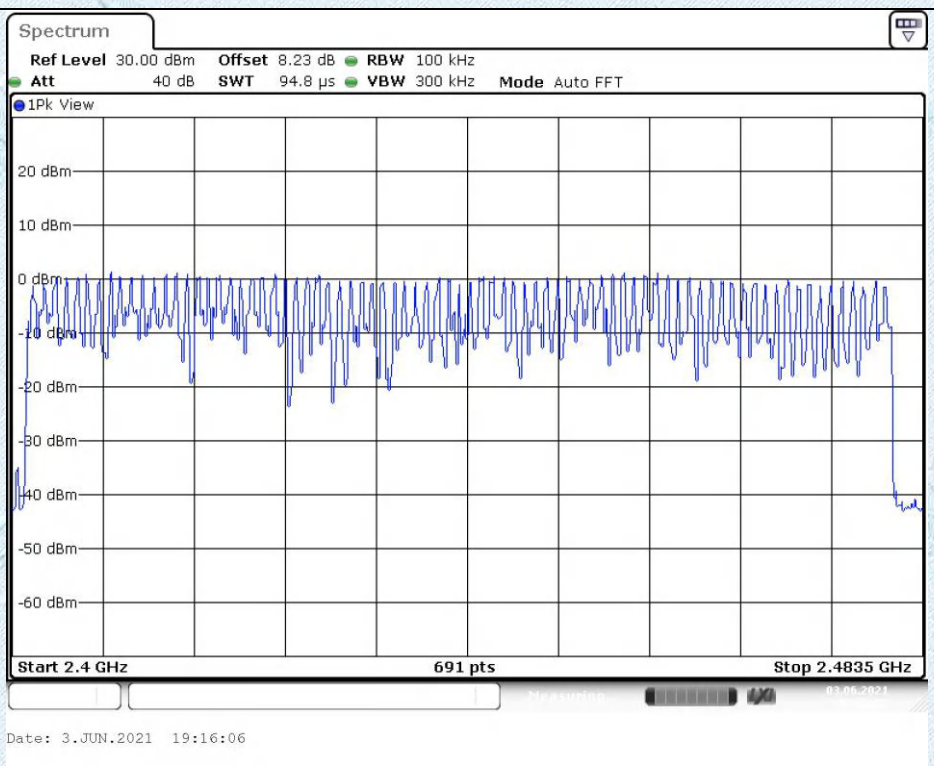
Test Mode:	3DH5 Hopping Mode		
Frequency Range	**Test Mode**	**Quantity of Hopping Channel**	**Limit**
2402MHz~2483.5MHz	3DH5	79	**>15**
3DH5 Mode			



Note: The 8-DPSK modulation is the worst case and recorded in the report.

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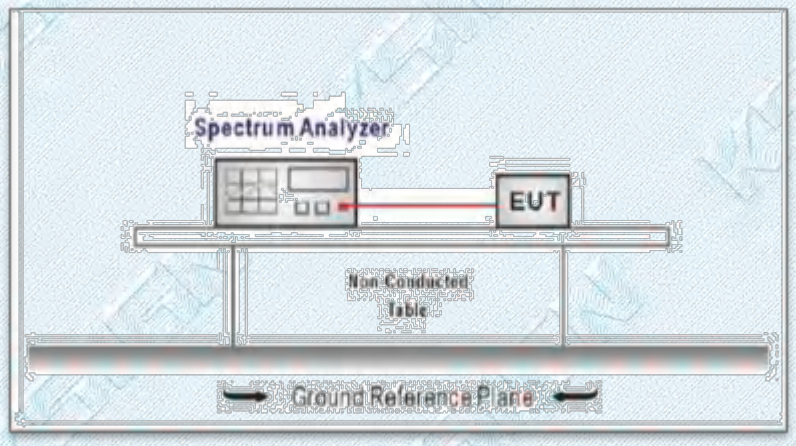
3.6. Dwell Time

Limit

Section	Test Item	Limit
15.247(a)(1)	Average Time of Occupancy	0.4 sec

Test Configuration



Test Procedure

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator.
2. Spectrum Setting:
   (1) Spectrum Setting: RBW=1MHz, VBW≥RBW.
   (2) Use video trigger with the trigger level set to enable triggering only on full pulses.
   (3) Sweep Time is more than once pulse time.
   (4) Set the center frequency on any frequency would be measure and set the frequency span to zero.
   (5) Measure the maximum time duration of one single pulse.
   (6) Set the EUT for packet transmitting.

Test Mode

Please refer to the clause 2.3

Test Result

Note:

1.Dwell time=Pulse time (ms) × (1600 ÷ 2 ÷ 79) ×31.6 Second for DH1, 2DH1, 3DH1

Dwell time=Pulse time (ms) × (1600 ÷ 4 ÷ 79) ×31.6 Second for DH3, 2DH3, 3DH3

Dwell time=Pulse time (ms) × (1600 ÷ 6 ÷ 79) ×31.6 Second for DH5, 2DH5, 3DH5

3. The 3DH5 modulation is the worst case and recorded in the report .

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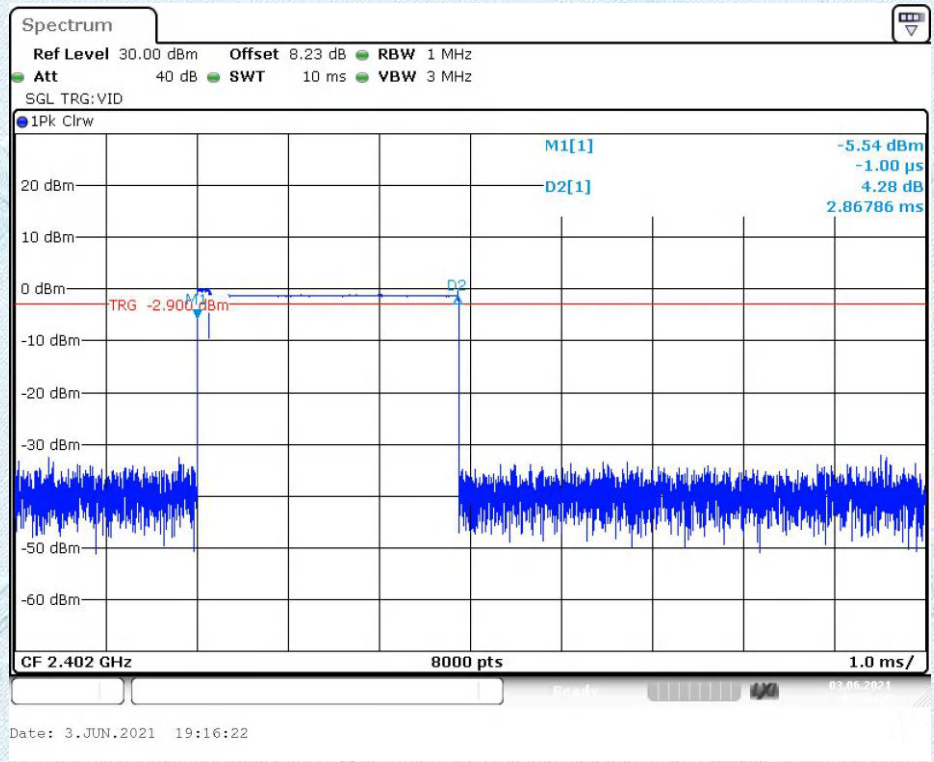
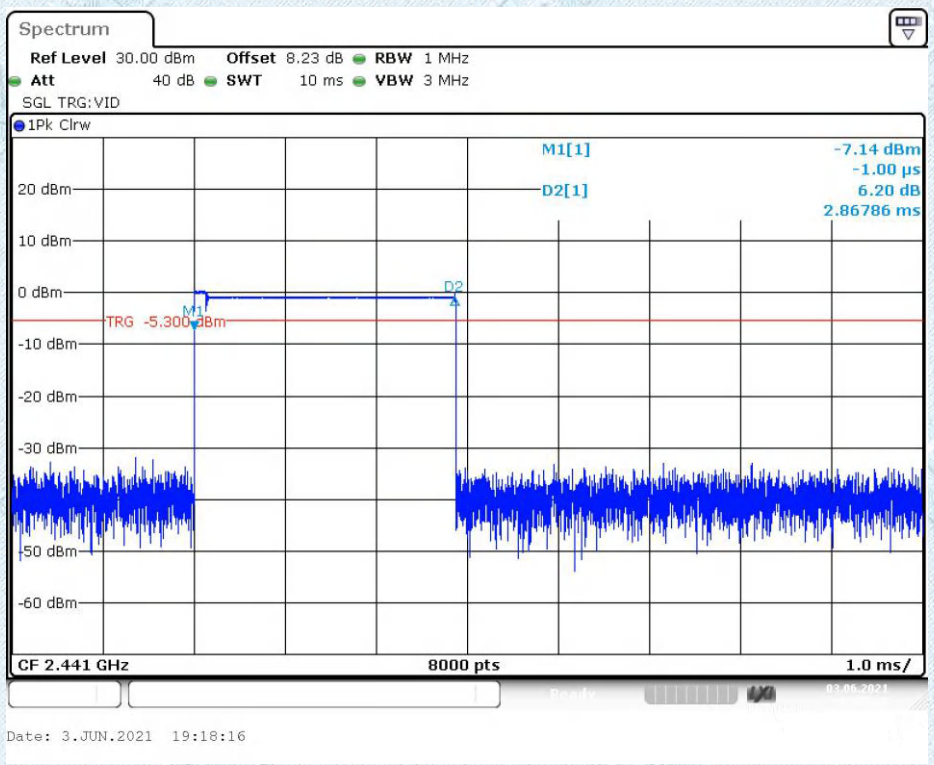
Test Mode	Channel (MHz)	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
3DH5	2402	2.88	307.20	31.60	**400**	**PASS**



Test Mode	Channel (MHz)	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
3DH5	2441	2.87	306.13	31.60	**400**	**PASS**



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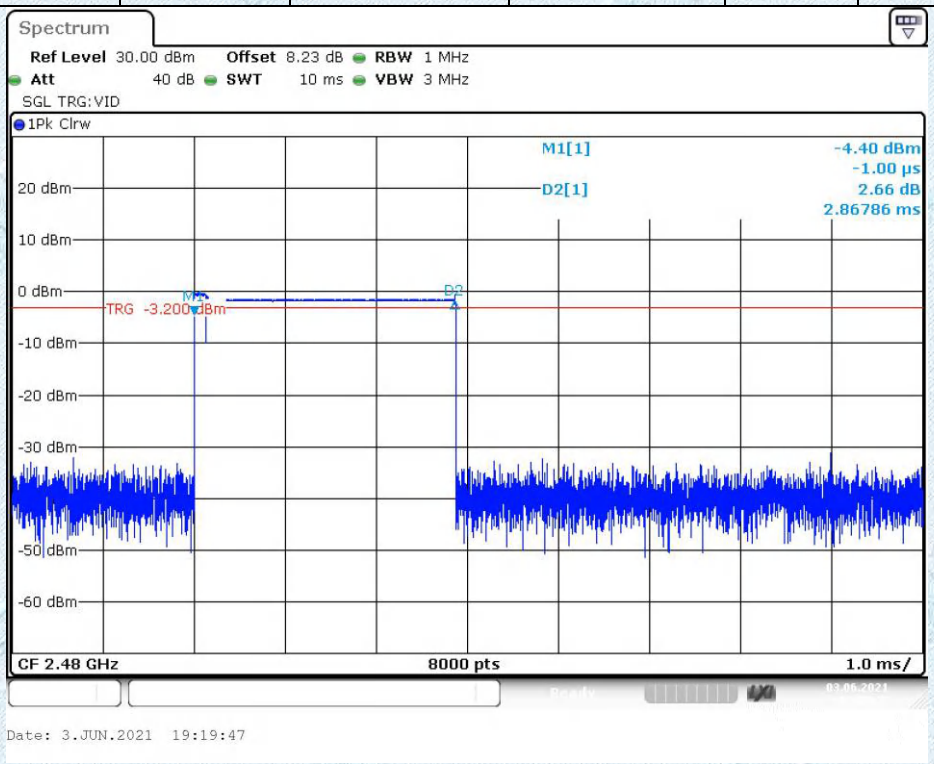
Test Mode	Channel (MHz)	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
3DH5	2480	2.87	306.13	31.6	**4000**	**PASS**



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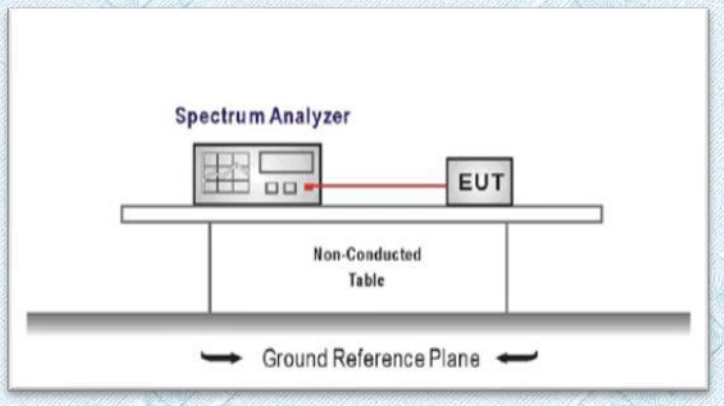
3.7. Band Edge and Spurious Emission (Conducted)

LIMIT

FCC CFR Title 47 Part 15 Subpart C Section15.247 (d):
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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.

TEST CONFIGURATION



TEST PROCEDURE

1. Connect EUT RF Output port to the Spectrum Analyzer through an RF attenuator.
2. Spectrum Setting:
   RBW=100KHz
   VBW=3*RBW.
   Detector function: Peak.
   Trace: Max hold.
   Sweep = Auto couple.

   Allow the trace to stabilize.

TEST MODE:

Please refer to the clause 2.3.

