

# TEST REPORT

IC: 21411-NMDB3

FCC ID: 2AG87NM-DB-3

Product: Wi-Fi® Radio Transceiver

Model No.: NM-DB-3

Additional Model No.: DLM180, NM-DB-2,  
NE-DB-2, NE-DB-3, NO-DB-2, NO-DB-3

Trade Mark: N/A

Report No.: TCT160601E005

Issued Date: Sep. 08, 2016

Issued for:

Doodle Labs (SG) Pte Ltd

150 Kampong Ampat, KA Centre, Suite #05-03, Singapore 368324

Issued By:

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**Appendix A: Photographs of Test Setup**

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## 1. Test Certification

<b>Product:</b>	Wi-Fi® Radio Transceiver
<b>Model No.:</b>	NM-DB-3
<b>Additional Model No.:</b>	DLM180, NM-DB-2, NE-DB-2, NE-DB-3, NO-DB-2, NO-DB-3
<b>Applicant:</b>	Doodle Labs (SG) Pte Ltd
<b>Address:</b>	150 Kampong Ampat, KA Centre, Suite #05-03, Singapore 368324
<b>Manufacturer:</b>	Doodle Labs (SG) Pte Ltd
<b>Address:</b>	150 Kampong Ampat, KA Centre, Suite #05-03, Singapore 368324
<b>Date of Test:</b>	Aug. 18 – Aug. 31, 2016
<b>Applicable Standards:</b>	FCC CFR Title 47 Part 15 Subpart E Section 15.407:2014 KDB662911 D01 Multiple Transmitter Output v02r01 789033 D02 General UNII Test Procedures New Rules v01r03 RSS-247:2015, RSS-Gen:2014

The above equipment has been tested by Shenzhen Tongce Testing Lab. and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By:

*Beryl Zhao*

Beryl Zhao

Date:

Aug. 31, 2016

Reviewed By:

*Joe Zhou*

Joe Zhou

Date:

Sep. 08, 2016

Approved By:

*Tomsin*

Tomsin

Date:

Sep. 08, 2016

## 2. Test Result Summary

Requirement	CFR 47 Section	IC Rule	Result
Antenna requirement	§15.203	RSS-247, 6.2	PASS
AC Power Line Conducted Emission	§15.207	RSS GEN, 8.8	PASS
Maximum Conducted Output Power	§15.407(a) §2.1046	RSS-247, 6.2	PASS
6dB Emission Bandwidth	§15.407(a) §2.1049	RSS-247, 6.2	PASS
26dB Emission Bandwidth & 99% Occupied Bandwidth	§15.407(a) §2.1049	RSS-247, 6.2	PASS
Power Spectral Density	§15.407(a)	RSS-247, 6.2	PASS
Restricted Bands around fundamental frequency	§15.407(a)	RSS-247, 6.2	PASS
Radiated Emission	§15.407(a) §2.1053	RSS-247, 6.2	PASS
Frequency Stability	§15.407(g) §2.1055	--	PASS

**Note:**

1. PASS: Test item meets the requirement.
2. Fail: Test item does not meet the requirement.
3. N/A: Test case does not apply to the test object.
4. The test result judgment is decided by the limit of test standard.

### 3. EUT Description

<b>Product Name:</b>	Wi-Fi® Radio Transceiver
<b>Product Type:</b>	WLAN(3TX, 3RX)
<b>Radio Type:</b>	3x3 MIMO
<b>Model :</b>	NM-DB-3
<b>Additional Model:</b>	DLM180, NM-DB-2, NE-DB-2, NE-DB-3, NO-DB-2, NO-DB-3
<b>Trade Mark:</b>	N/A
<b>Operation Frequency:</b>	Band I: 5180MHz~5240MHz Band II: 5260MHz~5320MHz Band III: 5500MHz~5700MHz Band IV: 5745MHz~5825MHz
<b>Channel Bandwidth:</b>	802.11a :20MHz 802.11n :20MHz, 40MHz
<b>Modulation Technology:</b>	Orthogonal Frequency Division Multiplexing(OFDM)
<b>Modulation Type</b>	256QAM, 64QAM, 16QAM, BPSK, QPSK
<b>Antenna Type:</b>	R-SMA antenna
<b>Antenna Gain:</b>	Band I: 5180MHz~5240MHz: 3dBi Band II: 5260MHz~5320MHz: 3dBi Band III: 5500MHz~5700MHz: 3dBi Band IV: 5745MHz~5825MHz: 3dBi
<b>Power Supply:</b>	DC 3.3V
<b>Model difference :</b>	All models above are identical in interior structure, electrical circuits and components, and just model names are different for the marketing requirement.

Band I (5150MHz~5250MHz) Power level setup in software			
Mode	Channel	Frequency	Soft set
11a	CH36	5180	7
11a	CH44	5220	7
11a	CH48	5240	7
11n(HT20)	CH36	5180	7
11n(HT20)	CH44	5220	7
11n(HT20)	CH48	5240	7
11n(HT40)	CH38	5190	5
11n(HT40)	CH46	5230	5

Band II(5250MHz~5350MHz) Power level setup in software			
Mode	Channel	Frequency	Soft set
11a	CH52	5260	5
11a	CH60	5300	5
11a	CH64	5320	5
11n(HT20)	CH52	5260	5
11n(HT20)	CH60	5300	5
11n(HT20)	CH64	5320	5
11n(HT40)	CH54	5270	5
11n(HT40)	CH62	5310	5

Band III(5470MHz~5725MHz) Power level setup in software			
Mode	Channel	Frequency	Soft set
11a	CH100	5500	5
11a	CH116	5580	5
11a	CH140	5700	5
11n(HT20)	CH100	5500	5
11n(HT20)	CH116	5580	5
11n(HT20)	CH140	5700	5
11n(HT40)	CH102	5510	5
11n(HT40)	CH134	5670	5

Band IV (5725 - 5850 MHz ) Power level setup in software			
Mode	Channel	Frequency	Soft set
11a	CH149	5745	8
11a	CH157	5785	8
11a	CH165	5825	8
11n (HT20)	CH149	5745	8
11n (HT20)	CH157	5785	8
11n (HT20)	CH165	5825	8
11n (HT40)	CH151	5755	7.5
11n (HT40)	CH159	5795	7.5

Note: The Soft set value is the internal setting required to meet the requirements and does not necessarily mean the 'dBm' value

Operation Frequency each of channel

20MHz		40MHz	
Channel	Frequency	Channel	Frequency
36	5180	38	5190
40	5200	46	5230
44	5220	54	5270
48	5240	62	5310
52	5260	102	5510
56	5280	110	5550
60	5300	134	5670
64	5320	151	5755
100	5500	159	5790
104	5520		
108	5540		
112	5560		
116	5580		
132	5660		
136	5680		
140	5700		
149	5745		
153	5765		
157	5785		
161	5805		
165	5825		



**Note:**

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

**For 802.11a/n(HT20)**

Band I (5150 - 5250 MHz)			Band II (5250 - 5350 MHz)		
Channel Number	Channel	Frequency (MHz)	Channel Number	Channel	Frequency (MHz)
36	Low	5180	52	Low	5260
44	Mid	5220	60	Mid	5300
48	High	5240	64	High	5320

Band III (5470 - 5725 MHz)			Band IV (5725 - 5850 MHz)		
Channel Number	Channel	Frequency (MHz)	Channel Number	Channel	Frequency (MHz)
100	Low	5500	149	Low	5745
116	Mid	5580	157	Mid	5785
140	High	5700	161	High	5805

**For 802.11n (HT40)**

Band I (5150 - 5250 MHz)			Band II (5250 - 5350 MHz)		
Channel Number	Channel	Frequency (MHz)	Channel Number	Channel	Frequency (MHz)
38	Low	5190	54	Low	5270
46	High	5230	62	High	5310

Band III (5470 - 5725 MHz)			Band IV (5725 - 5850 MHz)		
Channel Number	Channel	Frequency (MHz)	Channel Number	Channel	Frequency (MHz)
102	Low	5510	151	Low	5755
134	High	5670	159	High	5795

## 4. Genera Information

### 4.1. Test environment and mode

Operating Environment:	
Temperature:	25.0 °C
Humidity:	56 % RH
Atmospheric Pressure:	1010 mbar
Test Mode:	
Engineering mode:	Keep the EUT in continuous transmitting by select channel and modulations(The value of duty cycle is 100%)
<p>The sample was placed 0.8m/1.5m for blow/above 1GHz above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y &amp; Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.</p>	

<p>We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:</p>	
Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.	
Mode	Data rate
802.11a	6Mbps
802.11n(HT20)	6.5 Mbps
802.11n(HT40)	13.5 Mbps
Final Test Mode:	
Operation mode:	Keep the EUT in continuous transmitting with modulation

## 4.2. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
Intel NUC	D54250WYKH	G6YK4390029 U	DOC	Intel

**Note:**

- All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.*
- Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*
- For conducted measurements (Output Power, Emission Bandwidth, Power Spectral Density, Spurious Emissions), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.*

## 5. Facilities and Accreditations

### 5.1. Facilities

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

- FCC - Registration No.: 572331

Shenzhen Tongce Testing Lab

The 3m Semi-anechoic chamber has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

- IC - Registration No.: 10668A-1

The 3m Semi-anechoic chamber of Shenzhen TCT Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

- CNAS - Registration No.: CNAS L6165

Shenzhen TCT Testing Technology Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6165.

### 5.2. Location

Shenzhen Tongce Testing Lab

Address: 1F, Leinuo Watch Building, Fuyong Town, Baoan Dist, Shenzhen, China

Tel: 86-755-36638142

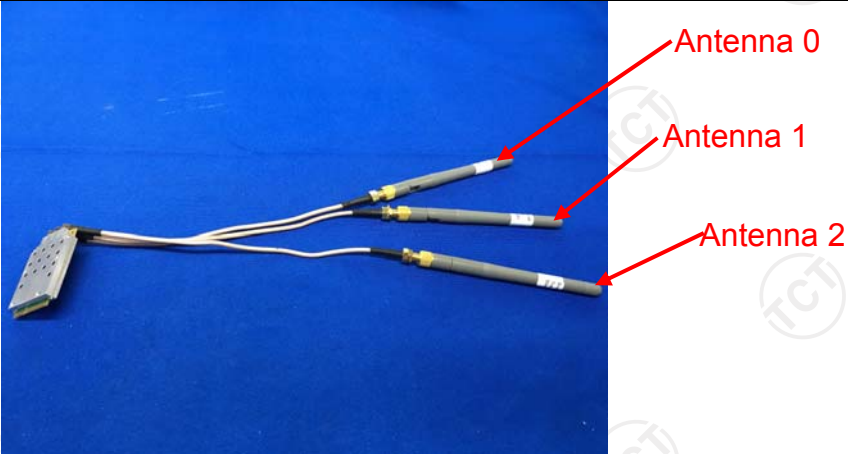
### 5.3. Measurement Uncertainty

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission	$\pm 2.56\text{dB}$
2	RF power, conducted	$\pm 0.12\text{dB}$
3	Spurious emissions, conducted	$\pm 0.11\text{dB}$
4	All emissions, radiated(<1G)	$\pm 3.92\text{dB}$
5	All emissions, radiated(>1G)	$\pm 4.28\text{dB}$
6	Temperature	$\pm 0.1^\circ\text{C}$
7	Humidity	$\pm 1.0\%$

## 6. Test Results and Measurement Data

### 6.1. Antenna requirement

<b>Standard requirement:</b>	FCC Part15 C Section 15.203 /247(c)
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.	
<b>E.U.T Antenna:</b>	
The EUT three antennas are R-SMA antennas which is only the antenna type used, and the best case gain of the antennas all are 3dBi.	
	

## 6.2. Conducted Emission

### 6.2.1. Test Specification

<b>Test Requirement:</b>	FCC Part15 C Section 15.207/RSS-GEN, 8.8														
<b>Test Method:</b>	ANSI C63.10:2013														
<b>Frequency Range:</b>	150 kHz to 30 MHz														
<b>Receiver setup:</b>	RBW=9 kHz, VBW=30 kHz, Sweep time=auto														
<b>Limits:</b>	<table border="1"> <thead> <tr> <th rowspan="2">Frequency range (MHz)</th> <th colspan="2">Limit (dBuV)</th> </tr> <tr> <th>Quasi-peak</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>0.15-0.5</td> <td>66 to 56*</td> <td>56 to 46*</td> </tr> <tr> <td>0.5-5</td> <td>56</td> <td>46</td> </tr> <tr> <td>5-30</td> <td>60</td> <td>50</td> </tr> </tbody> </table>	Frequency range (MHz)	Limit (dBuV)		Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	5-30	60	50
Frequency range (MHz)	Limit (dBuV)														
	Quasi-peak	Average													
0.15-0.5	66 to 56*	56 to 46*													
0.5-5	56	46													
5-30	60	50													
<b>Test Setup:</b>	<p><i>Remark</i> E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</p>														
<b>Test Mode:</b>	Tx Mode														
<b>Test Procedure:</b>	<ol style="list-style-type: none"> <li>The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.</li> <li>The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).</li> <li>Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.</li> </ol>														
<b>Test Result:</b>	PASS														

**6.2.2. Test Instruments**

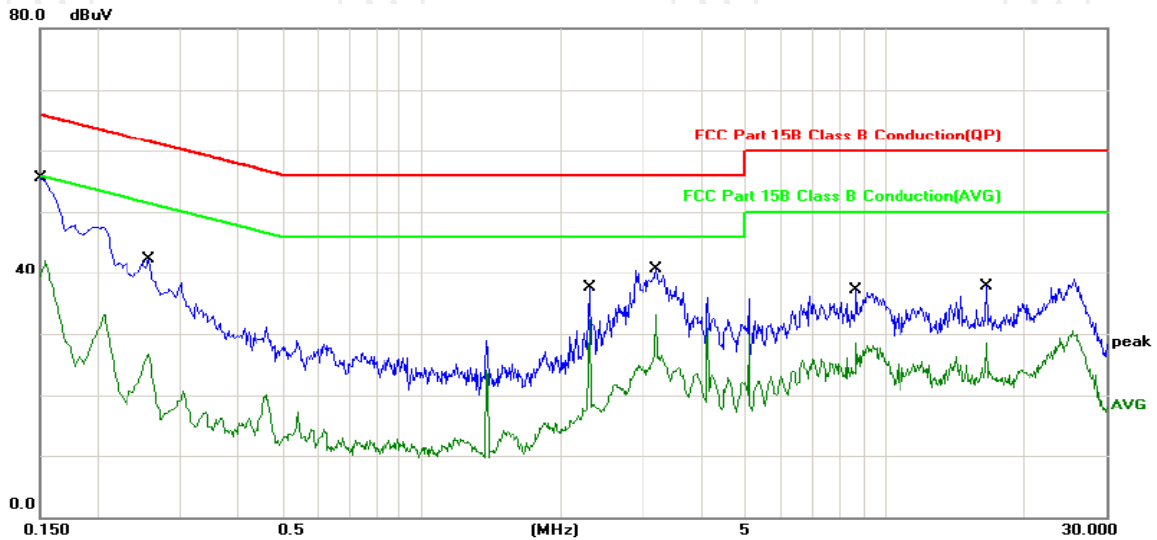
Conducted Emission Shielding Room Test Site (843)				
Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESCS30	100139	Aug. 11, 2017
LISN	Schwarzbeck	NSLK 8126	8126453	Aug. 16, 2017
Coax cable	TCT	CE-05	N/A	Aug. 11, 2017
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A

**Note:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.2.3. Test data

Please refer to following diagram for individual

Conducted Emission on Line Terminal of the power line (150 kHz to 30MHz)



Site Chamber #2 Phase: **L1** Temperature: 23  
Limit: FCC Part 15B Class B Conduction(QP) Power: AC 120V/60Hz Humidity: 54 %

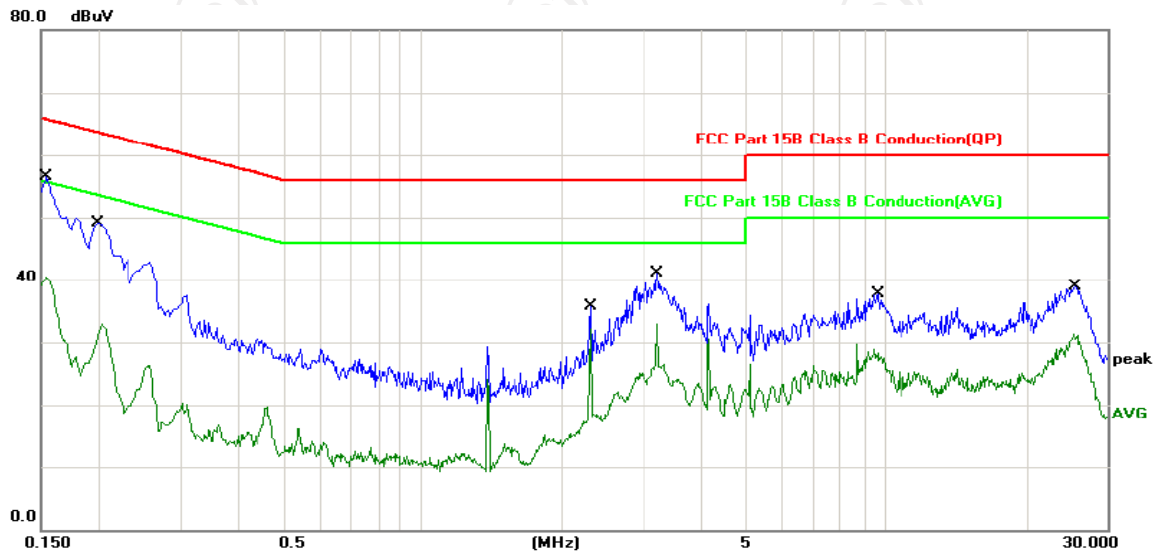
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1500	40.73	11.47	52.20	65.99	-13.79	QP	
2		0.1500	27.03	11.47	38.50	55.99	-17.49	AVG	
3		0.2580	26.51	11.42	37.93	61.49	-23.56	QP	
4		0.2580	13.05	11.42	24.47	51.49	-27.02	AVG	
5		2.2980	22.01	11.58	33.59	56.00	-22.41	QP	
6		2.2980	20.73	11.58	32.31	46.00	-13.69	AVG	
7		3.2180	26.09	11.25	37.34	56.00	-18.66	QP	
8	*	3.2180	21.85	11.25	33.10	46.00	-12.90	AVG	
9		8.6620	22.89	11.16	34.05	60.00	-25.95	QP	
10		8.6620	17.05	11.16	28.21	50.00	-21.79	AVG	
11		16.4920	23.32	11.34	34.66	60.00	-25.34	QP	
12		16.4920	18.88	11.34	30.22	50.00	-19.78	AVG	

**Note:**

- Freq. = Emission frequency in MHz
- Reading level (dBuV) = Receiver reading
- Corr. Factor (dB) = attenuator factor + Cable loss
- Measurement (dBuV) = Reading level (dBuV) + Corr. Factor (dB)
- Limit (dBuV) = Limit stated in standard
- Margin (dB) = Measurement (dBuV) – Limits (dBuV)
- Q.P. =Quasi-Peak
- AVG =average
- \* is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz.



**Conducted Emission on Neutral Terminal of the power line (150 kHz to 30MHz)**



Site Chamber #2 Phase: **N** Temperature: 23  
Limit: FCC Part 15B Class B Conduction(QP) Power: AC 120V/60Hz Humidity: 54 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1539	41.57	11.47	53.04	65.78	-12.74	QP	
2		0.1539	28.99	11.47	40.46	55.78	-15.32	AVG	
3		0.1980	32.82	11.45	44.27	63.69	-19.42	QP	
4		0.1980	18.40	11.45	29.85	53.69	-23.84	AVG	
5		2.2980	22.08	11.58	33.66	56.00	-22.34	QP	
6		2.2980	20.60	11.58	32.18	46.00	-13.82	AVG	
7		3.2180	25.76	11.25	37.01	56.00	-18.99	QP	
8		3.2180	21.44	11.25	32.69	46.00	-13.31	AVG	
9		9.5620	21.16	11.28	32.44	60.00	-27.56	QP	
10		9.5620	16.13	11.28	27.41	50.00	-22.59	AVG	
11		25.6120	24.23	10.75	34.98	60.00	-25.02	QP	
12		25.6120	19.31	10.75	30.06	50.00	-19.94	AVG	

**Note:**

- Freq. = Emission frequency in MHz
- Reading level (dBuV) = Receiver reading
- Corr. Factor (dB) = attenuator factor + Cable loss
- Measurement (dBuV) = Reading level (dBuV) + Corr. Factor (dB)
- Limit (dBuV) = Limit stated in standard
- Margin (dB) = Measurement (dBuV) – Limits (dBuV)
- Q.P. =Quasi-Peak
- AVG =average
- \* is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz.

### 6.3. Maximum Conducted Output Power

#### 6.3.1. Test Specification

<b>Test Requirement:</b>	FCC Part15 E Section 15.407(a)& Part 2 J Section 2.1046 / RSS-247, 6.2	
<b>Test Method:</b>	KDB662911 D01 Multiple Transmitter Output v02r01 KDB789033 D02 General UNII Test Procedures New Rules v01r03 Section E	
<b>Limit:</b>	Frequency Band (MHz)	Limit
	5150-5250	1W for indoor access point
	5250-5350	250 mW or 11 dBm + 10log B, whichever is less.
	5470-5725	250 mW or 11 dBm + 10log B, whichever is less.
	5725-5850	1 W
	Note: Where "B" is the 26 dB emissions bandwidth in MHz.	
	RSS-247, 6.2	
	Frequency Band (MHz)	Limit
	5150-5250	N/A
	5250-5350	250 mW or 11 dBm + 10log B, whichever is less.
	5470-5725	250 mW or 11 dBm + 10log B, whichever is less.
	5725-5850	1 W
	Note: Where "B" is the 99% emissions bandwidth in MHz.	
	The maximum e.i.r.p. shall not exceed:	
Frequency Band (MHz)	Limit	
5150-5250	200 mW or 10 dBm + 10log B, whichever is less.	
5250-5350	1W or 17 dBm + 10log B, whichever is less.	
5470-5725	1W or 17 dBm + 10log B, whichever is less.	
5725-5850	N/A	
Note: Where "B" is the 99% emissions bandwidth in MHz.		



**6.3.3. Test Data**

Configuration Band I (5150 - 5250 MHz ) / Antenna 0+Antenna 1+ Antenna 2								
Mode	Test channel	Maximum Conducted (Average) Output Power (dBm)				FCC Limit (dBm)	IC Limit (dBm)	Result
		Ant0	Ant1	Ant2	Total			
11a	CH36	9.35	9.11	9.4	14.06	28.2	N/A	PASS
11a	CH44	9.61	9.24	9.69	14.29	28.2	N/A	PASS
11a	CH48	9.16	8.93	9.48	13.97	28.2	N/A	PASS
11n(HT20)	CH36	7.91	8.95	8.71	13.32	28.2	N/A	PASS
11n(HT20)	CH44	9.55	9.51	9.59	14.32	28.2	N/A	PASS
11n(HT20)	CH48	9.18	9.92	9.07	14.18	28.2	N/A	PASS
11n(HT40)	CH38	7.38	8.01	8.01	12.58	28.2	N/A	PASS
11n(HT40)	CH46	7.95	7.24	8.13	12.56	28.2	N/A	PASS

Note:  $G_{ANT}=3\text{dBi}$ , Array Gain= $10\log(N_{ANT}/N_{SS})=4.8\text{dBi}$ , Directional Gain= $G_{ANT} + \text{Array Gain}=7.8\text{dBi}$ ,

So limit= $30-(7.8-6)=28.2\text{dBm}$

Configuration Band II (5250 - 5350 MHz ) / Antenna 0+Antenna 1+ Antenna 2								
Mode	Test channel	Maximum Conducted (Average) Output Power (dBm)				FCC Limit (dBm)	IC Limit (dBm)	Result
		Ant0	Ant1	Ant2	Total			
11a	CH52	9.89	9.55	9.67	14.48	22.2	22.2	PASS
11a	CH60	9.91	9.69	9.85	14.59	22.2	22.2	PASS
11a	CH64	9.54	9.26	9.38	14.17	22.2	22.2	PASS
11n(HT20)	CH52	9.13	9.24	9.21	13.96	22.2	22.2	PASS
11n(HT20)	CH60	9.85	9.64	9.73	14.51	22.2	22.2	PASS
11n(HT20)	CH64	9.66	9.85	9.60	14.48	22.2	22.2	PASS
11n(HT40)	CH54	8.73	8.84	8.91	13.60	22.2	22.2	PASS
11n(HT40)	CH62	8.55	8.43	8.64	13.31	22.2	22.2	PASS

Note 1:  $G_{ANT}=3\text{dBi}$ , Array Gain= $10\log(N_{ANT}/N_{SS})=4.8\text{dBi}$ , Directional Gain= $G_{ANT} + \text{Array Gain}=7.8\text{dBi}$ ,

So limit= $24-(7.8-6)=22.2\text{dBm}$

Note2: The limit is 250 mW or 11 dBm + 10log B, whichever is less. In IC Standard, Where "B" is the 99% emissions bandwidth in MHz. In FCC Standard, Where "B" is the 26dB emissions bandwidth in MHz. Please refer to section 6.5.

