FCC CERTIFICATION TEST REPORT

Applicant	:	AAMP of Florida, Inc. dba AAMP Global
Address of Applicant	:	15500 Lightwave Drive, Suite 202 Clearwater, FL 33760
Manufacturer	:	Skypine Electronics (ShenZhen)Co.,Ltd
Address of Manufacturer	:	Third floor, Building B,Jingang Science Park,Qiaotou Community,Fuhai Street,Baoan District,Shenzhen City,Guangdong Province,China
Equipment under Test	:	NAVGATION MULTIMEDIA RECEIVER
Model No.	:	iX210, iX210-C, iX210-SR, iX210-E, iX212, iX212-C, iX212-SR, iX212-E, iX215, iX215-C, iX215-SR, iX215-E
FCC ID	:	XBD-IX210
Test Standard(s)	:	FCC Rules and Regulations Part 15 Subpart E, ANSI C63.10:2013, 789033 D02 General U-NII Test Procedures New Rules v02r01
Report No.	:	DDT-RE23101322-2E04
Issue Date	:	2023/11/17
Issue By	:	Guangdong Dongdian Testing Service Co., Ltd.
Address of Laboratory	:	Unit 2, Building 1, No. 17, Zongbu 2nd Road, Songshan Lake Park, Dongguan, Guangdong, China, 523808

REPORT

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Test Report Declare

Applicant	:	AAMP of Florida, Inc. dba AAMP Global
Address of Applicant	:	15500 Lightwave Drive, Suite 202 Clearwater, FL 33760
Equipment under Test	:	NAVGATION MULTIMEDIA RECEIVER
Model No.	:	iX210, iX210-C, iX210-SR, iX210-E, iX212, iX212-C, iX212-SR, iX212-E, iX215, iX215-C, iX215-SR, iX215-E
Manufacturer	:	Skypine Electronics (ShenZhen)Co.,Ltd
Address of Manufacturer	:	Third floor, Building B,Jingang Science Park,Qiaotou Community,Fuhai Street,Baoan District,Shenzhen City,Guangdong Province,China

Test Standard Used:

FCC Rules and Regulations Part 15 Subpart E

Test procedure used:

ANSI C63.10:2013, 789033 D02 General U-NII Test Procedures New Rules v02r01

We Declare:

The equipment described above is tested by Guangdong Dongdian Testing Service Co., Ltd. and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and Guangdong Dongdian Testing Service Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After test and evaluation, our opinion is that the equipment provided for test compliance with the requirement of the above standards.

Report No.:	DDT-RE23101322-2E04		
Date of Receipt:	2023/10/18	**Date of Test:**	2023/10/18-2023/11/17

Prepared By:

Jacky Huang

Jacky Huang/Engineer

Approved By:

Damon Hu

Damon Hu/EMC Manager

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Guangdong Dongdian Testing Service Co., Ltd.

Revision History

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	2023/11/17	

1. Summary of Test Results

The EUT have been tested according to the applicable standards as referenced below.		
Description of Test Item	**Standard**	**Results**
6/26db Bandwidth and 99% Bandwidth	FCC 15.407 (e)	PASS
Maximum Conducted Output Power	FCC 15.407 (a)	PASS
Power Spectral Density	FCC 15.407 (a)	PASS
Frequency Stability Measurement	FCC 15.407 (g)	PASS
Emissions in restricted frequency bands	FCC 15.407 (b) FCC 15.209 FCC 15.205	PASS
Band Edge Compliance	FCC 15.407 (b) FCC 15.209 FCC 15.205	PASS
Power Line Conducted Emission	FCC 15.207	N/A
Antenna requirement	FCC 15.203	PASS
Dynamic Frequency Selection	FCC 15.407 (h)	PASS
Note: N/A is not applicable.		

2. General Test Information

2.1. Description of EUT

EUT Name	:	NAVGATION MULTIMEDIA RECEIVER
Model Number	:	iX210, iX210-C, iX210-SR, iX210-E, iX212, iX212-C, iX212-SR, iX212-E, iX215, iX215-C, iX215-SR, iX215-E
Model Difference	:	All models have same electrical circuit design, only the model's name, Software, LCD Screen size, mechanical and package are different for marketing requirements. The test model is iX210
EUT Function Description	:	Please reference user manual of this device
Power Supply	:	DC 12V
Radio Specification	:	Bluetooth V4.2 (BR/EDR/LE), WLAN (2.4 GHz): IEEE 802.11b/g/n, WLAN (5 GHz): IEEE 802.11a/n/ac
Operation Frequency	:	Bluetooth (BR/EDR/LE): 2402 MHz-2480 MHz IEEE 802.11b/g/n: 2412 MHz to 2462 MHz, IEEE 802.11a/n/ac: 5180 MHz to 5240 MHz, 5745 MHz to 5825 MHz
Modulation	:	Bluetooth BR/EDR: GFSK, π/4-DQPSK, 8DPSK Bluetooth LE: GFSK IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g/a: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK)
Sample Number	:	S23101322-02

Note 1: EUT is the abbreviation of equipment under test.

Note 2: "☒" means to be chosen or applicable; "☐" means don't to be chosen or not applicable; This note applies to entire report.

Note 3: Band 5600-5650MHz will be disabled when shipped to Canada

Note 4: This report only for WLAN (5 GHz): IEEE 802.11b/g/n.

Note 5: Simultaneously transmission condition: N/A.

Note 6: Antenna information:

WLAN (5 GHz) Antenna information		
Antenna Type	:	FPC
Antenna Gain (dBi)	:	3.62

Note 7: Channel information:

Channel information					
IEEE 802.11a IEEE 802.11n (HT20) IEEE 802.11ac (VHT20)		IEEE 802.11n (HT40) IEEE 802.11ac (VHT40)		IEEE 802.11ac (VHT80)	
UNII-1					
CH	Frequency (MHz)	CH	Frequency (MHz)	CH	Frequency (MHz)
36	5180	38	5190	42	5210
40	5200	46	5230	/	/
44	5220	/	/	/	/
48	5240	/	/	/	/
UNII-3					
149	5745	151	5755	155	5775
153	5765	159	5795	/	/
157	5785	/	/	/	/
161	5805	/	/	/	/
165	5825	/	/	/	/

Note 8: The above EUT information is declared by manufacturer and for more detailed features description please refer to the manufacturer's specifications or User's Manual. The above Antenna information is declared by manufacturer and for more detailed features description please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

2.2. Accessories of EUT

Accessories	Manufacturer	Model number	Description
N/A	N/A	N/A	N/A

2.3. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	EMC Compliance	SN
N/A	N/A	N/A	N/A	N/A

2.4. Block diagram of EUT configuration for test

The Xshell.exe was used to control EUT work in Continuous Tx mode and select test channel, wireless mode as below table.

The pathloss of external cable: 2 dB (According to the manufacturer's claims)

Tested mode, channel, and data rate information				
Mode	Setting Tx Power	data rate (Mpbs) (see Note)	Channel	Frequency (MHz)
IEEE 802.11a	Default	6	Low: CH36	5180
	Default	6	Middle: CH40	5200
	Default	6	High: CH48	5240
	Default	6	Low: CH149	5745
	Default	6	Middle: CH157	5785
	Default	6	High: CH165	5825
IEEE 802.11n HT20	Default	MCS 0	Low: CH36	5180
	Default	MCS 0	Middle: CH40	5200
	Default	MCS 0	High: CH48	5240
	Default	MCS 0	Low: CH149	5745
	Default	MCS 0	Middle: CH157	5785
	Default	MCS 0	High: CH165	5825
IEEE 802.11n HT40	40	MCS 0	Low: CH38	5190
	40	MCS 0	Middle: CH46	5230
	Default	MCS 0	Middle: CH151	5755
	Default	MCS 0	High: CH159	5795
IEEE 802.11ac VHT20	Default	MCS 0	Low: CH36	5180
	Default	MCS 0	Middle: CH40	5200
	Default	MCS 0	High: CH48	5240
	Default	MCS 0	Low: CH149	5745
	Default	MCS 0	Middle: CH157	5785
	Default	MCS 0	High: CH165	5825
IEEE 802.11ac VHT40	40	MCS 0	Low: CH38	5190
	40	MCS 0	Middle: CH46	5230
	Default	MCS 0	Middle: CH151	5755
	Default	MCS 0	High: CH159	5795
IEEE 802.11ac VHT80	Default	MCS 0	CH42	5210
	Default	MCS 0	CH155	5775
Note: According exploratory test, EUT will have maximum output power in those data rate, so those data rate were used for all test.				

Note: According exploratory test, EUT will have maximum output power in those data rate, so those data rate were used for all test.

2.5. Deviations of test standard

No Deviation.

2.6. Test environment conditions

Temperature range:	+15℃ to +35 ℃
Humidity range:	20% to 75%
Pressure range:	86 kPa to106 kPa

2.7. Test laboratory

Guangdong Dongdian Testing Service Co., Ltd.

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808

Tel.: +86-0769-38826678, http://www.dgddt.com, Email: ddt@dgddt.com

CNAS Accreditation No. L6451; A2LA Accreditation Number: 3870.01

FCC Designation Number: CN1182, Test Firm Registration Number: 540522

Innovation, Science and Economic Development Canada Site Registration Number: 10288A

Conformity Assessment Body identifier: CN0048

VCCI facility registration number: C-20087, T-20088, R-20123, R-20155, G-20118

2.8. Measurement uncertainty

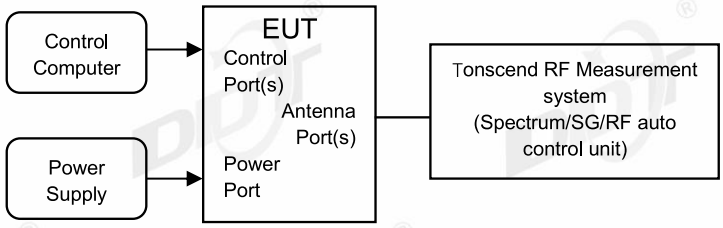
Test Item	Uncertainty
Bandwidth	1.1%
Peak Output Power (Conducted) (Spectrum analyzer)	0.86 dB (10 MHz ≤ f < 3.6 GHz);
	1.38 dB (3.6 GHz ≤ f < 8 GHz)
Peak Output Power (Conducted) (Power Sensor)	0.74 dB
Power Spectral Density	0.74 dB (10 MHz ≤ f < 3.6 GHz);
	1.38 dB (3.6 GHz ≤ f < 8 GHz)
Frequencies Stability	6.7×10^{-8} (Antenna couple method)
	5.5×10^{-8} (Conducted method)
Conducted spurious emissions	0.86 dB (10 MHz ≤ f < 3.6 GHz);
	1.40 dB (3.6 GHz ≤ f < 8 GHz)
	1.66 dB (8 GHz ≤ f < 26.5 GHz)
Uncertainty for radio frequency (RBW < 20 kHz)	3×10^{-8}
Temperature	0.4 ℃
Humidity	2 %
Uncertainty for Radiation Emission test (9 kHz – 30 MHz)	3.44 dB
Uncertainty for Radiation Emission test (30 MHz - 1 GHz)	4.70 dB (Antenna Polarize: V)
	4.84 dB (Antenna Polarize: H)
Uncertainty for Radiation Emission test (1 GHz - 40 GHz)	4.10 dB (1 - 6 GHz)
	4.40 dB (6 GHz - 18 GHz)
	3.54 dB (18 GHz - 26 GHz)
	4.30 dB (26 GHz - 40 GHz)
Uncertainty for Power line conduction emission test	3.34dB (150KHz-30MHz)
	3.72dB (9KHz-150KHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

3. Equipment Used During Conductive Test

Equipment	Manufacturer	Model No.	Serial Number	Due Date	Cal. Interval
☒ RF Connected Test (RF Measurement System 3#)					
SIGNAL ANALYZER	R&S	FSV40	101407	2024/07/11	1 Year
Wideband Radio Communication Tester	R&S	CMW500	117491	2024/04/26	1 Year
EXG Analog Signal Generator	KEYSIGHT	N5173B	MY62153058	2024/07/11	1 Year
MXG Vector Signal Generator	Agilent	N5182A	MY48180912	2024/04/22	1 Year
RF Control Unit	Tonscend	JS0806-2	20C8060230	2024/04/26	1 Year
TEMP&HUMI Programmable Chamber	ZHIXIANG	ZXGDJS-150L	ZX170110-A	2024/05/14	1 Year
Test Software	Tonscend	JS1120-3	Ver.3.2.22	N/A	N/A

4. 26dB Bandwidth

4.1. Block diagram of test setup



4.2. Limits

FCC Part15, Subpart E/ RSS-247		
Test Item	Limit	Frequency Range (MHz)
26 dB Bandwidth	---	5150 - 5250
	---	5250 - 5350
	---	For FCC: 5470 - 5725 For IC: 5470 - 5600 5650 - 5725

4.3. Test procedure

Connect EUT's antenna output to spectrum analyzer by RF cable.

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	approximately 1% of the emission bandwidth.
VBW	> RBW
Trace	Max hold
Sweep	Auto couple

Allow the trace to stabilize, 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 26 dB relative to the maximum level measured in the fundamental emission.

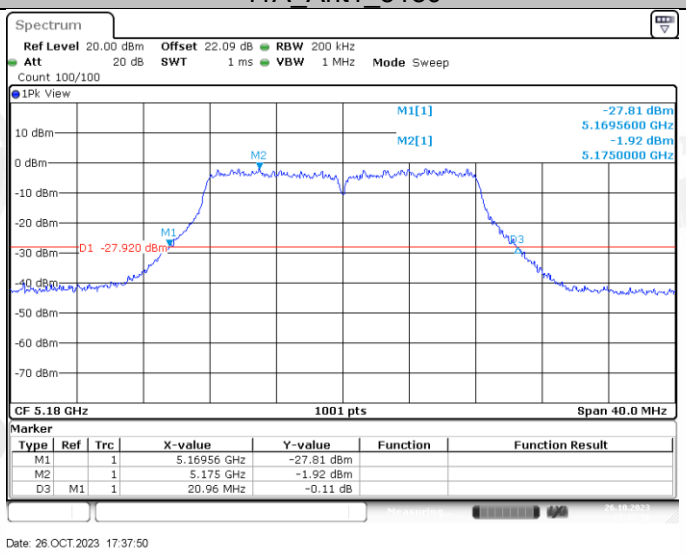
4.4. Test result

Test Site:	RF Measurement System 3#	Test Date:	2023.10.26-2023.10.26
Ambient Condition:	25.3℃, 44.0 %RH	Test Engineer:	Zhongyao
Equipment under Test:	NAVGATION MULTIMEDIA RECEIVER	Model No.:	iX210
Sample Number:	S23101322-02	Test Power Supply:	DC12V

Test Mode	Antenna	Frequency [MHz]	26db EBW [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
11A	Ant1	5180	20.96	5169.56	5190.52	---	---
		5200	21.32	5189.24	5210.56	---	---
		5240	20.92	5229.48	5250.40	---	---
		5745	21.40	5734.32	5755.72	---	---
		5785	21.40	5774.16	5795.56	---	---
		5825	22.44	5814.44	5836.88	---	---
11N20SISO	Ant1	5180	21.12	5169.40	5190.52	---	---
		5200	22.12	5189.00	5211.12	---	---
		5240	21.36	5229.40	5250.76	---	---
		5745	20.96	5734.56	5755.52	---	---
		5785	21.96	5774.40	5796.36	---	---
		5825	22.96	5813.88	5836.84	---	---
11N40SISO	Ant1	5190	42.80	5168.64	5211.44	---	---
		5230	42.40	5208.96	5251.36	---	---
		5755	43.52	5733.16	5776.68	---	---
		5795	43.76	5773.56	5817.32	---	---
11AC20SISO	Ant1	5180	21.68	5169.00	5190.68	---	---
		5200	21.88	5189.04	5210.92	---	---
		5240	21.28	5229.28	5250.56	---	---
		5745	21.48	5734.40	5755.88	---	---
		5785	21.80	5774.56	5796.36	---	---
		5825	22.28	5813.96	5836.24	---	---
11AC40SISO	Ant1	5190	42.88	5168.48	5211.36	---	---
		5230	42.24	5208.80	5251.04	---	---
		5755	43.12	5733.40	5776.52	---	---
		5795	43.68	5773.48	5817.16	---	---
11AC80SISO	Ant1	5210	82.56	5169.04	5251.60	---	---
		5775	85.44	5733.40	5818.84	---	---

4.5. Test graphs

11A_Ant1_5180



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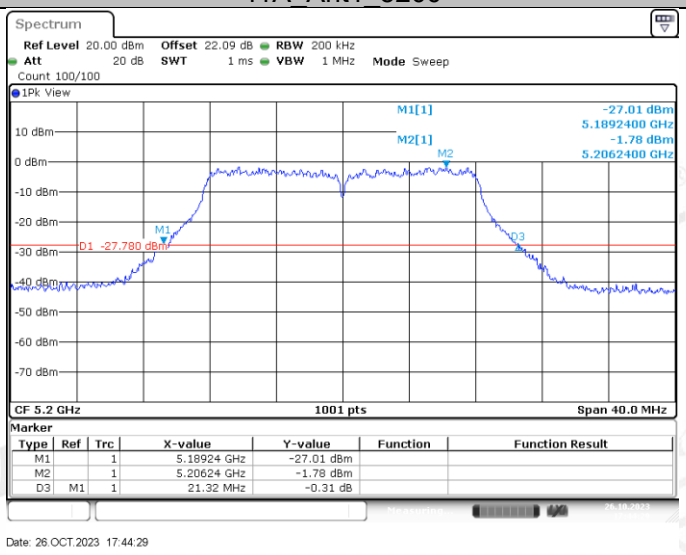

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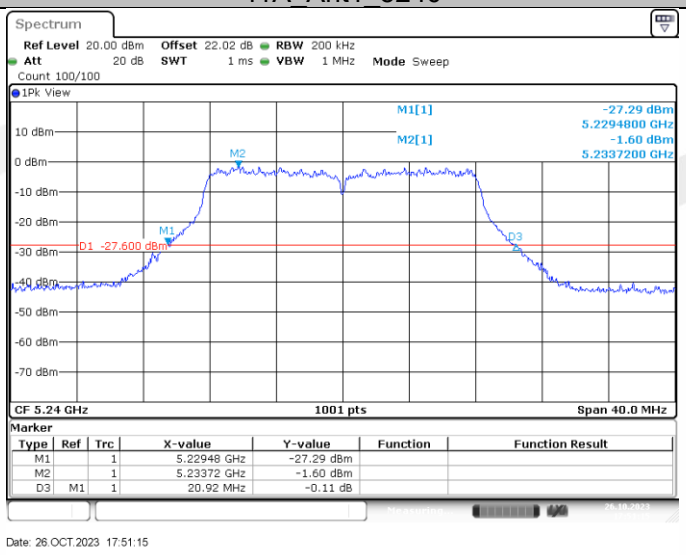

