

FCC AND IC CERTIFICATION TEST REPORT

FOR

Applicant	:	Harman International Industries, Inc.
Address	:	8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES
Equipment under Test	:	WIRELESS LARGE MULTI-CHANNEL SOUNDBAR
Model No.	:	ENCHANT 1300
Trade Mark	:	harman/kardon
FCC ID	:	APIENCHANT1300
IC	:	6132A-ENCHANT1300
Manufacturer	:	Harman International Industries, Inc.
Address	:	8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES

Issued By: Dongguan Dongdian Testing Service Co., Ltd.

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TEST REPORT DECLARE

Applicant	:	Harman International Industries, Inc.
Address	:	8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES
Equipment under Test	:	WIRELESS LARGE MULTI-CHANNEL SOUNDBAR
Model No	:	ENCHANT 1300
Trade Mark	:	harman/kardon
Manufacturer	:	Harman International Industries, Inc.
Address	:	8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES

Test Standard Used: FCC Rules and Regulations Part 15 Subpart C, RSS-247 Issue 2 February 2017.

Test procedure used: ANSI C63.10:2013, 789033 D02 General U-NII Test Procedures New Rules v02r01, RSS-Gen Issue 5, Apr. 2018

We Declare:

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

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

Report No:	DDT-R18061110-1E5		
Date of Receipt:	Jun. 04, 2018	Date of Test:	Jun. 04, 2018 ~ Jul. 13, 2018

Prepared By:

Sam Li
Sam Li/Engineer

Approved By:


Damon Hu/EMC Manager

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

Revision history

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	Jul. 16, 2018	

1. Summary of test results

The EUT have been tested according to the applicable standards as referenced below.		
Description of Test Item	Standard	Results
6/26db Bandwidth and 99% Bandwidth	FCC 15.407 (e) RSS-247 Clause 6.2	PASS
Maximum Conducted Output Power	FCC 15.407 (a) RSS-247 Clause 6.2	PASS
Power Spectral Density	FCC 15.407 (a) RSS-247 Clause 6.2	PASS
Frequency Stability Measurement	FCC 15.407 (g)	PASS
Emissions in restricted frequency bands	FCC 15.407 (a) FCC 15.209 FCC 15.205 RSS-247 Clause 6.2 RSS-GEN Clause 8.9	PASS
Band Edge Compliance	FCC 15.407 (a) FCC 15.209 FCC 15.205 RSS-247 Clause 6.2 RSS-GEN Clause 8.9	PASS
Power Line Conducted Emission	FCC 15.207 RSS-GEN Clause 8.8	PASS
Antenna requirement	FCC 15.203 RSS-GEN Clause 8.3	PASS
Dynamic Frequency Selection	FCC 15.407 (h) RSS-247 Clause 6.3	PASS

2. General test information

2.1. Description of EUT

EUT* Name	: WIRELESS LARGE MULTI-CHANNEL SOUNDBAR
Model Number	: ENCHANT 1300
EUT function description	: Please reference user manual of this device
Power supply	: AC 100-240V, 50/60Hz
Radio Technology	: IEEE 802.11a/n/ac
FCC Operation frequency	: IEEE 802.11a: 5180MHz-5240MHz, 5260MHz-5320MHz, 5500MHz-5700MHz, 5745MHz-5825MHz IEEE 802.11n HT20: 5180MHz-5240MHz, 5260MHz-5320MHz, 5500MHz-5700MHz, 5745MHz-5825MHz IEEE 802.11n HT40: 5190MHz-5230MHz, 5270MHz-5310MHz, 5510MHz-5670MHz, 5755MHz-5755MHz IEEE 802.11ac HT20: 5180MHz-5240MHz, 5260MHz-5320MHz, 5500MHz-5700MHz, 5745MHz-5825MHz IEEE 802.11ac HT40: 5190MHz-5230MHz, 5270MHz-5310MHz, 5510MHz-5670MHz, 5755MHz-5755MHz IEEE 802.11ac HT80: 5210MHz, 5290MHz, 5530MHz, 5775MHz
Modulation	: IEEE 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20, HT40: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK)
Transmitter rate	: IEEE 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps IEEE 802.11n HT20: 7.2, 14.4, 21.7, 28.9, 43.3, 57.8, 65, 72.2 Mbps IEEE 802.11n HT40: 15, 30, 45, 60, 90, 120, 135, 150 Mbps IEEE 802.11ac HT20: 7.2, 14.4, 21.7, 28.9, 43.3, 57.8, 65, 72.2, 86.7 Mbps IEEE 802.11ac HT40: 15, 30, 45, 60, 90, 120, 135, 150, 180, 200 Mbps IEEE 802.11ac HT80: 32.5, 65, 97.5, 130, 195, 260, 292.5, 325, 390, 433.3 Mbps
Antenna Type	: Antenna 1: External FPC antenna, 5G band maximum PK gain 2.14dBi Antenna 2: External FPC antenna, 5G band maximum PK gain 2.52dBi
Sample Type	: Series production

Note: EUT is the ab. of equipment under test.

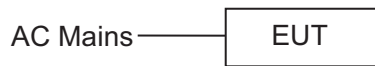
2.2. Accessories of EUT

Description of Accessories	Manufacturer	Model number	Serial No.	Other
HDMI cable	harman/kardon	N/A	N/A	Length: 1.2m, shielded, two core
AC cable	harman/kardon	N/A	N/A	Length: 1.5m without core

2.3. Assistant equipment used for test

Description of Accessories	Manufacturer	Model number	Serial No.	Other
Notebook	DELL	Latitude D610	00045-534-136-300	00045-534-136-300
Wireless LAN Access Point	HUAWEI	AP6050	21500829352SC5000371	FCC ID: QISAP6050DN6150DN

2.4. Block diagram of EUT configuration for test



EUT was connected to control to provide by manufacturer which has a standard LAN port connector to connect to Notebook, and the Notebook will run a special test software “SecureCRT. EXE” provided by manufacturer to control EUT work in Continuous Tx mode (>98% duty cycle), and select test channel, wireless mode and data rate.

Tested mode, channel, and data rate information				
Mode	Setting Tx Power	data rate (Mbps) (see Note)	Channel	Frequency (MHz)
IEEE 802.11a	11	54	Low: CH36	5180
	11	54	Middle: CH40	5200
	11	54	High: CH48	5240
	11	54	Low: CH52	5260
	11	54	Middle: CH56	5280
	11	54	High: CH64	5320
	11	54	Low: CH100	5500
	11	54	Middle: CH116	5580
	11	54	High: CH140	5700
	11	54	Low: CH149	5745
	11	54	Middle: CH157	5785
IEEE 802.11n HT20	11	MCS 7	Low: CH36	5180
	11	MCS 7	Middle: CH40	5200
	11	MCS 7	High: CH48	5240
	11	MCS 7	Low: CH52	5260
	11	MCS 7	Middle: CH56	5280
	11	MCS 7	High: CH64	5320
	11	MCS 7	Low: CH100	5500
	11	MCS 7	Middle: CH116	5580
	11	MCS 7	High: CH140	5700
	11	MCS 7	Low: CH149	5745
	11	MCS 7	Middle: CH157	5785
IEEE 802.11n HT40	9	MCS 7	Low: CH38	5190
	9	MCS 7	Middle: CH46	5230
	9	MCS 7	High: CH54	5270
	9	MCS 7	Low: CH62	5310
	9	MCS 7	Middle: CH102	5510
	9	MCS 7	High: CH110	5550
	9	MCS 7	Low: CH134	5670
	9	MCS 7	Middle: CH151	5755
	9	MCS 7	High: CH159	5795

IEEE 802.11ac HT20	11	MCS 8	Low: CH36	5180
	11	MCS 8	Middle: CH40	5200
	11	MCS 8	High: CH48	5240
	11	MCS 8	Low: CH52	5260
	11	MCS 8	Middle: CH56	5280
	11	MCS 8	High: CH64	5320
	11	MCS 8	Low: CH100	5500
	11	MCS 8	Middle: CH116	5580
	11	MCS 8	High: CH140	5700
	11	MCS 8	Low: CH149	5745
	11	MCS 8	Middle: CH157	5785
	11	MCS 8	High: CH165	5825
IEEE 802.11ac HT40	9	MCS 9	Low: CH38	5190
	9	MCS 9	Middle: CH46	5230
	9	MCS 9	High: CH54	5270
	9	MCS 9	Low: CH62	5310
	9	MCS 9	Middle: CH102	5510
	9	MCS 9	High: CH110	5550
	9	MCS 9	Low: CH134	5670
	9	MCS 9	Middle: CH151	5755
	9	MCS 9	High: CH159	5795
IEEE 802.11ac HT80	5	MCS 9	CH42	5210
	5	MCS 9	CH58	5290
	5	MCS 9	CH106	5530
	5	MCS 9	CH155	5775

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

2.5. Deviations of test standard

No Deviation.

2.6. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature range:	21-25°C
Humidity range:	40-75%
Pressure range:	86-106kPa

2.7. Test laboratory

Dongguan Dongdian Testing Service Co., Ltd

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CNAS Accreditation No. L6451; A2LA Accreditation No. 3870.01

Designation Number: CN1182; Test Firm Registration Number: 540522

Industry Canada site registration number: 10288A-1

2.8. Measurement uncertainty

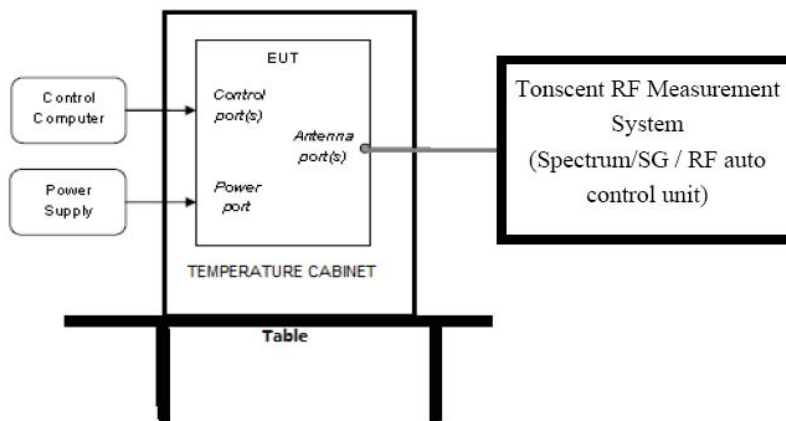
Test Item	Uncertainty
Bandwidth	1.1%
Peak Output Power (Conducted) (Spectrum analyzer)	0.86dB (10 MHz ≤ f < 3.6GHz);
	1.38dB (3.6GHz ≤ f < 8GHz)
Peak Output Power (Conducted) (Power Sensor)	0.74dB
Power Spectral Density	0.74dB (10 MHz ≤ f < 3.6GHz);
	1.38dB (3.6GHz ≤ f < 8GHz)
Frequencies Stability	6.7 x 10 ⁻⁸ (Antenna couple method)
	5.5 x 10 ⁻⁸ (Conducted method)
Conducted spurious emissions	0.86dB (10 MHz ≤ f < 3.6GHz);
	1.40dB (3.6GHz ≤ f < 8GHz)
	1.66dB (8GHz ≤ f < 22GHz)
Uncertainty for radio frequency (RBW<20kHz)	3×10 ⁻⁸
Temperature	0.4℃
Humidity	2%
Uncertainty for Radiation Emission test (30MHz-1GHz)	4.70 dB (Antenna Polarize: V)
	4.84 dB (Antenna Polarize: H)
Uncertainty for Radiation Emission test (1GHz-40GHz)	4.10dB (1-6GHz)
	4.40dB (6GHz-18GHz)
	3.54dB (18GHz-26GHz)
	4.30dB (26GHz-40GHz)
Uncertainty for Power line conduction emission test	3.32dB (150kHz-30MHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

3. Equipment used during test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
RF Connected Test (Tonscend RF Measurement System)					
Spectrum analyzer	R&S	FSU26	200071	Oct. 23, 2017	1 Year
Spectrum analyzer	Agilent	E4447A	MY50180031	Jun. 29, 2018	1 Year
Wideband Radio Communication tester	R&S	CMW500	117491	Jun. 29, 2018	1 Year
Vector Signal Generator	Agilent	E8267D	US49060192	Oct. 23, 2017	1 Year
Vector Signal Generator	Agilent	N5182A	MY48180737	Jun. 29, 2018	1 Year
Power Sensor	Agilent	U2021XA	MY55150010	Oct. 21, 2017	1 Year
Power Sensor	Agilent	U2021XA	MY55150011	Oct. 23, 2017	1 Year
DC Power Source	MATRIS	MPS-3005L-3	D813058W	Aug. 18, 2017	1 Year
Attenuator	Mini-Circuits	BW-S10W2	101109	Aug. 18, 2017	1 Year
RF Cable	Micable	C10-01-01-1	100309	Oct. 21, 2017	1 Year
Temp&Humi Programmable	ZHIXIANG	ZXGDJS-150L	ZX170110-A	Oct. 21, 2017	1 Year
Test Software	JS Tonscend	JS1120-3	Ver.2.7	N/A	N/A
Radiated Emission Test Chamber 1#					
EMI Test Receiver	R&S	ESU8	100316	Oct. 21, 2017	1 Year
Spectrum analyzer	Agilent	E4447A	MY50180031	Jun. 29, 2018	1 Year
Trilog Broadband Antenna	Schwarzbeck	VULB9163	9163-462	Nov. 09, 2017	1 Year
Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	Oct. 17, 2017	1 Year
Double Ridged Horn Antenna	R&S	HF907	100276	Oct. 17, 2017	1 Year
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	790	Nov. 09, 2017	1 Year
Pre-amplifier	A.H.	PAM-0118	360	Oct. 21, 2017	1 Year
Pre-amplifier	TERA-MW	TRLA-0040G35	101303	Oct. 21, 2017	1 Year
RF Cable	HUBSER	CP-X2+ CP-X1	W11.03+ W12.02	Oct. 21, 2017	1 Year
RF Cable	N/A	SMAJ-SMAJ-1M+11M	17070133+17070131	Nov. 08, 2017	1 Year
MI Cable	HUBSER	C10-01-01-1M	1091629	Oct. 21, 2017	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A
Power Line Conducted Emissions Test					
Test Receiver	R&S	ESPI	101761	Oct. 21, 2017	1 Year
LISN 1	R&S	ENV216	101109	Oct. 21, 2017	1 Year
LISN 2	R&S	ESH2-Z5	100309	Oct. 21, 2017	1 Year
Pulse Limiter	R&S	ESH3-Z2	101242	Oct. 21, 2017	1 Year
CE Cable 1	HUBSER	N/A	W10.01	Oct. 21, 2017	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A

4. 26dB Bandwidth, 6dB Bandwidth and 99% Bandwidth

4.1. Block diagram of test setup



4.2. Limits

FCC Part15, Subpart E/ RSS-247		
Test Item	Limit	Frequency Range (MHz)
Bandwidth	26 dB Bandwidth	5150-5250
	26 dB Bandwidth	5250-5350
	26 dB Bandwidth	For FCC:5470-5725 For IC:5470-5600 5650-5725
	Minimum 500kHz 6dB Bandwidth	5725-5850

4.3. Test Procedure

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

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

(2) Allow the trace to stabilize, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 26 dB and 6dB relative to the maximum level measured in the fundamental emission.

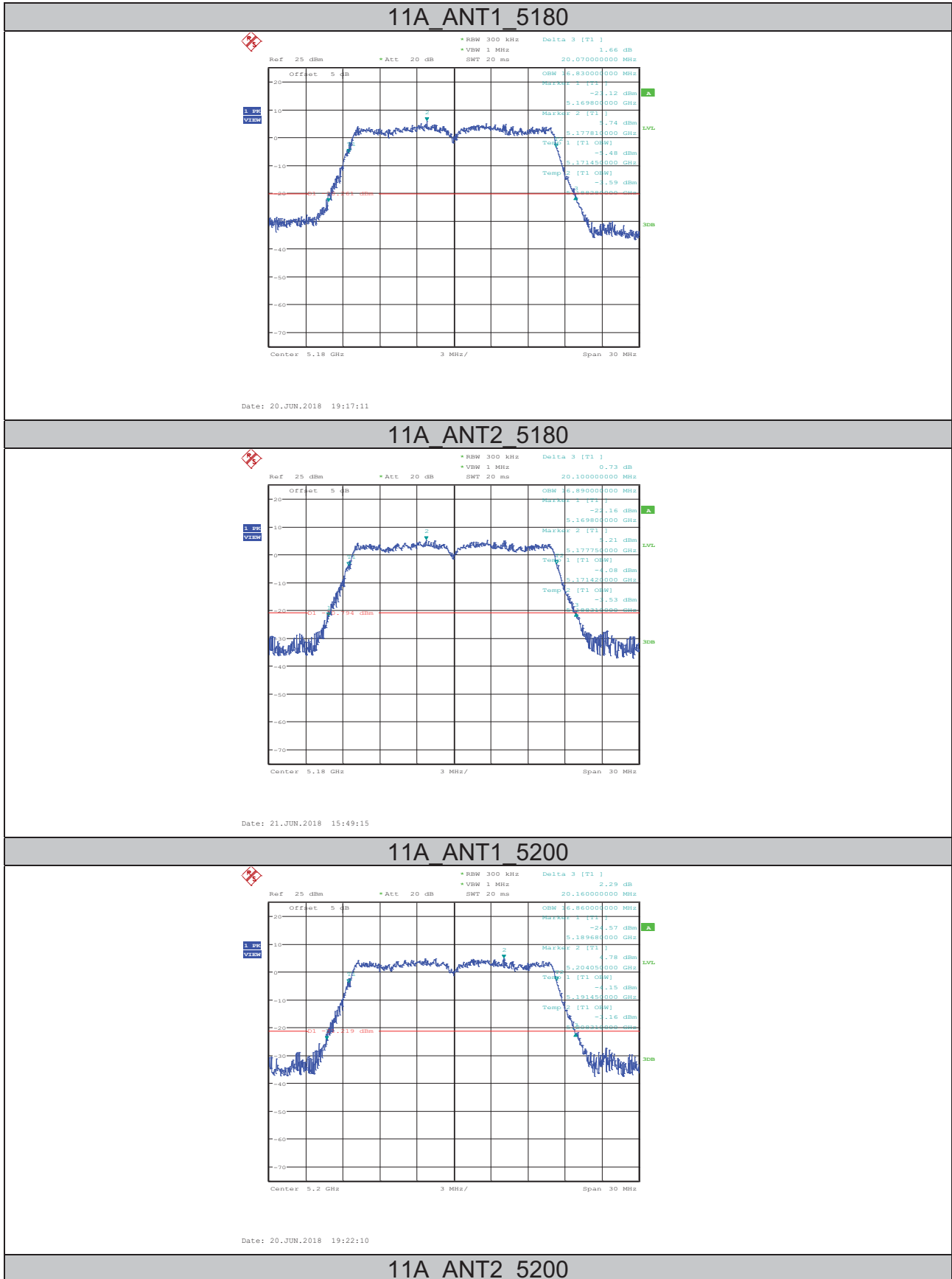
4.4. Test Result

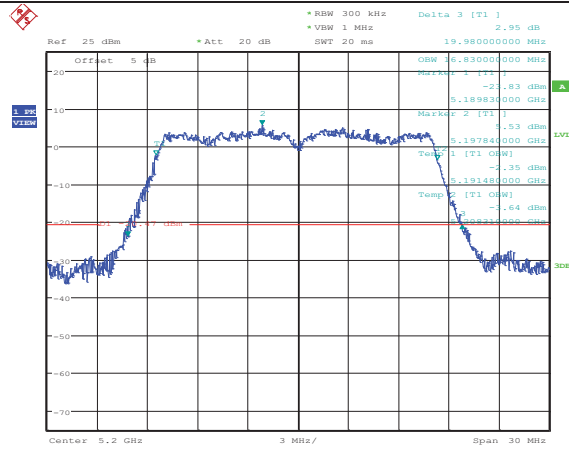
Test Mode	Antenna	Channel	99% BW[MHz]	EBW[MHz]	Limit [MHz]	Verdict
11A	ANT1	5180	16.83	20.070	---	PASS
11A	ANT2	5180	16.89	20.100	---	PASS
11A	ANT1	5200	16.86	20.160	---	PASS
11A	ANT2	5200	16.83	19.980	---	PASS
11A	ANT1	5240	16.83	20.130	---	PASS
11A	ANT2	5240	16.83	20.160	---	PASS
11A	ANT1	5260	16.83	20.070	---	PASS
11A	ANT2	5260	16.83	20.130	---	PASS
11A	ANT1	5280	16.83	20.010	---	PASS
11A	ANT2	5280	16.86	20.010	---	PASS
11A	ANT1	5320	16.86	20.100	---	PASS
11A	ANT2	5320	16.86	19.890	---	PASS
11A	ANT1	5500	16.83	20.190	---	PASS
11A	ANT2	5500	16.83	20.040	---	PASS
11A	ANT1	5580	16.83	19.980	---	PASS
11A	ANT2	5580	16.86	20.100	---	PASS
11A	ANT1	5700	16.83	20.130	---	PASS
11A	ANT2	5700	16.86	19.950	---	PASS
11A	ANT1	5745	16.47	16.380	0.5	PASS
11A	ANT2	5745	16.47	16.380	0.5	PASS
11A	ANT1	5785	16.47	16.410	0.5	PASS
11A	ANT2	5785	16.47	16.380	0.5	PASS
11A	ANT1	5825	16.47	16.410	0.5	PASS
11A	ANT2	5825	16.47	16.380	0.5	PASS
11N20	ANT1	5180	17.70	20.100	---	PASS
11N20	ANT2	5180	17.70	20.340	---	PASS
11N20	ANT1	5200	17.70	20.190	---	PASS
11N20	ANT2	5200	17.70	20.160	---	PASS
11N20	ANT1	5240	17.67	20.250	---	PASS
11N20	ANT2	5240	17.67	20.100	---	PASS
11N20	ANT1	5260	17.70	20.160	---	PASS
11N20	ANT2	5260	17.70	20.130	---	PASS
11N20	ANT1	5280	17.67	20.280	---	PASS
11N20	ANT2	5280	17.70	20.130	---	PASS
11N20	ANT1	5320	17.67	20.280	---	PASS
11N20	ANT2	5320	17.67	20.340	---	PASS
11N20	ANT1	5500	17.70	20.250	---	PASS
11N20	ANT2	5500	17.67	20.220	---	PASS

11N20	ANT1	5580	17.70	20.190	---	PASS
11N20	ANT2	5580	17.67	20.340	---	PASS
11N20	ANT1	5700	17.67	20.010	---	PASS
11N20	ANT2	5700	17.67	20.130	---	PASS
11N20	ANT1	5745	17.58	17.010	0.5	PASS
11N20	ANT2	5745	17.58	17.160	0.5	PASS
11N20	ANT1	5785	17.58	17.220	0.5	PASS
11N20	ANT2	5785	17.58	17.130	0.5	PASS
11N20	ANT1	5825	17.58	17.460	0.5	PASS
11N20	ANT2	5825	17.58	17.610	0.5	PASS
11N40	ANT1	5190	36.12	40.860	---	PASS
11N40	ANT2	5190	36.18	40.920	---	PASS
11N40	ANT1	5230	36.12	41.160	---	PASS
11N40	ANT2	5230	36.12	40.860	---	PASS
11N40	ANT1	5270	36.18	41.040	---	PASS
11N40	ANT2	5270	36.18	40.920	---	PASS
11N40	ANT1	5310	36.18	40.680	---	PASS
11N40	ANT2	5310	36.18	40.920	---	PASS
11N40	ANT1	5510	36.18	40.920	---	PASS
11N40	ANT2	5510	36.18	40.920	---	PASS
11N40	ANT1	5550	36.18	41.400	---	PASS
11N40	ANT2	5550	36.18	40.920	---	PASS
11N40	ANT1	5670	36.18	40.980	---	PASS
11N40	ANT2	5670	36.18	40.920	---	PASS
11N40	ANT1	5755	36.06	35.400	0.5	PASS
11N40	ANT2	5755	36.00	35.460	0.5	PASS
11N40	ANT1	5795	36.00	35.100	0.5	PASS
11N40	ANT2	5795	36.00	35.460	0.5	PASS
11AC20	ANT1	5180	17.70	20.580	---	PASS
11AC20	ANT2	5180	17.70	20.400	---	PASS
11AC20	ANT1	5200	17.70	20.730	---	PASS
11AC20	ANT2	5200	17.70	20.160	---	PASS
11AC20	ANT1	5240	17.67	20.220	---	PASS
11AC20	ANT2	5240	17.70	20.130	---	PASS
11AC20	ANT1	5260	17.67	20.100	---	PASS
11AC20	ANT2	5260	17.67	20.220	---	PASS
11AC20	ANT1	5280	17.67	20.160	---	PASS
11AC20	ANT2	5280	17.70	20.700	---	PASS
11AC20	ANT1	5320	17.67	20.580	---	PASS
11AC20	ANT2	5320	17.67	20.190	---	PASS
11AC20	ANT1	5500	17.67	20.130	---	PASS

11AC20	ANT2	5500	17.67	20.400	---	PASS
11AC20	ANT1	5580	17.67	20.250	---	PASS
11AC20	ANT2	5580	17.70	20.190	---	PASS
11AC20	ANT1	5700	17.67	20.220	---	PASS
11AC20	ANT2	5700	17.67	20.100	---	PASS
11AC20	ANT1	5745	17.58	16.980	0.5	PASS
11AC20	ANT2	5745	17.58	17.610	0.5	PASS
11AC20	ANT1	5785	17.58	17.100	0.5	PASS
11AC20	ANT2	5785	17.58	17.550	0.5	PASS
11AC20	ANT1	5825	17.58	17.610	0.5	PASS
11AC20	ANT2	5825	17.58	17.370	0.5	PASS
11AC40	ANT1	5190	36.12	40.920	---	PASS
11AC40	ANT2	5190	36.12	40.740	---	PASS
11AC40	ANT1	5230	36.12	40.620	---	PASS
11AC40	ANT2	5230	36.12	40.620	---	PASS
11AC40	ANT1	5270	36.18	40.500	---	PASS
11AC40	ANT2	5270	36.12	40.860	---	PASS
11AC40	ANT1	5310	36.12	40.500	---	PASS
11AC40	ANT2	5310	36.18	41.280	---	PASS
11AC40	ANT1	5510	36.18	40.920	---	PASS
11AC40	ANT2	5510	36.18	41.100	---	PASS
11AC40	ANT1	5550	36.18	40.860	---	PASS
11AC40	ANT2	5550	36.18	40.920	---	PASS
11AC40	ANT1	5670	36.12	40.860	---	PASS
11AC40	ANT2	5670	36.18	40.680	---	PASS
11AC40	ANT1	5755	36.00	35.280	0.5	PASS
11AC40	ANT2	5755	36.00	35.460	0.5	PASS
11AC40	ANT1	5795	36.00	35.460	0.5	PASS
11AC40	ANT2	5795	36.00	35.400	0.5	PASS
11AC80	ANT1	5210	76.32	82.680	---	PASS
11AC80	ANT2	5210	76.32	82.920	---	PASS
11AC80	ANT1	5290	76.44	83.520	---	PASS
11AC80	ANT2	5290	76.56	82.320	---	PASS
11AC80	ANT1	5530	76.44	85.560	---	PASS
11AC80	ANT2	5530	76.44	84.360	---	PASS
11AC80	ANT1	5775	75.96	76.680	0.5	PASS
11AC80	ANT2	5775	75.96	76.560	0.5	PASS

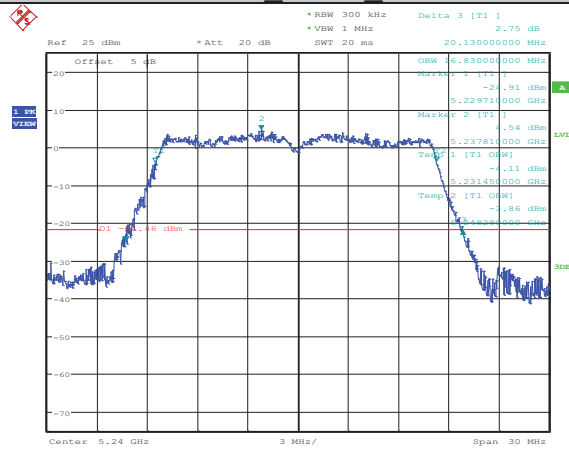
4.5. Original test data





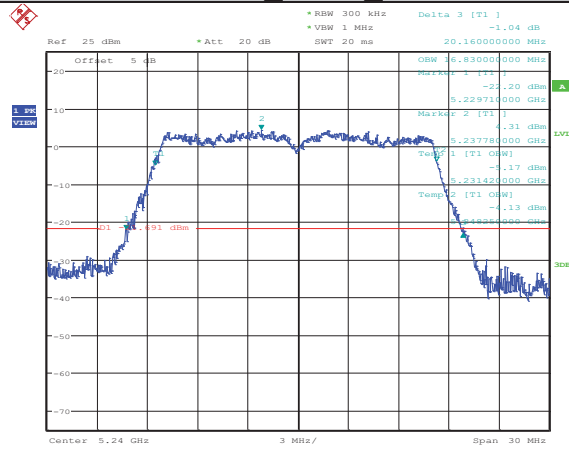
Date: 21.JUN.2018 15:53:37

11A ANT1 5240



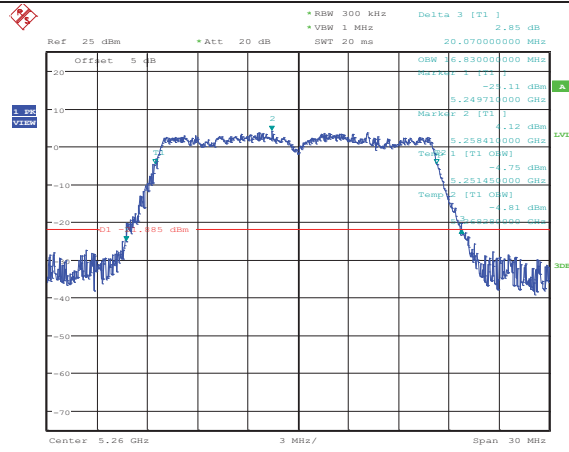
Date: 20.JUN.2018 19:24:50

11A ANT2 5240



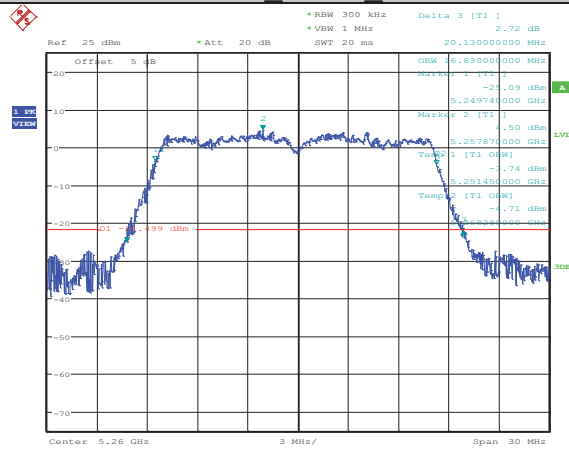
Date: 21.JUN.2018 15:56:05

11A ANT1 5260



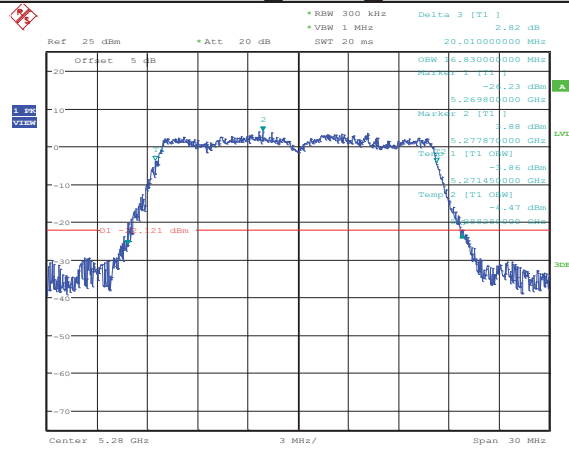
Date: 20.JUN.2018 19:27:16

11A ANT2 5260



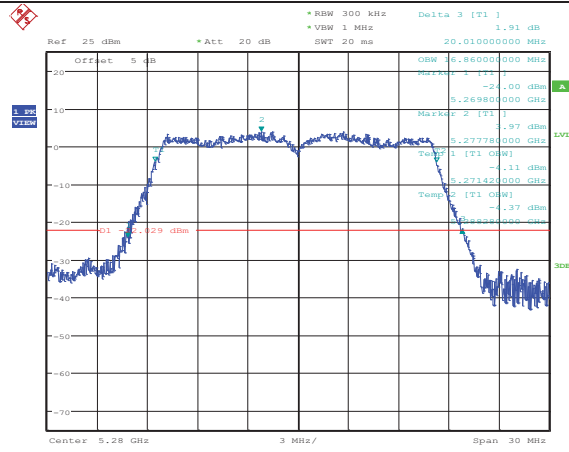
Date: 21.JUN.2018 15:58:58

11A ANT1 5280



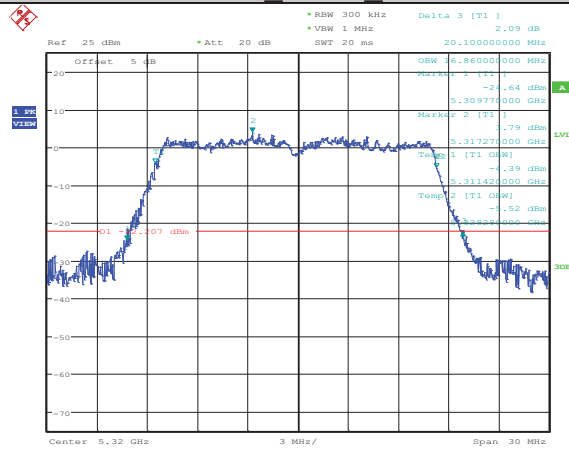
Date: 20.JUN.2018 19:29:42

11A ANT2 5280



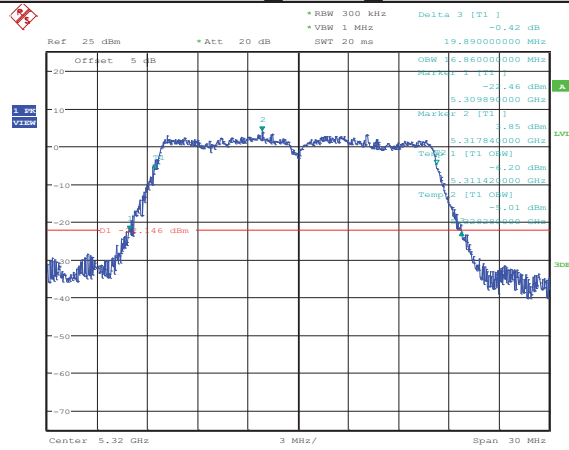
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11A ANT1 5320



