 MIMO	16.27		42.36	
5260 - 5320	802.11ax HE20 SISO	16.56	16.10	45.29	40.74
	802.11ax HE20 MIMO	19.35		86.10	
5270 - 5310	802.11ax HE40 SISO	15.18	15.78	32.96	37.84
	802.11ax HE40 MIMO	18.14		65.16	
5290	802.11ax HE80 SISO	13.77	13.75	23.82	23.71
	802.11ax HE80 MIMO	16.46		44.26	
5500 - 5720	802.11ax HE20 SISO	16.44	16.81	44.06	47.97
	802.11ax HE20 MIMO	19.13		81.85	
5510 - 5710	802.11ax HE40 SISO	15.70	15.57	37.15	36.06
	802.11ax HE40 MIMO	18.63		72.95	
5530 - 5690	802.11ax HE80 SISO	13.64	13.64	23.12	23.12
	802.11ax HE80 MIMO	16.47		44.36	
5745 - 5825	802.11ax HE20 SISO	16.57	16.47	45.39	44.36
	802.11ax HE20 MIMO	19.36		86.30	
5755 - 5795	802.11ax HE40 SISO	15.03	15.36	31.84	34.36
	802.11ax HE40 MIMO	18.46		70.15	
5775	802.11ax HE80 SISO	13.73	13.43	23.60	22.03
	802.11ax HE80 MIMO	16.53		44.98	

5.3. 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	-6.70	-4.47	-2.50
UNII 2A 5250 - 5350	-6.18	-4.39	-2.23
UNII 2C 5470 - 5725	-5.28	-4.36	-1.80
UNII 3 5725 - 5850	-6.43	-4.67	-2.50

5.4. 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**
802.11ax HE 20	SISO	802.11ax HE20 RU(242T) 1TX	802.11ax HE20 SU 1TX
	MIMO	802.11ax HE20 RU(242T) 2TX	802.11ax HE20 SU 2TX
802.11ax HE 40	SISO	802.11ax HE40 RU(484T) 1TX	802.11ax HE40 SU 1TX
	MIMO	802.11ax HE40 RU(484T) 2TX	802.11ax HE40 SU 2TX
802.11ax HE 80	SISO	802.11ax HE80 RU(996T) 1TX	802.11ax HE80 SU 1TX
	MIMO	802.11ax HE80 RU(996T) 2TX	802.11ax HE80 SU 2TX

Note: Except for the result of output power, only test data for MIMO was reported in this test report because the MIMO mode have a higher output power of 3 dB than the SISO mode and the test result of MIMO mode was worst.

5.5. WORST-CASE CONFIGURATION AND MODE

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

For SISO (ANT1), 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.

For SISO (ANT2), the fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z, it was determined that X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation.

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

Worst-case selection criteria for test items :

- For the radiated band-edge test, it was tested at SU mode for band-edge.

- For the spurious emissions, it was tested at the bandwidth/RU allocation with actual highest power and bandwidth/RU allocation with actual highest PSD for each bandwidth.
  (The test data for RU was only reported in this test report because SU mode is same with n/ac mode. And the PSD of 26RU is highest across all RU tones)
  Partial RU allocations(26RU) are the same across all channels and share the same nominal output power. Therefore testing are performed once to cover the equivalent RU allocation across all channel bandwidths

- 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 attached with travel adapter for the worst case condition mode.

Based on the baseline scan, the worst-case data rates were:
802.11ax HE20 mode: MCS0 2Tx
802.11ax HE40 mode: MCS0 2Tx
802.11ax HE80 mode: MCS0 2Tx

Depending on spot-check results, MIMO mode is worst case than SISO (ANT1) and SISO (ANT2). So radiation test were evaluated at MIMO mode.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacture**	**Model**	**Serial Number**	**FCC ID**
Charger	SAMSUNG	EP-TA200	R37M4L146R1SE3	N/A
Data Cable	SAMSUNG	EP-DR140AWE	N/A	N/A
Earphone	SAMSUNG	GH59-15252A	N/A	N/A