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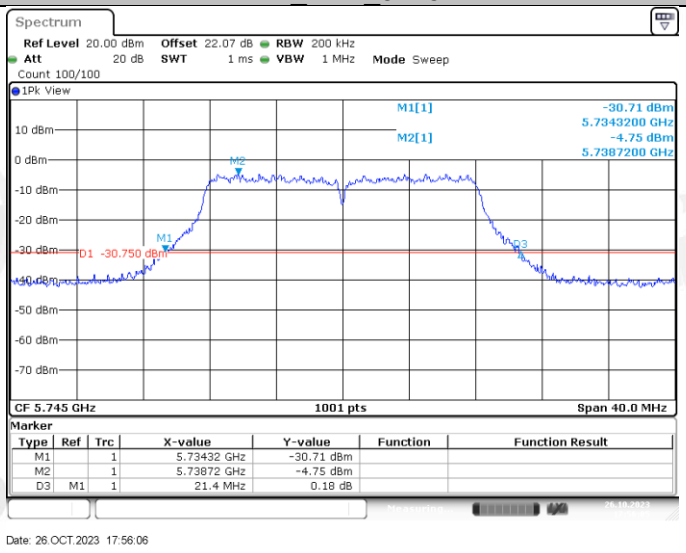

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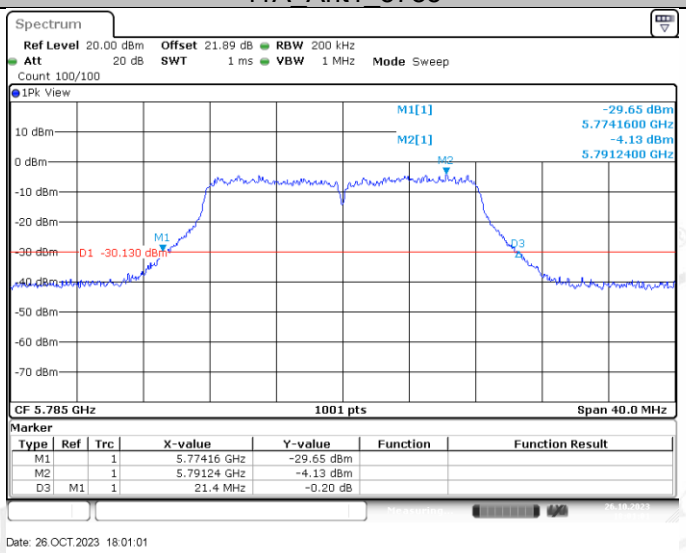

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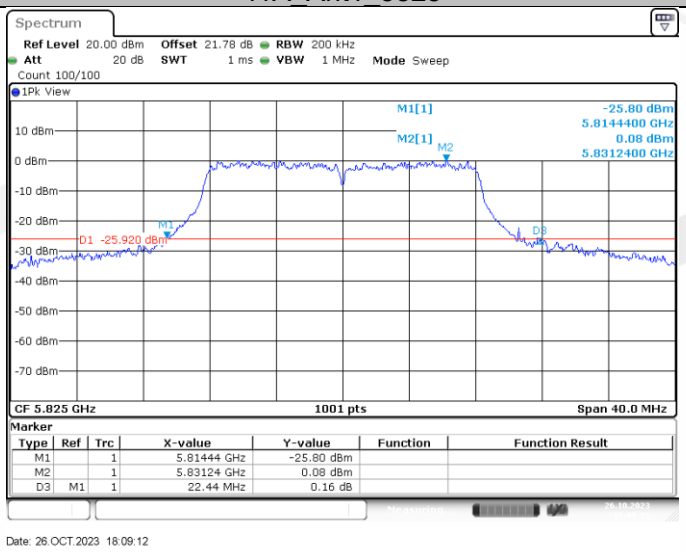

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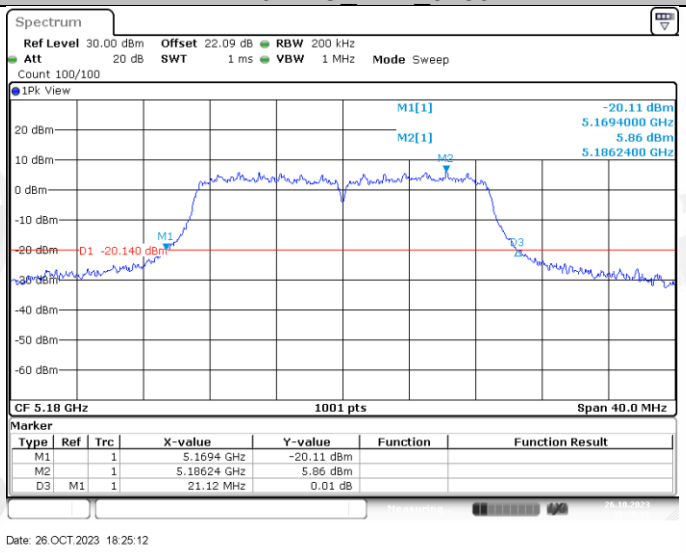

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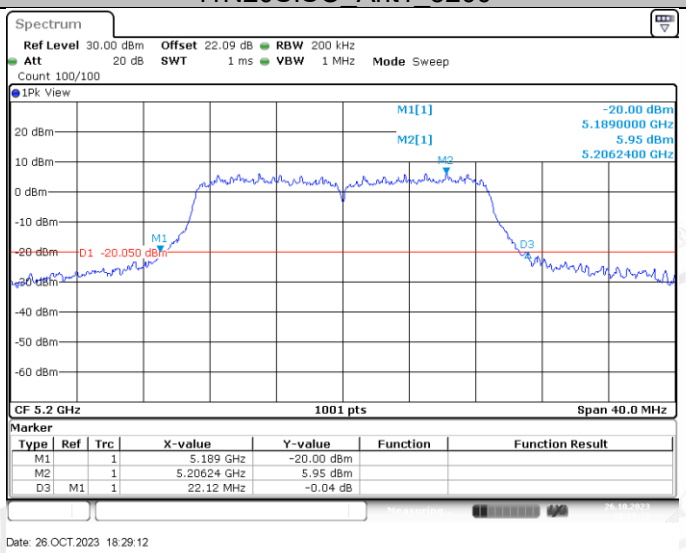

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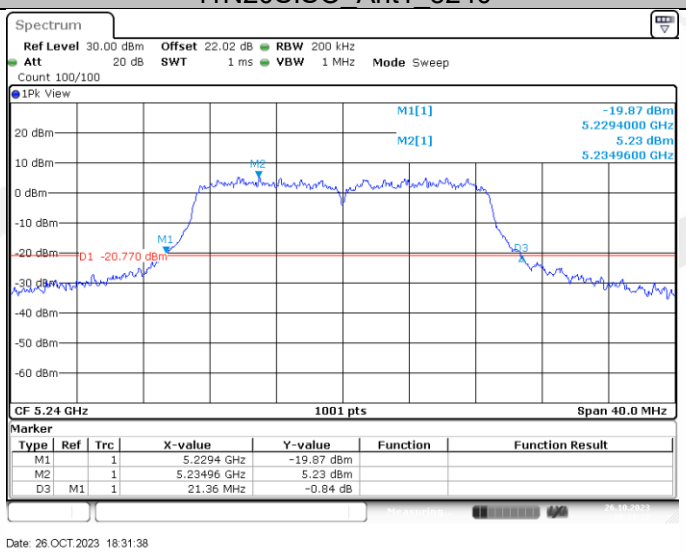

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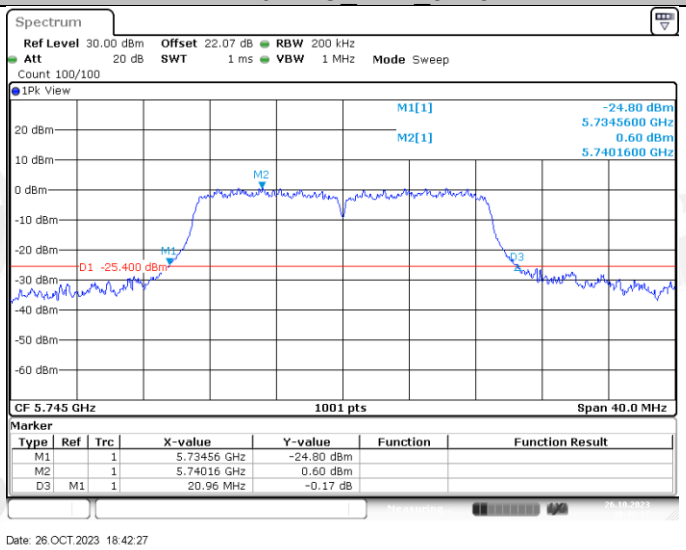

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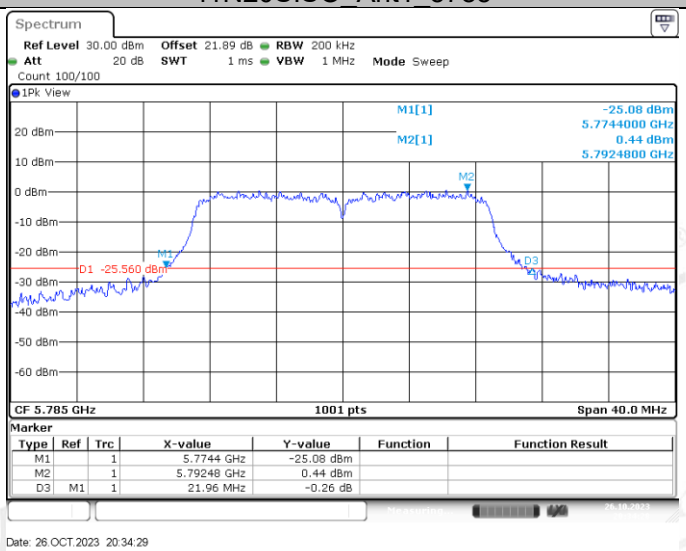

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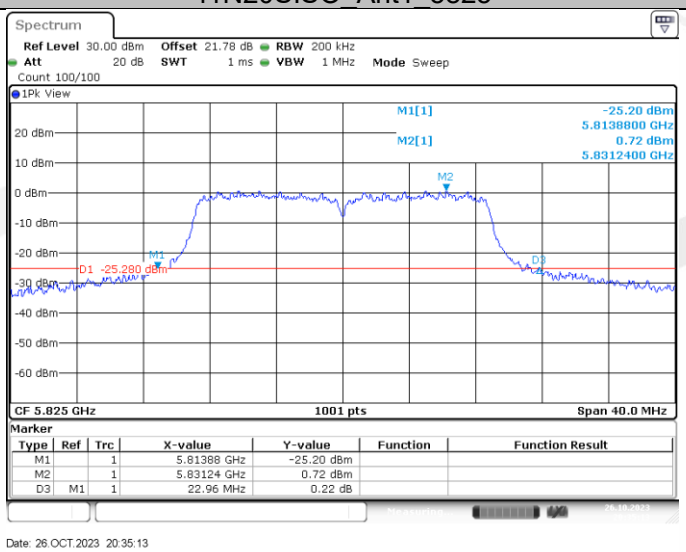

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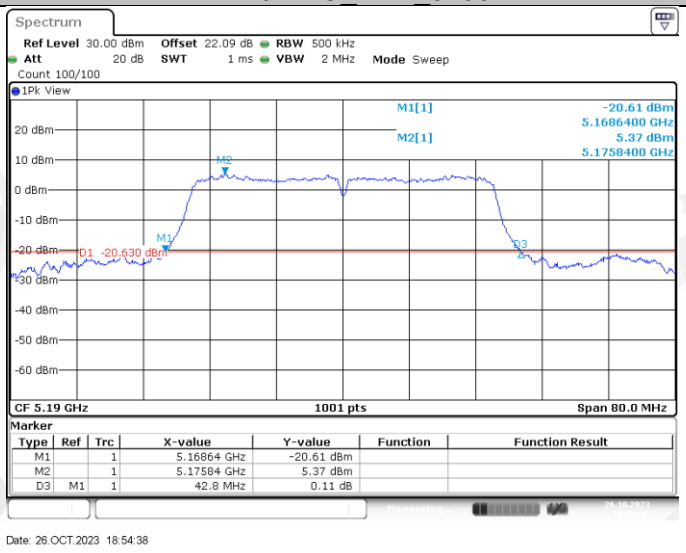

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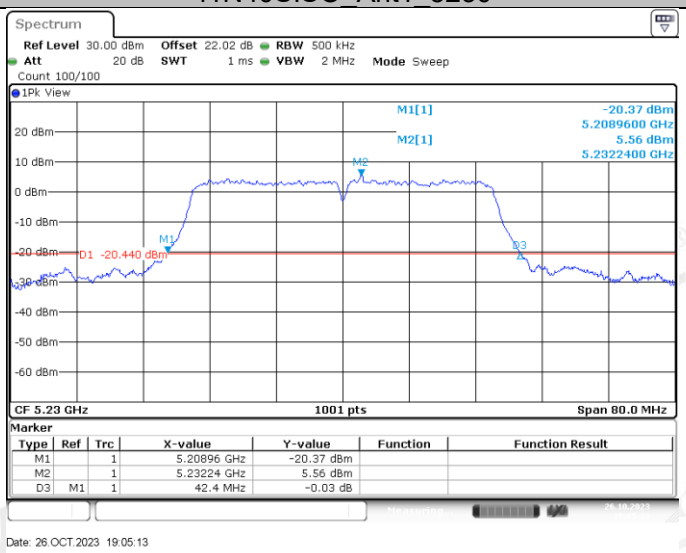

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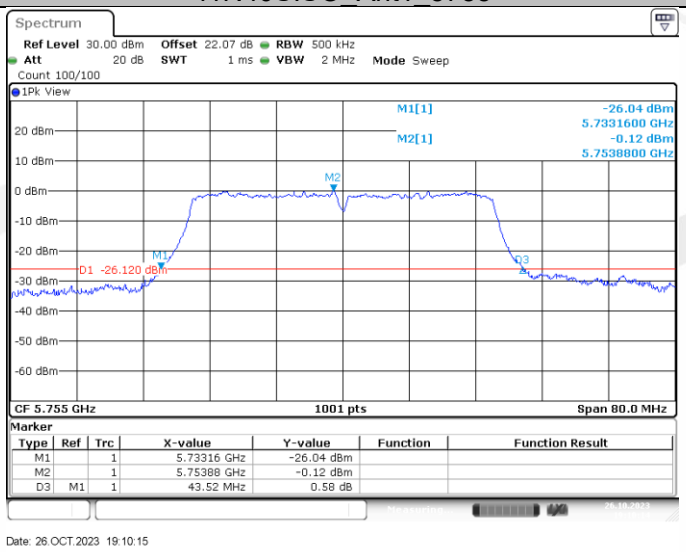

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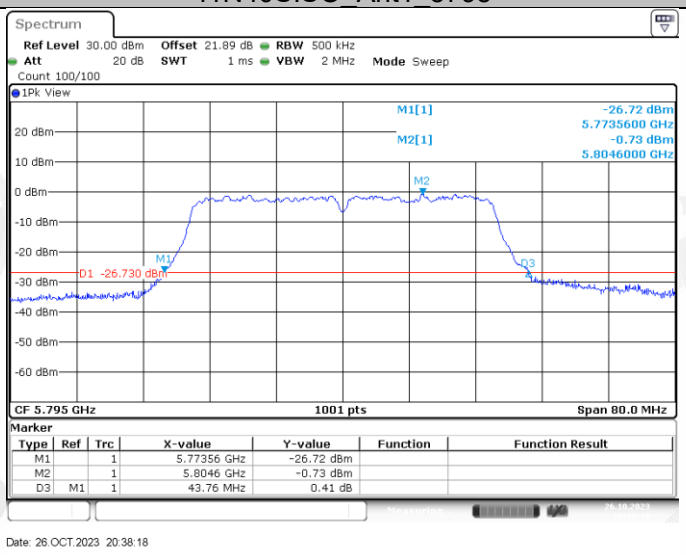
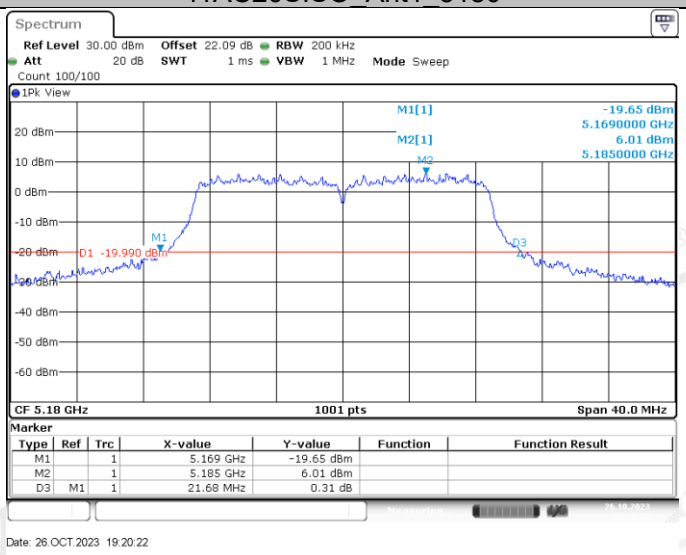
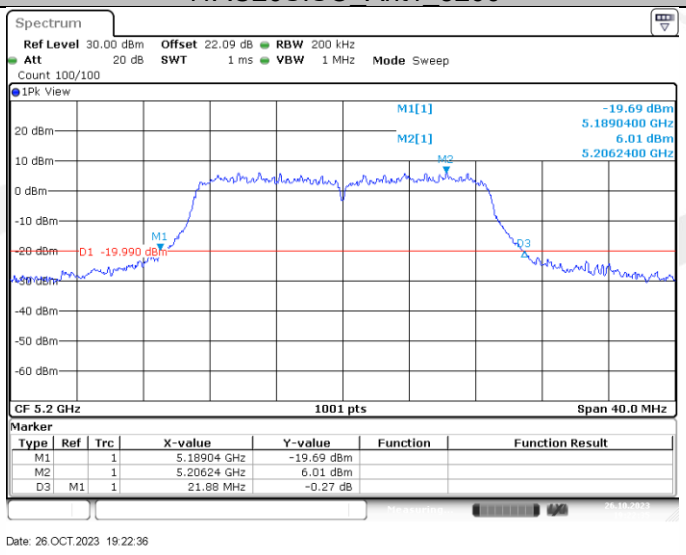


