

Appendix

TABLE OF CONTENTS

1	EQUIPMENT LIST	3
2	MEASUREMENT UNCERTAINTY (95% CONFIDENCE LEVELS, K=2).....	4
3	CONDUCTED EMISSIONS	5
4	DUTY CYCLE	7
4.1	Test Results	7
4.2	Test Plots.....	7
5	CONDUCTED OUTPUT POWER.....	11
6	EMISSION BANDWIDTH AND 99% OCCUPIED BANDWIDTH	13
6.1	Plots for 26dB Emission Bandwidth & 99% Occupied Bandwidth	13
7	6DB EMISSION BANDWIDTH & 99% OCCUPIED BANDWIDTH	58
7.1	Plots for 6dB Emission Bandwidth & 99% Occupied Bandwidth	59
8	POWER SPECTRAL DENSITY	73
8.1	Test plots	74
9	DYNAMIC FREQUENCY SELECTION	104
9.1	Test plots	104
9.2	Test Data:	105

1 Equipment List

Conducted Emission					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (yyyy-mm-dd)	Cal. Due date (yyyy-mm-dd)
Shielding Room	ZhongYu Electron	GB-88	SEM001-06	2017/5/10	2020/5/9
LISN	Rohde & Schwarz	ENV216	SEM007-01	2018/9/2	2019/9/2
LISN	ETS-LINDGREN	Feb-16	SEM007-02	2019/3/2	2020/3/1
Measurement Software	AUDIX	e3 V5.4.1221d	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM024-01	2018/7/12	2019/7/11
8 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T8-02	EMC0120	2019/2/11	2020/2/10
4 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T4-02	EMC0121	2019/2/11	2020/2/10
2 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T2-02	EMC0122	2019/2/11	2020/2/10
EMI Test Receiver	Rohde & Schwarz	ESCI	SEM004-02	2019/3/2	2020/3/1

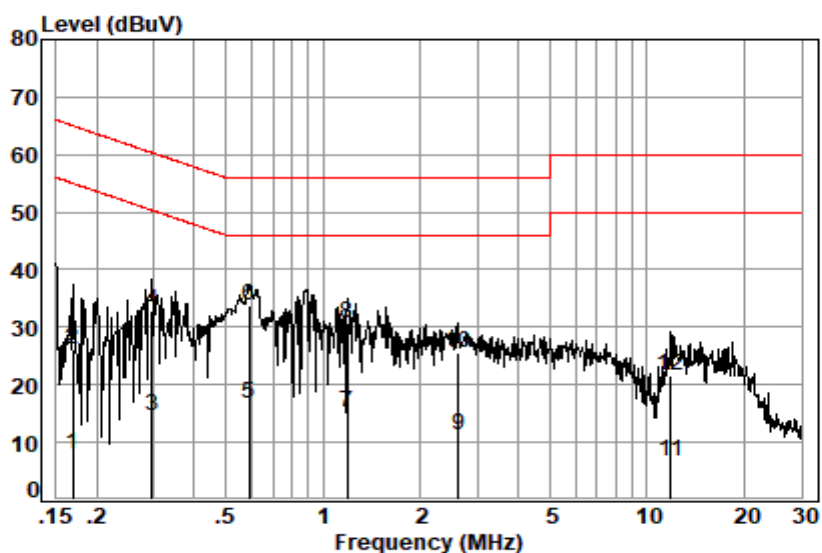
RF conducted test					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (yyyy-mm-dd)	Cal. Due date (yyyy-mm-dd)
DC Power Supply	ZhaoXin	RXN-305D	SEM011-02	2018/9/2	2019/9/2
Signal Analyzer	Rohde & Schwarz	FSV	W025-05	2019/3/2	2020/3/1
Coaxial Cable	SGS	N/A	SEM031-01	2018/7/12	2019/7/11
Attenuator	Weinschel Associates	WA41	SEM021-09	N/A	N/A
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2018/9/2	2019/9/2
Temperature Chamber	GIANT FORCE	ICT-150-40-CP-AR	W027-03	2018/11/27	2019/11/27
Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2018/9/2	2019/9/2
Master Device	Linksys pte.Ltd	WRT32X	FCC ID:Q87-WRT3200ACM IC ID:3839A-WRT3200ACM	N/A	N/A

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

No.	Item	Measurement Uncertainty
1	Total RF power, conducted	$\pm 0.75\text{dB}$
2	RF power density, conducted	$\pm 2.84\text{dB}$
3	Spurious emissions, conducted	$\pm 0.75\text{dB}$
4	Conduct emission test	$\pm 3.12\text{ dB (9KHz- 30MHz)}$

3 Conducted Emissions

Live Line:



Site : Shielding Room

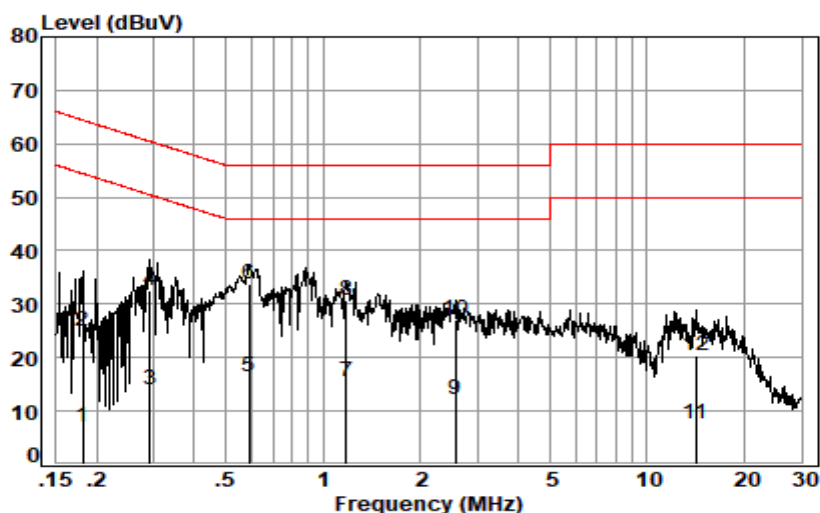
Condition: Line

Job No. : 15593CR

Test mode: e

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.1685	0.01	9.66	-1.69	7.98	55.03	-47.05	Average
2	0.1685	0.01	9.66	16.53	26.20	65.03	-38.83	QP
3	0.2971	0.04	9.67	4.92	14.63	50.32	-35.69	Average
4	0.2971	0.04	9.67	23.20	32.91	60.32	-27.41	QP
5	0.5916	0.07	9.67	6.84	16.58	46.00	-29.42	Average
6	0.5916	0.07	9.67	24.17	33.91	56.00	-22.09	QP
7	1.1844	0.11	9.73	5.51	15.35	46.00	-30.65	Average
8	1.1844	0.11	9.73	21.00	30.84	56.00	-25.16	QP
9	2.6082	0.16	9.71	1.26	11.13	46.00	-34.87	Average
10	2.6082	0.16	9.71	15.72	25.59	56.00	-30.41	QP
11	11.8697	0.19	10.06	-3.43	6.82	50.00	-43.18	Average
12	11.8697	0.19	10.06	11.40	21.65	60.00	-38.35	QP

Neutral Line:



Site : Shielding Room
 Condition: Neutral
 Job No. : 15593CR
 Test mode: e

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.1815	0.02	9.64	-2.78	6.88	54.42	-47.54	Average
2	0.1815	0.02	9.64	15.34	25.00	64.42	-39.42	QP
3	0.2924	0.04	9.64	4.30	13.98	50.46	-36.48	Average
4	0.2924	0.04	9.64	22.74	32.42	60.46	-28.04	QP
5	0.5916	0.07	9.64	6.73	16.44	46.00	-29.56	Average
6	0.5916	0.07	9.64	24.05	33.76	56.00	-22.24	QP
7	1.1781	0.11	9.70	5.68	15.49	46.00	-30.51	Average
8	1.1781	0.11	9.70	20.99	30.80	56.00	-25.20	QP
9	2.5671	0.16	9.68	2.32	12.16	46.00	-33.84	Average
10	2.5671	0.16	9.68	17.27	27.11	56.00	-28.89	QP
11	14.1376	0.20	10.30	-2.86	7.64	50.00	-42.36	Average
12	14.1376	0.20	10.30	9.87	20.37	60.00	-39.63	QP

Remarks:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level = Receiver Reading + LISN Factor + Cable Loss.

4 Duty Cycle

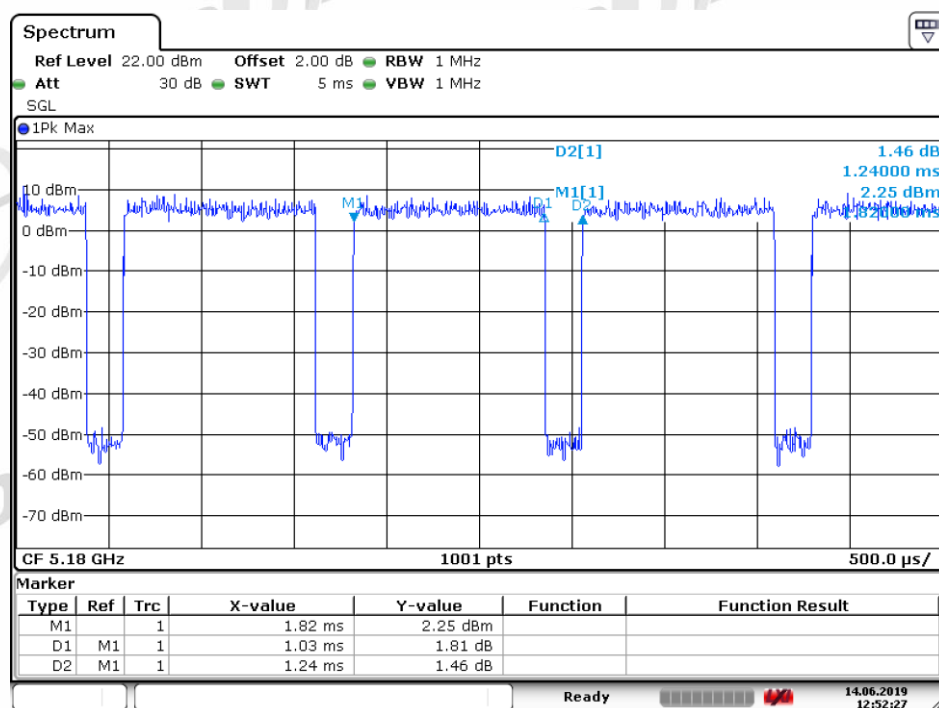
4.1 Test Results

Test Mode	TX Freq. [MHz]	Duty cycle [%]
11A	Ant 1: CH149	83.06
11N20	Ant 1: CH149	82.13
11N40	Ant 1: CH151	65.46
11AC20	Ant 1: CH149	82.55
11AC40	Ant 1: CH151	66.33
11AC80	Ant 1: CH155	54.89

4.2 Test Plots

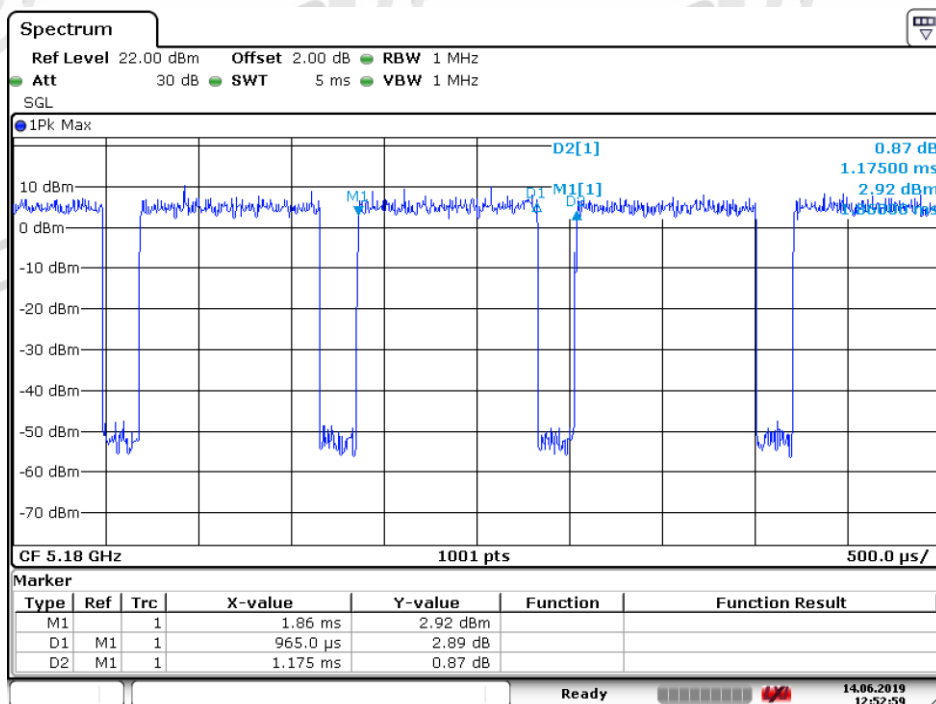
ANT1

11A



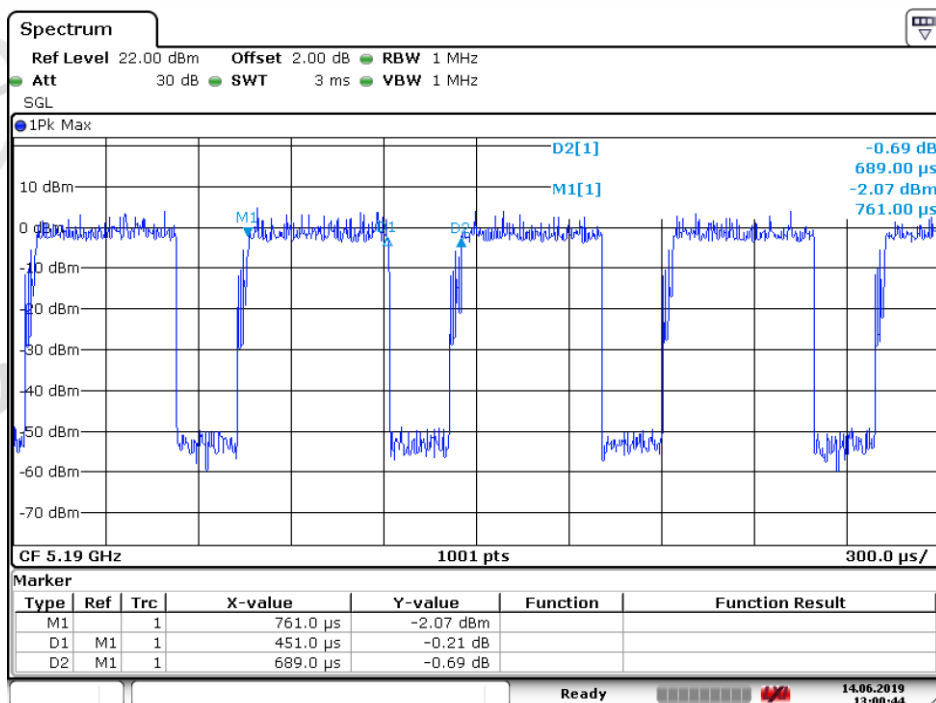
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11N20



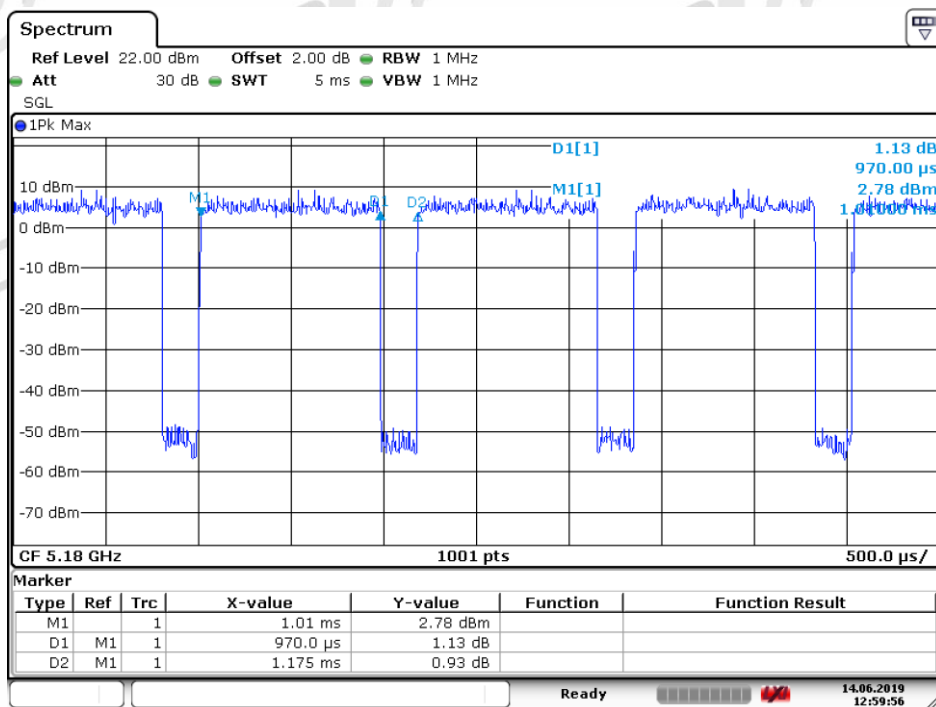
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11N40