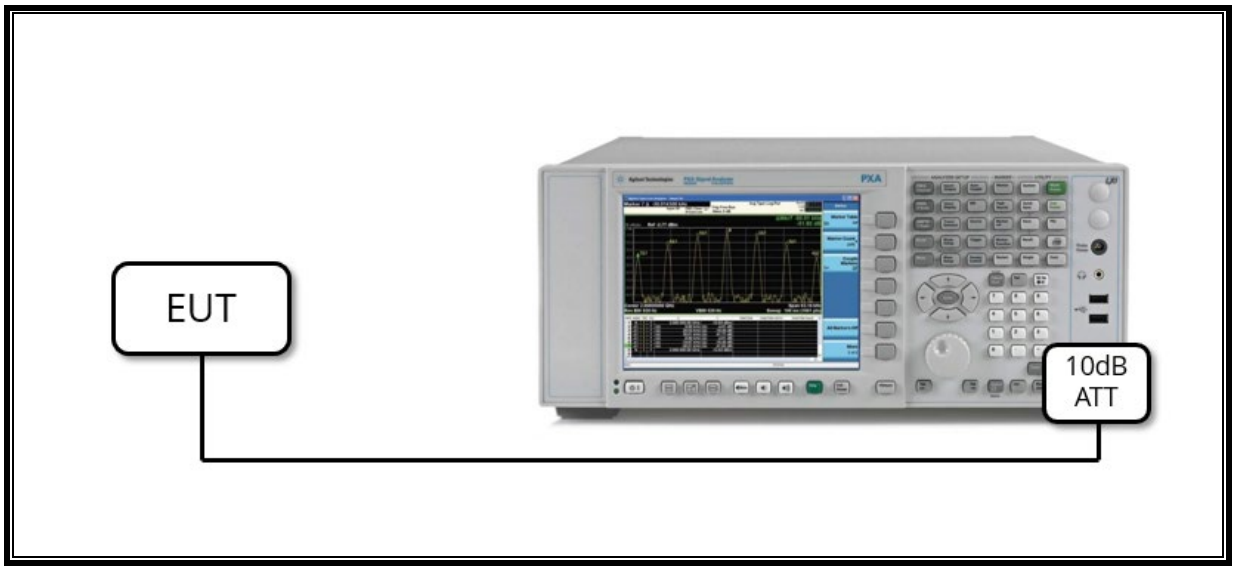
I/O CABLE

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	1.0m	N/A

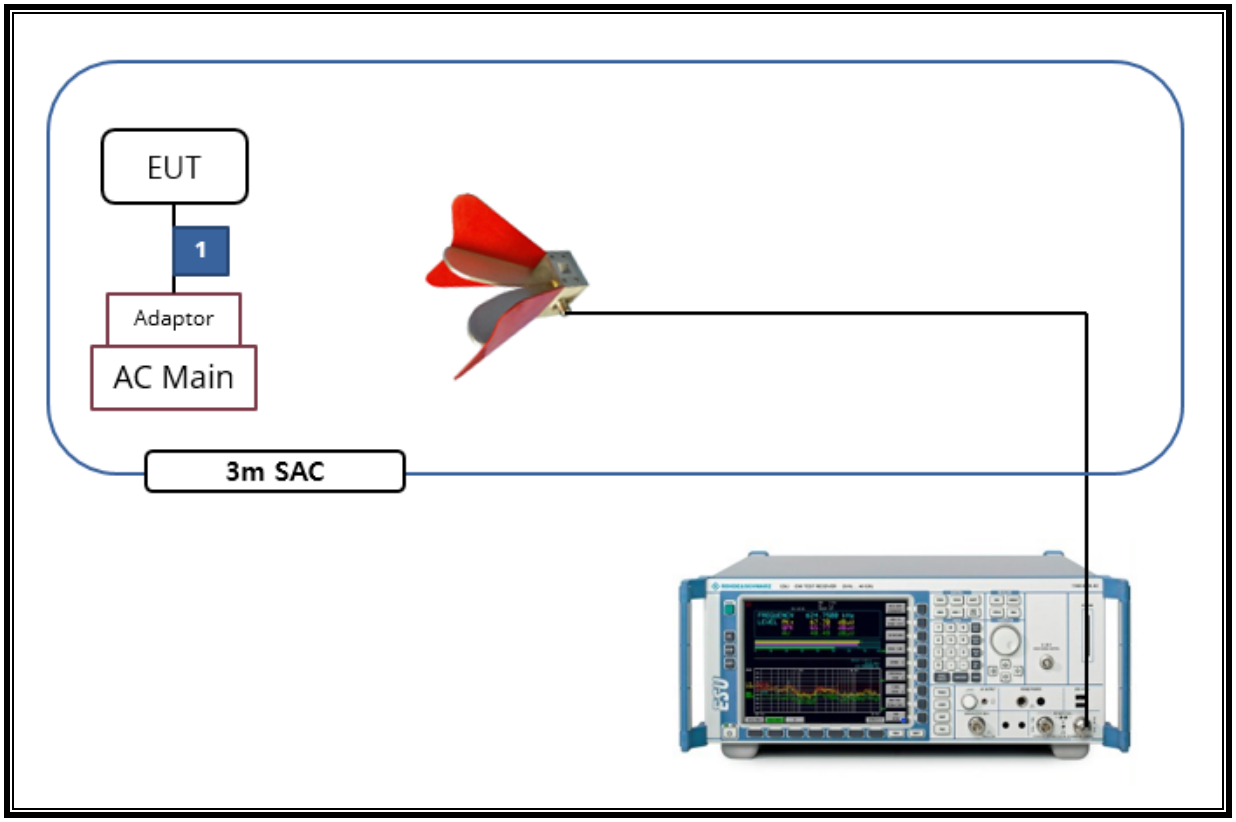
TEST SETUP

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**	**Next Cal. Date**	
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	845(Note)	08-04-20	08-13-22
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749(Note)	08-04-20	08-13-22
Antenna, Horn, 18 GHz	ETS	3115	00167211	08-04-20	07-27-22
Antenna, Horn, 18 GHz	ETS	3117	00168724	08-04-20	07-27-22
Antenna, Horn, 40 GHz	ETS	3116C	00166155	08-13-20	08-04-22
Antenna, Horn, 40 GHz	ETS	3116C	00168645	10-02-21	
Preamplifier	ETS	3116C-PA	00168841	08-08-20	08-06-21
Preamplifier, 1000 MHz	Sonoma	310N	341282	08-05-20	08-03-21
Preamplifier, 1000 MHz	Sonoma	310N	351741	08-05-20	08-03-21
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1876511	08-06-20	08-03-21
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	08-06-20	08-03-21
Spectrum Analyzer, 44 GHz	Keysight	N9030B	MY57143717	01-20-21	
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	08-06-20	08-05-21
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54490312	08-06-20	08-05-21
Average Power Sensor	Agilent / HP	U2000	MY54270007	08-09-20	08-05-21
Attenuator	PASTERNACK	PE7087-10	A001	08-08-20	08-03-21
Attenuator	PASTERNACK	PE7087-10	A008	08-08-20	08-03-21
Attenuator	PASTERNACK	PE7087-10	A007	08-08-20	08-03-21
Attenuator	PASTERNACK	PE7087-10	A009	08-08-20	08-05-21
EMI Test Receive, 40 GHz	R&S	ESU40	100439	08-06-20	08-03-21
EMI Test Receive, 40 GHz	R&S	ESU40	100457	08-06-20	08-03-21
EMI Test Receive, 3 GHz	R&S	ESR3	101832	08-05-20	08-03-21
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	009	08-06-20	08-03-21
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	015	08-06-20	08-03-21
High Pass Filter 3GHz	Micro-Tronics	HPM17543	010	08-06-20	08-03-21
High Pass Filter 3GHz	Micro-Tronics	HPM17543	015	08-06-20	08-03-21
High Pass Filter 6GHz	Micro-Tronics	HPS17542	009	08-06-20	08-03-21
High Pass Filter 6GHz	Micro-Tronics	HPS17542	016	08-06-20	08-03-21
LISN	R&S	ENV-216	101837	08-09-20	08-06-21
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	10-02-21	
Termination	WEINSCHEL	M1406A	T01	08-08-20	08-05-21
Attenuator	WEINSCHEL	WA76-30-21	A015	08-08-20	08-05-21
UL Software					
Description	**Manufacturer**	**Model**	**Version**		
Radiated software	UL	UL EMC	Ver 9.5		

7. SUMMARY TABLE

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result
15.407 (a)	Emission Bandwidth (26dB Bandwidth)	N/A	Condcuted	N/A
15.407(e)	6dB Band width (5.8Ghz)	500 kHz		PASS
15.407 (a)(2)	TX Cond. Power 5.15-2.25, 5.25-5.35 & 5.47-5.725	<24dBm or 11+10Log(26dB BW)		PASS
15.407 (a)(3)	TX Cond. Power 5.725-5.825	< 30dBm		PASS
15.407 (a)(5)	PSD (5.2,5.3,5.5GHz)	<11dBm		PASS
15.407 (a)(5)	PSD (5.8GHz)	30dBm per 500 kHz		PASS
15.207 (a)	AC Power Line conducted emissions	Section 10	Radiated	Refer to the UNII 802.11a_n_ac DFS WLAN Test report (No.:4789551399-E7)
15.407 (b) & 15.209	Radiated Spurious Emission	< 54dBuV/m		PASS
15.407 (h)(2)	Dynamic Frequency Selection	N/A	Condcuted	Refer to the UNII 802.11a_n_ac DFS WLAN Test report (No.:4789551399-E7)

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.

9. REFERENCE MEASUREMENTS RESULTS

9.1. ON TIME AND DUTY CYCLE RESULTS

Mode	ANT	Tone	On Time [ms]	Period [ms]	Duty Cycle X [Linear]	Duty Cycle X [%]	Duty Cycle Correction Factor [dB]
802.11ax HE20	Single	26T	5.079	5.105	0.99	99.49	0.00
		52T	5.074	5.093	1.00	99.63	0.00
		106T	4.767	4.785	1.00	99.62	0.00
		242T	4.667	4.685	1.00	99.62	0.00
		SU	5.443	5.462	1.00	99.65	0.00
	ALL	26T	5.078	5.105	0.99	99.47	0.00
		52T	5.075	5.093	1.00	99.65	0.00
		106T	4.766	4.784	1.00	99.62	0.00
		242T	4.668	4.685	1.00	99.64	0.00
		SU	5.450	5.470	1.00	99.63	0.00
802.11ax HE40	Single	26T	5.061	5.104	0.99	99.16	0.00
		52T	5.042	5.091	0.99	99.04	0.00
		106T	4.741	4.785	0.99	99.08	0.00
		242T	4.665	4.684	1.00	99.59	0.00
		484T	4.662	4.680	1.00	99.62	0.00
		SU	5.441	5.461	1.00	99.63	0.00
	ALL	26T	5.068	5.113	0.99	99.12	0.00
		52T	5.046	5.094	0.99	99.06	0.00
		106T	4.731	4.766	0.99	99.27	0.00
		242T	4.664	4.684	1.00	99.57	0.00
		484T	4.662	4.682	1.00	99.57	0.00
		SU	5.441	5.458	1.00	99.69	0.00
802.11ax HE80	Single	26T	5.044	5.104	0.99	98.82	0.00
		52T	5.031	5.092	0.99	98.80	0.00
		106T	4.728	4.780	0.99	98.91	0.00
		242T	4.647	4.669	1.00	99.53	0.00
		484T	4.661	4.680	1.00	99.59	0.00
		996T	4.726	4.746	1.00	99.58	0.00
		SU	5.443	5.461	1.00	99.67	0.00
	ALL	26T	5.047	5.107	0.99	98.83	0.00
		52T	5.030	5.092	0.99	98.78	0.00
		106T	4.740	4.774	0.99	99.29	0.00
		242T	4.662	4.684	1.00	99.53	0.00
		484T	4.651	4.682	0.99	99.34	0.00
		996T	4.724	4.750	0.99	99.45	0.00
		SU	5.450	5.468	1.00	99.67	0.00

