FCC PART 15 SUBPART E TEST REPORT

For

Wireless Presentation System Dual Band AC Router

Model No.: W3-R9013

FCC ID: 2ANKPW3-R9013

of

Applicant: **Magic Control Technology Corp.**
Address: **10F. No.123, Zhongcheng Rd, Tucheng Dist,**
New Taipei City 236, Taiwan. R.O.C.

Tested and Prepared

by

Worldwide Testing Services (Taiwan) Co., Ltd.

FCC Registration No.: TW1477, TW1111, TW1072, TW1110

Industry Canada filed test laboratory Reg. No. IC 5679A-1, IC 5107A-1

A2LA Accredited No.: 2732.01

Testing Laboratory
1477

Report No.: W6M21703-16691-C-54

6F, NO. 58, LANE 188, RUEY-KUANG RD., NEIHU TAIPEI 114, TAIWAN, R.O.C.
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1 General Information

1.1 Notes

The purpose of conformity testing is to increase the probability of adherence to the essential requirements or conformity specifications, as appropriate.
The complexity of the technical specifications, however, means that full and thorough testing is impractical for both technical and economic reasons.
Furthermore, there is no guarantee that a test sample which has passed all the relevant tests conforms to a specification.
Neither is there any guarantee that such a test sample will interwork with other genuinely open systems.
The existence of the tests nevertheless provides the confidence that the test sample possesses the qualities as maintained and that is performance generally conforms to representative cases of communications equipment.

The test results of this test report relate exclusively to the item tested as specified in 1.5.
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Specific Conditions:
Usage of the hereunder tested device in combination with other integrated or external antennas requires at least additional output power measurements, spurious emission measurements, conducted emission measurements (AC supply lines) and radio frequency exposure evaluations for each individual configuration performed, for certification by FCC.

Tester:

Date	WTS-Lab.	Name	Signature
September 13, 2017		Kent Lin	Kent Lin

Technical responsibility for area of testing:

Date	WTS	Name	Signature
September 13, 2017		Kevin Wang	Kevin Wang

Registration number:W6M21703-16691-C-54
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1.2 Testing laboratory

1.2.1 Location

OATS
No.5-1, Lishui, Shuang Sing Village,
Wanli Dist., New Taipei City 207,
Taiwan (R.O.C.)
3 meter semi-anechoic chamber
No.35, Aly. 21, Ln. 228, Ankang Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)
TEL:886-2-6613-0228
FAX:886-2-2791-5046

Company
Worldwide Testing Services(Taiwan) Co., Ltd.
6F, NO. 58, LANE 188, RUEY-KUANG RD.
NEIHU, TAIPEI 114, TAIWAN R.O.C.
Tel : 886-2-66068877
Fax : 886-2-66068879

1.2.2 Details of accreditation status

Accredited testing laboratory
A2LA accredited number: 2732.01
FCC filed test laboratory Reg. No. TW1477, TW1111, TW1072, TW1110
Industry Canada filed test laboratory Reg. No. IC 5679A-1, IC 5107A-1

Test location, where different from Worldwide Testing Services (Taiwan) Co., Ltd. :

Name:	./.
Accredited number:	./.
Street:	./.
Town:	./.
Country:	./.
Telephone:	./.
Fax:	./.

1.3 Details of approval holder

Name:	Magic Control Technology Corp.
Street:	10F. No.123, Zhongcheng Rd, Tucheng Dist,
Town:	New Taipei City 236,
Country:	Taiwan. R.O.C.
Telephone:	+886-2-2268-9300
Fax:	+886-2-2267-2988

1.4 Application details

Date of receipt of test item:	August 12, 2017
Date of test:	from August 12, 2017 to September 13, 2017

1.5 General information of Test item

Type of test item:	Wireless Presentation System Dual Band AC Router
Model Number:	W3-R9013
Brand Name:	MCT
Multi-listing model number:	W3-R9015
Photos:	see Appendix
Technical data	
Frequency band:	Band 1: 5.150 GHz-5.250 GHz, Band 4: 5.725 GHz-5.850 GHz
Band 1	
802.11a:	Low Channel (CH36): 5180 MHz Middle Channel (CH40): 5200 MHz High Channel (CH48): 5240 MHz
802.11n 20MHz:	Low Channel (CH36): 5180 MHz Middle Channel (CH40): 5200 MHz High Channel (CH48): 5240 MHz
802.11n 40MHz:	Low Channel (CH38): 5190 MHz High Channel (CH46): 5230 MHz
802.11ac	CH42: 5210 MHz
Band 4	
802.11a:	Low Channel (CH149): 5745 MHz Middle Channel (CH157): 5785 MHz High Channel (CH165): 5825 MHz
802.11n 20MHz:	Low Channel (CH149): 5745 MHz Middle Channel (CH157): 5785 MHz High Channel (CH165): 5825 MHz
802.11n 40MHz:	Low Channel (CH151): 5755 MHz High Channel (CH159): 5795 MHz
802.11ac	CH155: 5775 MHz

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Band 1

Numbers of channel:	802.11a: 4 channels
	802.11n 20 MHz: 4 channels
	802.11n 40 MHz: 2 channels
	802.11ac : 1 channel

Band 4

Numbers of channel:	802.11a: 5 channels
	802.11n 20 MHz: 5 channels
	802.11n 40 MHz: 2 channels
	802.11ac : 1 channel

Operating modes:	Duplex
Type of modulation:	OFDM
Fixed point to point operation:	Yes / No
Antenna:	Dipole Antenna(for ANT1~ANT4)
Antenna gain:	5.82 dBi(for ANT1~ANT4) for Band 1
	5.1 dBi(for ANT1~ANT4) for Band 4
Directional gain:	11.841 dBi(for Band 1)
	11.121 dBi(for Band 4)

* According to KDB 662911, Unequal antenna gains, with equal transmit powers. For antenna gains given by $G_1, G_2, \ldots, G_N$ dBi. If transmit signals are correlated, then Directional gain = $10 \log[(10^{G_1/20} + 10^{G_2/20} + \ldots + 10^{G_N/20})^2 / N]$ dBi [Note the "20"s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]

Power supply:

Adaptor1(I/P: 100-240Vac, 50/60Hz, 0.8A Max
O/P: 12Vdc, 2.0A)
for Model no.:AMS117-1202000F2

Adaptor2(I/P: 100-240Vac, 50/60Hz, 0.8A
O/P: 12Vdc, 2A)
for Model no.:DSA-24PFM-12 FCA 120200

Adaptor3(I/P: 100-240Vac, 50/60Hz, 0.8A
O/P: 12Vdc, 2A)
for Model no.:DSA-24PFM-12 FUS 120200

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013

Band 1

Emission designator:	802.11a: 16M4D1D
	802.11n 20 MHz: 17M6D1D
	802.11n 40 MHz: 36M0D1D
	802.11ac: 75M2D1D

Band 4

Emission designator:	802.11a: 16M4D1D
	802.11n 20 MHz: 17M6D1D
	802.11n 40 MHz: 36M0D1D
	802.11ac: 75M6D1D

Note: Tests were performed under worst case mode 802.11a 6 Mbps, 802.11n 20MHz(MCS0), 802.11n 40MHz(MCS0) and 802.11ac 80MHz(6Mbps).

Classification:

Fixed Device	☐
Mobile Device (Human Body distance ＞ 20cm)	■
Portable Device (Human Body distance ＜ 20cm)	☐

Manufacturer: (if applicable)

Name:	Magic Control Technology Corp.
Street:	9F. No123, Zhongcheng Rd, Tucheng Dist,
Town:	New Taipei City 236,
Country:	Taiwan. R.O.C.

Transmitter	**Unom**

Band 1
ANT1

Mode A (OFDM)

Power (ch 36 or A):	Conducted: 8.15 dBm
Power (ch 40 or B):	Conducted: 8.04 dBm
Power (ch 48 or C):	Conducted: 8.66 dBm

Mode B (OFDM)

Power (ch 36 or A):	Conducted: 6.65 dBm
Power (ch 40 or B):	Conducted: 6.70 dBm
Power (ch 48 or C):	Conducted: 5.35 dBm

Mode C (OFDM)

Power (ch 38 or A):	Conducted: 5.35 dBm
Power (ch 46 or B):	Conducted: 3.78 dBm

Mode D (OFDM)

Power (ch 42 or A):	Conducted: -1.10 dBm

ANT2

Mode A (OFDM)

Power (ch 36 or A):	Conducted: 10.58 dBm
Power (ch 40 or B):	Conducted: 11.00 dBm
Power (ch 48 or C):	Conducted: 9.89 dBm

Mode B (OFDM)

Power (ch 36 or A):	Conducted: 9.50 dBm
Power (ch 40 or B):	Conducted: 9.66 dBm
Power (ch 48 or C):	Conducted: 8.79 dBm

Mode C (OFDM)

Power (ch 38 or A):	Conducted: 8.13 dBm
Power (ch 46 or B):	Conducted: 7.00 dBm

Mode D (OFDM)

Power (ch 42 or A):	Conducted: 1.44 dBm

ANT3

Mode A (OFDM)

Power (ch 36 or A):	Conducted: 9.60 dBm
Power (ch 40 or B):	Conducted: 9.50 dBm
Power (ch 48 or C):	Conducted: 8.41 dBm

Mode B (OFDM)

Power (ch 36 or A):	Conducted: 8.64 dBm
Power (ch 40 or B):	Conducted: 8.33 dBm
Power (ch 48 or C):	Conducted: 7.07 dBm

Mode C (OFDM)

Power (ch 38 or A):	Conducted: 7.19 dBm
Power (ch 46 or B):	Conducted: 5.32 dBm

Mode D (OFDM)

Power (ch 42 or A):	Conducted: -0.30 dBm

ANT4

Mode A (OFDM)

Power (ch 36 or A):	Conducted: 10.82 dBm
Power (ch 40 or B):	Conducted: 10.39 dBm
Power (ch 48 or C):	Conducted: 8.99 dBm

Mode B (OFDM)

Power (ch 36 or A):	Conducted: 9.81 dBm
Power (ch 40 or B):	Conducted: 9.26 dBm
Power (ch 48 or C):	Conducted: 7.55 dBm

Mode C (OFDM)

Power (ch 38 or A):	Conducted: 8.67 dBm
Power (ch 46 or B):	Conducted: 6.19 dBm

Mode D (OFDM)

Power (ch 42 or A):	Conducted: 0.33 dBm

Band 4

ANT1

Mode A (OFDM)

Power (ch 149 or A): Conducted: 6.81 dBm
Power (ch 157 or B): Conducted: 7.00 dBm
Power (ch 165 or C): Conducted: 8.51 dBm

Mode B (OFDM)

Power (ch 149 or A): Conducted: 5.64 dBm
Power (ch 157 or B): Conducted: 5.59 dBm
Power (ch 165 or C): Conducted: 7.28 dBm

Mode C (OFDM)

Power (ch 151 or A): Conducted: 4.47 dBm
Power (ch 159 or B): Conducted: 4.69 dBm

Mode D (OFDM)

Power (ch 155 or A): Conducted: -0.12 dBm

ANT2

Mode A (OFDM)

Power (ch 149 or A): Conducted: 6.54 dBm
Power (ch 157 or B): Conducted: 6.04 dBm
Power (ch 165 or C): Conducted: 7.10 dBm

Mode B (OFDM)

Power (ch 149 or A): Conducted: 4.96 dBm
Power (ch 157 or B): Conducted: 4.80 dBm
Power (ch 165 or C): Conducted: 5.77 dBm

Mode C (OFDM)

Power (ch 151 or A): Conducted: 3.47 dBm
Power (ch 159 or B): Conducted: 3.45 dBm

Mode D (OFDM)

Power (ch 155 or A): Conducted: -0.30 dBm

ANT3

Mode A (OFDM)

Power (ch 149 or A): Conducted: 4.68 dBm
Power (ch 157 or B): Conducted: 4.81 dBm
Power (ch 165 or C): Conducted: 5.49 dBm

Mode B (OFDM)

Power (ch 149 or A): Conducted: 3.35 dBm
Power (ch 157 or B): Conducted: 3.66 dBm
Power (ch 165 or C): Conducted: 4.34 dBm

Mode C (OFDM)

Power (ch 151 or A): Conducted: 1.85 dBm
Power (ch 159 or B): Conducted: 1.97 dBm

Mode D (OFDM)

Power (ch 155 or A): Conducted: -2.54 dBm

ANT4

Mode A (OFDM)

Power (ch 149 or A): Conducted: 7.28 dBm
Power (ch 157 or B): Conducted: 7.31 dBm
Power (ch 165 or C): Conducted: 9.80 dBm

Mode B (OFDM)

Power (ch 149 or A): Conducted: 5.73 dBm
Power (ch 157 or B): Conducted: 6.11 dBm
Power (ch 165 or C): Conducted: 8.15 dBm

Mode C (OFDM)

Power (ch 151 or A): Conducted: 4.50 dBm
Power (ch 159 or B): Conducted: 4.89 dBm

Mode D (OFDM)

Power (ch 155 or A): Conducted: -0.01 dBm

Band 1 (5.15GHz~5.25GHz)

Combine	mW			dBm		
	Ch Low	Ch Mid	Ch High	Ch Low	Ch Mid	Ch High
802.11n 20MHz	30.42	29.165	21.778	14.83	14.65	13.38
802.11n 40MHz	22.527	--	14.963	13.53	--	11.75
802.11 ac 80MHz	4.181	--	--	6.21	--	--

Band 4(5.725GHz~5.85GHz)

Combine	mW			dBm		
	Ch Low	Ch Mid	Ch High	Ch Low	Ch Mid	Ch High
802.11n 20MHz	12.701	13.048	18.369	11.04	11.16	12.64
802.11n 40MHz	9.371	--	9.814	9.72	--	9.92
802.11 ac 80MHz	3.461	--	--	5.39	--	--

1.6 Test standards

Technical standard : 47 CFR FCC Part 15 Subpart E § 15.407 (2016)

2 Technical test

2.1 Summary of test results

No deviations from the technical specification(s) were ascertained in the course of the tests performed. ☒

or

The deviations as specified in 3 were ascertained in the course of the tests performed. ☐

2.2 Test environment

Temperature:	23 ºC
Relative humidity content:	20 ... 75 %
Air pressure:	86 ... 103 kPa
Details of power supply:	Adaptor1(I/P: 100-240Vac, 50/60Hz, 0.8A Max O/P: 12Vdc, 2.0A) for Model no.:AMS117-1202000F2 Adaptor2(I/P: 100-240Vac, 50/60Hz, 0.8A O/P: 12Vdc, 2A) for Model no.:DSA-24PFM-12 FCA 120200 Adaptor3(I/P: 100-240Vac, 50/60Hz, 0.8A O/P: 12Vdc, 2A) for Model no.:DSA-24PFM-12 FUS 120200

Test item Name	Uncertainty
Estimation Result of Uncertainty of Conducted Emission	Expanded Uncertainty：0.74 dB
Estimation Result of Uncertainty of Radiated Emission(3M)	Expanded Uncertainty： 0.009-30 MHz：2.17 dB 30-1000 MHz：3.30 dB 1-18 GHz：2.28 dB 18-40 GHz：2.19 dB
Estimation Result of Uncertainty of Bandwidth Measurement 20 dB Bandwidth, Occupied bandwidth, Channel bandwidth, Necessary Bandwidth	Expanded Uncertainty：0.45 kHz
Estimation Result of Uncertainty of Conducted Output Power Measurement Output power	Expanded Uncertainty：1.01 dB
Estimation Result of Uncertainty of Power Density Measurement Power density	Expanded Uncertainty：1.09 dB
Estimation Result of Uncertainty of Band Edge Measurement	Expanded Uncertainty：0.98 dBc
Estimation Result of Uncertainty of Conducted Spurious Emission Measurement Conducted spurious emission	Expanded Uncertainty：1.01 dB
Estimation Result of Uncertainty of EIRP Measurement EIRP、ERP、Output power(dBm)、Radiated spurious emission(dBm), Receiver spurious radiations (≥30 MHz)	Expanded Uncertainty： 30-200MHz：2.11 dB 200-1000MHz：2.09 dB 1-18GHz：3.09 dB 18-40GHz：2.71 dB

2.3 Test Equipment List

No.	Test equipment	Type	Serial No.	Manufacturer	Cal. Date	Next Cal. Date
ETSTW-CE 001	EMI TEST RECEIVER	ESHS10	842121/013	R&S	2017/5/26	2018/5/25
ETSTW-CE 003	AC POWER SOURCE	APS-9102	D161137	GW	Function Test	
ETSTW-CE 004	ZWEILEITER-V-NETZNACHBILDUNG TWO-LINE V-NETWORK	ESH3-Z5	840731/011	R&S	2016/10/13	2017/10/12
ETSTW-CE 006	IMPULSBEGRENZER PULSE LIMITER	ESH3-Z2	100226	R&S	2017/8/22	2018/8/21
ETSTW-CE 008	HF-EICHLEITUNG RF STEP ATTENUATOR 139dB DPSP	334.6010.02	844581/024	R&S	Function Test	
ETSTW-CE 009	TEMP.&HUMIDITY CHAMBER	GTH-225-40-1P-U	MAA0305-009	GIANT FORCE	2017/7/14	2018/7/13
ETSTW-CE 016	TWO-LINE V-NETWORK	ENV216	100050	R&S	2017/8/31	2018/8/30
ETSTW-CE 028	MXE EMI Receiver	N9038A	MY53220110	Agilent	2017/7/11	2018/7/10
ETSTW-RE 003	EMI TEST RECEIVER	ESI 26	831438/001	R&S	2017/5/26	2018/5/25
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2017/5/17	2018/5/16
ETSTW-RE 005	EMI TEST RECEIVER	ESVS10	843207/020	R&S	2017/8/25	2018/8/24
ETSTW-RE 012	TUNABLE BANDREJECT FILTER	D.C 0309	146	K&L	Function Test	
ETSTW-RE 013	TUNABLE BANDREJECT FILTER	D.C 0336	397	K&L	Function Test	
ETSTW-RE 018	MICROWAVE HORN ANTENNA	AT4560	27212	AR	2017/7/4	2018/7/3
ETSTW-RE 027	Passive Loop Antenna	6512	00034563	ETS-Lindgren	2017/7/3	2018/7/2
ETSTW-RE 030	Double-Ridged Guide Horn Antenna	3117	00035224	ETS-Lindgren	2017/3/22	2018/3/21
ETSTW-RE 042	Biconical Antenna	HK116	100172	R&S	2017/2/7	2018/2/6
ETSTW-RE 043	Log-Periodic Dipole Antenna	HL223	100166	R&S	2017/4/10	2018/4/9
ETSTW-RE 044	Log-Periodic Antenna	HL050	100094	R&S	2017/4/27	2018/4/26
ETSTW-RE 045	ESA-E SERIES SPECTRUM ANALYZER	E4404B	MY45111242	Agilent	Pre-test Use	
ETSTW-RE 050	Attenuator 10dB	50HF-010-1	None	JFW	2017/3/1	2018/2/28
ETSTW-RE 051	Attenuator 6dB	50HF-006-1	None	JFW	2017/3/1	2018/2/28
ETSTW-RE 053	Attenuator 3dB	50HF-003-1	None	JFW	2017/3/1	2018/2/28
ETSTW-RE 055	SPECTRUM ANALYZER	FSU 26	200074	R&S	2017/3/1	2018/2/28
ETSTW-RE 060	Attenuator 30dB	5015-30	F651012z-01	ATM	2017/3/1	2018/2/28
ETSTW-RE 062	Amplifier Module	CHC 2	None	KMIC	2017/4/12	2018/4/11
ETSTW-RE 064	Bluetooth Test Set	MT8852B-042	6K00005709	Anritsu	Function Test	
ETSTW-RE 069	Double-Ridged Guide Horn Antenna	3117	00069377	ETS-Lindgren	Function Test	
ETSTW-RE 072	CELL SITE TEST SET	8921A	3339A00375	HP	2017/9/7	2018/9/6
ETSTW-RE 088	SOLID STATE AMPLIFIER	KMA180265A01	99057	KMIC	2017/9/7	2018/9/6
ETSTW-RE 091	Match Pad	MDCS1500	None	WOKEN	2017/4/6	2018/4/5
ETSTW-RE 099	DC Block	50DB-007-1	None	JFW	2017/3/1	2018/2/28

ETSTW-RE 112	AC POWER SOURCE	TFC-1005	T-0A023536	T-Power	Function test	
ETSTW-RE 115	2.4GHz Notch Filter	N0124411	473874	MICROWAVE CIRCUITS	2017/1/12	2018/1/11
ETSTW-RE 120	RF Player	MP9200	MP9210-111022	ADIVIC	Function test	
ETSTW-RE 122	SIGNAL GENERATOR	SMF100A	102149	R&S	2017/5/26	2018/5/25
ETSTW-RE 125	5GHz Notch filter	5NSL11-5200/E221.3-O/O	1	K&L Microwave	2017/8/9	2018/8/8
ETSTW-RE 126	5GHz Notch filter	5NSL12-5800/E221.3-O/O	1	K&L Microwave	2017/8/9	2018/8/8
ETSTW-RE 127	RF Switch Box	RFS-01	None	WTS	2017/3/1	2018/2/28
ETSTW-RE 128	5.3GHz Notch filter	N0153001	SN487233	Microwave Circuits	2017/8/9	2018/8/8
ETSTW-RE 129	5.5GHz Notch filter	N0555984	SN487234	Microwave Circuits	2017/8/9	2018/8/8
ETSTW-RE 130	Handheld RF Spectrum Analyzer	N9340A	CN0147000204	Agilent	Pre-test Use	
ETSTW-RE 142	Amplifier	8447D	2805A03378	Agilent	2017/4/12	2018/4/11
ETSTW-RE 147	Bi-log Hybrid Antenna	MCTD 2786B	BLB16M04005	ETC	2017/3/22	2018/3/21
ETSTW-RE 151	Thermohygrometer	608-h1	45104376	TESTO	2017/8/30	2018/8/29
ETSTW-EMI 011	USB Compact Modulator	SFC-U	101689	R&S	2017/5/10	2018/5/9
ETSTW-GSM 002	Universal Radio Communication Tester	CMU 200	109439	R&S	2017/2/24	2018/2/23
ETSTW-GSM 003	Radio Communication Analyzer	MT8820C	6201342073	Anritsu	2017/2/10	2018/2/9
ETSTW-GSM 004	Wideband Radio Communication Tester	CMW500	128092	R&S	2016/12/15	2017/12/14
ETSTW-GSM 019	Band Reject Filter	WRCTF824/849-822/851-40 /12+9SS	3	WI	2017/1/12	2018/1/11
ETSTW-GSM 020	Band Reject Filter	WRCD1747/1748-1743/1752-32/5SS	1	WI	2017/1/12	2018/1/11
ETSTW-GSM 021	Band Reject Filter	WRCD1879.5/1880.5-1875.5/1884.5-32/5SS	3	WI	2017/1/12	2018/1/11
ETSTW-GSM 022	Band Reject Filter	WRCT901.9/903.1-904.25-50/8SS	1	WI	2017/1/12	2018/1/11
ETSTW-GSM 023	Power Divider	4901.19.A	None	SUHNER	2017/9/7	2018/9/6
ETSTW-Cable 011	SMA to N type Cable	RGU-400	None	THERMAX	Pre-test Use NCR	
ETSTW-Cable 016	BNC Cable	Switch Box	B Cable 1	Schwarz beck	2017/2/23	2018/2/22
ETSTW-Cable 017	BNC Cable	X Cable	B Cable 2	Schwarz beck	2017/2/23	2018/2/22
ETSTW-Cable 018	BNC Cable	Y Cable	B Cable 3	Schwarz beck	2017/2/23	2018/2/22
ETSTW-Cable 019	BNC Cable	Z Cable	B Cable 4	Schwarz beck	2017/2/23	2018/2/22
ETSTW-Cable 020	N TYPE Cable	OATS Cable 1	N30N30-L335-15M	JYE BAO CO.,LTD.	2017/7/3	2018/7/2
ETSTW-Cable 022	N TYPE Cable	5006	0002	JYE BAO CO.,LTD.	2017/4/6	2018/4/5
ETSTW-Cable 026	Microwave Cable	SUCOFLEX 104	279075	HUBER+SUHNER	2017/3/1	2018/2/28
ETSTW-Cable 027	Microwave Cable	SUCOFLEX 104	279083	HUBER+SUHNER	2017/5/12	2018/5/11
ETSTW-Cable 028	Microwave Cable	FA147A0015M2020	30064-2	UTIFLEX	2017/9/7	2018/9/6
ETSTW-Cable 029	Microwave Cable	FA147A0015M2020	30064-3	UTIFLEX	2017/9/7	2018/9/6
ETSTW-Cable 030	Microwave Cable	SUCOFLEX 104（S Cable 9）	279067	HUBER+SUHNER	2017/3/1	2018/2/28
ETSTW-Cable 031	Microwave Cable	SUCOFLEX 104（S Cable 10）	238092	HUBER+SUHNER	2017/4/12	2018/4/11
ETSTW-Cable 043	Microwave Cable	SUCOFLEX 104	317576	HUBER+SUHNER	2017/4/12	2018/4/11

ETSTW-Cable 048	Microwave Cable	SUCOFLEX 104	325519	HUBER+SUHNER	2017/4/12	2018/4/11
ETSTW-Cable 058	Microwave Cable	SUCOFLEX 104	none	HUBER+SUHNER	2017/2/20	2018/2/19
ETSTW-Cable 064	Microwave Cable	SUCOFLEX 104	MY28891	HUBER+SUHNER	2017/4/12	2018/4/11
ETSTW-Cable 066	SMA type cable	32022	None	ASTROLAB	2017/8/31	2018/8/30
ETSTW-Cable 071	N TYPE CABLE	EMCCFD400-NM-NM-25000	170239	EMCI	2017/2/20	2018/2/19
WTSTW-SW 002	EMI TEST SOFTWARE	EZ_EMC	None	Farad	Version ETS-03A1	
WTSTW-SW 006	EMI TEST SOFTWARE	e3	None	AUDIX	Version 9.161014	
WTSTW-SW 008	Signal studio	Agilent	None	AUDIX	Version 2.0.0.1	

2.4 Test Procedure

The test procedures are performed following the test stands ANSI STANDARD C63.4 and FCC 789033 D02 General UNII Test Procedures New Rules v01.

■ Minimum Emission Bandwidth for the band 5.150-5.250 GHz, 5.725-5.850 GHz

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.715-5.85 GHz. The following procedure shall be used for measuring this bandwidth:

a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3 × RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) 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 6 dB relative to the maximum level measured in the fundamental emission.

Note: The automatic bandwidth measurement capability of a spectrum analyzer or EMI receiver may be employed if it implements the functionality described above.

■ 99 Percent Occupied Bandwidth

The 99-percent occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5 % of the total mean power of the given emission. Measurement of the 99-percent occupied bandwidth is required only as a condition for using the optional band-edge measurement techniques described in section H)3)d). Measurements of 99-percent occupied bandwidth may also optionally be used in lieu of the 6-dB emission bandwidth to define the minimum frequency range over which the spectrum is integrated when measuring maximum conducted output power as described in section E). However, the 6-dB bandwidth must be measured to determine bandwidth dependent limits on maximum conducted output power in accordance with 15.407(a).

The following procedure shall be used for measuring (99 %) power bandwidth.

1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1 % to 5 % of the OBW
4. Set VBW ≥ 3 · RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

■ Maximum conducted output power

(i) Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal.
(ii) Set RBW = 1 MHz.
(iii) Set VBW ≥ 3 MHz.
(iv) Number of points in sweep ≥ 2 Span / RBW. (This ensures that bin-to-bin spacing is ≤ RBW/2, so that narrowband signals are not lost between frequency bins.)
(v) Sweep time = auto.
(vi) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
(vii) If transmit duty cycle < 98 percent, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle ≥ 98 percent, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to "free run".
(viii) Trace average at least 100 traces in power averaging (i.e., RMS) mode.
(ix) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument's band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

■ Power Density

The rules requires "maximum power spectral density" measurements where the intent is to measure the maximum value of the time average of the power spectral density measured during a period of continuous transmission.

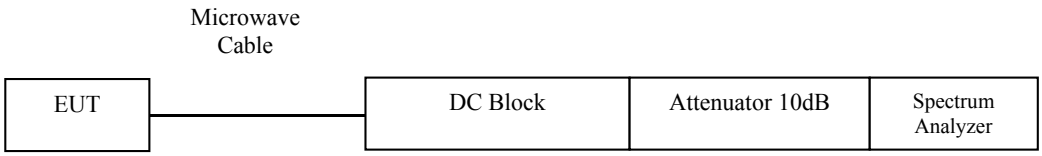
1. Create an average power spectrum for the EUT operating mode being tested by following the instructions in section II.E.2. for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA-1, SA-2, SA-3, or alternatives to each) and apply it up to, but not including, the step labeled, "Compute power…". (This procedure is required even if the maximum conducted output power measurement was performed using a power meter, method PM.)
2. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
3. Make the following adjustments to the peak value of the spectrum, if applicable:
   a) If Method SA-2 or SA-2 Alternative was used, add 10 log(1/x), where x is the duty cycle, to the peak of the spectrum.
   b) If Method SA-3 Alternative was used and the linear mode was used in step II.E.2.g)(viii), add 1 dB to the final result to compensate for the difference between linear averaging and power averaging.
4. The result is the Maximum PSD over 1 MHz reference bandwidth.
5. For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus

a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, "provided that the measured power is integrated over the full reference bandwidth" to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 KHz bandwidth, the following adjustments to the procedures apply:

a) Set RBW ≥ 1/T, where T is defined in section II.B.l.a).
b) Set VBW ≥ 3 RBW.
c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10log(500kHz/RBW) to the measured result, whereas RBW (< 500 KHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add 10log(1MHz/RBW) to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.
e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 KHz for the sections 5.c) and 5.d) above, since RBW=100 KHZ is available on nearly all spectrum analyzers.

Conducted measurement test setup



3 Test results (enclosure)

Test case	Para. Number	Required	Test passed	Test failed
Peak Transmit Power	15.407(a)	☒	☒	☐
6-dB emission bandwidth	15.407(a)	☒	☒	☐
26-dB emission bandwidth	15.407(a)	☒	☒	☐
99 % Occupied Bandwidth	789033 D02 General UNII Test Procedures New Rules v01	☒	☒	☐
Peak Power Spectral Density	15.407(a)	☒	☒	☐
Undesirable emission limits	15.407(b)	☒	☒	☐
Radio Frequency Exposure	15.407(f)	☒	☒	☐
Radiated Emission from Receiver Part	15.109	☐	☐	☐
AC Conducted Emissions	15.207	☒	☒	☐

The following is intentionally left blank.

3.1 Peak Transmit Power, FCC 15.407 (a)

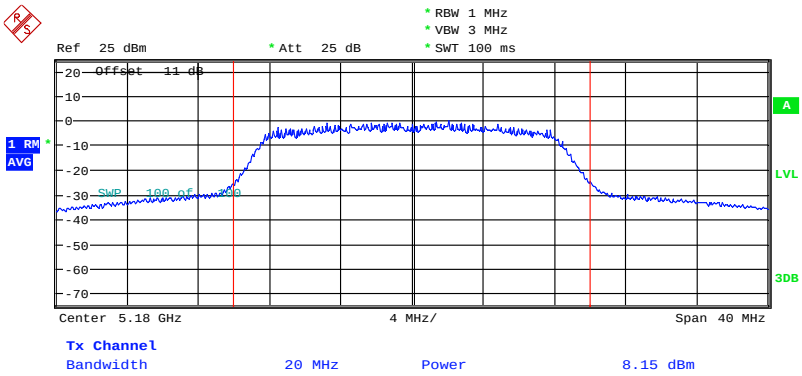
According to §15.407(a)

1. For the band 5.15-5.25 GHz, the maximum conducted power over the frequency of operation shall not exceed the lesser of 30 dBm (1 W) for master device and 24 dBm (250 mW) for mobile/portable client device.

2. For the band 5.25-5.35 GHz and 5.47-5.725 GHz, the maximum conducted power over the frequency of operation shall not exceed the lesser of 24 dBm (250 mW) or 11dBm + 10 log B, whichever is lower (B= 26-dB emission BW).

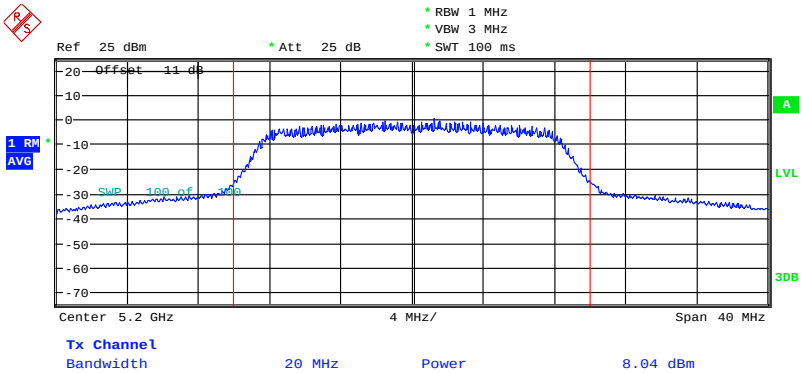
3. For the band 5.725-5.850 GHz, the maximum conducted power over the frequency of operation shall not exceed the lesser of 30 dBm (1 W).

Band 1(5.15GHz~5.25GHz)
ANT1



MAXIMUM CONDUCTED POWER ANT1_11aCH36
Date: 28.AUG.2017 11:33:25

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



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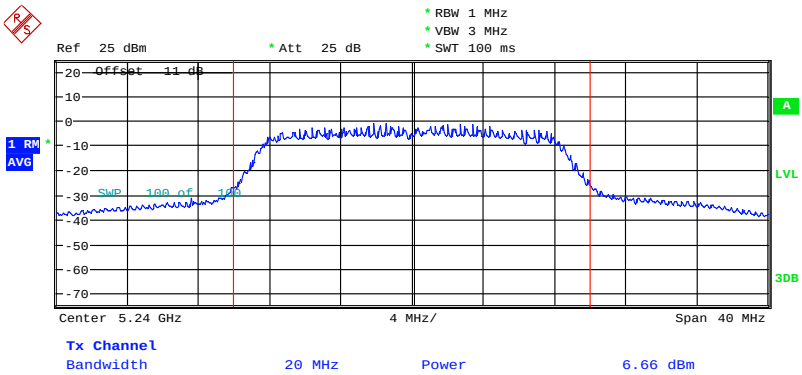

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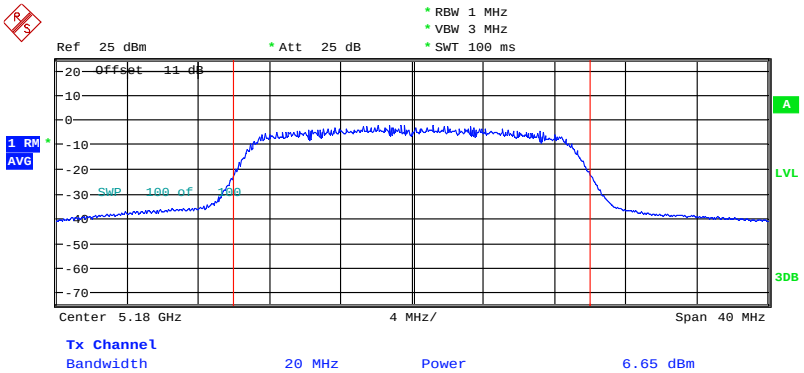

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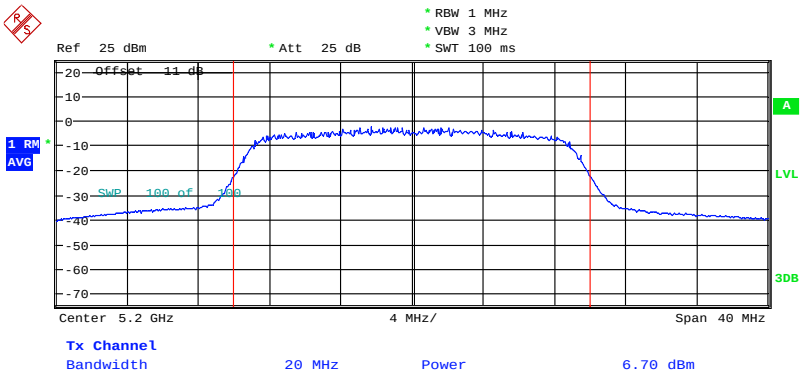

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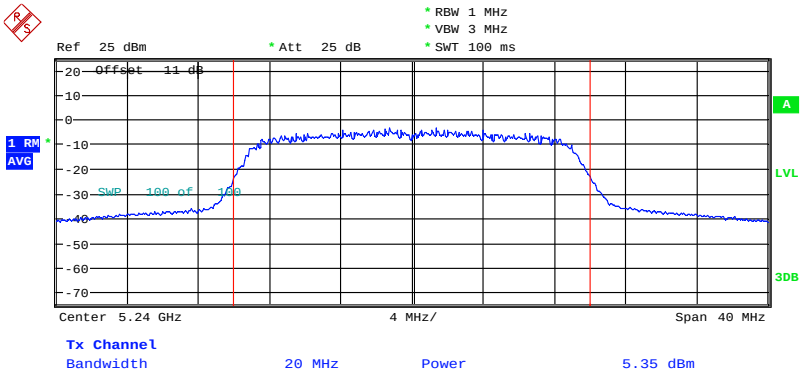

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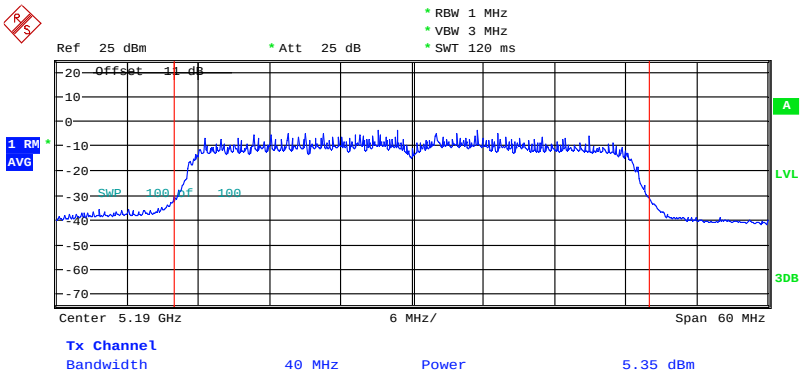

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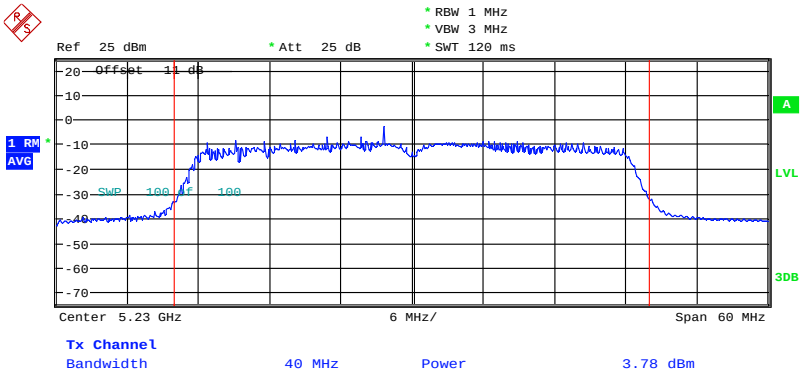

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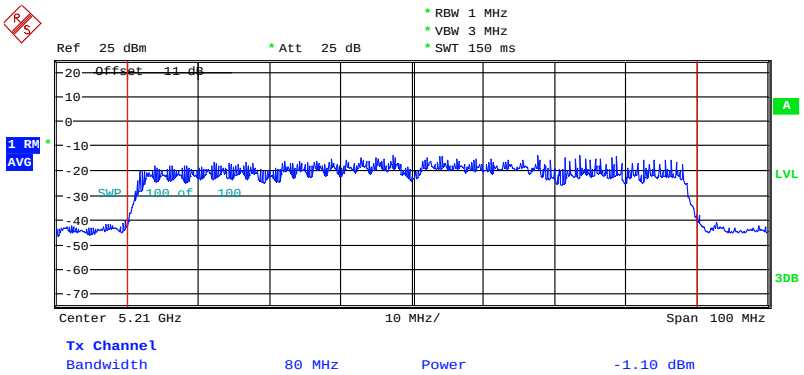

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Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013

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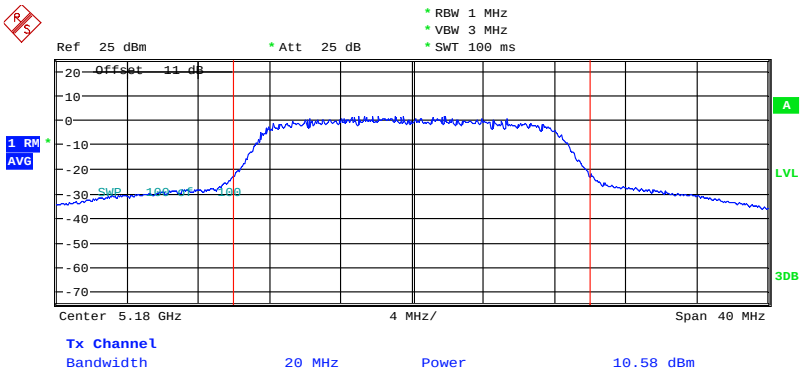

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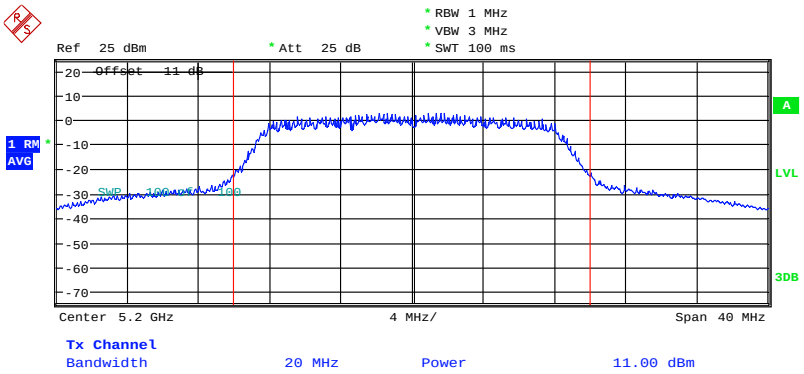

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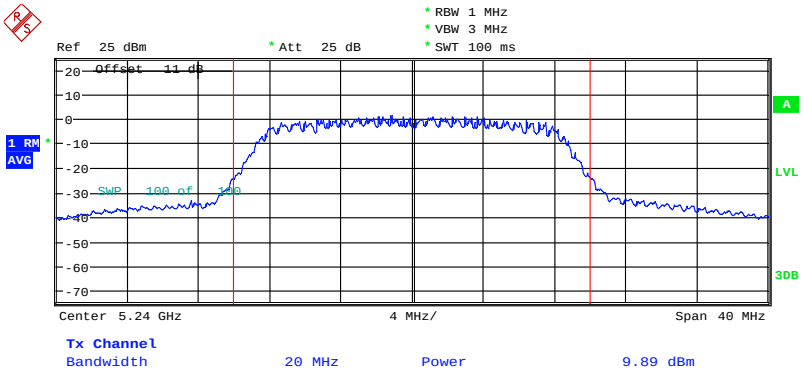

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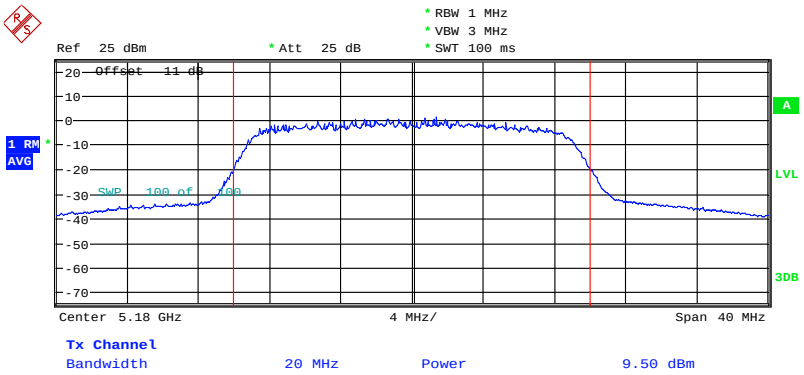

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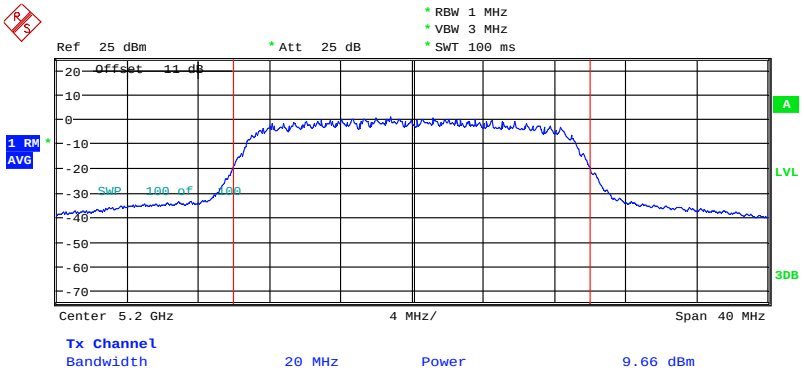

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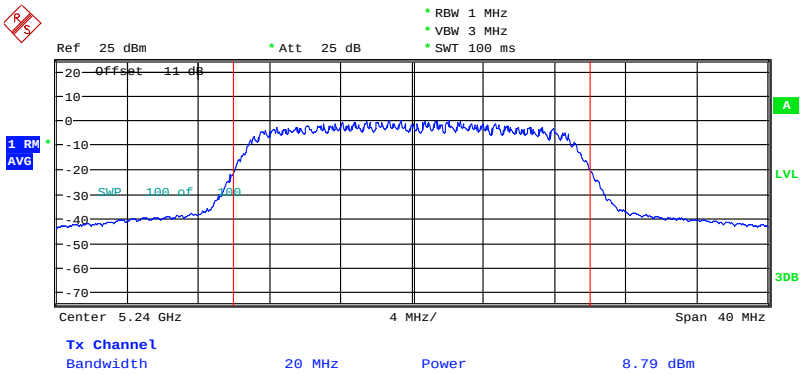

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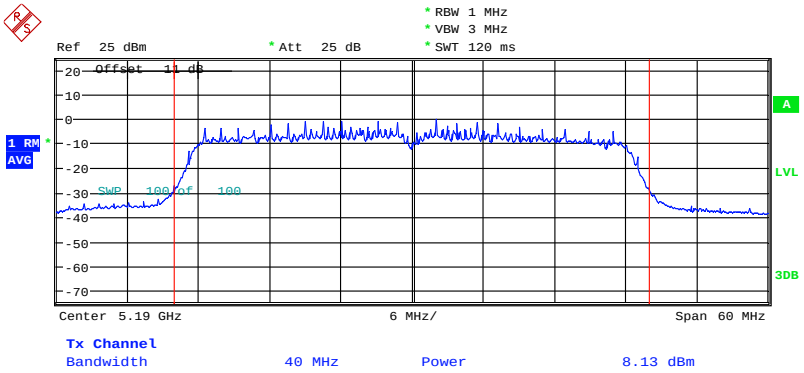

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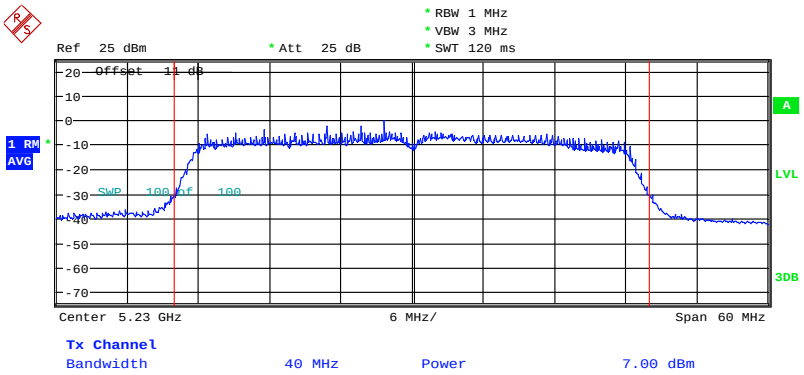

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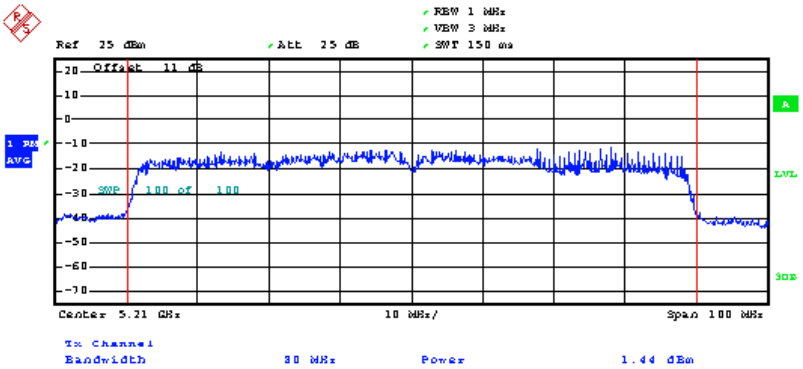

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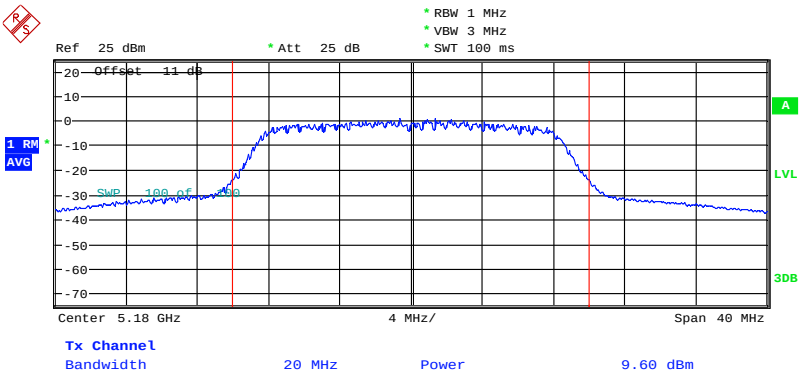
ANT3



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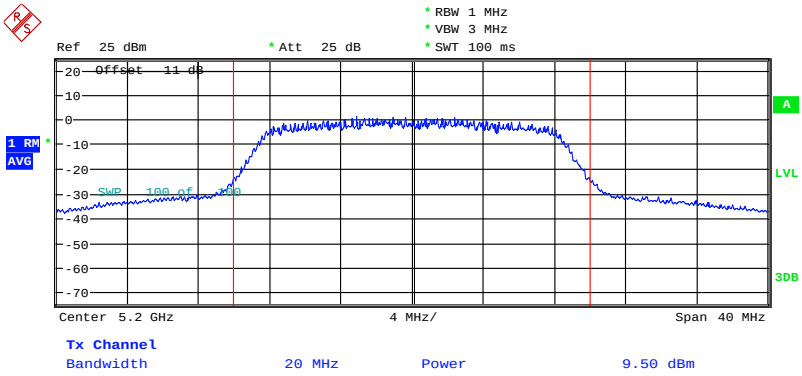

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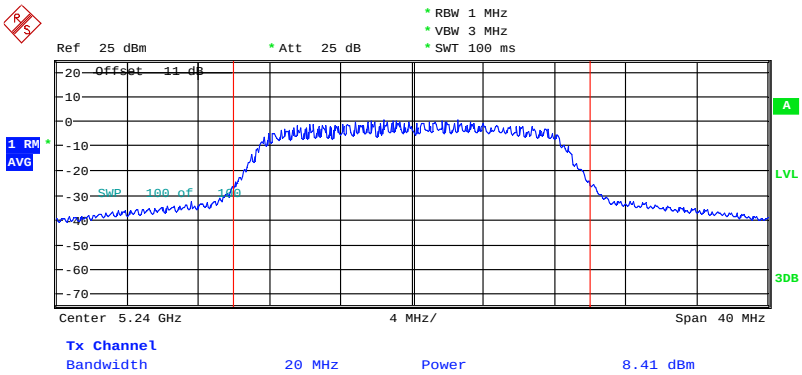