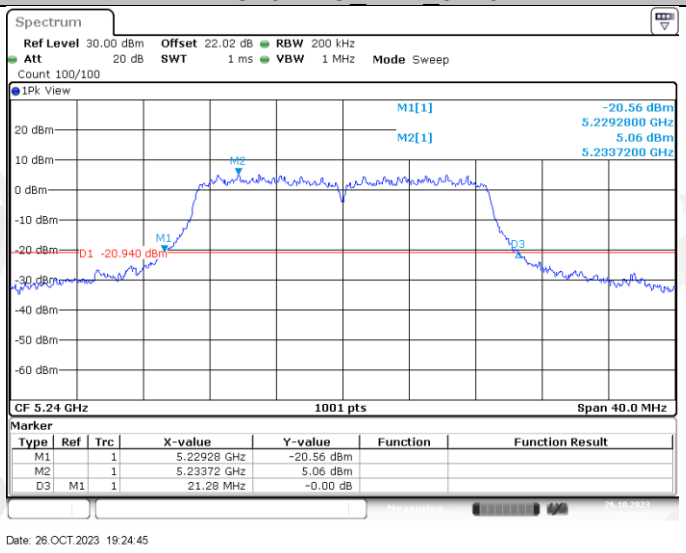
11AC20SISO_Ant1_5180



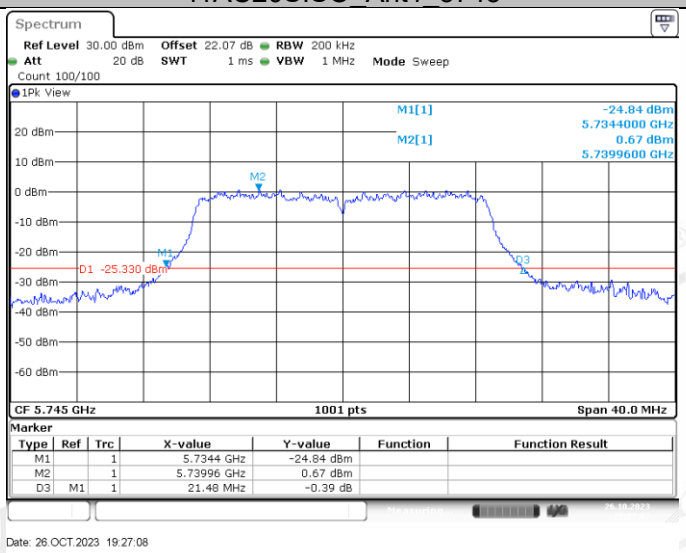
11AC20SISO_Ant1_5200



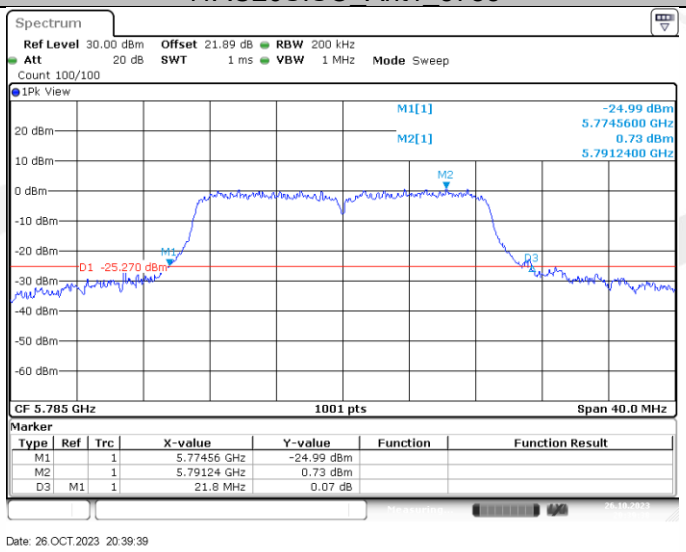
11AC20SISO_Ant1_5240



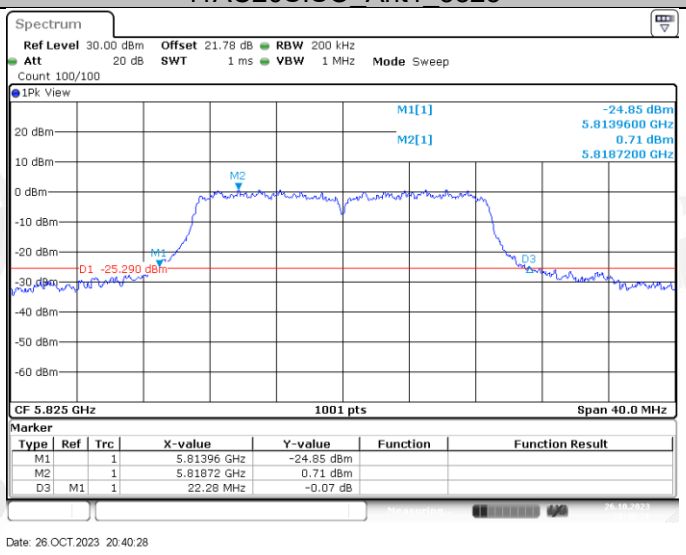
11AC20SISO_Ant1_5745



11AC20SISO_Ant1_5785



11AC20SISO_Ant1_5825



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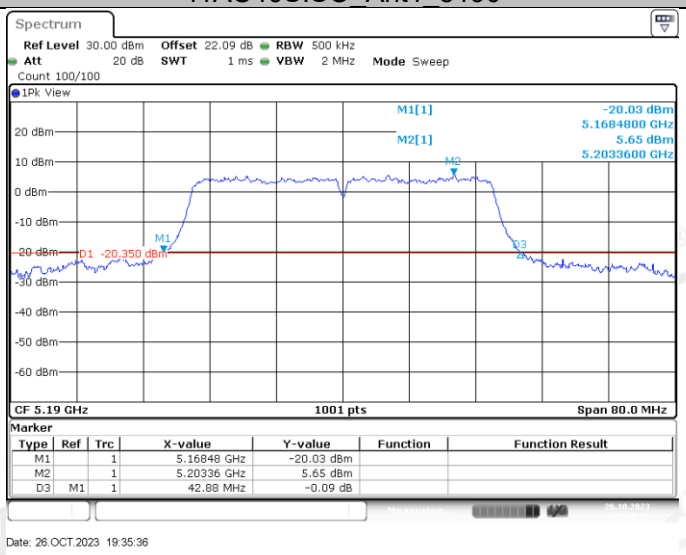
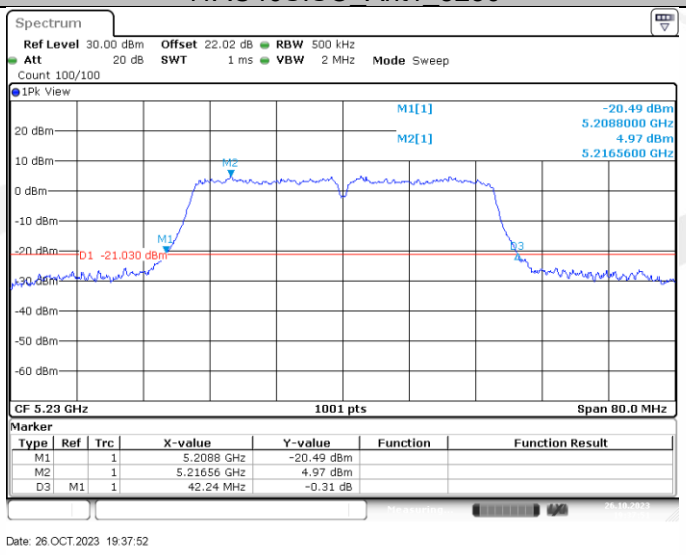
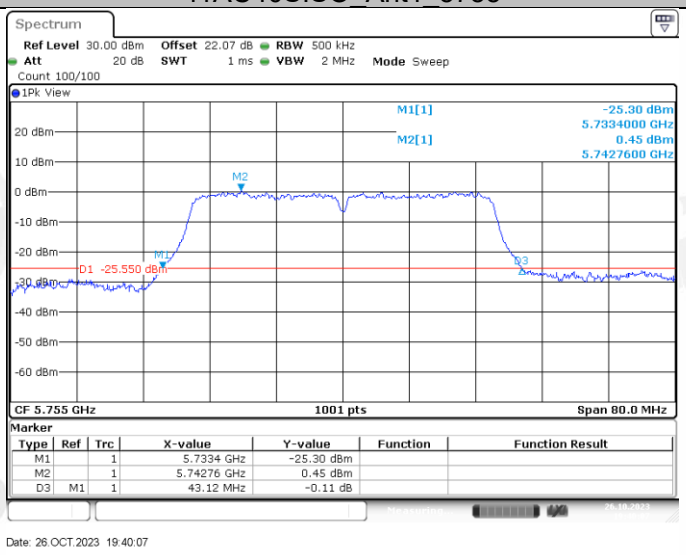


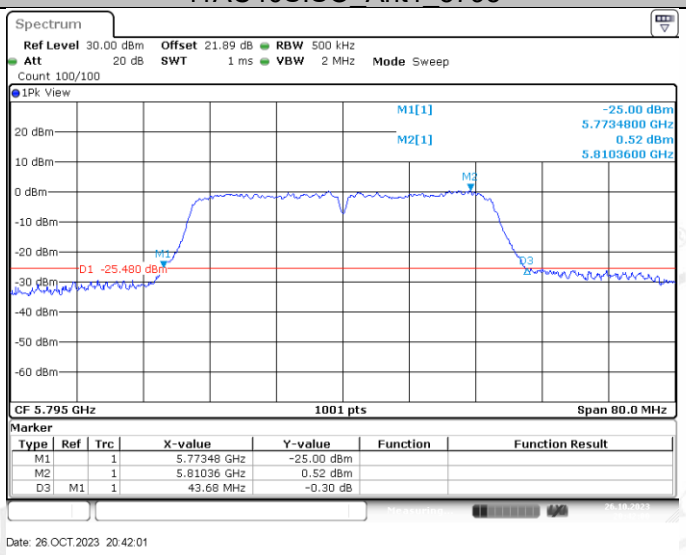
11AC40SISO_Ant1_5230



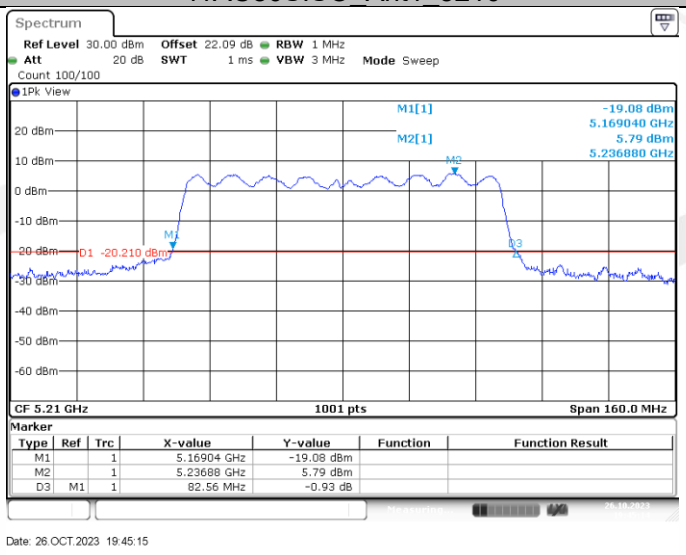
11AC40SISO_Ant1_5755



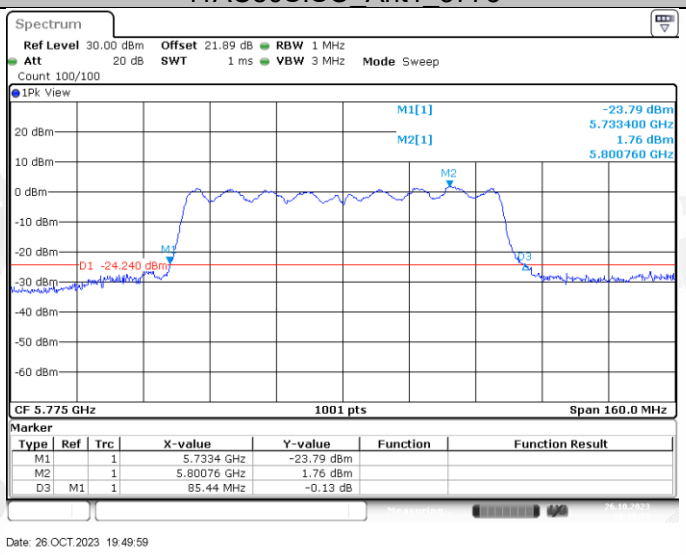
11AC40SISO_Ant1_5795



11AC80SISO_Ant1_5210

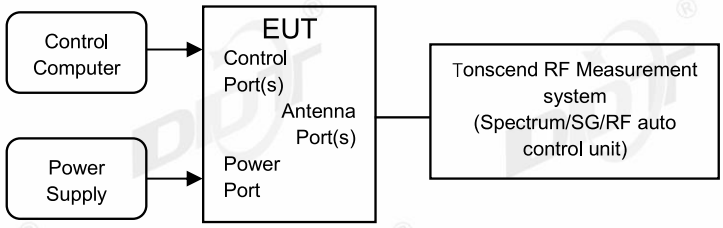


11AC80SISO_Ant1_5775



5. 6dB Bandwidth

5.1. Block diagram of test setup



5.2. Limits

FCC Part15, Subpart E/ RSS-247		
Test Item	Limit	Frequency Range (MHz)
6 dB Bandwidth	Minimum 500 kHz	5725 - 5850

5.3. Test procedure

Connect EUT's antenna output to spectrum analyzer by RF cable.

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	For 6 dB Bandwidth: RBW=100 kHz For 26 dB Bandwidth: approximately 1% of the emission bandwidth.
VBW	For 6 dB Bandwidth: VBW=300 kHz For 26 dB Bandwidth: >3 RBW
Trace	Max hold
Sweep	Auto couple

Allow the trace to stabilize, 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.

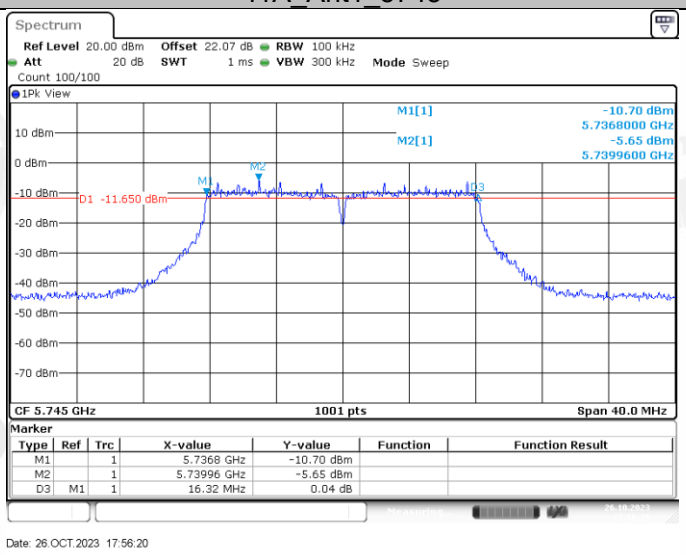
5.4. Test result

Test Site:	RF Measurement System 3#	Test Date:	2023.10.26-2023.10.26
Ambient Condition:	25.3℃, 44.0 %RH	Test Engineer:	Zhongyao
Equipment under Test:	NAVGATION MULTIMEDIA RECEIVER	Model No.:	iX210
Sample Number:	S23101322-02	Test Power Supply:	DC12V

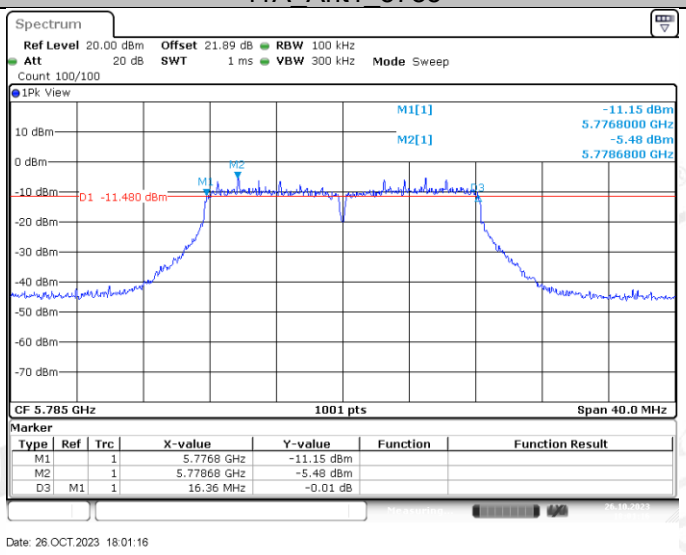
Test Mode	Antenna	Frequency [MHz]	6db EBW [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
11A	Ant1	5745	16.32	5736.80	5753.12	0.5	PASS
		5785	16.36	5776.80	5793.16	0.5	PASS
		5825	16.32	5816.80	5833.12	0.5	PASS
11N20SISO	Ant1	5745	17.16	5736.24	5753.40	0.5	PASS
		5785	17.28	5776.48	5793.76	0.5	PASS
		5825	17.32	5816.20	5833.52	0.5	PASS
11N40SISO	Ant1	5755	35.68	5737.24	5772.92	0.5	PASS
		5795	35.52	5777.40	5812.92	0.5	PASS
11AC20SISO	Ant1	5745	17.56	5736.20	5753.76	0.5	PASS
		5785	17.32	5776.44	5793.76	0.5	PASS
		5825	17.56	5816.20	5833.76	0.5	PASS
11AC40SISO	Ant1	5755	35.84	5737.08	5772.92	0.5	PASS
		5795	35.52	5777.40	5812.92	0.5	PASS
11AC80SISO	Ant1	5775	75.20	5737.40	5812.60	0.5	PASS

