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Report Template Version: V05
Report Template Revision Date: 2021-11-03

Test Report

Report No.:	CQASZ20211101954E-03
Applicant:	Autel Intelligent Technology Corp.,Ltd
Address of Applicant:	7th-8th,10th Floor, Building B1, Zhiyuan, Xueyuan Road, Xili, Nanshan, Shenzhen, 518055, China
Equipment Under Test (EUT):	
Product:	AUTOMOTIVE DIAGNOSIS & ANALYSIS SYSTEM
Model No.:	MaxiSys MS906 Pro
Teat Model No.:	MaxiSys MS906 Pro
Brand Name:	AUTEL
FCC ID:	WQ8-MS906PRO2121
Standards:	47 CFR Part 15, Subpart E ANSI C63.10-2013 KDB 789033 D02 General UNII Test Procedures New Rules v02 KDB 662911 D01 Multiple Transmitter Output v02r01
Date of Receipt:	2021-11-09
Date of Test:	2021-11-09 to 2022-01-19
Date of Issue:	2022-03-31
Test Result:	**PASS***

***In the configuration tested, the EUT complied with the standards specified above**

Tested By: lewis zhou

(Lewis Zhou)

Reviewed By: Rock Huang

(Rock Huang)

Approved By:

(Jack Ai)

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20211101954E-03	Rev.01	Initial report	2022-03-31

2 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15 Subpart C Section 15.203	ANSI C63.10-2013; KDB789033	PASS
AC Power Line Conducted Emission	47 CFR Part 15 Subpart E Section 15.207	ANSI C63.10-2013; KDB789033	PASS
Maximum Conducted Output Power	47 CFR Part 15 Subpart C Section 15.407 (a)	ANSI C63.10-2013; KDB789033	PASS
Emission Bandwidth	47 CFR Part 15 Subpart C Section 15.407 (a)(e)	ANSI C63.10-2013; KDB789033	PASS
Maximum Power Spectral Density	47 CFR Part 15 Subpart E Section 15.407 (a)	ANSI C63.10-2013; KDB789033	PASS
Band Edge Measurements	47 CFR Part 15 Subpart C Section 15.209 &15.407(b)	ANSI C63.10-2013; KDB789033	PASS
Frequency stability	47 CFR Part 15 Subpart E Section 15.407 (g)	ANSI C63.10-2013; KDB789033	PASS
Operation in the absence of information to the transmit	47 CFR Part 15 Subpart E Section 15.407 (c)	47 CFR Part 15 Subpart E	PASS
Radiated Spurious Emissions	47 CFR Part 15 Subpart E Section 15.407 (b)	ANSI C63.10-2013; KDB789033	PASS

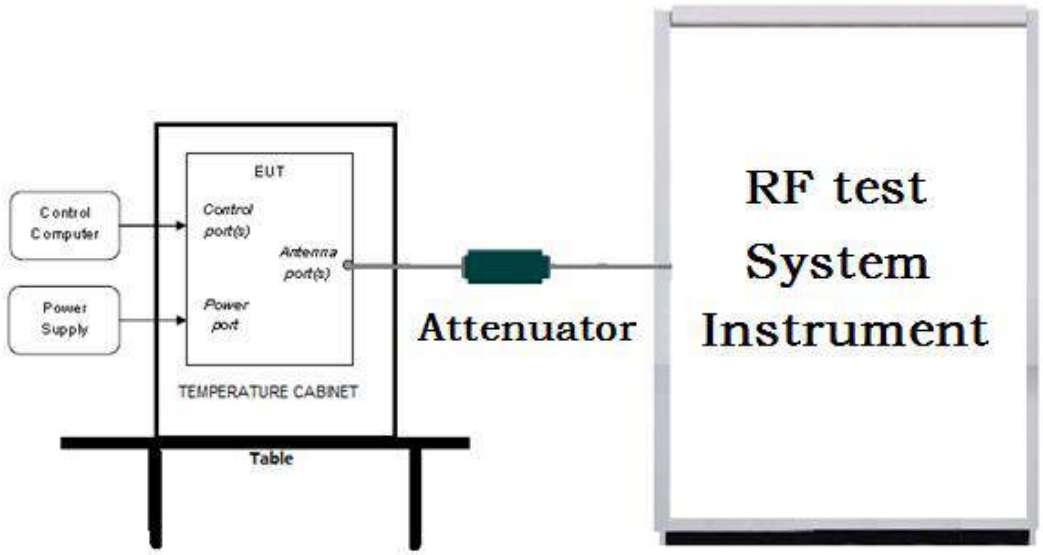
Remark:
The tested sample(s) and the sample information are provided by the client.
Tx: In this whole report Tx (or tx) means Transmitter.
Rx: In this whole report Rx (or rx) means Receiver.
RF: In this whole report RF means Radiated Frequency.
CH: In this whole report CH means channel.
Volt: In this whole report Volt means Voltage.
Temp: In this whole report Temp means Temperature.
Humid: In this whole report Humid means humidity.
Press: In this whole report Press means Pressure.
N/A: In this whole report not application

3 Content

4 Test Requirement

4.1 Test setup

4.1.1 For Conducted test setup



4.1.2 For Radiated Emissions test setup

Radiated Emissions setup:

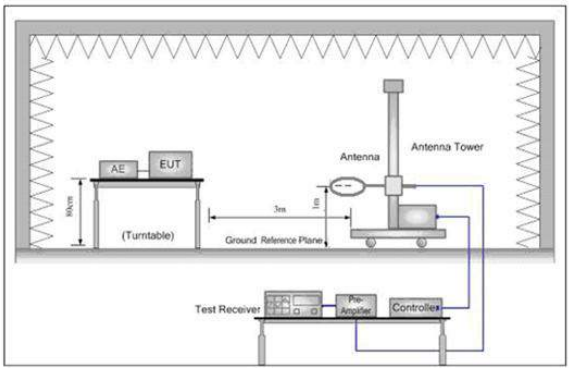


Figure 1. Below 30MHz

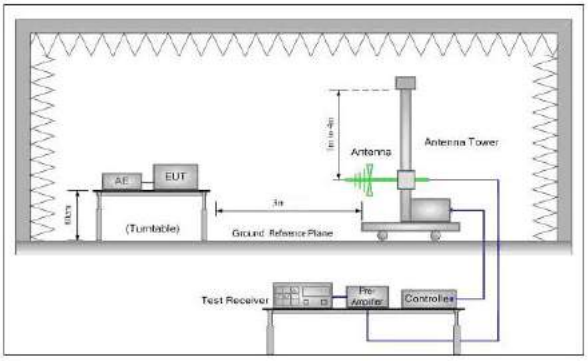


Figure 2. 30MHz to 1GHz

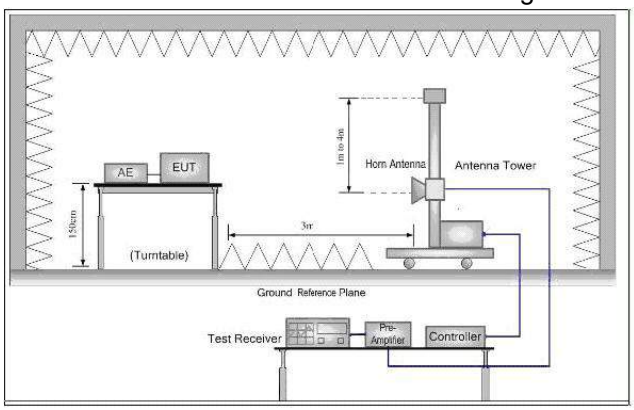
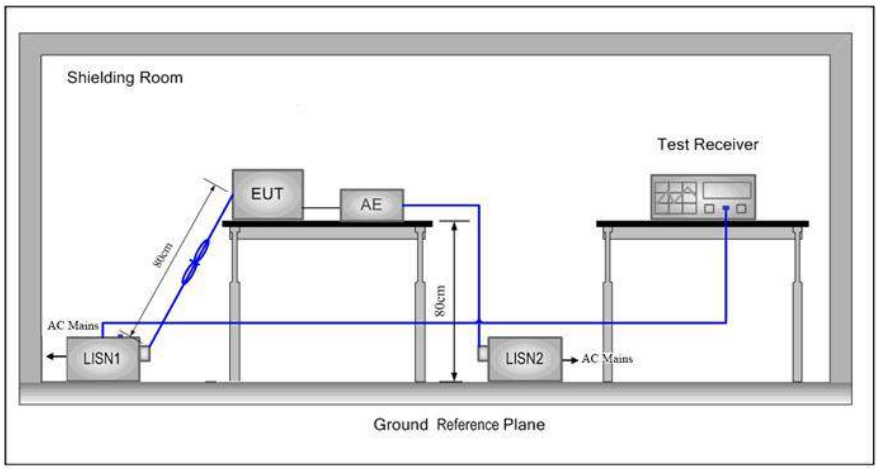


Figure 3. Above 1GHz

4.1.3 For Conducted Emissions test setup

Conducted Emissions setup



4.2 Test Environment

Operating Environment:		
Conducted Emissions:		
Temperature:	25.2 °C	
Humidity:	60 % RH	
Atmospheric Pressure:	1009 mbar	
Radiated Emissions:		
Temperature:	25.4 °C	
Humidity:	54 % RH	
Atmospheric Pressure:	1009mbar	
Radio conducted item test (RF Conducted test room):		
Temperature:	25.4 °C	
Humidity:	50 % RH	
Atmospheric Pressure:	1009 mbar	
Test Condition	Temperature (°C)	Voltage (V)
TN/VN	+15 to +35	3.85
TL/VL	-20	3.465
TH/VL	50	3.465
TL/VH	-20	4.235
TH/VH	50	4.235

Remark:

1)The test extreme temperature is -20 °C to 50 °C and the test extreme voltage is 3.465V to 4.235V, The manufacturer specified maximum ambient temperature is 0-45 °C.

2)VN: Normal Voltage; TN: Normal Temperature;

TL: Low Extreme Test Temperature; TH: High Extreme Test Temperature;

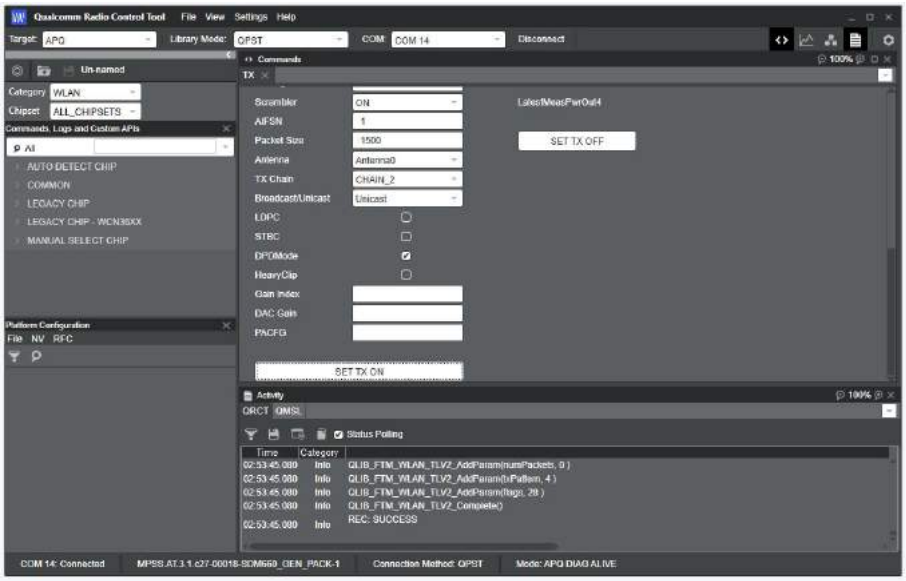
VL: Low Extreme Test Voltage; VH: High Extreme Test Voltage.

4.3 Test Condition

Test channel:

Test Mode	Tx/Rx	RF Channel		
		Low(L)	Middle(M)	High(H)
802.11a/n/ac(20M)	5150MHz ~5250 MHz	Channel 36	Channel 40	Channel 48
		5180MHz	5200MHz	5240MHz
802.11n/ac(40M)	5150MHz ~5250 MHz	Channel 38	N/A	Channel 46
		5190MHz	N/A	5230MHz
802.11ac(80M)	5150MHz ~5250 MHz	N/A	Channel 42	N/A
		N/A	5210MHz	N/A
802.11a/n/ac(20M)	5725MHz ~5850 MHz	Channel 149	Channel 157	Channel 165
		5745MHz	5785MHz	5825MHz
802.11n/ac(40M)	5725MHz ~5850 MHz	Channel 151	N/A	Channel 159
		5755MHz	N/A	5795MHz
802.11ac(80M)	5725MHz ~5850 MHz	N/A	Channel 155	N/A
		N/A	5775MHz	N/A

Run Software:



Test mode:

Pre-scan under all rate at lowest channel for Ant1

Through Pre-scan, 6Mbps is the worst case of 802.11a (20M); MCS0 is the worst case of 802.11n (20M); MCS0 is the worst case of 802.11ac (20M); MCS0 is the worst case of 802.11n(40M); MCS0 is the worst case of 802.11ac (40M); MCS0 is the worst case of 802.11ac(80M).

5 General Information

5.1 Client Information

Applicant:	Autel Intelligent Technology Corp.,Ltd
Address of Applicant:	7th-8th,10th Floor, Building B1, Zhiyuan, Xueyuan Road, Xili, Nanshan, Shenzhen, 518055, China
Manufacturer:	Autel Intelligent Technology Corp.,Ltd
Address of Manufacturer:	7th-8th,10th Floor, Building B1, Zhiyuan, Xueyuan Road, Xili, Nanshan, Shenzhen, 518055, China
Factory:	Autel Intelligent Technology Corp., Ltd. Guangming Branch
Address of Factory:	East Wing, Building 2, and 6F of Electronical Building, Yanxiang Industrial Zone, Gaoxin Rd, Dongzhou Community of Guangming New District, Shenzhen

5.2 General Description of EUT

Product Name:	AUTOMOTIVE DIAGNOSIS & ANALYSIS SYSTEM
Model No.:	MaxiSys MS906 Pro
Test Model No.:	MaxiSys MS906 Pro
Trade Mark:	AUTEL
Power Supply:	Model:GME36E-120300FDR I/P:100-240V~50-60Hz, 1.2A Output: DC 12.0V⎓ 3.0A 36.0W
Battery:	lithium battery:3.85V 11600mAh 44.66Wh
EUT Supports Radios application:	BT: 2402-2480MHz 2.4GHz: Wi-Fi: 802.11b/g/n(HT20): 2412MHz~2462MHz; 802.11n(HT40): 2422MHz~2452MHz 5GHz: Wi-Fi: U-NII-1: 5.15-5.25GHz; U-NII-3: 5.725-5.850GHz
EUT Type:	Client devices

5.3 Product Specification subjective to this standard

Operation Frequency:	IEEE 802.11a/n/ac(20M): 5150MHz ~5250 MHz IEEE802.11n/ac(40M): 5150MHz ~5250 MHz IEEE802.11ac(80M): 5150MHz ~5250 MHz IEEE 802.11a/n/ac(20M): 5725MHz ~5850 MHz IEEE802.11n/ac(40M): 5725MHz ~5850 MHz IEEE802.11ac(80M): 5725MHz ~5850 MHz
Channel Numbers:	IEEE 802.11a/n/ac(20M): 5150MHz ~5250MHz/ 4 channel IEEE 802.11n/ac(40M): 5150MHz ~5250MHz/ 2 channel IEEE 802.11ac(80M): 5150MHz ~5250MHz/ 1 channel IEEE 802.11a/n/ac(20M): 5725MHz ~5850MHz/ 5 channel IEEE 802.11n/ac(40M): 5725MHz ~5850MHz/ 2 channel IEEE 802.11ac(80M): 5725MHz ~5850MHz/ 1 channel
Type of Modulation:	OFDM
Sample Type:	☐ Mobile ☒ Portable ☐ Fix Location
Test Software of EUT:	Qualcomm Radio Control Tool
Antenna Type:	FPC antenna
Antenna gain:	3.4dBi@5GHz: Wi-Fi: ant 1, 4.6dBi@5GHz: Wi-Fi: ant 2

5.4 Operation Frequency each of channel

For 802.11a/n/ac(20M) Operation in the 5150MHz ~5250 MHz band			
Channel	Frequency	Channel	Frequency
36	5180MHz	44	5220MHz
40	5200MHz	48	5240MHz
For 802.11a/n/ac(20M) Operation in the 5725MHz ~5850 MHz band			
Channel	Frequency	Channel	Frequency
149	5745MHz	161	5805MHz
153	5765MHz	165	5825MHz
157	5785MHz	NA	NA

For 802.11n/ac(40M) Operation in the 5150MHz ~5250 MHz band			
Channel	Frequency	Channel	Frequency
38	5190MHz	46	5230MHz
For 802.11n/ac(40M) Operation in the 5725MHz ~5850 MHz band			
Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

For 802.11ac(80M) Operation in the 5150MHz ~5250 MHz band			
Channel	Frequency	NA	NA
42	5210MHz	NA	NA
For 802.11ac(80M) Operation in the 5725MHz ~5850 MHz band			
Channel	Frequency	NA	NA
155	5775MHz	NA	NA

5.5 Description of Support Units

The EUT has been tested with associated equipment below.

Description	Manufacturer	Model No.	Certification	Supplied by
/	/	/	/	/

5.6 Test Location

All tests were performed at:

Shenzhen Huaxia Testing Technology Co., Ltd.

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua New District, Shenzhen, Guangdong, China

5.7 Test Facility

• A2LA (Certificate No. 4742.01)

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4742.01.

• FCC Registration No.: 522263

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.:522263

5.8 Deviation from Standards

None.

5.9 Abnormalities from Standard Conditions

None.

5.10 Other Information Requested by the Customer

None.

5.11 Measurement Uncertainty (95% confidence levels, k=2)

No.	Item	Measurement Uncertainty
1	Radio Frequency	3×10^{-8}
2	RF power, conducted	0.86dB
3	Radiated Spurious emission test	5.12dB (Below 1GHz)
		4.6dB (Above 1GHz)
4	Conduction emission	3.5dB (9kHz to 150kHz)
		3.1dB (150kHz to 30MHz)
5	Temperature test	0.8°C
6	Humidity test	2.0%
7	DC power voltages	0.5%

6 Equipments List

Test Equipment	Manufacturer	Model No.	Instrument No.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESR7	CQA-005	2021/09/10	2022/09/09
Spectrum analyzer	R&S	FSU26	CQA-038	2021/09/10	2022/09/09
Spectrum analyzer	R&S	FSU40	CQA-075	2021/09/10	2022/09/09
Preamplifier	MITEQ	AFS4-00010300-18-10P-4	CQA-035	2021/09/10	2022/09/09
Preamplifier	MITEQ	AMF-6D-02001800-29-20P	CQA-036	2021/09/10	2022/09/09
Preamplifier	EMCI	EMC184055SE	CQA-089	2021/09/10	2022/09/09
Loop antenna	Schwarzbeck	FMZB1516	CQA-060	2021/09/16	2024/09/15
Bilog Antenna	R&S	HL562	CQA-011	2021/09/16	2024/09/15
Horn Antenna	R&S	HF906	CQA-012	2021/09/16	2024/09/15
Horn Antenna	Schwarzbeck	BBHA 9170	CQA-088	2021/09/16	2024/09/15
Coaxial Cable (Above 1GHz)	CQA	N/A	C007	2021/09/10	2022/09/09
Coaxial Cable (Below 1GHz)	CQA	N/A	C013	2021/09/10	2022/09/09
RF cable(9KHz~40GHz)	CQA	RF-01	CQA-079	2021/09/10	2022/09/09
Antenna Connector	CQA	RFC-01	CQA-080	2021/09/10	2022/09/09
Power Sensor	KEYSIGHT	U2021XA	CQA-30	2021/09/10	2022/09/09
N1918A Power Analysis Manager Power Panel	Agilent	N1918A	CQA-074	2021/09/10	2022/09/09
Power meter	R&S	NRVD	CQA-029	2021/09/10	2022/09/09
Power divider	MIDWEST	PWD-2533-02-SMA-79	CQA-067	2021/09/10	2022/09/09
EMI Test Receiver	R&S	ESR7	CQA-005	2021/09/10	2022/09/09
LISN	R&S	ENV216	CQA-003	2021/09/10	2022/09/09
Coaxial cable	CQA	N/A	CQA-C009	2021/09/10	2022/09/09
DC power	KEYSIGHT	E3631A	CQA-028	2021/09/10	2022/09/09

Test software:

	Manufacturer	Software brand
Radiated Emissions test software	Tonscend	JS1120-3
Conducted Emissions test software	Audix	e3
RF Conducted test software	Audix	e3

7 Radio Technical Requirements Specification

Reference documents for testing:

No.	Identity	Document Title
1	FCC Part15E	Subpart C-Intentional Radiators
2	ANSI C63.10-2013	American National Standard for Testing Unlicesed Wireless Devices
3	KDB 789033 D02 General U-NII Test Procedures New Rules v02r01	Guidelines for compliance testing of unlicensed national information infrastructure (U-NII) device part 15, subpart E
4	KDB 662911 D01 Multiple Transmitter Output v02r01	Emissions Testing of Transmitters with Multiple Outputs in the Same Band

Appendix A): Emission Bandwidth

26dB Emission bandwidth

Test Requirement: 47 CFR Part 15, Subpart C 15.407 (a)

Test Method: KDB 789033 D02 II C 1

6 dB bandwidth (5.725-5.85 GHz band)

Test Requirement 47 CFR Part 15, Subpart C 15.407 (e)

Test Method: KDB 789033 D02 II C 2

Limit: ≥500 kHz

Test Procedure:

a) Set RBW = approximately 1% of the emission bandwidth.

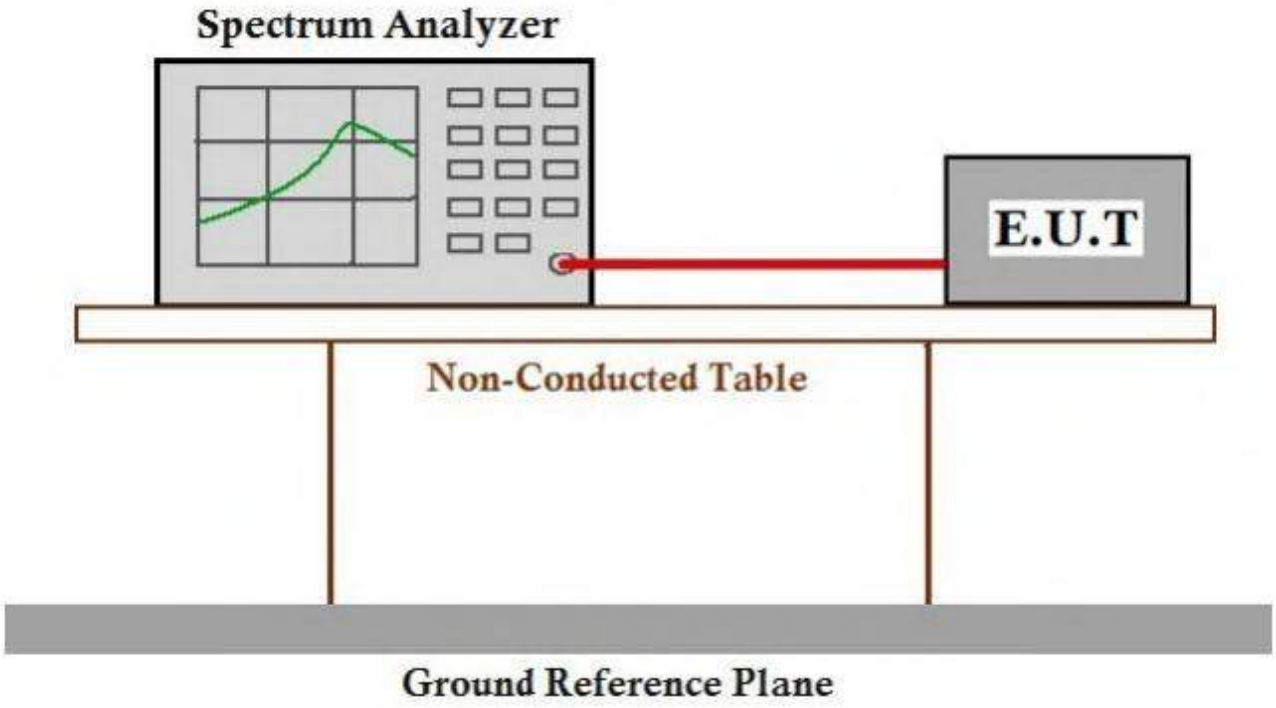
b) Set the VBW > RBW.

c) Detector = Peak.

d) Trace mode = max hold.

e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

Test Setup Diagram



ANT1

Appendix A1: Emission Bandwidth

Test Result

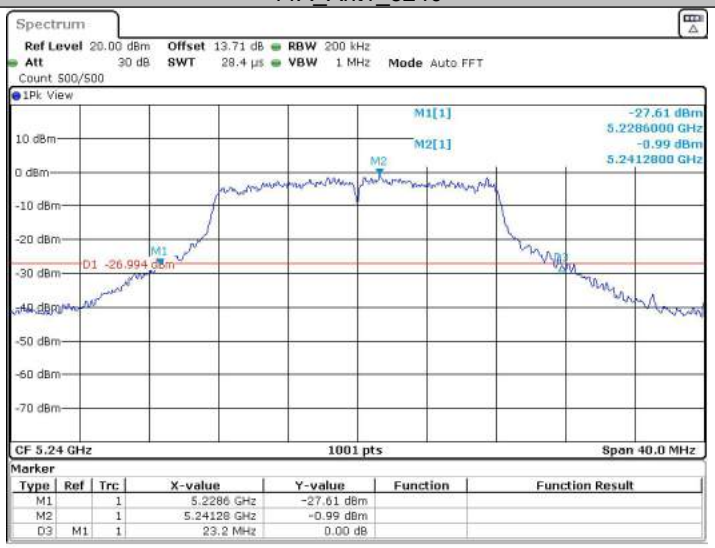
TestMode	Antenna	Channel	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	22.320	5169.480	5191.800	---	PASS
		5200	22.960	5188.000	5210.960	---	PASS
		5240	23.200	5228.600	5251.800	---	PASS
		5745	22.520	5733.800	5756.320	---	PASS
		5785	23.480	5773.280	5796.760	---	PASS
		5825	22.000	5814.000	5836.000	---	PASS
11N20SISO	Ant1	5180	22.840	5168.720	5191.560	---	PASS
		5200	23.040	5188.280	5211.320	---	PASS
		5240	23.400	5228.320	5251.720	---	PASS
		5745	23.040	5733.240	5756.280	---	PASS
		5785	21.680	5774.400	5796.080	---	PASS
		5825	22.920	5813.760	5836.680	---	PASS
11N40SISO	Ant1	5190	40.960	5169.520	5210.480	---	PASS
		5230	41.280	5209.440	5250.720	---	PASS
		5755	42.320	5733.560	5775.880	---	PASS
		5795	41.600	5774.520	5816.120	---	PASS
11AC20SISO	Ant1	5180	22.640	5168.960	5191.600	---	PASS
		5200	22.840	5188.400	5211.240	---	PASS
		5240	23.120	5228.800	5251.920	---	PASS
		5745	22.400	5733.840	5756.240	---	PASS
		5785	22.440	5773.840	5796.280	---	PASS
		5825	23.320	5813.000	5836.320	---	PASS
11AC40SISO	Ant1	5190	40.640	5169.840	5210.480	---	PASS
		5230	41.280	5209.600	5250.880	---	PASS
		5755	41.600	5733.960	5775.560	---	PASS
		5795	42.000	5774.360	5816.360	---	PASS
11AC80SISO	Ant1	5210	83.360	5169.200	5252.560	---	PASS
		5775	83.200	5733.720	5816.920	---	PASS

Test Graphs

11A_Ant1_5180

11A_Ant1_5200

11A_Ant1_5240



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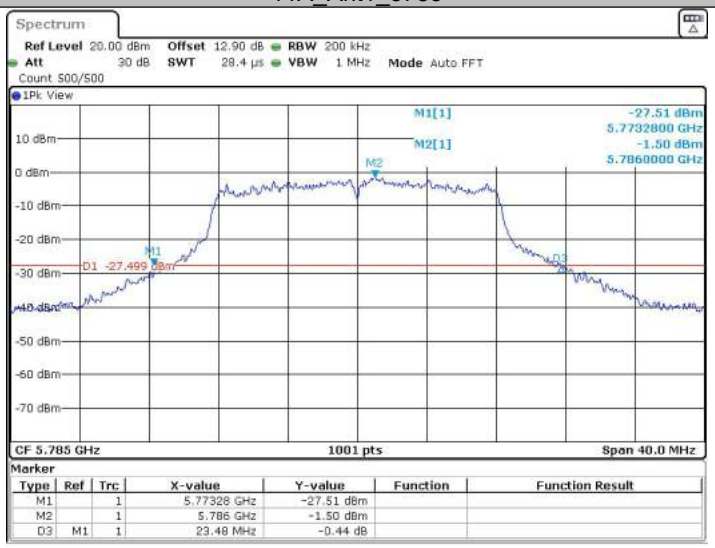
11A_Ant1_5745

Date: 29.DEC.2021 06:37:29

11A_Ant1_5785



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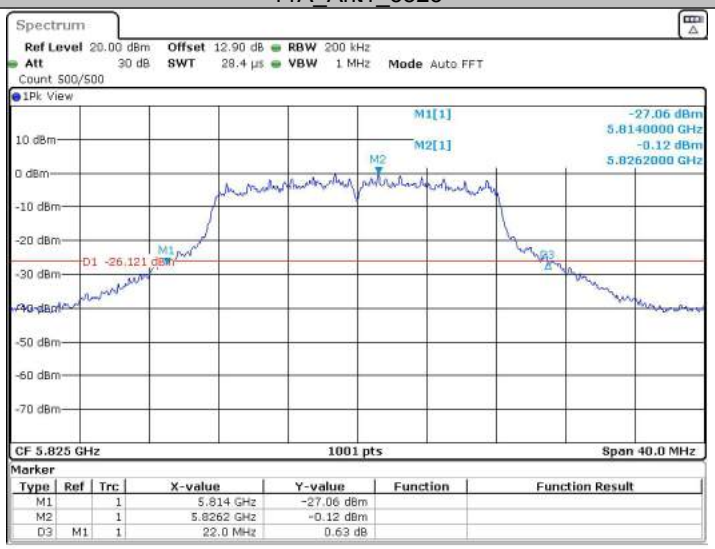

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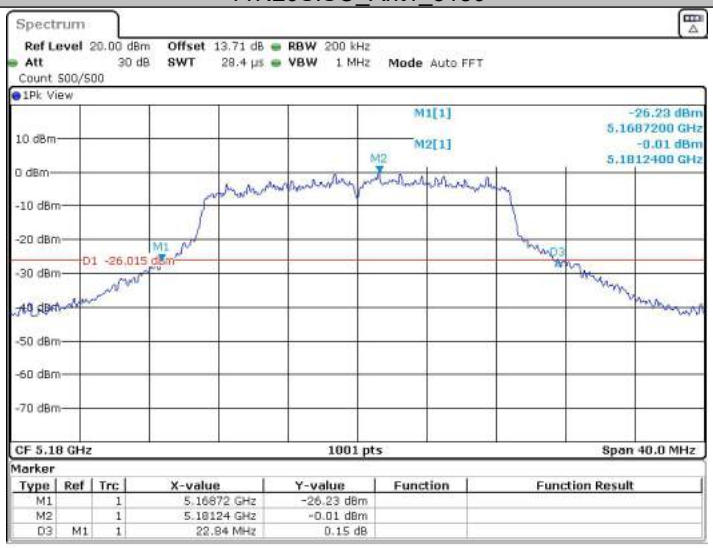

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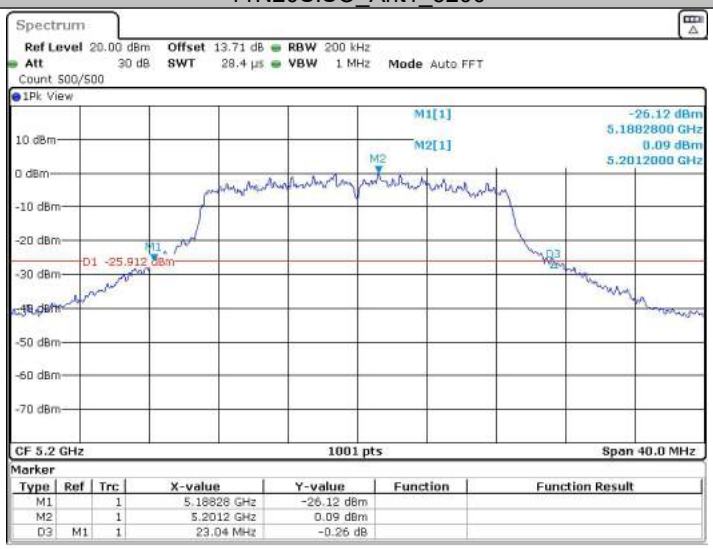

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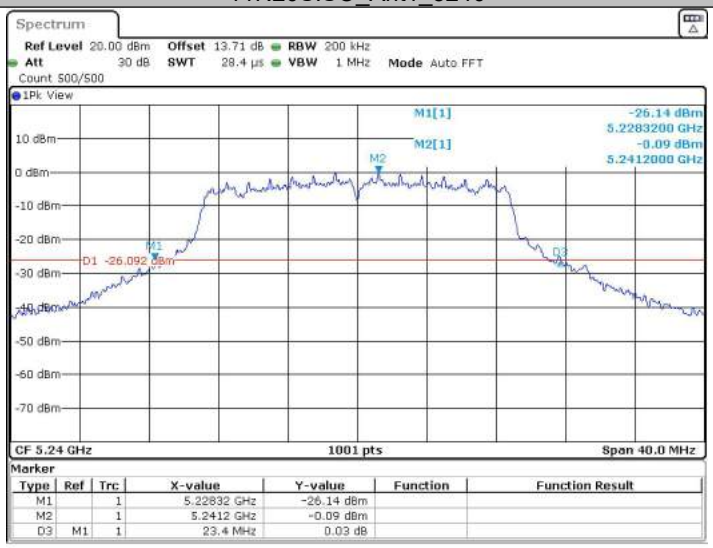

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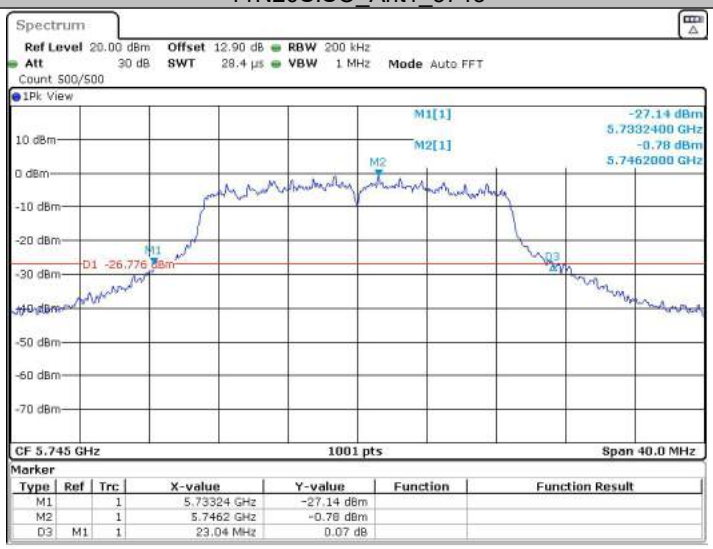

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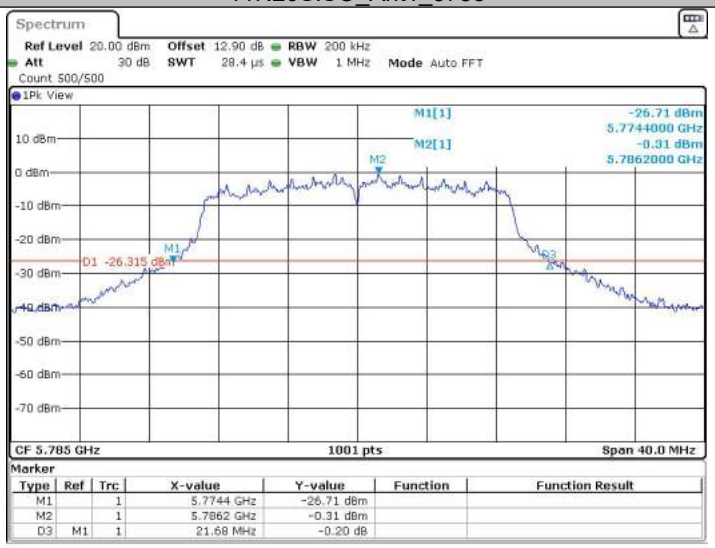

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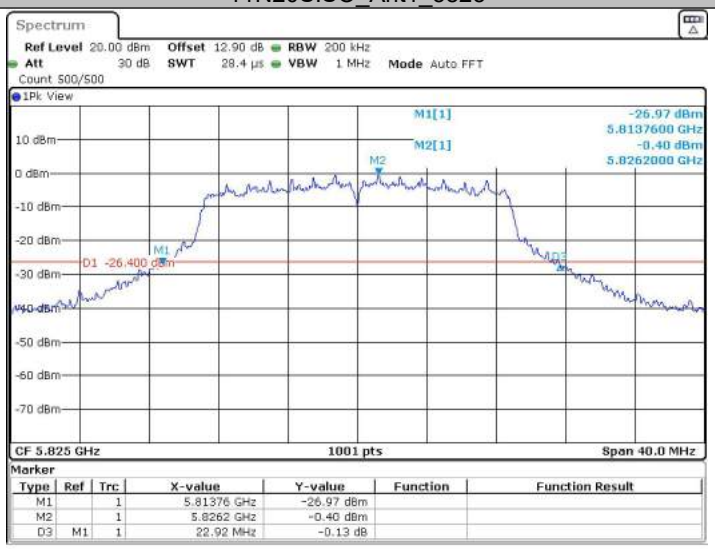

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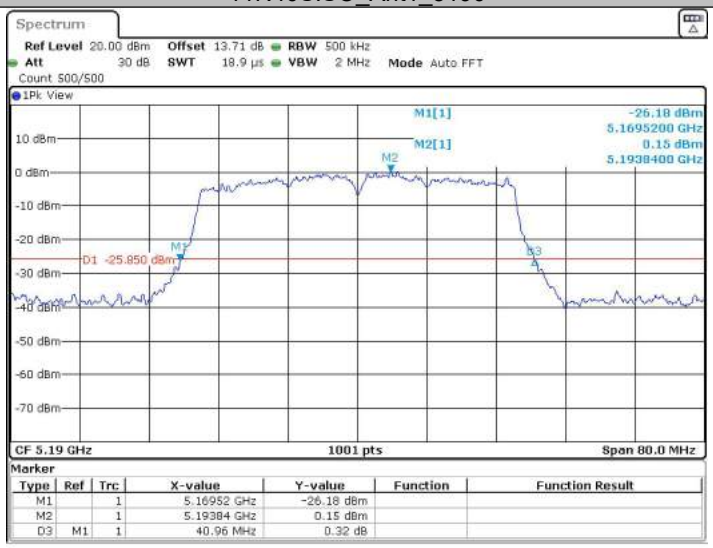

