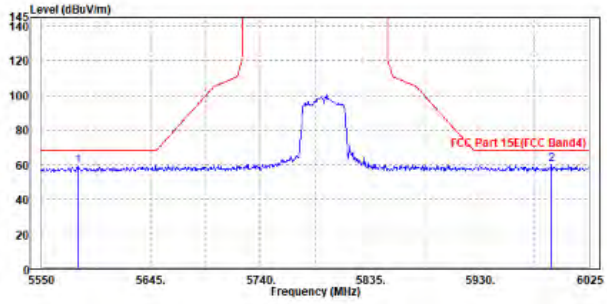
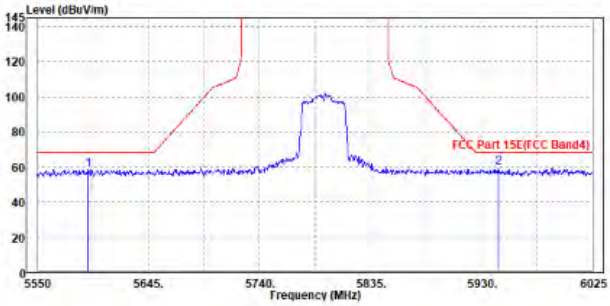
OOBE DATA

802.11n (40MHZ)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5581.825	59.2	59.97	68.2	-9	34.9	9.83	45.5	100	60	Peak
5992.7	60	60.14	68.2	-8.2	35.39	9.97	45.5	100	60	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5593.7	58.5	59.46	68.2	-9.7	34.71	9.83	45.5	100	80	Peak
5944.725	59.48	59.9	68.2	-8.72	35.13	9.95	45.5	100	80	Peak

CH 159

Horiontal	Vertical
	

802.11ac (20MHz)

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5745	100.36	100.89	/	/	35.09	9.88	45.5	100	60	Peak
5745	94.48	95.01	/	/	35.09	9.88	45.5	100	60	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5745	103.5	104.23	/	/	34.89	9.88	45.5	100	80	Peak
5745	96.63	97.36	/	/	34.89	9.88	45.5	100	80	Average

REMARKS:

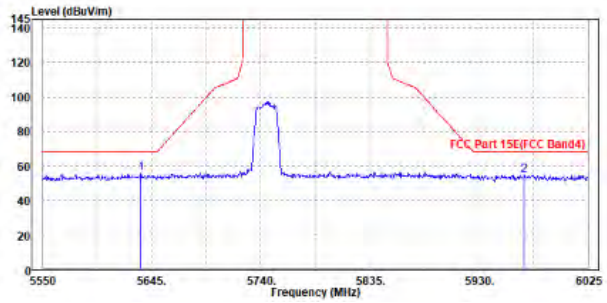
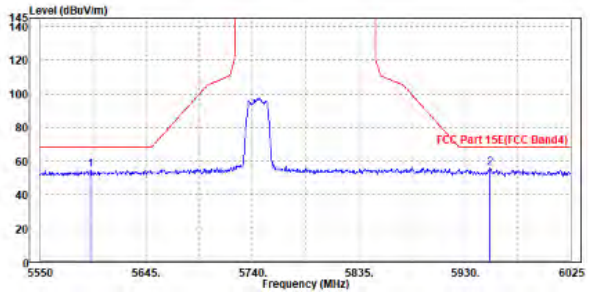
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 5745MHz: Fundamental frequency.

OOBE DATA

802.11ac (20MHz)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5635.5	55.84	56.53	68.2	-12.36	34.96	9.85	45.5	100	0	Peak
5969.425	54.66	54.84	68.2	-13.54	35.36	9.96	45.5	100	0	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5595.125	54.33	55.29	68.2	-13.87	34.71	9.83	45.5	100	360	Peak
5952.8	55.79	56.2	68.2	-12.41	35.14	9.95	45.5	100	360	Peak

CH 149

Horiontal	Vertical
	

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5785	100.2	100.66	/	/	35.14	9.9	45.5	100	60	Peak
5785	93.03	93.49	/	/	35.14	9.9	45.5	100	60	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5785	103.2	103.86	/	/	34.94	9.9	45.5	100	80	Peak
5785	96.53	97.19	/	/	34.94	9.9	45.5	100	80	Average

REMARKS:

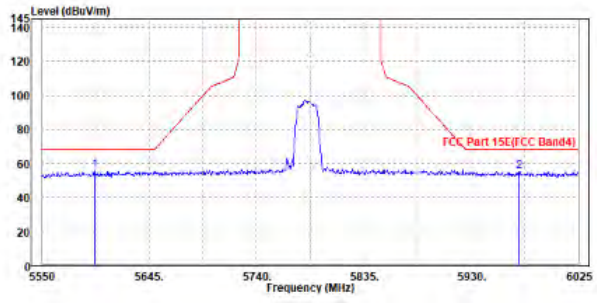
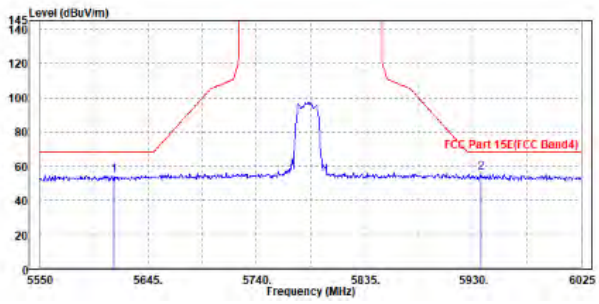
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 5785MHz: Fundamental frequency.

OOBE DATA

802.11ac (20MHz)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV /m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5597.025	55.65	56.4	68.2	-12.55	34.92	9.83	45.5	100	360	Peak
5972.75	55.13	55.3	68.2	-13.07	35.37	9.96	45.5	100	360	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV /m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5615.075	54.77	55.69	68.2	-13.43	34.74	9.84	45.5	100	0	Peak
5936.65	56.47	56.9	68.2	-11.73	35.12	9.95	45.5	100	0	Peak

CH 157

Horiontal	Vertical
	

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5825	100.91	101.31	/	/	35.19	9.91	45.5	100	60	Peak
5825	92.89	93.29	/	/	35.19	9.91	45.5	100	60	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5825	103.22	103.82	/	/	34.99	9.91	45.5	100	80	Peak
5825	96.52	97.12	/	/	34.99	9.91	45.5	100	80	Average

REMARKS:

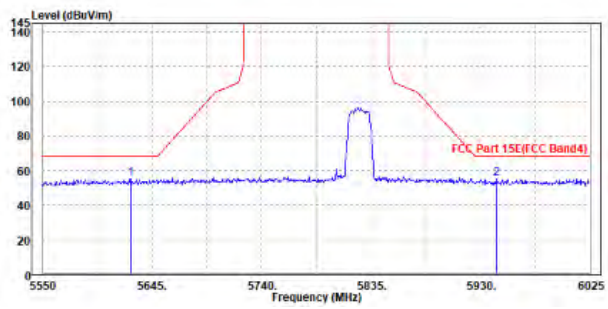
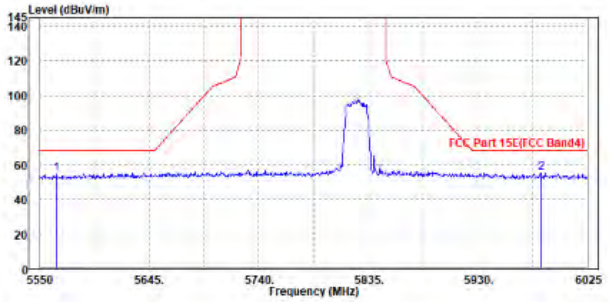
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 5825MHz: Fundamental frequency.

OOBE DATA

802.11ac (20MHz)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5626.475	55.06	55.77	68.2	-13.14	34.95	9.84	45.5	100	0	Peak
5943.3	54.99	55.21	68.2	-13.21	35.33	9.95	45.5	100	0	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5564.725	54.75	55.75	68.2	-13.45	34.68	9.82	45.5	100	360	Peak
5984.625	55.04	55.4	68.2	-13.16	35.18	9.96	45.5	100	360	Peak

CH 165

Horiontal	Vertical
	

802.11ac (40MHz)

CHANNEL	TX Channel 151	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5755	95.18	95.68	/	/	35.11	9.89	45.5	100	60	Peak
5755	89.36	89.86	/	/	35.11	9.89	45.5	100	60	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5755	99.4	100.1	/	/	34.91	9.89	45.5	100	80	Peak
5755	93.85	94.55	/	/	34.91	9.89	45.5	100	80	Average

REMARKS:

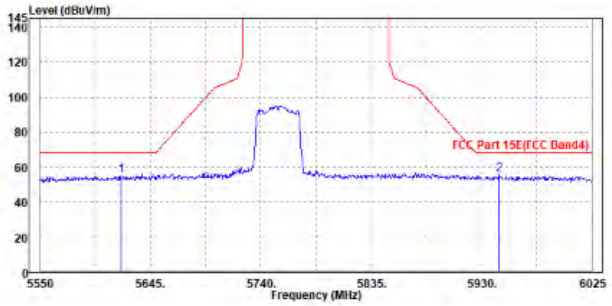
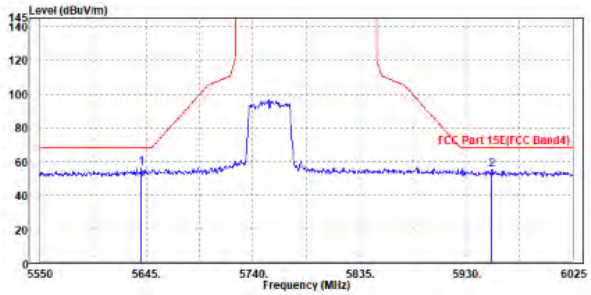
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 5755MHz: Fundamental frequency.

OOBE DATA

802.11ac (40MHz)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5619.825	55.41	56.13	68.2	-12.79	34.94	9.84	45.5	100	360	Peak
5945.2	55.87	56.09	68.2	-12.33	35.33	9.95	45.5	100	360	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5640.725	56.1	56.98	68.2	-12.1	34.77	9.85	45.5	100	0	Peak
5952.8	55.37	55.78	68.2	-12.83	35.14	9.95	45.5	100	0	Peak

CH 151

Horiontal	Vertical
	

CHANNEL	TX Channel 159	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5795	96.1	96.55	/	/	35.15	9.9	45.5	100	60	Peak
5795	91.19	91.64	/	/	35.15	9.9	45.5	100	60	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5795	99.29	99.94	/	/	34.95	9.9	45.5	100	80	Peak
5795	93.95	94.6	/	/	34.95	9.9	45.5	100	80	Average

REMARKS:

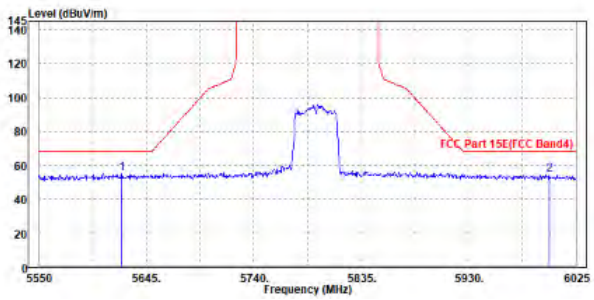
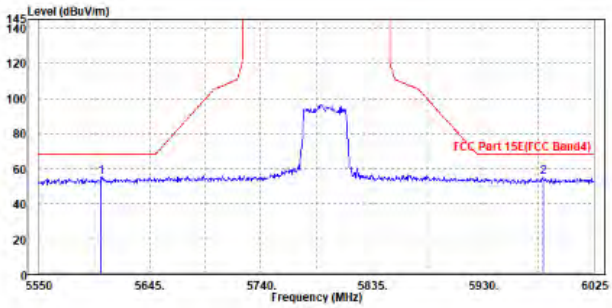
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 5795MHz: Fundamental frequency.

OOBE DATA

802.11ac (40MHz)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5623.15	55.36	56.07	68.2	-12.84	34.95	9.84	45.5	100	0	Peak
6001.725	54.43	54.56	68.2	-13.77	35.4	9.97	45.5	100	0	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5603.675	55.24	56.18	68.2	-12.96	34.72	9.84	45.5	100	360	Peak
5981.3	54.86	55.22	68.2	-13.34	35.18	9.96	45.5	100	360	Peak

CH 159

Horiontal	Vertical
	

802.11ac (80MHz)

CHANNEL	TX Channel 155	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5775	92.04	92.52	/	/	35.13	9.89	45.5	100	60	Peak
5775	86.88	87.36	/	/	35.13	9.89	45.5	100	60	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5775	95.73	96.41	/	/	34.93	9.89	45.5	100	80	Peak
5775	91.36	92.04	/	/	34.93	9.89	45.5	100	80	Average

REMARKS:

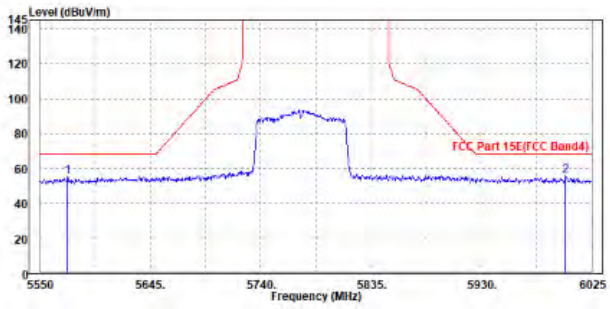
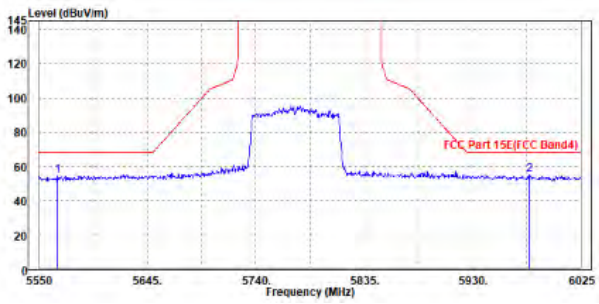
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 5775MHz: Fundamental frequency.

