China

RF - TEST REPORT

Report Number	:	**64.790.13.02210.01- FCC**	Date of Issue:	2013-11-04

Model	:	A0-CL01
Product Type	:	Lamp Speaker System
FCC ID	:	2AAUHA0-CL01
Applicant	:	SHANGHAI ETIGER DIGITAL TECHNOLOGY CO.,LTD
Address	:	1905,Greenland bld, 1258 YuYuan rd, ChangNing District Shanghai, 200050 China
License Holder	:	SHANGHAI ETIGER DIGITAL TECHNOLOGY CO.,LTD
Address	:	1905,Greenland bld, 1258 YuYuan rd, ChangNing District Shanghai, 200050 China
Test Result	:	■ **Positive** ☐ **Negative**
Total pages including Appendices	:	99

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1. DETAILS ABOUT THE TEST LABORATORY

Details about the Test Laboratory

Test Site 1

Company name:	Jiangsu TÜV Product Service Ltd. Guangzhou Branch
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Test Site 2

Company name:	Neutron Engineering Inc. No.3.JinShaGang 1st Road, ShiXia,DaLang Town, DongGuan, China
Telephone:	86 769 83183000
Fax:	86 769 83196000

	January 24, 2005 File on Federal Communications Commission Laboratory Division 7435 Oakland Mills Road Columbia, MD 21046
Registration Number:	319330

2. DESCRIPTION OF THE EQUIPMENT UNDER TEST

Test Standards	
FCC Part 15 Subpart C (10–1–12 Edition)	PART 15 - RADIO FREQUENCY DEVICES Subpart C - Intentional Radiators

Equipment	Lamp Speaker System
Model Name.	A0-CL01
Product Description	The EUT is a set of Bluetooth speaker with lamp function. It can be controlled by a 2420MHz controller. Product Type: Lamp Speaker System Operation Frequency: 2402~2480MHz modulation Type: GFSK, (π/4)QPSK, 8DPSK Number Of Channel: 79CH .Please see note 2. Antenna Designation: PCB layout Antenna Gain(Peak): 3 dBi max. Maximum Peak Power: 2.34dBm(conducted) More details of EUT technical specification. Please refer to the User's Manual.
Channel List	Please refer to the Note 2.
Power Source	100-240VAC, 50/60Hz
Power Rating	70W
Connecting I/O Port(s)	Please refer to the User's Manual
Products Covered	N/A

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

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2.

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
1	2402	28	2429	55	2456
2	2403	29	2430	56	2457
3	2404	30	2431	57	2458
4	2405	31	2432	58	2459
5	2406	32	2433	59	2460
6	2407	33	2434	60	2461
7	2408	34	2435	61	2480
8	2409	35	2436	62	2463
9	2410	36	2441	63	2464
10	2411	37	2438	64	2465
11	2402	38	2439	65	2466
12	2413	39	2440	66	2467
13	2414	40	2441	67	2468
14	2415	41	2442	68	2469
15	2416	42	2443	69	2470
16	2417	43	2444	70	2471
17	2418	44	2445	71	2472
18	2419	45	2446	72	2473
19	2420	46	2447	73	2474
20	2421	47	2448	74	2475
21	2422	48	2449	75	2476
22	2423	49	2450	76	2477
23	2424	50	2451	77	2478
24	2425	51	2452	78	2479
25	2426	52	2453	79	2480
26	2427	53	2454		
27	2428	54	2455		

3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Maximum Peak Gain (dBi)
1	N/A	N/A	PCB layout	N/A	3

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3. SUMMARY OF TEST RESULTS

Technical Requirements			
Transmit mode			
Test Items	Test Result		
	Pass	Fail	Test site
15.203 Antenna requirement	☒	☐	Site 2
15.207 Conducted emission AC power port	☒	☐	Site 2
15.247(d) & 15.209 Spurious radiated emissions for transmitter and receiver	☒	☐	Site 2
15.247(b)(1) Conducted peak output power	☒	☐	Site 2
15.247(a)(1) 20dB bandwidth	☒	☐	Site 2
15.247(a)(1) Carrier frequency separation	☒	☐	Site 2
15.247(a)(1)(iii) Number of hopping channel	☒	☐	Site 2
15.247(a)(1)(iii) Dwell Time	☒	☐	Site 2
15.247(d) Conducted spurious emissions	☒	☐	Site 2
15.247(d) Band edge	☒	☐	Site 2

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4. GENERAL REMARKS

This submittal(s) (test report) is intended for
FCC ID:2AAUHA0-CL01
filing to comply with
- Section 15.205, 15.207, 15.209, 15.247 of the FCC Part 15, Subpart C Rules. Tests have been carried out in accordance with FCC rules Part 15 Subpart C, ANSI C63.4 (2009), Public Notice DA 00-705.

SUMMARY:

All tests according to the regulations cited on page 7 were

■ - Performed

☐ - **Not** Performed

The Equipment Under Test

■ - **Fulfills** the general approval requirements.

☐ - **Does not** fulfill the general approval requirements.

Testing Start Date: 2013-08-11

Testing End Date: 2013-08-15

- JIANGSU TÜV PRODUCT SERVICE LTD. GUANGZHOU BRANCH-

Reviewed by: Prepared by:

Tony Liu Celia Xiang

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5. DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	Transmitting at 2402MHz with different data package.
Mode 2	Transmitting at 2441MHz with different data package.
Mode 3	Transmitting at 2480MHz with different data package.

Final Test Mode	Description
Mode 1	Transmitting at 2402MHz with DH5.
Mode 2	Transmitting at 2441MHz with DH5.
Mode 3	Transmitting at 2480MHz with DH5.
Mode 4	Transmitting at 2402MHz with 3DH5.
Mode 5	Transmitting at 2441MHz with 3DH5.
Mode 6	Transmitting at 2480MHz with 3DH5.

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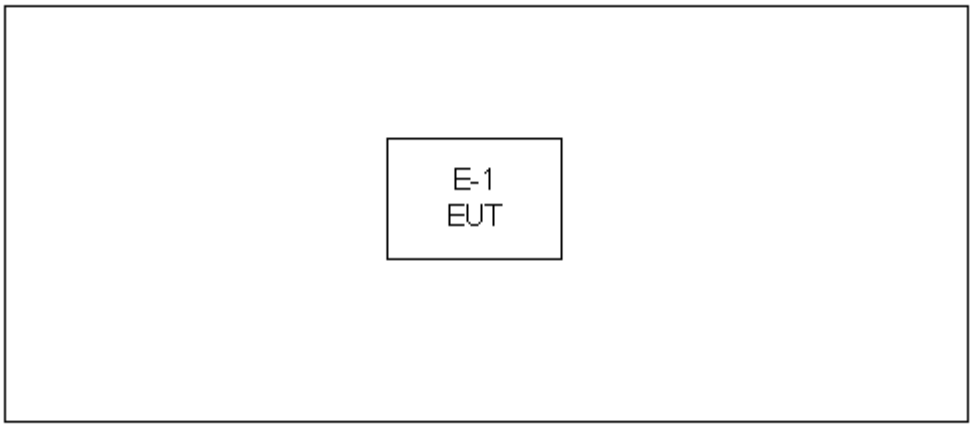
5.1 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM

TESTED



5.2 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note

Item	Shielded Type	Ferrite Core	Length	Note

Note:
(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in m in『Length』column.

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6. TEST RESULTS

6.1 MEASUREMENT UNCERTAINTY

For a 95% confidence level(k=2), the measurement expanded uncertainties for defined systems accordance with the recommendations of ISO 17025 as following:

Test item		expanded uncertainty
Conducted emission	Voltage(dBuV)	U= 0.83dB
Bandwidth	Magnitude (%)	U= 0.5%
Maximum peak power	Power (dBm)	U= 0.1dB
Conducted spurious emission and band edge	Power (dBm)	U= 0.1dB
Radiated spurious emission	Filed strength (dBuV/m)	U= 2.61dB(30MH~1GHz) U= 2.6dB(above 1GHz)

6.2 ANTENNA REQUIRMENT

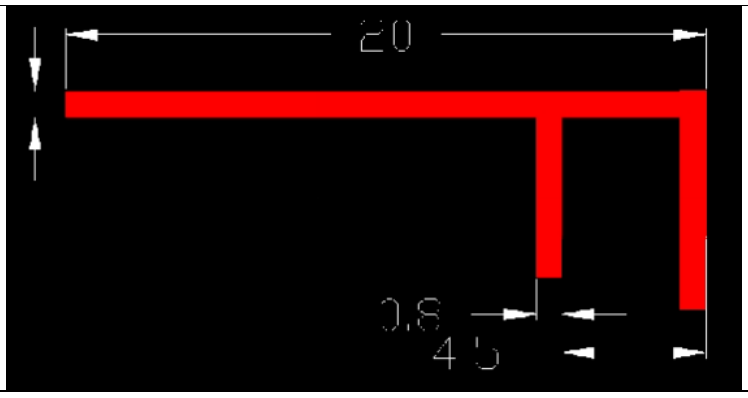
6.1.1 STANDARD REQUIRMENTS

15.247(b) (4) requirement:
The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

6.1.2 EUT ANTENNA

The maximum antenna gain of PCB layout antenna for EUT is 3dBi.

6.1.3 ANTENNA PHOTO



6.1.4 RESULT

Complies.

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6.3 CONDUCTED EMISSION MEASUREMENT

6.3.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		C ass B (dBuV)		Standard
	Quasi-peak	Average	Quasi-peak	Average	
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	73.00	60.00	56.00	46.00	FCC
5.0 -30.0	73.00	60.00	60.00	50.00	FCC

Note:

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

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

6.3.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	LISN	EMCO	3816/2	00052765	Apr. 25, 2014
2	LISN	R&S	ENV216	100087	Nov. 16, 2013
3	Test Cable	N/A	C_17	N/A	Mar. 15, 2014
4	EMI TEST RECEIVER	R&S	ESCS30	826547/022	Apr. 25, 2014
5	50Ω Terminator	SHX	TF2-3G-A	08122902	Apr. 25, 2014

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

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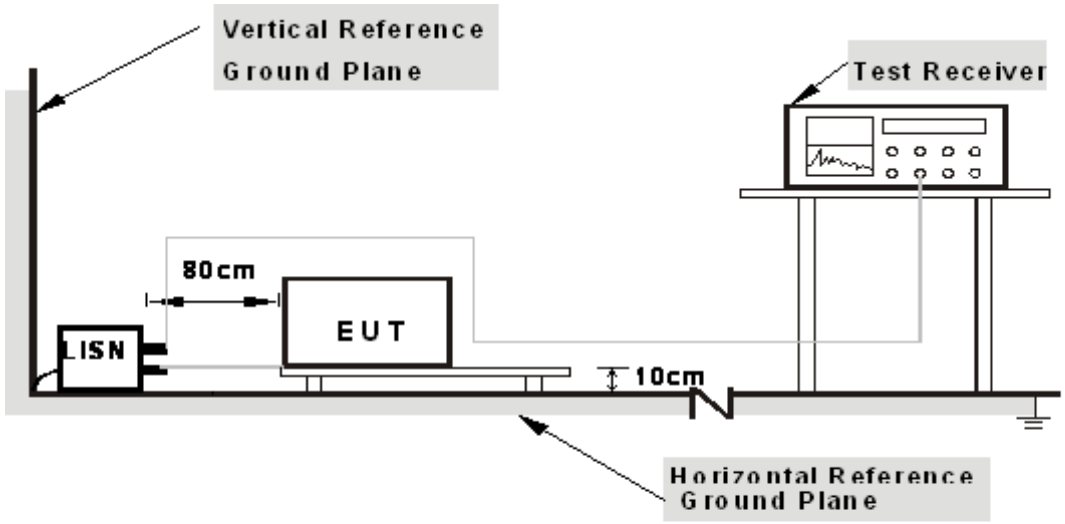
6.3.3 TEST PROCEDURE

a. The EUT was placed 0.1 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item – EUT Test Photos.

6.3.4 DEVIATION FROM TEST STANDARD

No deviation

6.3.5 TEST SETUP PHOTO



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

6.3.6 EUT OPERATING CONDITIONS

Test EUT with Bluetooth function on to play music.

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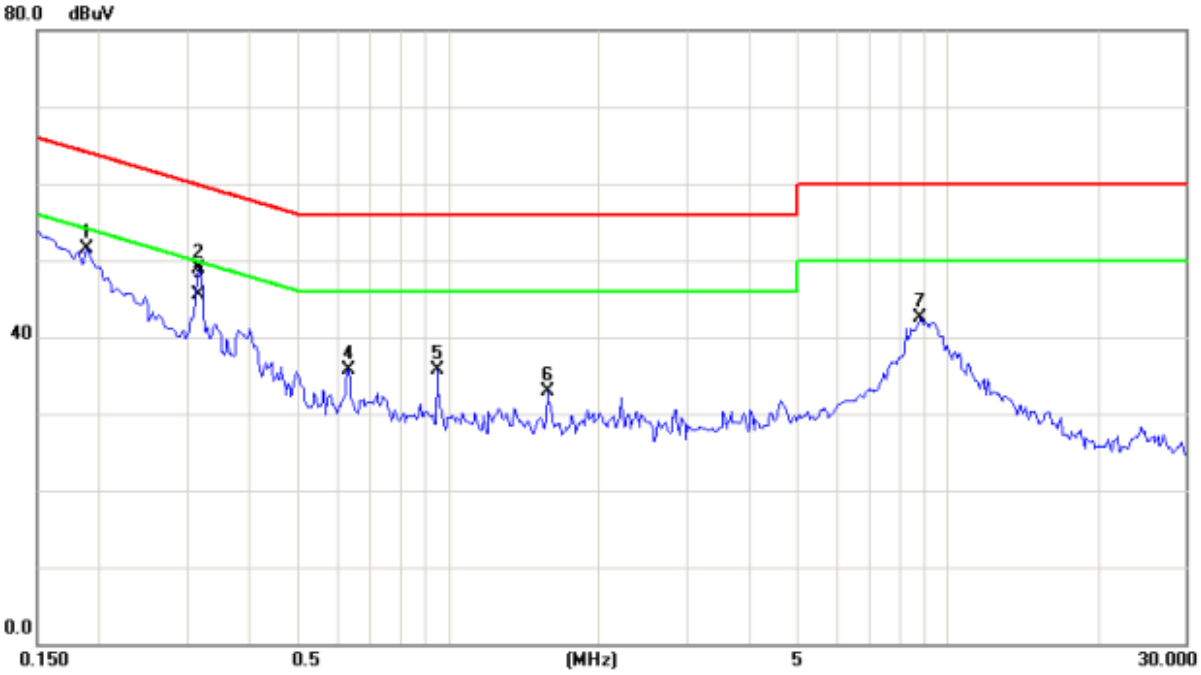
6.3.7 TEST RESULTS

Model Name. :	A0-CL01	Conducted Line/Port:	N
Temperature:	25 ℃	Relative Humidity:	50%
Pressure:	1003mBar	Test voltage:	120Vac
Test Mode :	Test EUT with Bluetooth function on to play music.		

Test data:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1891	41.83	9.71	51.54	64.08	-12.54	peak
2		0.3180	39.09	9.72	48.81	59.76	-10.95	peak
3	*	0.3180	35.80	9.72	45.52	49.76	-4.24	AVG
4		0.6305	25.93	9.75	35.68	56.00	-20.32	peak
5		0.9508	25.89	9.77	35.66	56.00	-20.34	peak
6		1.5797	23.14	9.83	32.97	56.00	-23.03	peak
7		8.8242	32.47	10.11	42.58	60.00	-17.42	peak

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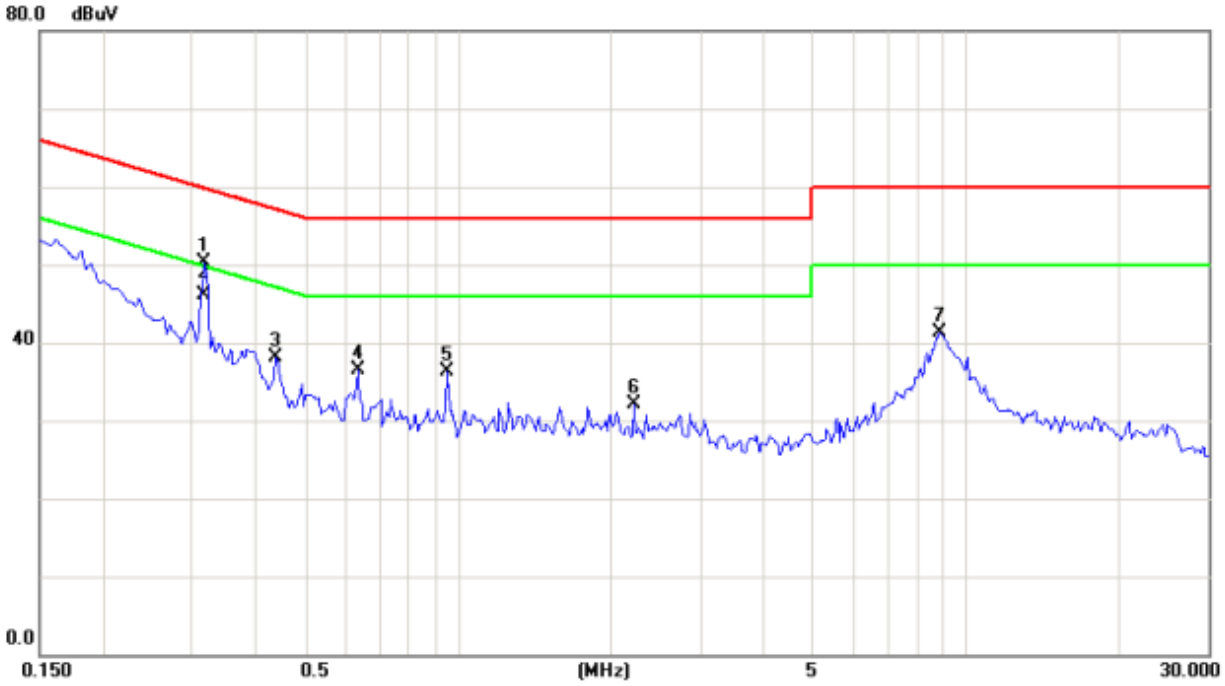
Model Name. :	A0-CL01	Conducted Line/Port:	L
Temperature:	25 ℃	Relative Humidity:	50%
Pressure:	1003mBar	Test voltage:	120Vac
Test Mode :	Test EUT with Bluetooth function on to play music.		

Test data:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.3180	40.58	9.67	50.25	59.76	-9.51	peak
2	*	0.3180	36.40	9.67	46.07	49.76	-3.69	AVG
3		0.4391	28.32	9.69	38.01	57.08	-19.07	peak
4		0.6344	26.82	9.72	36.54	56.00	-19.46	peak
5		0.9508	26.62	9.74	36.36	56.00	-19.64	peak
6		2.2163	22.32	9.84	32.16	56.00	-23.84	peak
7		8.8711	31.23	10.03	41.26	60.00	-18.74	peak

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6.4 RADIATED EMISSION MEASUREMENT

6.4.1 Radiated Emission Limits (FCC 15.209)

Frequencies (MHz)	Field Strength (micorvolts/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

Harmonic emissions limits comply with below 54 dBuV/m at 3m. Other emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or comply with the radiated emissions limits specified in section 15.209(a) limit in the table below has to be followed.

Note:

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

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

LIMITS OF RADIATED EMISSION MEASUREMENT (FCC 15.209)

FREQUENCY (MHz)	(dBuV/m) (at 3m)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

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

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

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6.4.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	Schwarbeck	VULB9160	9160-3232	Apr. 25, 2014
2	Amplifier	HP	8447D	2944A09673	Apr. 25, 2014
3	Test Receiver	R&S	ESCI	100382	Apr. 25, 2014
4	Test Cable	N/A	C-01_CB03	N/A	Jul. 02, 2014
5	Controller	CT	SC100	N/A	N/A
6	Antenna	ETS	3115	00075789	Apr. 25, 2014
7	Amplifier	Agilent	8449B	3008A02274	Apr. 25, 2014
8	Spectrum	Agilent	E4408B	US39240143	Nov. 16, 2013
9	Test Cable	HUBER+SUHNER	C-45	N/A	Apr. 30, 2014

Remark: ” N/A” denotes No Model Name. / Serial No. and No Calibration specified.

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1GHz
Stop Frequency	10th carrier harmonic
RBW / VBW (emission in restricted band)	1 MHz / 1 MHz for Peak, 1MHz/10Hz for average

6.4.3 TEST PROCEDURE

a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item – EUT Test Photos.

6.4.4 DEVIATION FROM TEST STANDARD

No deviation

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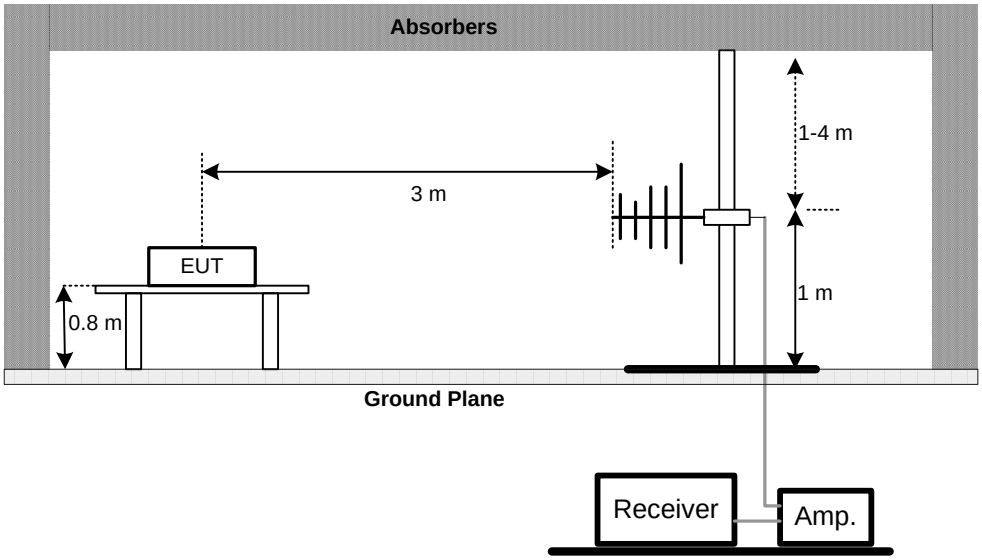
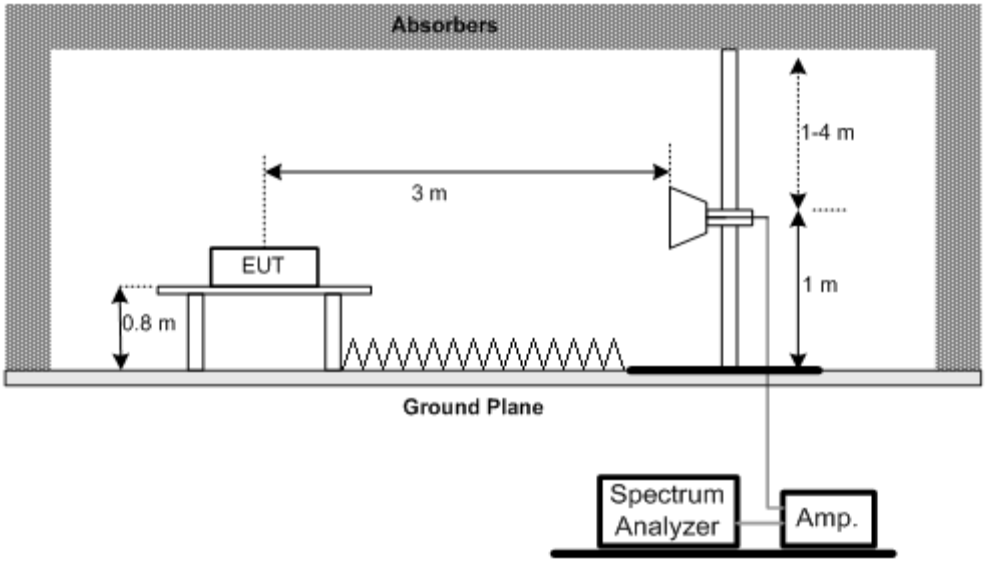
6.4.5 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(B) Radiated Emission Test Set-Up Frequency Above 1 GHz



6.4.6 EUT OPERATING CONDITIONS

The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

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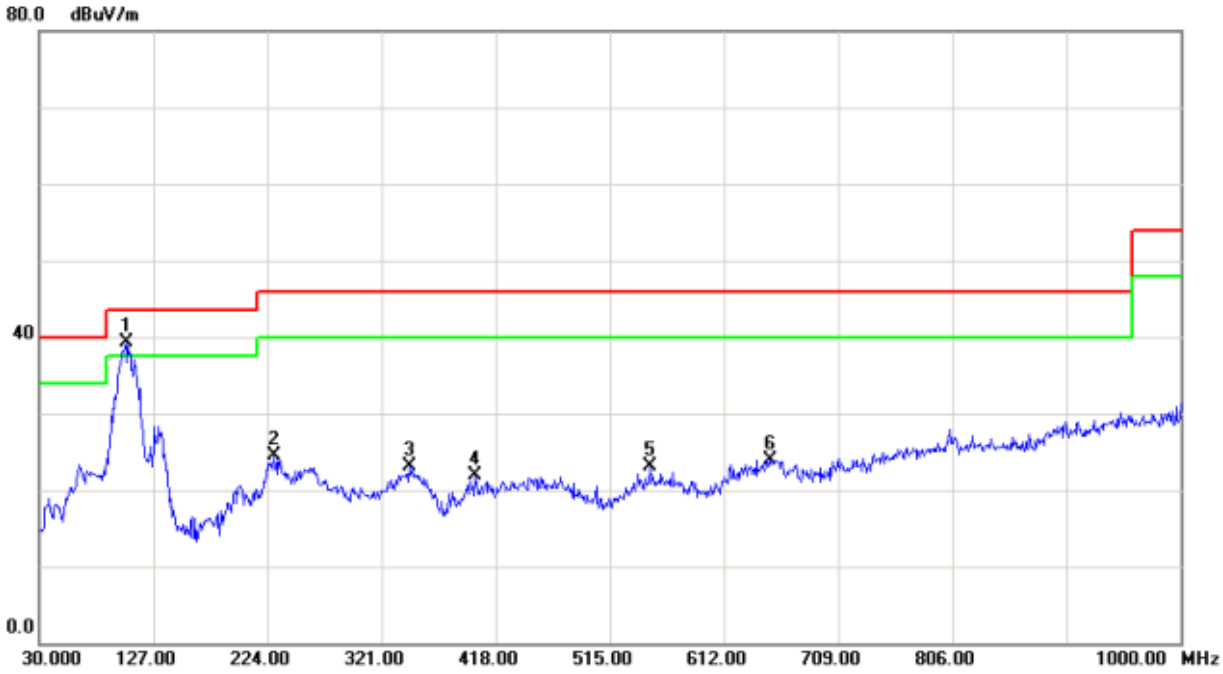
6.4.7 TEST RESULTS

Below 1GHz:

Model:	A0-CL01	Result:	PASS
Temperature：	23℃	Relative Humidity：	51 %
Pressure：	1001 hPa	Test voltage：	120Vac
Test Mode ：	Transmitting mode (GFSK/2402MHz)	Antenna polarity:	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	103.7200	54.89	-15.66	39.23	43.50	-4.27	peak
2		229.8200	38.91	-14.49	24.42	46.00	-21.58	peak
3		344.2800	34.51	-11.44	23.07	46.00	-22.93	peak
4		400.5400	31.73	-9.87	21.86	46.00	-24.14	peak
5		548.9500	30.84	-7.70	23.14	46.00	-22.86	peak
6		650.8000	29.51	-5.55	23.96	46.00	-22.04	peak

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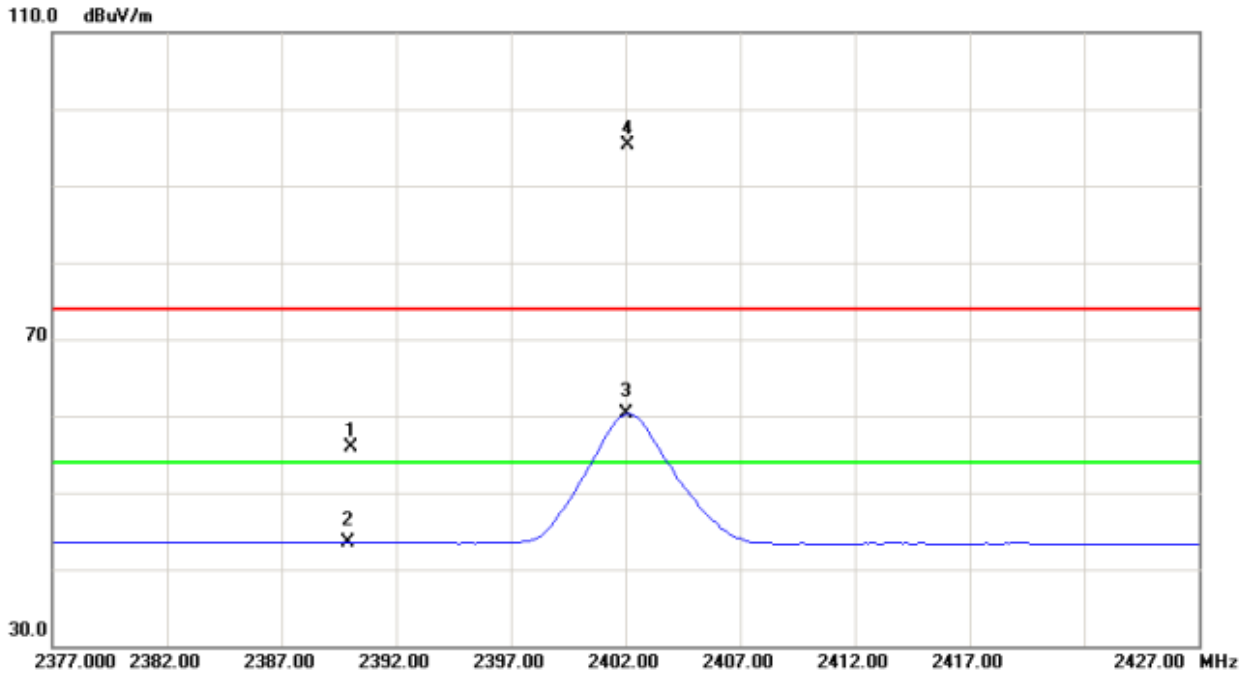
Above 1GHz:

Model:	A0-CL01	Result:	PASS
Temperature：	25℃	Relative Humidity：	58 %
Pressure：	1009 hPa	Test voltage：	120Vac
Test Mode ：	Transmitting mode (GFSK/2402MHz)	Antenna polarity:	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		2390.000	23.60	32.28	55.88	74.00	-18.12	peak
2		2390.000	11.20	32.28	43.48	54.00	-10.52	AVG
3	X	2402.000	27.95	32.27	60.22	54.00	6.22	AVG
4	*	2402.125	63.05	32.27	95.32	74.00	21.32	peak