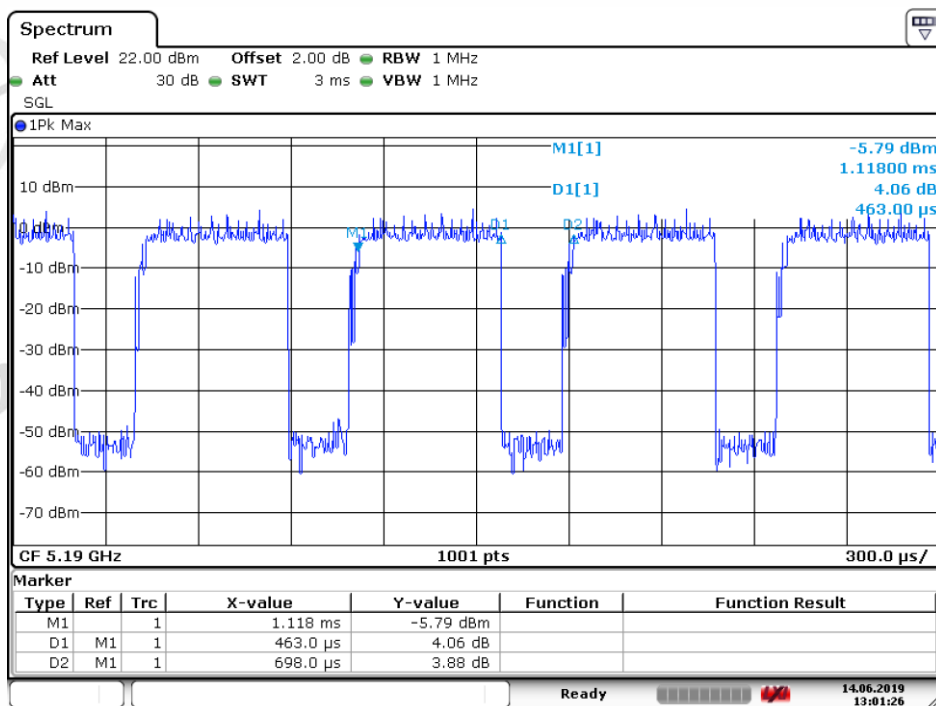
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11AC20



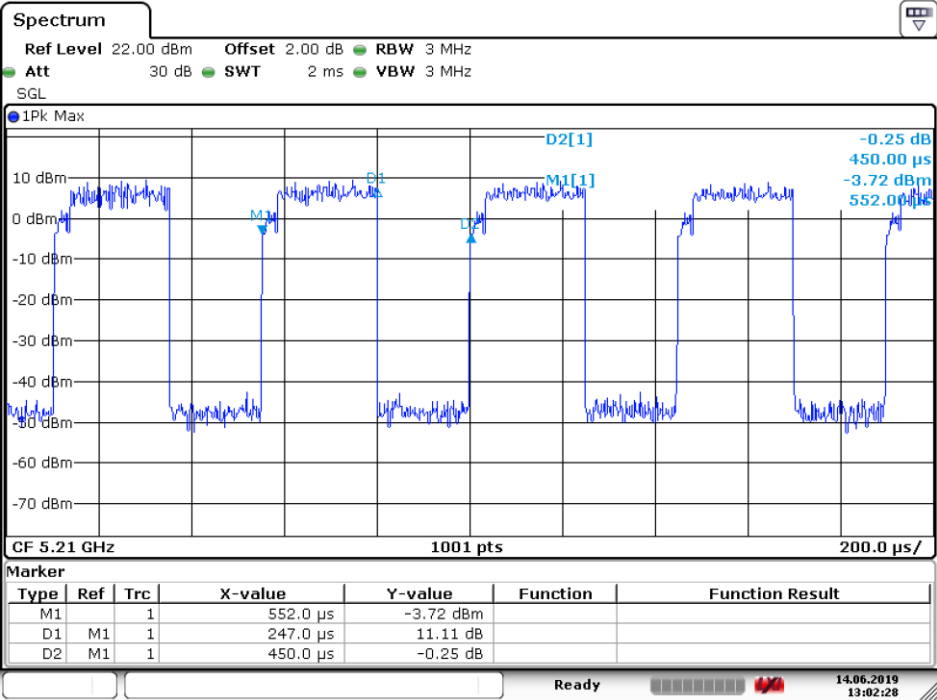
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11AC40



Date: 14. JUN.2019 13:01:26

11AC80



Date: 14.JUN.2019 13:02:28

5 Conducted Output Power

Measurement Data:

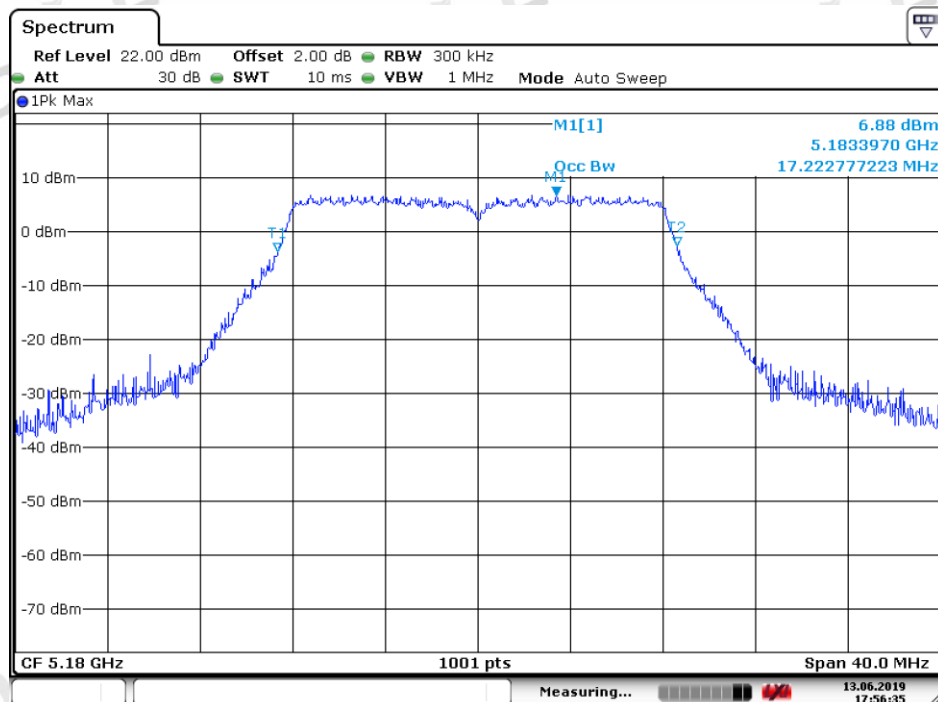
Test Mode	Test Channel	Frequency [MHz]	Antenna Port	Meas. Level (Cond.) [dBm]	Meas. Level (EIRP) [dBm]	Verdict
11A20	36	5180	ANT 1	13.74	18.74	PASS
	44	5220	ANT 1	13.71	18.71	PASS
	48	5240	ANT 1	13.68	18.68	PASS
	52	5260	ANT 1	13.73	18.73	PASS
	60	5300	ANT 1	13.66	18.66	PASS
	64	5320	ANT 1	13.52	18.52	PASS
	100	5500	ANT 1	12.85	17.85	PASS
	116	5580	ANT 1	12.56	17.56	PASS
	140	5700	ANT 1	12.48	17.48	PASS
	149	5745	ANT 1	12.55	17.55	PASS
	157	5785	ANT 1	12.45	17.45	PASS
	165	5825	ANT 1	12.33	17.33	PASS
11N20	36	5180	ANT 1	13.82	18.82	PASS
	44	5220	ANT 1	13.48	18.48	PASS
	48	5240	ANT 1	13.52	18.52	PASS
	52	5260	ANT 1	13.55	18.55	PASS
	60	5300	ANT 1	13.44	18.44	PASS
	64	5320	ANT 1	13.38	18.38	PASS
	100	5500	ANT 1	12.67	17.67	PASS
	116	5580	ANT 1	12.42	17.42	PASS
	140	5700	ANT 1	12.28	17.28	PASS
	149	5745	ANT 1	12.38	17.38	PASS
	157	5785	ANT 1	12.30	17.30	PASS
	165	5825	ANT 1	12.25	17.25	PASS
11N40	38	5190	ANT 1	13.68	18.68	PASS
	46	5230	ANT 1	13.62	18.62	PASS
	54	5270	ANT 1	13.68	18.68	PASS
	62	5310	ANT 1	13.72	18.72	PASS
	102	5510	ANT 1	13.11	18.11	PASS
	110	5550	ANT 1	12.96	17.96	PASS
	134	5670	ANT 1	12.55	17.55	PASS
	151	5755	ANT 1	12.65	17.65	PASS
	159	5795	ANT 1	12.51	17.51	PASS
11AC20	36	5180	ANT 1	13.66	18.66	PASS
	44	5220	ANT 1	13.71	18.71	PASS
	48	5240	ANT 1	13.62	18.62	PASS
	52	5260	ANT 1	13.59	18.59	PASS
	60	5300	ANT 1	13.56	18.56	PASS

	64	5320	ANT 1	13.57	18.57	PASS
	100	5500	ANT 1	12.72	17.72	PASS
	116	5580	ANT 1	12.52	17.52	PASS
	140	5700	ANT 1	12.31	17.31	PASS
	149	5745	ANT 1	12.44	17.44	PASS
	157	5785	ANT 1	12.21	17.21	PASS
	165	5825	ANT 1	12.20	17.20	PASS
11AC40	38	5190	ANT 1	13.84	18.84	PASS
	46	5230	ANT 1	13.87	18.87	PASS
	54	5270	ANT 1	13.85	18.85	PASS
	62	5310	ANT 1	13.88	18.88	PASS
	102	5510	ANT 1	13.01	18.01	PASS
	110	5550	ANT 1	12.88	17.88	PASS
	134	5670	ANT 1	12.63	17.63	PASS
	151	5755	ANT 1	12.66	17.66	PASS
	159	5795	ANT 1	12.56	17.56	PASS
11AC80	42	5210	ANT 1	12.80	17.80	PASS
	58	5290	ANT 1	12.82	17.82	PASS
	106	5530	ANT 1	12.05	17.05	PASS
	122	5610	ANT 1	11.91	16.91	PASS
	155	5775	ANT 1	11.71	16.71	PASS

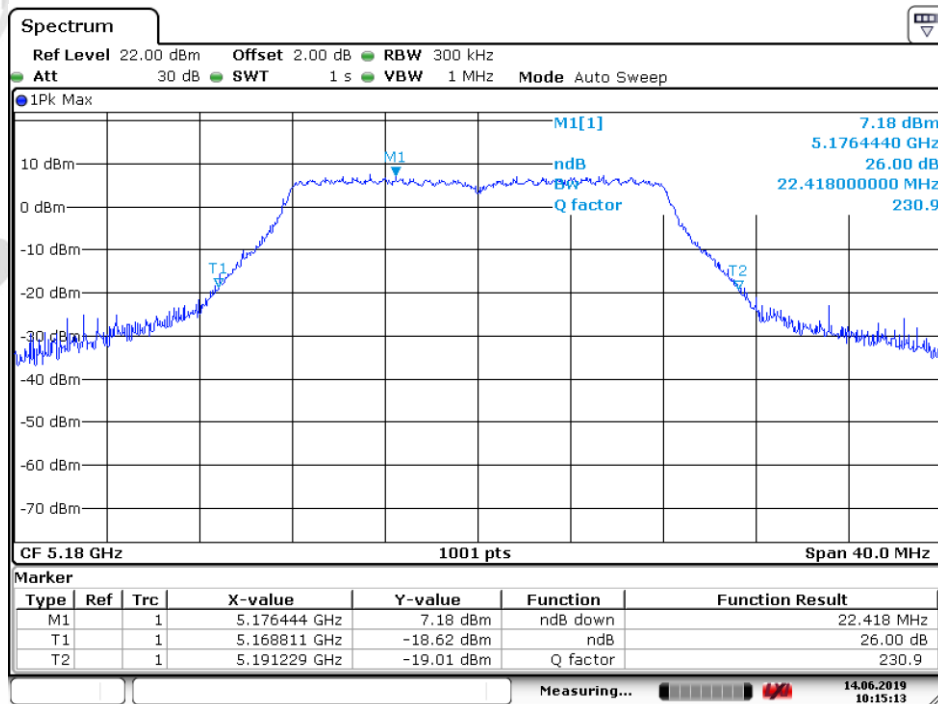
6 Emission Bandwidth and 99% Occupied Bandwidth

6.1 Plots for 26dB Emission Bandwidth & 99% Occupied Bandwidth

11A20_36 ANT 1

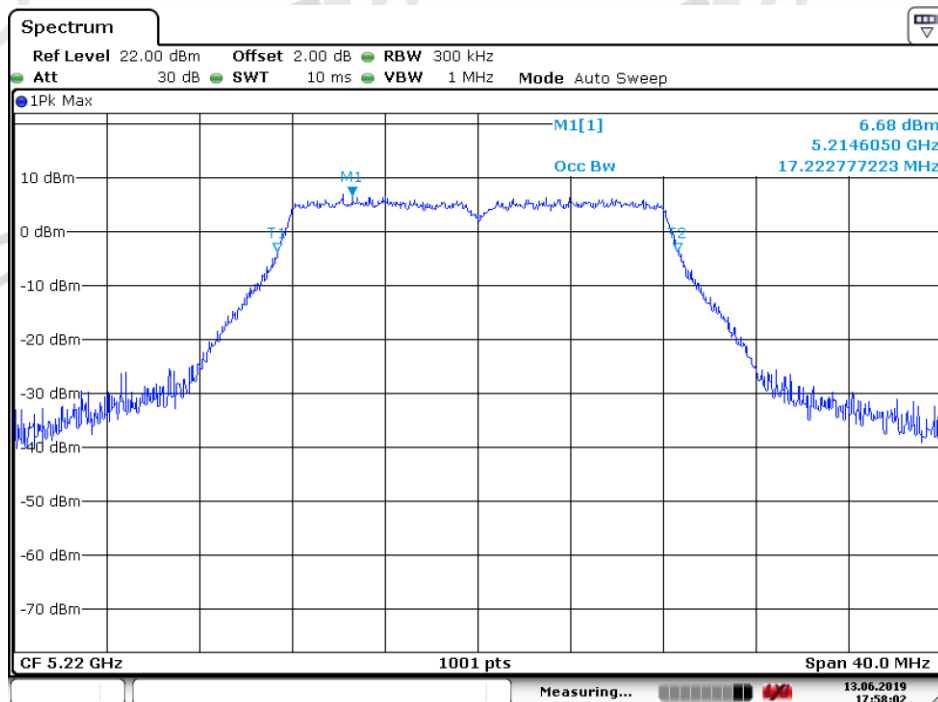


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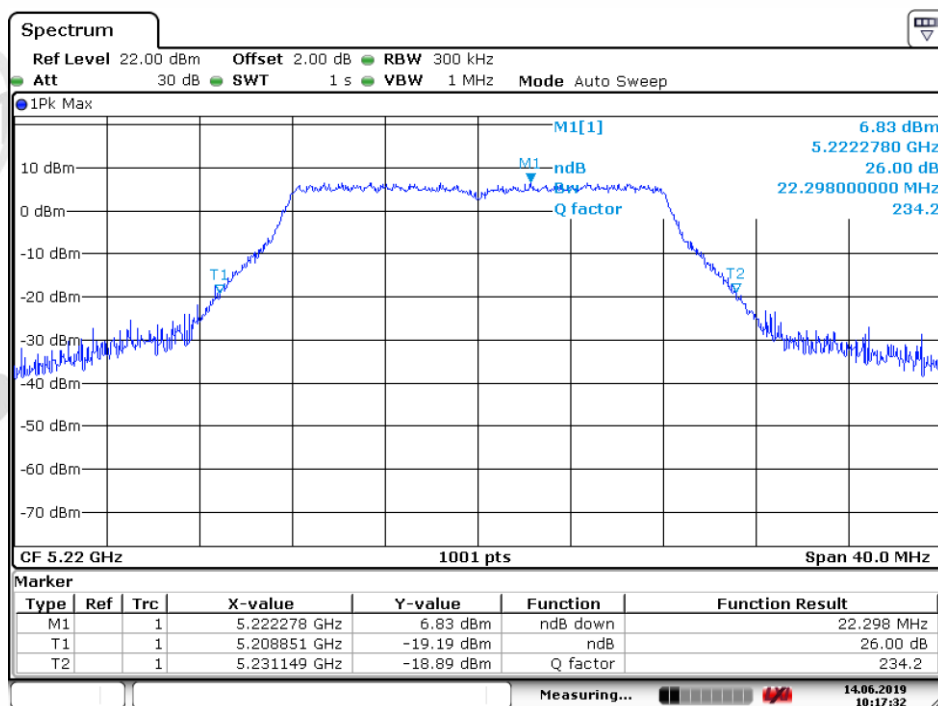


