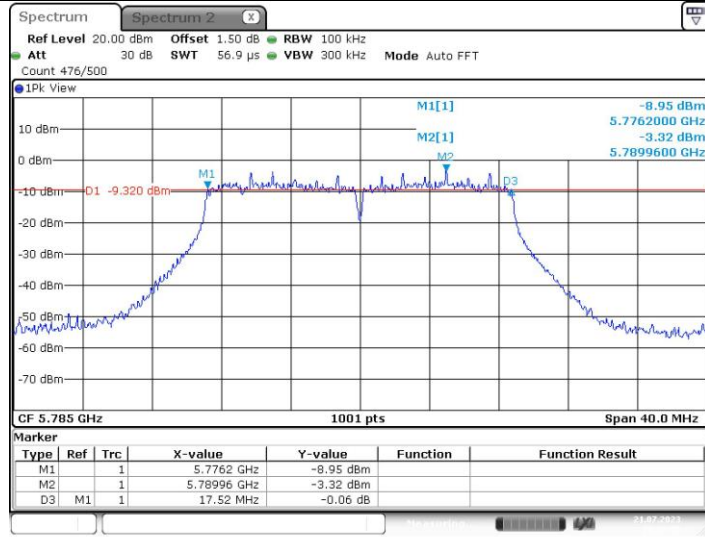


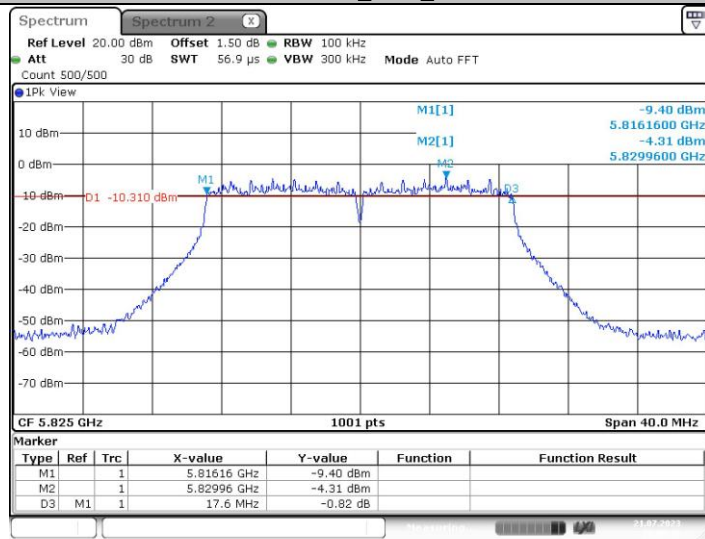
Date: 21.JUL.2023 10:05:39

11N20SISO\_Ant1\_5785



Date: 21.JUL.2023 10:07:05

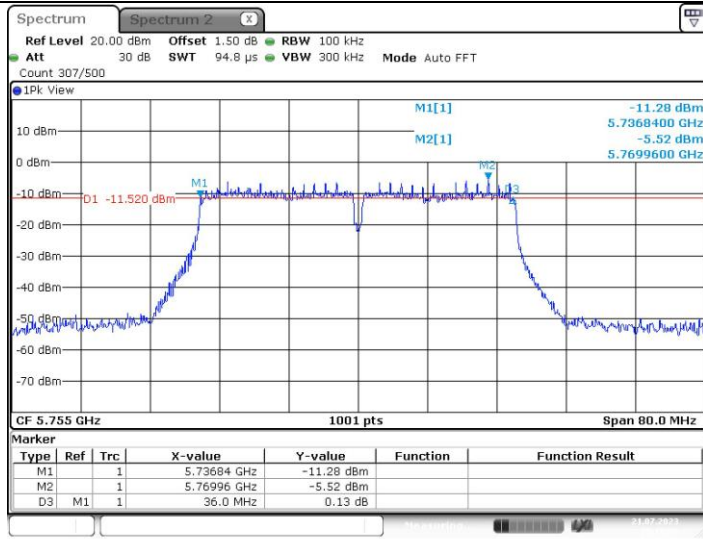
11N20SISO\_Ant1\_5825



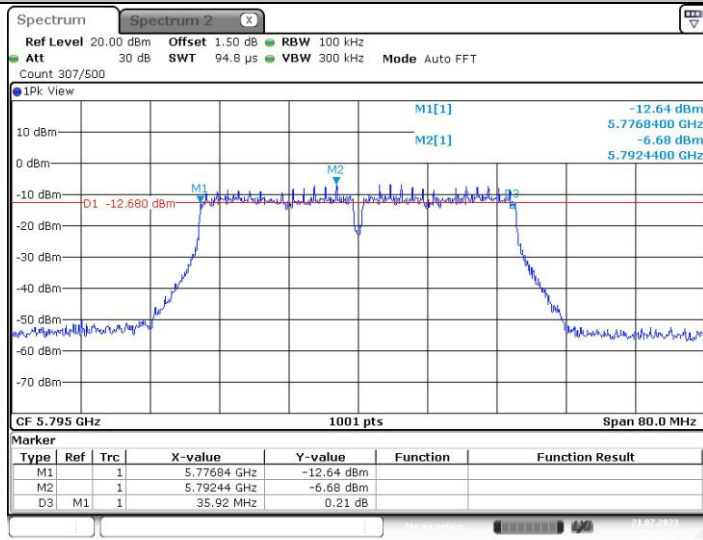
Date: 21.JUL.2023 10:08:30

11N40SISO\_Ant1\_5755





11N40SISO\_Ant1\_5795





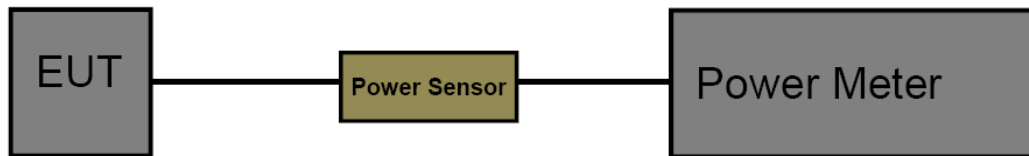
### 3.5. Output Power

#### Limit

#### FCC CFR Title 47 Part 15 Subpart E Section 15.407(a)

Test Item	Limit	Frequency Range (MHz)
Conducted Output Power	Fixed: 1 Watt (30dBm) Mobile and Portable: 250mW (24dBm)	5150~5250
	250mW (24dBm)	5250~5350
	250mW (24dBm)	5500~5700
	1 Watt (30dBm)	5725~5850

#### Test Configuration



#### Test Procedure

The measurement is according to section 3 of KDB 789033 D02 General UNII Test Procedures New Rules V02r01.

#### Test Mode

Please refer to the clause 2.4.