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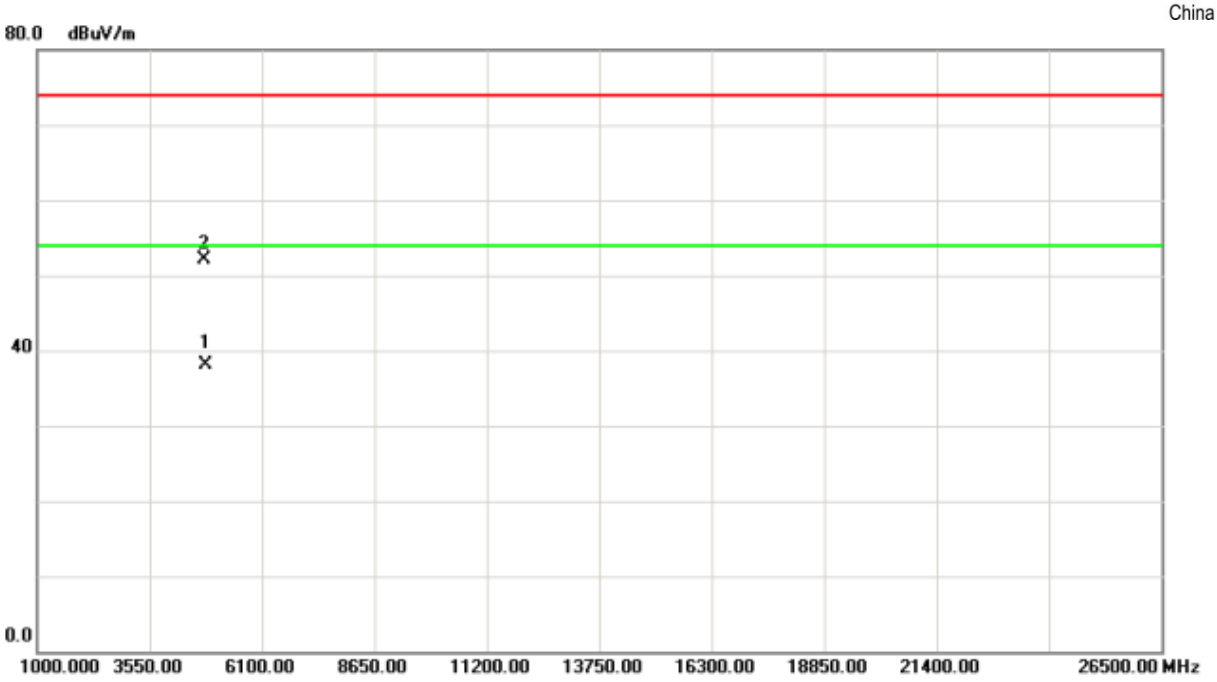

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	4803.978	32.03	6.11	38.14	54.00	-15.86	AVG
2		4803.982	45.96	6.11	52.07	74.00	-21.93	peak

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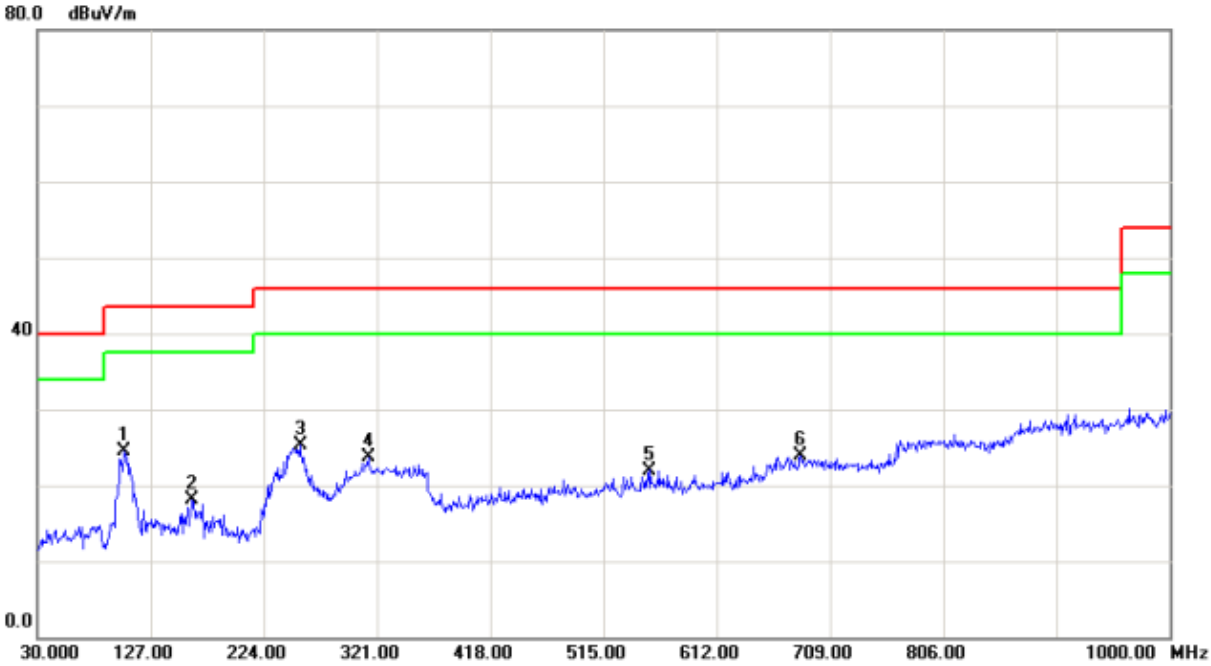
Below 1GHz:

Model:	A0-CL01	Result:	PASS
Temperature：	23℃	Relative Humidity：	51 %
Pressure：	1001 hPa	Test voltage：	120Vac
Test Mode ：	Transmitting mode (GFSK/2402MHz)	Antenna polarity:	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	104.6900	40.01	-15.52	24.49	43.50	-19.01	peak
2		162.8900	31.51	-13.39	18.12	43.50	-25.38	peak
3		255.0400	40.09	-14.86	25.23	46.00	-20.77	peak
4		313.2400	34.97	-11.31	23.66	46.00	-22.34	peak
5		554.7700	29.69	-7.69	22.00	46.00	-24.00	peak
6		683.7800	28.99	-5.05	23.94	46.00	-22.06	peak

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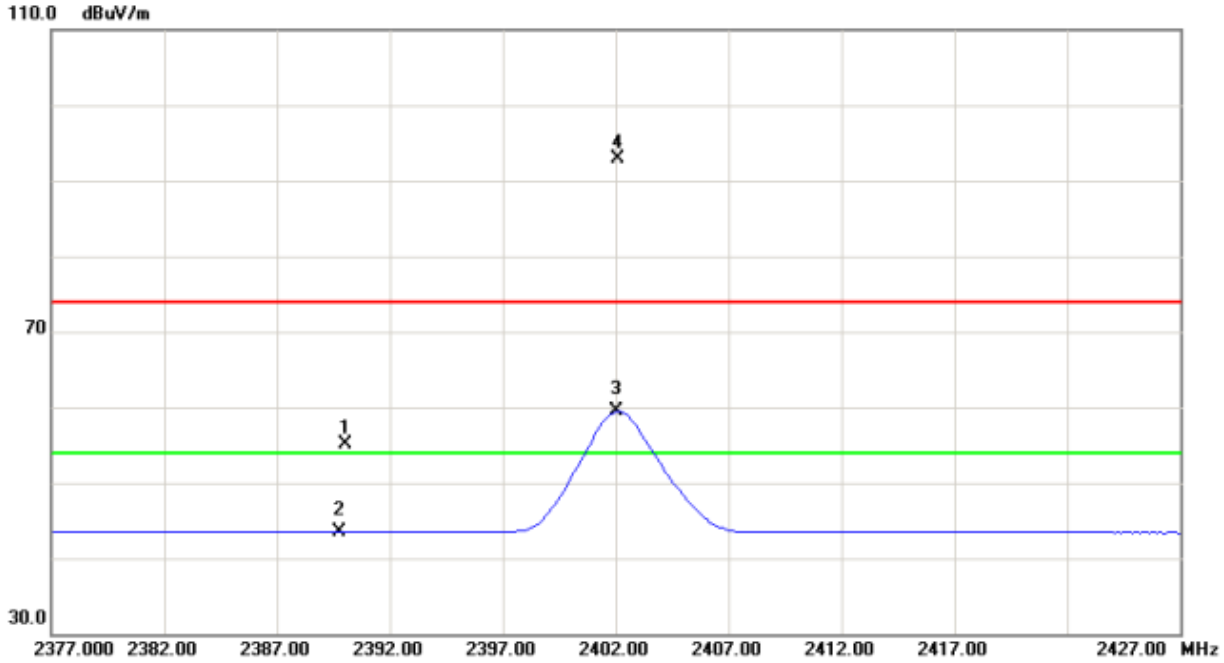
Above 1GHz:

Model:	A0-CL01	Result:	PASS
Temperature：	25℃	Relative Humidity：	58 %
Pressure：	1009 hPa	Test voltage：	120Vac
Test Mode ：	Transmitting mode (GFSK/2402MHz)	Antenna polarity:	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		2390.000	22.87	32.28	55.15	74.00	-18.85	peak
2		2390.000	11.23	32.28	43.51	54.00	-10.49	AVG
3	X	2402.000	27.15	32.27	59.42	54.00	5.42	AVG
4	*	2402.125	60.54	32.27	92.81	74.00	18.81	peak

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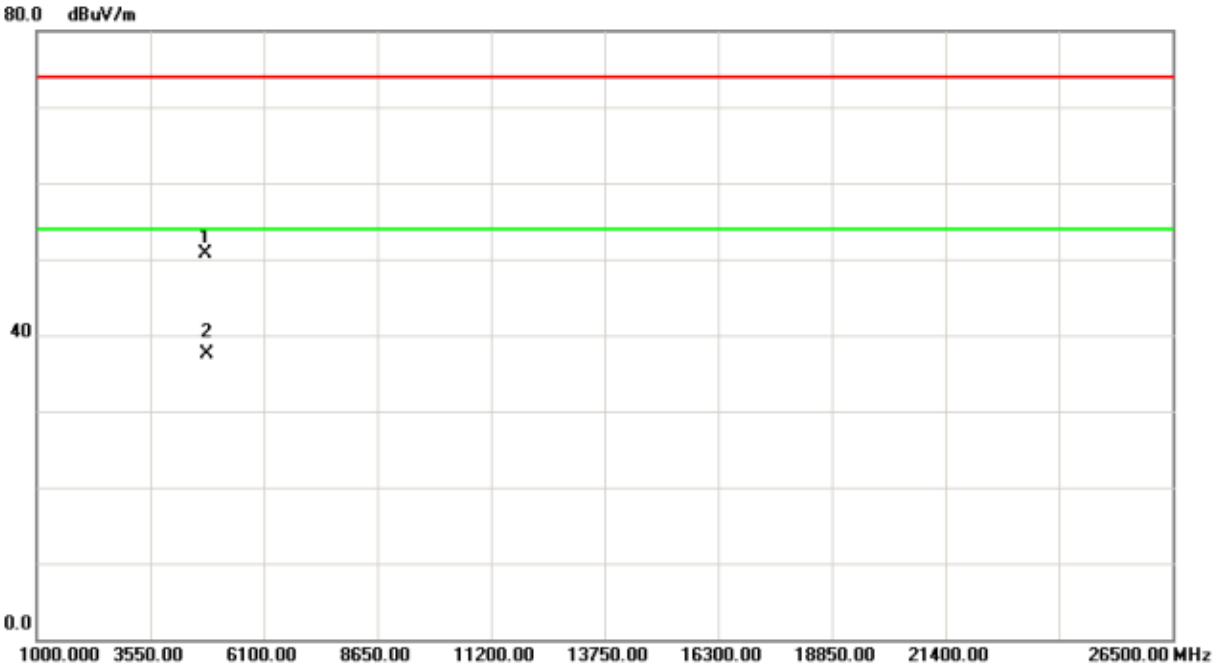

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		4803.968	44.57	6.11	50.68	74.00	-23.32	peak
2	*	4803.984	31.35	6.11	37.46	54.00	-16.54	AVG

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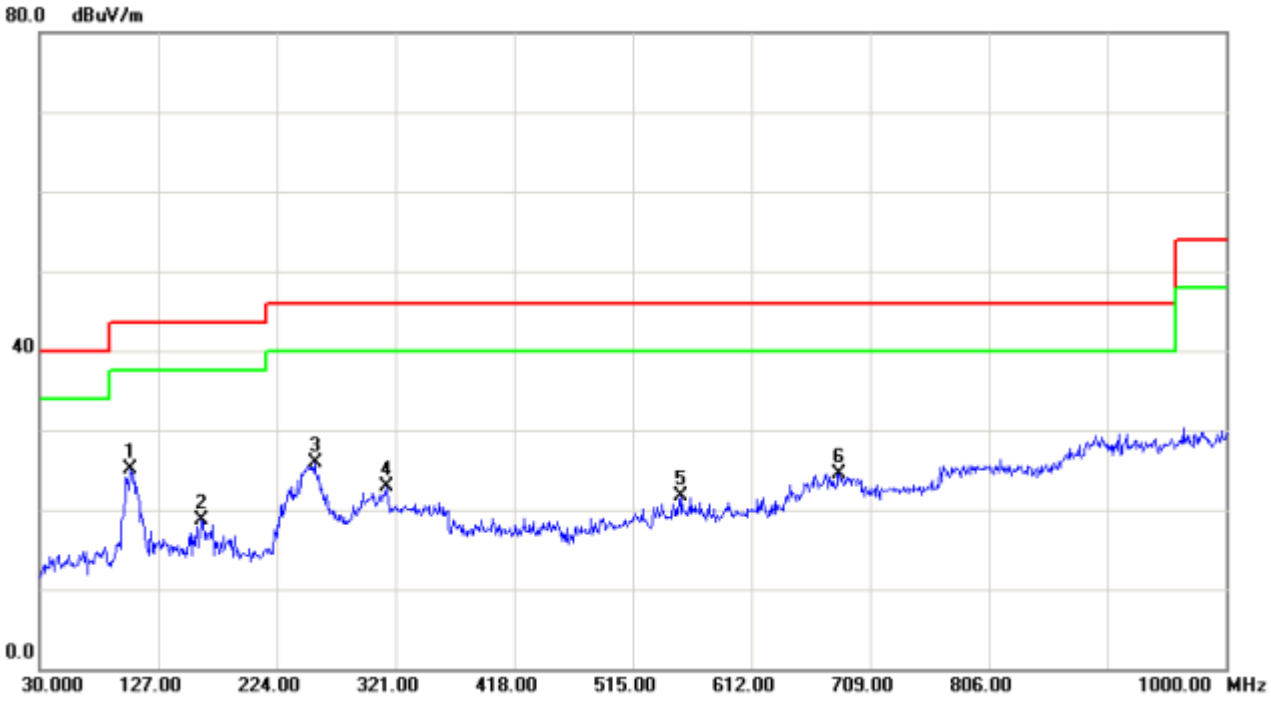
Below 1GHz:

Model:	A0-CL01	Result:	PASS
Temperature：	23℃	Relative Humidity：	51 %
Pressure：	1001 hPa	Test voltage：	120Vac
Test Mode ：	Transmitting mode (GFSK/2441MHz)	Antenna polarity:	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	104.6900	40.66	-15.52	25.14	43.50	-18.36	peak
2		162.8900	32.16	-13.39	18.77	43.50	-24.73	peak
3		255.0400	40.74	-14.86	25.88	46.00	-20.12	peak
4		313.2400	34.12	-11.31	22.81	46.00	-23.19	peak
5		554.7700	29.34	-7.69	21.65	46.00	-24.35	peak
6		683.7800	29.64	-5.05	24.59	46.00	-21.41	peak

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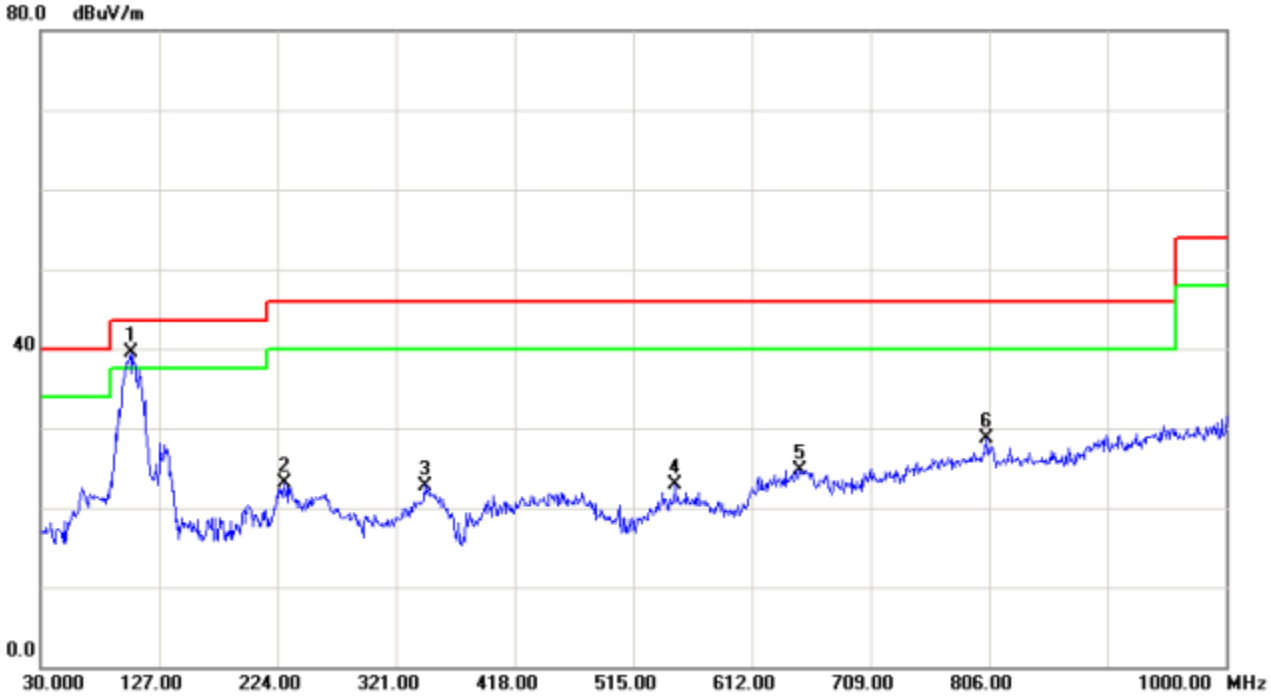
Below 1GHz:

Model:	A0-CL01	Result:	PASS
Temperature：	23℃	Relative Humidity：	51 %
Pressure：	1001 hPa	Test voltage：	120Vac
Test Mode ：	Transmitting mode (GFSK/2441MHz)	Antenna polarity:	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	103.7200	55.12	-15.66	39.46	43.50	-4.04	peak
2		229.8200	37.64	-14.49	23.15	46.00	-22.85	peak
3		344.2800	34.24	-11.44	22.80	46.00	-23.20	peak
4		548.9500	30.57	-7.70	22.87	46.00	-23.13	peak
5		650.8000	30.23	-5.55	24.68	46.00	-21.32	peak
6		804.0600	31.78	-3.15	28.63	46.00	-17.37	peak

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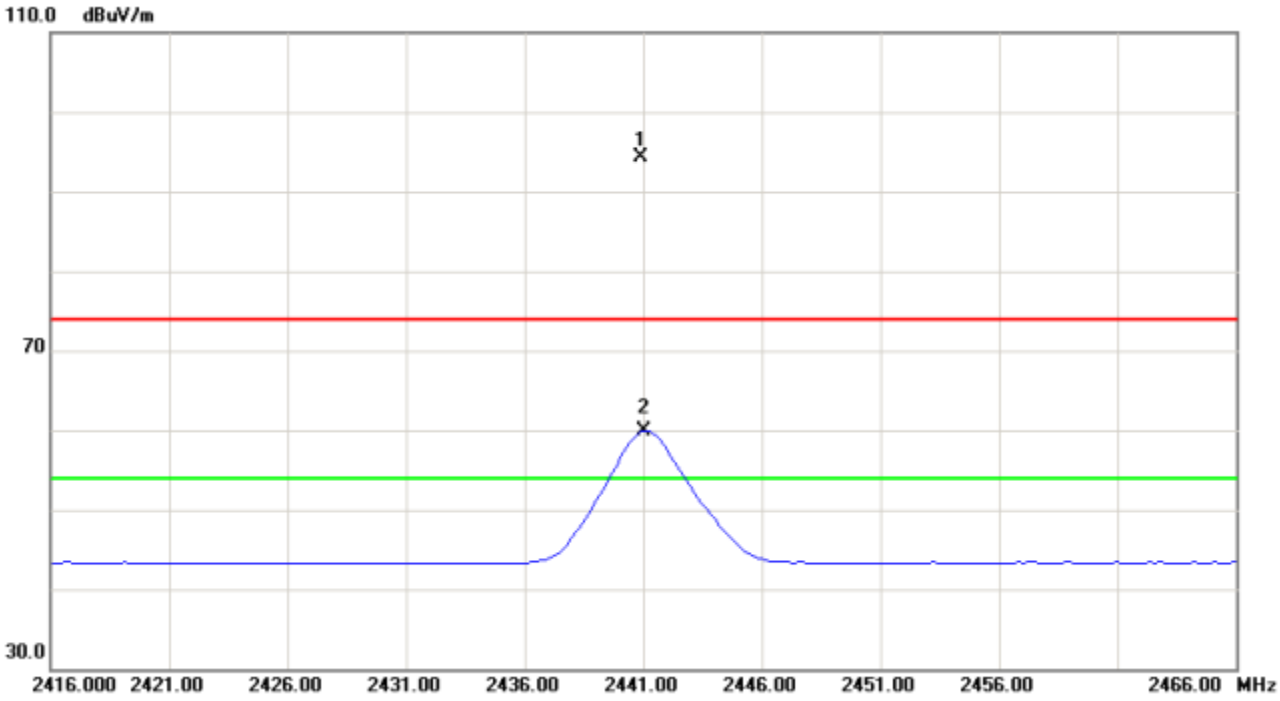
Above 1GHz:

Model:	A0-CL01	Result:	PASS
Temperature：	25℃	Relative Humidity：	58 %
Pressure：	1009 hPa	Test voltage：	120Vac
Test Mode ：	Transmitting mode (GFSK/2441MHz)	Antenna polarity:	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	2440.875	62.17	32.23	94.40	74.00	20.40	peak
2	X	2441.000	27.72	32.23	59.95	54.00	5.95	AVG

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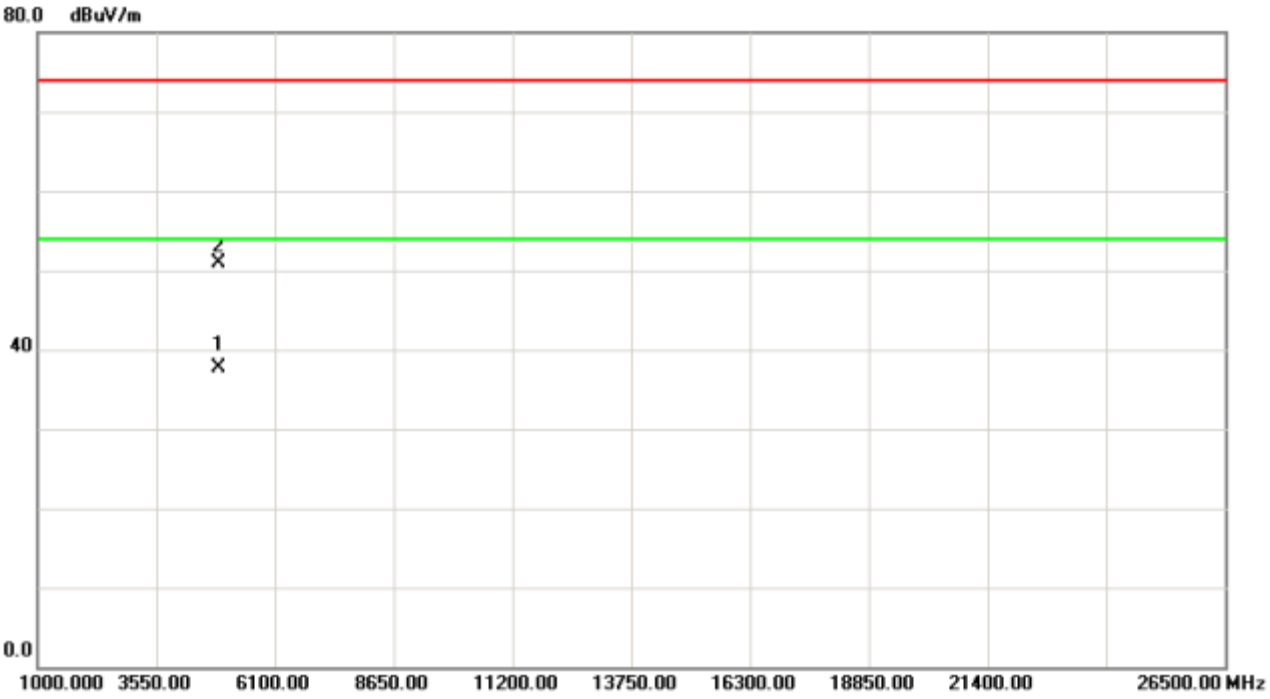

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	4882.027	31.31	6.43	37.74	54.00	-16.26	AVG
2		4882.156	44.57	6.43	51.00	74.00	-23.00	peak

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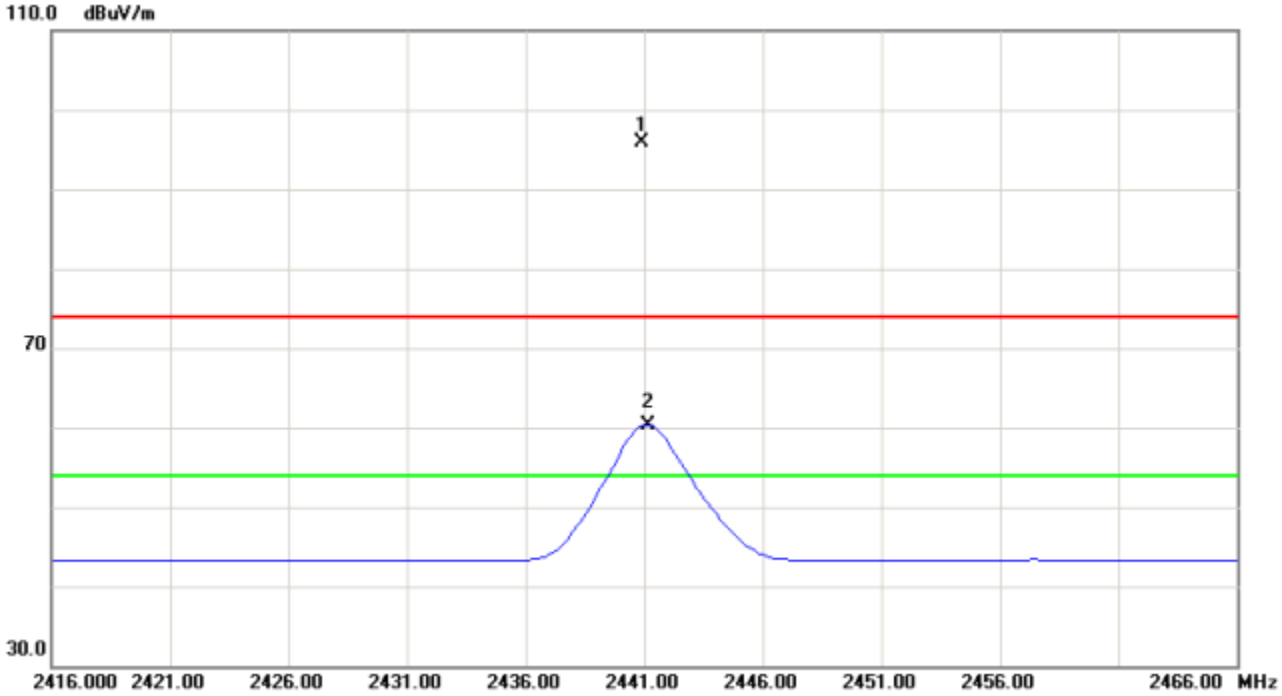
Above 1GHz:

Model:	A0-CL01	Result:	PASS
Temperature：	25℃	Relative Humidity：	58 %
Pressure：	1009 hPa	Test voltage：	120Vac
Test Mode ：	Transmitting mode (GFSK/2441MHz)	Antenna polarity:	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	2440.875	63.58	32.23	95.81	74.00	21.81	peak
2	X	2441.125	28.17	32.23	60.40	54.00	6.40	AVG

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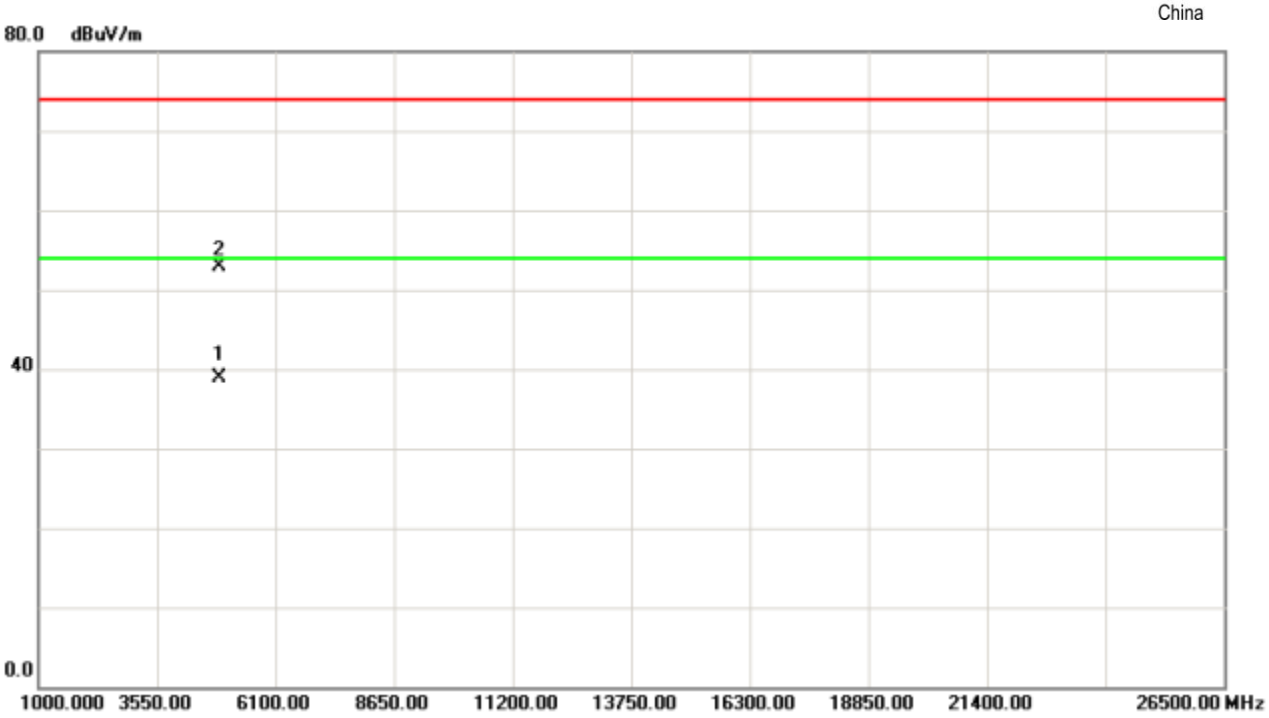

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	4882.016	32.50	6.43	38.93	54.00	-15.07	AVG
2		4882.168	46.44	6.43	52.87	74.00	-21.13	peak

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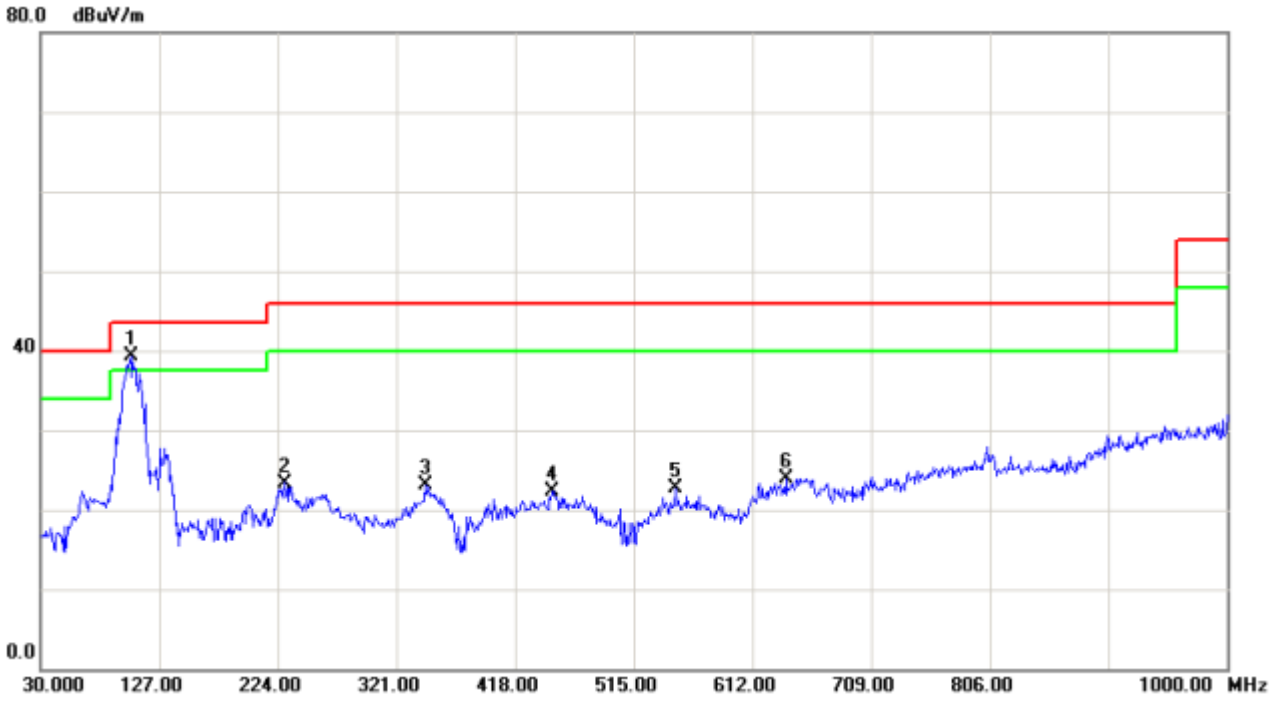
Below 1GHz:

Model:	A0-CL01	Result:	PASS
Temperature：	23℃	Relative Humidity：	51 %
Pressure：	1001 hPa	Test voltage：	120Vac
Test Mode ：	Transmitting mode (GFSK/2480MHz)	Antenna polarity:	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	103.7200	54.87	-15.66	39.21	43.50	-4.29	peak
2		229.8200	37.89	-14.49	23.40	46.00	-22.60	peak
3		344.2800	34.49	-11.44	23.05	46.00	-22.95	peak
4		448.0700	31.22	-8.94	22.28	46.00	-23.72	peak
5		548.9500	30.32	-7.70	22.62	46.00	-23.38	peak
6		639.1600	29.99	-6.11	23.88	46.00	-22.12	peak

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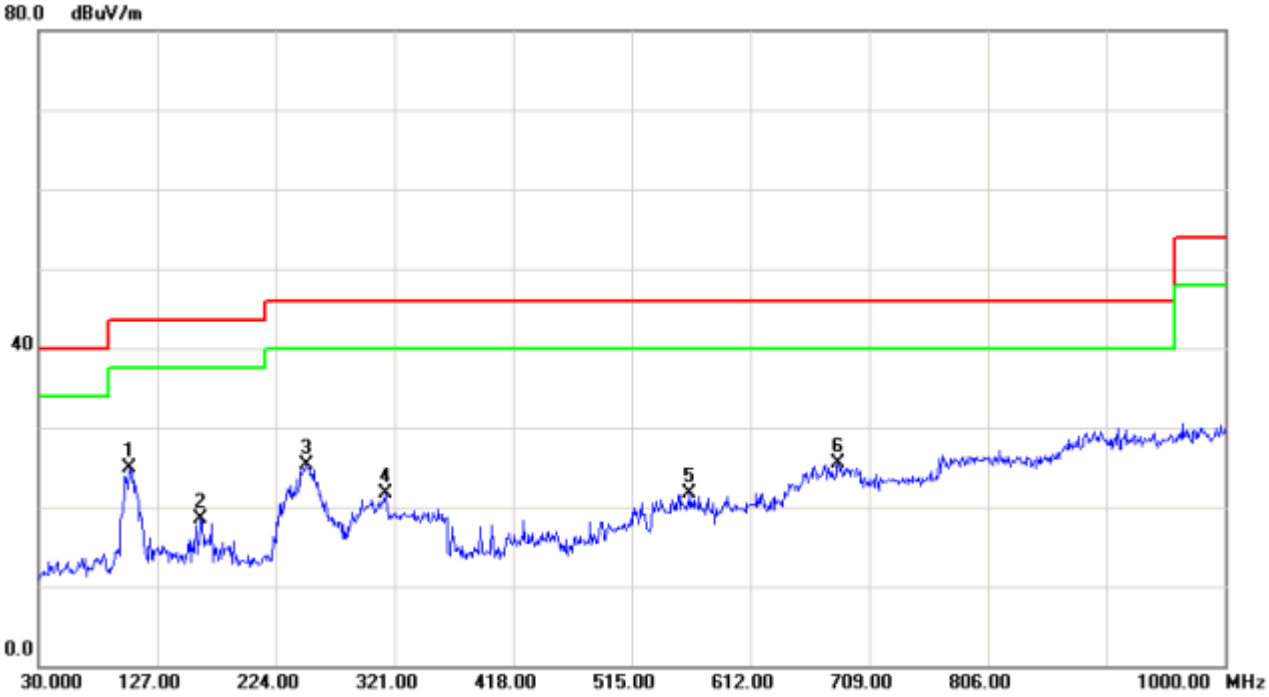
Below 1GHz:

Model:	A0-CL01	Result:	PASS
Temperature：	23℃	Relative Humidity：	51 %
Pressure：	1001 hPa	Test voltage：	120Vac
Test Mode ：	Transmitting mode (GFSK/2480MHz)	Antenna polarity:	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	104.6900	40.48	-15.52	24.96	43.50	-18.54	peak
2		162.8900	31.98	-13.39	18.59	43.50	-24.91	peak
3		249.2200	40.30	-14.96	25.34	46.00	-20.66	peak
4		313.2400	32.94	-11.31	21.63	46.00	-24.37	peak
5		562.5300	29.55	-7.76	21.79	46.00	-24.21	peak
6		683.7800	30.46	-5.05	25.41	46.00	-20.59	peak

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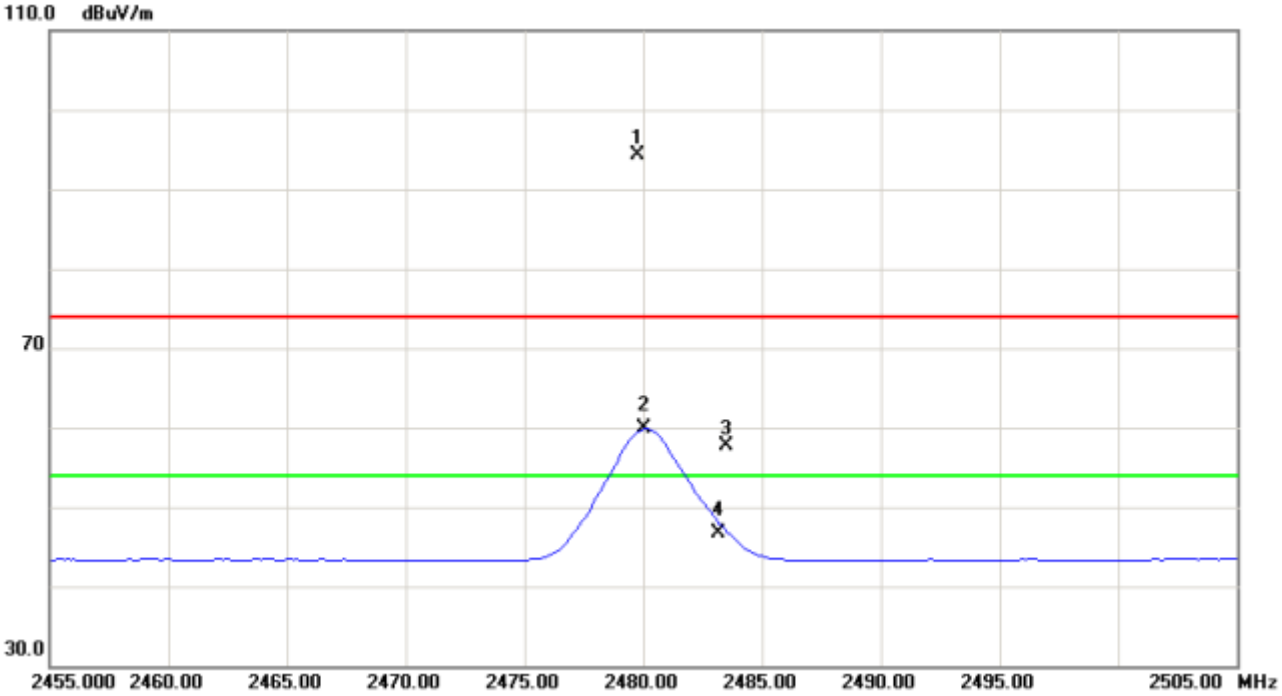
Above 1GHz:

Model:	A0-CL01	Result:	PASS
Temperature：	25℃	Relative Humidity：	58 %
Pressure：	1009 hPa	Test voltage：	120Vac
Test Mode ：	Transmitting mode (GFSK/2480MHz)	Antenna polarity:	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	2479.750	62.09	32.18	94.27	74.00	20.27	peak
2	X	2480.000	27.67	32.18	59.85	54.00	5.85	AVG
3		2483.500	25.55	32.17	57.72	74.00	-16.28	peak
4		2483.500	14.56	32.17	46.73	54.00	-7.27	AVG

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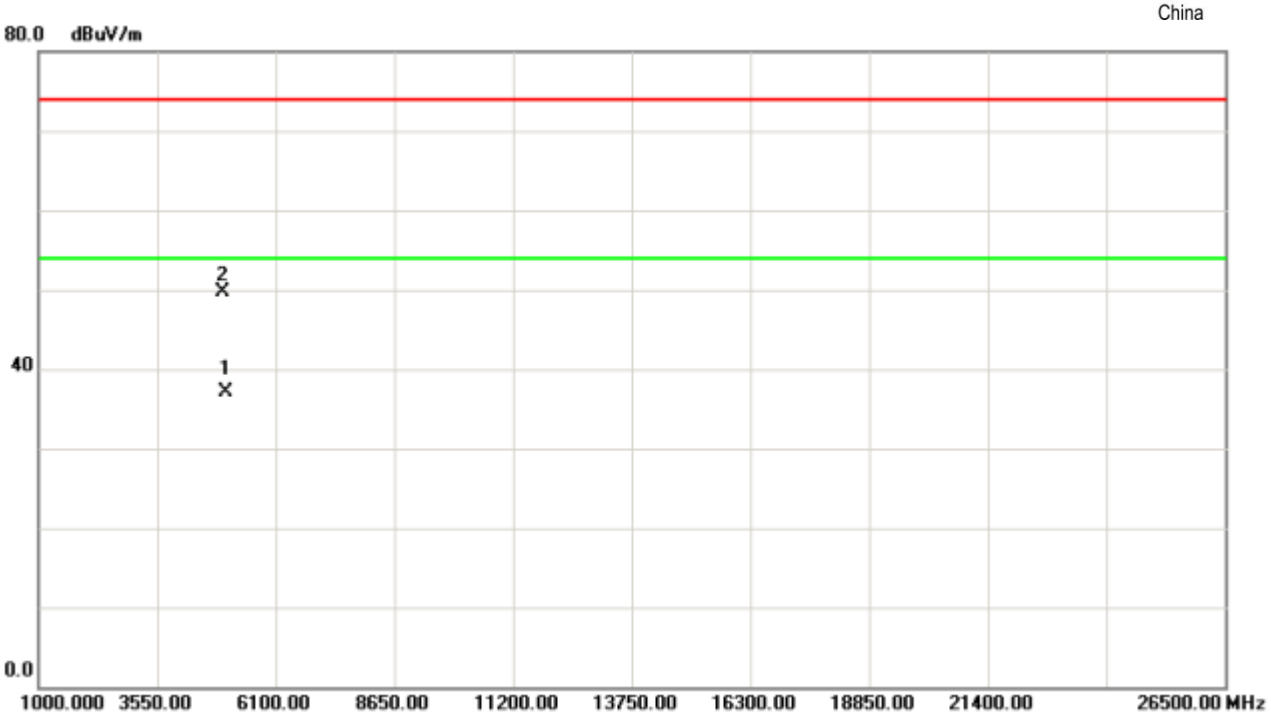

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	4960.074	30.42	6.74	37.16	54.00	-16.84	AVG
2		4960.248	42.94	6.74	49.68	74.00	-24.32	peak

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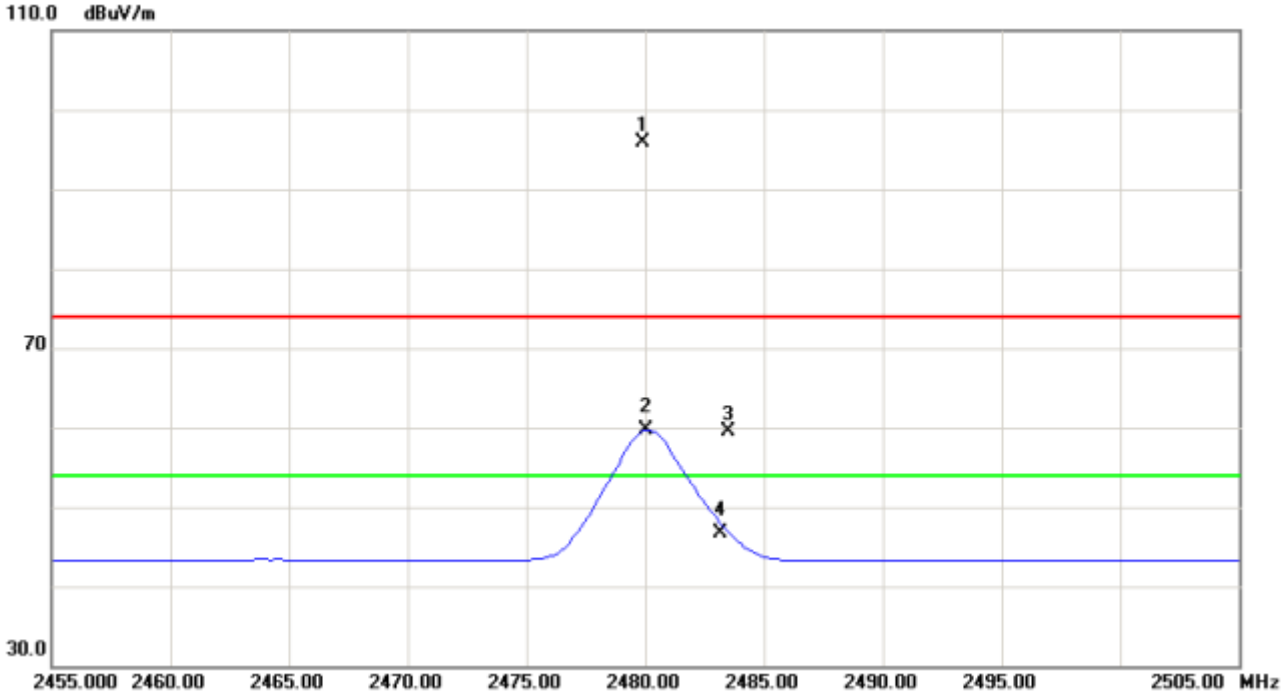
Above 1GHz:

Model:	A0-CL01	Result:	PASS
Temperature：	25℃	Relative Humidity：	58 %
Pressure：	1009 hPa	Test voltage：	120Vac
Test Mode ：	Transmitting mode (GFSK/2480MHz)	Antenna polarity:	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	2479.875	63.64	32.18	95.82	74.00	21.82	peak
2	X	2480.000	27.51	32.18	59.69	54.00	5.69	AVG
3		2483.500	27.40	32.17	59.57	74.00	-14.43	peak
4		2483.500	14.50	32.17	46.67	54.00	-7.33	AVG

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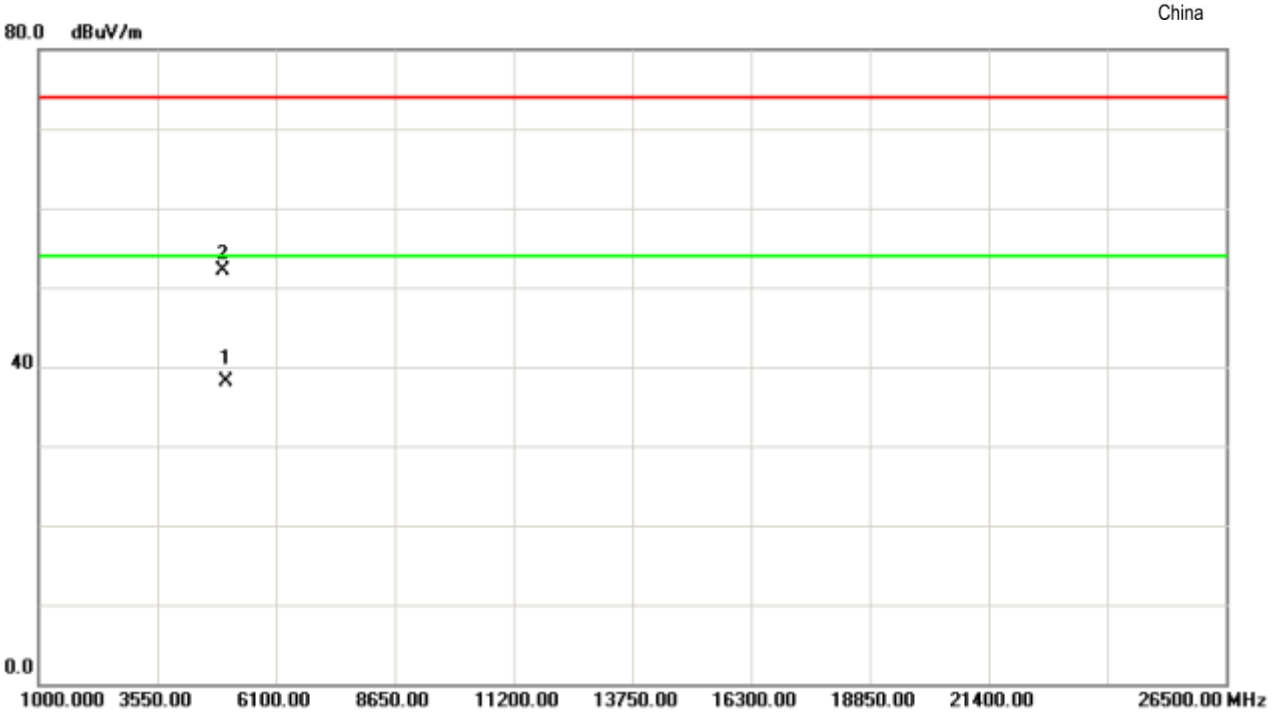

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	4960.025	31.28	6.74	38.02	54.00	-15.98	AVG
2		4960.196	45.44	6.74	52.18	74.00	-21.82	peak

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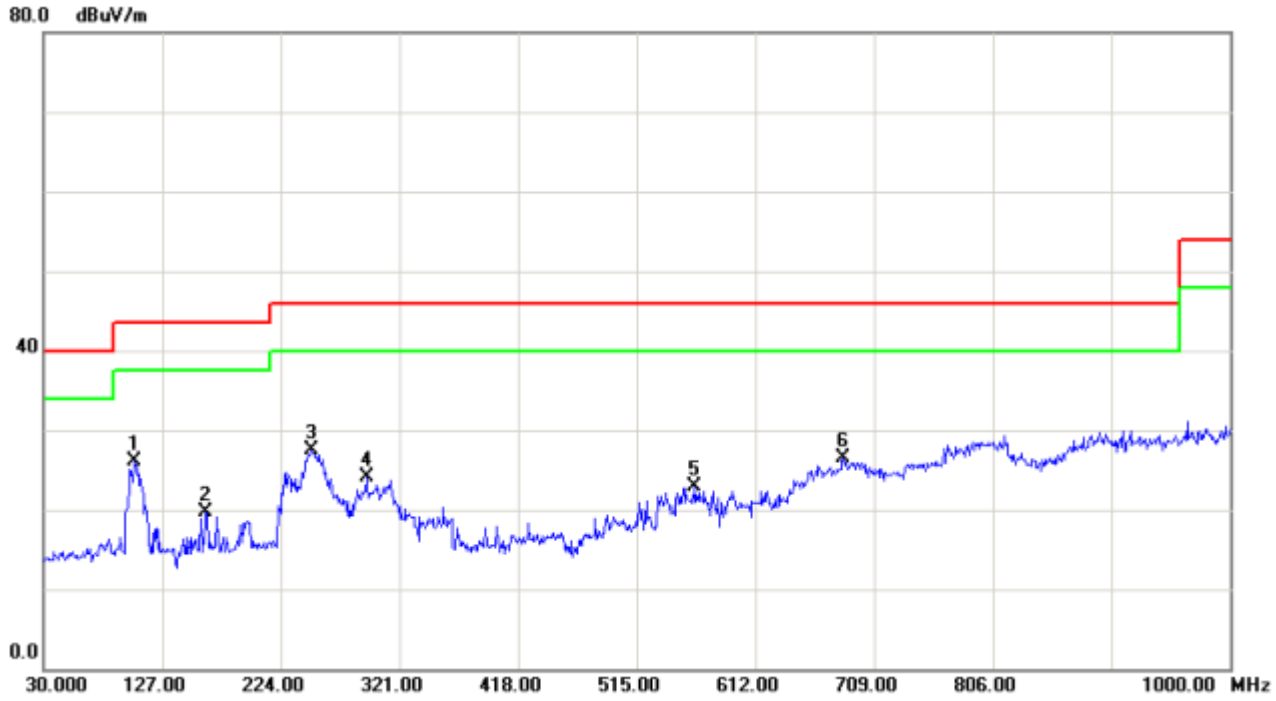
Below 1GHz:

Model:	A0-CL01	Result:	PASS
Temperature：	23℃	Relative Humidity：	51 %
Pressure：	1001 hPa	Test voltage：	120Vac
Test Mode ：	Transmitting mode (8DPSK/2402MHz)	Antenna polarity:	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	104.6900	41.62	-15.52	26.10	43.50	-17.40	peak
2		162.8900	33.12	-13.39	19.73	43.50	-23.77	peak
3		249.2200	42.44	-14.96	27.48	46.00	-18.52	peak
4		293.8400	35.62	-11.60	24.02	46.00	-21.98	peak
5		562.5300	30.69	-7.76	22.93	46.00	-23.07	peak
6		683.7800	31.60	-5.05	26.55	46.00	-19.45	peak

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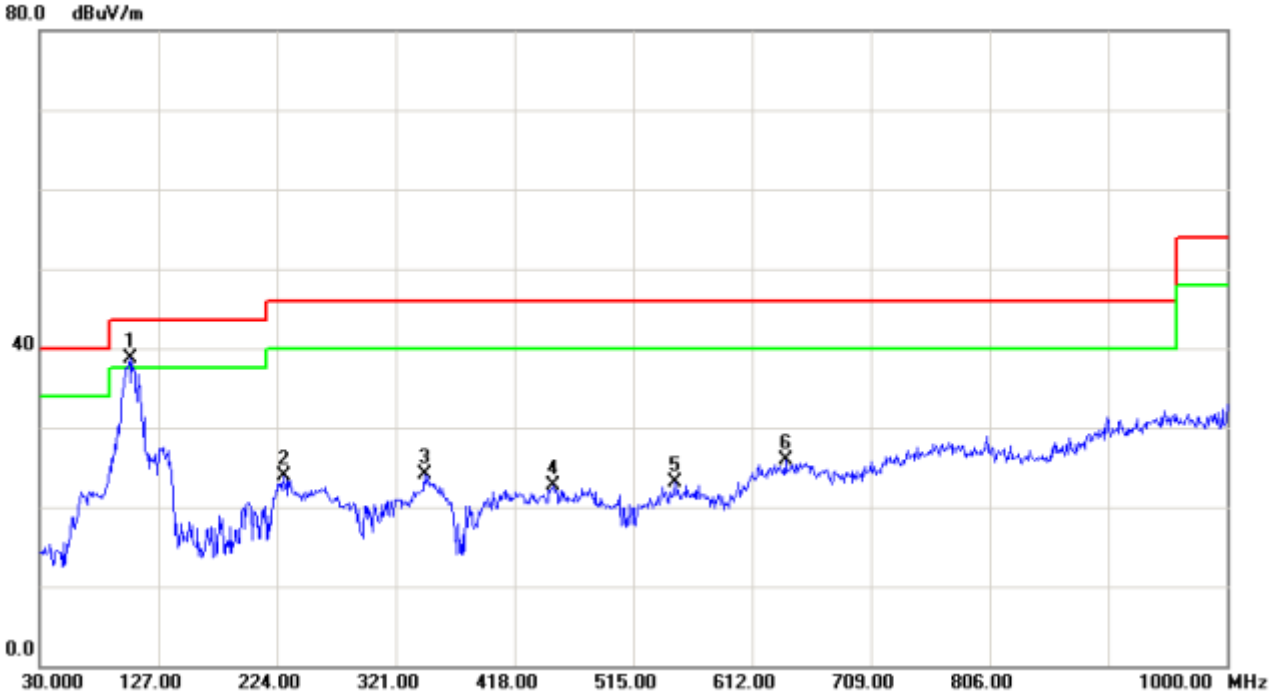
Below 1GHz:

Model:	A0-CL01	Result:	PASS
Temperature：	23℃	Relative Humidity：	51 %
Pressure：	1001 hPa	Test voltage：	120Vac
Test Mode ：	Transmitting mode (8DPSK/2402MHz)	Antenna polarity:	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	103.7200	54.37	-15.66	38.71	43.50	-4.79	peak
2		229.8200	38.39	-14.49	23.90	46.00	-22.10	peak
3		344.2800	35.49	-11.44	24.05	46.00	-21.95	peak
4		450.0100	31.62	-8.91	22.71	46.00	-23.29	peak
5		548.9500	30.82	-7.70	23.12	46.00	-22.88	peak
6		639.1600	31.99	-6.11	25.88	46.00	-20.12	peak

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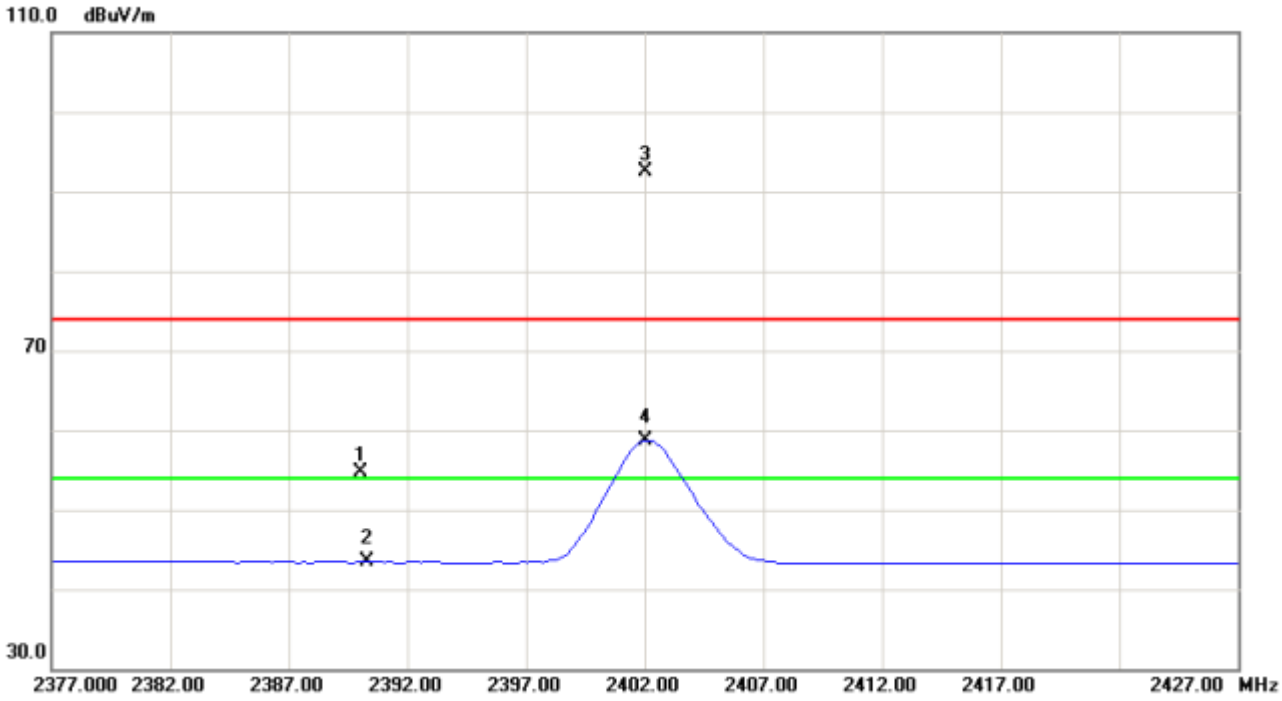
Above 1GHz:

Model:	A0-CL01	Result:	PASS
Temperature：	25℃	Relative Humidity：	58 %
Pressure：	1009 hPa	Test voltage：	120Vac
Test Mode ：	Transmitting mode (8DPSK/2402MHz)	Antenna polarity:	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		2390.000	22.42	32.28	54.70	74.00	-19.30	peak
2		2390.000	11.18	32.28	43.46	54.00	-10.54	AVG
3	*	2402.000	60.23	32.27	92.50	74.00	18.50	peak
4	X	2402.000	26.40	32.27	58.67	54.00	4.67	AVG

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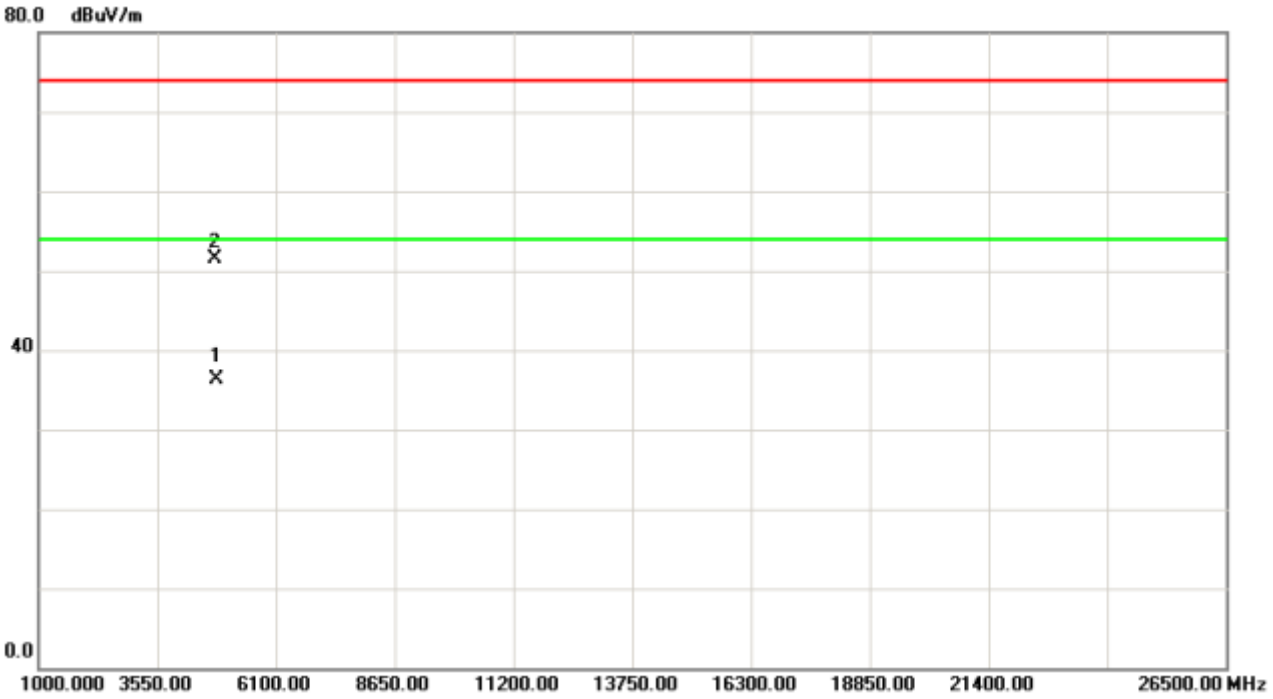

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	4804.180	30.25	6.11	36.36	54.00	-17.64	AVG
2		4804.460	45.38	6.11	51.49	74.00	-22.51	peak