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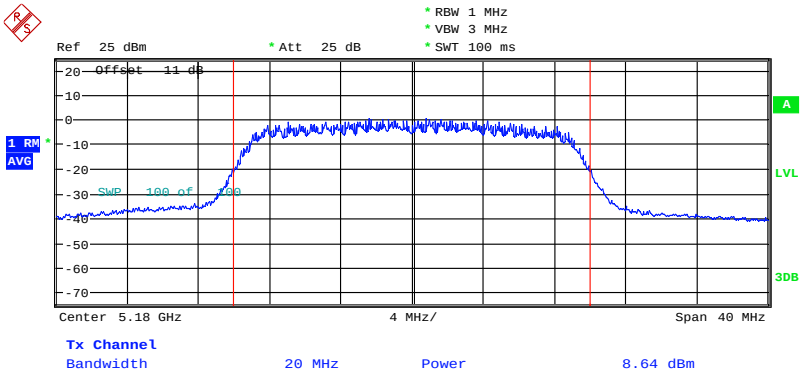

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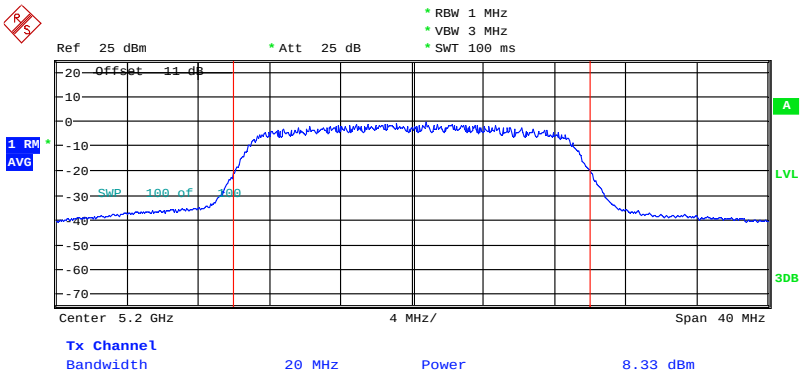

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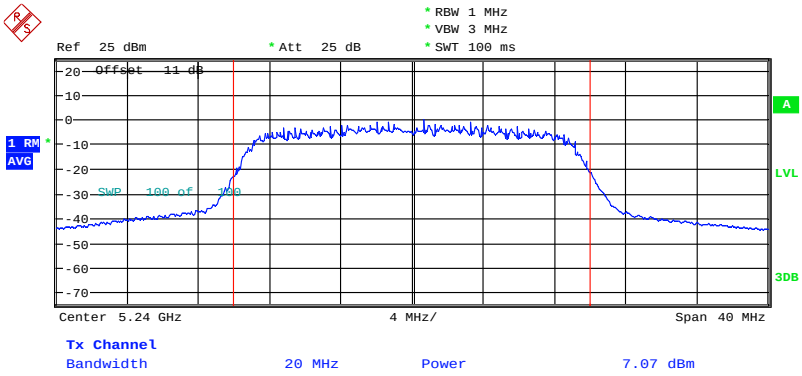

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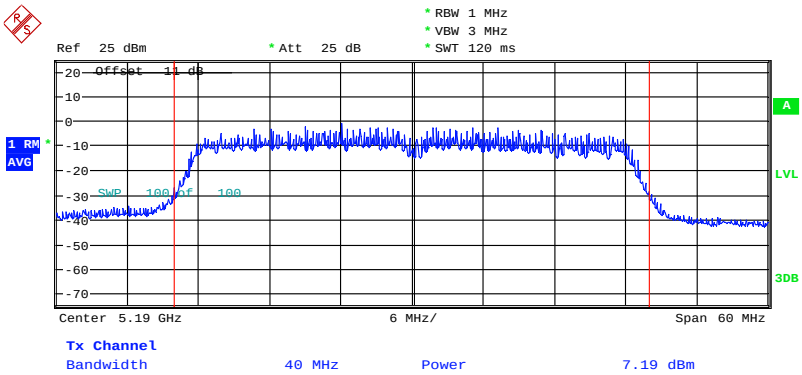

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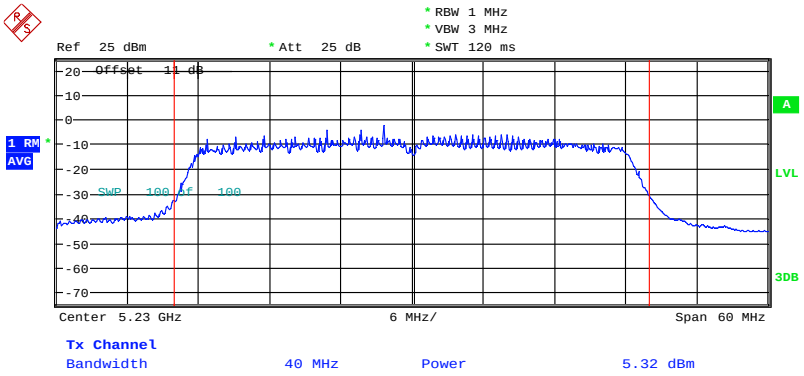
Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



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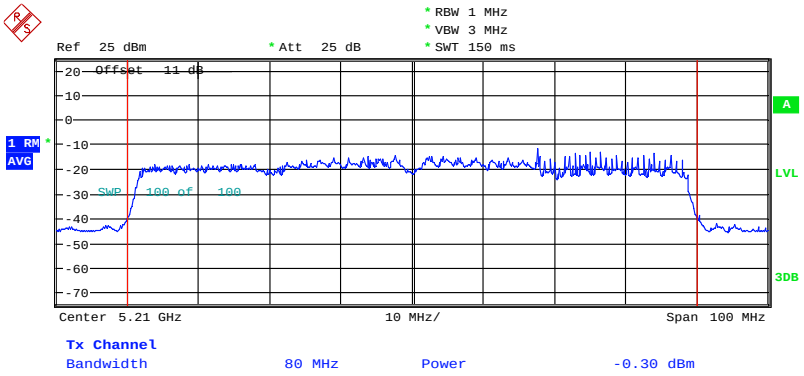

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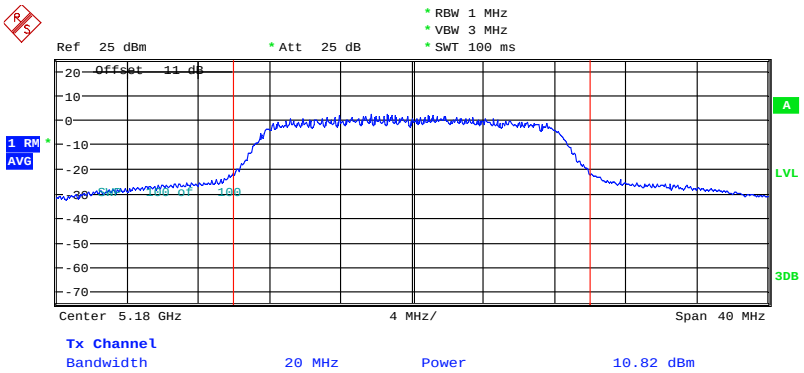

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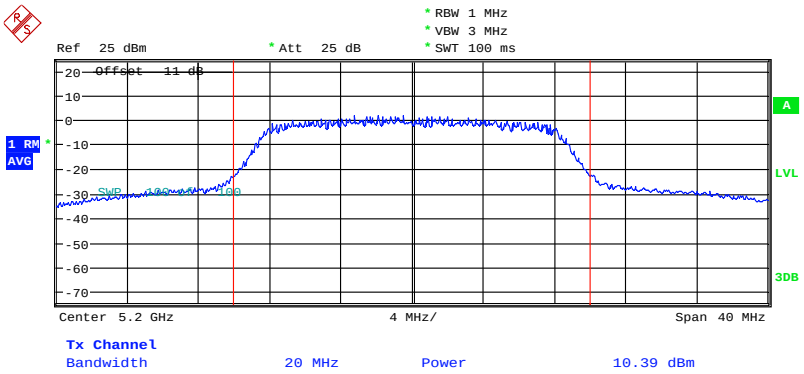
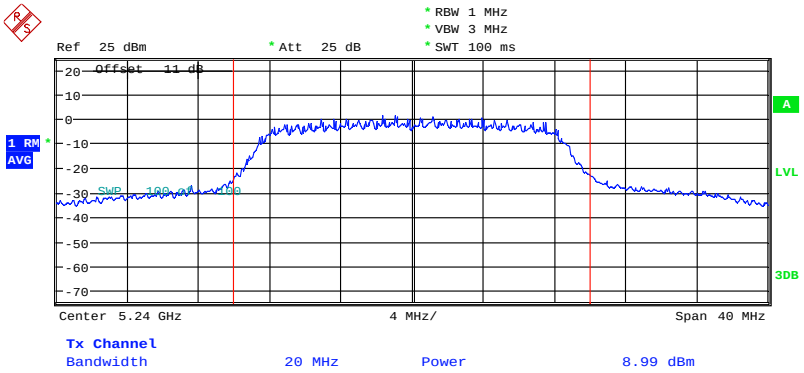
Date: 28.AUG.2017 14:02:32



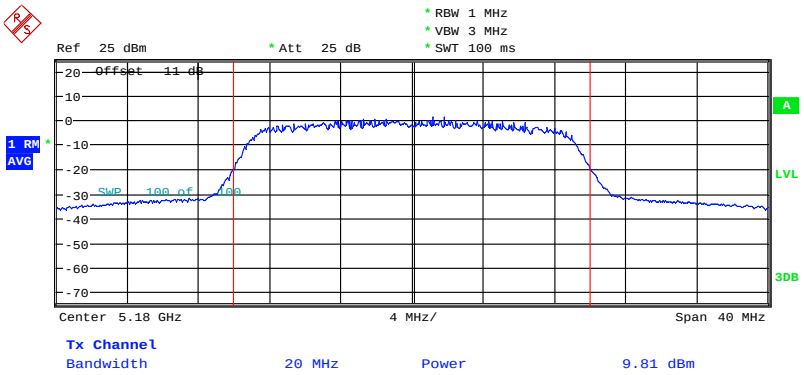
MAXIMUM CONDUCTED POWER ANT4_11aCH40

Date: 28.AUG.2017 14:04:03



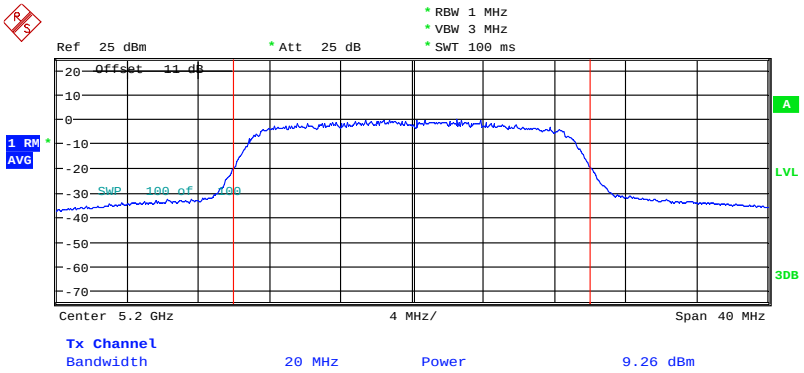
MAXIMUM CONDUCTED POWER ANT4_11aCH48

Date: 28.AUG.2017 14:05:34



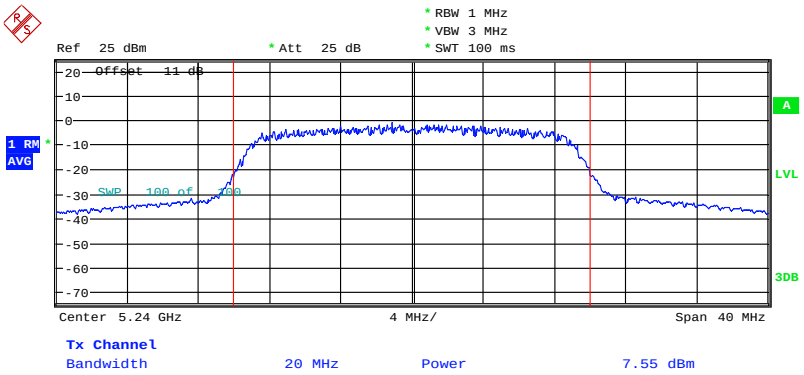
MAXIMUM CONDUCTED POWER ANT4_11n20CH36

Date: 28.AUG.2017 14:07:26



MAXIMUM CONDUCTED POWER ANT4_11n20CH40

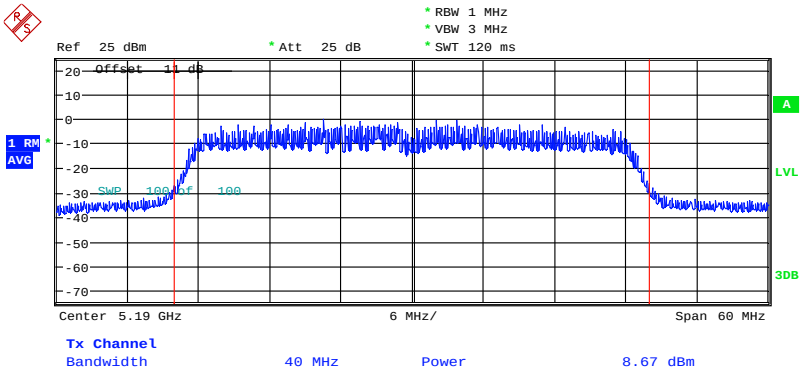
Date: 28.AUG.2017 14:08:57



MAXIMUM CONDUCTED POWER ANT4_11n20CH48

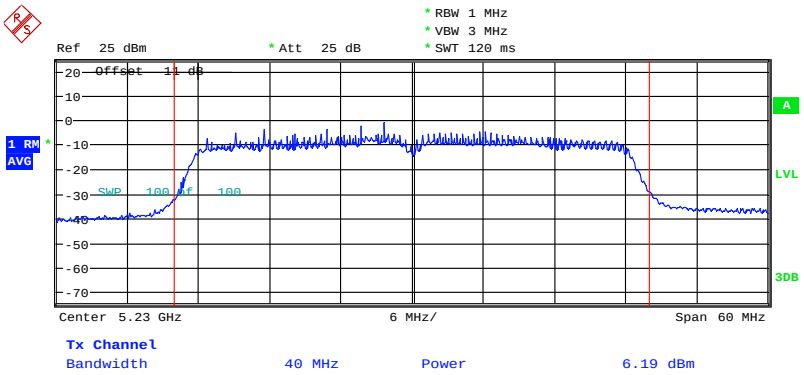
Date: 28.AUG.2017 14:10:21

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



MAXIMUM CONDUCTED POWER ANT4_11n40CH38

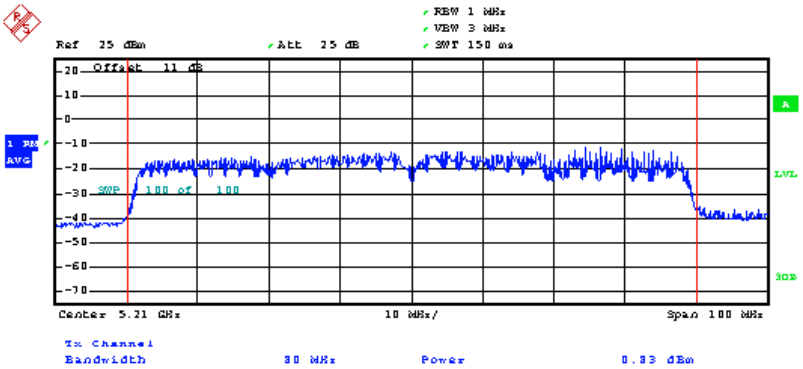
Date: 28.AUG.2017 14:12:34



MAXIMUM CONDUCTED POWER ANT4_11n40CH46

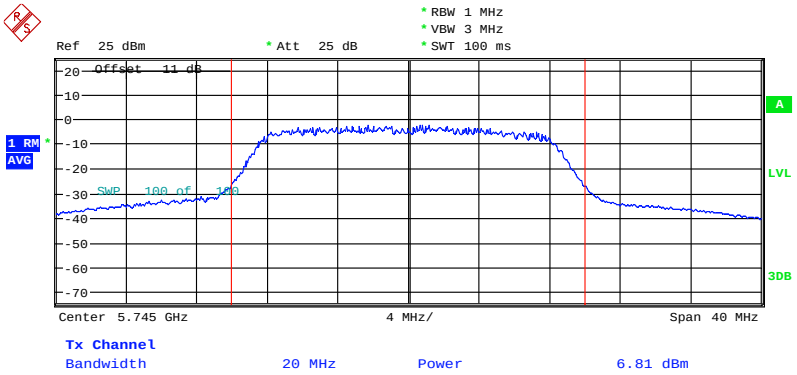
Date: 28.AUG.2017 14:14:05

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



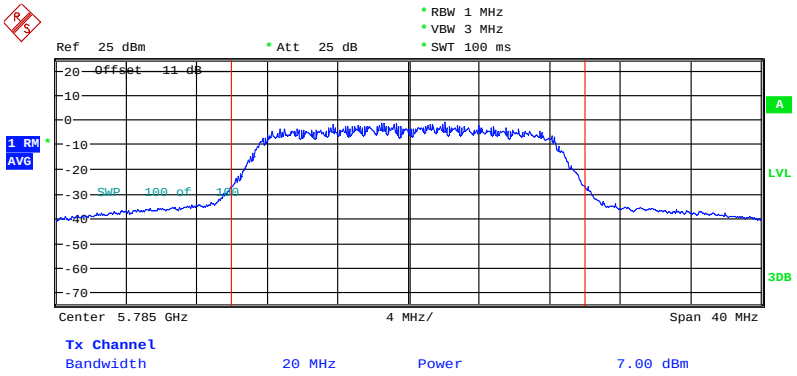
MAXIMUM CONDUCTED POWER ANT4_11ac80CH42
Date: 28.AUG.2017 14:16:04

Band 4(5.725GHz~5.85GHz)
ANT1



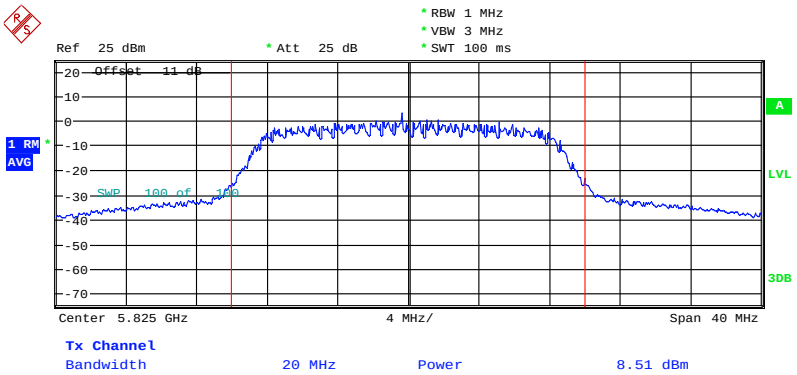
MAXIMUM CONDUCTED POWER ANT1_11aCH149
Date: 28.AUG.2017 14:41:51

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



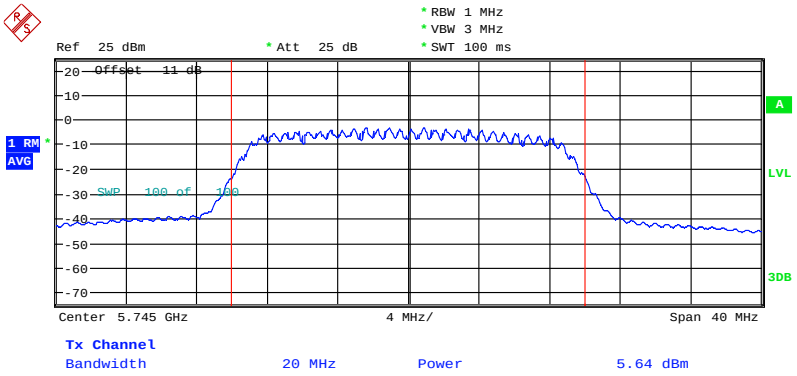
MAXIMUM CONDUCTED POWER ANT1_11aCH157

Date: 28.AUG.2017 14:44:11



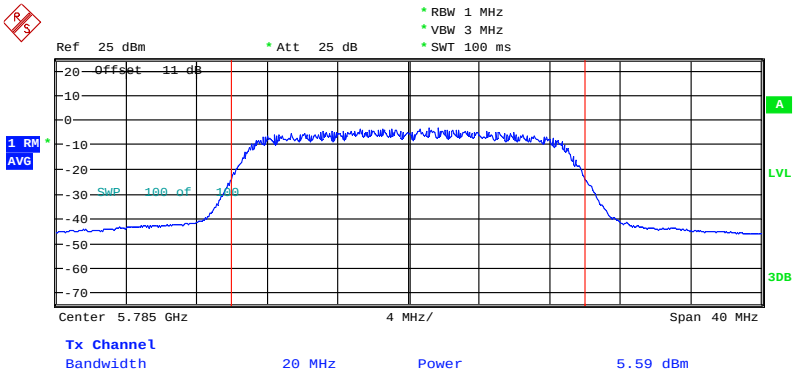
MAXIMUM CONDUCTED POWER ANT1_11aCH165

Date: 28.AUG.2017 14:45:21



MAXIMUM CONDUCTED POWER ANT1_11n20CH149

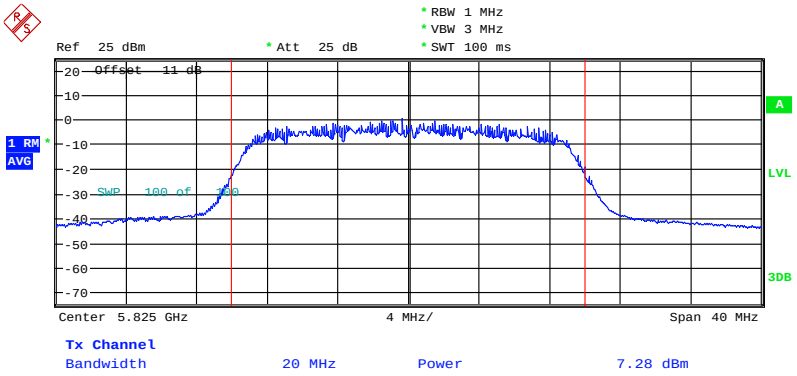
Date: 28.AUG.2017 14:46:38



MAXIMUM CONDUCTED POWER ANT1_11n20CH157

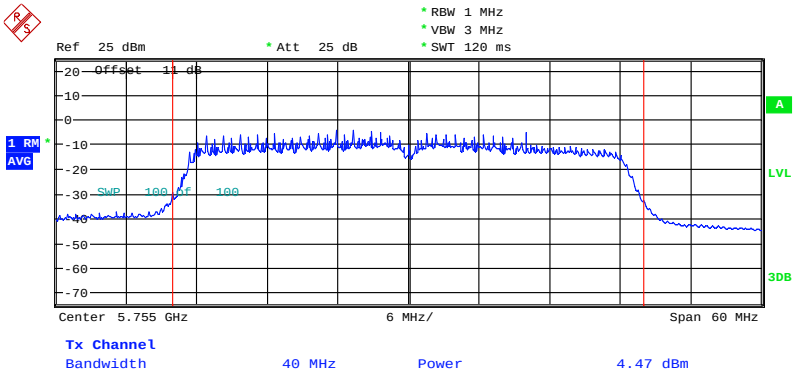
Date: 28.AUG.2017 14:47:48

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



MAXIMUM CONDUCTED POWER ANT1_11n20CH165

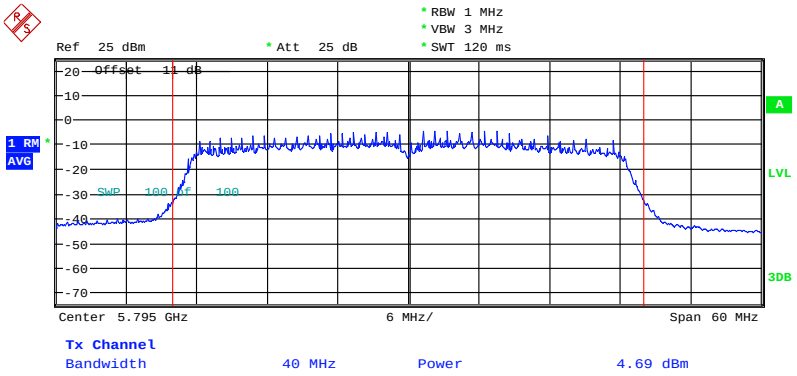
Date: 28.AUG.2017 14:49:05



MAXIMUM CONDUCTED POWER ANT1_11n40CH151

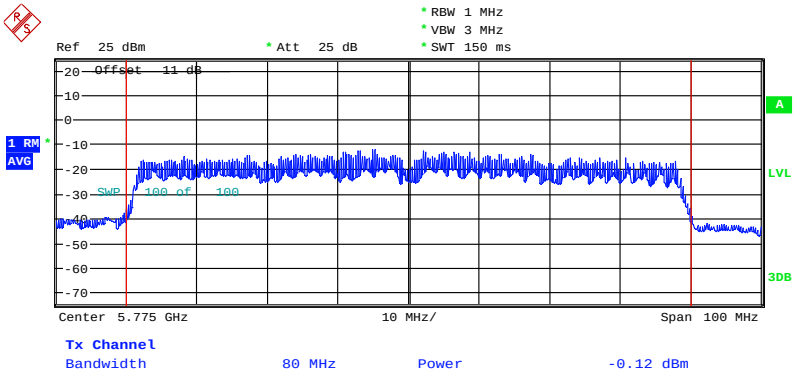
Date: 28.AUG.2017 14:51:25

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



MAXIMUM CONDUCTED POWER ANT1_11n40CH159

Date: 28.AUG.2017 14:52:49

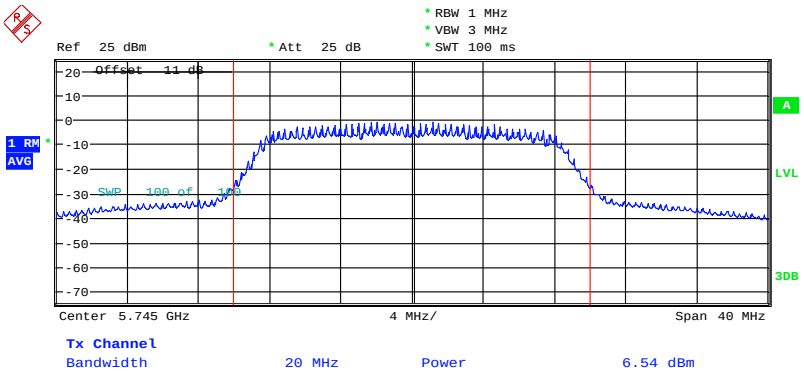


MAXIMUM CONDUCTED POWER ANT1_11ac80CH155

Date: 28.AUG.2017 14:54:27

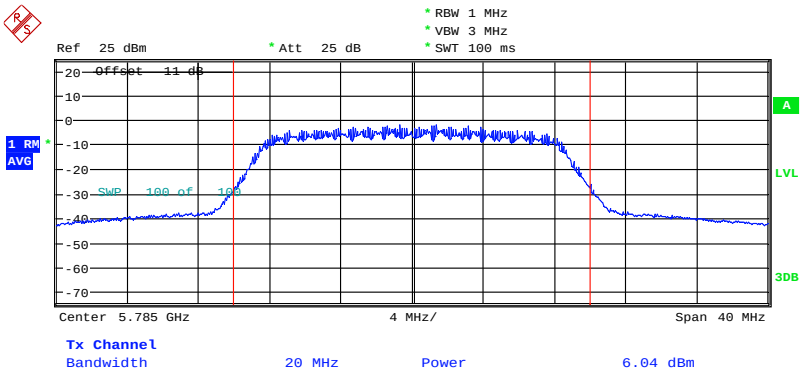
Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013

ANT2



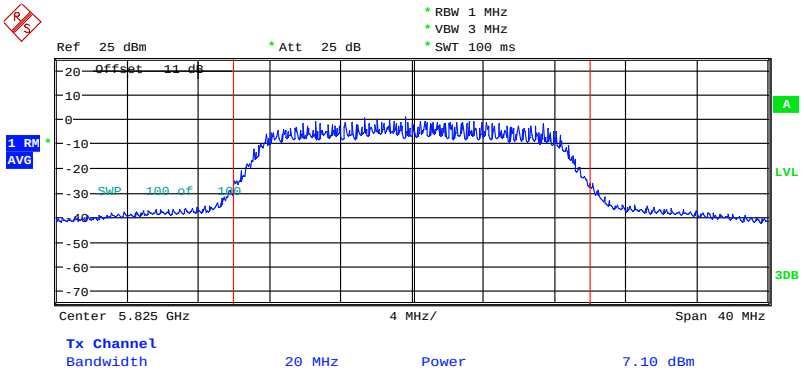
MAXIMUM CONDUCTED POWER ANT2_11aCH149

Date: 28.AUG.2017 15:04:29



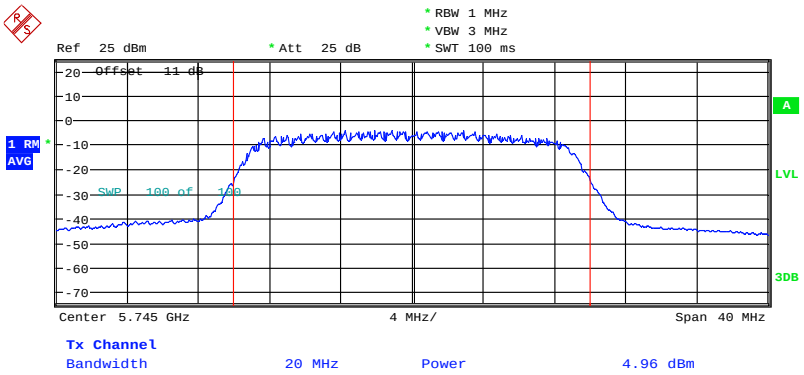
MAXIMUM CONDUCTED POWER ANT2_11aCH157

Date: 28.AUG.2017 15:06:00



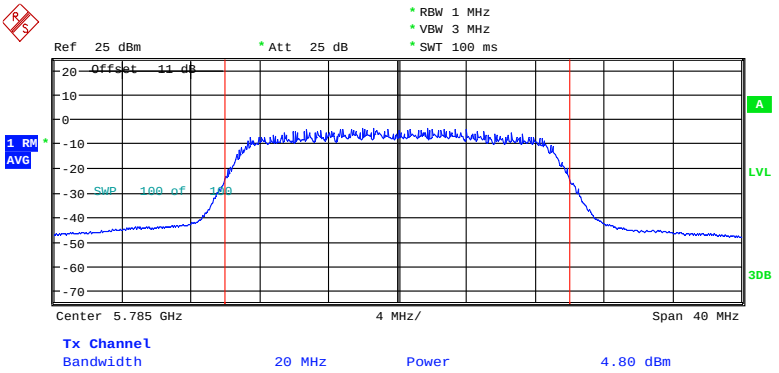
MAXIMUM CONDUCTED POWER ANT2_11aCH165

Date: 28.AUG.2017 15:07:24



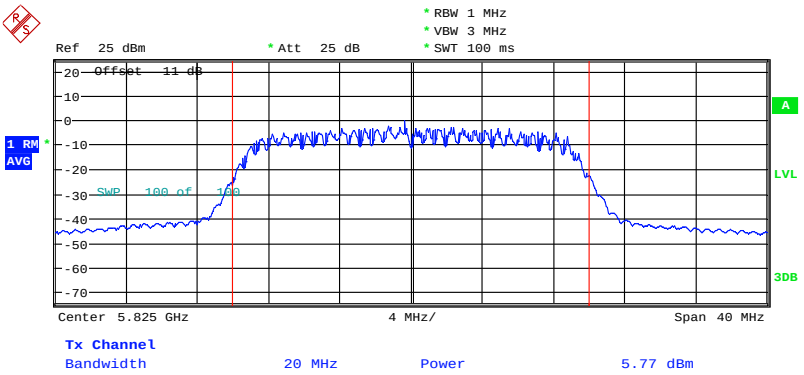
MAXIMUM CONDUCTED POWER ANT2_11n20CH149

Date: 28.AUG.2017 15:09:23



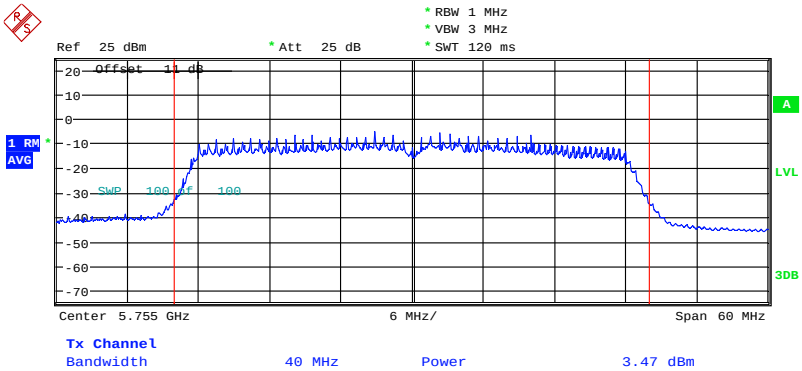
MAXIMUM CONDUCTED POWER ANT2_11n20CH157

Date: 28.AUG.2017 15:10:47



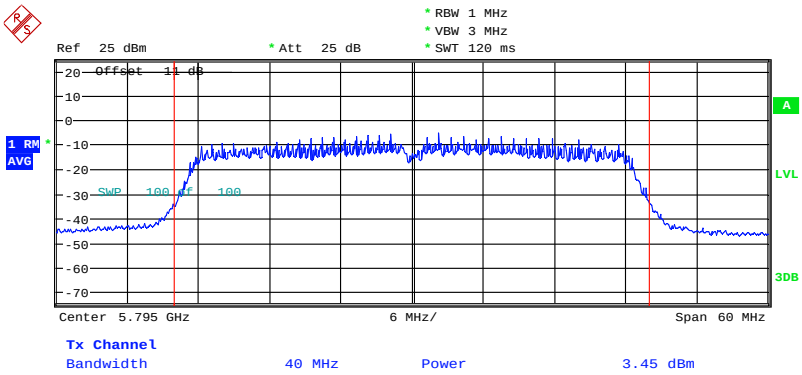
MAXIMUM CONDUCTED POWER ANT2_11n20CH165

Date: 28.AUG.2017 15:12:25



MAXIMUM CONDUCTED POWER ANT2_11n40CH151

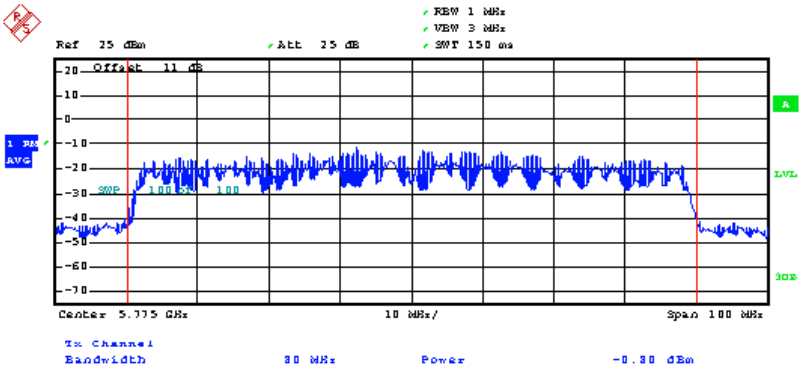
Date: 28.AUG.2017 15:14:17



MAXIMUM CONDUCTED POWER ANT2_11n40CH159

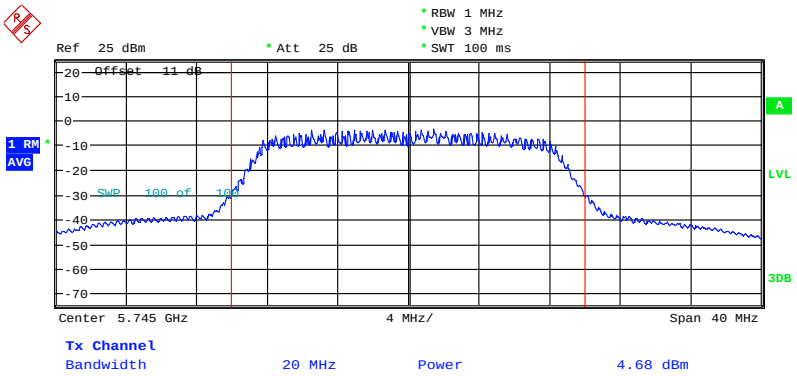
Date: 28.AUG.2017 15:15:48

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013

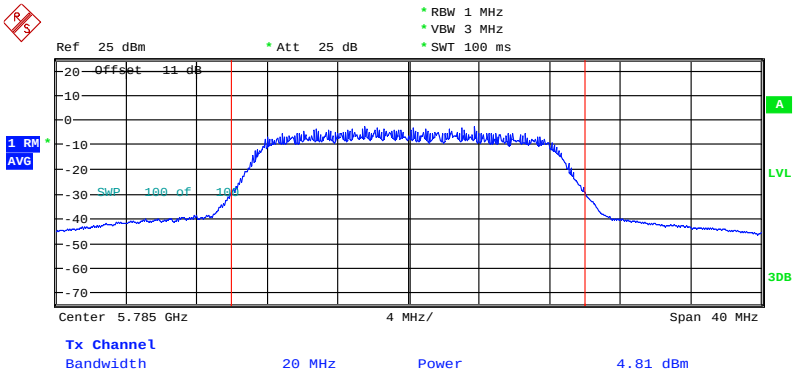


MAXIMUM CONDUCTED POWER ANT2_11ac80CH155
Date: 28.AUG.2017 15:17:33

ANT3

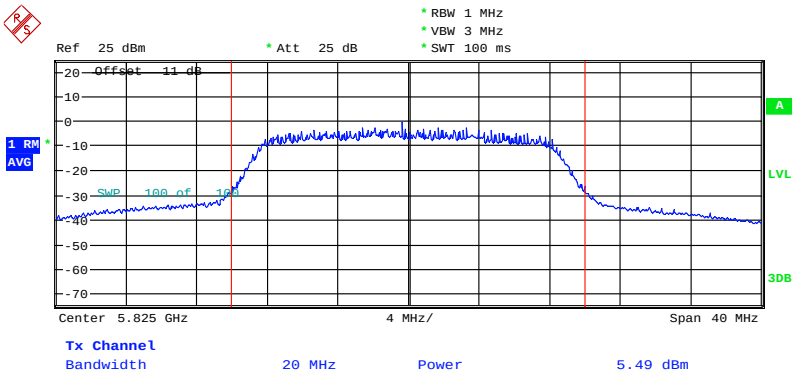


MAXIMUM CONDUCTED POWER ANT3_11aCH149
Date: 28.AUG.2017 15:22:55



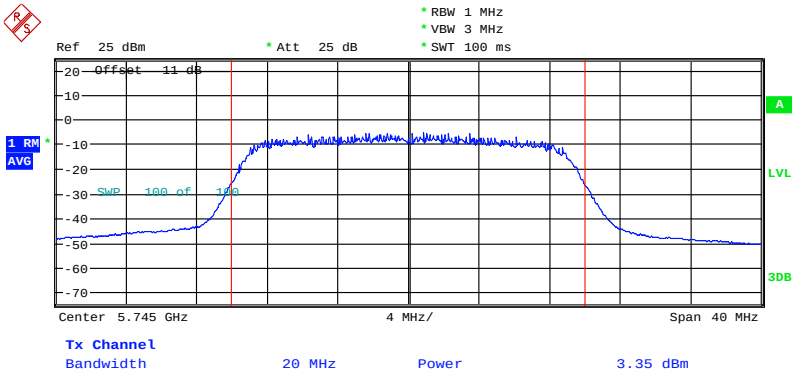
MAXIMUM CONDUCTED POWER ANT3_11aCH157

Date: 28.AUG.2017 15:24:19



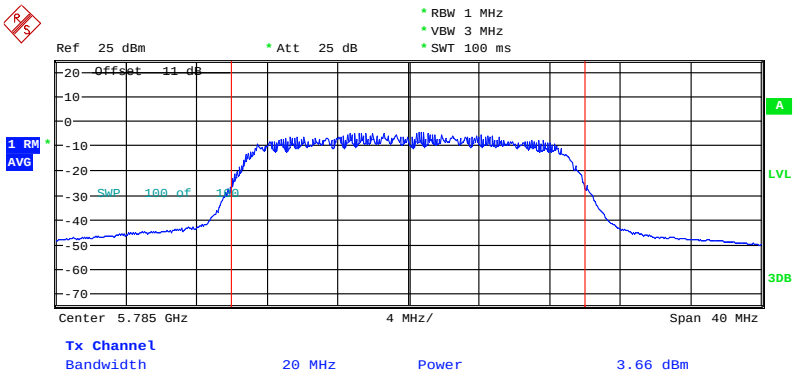
MAXIMUM CONDUCTED POWER ANT3_11aCH165

Date: 28.AUG.2017 15:25:43



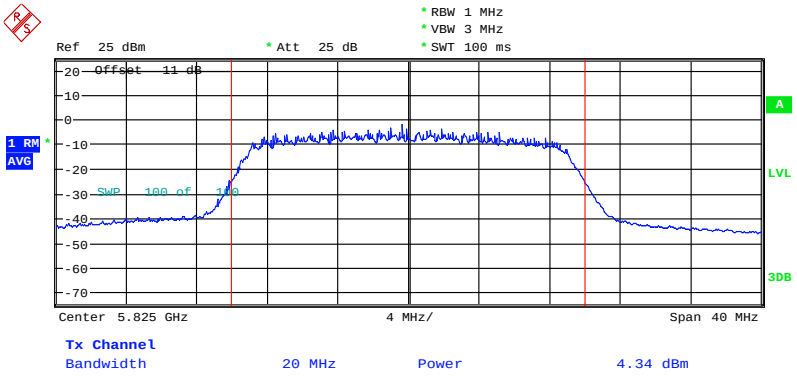
MAXIMUM CONDUCTED POWER ANT3_11n20CH149

Date: 28.AUG.2017 15:27:21



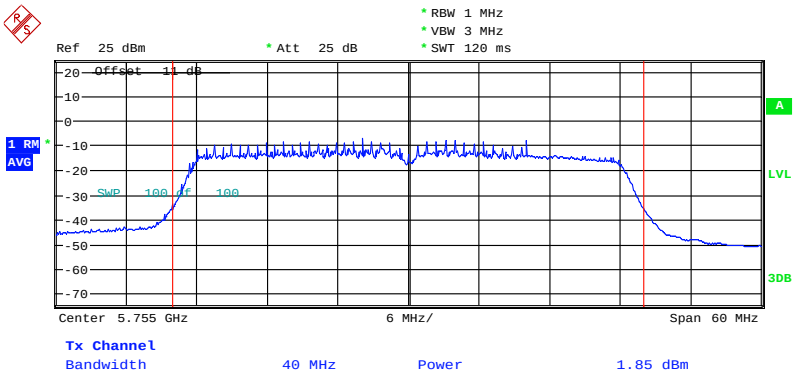
MAXIMUM CONDUCTED POWER ANT3_11n20CH157

Date: 28.AUG.2017 15:28:52



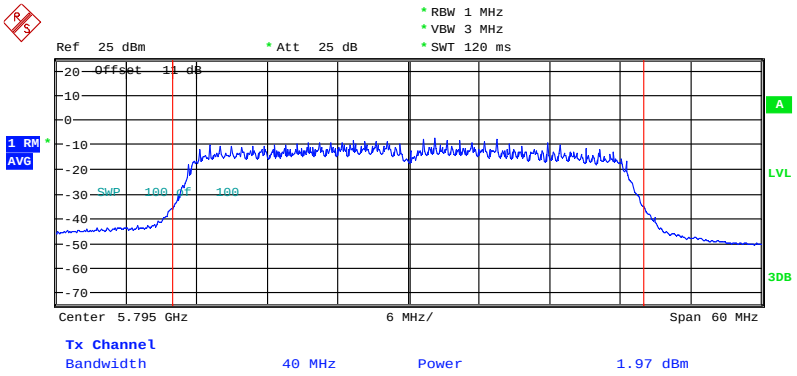
MAXIMUM CONDUCTED POWER ANT3_11n20CH165

Date: 28.AUG.2017 15:30:16



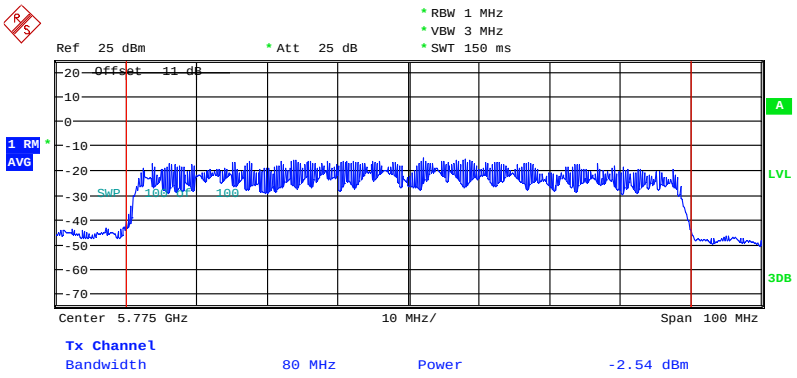
MAXIMUM CONDUCTED POWER ANT3_11n40CH151

Date: 28.AUG.2017 15:32:08



MAXIMUM CONDUCTED POWER ANT3_11n40CH159

Date: 28.AUG.2017 15:33:32

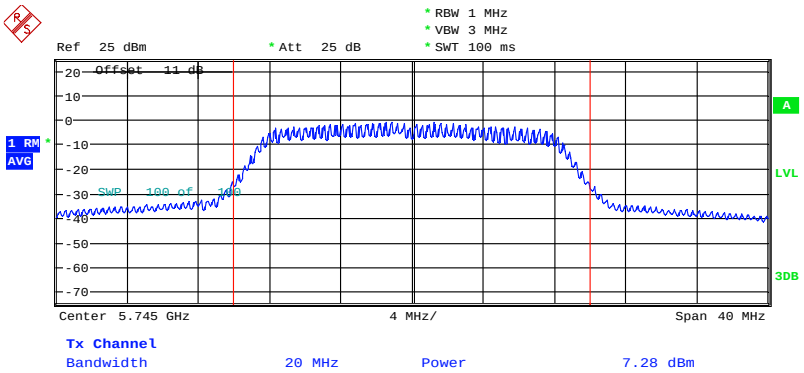


MAXIMUM CONDUCTED POWER ANT3_11ac80CH155

Date: 28.AUG.2017 15:35:59

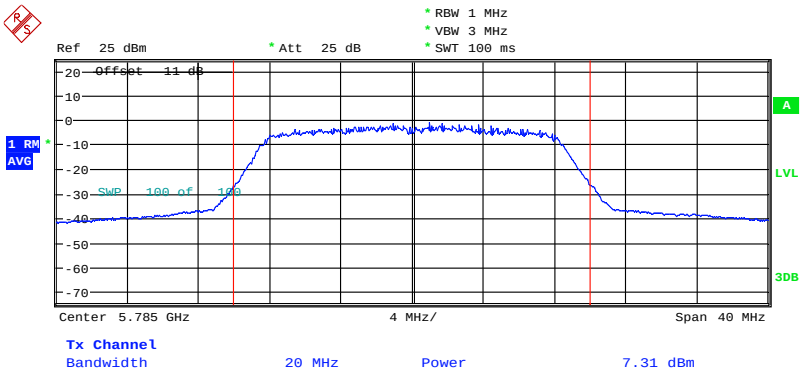
Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013

ANT4



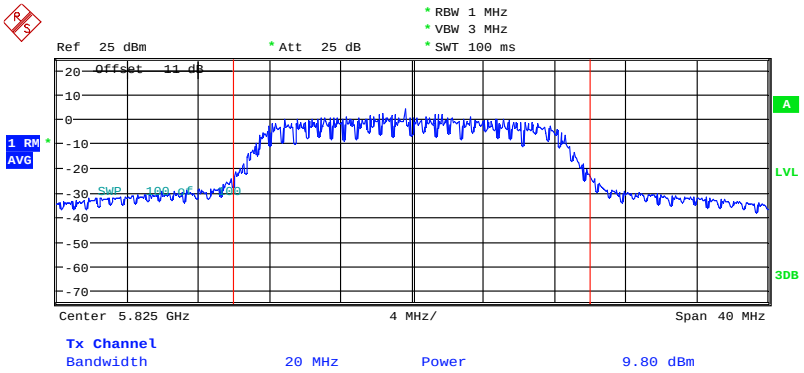
MAXIMUM CONDUCTED POWER ANT4_11aCH149

Date: 28.AUG.2017 15:46:43



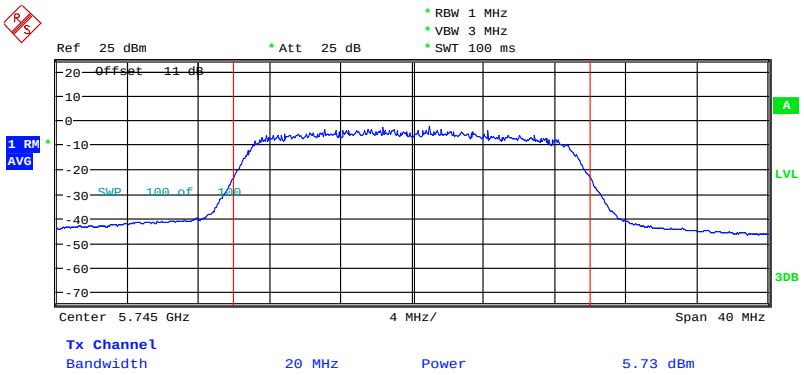
MAXIMUM CONDUCTED POWER ANT4_11aCH157

Date: 28.AUG.2017 15:48:49



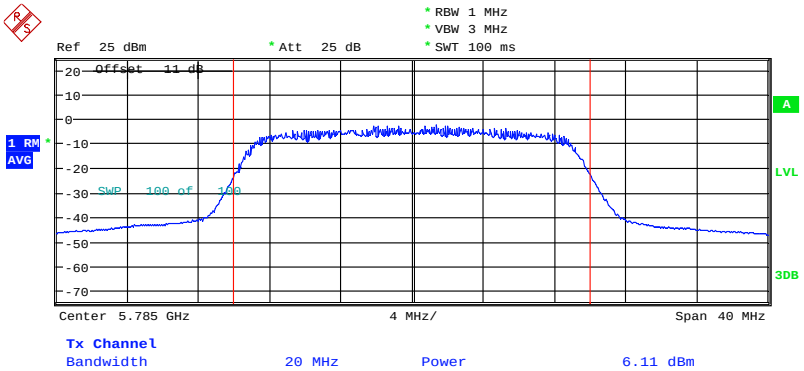
MAXIMUM CONDUCTED POWER ANT4_11aCH165

Date: 28.AUG.2017 15:50:20



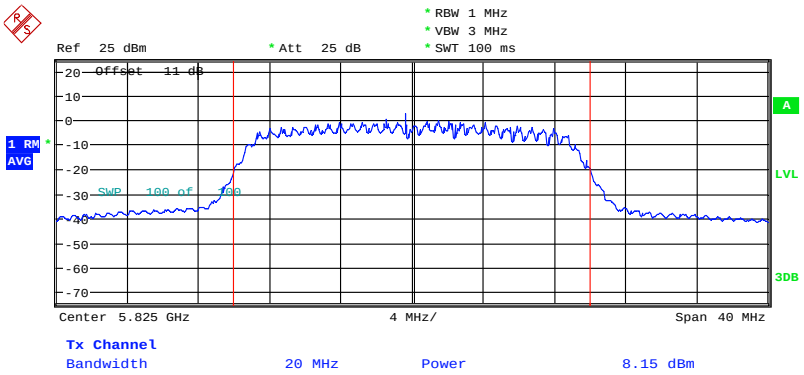
MAXIMUM CONDUCTED POWER ANT4_11n20CH149

Date: 28.AUG.2017 15:51:58



MAXIMUM CONDUCTED POWER ANT4_11n20CH157

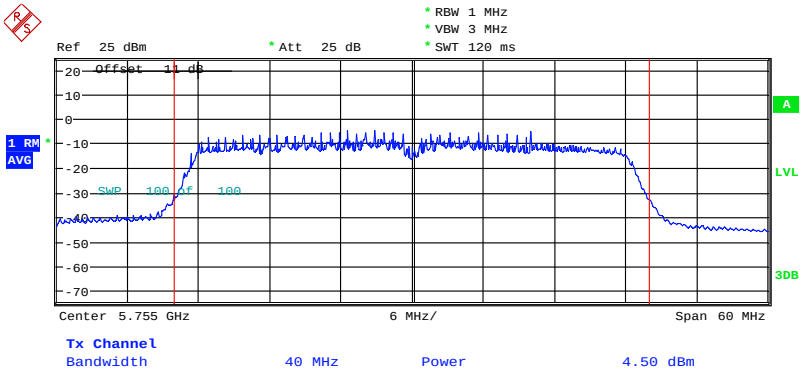
Date: 28.AUG.2017 15:53:36



MAXIMUM CONDUCTED POWER ANT4_11n20CH165

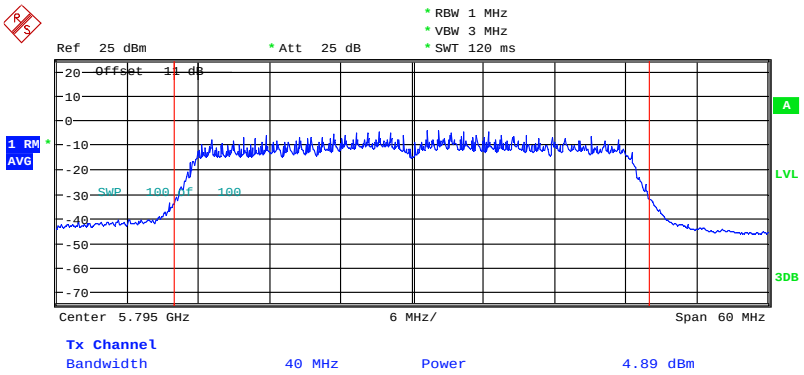
Date: 28.AUG.2017 15:55:14

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



MAXIMUM CONDUCTED POWER ANT4_11n40CH151

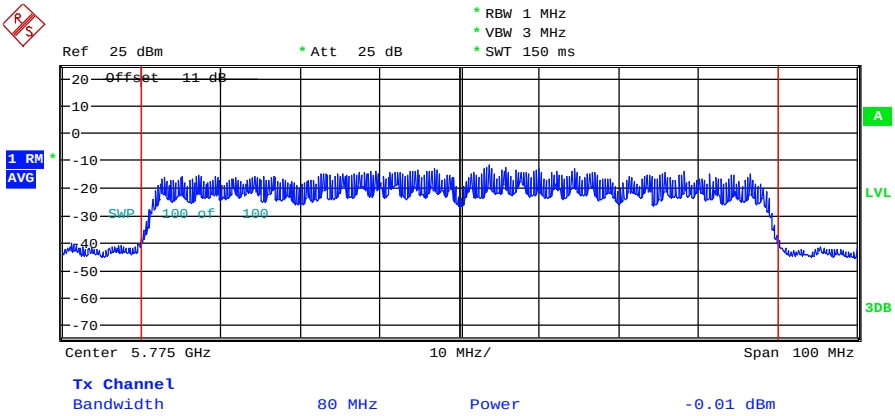
Date: 28.AUG.2017 15:56:59



MAXIMUM CONDUCTED POWER ANT4_11n40CH159

Date: 28.AUG.2017 15:58:30

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



MAXIMUM CONDUCTED POWER ANT4_11ac80CH155
Date: 28.AUG.2017 16:00:22

Band 1(5.15GHz~5.25GHz)

