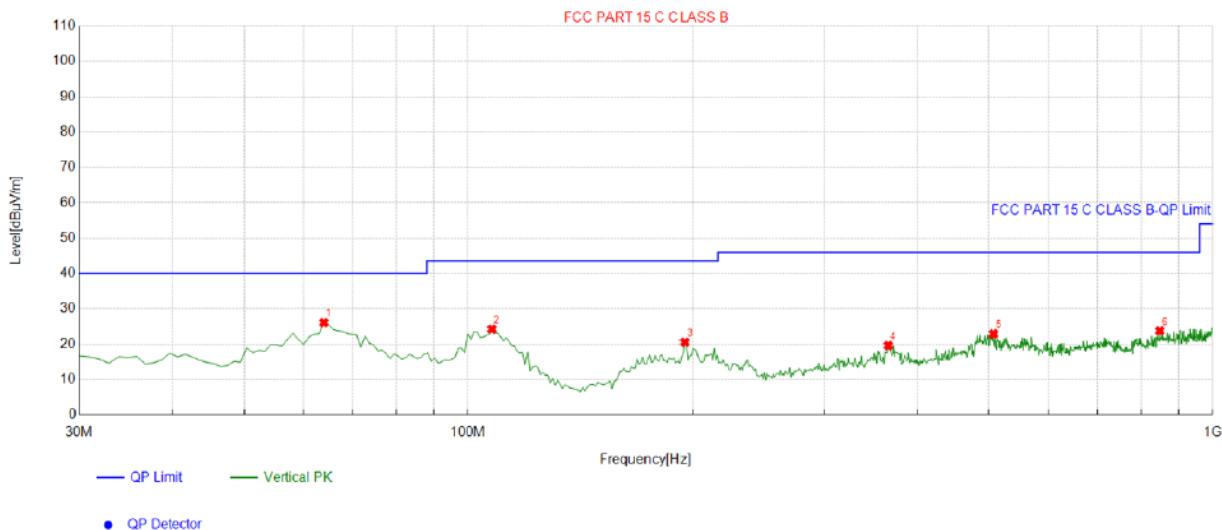


**Vertical****Suspected List**

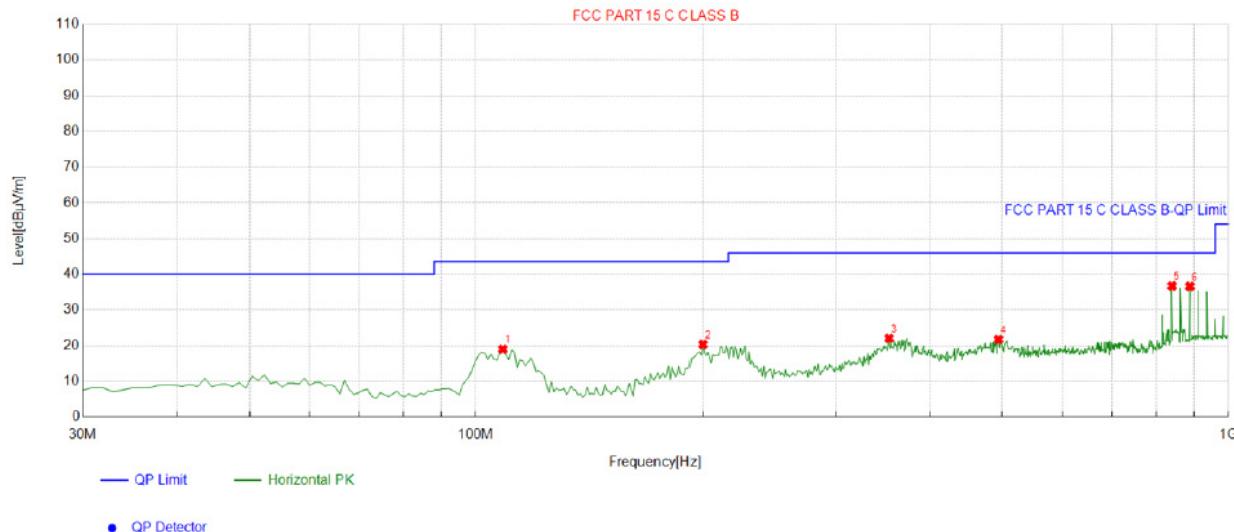
NO.	Freq. [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	63.983984	-14.38	40.50	26.12	40.00	13.88	100	223	Vertical
2	107.67767	-14.18	38.45	24.27	43.50	19.23	100	257	Vertical
3	195.06506	-15.20	35.74	20.54	43.50	22.96	100	359	Vertical
4	365.95595	-9.63	29.22	19.59	46.00	26.41	100	5	Vertical
5	506.74674	-8.26	31.16	22.90	46.00	23.10	100	292	Vertical
6	848.52852	-1.44	25.22	23.78	46.00	22.22	100	309	Vertical

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level



Series Model No.: T3 Ultra

Horizontal



Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	108.64864	-14.02	33.00	18.98	43.50	24.52	100	0	Horizontal
2	199.91992	-15.09	35.41	20.32	43.50	23.18	100	85	Horizontal
3	353.33333	-10.17	32.20	22.03	46.00	23.97	100	90	Horizontal
4	494.12412	-7.84	29.57	21.73	46.00	24.27	100	149	Horizontal
5	840.76076	-2.05	38.74	36.69	46.00	9.31	100	39	Horizontal
6	888.33833	-1.63	38.22	36.59	46.00	9.41	100	296	Horizontal

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.

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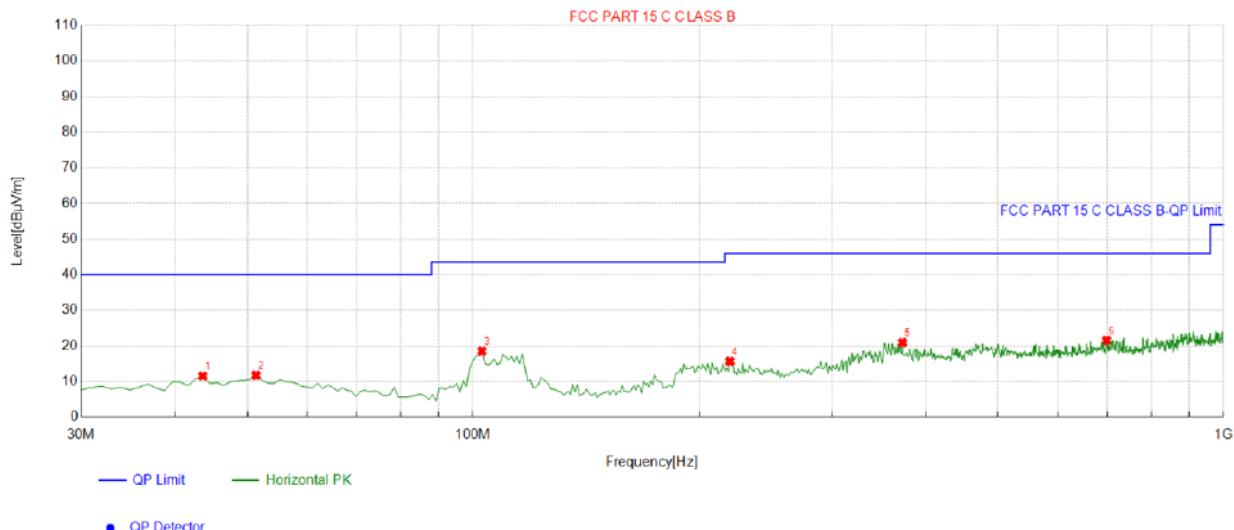
**Vertical**

Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	65.925926	-15.95	40.31	24.36	40.00	15.64	100	154	Vertical
2	102.822282	-14.98	38.98	24.00	43.50	19.50	100	228	Vertical
3	175.64564	-16.78	34.40	17.62	43.50	25.88	100	122	Vertical
4	218.36836	-14.63	37.89	23.26	46.00	22.74	100	219	Vertical
5	361.10110	-9.80	28.31	18.51	46.00	27.49	100	243	Vertical
6	525.19519	-6.94	28.52	21.58	46.00	24.42	100	288	Vertical

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

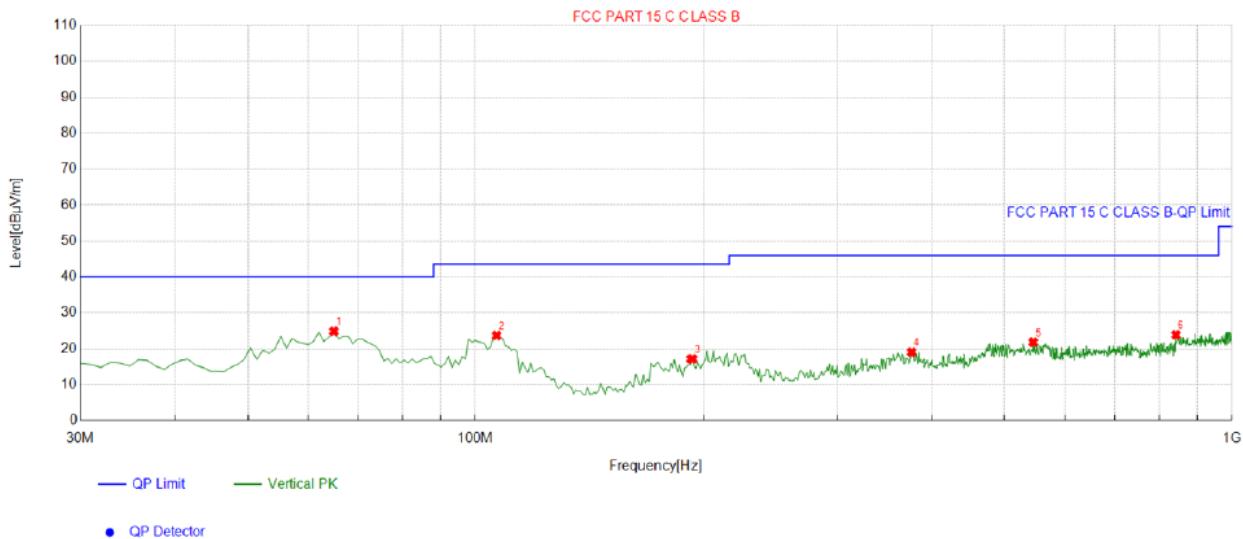


Series Model No.: POP9 mini

Horizontal**Suspected List**

NO.	Freq. [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	43.593594	-13.30	24.83	11.53	40.00	28.47	100	108	Horizontal
2	51.361361	-13.25	25.00	11.75	40.00	28.25	100	180	Horizontal
3	102.82282	-14.98	33.51	18.53	43.50	24.97	100	358	Horizontal
4	219.33933	-14.60	30.27	15.67	46.00	30.33	100	84	Horizontal
5	372.75275	-9.90	30.85	20.95	46.00	25.05	100	71	Horizontal
6	698.02802	-4.33	25.86	21.53	46.00	24.47	100	160	Horizontal