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11A20_44 ANT 1

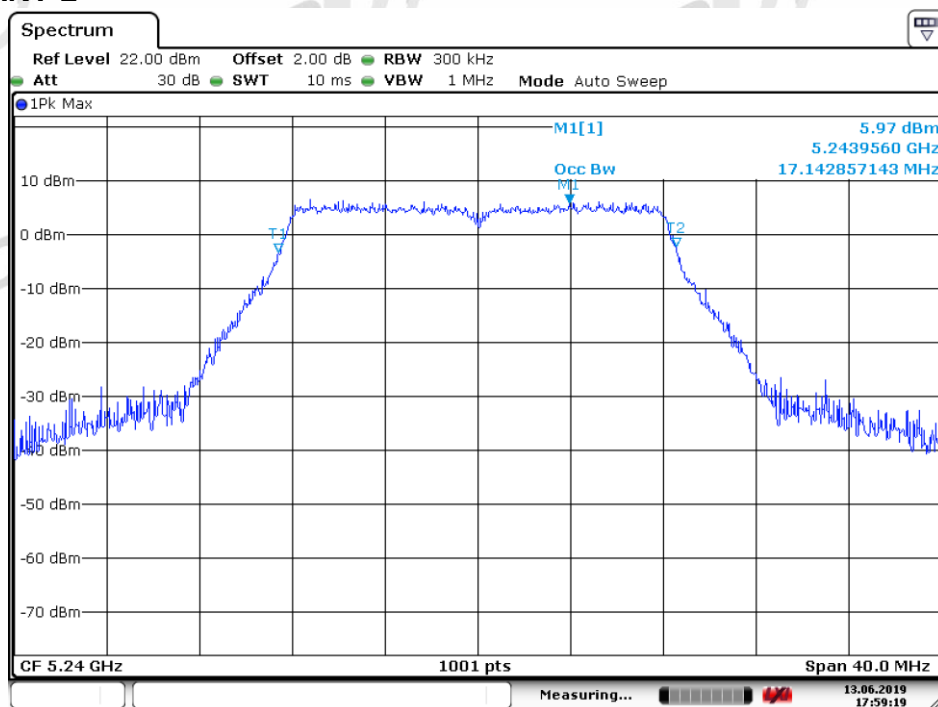


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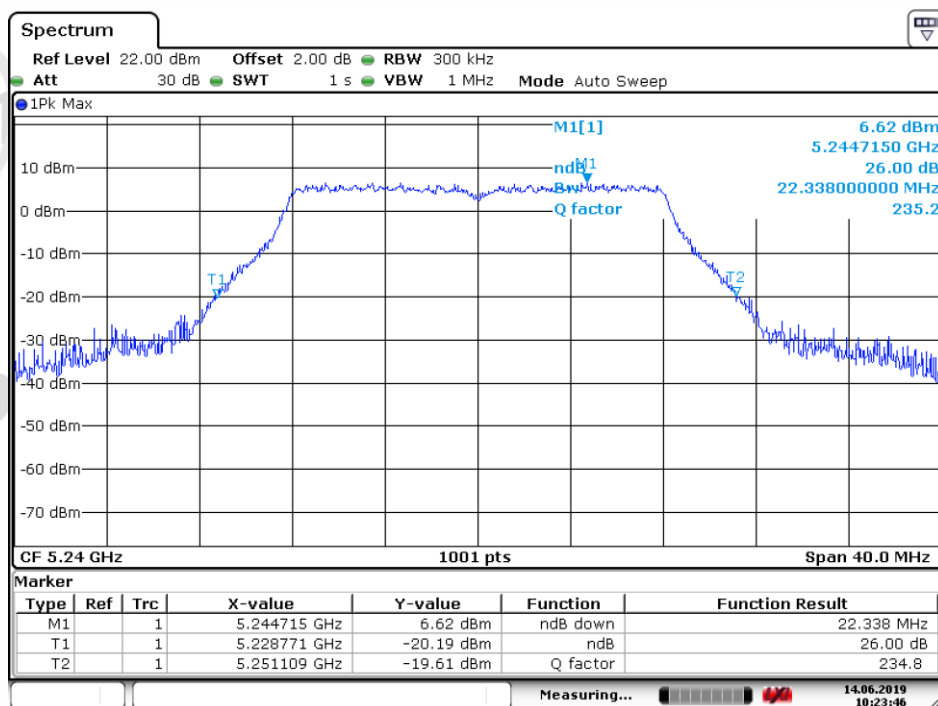


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11A20_48 ANT 1

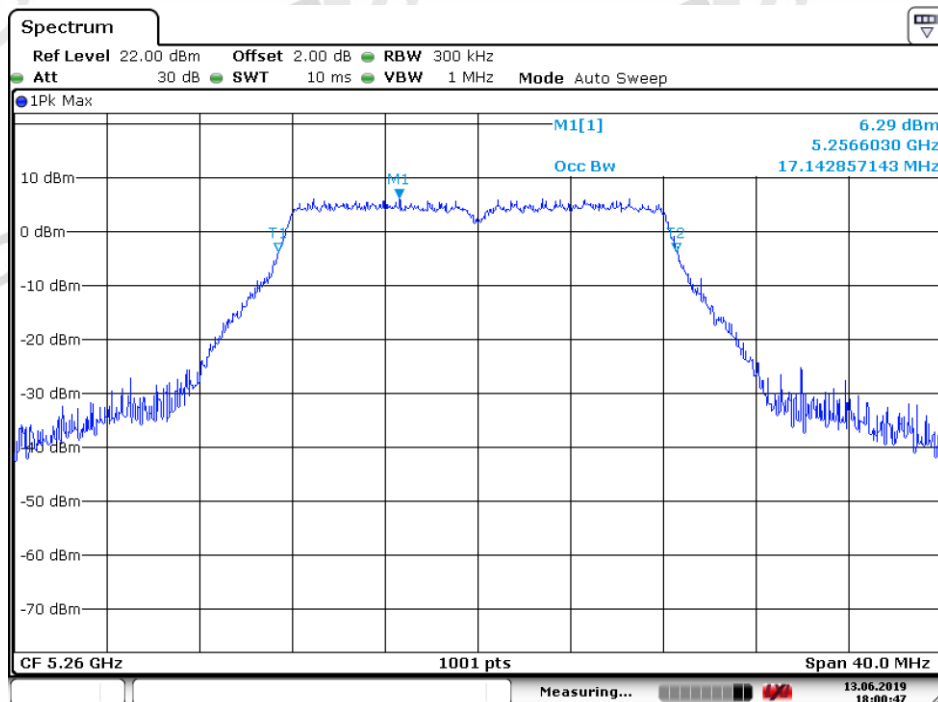


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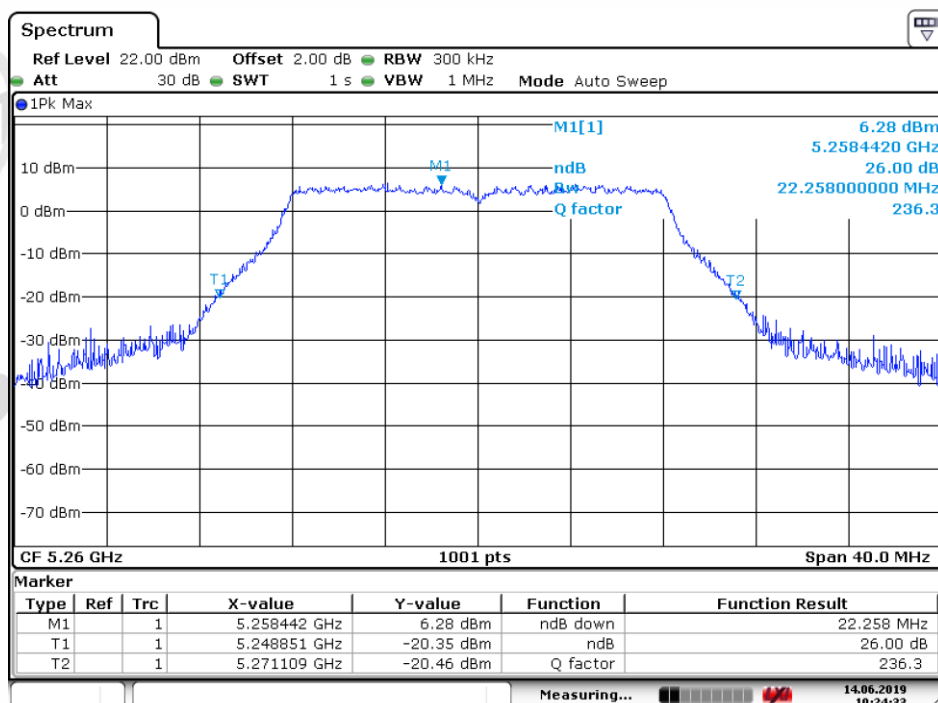


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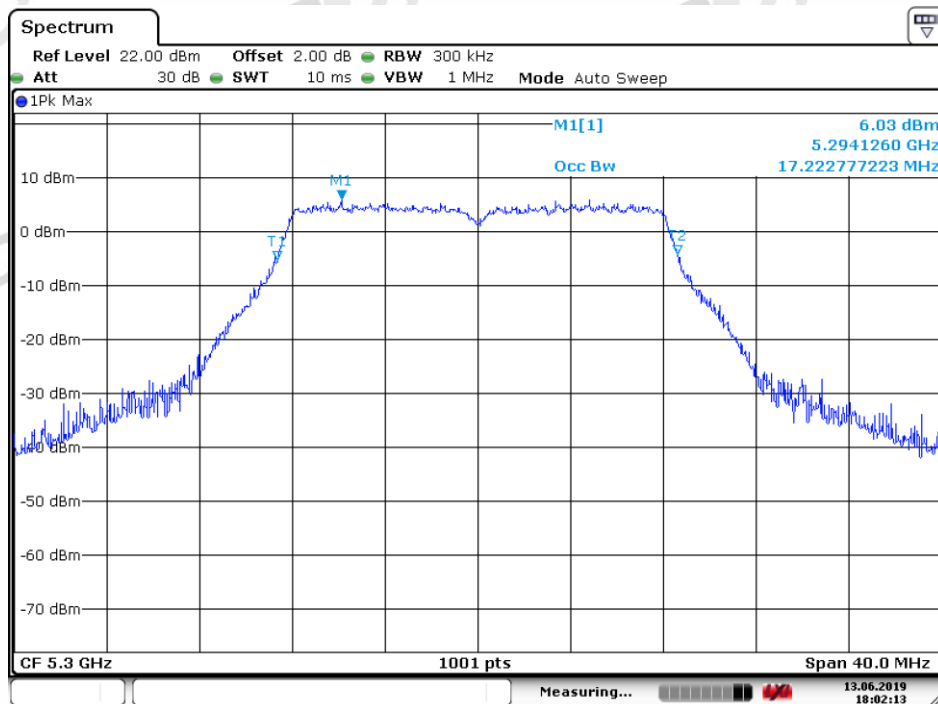


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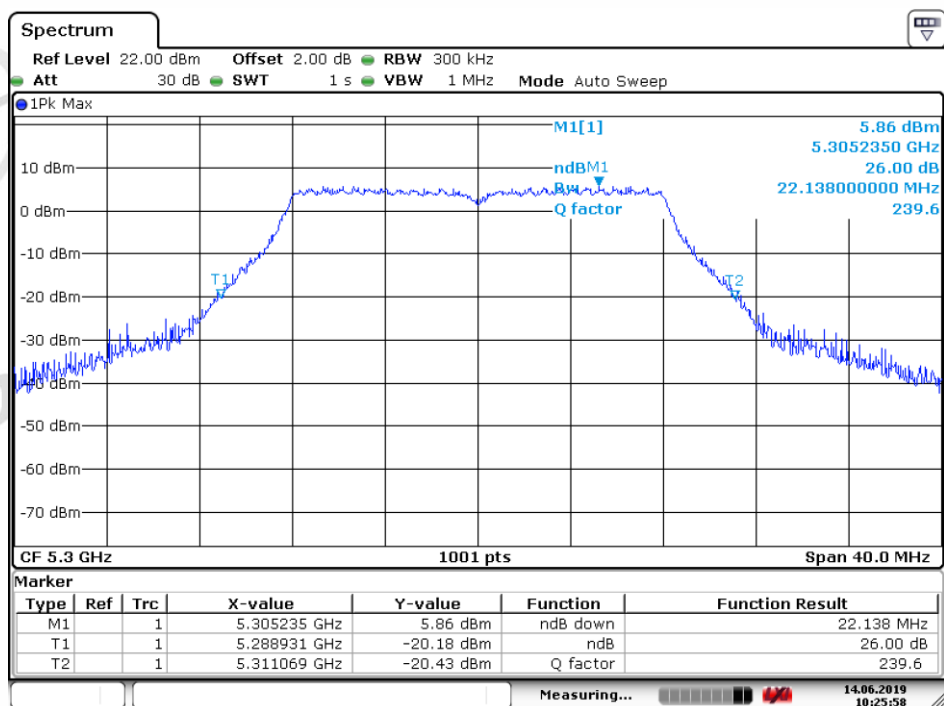


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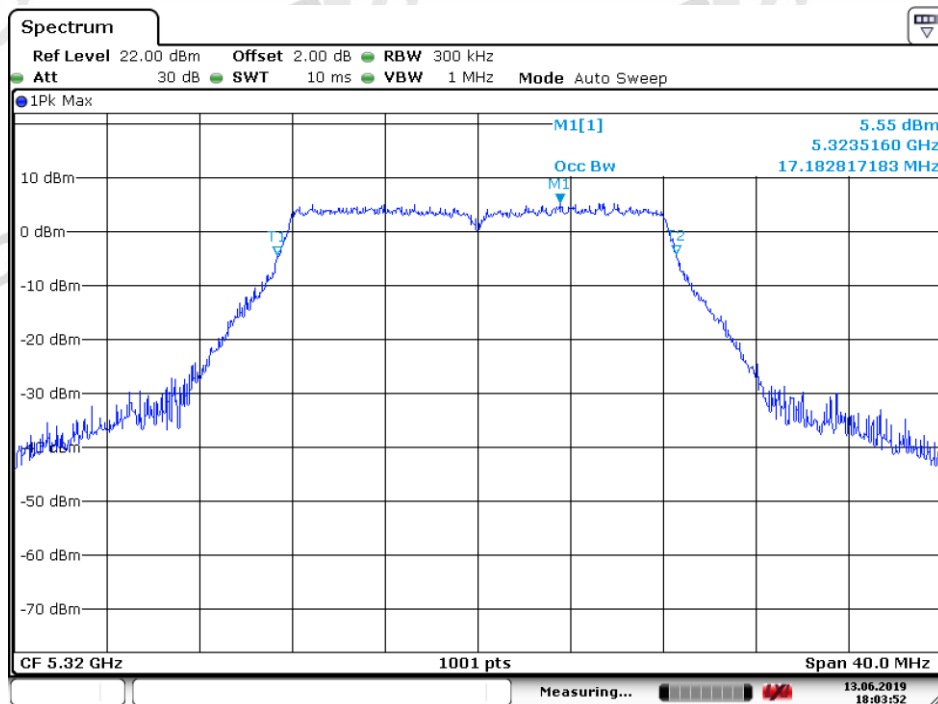


