



7. CARRIER FREQUENCY SEPARATION TEST

7.1.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.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.07,21	1 Year

7.2.Limit

Frequency hopping systems shall have hopping channel carrier frequency separated by a minimum of 25kHz or the 20dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

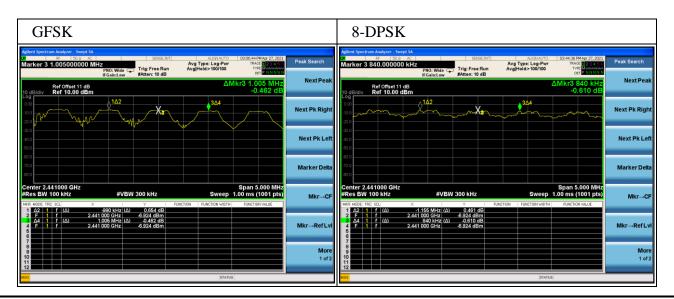
7.3.Test Procedure

Use the test method descried in ANSI C63.10 clause 7.8.2:

- 1. Connect the antenna port of the EUT to the Spectrum analyzer.
- 2. Let the EUT transmit at Low/ Mid/ High channel.
- 3. Setting of SA is following as: RBW: 100kHz / VBW: 300kHz.Span: 5MHz
- 4. Use the mark Delta function of the SA measure out the channel separation.

7.4. Test Results.

EUT: Tablet						
M/N: CT9C08; CT9C18						
Test date: 2021-04-27 Pressure: 102.1±1.0 kpa Humidity: 51.1±3.0%						
Tested by: LILI		Test site: RF site		Temp	perature:22.8±0.6 °C	
Test Mode	Channe	el separation	Limit(kHz	z)	Conclusion	
GFSK	1.	0MHz	551.8		PASS	
8-DPSK	1.0MHz		748.7		PASS	





8. NUMBER OF HOPPING FREQUENCY 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.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.07,21	1 Year

8.2.Limit

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels

8.3.Test Procedure

Use the test method descried in ANSI C63.10 clause 7.8.3:

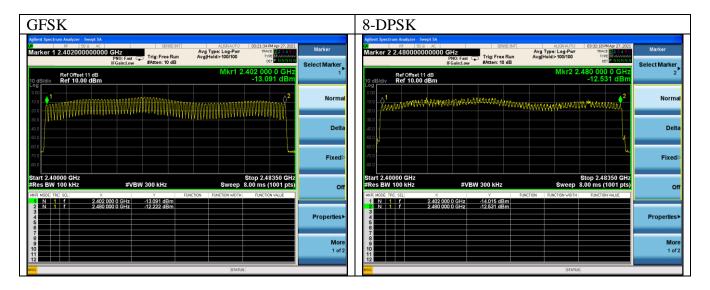
- 1. Connect the antenna of the EUT to Spectrum analyzer and let the EUT working at hopping mode.
- 2. Setting of SA is following as: RBW: 100kHz / VBW: 300kHz Start frequency: 2390MHz Stop frequency: 2483.5MHz

And waiting for the hopping trace until stability, count out the number of the hopping.

8.4. Test Results

EUT: Tablet		
M/N: CT9C08; CT9C18		
Test date: 2021-04-27	Pressure: 102.1 ±1.0 kpa	Humidity: 51.1±3.0%
Tested by: LILI	Test site: RF site	Temperature:22.8±0.6 °C

Test Mode	Number of channel	Limit	Conclusion
GFSK	79	>=15	PASS
8-DPSK	79	>=15	PASS





9. DWELL TIME

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.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.07,21	1 Year

9.2.Limit

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

9.3.Test Procedure

Use the test method descried in ANSI C63.10 clause 7.8.4:

- 1. Connect the antenna of the EUT to Spectrum analyzer and let the EUT working at hopping mode.
- 2. Setting of SA is following as: RBW: 100kHz / VBW: 300kHz

Sweep Mode: Single

Detect mode: Positive peak

Trace mode: Auto

Span: 0Hz

Sweep time: 5s and big enough to measure one hopping signal

3. Use below formula calculate the Dwell time
Dwell time=Hopping number per second*0.4*channel number*Pulse bandwidth per hopping.