TEST RESULTS

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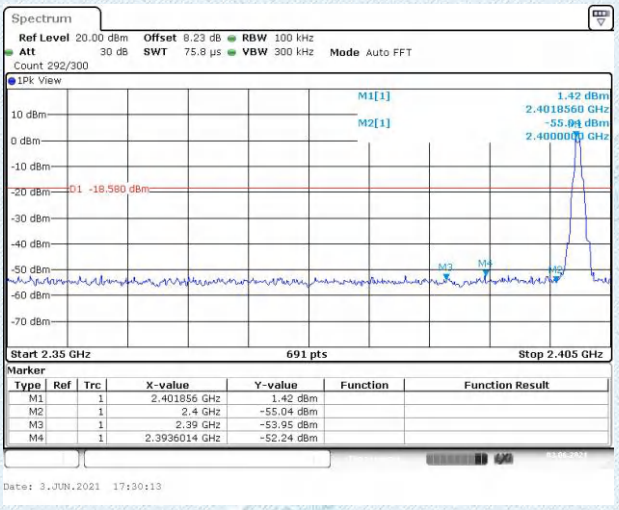
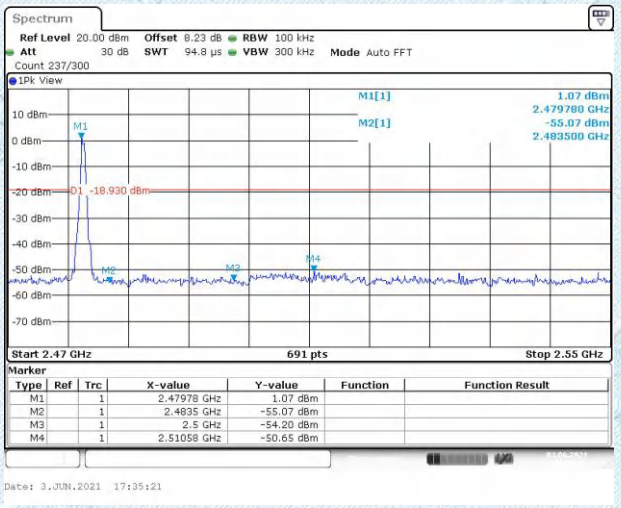
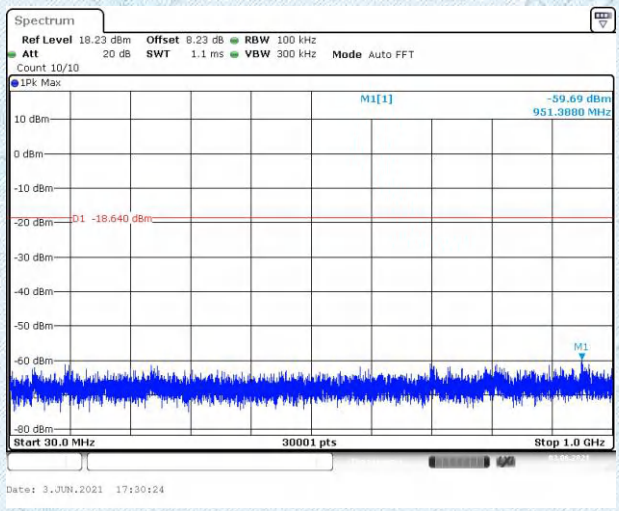
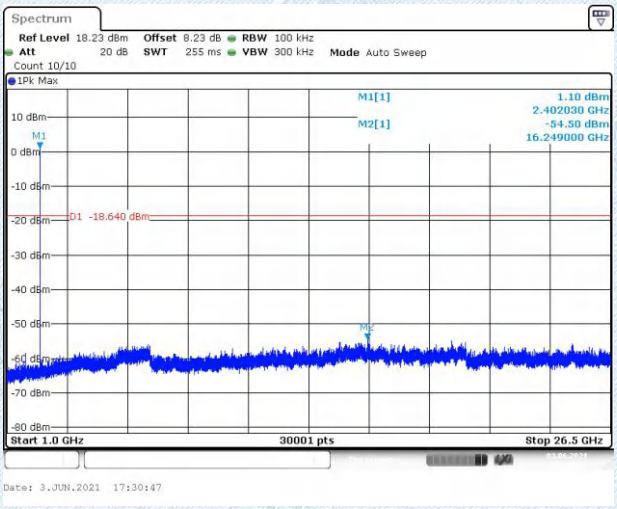
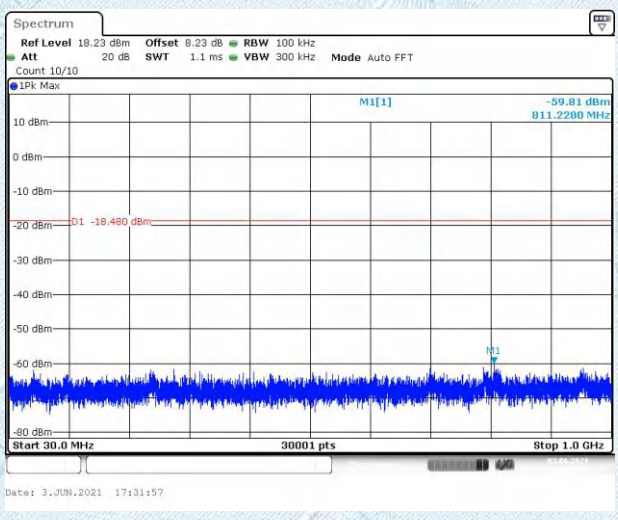
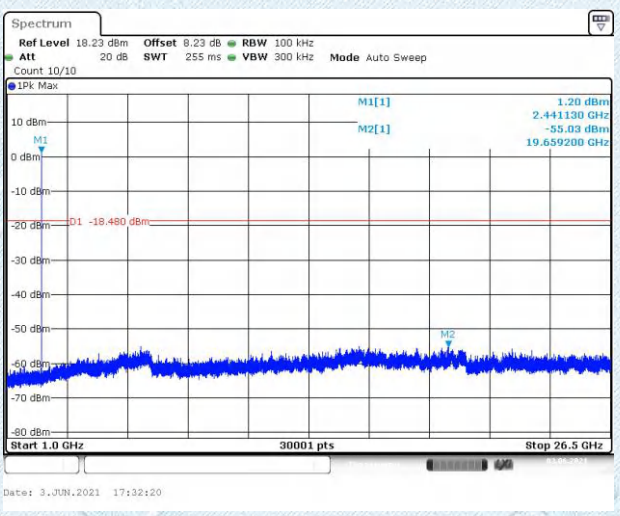
DH5	
CH00-Bandedge	CH78-Bandedge
	

DH5	
CH00-SE	
	
CH39-SE	
	

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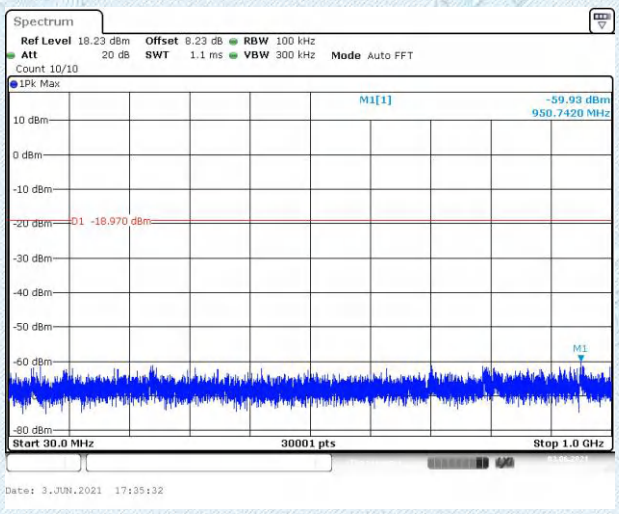
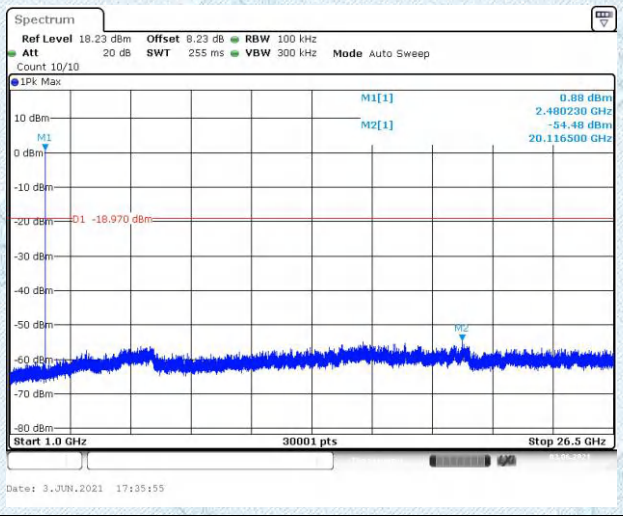
CH78-SE

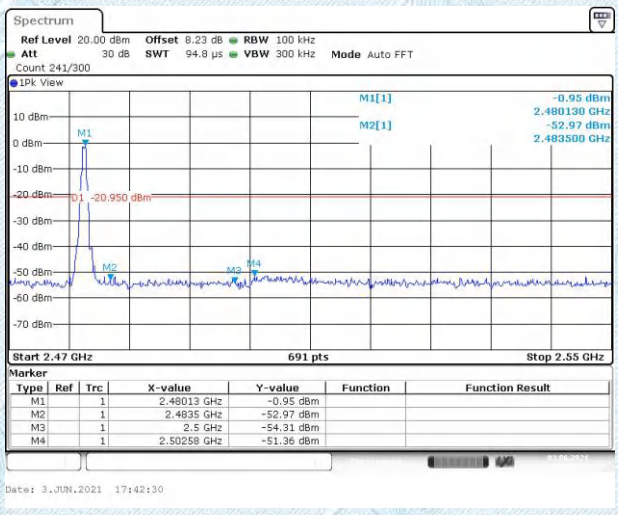




2DH5

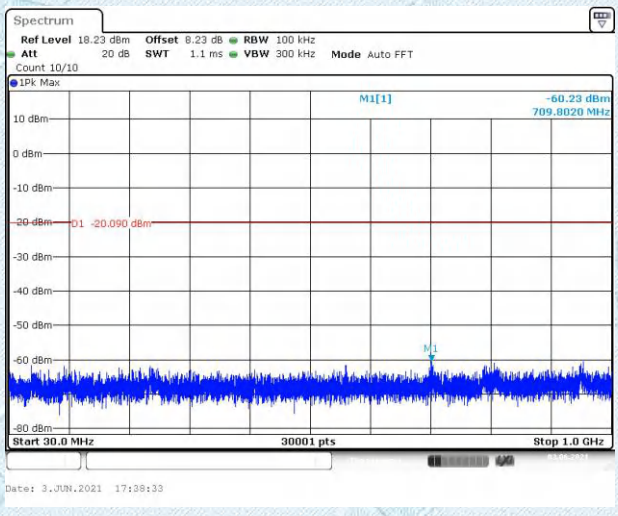
CH00-Bandedge

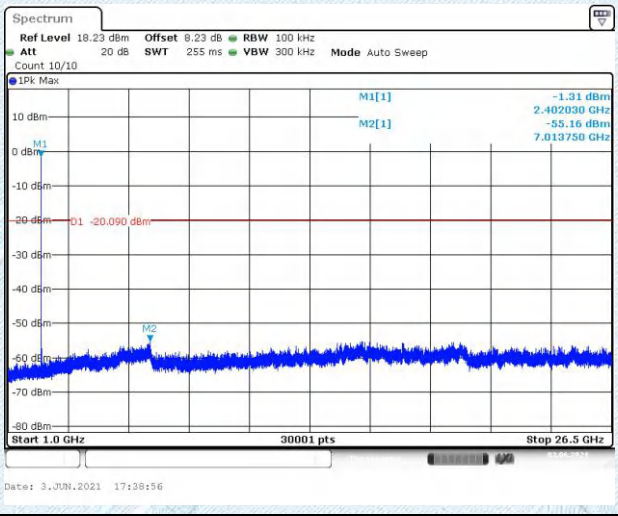
CH78-Bandedge



2DH5

CH00-SE





CH39-SE

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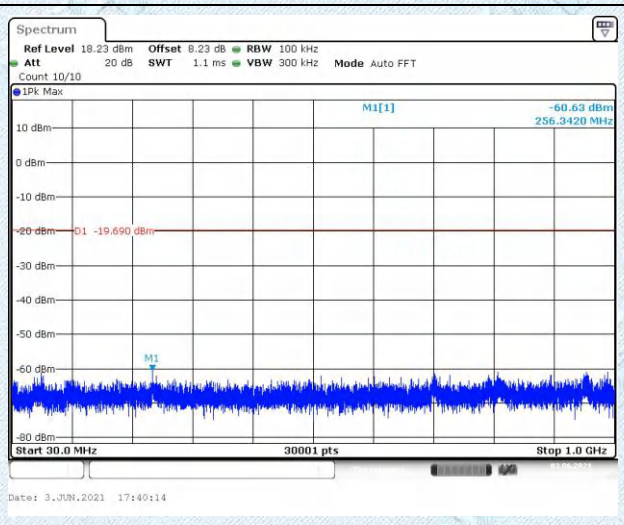
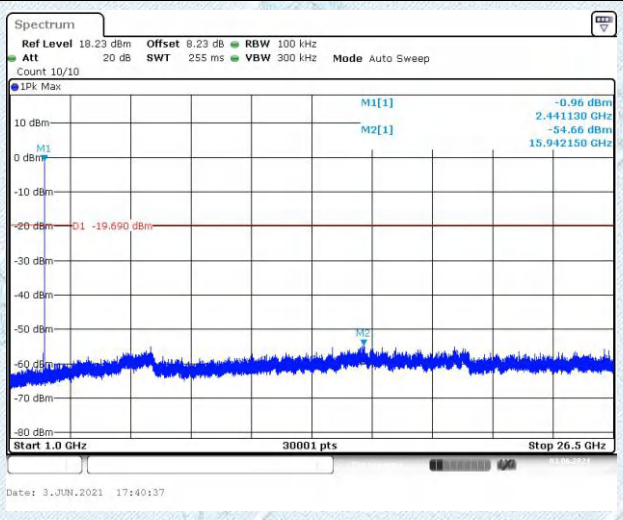
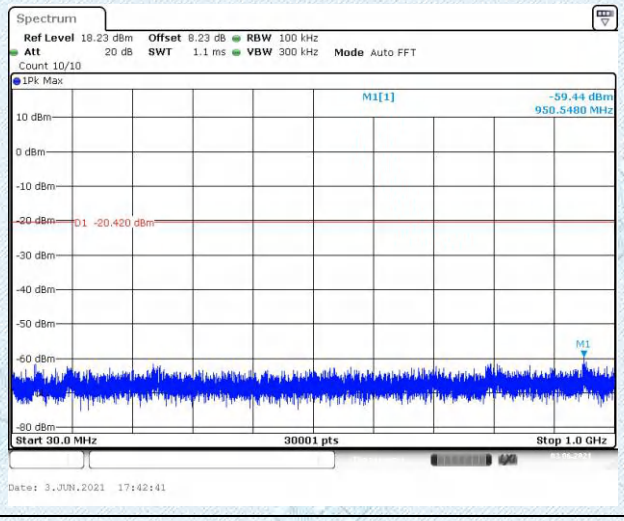
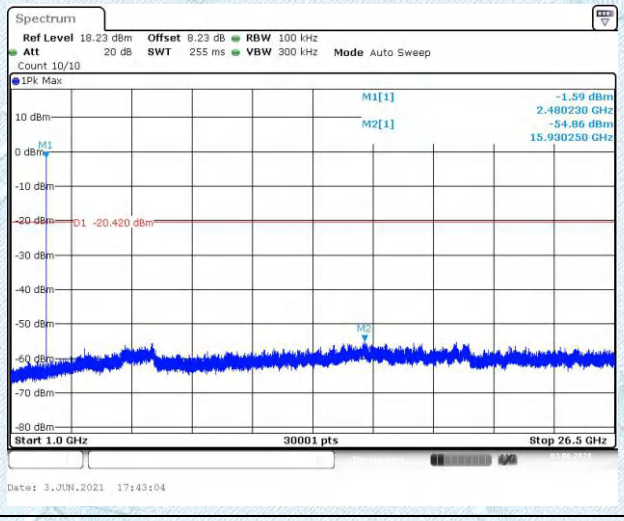




