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Report No.: HR/2018/C000501

Page: 1 of 703

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FCC TEST REPORT

Application No: HR/2018/C0005

Applicant: Huawei Technologies Co., Ltd.

Address of Applicant: Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C

Manufacturer: Huawei Technologies Co., Ltd.

Address of Manufacturer: Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C

EUT Description: Smart Phone

Model No.: ELE-L04

Trade Mark: HUAWEI

FCC ID: QISELE-L04

Standards: 47 CFR FCC Part 2, Subpart J
47 CFR FCC Part 15, Subpart C
47 CFR FCC Part 15, Subpart E
KDB 789033 D02 General UNII Test Procedures New Rules v02
FCC KDB 558074 D01 DTS Meas Guidance v05
KDB 662911 D01 Multiple Transmitter Output v02r01

Test Method: KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02
KDB 905462 D03 Client Without DFS New Rules v01r02
ANSI C63.10-2013, American National Standard for Testing Unlicensed Wireless Devices

Date of Receipt: 2018/12/3

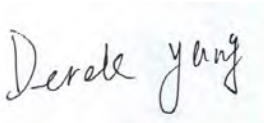
Date of Test: 2018/12/4 to 2019/1/11

Date of Issue: 2019/1/11

Test Result:	PASS *
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. * In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Derek Yang
Wireless Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.



1 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
00		2019/1/11		Original

Authorized for issue by:			
Tested By		<i>Mike Hu</i>	2019/1/11
		_____ (Mike Hu) /Project Engineer	_____ Date
Checked By		<i>David Chen</i>	2019/1/11
		_____ (David Chen) /Reviewer	_____ Date



Contents

1	VERSION	2
2	TEST SUMMARY	4
3	GENERAL INFORMATION	7
3.1	CLIENT INFORMATION.....	7
3.2	TEST LOCATION.....	7
3.3	TEST FACILITY.....	7
3.4	GENERAL DESCRIPTION OF EUT.....	8
3.5	TEST ENVIRONMENT AND MODE.....	10
4	TEST RESULTS AND MEASUREMENT DATA	11
4.1	ANTENNA REQUIREMENT.....	11
4.2	CONDUCTED EMISSIONS.....	11
4.3	DUTY CYCLE.....	16
4.3.1	<i>Test Results</i>	16
4.3.1	<i>Test Plots</i>	16
4.4	CONDUCTED OUTPUT POWER.....	31
4.5	EMISSION BANDWIDTH AND 99% OCCUPIED BANDWIDTH.....	36
4.5.1	<i>Measurement Data</i>	37
4.5.2	<i>Plots for 26dB Emission Bandwidth & 99% Occupied Bandwidth</i>	40
4.6	6dB EMISSION BANDWIDTH & 99% OCCUPIED BANDWIDTH.....	228
4.6.1	<i>Plots for 6dB Emission Bandwidth & 99% Occupied Bandwidth</i>	230
4.7	POWER SPECTRAL DENSITY.....	286
4.7.1	<i>Test plots</i>	290
4.8	RADIATED SPURIOUS EMISSIONS.....	413
4.8.1	<i>Radiated emission below 1GHz</i>	415
4.8.2	<i>Transmitter emission above 1GHz_CDD & MIMO</i>	417
4.9	RESTRICTED BANDS AROUND FUNDAMENTAL FREQUENCY.....	540
4.9.1	<i>CDD & MIMO</i>	542
4.10	FREQUENCIES STABILITY.....	694
4.10.1	<i>Frequency Error vs. Voltage</i>	694
4.10.2	<i>Frequency Error vs. Temperature</i>	694
4.11	DYNAMIC FREQUENCY SELECTION.....	695
4.11.1	<i>DFS Overview</i>	695
4.11.2	<i>DFS Detection Thresholds</i>	696
4.11.3	<i>Response Requirements</i>	696
4.11.4	<i>Test plots</i>	697
4.11.5	<i>Test Data</i>	699
5	MEASUREMENT UNCERTAINTY (95% CONFIDENCE LEVELS, K=2)	701
6	EQUIPMENT LIST	702
7	PHOTOGRAPHS - EUT TEST SETUP DETAILS	703

2 Test Summary

Test Item	Band	FCC Rule	Requirements	Test Result	Verdict
Emission Bandwidth	5150-5250	15.403(i) 15.407(a)(1)	No limit.	Clause 4.4 Clause 4.5	Pass
	5250-5350	15.403(i) 15.407(a)(2)			
	5470-5725	15.403(i) 15.407(a)(2)			
	5725-5850	15.403(i) 15.407(e)	≥ 500 kHz.		
Occupied Bandwidth	5150-5250	KDB 789033 D02§ D	No limit.		Pass
	5250-5350				
	5470-5725				
	5725-5850				
Duty Cycle	5150-5850	--	No limit.		
Maximum Conducted Output Power	5150-5250	15.407(a)(1) 15.407(a)(4)	FCC < 250mW (avg during transmission)	Clause 4.3	Pass
	5250-5350	15.407(a)(2) 15.407(a)(4)	<MIN{250mW, 11dBm+ 10*Ig(EBW)} (avg during transmission)		
	5470-5725	15.407(a)(2) 15.407(a)(4)	<MIN{250mW, 11dBm+ 10*Ig(EBW)} (avg during transmission)		
	5725-5850	15.407(a)(3)	< 1W (avg during transmission)		
maximum Power Spectral Density	5150-5250	15.407(a)(1) 15.407(a)(4)	<11dBm/MHz (avg during transmission)	Clause 4.6	
	5250-5350	15.407(a)(2) 15.407(a)(4)	<11dBm/MHz (avg during transmission)		
	5470-5725	15.407(a)(2) 15.407(a)(4)	<11dBm/MHz (avg during transmission)		
	5725-5850	15.407(a)(3) 15.407(a)(4)	<30dBm/500KHz (avg during transmission)		
Unwanted Emissions that fall Outside of the Restricted Bands(Radiated)	5150-5250	15.407(b)(1) 15.407(b)(6) 15.407(b)(7) 15.209	F<1GHz: §15.209/§7.2.5 limit (QP). F≥1GHz & out-restricted: <-27dBm/MHz PK e.i.r.p. (exl. 5.15-5.35 GHz). F≥1GHz & in-restricted: §15.209/§7.2.5 limit (AV&PK).	Clause 4.7	Pass
	5250-5350	15.407(b)(2) 15.407(b)(6) 15.407(b)(7) 15.209	F<1GHz: §15.209/§7.2.5 limit (QP). F≥1GHz & out-		



Test Item	Band	FCC Rule	Requirements	Test Result	Verdict
			restricted: <-27dBm/MHz PK e.i.r.p. (exl. 5.25-5.35 GHz). F≥1GHz & in-restricted: §15.209/§7.2.5 limit (AV&PK).		
	5470-5725	15.407(b)(3) 15.407(b)(6) 15.407(b)(7) 15.209	F<1GHz: §15.209/§7.2.5 limit (QP). F≥1GHz & out-restricted: <-27dBm/MHz PK e.i.r.p. (exl. 5.47-5.725 GHz). F≥1GHz & in-restricted: §15.209/§7.2.5 limit (AV&PK).		
	5725-5850	15.407(b)(4) 15.407(b)(6) 15.407(b)(7) 15.209	F<1GHz: §15.209/§7.2.5 limit (QP) F≥1GHz & out-restricted:(QP) a) 27 dBm/MHz at frequencies from the band edges decreasing linearly to 15.6 dBm/MHz at 5 MHz above or below the band edges; b) 15.6 dBm/MHz at 5 MHz above or below the band edges decreasing linearly to 10 dBm/MHz at 25 MHz above or below the band edges; c) 10 dBm/MHz at 25 MHz above or below the band edges decreasing linearly to -27 dBm/MHz at 75 MHz above or below the band edges; and d) -27 dBm/MHz at frequencies more than 75 MHz above or below the band edges. F≥1GHz & in-restricted: §15.209/§7.2.5 limit (AV&PK).		



Test Item	Band	FCC Rule	Requirements	Test Result	Verdict
Unwanted Emissions in the Restricted Bands (Radiated)	5150-5250 5250-5350 5470-5725 5725-5850	15.209	---	Clause 4.8	Pass
AC Power Line Conducted Emissions	5150-5250 5250-5350 5470-5725 5725-5850	15.207	---	Clause 4.2	Pass
Frequency Stability	5150-5250 5250-5350 5470-5725 5725-5850	15.209	---	Clause 4.9	Pass
Dynamic Frequency Selection	5250-5350 5470-5725	47 CFR Part 15, Subpart E 15.407	Channel Move Time:10 Seconds	Clause 4.10	Pass
			Transmission Time: milliseconds + an aggregate of 60 milliseconds over remaining 10 second period.		
			Non-occupancy period: Minimum 30 minutes		

3 General Information

3.1 Client Information

Applicant:	Huawei Technologies Co., Ltd.
Address of Applicant:	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C
Manufacturer:	Huawei Technologies Co., Ltd.
Address of Manufacturer:	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C

3.2 Test Location

Company:	SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
Address:	No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China
Post code:	518057
Telephone:	+86 (0) 755 2601 2053
Fax:	+86 (0) 755 2671 0594
E-mail:	ee.shenzhen@sgs.com

3.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

• **Industry Canada (IC)**

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.



3.4 General Description of EUT

EUT Description::	Smart Phone
Model No.:	ELE-L04
Trade Mark:	HUAWEI
Hardware Version:	HL1ELLEM
Software Version:	5.0.1.34 (SP1C792E8R1P7)
IEEE 802.11 WLAN Mode Supported	<input checked="" type="checkbox"/> 802.11a (20 MHz channel bandwidth) ; <input checked="" type="checkbox"/> 802.11n (20 MHz channel bandwidth); <input checked="" type="checkbox"/> 802.11n (40 MHz channel bandwidth); <input checked="" type="checkbox"/> 802.11ac (20 MHz channel bandwidth); <input checked="" type="checkbox"/> 802.11ac (40 MHz channel bandwidth); <input checked="" type="checkbox"/> 802.11ac (80 MHz channel bandwidth), <input checked="" type="checkbox"/> 802.11ac (160 MHz channel bandwidth),
Operation Frequency:	IEEE 802.11a/ n(HT20/40)/ ac(HT20/40/80/160): 5150MHz to 5250MHz IEEE 802.11a/ n(HT20/40)/ ac(HT20/40/80/160): 5250MHz to 5350MHz IEEE 802.11a/ n(HT20/40)/ ac(HT20/40/80/160): 5470MHz to 5725MHz IEEE 802.11a/ n(HT20/40)/ ac(HT20/40/80): 5725MHz to 5850MHz
Type of Modulation:	OFDM
DFS mode:	<input type="checkbox"/> Master <input type="checkbox"/> Slave with radar detection <input checked="" type="checkbox"/> Slave without radar detection
Sample Type:	<input checked="" type="checkbox"/> Portable Device, <input type="checkbox"/> Module
Antenna Type:	<input type="checkbox"/> External, <input checked="" type="checkbox"/> Integrated
Antenna Ports	<input checked="" type="checkbox"/> Ant 1, <input checked="" type="checkbox"/> Ant 2, <input type="checkbox"/> Ant 3
Smart System	<input checked="" type="checkbox"/> SISO (for 802.11a/n/ac), <input checked="" type="checkbox"/> MIMO (for 802.11n/ac), <input type="checkbox"/> Diversity (for 802.11a) : Tx & Rx
Antenna Gain:	ANT1:-2.12dBi, ANT2:-2.01dBi
EUT Power Supply:	Battery Model: HB436380ECW Rated capacity: 3550mAh Nominal Voltage: +3.85V Charging Voltage: +4.43V
AC adaptor:	Model: HW-050450B00 Manufacturer: Huawei Technologies Co., Ltd. Input: 100V-240V~50/60Hz, 0.75A Output: 5V 2A OR 4.5V 5A OR 5V 4.5A Model: HW-050450E00 Manufacturer: Huawei Technologies Co., Ltd. Input: 100V-240V~50/60Hz, 0.75A Output: 5V 2A OR 4.5V 5A OR 5V 4.5A Model: HW-050450U00 Manufacturer: Huawei Technologies Co., Ltd. Input: 100V-240V~50/60Hz, 0.75A Output: 5V 2A OR 4.5V 5A OR 5V 4.5A Model: HW-050450A00 Manufacturer: Huawei Technologies Co., Ltd. Input: 100V-240V~50/60Hz, 0.75A Output: 5V 2A OR 4.5V 5A OR 5V 4.5A



	Model: HW-050450E01 Manufacturer: Huawei Technologies Co., Ltd. Input: 100V-240V~50/60Hz, 0.75A Output: 5V 2A OR 9V 2A Model: HW-050450A01 Manufacturer: Huawei Technologies Co., Ltd. Input: 100V-240V~50/60Hz, 0.75A Output: 5V 2A OR 4.5V 5A OR 5V 4.5A
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Note:

In FCC 15.31, for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table, and the selected channel to perform the test as below:

Frequency Range of Operation Operating Frequency Range (in each Band)	Number of Measurement Frequencies Required	Location of Measurement Frequency in Band of Operation
1 MHz or less	1	centre
1 MHz to 10 MHz	2	1 near high end, 1 near low end
Greater than 10 MHz	3	1 near high end, 1 near centre

For UNII Band I:

Mode	Channel	Frequency(MHz)
IEEE 802.11a/n/ac 20MHz	The Lowest channel	5180
	The Middle channel	5200
	The Highest channel	5240
IEEE 802.11n/ac 40MHz	The Lowest channel	5190
	The Highest channel	5230
IEEE 802.11ac 80MHz	The Middle channel	5210

For UNII Band II-A:

Mode	Channel	Frequency(MHz)
IEEE 802.11a/n/ac 20MHz	The Lowest channel	5260
	The Middle channel	5300
	The Highest channel	5320
IEEE 802.11n/ac 40MHz	The Lowest channel	5270
	The Highest channel	5310
IEEE 802.11ac 80MHz	The Middle channel	5290
IEEE 802.11ac 160MHz	The Middle channel	5250

For UNII Band II-C:

Mode	Channel	Frequency(MHz)
IEEE 802.11a/n/ac 20MHz	The Lowest channel	5500
	The Middle channel	5580
	The Highest channel	5700
IEEE 802.11n/ac 40MHz	The Lowest channel	5510
	The Middle channel	5550
	The Highest channel	5670
IEEE 802.11ac 80MHz	The Lowest channel	5530
	The Highest channel	5610
IEEE 802.11ac 160MHz	The Middle channel	5570

For UNII Band III:

Mode	Channel	Frequency(MHz)
IEEE 802.11a/n/ac 20MHz	The Lowest channel	5745
	The Middle channel	5785
	The Highest channel	5825
IEEE 802.11n/ac 40MHz	The Lowest channel	5755
	The Highest channel	5795
IEEE 802.11ac 80MHz	The Middle channel	5775

3.5 Test Environment and Mode

Operating Environment:	
Temperature:	25.0 °C
Humidity:	55 % RH
Atmospheric Pressure:	101.32 KPa
Test mode:	
Transmitting mode:	Keep the EUT in transmitting mode with all kind of modulation and all kind of data rate.

4 Test results and Measurement Data

4.1 Antenna Requirement

Test Requirement:	47 CFR Part 15 Section 15.203
The antenna is integrated antenna and no consideration of replacement. The best case gain of the antenna is ANT1:-2.12dBi, ANT2:-2.01dBi.	

4.2 Conducted Emissions

Test Requirement:	47 CFR Part 15 Section 15.407(b)		
Test Method:	ANSI C63.10: 2013		
Test Frequency Range:	150kHz to 30MHz		
Limit:	Frequency range (MHz)	Limit (dBuV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
* Decreases with the logarithm of the frequency.			
Test Procedure:	<ol style="list-style-type: none"> 1) The mains terminal disturbance voltage test was conducted in a shielded room. 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded. 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2. 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement. 		

<p>Test Setup:</p>	
<p>Exploratory Test Mode:</p>	<p>Transmitting with all kind of modulations, data rates at lowest, middle and highest channel.</p>
<p>Final Test Mode:</p>	<p>Through Pre-scan, find the 6Mbps of rate of 802.11a at lowest channel is the worst case. Only the worst case is recorded in the report.</p>
<p>Instruments Used:</p>	<p>Refer to section 5.10 for details</p>
<p>Test Results:</p>	<p>Pass</p>

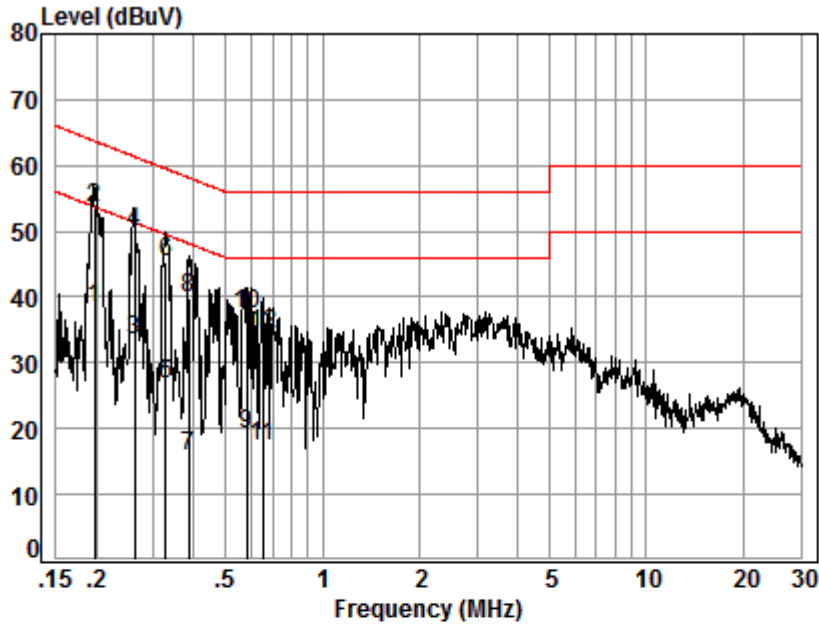
Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.



Live Line:

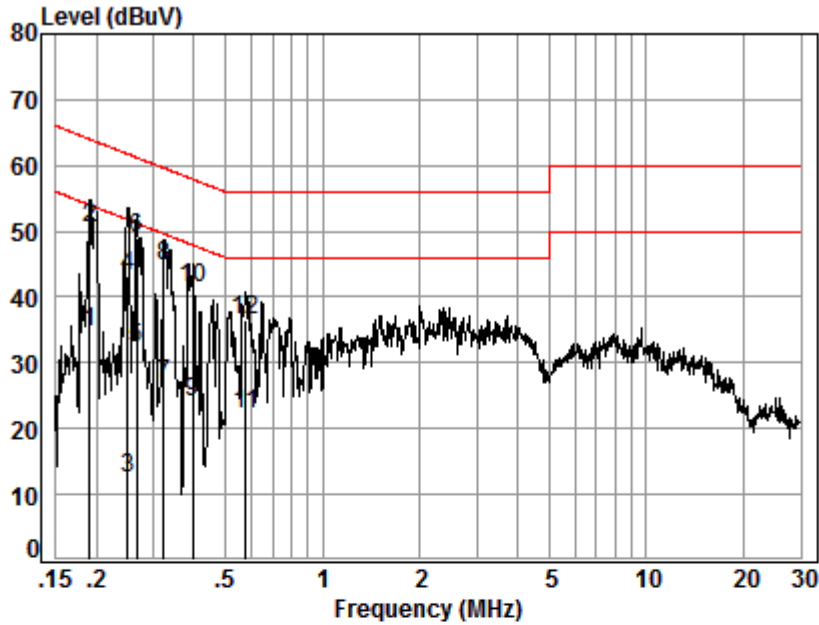


Site : Shielding Room
Condition: Line
Job No. : C0005
Test mode: g

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.20	0.02	9.66	28.61	38.29	53.71	-15.42	Average
2	0.20	0.02	9.66	43.82	53.50	63.71	-10.21	QP
3	0.26	0.03	9.67	23.62	33.32	51.38	-18.06	Average
4	0.26	0.03	9.67	40.29	49.99	61.38	-11.39	QP
5	0.33	0.04	9.67	17.15	26.86	49.53	-22.67	Average
6	0.33	0.04	9.67	35.50	45.21	59.53	-14.32	QP
7	0.39	0.05	9.67	6.21	15.93	48.17	-32.24	Average
8	0.39	0.05	9.67	30.20	39.92	58.17	-18.25	QP
9	0.58	0.07	9.67	9.46	19.20	46.00	-26.80	Average
10	0.58	0.07	9.67	27.80	37.54	56.00	-18.46	QP
11	0.65	0.07	9.68	7.46	17.21	46.00	-28.79	Average
12	0.65	0.07	9.68	24.57	34.32	56.00	-21.68	QP



Neutral Line:



Site : Shielding Room
Condition: Neutral
Job No. : C0005
Test mode: g

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.19	0.02	9.64	25.04	34.70	54.02	-19.32	Average
2	0.19	0.02	9.64	40.93	50.59	64.02	-13.43	QP
3	0.25	0.03	9.64	2.86	12.53	51.78	-39.25	Average
4	0.25	0.03	9.64	33.55	43.22	61.78	-18.56	QP
5	0.27	0.03	9.64	22.45	32.12	51.25	-19.13	Average
6	0.27	0.03	9.64	39.42	49.09	61.25	-12.16	QP
7	0.32	0.04	9.64	17.18	26.86	49.62	-22.76	Average
8	0.32	0.04	9.64	35.06	44.74	59.62	-14.88	QP
9	0.40	0.05	9.65	14.27	23.97	47.90	-23.93	Average
10	0.40	0.05	9.65	31.56	41.26	57.90	-16.64	QP
11	0.58	0.07	9.64	12.49	22.20	46.00	-23.80	Average
12	0.58	0.07	9.64	26.82	36.53	56.00	-19.47	QP

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT:



2. Final Test Level = Receiver Reading + LISN Factor + Cable Loss.

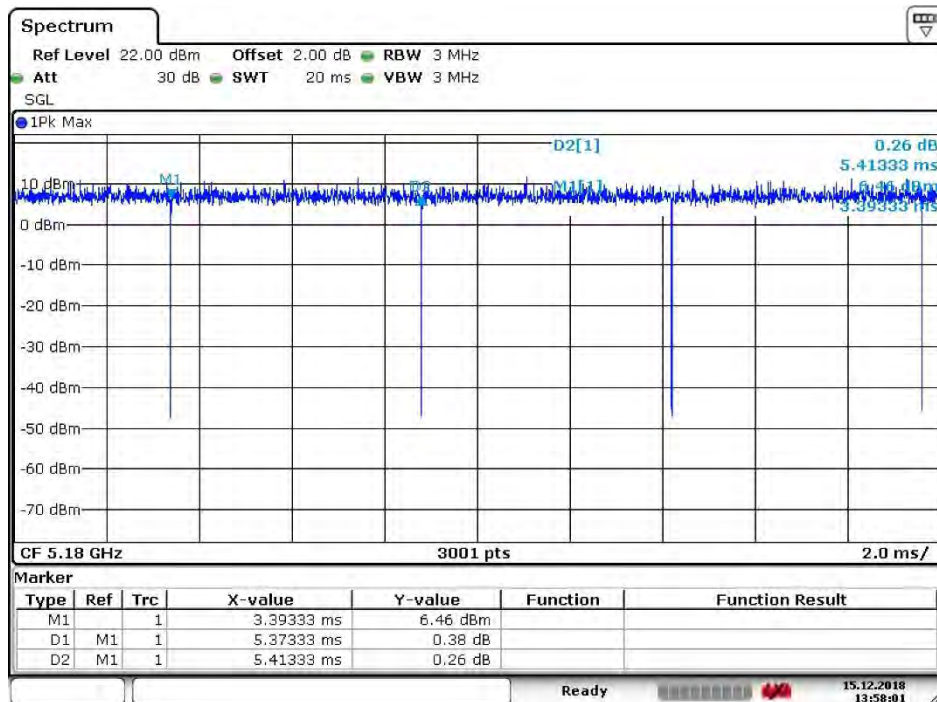
4.3 Duty Cycle

4.3.1 Test Results

Test Mode	TX Freq. [MHz]	Duty cycle [%]	
		Ant 1	Ant 2
11A	CH36	99.26	99.26
11N20	CH36	99.47	99.20
11N40	CH38	97.90	97.81
11AC20	CH36	98.81	99.21
11AC40	CH38	97.91	97.71
11AC80	CH42	95.50	94.83
11AC160	CH50	98.00	98.12
11A_CDD	CH36	99.08	99.32
11N20_MIMO	CH36	97.54	98.82
11N40_MIMO	CH38	95.88	95.75
11AC20_MIMO	CH36	99.40	99.32
11AC40_MIMO	CH38	97.75	97.92
11AC80_MIMO	CH42	95.46	95.13
11AC160_MIMO	CH50	97.24	97.78

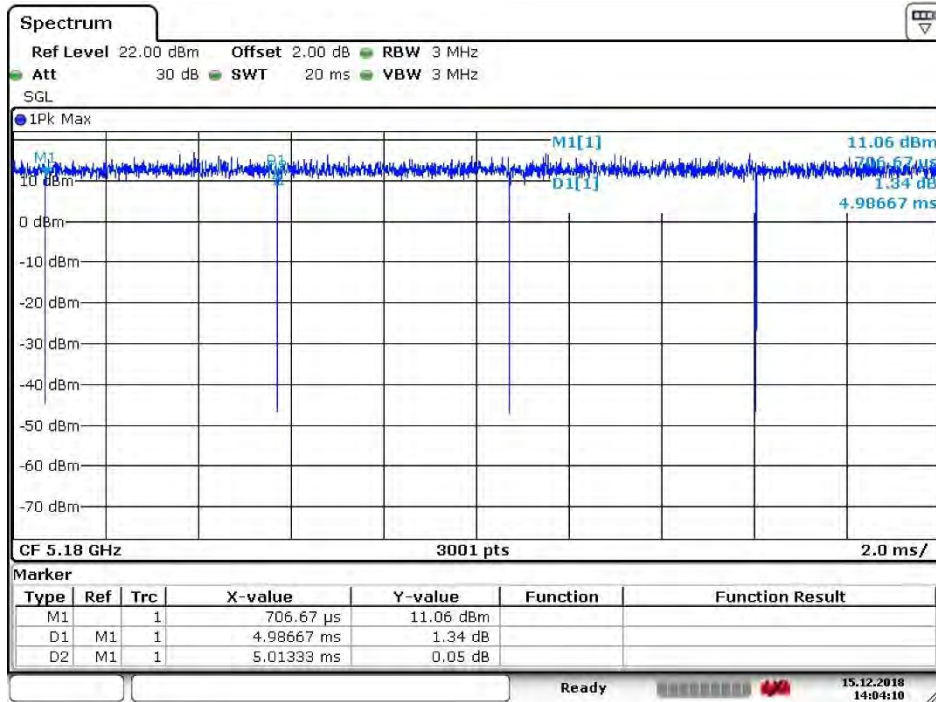
4.3.1 Test Plots

4.3.1.1 ANT1 4.3.1.1.1 11A



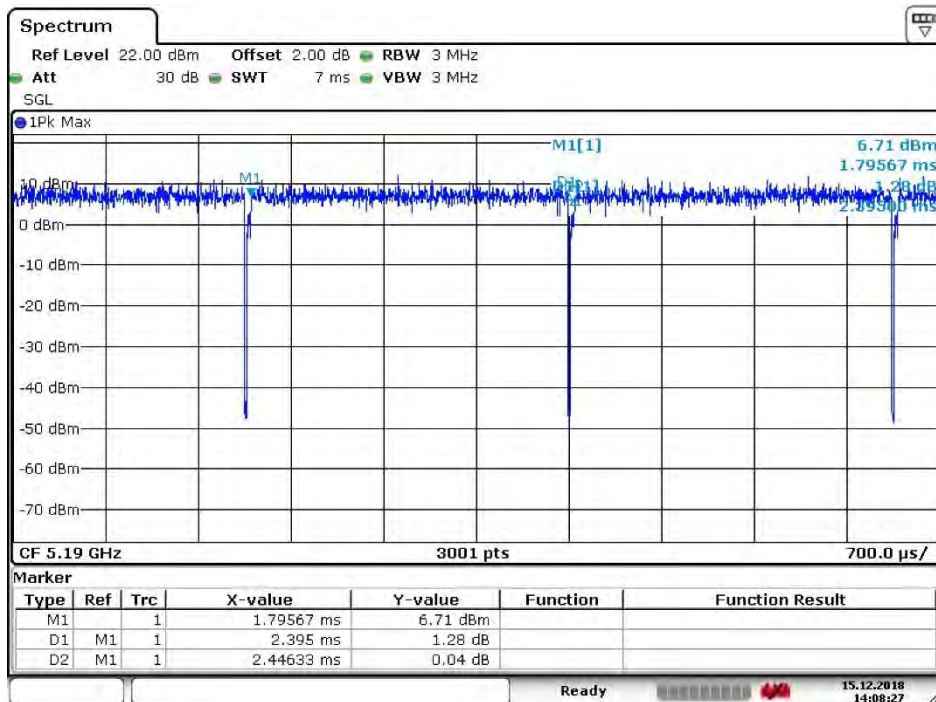
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4.3.1.1.2 11N20