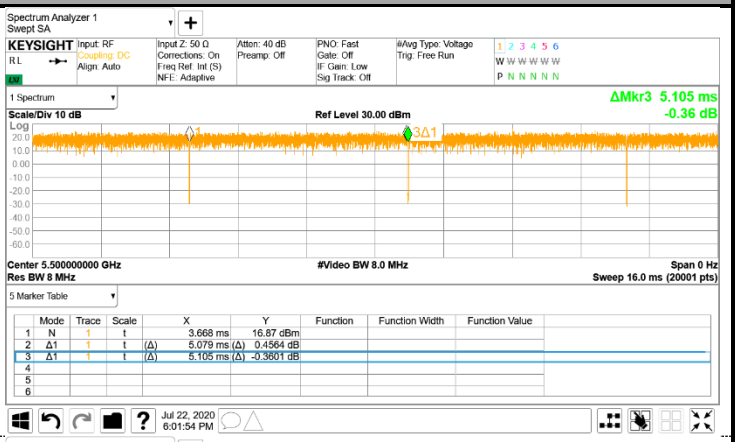
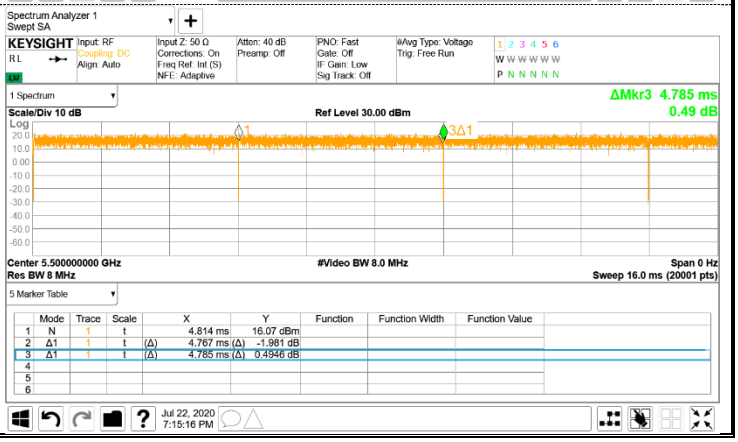
LIMITS

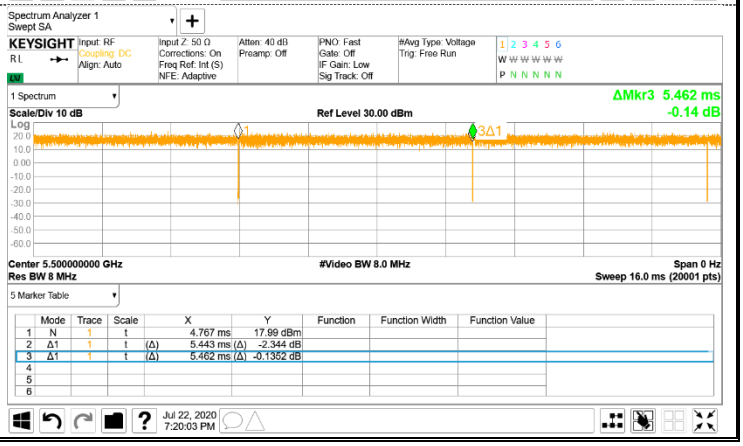
None; for reporting purposes only.

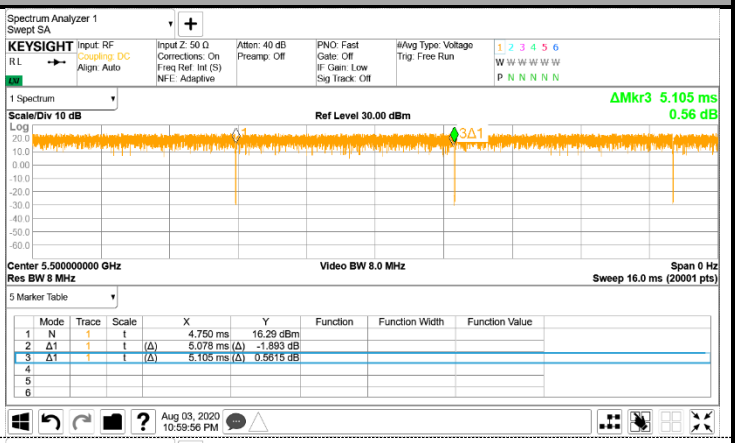
PROCEDURE

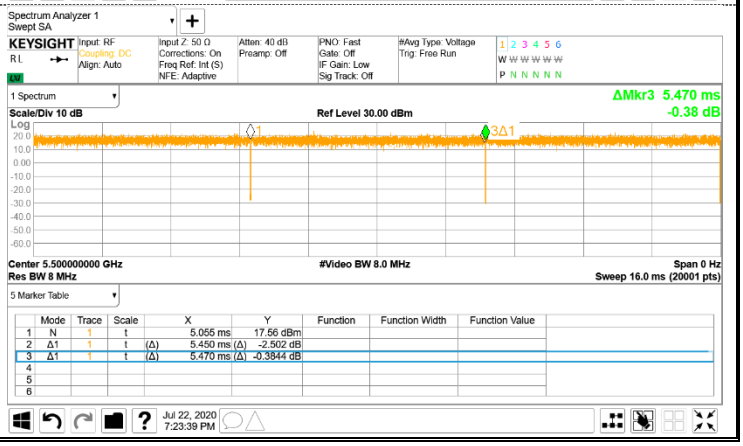
KDB 789033 D02 v02r01 Zero-Span Spectrum Analyzer Method.

