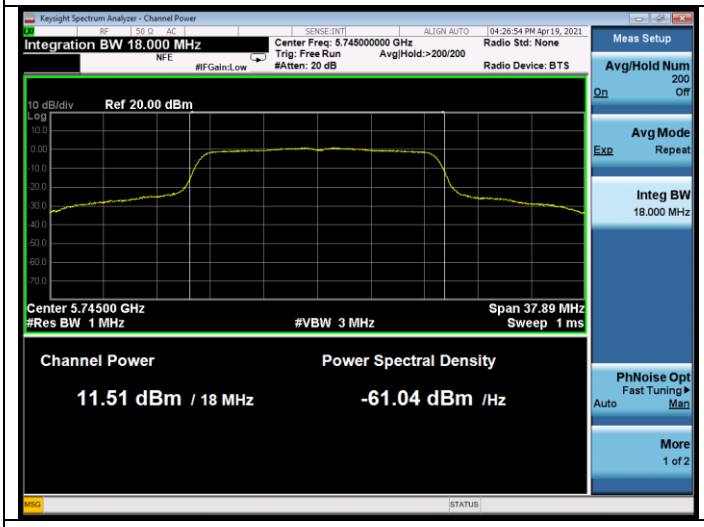
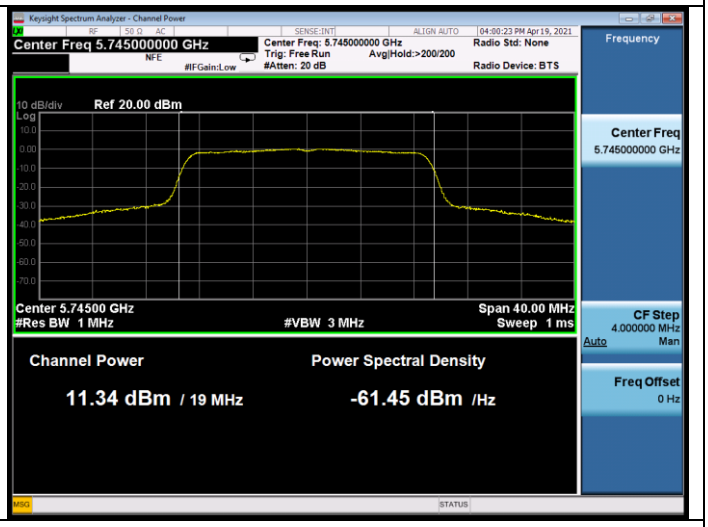
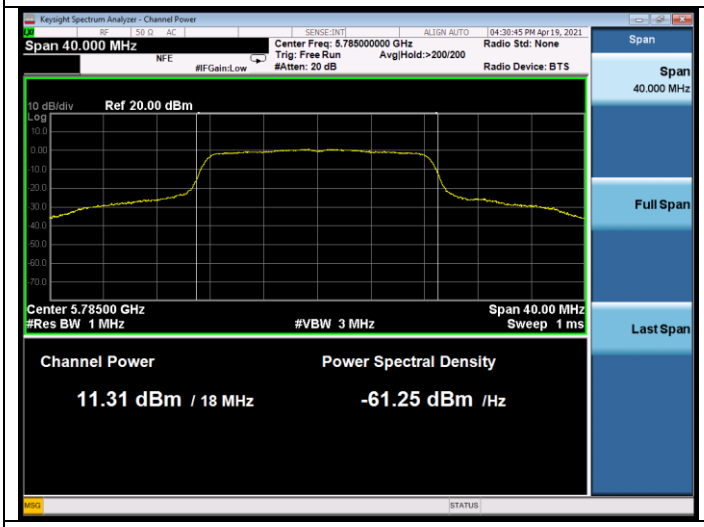
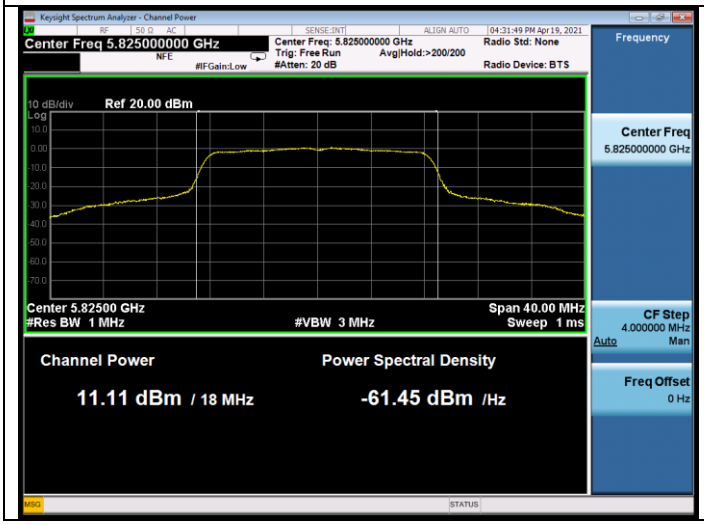
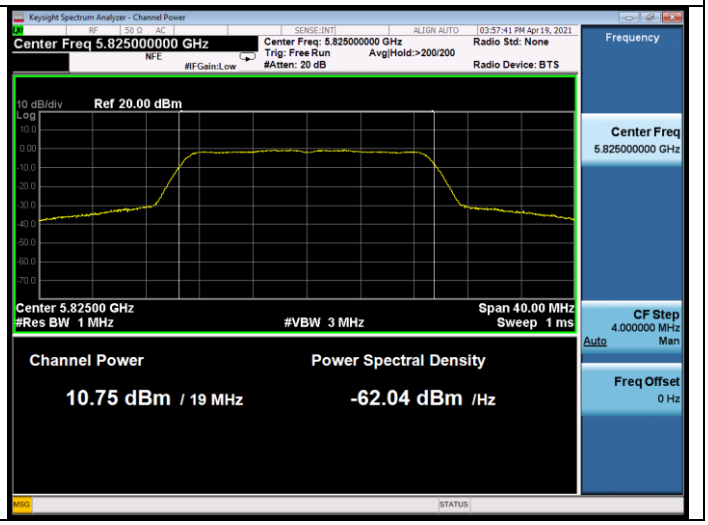
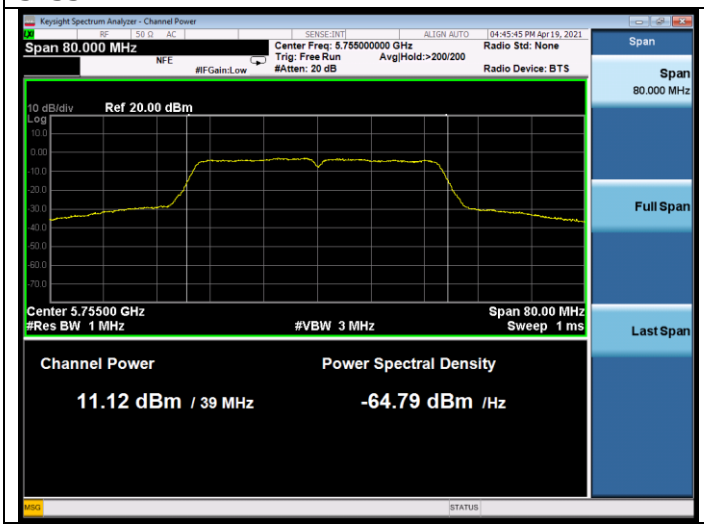
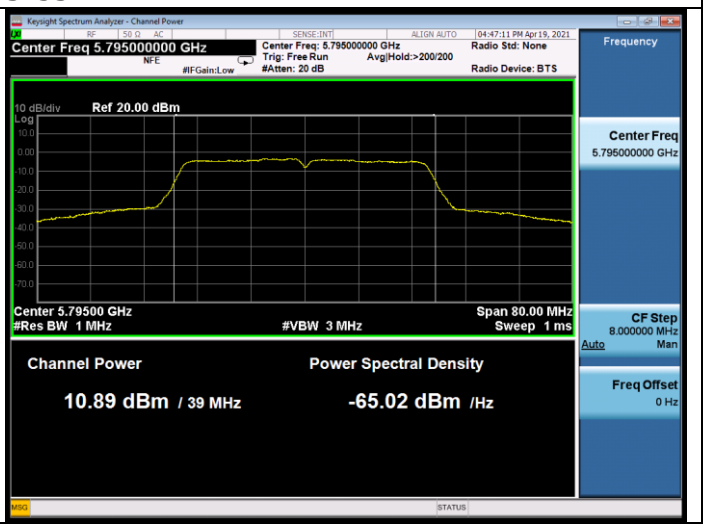
U-NII-3 Band:	
ANT2	
11a	**11n HT20**
5745MHz	5745MHz
	