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

**Vertical****Suspected List**

NO.	Freq. [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	64.954955	-15.33	40.19	24.86	40.00	15.14	100	264	Vertical
2	106.70670	-14.49	38.16	23.67	43.50	19.83	100	269	Vertical
3	193.12312	-15.59	32.74	17.15	43.50	26.35	100	160	Vertical
4	376.63663	-9.69	28.73	19.04	46.00	26.96	100	317	Vertical
5	545.58558	-7.29	29.10	21.81	46.00	24.19	100	141	Vertical
6	842.70270	-1.79	25.63	23.84	46.00	22.16	100	97	Vertical

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

Harmonics and Spurious Emissions**Frequency Range (9kHz-30MHz)**

Frequency (MHz)	Level@3m (dBμV/m)	Limit@3m (dBμV/m)
--	--	--
--	--	--
--	--	--
--	--	--

Note: 1. Emission Level=Reading+ Cable loss+ Antenna factor-Amp factor.

2. The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement.

**For 1GHz to 25GHz**

CH Low (2402MHz)

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
4804.00	54.98	-3.65	51.33	74.00	-22.67	peak
4804.00	41.71	-3.65	38.06	54.00	-15.94	AVG
7206.00	50.73	-0.95	49.78	74.00	-24.22	peak
7206.00	41.31	-0.95	40.36	54.00	-13.64	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level - Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
4804.00	51.49	-3.65	47.84	74.00	-26.16	peak
4804.00	42.64	-3.65	38.99	54.00	-15.01	AVG
7206.00	51.50	-0.95	50.55	74.00	-23.45	peak
7206.00	40.64	-0.95	39.69	54.00	-14.31	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level - Limit.



CH Middle (2441MHz)

Horizontal:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4882.00	52.99	-3.54	49.45	74.00	-24.55	peak
4882.00	44.20	-3.54	40.66	54.00	-13.34	AVG
7323.00	51.27	-0.81	50.46	74.00	-23.54	peak
7323.00	42.46	-0.81	41.65	54.00	-12.35	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Level - Limit.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4882.00	51.32	-3.54	47.78	74.00	-26.22	peak
4882.00	44.20	-3.54	40.66	54.00	-13.34	AVG
7323.00	51.30	-0.81	50.49	74.00	-23.51	peak
7323.00	40.21	-0.81	39.40	54.00	-14.60	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Level - Limit.



CH High (2480MHz)

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
4960.00	51.87	-3.43	48.44	74.00	-25.56	peak
4960.00	42.93	-3.44	39.49	54.00	-14.51	AVG
7440.00	50.49	-0.77	49.72	74.00	-24.28	peak
7440.00	39.30	-0.77	38.53	54.00	-15.47	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Level - Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
4960.00	51.76	-3.43	48.33	74.00	-25.67	peak
4960.00	41.62	-3.44	38.18	54.00	-15.82	AVG
7440.00	50.56	-0.77	49.79	74.00	-24.21	peak
7440.00	40.01	-0.77	39.24	54.00	-14.76	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Level - Limit.



Series Model No.: I16 mini
CH High (2480MHz)

Horizontal:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4960.00	52.65	-3.43	49.22	74.00	-24.78	peak
4960.00	41.27	-3.44	37.83	54.00	-16.17	AVG
7440.00	49.47	-0.77	48.70	74.00	-25.30	peak
7440.00	38.57	-0.77	37.80	54.00	-16.20	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Level - Limit.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4960.00	52.63	-3.43	49.20	74.00	-24.80	peak
4960.00	40.23	-3.44	36.79	54.00	-17.21	AVG
7440.00	48.88	-0.77	48.11	74.00	-25.89	peak
7440.00	40.19	-0.77	39.42	54.00	-14.58	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Level - Limit.



Series Model No.: H50 mini
CH High (2480MHz)

Horizontal:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4960.00	51.10	-3.43	47.67	74.00	-26.33	peak
4960.00	42.15	-3.44	38.71	54.00	-15.29	AVG
7440.00	50.91	-0.77	50.14	74.00	-23.86	peak
7440.00	39.53	-0.77	38.76	54.00	-15.24	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Level - Limit.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4960.00	52.64	-3.43	49.21	74.00	-24.79	peak
4960.00	42.28	-3.44	38.84	54.00	-15.16	AVG
7440.00	50.79	-0.77	50.02	74.00	-23.98	peak
7440.00	39.79	-0.77	39.02	54.00	-14.98	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Level - Limit.



Series Model No.: P70 Ultra
CH High (2480MHz)

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
4960.00	52.59	-3.43	49.16	74.00	-24.84	peak
4960.00	43.57	-3.44	40.13	54.00	-13.87	AVG
7440.00	49.52	-0.77	48.75	74.00	-25.25	peak
7440.00	38.20	-0.77	37.43	54.00	-16.57	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Level - Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
4960.00	51.11	-3.43	47.68	74.00	-26.32	peak
4960.00	41.96	-3.44	38.52	54.00	-15.48	AVG
7440.00	50.36	-0.77	49.59	74.00	-24.41	peak
7440.00	40.38	-0.77	39.61	54.00	-14.39	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Level - Limit.



Series Model No.: Reno 12 mini
CH High (2480MHz)

Horizontal:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4960.00	53.49	-3.43	50.06	74.00	-23.94	peak
4960.00	41.88	-3.44	38.44	54.00	-15.56	AVG
7440.00	50.76	-0.77	49.99	74.00	-24.01	peak
7440.00	39.21	-0.77	38.44	54.00	-15.56	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Level - Limit.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4960.00	51.58	-3.43	48.15	74.00	-25.85	peak
4960.00	42.22	-3.44	38.78	54.00	-15.22	AVG
7440.00	50.83	-0.77	50.06	74.00	-23.94	peak
7440.00	40.41	-0.77	39.64	54.00	-14.36	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Level - Limit.



Series Model No.: T3 Ultra
CH High (2480MHz)

Horizontal:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4960.00	51.66	-3.43	48.23	74.00	-25.77	peak
4960.00	41.67	-3.44	38.23	54.00	-15.77	AVG
7440.00	49.88	-0.77	49.11	74.00	-24.89	peak
7440.00	40.12	-0.77	39.35	54.00	-14.65	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Level - Limit.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4960.00	51.46	-3.43	48.03	74.00	-25.97	peak
4960.00	40.72	-3.44	37.28	54.00	-16.72	AVG
7440.00	50.44	-0.77	49.67	74.00	-24.33	peak
7440.00	39.14	-0.77	38.37	54.00	-15.63	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Level - Limit.



Series Model No.: POP9 mini
CH High (2480MHz)

Horizontal:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4960.00	53.18	-3.43	49.75	74.00	-24.25	peak
4960.00	42.28	-3.44	38.84	54.00	-15.16	AVG
7440.00	49.87	-0.77	49.10	74.00	-24.90	peak
7440.00	39.87	-0.77	39.10	54.00	-14.90	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Level - Limit.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4960.00	52.54	-3.43	49.11	74.00	-24.89	peak
4960.00	42.48	-3.44	39.04	54.00	-14.96	AVG
7440.00	50.97	-0.77	50.20	74.00	-23.80	peak
7440.00	40.67	-0.77	39.90	54.00	-14.10	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Level - Limit.

Remark :

- (1) Measuring frequencies from 1 GHz to the 25 GHz.
- (2) "F" denotes fundamental frequency; "H" denotes spurious frequency; "E" denotes band edge frequency.
- (3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (4) The emissions are attenuated more than 20dB below the permissible limits are not recorded in the report.
- (5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
- (6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dB μ V/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dB μ V/m(PK Value) <54 dB μ V/m(AV Limit), the Average Detected not need to completed.
- (7) All modes of operation were investigated and the worst-case emissions are reported.



Radiated Band Edge Test:

Hopping

Horizontal (Worst case)

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2310.00	55.35	-5.81	49.54	74	-24.46	peak
2310.00	/	-5.81	/	54	/	AVG
2390.00	53.82	-5.84	47.98	74	-26.02	peak
2390.00	/	-5.84	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2310.00	55.03	-5.81	49.22	74	-24.78	peak
2310.00	/	-5.81	/	54	/	AVG
2390.00	51.77	-5.84	45.93	74	-28.07	peak
2390.00	/	-5.84	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.



Horizontal (Worst case)

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2483.50	53.53	-5.81	47.72	74	-26.28	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	52.72	-6.06	46.66	74	-27.34	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2483.50	53.93	-5.81	48.12	74	-25.88	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	53.72	-6.06	47.66	74	-26.34	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.



NO hopping

Operation Mode: TX CH Low (2402MHz)

Horizontal (Worst case)

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2310.00	53.98	-5.81	48.17	74	-25.83	peak
2310.00	/	-5.81	/	54	/	AVG
2390.00	53.45	-5.84	47.61	74	-26.39	peak
2390.00	/	-5.84	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2310.00	53.04	-5.81	47.23	74	-26.77	peak
2310.00	/	-5.81	/	54	/	AVG
2390.00	51.49	-5.84	45.65	74	-28.35	peak
2390.00	/	-5.84	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.



