



Project: LGT23C004	Test Engineer: Dylan.shi
EUT: Smart Phone	Temperature: 26.7°C
M/N: CP12p	Humidity: 52%RH
Test Voltage: Battery	Test Data: 2023-03-12
Test Mode: 802.11a 5240	
Note:	

No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	5.246GHz	53.78	-6.93	46.85	74.00	-27.15	PK	Hor
2*	9.007GHz	52.76	-1.17	51.59	74.00	-22.41	PK	Hor
3*	17.917GHz	45.50	8.46	53.96	74.00	-20.04	PK	Hor
4*	17.917GHz	36.04	8.46	44.50	54.00	-9.50	AV	Hor
No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	4.848GHz	52.79	-6.02	46.77	74.00	-27.23	PK	Ver
2*	8.091GHz	55.24	-3.74	51.50	74.00	-22.50	PK	Ver
3*	17.809GHz	46.17	8.39	54.56	74.00	-19.44	PK	Ver
4*	17.809GHz	35.21	8.39	43.60	54.00	-10.40	AV	Ver

Project: LGT23C004	Test Engineer: Dylan.shi
EUT: Smart Phone	Temperature: 26.7°C
M/N: CP12p	Humidity: 52%RH
Test Voltage: Battery	Test Data: 2023-03-12
Test Mode: 802.11a 5745	
Note:	

No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	5.252GHz	53.16	-6.95	46.21	74.00	-27.79	PK	Hor
2*	8.901GHz	52.75	-1.45	51.30	74.00	-22.70	PK	Hor
3*	17.822GHz	46.40	8.40	54.80	74.00	-19.20	PK	Hor
4*	17.822GHz	35.90	8.40	44.30	54.00	-9.70	AV	Hor
No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	4.751GHz	52.60	-5.95	46.65	74.00	-27.35	PK	Ver
2*	11.491GHz	49.50	1.92	51.42	74.00	-22.58	PK	Ver
3*	17.921GHz	46.52	8.46	54.98	74.00	-19.02	PK	Ver
4*	17.921GHz	37.04	8.46	45.50	54.00	-8.50	AV	Ver



Project: LGT23C004	Test Engineer: Dylan.shi
EUT: Smart Phone	Temperature: 26.7°C
M/N: CP12p	Humidity: 52%RH
Test Voltage: Battery	Test Data: 2023-03-12
Test Mode: 802.11a 5785	
Note:	

No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	4.783GHz	52.85	-5.97	46.88	74.00	-27.12	PK	Hor
2*	8.922GHz	52.85	-1.39	51.46	74.00	-22.54	PK	Hor
3*	17.915GHz	46.32	8.46	54.78	74.00	-19.22	PK	Hor
4*	17.915GHz	36.64	8.46	45.10	54.00	-8.90	AV	Hor
No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	4.608GHz	52.38	-5.84	46.54	74.00	-27.46	PK	Ver
2*	8.922GHz	53.27	-1.39	51.88	74.00	-22.12	PK	Ver
3*	17.902GHz	46.27	8.45	54.72	74.00	-19.28	PK	Ver
4*	17.902GHz	36.85	8.45	45.30	54.00	-8.70	AV	Ver

Project: LGT23C004	Test Engineer: Dylan.shi
EUT: Smart Phone	Temperature: 26.7°C
M/N: CP12p	Humidity: 52%RH
Test Voltage: Battery	Test Data: 2023-03-12
Test Mode: 802.11a 5825	
Note:	

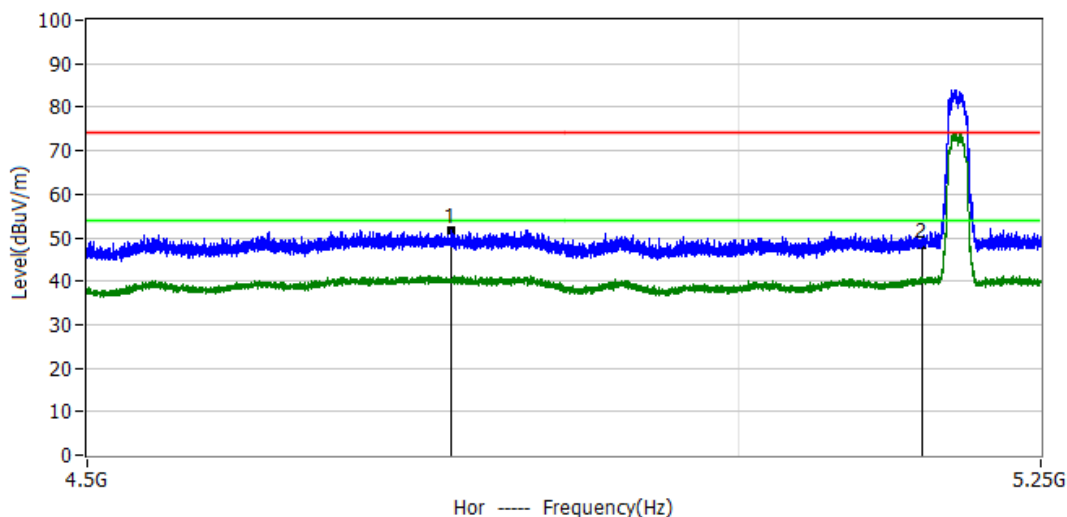
No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	5.378GHz	53.70	-7.35	46.35	74.00	-27.65	PK	Hor
2*	11.266GHz	50.46	1.79	52.25	74.00	-21.75	PK	Hor
3*	17.790GHz	46.67	8.37	55.04	74.00	-18.96	PK	Hor
4*	17.790GHz	36.53	8.37	44.90	54.00	-9.10	AV	Hor
No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	4.710GHz	53.70	-5.92	47.78	74.00	-26.22	PK	Ver
2*	8.977GHz	52.62	-1.23	51.39	74.00	-22.61	PK	Ver
3*	17.966GHz	45.63	8.50	54.13	74.00	-19.87	PK	Ver
4*	17.966GHz	36.30	8.50	44.80	54.00	-9.20	AV	Ver