**Configuration Band III (5470 - 5725 MHz ) / Antenna 0+Antenna 1+ Antenna 2**

Mode	Test channel	Maximum Conducted (Average) Output Power (dBm)				FCC Limit (dBm)	IC Limit (dBm)	Result
		Ant0	Ant1	Ant2	Total			
11a	CH100	15.27	14.87	14.60	19.69	22.2	22.2	PASS
11a	CH116	14.55	15.25	15.71	19.97	22.2	22.2	PASS
11a	CH140	15.45	15.68	15.43	20.29	22.2	22.2	PASS
11n(HT20)	CH100	15.32	14.61	15.54	19.95	22.2	22.2	PASS
11n(HT20)	CH116	14.59	15.89	14.21	19.73	22.2	22.2	PASS
11n(HT20)	CH140	14.96	15.41	14.72	19.81	22.2	22.2	PASS
11n(HT40)	CH102	14.17	14.22	13.55	18.76	22.2	22.2	PASS
11n(HT40)	CH134	13.39	13.48	13.70	18.30	22.2	22.2	PASS

**Note 1:**  $G_{ANT} = 3\text{dBi}$ ,  $\text{Array Gain} = 10\log(N_{ANT}/N_{SS}) = 4.8\text{dBi}$ ,  $\text{Directional Gain} = G_{ANT} + \text{Array Gain} = 7.8\text{dBi}$ ,

**So limit**  $= 24 - (7.8 - 6) = 22.2\text{dBm}$

**Note2:** The limit is 250 mW or 11 dBm + 10log B, whichever is less. In IC Standard, Where "B" is the 99% emissions bandwidth in MHz. In FCC Standard, Where "B" is the 26dB emissions bandwidth in MHz. Please refer to section 6.5.

Configuration Band IV (5725 - 5850 MHz) / Antenna 0+Antenna 1+ Antenna 2								
Mode	Test channel	Maximum Conducted (Average) Output Power (dBm)				FCC Limit (dBm)	IC Limit (dBm)	Result
		Ant0	Ant1	Ant2	Total			
11a	CH149	19.72	19.49	19.98	24.51	28.2	28.2	PASS
11a	CH157	19.71	20.86	20.57	25.18	28.2	28.2	PASS
11a	CH165	20.12	19.75	20.23	24.81	28.2	28.2	PASS
11n (HT20)	CH149	20.25	20.15	20.56	25.09	28.2	28.2	PASS
11n (HT20)	CH157	20.33	19.87	19.90	24.81	28.2	28.2	PASS
11n (HT20)	CH165	19.45	19.62	19.77	24.39	28.2	28.2	PASS
11n (HT40)	CH151	18.09	17.74	17.83	22.66	28.2	28.2	PASS
11n (HT40)	CH159	18.43	18.18	17.85	22.93	28.2	28.2	PASS

Note 1:  $G_{ANT}=3\text{dBi}$ ,  $\text{Array Gain}=10\log(N_{ANT}/N_{SS})=4.8\text{dBi}$ ,  $\text{Directional Gain}=G_{ANT} + \text{Array Gain}=7.8\text{dBi}$ ,

So  $\text{limit}=30-(7.8-6)=28.2\text{dBm}$

## EIRP

### Band I (5150 - 5250 MHz )

Mode	Test channel	Total Conducted Output Power (dBm)	EIRP Power Total (dBm)	EIRP Power Total(mW)	99% EBW (MHz)	10dBm+ 10logB (mW)	IC Limit (mW)	Result
11a	CH36	14.06	21.86	153.46	16.54	165	165	PASS
11a	CH44	14.29	22.09	161.81	16.54	165	165	PASS
11a	CH48	13.97	21.77	150.31	16.54	165	165	PASS
11n(HT20)	CH36	13.32	21.12	129.42	17.50	175	175	PASS
11n(HT20)	CH44	14.32	22.12	162.93	17.50	175	175	PASS
11n(HT20)	CH48	14.18	21.98	157.76	17.50	175	175	PASS
11n(HT40)	CH38	12.58	20.38	109.14	36.03	360	200	PASS
11n(HT40)	CH46	12.56	20.36	108.64	36.03	360	200	PASS

Note1: The limit is 200 mW or 10 dBm + 10log B, whichever is less. Where "B" is the 99% emissions

Note2: The E.I.R.P = P<sub>Total Conducted Output Power</sub> + Directional Gain;

$$G_{ANT} = 3\text{dBi}, \text{ Array Gain} = 10\log(N_{ANT}/N_{SS}) = 4.8\text{dBi}, \text{ Directional Gain} = G_{ANT} + \text{Array Gain} = 7.8\text{dBi}$$

### Band II (5250 - 5350 MHz )

Mode	Test channel	Total Conducted Output Power (dBm)	EIRP Power Total (dBm)	EIRP Power Total(mW)	99% EBW (MHz)	17dBm+ 10logB (mW)	IC Limit (mW)	Result
11a	CH52	14.48	22.28	169.0441	16.60	831.97	855	PASS
11a	CH60	14.59	22.39	173.3804	16.60	831.97	858	PASS
11a	CH64	14.17	21.97	157.3983	16.60	831.97	855	PASS
11n(HT20)	CH52	13.96	21.76	149.9685	17.50	877.08	909	PASS
11n(HT20)	CH60	14.51	22.31	170.2159	17.50	877.08	906	PASS
11n(HT20)	CH64	14.48	22.28	169.0441	17.50	877.088	906	PASS
11n(HT40)	CH54	13.60	21.40	138.0384	36.15	1811.79	1000	PASS
11n(HT40)	CH62	13.31	21.11	129.1219	36.03	1805.78	1000	PASS

Note1: The limit is 1W or 17 dBm + 10log B, whichever is less. Where "B" is the 99% emissions

Note2: The E.I.R.P = P<sub>Total Conducted Output Power</sub> + Directional Gain;

$$G_{ANT} = 3\text{dBi}, \text{ Array Gain} = 10\log(N_{ANT}/N_{SS}) = 4.8\text{dBi}, \text{ Directional Gain} = G_{ANT} + \text{Array Gain} = 7.8\text{dBi}$$



Band III (5470 - 5725 MHz )								
Mode	Test channel	Total Conducted Output Power (dBm)	EIRP Power Total (dBm)	EIRP Power Total(mW)	99% EBW (MHz)	17dBm+ 10logB (mW)	IC Limit (mW)	Result
11a	CH100	19.69	27.49	561.05	17.115	858	858	PASS
11a	CH116	19.97	27.77	598.41	16.987	851	851	PASS
11a	CH140	20.29	28.09	644.17	17.115	858	858	PASS
11n(HT20)	CH100	19.95	27.75	595.66	18.141	909	909	PASS
11n(HT20)	CH116	19.73	27.53	566.24	18.205	912	912	PASS
11n(HT20)	CH140	19.81	27.61	576.77	17.692	887	887	PASS
11n(HT40)	CH102	18.76	26.56	452.90	36.923	1851	1000	PASS
11n(HT40)	CH134	18.30	26.10	407.38	36.795	1844	1000	PASS

Note1: The limit is 1W or 17 dBm + 10log B, whichever is less. Where "B" is the 99% emissions


Note2: The E.I.R.P = P<sub>Total Conducted Output Power</sub> + Directional Gain;

$G_{ANT} = 3\text{dBi}$ , Array Gain =  $10\log(N_{ANT}/N_{SS}) = 4.8\text{dBi}$ , Directional Gain =  $G_{ANT} + \text{Array Gain} = 7.8\text{dBi}$



## 6.4. 6dB Emission Bandwidth

### 6.4.1. Test Specification

<b>Test Requirement:</b>	FCC CFR47 Part 15 Section 15.407(e)& Part 2 J Section 2.1049/ RSS-247, 6.2
<b>Test Method:</b>	KDB662911 D01 Multiple Transmitter Output v02r01 KDB789033 D02 General UNII Test Procedures New Rules v01r03 Section C
<b>Limit:</b>	>500kHz
<b>Test Setup:</b>	 <p style="text-align: center;">Spectrum Analyzer                      EUT</p>
<b>Test Mode:</b>	Transmitting mode with modulation
<b>Test Procedure:</b>	<ol style="list-style-type: none"> <li>1. KDB789033 D02 General UNII Test Procedures New Rules v01r03 Section C</li> <li>2. Set to the maximum power setting and enable the EUT transmit continuously.</li> <li>3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6dB bandwidth must be greater than 500 kHz.</li> <li>4. Measure and record the results in the test report.</li> </ol>
<b>Test Result:</b>	PASS

### 6.4.2. Test Instruments

RF Test Room				
Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	R&S	FSQ	200061	Aug. 12, 2017
RF cable	TCT	RE-06	N/A	Aug. 12, 2017
Antenna Connector	TCT	RFC-01	N/A	Aug. 12, 2017

**Note:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

**6.4.3. Test data**

**ANT 0**

Band IV (5725 - 5850 MHz )					
Mode	Test channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)	Result
11a	CH149	5745	15.77	0.5	PASS
11a	CH157	5785	15.71	0.5	PASS
11a	CH165	5825	16.41	0.5	PASS
11n(HT20)	CH149	5745	16.99	0.5	PASS
11n(HT20)	CH157	5785	17.18	0.5	PASS
11n(HT20)	CH165	5825	17.05	0.5	PASS
11n(HT40)	CH151	5755	35.64	0.5	PASS
11n(HT40)	CH159	5795	35.64	0.5	PASS

**ANT 1**

Band IV (5725 - 5850 MHz )					
Mode	Test channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)	Result
11a	CH149	5745	15.77	0.5	PASS
11a	CH157	5785	15.77	0.5	PASS
11a	CH165	5825	16.41	0.5	PASS
11n(HT20)	CH149	5745	16.99	0.5	PASS
11n(HT20)	CH157	5785	16.92	0.5	PASS
11n(HT20)	CH165	5825	16.99	0.5	PASS
11n(HT40)	CH151	5755	35.77	0.5	PASS
11n(HT40)	CH159	5795	35.64	0.5	PASS

**ANT 2**

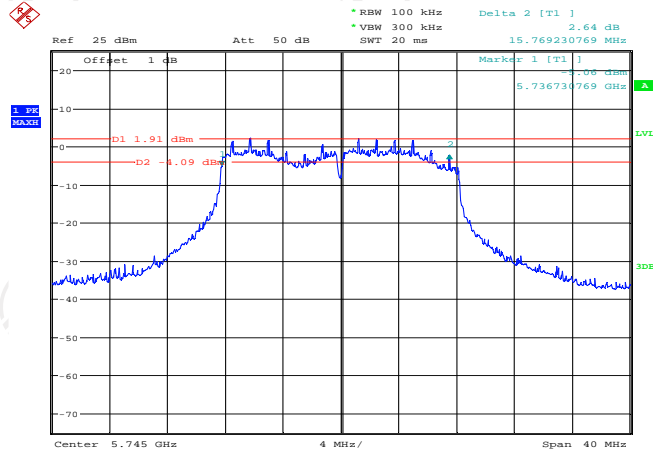
**Band IV (5725 - 5850 MHz )**

Mode	Test channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)	Result
11a	CH149	5745	15.77	0.5	PASS
11a	CH157	5785	15.77	0.5	PASS
11a	CH165	5825	16.41	0.5	PASS
11n(HT20)	CH149	5745	17.12	0.5	PASS
11n(HT20)	CH157	5785	17.37	0.5	PASS
11n(HT20)	CH168	5825	16.99	0.5	PASS
11n(HT40)	CH151	5755	35.51	0.5	PASS
11n(HT40)	CH159	5795	35.64	0.5	PASS

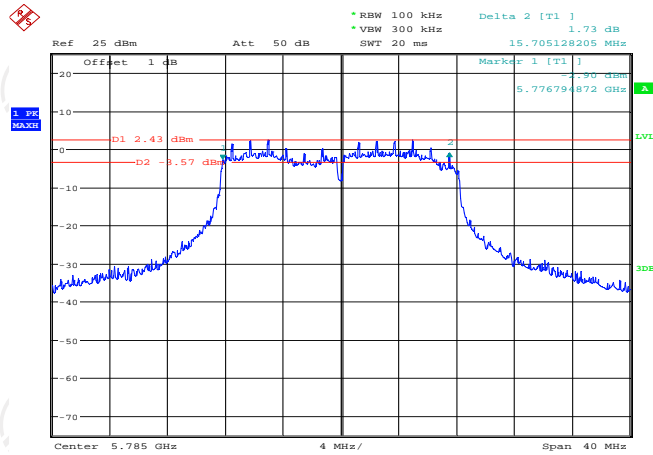
Test plots as follows:

ANT 0  
Band IV (5725 – 5850 MHz)  
11a

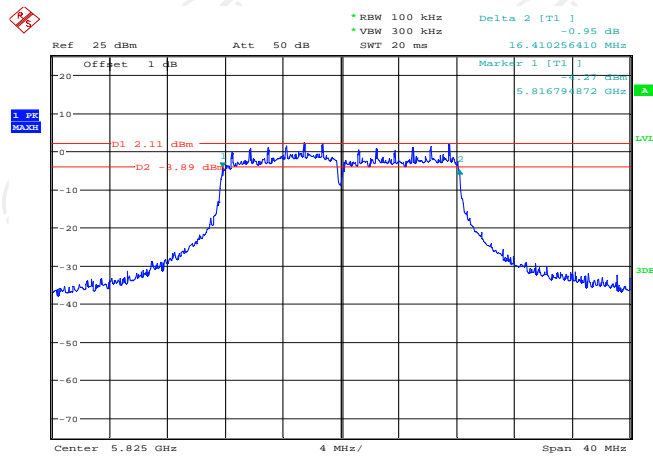
CH149



CH157

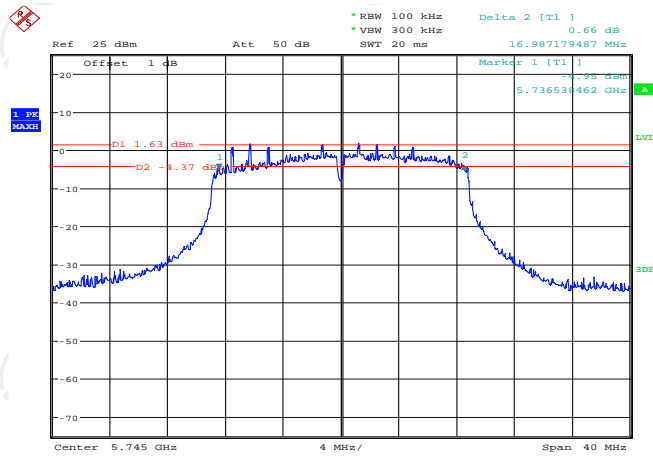


CH165

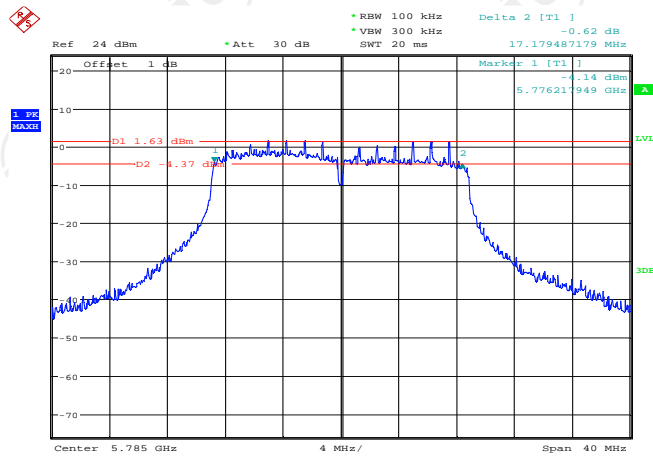


11n(HT20)

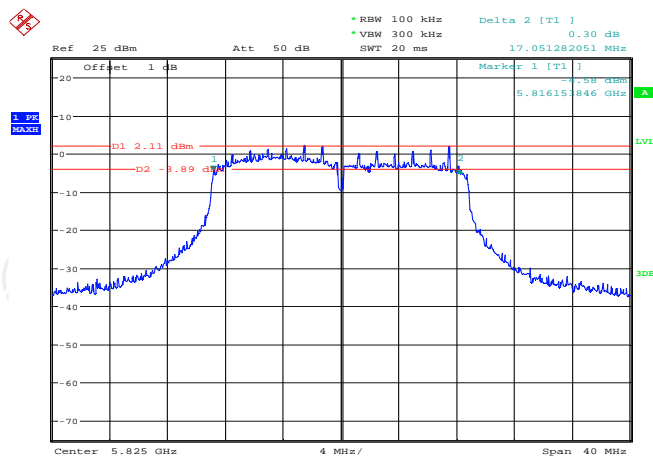
CH149



CH157

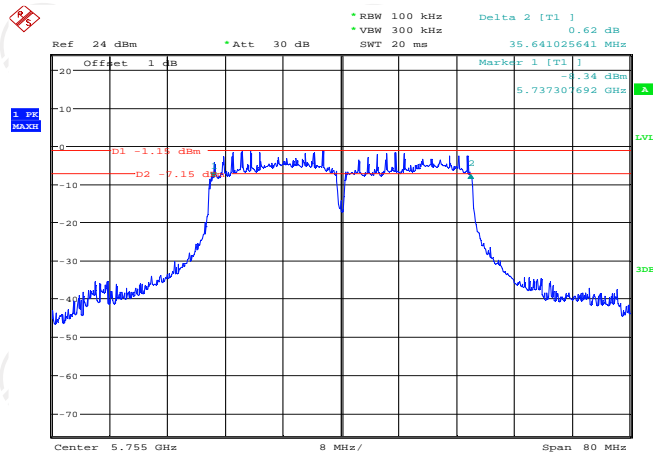


CH165

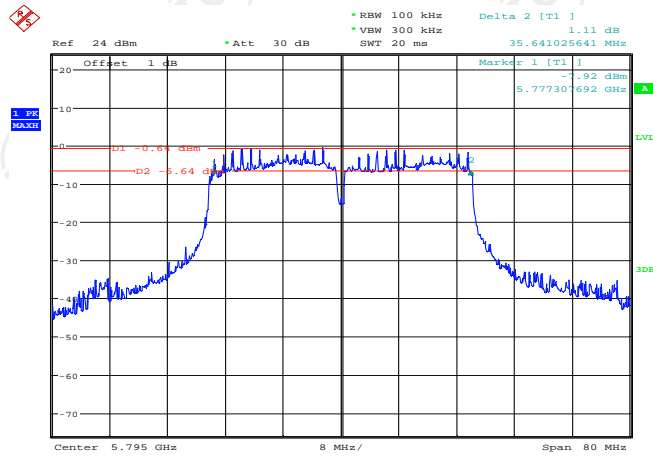


11n(HT40)

CH151

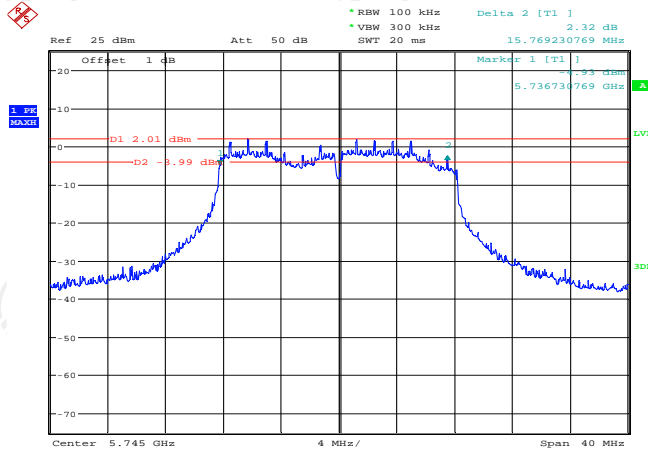


CH159

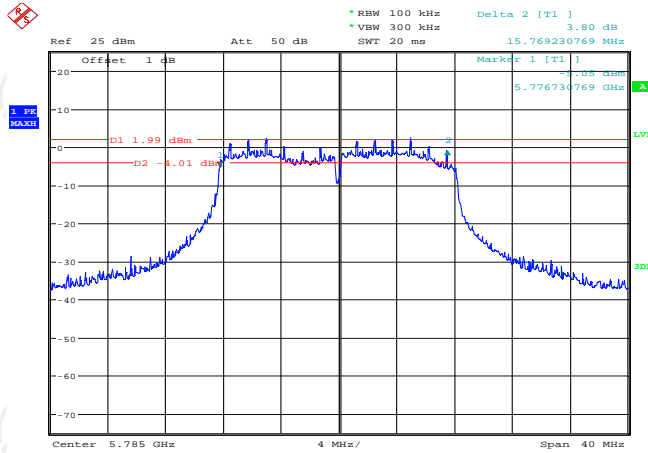


**ANT 1**  
**Band IV (5725 – 5850 MHz)**  
 11a

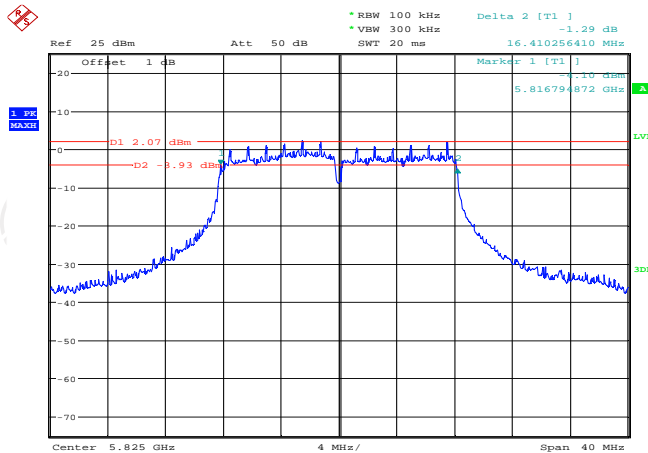
**CH149**



**CH157**

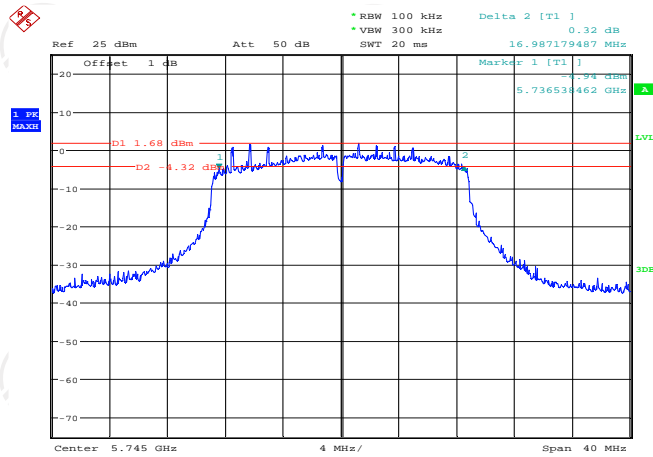


**CH165**

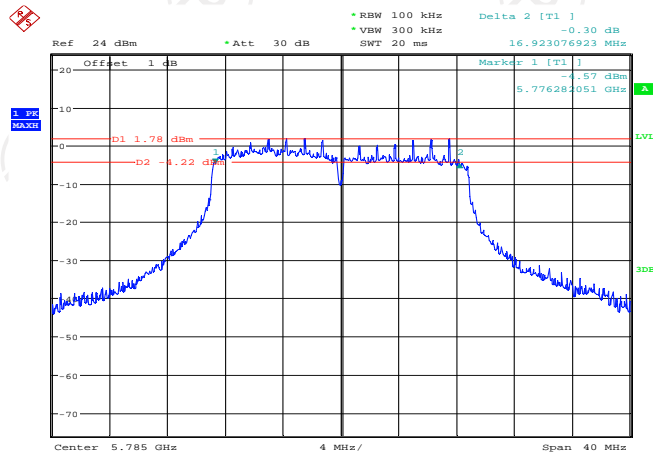


11n(HT20)

