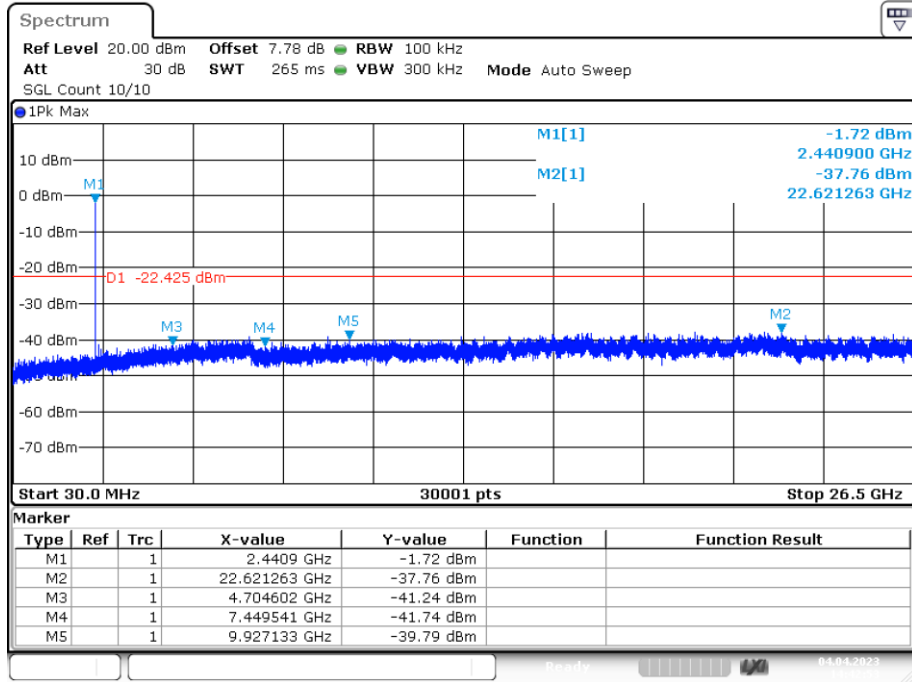
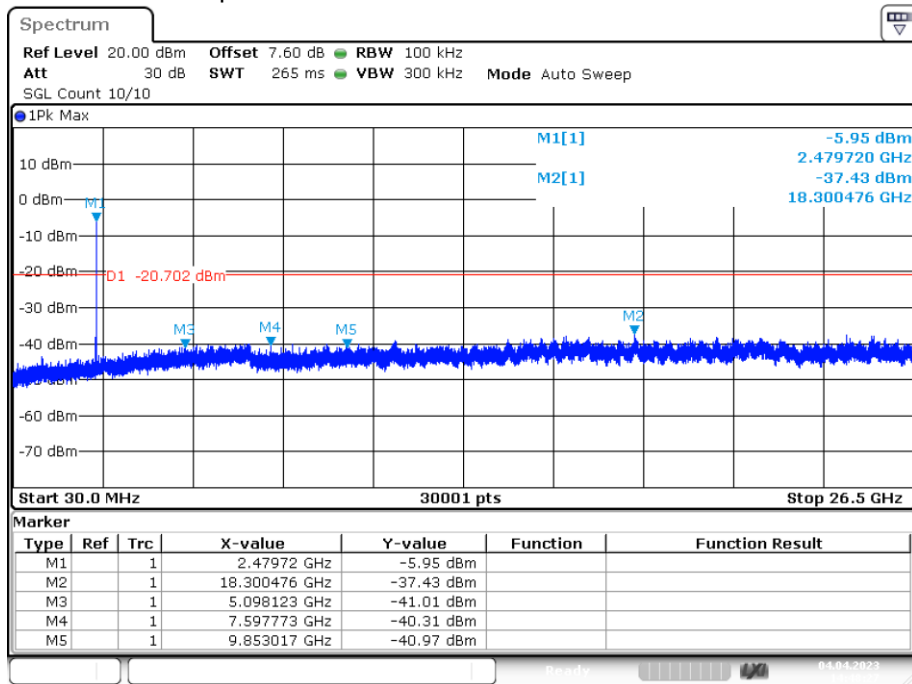


Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



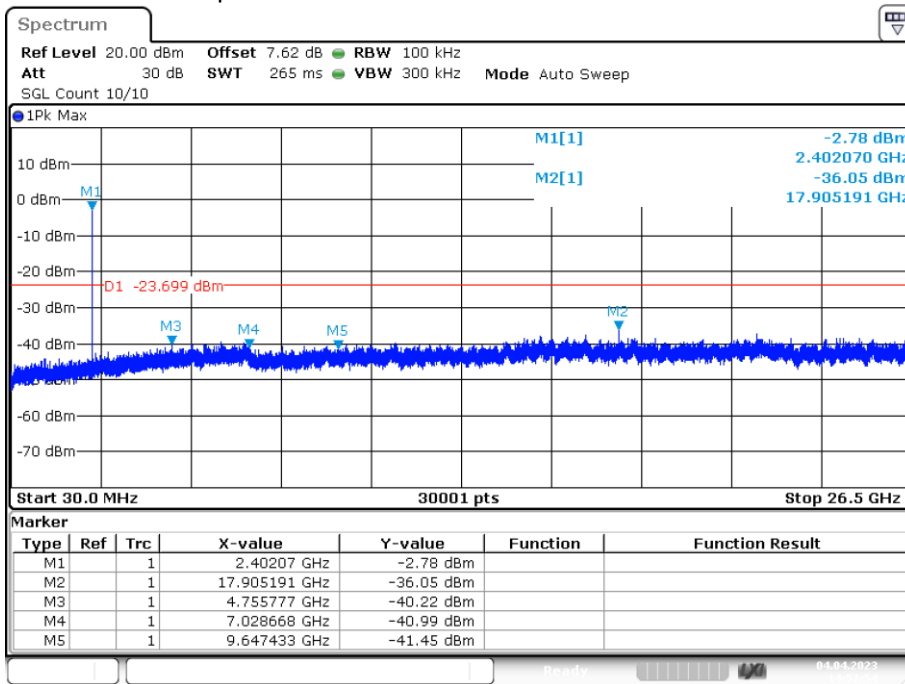
Date: 4.APR.2023 14:42:52

Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Emission



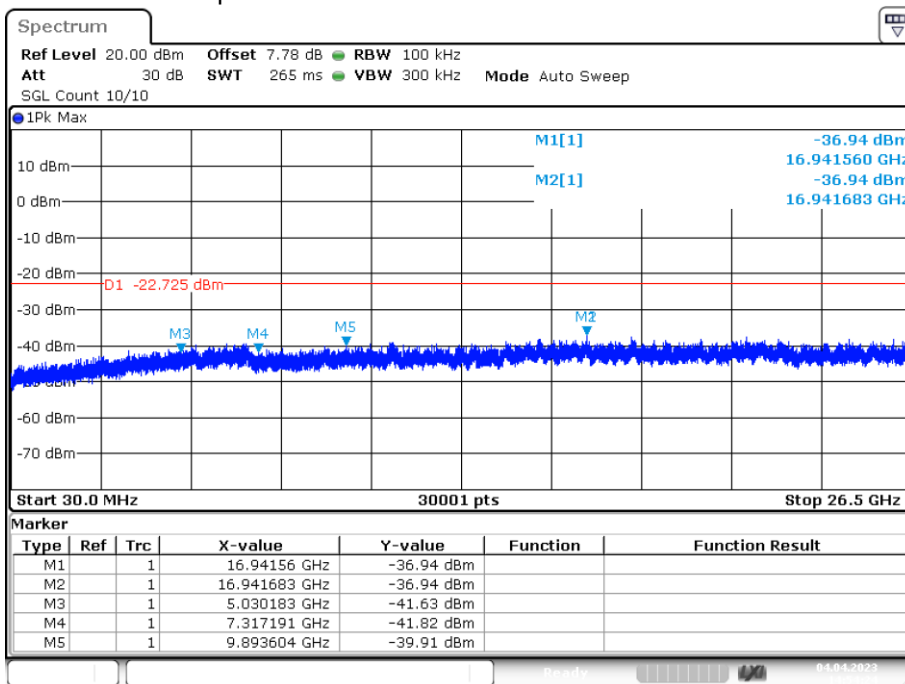
Date: 4.APR.2023 14:48:28

Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Emission



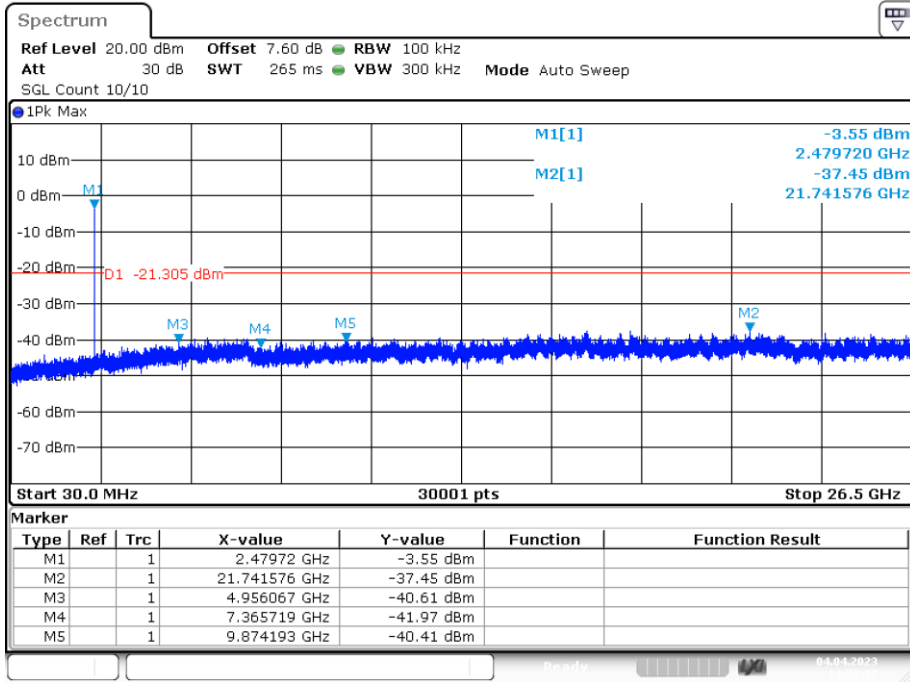
Date: 4.APR.2023 14:52:54

Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission



Date: 4.APR.2023 14:54:24

Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission



4.8 Band edge emissions (Radiated)

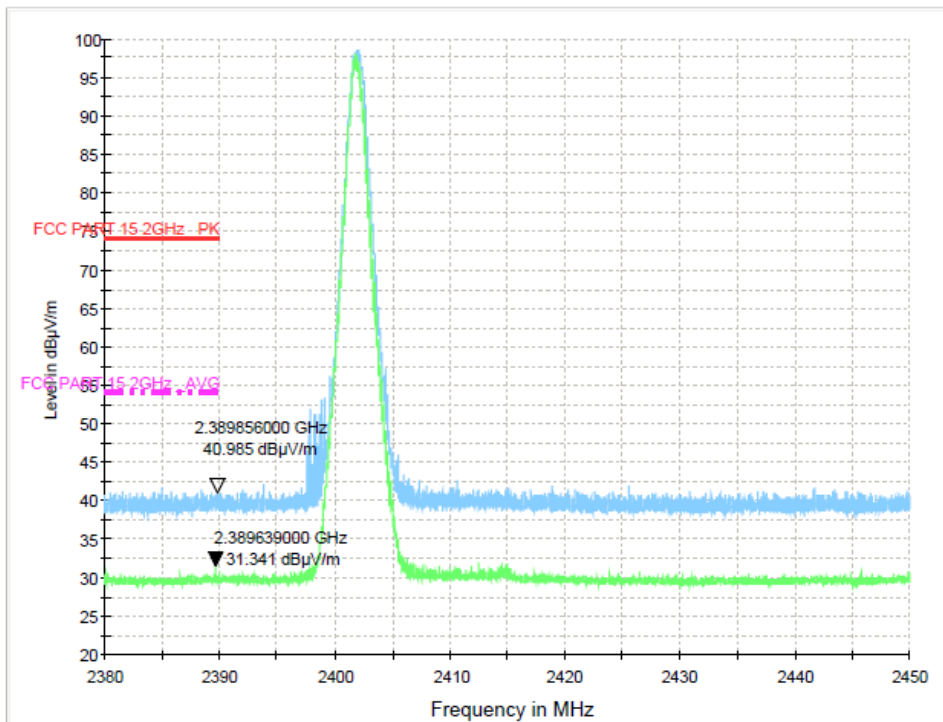
Test Requirement:	In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).`		
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	0.009-0.490	2400/F(kHz)	300
	0.490-1.705	24000/F(kHz)	30
	1.705-30.0	30	30
	30-88	100 **	3
	88-216	150 **	3
	216-960	200 **	3
	Above 960	500	3
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.			
Test Method:	Radiated emissions tests		
Procedure:	ANSI C63.10-2013 section 6.6.4		

4.8.1 E.U.T. Operation:

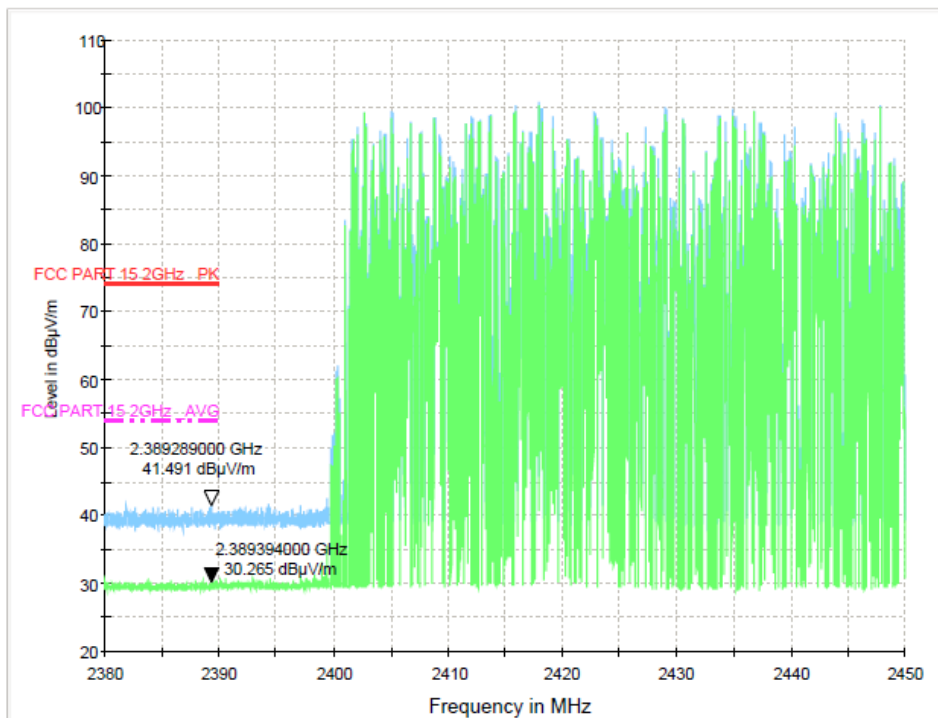
Operating Environment:					
Temperature:	23.8 °C	Humidity:	54.2 %	Atmospheric Pressure:	101.6 kPa
Pre test mode:	All modes				
Final test mode:	All modes				