4T						
ANT1	mW			dBm		
	Ch Low	Ch Mid	Ch High	Ch Low	Ch Mid	Ch High
802.11n 20MHz	4.624	4.677	3.428	6.65	6.70	5.35
802.11n 40MHz	3.428	--	2.388	5.35	--	3.78
802.11 ac 80MHz	0.776	--	--	-1.10	--	--
ANT2	mW			dBm		
	Ch Low	Ch Mid	Ch High	Ch Low	Ch Mid	Ch High
802.11n 20MHz	8.913	9.247	7.568	9.50	9.66	8.79
802.11n 40MHz	6.501	--	5.012	8.13	--	7.00
802.11 ac 80MHz	1.393	--	--	1.44	--	--
ANT3	mW			dBm		
	Ch Low	Ch Mid	Ch High	Ch Low	Ch Mid	Ch High
802.11n 20MHz	7.311	6.808	5.093	8.64	8.33	7.07
802.11n 40MHz	5.236	--	3.404	7.19	--	5.32
802.11 ac 80MHz	0.933	--	--	-0.30	--	--

ANT4	mW			dBm		
	Ch Low	Ch Mid	Ch High	Ch Low	Ch Mid	Ch High
802.11n 20MHz	9.572	8.433	5.689	9.81	9.26	7.55
802.11n 40MHz	7.362	--	4.159	8.67	--	6.19
802.11 ac 80MHz	1.079	--	--	0.33	--	--
Combine	mW			dBm		
	Ch Low	Ch Mid	Ch High	Ch Low	Ch Mid	Ch High
802.11n 20MHz	30.420	29.165	21.778	14.83	14.65	13.38
802.11n 40MHz	22.527	--	14.963	13.53	--	11.75
802.11 ac 80MHz	4.181	--	--	6.21	--	--

Band 4(5.725GHz~5.85GHz)

4T						
ANT1	mW			dBm		
	Ch Low	Ch Mid	Ch High	Ch Low	Ch Mid	Ch High
802.11n 20MHz	3.664	3.622	5.346	5.64	5.59	7.28
802.11n 40MHz	2.799	--	2.944	4.47	--	4.69
802.11 ac 80MHz	0.973	--	--	-0.12	--	--
ANT2	mW			dBm		
	Ch Low	Ch Mid	Ch High	Ch Low	Ch Mid	Ch High
802.11n 20MHz	3.133	3.02	3.776	4.96	4.80	5.77
802.11n 40MHz	2.223	--	2.213	3.47	--	3.45
802.11 ac 80MHz	0.933	--	--	-0.30	--	--
ANT3	mW			dBm		
	Ch Low	Ch Mid	Ch High	Ch Low	Ch Mid	Ch High
802.11n 20MHz	2.163	2.323	2.716	3.35	3.66	4.34
802.11n 40MHz	1.531	--	1.574	1.85	--	1.97
802.11 ac 80MHz	0.557	--	--	-2.54	--	--
ANT4	mW			dBm		
	Ch Low	Ch Mid	Ch High	Ch Low	Ch Mid	Ch High
802.11n 20MHz	3.741	4.083	6.531	5.73	6.11	8.15
802.11n 40MHz	2.818	--	3.083	4.50	--	4.89
802.11 ac 80MHz	0.998	--	--	-0.01	--	--
Combine	mW			dBm		
	Ch Low	Ch Mid	Ch High	Ch Low	Ch Mid	Ch High
802.11n 20MHz	12.701	13.048	18.369	11.04	11.16	12.64
802.11n 40MHz	9.371	--	9.814	9.72	--	9.92
802.11 ac 80MHz	3.461	--	--	5.39	--	--

Test equipment used: ETSTW-RE 055, ETSTW-RE 050

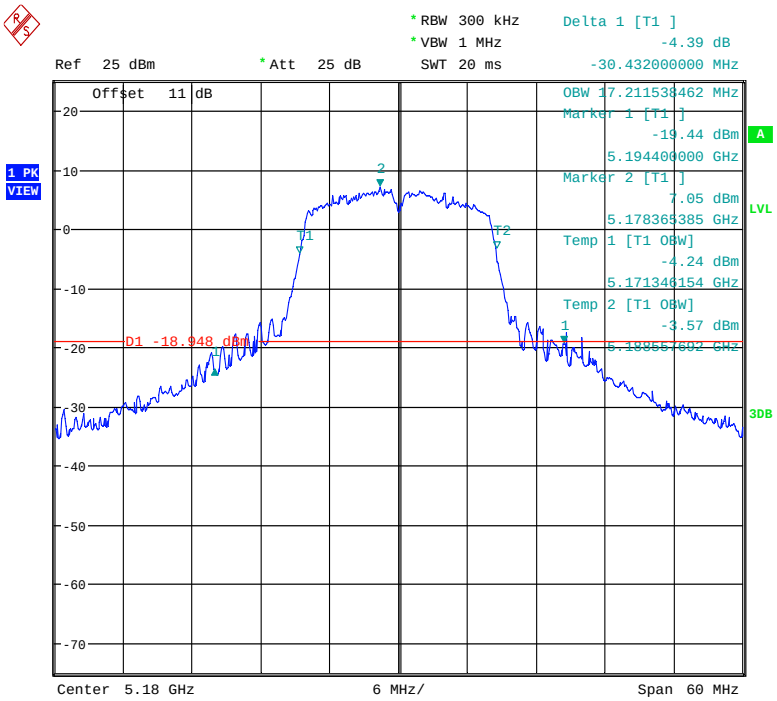
Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013

3.2 26dB emission bandwidth, 99% Occupied Bandwidth, FCC 15.407 (a)

According to §15.407(a). No Limit required.

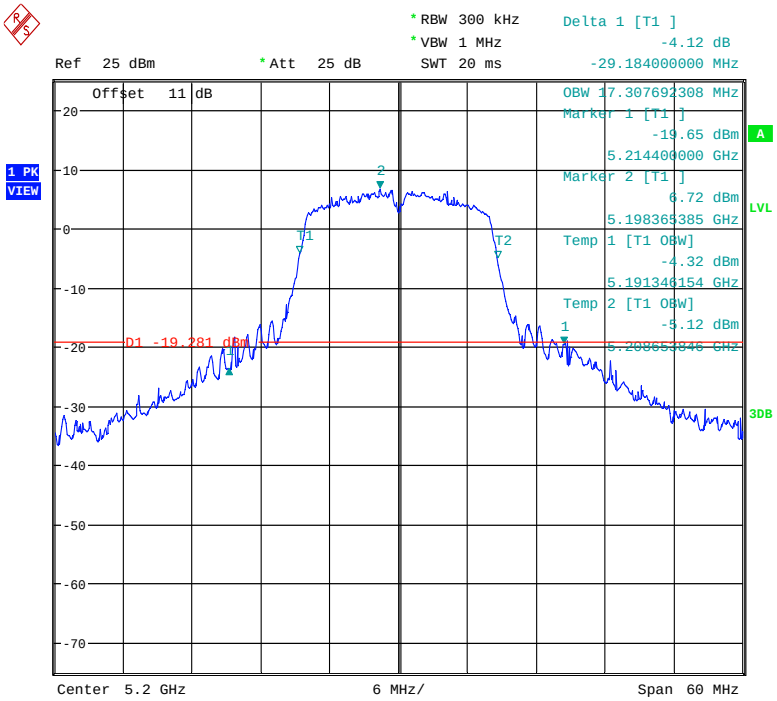
Result:

Band 1(5.15 GHz ~ 5.25 GHz)
ANT1



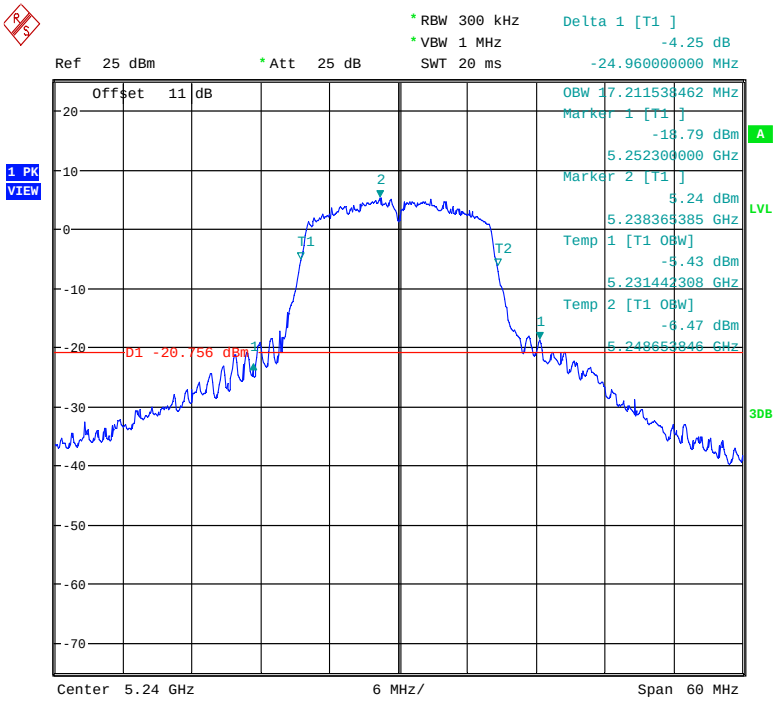
99% OBW & 26DB BANDWIDTH ANT1_11a_CH36
Date: 28.AUG.2017 11:34:15

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



99% OBW & 26DB BANDWIDTH ANT1_11a_CH40

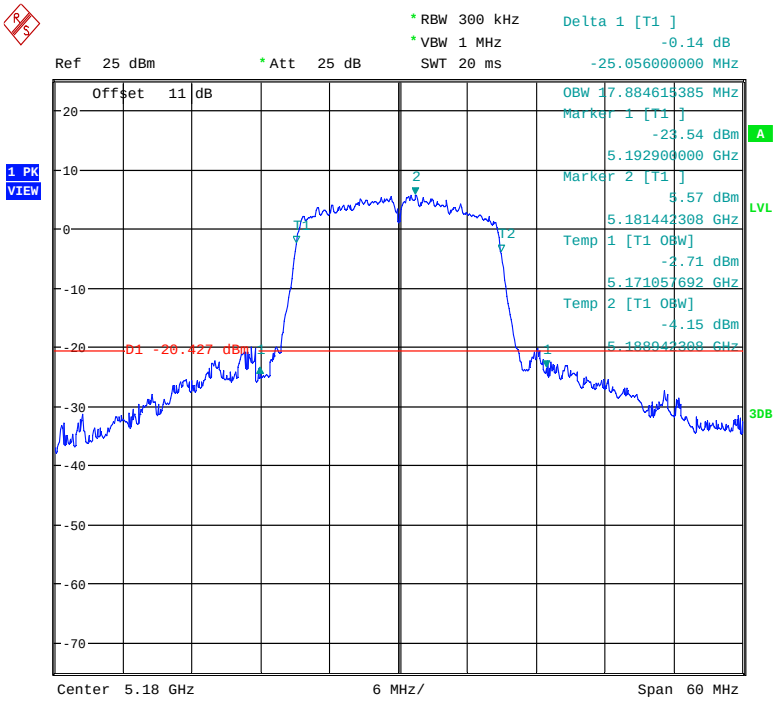
Date: 28.AUG.2017 11:35:54



99% OBW & 26DB BANDWIDTH ANT1_11a_CH48

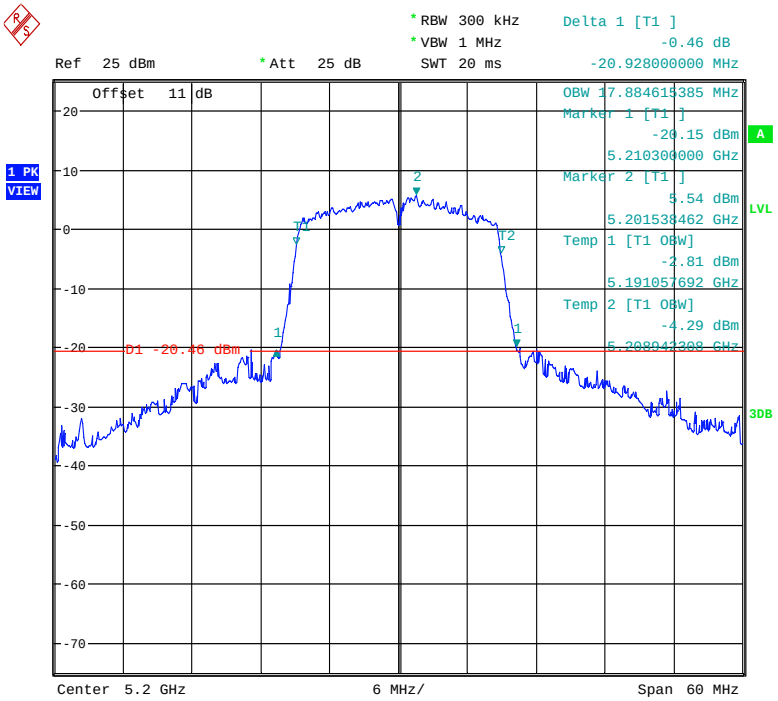
Date: 28.AUG.2017 11:38:12

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



99% OBW & 26DB BANDWIDTH ANT1_11n20_CH36

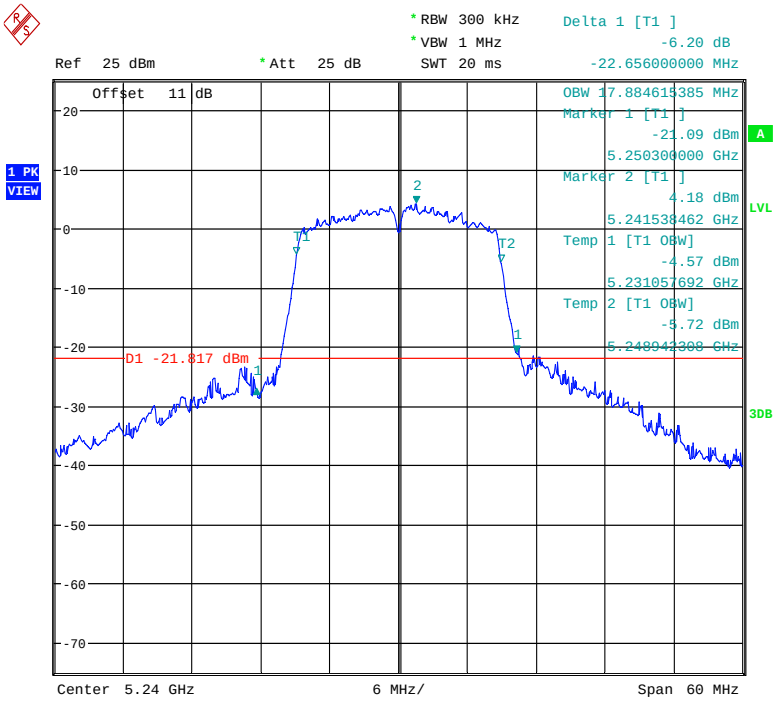
Date: 28.AUG.2017 11:40:07



99% OBW & 26DB BANDWIDTH ANT1_11n20_CH40

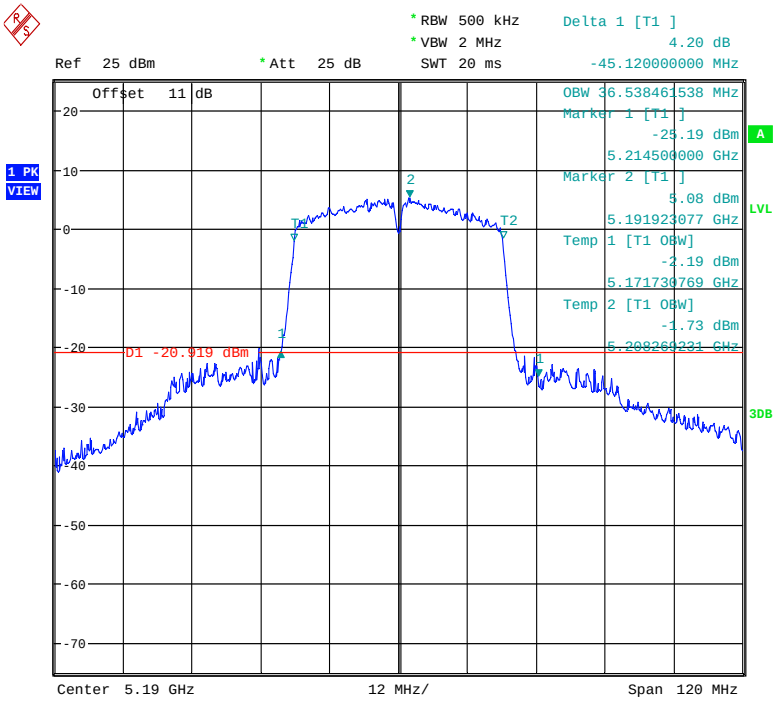
Date: 28.AUG.2017 11:41:24

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



99% OBW & 26DB BANDWIDTH ANT1_11n20_CH48

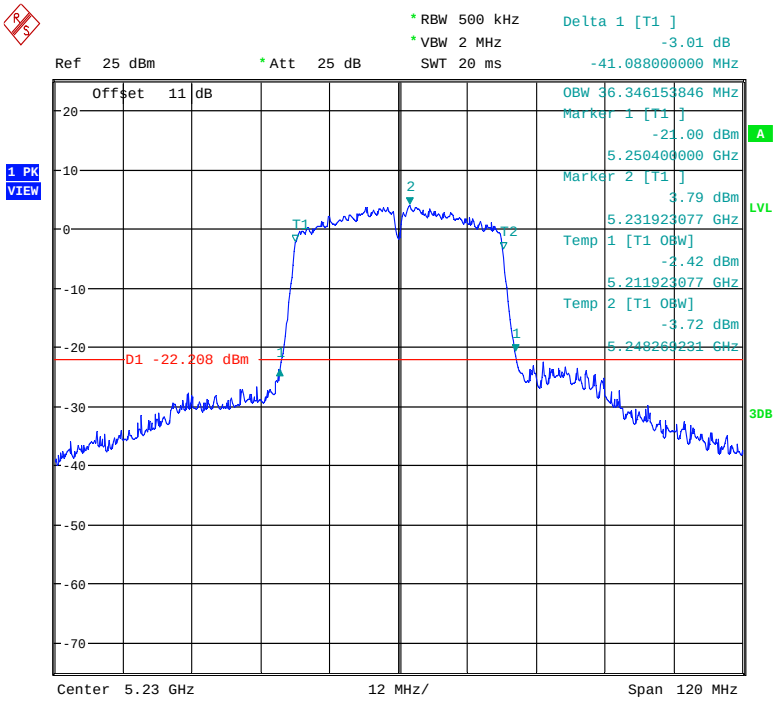
Date: 28.AUG.2017 11:42:36



99% OBW & 26DB BANDWIDTH ANT1_11n40_CH38

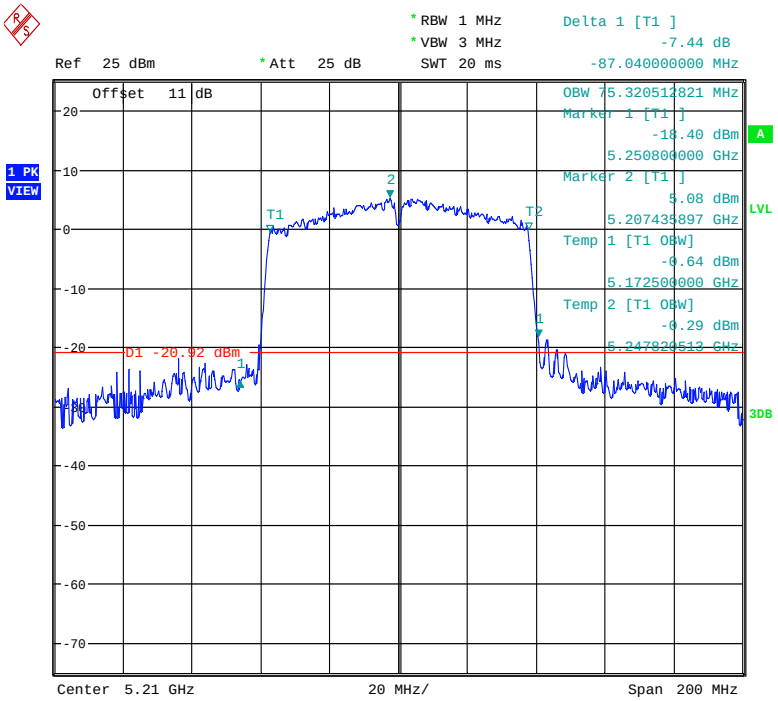
Date: 28.AUG.2017 11:44:09

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



99% OBW & 26DB BANDWIDTH ANT1_11n40_CH46

Date: 28.AUG.2017 11:45:48

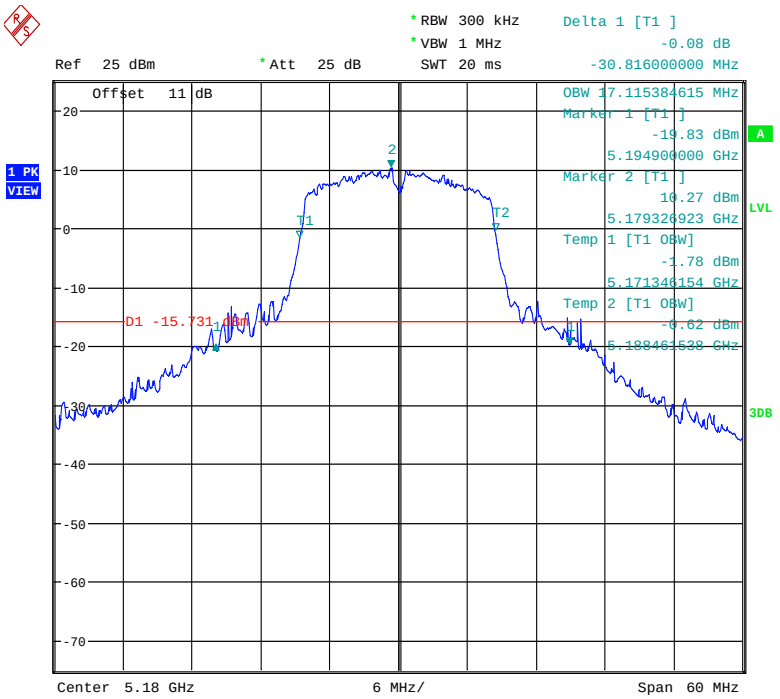


99% OBW & 26DB BANDWIDTH ANT1_11ac80_CH42

Date: 28.AUG.2017 11:47:27

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013

ANT2



99% OBW & 26DB BANDWIDTH ANT2_11a_CH36

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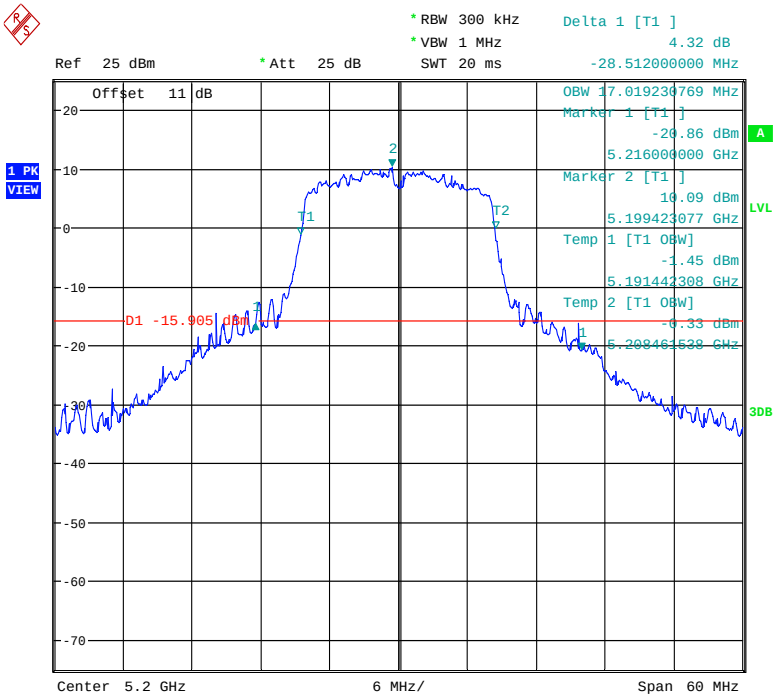
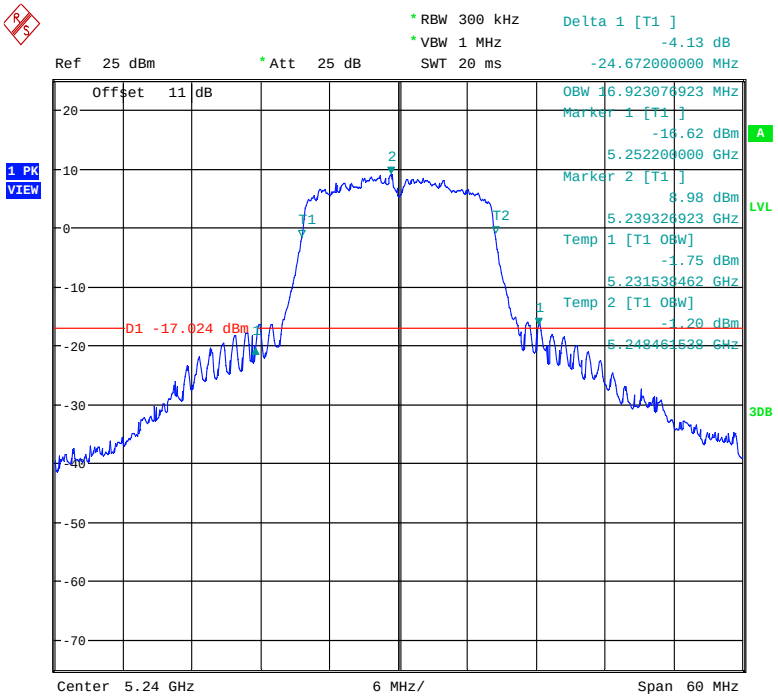


99% OBW & 26DB BANDWIDTH ANT2_11a_CH40

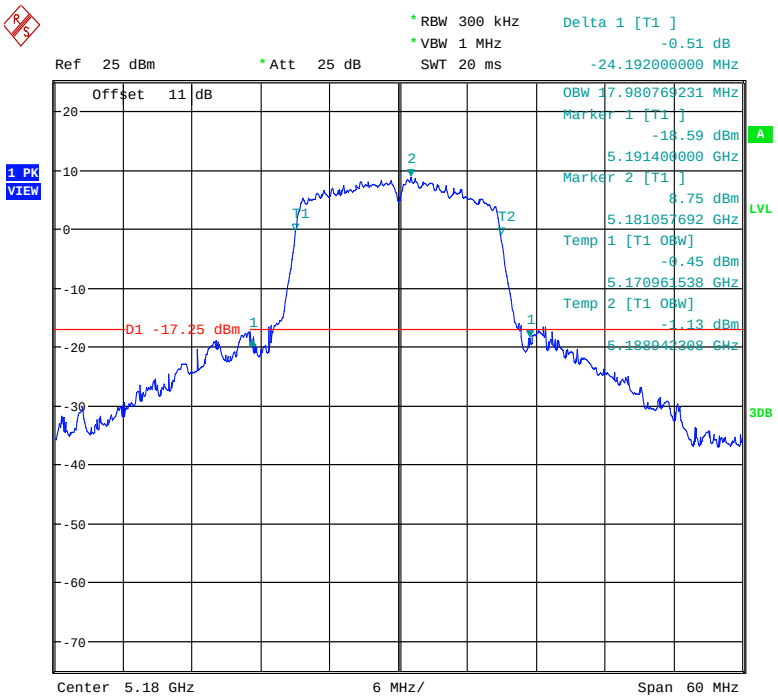
Date: 28.AUG.2017 13:30:29

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



99% OBW & 26DB BANDWIDTH ANT2_11a_CH48

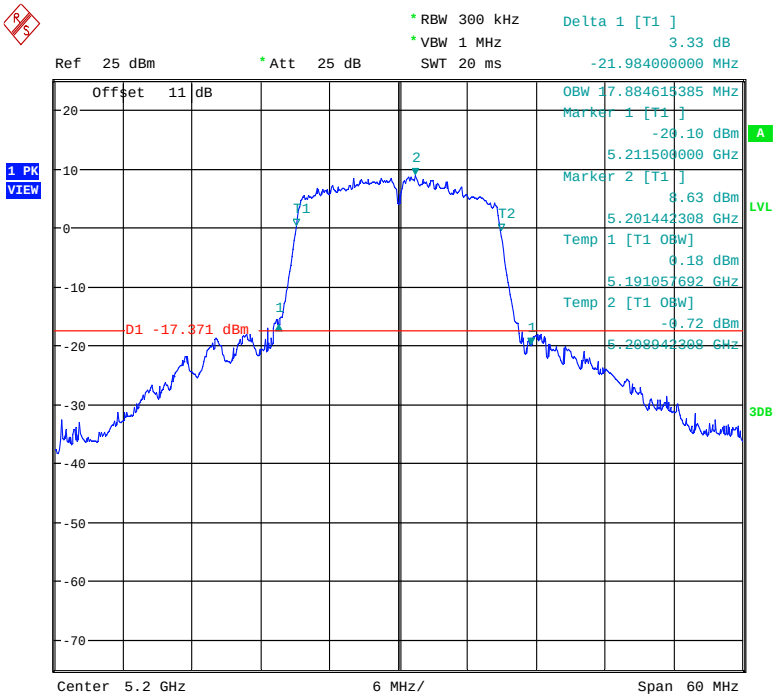
Date: 28.AUG.2017 13:31:35



99% OBW & 26DB BANDWIDTH ANT2_11n20_CH36

Date: 28.AUG.2017 13:33:09

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



99% OBW & 26DB BANDWIDTH ANT2_11n20_CH40

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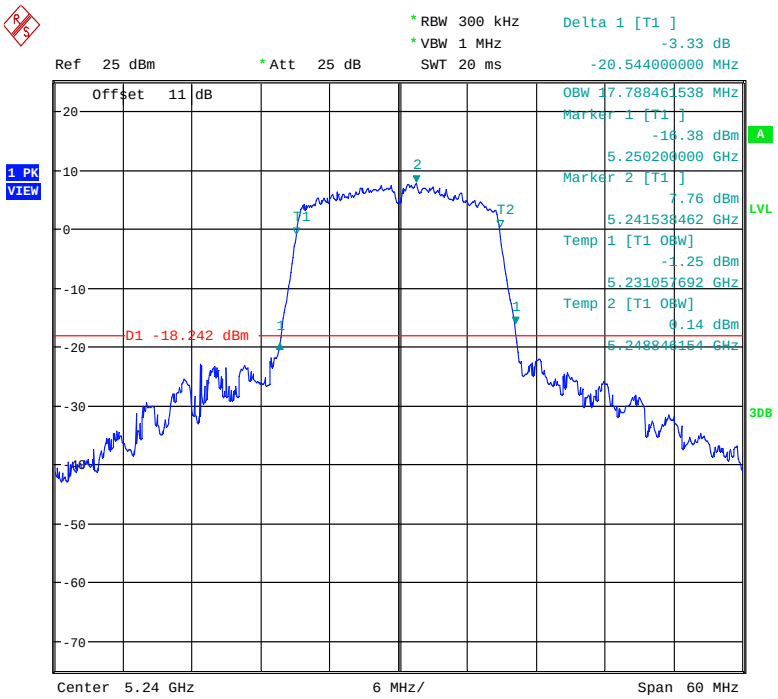

99% OBW & 26DB BANDWIDTH ANT2_11n20_CH48

Date: 28.AUG.2017 13:35:27

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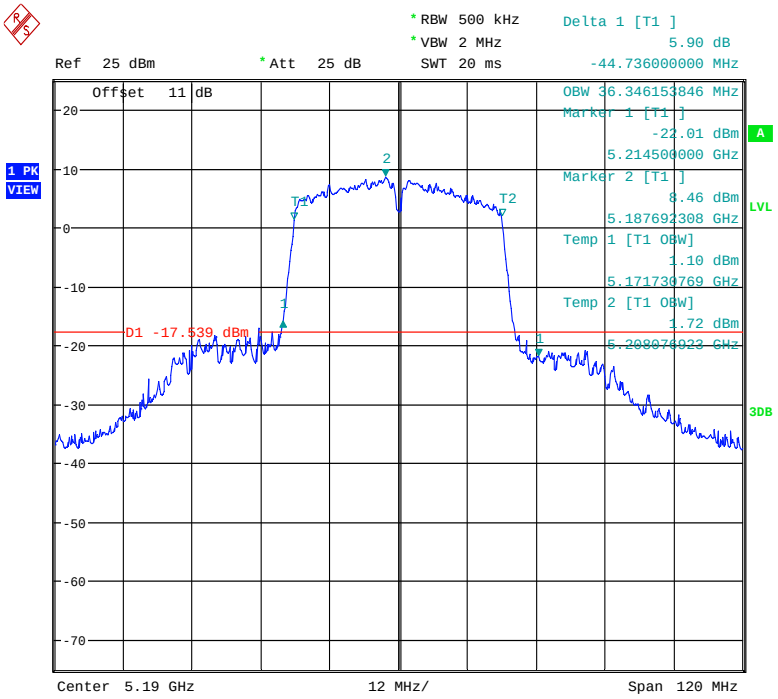
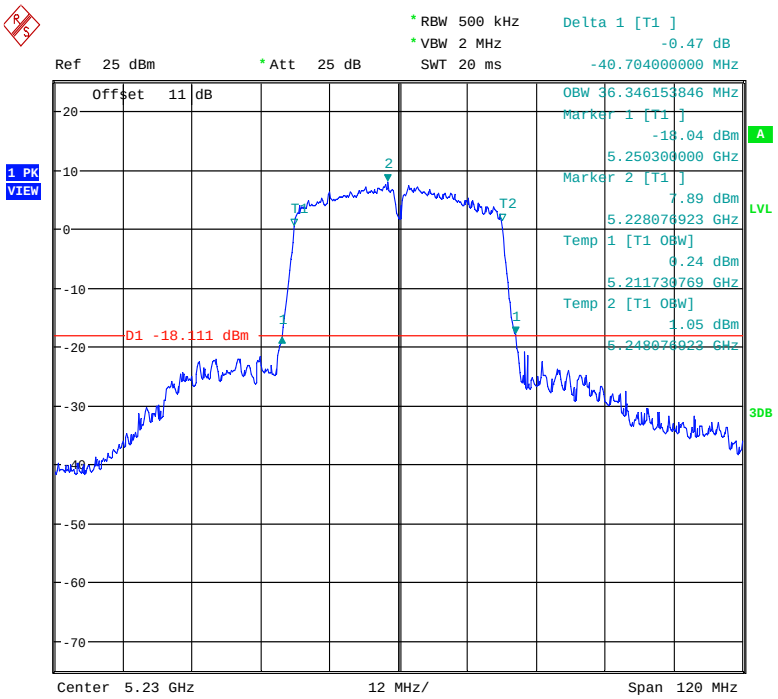


99% OBW & 26DB BANDWIDTH ANT2_11n40_CH38

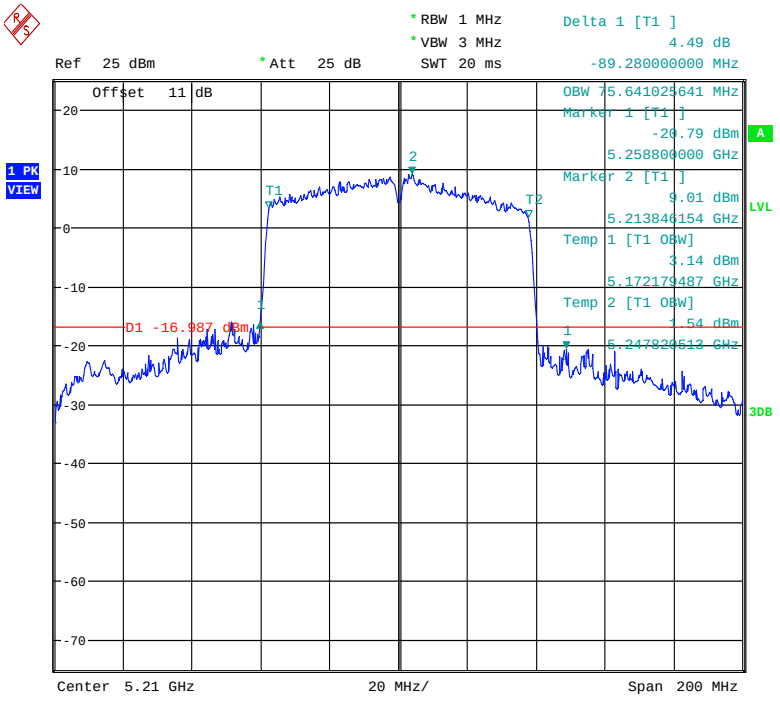
Date: 28.AUG.2017 13:36:49



99% OBW & 26DB BANDWIDTH ANT2_11n40_CH46

Date: 28.AUG.2017 13:38:06

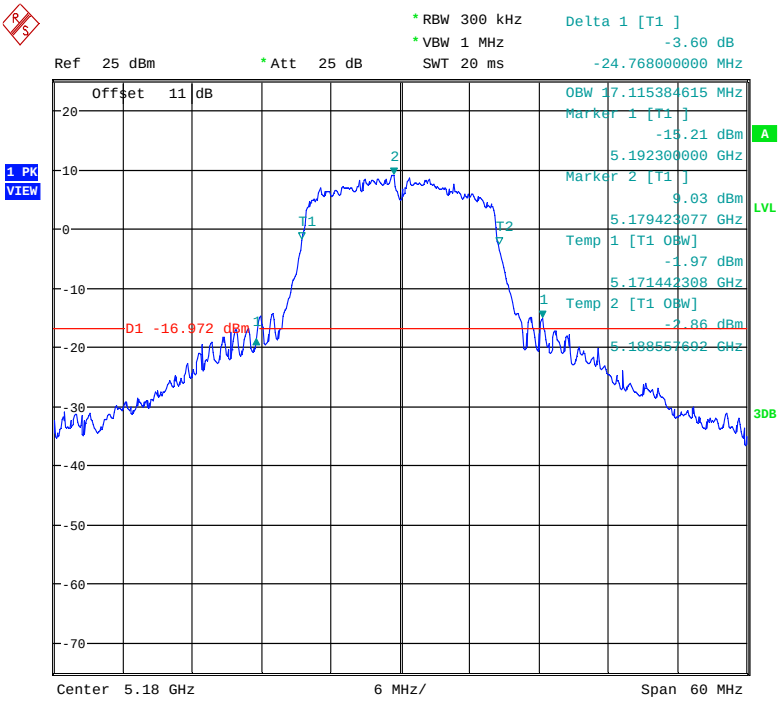
Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



99% OBW & 26DB BANDWIDTH ANT2_11ac80_CH42

Date: 28.AUG.2017 13:39:34

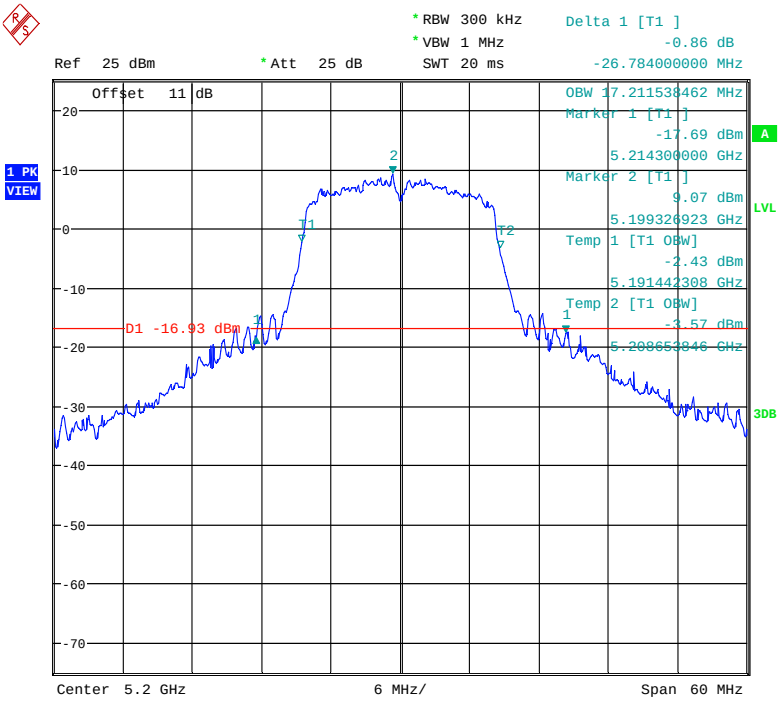
ANT3



99% OBW & 26DB BANDWIDTH ANT3_11a_CH36

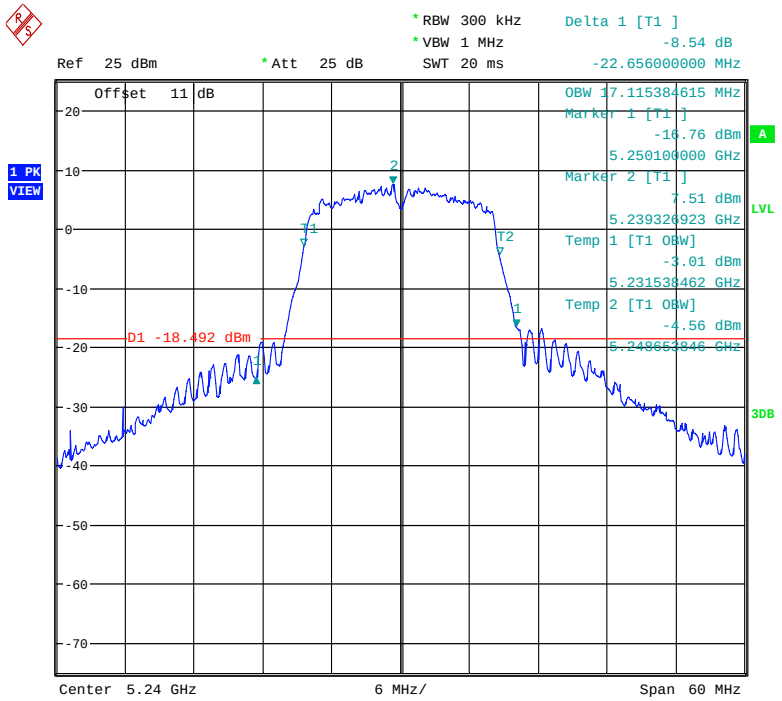
Date: 28.AUG.2017 13:46:27

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



99% OBW & 26DB BANDWIDTH ANT3_11a_CH40

Date: 28.AUG.2017 13:47:33



99% OBW & 26DB BANDWIDTH ANT3_11a_CH48

Date: 28.AUG.2017 13:48:39

Registration number:W6M21703-16691-C-54
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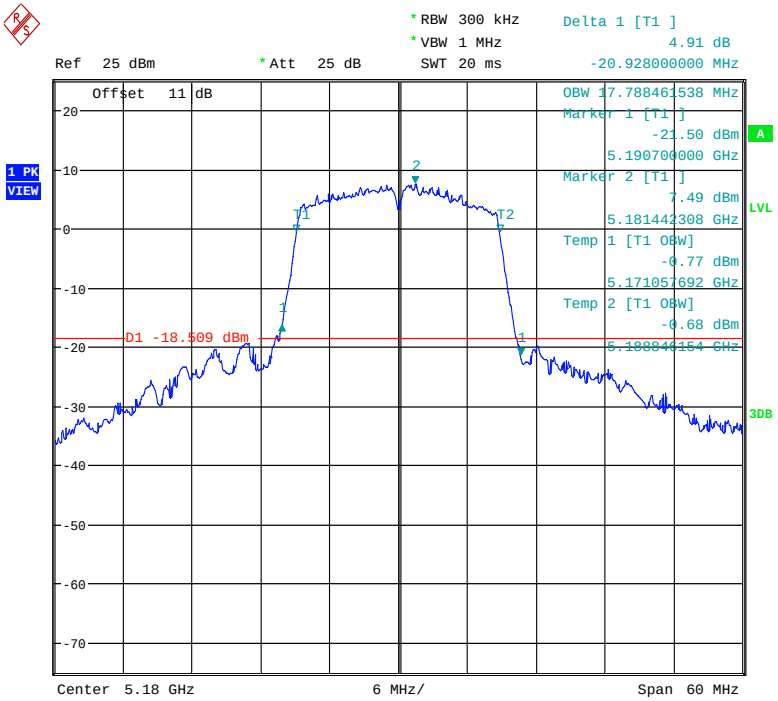
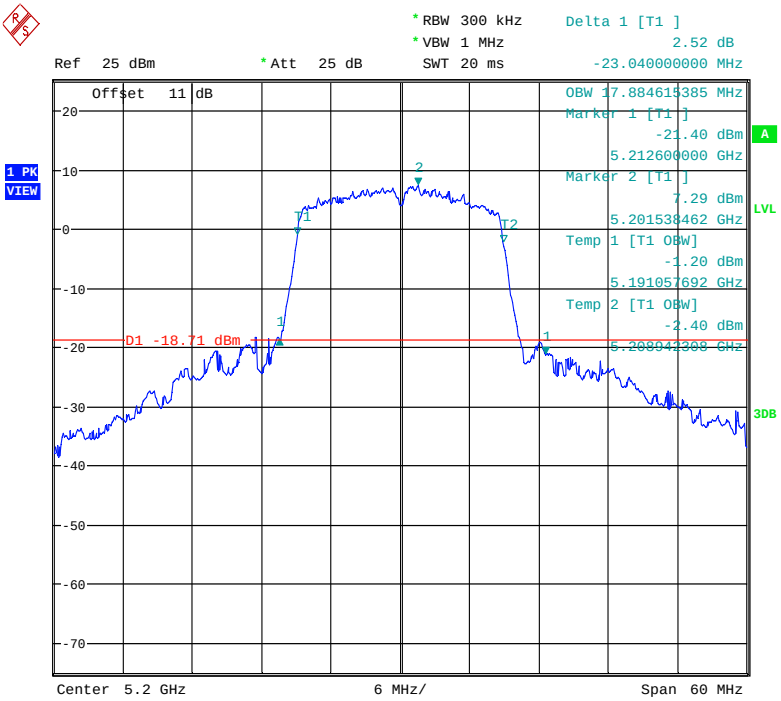


99% OBW & 26DB BANDWIDTH ANT3_11n20_CH36

Date: 28.AUG.2017 13:49:50



99% OBW & 26DB BANDWIDTH ANT3_11n20_CH40

Date: 28.AUG.2017 13:51:35

Registration number:W6M21703-16691-C-54
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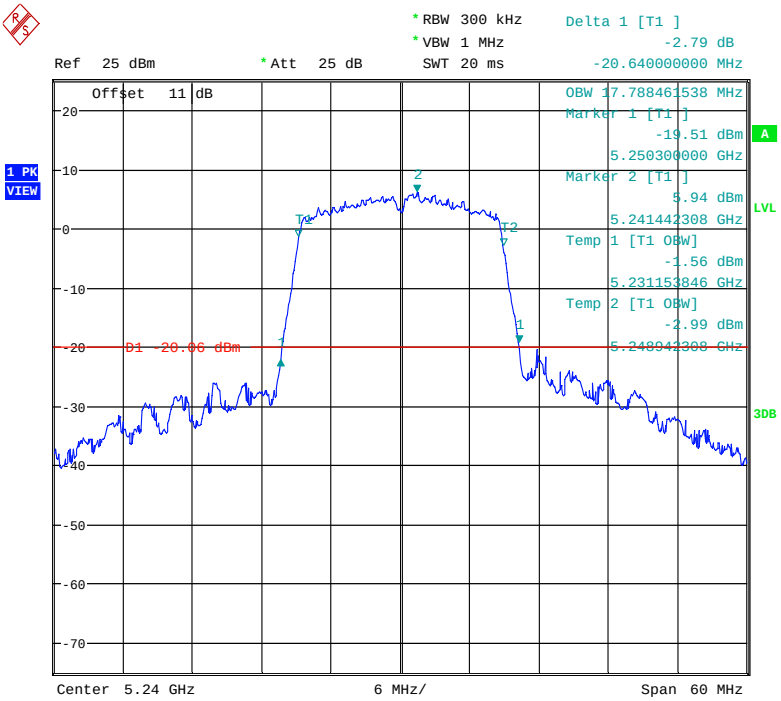
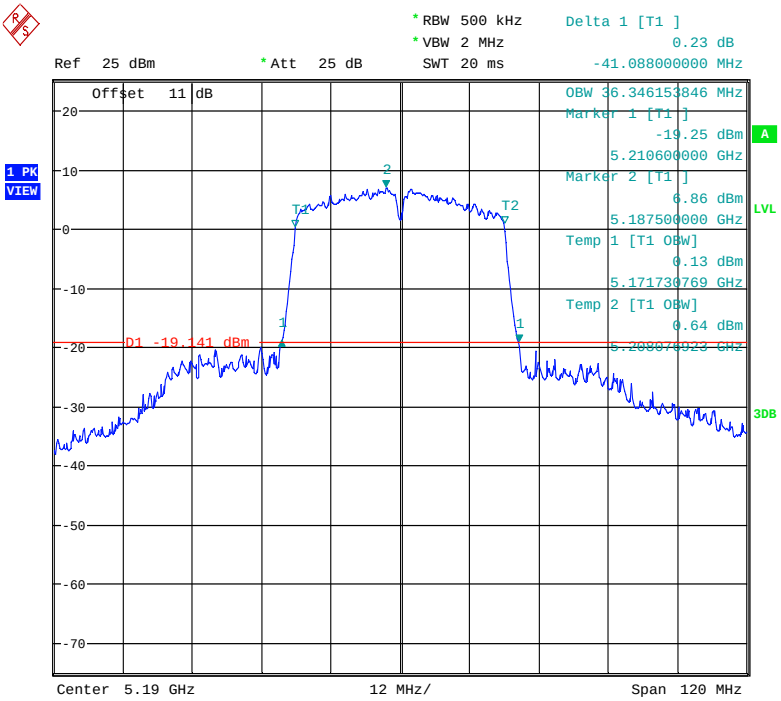