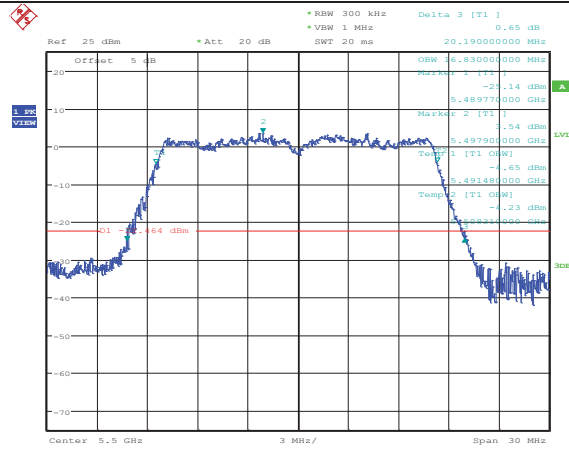
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11A ANT2 5320



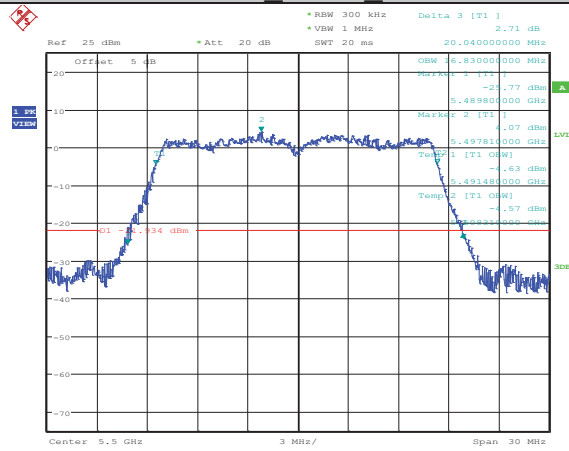
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11A ANT1 5500



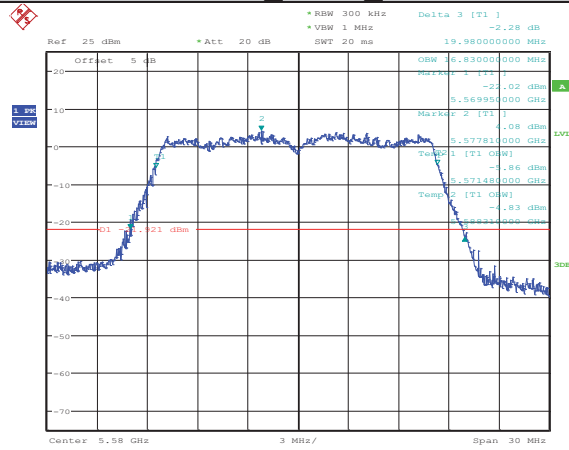
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11A ANT2 5500



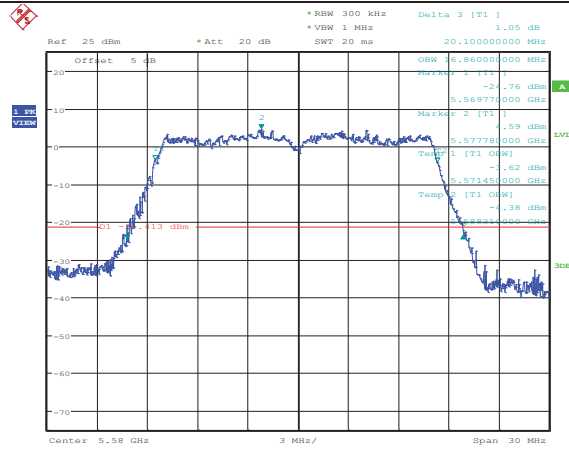
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11A ANT1 5580



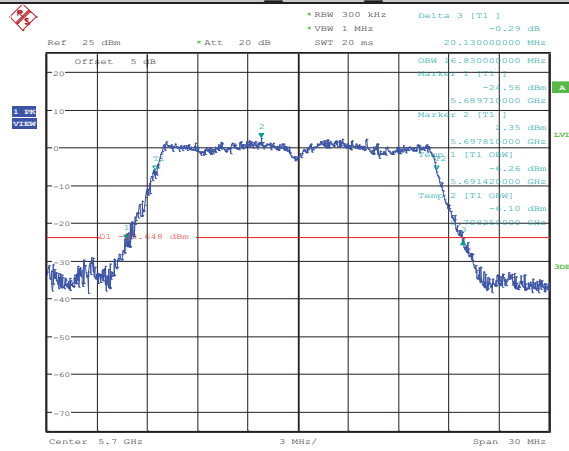
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11A ANT2 5580



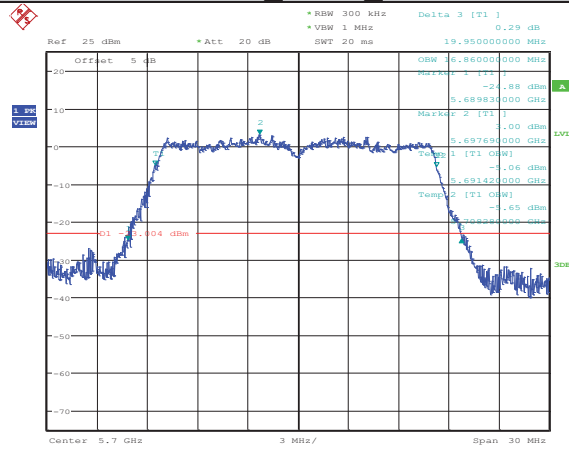
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11A ANT1 5700



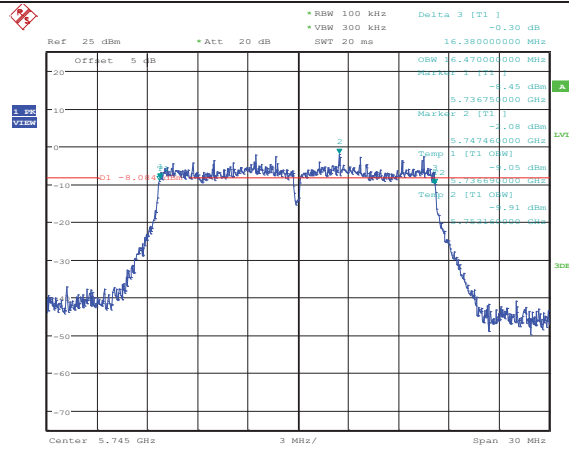
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11A ANT2 5700



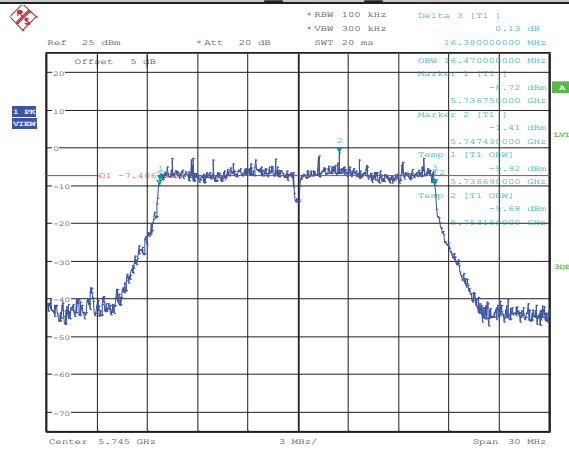
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11A ANT1 5745



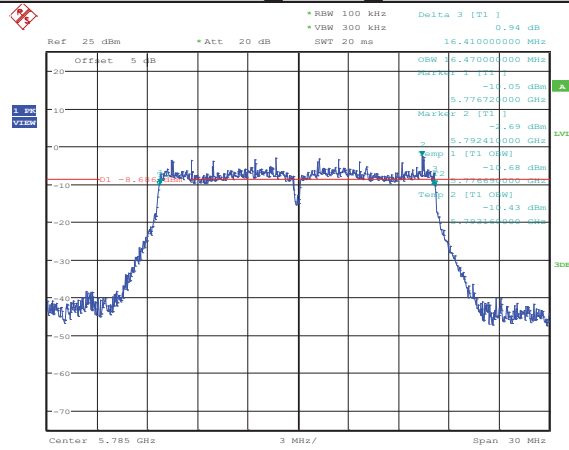
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11A ANT2 5745



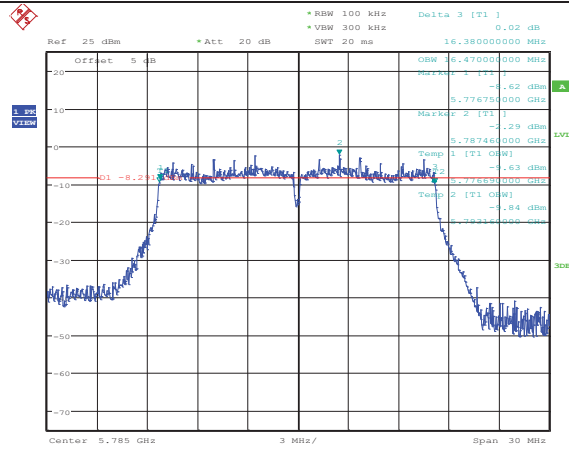
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11A ANT1 5785



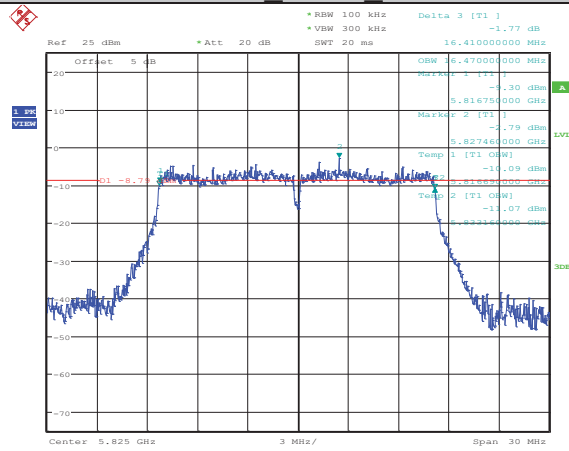
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11A ANT2 5785



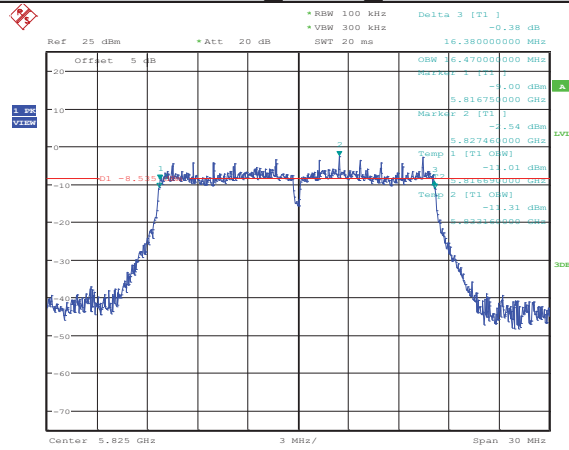
Date: 21.JUN.2018 16:25:22

11A ANT1 5825



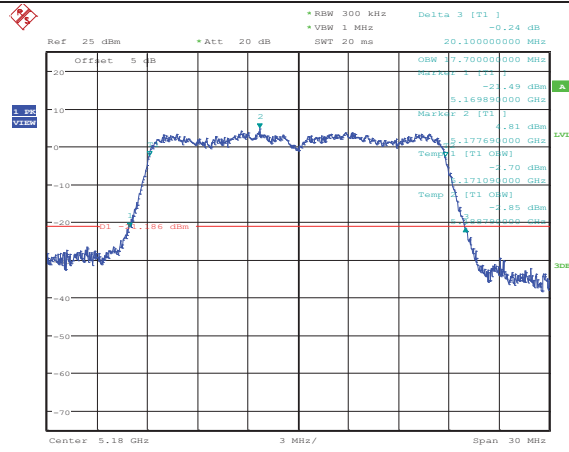
Date: 20.JUN.2018 19:49:08

11A ANT2 5825



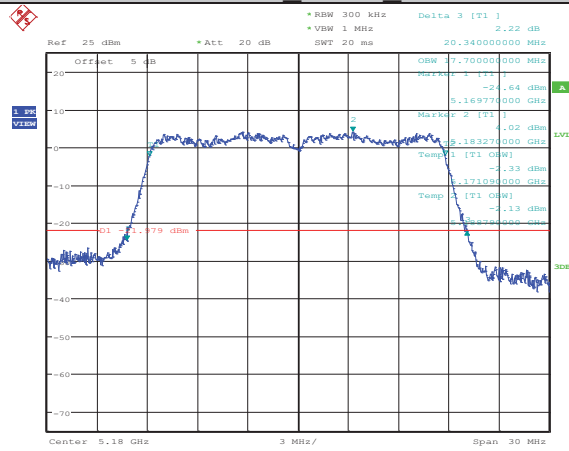
Date: 21.JUN.2018 16:29:28

11N20 ANT1 5180



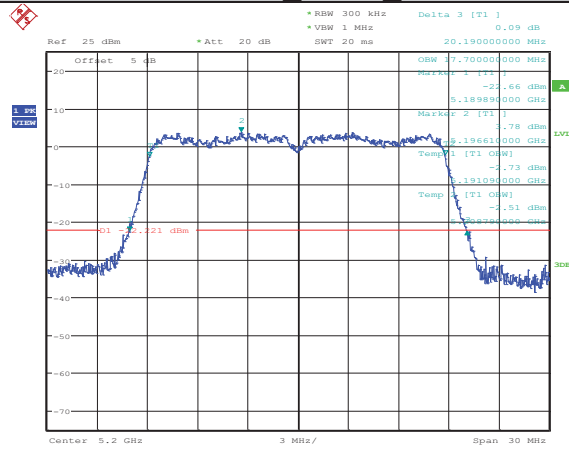
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11N20 ANT2 5180



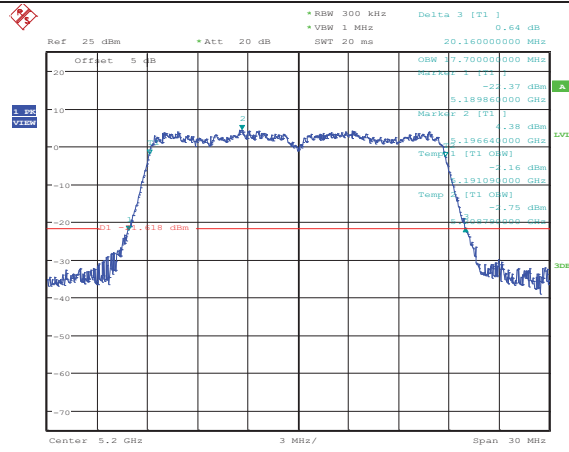
Date: 21.JUN.2018 16:35:08

11N20 ANT1 5200



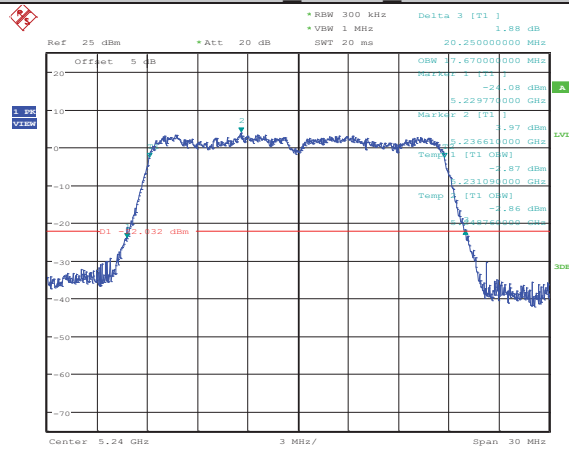
Date: 20.JUN.2018 20:01:15

11N20 ANT2 5200



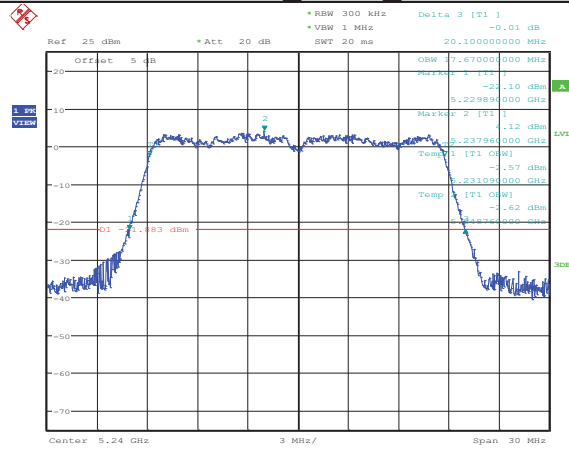
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11N20 ANT1 5240



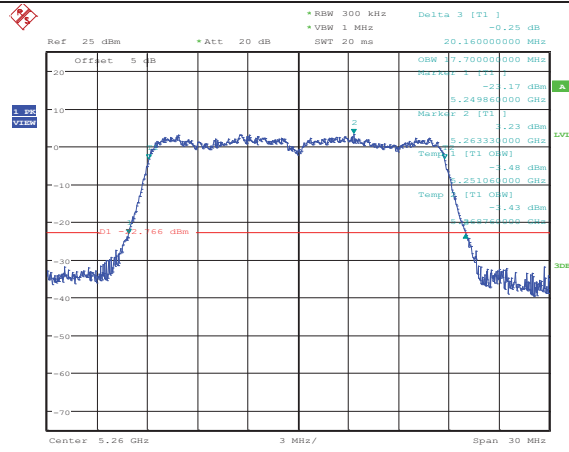
Date: 20.JUN.2018 20:03:50

11N20 ANT2 5240



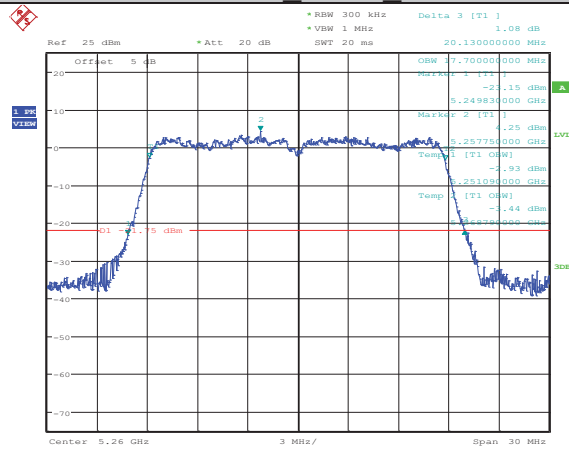
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11N20 ANT1 5260



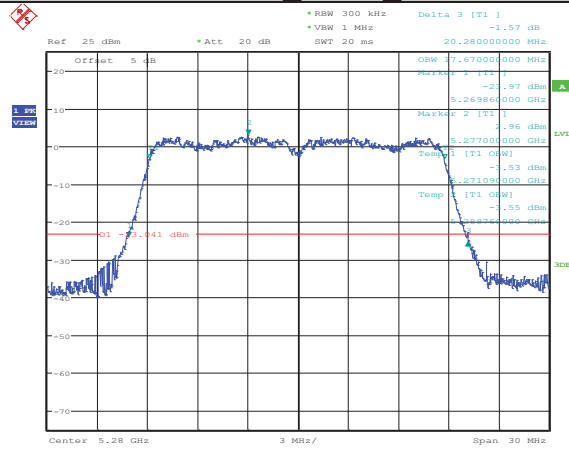
Date: 20.JUN.2018 20:06:35

11N20 ANT2 5260



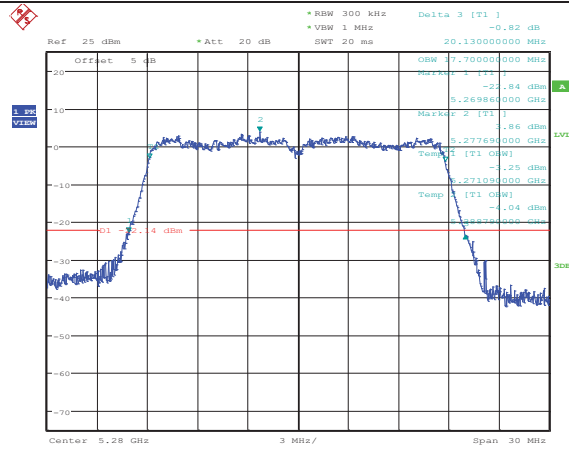
Date: 21.JUN.2018 16:48:08

11N20 ANT1 5280



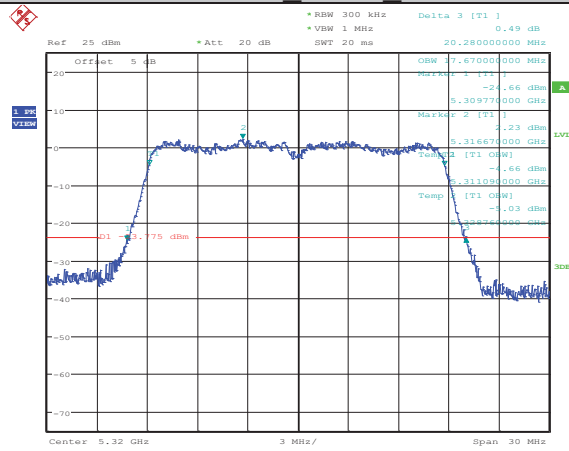
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11N20 ANT2 5280



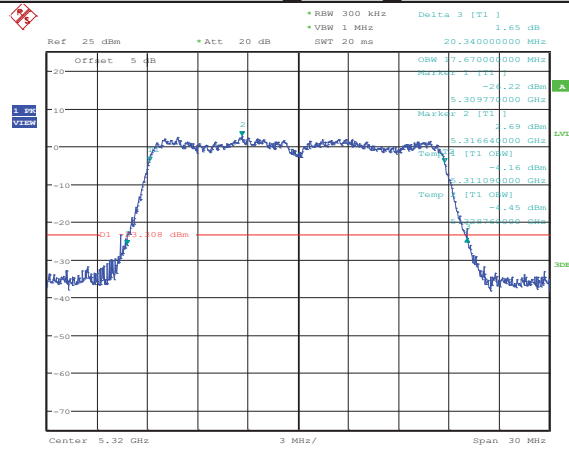
Date: 21.JUN.2018 16:51:29

11N20 ANT1 5320



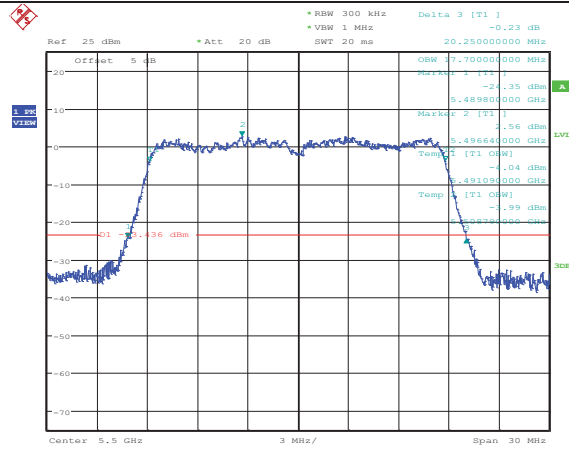
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11N20 ANT2 5320



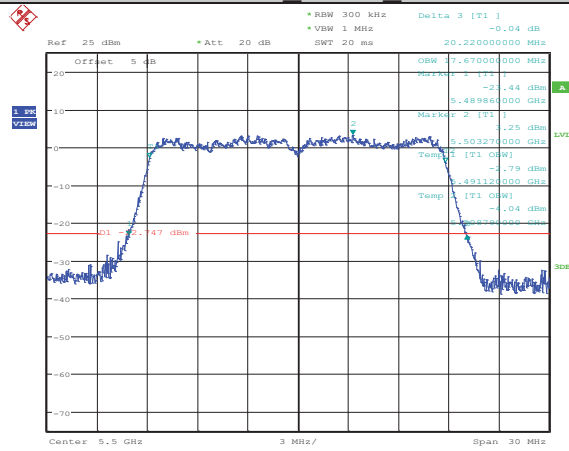
Date: 21.JUN.2018 16:56:28

11N20 ANT1 5500



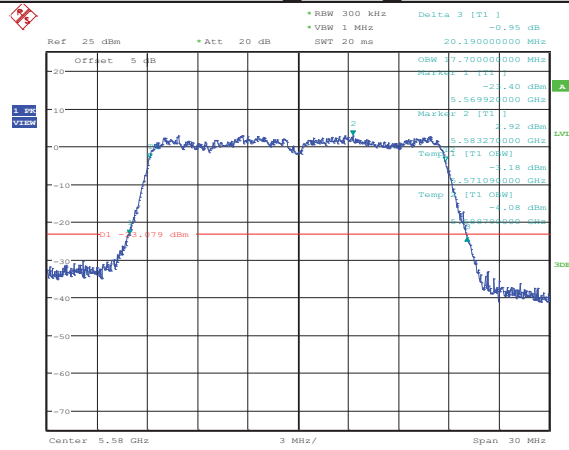
Date: 20.JUN.2018 20:14:57

11N20 ANT2 5500



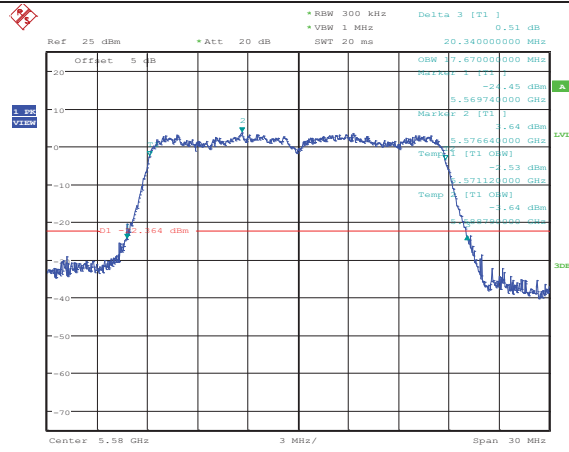
Date: 21.JUN.2018 17:00:03

11N20 ANT1 5580



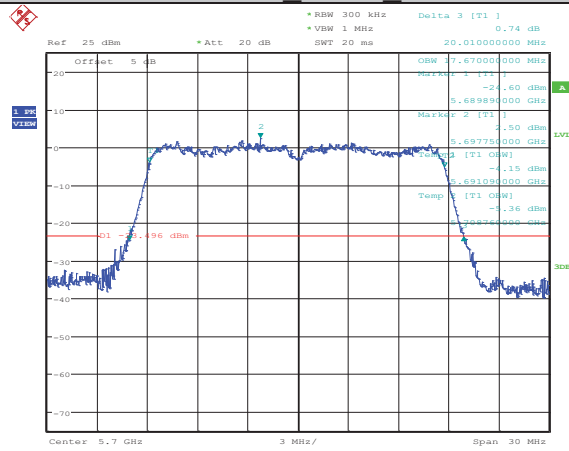
Date: 20.JUN.2018 20:17:39

11N20 ANT2 5580



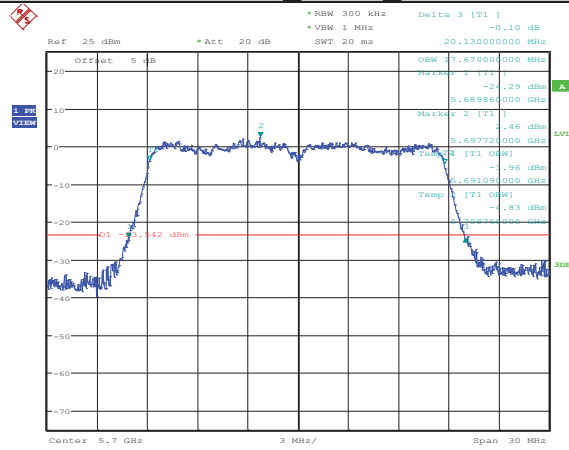
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11N20 ANT1 5700



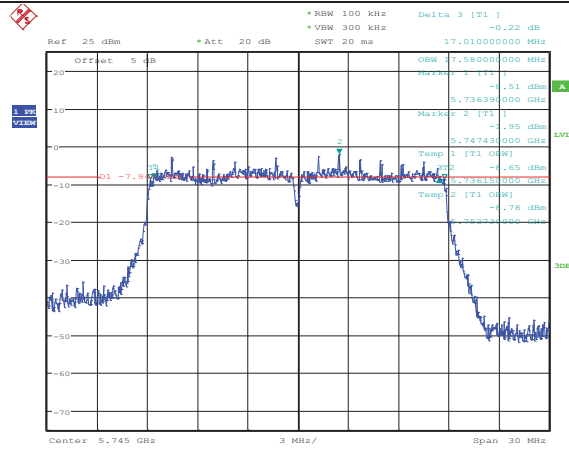
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11N20 ANT2 5700



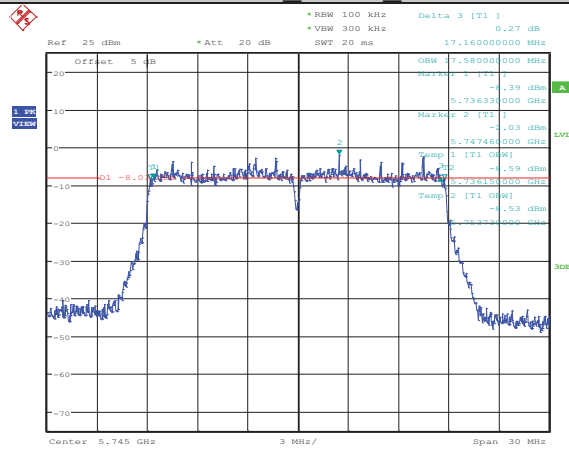
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11N20 ANT1 5745



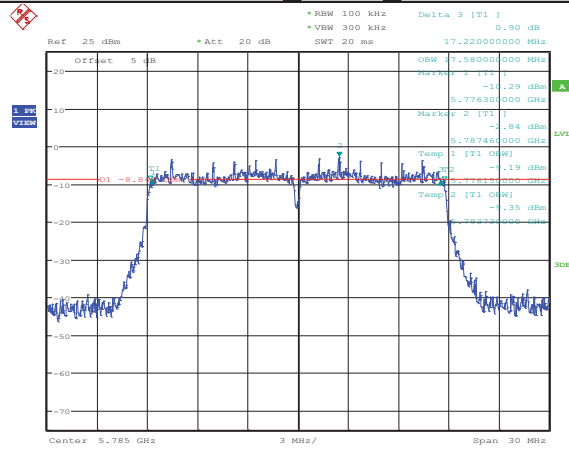
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11N20 ANT2 5745



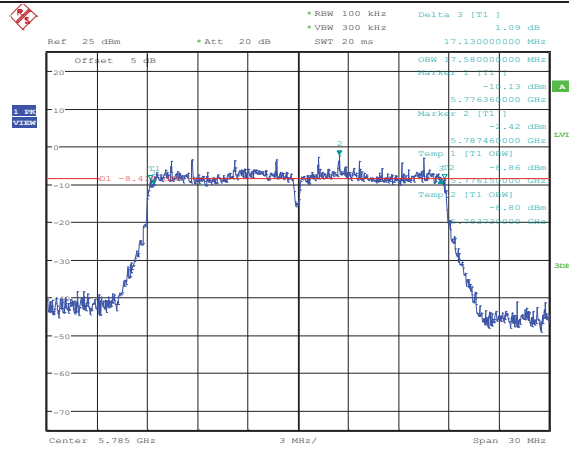
Date: 21.JUN.2018 17:09:25

11N20 ANT1 5785



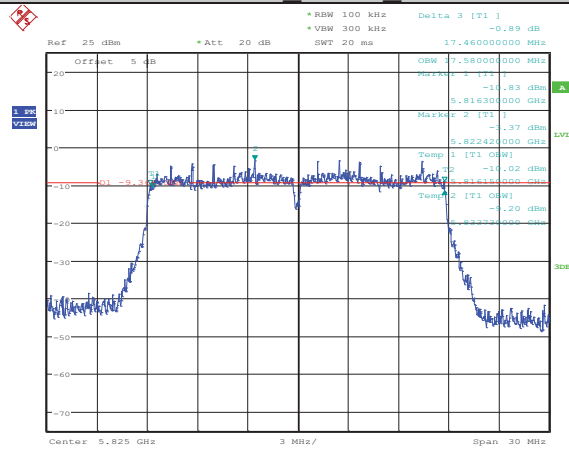
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11N20 ANT2 5785



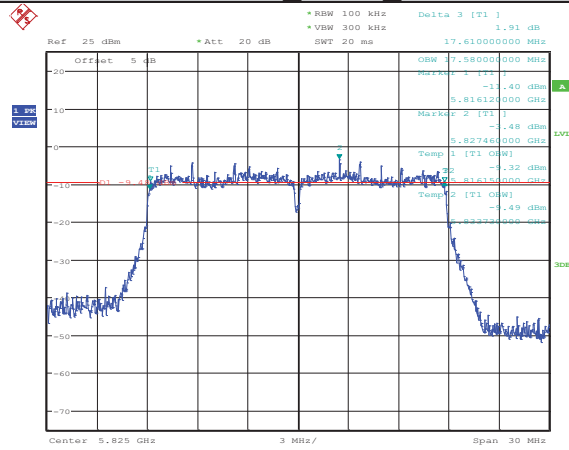
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11N20 ANT1 5825



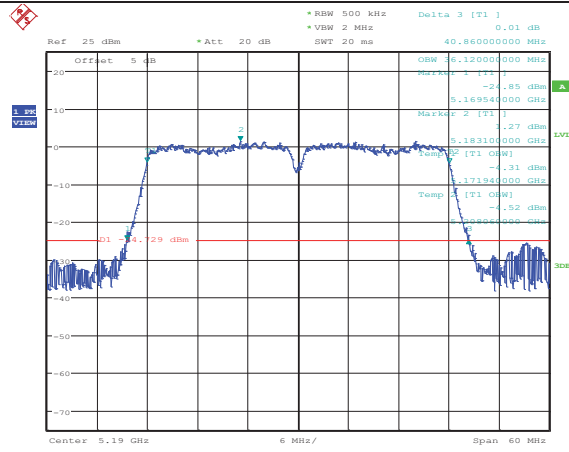
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11N20 ANT2 5825