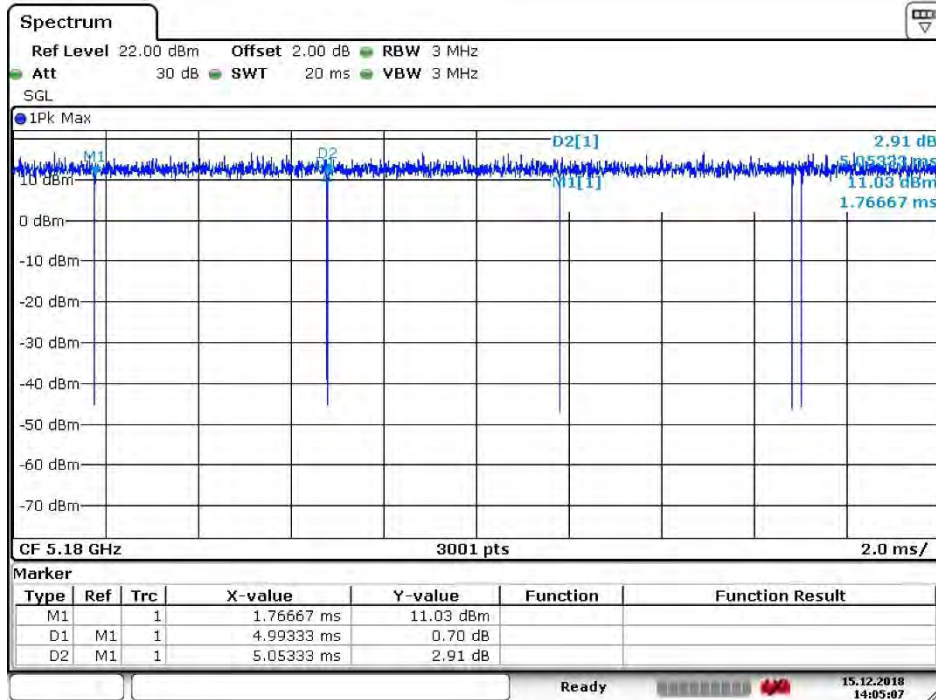
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4.3.1.1.3 11N40