5.5. Test graphs

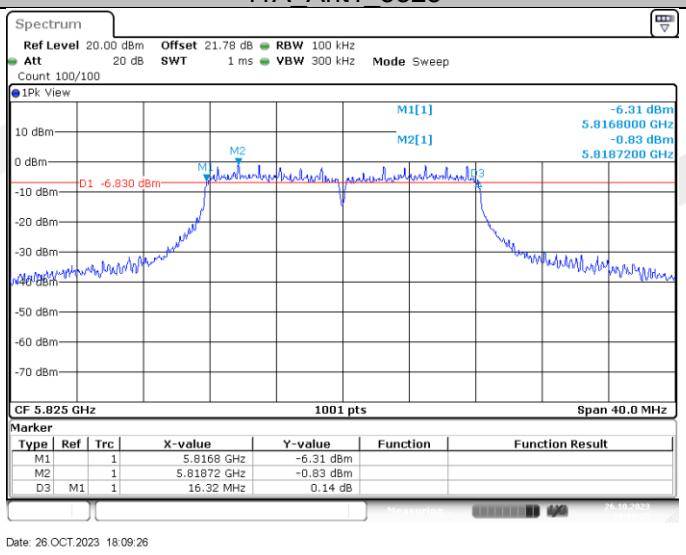
11A_Ant1_5745



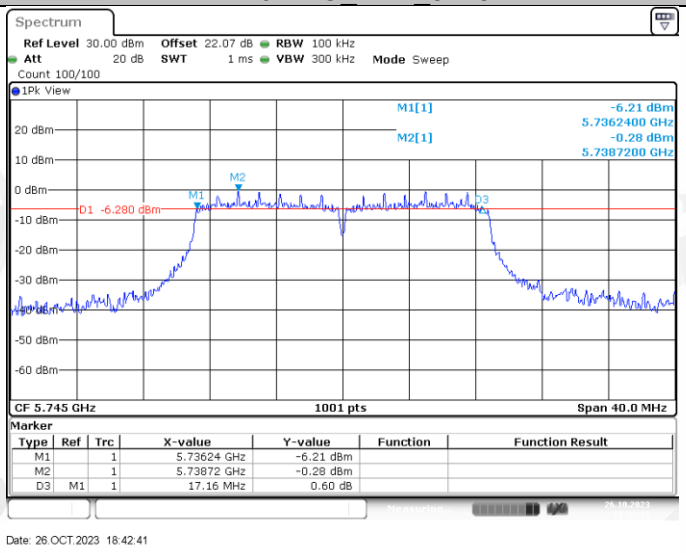
11A_Ant1_5785



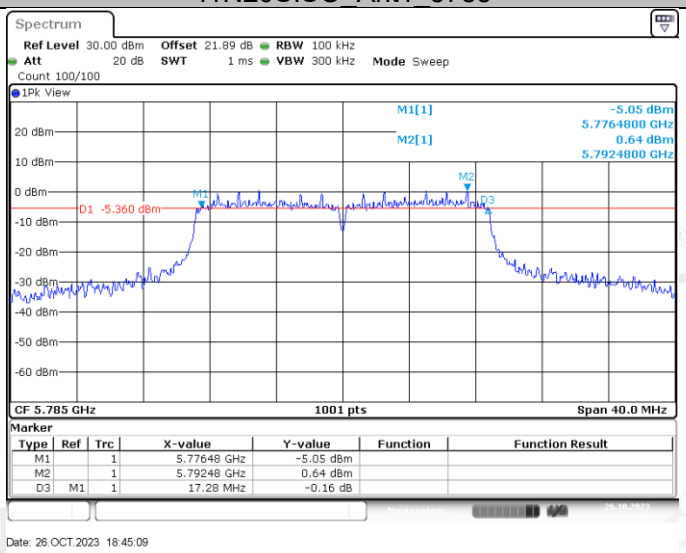
11A_Ant1_5825



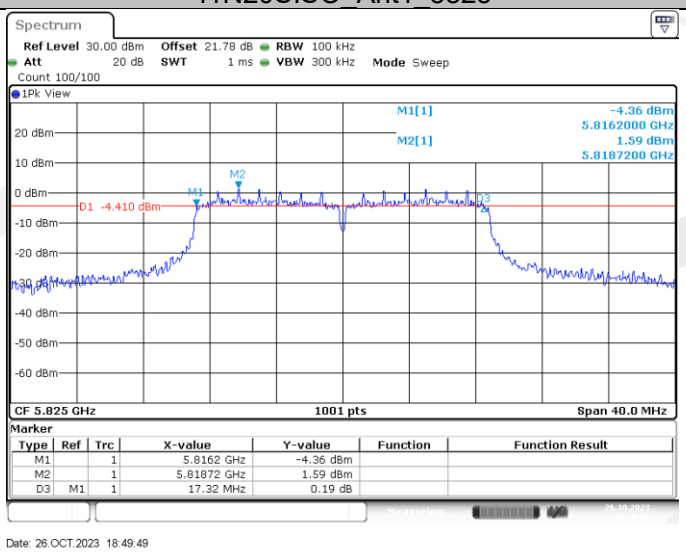
11N20SISO_Ant1_5745



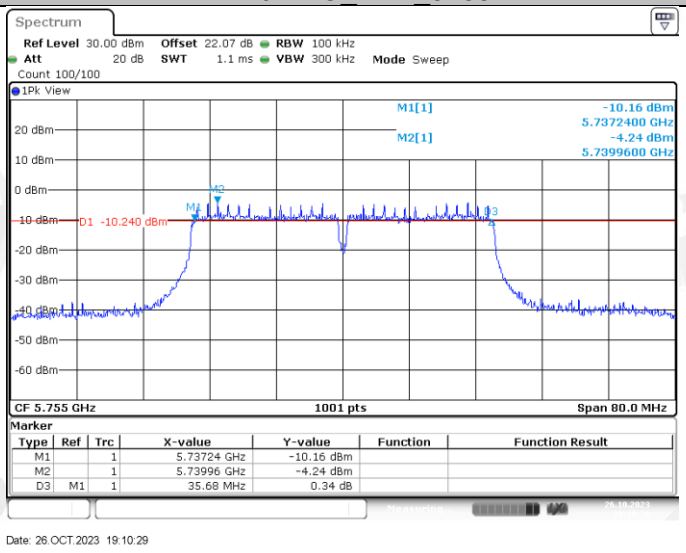
11N20SISO_Ant1_5785



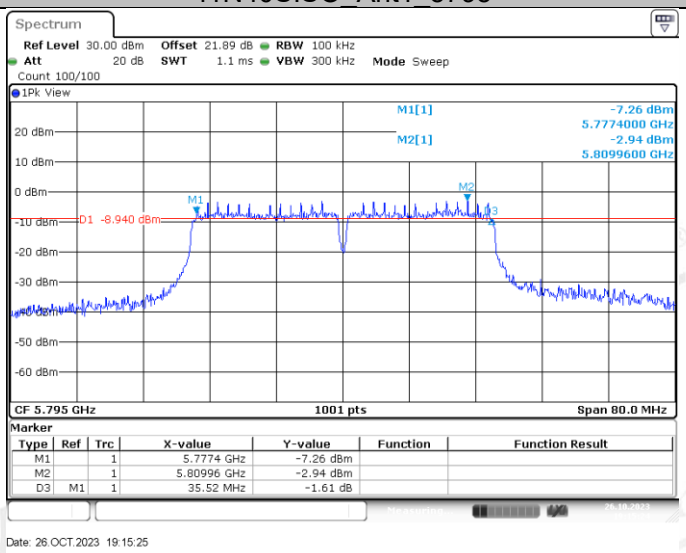
11N20SISO_Ant1_5825



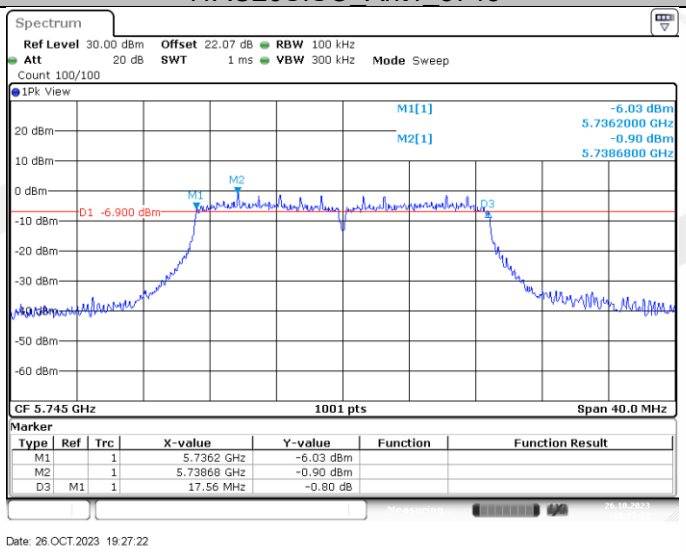
11N40SISO_Ant1_5755



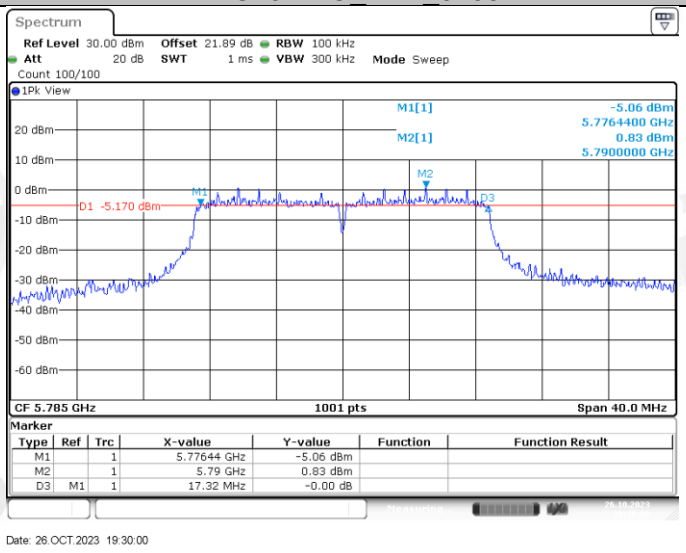
11N40SISO_Ant1_5795



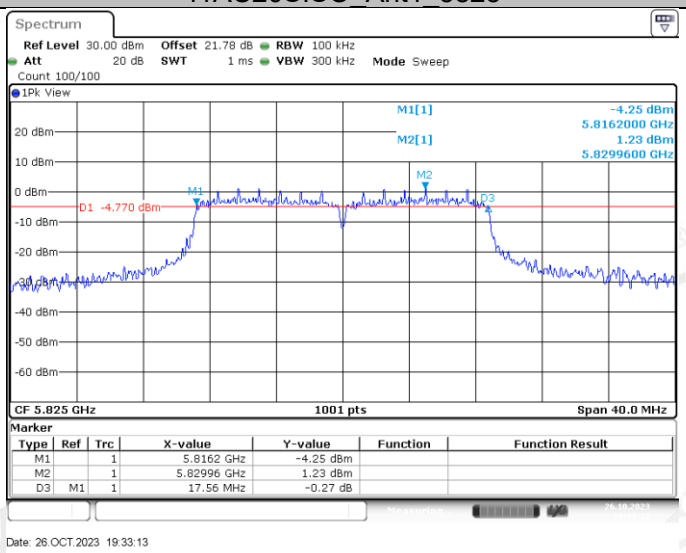
11AC20SISO_Ant1_5745



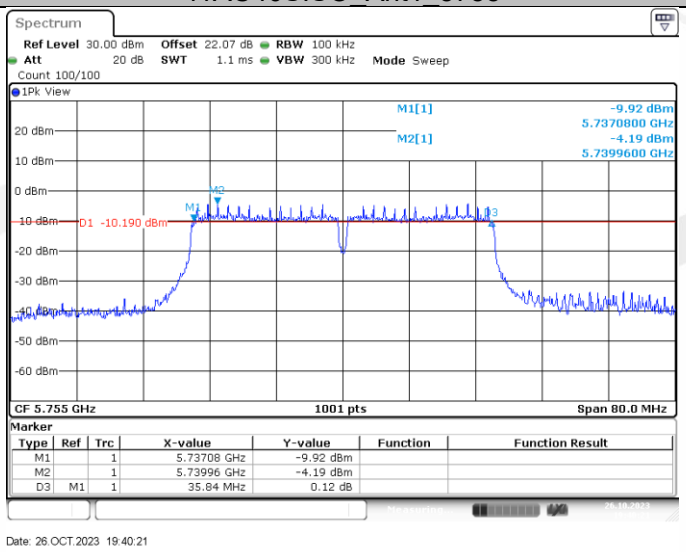
11AC20SISO_Ant1_5785



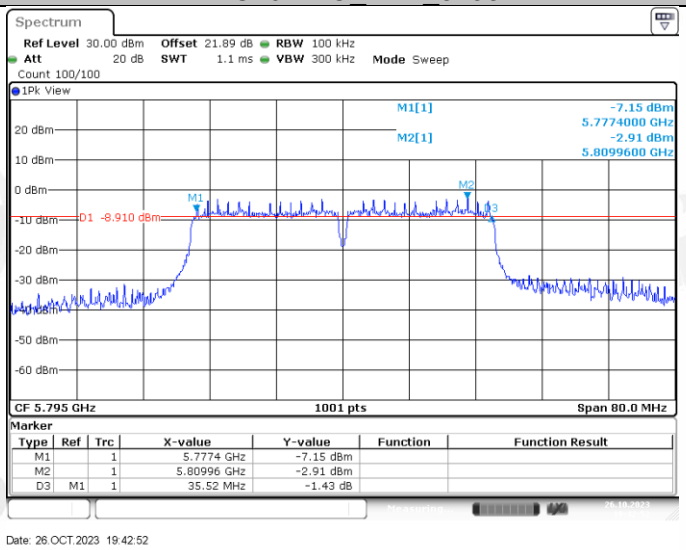
11AC20SISO_Ant1_5825



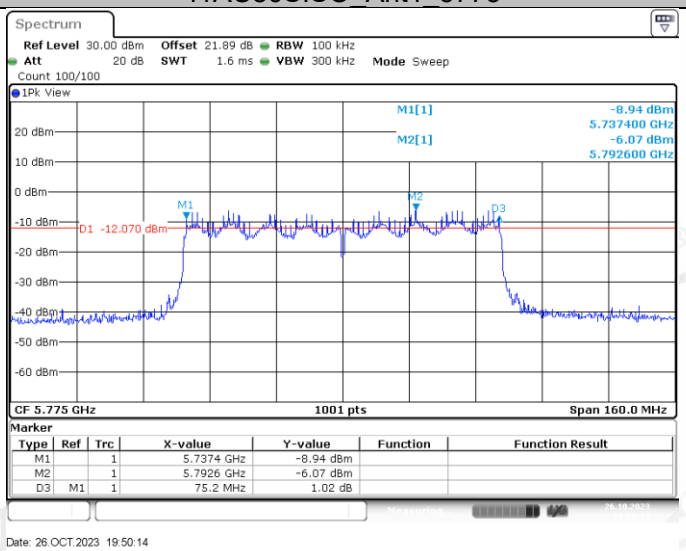
11AC40SISO_Ant1_5755



11AC40SISO_Ant1_5795

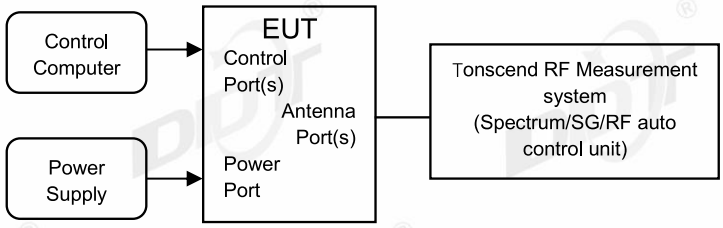


11AC80SISO_Ant1_5775



6. 99% Bandwidth

6.1. Block diagram of test setup



6.2. Limits

Just for Report.

6.3. Test procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	1% to 5% of the OBW
VBW	approximately three times the RBW
Trace	Max hold

Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.

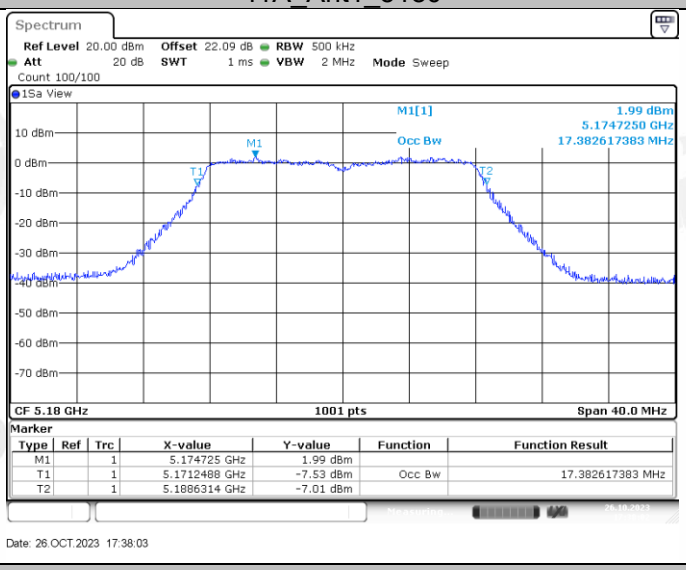
6.4. Test result

Test Site:	RF Measurement System 3#	Test Date:	2023.10.26-2023.10.26
Ambient Condition:	25.3℃, 44.0 %RH	Test Engineer:	Zhongyao
Equipment under Test:	NAVGATION MULTIMEDIA RECEIVER	Model No.:	iX210
Sample Number:	S23101322-02	Test Power Supply:	DC12V

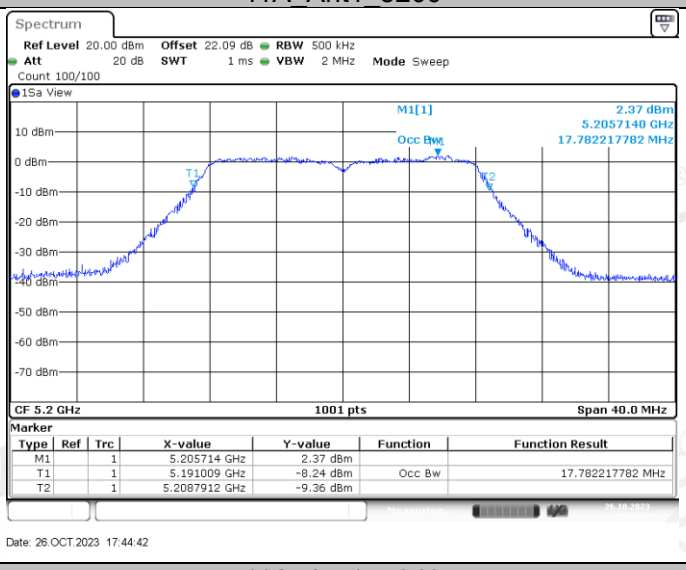
Test Mode	Antenna	Frequency [MHz]	OCB [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
11A	Ant1	5180	17.383	5171.2488	5188.6314	---	---
		5200	17.782	5191.0090	5208.7912	---	---
		5240	17.423	5231.2488	5248.6713	---	---
		5745	17.662	5736.1289	5753.7912	---	---
		5785	17.702	5776.1289	5793.8312	---	---
		5825	17.582	5816.1688	5833.7512	---	---
11N20SISO	Ant1	5180	18.382	5170.8092	5189.1908	---	---
		5200	18.541	5190.7692	5209.3107	---	---
		5240	18.422	5230.7692	5249.1908	---	---
		5745	18.302	5735.8492	5754.1508	---	---
		5785	18.941	5775.6893	5794.6304	---	---
		5825	19.301	5815.4496	5834.7502	---	---
11N40SISO	Ant1	5190	36.923	5171.5385	5208.4615	---	---
		5230	36.843	5211.6184	5248.4615	---	---
		5755	37.163	5736.3786	5773.5415	---	---
		5795	37.323	5776.4585	5813.7812	---	---
11AC20SISO	Ant1	5180	18.382	5170.7692	5189.1508	---	---
		5200	18.581	5190.7293	5209.3107	---	---
		5240	18.382	5230.7692	5249.1508	---	---
		5745	18.462	5735.8092	5754.2707	---	---
		5785	18.901	5775.6893	5794.5904	---	---
		5825	19.301	5815.4895	5834.7902	---	---
11AC40SISO	Ant1	5190	36.763	5171.5385	5208.3017	---	---
		5230	36.683	5211.6983	5248.3816	---	---
		5755	37.003	5736.4585	5773.4615	---	---
		5795	37.562	5776.2987	5813.8611	---	---
11AC80SISO	Ant1	5210	76.244	5171.7982	5248.0420	---	---
		5775	76.563	5736.7982	5813.3616	---	---

