Product Name:Acoustic Imaging Camera	**Report No: ITEZA2-202400496RF4**
Product Model: CRY8124, CRY8121, CRY8122, CRY8123, CRY8125, CRY8128, MPAC208, MPAC208-IECEx	**Security Classification: Open**
Version: V1.0	**Total Page:183**

TIRT Testing Report

Prepared By:	**Checked By:**	**Approved By:**	
Aaron Long	Stone Tang	Joky Wang	
Aaron Long	Stone Tang	Joky Wang	

FCCRadio Test Report

FCC ID: 2BM2S-CRY8120SERIES

This report concerns:Original Grant

Applicant:	Hangzhou Crysound Electronics Co.,Ltd.
Address:	NO.10, Xianqiao Road, Zhongtai Street, Yuhang District, Hangzhou, Zhejiang Province, China
Manufacturer:	Hangzhou Crysound Electronics Co.,Ltd.
Address:	NO.10, Xianqiao Road, Zhongtai Street, Yuhang District, Hangzhou, Zhejiang Province, China
Sample No:	1000052998
Product Name:	Acoustic Imaging Camera
Brand Name:	N/A
Model No.:	CRY8124, CRY8121, CRY8122, CRY8123, CRY8125, CRY8128, MPAC208, MPAC208-IECEx
Test No.:	CRY8124

Date of Receipt:	2024/12/26
Date of Test:	2024/12/26~2024/01/09
Issued Date:	2025/02/14
Testing Lab:	TIRT

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REPORT ISSUED HISTORY

Report No.	Version	Description	Issued Date	Note
ITEZA2-202400496RF4	V1.0	Original Report.	2025.02.14	Valid

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC CFR Title 47, Part 15, Subpart E				
Standard(s) Section	**Test Item**	**Test Result**	**Judgment**	**Remark**
15.207 15.407(b)	AC Power Line Conducted Emissions	APPENDIX A	PASS	------
15.407(b) 15.205(a) 15.209(a)	Radiated Emissions	APPENDIX B APPENDIX C APPENDIX D	PASS	------
15.407(a) 15.407(e)	Bandwidth	APPENDIX E	PASS	------
15.407(a)	MaximumOutput Power	APPENDIX F	PASS	------
15.407(a)	Power Spectral Density	APPENDIX G	PASS	------
15.407(g)	Frequency Stability	APPENDIX H	PASS	**NOTE (5)**
15.203	Antenna Requirements	------	PASS	**NOTE (2)**
15.407(c)	Automatically Discontinue Transmission	------	PASS	**NOTE (3)**

Note:
(1) "N/A" denotes test is not applicable in this test report.
(2) The device what use a permanently attached antenna were considered sufficient to comply with the provisions of 15.203.
(3) During no any information transmission, the EUT can automatically discontinue transmission and become standby mode for power saving.the EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.
(4) For UNII-1 this device was functioned as a
☐Outdoor access point device
☐Indoor access point device
☐Fixed point-to-point access points device
☒Client device
(5) The manufacturer states that the frequency sability is in compliance with 15.407(g).
(6) Measurement Standard Used:

FCC Rules and Regulations Part 15 Subpart E

ANSI C63.4:2014, ANSI C63.10:2013

1.1 TEST FACILITY

Company:	Beijing TIRT Technology Service Co.,Ltd Shenzhen
Address:	104 Building C, Xinmingsheng Industrial Park No.132, Zhangge Old Village East Zone, Zhangge Community, Fucheng Street, Longhua District, Shenzhen, Guangdong, P. R. China
CNAS Registration Number:	CNAS L14158
A2LA Registration Number:	6049.01
FCC Accredited Lab.Designation Number:	CN1366
FCC Test Firm Registration Number:	820690
Telephone:	+86-0755-27087573

1.2 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))
The TIRT measurement uncertainty as below table:

Uncertainty	
Parameter	Uncertainty
Occupied Channel Bandwidth	±142.12 KHz
RF power conducted	±0.74 dB
RF power radiated	±3.25dB
Spurious emissions, conducted	±1.78dB
Spurious emissions, radiated (30MHz～1GHz)	±4.6dB
Spurious emissions, radiated (1GHz ~ 18GHz)	±4.9dB
Conduction Emissions(150kHz~30MHz)	±3.1 dB
Humidity	±4.6%
Temperature	±0.7°C
Time	±1.25%

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

1.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By
AC Power Line Conducted Emissions	25.1°C	52%	DC 5V Power Adapter	Stone Tang
Radiated Emissions-9kHz to 30MHz	24.5°C	50%	DC 7.2V from battery or DC 5V Power Adapter	Stone Tang
Radiated Emissions-30MHz to 1000MHz	24.2°C	53%	DC 7.2V from battery or DC 5V Power Adapter	Stone Tang
Radiated Emissions-Above 1000 MHz	26.0°C	53%	DC 7.2V from battery or DC 5V Power Adapter	Stone Tang
Bandwidth	25.0°C	56%	DC 7.2V from battery or DC 5V Power Adapter	Stone Tang
MaximumOutput Power	24.9°C	54%	DC 7.2V from battery or DC 5V Power Adapter	Stone Tang
Power Spectral Density	25.1°C	62%	DC 7.2V from battery or DC 5V Power Adapter	Stone Tang

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Acoustic Imaging Camera
Brand Name	N/A
Test Model	CRY8124
Series Model	CRY8124, CRY8121, CRY8122, CRY8123, CRY8125, CRY8128, MPAC208, MPAC208-IECEx
Model Difference(s)	There is no difference except the name of the model
Software Version	V2.00
Hardware Version	V1.1
Power Rating	DC 7.2V from battery or DC 5V from Power Adapter
Operation FrequencyBand(s)	UNII-1: 5180 MHz~5240 MHz UNII-2A: 5260 MHz ~ 5320 MHz UNII-2C: 5500 MHz ~ 5700 MHz UNII-3: 5745 MHz~5825MHz
Modulation Type	IEEE 802.11n: OFDM (64QAM,16QAM,QPSK,BPSK) IEEE 802.11a: OFDM (64QAM,16QAM,QPSK,BPSK) IEEE802.11ac: OFDM (64QAM,16QAM, 256QAM,QPSK,BPSK)
Maximum Output Power _UNII-1	IEEE 802.11a: 10.55dBm(0.011350W)
Maximum Output Power _UNII-2A	IEEE802.11ac80: 11.60dBm(0.014454W)
Maximum Output Power _UNII-2C	IEEE 802.11a: 13.17dBm(0.020749W)
Maximum Output Power _UNII-3	IEEE 802.11a: 12.02dBm(0.015922W)

Note:

1. For a more detailed features description, please refer to the manufacturer’s specifications or the user's manual.

2. Channel List:

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		UNII-1		UNII-1	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	38	5190	42	5210
40	5200	46	5230		
44	5220				
48	5240				

IEEE 802.11a IEEE 802.11n(HT20) IEEE 802.11ac(VHT20)		IEEE 802.11n(HT40) IEEE 802.11ac(VHT40)		IEEE 802.11ac(VHT80)	
UNII-2A		UNII-2A		UNII-2A	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
52	5260	54	5270	58	5290
56	5280	62	5310		
60	5300				
64	5320				

IEEE 802.11a IEEE 802.11n(HT20) IEEE 802.11ac(VHT20)		IEEE 802.11n(HT40) IEEE 802.11ac(VHT40)		IEEE 802.11ac(VHT80)	
UNII-2C		UNII-2C		UNII-2C	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
100	5500	102	5510	106	5530
116	5580	110	5550		
136	5680				
140	5700				

IEEE 802.11a IEEE 802.11n(HT20) IEEE 802.11ac(VHT20)		IEEE 802.11n(HT40) IEEE 802.11ac(VHT40)		IEEE 802.11ac(VHT80)	
UNII-3		UNII-3		UNII-3	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	151	5755	155	5775
153	5765	159	5795		
157	5785				
161	5805				
165	5825				

3. Antenna Specification:

Ant.	Manufactured	Model Name	Antenna Type	Connector	Gain (dBi)
1	Sunsky Technology Co.,Ltd.	S11	FPC	N/A	2.25

Note:
1) The antenna gain is provided by the manufacturer.
2) The antenna is for testing and fixation purposes

2.2 TEST MODES

The test system was pre-tested based on the consideration of all possible combinations of EUT operation mode.

Pretest Mode	Description
Mode 1	TX A ModeChannel 36/40/48 (UNII-1)
Mode 2	TX N(HT20) ModeChannel 36/40/48 (UNII-1)
Mode 3	TX N(HT40) Mode Channel 38/46 (UNII-1)
Mode 4	TX AC(VHT20) ModeChannel 36/40/48 (UNII-1)
Mode 5	TX AC(VHT40) ModeChannel 38/46 (UNII-1)
Mode 6	TX AC(VHT80) Mode Channel 42 (UNII-1)
Mode 7	TX A Mode Channel 149/157/165 (UNII-3)
Mode 8	TX N(HT20) Mode Channel 149/157/165 (UNII-3)
Mode 9	TX N(HT40) Mode Channel 151/159 (UNII-3)
Mode 10	TX AC(VHT20) Mode Channel 149/157/165 (UNII-3)
Mode 11	TX AC(VHT40) Mode Channel 151/159 (UNII-3)
Mode 12	TX AC(VHT80) Mode Channel 155 (UNII-3)
Mode 13	TX A Mode Channel 52/60/64 (UNII-2A)
Mode 14	TX N(HT20) Mode Channel 52/60/64 (UNII-2A)
Mode 15	TX N(HT40) Mode Channel 54/62 (UNII-2A)
Mode 16	TX AC(VHT20) Mode Channel 52/60/64 (UNII-2A)
Mode 17	TX AC(VHT40) Mode Channel 54/62 (UNII-2A)
Mode 18	TX AC(VHT80) Mode Channel 58 (UNII-2A)
Mode 19	TX A Mode Channel 100/116/140 (UNII-2C)
Mode 20	TX N(HT20) Mode Channel 100/116/140 (UNII-2C)
Mode 21	TX N(HT40) Mode Channel 102/110/134 (UNII-2C)
Mode 22	TX AC(VHT20) Mode Channel 100/116/140 (UNII-2C)
Mode 23	TX AC(VHT40) Mode Channel 102/110/134 (UNII-2C)
Mode 24	TX AC(VHT80) Mode Channel 106/122 (UNII-2C)

Following mode(s) was (were) found to be the worst case(s) and selected for the final test.

AC power line conducted emissions test	
Final Test Mode	Description
Mode 19	TX A Mode Channel 100/116/140 (UNII-2C)

Radiated Emissions Test - Below 1GHz	
Final Test Mode	Description
Mode 19	TX A Mode Channel 100/116/140 (UNII-2C)

Radiated Emissions Test - Above 1GHz	
Final Test Mode	Description
Mode 1	TX A ModeChannel 36/40/48 (UNII-1)
Mode 13	TX A Mode Channel 52/60/64 (UNII-2A)
Mode 19	TX A Mode Channel 100/116/140 (UNII-2C)
Mode 7	TX A Mode Channel 149/157/165 (UNII-3)

Conducted Test	
Final Test Mode	Description
Mode 1	TX A ModeChannel 36/40/48 (UNII-1)
Mode 2	TX N(HT20) Mode Channel 36/40/48 (UNII-1)
Mode 3	TX N(HT40) Mode Channel 38/46 (UNII-1)
Mode 4	TX AC(VHT20) Mode Channel 36/40/48 (UNII-1)
Mode 5	TX AC(VHT40) Mode Channel 38/46 (UNII-1)
Mode 6	TX AC(VHT80) Mode Channel 42 (UNII-1)
Mode 7	TX A Mode Channel 149/157/165 (UNII-3)
Mode 8	TX N(HT20) Mode Channel 149/157/165 (UNII-3)
Mode 9	TX N(HT40) Mode Channel 151/159 (UNII-3)
Mode 10	TX AC(VHT20) Mode Channel 149/157/165 (UNII-3)
Mode 11	TX AC(VHT40) Mode Channel 151/159 (UNII-3)
Mode 12	TX AC(VHT80) Mode Channel 155 (UNII-3)

‘Note:

(1) For AC power line conducted emissions andradiated emission below 1 GHz test, the TX A Mode Channel 140 (UNII-2C) is found to be the worst case and recorded.

(2) For radiated emission above 1 GHz test, the spurious points of 1GHz~26.5GHz and 26.5GHz~40GHz have been pre-tested and in this report only recorded the worst case. The remaining spurious points are all below the limit value of 20dB.

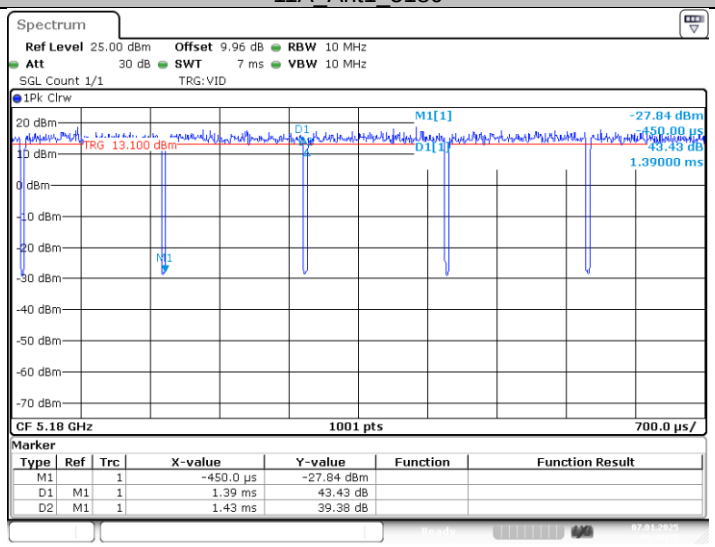
(3) All the bit rate of transmitter have been tested and found the lowest rate is found tobe the worst case and recorded.