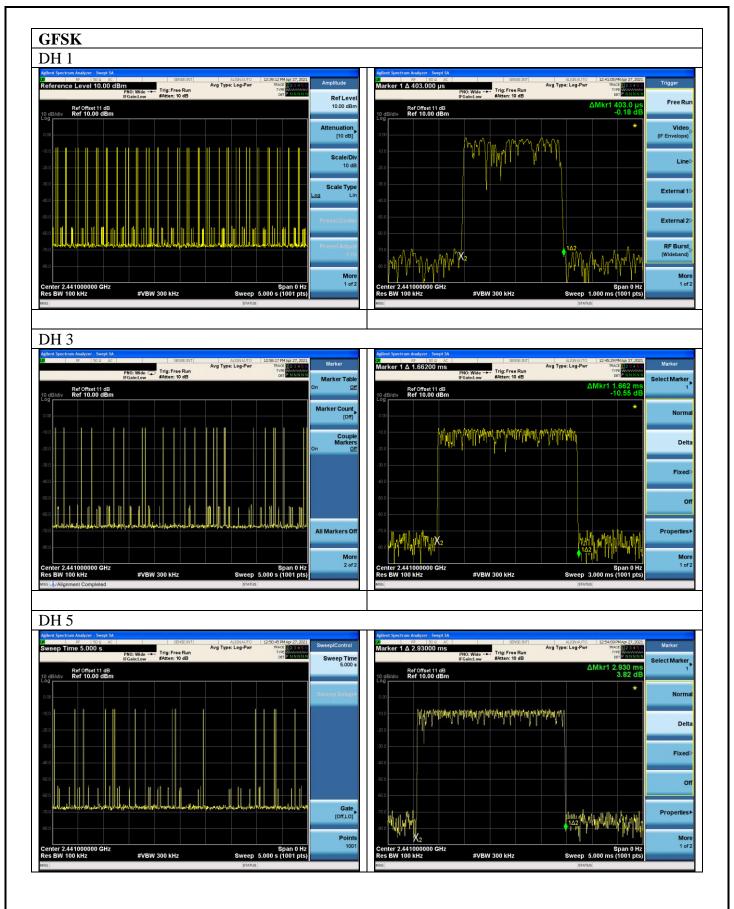
9.4.Test Results

EUT: Tablet		
M/N: CT9C08; CT9C18		
Test date: 2021-04-27	Pressure: 102.1 ±1.0 kpa	Humidity: 51.1 ±3.0%
Tested by: LILI	Test site: RF site	Temperature:22.8±0.6 °C