Note: The 18-40GHz emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise

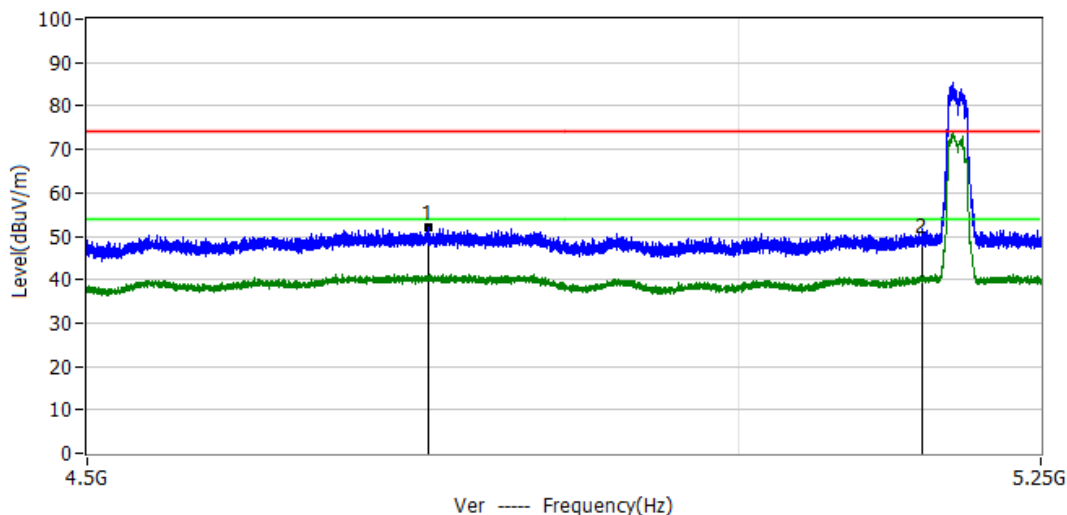


### 3.2.7 TEST RESULTS(Band edge Requirements)

Project: LGT23C004	Test Engineer: Dylan.shi
EUT: Smart Phone	Temperature: 25.7°C
M/N: CP12p	Humidity: 47%RH
Test Voltage: Battery	Test Data: 2023-03-14
Test Mode: 802.11a 5180	
Note:	



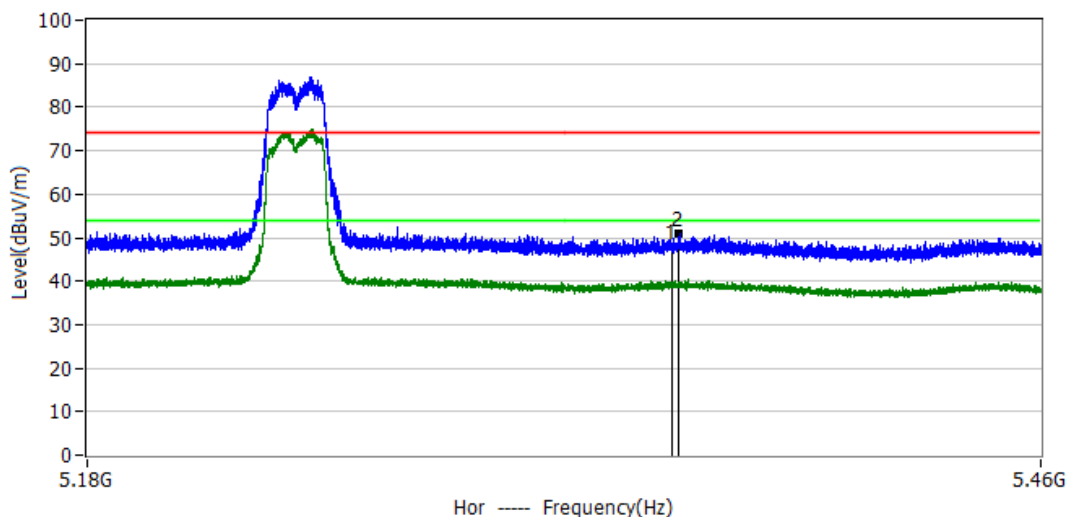
No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	4.773GHz	57.75	-5.97	51.78	74.00	-22.22	PK	Hor
2*	5.150GHz	55.02	-6.62	48.40	74.00	-25.60	PK	Hor



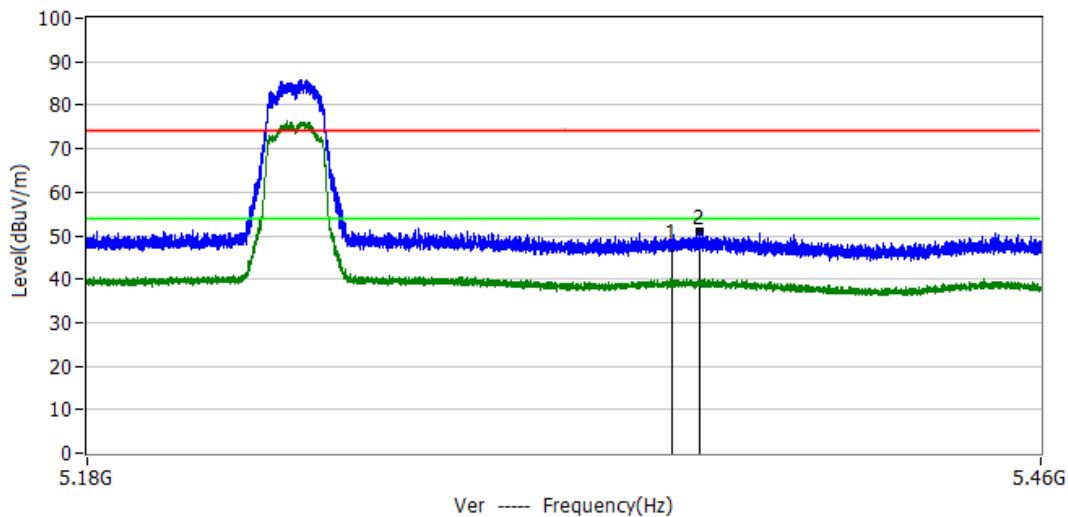
No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	4.755GHz	57.89	-5.95	51.94	74.00	-22.06	PK	Ver
2*	5.150GHz	55.52	-6.62	48.90	74.00	-25.10	PK	Ver



Project: LGT23C004	Test Engineer: Dylan.shi
EUT: Smart Phone	Temperature: 25.7°C
M/N: CP12p	Humidity: 47%RH
Test Voltage: Battery	Test Data: 2023-03-14
Test Mode: 802.11a 5240	
Note:	



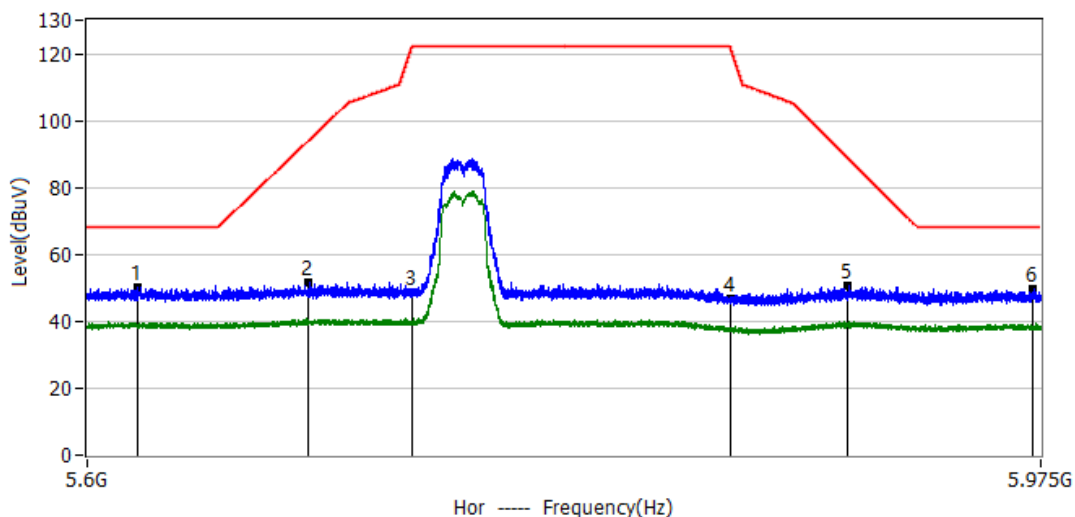
No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	5.350GHz	55.06	-7.26	47.80	74.00	-26.20	PK	Hor
2*	5.352GHz	58.08	-7.27	50.81	74.00	-23.19	PK	Hor