99% OBW & 26DB BANDWIDTH ANT3_11n20_CH48

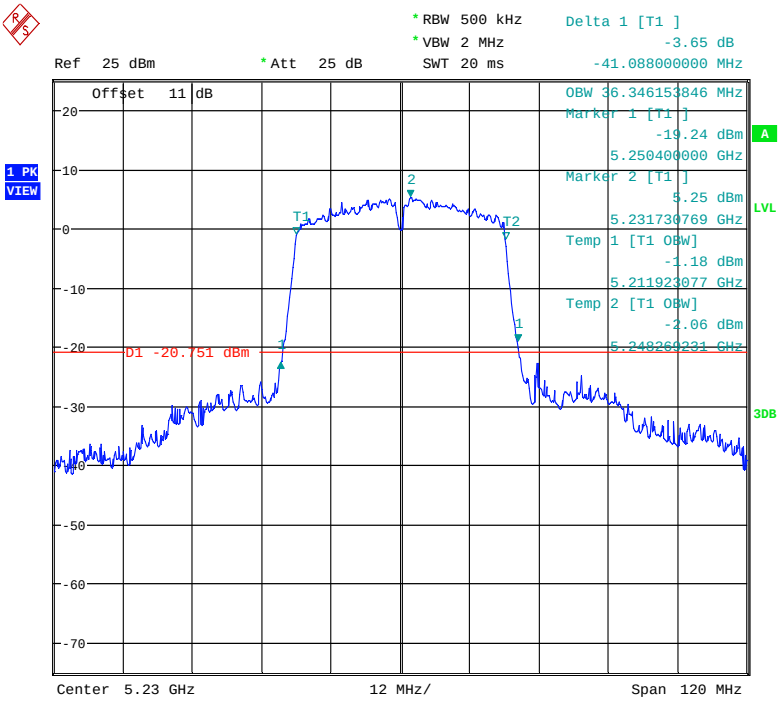
Date: 28.AUG.2017 13:52:41



99% OBW & 26DB BANDWIDTH ANT3_11n40_CH38

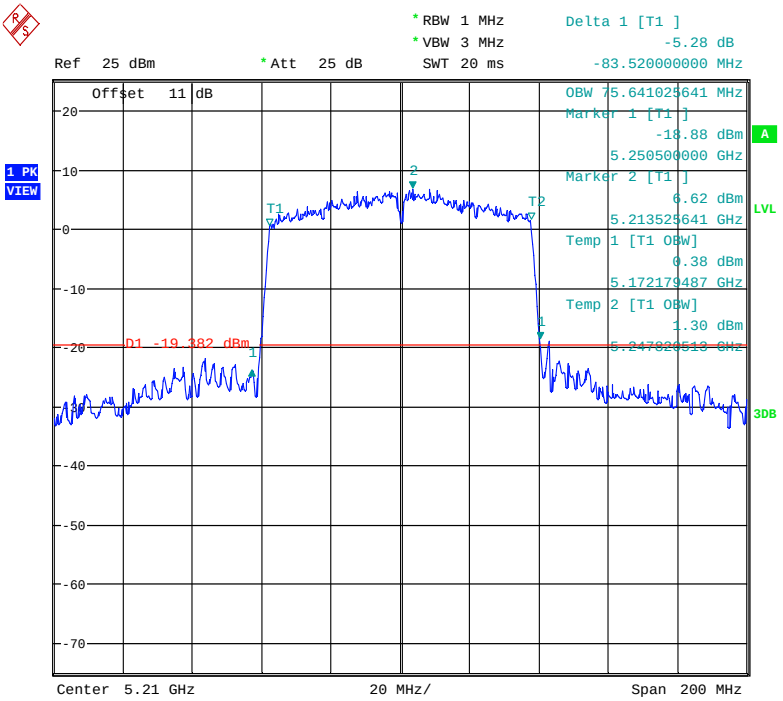
Date: 28.AUG.2017 13:54:14

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



99% OBW & 26DB BANDWIDTH ANT3_11n40_CH46

Date: 28.AUG.2017 13:55:26

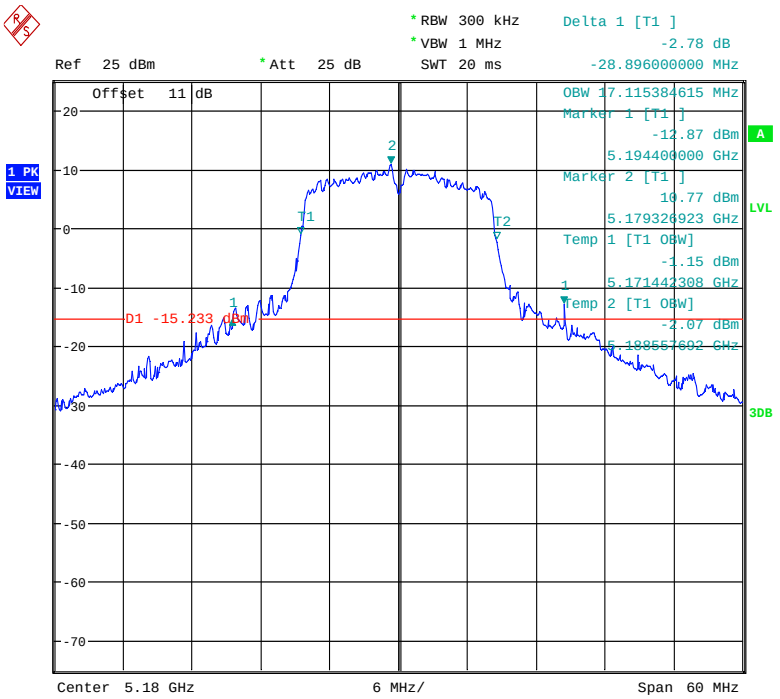


99% OBW & 26DB BANDWIDTH ANT3_11ac80_CH42

Date: 28.AUG.2017 13:57:05

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013

ANT4



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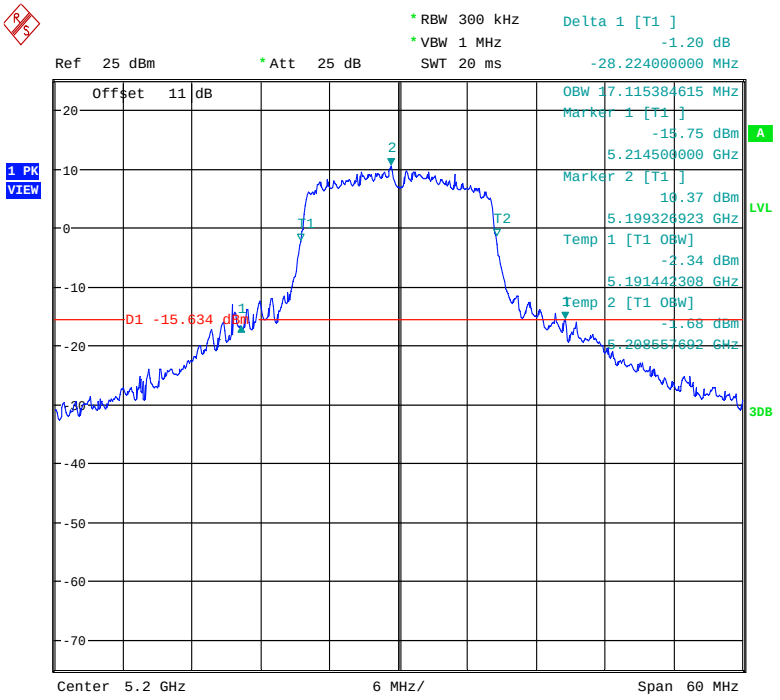
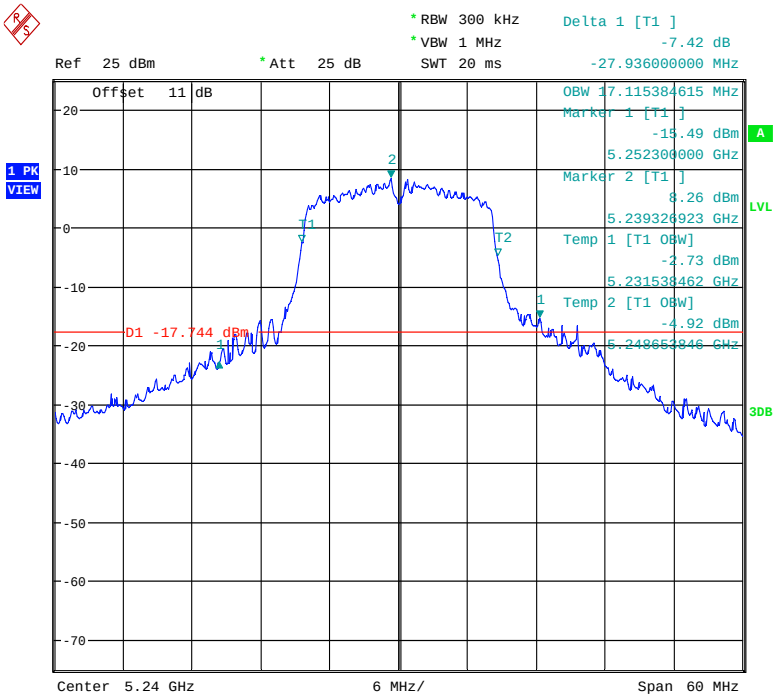
Date: 28.AUG.2017 14:03:08



99% OBW & 26DB BANDWIDTH ANT4_11a_CH40

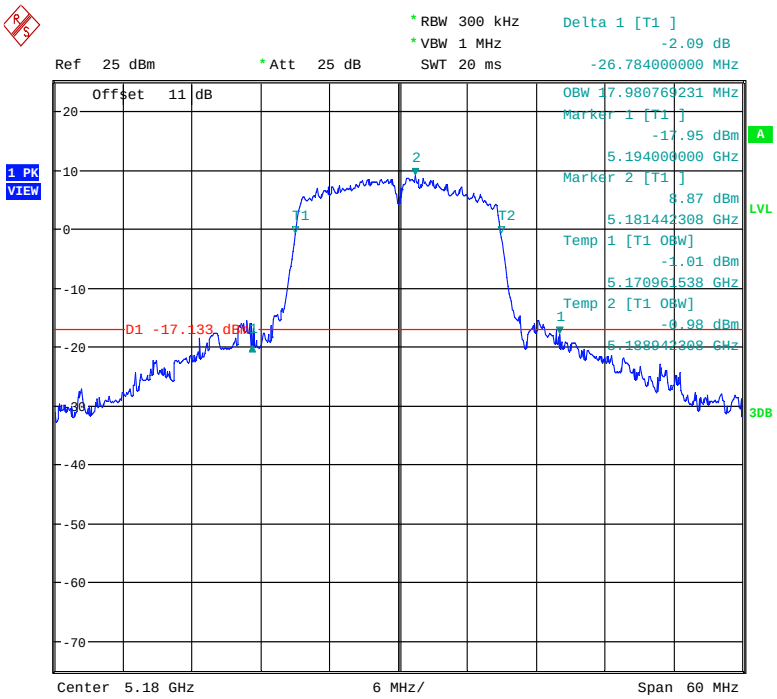
Date: 28.AUG.2017 14:04:47

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



99% OBW & 26DB BANDWIDTH ANT4_11a_CH48

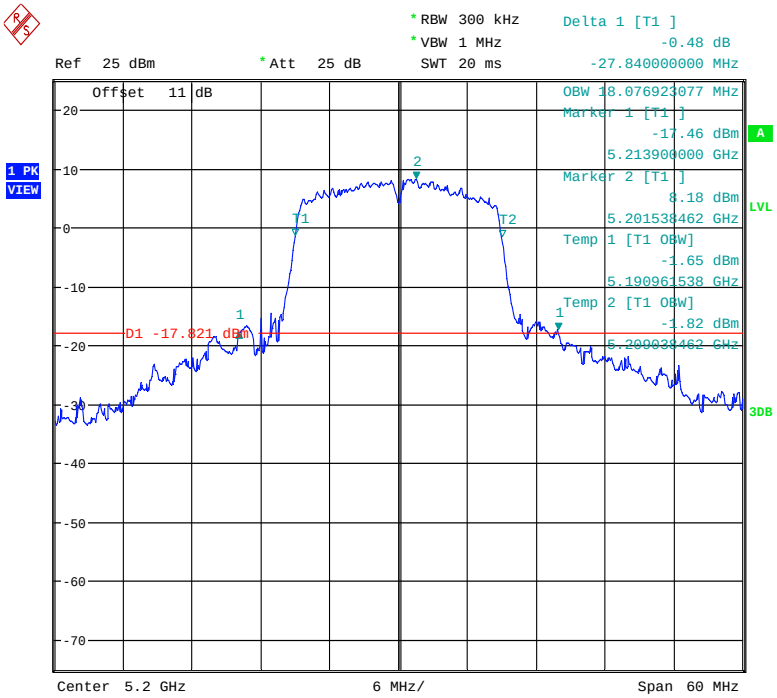
Date: 28.AUG.2017 14:06:09



99% OBW & 26DB BANDWIDTH ANT4_11n20_CH36

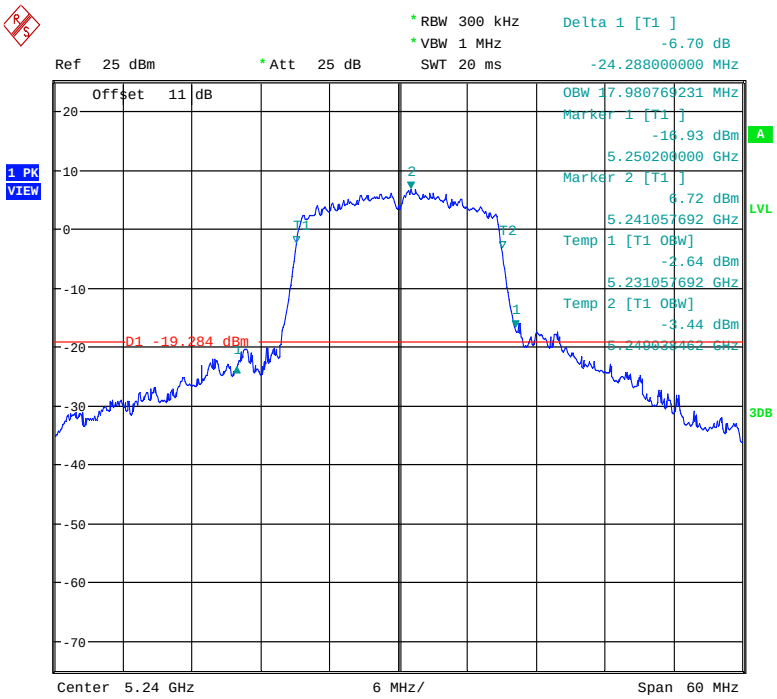
Date: 28.AUG.2017 14:07:59

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



99% OBW & 26DB BANDWIDTH ANT4_11n20_CH40

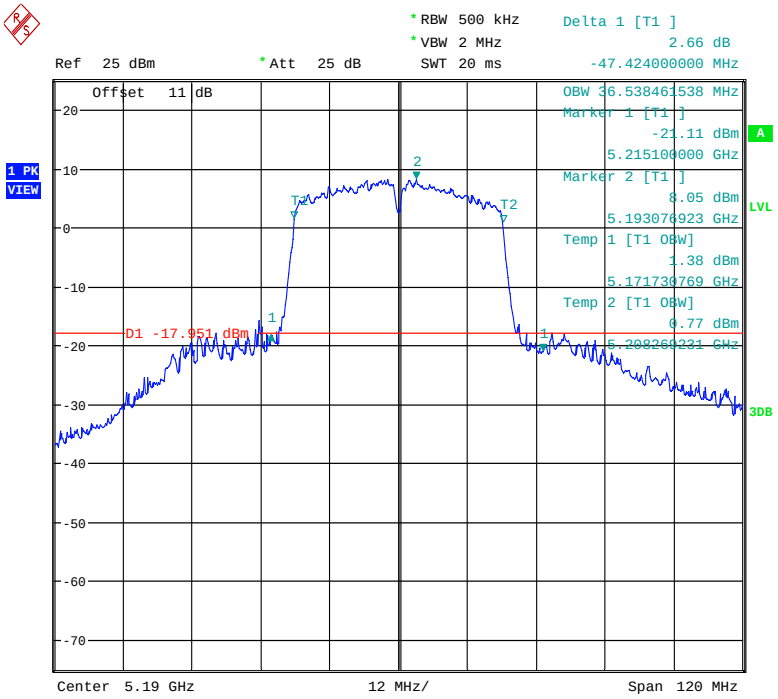
Date: 28.AUG.2017 14:09:33



99% OBW & 26DB BANDWIDTH ANT4_11n20_CH48

Date: 28.AUG.2017 14:10:55

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



99% OBW & 26DB BANDWIDTH ANT4_11n40_CH38

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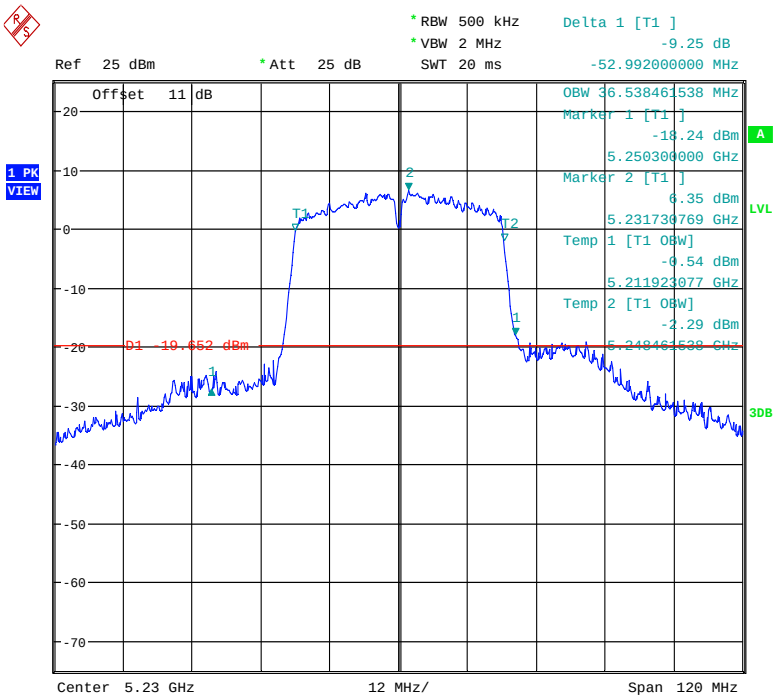
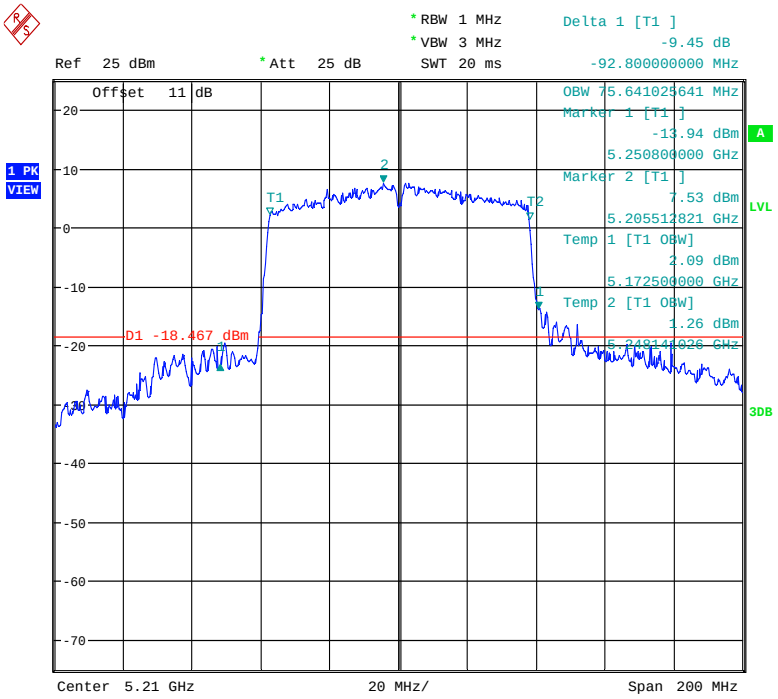


99% OBW & 26DB BANDWIDTH ANT4_11n40_CH46

Date: 28.AUG.2017 14:14:41

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



99% OBW & 26DB BANDWIDTH ANT4_11ac80_CH42

Date: 28.AUG.2017 14:16:42

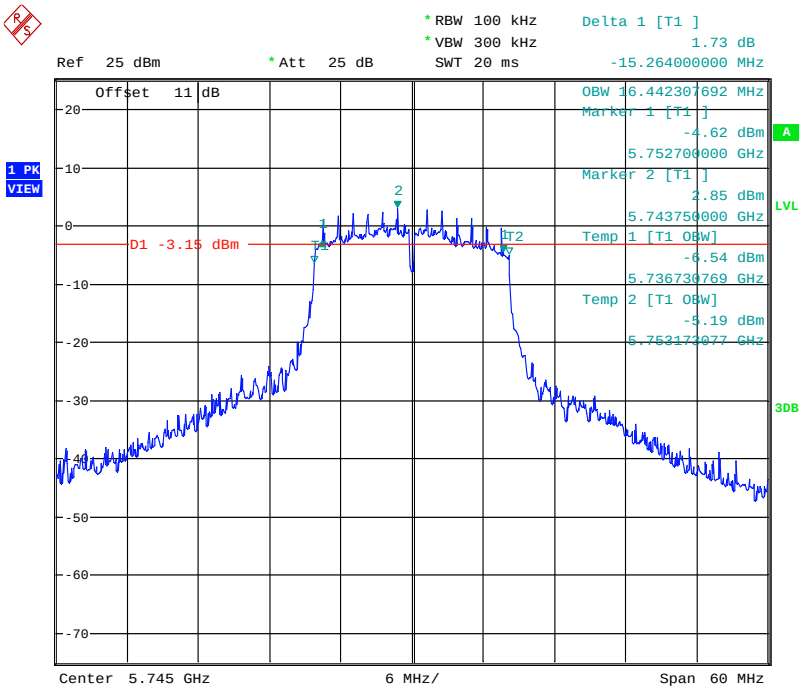
Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013

3.3 6dB emission bandwidth, 99% Occupied Bandwidth, FCC 15.407 (a)

According to §15.407(a). No Limit required.

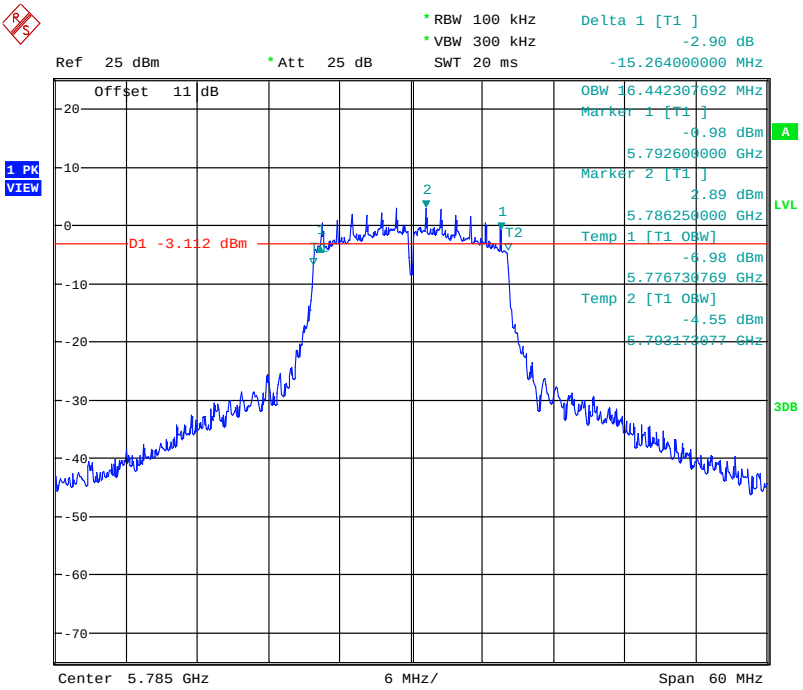
Result:

Band 4(5.725GHz~5.85GHz)
ANT1



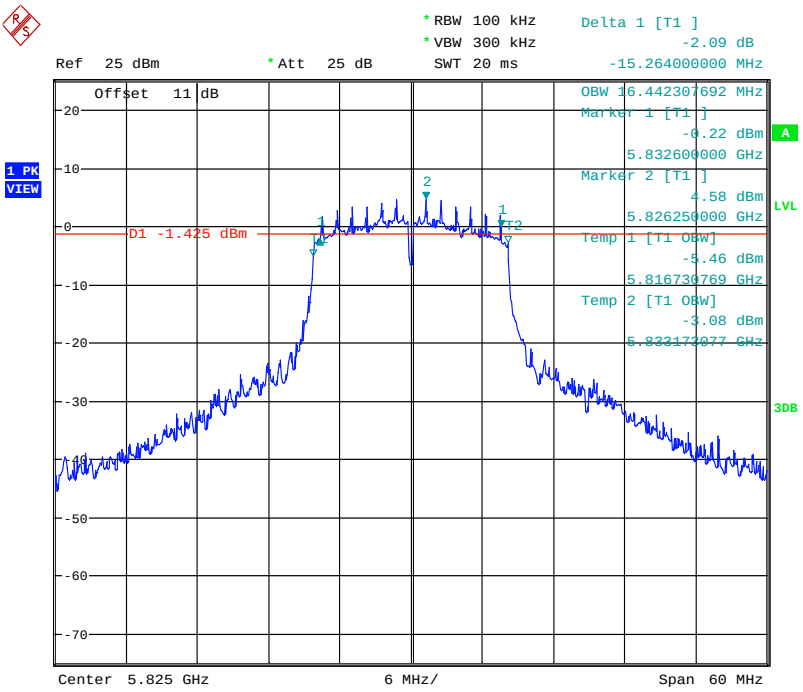
99% OBW & 6DB BANDWIDTH ANT1_11a_CH149
Date: 28.AUG.2017 14:42:27

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



99% OBW & 6DB BANDWIDTH ANT1_11a_CH157

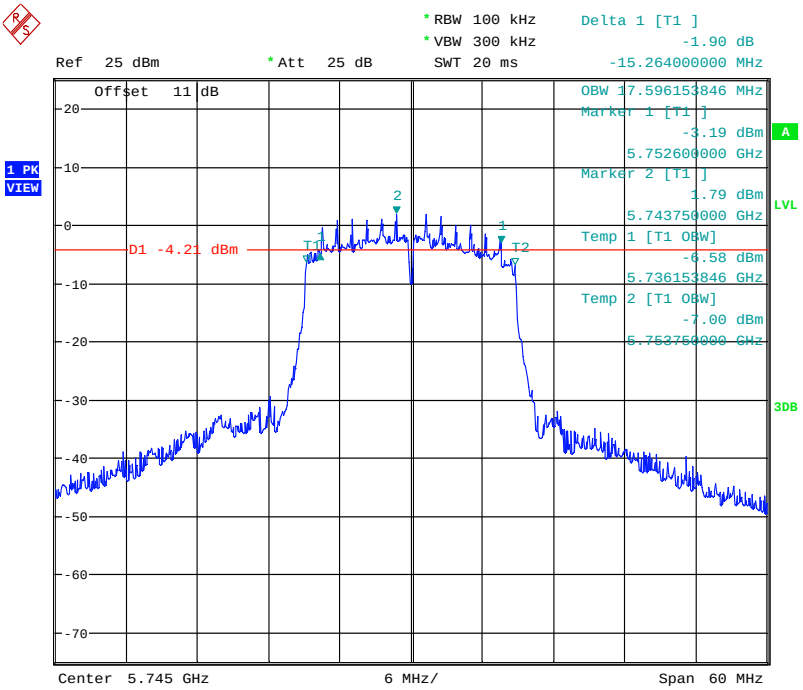
Date: 28.AUG.2017 14:44:45



99% OBW & 6DB BANDWIDTH ANT1_11a_CH165

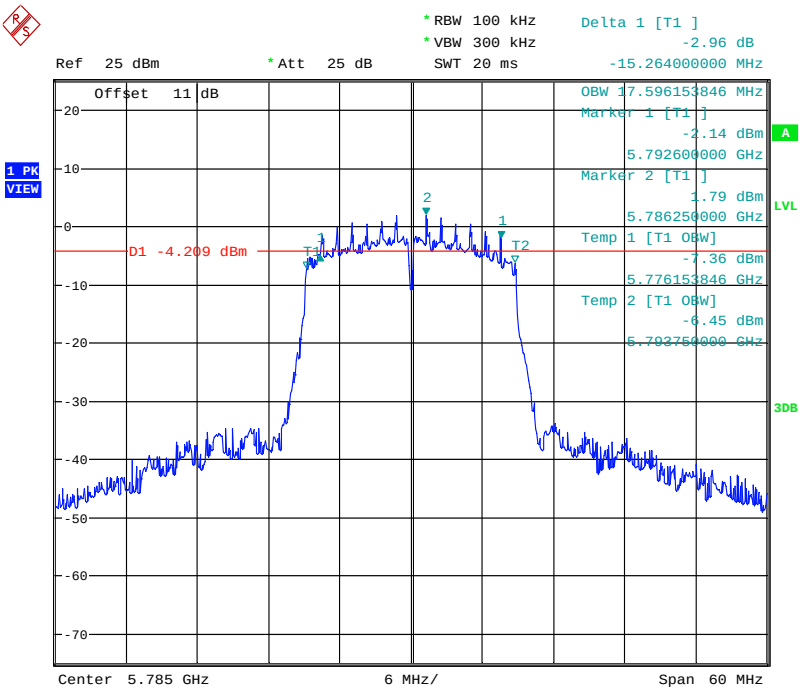
Date: 28.AUG.2017 14:45:56

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



99% OBW & 6DB BANDWIDTH ANT1_11n20_CH149

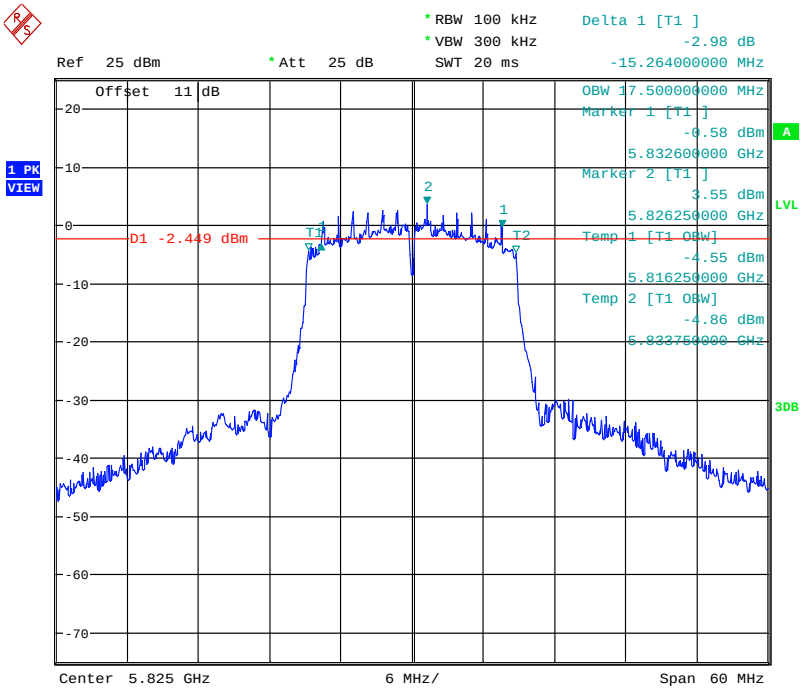
Date: 28.AUG.2017 14:47:13



99% OBW & 6DB BANDWIDTH ANT1_11n20_CH157

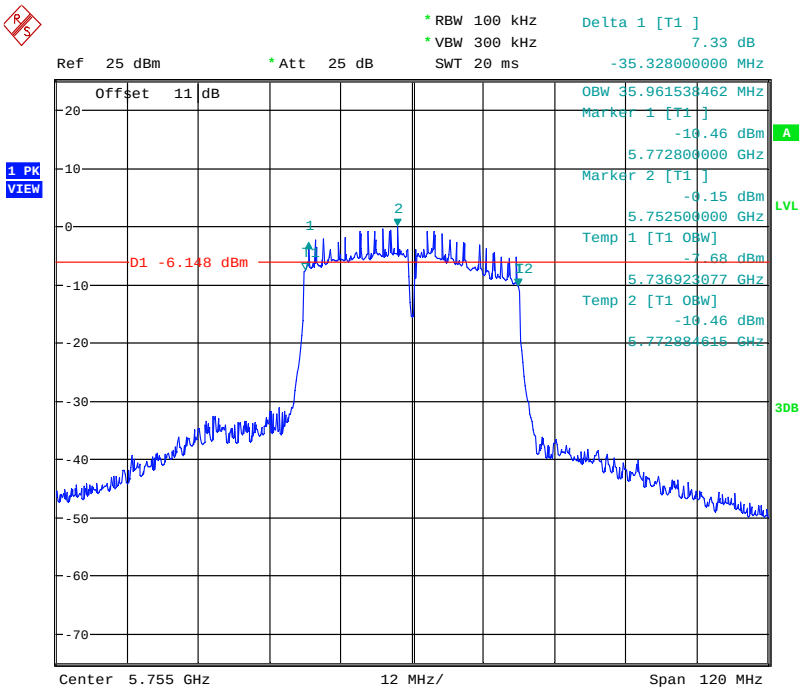
Date: 28.AUG.2017 14:48:25

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



99% OBW & 6DB BANDWIDTH ANT1_11n20_CH165

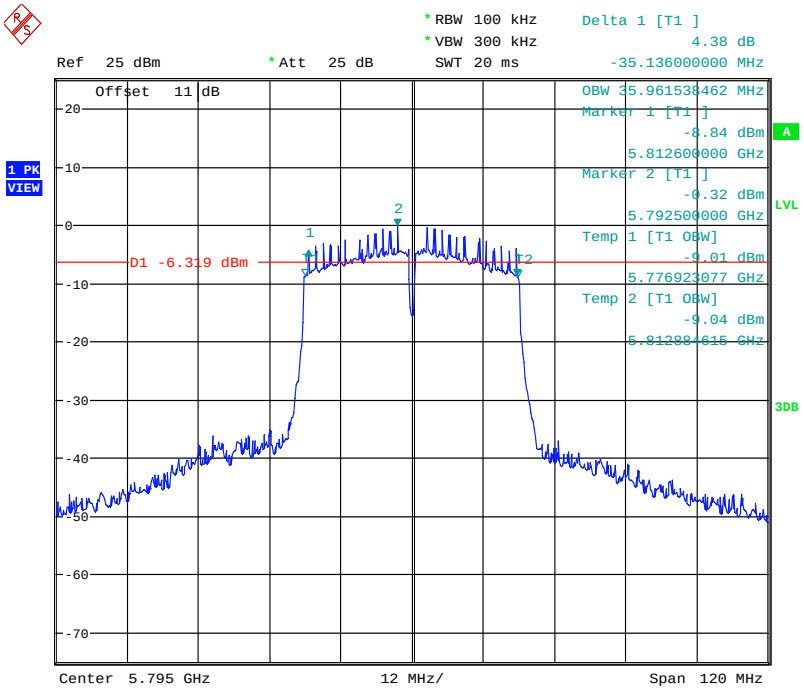
Date: 28.AUG.2017 14:49:53



99% OBW & 6DB BANDWIDTH ANT1_11n40_CH151

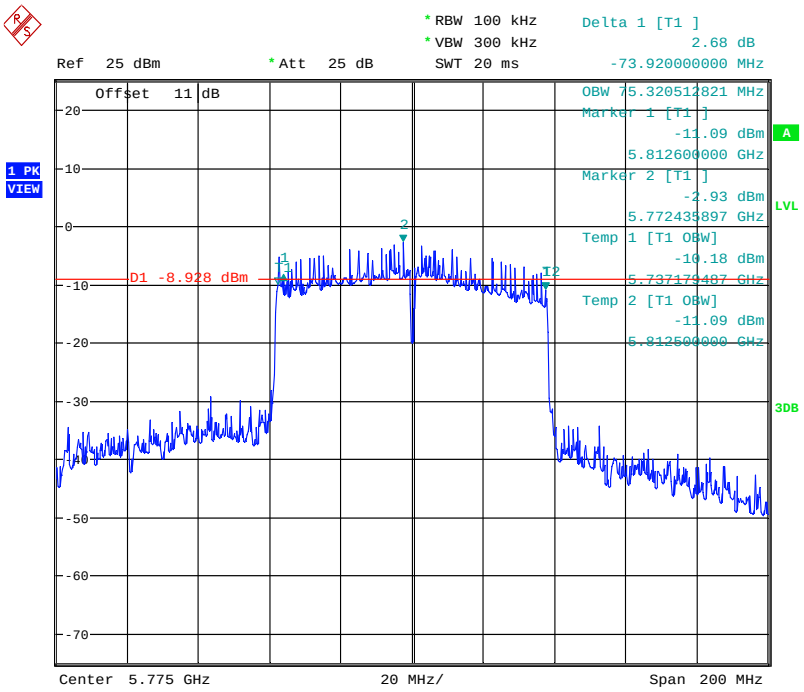
Date: 28.AUG.2017 14:52:05

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



99% OBW & 6DB BANDWIDTH ANT1_11n40_CH159

Date: 28.AUG.2017 14:53:27

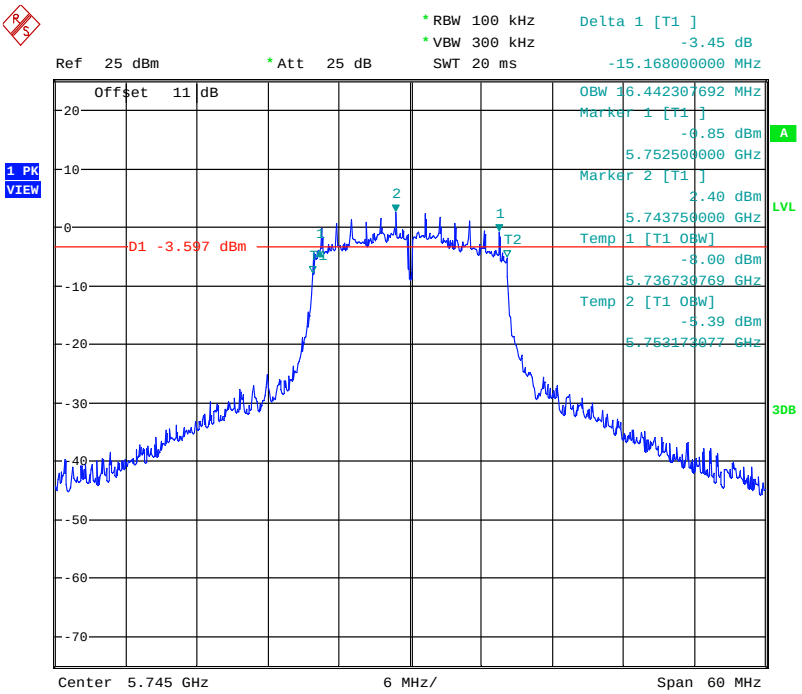


99% OBW & 6DB BANDWIDTH ANT1_11ac80_CH155

Date: 28.AUG.2017 14:55:01

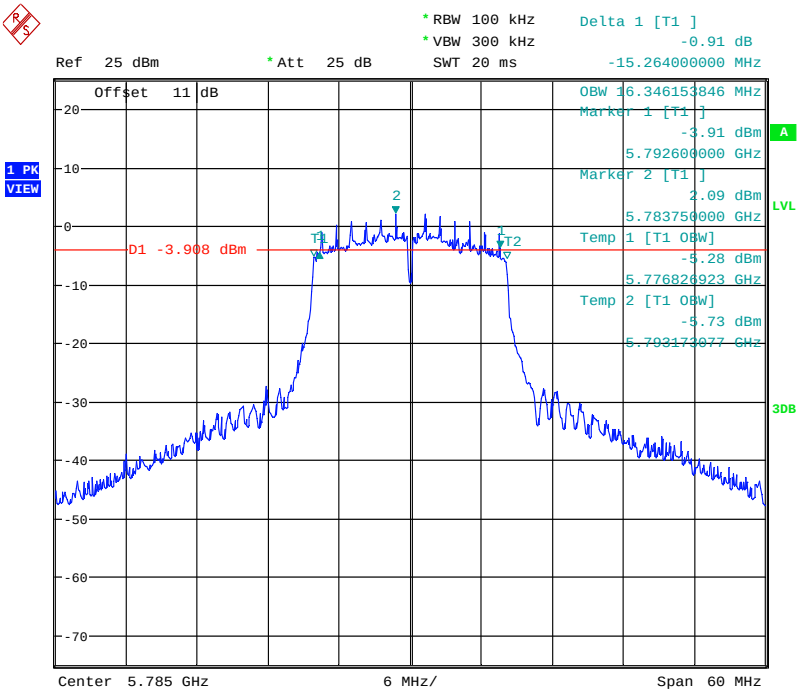
Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013

ANT2



99% OBW & 6DB BANDWIDTH ANT2_11a_CH149

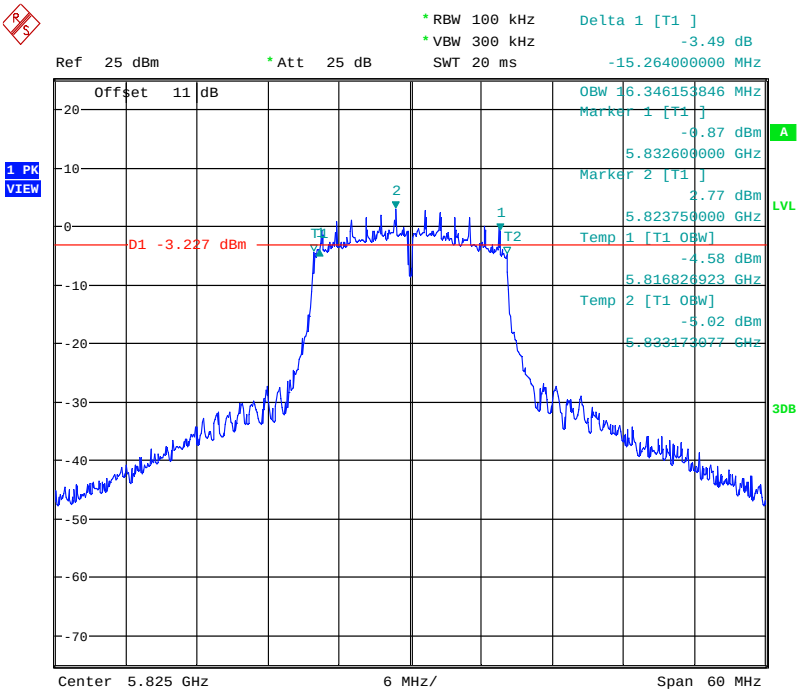
Date: 28.AUG.2017 15:05:00



99% OBW & 6DB BANDWIDTH ANT2_11a_CH157

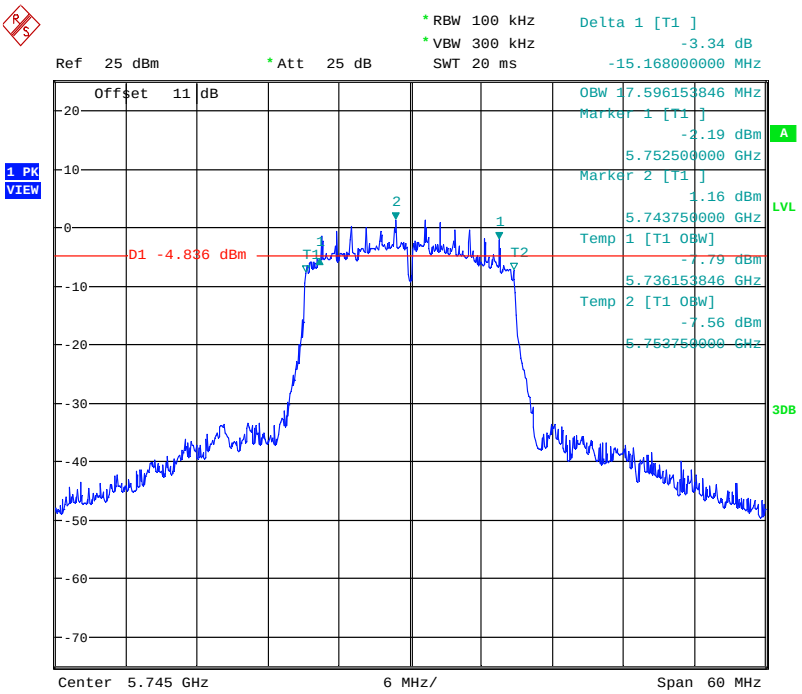
Date: 28.AUG.2017 15:06:34

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



99% OBW & 6DB BANDWIDTH ANT2_11a_CH165

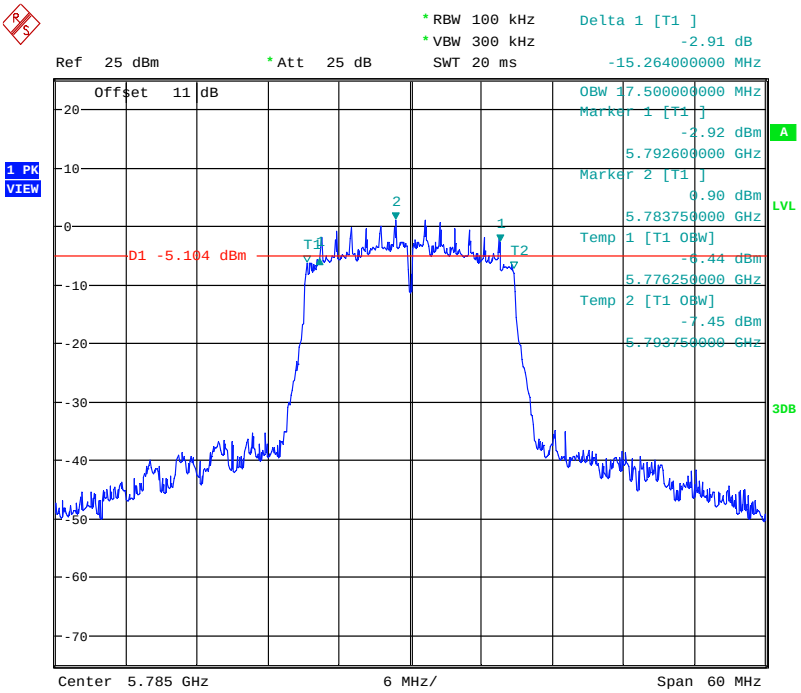
Date: 28.AUG.2017 15:08:02



99% OBW & 6DB BANDWIDTH ANT2_11n20_CH149

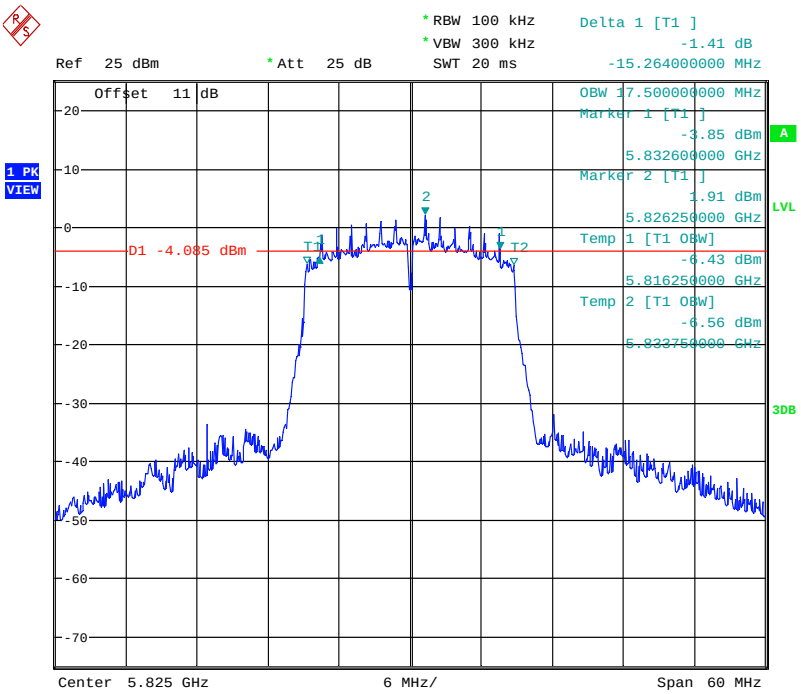
Date: 28.AUG.2017 15:09:57

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



99% OBW & 6DB BANDWIDTH ANT2_11n20_CH157

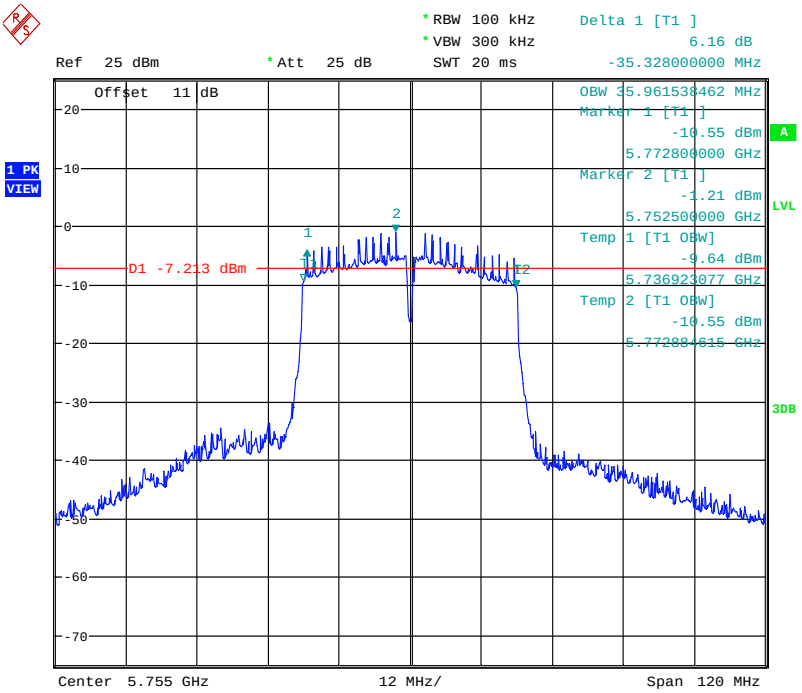
Date: 28.AUG.2017 15:11:25



99% OBW & 6DB BANDWIDTH ANT2_11n20_CH165

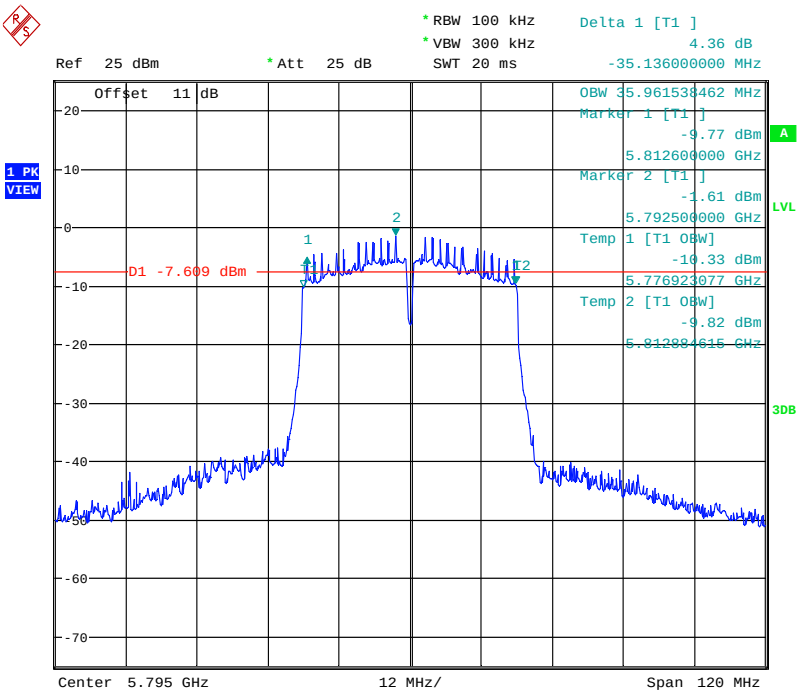
Date: 28.AUG.2017 15:12:59

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



99% OBW & 6DB BANDWIDTH ANT2_11n40_CH151

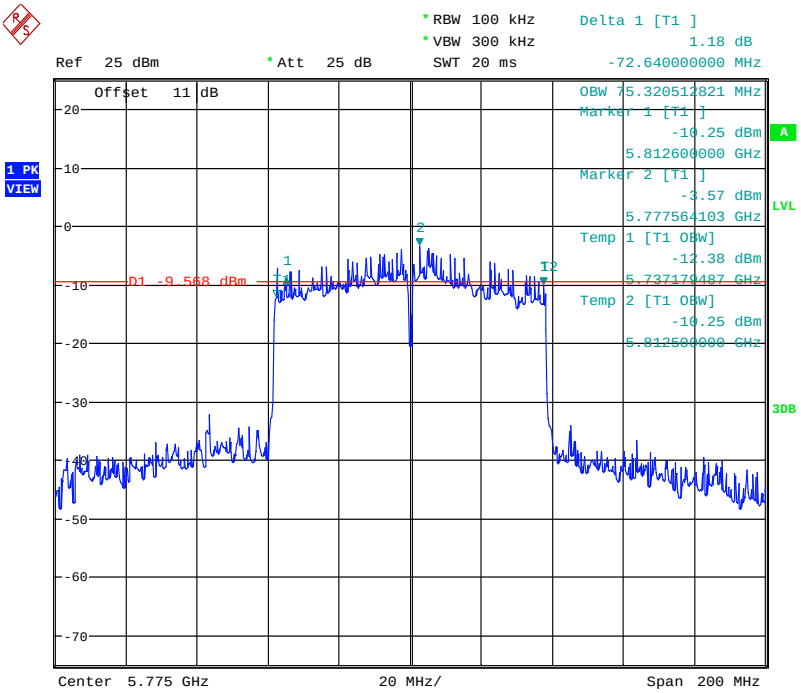
Date: 28.AUG.2017 15:14:54



99% OBW & 6DB BANDWIDTH ANT2_11n40_CH159

Date: 28.AUG.2017 15:16:28

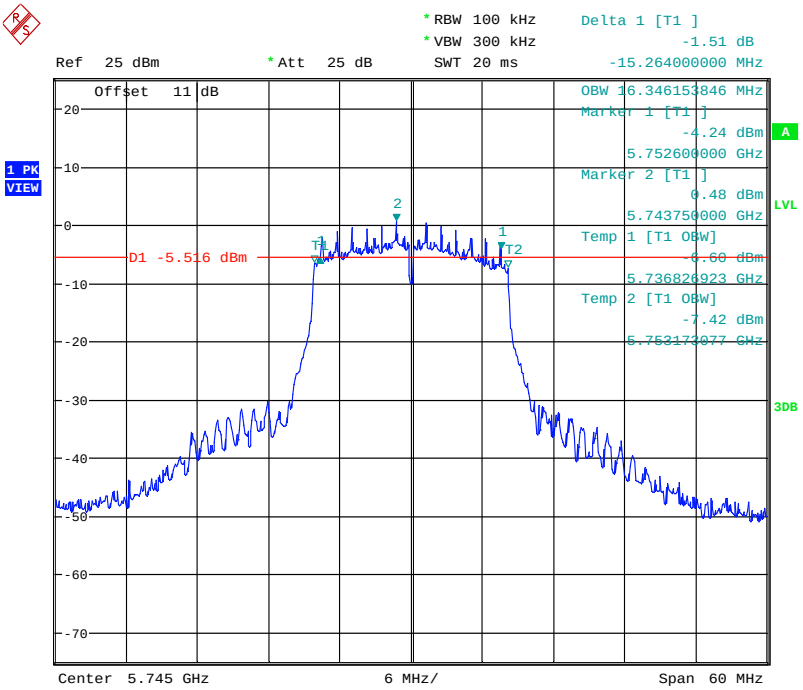
Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