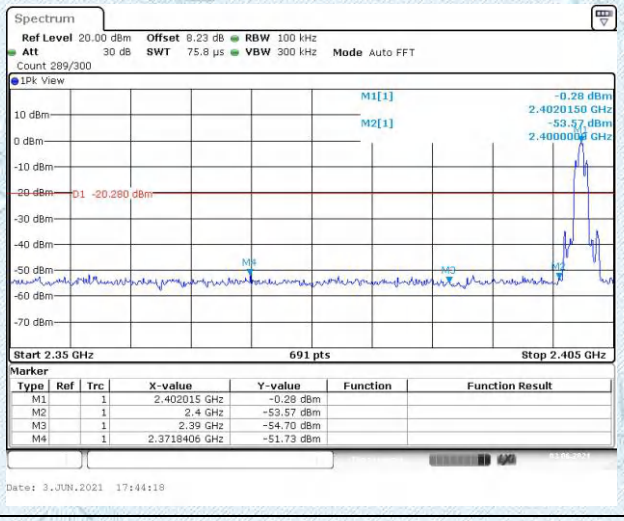
CH78-SE



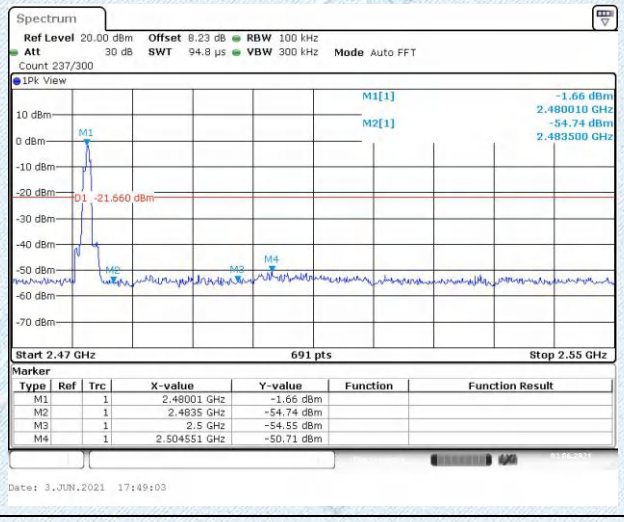


3DH5

CH00-Bandedge



CH78-Bandedge



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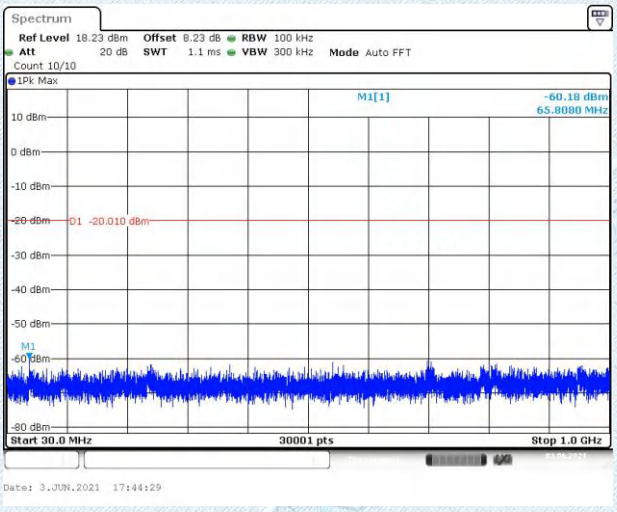
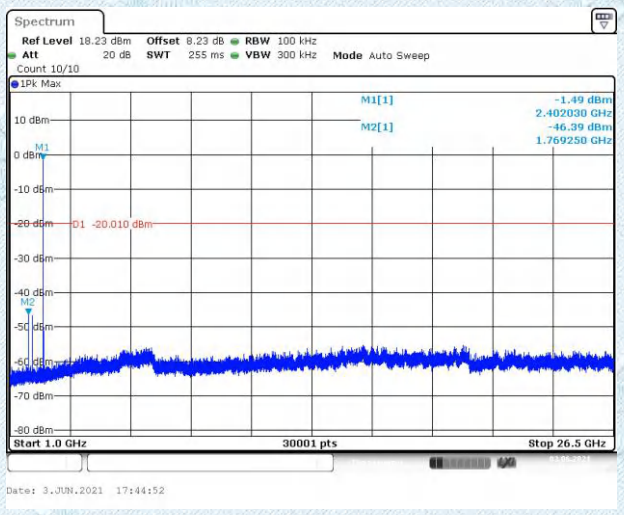
3DH5	
CH00-SE	
	
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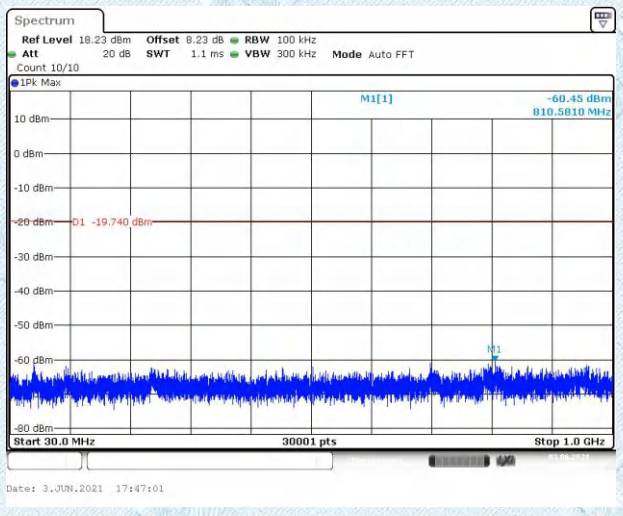
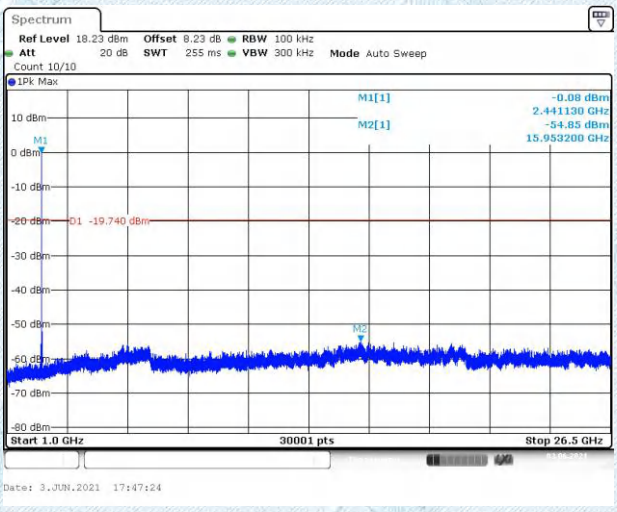
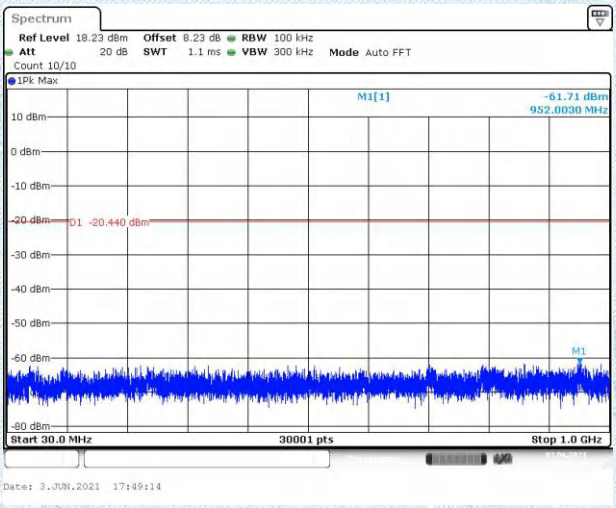
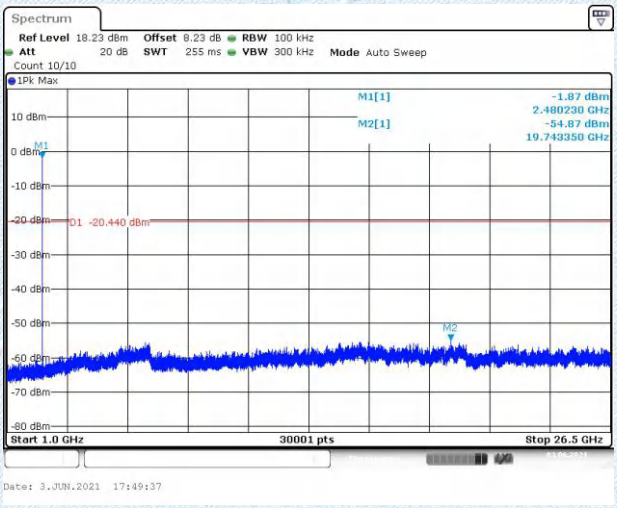
	
CH78-SE	
	
DH5(2402)-Hopping on	DH5(2480)-Hopping on

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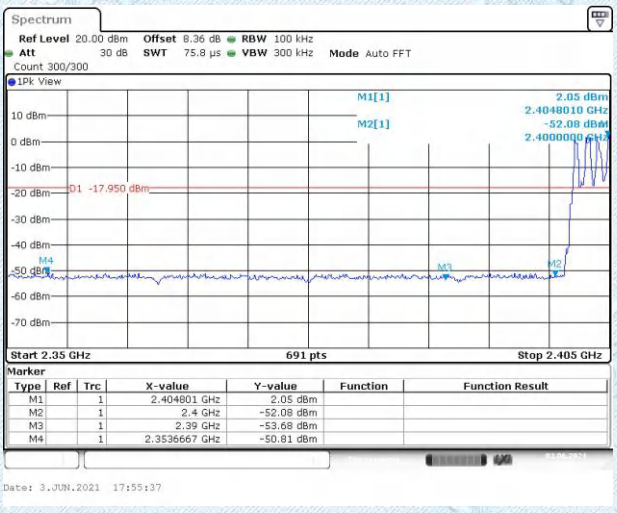
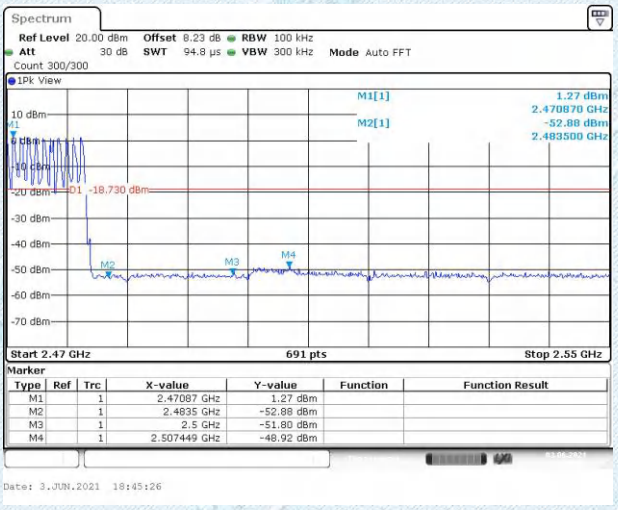
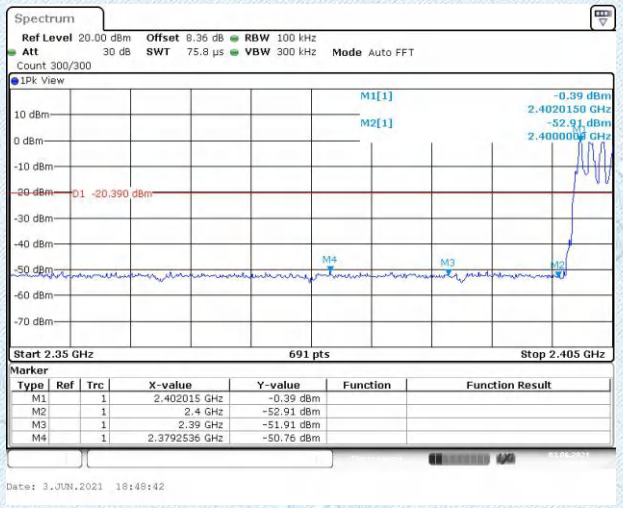


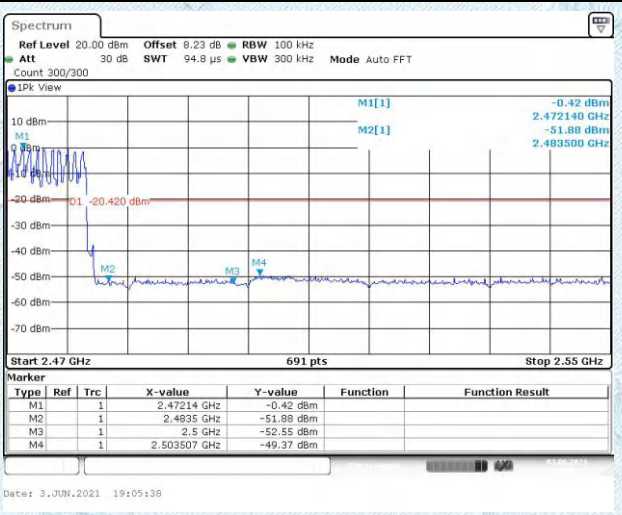
2DH5(2402)-Hopping on



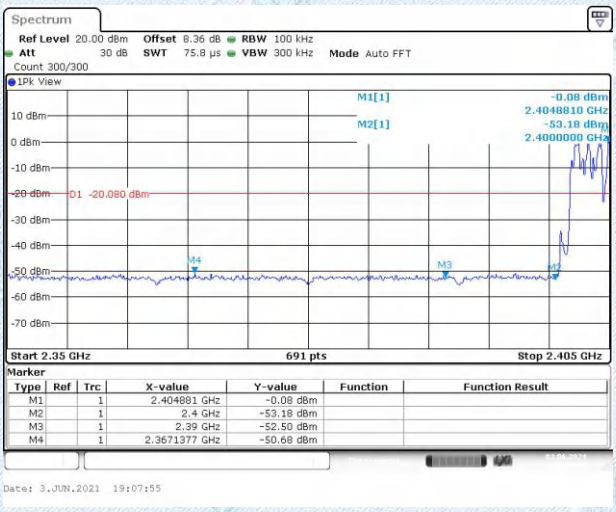
2DH5(2480)-Hopping on



3DH5(2402)-Hopping on



3DH5(2480)-Hopping on



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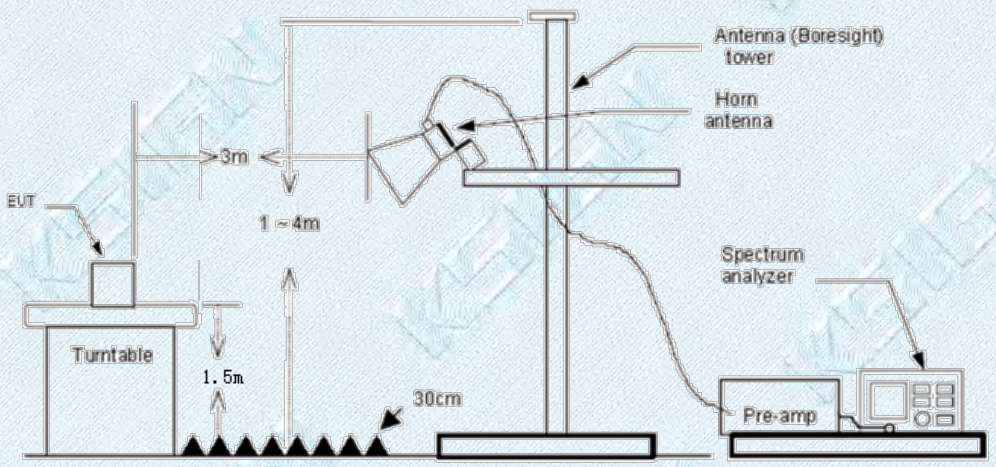
3.8. Band Edge Emissions(Radiated)

Limit

Restricted Frequency Band (MHz)	(dBuV/m)(at 3m)	
	Peak	Average
2310 ~2390	74	54
2483.5 ~2500	74	54
Note: All restriction bands have been tested, only the worst case is reported.		