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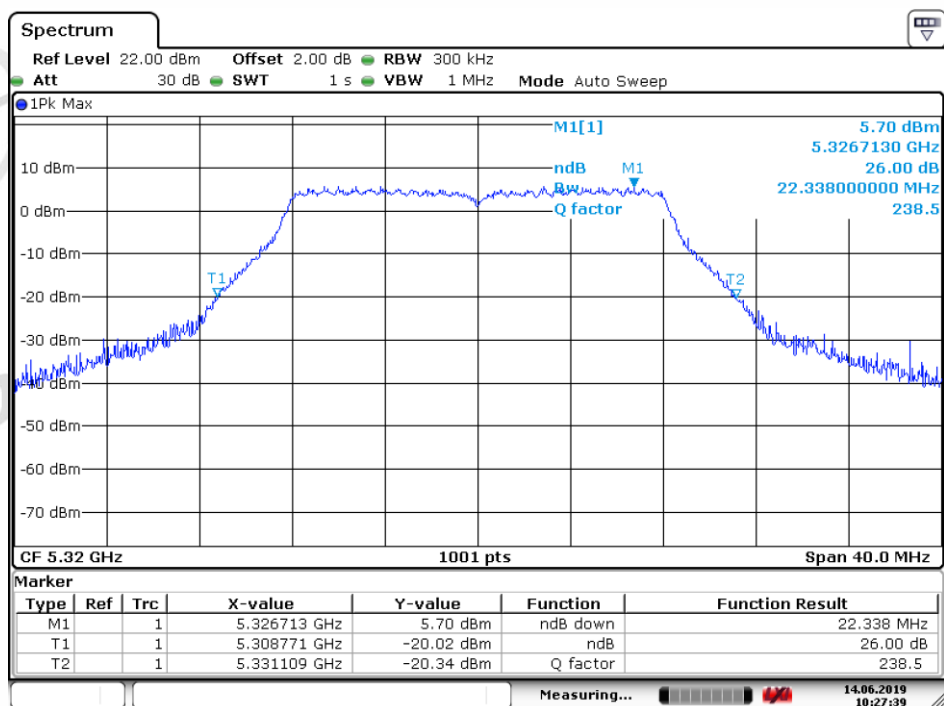


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11A20_64 ANT 1

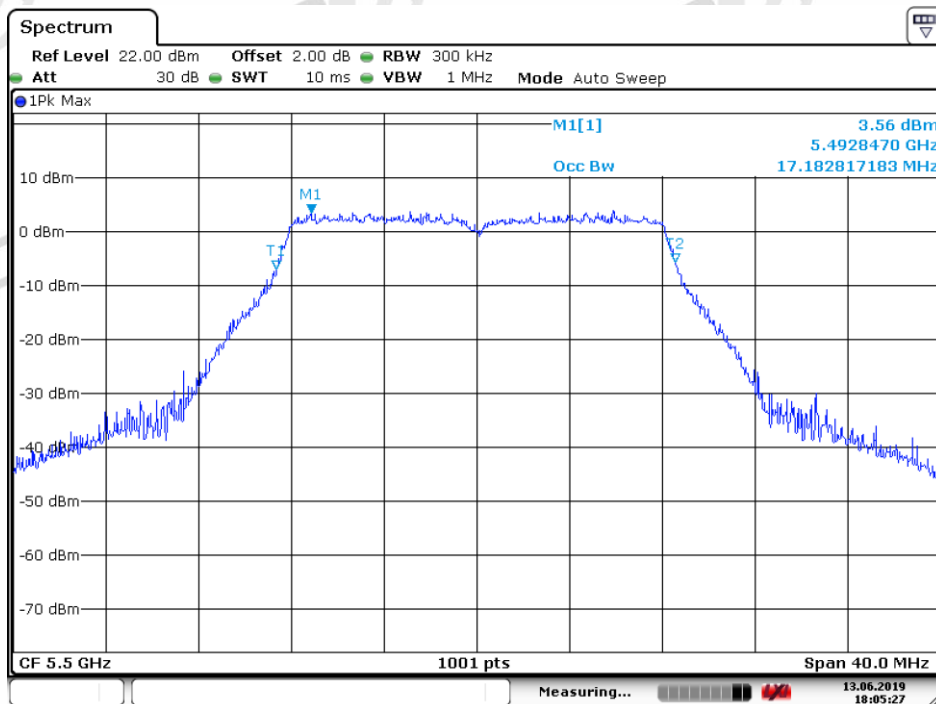


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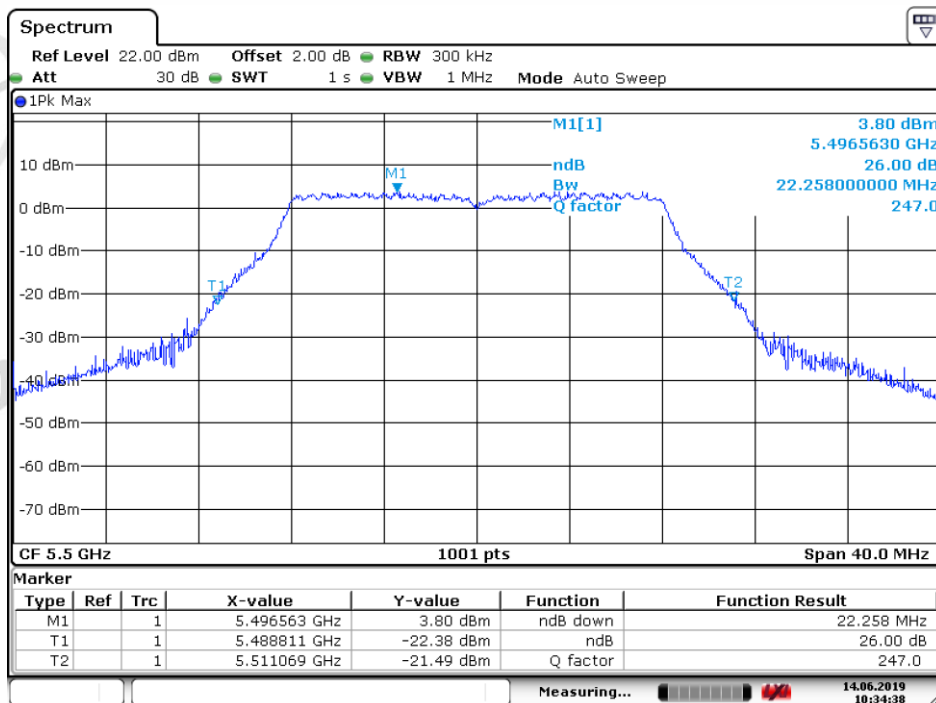


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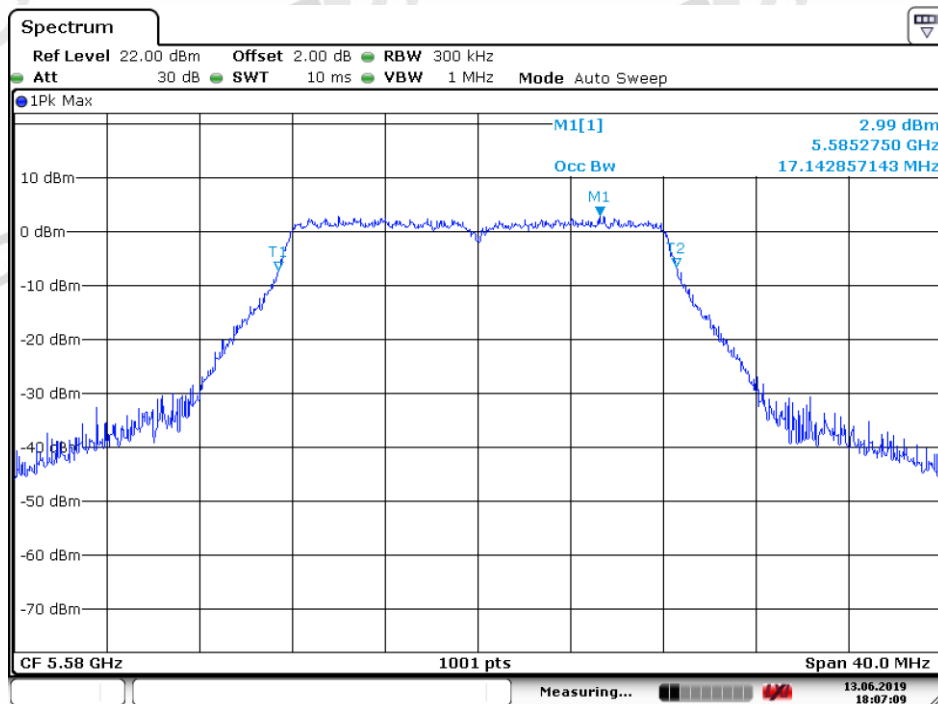


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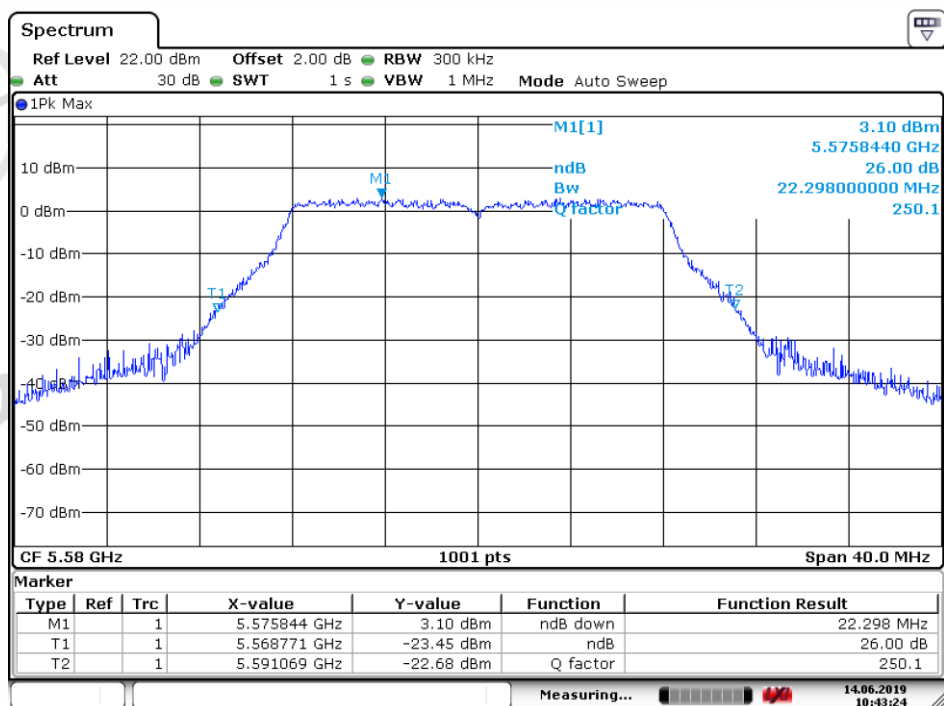


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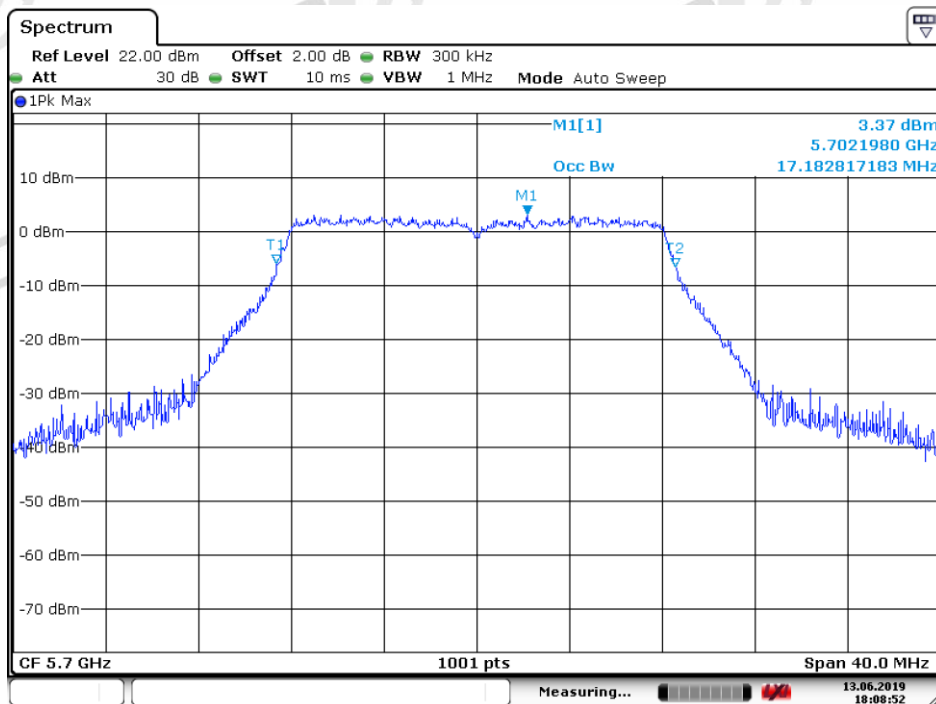


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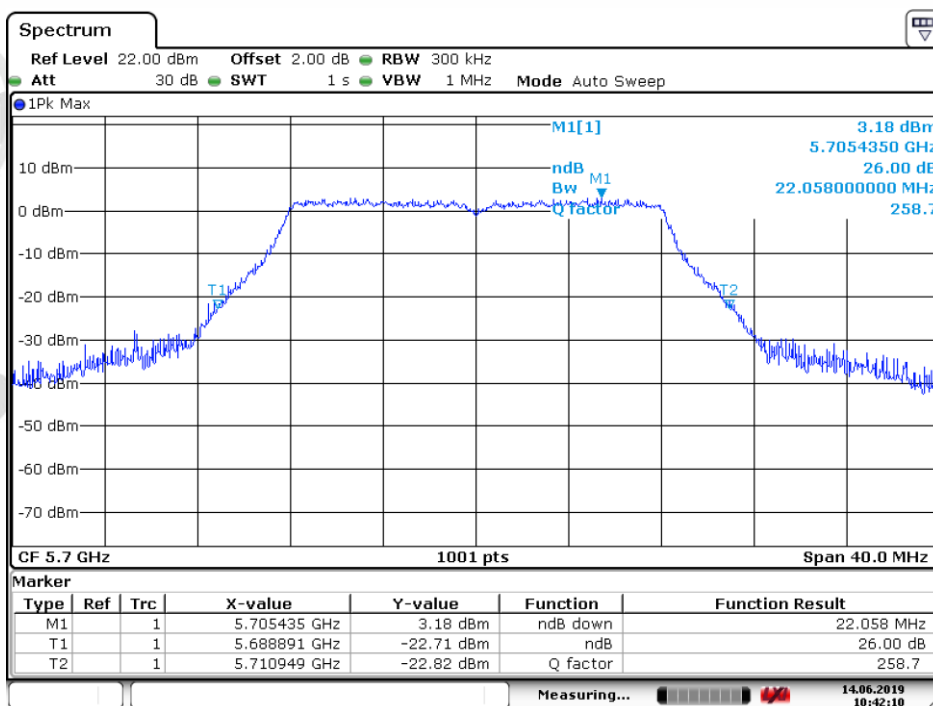