5785MHz	5785MHz
	
5825MHz	5825MHz
	

11n HT40	
5755MHz	5795MHz
	

8. SPECTRAL DENSITY TEST

8.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Apr.07,21	1 Year
2.	Attenuator	Agilent	8491B	MY39269201	Oct.12,20	1 Year
3.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.07,21	1 Year

8.2.Limit

Band 5150-5250MHz:
The power spectral density shall not exceed 11dBm in any 1.0MHz band.
Band 5725-5850MHz:
The power spectral density shall not exceed 30dBm in any 500KHz band.

8.3.Test Procedure

For the Band 5.15-5.25GHz:
The transmitter output was connected to a spectrum analyzer. Power density was measured by spectrum analyzer with 1MHz RBW and 3MHz VBW; Detector: RMS mode.

For the band 5.725-5.85GHz:
The transmitter output was connected to a spectrum analyzer. Power density was measured by spectrum analyzer with 1MHz RBW and 3MHz VBW,RMS Detector.
So use the test method described in KDB789033 clause E

1) Set the RBW=100kHz and VBW ≥3 RBW
2) Number of points in sweep ≥ 2 Span / RBW.(This ensures that bin-to-bin spacing is ≤ RBW/2, so that narrowband signals are not lost between frequency bins.)
3) Sweep time = auto
4) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
5) Use the "peak search" function of spectrum analyzer find the max value, then add 10log (500kHz/RBW) to the measured result.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

8.4.Test Results

U-NII-1 Band:

EUT: PROJECTOR		
M/N: BP5000		
Test date: 2021-04-19	Pressure: 102.8±1.0 kpa	Humidity: 53.1±3.0%
Tested by: Lynn	Test site: RF site	Temperature:23.2±0.6 ℃

Test Mode	Frequency (MHz)	Power density (dBm/MHz)			Limit (dBm/MHz)
		ANT1	ANT2	Total	
11a	5180	2.497	2.736	5.628	11
	5200	3.053	2.574	5.830	
	5240	2.383	2.060	5.235	
11n HT20	5180	1.664	1.451	4.569	11
	5200	2.224	1.992	5.120	
	5240	1.268	0.880	4.089	
11n HT40	5190	-0.904	-0.889	2.114	11
	5230	-0.932	-1.614	1.751	
Conclusion: PASS					

Note: 1. Directional Gain= $10\log[(10^{2.8/20}+10^{2.8/20})^2/2]$dBi

= 5.81dBi＞6dBi.

2. The transmit signals are correlated.

U-NII-3 Band:

EUT: PROJECTOR		
M/N: BP5000		
Test date: 2021-05-11	Pressure: 102.8±1.0 kpa	Humidity: 53.1±3.0%
Tested by: Lynn	Test site: RF site	Temperature:23.2±0.6 ℃