99% OBW & 6DB BANDWIDTH ANT2_11ac80_CH155

Date: 28.AUG.2017 15:18:18

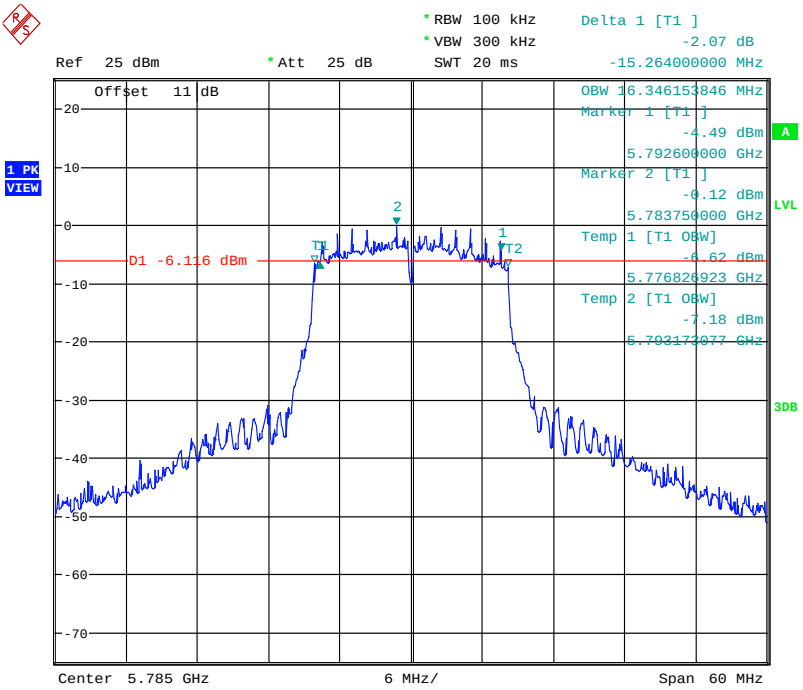
ANT3



99% OBW & 6DB BANDWIDTH ANT3_11a_CH149

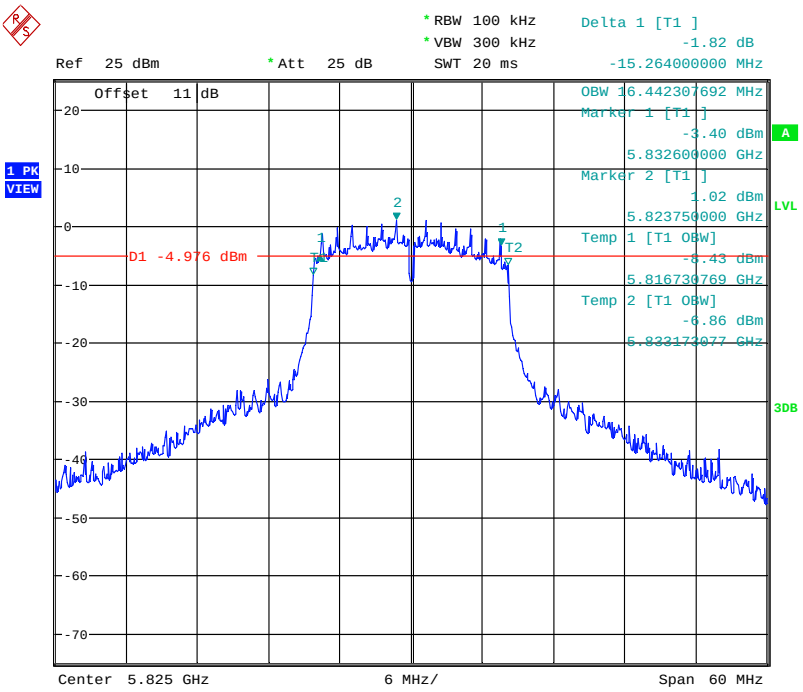
Date: 28.AUG.2017 15:23:31

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



99% OBW & 6DB BANDWIDTH ANT3_11a_CH157

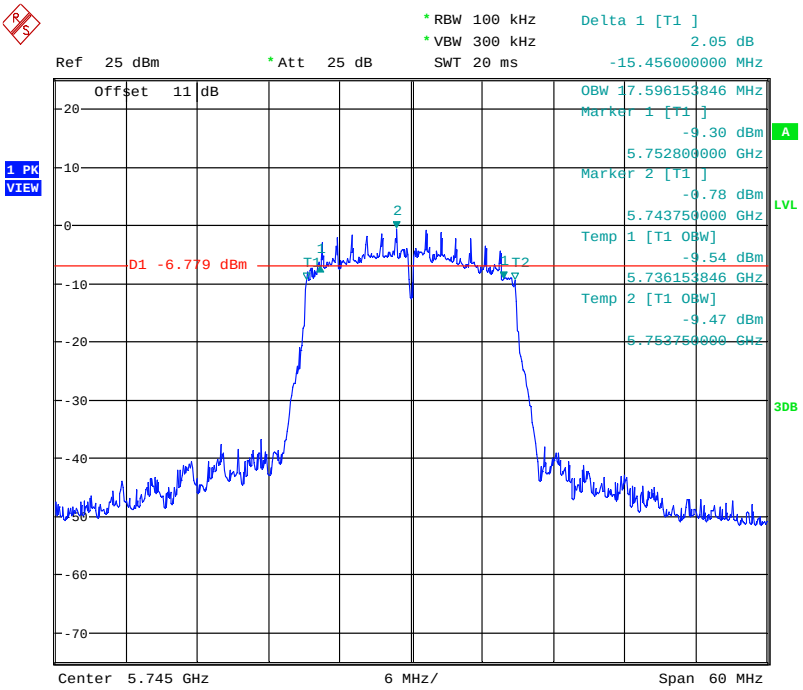
Date: 28.AUG.2017 15:24:54



99% OBW & 6DB BANDWIDTH ANT3_11a_CH165

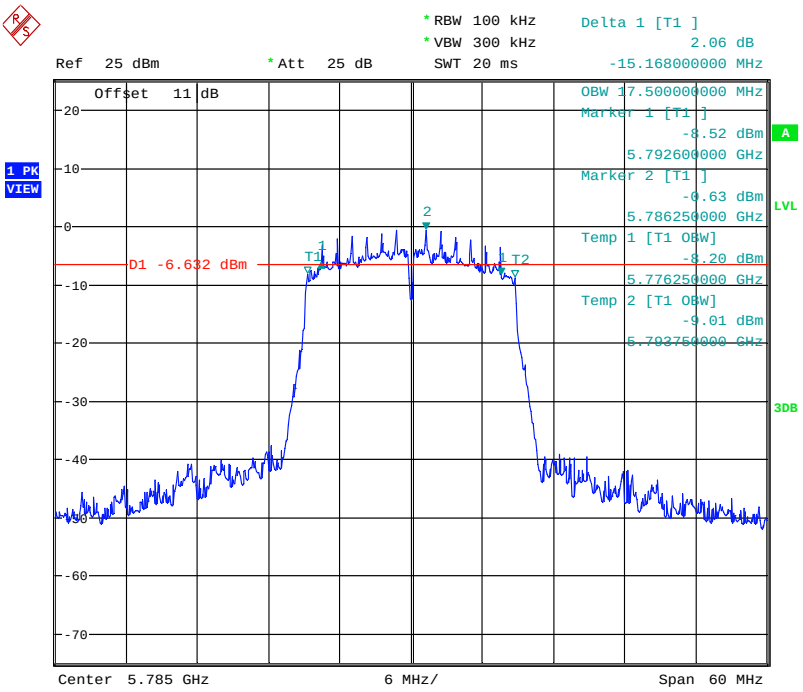
Date: 28.AUG.2017 15:26:16

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



99% OBW & 6DB BANDWIDTH ANT3_11n20_CH149

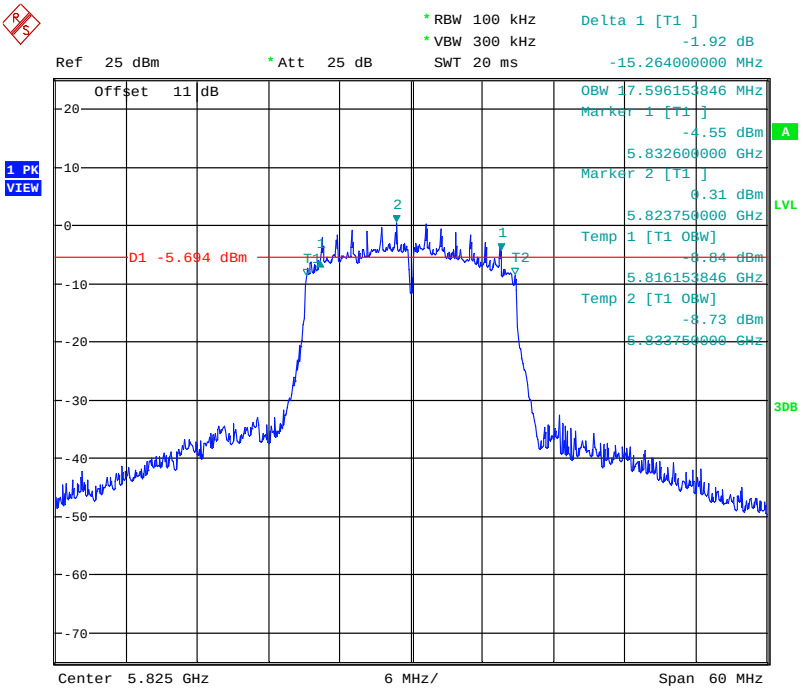
Date: 28.AUG.2017 15:28:01



99% OBW & 6DB BANDWIDTH ANT3_11n20_CH157

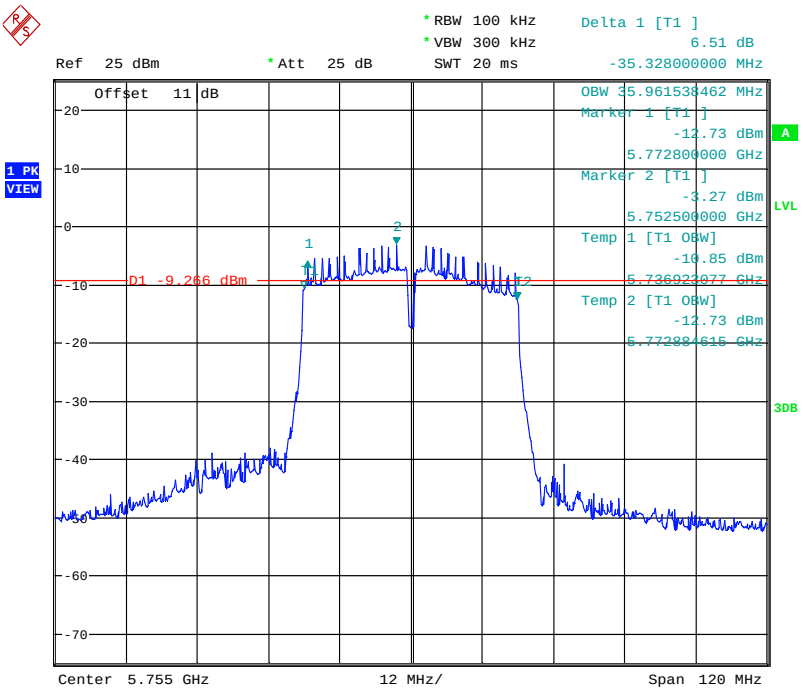
Date: 28.AUG.2017 15:29:29

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



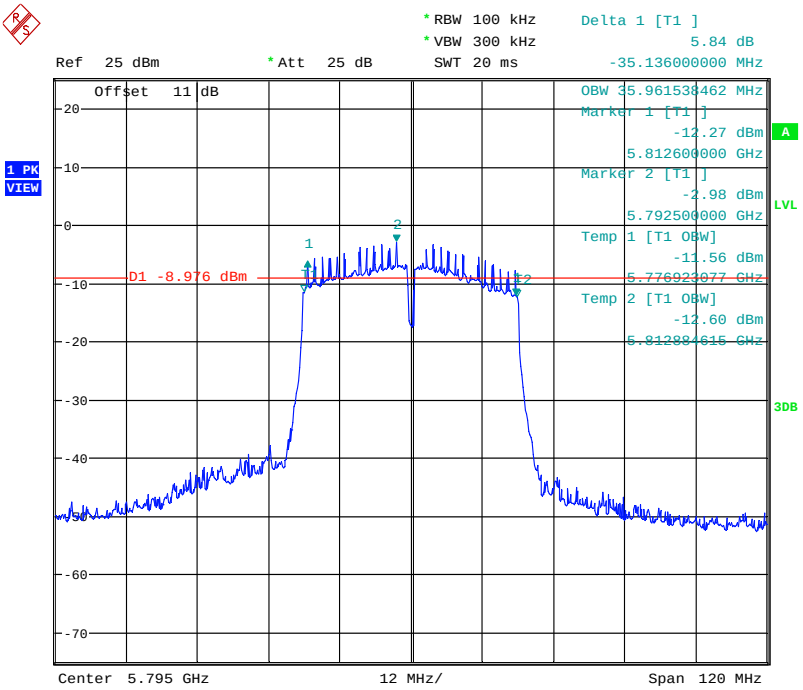
99% OBW & 6DB BANDWIDTH ANT3_11n20_CH165

Date: 28.AUG.2017 15:30:51



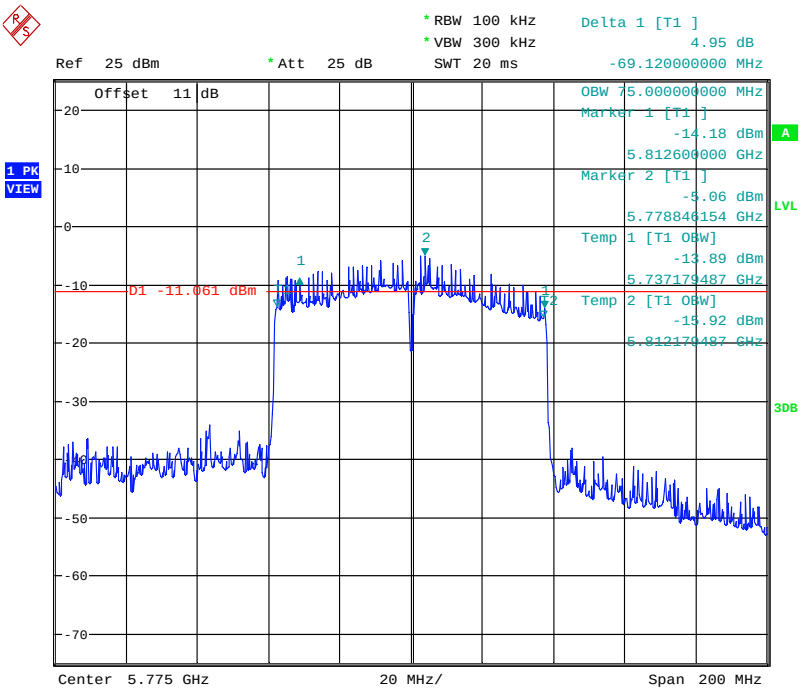
99% OBW & 6DB BANDWIDTH ANT3_11n40_CH151

Date: 28.AUG.2017 15:32:41



99% OBW & 6DB BANDWIDTH ANT3_11n40_CH159

Date: 28.AUG.2017 15:34:37

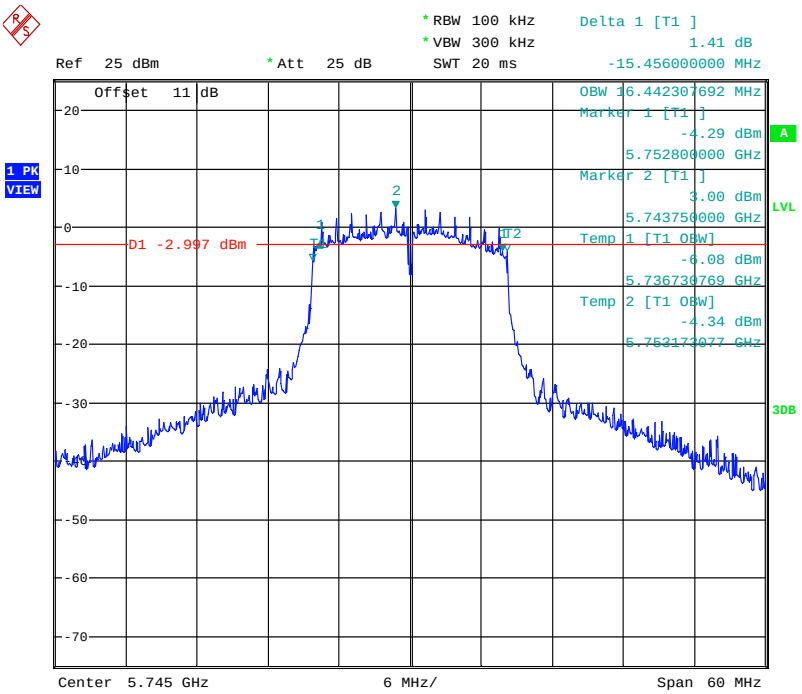


99% OBW & 6DB BANDWIDTH ANT3_11ac80_CH155

Date: 28.AUG.2017 15:36:43

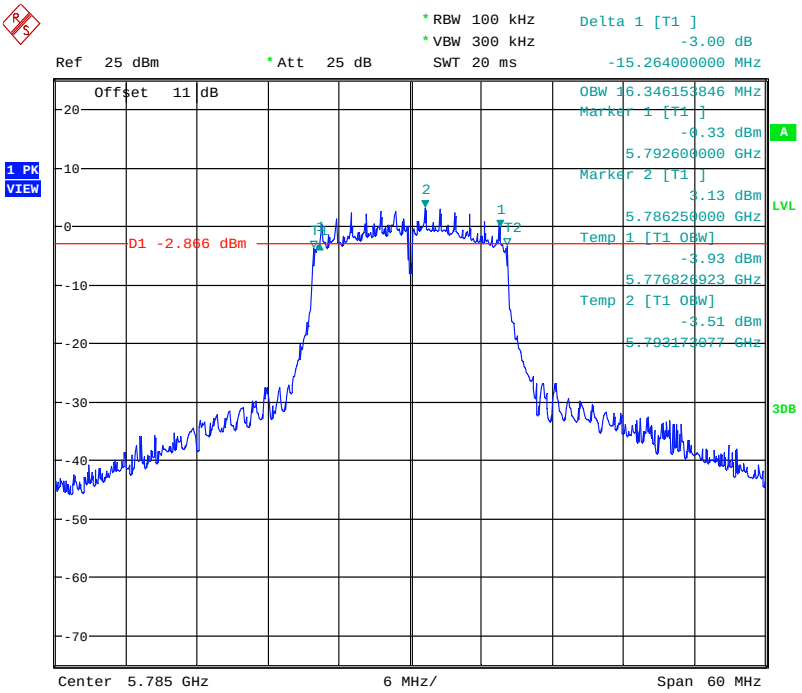
Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013

ANT4



99% OBW & 6DB BANDWIDTH ANT4_11a_CH149

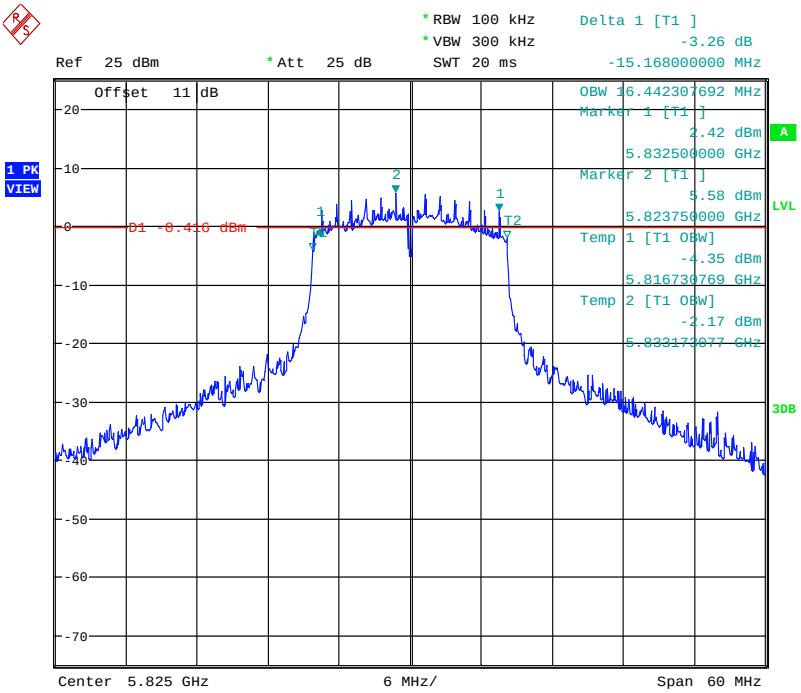
Date: 28.AUG.2017 15:47:49



99% OBW & 6DB BANDWIDTH ANT4_11a_CH157

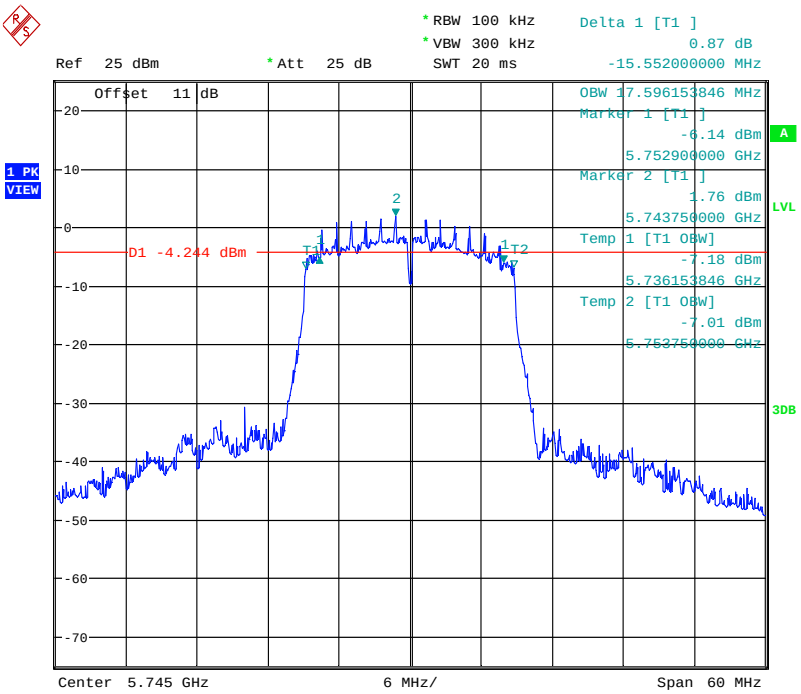
Date: 28.AUG.2017 15:49:33

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



99% OBW & 6DB BANDWIDTH ANT4_11a_CH165

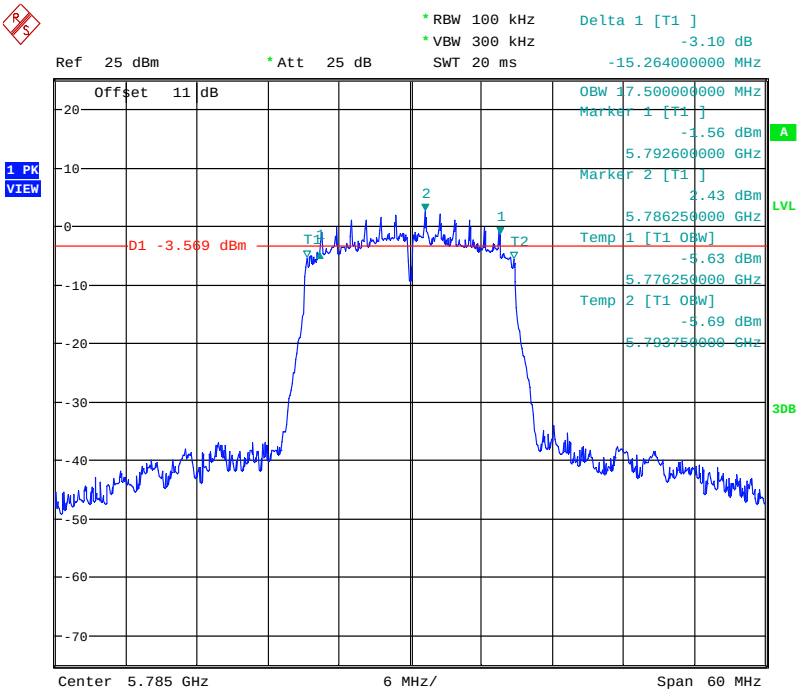
Date: 28.AUG.2017 15:50:56



99% OBW & 6DB BANDWIDTH ANT4_11n20_CH149

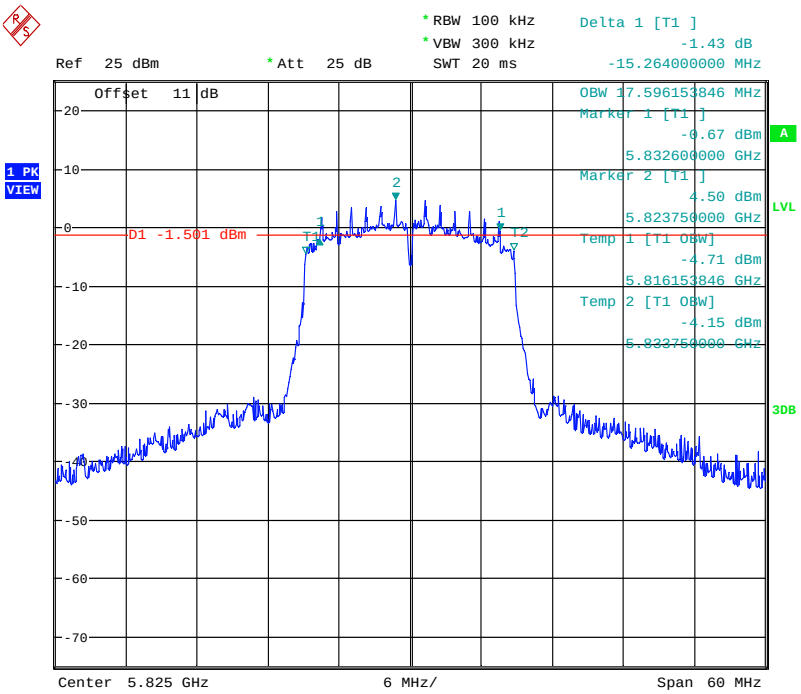
Date: 28.AUG.2017 15:52:40

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



99% OBW & 6DB BANDWIDTH ANT4_11n20_CH157

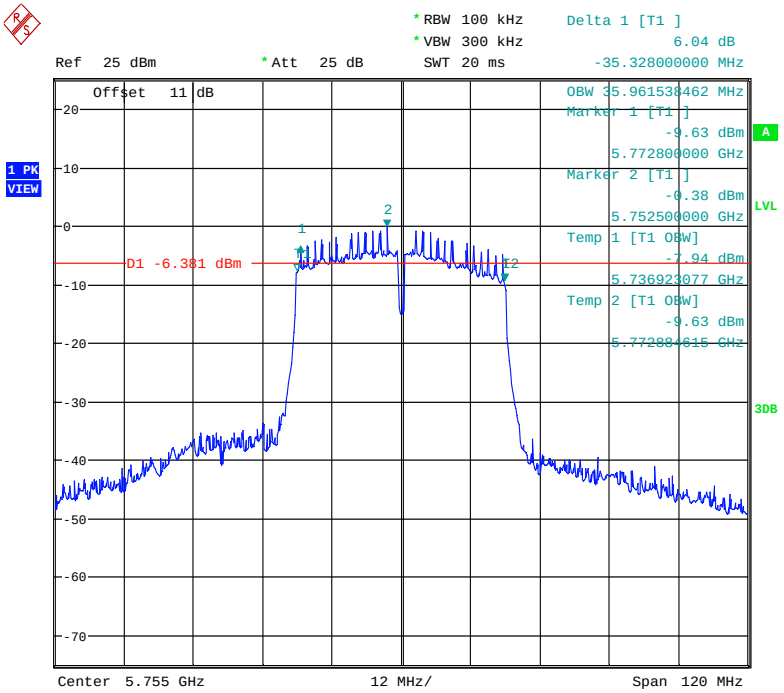
Date: 28.AUG.2017 15:54:14



99% OBW & 6DB BANDWIDTH ANT4_11n20_CH165

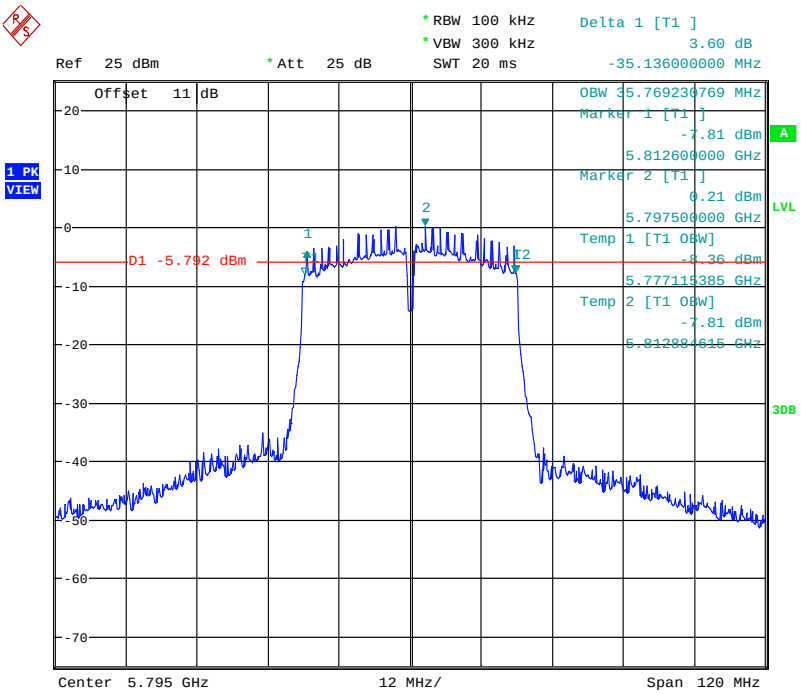
Date: 28.AUG.2017 15:55:47

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



99% OBW & 6DB BANDWIDTH ANT4_11n40_CH151

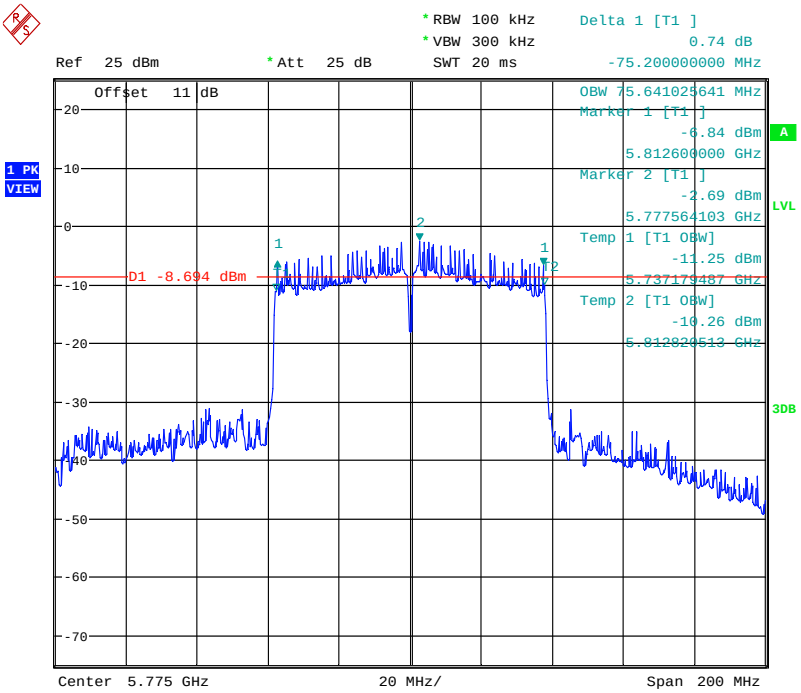
Date: 28.AUG.2017 15:57:43



99% OBW & 6DB BANDWIDTH ANT4_11n40_CH159

Date: 28.AUG.2017 15:59:11

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



99% OBW & 6DB BANDWIDTH ANT4_11ac80_CH155

Date: 28.AUG.2017 16:01:06

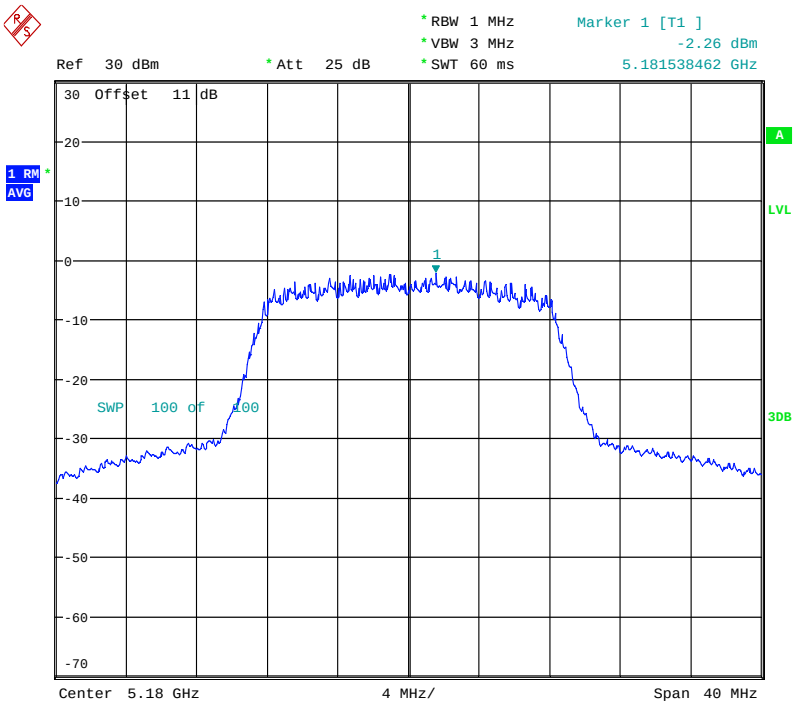
Test equipment used: ETSTW-RE 055, ETSTW-RE 050

3.4 Peak Power Spectral Density, FCC 15.407 (a)

According to §15.407(a)

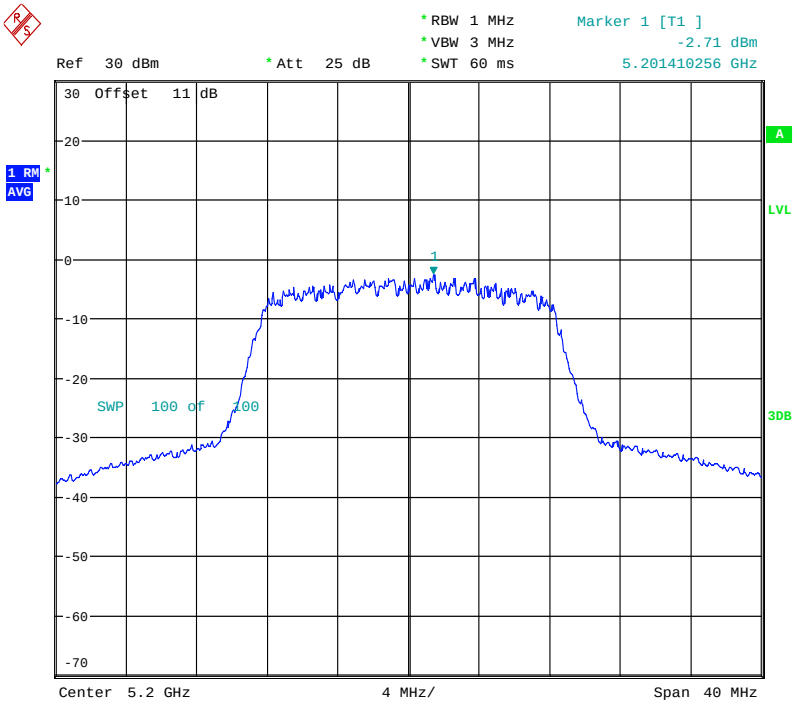
1. For the band 5.15-5.25 GHz, the peak power spectral density shall not exceed 17 dBm/MHz for master device and 11 dBm/MHz for mobile/portable client device.
2. For the band 5.25-5.35 GHz and 5.47-5.725 GHz, the peak power spectral density shall not exceed 11 dBm/MHz.
3. For the band 5.725-5.850 GHz, the peak power spectral density shall not exceed 30 dBm/500kHz.

Band 1(5.15GHz~5.25GHz)
ANT1



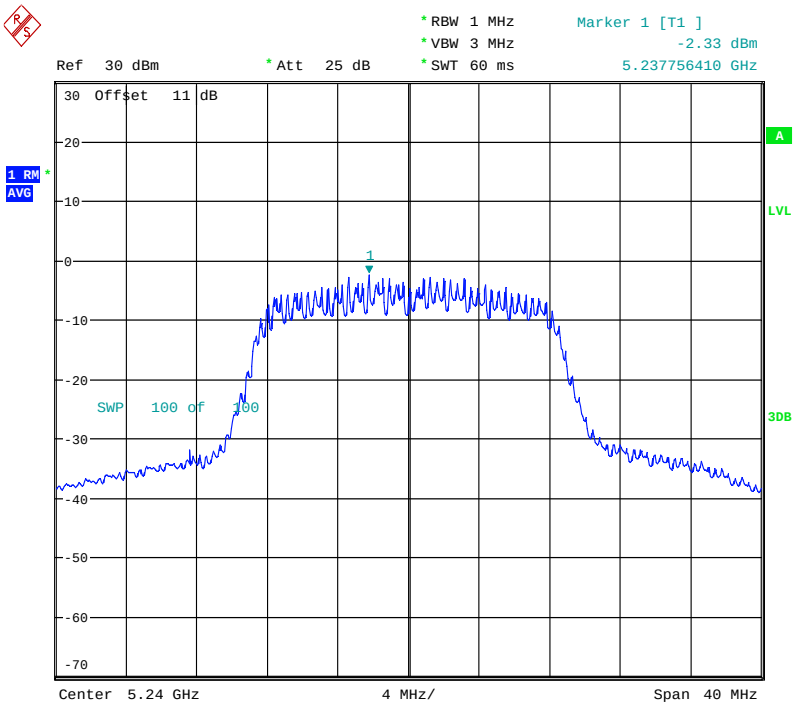
POWER DENSITY AV ANT111aCH36
Date: 28.AUG.2017 11:34:02

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



POWER DENSITY AV ANT111aCH40

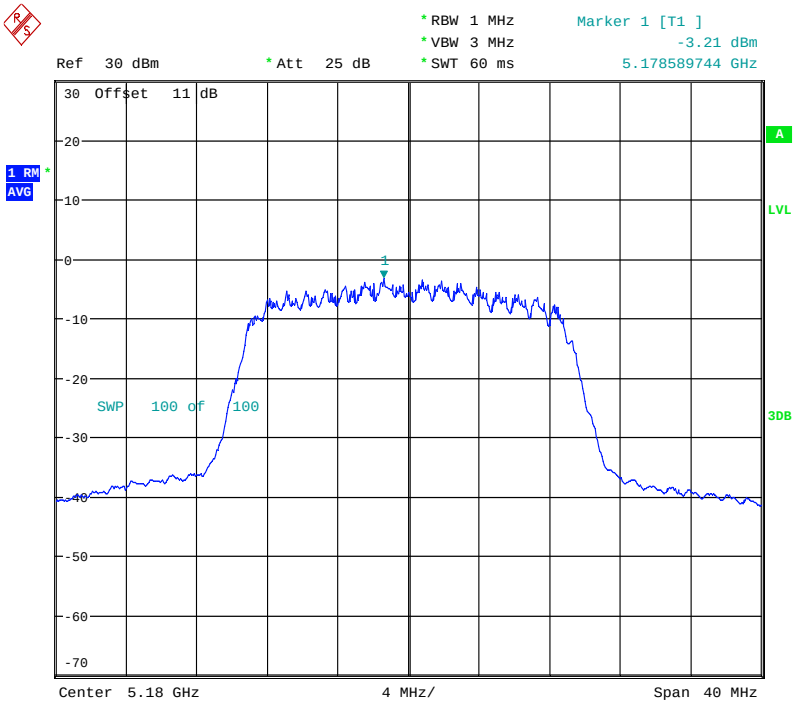
Date: 28.AUG.2017 11:35:40



POWER DENSITY AV ANT111aCH48

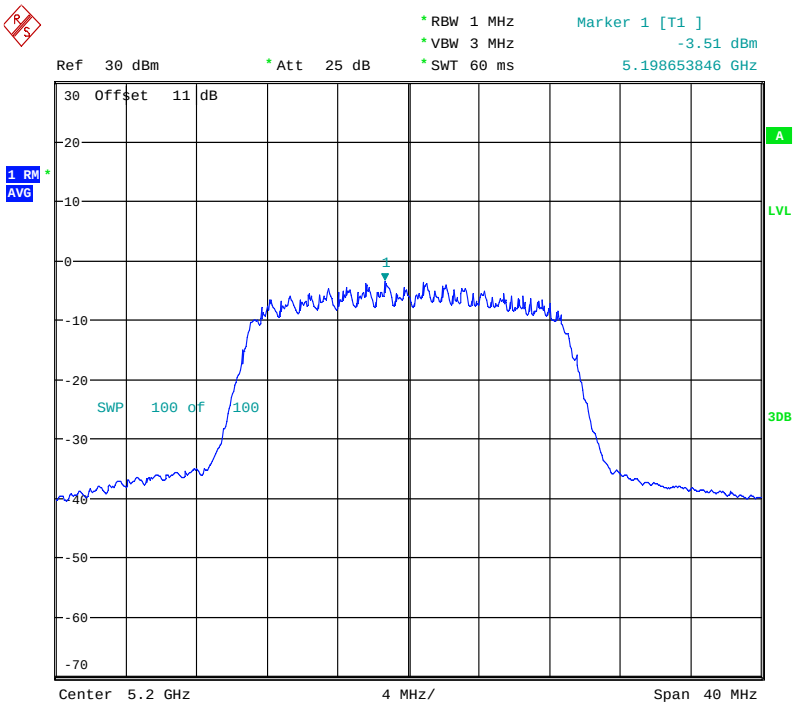
Date: 28.AUG.2017 11:37:56

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



POWER DENSITY AV ANT111n20CH36

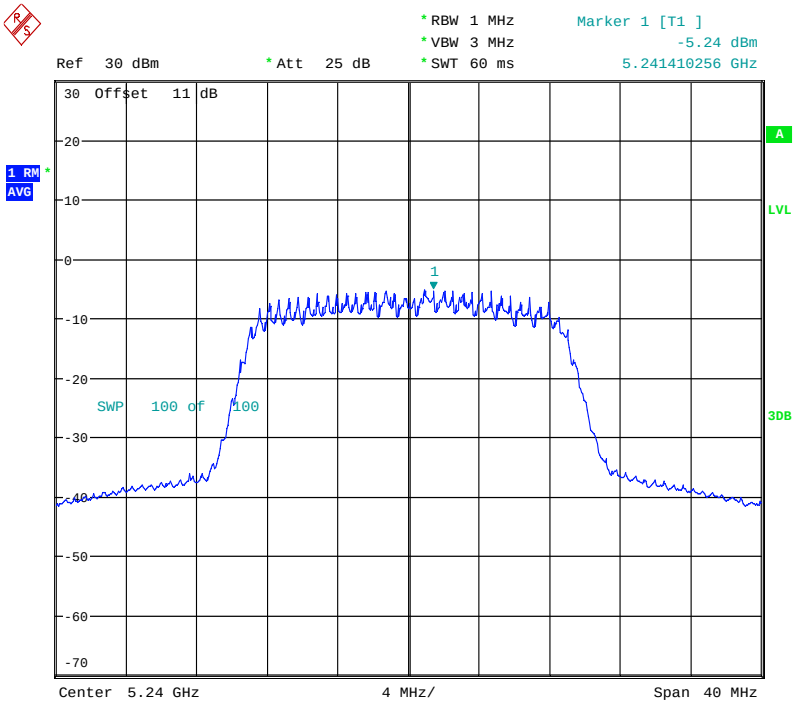
Date: 28.AUG.2017 11:39:53



POWER DENSITY AV ANT111n20CH40

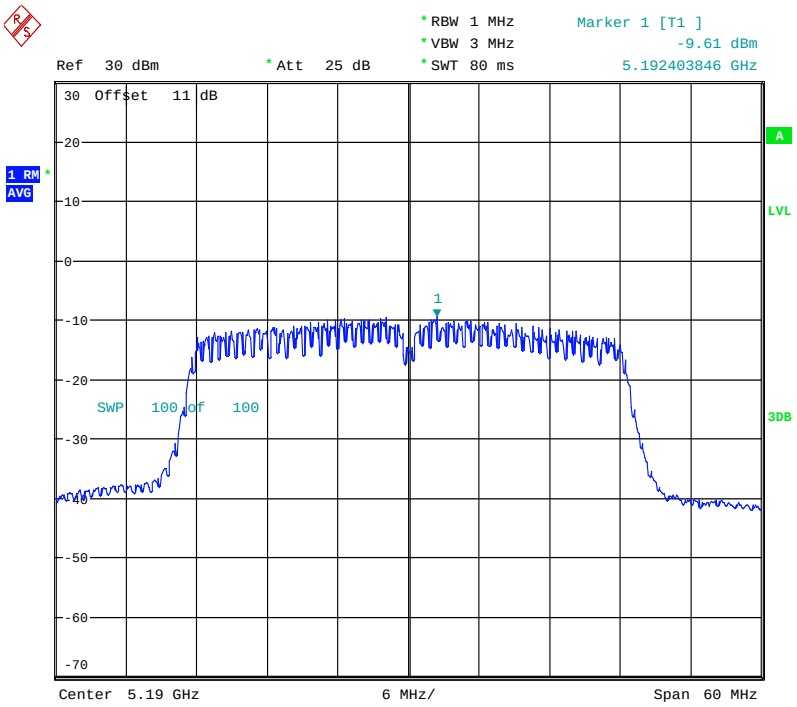
Date: 28.AUG.2017 11:41:11

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



POWER DENSITY AV ANT111n20CH48

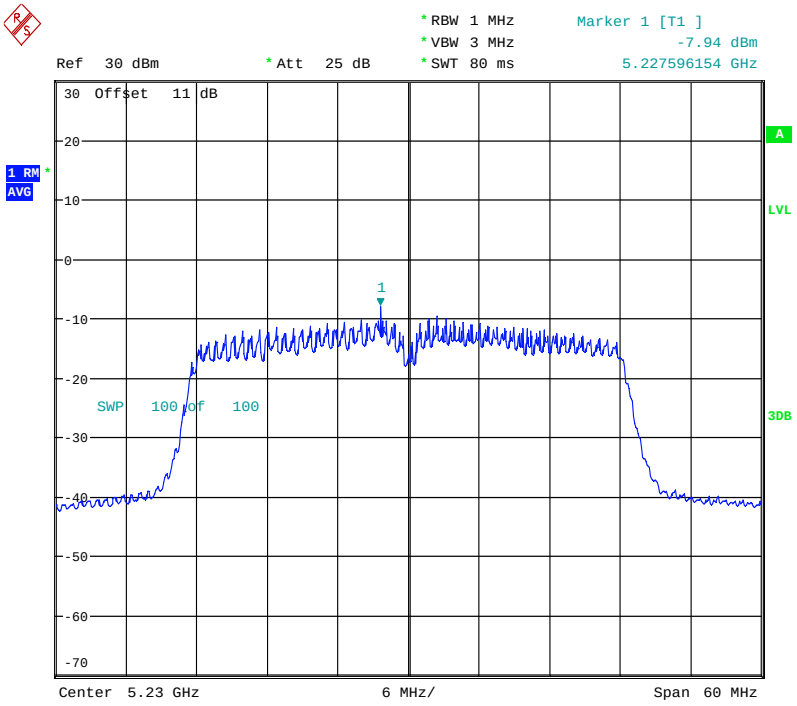
Date: 28.AUG.2017 11:42:23



POWER DENSITY AV ANT111n40CH38

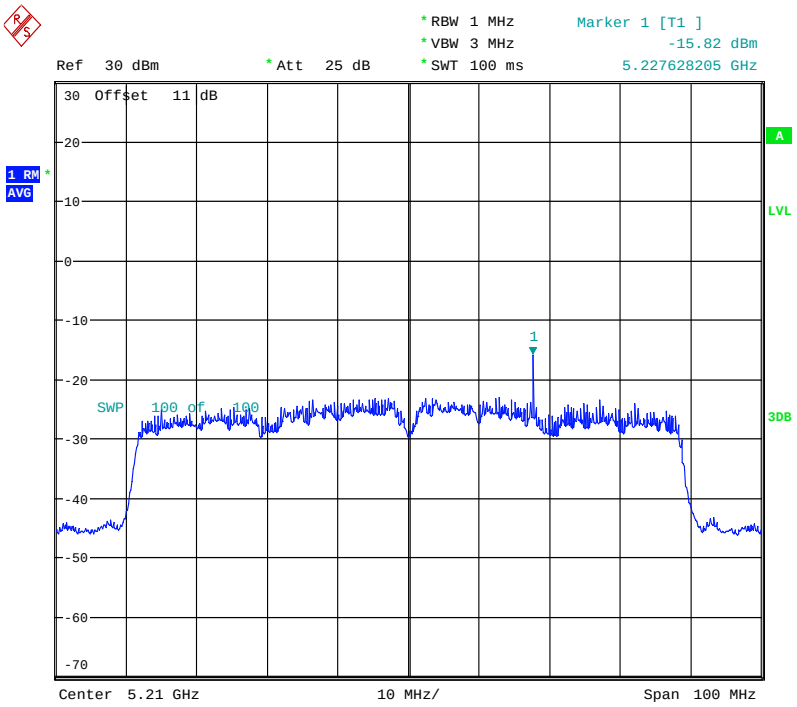
Date: 28.AUG.2017 11:43:56

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



POWER DENSITY AV ANT111n40CH46

Date: 28.AUG.2017 11:45:34

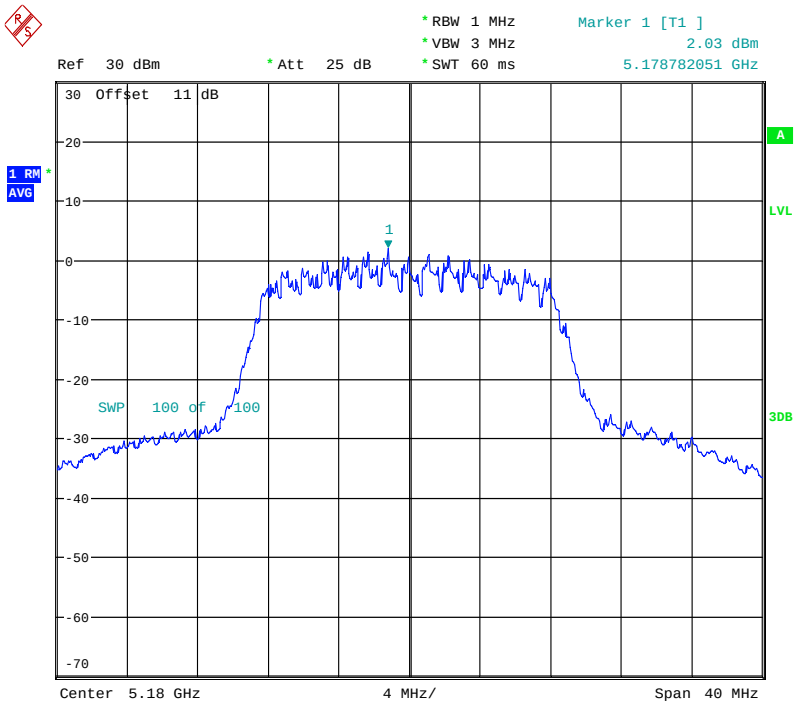


POWER DENSITY AV ANT111ac80CH42

Date: 28.AUG.2017 11:47:13

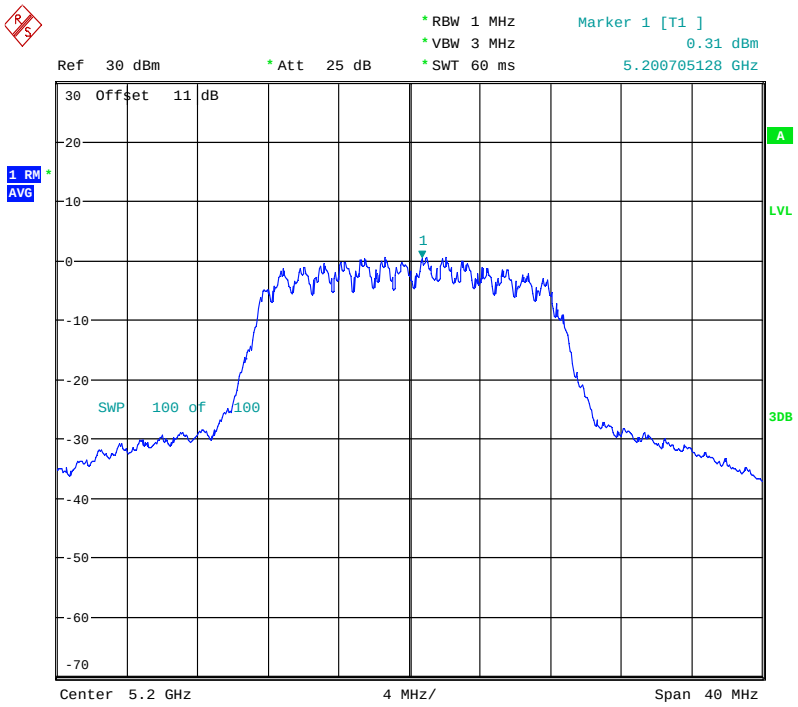
Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013