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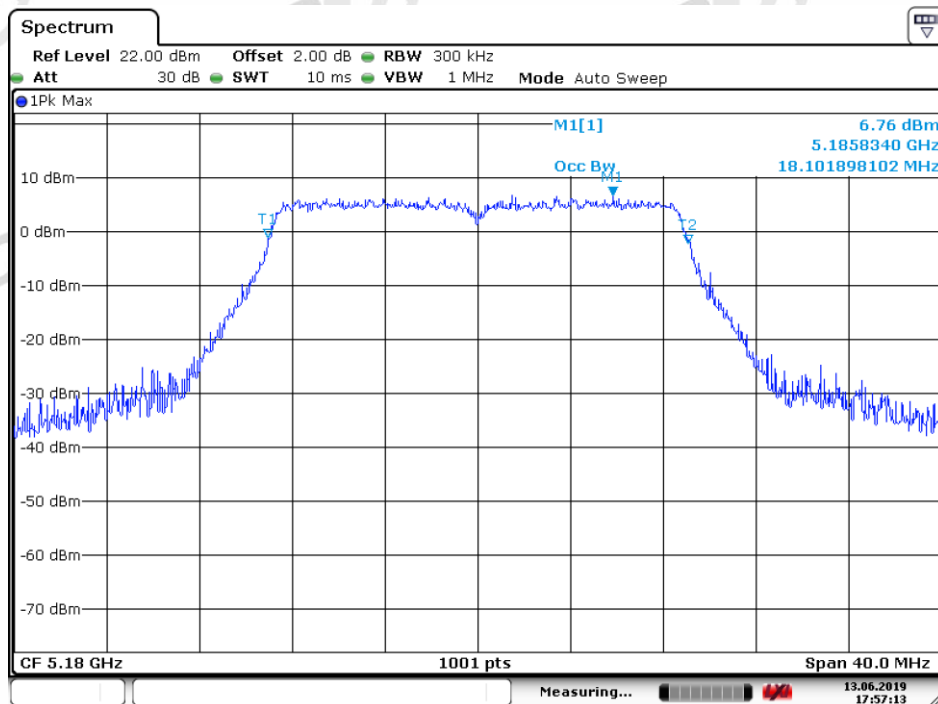


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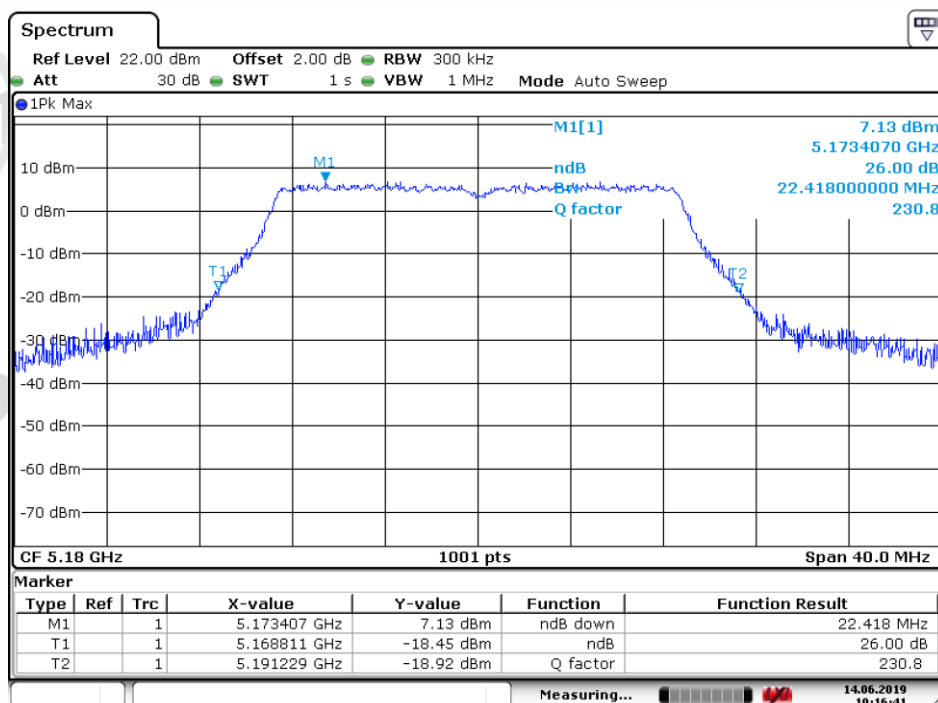


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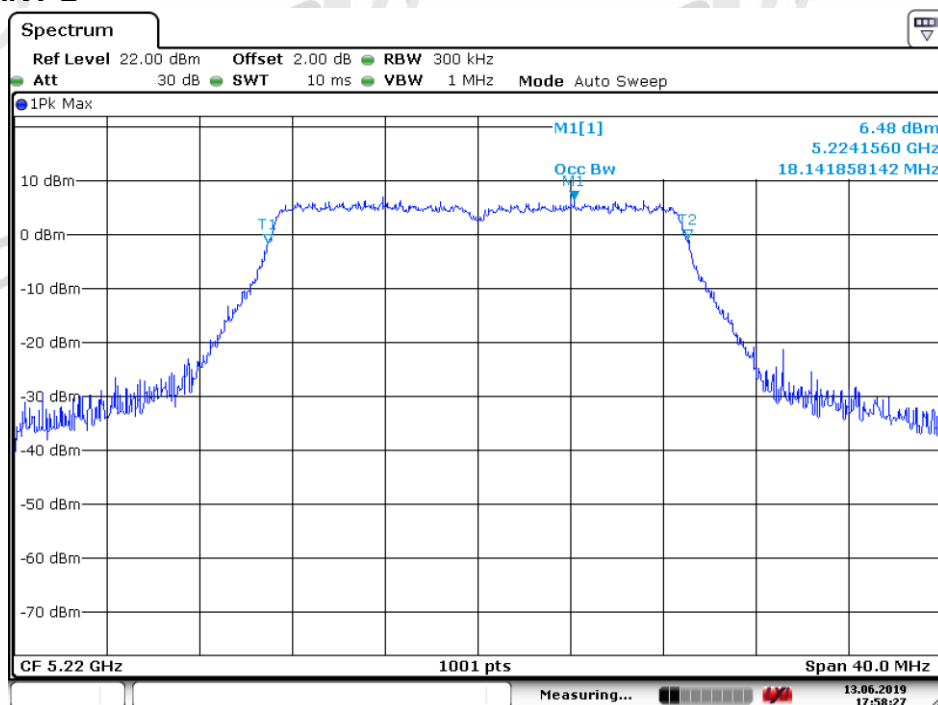


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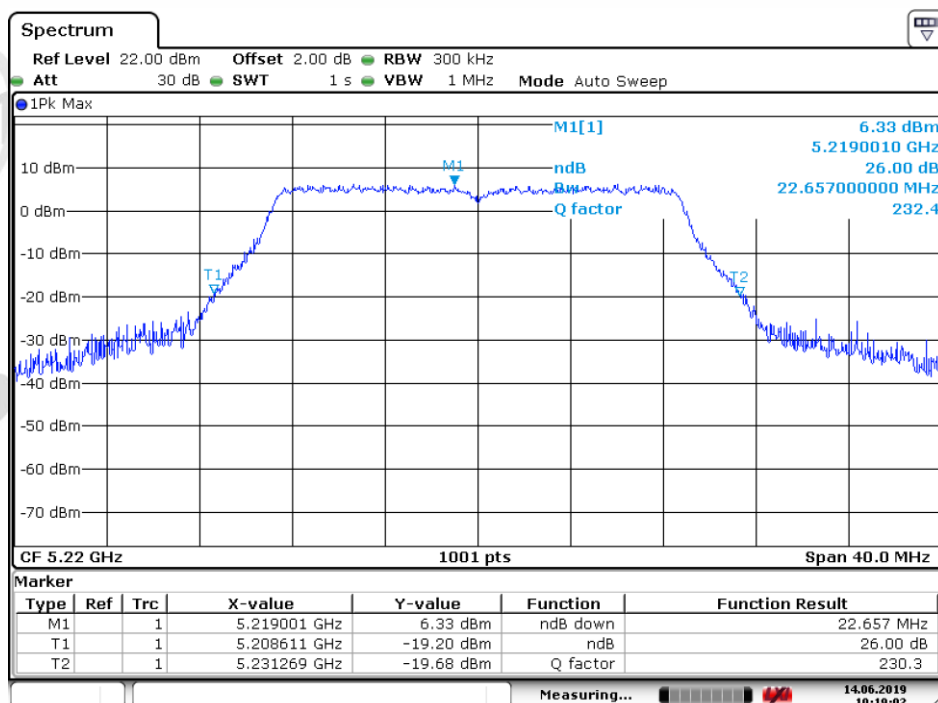


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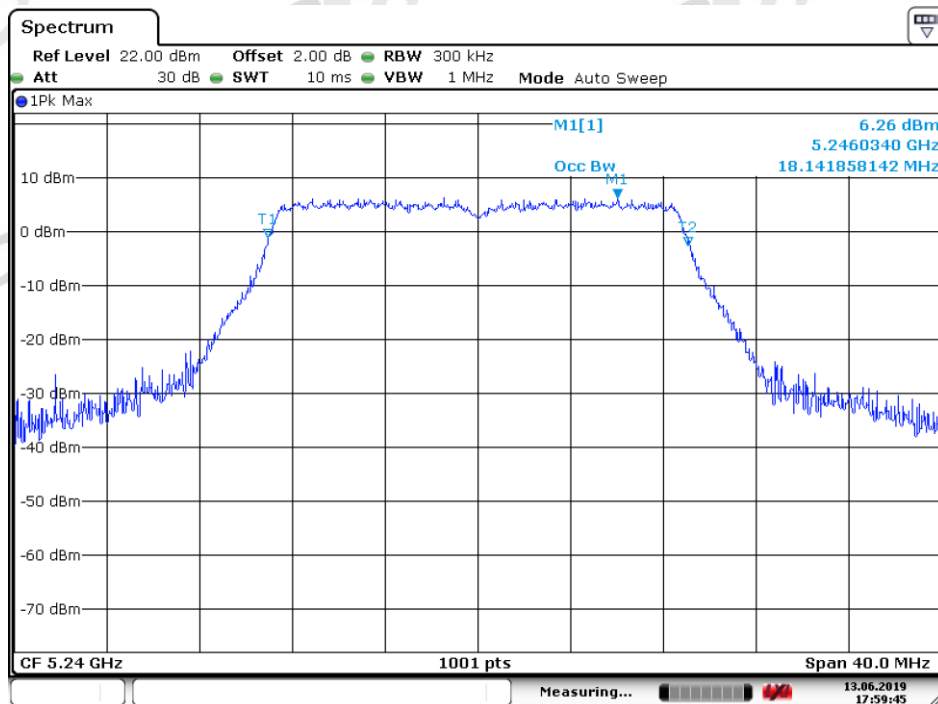


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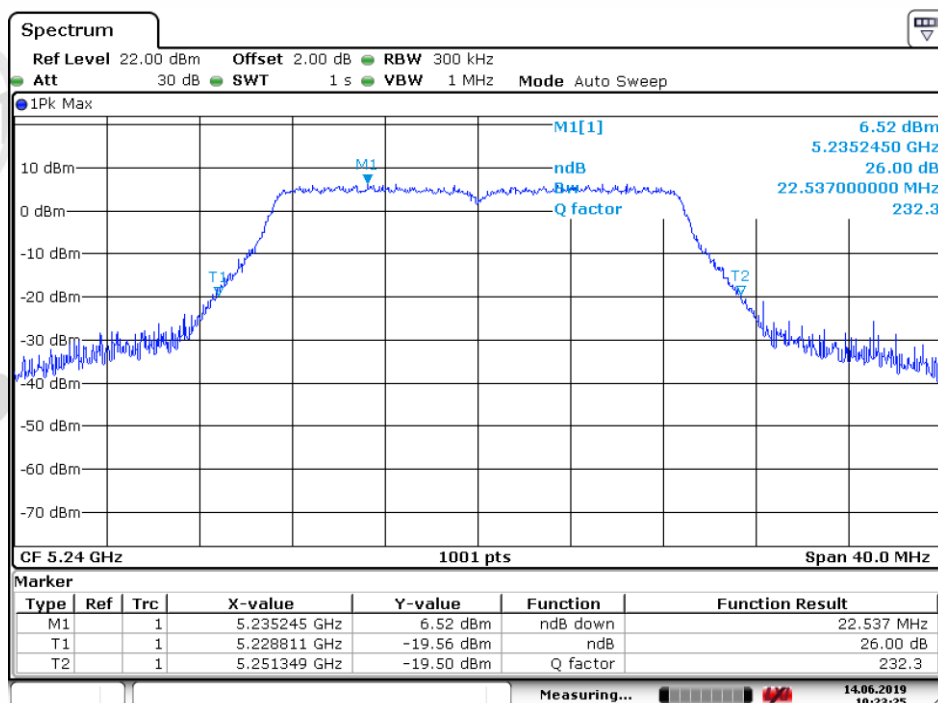


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11N20_48 ANT 1

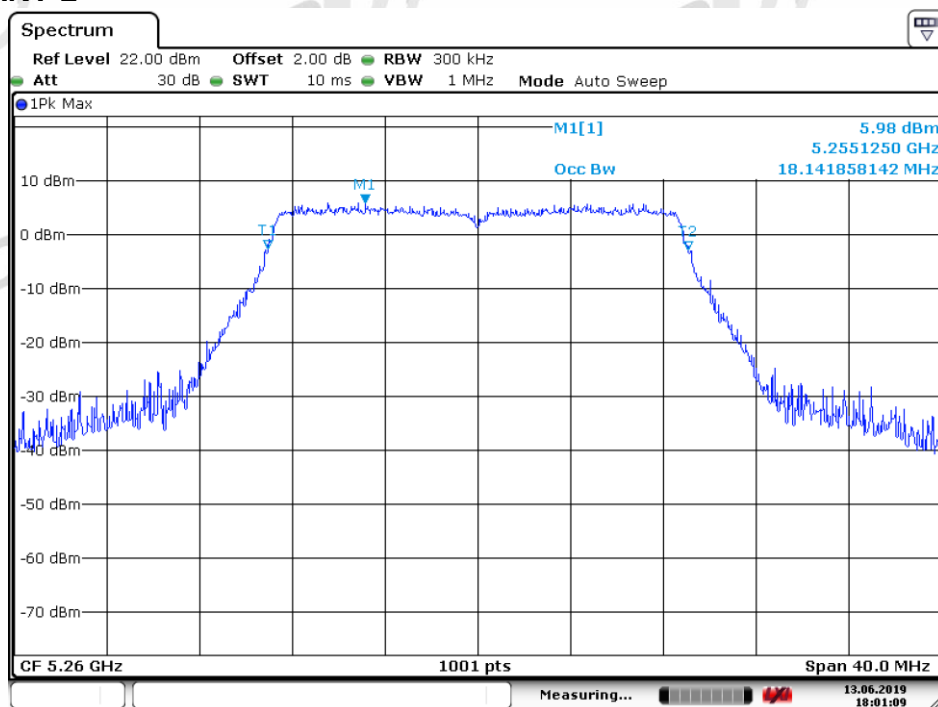


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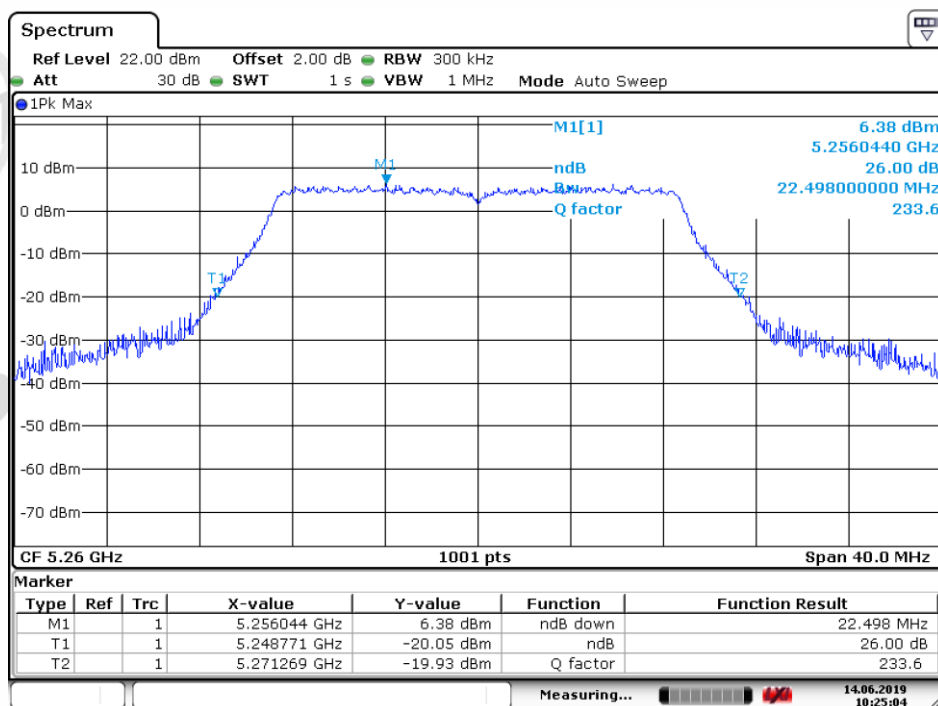