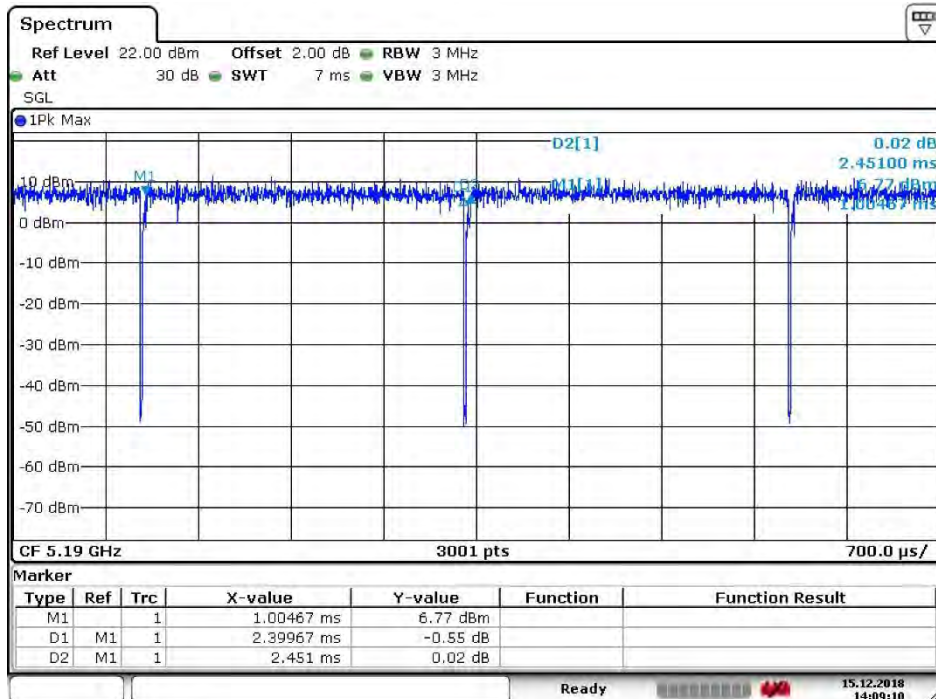
Date: 15.DEC.2018 14:08:27

4.3.1.1.4 11AC20



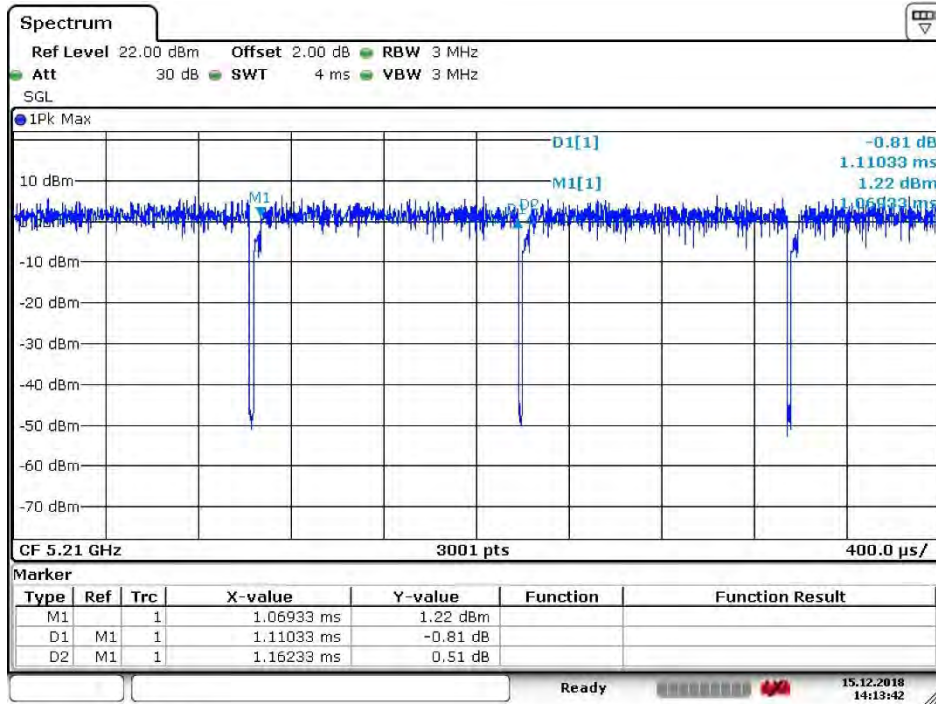
Date: 15.DEC.2018 14:05:07

4.3.1.1.5 11AC40



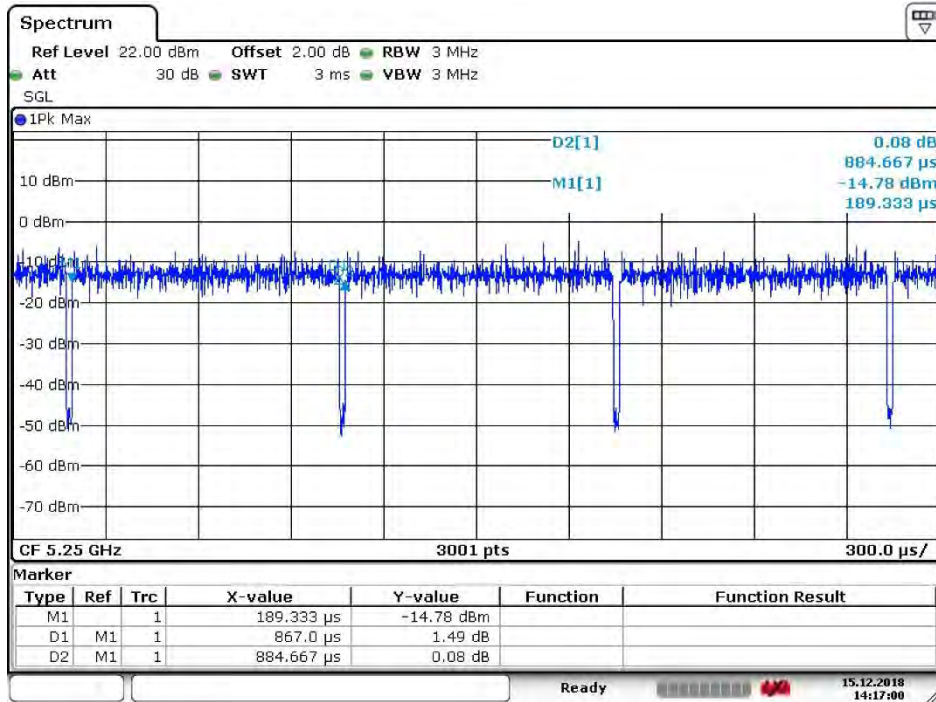
Date: 15.DEC.2018 14:09:11

4.3.1.1.6 11AC80



Date: 15.DEC.2018 14:13:42

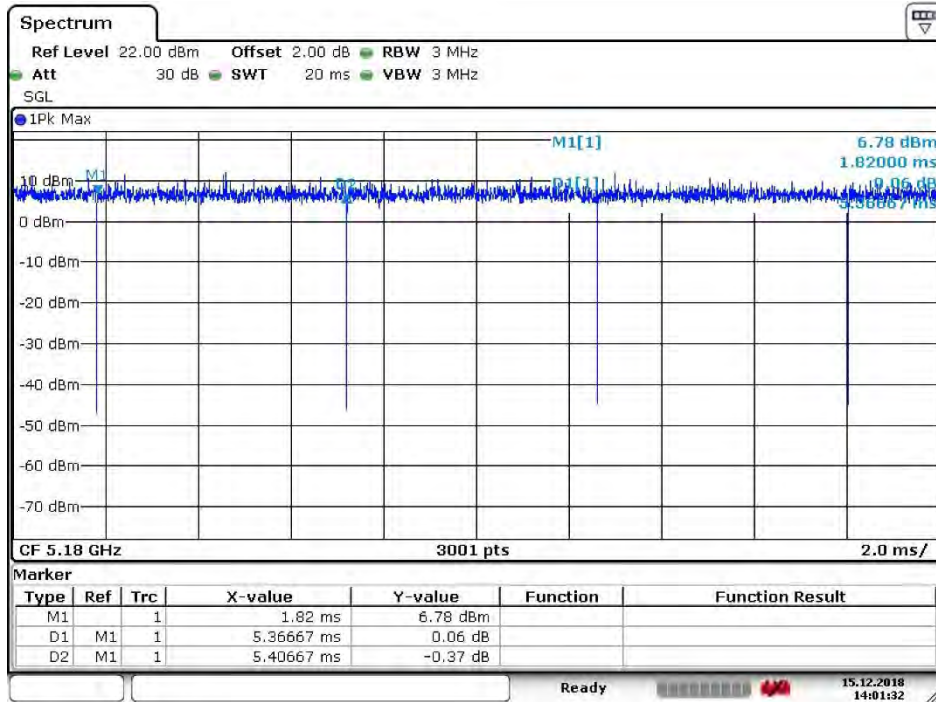
4.3.1.1.7 11AC160



Date: 15.DEC.2018 14:17:00

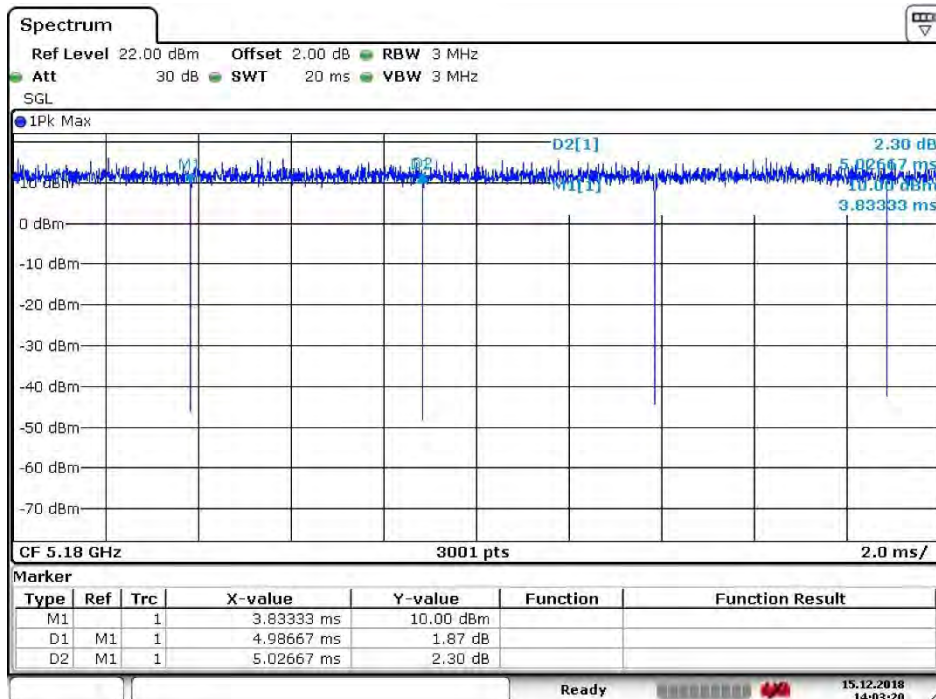
4.3.1.2 ANT2

4.3.1.2.1 11A



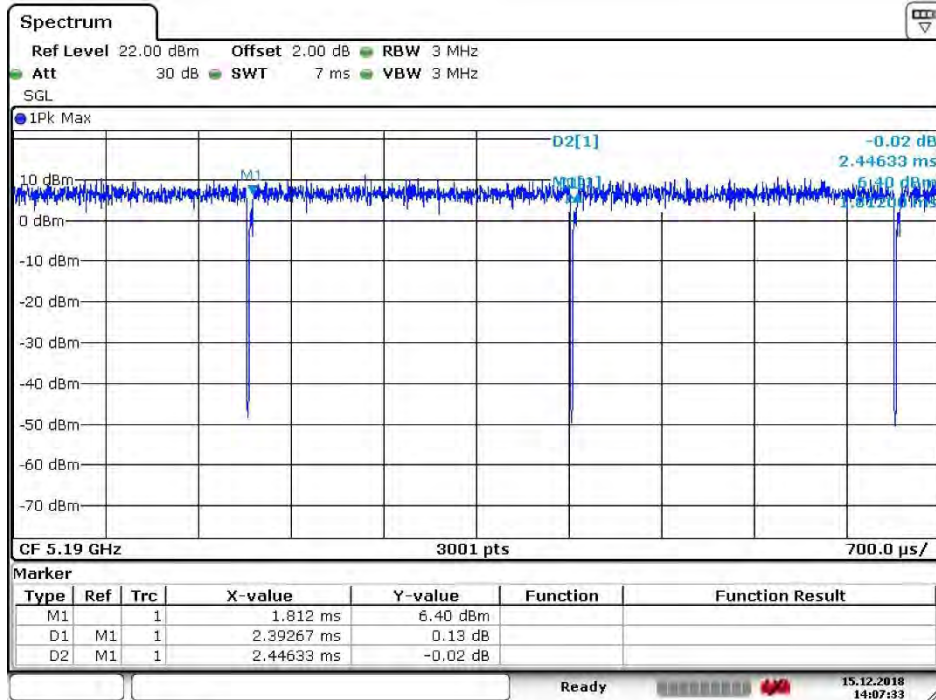
Date: 15 DEC.2018 14:01:32

4.3.1.2.2 11N20



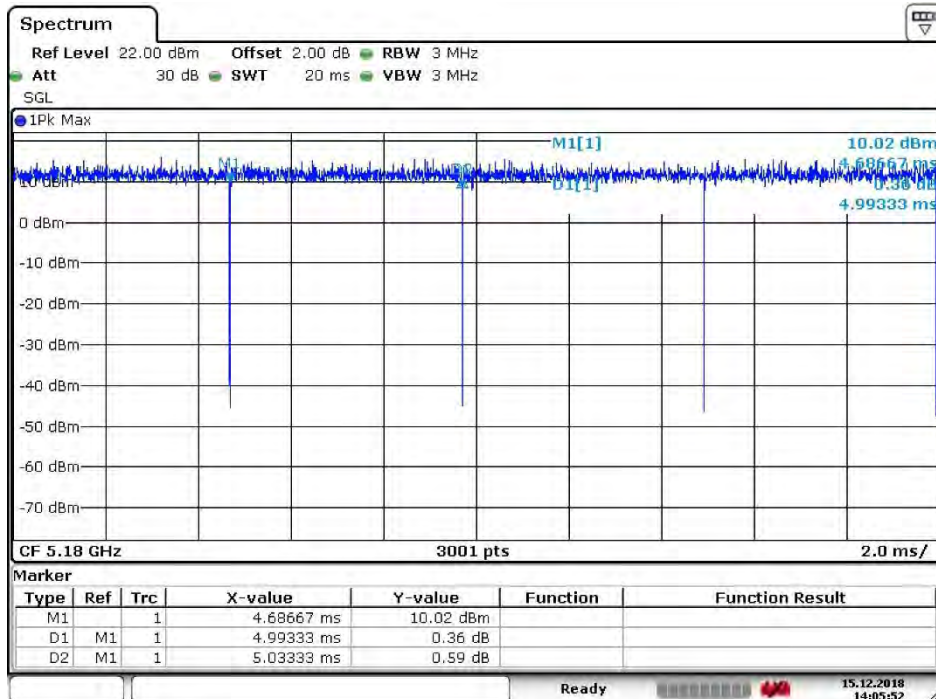
Date: 15 DEC.2018 14:03:21

4.3.1.2.3 11N40



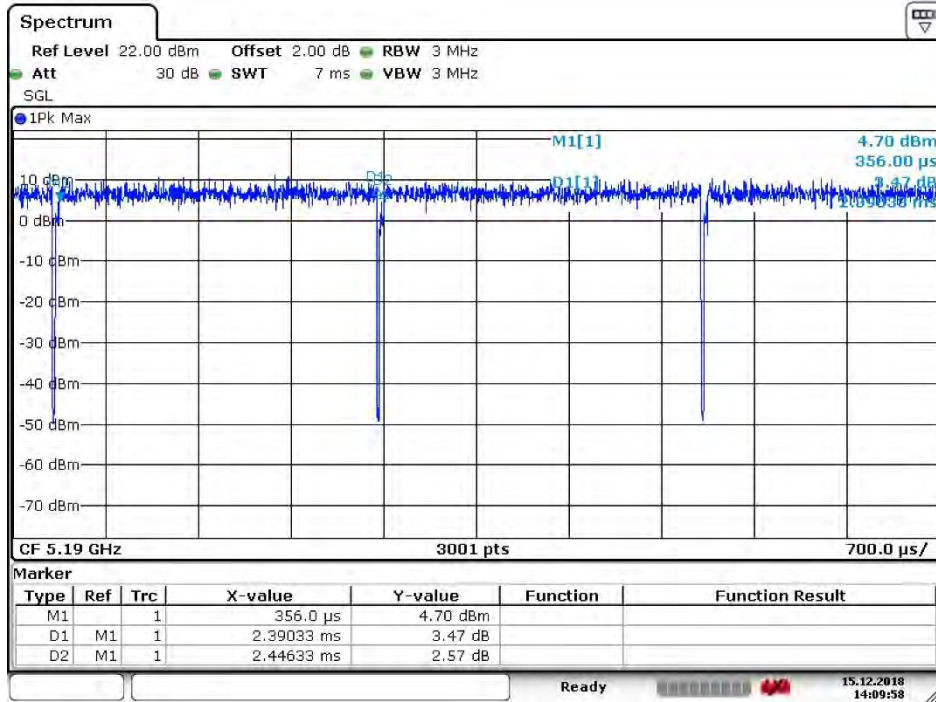
Date: 15 DEC.2018 14:07:34

4.3.1.2.4 11AC20



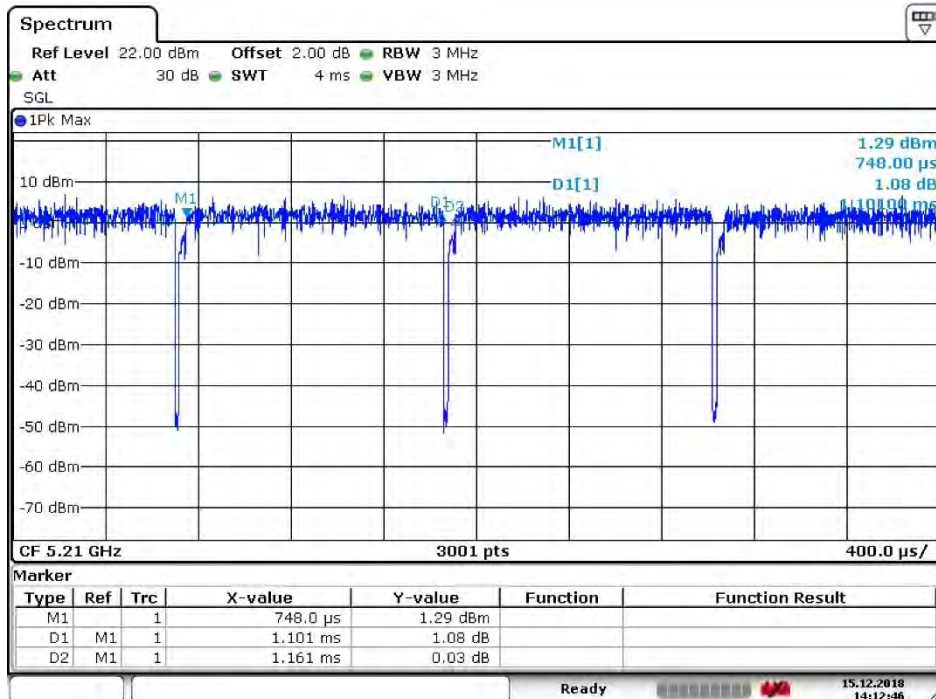
Date: 15 DEC.2018 14:05:53

4.3.1.2.5 11AC40



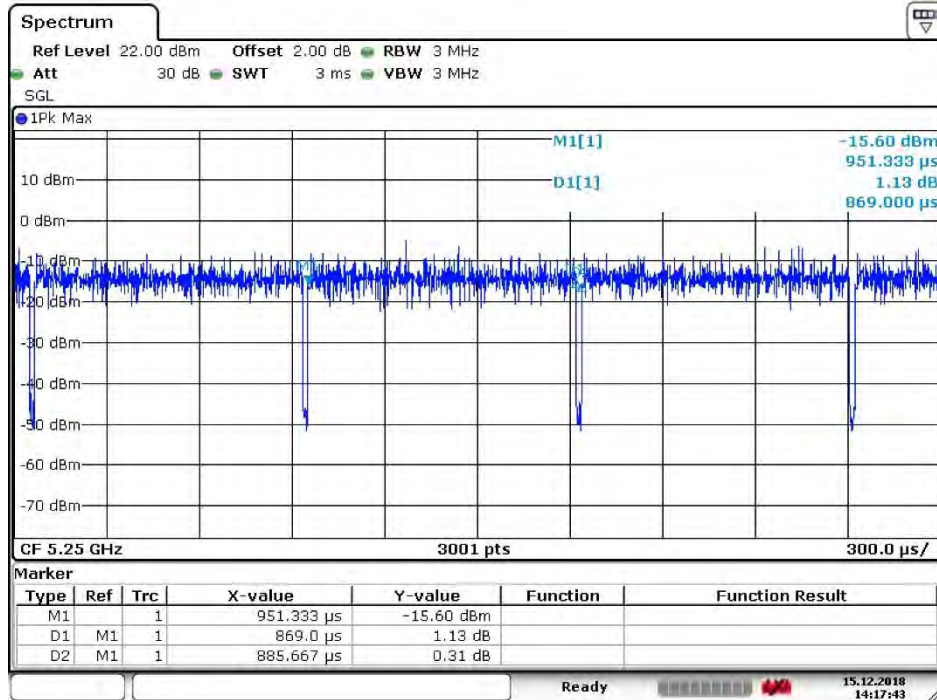
Date: 15.DEC.2018 14:09:58

4.3.1.2.6 11AC80



Date: 15.DEC.2018 14:12:46

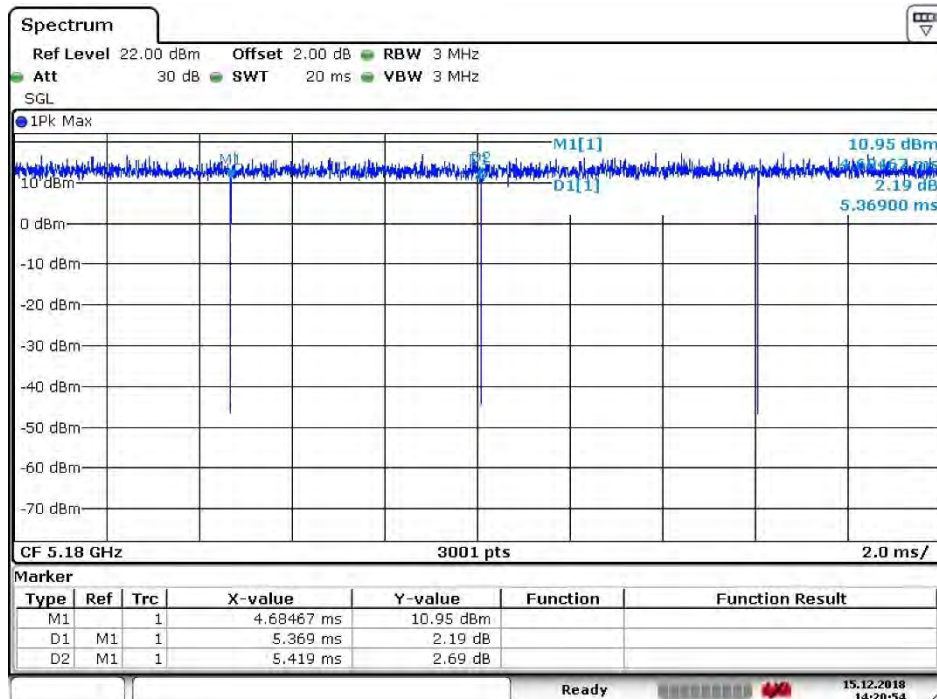
4.3.1.2.7 11AC160



Date: 15.DEC.2018 14:17:43

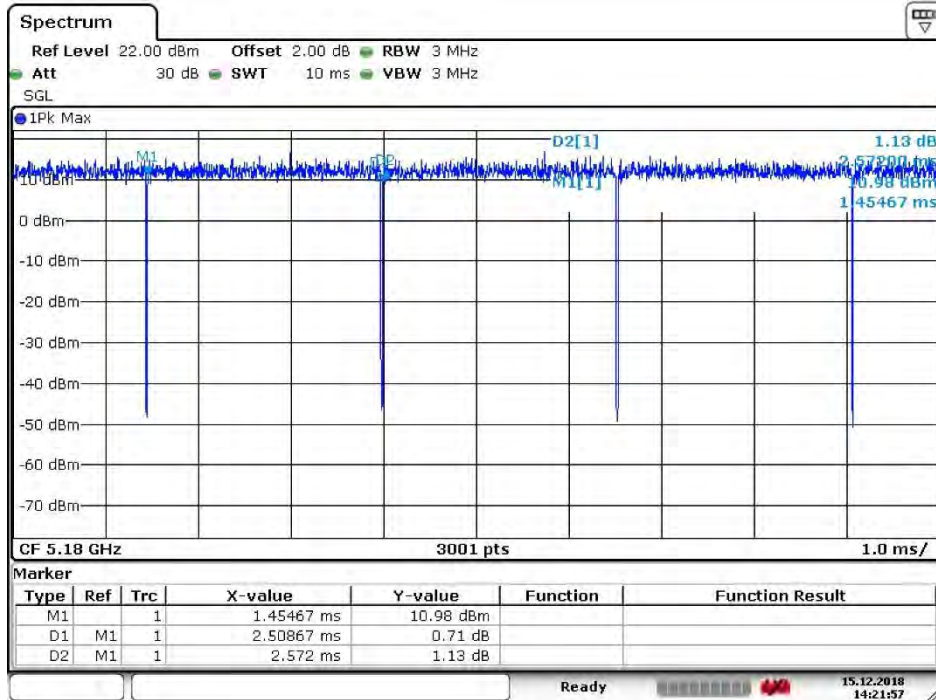
4.3.1.3 CDD & MIMO ANT1

4.3.1.3.1 11A



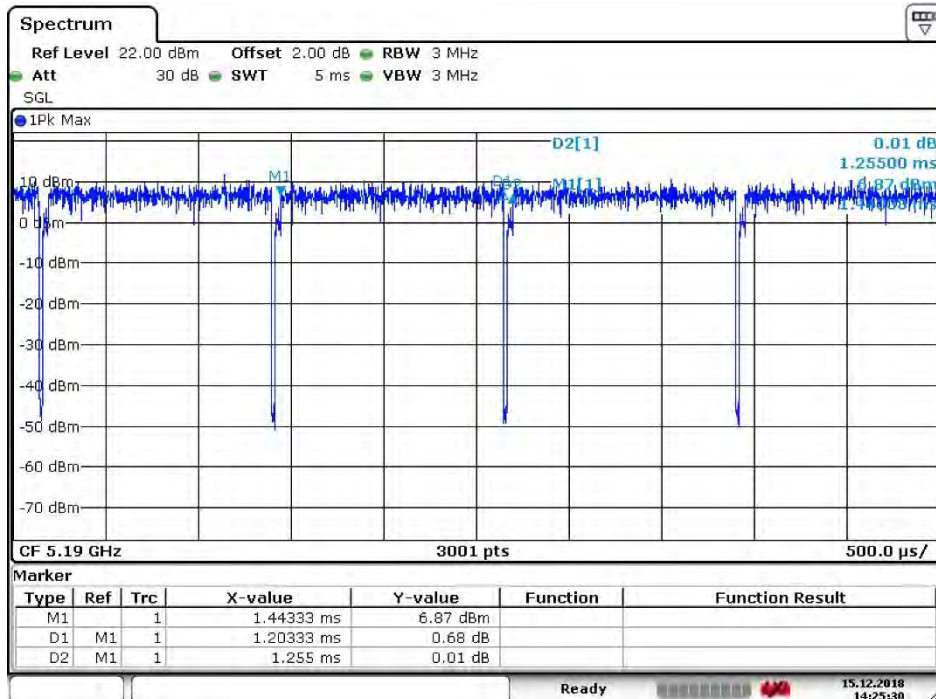
Date: 15.DEC.2018 14:20:55

4.3.1.3.2 11N20



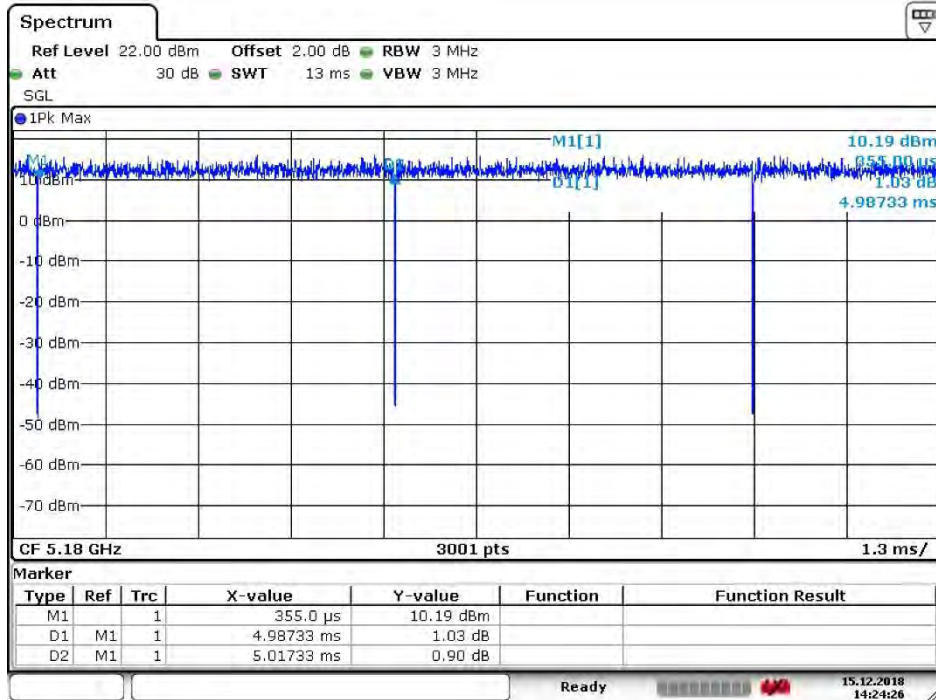
Date: 15.DEC.2018 14:21:57

4.3.1.3.3 11N40



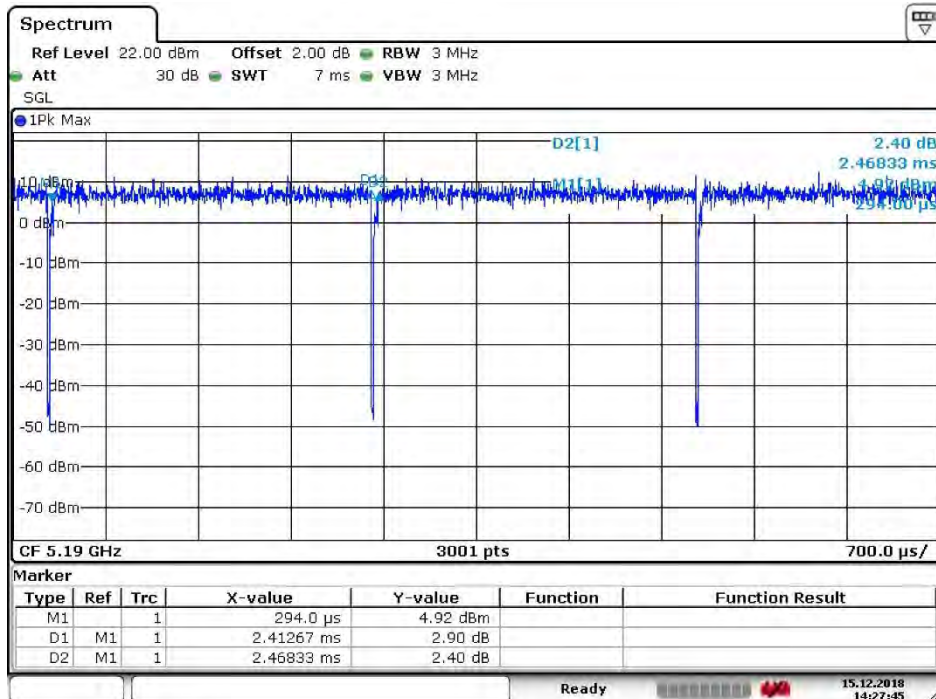
Date: 15.DEC.2018 14:25:30

4.3.1.3.4 11AC20



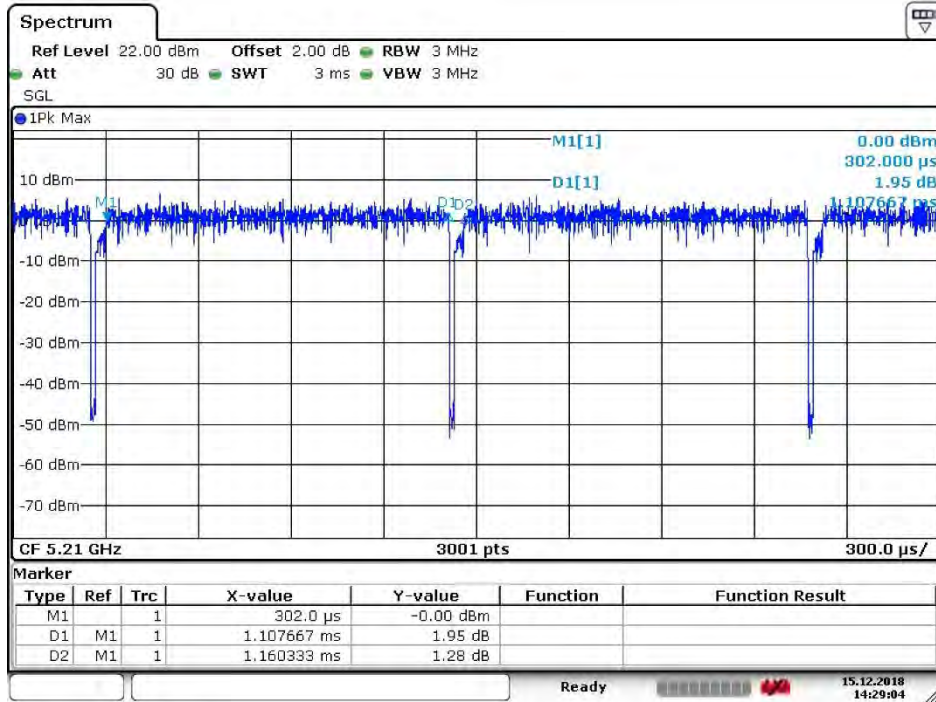
Date: 15 DEC.2018 14:24:26

4.3.1.3.5 11AC40



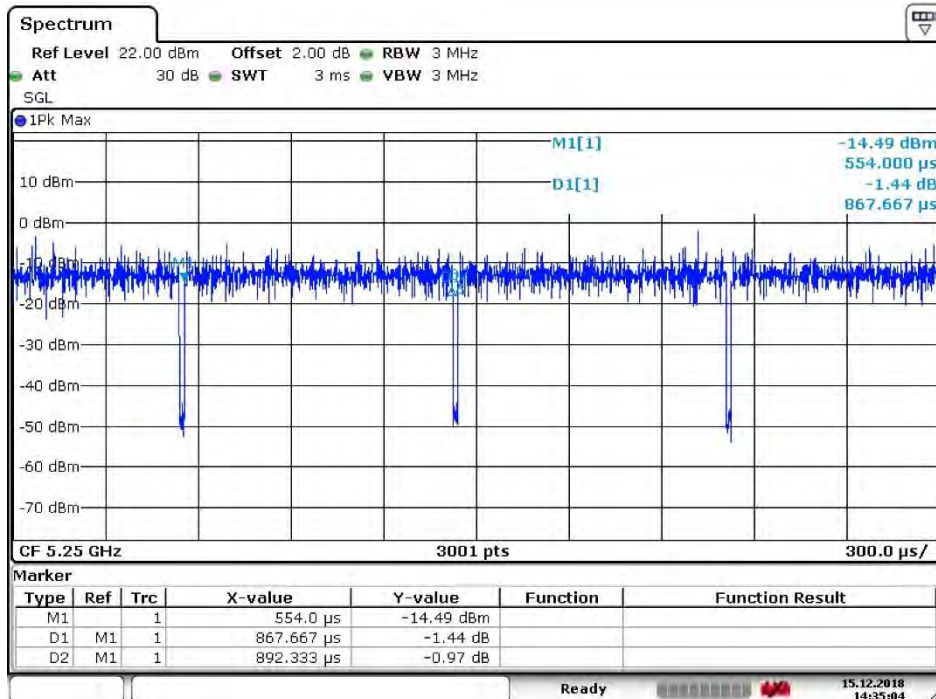
Date: 15 DEC.2018 14:27:45

4.3.1.3.6 11AC80



Date: 15.DEC.2018 14:29:04

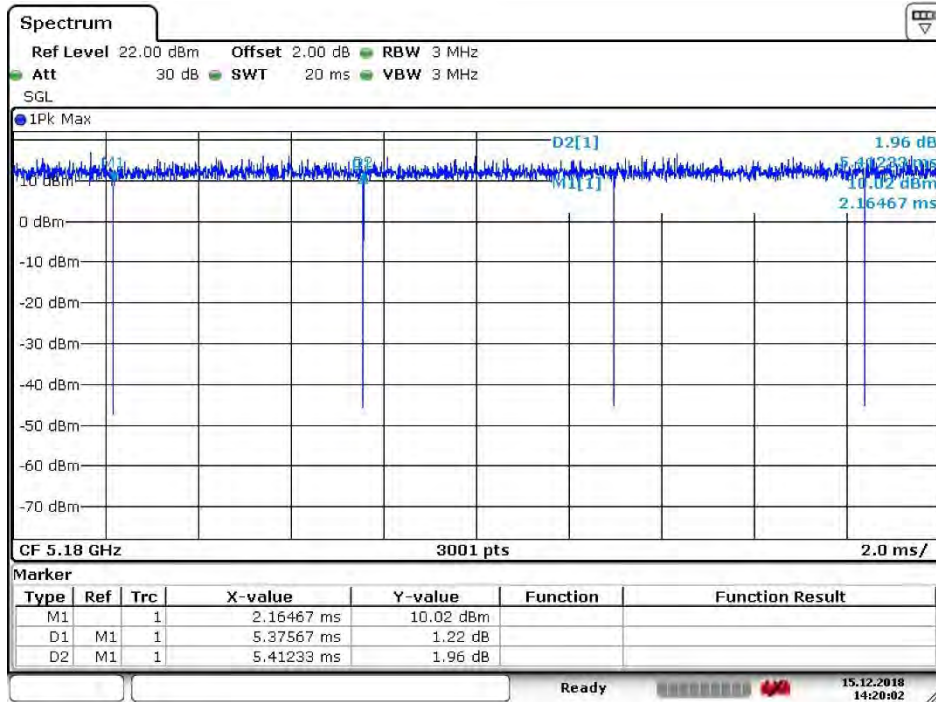
4.3.1.3.7 11AC160



Date: 15.DEC.2018 14:35:04

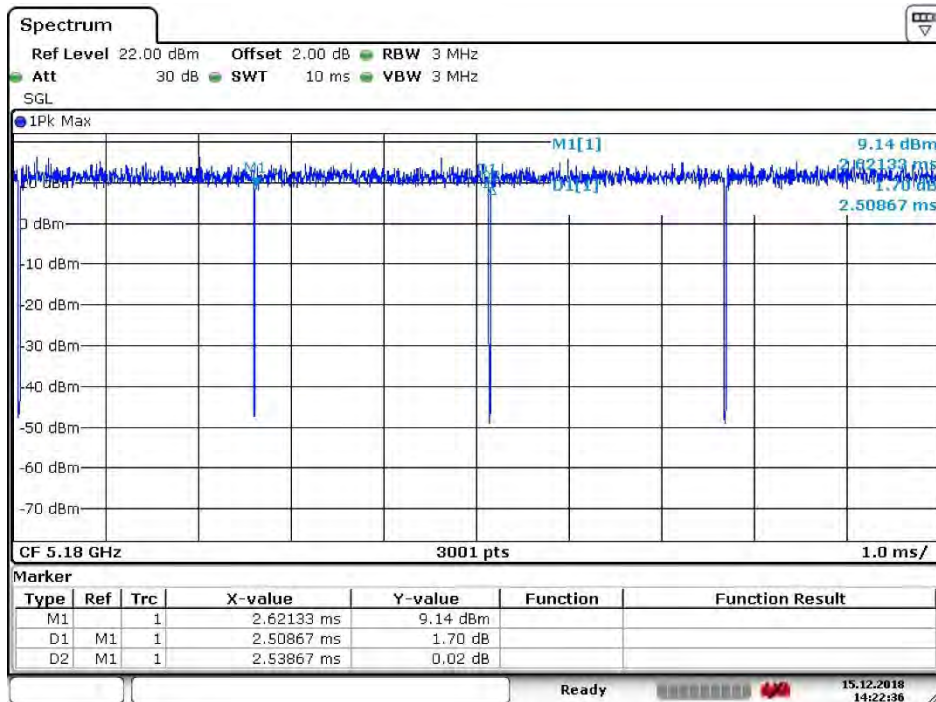
4.3.1.4 CDD & MIMO ANT2

4.3.1.4.1 11A



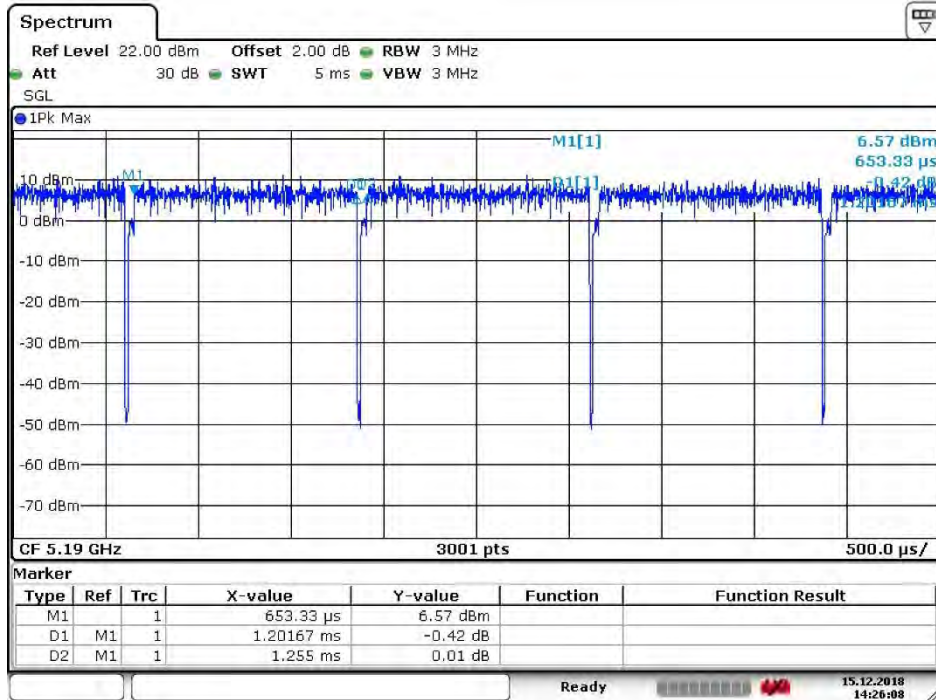
Date: 15.DEC.2018 14:20:02

4.3.1.4.2 11N20



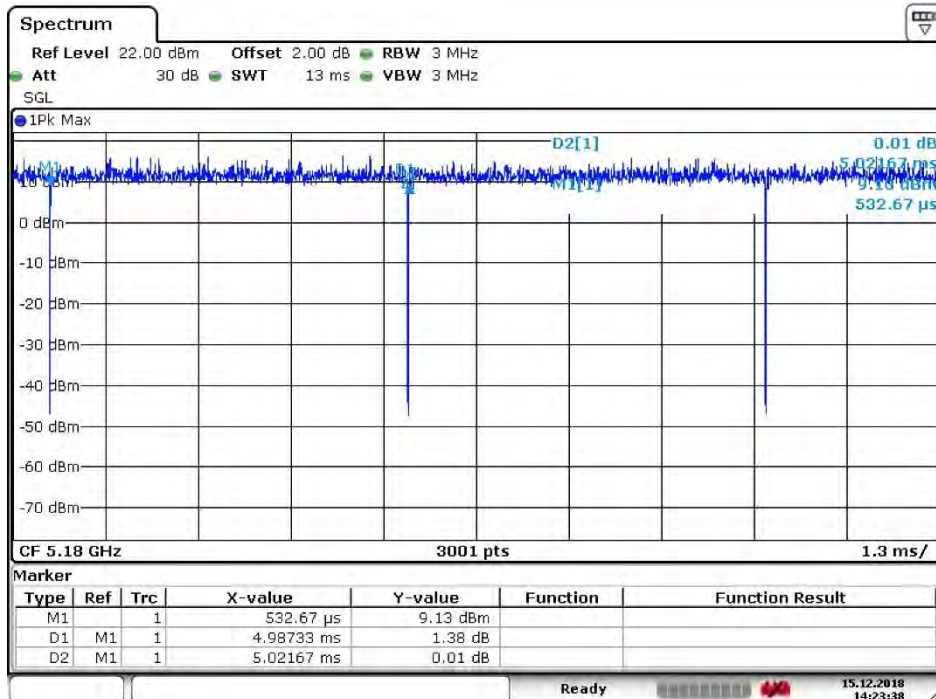
Date: 15.DEC.2018 14:22:37

4.3.1.4.3 11N40



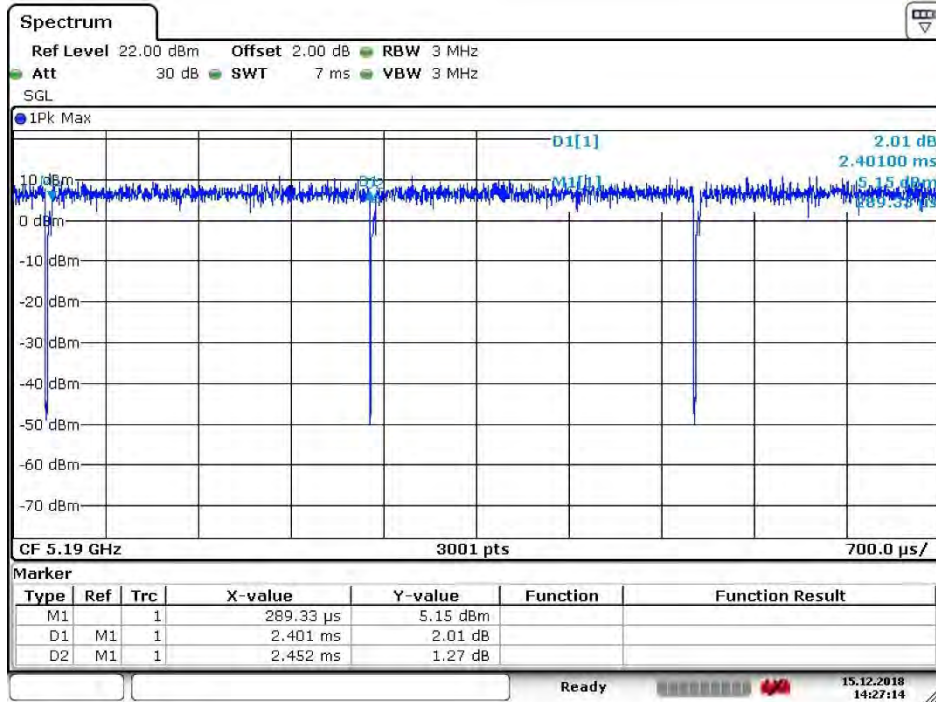
Date: 15 DEC.2018 14:26:09

4.3.1.4.4 11AC20



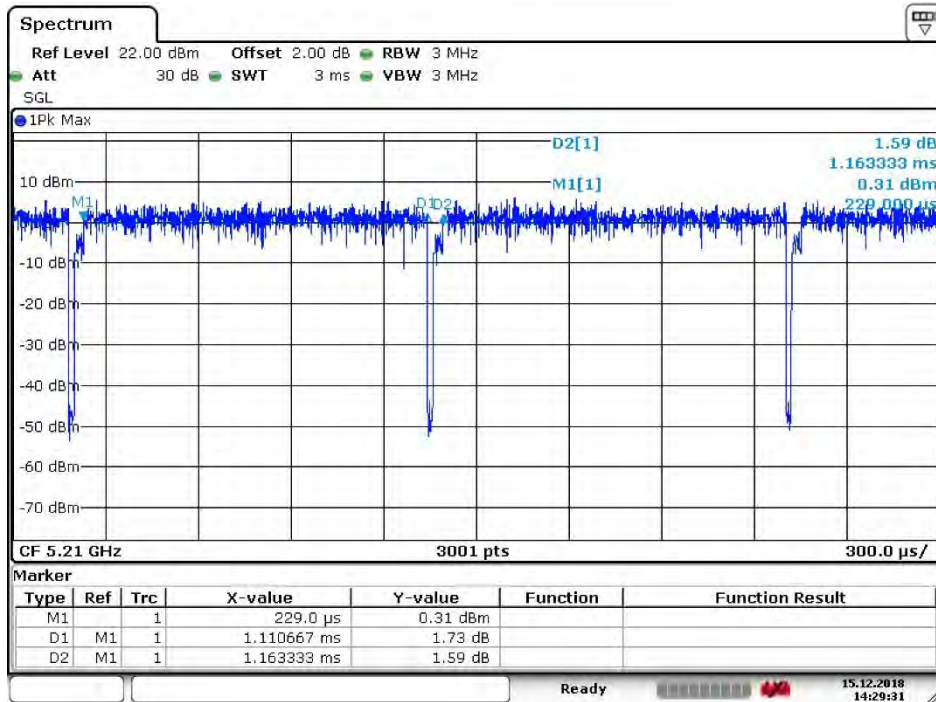
Date: 15 DEC.2018 14:23:38

4.3.1.4.5 11AC40



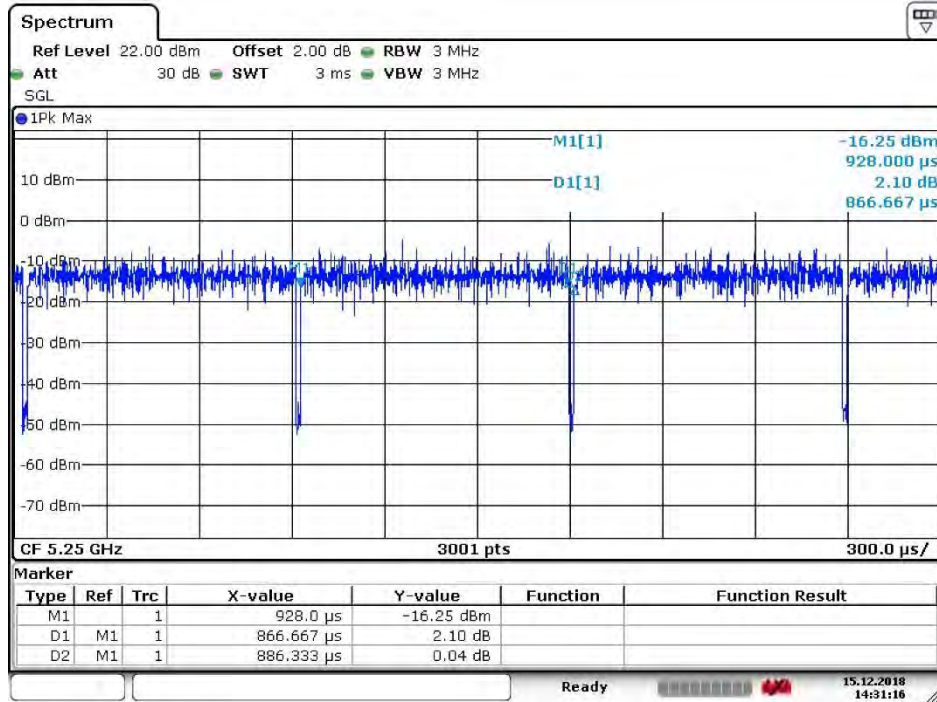
Date: 15.DEC.2018 14:27:15

4.3.1.4.6 11AC80



Date: 15.DEC.2018 14:29:31

4.3.1.4.7 11AC160



Date: 15 DEC.2018 14:31:16

4.4 Conducted Output Power

Test Requirement:	47 CFR Part 15 Section 15.407(a)	
Test Method:	ANSI C63.10: 2013	
Test Setup:		
Test Instruments:	Refer to section 5.10 for details	
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates	
Final Test Mode:	<p>Through Pre-scan, find that</p> <ul style="list-style-type: none"> 6Mbps of rate is the worst case of 802.11a; MCS0 of rate is the worst case of 802.11n(HT20); MCS0 of rate is the worst case of 802.11n(HT40); MCSAC0 of rate is the worst case of 802.11ac(HT20); MCSAC0 of rate is the worst case of 802.11ac(HT40); MCSAC0 of rate is the worst case of 802.11ac(HT80) MCSAC0 of rate is the worst case of 802.11ac(HT160) <p>Only the worst case is recorded in the report.</p>	
Limit:	Frequency Band	Limit
	5150-5250MHz	Not exceed 250mW(24dBm)
	5250-5350MHz	The lesser of 250mW(24dBm) or $11 + 10\log B$
	5470-5725MHz	The lesser of 250mW(24dBm) or $11 + 10\log B$
	5725-5850MHz	Not exceed 1W(30dBm)
	*Where B is the 26dB emission bandwidth in MHz	
Test Results:	Pass	



Measurement Data:

Test Mode	Test Channel	Frequency [MHz]	ANT1		ANT2		SUM (Cond.) [dBm]	SUM (EIRP) [dBm]	Verdict
			Meas. Level (Cond.) [dBm]	Meas. Level (EIRP) [dBm]	Meas. Level (Cond.) [dBm]	Meas. Level (EIRP) [dBm]			
11A20	36	5180	9.54	7.42	9.31	7.30	---	---	PASS
	44	5220	15.82	13.70	15.55	13.54	---	---	PASS
	48	5240	15.85	13.73	15.49	13.48	---	---	PASS
	52	5260	15.69	13.57	15.47	13.46	---	---	PASS
	60	5300	15.75	13.63	15.47	13.46	---	---	PASS
	64	5320	8.08	5.96	8.93	6.92	---	---	PASS
	100	5500	9.38	7.26	10.41	8.40	---	---	PASS
	116	5580	16.12	14.00	16.50	14.49	---	---	PASS
	140	5700	8.48	6.36	9.32	7.31	---	---	PASS
	149	5745	8.95	6.83	9.31	7.30	---	---	PASS
	157	5785	9.18	7.06	9.39	7.38	---	---	PASS
11N20	165	5825	9.46	7.34	9.34	7.33	---	---	PASS
	36	5180	9.90	7.78	9.77	7.76	---	---	PASS
	44	5220	15.31	13.19	14.46	12.45	---	---	PASS
	48	5240	15.19	13.07	14.39	12.38	---	---	PASS
	52	5260	15.01	12.89	14.31	12.30	---	---	PASS
	60	5300	14.59	12.47	14.31	12.30	---	---	PASS
	64	5320	9.13	7.01	10.01	8.00	---	---	PASS
	100	5500	9.89	7.77	11.00	8.99	---	---	PASS
	116	5580	15.64	13.52	15.99	13.98	---	---	PASS
	140	5700	8.87	6.75	9.85	7.84	---	---	PASS
	149	5745	9.20	7.08	10.16	8.15	---	---	PASS
11N40	157	5785	9.39	7.27	10.11	8.10	---	---	PASS
	165	5825	9.84	7.72	10.10	8.09	---	---	PASS
	38	5190	8.22	6.10	8.47	6.46	---	---	PASS
	46	5230	14.77	12.65	14.44	12.43	---	---	PASS
	54	5270	14.33	12.21	14.38	12.37	---	---	PASS
	62	5310	7.22	5.10	8.68	6.67	---	---	PASS
	102	5510	7.93	5.81	8.70	6.69	---	---	PASS
	110	5550	14.83	12.71	15.22	13.21	---	---	PASS
134	5670	7.93	5.81	8.46	6.45	---	---	PASS	
151	5755	9.62	7.50	10.29	8.28	---	---	PASS	
159	5795	9.96	7.84	10.27	8.26	---	---	PASS	