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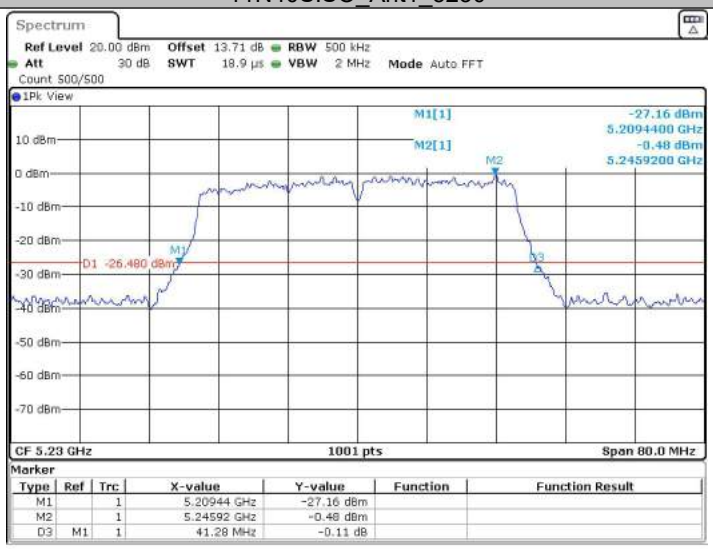

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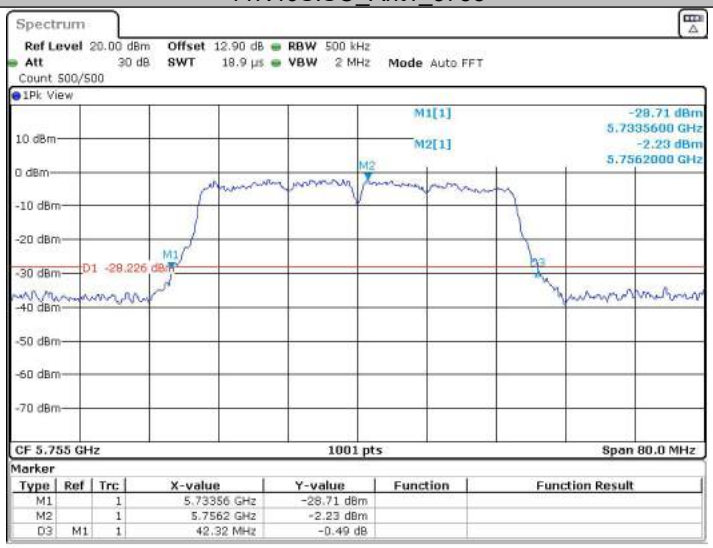

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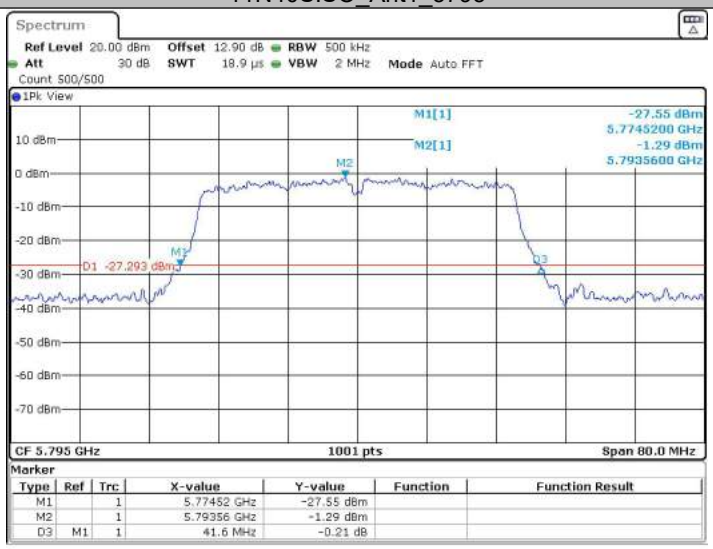
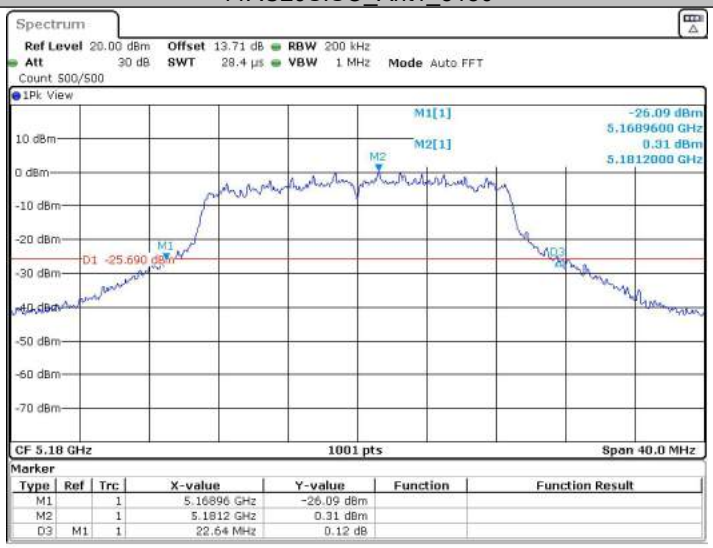
11N40SISO_Ant1_5795



Date: 29.DEC.2021 09:07:17

11AC20SISO_Ant1_5180



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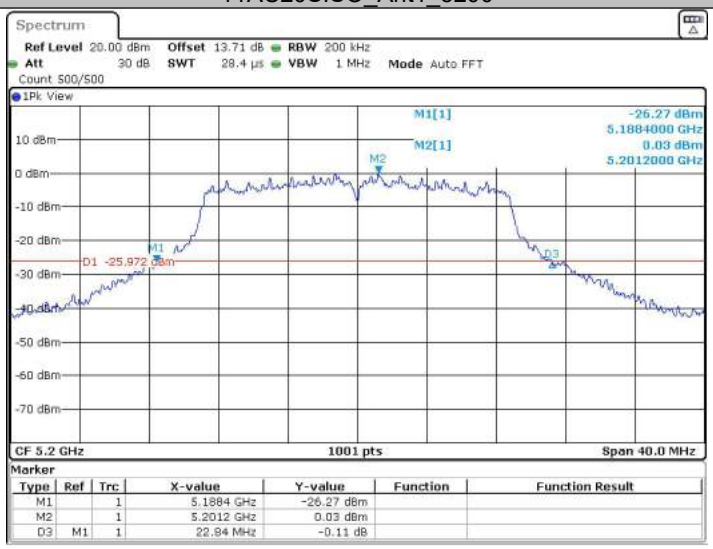
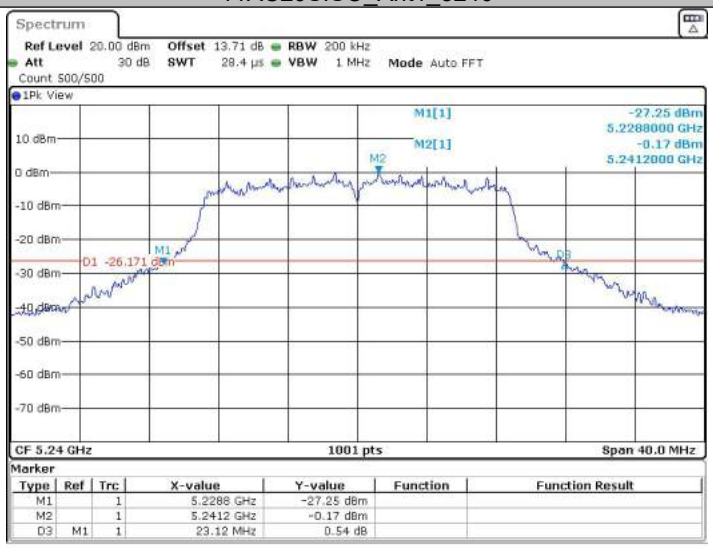
11AC20SISO_Ant1_5200

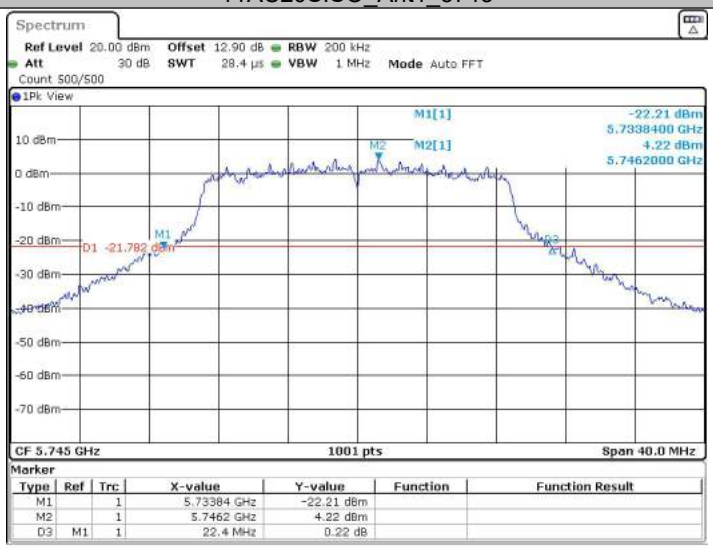


Date: 29.DEC.2021 09:23:59

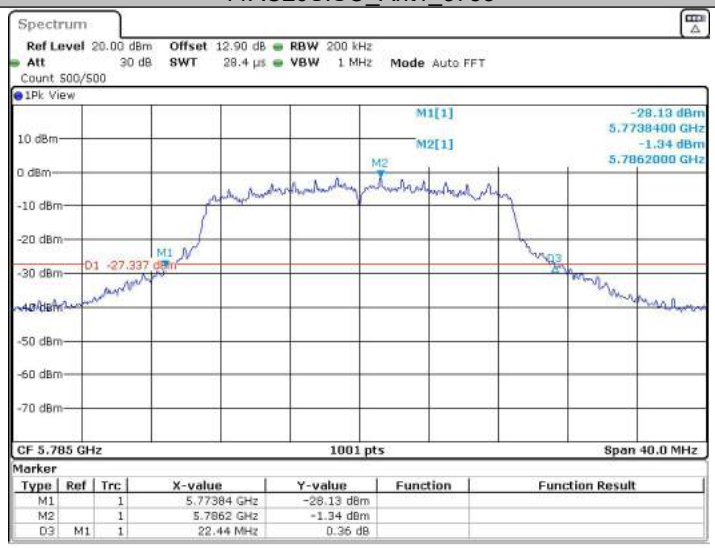
11AC20SISO_Ant1_5240



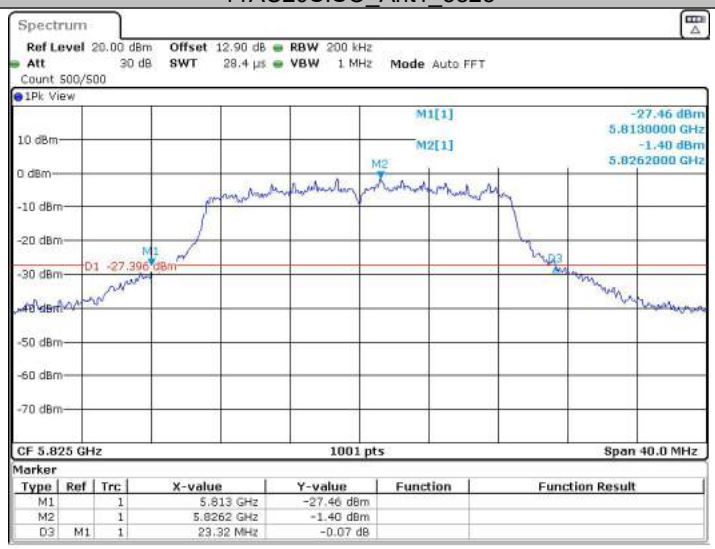
11AC20SISO_Ant1_5745



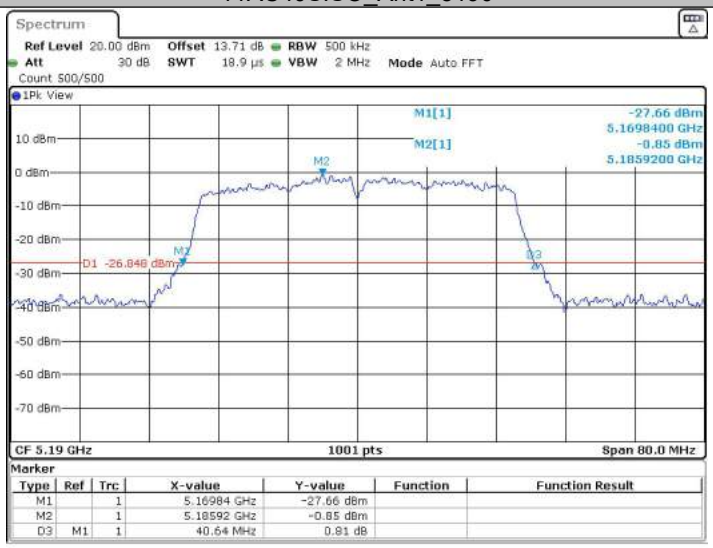
11AC20SISO_Ant1_5785



11AC20SISO_Ant1_5825



11AC40SISO_Ant1_5190



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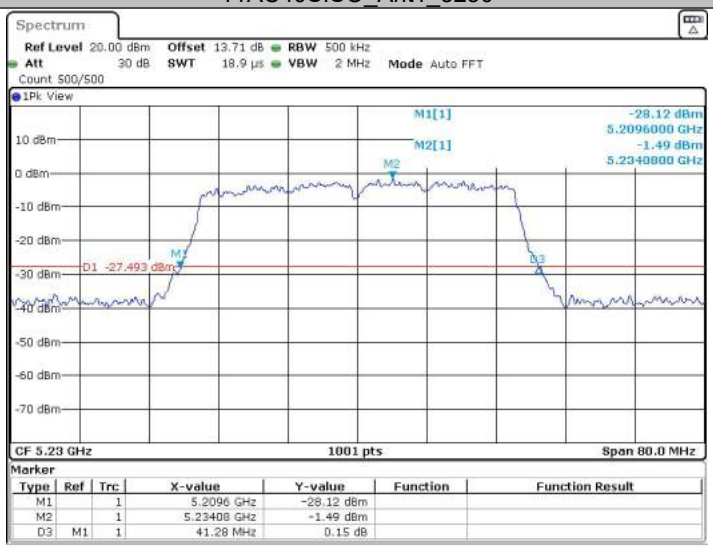

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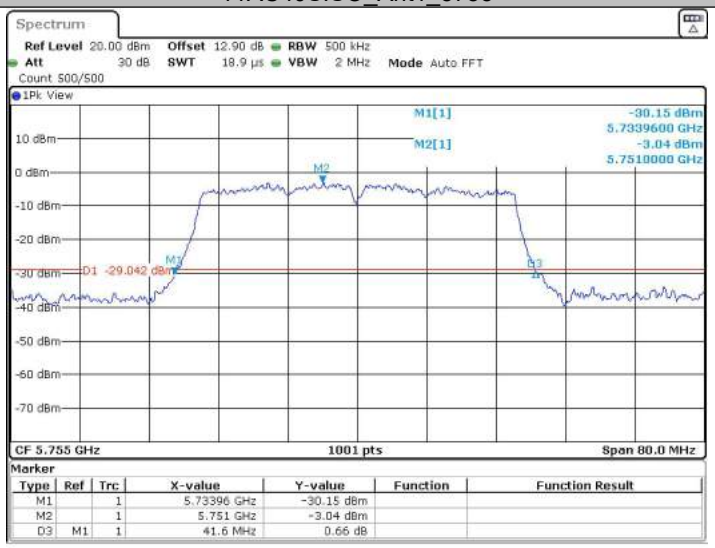

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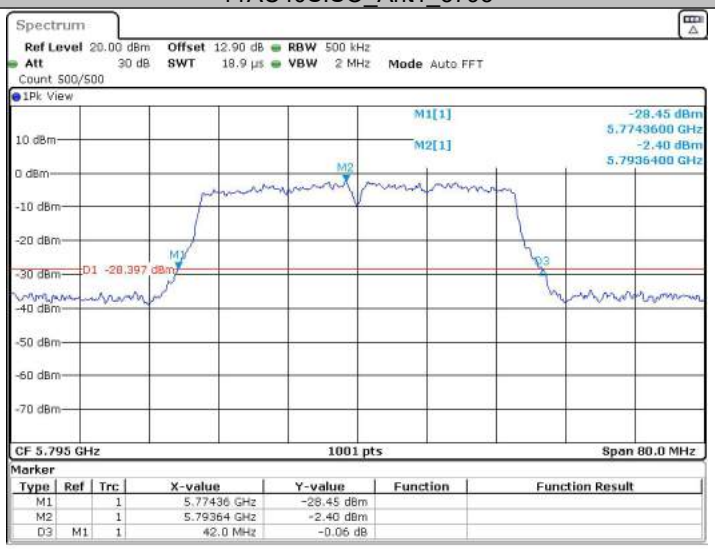

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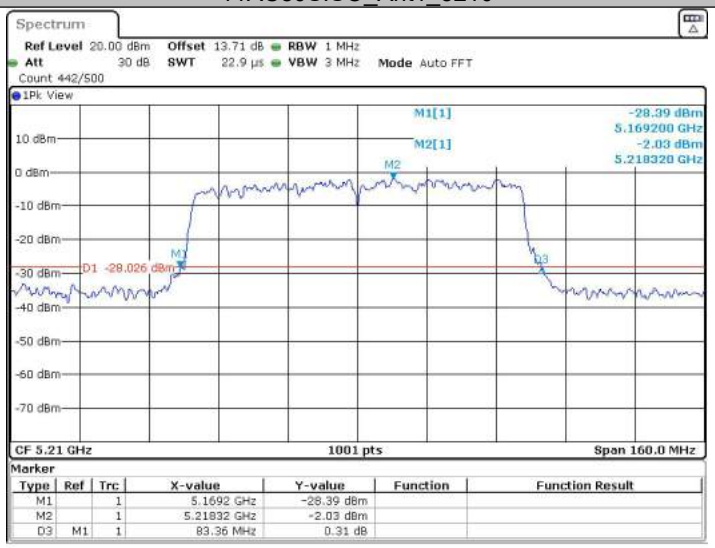
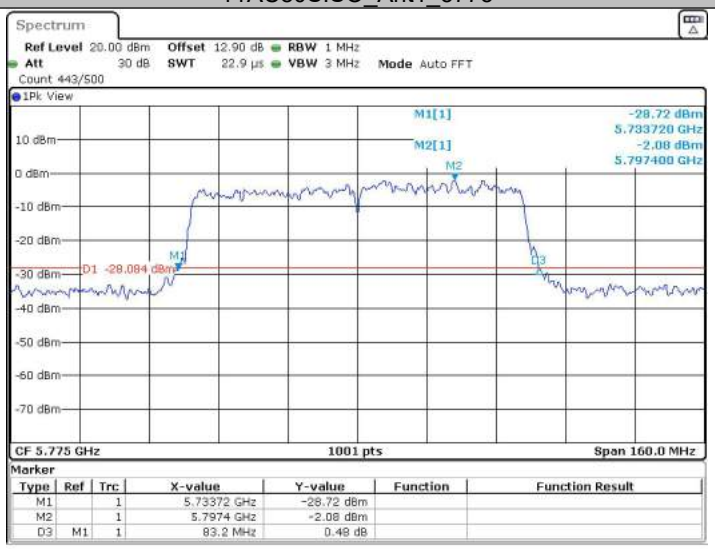
11AC80SISO_Ant1_5210



Date: 29.DEC.2021 10:47:18

11AC80SISO_Ant1_5775



Date: 29.DEC.2021 10:56:15

Appendix A2: Occupied channel bandwidth

Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	17.103	5171.648	5188.751	---	PASS
		5200	17.143	5191.449	5208.591	---	PASS
		5240	17.143	5231.449	5248.591	---	PASS
		5745	16.983	5736.568	5753.551	---	PASS
		5785	17.063	5776.608	5793.671	---	PASS
		5825	17.223	5816.289	5833.511	---	PASS
11N20SISO	Ant1	5180	18.222	5170.969	5189.191	---	PASS
		5200	18.142	5190.969	5209.111	---	PASS
		5240	18.102	5230.969	5249.071	---	PASS
		5745	18.222	5735.849	5754.071	---	PASS
		5785	18.142	5776.009	5794.151	---	PASS
		5825	18.222	5815.889	5834.111	---	PASS
11N40SISO	Ant1	5190	36.444	5171.938	5208.382	---	PASS
		5230	36.364	5211.858	5248.222	---	PASS
		5755	36.364	5736.698	5773.062	---	PASS
		5795	36.364	5776.858	5813.222	---	PASS
11AC20SISO	Ant1	5180	18.262	5170.929	5189.191	---	PASS
		5200	18.182	5190.809	5208.991	---	PASS
		5240	18.102	5230.969	5249.071	---	PASS
		5745	18.062	5736.009	5754.071	---	PASS
		5785	18.102	5775.969	5794.071	---	PASS
		5825	18.222	5815.889	5834.111	---	PASS
11AC40SISO	Ant1	5190	36.284	5171.938	5208.222	---	PASS
		5230	36.683	5211.778	5248.462	---	PASS
		5755	36.763	5736.538	5773.302	---	PASS
		5795	36.843	5776.618	5813.462	---	PASS
11AC80SISO	Ant1	5210	75.924	5172.438	5248.362	---	PASS
		5775	76.723	5736.638	5813.362	---	PASS

Test Graphs

11A_Ant1_5180

11A_Ant1_5200

11A_Ant1_5240

11A_Ant1_5745

11A_Ant1_5785

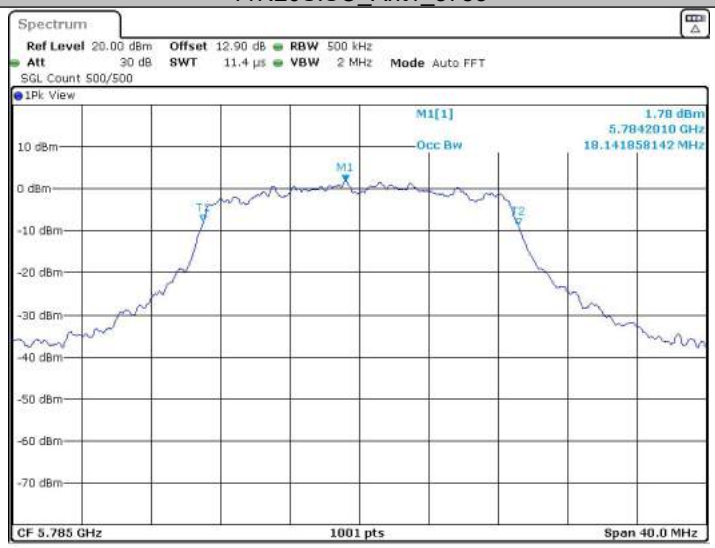
11A_Ant1_5825

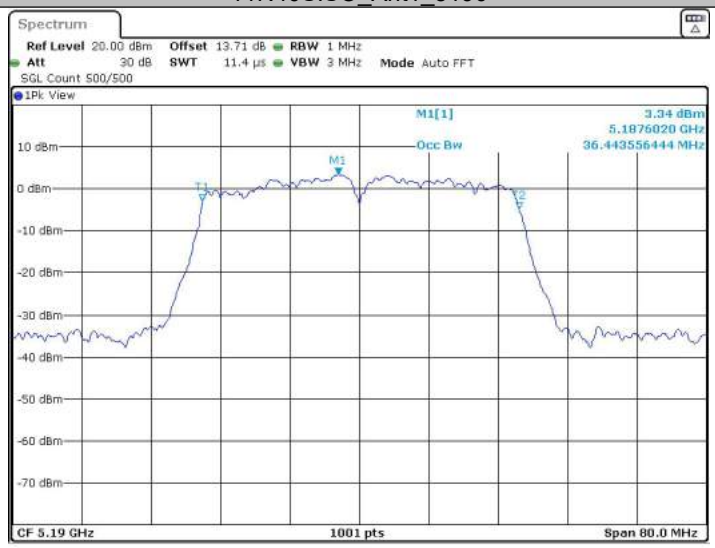
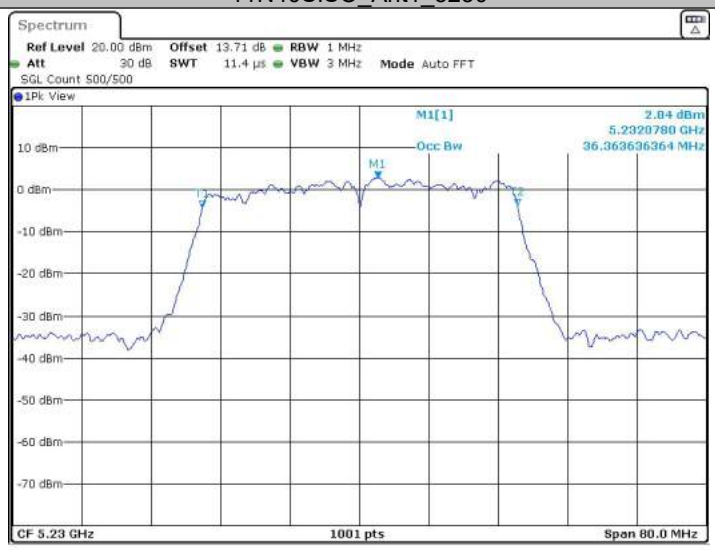
11N20SISO_Ant1_5180

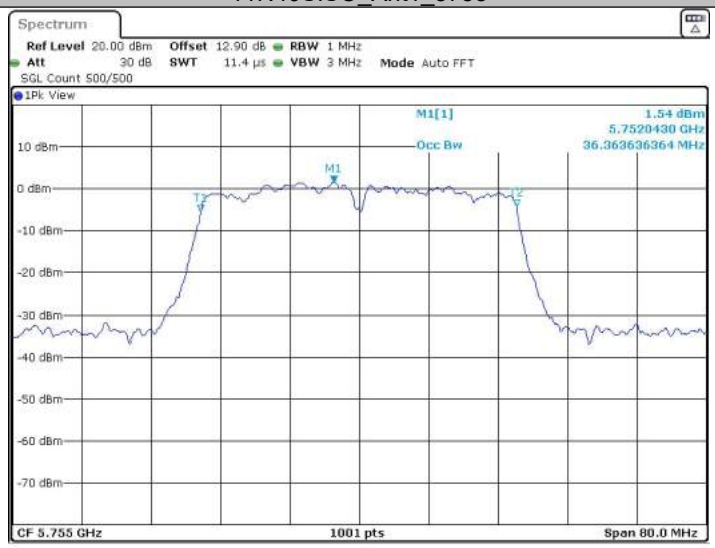
11N20SISO_Ant1_5200


11N20SISO_Ant1_5240

11N20SISO_Ant1_5745

11N20SISO_Ant1_5785

11N20SISO_Ant1_5825


11N40SISO_Ant1_5190

11N40SISO_Ant1_5230


11N40SISO_Ant1_5755

11N40SISO_Ant1_5795


11AC20SISO_Ant1_5180

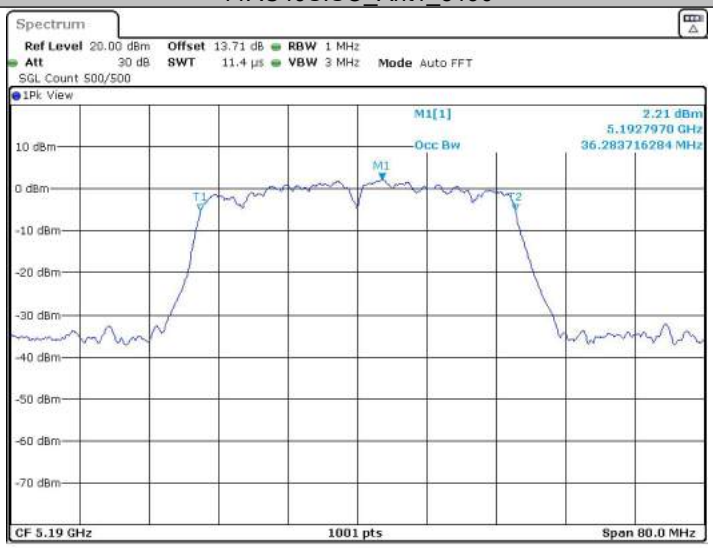
11AC20SISO_Ant1_5200

11AC20SISO_Ant1_5240

11AC20SISO_Ant1_5745


11AC20SISO_Ant1_5785

11AC20SISO_Ant1_5825

11AC40SISO_Ant1_5190

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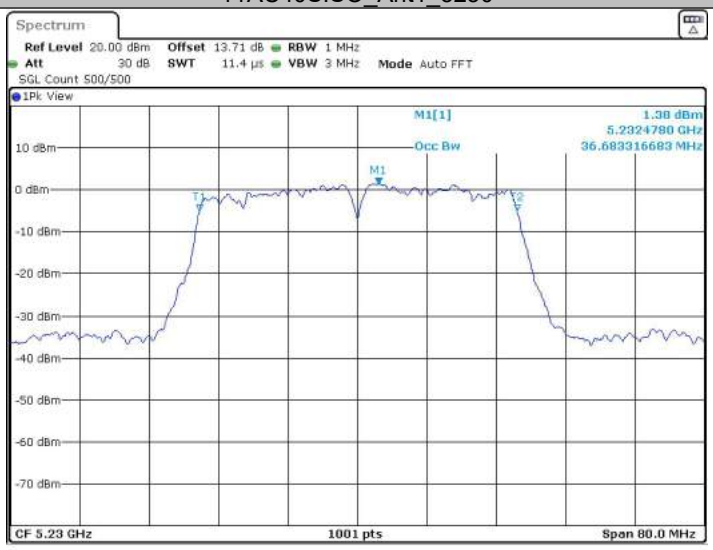
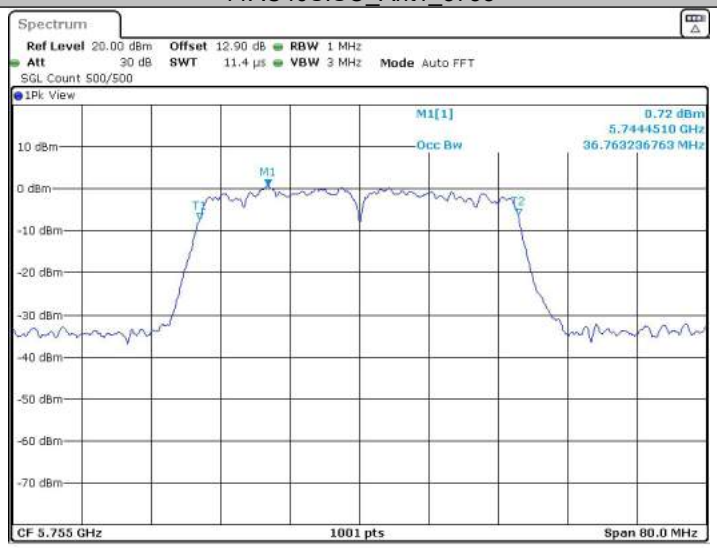
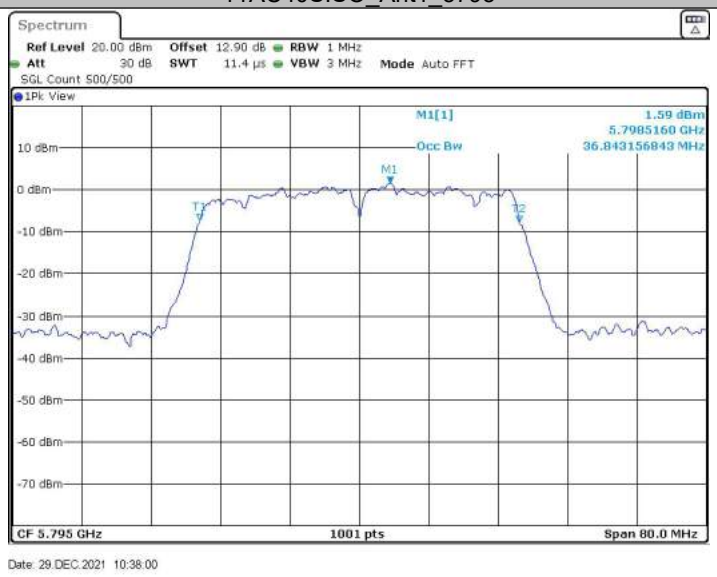
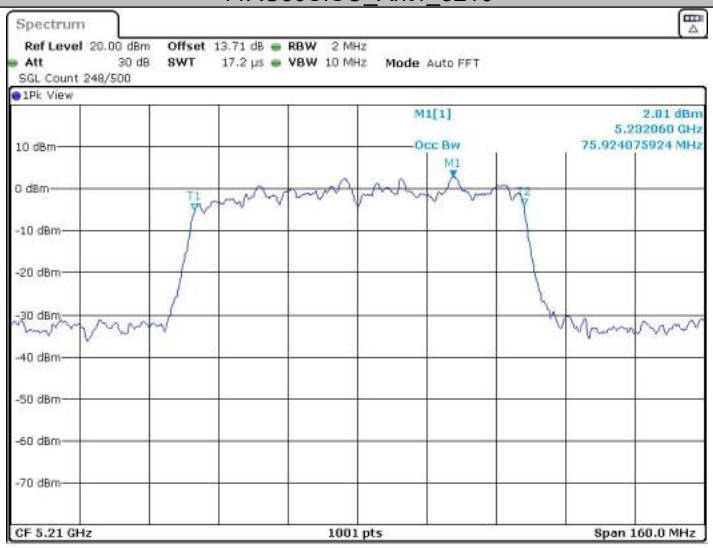
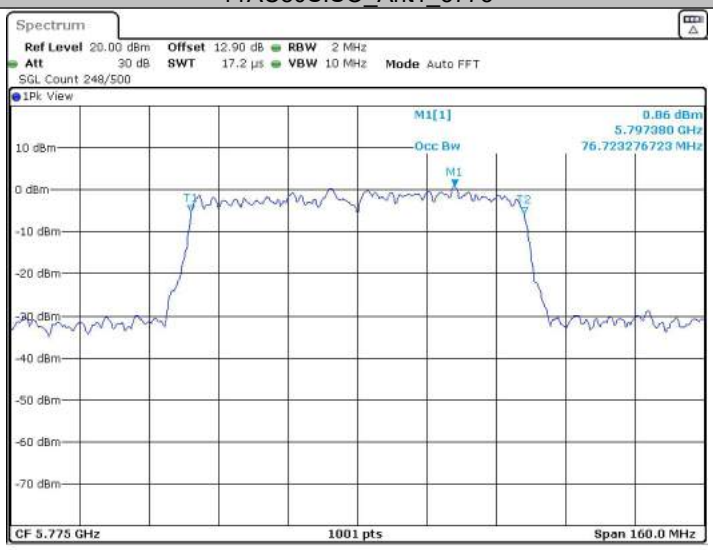


11AC40SISO_Ant1_5755



11AC40SISO_Ant1_5795



11AC80SISO_Ant1_5210

11AC80SISO_Ant1_5775


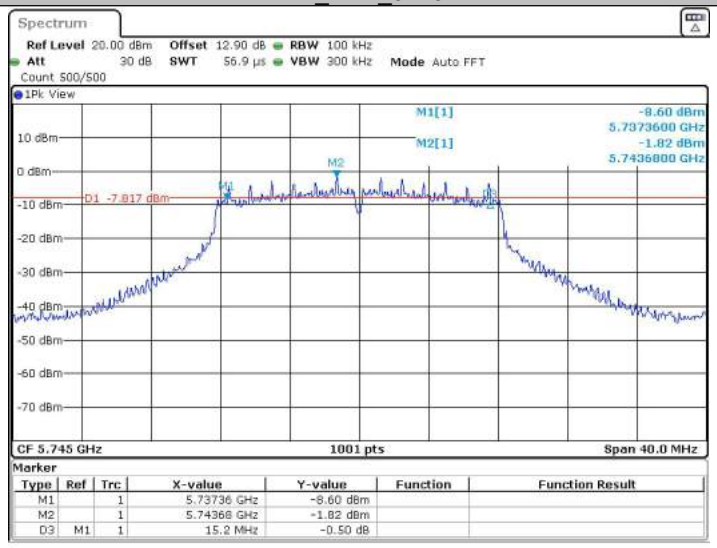
Appendix A3: Min emission bandwidth

Test Result

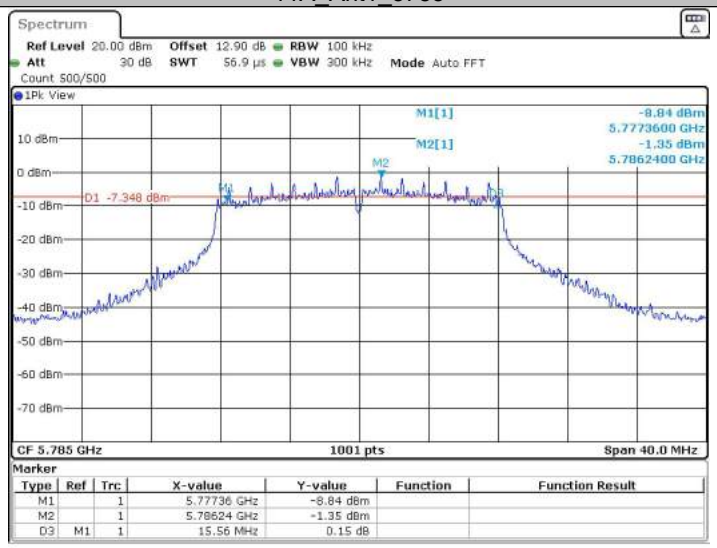
TestMode	Antenna	Channel	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5745	15.200	5737.360	5752.560	0.5	PASS
		5785	15.560	5777.360	5792.920	0.5	PASS
		5825	16.400	5816.760	5833.160	0.5	PASS
11N20SISO	Ant1	5745	15.160	5737.360	5752.520	0.5	PASS
		5785	16.160	5777.360	5793.520	0.5	PASS
		5825	17.400	5816.400	5833.800	0.5	PASS
11N40SISO	Ant1	5755	35.680	5737.160	5772.840	0.5	PASS
		5795	35.920	5777.320	5813.240	0.5	PASS
11AC20SISO	Ant1	5745	15.200	5737.360	5752.560	0.5	PASS
		5785	16.160	5777.360	5793.520	0.5	PASS
		5825	17.400	5816.360	5833.760	0.5	PASS
11AC40SISO	Ant1	5755	35.280	5737.320	5772.600	0.5	PASS
		5795	35.920	5777.320	5813.240	0.5	PASS
11AC80SISO	Ant1	5775	75.840	5737.240	5813.080	0.5	PASS