**Test Result**

TestMode	Antenna	Channel	AVG POWER Result[dBm]	Limit[dBm]	Verdict
11A	Ant1	5180	10.59	≤23.98	PASS
		5200	10.67	≤23.98	PASS
		5240	11.21	≤23.98	PASS
		5260	11.98	≤23.98	PASS
		5280	12.15	≤23.98	PASS
		5320	12.58	≤23.98	PASS
		5500	11.15	≤23.98	PASS
		5580	11.09	≤23.98	PASS
		5700	10.39	≤23.98	PASS
		5745	6.34	≤30	PASS
		5785	6.12	≤30	PASS
11N20SISO	Ant1	5825	6.09	≤30	PASS
		5180	10.36	≤23.98	PASS
		5200	11.01	≤23.98	PASS
		5240	11.36	≤23.98	PASS
		5260	11.79	≤23.98	PASS
		5280	11.96	≤23.98	PASS
		5320	12.46	≤23.98	PASS
		5500	10.91	≤23.98	PASS
		5580	10.92	≤23.98	PASS
		5700	10.17	≤23.98	PASS
		5745	6.11	≤30	PASS
11N40SISO	Ant1	5785	5.51	≤30	PASS
		5825	5.73	≤30	PASS
		5190	7.58	≤23.98	PASS
		5230	11.14	≤23.98	PASS
		5270	11.94	≤23.98	PASS
		5310	6.44	≤23.98	PASS
		5510	11.00	≤23.98	PASS
		5550	11.22	≤23.98	PASS
		5670	10.73	≤23.98	PASS
5755	6.11	≤30	PASS		
5795	5.88	≤30	PASS		



### 3.6. Power Spectral Density

#### Limit

#### FCC CFR Title 47 Part 15 Subpart E Section 15.407(a)

For the 5.15~5.25GHz band:

- Outdoor AP  
The peak power spectral density (PSD) shall not exceed the lesser of 17dBm/MHz.  
If  $G_{Tx} > 6\text{dBi}$ , then  $\text{PSD} = 17 - (G_{Tx} - 6)$ .
- Indoor AP  
The peak power spectral density (PSD) shall not exceed the lesser of 17dBm/MHz.  
If  $G_{Tx} > 6\text{dBi}$ , then  $\text{PSD} = 17 - (G_{Tx} - 6)$ .
- Point-to-point AP  
The peak power spectral density (PSD) shall not exceed the lesser of 17dBm/MHz.  
If  $G_{Tx} > 23\text{dBi}$ , then  $\text{PSD} = 17 - (G_{Tx} - 23)$ .
- Client devices  
The peak power spectral density (PSD) shall not exceed the lesser of 11dBm/MHz.  
If  $G_{Tx} > 6\text{dBi}$ , then  $\text{PSD} = 11 - (G_{Tx} - 6)$ .

For the 5.25~5.35GHz band:

The peak power spectral density (PSD) shall not exceed the lesser of 11dBm/MHz.  
If  $G_{Tx} > 6\text{dBi}$ , then  $\text{PSD} = 11 - (G_{Tx} - 6)$ .

For the 5.47~5.725GHz band:

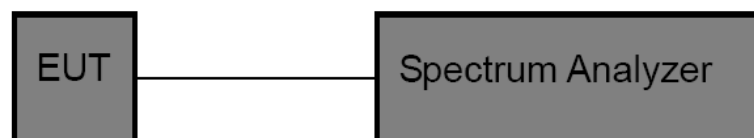
The peak power spectral density (PSD) shall not exceed the lesser of 11dBm/MHz.  
If  $G_{Tx} > 6\text{dBi}$ , then  $\text{PSD} = 11 - (G_{Tx} - 6)$ .

For the 5.725~5.85GHz band:

- Point-to-multipoint systems (P2M)  
The peak power spectral density (PSD) shall not exceed the lesser of 30dBm/500kHz.  
If  $G_{Tx} > 6\text{dBi}$ , then  $\text{PSD} = 30 - (G_{Tx} - 6)$ .
- Point-to-point systems (P2P)  
The peak power spectral density (PSD) shall not exceed the lesser of 30dBm/500kHz.

Note:  $G_{Tx}$ : EUT Antenna gain.

#### Test Configuration



#### Test Procedure

The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above. The measurement is according to KDB 789033 D02 General UNII Test Procedures New Rules V02r01.

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Set analyzer center frequency to transmitting frequency.
- (3) Set the span to encompass the entire emissions bandwidth (EBW) (alternatively, the entire 99% OBW) of the signal.
- (4) RBW=1MHz for devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz  
RBW=500kHz for devices operating in the band 5.725-5.85 GHz.



- (5) Set the VBW to:  $\geq 3$  RBW
- (6) Detector: AVG
- (7) Trace: Max Hold and View
- (7) Sweep time: auto
- (8) Trace average at least 100 traces in power averaging.
- (9) Use the peak marker function to determine the maximum amplitude level within the RBW. Apply correction to the result if different RBW is used.

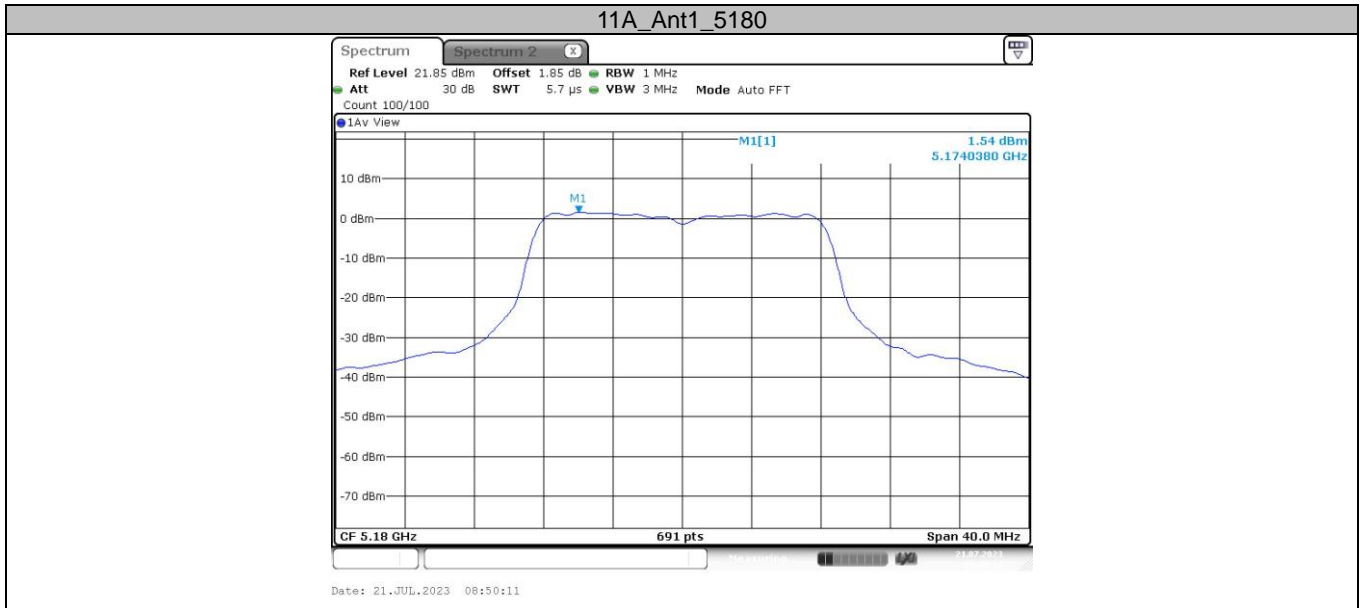
NOTE: The EUT was set to continuously transmitting in each mode and low, middle and high channel for the test.