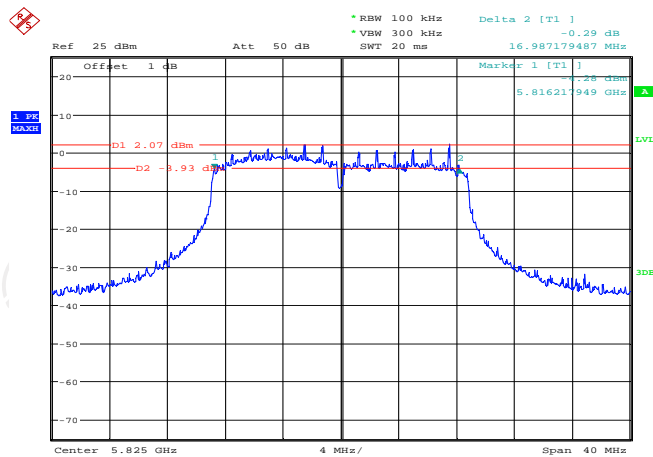
CH149



CH157



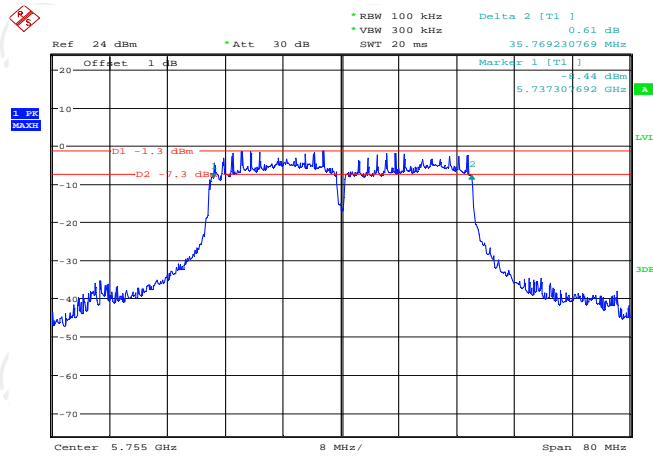
CH165



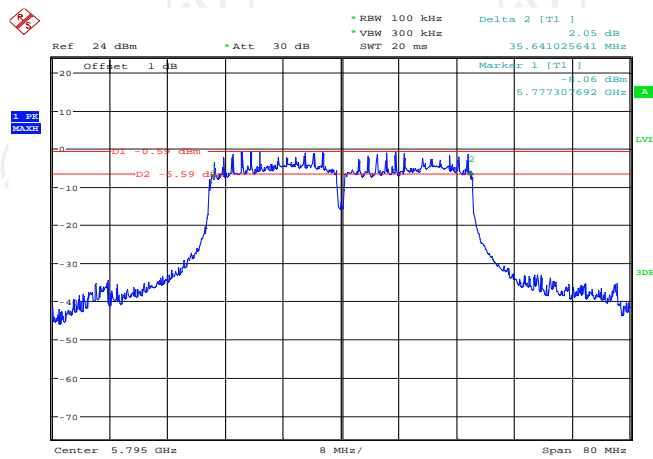


11n(HT40)

CH151

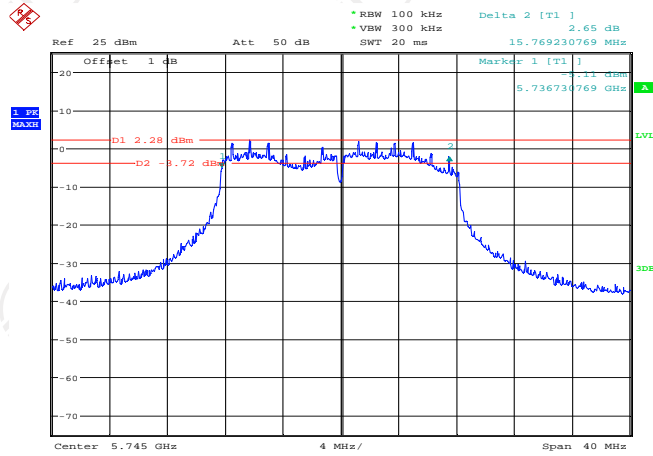


CH159

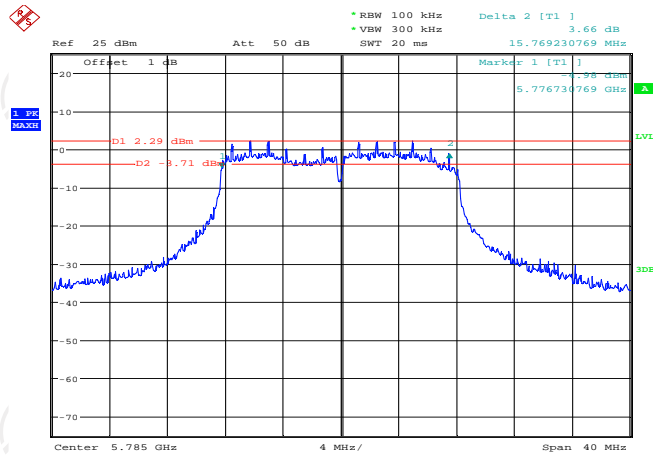


**ANT 2**  
**Band IV (5725 – 5850 MHz)**  
**11a**

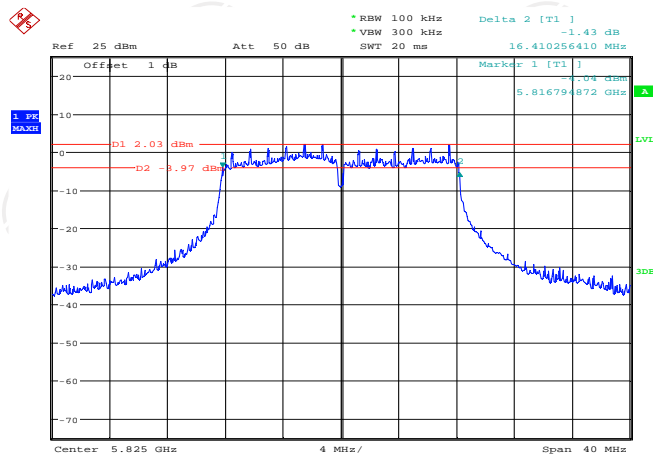
**CH149**



**CH157**

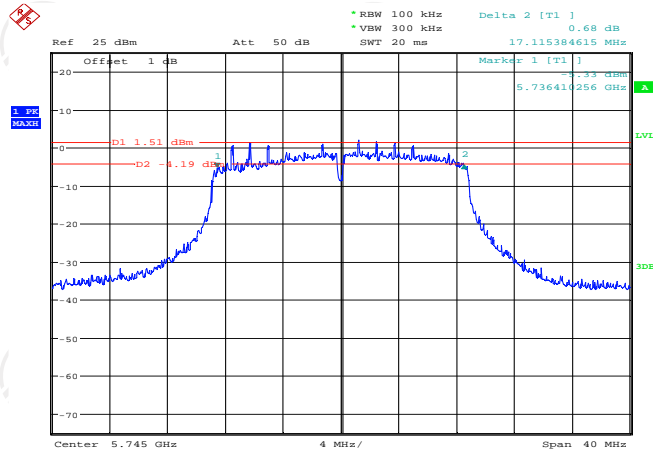


**CH165**

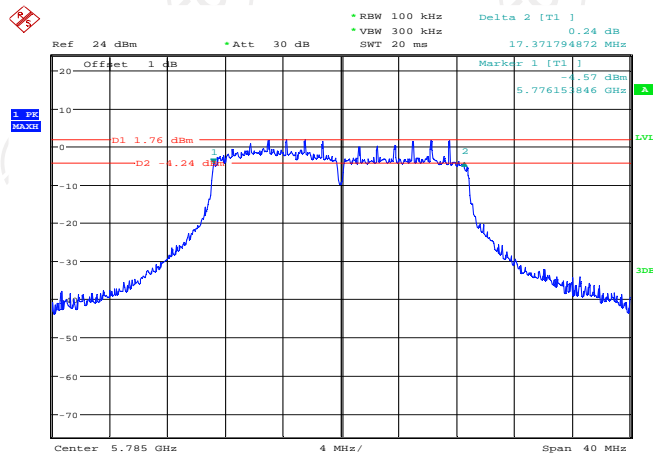


11n(HT20)

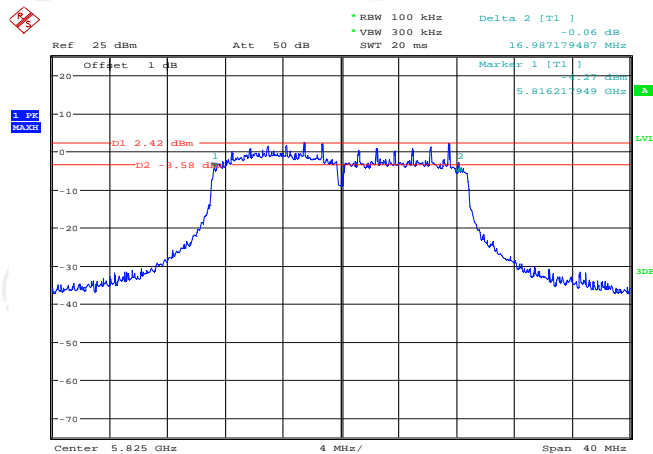
CH149



CH157

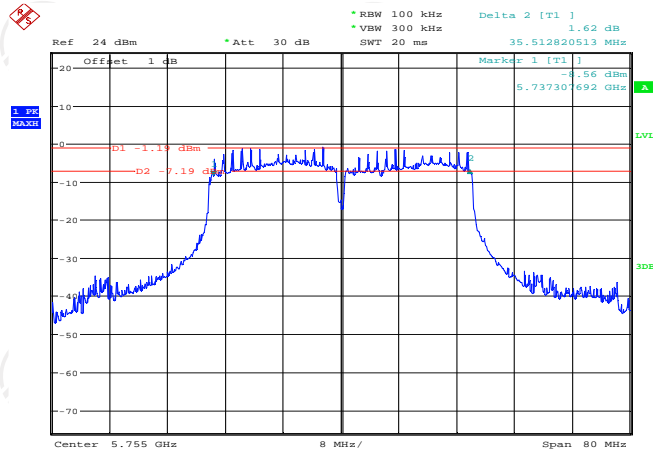


CH165

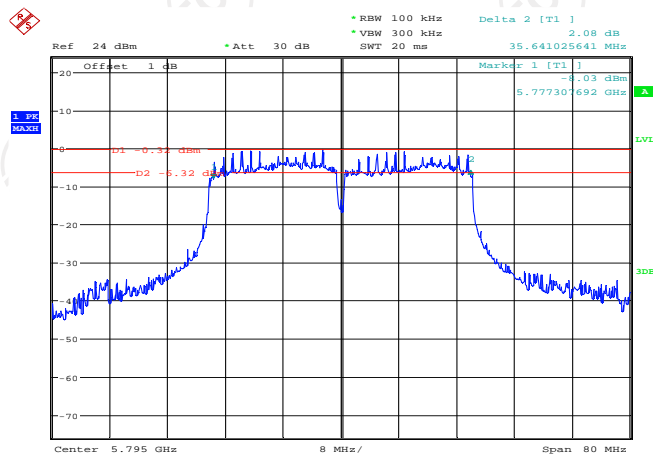


11n(HT40)

CH151




CH159



## 6.5. 26dB Bandwidth and 99% Occupied Bandwidth

### 6.5.1. Test Specification

<b>Test Requirement:</b>	47 CFR Part 15C Section 15.407 (a)& Part 2 J Section 2.1049 / RSS-247, 6.2
<b>Test Method:</b>	KDB662911 D01 Multiple Transmitter Output v02r01 KDB789033 D02 General UNII Test Procedures New Rules v01r03 Section D
<b>Limit:</b>	No restriction limits
<b>Test Setup:</b>	 <p style="text-align: center;">Spectrum Analyzer                      EUT</p>
<b>Test Mode:</b>	Transmitting mode with modulation
<b>Test Procedure:</b>	<ol style="list-style-type: none"> <li>1. KDB789033 D02 General UNII Test Procedures New Rules v01r03 Section D</li> <li>2. Set to the maximum power setting and enable the EUT transmit continuously.</li> <li>3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement.</li> <li>4. Measure and record the results in the test report.</li> </ol>
<b>Test Result:</b>	PASS

### 6.5.2. Test Instruments

RF Test Room				
Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	R&S	FSQ	200061	Aug. 12, 2017
RF cable	TCT	RE-06	N/A	Aug. 12, 2017
Antenna Connector	TCT	RFC-01	N/A	Aug. 12, 2017

**Note:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

**6.5.3. Test data**

**ANT 0**

**Band I**

Mode	Test channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99% Bandwidth (MHz)
11a	CH36	5180	19.23	16.54
11a	CH44	5220	19.42	16.54
11a	CH48	5240	19.42	16.54
11n(HT20)	CH36	5180	19.55	17.50
11n(HT20)	CH44	5220	19.94	17.44
11n(HT20)	CH48	5240	19.87	17.50
11n(HT40)	CH38	5190	39.10	36.03
11n(HT40)	CH46	5230	39.23	36.03

**Band II**

Mode	Test channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99% Bandwidth (MHz)
11a	CH52	5260	19.55	16.60
11a	CH60	5300	19.62	16.60
11a	CH64	5320	19.42	16.60
11n(HT20)	CH52	5260	19.81	17.50
11n(HT20)	CH60	5300	19.87	17.50
11n(HT20)	CH64	5320	19.74	17.50
11n(HT40)	CH54	5270	39.74	36.15
11n(HT40)	CH62	5310	39.23	36.03

**Band III**

Mode	Test channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99% Bandwidth (MHz)
11a	CH100	5500	22.69	17.115
11a	CH116	5580	22.50	16.987
11a	CH140	5700	22.31	17.115
11n(HT20)	CH100	5500	24.29	18.141
11n(HT20)	CH116	5580	23.59	18.205
11n(HT20)	CH140	5700	23.14	17.692
11n(HT40)	CH102	5510	46.67	36.923
11n(HT40)	CH134	5670	46.41	36.795

**Band IV**

Mode	Test channel	Frequency (MHz)	99% Bandwidth (MHz)
11a	CH149	5745	16.987
11a	CH157	5785	17.115
11a	CH165	5825	17.115
11n(HT20)	CH149	5745	18.141
11n(HT20)	CH157	5785	18.205
11n(HT20)	CH165	5825	18.013
11n(HT40)	CH151	5755	37.051
11n(HT40)	CH159	5795	36.923

**ANT 1**  
**Band I**

Mode	Test channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99% Bandwidth (MHz)
11a	CH36	5180	19.49	16.54
11a	CH44	5220	19.49	16.54
11a	CH48	5240	19.42	16.54
11n(HT20)	CH36	5180	19.94	17.50
11n(HT20)	CH44	5220	19.87	17.50
11n(HT20)	CH48	5240	19.87	17.50
11n(HT40)	CH38	5190	39.10	36.03
11n(HT40)	CH46	5230	39.36	36.03

**Band II**

Mode	Test channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99% Bandwidth (MHz)
11a	CH52	5260	19.74	16.60
11a	CH60	5300	19.68	16.60
11a	CH64	5320	19.23	16.60
11n(HT20)	CH52	5260	19.87	17.50
11n(HT20)	CH60	5300	19.81	17.50
11n(HT20)	CH64	5320	19.62	17.50
11n(HT40)	CH54	5270	39.74	36.03
11n(HT40)	CH62	5310	39.49	36.03



**Band III**

Mode	Test channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99% Bandwidth (MHz)
11a	CH100	5500	23.27	17.051
11a	CH116	5580	22.95	16.987
11a	CH140	5700	22.69	17.051
11n(HT20)	CH100	5500	23.72	18.141
11n(HT20)	CH116	5580	23.85	18.141
11n(HT20)	CH140	5700	22.44	17.692
11n(HT40)	CH102	5510	47.31	36.923
11n(HT40)	CH134	5670	45.90	36.667

**Band IV**

Mode	Test channel	Frequency (MHz)	99% Bandwidth (MHz)
11a	CH149	5745	16.987
11a	CH157	5785	17.051
11a	CH165	5825	17.115
11n(HT20)	CH149	5745	18.013
11n(HT20)	CH157	5785	18.205
11n(HT20)	CH165	5825	18.077
11n(HT40)	CH151	5755	36.795
11n(HT40)	CH159	5795	36.923

**ANT 2**  
**Band I**

Mode	Test channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99% Bandwidth (MHz)
11a	CH36	5180	19.29	16.54
11a	CH44	5220	19.36	16.54
11a	CH48	5240	19.36	16.54
11n(HT20)	CH36	5180	19.74	17.50
11n(HT20)	CH44	5220	19.68	17.50
11n(HT20)	CH48	5240	19.81	17.50
11n(HT40)	CH38	5190	39.49	36.03
11n(HT40)	CH46	5230	39.10	36.03

**Band II**

Mode	Test channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99% Bandwidth (MHz)
11a	CH52	5260	19.55	16.60
11a	CH60	5300	19.55	16.60
11a	CH64	5320	19.42	16.60
11n(HT20)	CH52	5260	19.37	17.50
11n(HT20)	CH60	5300	19.94	17.50
11n(HT20)	CH64	5320	19.55	17.50
11n(HT40)	CH54	5270	39.87	36.03
11n(HT40)	CH62	5310	39.49	36.03

**Band III**

Mode	Test channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99% Bandwidth (MHz)
11a	CH100	5500	23.21	17.051
11a	CH116	5580	23.21	17.051
11a	CH140	5700	22.18	17.115
11n(HT20)	CH100	5500	23.97	18.141
11n(HT20)	CH116	5580	24.10	18.269
11n(HT20)	CH140	5700	23.27	17.692
11n(HT40)	CH102	5510	45.51	36.923
11n(HT40)	CH134	5670	46.79	36.795

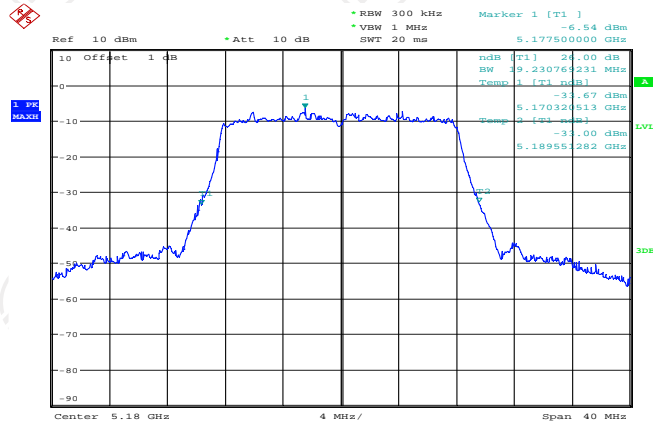
**Band IV**

Mode	Test channel	Frequency (MHz)	99% Bandwidth (MHz)
11a	CH149	5745	17.115
11a	CH157	5785	17.051
11a	CH165	5825	17.115
11n(HT20)	CH149	5745	18.077
11n(HT20)	CH157	5785	18.141
11n(HT20)	CH165	5825	18.013
11n(HT40)	CH151	5755	36.795
11n(HT40)	CH159	5795	36.923

Test plots as follows:

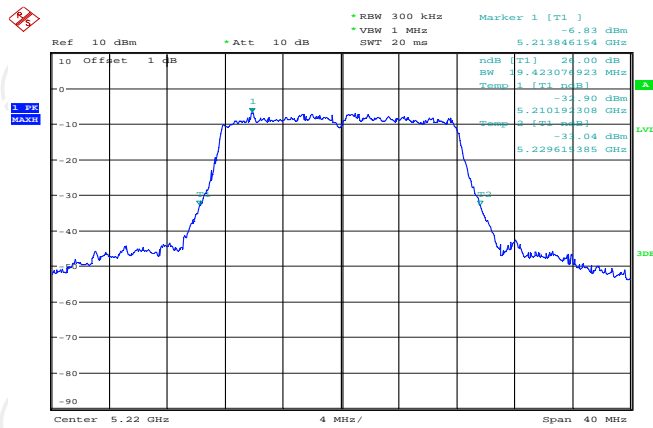
**26dB Bandwidth**  
**ANT 0: Band I (5150 – 5250 MHz)**  
 11a

**CH36**



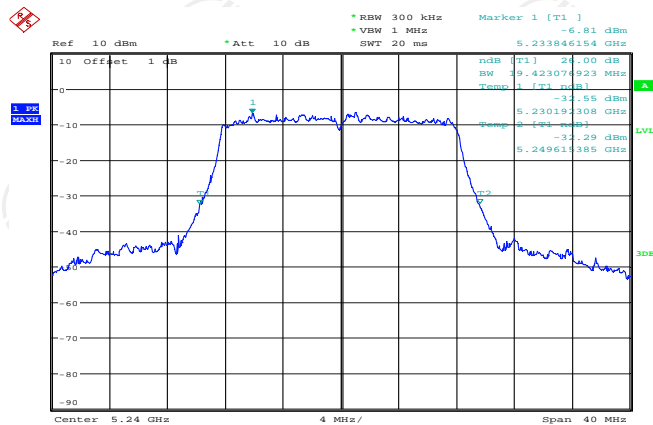
Date: 1.DEC.2016 11:56:26

**CH44**



Date: 1.DEC.2016 11:58:52

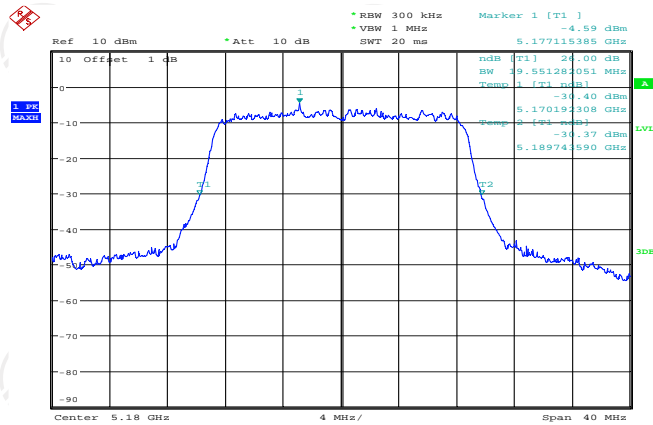
**CH48**



Date: 1.DEC.2016 12:02:59

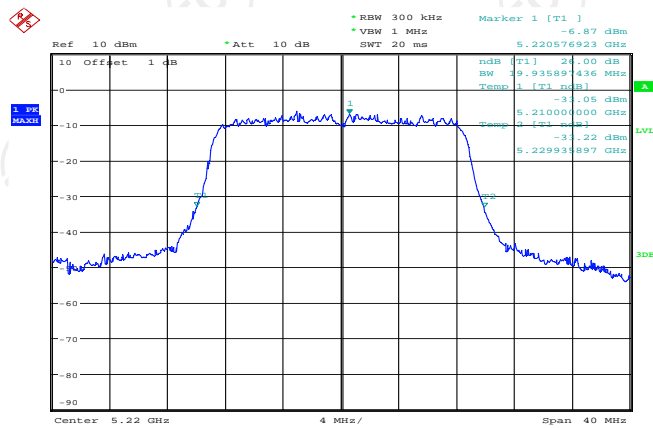
11n(HT20)

CH36



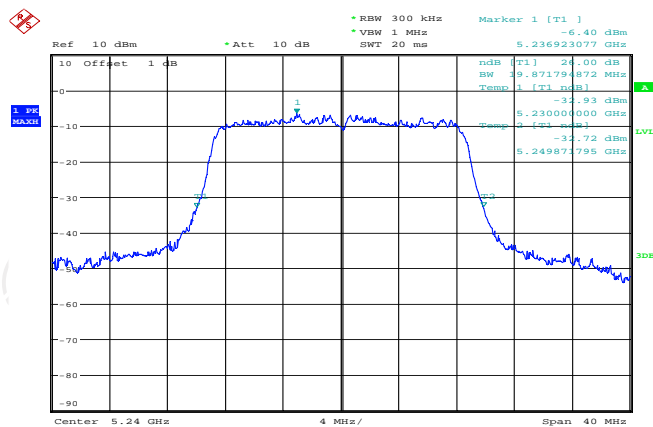
Date: 1.DEC.2016 12:14:03

CH44



Date: 1.DEC.2016 12:17:51

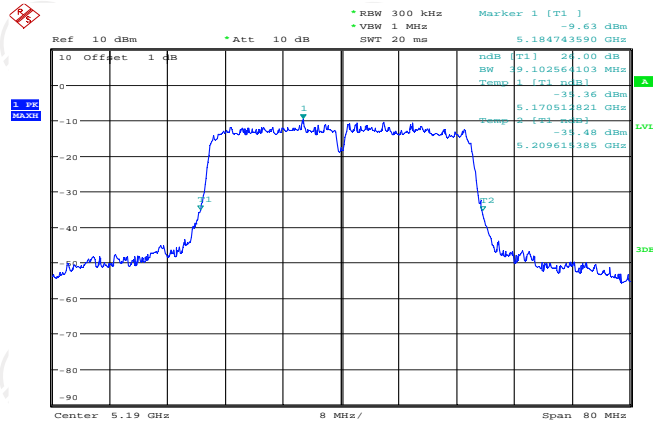
CH48



Date: 1.DEC.2016 12:21:23

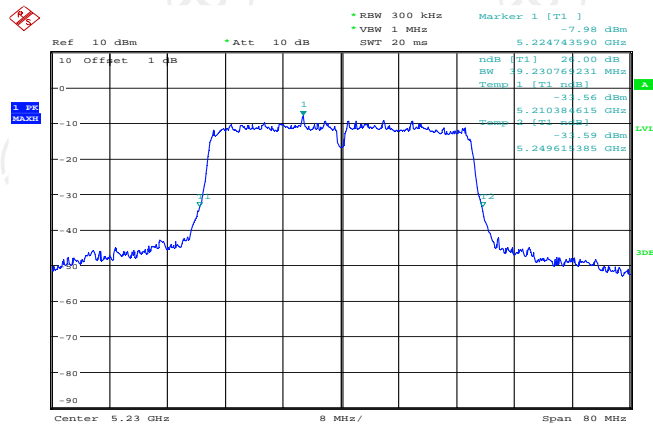
11n(HT40)

