

Compliance Certification Services (Kunshan) Inc.

CCSEM-TRF-001 Rev. 02 Sep 01, 2023

Report No.: KSCR241000217501

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TEST REPORT

Application No.: KSCR2410002175HS
FCC ID: ZT5-SONA
IC: 9798A-SONA
Applicant: SUZHOU ARMOCON TECHNOLOGY CO.,LTD
Address of Applicant: No 77 SuHong Middle Road SIP Jiangsu China
Manufacturer: SUZHOU ARMOCON TECHNOLOGY CO.,LTD
Address of Manufacturer: No 77 SuHong Middle Road SIP Jiangsu China
Factory: SUZHOU ARMOCON TECHNOLOGY CO.,LTD
Address of Factory: No 77 SuHong Middle Road SIP Jiangsu China
Equipment Under Test (EUT):
EUT Name: Handheld massager
Model No.: Sona™ 3, Sona™ 3 Cruise
Remark: Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Trade Mark: LELO
Standard(s) : 47 CFR Part 15, Subpart C 15.247
RSS-247 Issue 3, August 2023
RSS-Gen Issue 5 Amendment 2 (February 2021)
Date of Receipt: 2024-05-14
Date of Test: 2024-05-15 to 2024-06-10
Date of Issue: 2024-06-11

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

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Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.



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Revision Record			
Version	Description	Date	Remark
00	Original	2024-06-11	/

Authorized for issue by:				
Tested By		Damon Zhou		
		Damon_Zhou/Project Engineer		
Approved By		Terry Hou		
		Terry Hou /Reviewer		

2 Test Summary

Radio Spectrum Technical Requirement				
Item	FCC Requirement	IC Requirement	Method	Result
Antenna Requirement	47 CFR Part 15, Subpart C 15.203 & 15.247(c)	RSS-Gen Clause 6.8	N/A	Customer Declaration

N/A: Not applicable

Radio Spectrum Matter Part				
Item	FCC Requirement	IC Requirement	Method	Result
Minimum 6dB Bandwidth	47 CFR Part 15, Subpart C 15.247a(2)	RSS-247 Clause 5.2(a)	ANSI C63.10 (2013) Section 11.8.1	Pass
Conducted Peak Output Power	47 CFR Part 15, Subpart C 15.247(b)(3)	RSS-247 Clause 5.4(d)	ANSI C63.10 (2013) Section 11.9.1	Pass
Power Spectrum Density	47 CFR Part 15, Subpart C 15.247(e)	RSS-247 Clause 5.2(b)	ANSI C63.10 (2013) Section 11.10.2	Pass
Conducted Band Edges Measurement	47 CFR Part 15, Subpart C 15.247(d)	RSS-247 Clause 5.5	ANSI C63.10 (2013) Section 11.13.3.2	Pass
Conducted Spurious Emissions	47 CFR Part 15, Subpart C 15.247(d)	RSS-247 Clause 5.5	ANSI C63.10 (2013) Section 11.11	Pass
Radiated Emissions which fall in the restricted bands	47 CFR Part 15, Subpart C 15.209 & 15.247(d)	RSS-247 Section 3.3 & RSS-Gen Section 8.9	ANSI C63.10 (2013) Section 6.10.5	Pass
Radiated Spurious Emissions	47 CFR Part 15, Subpart C 15.209 & 15.247(d)	RSS-247 Section 3.3 & RSS-Gen Section 8.9	ANSI C63.10 (2013) Section 6.4,6.5,6.6	Pass
99% Bandwidth	-	RSS-Gen Section 6.7	ANSI C63.10 Section 6.9.3	Pass

Note: There are series models mentioned in this report, and they are the similar in electrical and electronic characters. Only the model Sona™ 3 was tested since their differences were the model number and appearance.

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4 General Information

4.1 Details of E.U.T.

Power supply:	DC 3.7V 520mAh Rechargeable battery
Test Voltage:	DC 3.7V
Operation Frequency:	2402MHz to 2480MHz
Modulation Type:	GFSK
Number of Channels:	40
Channel Spacing:	2MHz
Antenna Type:	Ceramic Antenna
Antenna Gain:	2 dBi (Provided by manufacturer)
S/N:	Sona™ 3: 9615eXCdA2549R Sona™ 3 Cruise: 9820eXCdA2549R
Firmware Version:	SONA 3 F.REV.C

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Laptop	LENOVO	L460	-
Serial port adapter plate	-	Test Plate 3	-

4.3 Power level setting using in test

Channel	Power setting
0	-4.2
19	-4.2
39	-4.2

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4.4 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	8.4×10^{-8}
2	Timeout	2s
3	Duty Cycle	0.37%
4	Occupied Bandwidth	3%
5	RF Conducted Power	0.6dB
6	RF Power Density	2.9dB
7	Conducted Spurious Emissions	0.75dB
8	RF Radiated Power	5.2dB (Below 1GHz)
		5.9dB (Above 1GHz)
9	Radiated Spurious Emission Test	4.2dB (Below 30MHz)
		4.5dB (30MHz-1GHz)
		5.1dB (1GHz-18GHz)
		5.4dB (Above 18GHz)
10	Temperature Test	1°C
11	Humidity Test	3%
12	Supply Voltages	1.5%
13	Time	3%
Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.		