2.3DUTY CYCLE

If duty cycle is ≥ 98 %, duty factor is not required.
If duty cycle is < 98 %, duty factor shall be considered.
The output power = measured power + duty factor.
The power spectral density = measured power spectral density + duty factor.

TestMode	Antenna	Freq(MHz)	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Limit	Verdict
11A	Ant1	5180	1.39	1.43	97.20	---	---
		5200	1.39	1.43	97.20	---	---
		5240	1.40	1.43	97.90	---	---
		5260	1.40	1.43	97.90	---	---
		5300	1.39	1.42	97.89	---	---
		5320	1.40	1.43	97.90	---	---
		5500	1.39	1.43	97.20	---	---
		5600	1.39	1.43	97.20	---	---
		5700	1.39	1.43	97.20	---	---
		5745	1.39	1.43	97.20	---	---
		5785	1.39	1.43	97.20	---	---
		5825	1.40	1.43	97.90	---	---
11N20	Ant1	5180	0.17	0.20	85.00	---	---
		5200	0.17	0.20	85.00	---	---
		5240	0.16	0.20	80.00	---	---
		5260	0.17	0.20	85.00	---	---
		5300	0.16	0.20	80.00	---	---
		5320	0.17	0.20	85.00	---	---
		5500	0.17	0.20	85.00	---	---
		5600	0.16	0.20	80.00	---	---
		5700	0.17	0.20	85.00	---	---
		5745	0.17	0.20	85.00	---	---
		5785	0.16	0.20	80.00	---	---
		5825	0.16	0.20	80.00	---	---
11N40	Ant1	5190	0.10	0.13	76.92	---	---
		5230	0.10	0.14	71.43	---	---
		5270	0.10	0.13	76.92	---	---
		5310	0.10	0.14	71.43	---	---
		5510	0.10	0.14	71.43	---	---
		5590	0.10	0.14	71.43	---	---
		5670	0.10	0.14	71.43	---	---
		5755	0.10	0.14	71.43	---	---
		5795	0.10	0.14	71.43	---	---
11AC20	Ant1	5180	0.17	0.21	80.95	---	---
		5200	0.17	0.21	80.95	---	---
		5240	0.17	0.20	85.00	---	---
		5260	0.17	0.20	85.00	---	---
		5300	0.17	0.21	80.95	---	---
		5320	0.17	0.20	85.00	---	---
		5500	0.17	0.21	80.95	---	---
		5600	0.17	0.20	85.00	---	---
		5700	0.17	0.21	80.95	---	---
		5745	0.17	0.21	80.95	---	---
		5785	0.17	0.20	85.00	---	---
		5825	0.17	0.20	85.00	---	---
11AC40	Ant1	5190	0.11	0.14	78.57	---	---
		5230	0.10	0.14	71.43	---	---
		5270	0.10	0.14	71.43	---	---
		5310	0.11	0.14	78.57	---	---
		5510	0.11	0.14	78.57	---	---
		5590	0.11	0.14	78.57	---	---
		5670	0.10	0.14	71.43	---	---
		5755	0.10	0.14	71.43	---	---
		5795	0.10	0.14	71.43	---	---
11AC80	Ant1	5210	2.09	3.50	59.71	---	---
		5290	0.07	0.15	46.67	---	---
		5530	2.09	3.50	59.71	---	---
		5610	1.60	2.60	61.54	---	---
		5775	2.11	3.49	60.46	---	---

11A_Ant1_5180



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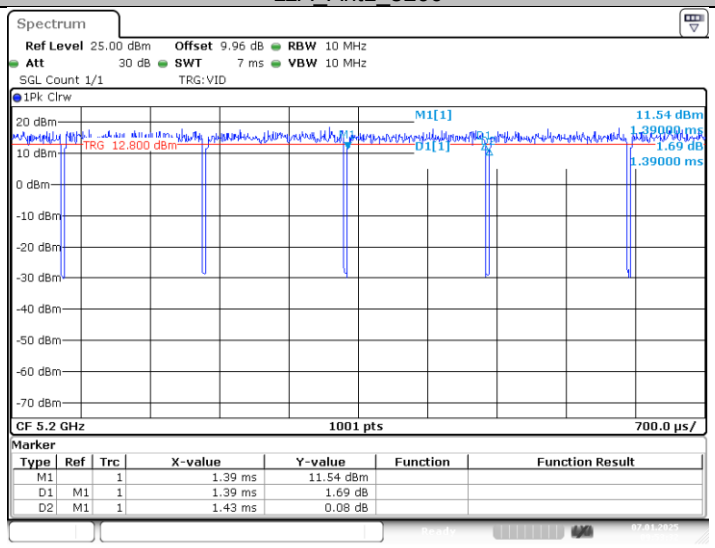

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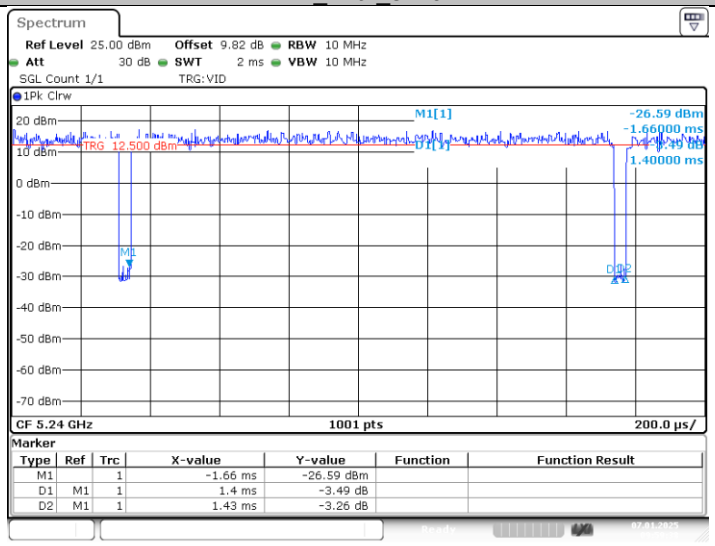

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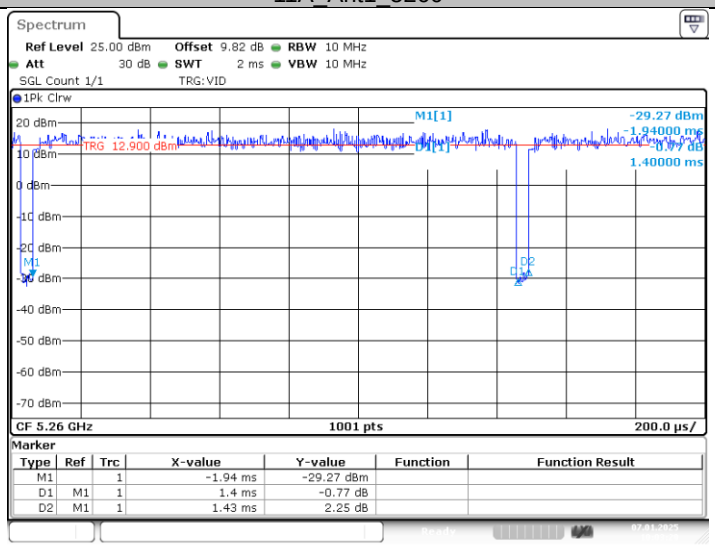

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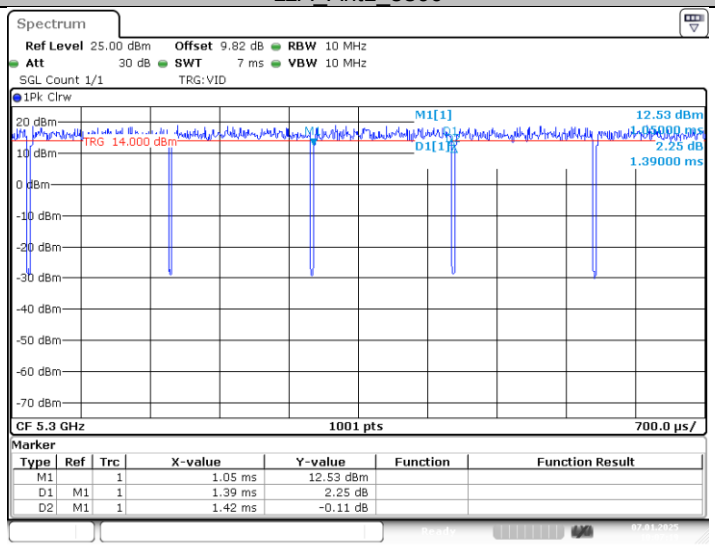

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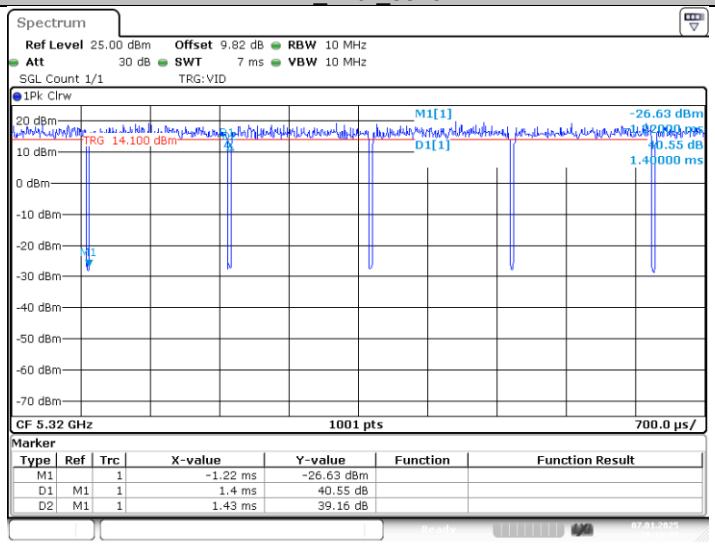

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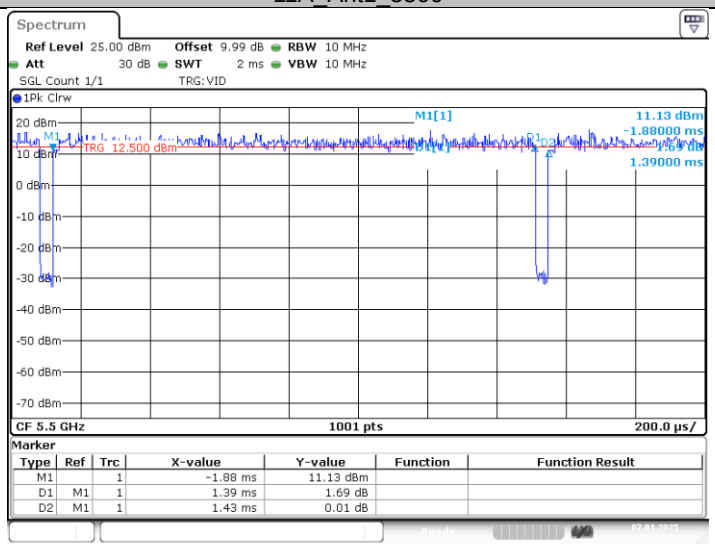

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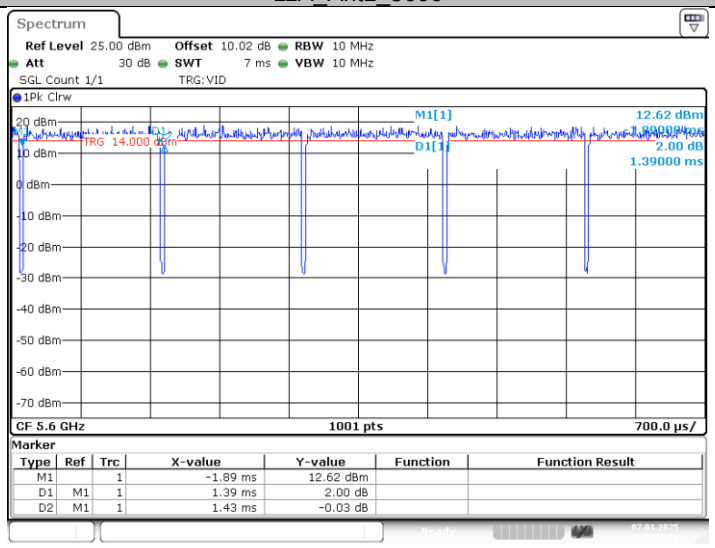

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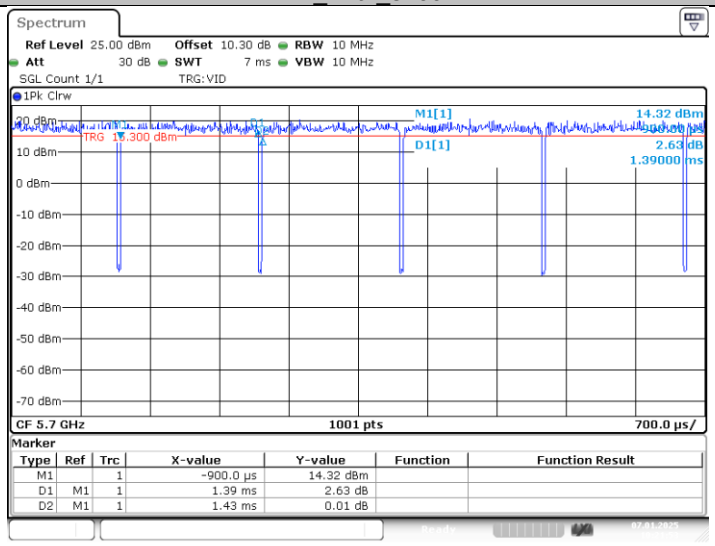