CH38



Date: 1.DEC.2016 12:29:41

CH46

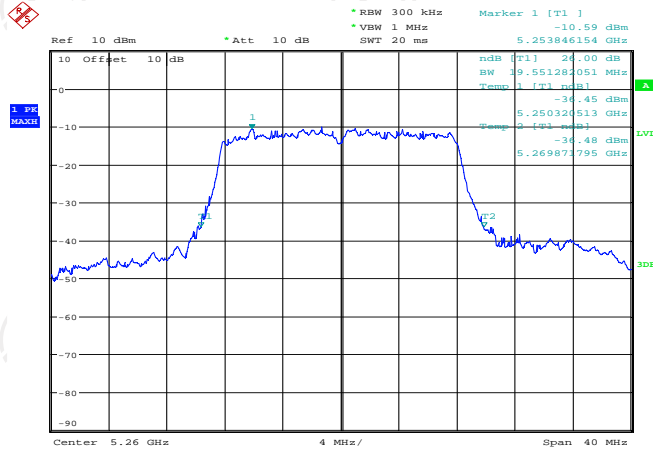


Date: 1.DEC.2016 12:33:15

Band II (5250 – 5230 MHz)

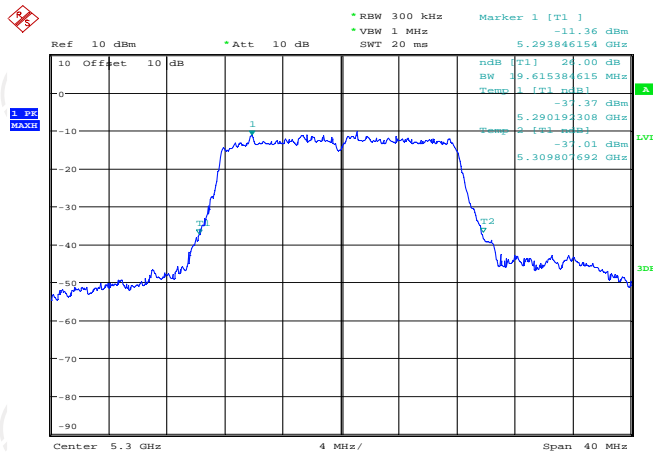
11a

CH52



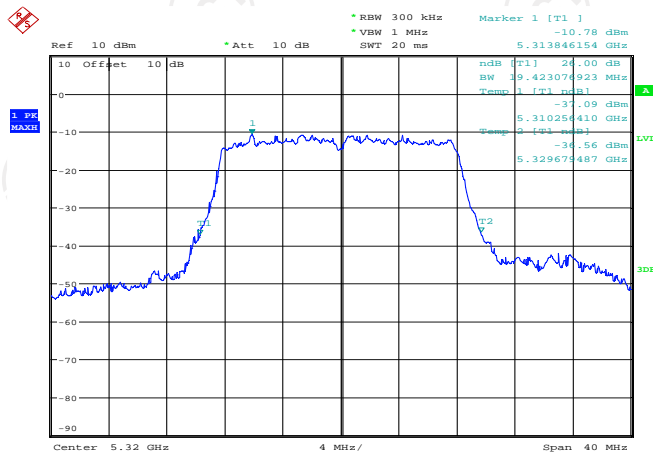
Date: 8.DEC.2016 12:05:33

CH60



Date: 8.DEC.2016 12:14:28

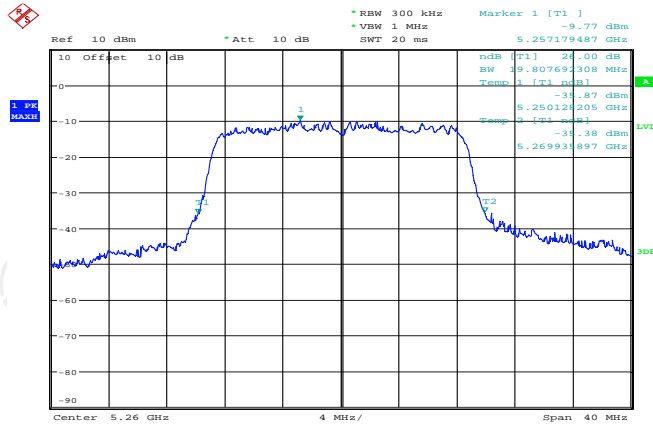
CH64



Date: 8.DEC.2016 12:20:24

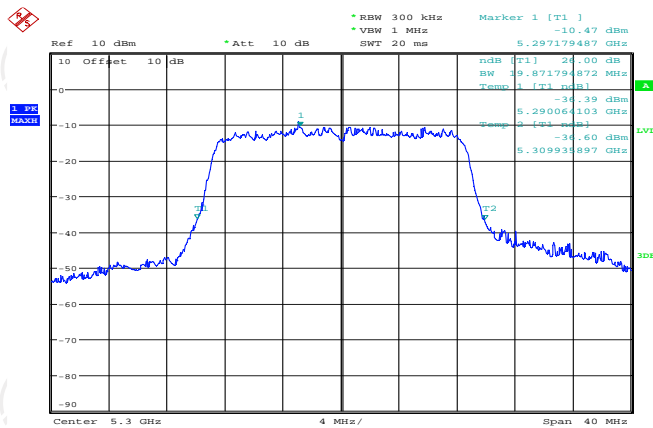
11n(HT20)

CH52



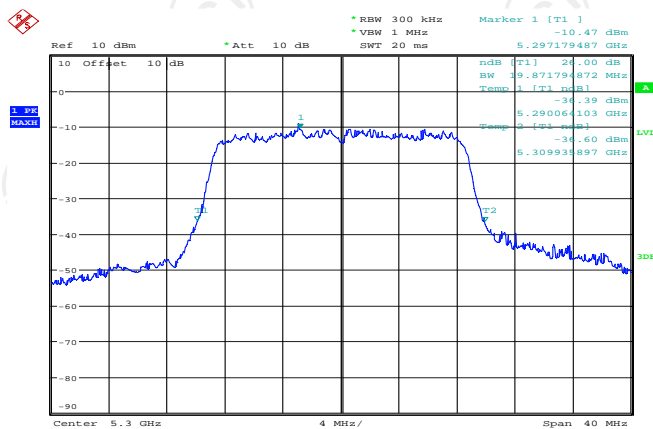
Date: 8.DEC.2016 12:35:49

CH60



Date: 8.DEC.2016 12:42:17

CH64

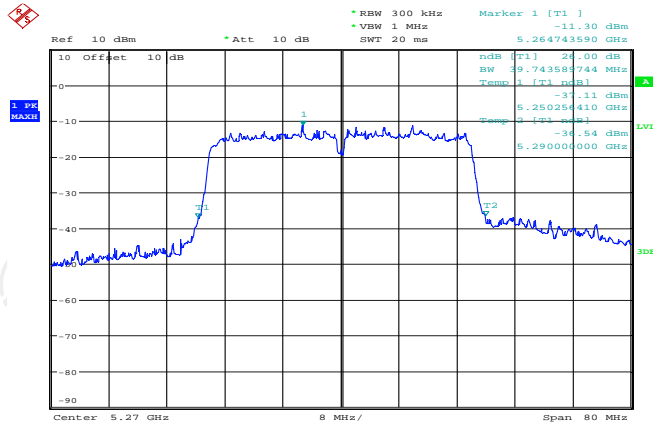


Date: 8.DEC.2016 12:42:17



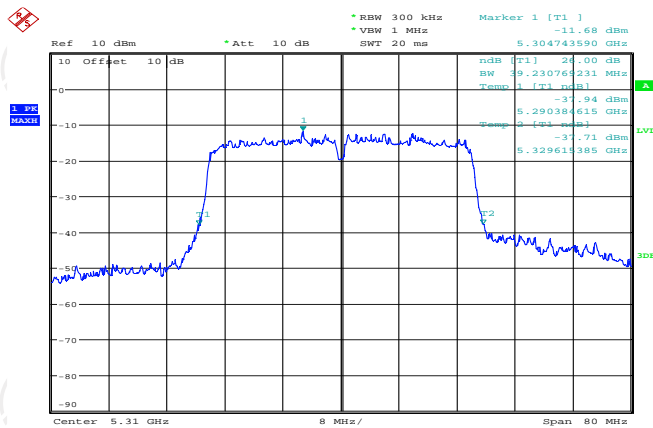
11n(HT40)

CH54



Date: 8.DEC.2016 12:53:42

CH62

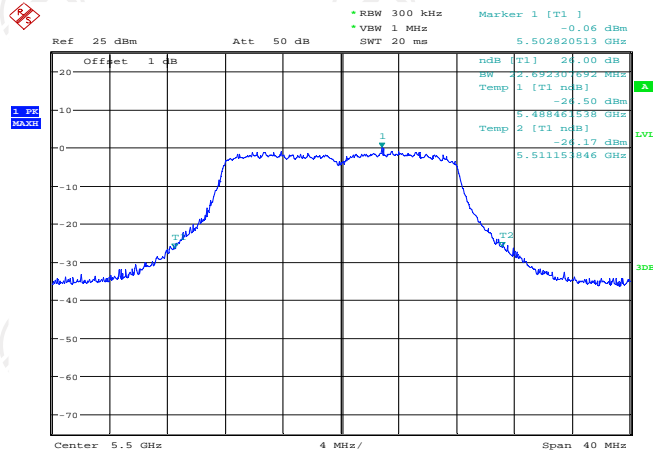


Date: 8.DEC.2016 12:58:20

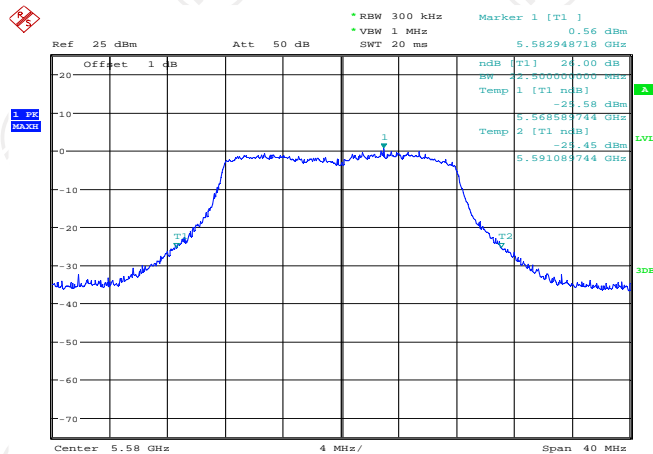
## Band III (5450 – 5725 MHz)

11a

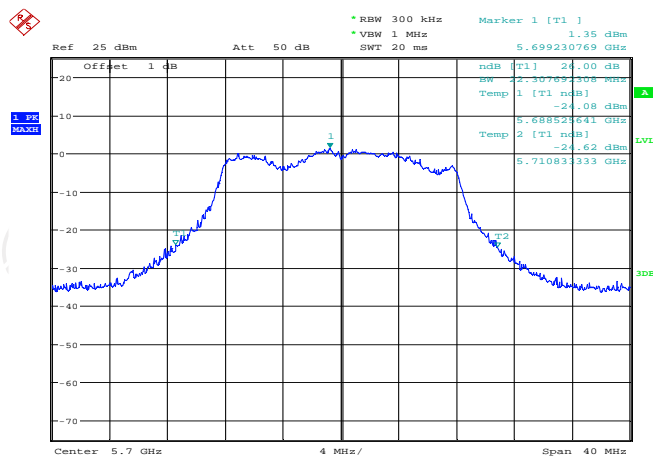
### CH100



### CH116

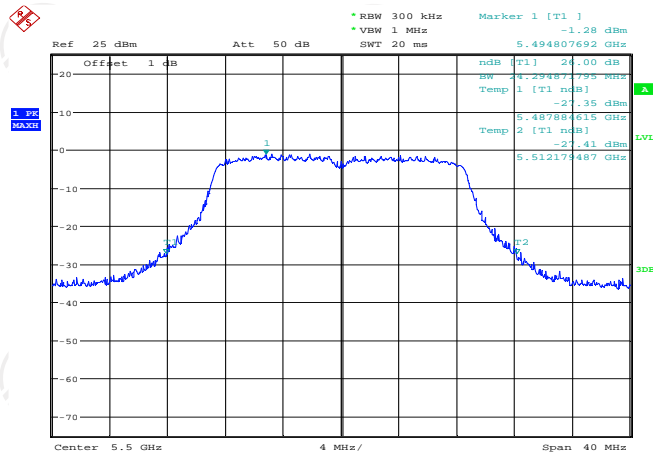


### CH140

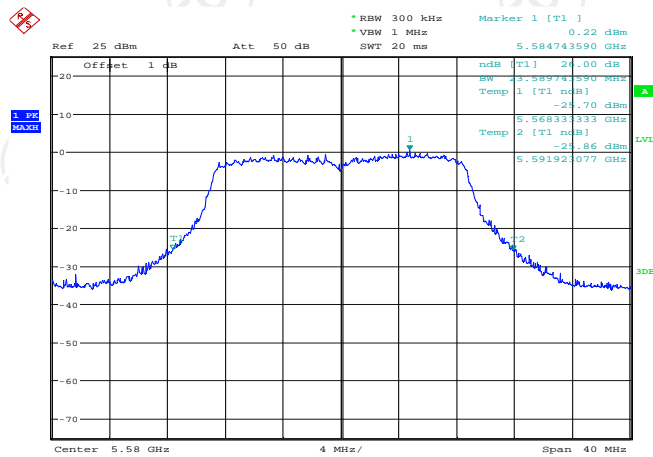


## 11n(HT20)

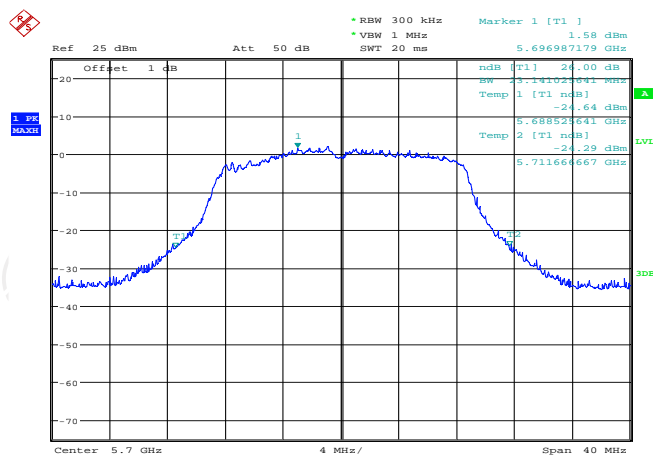
## CH100



## CH116

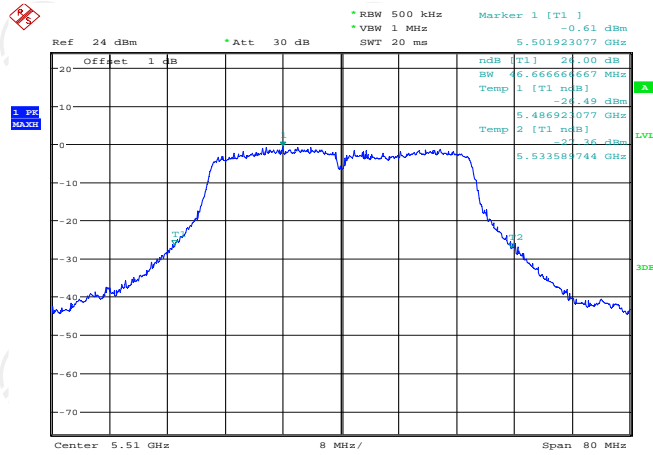


## CH140

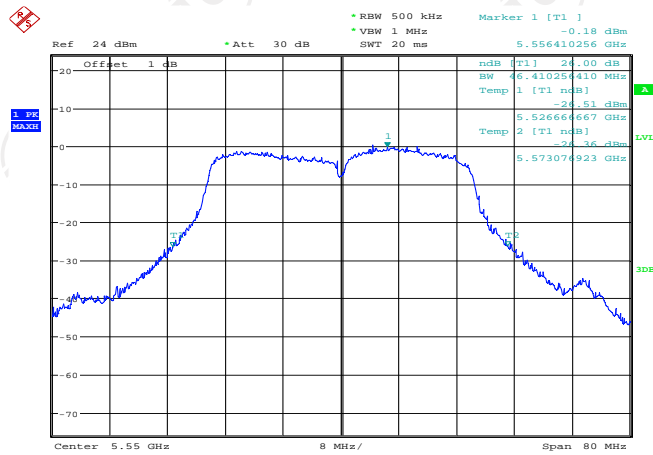


11n(HT40)

CH102

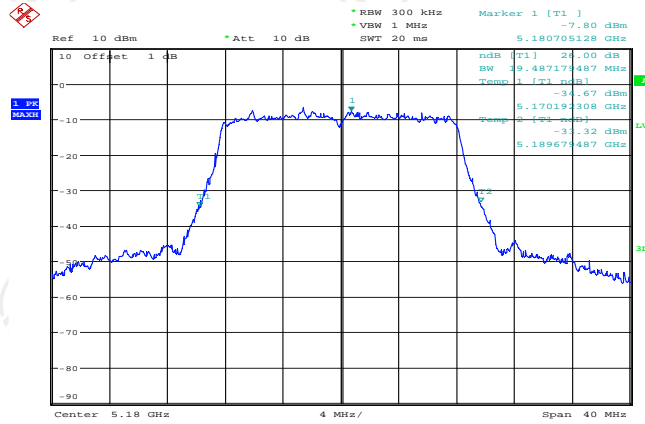


CH134



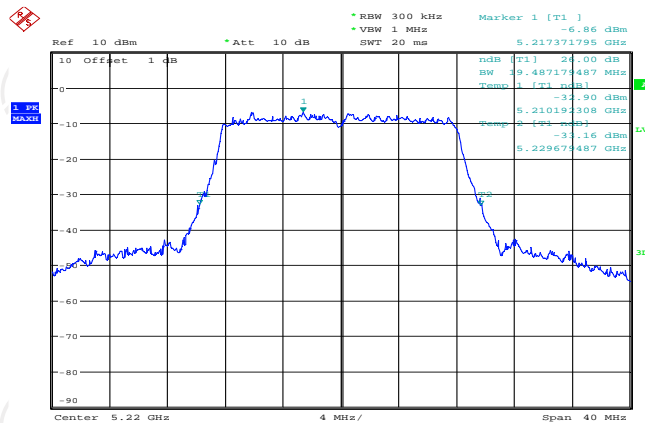
ANT 1  
Band I (5150 – 5250 MHz)  
11a

CH36



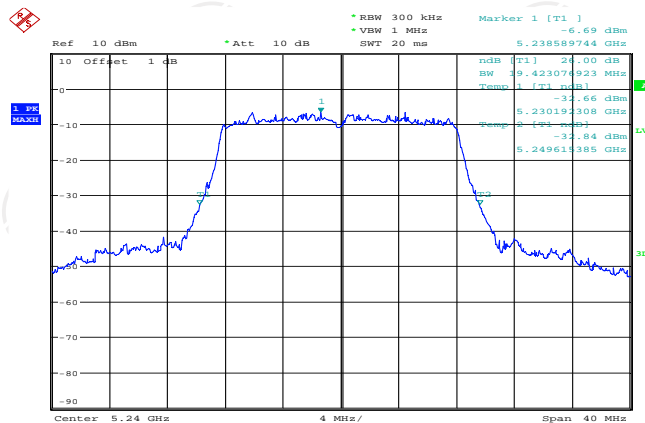
Date: 1.DEC.2016 11:56:12

CH44



Date: 1.DEC.2016 11:59:09

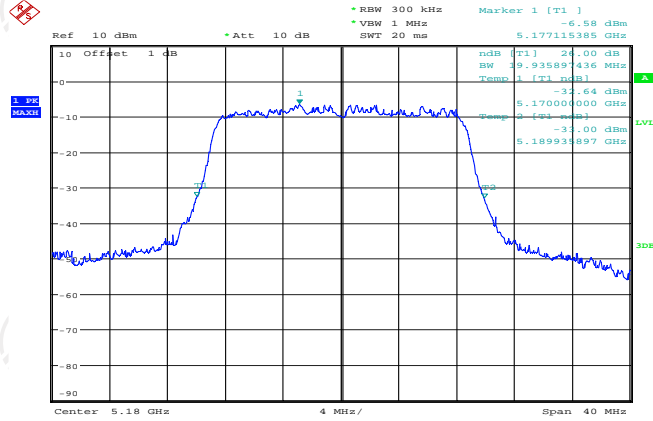
CH48



Date: 1.DEC.2016 12:03:13

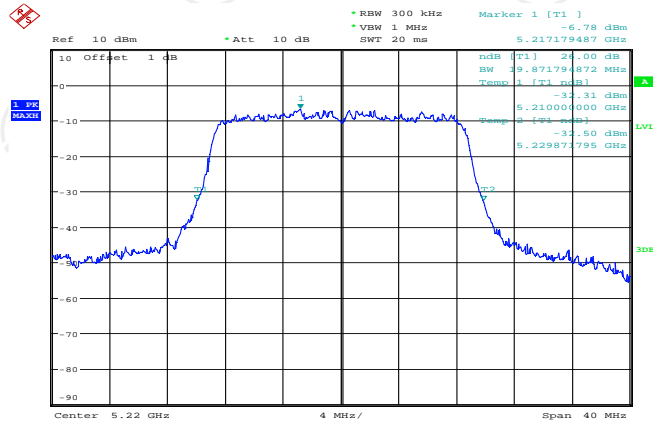
11n(HT20)

CH36



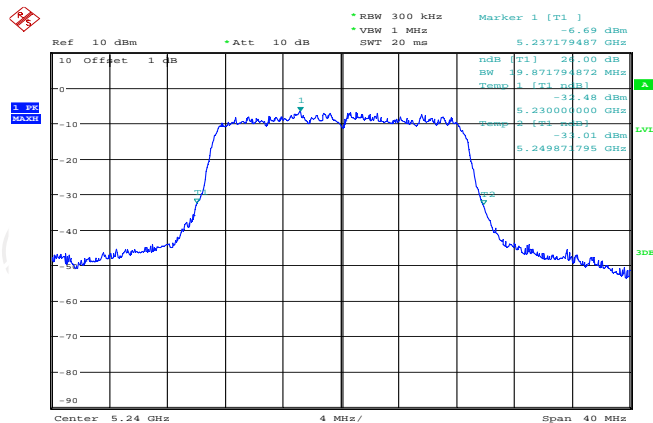
Date: 1.DEC.2016 12:14:17

CH44



Date: 1.DEC.2016 12:18:05

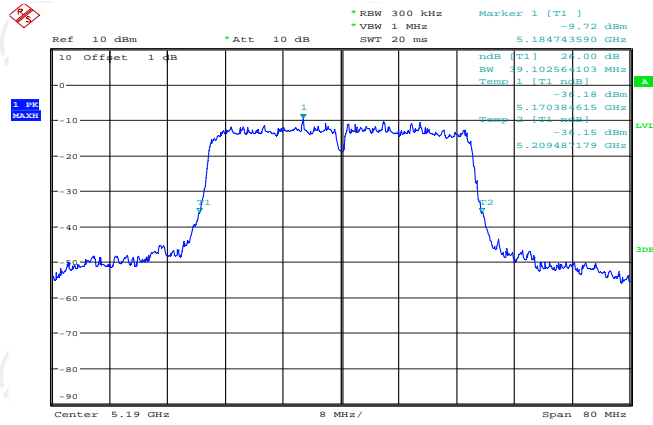
CH48



Date: 1.DEC.2016 12:21:43

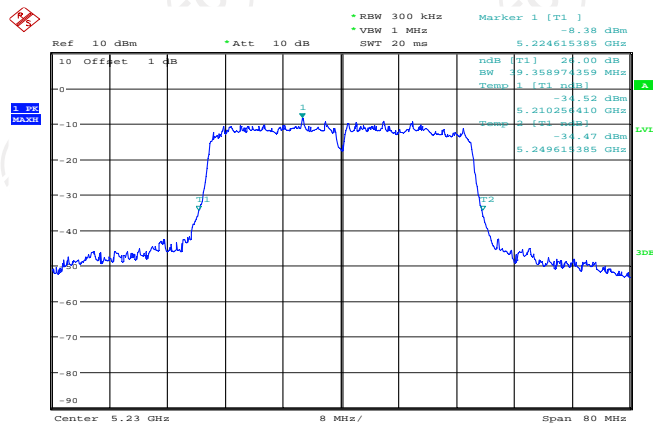
11n(HT40)

CH38



Date: 1.DEC.2016 12:29:54

CH46

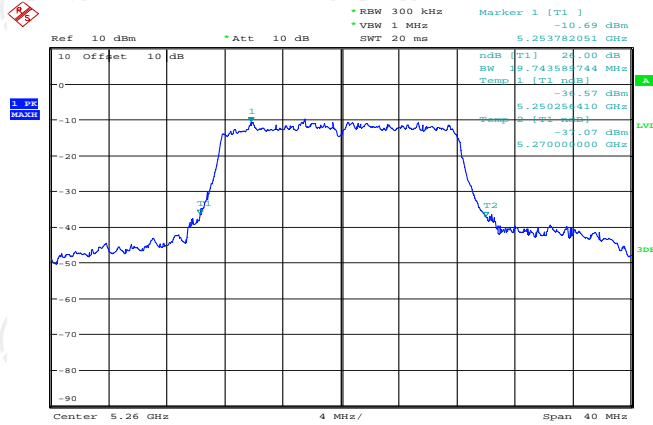


Date: 1.DEC.2016 12:33:29

Band II (5250 – 5230 MHz)