OOBE DATA

802.11ac (80MHz)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5573.75	54.96	55.74	68.2	-13.24	34.89	9.83	45.5	100	360	Peak
6002.675	55.44	55.57	68.2	-12.76	35.4	9.97	45.5	100	360	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5566.15	54.44	55.44	68.2	-13.76	34.68	9.82	45.5	100	0	Peak
5980.35	55.23	55.59	68.2	-12.97	35.18	9.96	45.5	100	0	Peak

CH 155

Horiontal	Vertical
	

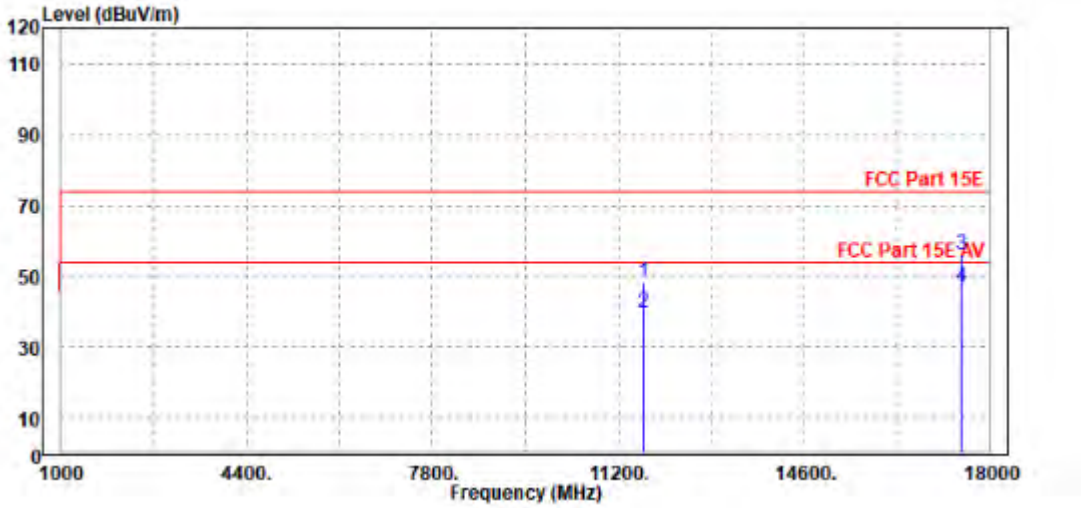
Worst case harmonic:

802.11n (20MHz)

CHANNEL	TX Channel 165	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

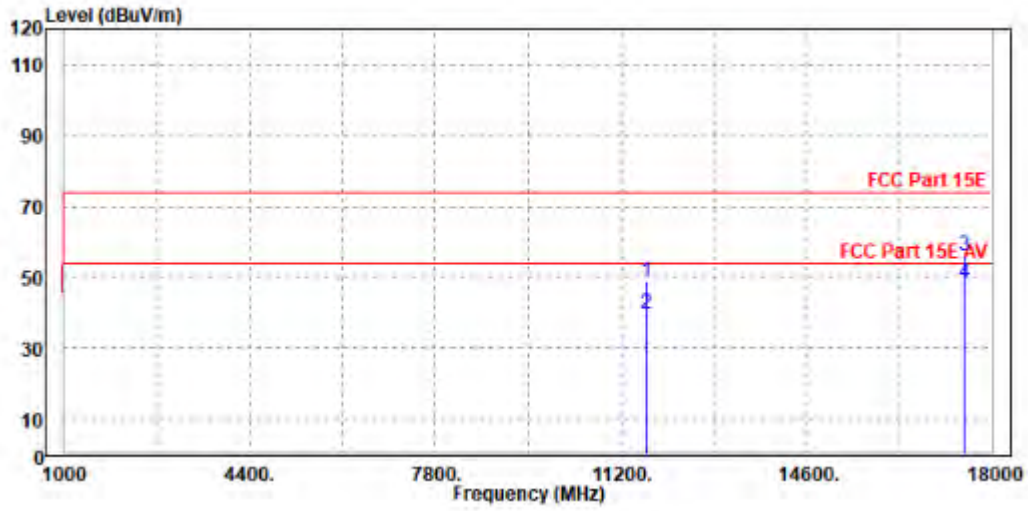
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	11650.000	48.14	38.62	74.00	-25.86	9.52	Peak	Horizontal
2	11650.000	39.78	30.26	54.00	-14.22	9.52	Average	Horizontal
3	PK17475.000	56.24	37.86	74.00	-17.76	18.38	Peak	Horizontal
4	PP17475.000	47.05	28.67	54.00	-6.95	18.38	Average	Horizontal



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	11650.000	48.59	38.65	74.00	-25.41	9.94	Peak	Vertical
2	11650.000	39.76	29.82	54.00	-14.24	9.94	Average	Vertical
3	PK17475.000	56.30	38.96	74.00	-17.70	17.34	Peak	Vertical
4	PP17475.000	48.15	30.81	54.00	-5.85	17.34	Average	Vertical



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 5825MHz: Fundamental frequency.
3. For frequency range above 18GHz，the emission is 20db below the limit,so the data hadn't record in the sheet.

3.2 CONDUCTED EMISSION MEASUREMENT

3.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	60	50

NOTE: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

3.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESR3	101900	Feb. 15,22	Feb. 14,23
EMC32 test software	Rohde&Schwarz	EMC32	NA	NA	NA
LISN network	Rohde&Schwarz	ENV216	101922	Mar. 04,22	Mar. 03,23

NOTE:

1. The test was performed in CE shielded room.
2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

3.2.3 TEST PROCEDURES

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

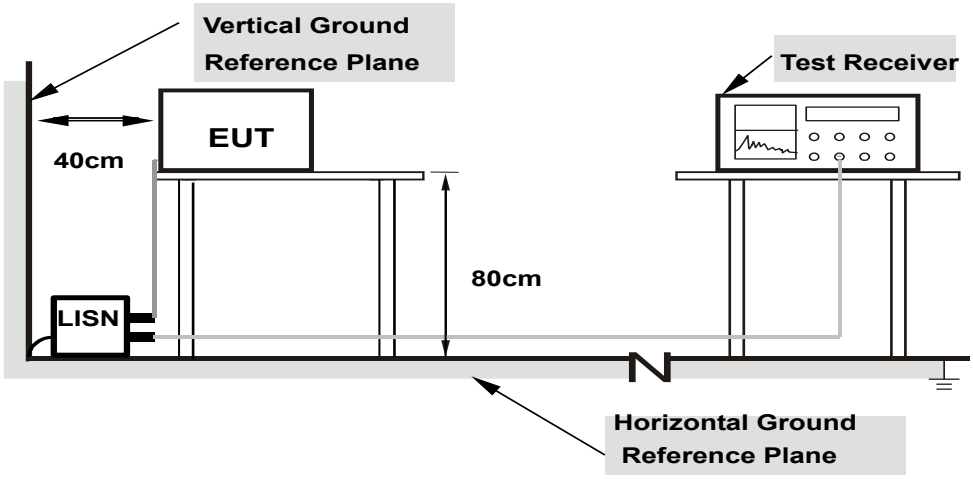
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

3.2.4 DEVIATION FROM TEST STANDARD

No deviation.

3.2.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

For the actual test configuration, please refer to the attached file (Test Setup Photo).

3.2.6 EUT OPERATING CONDITIONS

Same as 3.1.7.

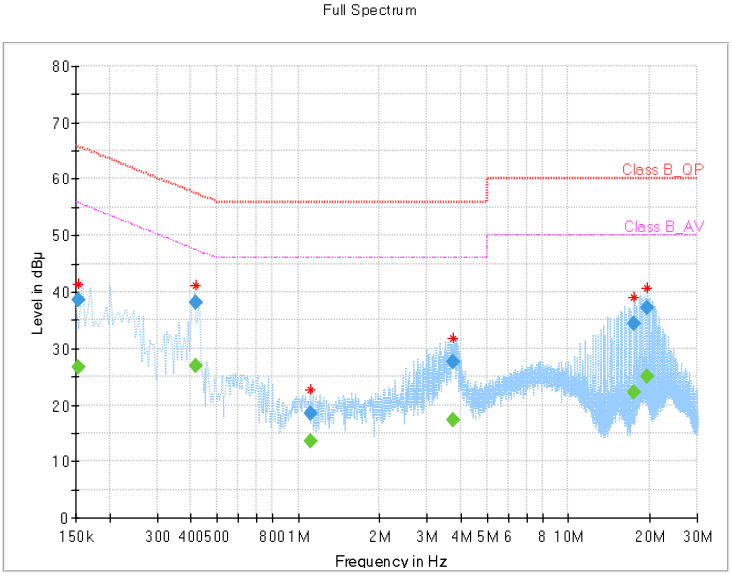
3.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA:

Frequency Range	150KHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120Vac, 60Hz	Environmental Conditions	26deg. C, 51%RH
Tested By	Carl Xie		

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.154000	---	26.57	55.78	29.21	L1	ON	9.7
0.154000	38.71	---	65.78	27.07	L1	ON	9.7
0.416000	---	26.96	47.53	20.57	L1	ON	9.7
0.416000	38.13	---	57.53	19.40	L1	ON	9.7
1.108000	---	13.52	46.00	32.48	L1	ON	9.7
1.108000	18.58	---	56.00	37.42	L1	ON	9.7
3.756000	---	17.28	46.00	28.72	L1	ON	9.7
3.756000	27.51	---	56.00	28.49	L1	ON	9.7
17.432000	---	22.31	50.00	27.69	L1	ON	9.8
17.432000	34.34	---	60.00	25.66	L1	ON	9.8
19.560000	---	25.10	50.00	24.90	L1	ON	9.8
19.560000	37.09	---	60.00	22.91	L1	ON	9.8

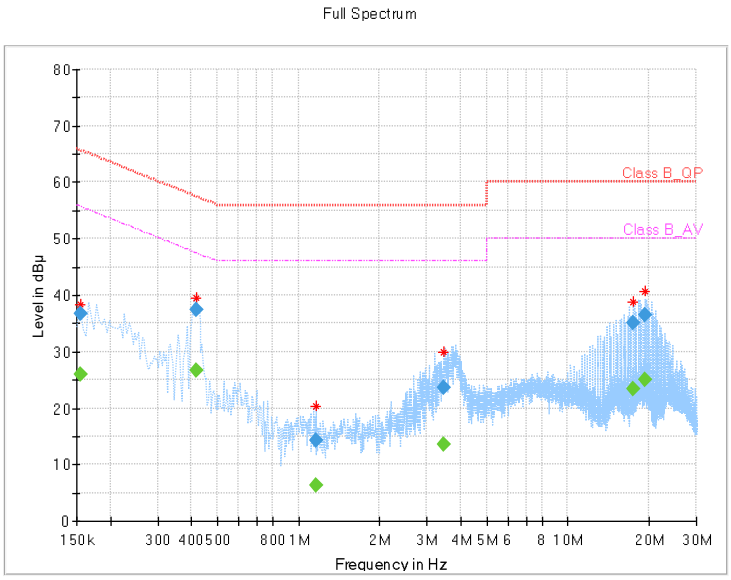
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Limit value - Emission level
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



Frequency Range	150KHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120Vac, 60Hz	Environmental Conditions	26deg. C, 51%RH
Tested By	Carl Xie		

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.156000	---	25.88	55.67	29.79	N	ON	9.7
0.156000	36.75	---	65.67	28.92	N	ON	9.7
0.416000	---	26.73	47.53	20.80	N	ON	9.7
0.416000	37.43	---	57.53	20.10	N	ON	9.7
1.164000	---	6.29	46.00	39.71	N	ON	9.8
1.164000	14.29	---	56.00	41.71	N	ON	9.8
3.476000	---	13.49	46.00	32.51	N	ON	9.8
3.476000	23.52	---	56.00	32.48	N	ON	9.8
17.432000	---	23.31	50.00	26.69	N	ON	9.9
17.432000	34.99	---	60.00	25.01	N	ON	9.9
19.296000	---	24.98	50.00	25.02	N	ON	9.9
19.296000	36.55	---	60.00	23.45	N	ON	9.9

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Limit value - Emission level
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



3.3 MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

3.3.1 LIMITS OF MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

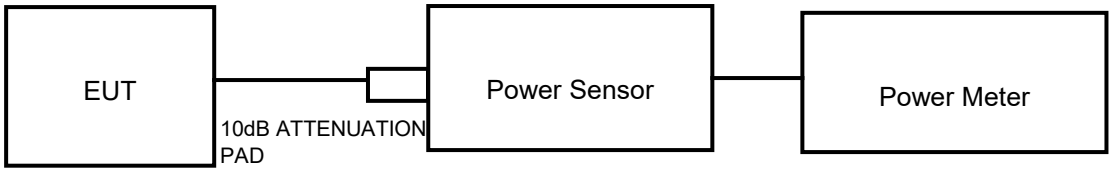
Operation Band	EUT Category		LIMIT
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p ≦ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
	B	Indoor Access Point	1 Watt (30 dBm)
	√	Client devices	250mW (24 dBm)
U-NII-2A	√		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	√		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-3	√		1 Watt (30 dBm)

NOTE: Where B is the 26dB emission bandwidth in MHz.

