



Appendix A U-NII: Emission Bandwidth



1 Result Table for 26dB Emission Bandwidth

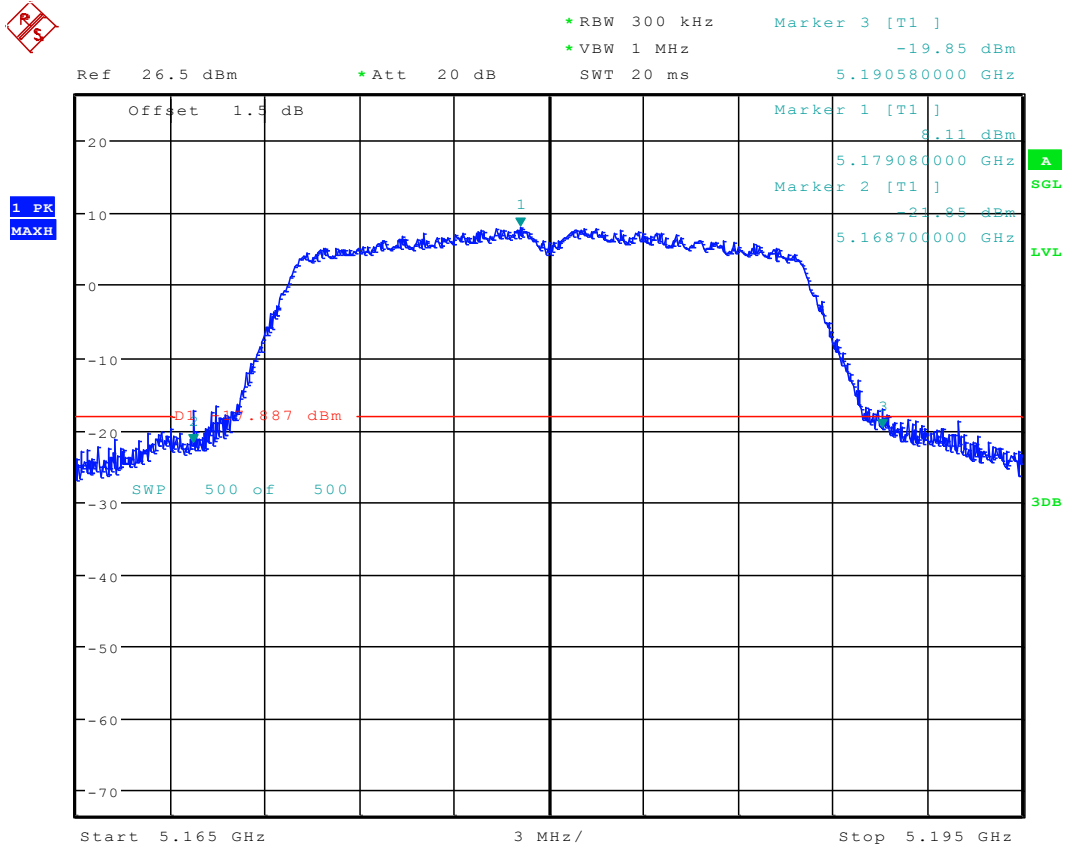
Test Mode	Test Channel	Frequency [MHz]	Antenna Port	26dB Emission Bandwidth [MHz]	Verdict
11A20	36	5180	ANT 1	21.88	PASS
	48	5240	ANT 1	20.22	PASS
	52	5260	ANT 1	20.02	PASS
	64	5320	ANT 1	20.86	PASS
	100	5500	ANT 1	20.14	PASS
	140	5700	ANT 1	22.22	PASS
11N20	36	5180	ANT 1	21.04	PASS
	48	5240	ANT 1	20.42	PASS
	52	5260	ANT 1	21.36	PASS
	64	5320	ANT 1	21.94	PASS
	100	5500	ANT 1	20.84	PASS
	140	5700	ANT 1	20.48	PASS
11N40	38	5190	ANT 1	40.50	PASS
	46	5230	ANT 1	40.32	PASS
	54	5270	ANT 1	40.24	PASS
	62	5310	ANT 1	40.54	PASS
	102	5510	ANT 1	40.52	PASS
	134	5670	ANT 1	40.34	PASS

2 Result Table for 6dB Emission Bandwidth

Test Mode	Test Channel	Frequency [MHz]	Antenna Port	6dB Emission Bandwidth [MHz]	Verdict
11A20	149	5745	ANT 1	15.56	PASS
	165	5825	ANT 1	15.52	PASS
11N20	149	5745	ANT 1	16.00	PASS
	165	5825	ANT 1	15.54	PASS
11N40	151	5755	ANT 1	36.34	PASS
	159	5795	ANT 1	36.32	PASS