Test Graphs

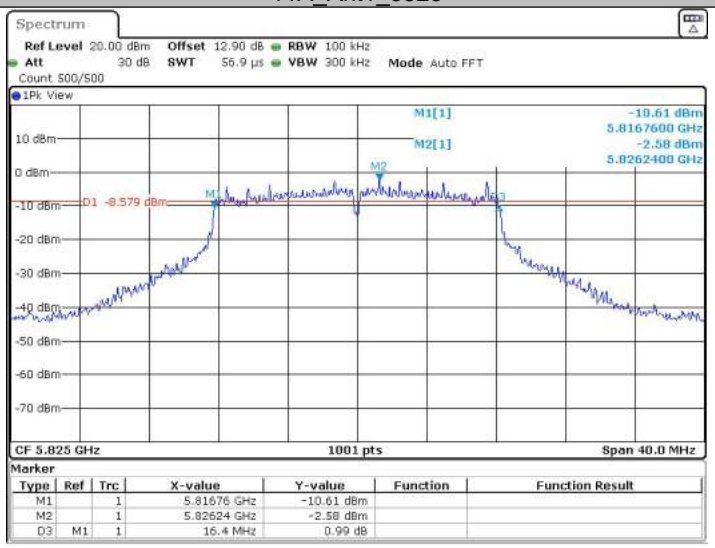
11A_Ant1_5745



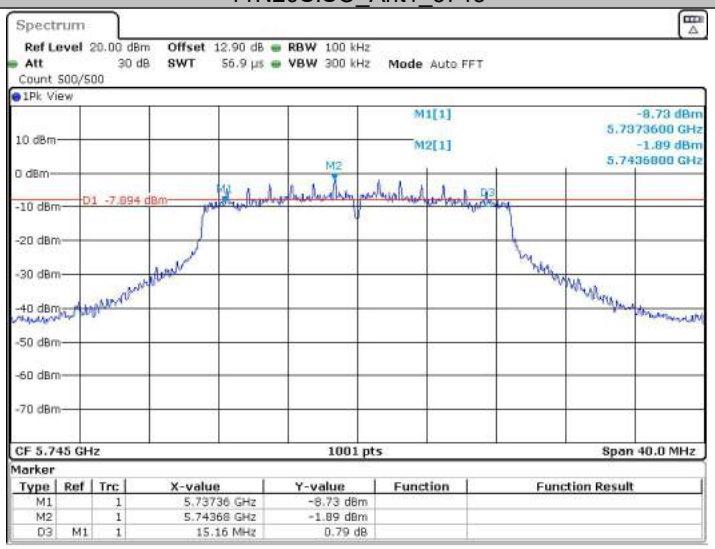
11A_Ant1_5785



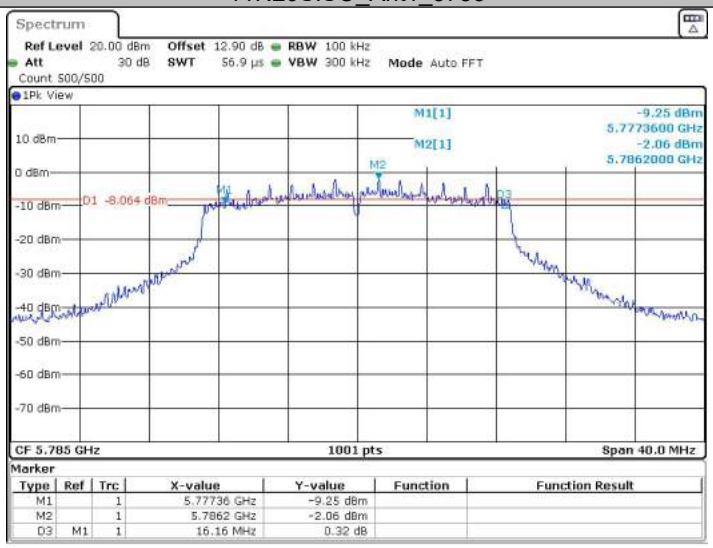
11A_Ant1_5825



11N20SISO_Ant1_5745

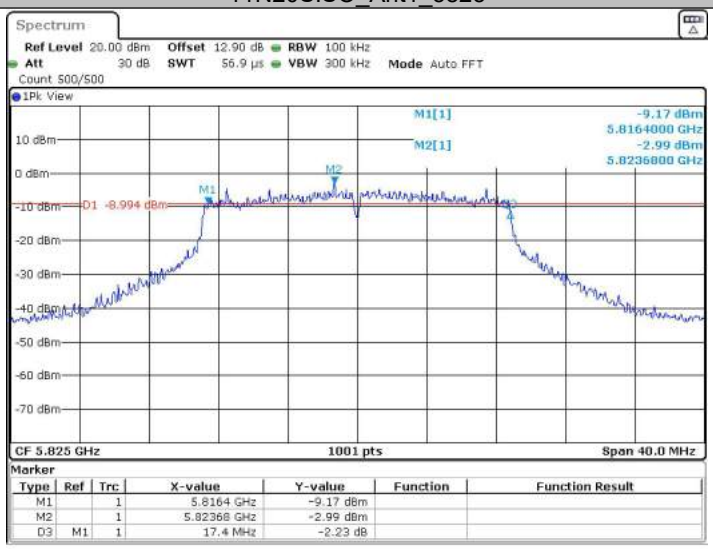


11N20SISO_Ant1_5785



Date: 29.DEC.2021 08:27:59

11N20SISO_Ant1_5825



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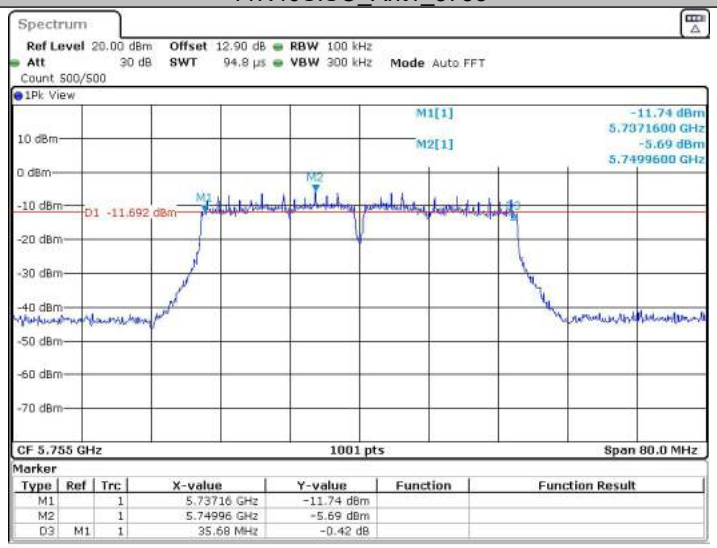
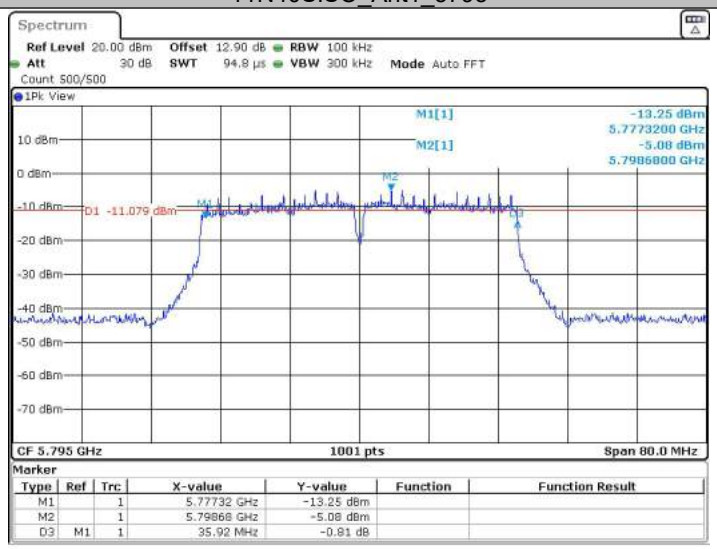
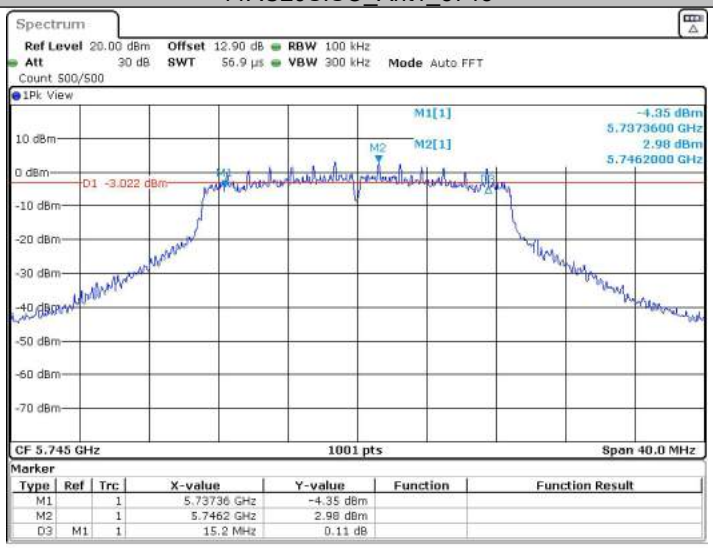


11N40SISO_Ant1_5795


11AC20SISO_Ant1_5745



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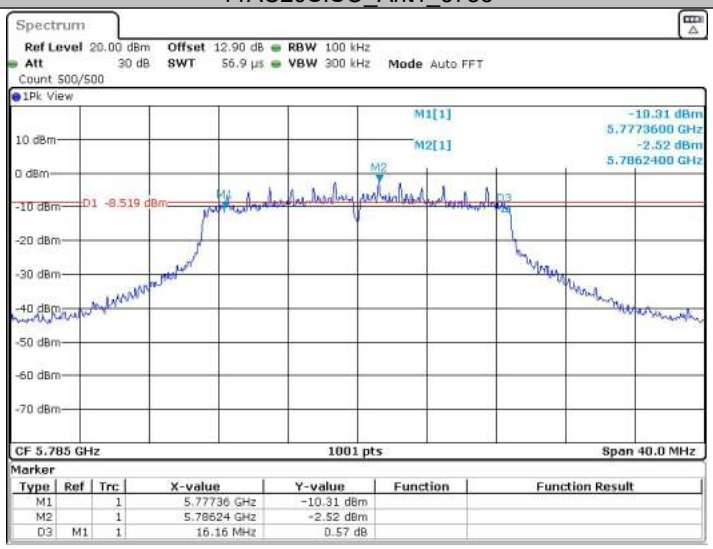
11AC20SISO_Ant1_5785



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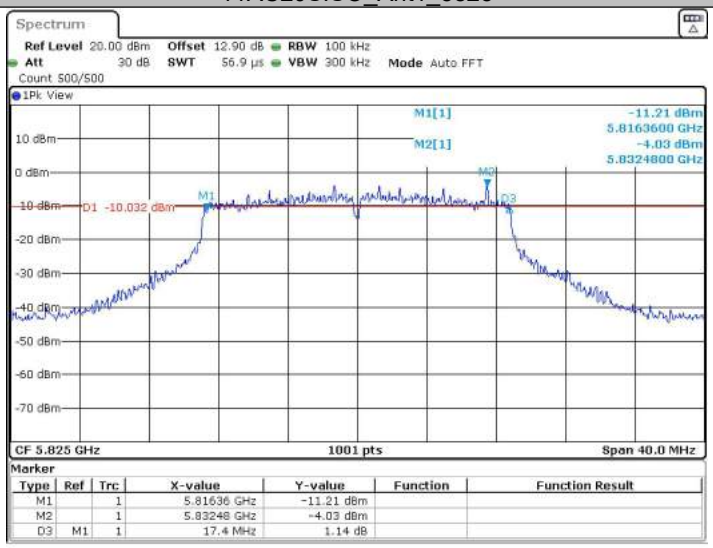
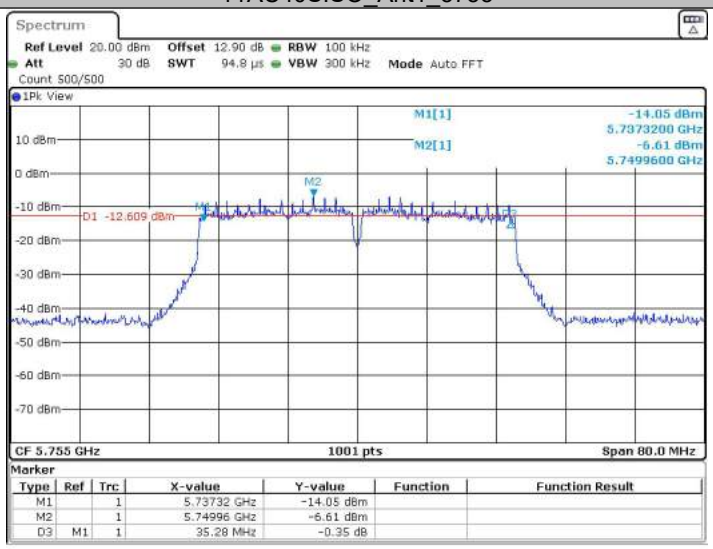
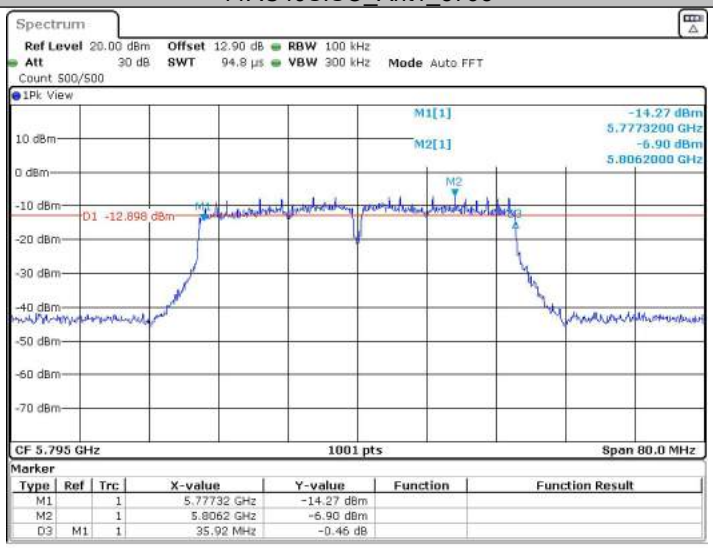
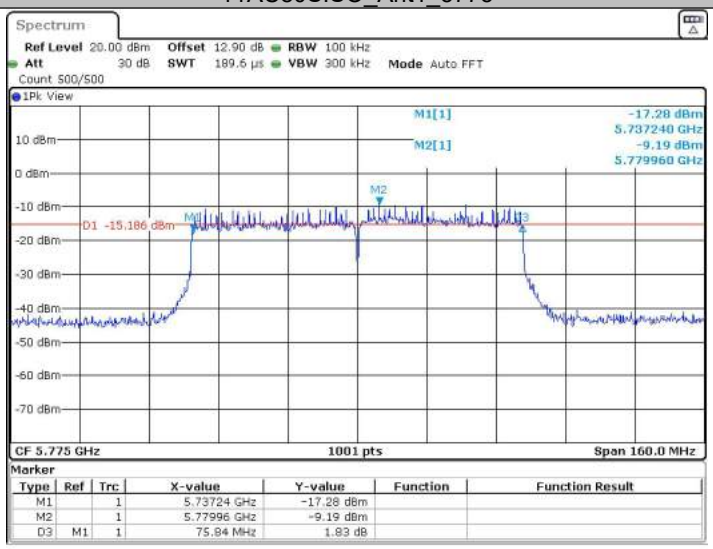
11AC20SISO_Ant1_5825


11AC40SISO_Ant1_5755


11AC40SISO_Ant1_5795



11AC80SISO_Ant1_5775



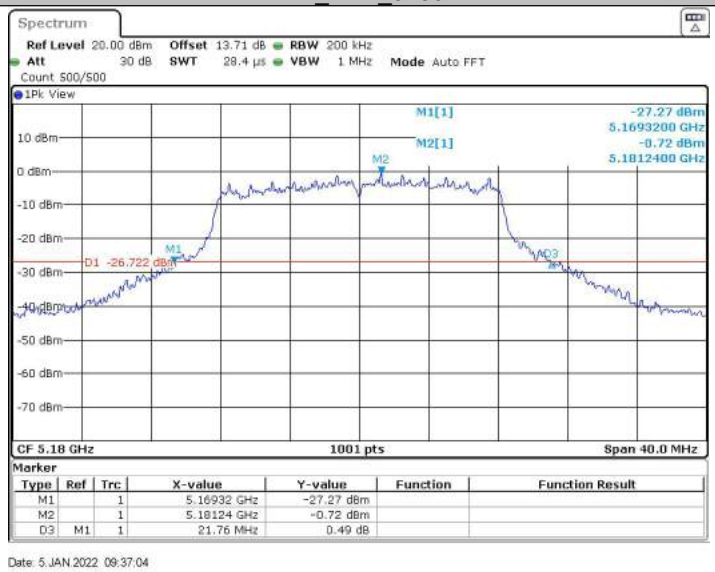
ANT2
Appendix A1: Emission Bandwidth

Test Result

TestMode	Antenna	Channel	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	21.760	5169.320	5191.080	---	PASS
		5200	22.720	5188.360	5211.080	---	PASS
		5240	22.800	5228.920	5251.720	---	PASS
		5745	22.000	5734.200	5756.200	---	PASS
		5785	22.560	5773.960	5796.520	---	PASS
		5825	22.040	5814.040	5836.080	---	PASS
11N20SISO	Ant1	5180	22.880	5168.800	5191.680	---	PASS
		5200	22.640	5188.240	5210.880	---	PASS
		5240	22.800	5228.840	5251.640	---	PASS
		5745	22.440	5733.920	5756.360	---	PASS
		5785	22.840	5773.960	5796.800	---	PASS
		5825	23.040	5813.640	5836.680	---	PASS
11N40SISO	Ant1	5190	40.960	5169.440	5210.400	---	PASS
		5230	41.360	5209.520	5250.880	---	PASS
		5755	41.360	5734.360	5775.720	---	PASS
		5795	41.440	5774.360	5815.800	---	PASS
11AC20SISO	Ant1	5180	23.520	5168.760	5192.280	---	PASS
		5200	23.000	5188.120	5211.120	---	PASS
		5240	20.040	5220.000	5260.000	---	PASS
		5745	22.720	5733.920	5756.640	---	PASS
		5785	22.680	5774.240	5796.920	---	PASS
		5825	22.920	5813.600	5836.520	---	PASS
11AC40SISO	Ant1	5190	41.040	5169.600	5210.640	---	PASS
		5230	41.680	5209.440	5251.120	---	PASS
		5755	40.880	5734.680	5775.560	---	PASS
		5795	41.520	5774.520	5816.040	---	PASS
11AC80SISO	Ant1	5210	83.680	5168.720	5252.400	---	PASS
		5775	82.720	5734.840	5817.560	---	PASS

Test Graphs

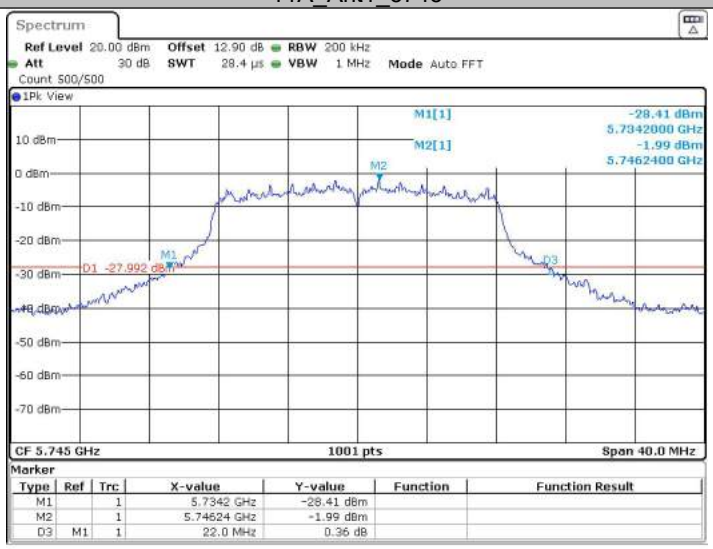
11A_Ant1_5180



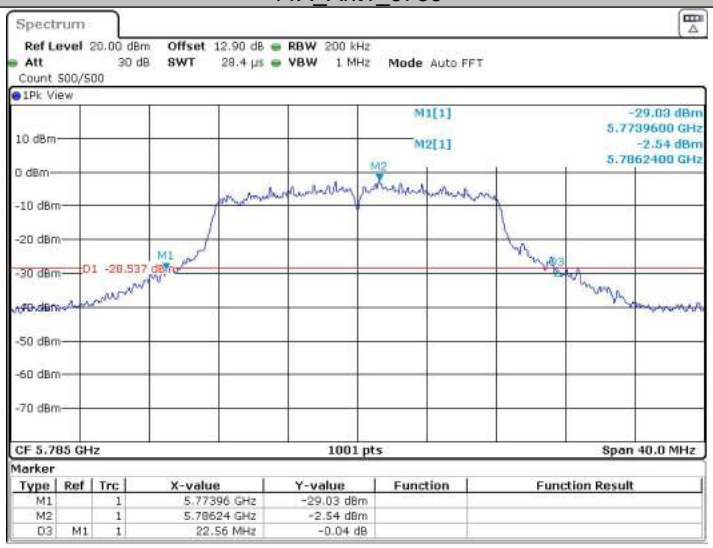
11A_Ant1_5200

11A_Ant1_5240

11A_Ant1_5745



11A_Ant1_5785



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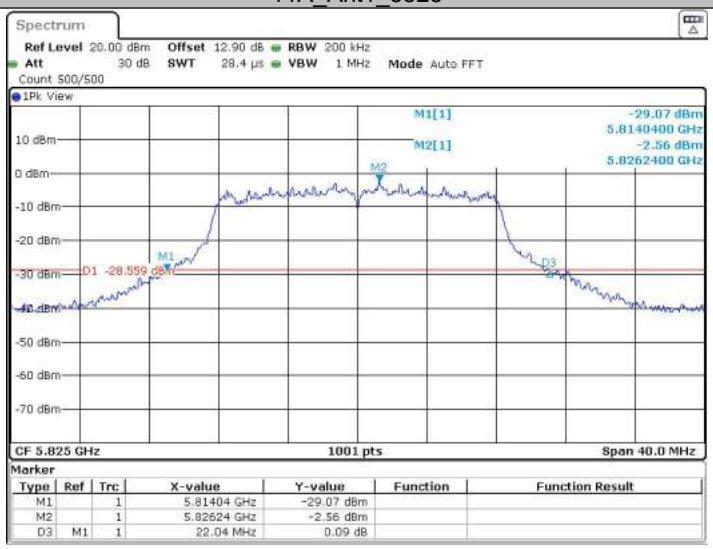

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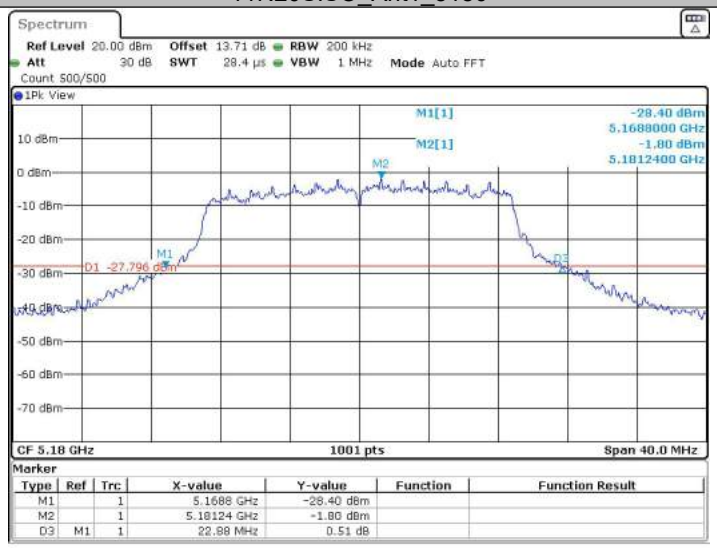

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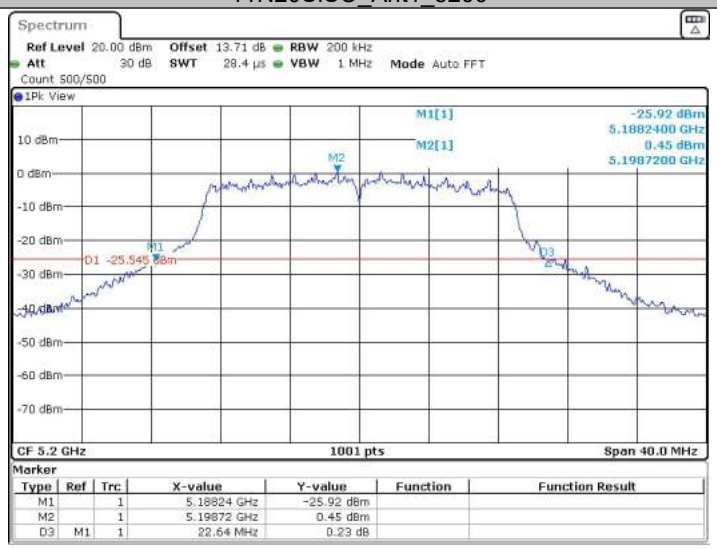

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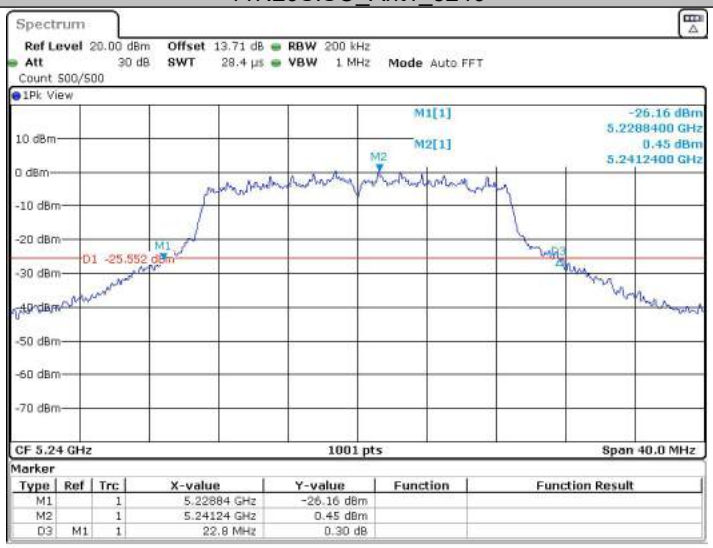

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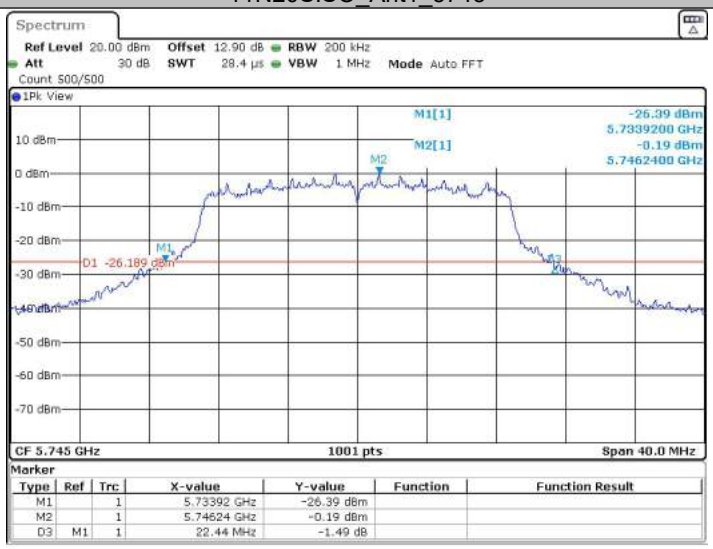

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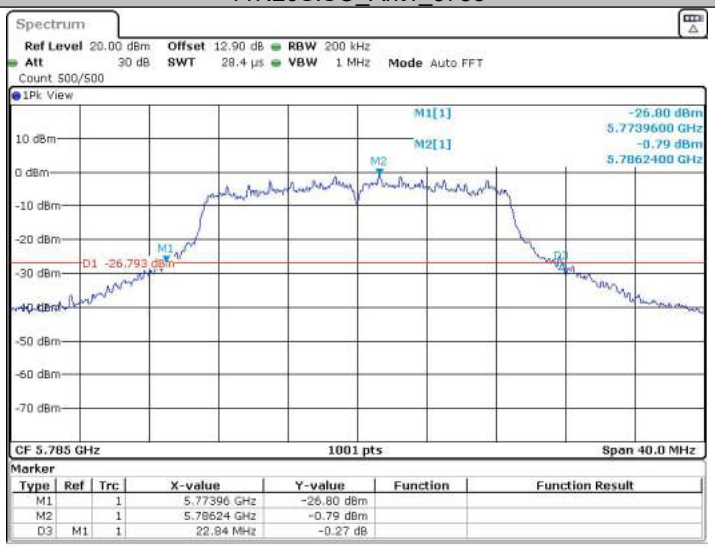

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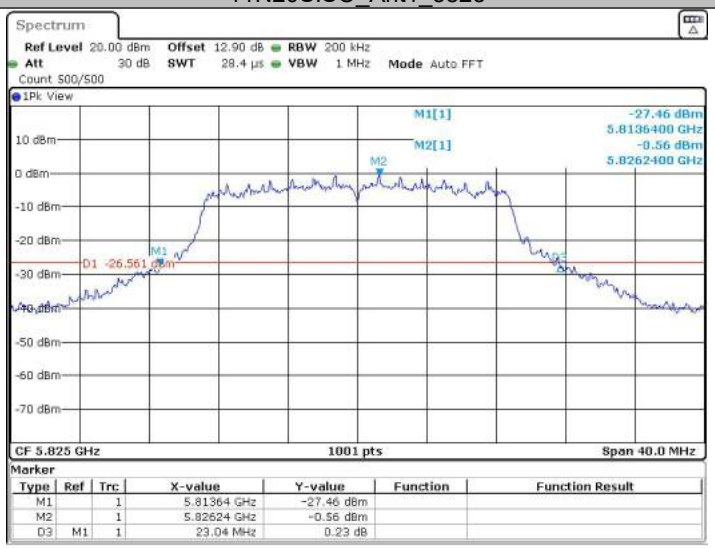

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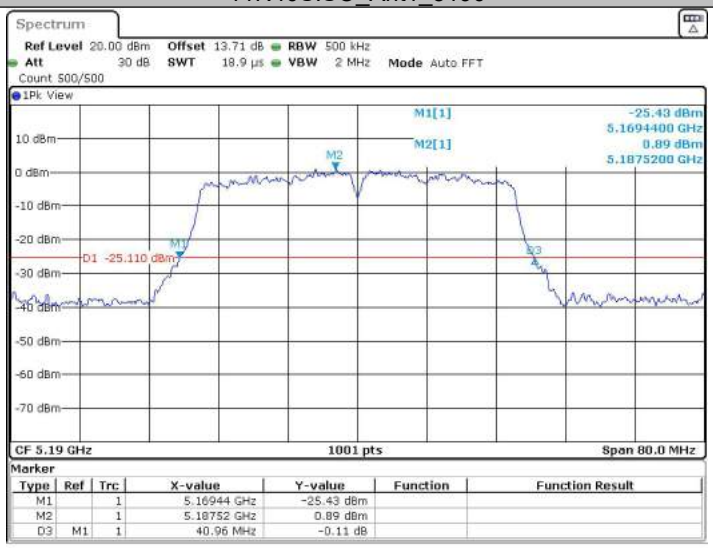

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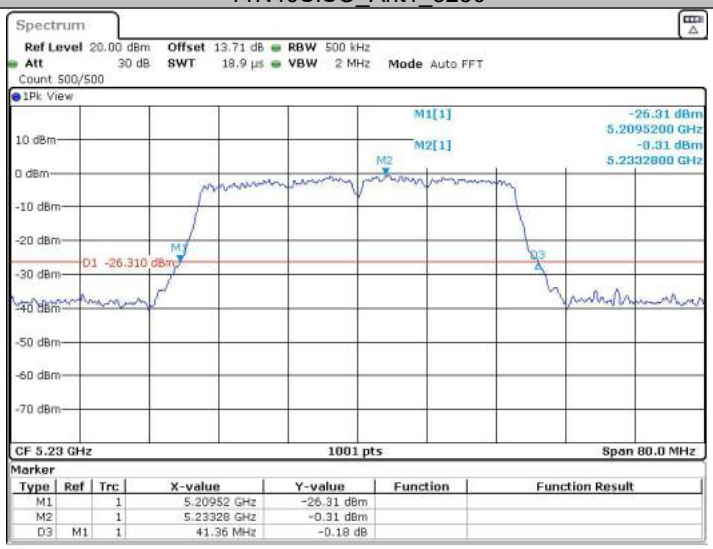

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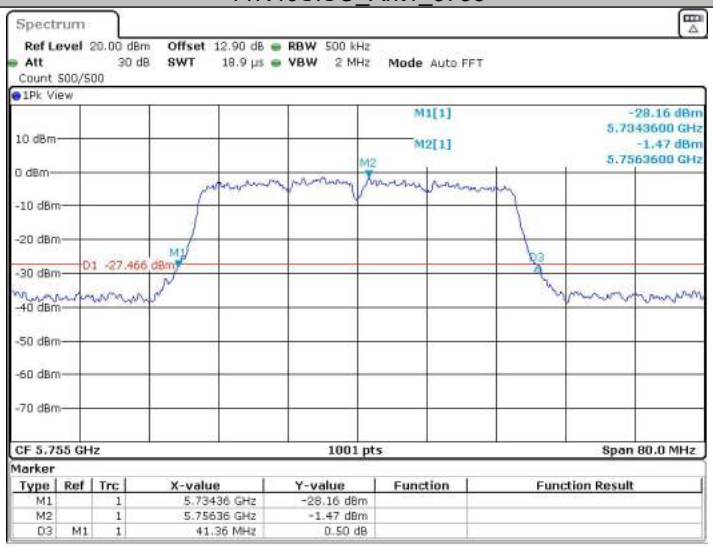

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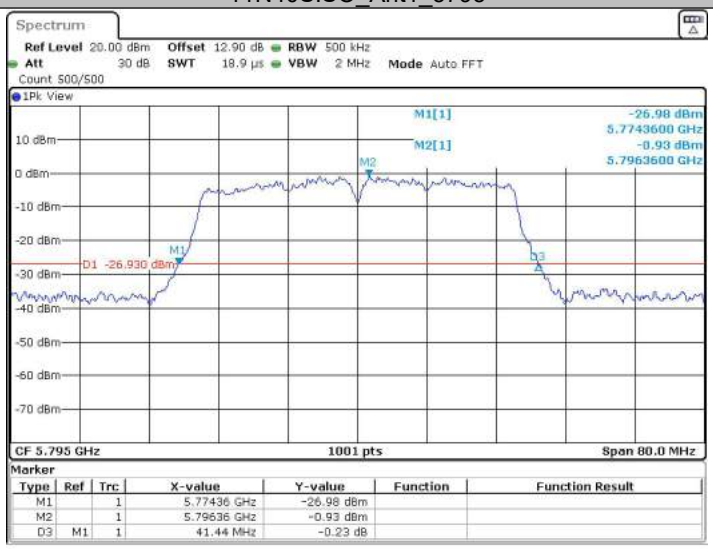

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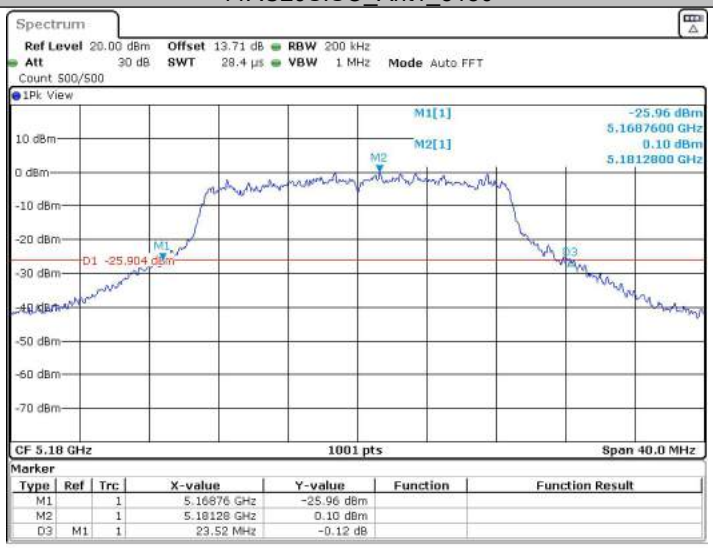

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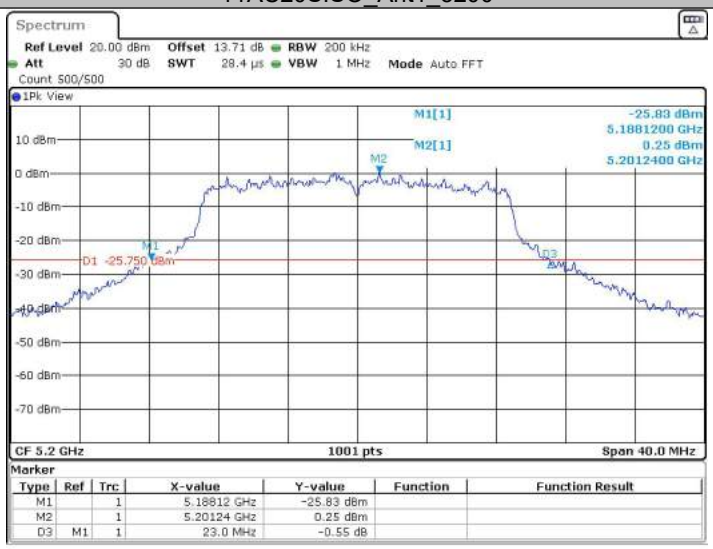

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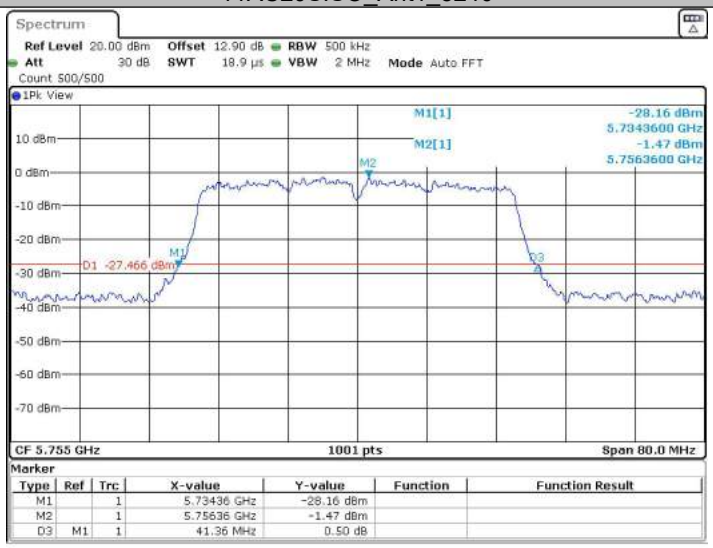

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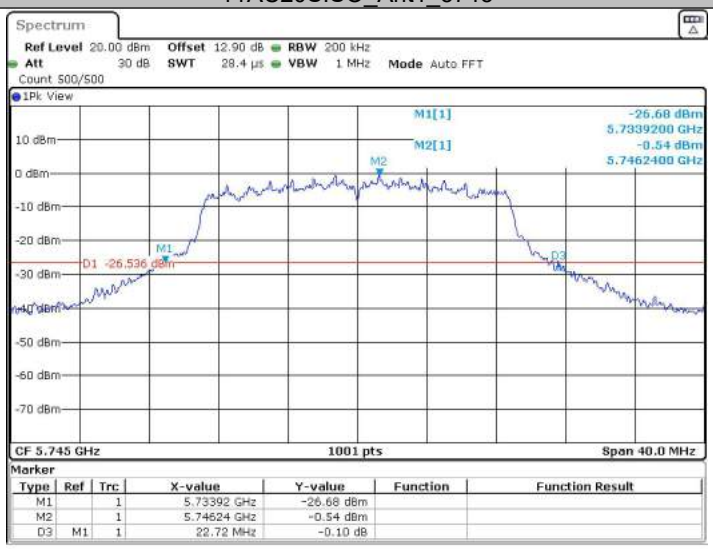