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11AC20	36	5180	9.87	7.75	9.87	7.86	---	---	PASS
	44	5220	15.33	13.21	14.50	12.49	---	---	PASS
	48	5240	15.20	13.08	14.40	12.39	---	---	PASS
	52	5260	14.93	12.81	14.35	12.34	---	---	PASS
	60	5300	14.63	12.51	14.29	12.28	---	---	PASS
	64	5320	9.16	7.04	9.98	7.97	---	---	PASS
	100	5500	9.69	7.57	11.02	9.01	---	---	PASS
	116	5580	15.68	13.56	15.95	13.94	---	---	PASS
	140	5700	8.94	6.82	9.92	7.91	---	---	PASS
	149	5745	9.23	7.11	10.09	8.08	---	---	PASS
	157	5785	9.49	7.37	10.16	8.15	---	---	PASS
11AC40	38	5190	8.16	6.04	8.04	6.03	---	---	PASS
	46	5230	14.74	12.62	14.83	12.82	---	---	PASS
	54	5270	14.35	12.23	14.29	12.28	---	---	PASS
	62	5310	7.07	4.95	7.04	5.03	---	---	PASS
	102	5510	7.97	5.85	7.88	5.87	---	---	PASS
	110	5550	14.80	12.68	14.84	12.83	---	---	PASS
	134	5670	7.90	5.78	7.82	5.81	---	---	PASS
	151	5755	9.50	7.38	9.38	7.37	---	---	PASS
	159	5795	9.80	7.68	9.83	7.82	---	---	PASS
11AC80	42	5210	7.71	5.59	8.67	6.66	---	---	PASS
	58	5290	6.61	4.49	8.44	6.43	---	---	PASS
	106	5530	7.73	5.61	9.47	7.46	---	---	PASS
	138	5690	7.68	5.56	9.64	7.63	---	---	PASS
	155	5775	9.47	7.35	10.75	8.74	---	---	PASS
11AC160	50	5250	7.11	4.99	7.10	5.09	---	---	PASS
	114	5570	7.36	5.24	8.20	6.19	---	---	PASS
11A20 CDD	36	5180	9.58	7.46	9.61	7.60	12.61	10.54	PASS
	44	5220	14.65	12.53	14.68	12.67	17.68	15.61	PASS
	48	5240	14.62	12.50	14.65	12.64	17.65	15.58	PASS
	52	5260	14.50	12.38	14.53	12.52	17.53	15.46	PASS
	60	5300	14.53	12.41	14.56	12.55	17.56	15.49	PASS
	64	5320	9.81	7.69	9.84	7.83	12.84	10.77	PASS
	100	5500	10.54	8.42	10.57	8.56	13.57	11.50	PASS
	116	5580	16.21	14.09	16.24	14.23	19.24	17.17	PASS
	140	5700	9.73	7.61	9.76	7.75	12.76	10.69	PASS
	149	5745	9.78	7.66	9.81	7.80	12.81	10.74	PASS
	157	5785	9.72	7.60	9.75	7.74	12.75	10.68	PASS



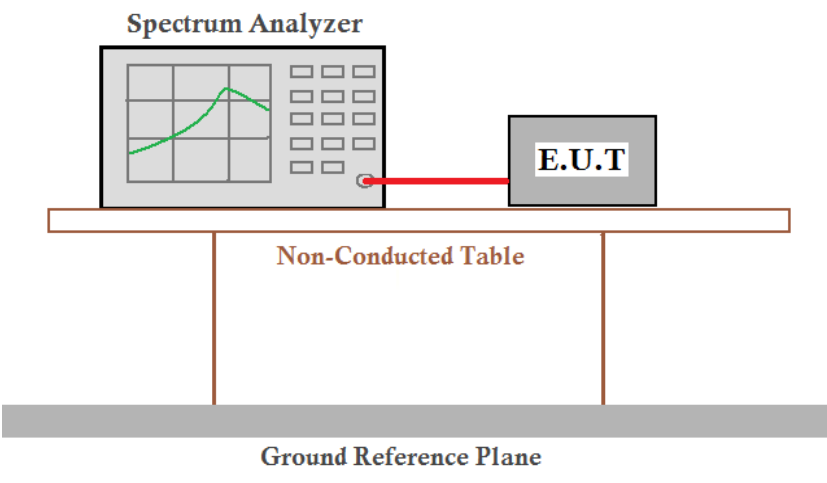
	165	5825	9.65	7.53	9.68	7.67	12.68	10.61	PASS
11N20 MIMO	36	5180	9.54	7.42	9.59	7.58	12.57	10.51	PASS
	44	5220	14.70	12.58	14.75	12.74	17.73	15.67	PASS
	48	5240	14.65	12.53	14.70	12.69	17.68	15.62	PASS
	52	5260	14.48	12.36	14.53	12.52	17.51	15.45	PASS
	60	5300	14.60	12.48	14.65	12.64	17.63	15.57	PASS
	64	5320	9.88	7.76	9.93	7.92	12.91	10.85	PASS
	100	5500	10.52	8.40	10.57	8.56	13.55	11.49	PASS
	116	5580	16.23	14.11	16.28	14.27	19.26	17.20	PASS
	140	5700	9.67	7.55	9.72	7.71	12.70	10.64	PASS
	149	5745	9.72	7.60	9.77	7.76	12.75	10.69	PASS
	157	5785	9.70	7.58	9.75	7.74	12.73	10.67	PASS
	165	5825	9.80	7.68	9.85	7.84	12.83	10.77	PASS
11N40 MIMO	38	5190	8.29	6.17	8.48	6.47	11.40	9.33	PASS
	46	5230	14.57	12.45	14.76	12.75	17.68	15.61	PASS
	54	5270	14.50	12.38	14.69	12.68	17.61	15.54	PASS
	62	5310	8.36	6.24	8.55	6.54	11.47	9.40	PASS
	102	5510	8.69	6.57	8.88	6.87	11.80	9.73	PASS
	110	5550	15.44	13.32	15.63	13.62	18.55	16.48	PASS
	134	5670	8.15	6.03	8.34	6.33	11.26	9.19	PASS
	151	5755	9.79	7.67	9.98	7.97	12.90	10.83	PASS
	159	5795	9.91	7.79	10.10	8.09	13.02	10.95	PASS
11AC20 MIMO	36	5180	9.41	7.29	9.44	7.43	12.43	10.37	PASS
	44	5220	14.50	12.38	14.53	12.52	17.52	15.46	PASS
	48	5240	14.50	12.38	14.53	12.52	17.52	15.46	PASS
	52	5260	14.50	12.38	14.53	12.52	17.52	15.46	PASS
	60	5300	14.41	12.29	14.44	12.43	17.43	15.37	PASS
	64	5320	9.69	7.57	9.72	7.71	12.71	10.65	PASS
	100	5500	10.42	8.30	10.45	8.44	13.44	11.38	PASS
	116	5580	16.12	14.00	16.15	14.14	19.14	17.08	PASS
	140	5700	9.55	7.43	9.58	7.57	12.57	10.51	PASS
	149	5745	9.71	7.59	9.74	7.73	12.73	10.67	PASS
	157	5785	9.64	7.52	9.67	7.66	12.66	10.60	PASS
	165	5825	9.55	7.43	9.58	7.57	12.57	10.51	PASS
11AC40 MIMO	38	5190	8.21	6.09	8.30	6.29	11.27	9.20	PASS
	46	5230	14.48	12.36	14.57	12.56	17.54	15.47	PASS
	54	5270	14.38	12.26	14.47	12.46	17.44	15.37	PASS
	62	5310	8.25	6.13	8.34	6.33	11.31	9.24	PASS
	102	5510	8.64	6.52	8.73	6.72	11.70	9.63	PASS



	110	5550	15.36	13.24	15.45	13.44	18.42	16.35	PASS
	134	5670	8.18	6.06	8.27	6.26	11.24	9.17	PASS
	151	5755	9.81	7.69	9.90	7.89	12.87	10.80	PASS
	159	5795	9.78	7.66	9.87	7.86	12.84	10.77	PASS
11AC80 MIMO	42	5210	8.14	6.02	8.36	6.35	11.26	9.20	PASS
	58	5290	8.08	5.96	8.30	6.29	11.20	9.14	PASS
	106	5530	9.08	6.96	9.30	7.29	12.20	10.14	PASS
	122	5610	9.15	7.03	9.37	7.36	12.27	10.21	PASS
	155	5775	10.16	8.04	10.38	8.37	13.28	11.22	PASS
11AC160 MIMO	50	5250	7.19	5.07	7.29	5.28	10.25	8.19	PASS
	114	5570	8.40	6.28	8.50	6.49	11.46	9.40	PASS

Note: CH50(5250MHz) of the full band (160MHz) both meet the requirements for 5150MHz-5250MHz and 5250MHz-5350MHz.

4.5 Emission Bandwidth and 99% Occupied Bandwidth

Test Requirement:	47 CFR Part 15 Section 15.407(a)
Test Method:	ANSI C63.10: 2013
Test Setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected via a red cable to an E.U.T. (Equipment Under Test). Both are placed on a Non-Conducted Table. Below the table is a Ground Reference Plane.</p>
Instruments Used:	Refer to section 5.10 for details
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11a; MCS0 of rate is the worst case of 802.11n(HT20); MCS0 of rate is the worst case of 802.11n(HT40); MCSAC0 of rate is the worst case of 802.11ac(HT20); MCSAC0 of rate is the worst case of 802.11ac(HT40); MCSAC0 of rate is the worst case of 802.11ac(HT80); MCSAC0 of rate is the worst case of 802.11ac(HT160). Only the worst case is recorded in the report.
Limit:	No restriction limits
Test Results:	Pass

4.5.1 Measurement Data:

Test Mode	Test Channel	Frequency [MHz]	ANT 1		ANT 2		Verdict
			26dB Emission Bandwidth [MHz]	Occupied Bandwidth [MHz]	26dB Emission Bandwidth [MHz]	Occupied Bandwidth [MHz]	
11A20	36	5180	20.74	16.81	20.83	16.78	PASS
	44	5220	20.98	16.87	20.65	16.84	PASS
	48	5240	21.28	16.90	20.83	16.84	PASS
	52	5260	20.74	16.90	20.83	16.84	PASS
	60	5300	20.78	16.84	20.71	16.84	PASS
	64	5320	20.68	16.78	20.77	16.81	PASS
	100	5500	20.62	16.81	20.62	16.84	PASS
	116	5580	21.10	16.87	21.10	16.87	PASS
11N20	36	5180	21.04	17.74	21.19	17.74	PASS
	44	5220	21.19	17.80	21.25	17.77	PASS
	48	5240	21.16	17.74	20.98	17.74	PASS
	52	5260	21.04	17.77	21.23	17.74	PASS
	60	5300	21.22	17.77	20.95	17.74	PASS
	64	5320	21.07	17.74	21.07	17.71	PASS
	100	5500	21.13	17.74	21.22	17.71	PASS
	116	5580	21.13	17.83	21.25	17.77	PASS
11N40	38	5190	42.26	36.32	41.96	36.32	PASS
	46	5230	42.08	36.32	42.26	36.32	PASS
	54	5270	42.02	36.32	42.38	36.32	PASS
	62	5310	42.38	36.32	42.38	36.32	PASS
	102	5510	42.08	36.26	42.44	36.26	PASS
	110	5550	42.44	36.32	42.14	36.38	PASS
	134	5670	41.96	36.26	41.96	36.32	PASS
11AC20	36	5180	21.00	17.77	21.22	17.74	PASS
	44	5220	21.19	17.74	21.07	17.74	PASS
	48	5240	21.16	17.77	21.07	17.74	PASS
	52	5260	21.28	17.80	21.16	17.74	PASS
	60	5300	21.10	17.77	20.98	17.74	PASS
	64	5320	21.13	17.74	21.04	17.74	PASS
	100	5500	21.00	17.77	21.00	17.71	PASS
	116	5580	21.25	17.77	21.31	17.80	PASS
11AC40	38	5190	41.78	36.32	42.32	36.32	PASS
	46	5230	42.26	36.32	42.26	36.32	PASS
	54	5270	41.96	36.38	42.14	36.32	PASS
	62	5310	42.38	36.38	42.14	36.32	PASS
	102	5510	42.02	36.26	42.08	36.32	PASS
	110	5550	42.20	36.38	42.20	36.32	PASS
	134	5670	42.38	36.32	42.44	36.32	PASS



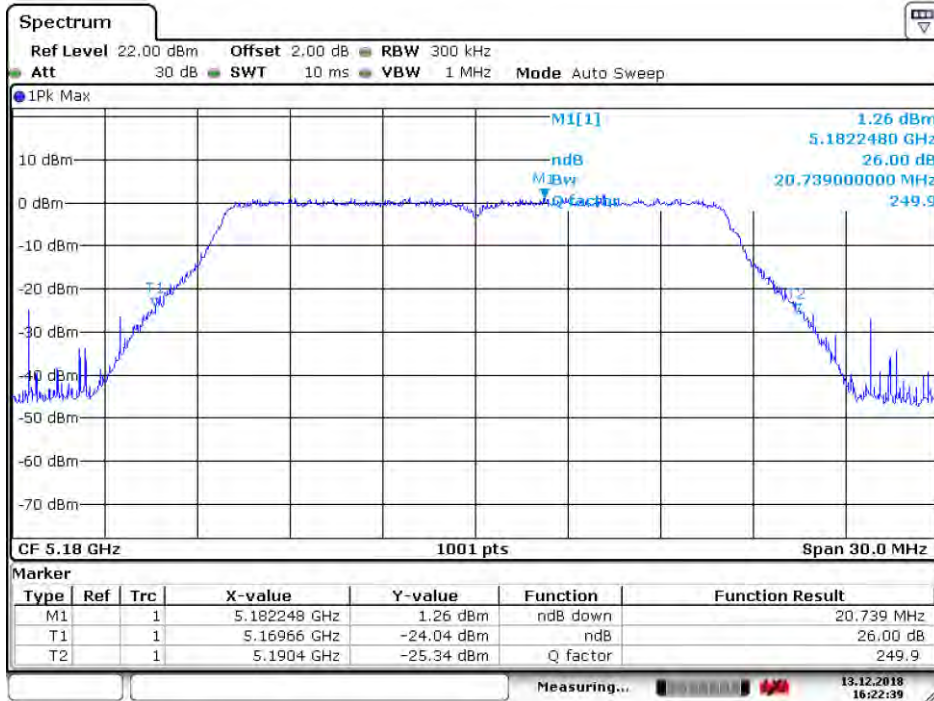
11AC80	42	5210	84.76	75.28	85.11	75.28	PASS
	58	5290	85.00	75.40	85.23	75.28	PASS
	106	5530	84.76	75.40	85.11	75.28	PASS
	122	5610	85.47	75.28	84.52	75.28	PASS
11AC160	50	5250	174.07	154.89	172.39	154.65	PASS
	114	5570	172.15	154.65	173.11	154.64	PASS
11A20 CDD	36	5180	20.83	16.90	20.62	16.63	PASS
	44	5220	21.07	16.87	20.68	16.66	PASS
	48	5240	20.86	16.87	20.56	16.69	PASS
	52	5260	20.83	16.84	20.53	16.66	PASS
	60	5300	20.92	16.81	20.62	16.63	PASS
	64	5320	20.71	16.84	20.59	16.63	PASS
	100	5500	20.89	16.81	20.56	16.63	PASS
	116	5580	21.04	16.90	20.86	16.69	PASS
	140	5700	20.77	16.81	20.35	16.63	PASS
11N20 MIMO	36	5180	21.13	17.71	20.74	17.65	PASS
	44	5220	21.16	17.77	20.98	17.65	PASS
	48	5240	21.13	17.77	20.83	17.65	PASS
	52	5260	21.28	17.77	20.80	17.65	PASS
	60	5300	21.10	17.80	21.01	17.65	PASS
	64	5320	21.10	17.74	20.77	17.62	PASS
	100	5500	21.04	17.71	20.89	17.62	PASS
	116	5580	21.00	17.80	21.13	17.68	PASS
	140	5700	21.04	17.71	20.86	17.62	PASS
11N40 MIMO	38	5190	42.20	36.26	41.06	36.14	PASS
	46	5230	42.44	36.32	41.36	36.14	PASS
	54	5270	41.72	36.32	41.30	36.08	PASS
	62	5310	42.32	36.32	41.24	36.08	PASS
	102	5510	42.20	36.32	41.18	36.08	PASS
	110	5550	42.26	36.32	41.18	36.14	PASS
	134	5670	42.14	36.32	41.18	36.08	PASS
11AC20 MIMO	36	5180	21.25	17.71	20.68	17.65	PASS
	44	5220	21.10	17.80	21.01	17.68	PASS
	48	5240	21.10	17.83	20.83	17.68	PASS
	52	5260	21.19	17.77	20.86	17.68	PASS
	60	5300	21.10	17.80	20.83	17.68	PASS
	64	5320	21.16	17.74	20.80	17.68	PASS
	100	5500	21.22	17.77	20.98	17.65	PASS
	116	5580	21.19	17.83	21.04	17.71	PASS
	140	5700	21.07	17.77	20.74	17.65	PASS
11AC40 MIMO	38	5190	42.50	36.38	41.36	36.14	PASS
	46	5230	42.26	36.32	41.30	36.20	PASS
	54	5270	42.26	36.32	41.12	36.14	PASS
	62	5310	42.56	36.32	40.82	36.20	PASS
	102	5510	41.96	36.26	41.42	36.14	PASS
	110	5550	42.26	36.32	41.42	36.14	PASS



	134	5670	42.26	36.32	41.48	36.20	PASS
11AC80 MIMO	42	5210	84.88	75.28	83.56	75.04	PASS
	58	5290	85.35	75.16	83.44	75.16	PASS
	106	5530	85.59	75.16	83.68	75.04	PASS
	122	5610	85.71	75.40	83.44	75.04	PASS
11AC160 MIMO	50	5250	172.39	154.41	171.91	154.17	PASS
	114	5570	172.39	154.64	171.91	154.64	PASS

Note: CH50(5250MHz) of the full band (160MHz) both meet the requirements for 5150MHz-5250MHz and 5250MHz-5350MHz.