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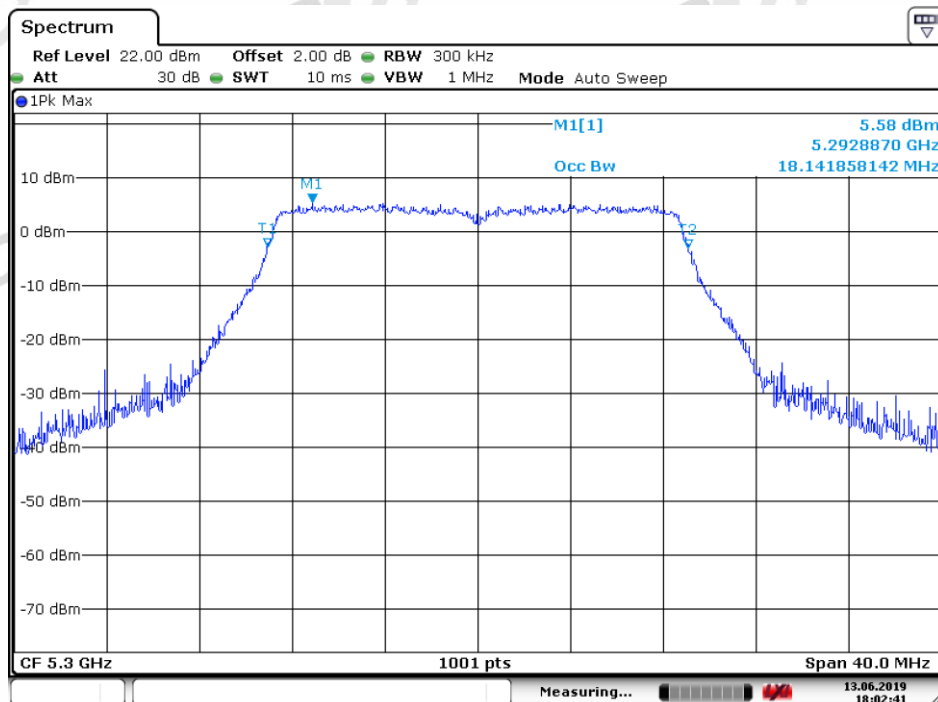


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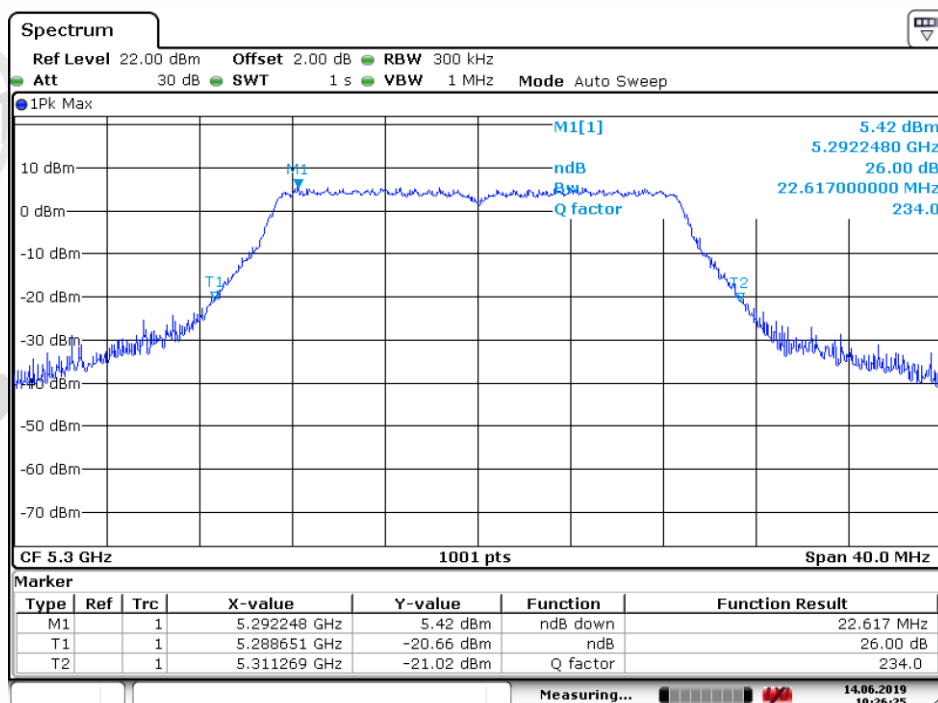


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11N20_60 ANT 1

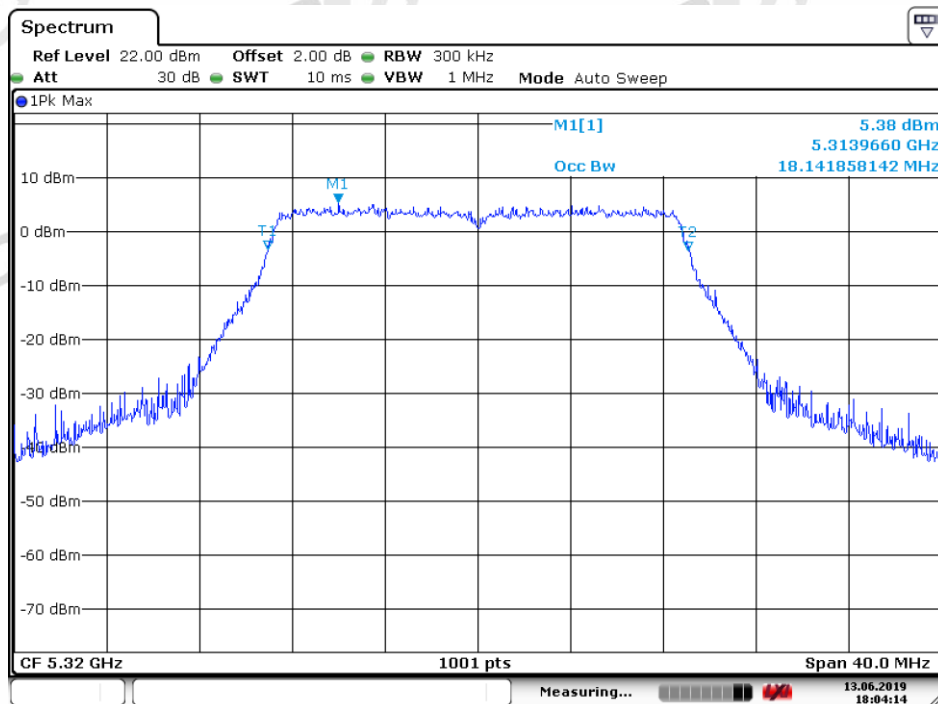


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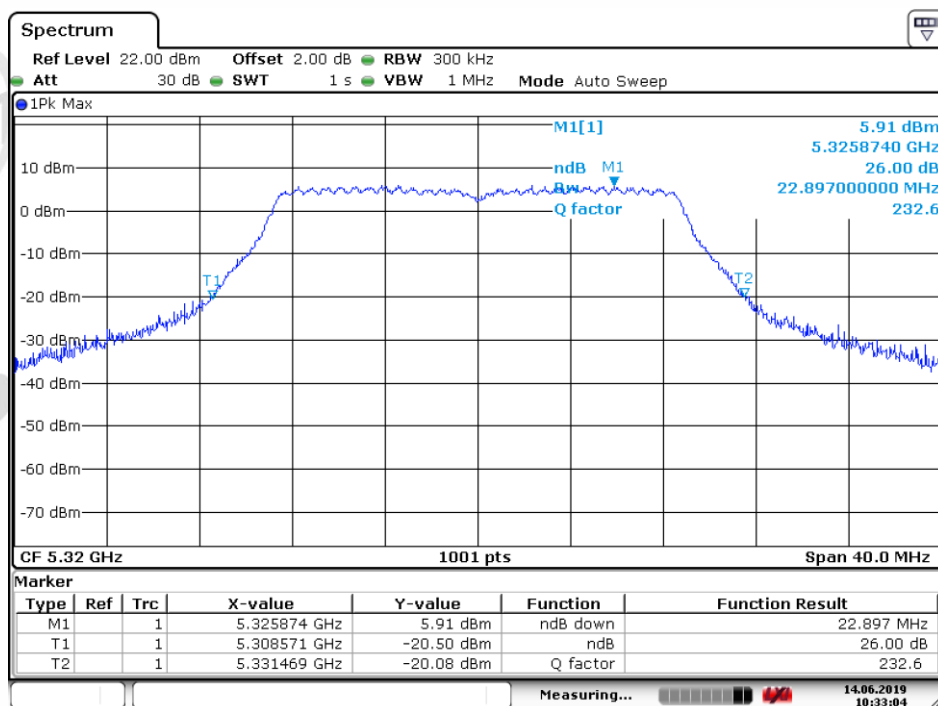


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11N20_64 ANT 1

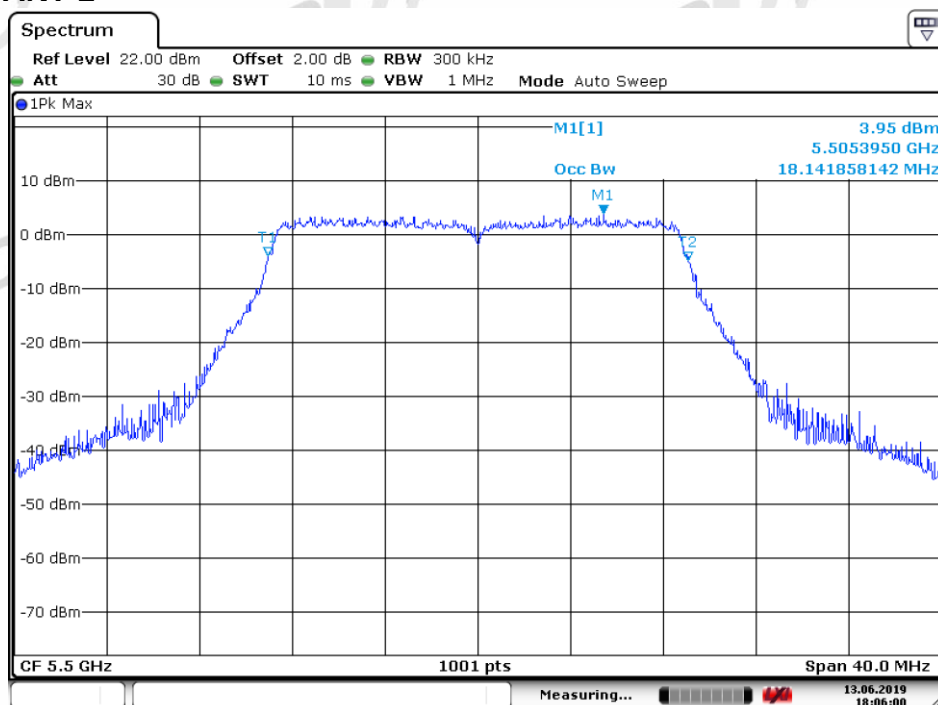


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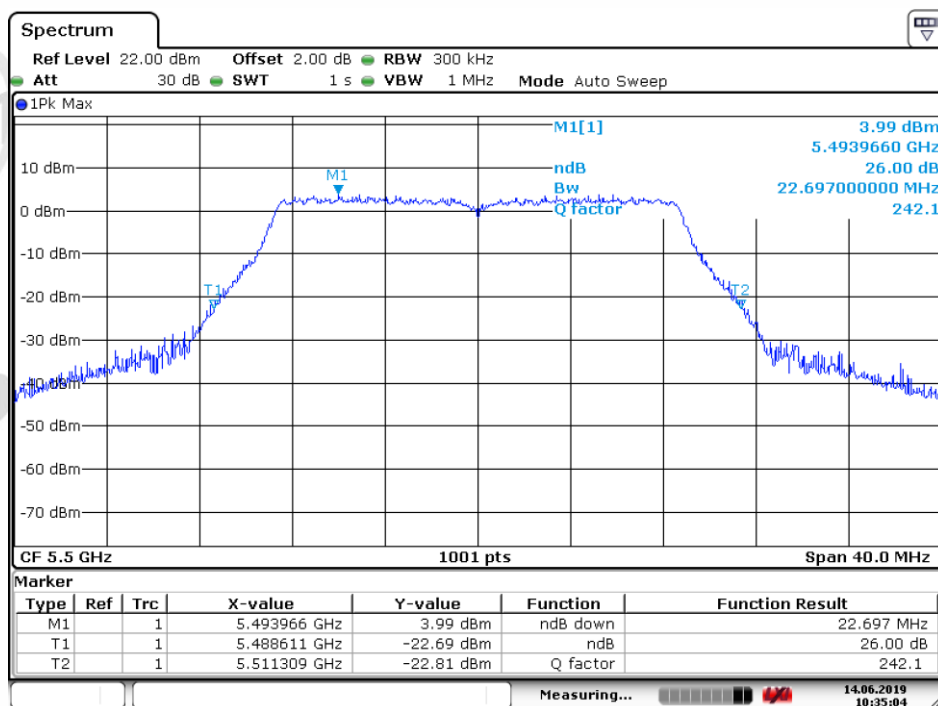


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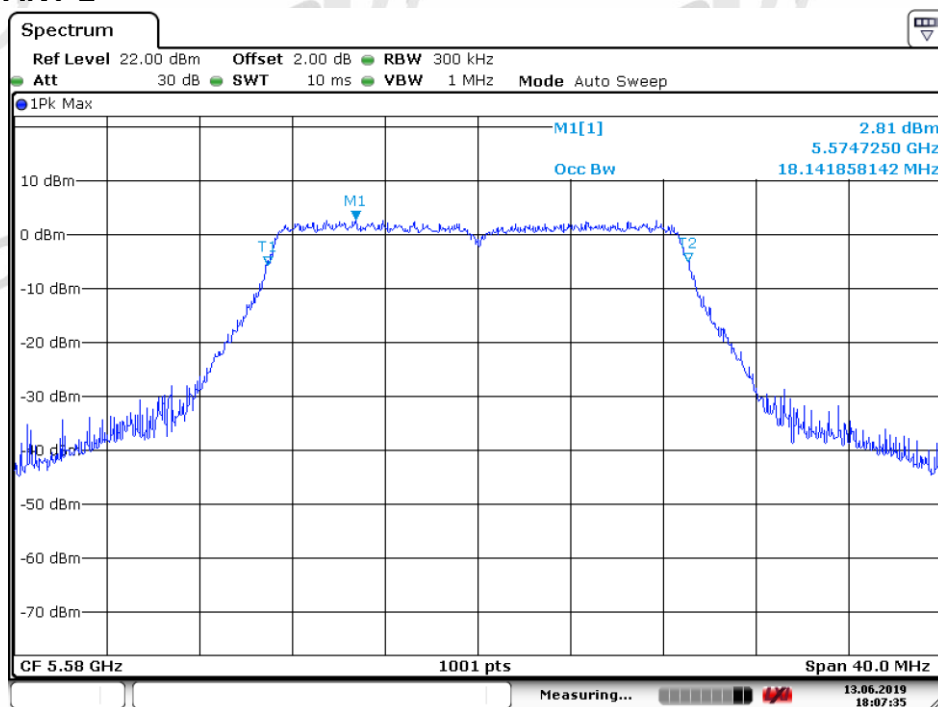