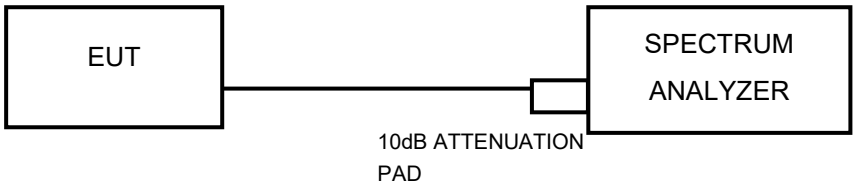
3.3.2 TEST SETUP

FOR POWER OUTPUT MEASUREMENT

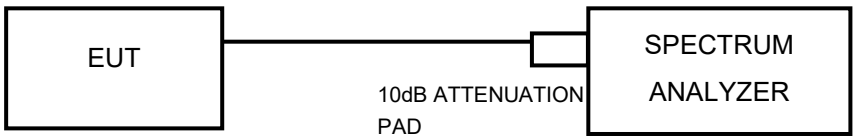
802.11a, 802.11n/ac (20MHz), 802.11 n/ac (40MHz) TEST CONFIGURATION



11ac TEST CONFIGURATION



FOR 26dB BANDWIDTH



3.3.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Power Meter	ANRITSU	ML2495A	1506002	Feb. 22,22	Feb. 21,23
EXA Signal Analyzer	KEYSIGHT	N9010A-526	MY54510322	Feb. 18,22	Feb. 17,23
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	May.15,22	May.14,23
Power Sensor	ANRITSU	MA2411B	1339352	May. 06,22	May. 05,23

NOTE:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
2. The test was performed in RF Oven room.

3.3.4 TEST PROCEDURE

FOR POWER MEASUREMENT

For 802.11a, 802.11 n/ac (20MHz), 802.11 n/ac (40MHz)

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

For 802.11ac (80MHz)

1. Measure the duty cycle, x, of the transmitter output signal as described in II.B.
2. Set span to encompass the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
3. Set RBW = 1 MHz.
4. Set VBW ≥ 3 MHz.
5. Number of points in sweep ≥ 2 × span / RBW. (This ensures that bin-to-bin spacing is ≤ RBW/2, so that narrowband signals are not lost between frequency bins.)
6. Sweep time = auto.
7. Detector = power averaging (rms), if available. Otherwise, use sample detector mode.
8. Do not use sweep triggering. Allow the sweep to “free run.”
9. Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 as needed to ensure that the average accurately represents the true average over the on and off periods of the transmitter.
10. Add 10 log (1/x), where x is the duty cycle, to the measured power to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission). For example, add 10 log (1/0.25) = 6 dB if the duty cycle is 25%.

FOR 99 PERCENT OCCUPIED BANDWIDTH

The following procedure shall be used for measuring (99 %) power bandwidth:

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

FOR 26dB BANDWIDTH

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

FOR 6dB BANDWIDTH

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

3.3.5 DEVIATION FROM TEST STANDARD

No deviation.

3.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

3.3.7 TEST RESULTS

Please Refer to Appendix A/B. Of this test report.

3.4 MAXIMUM POWER SPECTRAL DENSITY MEASUREMENT

3.4.1 LIMITS OF MAXIMUM POWER SPECTRAL DENSITY MEASUREMENT

Operation Band	EUT Category		LIMIT
U-NII-1		Outdoor Access Point	17dBm/ MHz
		Fixed point-to-point Access Point	
		Indoor Access Point	
	√	Client devices	11dBm/ MHz
U-NII-2A	√		11dBm/ MHz
U-NII-2C	√		11dBm/ MHz
U-NII-3	√		30dBm/ 500kHz

3.4.2 TEST SETUP

3.4.3 TEST INSTRUMENTS

Refer to section 3.3.3 to get information of above instrument.

3.4.4 TEST PROCEDURES

Using method SA-2

1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
2) Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS
3) Set Channel power measure = 1MHz
4) Sweep time = auto, trigger set to “free run”.
5) Trace average at least 100 traces in power averaging mode.
6) Add 10 log (1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission).
7) Record the max value

3.4.5 DEVIATION FROM TEST STANDARD

No deviation.

3.4.6 EUT OPERATING CONDITIONS

Same as 3.1.7.

3.4.7 TEST RESULTS

Please Refer to Appendix A/B. Of this test report.

3.5 AUTOMATICALLY DISCONTINUE TRANSMISSION

3.5.1 LIMIT OF AUTOMATICALLY DISCONTINUE TRANSMISSION

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signalling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met.

3.5.2 TEST INSTRUMENTS

Refer to section 3.3.3 to get information of above instrument.

3.5.3 TEST RESULT

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving。 The EUT can detect the controlling of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission

4 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).

5 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No modifications were made to the EUT by the lab during the test.

6 APPENDIX A

EMISSION BANDWIDTH

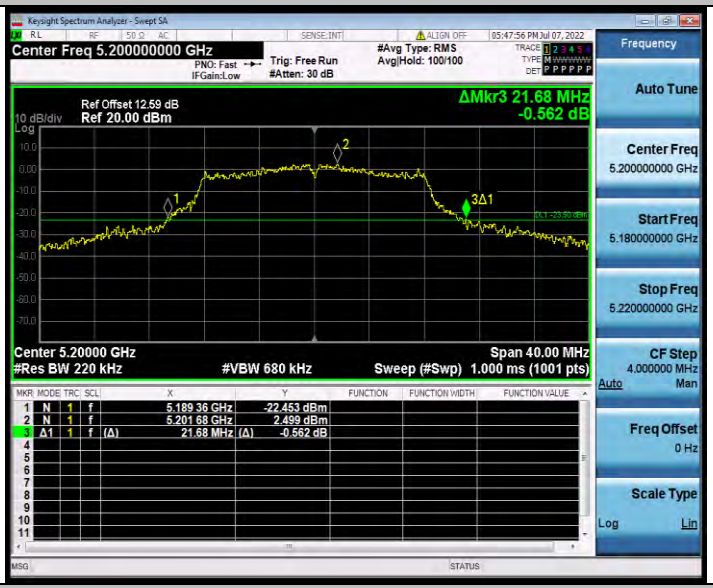
TEST RESULT

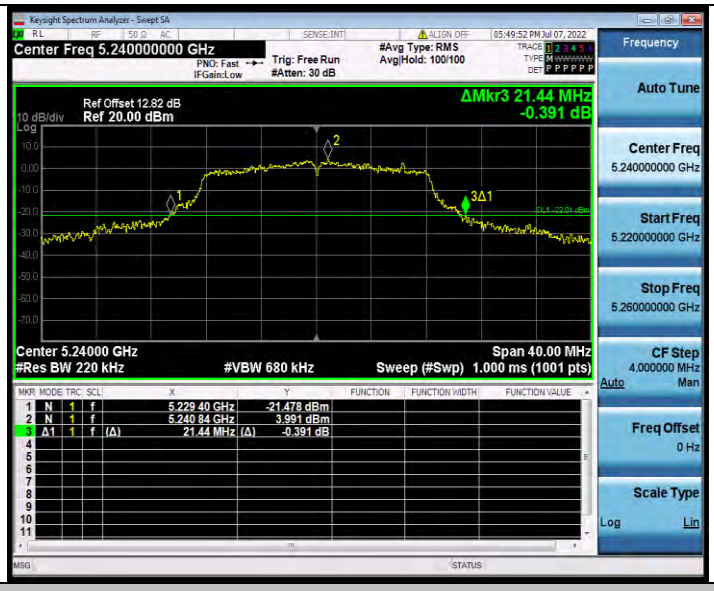
TestMode	Antenna	Frequency[MHz]	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	21.280	5169.280	5190.560	---	---
		5200	21.680	5189.360	5211.040	---	---
		5240	21.440	5229.400	5250.840	---	---
		5260	21.320	5249.120	5270.440	---	---
		5300	21.000	5289.400	5310.400	---	---
		5320	22.400	5309.320	5331.720	---	---
		5500	21.200	5489.320	5510.520	---	---
		5580	21.040	5569.320	5590.360	---	---
		5700	21.080	5689.800	5710.880	---	---
		5745	21.040	5734.440	5755.480	---	---
		5785	20.640	5774.600	5795.240	---	---
		5825	20.960	5814.480	5835.440	---	---
11N20SISO	Ant1	5180	21.200	5169.400	5190.600	---	---
		5200	20.960	5189.440	5210.400	---	---
		5240	21.080	5229.360	5250.440	---	---
		5260	21.040	5249.360	5270.400	---	---
		5300	21.200	5289.320	5310.520	---	---
		5320	21.000	5309.480	5330.480	---	---
		5500	21.000	5489.560	5510.560	---	---
		5580	21.280	5569.200	5590.480	---	---
		5700	20.920	5689.480	5710.400	---	---
		5745	20.880	5734.560	5755.440	---	---
		5785	20.920	5774.440	5795.360	---	---
		5825	21.000	5814.480	5835.480	---	---
11N40SISO	Ant1	5190	39.040	5170.480	5209.520	---	---
		5230	39.040	5210.480	5249.520	---	---
		5270	39.120	5250.320	5289.440	---	---
		5310	39.360	5290.240	5329.600	---	---
		5510	39.120	5490.480	5529.600	---	---
		5550	38.720	5530.560	5569.280	---	---

		5670	39.040	5650.560	5689.600	---	---
		5755	39.120	5735.560	5774.680	---	---
		5795	39.200	5775.400	5814.600	---	---
11AC20SISO	Ant1	5180	21.120	5169.360	5190.480	---	---
		5200	21.000	5189.480	5210.480	---	---
		5240	21.120	5229.400	5250.520	---	---
		5260	21.240	5249.320	5270.560	---	---
		5300	21.160	5289.400	5310.560	---	---
		5320	21.360	5309.280	5330.640	---	---
		5500	21.120	5489.400	5510.520	---	---
		5580	21.240	5569.240	5590.480	---	---
		5700	21.440	5689.200	5710.640	---	---
		5745	21.080	5734.440	5755.520	---	---
		5785	21.200	5774.520	5795.720	---	---
		5825	21.320	5814.360	5835.680	---	---
11AC40SISO	Ant1	5190	39.280	5170.320	5209.600	---	---
		5230	38.800	5210.720	5249.520	---	---
		5270	39.840	5250.160	5290.000	---	---
		5310	39.280	5290.400	5329.680	---	---
		5510	38.960	5490.480	5529.440	---	---
		5550	38.720	5530.480	5569.200	---	---
		5670	40.320	5649.600	5689.920	---	---
		5755	39.280	5735.400	5774.680	---	---
		5795	39.120	5775.480	5814.600	---	---
11AC80SISO	Ant1	5210	80.320	5169.840	5250.160	---	---
		5290	80.160	5249.840	5330.000	---	---
		5530	79.680	5490.160	5569.840	---	---
		5610	80.800	5569.200	5650.000	---	---
		5775	87.680	5735.160	5822.840	---	---