4.8.2 Test Result:

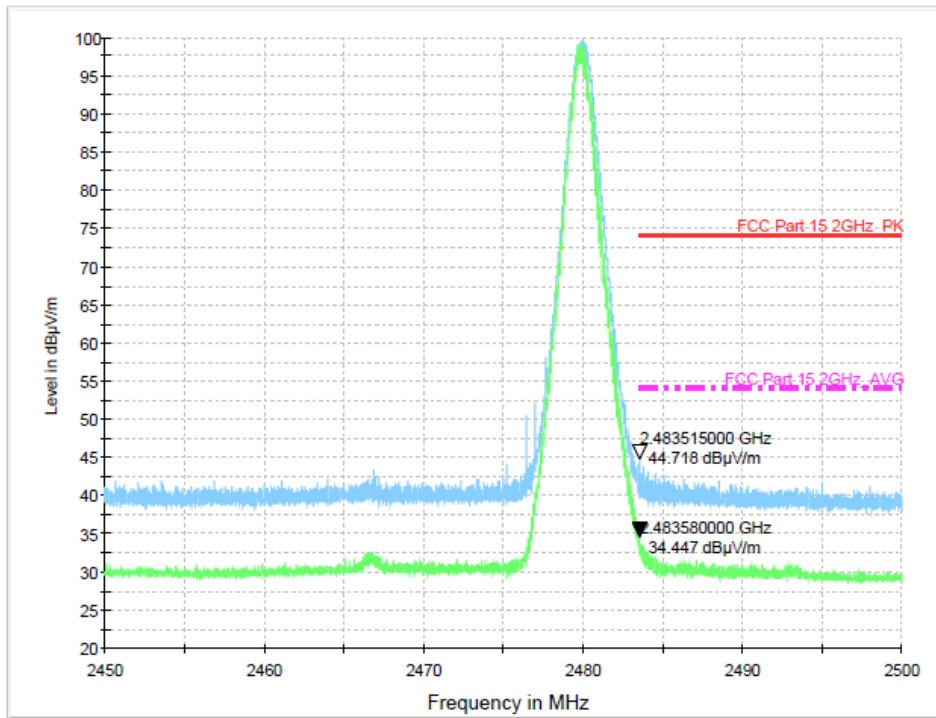
TX-GFSK(hopping off) / CH: L



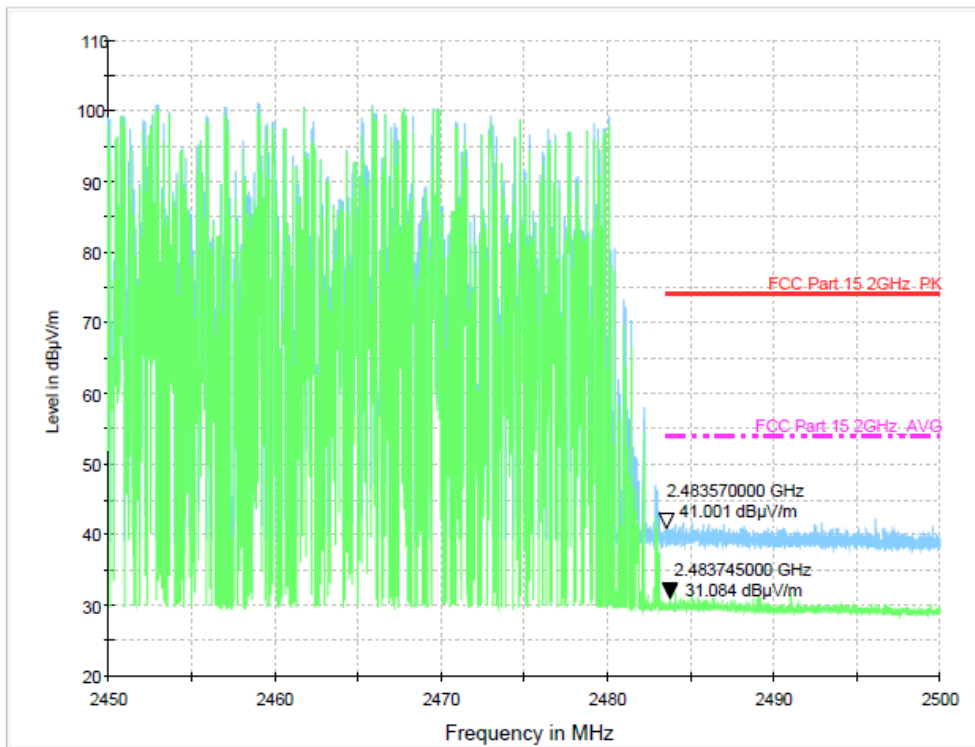
TX-GFSK(hopping on) / CH: L



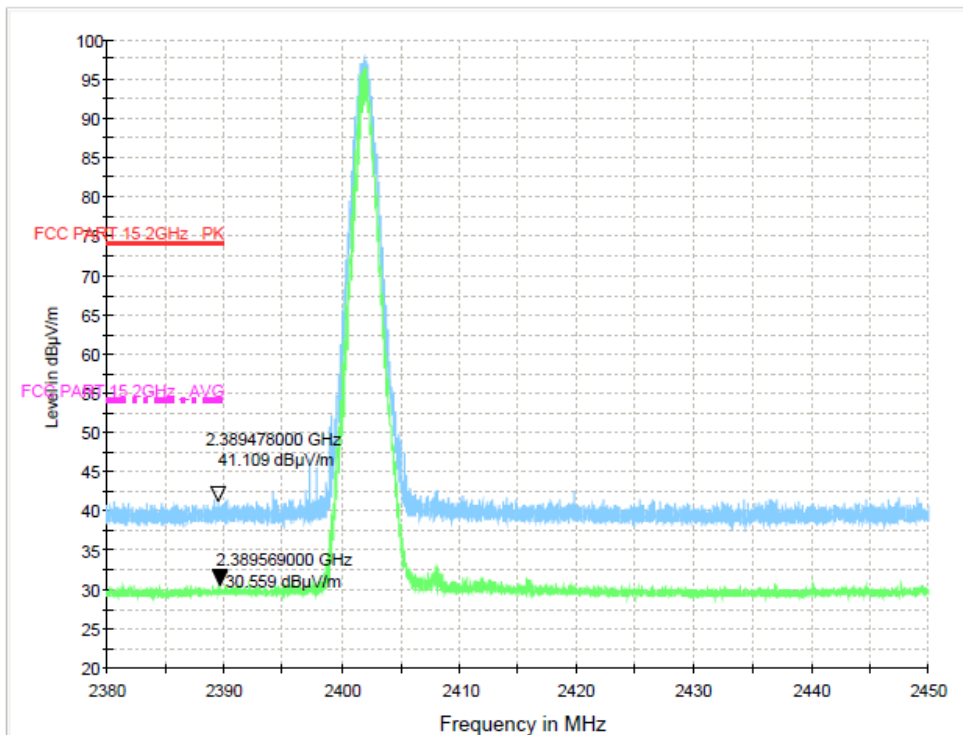
TX-GFSK(hopping off) / CH: H



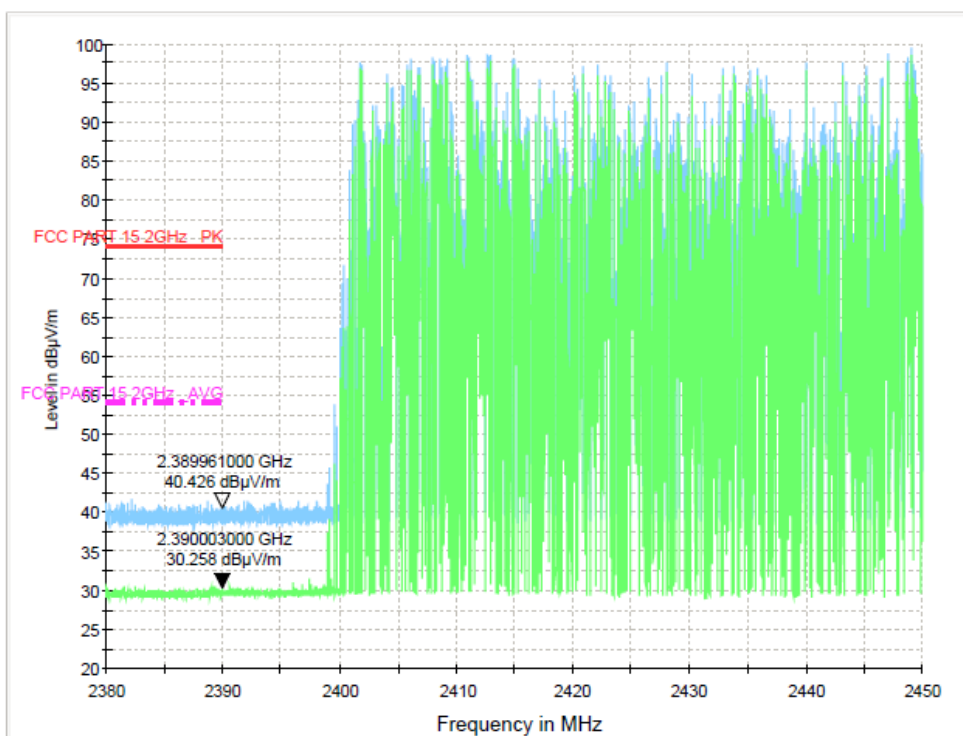
TX-GFSK(hopping on) / CH: H



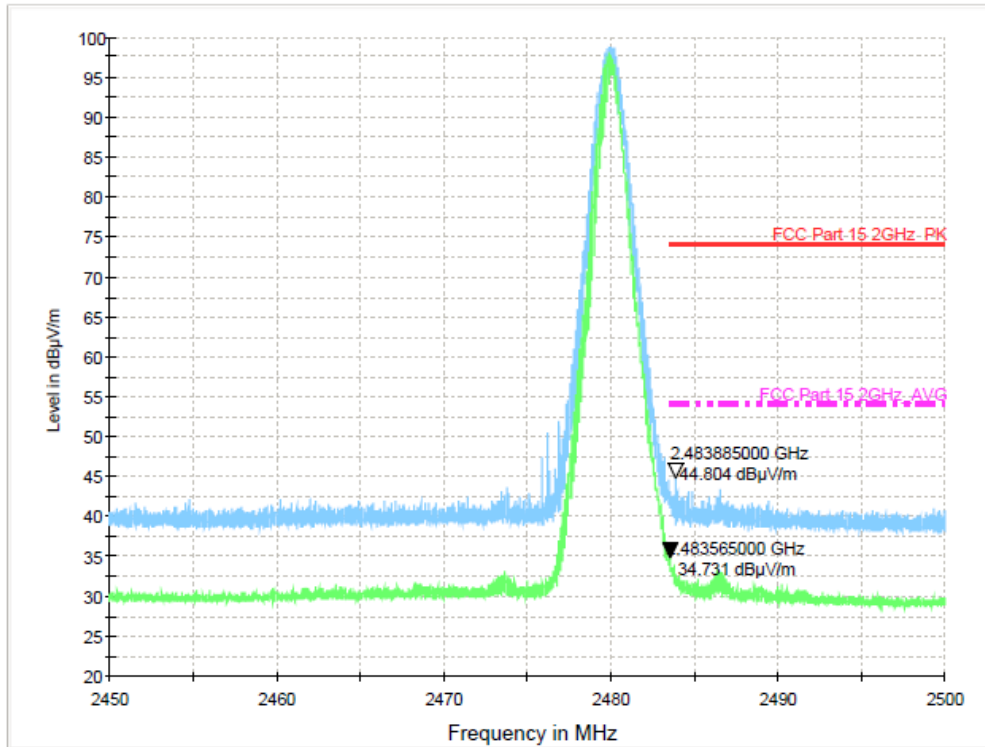
TX-Pi/4DQPSK (hopping off) / CH: L



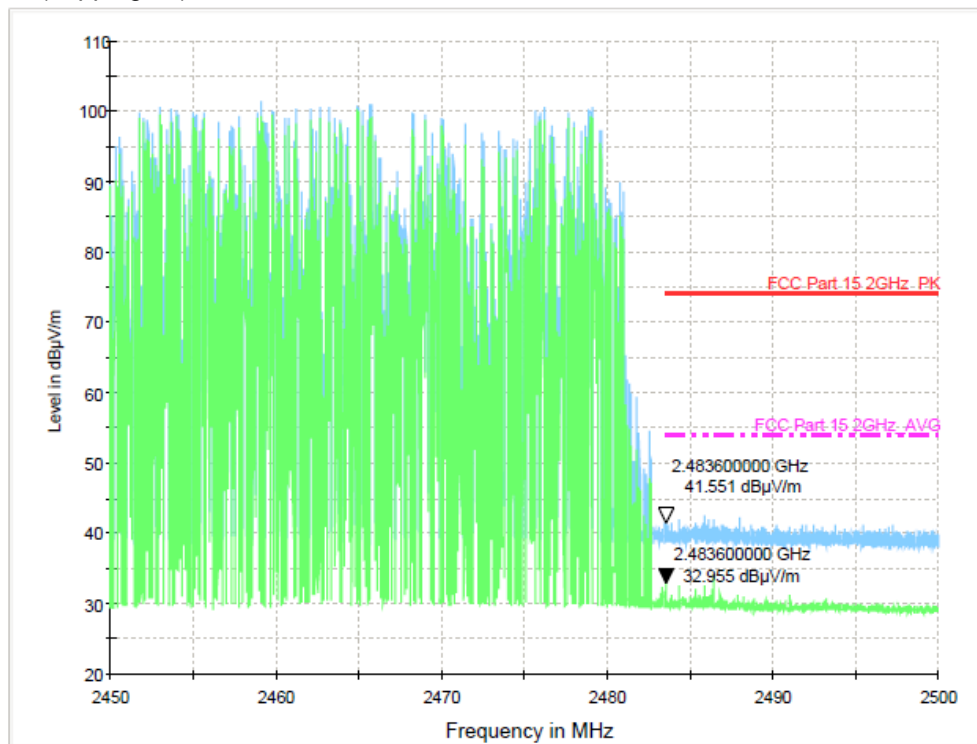
TX-Pi/4DQPSK (hopping on) / CH: L



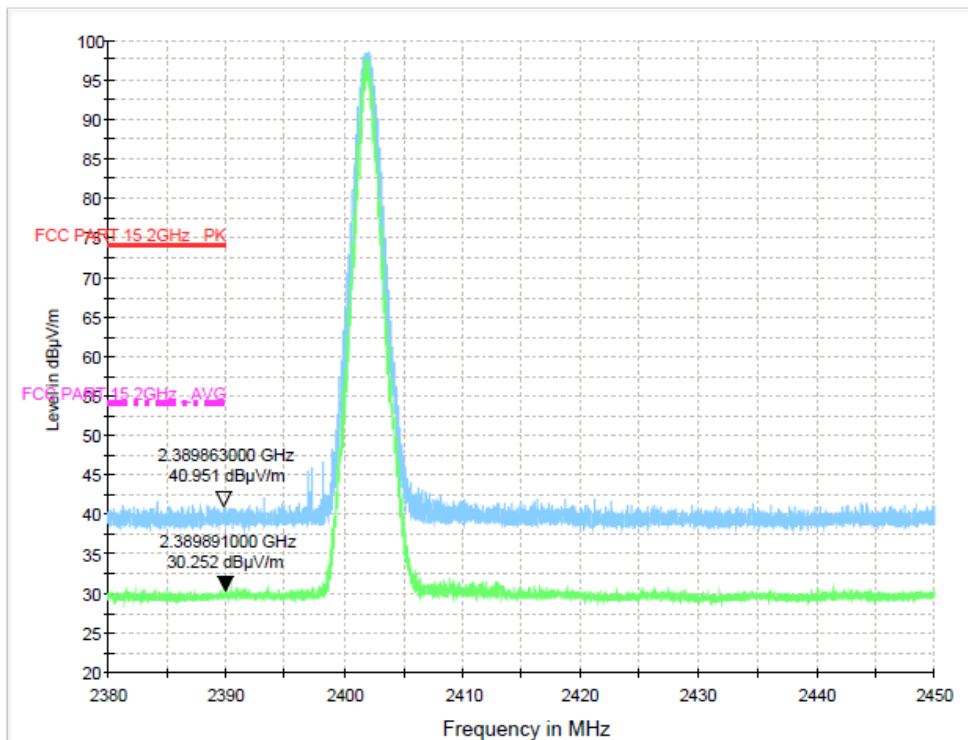
TX-Pi/4DQPSK (hopping off) / CH: H