6.5. Test graphs

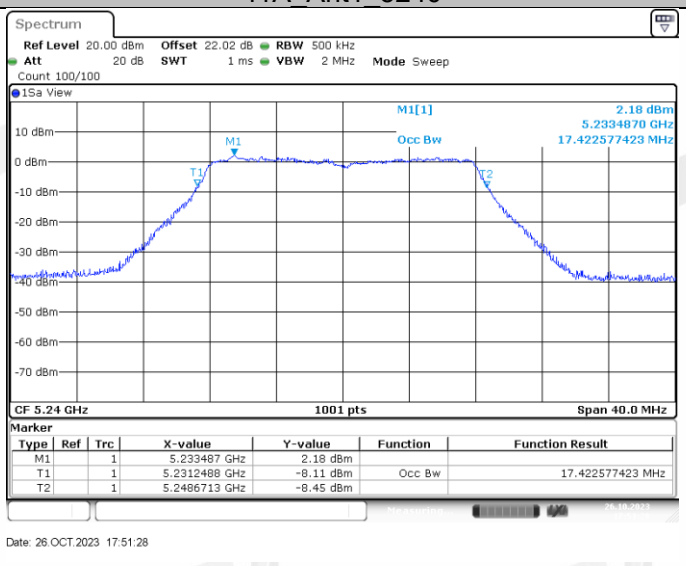
11A_Ant1_5180



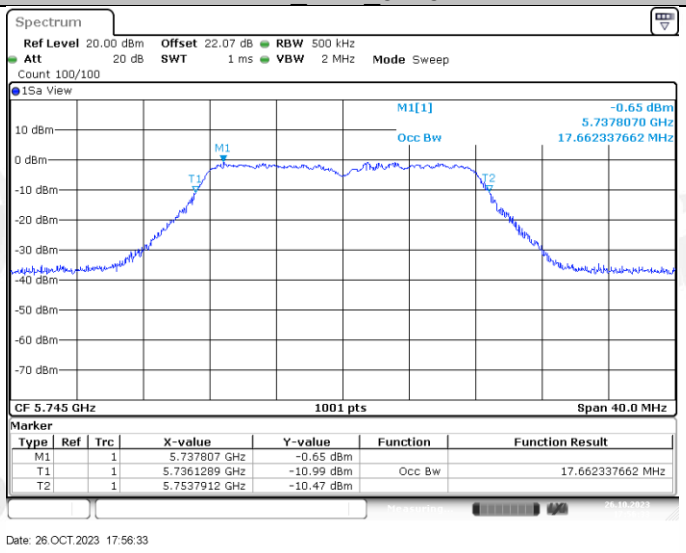
11A_Ant1_5200



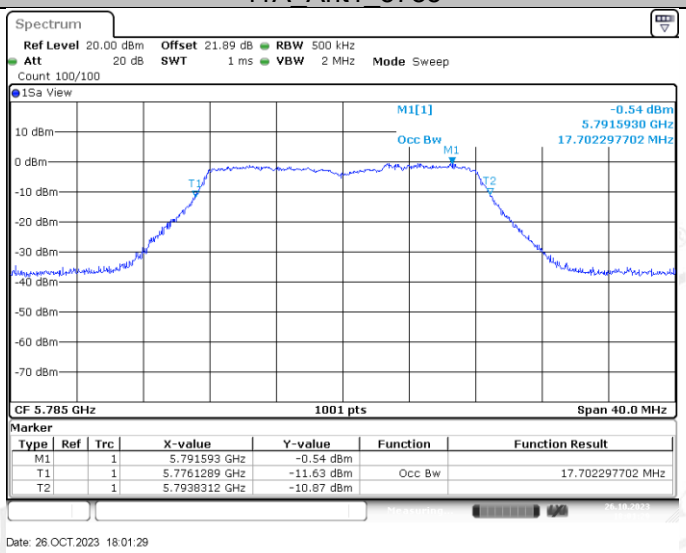
11A_Ant1_5240



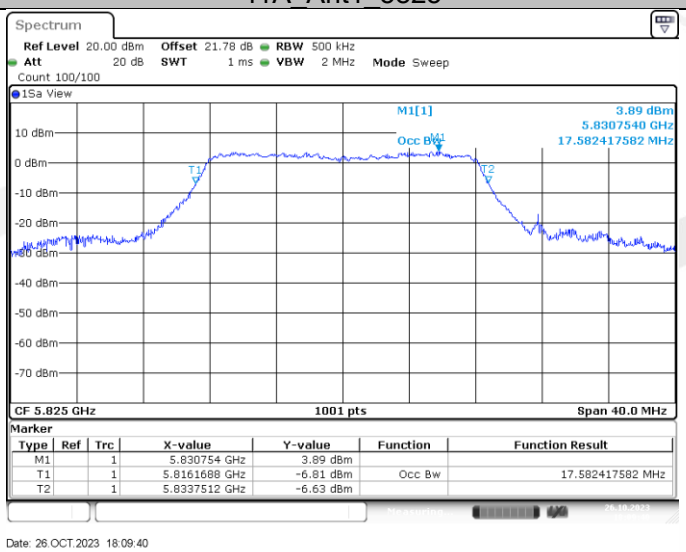
11A_Ant1_5745



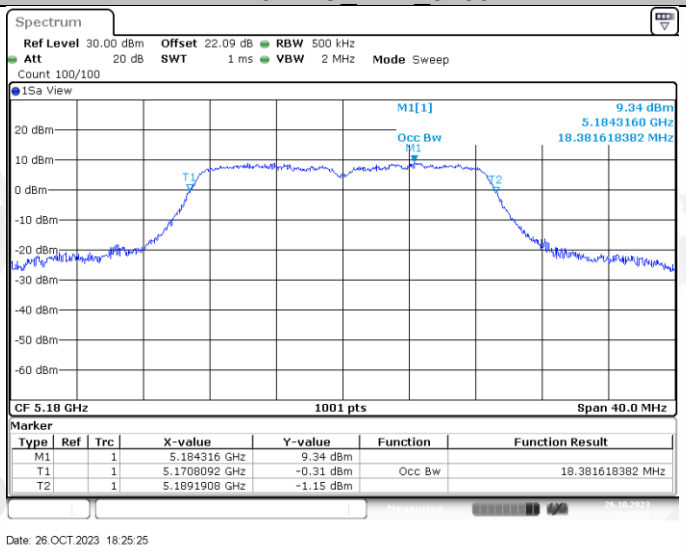
11A_Ant1_5785



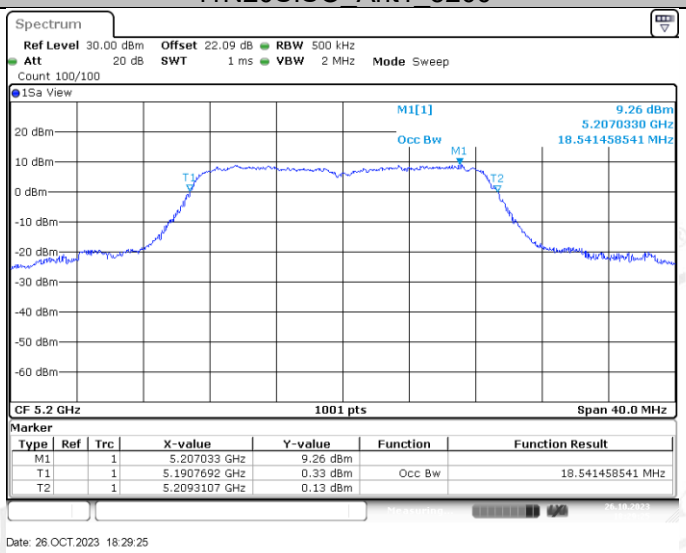
11A_Ant1_5825



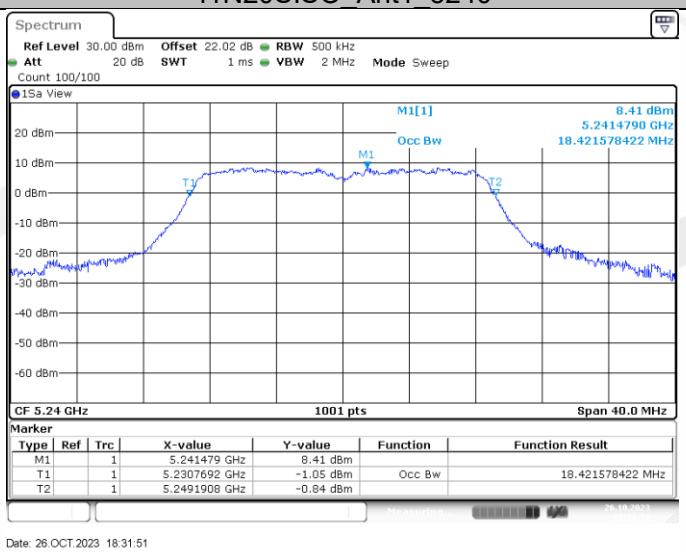
11N20SISO_Ant1_5180



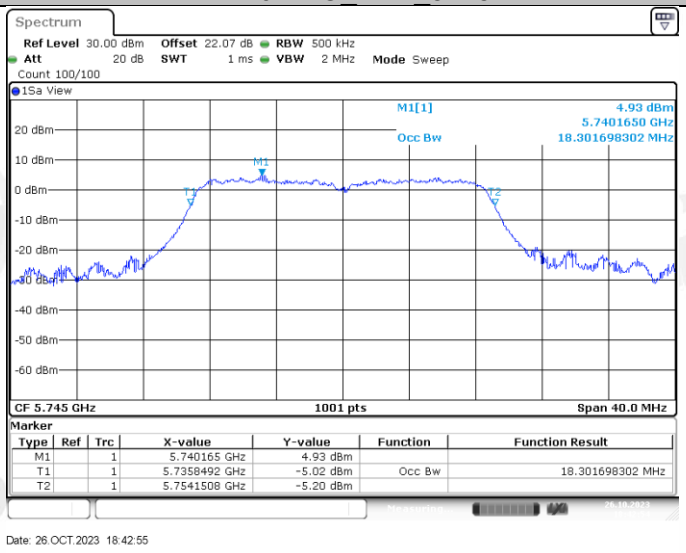
11N20SISO_Ant1_5200



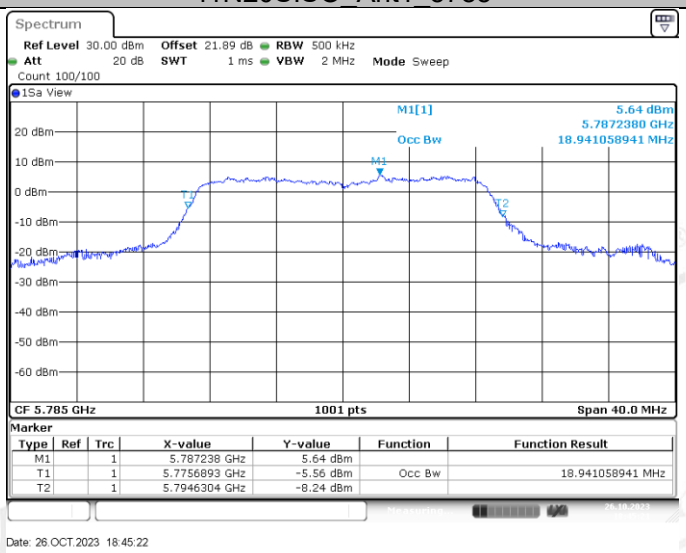
11N20SISO_Ant1_5240



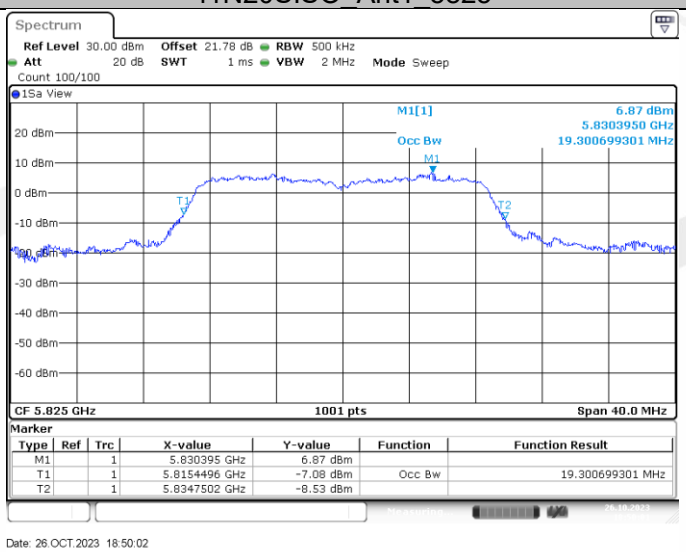
11N20SISO_Ant1_5745



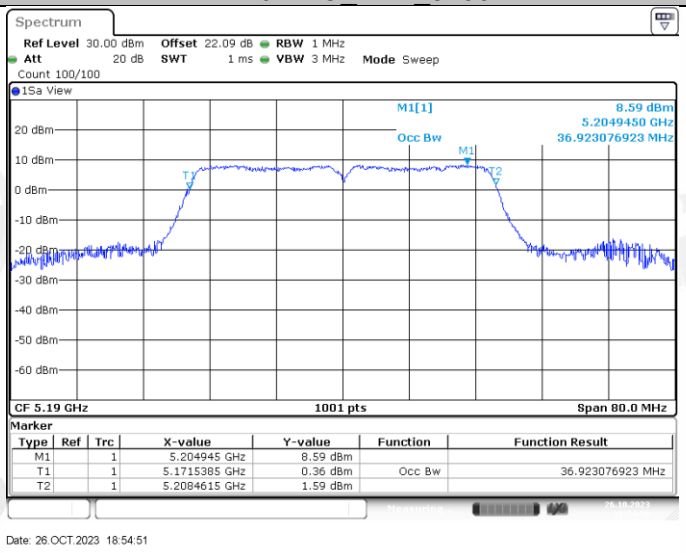
11N20SISO_Ant1_5785



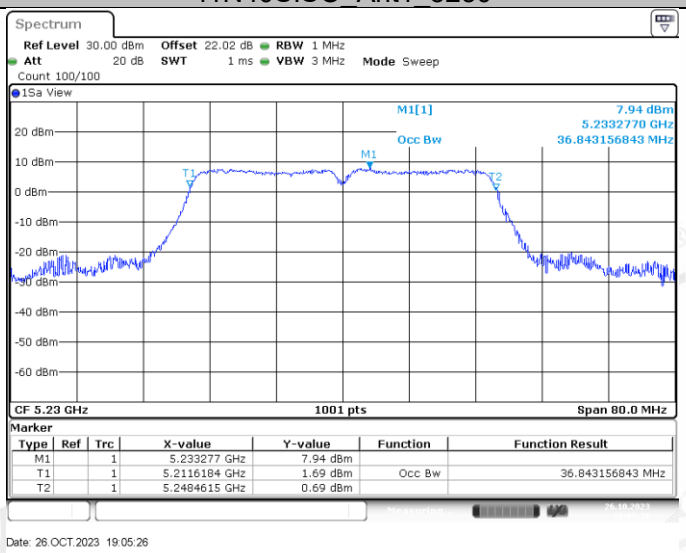
11N20SISO_Ant1_5825



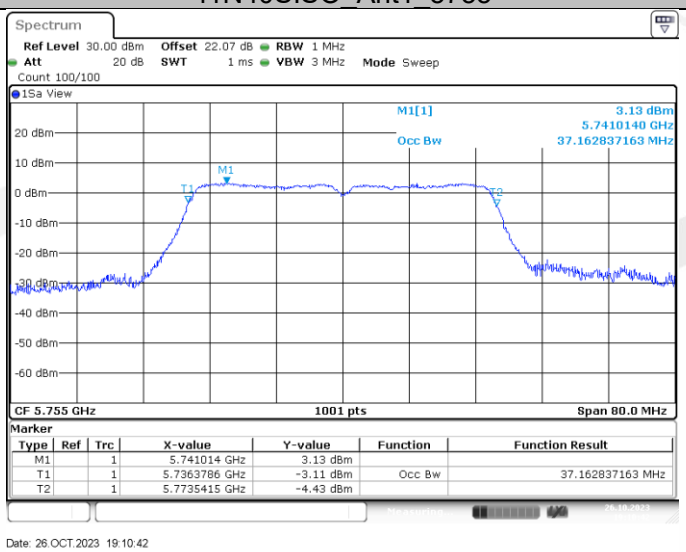
11N40SISO_Ant1_5190



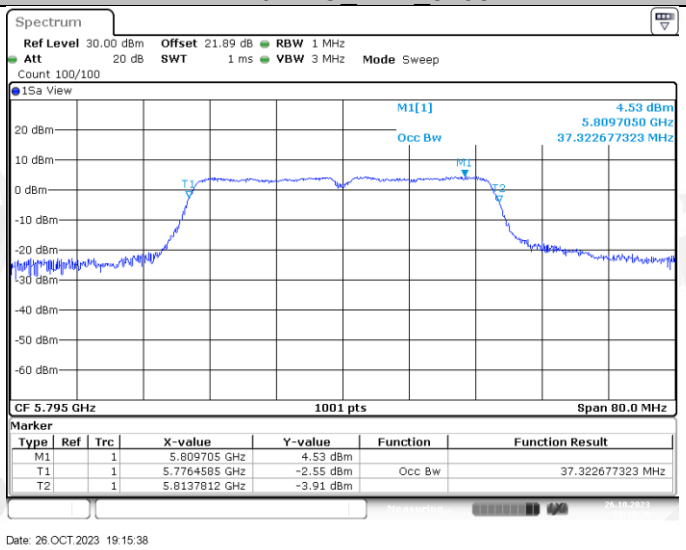
11N40SISO_Ant1_5230



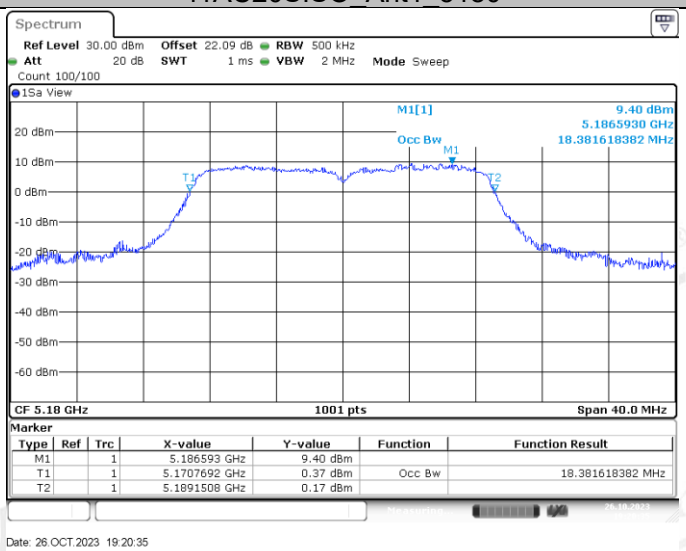
11N40SISO_Ant1_5755



11N40SISO_Ant1_5795



11AC20SISO_Ant1_5180



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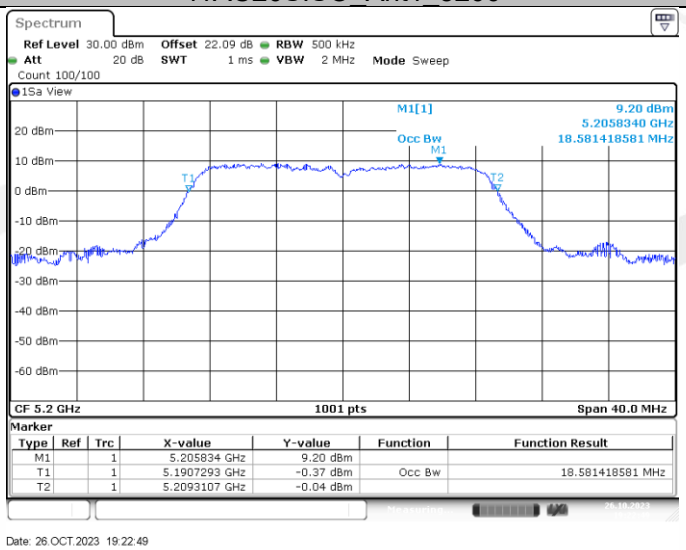