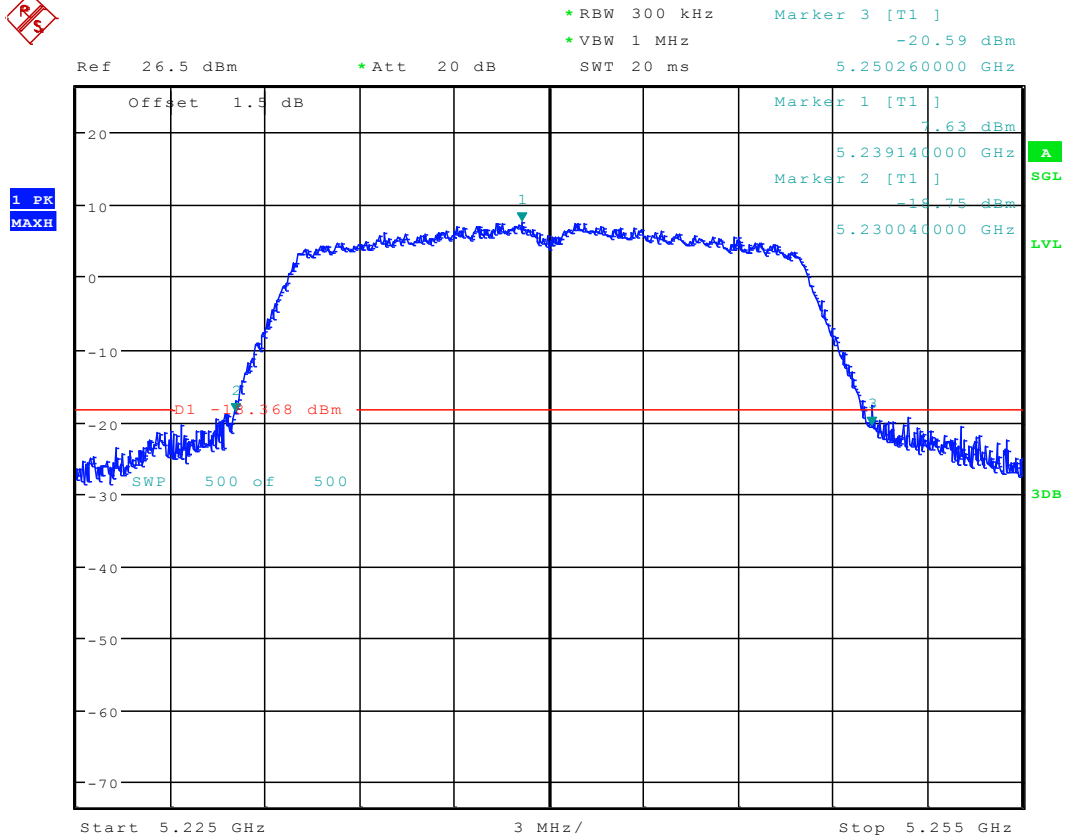
3 Test Plot for 26dB Emission Bandwidth

3.1 11A20_36 ANT 1



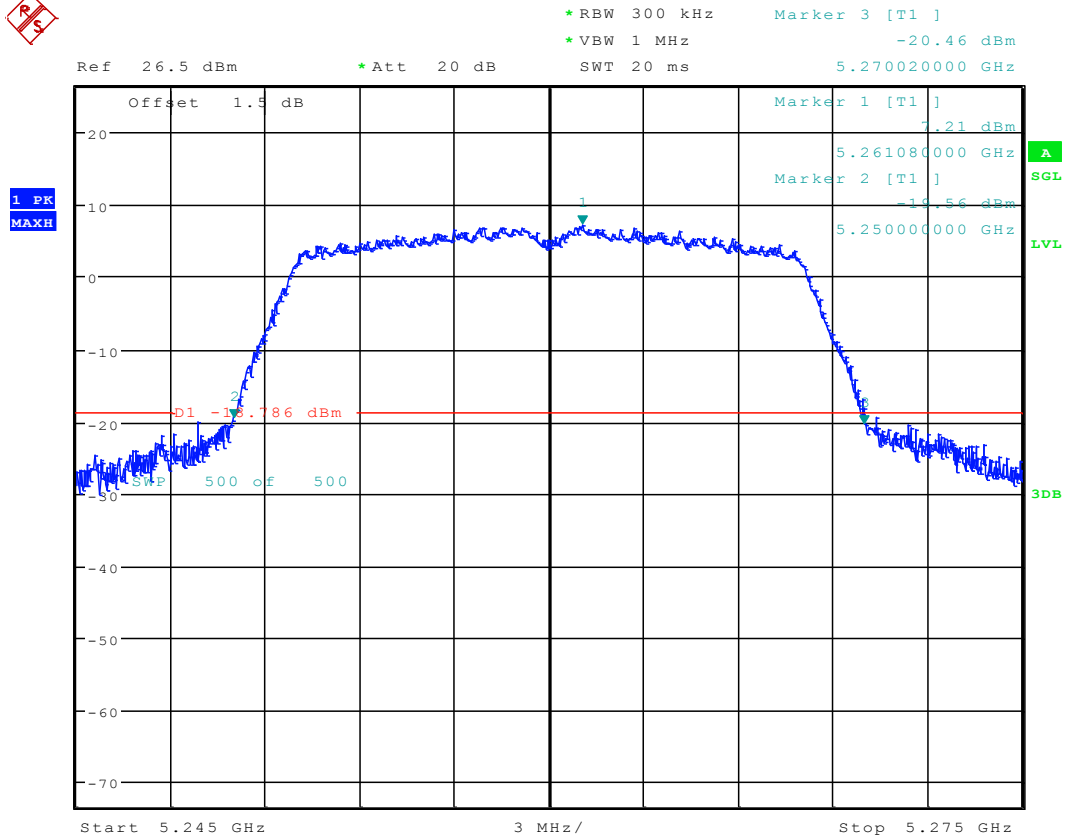
Date: 11.FEB.2017 11:06:45

3.2 11A20_48 ANT 1



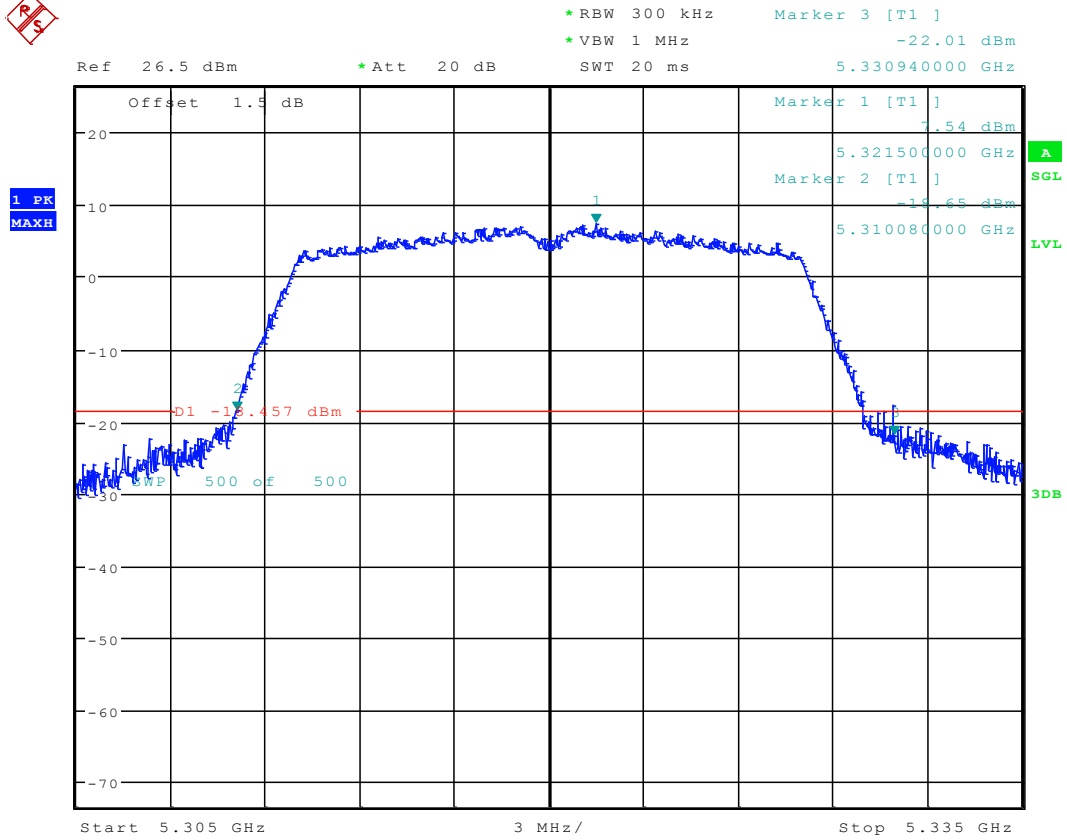
Date: 11.FEB.2017 11:11:50

3.3 11A20_52 ANT 1



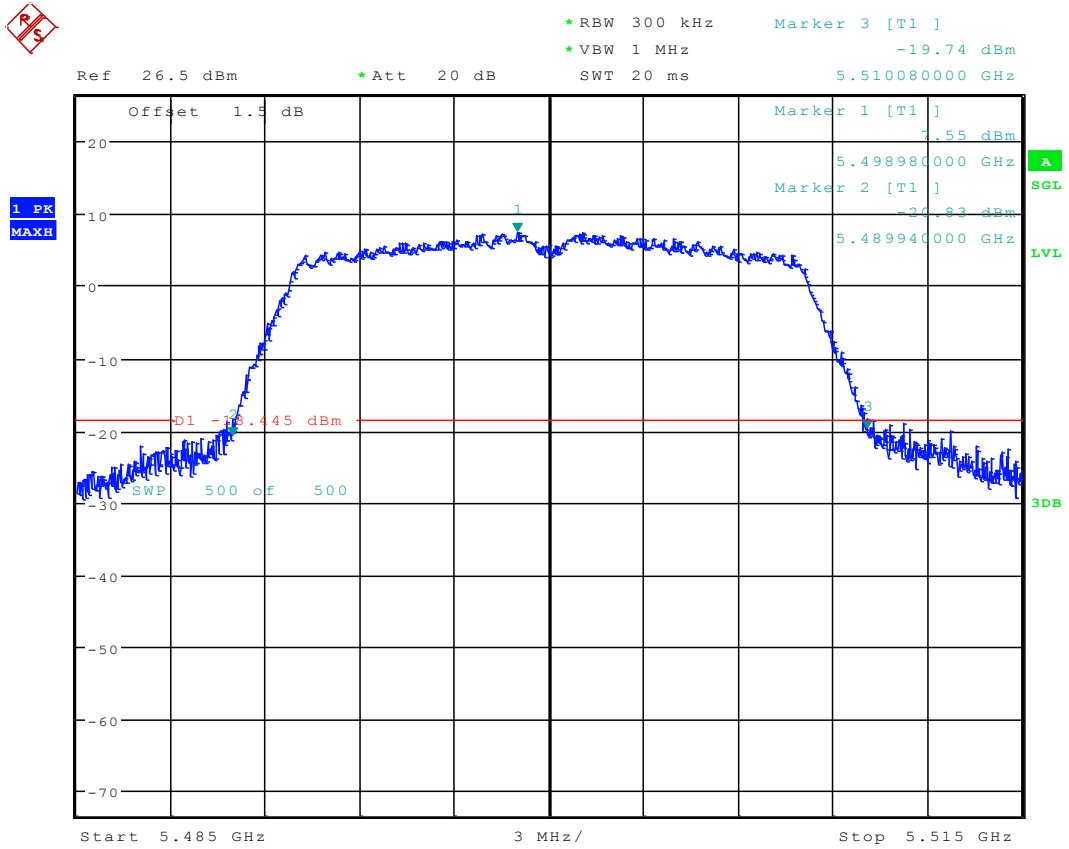
Date: 11.FEB.2017 11:19:06

3.4 11A20_64 ANT 1



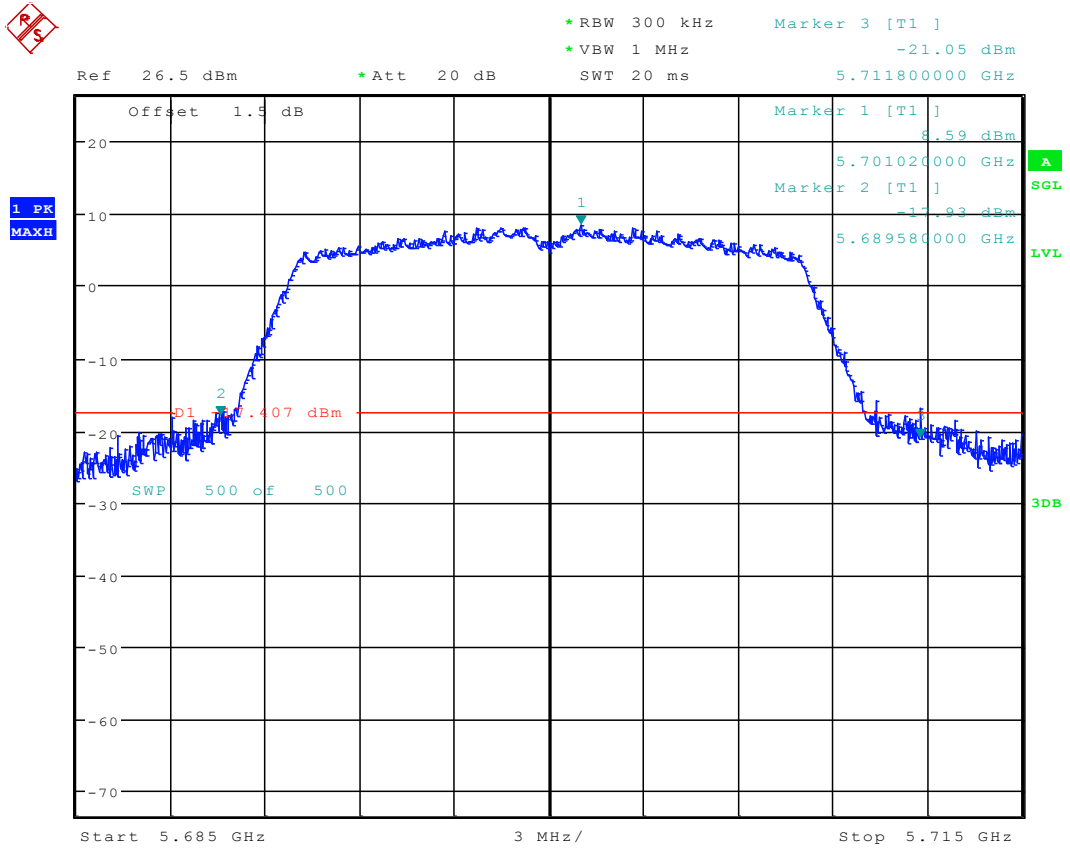
Date: 11.FEB.2017 11:24:05

3.5 11A20_100 ANT 1



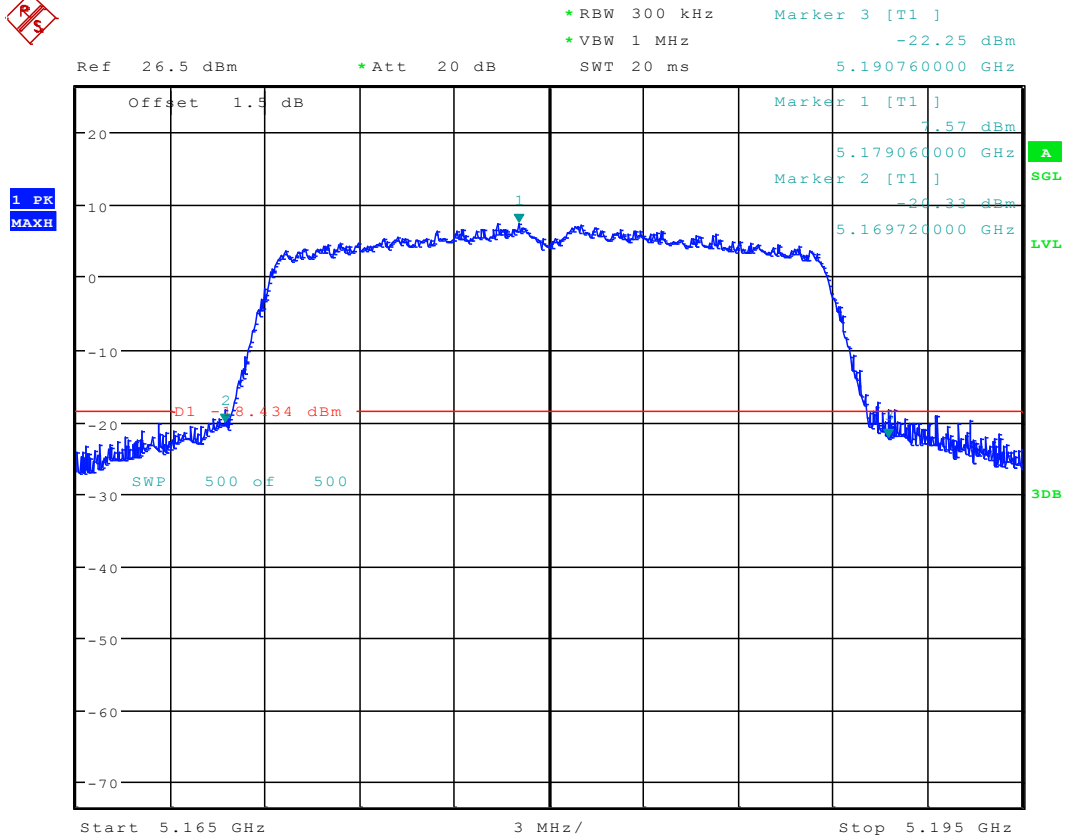
Date: 11.FEB.2017 11:29:28

3.6 11A20_140 ANT 1



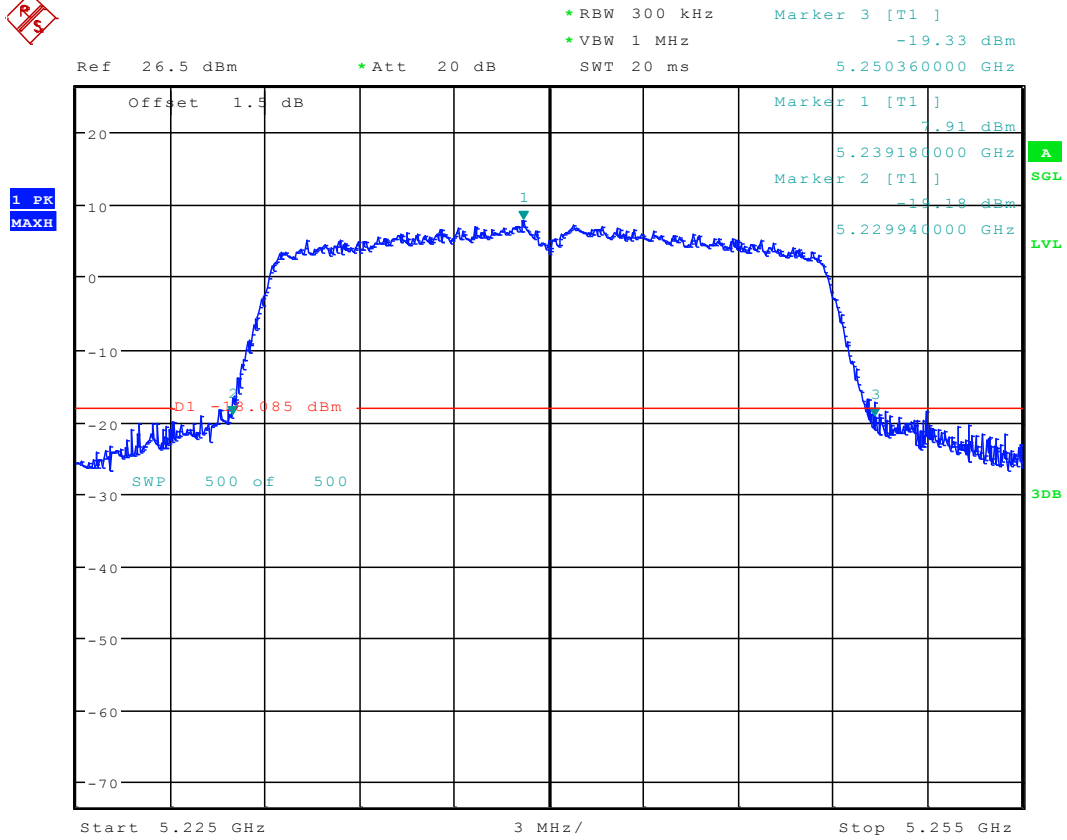
Date: 11.FEB.2017 11:34:34

3.7 11N20_36 ANT 1



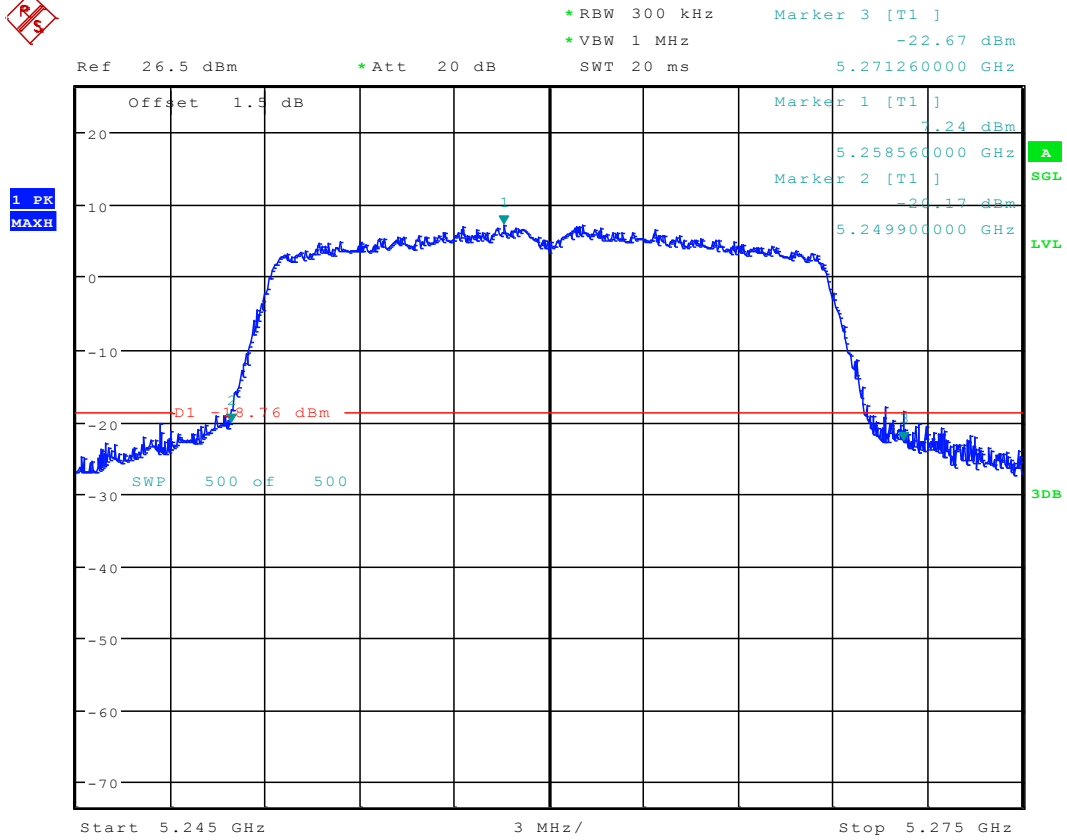
Date: 11.FEB.2017 11:52:16

3.8 11N20_48 ANT 1



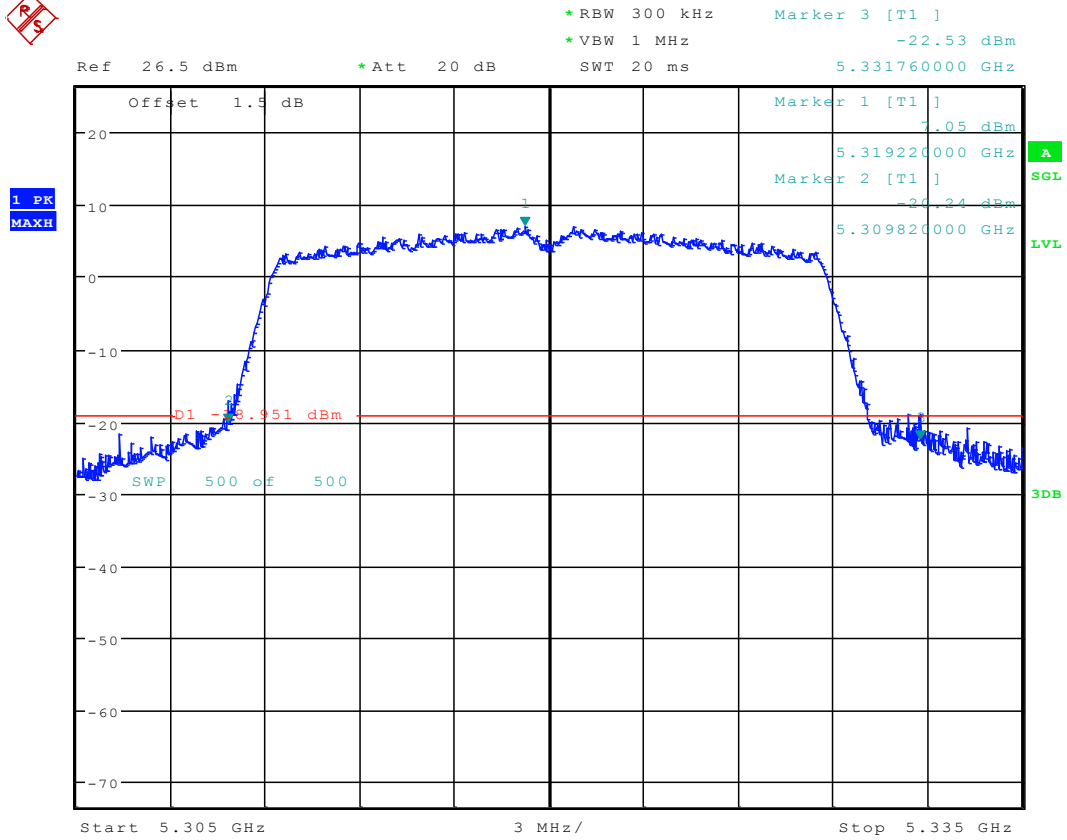
Date: 11.FEB.2017 11:57:18

3.9 11N20_52 ANT 1



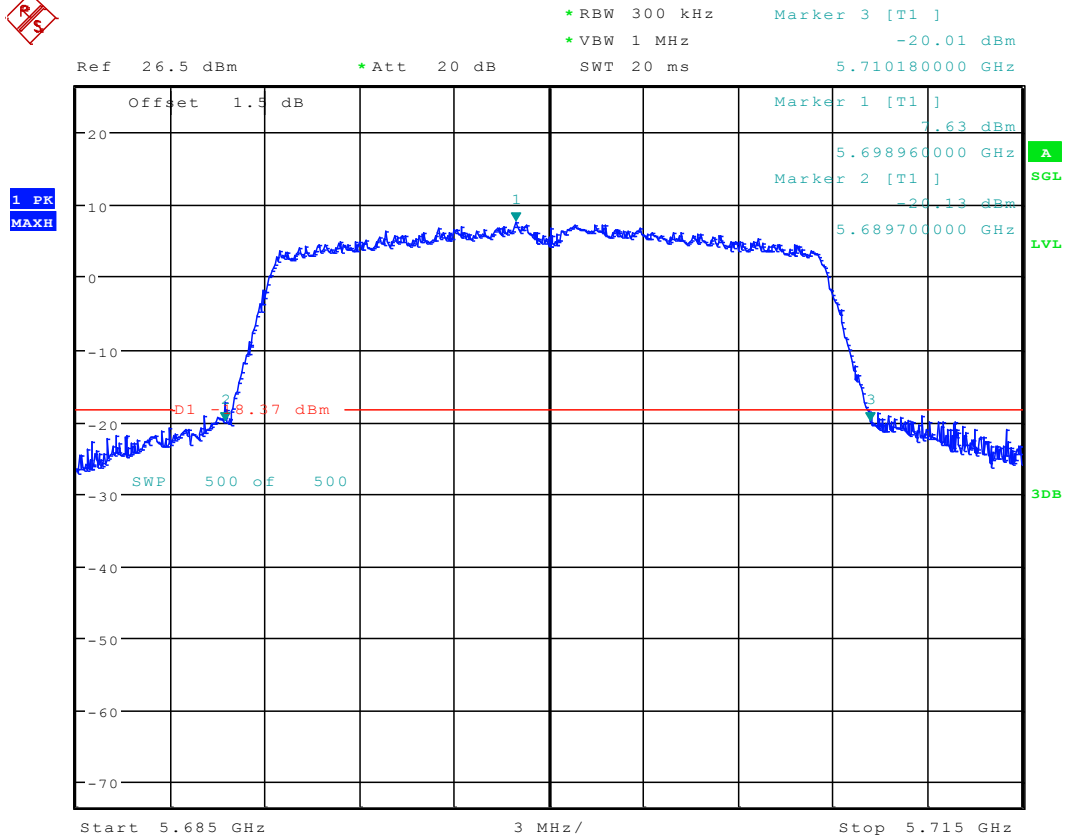
Date: 11.FEB.2017 12:02:55

3.10 11N20_64 ANT 1



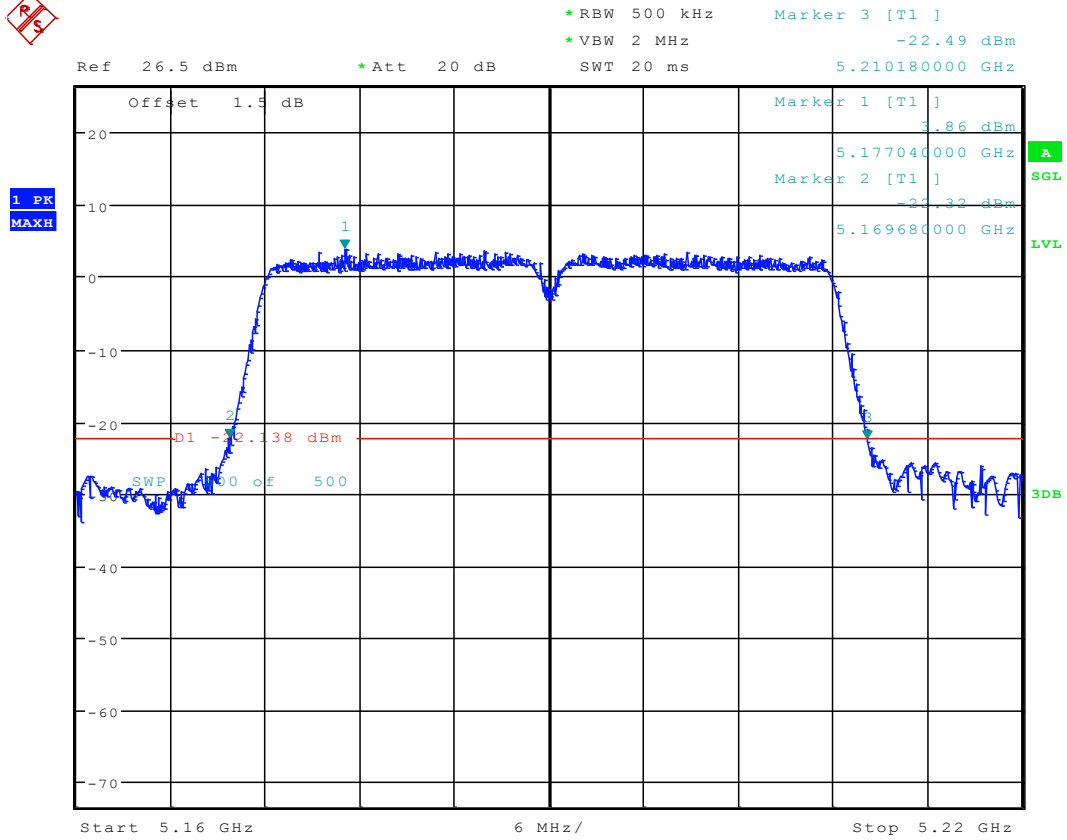
Date: 11.FEB.2017 12:07:48

3.12 11N20_140 ANT 1



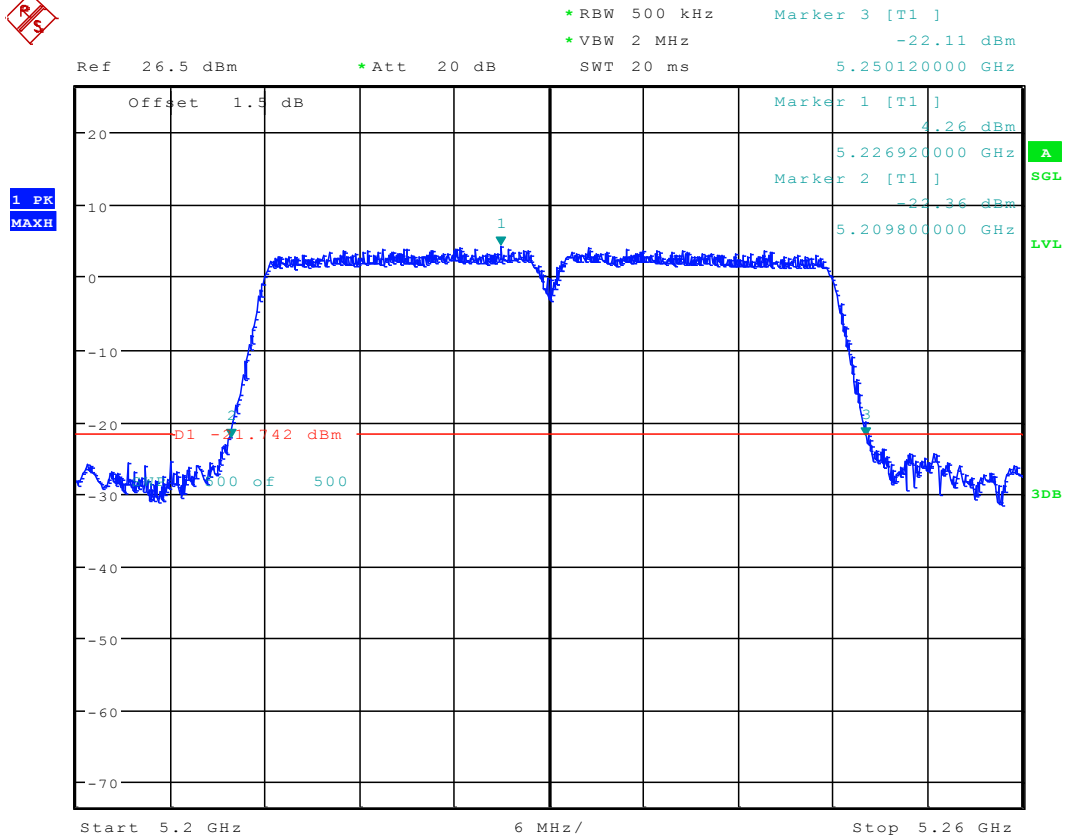
Date: 11.FEB.2017 12:17:48

3.13 11N40_38 ANT 1



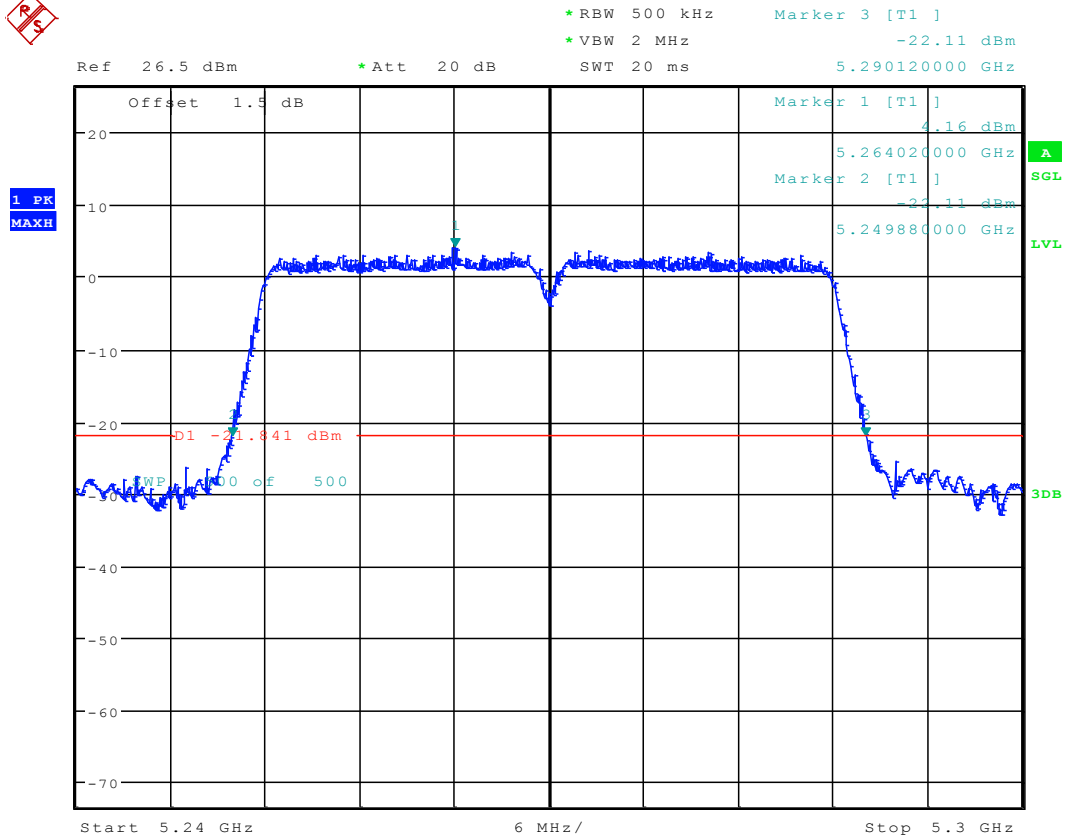
Date: 11.FEB.2017 12:35:37

3.14 11N40_46 ANT 1



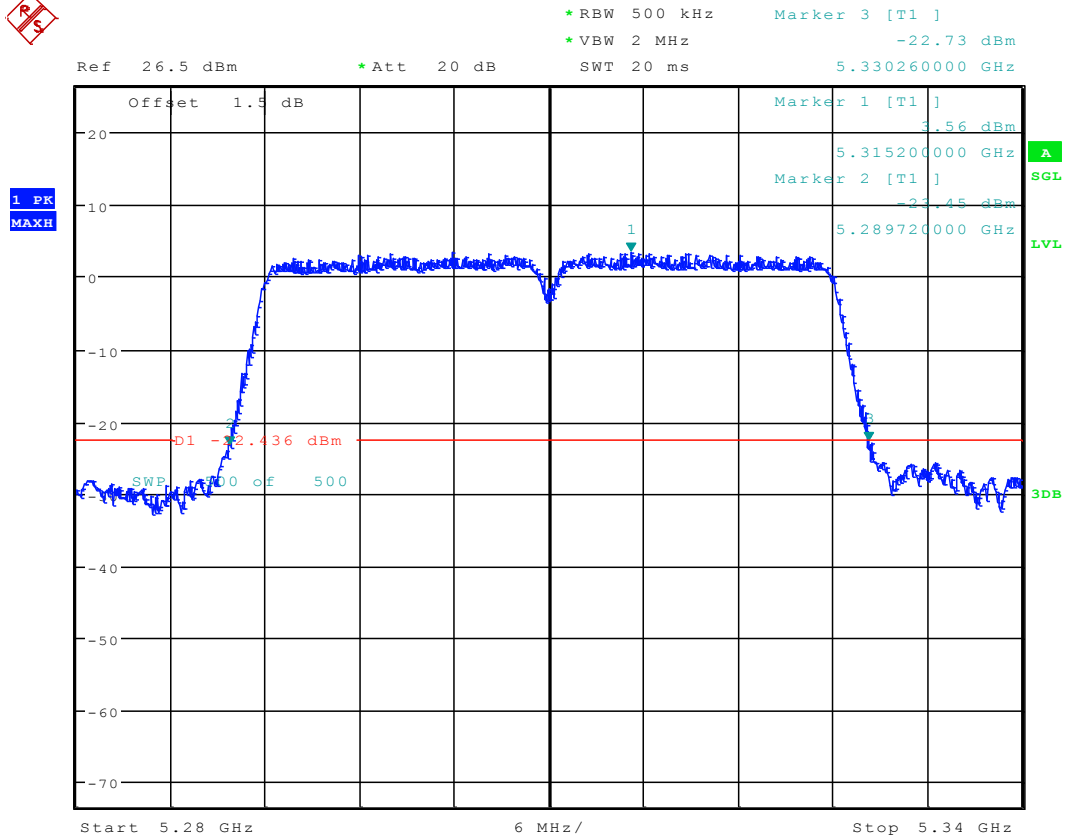
Date: 11.FEB.2017 14:33:09

3.15 11N40_54 ANT 1



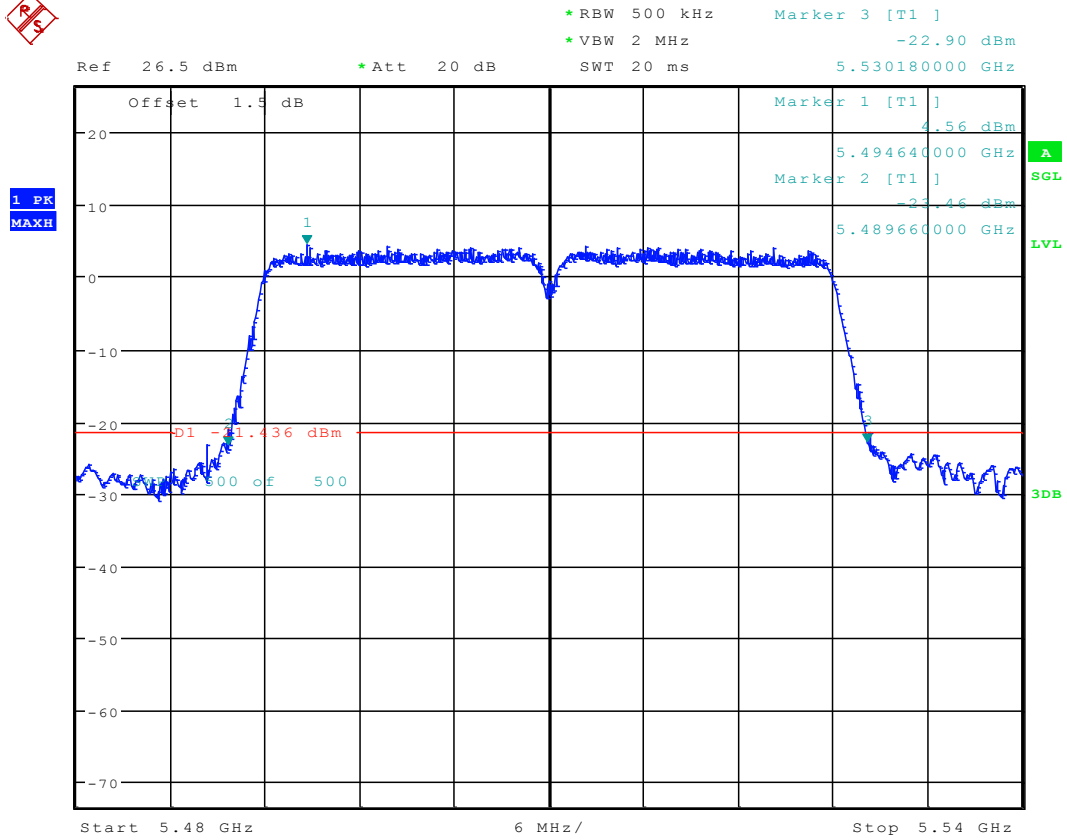
Date: 11.FEB.2017 14:38:29

3.16 11N40_62 ANT 1



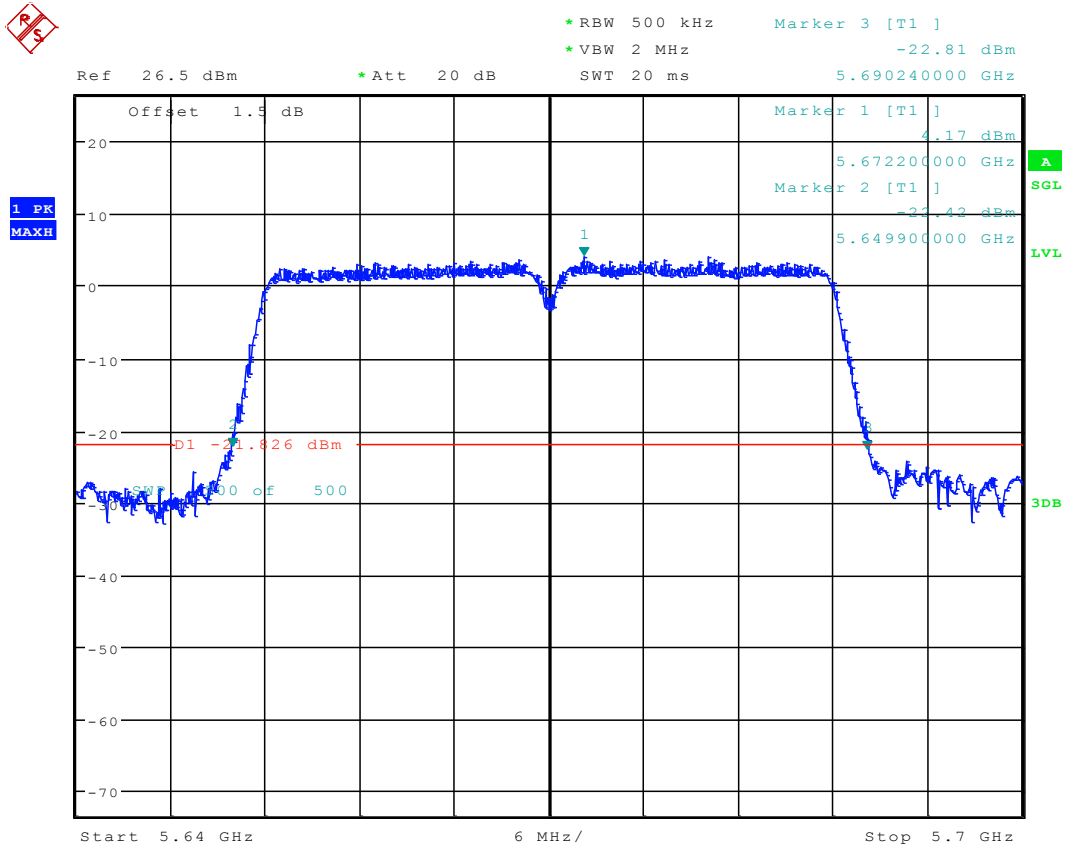
Date: 11.FEB.2017 14:43:23

3.17 11N40_102 ANT 1



Date: 11.FEB.2017 15:02:48

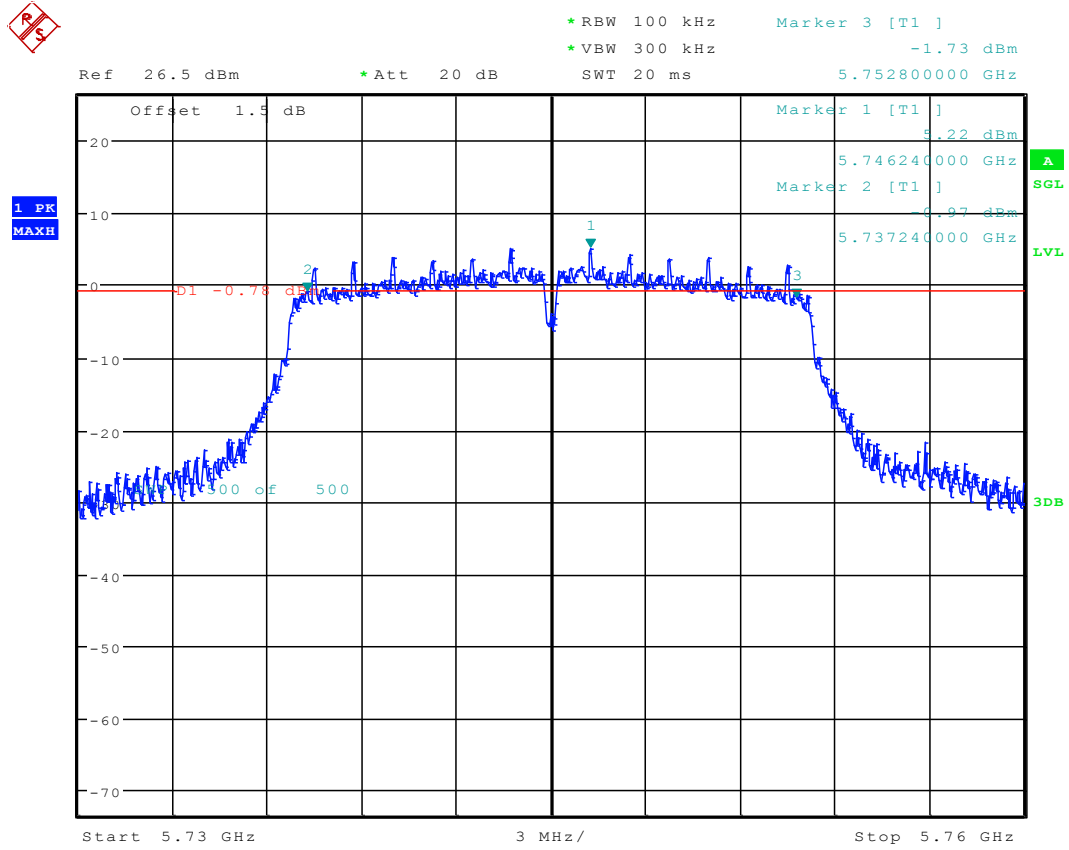
3.18 11N40_134 ANT 1



Date: 11.FEB.2017 15:06:05

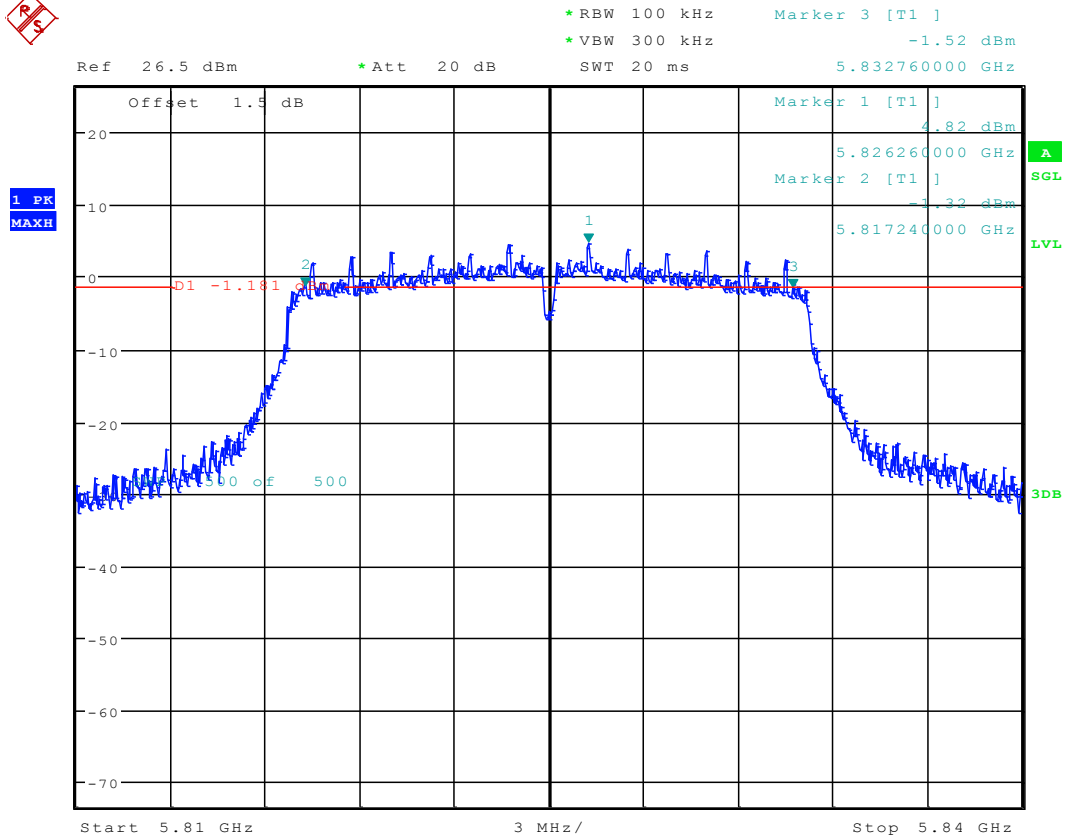
4 Test Plot for 6dB Emission Bandwidth

4.1 11A20_149 ANT 1



Date: 11.FEB.2017 11:40:12

4.2 11A20_165 ANT 1

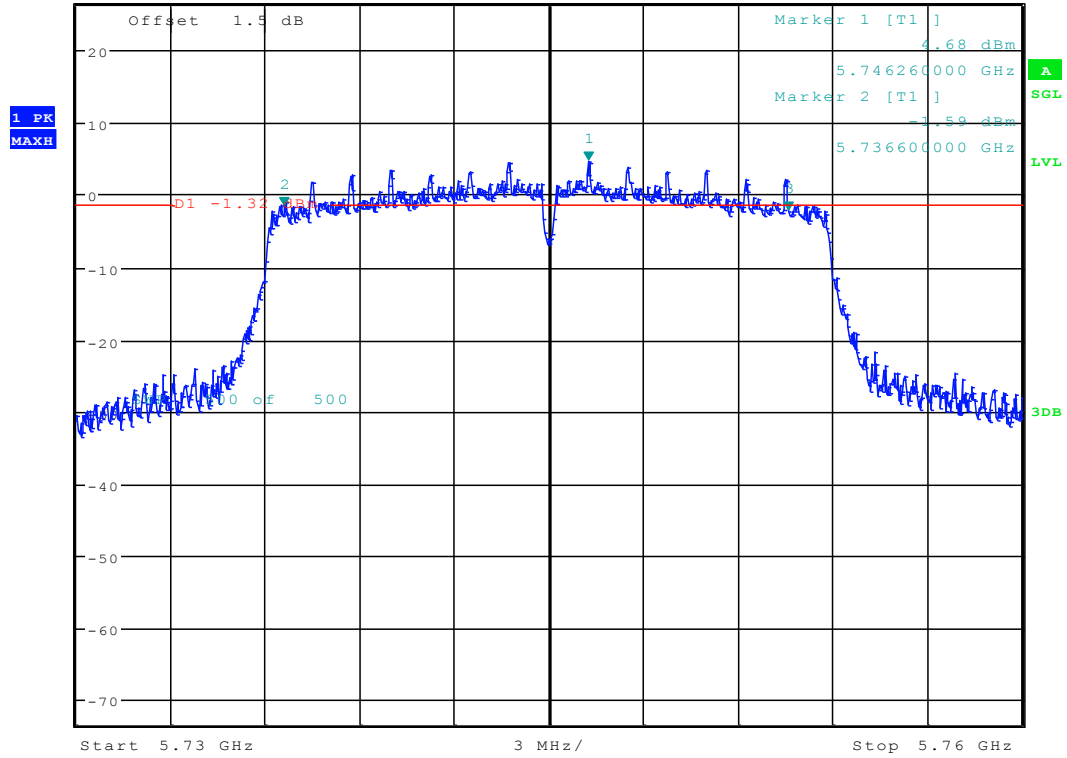


Date: 11.FEB.2017 11:46:10

4.3 11N20_149 ANT 1

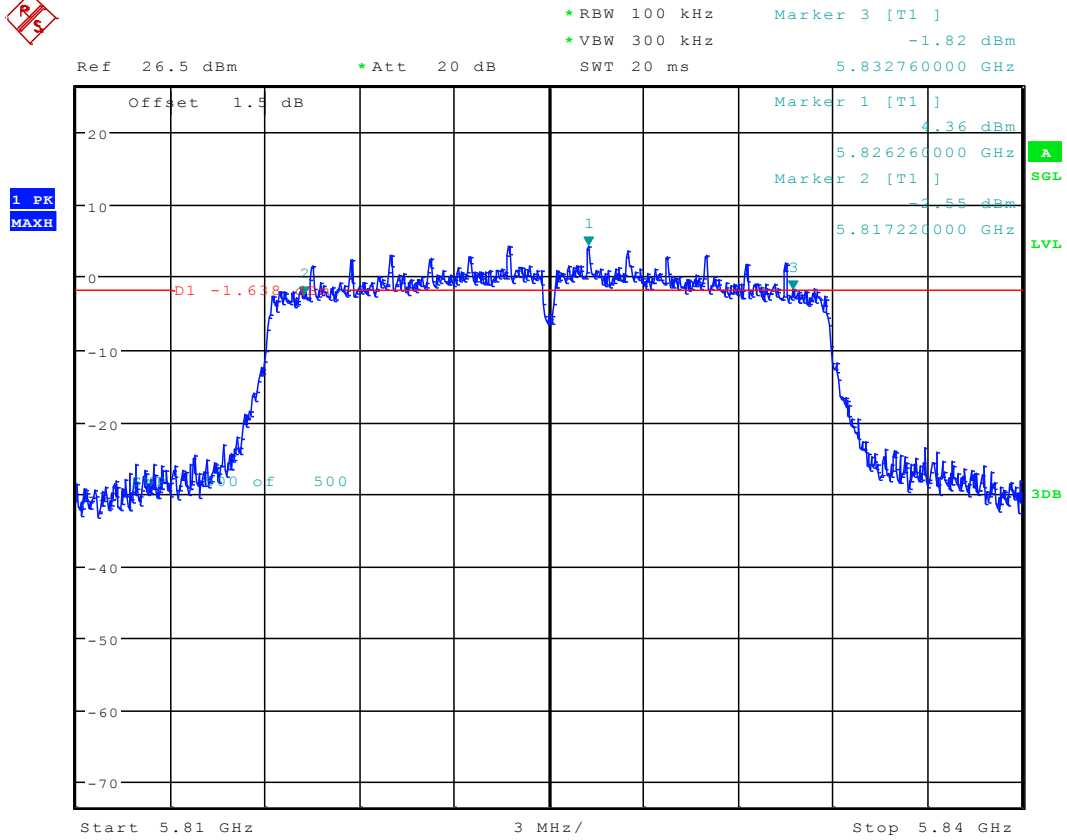


*RBW 100 kHz Marker 3 [T1]
 *VBW 300 kHz -2.27 dBm
 Ref 26.5 dBm *Att 20 dB SWT 20 ms 5.752600000 GHz



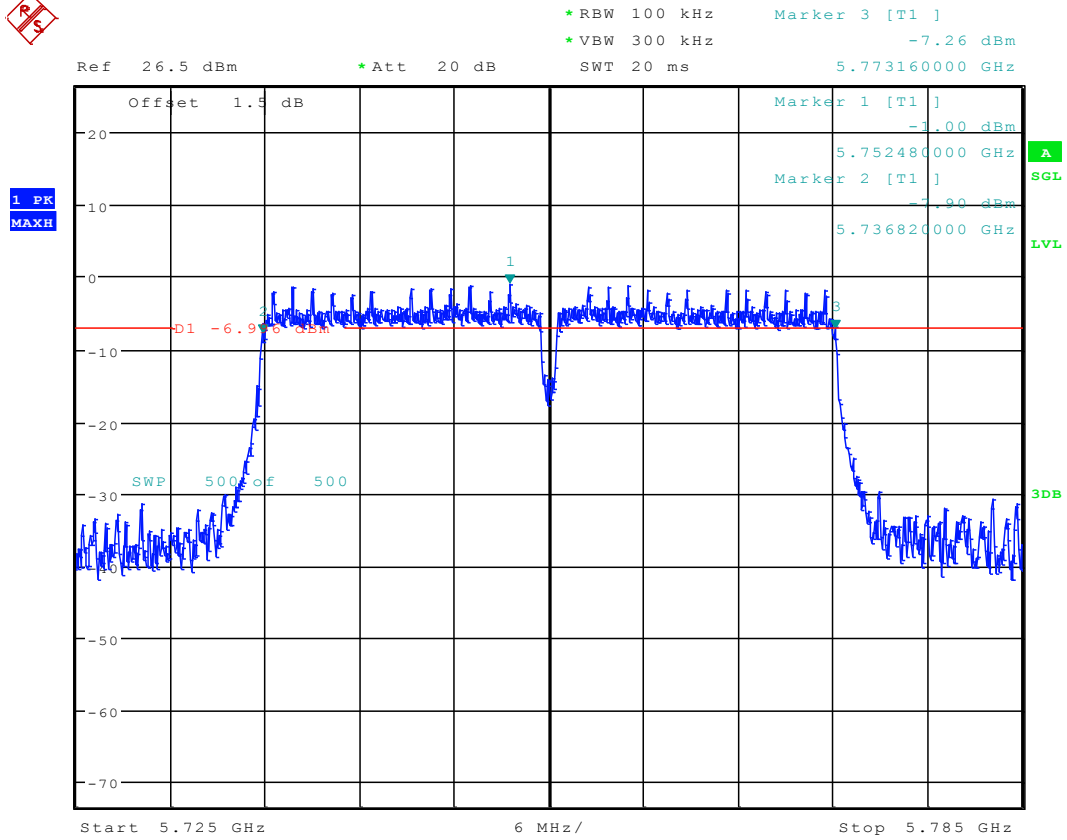
Date: 11.FEB.2017 12:23:07

4.4 11N20_165 ANT 1



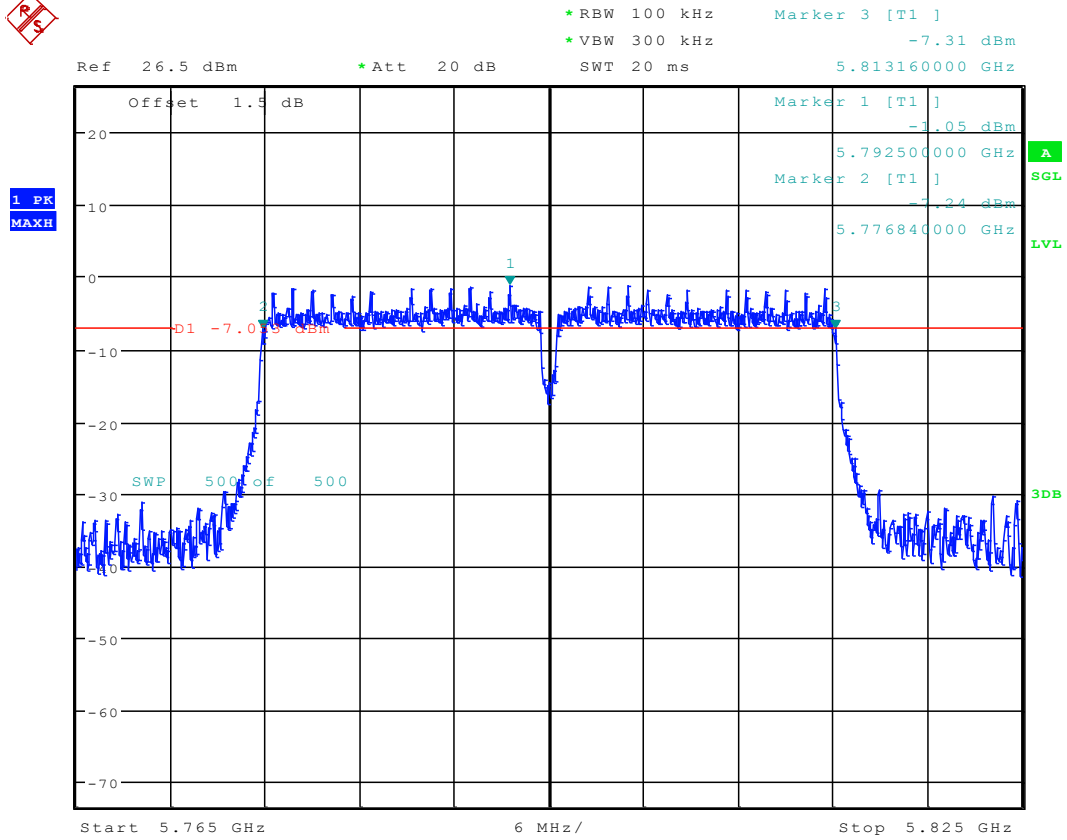
Date: 11.FEB.2017 12:28:58

4.5 11N40_151 ANT 1



Date: 11.FEB.2017 15:10:10

4.6 11N40_159 ANT 1



Date: 11.FEB.2017 15:15:53



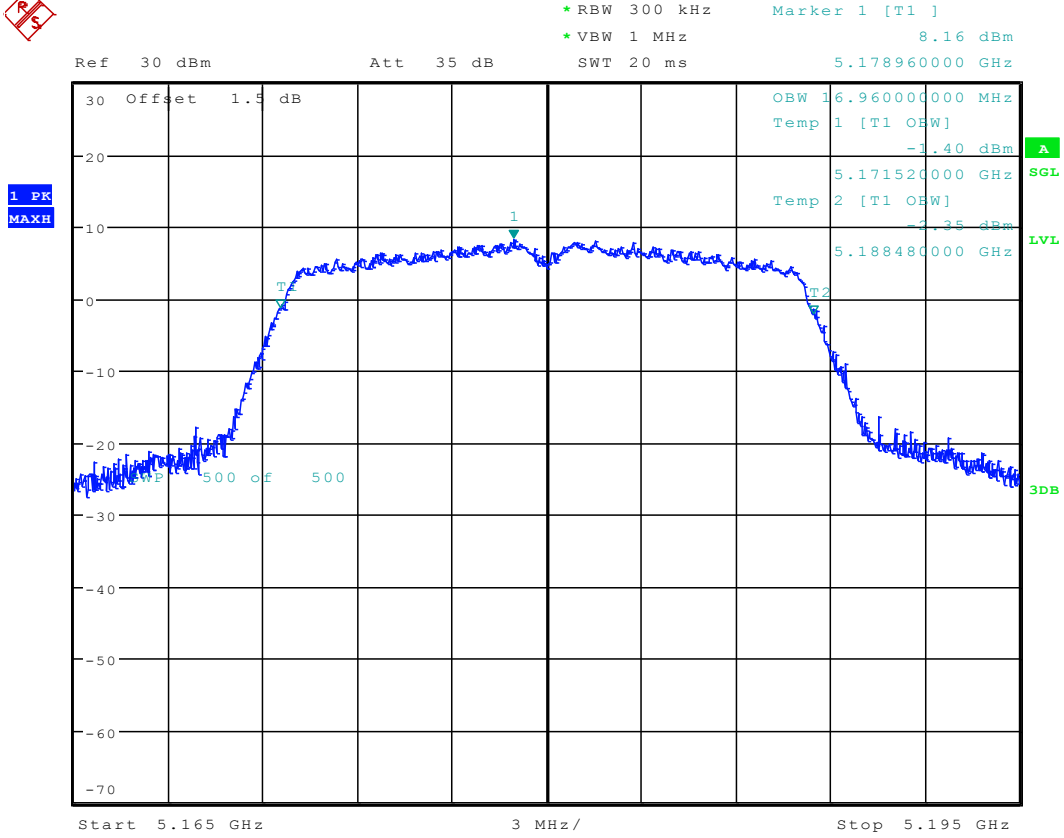
Appendix B Occupied Bandwidth (OBW)

5 Result Table

Test Mode	Test Channel	Frequency [MHz]	Antenna Port	Occupied Bandwidth [MHz]	Verdict
11A20	36	5180	ANT 1	16.96	PASS
	48	5240	ANT 1	16.90	PASS
	52	5260	ANT 1	16.92	PASS
	64	5320	ANT 1	16.92	PASS
	100	5500	ANT 1	16.94	PASS
	140	5700	ANT 1	16.92	PASS
	149	5745	ANT 1	17.00	PASS
	165	5825	ANT 1	16.96	PASS
11N20	36	5180	ANT 1	17.76	PASS
	48	5240	ANT 1	17.76	PASS
	52	5260	ANT 1	17.74	PASS
	64	5320	ANT 1	17.76	PASS
	100	5500	ANT 1	17.78	PASS
	140	5700	ANT 1	17.76	PASS
	149	5745	ANT 1	17.82	PASS
	165	5825	ANT 1	17.80	PASS
11N40	38	5190	ANT 1	36.38	PASS
	46	5230	ANT 1	36.38	PASS
	54	5270	ANT 1	36.40	PASS
	62	5310	ANT 1	36.38	PASS
	102	5510	ANT 1	36.38	PASS
	134	5670	ANT 1	36.40	PASS
	151	5755	ANT 1	36.40	PASS
	159	5795	ANT 1	36.44	PASS