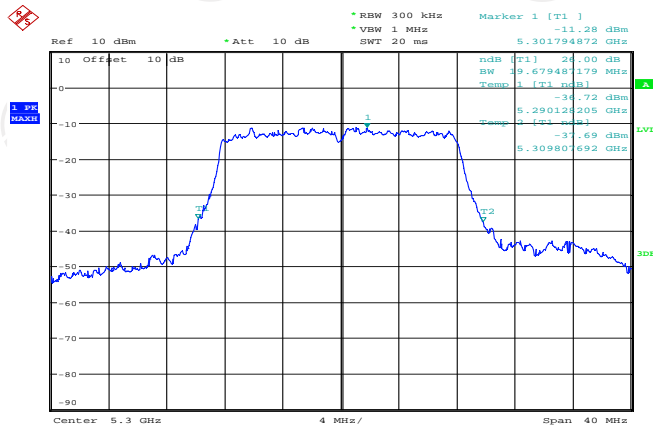
11a

CH52



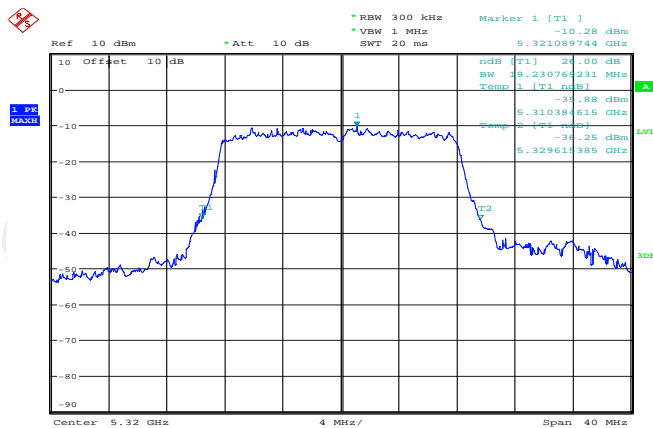
Date: 8.DEC.2016 12:06:01

CH60



Date: 8.DEC.2016 12:14:06

CH64

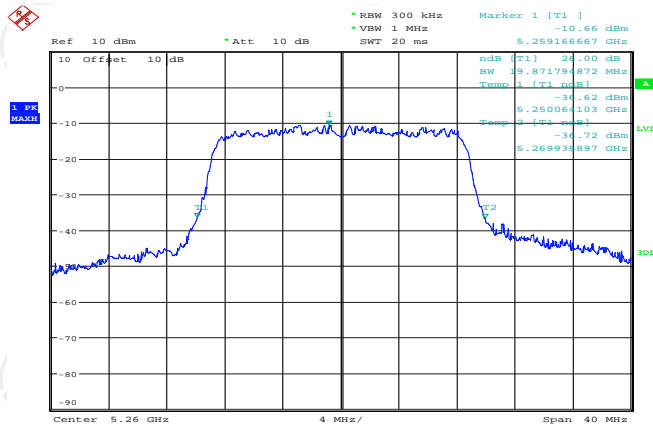


Date: 8.DEC.2016 12:20:11



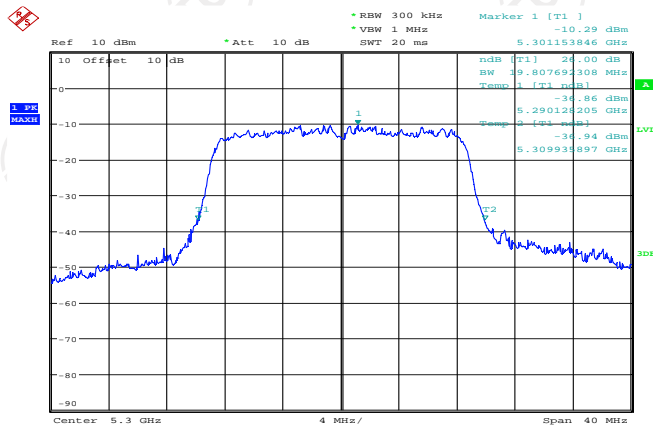
11n(HT20)

CH52



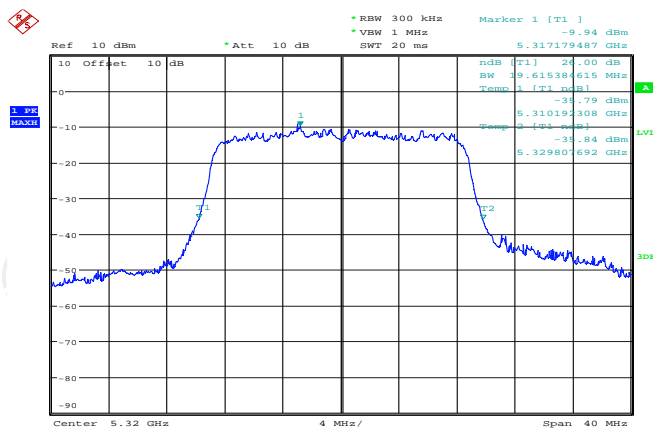
Date: 8.DEC.2016 12:36:02

CH60



Date: 8.DEC.2016 12:42:29

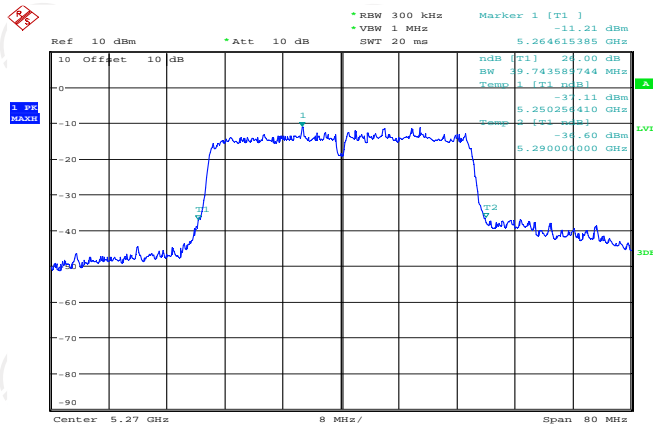
CH64



Date: 8.DEC.2016 12:49:00

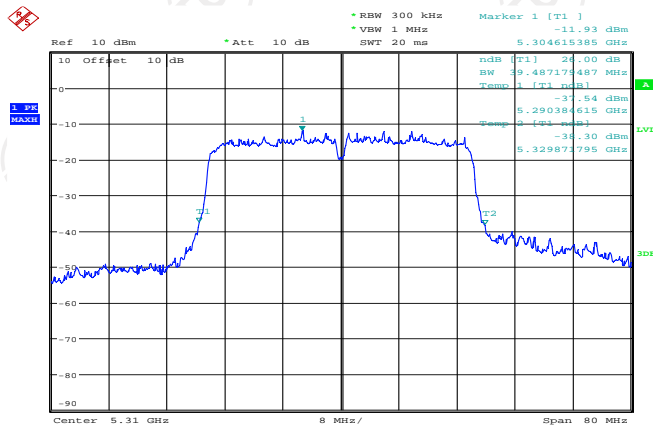
11n(HT40)

CH54



Date: 8.DEC.2016 12:53:29

CH62

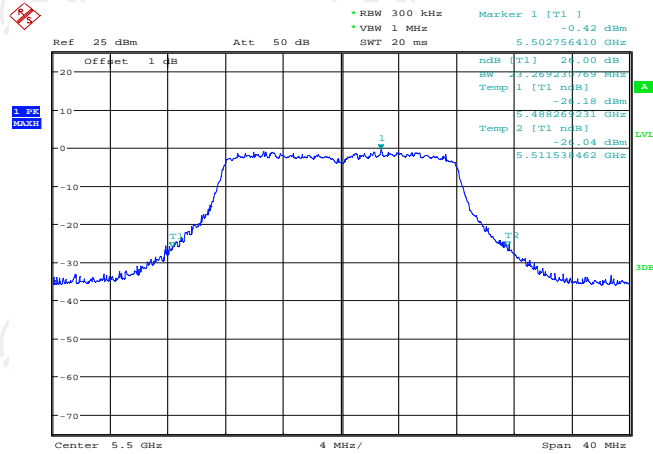


Date: 8.DEC.2016 12:58:06

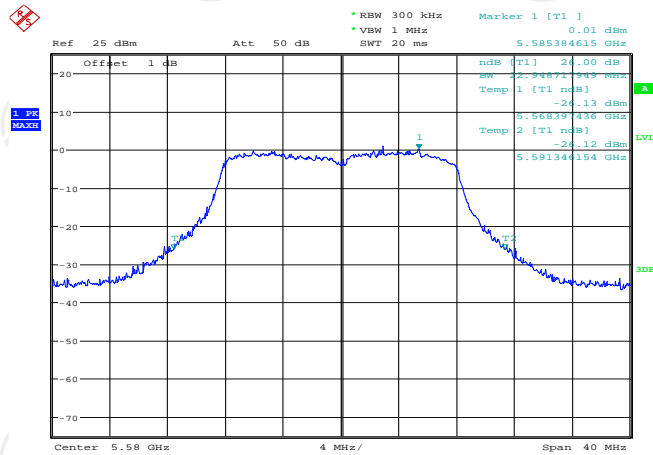
## Band III (5450 – 5725 MHz)

11a

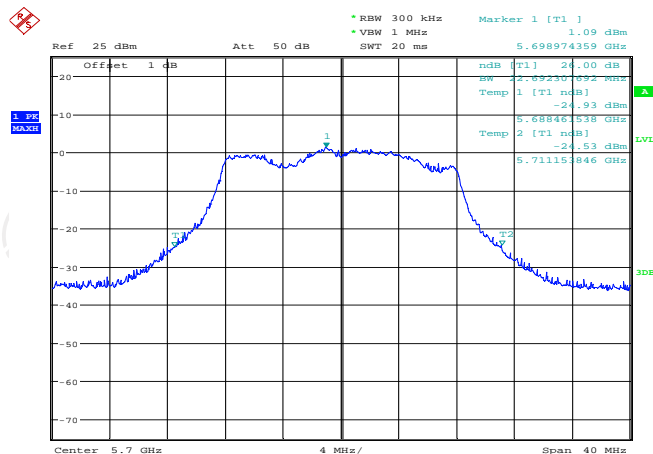
### CH100



### CH116

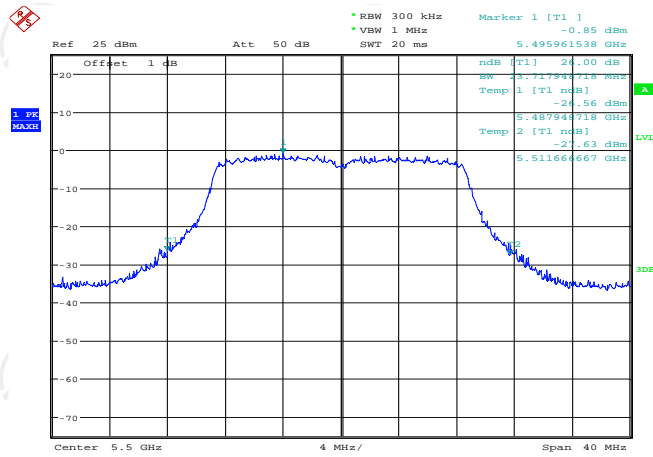


### CH140

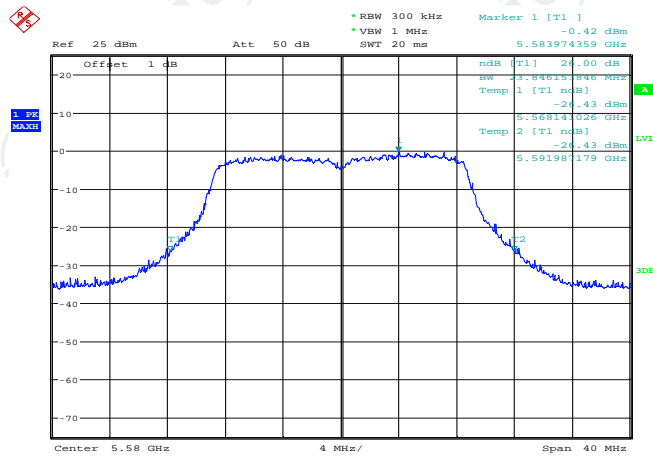


11n(HT20)

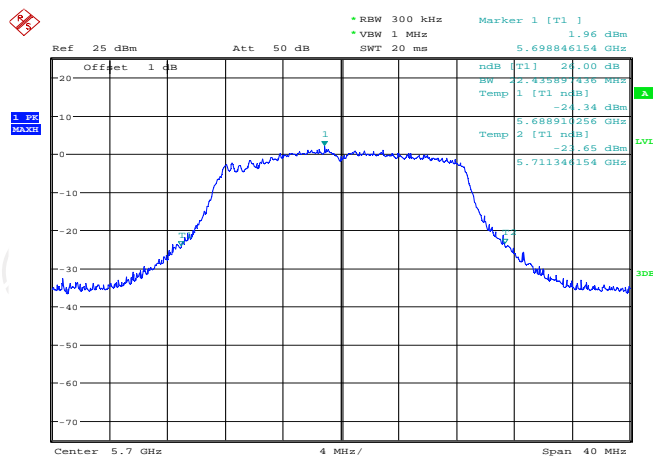
CH100



CH116

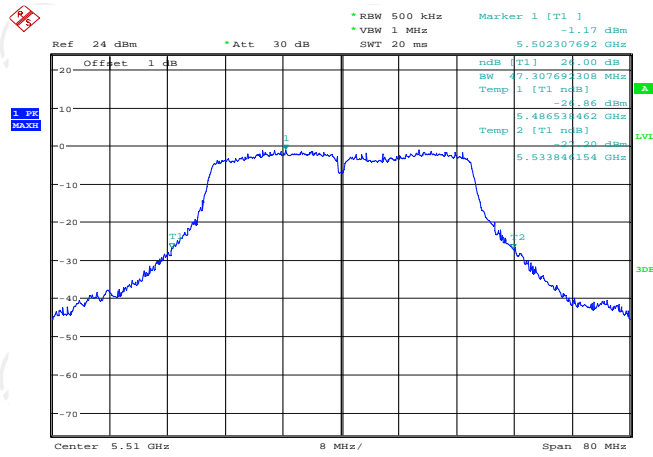


CH140

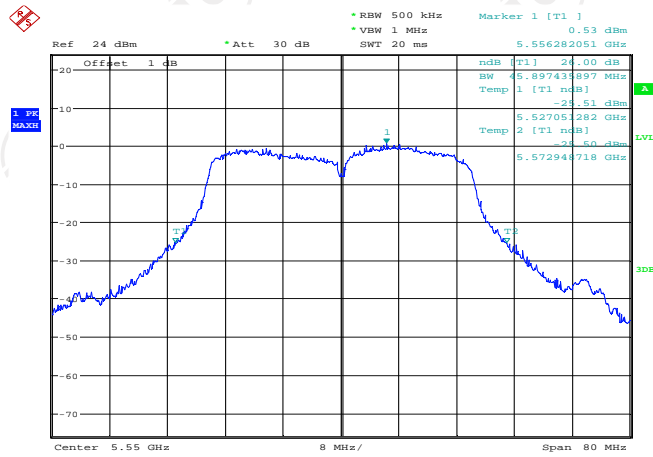


11n(HT40)

CH102

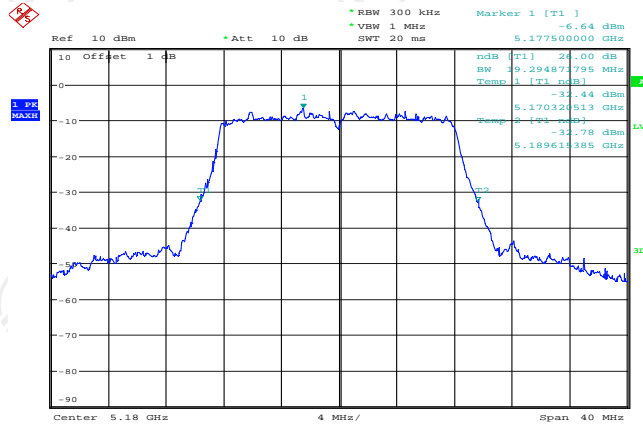


CH134



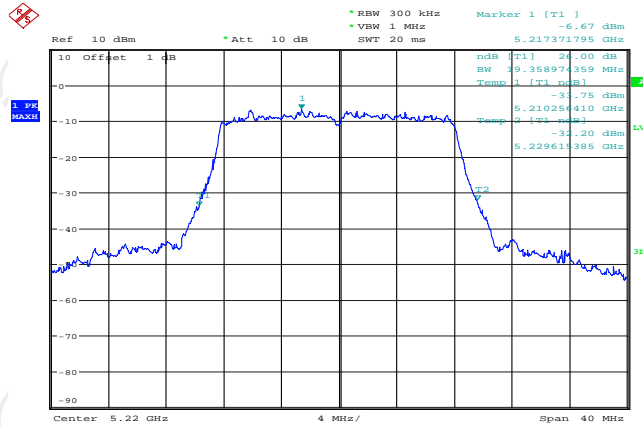
**ANT 2**  
**Band I (5150 – 5250 MHz)**  
**11a**

**CH36**



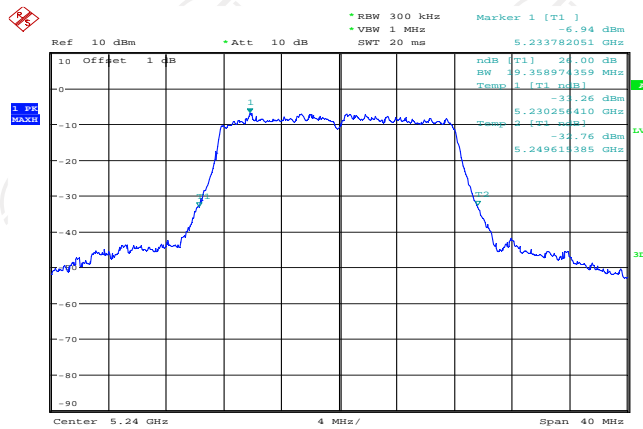
Date: 1.DEC.2016 11:56:58

**CH44**



Date: 1.DEC.2016 11:59:28

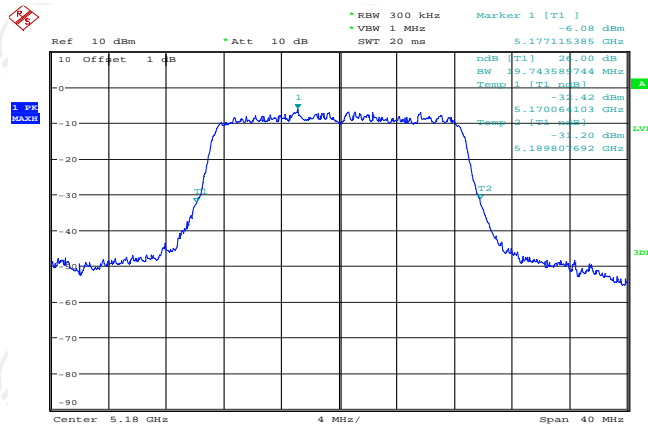
**CH48**



Date: 1.DEC.2016 12:03:35

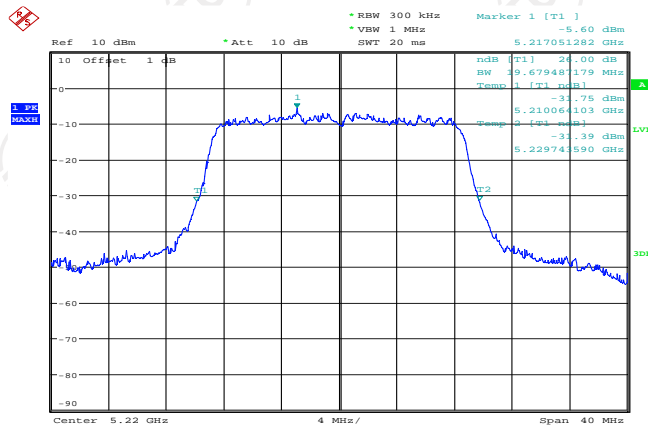
11n(HT20)

CH36



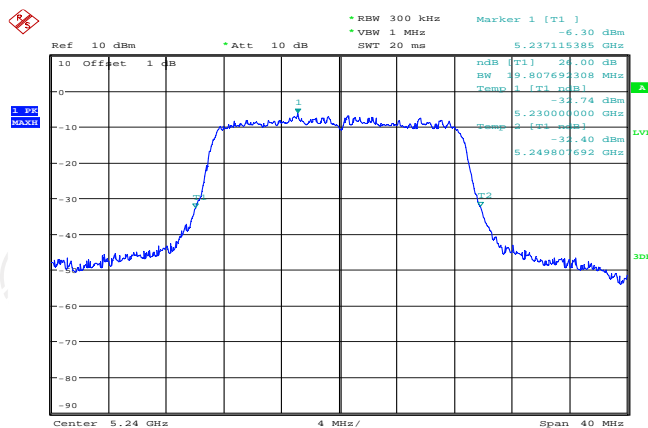
Date: 1.DEC.2016 12:14:30

CH44



Date: 1.DEC.2016 12:18:21

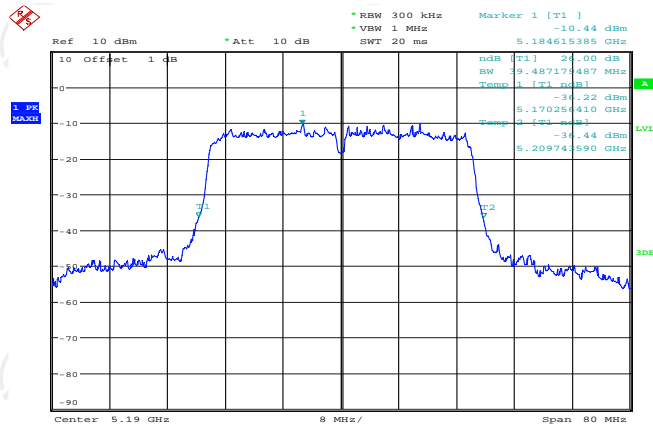
CH48



Date: 1.DEC.2016 12:22:00

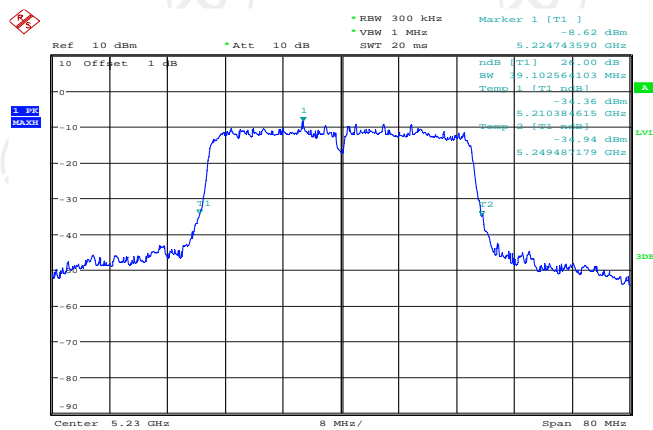
11n(HT40)

CH38



Date: 1.DEC.2016 12:30:07

CH46



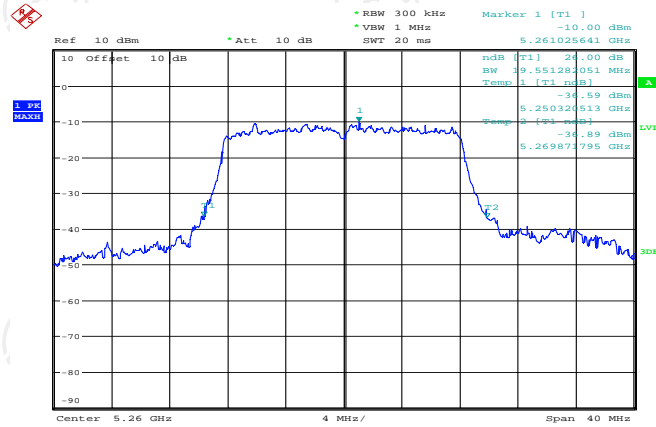
Date: 1.DEC.2016 12:33:42



Band II (5250 – 5230 MHz)