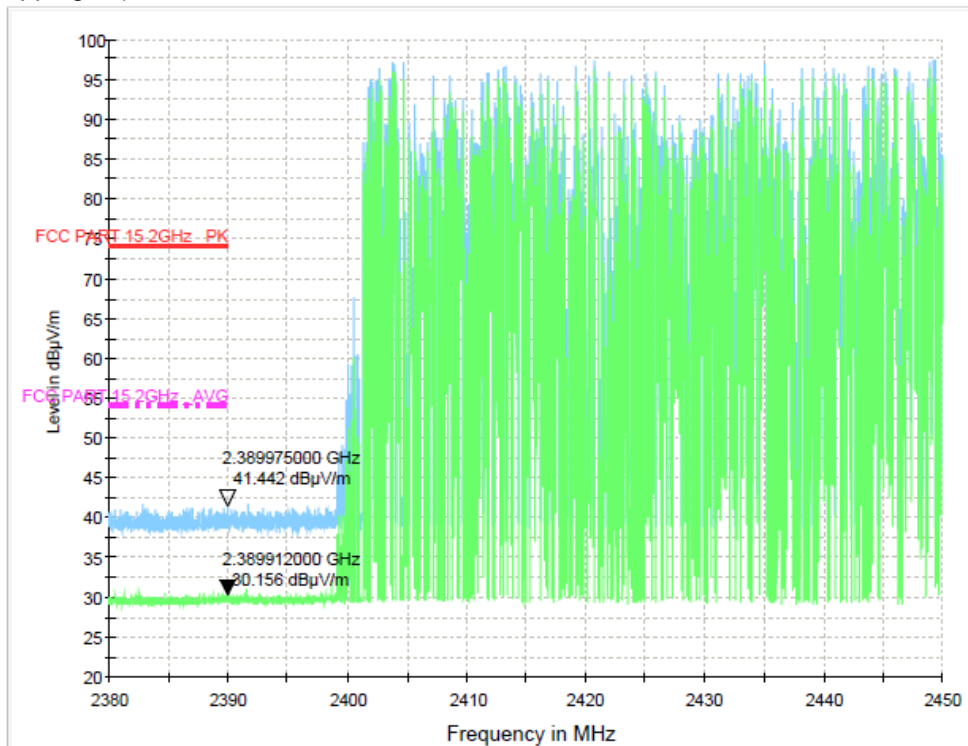
TX-Pi/4DQPSK (hopping on) / CH: H



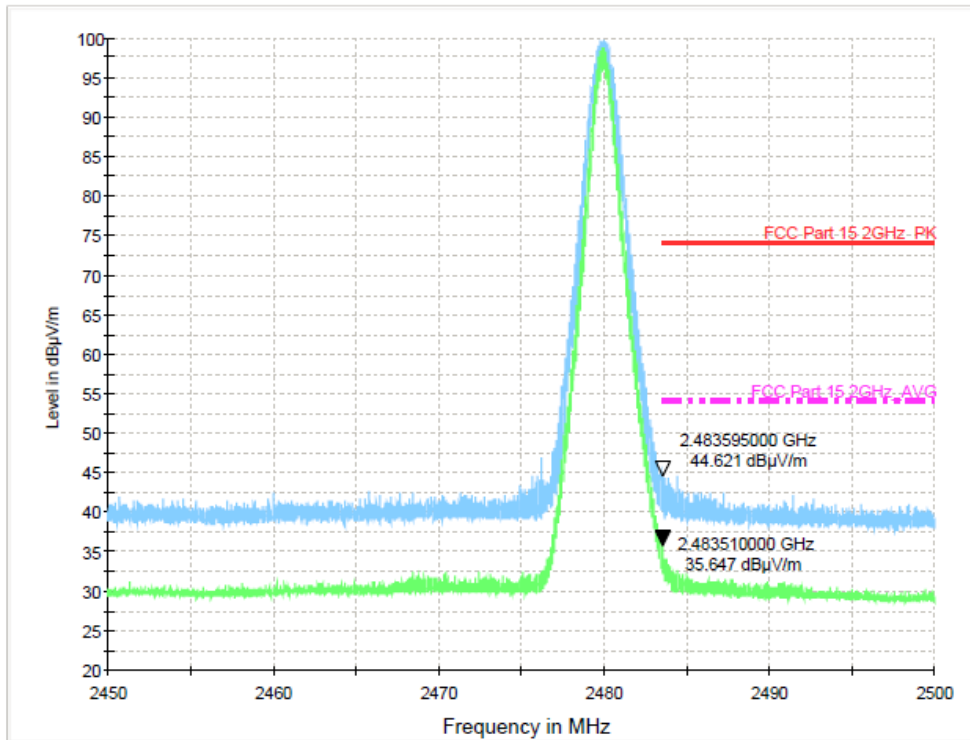
TX-8DPSK (hopping off) / CH: L



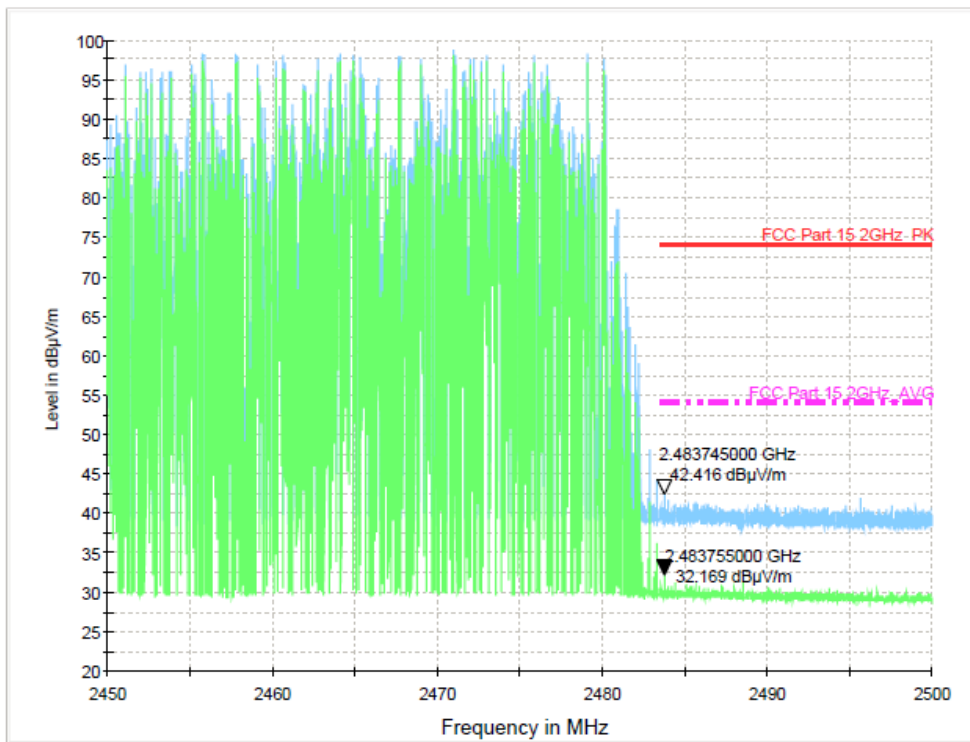
TX-8DPSK (hopping on) / CH: L



TX-8DPSK (hopping off) / CH: H



TX-8DPSK (hopping on) / CH: H



4.9 Emissions in restricted frequency bands (below 1GHz)

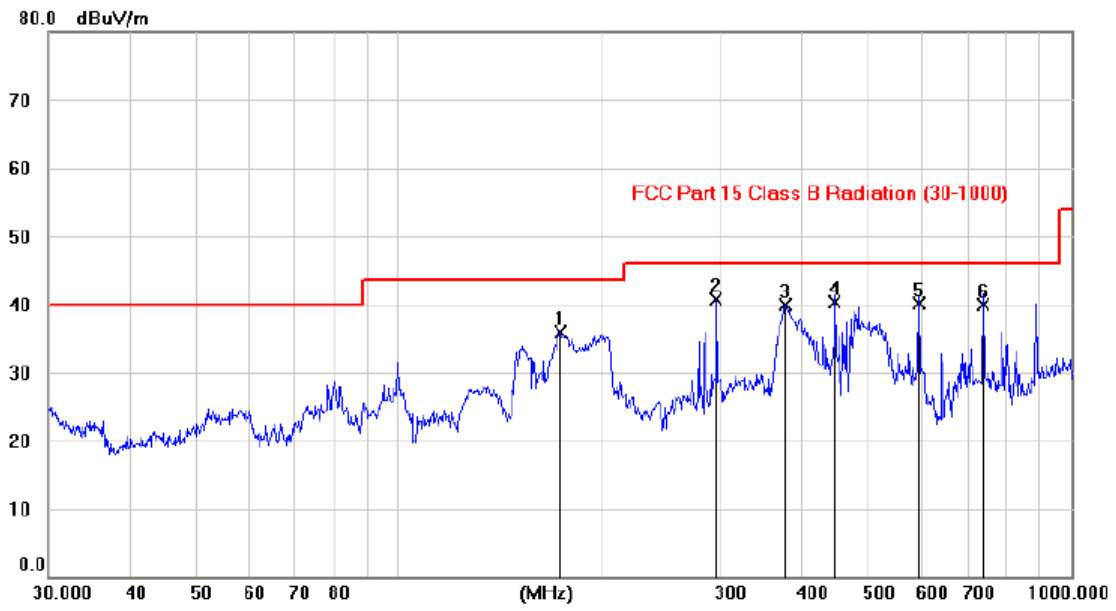
Test Requirement:	In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).`		
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	0.009-0.490	2400/F(kHz)	300
	0.490-1.705	24000/F(kHz)	30
	1.705-30.0	30	30
	30-88	100 **	3
	88-216	150 **	3
	216-960	200 **	3
	Above 960	500	3
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.			
Test Method:	Radiated emissions tests		
Procedure:	ANSI C63.10-2013 section 6.6.4		

4.9.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23.8 °C	Humidity:	54.2 %	Atmospheric Pressure:	101.6 kPa
Pre test mode:	TX-GFSK(hopping off), TX-Pi/4DQPSK (hopping off), TX-8DPSK (hopping off)				
Final test mode:	TX-GFSK(hopping off)				