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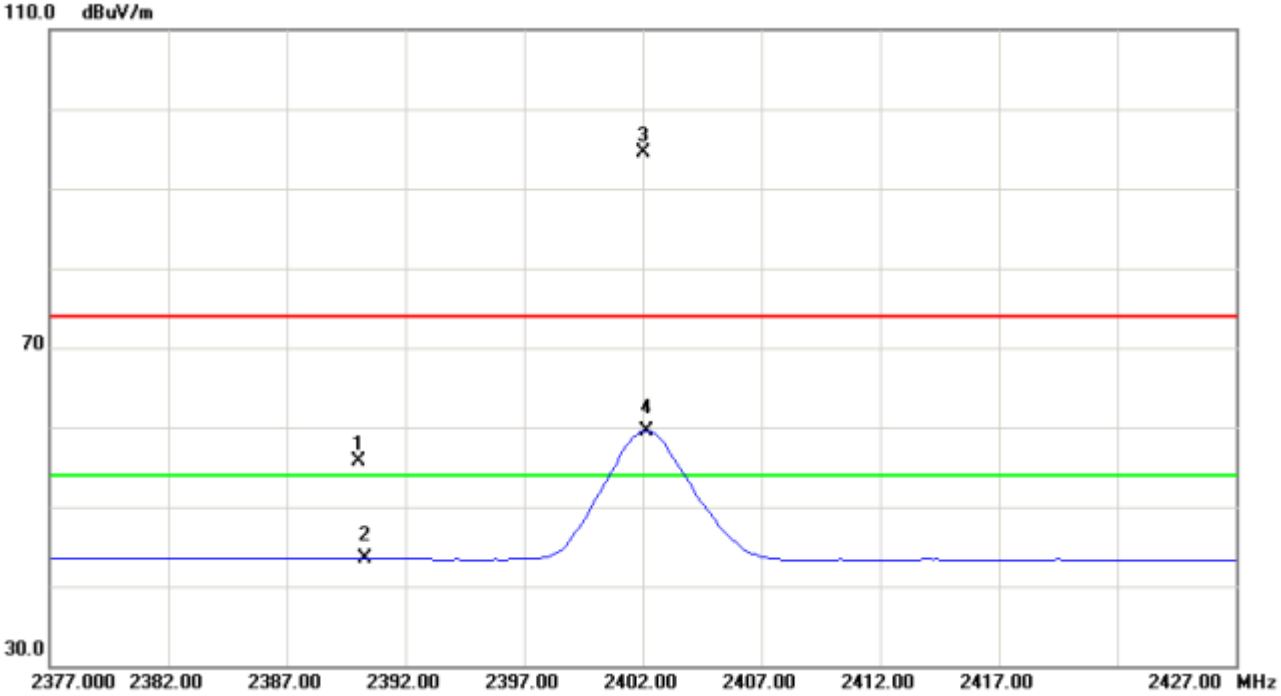
Above 1GHz:

Model:	A0-CL01	Result:	PASS
Temperature：	25℃	Relative Humidity：	58 %
Pressure：	1009 hPa	Test voltage：	120Vac
Test Mode ：	Transmitting mode (8DPSK/2402MHz)	Antenna polarity:	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		2390.000	23.40	32.28	55.68	74.00	-18.32	peak
2		2390.000	11.16	32.28	43.44	54.00	-10.56	AVG
3	*	2402.000	62.31	32.27	94.58	74.00	20.58	peak
4	X	2402.125	27.24	32.27	59.51	54.00	5.51	AVG

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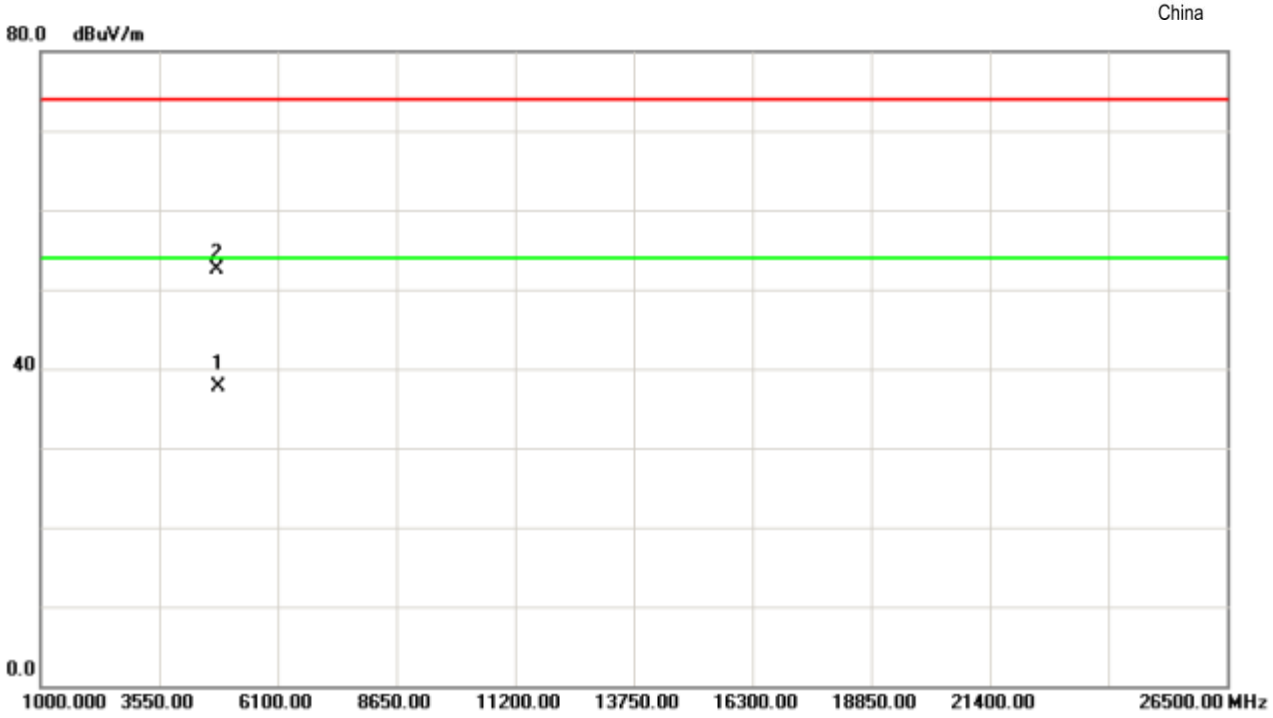

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	4804.150	31.50	6.11	37.61	54.00	-16.39	AVG
2		4804.394	46.38	6.11	52.49	74.00	-21.51	peak

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Below 1GHz:

Model:	A0-CL01	Result:	PASS
Temperature：	23℃	Relative Humidity：	51 %
Pressure：	1001 hPa	Test voltage：	120Vac
Test Mode ：	Transmitting mode (8DPSK/2441MHz)	Antenna polarity:	Horizontal

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	104.6900	40.86	-15.52	25.34	43.50	-18.16	peak
2		162.8900	32.36	-13.39	18.97	43.50	-24.53	peak
3		249.2200	41.67	-14.96	26.71	46.00	-19.29	peak
4		313.2400	34.32	-11.31	23.01	46.00	-22.99	peak
5		562.5300	30.93	-7.76	23.17	46.00	-22.83	peak
6		683.7800	31.84	-5.05	26.79	46.00	-19.21	peak

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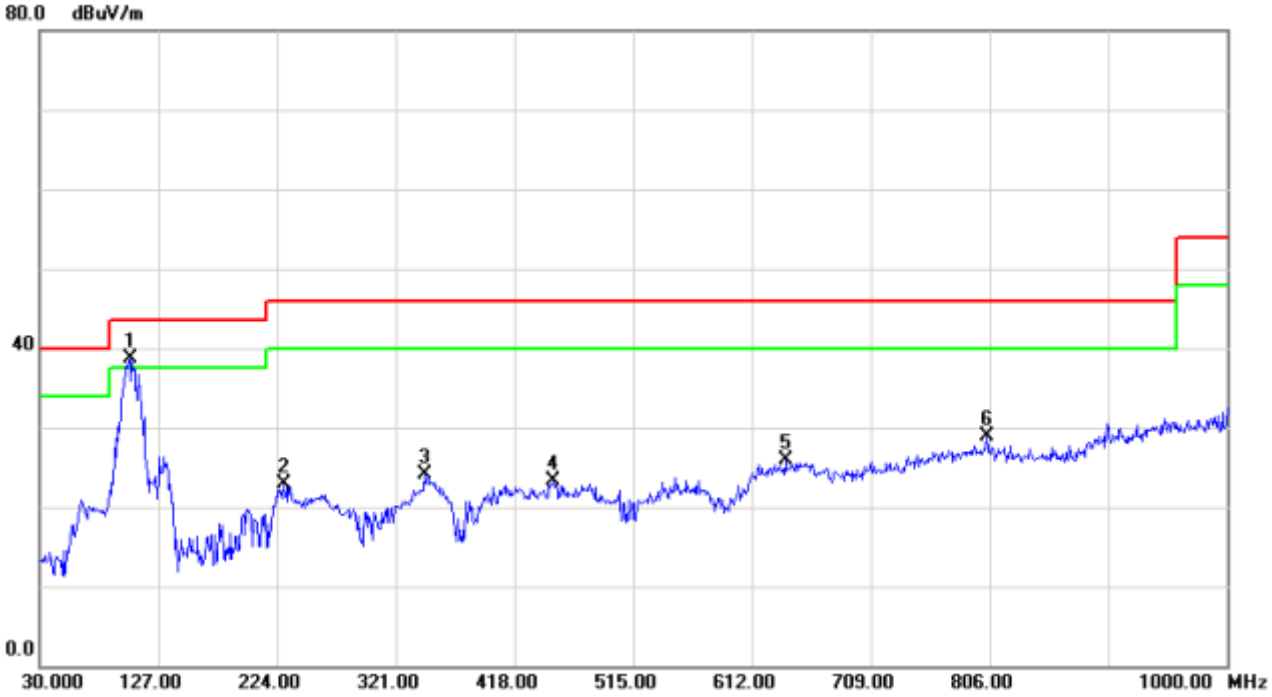
Below 1GHz:

Model:	A0-CL01	Result:	PASS
Temperature：	23℃	Relative Humidity：	51 %
Pressure：	1001 hPa	Test voltage：	120Vac
Test Mode ：	Transmitting mode (8DPSK/2441MHz)	Antenna polarity:	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	103.7200	54.46	-15.66	38.80	43.50	-4.70	peak
2		229.8200	37.48	-14.49	22.99	46.00	-23.01	peak
3		344.2800	35.58	-11.44	24.14	46.00	-21.86	peak
4		450.0100	32.21	-8.91	23.30	46.00	-22.70	peak
5		639.1600	32.08	-6.11	25.97	46.00	-20.03	peak
6		804.0600	32.12	-3.15	28.97	46.00	-17.03	peak

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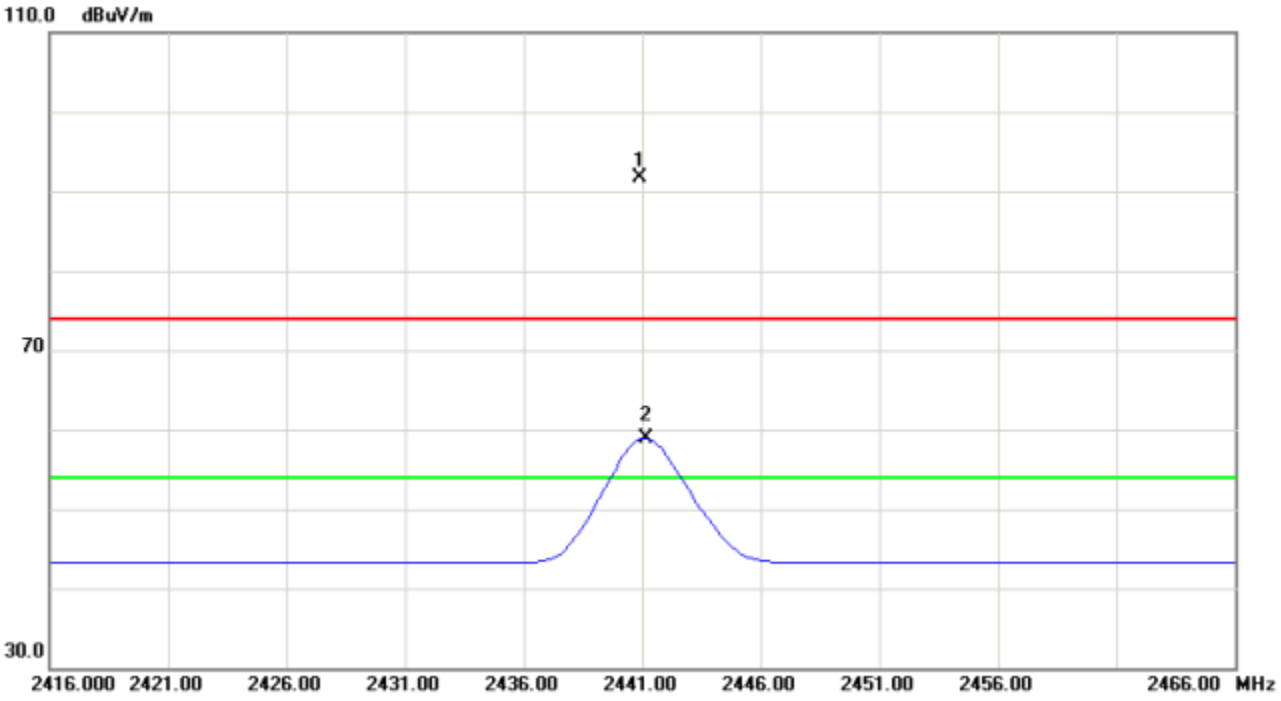
Above 1GHz:

Model:	A0-CL01	Result:	PASS
Temperature：	25℃	Relative Humidity：	58 %
Pressure：	1009 hPa	Test voltage：	120Vac
Test Mode ：	Transmitting mode (8DPSK/2441MHz)	Antenna polarity:	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	2440.875	59.57	32.23	91.80	74.00	17.80	peak
2	X	2441.125	26.64	32.23	58.87	54.00	4.87	AVG

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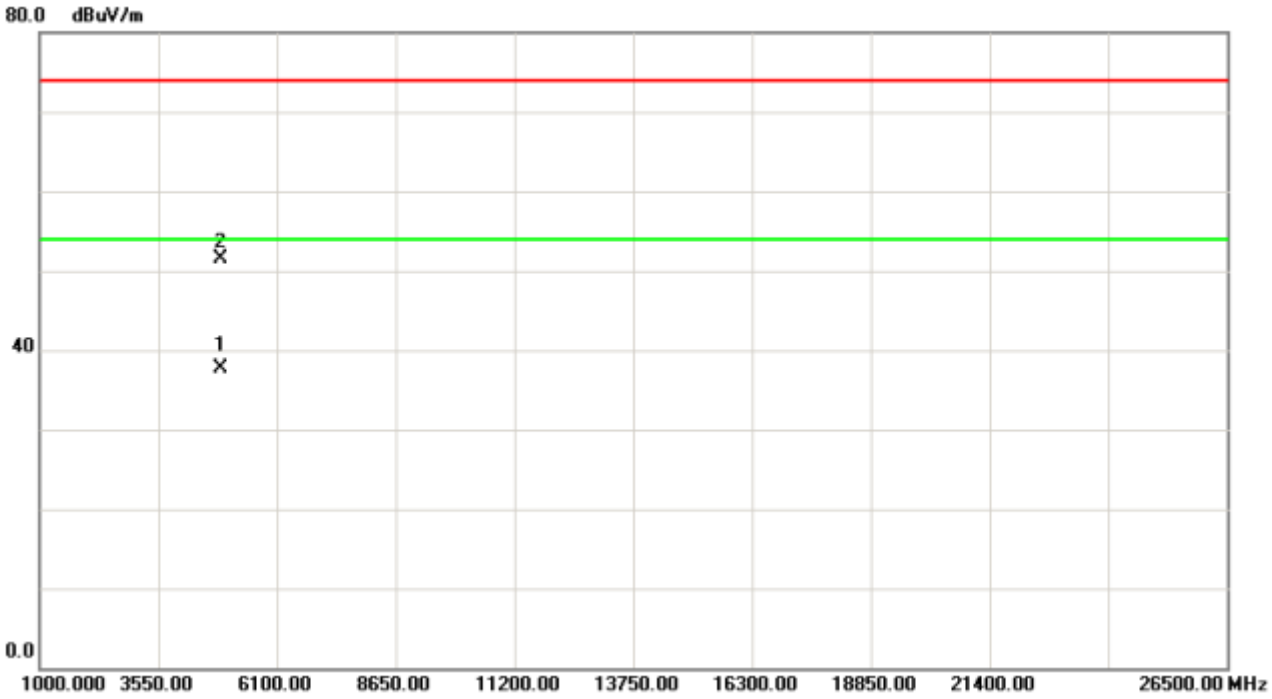

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	4882.028	31.34	6.43	37.77	54.00	-16.23	AVG
2		4882.345	45.16	6.43	51.59	74.00	-22.41	peak

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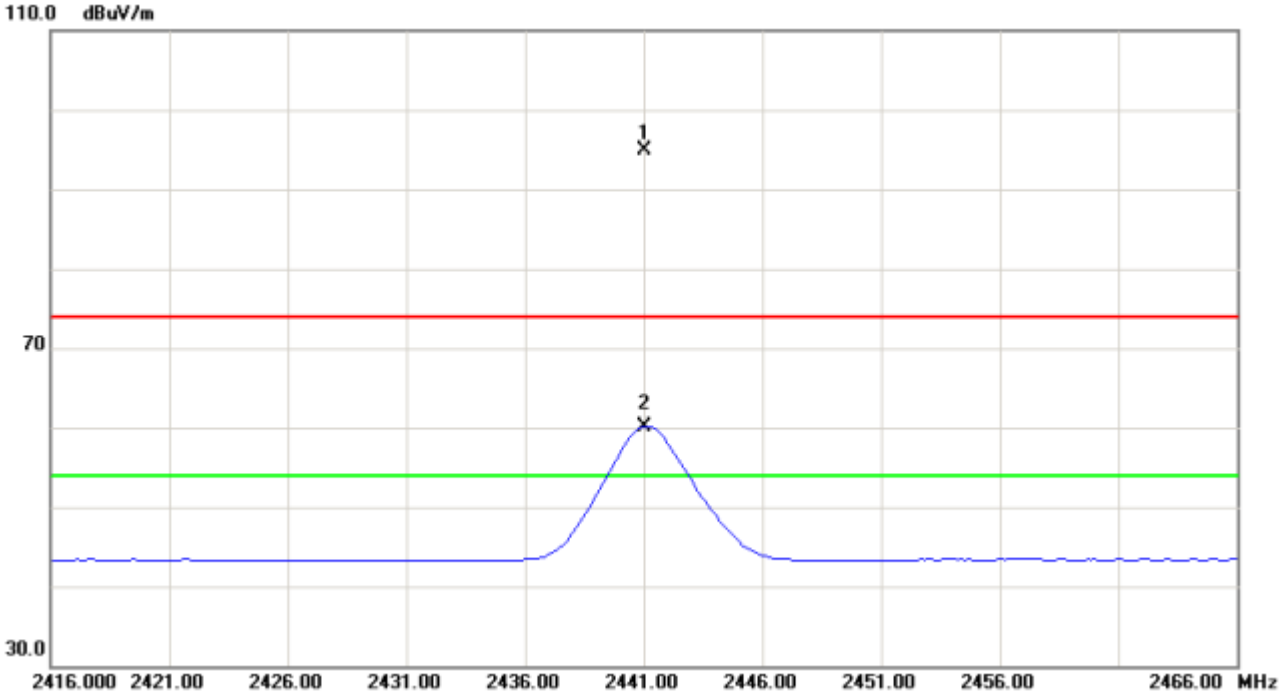
Above 1GHz:

Model:	A0-CL01	Result:	PASS
Temperature：	25℃	Relative Humidity：	58 %
Pressure：	1009 hPa	Test voltage：	120Vac
Test Mode ：	Transmitting mode (8DPSK/2441MHz)	Antenna polarity:	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	2441.000	62.64	32.23	94.87	74.00	20.87	peak
2	X	2441.000	27.93	32.23	60.16	54.00	6.16	AVG

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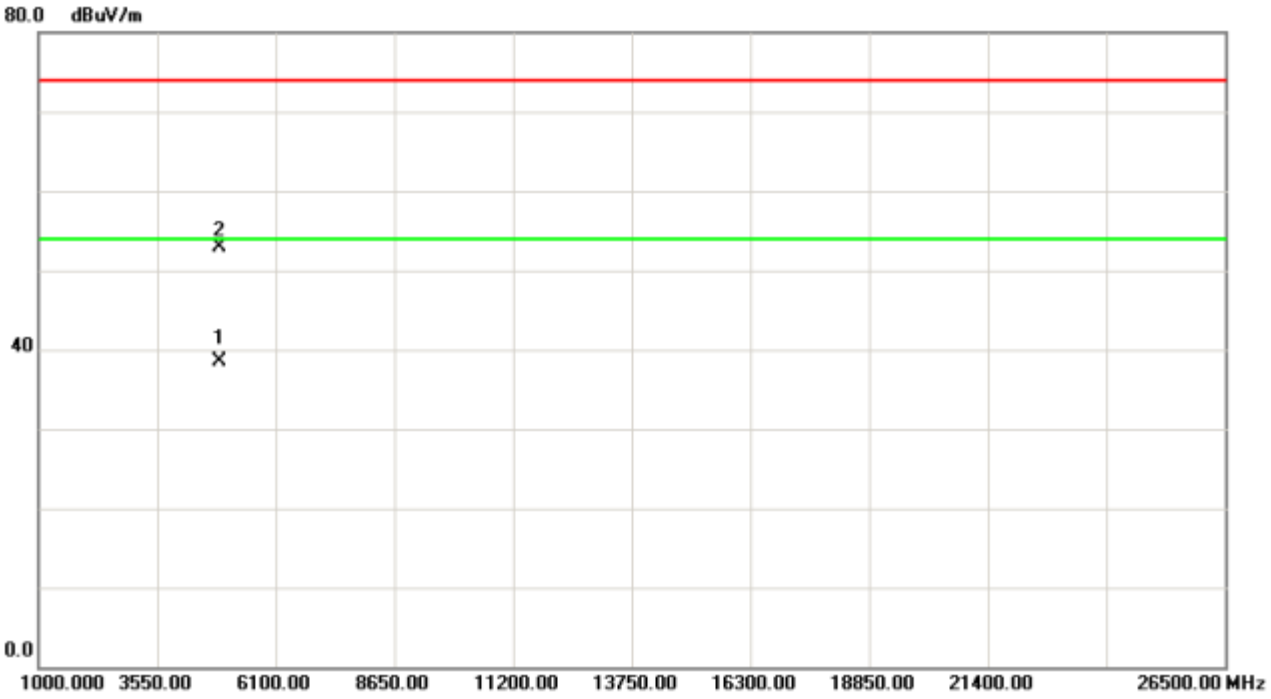

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	4882.042	32.09	6.43	38.52	54.00	-15.48	AVG
2		4882.260	46.51	6.43	52.94	74.00	-21.06	peak

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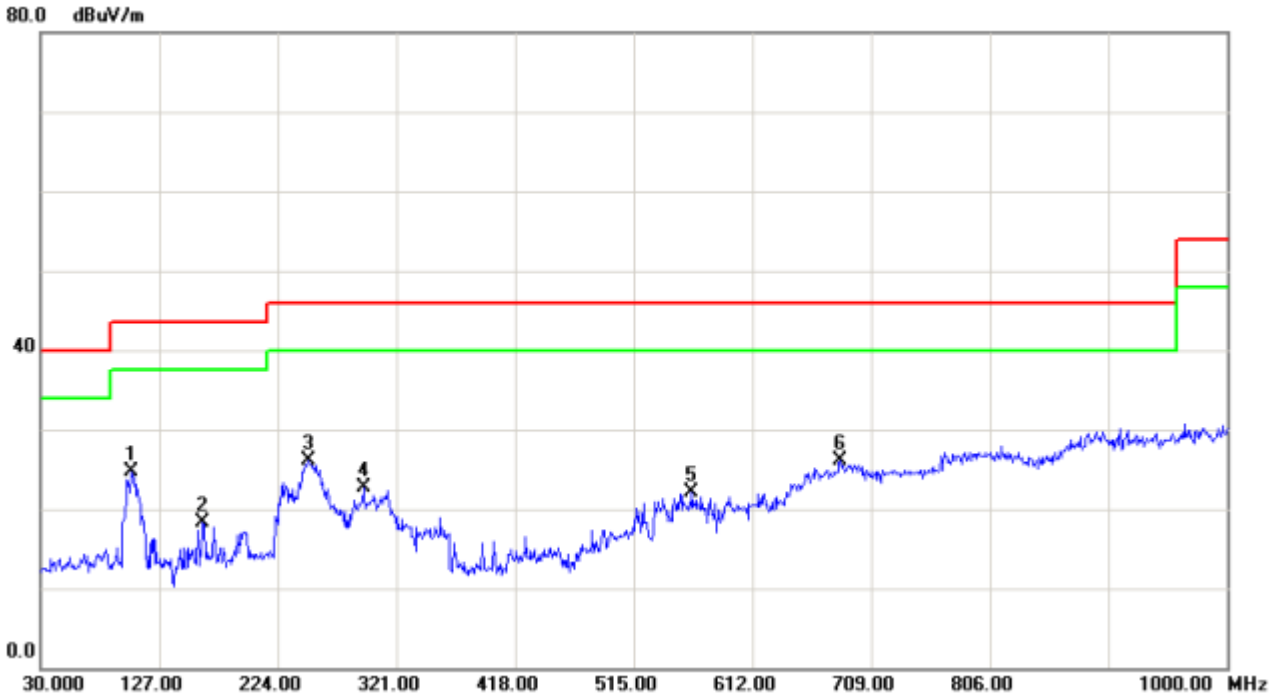
Below 1GHz:

Model:	A0-CL01	Result:	PASS
Temperature：	23℃	Relative Humidity：	51 %
Pressure：	1001 hPa	Test voltage：	120Vac
Test Mode ：	Transmitting mode (8DPSK/2480MHz)	Antenna polarity:	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	104.6900	40.21	-15.52	24.69	43.50	-18.81	peak
2		162.8900	31.71	-13.39	18.32	43.50	-25.18	peak
3		249.2200	41.03	-14.96	26.07	46.00	-19.93	peak
4		293.8400	34.21	-11.60	22.61	46.00	-23.39	peak
5		562.5300	29.78	-7.76	22.02	46.00	-23.98	peak
6		683.7800	31.19	-5.05	26.14	46.00	-19.86	peak

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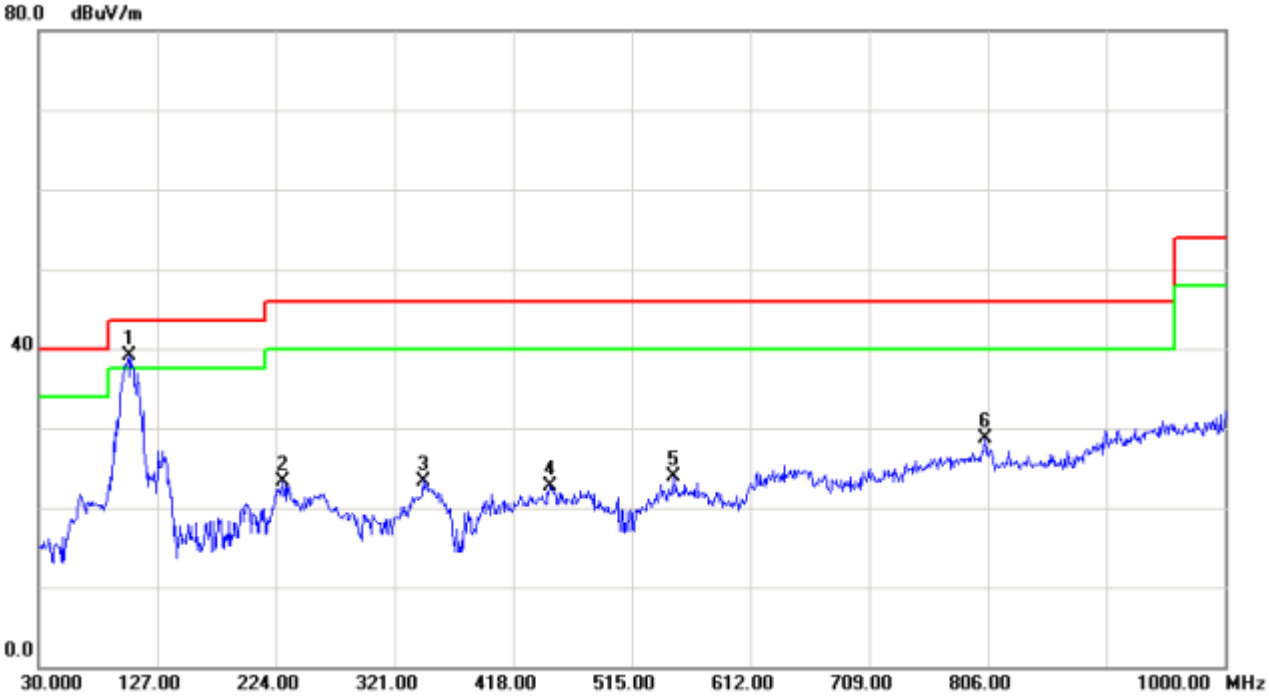
Below 1GHz:

Model:	A0-CL01	Result:	PASS
Temperature：	23℃	Relative Humidity：	51 %
Pressure：	1001 hPa	Test voltage：	120Vac
Test Mode ：	Transmitting mode (8DPSK/2480MHz)	Antenna polarity:	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	103.7200	54.72	-15.66	39.06	43.50	-4.44	peak
2		229.8200	37.74	-14.49	23.25	46.00	-22.75	peak
3		344.2800	34.84	-11.44	23.40	46.00	-22.60	peak
4		448.0700	31.57	-8.94	22.63	46.00	-23.37	peak
5		548.9500	31.67	-7.70	23.97	46.00	-22.03	peak
6		804.0600	31.88	-3.15	28.73	46.00	-17.27	peak

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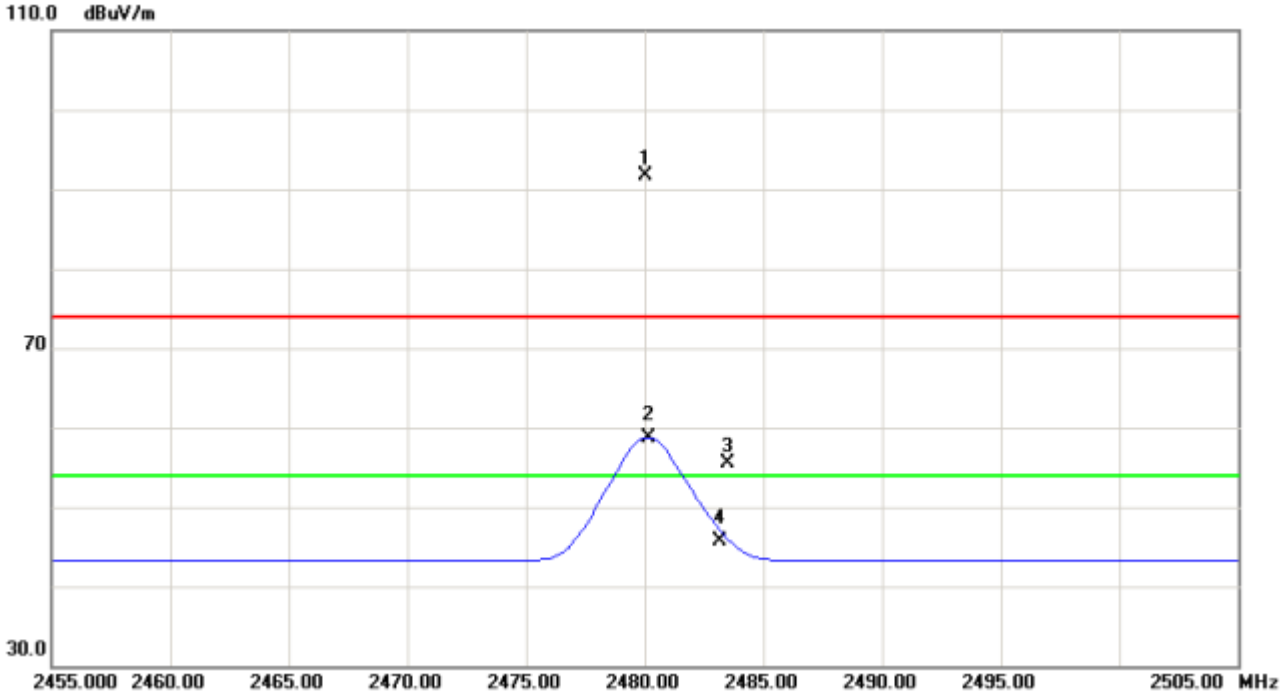
Above 1GHz:

Model:	A0-CL01	Result:	PASS
Temperature：	25℃	Relative Humidity：	58 %
Pressure：	1009 hPa	Test voltage：	120Vac
Test Mode ：	Transmitting mode (8DPSK/2480MHz)	Antenna polarity:	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	2480.000	59.52	32.18	91.70	74.00	17.70	peak
2	X	2480.125	26.57	32.18	58.75	54.00	4.75	AVG
3		2483.500	23.34	32.17	55.51	74.00	-18.49	peak
4		2483.500	13.61	32.17	45.78	54.00	-8.22	AVG

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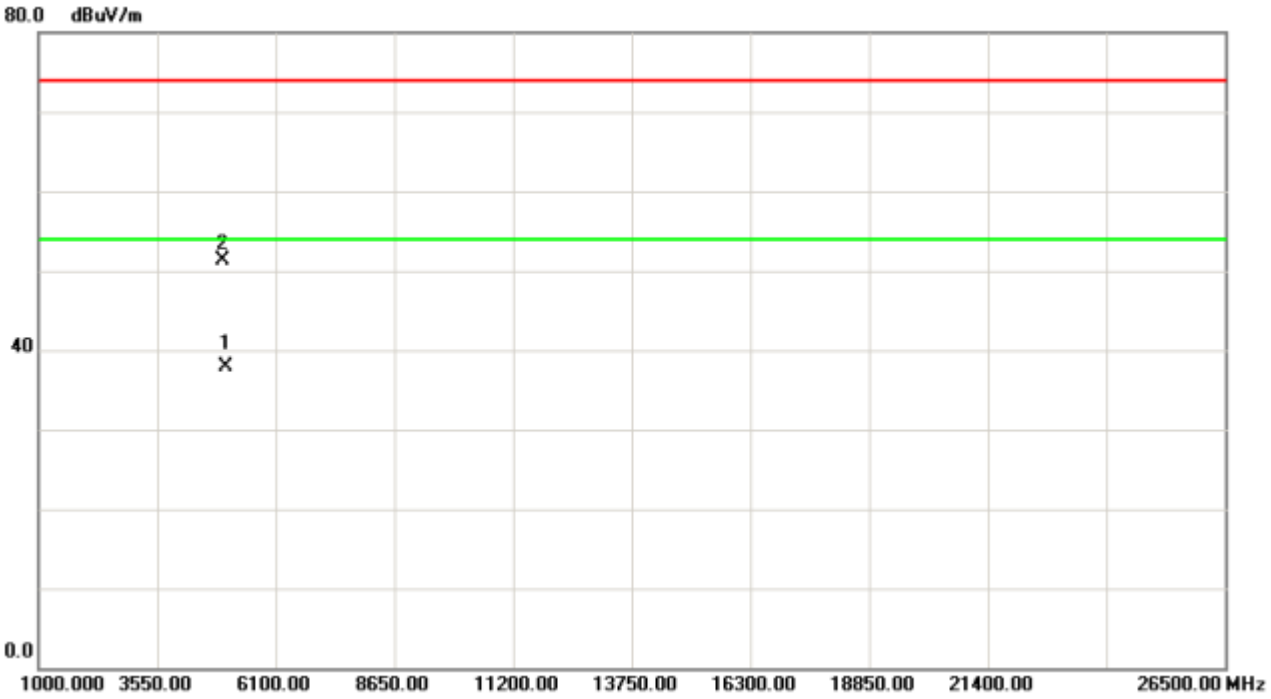

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	4960.036	31.20	6.74	37.94	54.00	-16.06	AVG
2		4960.280	44.47	6.74	51.21	74.00	-22.79	peak

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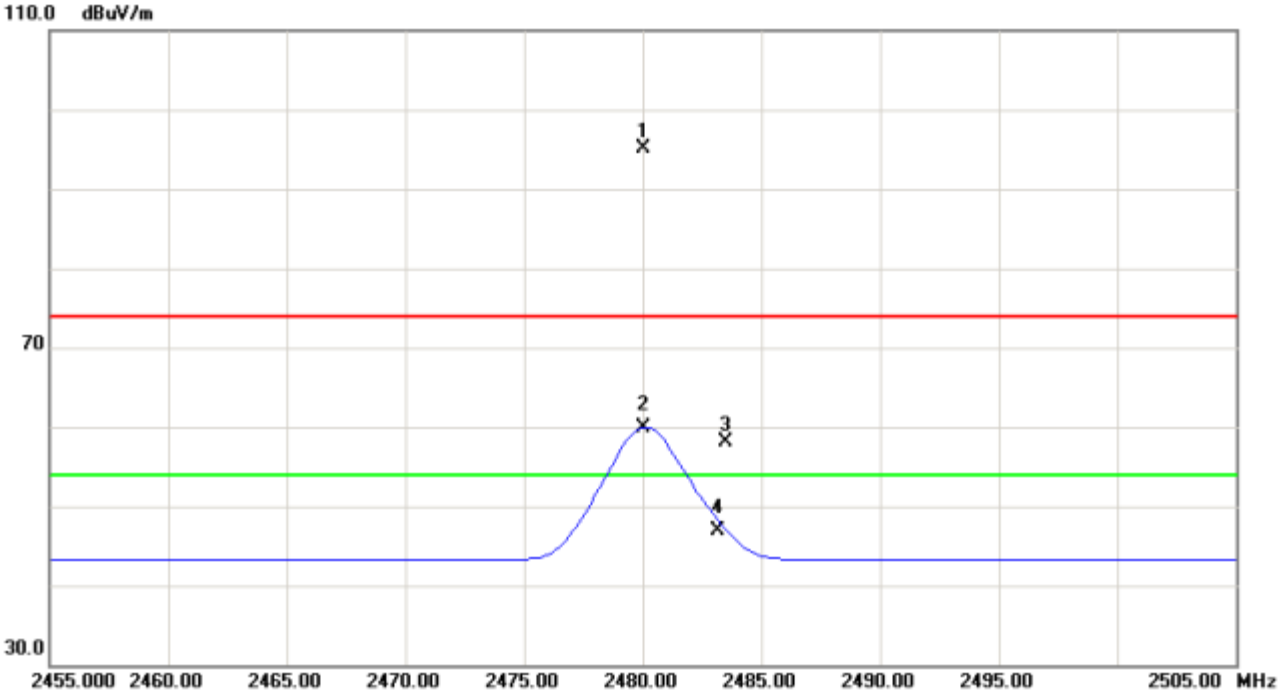
Above 1GHz:

Model:	A0-CL01	Result:	PASS
Temperature：	25℃	Relative Humidity：	58 %
Pressure：	1009 hPa	Test voltage：	120Vac
Test Mode ：	Transmitting mode (8DPSK/2480MHz)	Antenna polarity:	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	2480.000	62.97	32.18	95.15	74.00	21.15	peak
2	X	2480.000	27.78	32.18	59.96	54.00	5.96	AVG
3		2483.500	26.03	32.17	58.20	74.00	-15.80	peak
4		2483.500	14.71	32.17	46.88	54.00	-7.12	AVG

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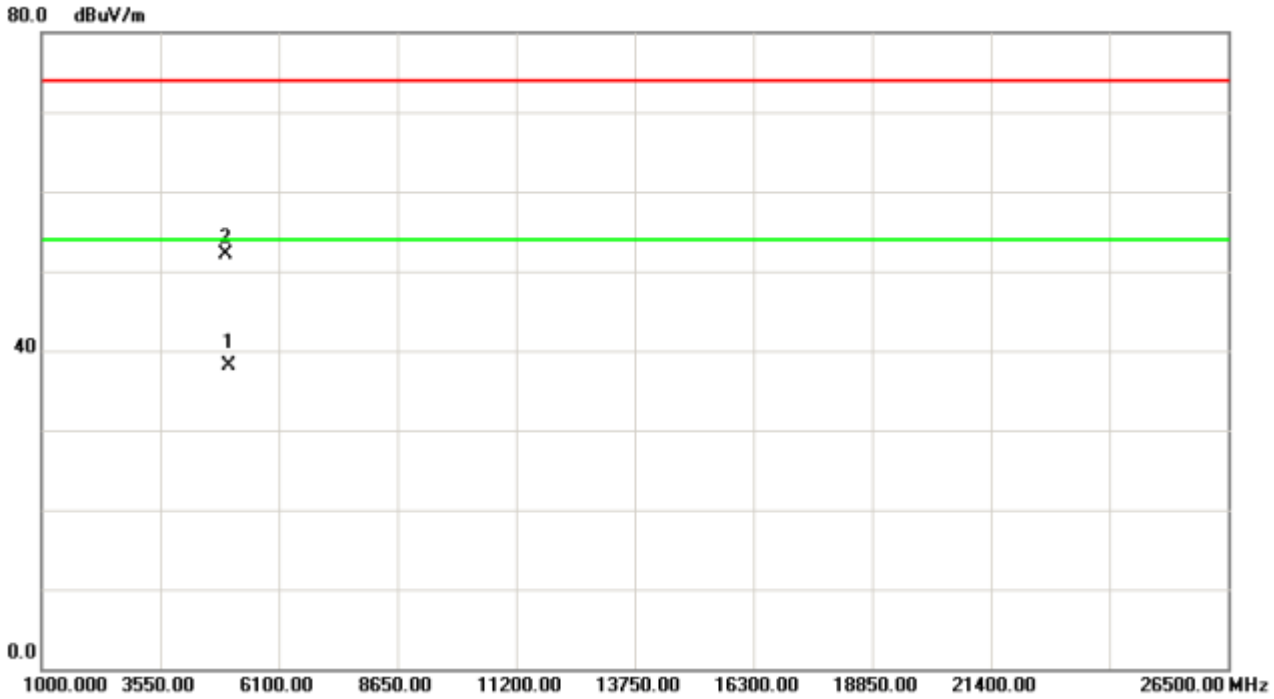

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	4960.145	31.34	6.74	38.08	54.00	-15.92	AVG
2		4960.350	45.45	6.74	52.19	74.00	-21.81	peak

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

From 30MHz to 1GHz, read the field strength of the emissions with RBW=120KHz.

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

Read the Peak field strength through RBW=1MHz, VBW=3MHz in spectrum analyzer setting.

Read the Average field strength through RBW=1MHz, VBW=10Hz in spectrum analyzer setting.

(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

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6.5 20DB BANDWIDTH

6.5.1 APPLIED PROCEDURES / LIMIT

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 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.

6.5.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.26.2013

Remark: ” N/A” denotes No Model Name. , Serial No. or No Calibration specified.

6.5.3 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 30KHz, VBW=100KHz, Sweep time = 10 ms.

6.5.4 DEVIATION FROM STANDARD

No deviation.

6.5.5 TEST SETUP

6.5.6 EUT OPERATION CONDITIONS

The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

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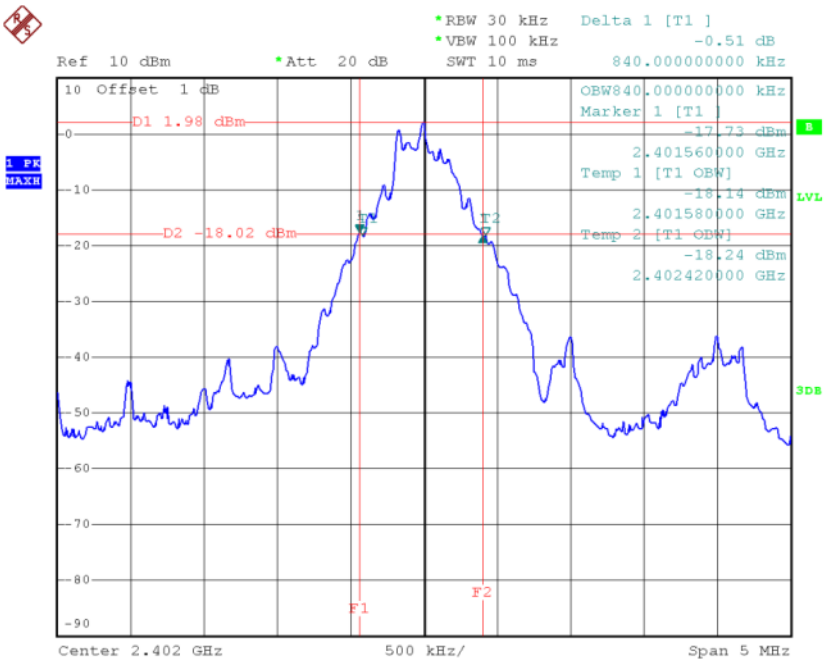
6.5.7 TEST RESULTS

Model:	A0-CL01	Result:	PASS
Temperature：	20℃	Relative Humidity：	55 %
Pressure：	1001 hPa	Test voltage：	120Vac
Test Mode ：	Hopping mode.		

Frequency (MHz)	Mode	20dB Bandwidth(KHz)	2/3 20dB bandwidth (KHz)
2402	GFSK	840	560
2441		840	560
2480		830	553
2402	8DPSK	1190	793
2441		1120	747
2480		1120	747

GFSK



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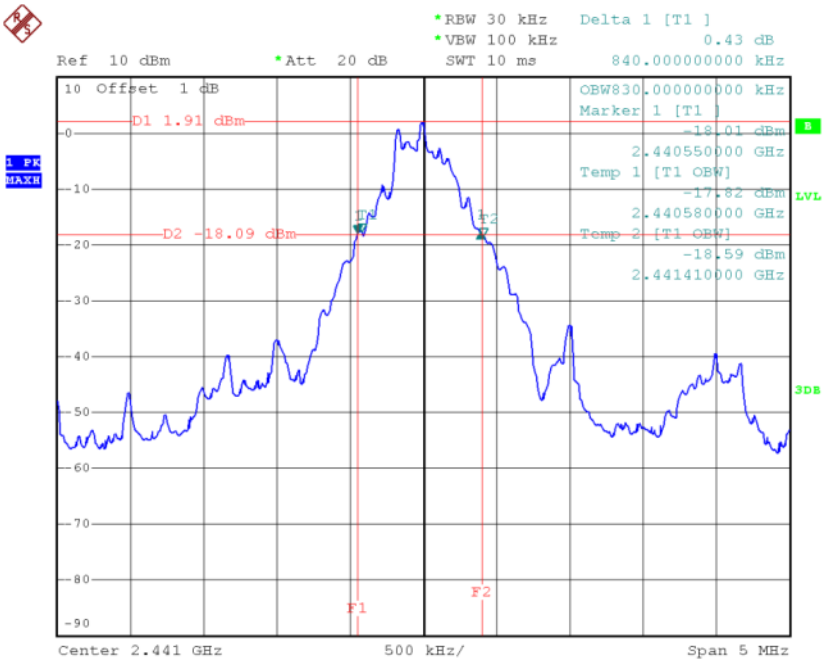

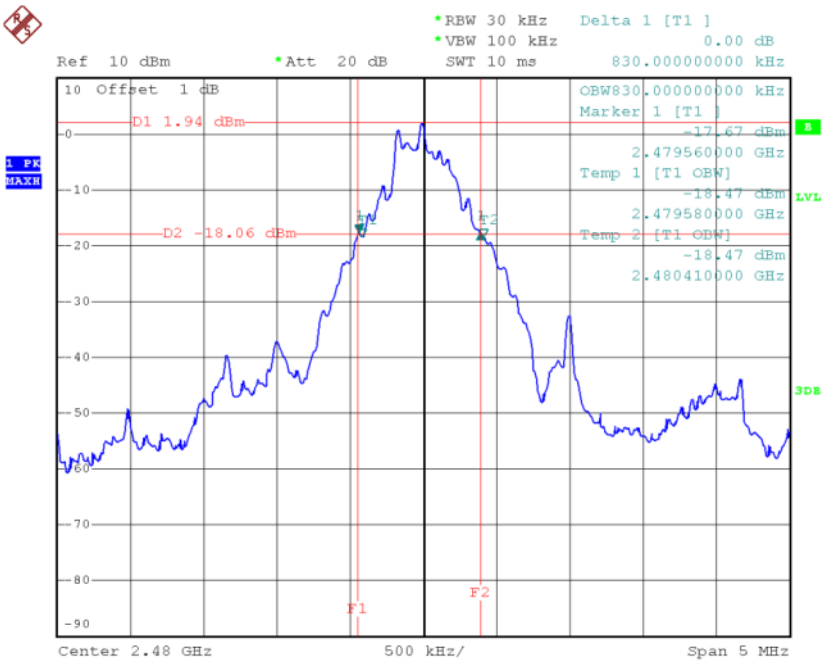

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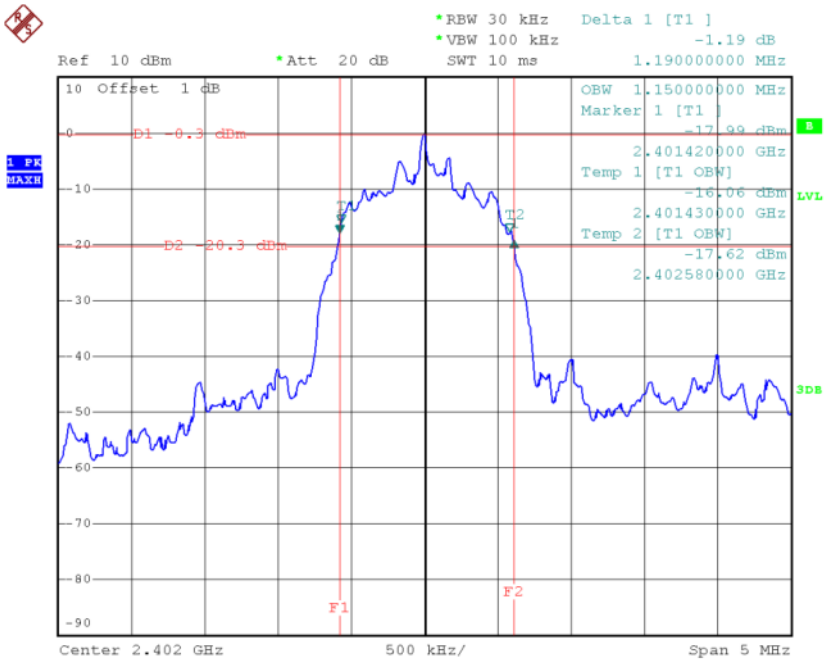
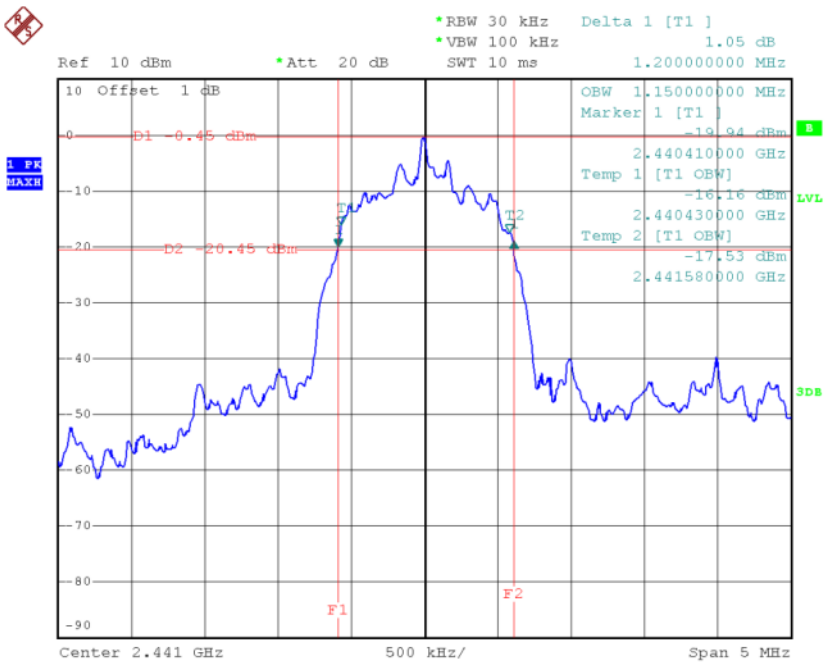
8DPSK





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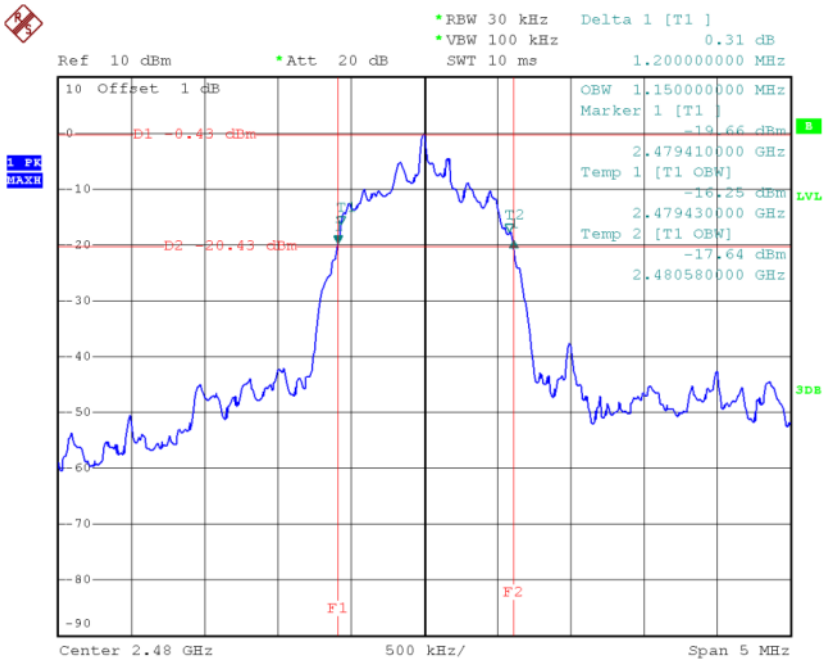

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6.6 CARRIER FREQUENCIES SEPARATED

6.6.1 APPLIED PROCEDURES / LIMIT

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 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.

6.6.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.26.2013

Remark: ” N/A” denotes No Model Name. , Serial No. or No Calibration specified.

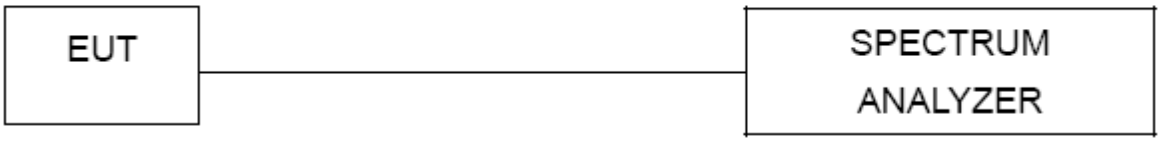
6.6.3 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 30KHz, VBW=100KHz, Sweep time = 10 ms.

6.6.4 DEVIATION FROM STANDARD

No deviation.

6.6.5 TEST SETUP



6.6.6 EUT OPERATION CONDITIONS

The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

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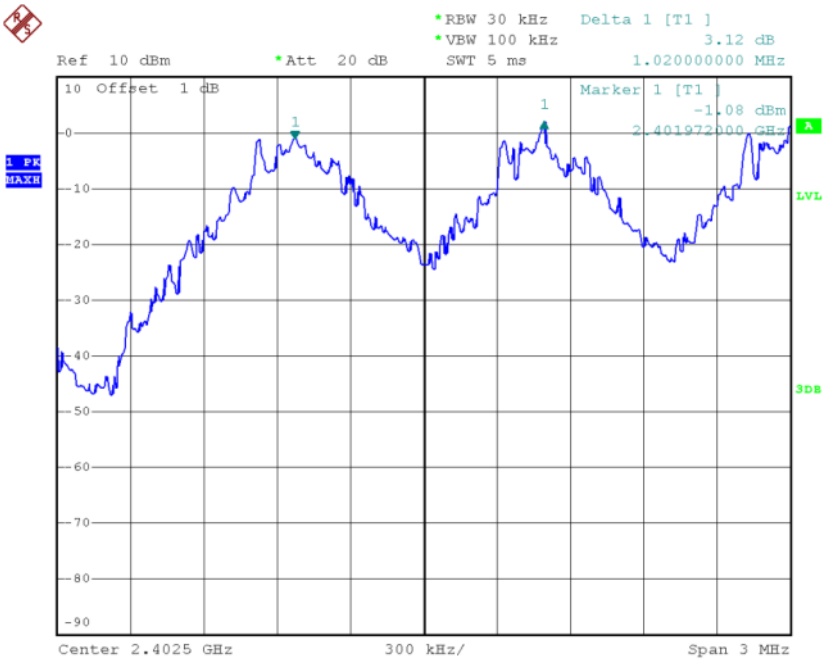
6.6.7 TEST RESULTS

Model:	A0-CL01	Result:	PASS
Temperature：	20℃	Relative Humidity：	55 %
Pressure：	1001 hPa	Test voltage：	120Vac
Test Mode ：	Hopping mode.		

Frequency (MHz)	Mode	Carrier Frequencies Separated	2/3 20dB bandwidth (KHz)	Result
Low	GFSK	1.02MHz	560	Pass
Middle		1.02MHz	560	Pass
High		1.02MHz	553	Pass
Low	8DPSK	1.017MHz	793	Pass
Middle		1.002MHz	747	Pass
High		1.008MHz	747	Pass

GFSK



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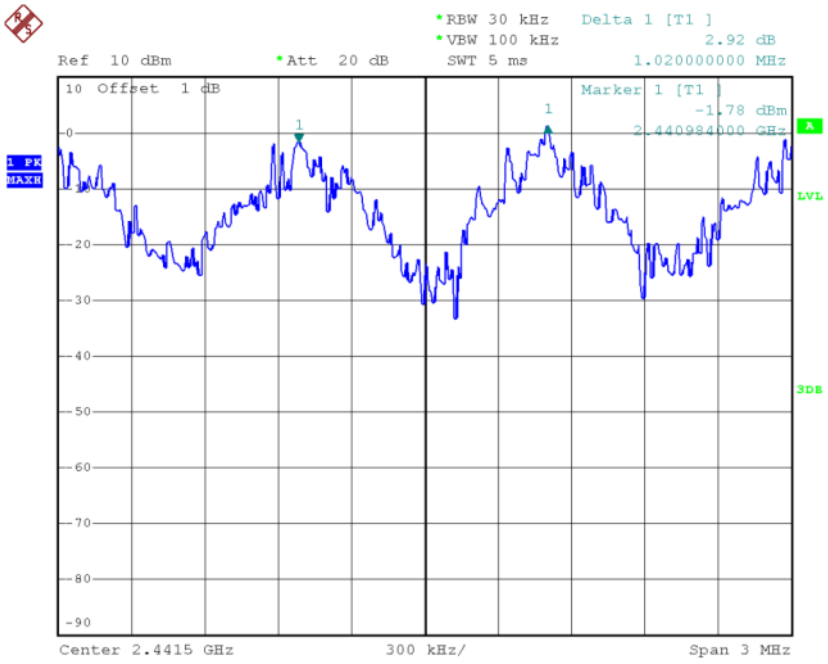

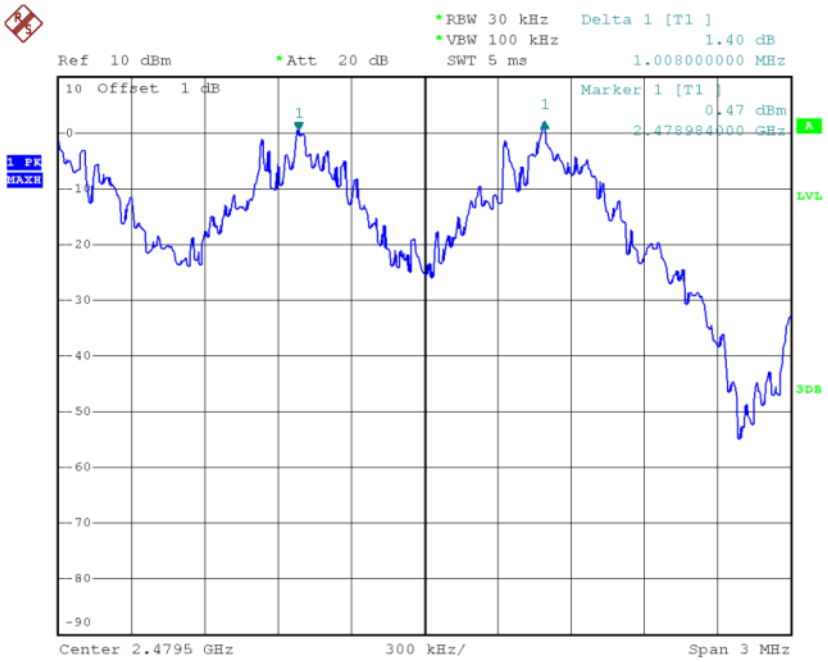

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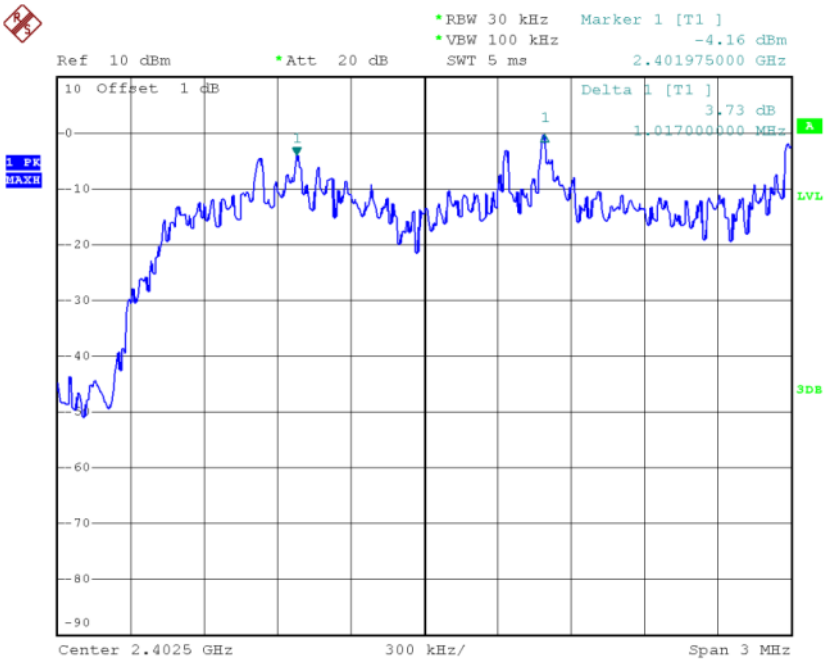
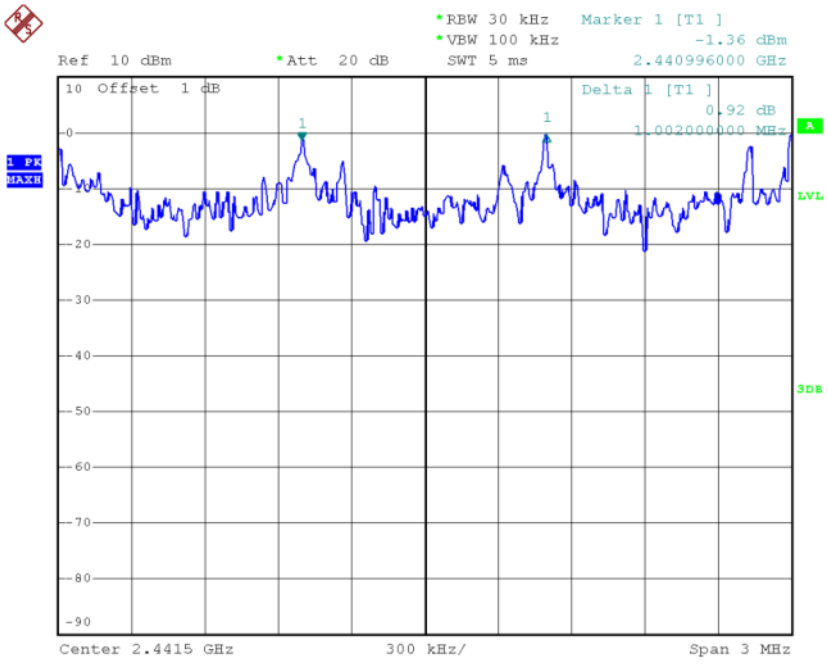
8DPSK





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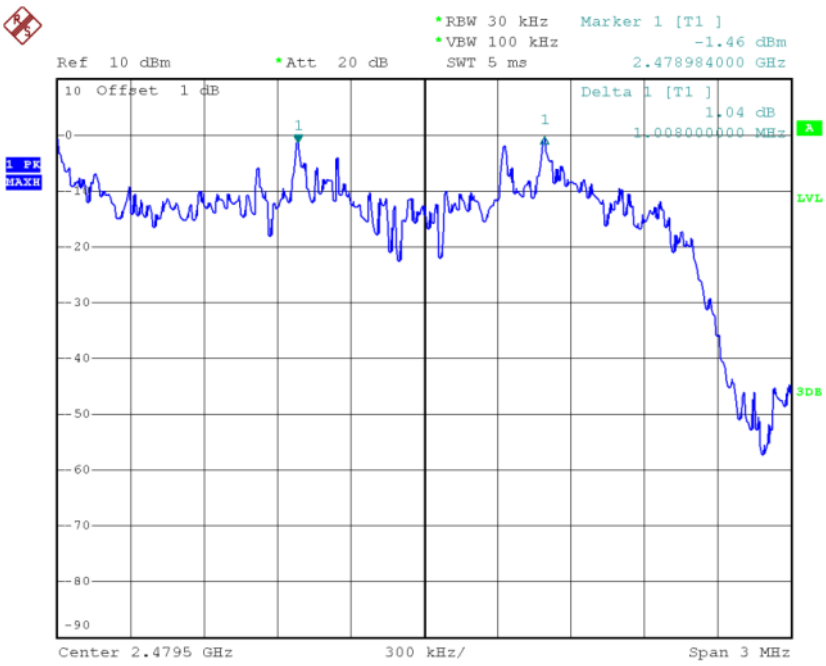

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6.7 NUMBER OF HOPPING CHANNEL

6.7.1 APPLIED PROCEDURES / LIMIT

15.247 (a) (1)(iii) Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

6.7.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.26.2013

Remark: ” N/A” denotes No Model Name. , Serial No. or No Calibration specified.