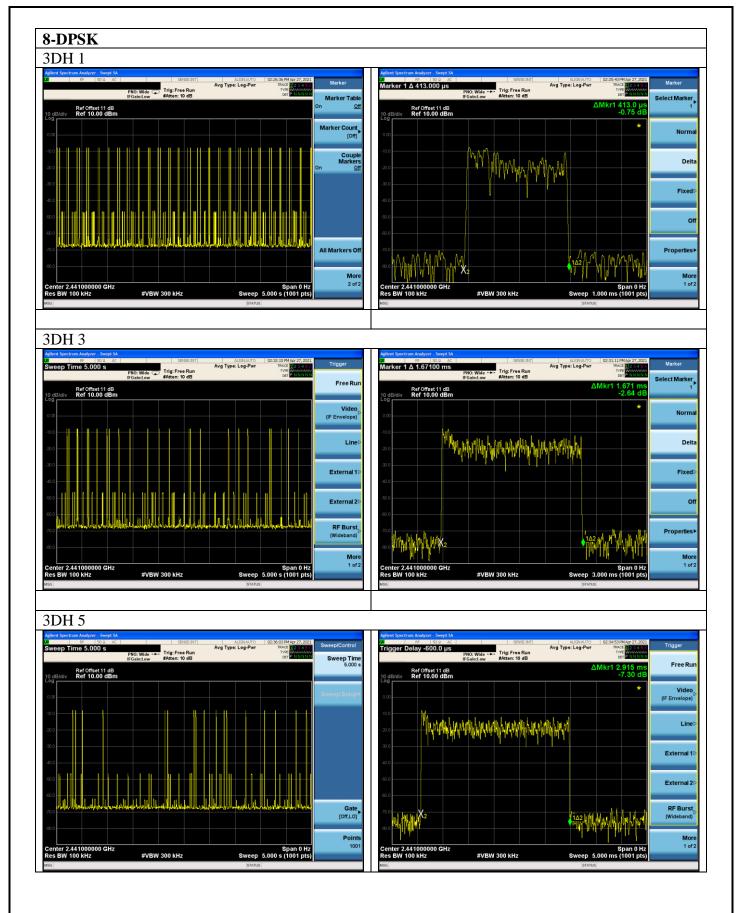
Mode		dwell time	Limit	Conclusion
	DH1	45 hops/5s*0.4*79chanels* 0.403 ms =114.613ms	≤400ms	PASS
GFSK	DH3	23 hops/5s*0.4*79chanels* 1.662 ms =241.588ms	≤400ms	PASS
	DH5	16 hops/5s*0.4*79chanels* 2.930 ms =296.282ms	≤400ms	PASS
8-DPSK	3-DH1	50 hops/5s*0.4*79chanels* 0.413 ms =130.508ms	≤400ms	PASS
	3-DH3	24 hops/5s*0.4*79chanels* 1.671 ms =253.457ms	≤400ms	PASS
	3-DH5	17 hops/5s*0.4*79chanels* 2.915 ms =313.188ms	≤400ms	PASS

Note: All the lower levels were signaled from receiver and should not be considered in here.











10.MAXIMUM PEAK OUTPUT POWER TEST

10.1.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.	Power meter	Anritsu	ML2487A	6K00002472	Apr.07,21	1Year
3.	Power Sensor	Anritsu	MA2491A	033005	Apr.06,21	1Year
4.	Attenuator	Agilent	8491B	MY39269201	Oct.12,20	1 Year
5.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.07,21	1 Year

10.2.Limit

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt.

10.3.Test Procedure

Use the test method descried in ANSI C63.10 clause 7.8.5:

Connected the EUT's antenna port to Power Sensor, and use power meter to test peak output power directly.

10.4.Test Results

EUT: Tablet		
M/N: CT9C08; CT9C18		
Test date: 2021-04-21	Pressure: 102.3±1.0 kpa	Humidity: 53.6±3.0%
Tested by: LILI	Test site: RF site	Temperature: 25.5 ±0.6°C

Test Mode	Frequency	Peak output Power (dBm)	Limit (dBm)				
GFSK	2402	2.450	21				
	2441	0.466	21				
	2480	3.409	21				
	2402	1.855	21				
8-DPSK	2441	0.018	21				
	2480	2.890	21				
Conclusion:	Conclusion: PASS						



11.BAND EDGE COMPLIANCE TEST

11.1.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.	Horn Antenna	ETC	MCTD 1209	DRH15F03006	Jul.30,20	1 Year
3.	Amplifier	HP	8449B	3008A02495	Apr.07,21	1 Year
4.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.07,21	1 Year

11.2.Limit

All the lower and upper band-edges emissions appearing within 2310MHz to 2390MHz and 2483.5MHz to 2500MHz restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation frequency band 2400MHz to 2483.5MHz shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

11.3.Test Produce

Use the test method descried in ANSI C63.10 clause 7.8.6:

For upper band emissions that are up to two bandwidths(2MHz) away (2483.5MHz to 2485.5MHz) from the band-edge use below produce:

- 1. Choose a spectrum analyzer span that encompasses both the peak of the fundamental emission and the band-edge emission under investigation. Set the analyzer RBW to 100KHz and with a video bandwidth 300KHz. Record the peak levels of the fundamental emission and the relevant band-edge emission, Observe the stored trace and measure the amplitude delta between the peak of the fundamental and the peak of the band-edge emission. This is not a field strength measurement, it is only a relative measurement to determine the amount by which the emission drops at the band edge relative to the highest fundamental emission level.
- 2. Subtract the delta measured in step (1) from the maximum field strengths measured in clause 4. The resultant field strengths are then used to determine band-edge compliance as required by Section 15.205

For emissions above two bandwidths away from the band-edge use below produce:

- 1. The EUT is placed on a insulating material (up to 12mm thick) worked at highest radiated power.
- 2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.
- 3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
- 4. Set the spectrum analyzer in the following setting in order to capture the lower and upperband-edges of the emission:
 - (a) PEAK: RBW=1MHz; VBW=3MHz, PK detector, Sweep=AUTO
 - (b) This is pulse Modulation device a duty cycle factor was used to calculate average level based measured peak level.

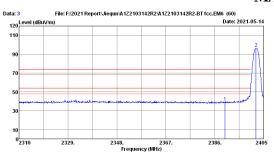
11.4.Test Results

Pass (The testing data was attached in the next pages.)

Note: If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.



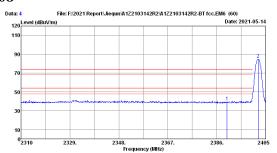
M/N: CT9C08



Engineer : Lynn

No.	Freq.	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
_	2390.000 2402.055	28.01 28.01	0.92	46.12 103.43	39.11 96.42	74.00	34.89	Peak Peak

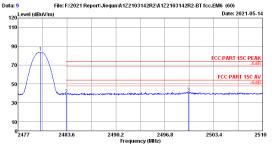
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Engineer : Lynn

No	. Freq.	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Hargin (dB)	Remark
1 2	2390.000 2402.150	28.01 28.01	0.92	46.44 91.45	39.43 84.44	74.00	34.57	Peak Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber
Dis. / Ant. : 3m 2020 MCTD1209-3006
Limit : FCC PART 15C PEAK
EUV. / Ins. : 23.2*C/52.5%
EUT : Power rating : AC120V/60HZ Test Mode : BT3.0 GFSK 2480MHz Tx

Emission Level Limits Margin Remark (dBuV/m) (dBuV/m) (dB)

Remarks: 1. Emission Level- Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

a: 10 Level (dBu		Report Siequits 122 i	03142R2\A1Z2103142		2021-05-1
110					
90					
70	\perp			FCC PART	15C PEAK -6dB
~ <i> </i>				FCC PA	ART 15C AV
50	- Person				-6dE
30					
10					
02477	2483.6	2490.2	2496.8	2503.4	25

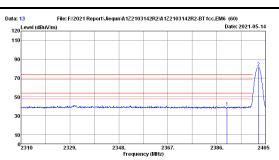
Site no. : 3m Chamber
Dis. / Ant. : 3m 2020 MCTD1209-3006
Limit : FCC PART 15C PEAK
EUV. / Ins. : 23.2*C/52.5%
EUT : Power rating : AC120V/60HZ Test Mode : BT3.0 GFSK 2480MHz Tx

No	. Freq.	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Hargin (dB)	Remark
1	2479.970	28.17	0.94	104.31	97.47			Peak
2	2483.500	28.17	0.94	49.47	42.63	74.00	31.37	Peak
3	2500.000	28.20	0.95	46.91	40.11	74.00	33.89	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



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Site no. : 3m Chamber

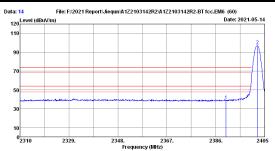
Dis. / Ant. : 3m 2020 MCTD1209-3006
Limit : FCC PART 15C PEAR
Env. / Ins. : 25.2*C/52.5*