TEST GRAPHS

11A_Ant1_5180

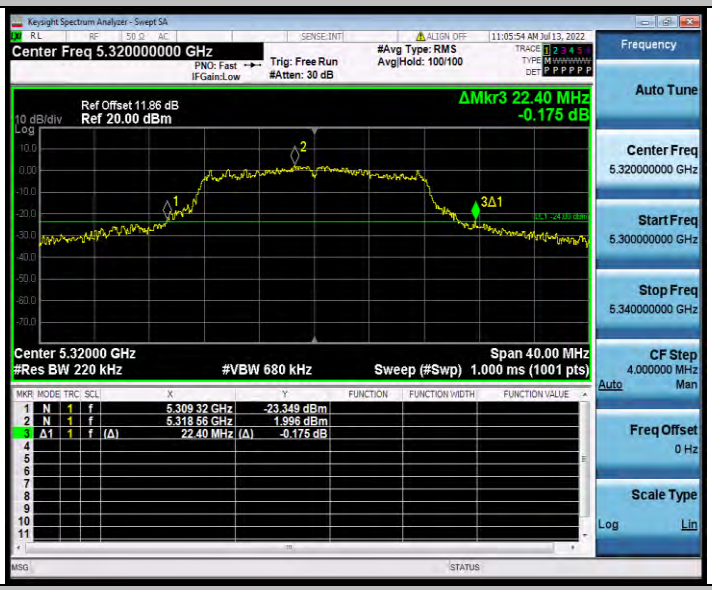
11A_Ant1_5200

11A_Ant1_5240



11A_Ant1_5260

11A_Ant1_5300

11A_Ant1_5320



11A_Ant1_5500

11A_Ant1_5580

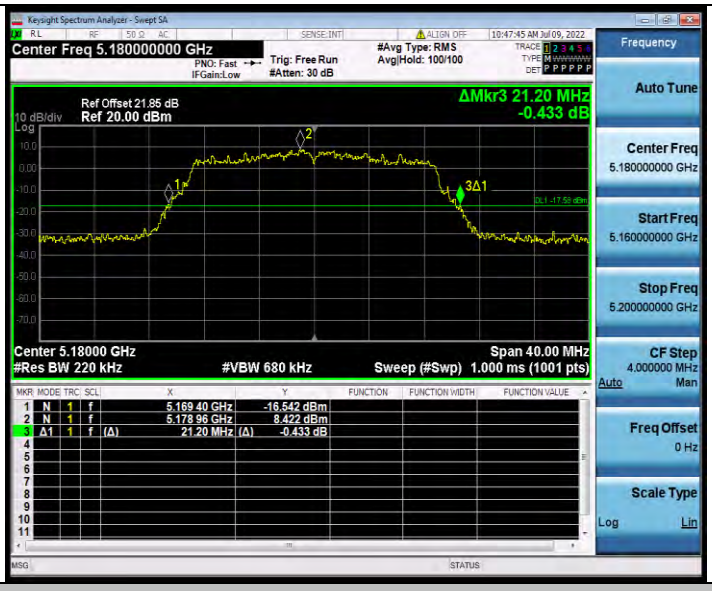
11A_Ant1_5700

11A_Ant1_5745

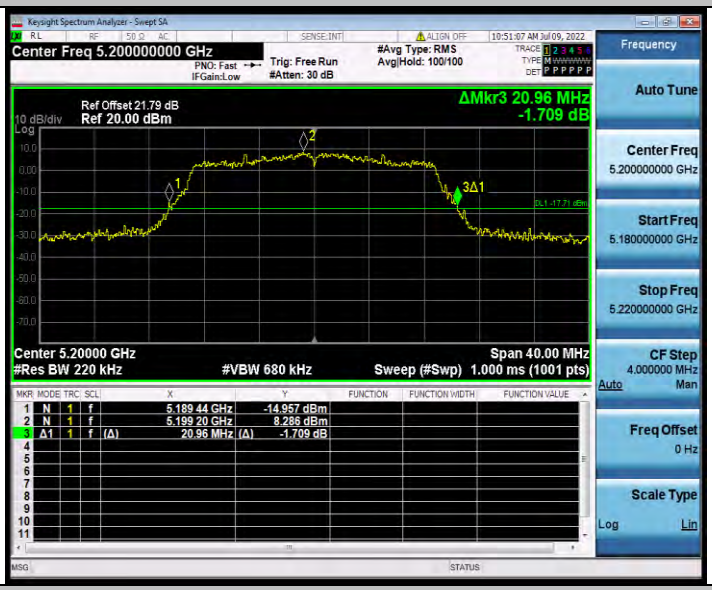
11A_Ant1_5785

11A_Ant1_5825

11N20SISO_Ant1_5180



11N20SISO_Ant1_5200



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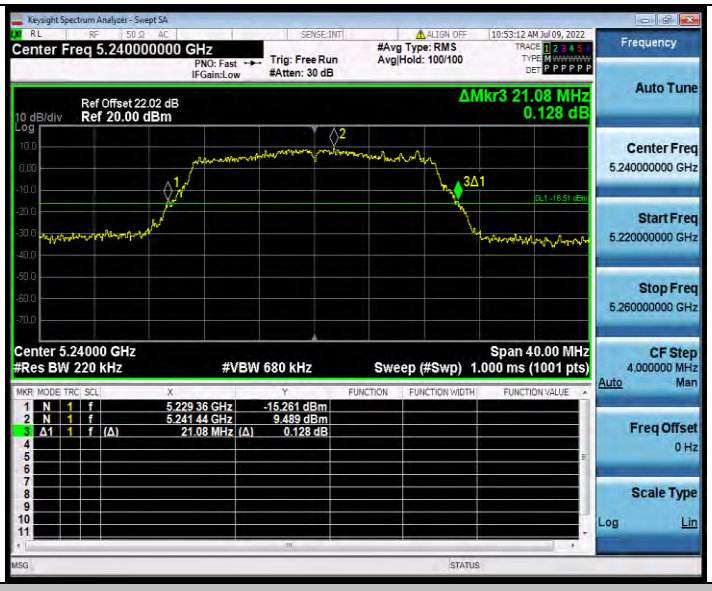
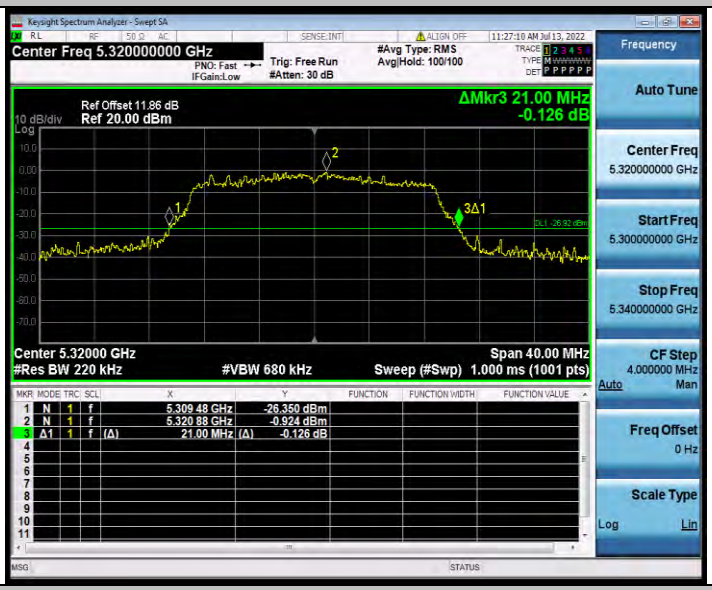