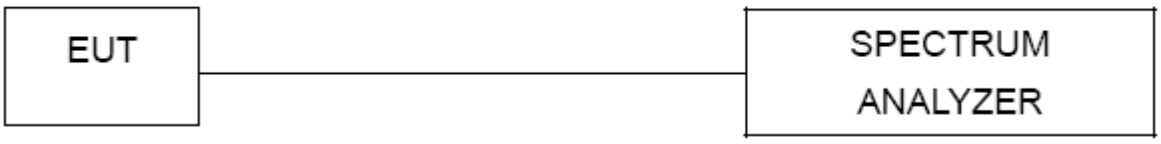
6.7.3 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 100KHz, VBW=100KHz, Sweep time = 10 ms.

6.7.4 DEVIATION FROM STANDARD

No deviation.

6.7.5 TEST SETUP



6.7.6 EUT OPERATION CONDITIONS

Continuously hopping mode.

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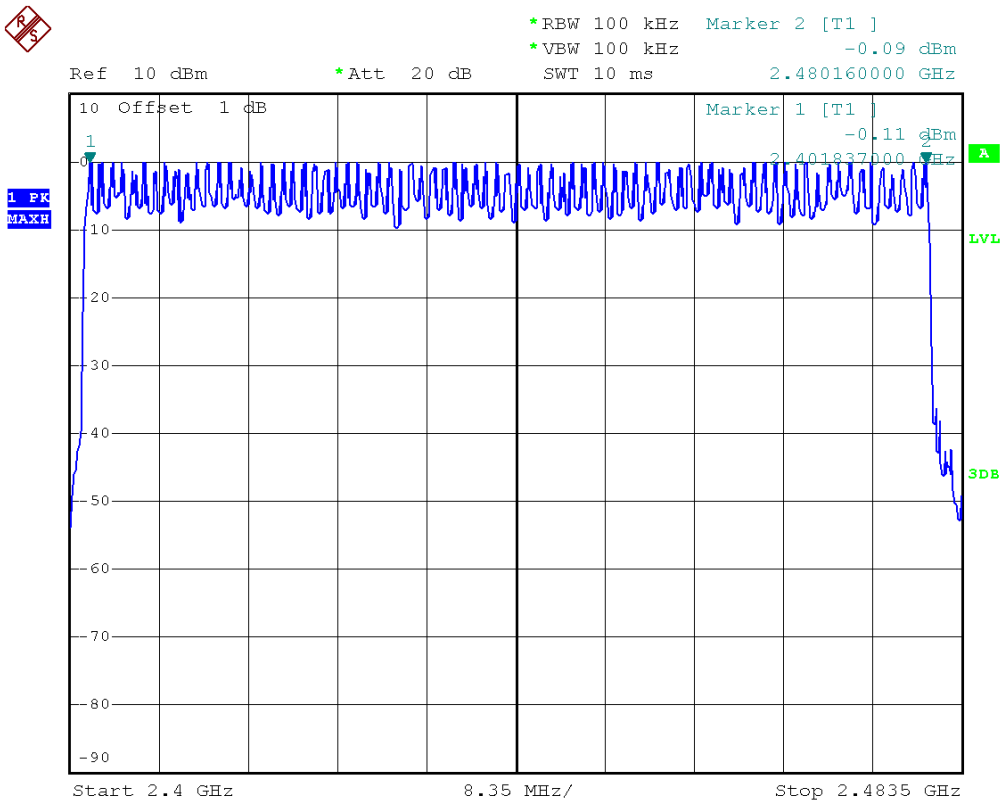
6.7.7 TEST RESULTS

Model:	A0-CL01	Result:	PASS
Temperature：	20℃	Relative Humidity：	55 %
Pressure：	1001 hPa	Test voltage：	120Vac
Test Mode ：	Hopping mode.		

Test result: Hopping number is 79.

Plot is as below:



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6.8 DWELL TIME

6.8.1 APPLIED PROCEDURES / LIMIT

15.247(a)(1)(iii) 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.

6.8.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.26.2013

Remark: ” N/A” denotes No Model Name. , Serial No. or No Calibration specified.

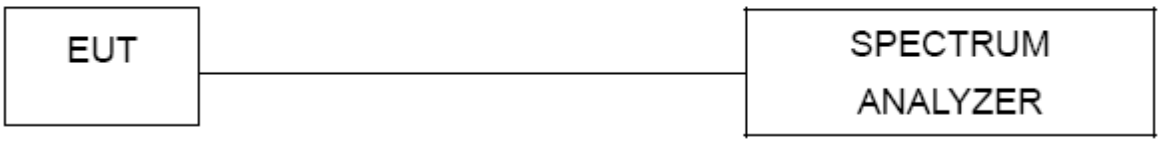
6.8.3 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 1MHz, VBW=1MHz, Sweep time = 10 ms.

6.8.4 DEVIATION FROM STANDARD

No deviation.

6.8.5 TEST SETUP



6.8.6 EUT OPERATION CONDITIONS

Continuously hopping mode.

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6.8.7 TEST RESULTS

Model:	A0-CL01	Result:	PASS
Temperature：	20℃	Relative Humidity：	55 %
Pressure：	1001 hPa	Test voltage：	120Vac
Test Mode ：	Continuously transmitting mode.		

Test Result:

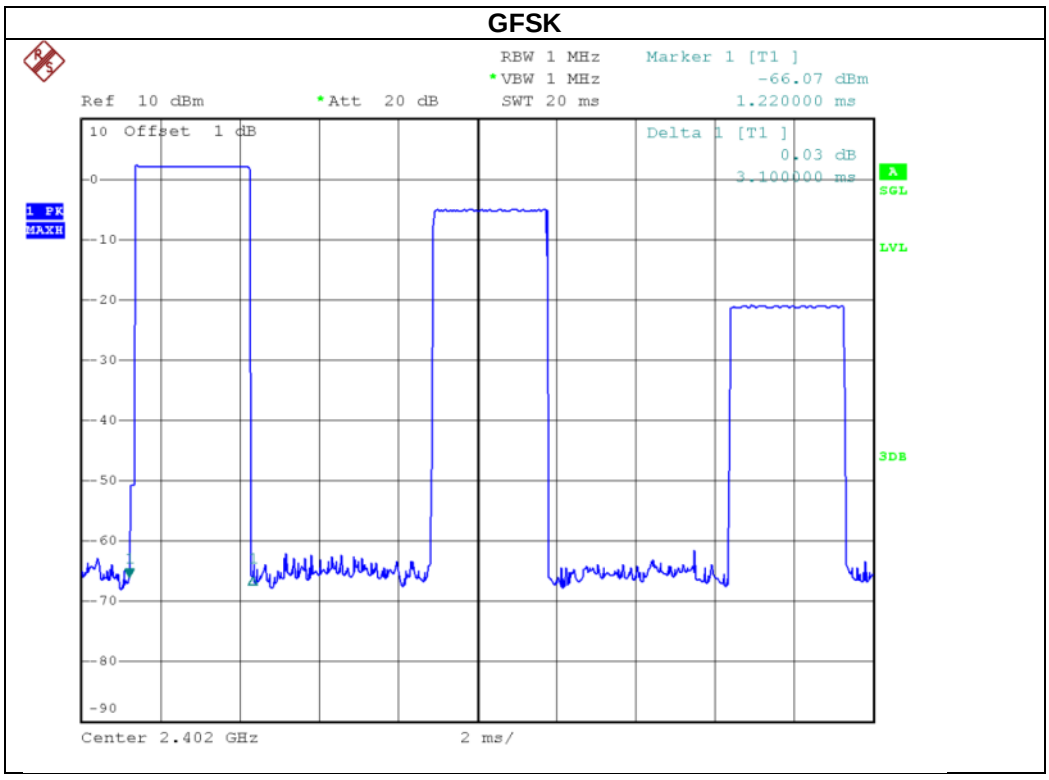
The test period: T= 0.4 Second/Channel x 79 Channel = 31.6 s

1. **Channel 0:** 2.402GHz
   DH5 time slot = 3.100 (ms) * (1600/(6*79)) * 31.6 = 330.667 ms
   3DH5 time slot = 3.120 (ms) * (1600/(6*79)) * 31.6 = 332.800ms
2. **Channel 39:** 2.441GHz
   DH5 time slot = 3.120 (ms) * (1600/(6*79)) * 31.6 = 332.800ms
   3DH5 time slot = 3.120 (ms) * (1600/(6*79)) * 31.6 = 332.800ms
3. **Channel 78:** 2.480GHz
   DH5 time slot = 3.120 (ms) * (1600/(6*79)) * 31.6 = 332.800ms
   3DH5 time slot = 3.120 (ms) * (1600/(6*79)) * 31.6 = 332.800ms

The results are not greater than 0.4 seconds.

Plots are as below:

GFSK



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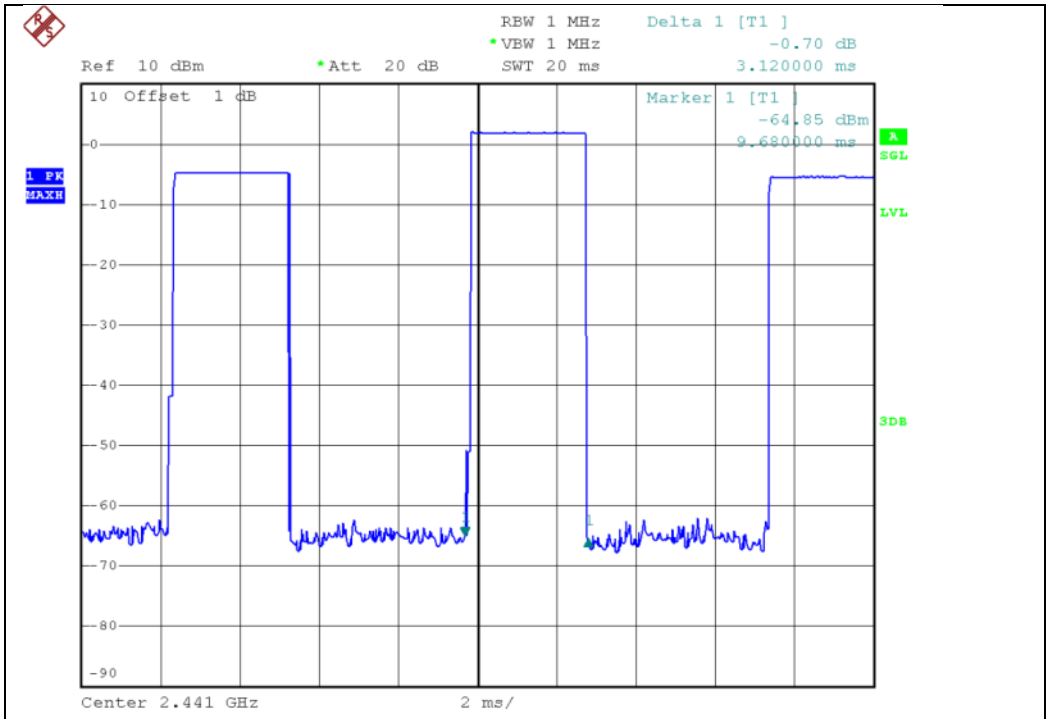

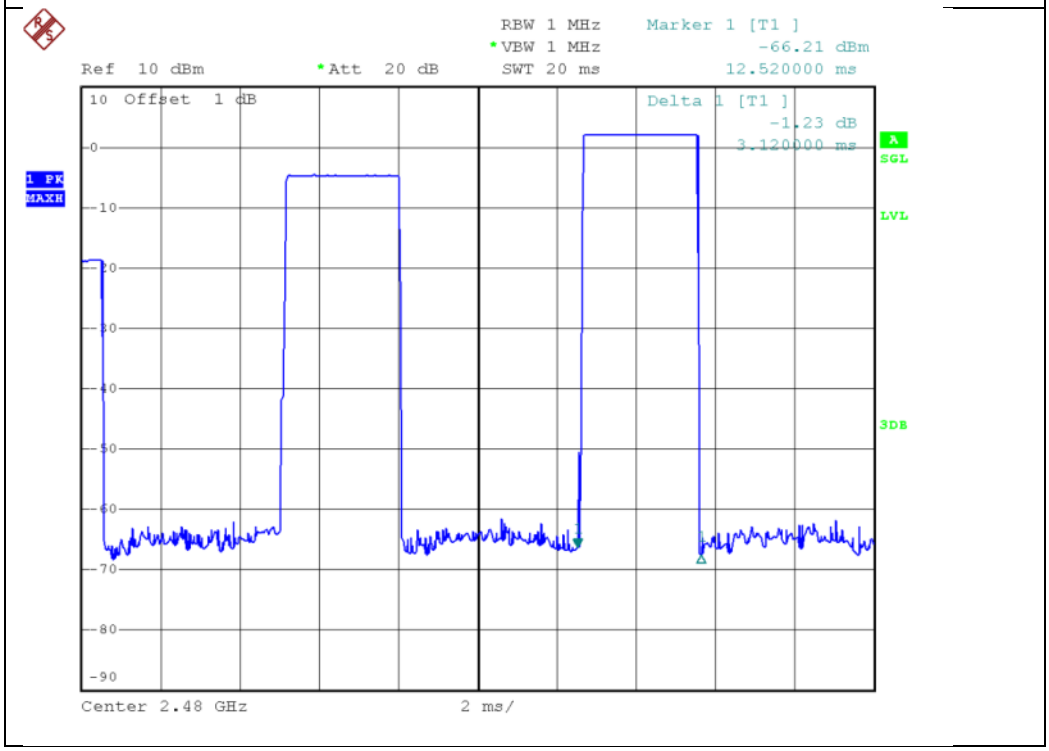

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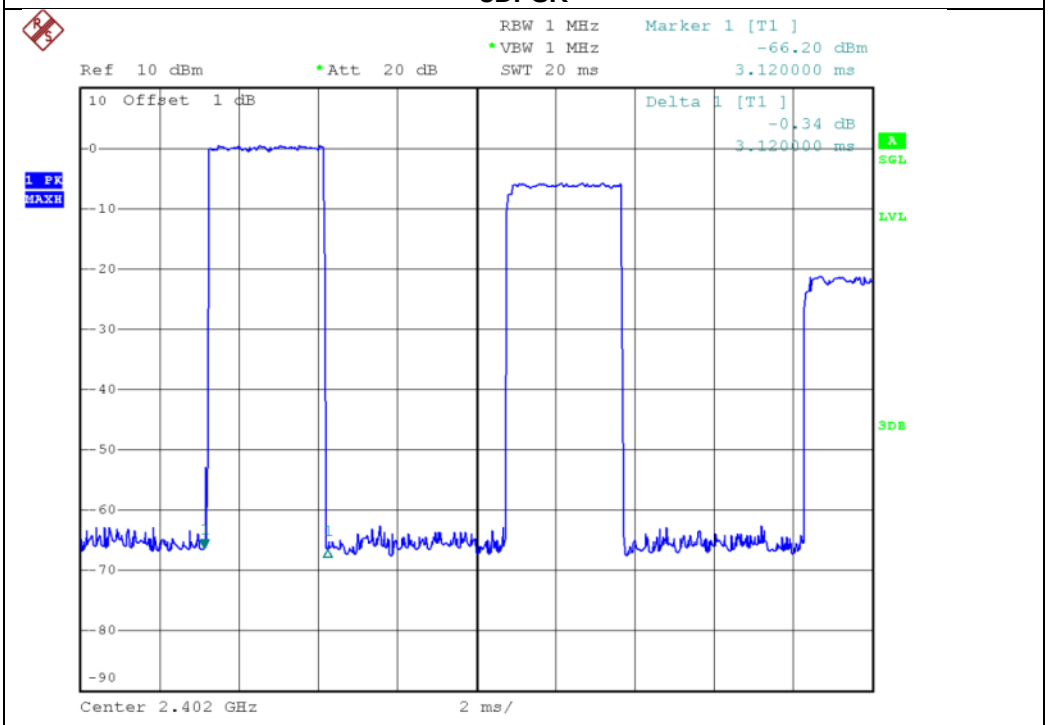
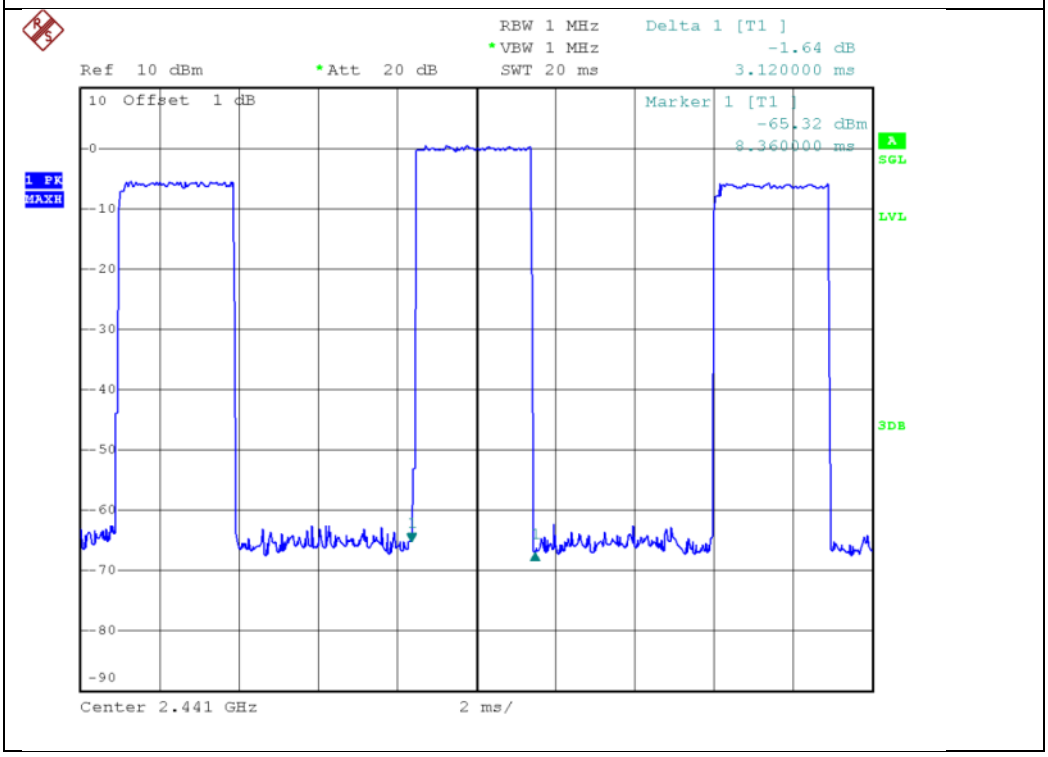
8DPSK





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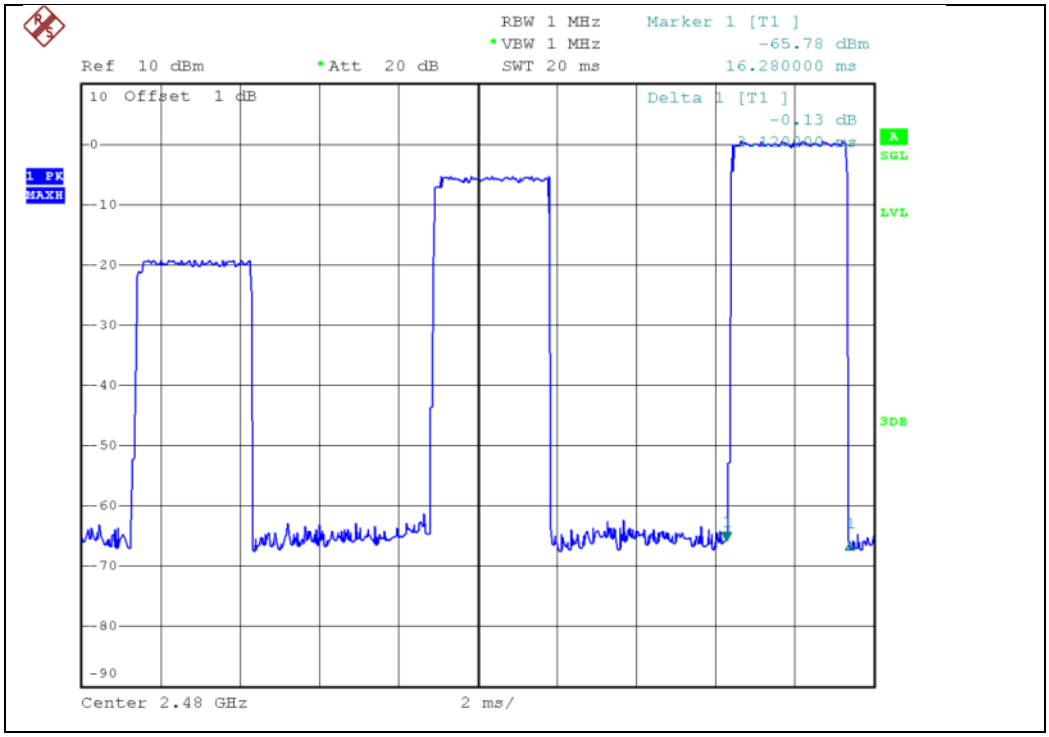

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6.9 CONDUCTED PEAK OUTPUT POWER

6.9.1 APPLIED PROCEDURES / LIMIT

15.247(b)(1) For frequency hopping systems operating in the 2400–2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725–5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400–2483.5 MHz band: 0.125 watts.

6.9.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.26.2013

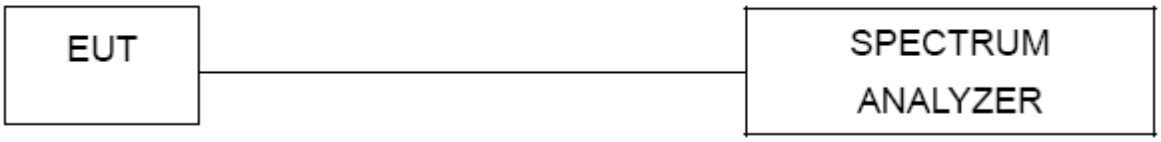
6.9.3 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 1MHz/3MHz, VBW≥RBW, Sweep time = auto

6.9.4 DEVIATION FROM STANDARD

No deviation.

6.9.5 TEST SETUP



6.9.6 EUT OPERATION CONDITIONS

The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

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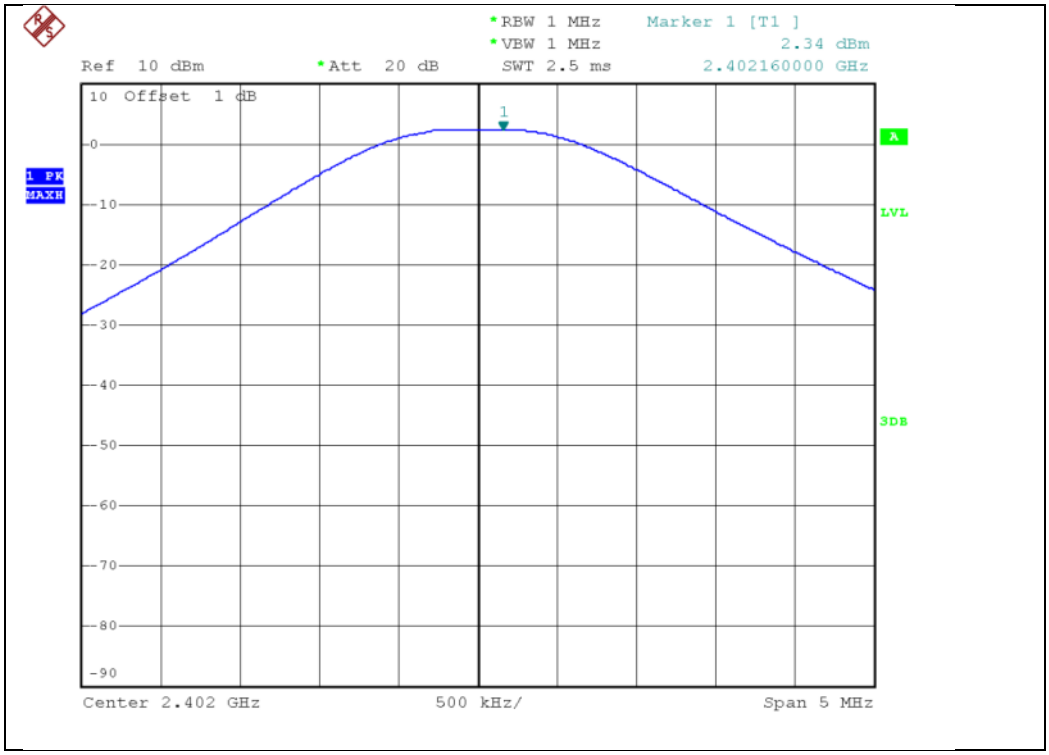
6.9.7 TEST RESULTS

Model:	A0-CL01	Result:	PASS
Temperature：	20℃	Relative Humidity：	55 %
Pressure：	1001 hPa	Test voltage：	120Vac
Test Mode ：	Continuously transmitting mode.		