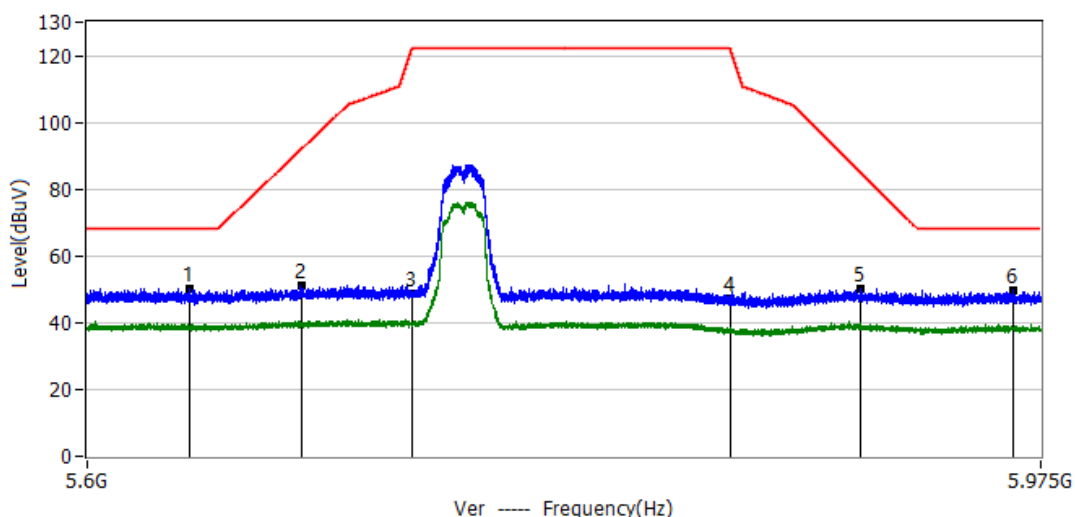
No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	5.350GHz	54.86	-7.26	47.60	74.00	-26.40	PK	Ver
2*	5.358GHz	58.09	-7.29	50.80	74.00	-23.20	PK	Ver



Project: LGT23C004	Test Engineer: Dylan.shi
EUT: Smart Phone	Temperature: 25.7°C
M/N: CP12p	Humidity: 47%RH
Test Voltage: Battery	Test Data: 2023-03-14
Test Mode: 802.11a 5745	
Note:	



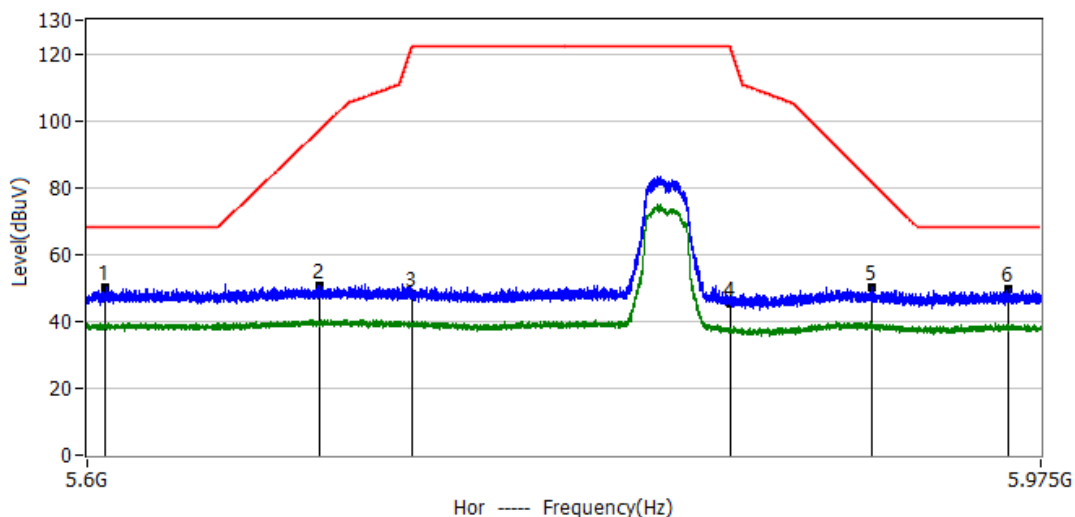
No.	Frequency	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1*	5.619GHz	57.93	-7.69	50.24	68.20	-17.96	PK	Hor
2*	5.685GHz	59.38	-7.67	51.71	94.47	-42.76	PK	Hor
3*	5.725GHz	56.15	-7.65	48.50	122.20	-73.60	PK	Hor
4*	5.850GHz	54.10	-7.60	46.50	122.20	-75.70	PK	Hor
5*	5.897GHz	58.11	-7.58	50.53	88.53	-38.00	PK	Hor
6*	5.972GHz	56.99	-7.55	49.44	68.20	-18.76	PK	Hor



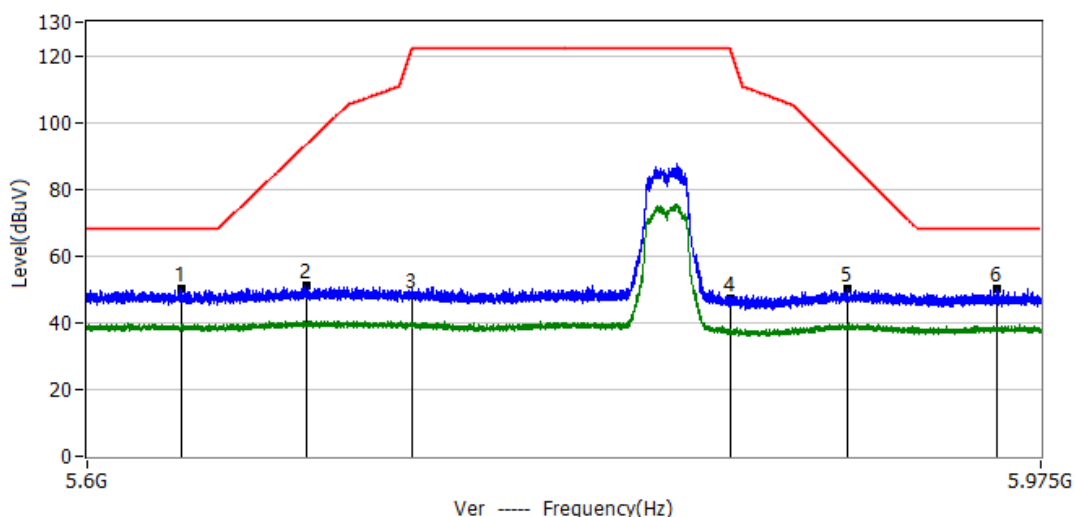
No.	Frequency	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1*	5.639GHz	58.04	-7.68	50.36	68.20	-17.84	PK	Ver
2*	5.682GHz	58.60	-7.67	50.93	91.59	-40.66	PK	Ver
3*	5.725GHz	56.35	-7.65	48.70	122.20	-73.50	PK	Ver
4*	5.850GHz	54.70	-7.60	47.10	122.20	-75.00	PK	Ver
5*	5.902GHz	57.92	-7.58	50.34	85.10	-34.76	PK	Ver
6*	5.964GHz	57.23	-7.55	49.68	68.20	-18.52	PK	Ver