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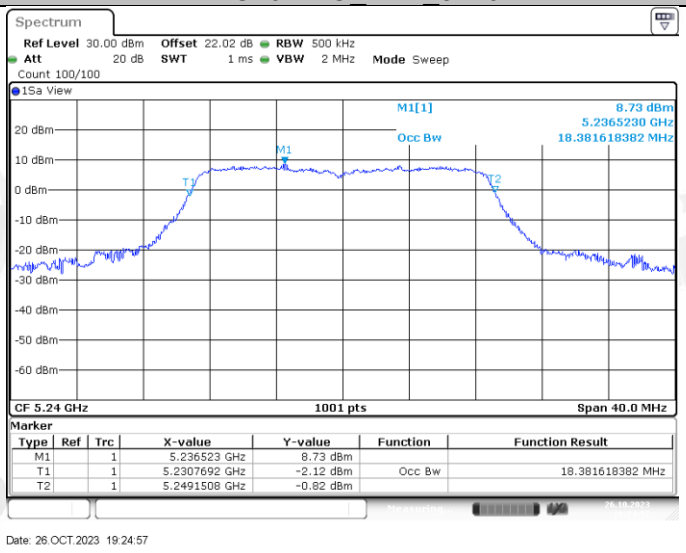
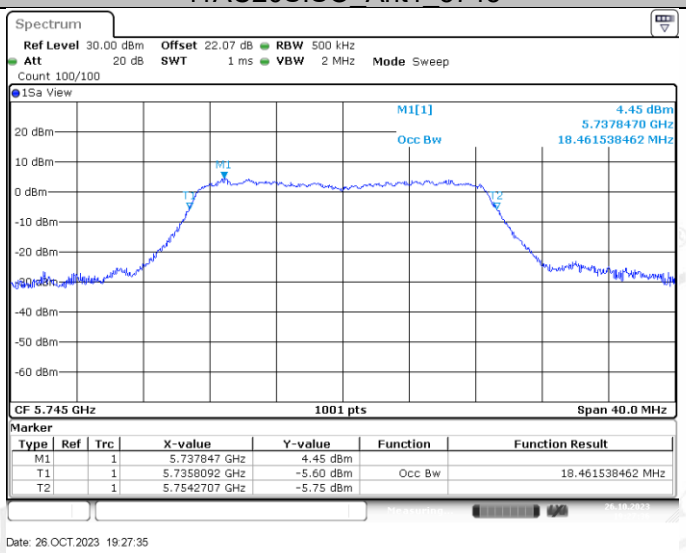


11AC20SISO_Ant1_5745



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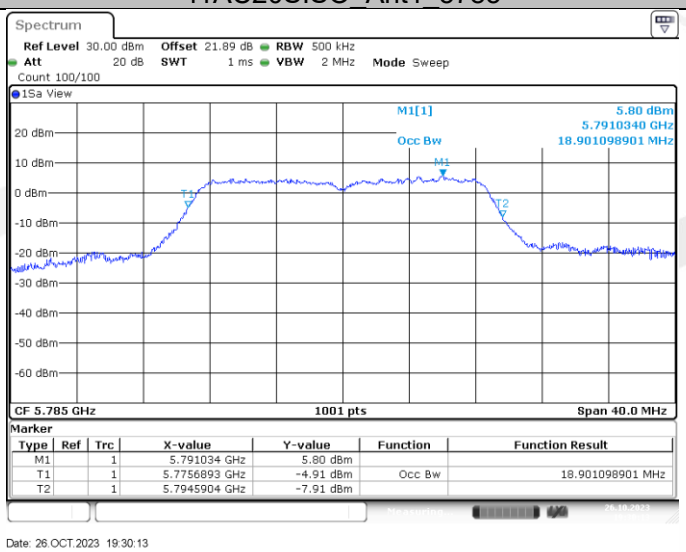

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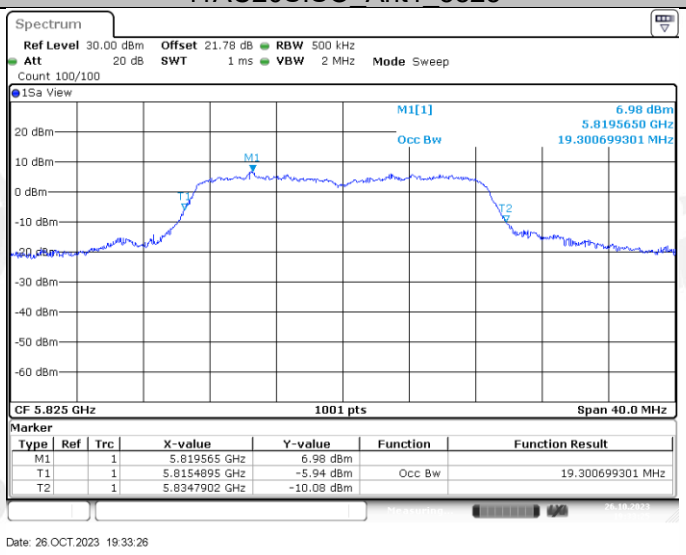

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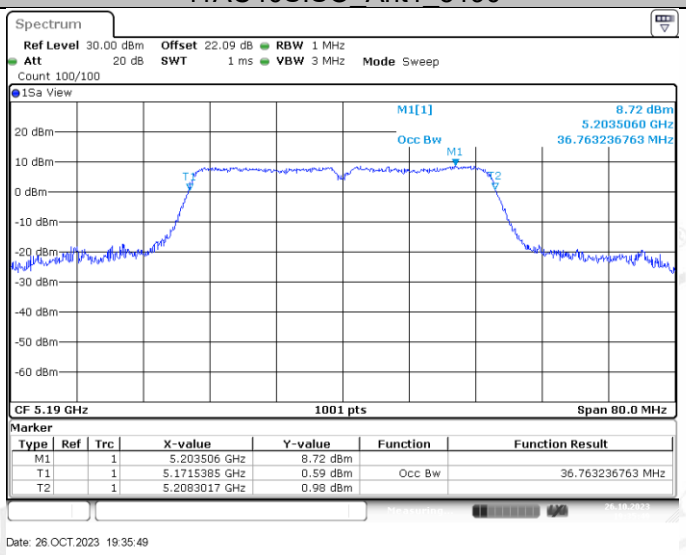
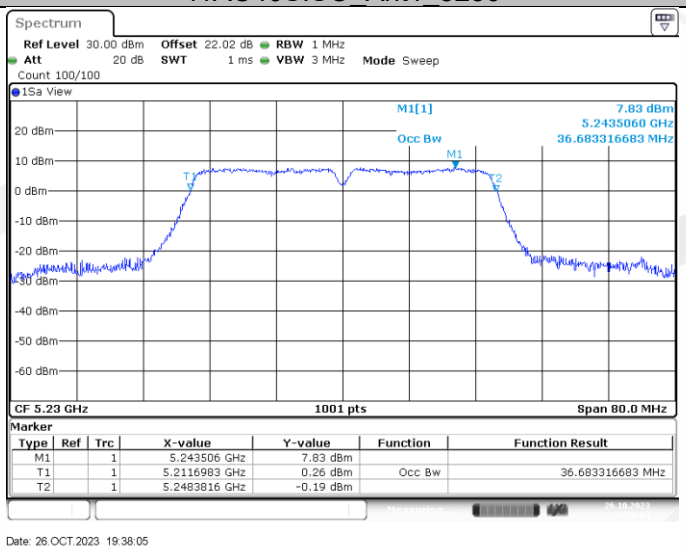
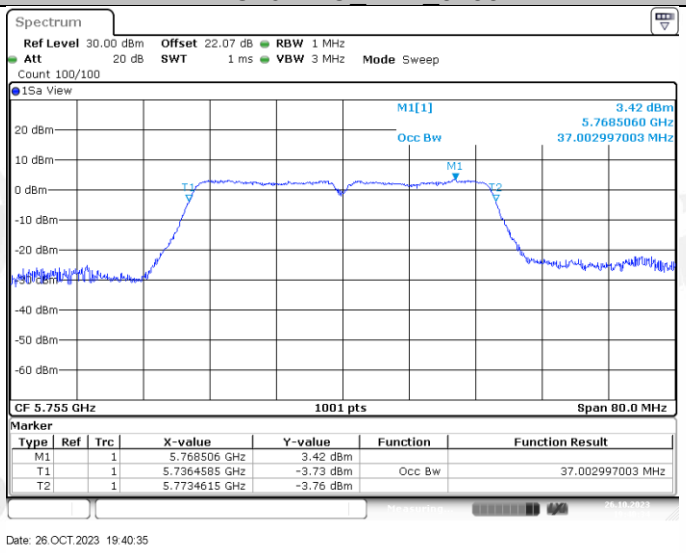


11AC40SISO_Ant1_5230



11AC40SISO_Ant1_5755



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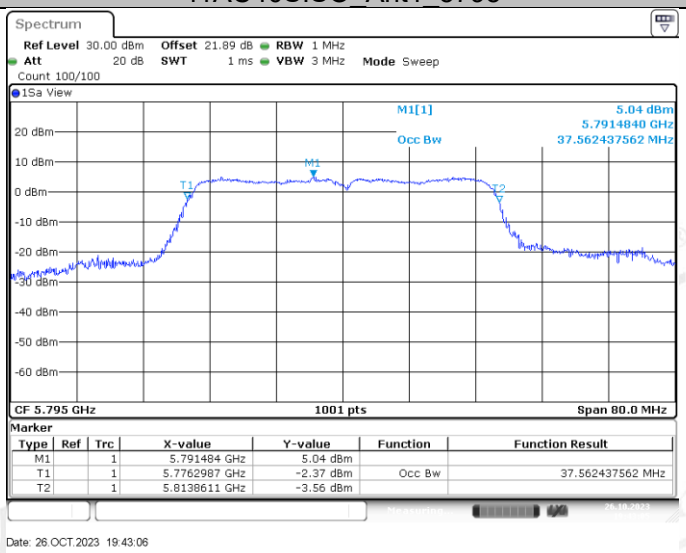
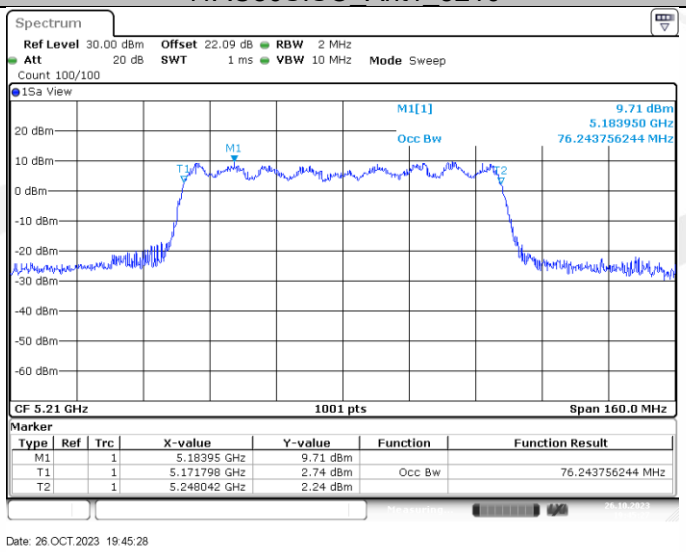
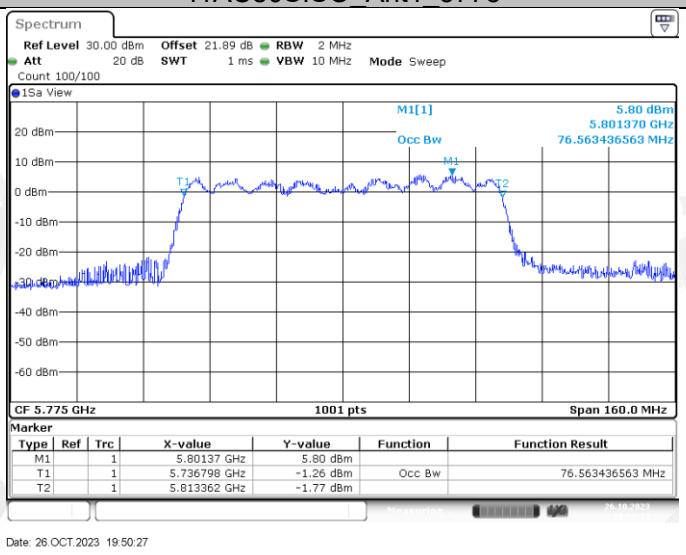


11AC80SISO_Ant1_5210

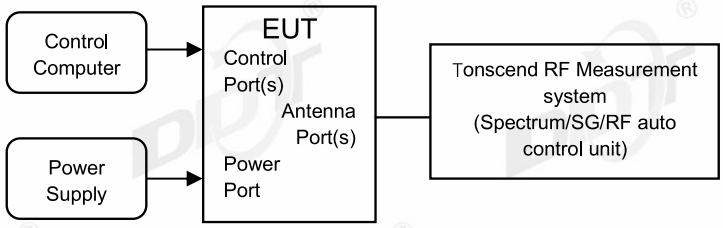


11AC80SISO_Ant1_5775



7. Duty Cycle

7.1. Block diagram of test setup



7.2. Limit

Just for Report.

7.3. Test procedure

(1) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, The cable loss and attenuator loss have been put into spectrum analyzer as amplitude offset.

set the Spectrum Analyzer as below:

Centre Frequency: The centre frequency of the middle hopping channel.

Resolution BW: 10 MHz.

Video BW: 10 MHz.

Span: Zero span.

Detector: Peak.

Trace Mode: Clear Write.

Sweep: Video Trigger

(2) When the trace is complete, measure the sending time of 1 burst and the duty cycle of 1 burst cycle.

(3) Calculate dwell time follow below formula:

Duty cycle= Pulse's on time / Burst cycle

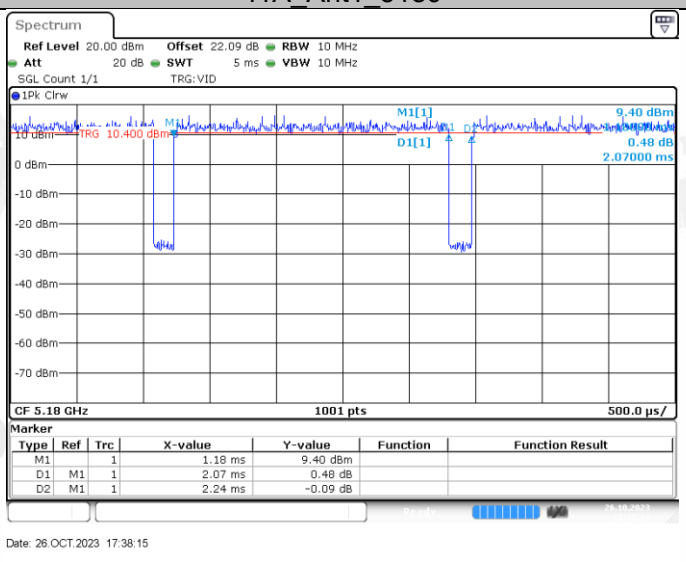
7.4. Test result

Test Site:	RF Measurement System 3#	Test Date:	2023.10.26-2023.10.26
Ambient Condition:	25.3℃, 44.0 %RH	Test Engineer:	Zhongyao
Equipment under Test:	NAVGATION MULTIMEDIA RECEIVER	Model No.:	iX210
Sample Number:	S23101322-02	Test Power Supply:	DC12V

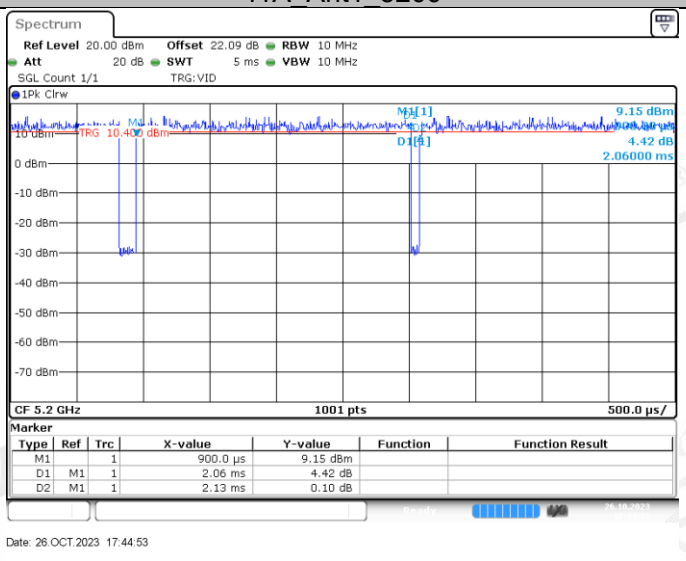
Test Mode	Antenna	Frequency [MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
11A	Ant1	5180	2.07	2.24	92.41
		5200	2.06	2.13	96.71
		5240	2.07	2.19	94.52
		5745	2.07	2.23	92.83
		5785	2.06	2.10	98.10
		5825	2.07	2.22	93.24
11N20SISO	Ant1	5180	1.92	2.00	96.00
		5200	1.92	2.00	96.00
		5240	1.93	2.09	92.34
		5745	1.92	2.05	93.66
		5785	1.92	2.10	91.43
		5825	1.92	2.07	92.75
11N40SISO	Ant1	5190	0.94	1.05	89.52
		5230	0.95	1.09	87.16
		5755	0.95	1.09	87.16
		5795	0.95	1.12	84.82
11AC20SISO	Ant1	5180	1.93	1.99	96.98
		5200	1.93	2.08	92.79
		5240	1.93	1.99	96.98
		5745	1.94	2.09	92.82
		5785	1.94	2.01	96.52
		5825	1.94	2.00	97.00
11AC40SISO	Ant1	5190	0.95	1.13	84.07
		5230	0.95	1.10	86.36
		5755	0.96	1.10	87.27
		5795	0.96	1.11	86.49
11AC80SISO	Ant1	5210	0.46	0.63	73.02
		5775	0.47	0.54	87.04