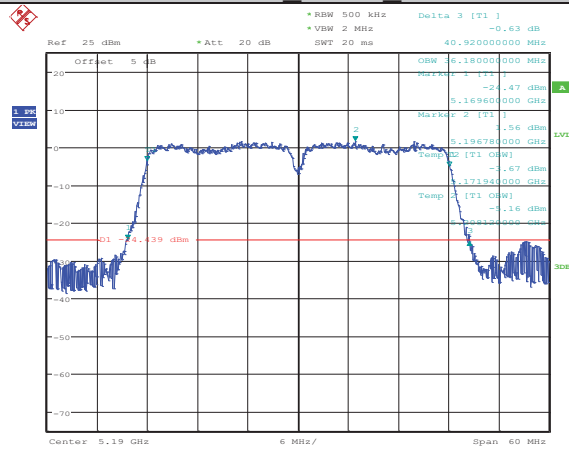
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11N40 ANT1 5190



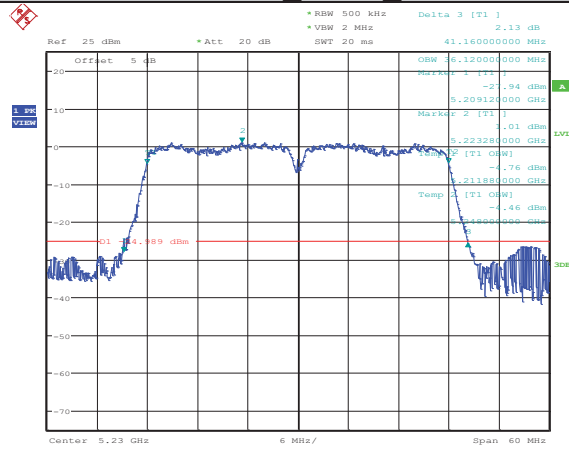
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11N40 ANT2 5190



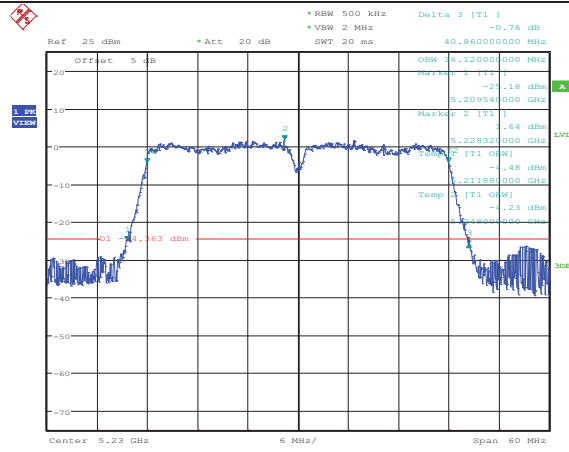
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11N40 ANT1 5230



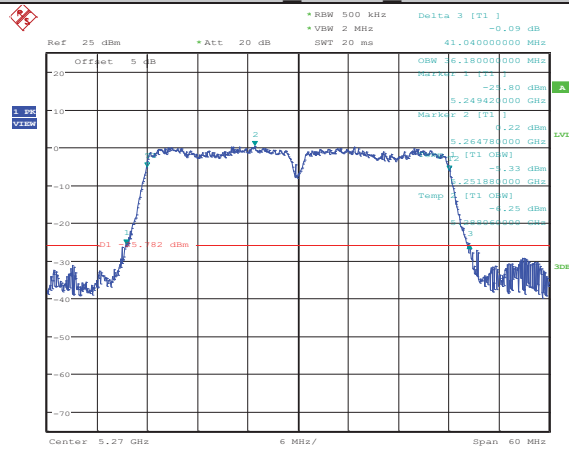
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11N40 ANT2 5230



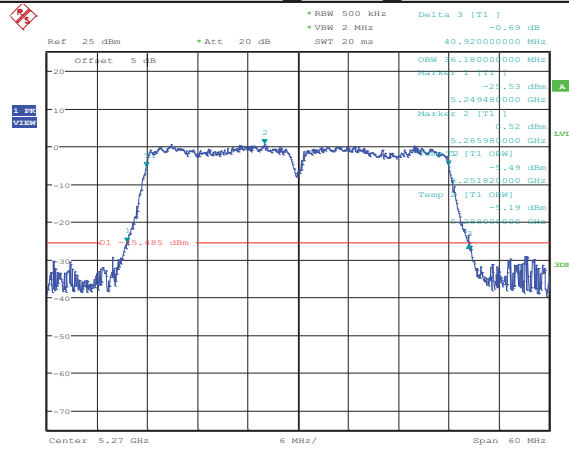
Date: 21.JUN.2018 17:21:18

11N40 ANT1 5270



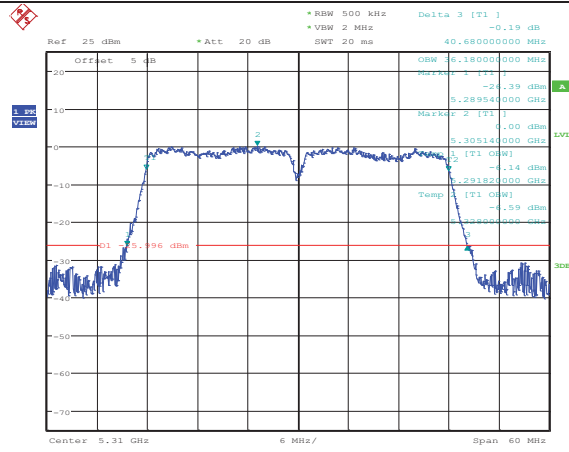
Date: 20.JUN.2018 21:16:06

11N40 ANT2 5270



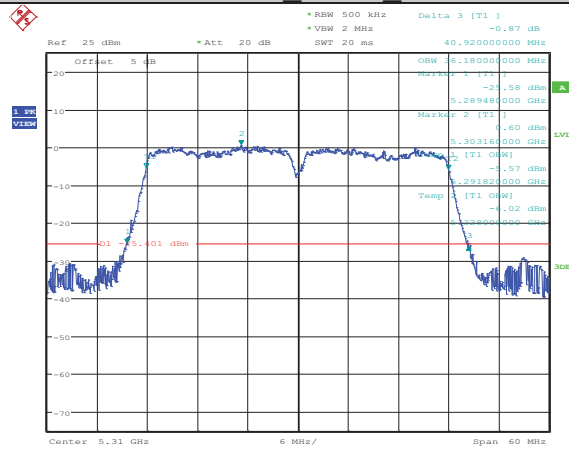
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11N40 ANT1 5310



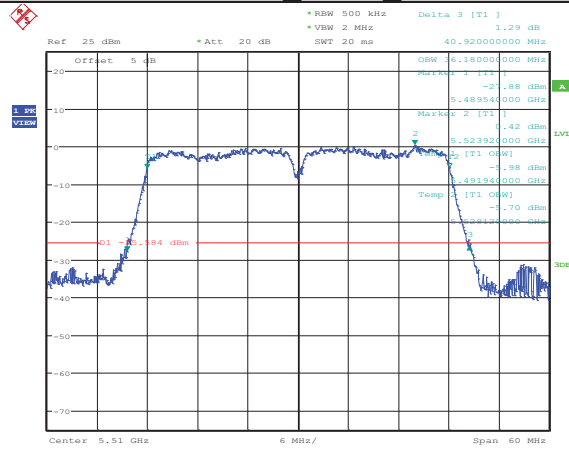
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11N40 ANT2 5310



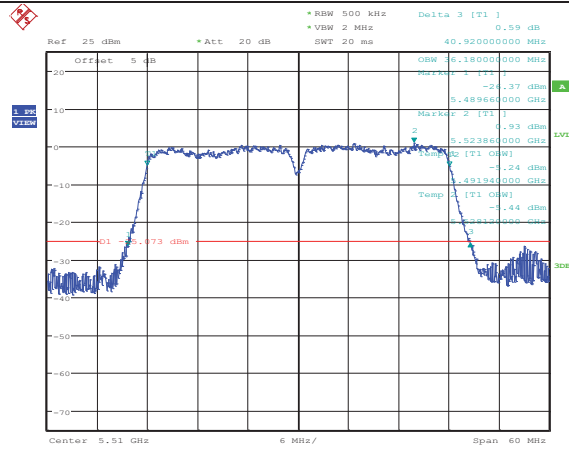
Date: 21.JUN.2018 17:26:20

11N40 ANT1 5510



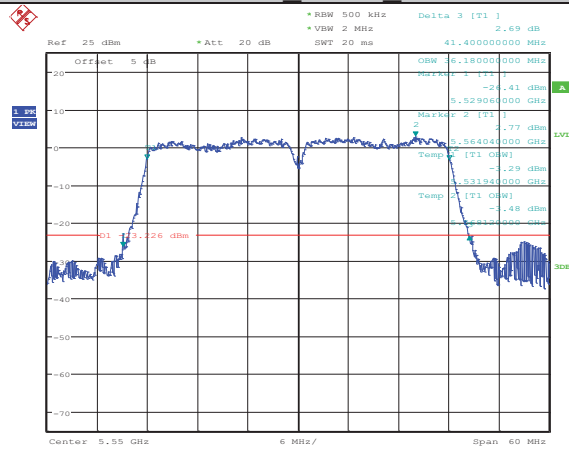
Date: 20.JUN.2018 21:23:01

11N40 ANT2 5510



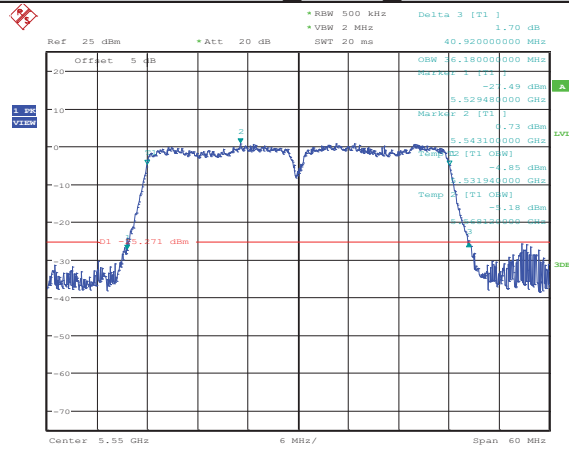
Date: 21.JUN.2018 17:29:07

11N40 ANT1 5550



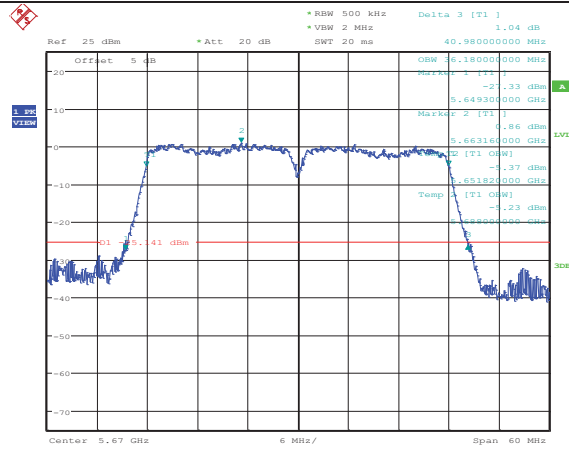
Date: 21.JUN.2018 10:43:15

11N40 ANT2 5550



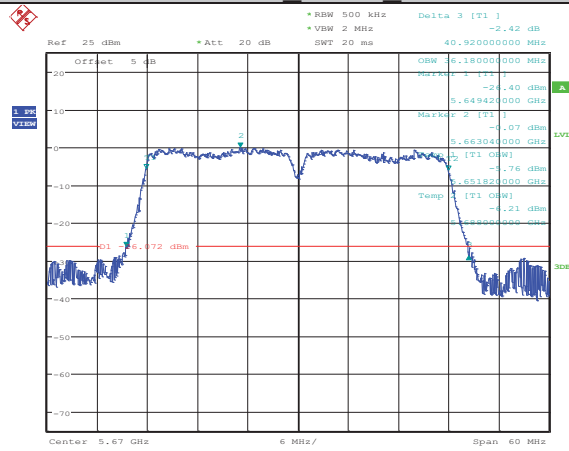
Date: 21.JUN.2018 17:45:11

11N40 ANT1 5670



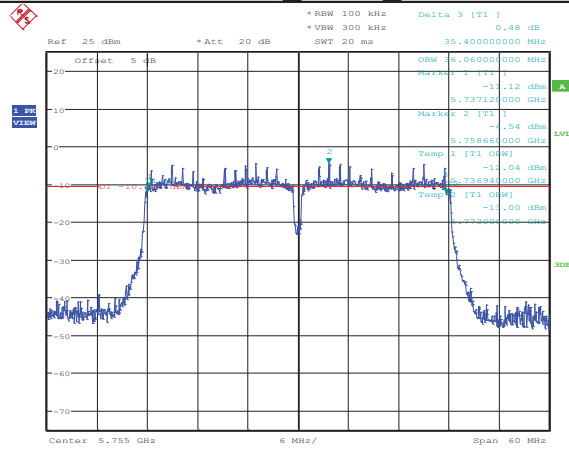
Date: 21.JUN.2018 10:46:02

11N40 ANT2 5670



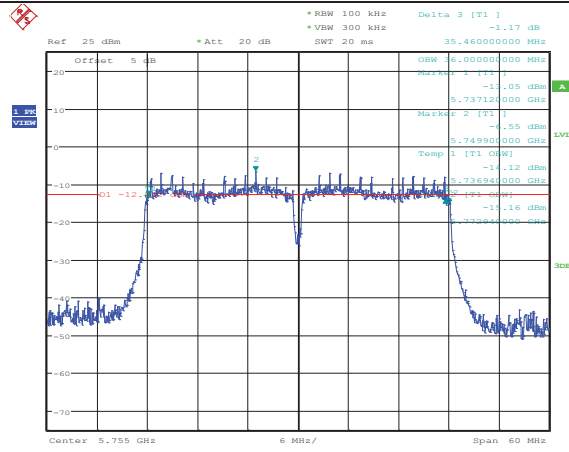
Date: 21.JUN.2018 17:48:01

11N40 ANT1 5755



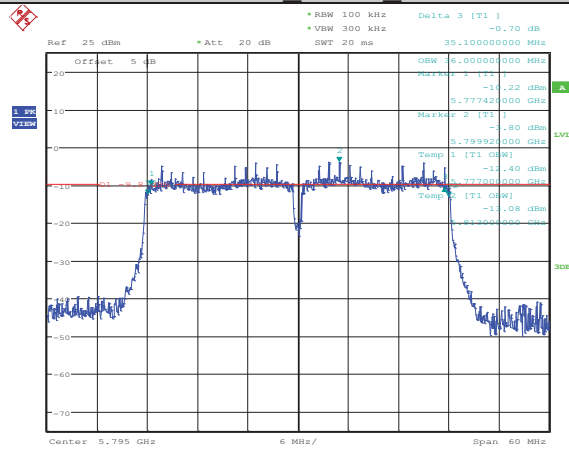
Date: 21.JUN.2018 10:48:31

11N40 ANT2 5755



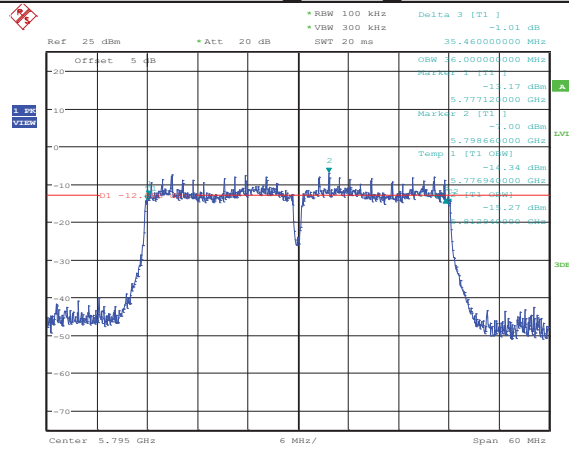
Date: 21.JUN.2018 17:50:37

11N40 ANT1 5795



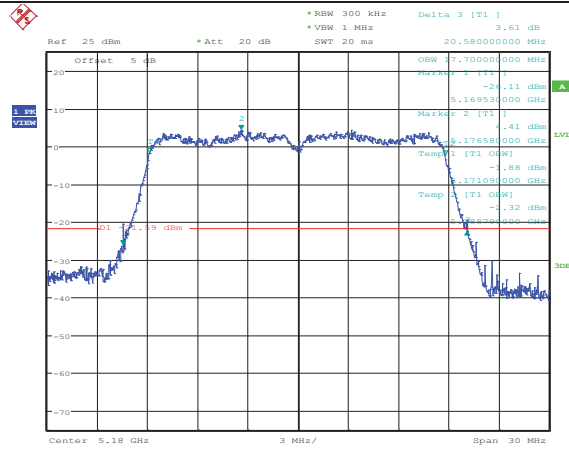
Date: 21.JUN.2018 10:51:15

11N40 ANT2 5795



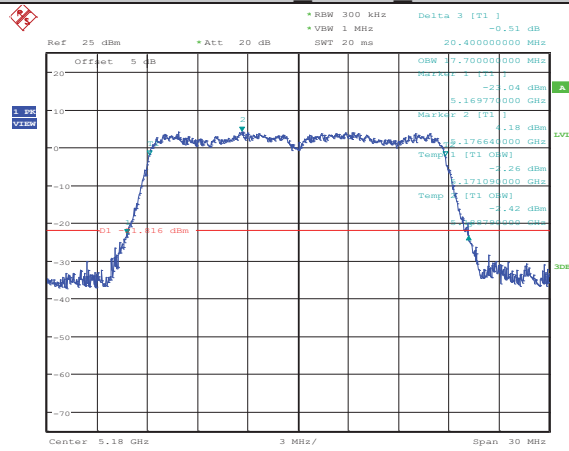
Date: 21.JUN.2018 17:54:04

11AC20 ANT1 5180



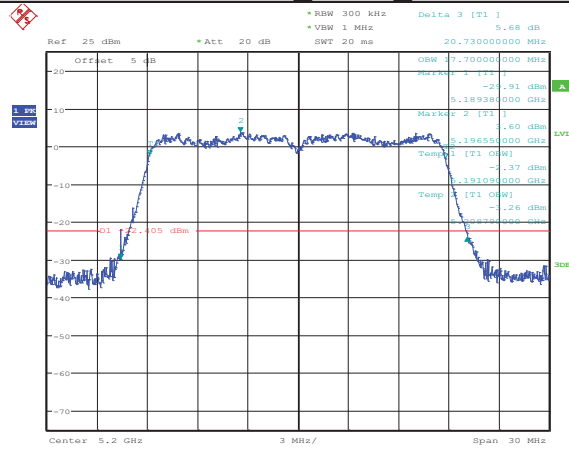
Date: 20.JUN.2018 20:30:38

11AC20 ANT2 5180



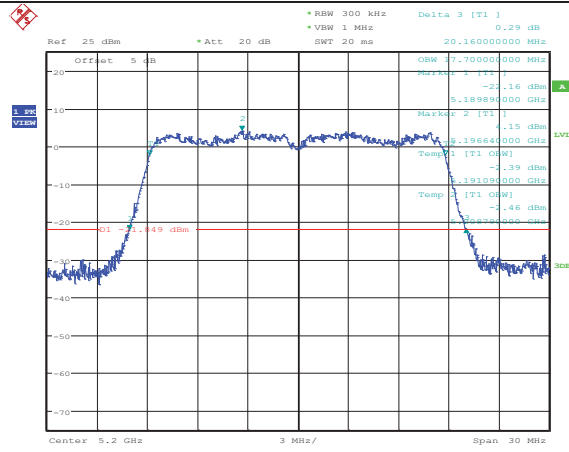
Date: 21.JUN.2018 17:57:02

11AC20 ANT1 5200



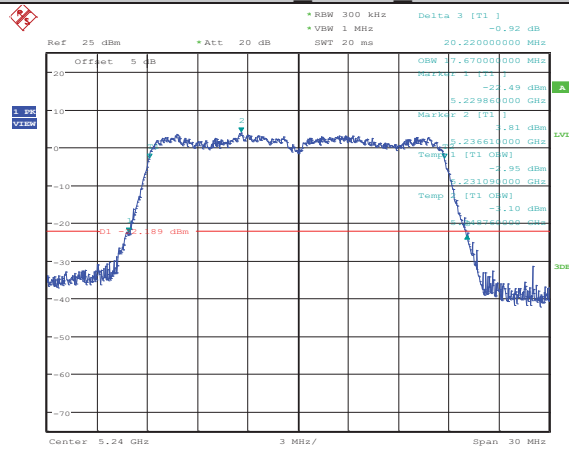
Date: 20.JUN.2018 20:33:16

11AC20 ANT2 5200



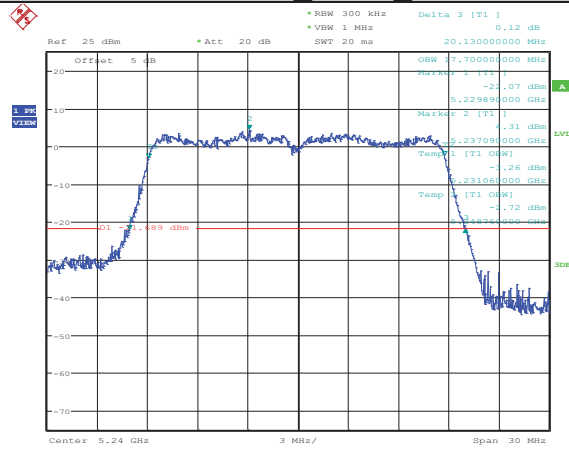
Date: 21.JUN.2018 17:59:45

11AC20 ANT1 5240



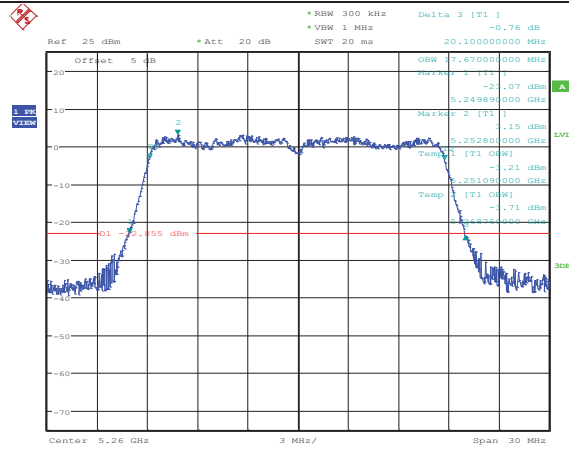
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11AC20 ANT2 5240