Project: LGT23C004	Test Engineer: Dylan.shi
EUT: Smart Phone	Temperature: 25.7°C
M/N: CP12p	Humidity: 47%RH
Test Voltage: Battery	Test Data: 2023-03-14
Test Mode: 802.11a 5825	
Note:	



No.	Frequency	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1*	5.607GHz	57.75	-7.70	50.05	68.20	-18.15	PK	Hor
2*	5.689GHz	58.53	-7.66	50.87	96.79	-45.92	PK	Hor
3*	5.725GHz	55.75	-7.65	48.10	122.20	-74.10	PK	Hor
4*	5.850GHz	53.00	-7.60	45.40	122.20	-76.70	PK	Hor
5*	5.907GHz	57.97	-7.58	50.39	81.63	-31.24	PK	Hor
6*	5.962GHz	57.32	-7.56	49.76	68.20	-18.44	PK	Hor



No.	Frequency	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1*	5.636GHz	57.77	-7.69	50.08	68.20	-18.12	PK	Ver
2*	5.684GHz	58.95	-7.67	51.28	93.19	-41.91	PK	Ver
3*	5.725GHz	56.05	-7.65	48.40	122.20	-73.80	PK	Ver
4*	5.850GHz	54.70	-7.60	47.10	122.20	-75.10	PK	Ver
5*	5.897GHz	57.85	-7.58	50.27	88.78	-38.50	PK	Ver
6*	5.957GHz	57.50	-7.56	49.94	68.20	-18.26	PK	Ver



## 4. POWER SPECTRAL DENSITY TEST

### 4.1 LIMIT

1. For mobile and portable client devices in the 5.15-5.25 GHz band, , the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
2. For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
3. For the band 5.725-5.850 GHz, the peak power spectral density shall not exceed 30 dBm in any 500kHz band. If transmitting antenna directional gain is greater than 6 dBi, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### 4.2 TEST PROCEDURE

1. The setting follows Method SA-1 of FCC KDB 789033 D02 General U-NII Test Procedures New Rules v02r01.

For devices operating in the band, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, "provided that the measured power is integrated over the full reference bandwidth" to show the total power over the specified measurement bandwidth (*i.e.*, 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 kHz bandwidth, the following adjustments to the procedures apply:

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

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

### 4.3 DEVIATION FROM STANDARD

No deviation.

### 4.4 TEST SETUP



#### **4.5 EUT OPERATION CONDITIONS**

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

#### **4.6 TEST RESULTS**

For the measurement records, refer to the appendix I.





## 5. BANDWIDTH MEASUREMENT

### 5.1 EMISSION BANDWIDTH (EBW) 26 BANDWID PROCEDURES / LIMIT

The following procedure shall be used for measuring 26 bandwidth.

#### 5.1.1 TEST PROCEDURE

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW  $\geq$  RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

#### 5.1.2 DEVIATION FROM STANDARD

No deviation.

#### 5.1.3 TEST SETUP



#### 5.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

#### 5.1.5 TEST RESULTS

For the measurement records refer to the appendix I.



## 5.2 OCCUPIED BANDWIDTH ( 99%) TEST APPLIED PROCEDURES / LIMIT

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

### 5.2.1 TEST PROCEDURE

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures v02r01.

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

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

### 5.2.2 DEVIATION FROM STANDARD

No deviation.

### 5.2.3 TEST SETUP



### 5.2.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

### 5.2.5 TEST RESULTS

For the measurement records refer to the appendix I.



### 5.3 MINIMUM EMISSION BANDWIDTH(6 DB) PROCEDURES / LIMIT

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.725-5.85 GHz. The following procedure shall be used for measuring this bandwidth.

#### 5.3.1 TEST PROCEDURE

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures v02r01.
  - a) Set RBW = 100 kHz.
  - b) Set the video bandwidth (VBW)  $\geq 3 \times$  RBW.
  - c) Detector = Peak.
  - d) Trace mode = max hold.
  - e) Sweep = auto couple.
  - f) Allow the trace to stabilize.
  - g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

#### 5.3.2 DEVIATION FROM STANDARD

No deviation.

#### 5.3.3 TEST SETUP



#### 5.3.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

#### 5.3.5 TEST RESULTS

For the measurement records refer to the appendix I.



## 6. MAXIMUM CONDUCTED OUTPUT POWER

### 6.1 LIMIT

For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or  $11 \text{ dBm} + 10 \log B$ , where B is the 26 dB emission bandwidth in megahertz, if transmitting antennas of directional gain greater than 6 dBi are used.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. If transmitting antennas of directional gain greater than 6 dBi are used.

FCC Part15 (15.407) , Subpart E				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.407(a) (1) (iv)	Peak Output Power	0.25 watt	5150-5250	PASS
		The lesser of 250 mW or 11 dBm + 10 log (26 dB emission bandwidth)	5250-5350	
5470-5725				
15.407(a) (3)		1 watt	5725-5825	

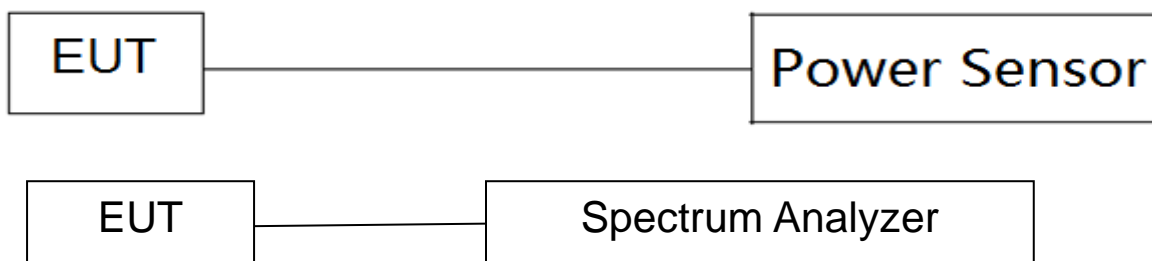
### 6.2 TEST PROCEDURE

The EUT was directly connected to the Power Sensor&PC

### 6.3 DEVIATION FROM STANDARD

No deviation.

### 6.4 TEST SETUP



### 6.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 5 Unless otherwise a special operating condition is specified in the follows during the testing.

### 6.6 TEST RESULTS

For the measurement records , refer to the appendix I.



## **7. AUTOMATICALLY DISCONTINUE TRANSMISSION**

### **7.1 LIMIT OF AUTOMATICALLY DISCONTINUE TRANSMISSION**

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization to describe how this requirement is met.

### **7.2 TEST RESULT OF AUTOMATICALLY DISCONTINUE TRANSMISSION**

During no any information transmission, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission



## **8. ANTENNA REQUIREMENT**

### **8.1 STANDARD REQUIREMENT**

Part 15.203 requirement: For intentional device, according to 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.