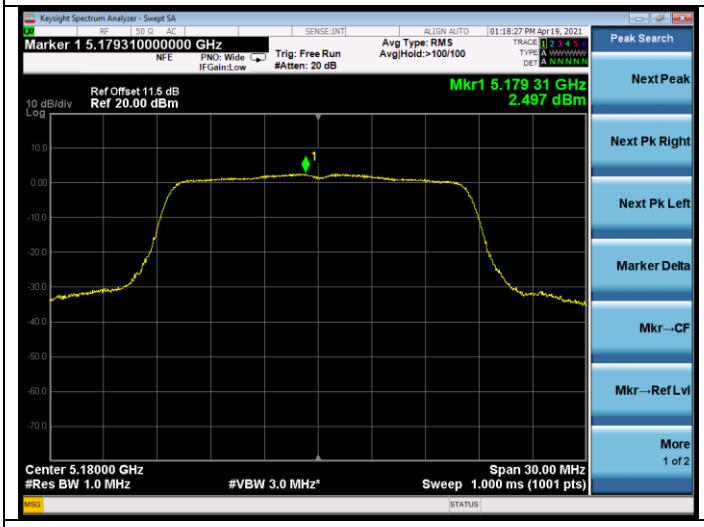
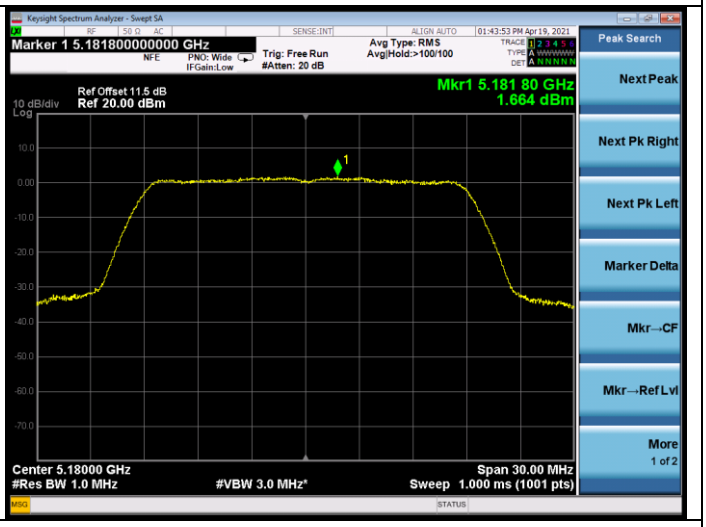
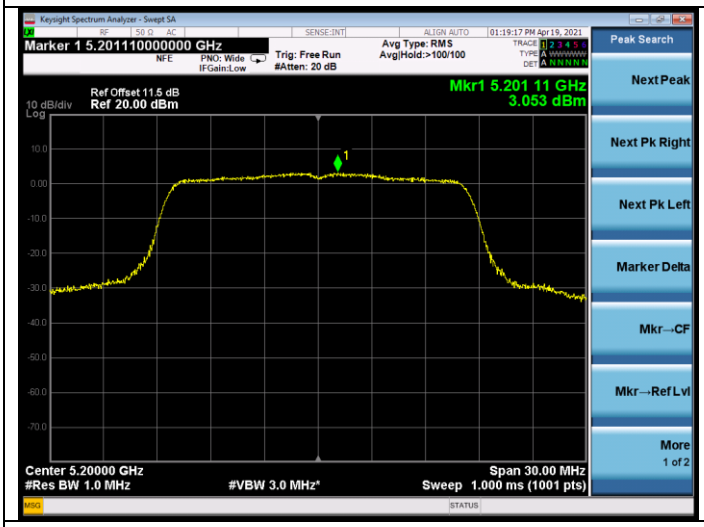
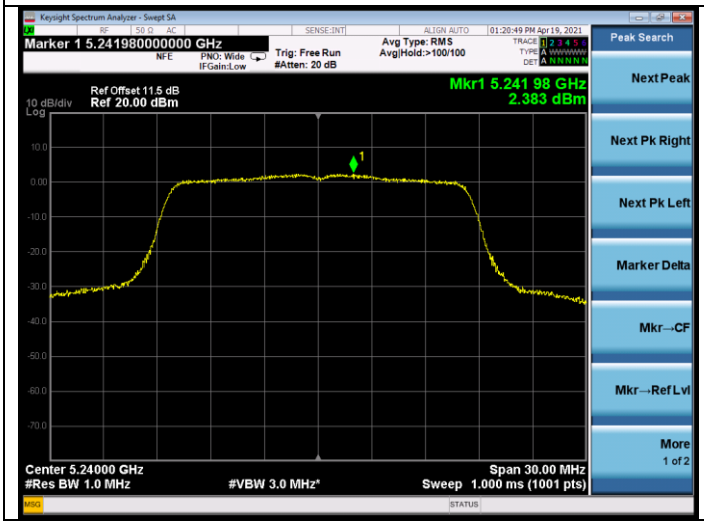
Test Mode	Frequency (MHz)	Power density (dBm/500KHz)			Limit (dBm/500KHz)
		ANT1	ANT2	Total	
11a	5745	-0.271	-0.295	2.727	29.58
	5785	-0.365	-0.425	2.615	
	5825	-0.298	-0.187	2.768	
11n HT20	5745	-1.757	-1.203	1.539	29.58
	5785	-0.803	-1.248	1.990	
	5825	-1.286	-0.926	1.908	
11n HT40	5755	-3.966	-4.378	-1.157	29.58
	5795	-3.841	-4.676	-1.228	
Conclusion: PASS					

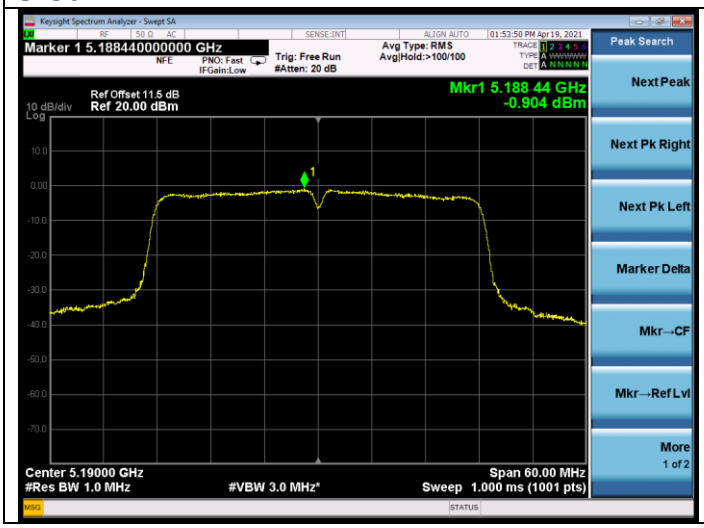
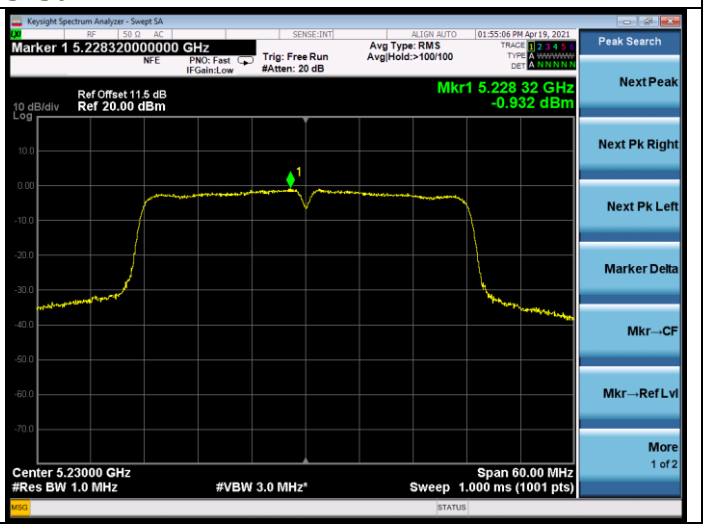
Note: 1. Directional Gain= 10 log$[(10^{3.7/20}+10^{3.1/20})^2/2]$dBi