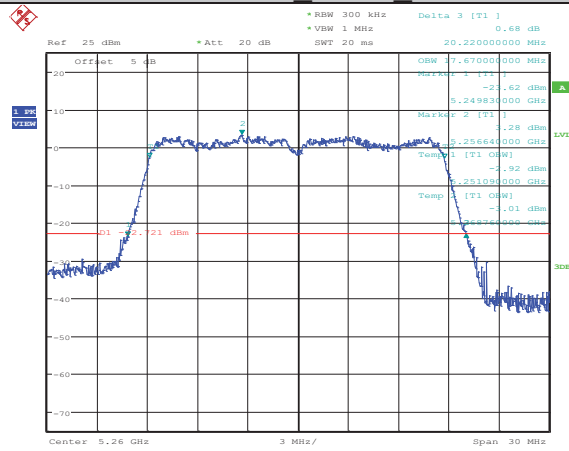
Date: 21.JUN.2018 18:02:38

11AC20 ANT1 5260



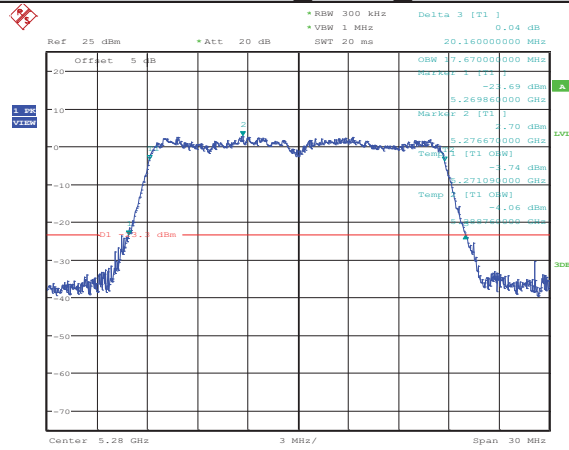
Date: 20.JUN.2018 20:39:26

11AC20 ANT2 5260



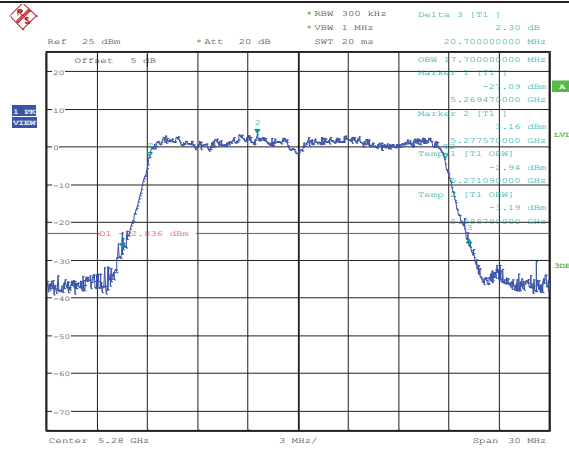
Date: 21.JUN.2018 18:05:44

11AC20 ANT1 5280



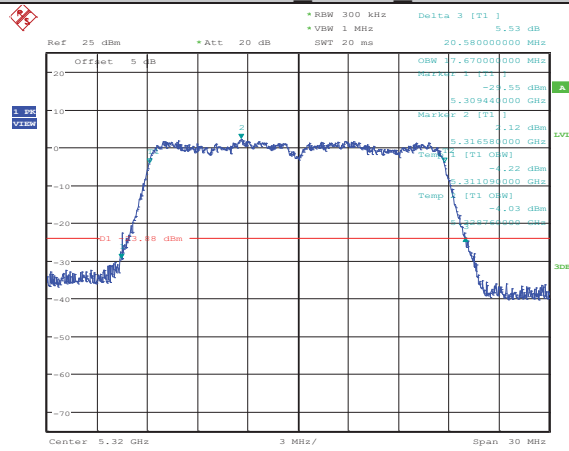
Date: 20.JUN.2018 20:46:08

11AC20 ANT2 5280



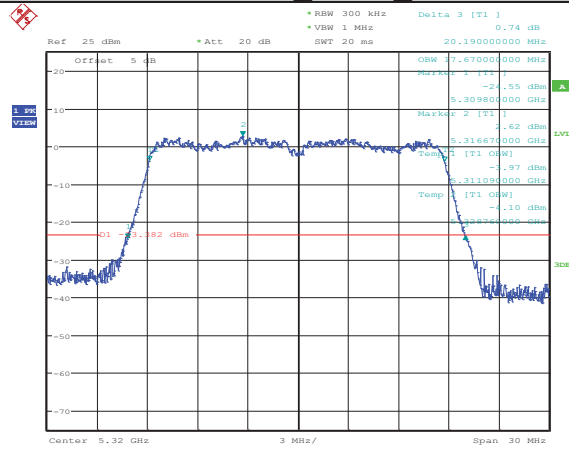
Date: 21.JUN.2018 18:08:40

11AC20 ANT1 5320



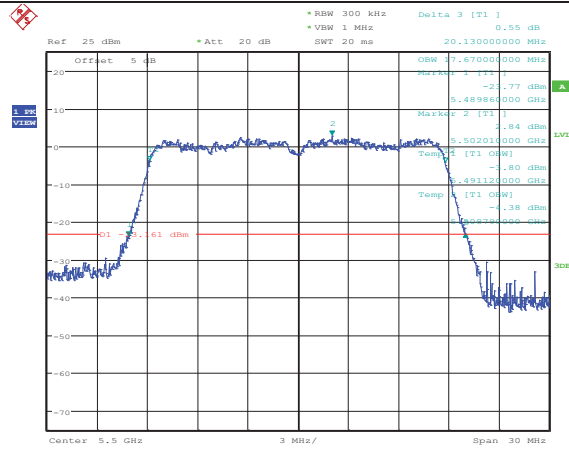
Date: 20.JUN.2018 20:48:39

11AC20 ANT2 5320



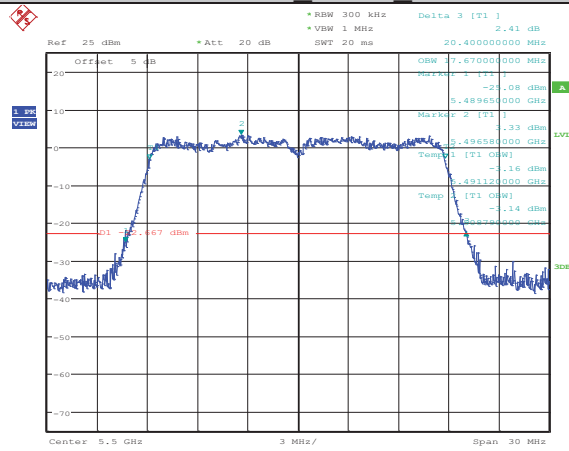
Date: 21.JUN.2018 18:11:17

11AC20 ANT1 5500



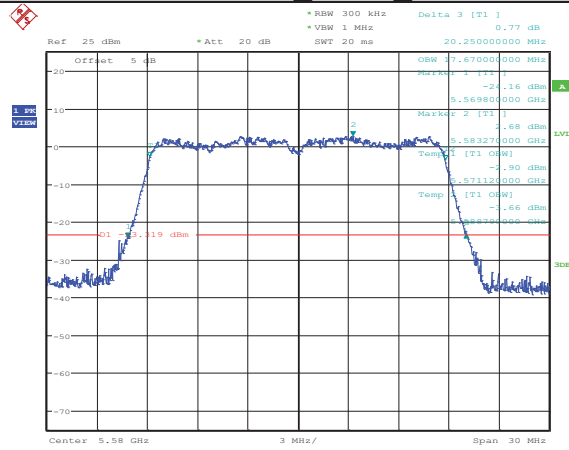
Date: 20.JUN.2018 20:51:42

11AC20 ANT2 5500



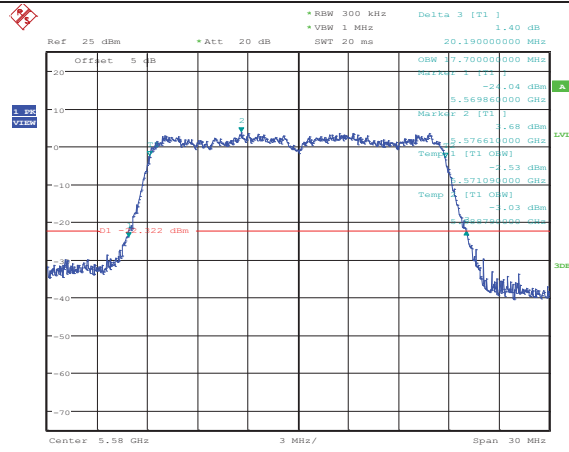
Date: 21.JUN.2018 18:14:07

11AC20 ANT1 5580



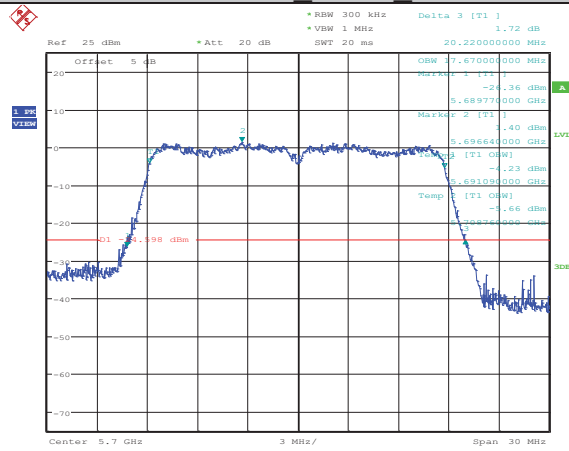
Date: 20.JUN.2018 20:56:22

11AC20 ANT2 5580



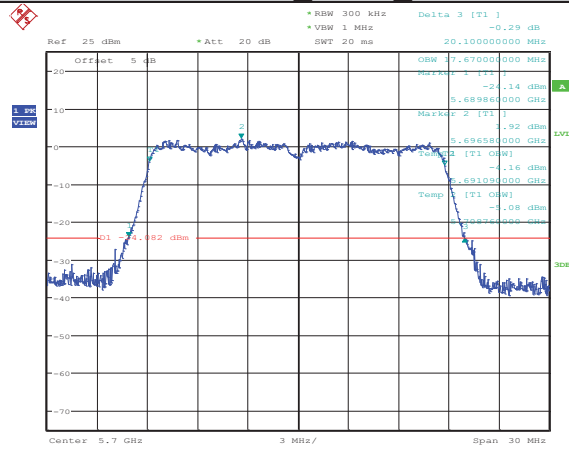
Date: 21.JUN.2018 18:16:55

11AC20 ANT1 5700



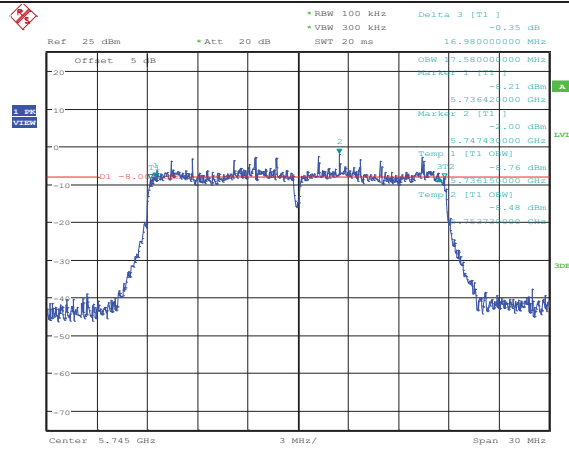
Date: 20.JUN.2018 20:58:45

11AC20 ANT2 5700

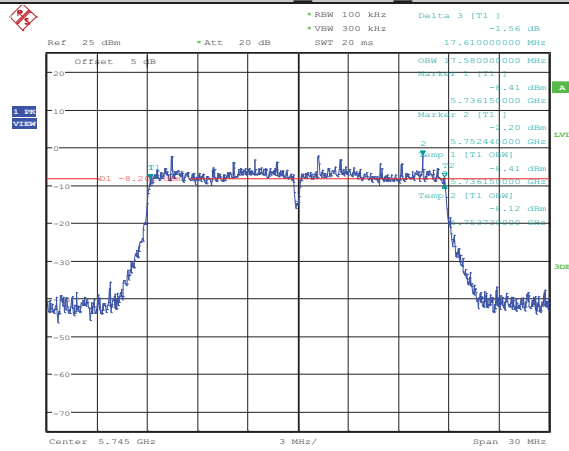


Date: 21.JUN.2018 18:19:32

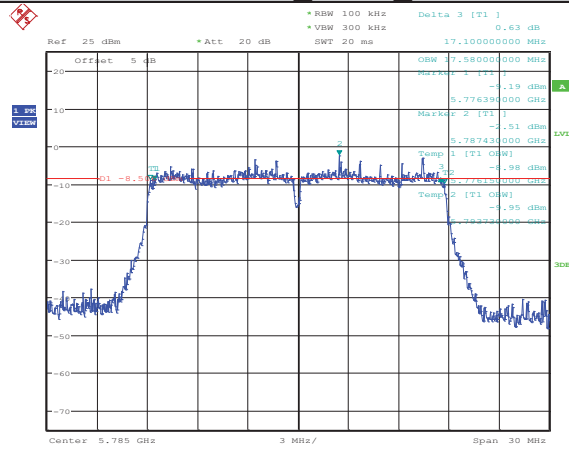
11AC20 ANT1 5745



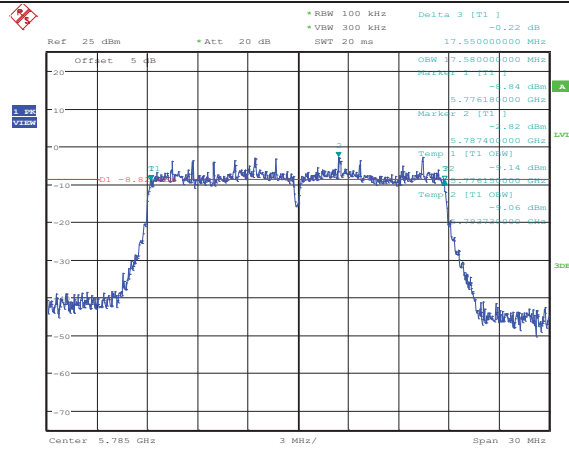
11AC20 ANT2 5745



11AC20 ANT1 5785

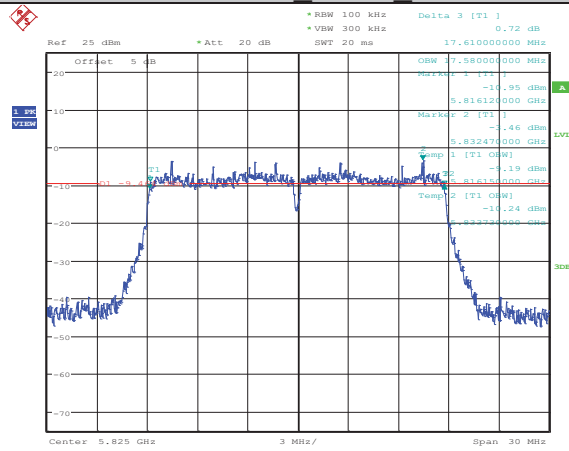


11AC20 ANT2 5785



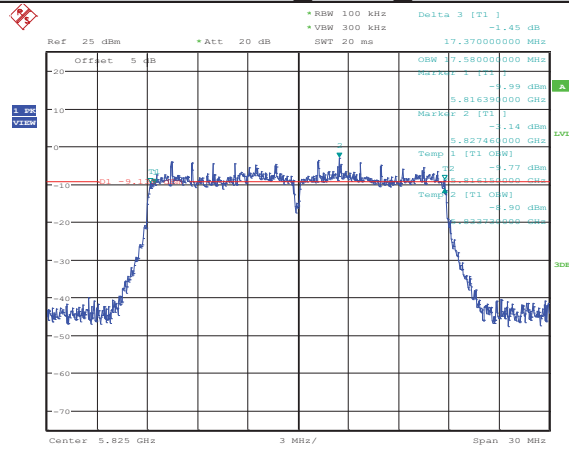
Date: 21.JUN.2018 18:26:02

11AC20 ANT1 5825



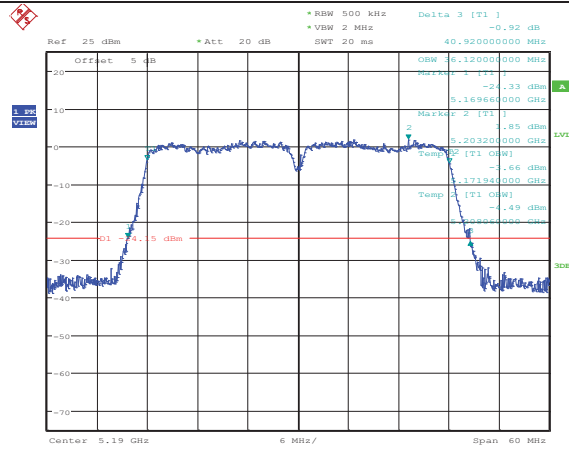
Date: 20.JUN.2018 21:06:17

11AC20 ANT2 5825



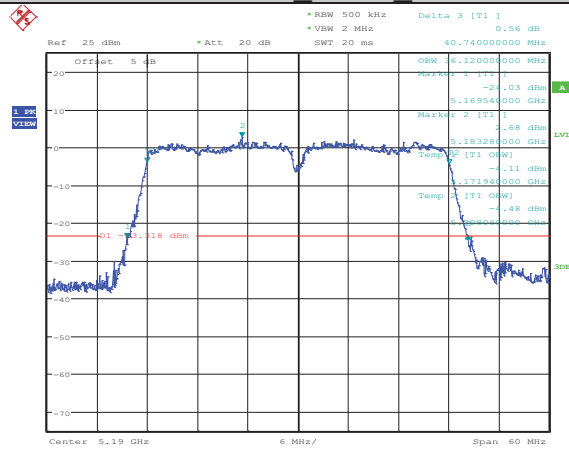
Date: 21.JUN.2018 18:29:11

11AC40 ANT1 5190



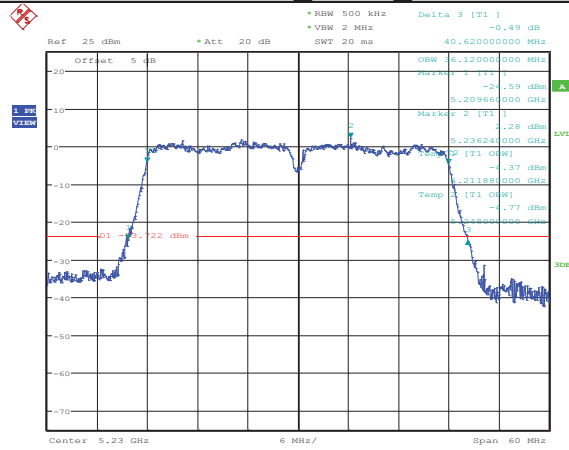
Date: 21.JUN.2018 11:01:43

11AC40 ANT2 5190



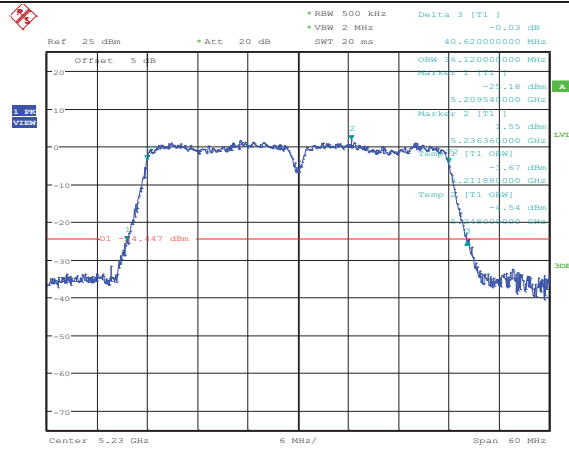
Date: 21.JUN.2018 18:31:48

11AC40 ANT1 5230



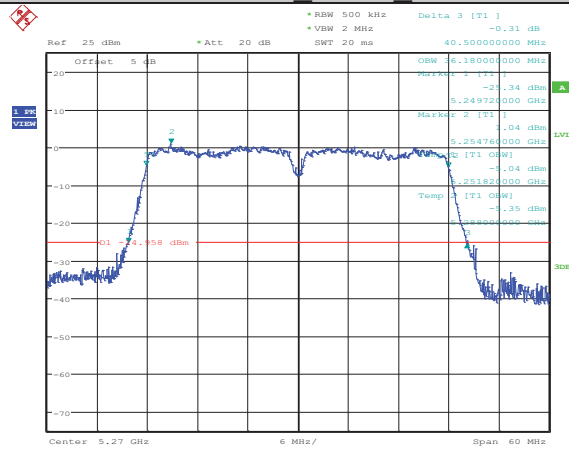
Date: 21.JUN.2018 11:06:13

11AC40 ANT2 5230



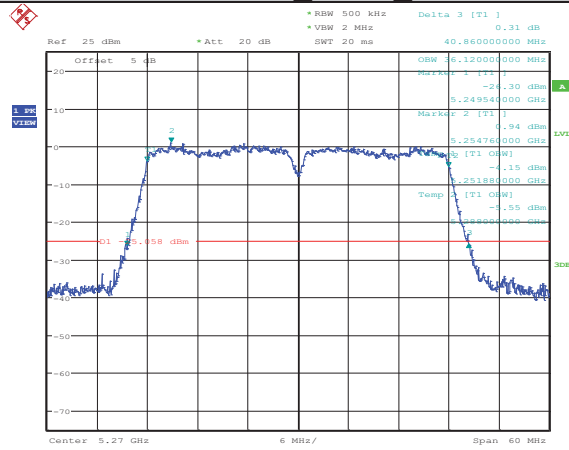
Date: 21.JUN.2018 18:34:44

11AC40 ANT1 5270



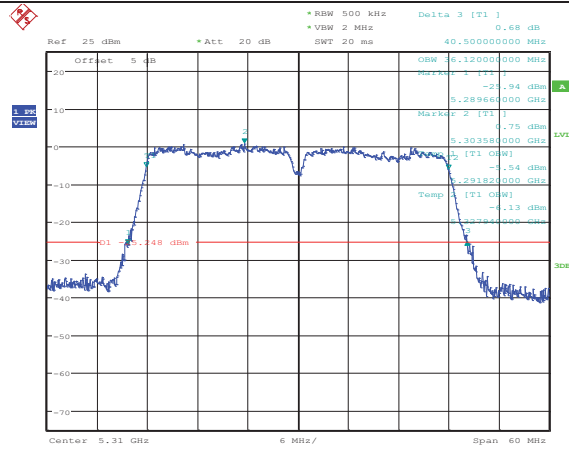
Date: 21.JUN.2018 11:10:03

11AC40 ANT2 5270



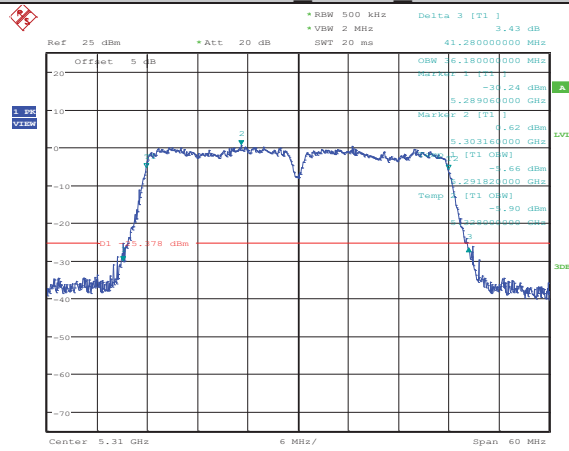
Date: 21.JUN.2018 18:37:27

11AC40 ANT1 5310



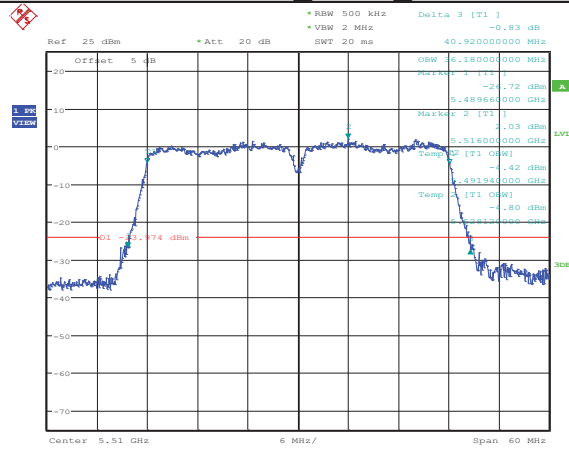
Date: 21.JUN.2018 11:12:39

11AC40 ANT2 5310



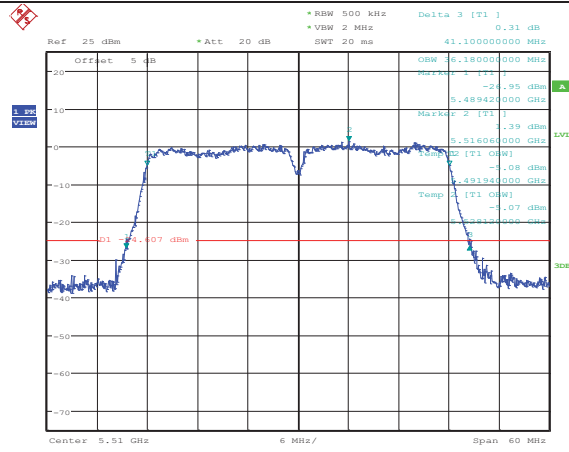
Date: 21.JUN.2018 18:40:13

11AC40 ANT1 5510



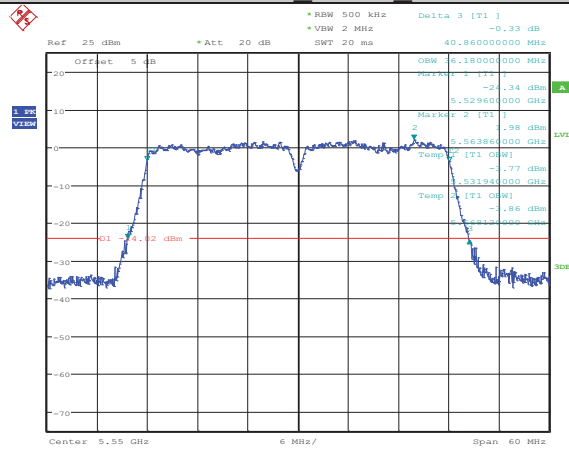
Date: 21.JUN.2018 11:16:10

11AC40 ANT2 5510



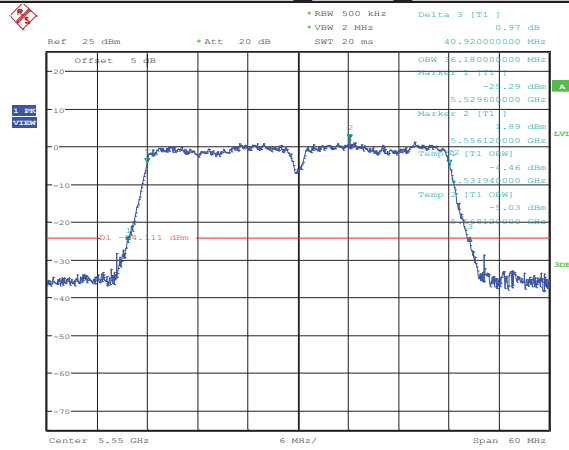
Date: 21.JUN.2018 18:44:01

11AC40 ANT1 5550



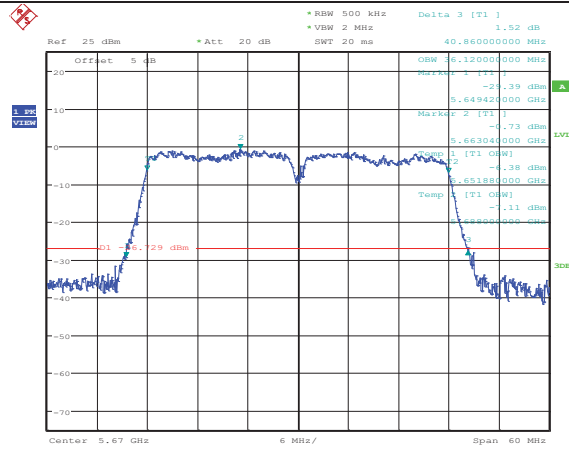
Date: 21.JUN.2018 11:19:00

11AC40 ANT2 5550



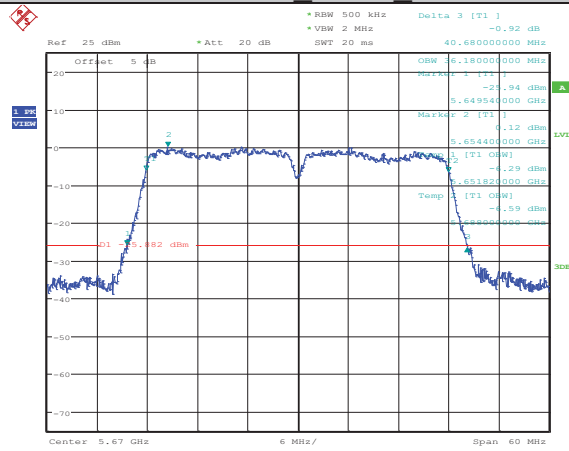
Date: 21.JUN.2018 18:47:19

11AC40 ANT1 5670



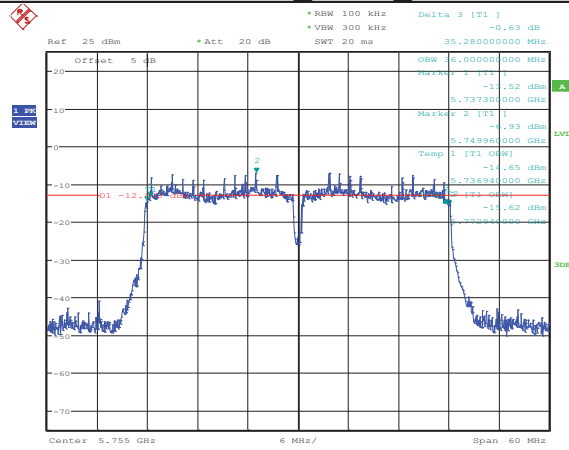
Date: 21.JUN.2018 15:09:11

11AC40 ANT2 5670



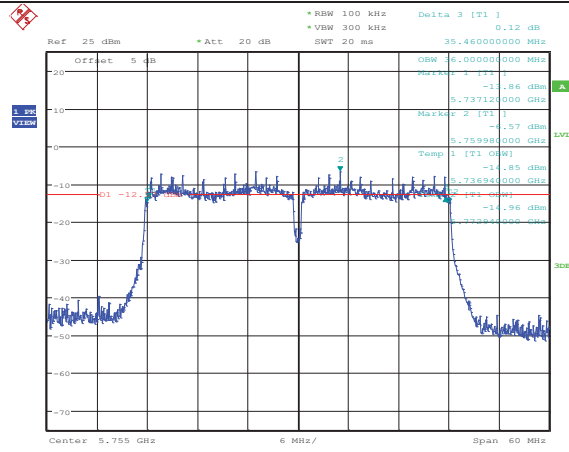
Date: 21.JUN.2018 18:49:54

11AC40 ANT1 5755



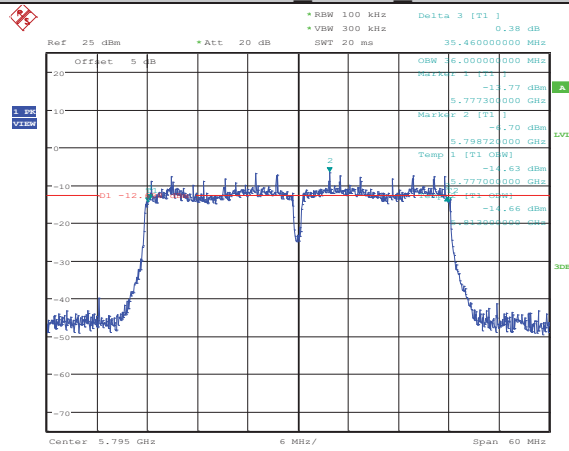
Date: 21.JUN.2018 15:11:49

11AC40 ANT2 5755



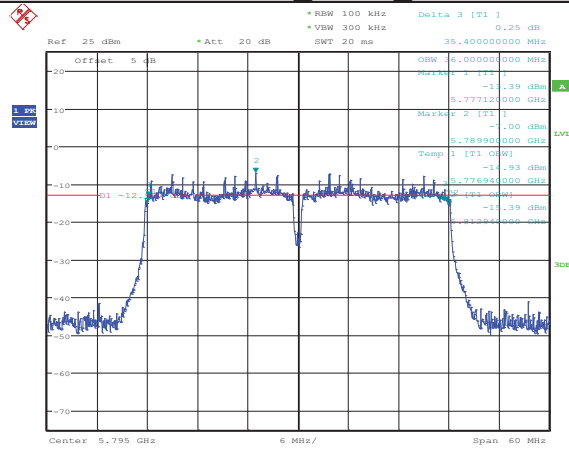
Date: 21.JUN.2018 18:52:37

11AC40 ANT1 5795



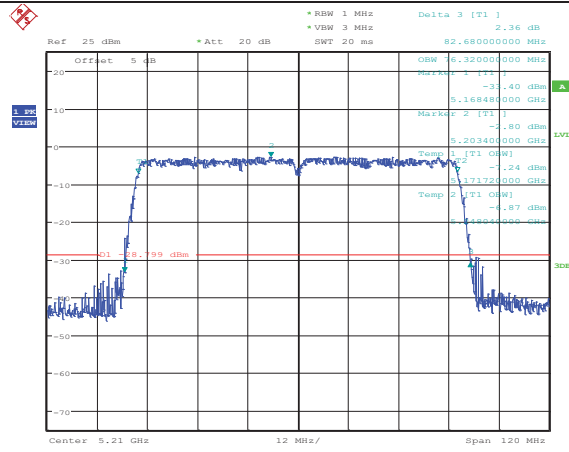
Date: 21.JUN.2018 15:15:39

11AC40 ANT2 5795



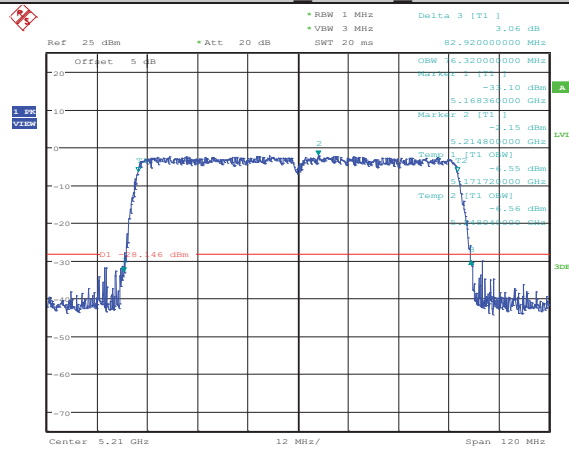
Date: 21.JUN.2018 18:56:02

11AC80 ANT1 5210



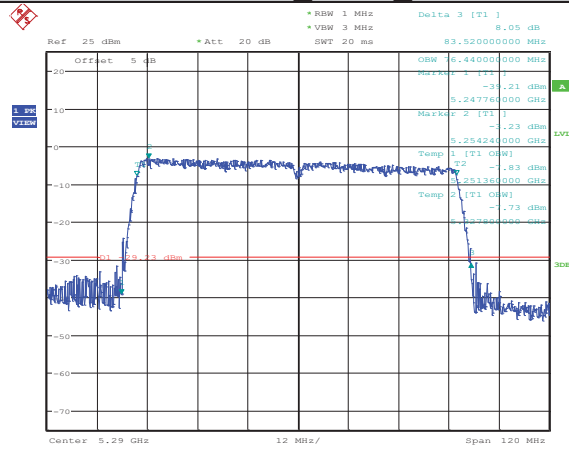
Date: 21.JUN.2018 15:19:01

11AC80 ANT2 5210



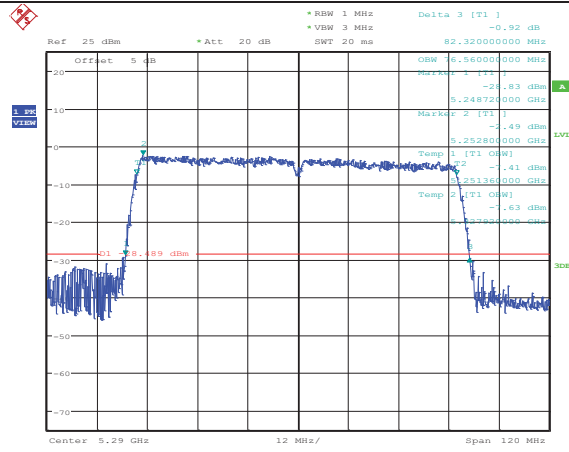
Date: 21.JUN.2018 18:59:08

11AC80 ANT1 5290



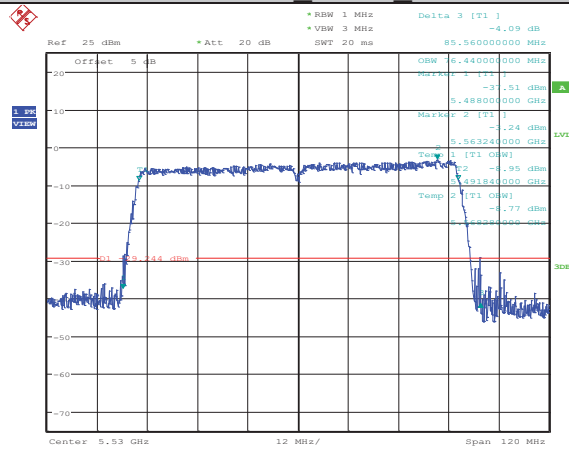
Date: 21.JUN.2018 15:30:43

11AC80 ANT2 5290



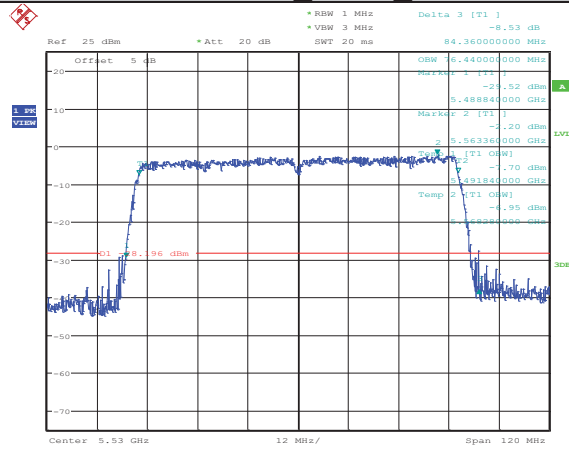
Date: 21.JUN.2018 19:02:24

11AC80 ANT1 5530



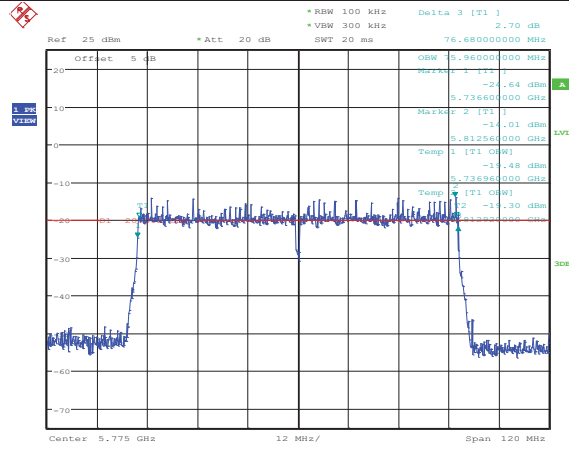
Date: 21.JUN.2018 15:37:45

11AC80 ANT2 5530



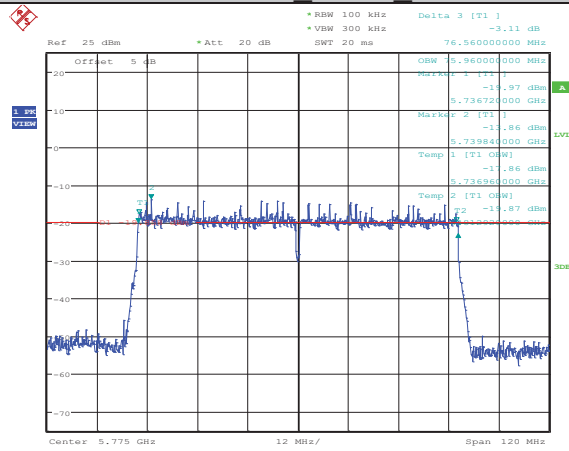
Date: 21.JUN.2018 19:06:08

11AC80 ANT1 5775



Date: 21.JUN.2018 15:41:53

11AC80 ANT2 5775



Date: 21.JUN.2018 19:09:14

5. Maximum Output Power

5.1. Block diagram of test setup

Same as section 4.1

5.2. Limits

FCC Part15, Subpart E/ RSS-247		
Test Item	Limit	Frequency Range (MHz)
Conducted Output Power	For FCC client devices: 250mW (24dBm)	5150-5250
	For RSS: e.i.r.p. power: not exceed 200 mW(23dBm) or $10 + 10 \log_{10} B$	
	250mW (24dBm) or $11 + 10 \log_{10} B$	5250-5350
	250mW (24dBm) or $11 + 10 \log_{10} B$	For FCC:5470-5725 For IC:5470-5600 5650-5725
	1 Watt (30dBm)	5725-5850
Note: For ISED: B=99% bandwidth.		

5.3. Test Procedure

- (1) Connect each EUT's antenna output to Spectrum Analyzer by RF cable and attenuator
- (2) Add each antenna port's results to get the total output power of EUT.