Operation Mode: TX CH High (2480MHz)

Horizontal (Worst case)

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2483.50	53.72	-5.81	47.91	74	-26.09	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	53.4	-6.06	47.34	74	-26.66	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2483.50	52.87	-5.81	47.06	74	-26.94	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	51.9	-6.06	45.84	74	-28.16	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.



All modes of operation were investigated and the worst-case emissions are reported.

Series Model No.: I16 mini

Hopping

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2483.50	55.36	-5.81	49.55	74	-24.45	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	54.06	-6.06	48	74	-26	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2483.50	53.12	-5.81	47.31	74	-26.69	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	51.08	-6.06	45.02	74	-28.98	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.



NO hopping
Operation Mode: TX CH High (2480MHz)

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2483.50	52.76	-5.81	46.95	74	-27.05	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	52.88	-6.06	46.82	74	-27.18	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2483.50	52.88	-5.81	47.07	74	-26.93	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	54.59	-6.06	48.53	74	-25.47	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.



Series Model No.: H50 mini
Hopping
Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2483.50	54.51	-5.81	48.7	74	-25.3	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	52.35	-6.06	46.29	74	-27.71	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2483.50	52.83	-5.81	47.02	74	-26.98	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	51.65	-6.06	45.59	74	-28.41	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.



NO hopping
Operation Mode: TX CH High (2480MHz)

Horizontal

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2483.50	52.83	-5.81	47.02	74	-26.98	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	53.55	-6.06	47.49	74	-26.51	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2483.50	52.8	-5.81	46.99	74	-27.01	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	51.61	-6.06	45.55	74	-28.45	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.



Series Model No.: P70 Ultra
Hopping
Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2483.50	54.71	-5.81	48.9	74	-25.1	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	51.85	-6.06	45.79	74	-28.21	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2483.50	54.93	-5.81	49.12	74	-24.88	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	51.07	-6.06	45.01	74	-28.99	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.



NO hopping
Operation Mode: TX CH High (2480MHz)

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2483.50	54.87	-5.81	49.06	74	-24.94	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	50.85	-6.06	44.79	74	-29.21	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2483.50	54.05	-5.81	48.24	74	-25.76	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	50.32	-6.06	44.26	74	-29.74	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.



Series Model No.: Reno 12 mini
Hopping
Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2483.50	52.99	-5.81	47.18	74	-26.82	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	51.4	-6.06	45.34	74	-28.66	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2483.50	53.77	-5.81	47.96	74	-26.04	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	50.69	-6.06	44.63	74	-29.37	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.



NO hopping
Operation Mode: TX CH High (2480MHz)

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2483.50	54.3	-5.81	48.49	74	-25.51	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	52.21	-6.06	46.15	74	-27.85	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2483.50	55.04	-5.81	49.23	74	-24.77	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	53.61	-6.06	47.55	74	-26.45	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.



Series Model No.: T3 Ultra
Hopping
Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2483.50	54.82	-5.81	49.01	74	-24.99	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	51.59	-6.06	45.53	74	-28.47	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2483.50	52.33	-5.81	46.52	74	-27.48	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	51.86	-6.06	45.8	74	-28.2	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.



NO hopping
Operation Mode: TX CH High (2480MHz)

Horizontal

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2483.50	54.61	-5.81	48.8	74	-25.2	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	50.45	-6.06	44.39	74	-29.61	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2483.50	55.51	-5.81	49.7	74	-24.3	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	53.17	-6.06	47.11	74	-26.89	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.



Series Model No.: POP9 mini
Hopping
Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2483.50	55.45	-5.81	49.64	74	-24.36	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	52.01	-6.06	45.95	74	-28.05	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2483.50	53.73	-5.81	47.92	74	-26.08	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	51.61	-6.06	45.55	74	-28.45	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.



NO hopping
Operation Mode: TX CH High (2480MHz)

Horizontal

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2483.50	54.74	-5.81	48.93	74	-25.07	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	52.32	-6.06	46.26	74	-27.74	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2483.50	52.77	-5.81	46.96	74	-27.04	peak
2483.50	/	-5.81	/	54	/	AVG
2500.00	52.11	-6.06	46.05	74	-27.95	peak
2500.00	/	-6.06	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.

Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.

Remark:

1. If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.
2. In restricted bands of operation, the spurious emissions below the permissible value more than 20dB.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



3.3. Maximum Peak Conducted Output Power

Limit

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB 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. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

Test Procedure

Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the RF automatic control unit.

Test Configuration



Test Results

Type	Channel	Maximum Peak Conducted Output Power (dBm)	Limit (dBm)	Result
GFSK	00	2.19	21.00	Pass
	39	2.88		
	78	3.43		
π/4DQPSK	00	1.95	21.00	Pass
	39	2.70		
	78	3.21		
8DPSK	00	2.09	21.00	Pass
	39	2.91		
	78	3.40		

Note: 1. The test results including the cable loss.



3.4. 20db Bandwidth

Limit

For frequency hopping systems operating in the 2400MHz-2483.5MHz no limit for 20dB bandwidth.

Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 30 KHz RBW and 100 KHz VBW.

The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. The following procedure shall be used for measuring 99% power bandwidth:

RBW=1% to 5% of the OBW

VBW=approximately 3 X RBW

Detector=Peak

Trace Mode: Max Hold

Use the 99% power bandwidth function of the instrument to measure the Occupied Bandwidth and recoded.

Test Configuration



Test Results

Modulation	Channel	20dB bandwidth (MHz)	Result
GFSK	CH00	0.993	Pass
	CH39	1.032	
	CH78	0.978	
$\pi/4$ DQPSK	CH00	1.356	Pass
	CH39	1.287	
	CH78	1.311	
8DPSK	CH00	1.311	Pass
	CH39	1.296	
	CH78	1.296	

Test plot as follows:



20dB bandwidth

GFSK Modulation



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*π/4DQPSK Modulation*

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8DPSK Modulation



CH00



CH39



CH78

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3.5. Frequency Separation

LIMIT

Frequency hopping systems shall have hopping channel carrier frequencies separated by minimum of 25 KHz or the 2/3*20dB bandwidth of the hopping channel, whichever is greater.

TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 300 KHz RBW and 1000 KHz VBW.

TEST CONFIGURATION



TEST RESULTS

Modulation	Channel	Channel Separation (MHz)	Limit(MHz)	Result
GFSK	Middle Channel	0.996	0.688	Pass
$\pi/4$ DQPSK	Middle Channel	1.002	0.904	Pass
8DPSK	Middle Channel	1.006	0.874	Pass

Note: We have tested all mode at high, middle and low channel, and recorded worst case at middle.

Test plot as follows:



Frequency Separation



GFSK



π/4DQPSK



8DPSK

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3.6. Number of Hopping Frequency

Limit

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

Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. Set spectrum analyzer start 2400MHz to 2483.5MHz.

Test Configuration



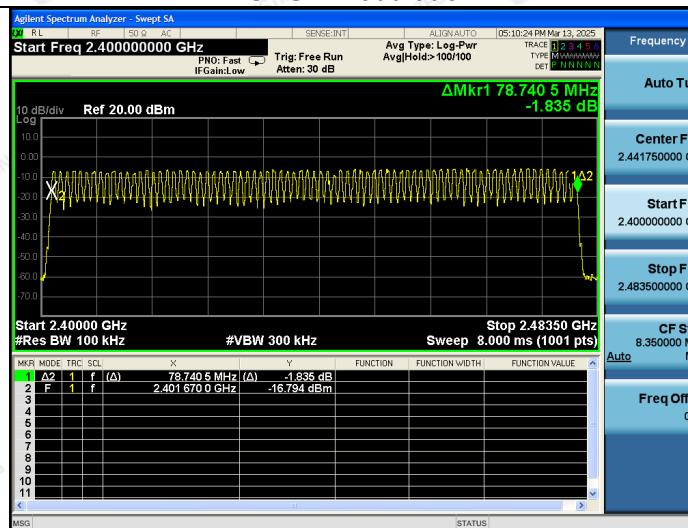
Test Results

Modulation	Number of Hopping Channel	Limit	Result
GFSK	79	≥ 15	Pass
$\pi/4$ DQPSK	79		
8DPSK	79		

Test plot as follows:



GFSK Modulation



Frequency

Auto Tune

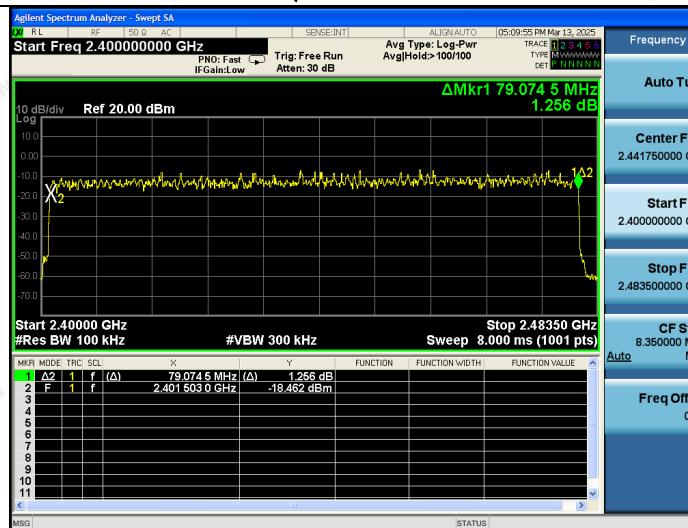
Center Freq

Start Freq

Stop Freq

CF Step

Freq Offset

 $\pi/4$ DQPSK Modulation

Frequency

Auto Tune

Center Freq

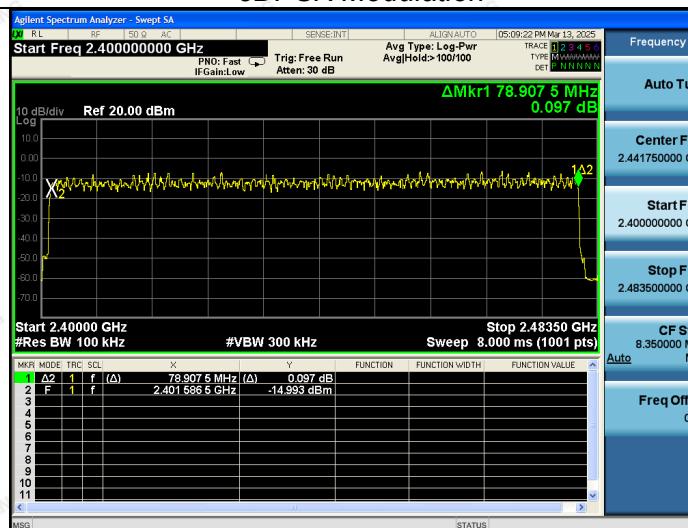
Start Freq

Stop Freq

CF Step

Freq Offset

8DPSK Modulation



Frequency

Auto Tune

Center Freq

Start Freq

Stop Freq

CF Step

Freq Offset

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3.7. Time of Occupancy (Dwell Time)

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.

Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. Set center frequency of spectrum analyzer=operating frequency with 1MHz RBW and 3MHz VBW, Span 0Hz.

Test Configuration



Test Results

Modulation	Packet	Pulse time (ms)	Dwell time (second)	Limit (second)	Result
GFSK	DH1	0.376	0.120	0.40	PASS
	DH3	1.633	0.261		
	DH5	2.880	0.307		
$\pi/4$ DQPSK	2-DH1	0.384	0.123	0.40	PASS
	2-DH3	1.631	0.261		
	2-DH5	2.884	0.308		
8DPSK	3-DH1	0.384	0.123	0.40	PASS
	3-DH3	1.633	0.261		
	3-DH5	2.885	0.308		

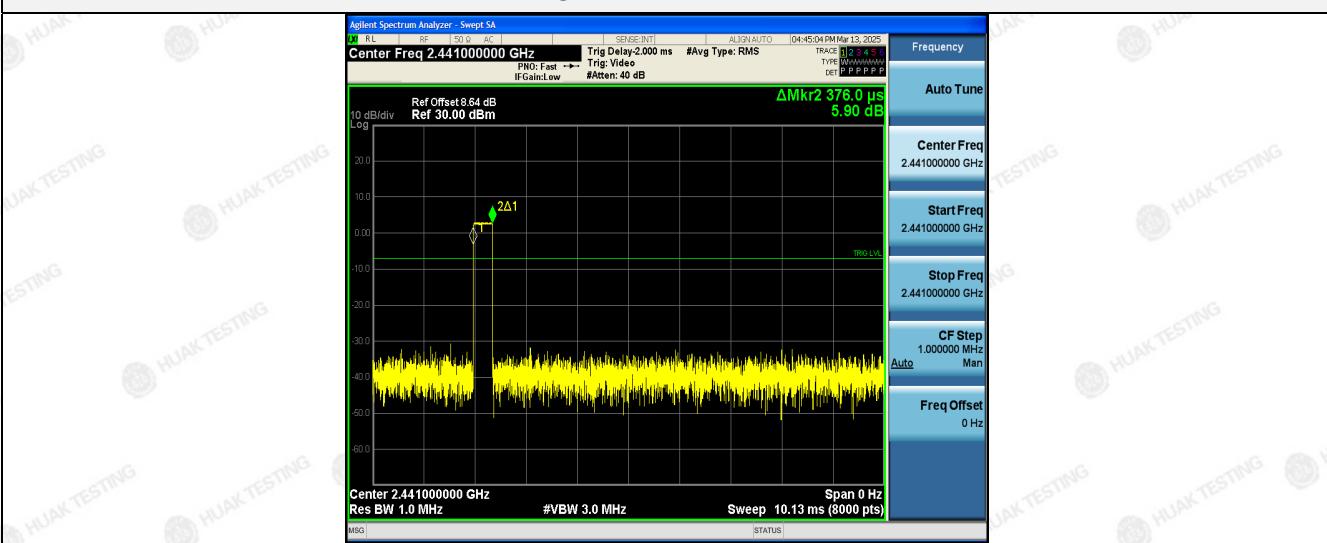
Note:

1. We have tested all mode at high, middle and low channel, and recorded worst case at middle channel.
2. Dwell time=Pulse time (ms) \times (1600 \div 2 \div 79) \times 31.6 Second for DH1, 2-DH1, 3-DH1
Dwell time=Pulse time (ms) \times (1600 \div 4 \div 79) \times 31.6 Second for DH3, 2-DH3, 3-DH3
Dwell time=Pulse time (ms) \times (1600 \div 6 \div 79) \times 31.6 Second for DH5, 2-DH5, 3-DH5

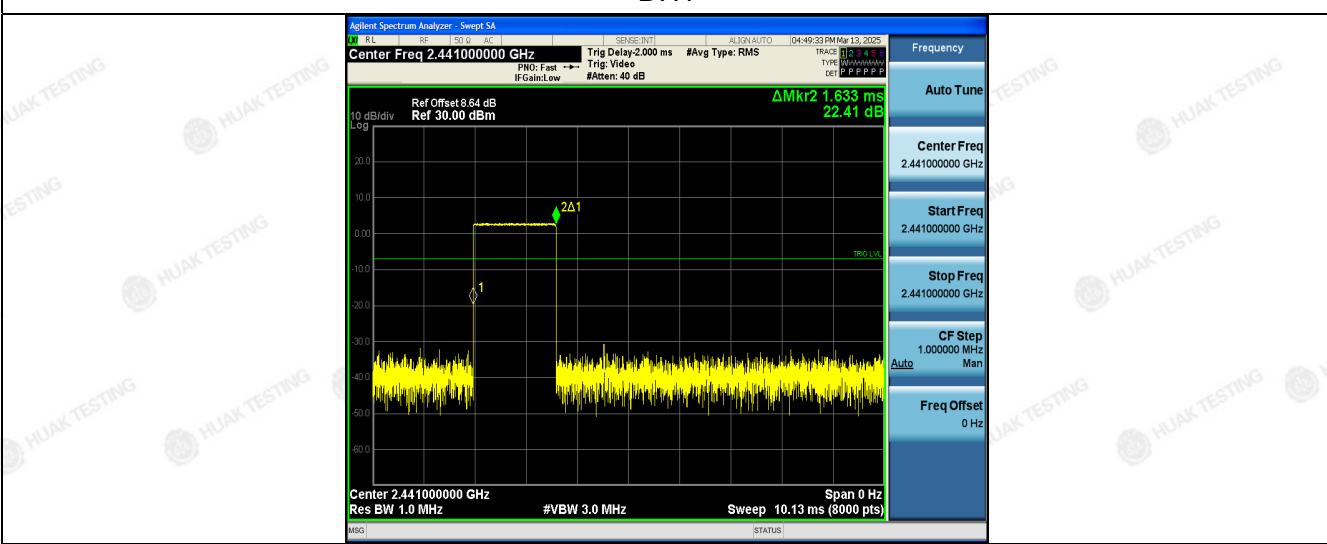
Test plot as follows:



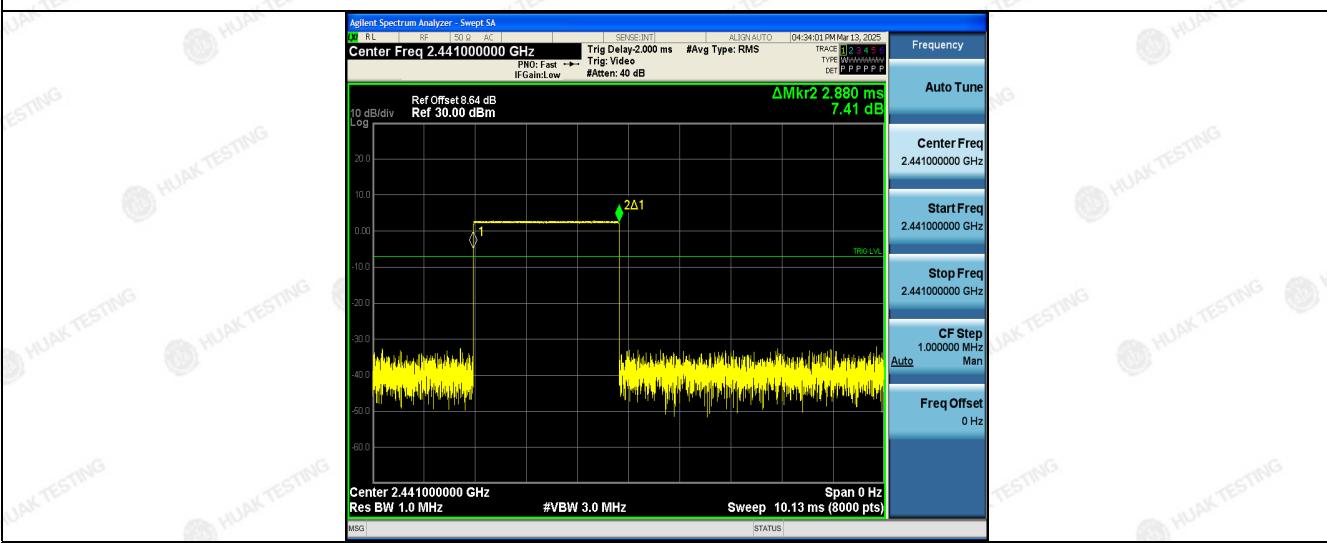
GFSK Modulation



DH1



DH3

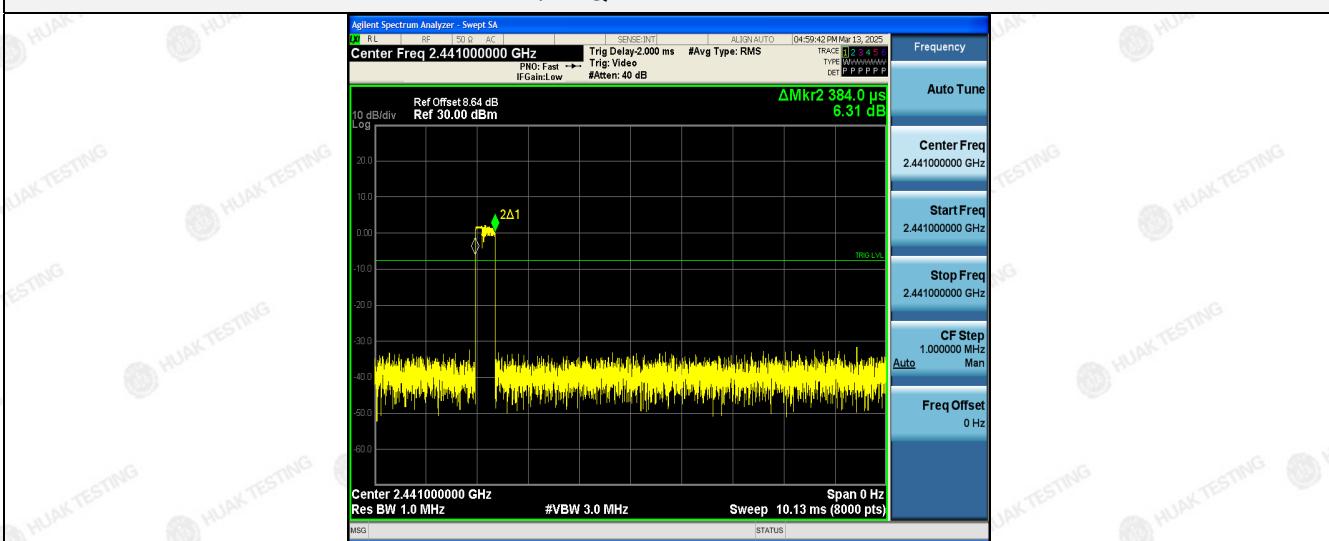
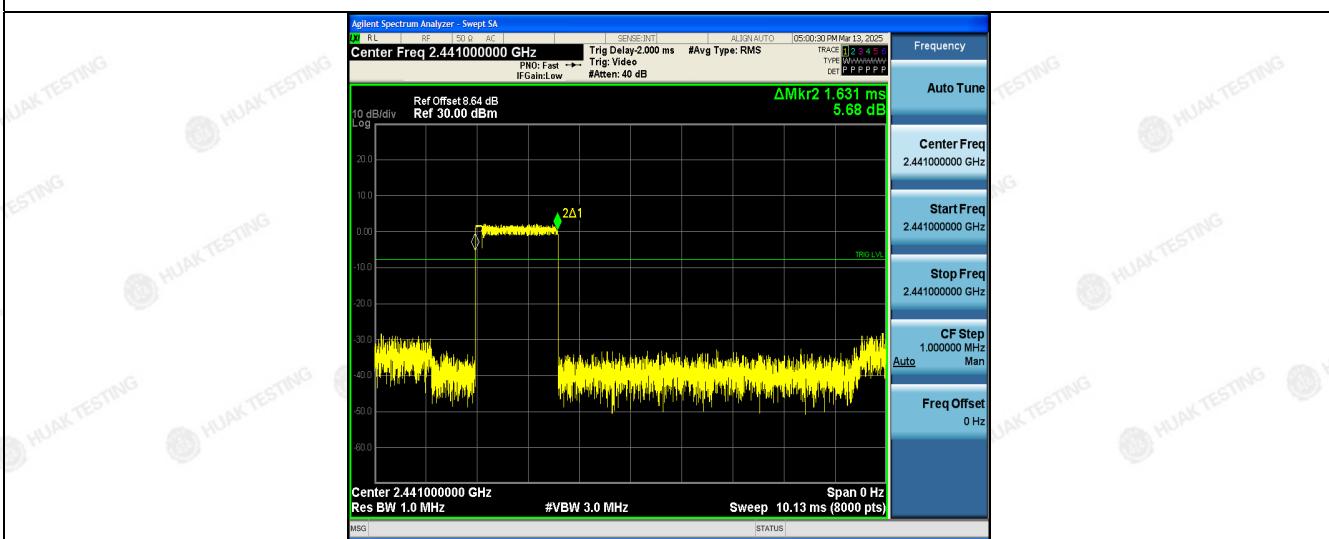


DH5

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Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

 **$\pi/4$ DQPSK Modulation****2-DH1****2-DH3****2-DH5**

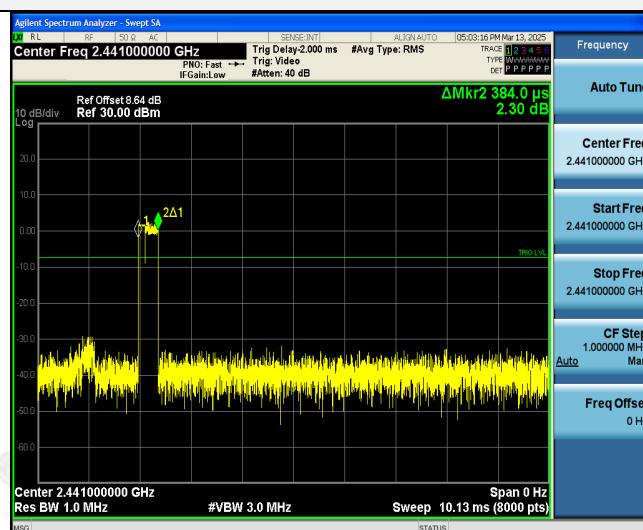
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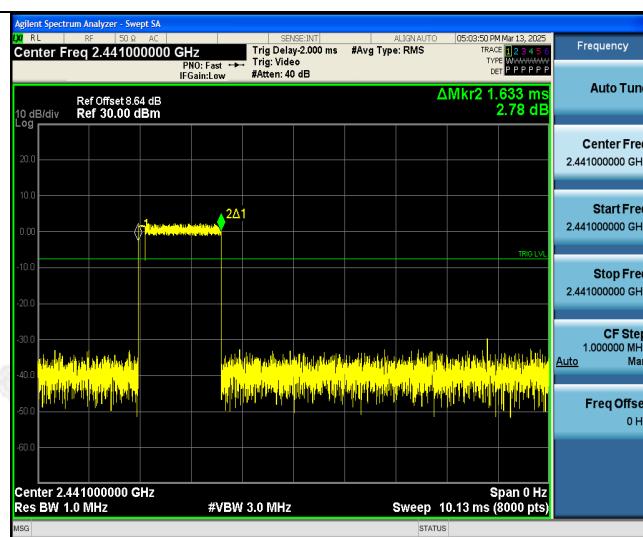
Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China



8DPSK Modulation



3-DH1



3-DH3



3-DH5

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3.8. Out-of-Band Emissions

Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section 5.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

Test Procedure

Connect the transmitter output to spectrum analyzer using a low loss RF cable, and set the spectrum analyzer to RBW=100 kHz, VBW= 300 kHz, peak detector , and max hold. Measurements utilizing these setting are made of the in-band reference level, band edge and out-of-band emissions.

Test Configuration



Test Results

Remark: The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions and bandage measurement data.

We measured all conditions (DH1, DH3, DH5) and recorded worst case at DH5, 2DH5 and 3DH5.

Test plot as follows:

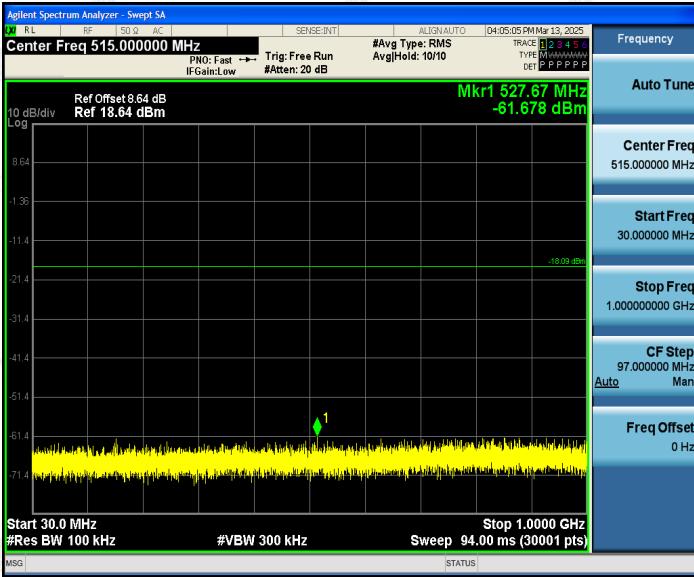
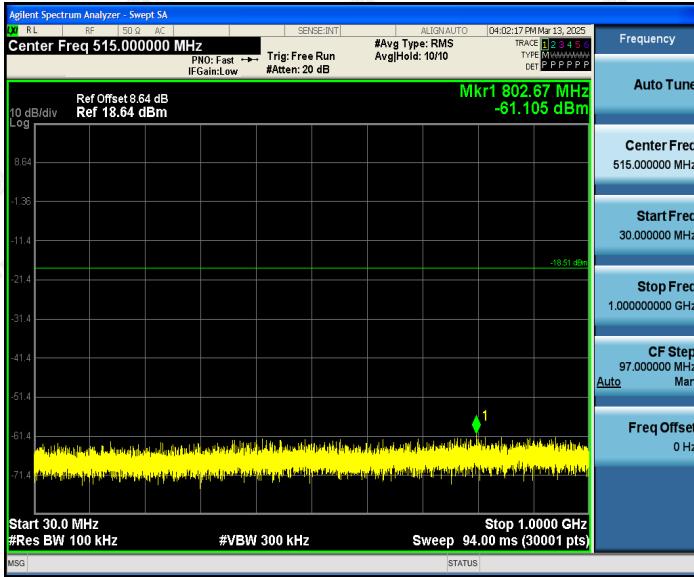