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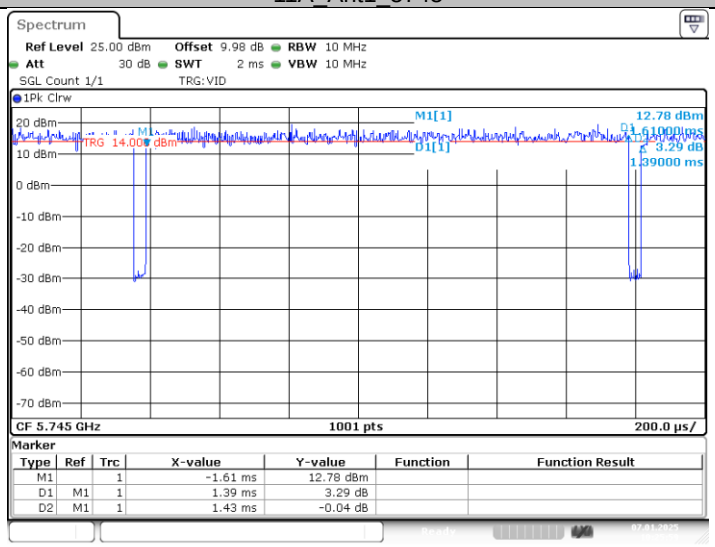

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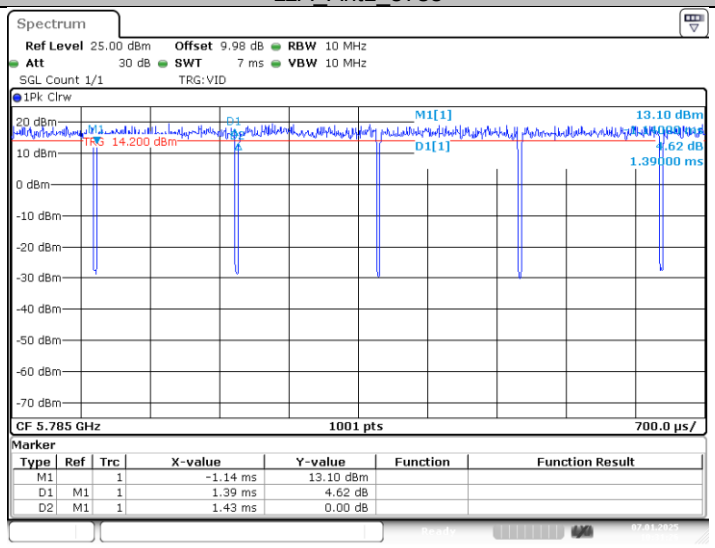
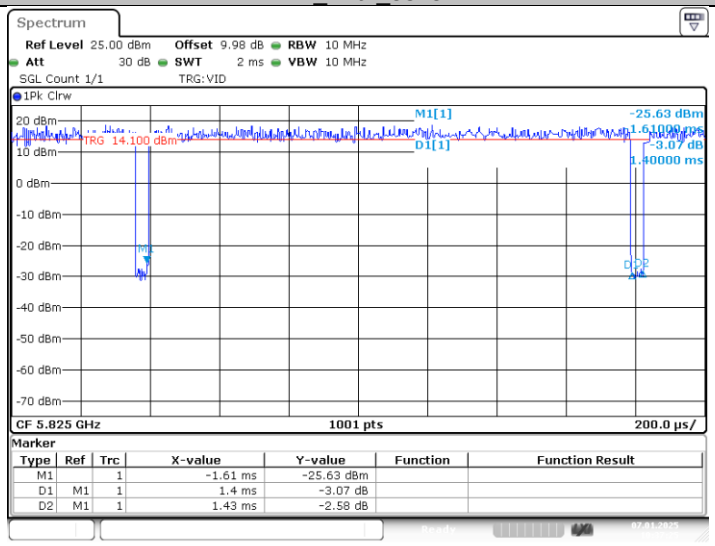


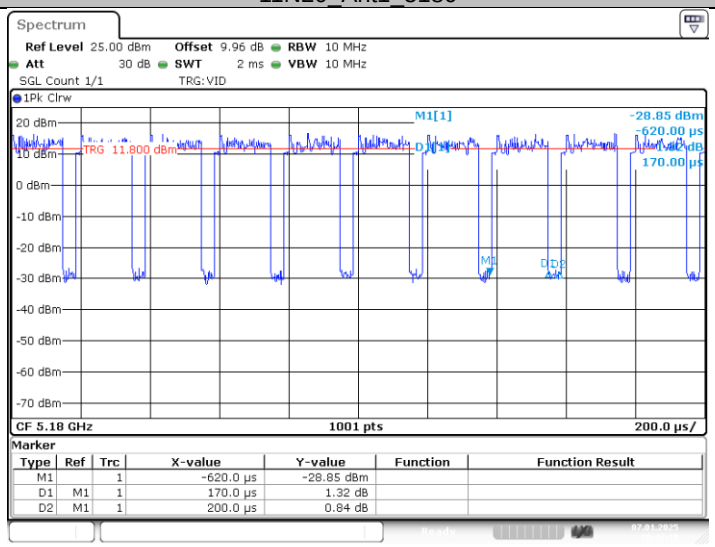
Date: 7.JAN.2025 10:31:25

11A_Ant1_5825



Date: 7.JAN.2025 10:37:25

11N20_Ant1_5180

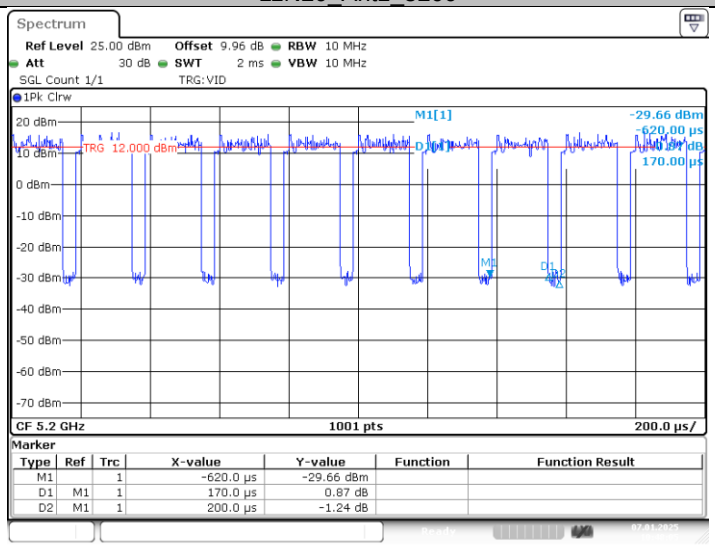


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	-620.0 µs	-28.85 dBm		
D1	M1	1	170.0 µs	1.32 dB		
D2	M1	1	200.0 µs	0.84 dB		

Date: 7.JAN.2025 10:43:10

11N20_Ant1_5200

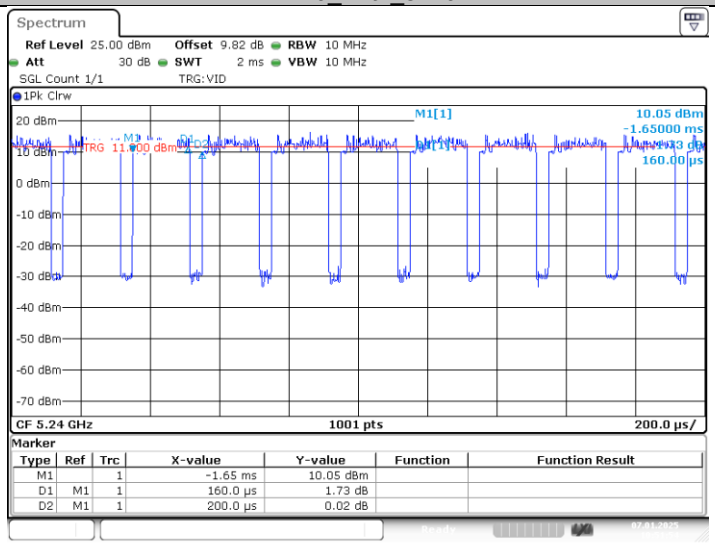


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	-620.0 µs	-29.66 dBm		
D1	M1	1	170.0 µs	0.87 dB		
D2	M1	1	200.0 µs	-1.24 dB		

Date: 7.JAN.2025 10:48:05

11N20_Ant1_5240

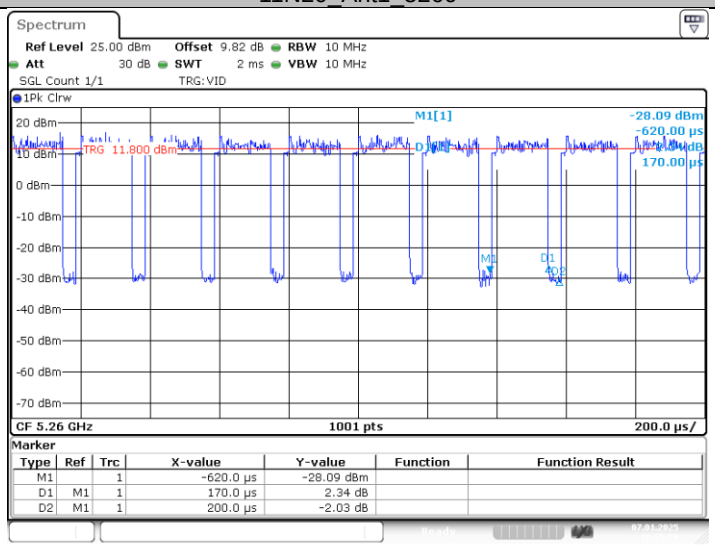


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	-1.65 ms	10.05 dBm		
D1	M1	1	160.0 µs	1.73 dB		
D2	M1	1	200.0 µs	0.02 dB		

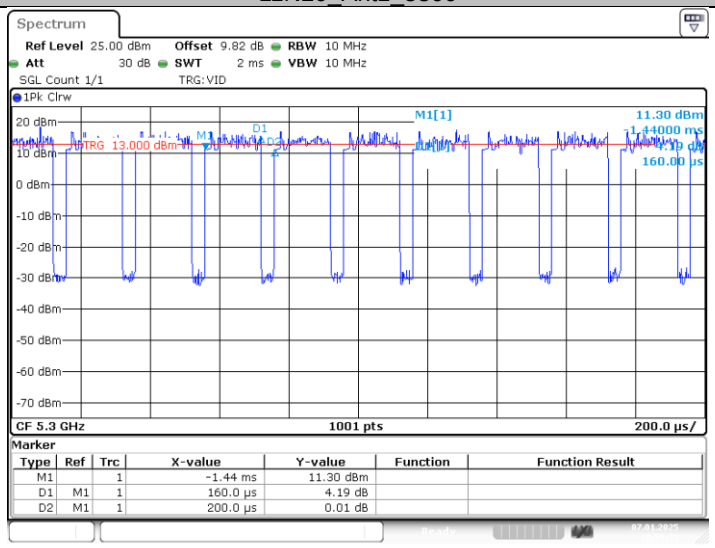
Date: 7.JAN.2025 10:51:53

11N20_Ant1_5260



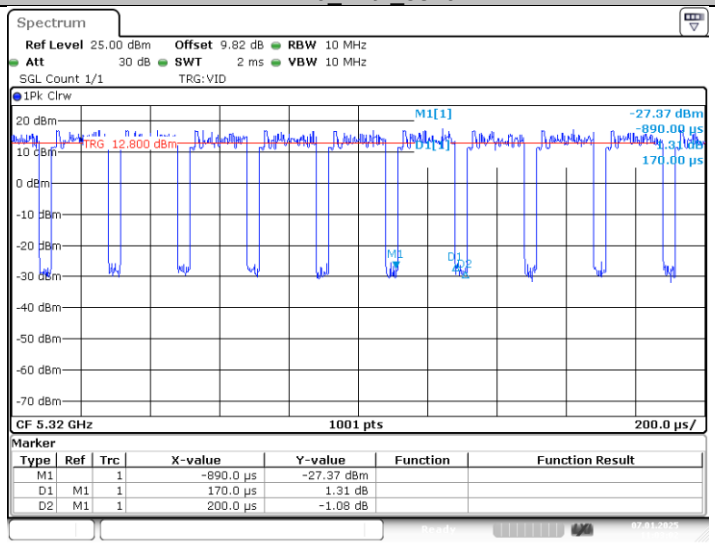
Date: 7.JAN.2025 10:55:50

11N20_Ant1_5300



Date: 7.JAN.2025 10:59:36

11N20_Ant1_5320



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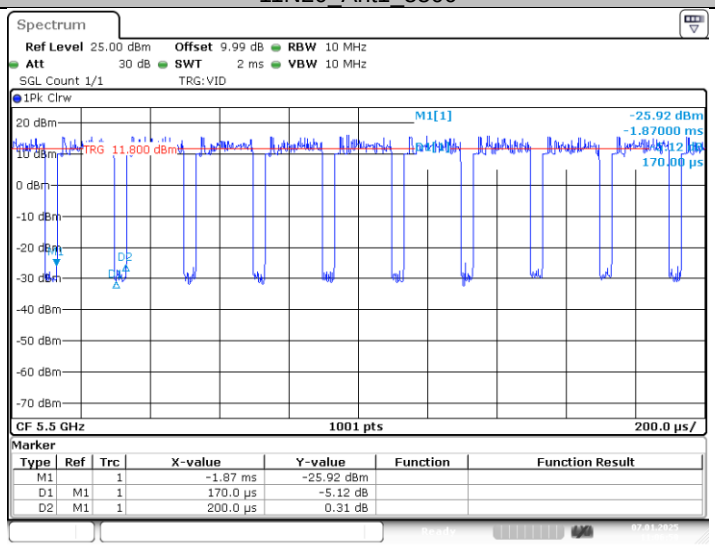
11N20_Ant1_5500