4.5.2 Plots for 26dB Emission Bandwidth & 99% Occupied Bandwidth
4.5.2.1 11A20_36 ANT 1

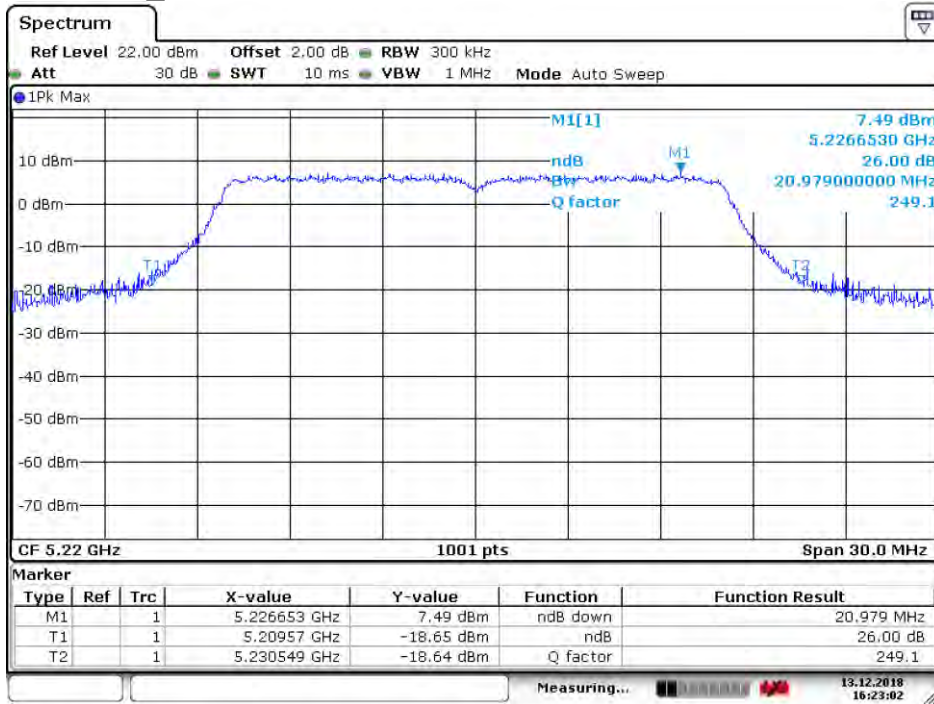


Date: 13.DEC.2018 16:22:39

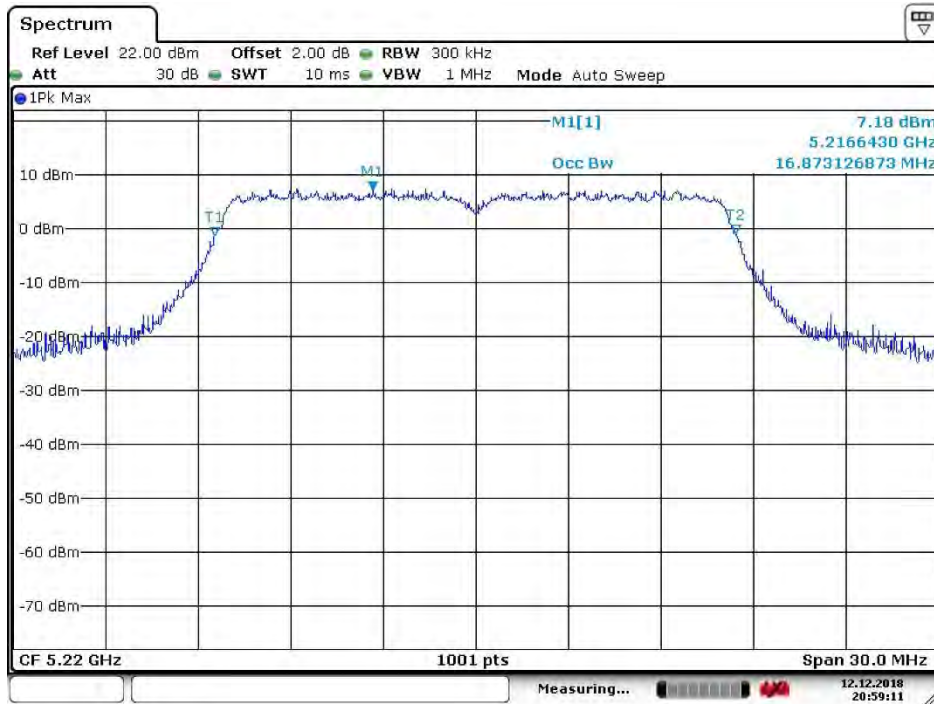


Date: 12.DEC.2018 20:57:27

4.5.2.2 11A20_44 ANT 1



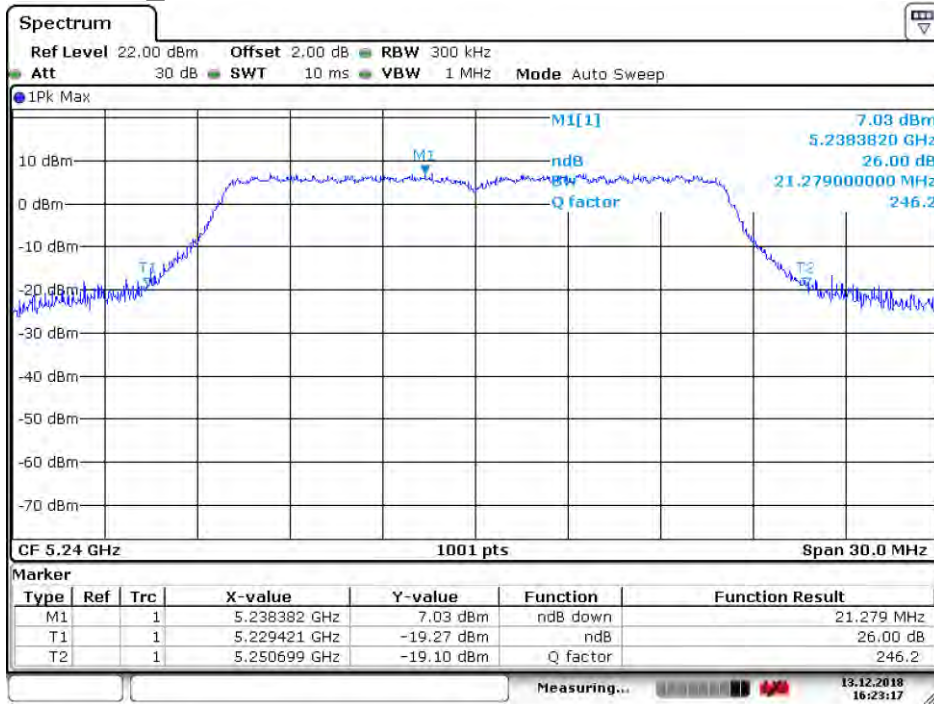
Date: 13.DEC.2018 16:23:02



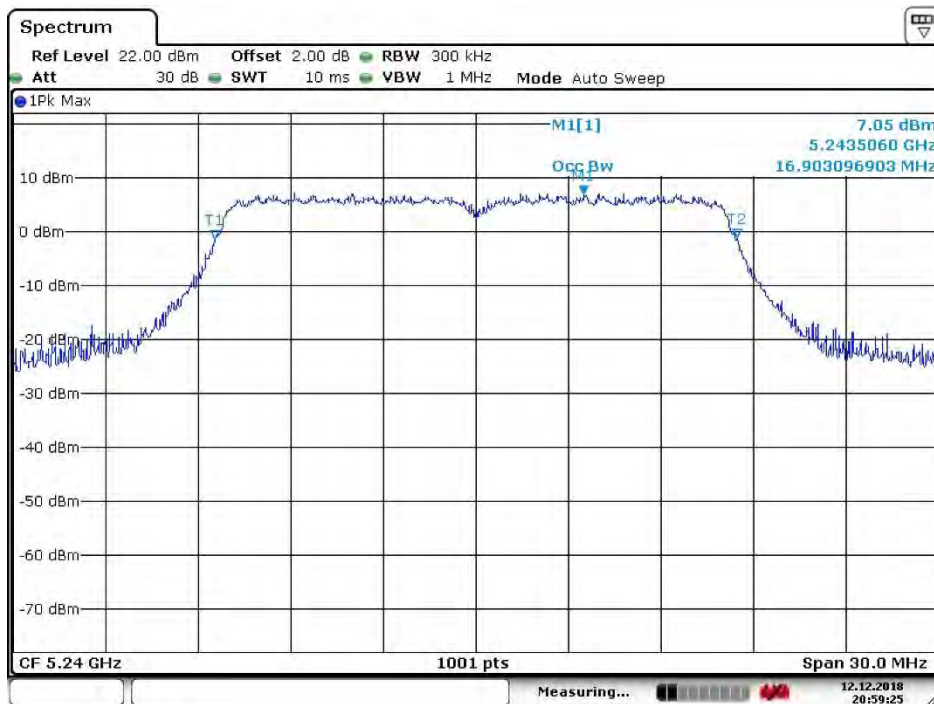
Date: 12.DEC.2018 20:59:11

4.5.2.3

11A20_48 ANT 1



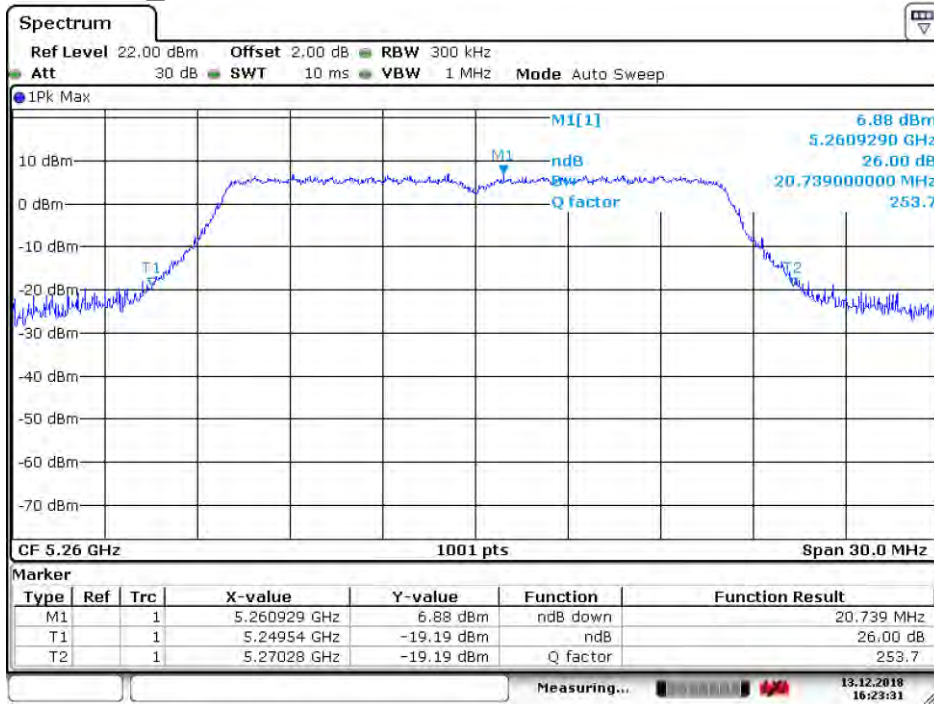
Date: 13.DEC.2018 16:23:18



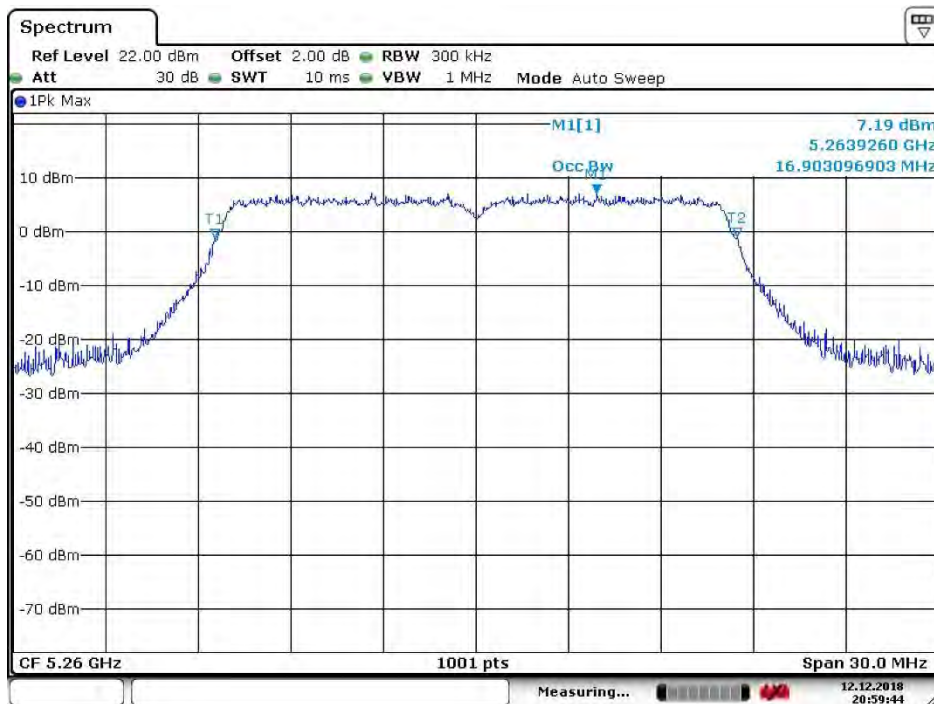
Date: 12.DEC.2018 20:59:26

4.5.2.4

11A20_52 ANT 1

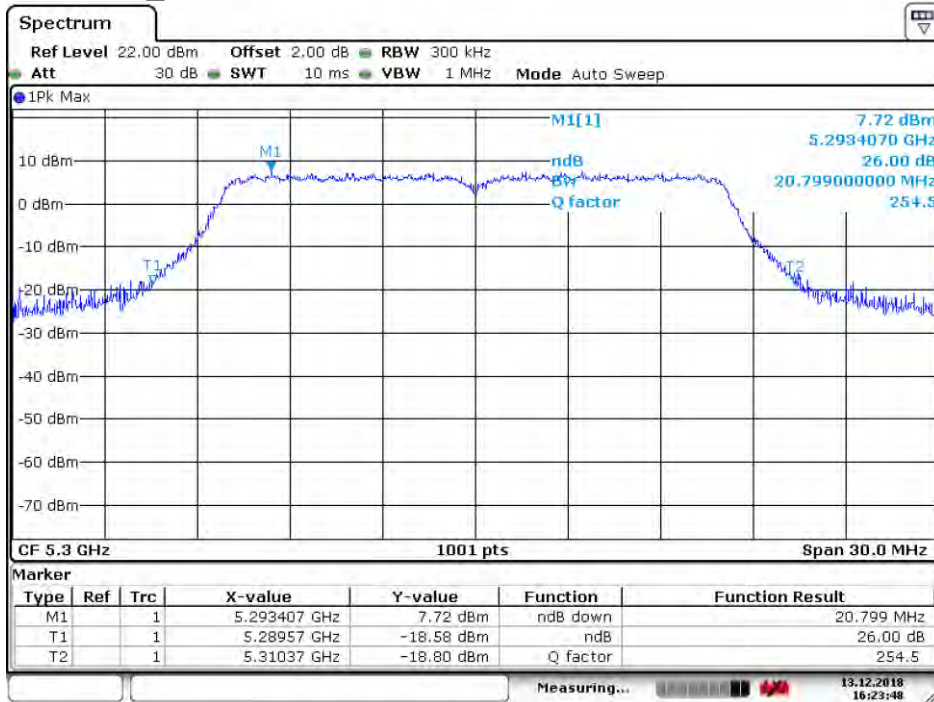


Date: 13.DEC.2018 16:23:32

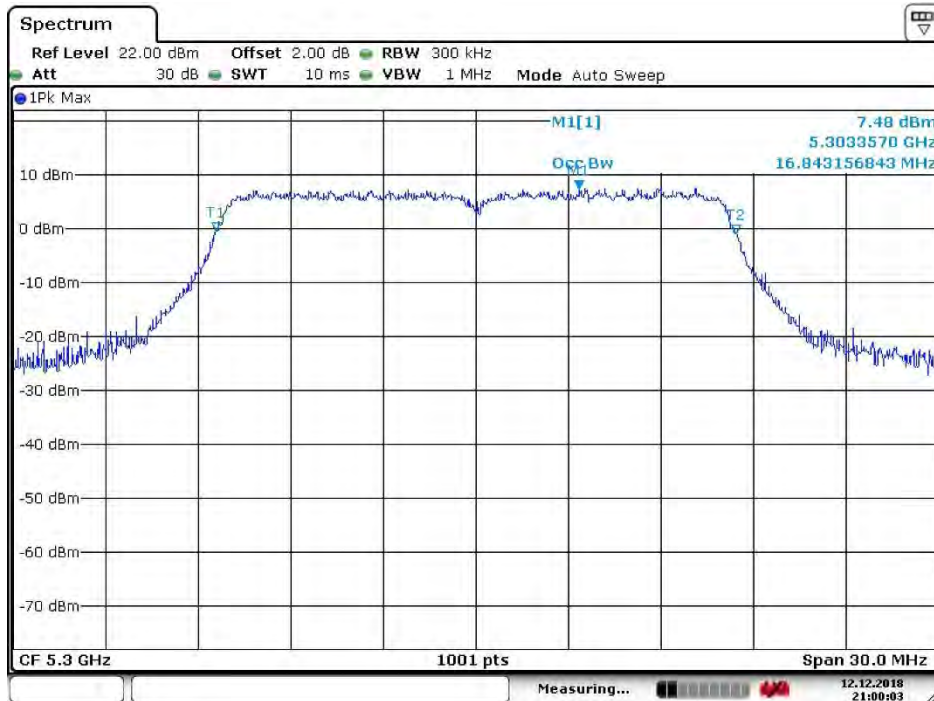


Date: 12.DEC.2018 20:59:44

4.5.2.5 11A20_60 ANT 1



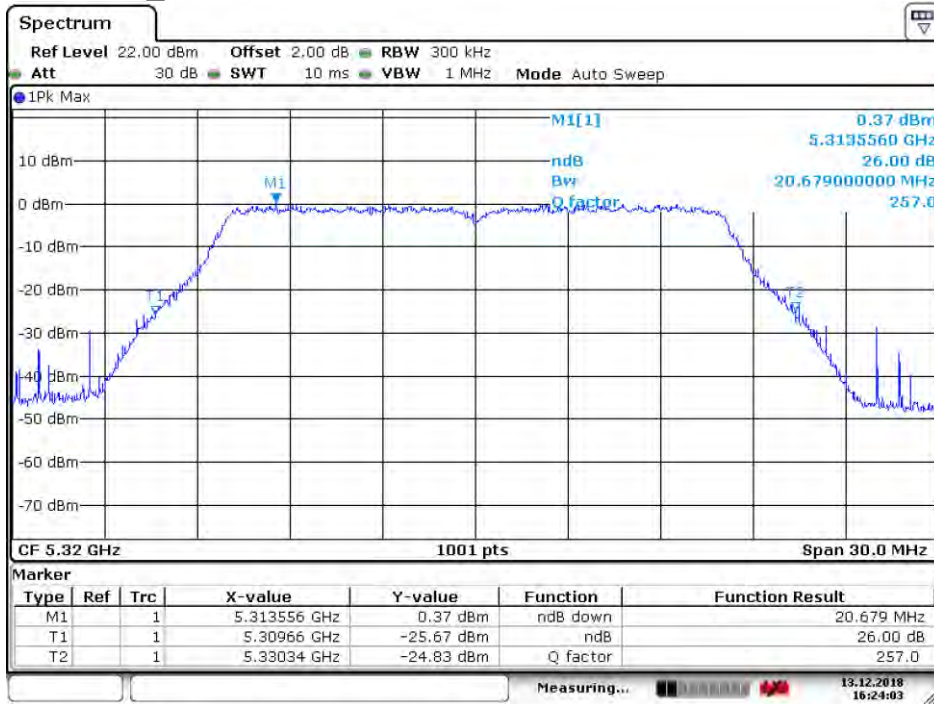
Date: 13.DEC.2018 16:23:48



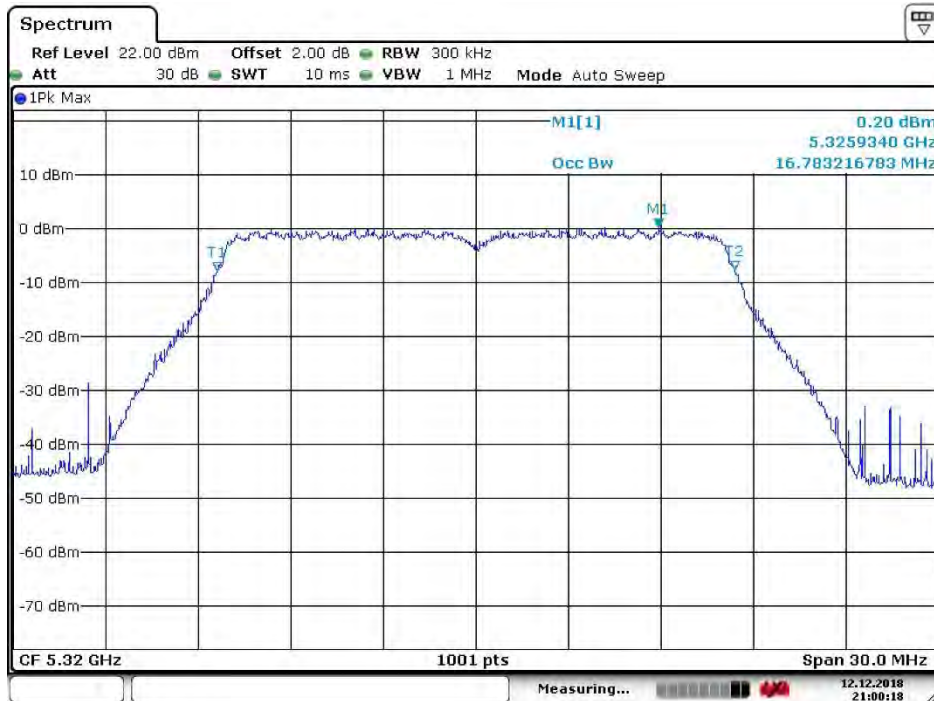
Date: 12.DEC.2018 21:00:04

4.5.2.6

11A20_64 ANT 1

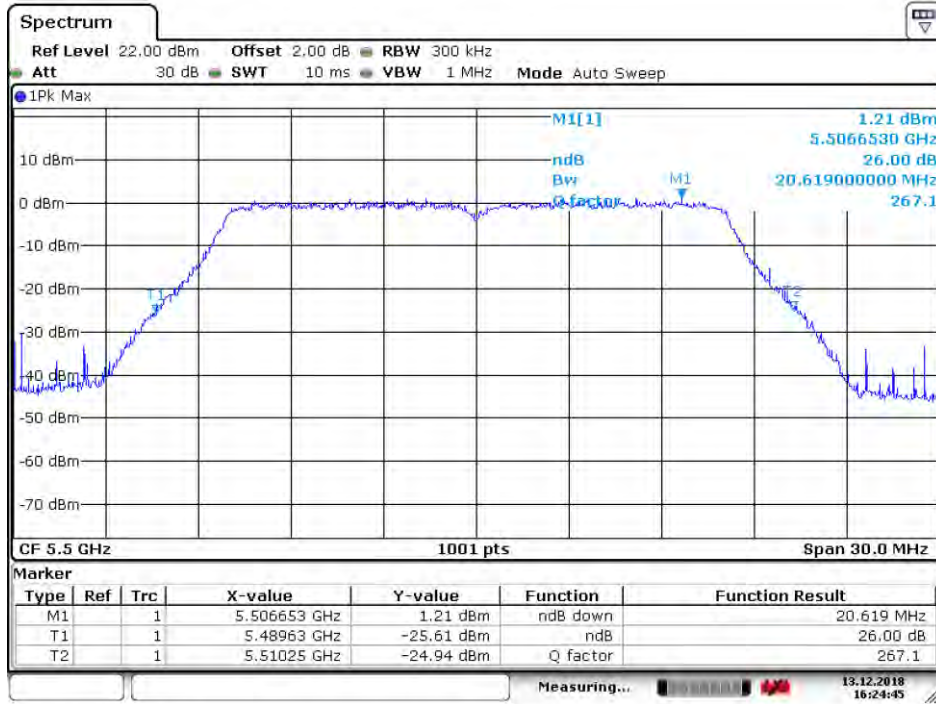


Date: 13.DEC.2018 16:24:03

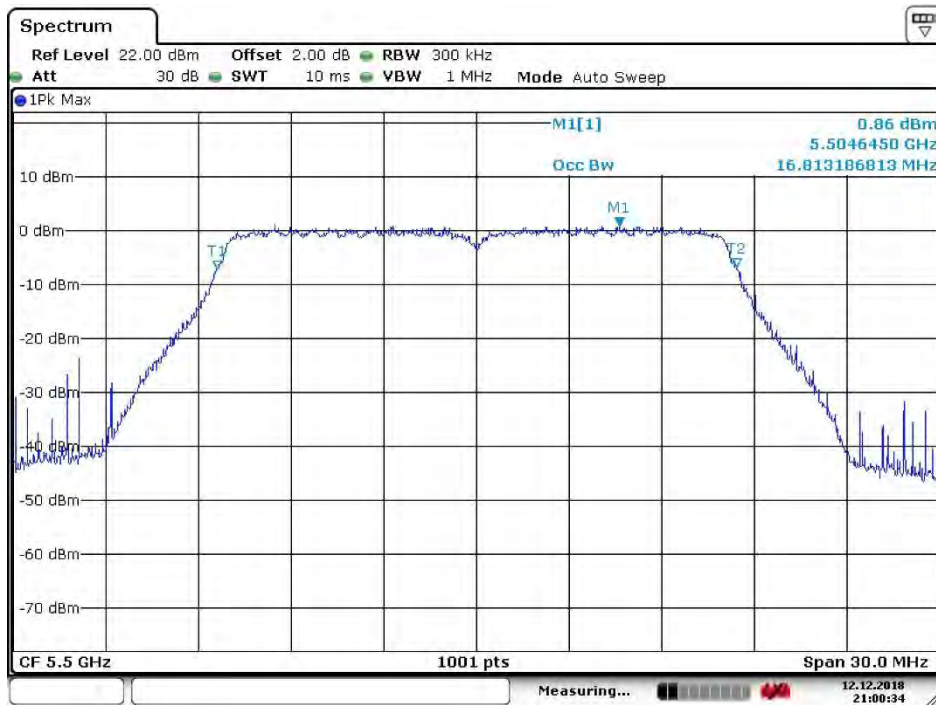


Date: 12.DEC.2018 21:00:19

4.5.2.7 11A20_100 ANT 1

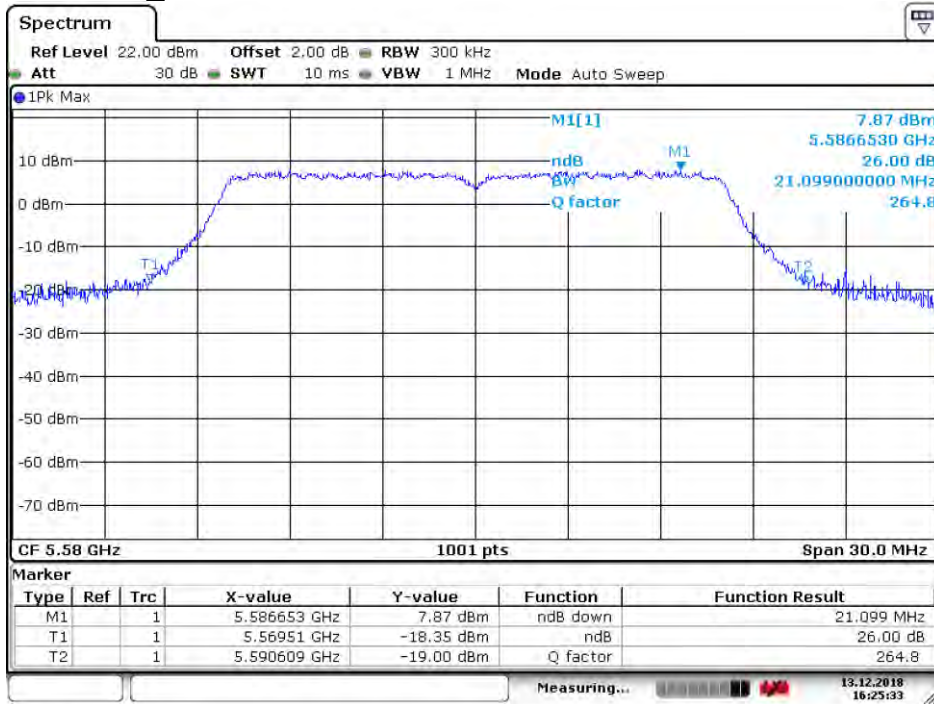


Date: 13.DEC.2018 16:24:46

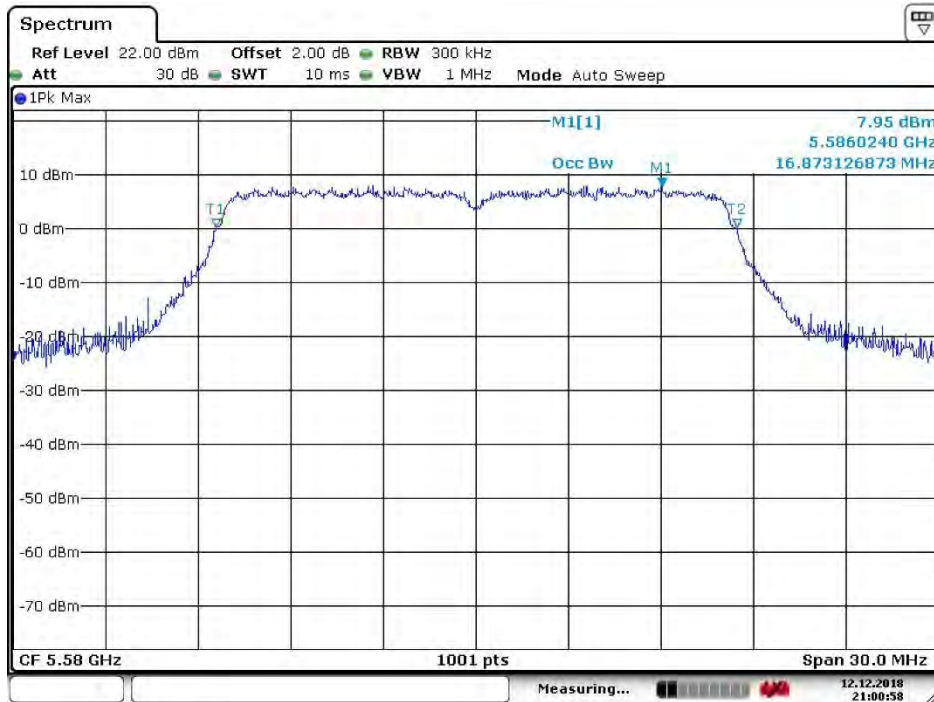


Date: 12.DEC.2018 21:00:34

4.5.2.8 11A20_116 ANT 1

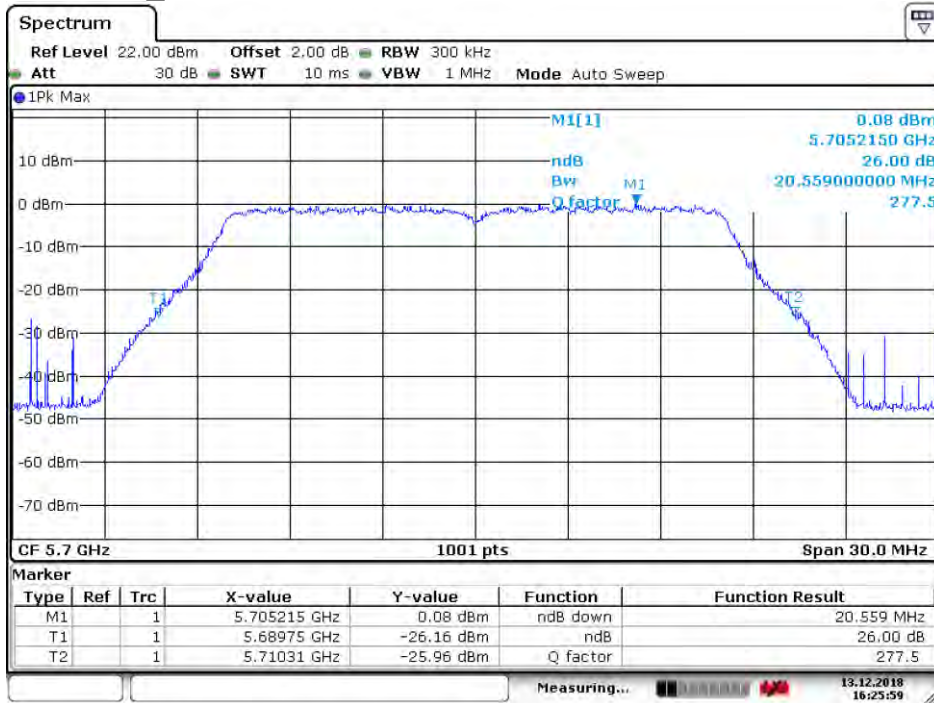