EUT: : Power rating : C1200/60HZ

Test Hode : BT3.0 80PSK 2402MHz Tx Data no. : 13 Ant. pol. : VERTICAL Engineer : Lynn

No.	Freq.	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Hargin (dB)	Remark
		28.01 28.01	0.92 0.92	46.18 88.21	39.17 81.20	74.00	34.83	Peak Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber

Dis. / Ant. : 3m 2020 MCTD1209-3006

Limit : FCC PART 15C PEAK

Env. / Ins. : 25.2*C/52.5*

Power Tating : AC120V/60H2

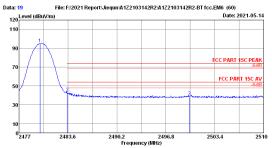
Test Mode : BT3.0 8DP3K 2402MH2 Tx Data no. : 14 Ant. pol. : HORIZONTAL Engineer : Lynn

Ant. Cable Emission

No. Freq. Factor Loss Reading Level Limits Margin Remark

(MHz) (dB/m) (dB) (dBuV) (dBuV/m) (dBuV/m) (dBUV/m) (dB

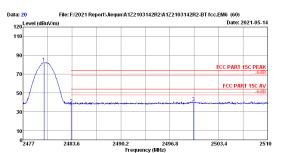
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber
Dis. / Ant. : 3m 2020 MCTD1209-3006
Limit : FCC PART 15C PEAK
ENv. / Ins. : 23.2*C/52.5%
EUT : : EUT :
Power rating : AC120V/60HZ
Test Mode : BT3.0 8DPSK 2480MHz Tx

No	. Freq.	Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2479.838	28.17	0.94	101.74	94.90			Peak
2	2483.500	28.17	0.94	49.29	42.45	74.00	31.55	Peak
3	2500.000	28.20	0.95	45.28	38.48	74.00	35.52	Peak

Remarks: 1. Emission Level- Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



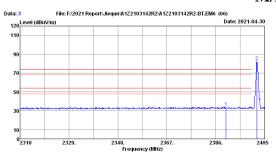
Site no. : 3m Chamber
Dis. / Ant. : 3m 2020 MCTD1209-3006
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.2*C/52.5%
EUT Data no. : 20 Ant. pol. : VERTICAL Engineer : Lynn EUT : Power rating : AC120V/60HZ Test Mode : BT3.0 8DPSK 2480MHz Tx

No.	Freq.	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
2 2	2479.838 2483.500	28.17 28.17 28.20	0.94 0.94 0.95	88.91 44.68 46.47	82.07 37.84 39.67	74.00 74.00	36.16 34.33	Peak Peak Peak

Remarks: 1. Emission Level- Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



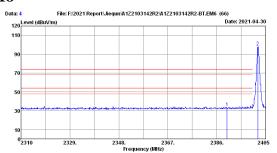
M/N: CT9C18



Engineer : Lynn

No.	Freq.	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1 2	2390.000 2401.960	28.01 28.01	0.92	40.60 88.84	33.59 81.83	74.00	40.41	Peak Peak

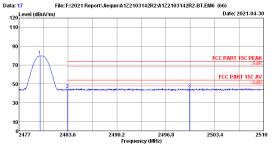
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Engineer : Lynn

No.	. Freq.	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Hargin (dB)	Remark
_	2390.000 2401.960	28.01 28.01	0.92	40.39 104.87	33.38 97.86	74.00	40.62	Peak Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

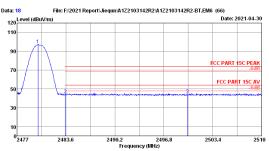


Site no. : 3m Chamber
Dis. / Ant. : 3m 2020 MCTD1209-3006
Limit : FCC PART 15C PEAK
EUV. / Ins. : 23.2*C/52.5%
EUT :

Power rating : AC120V/60HZ Test Mode : BT3.0 GFSK 2480MHz Tx

		Ant.	Cable		Emission			
No	. Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	2479.838	28.17	0.94	86.60	79.76			Peak
2	2483.500	28.17	0.94	51.22	44.38	74.00	29.62	Peak
3	2500.000	28.20	0.95	51.46	44.66	74.00	29.34	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