Test Configuration



Test Procedure

1. The EUT was setup and tested according to ANSI C63.10:2013 requirements.
2. The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.
5. The receiver set as follow:
   RBW=1MHz, VBW=3MHz PEAK detector for Peak value.
   RBW=1MHz, VBW=10Hz with PEAK Detector for Average Value.

Test Mode

Please refer to the clause 2.3.

Test Results

Note:

1.Measurement = Reading level + Correct Factor

Correct Factor=Antenna Factor + Cable Loss -Preamplifier Factor

2.Pre-scan DH5, 2DH5 and 3DH5 modulation, and found the DH5 modulation which it is worse case, so only show the test data for worse case.

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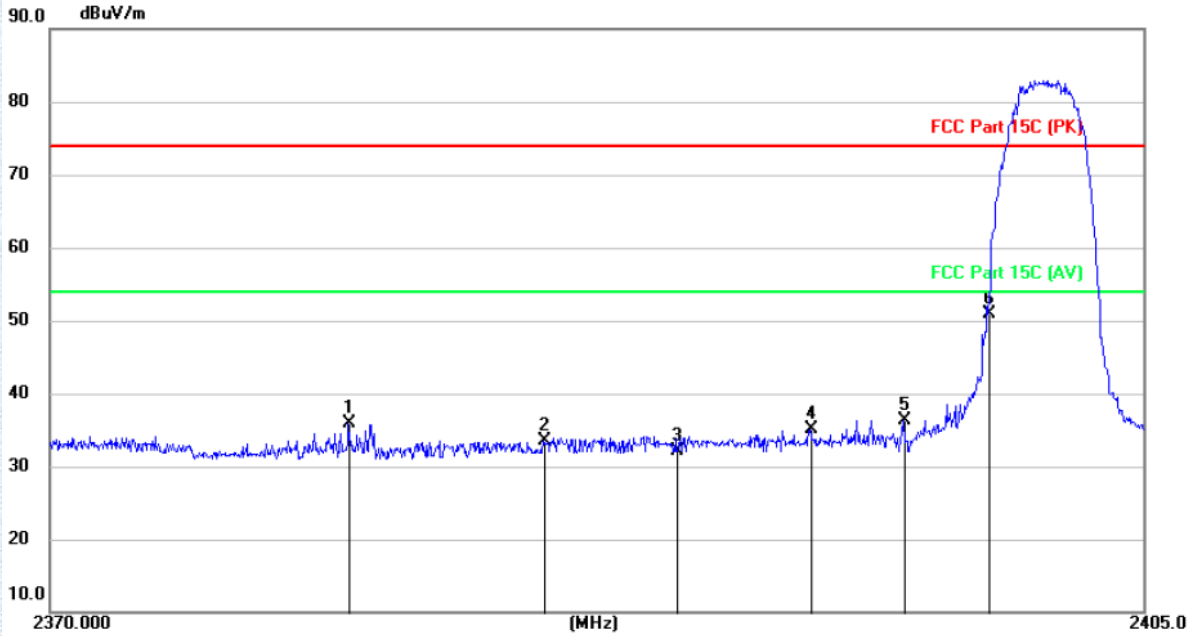
Test Voltage	DC 3.8V
Ant. Pol.	Horizontal
Test Mode:	DH5 Mode 2402MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		2379.537	46.78	-10.92	35.86	74.00	-38.14	peak
2		2385.743	44.47	-10.92	33.55	74.00	-40.45	peak
3		2390.000	43.06	-10.92	32.14	74.00	-41.86	peak
4		2394.283	46.07	-10.91	35.16	74.00	-38.84	peak
5		2397.296	47.27	-10.92	36.35	74.00	-37.65	peak
6	*	2400.000	61.86	-10.92	50.94	74.00	-23.06	peak

Measurement = Reading level + Correct Factor

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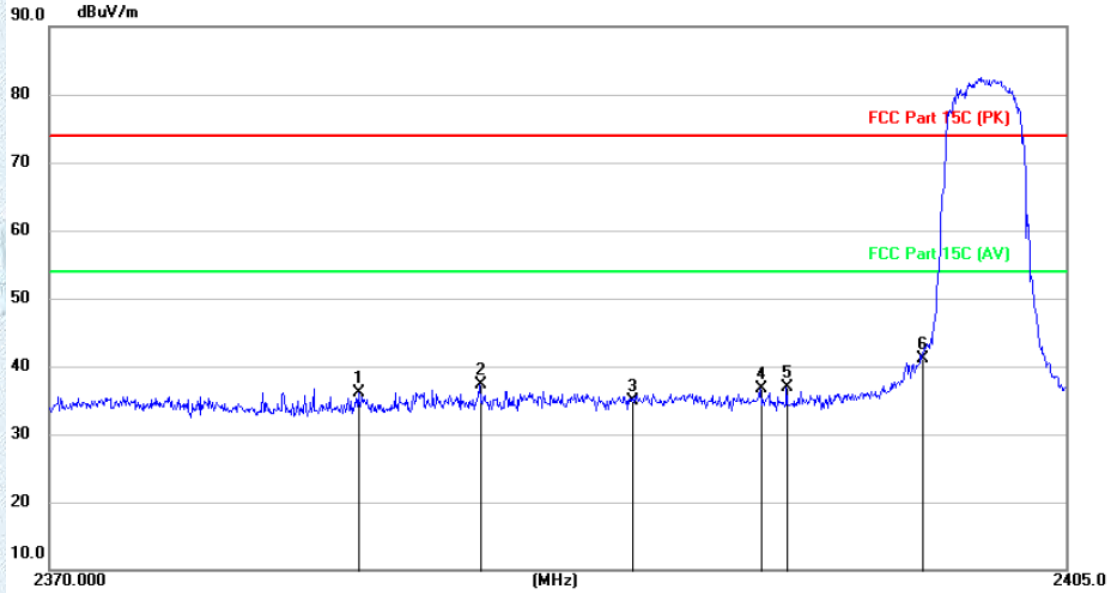
Test Voltage	DC 3.8V
Ant. Pol.	Vertical
Test Mode:	DH5 Mode 2402 MHz

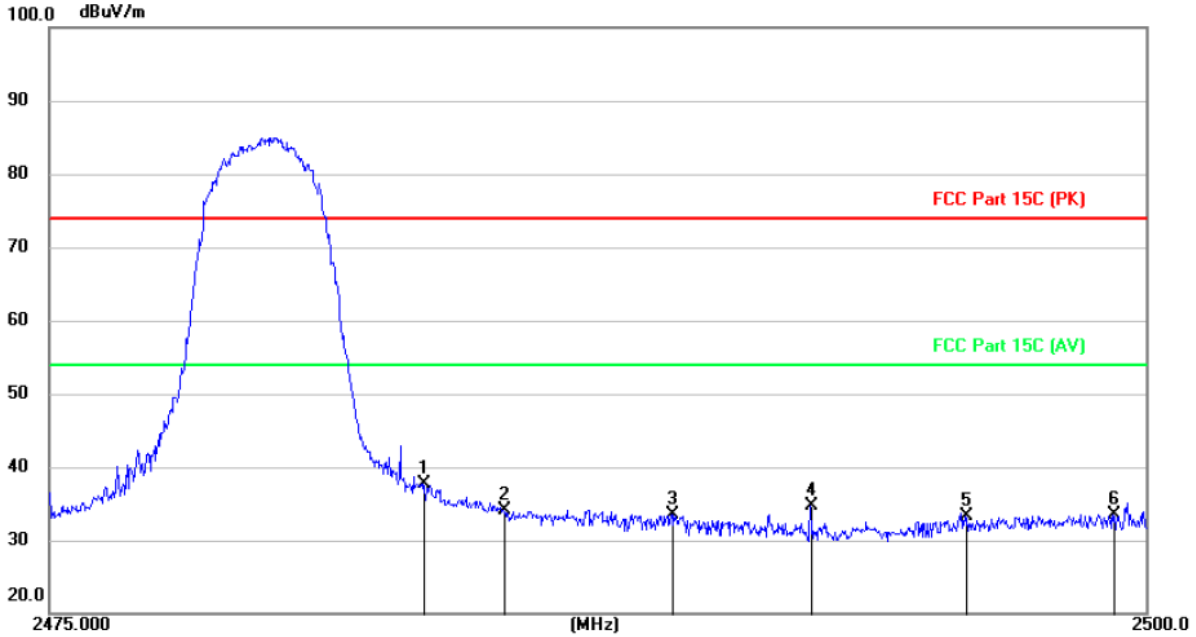


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		2380.602	47.05	-10.92	36.13	74.00	-37.87	peak
2		2384.749	48.15	-10.92	37.23	74.00	-36.77	peak
3		2390.000	45.81	-10.92	34.89	74.00	-39.11	peak
4		2394.412	47.55	-10.91	36.64	74.00	-37.36	peak
5		2395.351	47.72	-10.91	36.81	74.00	-37.19	peak
6	*	2400.000	52.08	-10.92	41.16	74.00	-32.84	peak

Measurement = Reading level + Correct Factor

Add：West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China
Tel：+(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail：info@gdksign.cn Web: www.gdksign.com

Test Voltage	DC 3.8V
Ant. Pol.	Horizontal
Test Mode:	DH5 Mode 2480MHz

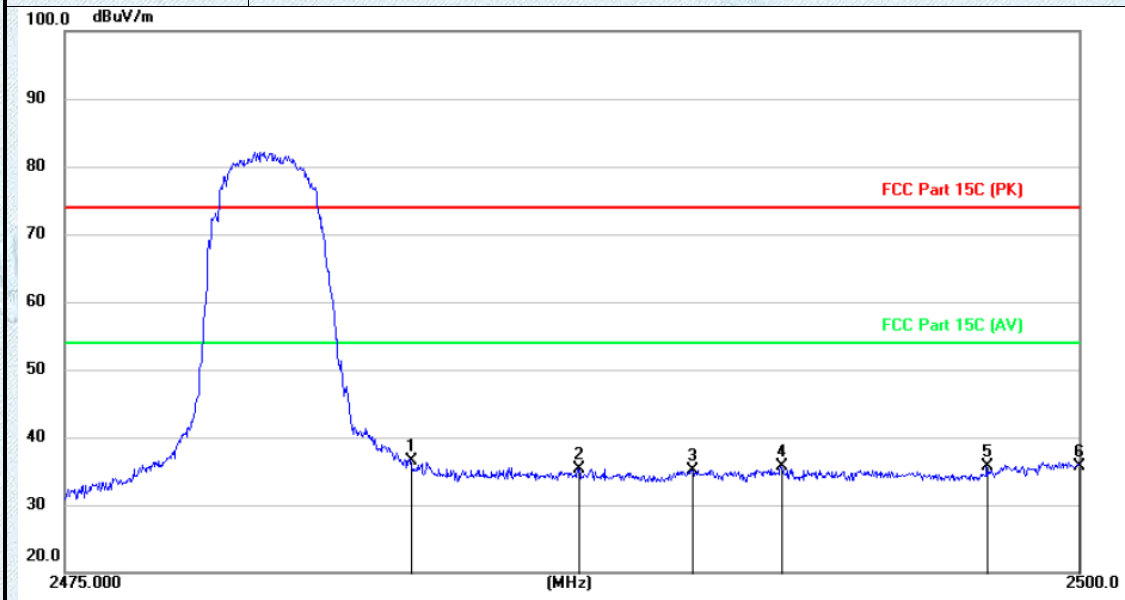


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1	*	2483.500	48.68	-10.88	37.80	74.00	-36.20	peak
2		2485.323	44.98	-10.88	34.10	74.00	-39.90	peak
3		2489.168	44.35	-10.89	33.46	74.00	-40.54	peak
4		2492.347	45.55	-10.89	34.66	74.00	-39.34	peak
5		2495.880	44.08	-10.87	33.21	74.00	-40.79	peak
6		2499.260	44.37	-10.88	33.49	74.00	-40.51	peak

Measurement = Reading level + Correct Factor

Add：West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China
Tel：+(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail：info@gdksign.cn Web: www.gdksign.com

Test Voltage	DC 3.8V
Ant. Pol.	Vertical
Test Mode:	DH5 Mode 2480 MHz

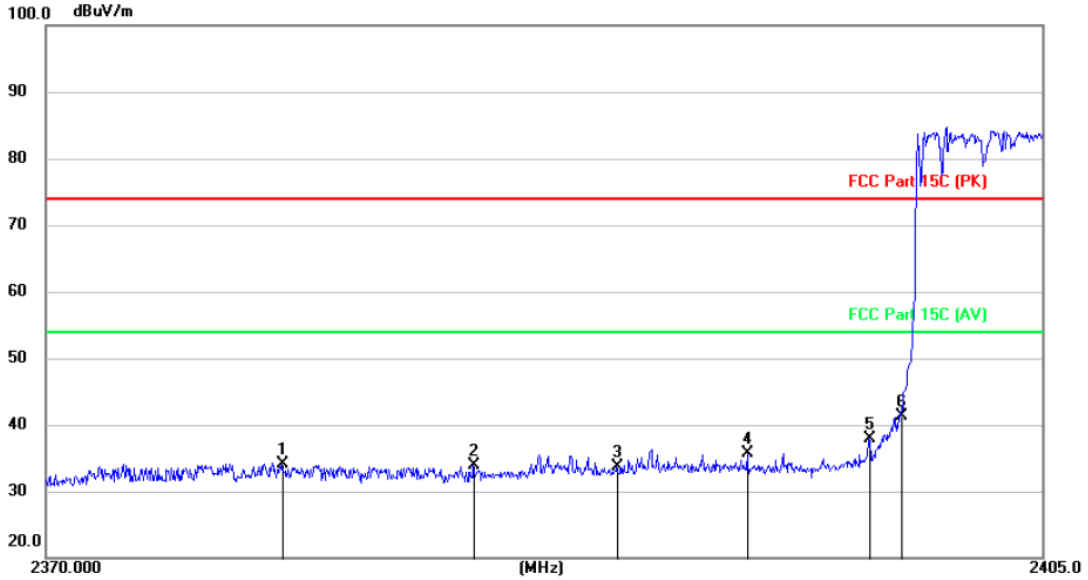


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1	*	2483.500	47.29	-10.88	36.41	74.00	-37.59	peak
2		2487.633	46.28	-10.88	35.40	74.00	-38.60	peak
3		2490.425	45.96	-10.89	35.07	74.00	-38.93	peak
4		2492.625	46.57	-10.89	35.68	74.00	-38.32	peak
5		2497.730	46.51	-10.88	35.63	74.00	-38.37	peak
6		2500.000	46.51	-10.88	35.63	74.00	-38.37	peak

Measurement = Reading level + Correct Factor

Add：West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China
Tel：+(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail：info@gdksign.cn Web: www.gdksign.com