5.4. Test Result

(5150-5250)

Test Mode	Test Channel	Ant	Level [dBm]	Output Power [dBm]	EIRP [dBm]	FCC LIMIT	ISED LIMIT (10 + 10 log ₁₀ B)
11A	5180	Ant1	12.86	12.86	15.00	23.98	22.26
11A	5180	Ant2	12.90	12.90	15.04	23.98	22.26
11A	5200	Ant1	12.67	12.67	14.81	23.98	22.26
11A	5200	Ant2	12.77	12.77	14.91	23.98	22.26
11A	5240	Ant1	12.22	12.22	14.36	23.98	22.26
11A	5240	Ant2	12.18	12.18	14.32	23.98	22.26
11N20	5180	Ant1	12.61	12.61	14.75	23.98	22.47
11N20	5180	Ant2	12.70	12.70	14.84	23.98	22.47
11N20	5200	Ant1	12.49	12.49	14.63	23.98	22.47
11N20	5200	Ant2	12.47	12.47	14.61	23.98	22.47
11N20	5240	Ant1	11.80	11.80	13.94	23.98	22.47
11N20	5240	Ant2	11.92	11.92	14.06	23.98	22.47
11N40	5190	Ant1	10.53	10.53	12.67	23.98	23
11N40	5190	Ant2	10.86	10.86	13.00	23.98	23

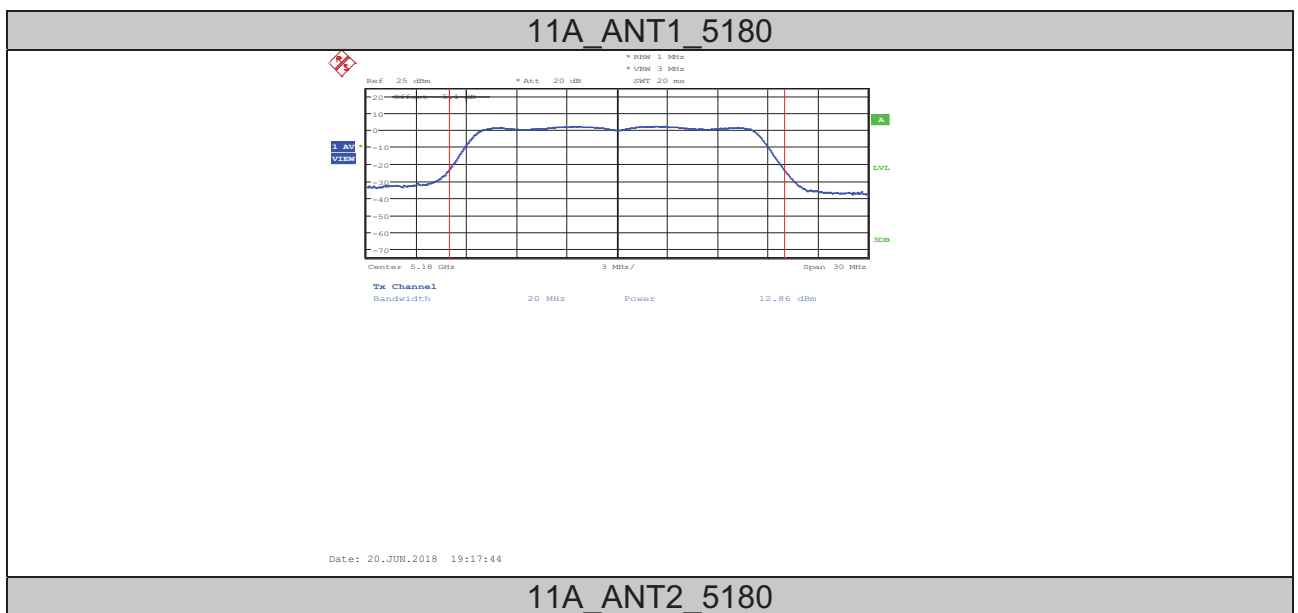
11N40	5230	Ant1	10.39	10.39	12.53	23.98	23
11N40	5230	Ant2	10.66	10.66	12.80	23.98	23
11AC20	5180	Ant1	12.57	12.57	14.71	23.98	22.48
11AC20	5180	Ant2	12.69	12.69	14.83	23.98	22.48
11AC20	5200	Ant1	12.37	12.37	14.51	23.98	22.48
11AC20	5200	Ant2	12.26	12.26	14.40	23.98	22.48
11AC20	5240	Ant1	11.68	11.68	13.82	23.98	22.48
11AC20	5240	Ant2	11.81	11.81	13.95	23.98	22.48
11AC40	5190	Ant1	11.46	11.46	13.60	23.98	23
11AC40	5190	Ant2	10.86	10.86	13.00	23.98	23
11AC40	5230	Ant1	10.49	10.49	12.63	23.98	23
11AC40	5230	Ant2	10.66	10.66	12.80	23.98	23
11AC80	5210	Ant1	6.65	6.65	8.79	23.98	23
11AC80	5210	Ant2	7.20	7.20	9.34	23.98	23

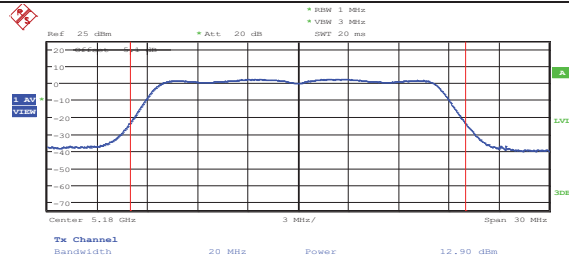
(5250-5350, 5470-5725, 5725-5850)

Test Mode	Test Channel	Ant	Level [dBm]	Power [dBm]	Limit [dBm]	EIRP [dBm]	Verdict
11A	5260	ANT1	11.69	11.69	22.26	13.83	PASS
11A	5260	ANT2	11.74	11.74	22.26	14.26	PASS
11A	5280	ANT1	11.51	11.51	22.26	13.65	PASS
11A	5280	ANT2	11.64	11.64	22.26	14.16	PASS
11A	5320	ANT1	10.75	10.75	22.26	12.89	PASS
11A	5320	ANT2	10.93	10.93	22.26	13.45	PASS
11A	5500	ANT1	11.05	11.05	22.26	13.19	PASS
11A	5500	ANT2	11.69	11.69	22.26	14.21	PASS
11A	5580	ANT1	11.55	11.55	22.26	13.69	PASS
11A	5580	ANT2	11.84	11.84	22.26	14.36	PASS
11A	5700	ANT1	10.11	10.11	22.26	12.25	PASS
11A	5700	ANT2	10.31	10.31	22.26	12.83	PASS
11A	5745	ANT1	9.43	9.43	30	11.57	PASS
11A	5745	ANT2	9.53	9.53	30	12.05	PASS
11A	5785	ANT1	8.84	8.84	30	10.98	PASS
11A	5785	ANT2	9.14	9.14	30	11.66	PASS
11A	5825	ANT1	8.71	8.71	30	10.85	PASS
11A	5825	ANT2	8.37	8.37	30	10.89	PASS
11N20	5260	ANT1	11.19	11.19	22.47	13.33	PASS
11N20	5260	ANT2	11.35	11.35	22.47	13.87	PASS
11N20	5280	ANT1	11.35	11.35	22.47	13.49	PASS
11N20	5280	ANT2	11.57	11.57	22.47	14.09	PASS

11N20	5320	ANT1	10.63	10.63	22.47	12.77	PASS
11N20	5320	ANT2	11.03	11.03	22.47	13.55	PASS
11N20	5500	ANT1	10.74	10.74	22.47	12.88	PASS
11N20	5500	ANT2	11.53	11.53	22.47	14.05	PASS
11N20	5580	ANT1	11.21	11.21	22.47	13.35	PASS
11N20	5580	ANT2	11.81	11.81	22.47	14.33	PASS
11N20	5700	ANT1	9.62	9.62	22.47	11.76	PASS
11N20	5700	ANT2	9.83	9.83	22.47	12.35	PASS
11N20	5745	ANT1	9.07	9.07	30	11.21	PASS
11N20	5745	ANT2	9.29	9.29	30	11.81	PASS
11N20	5785	ANT1	8.52	8.52	30	10.66	PASS
11N20	5785	ANT2	8.78	8.78	30	11.30	PASS
11N20	5825	ANT1	8.40	8.40	30	10.54	PASS
11N20	5825	ANT2	8.24	8.24	30	10.76	PASS
11N40	5270	ANT1	9.81	9.81	24	11.95	PASS
11N40	5270	ANT2	10.10	10.10	24	12.62	PASS
11N40	5310	ANT1	9.18	9.18	24	11.32	PASS
11N40	5310	ANT2	9.49	9.49	24	12.01	PASS
11N40	5510	ANT1	9.14	9.14	24	11.28	PASS
11N40	5510	ANT2	10.01	10.01	24	12.53	PASS
11N40	5550	ANT1	12.27	12.27	24	14.41	PASS
11N40	5550	ANT2	10.22	10.22	24	12.74	PASS
11N40	5670	ANT1	10.44	10.44	24	12.58	PASS
11N40	5670	ANT2	9.03	9.03	24	11.55	PASS
11N40	5755	ANT1	9.96	9.96	30	12.10	PASS
11N40	5755	ANT2	9.14	9.14	30	11.66	PASS
11N40	5795	ANT1	10.10	10.10	30	12.24	PASS
11N40	5795	ANT2	7.06	7.06	30	9.58	PASS
11AC20	5260	ANT1	11.26	11.26	22.47	13.40	PASS
11AC20	5260	ANT2	11.56	11.56	22.47	14.08	PASS
11AC20	5280	ANT1	11.23	11.23	22.47	13.37	PASS
11AC20	5280	ANT2	11.57	11.57	22.47	14.09	PASS
11AC20	5320	ANT1	10.69	10.69	22.47	12.83	PASS
11AC20	5320	ANT2	11.01	11.01	22.47	13.53	PASS
11AC20	5500	ANT1	10.61	10.61	22.47	12.75	PASS
11AC20	5500	ANT2	11.51	11.51	22.47	14.03	PASS
11AC20	5580	ANT1	11.09	11.09	22.47	13.23	PASS
11AC20	5580	ANT2	11.84	11.84	22.47	14.36	PASS
11AC20	5700	ANT1	9.54	9.54	22.47	11.68	PASS
11AC20	5700	ANT2	10.32	10.32	22.47	12.84	PASS

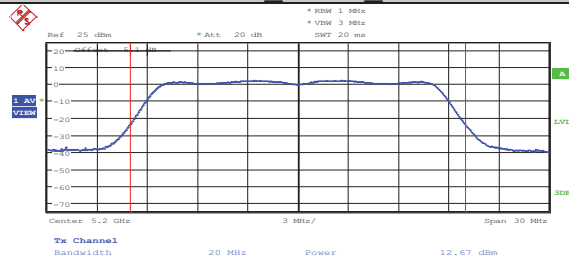
11AC20	5745	ANT1	8.98	8.98	30	11.12	PASS
11AC20	5745	ANT2	9.33	9.33	30	11.85	PASS
11AC20	5785	ANT1	8.47	8.47	30	10.61	PASS
11AC20	5785	ANT2	8.68	8.68	30	11.20	PASS
11AC20	5825	ANT1	8.33	8.33	30	10.47	PASS
11AC20	5825	ANT2	8.28	8.28	30	10.80	PASS
11AC40	5270	ANT1	9.70	9.70	24	11.84	PASS
11AC40	5270	ANT2	10.04	10.04	24	12.56	PASS
11AC40	5310	ANT1	9.31	9.31	24	11.45	PASS
11AC40	5310	ANT2	9.40	9.40	24	11.92	PASS
11AC40	5510	ANT1	10.96	10.96	24	13.10	PASS
11AC40	5510	ANT2	10.10	10.10	24	12.62	PASS
11AC40	5550	ANT1	11.10	11.10	24	13.24	PASS
11AC40	5550	ANT2	10.25	10.25	24	12.77	PASS
11AC40	5670	ANT1	8.60	8.60	24	10.74	PASS
11AC40	5670	ANT2	9.05	9.05	24	11.57	PASS
11AC40	5755	ANT1	7.59	7.59	30	9.73	PASS
11AC40	5755	ANT2	7.53	7.53	30	10.05	PASS
11AC40	5795	ANT1	7.45	7.45	30	9.59	PASS
11AC40	5795	ANT2	7.13	7.13	30	9.65	PASS
11AC80	5290	ANT1	5.16	5.16	24	7.30	PASS
11AC80	5290	ANT2	6.10	6.10	24	8.62	PASS
11AC80	5530	ANT1	5.50	5.50	24	7.64	PASS
11AC80	5530	ANT2	6.29	6.29	24	8.81	PASS
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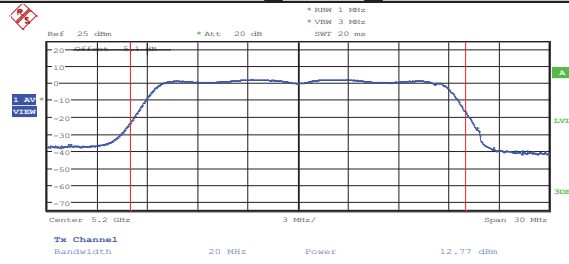
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11A ANT1 5200



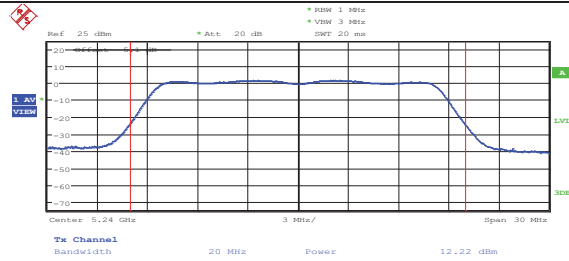
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11A ANT2 5200



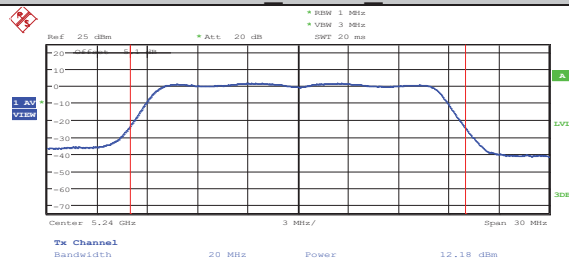
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11A ANT1 5240



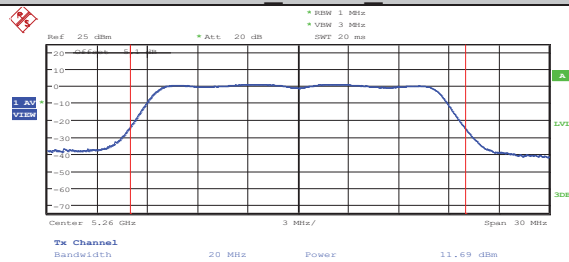
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11A ANT2 5240



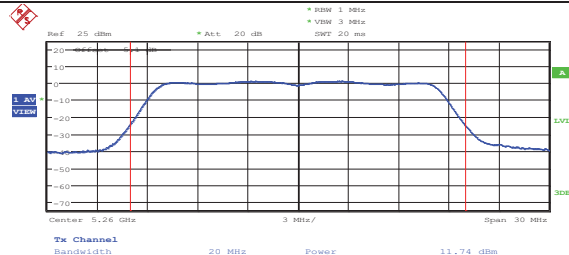
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11A ANT1 5260



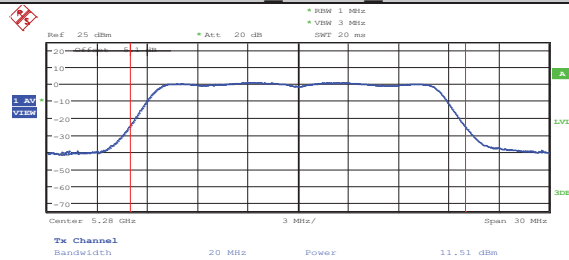
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11A ANT2 5260



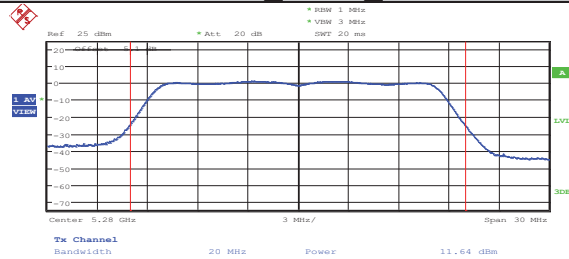
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11A ANT1 5280



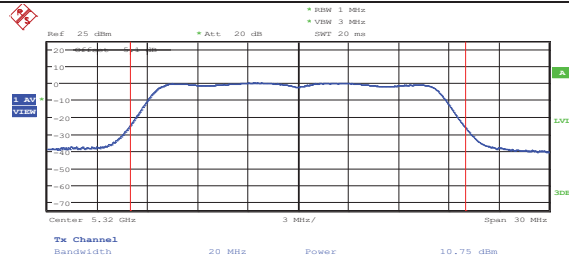
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11A ANT2 5280



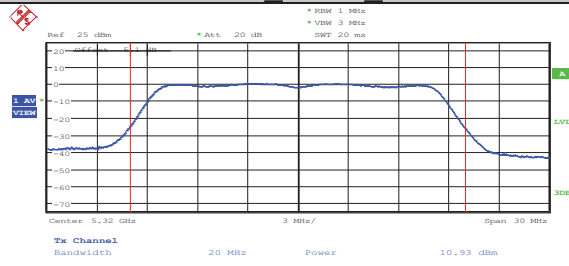
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11A ANT1 5320



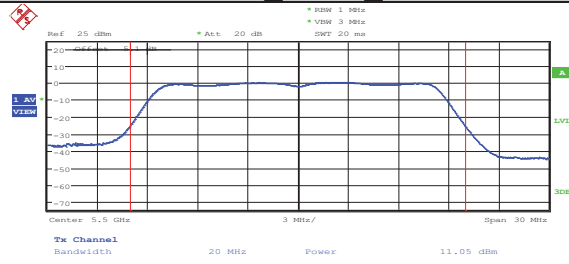
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11A ANT2 5320



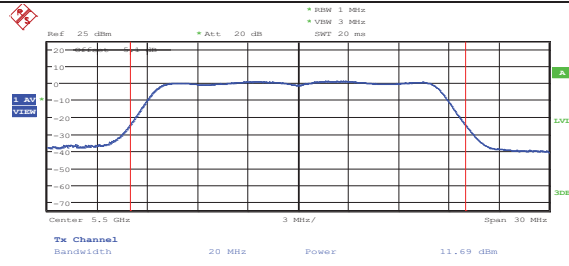
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11A ANT1 5500



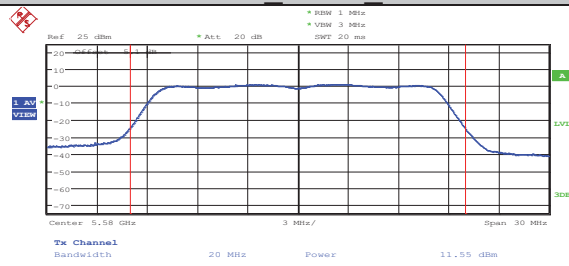
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11A ANT2 5500



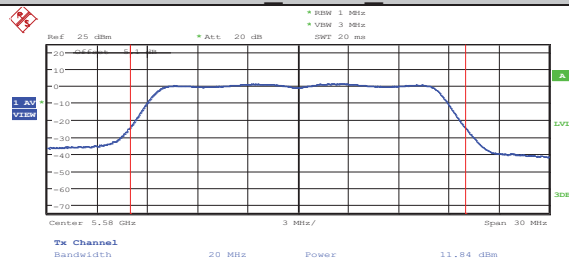
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11A ANT1 5580



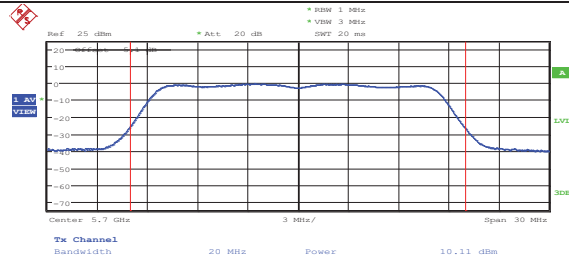
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11A ANT2 5580



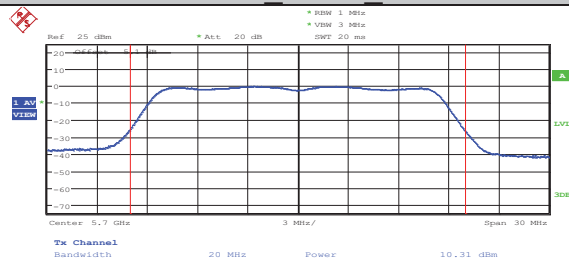
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11A ANT1 5700



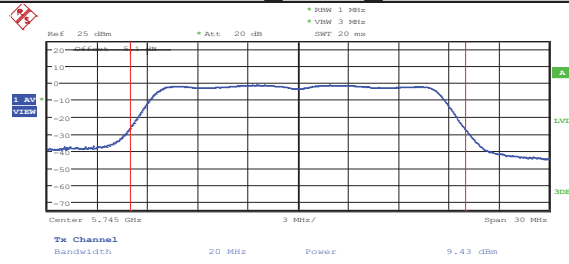
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11A ANT2 5700



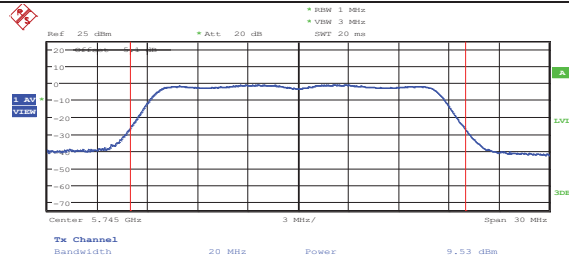
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11A ANT1 5745



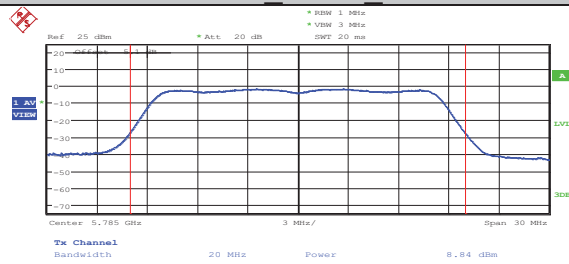
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11A ANT2 5745



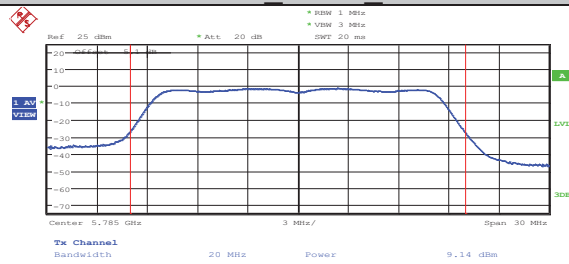
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11A ANT1 5785



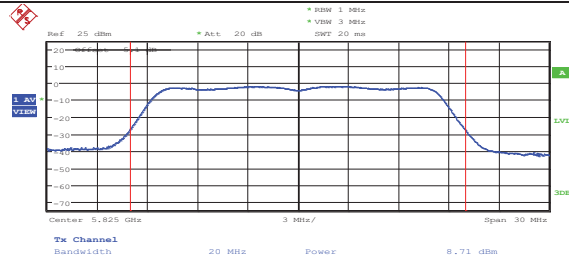
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11A ANT2 5785



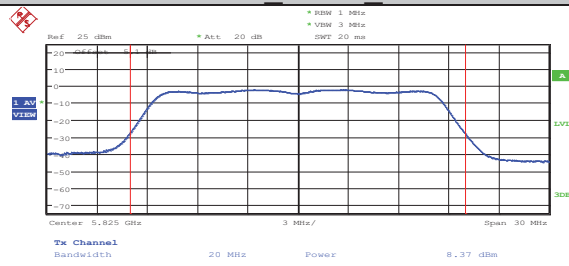
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11A ANT1 5825



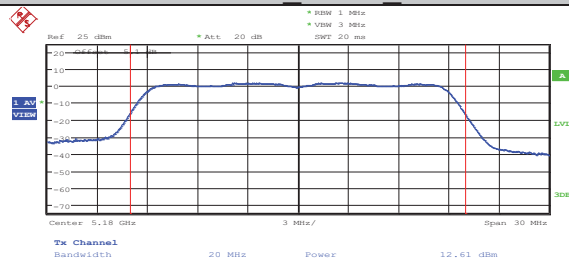
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11A ANT2 5825



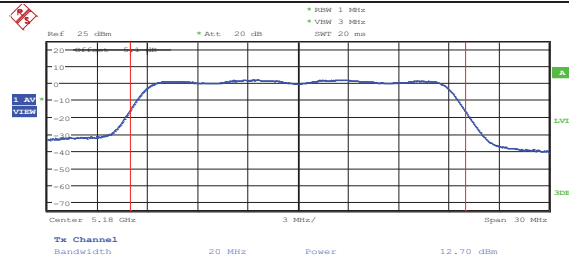
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11N20 ANT1 5180



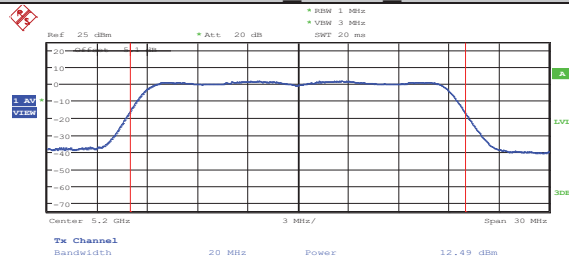
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11N20 ANT2 5180



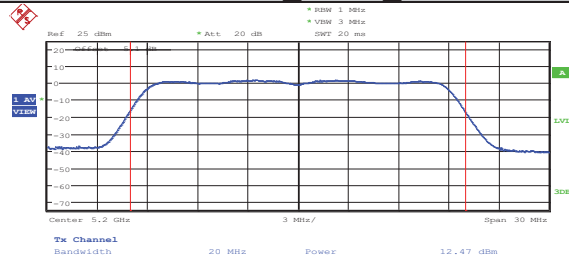
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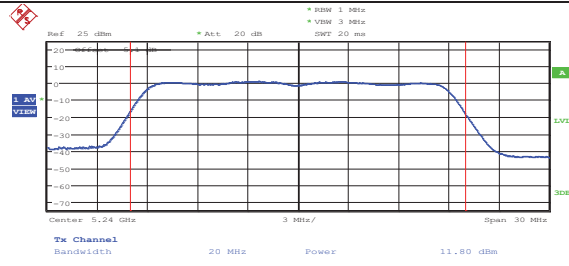
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11N20 ANT2 5200



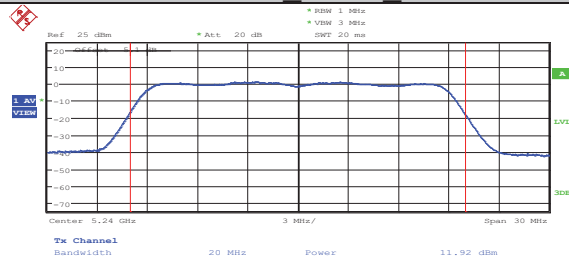
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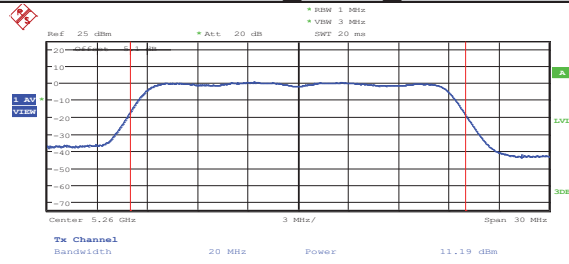
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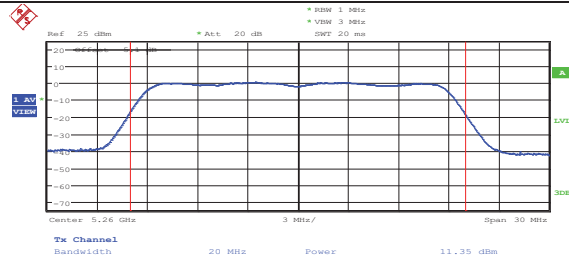
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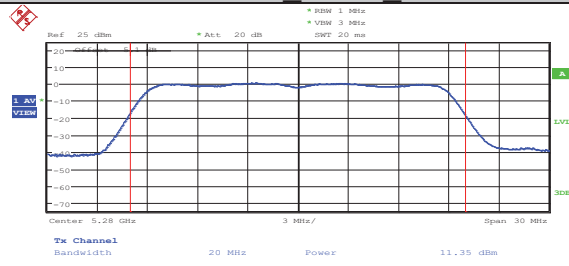
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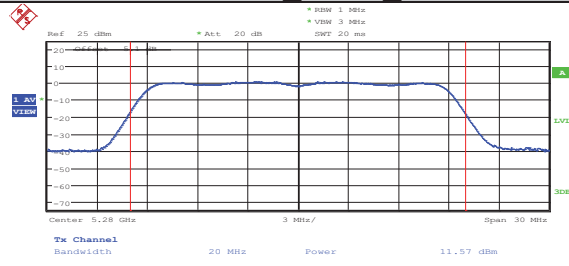
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11N20 ANT1 5280



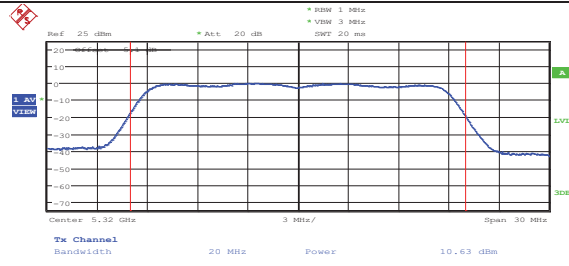
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11N20 ANT2 5280



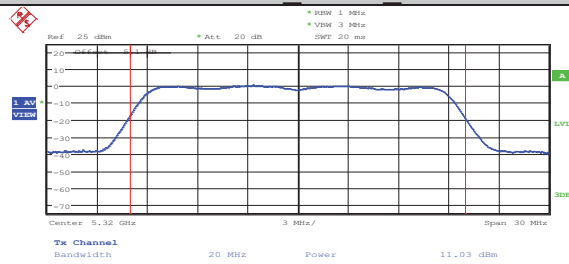
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11N20 ANT1 5320



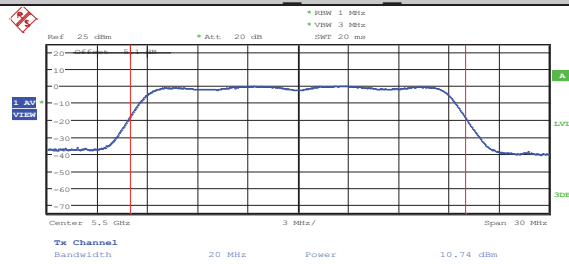
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11N20 ANT2_5320



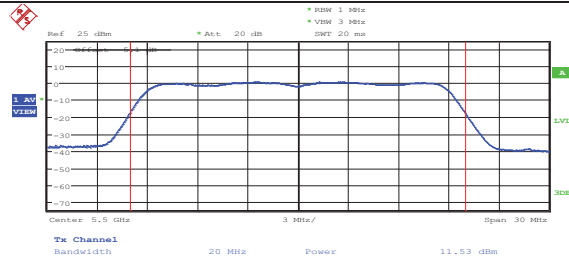
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11N20 ANT1_5500



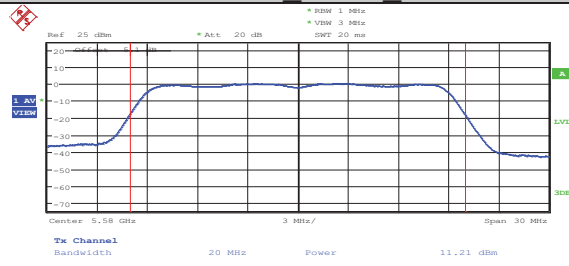
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11N20 ANT2_5500



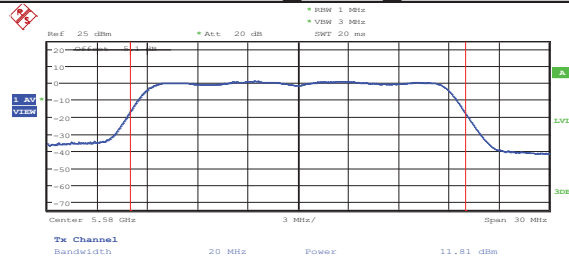
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11N20 ANT1 5580



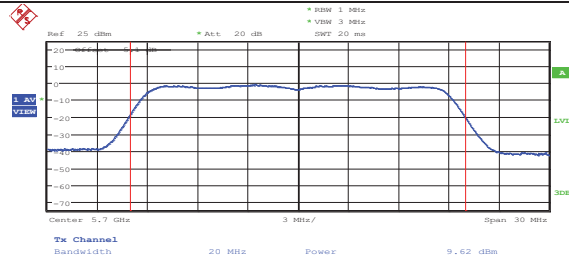
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11N20 ANT2 5580



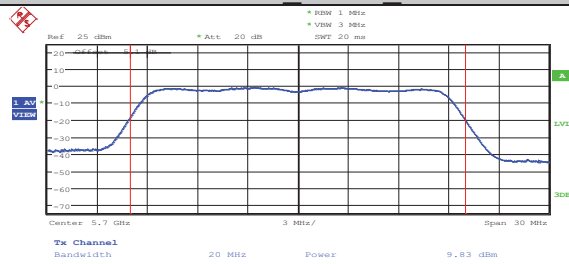
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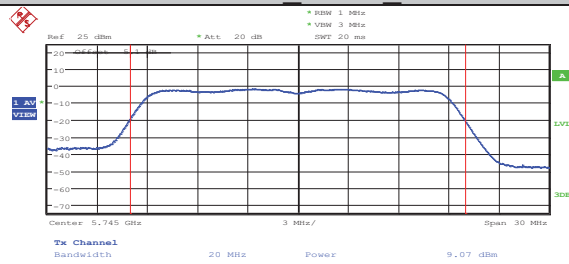
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11N20 ANT2_5700



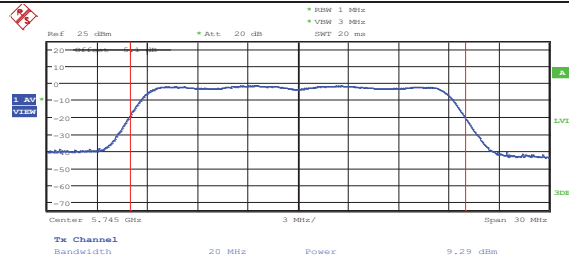
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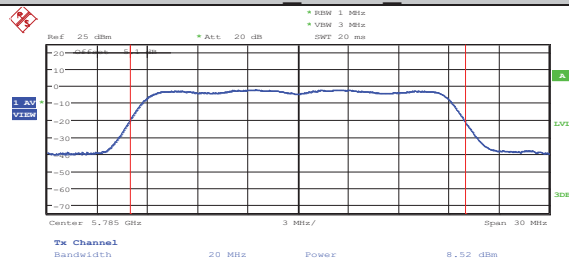
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11N20 ANT2_5745



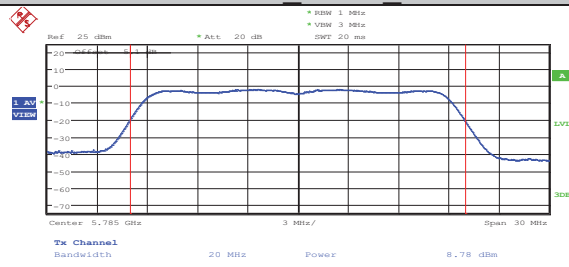
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11N20 ANT1 5785



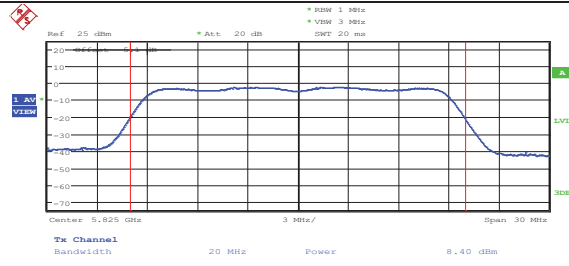
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11N20 ANT2 5785



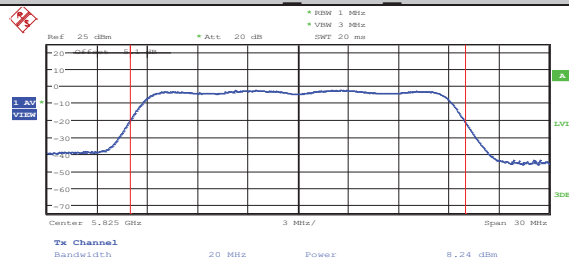
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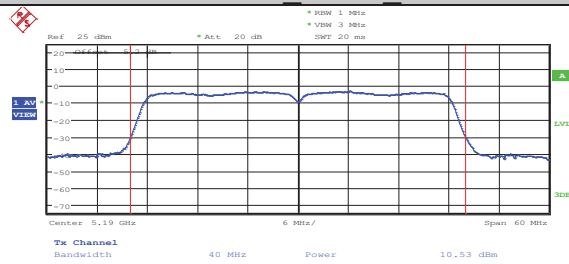
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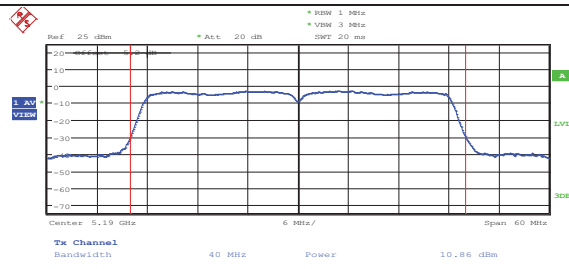
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11N40 ANT1 5190



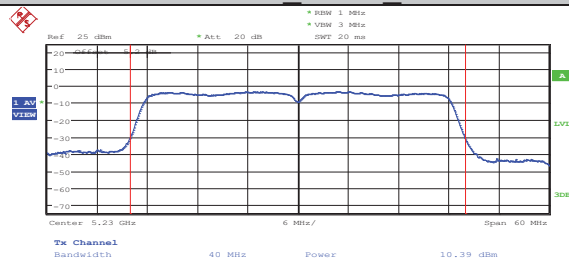
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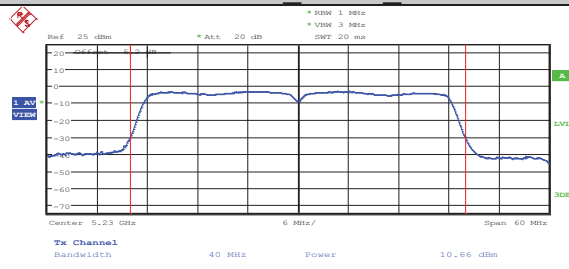
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11N40 ANT1 5230