### **Test Mode**

Please refer to the clause 2.4.

**Test Result**

TestMode	Antenna	Channel	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	Ant1	5180	1.54	≤11	PASS
		5200	1.5	≤11	PASS
		5240	2.19	≤11	PASS
		5260	2.85	≤11	PASS
		5280	3.2	≤11	PASS
		5320	3.64	≤11	PASS
		5500	2.42	≤11	PASS
		5580	2.29	≤11	PASS
		5700	1.97	≤11	PASS
		5745	-5.72	≤30	PASS
		5785	-5.99	≤30	PASS
11N20SISO	Ant1	5825	-5.58	≤30	PASS
		5180	1.34	≤11	PASS
		5200	2.13	≤11	PASS
		5240	2.43	≤11	PASS
		5260	2.99	≤11	PASS
		5280	3.06	≤11	PASS
		5320	3.94	≤11	PASS
		5500	1.8	≤11	PASS
		5580	2.67	≤11	PASS
		5700	1.1	≤11	PASS
		5745	-5.59	≤30	PASS
5785	-5.97	≤30	PASS		
11N40SISO	Ant1	5825	-5.92	≤30	PASS
		5190	-3.87	≤11	PASS
		5230	-0.48	≤11	PASS
		5270	-0.14	≤11	PASS
		5310	-4.89	≤11	PASS
		5510	-0.4	≤11	PASS
		5550	-0.38	≤11	PASS
		5670	-0.92	≤11	PASS
5755	-8.26	≤30	PASS		
5795	-8.77	≤30	PASS		