Test Voltage	DC 3.8V
Ant. Pol.	Horizontal
Test Mode:	DH5-Hop Mode 2402MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		2378.274	44.98	-10.92	34.06	74.00	-39.94	peak
2		2384.956	44.74	-10.92	33.82	74.00	-40.18	peak
3		2390.000	44.69	-10.92	33.77	74.00	-40.23	peak
4		2394.602	46.58	-10.91	35.67	74.00	-38.33	peak
5		2398.892	48.92	-10.92	38.00	74.00	-36.00	peak
6	*	2400.000	52.12	-10.92	41.20	74.00	-32.80	peak

Measurement = Reading level + Correct Factor

Add：West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China
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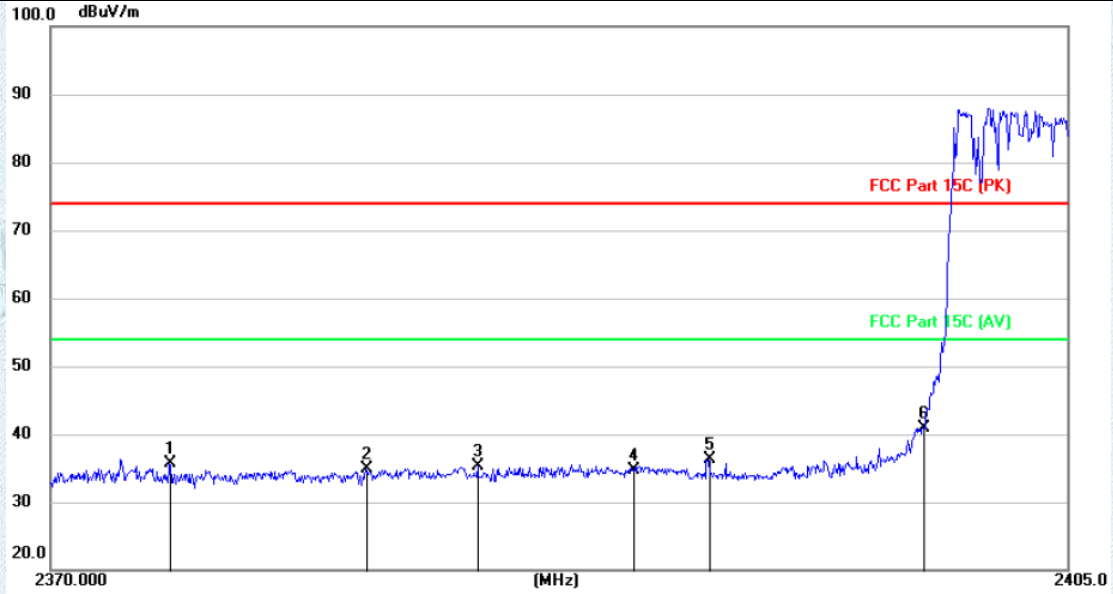
Test Voltage	DC 3.8V
Ant. Pol.	Vertical
Test Mode:	DH5-Hop Mode 2402 MHz

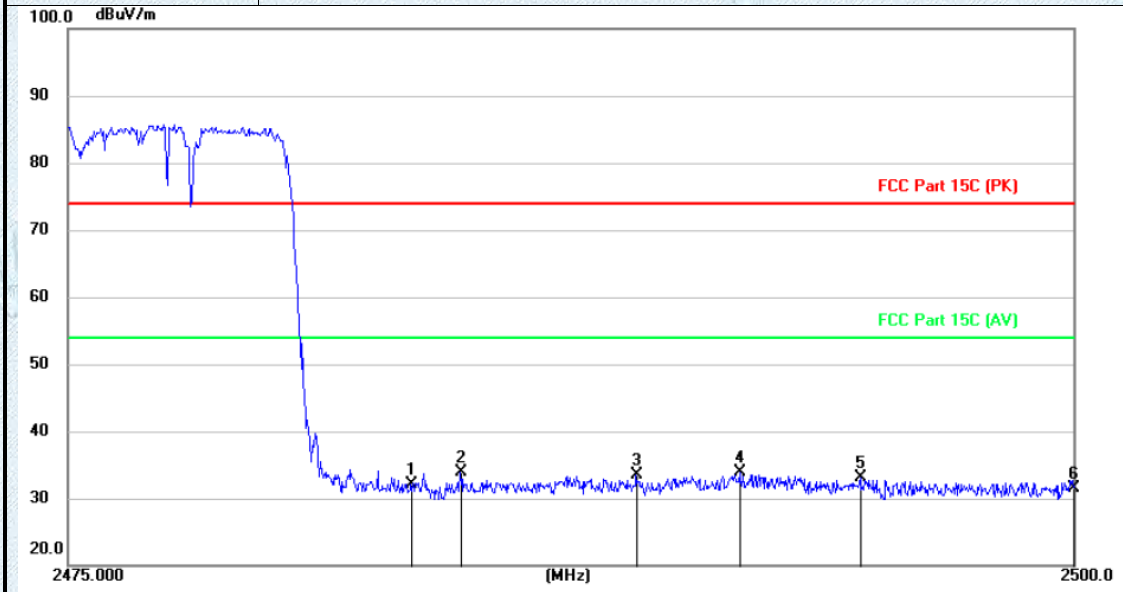


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		2374.084	46.64	-10.93	35.71	74.00	-38.29	peak
2		2380.829	45.91	-10.93	34.98	74.00	-39.02	peak
3		2384.640	46.13	-10.92	35.21	74.00	-38.79	peak
4		2390.000	45.68	-10.92	34.76	74.00	-39.24	peak
5		2392.596	47.30	-10.92	36.38	74.00	-37.62	peak
6	*	2400.000	51.87	-10.92	40.95	74.00	-33.05	peak

Measurement = Reading level + Correct Factor

Add：West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China
Tel：+(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail：info@gdksign.cn Web: www.gdksign.com

Test Voltage	DC 3.8V
Ant. Pol.	Horizontal
Test Mode:	DH5-Hop Mode 2480MHz

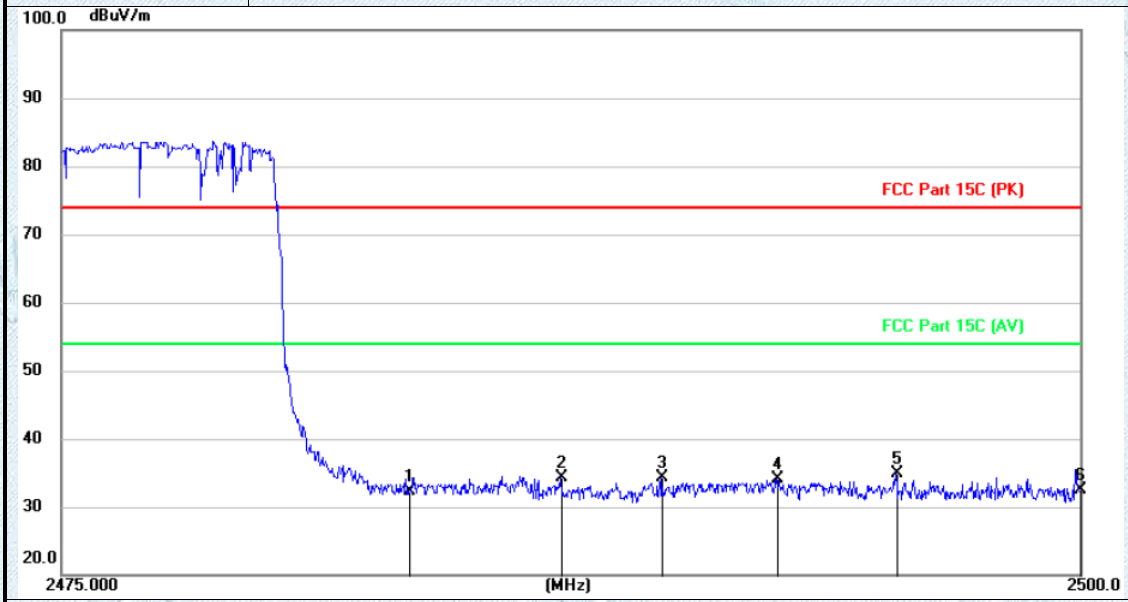


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		2483.500	42.98	-10.88	32.10	74.00	-41.90	peak
2		2484.738	44.70	-10.88	33.82	74.00	-40.18	peak
3		2489.102	44.42	-10.89	33.53	74.00	-40.47	peak
4	*	2491.685	44.72	-10.89	33.83	74.00	-40.17	peak
5		2494.695	43.96	-10.87	33.09	74.00	-40.91	peak
6		2500.000	42.29	-10.88	31.41	74.00	-42.59	peak

Measurement = Reading level + Correct Factor

Add：West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China
Tel：+(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail：info@gdksign.cn Web: www.gdksign.com

Test Voltage	DC 3.8V
Ant. Pol.	Vertical
Test Mode:	DH5-Hop Mode 2480 MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		2483.500	43.16	-10.88	32.28	74.00	-41.72	peak
2		2487.230	45.12	-10.88	34.24	74.00	-39.76	peak
3		2489.695	45.11	-10.89	34.22	74.00	-39.78	peak
4		2492.537	44.98	-10.89	34.09	74.00	-39.91	peak
5	*	2495.468	45.68	-10.87	34.81	74.00	-39.19	peak
6		2500.000	43.30	-10.88	32.42	74.00	-41.58	peak

Measurement = Reading level + Correct Factor

Add：West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China
Tel：+(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail：info@gdksign.cn Web: www.gdksign.com

3.9. Radiated Spurious Emissions

Limit

Radiated Emission Limits (9 kHz~1000 MHz)

Frequency (MHz)	Field Strength (microvolt/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

Radiated Emission Limit (Above 1000MHz)

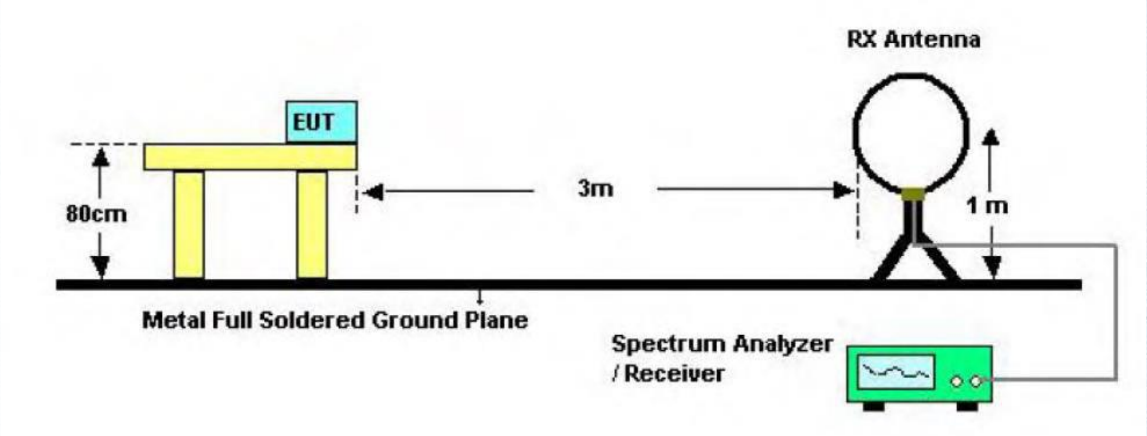
Frequency (MHz)	Distance Meters(at 3m)	
	Peak	Average
Above 1000	74	54

Note:

(1) The tighter limit applies at the band edges.

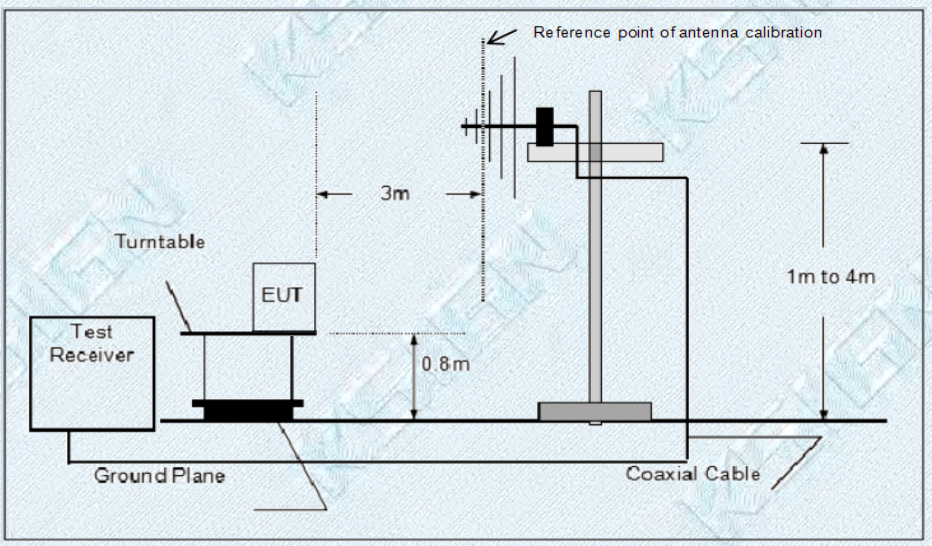
(2) Emission Level (dBuV/m)=20log Emission Level (uV/m).

Test Configuration

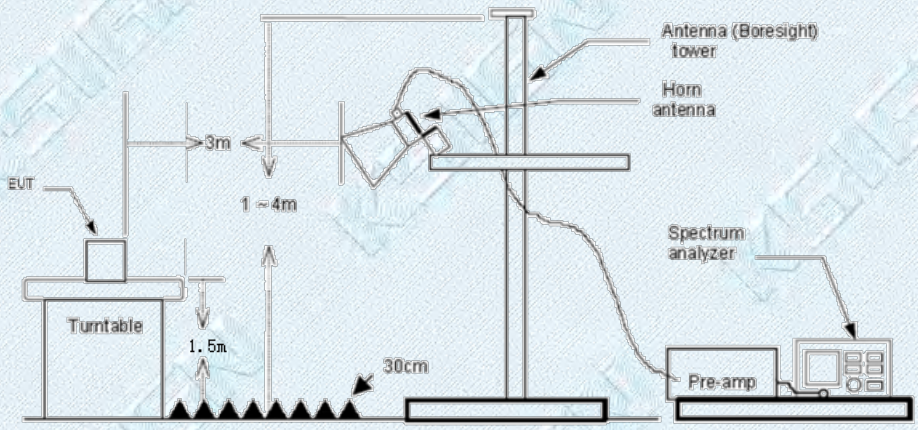


Below 30MHz Test Setup

Add：West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China
Tel：+(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail：info@gdksign.cn Web: www.gdksign.com



Below 1000MHz Test Setup



Above 1GHz Test Setup

Test Procedure

1. The EUT was setup and tested according to ANSI C63.10:2013
2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower.
4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. Use the following spectrum analyzer settings

   (1) Span shall wide enough to fully capture the emission being measured;

   (2) Below 1 GHz:

   RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold;

   If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

   (3) From 1 GHz to 10th harmonic:

   RBW=1MHz, VBW=3MHz Peak detector for Peak value.

   RBW=1MHz, VBW=10Hz Peak detector for Average value.

Add：West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China
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Test Mode

Please refer to the clause 2.3.