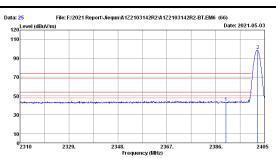
Site no. : 3m Chamber
Dis. / Ant. : 3m 2020 MCTD1209-3006
Limit : FCC PART 15C PEAK
EUV. / Ins. : 23.2*C/52.5%
EUT : Power rating : AC120V/60HZ Test Mode : BT3.0 GFSK 2480MHz Tx

No	. Freq.	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2479.838	28.17	0.94	103.69	96.85			Peak
2	2483.500	28.17	0.94	50.68	43.84	74.00	30.16	Peak
3	2500.000	28.20	0.95	50.71	43.91	74.00	30.09	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



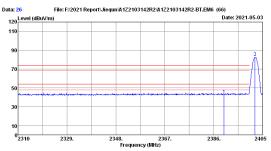
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Site no. : 3m Chamber
Dis. / Ant. : 3m 2020 MCTD1209-3006
Limit : FCC FART 15C FRAR
Env. / Ins. : 23.2*C/52.58
Ever rating : AC120V/60HZ
Test Inde : BT3.0 80PSK 2402MHz Tx Data no. : 25 Ant. pol. : HORIZONTAL Engineer : Lynn

No	. Freq.	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.000	28.01	0.92	50.00	42.99	74.00	31.01	Peak
2	2402.340	28.01	0.92	105.18	98.17			Peak

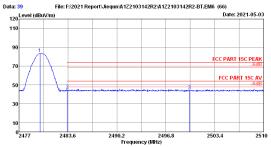
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber
Dis. / Ant. : 3m 2020 MCTD1209-3006
Limit : FCC FART 15C FRAR
Env. / Ins. : 23.2*C/52.58
Ever rating : AC120V/60HZ
Test Inde : BT3.0 80PSK 2402MHz Tx Data no. : 26 Ant. pol. : VERTICAL Engineer : Lynn

No.	Freq.	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
_	2390.000 2402.055	28.01 28.01	0.92	49.38 89.38	42.37 82.37	74.00	31.63	Peak Peak

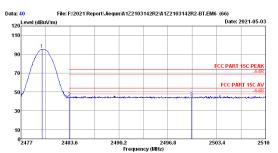
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber
Dis. / Ant. : 3m 2020 MCTD1209-3006
Limit : FCC PART 15C PEAK
ENv. / Ins. : 23.2*C/52.5%
EUT : : Data no. : 39 Ant. pol. : VERTICAL Engineer : Lynn EUT :
Power rating : AC120V/60HZ
Test Mode : BT3.0 8DPSK 2480MHz Tx

No.	Freq.	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2479.838	28.17	0.94	90.13	83.29			Peak
2	2483.500	28.17	0.94	51.68	44.84	74.00	29.16	Peak
	2500 000	20 20	0.05	EO 20	42 00	74.00	20.01	D 1-

Remarks: 1. Emission Level Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber
Dis. / Ant. : 3m 2020 MCTD1209-3006
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.2*C/52.5%
EUT Data no. : 40 Ant. pol. : HORIZONTAL Engineer : Lynn EUT : Power rating : AC120V/60HZ Test Mode : BT3.0 8DPSK 2480MHz Tx

No	. Freq.	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Hargin (dB)	Remark
1	2479.838	28.17	0.94	102.03	95.19			Peak
2	2483.500	28.17	0.94	50.70	43.86	74.00	30.14	Peak
3	2500.000	28.20	0.95	50.70	43.90	74.00	30.10	Peak

Remarks: 1. Emission Level- Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



12. ANTENNA REQUIREMENT

12.1. 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 15.247 (b), 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.

12.2. Antenna Connected Construction

The antennas used for this product are FPCB 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 1.5dBi for CT9C08 and 1dBi for CT9C18.



[NONE]		