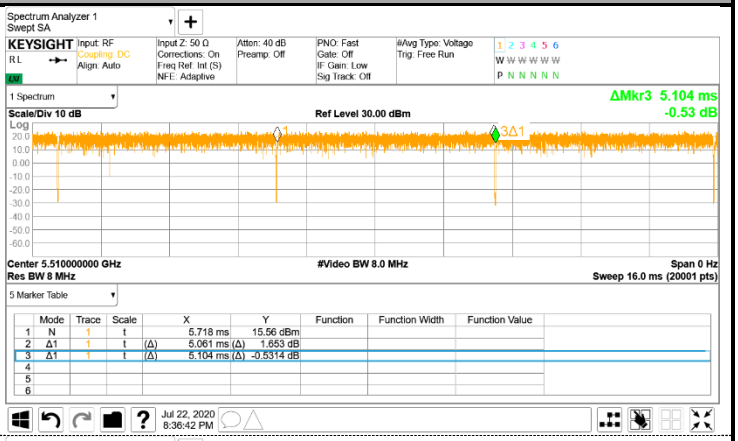
DUTY CYCLE PLOTS

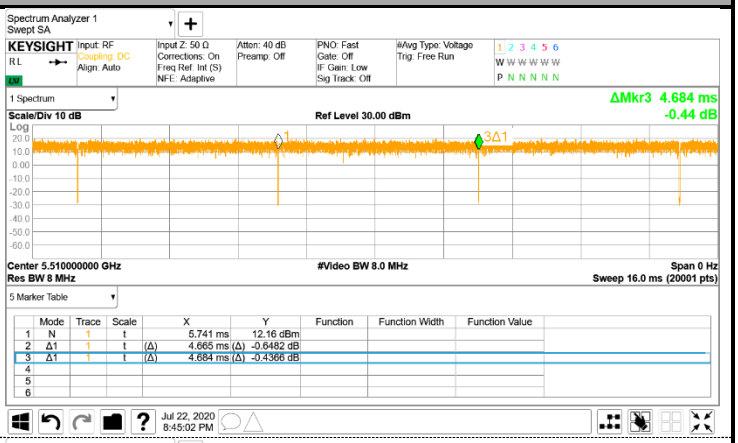
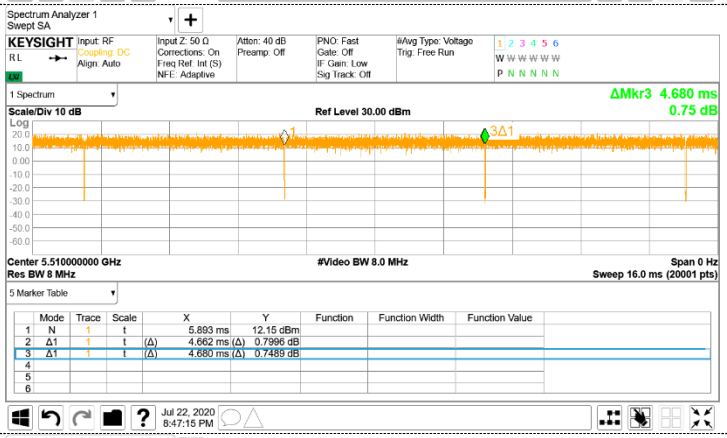
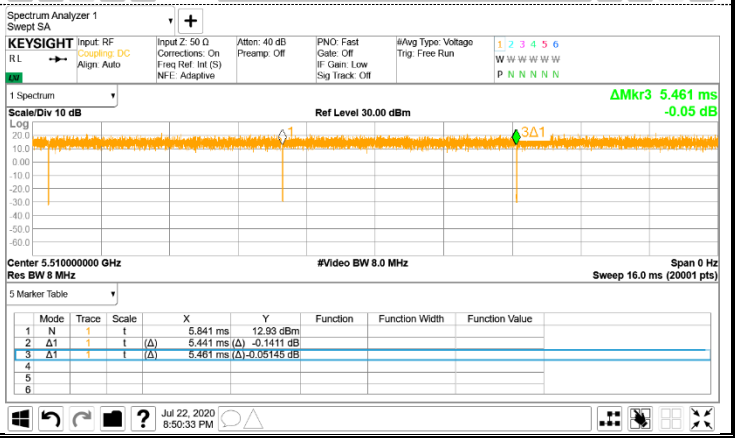
Mode	ANT	Mode (Tones)	Test Plot
802.11ax HE20	Single	26T	
		52T	
		106T	

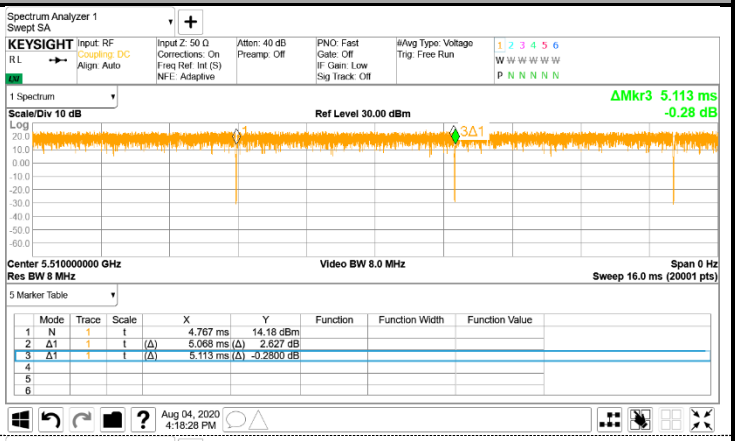
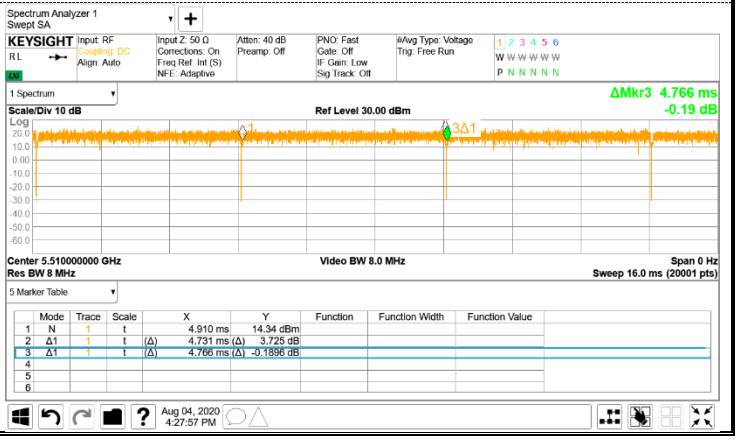
Mode	ANT	Mode (Tones)	Test Plot
802.11ax HE20	Single	242T	
		SU	

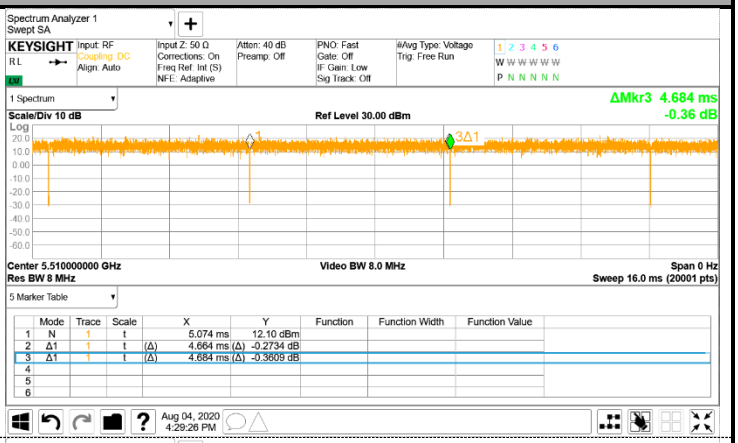
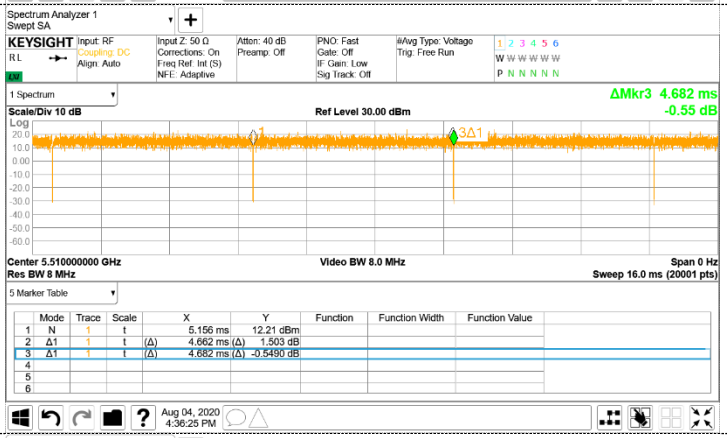
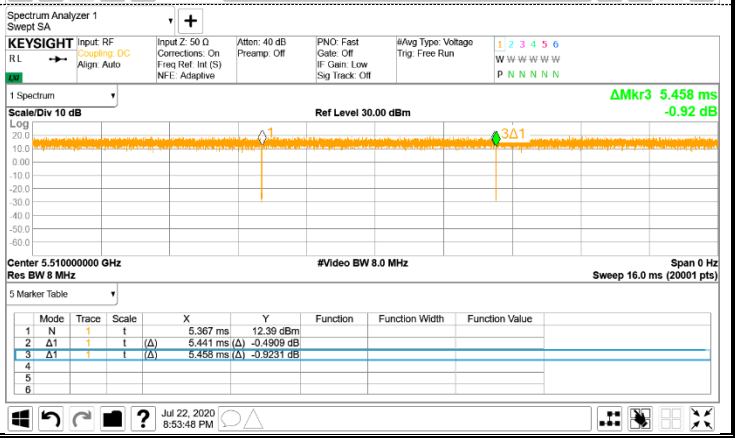
Mode	ANT	Mode (Tones)	Test Plot
802.11ax HE20	ALL	26T	
		52T	
		106T	