### **8.2 EUT ANTENNA**

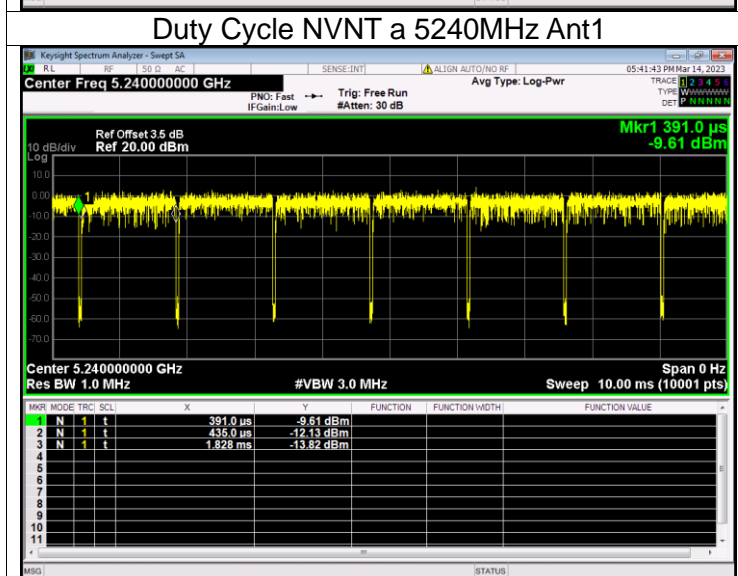
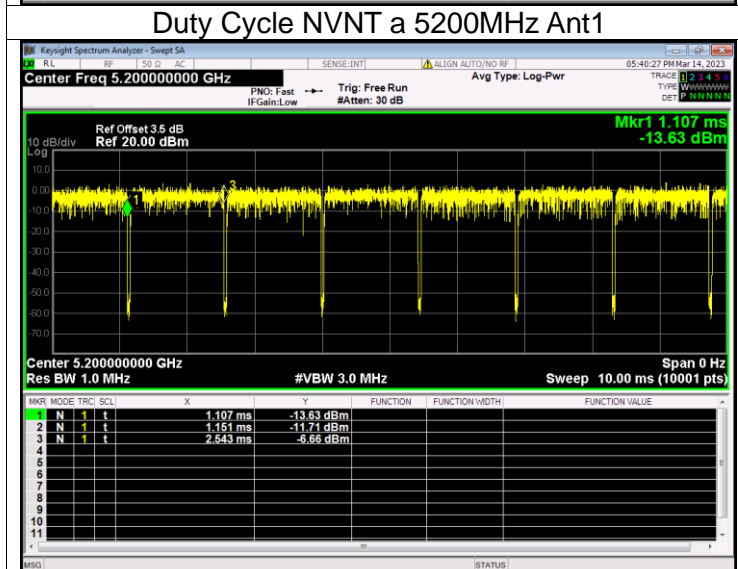
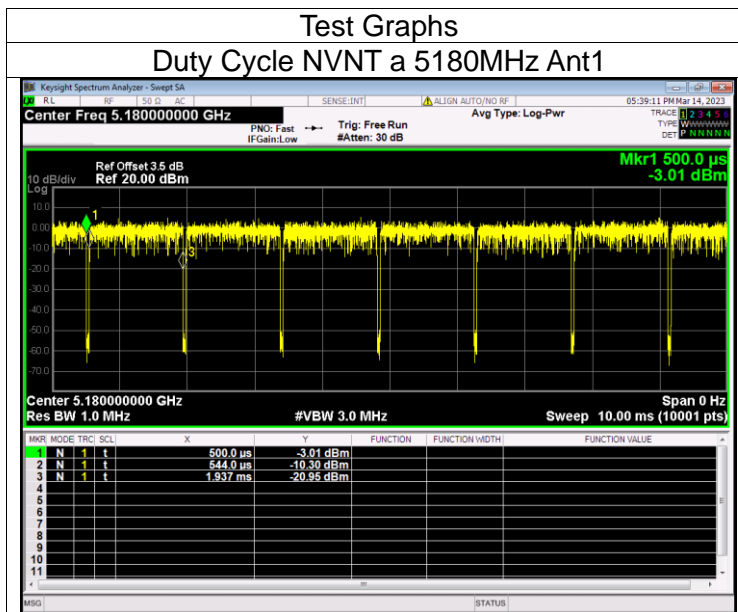
The EUT antenna is FPC Antenna with RP-SMA connector. It comply with the standard requirement.



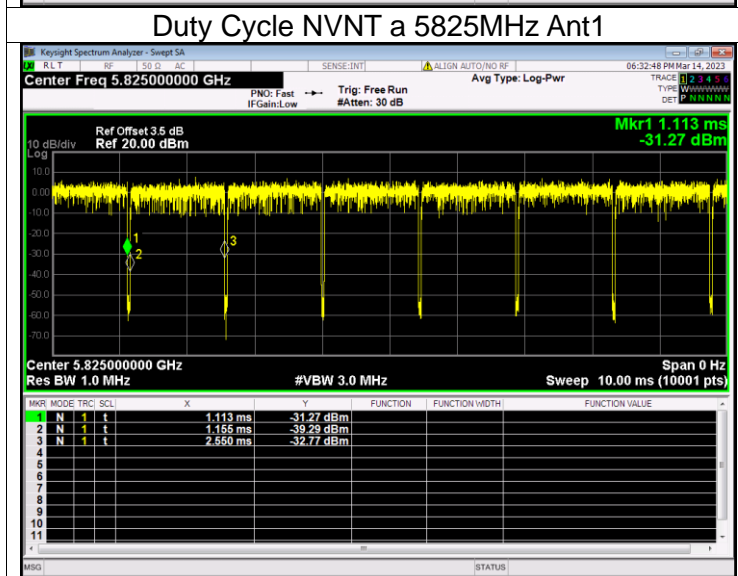
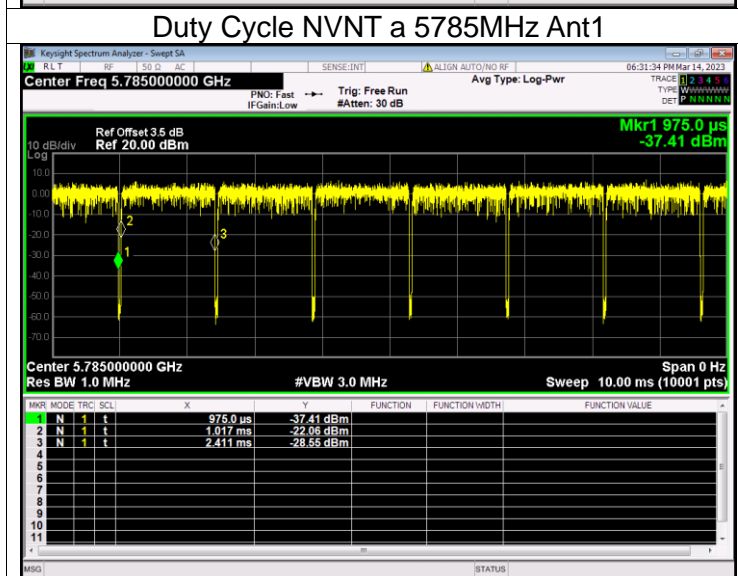
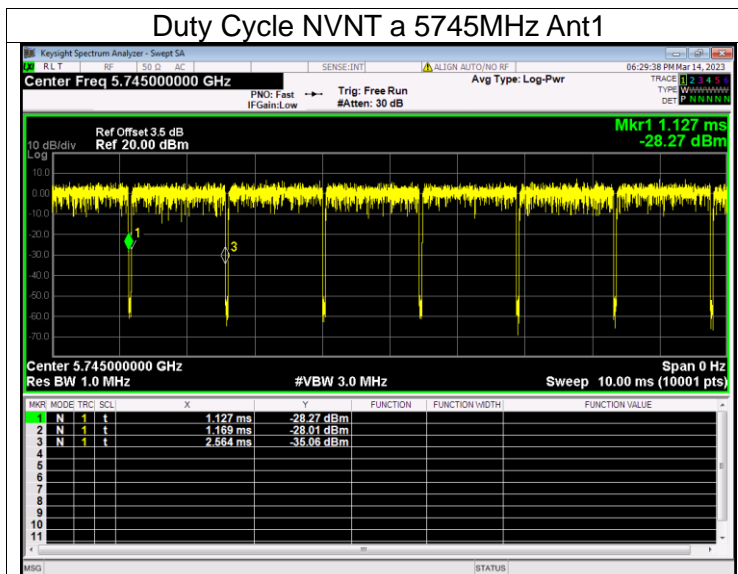
## APPENDIX I: TEST RESULTS