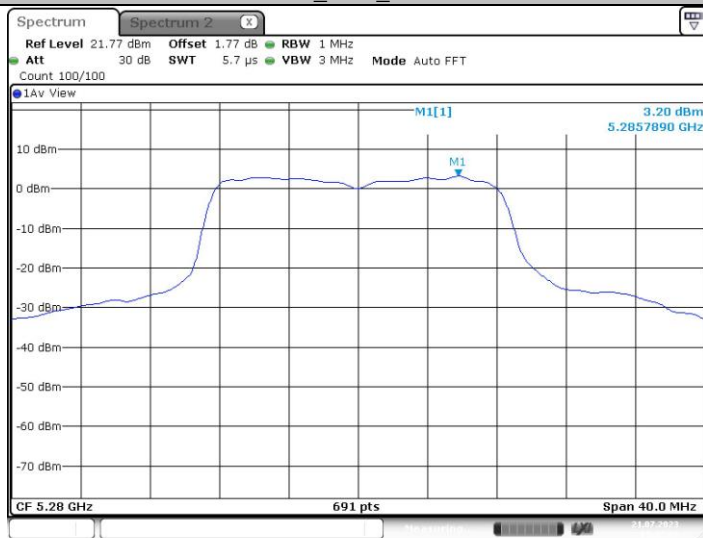


### 11A\_Ant1\_5260





11A\_Ant1\_5280



11A\_Ant1\_5320

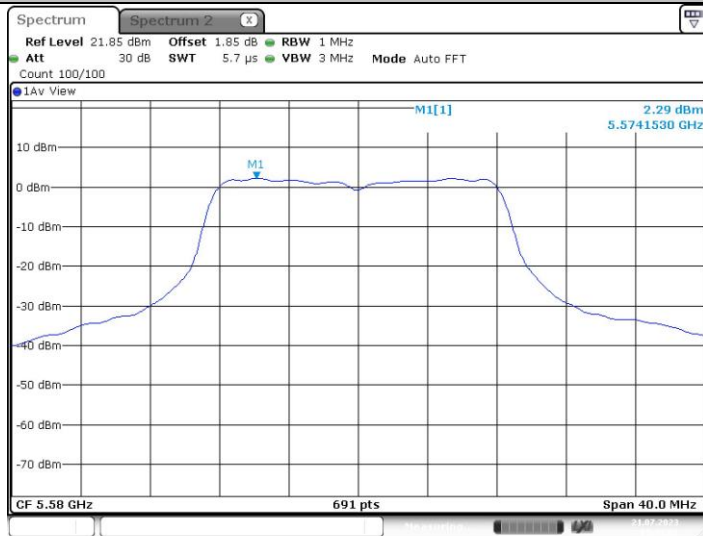


11A\_Ant1\_5500



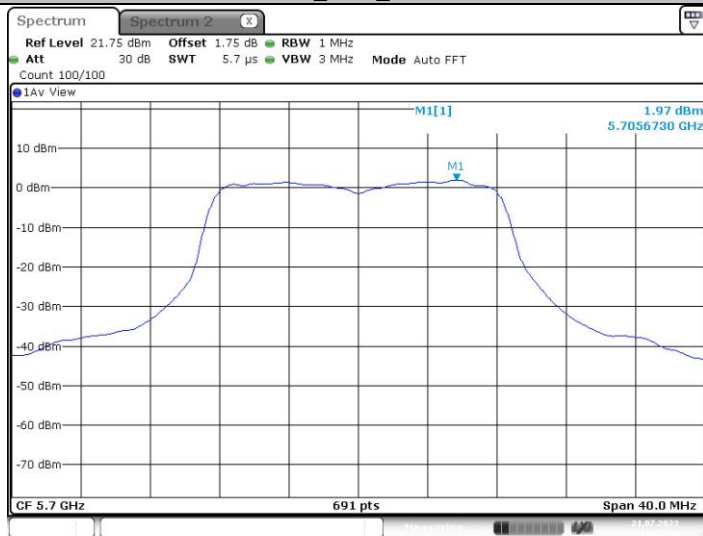
Date: 21.JUL.2023 09:29:25

11A\_Ant1\_5580



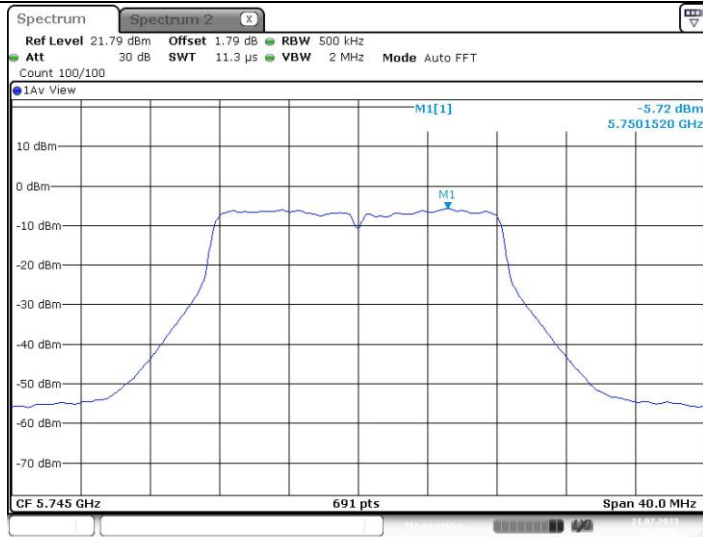
Date: 21.JUL.2023 09:31:02

11A\_Ant1\_5700



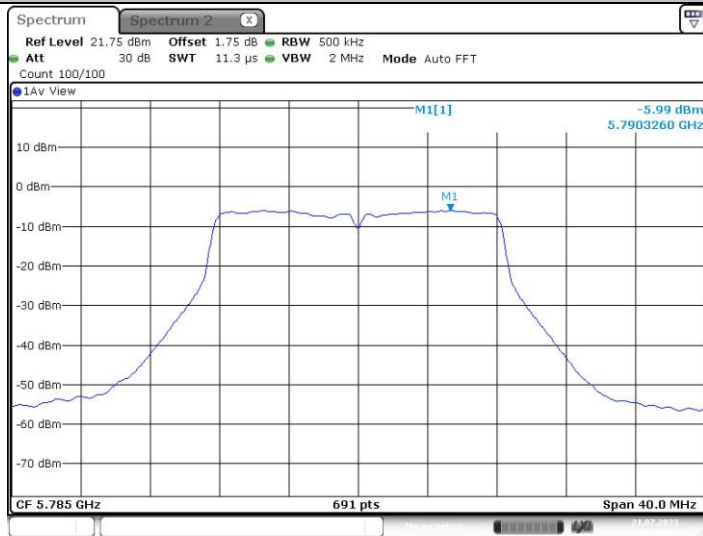
Date: 21.JUL.2023 09:32:20

11A\_Ant1\_5745



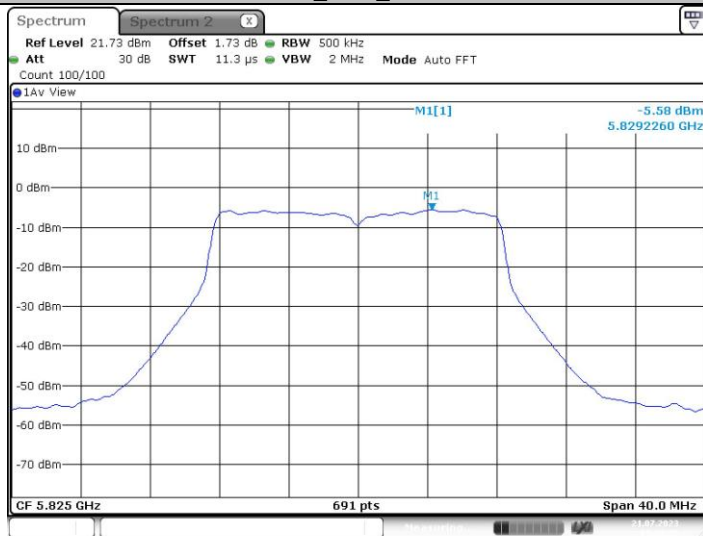
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11A\_Ant1\_5785