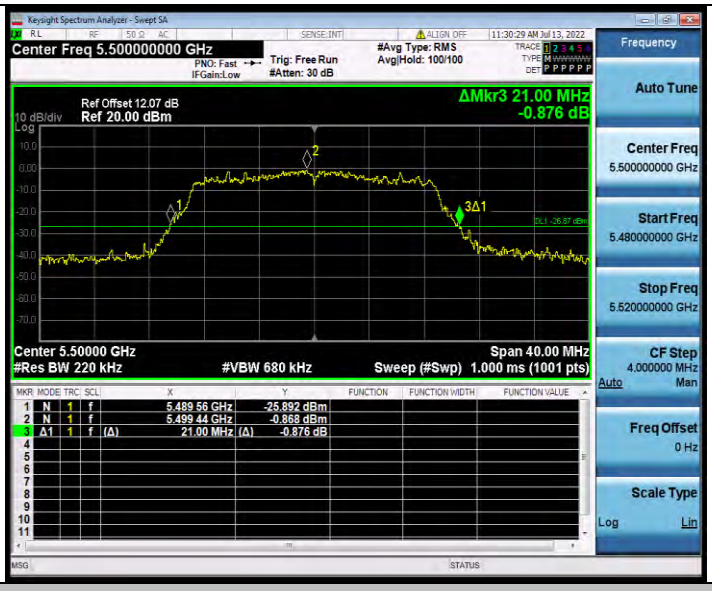
11N20SISO_Ant1_5260

11N20SISO_Ant1_5300

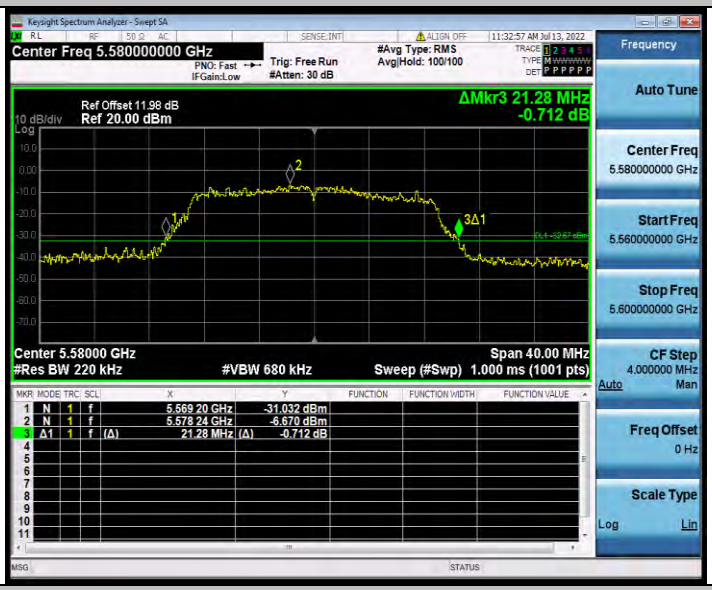
11N20SISO_Ant1_5320



11N20SISO_Ant1_5500

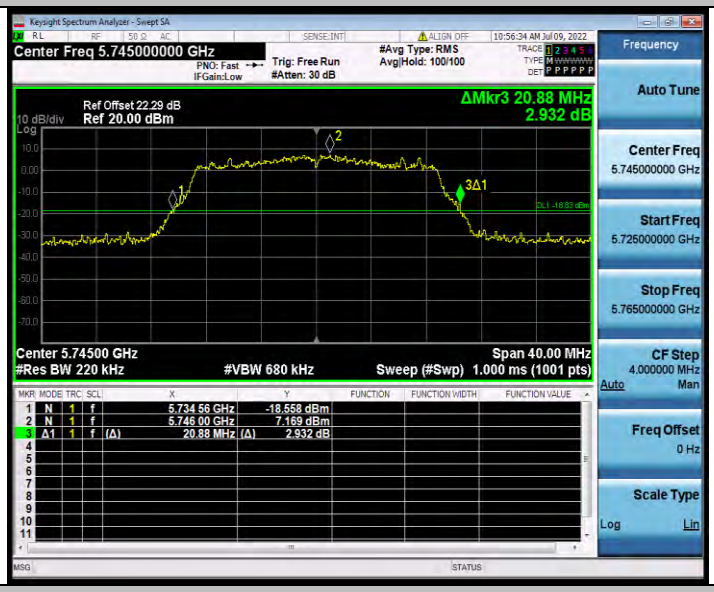


11N20SISO_Ant1_5580

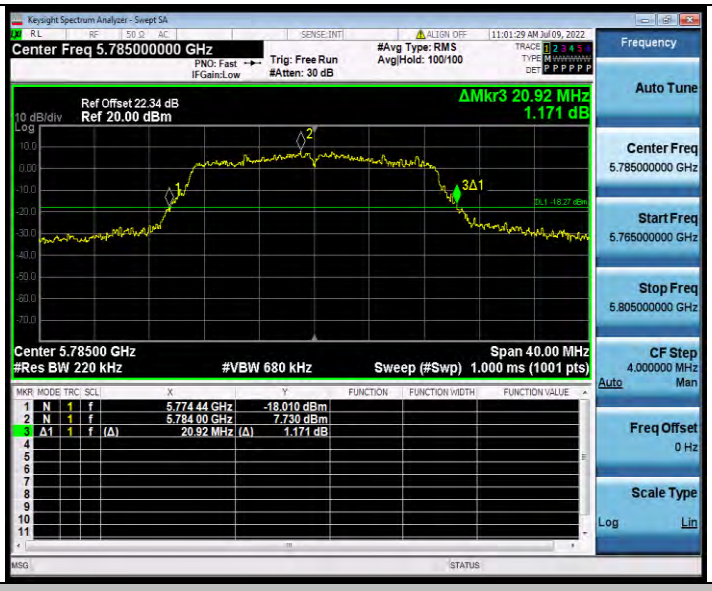


11N20SISO_Ant1_5700

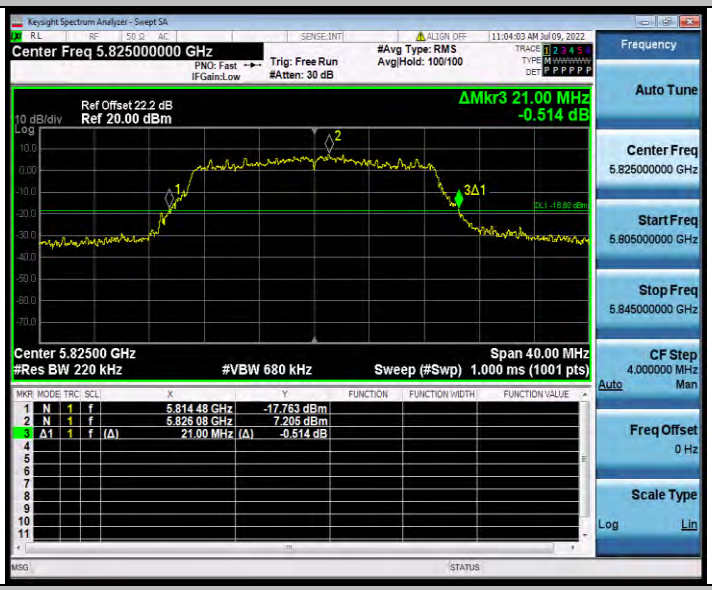
11N20SISO_Ant1_5745



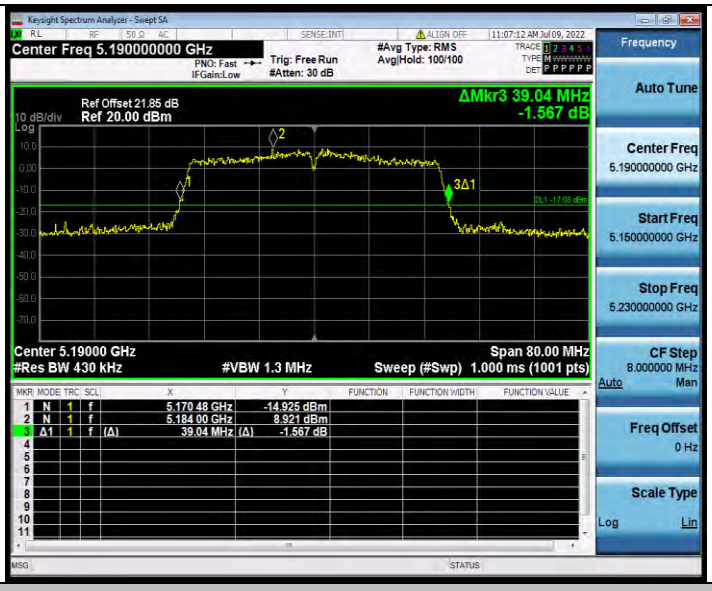
11N20SISO_Ant1_5785



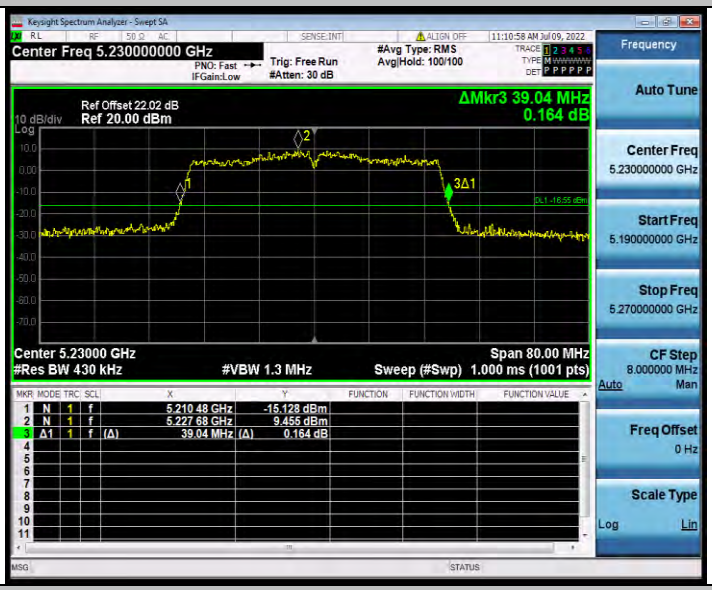
11N20SISO_Ant1_5825



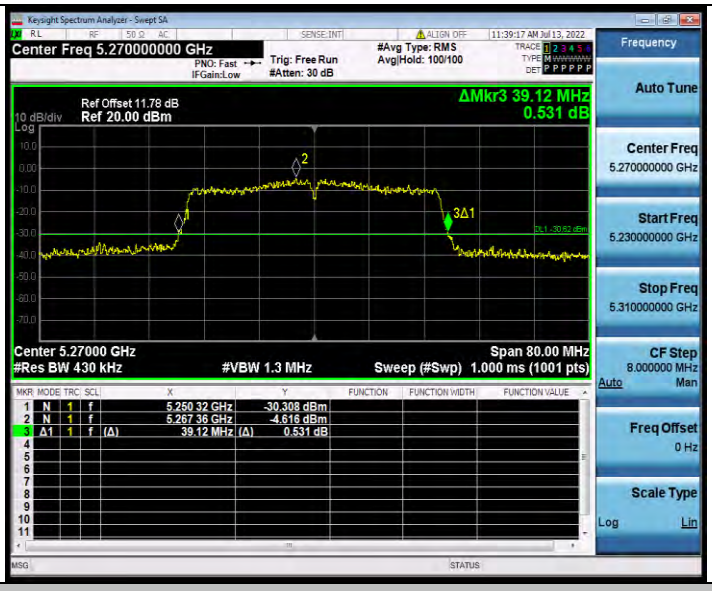
11N40SISO_Ant1_5190



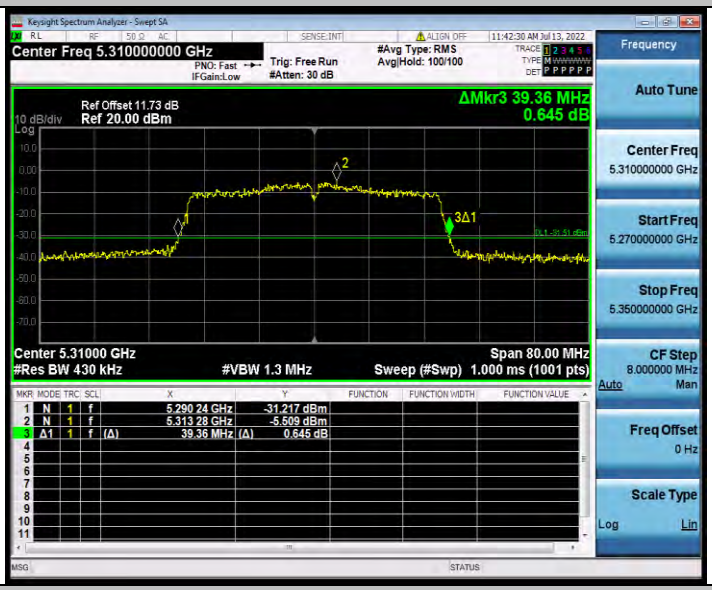
11N40SISO_Ant1_5230



11N40SISO_Ant1_5270

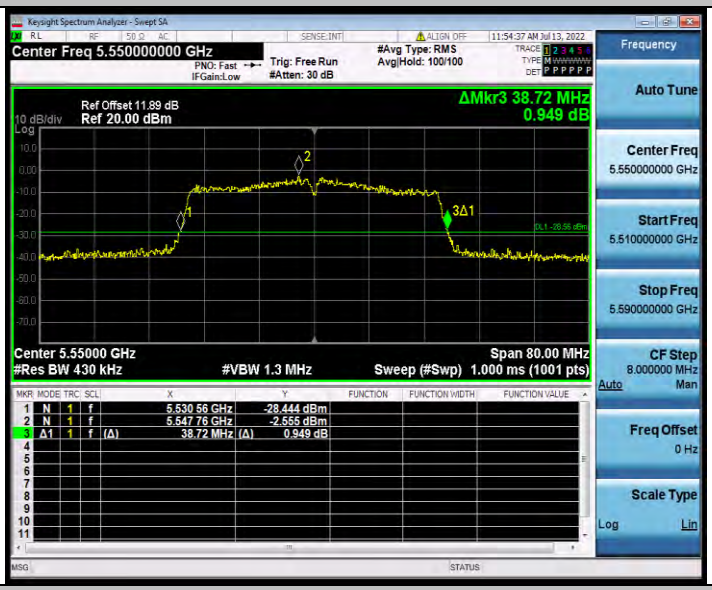


11N40SISO_Ant1_5310