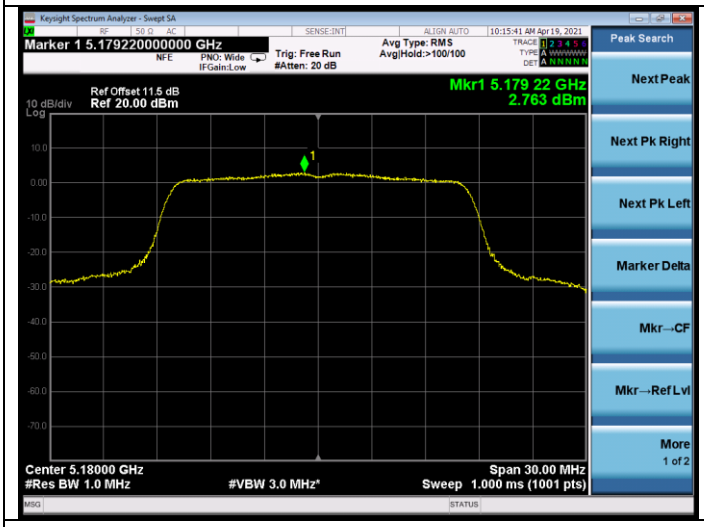
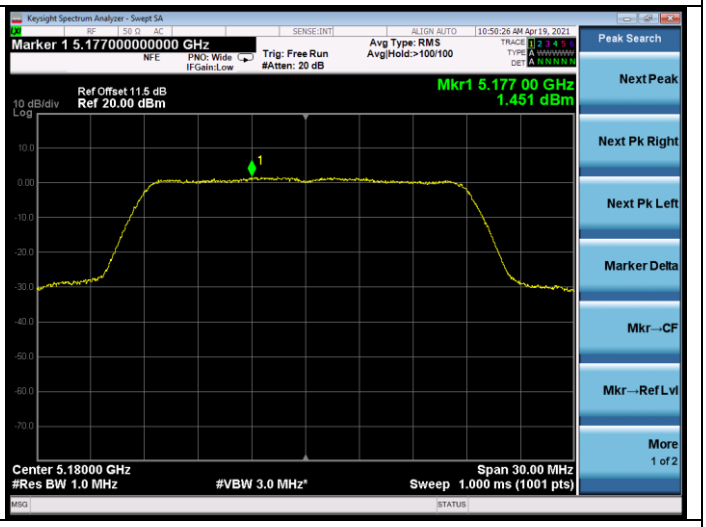
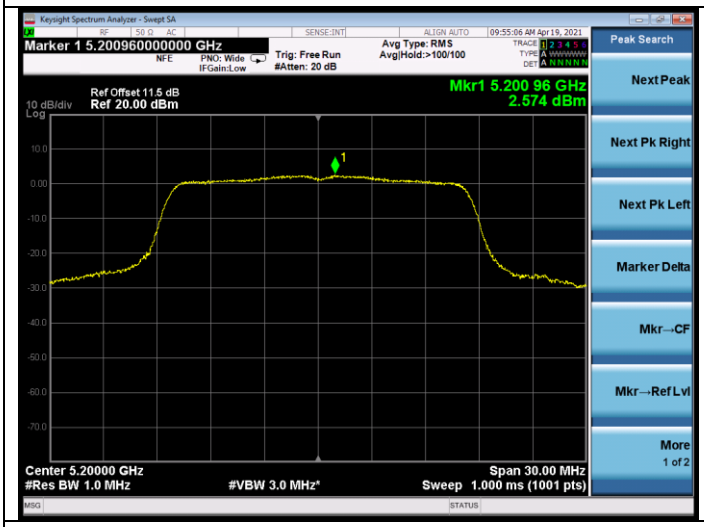
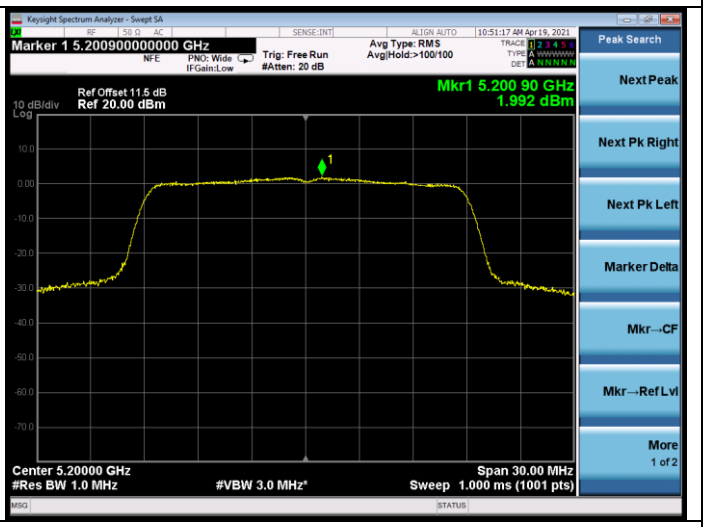
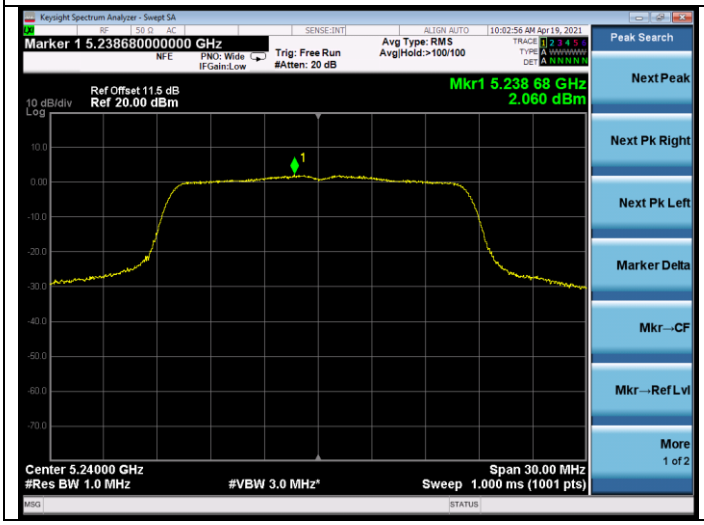
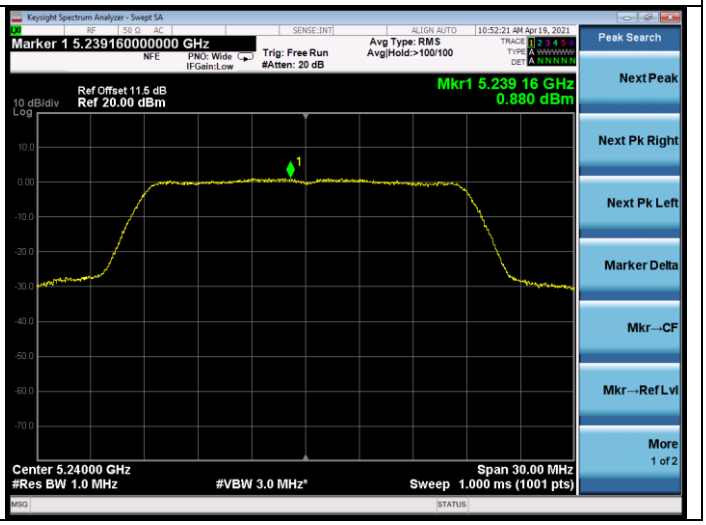
= 6.42dBi＞6dBi.