6 Test Plot

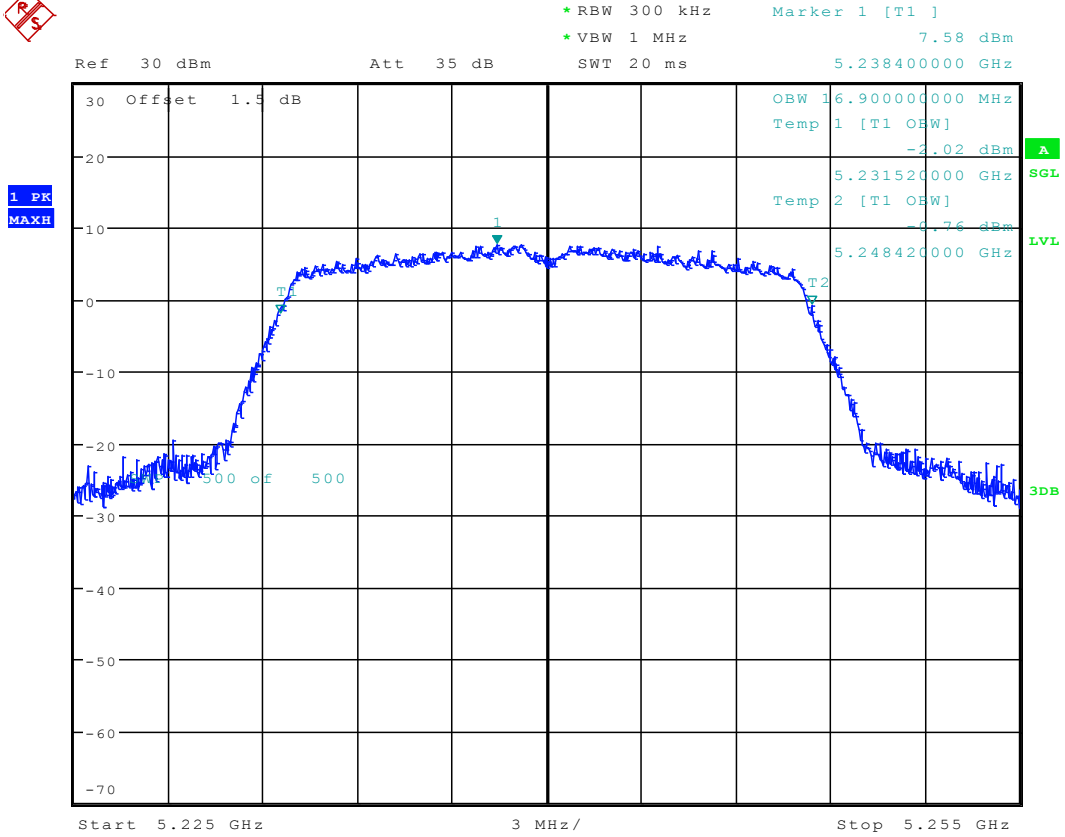
6.1 11A20_36 ANT 1



Date: 11.FEB.2017 11:07:33

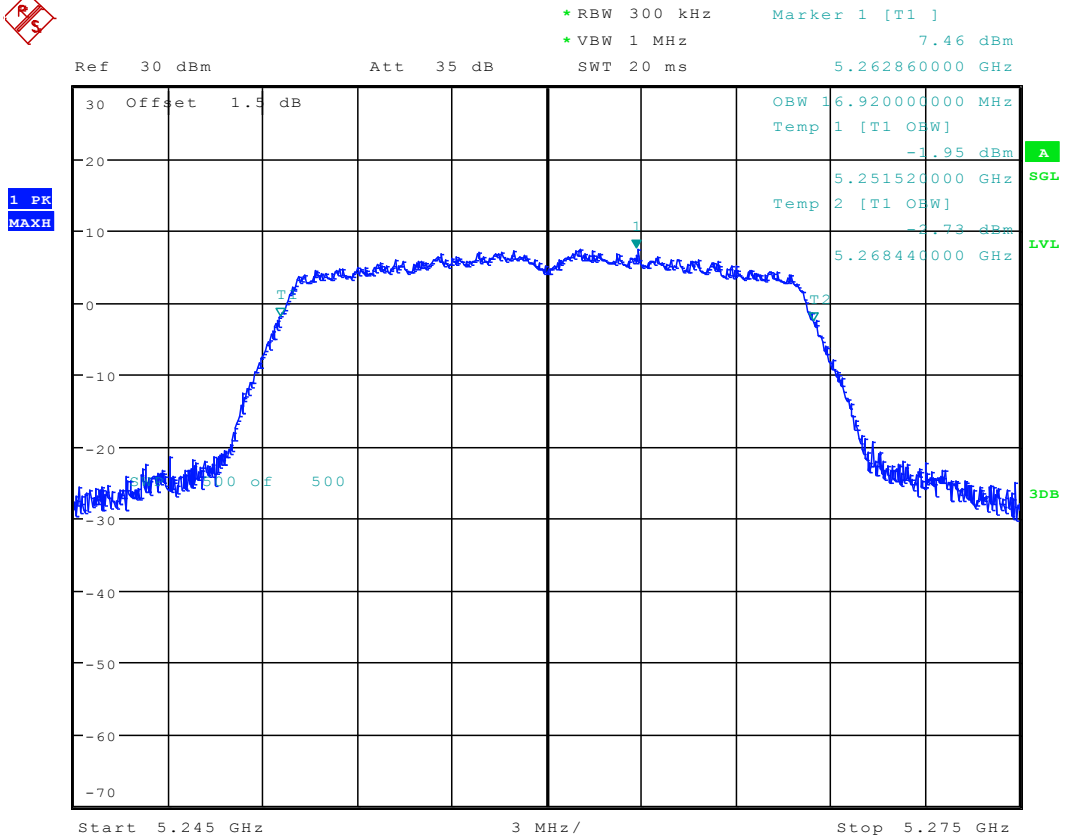


6.2 11A20_48 ANT 1



Date: 11.FEB.2017 11:12:38

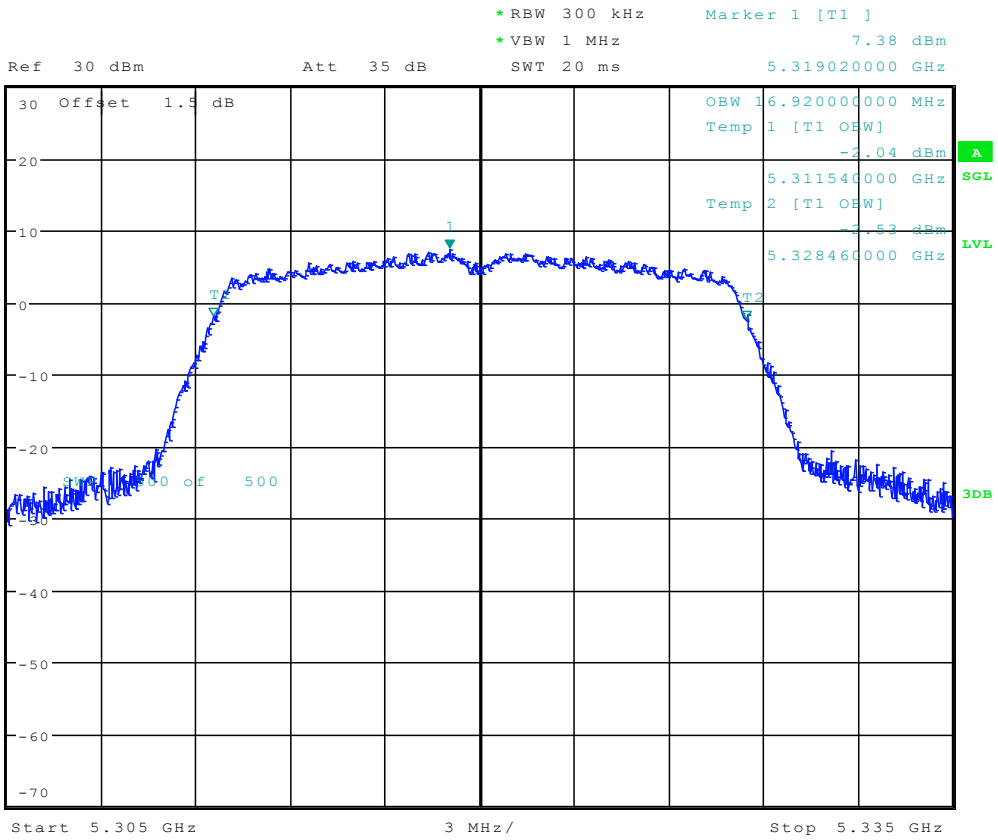
6.3 11A20_52 ANT 1



Date: 11.FEB.2017 11:19:53

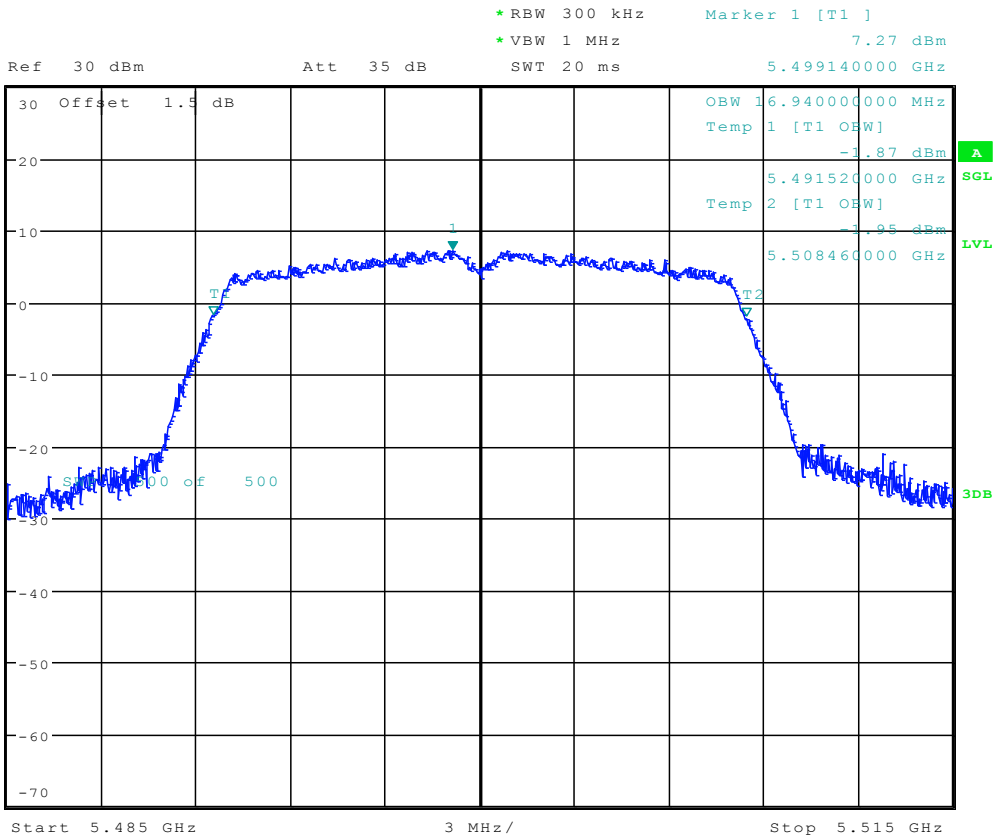


6.4 11A20_64 ANT 1



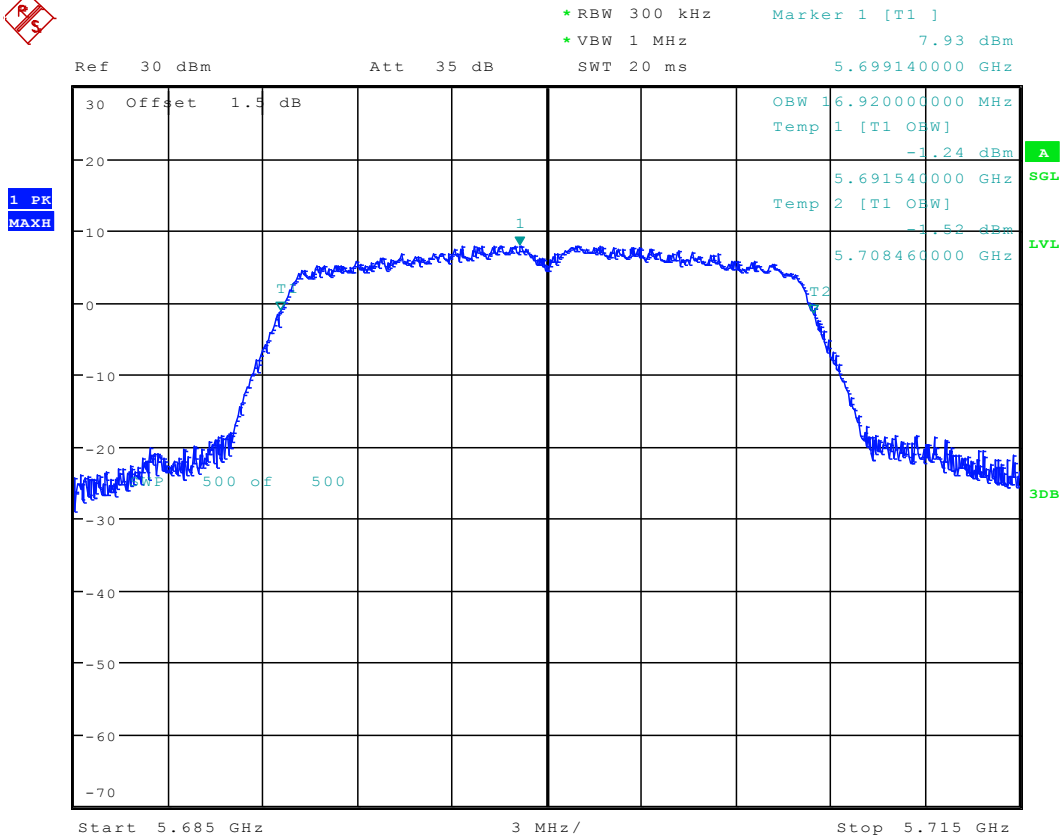
Date: 11.FEB.2017 11:24:50

6.5 11A20_100 ANT 1



Date: 11.FEB.2017 11:30:14

6.6 11A20_140 ANT 1

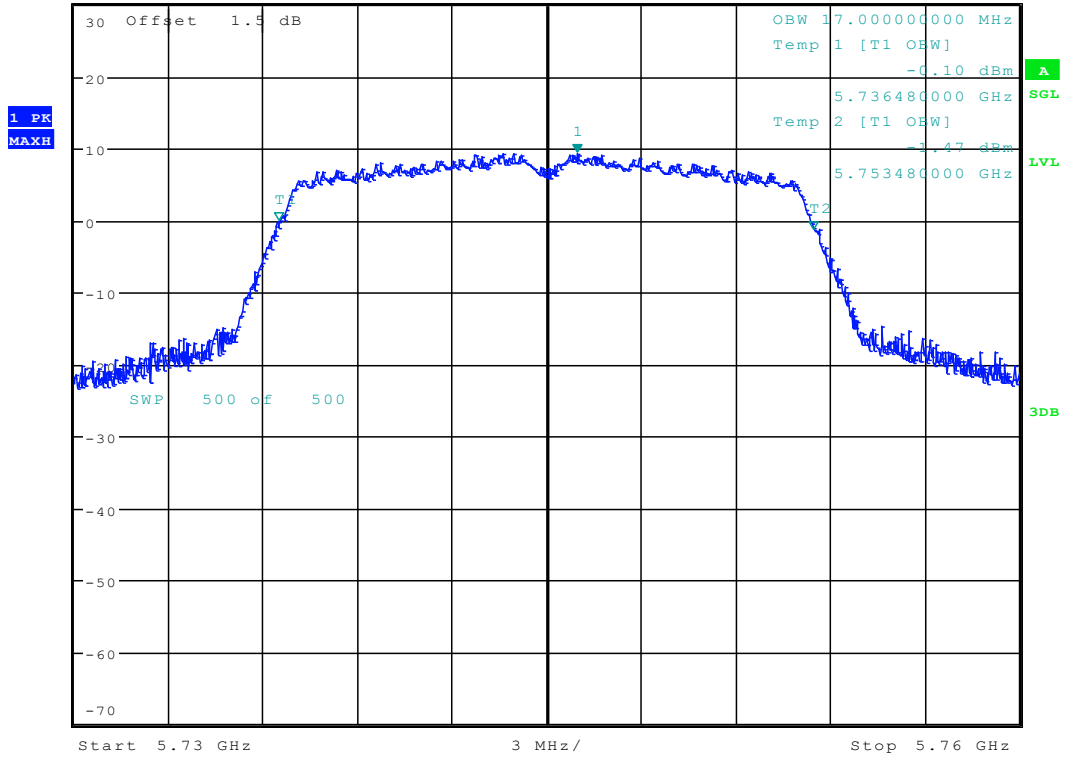


Date: 11.FEB.2017 11:35:19

6.7 11A20_149 ANT 1



*RBW 300 kHz Marker 1 [T1]
 *VBW 1 MHz 9.39 dBm
 Ref 30 dBm Att 35 dB SWT 20 ms 5.745960000 GHz

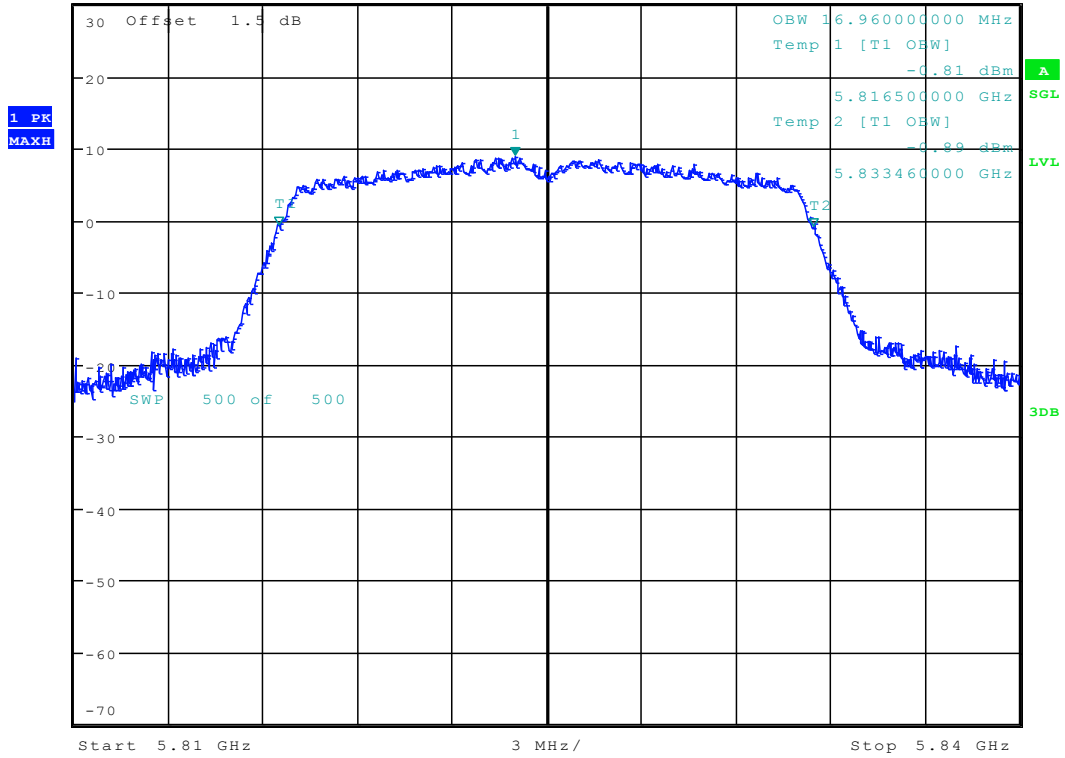


Date: 11.FEB.2017 11:40:58

6.8 11A20_165 ANT 1

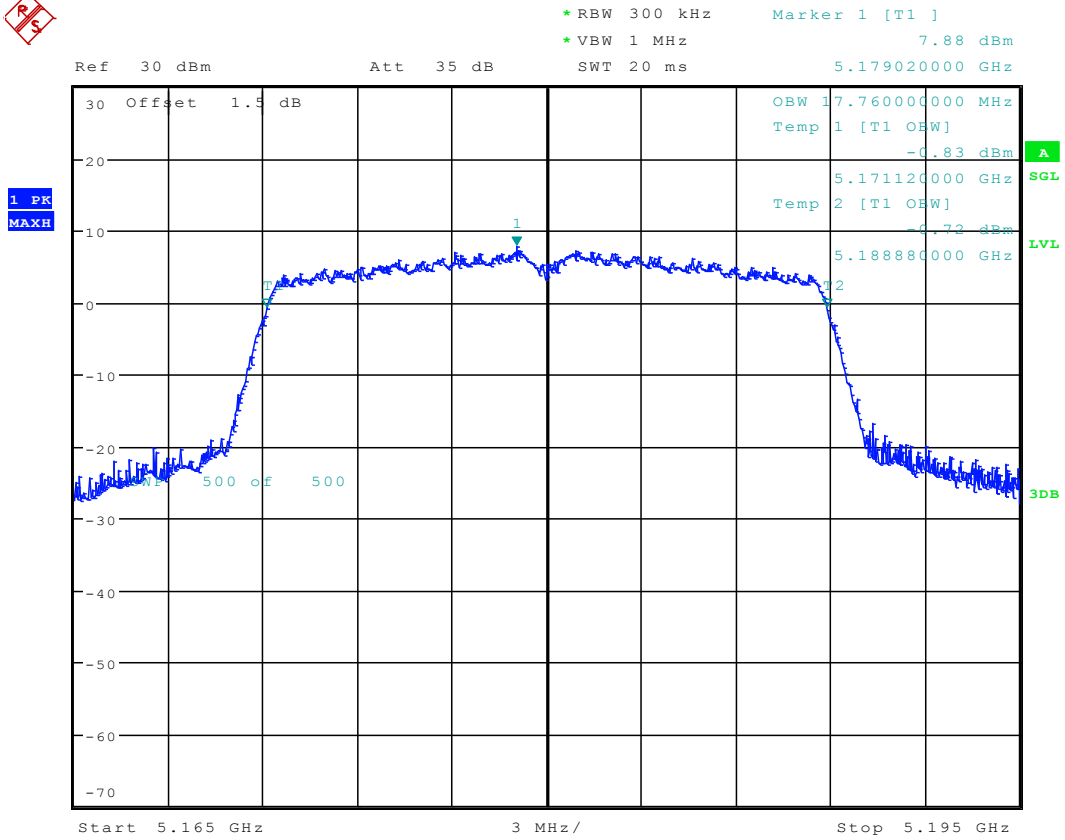


*RBW 300 kHz Marker 1 [T1]
 *VBW 1 MHz 8.85 dBm
 Ref 30 dBm Att 35 dB SWT 20 ms 5.823980000 GHz



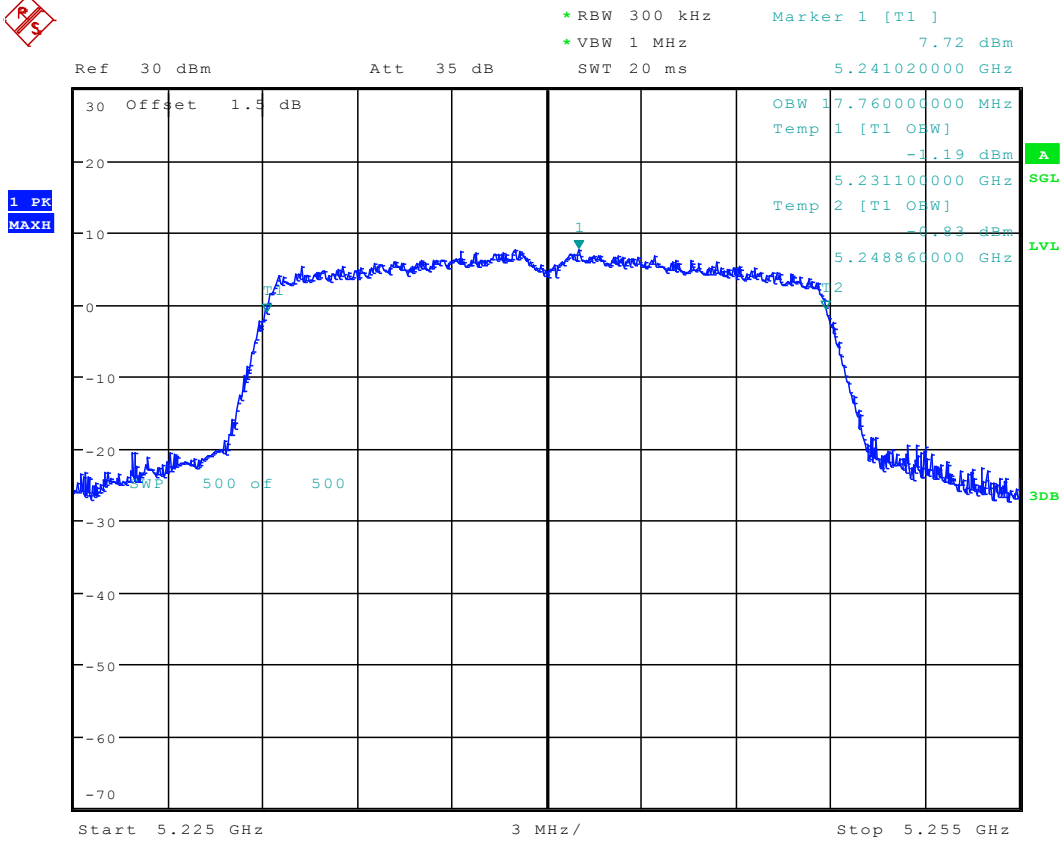
Date: 11.FEB.2017 11:46:56

6.9 11N20_36 ANT 1



Date: 11.FEB.2017 11:53:03

6.10 11N20_48 ANT 1



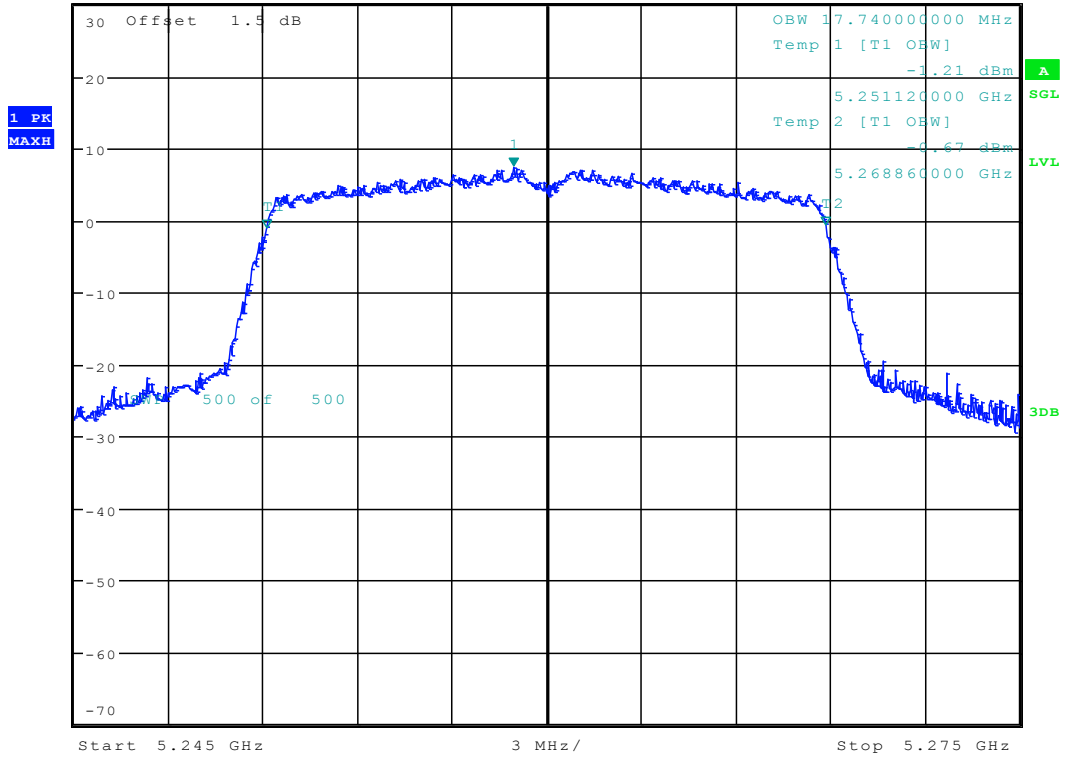
Date: 11.FEB.2017 11:58:06



6.11 11N20_52 ANT 1

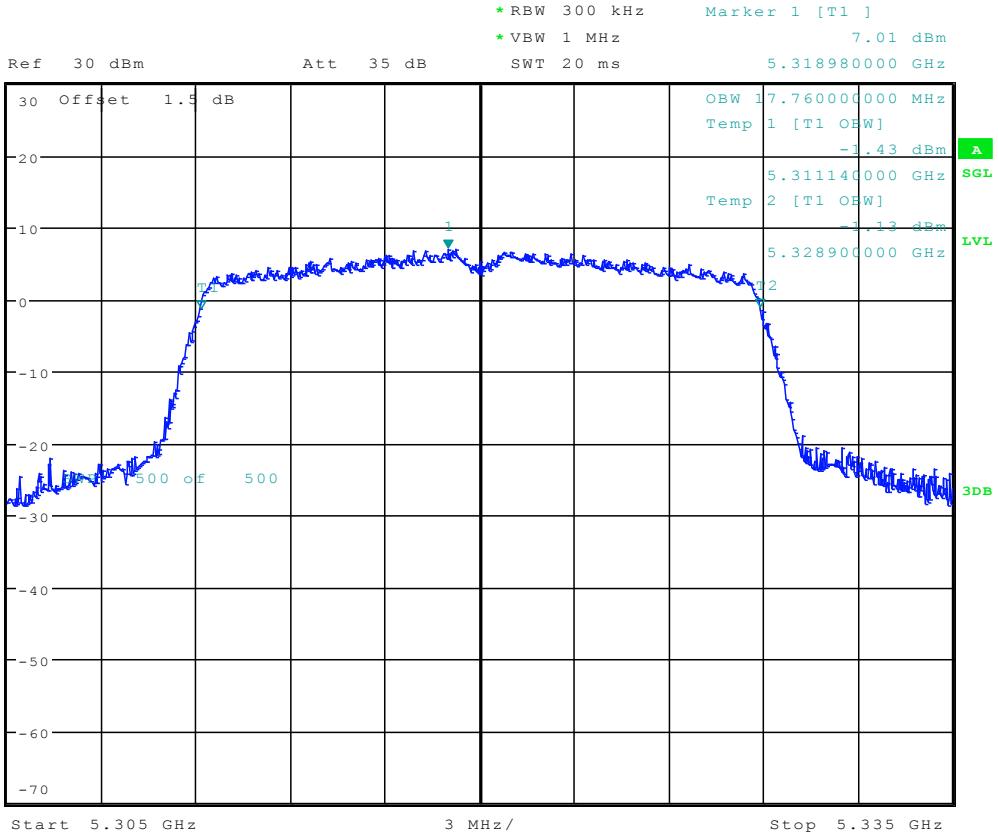


*RBW 300 kHz Marker 1 [T1]
 *VBW 1 MHz 7.35 dBm
 Ref 30 dBm Att 35 dB SWT 20 ms 5.258940000 GHz



Date: 11.FEB.2017 12:03:41

6.12 11N20_64 ANT 1

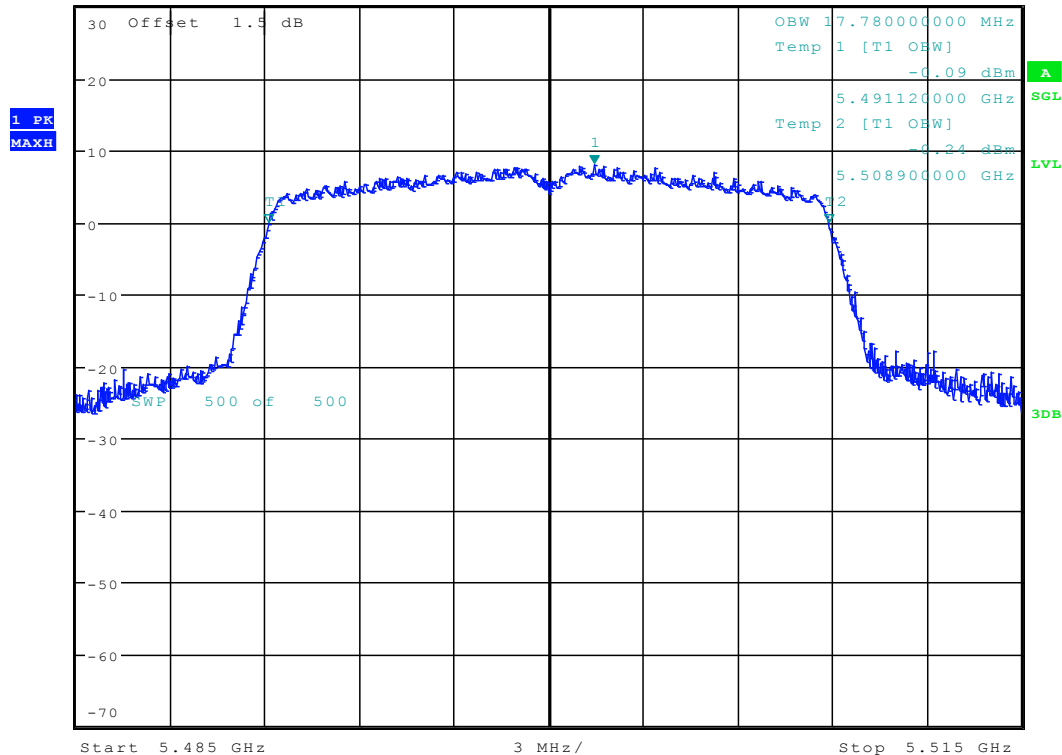


Date: 11.FEB.2017 12:08:33

6.13 11N20_100 ANT 1



*RBW 300 kHz Marker 1 [T1]
 *VBW 1 MHz 7.96 dBm
 Ref 30 dBm Att 35 dB SWT 20 ms 5.501420000 GHz



Date: 11.FEB.2017 12:13:38



6.14 11N20_140 ANT 1

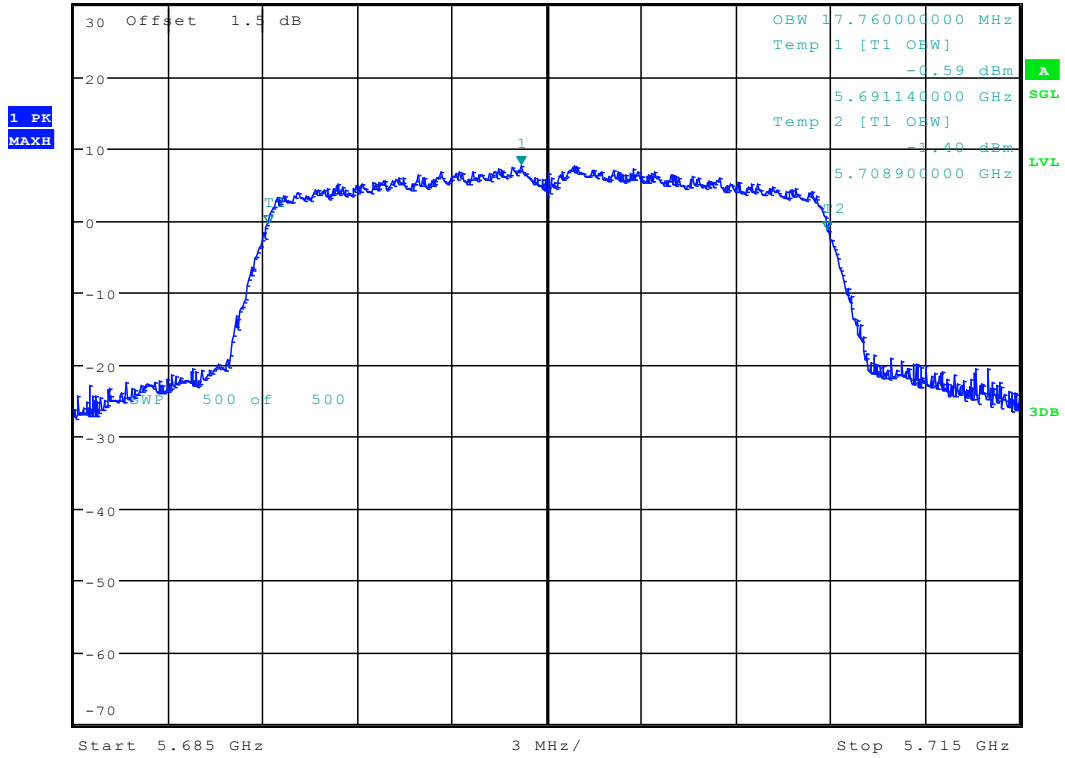


*RBW 300 kHz
 *VBW 1 MHz
 Ref 30 dBm Att 35 dB SWT 20 ms

Marker 1 [T1]