ANT2



POWER DENSITY AV ANT211aCH36

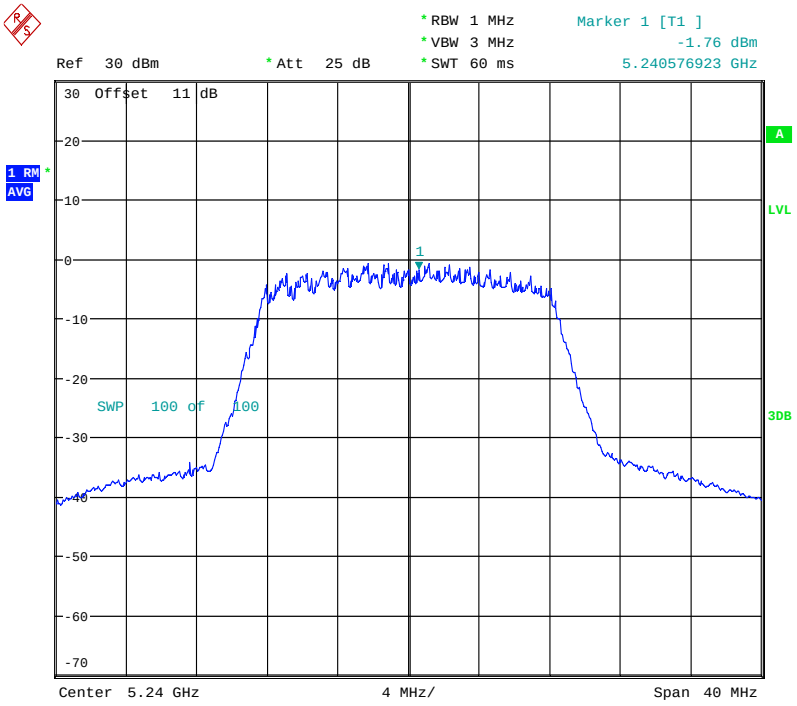
Date: 28.AUG.2017 13:29:12



POWER DENSITY AV ANT211aCH40

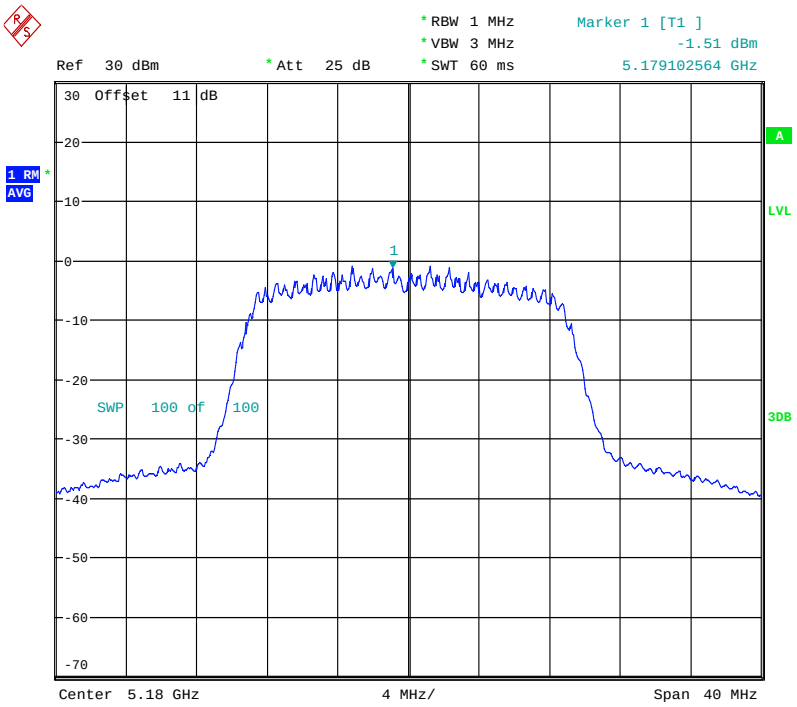
Date: 28.AUG.2017 13:30:17

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



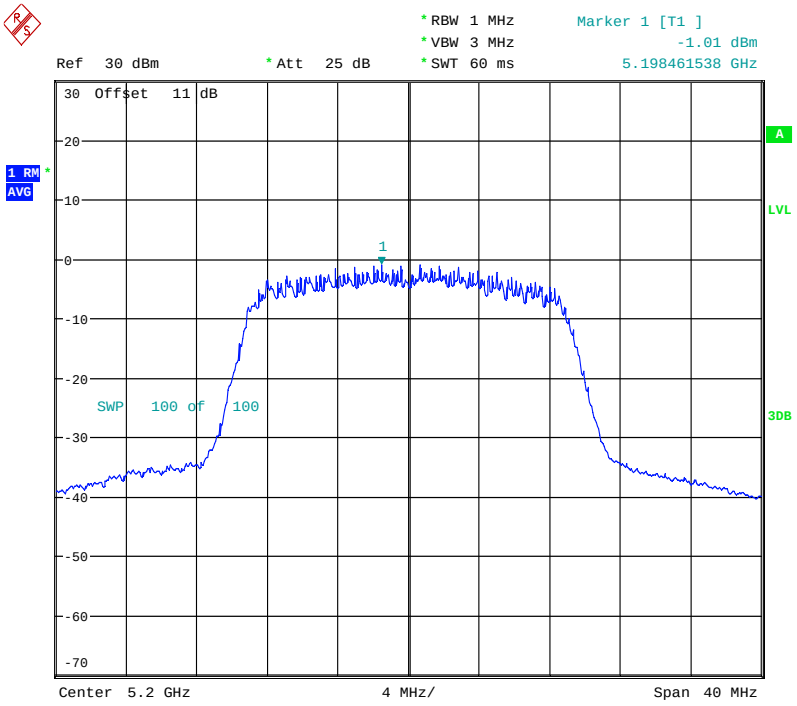
POWER DENSITY AV ANT211aCH48

Date: 28.AUG.2017 13:31:22



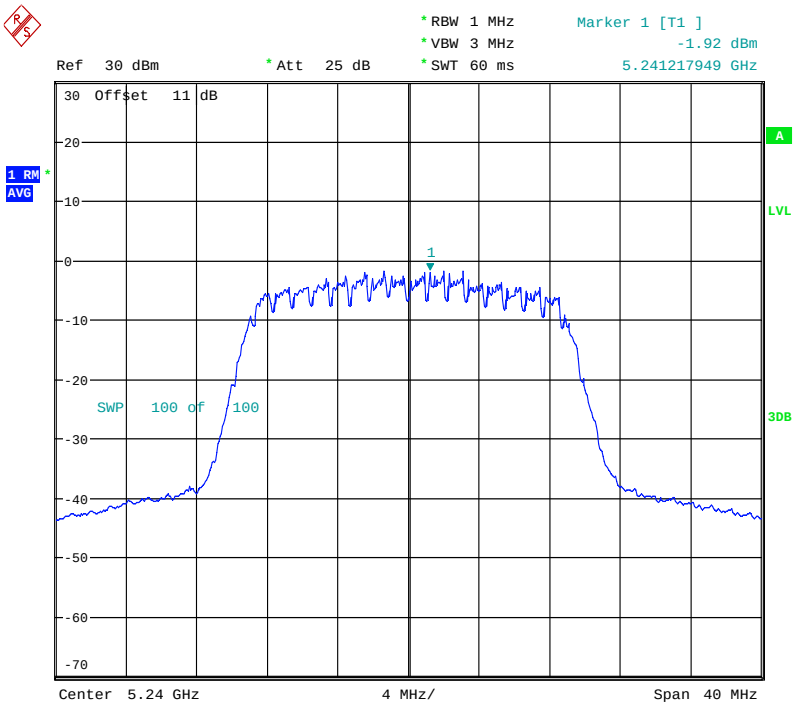
POWER DENSITY AV ANT211n20CH36

Date: 28.AUG.2017 13:32:53



POWER DENSITY AV ANT211n20CH40

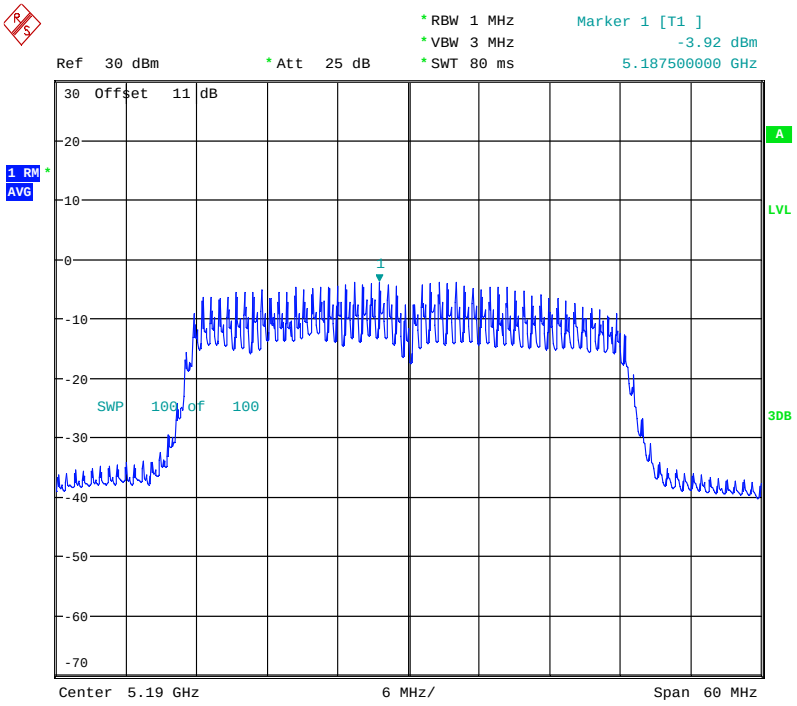
Date: 28.AUG.2017 13:34:05



POWER DENSITY AV ANT211n20CH48

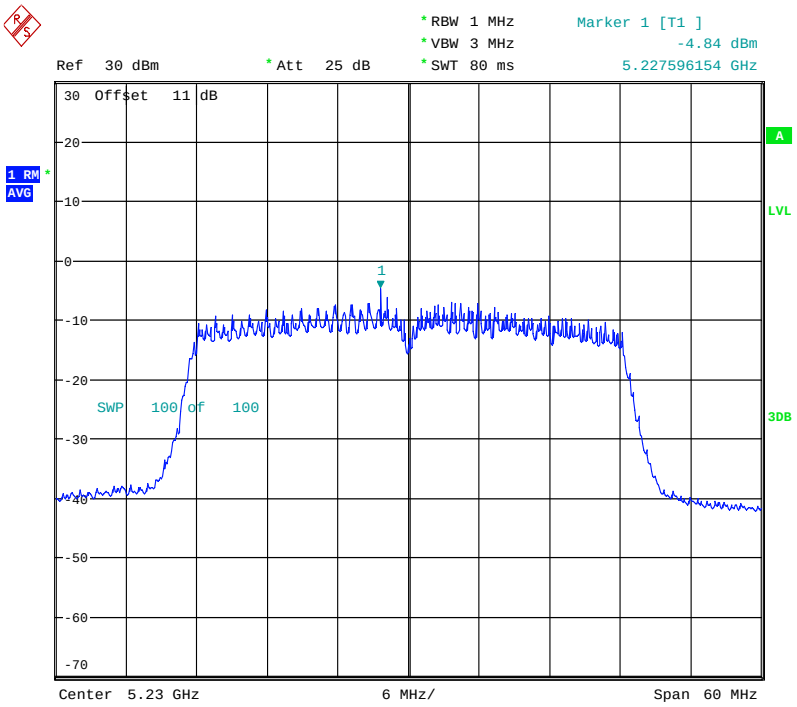
Date: 28.AUG.2017 13:35:10

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



POWER DENSITY AV ANT211n40CH38

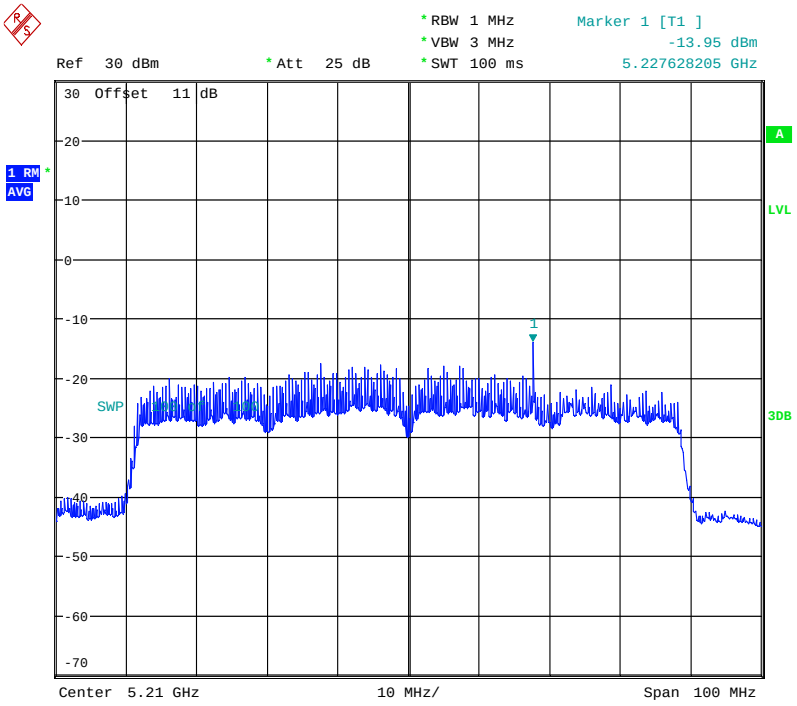
Date: 28.AUG.2017 13:36:34



POWER DENSITY AV ANT211n40CH46

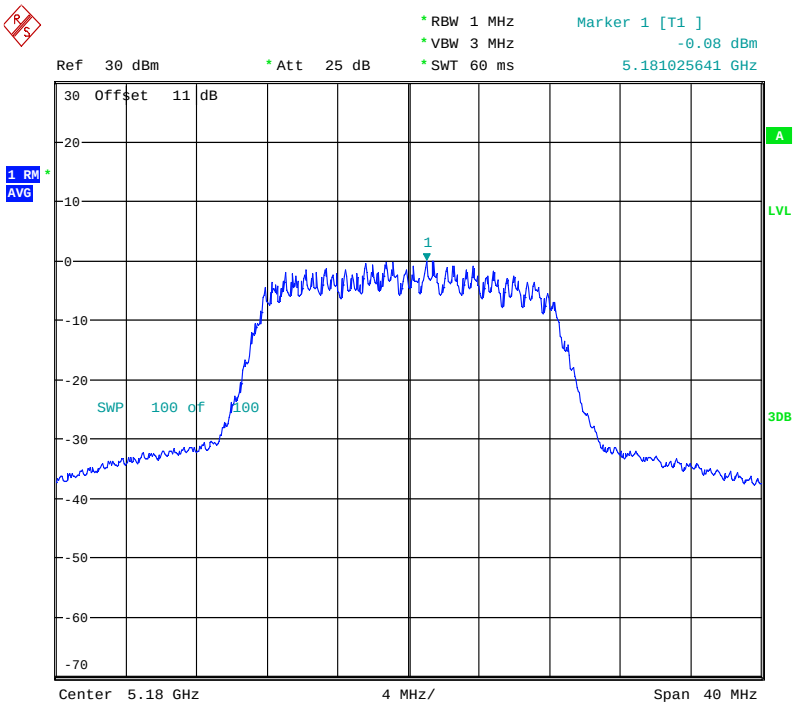
Date: 28.AUG.2017 13:37:49

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013

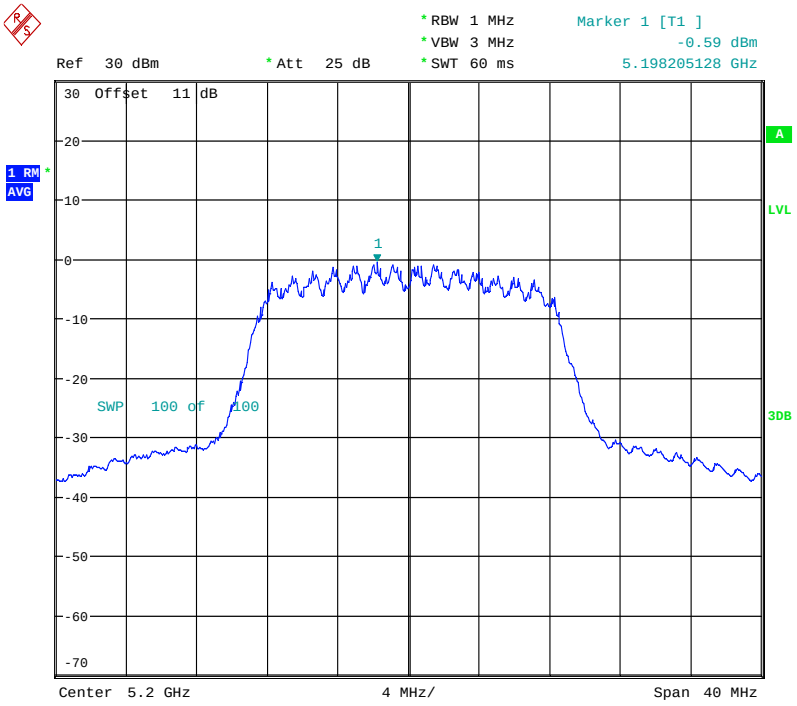


POWER DENSITY AV ANT211ac80CH42
Date: 28.AUG.2017 13:39:17

ANT3

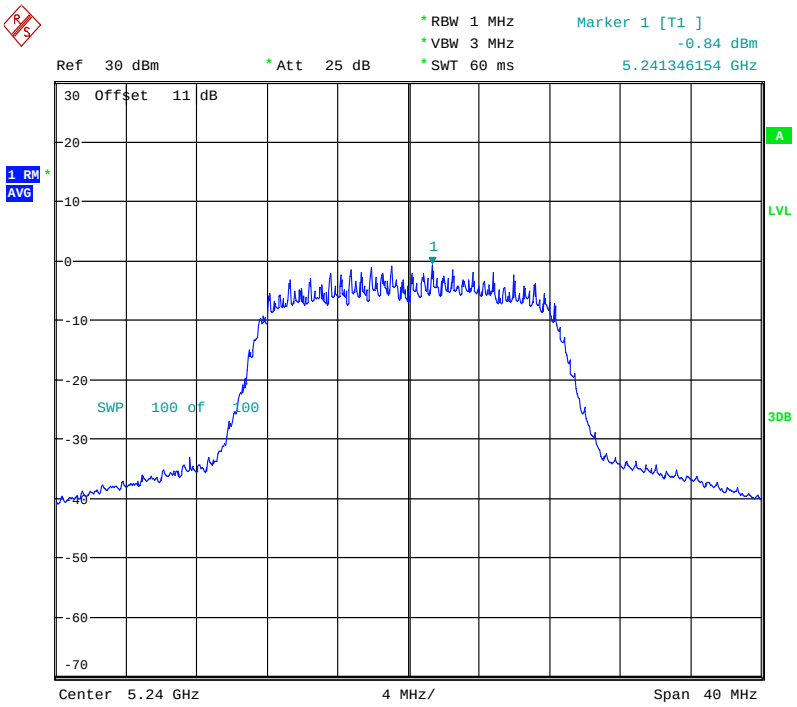


POWER DENSITY AV ANT311aCH36
Date: 28.AUG.2017 13:46:13



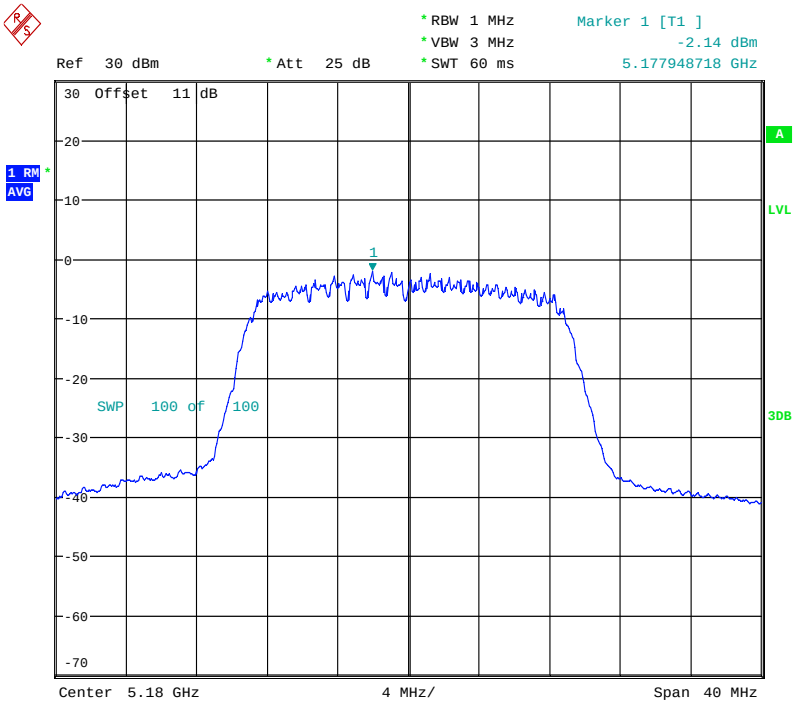
POWER DENSITY AV ANT311aCH40

Date: 28.AUG.2017 13:47:18



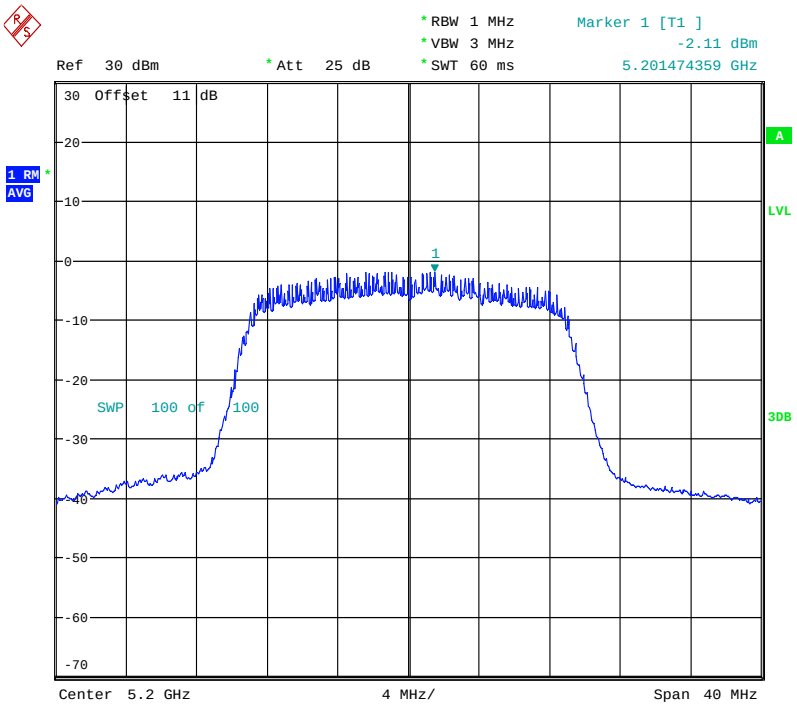
POWER DENSITY AV ANT311aCH48

Date: 28.AUG.2017 13:48:23



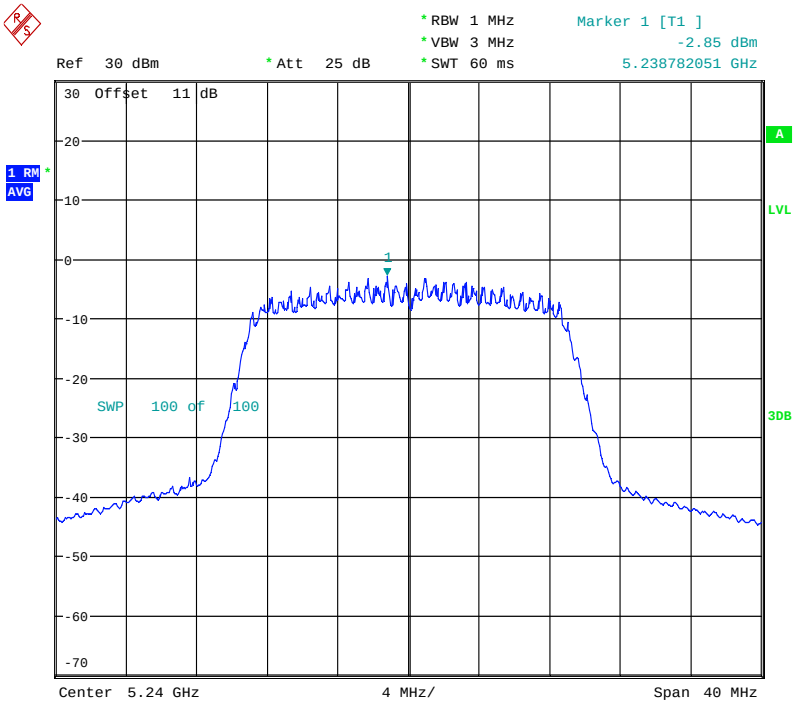
POWER DENSITY AV ANT311n20CH36

Date: 28.AUG.2017 13:49:34



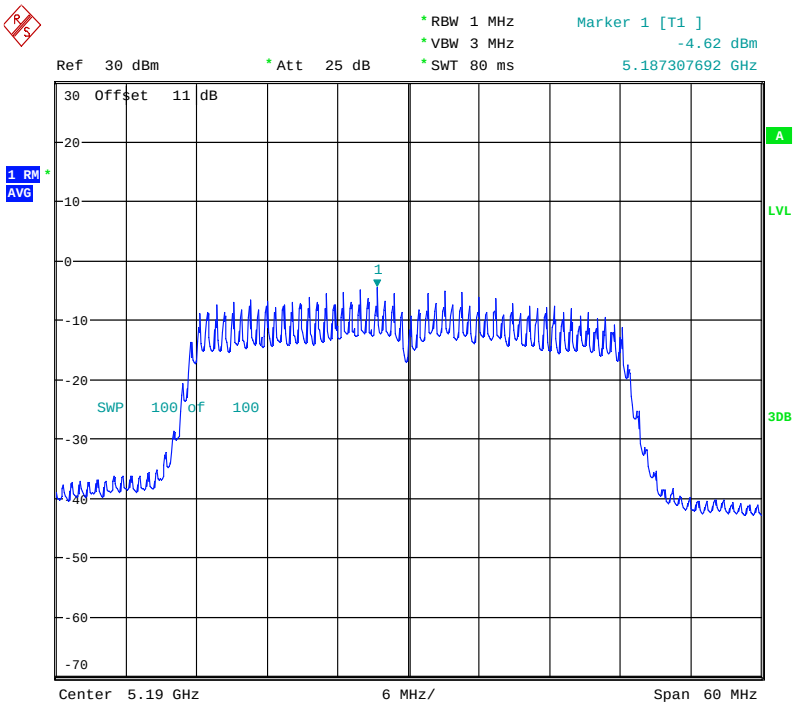
POWER DENSITY AV ANT311n20CH40

Date: 28.AUG.2017 13:51:18



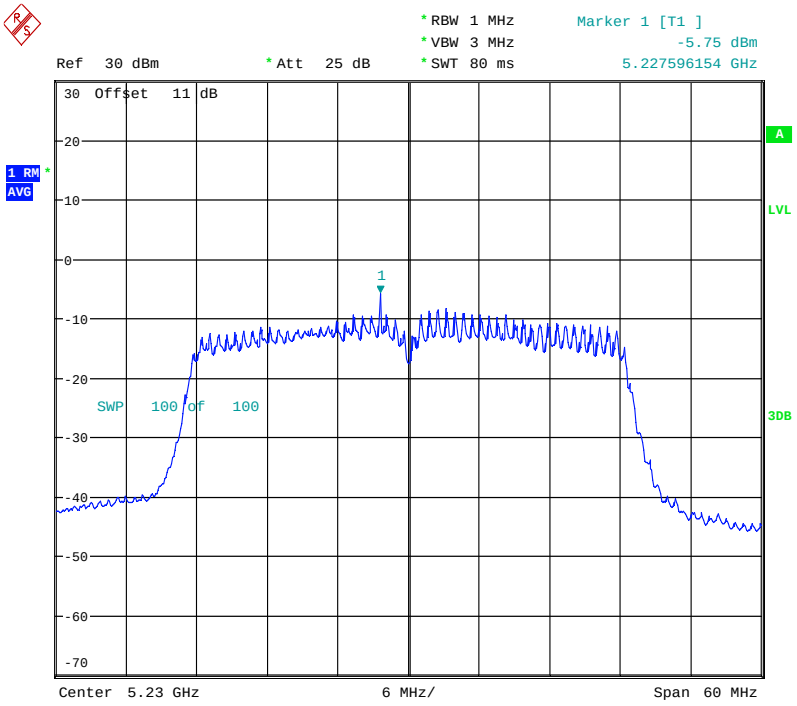
POWER DENSITY AV ANT311n20CH48

Date: 28.AUG.2017 13:52:23



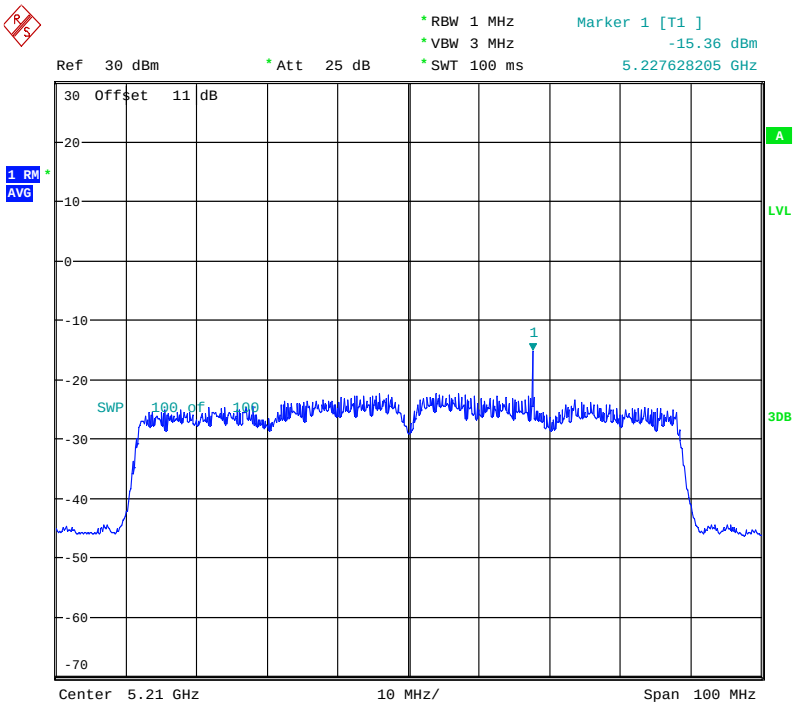
POWER DENSITY AV ANT311n40CH38

Date: 28.AUG.2017 13:53:57



POWER DENSITY AV ANT311n40CH46

Date: 28.AUG.2017 13:55:12

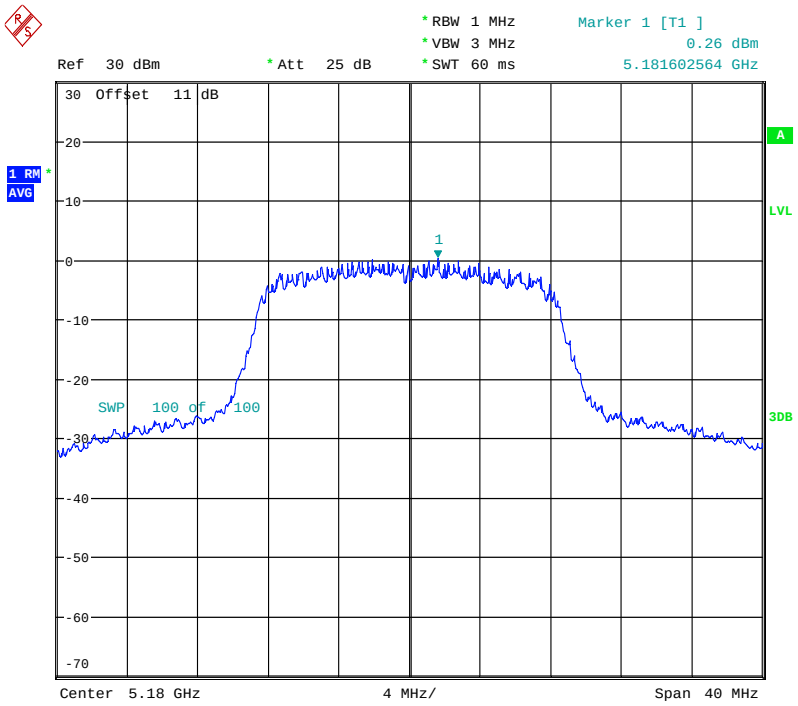


POWER DENSITY AV ANT311ac80CH42

Date: 28.AUG.2017 13:56:51

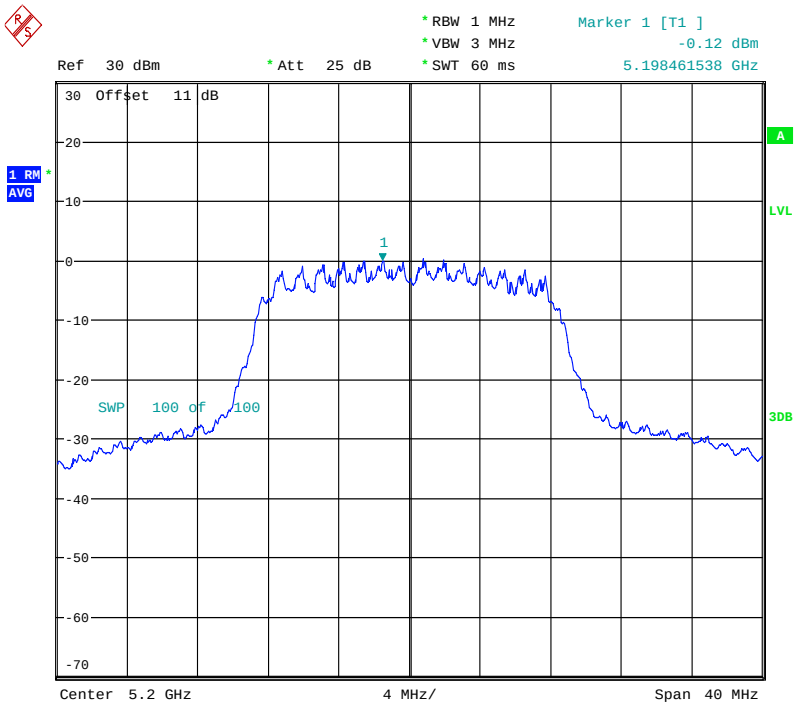
Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013

ANT4



POWER DENSITY AV ANT411aCH36

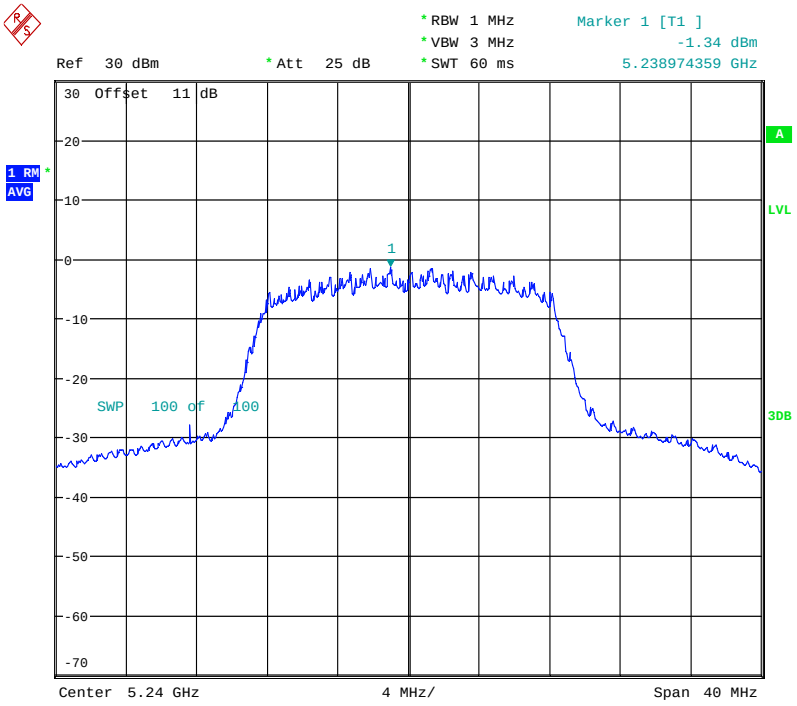
Date: 28.AUG.2017 14:02:54



POWER DENSITY AV ANT411aCH40

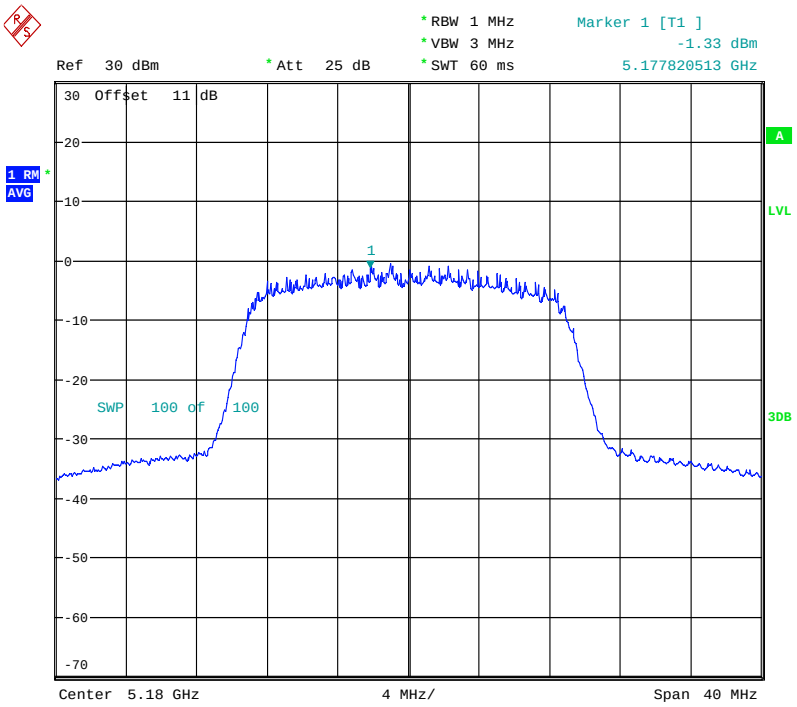
Date: 28.AUG.2017 14:04:31

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



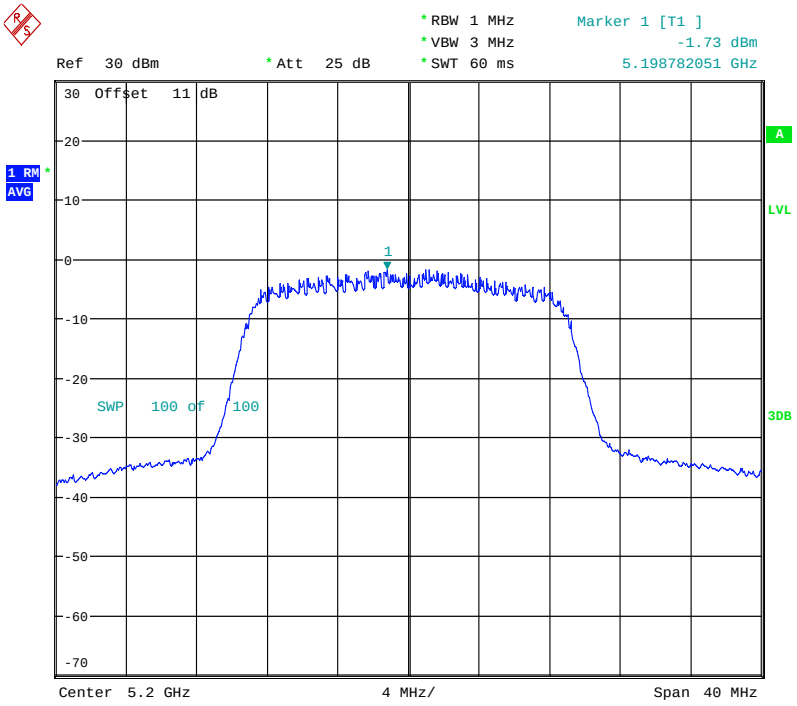
POWER DENSITY AV ANT411aCH48

Date: 28.AUG.2017 14:05:56



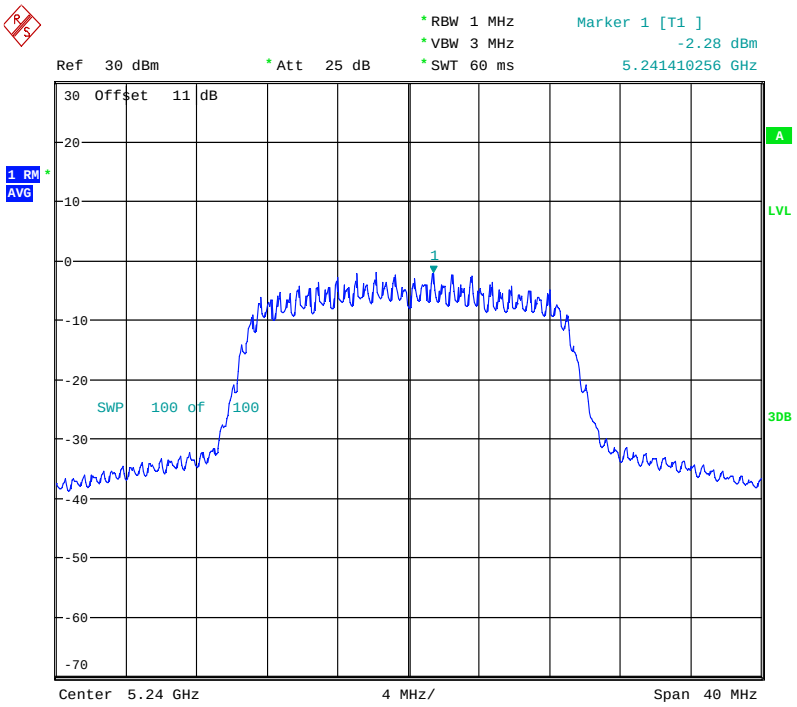
POWER DENSITY AV ANT411n20CH36

Date: 28.AUG.2017 14:07:46



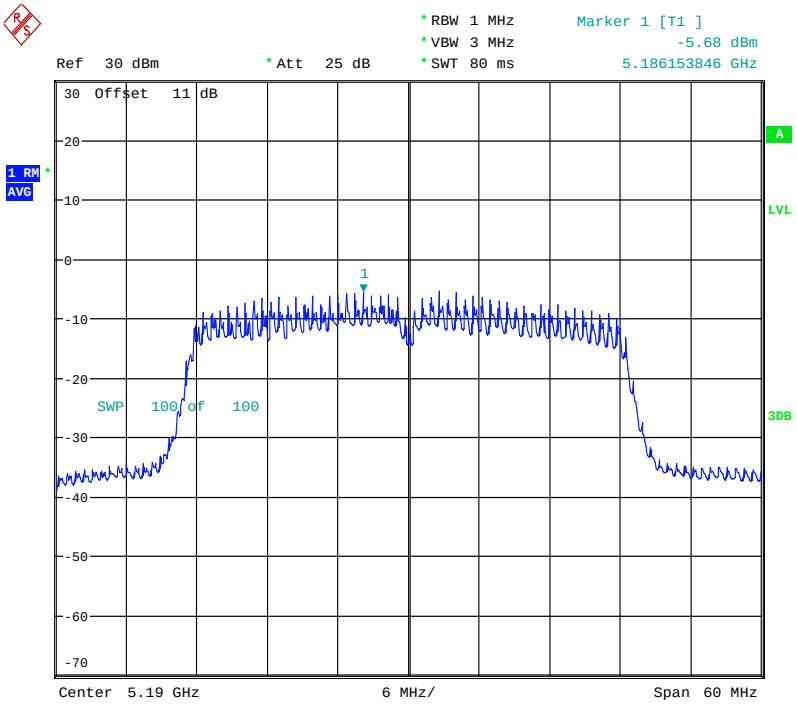
POWER DENSITY AV ANT411n20CH40

Date: 28.AUG.2017 14:09:17



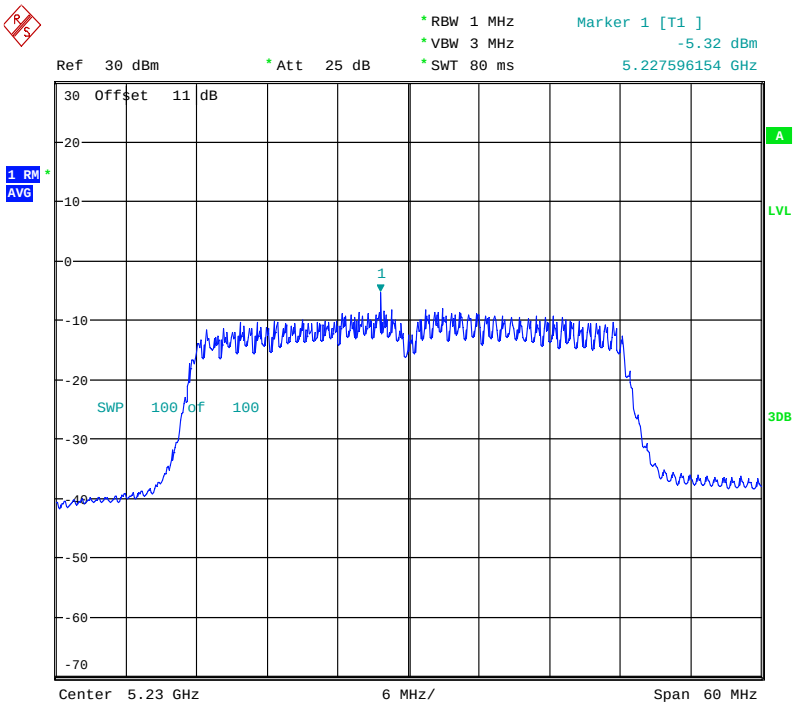
POWER DENSITY AV ANT411n20CH48

Date: 28.AUG.2017 14:10:42



POWER DENSITY AV ANT411n40CH38

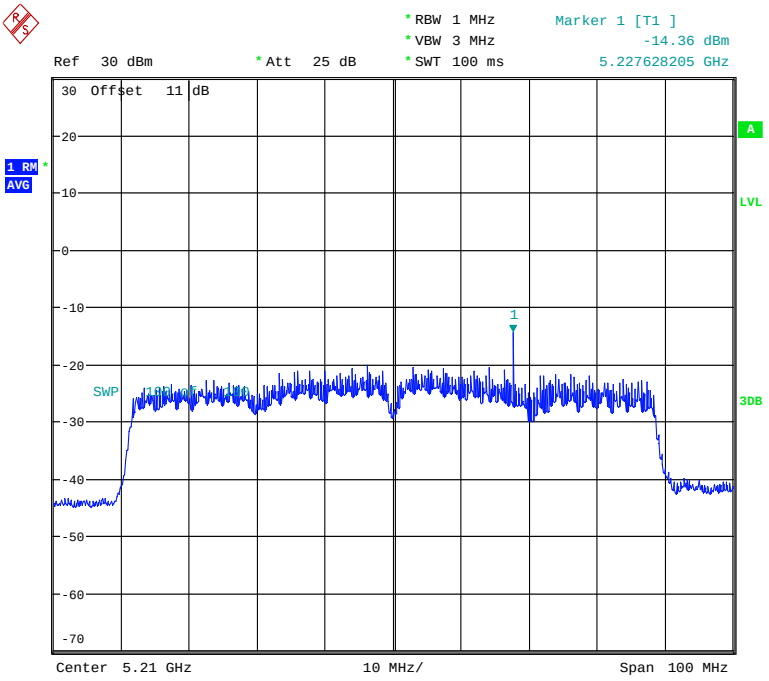
Date: 28.AUG.2017 14:12:57



POWER DENSITY AV ANT411n40CH46

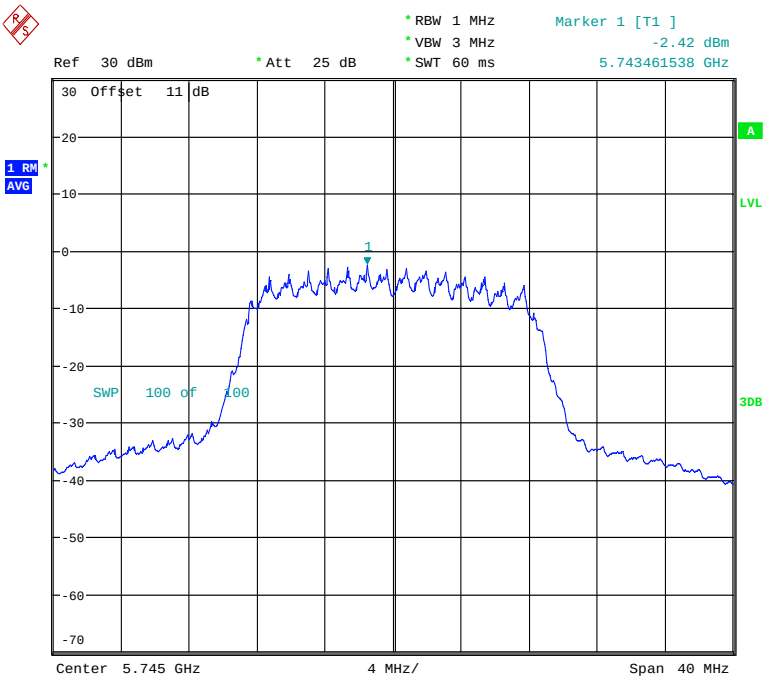
Date: 28.AUG.2017 14:14:27

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



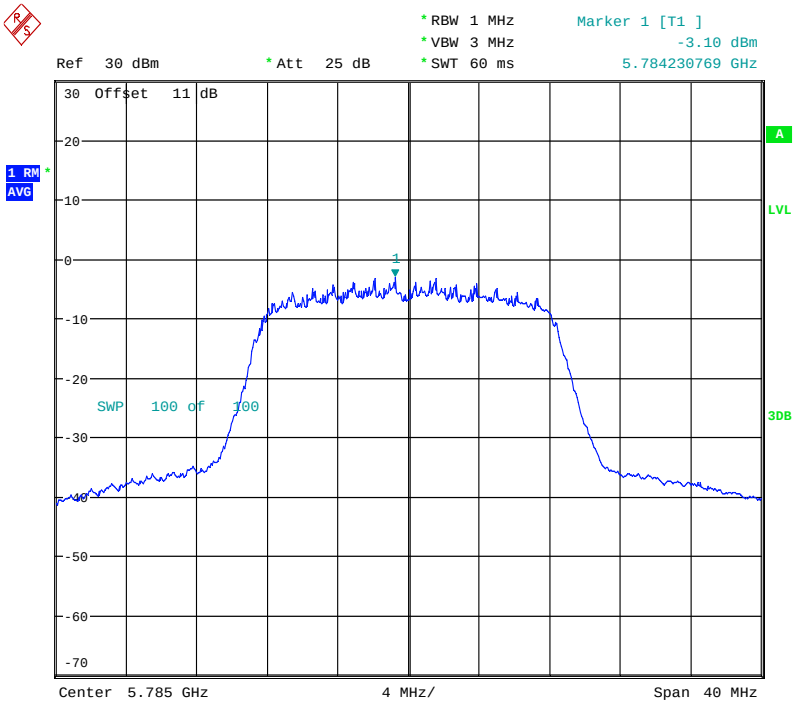
POWER DENSITY AV ANT411ac80CH42
Date: 28.AUG.2017 14:16:24