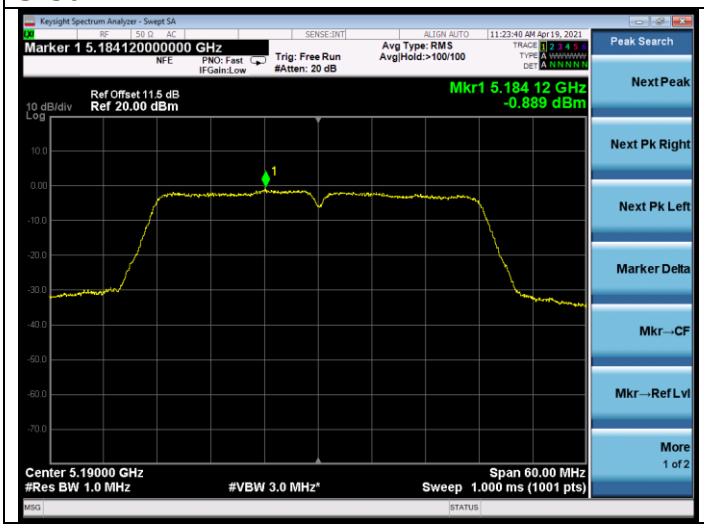
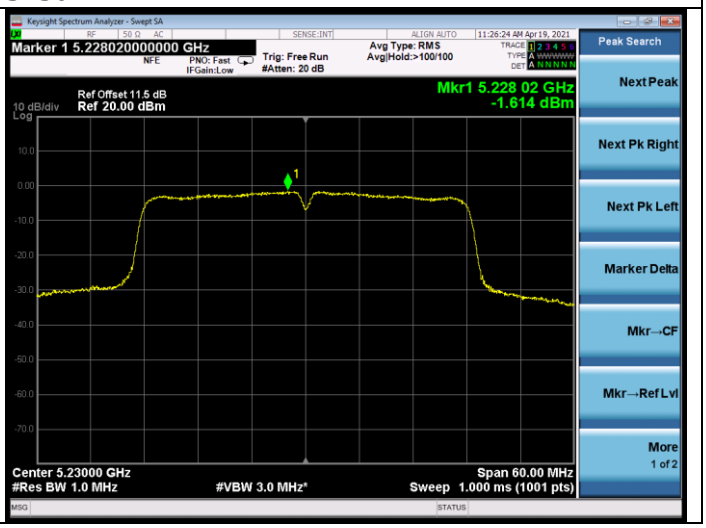
2. The transmit signals are correlated.