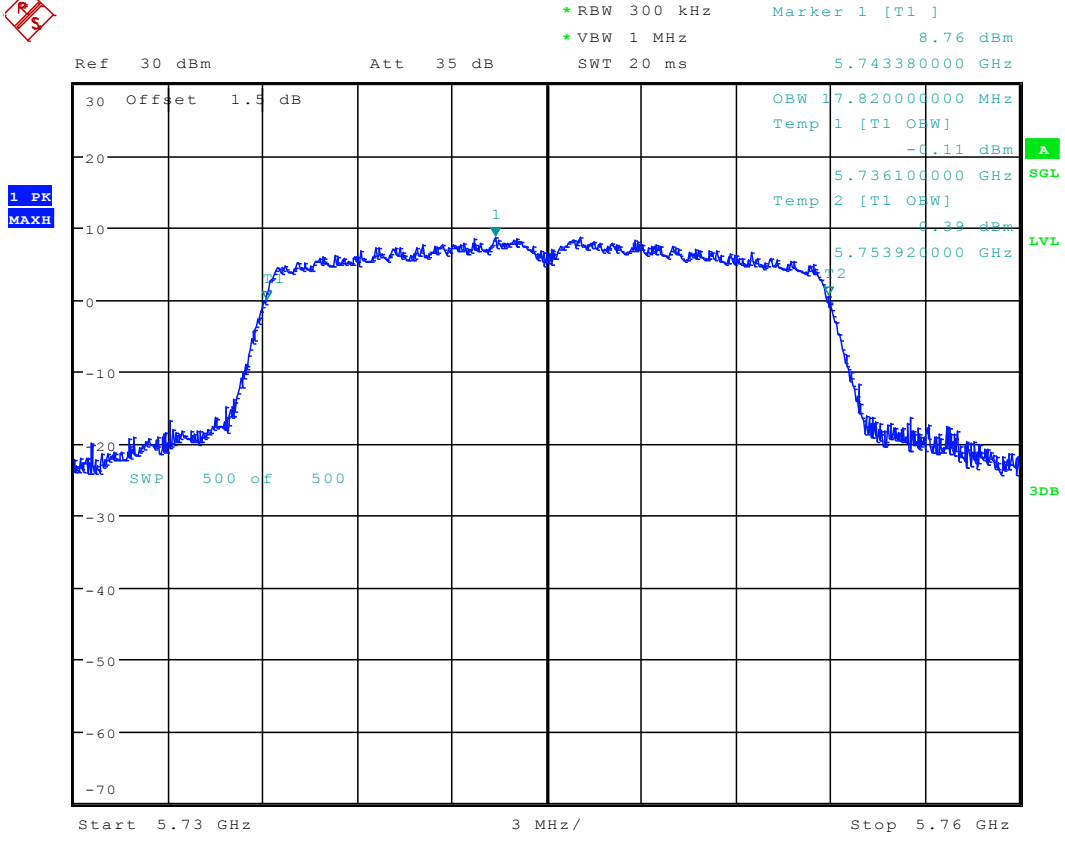
7.60 dBm

5.699180000 GHz



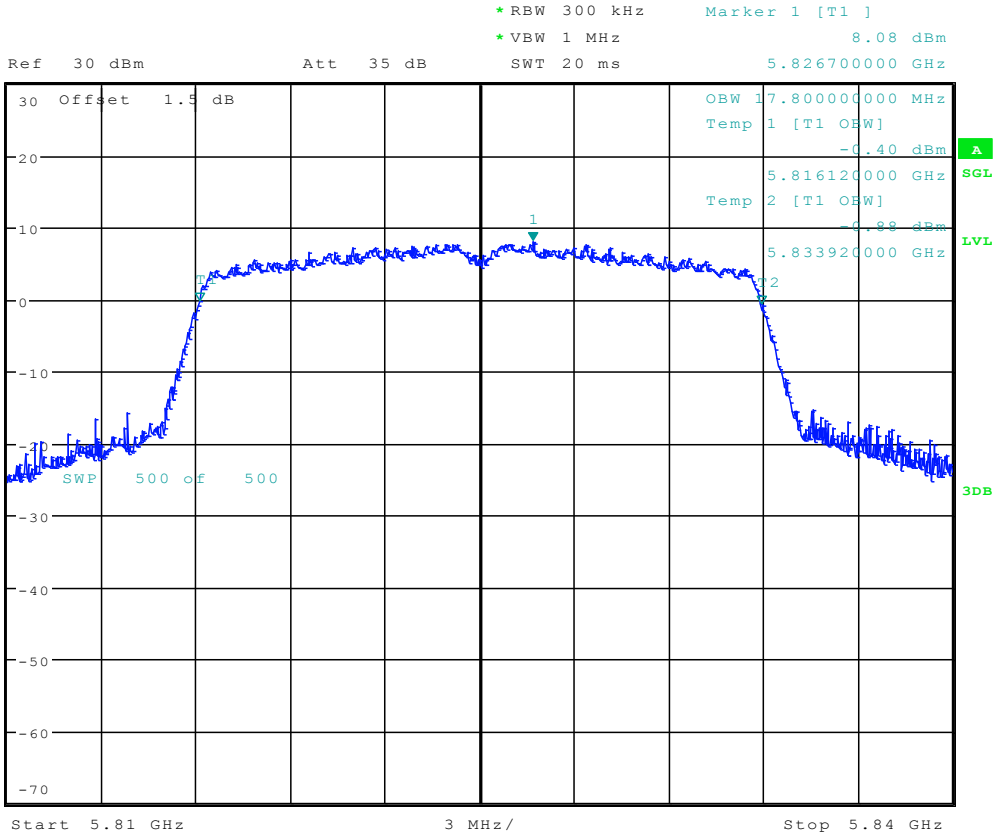
Date: 11.FEB.2017 12:18:33

6.15 11N20_149 ANT 1



Date: 11.FEB.2017 12:23:53

6.16 11N20_165 ANT 1



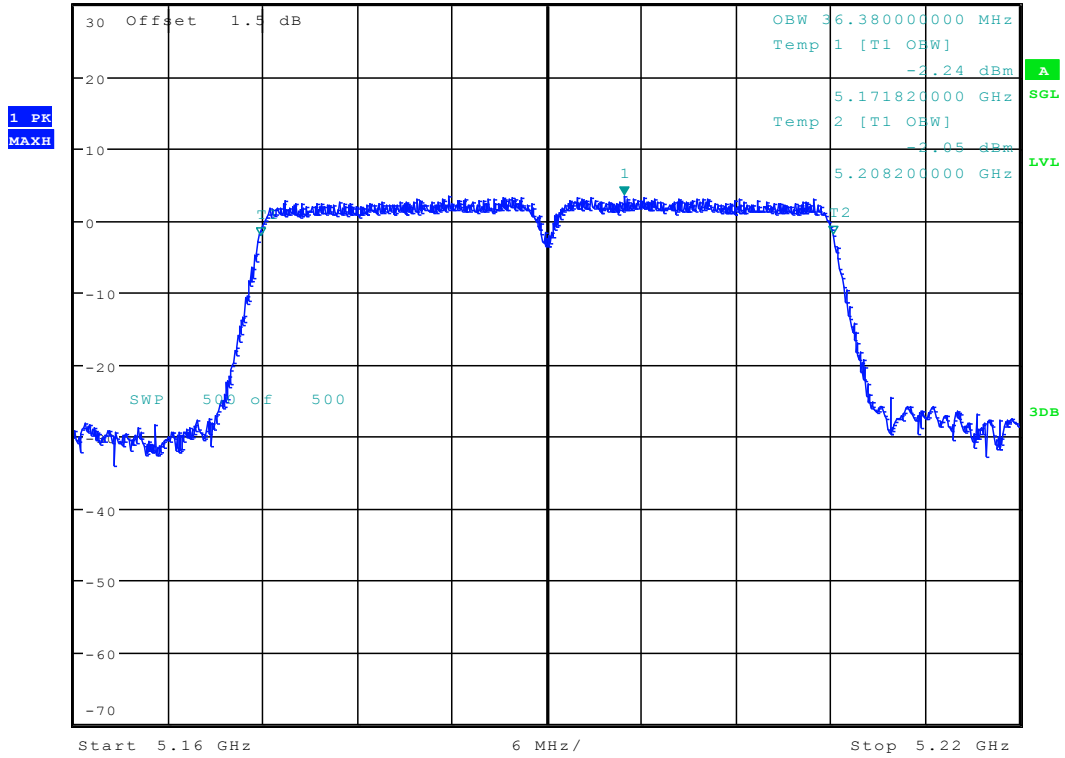
Date: 11.FEB.2017 12:29:44



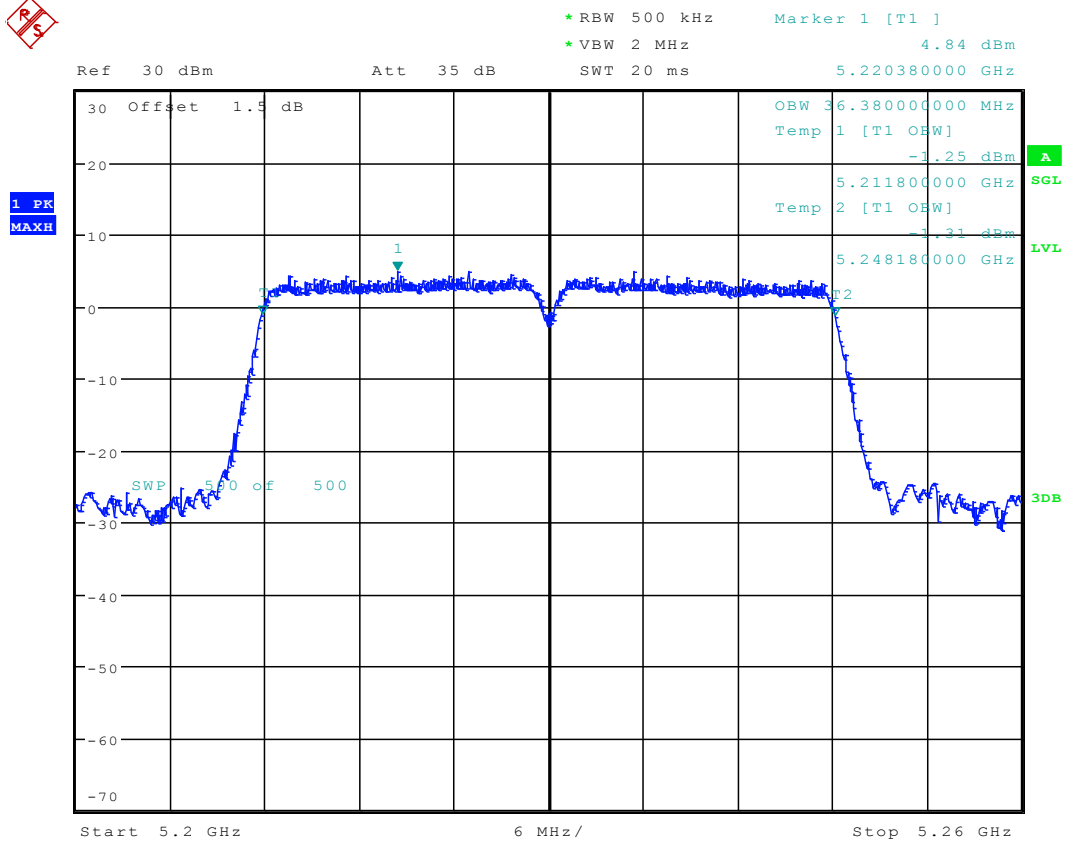
6.17 11N40_38 ANT 1



*RBW 500 kHz Marker 1 [T1]
 *VBW 2 MHz 3.47 dBm
 Ref 30 dBm Att 35 dB SWT 20 ms 5.194920000 GHz



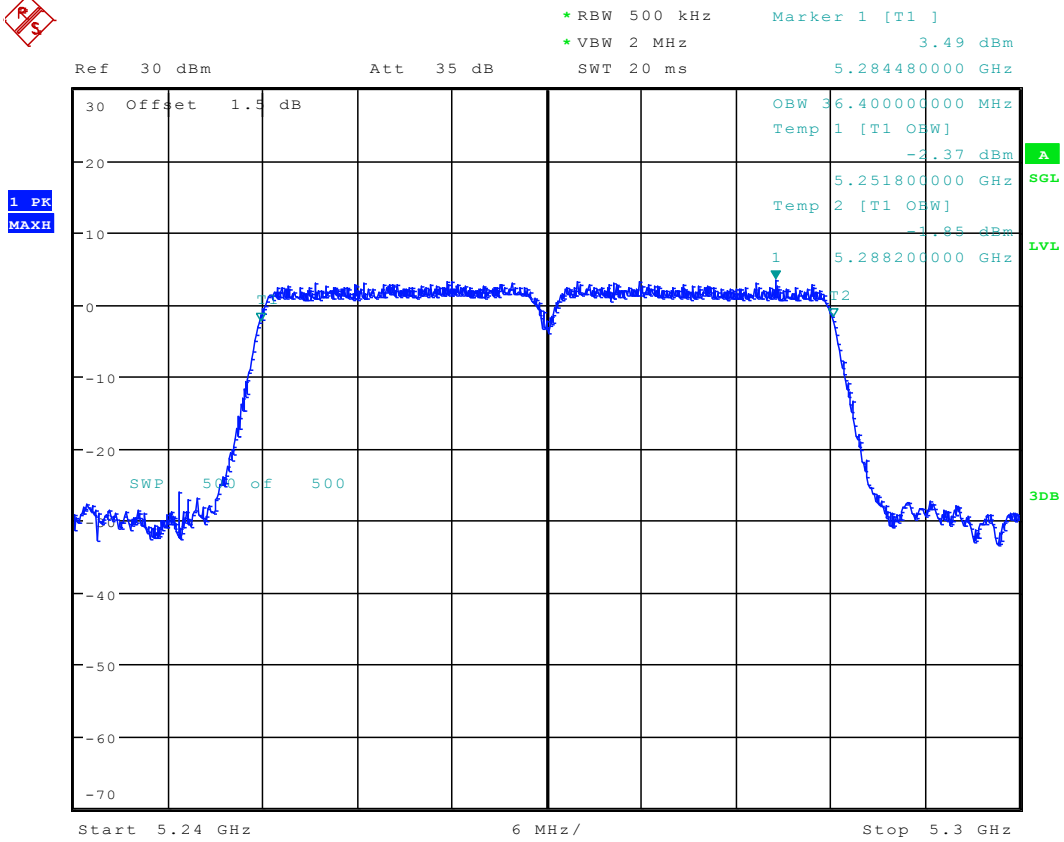
Date: 11.FEB.2017 12:36:25

6.18 11N40_46 ANT 1

Date: 11.FEB.2017 14:34:00



6.19 11N40_54 ANT 1



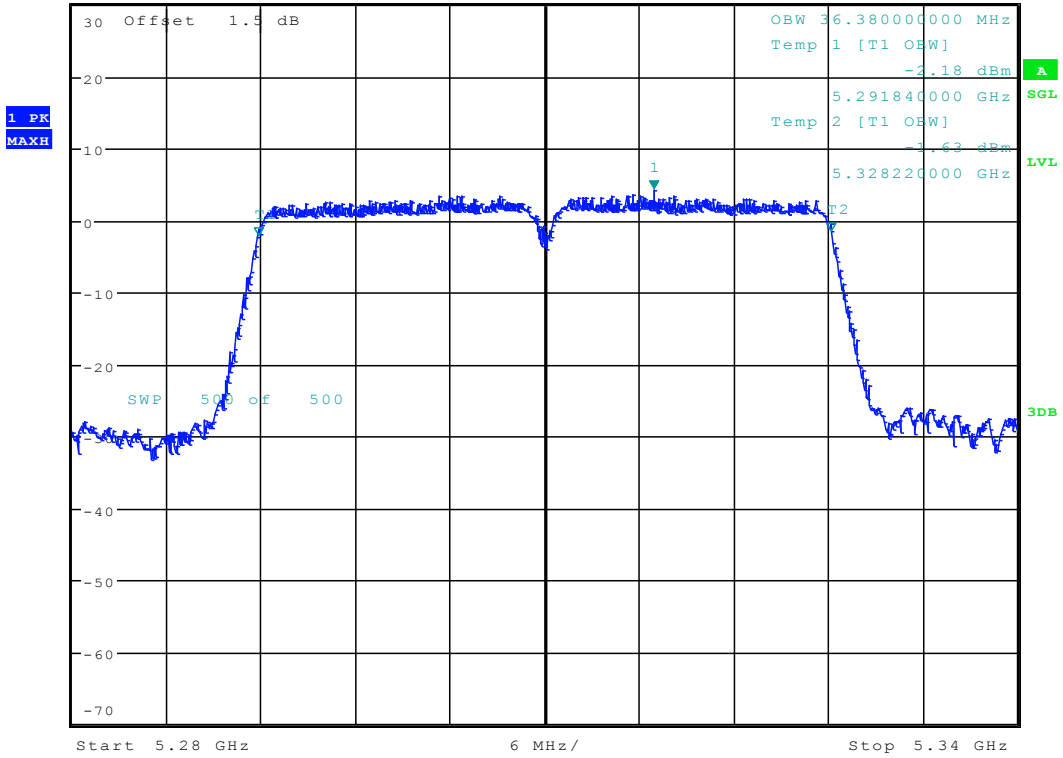
Date: 11.FEB.2017 14:39:18



6.20 11N40_62 ANT 1



*RBW 500 kHz Marker 1 [T1]
 *VBW 2 MHz 4.21 dBm
 Ref 30 dBm Att 35 dB SWT 20 ms 5.316940000 GHz



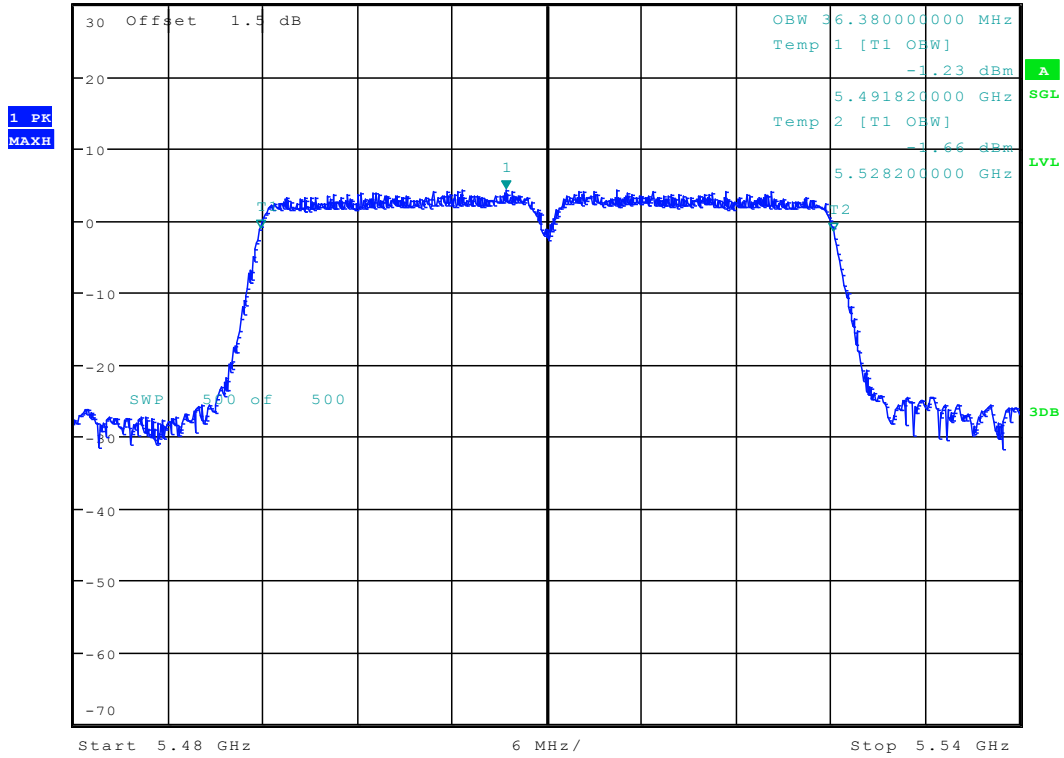
Date: 11.FEB.2017 14:44:12



6.21 11N40_102 ANT 1



*RBW 500 kHz Marker 1 [T1]
 *VBW 2 MHz 4.29 dBm
 Ref 30 dBm Att 35 dB SWT 20 ms 5.507440000 GHz

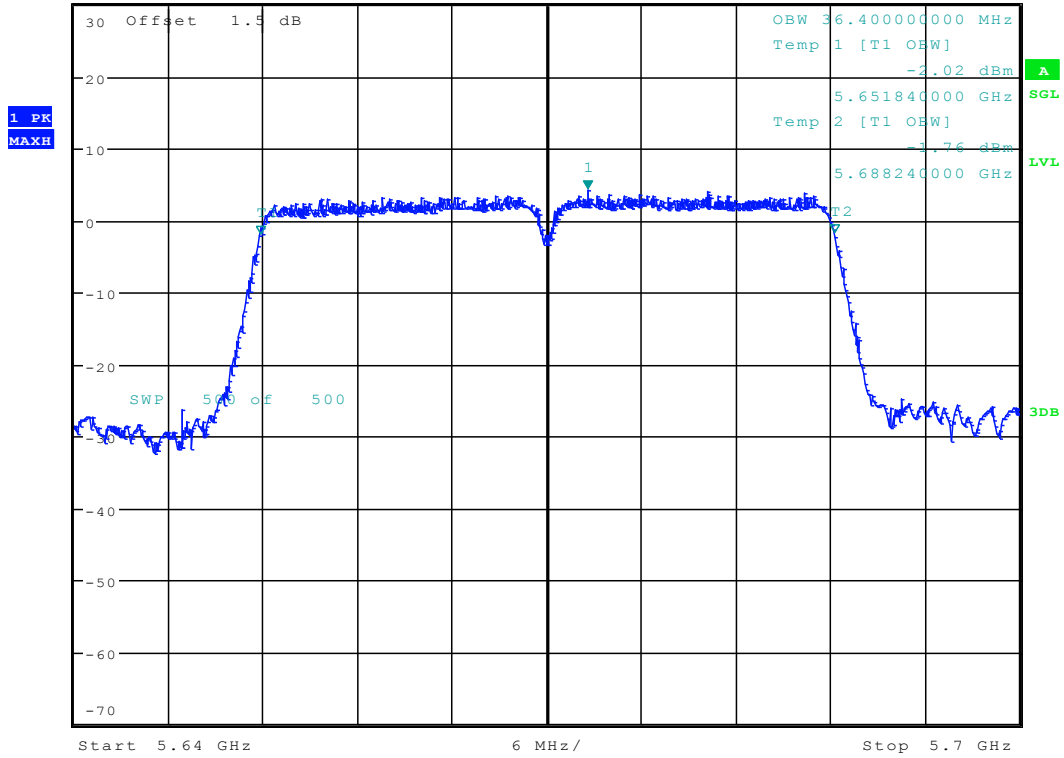


Date: 11.FEB.2017 15:03:37

6.22 11N40_134 ANT 1

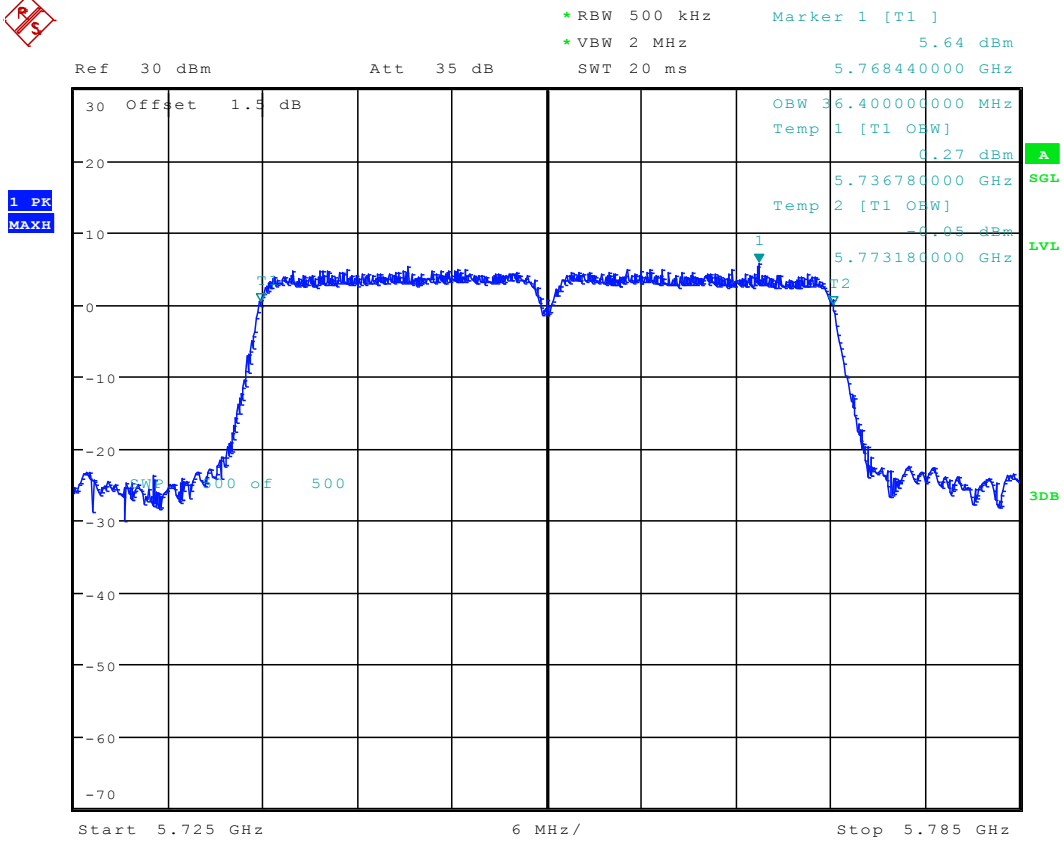


*RBW 500 kHz Marker 1 [T1]
 *VBW 2 MHz 4.16 dBm
 Ref 30 dBm Att 35 dB SWT 20 ms 5.672580000 GHz



Date: 11.FEB.2017 15:06:54

6.23 11N40_151 ANT 1



Date: 11.FEB.2017 15:11:01



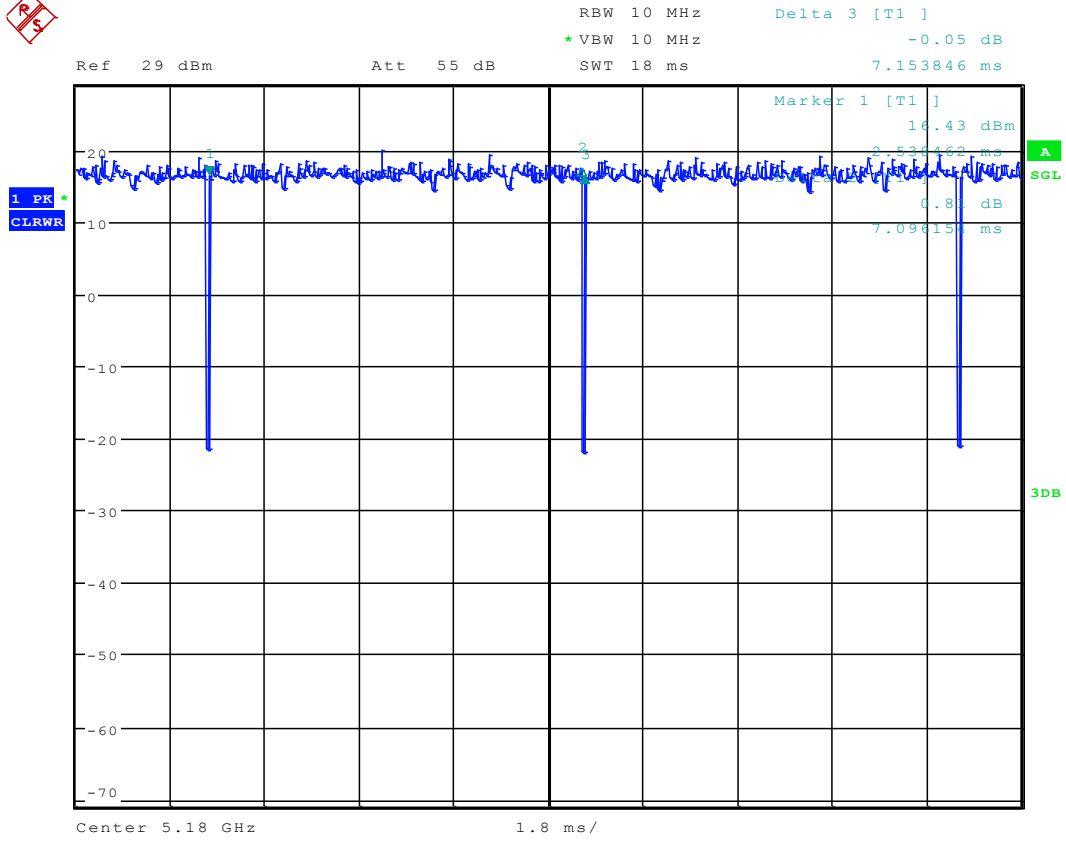
Appendix C: Duty Cycle

7 Part I - Test Results

Test Mode	Test Channel	Frequency [MHz]	Antenna Port	Duty cycle [%]
11A	36	5180	Ant 1	99
11A	48	5240	Ant 1	99
11A	52	5260	Ant 1	99
11A	64	5320	Ant 1	99
11A	100	5500	Ant 1	99
11A	140	5700	Ant 1	99
11A	149	5745	Ant 1	99
11A	165	5825	Ant 1	99
11N20	36	5180	Ant 1	99
11N20	48	5240	Ant 1	99
11N20	52	5260	Ant 1	99
11N20	64	5320	Ant 1	99
11N20	100	5500	Ant 1	99
11N20	140	5700	Ant 1	99
11N20	149	5745	Ant 1	99
11N20	165	5825	Ant 1	99
11N40	38	5190	Ant 1	95
11N40	46	5230	Ant 1	95
11N40	54	5270	Ant 1	95
11N40	62	5310	Ant 1	95
11N40	102	5510	Ant 1	95
11N40	134	5670	Ant 1	95
11N40	151	5755	Ant 1	95
11N40	159	5795	Ant 1	95

8 Test Plot

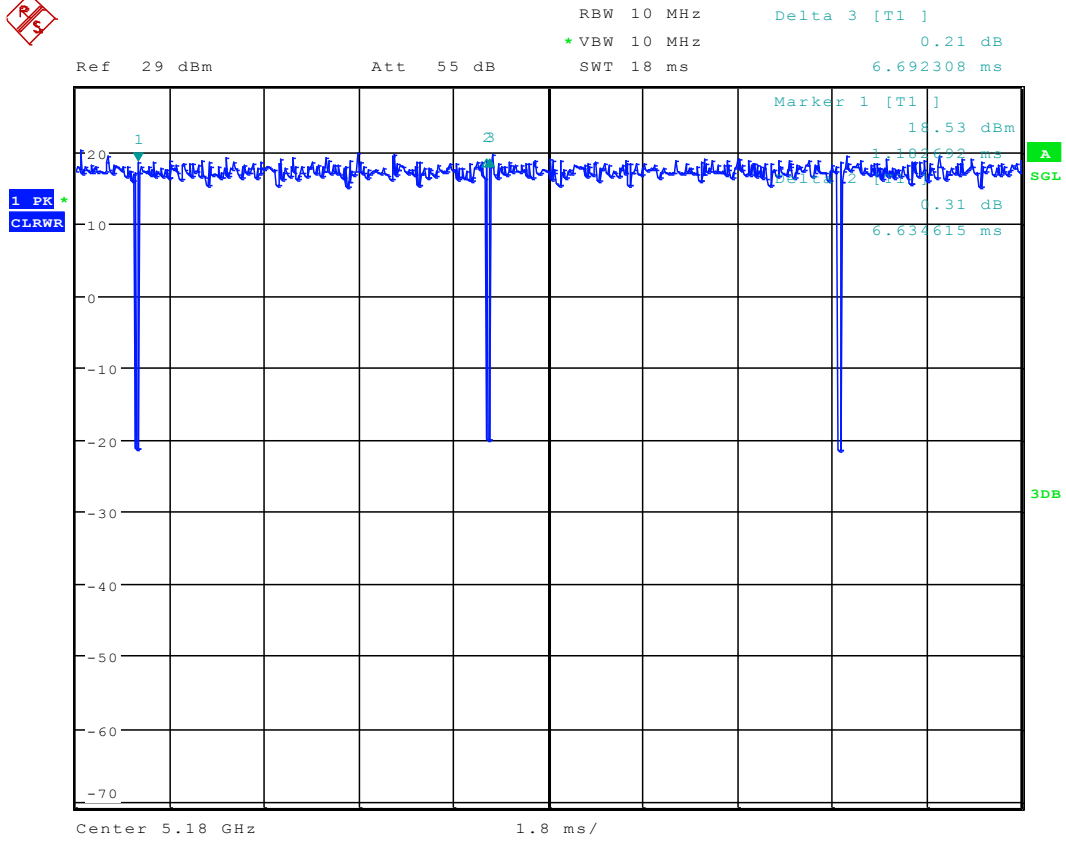
8.1 11A20



Date: 15.FEB.2017 16:02:41

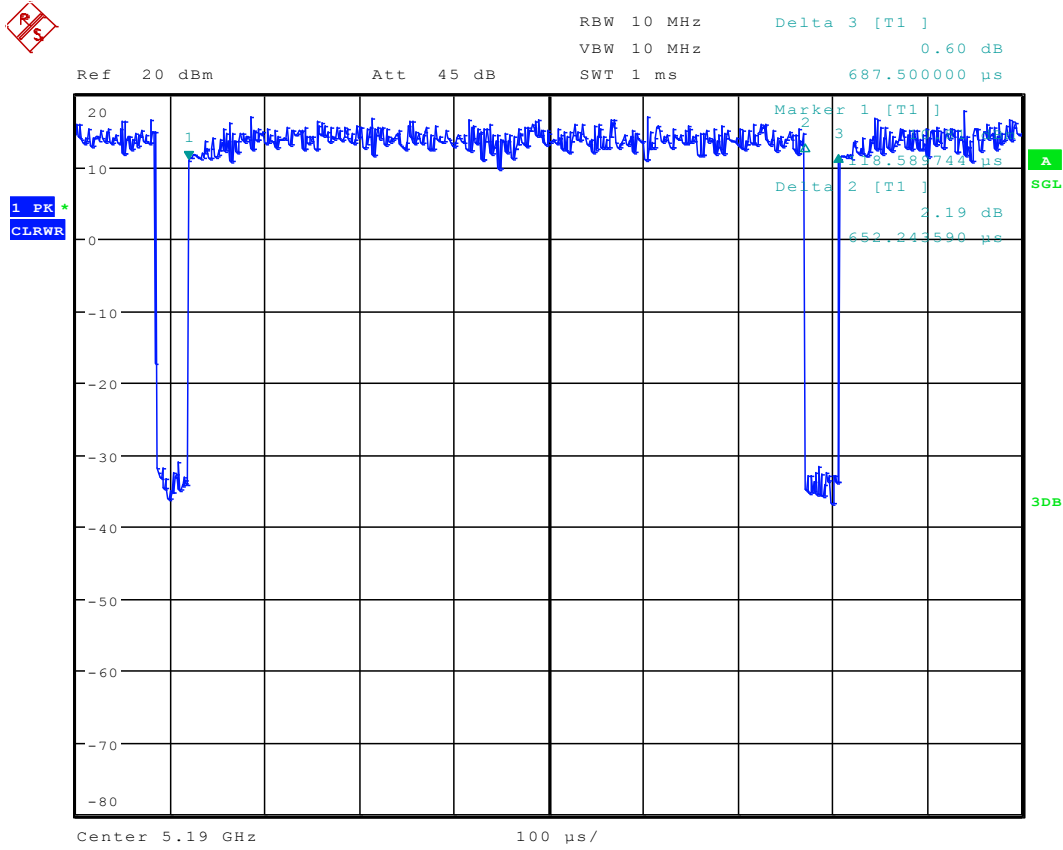


8.2 11n20



Date: 15.FEB.2017 16:06:59

8.3 11n40



Date: 15.FEB.2017 16:22:34



Appendix D: Maximum Conducted Output Power



9 Result Table

Test Mode	Test Channel	Frequency [MHz]	Antenna Port	Meas. Level (Cond.) [dBm]	Verdict
11A20	36	5180	ANT 1	14.41	PASS
	48	5240	ANT 1	13.96	PASS
	52	5260	ANT 1	14.03	PASS
	64	5320	ANT 1	13.71	PASS
	100	5500	ANT 1	14.40	PASS
	140	5700	ANT 1	14.09	PASS
	149	5745	ANT 1	15.20	PASS
	165	5825	ANT 1	14.53	PASS
11N20	36	5180	ANT 1	14.34	PASS
	48	5240	ANT 1	13.90	PASS
	52	5260	ANT 1	13.99	PASS
	64	5320	ANT 1	13.59	PASS
	100	5500	ANT 1	14.36	PASS
	140	5700	ANT 1	14.19	PASS
	149	5745	ANT 1	14.70	PASS
	165	5825	ANT 1	14.46	PASS
11N40	38	5190	ANT 1	12.16	PASS
	46	5230	ANT 1	11.96	PASS
	54	5270	ANT 1	11.51	PASS
	62	5310	ANT 1	11.67	PASS
	102	5510	ANT 1	11.90	PASS
	134	5670	ANT 1	11.67	PASS
	151	5755	ANT 1	12.67	PASS
	159	5795	ANT 1	12.61	PASS