4.9.2 Test Result:

TX-GFSK(hopping off)/ Polarization: Horizontal / CH: L

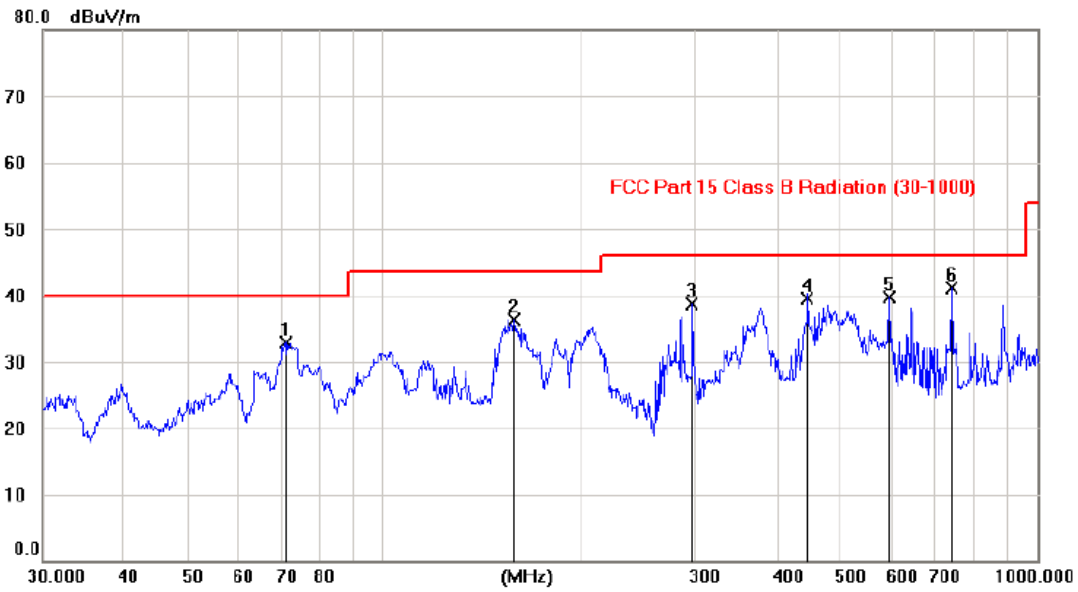


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Margin dB	Antenna Height cm	Table Degree degree	Comment
1		173.7322	22.44	13.56	36.00	43.50	-7.50	peak		
2	*	296.7033	26.71	14.03	40.74	46.00	-5.26	peak		
3		375.4553	24.20	15.79	39.99	46.00	-6.01	peak		
4		445.0593	22.93	17.45	40.38	46.00	-5.62	QP		
5		593.3962	19.95	20.09	40.04	46.00	-5.96	QP		
6		741.8250	17.66	22.29	39.95	46.00	-6.05	QP		

Note:1. *:Maximum data; x:Over limit; !:over margin.

2.Measurement=Reading Level+Correct Factor; Correct Factor=Antenna Factor+Cable Loss.

TX-GFSK(hopping off) / Polarization: Vertical / CH: L



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Antenna Height	Table Degree
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree
1		70.7651	21.79	11.18	32.97	40.00	-7.03	peak	
2		158.3711	21.21	15.04	36.25	43.50	-7.25	peak	
3		296.7033	24.66	14.03	38.69	46.00	-7.31	peak	
4		445.0593	22.12	17.45	39.57	46.00	-6.43	QP	
5		593.4655	19.65	20.09	39.74	46.00	-6.26	peak	
6	*	741.8250	18.76	22.29	41.05	46.00	-4.95	peak	

Note:1. *:Maximum data; x:Over limit; !:over margin.

2.Measurement=Reading Level+Correct Factor; Correct Factor=Antenna Factor+Cable Loss.

4.10 Emissions in restricted frequency bands (above 1GHz)

Test Requirement:	In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).`		
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	0.009-0.490	2400/F(kHz)	300
	0.490-1.705	24000/F(kHz)	30
	1.705-30.0	30	30
	30-88	100 **	3
	88-216	150 **	3
	216-960	200 **	3
	Above 960	500	3
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.			
Test Method:	Radiated emissions tests		
Procedure:	ANSI C63.10-2013 section 6.6.4		

4.10.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23.8 °C	Humidity:	54.2 %	Atmospheric Pressure:	101.6 kPa
Pre test mode:	TX-GFSK(hopping off), TX-Pi/4DQPSK (hopping off), TX-8DPSK (hopping off)				
Final test mode:	TX-GFSK(hopping off), TX-Pi/4DQPSK (hopping off), TX-8DPSK (hopping off)				

4.10.2 Test Result:

From 1G-25GHz

Test Mode: GFSK TX Low									
Freq (MHz)	Read Level (dBuV/m)	Polar (H/V)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4804	47.97	V	33.95	10.18	34.26	57.84	74	-16.16	PK
4804	35.33	V	33.95	10.18	34.26	45.20	54	-8.80	AV
7206	/	/	/	/	/	/	/	/	/
9608	/	/	/	/	/	/	/	/	/
4804	46.48	H	33.95	10.18	34.26	56.35	74	-17.65	PK
4804	35.84	H	33.95	10.18	34.26	45.71	54	-8.29	AV
7206	/	/	/	/	/	/	/	/	/
9608	/	/	/	/	/	/	/	/	/
Test Mode: GFSK TX Mid									
4882	44.28	V	33.93	10.2	34.29	54.12	74	-19.88	PK
4882	33.78	V	33.93	10.2	34.29	43.62	54	-10.38	AV
7323	/	/	/	/	/	/	/	/	/
9764	/	/	/	/	/	/	/	/	/
4882	45.13	H	33.93	10.2	34.29	54.97	74	-19.03	PK
4882	35.02	H	33.93	10.2	34.29	44.86	54	-9.14	AV
7323	/	/	/	/	/	/	/	/	/
9764	/	/	/	/	/	/	/	/	/
Test Mode: GFSK TX High									
4960	44.24	V	33.93	10.2	34.29	54.08	74	-19.92	PK
4960	34.20	V	33.93	10.2	34.29	44.04	54	-9.96	AV
7440	/	/	/	/	/	/	/	/	/
9920	/	/	/	/	/	/	/	/	/
4960	45.48	H	33.93	10.2	34.29	55.32	74	-18.68	PK
4960	34.60	H	33.93	10.2	34.29	44.44	54	-9.56	AV
7440	/	/	/	/	/	/	/	/	/
9920	/	/	/	/	/	/	/	/	/
Note:									
1, Result = Read level + Antenna factor + cable loss-Amp factor									
2, All the other emissions not reported were too low to read and deemed to comply with FCC limit.									