Date: 13.DEC.2018 16:25:33

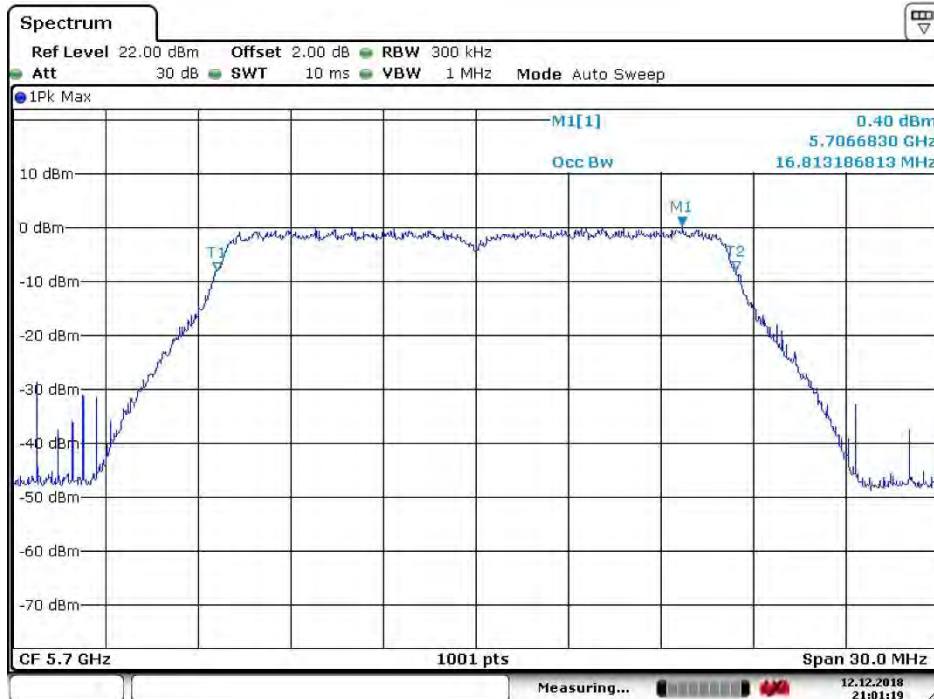


Date: 12.DEC.2018 21:00:58

4.5.2.9 11A20_140 ANT 1

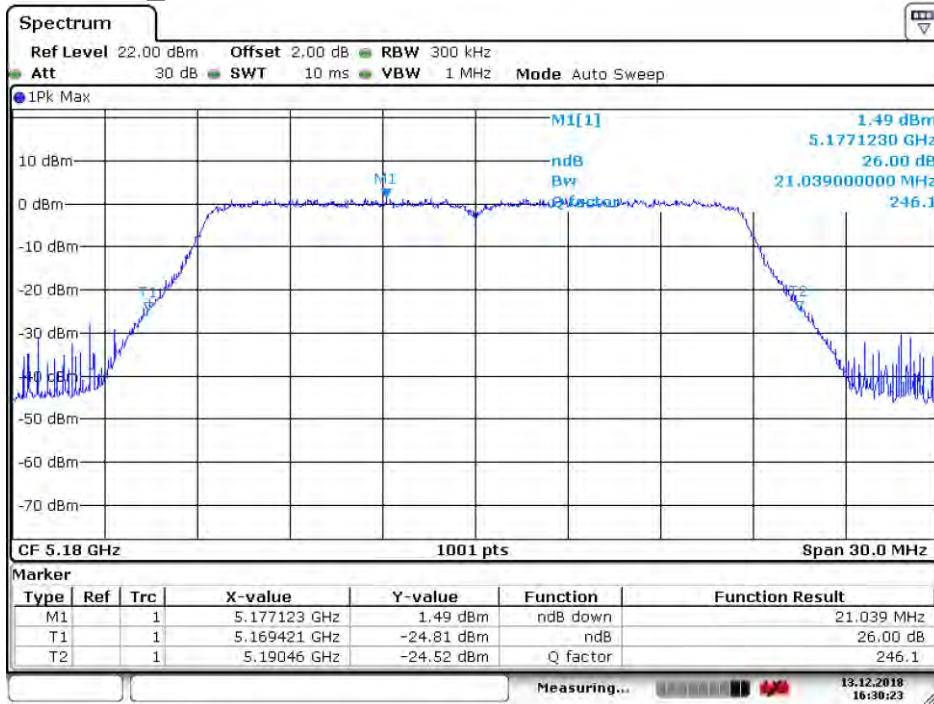


Date: 13.DEC.2018 16:25:59

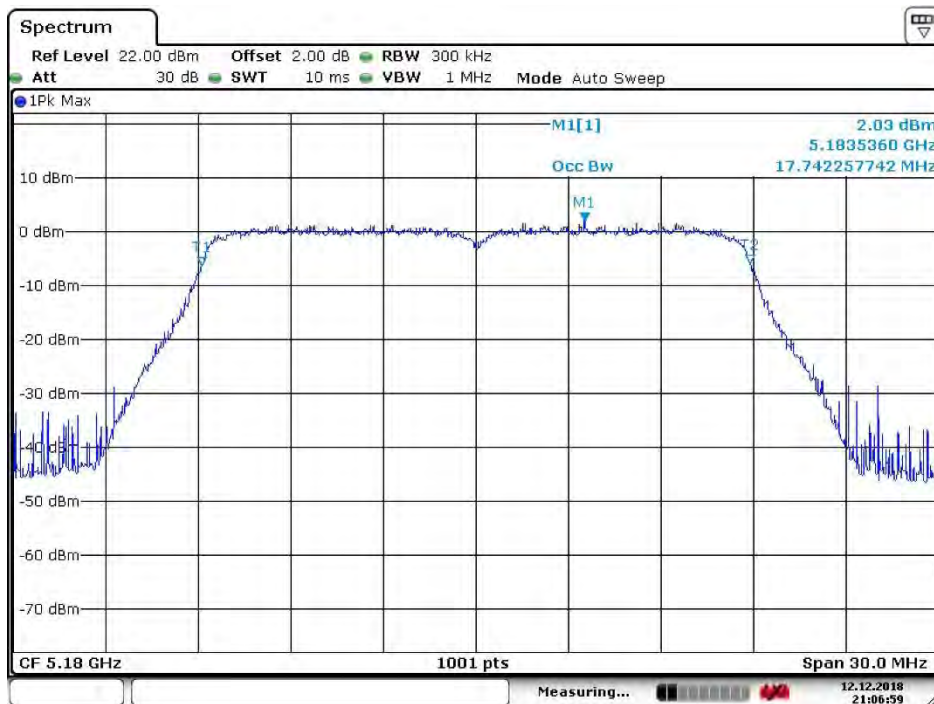


Date: 12.DEC.2018 21:01:19

4.5.2.10 11N20_36 ANT 1

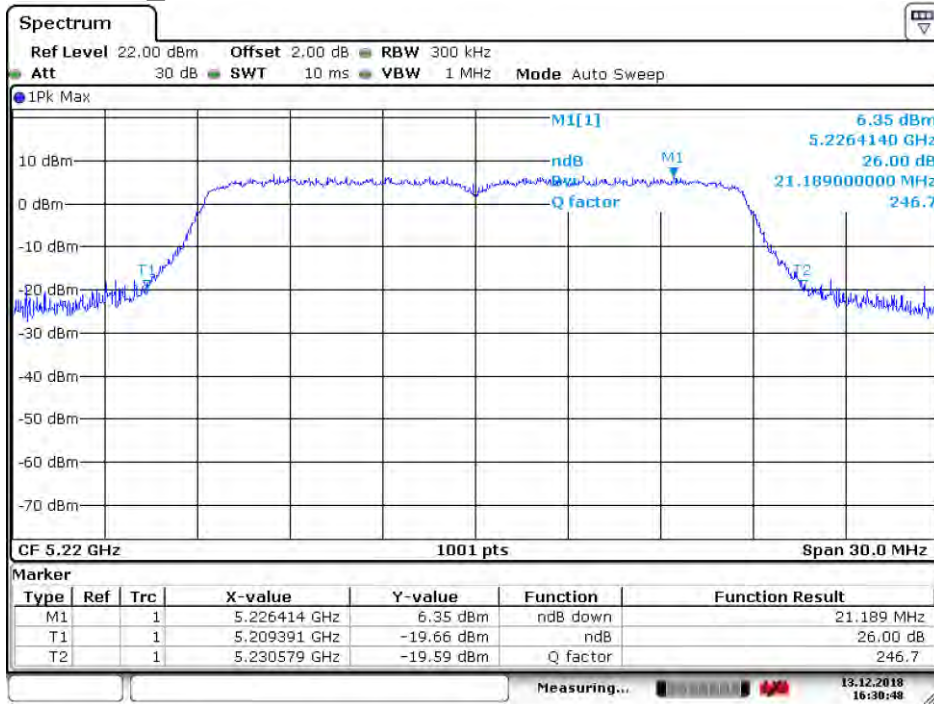


Date: 13.DEC.2018 16:30:23

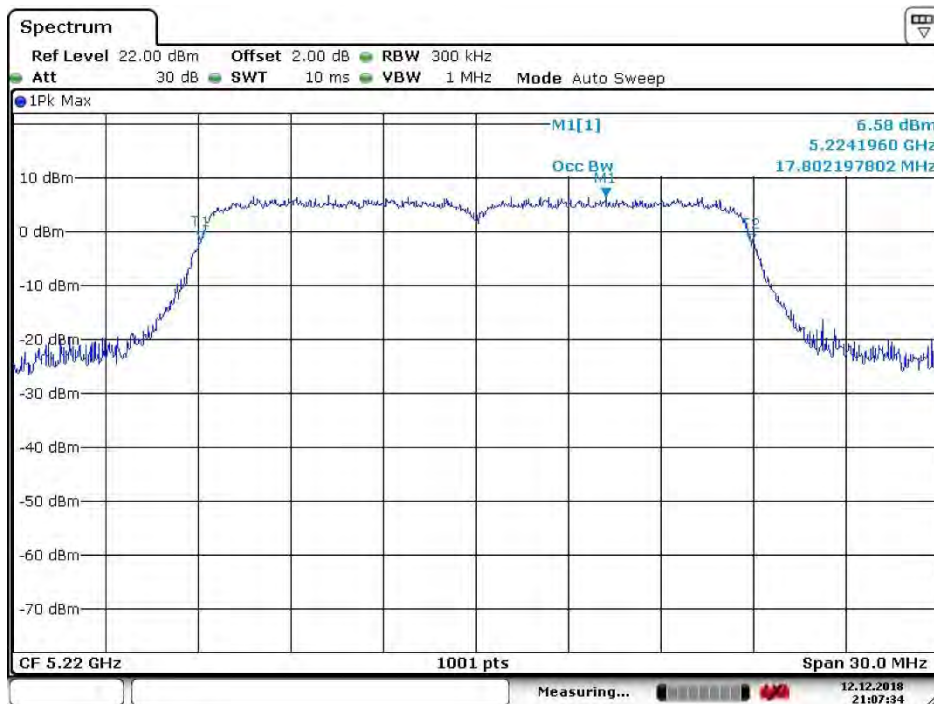


Date: 12.DEC.2018 21:06:59

4.5.2.11 11N20_44 ANT 1

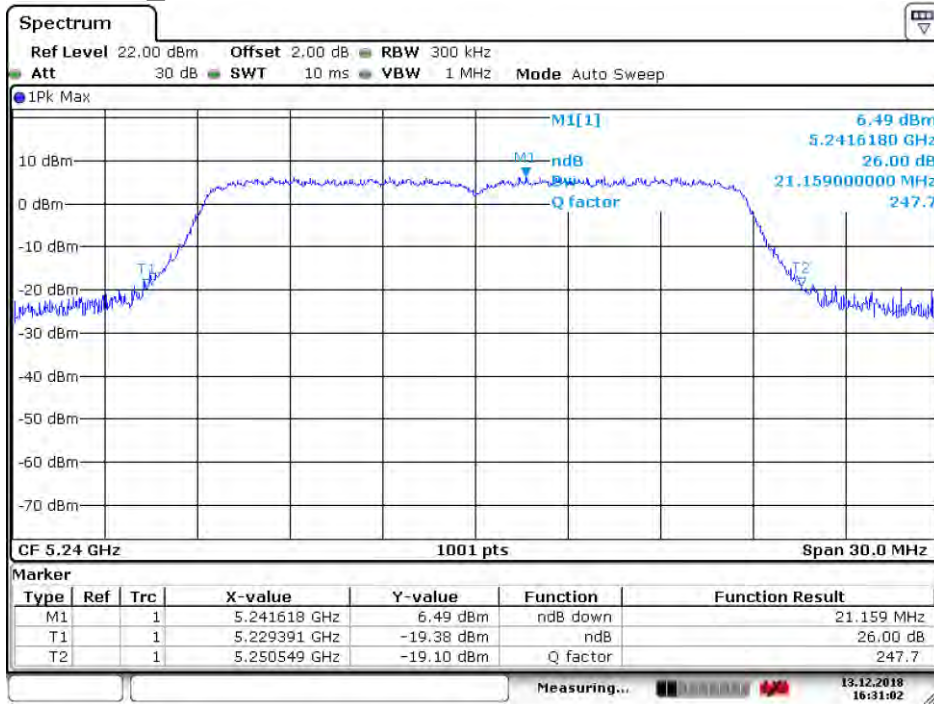


Date: 13.DEC.2018 16:30:48

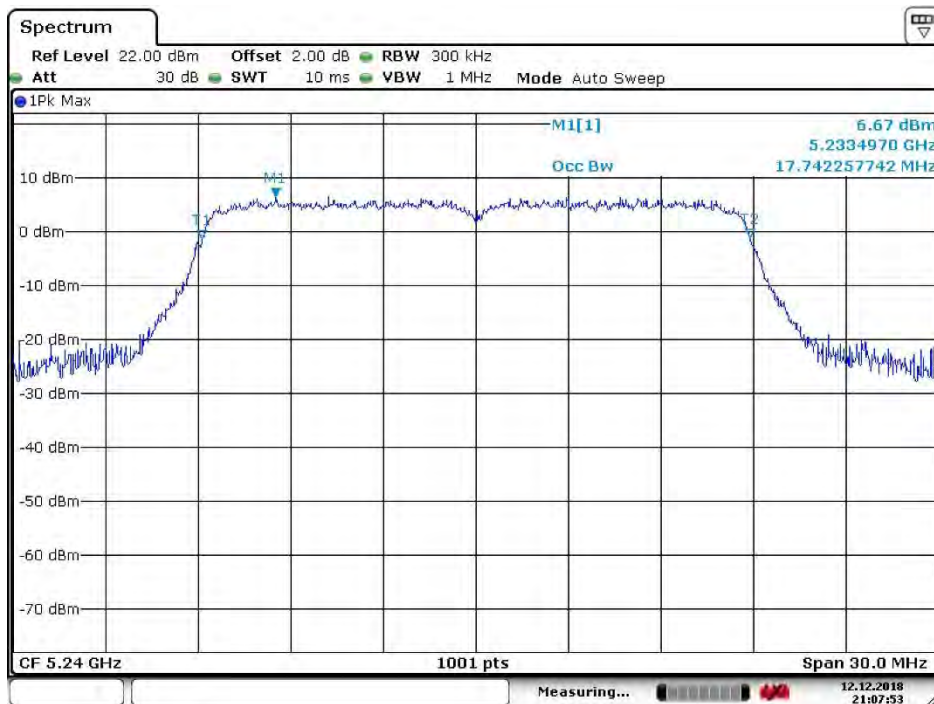


Date: 12.DEC.2018 21:07:35

4.5.2.12 11N20_48 ANT 1

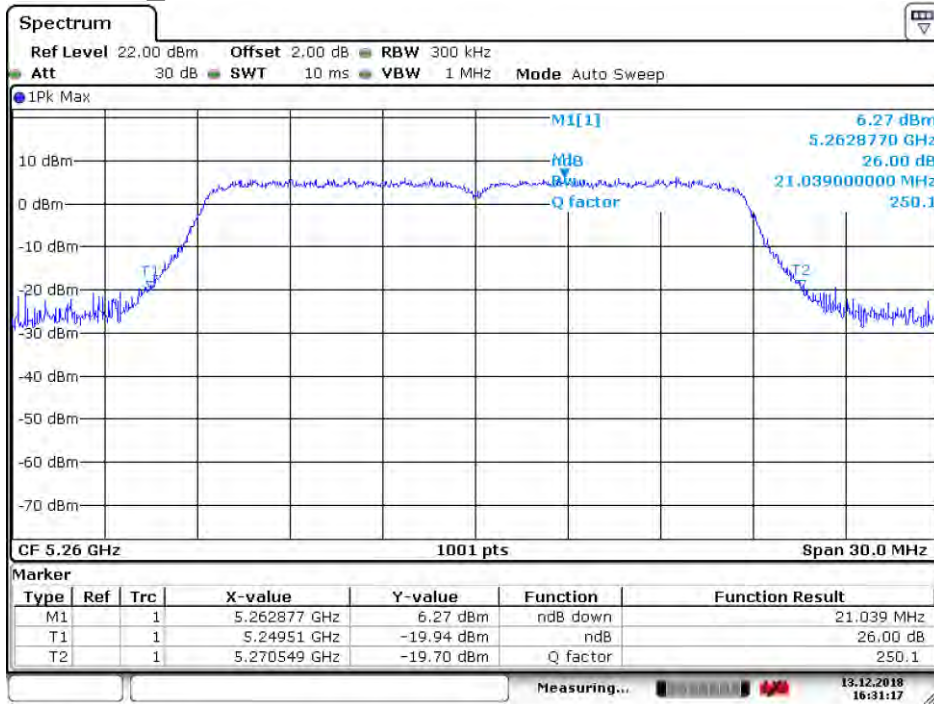


Date: 13.DEC.2018 16:31:03

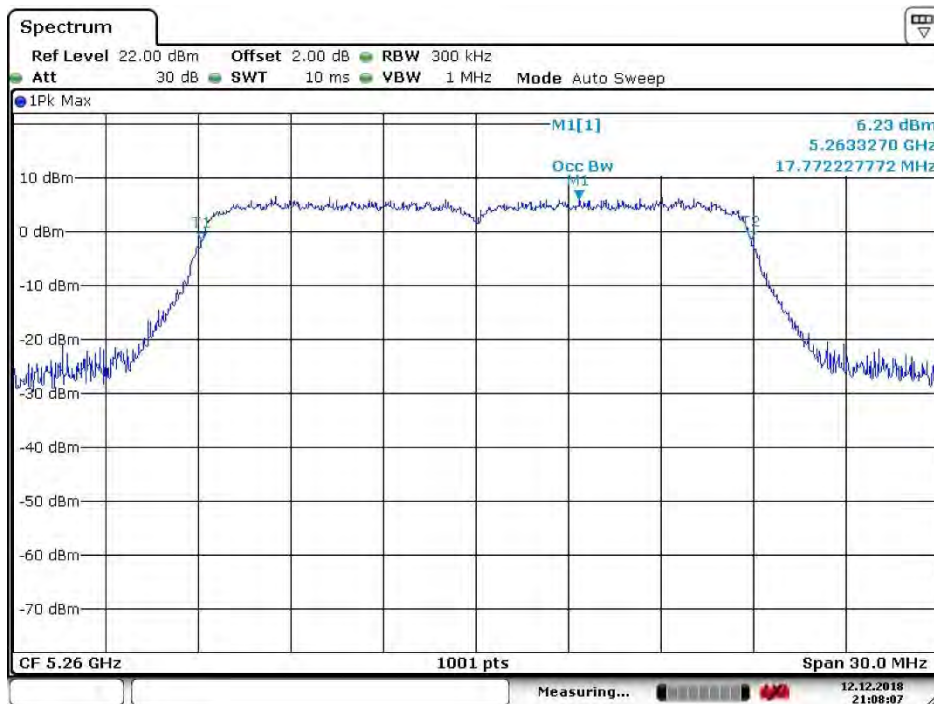


Date: 12.DEC.2018 21:07:54

4.5.2.13 11N20_52 ANT 1

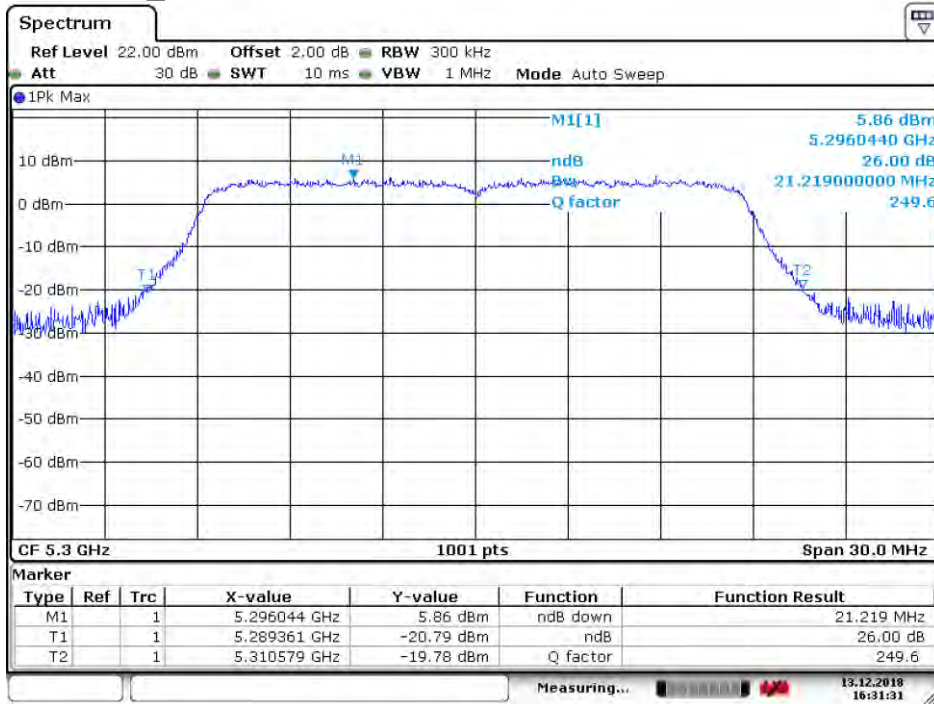


Date: 13.DEC.2018 16:31:18

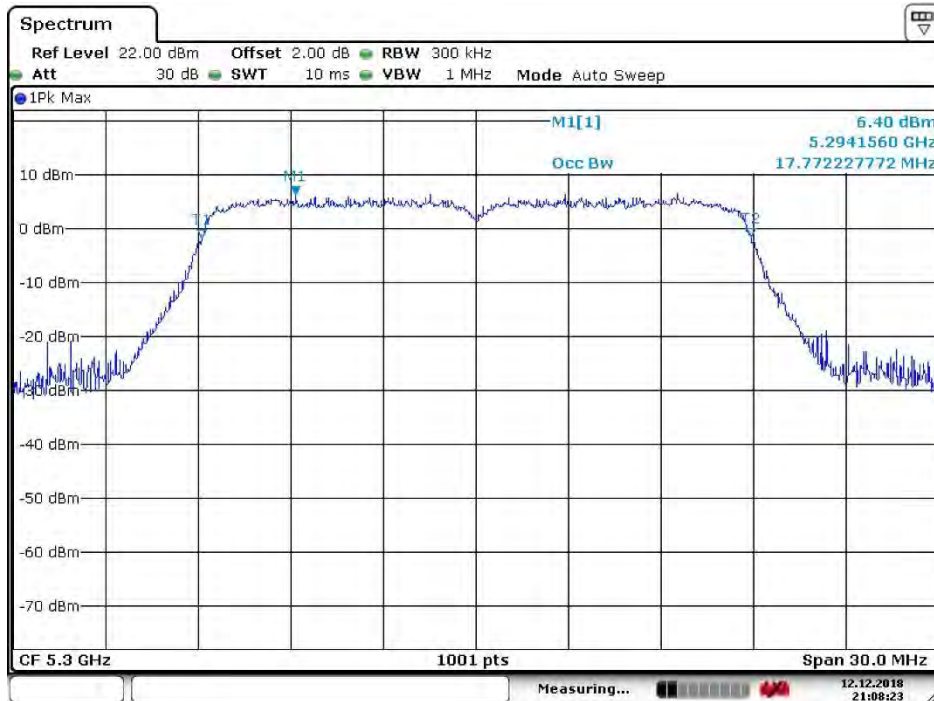


Date: 12.DEC.2018 21:08:07

4.5.2.14 11N20_60 ANT 1

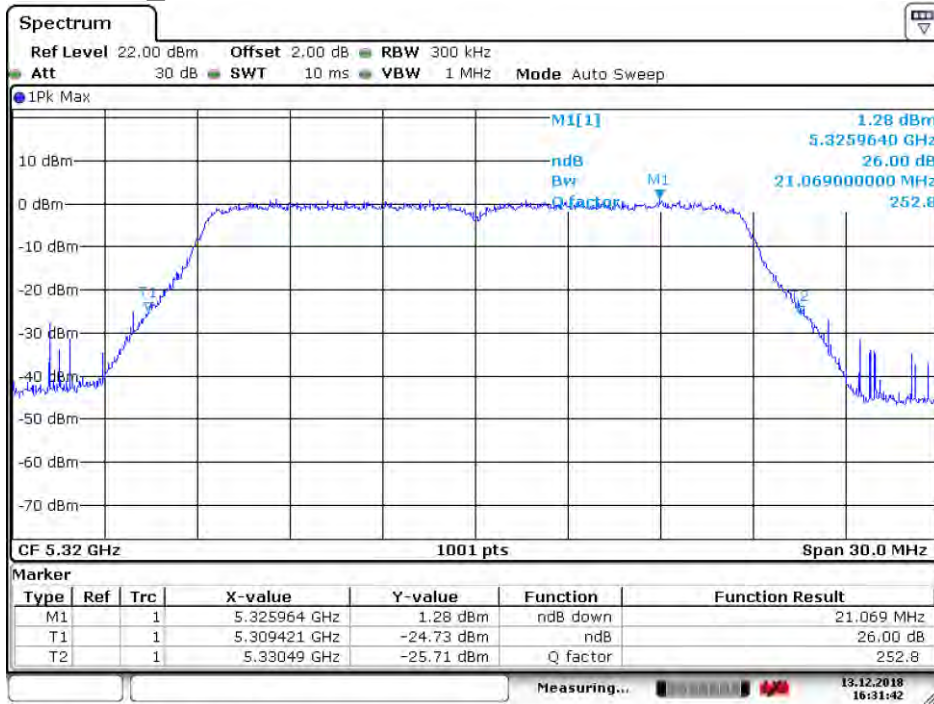


Date: 13.DEC.2018 16:31:31



Date: 12.DEC.2018 21:08:23

4.5.2.15 11N20_64 ANT 1

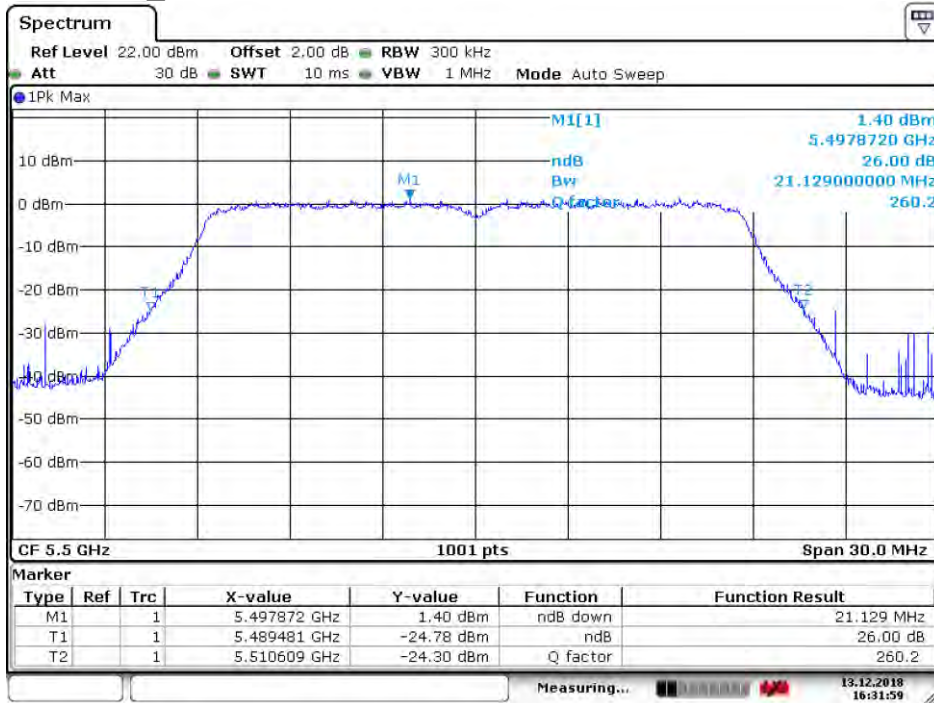


Date: 13.DEC.2018 16:31:42

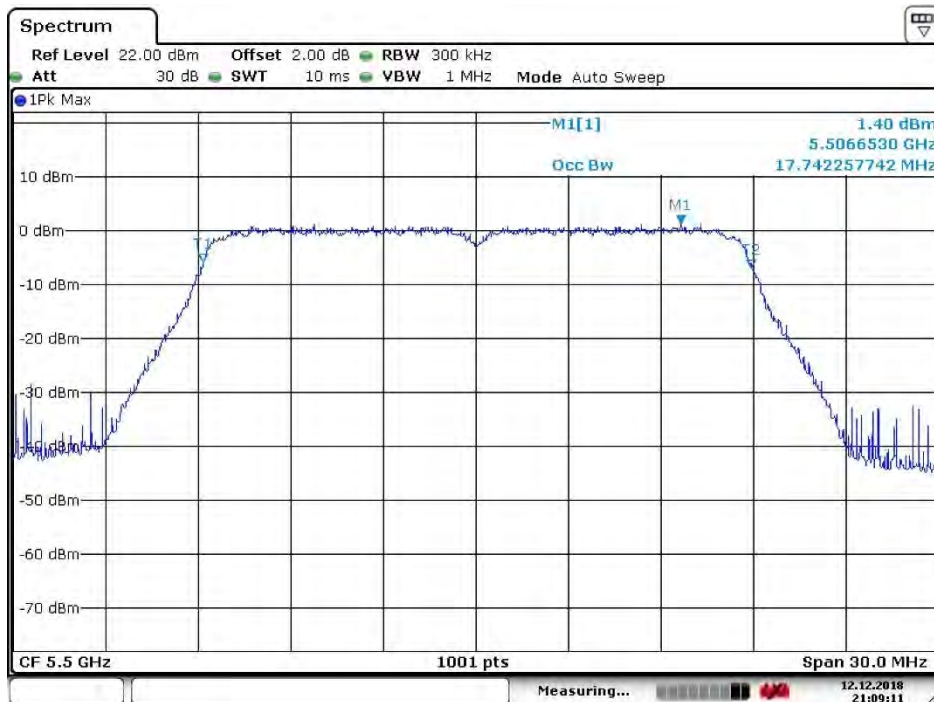


Date: 12.DEC.2018 21:08:43

4.5.2.16 11N20_100 ANT 1

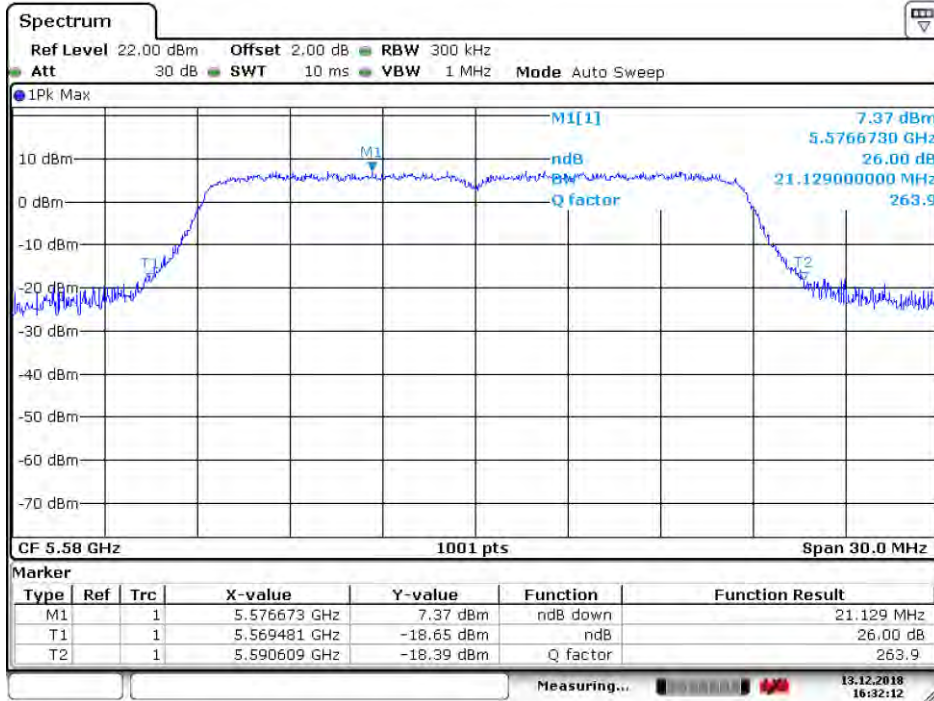