4.5 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888

Fax: +86 512 5737 0818

No tests were sub-contracted.

Note:

1. SGS is not responsible for wrong test results due to incorrect information (e.g. max. clock frequency, highest internal frequency, antenna gain, cable loss, etc) is provided by the applicant. (if applicable).
2. SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (if applicable).
3. Sample source: sent by customer.

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4.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **A2LA**

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

- **FCC**

Compliance Certification Services (Kunshan) Inc. has been recognized as an accredited testing laboratory. Designation Number: CN1172.

- **ISED**

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. Company Number: 2324E

- **VCCI**

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600, C-11707, T-11499, G-10216 respectively.

4.7 Deviation from Standards

None

4.8 Abnormalities from Standard Conditions

None

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5 Equipment List

Item	Equipment	Manufacturer	Model	Inventory No	Cal Date	Cal. Due Date
RF Conducted Test						
1	Spectrum Analyzer	Keysight	N9020A	KUS1911E004-2	08/01/2024	07/31/2025
2	Spectrum Analyzer	Keysight	N9020A	KUS2001M001-2	08/01/2024	07/31/2025
3	Spectrum Analyzer	Keysight	N9030B	KSEM021-1	01/15/2024	01/14/2025
4	Signal Generator	R&S	SMBV100B	KSEM032	03/19/2024	03/18/2025
5	Signal Generator	R&S	SMW200A	KSEM020-1	08/02/2024	08/01/2025
6	Signal Generator	Agilent	N5182A	KUS2001M001-1	08/01/2024	07/31/2025
7	Signal Generator	Agilent	E8257C	KS301066	08/06/2024	08/05/2025
8	Radio Communication Test Station	Anritsu	MT8000A	KSEM001-1	08/01/2024	07/31/2025
9	Radio Communication Analyzer	Anritsu	MT8821C	KSEM002-1	03/19/2024	03/18/2025
10	Universal Radio Communication Tester	R&S	CMW500	KUS1911E004-1	08/12/2024	08/11/2025
11	Switcher	TST	FY562	KUS2001M001-4	01/15/2024	01/14/2025
12	Conducted Test Cable	Thermax	RF01-RF04	CZ301111-CZ301120	01/15/2024	01/14/2025
13	Temp. / Humidity Chamber	TERCHY	MHK-120AK	KS301190	08/26/2024	08/25/2025
14	Temperature & Humidity Recorder	Renke Control	RS-WS-N01-6J	KSEM024-5	03/19/2024	03/18/2025
15	Software	BST	TST-PASS	/	NCR	NCR
16	Switcher	Tonscend	JS0806	SHEM184-1	2023-08-01	2024-07-31
17	Test software	Tonscend	JS Tonscend BT/WIFI System	Version: 2.6	/	/
RF Radiated Test						
1	Spectrum Analyzer	R&S	FSV40	KUS1806E003	08/06/2024	08/05/2025
2	Universal Radio Communication Tester	R&S	CMW500	KSEM009-1	03/19/2024	03/18/2025
4	Loop Antenna	COM-POWER	AL-130R	KUS1806E001	03/18/2023	03/17/2025
5	Bilog Antenna	TESEQ	CBL 6112D	KUS1806E005	06/29/2023	06/28/2025
6	Bilog Antenna	TESEQ	CBL 6112D	KUS1806E006	03/19/2024	03/18/2025
7	Horn-antenna(1-18GHz)	Schwarzbeck	BBHA9120D	KS301079	03/23/2024	08/22/2026
8	Horn-antenna(1-18GHz)	ETS-LINDGREN	3117	KS301186	04/07/2023	04/06/2025
9	Horn Antenna(18-40GHz)	Schwarzbeck	BBHA9170	CZ301058	01/07/2024	01/06/2026
10	Amplifier(30MHz~18GHz)	PANSHAN TECHNOLOGY	LNA:1~18G	KSEM010-1	01/15/2024	01/14/2025
11	Amplifier(18~40GHz)	PANSHAN TECHNOLOGY	LNA180400G40	KSEM038	08/12/2024	08/11/2025
12	RE Test Cable	REBES MICROWAVE	/	CZ301097	08/12/2024	08/11/2025
13	Temperature & Humidity Recorder	Renke Control	RS-WS-N01-6J	KSEM024-4	03/21/2024	03/20/2025
14	Software	Faratronic	EZ_EM C-v 3A1	/	NCR	NCR
15	Software	ESE	E3_V 6.111221a	/	NCR	NCR

6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203 & 15.247(b)(4)

6.1.2 Conclusion

Standard Requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

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.

EUT Antenna:

The antenna is ceramic antenna and no consideration of replacement. The best case gain of the antenna is 2 dBi.

Antenna location: Refer to internal photo.