From 1G-25GHz

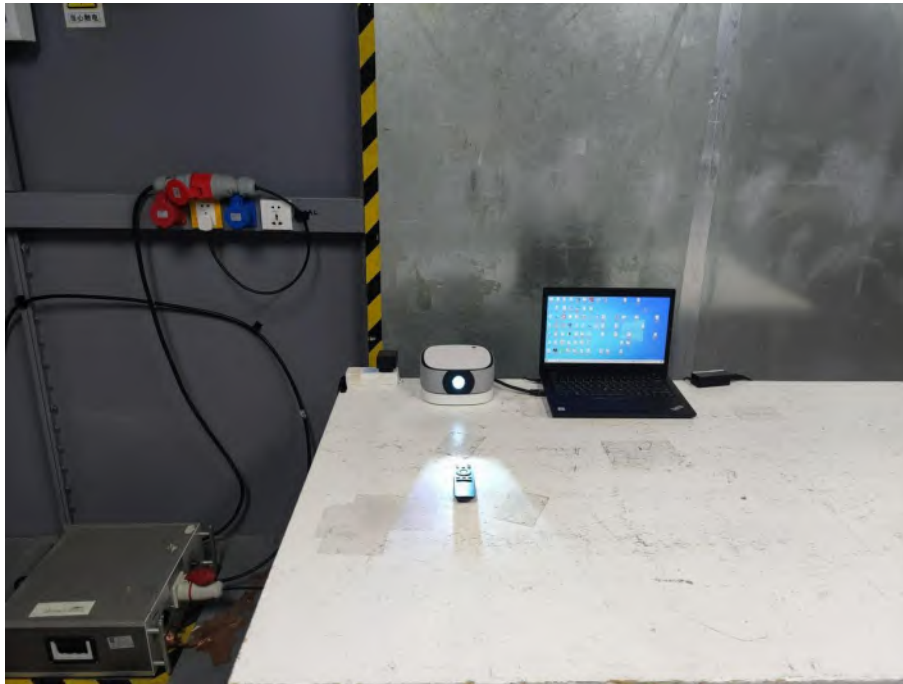
Test Mode: $\pi/4$ DQPSK TX Low									
Freq (MHz)	Read Level (dBuV/m)	Polar (H/V)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4804	47.07	V	33.95	10.18	34.26	56.94	74	-17.06	PK
4804	35.82	V	33.95	10.18	34.26	45.69	54	-8.31	AV
7206	/	/	/	/	/	/	/	/	/
9608	/	/	/	/	/	/	/	/	/
4804	44.46	H	33.95	10.18	34.26	54.33	74	-19.67	PK
4804	36.89	H	33.95	10.18	34.26	46.76	54	-7.24	AV
7206	/	/	/	/	/	/	/	/	/
9608	/	/	/	/	/	/	/	/	/
Test Mode: $\pi/4$ DQPSK TX Mid									
4882	41.29	V	33.93	10.2	34.29	51.13	74	-22.87	PK
4882	37.04	V	33.93	10.2	34.29	46.88	54	-7.12	AV
7323	/	/	/	/	/	/	/	/	/
9764	/	/	/	/	/	/	/	/	/
4882	43.04	H	33.93	10.2	34.29	52.88	74	-21.12	PK
4882	35.56	H	33.93	10.2	34.29	45.40	54	-8.60	AV
7323	/	/	/	/	/	/	/	/	/
9764	/	/	/	/	/	/	/	/	/
Test Mode: $\pi/4$ DQPSK TX High									
4960	43.61	V	33.93	10.2	34.29	53.45	74	-20.55	PK
4960	33.44	V	33.93	10.2	34.29	43.28	54	-10.72	AV
7440	/	/	/	/	/	/	/	/	/
9920	/	/	/	/	/	/	/	/	/
4960	43.46	H	33.93	10.2	34.29	53.30	74	-20.70	PK
4960	32.79	H	33.93	10.2	34.29	42.63	54	-11.37	AV
7440	/	/	/	/	/	/	/	/	/
9920	/	/	/	/	/	/	/	/	/
Note:									
1, Result = Read level + Antenna factor + cable loss-Amp factor									
2, All the other emissions not reported were too low to read and deemed to comply with FCC limit.									

From 1G-25GHz

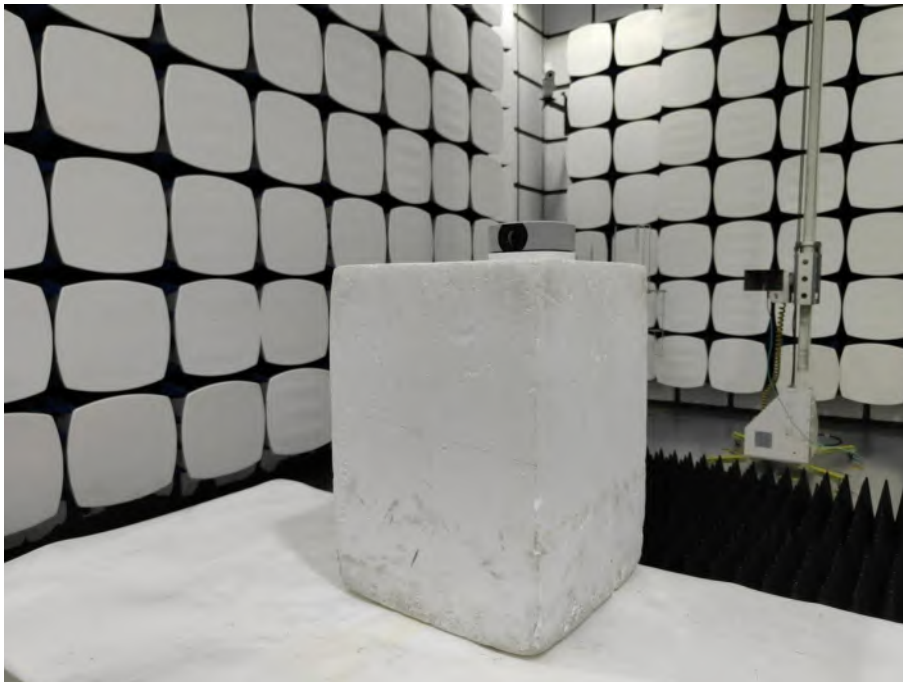
Test Mode: 8- DQPSK TX Low									
Freq (MHz)	Read Level (dBuV/m)	Polar (H/V)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4804	46.36	V	33.95	10.18	34.26	56.23	74	-17.77	PK
4804	37.98	V	33.95	10.18	34.26	47.85	54	-6.15	AV
7206	/	/	/	/	/	/	/	/	/
9608	/	/	/	/	/	/	/	/	/
4804	46.93	H	33.95	10.18	34.26	56.80	74	-17.20	PK
4804	38.11	H	33.95	10.18	34.26	47.98	54	-6.02	AV
7206	/	/	/	/	/	/	/	/	/
9608	/	/	/	/	/	/	/	/	/
Test Mode: 8- DQPSK TX Mid									
4882	41.21	V	33.93	10.2	34.29	51.05	74	-22.95	PK
4882	37.02	V	33.93	10.2	34.29	46.86	54	-7.14	AV
7323	/	/	/	/	/	/	/	/	/
9764	/	/	/	/	/	/	/	/	/
4882	46.61	H	33.93	10.2	34.29	56.45	74	-17.55	PK
4882	32.84	H	33.93	10.2	34.29	42.68	54	-11.32	AV
7323	/	/	/	/	/	/	/	/	/
9764	/	/	/	/	/	/	/	/	/
Test Mode: 8- DQPSK TX High									
4960	43.79	V	33.93	10.2	34.29	53.63	74	-20.37	PK
4960	35.08	V	33.93	10.2	34.29	44.92	54	-9.08	AV
7440	/	/	/	/	/	/	/	/	/
9920	/	/	/	/	/	/	/	/	/
4960	43.23	H	33.93	10.2	34.29	53.07	74	-20.93	PK
4960	31.46	H	33.93	10.2	34.29	41.30	54	-12.70	AV
7440	/	/	/	/	/	/	/	/	/
9920	/	/	/	/	/	/	/	/	/
Note:									
1, Result = Read level + Antenna factor + cable loss-Amp factor									
2, All the other emissions not reported were too low to read and deemed to comply with FCC limit.									