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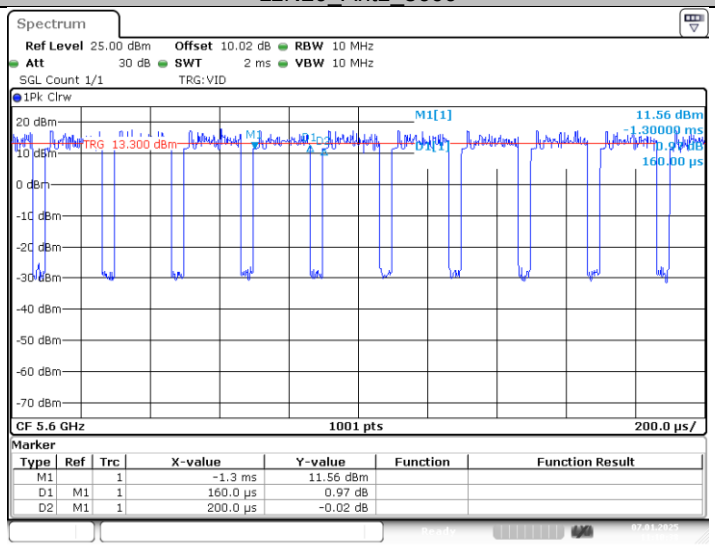
11N20_Ant1_5600



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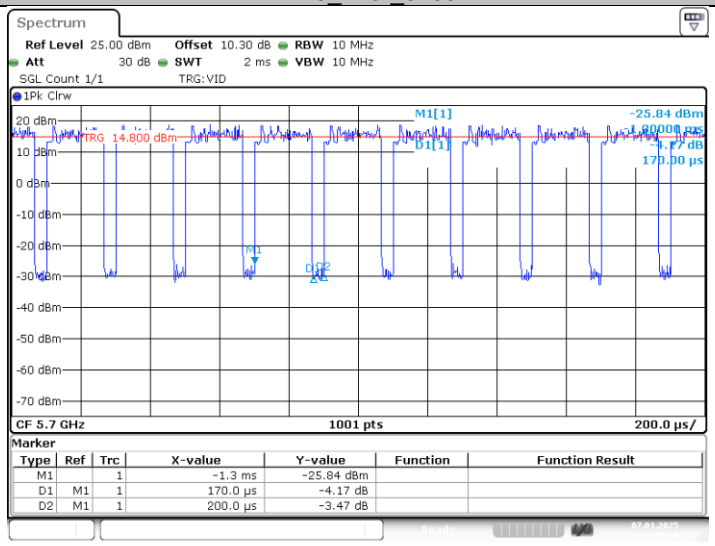

Date: 7.JAN.2025 11:15:17

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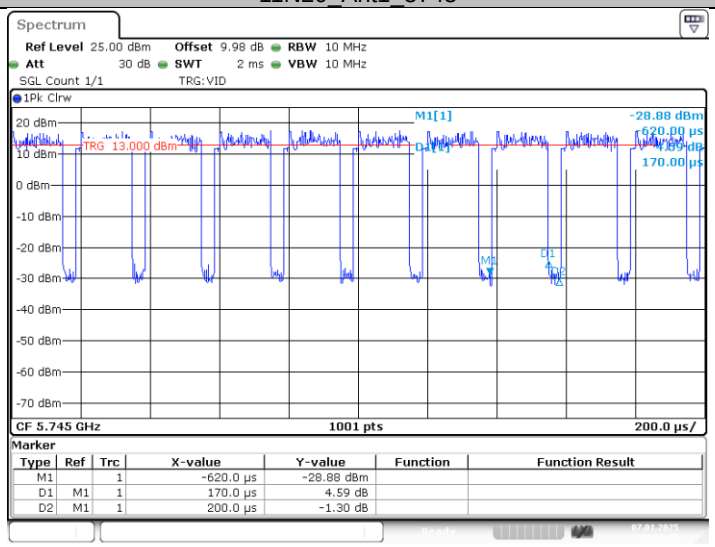

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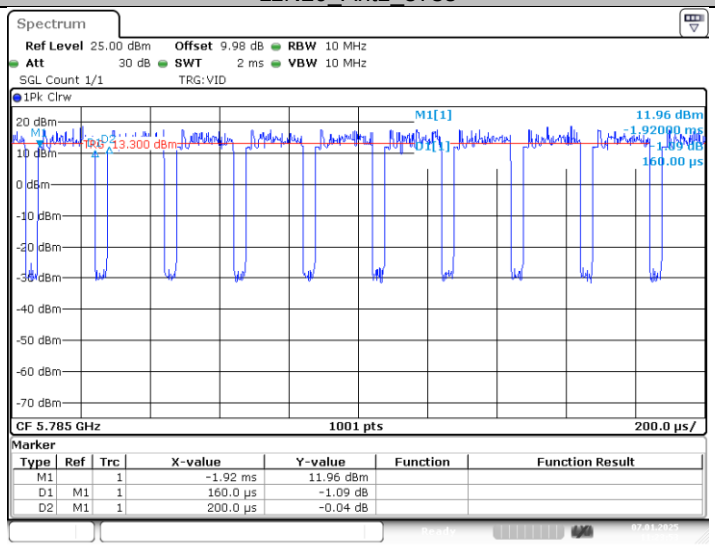
11N20_Ant1_5785



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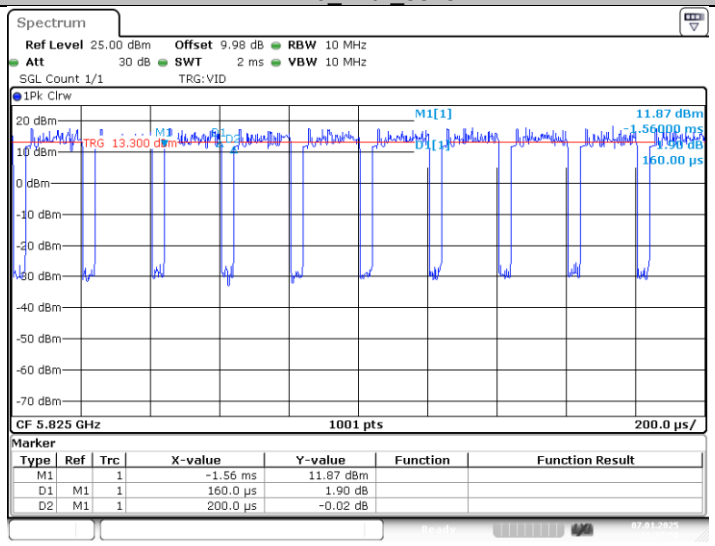
11N20_Ant1_5825



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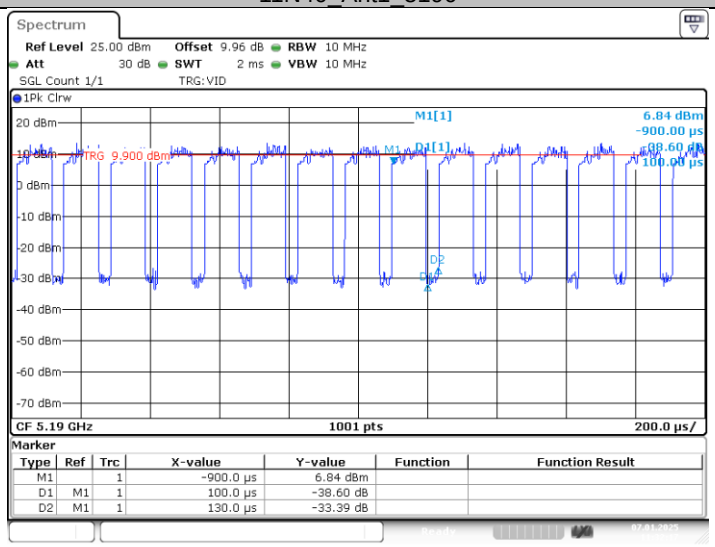
11N40_Ant1_5190



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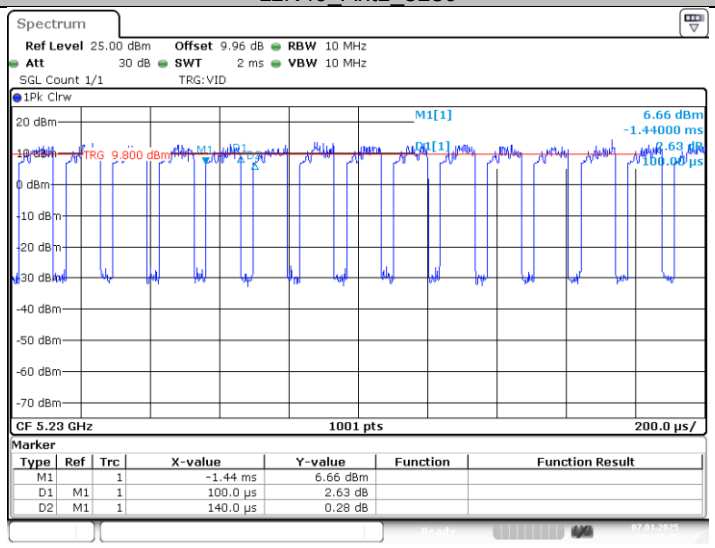
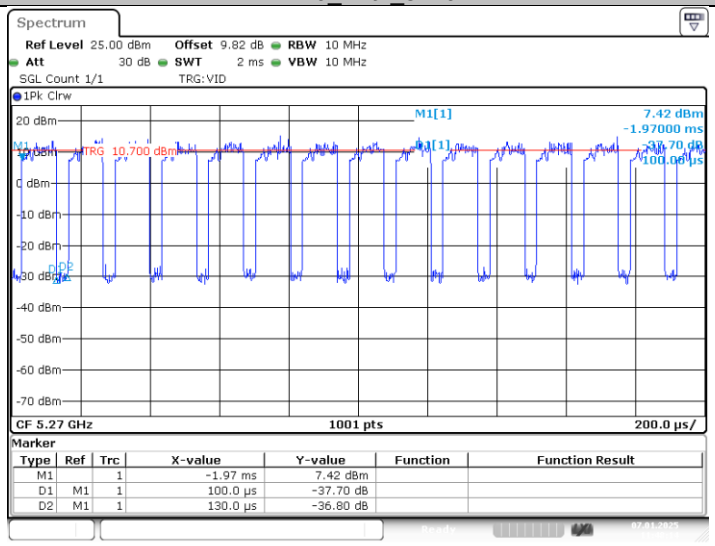
11N40_Ant1_5230



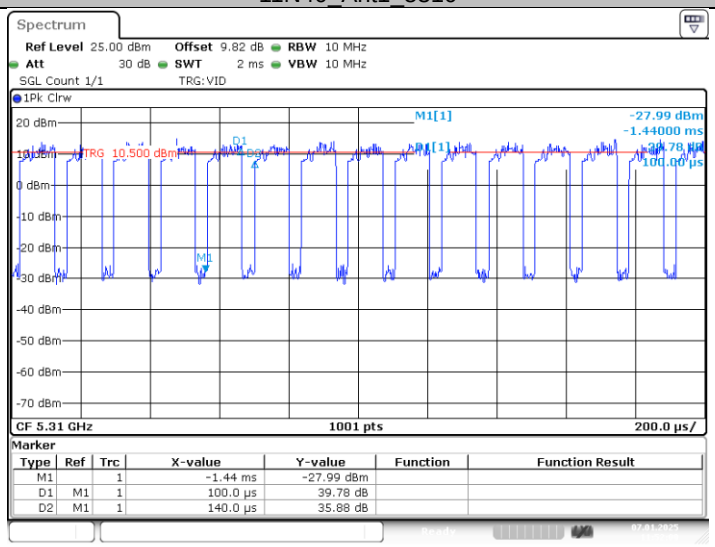
Date: 7.JAN.2025 11:39:46

11N40_Ant1_5270



Date: 7.JAN.2025 11:48:14

11N40_Ant1_5310



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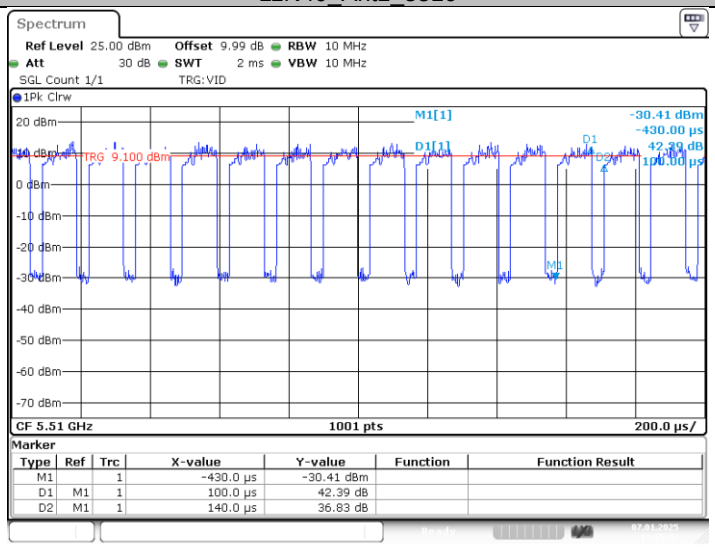
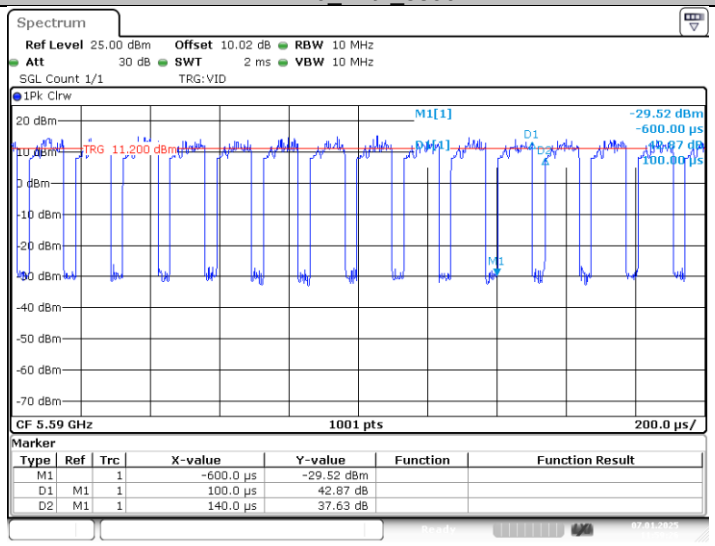
11N40_Ant1_5510