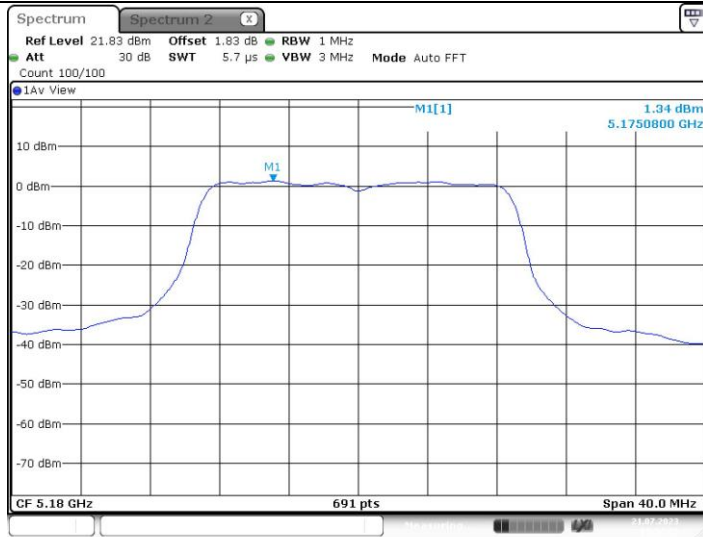
Date: 21.JUL.2023 09:48:54

11A\_Ant1\_5825

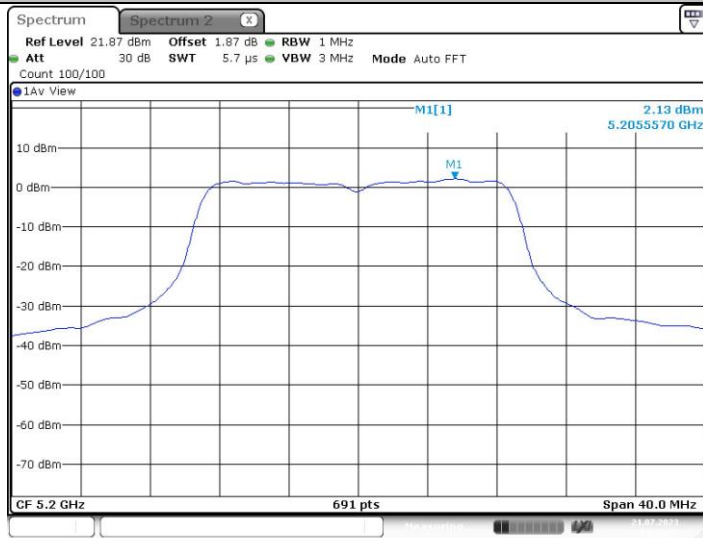


Date: 21.JUL.2023 09:50:35

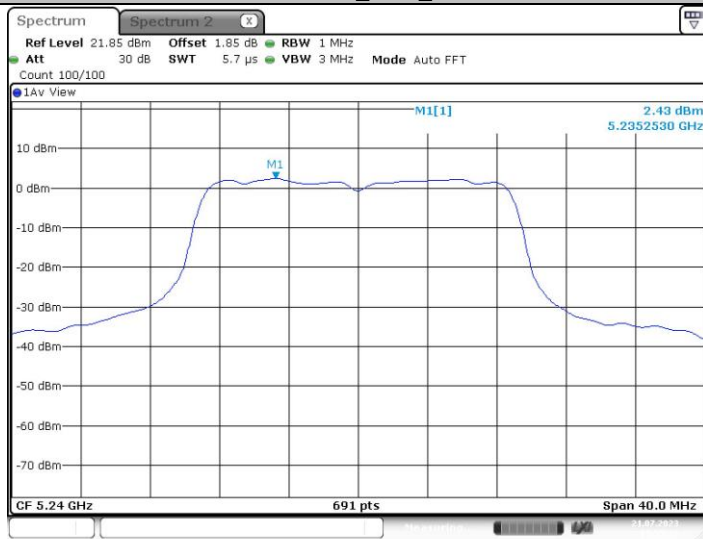
11N20SISO\_Ant1\_5180



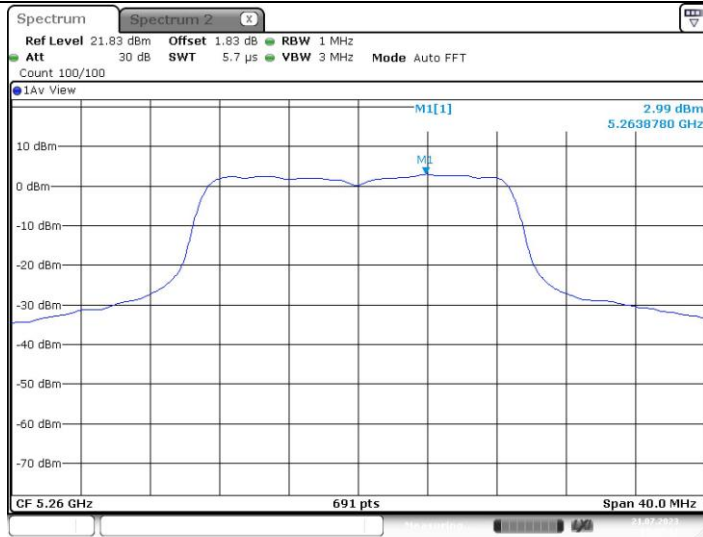
11N20SISO\_Ant1\_5200



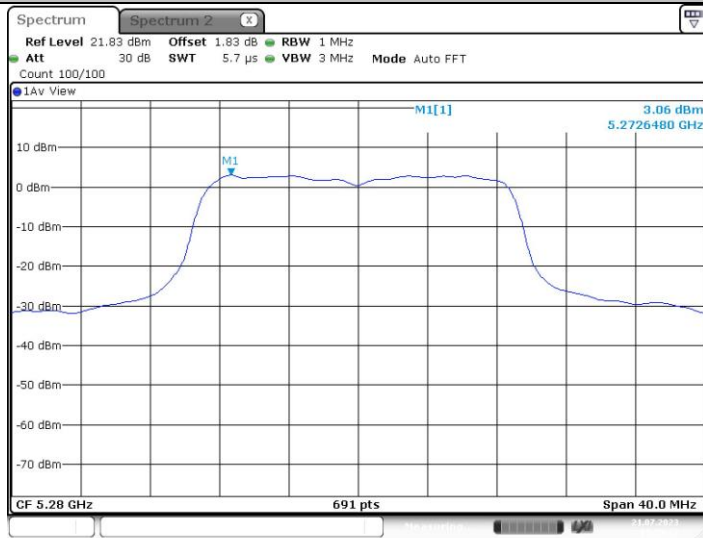
11N20SISO\_Ant1\_5240



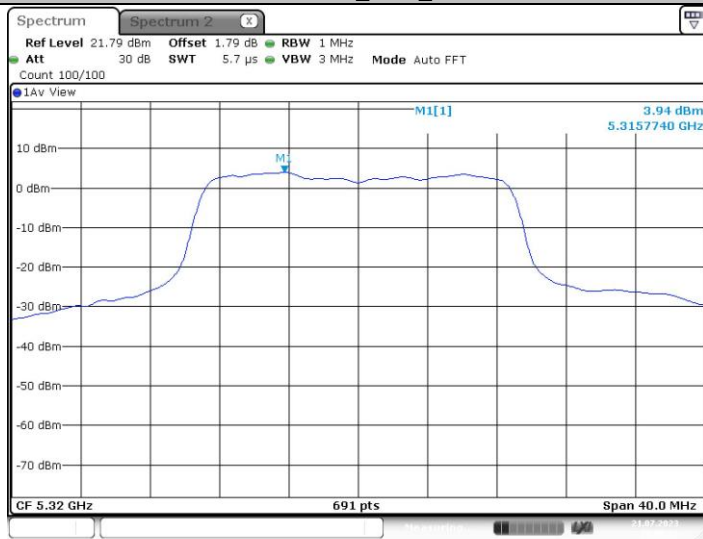
11N20SISO\_Ant1\_5260



11N20SISO\_Ant1\_5280



11N20SISO\_Ant1\_5320



11N20SISO\_Ant1\_5500



Date: 21.JUL.2023 10:02:09

11N20SISO\_Ant1\_5580



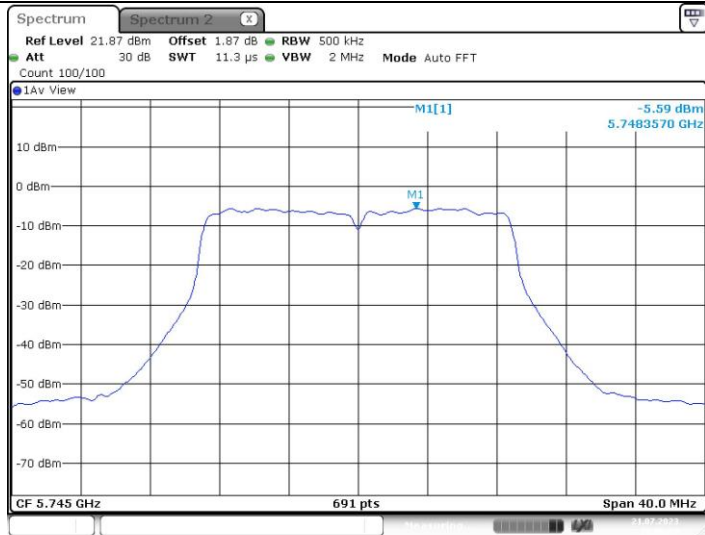
Date: 21.JUL.2023 10:03:39

11N20SISO\_Ant1\_5700



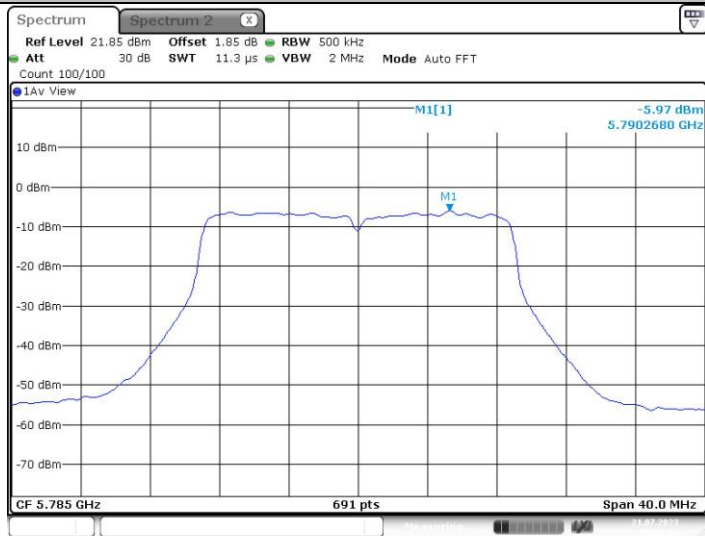