Date: 13.DEC.2018 16:31:59

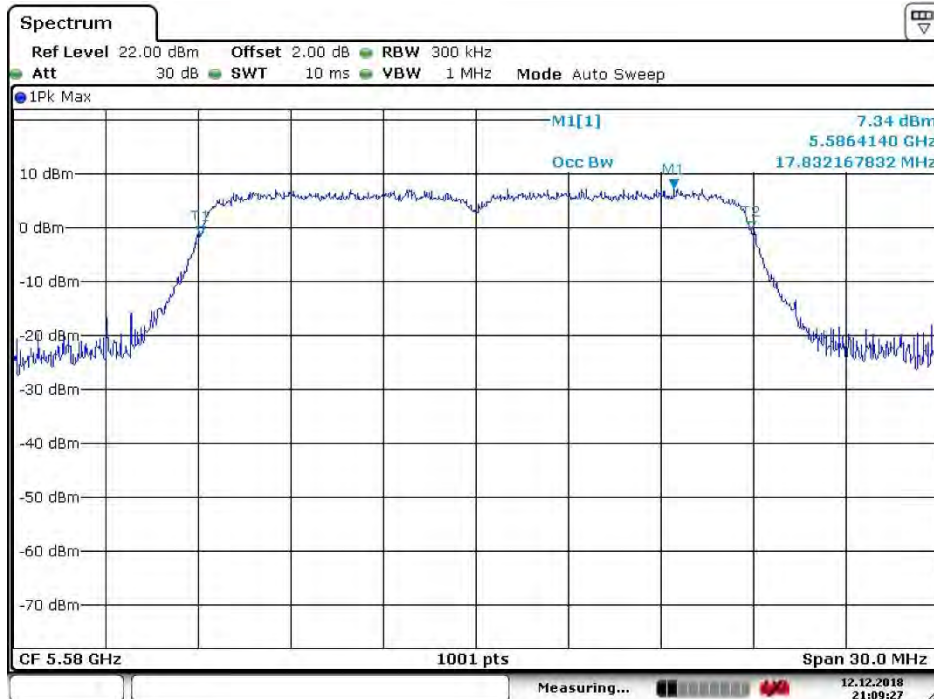


Date: 12.DEC.2018 21:09:12

4.5.2.17 11N20_116 ANT 1

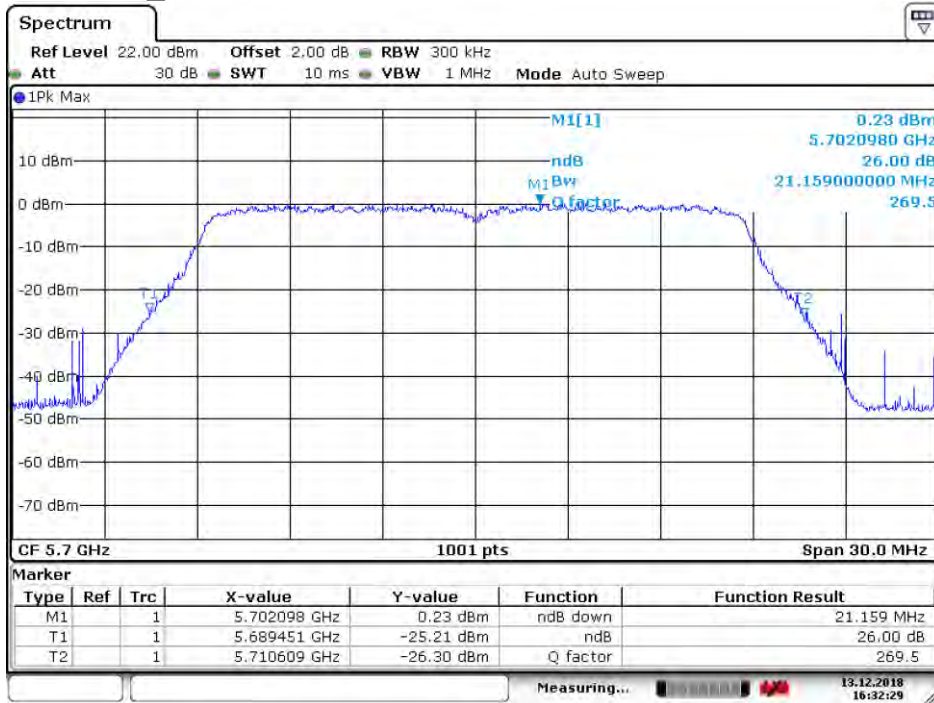


Date: 13.DEC.2018 16:32:12

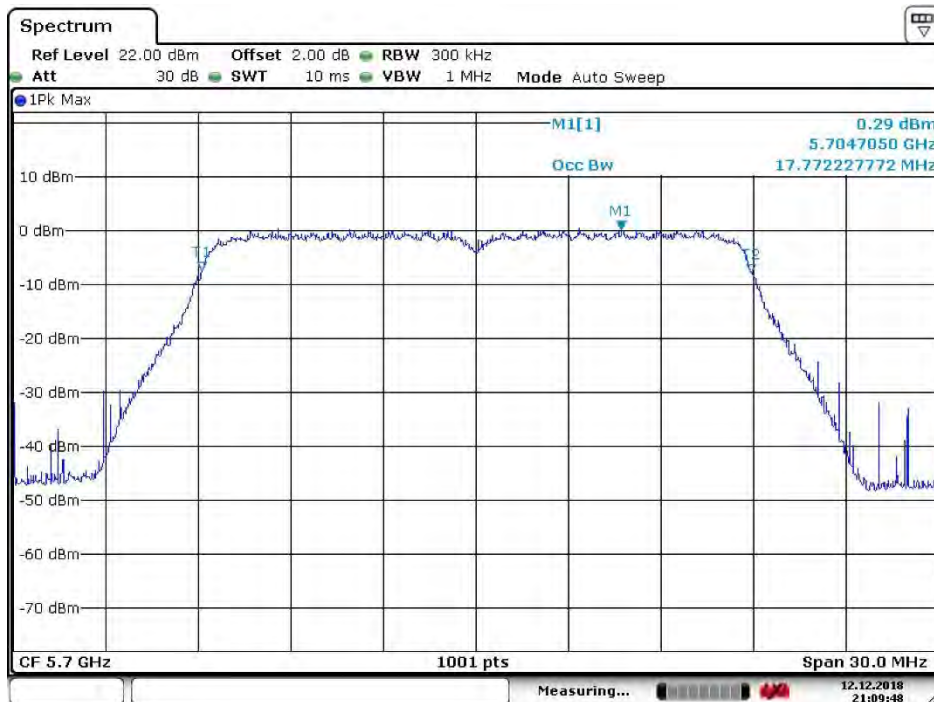


Date: 12.DEC.2018 21:09:27

4.5.2.18 11N20_140 ANT 1

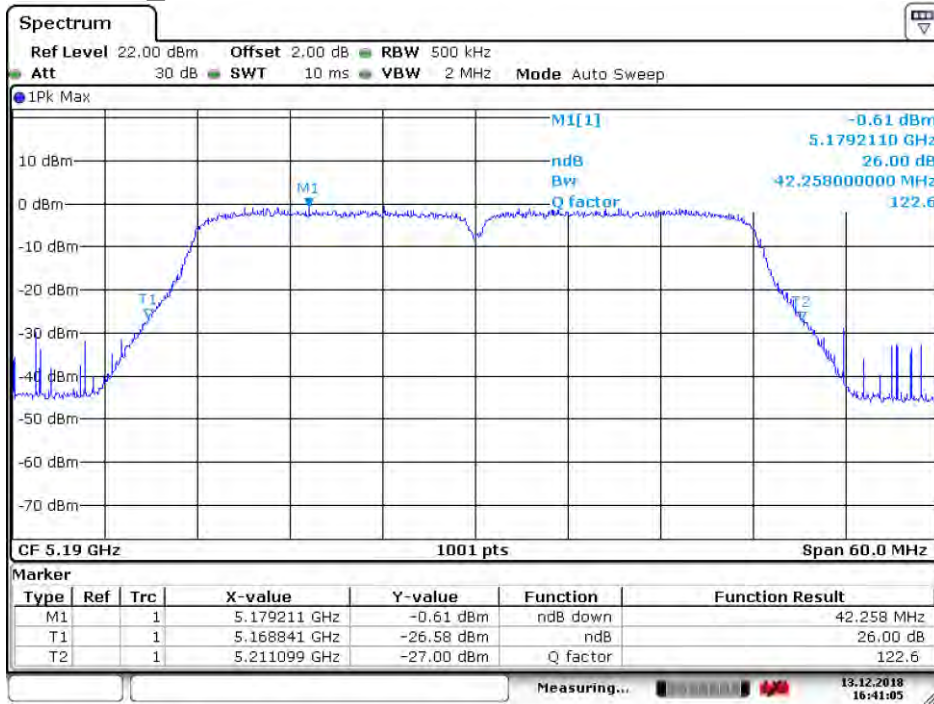


Date: 13.DEC.2018 16:32:29

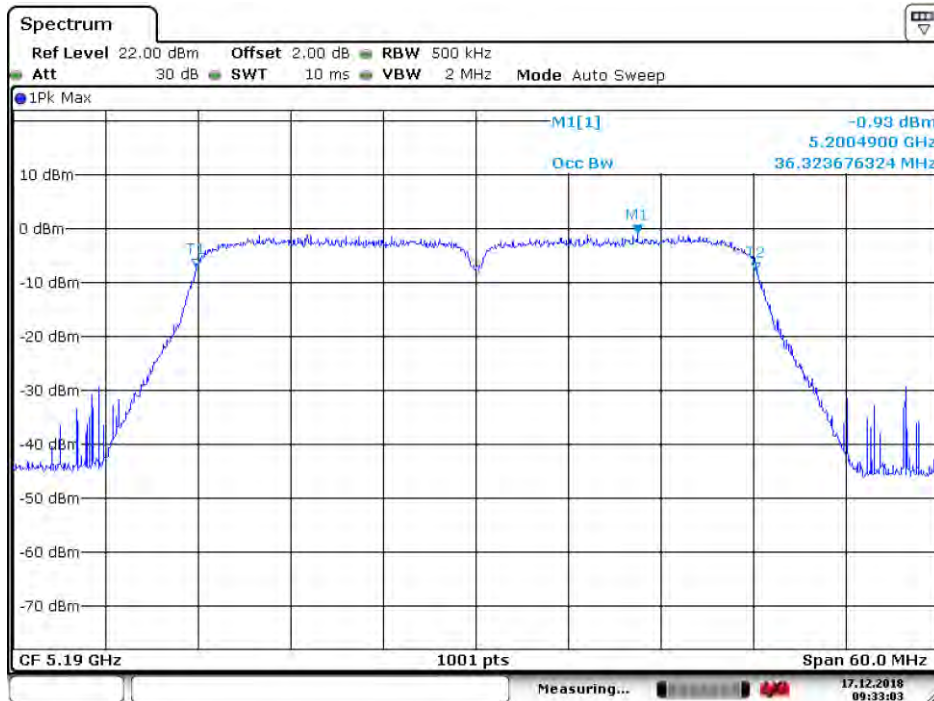


Date: 12.DEC.2018 21:09:49

4.5.2.19 11N40_38 ANT 1

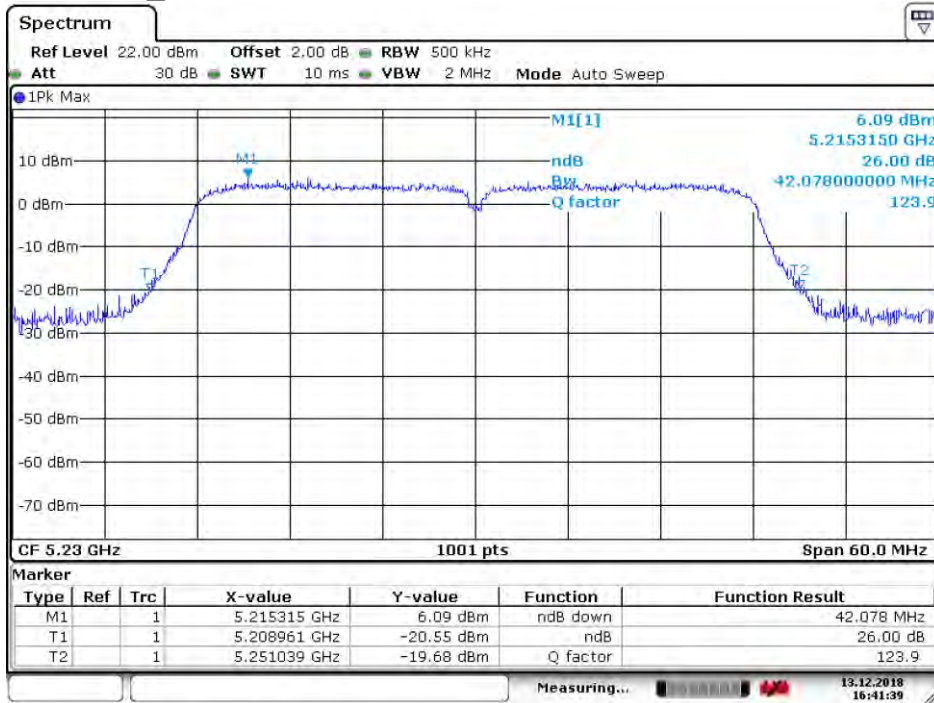


Date: 13.DEC.2018 16:41:06

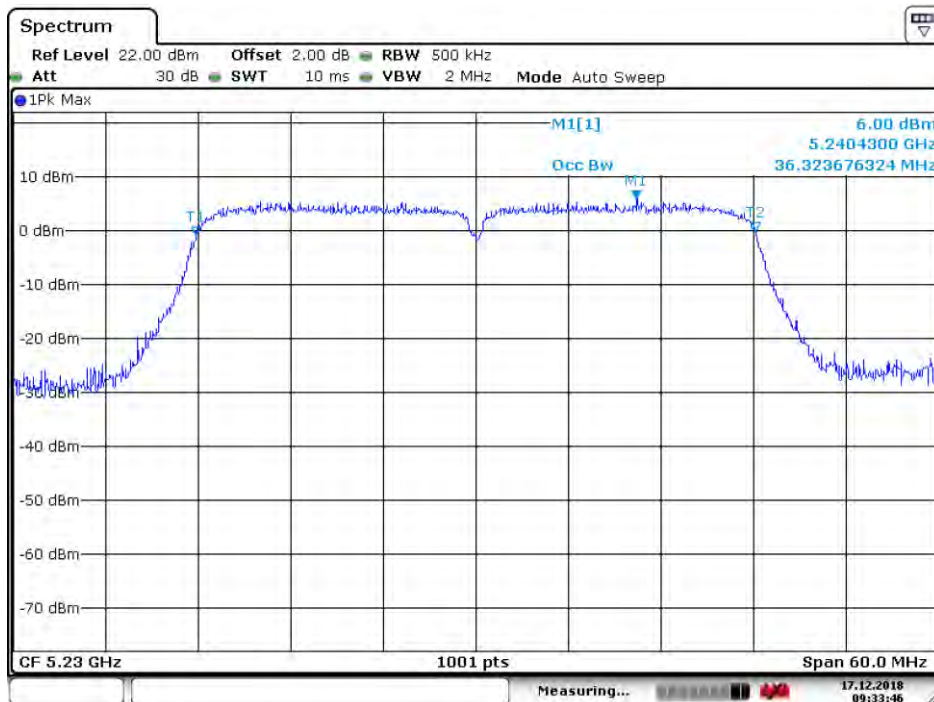


Date: 17.DEC.2018 09:33:04

4.5.2.20 11N40_46 ANT 1

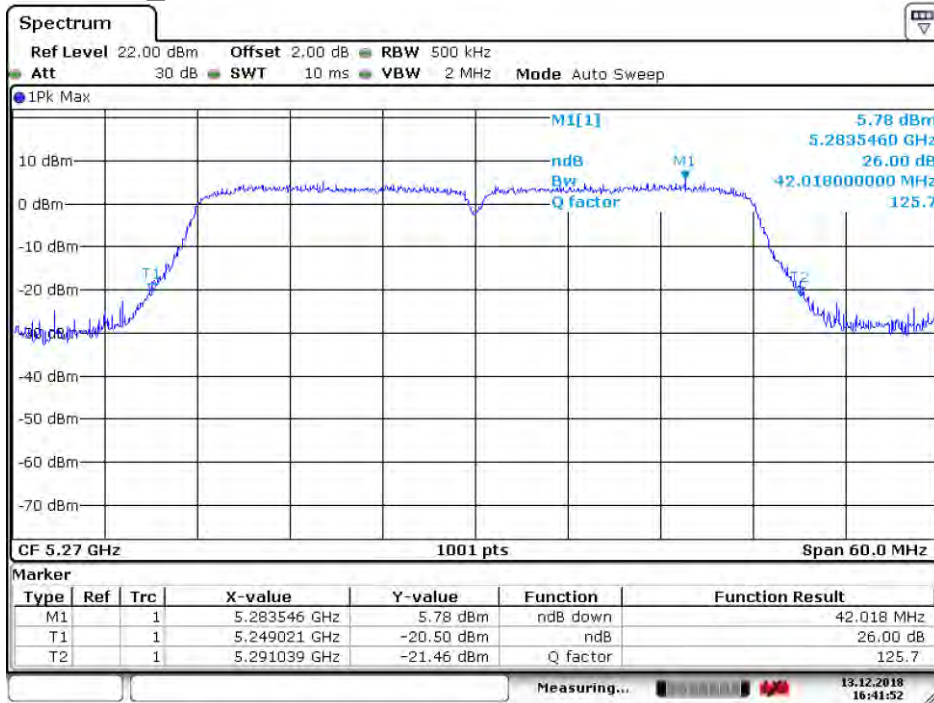


Date: 13.DEC.2018 16:41:39

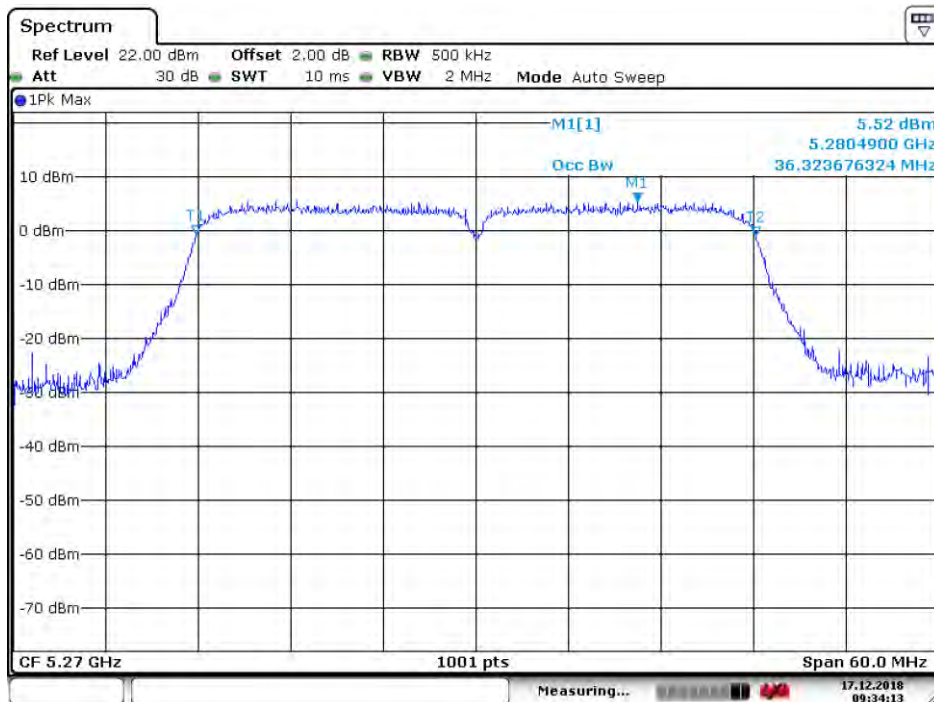


Date: 17.DEC.2018 09:33:46

4.5.2.21 11N40_54 ANT 1

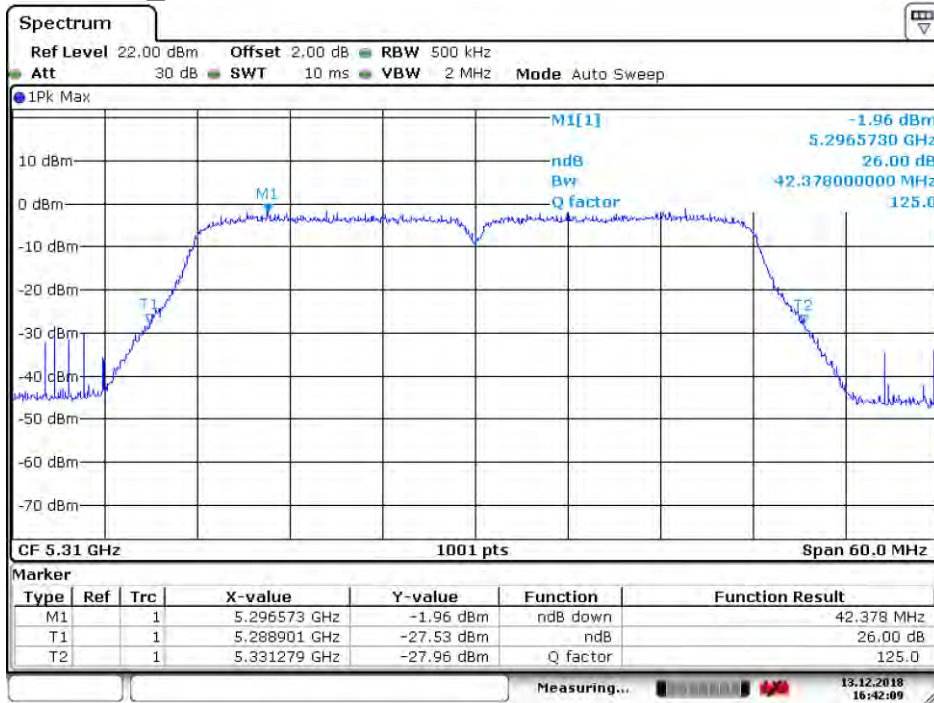


Date: 13.DEC.2018 16:41:53

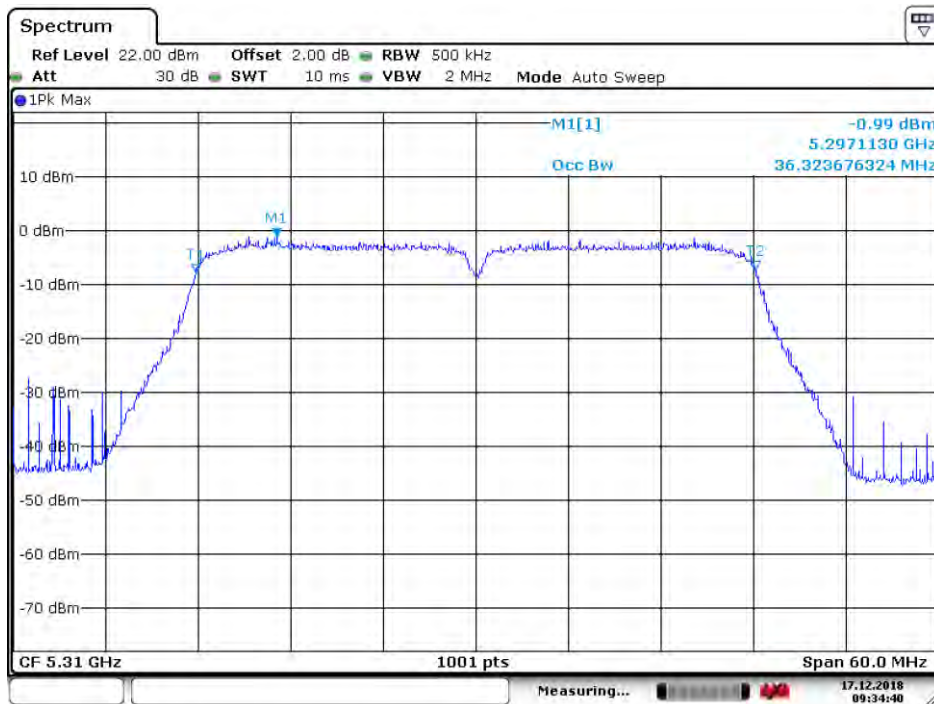


Date: 17.DEC.2018 09:34:13

4.5.2.22 11N40_62 ANT 1

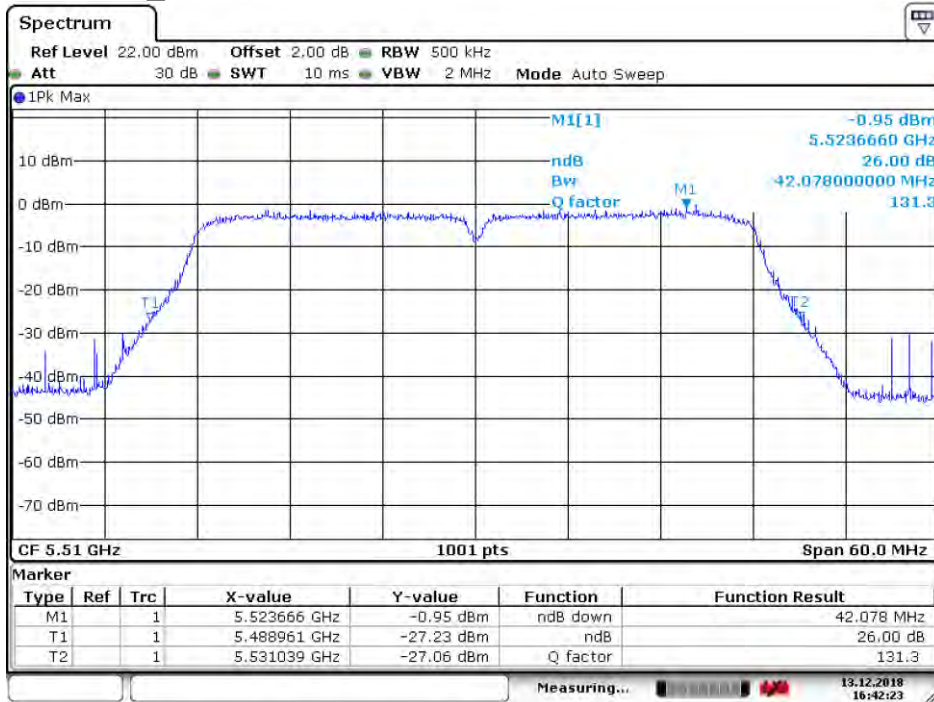


Date: 13.DEC.2018 16:42:10

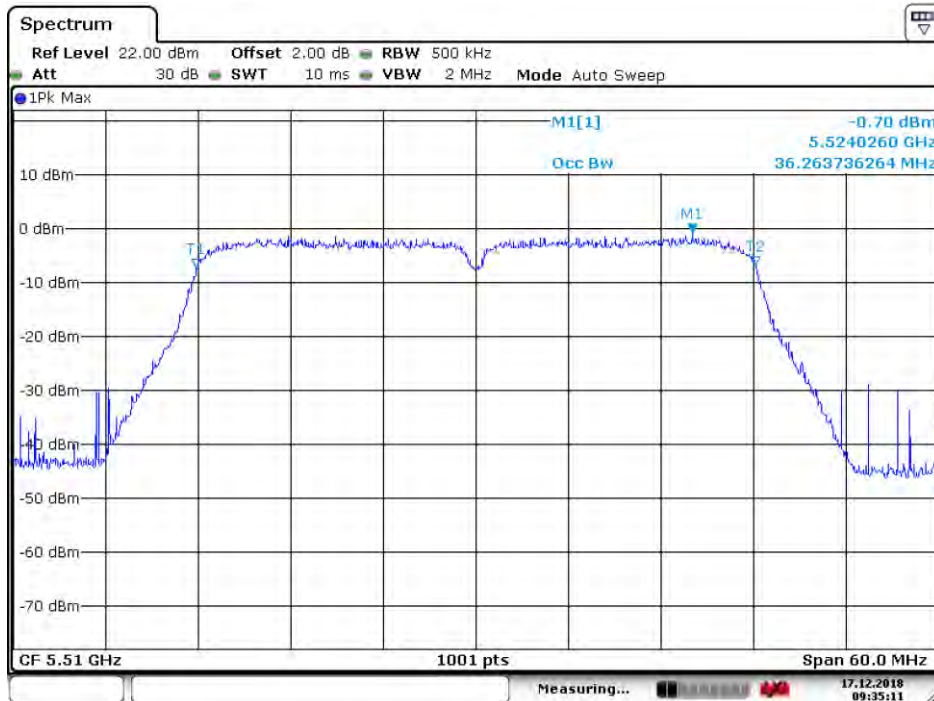


Date: 17.DEC.2018 09:34:41

4.5.2.23 11N40_102 ANT 1

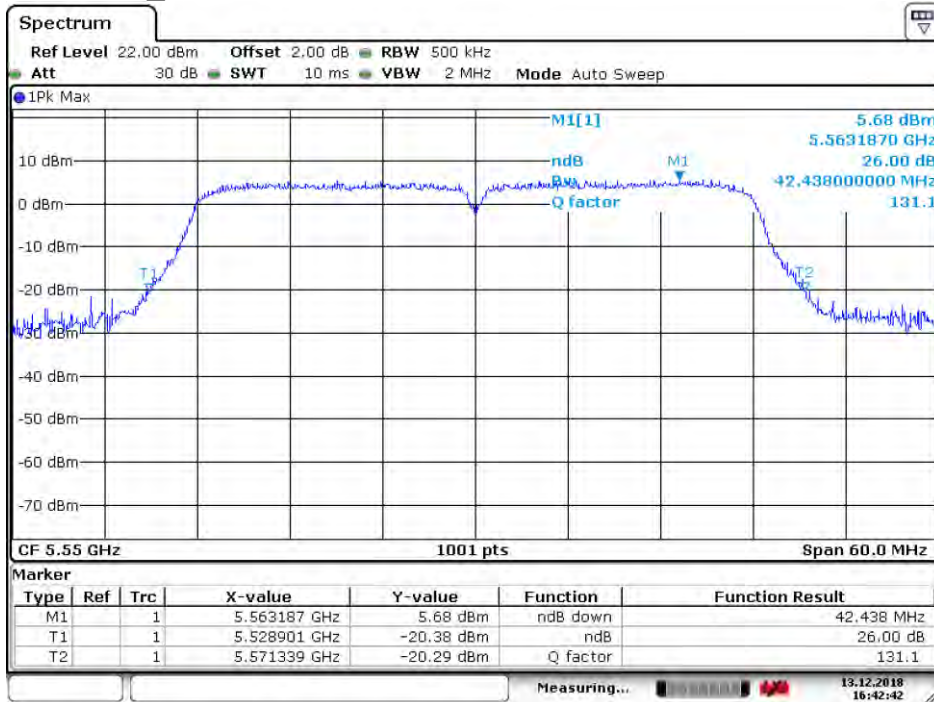


Date: 13.DEC.2018 16:42:23

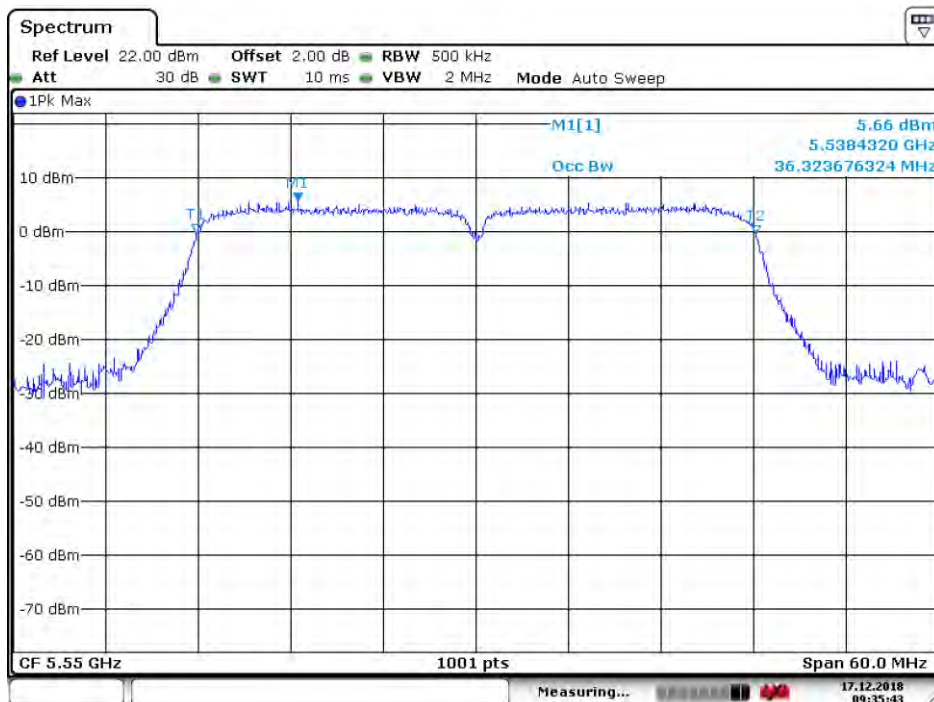


Date: 17.DEC.2018 09:35:11

4.5.2.24 11N40_110 ANT 1