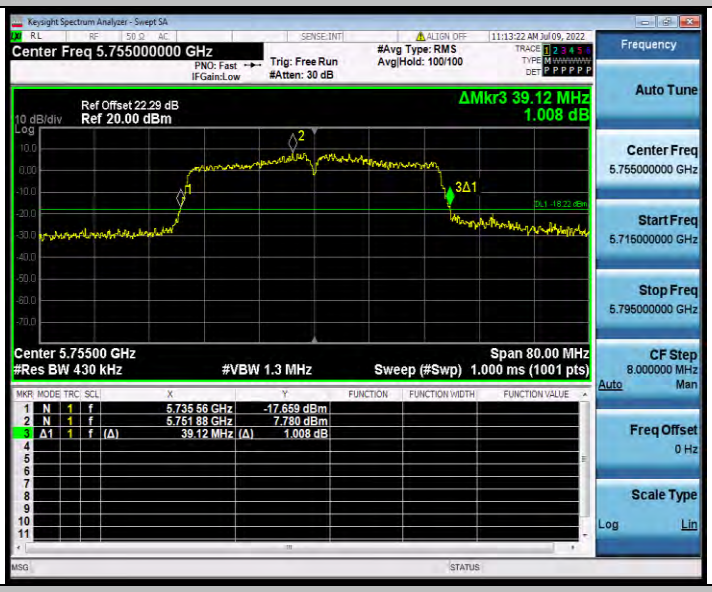
11N40SISO_Ant1_5510

11N40SISO_Ant1_5550



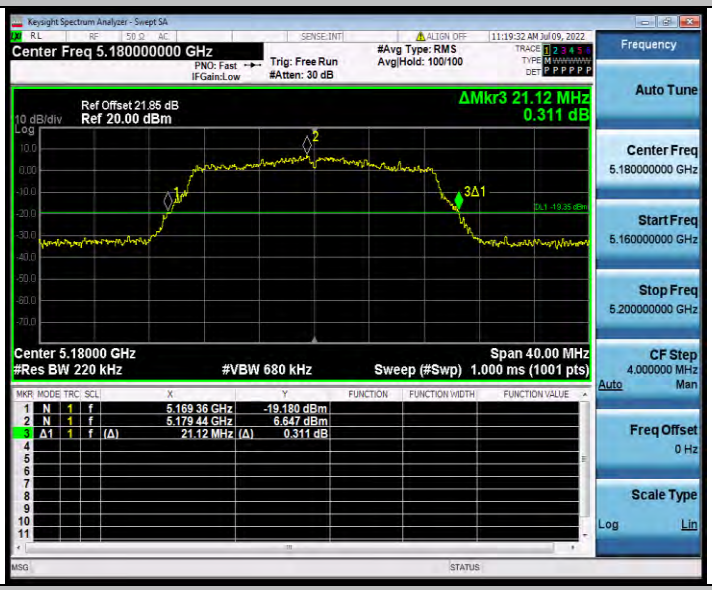
11N40SISO_Ant1_5670

11N40SISO_Ant1_5755



11N40SISO_Ant1_5795

11AC20SISO_Ant1_5180



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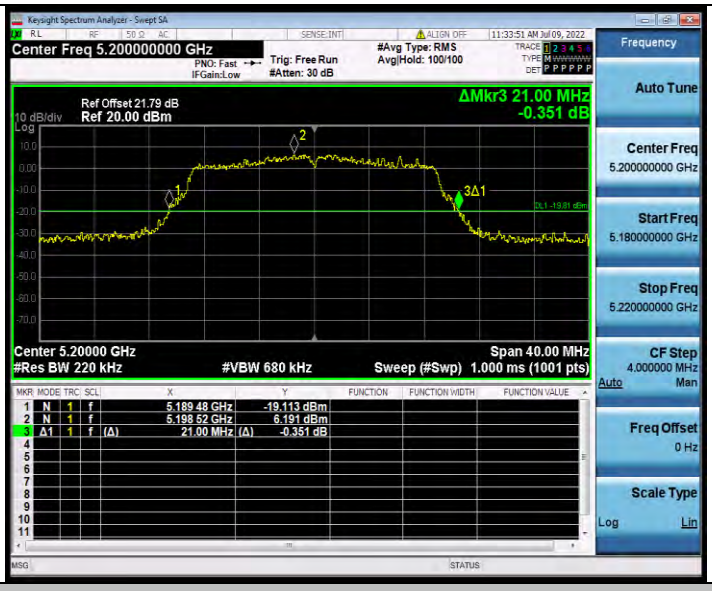
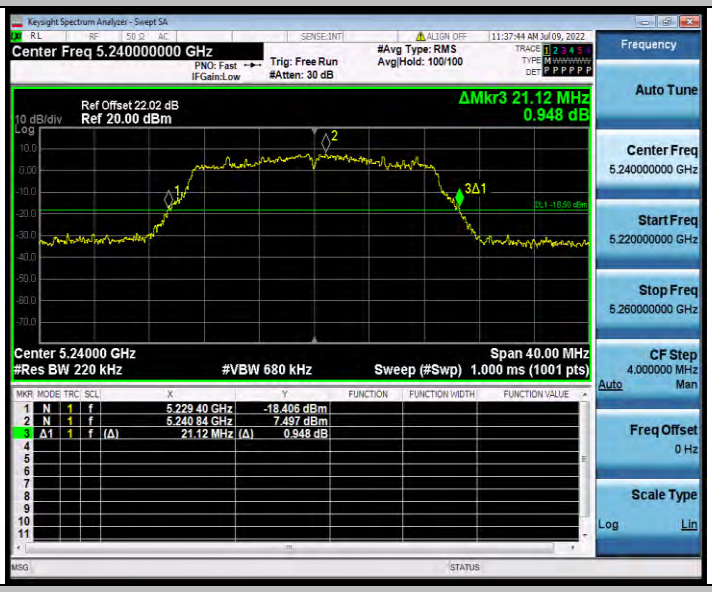
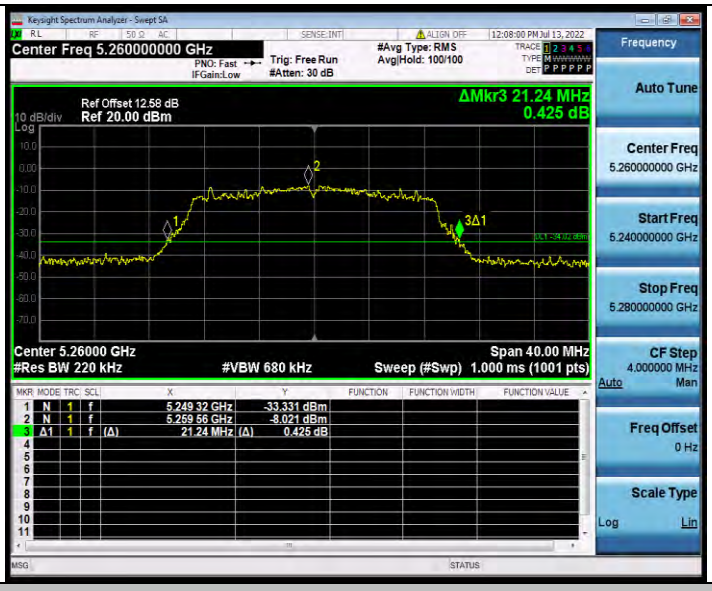


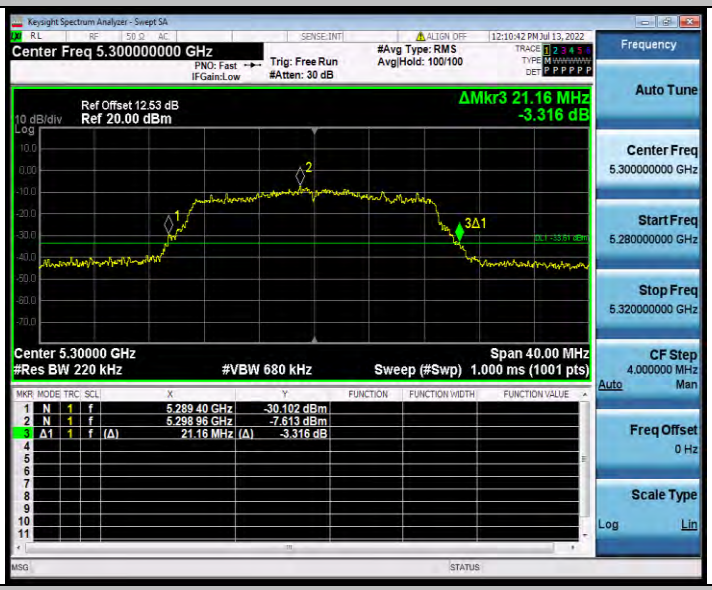
11AC20SISO_Ant1_5240



11AC20SISO_Ant1_5260



11AC20SISO_Ant1_5300



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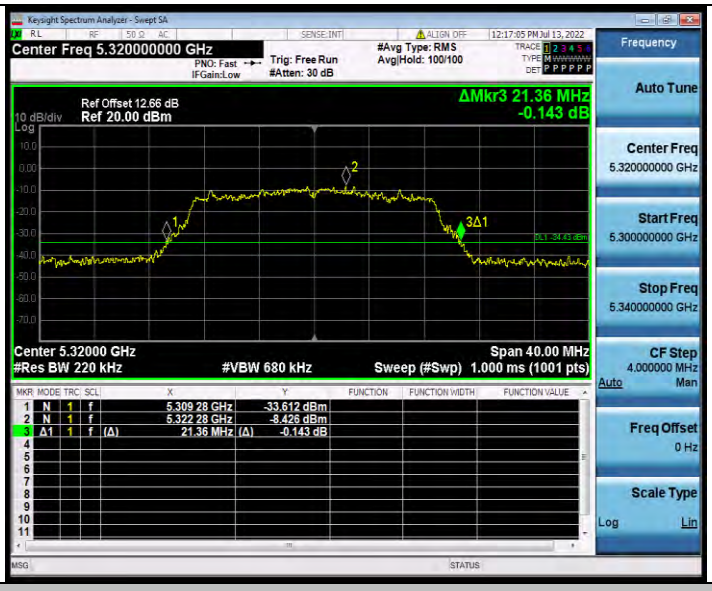
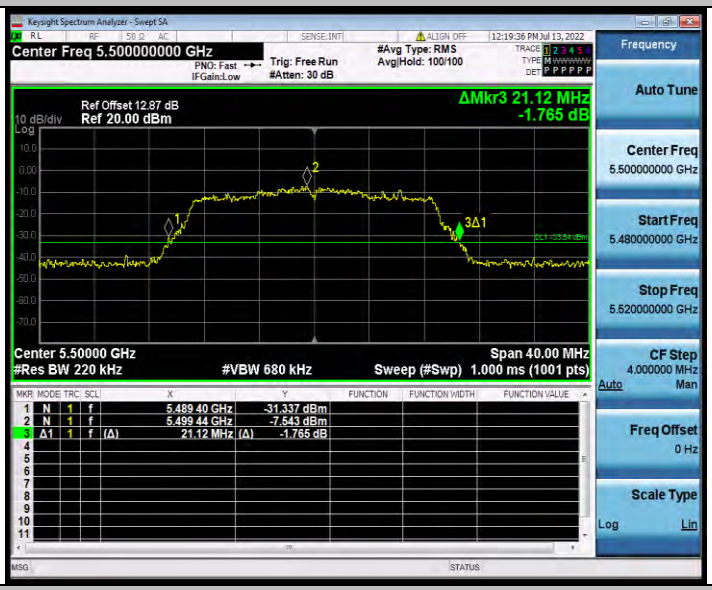
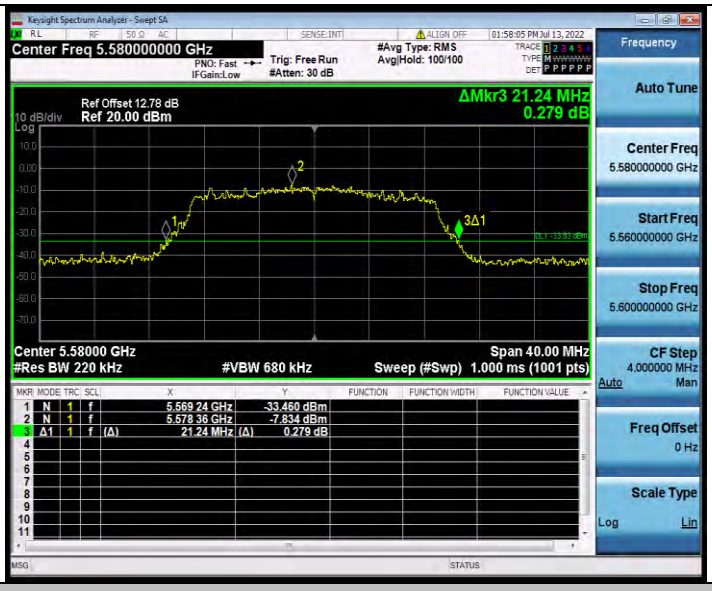