Band 4(5.725GHz~5.85GHz)
ANT1



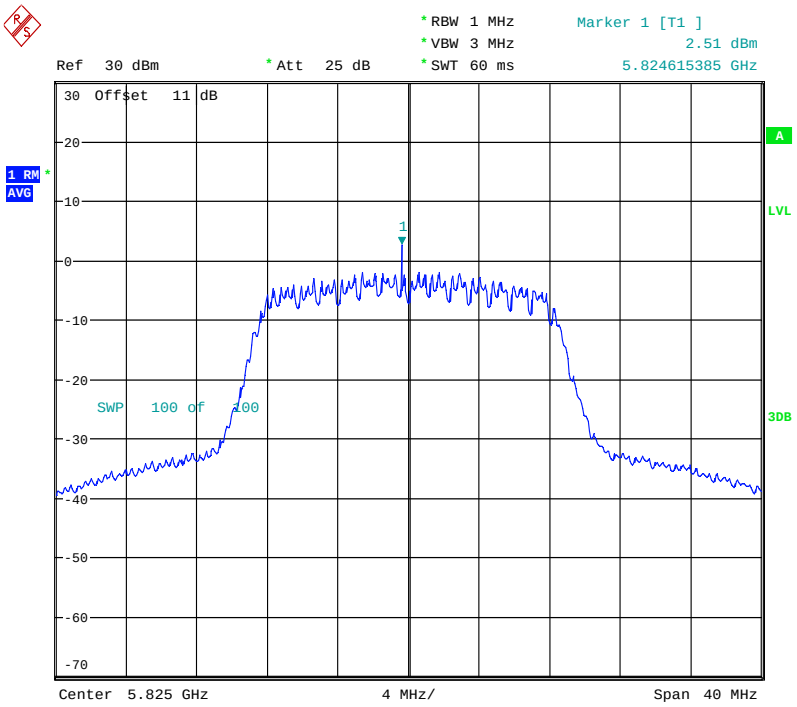
POWER DENSITY AV ANT111aCH149
Date: 28.AUG.2017 14:42:13

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



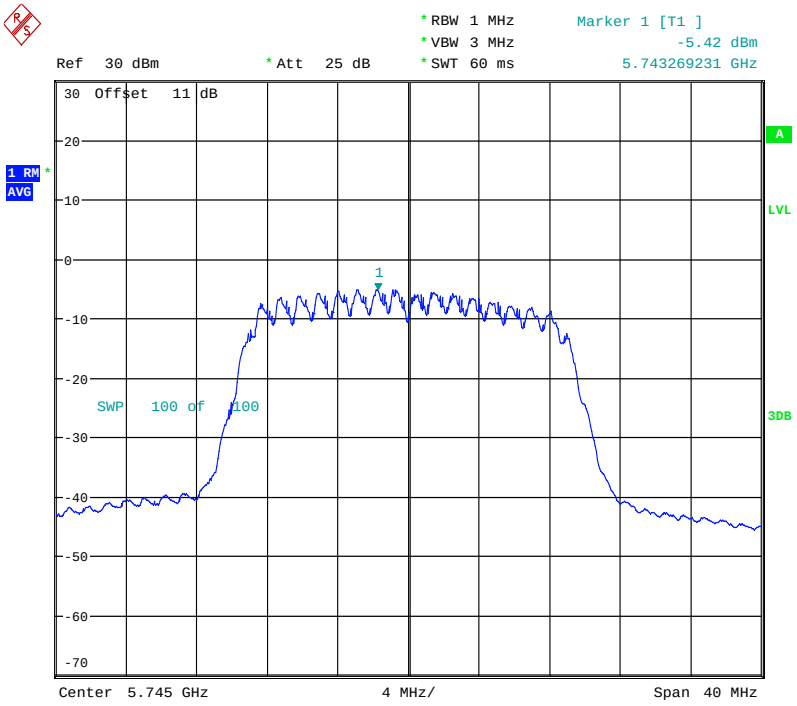
POWER DENSITY AV ANT111aCH157

Date: 28.AUG.2017 14:44:30



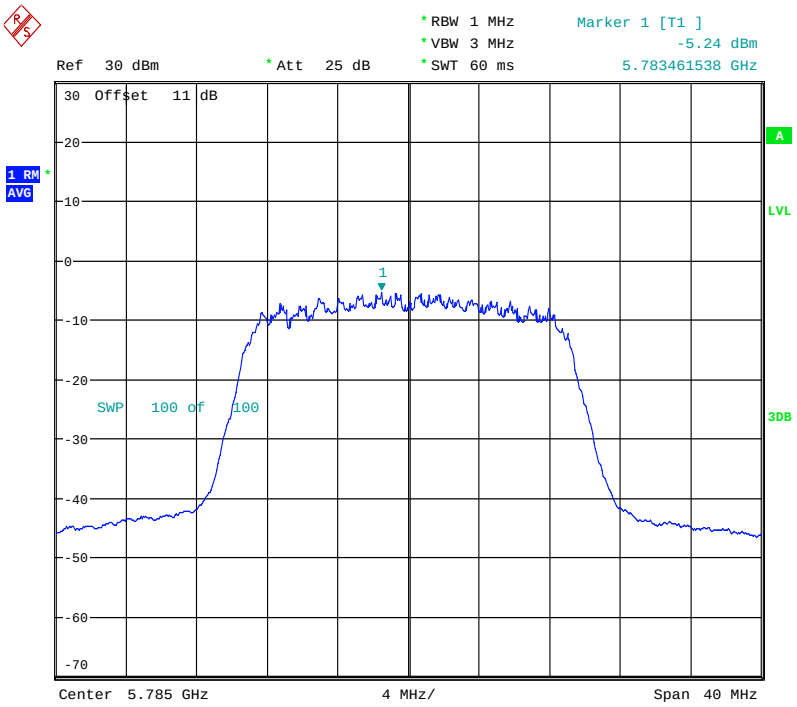
POWER DENSITY AV ANT111aCH165

Date: 28.AUG.2017 14:45:41



POWER DENSITY AV ANT111n20CH149

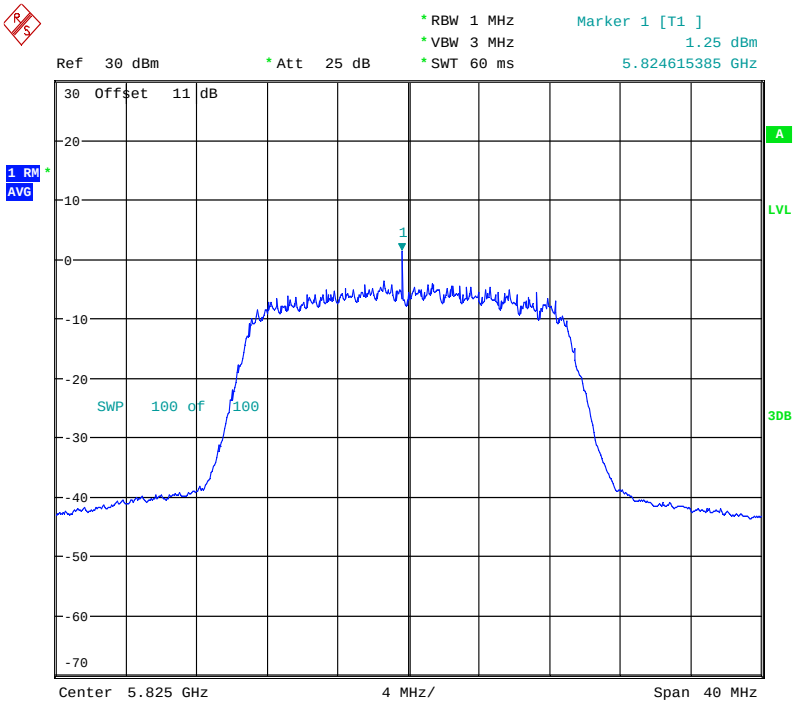
Date: 28.AUG.2017 14:46:59



POWER DENSITY AV ANT111n20CH157

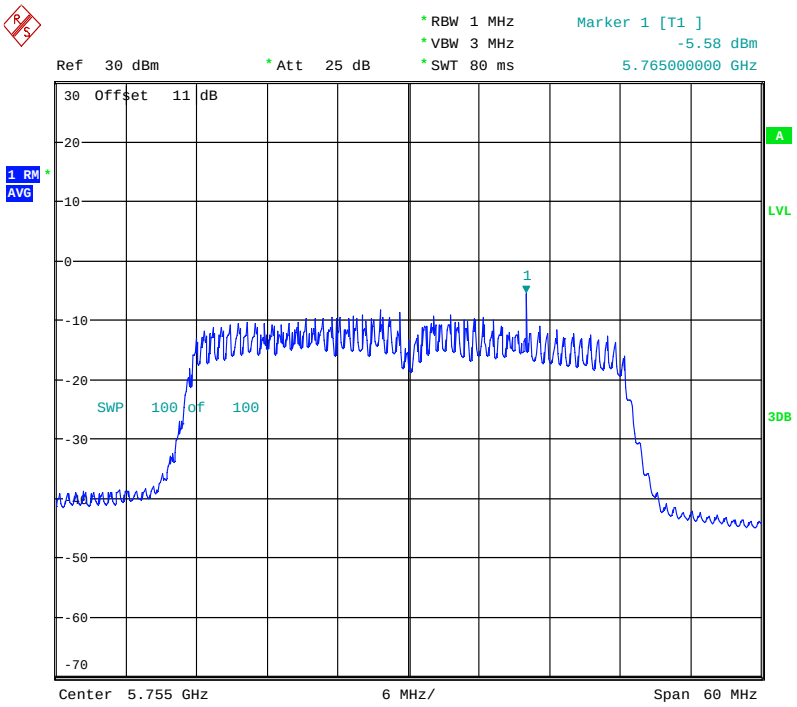
Date: 28.AUG.2017 14:48:11

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



POWER DENSITY AV ANT111n20CH165

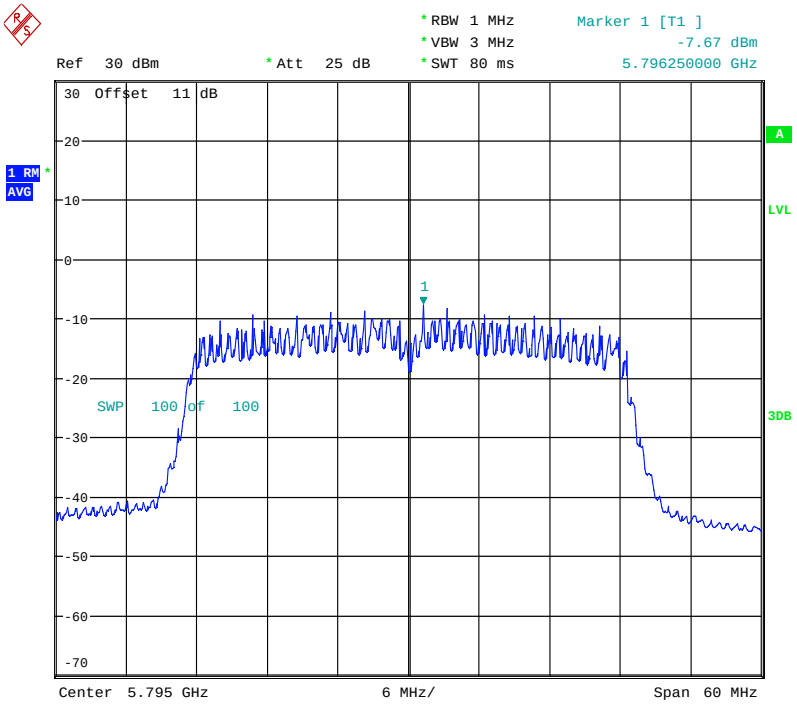
Date: 28.AUG.2017 14:49:35



POWER DENSITY AV ANT111n40CH151

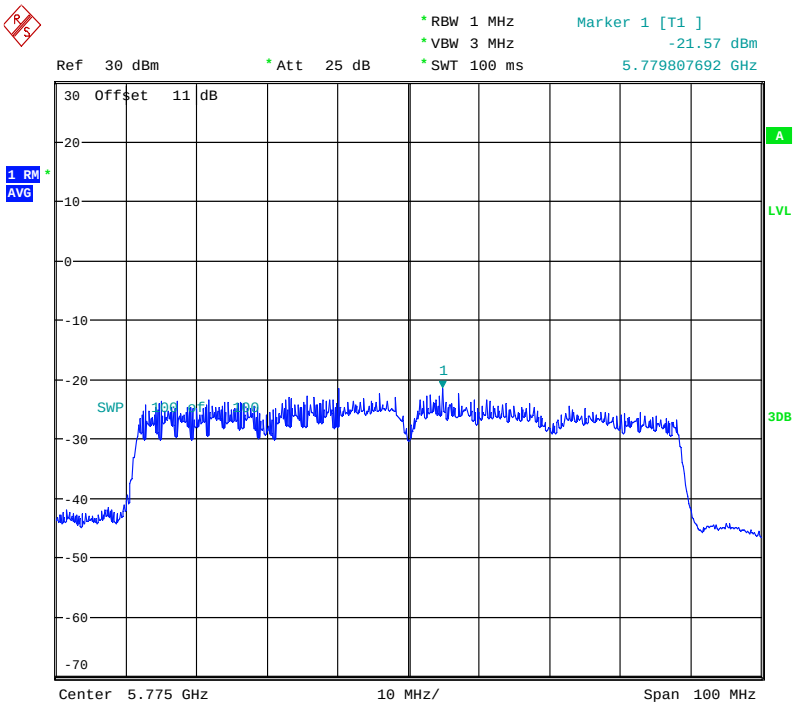
Date: 28.AUG.2017 14:51:49

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



POWER DENSITY AV ANT111n40CH159

Date: 28.AUG.2017 14:53:12

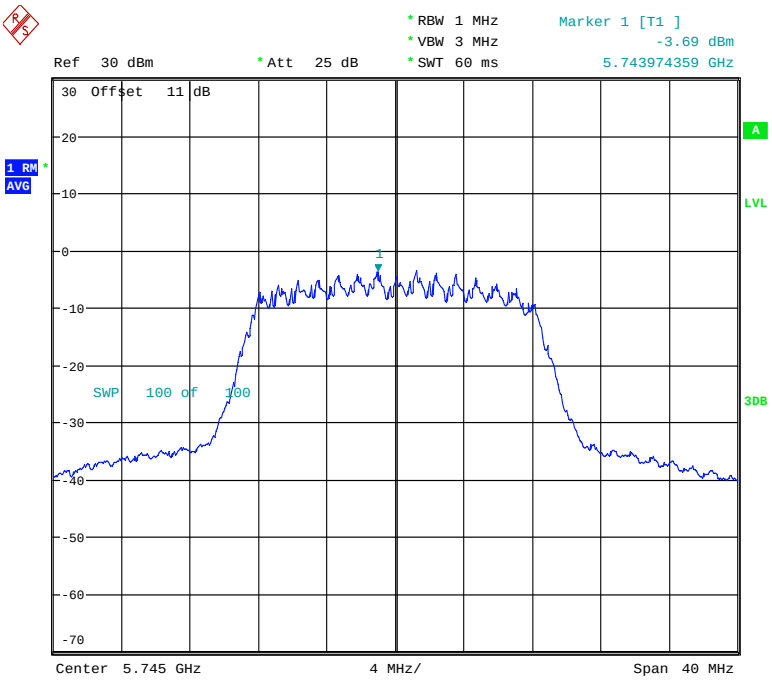


POWER DENSITY AV ANT111ac80CH155

Date: 28.AUG.2017 14:54:48

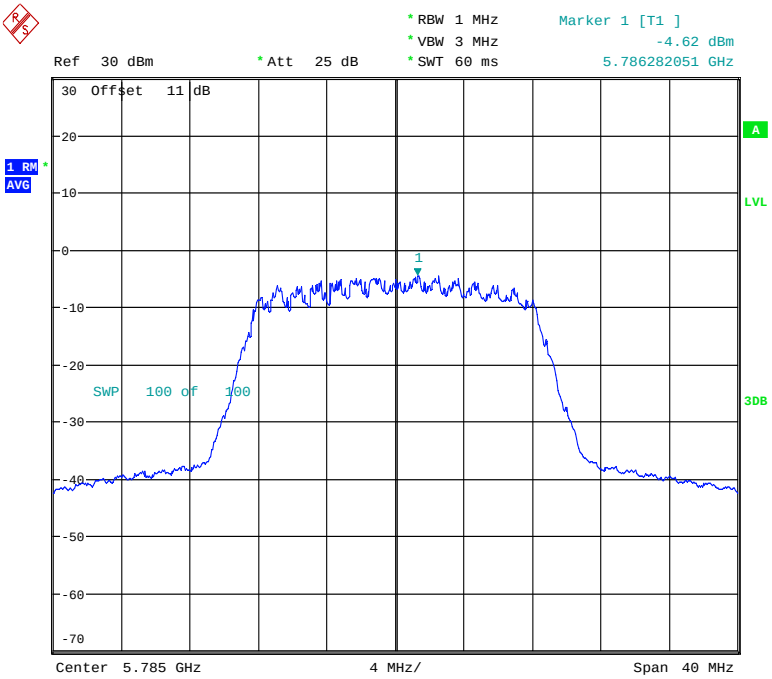
Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013

ANT2



POWER DENSITY AV ANT211aCH149

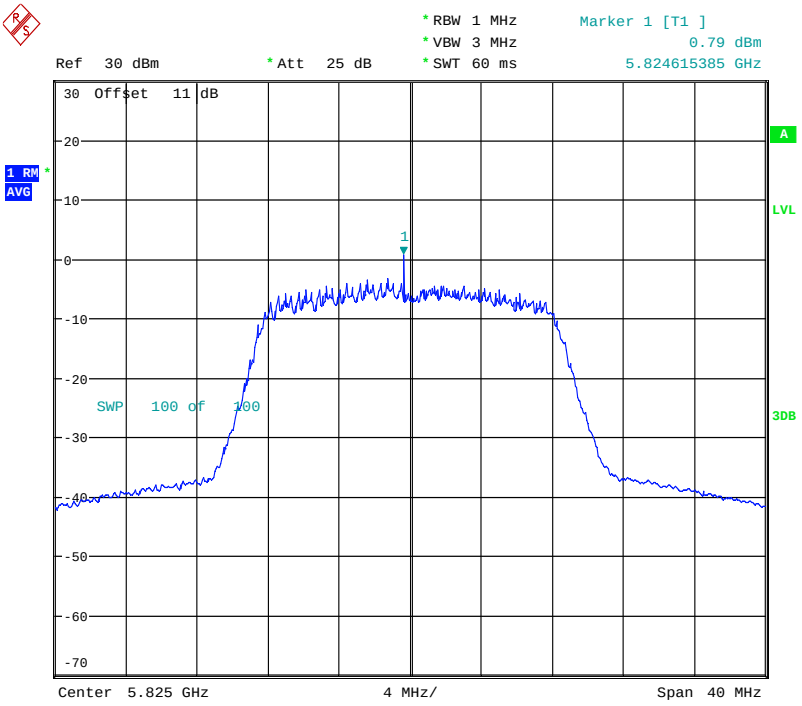
Date: 28.AUG.2017 15:04:45



POWER DENSITY AV ANT211aCH157

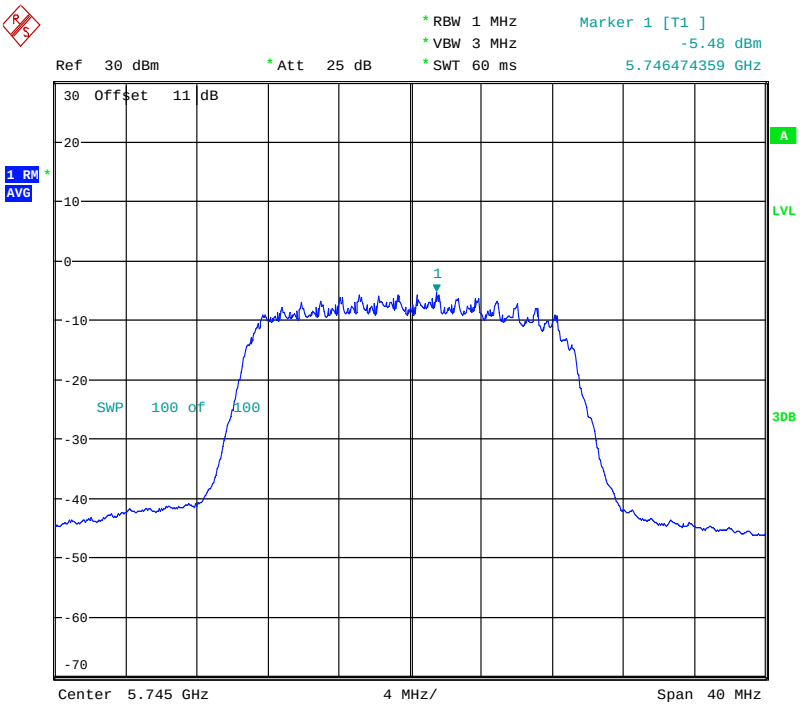
Date: 28.AUG.2017 15:06:16

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



POWER DENSITY AV ANT211aCH165

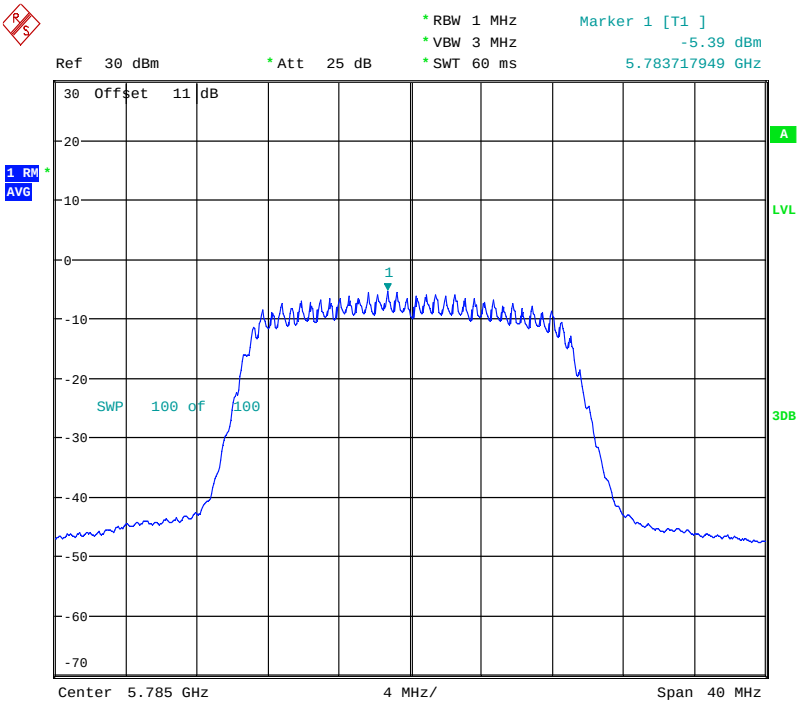
Date: 28.AUG.2017 15:07:47



POWER DENSITY AV ANT211n20CH149

Date: 28.AUG.2017 15:09:44

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



POWER DENSITY AV ANT211n20CH157

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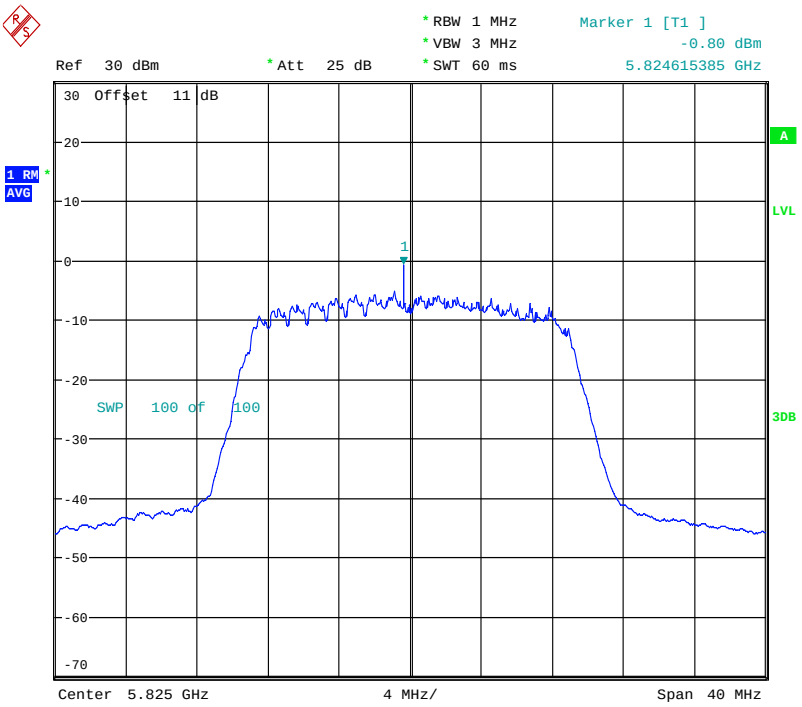

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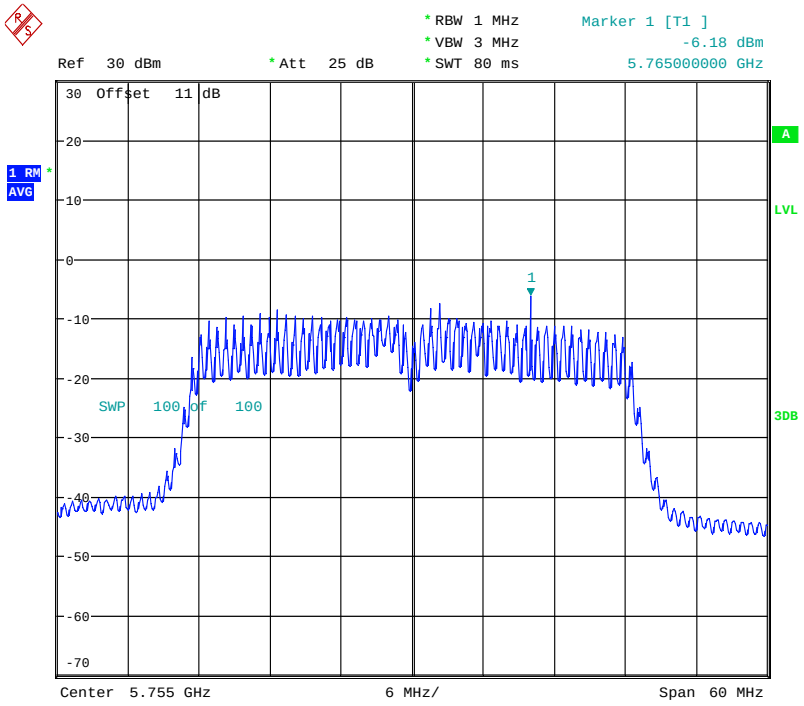

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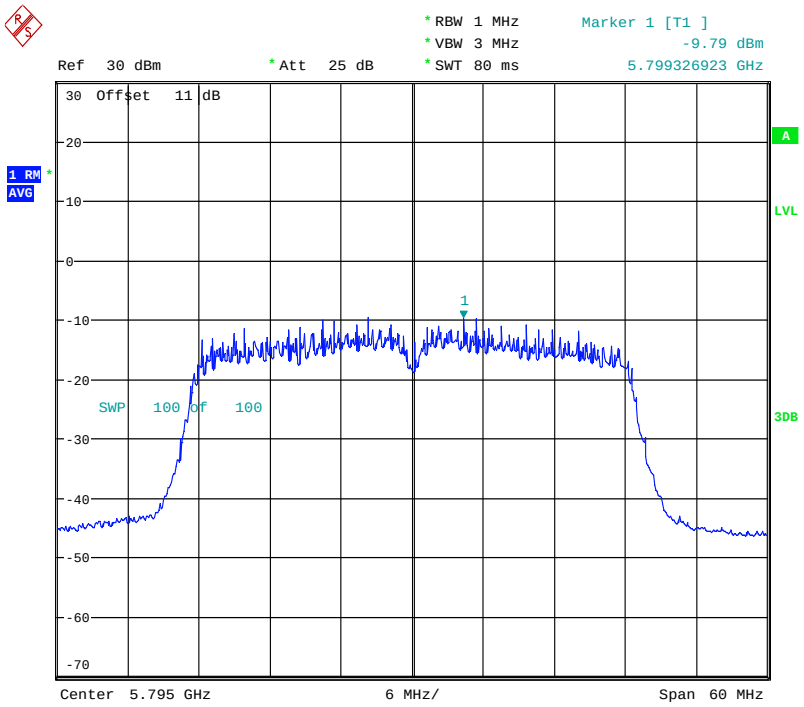

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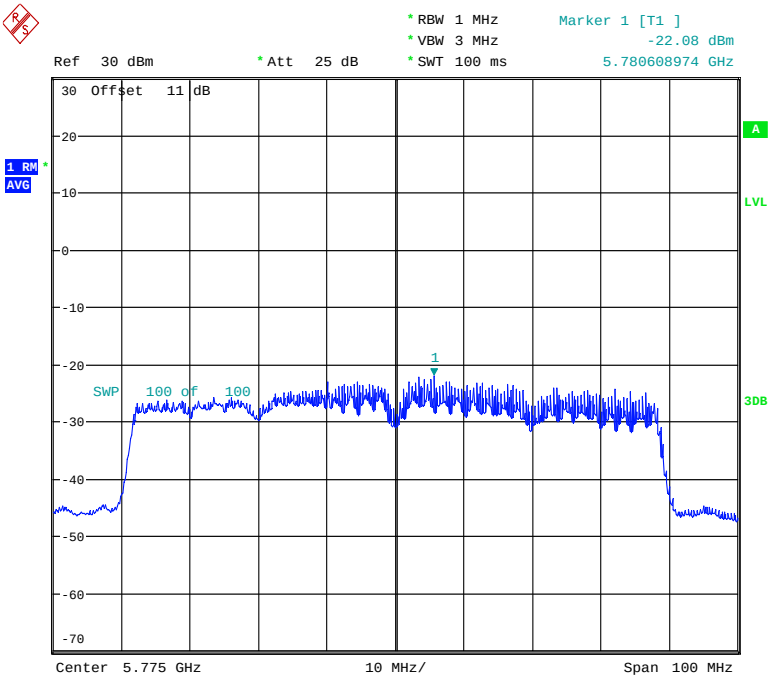

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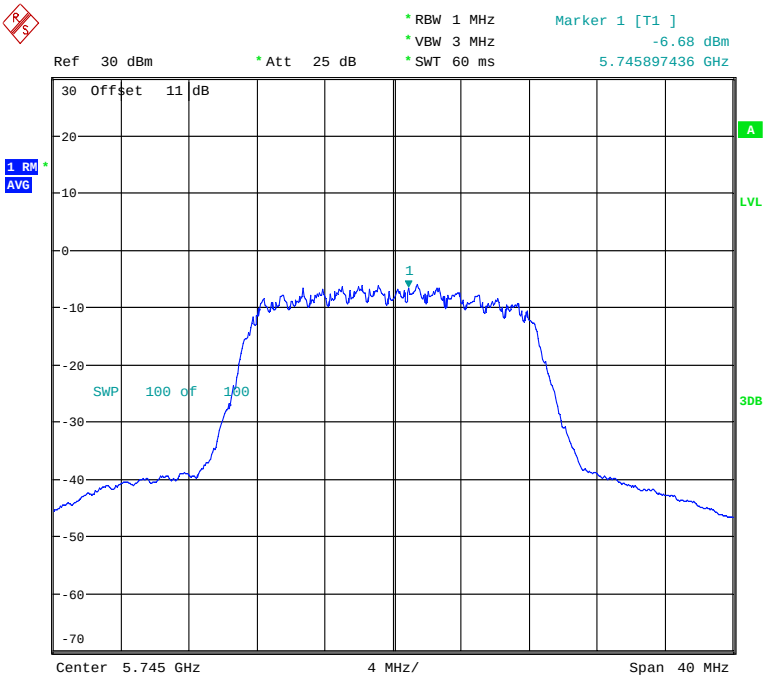
Date: 28.AUG.2017 15:18:02

ANT3



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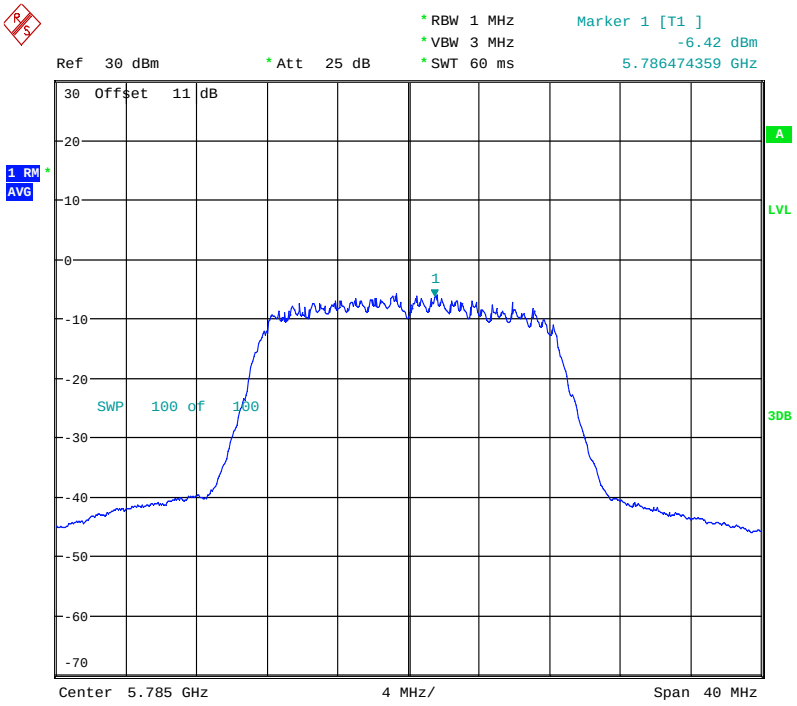

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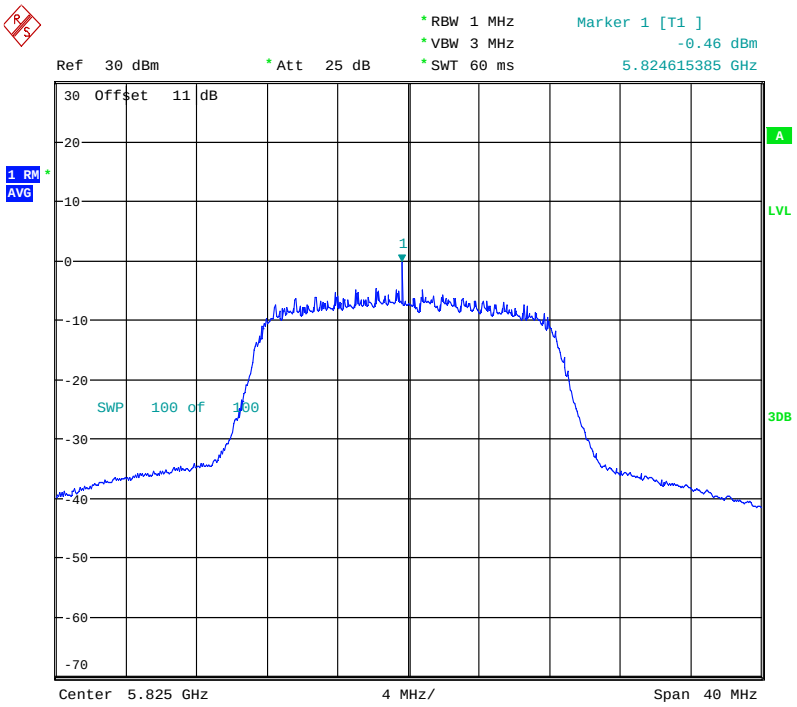

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Registration number:W6M21703-16691-C-54
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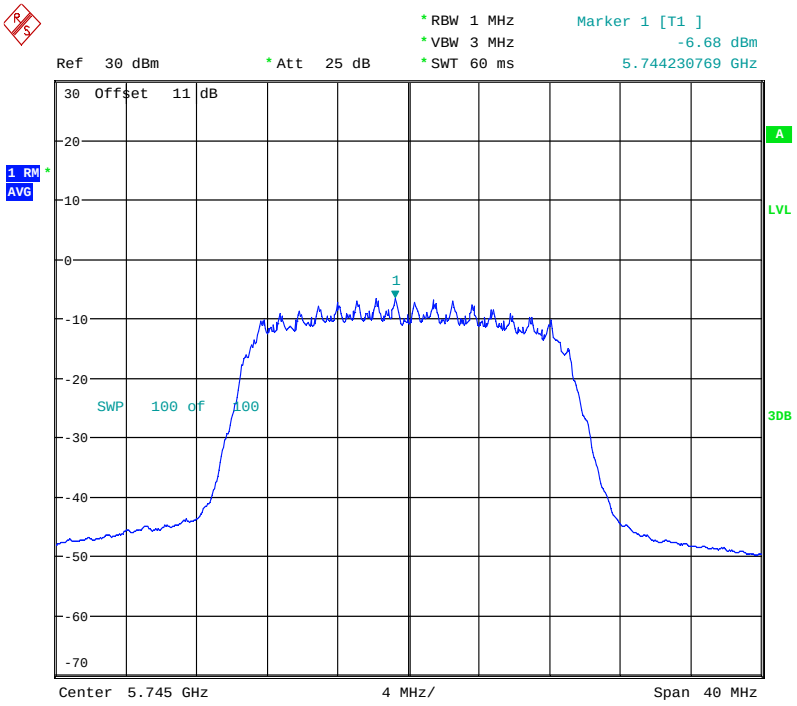

POWER DENSITY AV ANT311n20CH149

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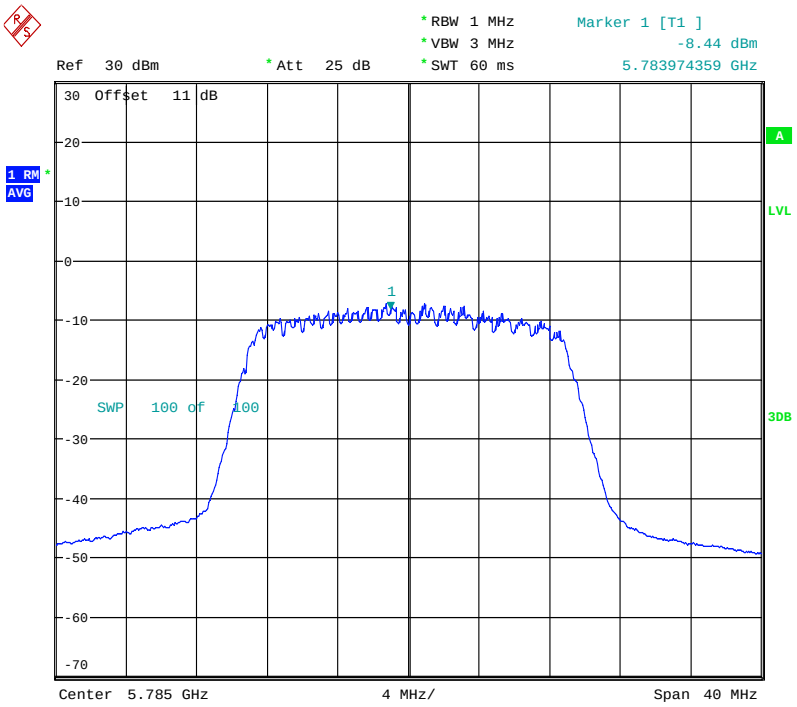
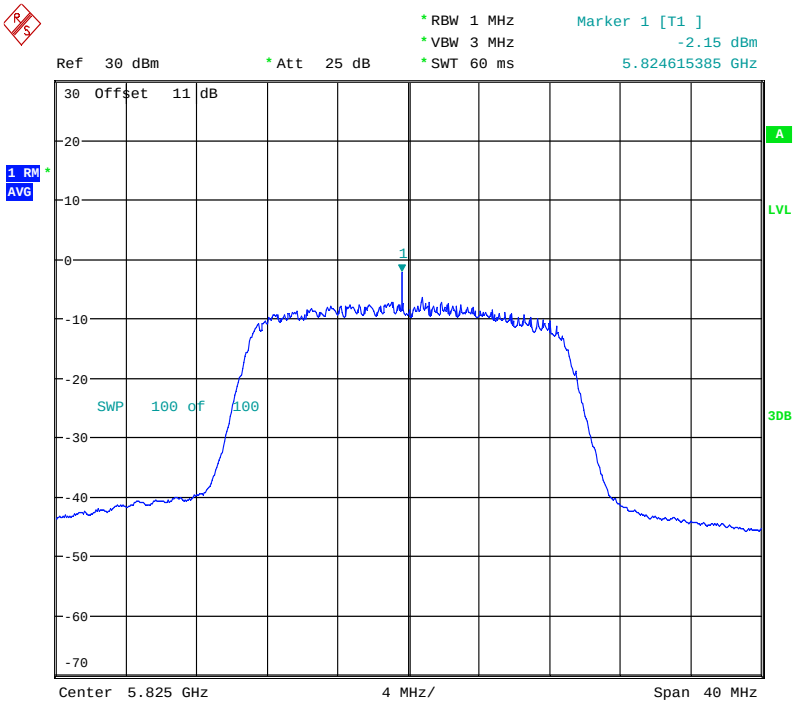


POWER DENSITY AV ANT311n20CH157

Date: 28.AUG.2017 15:29:14

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



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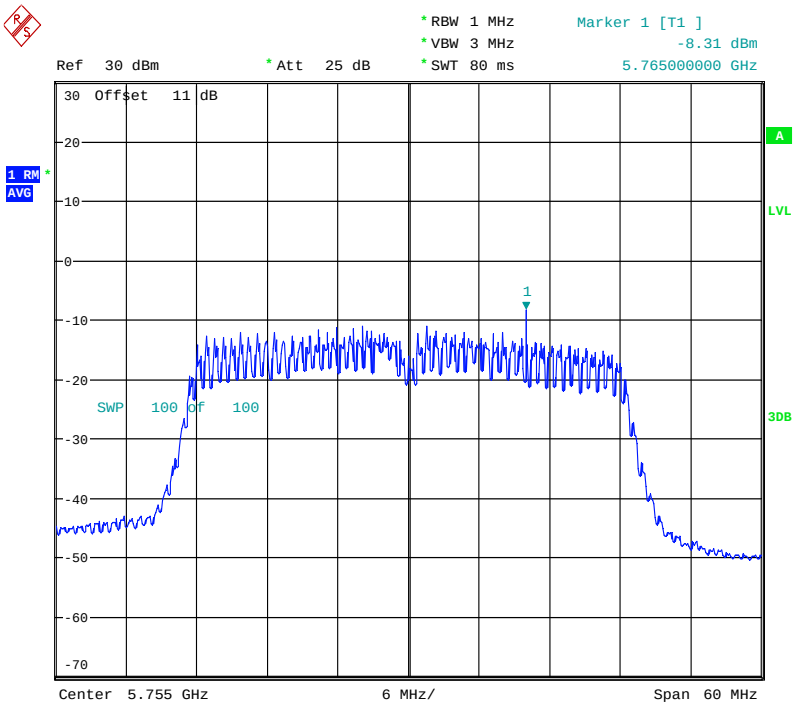

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Registration number:W6M21703-16691-C-54
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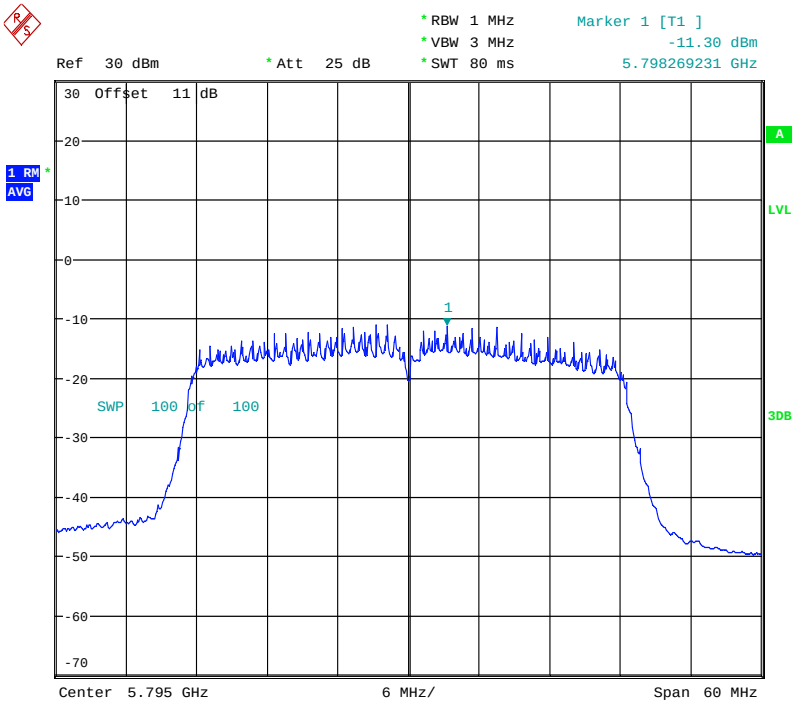
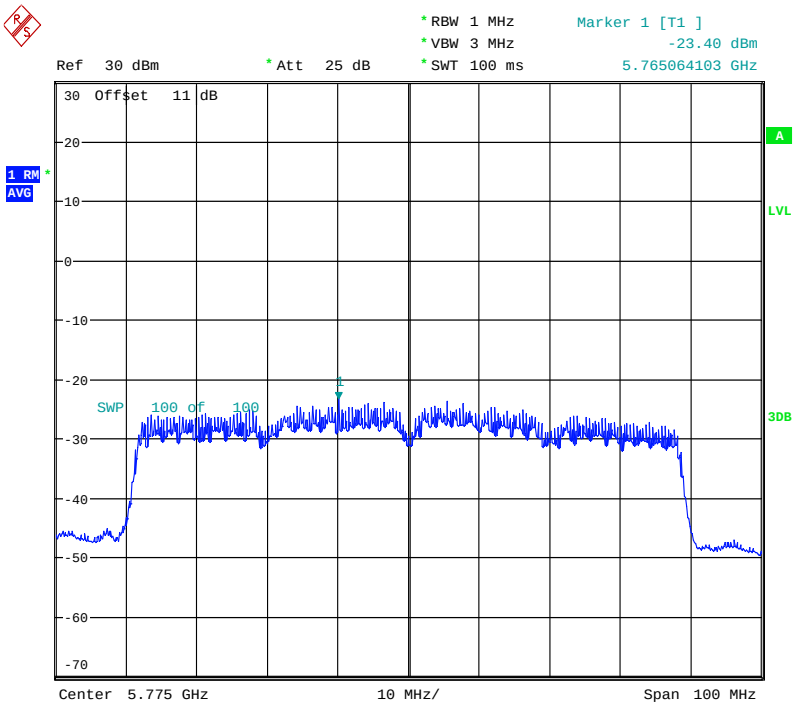


POWER DENSITY AV ANT311n40CH159

Date: 28.AUG.2017 15:34:19

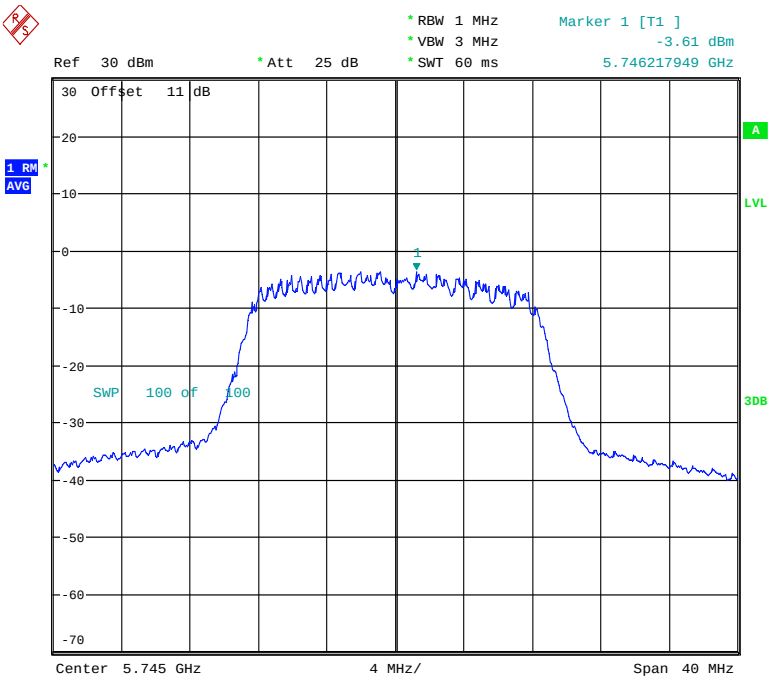


POWER DENSITY AV ANT311ac80CH155

Date: 28.AUG.2017 15:36:27

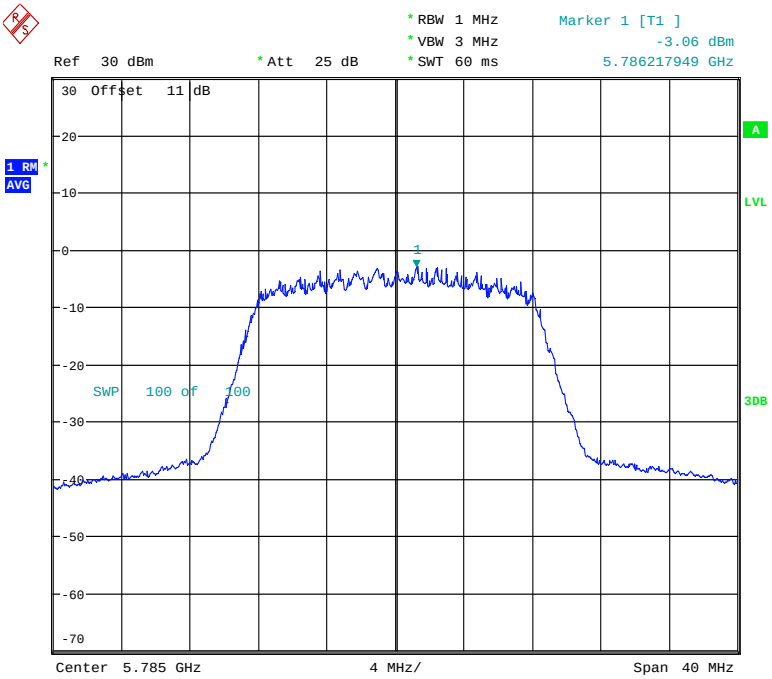
Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013