GFSK

CH00



CH39



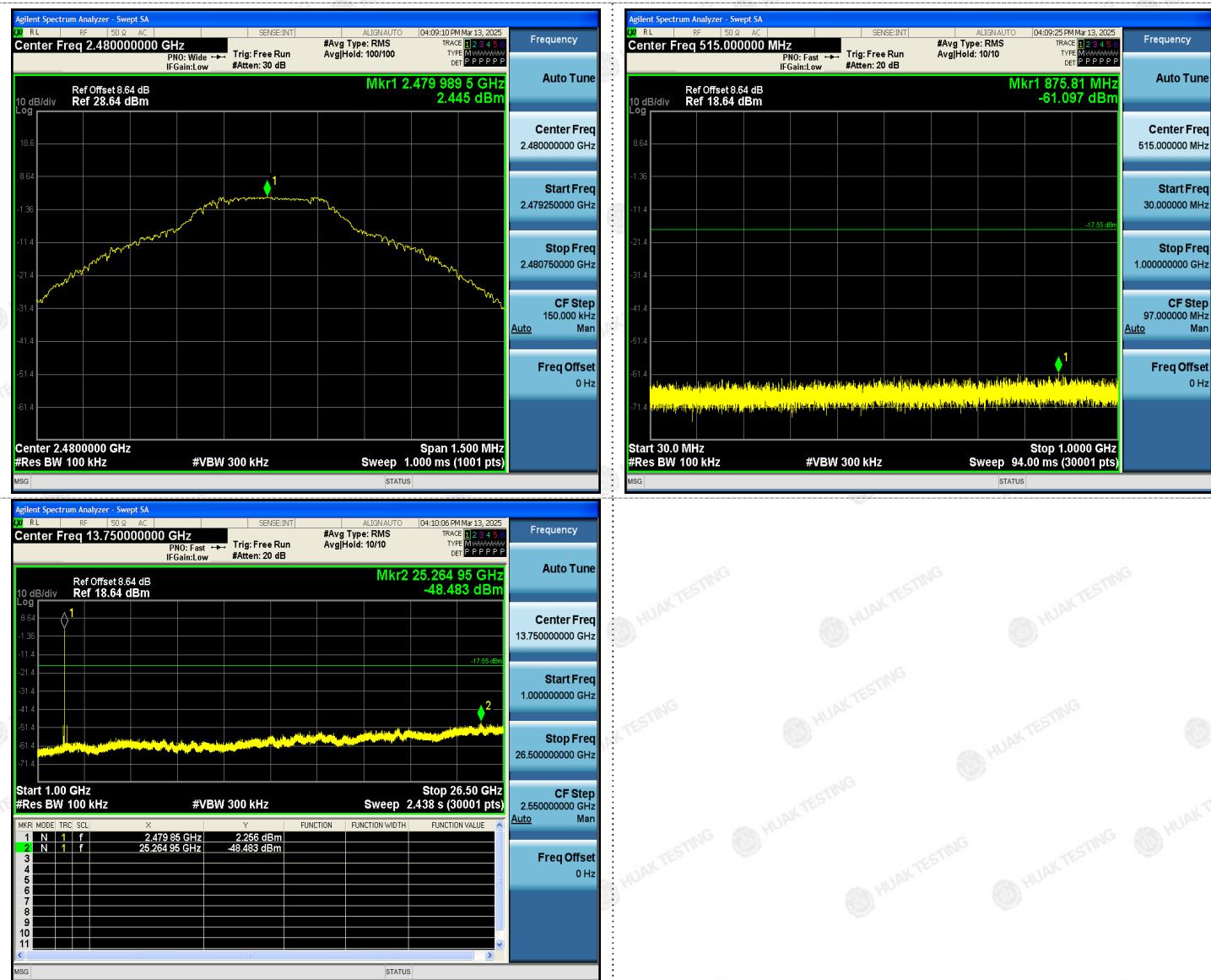
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>

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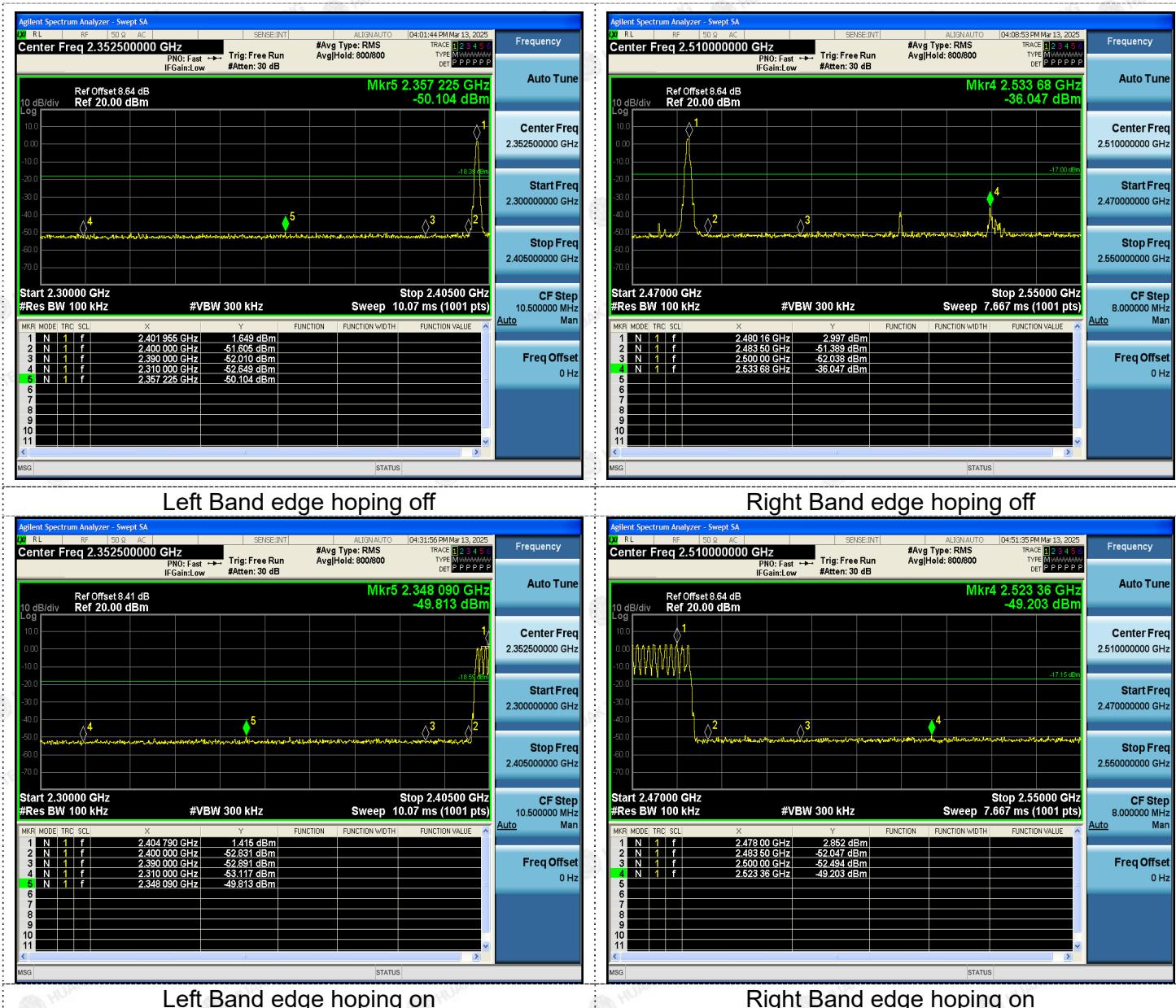
CH78



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π/4DQPSK

CH00



CH39



Agilent Spectrum Analyzer - Sweep SA

Center Freq 515.000000 MHz

Ref Offset 8.64 dB
Ref 18.64 dBm

10 dB/div Log

Start 30.00 MHz #Res BW 100 kHz

Stop 1.0000 GHz #VBW 300 kHz

Sweep 94.00 ms (30001 pts)

MSG STATUS

Frequency

Auto Tun

Center Freq
515.000000 MHz

Start Freq
30.000000 MHz

Stop Freq
1.00000000 GHz

CF Step
97.90000000 MHz

Auto

Freq Offset
0 Hz

Agilent Spectrum Analyzer - Swept SA

Center Freq 13.750000000 GHz

PW: Fast Trig: Free Run

IFGain:Low #Atten: 20 dB

#Avg Type: RMS

Avg/Hold: 10/10

TRACE 1 2 3 4 5

TYPE M M M M M

DET P P P P P

Frequency

Auto Tun

Ref Offset 8.64 dB

Ref 18.64 dBm

Mkr2 25.750 30 GHz -48.348 dBm

10 dB/div Log

8.64

-1.36

-11.4

-21.4

-31.4

-41.4

-51.4

-61.4

-71.4

Start 1.00 GHz Stop 26.50 GHz

#Res BW 100 kHz #VBW 300 kHz Sweep 2.438 s (3001 pts)

MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE

1 N 1 f 2.40165 GHz -3.038 dBm

2 N 1 f 25.750 30 GHz -48.348 dBm

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MSG STATUS

Agilent Spectrum Analyzer - Swept SA

Center Freq 13.750000000 GHz

Ref Offset 8.64 dB
Ref 18.64 dBm

Mkr2 25.802 15 GHz
-48.582 dBm

10 dB/div

Log

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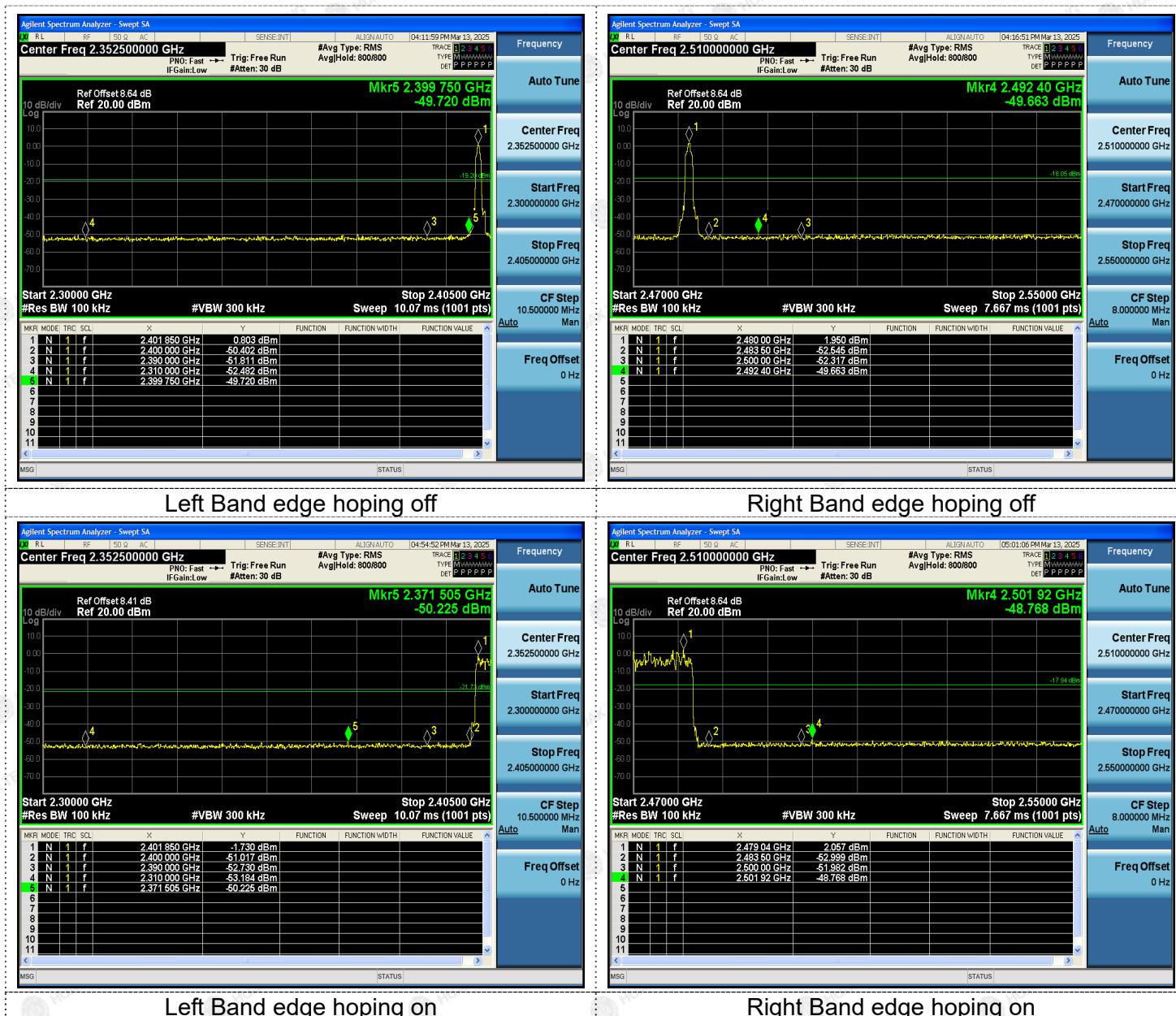
Add: 1-2F, Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China



CH78



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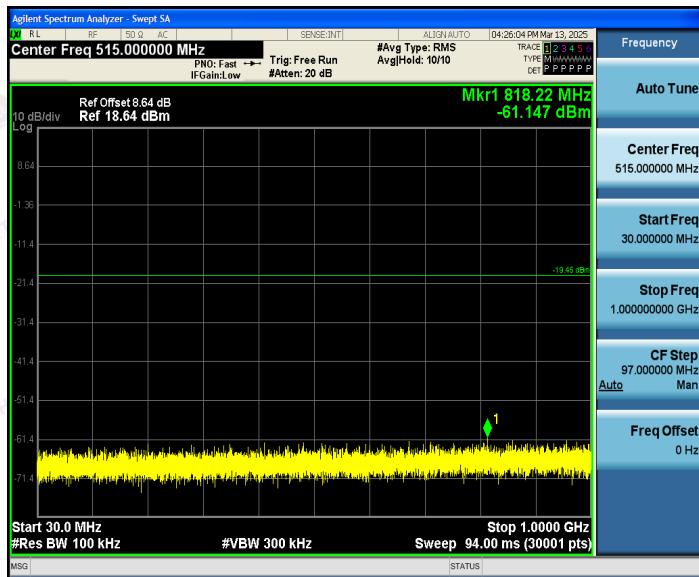
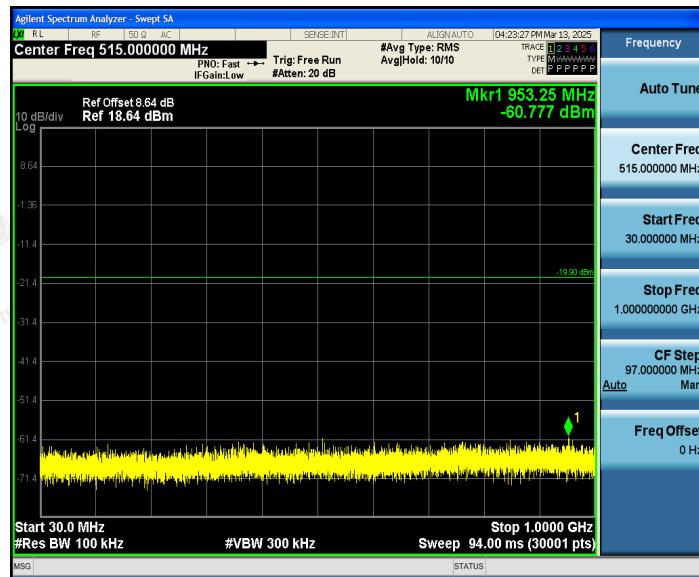


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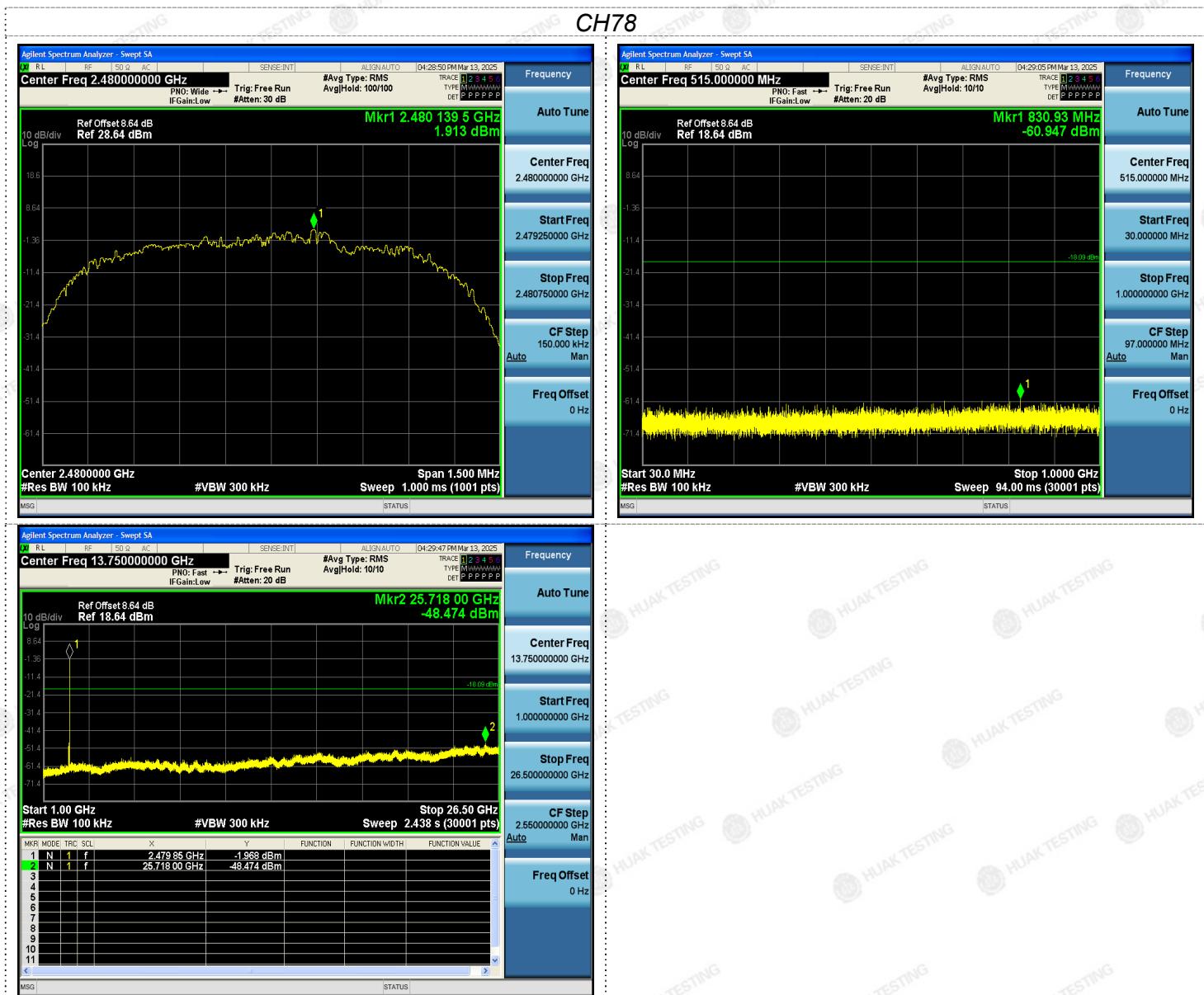
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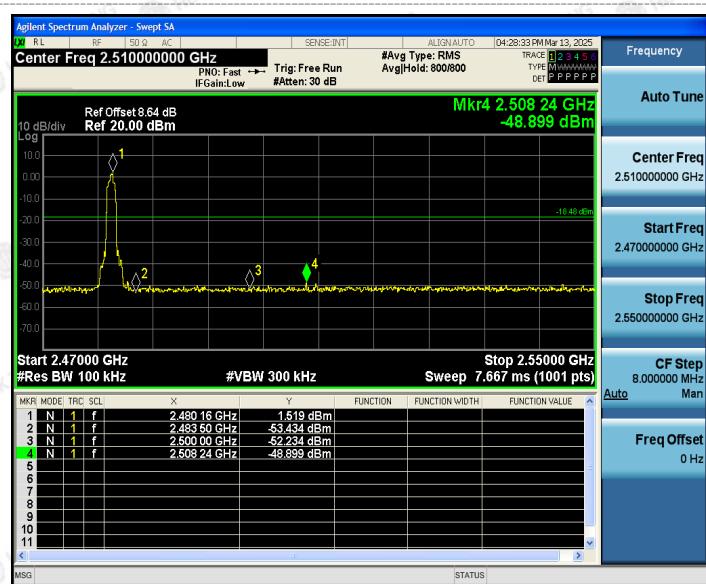
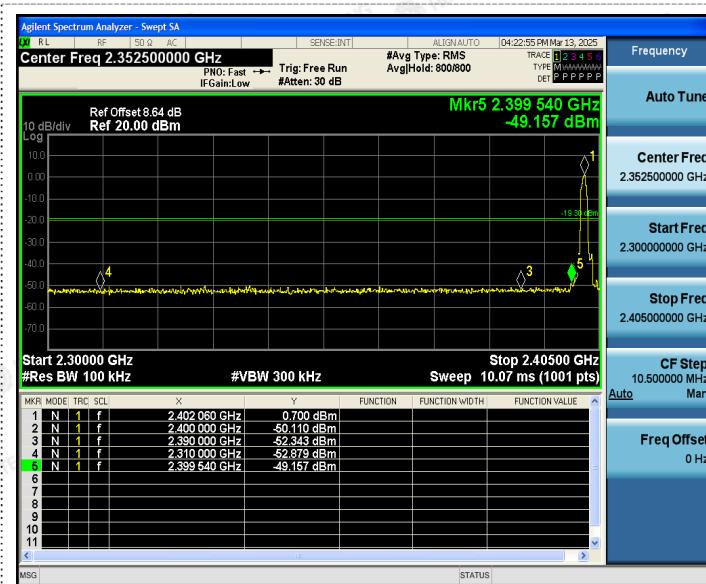
CH78