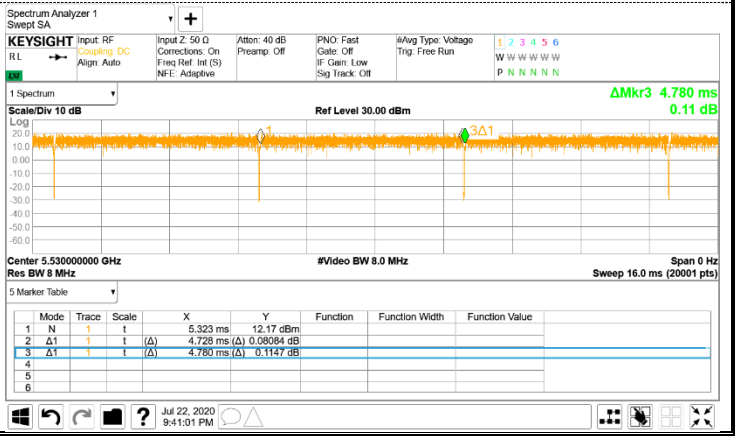
Mode	ANT	Mode (Tones)	Test Plot
802.11ax HE20	ALL	242T	
		SU	

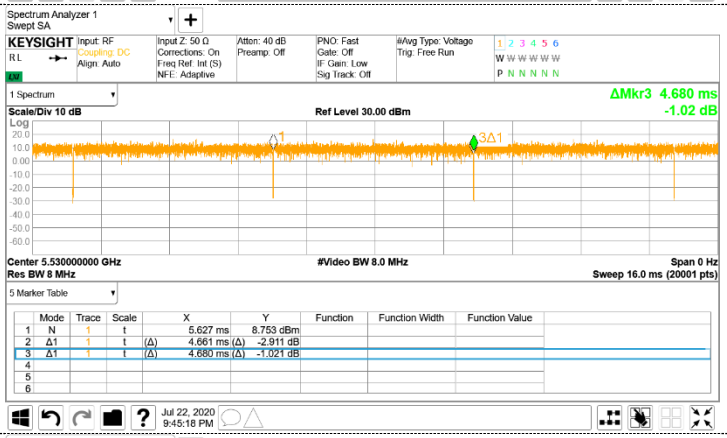
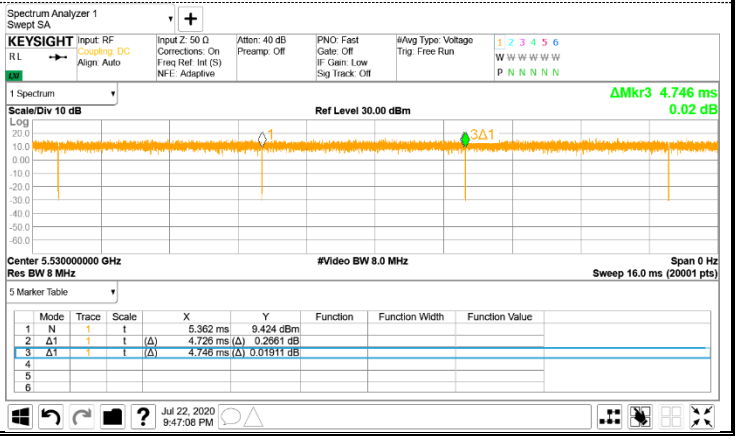
Mode	ANT	Mode (Tones)	Test Plot
802.11ax HE40	Single	26T	
		52T	
		106T	

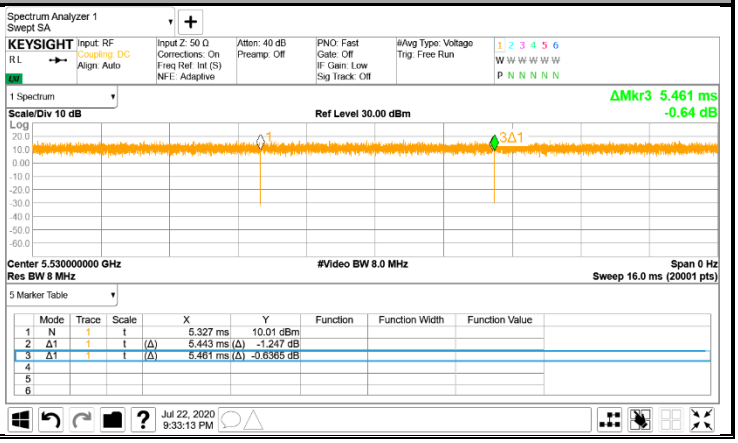
Mode	ANT	Mode (Tones)	Test Plot
802.11ax HE40	Single	242T	
		484T	
		SU	

Mode	ANT	Mode (Tones)	Test Plot
802.11ax HE40	ALL	26T	
		52T	
		106T	

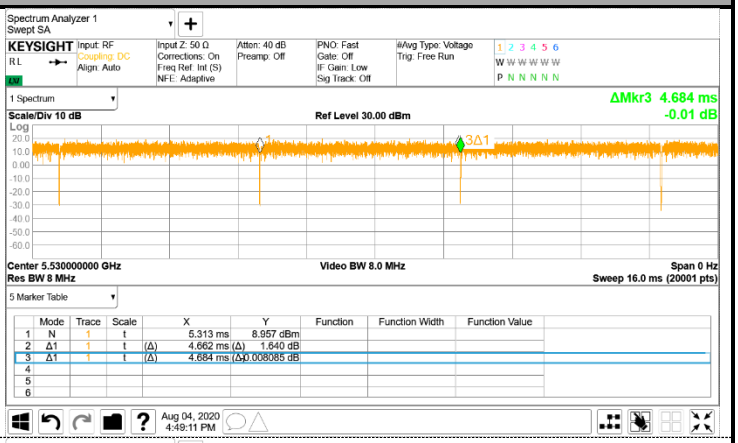
Mode	ANT	Mode (Tones)	Test Plot
802.11ax HE40	ALL	242T	
		484T	
		SU	

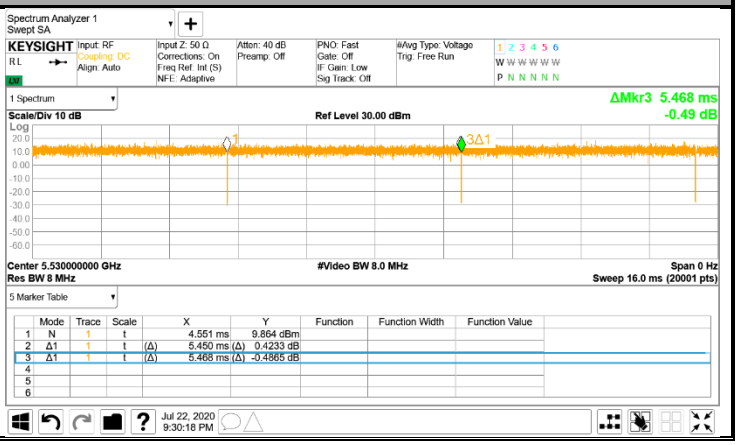
Mode	ANT	Mode (Tones)	Test Plot
802.11ax HE80	Single	26T	
		52T	
		106T	

Mode	ANT	Mode (Tones)	Test Plot
802.11ax HE80	Single	242T	
		484T	
		996T	

Mode	ANT	Mode (Tones)	Test Plot
802.11ax HE80	Single	SU	

Mode	ANT	Mode (Tones)	Test Plot
802.11ax HE80	ALL	26T	
		52T	
		106T	

Mode	ANT	Mode (Tones)	Test Plot
802.11ax HE80	ALL	242T	
		484T	
		996T	

Mode	ANT	Mode (Tones)	Test Plot
802.11ax HE80	ALL	SU	

9.2. 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.