Appendix E: Peak Power Spectral Density Level

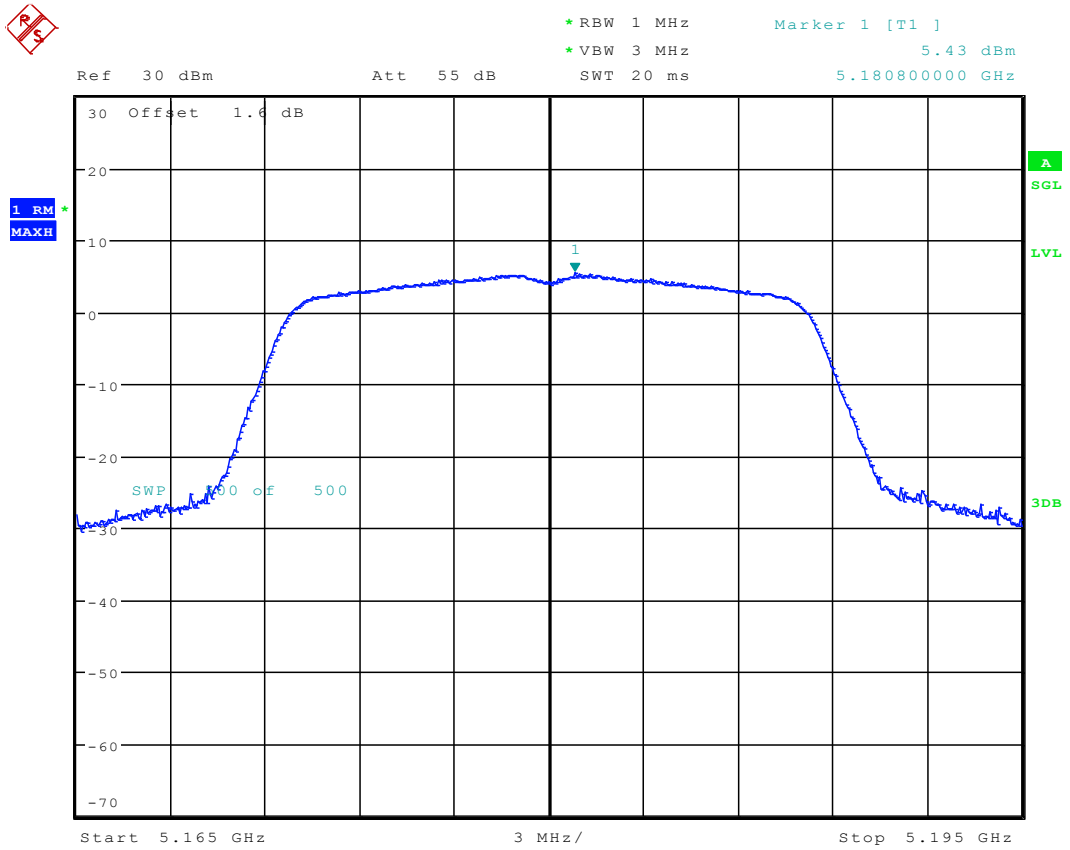
10 Result Table

Test Mode	Test Channel	Frequency [MHz]	Antenna Port	Meas. Level (Cond.) [dBm]	Verdict
11A20	36	5180	ANT 1	5.43	PASS
	48	5240	ANT 1	5.07	PASS
	52	5260	ANT 1	4.56	PASS
	64	5320	ANT 1	4.56	PASS
	100	5500	ANT 1	4.77	PASS
	140	5700	ANT 1	5.52	PASS
	149	5745	ANT 1	6.34	PASS
	165	5825	ANT 1	6.14	PASS
11N20	36	5180	ANT 1	4.64	PASS
	48	5240	ANT 1	4.93	PASS
	52	5260	ANT 1	4.54	PASS
	64	5320	ANT 1	4.47	PASS
	100	5500	ANT 1	5.41	PASS
	140	5700	ANT 1	4.86	PASS
	149	5745	ANT 1	5.79	PASS
	165	5825	ANT 1	5.55	PASS
11N40	38	5190	ANT 1	-0.98	PASS
	46	5230	ANT 1	-0.13	PASS
	54	5270	ANT 1	-1.12	PASS
	62	5310	ANT 1	-1.1	PASS
	102	5510	ANT 1	-0.09	PASS
	134	5670	ANT 1	-0.78	PASS
	151	5755	ANT 1	0.22	PASS
	159	5795	ANT 1	-0.01	PASS



11 Test Plot

11.1 11A20_36 ANT 1

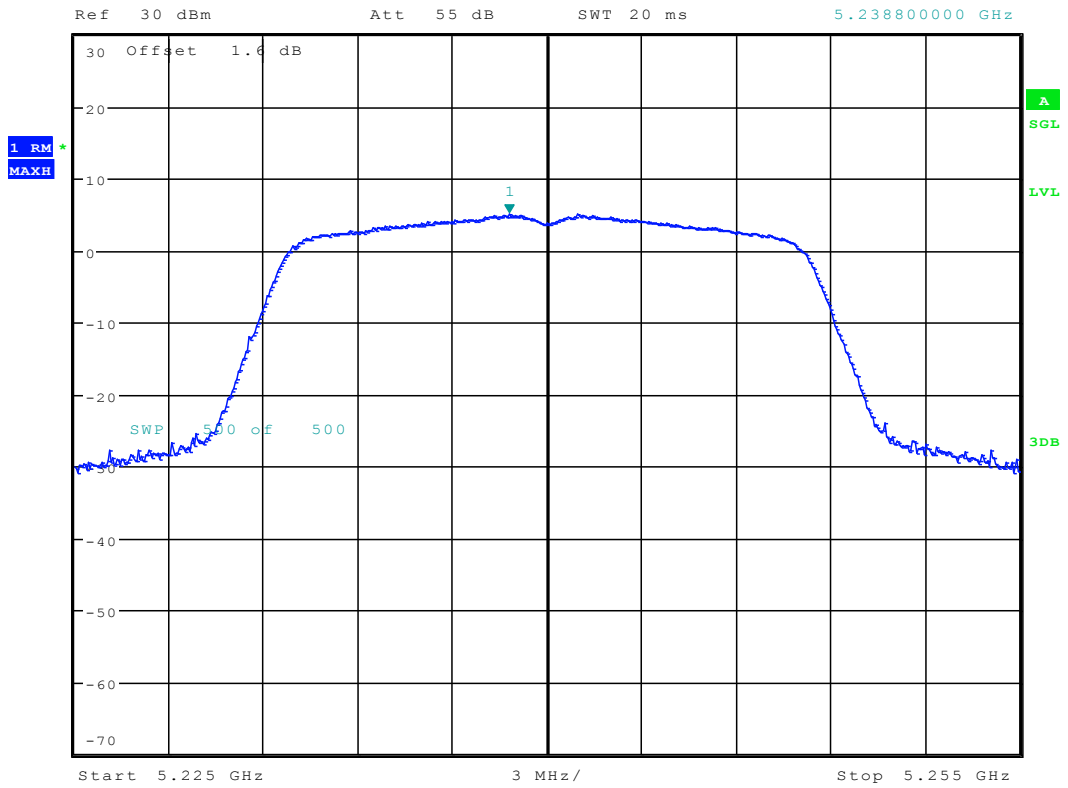


Date: 11.FEB.2017 11:08:26

11.2 11A20_48 ANT 1



*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz 5.07 dBm
SWT 20 ms 5.238800000 GHz

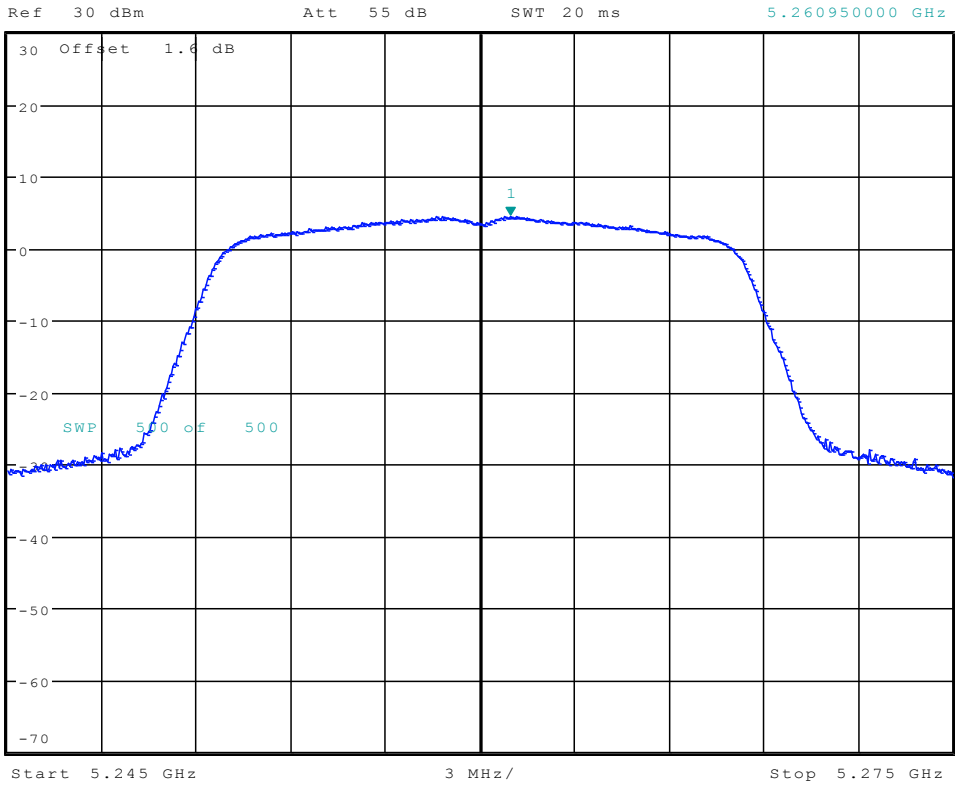


Date: 11.FEB.2017 11:13:31

11.3 11A20_52 ANT 1

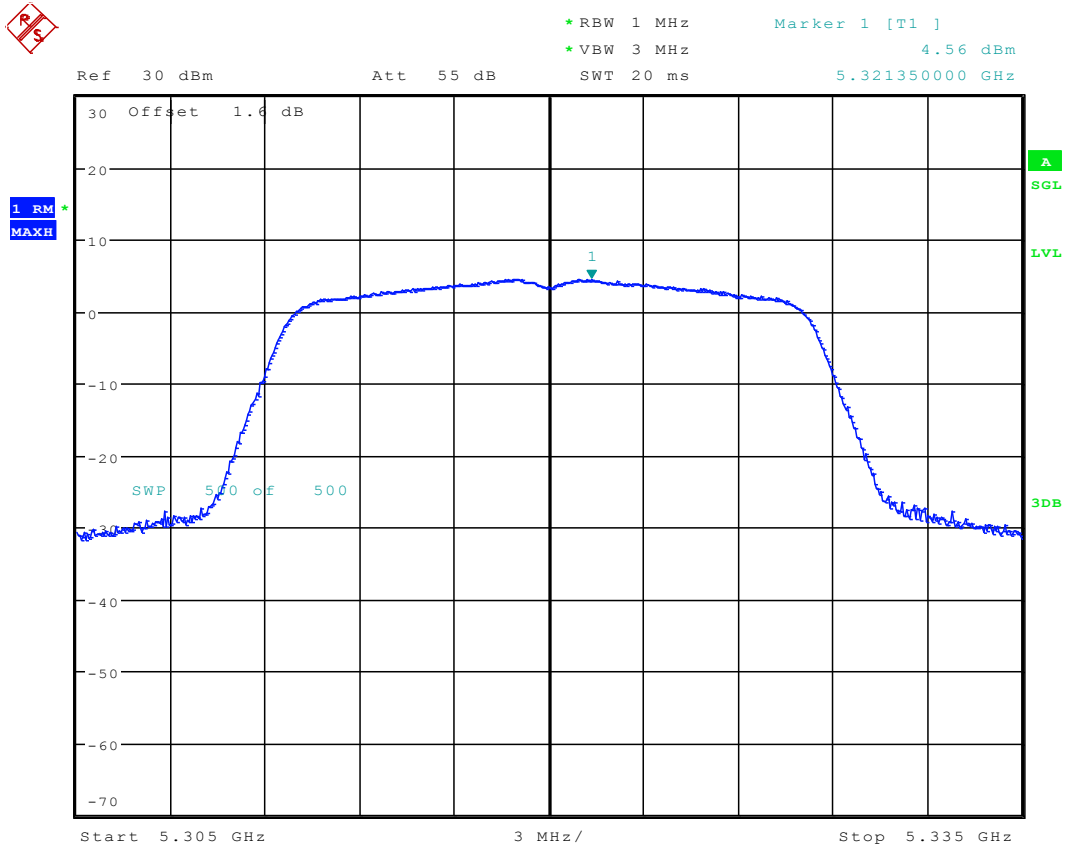


*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz 4.56 dBm
SWT 20 ms 5.260950000 GHz



Date: 11.FEB.2017 11:20:46

11.4 11A20_64 ANT 1

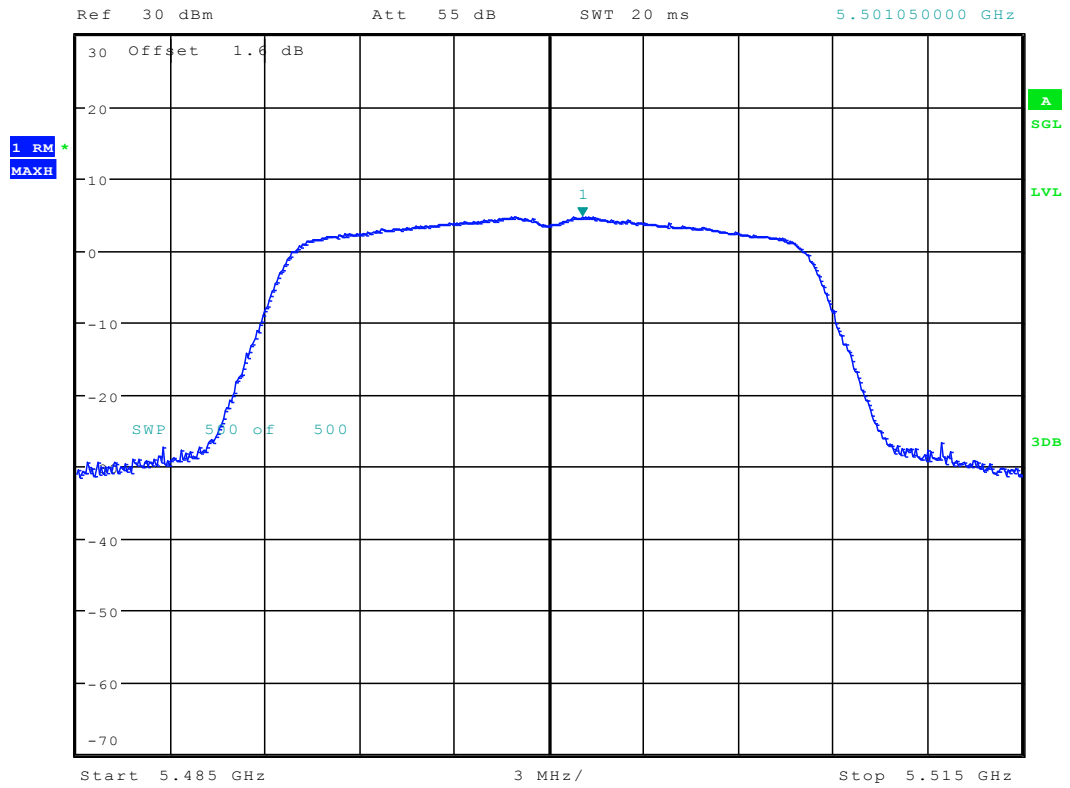


Date: 11.FEB.2017 11:25:41

11.5 11A20_100 ANT 1



*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz 4.77 dBm
SWT 20 ms 5.501050000 GHz

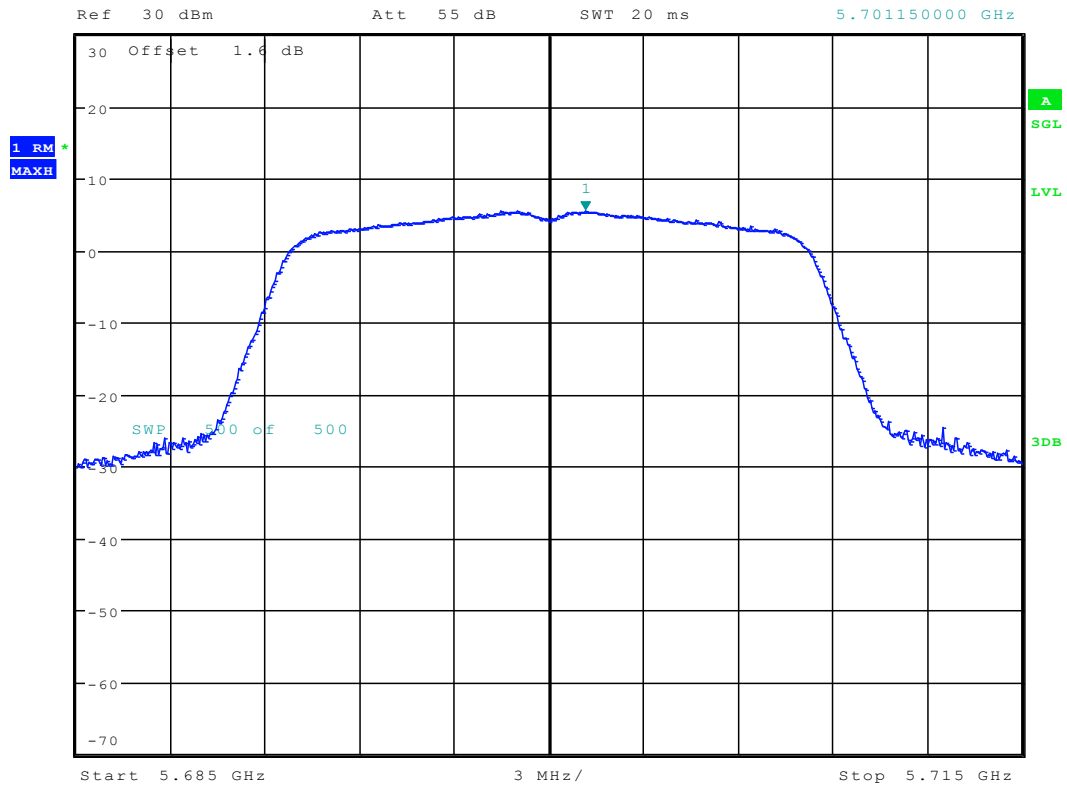


Date: 11.FEB.2017 11:31:08

11.6 11A20_140 ANT 1



*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz 5.52 dBm
SWT 20 ms 5.701150000 GHz



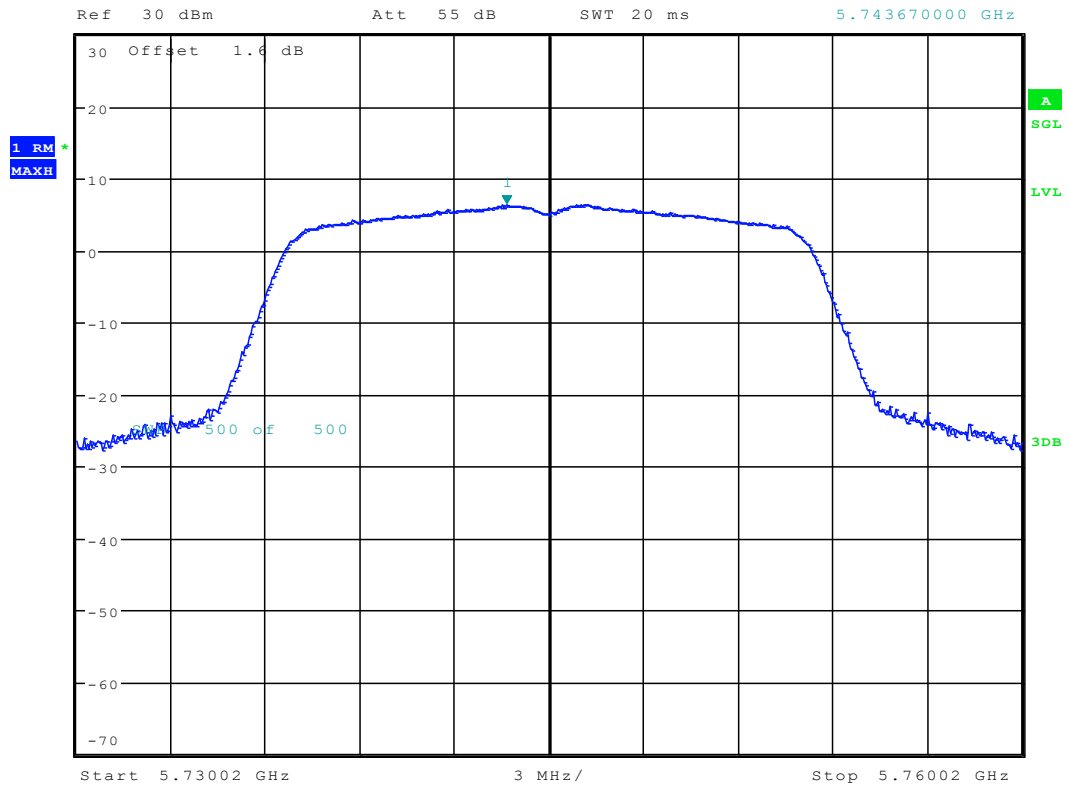
Date: 11.FEB.2017 11:36:10

11.7 11A20_149 ANT 1



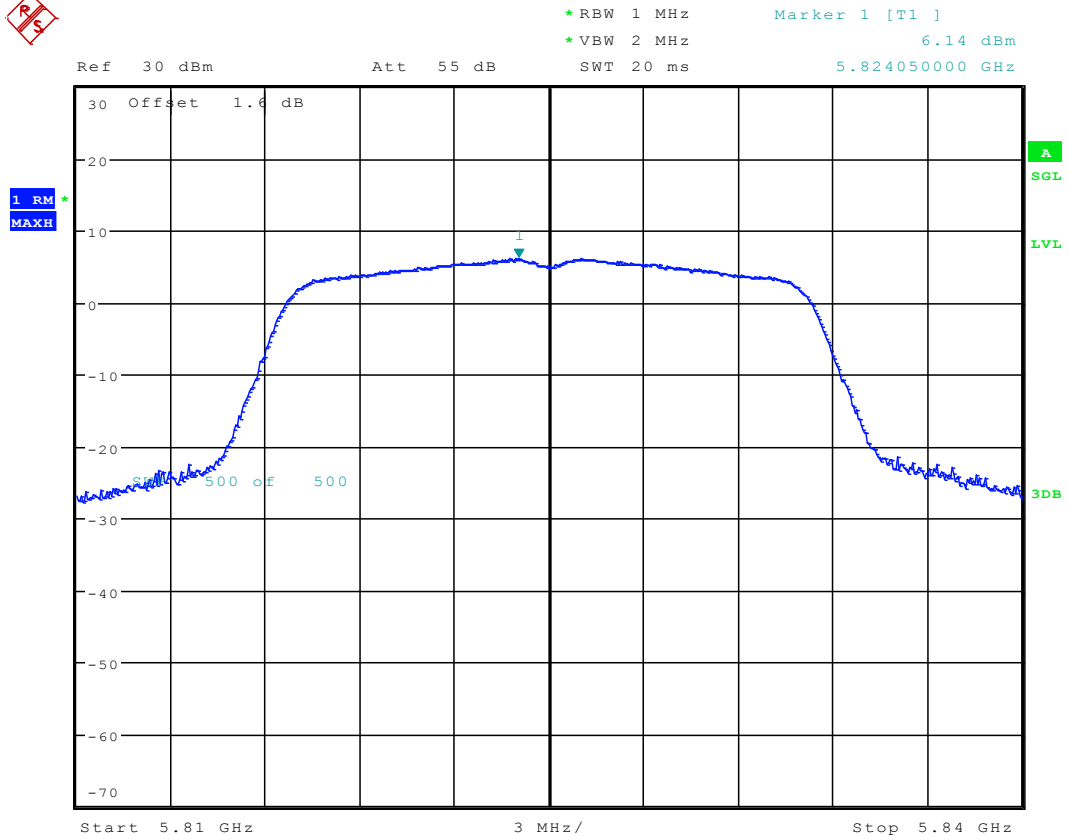
*RBW 1 MHz
*VBW 2 MHz
SWT 20 ms

Marker 1 [T1]
6.34 dBm
5.743670000 GHz



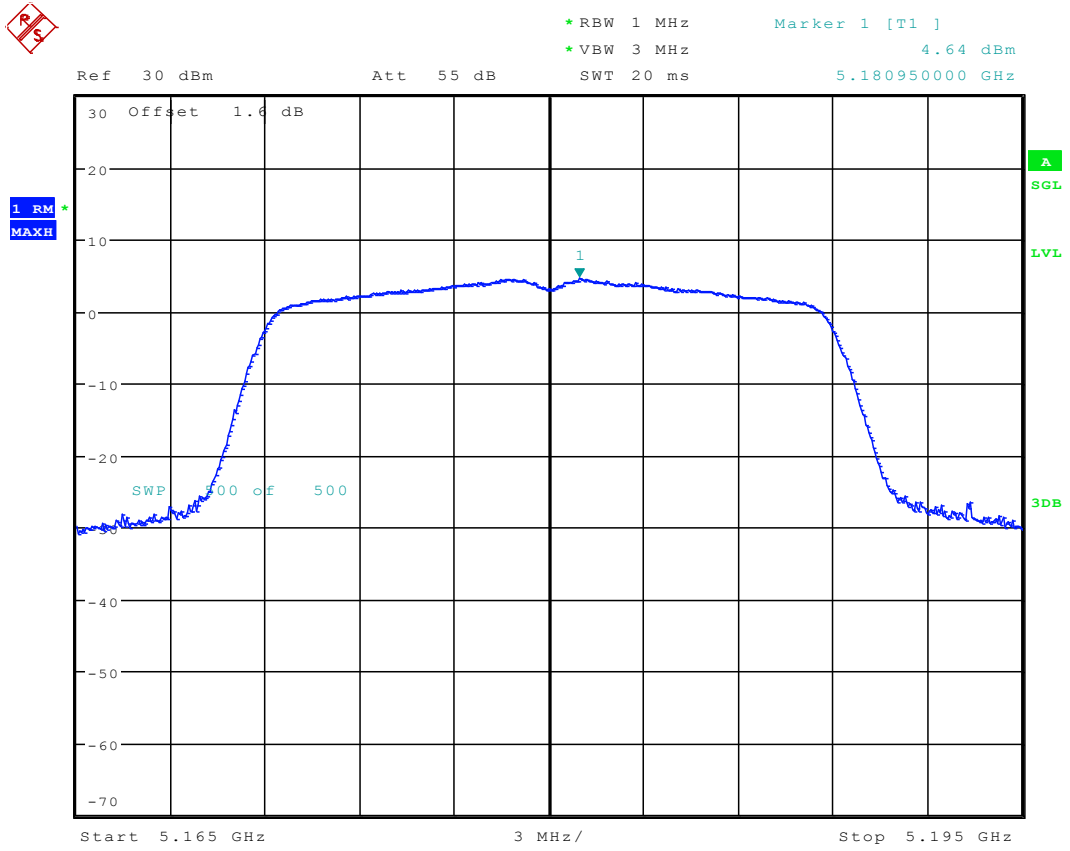
Date: 11.FEB.2017 11:42:26

11.8 11A20_165 ANT 1



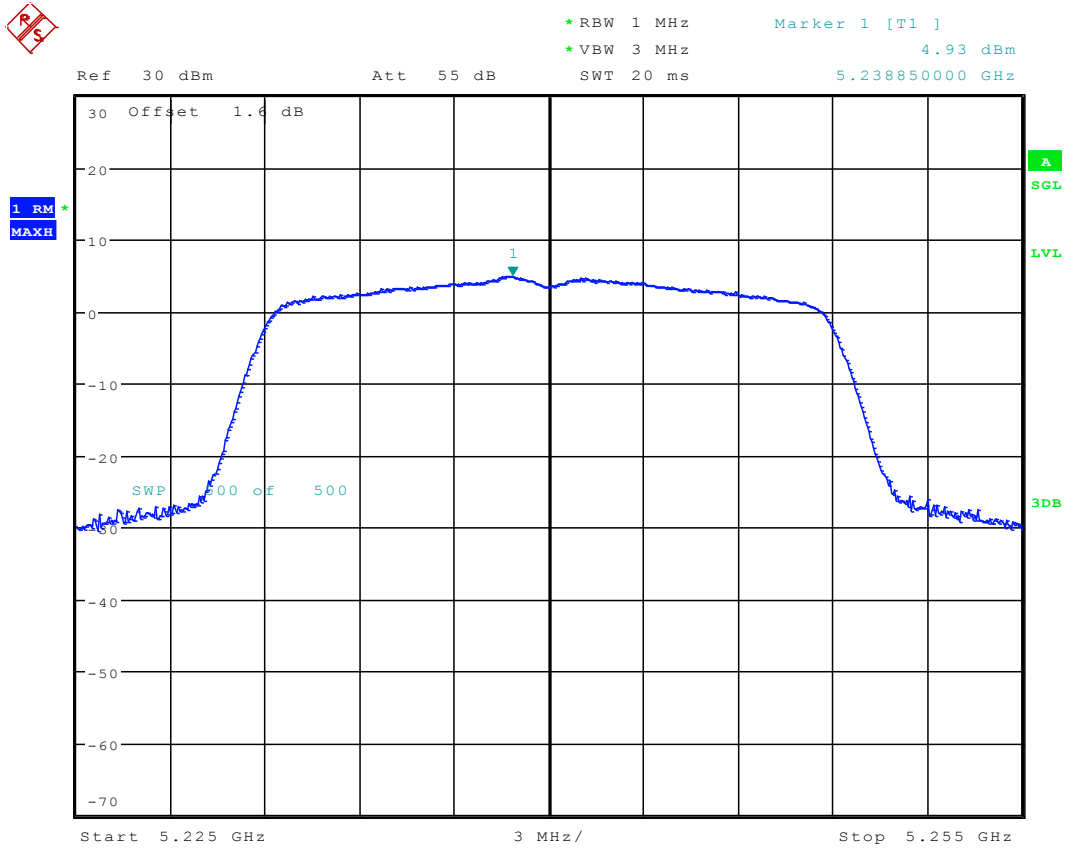
Date: 11.FEB.2017 11:48:24

11.9 11N20_36 ANT 1



Date: 11.FEB.2017 11:53:55

11.10 11N20_48 ANT 1



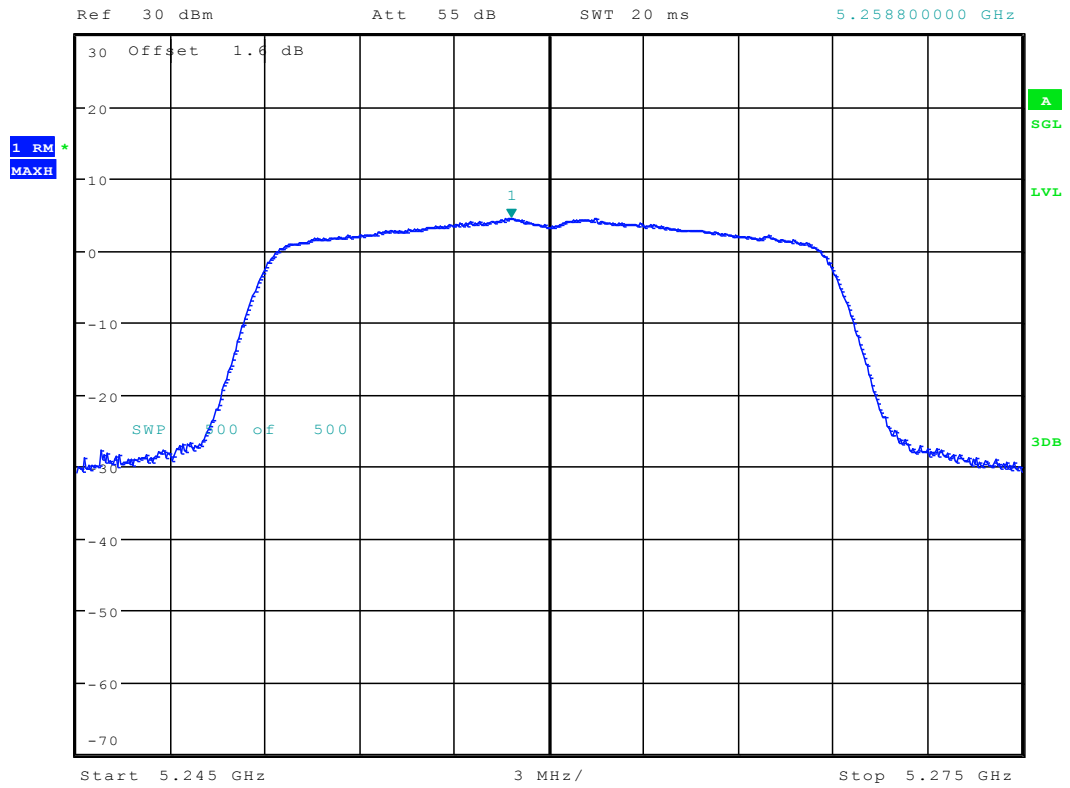
Date: 11.FEB.2017 11:59:00



11.11 11N20_52 ANT 1



*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz 4.54 dBm
SWT 20 ms 5.258800000 GHz