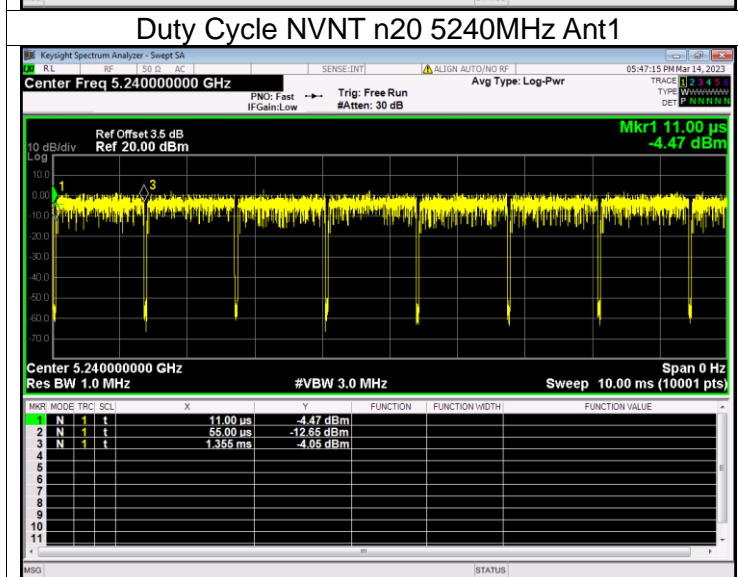
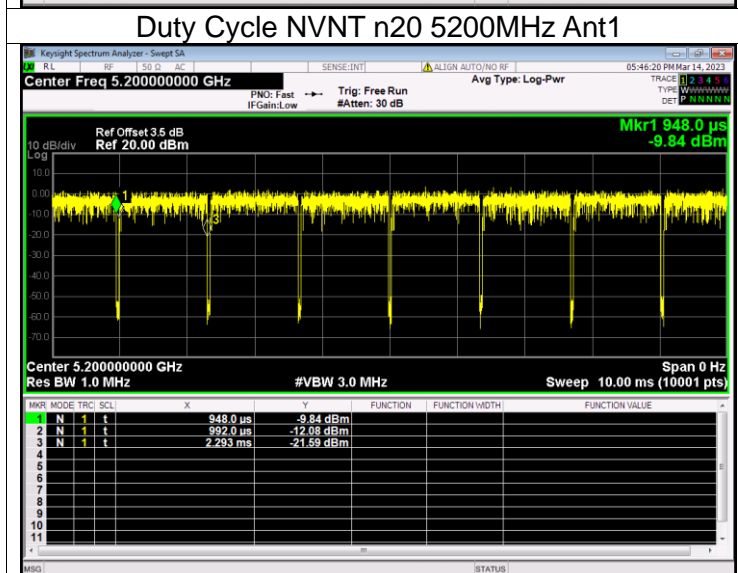
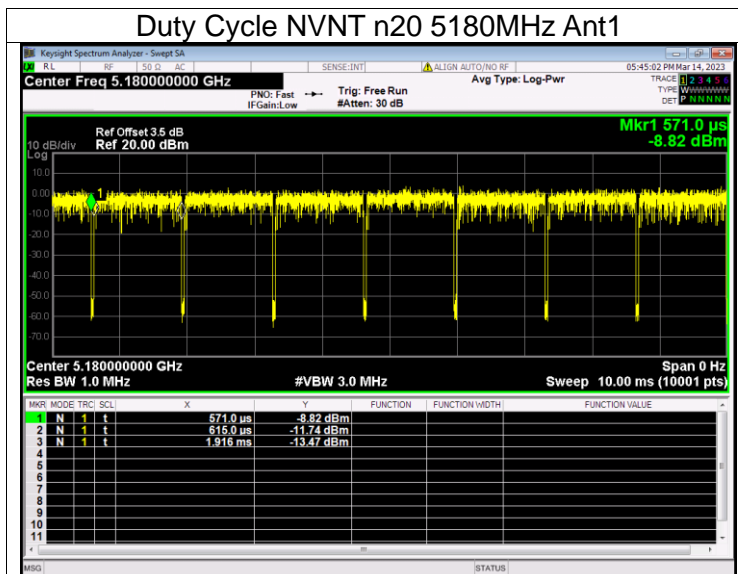
### Duty Cycle