Date: 21.JUL.2023 10:05:06

11N20SISO\_Ant1\_5745



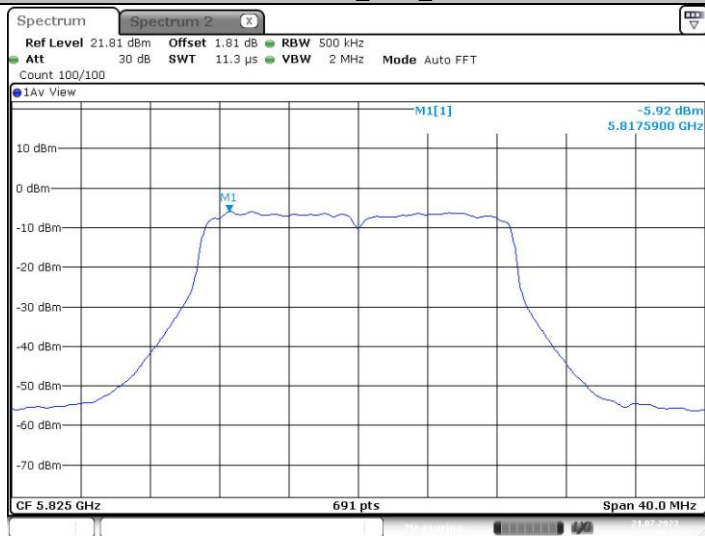
Date: 21.JUL.2023 10:06:24

11N20SISO\_Ant1\_5785



Date: 21.JUL.2023 10:07:50

11N20SISO\_Ant1\_5825



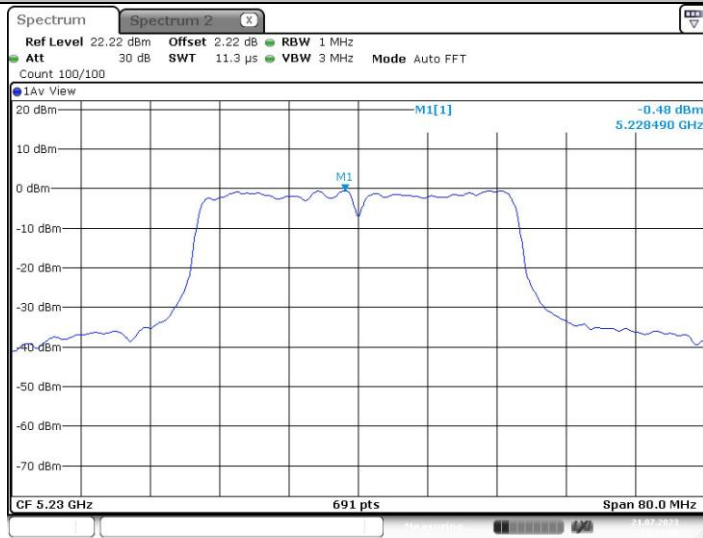
Date: 21.JUL.2023 10:09:15

11N40SISO\_Ant1\_5190





11N40SISO\_Ant1\_5230



11N40SISO\_Ant1\_5270



11N40SISO\_Ant1\_5310





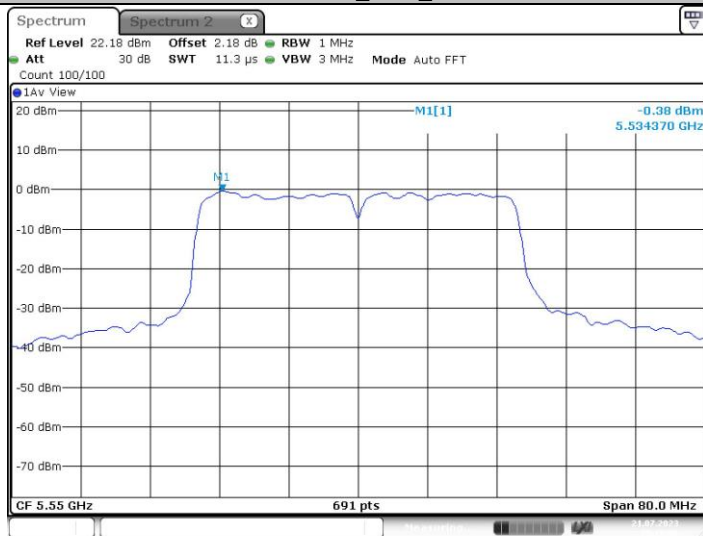
Date: 24.JUL.2023 18:49:37

11N40SISO\_Ant1\_5510



Date: 21.JUL.2023 10:16:55

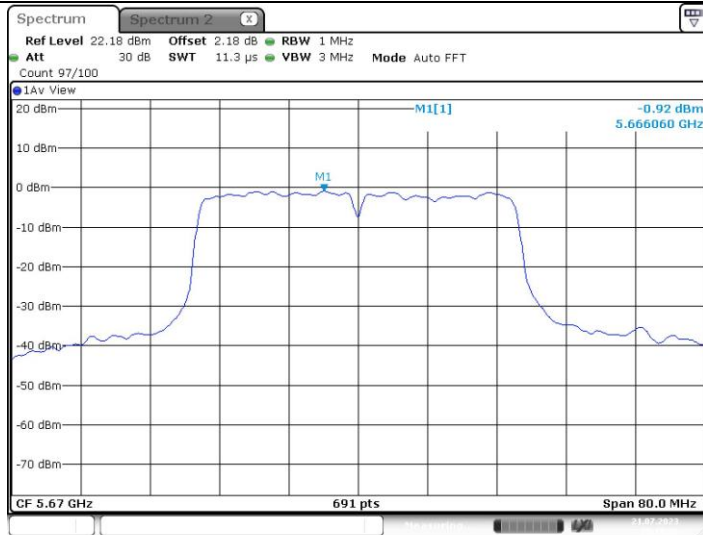
11N40SISO\_Ant1\_5550



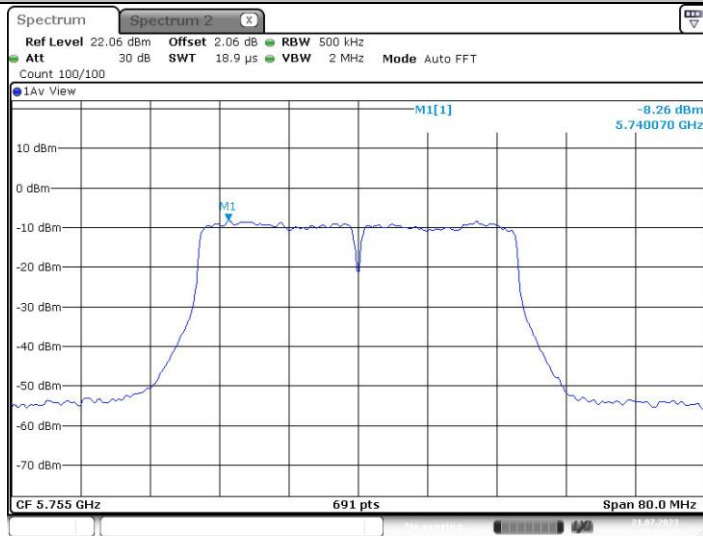
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11N40SISO\_Ant1\_5670