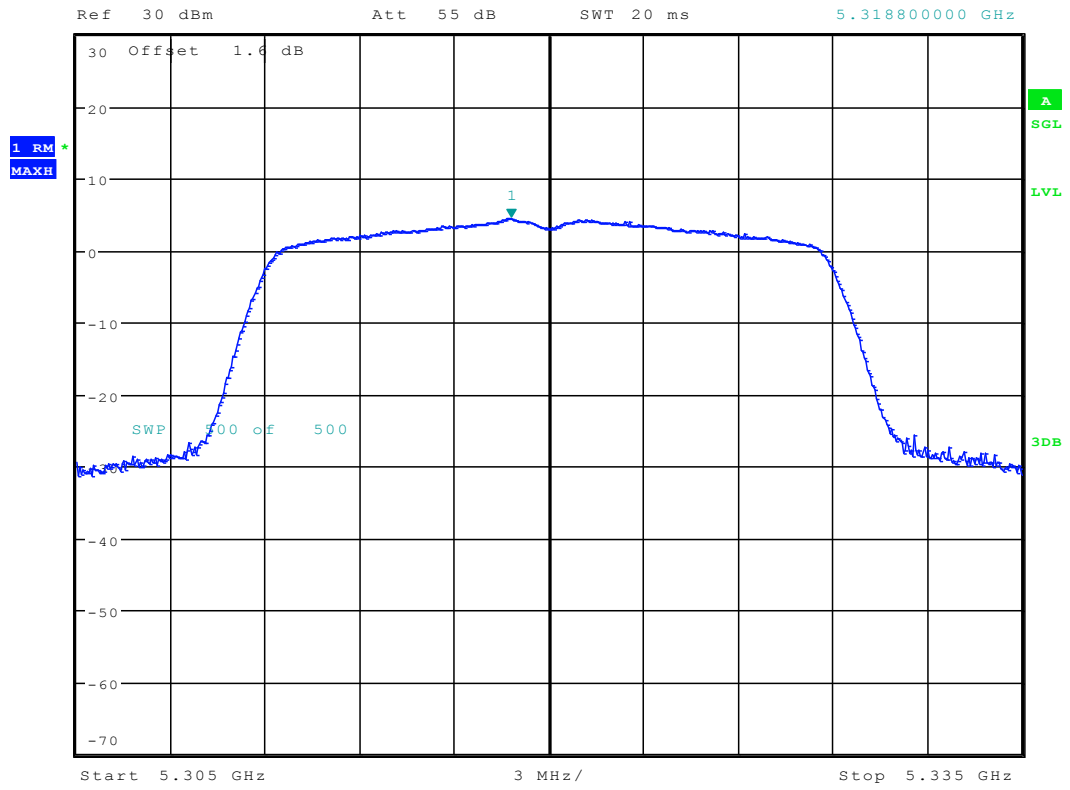


Date: 11.FEB.2017 12:04:34

11.12 11N20_64 ANT 1



*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz 4.47 dBm
SWT 20 ms 5.318800000 GHz



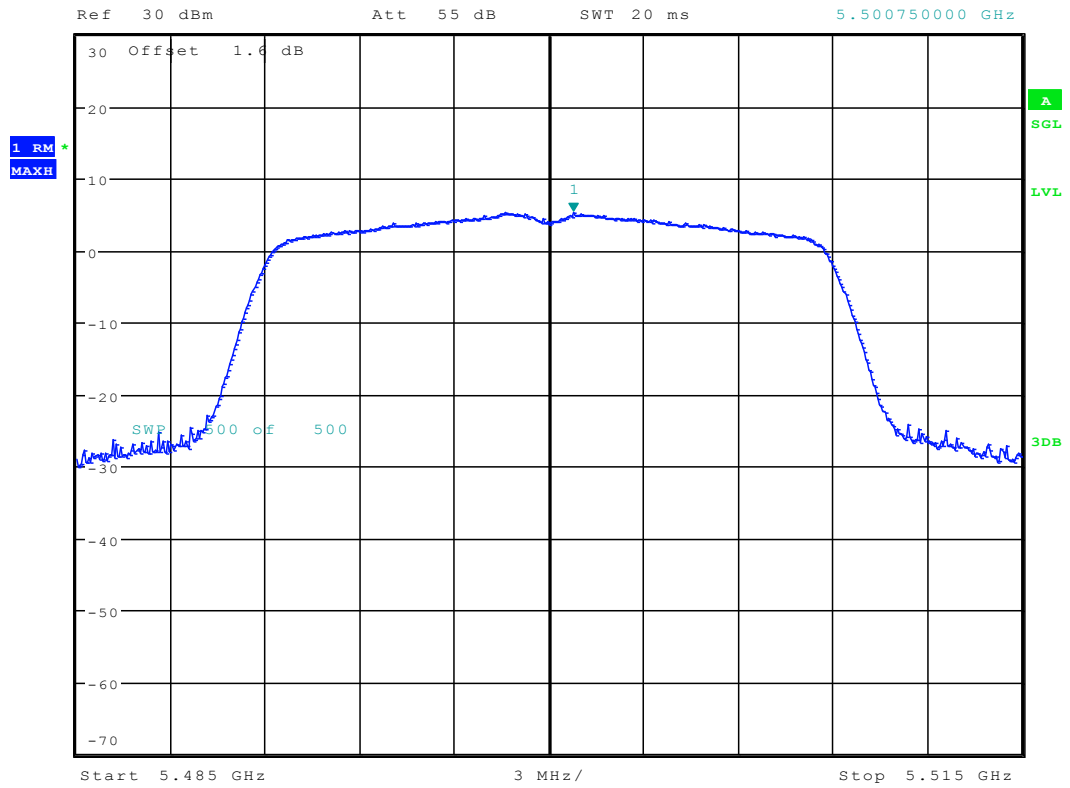
Date: 11.FEB.2017 12:09:24



11.13 11N20_100 ANT 1

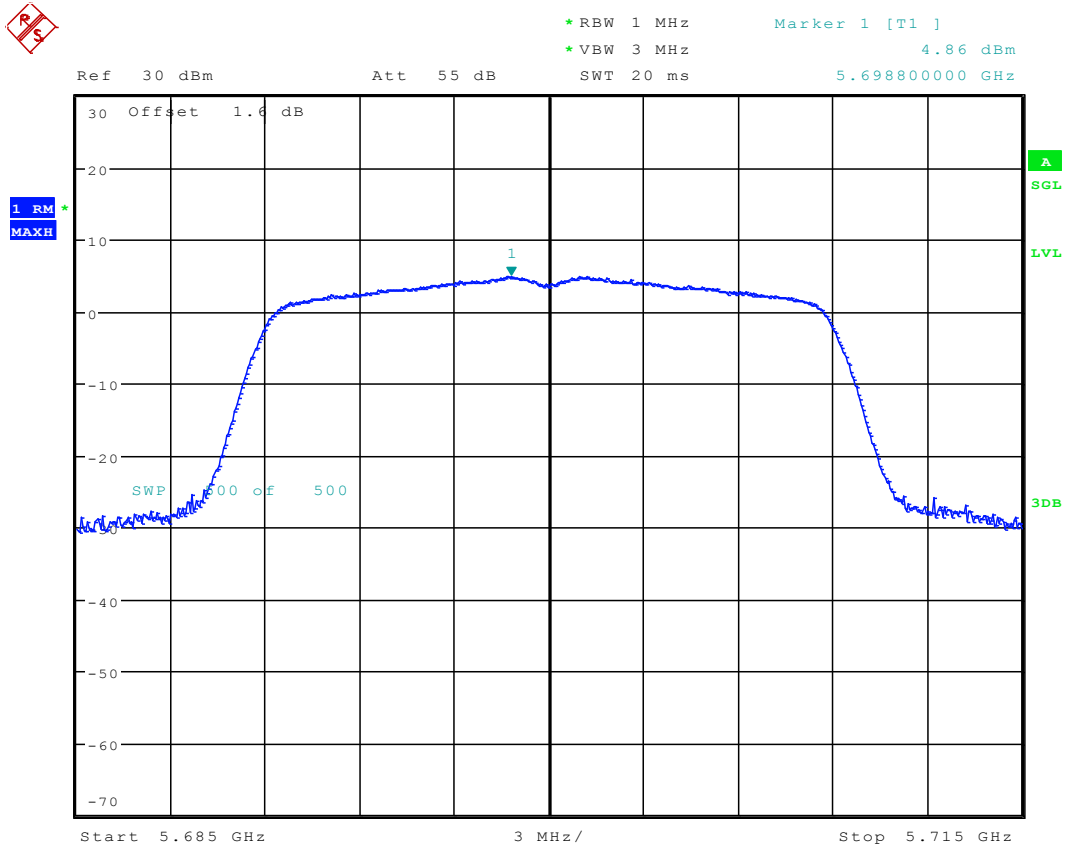


*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz 5.41 dBm
SWT 20 ms 5.500750000 GHz



Date: 11.FEB.2017 12:14:32

11.14 11N20_140 ANT 1

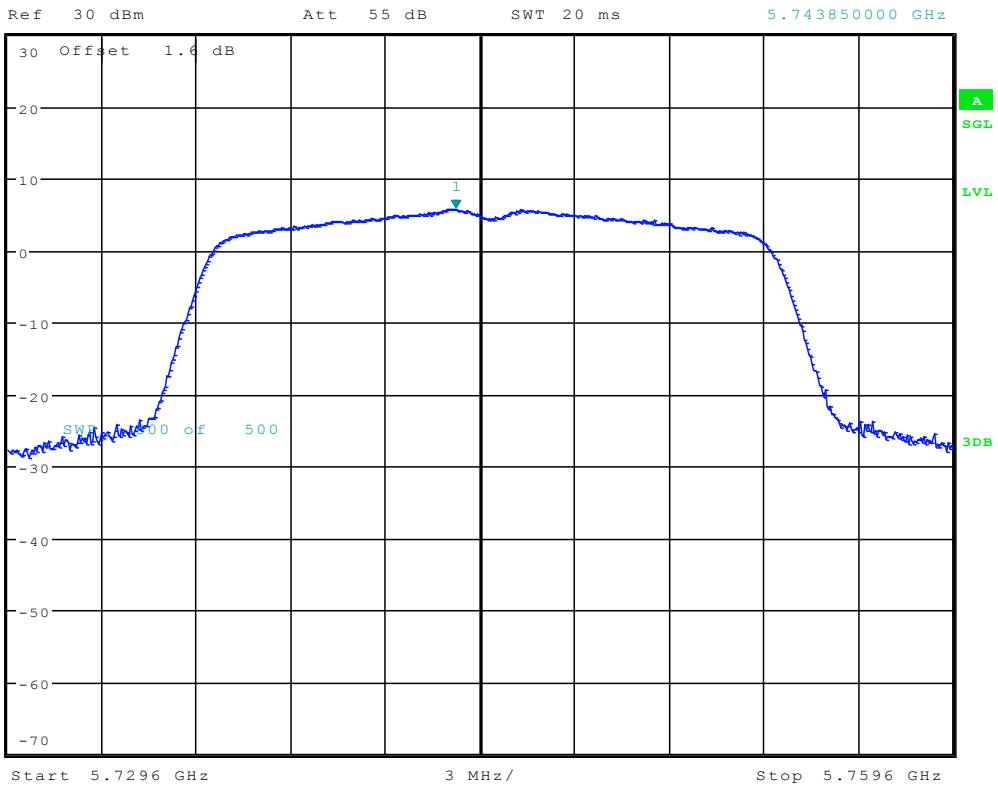


Date: 11.FEB.2017 12:19:23

11.15 11N20_149 ANT 1



*RBW 1 MHz Marker 1 [T1]
*VBW 2 MHz 5.79 dBm
SWT 20 ms 5.743850000 GHz



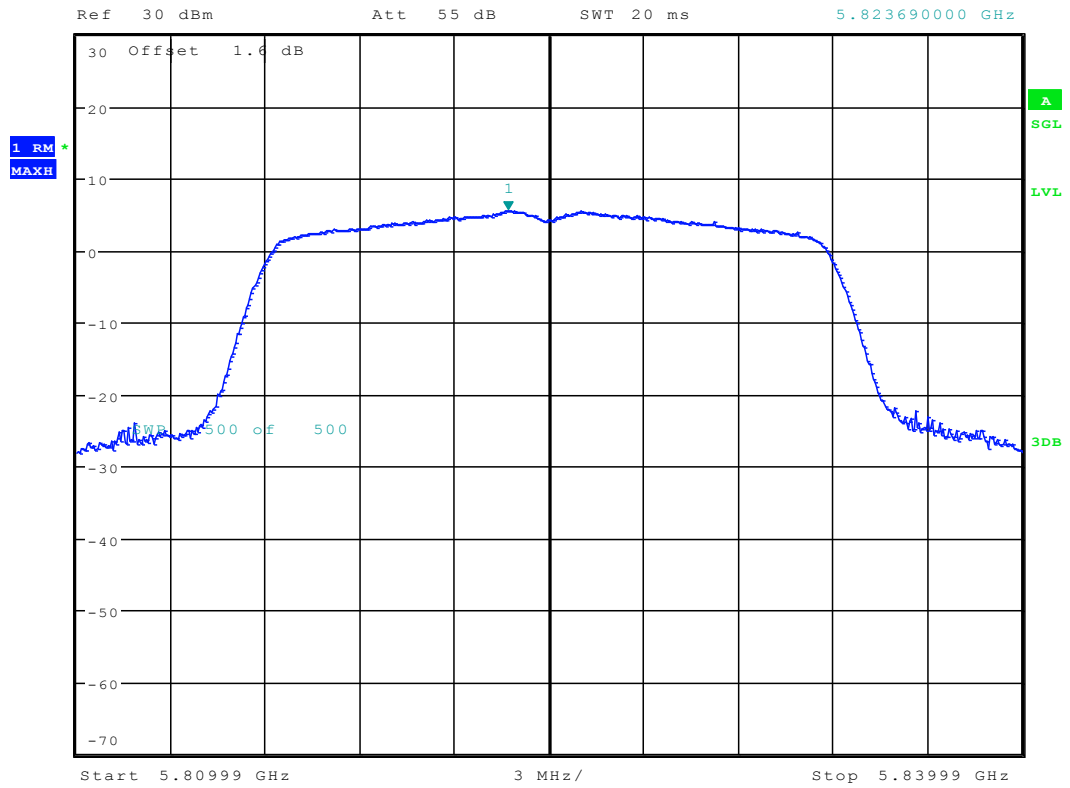
Date: 11.FEB.2017 12:25:20



11.16 11N20_165 ANT 1



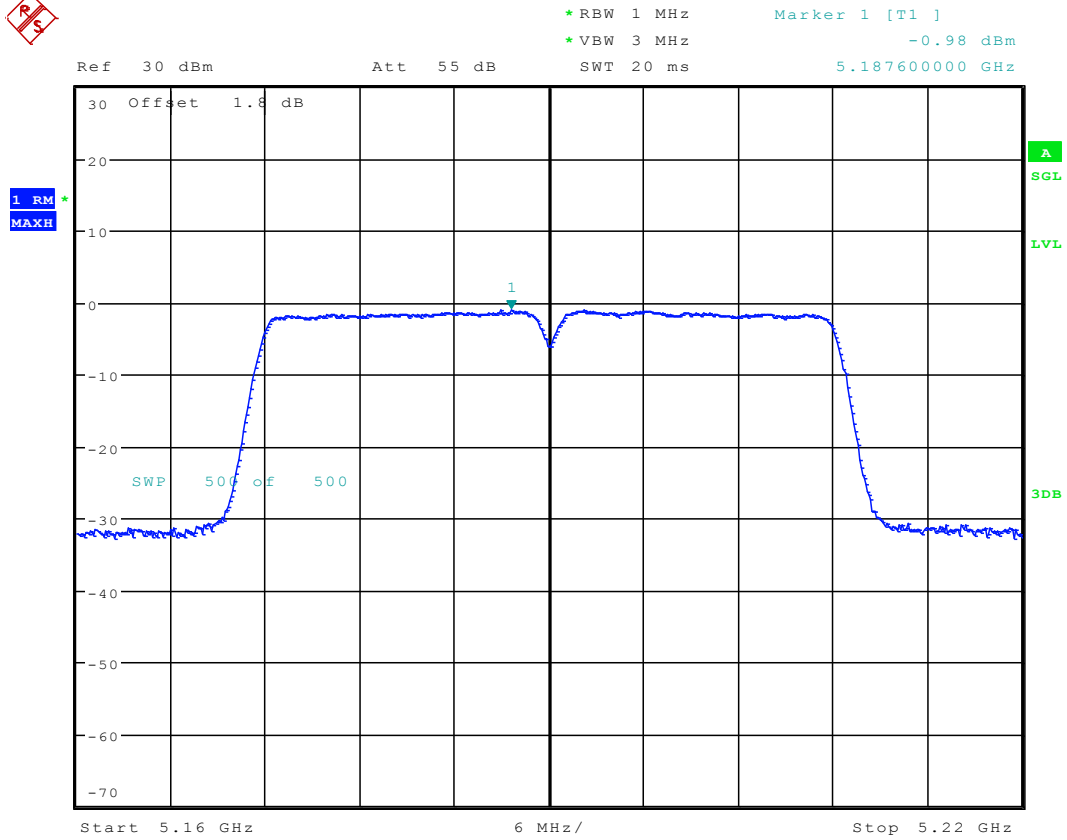
*RBW 1 MHz Marker 1 [T1]
*VBW 2 MHz 5.55 dBm
SWT 20 ms 5.823690000 GHz



Date: 11.FEB.2017 12:31:11

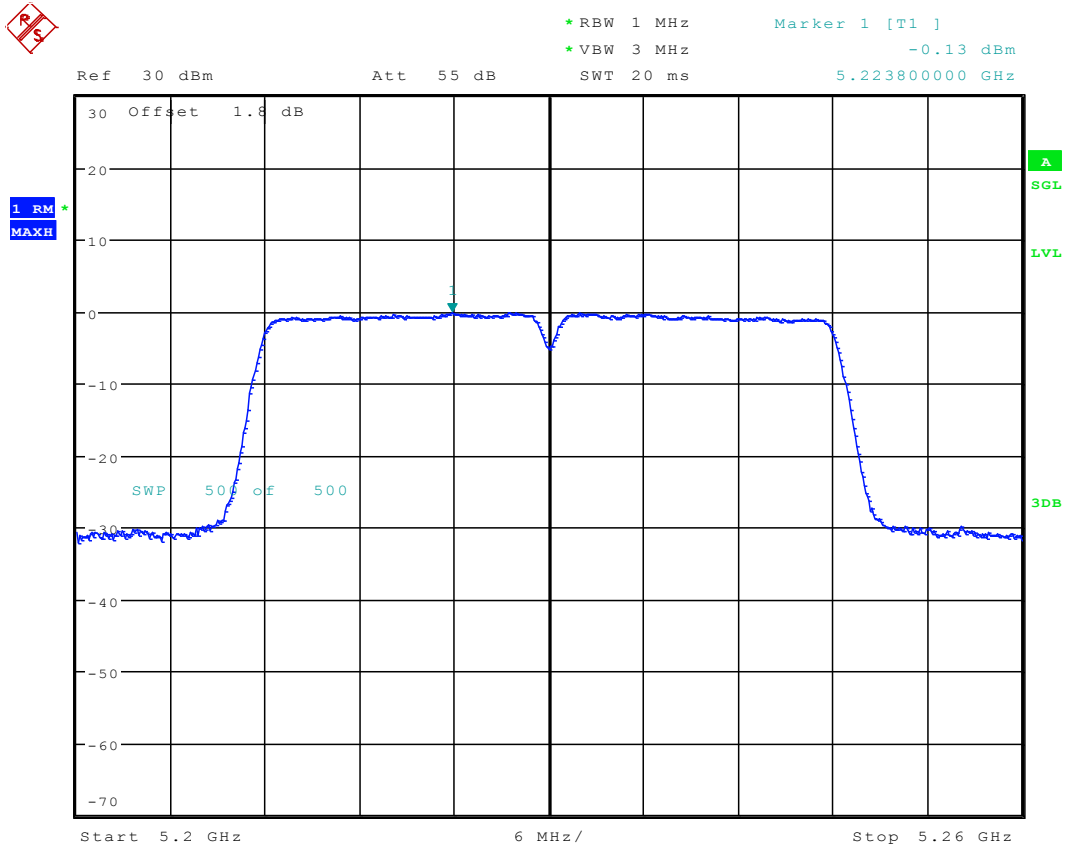


11.17 11N40_38 ANT 1



Date: 11.FEB.2017 12:37:11

11.18 11N40_46 ANT 1



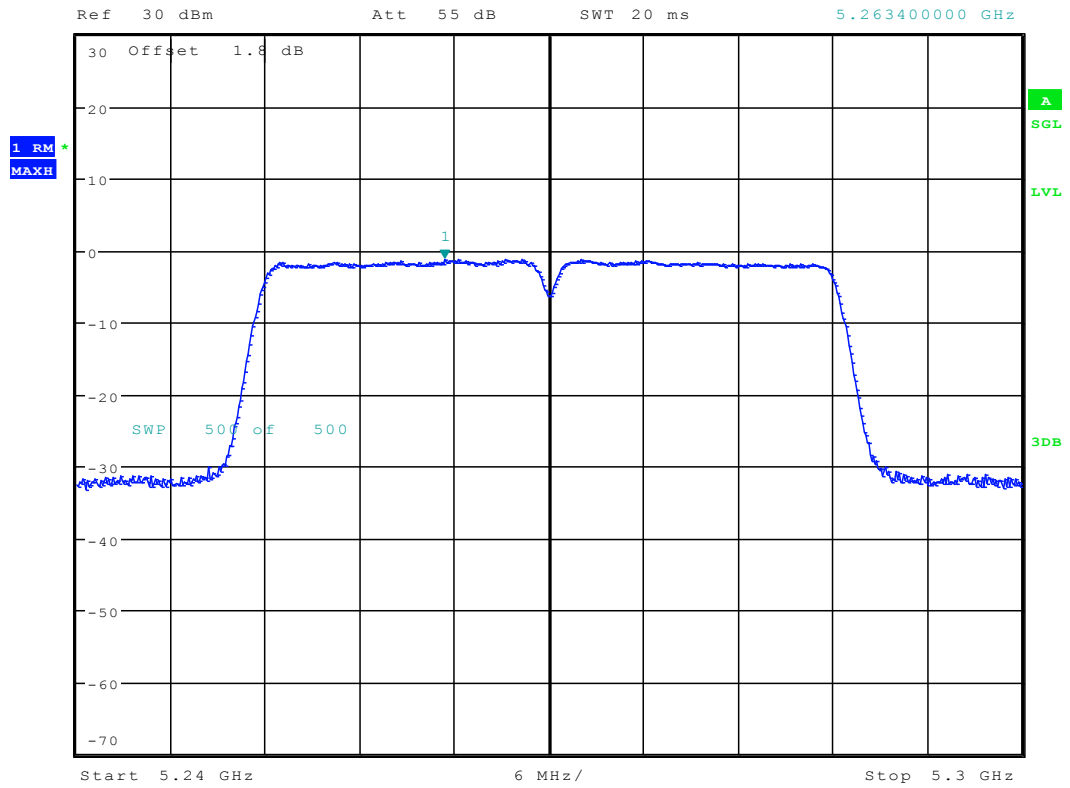
Date: 11.FEB.2017 14:34:47



11.19 11N40_54 ANT 1



*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz -1.12 dBm
SWT 20 ms 5.263400000 GHz



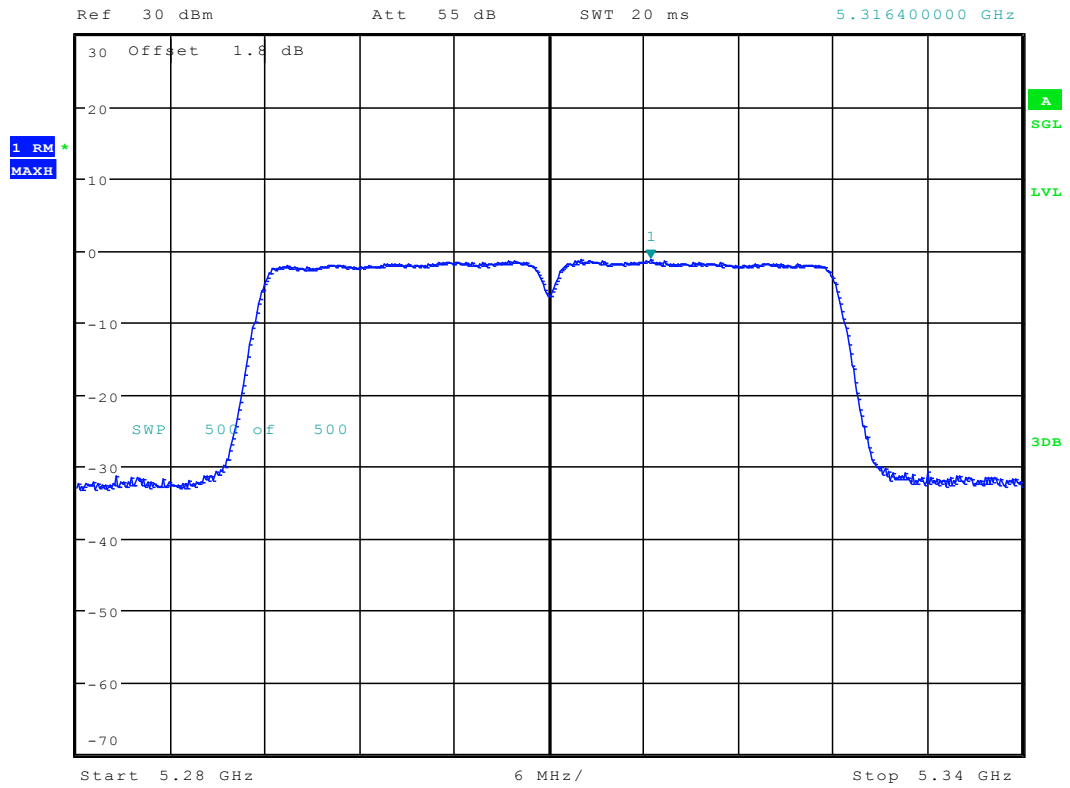
Date: 11.FEB.2017 14:40:04



11.20 11N40_62 ANT 1



*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz -1.10 dBm
SWT 20 ms 5.316400000 GHz



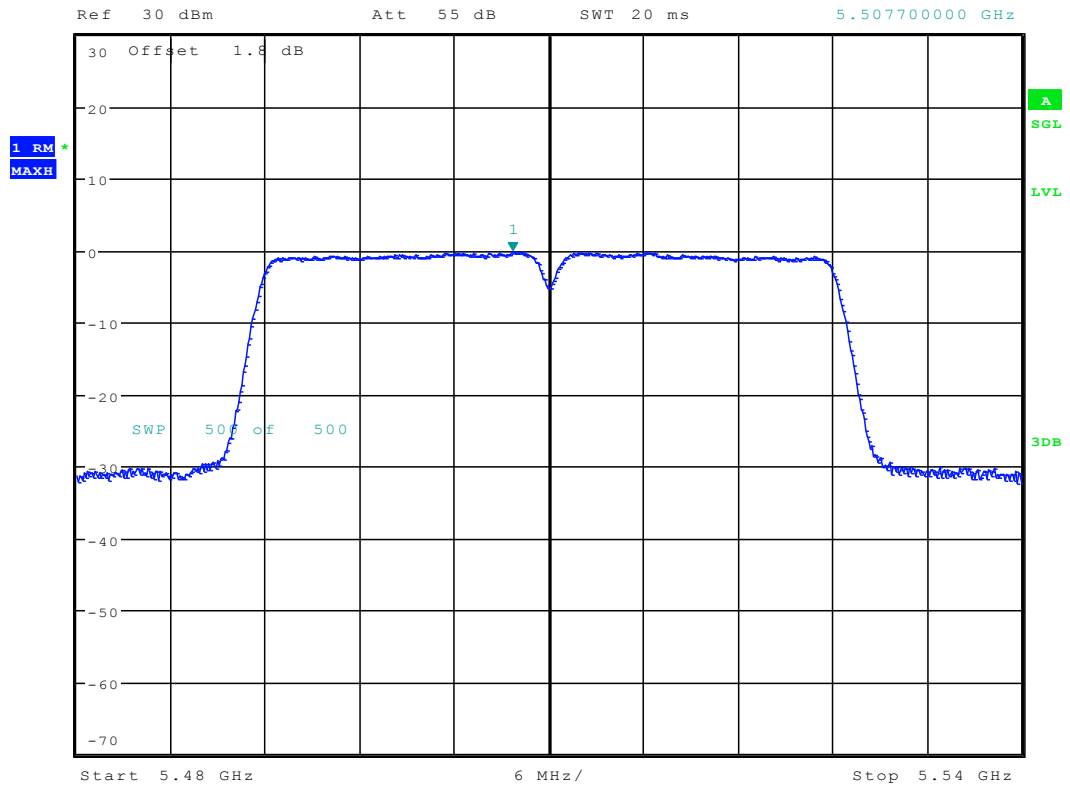
Date: 11.FEB.2017 14:44:57



11.21 11N40_102 ANT 1

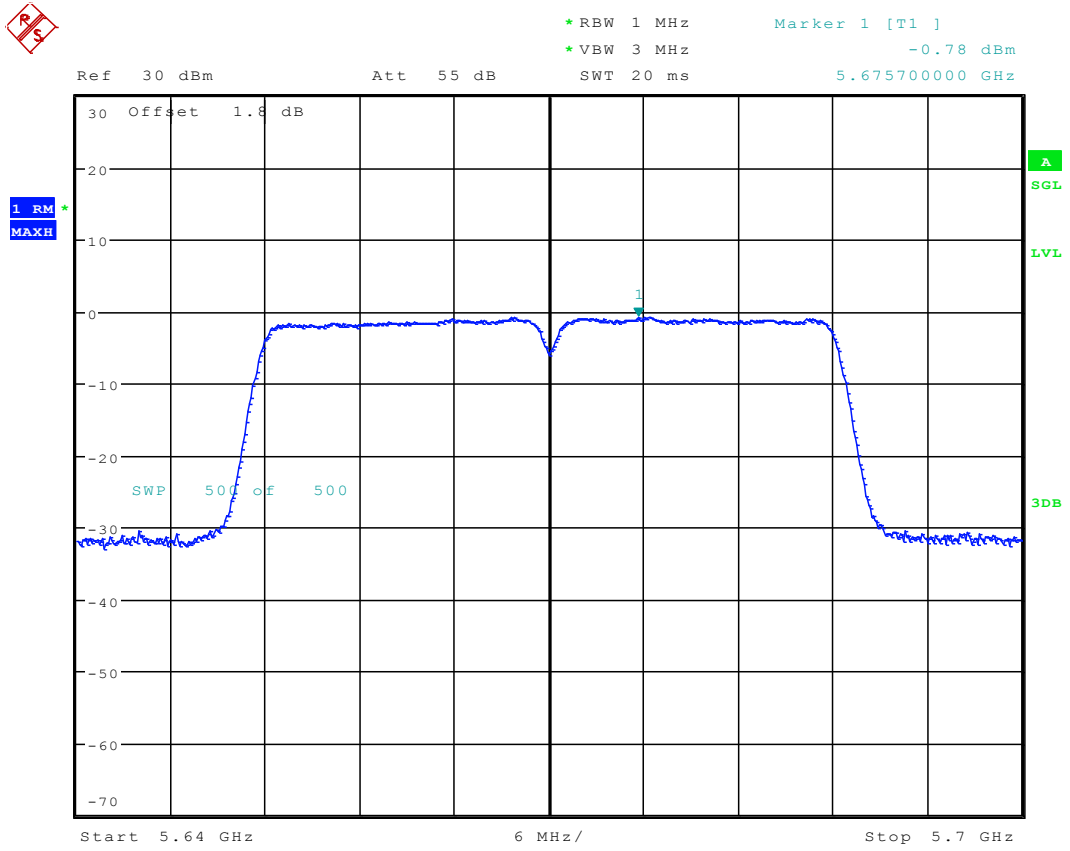


*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz -0.09 dBm
SWT 20 ms 5.507700000 GHz



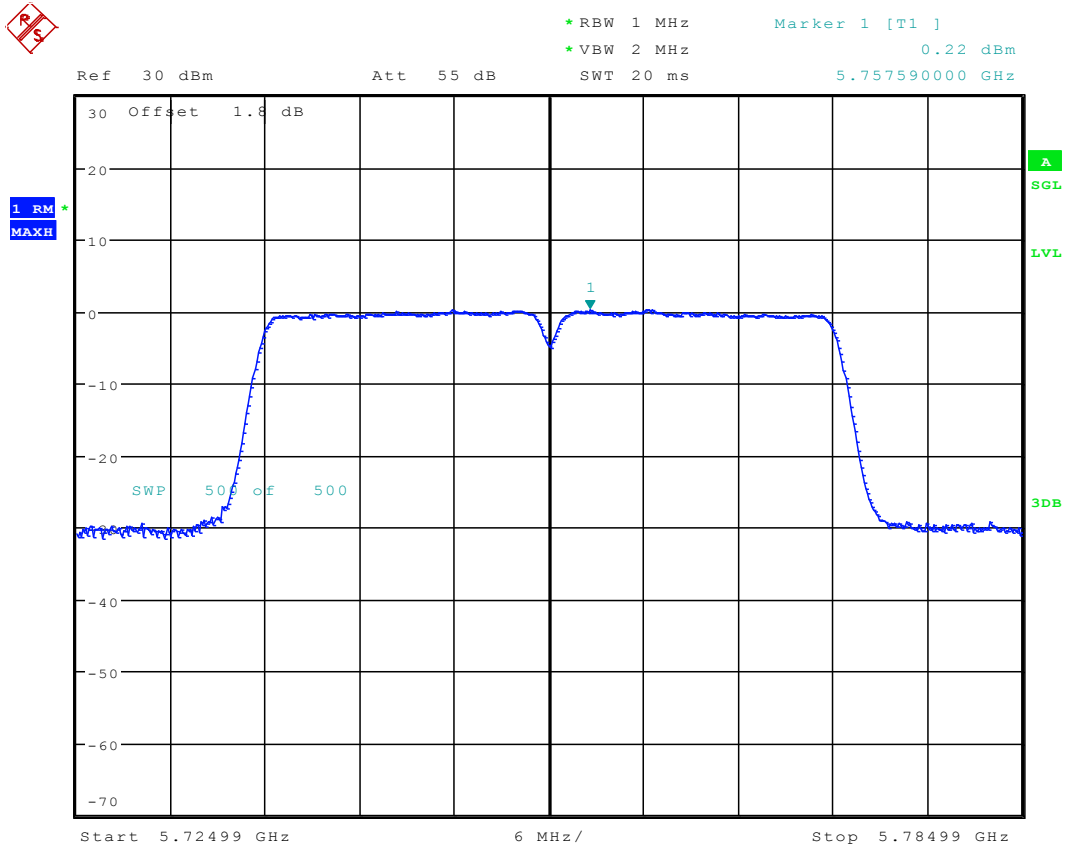
Date: 11.FEB.2017 15:04:22

11.22 11N40_134 ANT 1



Date: 11.FEB.2017 15:07:40

11.23 11N40_151 ANT 1



Date: 11.FEB.2017 15:12:21

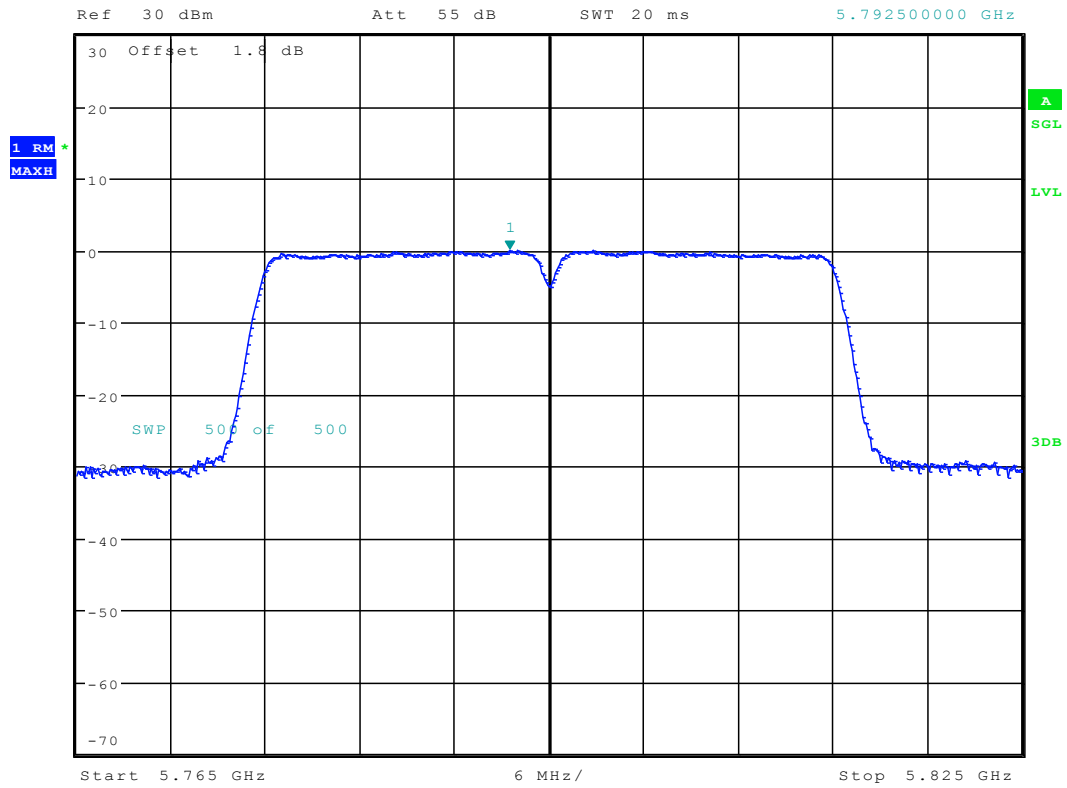


11.24 11N40_159 ANT 1



*RBW 1 MHz
*VBW 2 MHz
SWT 20 ms

Marker 1 [T1]
-0.01 dBm
5.792500000 GHz



Date: 11.FEB.2017 15:18:04



Appendix F: Unwanted Emissions into Non-Restricted Frequency Bands

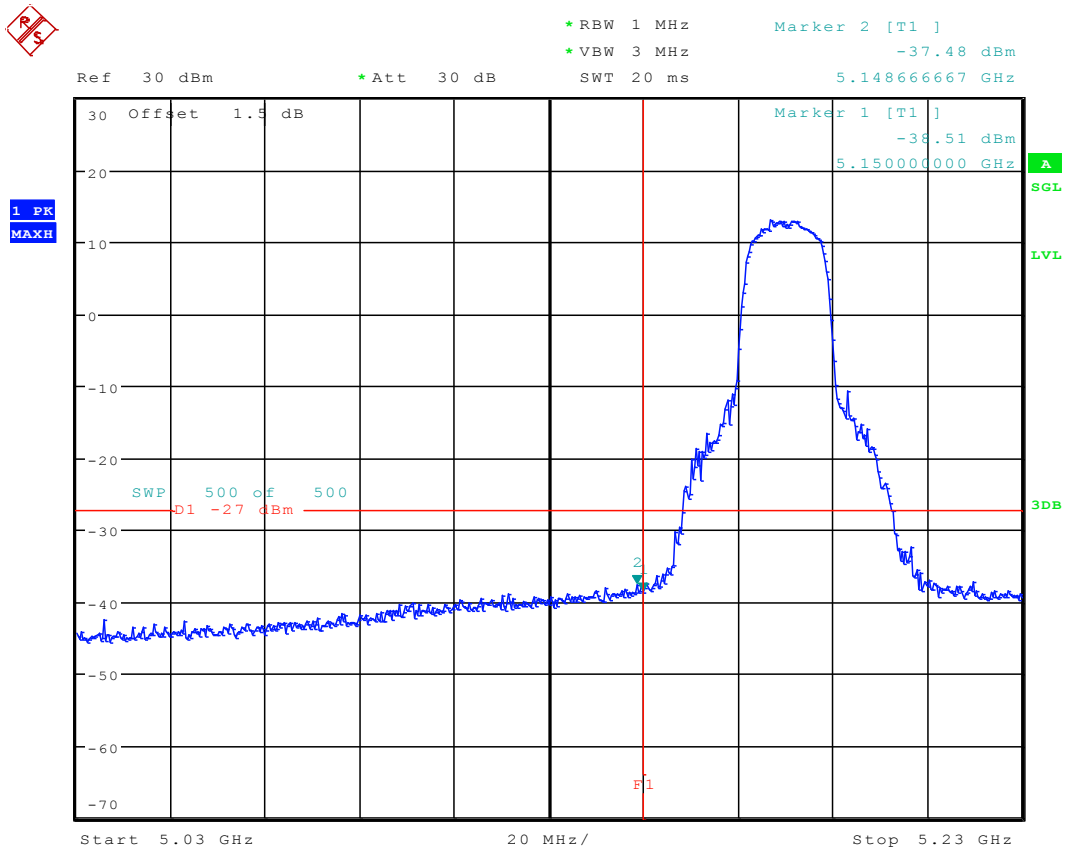


12 Result Table

FCC Part15, Subpart E		
Test Item	Frequency Range	Result
Unwanted Emissions into Non-Restricted Frequency Bands	5150-5250	PASS
	5250-5350	PASS
	5470-5725	PASS
	5725-5825	PASS