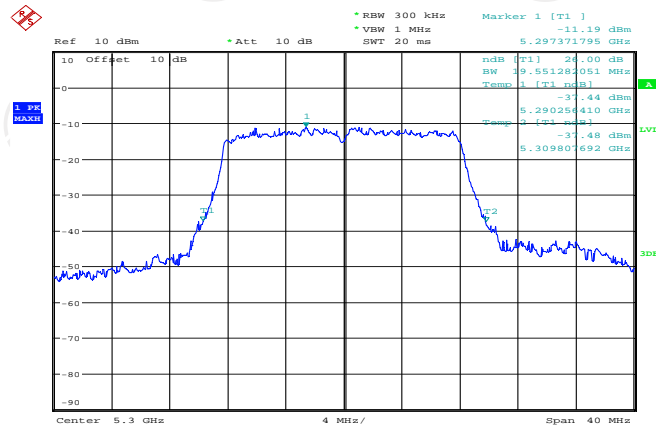
11a

CH52



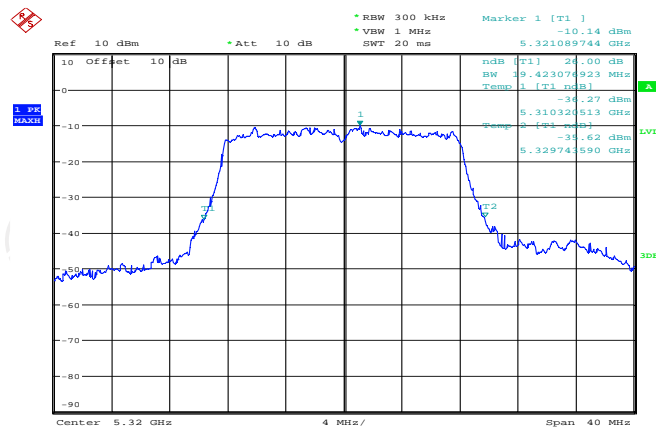
Date: 8.DEC.2016 12:06:15

CH60



Date: 8.DEC.2016 12:13:49

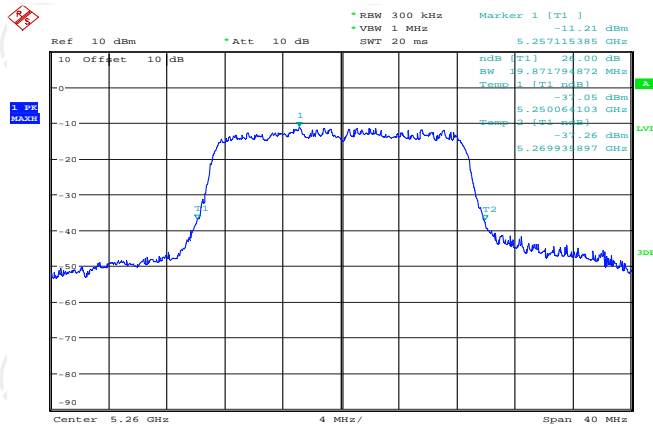
CH64



Date: 8.DEC.2016 12:19:58

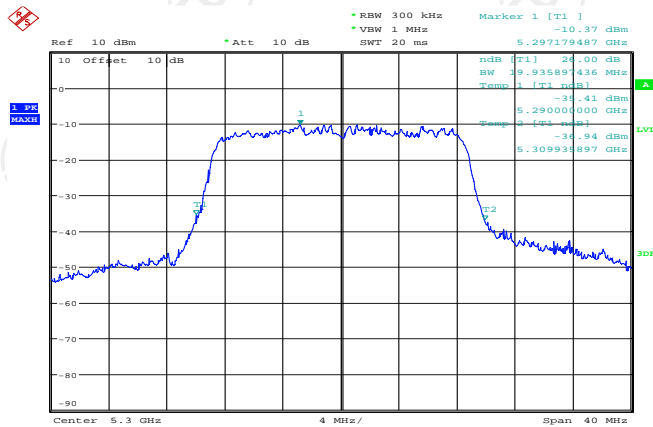
11n(HT20)

CH52



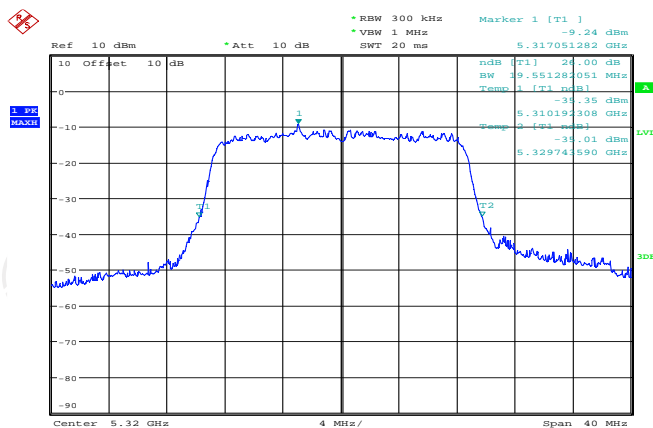
Date: 8.DEC.2016 12:38:15

CH60



Date: 8.DEC.2016 12:42:46

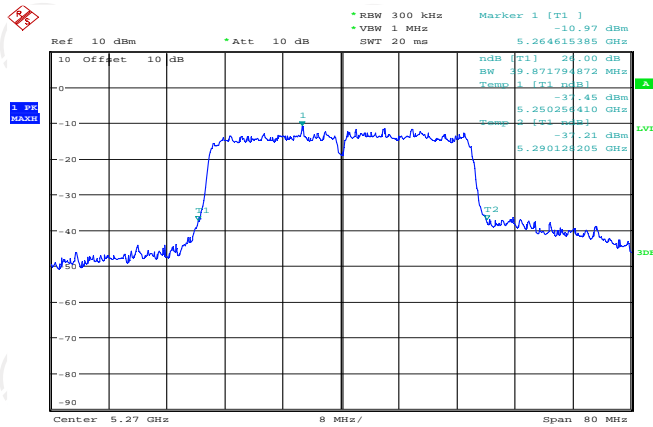
CH64



Date: 8.DEC.2016 12:49:14

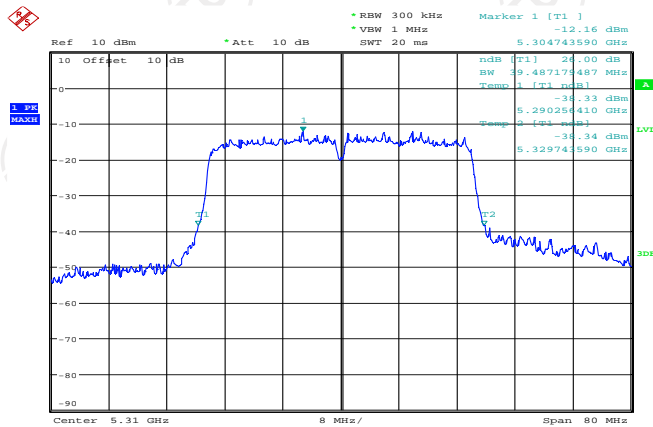
11n(HT40)

CH54



Date: 8.DEC.2016 12:53:16

CH62

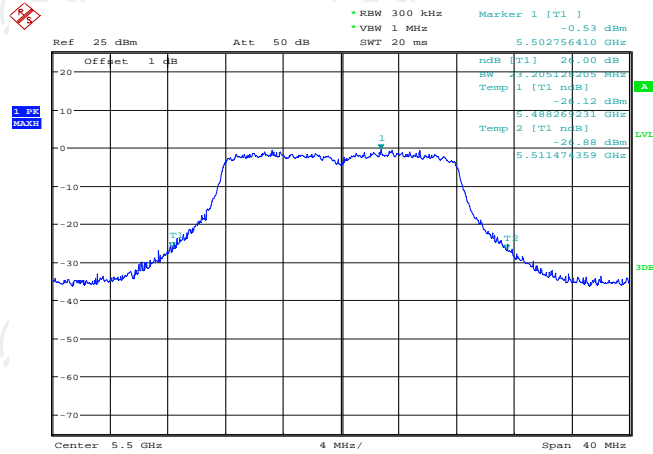


Date: 8.DEC.2016 12:57:55

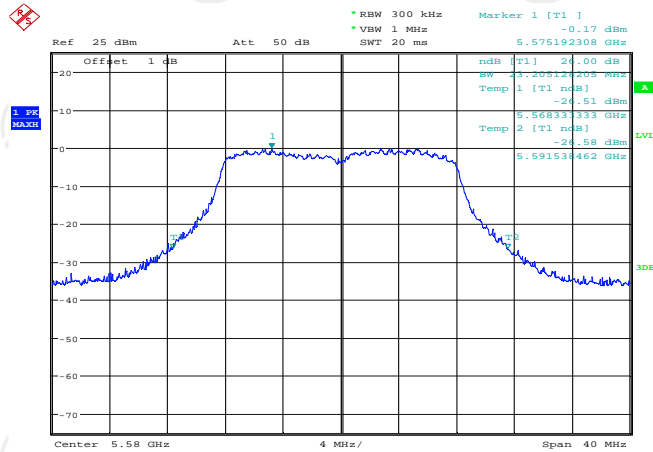
## Band III (5450 – 5725 MHz)

11a

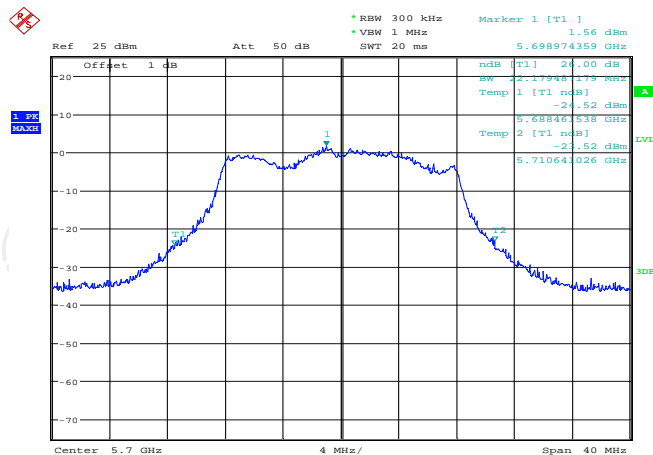
### CH100



### CH116

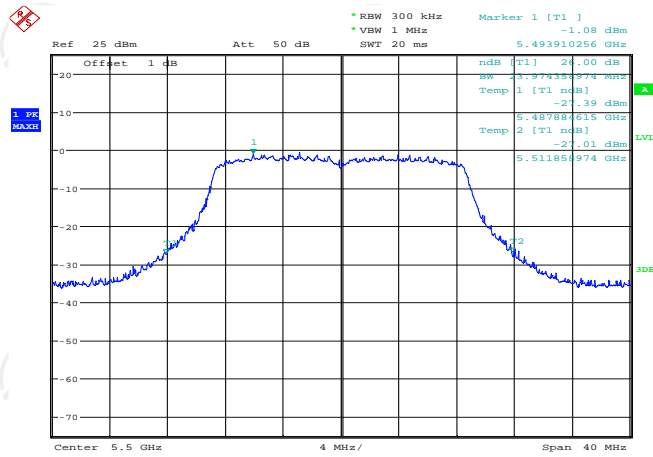


### CH140

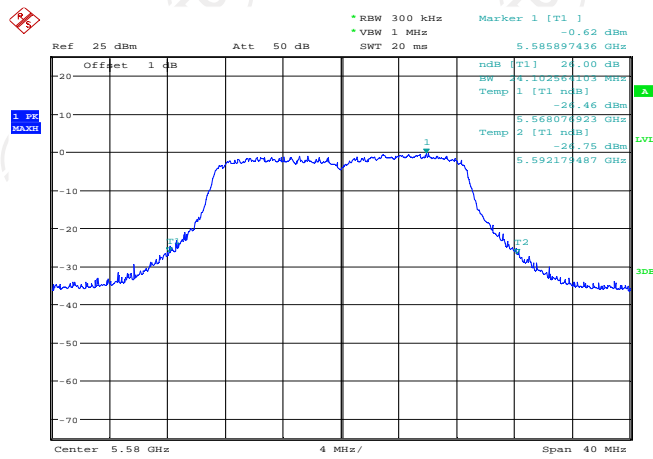


11n(HT20)

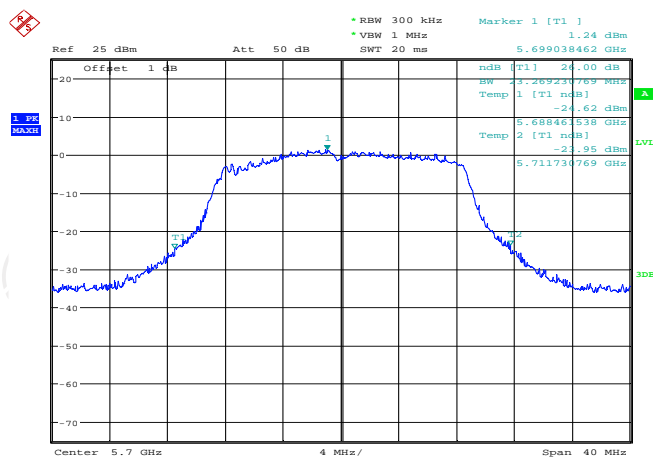
CH100



CH116

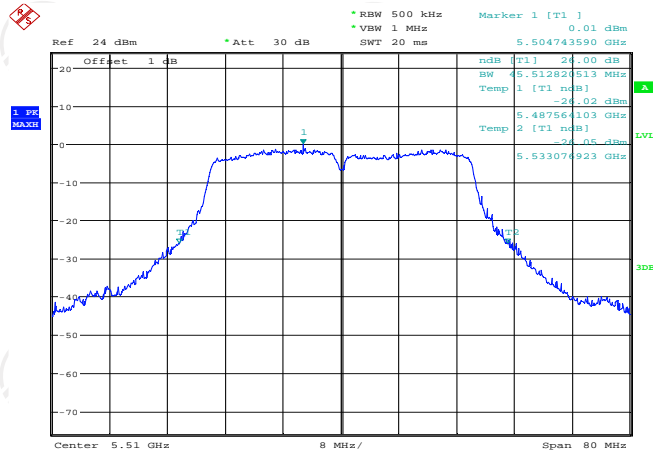


CH140

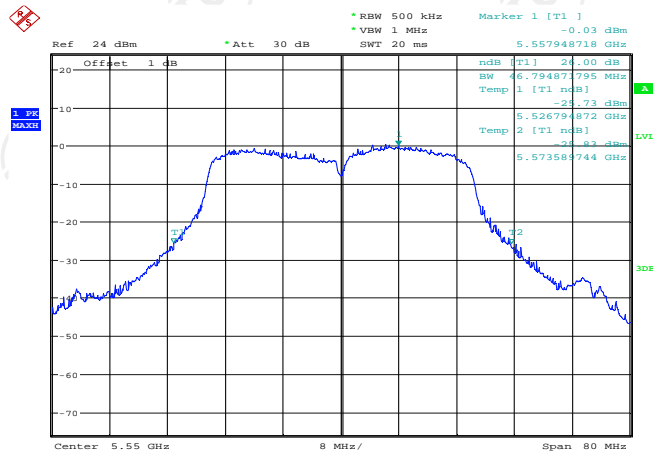


11n(HT40)

CH102



CH134

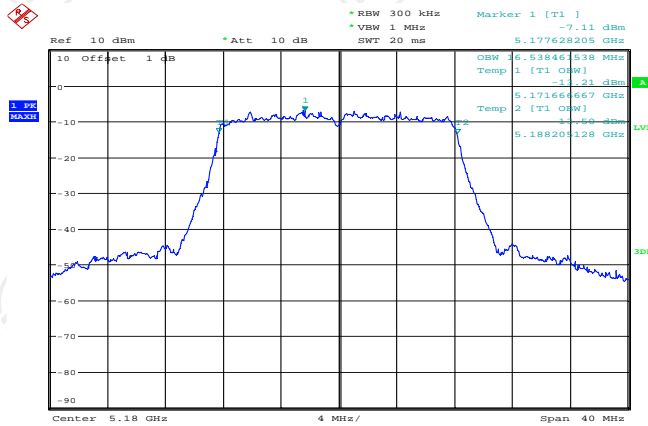


## 99% Bandwidth

### ANT 0: Band I (5150 – 5250 MHz)

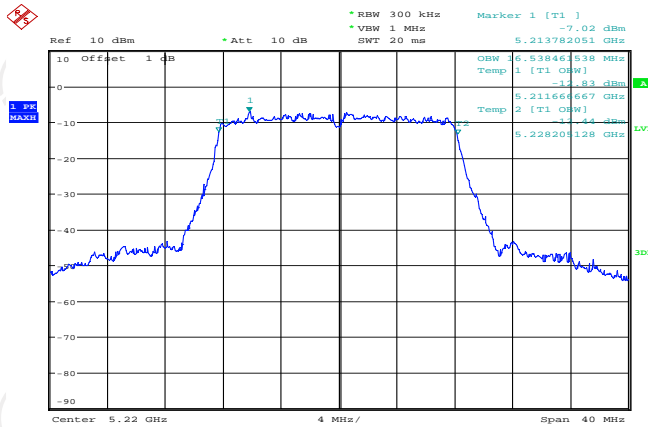
11a

CH36



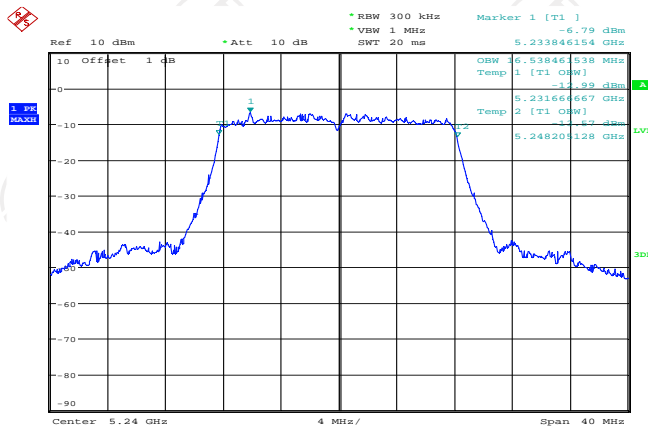
Date: 1.DEC.2016 11:54:32

CH44



Date: 1.DEC.2016 11:59:52

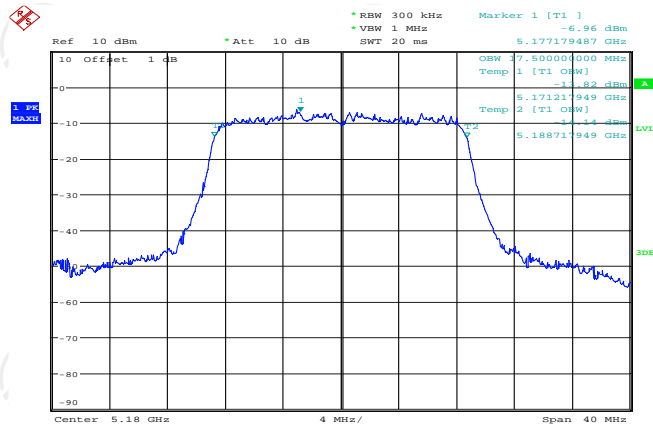
CH48



Date: 1.DEC.2016 12:01:53

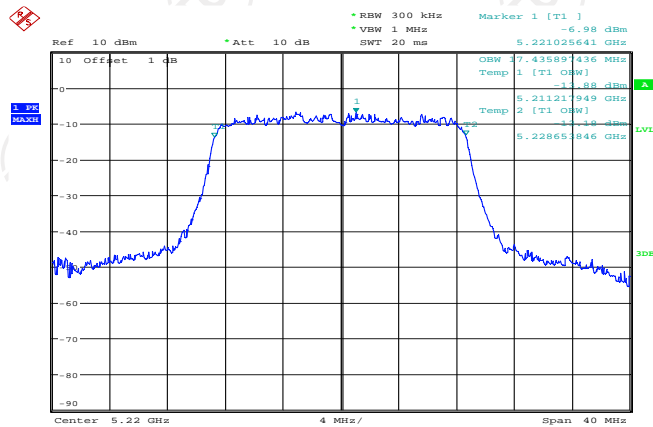
11n(HT20)

CH36



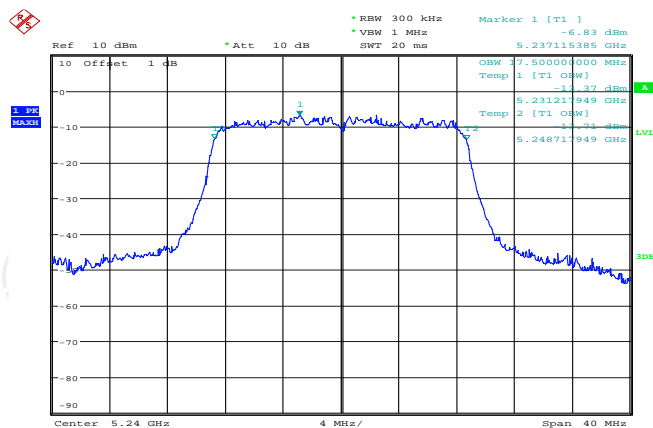
Date: 1.DEC.2016 12:14:45

CH44



Date: 1.DEC.2016 12:18:38

CH48

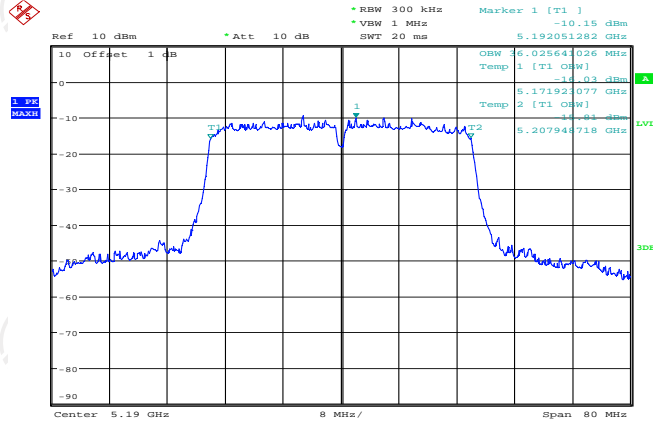


Date: 1.DEC.2016 12:20:28



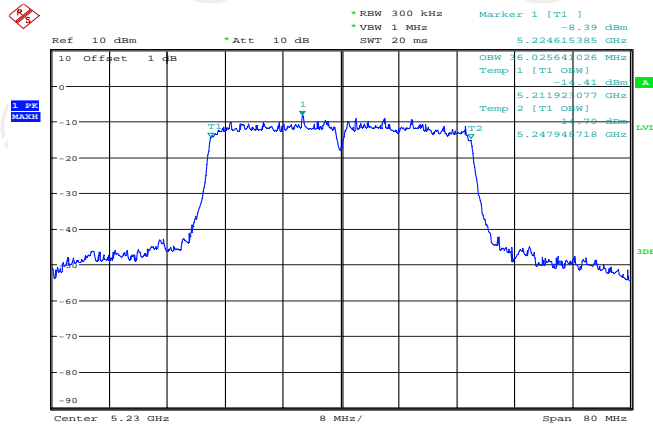
11n(HT40)

CH38



Date: 1.DEC.2016 12:28:36

CH46

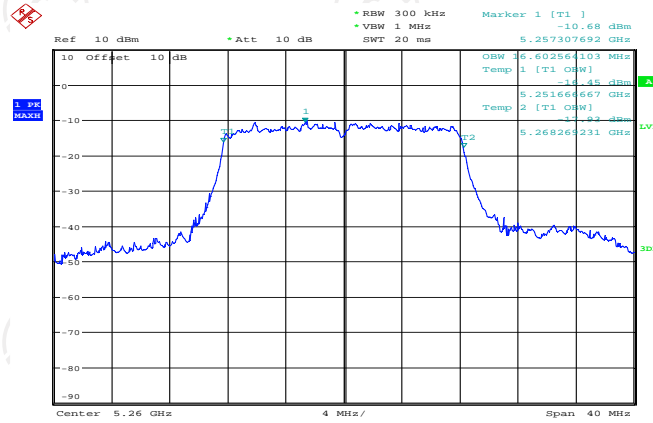


Date: 1.DEC.2016 12:33:55

Band II (5250 – 5350 MHz)

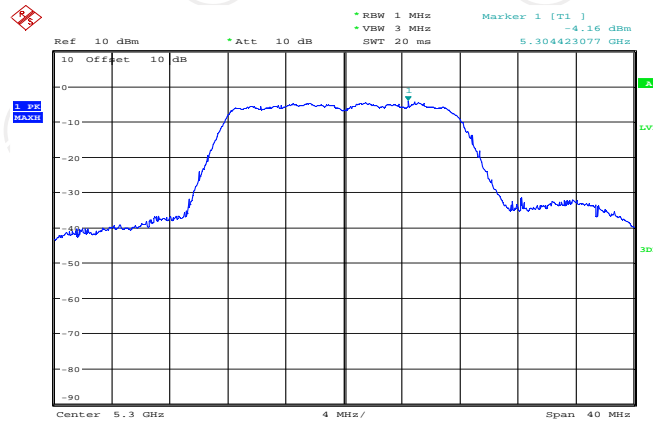
11a

CH52



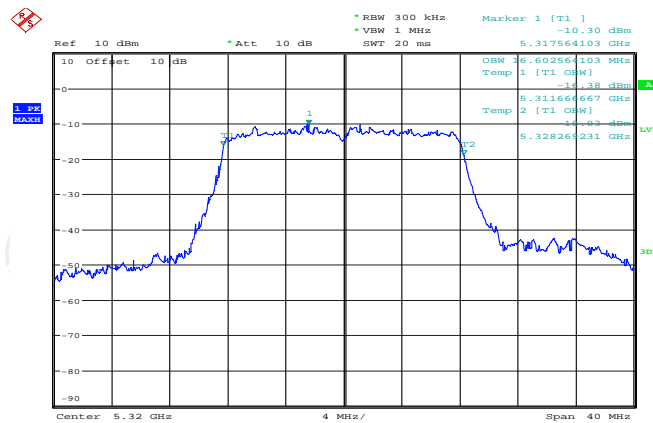
Date: 8.DEC.2016 12:07:09

CH60



Date: 8.DEC.2016 12:11:55

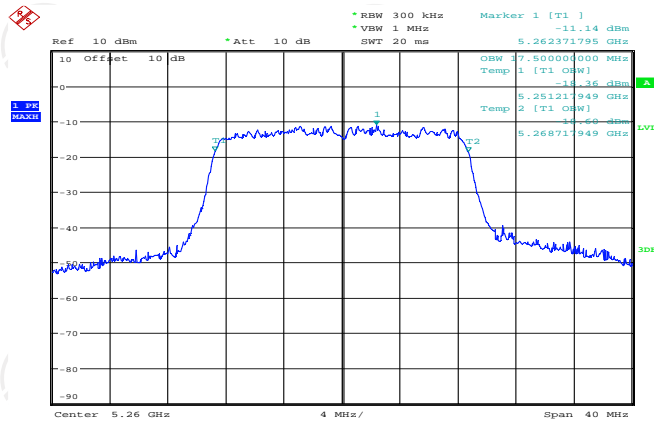
CH64



Date: 8.DEC.2016 12:20:38

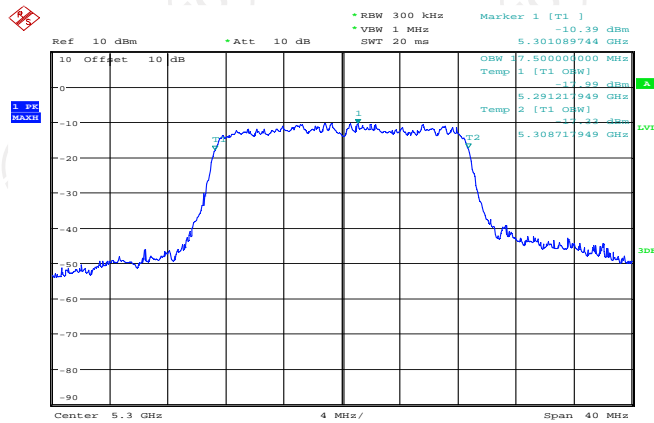
11n(HT20)