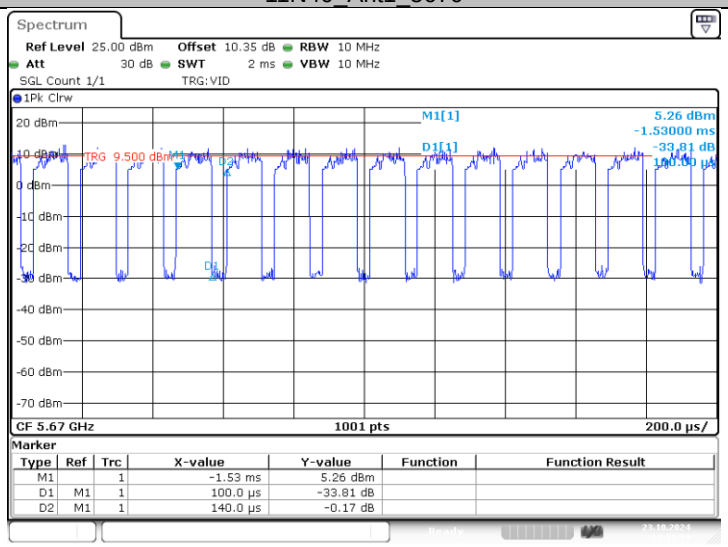
Date: 7.JAN.2025 11:55:43

11N40_Ant1_5590



Date: 7.JAN.2025 11:59:26

11N40_Ant1_5670



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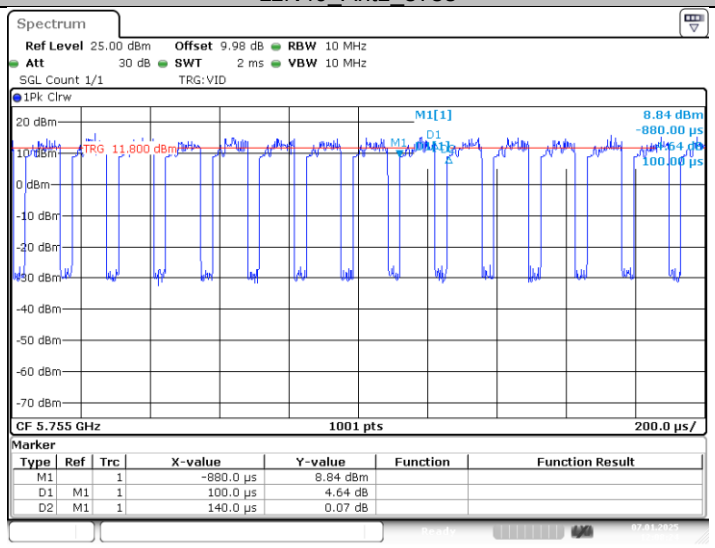
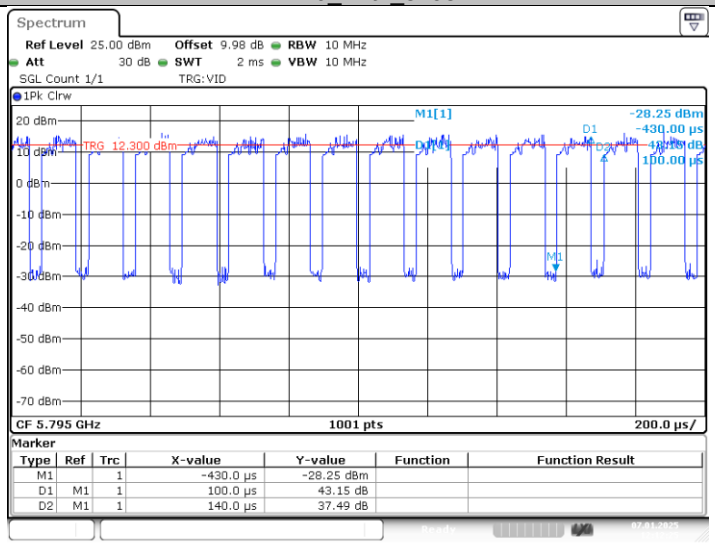


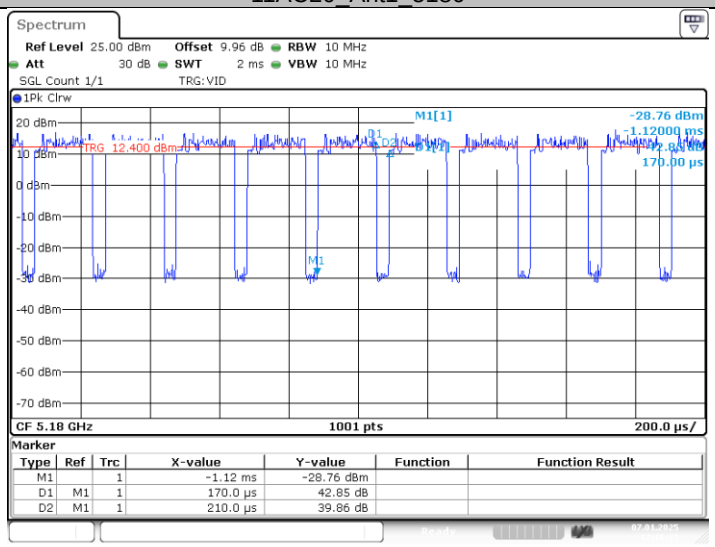
Date: 7.JAN.2025 12:08:24

11N40_Ant1_5795



Date: 7.JAN.2025 12:12:25

11AC20_Ant1_5180

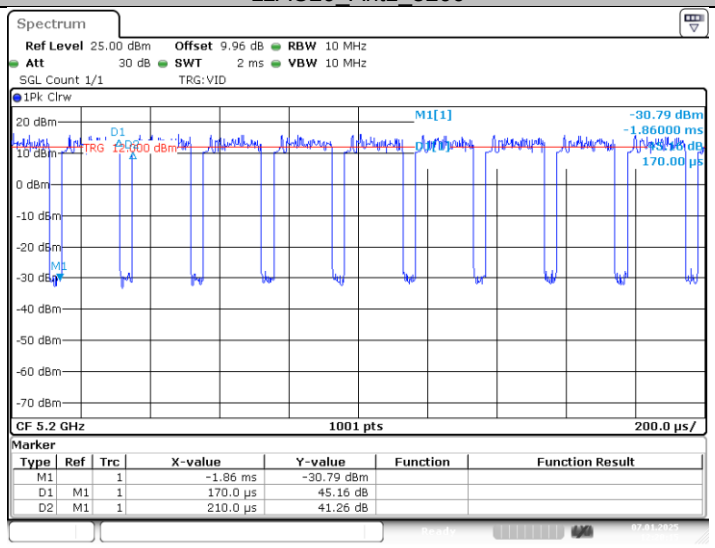


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	-1.12 ms	-28.76 dBm		
D1	M1	1	170.0 µs	42.85 dB		
D2	M1	1	210.0 µs	39.86 dB		

Date: 7.JAN.2025 12:16:33

11AC20_Ant1_5200

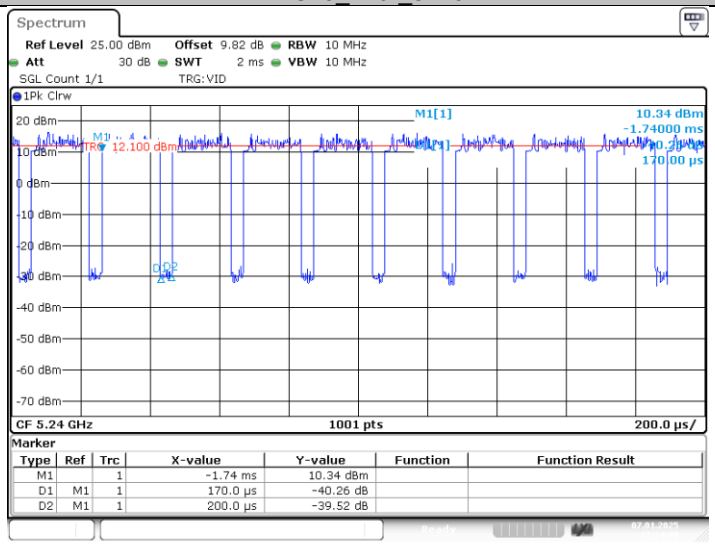


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	-1.86 ms	-30.79 dBm		
D1	M1	1	170.0 µs	45.16 dB		
D2	M1	1	210.0 µs	41.26 dB		

Date: 7.JAN.2025 12:20:16

11AC20_Ant1_5240

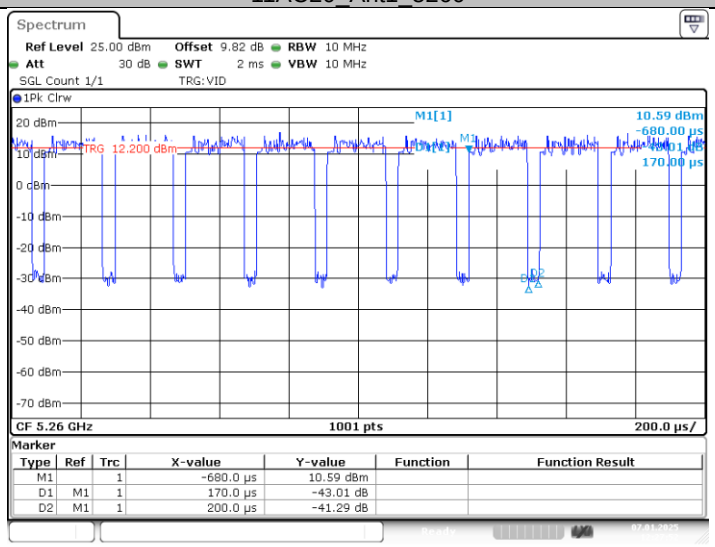


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	-1.74 ms	10.34 dBm		
D1	M1	1	170.0 µs	-40.26 dB		
D2	M1	1	200.0 µs	-39.52 dB		