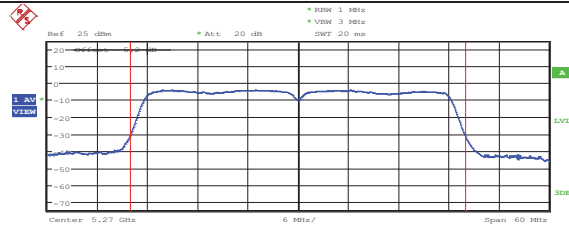
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11N40 ANT2 5230



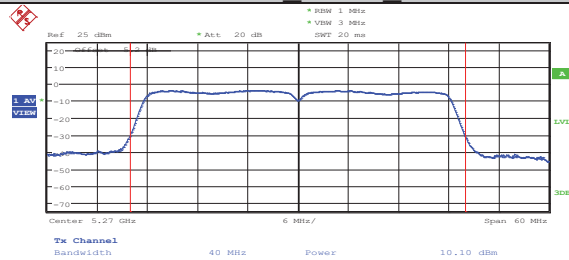
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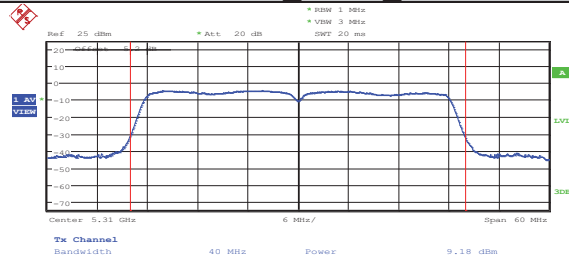
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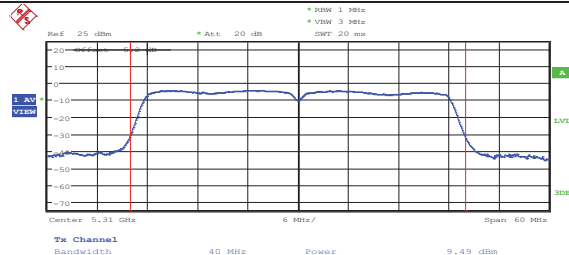
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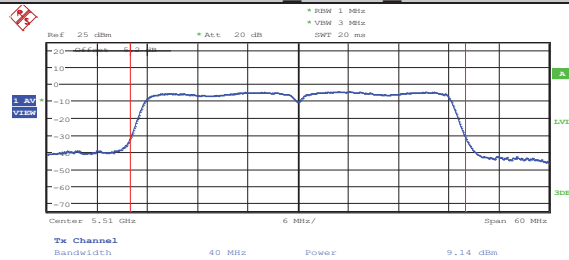
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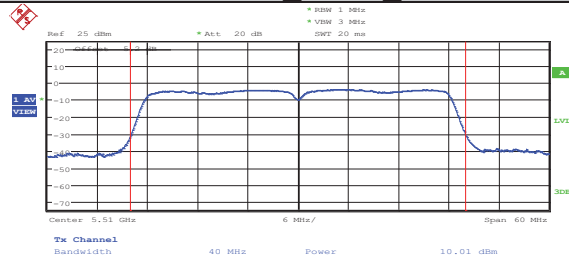
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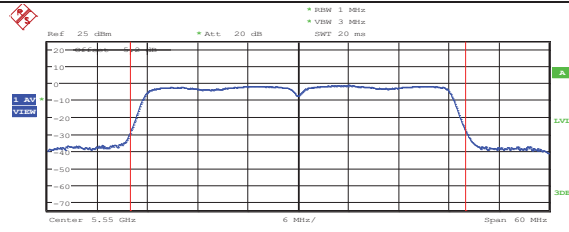
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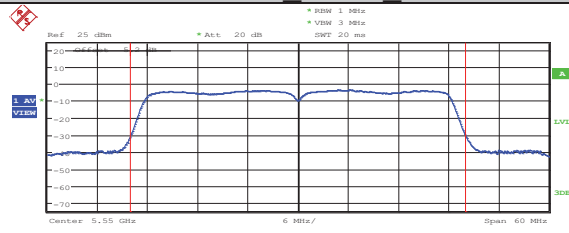
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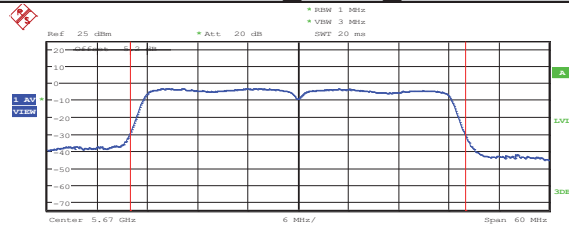
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11N40 ANT2 5550



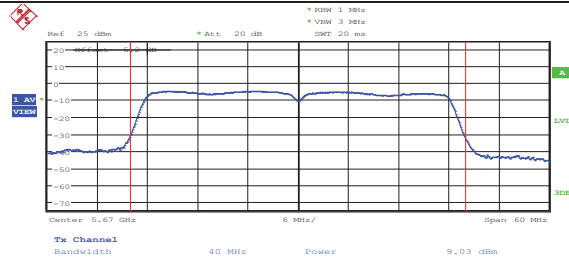
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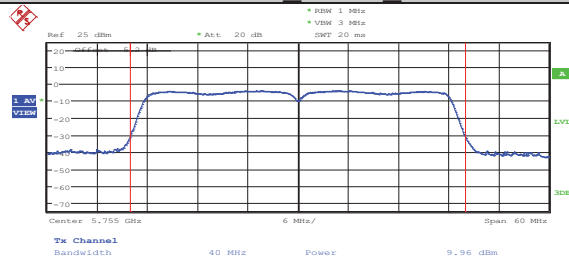
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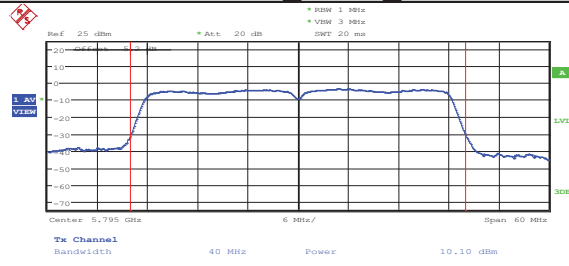
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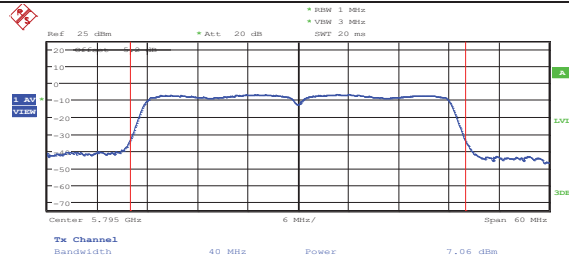
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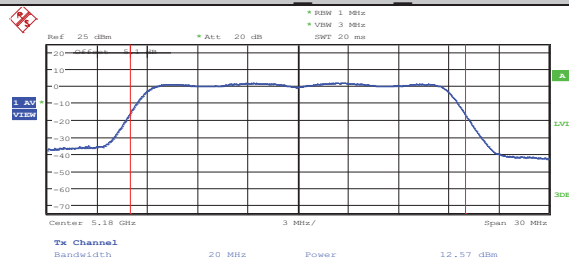
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11N40 ANT2 5795



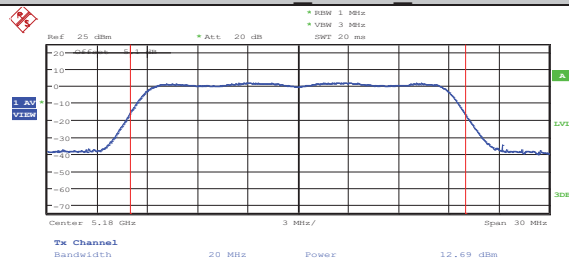
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11AC20 ANT1 5180



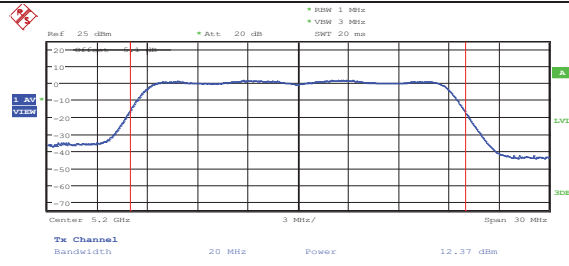
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11AC20 ANT2 5180



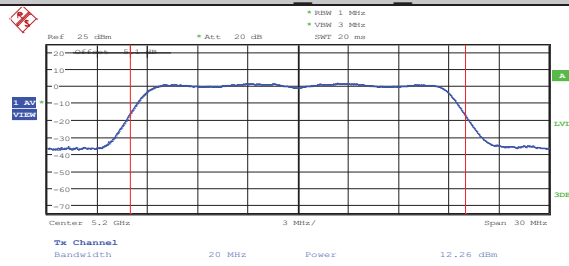
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11AC20 ANT1 5200



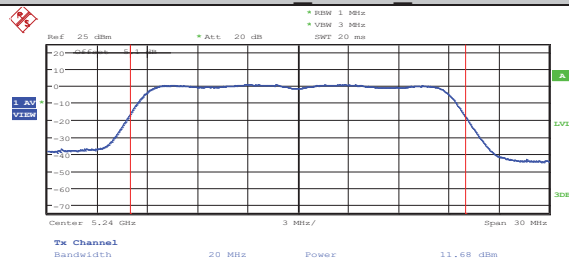
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11AC20 ANT2 5200



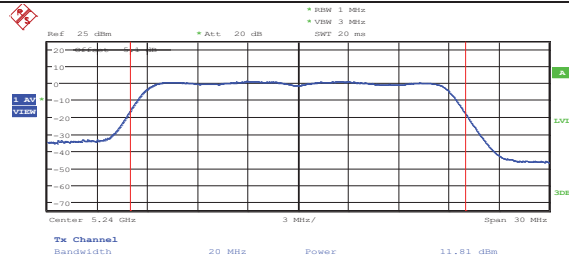
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11AC20 ANT1 5240



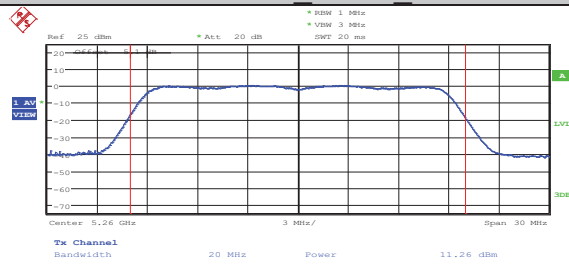
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11AC20 ANT2 5240



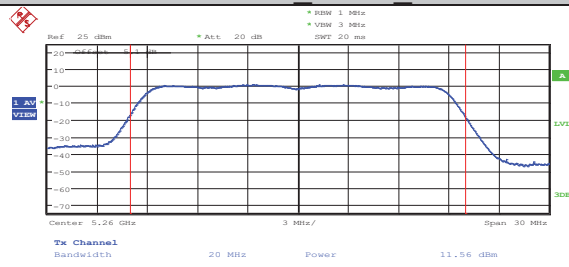
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11AC20 ANT1 5260



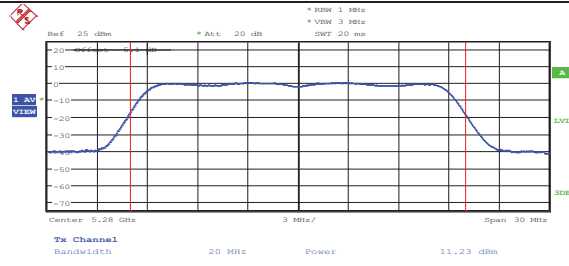
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11AC20 ANT2 5260



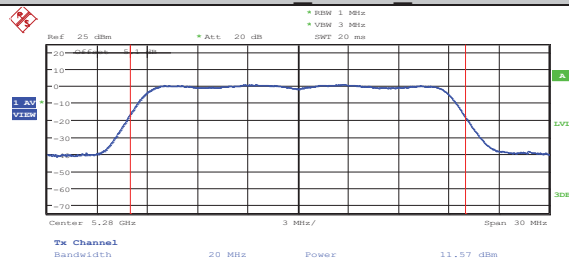
Date: 21.JUN.2018 18:06:17

11AC20 ANT1 5280



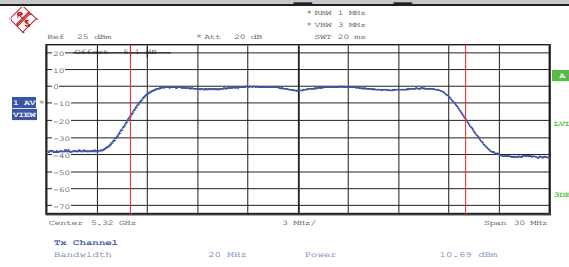
Date: 20.JUN.2018 20:46:41

11AC20 ANT2 5280



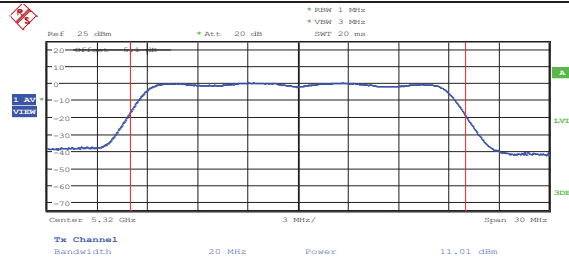
Date: 21.JUN.2018 18:09:14

11AC20 ANT1 5320



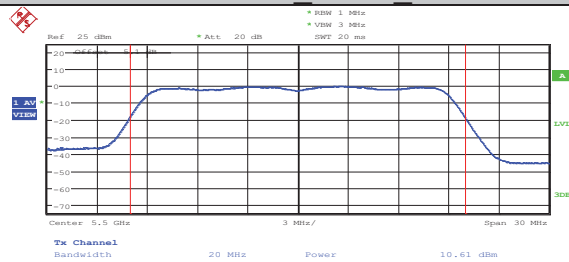
Date: 20.JUN.2018 20:49:12

11AC20 ANT2 5320



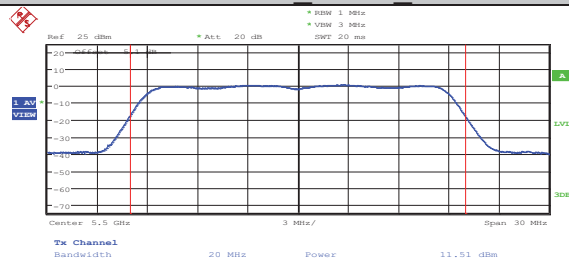
Date: 21.JUN.2018 18:11:50

11AC20 ANT1 5500



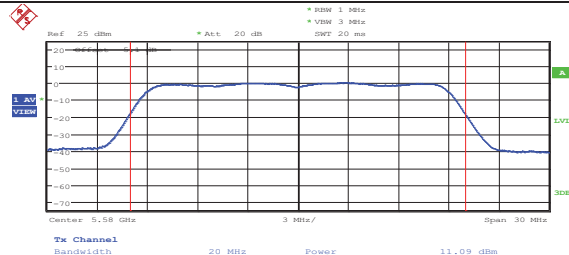
Date: 20.JUN.2018 20:54:08

11AC20 ANT2 5500



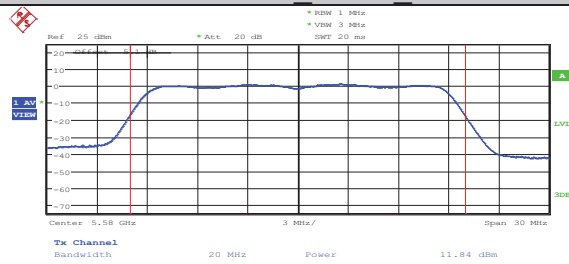
Date: 21.JUN.2018 18:14:41

11AC20 ANT1 5580



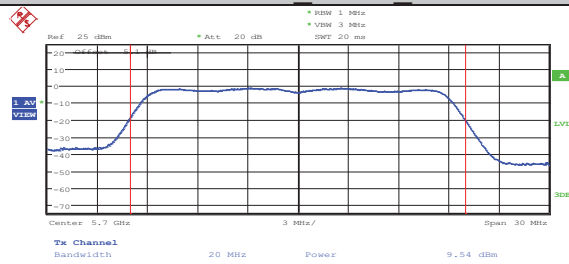
Date: 20.JUN.2018 20:56:55

11AC20 ANT2 5580



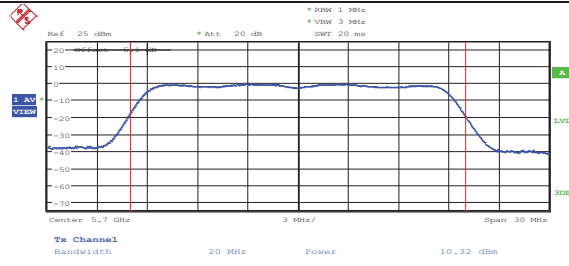
Date: 21.JUN.2018 18:17:29

11AC20 ANT1 5700



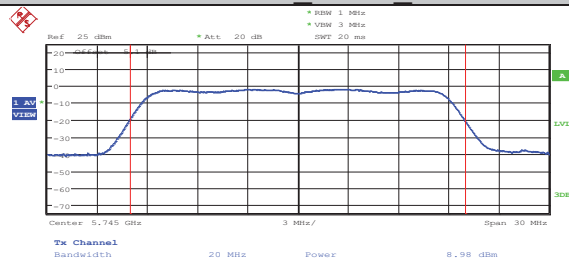
Date: 20.JUN.2018 20:59:19

11AC20 ANT2 5700



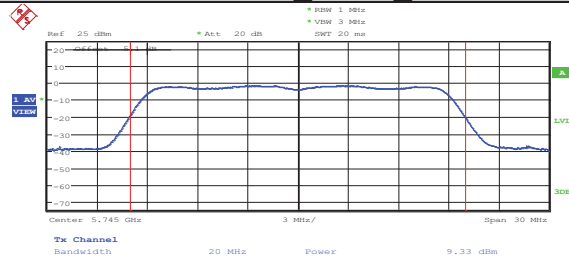
Date: 21.JUN.2018 18:20:05

11AC20 ANT1 5745



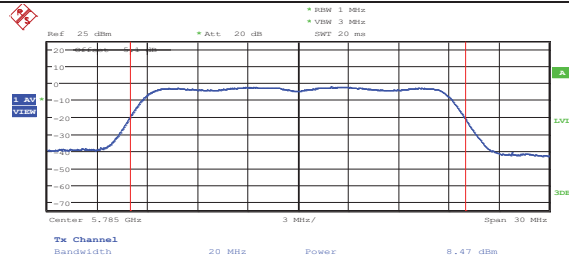
Date: 20.JUN.2018 21:01:43

11AC20 ANT2 5745



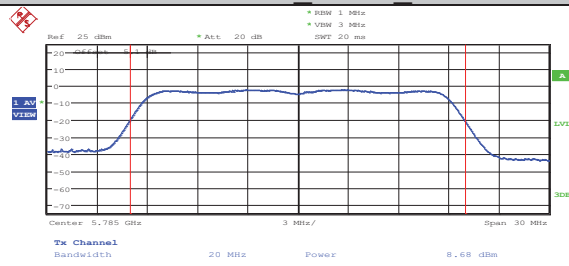
Date: 21.JUN.2018 18:24:05

11AC20 ANT1 5785



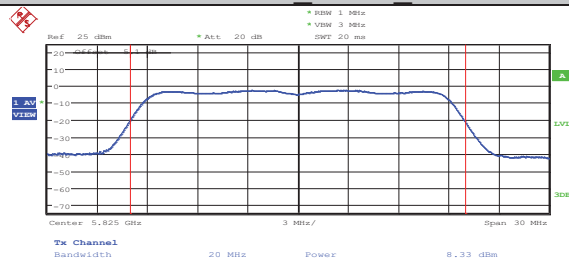
Date: 20.JUN.2018 21:04:18

11AC20 ANT2 5785



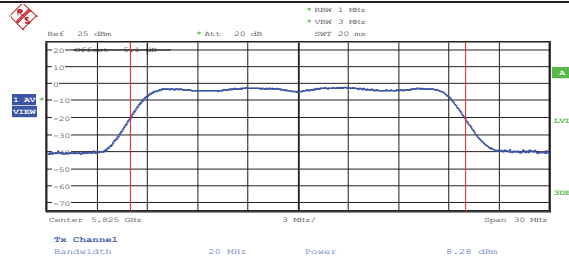
Date: 21.JUN.2018 18:26:28

11AC20 ANT1 5825



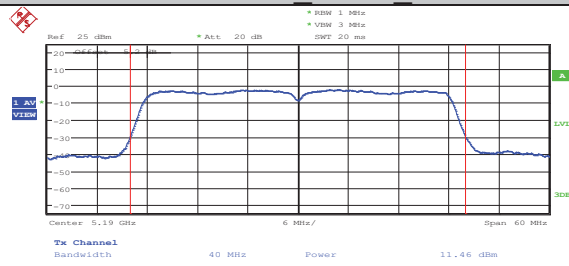
Date: 20.JUN.2018 21:06:42

11AC20 ANT2 5825



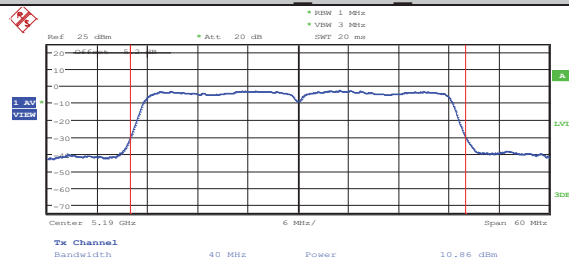
Date: 21.JUN.2018 18:29:37

11AC40 ANT1 5190



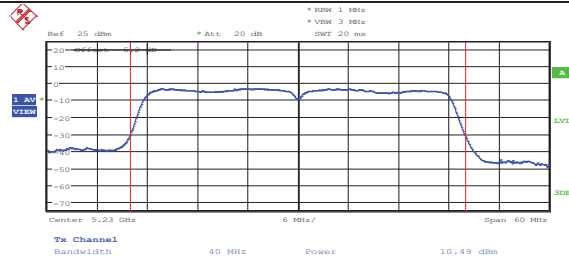
Date: 21.JUN.2018 11:02:16

11AC40 ANT2 5190



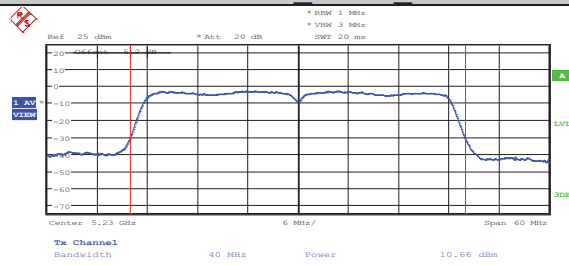
Date: 21.JUN.2018 18:32:21

11AC40 ANT1 5230



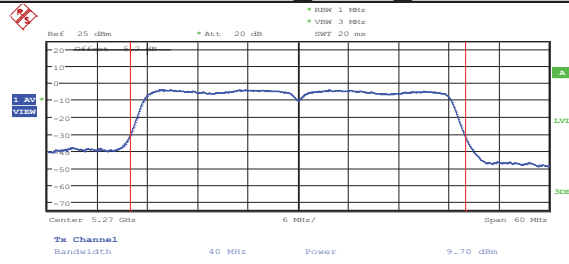
Date: 21.JUN.2018 11:06:46

11AC40 ANT2 5230



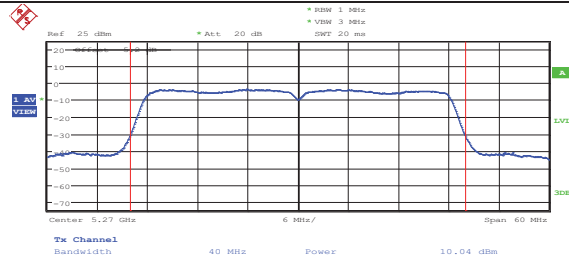
Date: 21.JUN.2018 18:35:18

11AC40 ANT1 5270



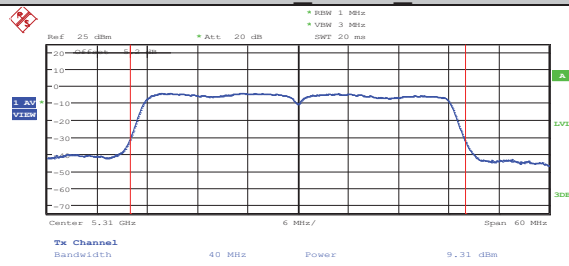
Date: 21.JUN.2018 11:10:36

11AC40 ANT2 5270



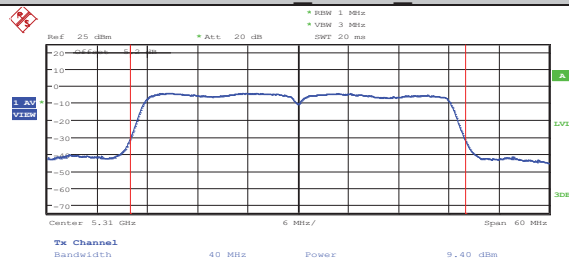
Date: 21.JUN.2018 18:38:01

11AC40 ANT1 5310



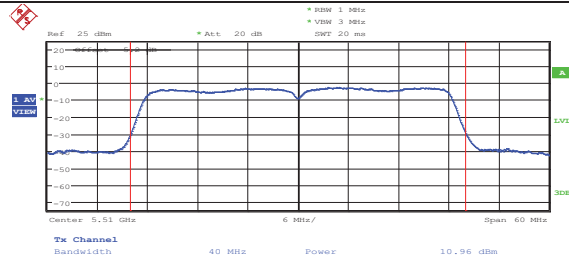
Date: 21.JUN.2018 11:13:12

11AC40 ANT2 5310



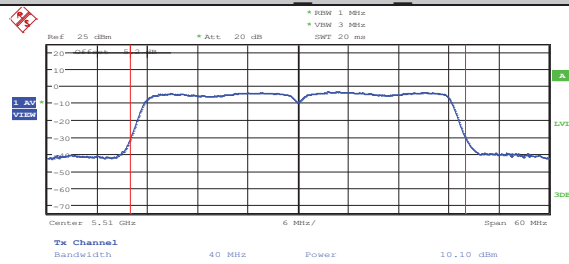
Date: 21.JUN.2018 18:40:47

11AC40 ANT1 5510



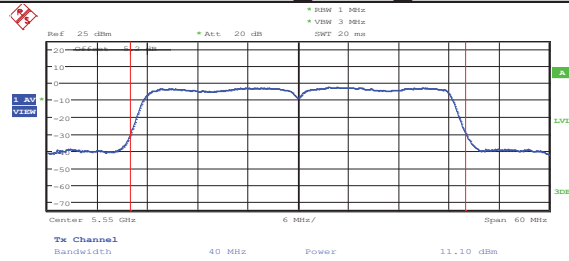
Date: 21.JUN.2018 11:16:43

11AC40 ANT2 5510



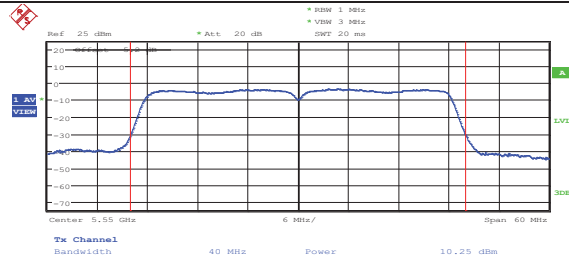
Date: 21.JUN.2018 10:44:35

11AC40 ANT1 5550



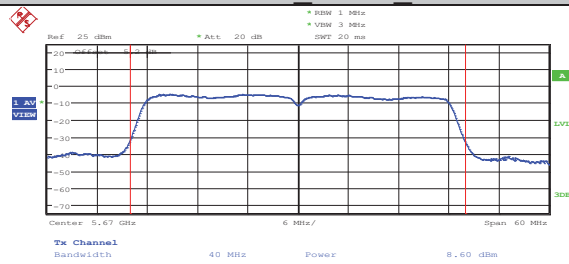
Date: 21.JUN.2018 11:19:33

11AC40 ANT2 5550



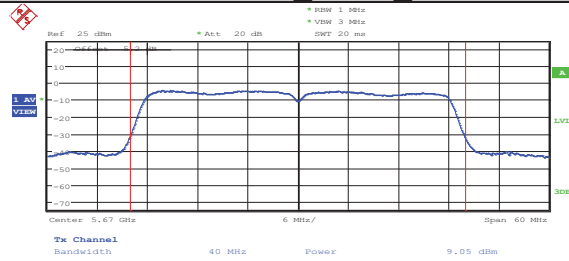
Date: 21.JUN.2018 18:47:52

11AC40 ANT1 5670



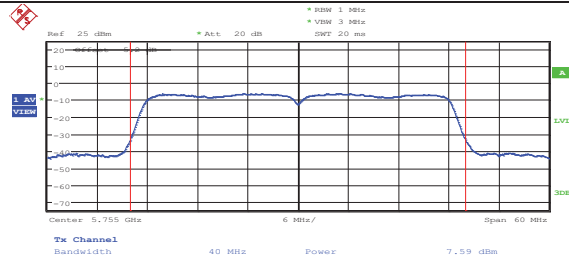
Date: 21.JUN.2018 15:09:45

11AC40 ANT2 5670



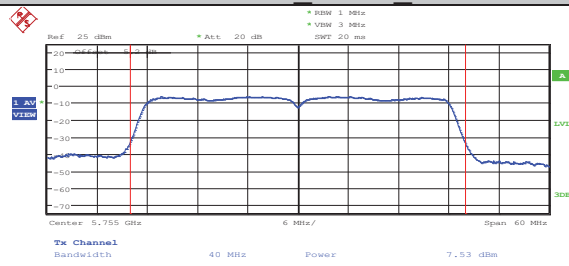
Date: 21.JUN.2018 18:50:28

11AC40 ANT1 5755



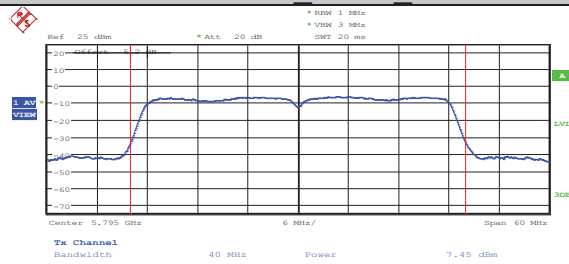
Date: 21.JUN.2018 15:12:14

11AC40 ANT2 5755



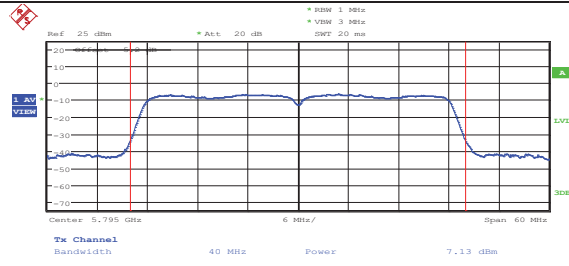
Date: 21.JUN.2018 18:53:03

11AC40 ANT1 5795



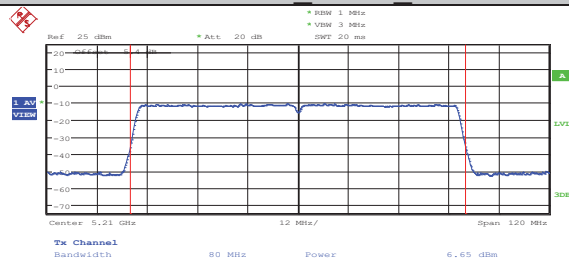
Date: 21.JUN.2018 15:16:04

11AC40 ANT2 5795



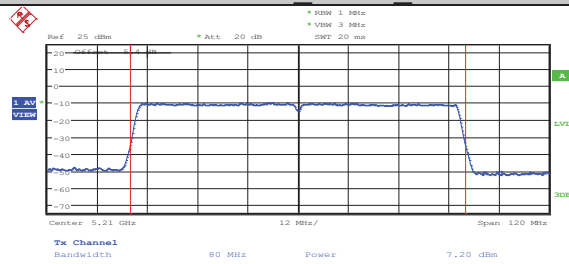
Date: 21.JUN.2018 18:56:28

11AC80 ANT1 5210



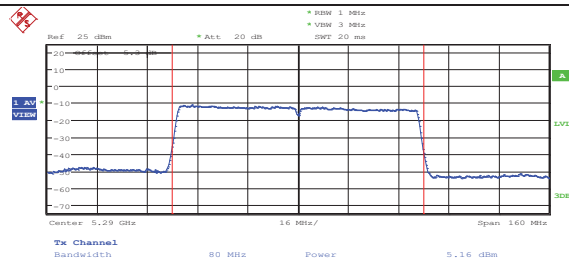
Date: 21.JUN.2018 15:19:35

11AC80 ANT2 5210



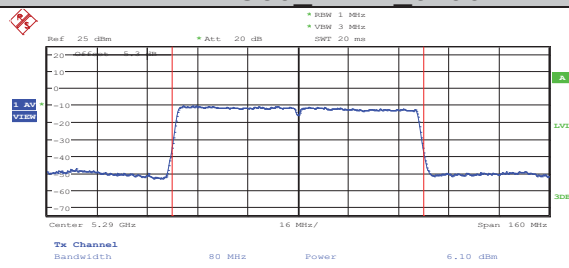
Date: 21.JUN.2018 18:59:42

11AC80 ANT1 5290



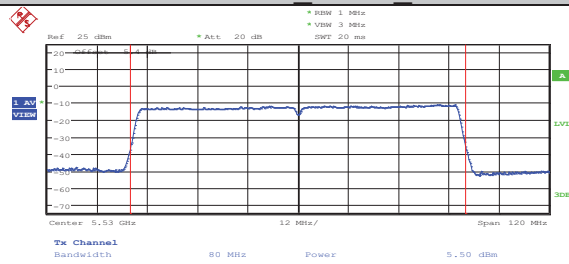
Date: 21.JUN.2018 15:31:17

11AC80 ANT2 5290



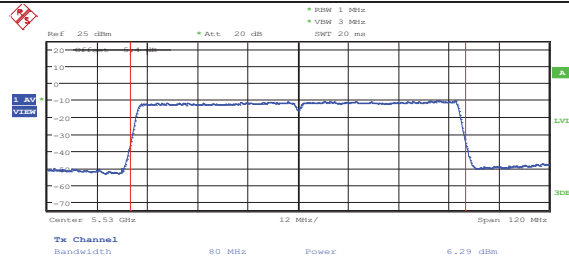
Date: 21.JUN.2018 19:02:58

11AC80 ANT1 5530



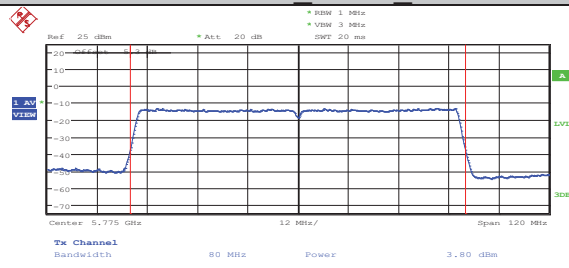
Date: 21.JUN.2018 15:38:19

11AC80 ANT2 5530



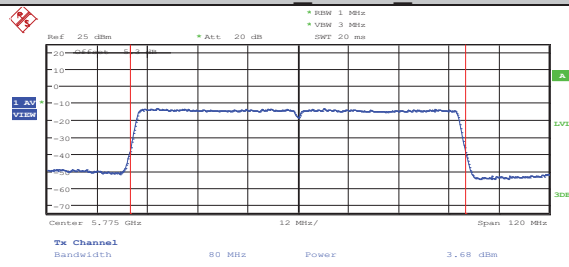
Date: 21.JUN.2018 19:06:42

11AC80 ANT1 5775



Date: 21.JUN.2018 15:42:18

11AC80 ANT2 5775



Date: 21.JUN.2018 19:09:40

6. Power Spectral Density

6.1. Block diagram of test setup

Same with 4.1

6.2. Limits

FCC Part15, Subpart E/ RSS-247		
Test Item	Limit	Frequency Range (MHz)
Power Spectral Density	For FCC: Other than Mobile and portable:17dBm/MHz Mobile and portable:11dBm/MHz	5150-5250
	For RSS eirp:10dBm/MHz	
	11dBm/MHz	5250-5350
	11dBm/MHz	For FCC:5470-5725 For IC:5470-5600 5650-5725
	30dBm/500kHz	5725-5850

6.3. Test Procedure

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

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

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

Center Frequency	The centre frequency of the channel under test
Detector	RMS
RBW	1MHz
VBW	$\geq 3 \times \text{RBW}$
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

5725MHz-5850MHz

Center Frequency	The centre frequency of the channel under test
Detector	RMS
RBW	500kHz
VBW	$\geq 3 \times \text{RBW}$
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

Note:

1. For UNII-3, according to KDB publication 789033 D02 General U-NII Test Procedures New Rules v02r01, section II.F.5., it is acceptable to set RBW at 1MHz and VBW at 3MHz if the spectrum analyzer does not have 500kHz RBW.