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11AC20SISO_Ant1_5785

Date: 7.JAN.2022 04:32:12

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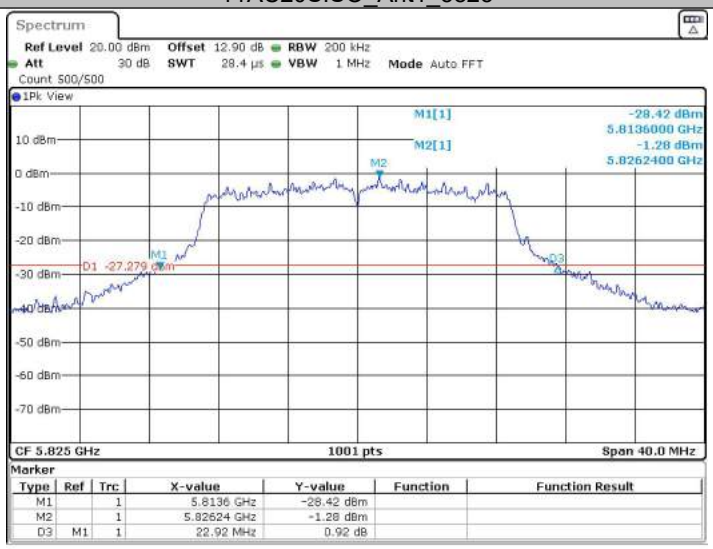

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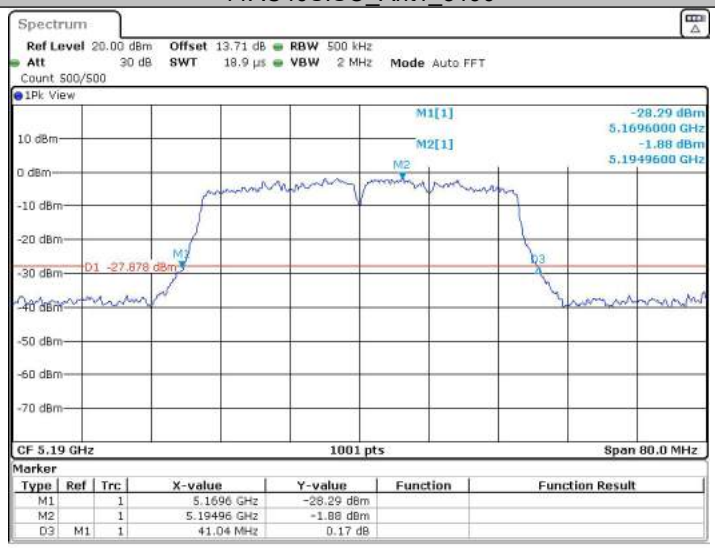

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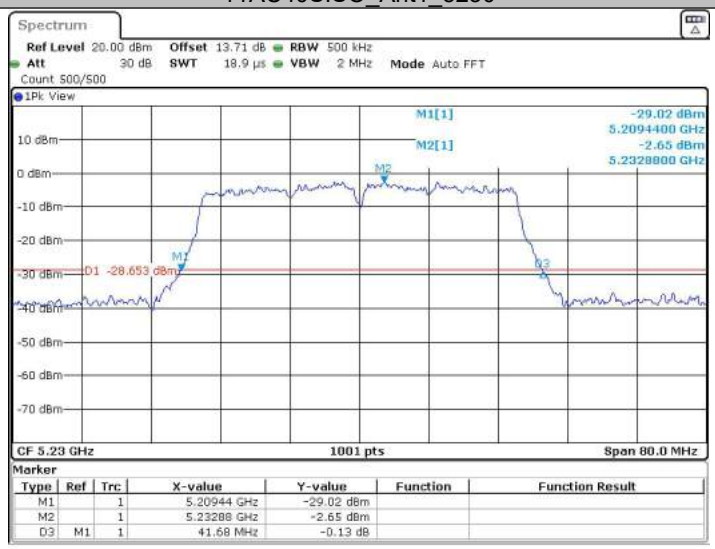

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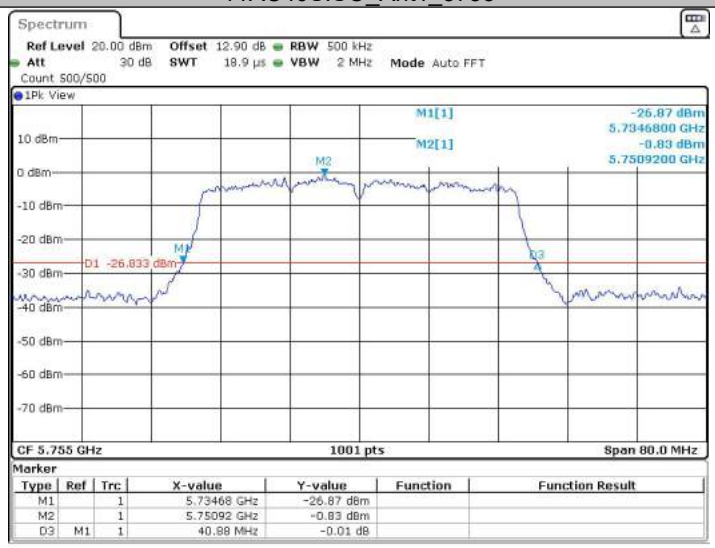
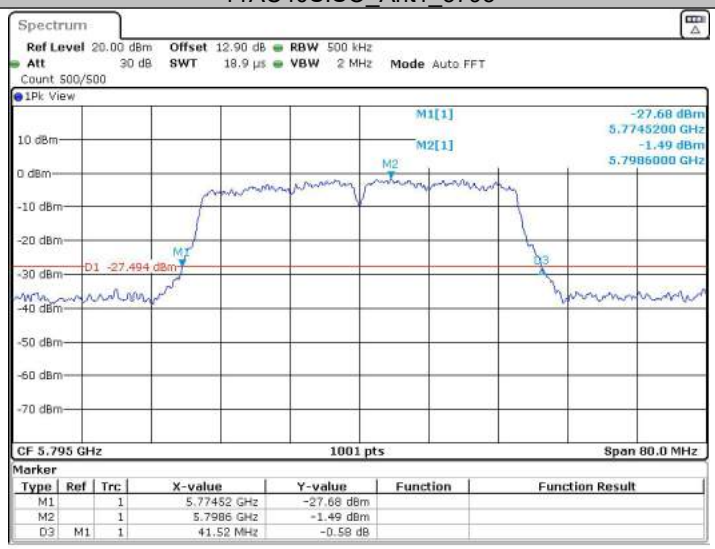


11AC40SISO_Ant1_5795



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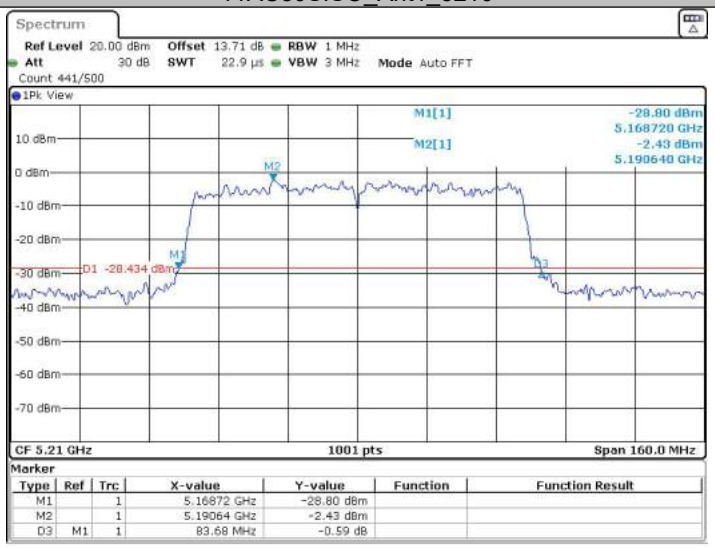

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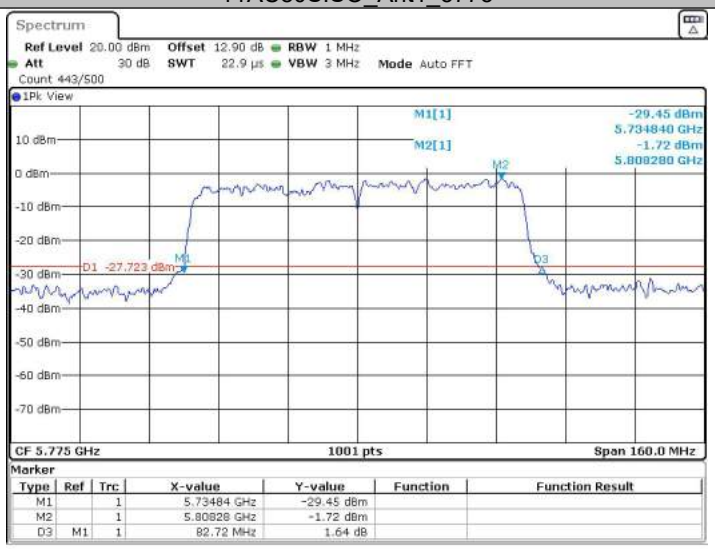


Date: 7.JAN.2022 07:04:12

Appendix A2: Occupied channel bandwidth

Test Result

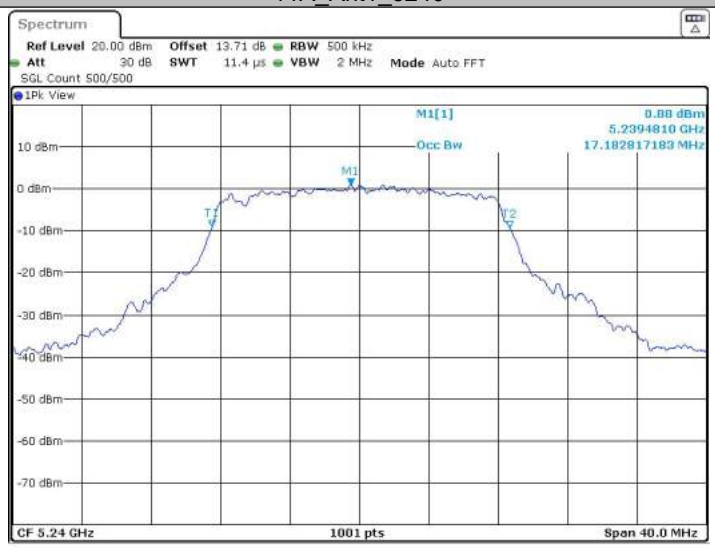
TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	16.903	5171.608	5188.511	---	PASS
		5200	17.103	5191.369	5208.472	---	PASS
		5240	17.183	5231.489	5248.671	---	PASS
		5745	17.143	5736.449	5753.591	---	PASS
		5785	17.143	5776.528	5793.671	---	PASS
		5825	17.063	5816.528	5833.591	---	PASS
11N20SISO	Ant1	5180	18.142	5171.009	5189.151	---	PASS
		5200	18.302	5190.729	5209.031	---	PASS
		5240	18.142	5230.969	5249.111	---	PASS
		5745	17.982	5736.009	5753.991	---	PASS
		5785	18.302	5776.009	5794.311	---	PASS
		5825	18.342	5815.809	5834.151	---	PASS
11N40SISO	Ant1	5190	36.284	5171.858	5208.142	---	PASS
		5230	36.523	5211.858	5248.382	---	PASS
		5755	36.683	5736.618	5773.302	---	PASS
		5795	36.364	5776.938	5813.302	---	PASS
11AC20SISO	Ant1	5180	18.222	5170.929	5189.151	---	PASS
		5200	18.222	5190.809	5209.031	---	PASS
		5240	17.742	5220.220	5259.740	---	PASS
		5745	18.142	5735.929	5754.071	---	PASS
		5785	18.422	5775.889	5794.311	---	PASS
		5825	18.182	5815.889	5834.071	---	PASS
11AC40SISO	Ant1	5190	36.364	5171.858	5208.222	---	PASS
		5230	36.763	5211.778	5248.541	---	PASS
		5755	36.284	5736.858	5773.142	---	PASS
		5795	36.444	5776.858	5813.302	---	PASS
11AC80SISO	Ant1	5210	76.084	5172.278	5248.362	---	PASS
		5775	76.084	5737.118	5813.202	---	PASS

Test Graphs

11A_Ant1_5180

11A_Ant1_5200


11A_Ant1_5240



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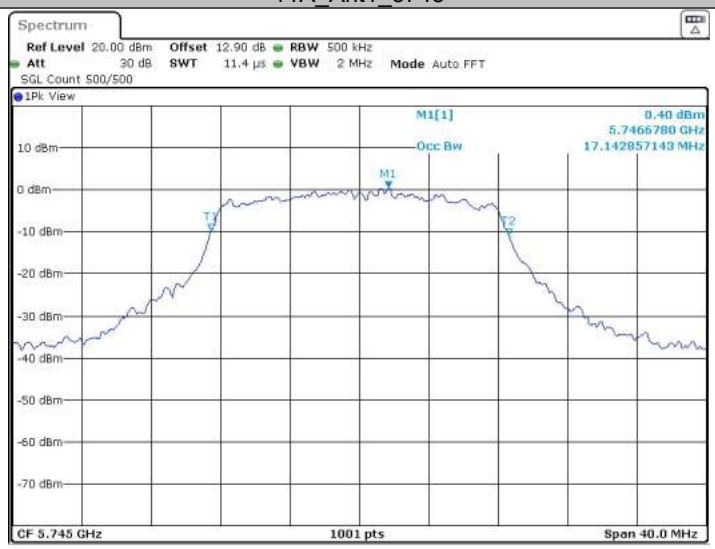


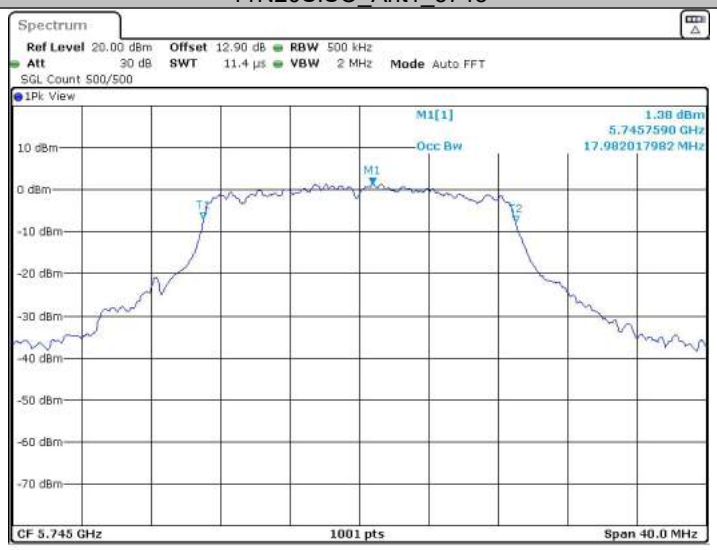
11A_Ant1_5785

11A_Ant1_5825


11N20SISO_Ant1_5180

11N20SISO_Ant1_5200

11N20SISO_Ant1_5240

11N20SISO_Ant1_5745


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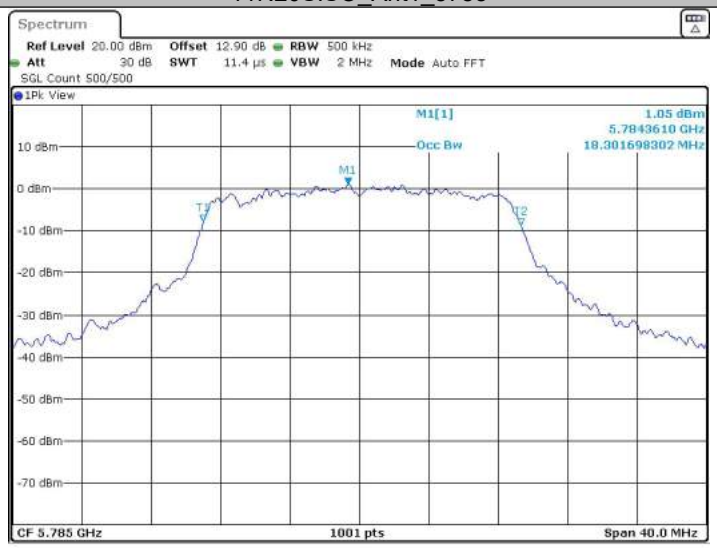
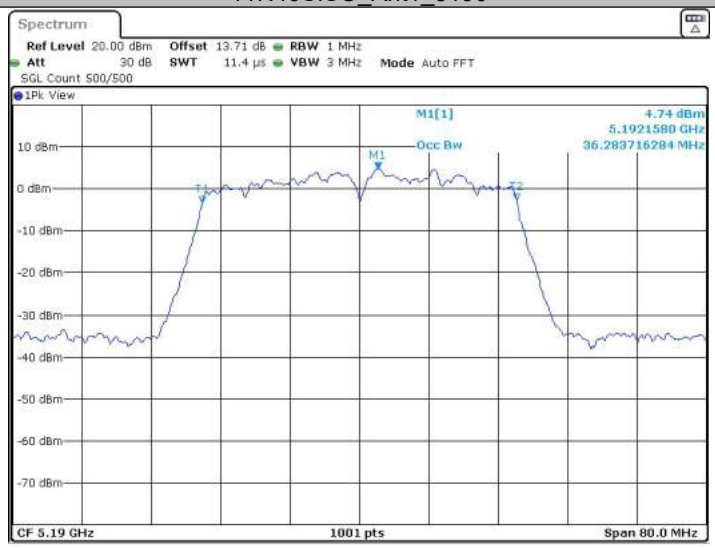

11N20SISO_Ant1_5825


11N40SISO_Ant1_5190



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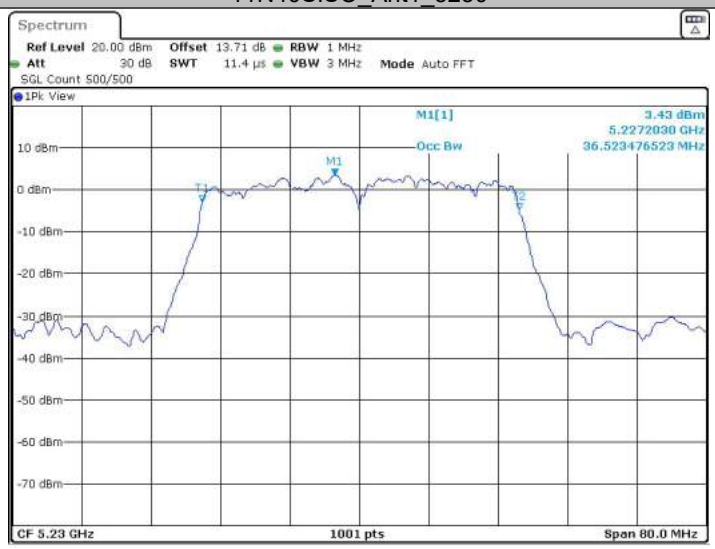

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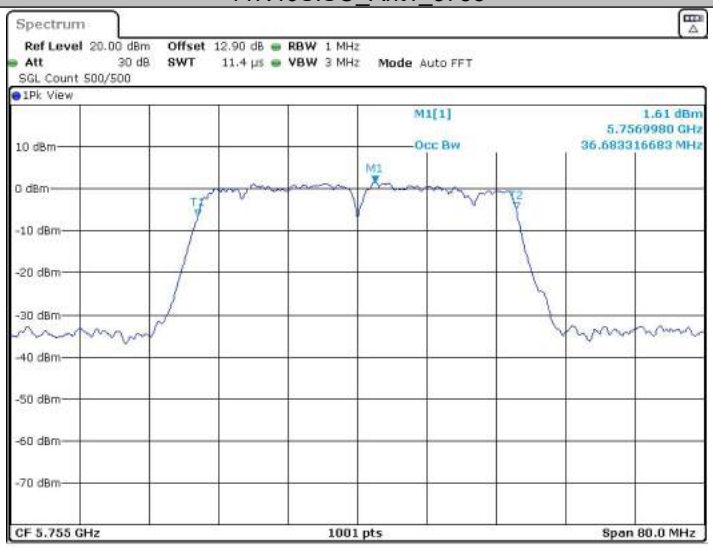
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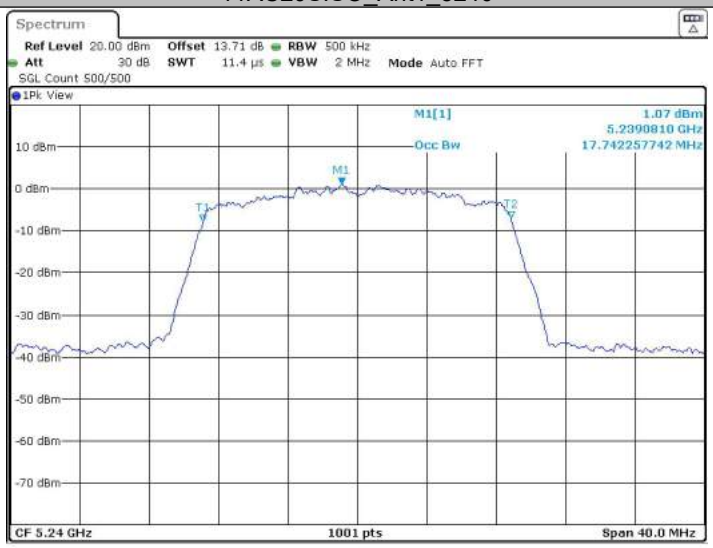
11AC20SISO_Ant1_5180

11AC20SISO_Ant1_5200


11AC20SISO_Ant1_5240



11AC20SISO_Ant1_5745

11AC20SISO_Ant1_5785

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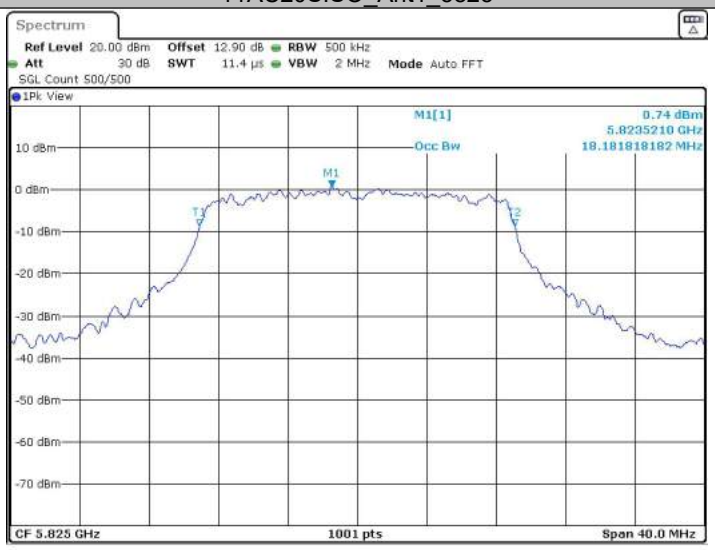

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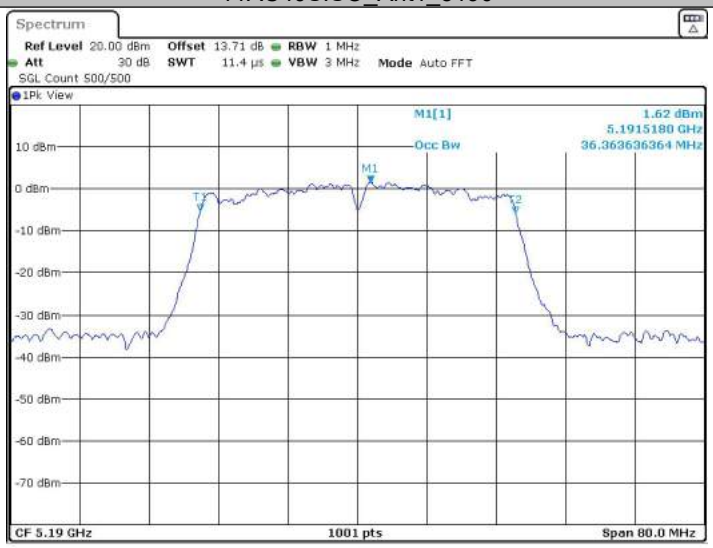

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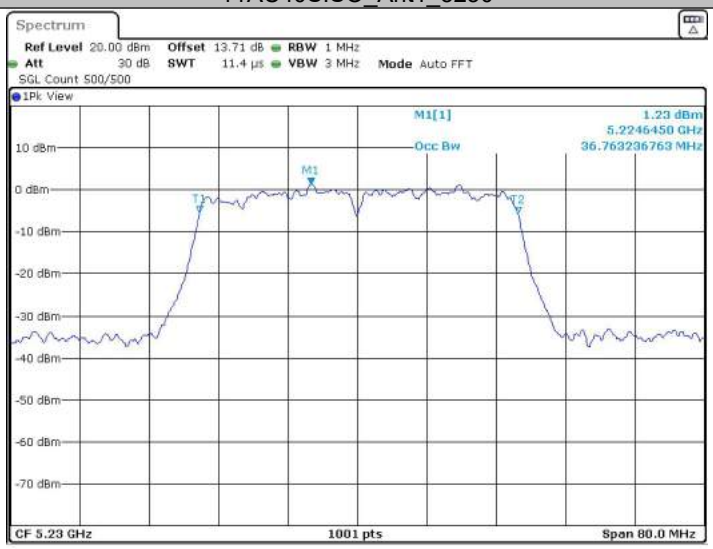

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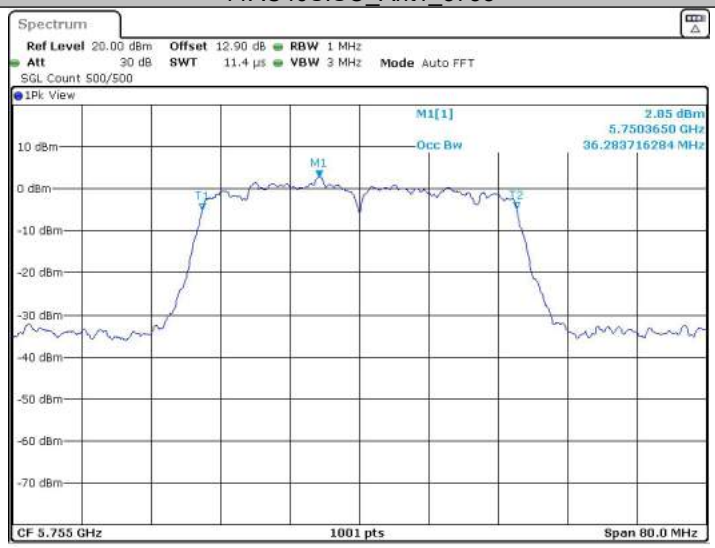

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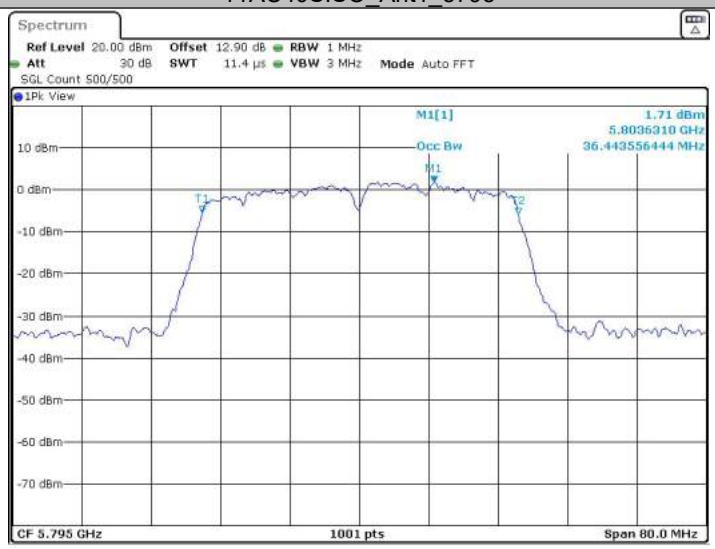

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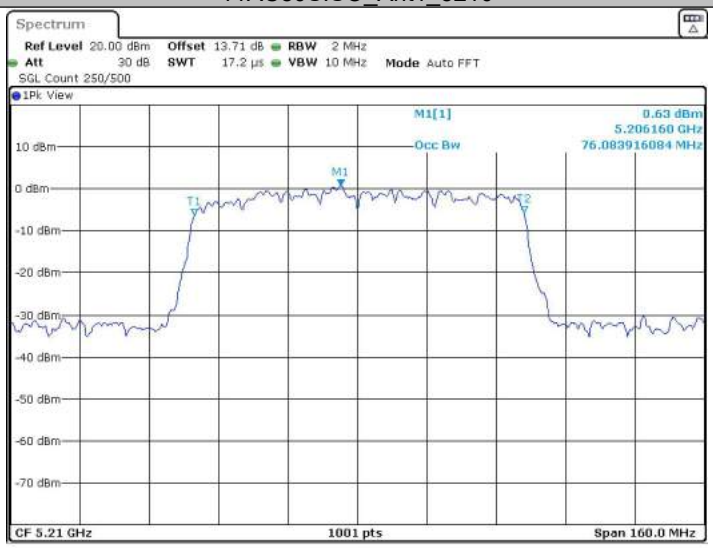
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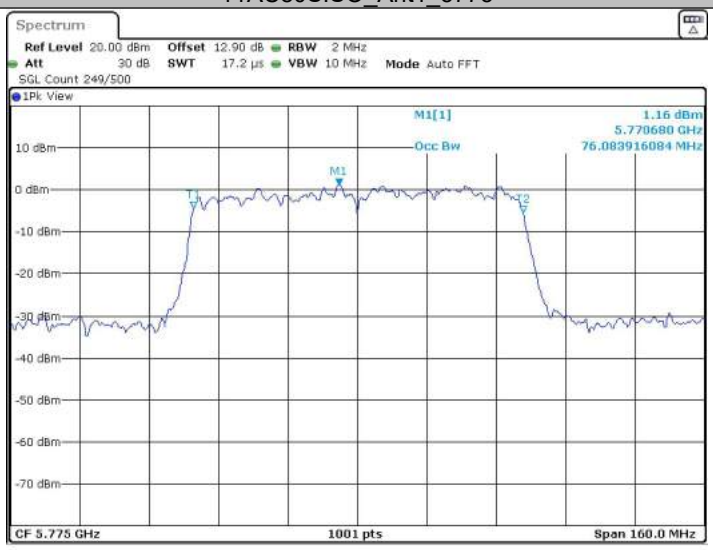


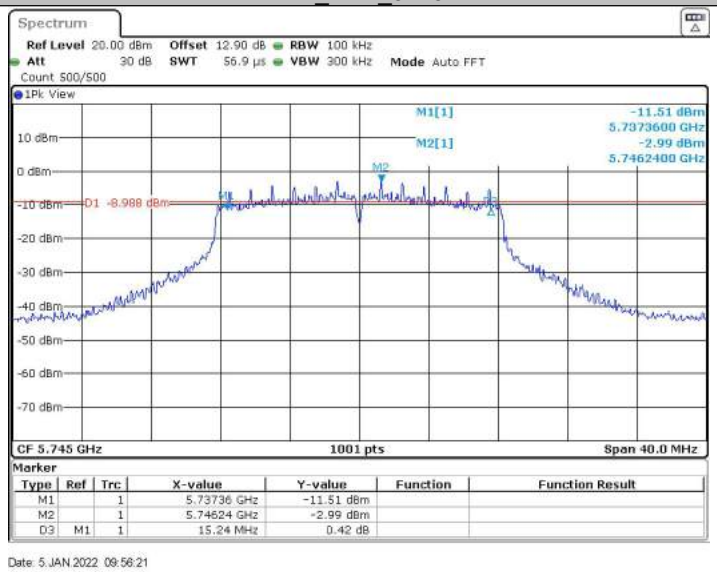
Appendix A3: Min emission bandwidth

Test Result

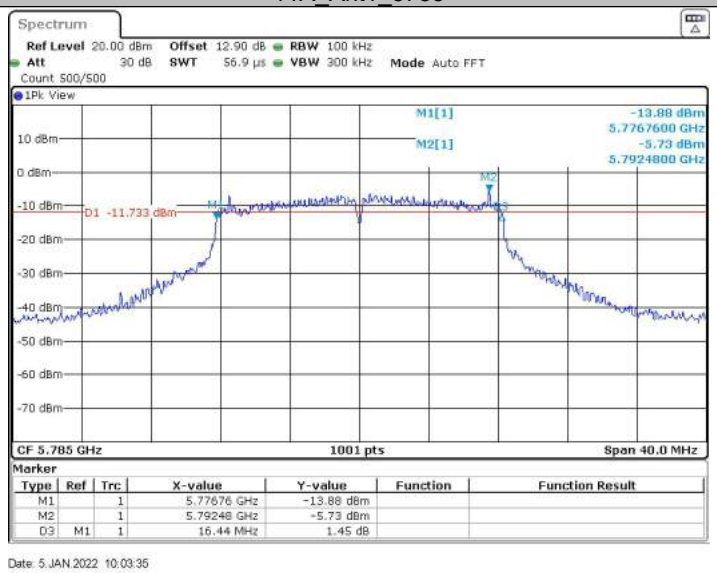
TestMode	Antenna	Channel	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5745	15.240	5737.360	5752.600	0.5	PASS
		5785	16.440	5776.760	5793.200	0.5	PASS
		5825	15.560	5817.360	5832.920	0.5	PASS
11N20SISO	Ant1	5745	15.240	5737.360	5752.600	0.5	PASS
		5785	16.640	5777.160	5793.800	0.5	PASS
		5825	15.240	5817.360	5832.600	0.5	PASS
11N40SISO	Ant1	5755	35.280	5737.320	5772.600	0.5	PASS
		5795	35.920	5777.320	5813.240	0.5	PASS
11AC20SISO	Ant1	5745	17.640	5736.160	5753.800	0.5	PASS
		5785	16.440	5777.360	5793.800	0.5	PASS
		5825	16.160	5817.360	5833.520	0.5	PASS
11AC40SISO	Ant1	5755	35.600	5737.320	5772.920	0.5	PASS
		5795	34.640	5778.600	5813.240	0.5	PASS
11AC80SISO	Ant1	5775	75.840	5737.240	5813.080	0.5	PASS

Test Graphs

11A_Ant1_5745



11A_Ant1_5785



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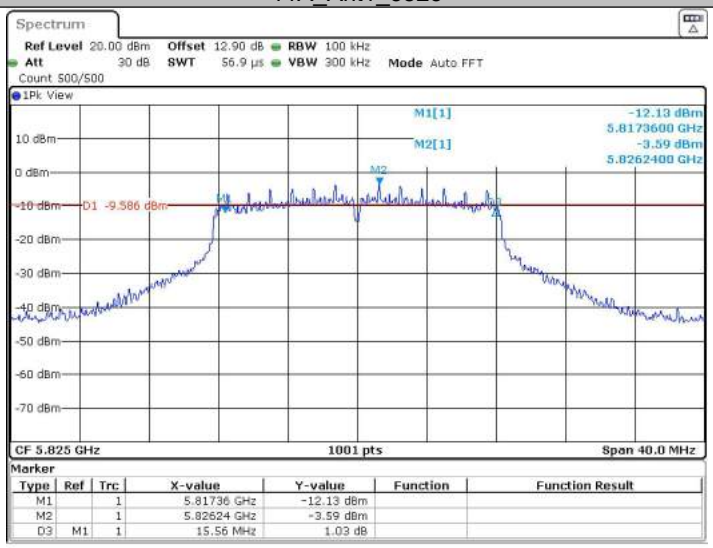

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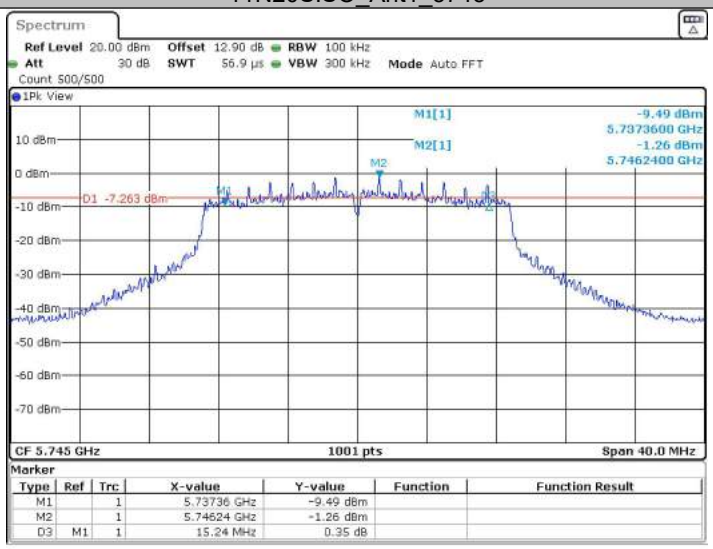

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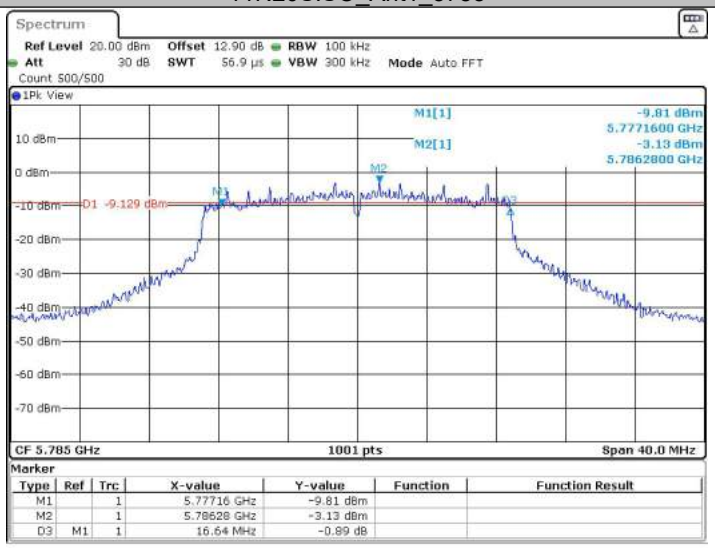

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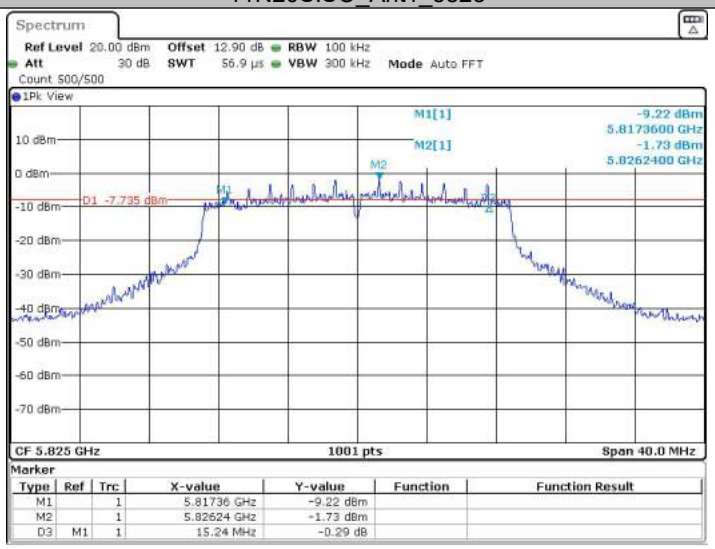