NOTE

- Calculation for 26dB Bandwidth of RU allocation and channels inclueded to straddle band in UNII-2C and UNII-3 Straddle Channel

ex) Marker 2: Lower point of 26 dB bandwidth
Marker 3: Upper point of 26 dB bandwidth
  - Turning Frequency : 5725MHz
  - Marker 2: 5710 MHz
  - Marker 3: 5730 MHz
  - 26dB Bandwidth of UNII-2C band Portion
    = (5725 – 5710) = 15 MHz
  - 26dB Bandwidth of UNII-3 band Portion
    = (5730 - 5725) = 5 MHz

RESULTS

See the next page.

9.2.1. 802.11ax 5.2 GHz BAND

Band	Mode	Center Freq. [MHz]	Tones	RU offset	26 dB BW [MHz]	
					ANT1	ANT2
UNII-1	HE20	5180	26T	0	19.84	19.72
				4	18.24	18.11
				8	19.56	19.97
			SU	-	***20.60***	***20.47***
		5200	26T	0	20.04	19.79
				4	18.23	18.22
				8	19.85	19.83
			SU	-	20.51	20.03
		5240	26T	0	19.90	19.86
				4	18.17	18.38
				8	19.78	19.63
			SU	-	20.26	20.45
	HE40	5190	26T	0	39.65	39.91
				9	37.40	37.87
				17	39.73	39.84
			SU	-	***39.95***	***39.93***
		5230	26T	0	39.65	39.76
				9	37.96	37.81
				17	39.51	39.88
			SU	-	39.83	39.80
	HE80	5210	26T	0	***81.30***	81.24
				18	77.23	77.87
				36	80.17	***81.56***
			SU	-	81.23	81.28

9.2.2. 802.11ax 5.3 GHz BAND

Band	Mode	Center Freq. [MHz]	Tones	RU offset	26 dB BW [MHz]	
					ANT1	ANT2
UNII-2A	HE20	5260	26T	0	19.31	19.77
				4	18.07	17.93
				8	19.51	20.15
			SU	-	20.63	20.43
		5300	26T	0	19.66	19.66
				4	18.20	17.95
				8	19.33	19.78
			SU	-	***20.73***	***20.45***
		5320	26T	0	18.58	19.71
				4	17.92	18.42
				8	19.60	19.67
			SU	-	20.51	19.95
	HE40	5270	26T	0	39.32	39.61
				9	37.85	37.88
				17	39.23	39.83
			SU	-	39.61	39.61
		5310	26T	0	39.80	39.72
				9	37.30	37.89
				17	39.77	39.98
			SU	-	***40.12***	***40.11***
	HE80	5290	26T	0	80.74	81.32
				18	77.89	78.13
				36	***81.80***	81.37
			SU	-	81.36	***81.61***

9.2.3. 802.11ax 5.5 GHz BAND

Band	Mode	Center Freq. [MHz]	Tones	RU offset	26 dB BW [MHz]	
					ANT1	ANT2
UNII-2C	HE20	5500	26T	0	19.22	19.68
				4	18.35	18.17
				8	19.66	19.65
			SU	-	20.99	20.49
		5580	26T	0	19.81	19.76
				4	18.00	18.16
				8	19.56	19.78
			SU	-	***21.10***	20.62
		5700	26T	0	19.40	19.74
				4	17.69	18.13
				8	19.57	19.84
			SU	-	20.64	***21.07***
	HE40	5510	26T	0	39.79	39.89
				9	37.85	37.22
				17	39.68	39.65
			SU	-	39.88	***40.25***
		5590	26T	0	39.92	39.73
				9	37.87	37.86
				17	39.85	39.91
			SU	-	40.10	39.88
		5670	26T	0	39.72	39.77
				9	37.84	38.00
				17	39.55	39.60
			SU	-	***40.47***	39.81
	HE80	5530	26T	0	81.59	81.31
				18	77.87	77.78
				36	***81.77***	81.28
			SU	-	81.22	***82.15***
		5610	26T	0	81.27	81.23
				18	78.04	77.92
				36	80.04	82.03
			SU	-	81.20	80.90

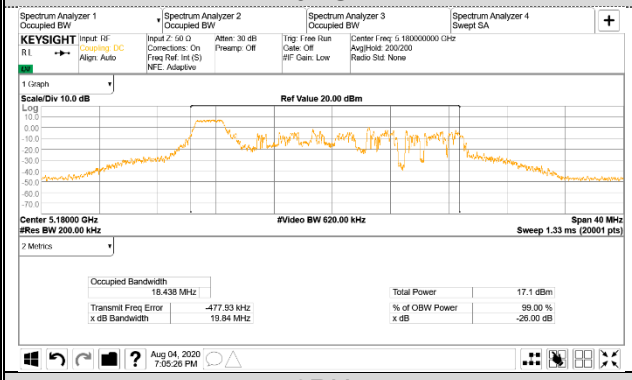
9.2.4. 802.11ax STRADDLE CHANNEL

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	14.13	4.07	14.10	4.16
			SU	-	15.68	5.53	15.23	5.44
	HE40	5710	26T	16	33.92	3.94	33.97	3.99
			SU	-	35.35	4.90	34.85	4.84
	HE80	5690	26T	35	73.84	5.58	73.87	6.03
			SU	-	75.60	5.72	75.72	5.28