ANT4



POWER DENSITY AV ANT411aCH149

Date: 28.AUG.2017 15:47:33



POWER DENSITY AV ANT411aCH157

Date: 28.AUG.2017 15:49:17

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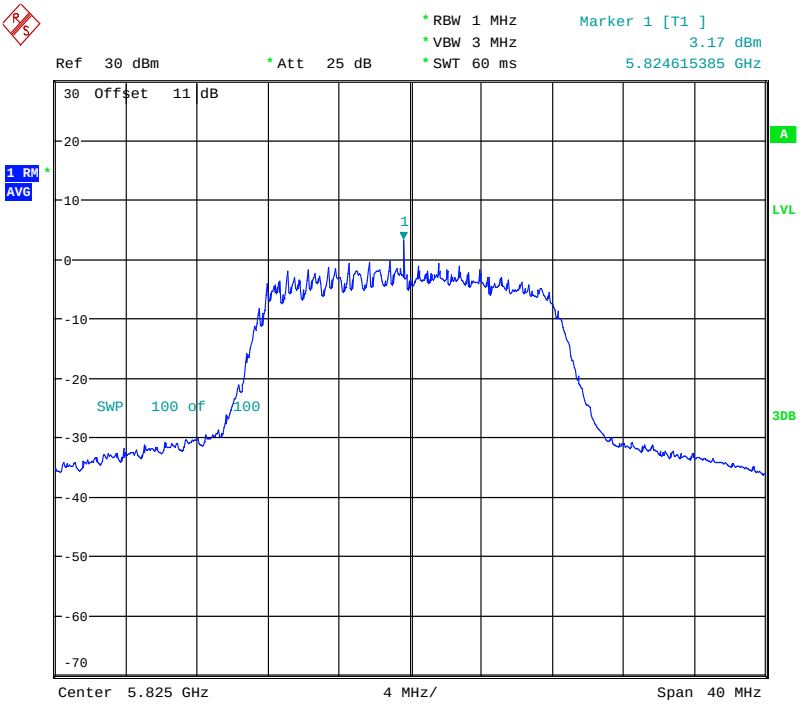

POWER DENSITY AV ANT411aCH165

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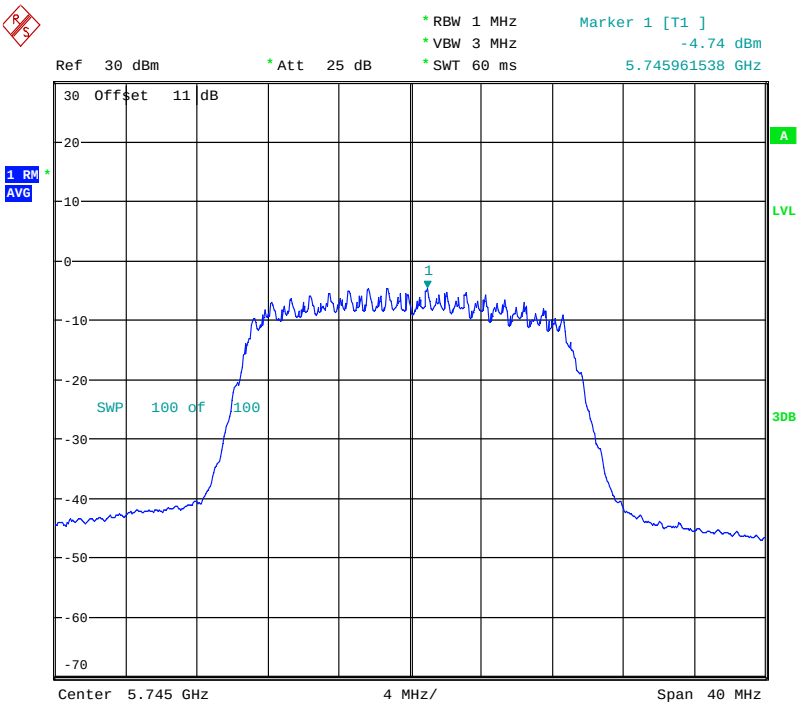

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Date: 28.AUG.2017 15:52:25

Registration number:W6M21703-16691-C-54
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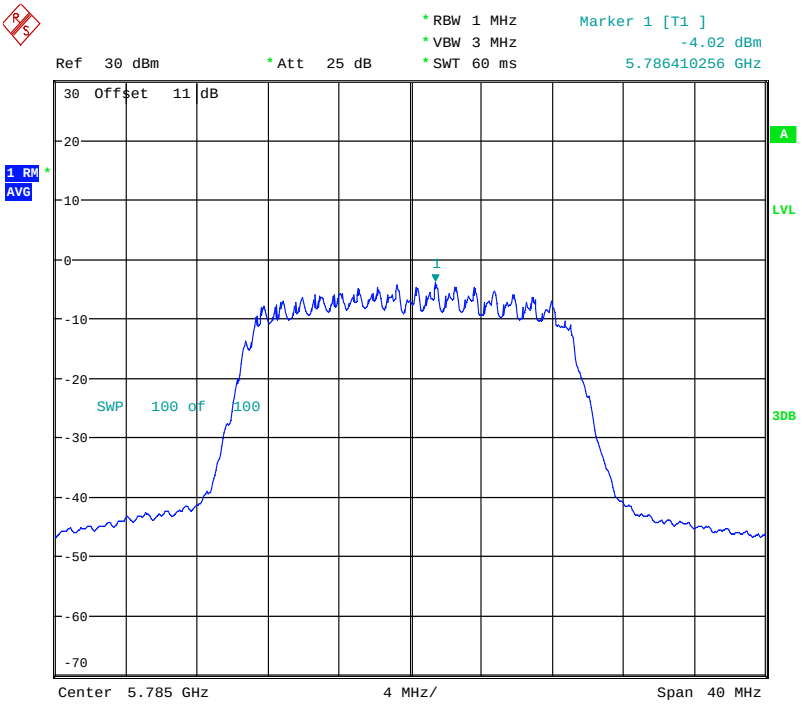

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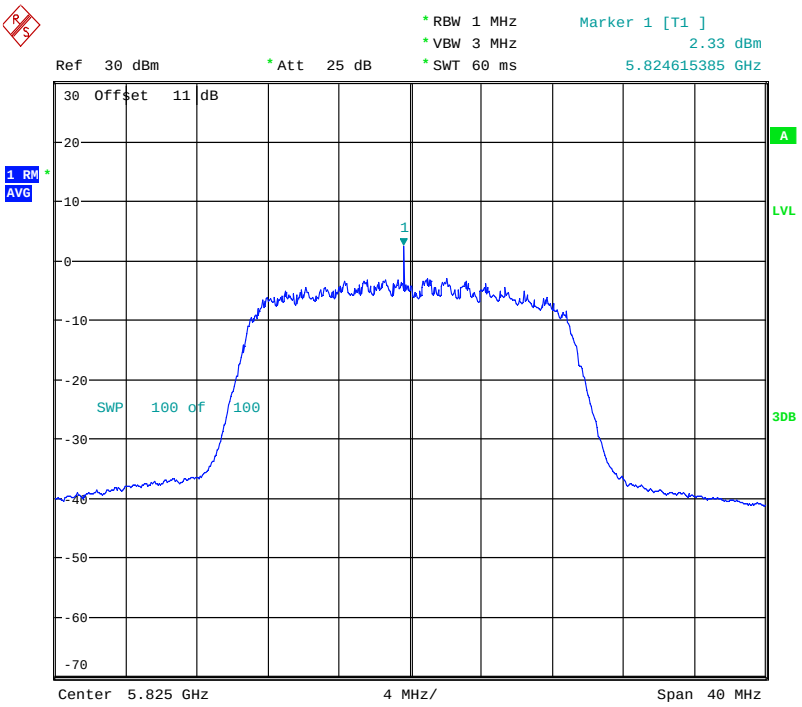
Date: 28.AUG.2017 15:53:56



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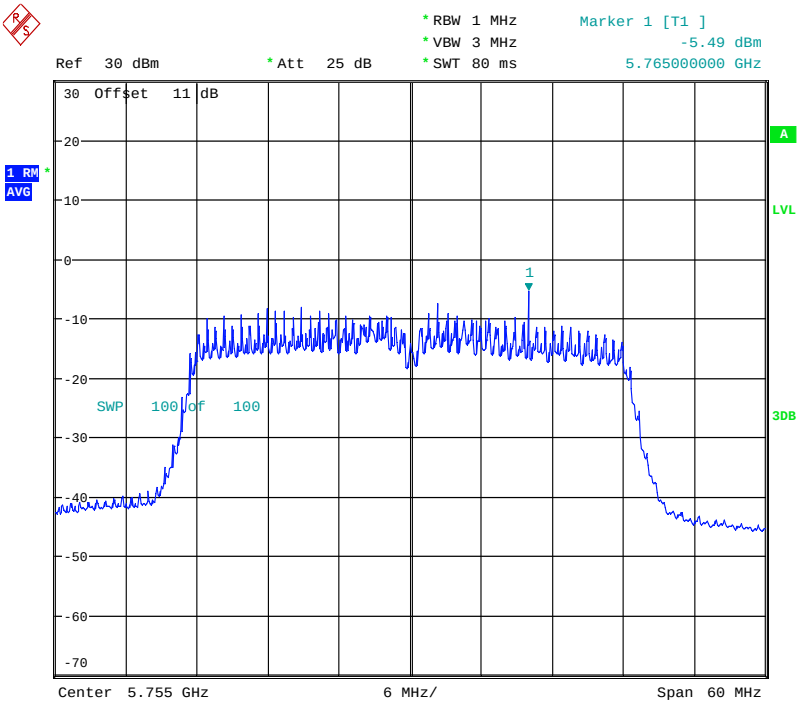
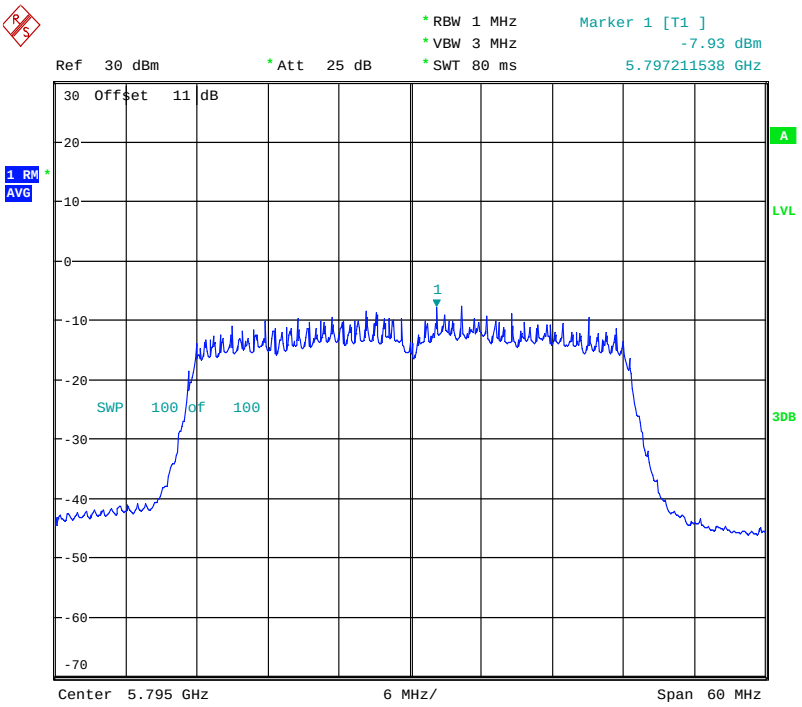
Date: 28.AUG.2017 15:55:34

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



POWER DENSITY AV ANT411n40CH151

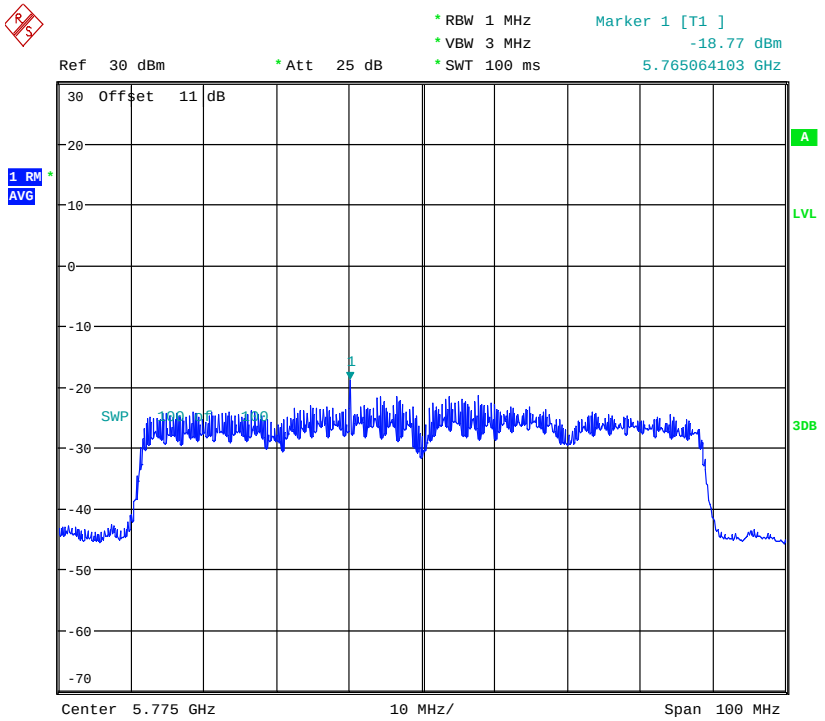
Date: 28.AUG.2017 15:57:27



POWER DENSITY AV ANT411n40CH159

Date: 28.AUG.2017 15:58:57

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



Band 1(5.15GHz~5.25GHz)

4T						
ANT1	mW			dBm		
	Ch Low	Ch Mid	Ch High	Ch Low	Ch Mid	Ch High
802.11n 20MHz	0.478	0.446	0.299	-3.21	-3.51	-5.24
802.11n 40MHz	0.109	--	0.161	-9.61	--	-7.94
802.11 ac 80MHz	0.026	--	--	-15.82	--	--
ANT2	mW			dBm		
	Ch Low	Ch Mid	Ch High	Ch Low	Ch Mid	Ch High
802.11n 20MHz	0.706	0.793	0.643	-1.51	-1.01	-1.92
802.11n 40MHz	0.406	--	0.328	-3.92	--	-4.84
802.11 ac 80MHz	0.040	--	--	-13.95	--	--
ANT3	mW			dBm		
	Ch Low	Ch Mid	Ch High	Ch Low	Ch Mid	Ch High
802.11n 20MHz	0.611	0.615	0.519	-2.14	-2.11	-2.85
802.11n 40MHz	0.345	--	0.266	-4.62	--	-5.75
802.11 ac 80MHz	0.029	--	--	-15.36	--	--

ANT4	mW			dBm		
	Ch Low	Ch Mid	Ch High	Ch Low	Ch Mid	Ch High
802.11n 20MHz	0.736	0.671	0.592	-1.33	-1.73	-2.28
802.11n 40MHz	0.270	--	0.294	-5.68	--	-5.32
802.11 ac 80MHz	0.037	--	--	-14.36	--	--
Combine	mW			dBm		
	Ch Low	Ch Mid	Ch High	Ch Low	Ch Mid	Ch High
802.11n 20MHz	2.531	2.525	2.053	4.03	4.02	3.12
802.11n 40MHz	1.130	--	1.049	0.53	--	0.21
802.11 ac 80MHz	0.132	--	--	-8.79	--	--

Band 4(5.725GHz~5.85GHz)

4T						
ANT1	mW			dBm		
	Ch Low	Ch Mid	Ch High	Ch Low	Ch Mid	Ch High
802.11n 20MHz	0.287	0.299	1.334	-5.42	-5.24	1.25
802.11n 40MHz	0.277	--	0.171	-5.58	--	-7.67
802.11 ac 80MHz	0.007	--	--	-21.57	--	--
ANT2	mW			dBm		
	Ch Low	Ch Mid	Ch High	Ch Low	Ch Mid	Ch High
802.11n 20MHz	0.283	0.289	0.832	-5.48	-5.39	-0.80
802.11n 40MHz	0.241	--	0.105	-6.18	--	-9.79
802.11 ac 80MHz	0.006	--	--	-22.08	--	--
ANT3	mW			dBm		
	Ch Low	Ch Mid	Ch High	Ch Low	Ch Mid	Ch High
802.11n 20MHz	0.215	0.143	0.610	-6.68	-8.44	-2.15
802.11n 40MHz	0.148	--	0.074	-8.31	--	-11.30
802.11 ac 80MHz	0.005	--	--	-23.40	--	--
ANT4	mW			dBm		
	Ch Low	Ch Mid	Ch High	Ch Low	Ch Mid	Ch High
802.11n 20MHz	0.336	0.396	1.710	-4.74	-4.02	2.33
802.11n 40MHz	0.282	--	0.161	-5.49	--	-7.93
802.11 ac 80MHz	0.013	--	--	-18.77	--	--
Combine	mW			dBm		
	Ch Low	Ch Mid	Ch High	Ch Low	Ch Mid	Ch High
802.11n 20MHz	1.121	1.127	4.486	0.50	0.52	6.52
802.11n 40MHz	0.948	--	0.511	-0.23	--	-2.92
802.11 ac 80MHz	0.031	--	--	-15.09	--	--

Test equipment used: ETSTW-RE 055, ETSTW-RE 050

3.5 Undesirable emission limits, FCC 15.407 (b)

1. For transmitters operating in the 5.15–5.25 GHz band: all emissions out-side of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz.
2. For transmitters operating in the 5.25–5.35 GHz band: all emissions out-side of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz. De-vices operating in the 5.25–5.35 GHz band that generate emissions in the 5.15–5.25 GHz band must meet all applicable technical requirements for operation in the 5.15–5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15–5.25 GHz band.
3. For transmitters operating in the 5.47–5.725 GHz band: all emissions out-side of the 5.47–5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.
4. For transmitters operating in the 5.725–5.850 GHz band: All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
5. The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
6. Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209.
7. According to According to KDB 789033 D02 General UNII Test Procedures v01, as specified in 15.407(b), emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of -27 dBm/MHz (or -17 dBm/MHz as specified in 15.407(b)(4)). However, an out-of-band emission that complies with both the average and peak limits of 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz peak emission limit.
8. If radiated measurements are performed, field strength is then converted to EIRP as follows:
   (i) EIRP = ((E*d)^2) / 30, where: E is the field strength in V/m; d is the measurement distance in meters. EIRP is the equivalent isotropically radiated power in watts.
   (ii) Working in dB units, the above equation is equivalent to: EIRP[dBm] = E[dBμV/m] + 20 log(d[meters]) - 104.77.
   (iii) Or, if d is 3 meters: EIRP[dBm] = E[dBμV/m] - 95.2.

Applicable to	Limit	
☒	FIELD STRENGTH at 3m (dBμV/m)	
	PK	AV
	74	54
☐	EIRP LIMIT (dBm)	EQUIVALENT FIELD STRENGTH at 3m (dBμV/m)
	PK	PK
	-27	68.3

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013

Model:	W3-R9013	Date:	--				
Mode:	--	Temperature:	--	°C	Engineer:	--	
Polarization:	Horizontal	Humidity:	--	%			

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--

Frequency (MHz)	Reading (dBuV) Peak	Reading (dBuV) Ave.	Factor (dB) Corr.	Result (dBuV/m) Peak	Result (dBuV/m) Ave.	Limit (dBuV/m) Peak	Limit (dBuV/m) Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--

Frequency (MHz)	Reading (dBuV) Peak	Reading (dBuV) Ave.	Factor (dB) Corr.	Result (dBuV/m) Peak	Result (dBuV/m) Ave.	Limit (dBuV/m) Peak	Limit (dBuV/m) Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--

Test equipment used: ETSTW-RE 004, ETSTW-RE 030, ETSTW-RE 147
ETSTW-RE 088, ETSTW-RE 018

Explanation: See attached diagrams in appendix.

3.6 Automatic Discontinuation of transmission, FCC 15.407 (c)

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure.
This function will be declared by manufacturer.

3.7 Reserved, FCC 15.407 (d)

3.8 Indoor Operation Restriction, FCC 15.407 (e)

Within the 5.15–5.25 GHz band, U- NII devices will be restricted to indoor operations to reduce any potential for harmful interference to co-channel MSS operations. This equipment has to be declared by manufacturer of the final product as content of the user manual.

3.9 Equivalent isotropic radiated power, FCC 15.407 (f)

FCC Rule: 15.407(b)(3)
For systems using digital modulation in the 5.150 GHz-5.250 GHz and 5.725 GHz-5.850GHz bands: 1 Watt.

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Test equipment used: ETSTW-RE 055

3.10 RF Exposure Compliance Requirements

ystems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.25 m normally can be maintained between the user and the device.
FCC OET Bulletin 65 Edition 97.01 determines the equations for predicting RF fields and applicable limits.
The prediction for power density in the far-field but will over-predict power density in the near field, where it could be used for walking a “worst case” or conservative prediction.

$$S = \frac{PG}{4\pi R^2}$$

S – Power Density
P – Output power ERP
R – Distance
D – Cable Loss
AG – Antenna Gain

Band 1(5.15GHz~5.25GHz)

Item	Unit	Value	**Remarks**
P	mW	30.4089	Peak value
D	dB		
AG	dBi	11.841	
G		15.2792	Calculated Value
R	cm	20	Assumed value
S	mW/cm2	0.0924	Calculated value

Band 4(5.725GHz~5.85GHz)

Item	Unit	Value	**Remarks**
P	mW	18.3654	Peak value
D	dB		
AG	dBi	11.121	
G		12.9449	Calculated Value
R	cm	20	Assumed value
S	mW/cm2	0.0473	Calculated value

Limits:

Limit for General Population / Uncontrolled Exposure	
Frequency (MHz)	Power Density (mW/cm^2)
1500 – 100.000	1.0

3.11 Transmit Power Control (TPC)

Transmit power control (TPC). U-NII devices operating in the 5.25-5.35 GHz band and the 5.47-5.725 GHz band shall employ a TPC mechanism. The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm. A TPC mechanism is not required for systems with an e.i.r.p. of less than 500 mW.

Explanation: The EUT operates 5150 MHz – 5250 MHz and 5725 MHz-5850 MHz , so this test item is not required.

3.12 Radiated Emissions from Receiver Part

FCC Rule: 15.109

Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency of Emission (MHz)	Field Strength (microvolts/meter)	Field Strength (dBmicrovolts/meter)
30 – 88	100	40.0
88 – 216	150	43.5
216 – 960	200	46.0
Above 960	500	54.0

Test equipment used: ETSTW-RE 004, ETSTW-RE 030, ETSTW-RE 147, ETSTW-RE 088, ETSTW-RE 018

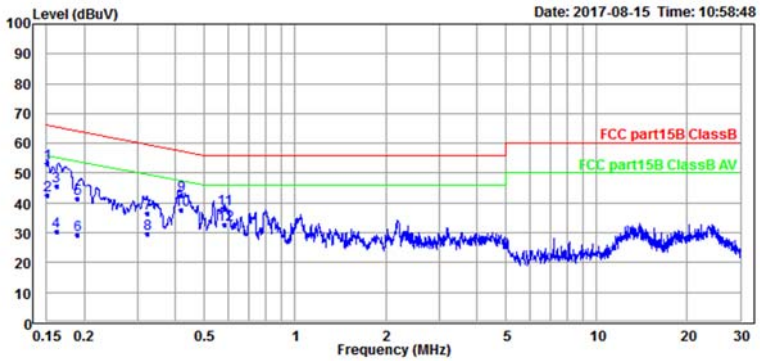
Explanation: The test results are listed in the separated test report no.: W6M21703-16691-P-15B.

3.13 Power Line Conducted Emission

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the table bellows with this provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals.

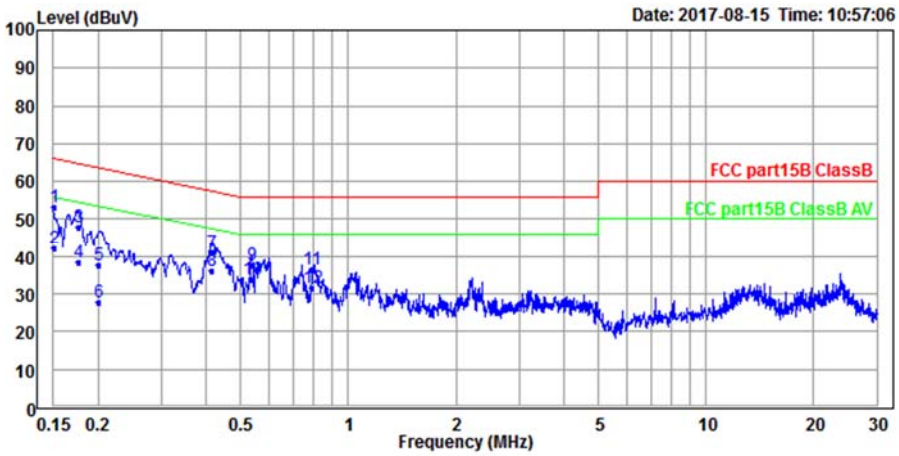
This measurement was transact first with instrumentation using an average and peak detector and a 10 kHz bandwidth. If the peak detector achieves a calculated level, the measurement is repeated by an instrumentation using a quasi-peak detector.

Adaptor1: AMS117-1202000F2



Condition: FCC part15B ClassB ENV216 neutral
EUT : W6M21703-16691
Mode : HDMI
Power : 120 Va.c.
Operator : Ocean
Note : ADP AMS117-1202000F2

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB		
1	0.151	53.27	43.47	9.80	65.96	-12.69	neutral	QP
2	0.151	42.77	32.97	9.80	55.96	-13.19	neutral	Average
3	0.161	45.50	35.71	9.79	65.39	-19.89	neutral	QP
4	0.161	30.47	20.68	9.79	55.39	-24.92	neutral	Average
5	0.191	41.52	31.75	9.77	64.01	-22.49	neutral	QP
6	0.191	29.26	19.49	9.77	54.01	-24.75	neutral	Average
7	0.325	36.37	26.58	9.79	59.58	-23.21	neutral	QP
8	0.325	29.53	19.74	9.79	49.58	-20.05	neutral	Average
9	0.418	42.58	32.78	9.80	57.49	-14.91	neutral	QP
10 *	0.418	37.62	27.82	9.80	47.49	-9.87	neutral	Average
11	0.585	37.96	28.17	9.79	56.00	-18.04	neutral	QP
12	0.585	32.83	23.04	9.79	46.00	-13.17	neutral	Average

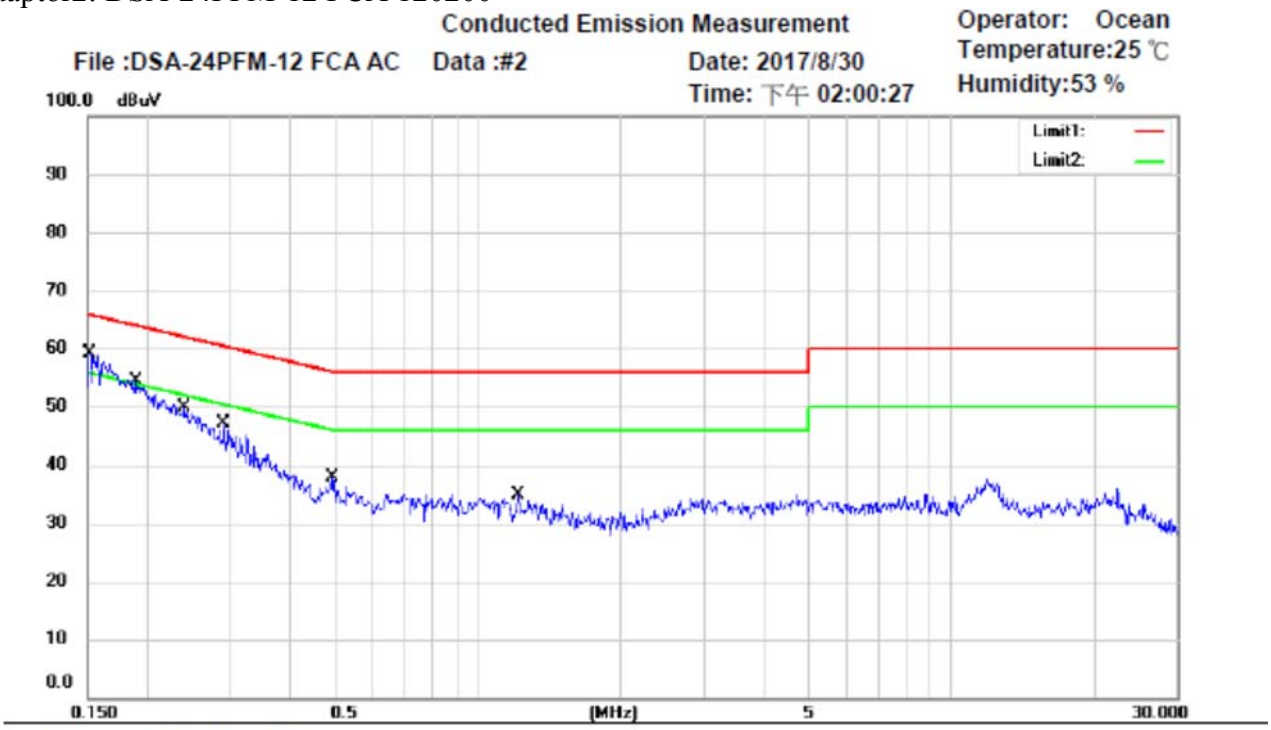


Condition: FCC part15B ClassB ENV216 line
EUT : W6M21703-16691
Mode : HDMI
Power : 120 Va.c.
Operator : Ocean
Note : ADP AMS117-1202000F2

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB		
1	0.150	53.27	43.43	9.84	65.99	-12.72	line	QP
2	0.150	42.36	32.52	9.84	55.99	-13.63	line	Average
3	0.177	47.94	38.12	9.82	64.64	-16.70	line	QP
4	0.177	38.24	28.42	9.82	54.64	-16.40	line	Average
5	0.201	37.78	27.97	9.81	63.56	-25.78	line	QP
6	0.201	27.79	17.98	9.81	53.56	-25.77	line	Average
7	0.417	41.11	31.32	9.79	57.52	-16.41	line	QP
8 *	0.417	36.07	26.28	9.79	47.52	-11.45	line	Average
9	0.537	37.80	28.02	9.78	56.00	-18.20	line	QP
10	0.537	33.96	24.18	9.78	46.00	-12.04	line	Average
11	0.790	36.48	26.71	9.77	56.00	-19.52	line	QP
12	0.790	31.59	21.82	9.77	46.00	-14.41	line	Average

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013

Adaptor2: DSA-24PFM-12 FCA 120200



Site : Chamber_03
Condition : FCC Part 15 Class B Conduction (QP)
Phase: N
EUT : W6M21703-16691
Power : 120 Va.c.
M/N:
Test Mode : HDMI
Note : ADP DSA-24PFM-12 FCA 120200

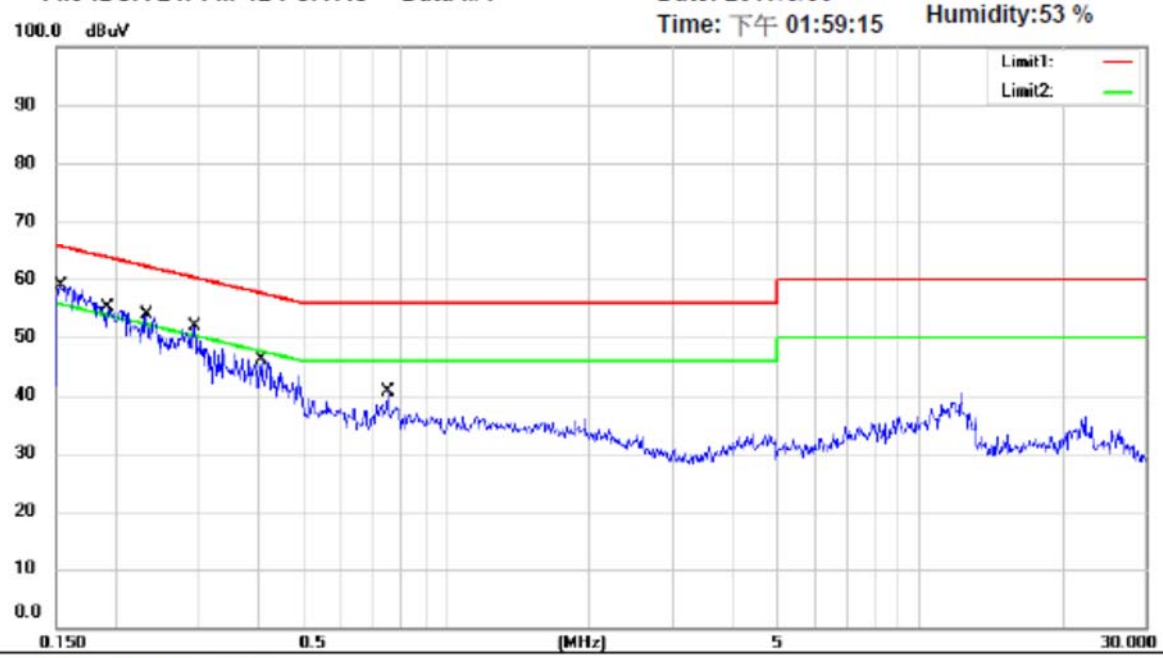
Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
*	0.1511	38.14	QP	10.02	48.16	65.94	-17.78	
	0.1511	17.21	AVG	10.02	27.23	55.94	-28.71	
	0.1906	32.35	QP	10.01	42.36	64.01	-21.65	
	0.1906	16.09	AVG	10.01	26.10	54.01	-27.91	
	0.2401	29.45	QP	10.01	39.46	62.09	-22.63	
	0.2401	14.81	AVG	10.01	24.82	52.09	-27.27	
	0.2895	27.33	QP	10.02	37.35	60.54	-23.19	
	0.2895	17.21	AVG	10.02	27.23	50.54	-23.31	
	0.4900	21.23	QP	10.01	31.24	56.17	-24.93	
	0.4900	11.35	AVG	10.01	21.36	46.17	-24.81	
	1.2155	17.75	QP	10.04	27.79	56.00	-28.21	
	1.2155	9.18	AVG	10.04	19.22	46.00	-26.78	

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013

Conducted Emission Measurement

File :DSA-24PFM-12 FCA AC Data :#1 Date: 2017/8/30 Time: 下午 01:59:15

Operator: Ocean
Temperature:25 ℃
Humidity:53 %



Site : Chamber_03
Condition : FCC Part 15 Class B Conduction (QP) Phase: L1
EUT : W6M21703-16691 Power : 120 Va.c.
M/N:
Test Mode : HDMI
Note : ADP DSA-24PFM-12 FCA 120200

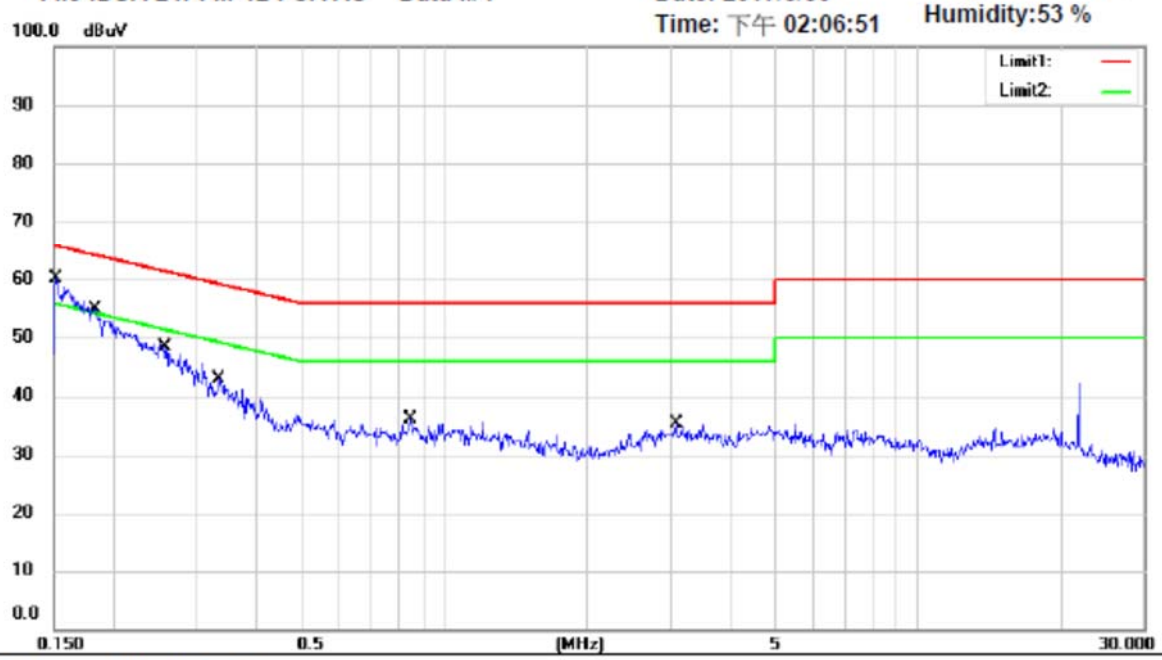
Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
	0.1530	38.52	QP	10.08	48.60	65.84	-17.24	
	0.1530	20.03	AVG	10.08	30.11	55.84	-25.73	
	0.1922	33.63	QP	10.07	43.70	63.94	-20.24	
	0.1922	16.81	AVG	10.07	26.88	53.94	-27.06	
	0.2326	33.77	QP	10.06	43.83	62.36	-18.53	
	0.2326	21.43	AVG	10.06	31.49	52.36	-20.87	
*	0.2937	33.23	QP	10.05	43.28	60.42	-17.14	
	0.2937	20.76	AVG	10.05	30.81	50.42	-19.61	
	0.4065	27.70	QP	10.01	37.71	57.72	-20.01	
	0.4065	16.99	AVG	10.01	27.00	47.72	-20.72	
	0.7520	23.59	QP	10.06	33.65	56.00	-22.35	
	0.7520	15.47	AVG	10.06	25.53	46.00	-20.47	

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013

Conducted Emission Measurement

File :DSA-24PFM-12 FCA AC Data :#4 Date: 2017/8/30 Time: 下午 02:06:51

Operator: Ocean
Temperature:25 ℃
Humidity:53 %



Site : Chamber_03
Condition : FCC Part 15 Class B Conduction (QP) Phase: N
EUT : W6M21703-16691 Power : 120 Va.c.
M/N:
Test Mode : VGA
Note : ADP DSA-24PFM-12 FCA 120200

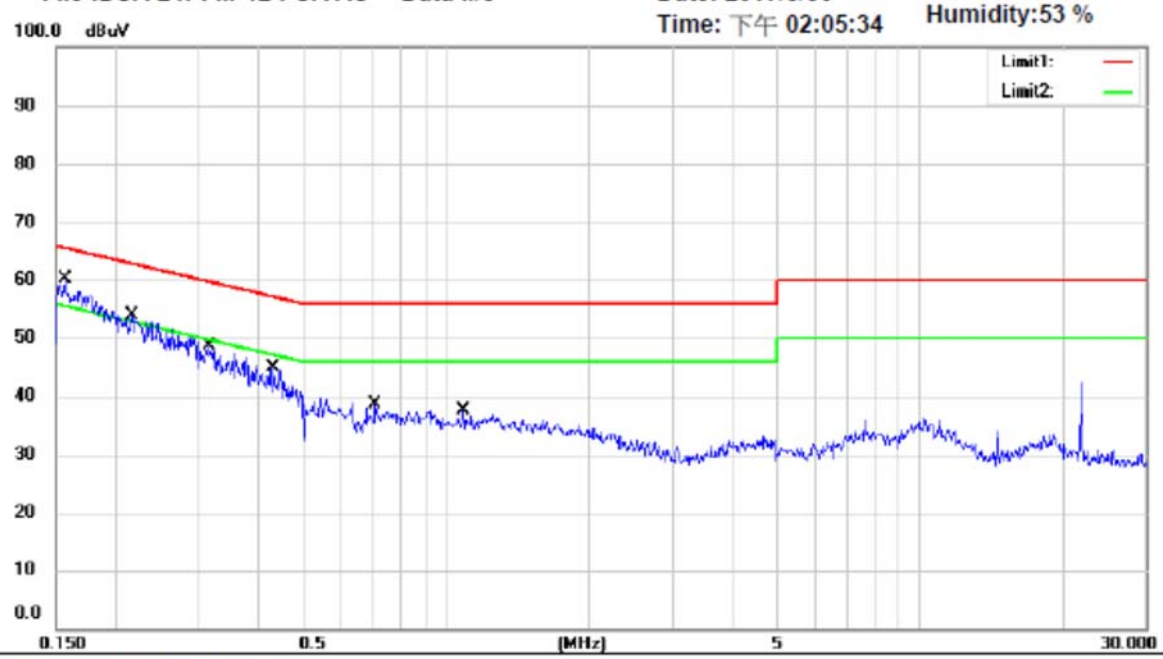
Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
*	0.1511	38.18	QP	10.02	48.20	65.94	-17.74	
	0.1511	17.96	AVG	10.02	27.98	55.94	-27.96	
	0.1831	33.83	QP	10.01	43.84	64.34	-20.50	
	0.1831	17.53	AVG	10.01	27.54	54.34	-26.80	
	0.2566	28.56	QP	10.01	38.57	61.54	-22.97	
	0.2566	16.09	AVG	10.01	26.10	51.54	-25.44	
	0.3330	26.07	QP	10.03	36.10	59.38	-23.28	
	0.3330	15.30	AVG	10.03	25.33	49.38	-24.05	
	0.8465	20.21	QP	10.03	30.24	56.00	-25.76	
	0.8465	11.61	AVG	10.03	21.64	46.00	-24.36	
	3.0898	17.45	QP	10.15	27.60	56.00	-28.40	
	3.0898	10.41	AVG	10.15	20.56	46.00	-25.44	

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013

Conducted Emission Measurement

File :DSA-24PFM-12 FCA AC Data :#3 Date: 2017/8/30 Time: 下午 02:05:34

Operator: Ocean
Temperature:25 ℃
Humidity:53 %



Site : Chamber_03
Condition : FCC Part 15 Class B Conduction (QP) Phase: L1
EUT : W6M21703-16691 Power : 120 Va.c.
M/N:
Test Mode : VGA
Note : ADP DSA-24PFM-12 FCA 120200

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
*	0.1561	38.09	QP	10.08	48.17	65.67	-17.50	
	0.1561	20.49	AVG	10.08	30.57	55.67	-25.10	
	0.2167	32.72	QP	10.06	42.78	62.94	-20.16	
	0.2167	19.84	AVG	10.06	29.90	52.94	-23.04	
	0.3143	30.15	QP	10.05	40.20	59.86	-19.66	
	0.3143	18.69	AVG	10.05	28.74	49.86	-21.12	
	0.4291	26.57	QP	10.02	36.59	57.27	-20.68	
	0.4291	17.12	AVG	10.02	27.14	47.27	-20.13	
	0.7070	23.48	QP	10.05	33.53	56.00	-22.47	
	0.7070	14.59	AVG	10.05	24.64	46.00	-21.36	
	1.0827	21.78	QP	10.09	31.87	56.00	-24.13	
	1.0827	13.27	AVG	10.09	23.36	46.00	-22.64	

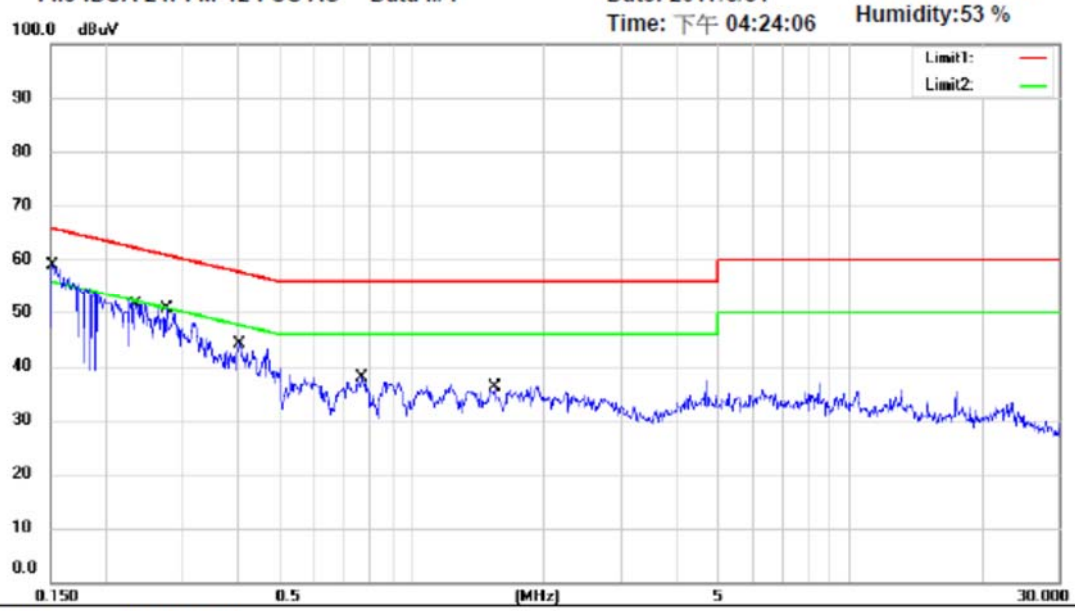
Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013

Adaptor3: DSA-24PFM-12 FUS 120200

Conducted Emission Measurement

File :DSA-24PFM-12 FUS AC Data :#4 Date: 2017/8/31 Time: 下午 04:24:06

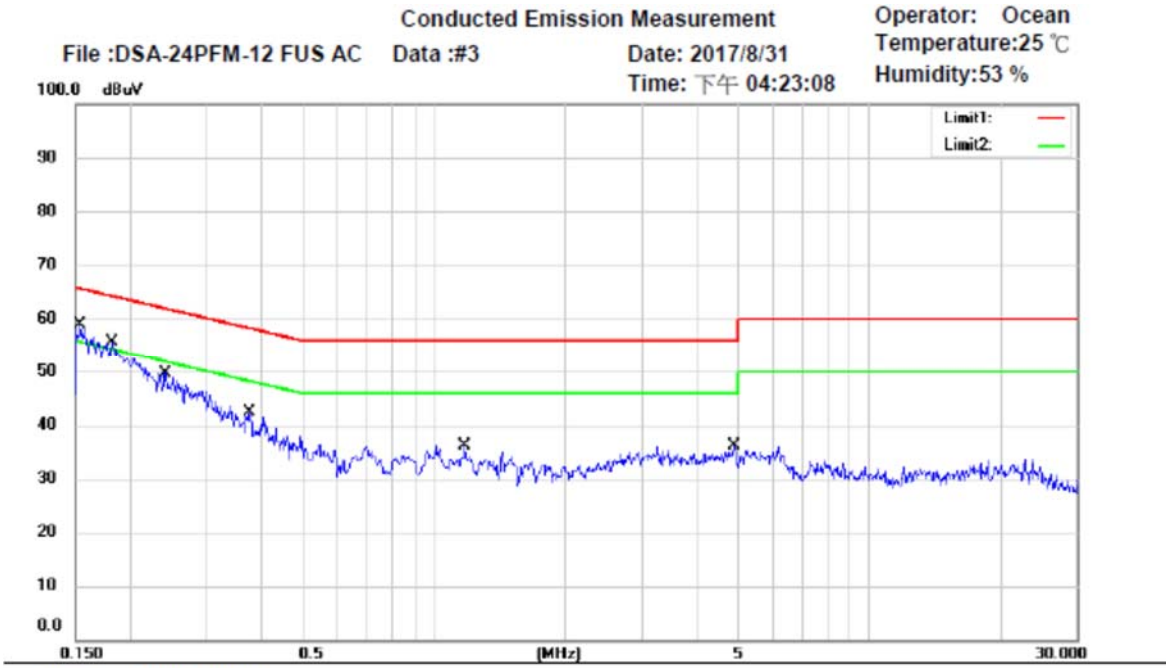
Operator: Ocean
Temperature:25 ℃
Humidity:53 %



Site : Chamber_03
Condition : FCC Part 15 Class B Conduction (QP) Phase: N
EUT : W6M21703-16691 Power : 120 Va.c.
M/N:
Test Mode : HDMI
Note : ADP DSA-24PFM-12 FUS 120200

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
	0.1511	38.70	QP	10.02	48.72	65.94	-17.22	
	0.1511	23.35	AVG	10.02	33.37	55.94	-22.57	
	0.2347	34.76	QP	10.01	44.77	62.28	-17.51	
	0.2347	24.92	AVG	10.01	34.93	52.28	-17.35	
	0.2746	34.27	QP	10.01	44.28	60.98	-16.70	
	0.2746	21.89	AVG	10.01	31.90	50.98	-19.08	
	0.4025	28.58	QP	10.01	38.59	57.80	-19.21	
*	0.4025	21.49	AVG	10.01	31.50	47.80	-16.30	
	0.7677	22.05	QP	10.03	32.08	56.00	-23.92	
	0.7677	9.90	AVG	10.03	19.93	46.00	-26.07	
	1.5440	21.16	QP	10.05	31.21	56.00	-24.79	
	1.5440	12.99	AVG	10.05	23.04	46.00	-22.96	

Registration number:W6M21703-16691-C-54
FCC ID: 2ANKPW3-R9013



Site : Chamber_03
Condition : FCC Part 15 Class B Conduction (QP)
Phase: L1
EUT : W6M21703-16691
Power : 120 Va.c.
M/N:
Test Mode : HDMI
Note : ADP DSA-24PFM-12 FUS 120200

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
*	0.1537	37.93	QP	10.08	48.01	65.80	-17.79	
	0.1537	19.44	AVG	10.08	29.52	55.80	-26.28	
	0.1815	33.81	QP	10.07	43.88	64.42	-20.54	
	0.1815	16.81	AVG	10.07	26.88	54.42	-27.54	
	0.2405	29.53	QP	10.05	39.58	62.08	-22.50	
	0.2405	14.00	AVG	10.05	24.05	52.08	-28.03	
	0.3757	23.47	QP	10.03	33.50	58.37	-24.87	
	0.3757	17.64	AVG	10.03	27.67	48.37	-20.70	
	1.1750	20.02	QP	10.10	30.12	56.00	-25.88	
	1.1750	10.35	AVG	10.10	20.45	46.00	-25.55	
	4.8763	18.81	QP	10.31	29.12	56.00	-26.88	
	4.8763	11.12	AVG	10.31	21.43	46.00	-24.57	

Note: 1. The formula of measured value as: Test Result = Reading + Correction Factor
2. The Correction Factor = Cable Loss + LISN Insertion Loss + Pulse Limit Loss
3. Detector function in the form : PK = Peak, QP = Quasi Peak, AV = Average
4. All not in the table noted test results are more than 20 dB below the relevant limits.
5. Measurement uncertainty = ±0.74 dB; Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.
6. Up Line: QP Limit Line, Down Line: Ave Limit Line.

Limits:

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi Peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

Test equipment used: ETSTW-CE 001, ETSTW-CE 016, ETSTW-CE 028, ETSTW-RE 045