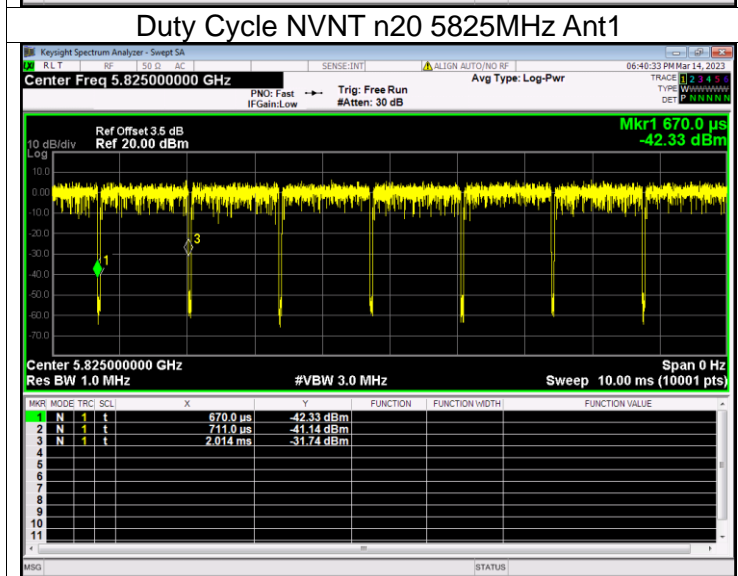
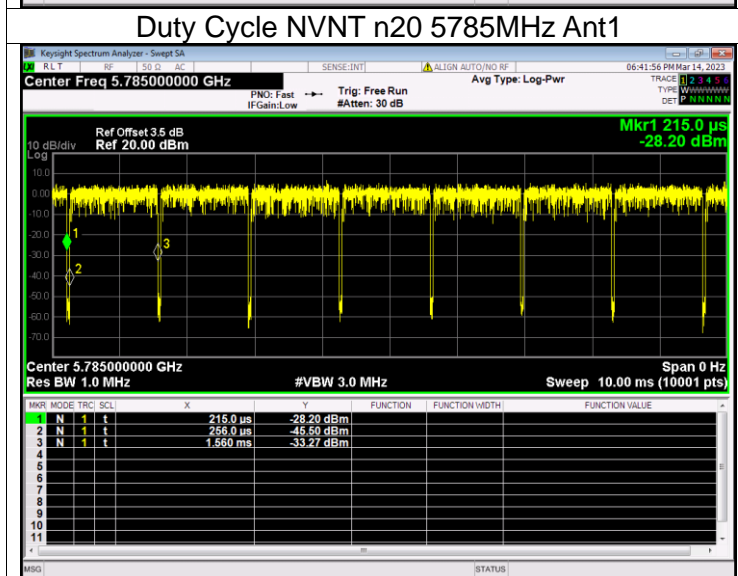
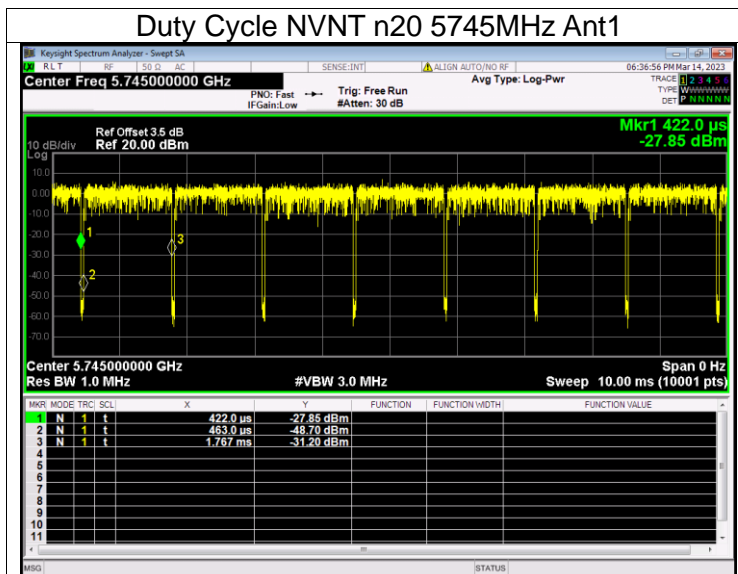
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	a	5180	Ant1	96.94	0.13	0.72
NVNT	a	5200	Ant1	96.94	0.13	0.72
NVNT	a	5240	Ant1	96.94	0.13	0.72
NVNT	a	5745	Ant1	97.08	0.13	0.72
NVNT	a	5785	Ant1	97.08	0.13	0.72
NVNT	a	5825	Ant1	97.08	0.13	0.72
NVNT	n20	5180	Ant1	96.73	0.14	0.77
NVNT	n20	5200	Ant1	96.73	0.14	0.77
NVNT	n20	5240	Ant1	96.73	0.14	0.77
NVNT	n20	5745	Ant1	96.95	0.13	0.77
NVNT	n20	5785	Ant1	96.95	0.13	0.77
NVNT	n20	5825	Ant1	96.95	0.13	0.77
NVNT	n40	5190	Ant1	93.93	0.27	1.54
NVNT	n40	5230	Ant1	94.08	0.27	1.53
NVNT	n40	5755	Ant1	94.00	0.27	1.54
NVNT	n40	5795	Ant1	94.15	0.26	1.53
NVNT	ac80	5210	Ant1	88.59	0.53	3.07
NVNT	ac80	5775	Ant1	88.86	0.51	3.06

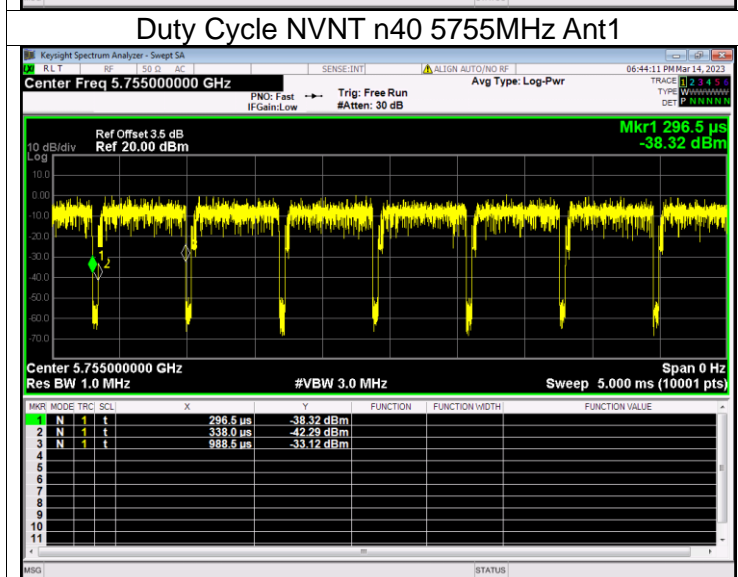
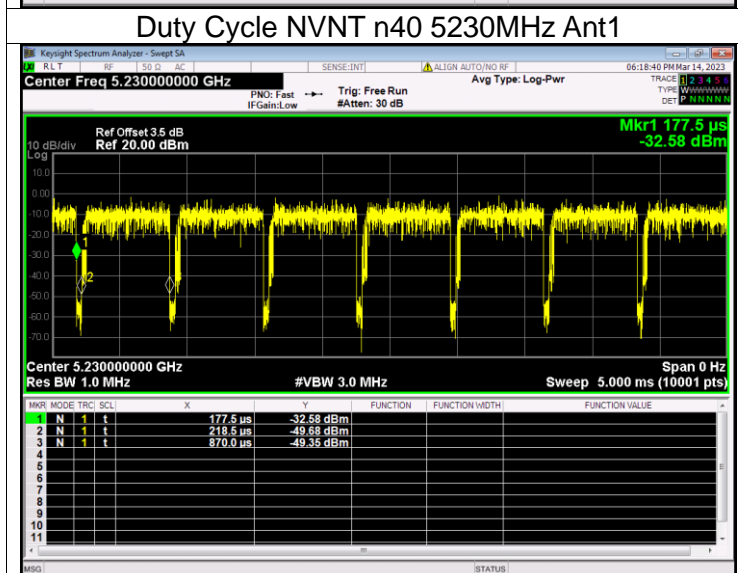
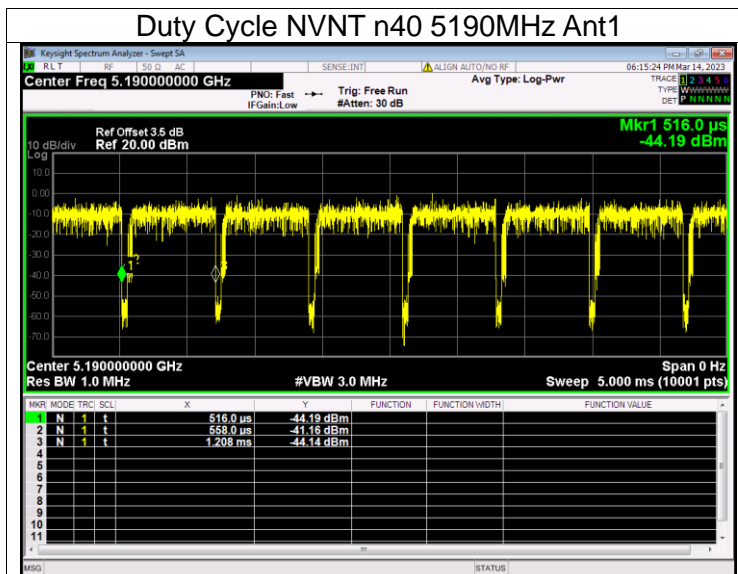