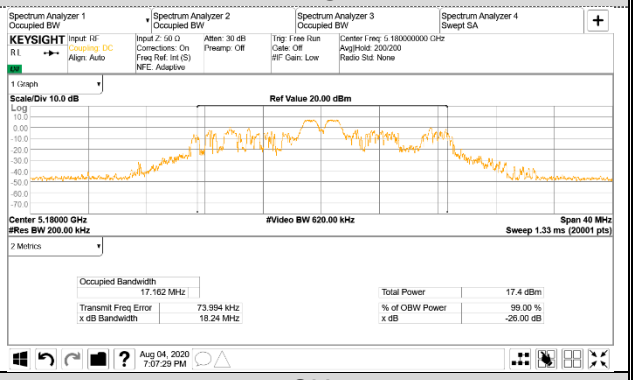
9.2.5. TEST PLOT_802.11ax 5.2 GHz BAND

Band	UNII-1
Mode	HE20
Frequency	5180 MHz
Ant	1

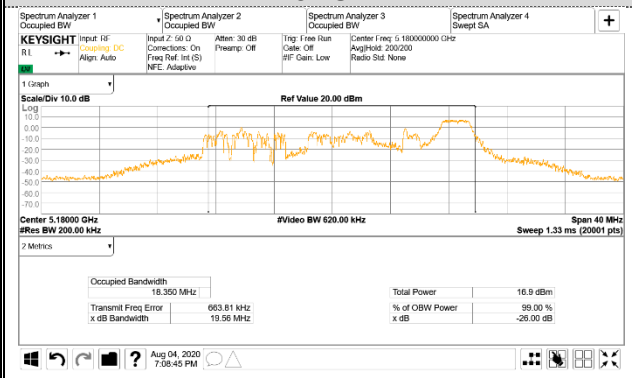
0RU



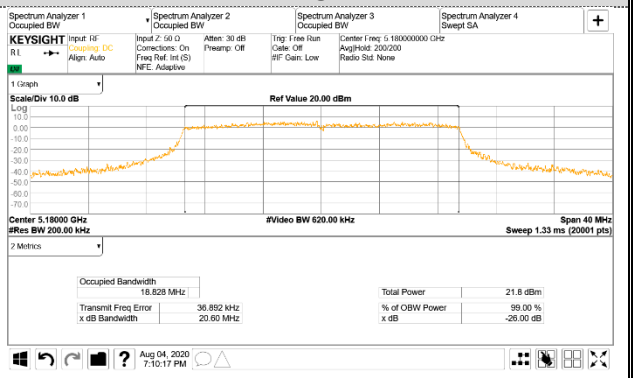
4RU



8RU

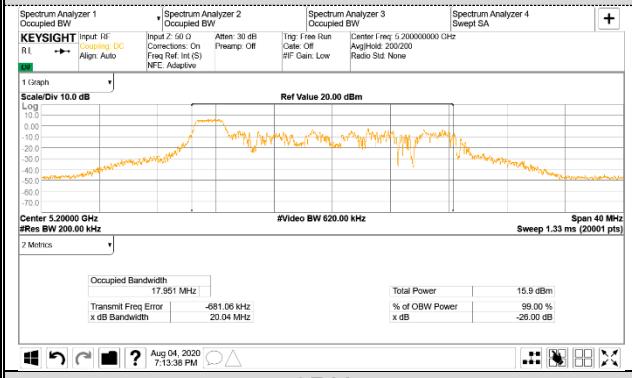


SU

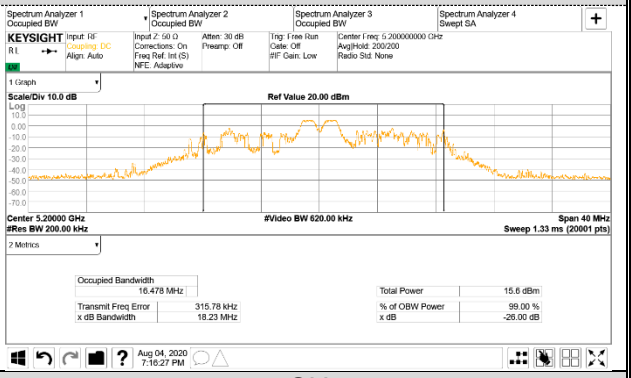


Band	**UNII-1**
Mode	**HE20**
Frequency	**5200 MHz**
Ant	**1**

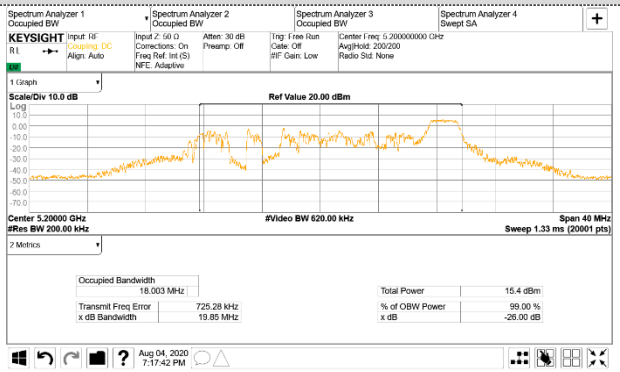
0RU



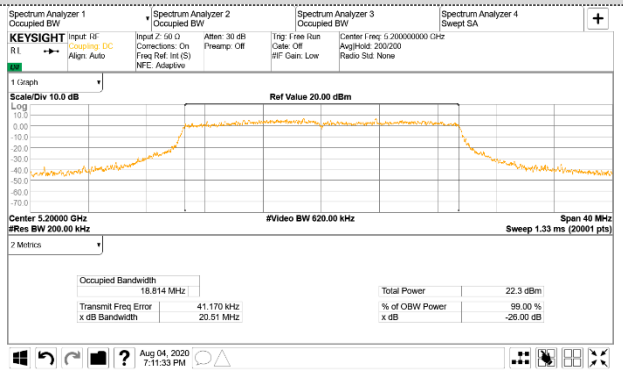
4RU



8RU

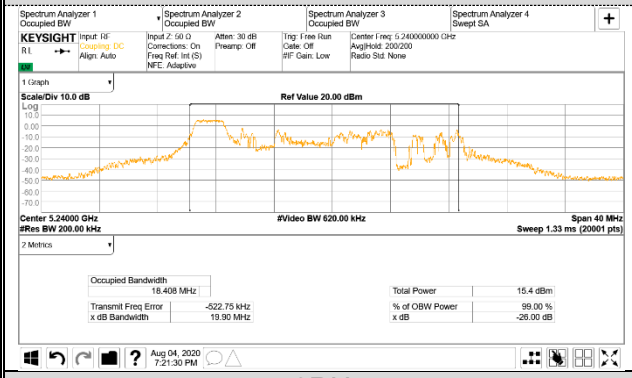


SU

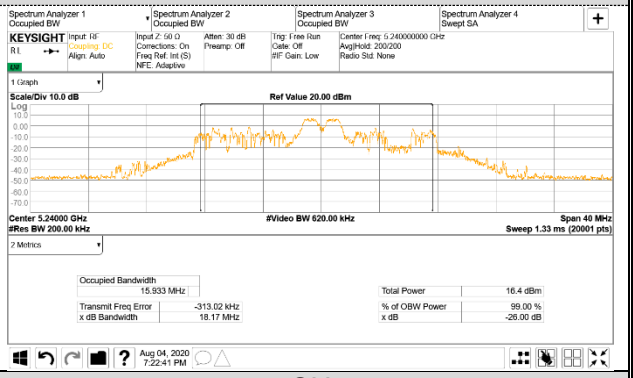


Band	**UNII-1**
Mode	**HE20**
Frequency	**5240 MHz**
Ant	**1**

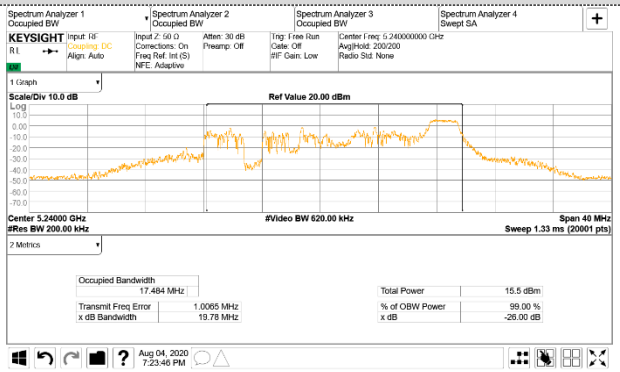
0RU



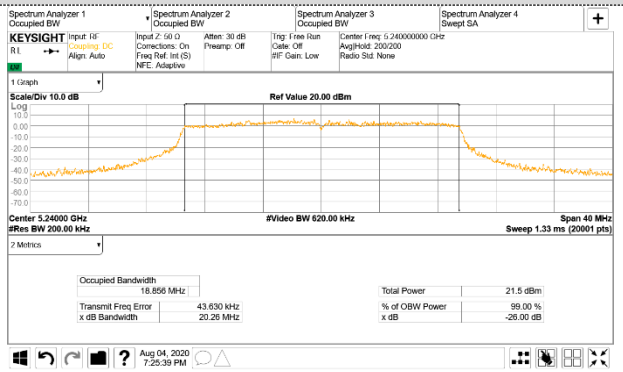
4RU



8RU