Test Result

9 KHz~30 MHz and 18GHz~25GHz

From 9 KHz~30 MHz and 18GHz~25GHz: Conclusion: PASS

Note:

1) Measurement = Reading level + Correct Factor
   Correct Factor=Antenna Factor + Cable Loss -Preamplifier Factor
2) The peak level is lower than average limit(54 dBuV/m), this data is the too weak instrument of signal is unable to test.
3) The emission levels of other frequencies are very lower than the limit and not show in test report.
4) The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
5) Pre-scan DH5, 2DH5 and 3DH5 modulation, and found the DH5 modulation 2402MHz which it is worse case for 30MHz-1GHz , so only show the test data for worse case.
6) Pre-scan DH5, 2DH5 and 3DH5 modulation, and found the DH5 modulation which it is worse case for above 1GHz, so only show the test data for worse case.

RADIATED EMISSION BELOW 30MHZ

No emission found between lowest internal used/generated frequencies to 30MHz.

Add：West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China
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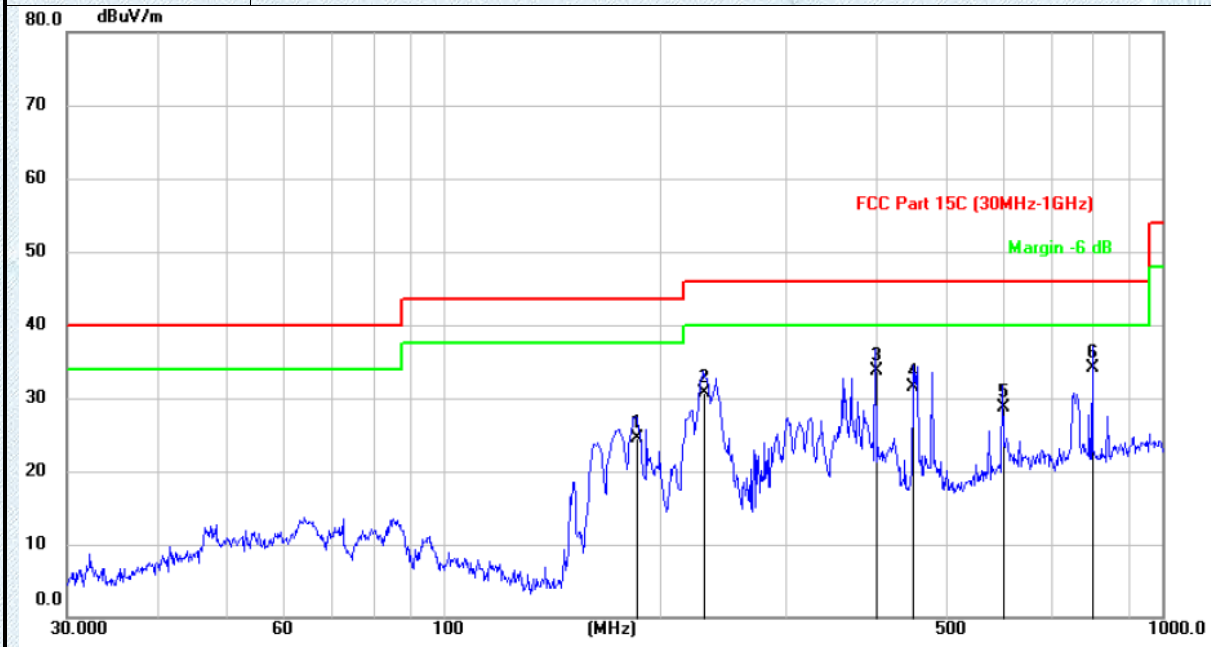
30MHz-1GHz

Test Voltage	DC 3.8V
Test Mode:	TX DH5 Mode 2402MHz
Ant. Pol.	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		185.2676	43.21	-18.72	24.49	43.50	-19.01	QP
2		230.3405	47.24	-16.60	30.64	46.00	-15.36	QP
3		400.0108	44.66	-10.91	33.75	46.00	-12.25	QP
4		451.1349	41.75	-10.31	31.44	46.00	-14.56	QP
5		599.9519	36.35	-7.67	28.68	46.00	-17.32	QP
6	*	800.1010	40.43	-6.24	34.19	46.00	-11.81	QP

Measurement = Reading level + Correct Factor

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China
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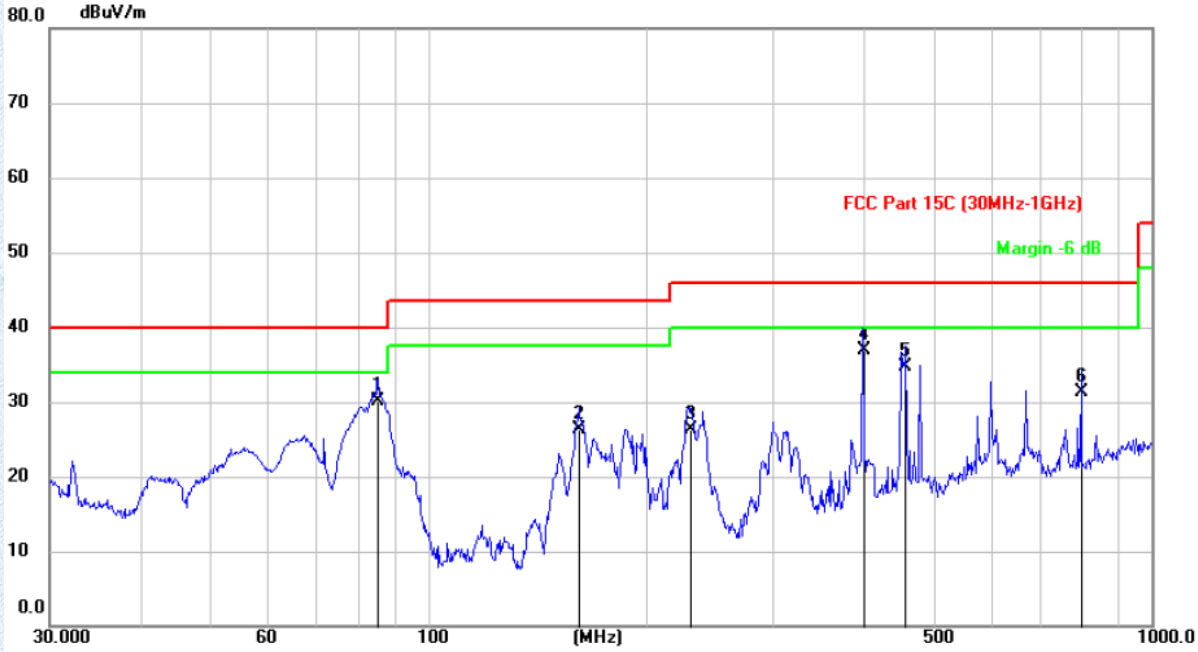
Test Voltage	DC 3.8V
Test Mode:	TX DH5 Mode 2402MHz
Ant. Pol.	Vertical



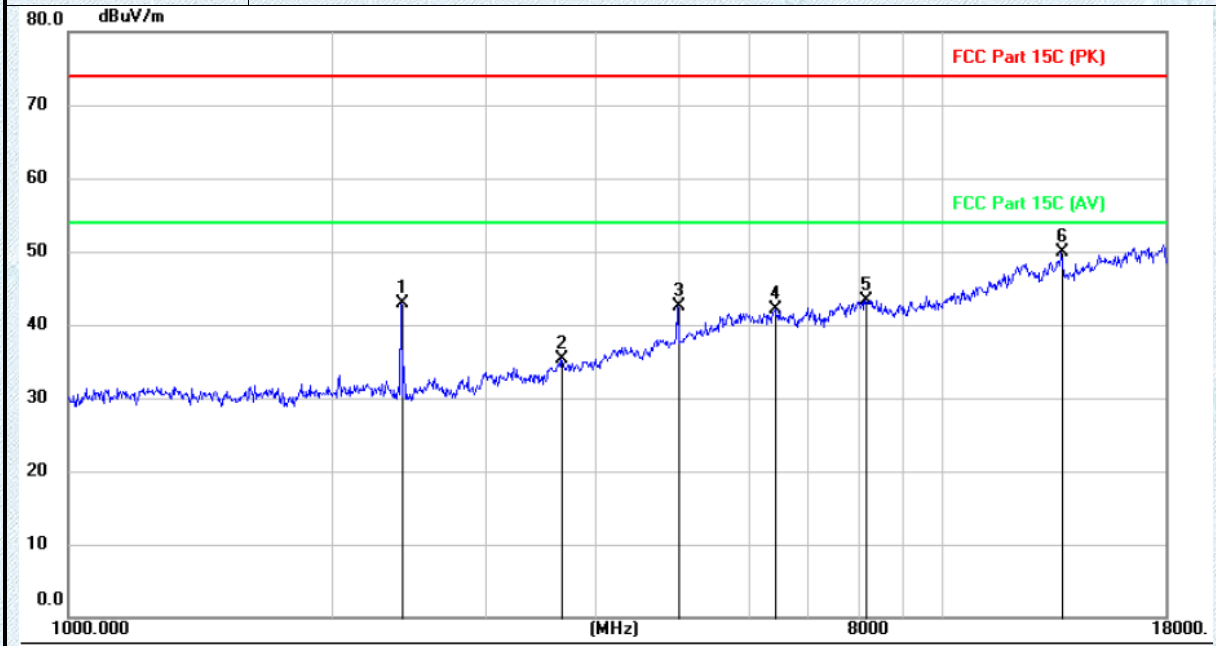
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		85.2980	50.53	-20.52	30.01	40.00	-9.99	QP
2		161.5307	47.31	-21.10	26.21	43.50	-17.29	QP
3		230.8258	42.95	-16.58	26.37	46.00	-19.63	QP
4	*	400.0108	47.73	-10.91	36.82	46.00	-9.18	QP
5		457.5073	44.98	-10.27	34.71	46.00	-11.29	QP
6		800.1011	37.59	-6.24	31.35	46.00	-14.65	QP

Measurement = Reading level + Correct Factor

Add：West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China
Tel：+(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail：info@gdksign.cn Web: www.gdksign.com

Adobe 1GHz

Test Voltage	DC 3.8V
Ant. Pol.	Horizontal
Test Mode:	TX DH5 Mode 2402MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		2402.500	53.79	-10.91	42.88	74.00	-31.12	peak
2		3670.700	44.54	-9.25	35.29	74.00	-38.71	peak
3		4978.000	47.88	-5.45	42.43	74.00	-31.57	peak
4		6446.800	44.31	-2.30	42.01	74.00	-31.99	peak
5		8155.300	41.33	2.03	43.36	74.00	-30.64	peak
6	*	13709.200	39.01	10.87	49.88	74.00	-24.12	peak

Measurement = Reading level + Correct Factor

Add：West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China
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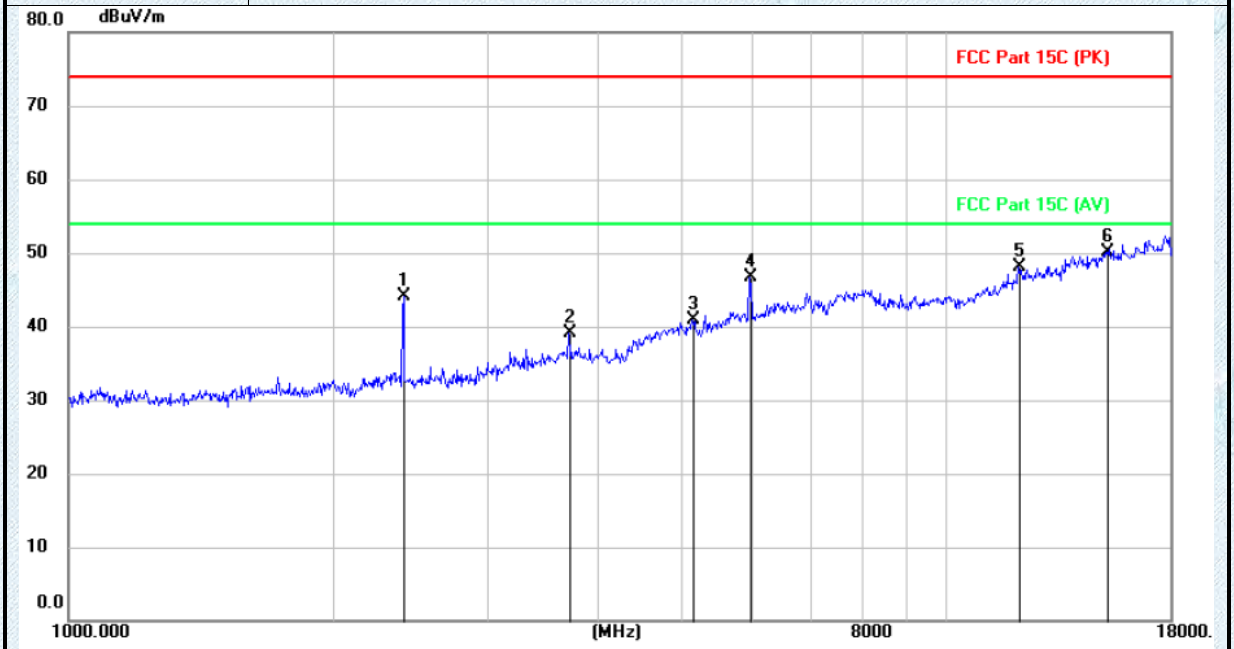
Test Voltage	DC 3.8V
Ant. Pol.	Vertical
Test Mode:	TX DH5 Mode 2402MHz

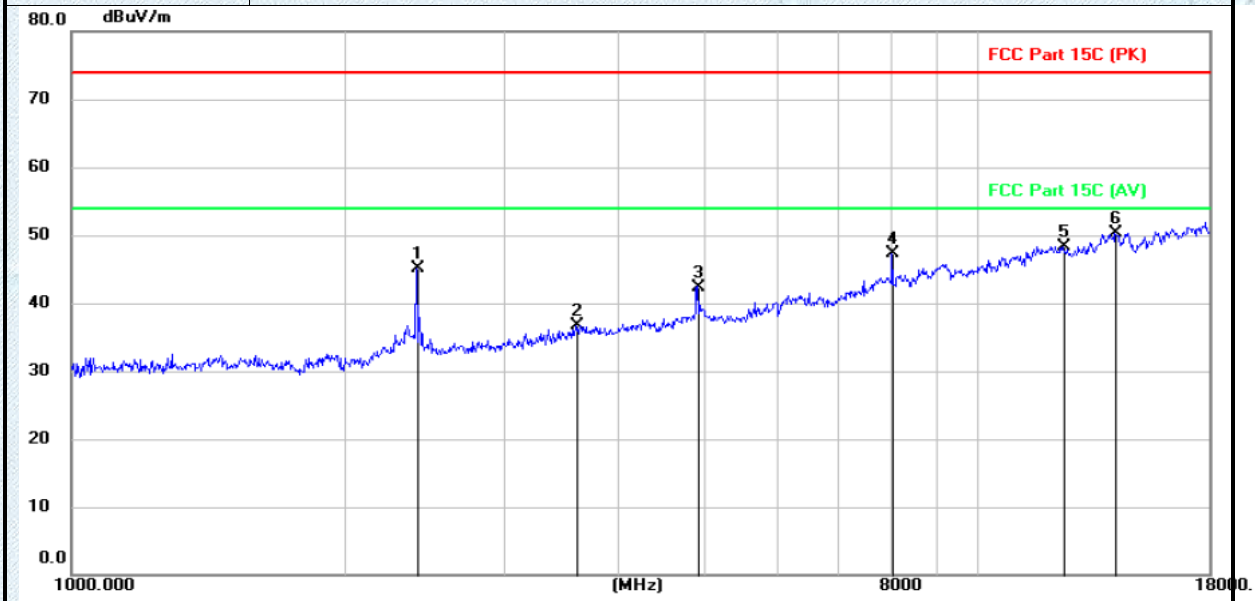


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		2414.400	55.01	-10.91	44.10	74.00	-29.90	peak
2		3725.100	48.26	-9.12	39.14	74.00	-34.86	peak
3		5142.900	46.12	-5.26	40.86	74.00	-33.14	peak
4		5981.000	50.52	-3.84	46.68	74.00	-27.32	peak
5		12109.500	39.90	8.13	48.03	74.00	-25.97	peak
6	*	15225.600	38.33	11.78	50.11	74.00	-23.89	peak