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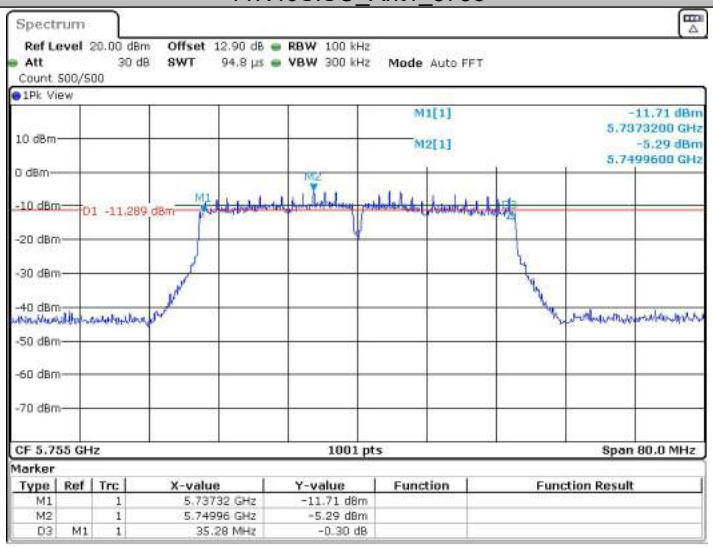
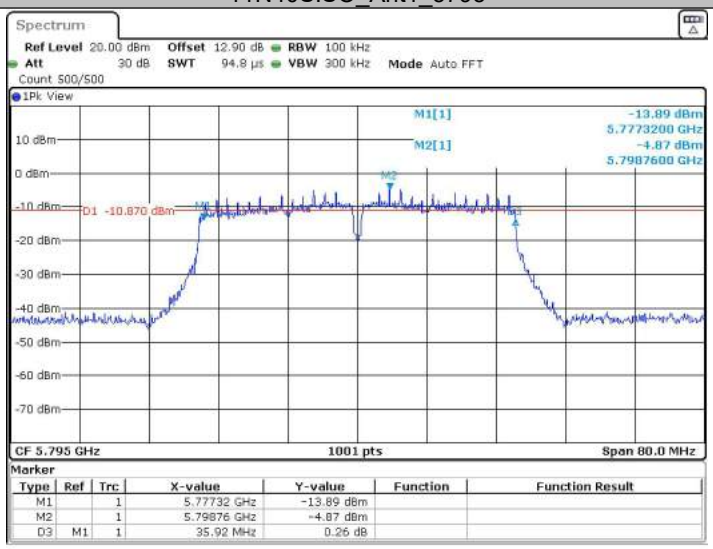


11N40SISO_Ant1_5795



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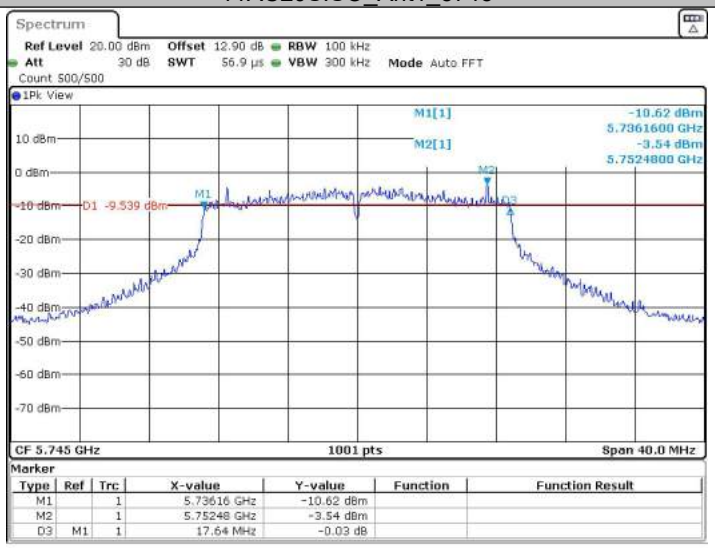
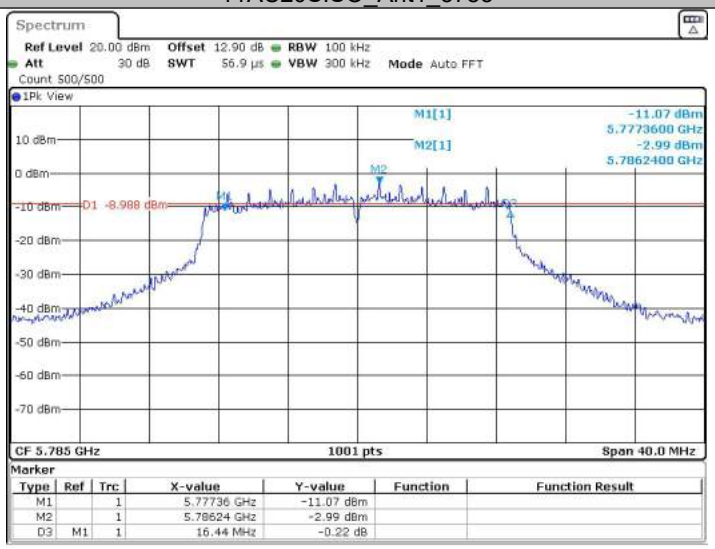
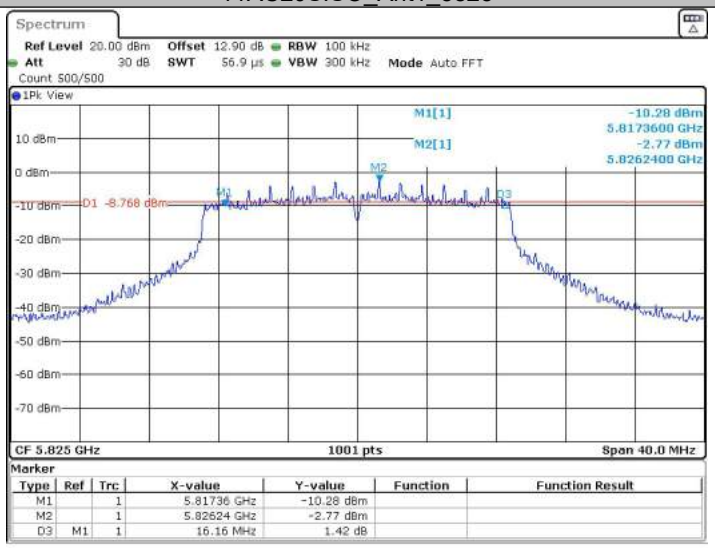
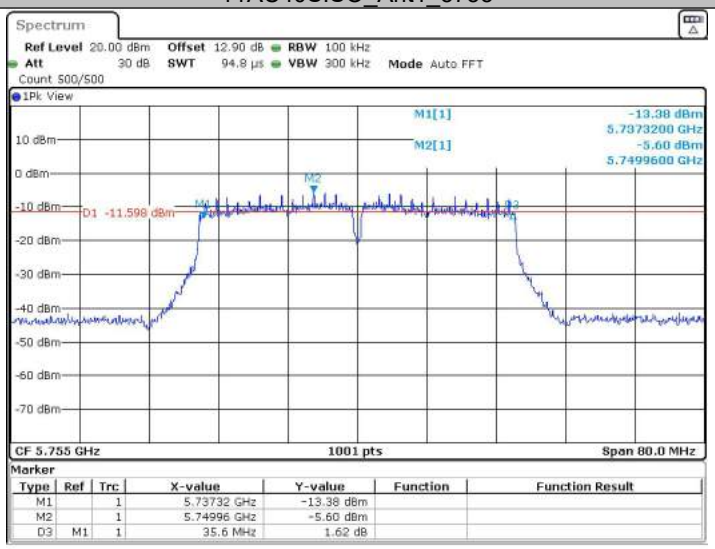


11AC20SISO_Ant1_5785


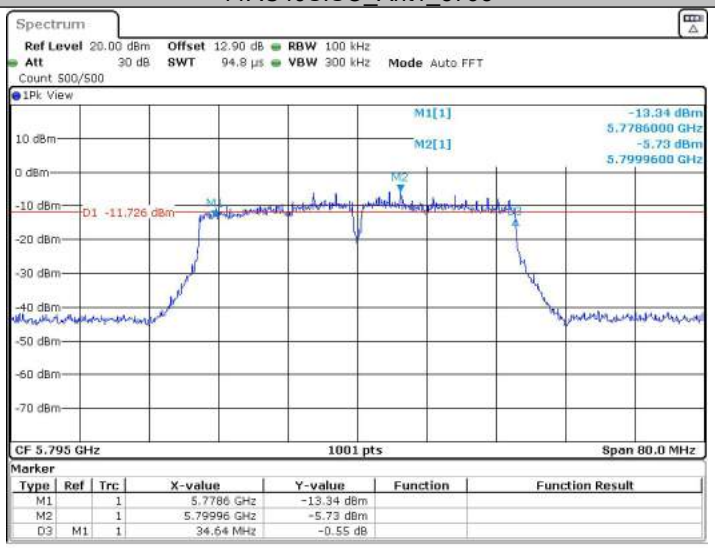
11AC20SISO_Ant1_5825



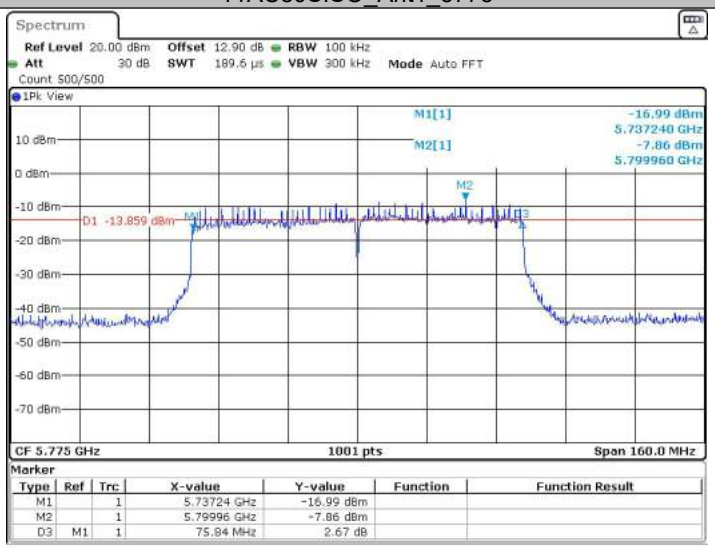
11AC40SISO_Ant1_5755



11AC40SISO_Ant1_5795



11AC80SISO_Ant1_5775



Appendix B): Maximum Conduct Output Power

1.Duty Cycle (x)

Test Requirement KDB 789033 D02 II B 1

Test Method: KDB 789033 II B 1

Test Procedure:

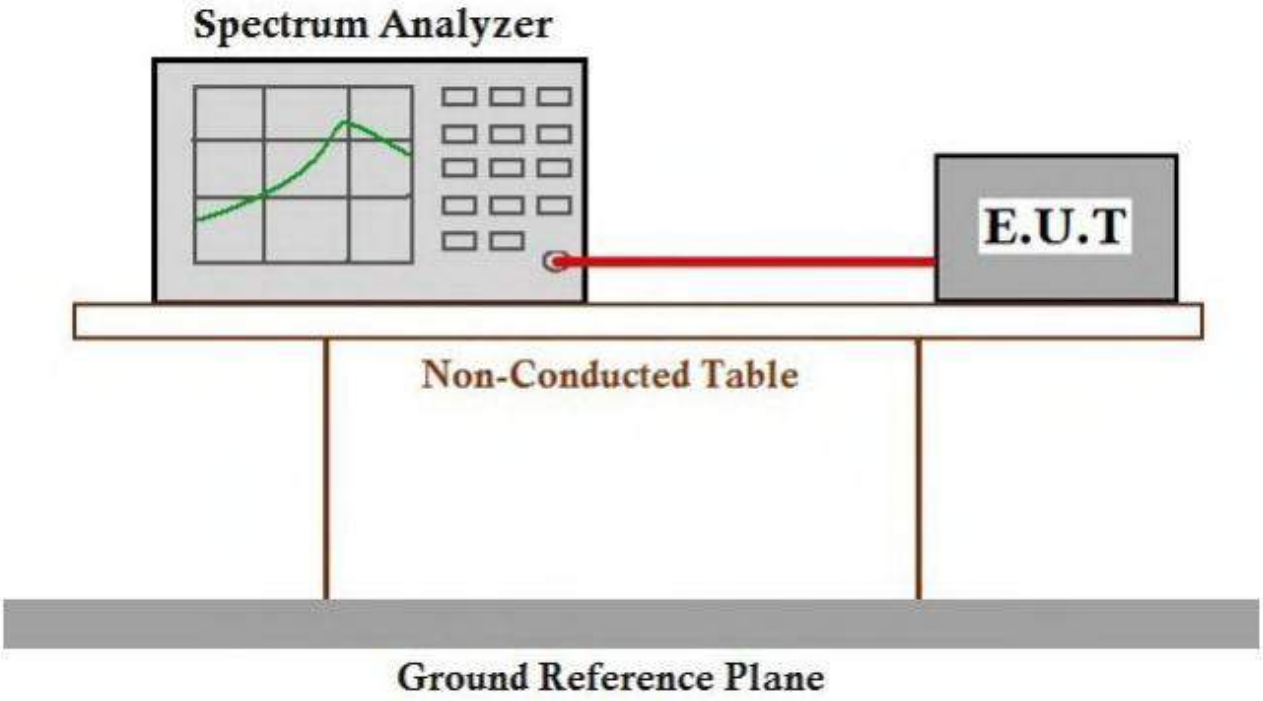
Set RBW = 20MHz

Set VBW = 40MHz

Set detector = peak.

Set span =0Hz

Test Setup Diagram



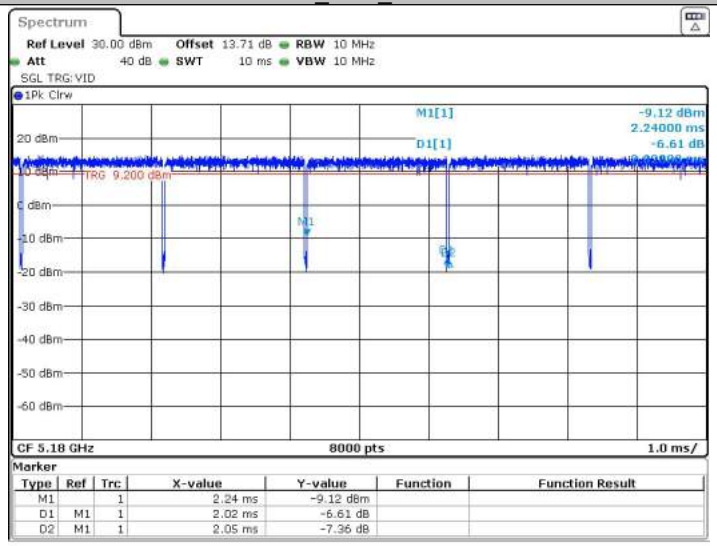
Ant1

Measurement Data

Test Mode	Antenna	Channel	Duty Cycle[%]	10log(1/x) Factor[dB]
11A	Ant1	5180	98.54	0.06
11A	Ant1	5200	98.54	0.06
11A	Ant1	5240	98.05	0.09
11A	Ant1	5745	98.05	0.09
11A	Ant1	5785	98.05	0.09
11A	Ant1	5825	98.05	0.09
11N20	Ant1	5180	88.46	0.53
11N20	Ant1	5200	84.62	0.73
11N20	Ant1	5240	88.46	0.53
11N20	Ant1	5745	84.62	0.73
11N20	Ant1	5785	84.62	0.73
11N20	Ant1	5825	84.62	0.73
11N40	Ant1	5190	81.25	0.9
11N40	Ant1	5230	76.47	1.17
11N40	Ant1	5755	75.00	1.25
11N40	Ant1	5795	75.00	1.25
11AC20	Ant1	5180	98.44	0.07
11AC20	Ant1	5200	98.44	0.07
11AC20	Ant1	5240	98.44	0.07
11AC20	Ant1	5745	98.44	0.07
11AC20	Ant1	5785	97.93	0.09
11AC20	Ant1	5825	98.44	0.07
11AC40	Ant1	5190	96.88	0.14
11AC40	Ant1	5230	95.88	0.18
11AC40	Ant1	5755	96.88	0.14
11AC40	Ant1	5795	95.88	0.18
11AC80	Ant1	5210	91.90	0.37
11AC80	Ant1	5775	92.58	0.33

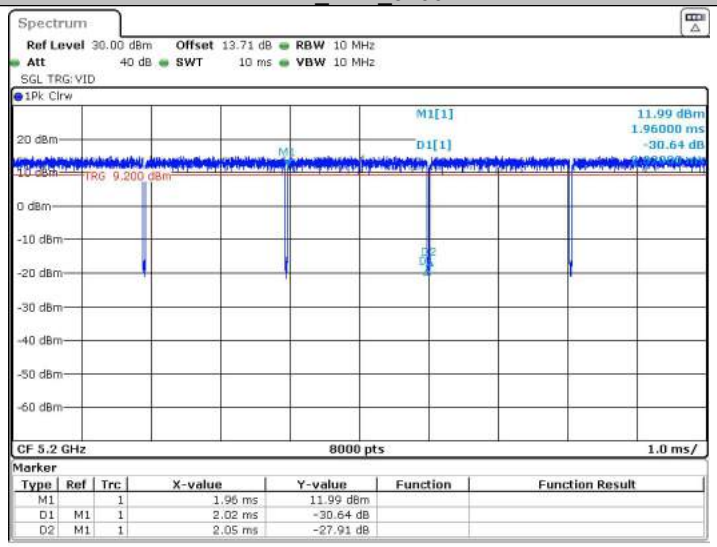
Test Graphs

11A_Ant1_5180



Date: 20.JAN.2022 04:16:12

11A_Ant1_5200



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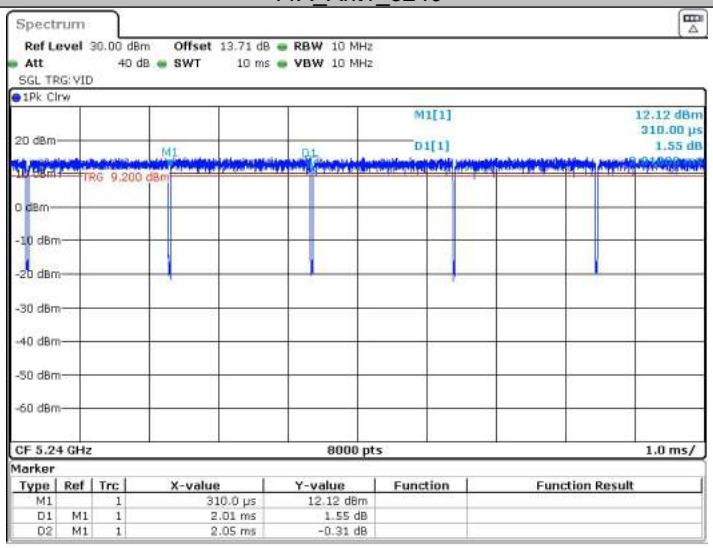
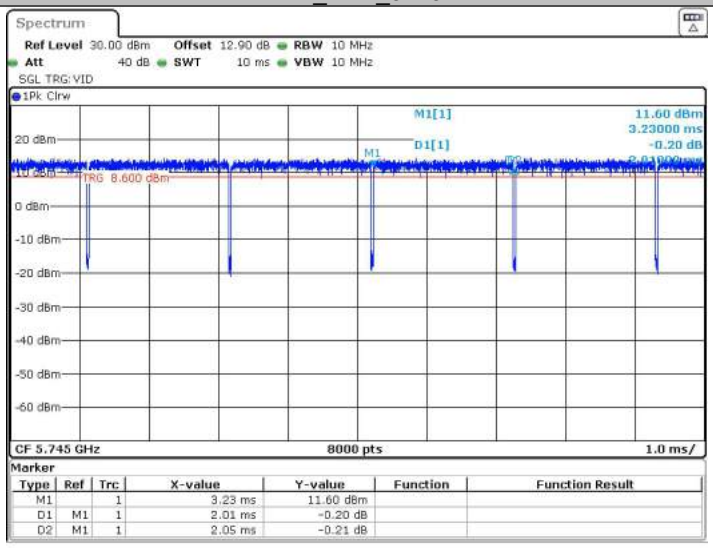
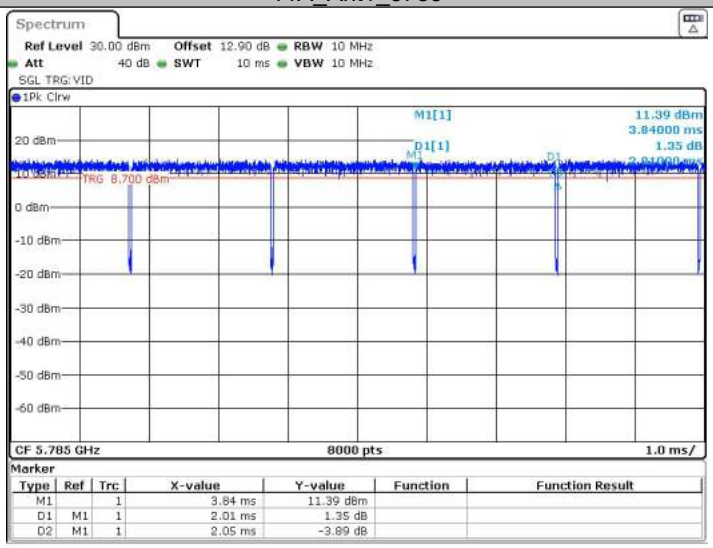
11A_Ant1_5240



11A_Ant1_5745



11A_Ant1_5785



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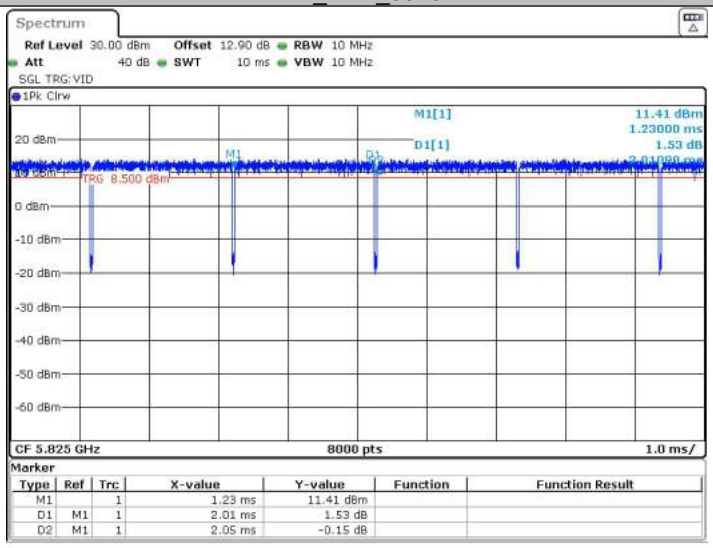

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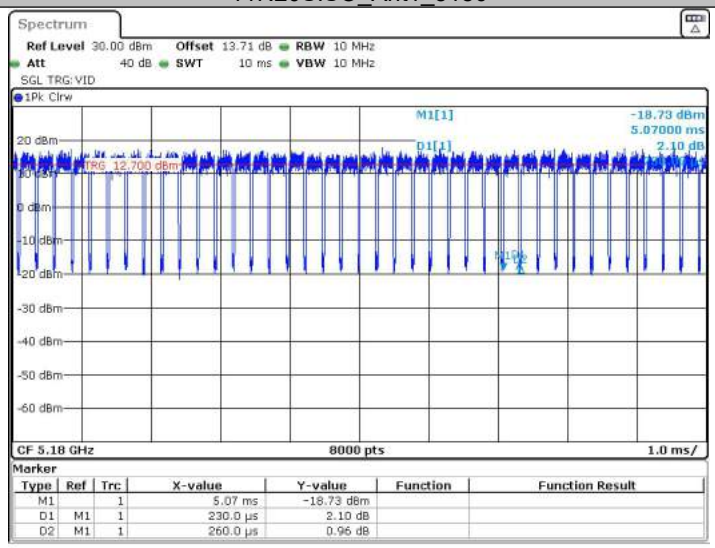

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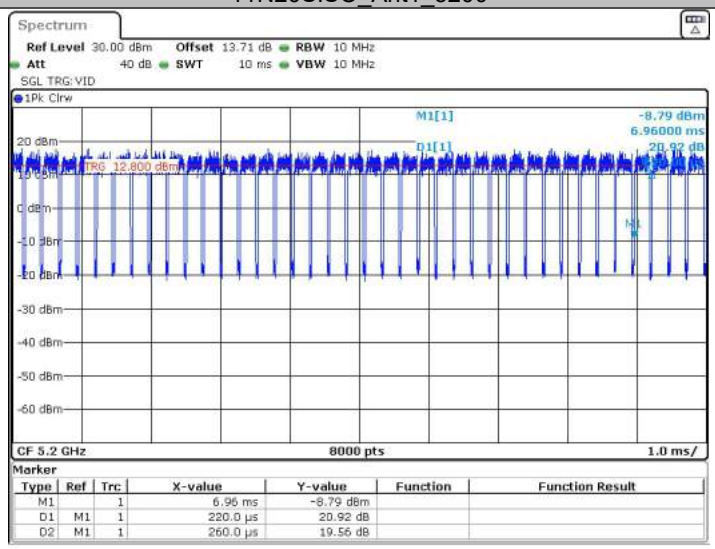

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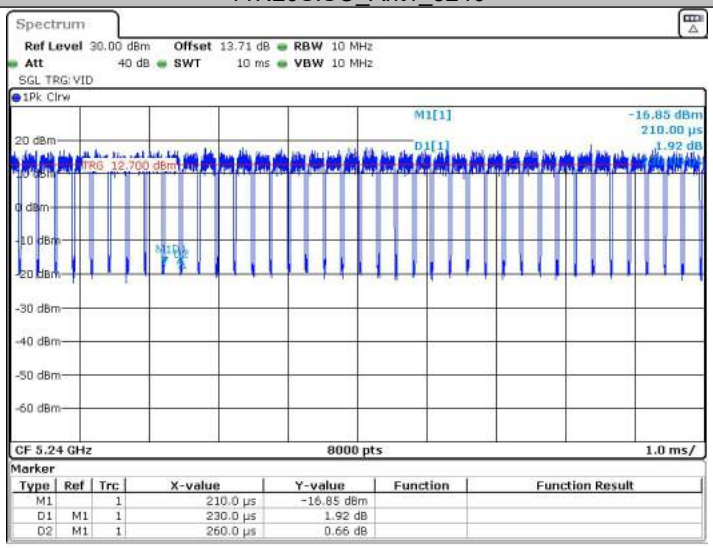

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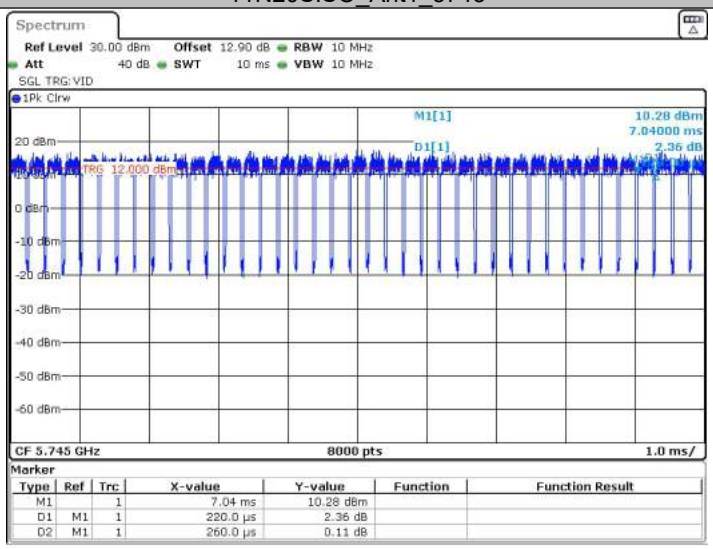

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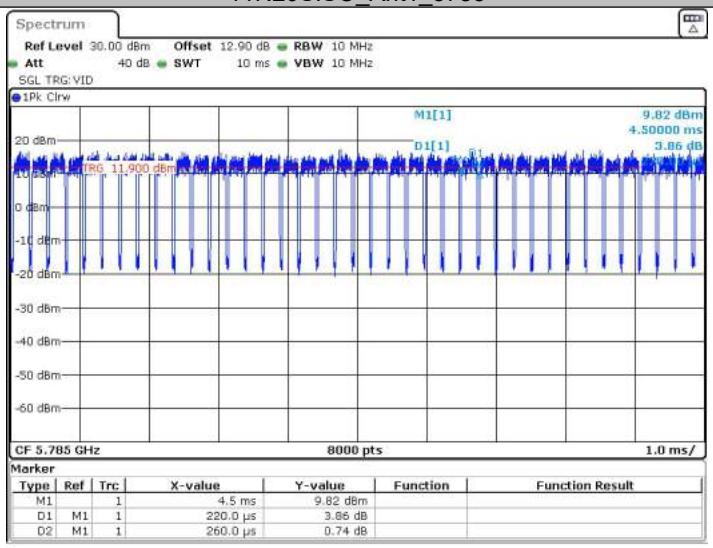

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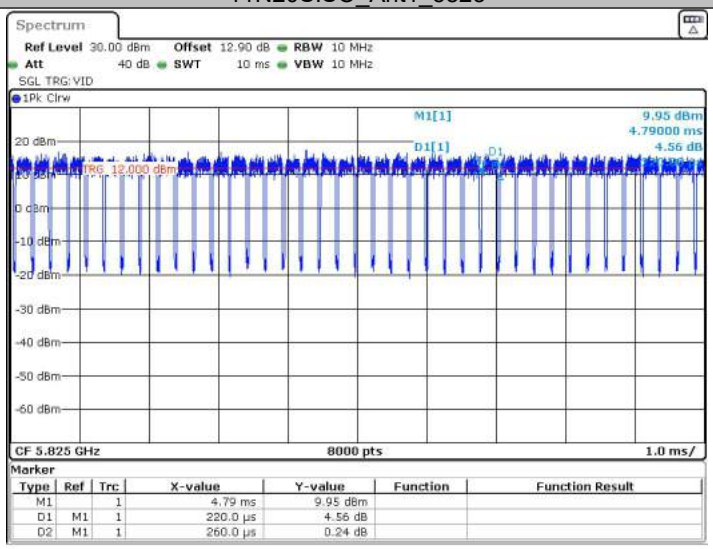
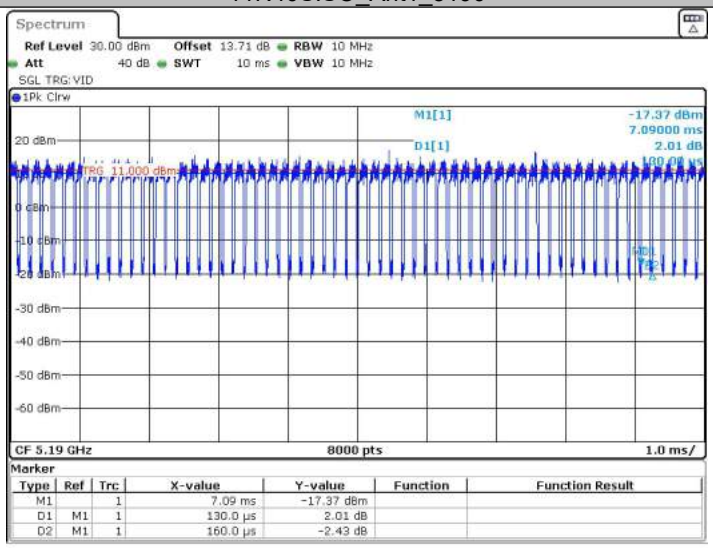
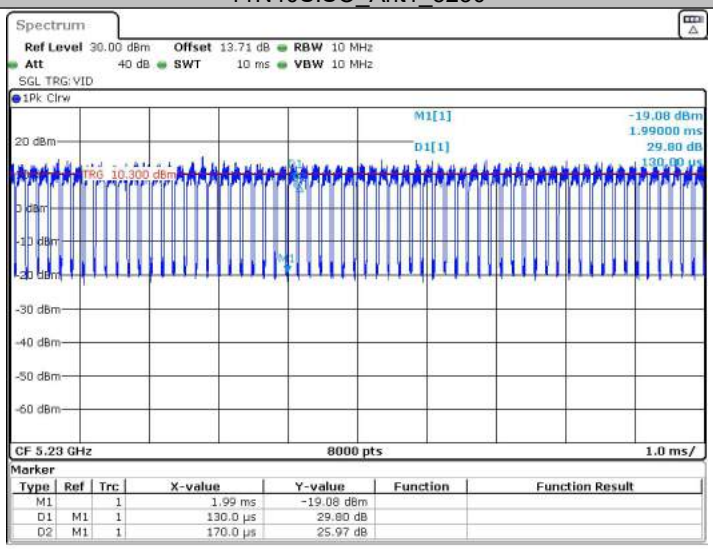


11N40SISO_Ant1_5190



11N40SISO_Ant1_5230



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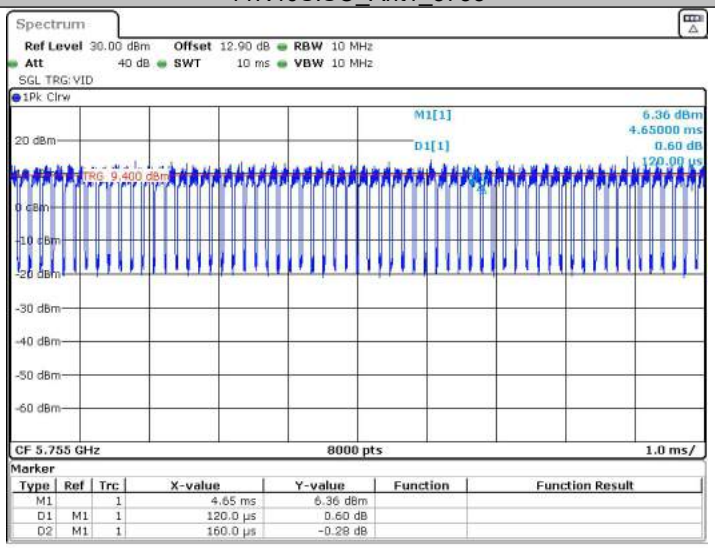
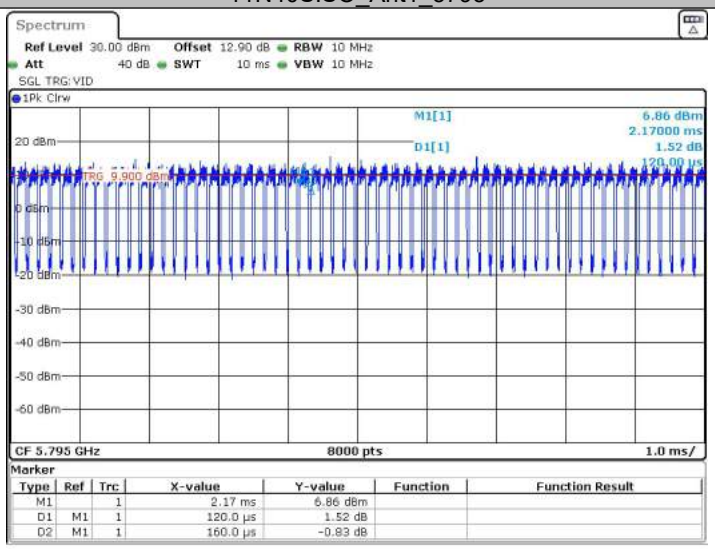
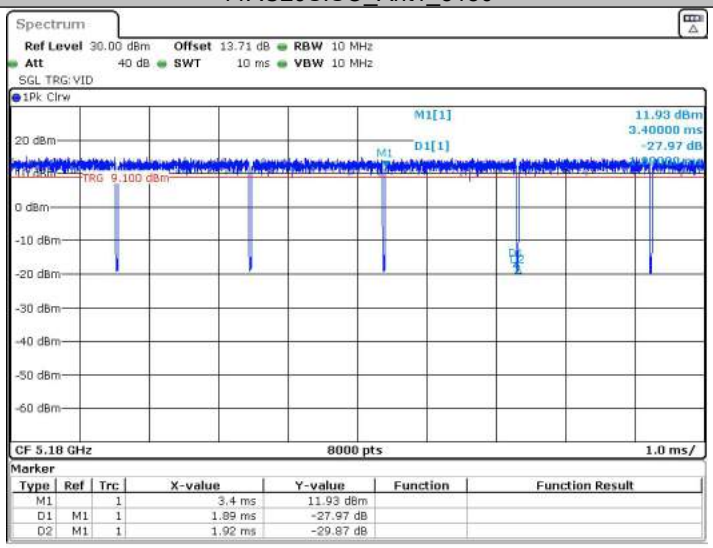


11N40SISO_Ant1_5795



11AC20SISO_Ant1_5180



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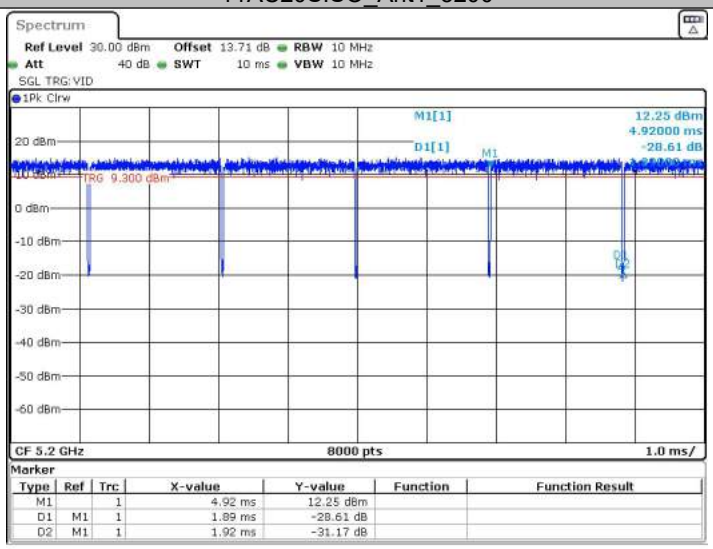
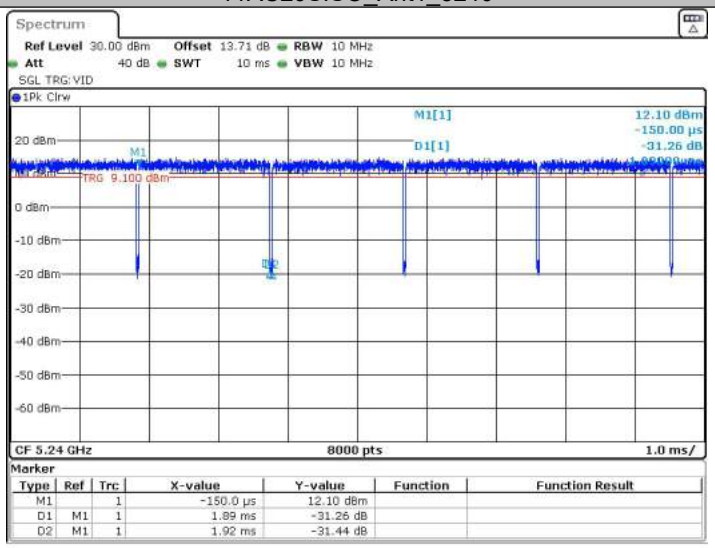