Frequency (MHz)	Mode	Measurement (dBm)	Limit	Result
2402	GFSK	2.34	≤ 30dBm	Pass
2441		2.09		Pass
2480		2.18		Pass
2402	8DPSK	1.23		Pass
2441		1.01		Pass
2480		1.08		Pass



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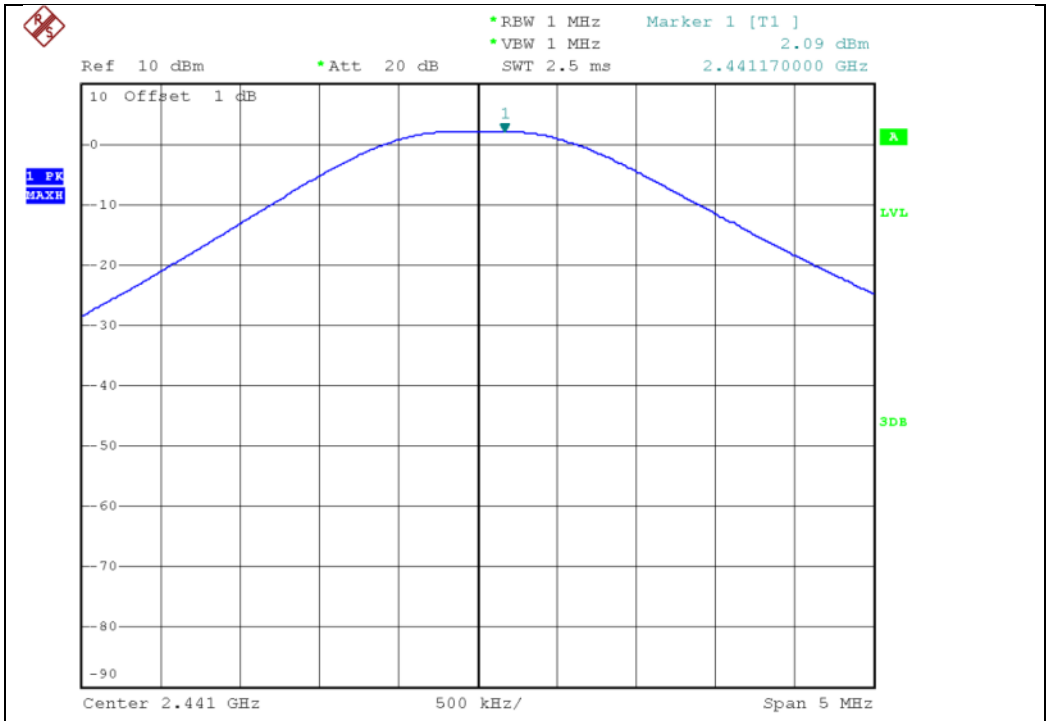
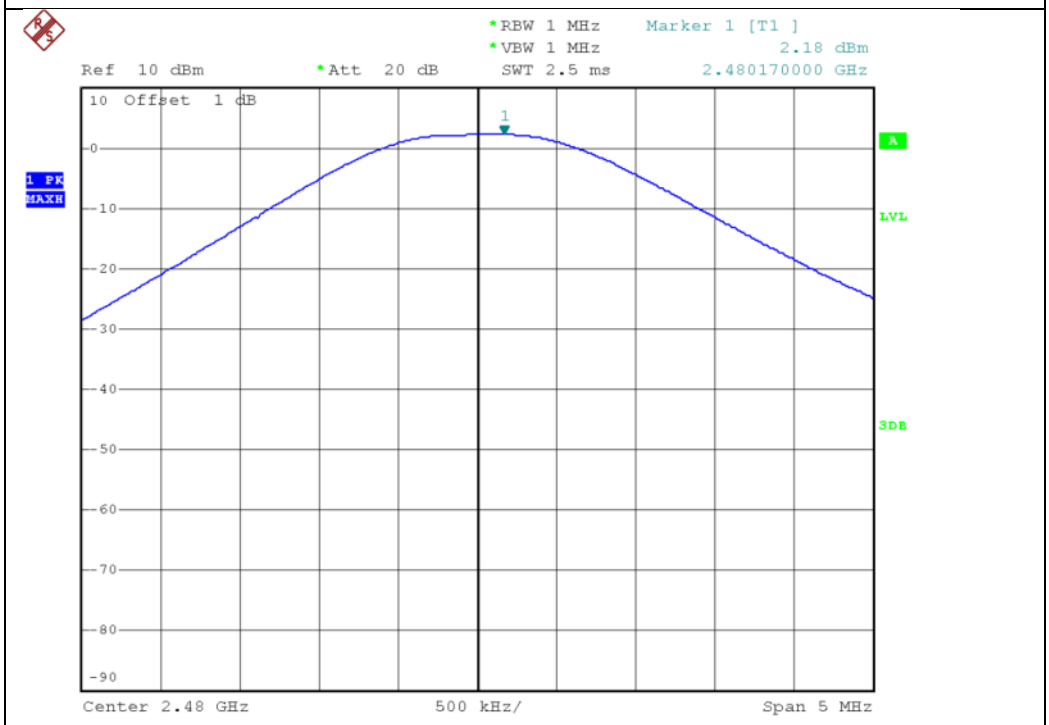


Date: 15.AUG.2013 09:02:16



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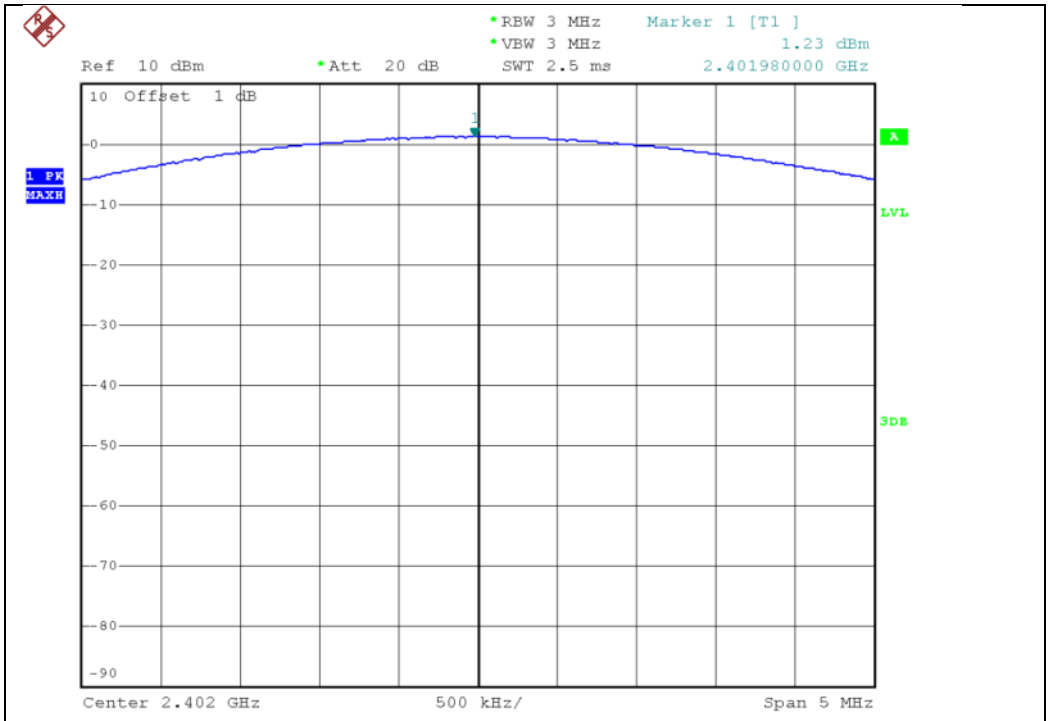

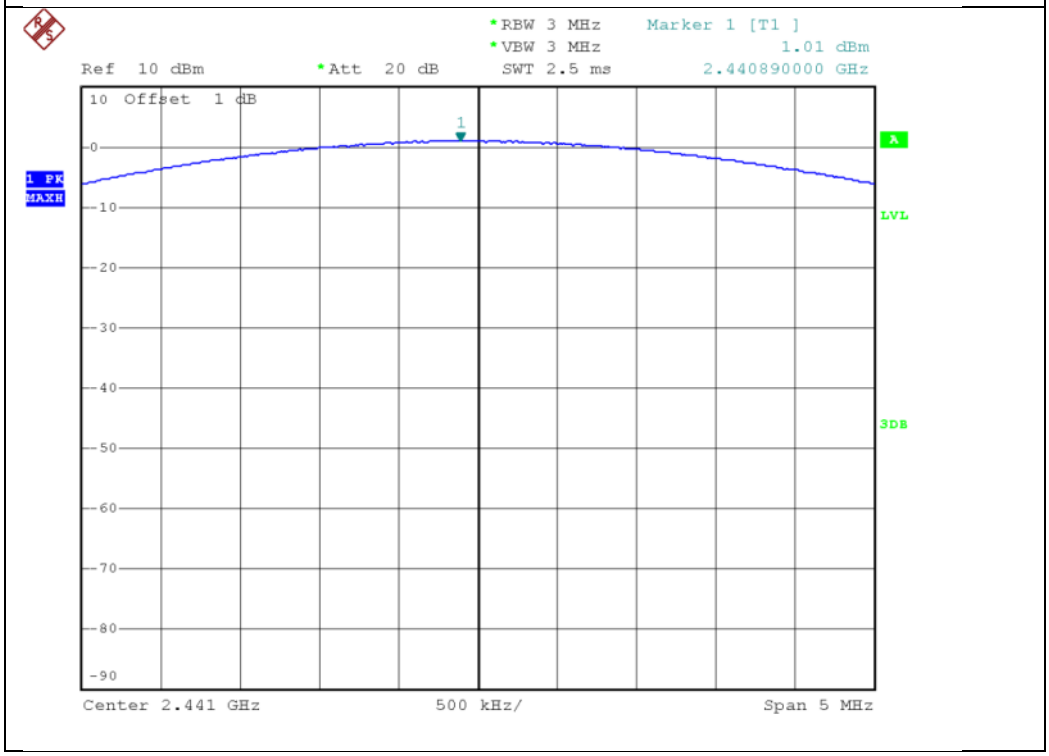

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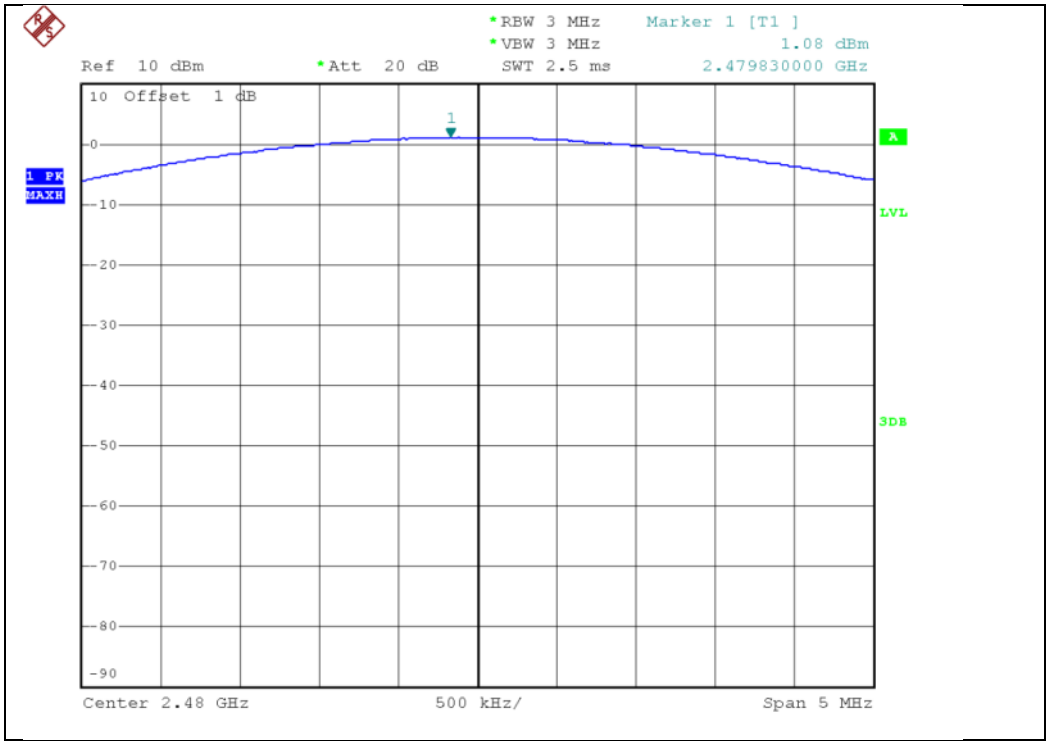

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6.10 CONDUCTED SPURIOUS EMISSION

6.10.1 APPLIED PROCEDURES / LIMIT

15.247(d) 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. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

6.10.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.26.2013

Remark: ” N/A” denotes No Model Name. , Serial No. or No Calibration specified.

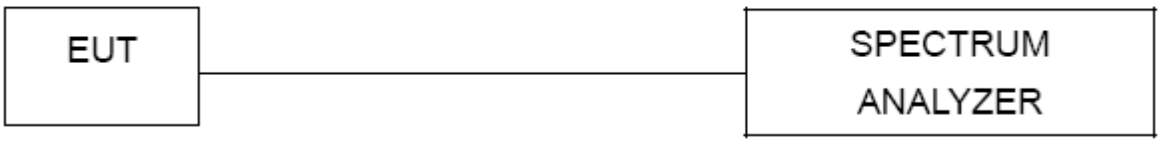
6.10.3 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 100KHz, VBW=100KHz, Sweep time = auto.

6.10.4 DEVIATION FROM STANDARD

No deviation.

6.10.5 TEST SETUP



6.10.6 EUT OPERATION CONDITIONS

The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

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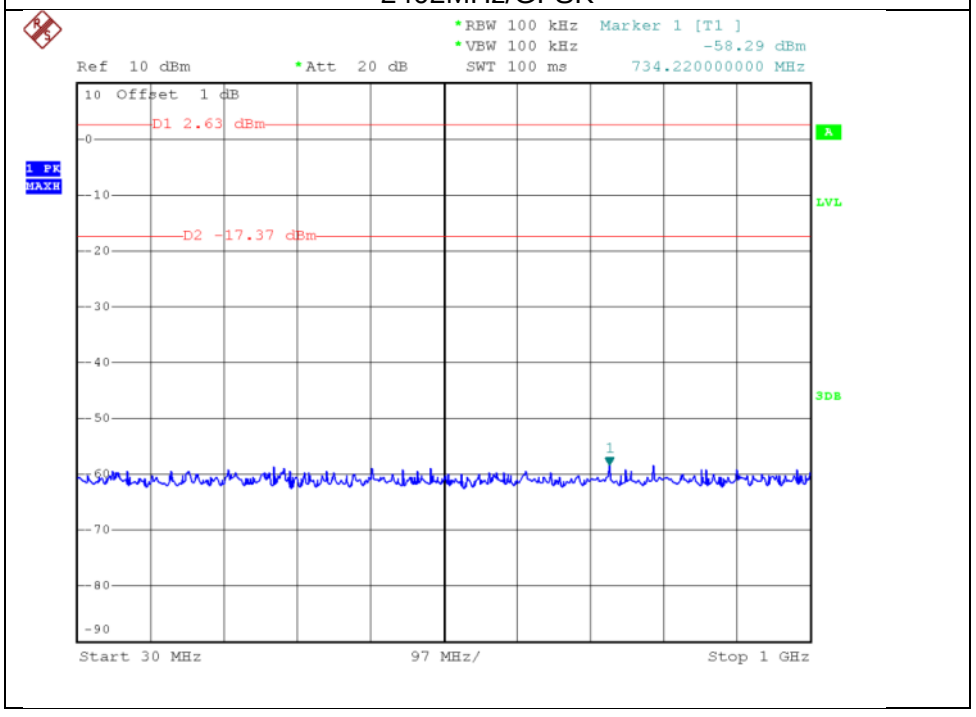
6.10.7 TEST RESULTS

Model:	A0-CL01	Result:	PASS
Temperature：	20℃	Relative Humidity：	55 %
Pressure：	1001 hPa	Test voltage：	120Vac
Test Mode ：	Continuously transmitting mode.		

Test result: In any 100 kHz bandwidth outside the frequency band in intentional radiator is operating, the radio frequency power that is produced by the intentional radiator is at least

20dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power based on an RF conducted measurement.

2402MHz/GFSK



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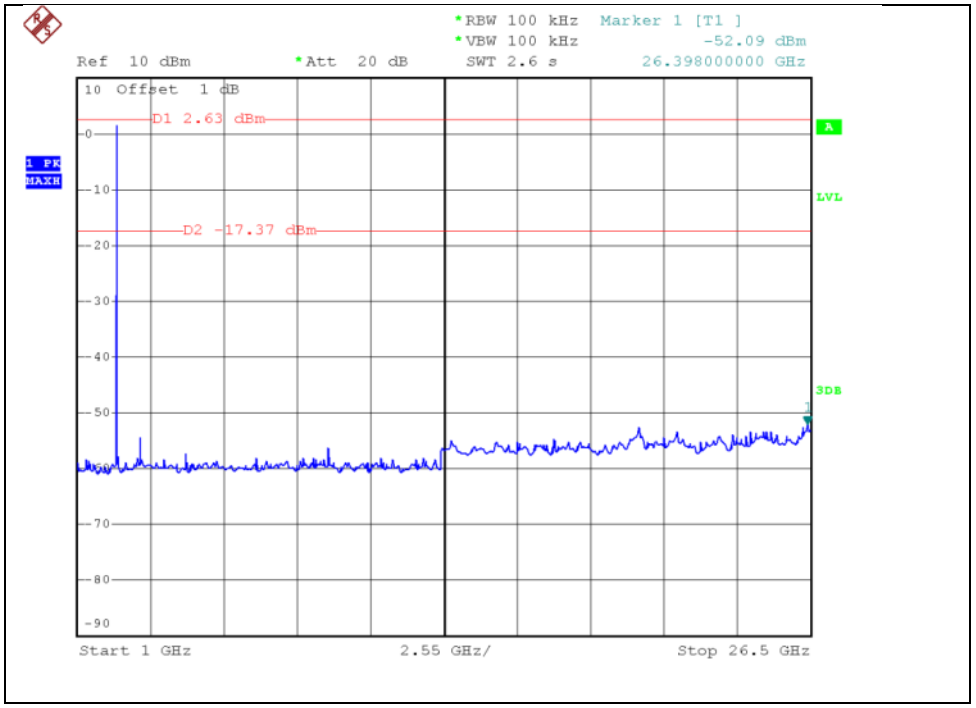

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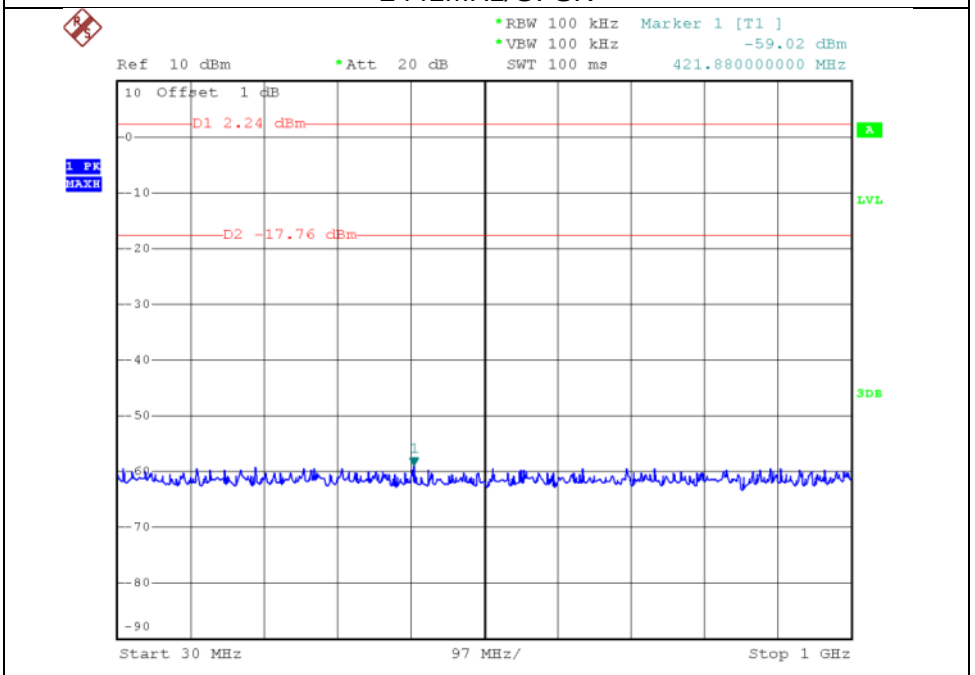
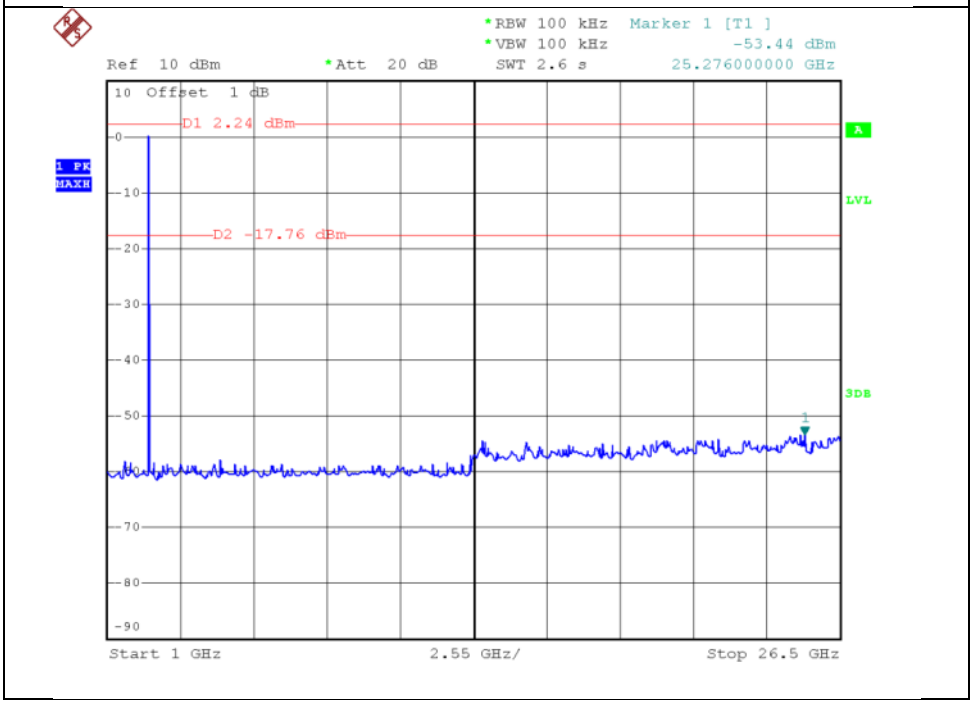
2441MHz/GFSK





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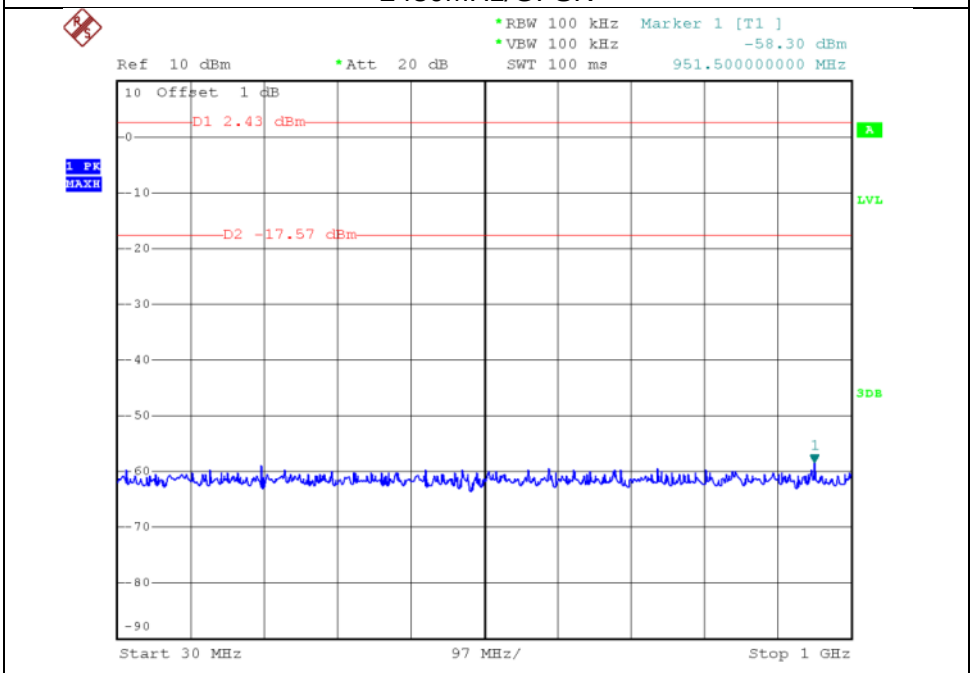
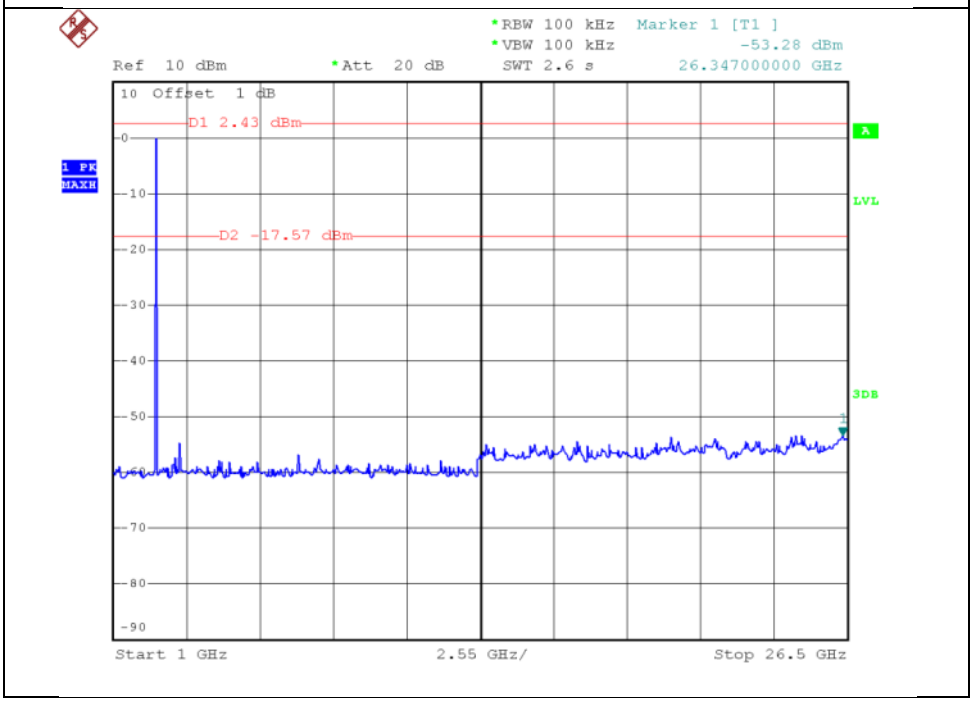
2480MHz/GFSK





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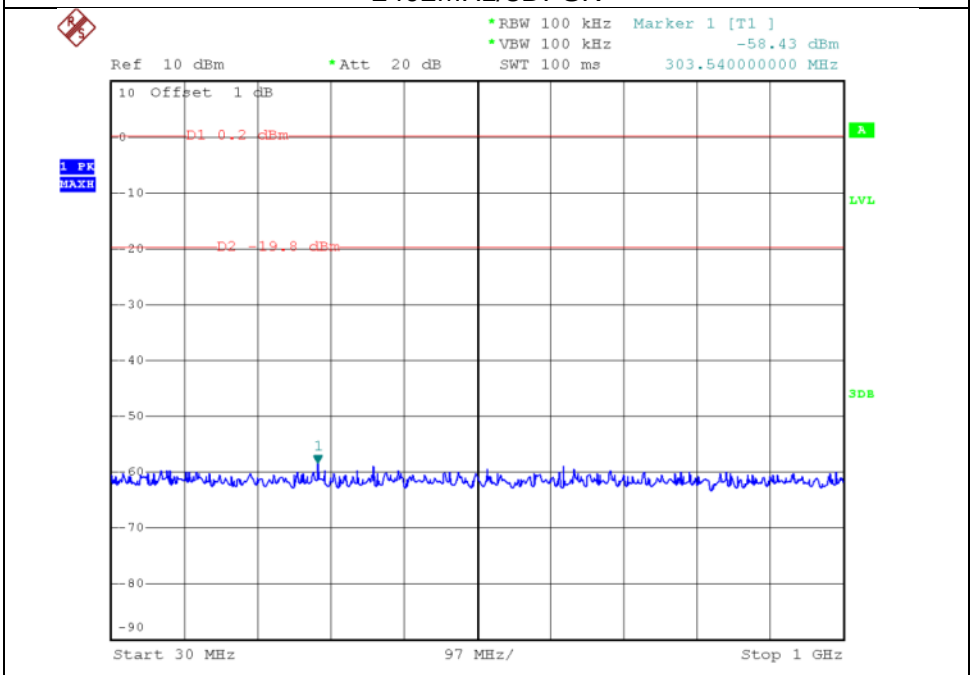
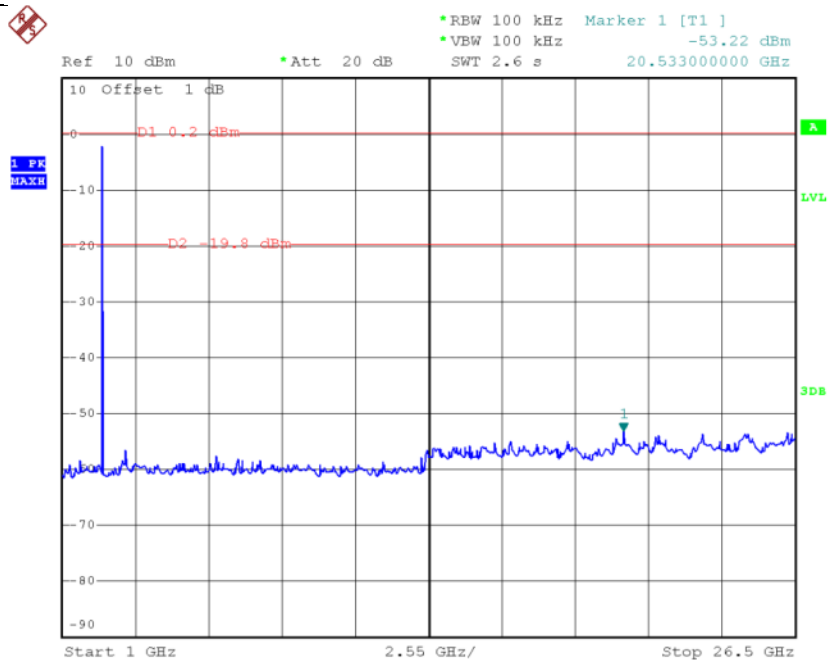
2402MHz/8DPSK





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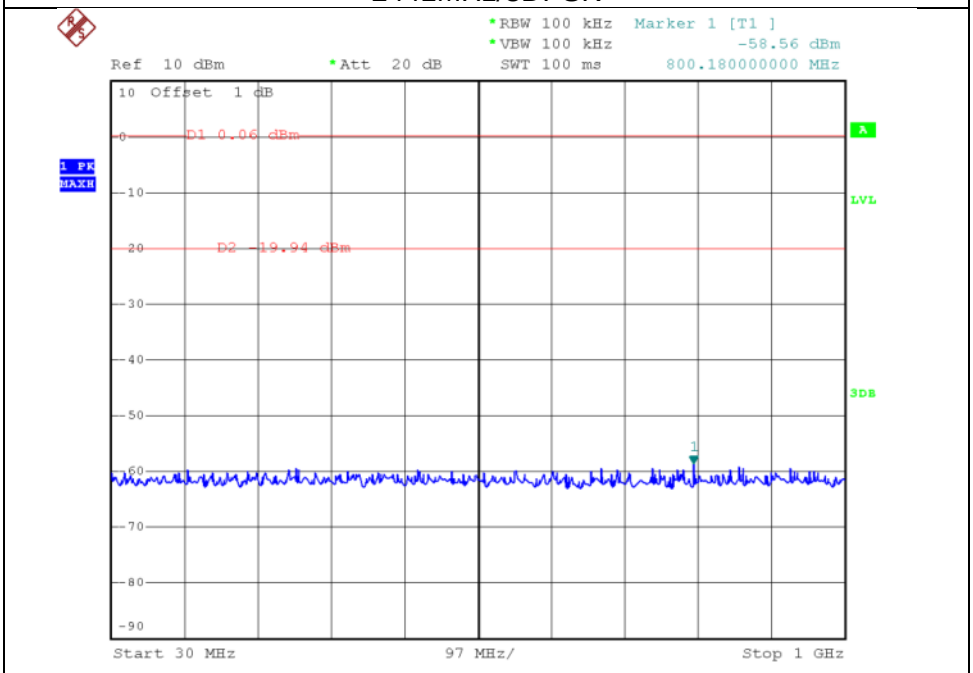
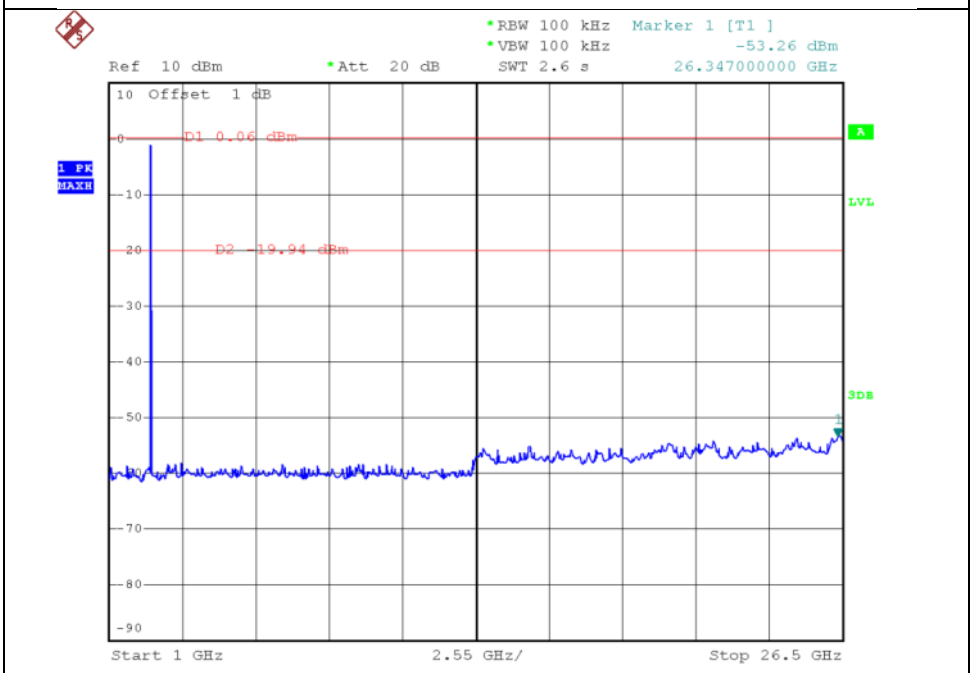
2441MHz/8DPSK





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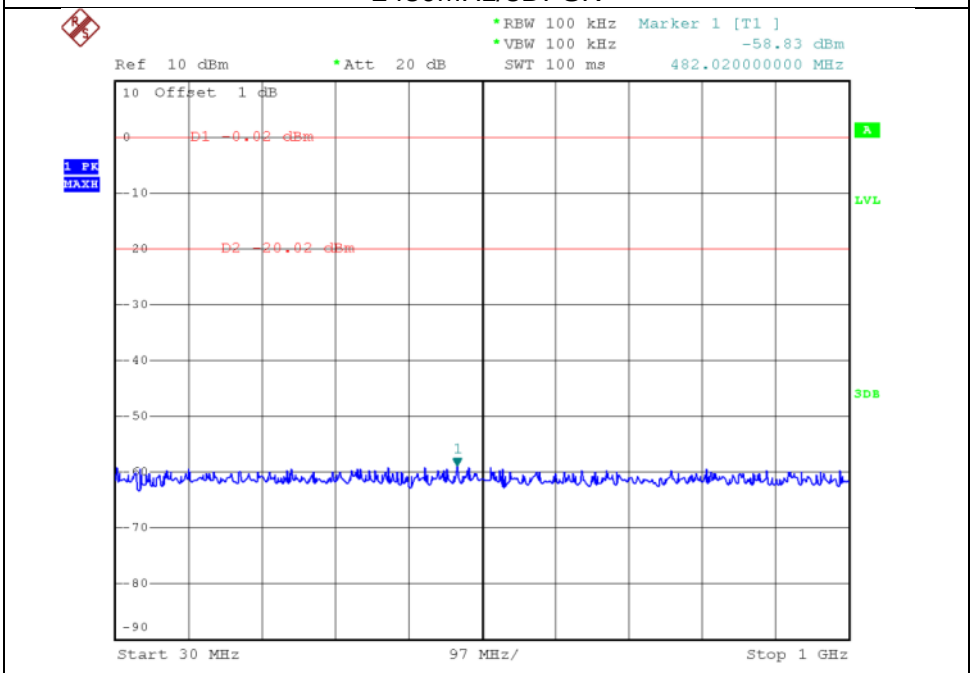
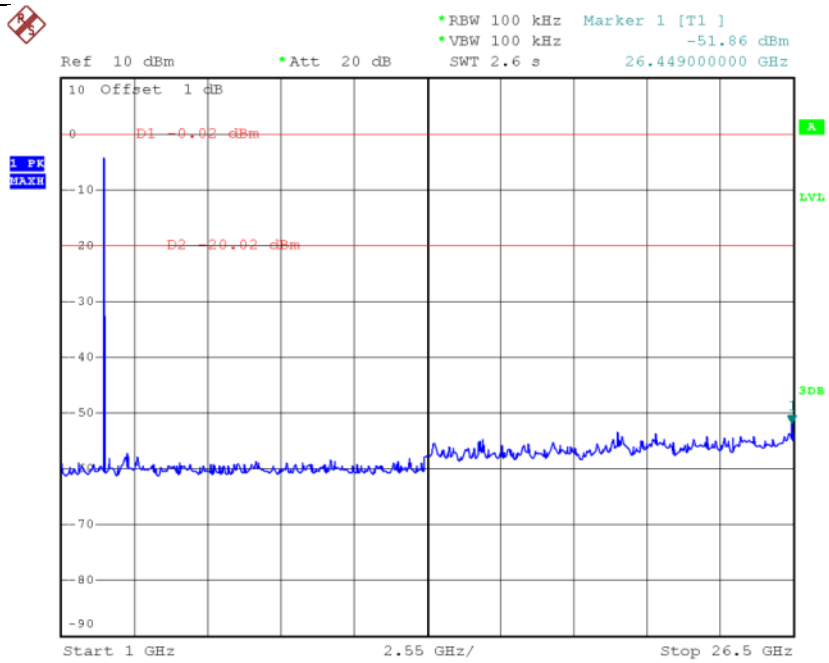
2480MHz/8DPSK





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6.11 BANDEDGE

6.11.1 APPLIED PROCEDURES / LIMIT

15.247 (d) 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 Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

6.11.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.26.2013

Remark: ” N/A” denotes No Model Name. , Serial No. or No Calibration specified.