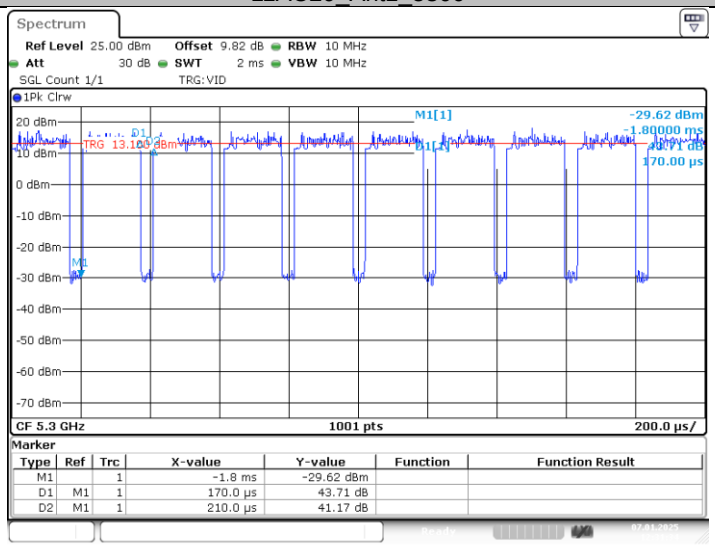
Date: 7.JAN.2025 12:24:09

11AC20_Ant1_5260



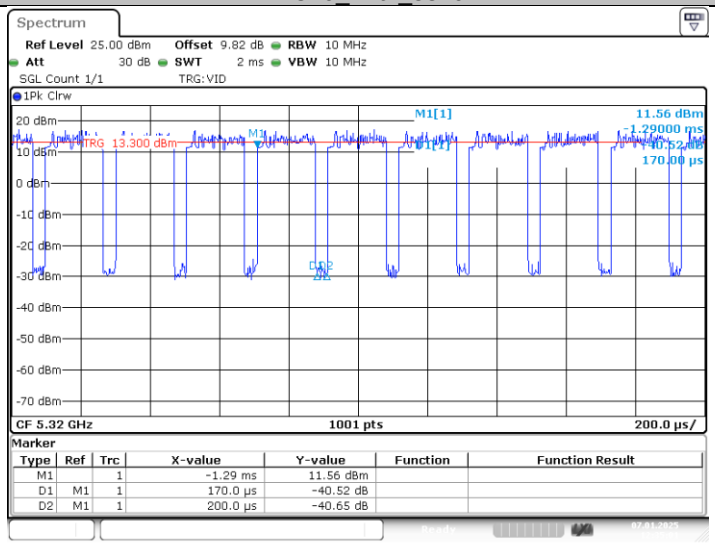
Date: 7.JAN.2025 12:27:52

11AC20_Ant1_5300



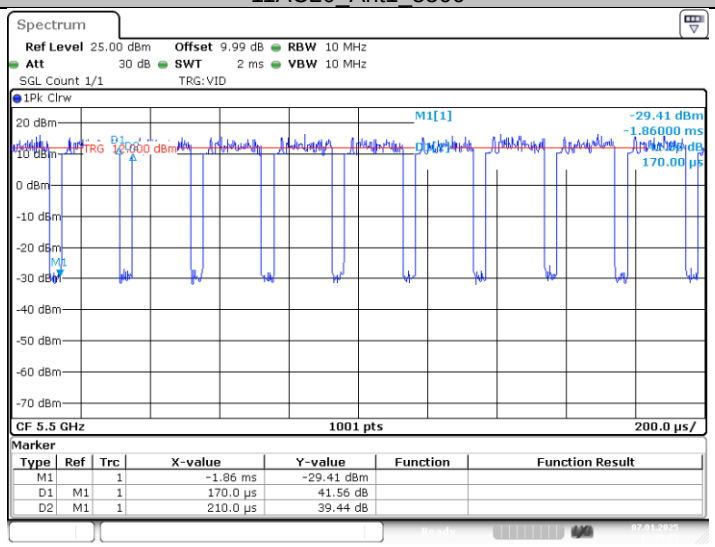
Date: 7.JAN.2025 12:31:34

11AC20_Ant1_5320



Date: 7.JAN.2025 12:35:01

11AC20_Ant1_5500

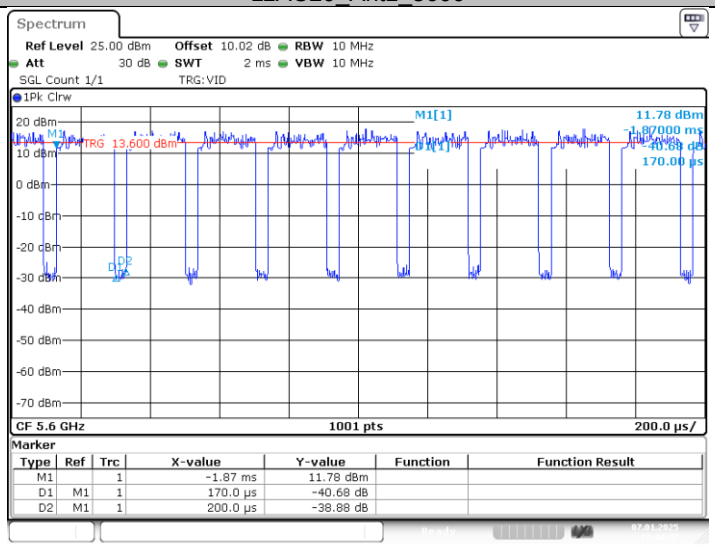


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	-1.86 ms	-29.41 dBm		
D1	M1	1	170.0 µs	41.56 dB		
D2	M1	1	210.0 µs	39.44 dB		

Date: 7.JAN.2025 12:39:23

11AC20_Ant1_5600

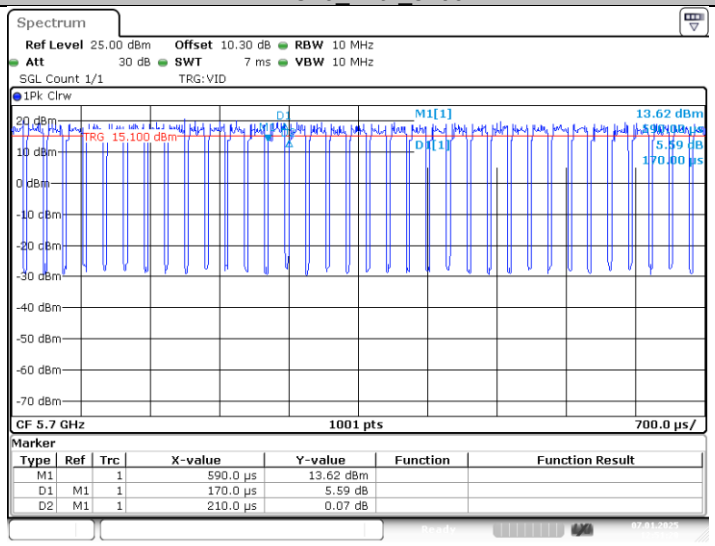


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	-1.87 ms	11.78 dBm		
D1	M1	1	170.0 µs	-40.68 dB		
D2	M1	1	200.0 µs	-38.88 dB		

Date: 7.JAN.2025 12:44:47

11AC20_Ant1_5700

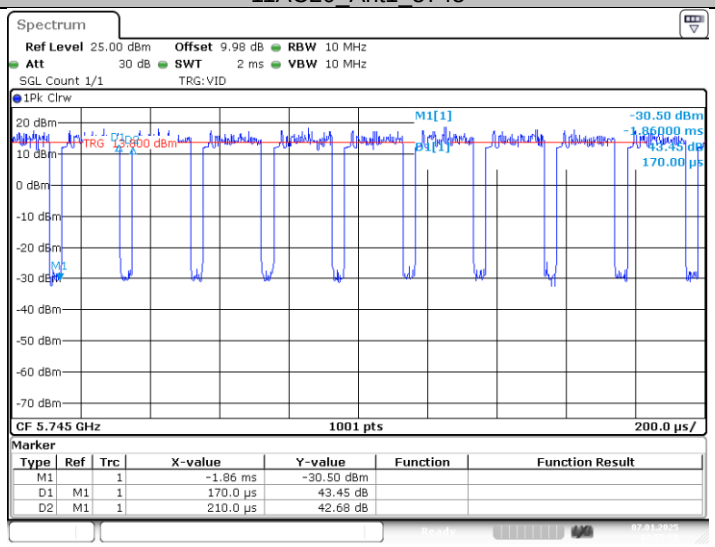


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	590.0 µs	13.62 dBm		
D1	M1	1	170.0 µs	5.59 dB		
D2	M1	1	210.0 µs	0.07 dB		

Date: 7.JAN.2025 12:51:20

11AC20_Ant1_5745

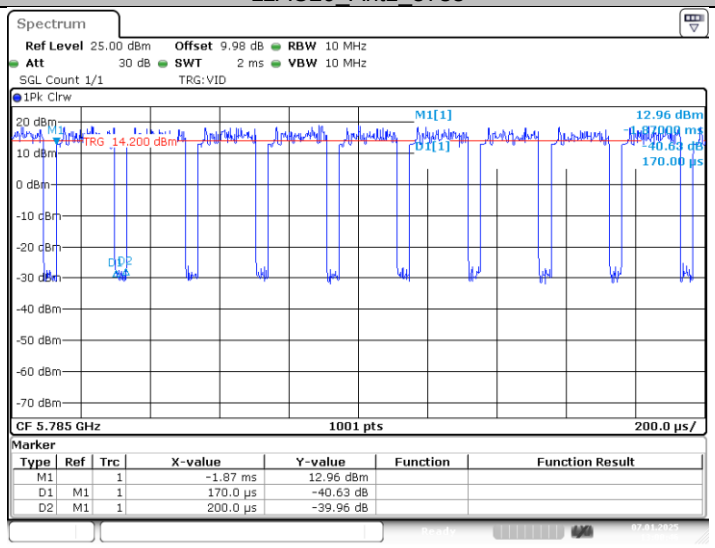


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	-1.86 ms	-30.50 dBm		
D1	M1	1	170.0 µs	43.45 dB		
D2	M1	1	210.0 µs	42.68 dB		

Date: 7.JAN.2025 12:55:58

11AC20_Ant1_5785

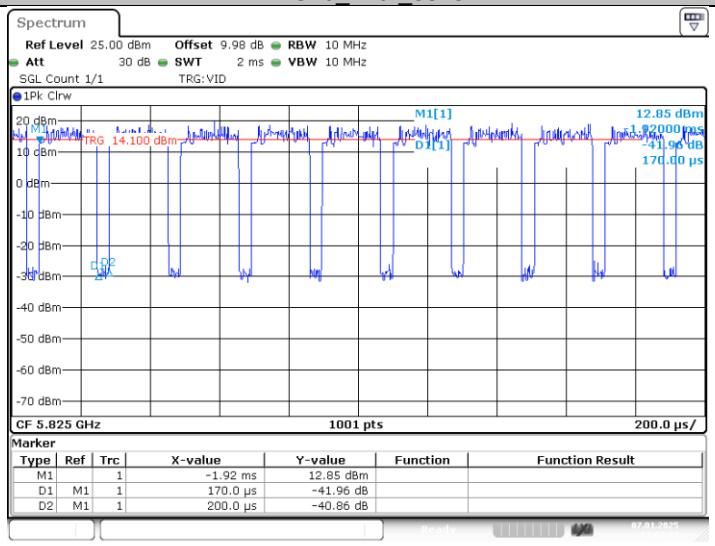


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	-1.87 ms	12.96 dBm		
D1	M1	1	170.0 µs	-40.63 dB		
D2	M1	1	200.0 µs	-39.96 dB		

Date: 7.JAN.2025 13:00:46

11AC20_Ant1_5825

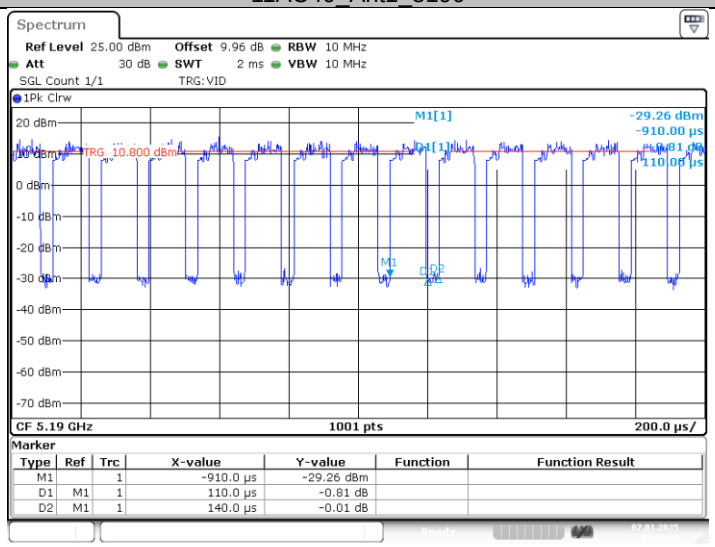


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	-1.92 ms	12.85 dBm		
D1	M1	1	170.0 µs	-41.96 dB		
D2	M1	1	200.0 µs	-40.86 dB		

Date: 7.JAN.2025 13:07:53

11AC40_Ant1_5190

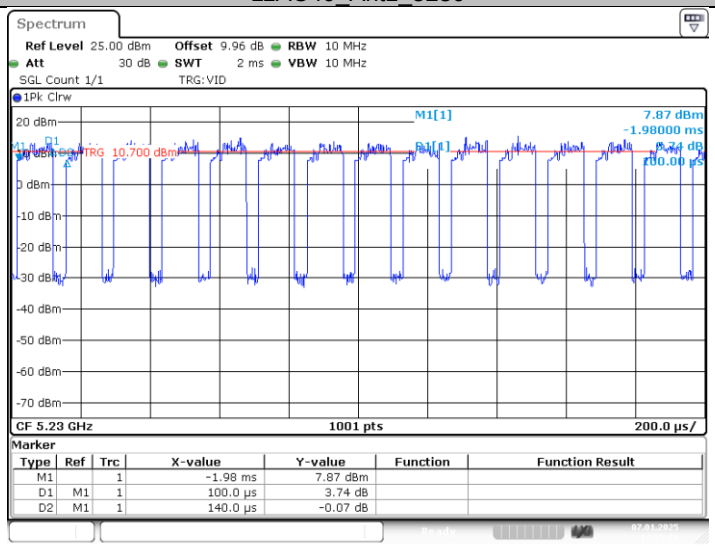


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	-910.0 µs	-29.26 dBm		
D1	M1	1	110.0 µs	-0.81 dB		
D2	M1	1	140.0 µs	-0.01 dB		

Date: 7.JAN.2025 13:13:20

11AC40_Ant1_5230

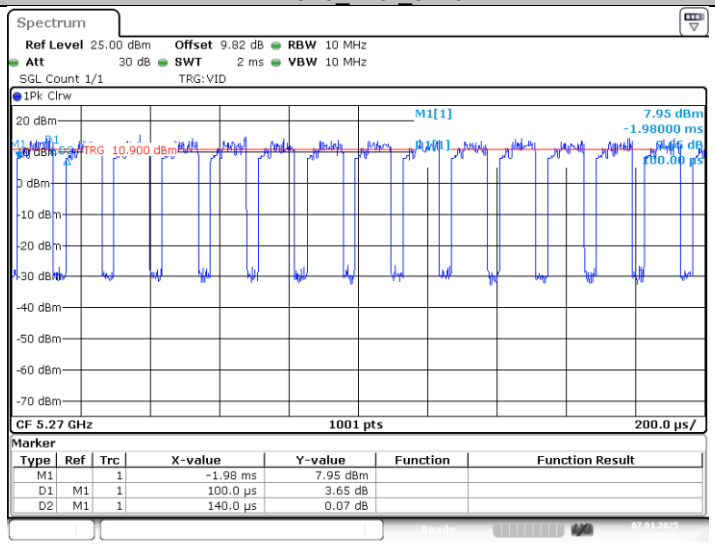


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	-1.98 ms	7.87 dBm		
D1	M1	1	100.0 µs	3.74 dB		
D2	M1	1	140.0 µs	-0.07 dB		

Date: 7.JAN.2025 13:25:26

11AC40_Ant1_5270

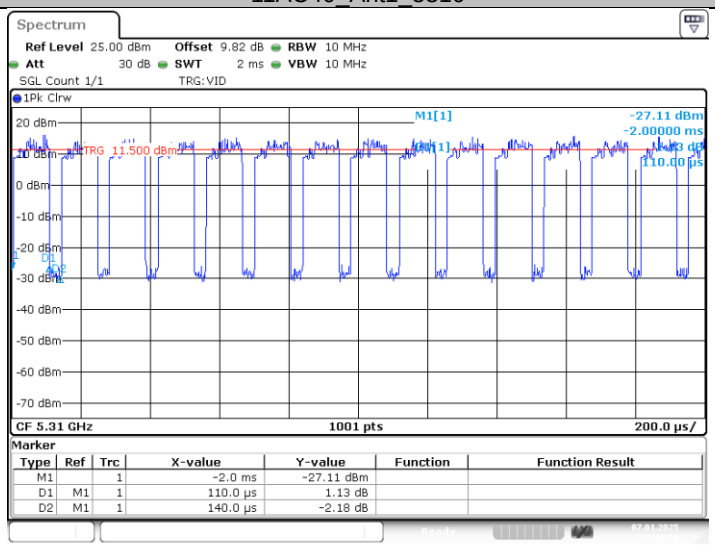


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	-1.98 ms	7.95 dBm		
D1	M1	1	100.0 µs	3.65 dB		
D2	M1	1	140.0 µs	0.07 dB		