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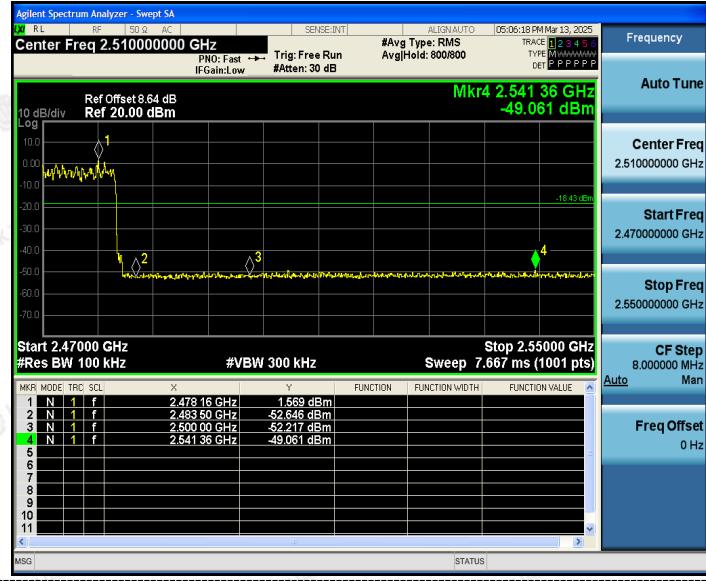
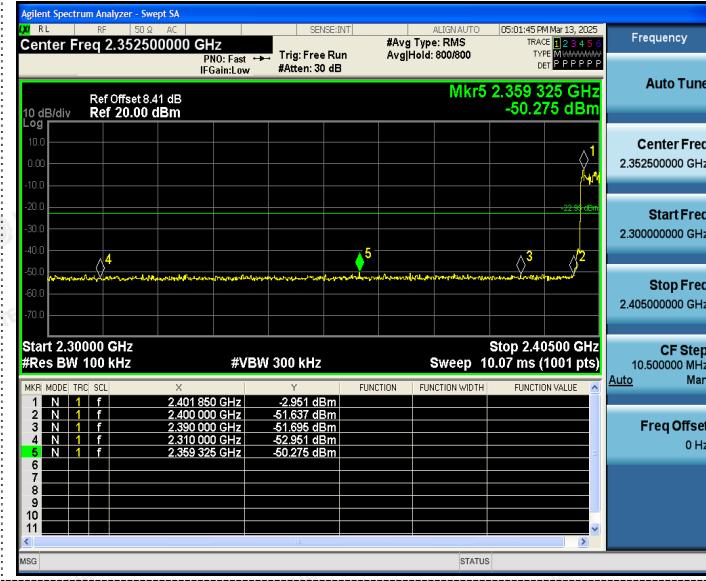
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Left Band edge hoping off

Right Band edge hoping off



Left Band edge hoping on

Right Band edge hoping on

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3.9. Pseudorandom Frequency Hopping Sequence

TEST APPLICABLE

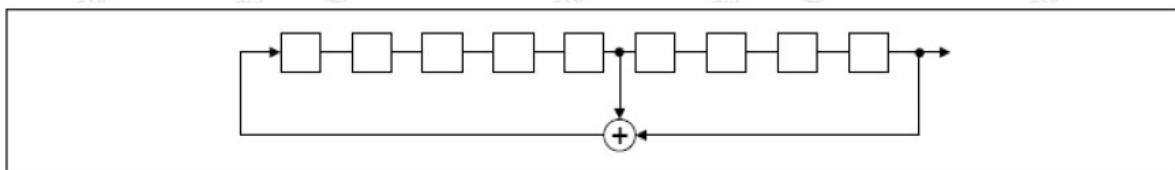
For 47 CFR Part 15C section 15.247 (a) (1):

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hop-ping 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. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hop-ping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

EUT Pseudorandom Frequency Hopping Sequence Requirement

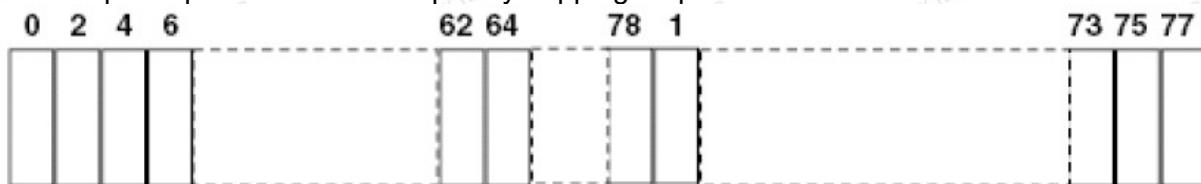
The pseudorandom frequency hopping sequence may be generated in a nice-stage shift register whose 5th and 9th stage outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first one of 9 consecutive ones, for example: the shift register is initialized with nine ones.

- Number of shift register stages:9
- Length of pseudo-random sequence: $2^9-1=511$ bits
- Longest sequence of zeros:8(non-inverted signal)



Linear Feedback Shift Register for Generation of the PRBS sequence

An example of pseudorandom frequency hopping sequence as follows:



Each frequency used equally one the average by each transmitter.

The system receiver have input bandwidths that match the hopping channel bandwidths of their corresponding transmitter and shift frequencies in synchronization with the transmitted signals.



3.10. Antenna Requirement

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, 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.

Refer to statement below for compliance.

The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

Antenna Connected Construction

The antenna used in this product is a FPC Antenna, need professional installation, not easy to remove. It conforms to the standard requirements. The directional gains of antenna used for transmitting is -1.52dBi.

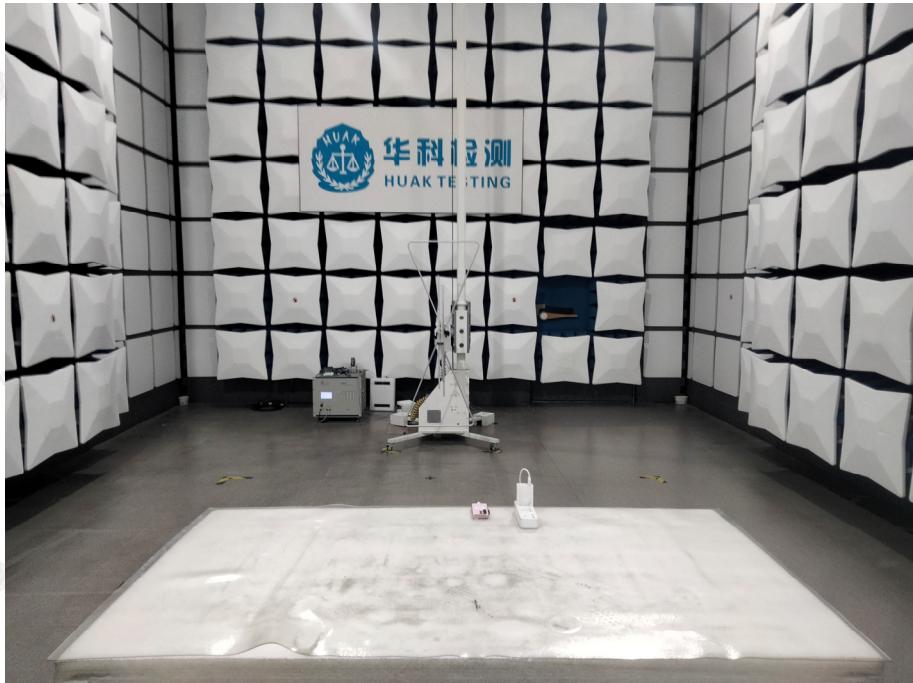
Antenna





4. Test Setup Photos of the EUT

Test Model No.: S25 mini
Radiated Emissions



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