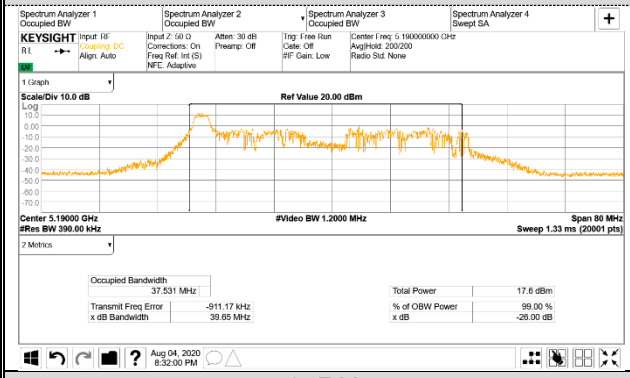


SU

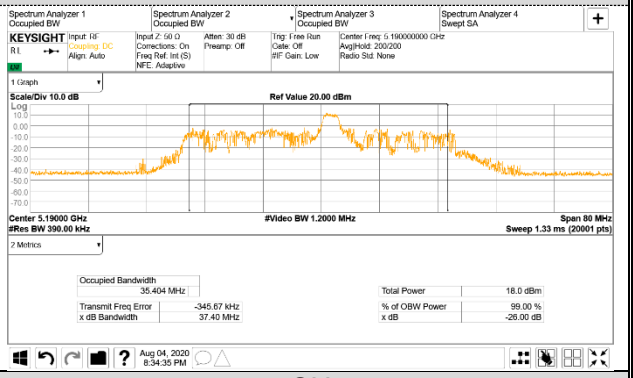


Band	**UNII-1**
Mode	**HE40**
Frequency	**5190 MHz**
Ant	**1**

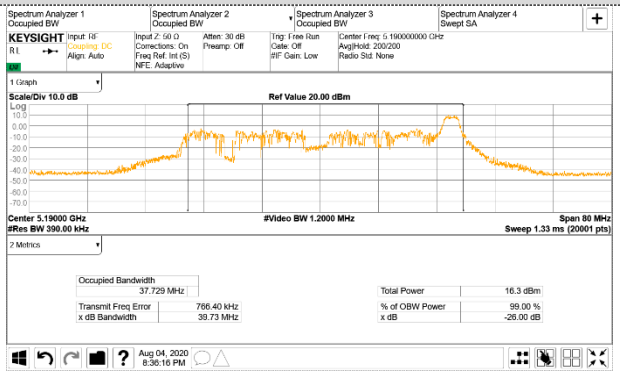
0RU



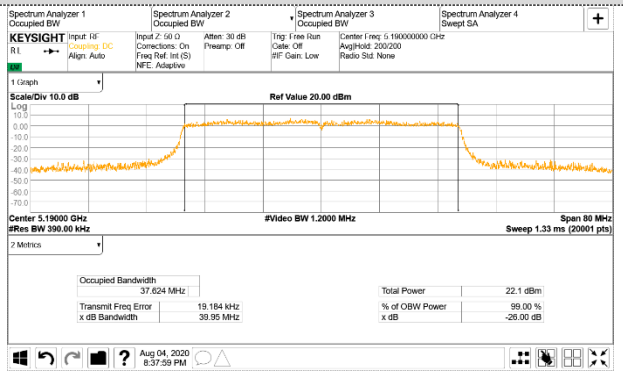
9RU



17RU

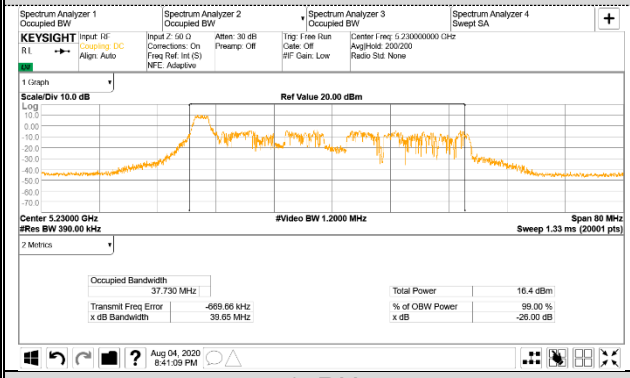


SU

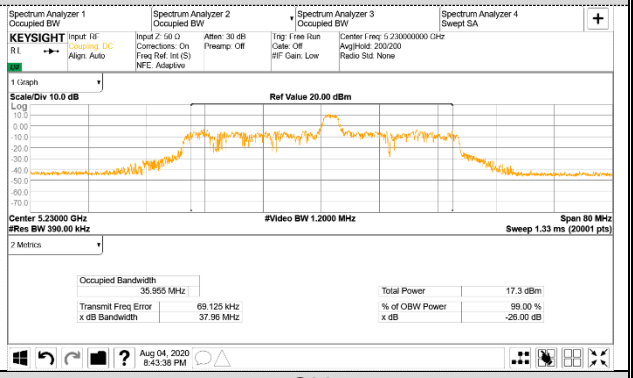


Band	**UNII-1**
Mode	**HE40**
Frequency	**5230 MHz**
Ant	**1**

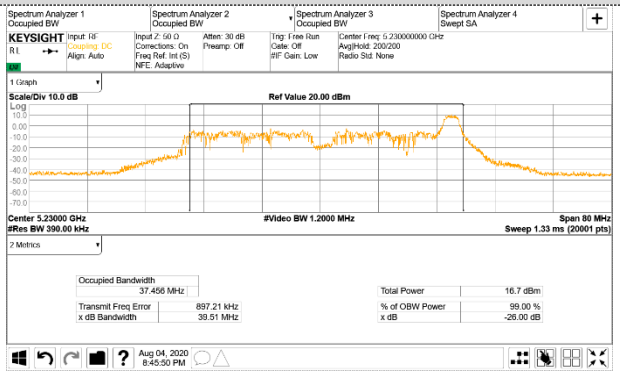
0RU



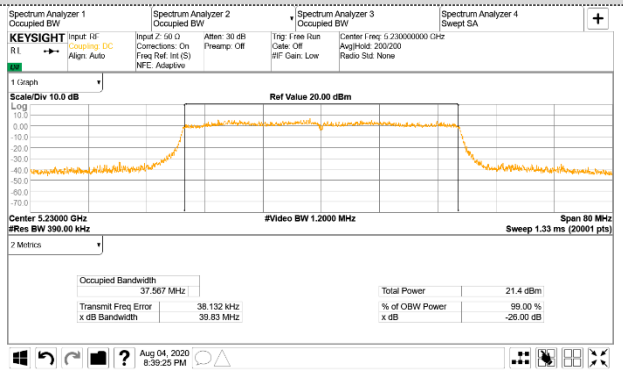
9RU



17RU

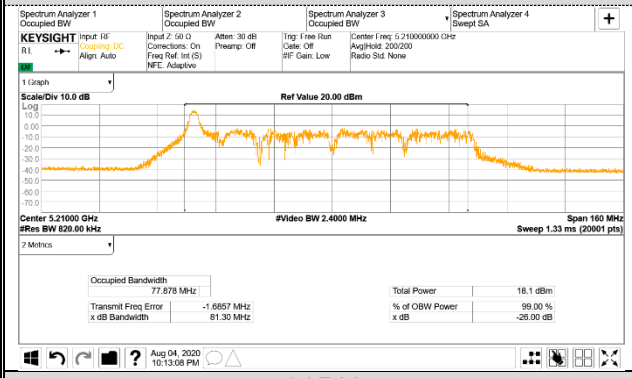


SU

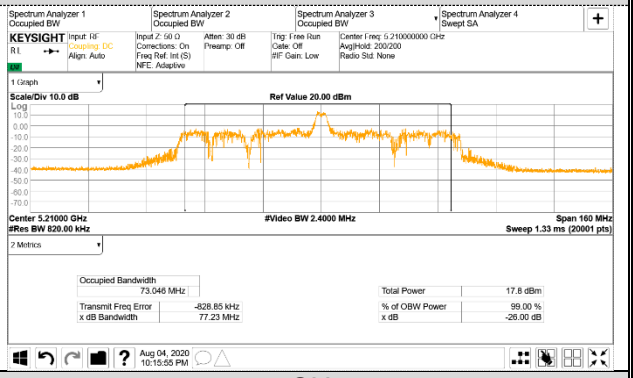


Band	**UNII-1**
Mode	**HE80**
Frequency	**5210 MHz**
Ant	**1**

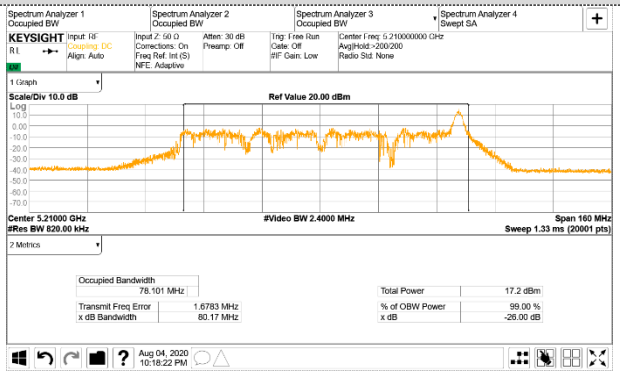
0RU



18RU



36RU



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