Measurement = Reading level + Correct Factor

Add：West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China
Tel：+(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail：info@gdksign.cn Web: www.gdksign.com

Test Voltage	DC 3.8V
Ant. Pol.	Horizontal
Test Mode:	TX DH5 Mode 2441MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		2402.300	55.96	-10.91	45.05	74.00	-28.95	peak
2		3607.800	46.11	-9.41	36.70	74.00	-37.30	peak
3		4913.400	48.02	-5.62	42.40	74.00	-31.60	peak
4		8036.300	45.25	2.06	47.31	74.00	-26.69	peak
5		12398.500	39.50	8.75	48.25	74.00	-25.75	peak
6	*	14186.900	39.42	10.98	50.40	74.00	-23.60	peak

Measurement = Reading level + Correct Factor

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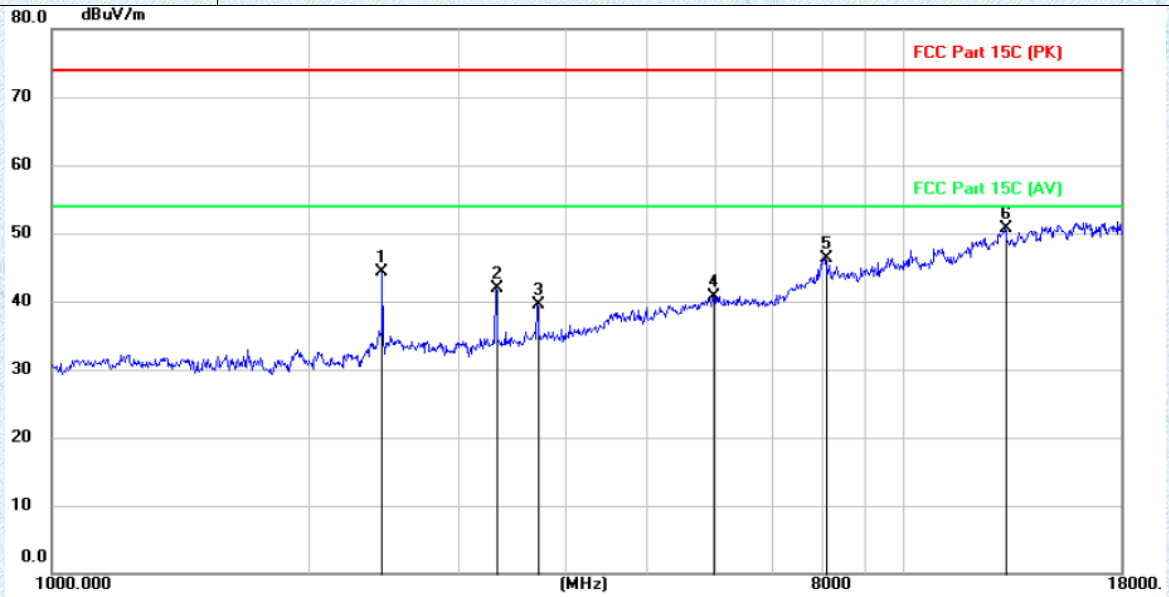
Test Voltage	DC 3.8V
Ant. Pol.	Vertical
Test Mode:	TX DH5 Mode 2441MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		2441.500	55.22	-10.90	44.32	74.00	-29.68	peak
2		3320.500	51.84	-10.01	41.83	74.00	-32.17	peak
3		3721.700	48.54	-9.12	39.42	74.00	-34.58	peak
4		5981.000	44.59	-3.84	40.75	74.00	-33.25	peak
5		8094.100	44.28	2.05	46.33	74.00	-27.67	peak
6	*	13165.200	40.52	10.15	50.67	74.00	-23.33	peak

Measurement = Reading level + Correct Factor

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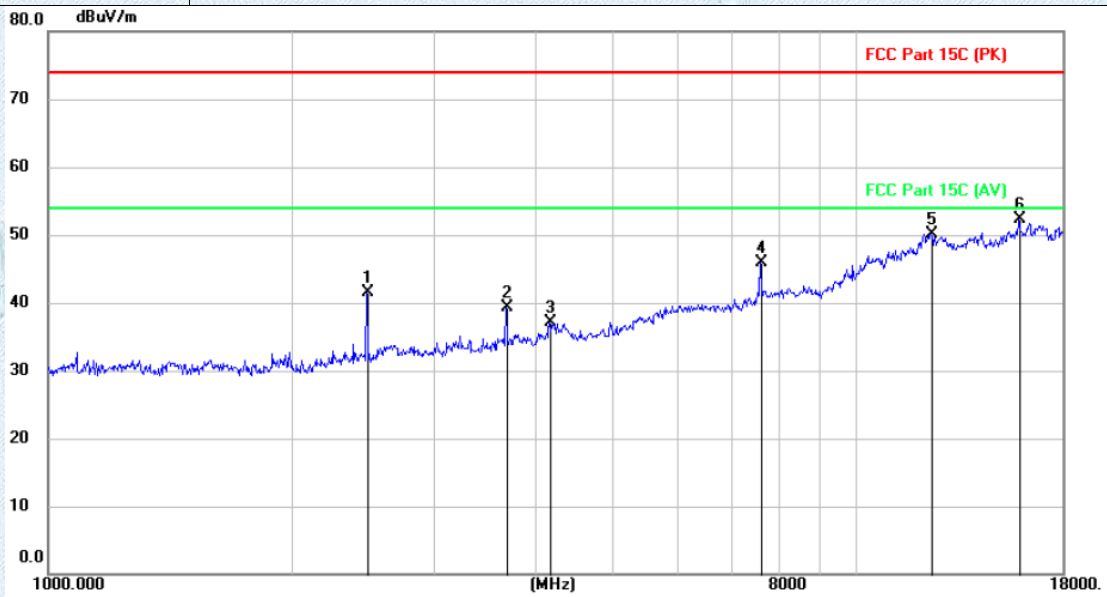
Test Voltage	DC 3.8V
Ant. Pol.	Horizontal
Test Mode:	TX DH5 Mode 2480MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		2480.700	52.48	-10.89	41.59	74.00	-32.41	peak
2		3687.700	48.50	-9.21	39.29	74.00	-34.71	peak
3		4179.000	44.96	-7.83	37.13	74.00	-36.87	peak
4		7618.100	44.75	1.11	45.86	74.00	-28.14	peak
5		12364.500	41.46	8.68	50.14	74.00	-23.86	peak
6	*	15934.500	39.83	12.53	52.36	74.00	-21.64	peak

Measurement = Reading level + Correct Factor

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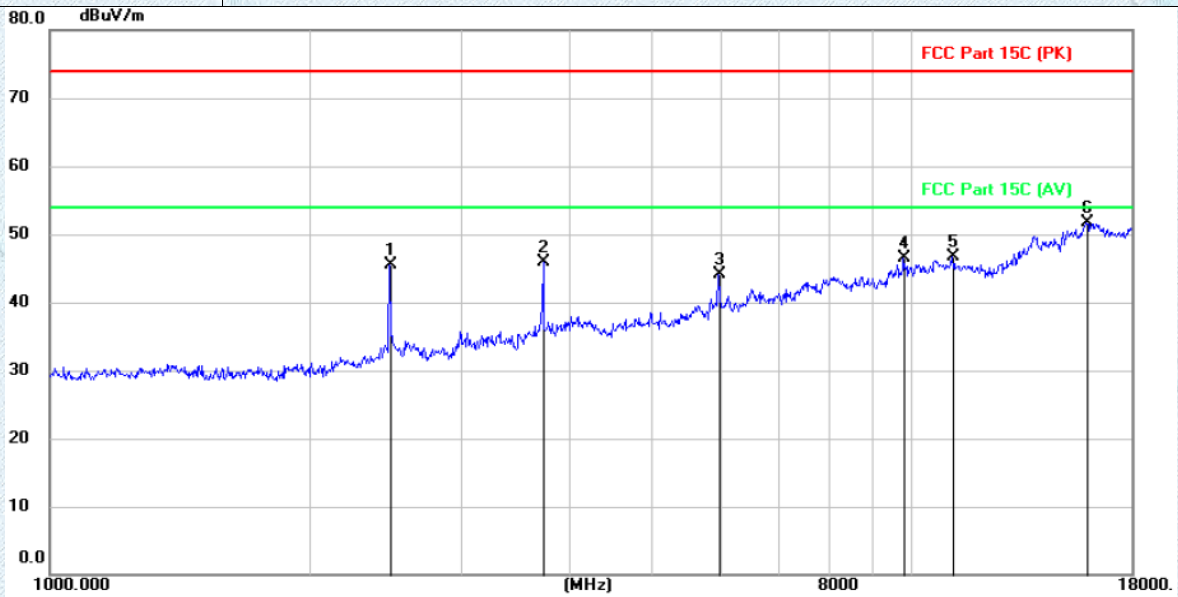
Test Voltage	DC 3.8V
Ant. Pol.	Vertical
Test Mode:	TX DH5 Mode 2480MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		2480.700	56.48	-10.89	45.59	74.00	-28.41	peak
2		3745.500	55.00	-9.07	45.93	74.00	-28.07	peak
3		5977.600	47.87	-3.85	44.02	74.00	-29.98	peak
4		9783.900	42.91	3.60	46.51	74.00	-27.49	peak
5		11154.100	40.59	6.05	46.64	74.00	-27.36	peak
6	*	15975.300	39.07	12.58	51.65	74.00	-22.35	peak

Measurement = Reading level + Correct Factor

Note:

1.All test modes had been tested. The GFSK modulation is the worst case and recorded in the report.

2.The main frequency has been screened by the filter .

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3.10. Pseudorandom Frequency Hopping Sequence

LIMIT

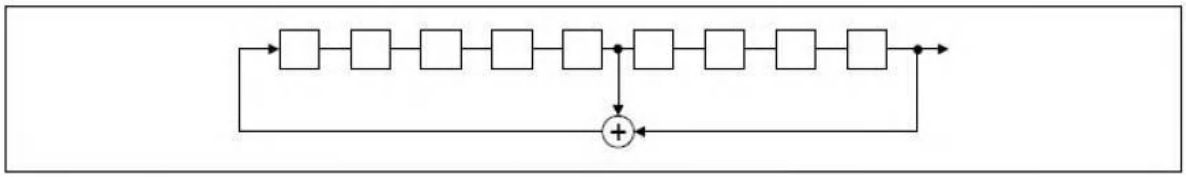
FCC CFR Title 47 Part 15 Subpart C Section 15.247 (a)(1):

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. Al-ternatively, 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 cor-responding transmitters and shall shift frequencies in synchronization with the transmitted signals.

TEST RESULTS

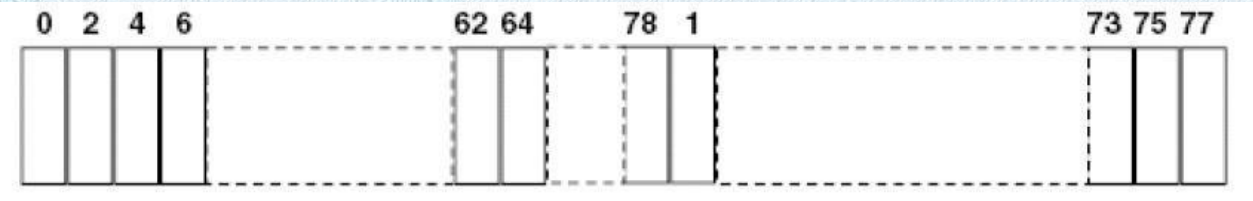
The pseudorandom frequency hopping sequence may be generated in a nice-stage shift register whose 5th and 9th stage outputs are added in a modulo-two addition stage.And the result is fed back to the input of the friststage.The sequence begins with the frist one of 9 consecutive ones, for example: the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

- Number of shift register stages: 9
- Length of pseudo-random sequence:29-1=511 bits
- Longest sequence of zeros:8(non-inverted signal)



Linear Feedback Shift Register for Generation of the PRBS sequence

An explame 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.

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3.11. Conducted Emission

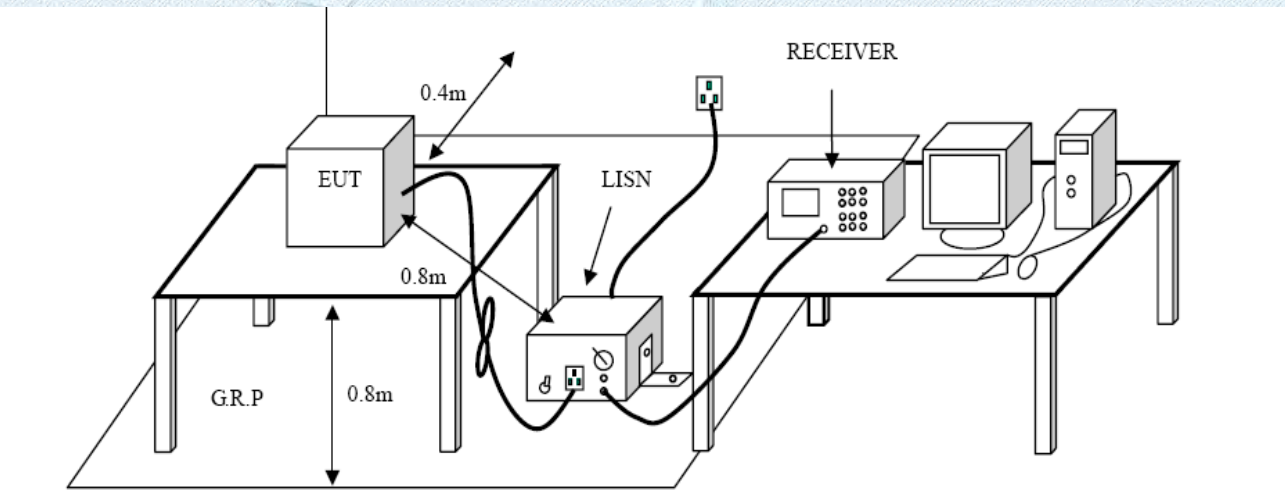
Limit

Conducted Emission Test Limit

Frequency	Maximum RF Line Voltage (dBμV)	
	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Notes:
(1) *Decreasing linearly with logarithm of the frequency.
(2) The lower limit shall apply at the transition frequencies.
(3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

Test Configuration



Test Procedure

1. The EUT was setup according to ANSI C63.10:2013 requirements.
2. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface.
3. The EUT and simulators are connected to the main power through a line impedances stabilization network (LISN). The LISN provides a 50ohm /50uH coupling impedance for the measuring equipment.
   The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
4. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
5. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
6. Conducted Emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
7. During the above scans, the emissions were maximized by cable manipulation.