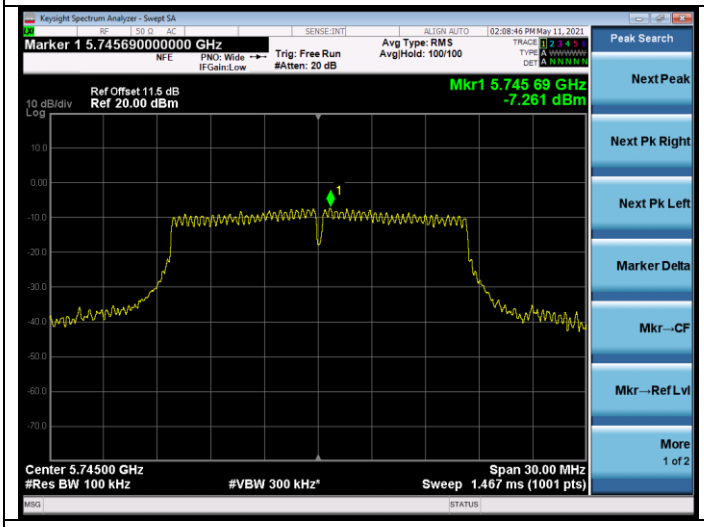
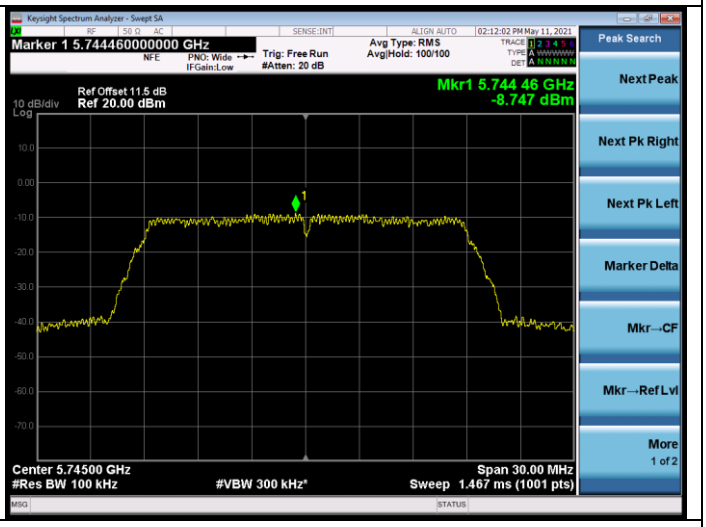
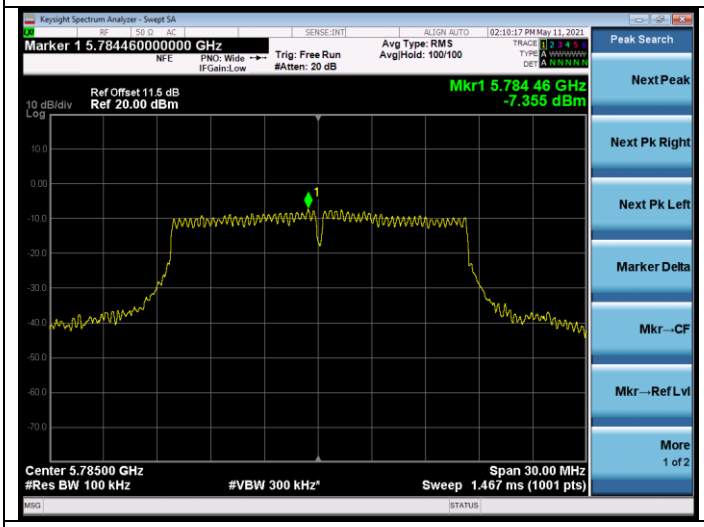
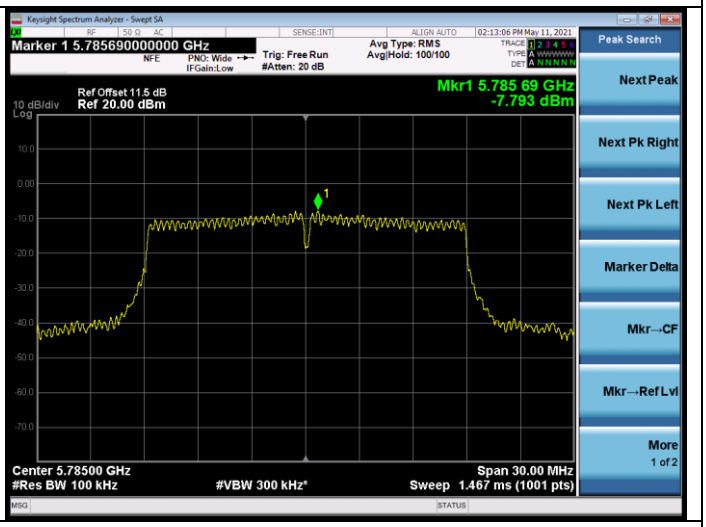
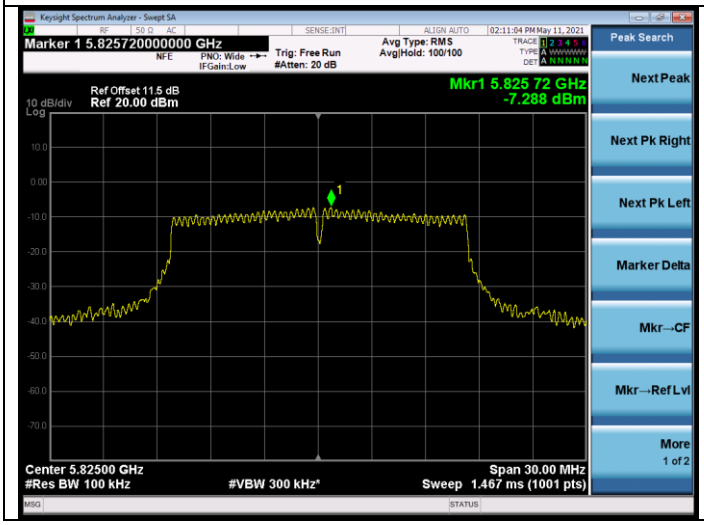
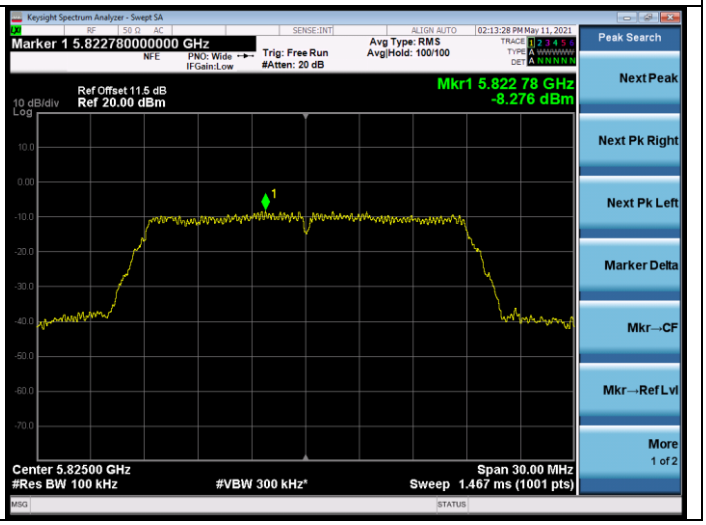
3. The total result = Reading + 10log(500kHz/100kHz)

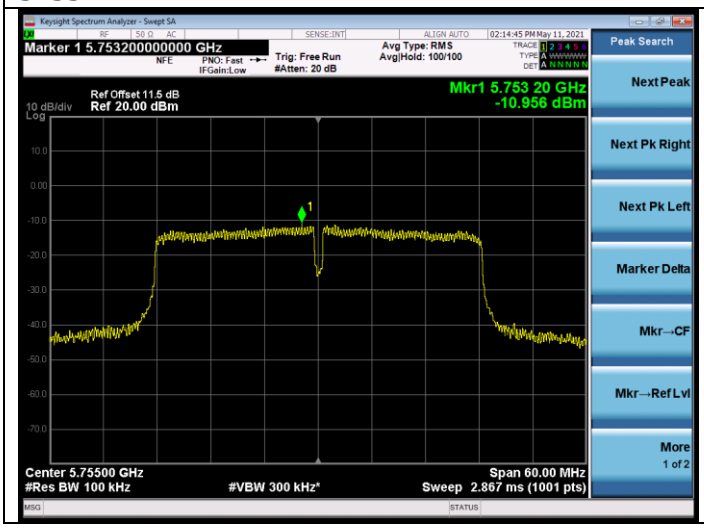
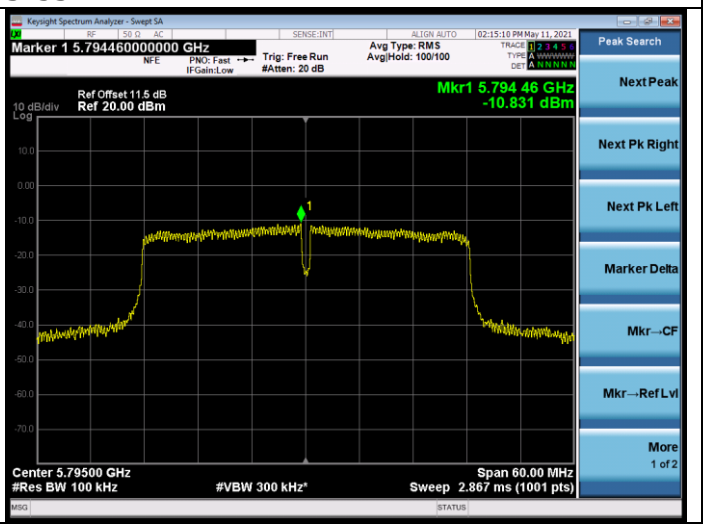
U-NII-1 Band:	
ANT1	
11a	**11n HT20**
5180MHz	5180MHz
	