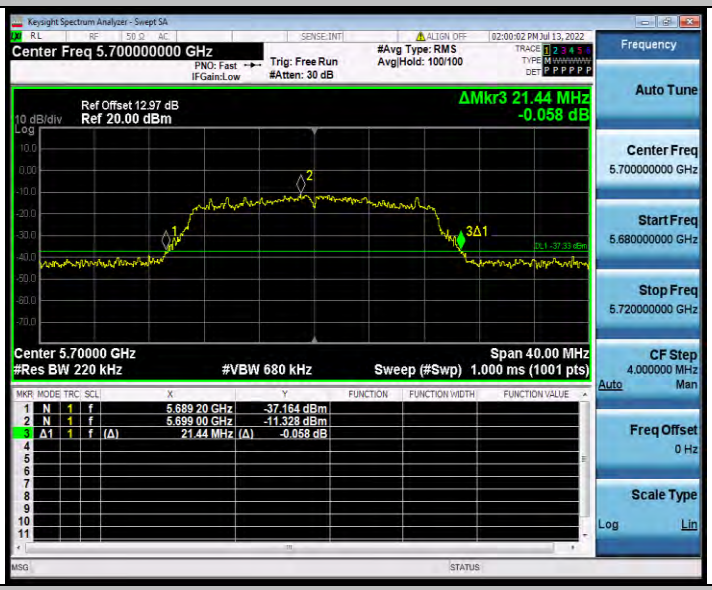
11AC20SISO_Ant1_5500



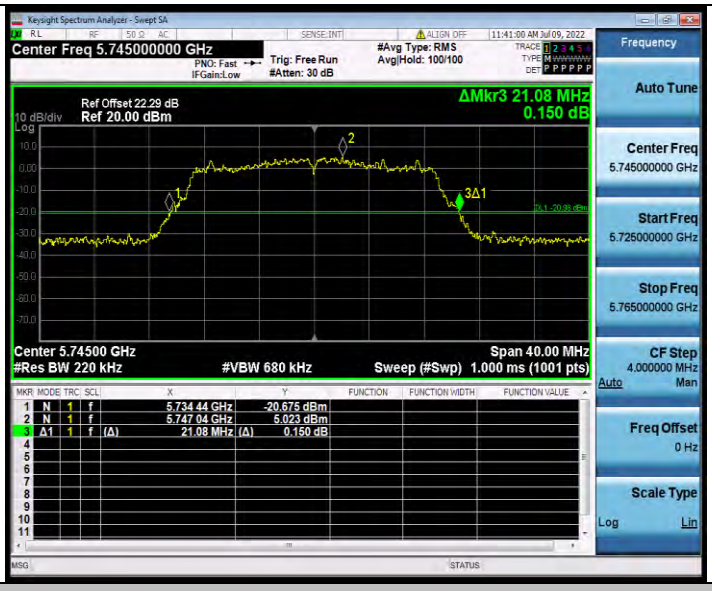
11AC20SISO_Ant1_5580



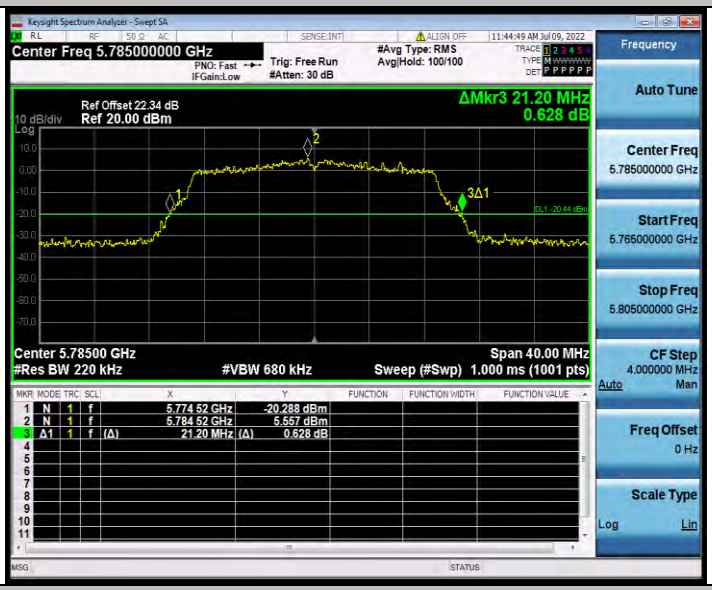
11AC20SISO_Ant1_5700



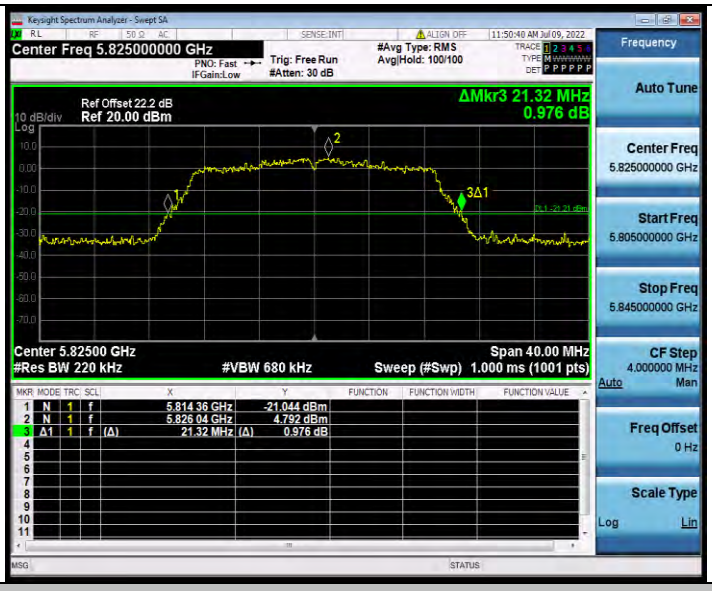
11AC20SISO_Ant1_5745



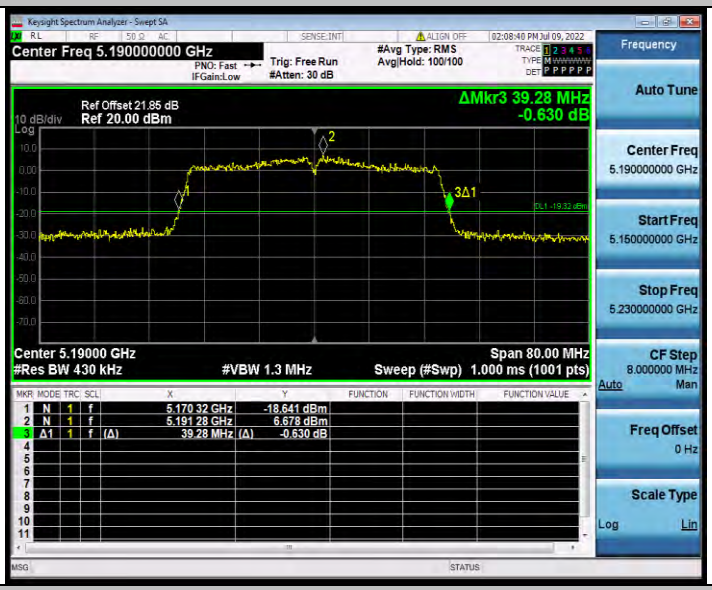
11AC20SISO_Ant1_5785



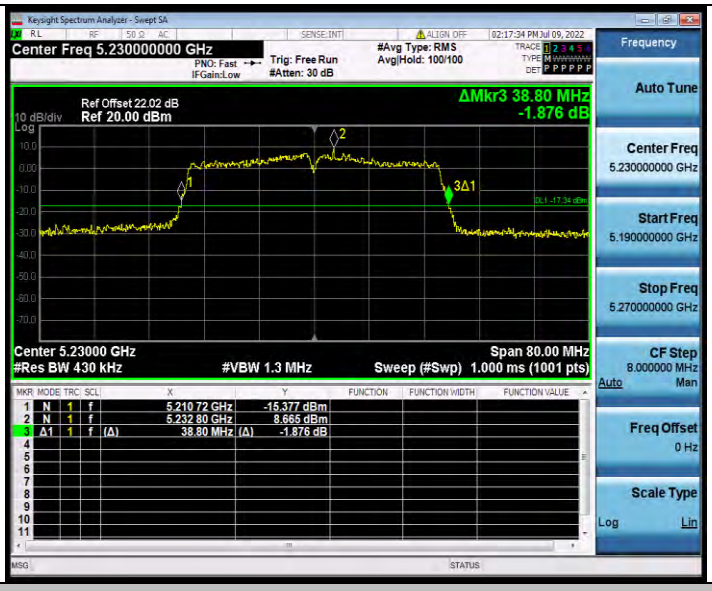
11AC20SISO_Ant1_5825



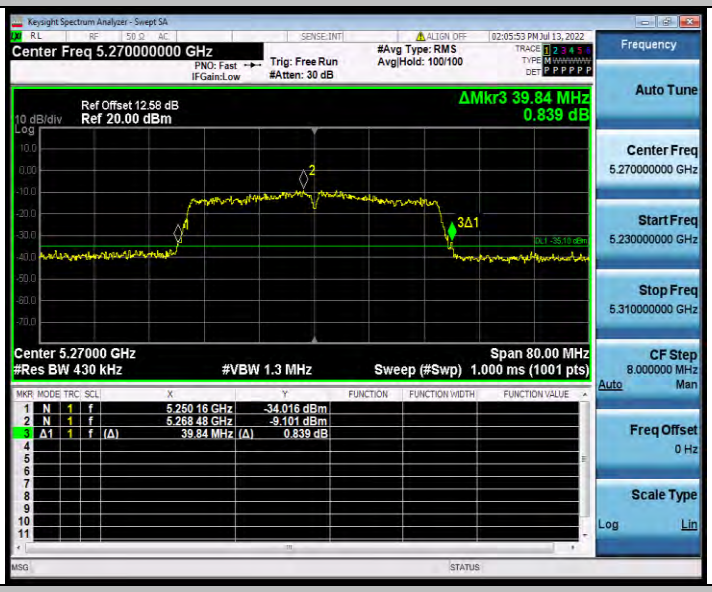
11AC40SISO_Ant1_5190



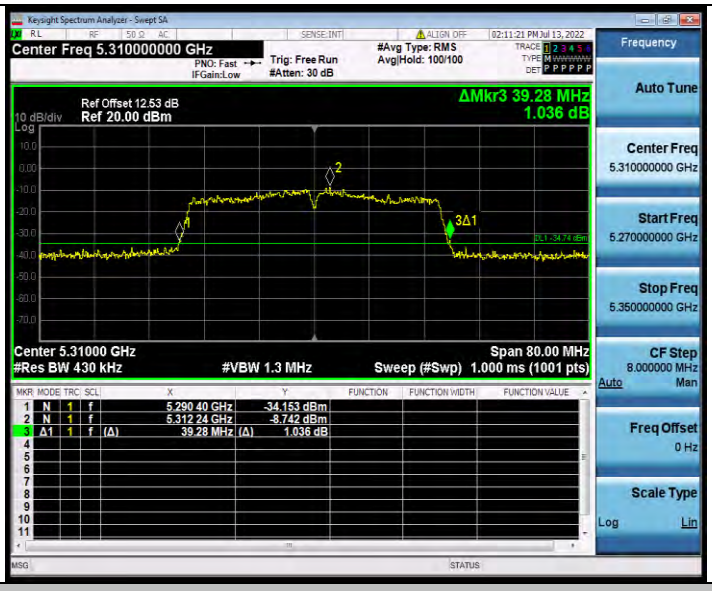
11AC40SISO_Ant1_5230



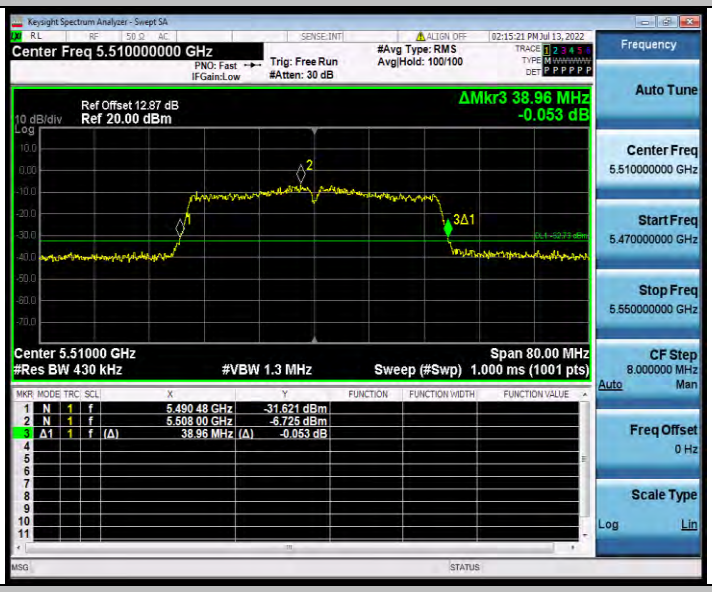
11AC40SISO_Ant1_5270



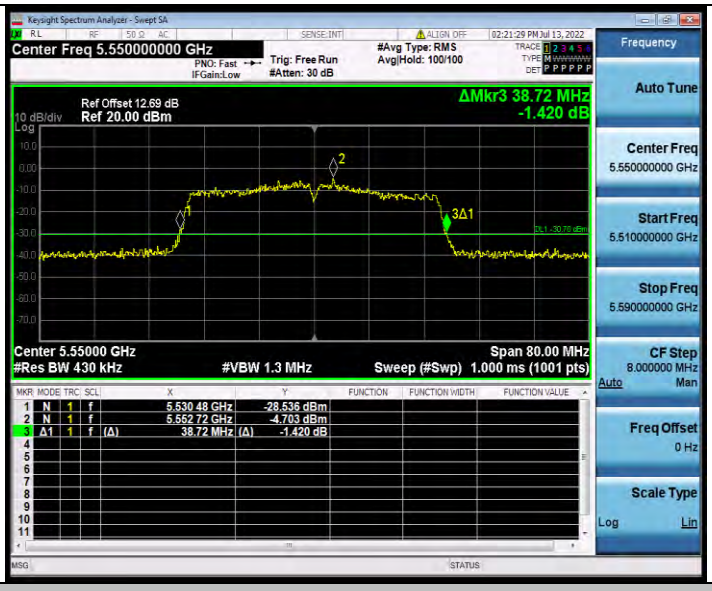
11AC40SISO_Ant1_5310



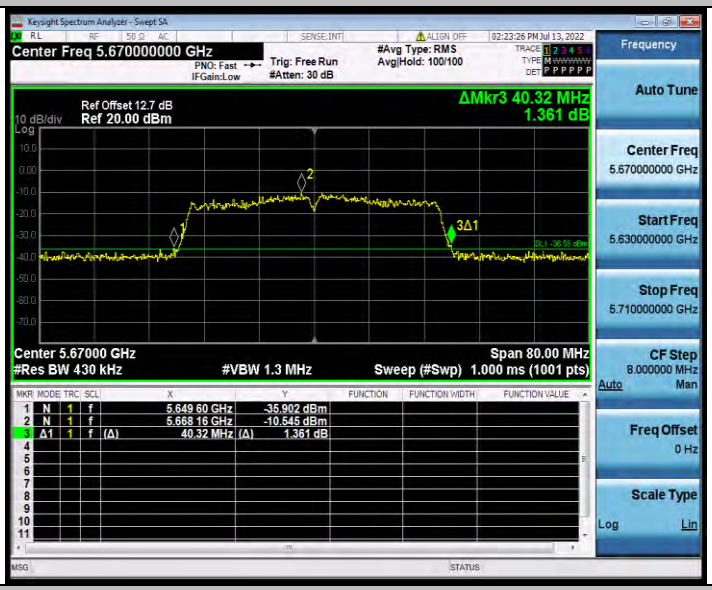
11AC40SISO_Ant1_5510



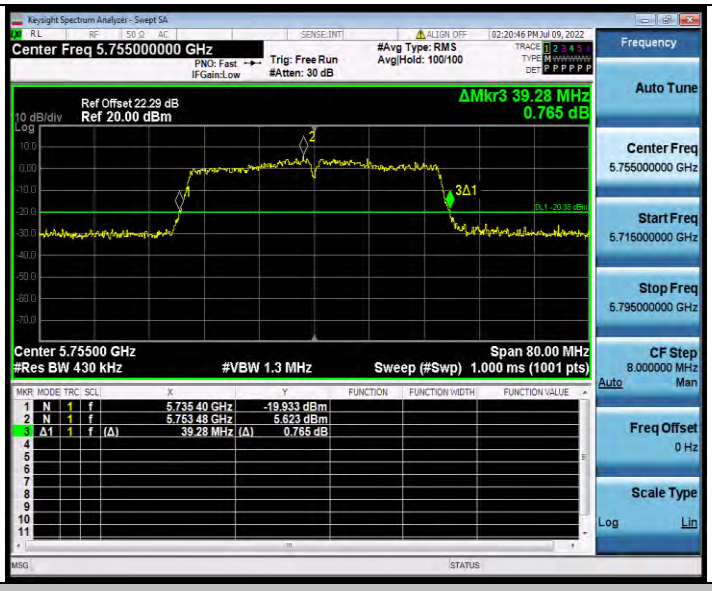
11AC40SISO_Ant1_5550



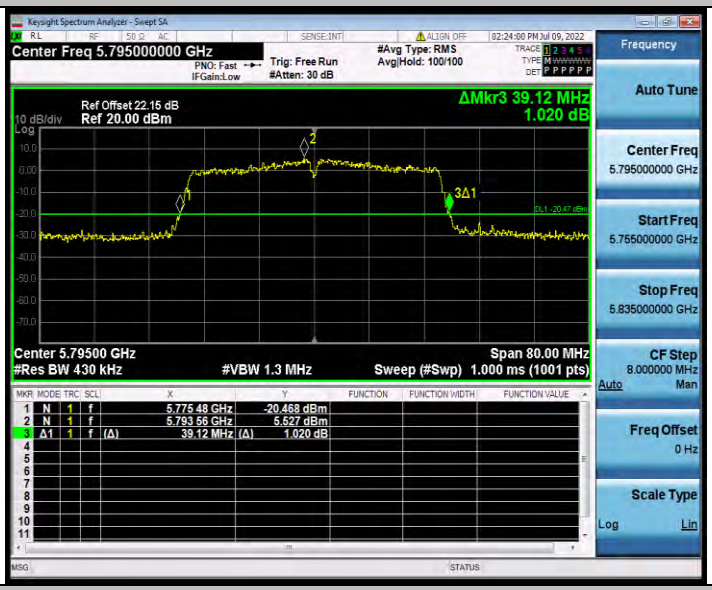
11AC40SISO_Ant1_5670



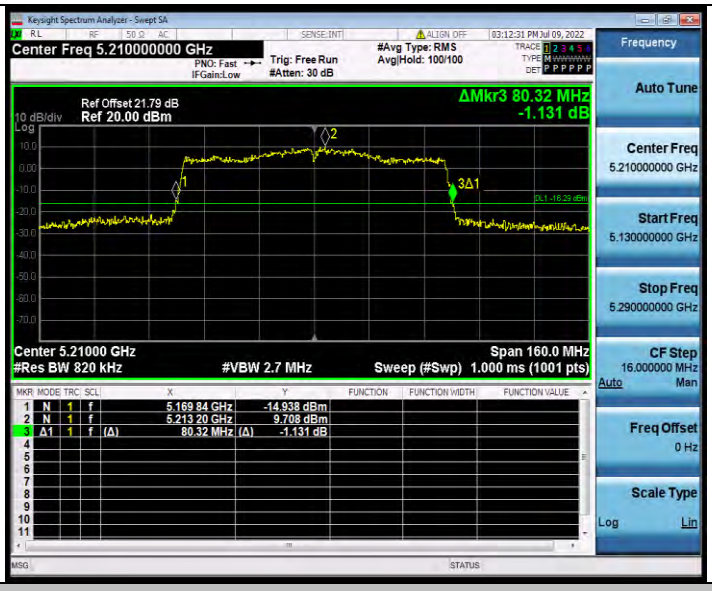
11AC40SISO_Ant1_5755



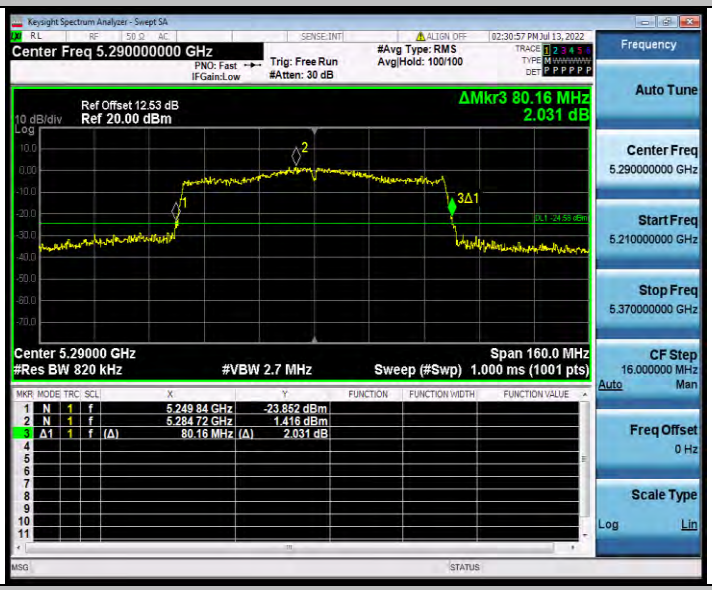
11AC40SISO_Ant1_5795



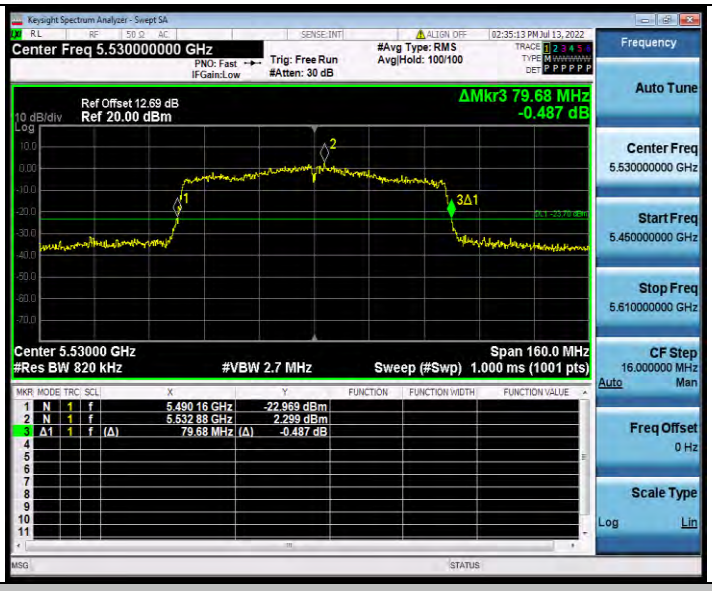
11AC80SISO_Ant1_5210



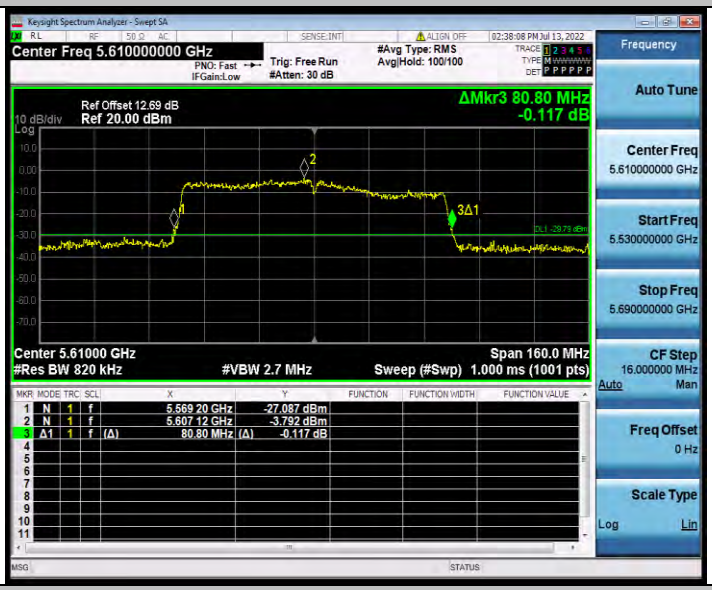
11AC80SISO_Ant1_5290



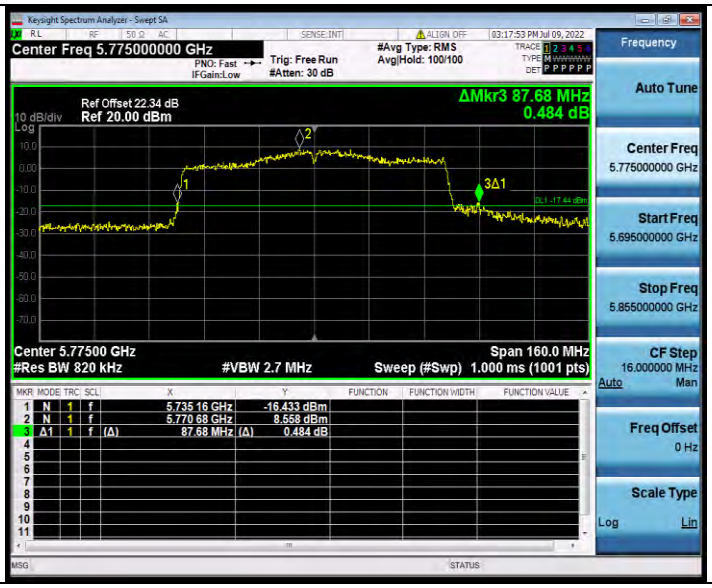
11AC80SISO_Ant1_5530



11AC80SISO_Ant1_5610



11AC80SISO_Ant1_5775


Keysight Spectrum Analyzer - Swept SA
Center Freq 5.775000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 100/100
03:17:53 PM Jul 09, 2022
Ref Offset 22.34 dB
10 dB/div
Ref 20.00 dBm
ΔMkr3 87.68 MHz
0.484 dB
Center 5.77500 GHz
#Res BW 820 kHz
#VBW 2.7 MHz
Span 160.0 MHz
Sweep (#Swp) 1.000 ms (1001 pts)
1 N 1 f 5.735 16 GHz -16.433 dBm
2 N 1 f 5.770 68 GHz 8.558 dBm
3 Δ1 1 f (Δ) 87.68 MHz (Δ) 0.484 dB
Frequency
Auto Tune
Center Freq
5.775000000 GHz
Start Freq
5.695000000 GHz
Stop Freq
5.855000000 GHz
CF Step
16.000000 MHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin
MSG
STATUS

OCCUPIED CHANNEL BANDWIDTH

TEST RESULT

TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	17.152	5171.395	5188.547	---	---
		5200	17.165	5191.443	5208.608	---	---
		5240	17.106	5231.493	5248.599	---	---
		5260	17.161	5251.358	5268.519	---	---
		5300	17.202	5291.291	5308.493	---	---
		5320	17.248	5311.336	5328.584	---	---
		5500	17.071	5491.374	5508.445	---	---
		5580	17.321	5570.983	5588.304	---	---
		5700	17.168	5691.415	5708.583	---	---
		5745	17.052	5736.476	5753.528	---	---
		5785	17.026	5776.474	5793.500	---	---