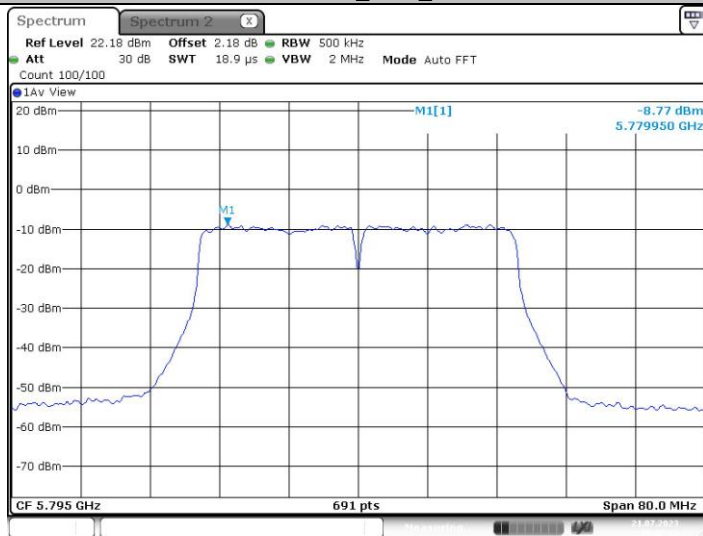




11N40SISO\_Ant1\_5755



11N40SISO\_Ant1\_5795





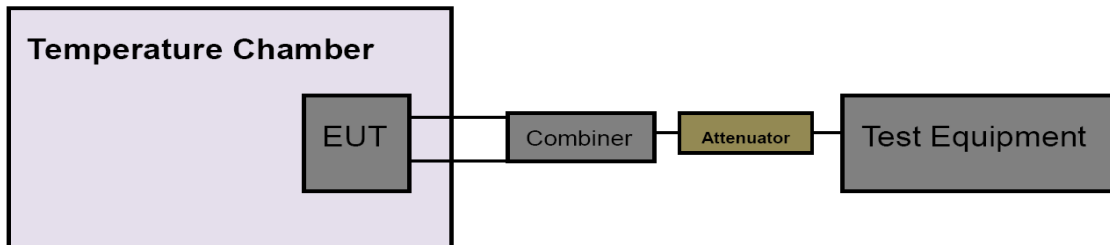
### 3.7. Frequency Stability

#### Limit

#### FCC CFR Title 47 Part 15 Subpart E Section 15.407(g)

Test Item	Limit	Frequency Range (MHz)
Frequency Stability	Specified in the user's manual, the transmitter center frequency tolerance shall be $\pm 20$ ppm maximum for the 5 GHz band (IEEE 802.11n specification)	5150~5250
		5250~5350
		5500~5700
		5725~5850

#### Test Configuration



#### Test Procedure

The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above.

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Set analyzer center frequency to transmitting frequency.
- (3) Set the span to encompass the entire emissions bandwidth (EBW) of the signal.
- (4) Set the RBW to: 8MHz, VBW=8MHz with peak detector and max hold settings.
- (5) The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
- (6) Extreme temperature is 0°C~45°C

NOTE: The EUT was set to continuously transmitting in continuously un-modulation transmitting mode.

#### Test Mode

Please refer to the clause 2.4.



**Test Result**

TestMode	Antenna	Channel	Voltage					Limit (ppm)	Verdict
			Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Deviation (ppm)		
20M	Ant1	5180	NV	NT	-15000	-2.895753	20	PASS	
			LV	NT	-13000	-2.509653	20	PASS	
			HV	NT	-11000	-2.123552	20	PASS	
		5200	NV	NT	8000	1.538462	20	PASS	
			LV	NT	14000	2.692308	20	PASS	
			HV	NT	16000	3.076923	20	PASS	
		5240	NV	NT	17000	3.244275	20	PASS	
			LV	NT	17000	3.244275	20	PASS	
			HV	NT	17000	3.244275	20	PASS	
		5260	NV	NT	18000	3.422053	20	PASS	
			LV	NT	18000	3.422053	20	PASS	
			HV	NT	18000	3.422053	20	PASS	
		5280	NV	NT	19000	3.598485	20	PASS	
			LV	NT	19000	3.598485	20	PASS	
			HV	NT	19000	3.598485	20	PASS	
		5320	NV	NT	19000	3.571429	20	PASS	
			LV	NT	20000	3.759398	20	PASS	
			HV	NT	21000	3.947368	20	PASS	
		5500	NV	NT	14000	2.545455	20	PASS	
			LV	NT	6000	1.090909	20	PASS	
			HV	NT	5000	0.909091	20	PASS	
		5580	NV	NT	2000	0.358423	20	PASS	
			LV	NT	3000	0.537634	20	PASS	
			HV	NT	4000	0.716846	20	PASS	
		5700	NV	NT	8000	1.403509	20	PASS	
			LV	NT	10000	1.754386	20	PASS	
			HV	NT	12000	2.105263	20	PASS	
		5745	NV	NT	16000	2.78503	20	PASS	
			LV	NT	21000	3.655352	20	PASS	
			HV	NT	22000	3.829417	20	PASS	
		5785	NV	NT	22000	3.802939	20	PASS	
			LV	NT	22000	3.802939	20	PASS	
			HV	NT	22000	3.802939	20	PASS	
		5825	NV	NT	22000	3.776824	20	PASS	
			LV	NT	22000	3.776824	20	PASS	
			HV	NT	23000	3.948498	20	PASS	
40M	Ant1	5190	NV	NT	20000	3.853565	20	PASS	
			LV	NT	19000	3.660886	20	PASS	
			HV	NT	20000	3.853565	20	PASS	
		5230	NV	NT	21000	4.015296	20	PASS	
			LV	NT	21000	4.015296	20	PASS	
			HV	NT	21000	4.015296	20	PASS	
		5270	NV	NT	21000	3.98482	20	PASS	
			LV	NT	21000	3.98482	20	PASS	
			HV	NT	21000	3.98482	20	PASS	
		5310	NV	NT	21000	3.954802	20	PASS	
			LV	NT	21000	3.954802	20	PASS	
			HV	NT	21000	3.954802	20	PASS	
		5510	NV	NT	23000	4.174229	20	PASS	
			LV	NT	19000	3.448276	20	PASS	
			HV	NT	13000	2.359347	20	PASS	
		5550	NV	NT	5000	0.900901	20	PASS	
			LV	NT	6000	1.081081	20	PASS	
			HV	NT	6000	1.081081	20	PASS	
		5670	NV	NT	5000	0.881834	20	PASS	
			LV	NT	8000	1.410935	20	PASS	
			HV	NT	10000	1.763668	20	PASS	
5755	NV	NT	13000	2.258905	20	PASS			
	LV	NT	15000	2.606429	20	PASS			