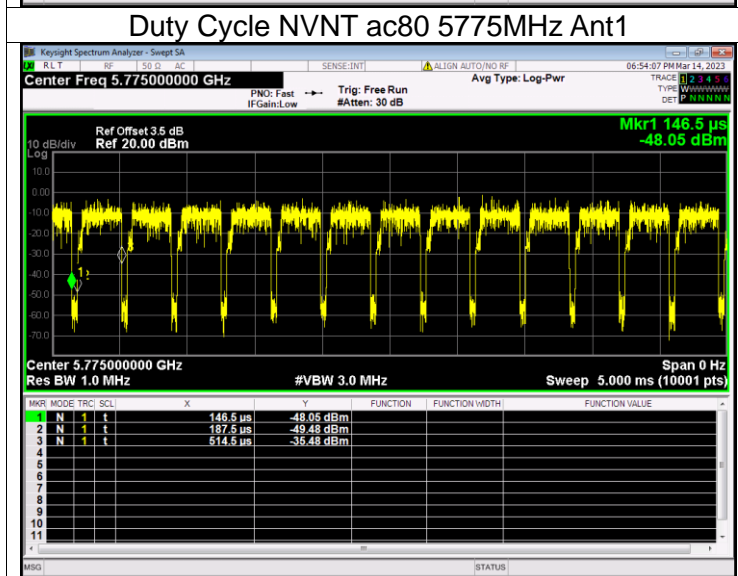
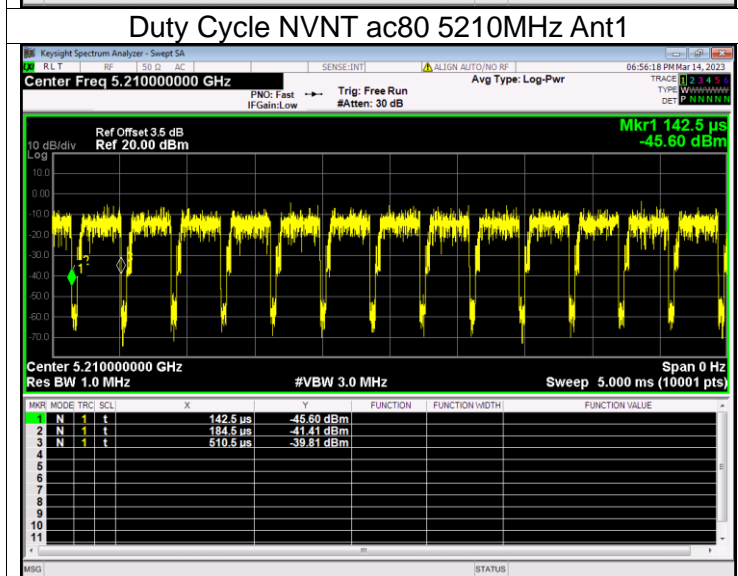
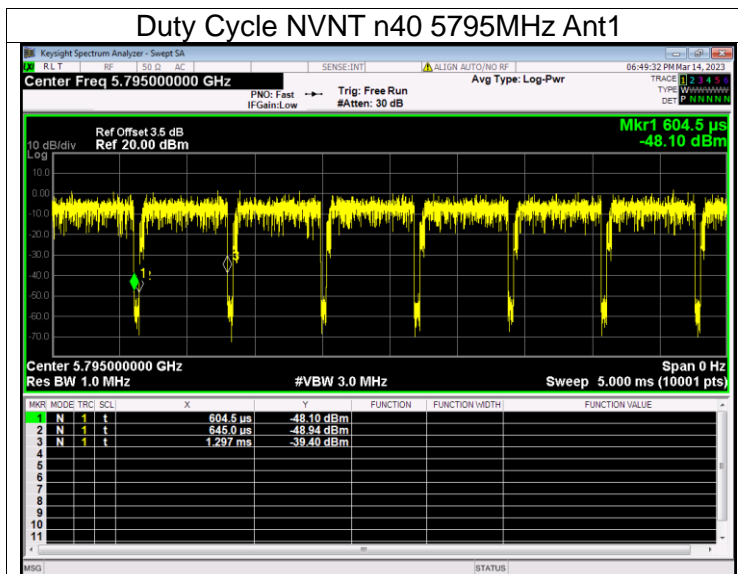














## Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5180	Ant1	6.51	0.13	6.64	24	Pass
NVNT	a	5200	Ant1	6.01	0.13	6.14	24	Pass
NVNT	a	5240	Ant1	5.70	0.13	5.83	24	Pass
NVNT	a	5745	Ant1	9.02	0.13	9.15	30	Pass
NVNT	a	5785	Ant1	9.60	0.13	9.73	30	Pass
NVNT	a	5825	Ant1	9.81	0.13	9.94	30	Pass
NVNT	n20	5180	Ant1	6.00	0.14	6.14	24	Pass
NVNT	n20	5200	Ant1	5.50	0.14	5.64	24	Pass
NVNT	n20	5240	Ant1	5.10	0.14	5.24	24	Pass
NVNT	n20	5745	Ant1	8.98	0.13	9.11	30	Pass
NVNT	n20	5785	Ant1	8.96	0.13	9.09	30	Pass
NVNT	n20	5825	Ant1	9.19	0.13	9.32	30	Pass
NVNT	n40	5190	Ant1	6.13	0.27	6.4	24	Pass
NVNT	n40	5230	Ant1	5.39	0.27	5.66	24	Pass
NVNT	n40	5755	Ant1	8.38	0.27	8.65	30	Pass
NVNT	n40	5795	Ant1	9.07	0.26	9.33	30	Pass
NVNT	ac80	5210	Ant1	6.50	0.53	7.03	24	Pass
NVNT	ac80	5775	Ant1	8.60	0.51	9.11	30	Pass