5 Test Setup Photos

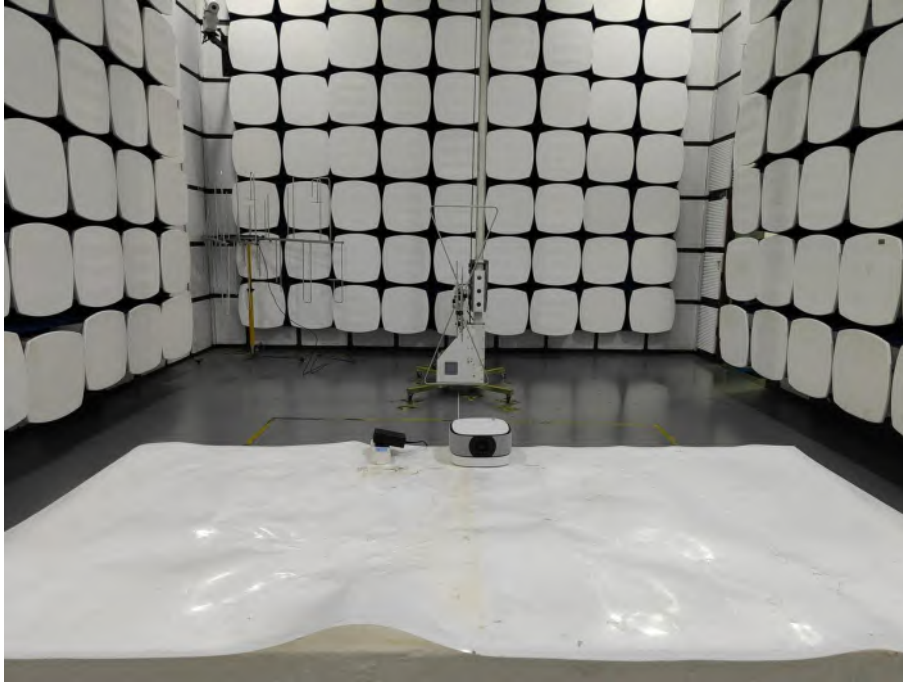
Conducted Emission at AC power line



**Band edge emissions (Radiated)
Emissions in restricted frequency bands (above 1GHz)**



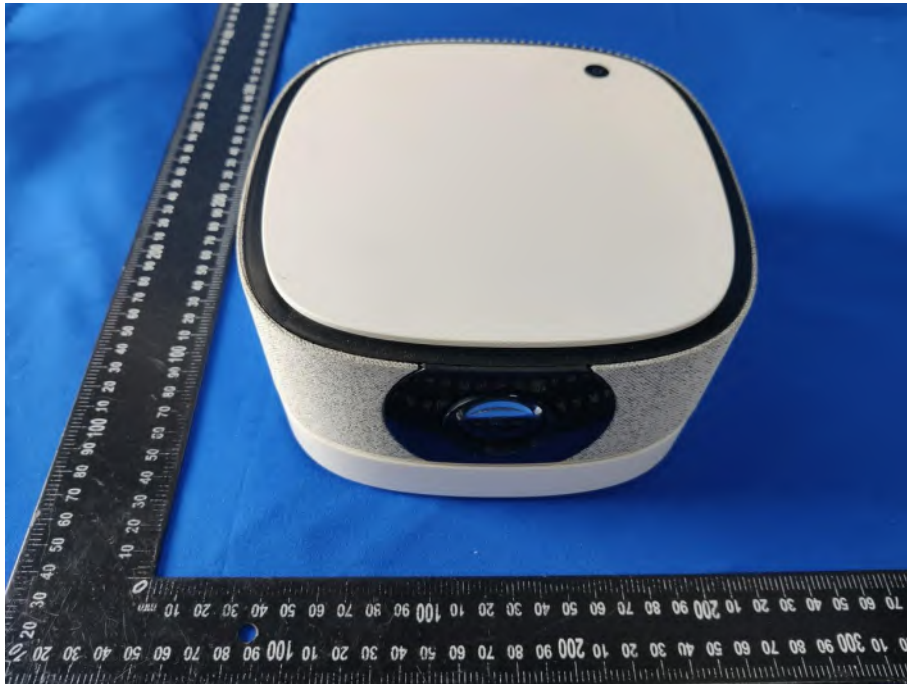
Emissions in restricted frequency bands (below 1GHz)

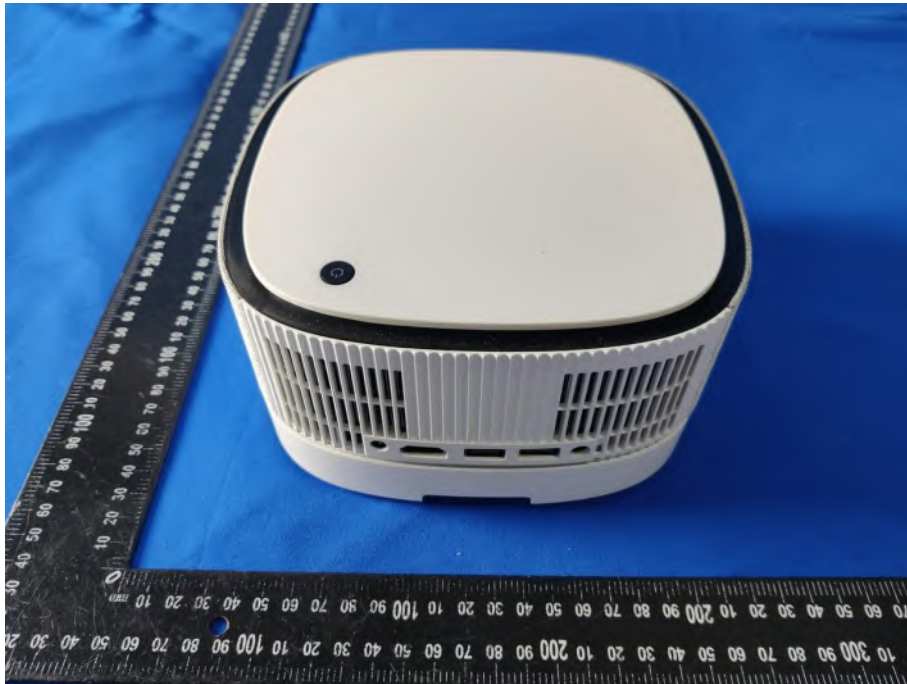
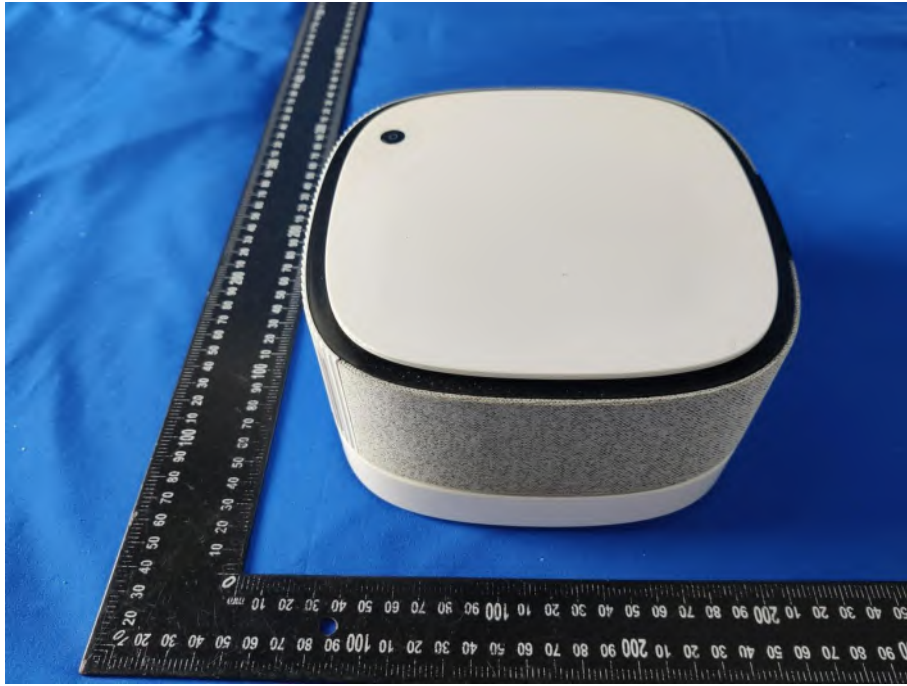


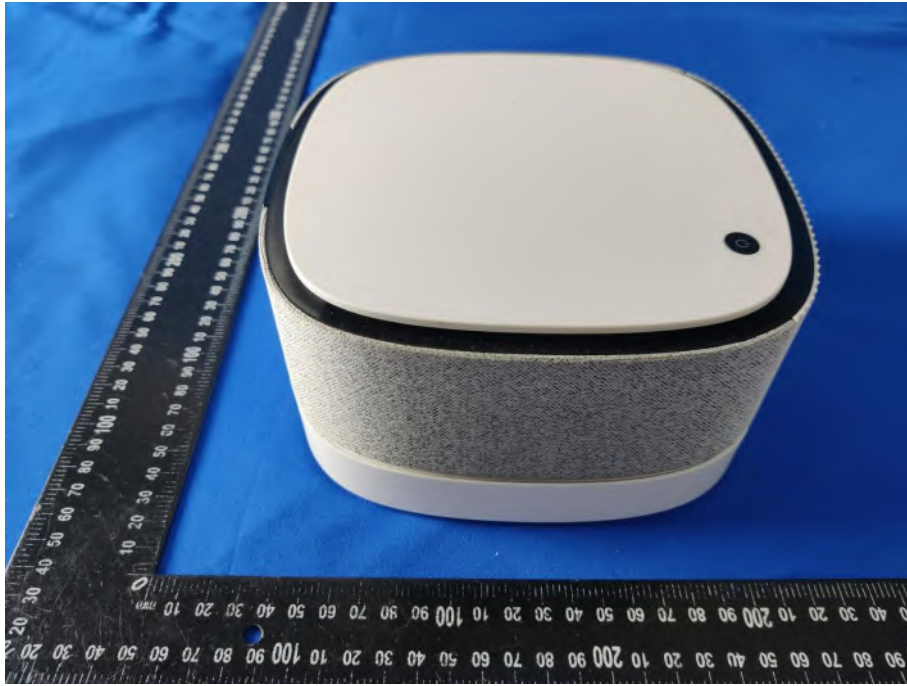
6 EUT Constructional Details (EUT Photos)

External









Internal