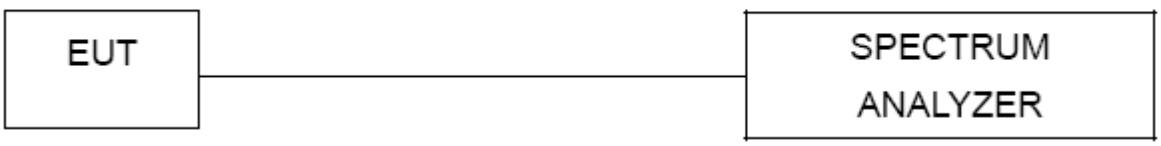
6.11.3 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 100KHz, VBW=100KHz, Sweep time = auto.

6.11.4 DEVIATION FROM STANDARD

No deviation.

6.11.5 TEST SETUP



6.11.6 EUT OPERATION CONDITIONS

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The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

6.11.7 TEST RESULTS

Model:	A0-CL01	Result:	PASS
Temperature：	20℃	Relative Humidity：	55 %
Pressure：	1001 hPa	Test voltage：	120Vac
Test Mode ：	Continuously transmitting mode.		

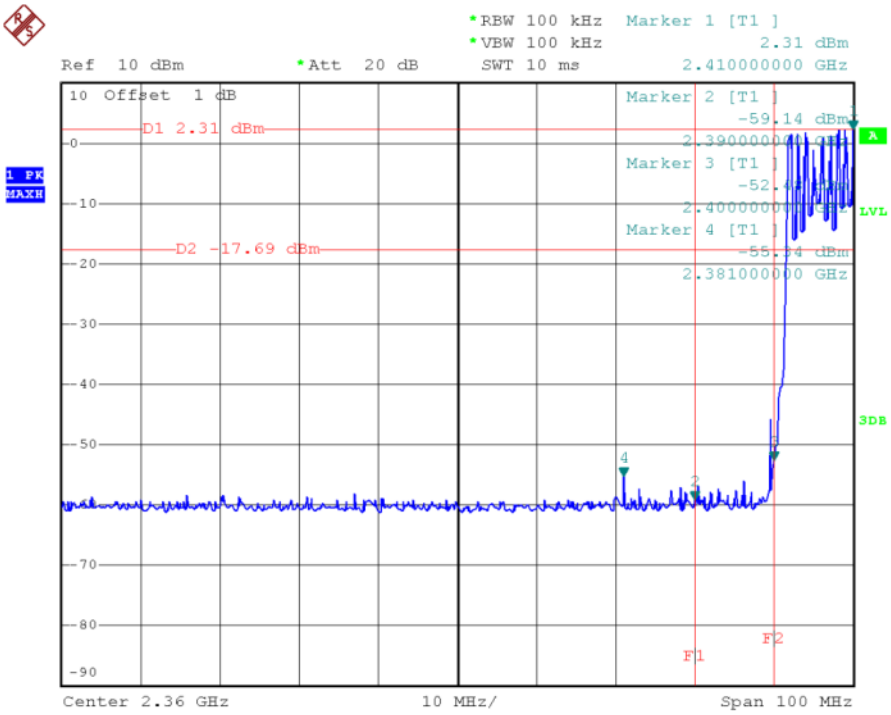
Test result:

The Lower Edges attenuated more than 20dB.

The Upper Edges attenuated more than 20dB.

Plots are as below:

GFSK



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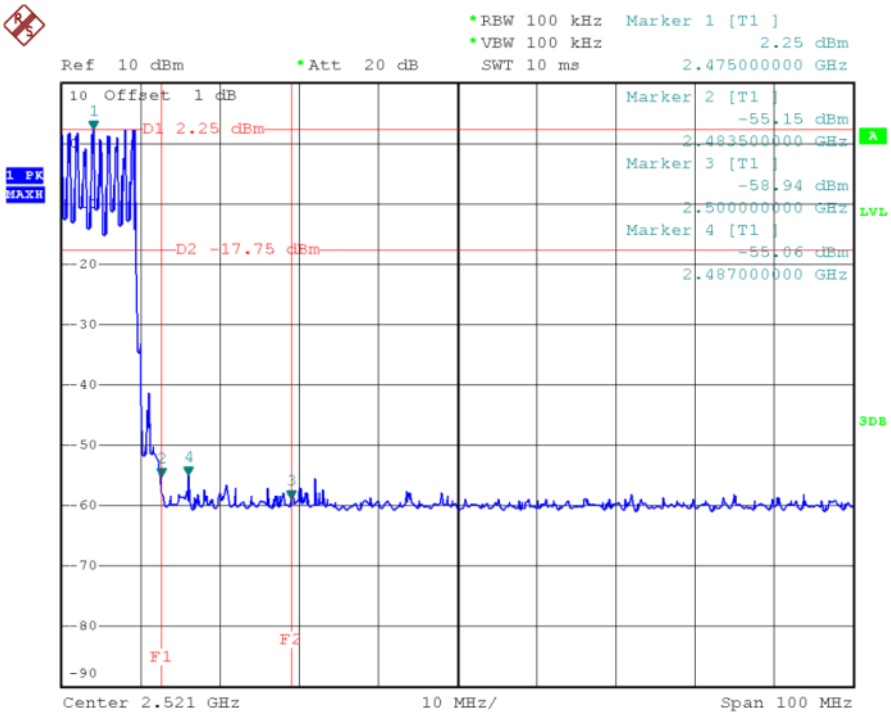
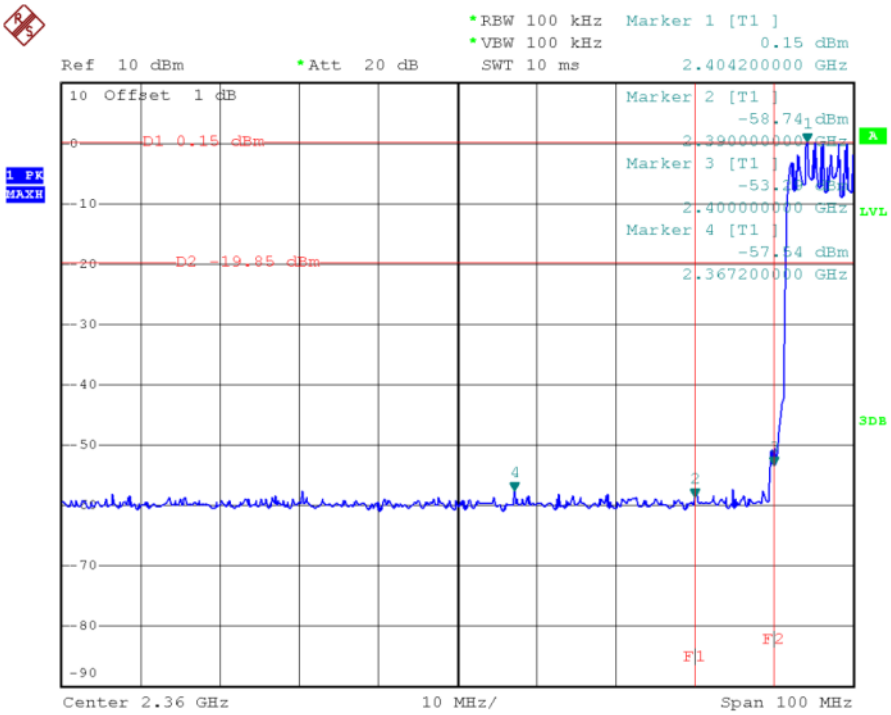


8DPSK



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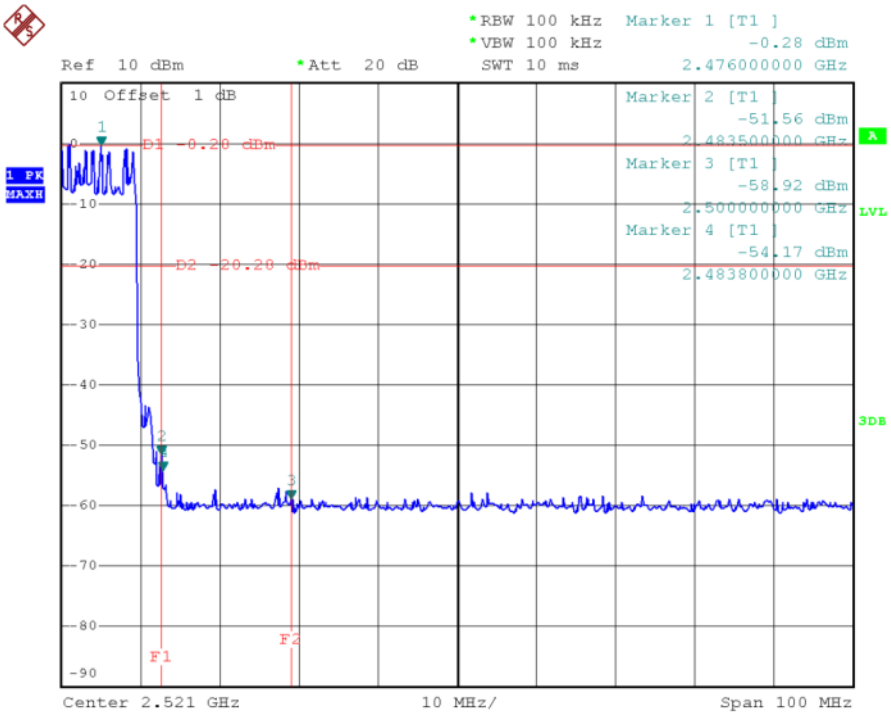

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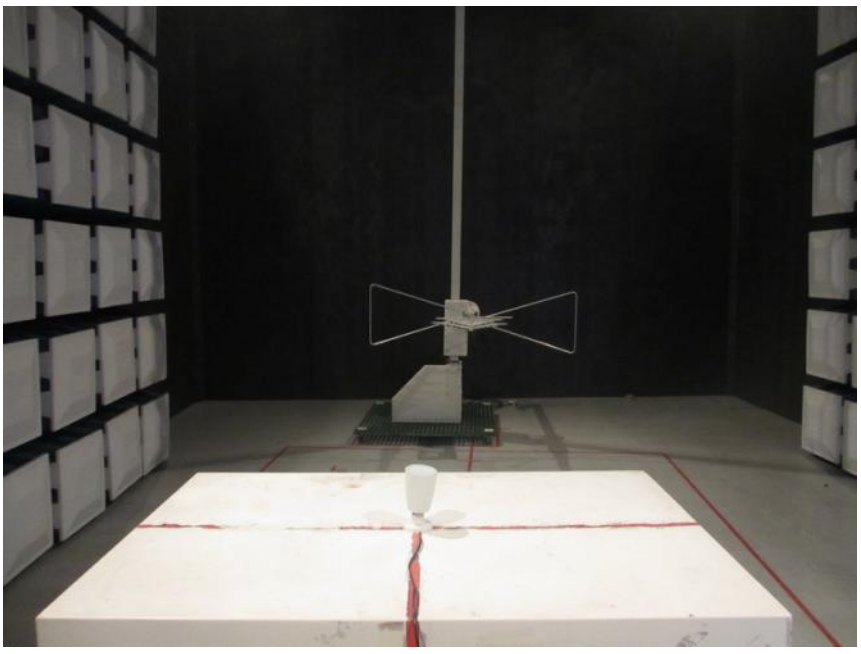
7. Appendix A - TEST SETUP PHOTOS

Conducted Emissions Test

Radiated Emissions Test



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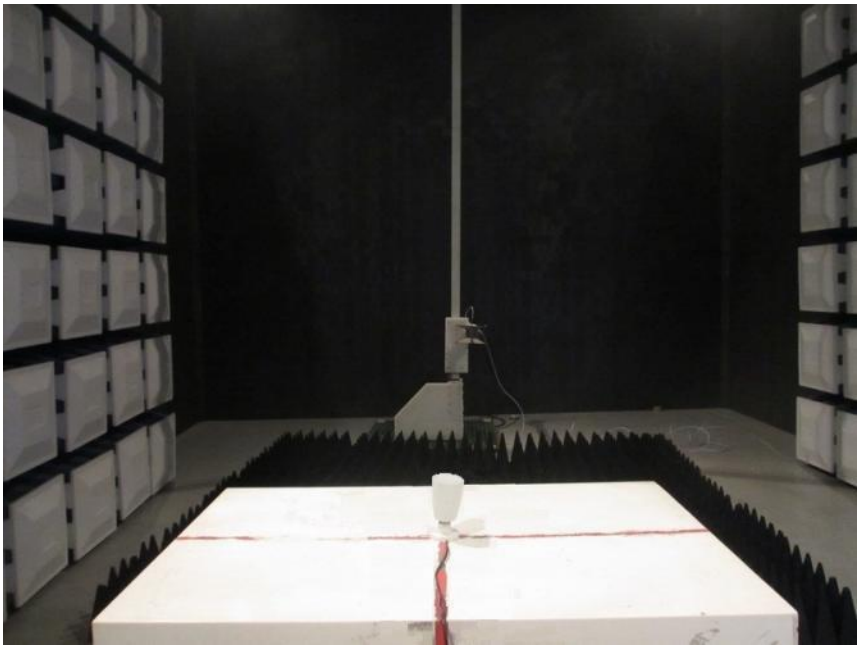

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8. Appendix B - EUT PHOTOS

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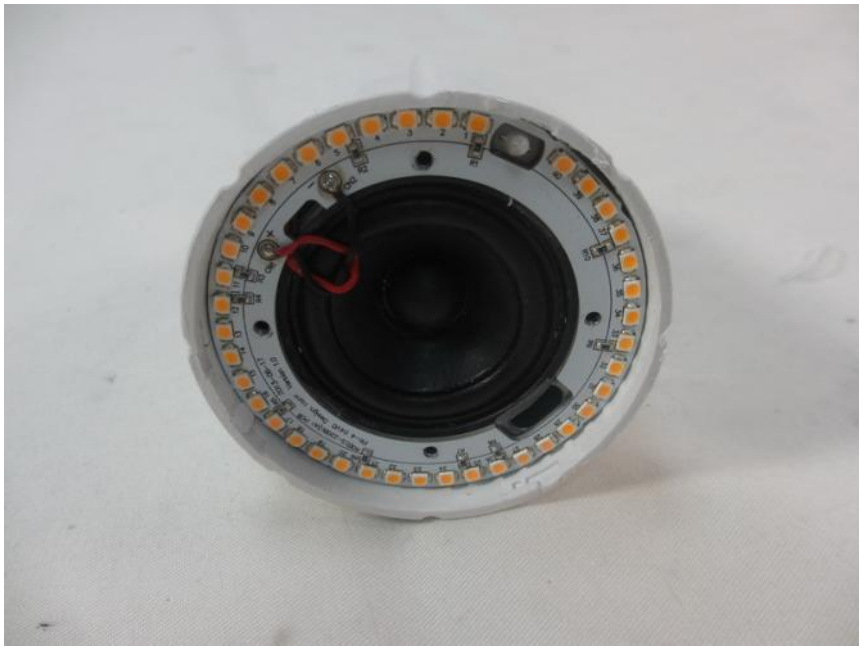

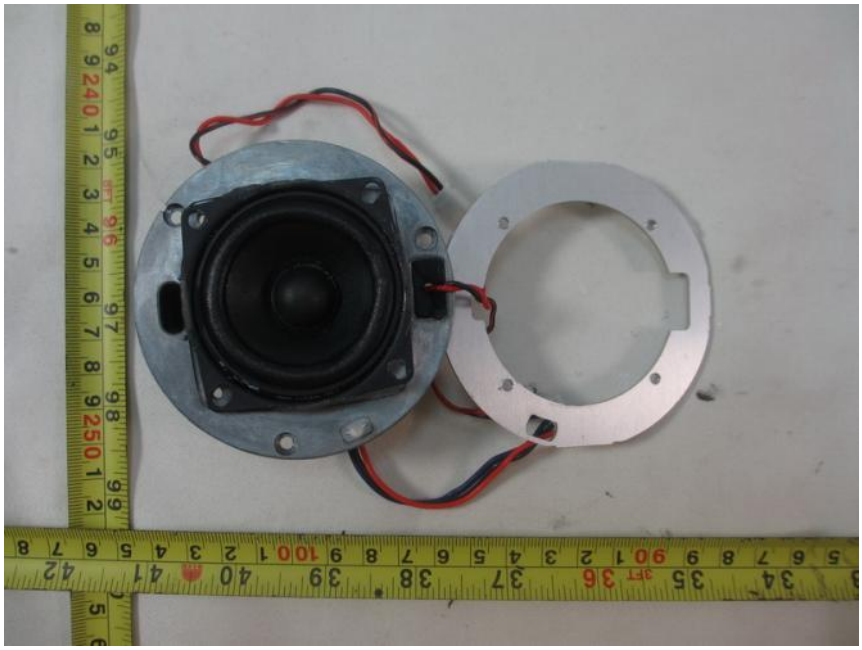

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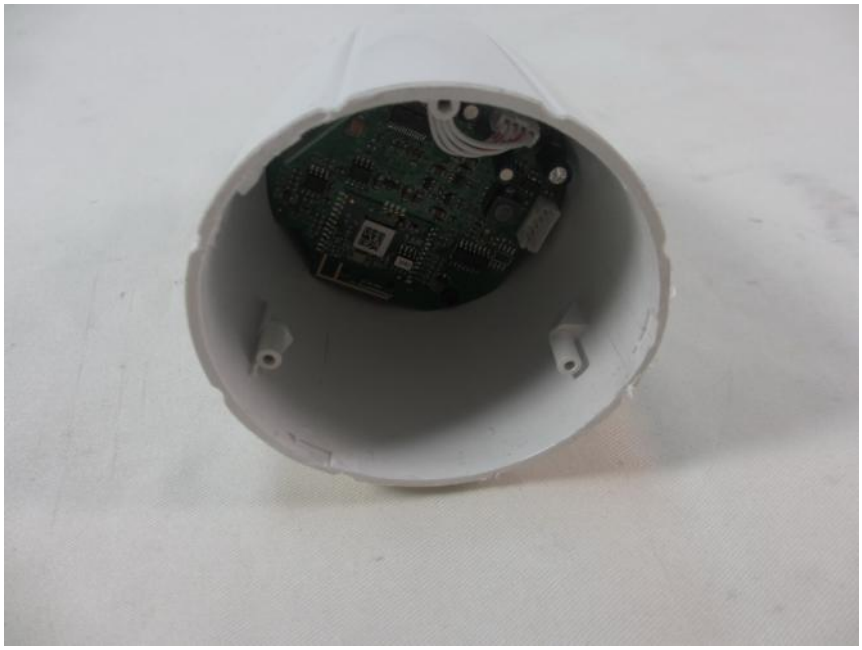

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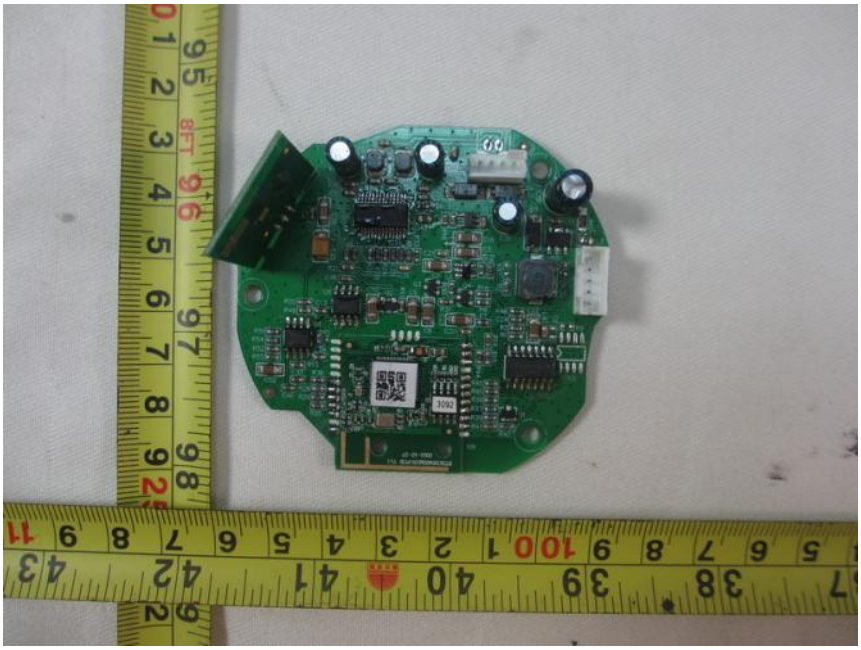

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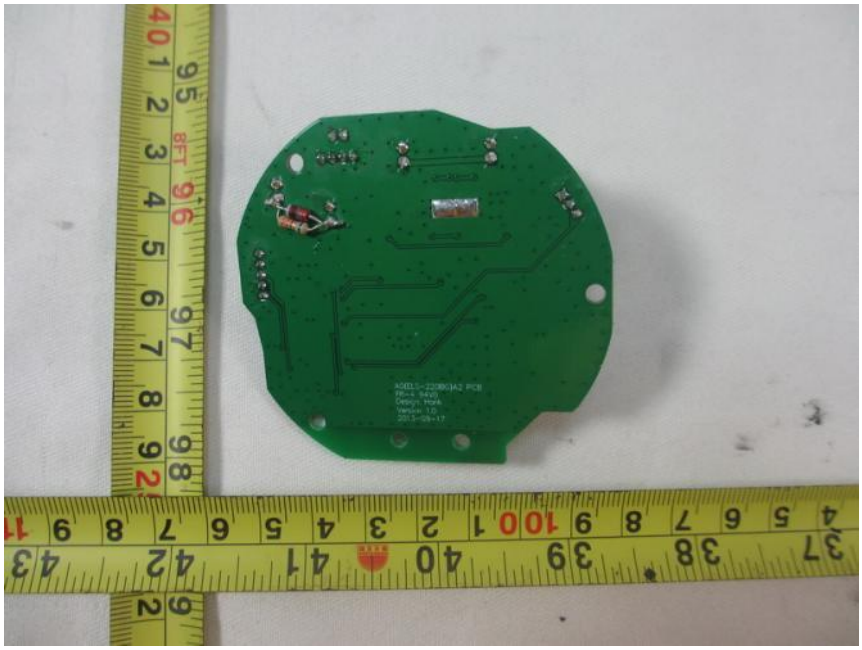

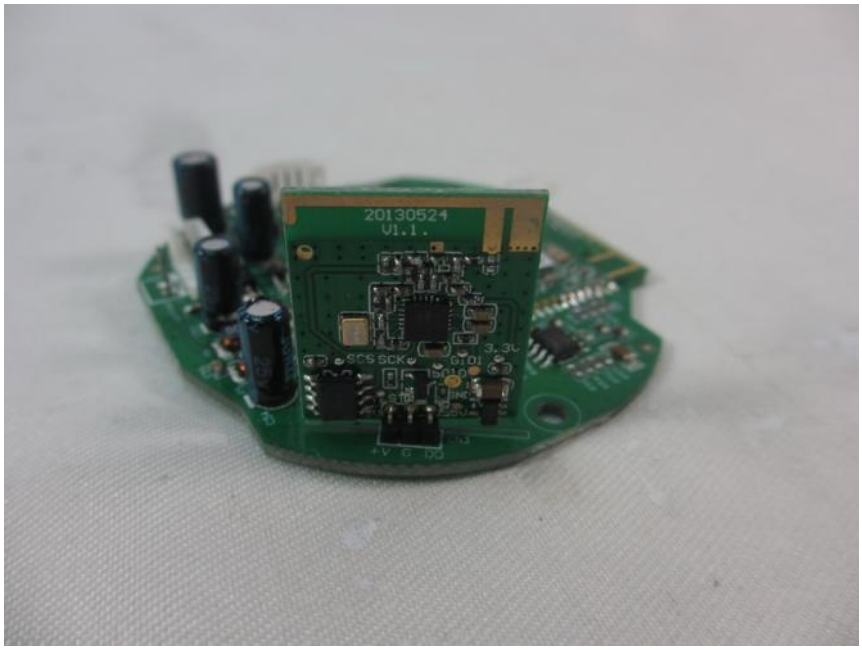

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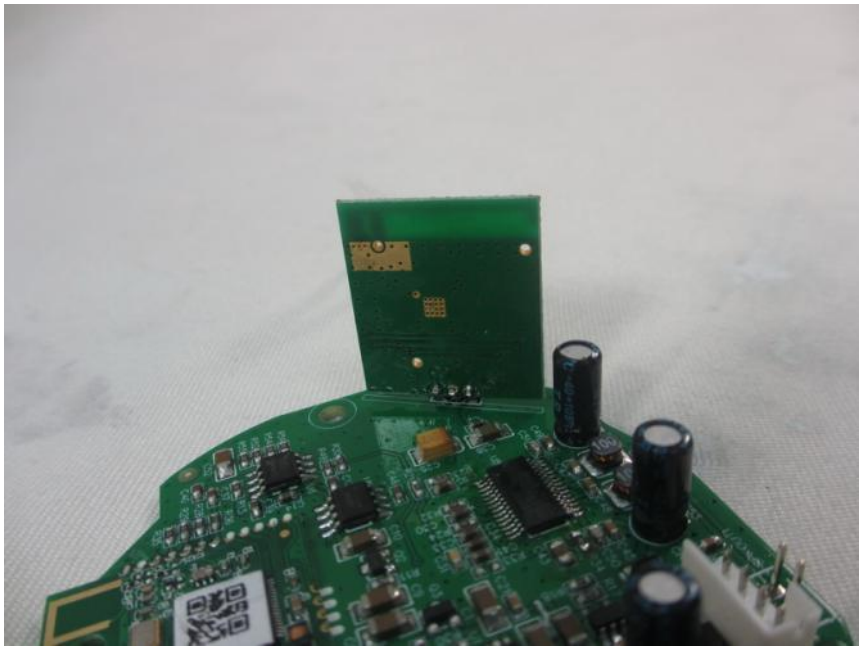

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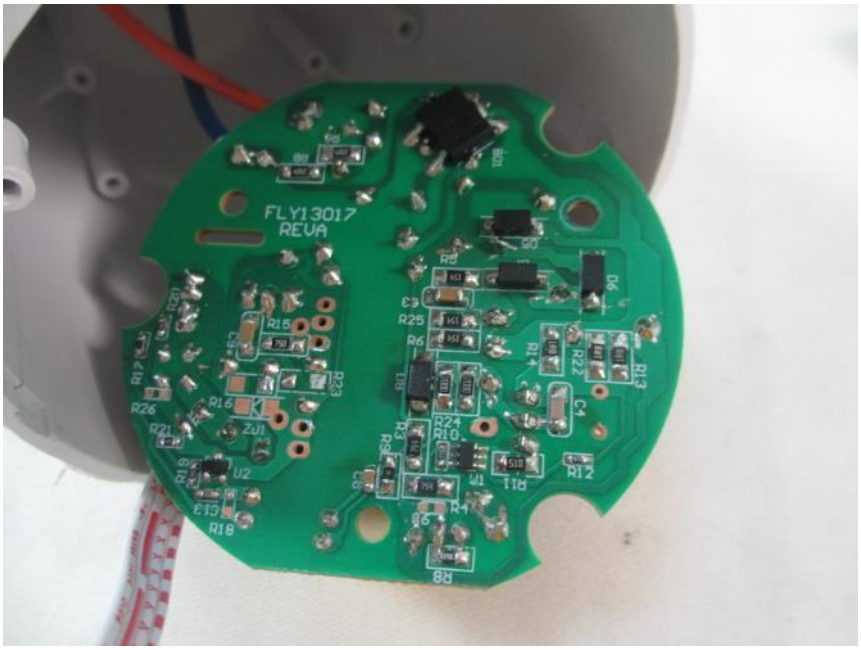

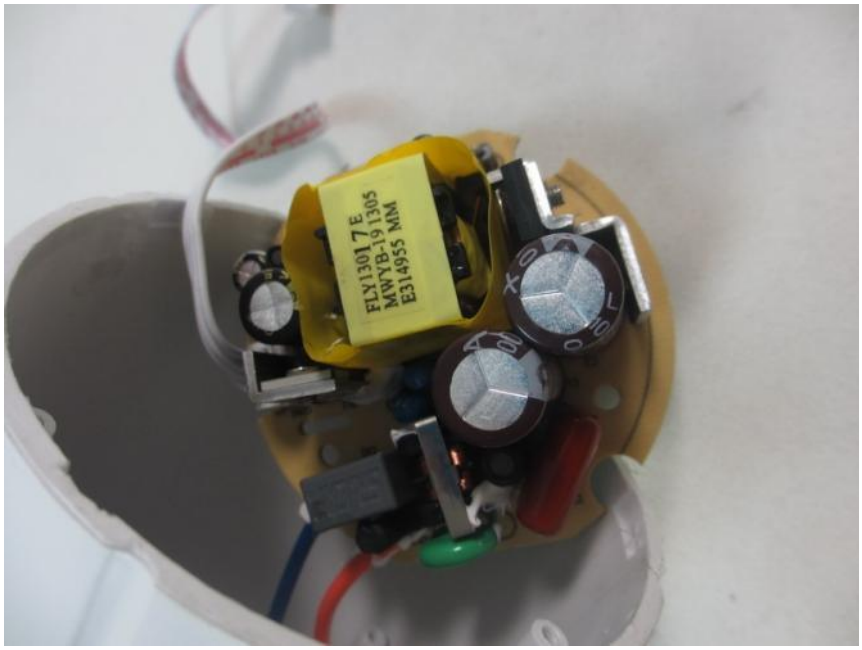

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