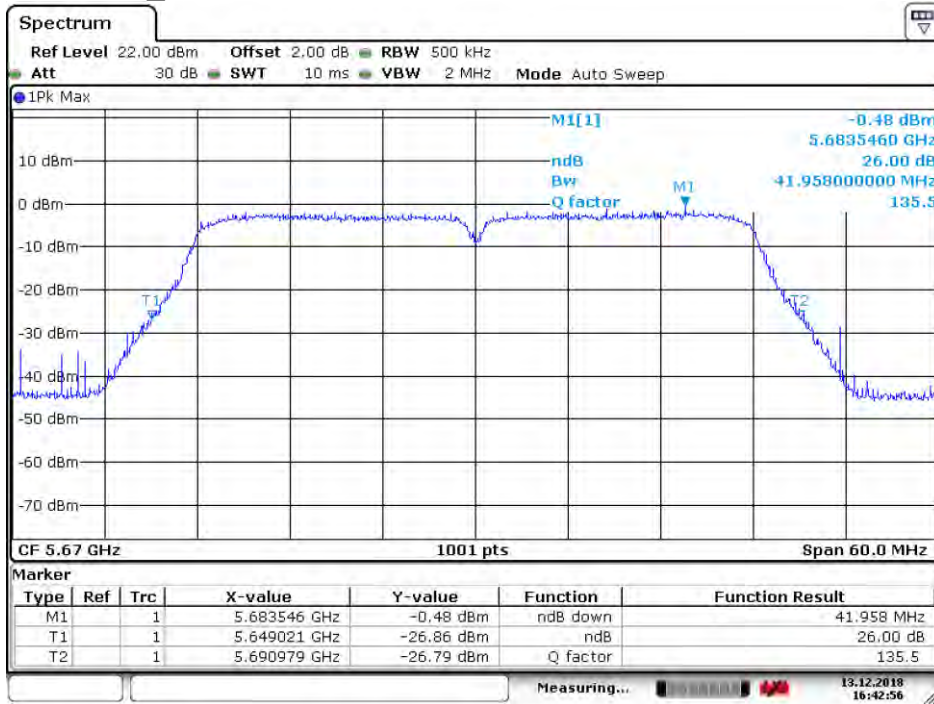


Date: 13.DEC.2018 16:42:42

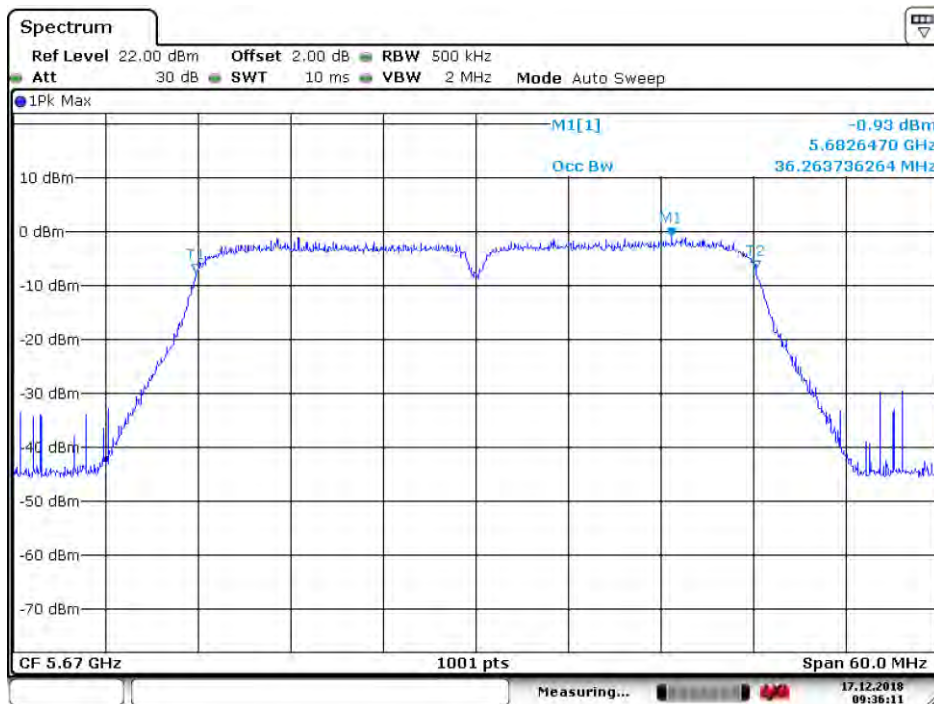


Date: 17.DEC.2018 09:35:43

4.5.2.25 11N40_134 ANT 1

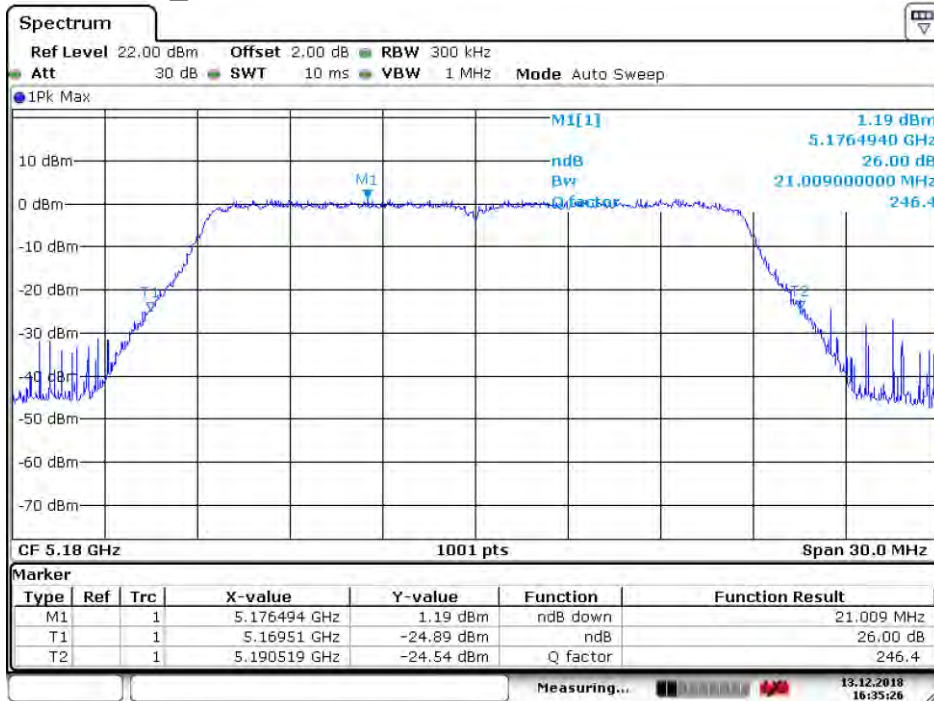


Date: 13.DEC.2018 16:42:56

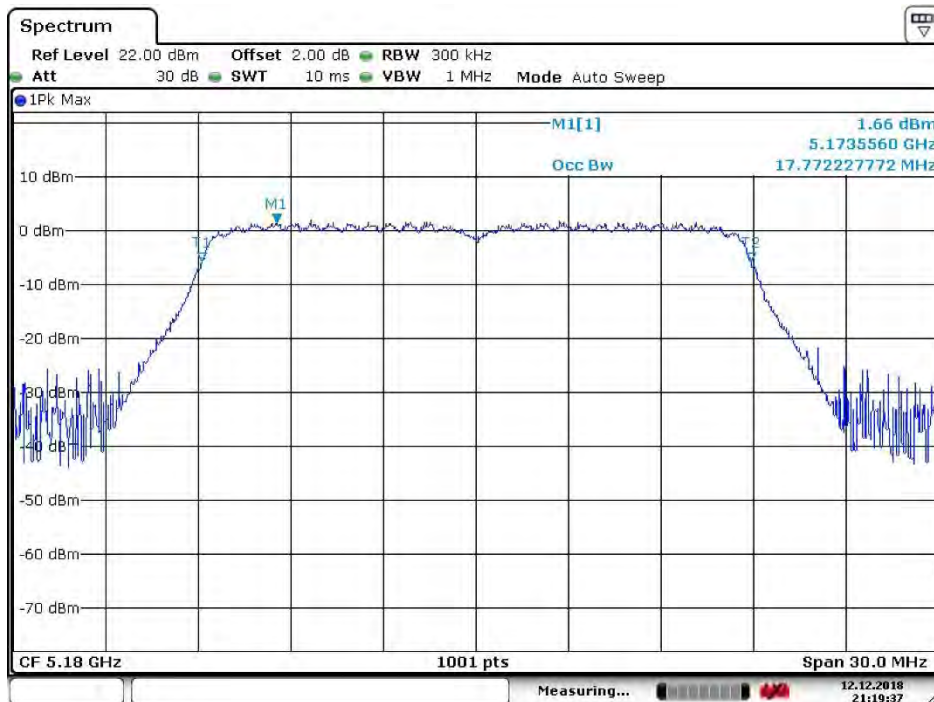


Date: 17.DEC.2018 09:36:11

4.5.2.26 11AC20_36 ANT 1

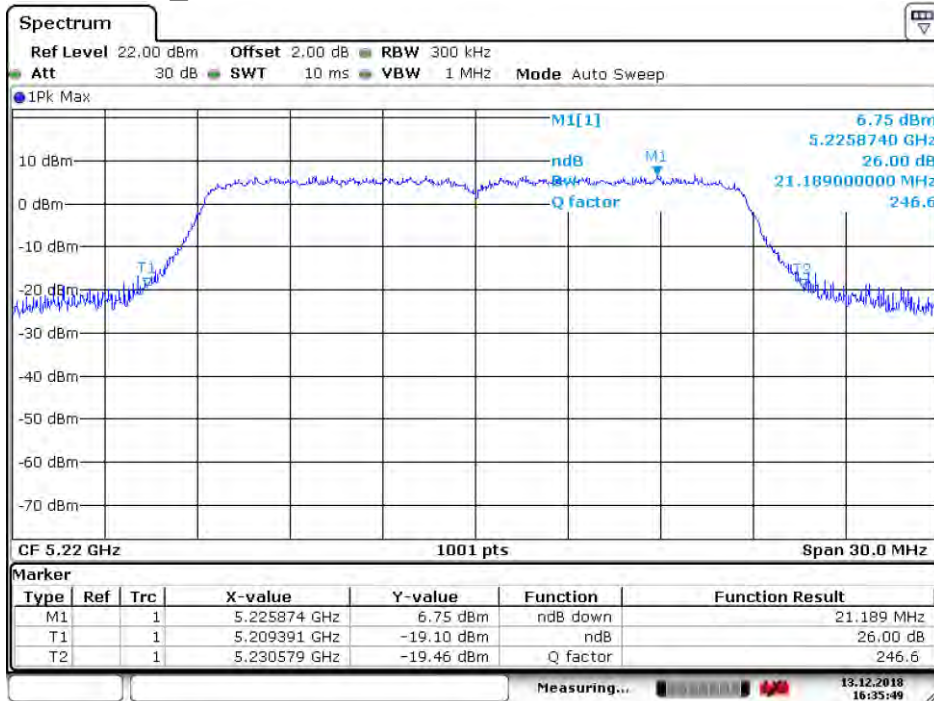


Date: 13.DEC.2018 16:35:26

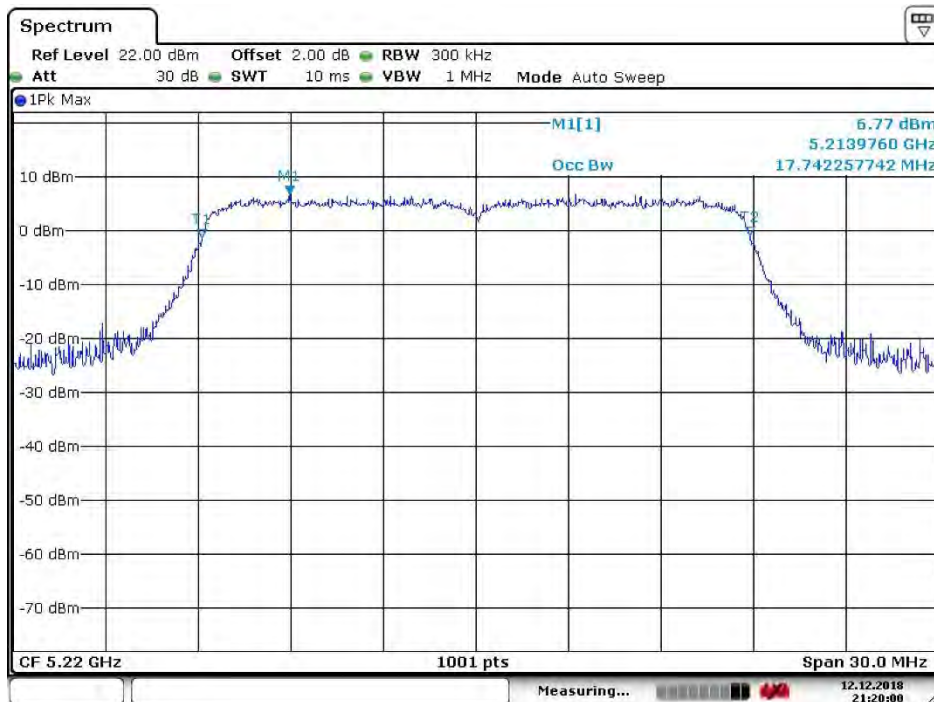


Date: 12.DEC.2018 21:19:37

4.5.2.27 11AC20_44 ANT 1

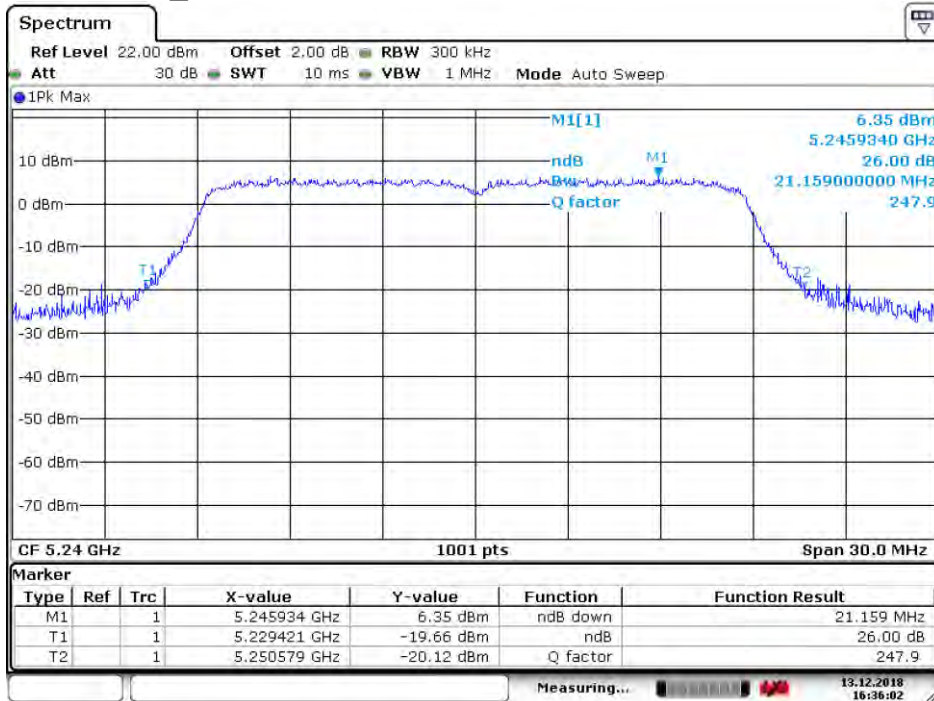


Date: 13.DEC.2018 16:35:49

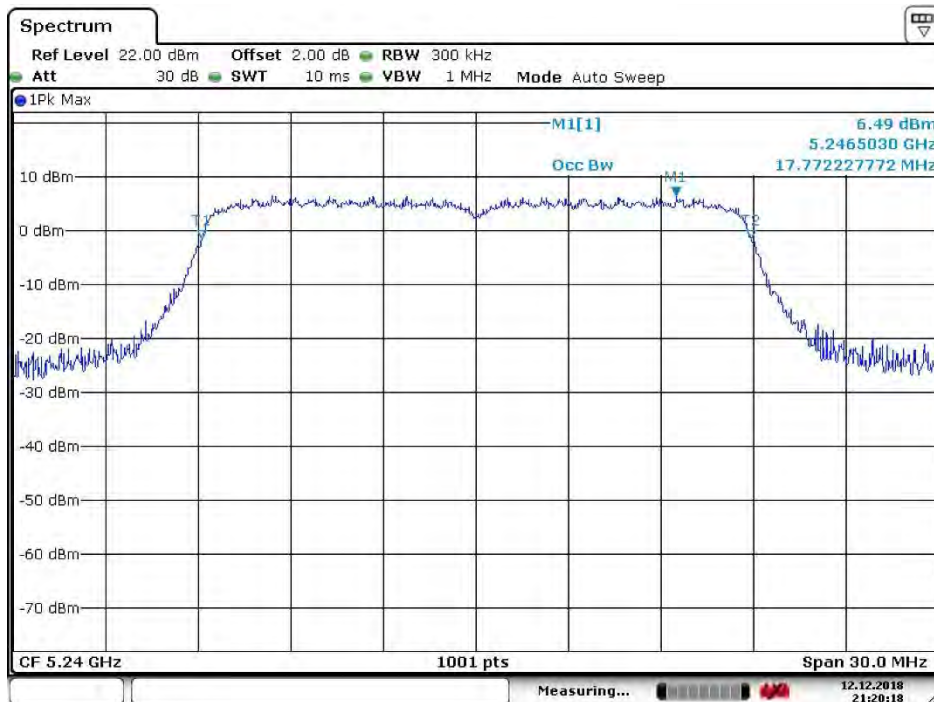


Date: 12.DEC.2018 21:20:00

4.5.2.28 11AC20_48 ANT 1

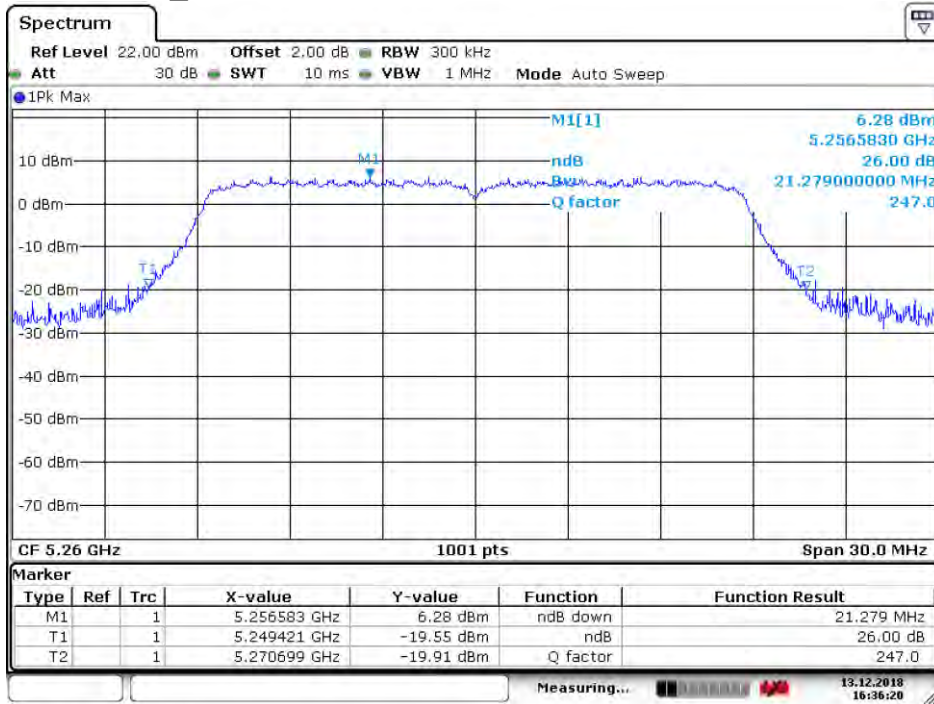


Date: 13.DEC.2018 16:36:03

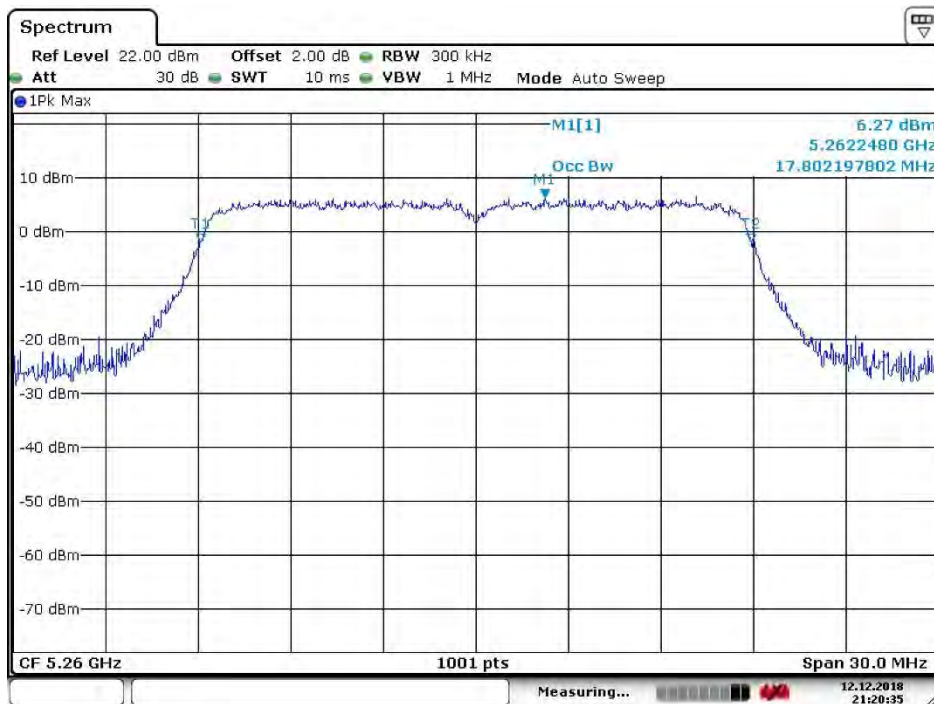


Date: 12.DEC.2018 21:20:19

4.5.2.29 11AC20_52 ANT 1

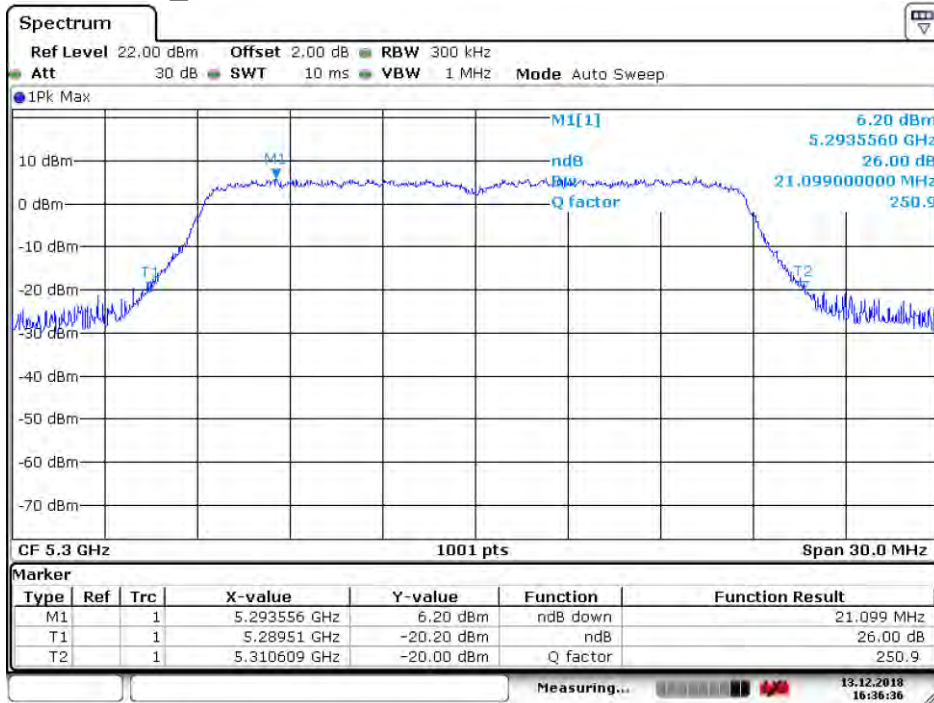


Date: 13.DEC.2018 16:36:20

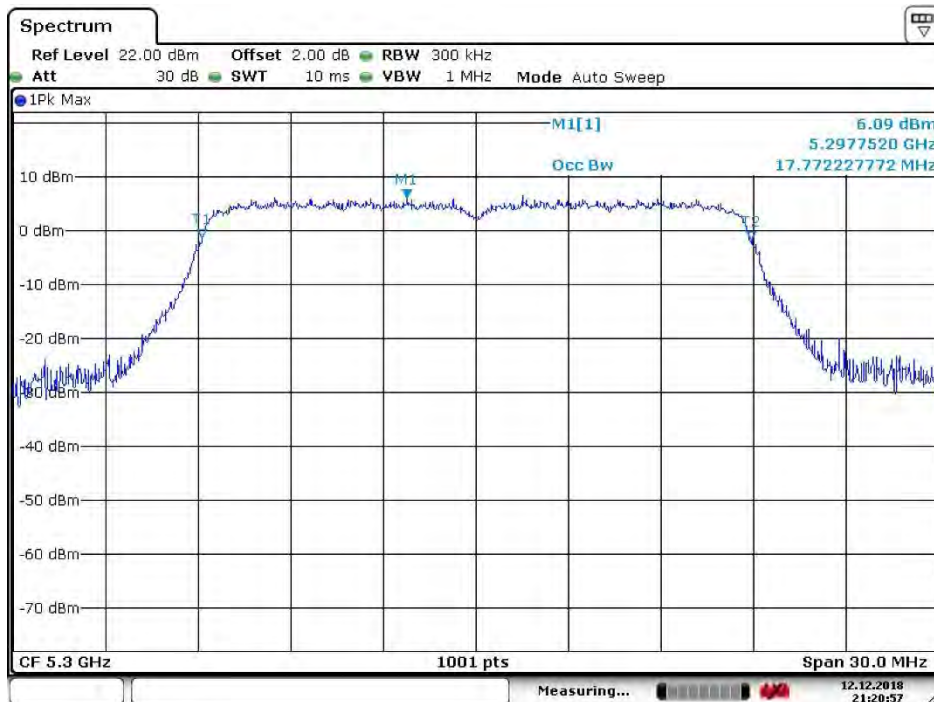


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4.5.2.30 11AC20_60 ANT 1

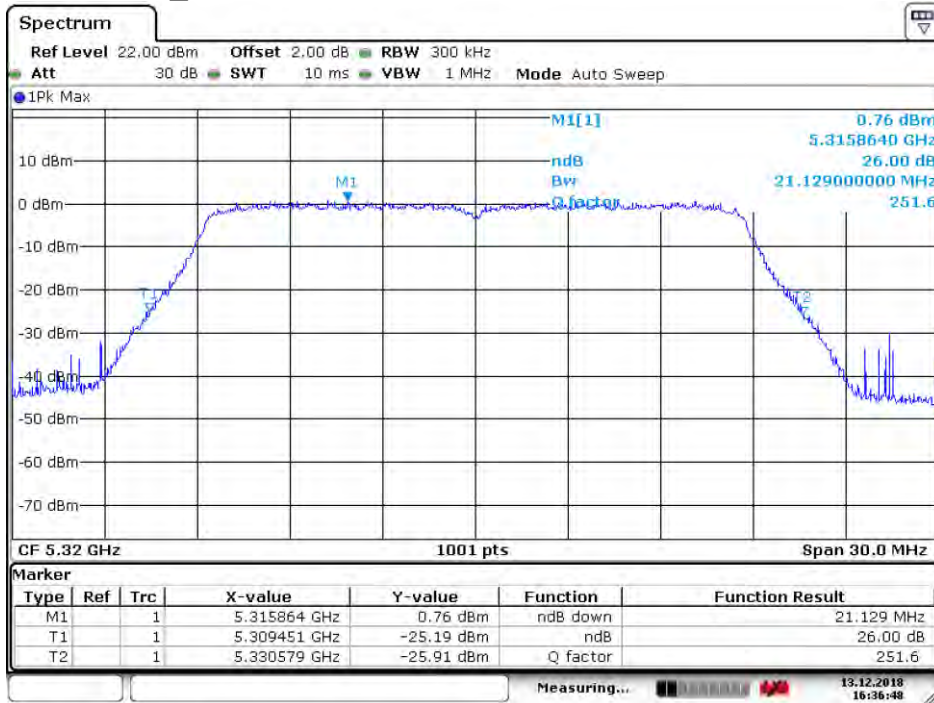


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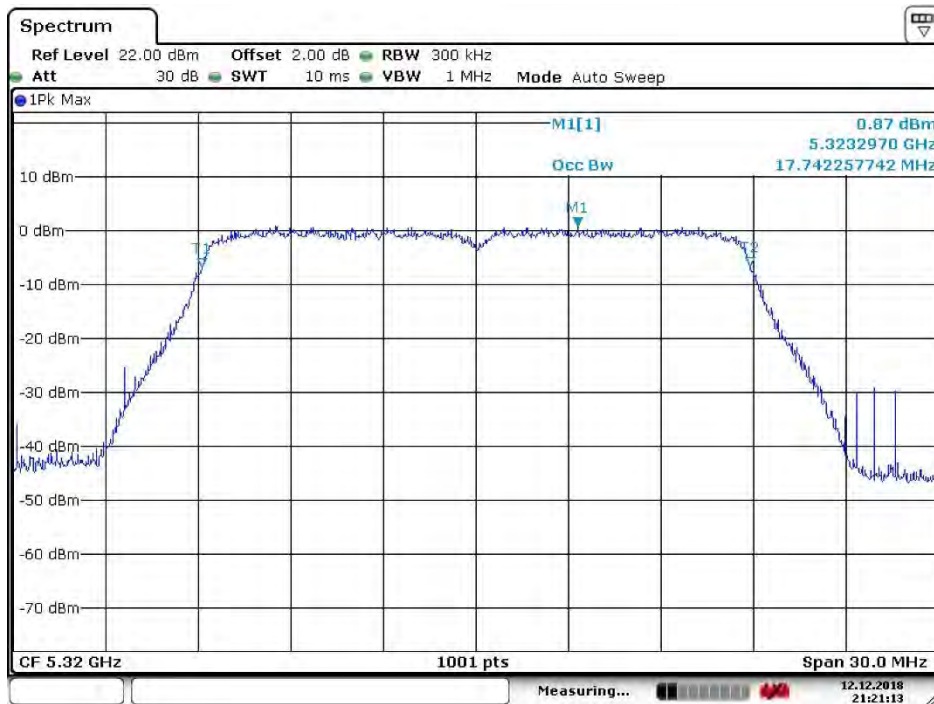


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4.5.2.31 11AC20_64 ANT 1



Date: 13.DEC.2018 16:36:48



Date: 12.DEC.2018 21:21:14