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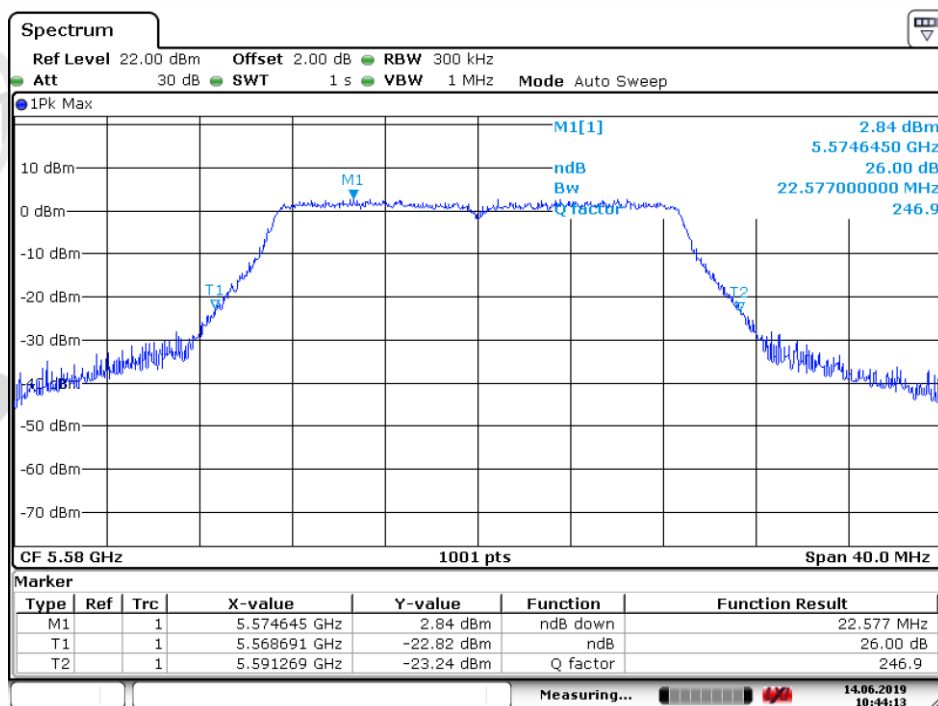


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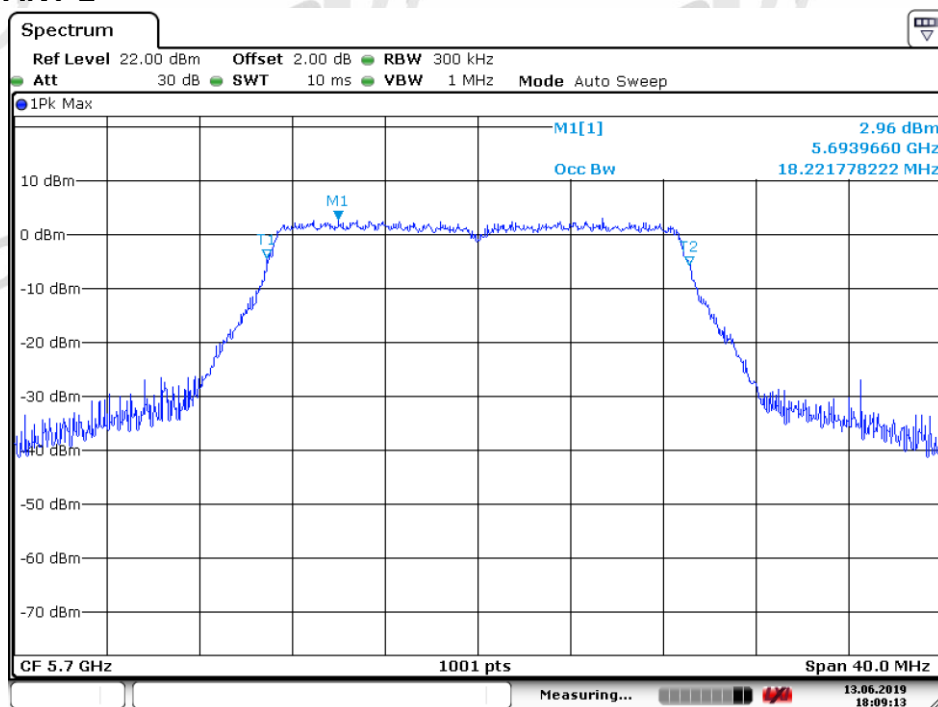


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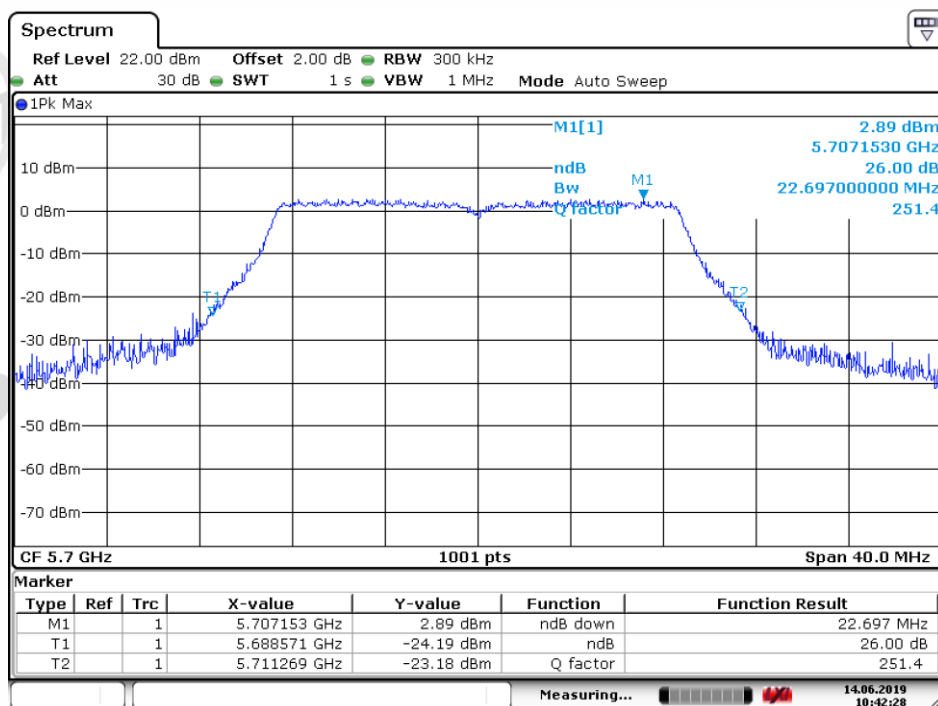


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11N20_140 ANT 1

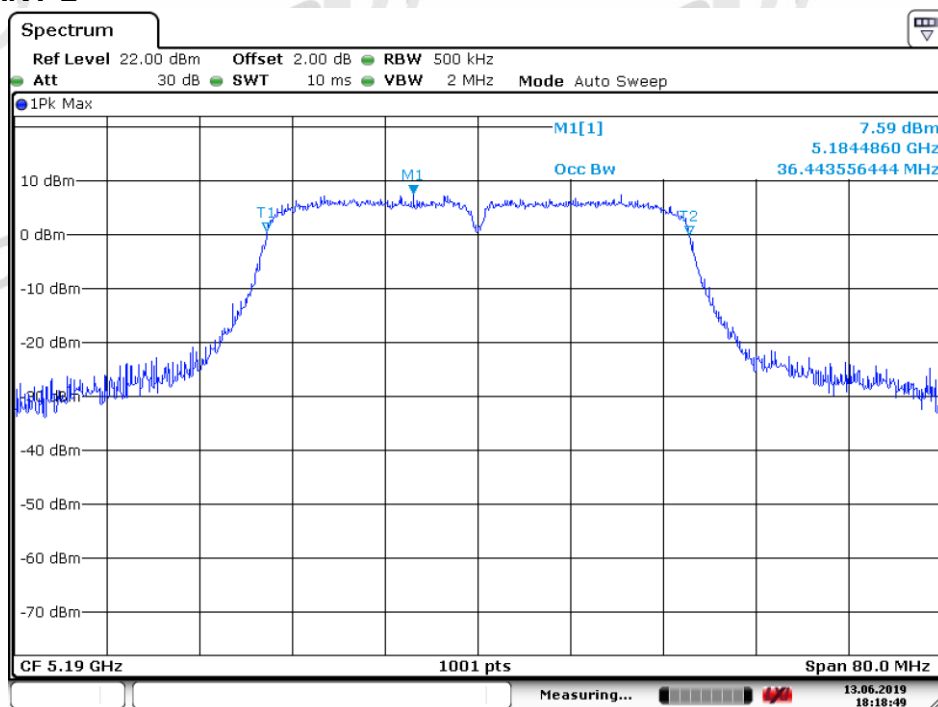


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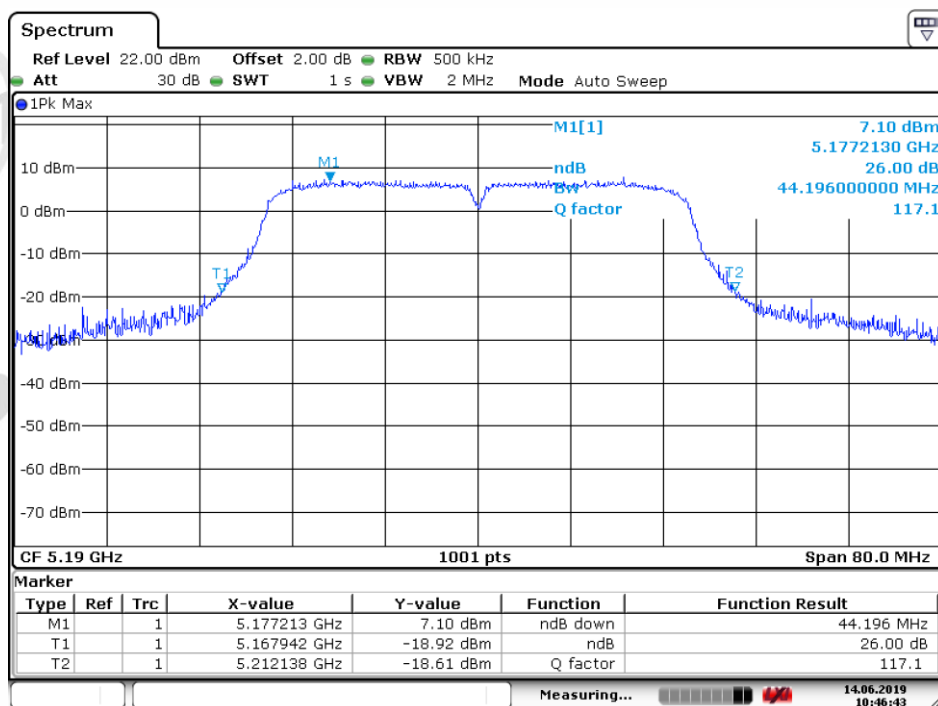


Date: 14.JUN.2019 10:42:28

11N40_38 ANT 1

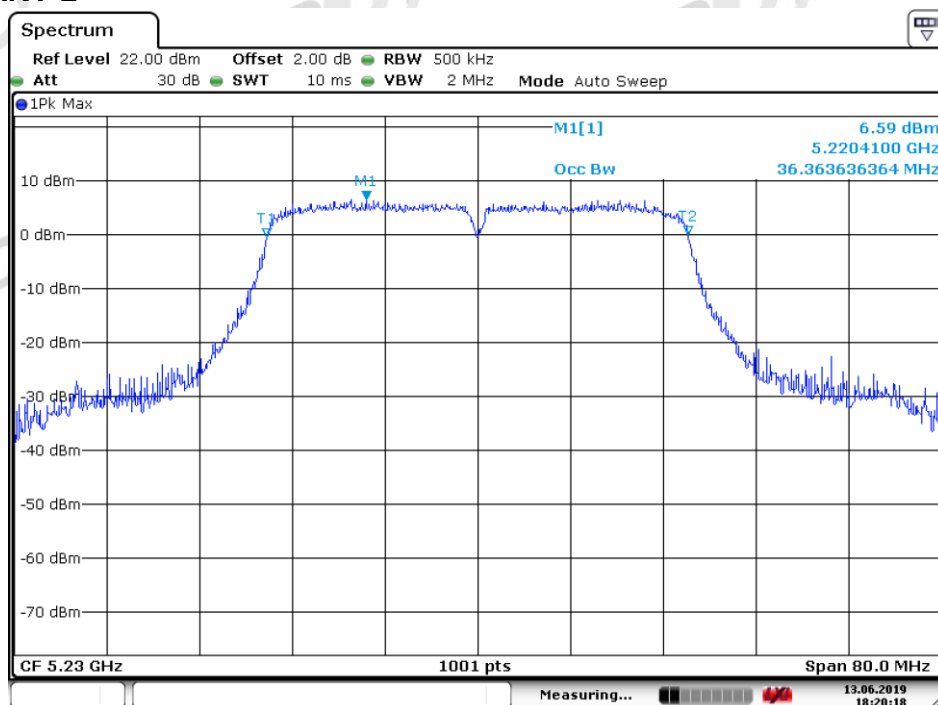


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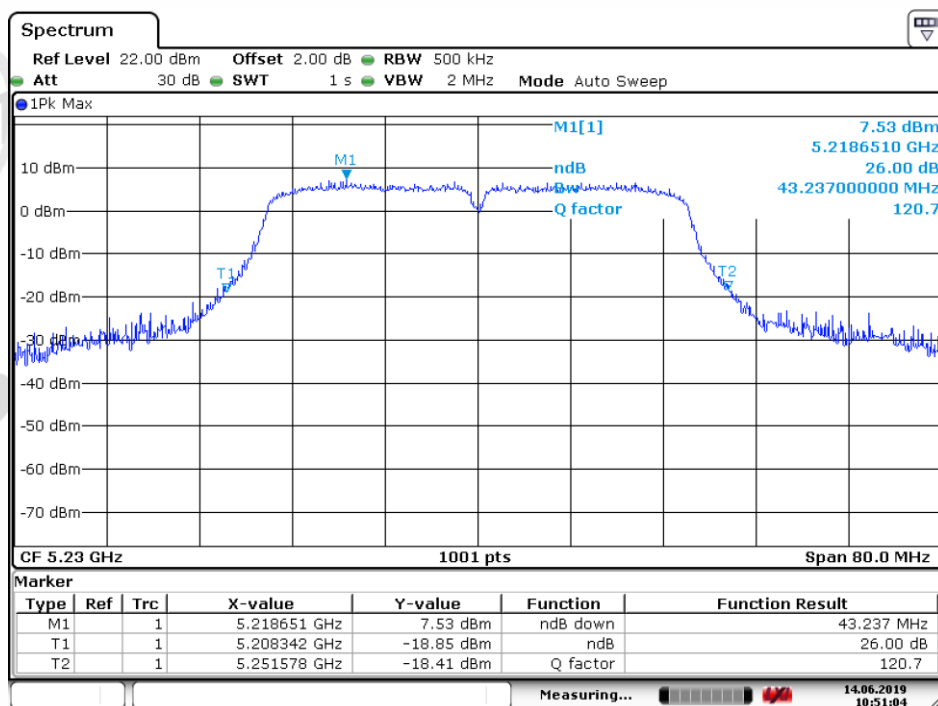