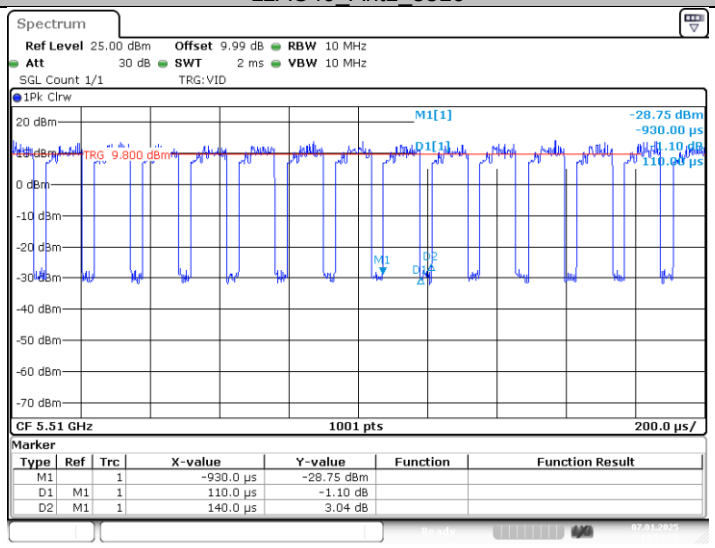
Date: 7.JAN.2025 13:37:46

11AC40_Ant1_5310



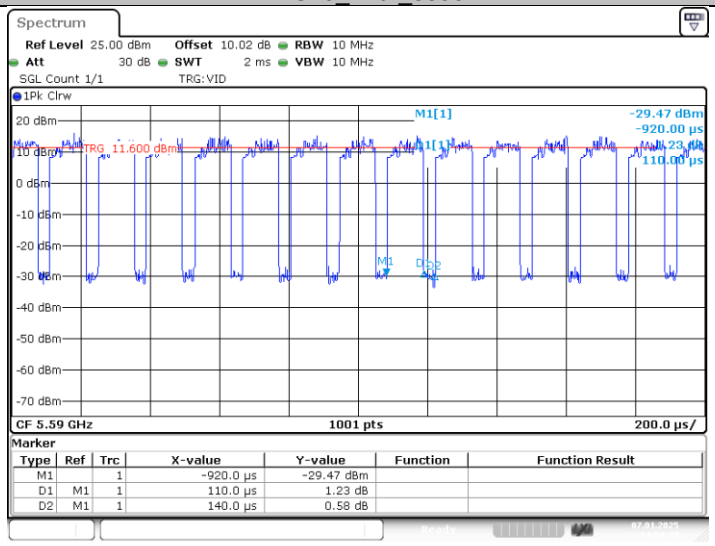
Date: 7.JAN.2025 13:43:15

11AC40_Ant1_5510



Date: 7.JAN.2025 14:53:55

11AC40_Ant1_5590



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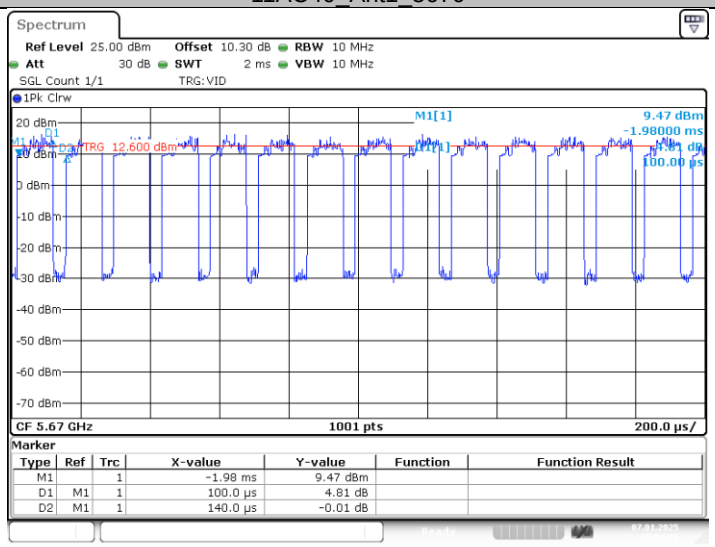

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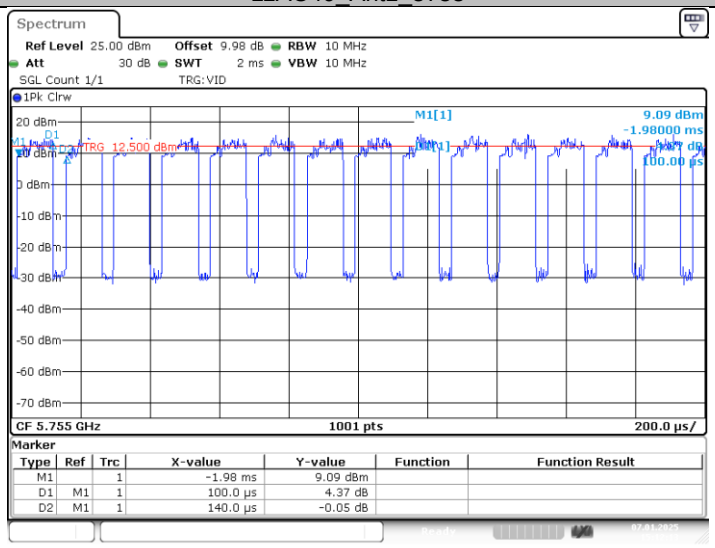

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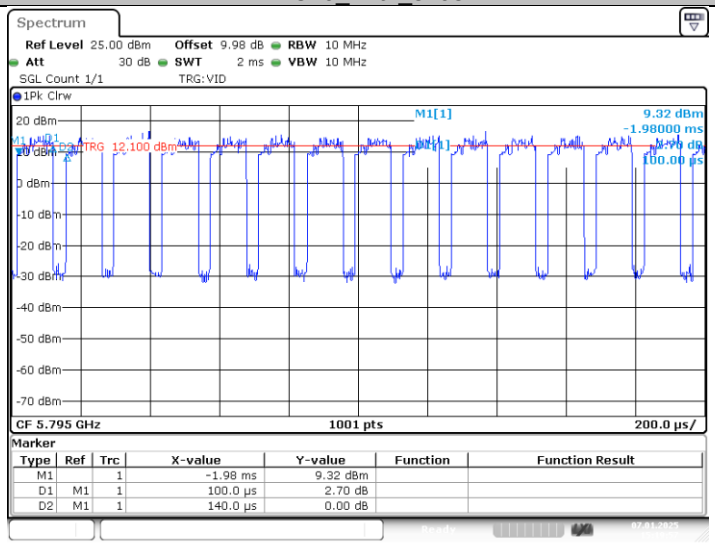

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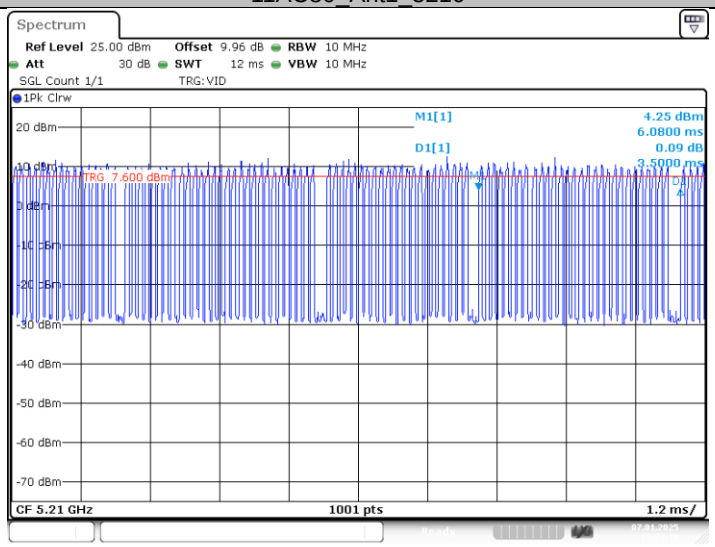

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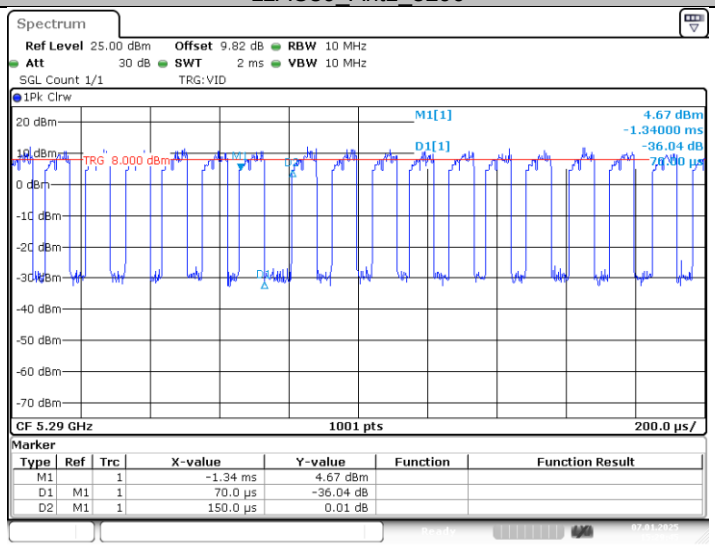

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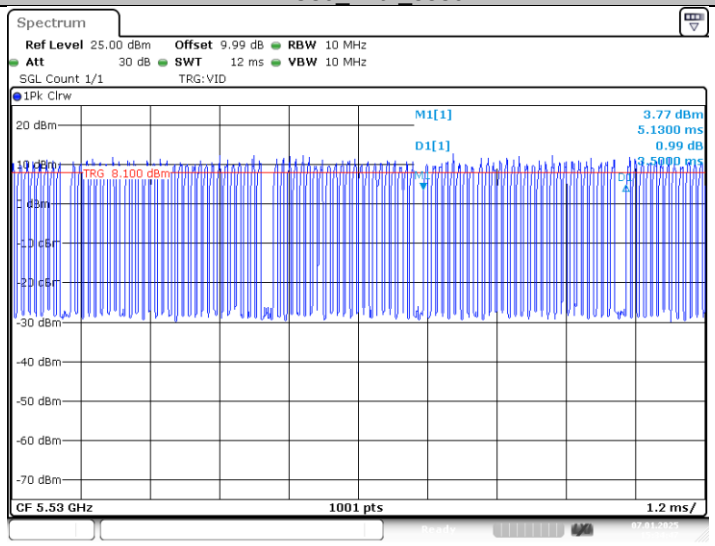

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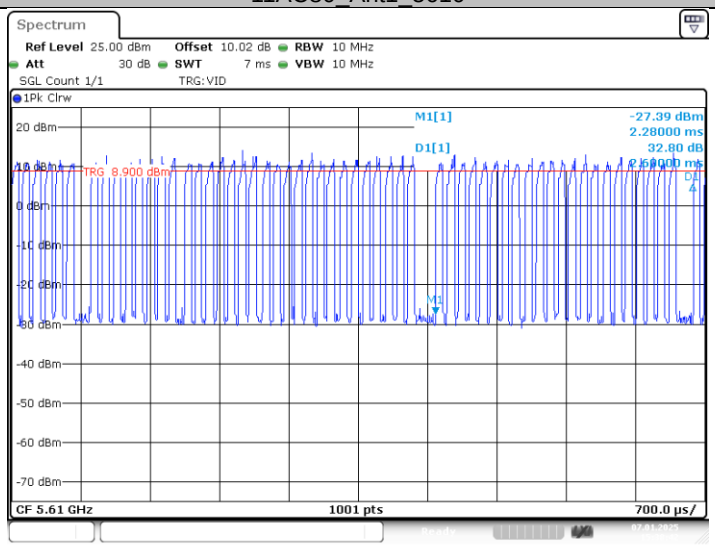

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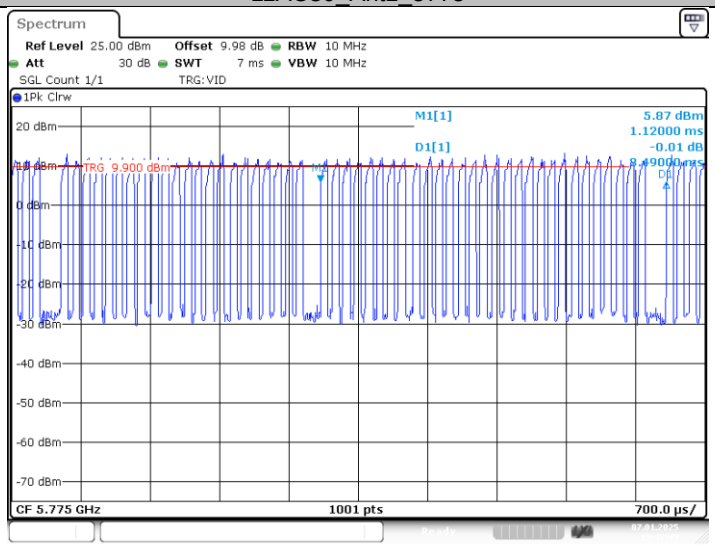


NOTE:
For IEEE 802.11a:
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth set VBW> 1/T, Trefers to the minimum transmission duration over which the transmitter is on and istransmitting at its Maximumpower control level for the tested mode of operation.