CH52



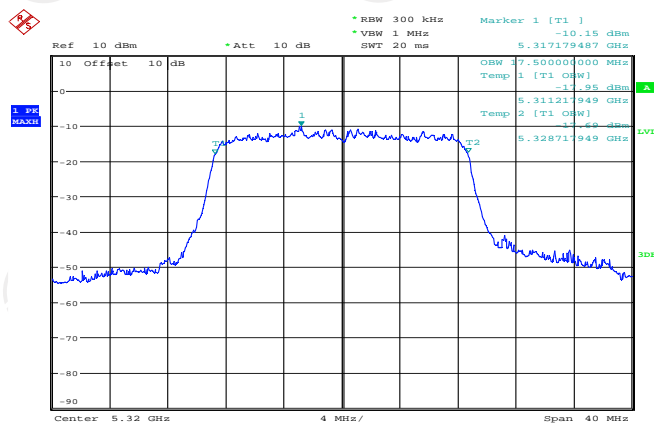
Date: 8.DEC.2016 12:38:55

CH60



Date: 8.DEC.2016 12:41:24

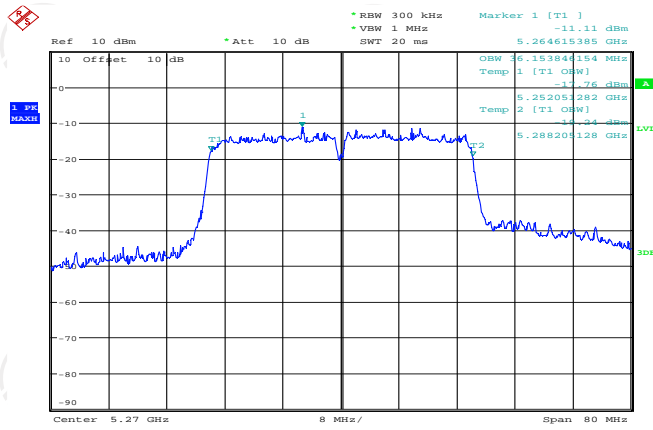
CH64



Date: 8.DEC.2016 12:50:02

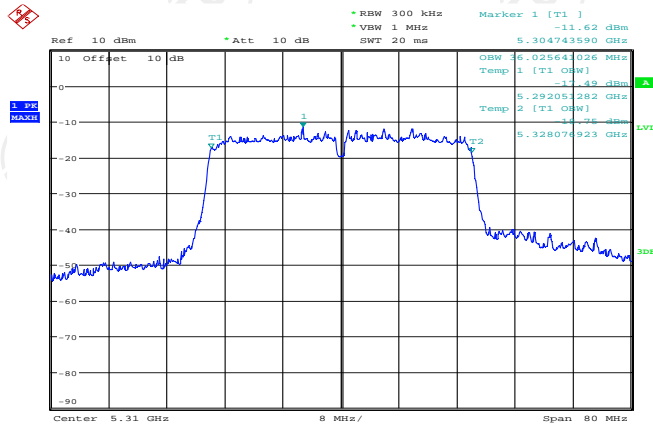
11n(HT40)

CH54



Date: 8.DEC.2016 12:53:58

CH62

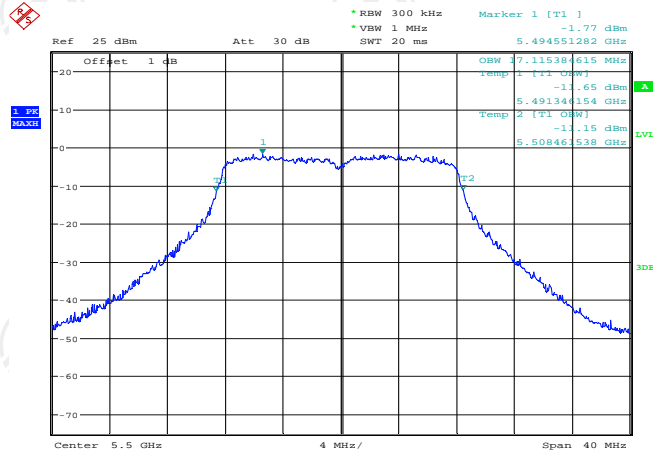


Date: 8.DEC.2016 12:58:49

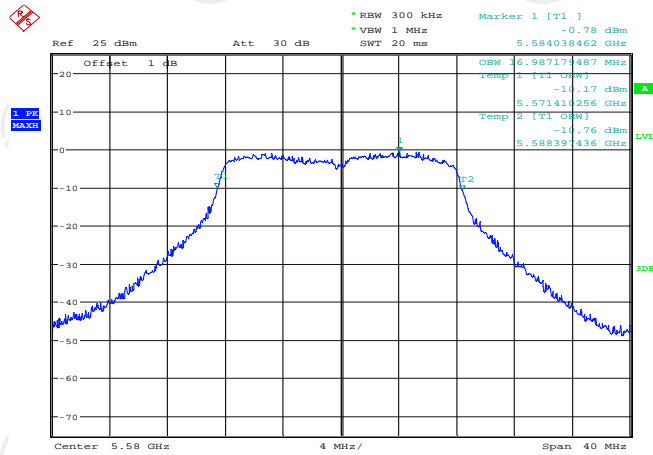
## Band III (5470 – 5725 MHz)

11a

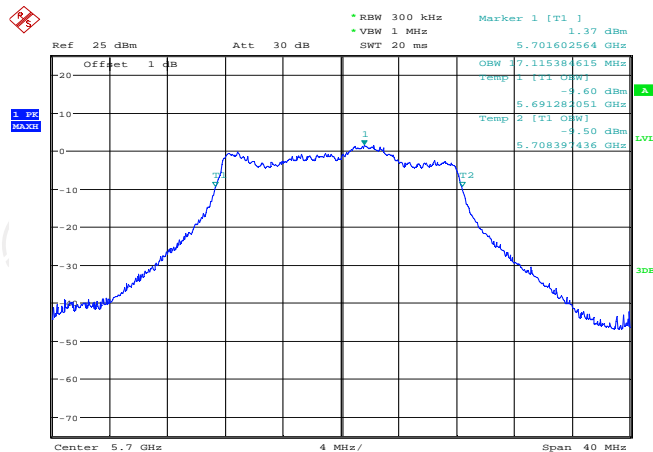
### CH100



### CH116

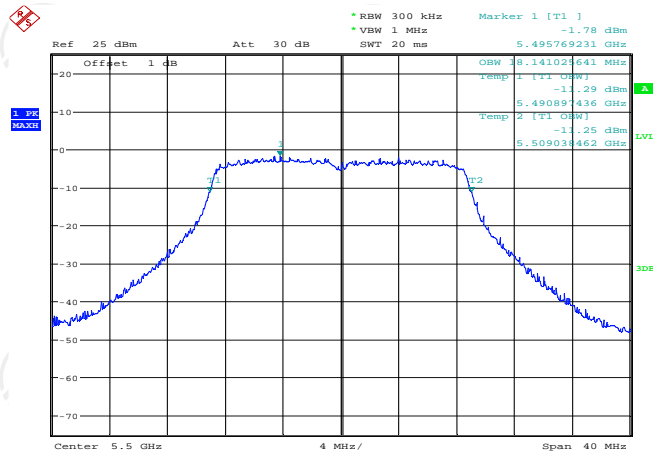


### CH140

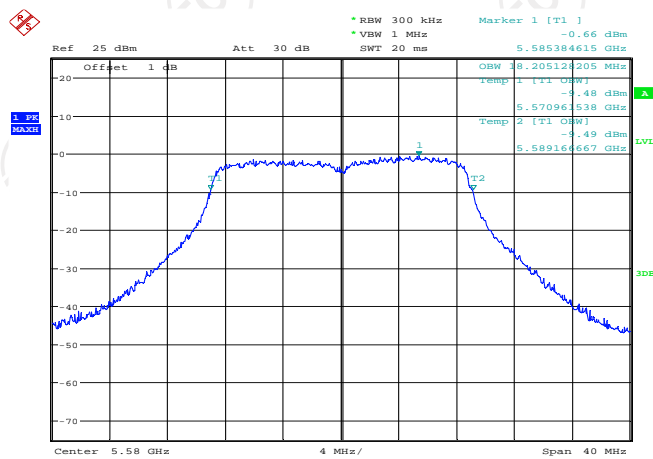


11n(HT20)

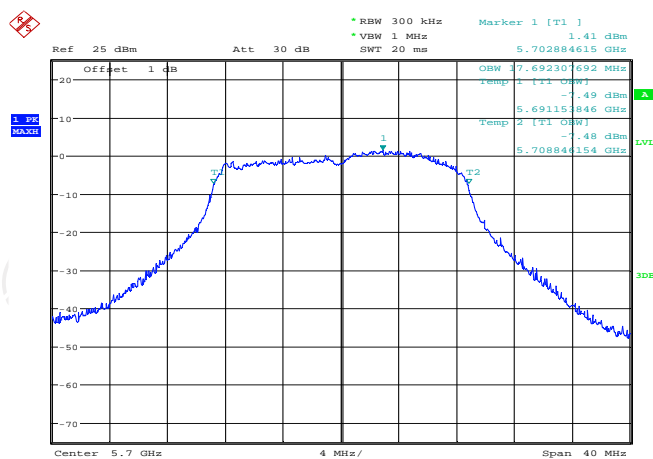
CH100



CH116

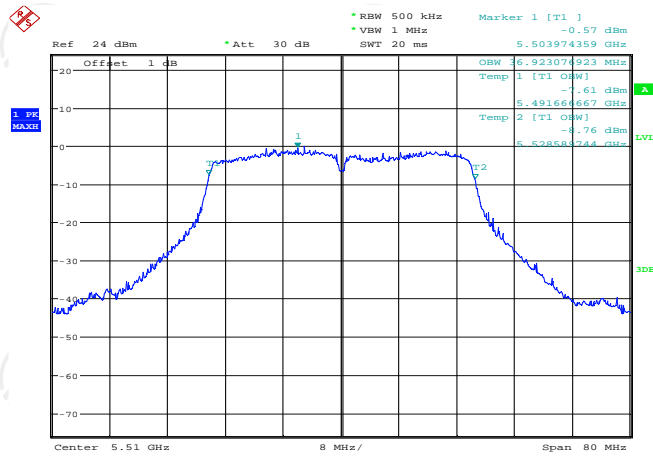


CH140

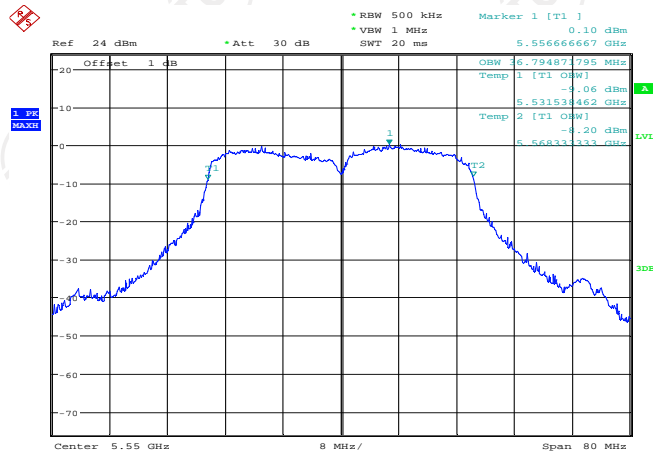


11n(HT40)

CH102



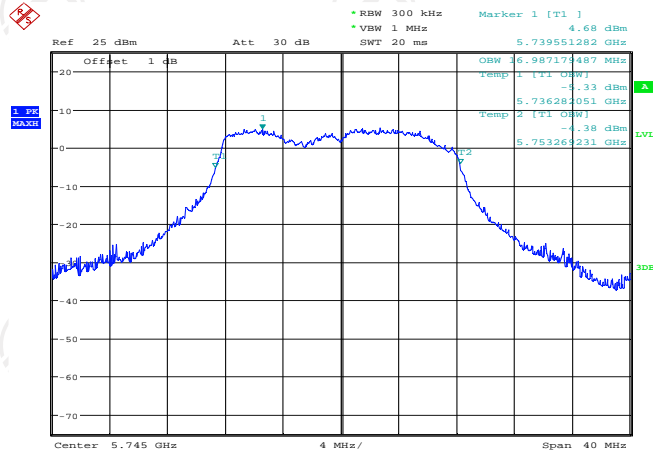
CH134



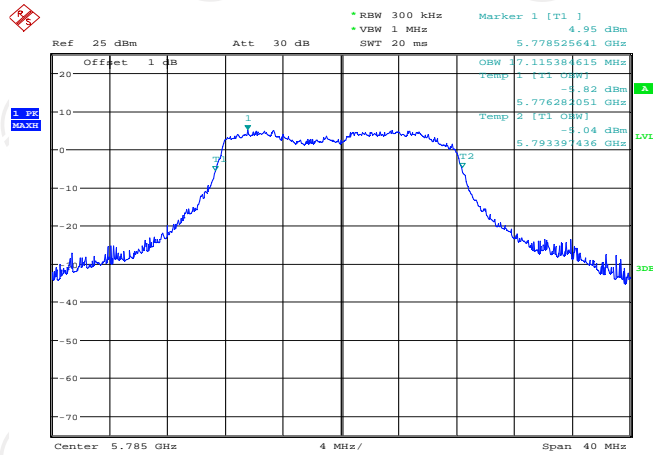
## Band IV (5725 – 5850 MHz)

11a

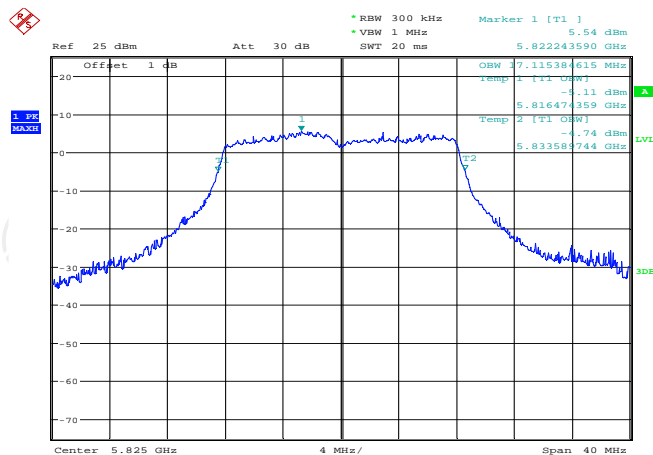
### CH149



### CH157



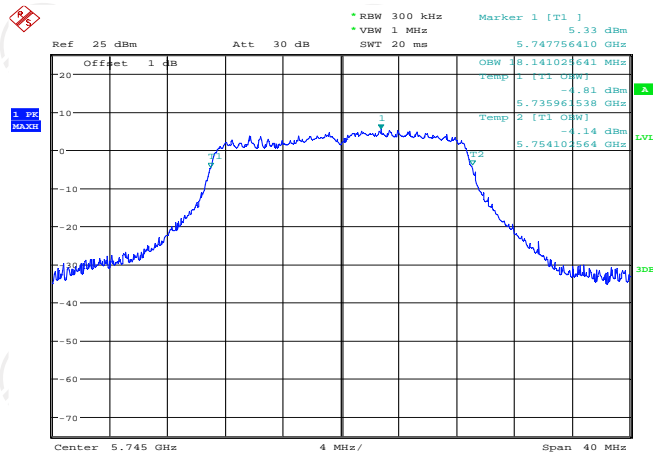
### CH165



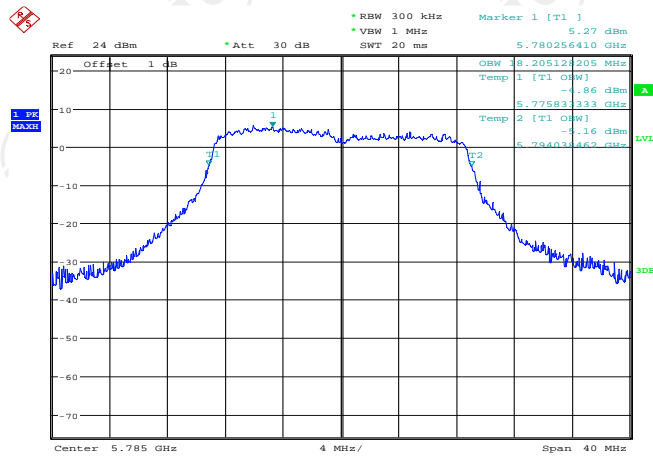


11n(HT20)

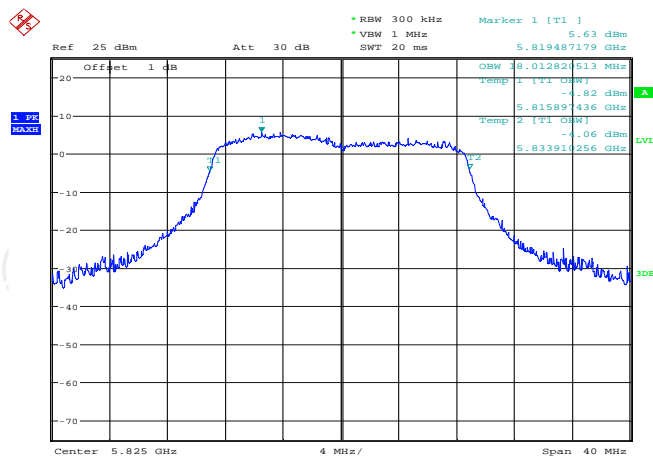
CH149



CH157

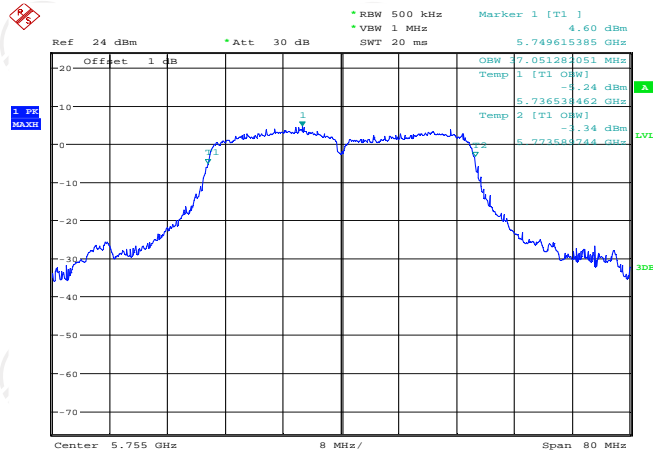


CH165

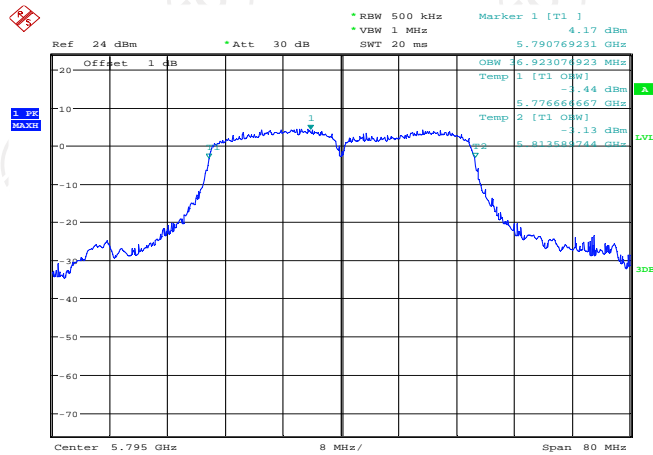


11n(HT40)

CH151

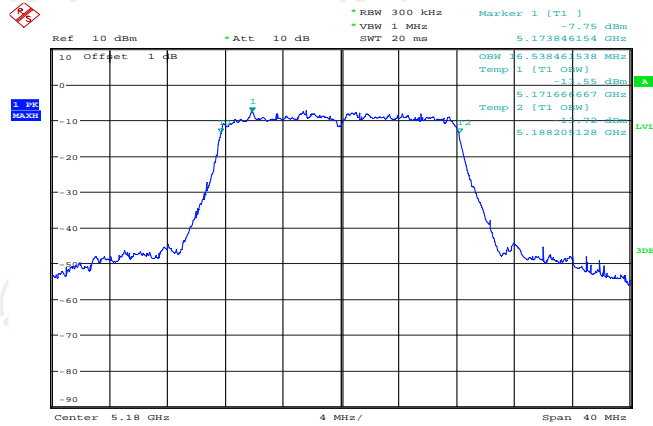


CH159



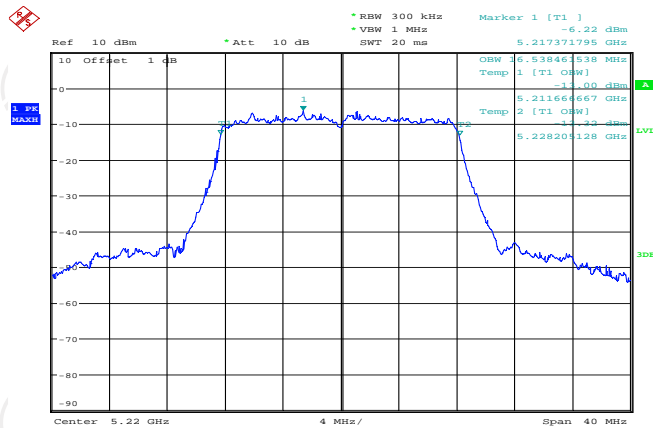
ANT 1  
Band I (5150 – 5250 MHz)  
11a

CH36



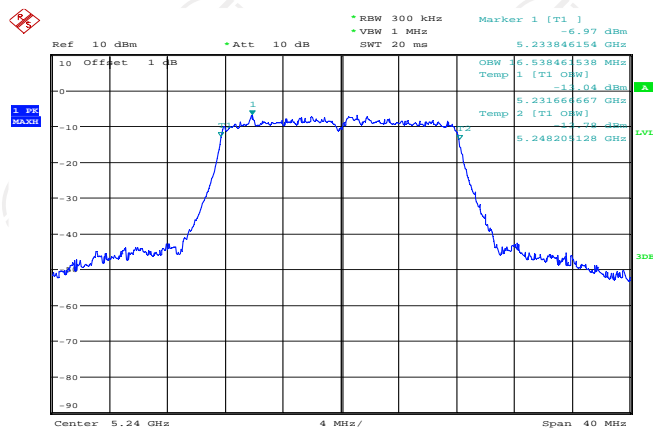
Date: 1.DEC.2016 11:55:11

CH44



Date: 1.DEC.2016 12:00:12

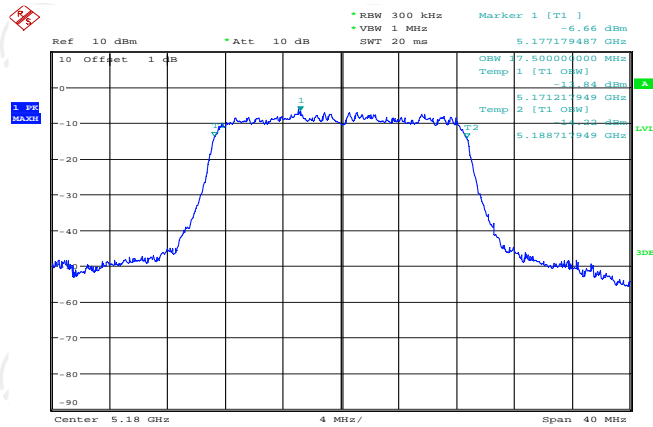
CH48



Date: 1.DEC.2016 12:02:09

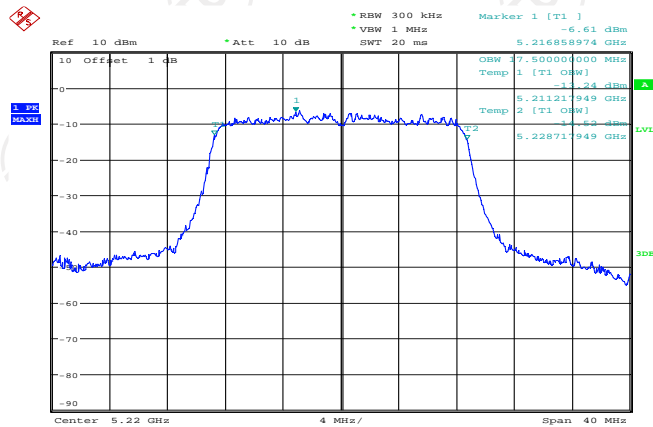
11n(HT20)