5200MHz	5200MHz
	
5240MHz	5240MHz
	

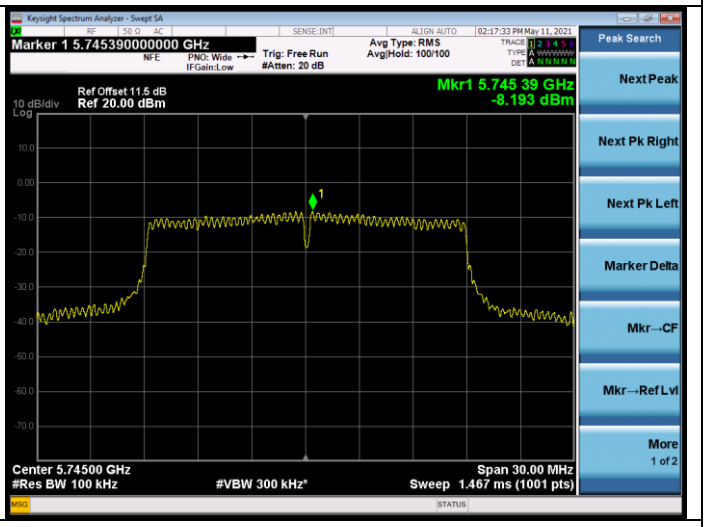
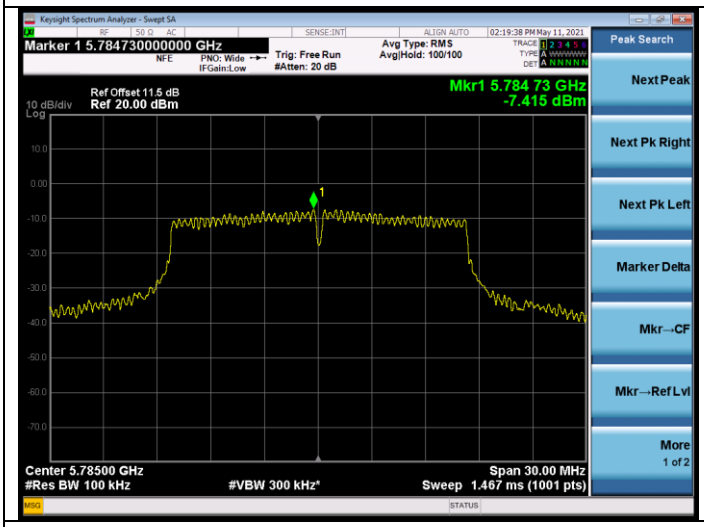
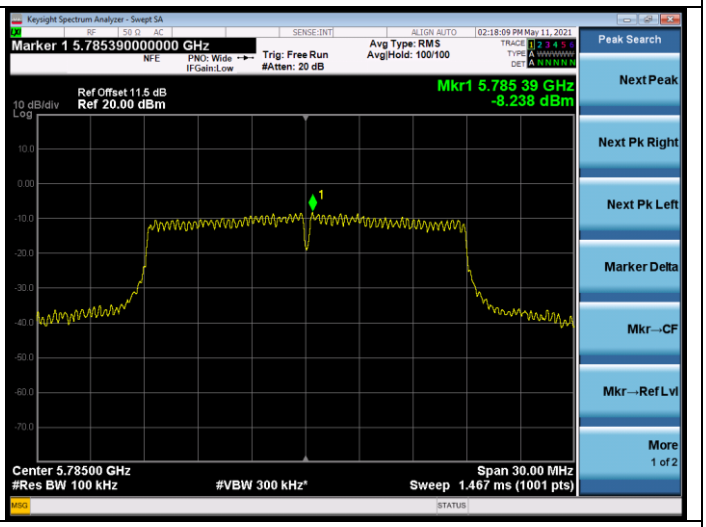
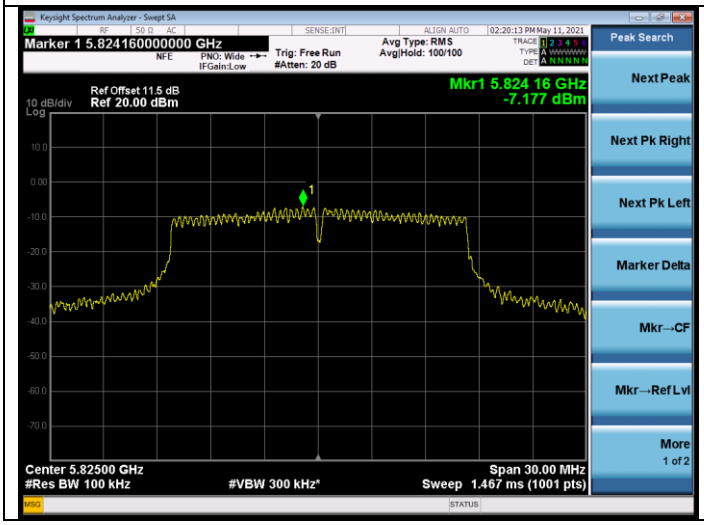
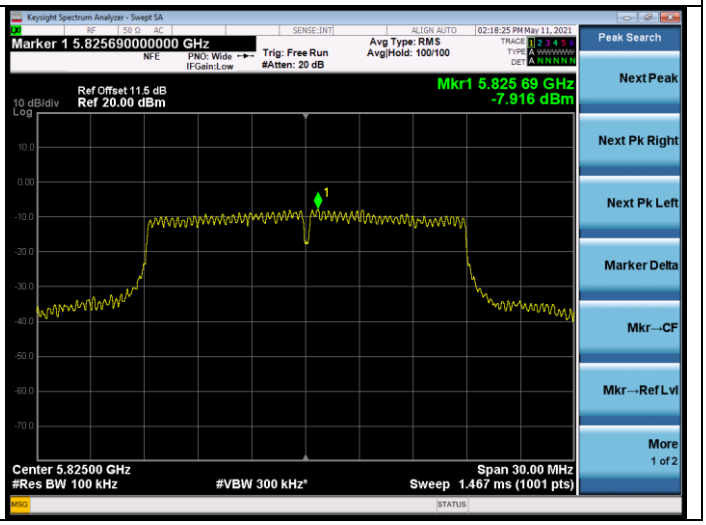
11n HT40	
5190MHz	5230MHz
	