7.5. Test graphs

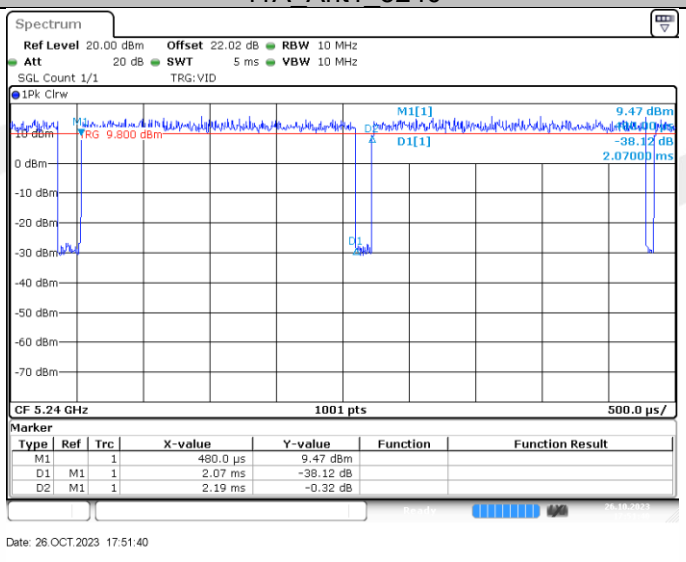
11A_Ant1_5180



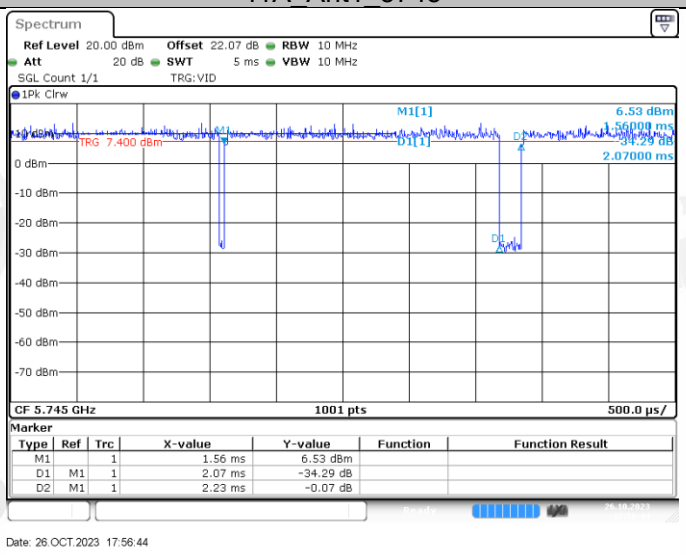
11A_Ant1_5200



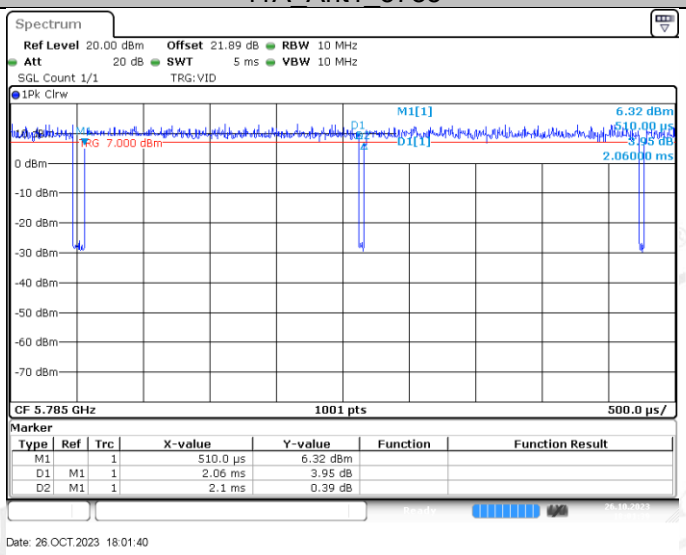
11A_Ant1_5240



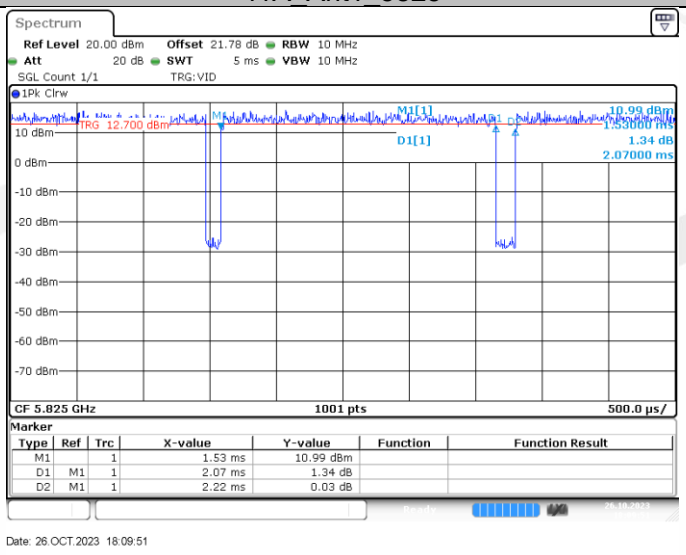
11A_Ant1_5745



11A_Ant1_5785



11A_Ant1_5825



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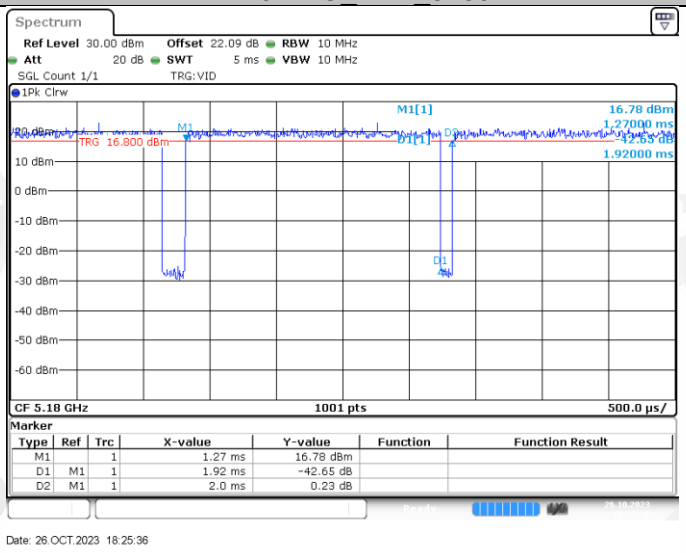

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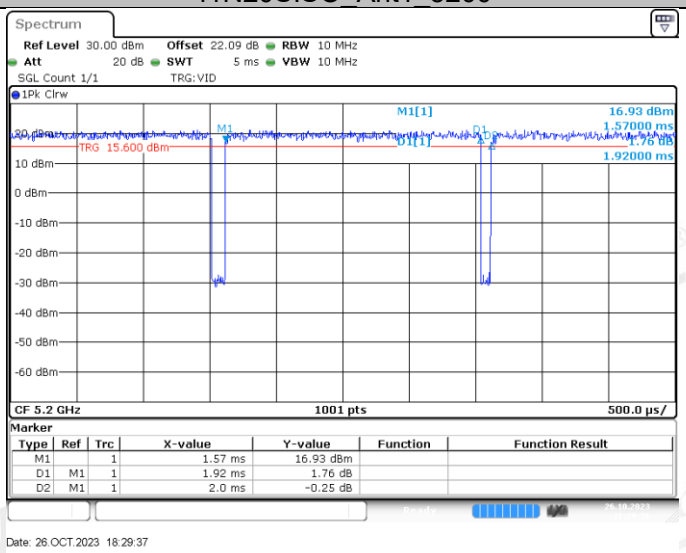

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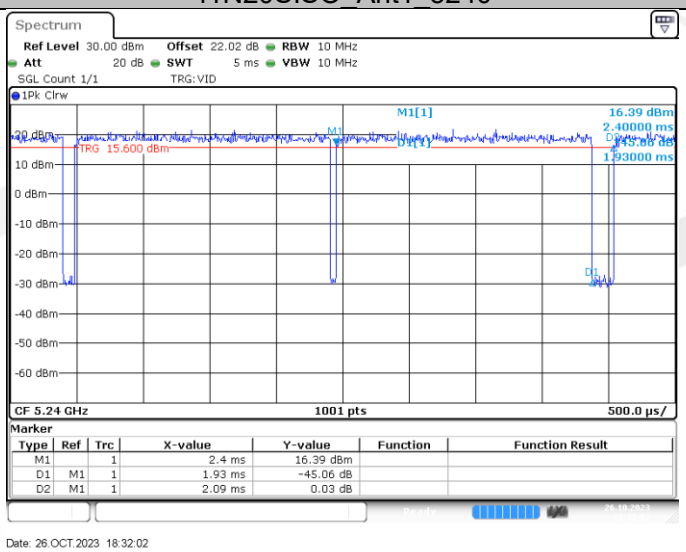

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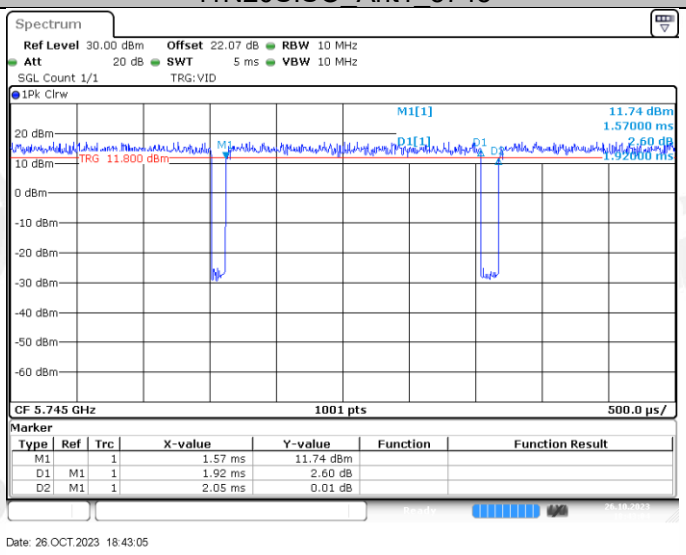

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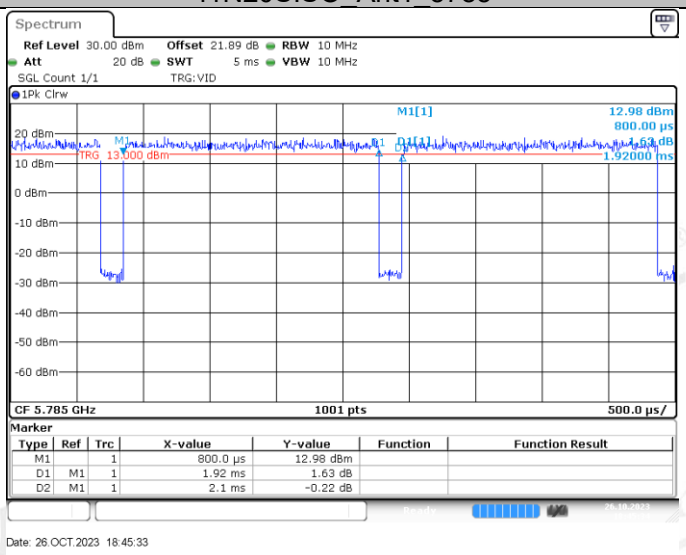

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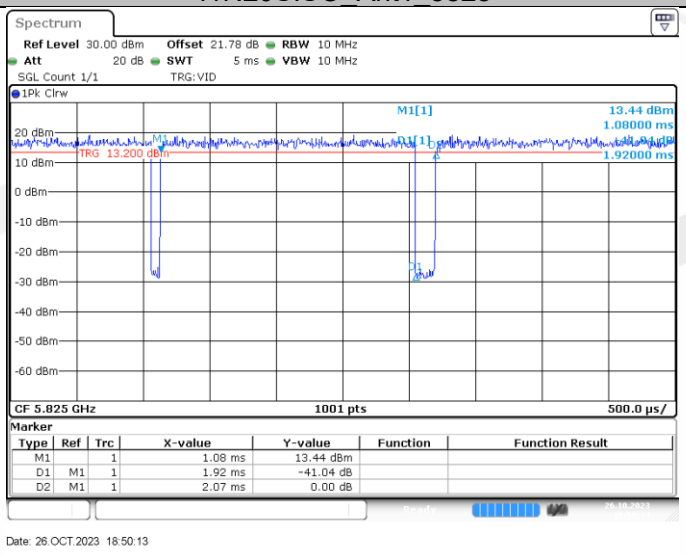

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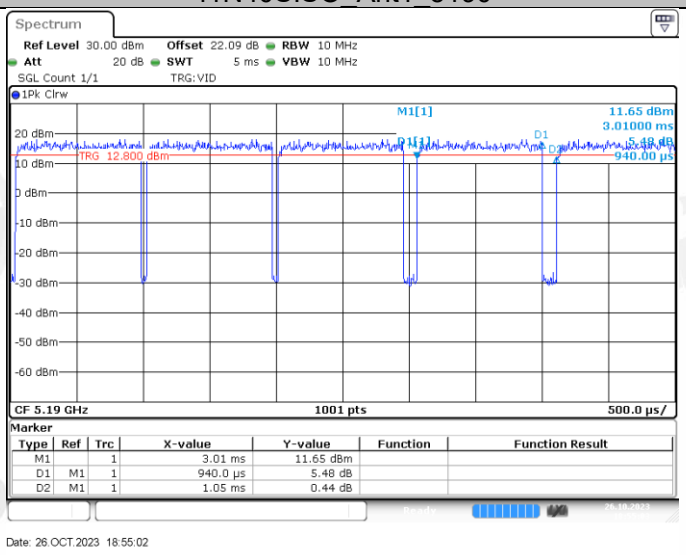

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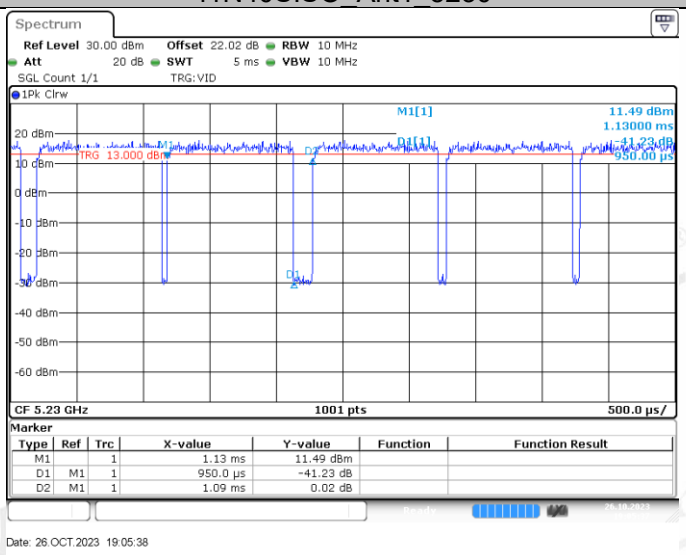

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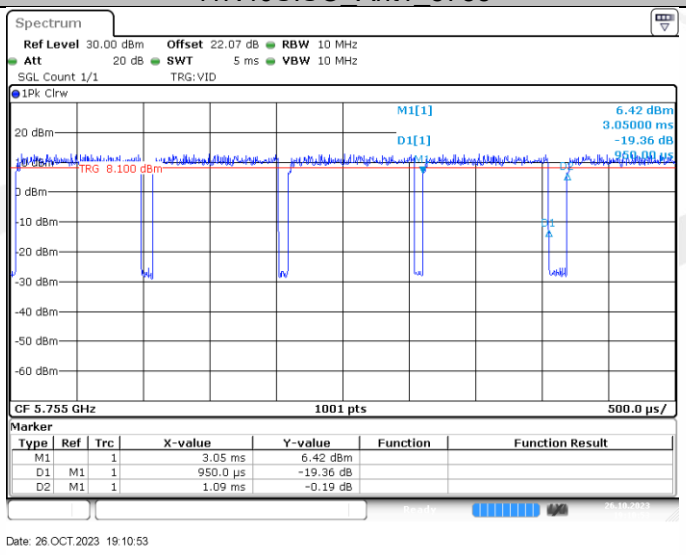

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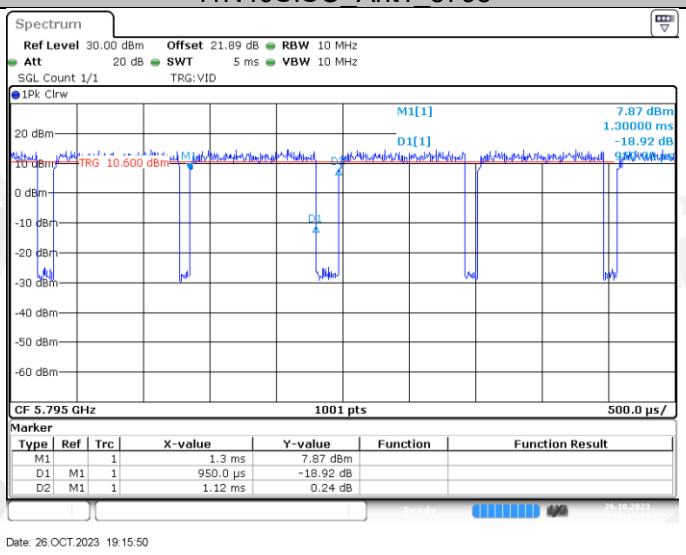

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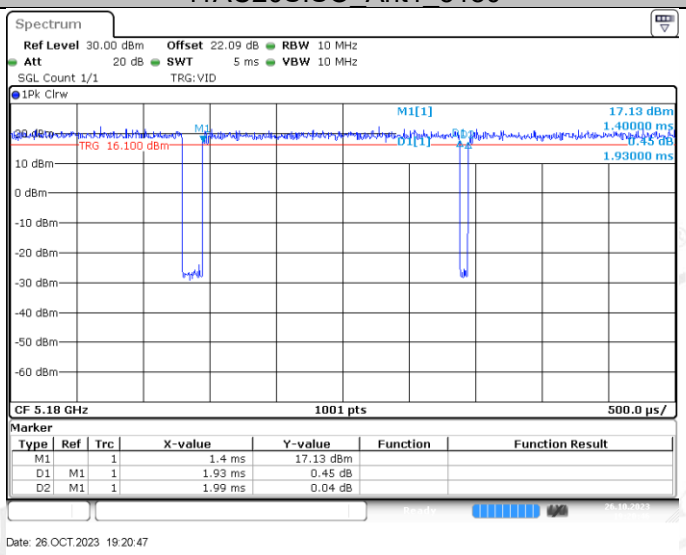

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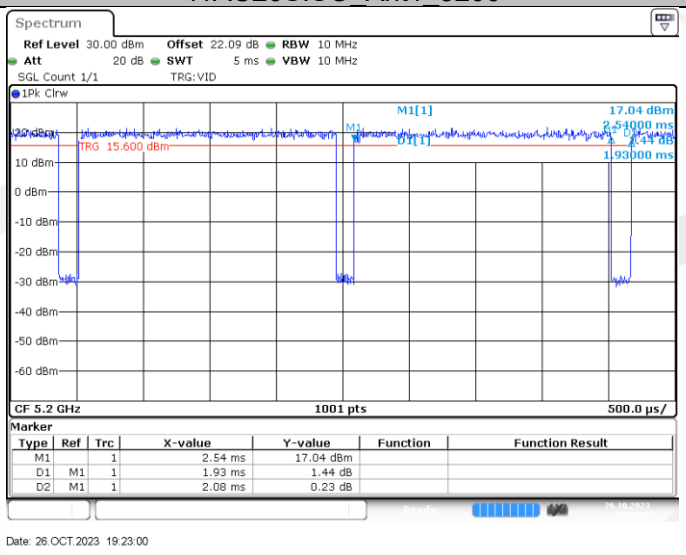

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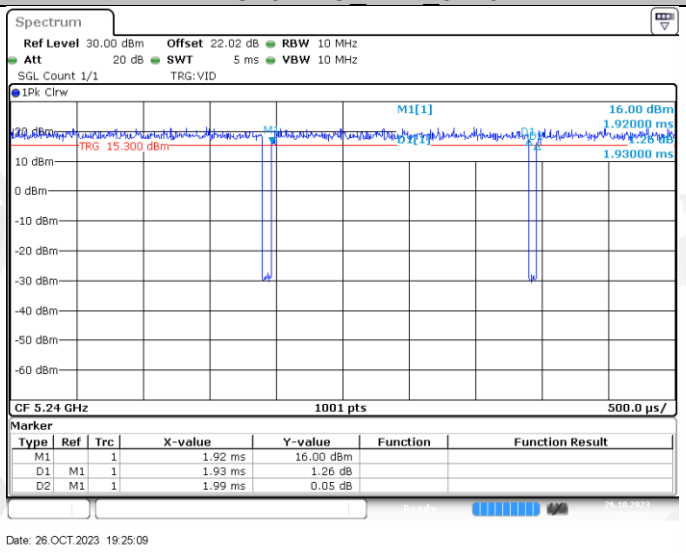