13 Test Plot

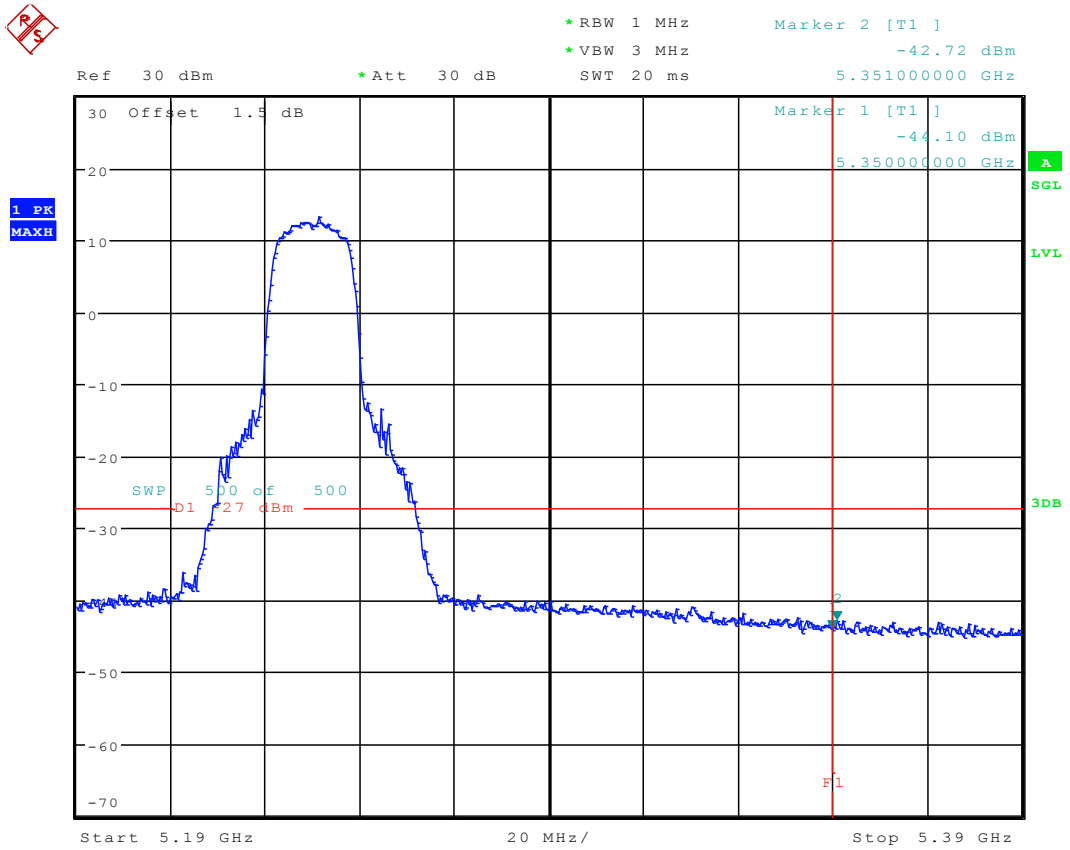
13.1 11A20_36 ANT 1



Date: 11.FEB.2017 11:10:34

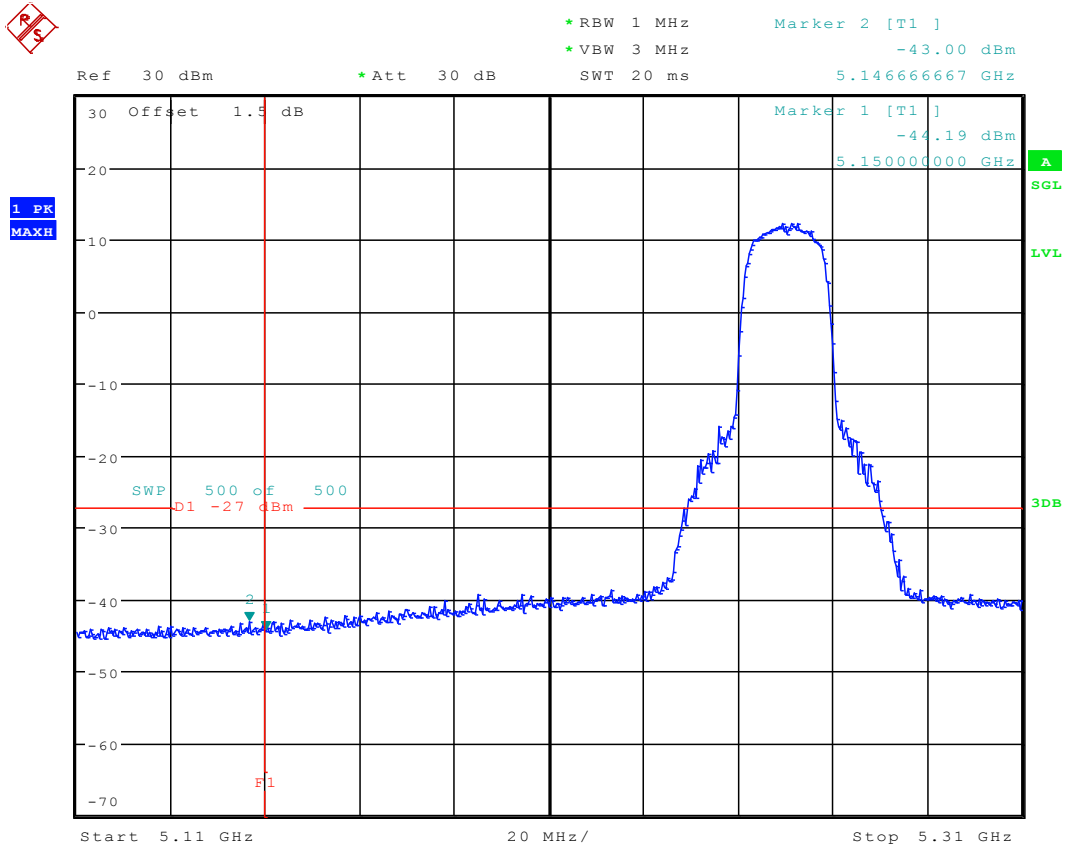


13.2 11A20_48 ANT 1



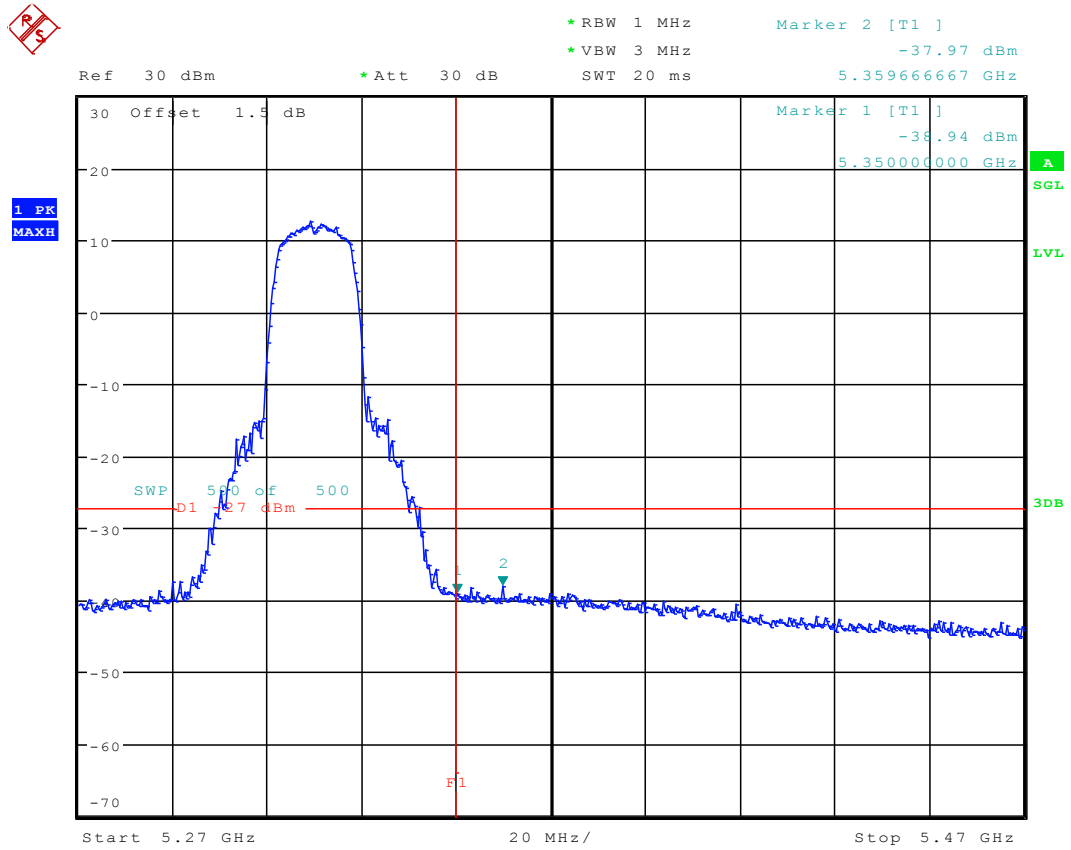
Date: 11.FEB.2017 11:15:38

13.3 11A20_52 ANT 1



Date: 11.FEB.2017 11:22:54

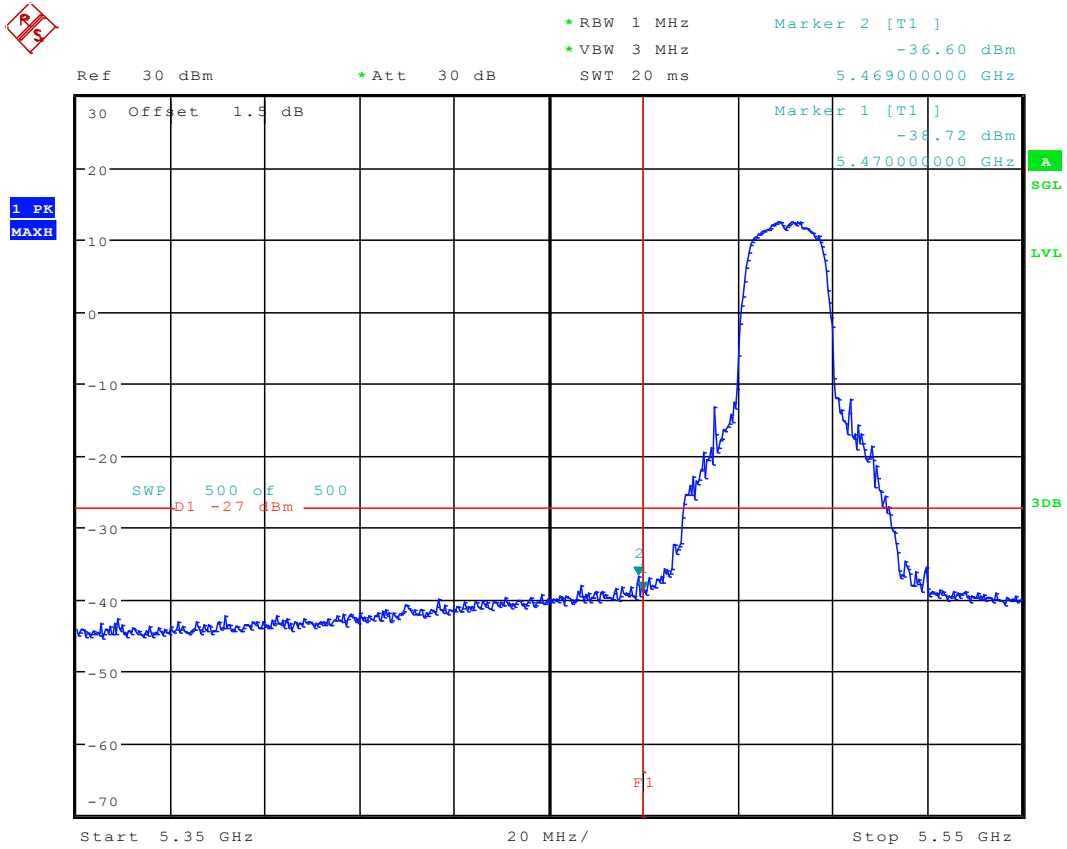
13.4 11A20_64 ANT 1



Date: 11.FEB.2017 11:27:47



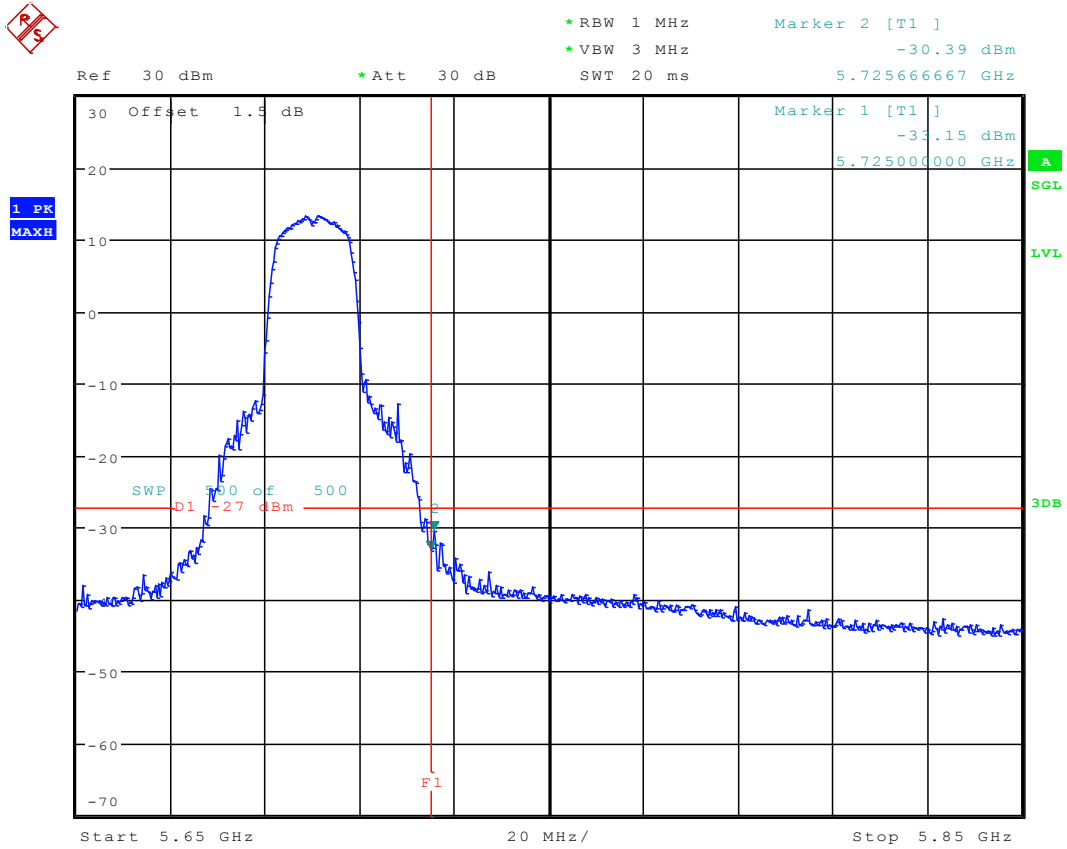
13.5 11A20_100 ANT 1



Date: 11.FEB.2017 11:33:14

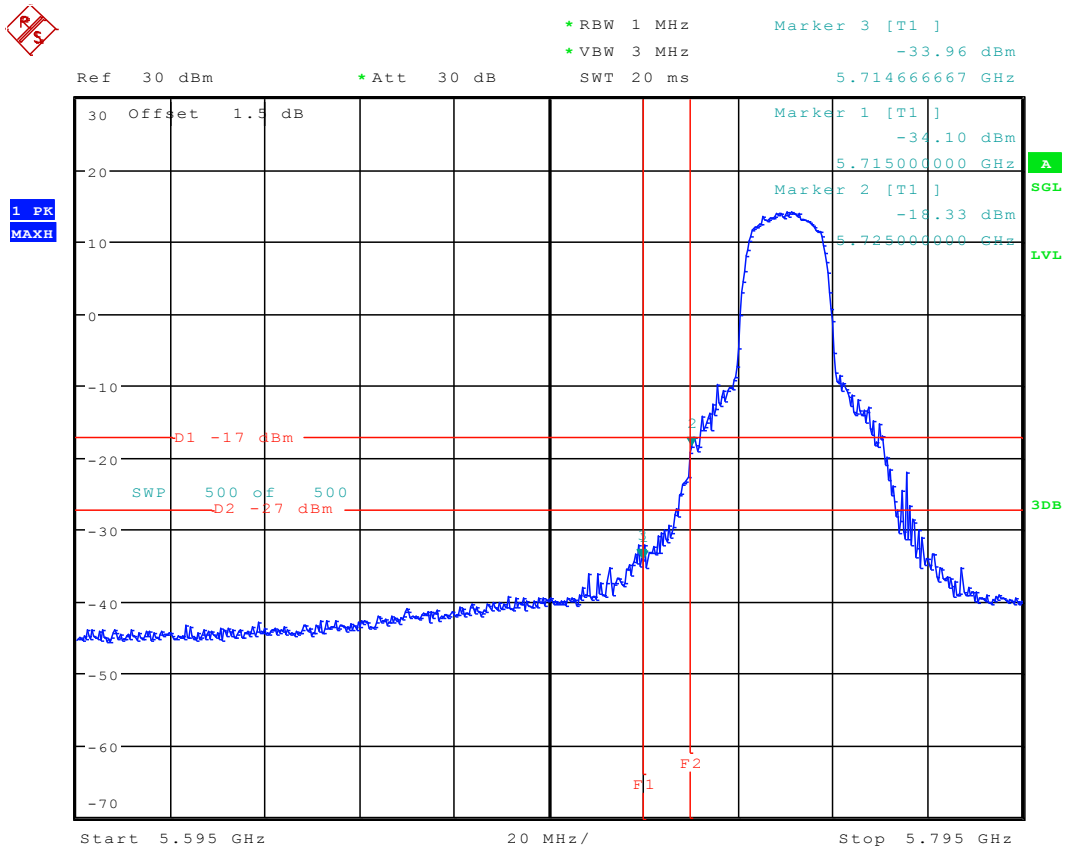


13.6 11A20_140 ANT 1



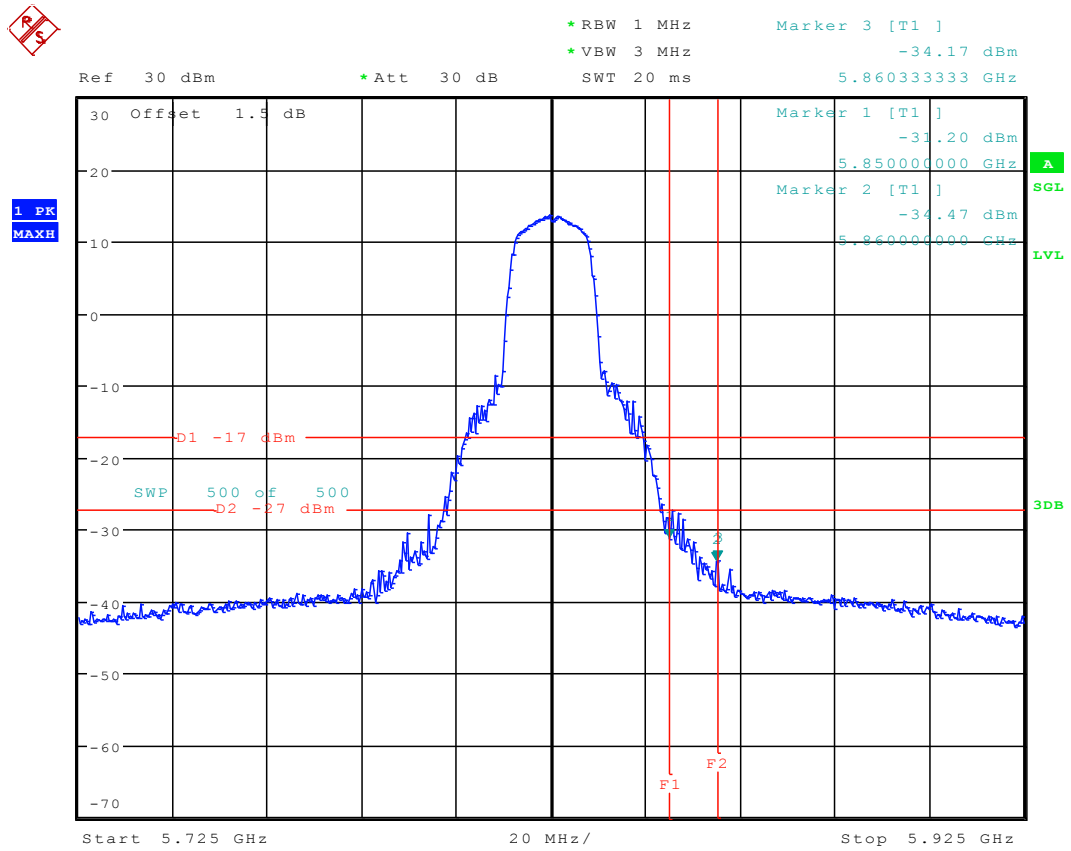
Date: 11.FEB.2017 11:38:20

13.7 11A20_149 ANT 1



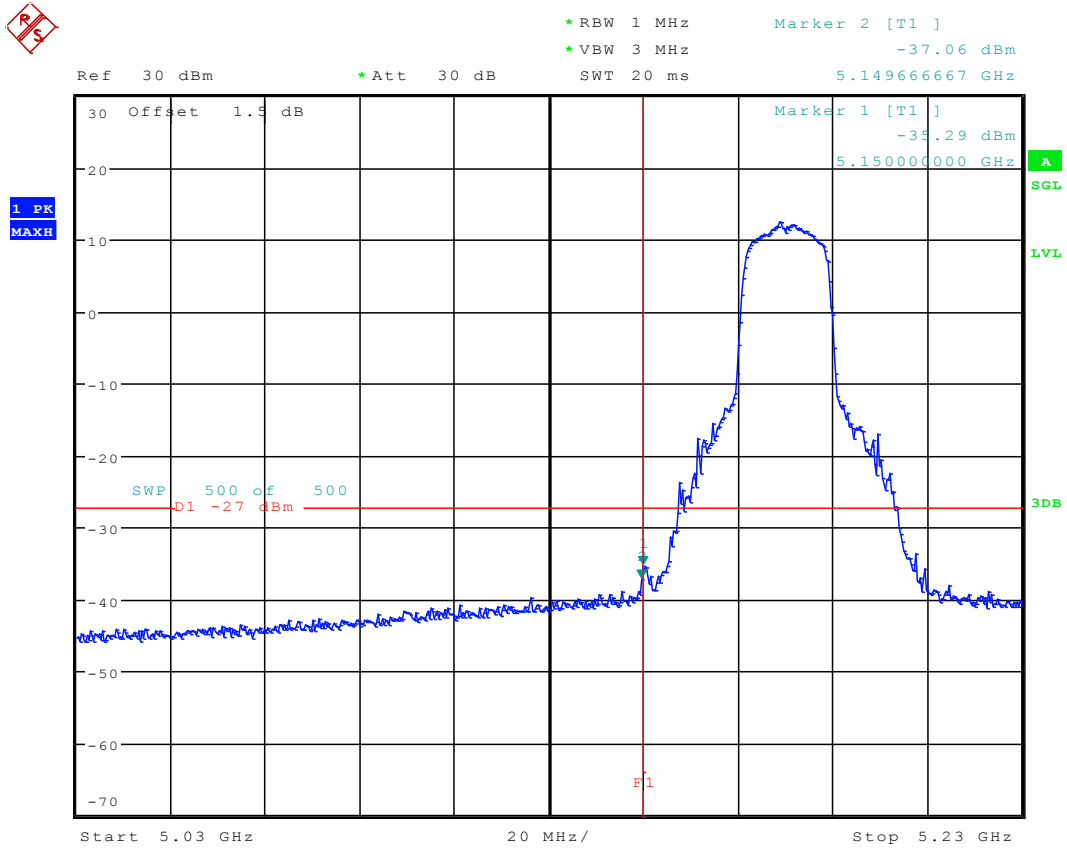
Date: 11.FEB.2017 11:44:36

13.8 11A20_165 ANT 1



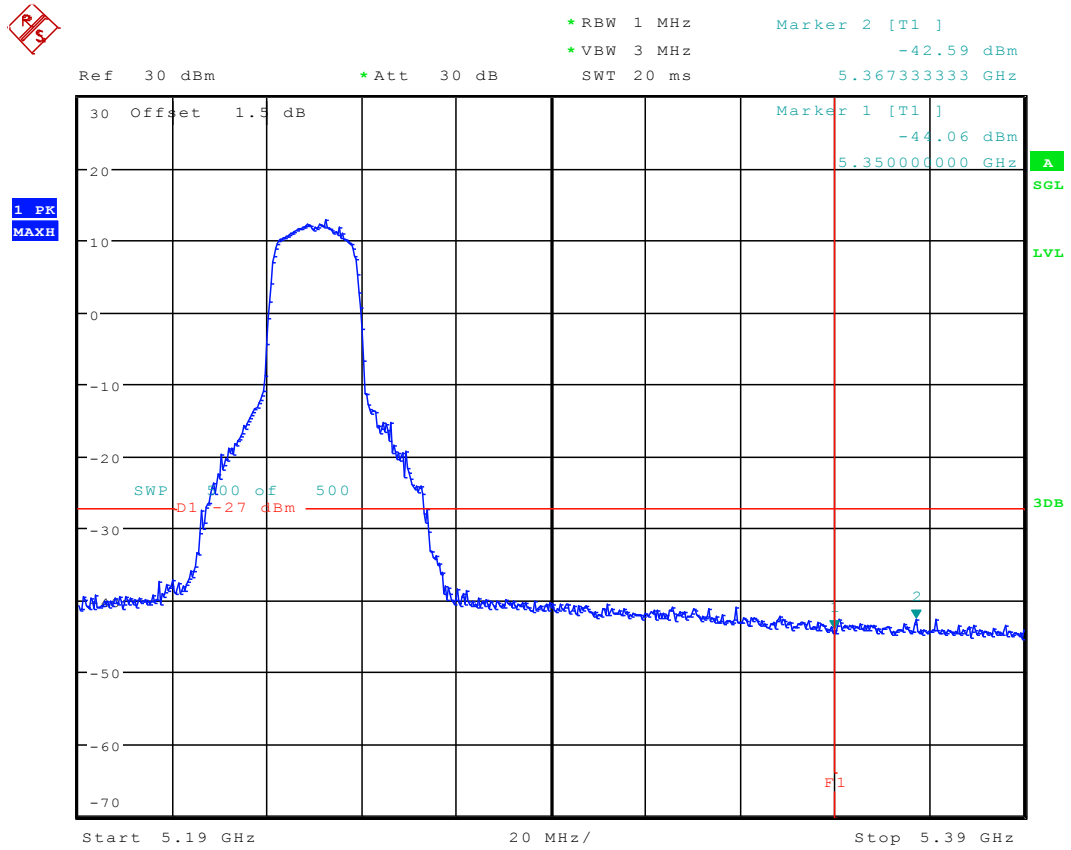
Date: 11.FEB.2017 11:50:34

13.9 11N20_36 ANT 1



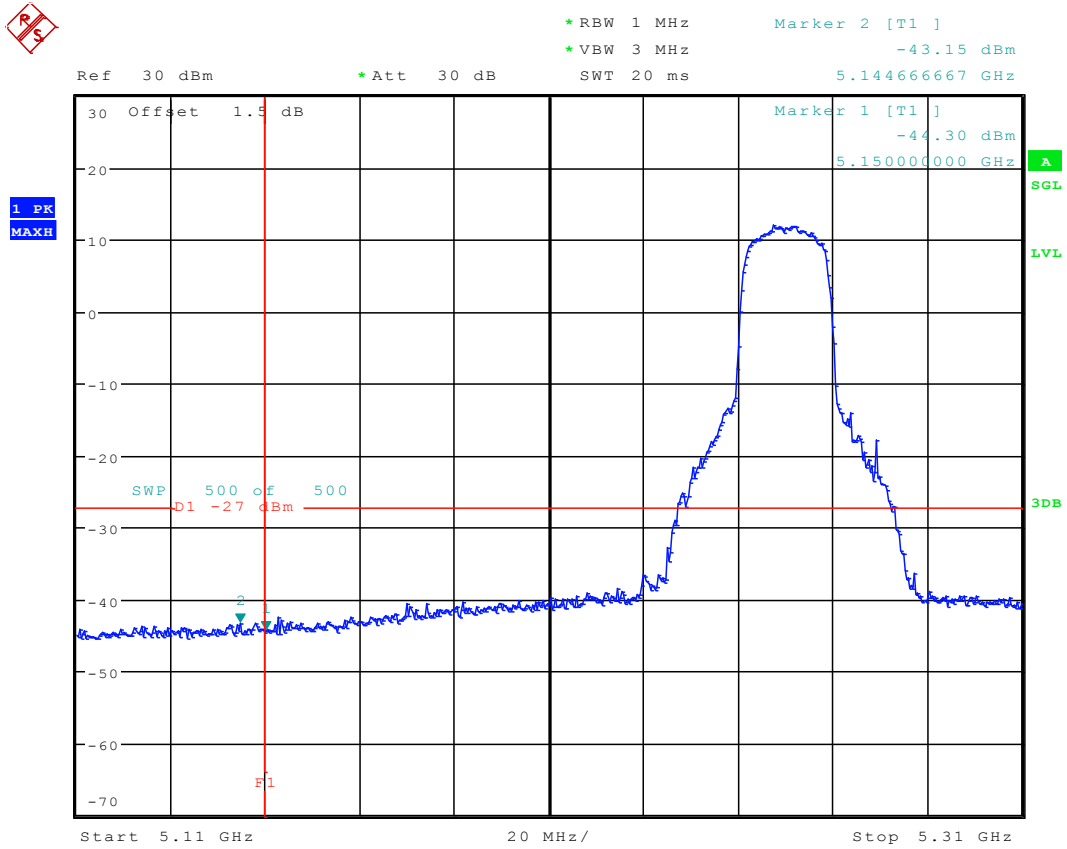
Date: 11.FEB.2017 11:56:04

13.10 11N20_48 ANT 1



Date: 11.FEB.2017 12:01:07

13.11 11N20_52 ANT 1



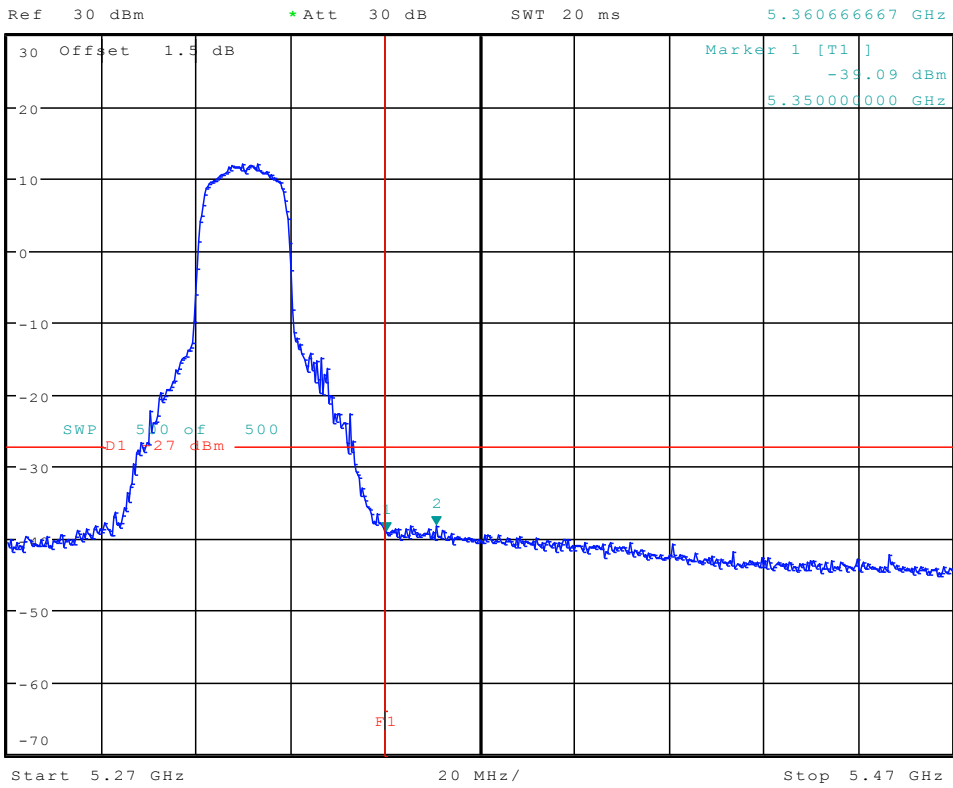
Date: 11.FEB.2017 12:06:41



13.12 11N20_64 ANT 1



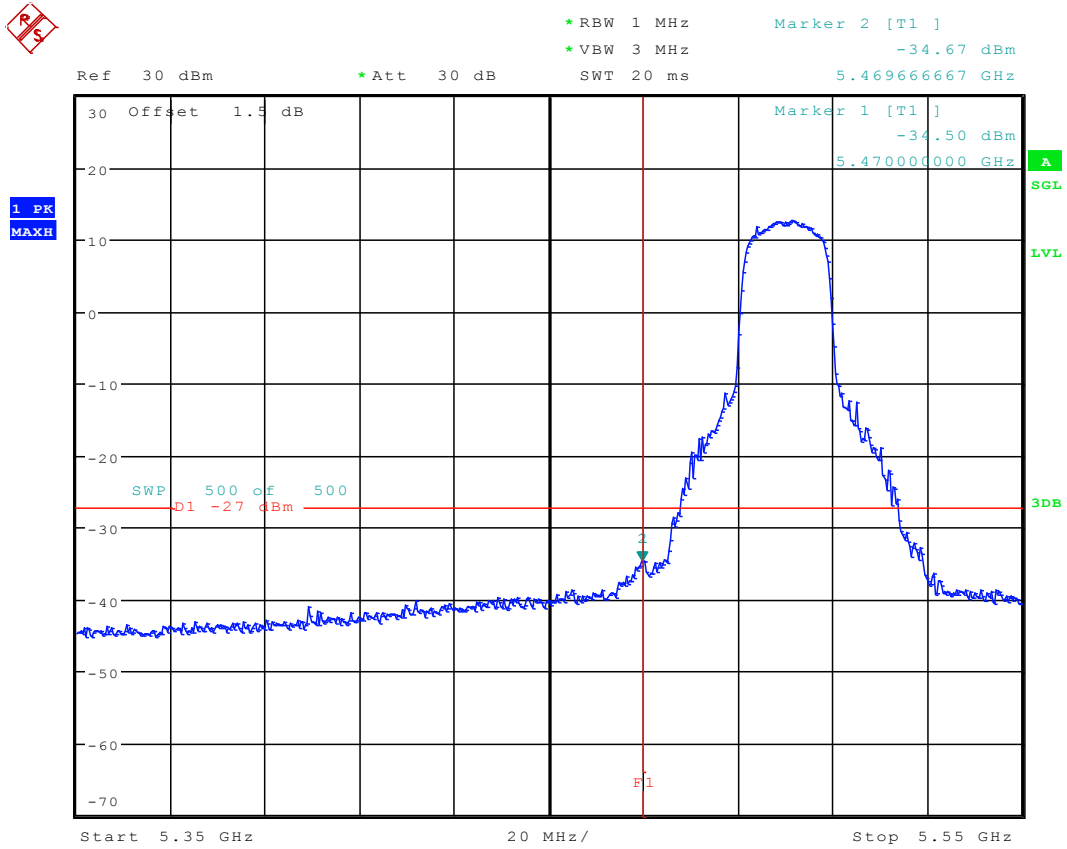
*RBW 1 MHz Marker 2 [T1]
 *VBW 3 MHz -38.10 dBm
 SWT 20 ms 5.360666667 GHz