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			HV	NT	16000	2.780191	20	PASS
			NV	NT	14000	2.415876	20	PASS
		5795	LV	NT	15000	2.588438	20	PASS
			HV	NT	16000	2.761001	20	PASS



Temperature								
TestMode	Antenna	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11N20SISO	Ant1	5180	NV	-5	-9000	-1.737452	20	PASS
			NV	5	-4000	-0.772201	20	PASS
			NV	15	-2000	-0.3861	20	PASS
			NV	25	2000	0.3861	20	PASS
			NV	35	2000	0.3861	20	PASS
		NV	45	3000	0.579151	20	PASS	
		5200	NV	-5	17000	3.269231	20	PASS
			NV	5	18000	3.461538	20	PASS
			NV	15	17000	3.269231	20	PASS
			NV	25	17000	3.269231	20	PASS
			NV	35	17000	3.269231	20	PASS
		NV	45	17000	3.269231	20	PASS	
		5240	NV	-5	18000	3.435115	20	PASS
			NV	5	17000	3.244275	20	PASS
			NV	15	17000	3.244275	20	PASS
			NV	25	18000	3.435115	20	PASS
			NV	35	18000	3.435115	20	PASS
		NV	45	18000	3.435115	20	PASS	
		5260	NV	-5	18000	3.422053	20	PASS
			NV	5	18000	3.422053	20	PASS
			NV	15	19000	3.612167	20	PASS
			NV	25	19000	3.612167	20	PASS
			NV	35	19000	3.612167	20	PASS
		NV	45	19000	3.612167	20	PASS	
		5280	NV	-5	19000	3.598485	20	PASS
			NV	5	19000	3.598485	20	PASS
			NV	15	19000	3.598485	20	PASS
			NV	25	18000	3.409091	20	PASS
			NV	35	19000	3.598485	20	PASS
		NV	45	19000	3.598485	20	PASS	
		5320	NV	-5	20000	3.759398	20	PASS
			NV	5	20000	3.759398	20	PASS
			NV	15	20000	3.759398	20	PASS
			NV	25	20000	3.759398	20	PASS
			NV	35	20000	3.759398	20	PASS
		NV	45	21000	3.947368	20	PASS	
		5500	NV	-5	3000	0.545455	20	PASS
			NV	5	2000	0.363636	20	PASS
			NV	15	2000	0.363636	20	PASS
			NV	25	2000	0.363636	20	PASS
			NV	35	2000	0.363636	20	PASS
		NV	45	1000	0.181818	20	PASS	
		5580	NV	-5	4000	0.716846	20	PASS
			NV	5	4000	0.716846	20	PASS
			NV	15	5000	0.896057	20	PASS
			NV	25	4000	0.716846	20	PASS
			NV	35	4000	0.716846	20	PASS
		NV	45	4000	0.716846	20	PASS	
		5700	NV	-5	13000	2.280702	20	PASS
			NV	5	14000	2.45614	20	PASS
NV	15		14000	2.45614	20	PASS		
NV	25		14000	2.45614	20	PASS		
NV	35		15000	2.631579	20	PASS		
NV	45	15000	2.631579	20	PASS			
5745	NV	-5	22000	3.829417	20	PASS		
	NV	5	22000	3.829417	20	PASS		
	NV	15	22000	3.829417	20	PASS		
	NV	25	22000	3.829417	20	PASS		
	NV	35	22000	3.829417	20	PASS		
NV	45	22000	3.829417	20	PASS			
5785	NV	-5	22000	3.802939	20	PASS		

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		5825	NV	5	22000	3.802939	20	PASS
			NV	15	22000	3.802939	20	PASS
			NV	25	22000	3.802939	20	PASS
			NV	35	22000	3.802939	20	PASS
			NV	45	22000	3.802939	20	PASS
			NV	-5	22000	3.776824	20	PASS
			NV	5	23000	3.948498	20	PASS
			NV	15	23000	3.948498	20	PASS
			NV	25	23000	3.948498	20	PASS
			NV	35	23000	3.948498	20	PASS
11N40SISO	Ant1	5190	NV	-5	20000	3.853565	20	PASS
			NV	5	20000	3.853565	20	PASS
			NV	15	20000	3.853565	20	PASS
			NV	25	21000	4.046243	20	PASS
			NV	35	21000	4.046243	20	PASS
		5230	NV	45	21000	4.046243	20	PASS
			NV	-5	21000	4.015296	20	PASS
			NV	5	20000	3.824092	20	PASS
			NV	15	21000	4.015296	20	PASS
			NV	25	21000	4.015296	20	PASS
		5270	NV	35	21000	4.015296	20	PASS
			NV	45	20000	3.824092	20	PASS
			NV	-5	21000	3.98482	20	PASS
			NV	5	21000	3.98482	20	PASS
			NV	15	21000	3.98482	20	PASS
		5310	NV	25	21000	3.98482	20	PASS
			NV	35	21000	3.98482	20	PASS
			NV	45	21000	3.98482	20	PASS
			NV	-5	21000	3.954802	20	PASS
			NV	5	21000	3.954802	20	PASS
		5510	NV	15	21000	3.954802	20	PASS
			NV	25	21000	3.954802	20	PASS
			NV	35	21000	3.954802	20	PASS
			NV	45	21000	3.954802	20	PASS
			NV	-5	10000	1.814882	20	PASS
		5550	NV	5	7000	1.270417	20	PASS
			NV	15	7000	1.270417	20	PASS
			NV	25	7000	1.270417	20	PASS
			NV	35	6000	1.088929	20	PASS
			NV	45	6000	1.088929	20	PASS
		5670	NV	-5	5000	0.900901	20	PASS
			NV	5	5000	0.900901	20	PASS
			NV	15	6000	1.081081	20	PASS
			NV	25	6000	1.081081	20	PASS
			NV	35	5000	0.900901	20	PASS
		5755	NV	45	5000	0.900901	20	PASS
			NV	-5	11000	1.940035	20	PASS
			NV	5	14000	2.469136	20	PASS
			NV	15	14000	2.469136	20	PASS
			NV	25	15000	2.645503	20	PASS
		5795	NV	35	15000	2.645503	20	PASS
			NV	45	15000	2.645503	20	PASS
			NV	-5	16000	2.780191	20	PASS
			NV	5	16000	2.780191	20	PASS
			NV	15	17000	2.953953	20	PASS
			NV	25	16000	2.780191	20	PASS
			NV	35	16000	2.780191	20	PASS
			NV	45	16000	2.780191	20	PASS
			NV	-5	16000	2.761001	20	PASS
			NV	5	18000	3.106126	20	PASS
	NV	15	18000	3.106126	20	PASS		
	NV	25	19000	3.278689	20	PASS		
	NV	35	19000	3.278689	20	PASS		
	NV	45	19000	3.278689	20	PASS		
	NV	-5	19000	3.278689	20	PASS		

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### 3.8. Antenna Requirement

#### Requirement

##### **FCC CFR Title 47 Part 15 Subpart C Section 15.203**

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 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.

#### Test Result

The directional gain of the antenna is less than 6dBi, please refer to the EUT internal photographs antenna photo.