Test Mode:

Please refer to the clause 2.3.

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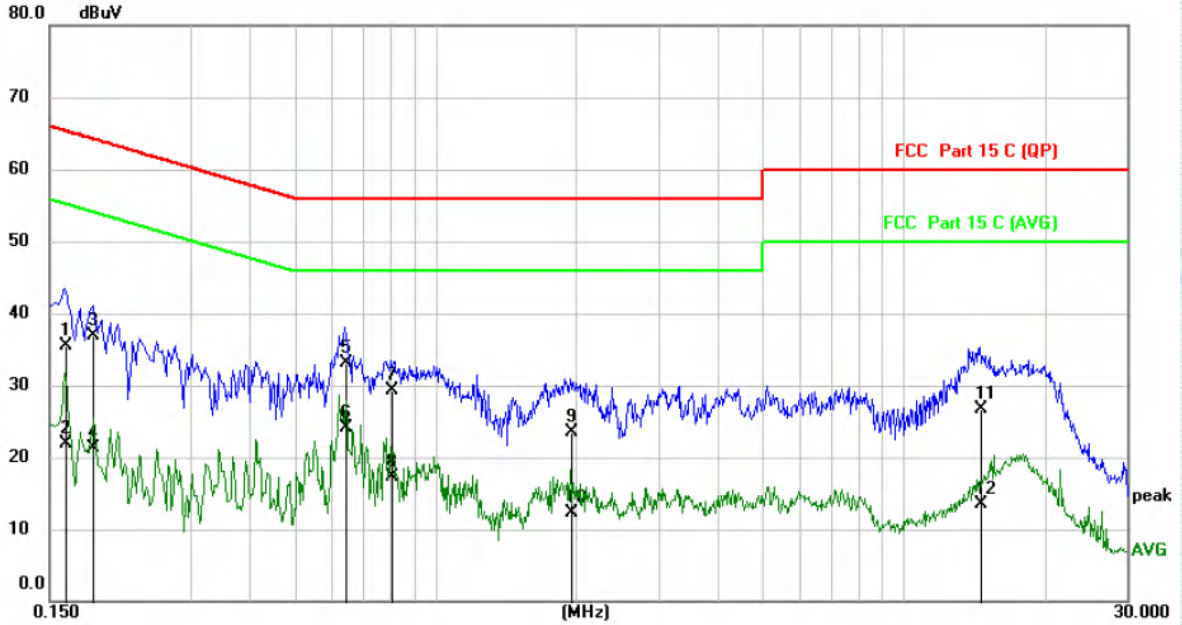
Test Results

Pre-scan DH5, 2DH5,3DH5 modulation, and found the DH5 modulation 2402MHz which it is worse case, so only show the test data for worse case.

Test Voltage:	AC 120V/60 Hz
Terminal:	Line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1620	24.73	10.72	35.45	65.36	-29.91	QP
2		0.1620	11.17	10.72	21.89	55.36	-33.47	AVG
3		0.1860	26.17	10.75	36.92	64.21	-27.29	QP
4		0.1860	10.62	10.75	21.37	54.21	-32.84	AVG
5		0.6419	22.68	10.46	33.14	56.00	-22.86	QP
6	*	0.6419	13.67	10.46	24.13	46.00	-21.87	AVG
7		0.8059	18.83	10.44	29.27	56.00	-26.73	QP
8		0.8059	6.91	10.44	17.35	46.00	-28.65	AVG
9		1.9460	12.87	10.55	23.42	56.00	-32.58	QP
10		1.9460	1.68	10.55	12.23	46.00	-33.77	AVG
11		14.5620	15.89	10.76	26.65	60.00	-33.35	QP
12		14.5620	2.77	10.76	13.53	50.00	-36.47	AVG

Remarks:
1.Measurement = Reading Level+ Correct Factor
2.Over = Measurement -Limit

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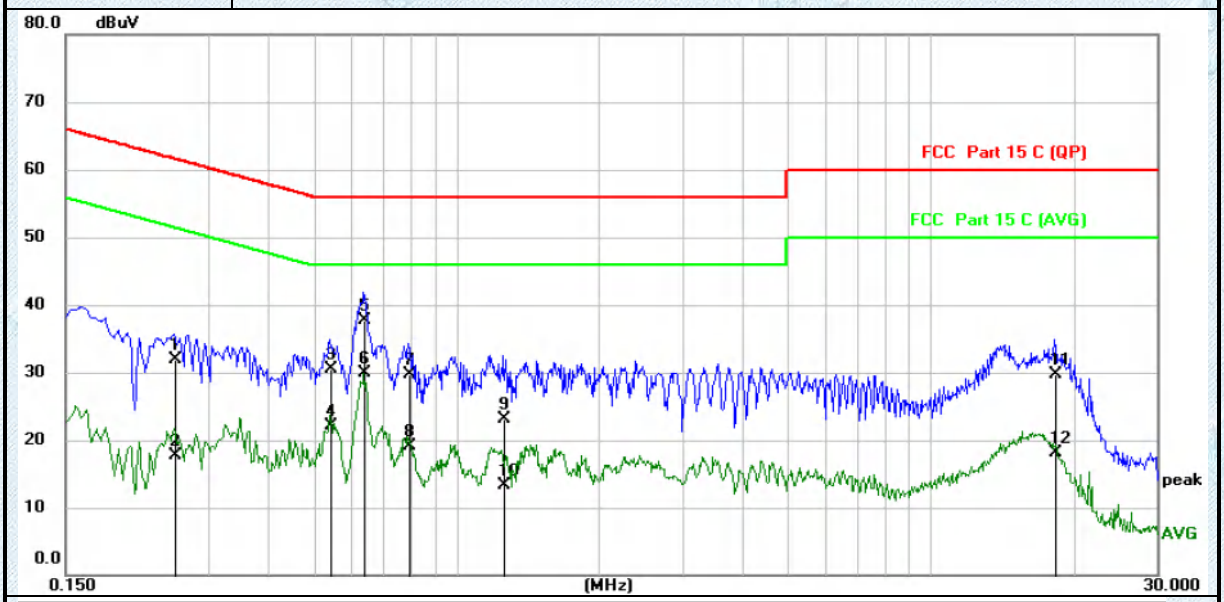
Test Voltage:	AC 120V/60 Hz
Terminal:	Neutral



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.2540	21.31	10.69	32.00	61.63	-29.63	QP
2		0.2540	7.10	10.69	17.79	51.63	-33.84	AVG
3		0.5420	20.01	10.49	30.50	56.00	-25.50	QP
4		0.5420	11.58	10.49	22.07	46.00	-23.93	AVG
5		0.6380	27.28	10.45	37.73	56.00	-18.27	QP
6	*	0.6380	19.46	10.45	29.91	46.00	-16.09	AVG
7		0.7940	19.24	10.43	29.67	56.00	-26.33	QP
8		0.7940	8.69	10.43	19.12	46.00	-26.88	AVG
9		1.2579	12.72	10.48	23.20	56.00	-32.80	QP
10		1.2579	2.74	10.48	13.22	46.00	-32.78	AVG
11		18.2420	18.84	10.84	29.68	60.00	-30.32	QP
12		18.2420	7.18	10.84	18.02	50.00	-31.98	AVG

Remarks:
1.Measurement = Reading Level+ Correct Factor
2.Over = Measurement -Limit

Add：West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China
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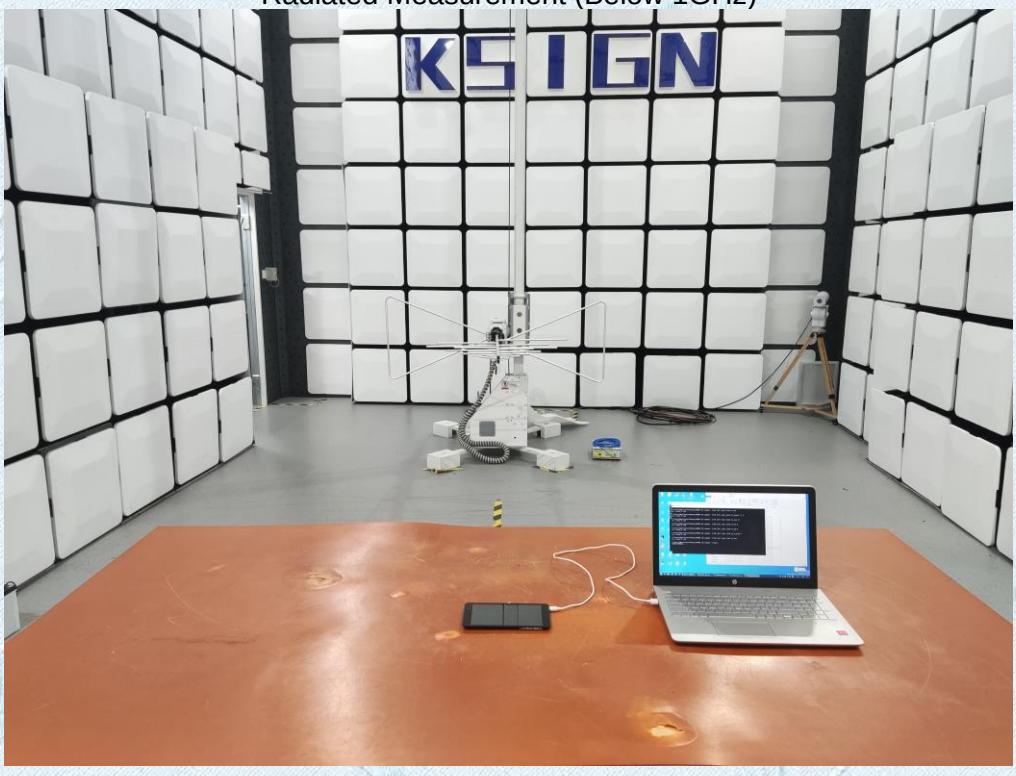
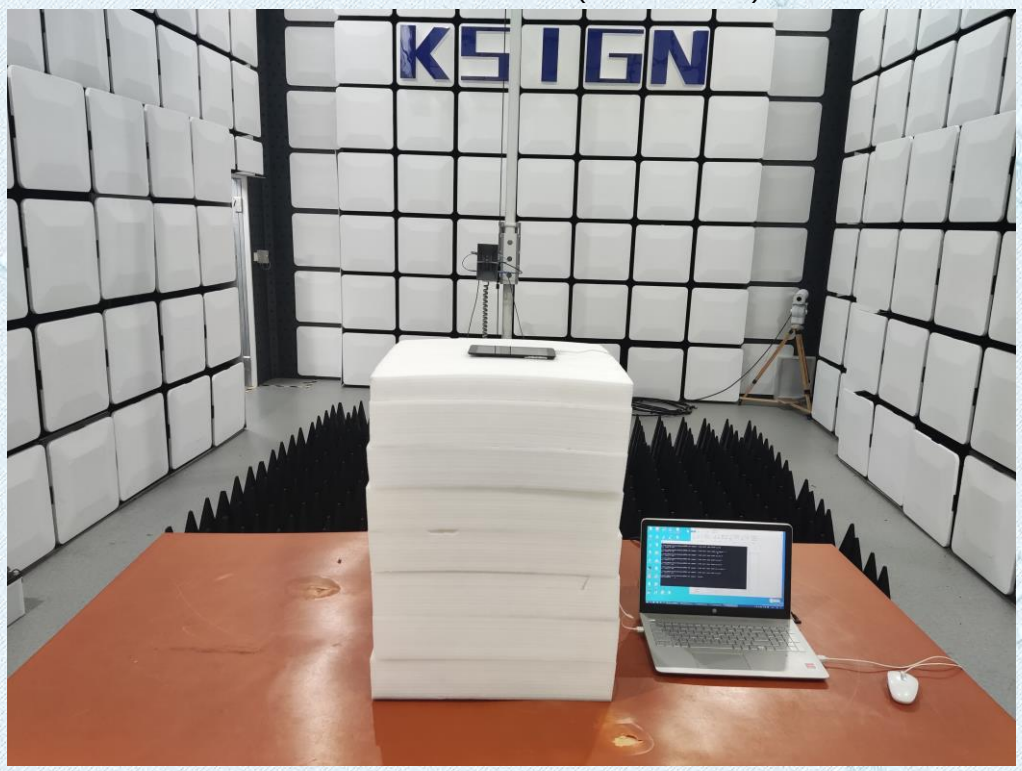
4.EUT TEST PHOTOS

Radiated Measurement (Below 1GHz)



Radiated Measurement (Above 1GHz)



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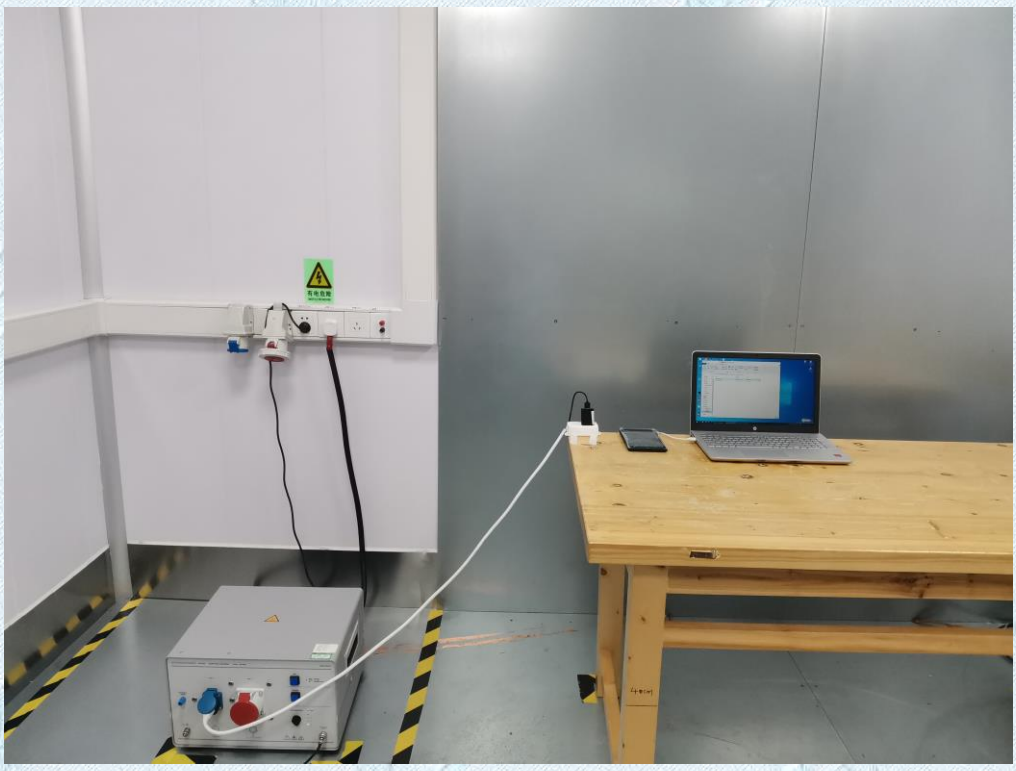
CONDUCTED EMISSION TEST SETUP



RF Conducted

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5.PHOTOGRAPHS OF EUT CONSTRUCTIONAL

Please refer to the attached the Report No.KS2105S1418E01 external photos and internal photos

**********THE END**********

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