CH36



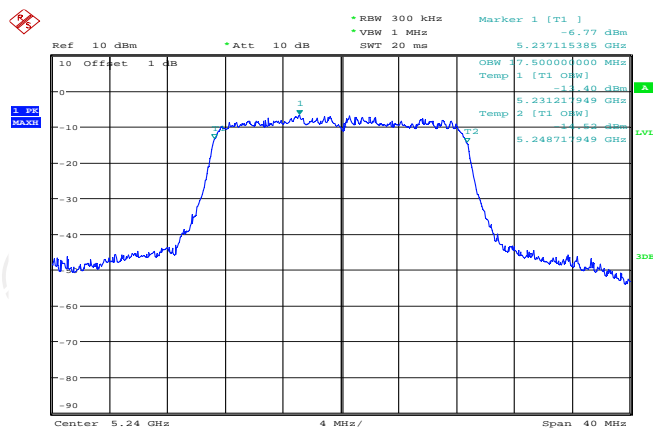
Date: 1.DEC.2016 12:15:00

CH44



Date: 1.DEC.2016 12:18:53

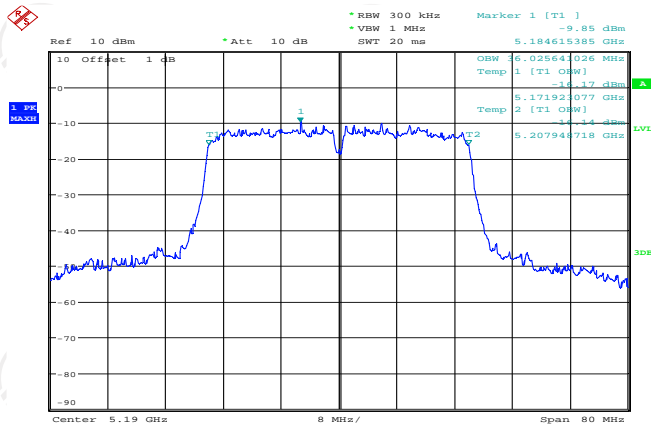
CH48



Date: 1.DEC.2016 12:20:44

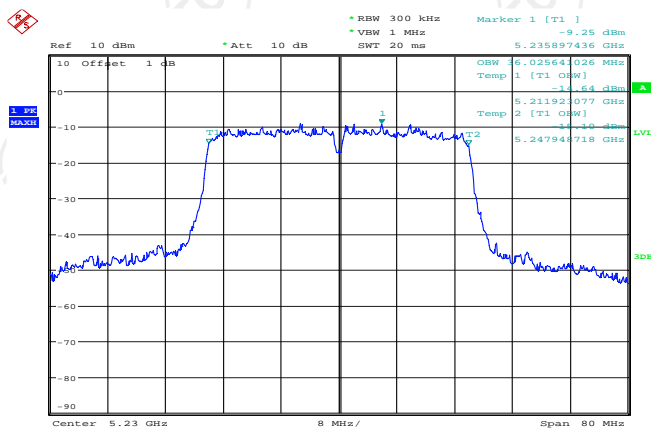
11n(HT40)

CH38



Date: 1.DEC.2016 12:28:52

CH46

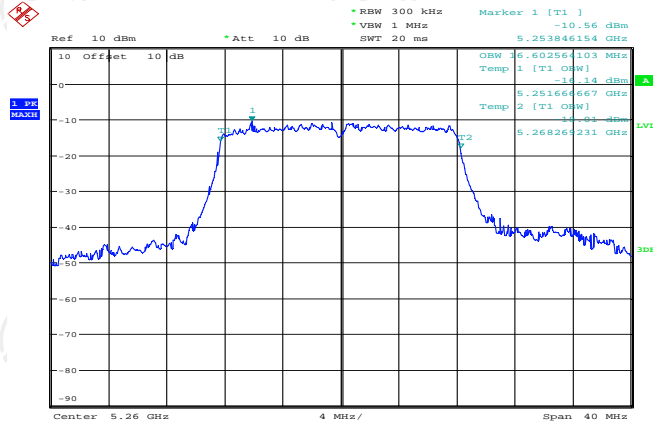


Date: 1.DEC.2016 12:34:10

Band II (5250 – 5350 MHz)

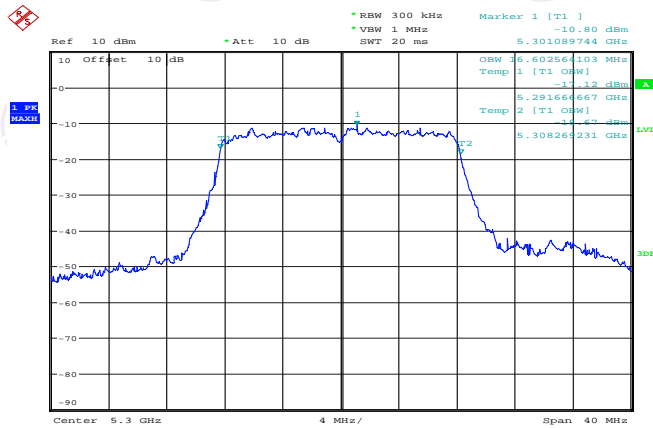
11a

CH52



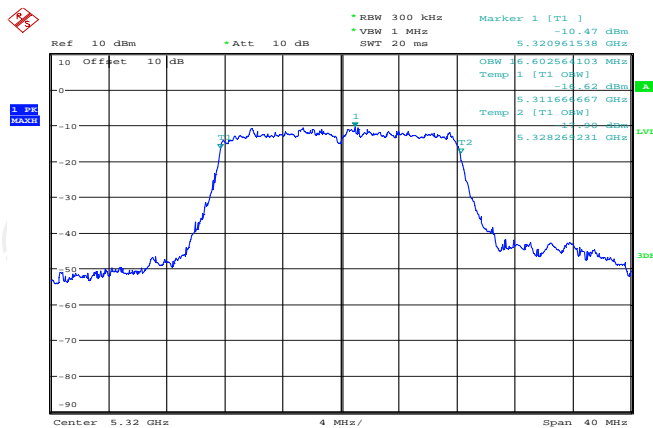
Date: 8.DEC.2016 12:06:48

CH60



Date: 8.DEC.2016 12:15:08

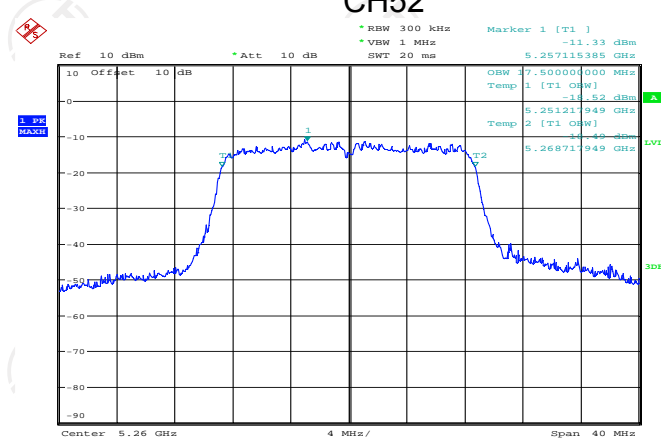
CH64



Date: 8.DEC.2016 12:20:53

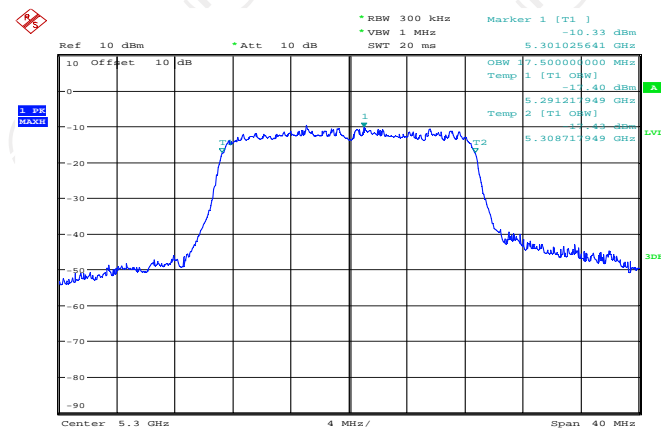
11n(HT20)

CH52



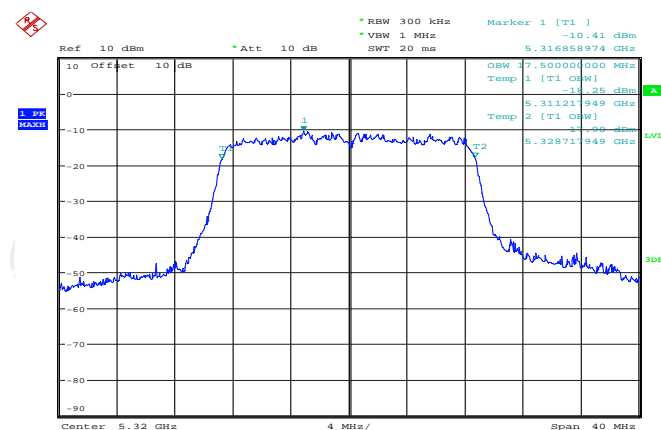
Date: 8.DEC.2016 12:38:40

CH60



Date: 8.DEC.2016 12:41:51

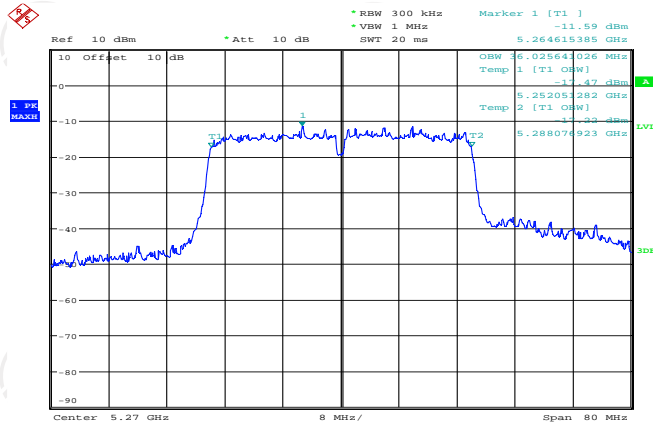
CH64



Date: 8.DEC.2016 12:49:45

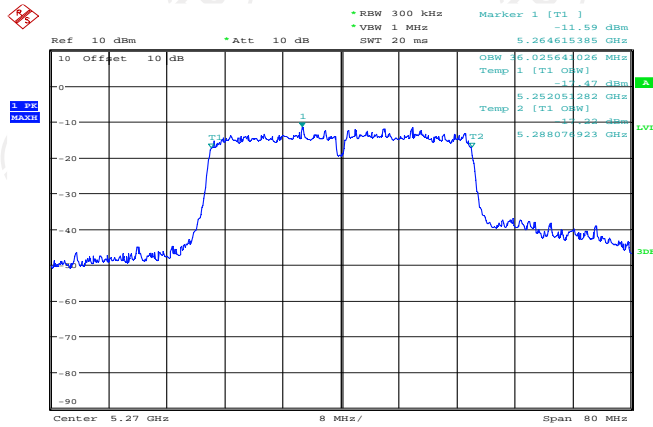
11n(HT40)

CH54



Date: 8.DEC.2016 12:54:27

CH62



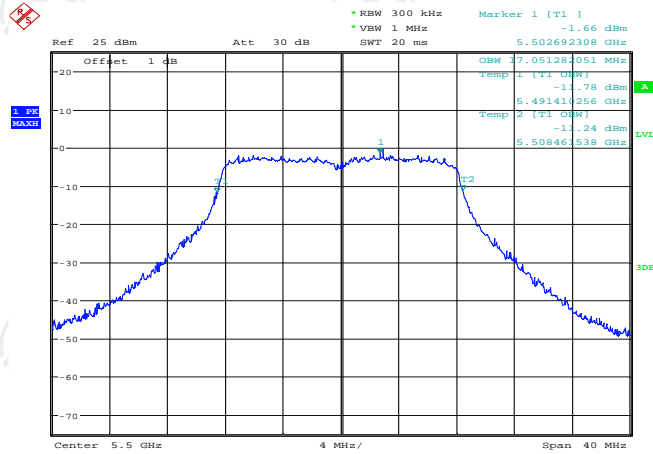
Date: 8.DEC.2016 12:54:27



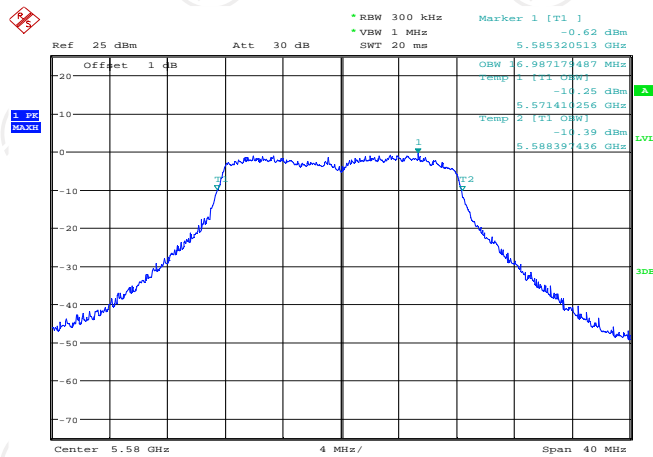
## Band III (5450 – 5725 MHz)

11a

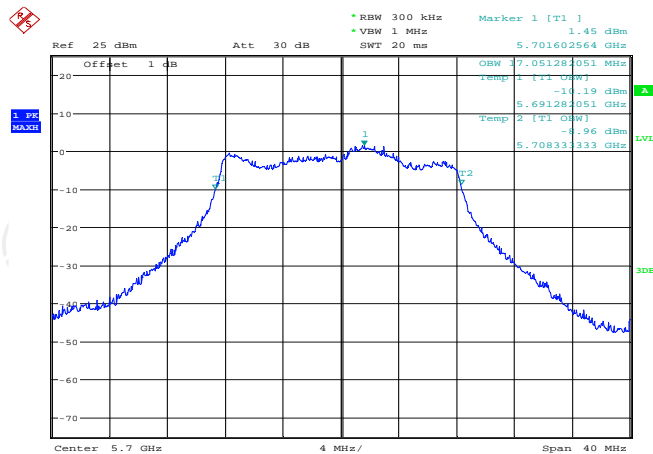
### CH100



### CH116

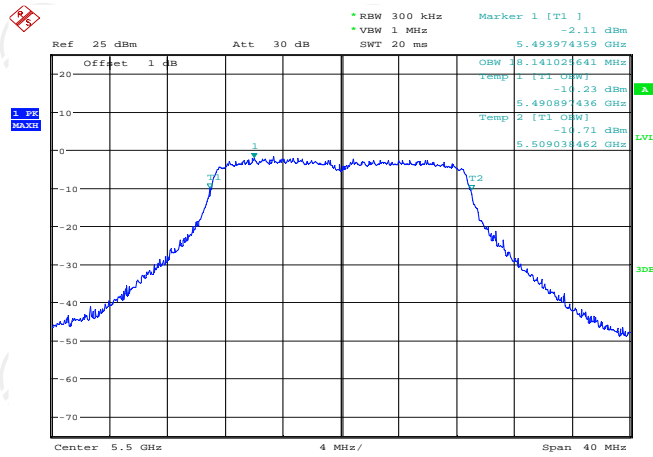


### CH140

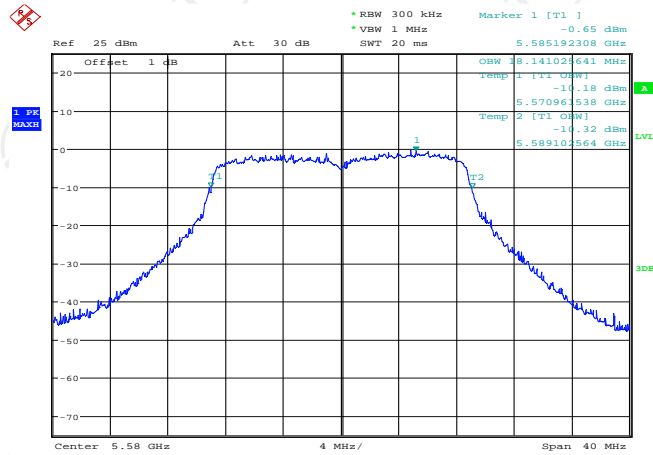


11n(HT20)

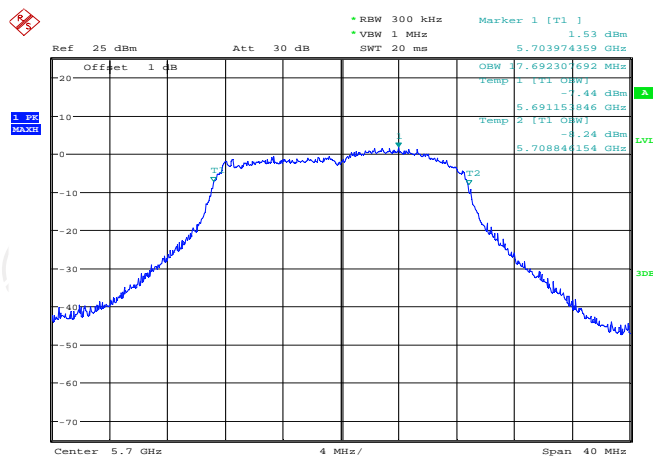
CH100



CH116

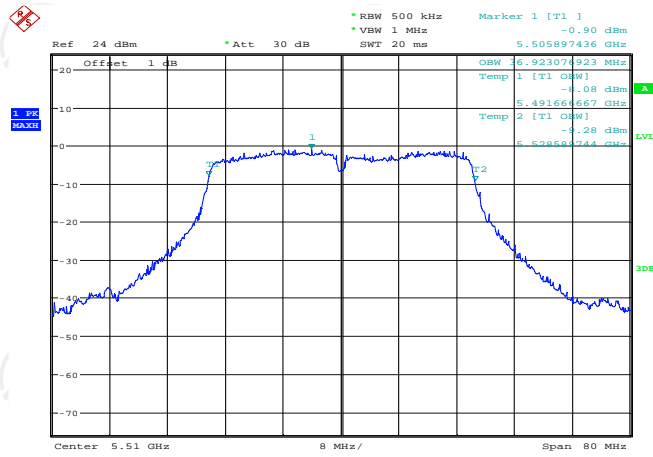


CH140

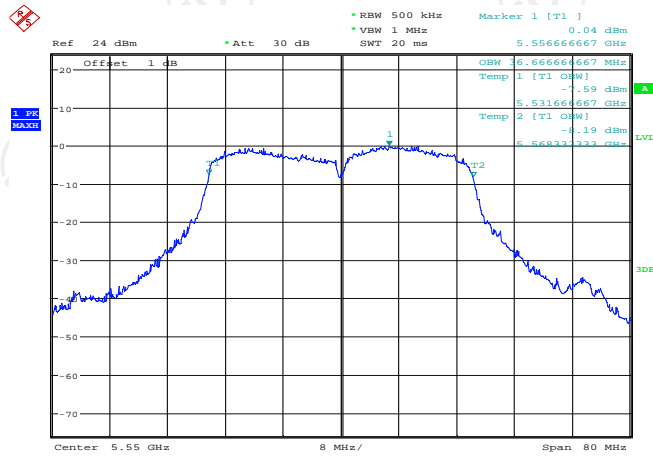


11n(HT40)

CH102



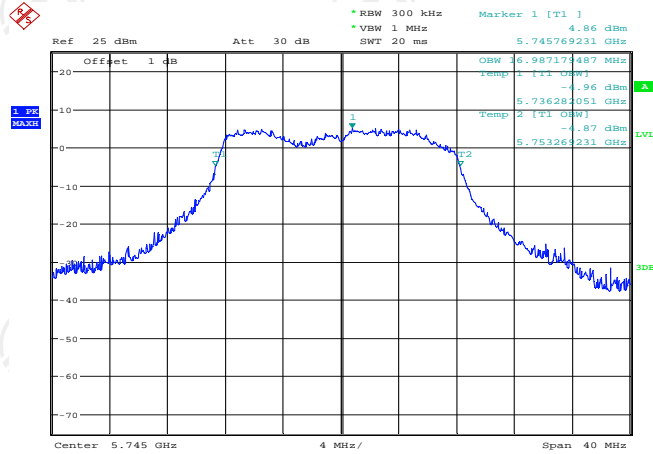
CH134



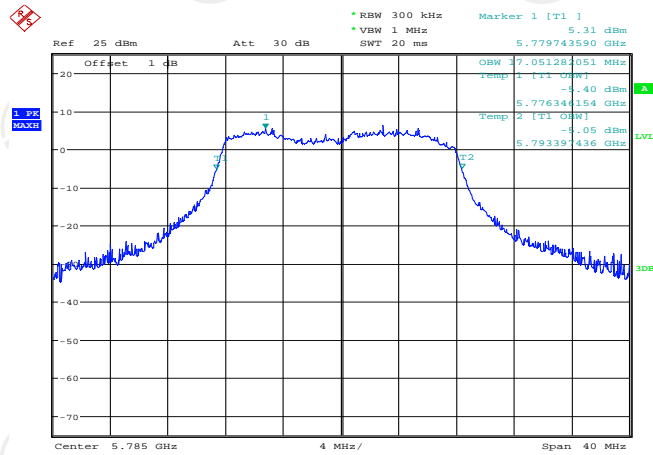
## Band IV (5725 – 5850 MHz)

11a

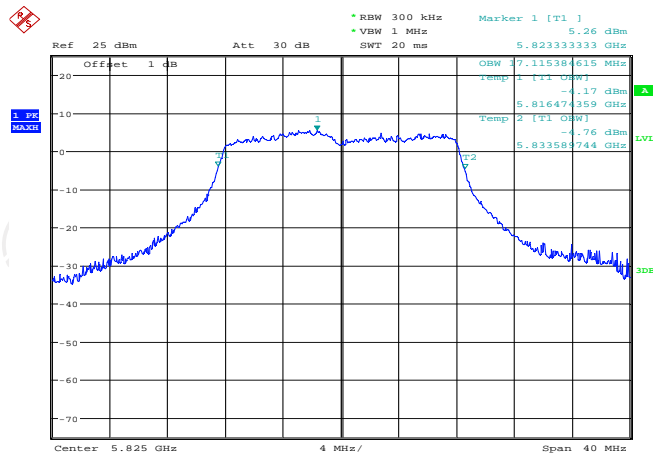
### CH149



### CH157

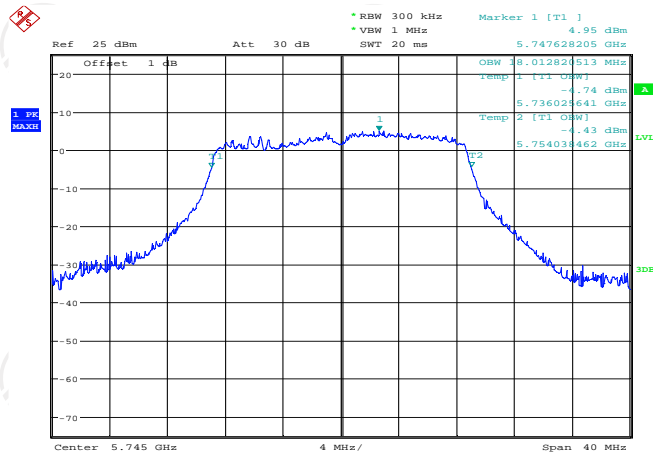


### CH165

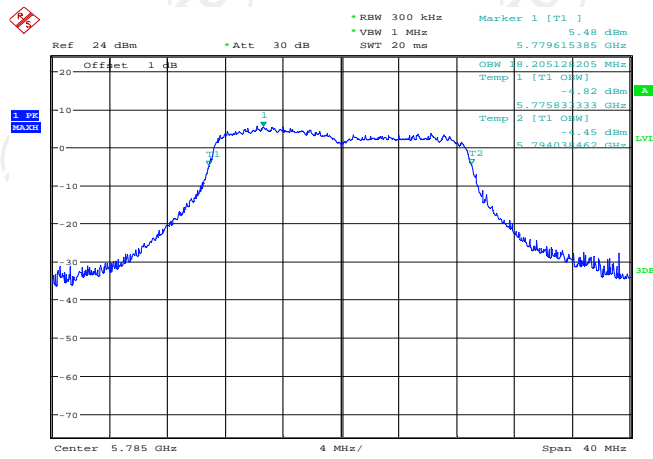


11n(HT20)

CH149



CH157



CH165