Date: 14.JUN.2019 10:46:43

11N40_46 ANT 1

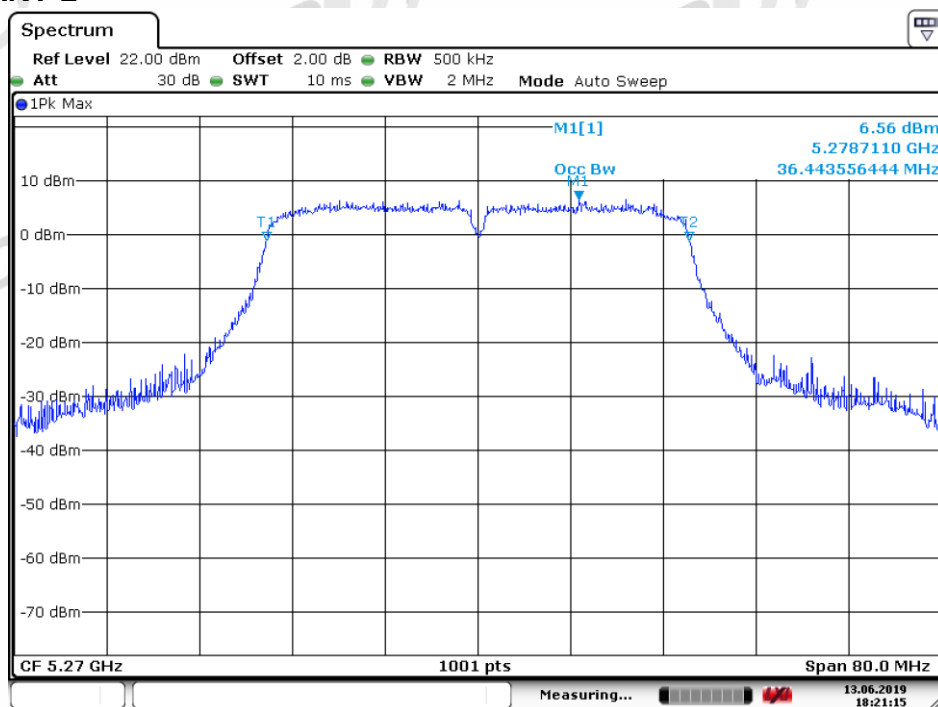


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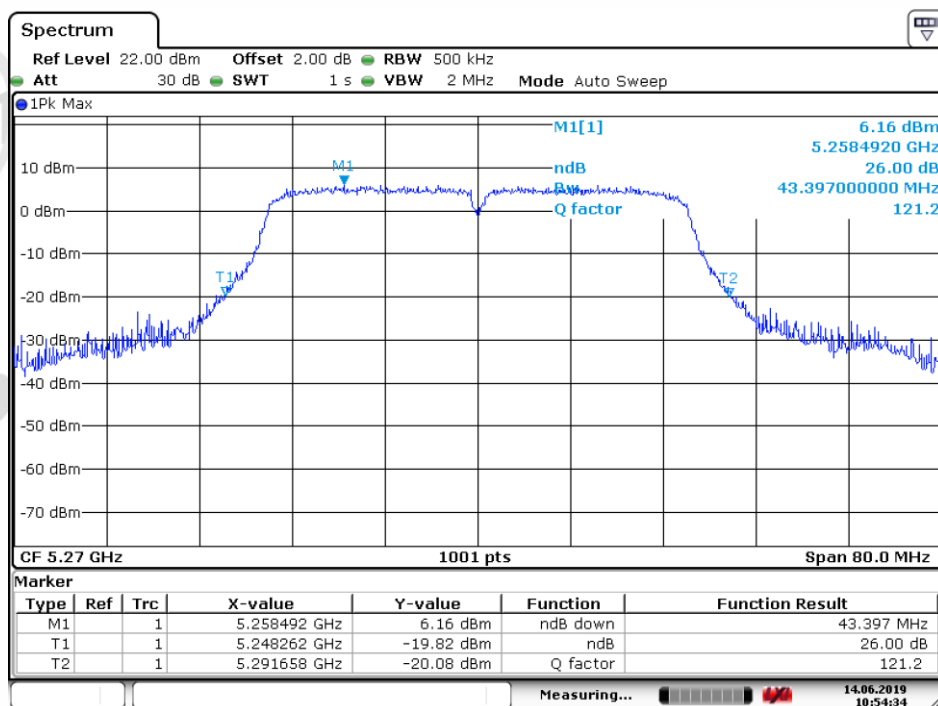


Date: 14.JUN.2019 10:51:05

11N40_54 ANT 1

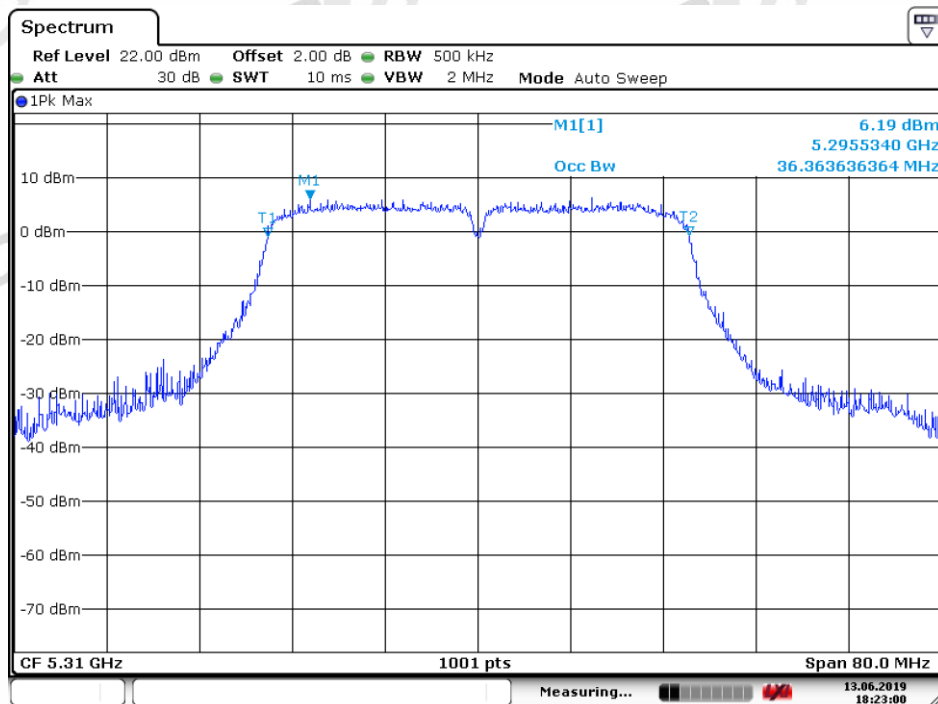


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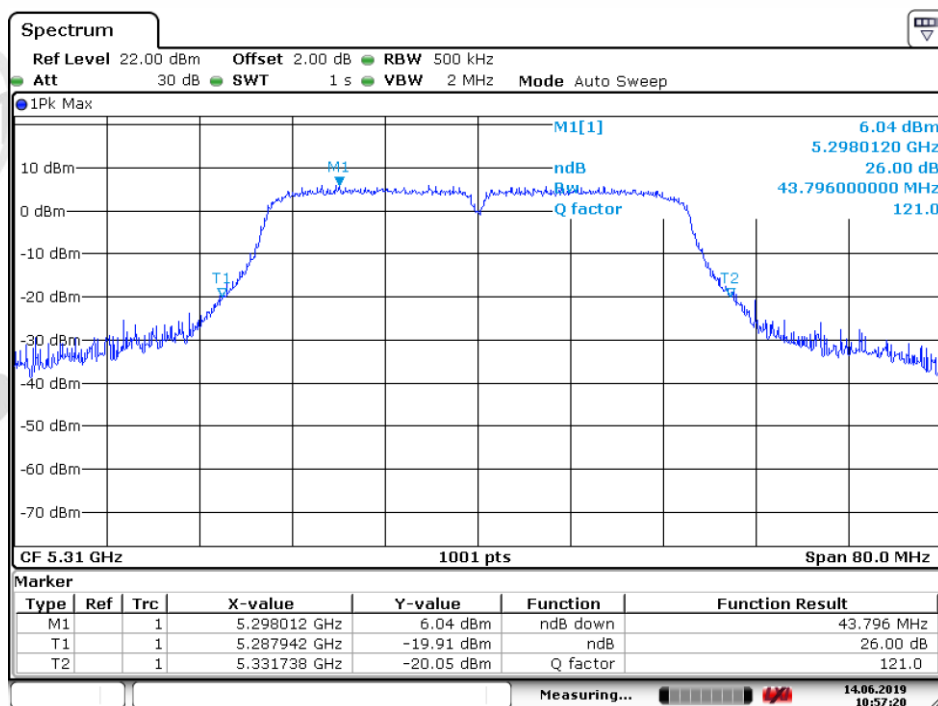


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11N40_62 ANT 1

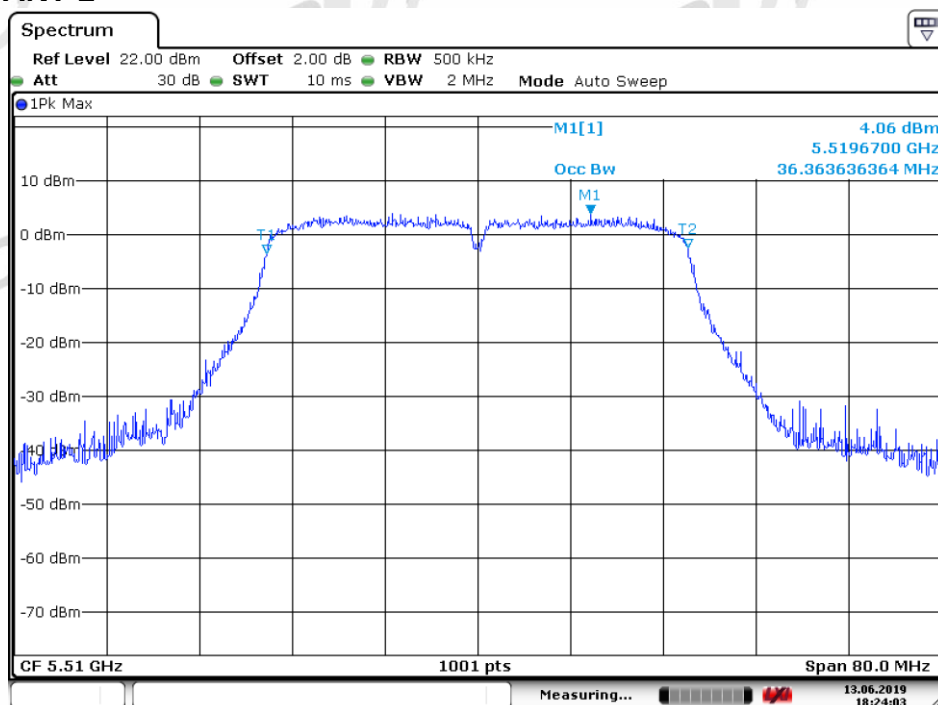


Date: 13.JUN.2019 18:23:01

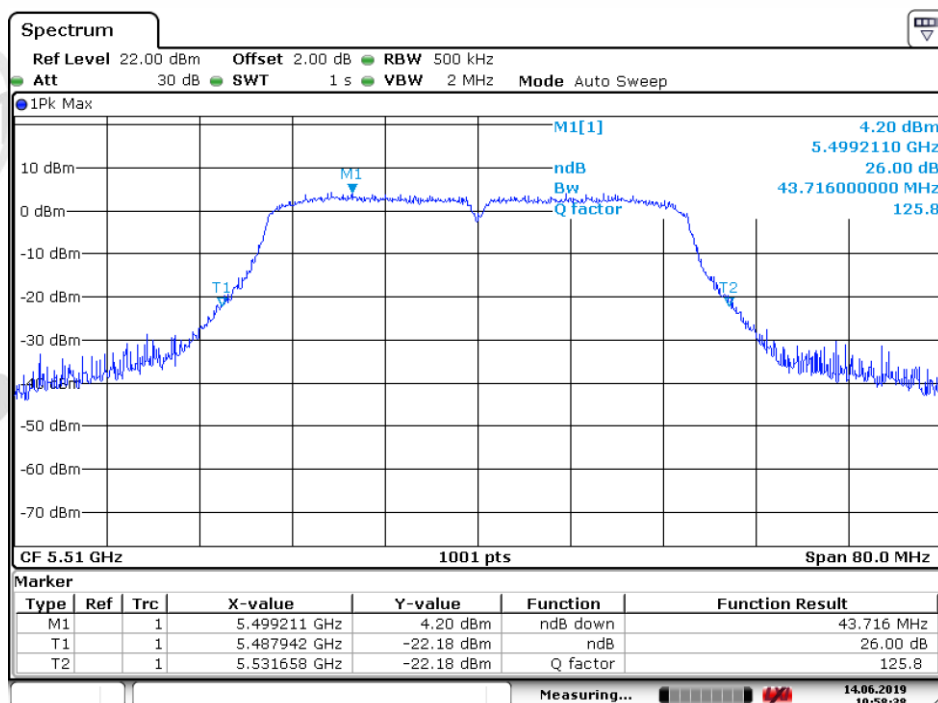


Date: 14.JUN.2019 10:57:20

11N40_102 ANT 1

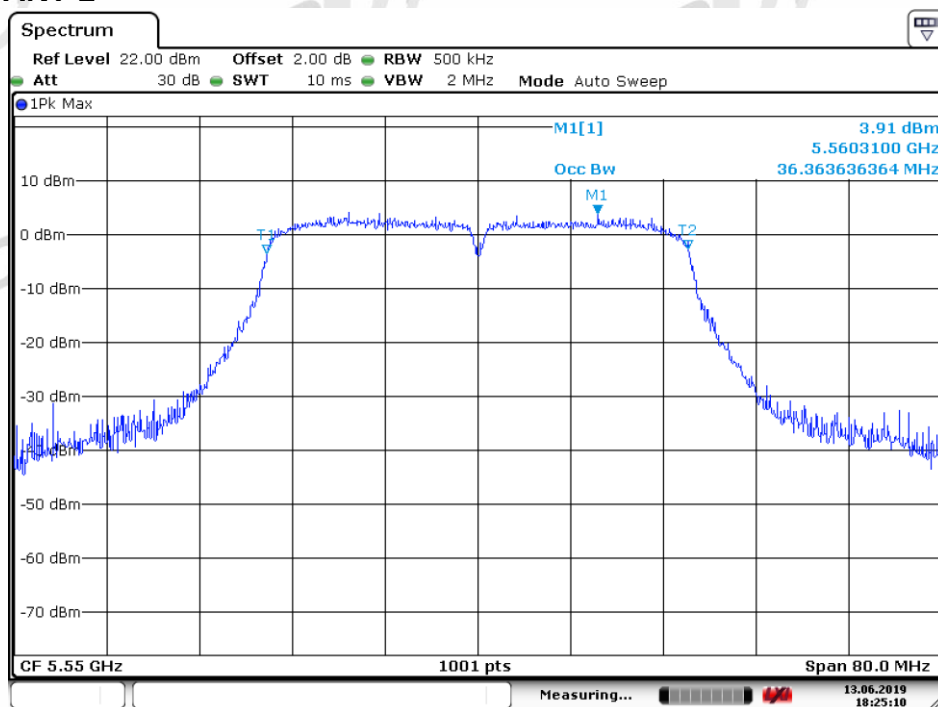


Date: 13.JUN.2019 18:24:03

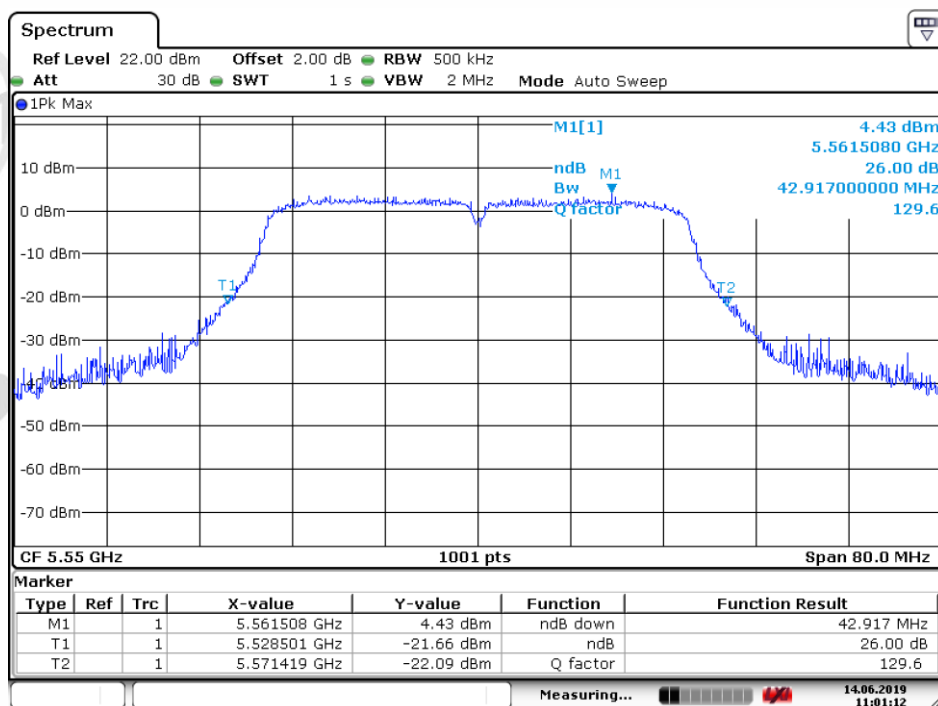


Date: 14.JUN.2019 10:58:38

11N40_110 ANT 1



Date: 13.JUN.2019 18:25:10



Date: 14.JUN.2019 11:01:13