		5825	17.057	5816.476	5833.533	---	---
11N20SISO	Ant1	5180	17.971	5170.954	5188.925	---	---
		5200	18.069	5190.936	5209.005	---	---
		5240	17.919	5231.087	5249.006	---	---
		5260	17.978	5250.984	5268.962	---	---
		5300	18.022	5290.977	5308.999	---	---
		5320	18.072	5310.938	5329.010	---	---
		5500	18.024	5490.977	5509.001	---	---
		5580	18.069	5570.784	5588.853	---	---
		5700	17.976	5691.046	5709.022	---	---
		5745	17.982	5736.007	5753.989	---	---
		5785	17.999	5776.050	5794.049	---	---
		5825	17.947	5816.055	5834.002	---	---
11N40SISO	Ant1	5190	36.181	5171.908	5208.089	---	---
		5230	36.059	5211.989	5248.048	---	---
		5270	36.148	5251.953	5288.101	---	---
		5310	36.177	5291.945	5328.122	---	---
		5510	36.183	5491.933	5528.116	---	---
		5550	36.126	5531.862	5567.988	---	---
		5670	36.129	5652.032	5688.161	---	---

		5755	36.282	5736.895	5773.177	---	---
		5795	36.165	5776.954	5813.119	---	---
11AC20SISO	Ant1	5180	17.979	5170.914	5188.893	---	---
		5200	17.972	5190.968	5208.940	---	---
		5240	18.027	5230.996	5249.023	---	---
		5260	18.060	5250.913	5268.973	---	---
		5300	18.034	5290.935	5308.969	---	---
		5320	18.097	5310.888	5328.985	---	---
		5500	17.976	5490.966	5508.942	---	---
		5580	18.055	5570.807	5588.862	---	---
		5700	18.148	5690.902	5709.050	---	---
		5745	17.970	5736.039	5754.009	---	---
		5785	17.902	5776.069	5793.971	---	---
		5825	18.026	5815.998	5834.024	---	---
11AC40SISO	Ant1	5190	36.236	5171.841	5208.077	---	---
		5230	36.228	5211.906	5248.134	---	---
		5270	36.380	5251.741	5288.121	---	---
		5310	36.388	5291.798	5328.186	---	---
		5510	36.362	5491.793	5528.155	---	---
		5550	36.126	5531.808	5567.934	---	---
		5670	36.414	5651.832	5688.246	---	---
		5755	36.247	5736.978	5773.225	---	---
		5795	36.210	5776.995	5813.205	---	---
11AC80SISO	Ant1	5210	75.553	5172.287	5247.840	---	---
		5290	75.409	5252.363	5327.772	---	---
		5530	75.181	5492.366	5567.547	---	---
		5610	76.148	5571.582	5647.730	---	---
		5775	75.638	5737.638	5813.276	---	---

TEST GRAPHS

11A_Ant1_5180

11A_Ant1_5200

11A_Ant1_5240

11A_Ant1_5260

11A_Ant1_5300

11A_Ant1_5320

11A_Ant1_5500

11A_Ant1_5580

11A_Ant1_5700

11A_Ant1_5745

11A_Ant1_5785

11A_Ant1_5825

11N20SISO_Ant1_5180

11N20SISO_Ant1_5200

11N20SISO_Ant1_5240

11N20SISO_Ant1_5260

11N20SISO_Ant1_5300

11N20SISO_Ant1_5320

11N20SISO_Ant1_5500