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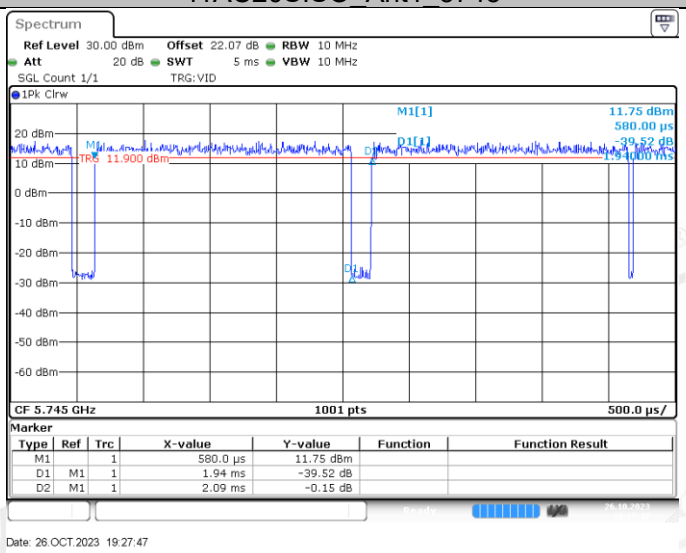

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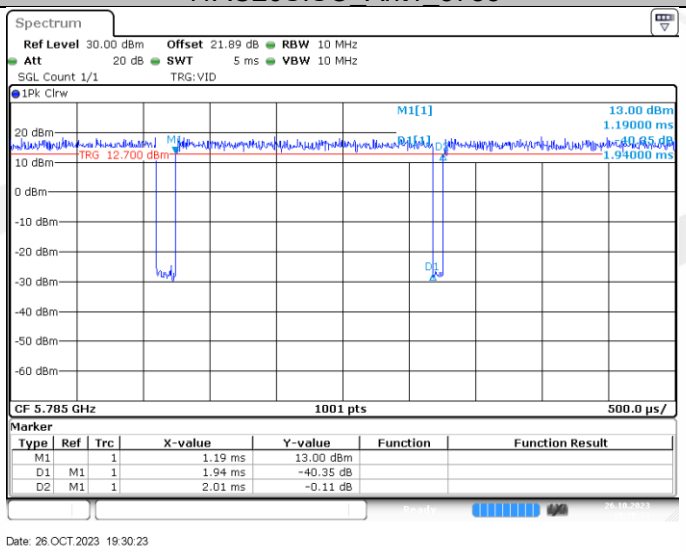

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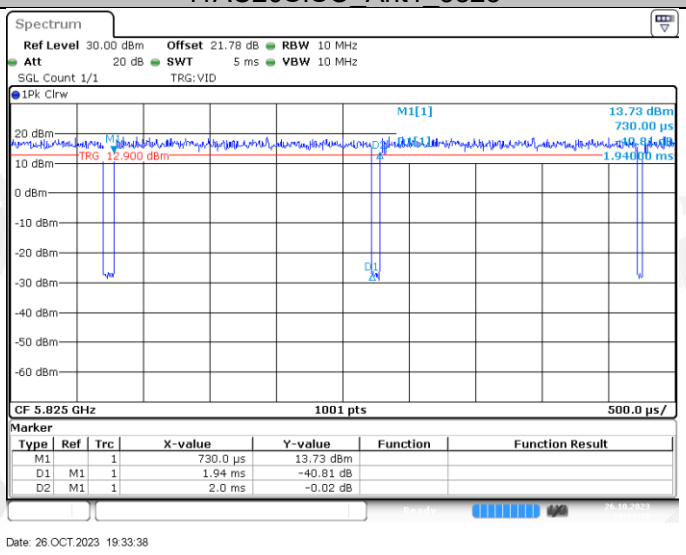

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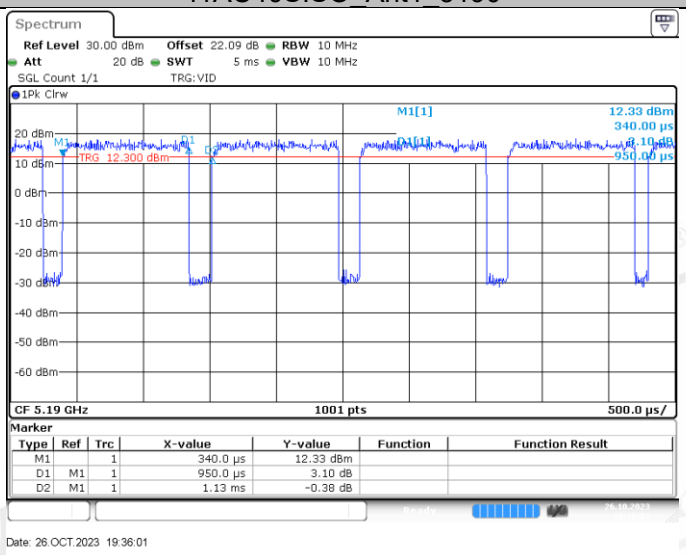

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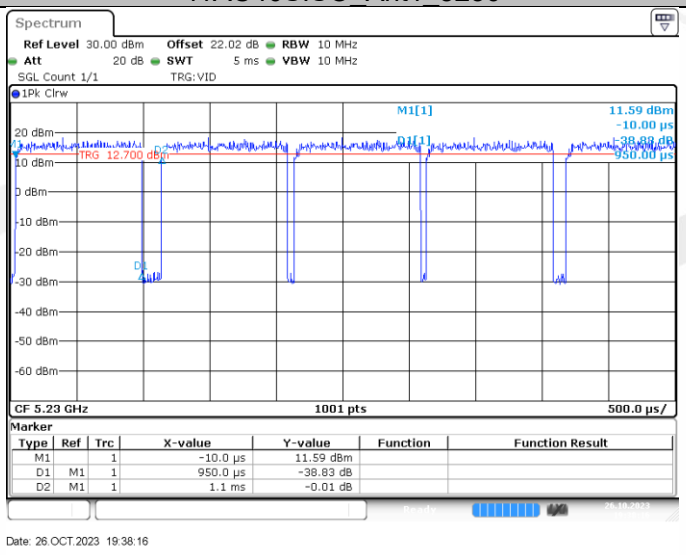

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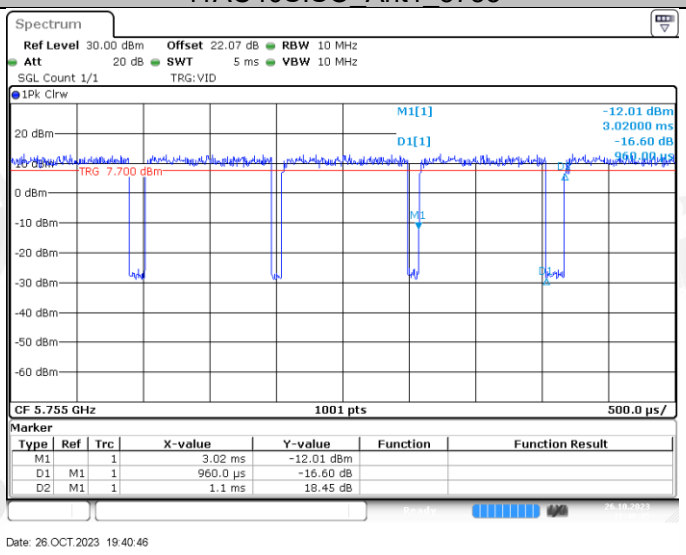

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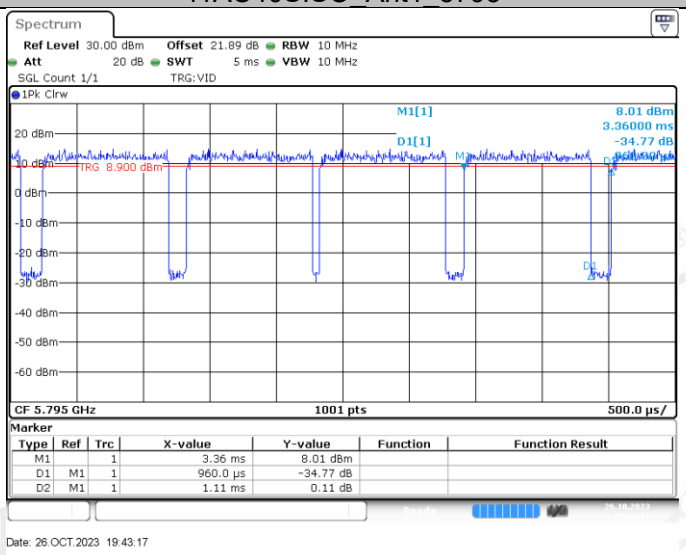

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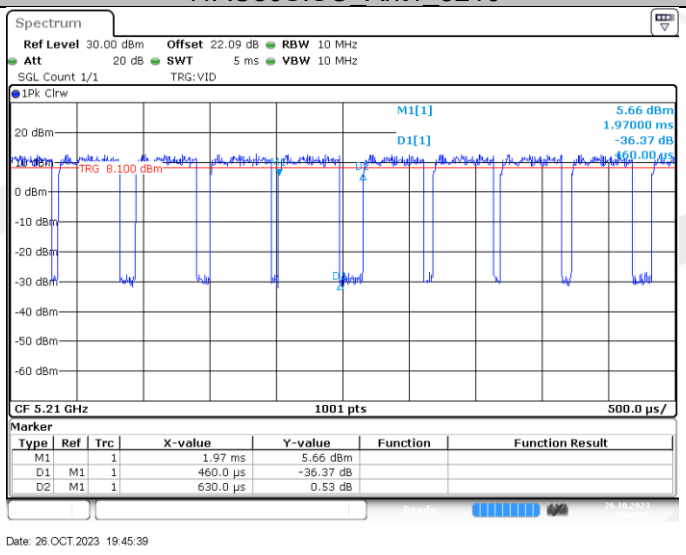

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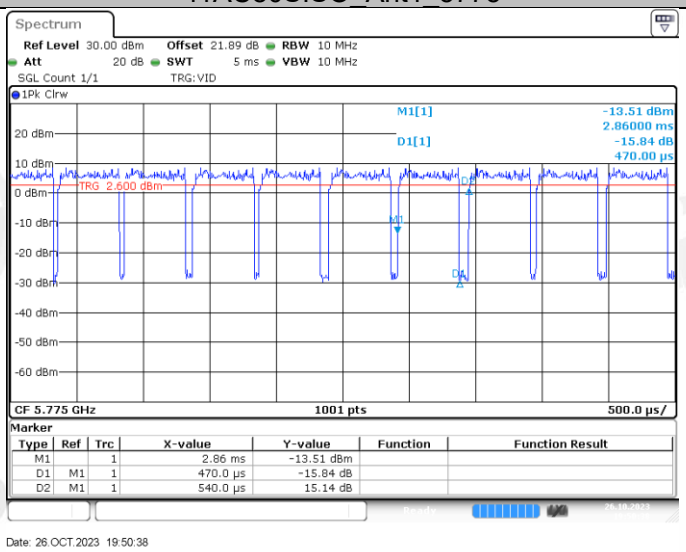
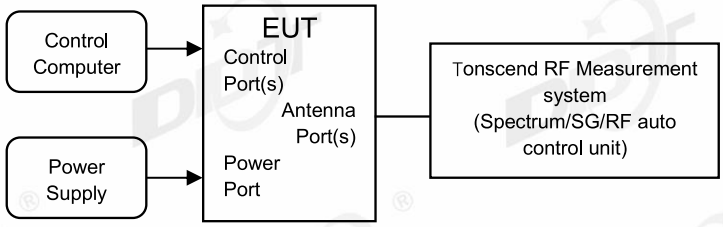


8. Maximum Output Power

8.1. Block diagram of test setup



8.2. Limits

FCC Part15		
Test Item	Limit	Frequency Range (MHz)
Maximum Output Power	outdoor access point: 1 W(30 dBm) indoor access point: 1 W(30 dBm) fixed point-to-point access points1 W(30 dBm) client devices: 250 mW (23.98 dBm)	5150-5250
	250 mW (23.98 dBm) or 11 + 10 $\log_{10}$ B	5250-5350
	250 mW (23.98 dBm) or 11 + 10 $\log_{10}$ B	5470 - 5725
	1 Watt (30 dBm)	5725-5850
Note：B=26 bandwidth		

8.3. Test procedure

Connect each EUT’s antenna output to power sensor by RF cable and attenuator

Measure the output power of each antenna port by power sensor.

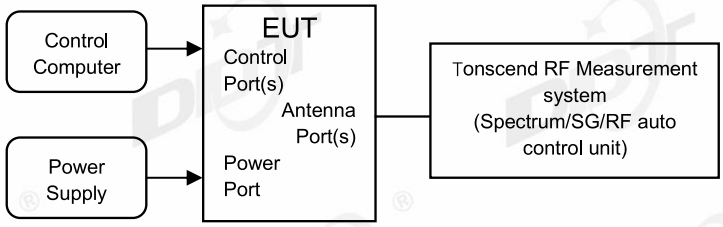
8.4. Test result

Test Site:	RF Measurement System 3#	Test Date:	2023.10.26-2023.10.26
Ambient Condition:	25.3℃, 44.0 %RH	Test Engineer:	Zhongyao
Equipment under Test:	NAVGATION MULTIMEDIA RECEIVER	Model No.:	iX210
Sample Number:	S23101322-02	Test Power Supply:	DC12V

Test Mode	Antenna	Frequency [MHz]	Duty Cycle [%]	DC Factor [dBm]	Result [dBm]	Limit [dBm]	EIRP [dBm]	EIRP Limit [dBm]	Verdict
11A	Ant1	5180	92.41	0.34	14.03	≤23.98	17.65	---	PASS
		5200	96.71	0.15	14.01	≤23.98	17.63	---	PASS
		5240	94.52	0.24	13.31	≤23.98	16.93	---	PASS
		5745	92.83	0.32	8.75	≤30.00	12.37	---	PASS
		5785	98.10	0.08	9.83	≤30.00	13.45	---	PASS
		5825	93.24	0.30	10.56	≤30.00	14.18	---	PASS
11N20SISO	Ant1	5180	96.00	0.18	15.82	≤23.98	19.44	---	PASS
		5200	96.00	0.18	15.96	≤23.98	19.58	---	PASS
		5240	92.34	0.35	15.44	≤23.98	19.06	---	PASS
		5745	93.66	0.28	10.90	≤30.00	14.52	---	PASS
		5785	91.43	0.39	12.35	≤30.00	15.97	---	PASS
		5825	92.75	0.33	13.00	≤30.00	16.62	---	PASS
11N40SISO	Ant1	5190	89.52	0.48	9.92	≤23.98	13.54	---	PASS
		5230	87.16	0.60	10.20	≤23.98	13.82	---	PASS
		5755	87.16	0.60	9.99	≤30.00	13.61	---	PASS
		5795	84.82	0.72	11.69	≤30.00	15.31	---	PASS
11AC20SISO	Ant1	5180	96.98	0.13	15.76	≤23.98	19.38	---	PASS
		5200	92.79	0.32	16.11	≤23.98	19.73	---	PASS
		5240	96.98	0.13	15.20	≤23.98	18.82	---	PASS
		5745	92.82	0.32	10.96	≤30.00	14.58	---	PASS
		5785	96.52	0.15	12.16	≤30.00	15.78	---	PASS
		5825	97.00	0.13	12.83	≤30.00	16.45	---	PASS
11AC40SISO	Ant1	5190	84.07	0.75	9.90	≤23.98	13.52	---	PASS
		5230	86.36	0.64	9.72	≤23.98	13.34	---	PASS
		5755	87.27	0.59	10.02	≤30.00	13.64	---	PASS
		5795	86.49	0.63	11.66	≤30.00	15.28	---	PASS
11AC80SISO	Ant1	5210	73.02	1.37	14.70	≤23.98	18.32	---	PASS
		5775	87.04	0.60	9.65	≤30.00	13.27	---	PASS

9. Power Spectral Density

9.1. Block diagram of test setup



9.2. Limits

FCC Part15, Subpart E/ RSS-247		
Test Item	Limit	Frequency Range (MHz)
Power Spectral Density	For FCC: Other than Mobile and portable:17 dBm/MHz Mobile and portable client devices:11 dBm/MHz	5150-5250
	11 dBm/MHz	5250-5350
	11 dBm/MHz	5470-5725
	30 dBm/500 kHz	5725-5850

9.3. Test procedure

The transmitter output was connected to a spectrum analyzer. Power density was measured by spectrum analyzer with 1MHz RBW and 3MHz VBW.

Connect the UUT to the spectrum analyser and use the following settings:

5150 MHz~5250 MHz, 5250 MHz~5350 MHz, 5470 MHz~5725 MHz

Center Frequency	The centre frequency of the channel under test
Detector	RMS
RBW	1MHz
VBW	≥3 × RBW
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

5725 MHz-5850 MHz

Center Frequency	The centre frequency of the channel under test
Detector	RMS
RBW	500 kHz
VBW	≥3 × RBW
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

9.4. ATest result

Test Site:	RF Measurement System 3#	Test Date:	2023.10.26-2023.10.26
Ambient Condition:	25.3℃, 44.0 %RH	Test Engineer:	Zhongyao
Equipment under Test:	NAVGATION MULTIMEDIA RECEIVER	Model No.:	iX210
Sample Number:	S23101322-02	Test Power Supply:	DC12V

Test Mode	Antenna	Frequency [MHz]	Result [dBm/MHz]	Limit [dBm/MHz]	Verdict
11A	Ant1	5180	2.71	≤11.00	PASS
		5200	2.50	≤11.00	PASS
		5240	1.75	≤11.00	PASS
		5745	-5.62	≤30.00	PASS
		5785	-4.69	≤30.00	PASS
		5825	-4.10	≤30.00	PASS
11N20SISO	Ant1	5180	4.24	≤11.00	PASS
		5200	4.24	≤11.00	PASS
		5240	3.63	≤11.00	PASS
		5745	-3.78	≤30.00	PASS
		5785	-2.24	≤30.00	PASS
		5825	-1.89	≤30.00	PASS
11N40SISO	Ant1	5190	-4.98	≤11.00	PASS
		5230	-5.22	≤11.00	PASS
		5755	-7.80	≤30.00	PASS
		5795	-6.19	≤30.00	PASS
11AC20SISO	Ant1	5180	4.17	≤11.00	PASS
		5200	4.33	≤11.00	PASS
		5240	3.38	≤11.00	PASS
		5745	-3.78	≤30.00	PASS
		5785	-2.63	≤30.00	PASS
		5825	-2.12	≤30.00	PASS
11AC40SISO	Ant1	5190	-5.17	≤11.00	PASS
		5230	-5.53	≤11.00	PASS
		5755	-7.70	≤30.00	PASS
		5795	-6.26	≤30.00	PASS
11AC80SISO	Ant1	5210	-1.73	≤11.00	PASS
		5775	-9.79	≤30.00	PASS

Note：1.The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.

2.The Duty Cycle Factor is compensated in the graph.