11AC20SISO_Ant1_5240



Date: 20.JAN.2022 04:26:00

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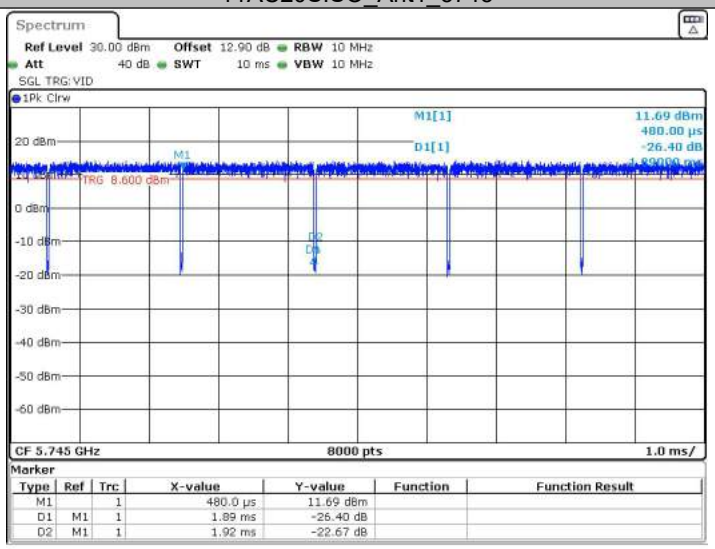
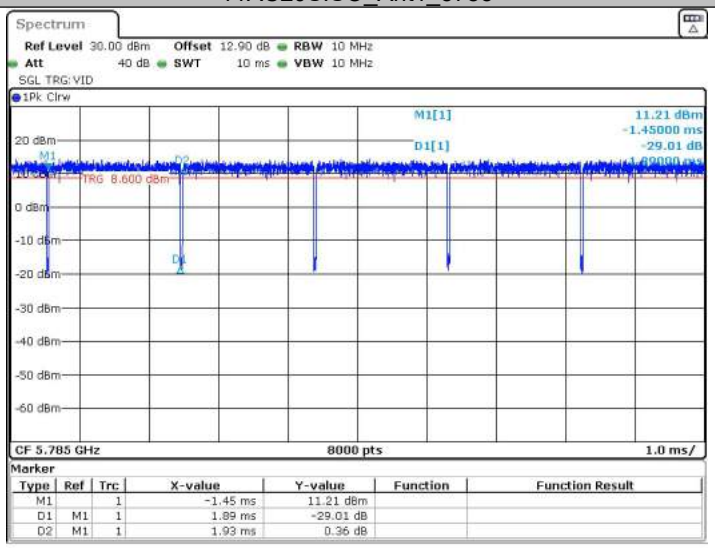


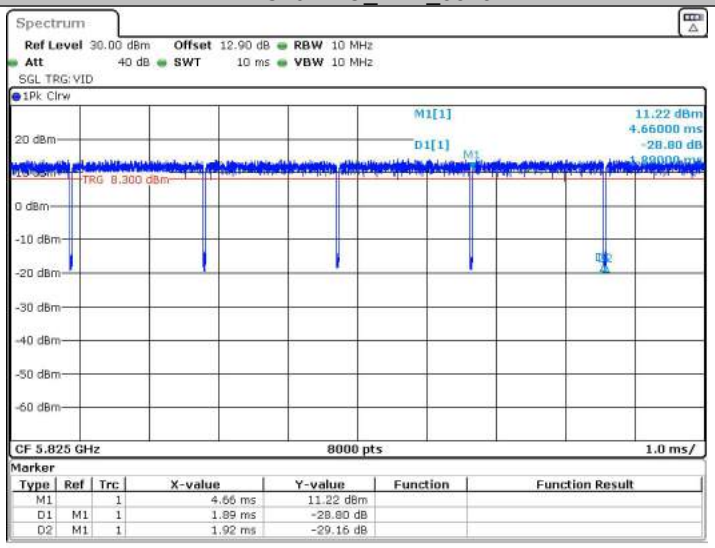
Date: 20.JAN.2022 04:26:39

11AC20SISO_Ant1_5785



Date: 20.JAN.2022 04:27:01

11AC20SISO_Ant1_5825



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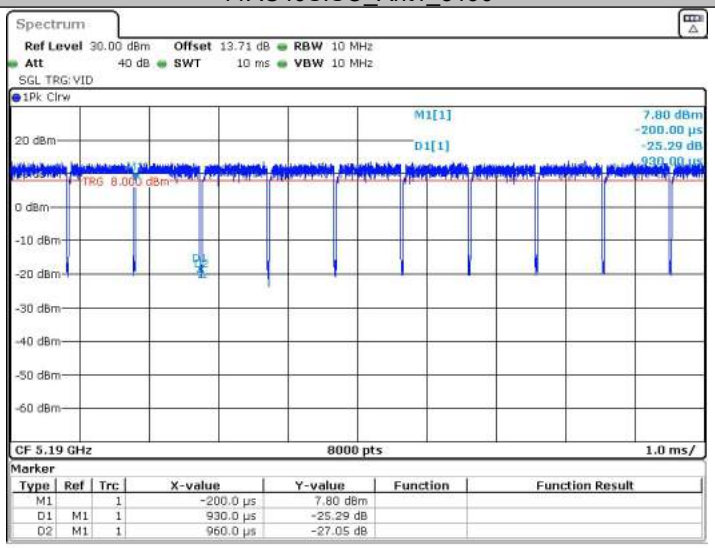

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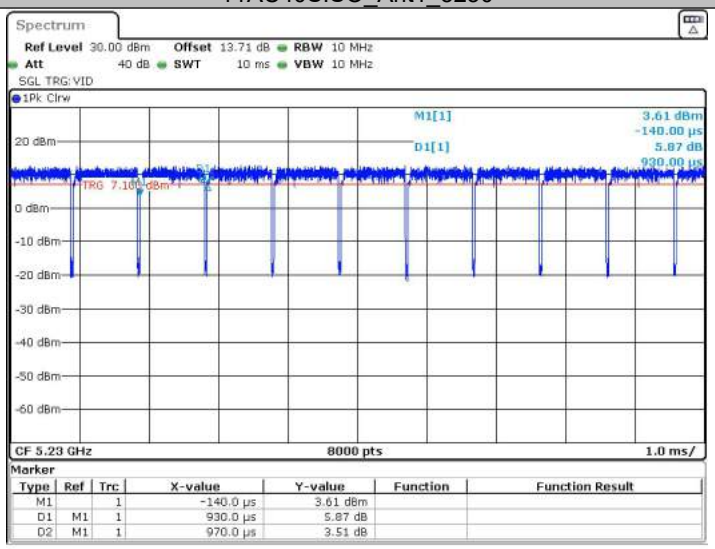
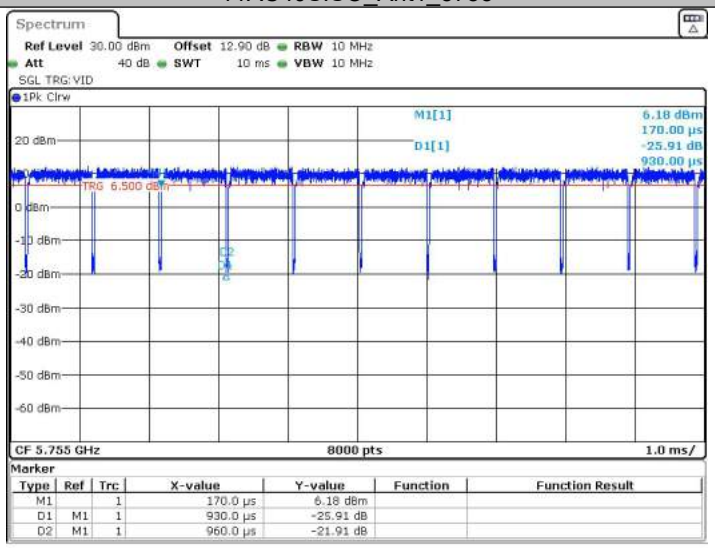
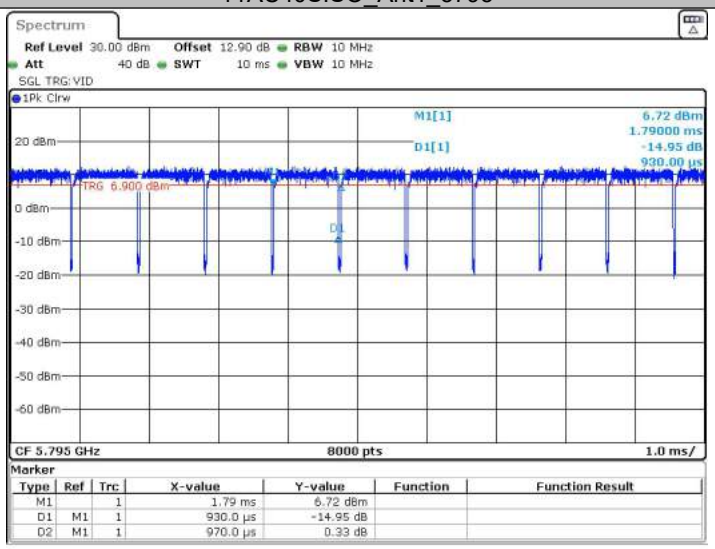


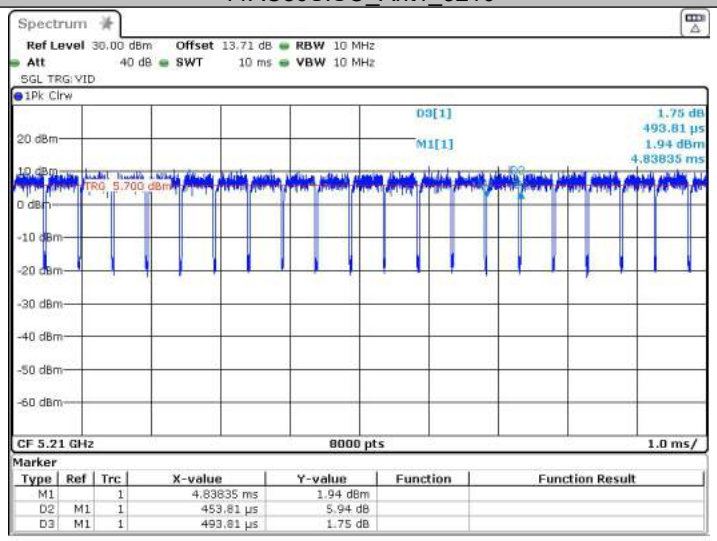
11AC40SISO_Ant1_5755



11AC40SISO_Ant1_5795



11AC80SISO_Ant1_5210



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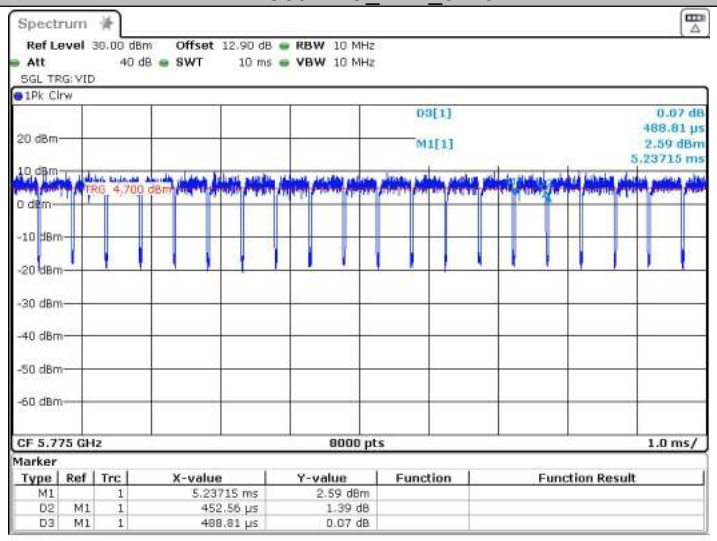


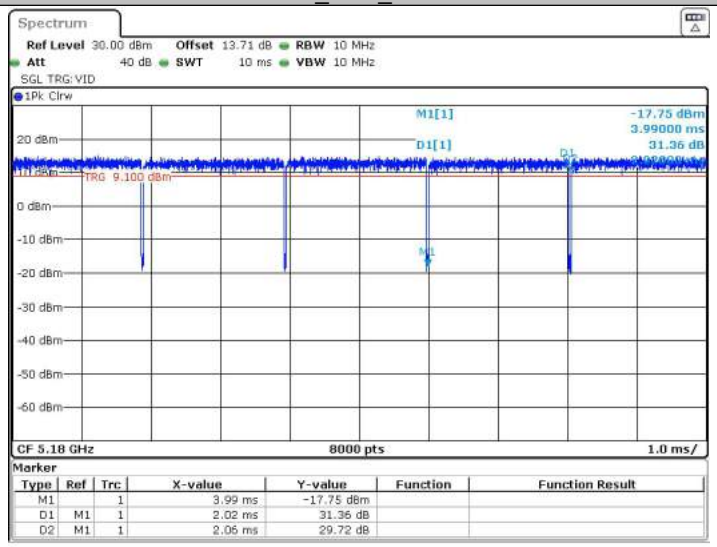
Ant2

Measurement Data

Test Mode	Antenna	Channel	Duty Cycle[%]	10log(1/x) Factor[dB]
11A	Ant1	5180	98.06	0.09
11A	Ant1	5200	98.54	0.06
11A	Ant1	5240	98.05	0.09
11A	Ant1	5745	98.05	0.09
11A	Ant1	5785	98.06	0.09
11A	Ant1	5825	98.54	0.06
11N20	Ant1	5180	84.62	0.73
11N20	Ant1	5200	98.43	0.07
11N20	Ant1	5240	97.92	0.09
11N20	Ant1	5745	98.43	0.07
11N20	Ant1	5785	97.91	0.09
11N20	Ant1	5825	97.91	0.09
11N40	Ant1	5190	95.83	0.18
11N40	Ant1	5230	96.88	0.14
11N40	Ant1	5755	95.83	0.18
11N40	Ant1	5795	96.88	0.14
11AC20	Ant1	5180	97.91	0.09
11AC20	Ant1	5200	97.92	0.09
11AC20	Ant1	5240	97.91	0.09
11AC20	Ant1	5745	97.91	0.09
11AC20	Ant1	5785	97.91	0.09
11AC20	Ant1	5825	97.91	0.09
11AC40	Ant1	5190	96.51	0.15
11AC40	Ant1	5230	96.38	0.16
11AC40	Ant1	5755	96	0.18
11AC40	Ant1	5795	96.37	0.16
11AC80	Ant1	5210	92.82	0.32
11AC80	Ant1	5775	92.84	0.32

Test Graphs

11A_Ant1_5180



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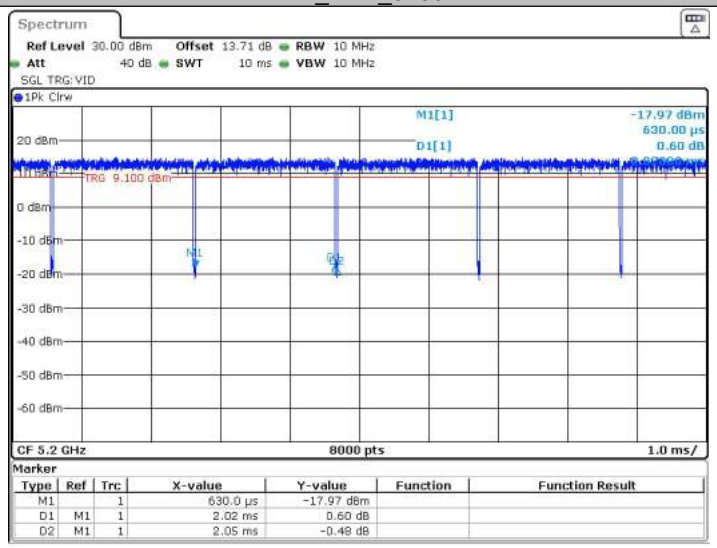
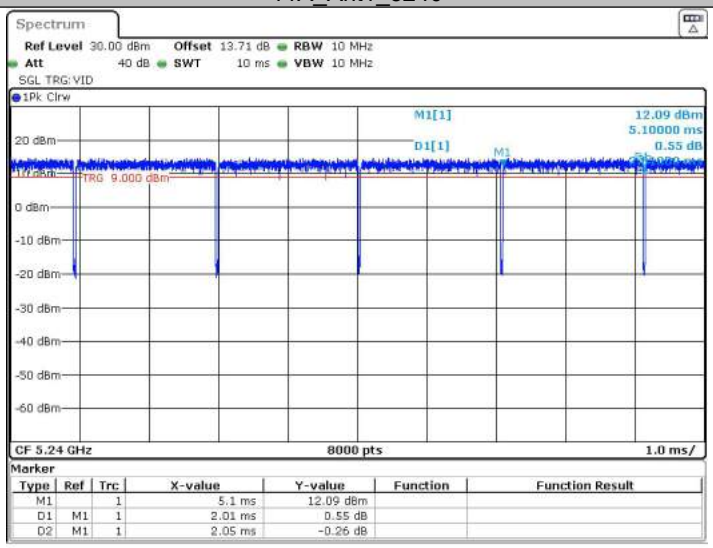
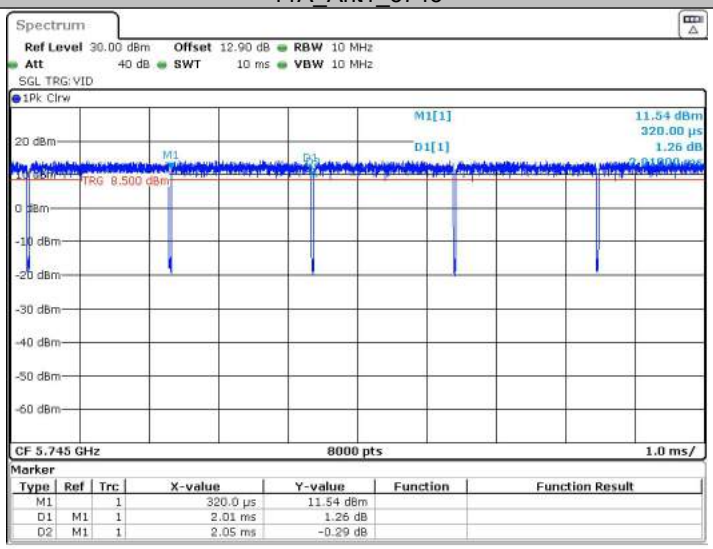


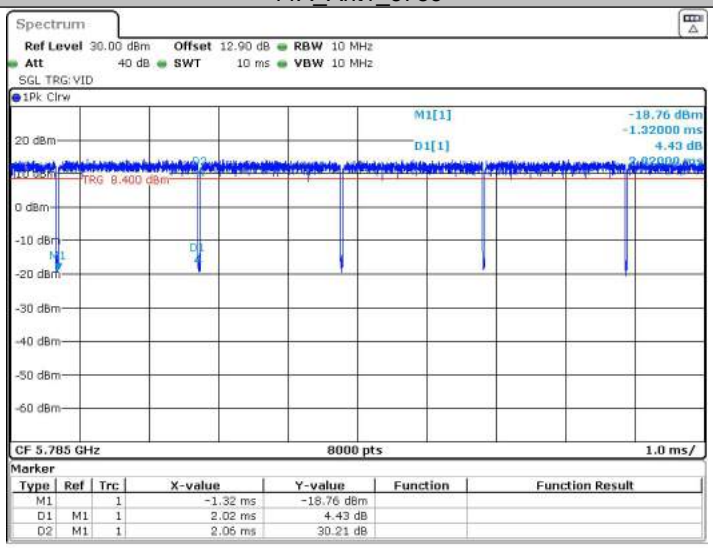
11A_Ant1_5240



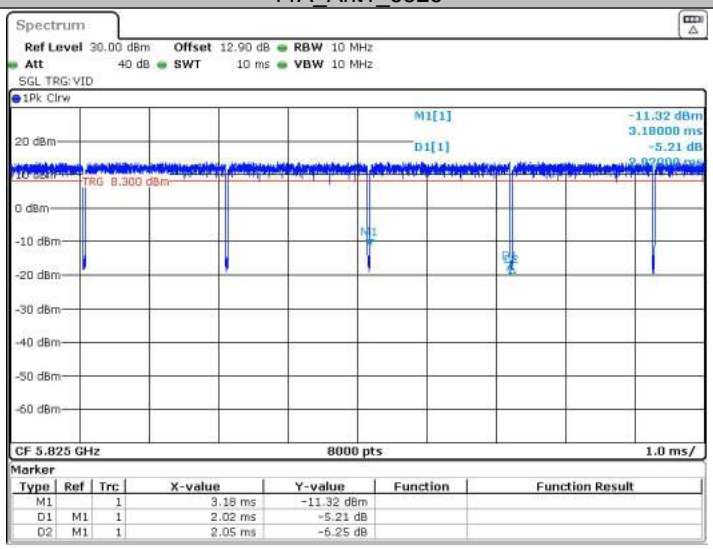
11A_Ant1_5745



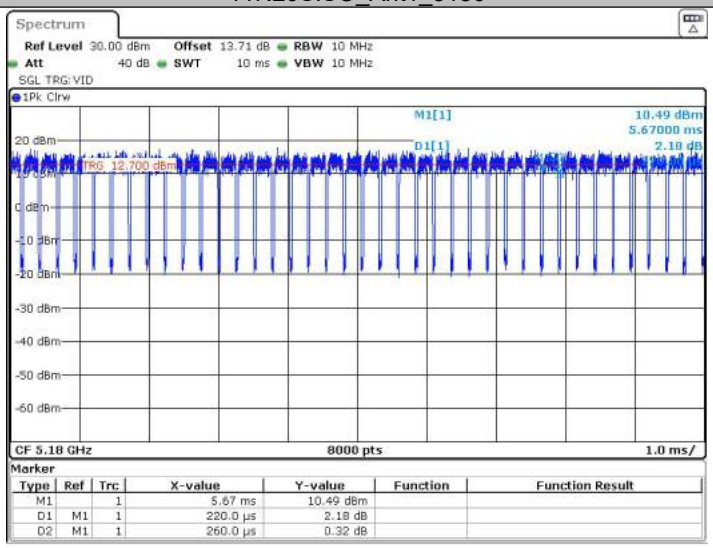
11A_Ant1_5785



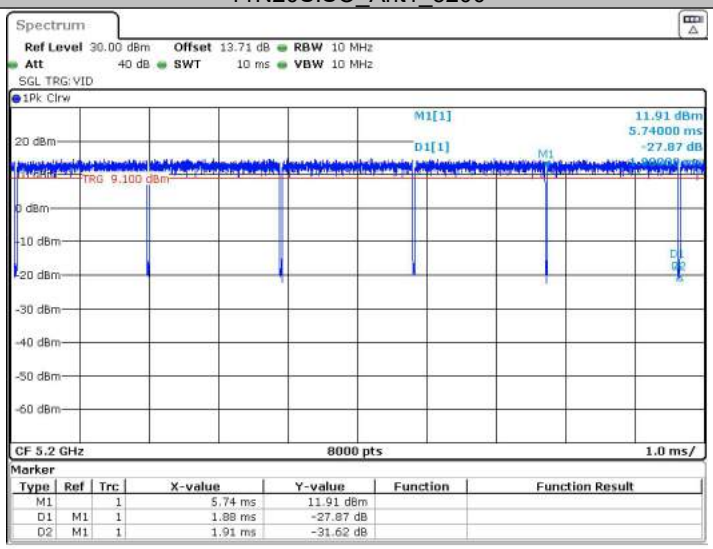
11A_Ant1_5825



11N20SISO_Ant1_5180



11N20SISO_Ant1_5200



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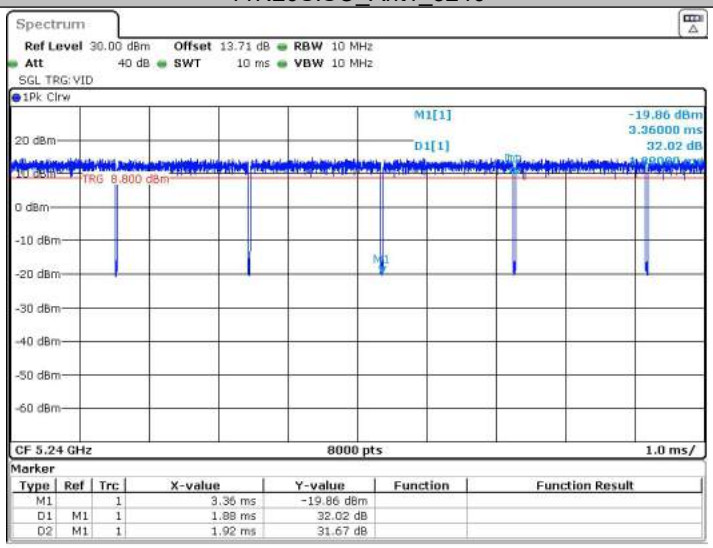
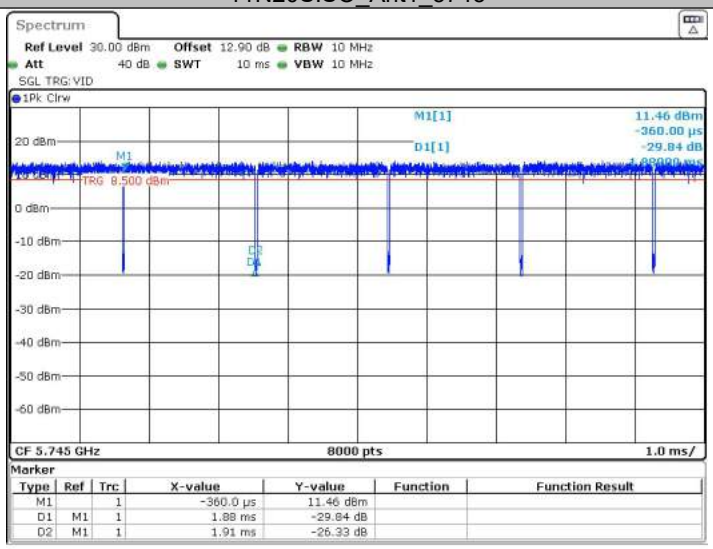


Date: 20.JAN.2022 06:16:38

11N20SISO_Ant1_5745



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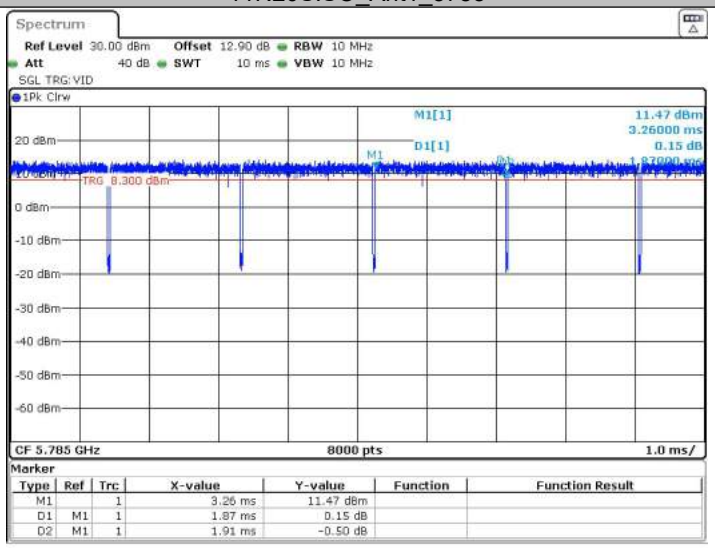
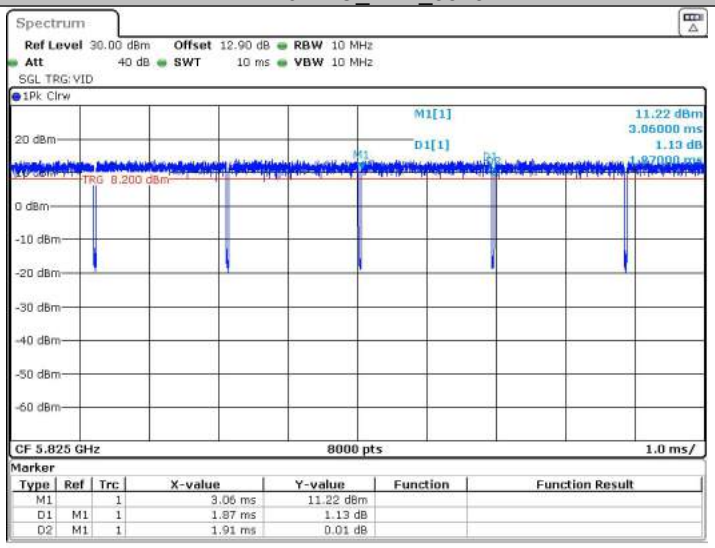
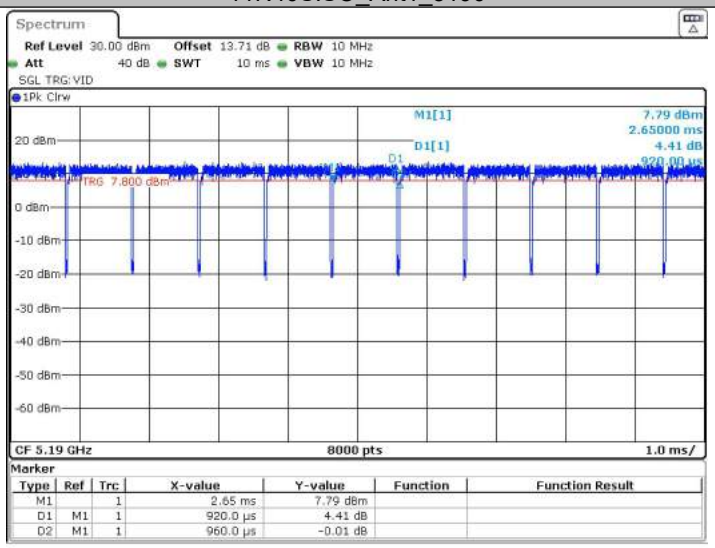


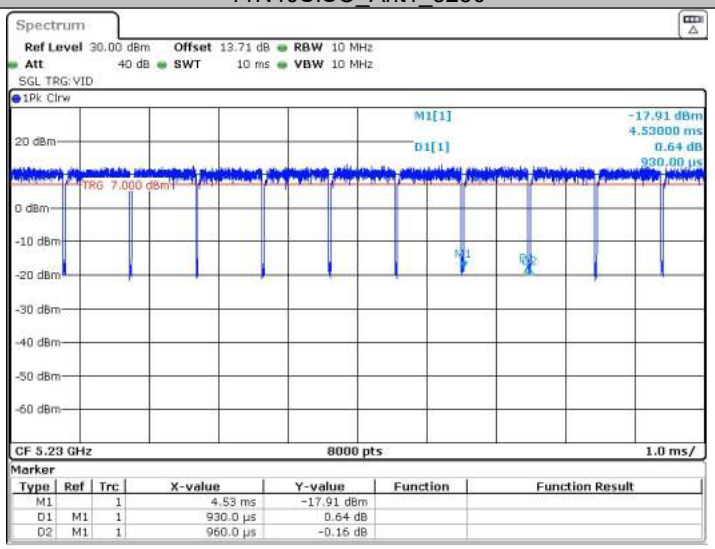
11N20SISO_Ant1_5825



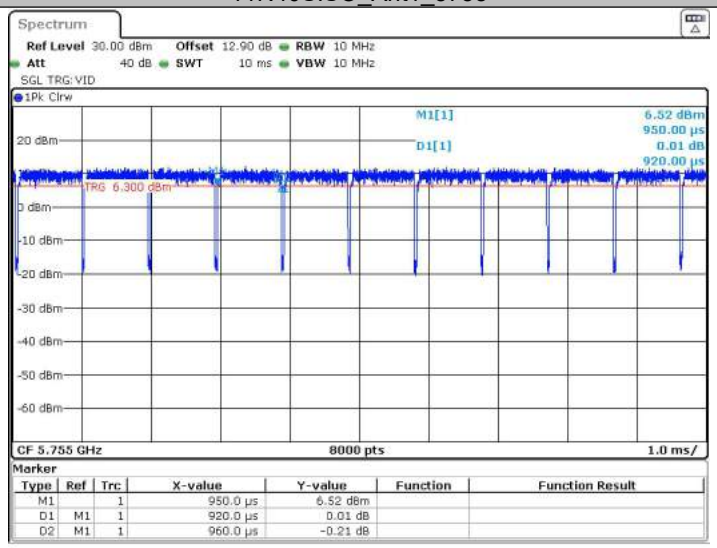
11N40SISO_Ant1_5190



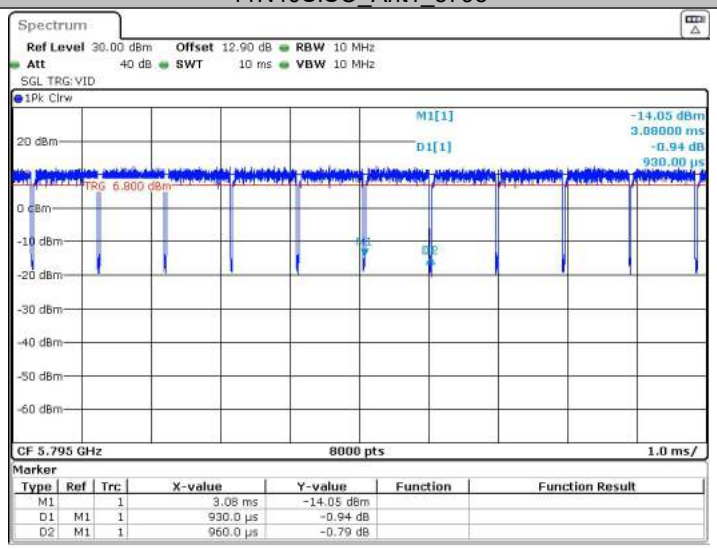
11N40SISO_Ant1_5230



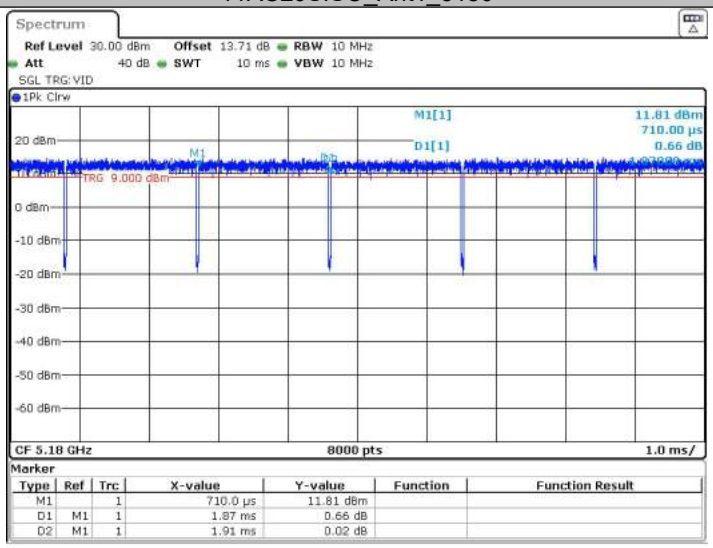
11N40SISO_Ant1_5755



11N40SISO_Ant1_5795



11AC20SISO_Ant1_5180



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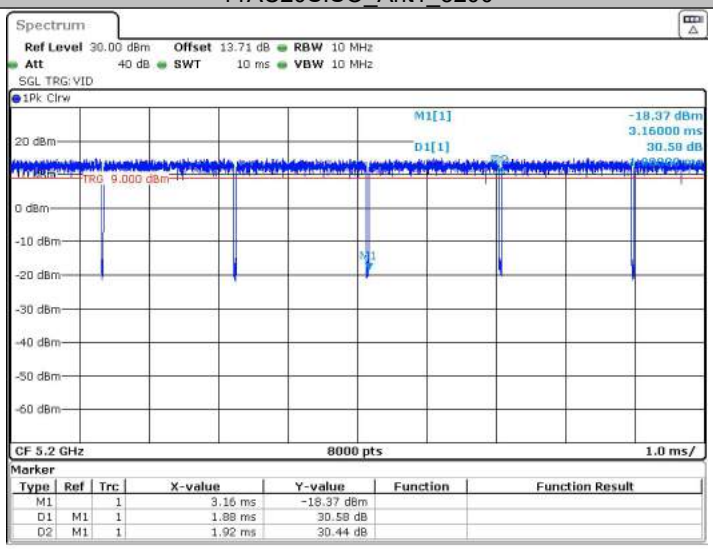

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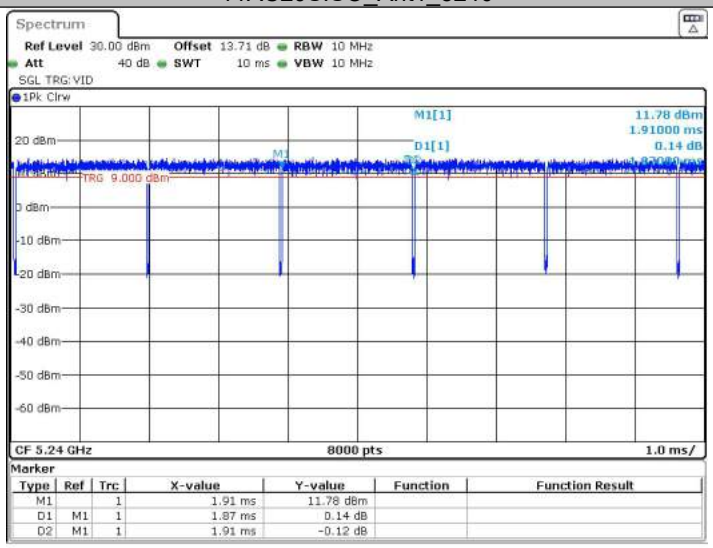
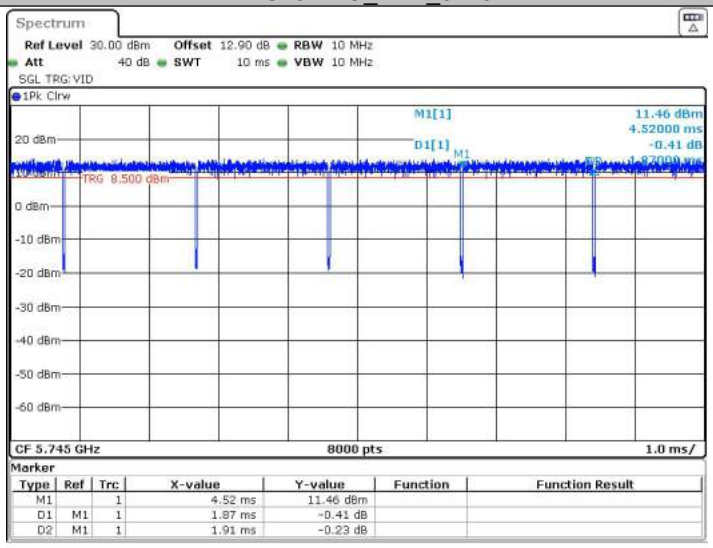
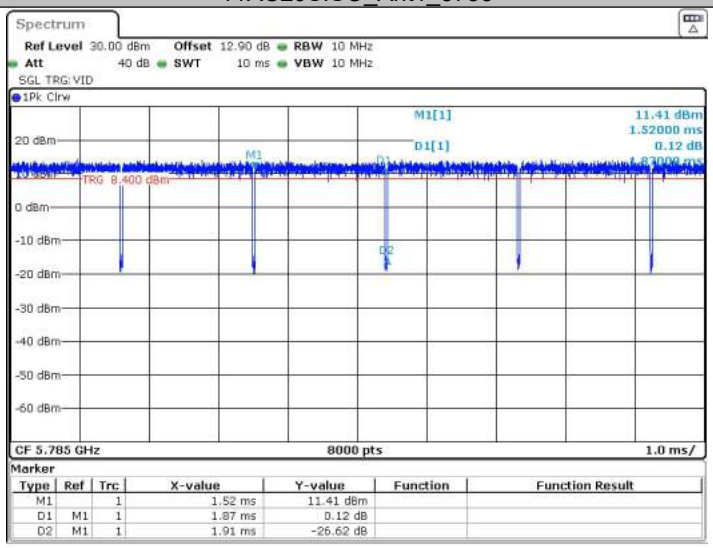
11AC20SISO_Ant1_5240