For IEEE 802.11n(HT20):
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth set VBW> 1/T, Trefers to the minimum transmission duration over which the transmitter is on and istransmitting at its Maximumpower control level for the tested mode of operation.

For IEEE 802.11n(HT40):
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth set VBW> 1/T, Trefers to the minimum transmission duration over which the transmitter is on and istransmitting at its Maximumpower control level for the tested mode of operation.

For IEEE 802.11ac20：
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth set VBW> 1/T, Trefers to the minimum transmission duration over which the transmitter is on and istransmitting at its Maximumpower control level for the tested mode of operation.

For IEEE 802.11ac40
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth set VBW> 1/T, Trefers to the minimum transmission duration over which the transmitter is on and istransmitting at its Maximumpower control level for the tested mode of operation.

For IEEE 802.11ac80
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth set VBW> 1/T, Trefers to the minimum transmission duration over which the transmitter is on and istransmitting at its Maximumpower control level for the tested mode of operation.

2.4BLOCKDIAGRAMSHOWINGTHECONFIGURATIONOFSYSTEMTESTED

EUT

2.5SUPPORT UNITS

Support Equipment				
No.	Equipment	Brand Name	Model Name	Remarks
1	/	/	/	/

3.AC POWER LINE CONDUCTED EMISSIONS

3.1LIMIT

Frequency (MHz)	Limit (dBµV)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56*	56 to 46*
0.5 - 5.0	56	46
5.0 - 30.0	60	50

NOTE:
(1) The tighter limit applies at the band edges.
(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

3.2 TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipmentpowered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the groundplane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item -EUT Test Photos.

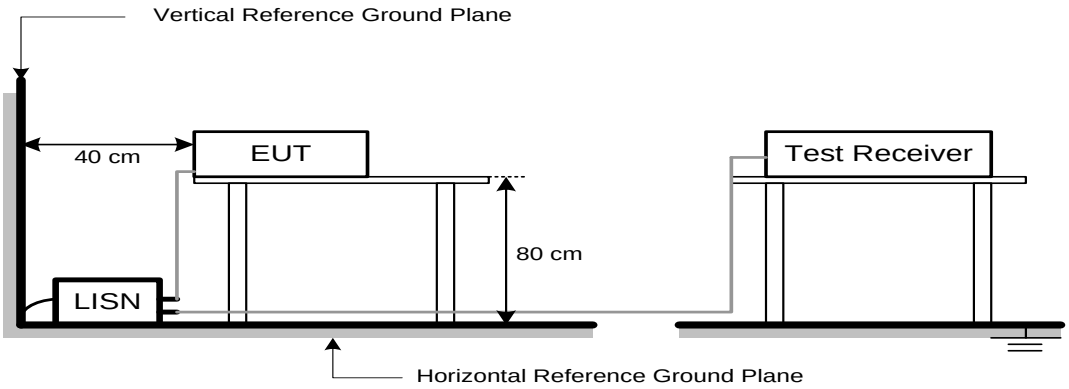
The following table is the setting of the receiver:

Receiver Parameter	Setting
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.3DEVIATIONFROMTESTSTANDARD

No deviation

3.4TESTSETUP



The LISN edge is arranged parallel to the edge of the test table
The vertical conducting plane or wall of an RF-shielded (screened) room shall be located 40 cm to the rear ofthe EUT

3.5EUT OPERATION CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it).The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.
The EUT was programmed to be in continuously transmitting/TX mode.

3.6 TEST RESULTS

Please refer to the APPENDIX A.

4. RADIATED EMISSIONS

4.1LIMIT

In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

LIMITS OF RADIATED EMISSIONS MEASUREMENT (9 kHz to 1000MHz)

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS (Above 1000 MHz)

Frequency (MHz)	EIRP Limit (dBm/MHz)	Equivalent Field Strength at 3m (dBµV/m)
5150-5250	-27	68.2
5250-5350	-27	68.2
5470-5725	-27	68.2
5725-5850 NOTE (2)	-27	68.2
	10	105.2
	15.6	110.8
	27	122.2

NOTE:

(1) The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$E = \frac{1000000\sqrt{30P}}{3}$ µV/m, where P is the eirp (Watts)

(2) According to 15.407(b)(4)(i), all emissions shall be limited to a level of -27 dBm/MHz at 75 MHz ormore above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or belowthe band edge, and from 25 MHz above or below the band edge increasing linearly to a level of15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below theband edge increasing linearly to a level of 27 dBm/MHz at the band edge.

4.2TEST PROCEDURE

a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
b. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
c. The height of the equipment or of the substitution antenna shall be 0.8m or 1.5m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the Maximumreading (used Bore sight function).
e. The receiver system was set to peak and average detect function and specified bandwidth with Maximumhold mode when the test frequency is above 1GHz.
f. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

g. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn‘t perform. (below 1GHz)
h. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn‘t perform. (above 1GHz)
i. For the actual test configuration, please refer to the related Item –EUT Test Photos.

The following table is the setting of the receiver:

Spectrum Parameters	Setting
Start ~ Stop Frequency	9 kHz~150 kHz for RBW 200 Hz
Start ~ Stop Frequency	0.15 MHz~30 MHz for RBW 9 kHz
Start ~ Stop Frequency	30 MHz~1000 MHz for RBW 100 kHz

Spectrum Parameters	Setting
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic or 40 GHz, whichever is lower
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for PK value 1MHz / 1/THz for AVG value

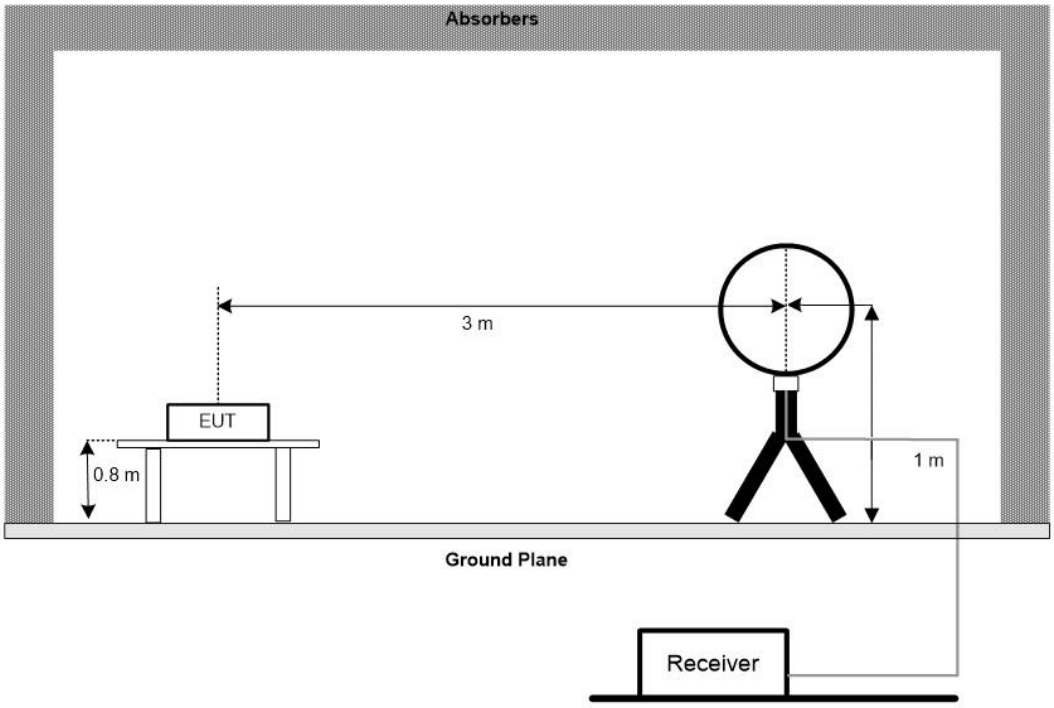
Receiver Parameters	Setting
Start ~ Stop Frequency	9 kHz~90 kHz for PK/AVG detector
Start ~ Stop Frequency	90 kHz~110 kHz for QP detector
Start ~ Stop Frequency	110 kHz~490 kHz for PK/AVG detector
Start ~ Stop Frequency	490 kHz~30 MHz for QP detector
Start ~ Stop Frequency	30MHz~1000MHz for QP detector
Start ~ Stop Frequency	1 GHz~40GHz for PK/AVG detector

4.3DEVIATIONFROMTESTSTANDARD

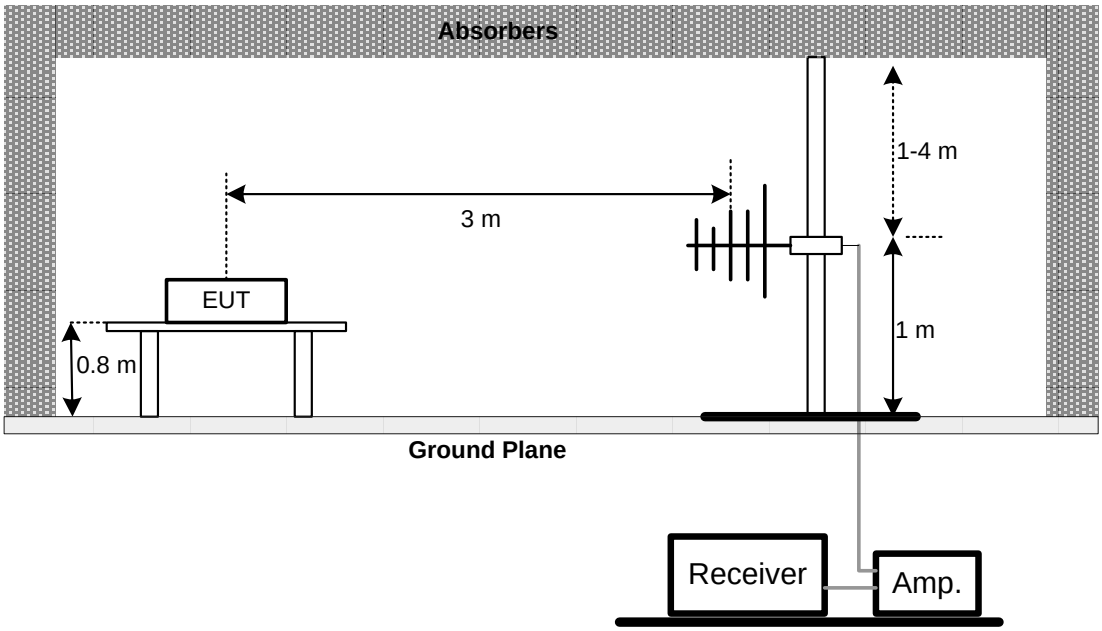
No deviation.

4.4TESTSETUP

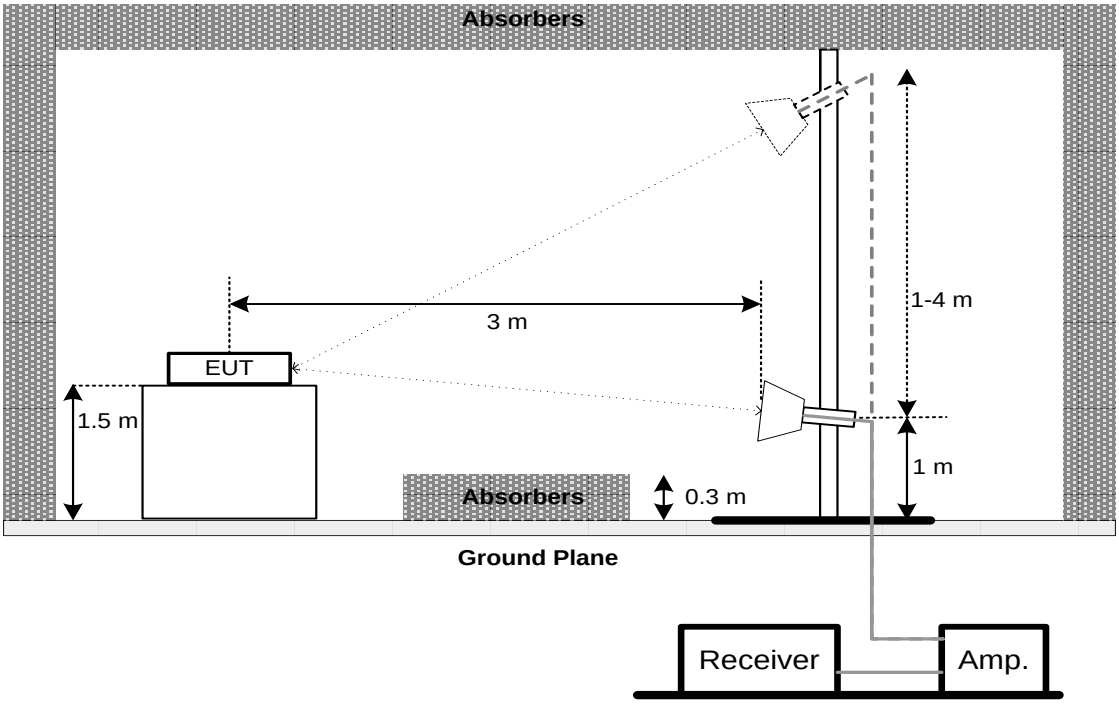
9 kHz to 30 MHz



30 MHz to 1 GHz



Above 1 GHz



4.5EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 3.5 unless otherwise a special operating condition is specified in the follows during the testing.

4.6TEST RESULTS - 9 KHZTO 30MHZ

Please refer to the APPENDIX B.

Remark:

(1) Distance extrapolation factor = 40 log (specific distance / test distance) (dB).
(2) Limit line = specific limits (dBuV) + distance extrapolation factor.

4.7TEST RESULTS - 30 MHZTO 1000 MHZ

Please refer to the APPENDIX C.

4.8TEST RESULTS - ABOVE1000 MHZ

Please refer to the APPENDIX D.

Remark:

(1) No limit:This is fundamental signal, the judgment is not applicable.
For fundamental signal judgment was referred to Peak output test.