2. The value measured with RBW=1MHz is to be added with $10\log(500\text{kHz}/1\text{MHz})$ which is - 3dB. For example, if the measured value is +10dBm using RBW=1MHz (that is +10dBm/MHz), then the converted value will be +7dBm/500kHz.

Allow trace to fully stabilize and use the peak marker function to determine the maximum amplitude level within the RBW.

6.4. Test Result

(5150-5250)

Test Mode	Test Channel I	Ant	Level [dBm/MHz]	$10\log(1/x)$ Factor [dB]	PSD [dBm/MHz]	PSD eirp [dBm/MHz]	FCC Limit [dBm/MHz]	ISED Limit [dBm/MHz]
11A	5180	Ant1	2.19	0	2.19	4.33	11.00	10.00
11A	5180	Ant2	2.26	0	2.26	4.40	11.00	10.00
11A	5200	Ant1	2.06	0	2.06	4.20	11.00	10.00
11A	5200	Ant2	2.04	0	2.04	4.18	11.00	10.00
11A	5240	Ant1	1.62	0	1.62	3.76	11.00	10.00
11A	5240	Ant2	1.61	0	1.61	3.75	11.00	10.00
11N20	5180	Ant1	1.78	0	1.78	3.92	11.00	10.00
11N20	5180	Ant2	1.92	0	1.92	4.06	11.00	10.00
11N20	5200	Ant1	1.78	0	1.78	3.92	11.00	10.00
11N20	5200	Ant2	1.90	0	1.90	4.04	11.00	10.00
11N20	5240	Ant1	1.09	0	1.09	3.23	11.00	10.00
11N20	5240	Ant2	1.20	0	1.20	3.34	11.00	10.00
11N40	5190	Ant1	-2.73	0	-2.73	-0.59	11.00	10.00
11N40	5190	Ant2	-2.99	0	-2.99	-0.85	11.00	10.00
11N40	5230	Ant1	-3.36	0	-3.36	-1.22	11.00	10.00
11N40	5230	Ant2	-3.11	0	-3.11	-0.97	11.00	10.00
11AC20	5180	Ant1	1.76	0	1.76	3.90	11.00	10.00
11AC20	5180	Ant2	2.04	0	2.04	4.18	11.00	10.00
11AC20	5200	Ant1	1.62	0	1.62	3.76	11.00	10.00
11AC20	5200	Ant2	1.63	0	1.63	3.77	11.00	10.00
11AC20	5240	Ant1	0.83	0	0.83	2.97	11.00	10.00
11AC20	5240	Ant2	0.86	0	0.86	3.00	11.00	10.00
11AC40	5190	Ant1	-2.34	0	-2.34	-0.20	11.00	10.00
11AC40	5190	Ant2	-2.91	0	-2.91	-0.77	11.00	10.00
11AC40	5230	Ant1	-3.39	0	-3.39	-1.25	11.00	10.00
11AC40	5230	Ant2	-3.12	0	-3.12	-0.98	11.00	10.00
11AC80	5210	Ant1	-10.66	0	-10.66	-8.52	11.00	10.00
11AC80	5210	Ant2	-9.80	0	-9.80	-7.66	11.00	10.00

(5250-5350, 5470-5725, 5725-5850)

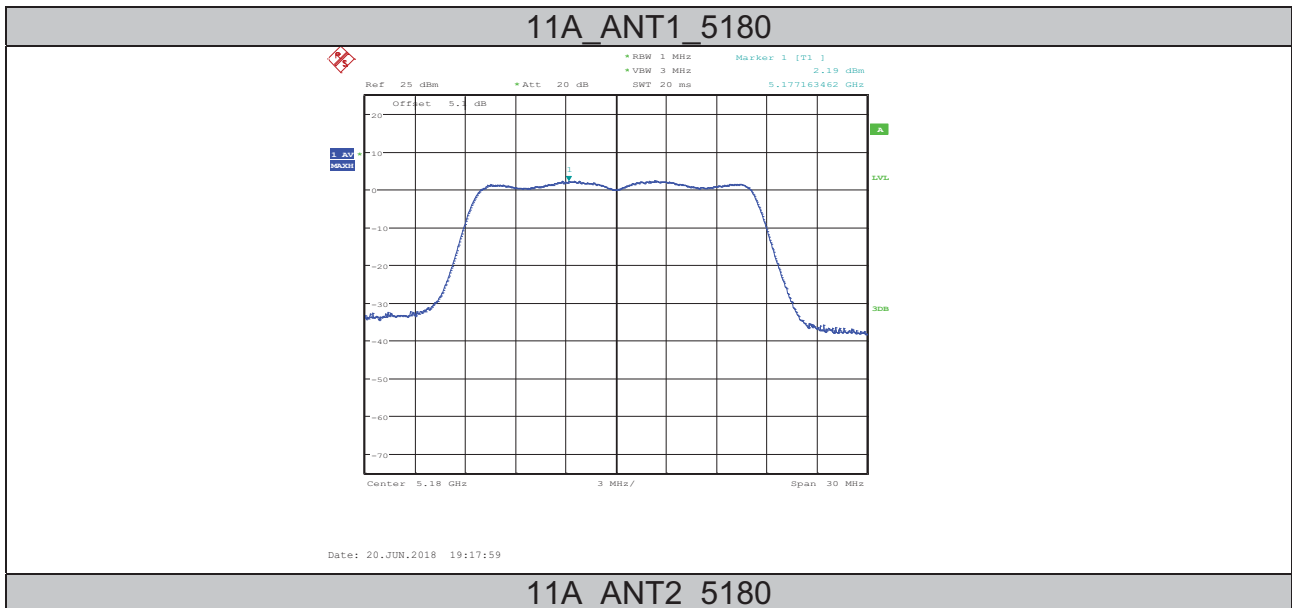
Test Mode	Test Channel	Ant	Level [dBm/MHz]	10log(1/x) Factor [dB]	PSD [dBm/MHz]	Limit [dBm/MHz]	Verdict
11A	5260	Ant1	1.08	0	1.08	11	PASS
11A	5260	Ant2	1.03	0	1.03	11	PASS
11A	5280	Ant1	0.83	0	0.83	11	PASS
11A	5280	Ant2	1.10	0	1.10	11	PASS
11A	5320	Ant1	0.17	0	0.17	11	PASS
11A	5320	Ant2	0.57	0	0.57	11	PASS
11A	5500	Ant1	0.40	0	0.40	11	PASS
11A	5500	Ant2	1.52	0	1.52	11	PASS
11A	5580	Ant1	1.12	0	1.12	11	PASS
11A	5580	Ant2	1.27	0	1.27	11	PASS
11A	5700	Ant1	-0.33	0	-0.33	11	PASS
11A	5700	Ant2	-0.25	0	-0.25	11	PASS
11N20	5260	Ant1	0.57	0	0.57	11	PASS
11N20	5260	Ant2	0.69	0	0.69	11	PASS
11N20	5280	Ant1	0.76	0	0.76	11	PASS
11N20	5280	Ant2	1.05	0	1.05	11	PASS
11N20	5320	Ant1	-0.01	0	-0.01	11	PASS
11N20	5320	Ant2	0.72	0	0.72	11	PASS
11N20	5500	Ant1	0.06	0	0.06	11	PASS
11N20	5500	Ant2	0.65	0	0.65	11	PASS
11N20	5580	Ant1	0.58	0	0.58	11	PASS
11N20	5580	Ant2	1.02	0	1.02	11	PASS
11N20	5700	Ant1	-1.01	0	-1.01	11	PASS
11N20	5700	Ant2	-0.58	0	-0.58	11	PASS
11N40	5270	Ant1	-4.13	0	-4.13	11	PASS
11N40	5270	Ant2	-3.75	0	-3.75	11	PASS
11N40	5310	Ant1	-4.59	0	-4.59	11	PASS
11N40	5310	Ant2	-4.36	0	-4.36	11	PASS
11N40	5510	Ant1	-4.57	0	-4.57	11	PASS
11N40	5510	Ant2	-3.74	0	-3.74	11	PASS
11N40	5550	Ant1	-1.58	0	-1.58	11	PASS
11N40	5550	Ant2	-3.42	0	-3.42	11	PASS
11N40	5670	Ant1	-3.34	0	-3.34	11	PASS
11N40	5670	Ant2	-4.70	0	-4.70	11	PASS
11AC20	5260	Ant1	0.68	0	0.68	11	PASS
11AC20	5260	Ant2	0.95	0	0.95	11	PASS
11AC20	5280	Ant1	0.42	0	0.42	11	PASS

11AC20	5280	Ant2	0.80	0	0.80	11	PASS
11AC20	5320	Ant1	-0.02	0	-0.02	11	PASS
11AC20	5320	Ant2	0.16	0	0.16	11	PASS
11AC20	5500	Ant1	-0.15	0	-0.15	11	PASS
11AC20	5500	Ant2	0.72	0	0.72	11	PASS
11AC20	5580	Ant1	0.39	0	0.39	11	PASS
11AC20	5580	Ant2	1.09	0	1.09	11	PASS
11AC20	5700	Ant1	-1.36	0	-1.36	11	PASS
11AC20	5700	Ant2	-0.57	0	-0.57	11	PASS
11AC40	5270	Ant1	-4.05	0	-4.05	11	PASS
11AC40	5270	Ant2	-3.69	0	-3.69	11	PASS
11AC40	5310	Ant1	-4.23	0	-4.23	11	PASS
11AC40	5310	Ant2	-4.16	0	-4.16	11	PASS
11AC40	5510	Ant1	-2.65	0	-2.65	11	PASS
11AC40	5510	Ant2	-3.45	0	-3.45	11	PASS
11AC40	5550	Ant1	-2.45	0	-2.45	11	PASS
11AC40	5550	Ant2	-3.40	0	-3.40	11	PASS
11AC40	5670	Ant1	-4.83	0	-4.83	11	PASS
11AC40	5670	Ant2	-4.39	0	-4.39	11	PASS
11AC80	5290	Ant1	-11.23	0	-11.23	11	PASS
11AC80	5290	Ant2	-10.75	0	-10.75	11	PASS
11AC80	5530	Ant1	-11.06	0	-11.06	11	PASS
11AC80	5530	Ant2	-10.75	0	-10.75	11	PASS

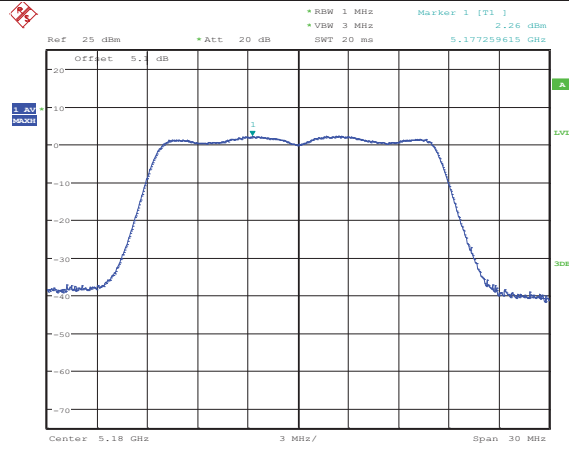
Test Mode	Test Channel	Ant	Level [dBm/500 kHz]	$10\log(1/x)$ Factor[dB]	$10\log(500\text{kHz}/\text{RBW})$ Factor [dB]	PSD [dBm/500k Hz]	Limit [dBm/500kHz]	Verdict
11A	5745	Ant1	-3.72	0	0	-3.72	17.00	PASS
11A	5745	Ant2	-3.71	0	0	-3.71	17.00	PASS
11A	5785	Ant1	-4.34	0	0	-4.34	17.00	PASS
11A	5785	Ant2	-3.99	0	0	-3.99	17.00	PASS
11A	5825	Ant1	-4.32	0	0	-4.32	17.00	PASS
11A	5825	Ant2	-4.03	0	0	-4.03	17.00	PASS
11N20	5745	Ant1	-3.73	0	0	-3.73	17.00	PASS
11N20	5745	Ant2	-3.43	0	0	-3.43	17.00	PASS
11N20	5785	Ant1	-4.47	0	0	-4.47	17.00	PASS
11N20	5785	Ant2	-4.24	0	0	-4.24	17.00	PASS
11N20	5825	Ant1	-4.09	0	0	-4.09	17.00	PASS
11N20	5825	Ant2	-4.67	0	0	-4.67	17.00	PASS
11N40	5755	Ant1	-5.98	0	0	-5.98	17.00	PASS

11N40	5755	Ant2	-8.54	0	0	-8.54	17.00	PASS
11N40	5795	Ant1	-5.49	0	0	-5.49	17.00	PASS
11N40	5795	Ant2	-8.91	0	0	-8.91	17.00	PASS
11AC20	5745	Ant1	-3.88	0	0	-3.88	17.00	PASS
11AC20	5745	Ant2	-3.77	0	0	-3.77	17.00	PASS
11AC20	5785	Ant1	-4.68	0	0	-4.68	17.00	PASS
11AC20	5785	Ant2	-4.43	0	0	-4.43	17.00	PASS
11AC20	5825	Ant1	-4.39	0	0	-4.39	17.00	PASS
11AC20	5825	Ant2	-4.96	0	0	-4.96	17.00	PASS
11AC40	5755	Ant1	-8.06	0	0	-8.06	17.00	PASS
11AC40	5755	Ant2	-8.15	0	0	-8.15	17.00	PASS
11AC40	5795	Ant1	-7.96	0	0	-7.96	17.00	PASS
11AC40	5795	Ant2	-9.03	0	0	-9.03	17.00	PASS
11AC40	5775	Ant1	-13.44	0	0	-13.44	17.00	PASS
11AC40	5775	Ant2	-13.08	0	0	-13.08	17.00	PASS

6.5. Original test data

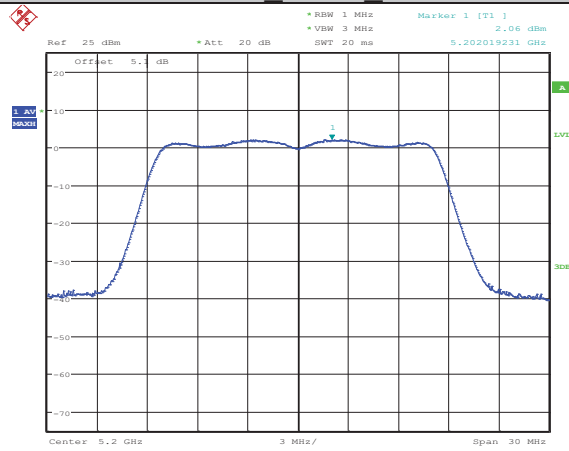


11A_ANT2_5180



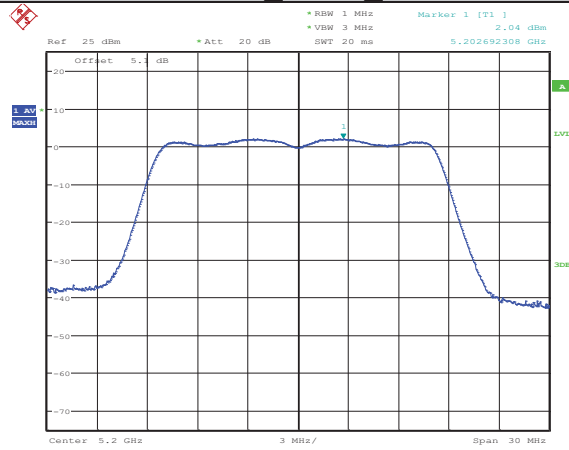
Date: 21.JUN.2018 15:50:04

11A ANT1 5200



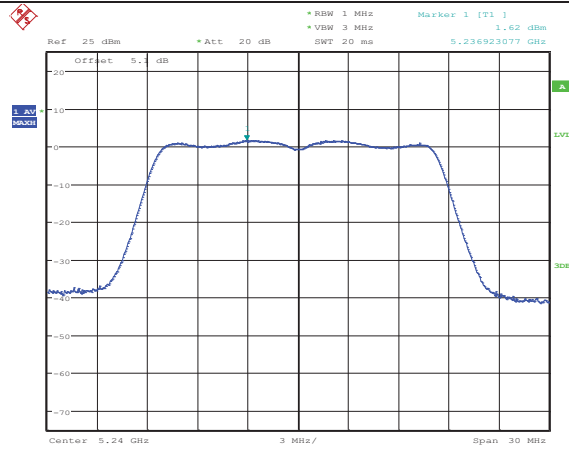
Date: 20.JUN.2018 19:22:58

11A ANT2 5200



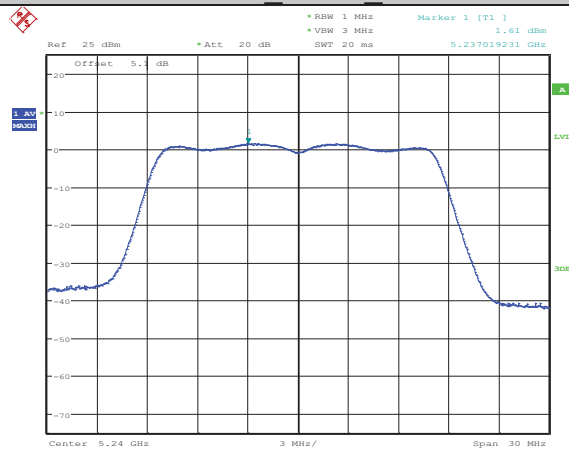
Date: 21.JUN.2018 15:54:25

11A ANT1 5240



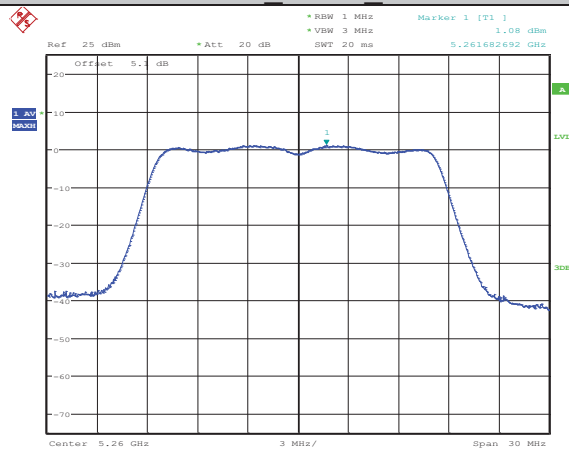
Date: 20.JUN.2018 19:25:38

11A ANT2 5240



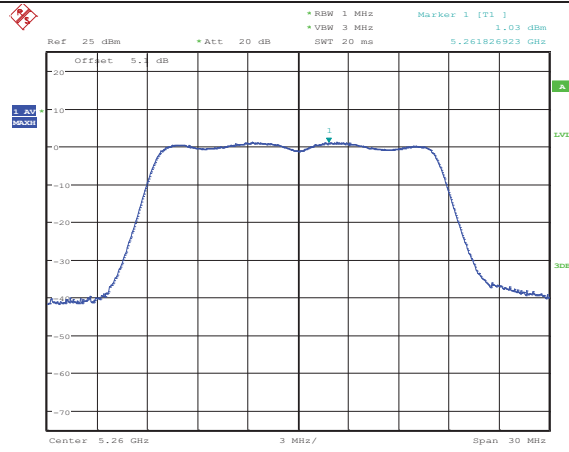
Date: 21.JUN.2018 15:56:53

11A ANT1 5260



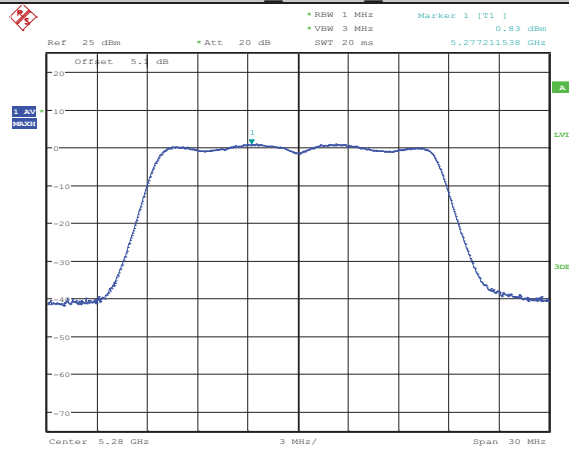
Date: 20.JUN.2018 19:28:04

11A ANT2 5260



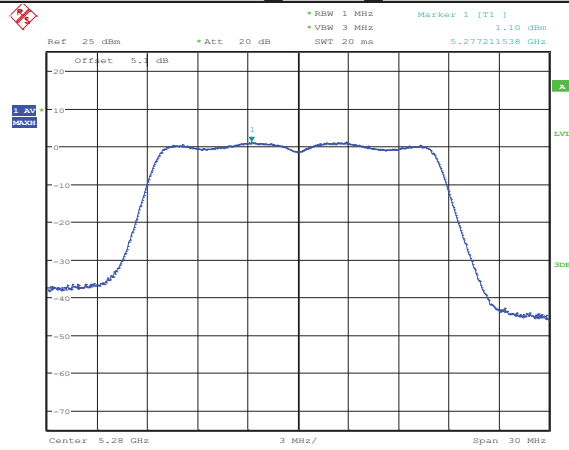
Date: 21.JUN.2018 15:59:46

11A ANT1 5280



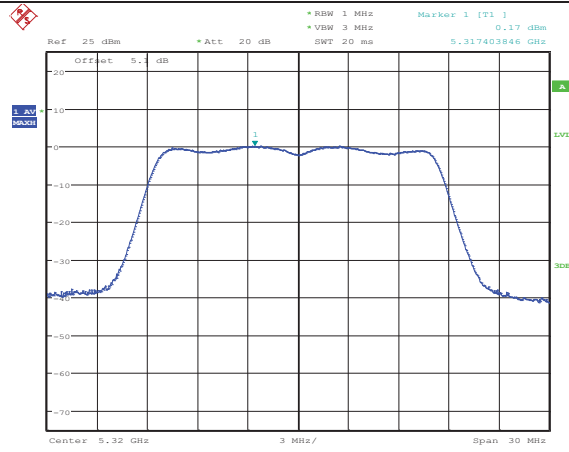
Date: 20.JUN.2018 19:30:30

11A ANT2 5280



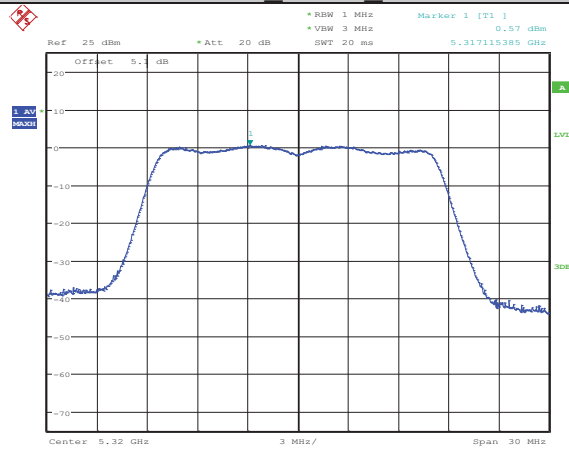
Date: 21.JUN.2018 16:02:15

11A ANT1 5320



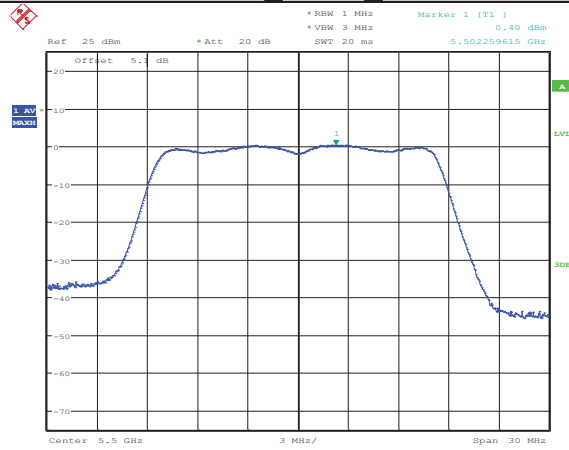
Date: 20.JUN.2018 19:33:43

11A ANT2 5320



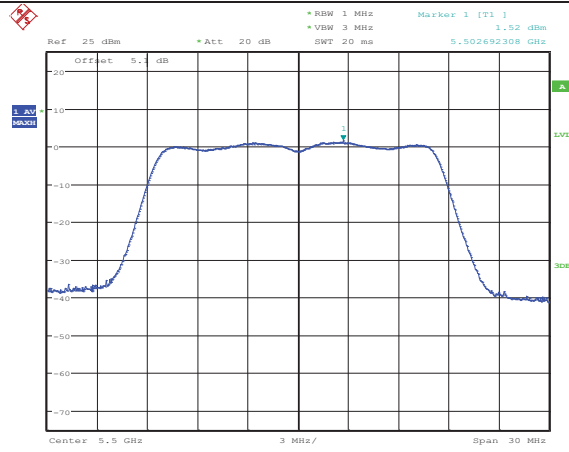
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11A ANT1 5500