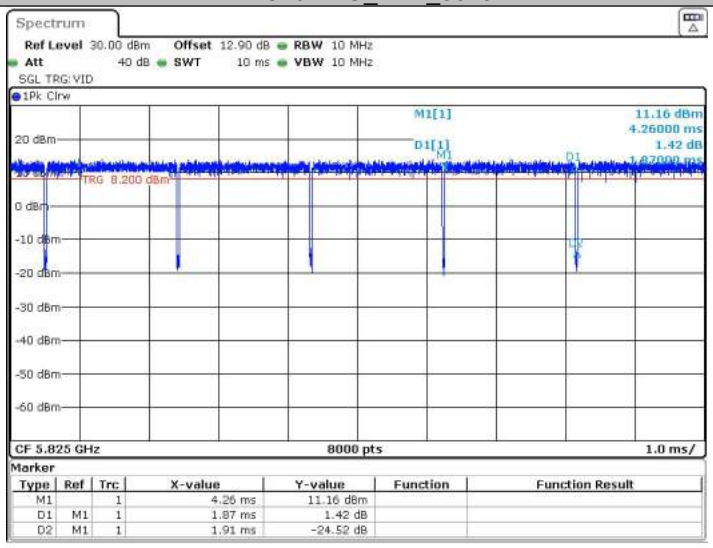
11AC20SISO_Ant1_5745



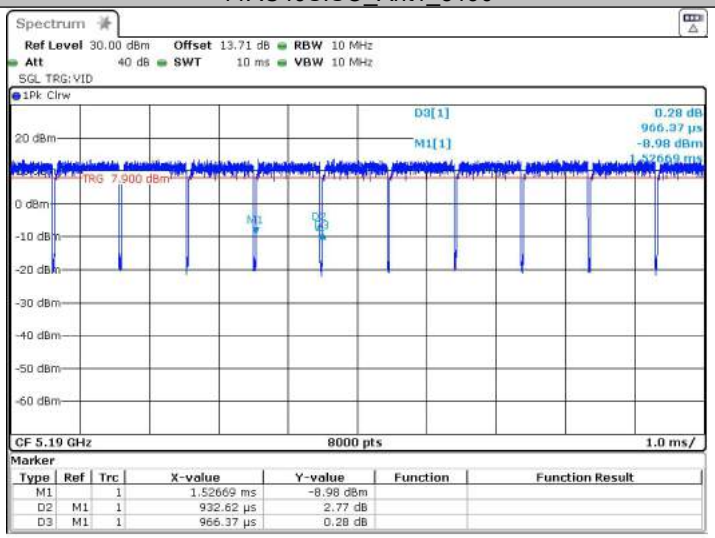
11AC20SISO_Ant1_5785



11AC20SISO_Ant1_5825

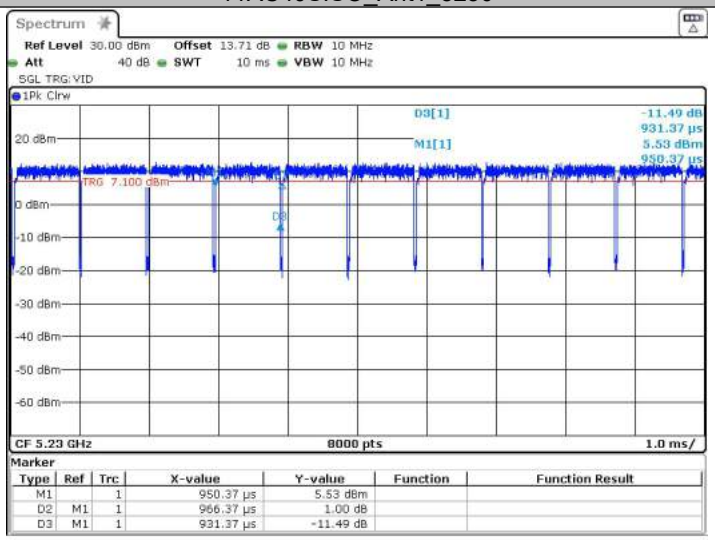


11AC40SISO_Ant1_5190



Date: 20.JAN.2022 06:30:24

11AC40SISO_Ant1_5230



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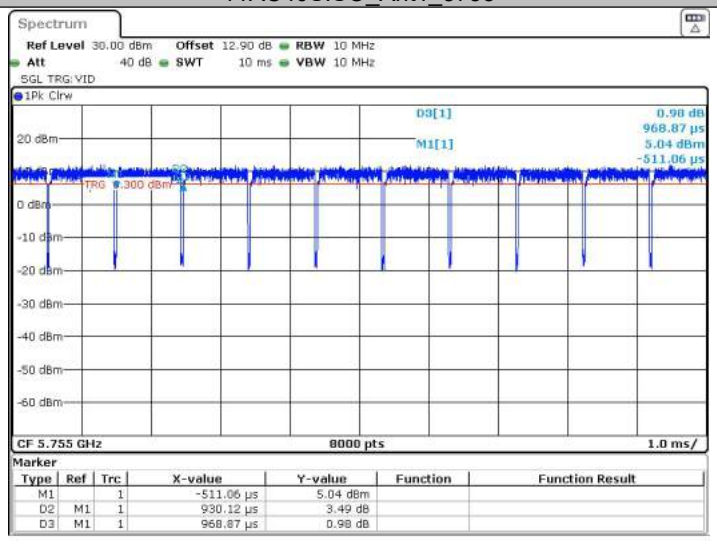
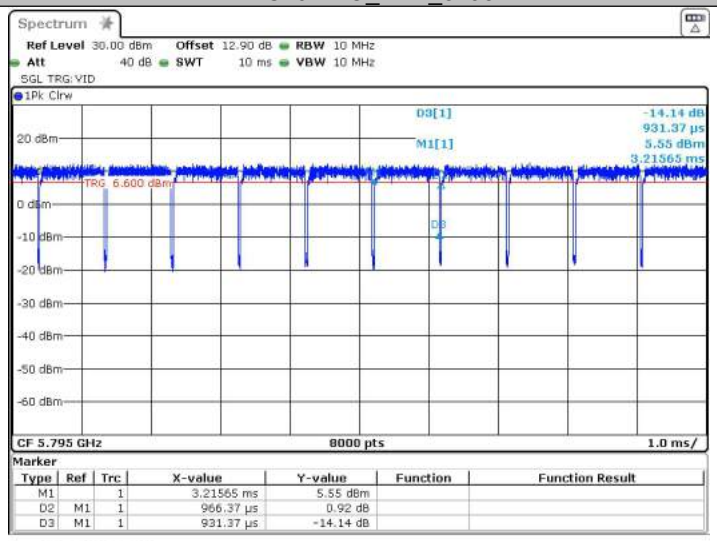
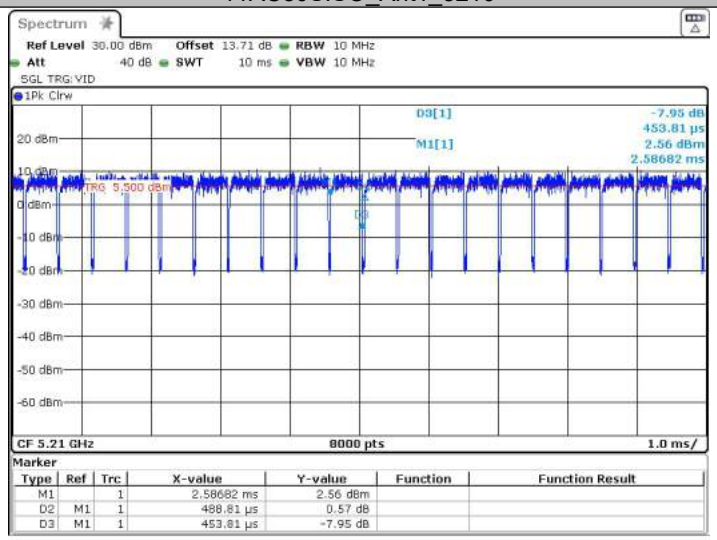
11AC40SISO_Ant1_5755



11AC40SISO_Ant1_5795



11AC80SISO_Ant1_5210



Date: 20.JAN.2022 06:36:08

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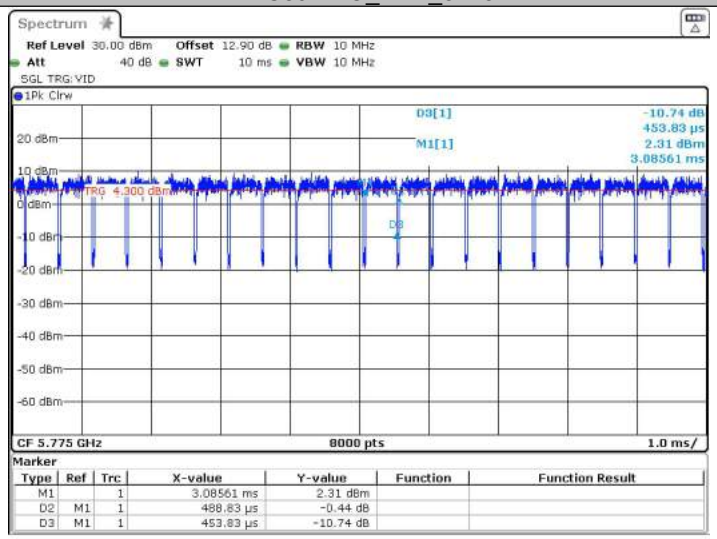


Date: 20.JAN.2022 06:37:44

2. Maximum Conducted Output Power

Test Requirement 47 CFR Part 15, Subpart C 15.407 (a)

Test Method: KDB 789033 D02 II E

Limit:

Frequency band(MHz)	Limit
5150-5250	≤1W(30dBm) for master device
	≤250mW(24dBm) for client device
5250-5350	≤250mW(24dBm) for client device or 11dBm+10logB*
5470-5725	≤250mW(24dBm) for client device or 11dBm+10logB*
5725-5850	≤1W(30dBm)
Remark:	* Where B is the 26dB emission bandwidth in MHz. The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.

Test Procedure:

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

(1) Set RBW = 1 MHz.

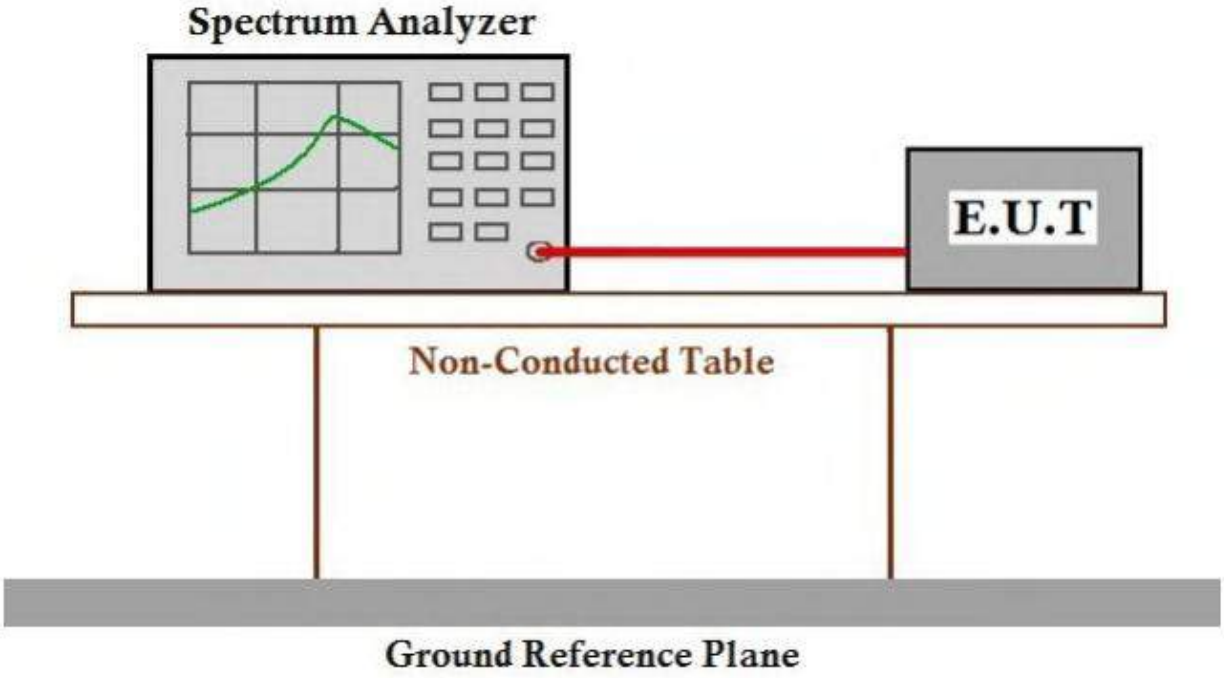
(2) Set VBW ≥ 3 MHz.

(3) Detector = power average

(4) Sweep time = auto.

(5) Add duty cycle to the measured average power.

Test Setup Diagram



Ant1

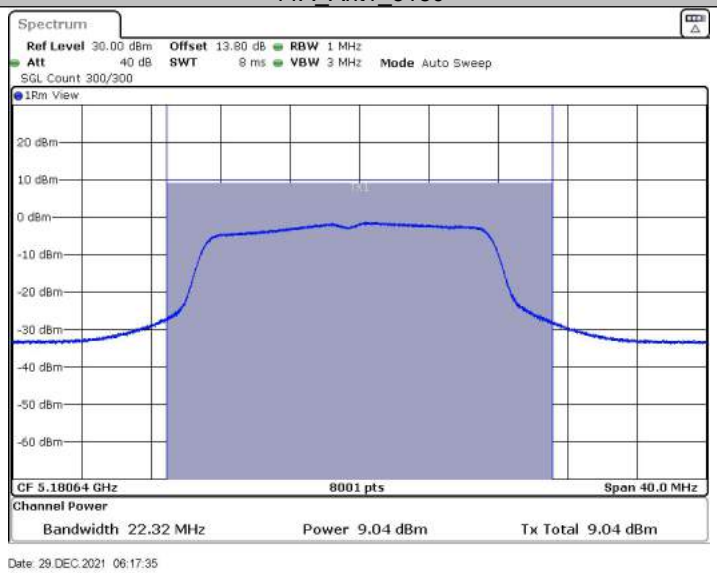
Measurement Data

Test Mode	Antenna	Channel	Meas.Level [dBm]	Av.Power [dBm]	Limit [dBm]	Verdict
11A	Ant1	5180	9.04	9.1	24	PASS
11A	Ant1	5200	9.11	9.17	24	PASS
11A	Ant1	5240	8.81	8.9	24	PASS
11A	Ant1	5745	8.08	8.17	30	PASS
11A	Ant1	5785	8.36	8.45	30	PASS
11A	Ant1	5825	8.46	8.55	30	PASS
11N20	Ant1	5180	8.76	9.29	24	PASS
11N20	Ant1	5200	8.78	9.51	24	PASS
11N20	Ant1	5240	8.63	9.16	24	PASS
11N20	Ant1	5745	7.87	8.6	30	PASS
11N20	Ant1	5785	8.07	8.8	30	PASS
11N20	Ant1	5825	8.18	8.91	30	PASS
11N40	Ant1	5190	9.21	10.11	24	PASS
11N40	Ant1	5230	8.68	9.85	24	PASS
11N40	Ant1	5755	7.65	8.9	30	PASS
11N40	Ant1	5795	8.37	9.62	30	PASS
11AC20	Ant1	5180	8.92	8.99	24	PASS
11AC20	Ant1	5200	8.81	8.88	24	PASS
11AC20	Ant1	5240	8.71	8.78	24	PASS
11AC20	Ant1	5745	6.79	6.86	30	PASS
11AC20	Ant1	5785	7.02	7.11	30	PASS
11AC20	Ant1	5825	7.18	7.25	30	PASS
11AC40	Ant1	5190	8.17	8.31	24	PASS
11AC40	Ant1	5230	7.73	7.91	24	PASS
11AC40	Ant1	5755	6.46	6.6	30	PASS
11AC40	Ant1	5795	7.23	7.41	30	PASS
11AC80	Ant1	5210	7.30	7.67	24	PASS
11AC80	Ant1	5775	6.53	6.86	30	PASS

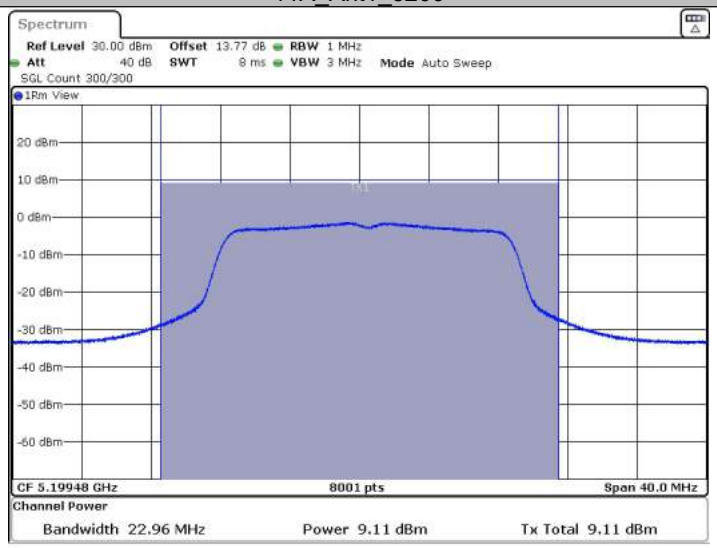
Remark:
Av.Power=Meas.Level+10 log (1/duty cycle)
E.i.r.p=Av.Power+G,
G = antenna gain in dBi.

Test Graphs

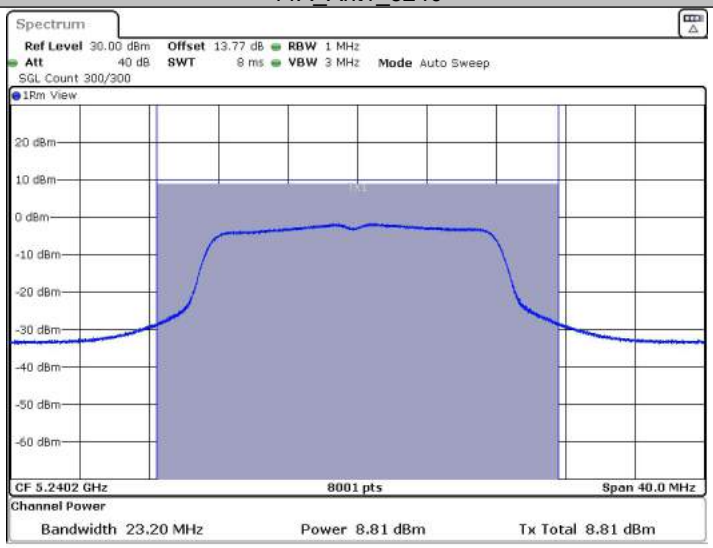
11A_Ant1_5180



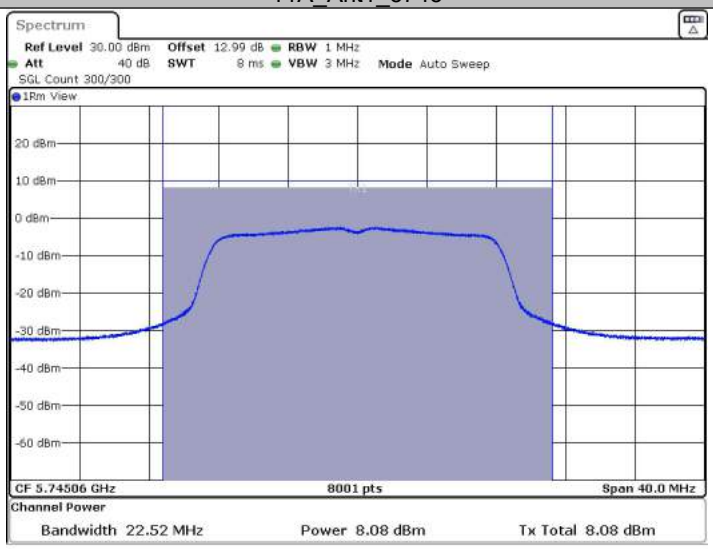
11A_Ant1_5200



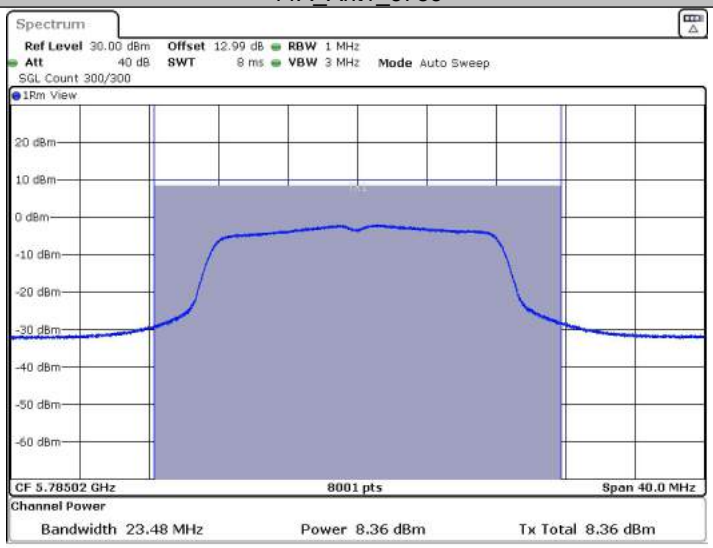
11A_Ant1_5240



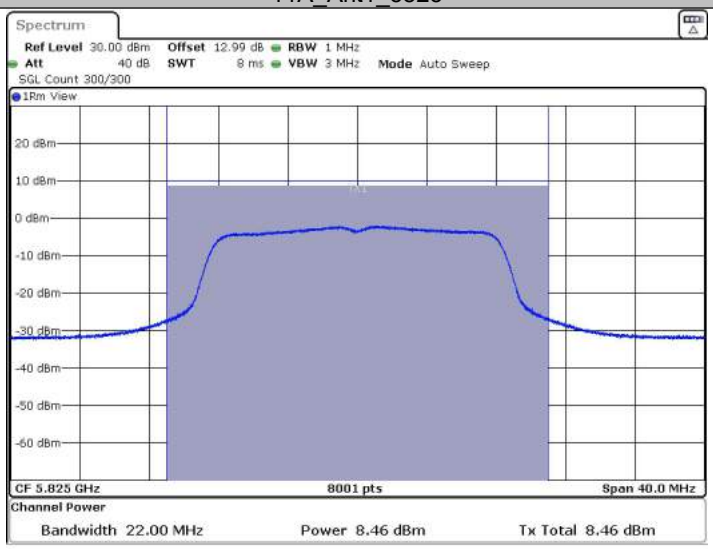
11A_Ant1_5745



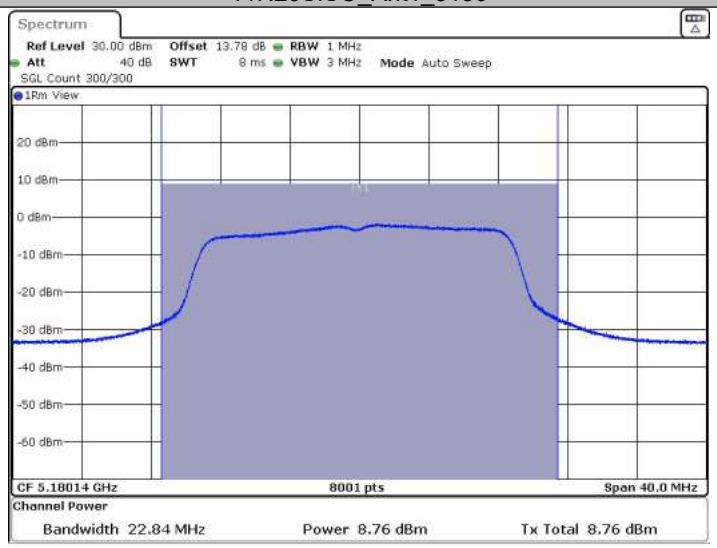
11A_Ant1_5785



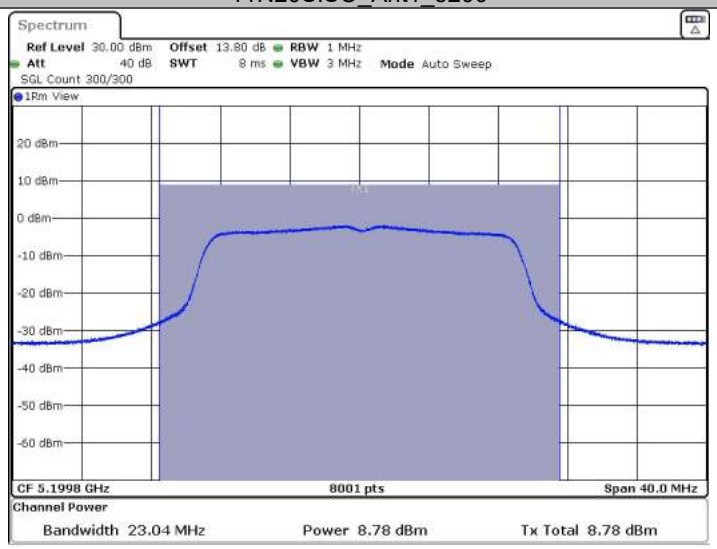
11A_Ant1_5825



11N20SISO_Ant1_5180



11N20SISO_Ant1_5200



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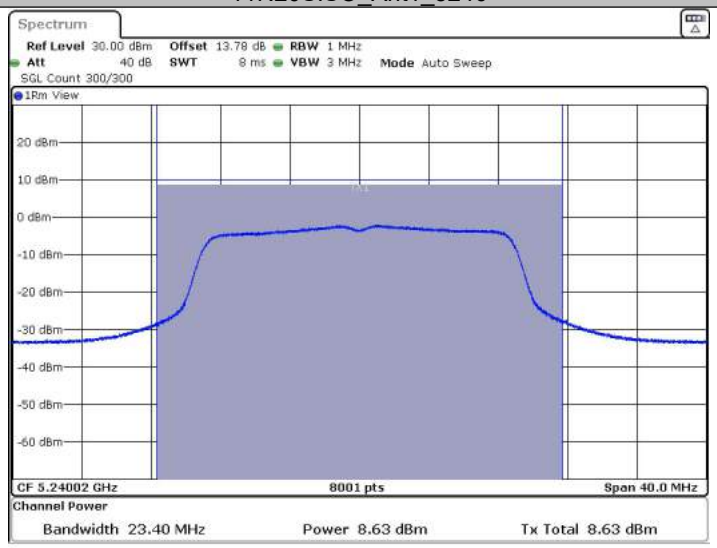
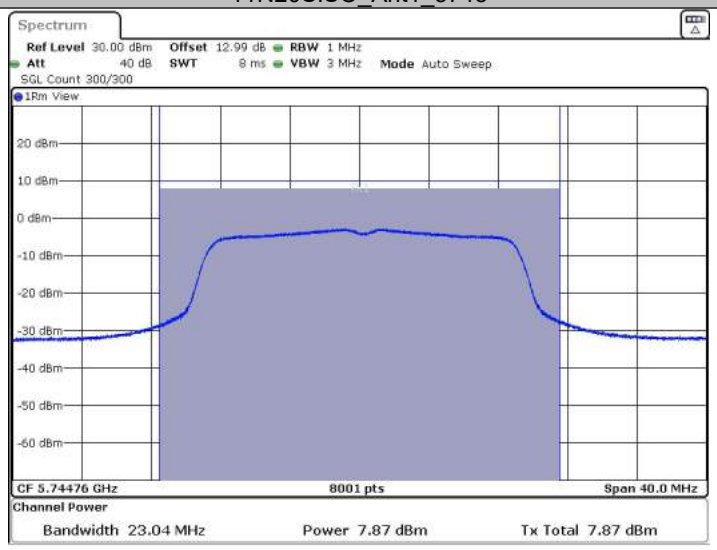


11N20SISO_Ant1_5745



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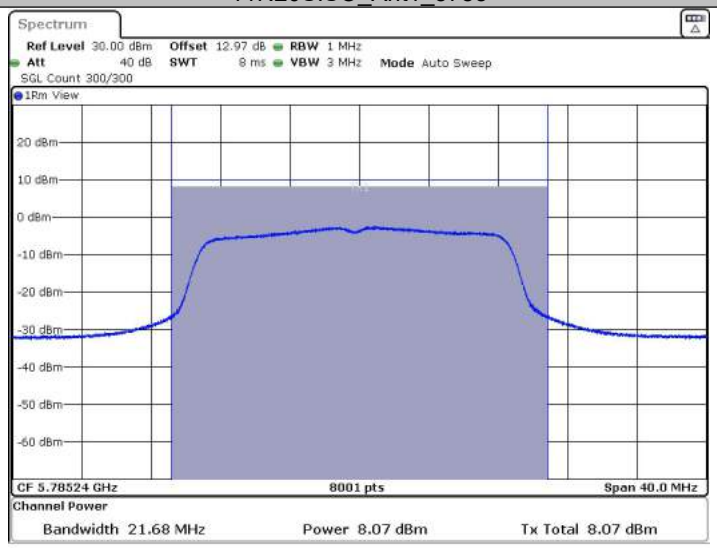
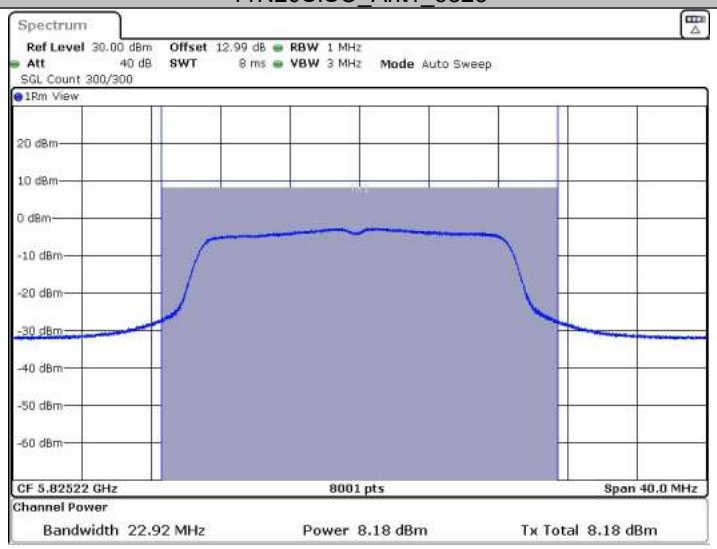
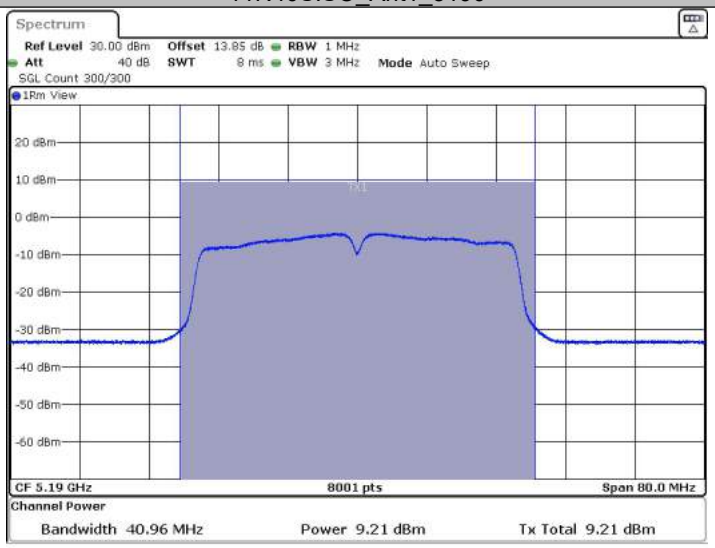


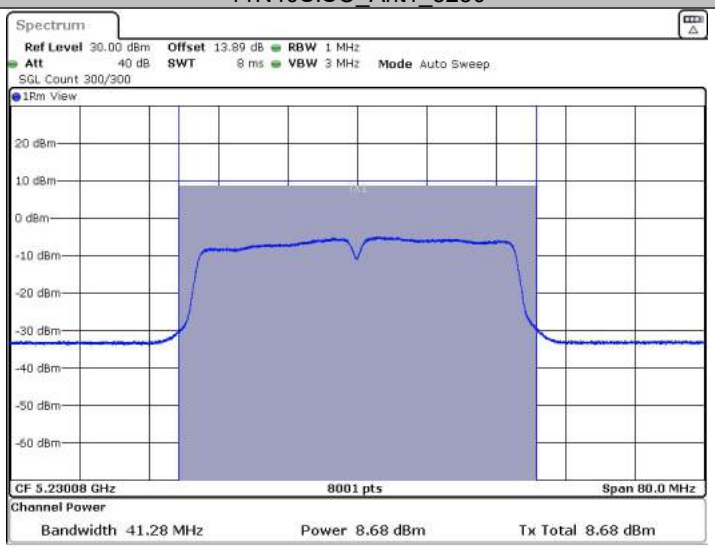
11N20SISO_Ant1_5825



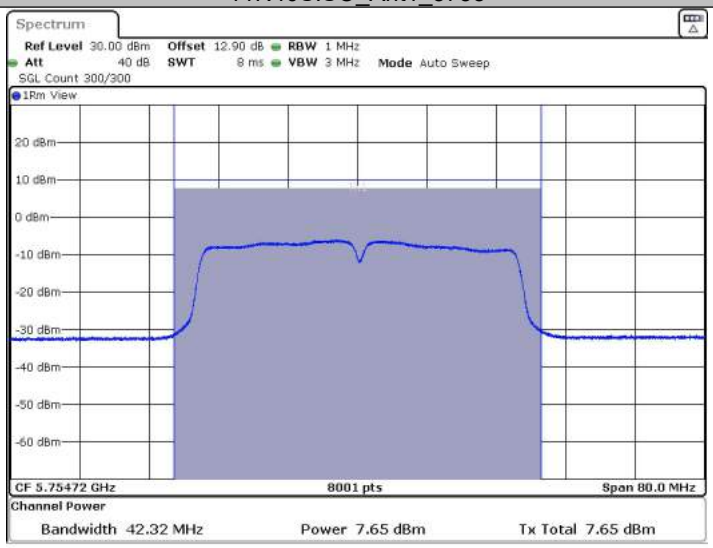
11N40SISO_Ant1_5190



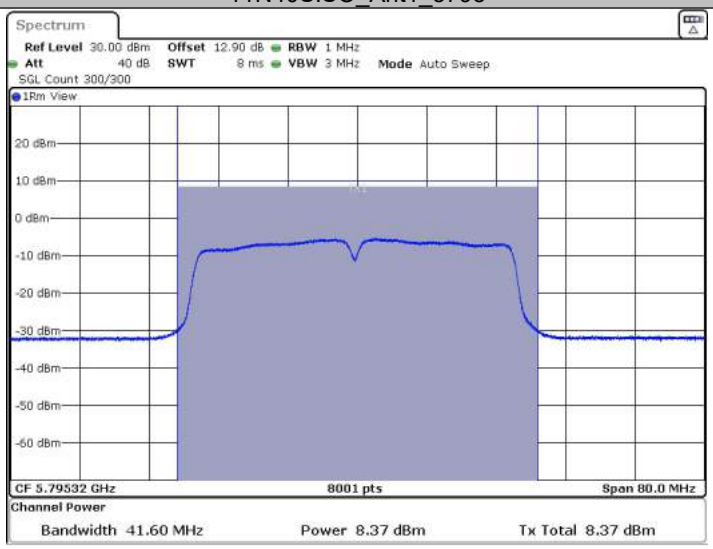
11N40SISO_Ant1_5230



11N40SISO_Ant1_5755



11N40SISO_Ant1_5795



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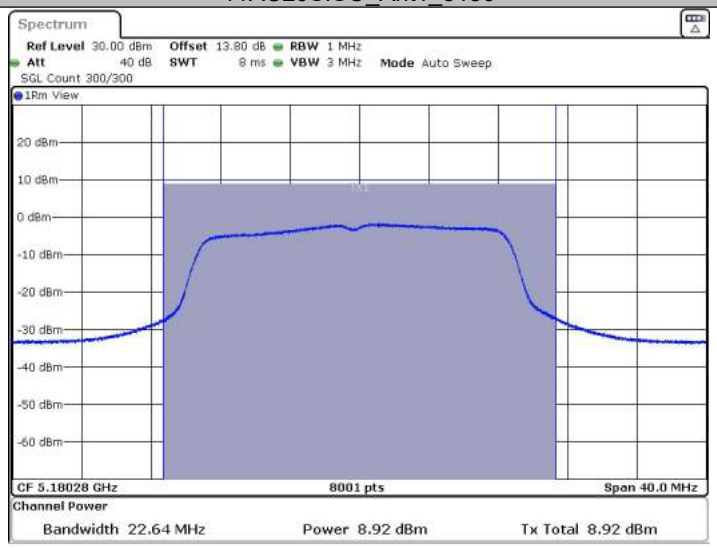

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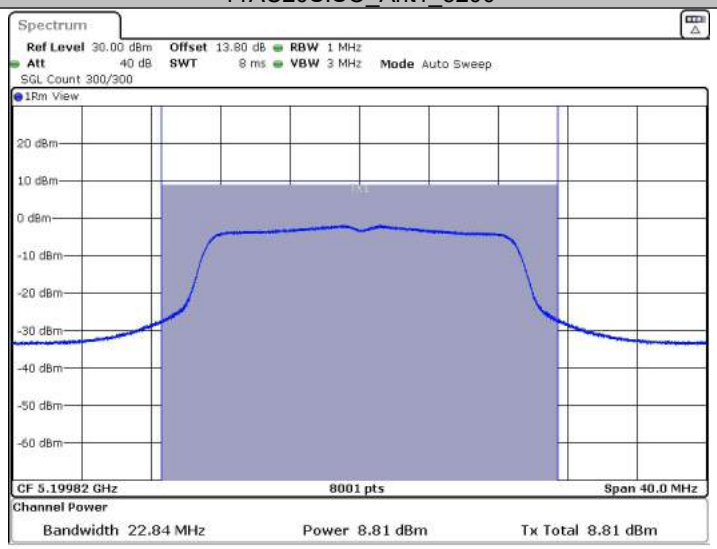