Date: 11.FEB.2017 12:11:30

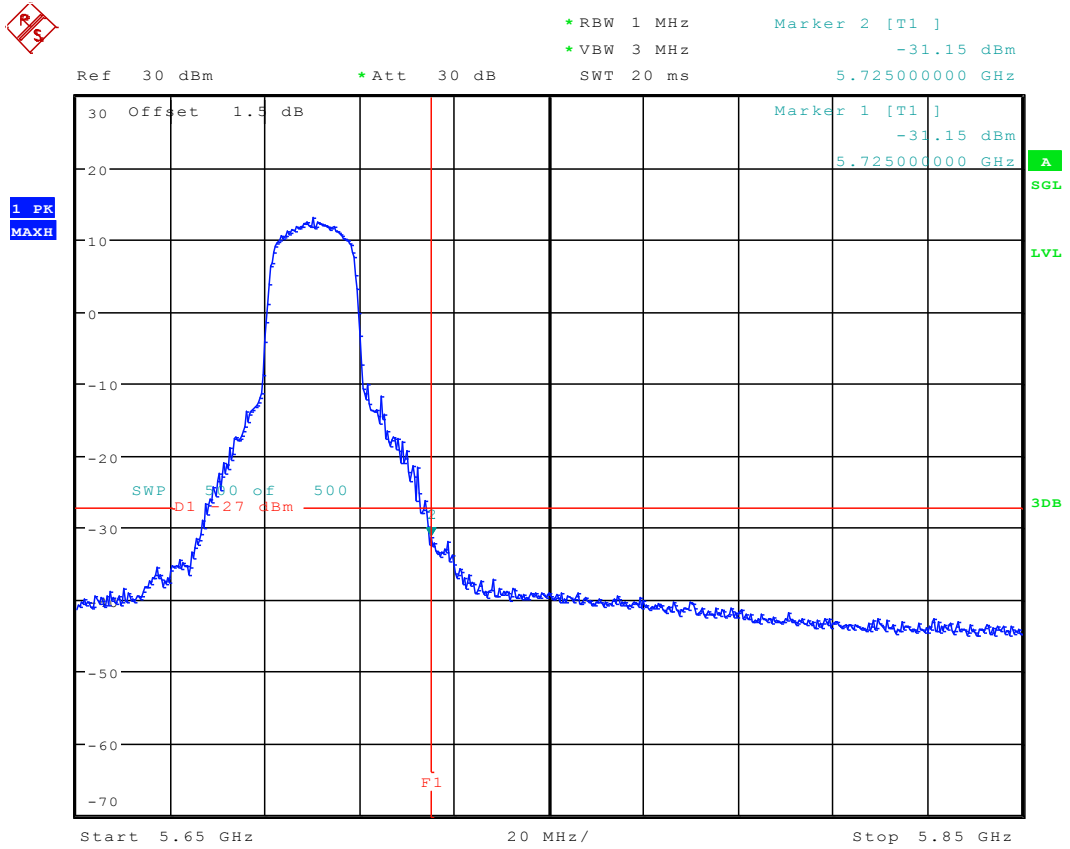


13.13 11N20_100 ANT 1



Date: 11.FEB.2017 12:16:38

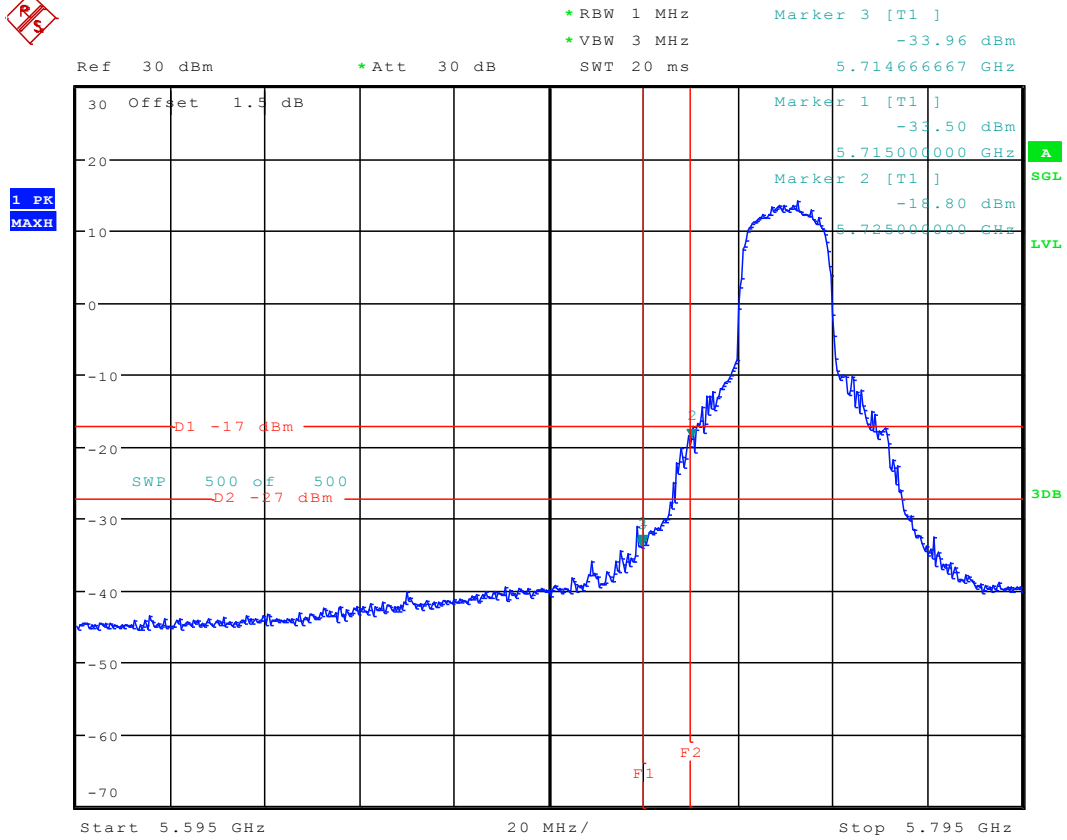
13.14 11N20_140 ANT 1



Date: 11.FEB.2017 12:21:35

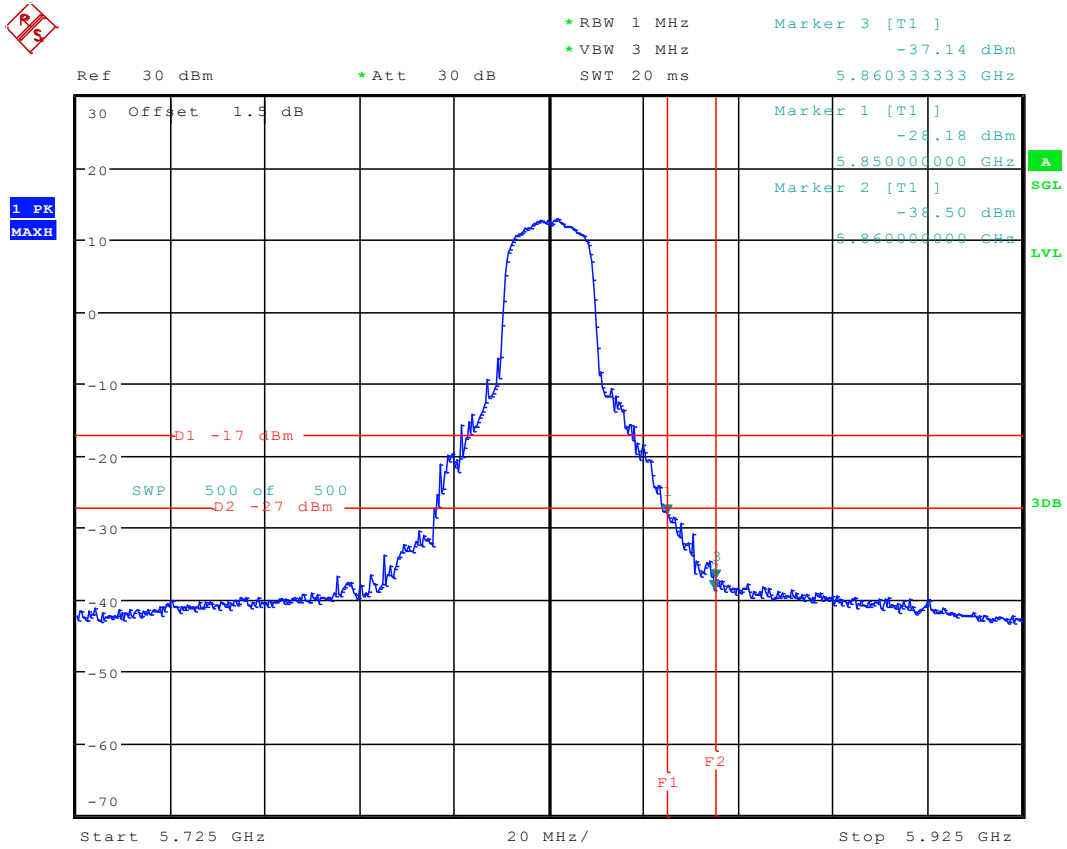


13.15 11N20_149 ANT 1



Date: 11.FEB.2017 12:27:29

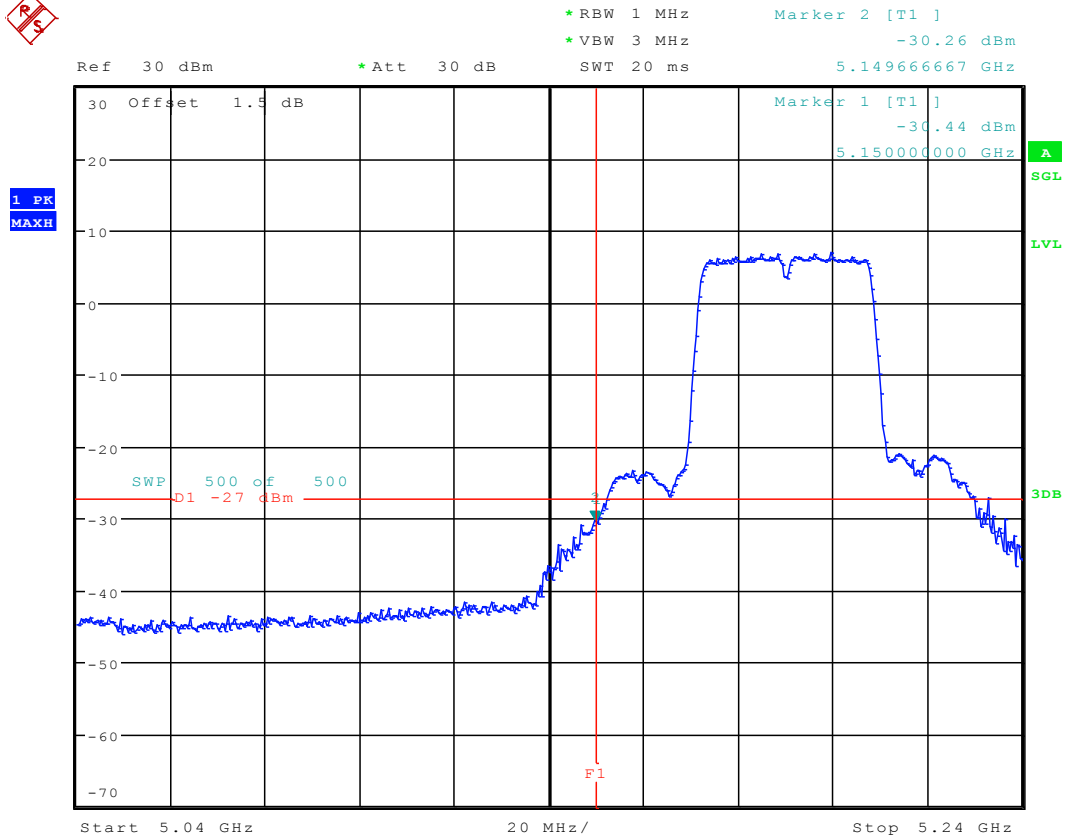
13.16 11N20_165 ANT 1



Date: 11.FEB.2017 12:33:22



13.17 11N40_38 ANT 1



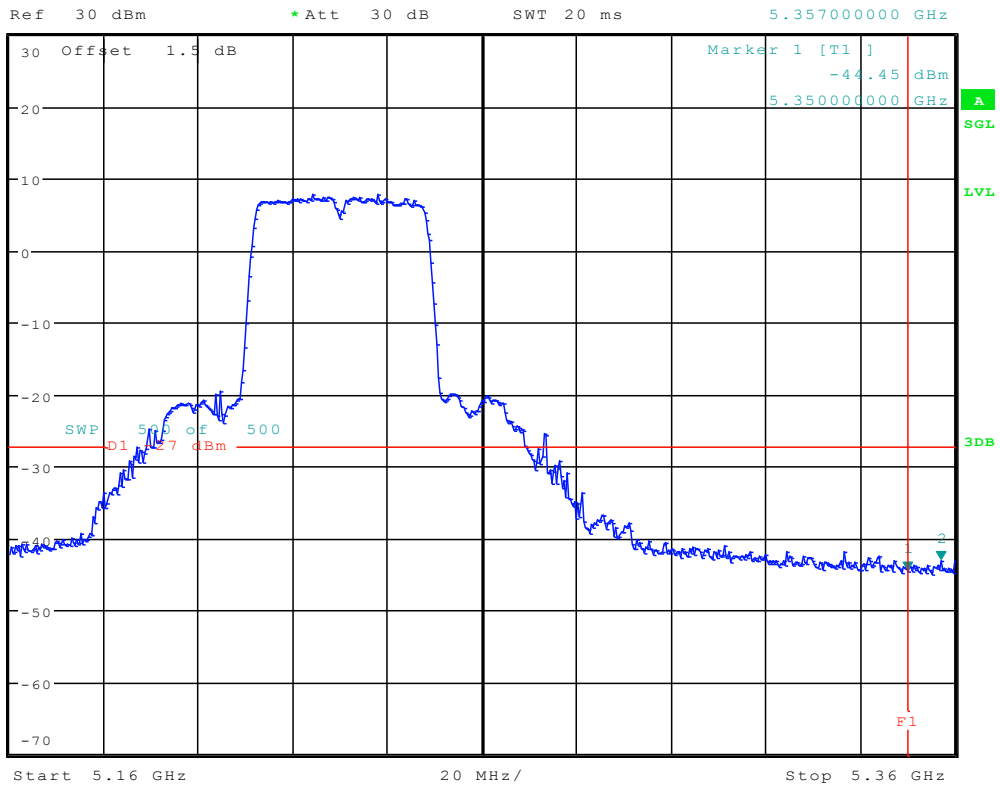
Date: 11.FEB.2017 12:39:19



13.18 11N40_46 ANT 1



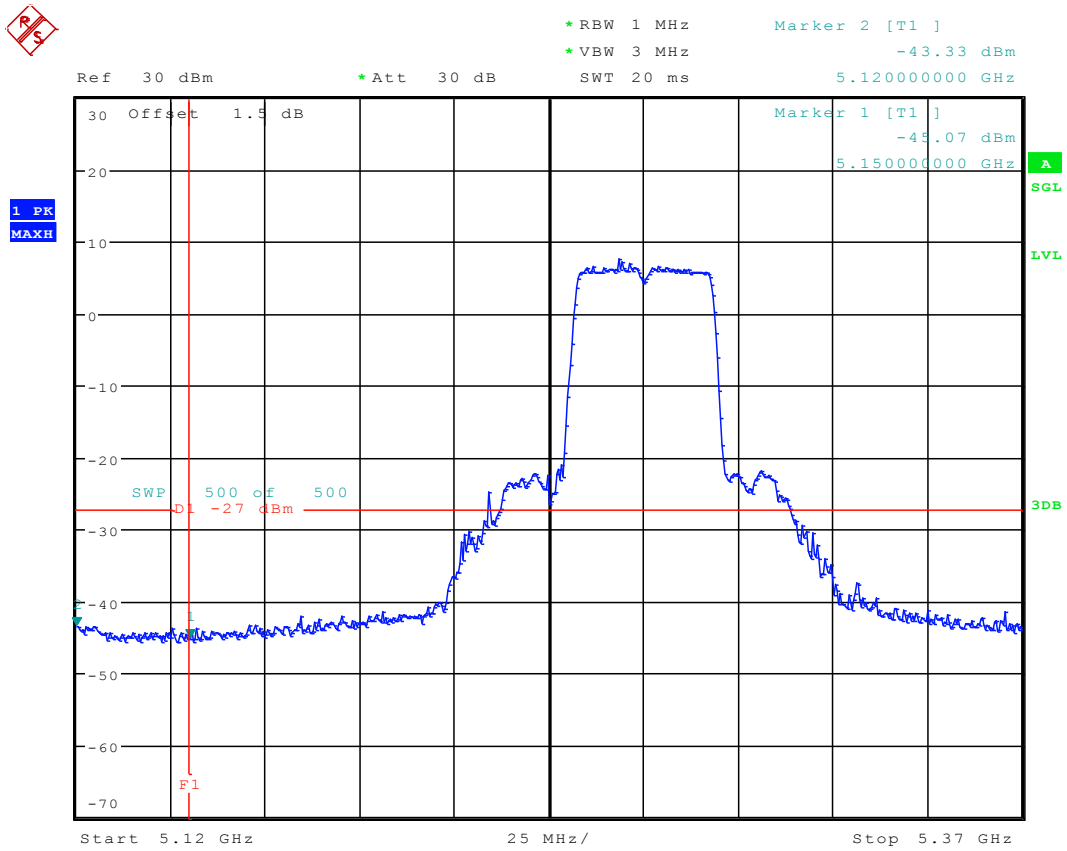
*RBW 1 MHz Marker 2 [T1]
 *VBW 3 MHz -42.94 dBm
 SWT 20 ms 5.357000000 GHz



Date: 11.FEB.2017 14:36:56



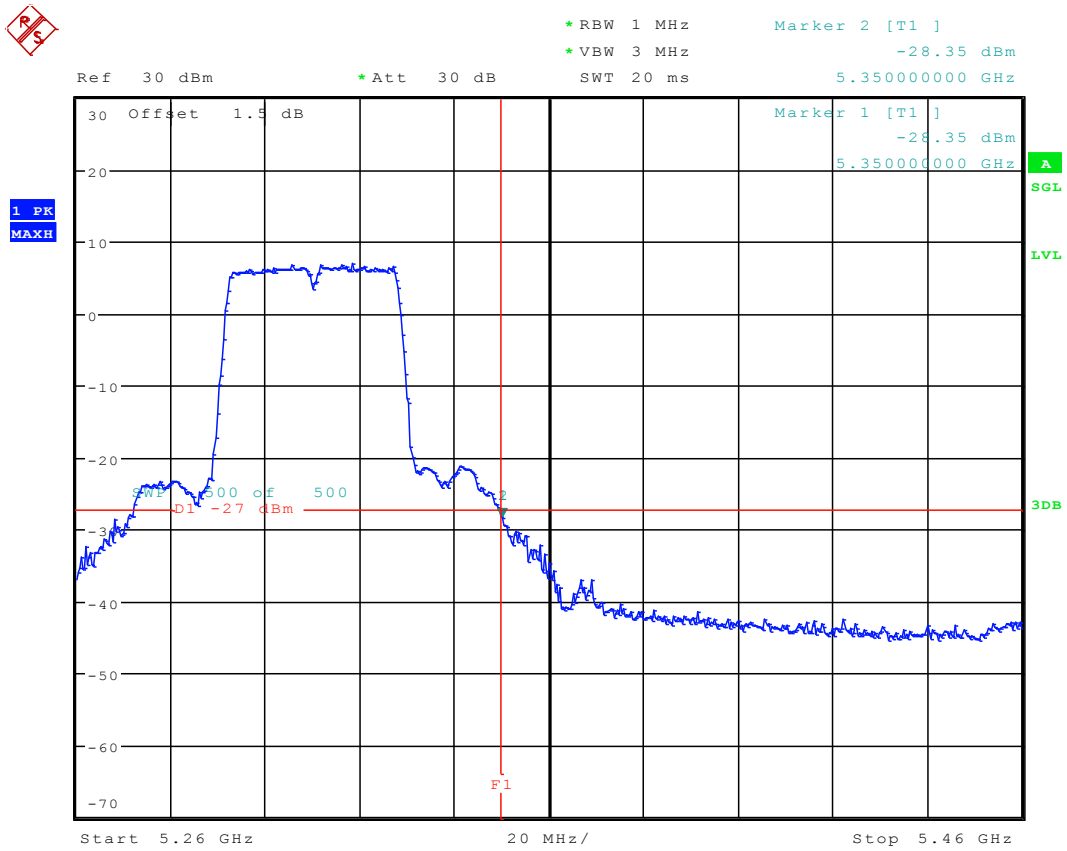
13.19 11N40_54 ANT 1



Date: 11.FEB.2017 14:42:12



13.20 11N40_62 ANT 1



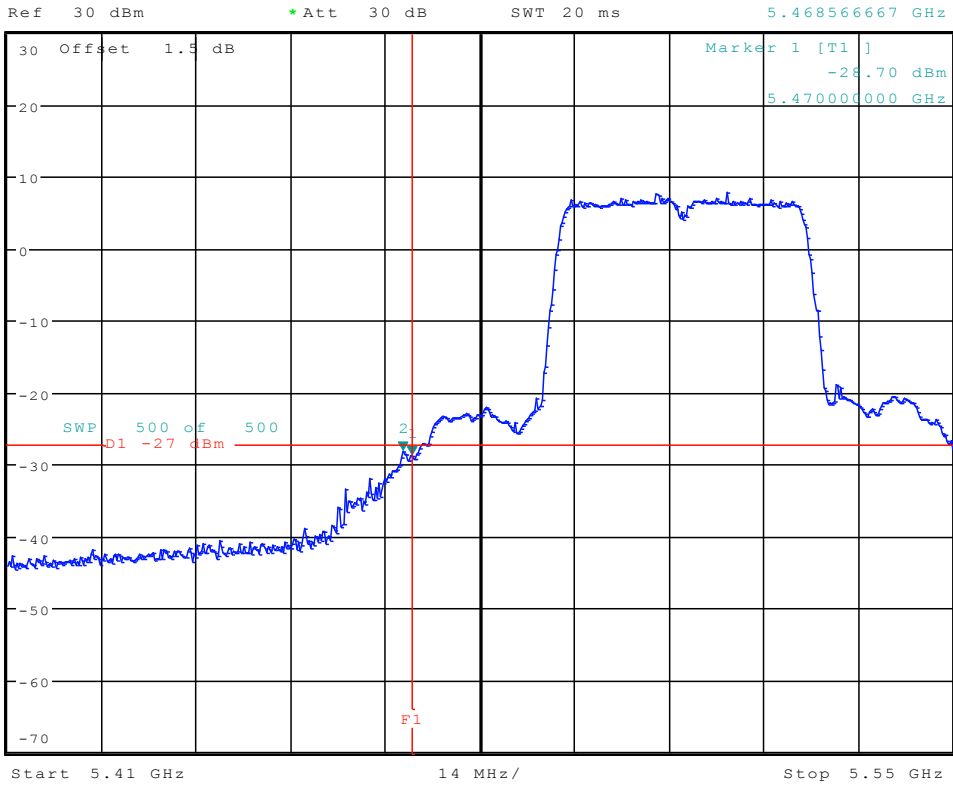
Date: 6.MAR.2017 10:15:24



13.21 11N40_102 ANT 1



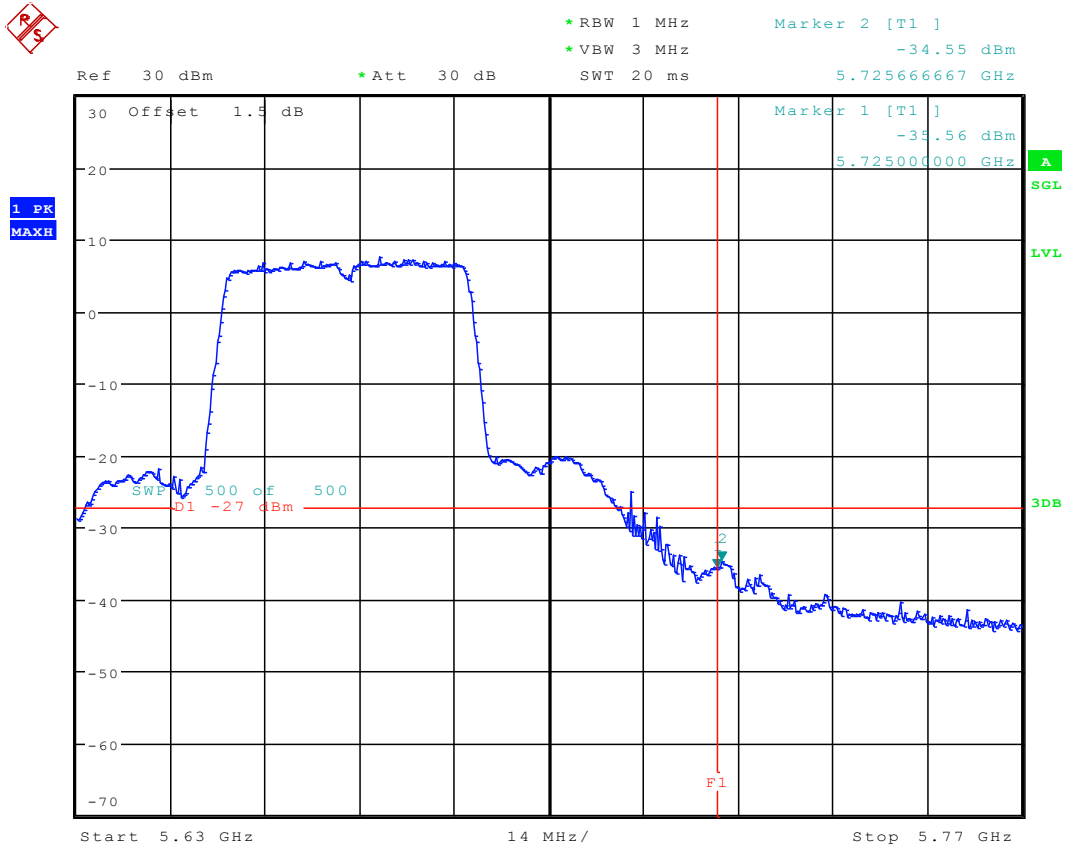
*RBW 1 MHz Marker 2 [T1]
 *VBW 3 MHz -28.13 dBm
 SWT 20 ms 5.468566667 GHz



Date: 6.MAR.2017 10:17:33

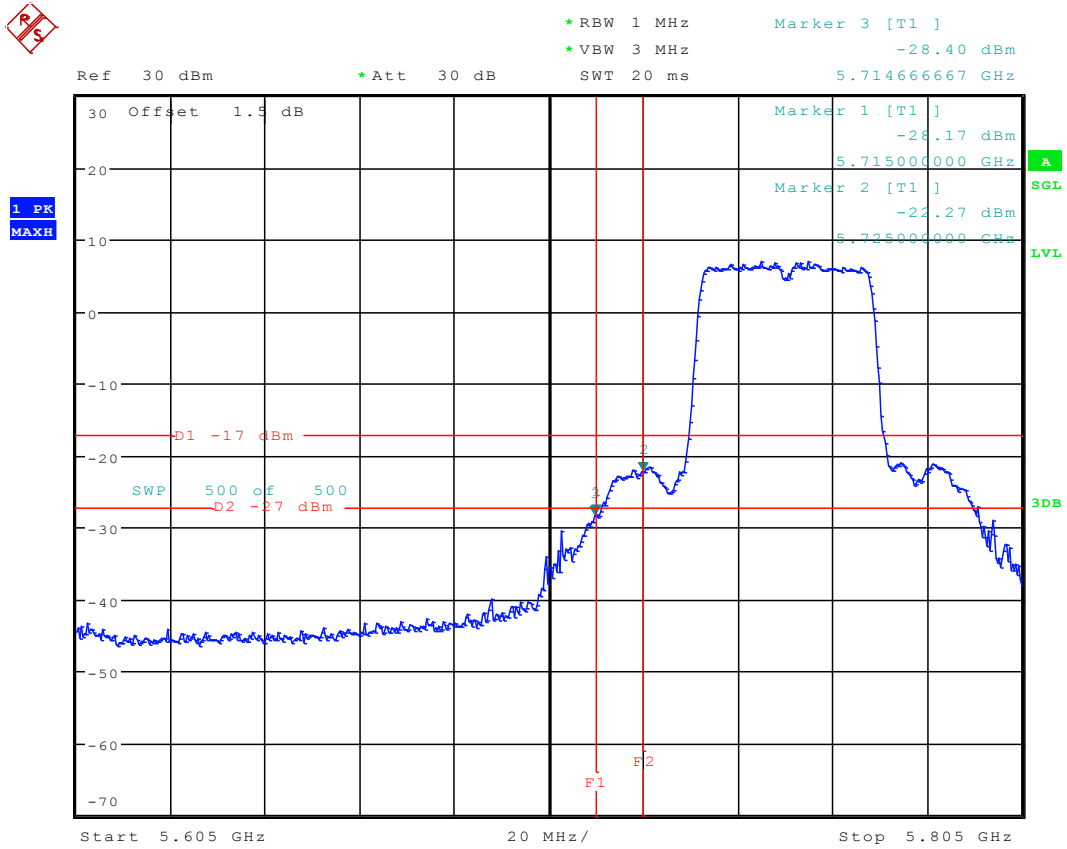


13.22 11N40_134 ANT 1



Date: 11.FEB.2017 15:08:13

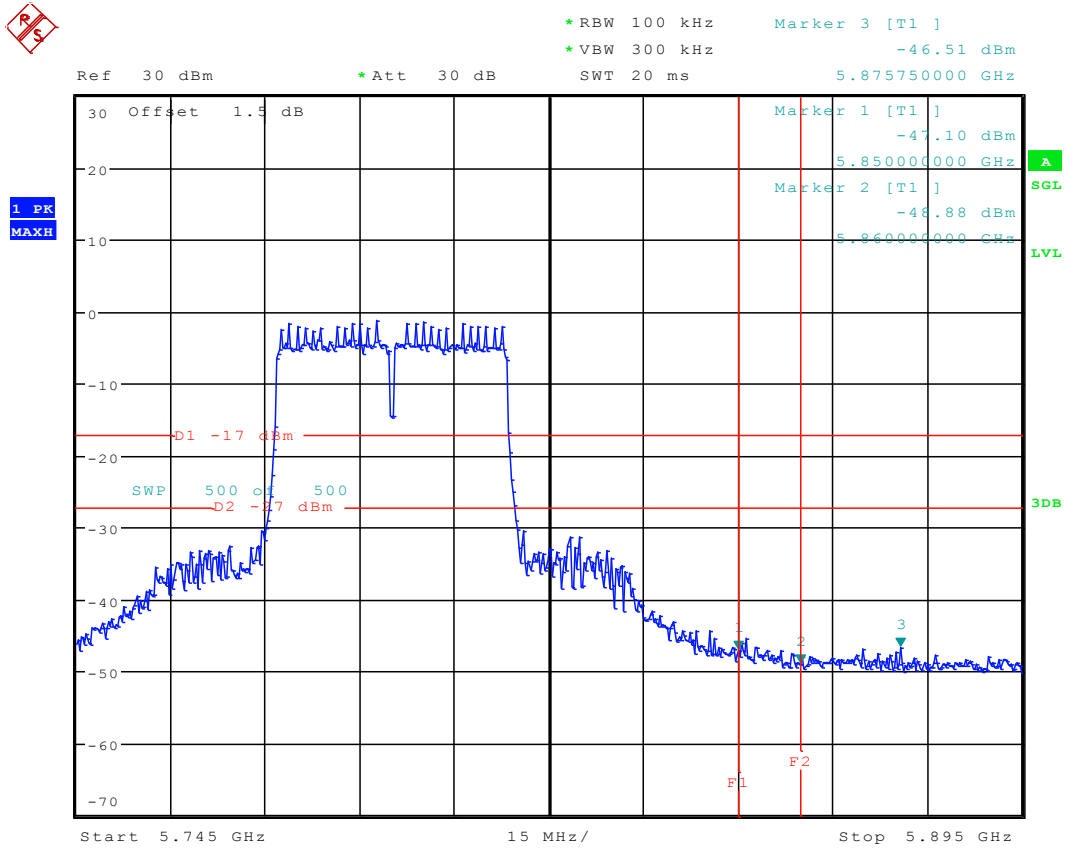
13.23 11N40_151 ANT 1



Date: 24.FEB.2017 15:01:32



13.24 11N40_159 ANT 1



Date: 11.FEB.2017 15:18:35

Appendix G: Frequencies Stability

Frequency Error vs. Voltage:

Test Conditions	Measured Fequency (MHz)
	5180
V nom(V)	5180.0086
V max(V)	5180.0059
V min(V)	5180.0066
Max. Deviation Frequency	0.0086
Max. Frequency Error (ppm)	1.66

Frequency Error vs. Temperature:

Test Conditions (°C)	Measured Fequency (MHz)
	5180
-5	5180.0081
5	5180.0023
15	5180.0072
25	5180.0079
35	5180.0095
45	5180.0065
50	5180.0084
Max. Deviation Frequency	0.0095
Max. Frequency Error (ppm)	1.83



Frequency Error vs. Voltage:

Test Conditions	Measured Frequency (MHz)
	5825
V nom(V)	5825.0029
V max(V)	5825.0066
V min(V)	5825.0065
Max. Deviation Frequency	0.0066
Max. Frequency Error (ppm)	1.13

Frequency Error vs. Temperature:

Test Conditions (°C)	Measured Frequency (MHz)
	5825
-5	5825.0021
5	5825.0042
15	5825.0065
25	5825.0047
35	5825.0033
45	5825.0045
50	5825.0041
Max. Deviation Frequency	0.0065
Max. Frequency Error (ppm)	1.12

END