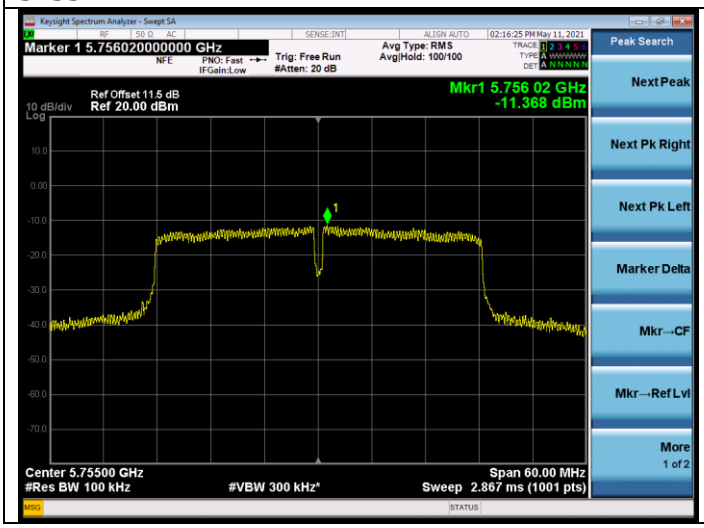
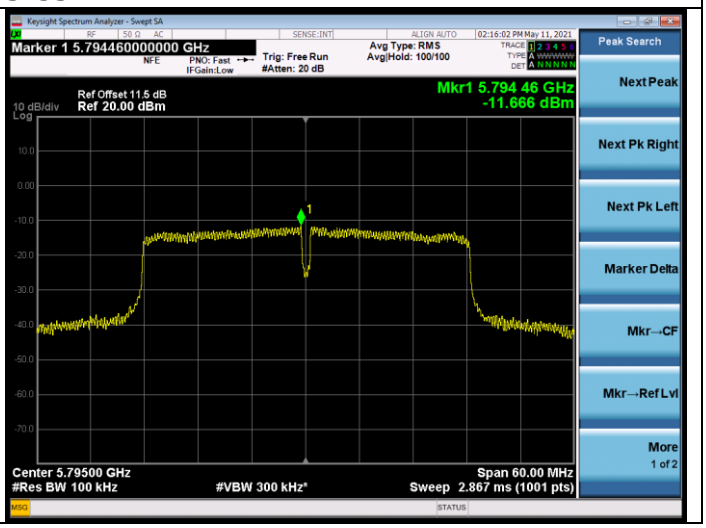
U-NII-1 Band:	
ANT2	
11a	11n HT20
5180MHz	5180MHz
	
5200MHz	5200MHz
	
5240MHz	5240MHz
	

11n HT40	
5190MHz	5230MHz
	

U-NII-3 Band:	
ANT1	
11a	11n HT20
5745MHz	5745MHz
	
5785MHz	5785MHz
	
5825MHz	5825MHz
	

11n HT40	
5755MHz	5795MHz
	

U-NII-3 Band:	
ANT2	
11a	**11n HT20**
5745MHz	5745MHz
	
5785MHz	5785MHz
	
5825MHz	5825MHz
	

11n HT40	
5755MHz	5795MHz
	

9. FREQUENCY STABILITY MEASUREMENT

9.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Apr.07,21	1 Year
2.	Attenuator	Agilent	8491B	MY39269201	Oct.12,20	1 Year
3.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.07,21	1 Year

9.2.Limit

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

9.3.Test Procedure

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
   EUT have transmitted absence of modulation signal and fixed channelise. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings. fc is declaring of channel frequency. Then the frequency error formula is $(fc-f)/f \times 10^{-6}$ppm. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.
2. Extreme temperature rule is -30℃~40℃.

9.4.Test Result

EUT: PROJECTOR		
M/N: BP5000		
Test date: 2021-05-11	Pressure: 102.6±1.0 kpa	Humidity: 53.1±3.0%
Tested by: Lynn	Test site: RF site	Temperature:22.9±0.6 ℃

Frequency Stability vs.Voltage:

Test Voltage	Temperature	CH	Max. Reading (MHz)	Target Frequency (MHz)	Result (ppm)
AC 120V	25℃	CH36	5180.0576	5180	11.12
		CH40	5200.0697	5200	13.40
		CH48	5240.0378	5240	7.21
		CH149	5745.0735	5745	12.79
		CH157	5785.0551	5785	9.52
		CH165	5825.0355	5825	6.09
AC 102V	25℃	CH36	5180.0606	5180	11.70
		CH40	5200.0738	5200	14.19
		CH48	5240.0123	5240	2.35
		CH149	5745.0075	5745	1.31
		CH157	5785.0632	5785	10.92
		CH165	5825.0122	5825	2.09
AC 138V	25℃	CH36	5180.0350	5180	6.76
		CH40	5200.0863	5200	16.60
		CH48	5240.0549	5240	10.48
		CH149	5745.0433	5745	7.54
		CH157	5785.0783	5785	13.54
		CH165	5825.0671	5825	11.52

Frequency Stability vs.Temperature:

Test Voltage	Temperature	CH	Max. Reading (MHz)	Target Frequency (MHz)	Result (ppm)
AC 120V	0℃	CH36	5180.0521	5180	10.06
		CH40	5200.0132	5200	2.54
		CH48	5240.0512	5240	9.77
		CH149	5745.0606	5745	10.55
		CH157	5785.0094	5785	1.62
		CH165	5825.0767	5825	13.17
AC 120V	10℃	CH36	5180.0823	5180	15.89
		CH40	5200.0332	5200	6.38
		CH48	5240.0013	5240	0.25
		CH149	5745.0507	5745	8.83
		CH157	5785.0495	5785	8.56
		CH165	5825.0168	5825	2.88
AC 120V	20℃	CH36	5180.0576	5180	11.12
		CH40	5200.0697	5200	13.40
		CH48	5240.0378	5240	7.21
		CH149	5745.0735	5745	12.79
		CH157	5785.0551	5785	9.52
		CH165	5825.0355	5825	6.09
AC 120V	30℃	CH36	5180.0221	5180	4.27
		CH40	5200.0533	5200	10.25
		CH48	5240.0313	5240	5.97
		CH149	5745.0306	5745	5.33
		CH157	5785.0998	5785	17.25
		CH165	5825.0362	5825	6.21
AC 120V	40℃	CH36	5180.0128	5180	2.47
		CH40	5200.0335	5200	6.44
		CH48	5240.0213	5240	4.06
		CH149	5745.0804	5745	13.99
		CH157	5785.0399	5785	6.90
		CH165	5825.0762	5825	13.08

10. ANTENNA REQUIREMENT

10.1. Standard Applicable

For intentional device, according to FCC 47 CFR 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. And according to FCC 47 CFR Section 15.407 (a), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

10.2. Antenna Connected Construction

The antennas used for this product are PCB antenna that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is **U-NII-1 Band:**ANT1: 2.8dBi & ANT2: 2.8dBi; **U-NII-3 Band:**ANT1: 3.7dBi & ANT2: 3.1dBi.

11. DEVIATION TO TEST SPECIFICATIONS

[NONE]

THE END