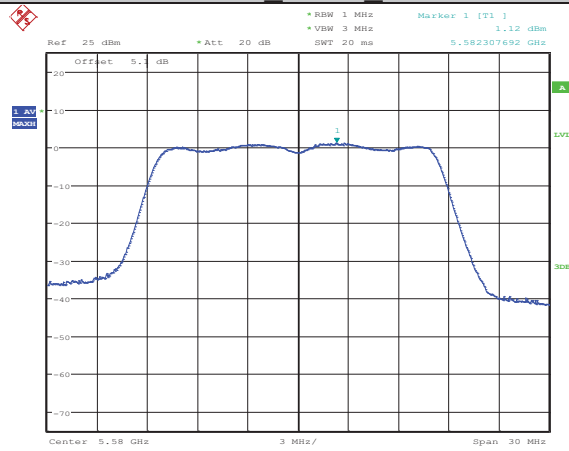
Date: 20.JUN.2018 19:36:40

11A ANT2 5500



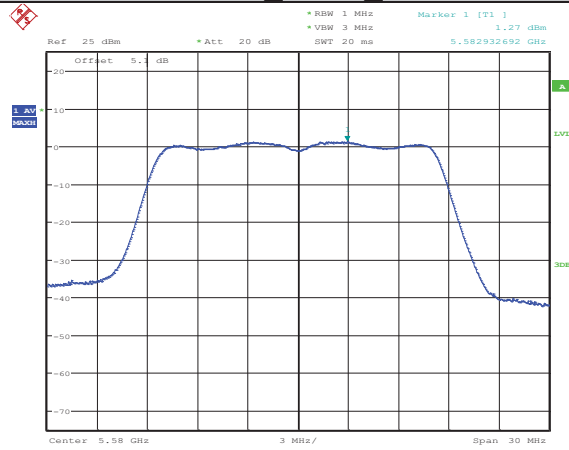
Date: 21.JUN.2018 16:08:58

11A ANT1 5580



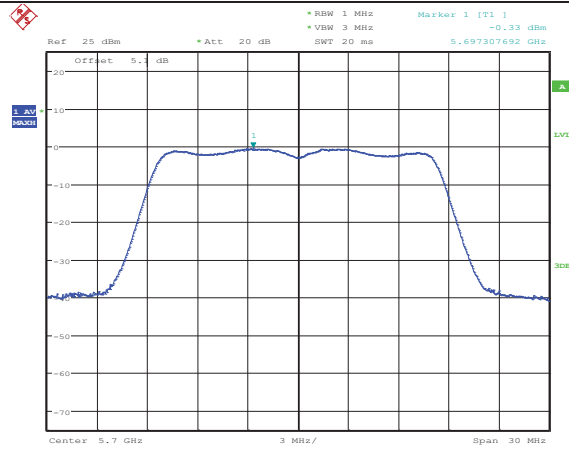
Date: 20.JUN.2018 19:40:03

11A ANT2 5580



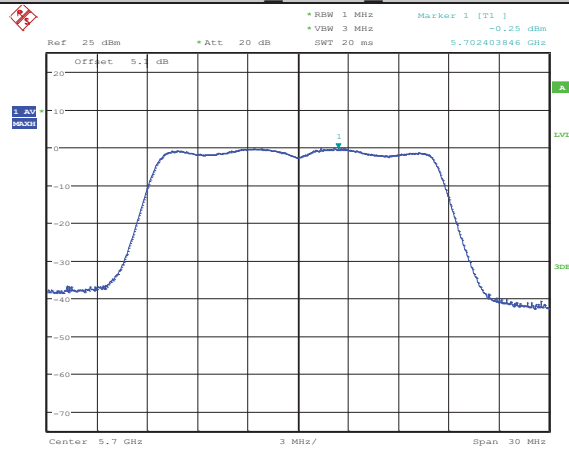
Date: 21.JUN.2018 16:11:47

11A ANT1 5700



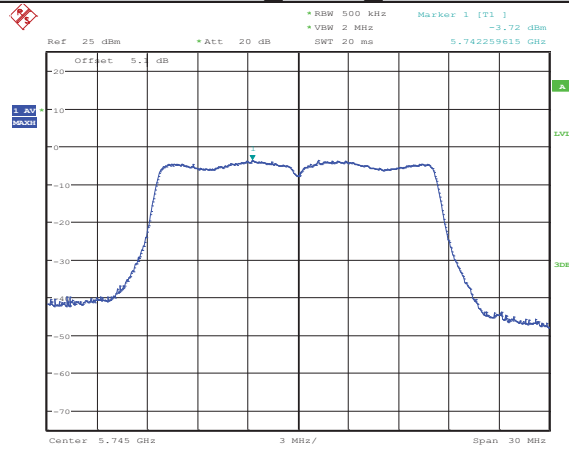
Date: 20.JUN.2018 19:42:27

11A ANT2 5700



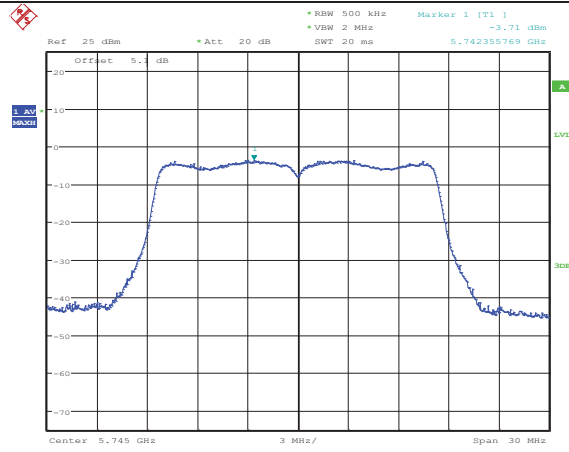
Date: 21.JUN.2018 16:19:02

11A ANT1 5745



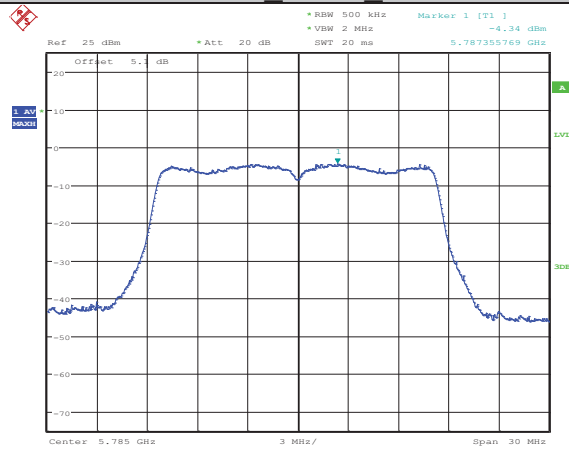
Date: 20.JUN.2018 19:44:52

11A ANT2 5745



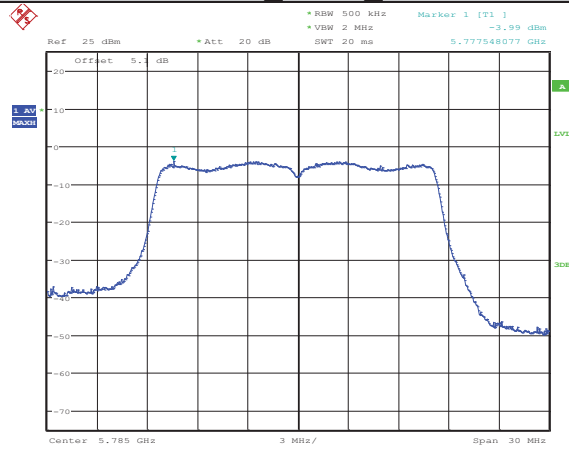
Date: 21.JUN.2018 16:22:09

11A ANT1 5785



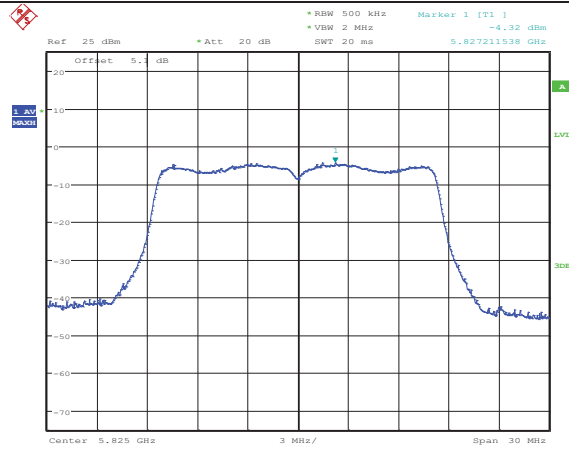
Date: 20.JUN.2018 19:47:22

11A ANT2 5785



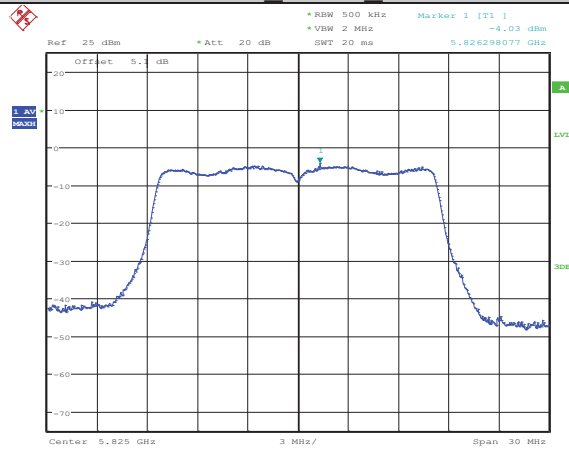
Date: 21.JUN.2018 16:26:03

11A ANT1 5825



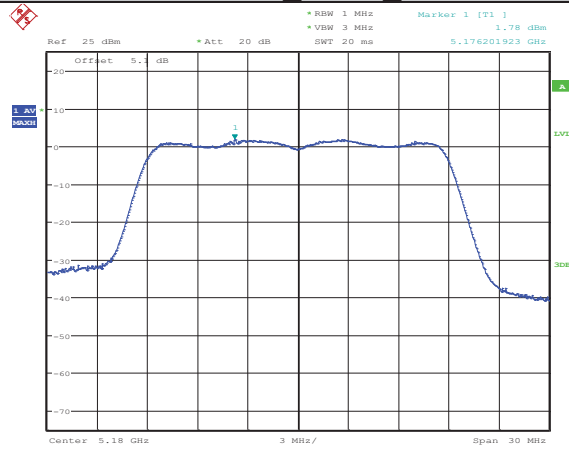
Date: 20.JUN.2018 19:49:48

11A ANT2 5825



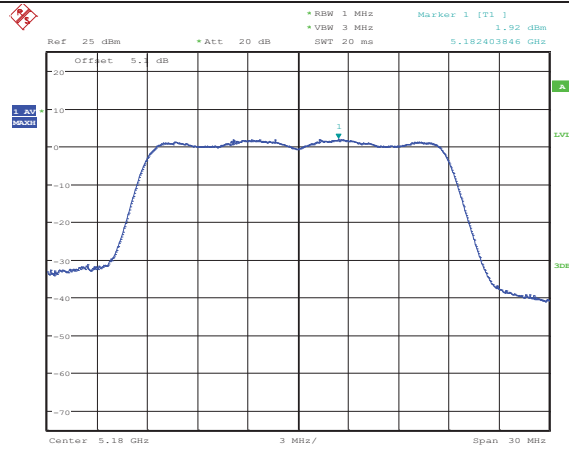
Date: 21.JUN.2018 16:30:08

11N20 ANT1 5180



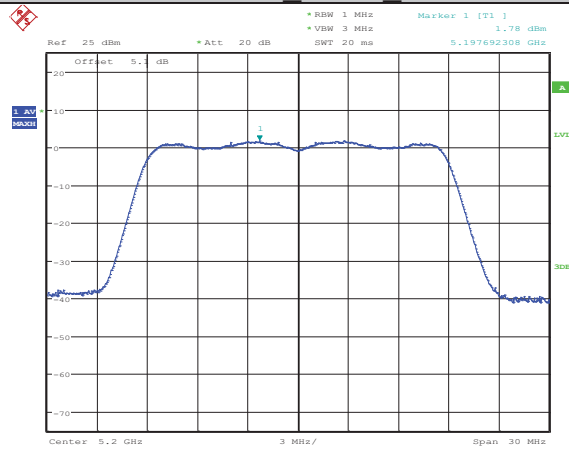
Date: 20.JUN.2018 19:57:28

11N20 ANT2 5180



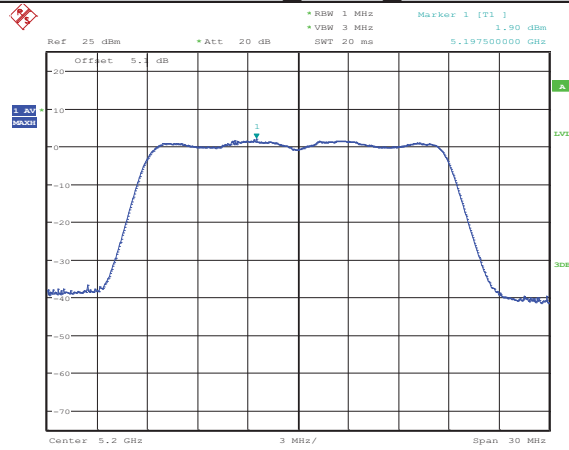
Date: 21.JUN.2018 16:35:57

11N20 ANT1 5200



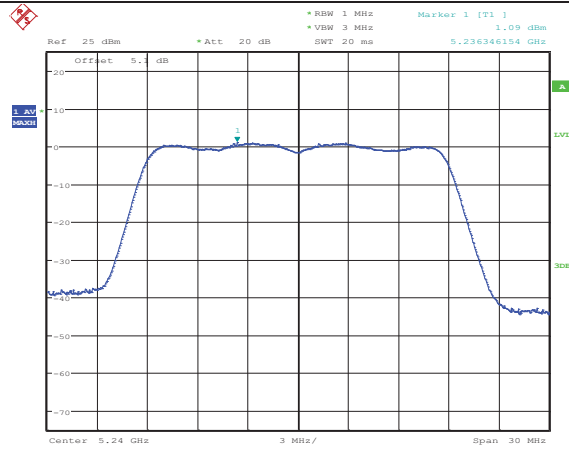
Date: 20.JUN.2018 20:02:04

11N20 ANT2 5200



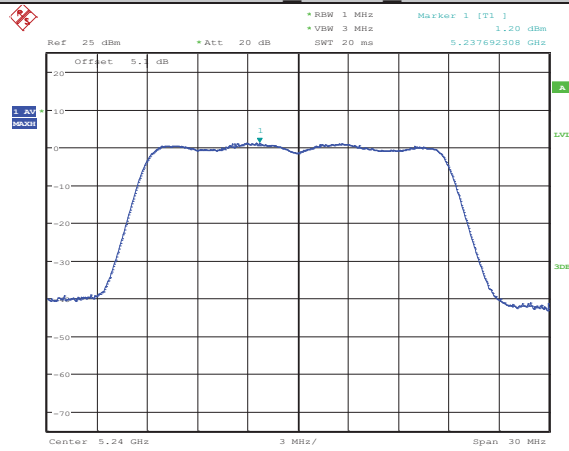
Date: 21.JUN.2018 16:38:41

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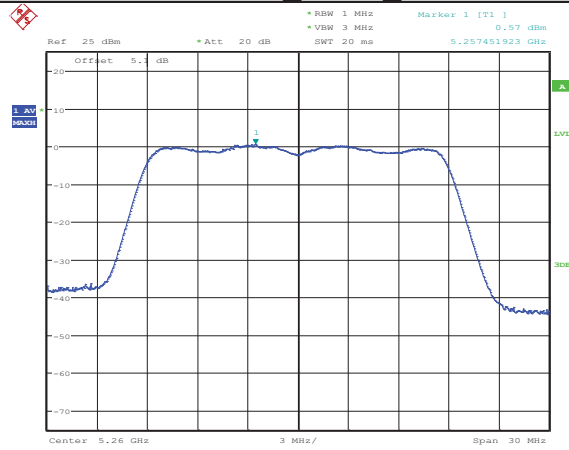
Date: 20.JUN.2018 20:04:38

11N20 ANT2 5240



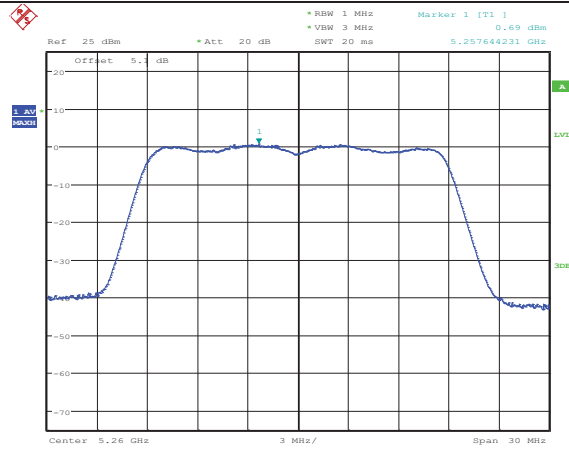
Date: 21.JUN.2018 16:46:19

11N20 ANT1 5260



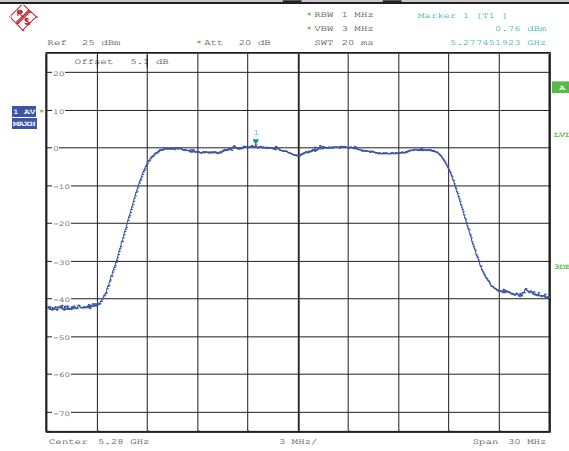
Date: 20.JUN.2018 20:07:22

11N20 ANT2 5260



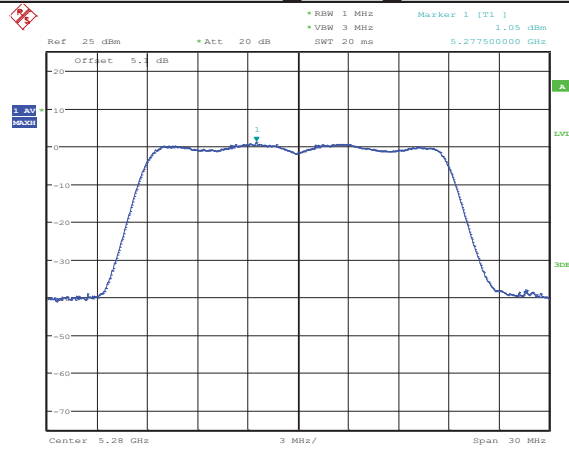
Date: 21.JUN.2018 16:48:56

11N20 ANT1 5280



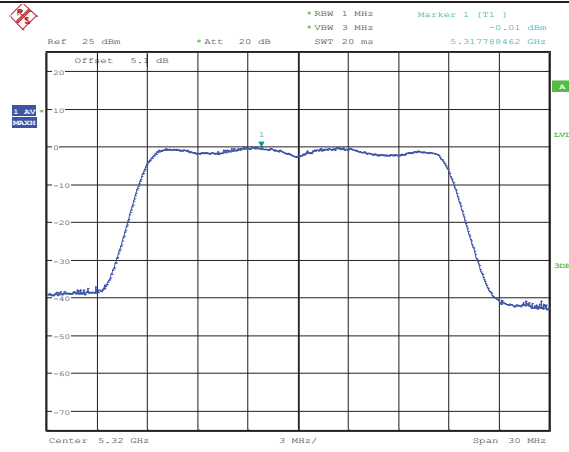
Date: 20.JUN.2018 20:10:26

11N20 ANT2 5280



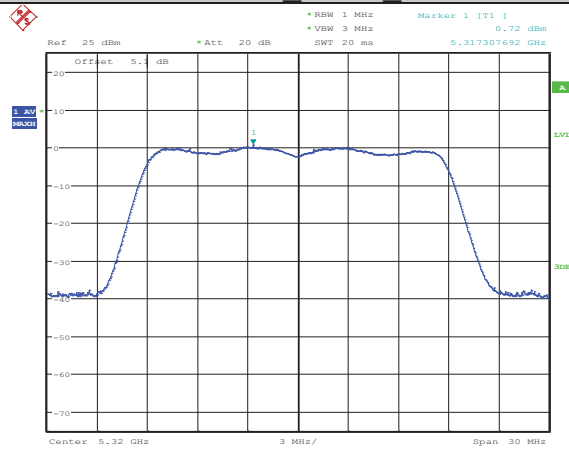
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11N20 ANT1 5320



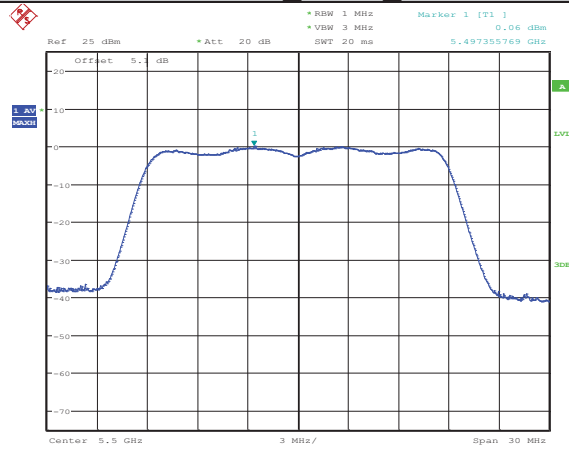
Date: 20.JUN.2018 20:13:03

11N20 ANT2 5320



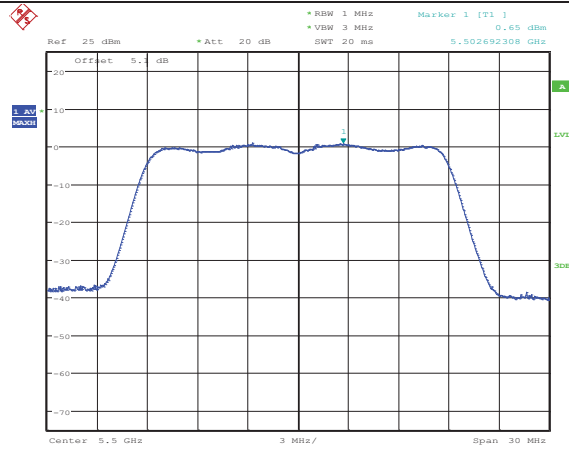
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11N20 ANT1 5500



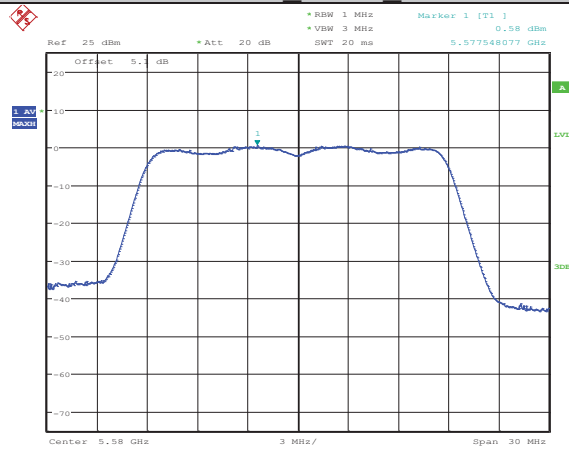
Date: 20.JUN.2018 20:15:45

11N20 ANT2 5500



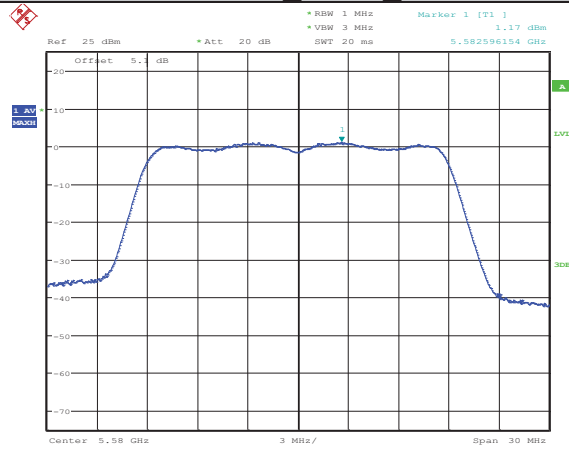
Date: 21.JUN.2018 17:00:51

11N20 ANT1 5580



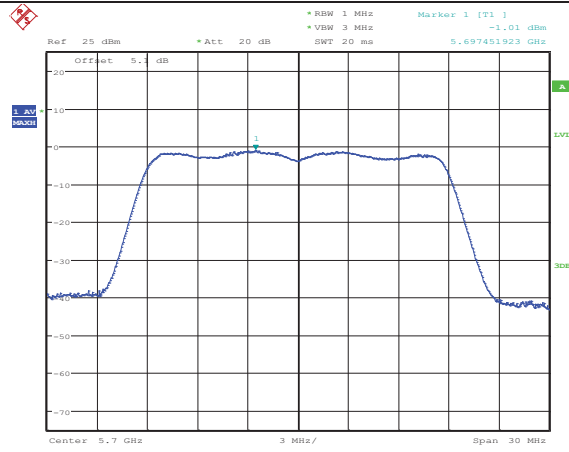
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11N20 ANT2 5580



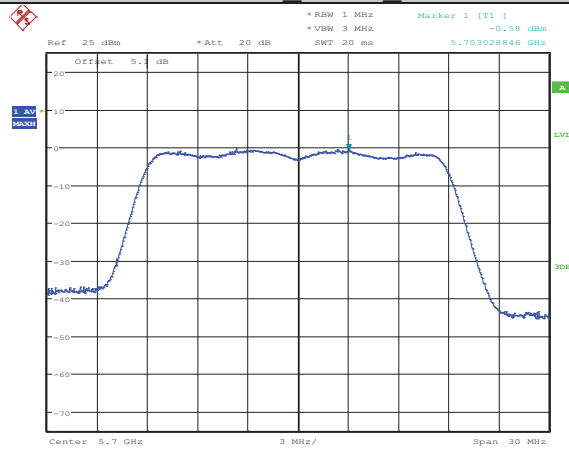
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11N20 ANT1 5700



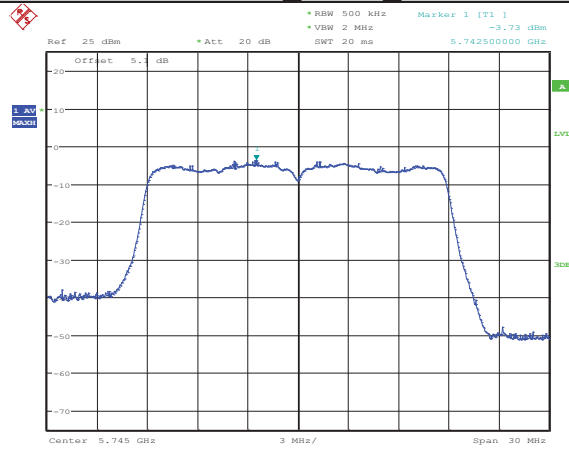
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11N20 ANT2 5700



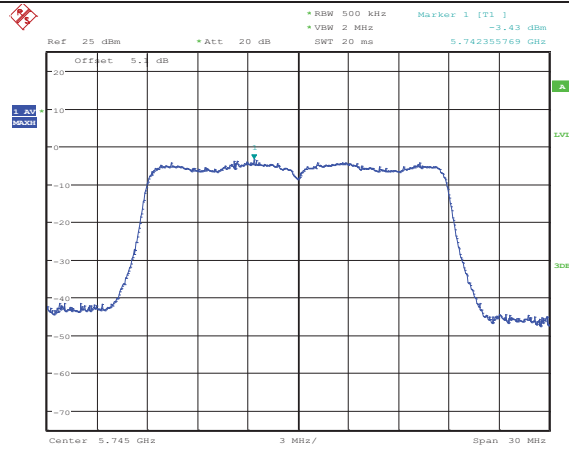
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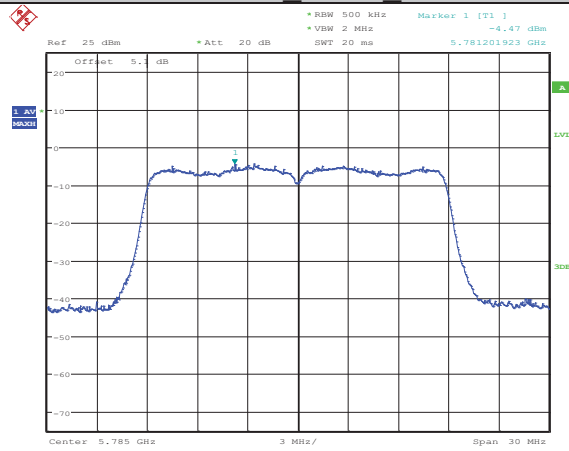
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11N20 ANT2 5745



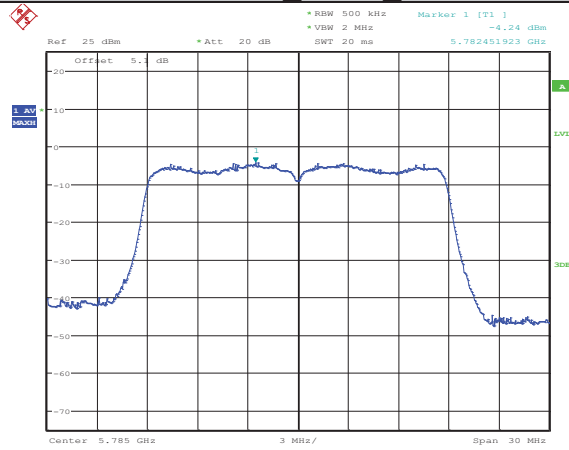
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11N20 ANT1 5785



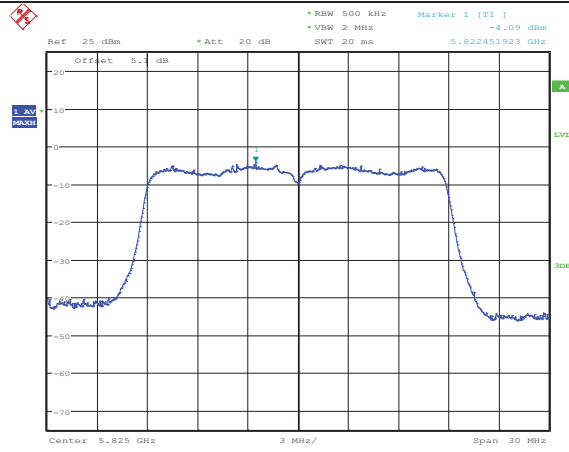
Date: 20.JUN.2018 20:25:48

11N20 ANT2 5785



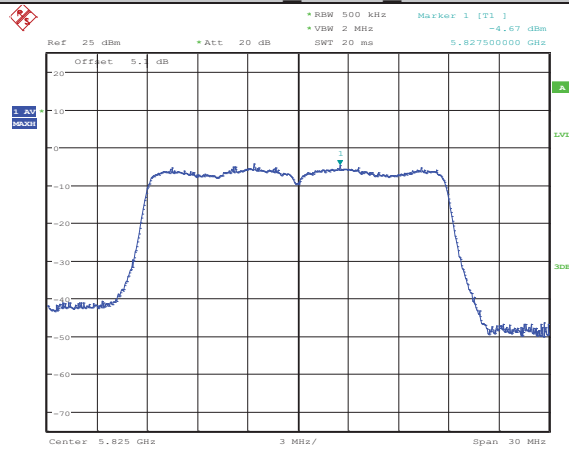
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11N20 ANT1 5825



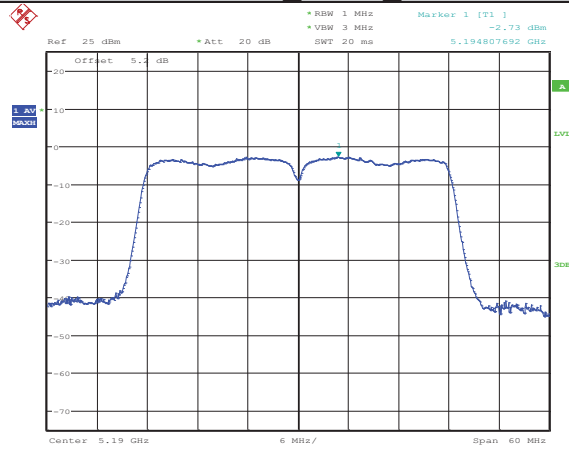
Date: 20.JUN.2018 20:28:20

11N20 ANT2 5825



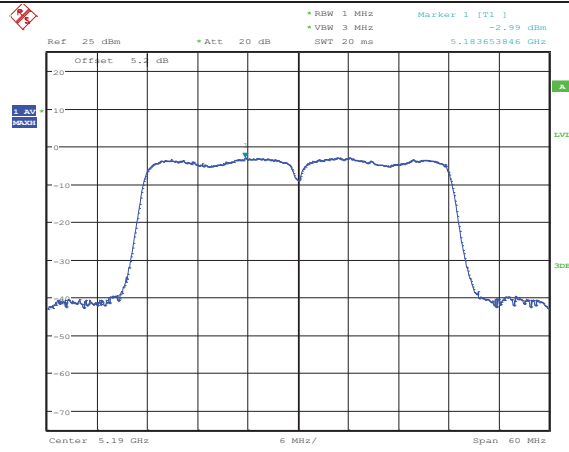
Date: 21.JUN.2018 17:15:30

11N40 ANT1 5190



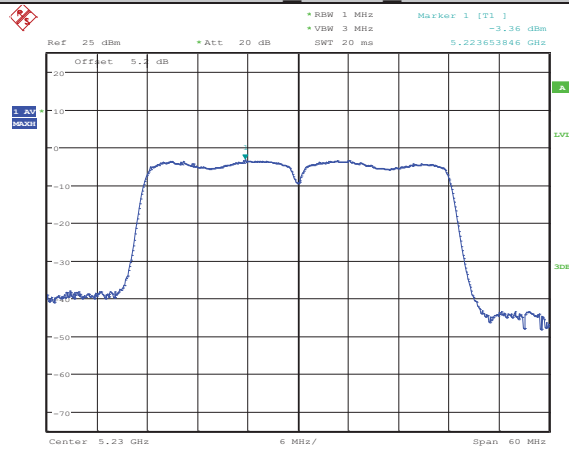
Date: 20.JUN.2018 21:11:24

11N40 ANT2 5190



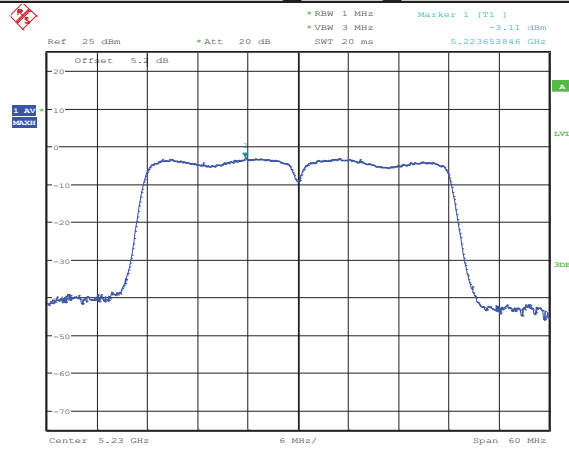
Date: 21.JUN.2018 17:18:13

11N40 ANT1 5230



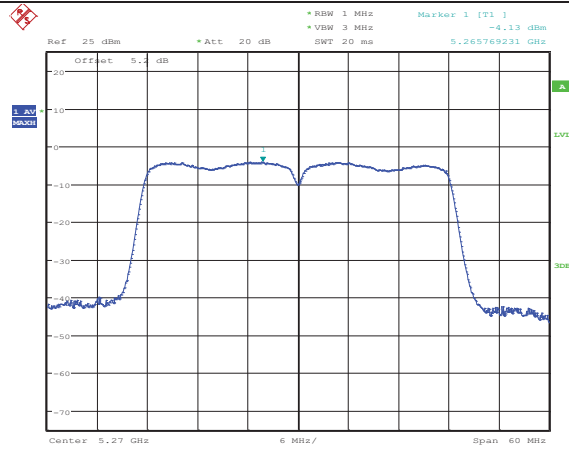
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11N40 ANT2 5230



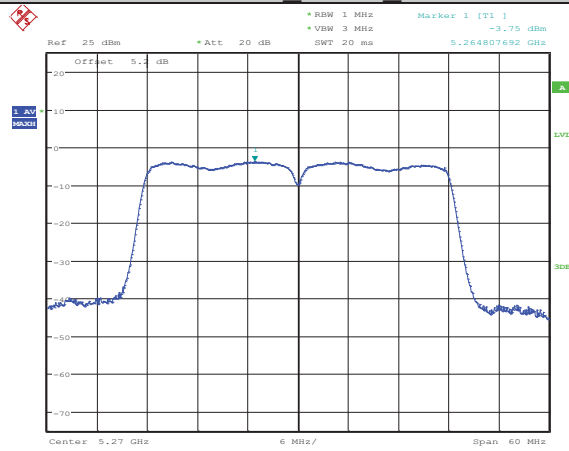
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11N40 ANT1 5270



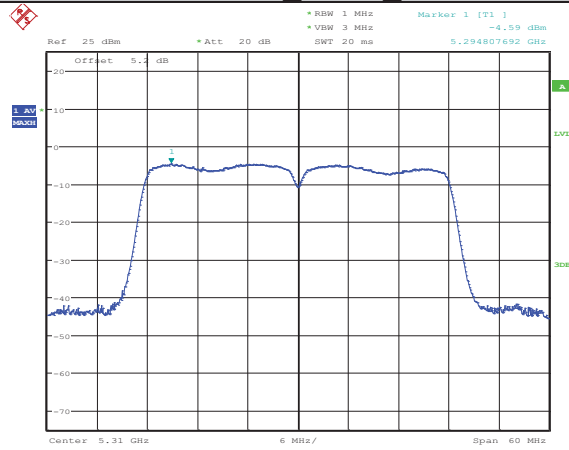
Date: 20.JUN.2018 21:16:54

11N40 ANT2 5270



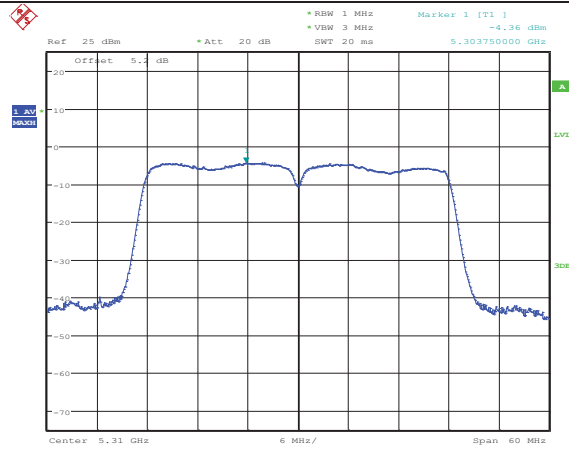
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11N40 ANT1 5310



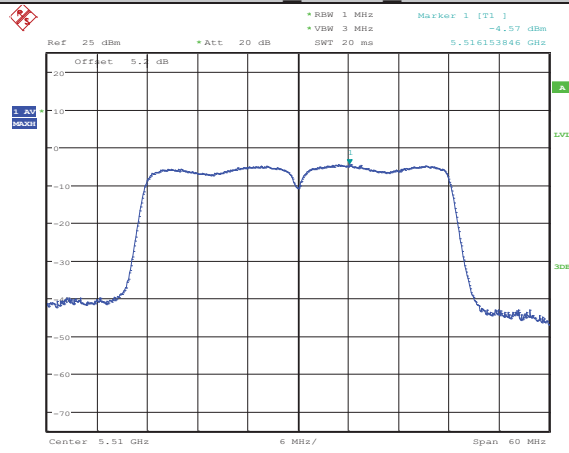
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11N40 ANT2 5310



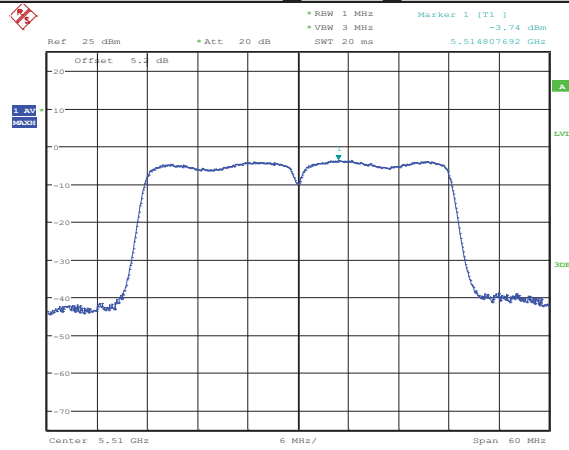
Date: 21.JUN.2018 17:27:08

11N40 ANT1 5510



Date: 20.JUN.2018 21:23:49

11N40 ANT2 5510



Date: 21.JUN.2018 17:29:56

11N40 ANT1 5550