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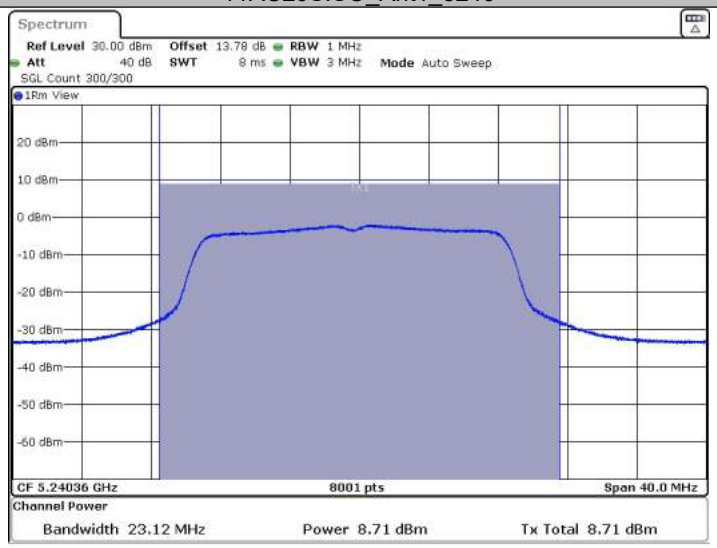
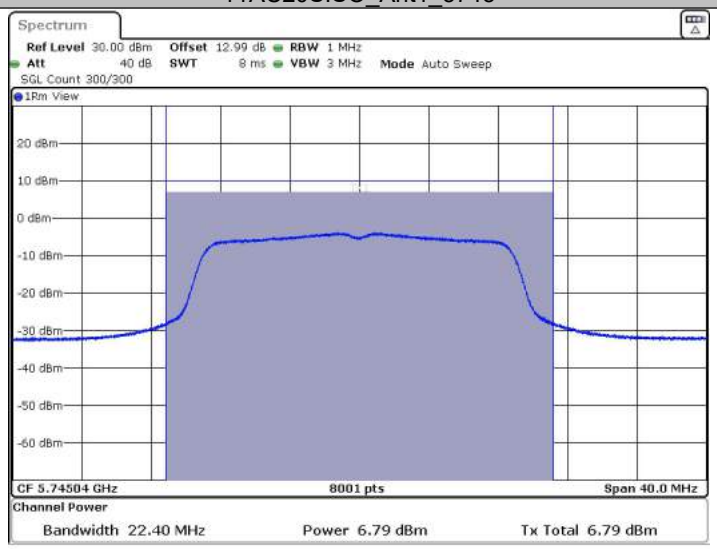


11AC20SISO_Ant1_5745



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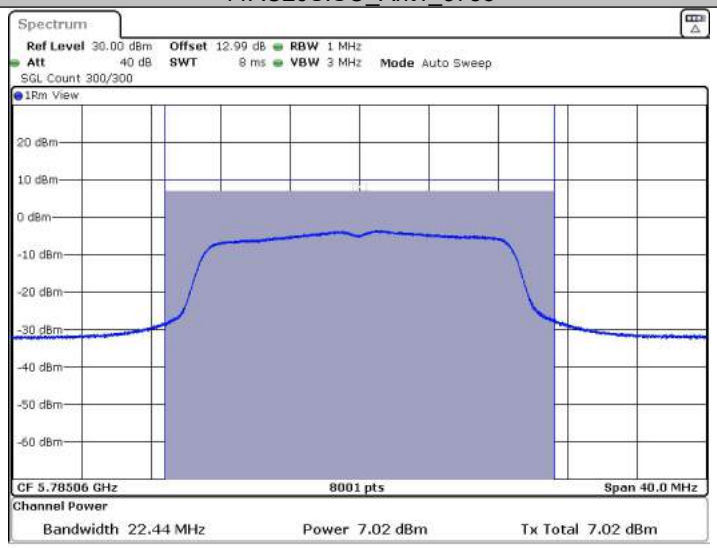
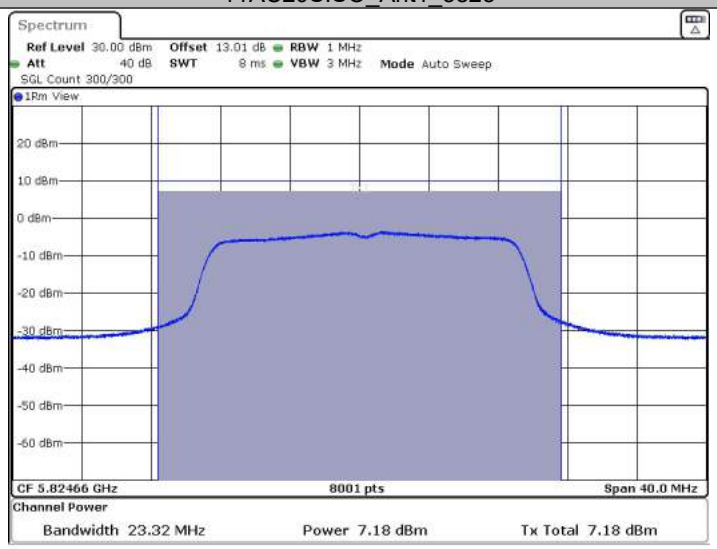


11AC20SISO_Ant1_5825



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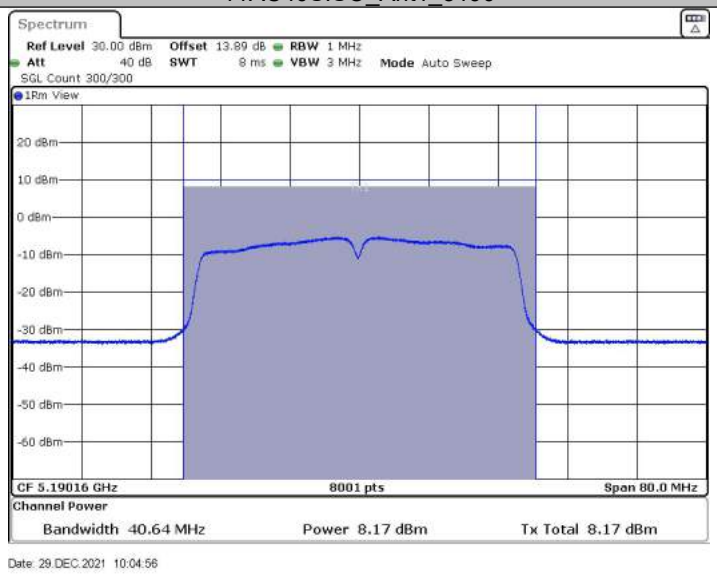
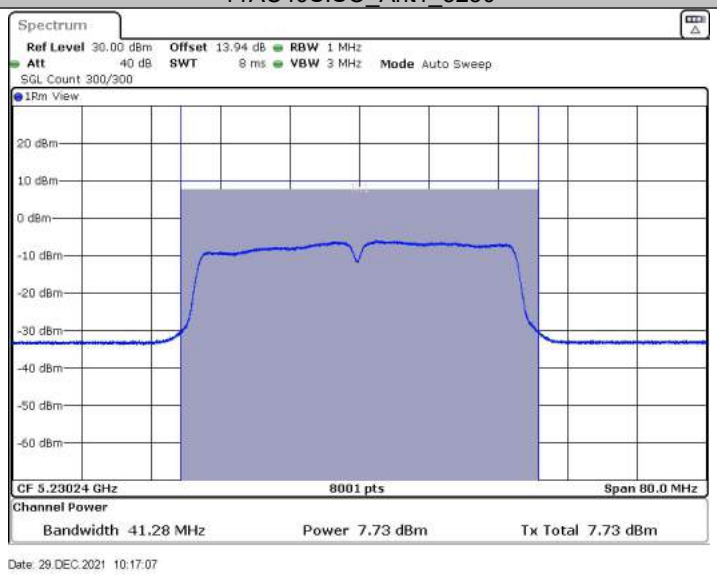
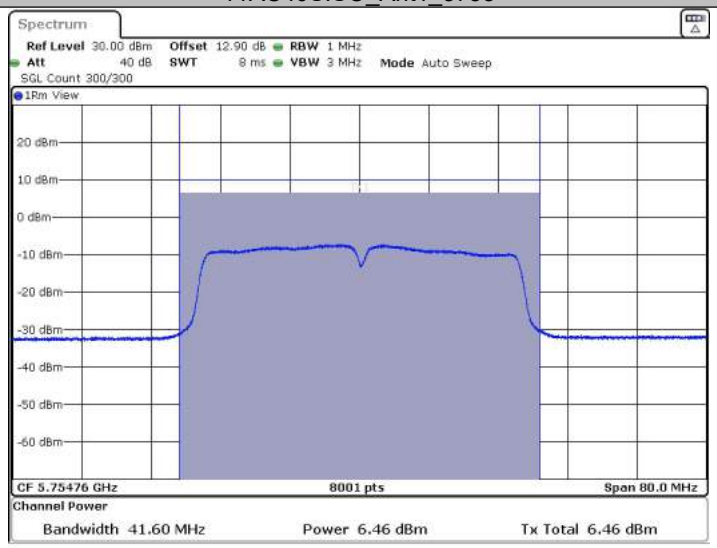


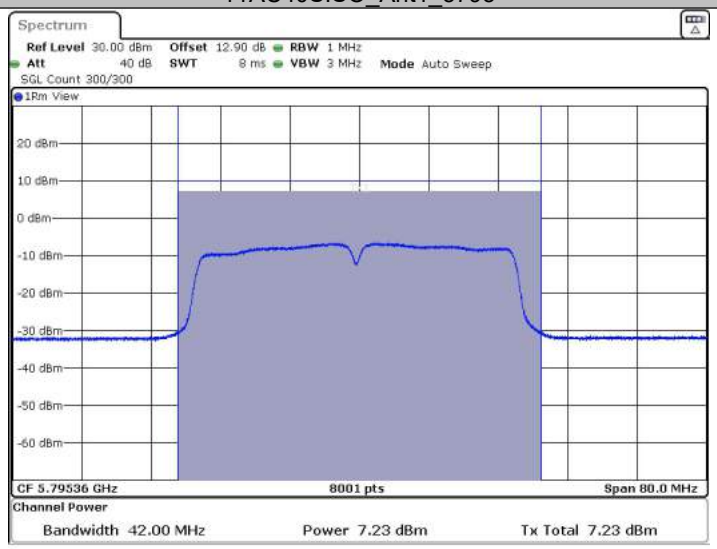
11AC40SISO_Ant1_5230



11AC40SISO_Ant1_5755



11AC40SISO_Ant1_5795



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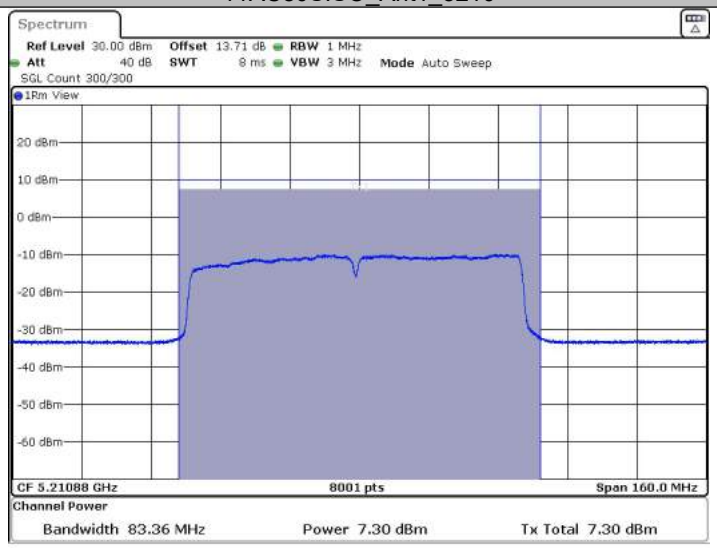
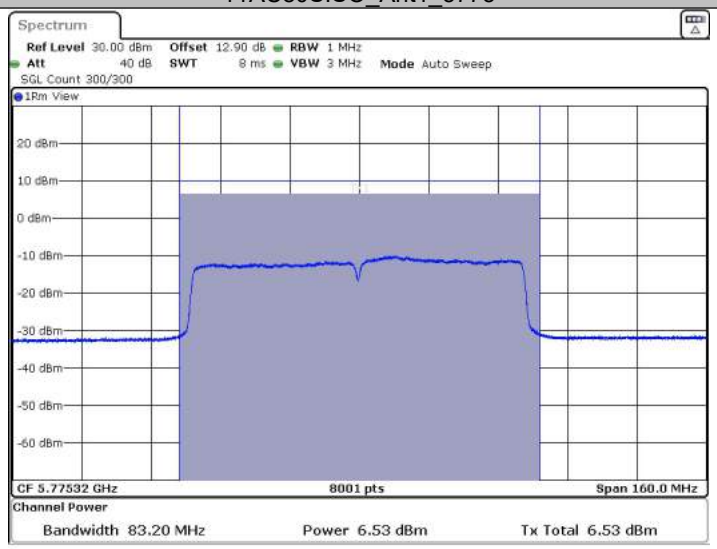


11AC80SISO_Ant1_5775



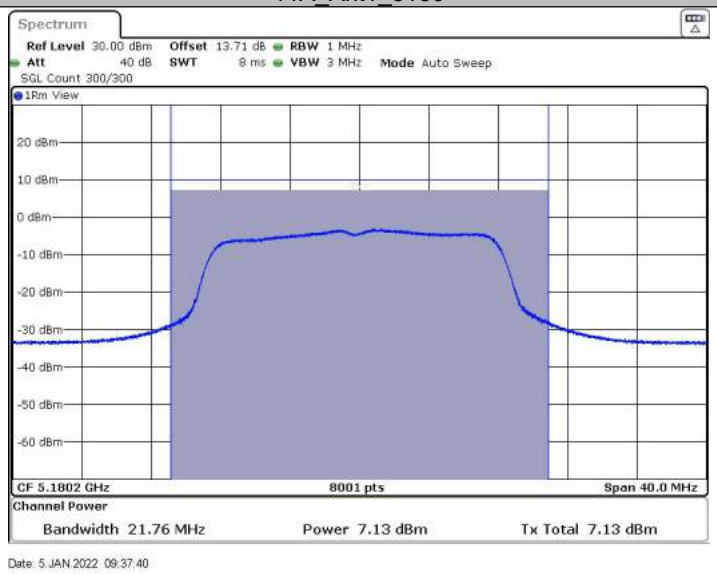
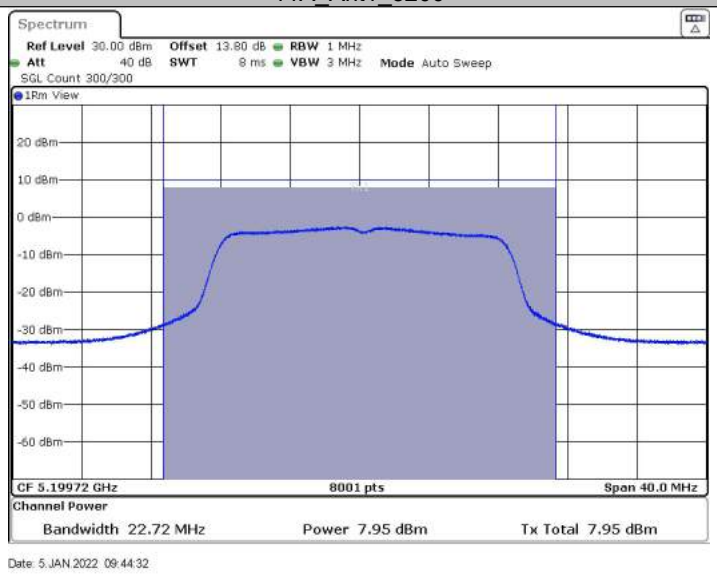
Ant2

Measurement Data

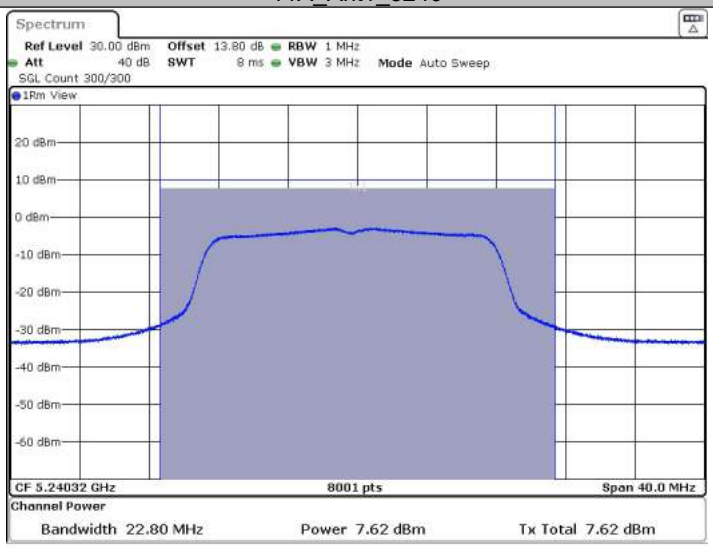
Test Mode	Antenna	Channel	Meas.Level [dBm]	Av.Power [dBm]	Limit [dBm]	Verdict
11A	Ant2	5180	7.13	7.22	24	PASS
11A	Ant2	5200	7.95	8.01	24	PASS
11A	Ant2	5240	7.62	7.71	24	PASS
11A	Ant2	5745	6.58	6.67	30	PASS
11A	Ant2	5785	6.20	6.29	30	PASS
11A	Ant2	5825	6.08	6.14	30	PASS
11N20	Ant2	5180	6.96	7.69	24	PASS
11N20	Ant2	5200	9.36	9.43	24	PASS
11N20	Ant2	5240	9.08	9.17	24	PASS
11N20	Ant2	5745	8.32	8.39	30	PASS
11N20	Ant2	5785	7.73	7.82	30	PASS
11N20	Ant2	5825	7.86	7.95	30	PASS
11N40	Ant2	5190	9.95	10.13	24	PASS
11N40	Ant2	5230	9.38	9.52	24	PASS
11N40	Ant2	5755	7.87	8.05	30	PASS
11N40	Ant2	5795	8.20	8.34	30	PASS
11AC20	Ant2	5180	9.52	9.61	24	PASS
11AC20	Ant2	5200	9.36	9.45	24	PASS
11AC20	Ant2	5240	8.92	9.01	24	PASS
11AC20	Ant2	5745	8.05	8.14	30	PASS
11AC20	Ant2	5785	7.22	7.31	30	PASS
11AC20	Ant2	5825	7.20	7.29	30	PASS
11AC40	Ant2	5190	7.84	7.99	24	PASS
11AC40	Ant2	5230	6.99	7.15	24	PASS
11AC40	Ant2	5755	7.73	7.91	30	PASS
11AC40	Ant2	5795	7.84	8	30	PASS
11AC80	Ant2	5210	6.64	6.96	24	PASS
11AC80	Ant2	5775	7.33	7.65	30	PASS

Remark:
Av.Power=Meas.Level+10 log (1/duty cycle)
E.i.r.p=Av.Power+G,
G = antenna gain in dBi.

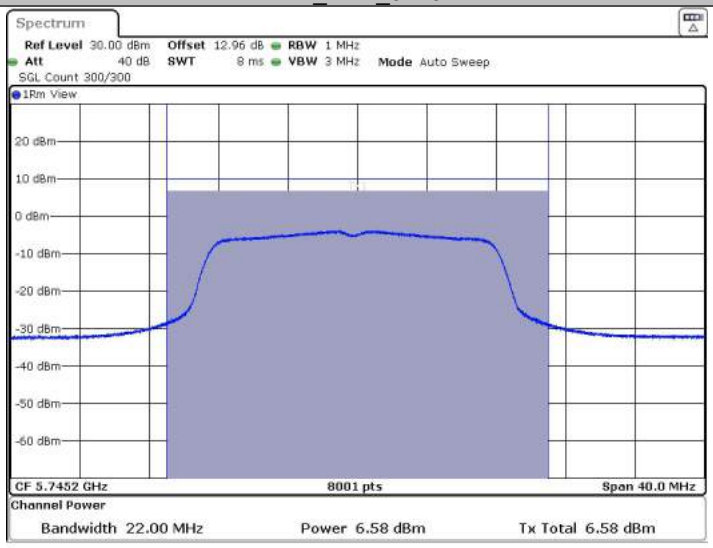
Test Graphs

11A_Ant1_5180

11A_Ant1_5200


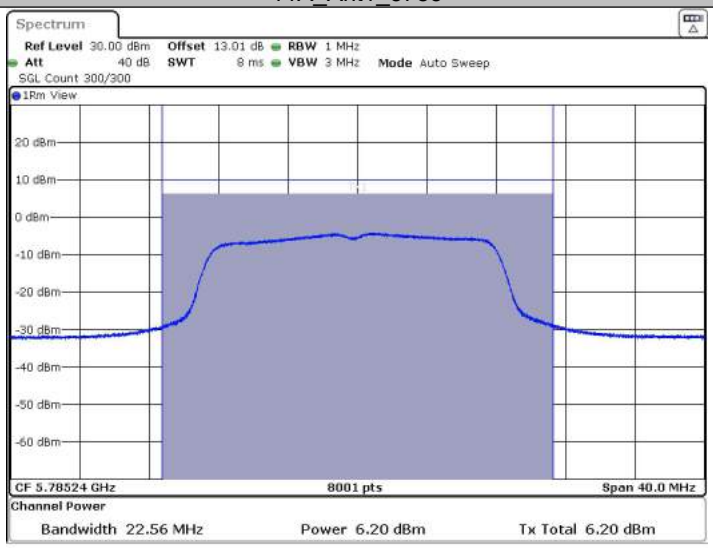
11A_Ant1_5240



11A_Ant1_5745



11A_Ant1_5785



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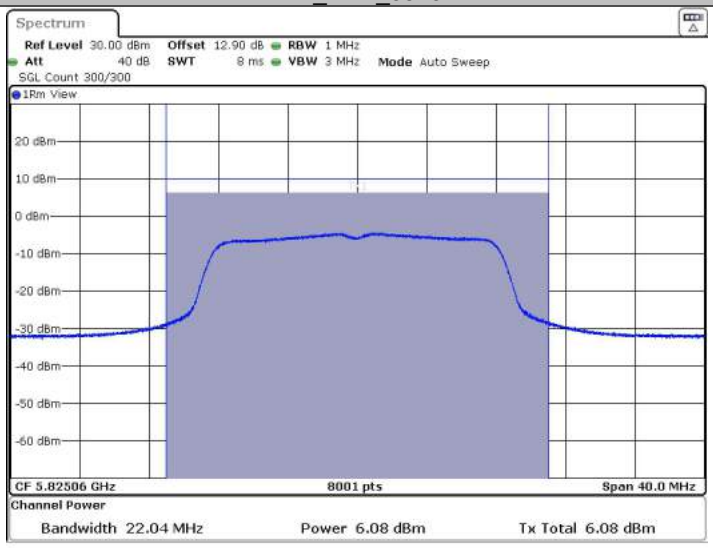
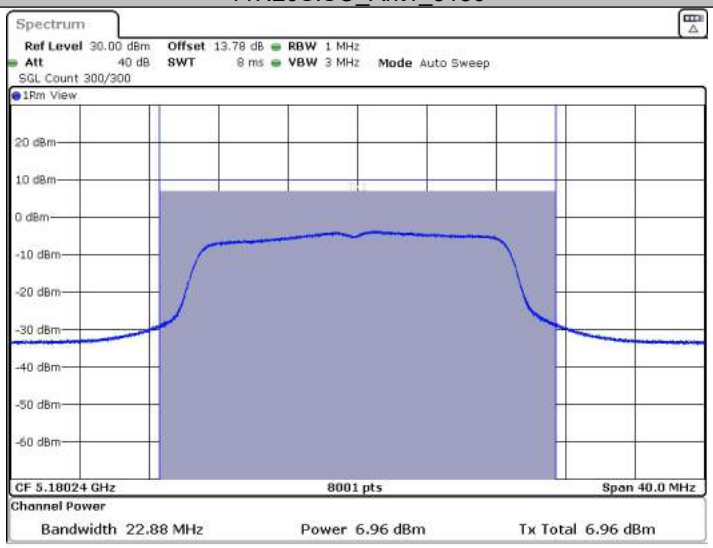


11N20SISO_Ant1_5180



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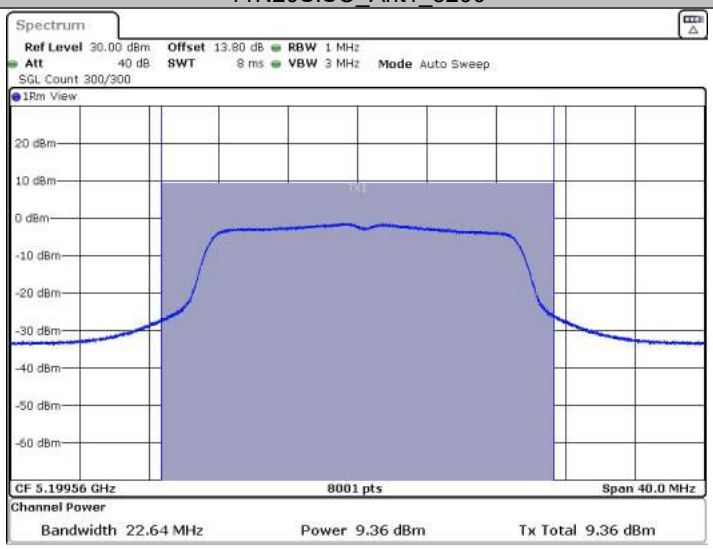

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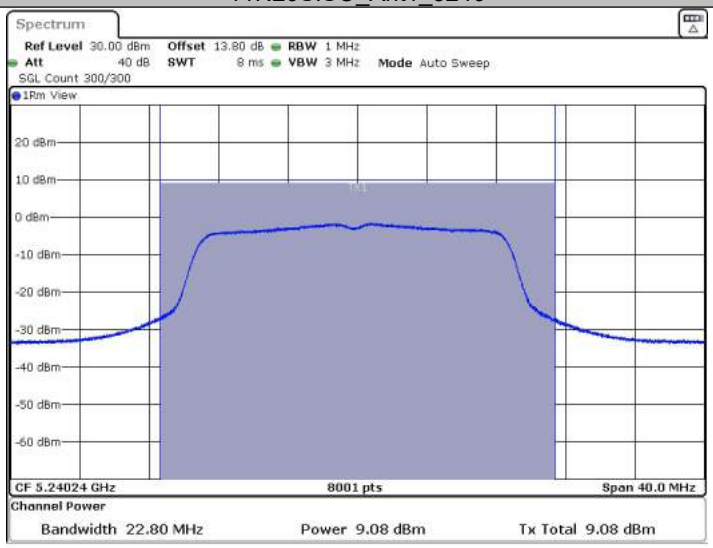

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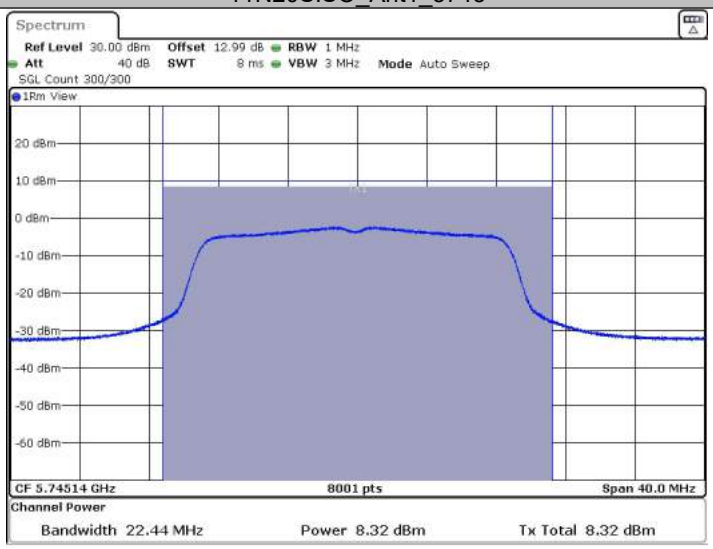

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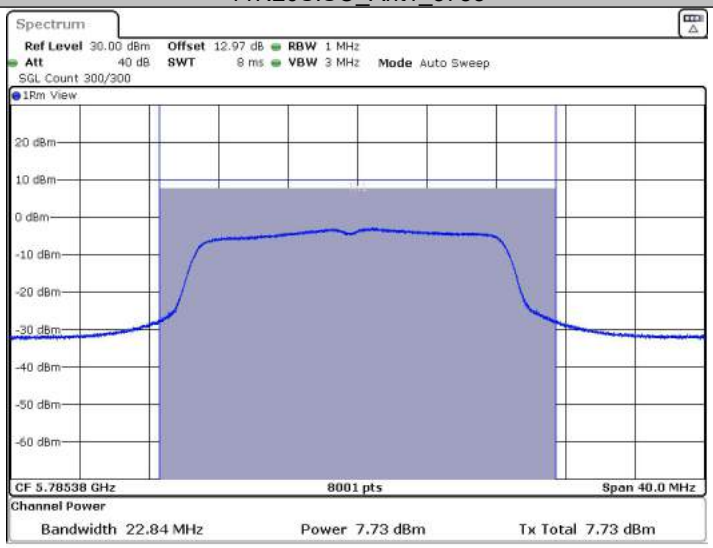

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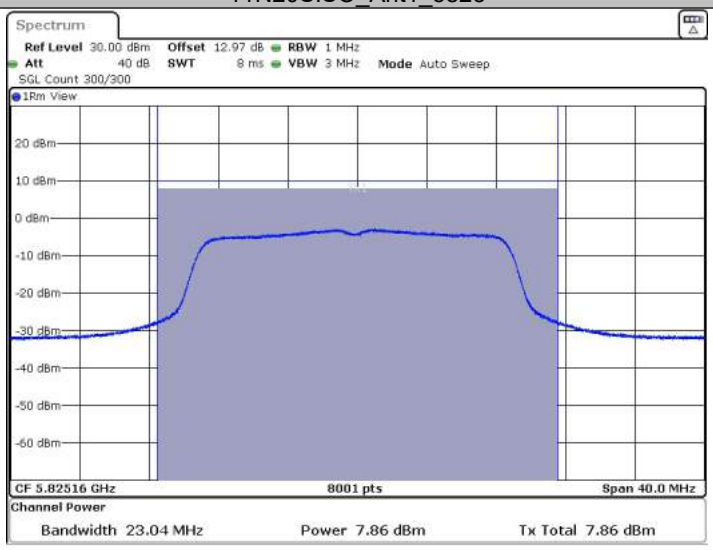
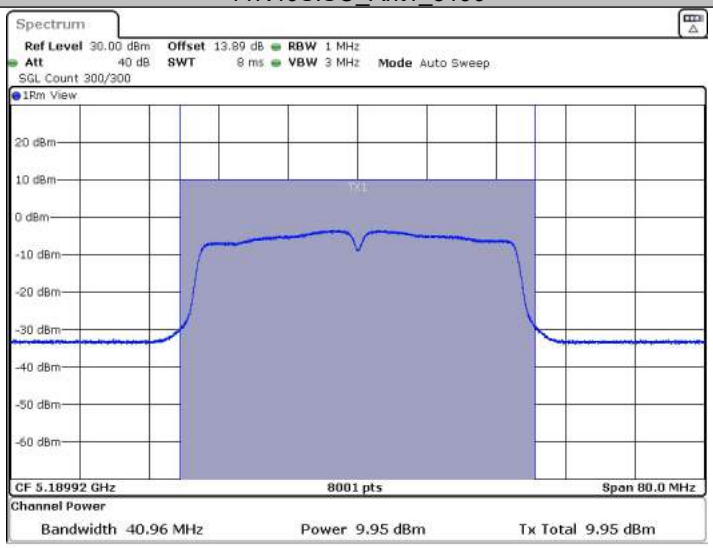
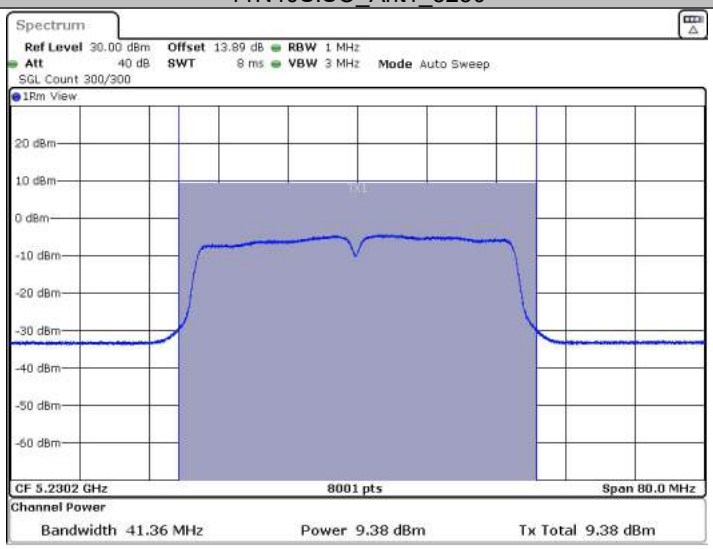


11N40SISO_Ant1_5190



11N40SISO_Ant1_5230



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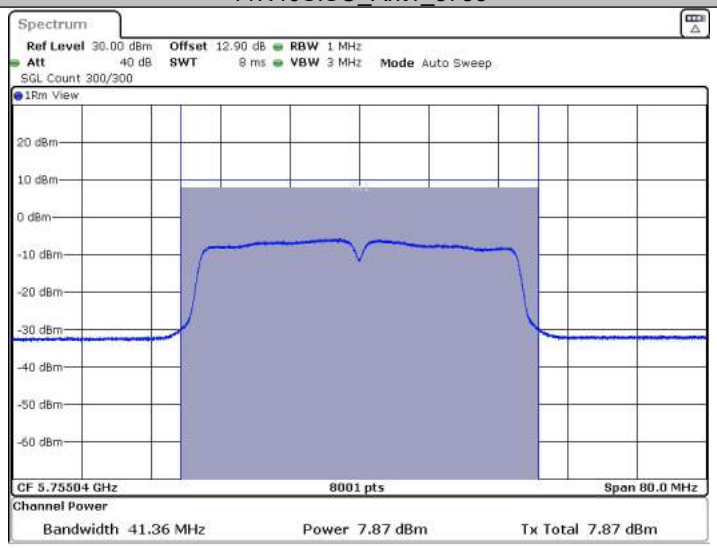
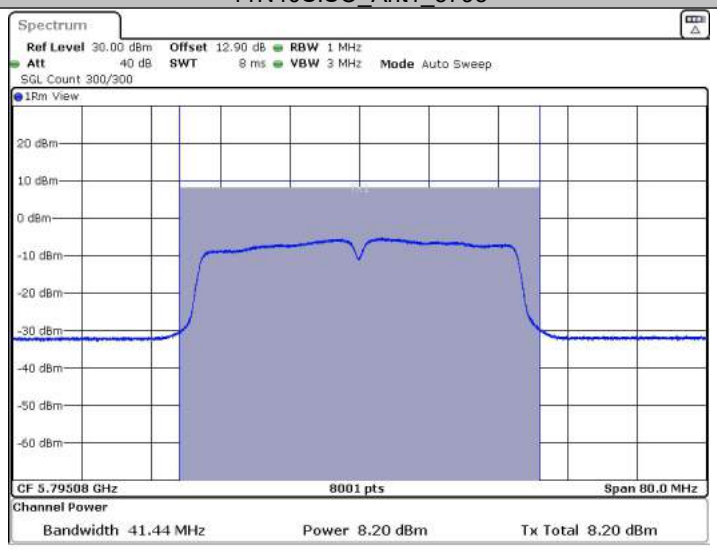
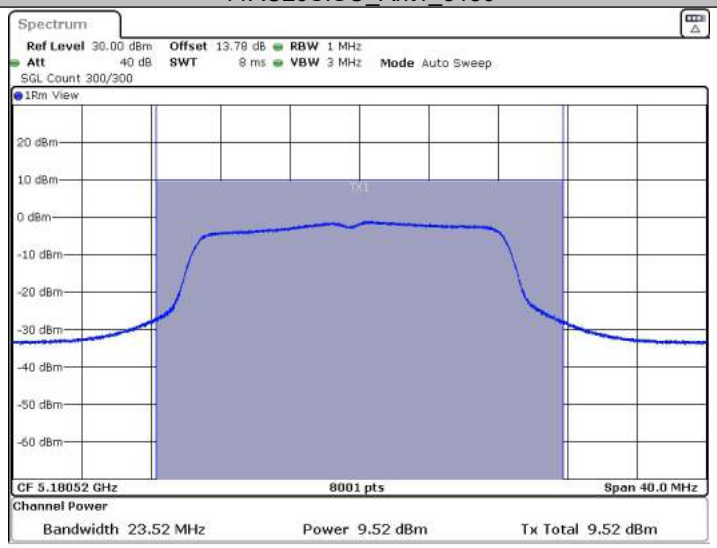


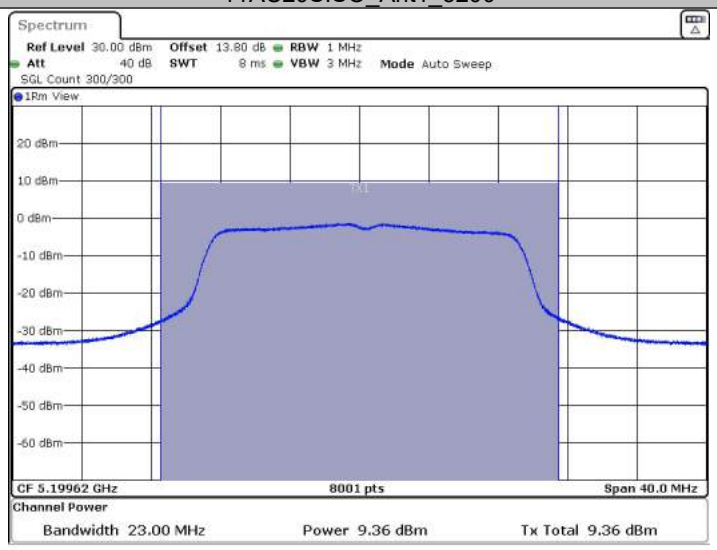
11N40SISO_Ant1_5795



11AC20SISO_Ant1_5180



11AC20SISO_Ant1_5200



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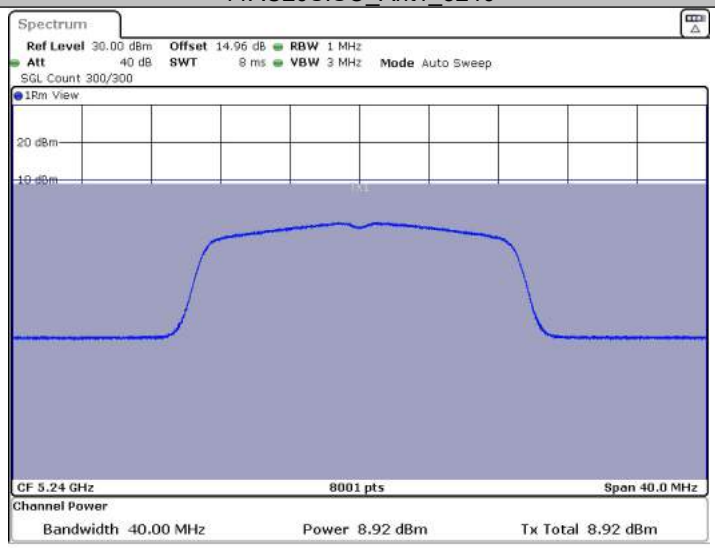

11AC20SISO_Ant1_5745