7 Radio Spectrum Matter Test Results

7.1 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2013) Section 6.10.5

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 26.6 °C

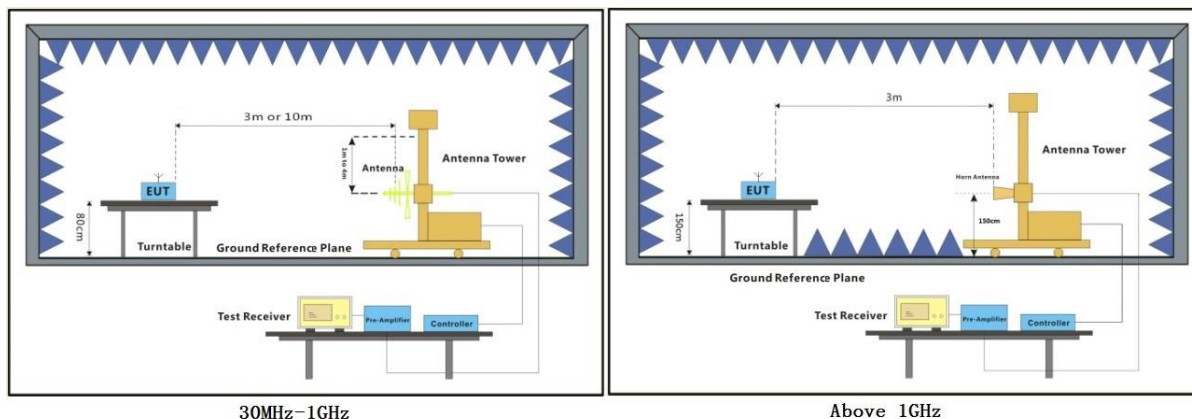
Humidity: 58.0 % RH

Atmospheric Pressure: 1010 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode(1Mbps) _Keep the EUT in continuously transmitting mode with GFSK modulation.
Final test	01	TX mode(2Mbps) _Keep the EUT in continuously transmitting mode with GFSK modulation.

7.1.3 Test Setup Diagram



7.1.4 Measurement Procedure and Data

- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- Test the EUT in the lowest channel, the middle channel, the Highest channel.
- The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- Repeat above procedures until all frequencies measured was complete.

Remark 1: $\text{Level} = \text{Read Level} + \text{Cable Loss} + \text{Antenna Factor} - \text{Preamp Factor}$

Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

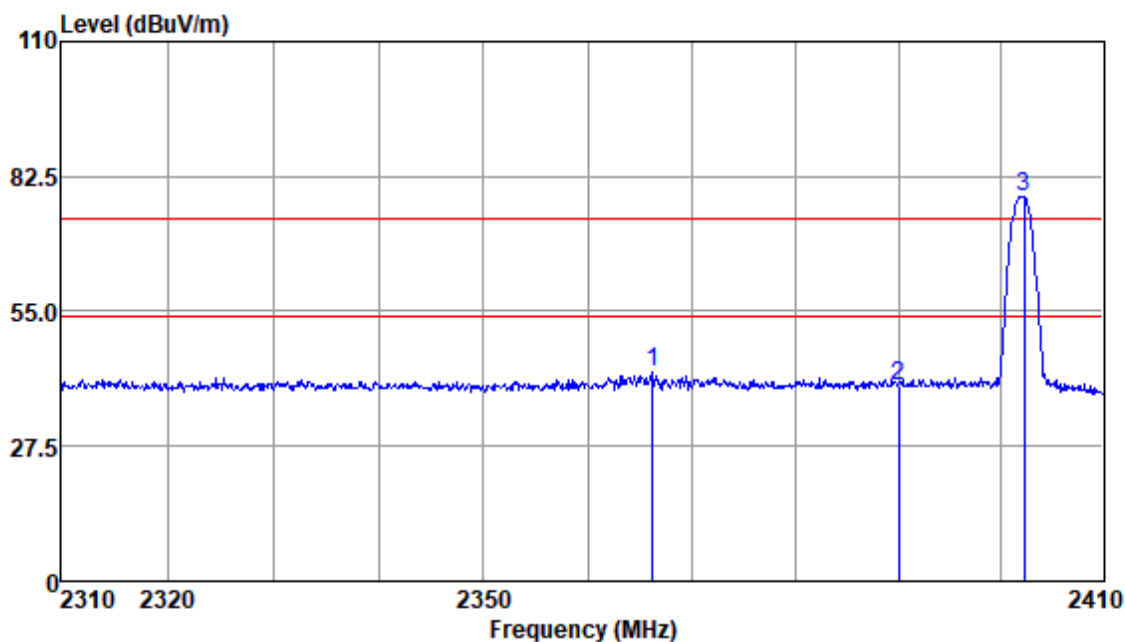
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Test Mode: 00; Polarity: Horizontal; Modulation:GFSK; Channel:Low



Antenna Polarity :HORIZONTAL

EUT/Project :0856HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2366.18	45.94	28.68	3.31	35.16	42.77	74.00	-31.23	Peak
2390.00	42.93	28.80	3.34	35.18	39.89	74.00	-34.11	Peak
2402.25	81.29	28.85	3.34	35.19	78.29	74.00	4.29	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

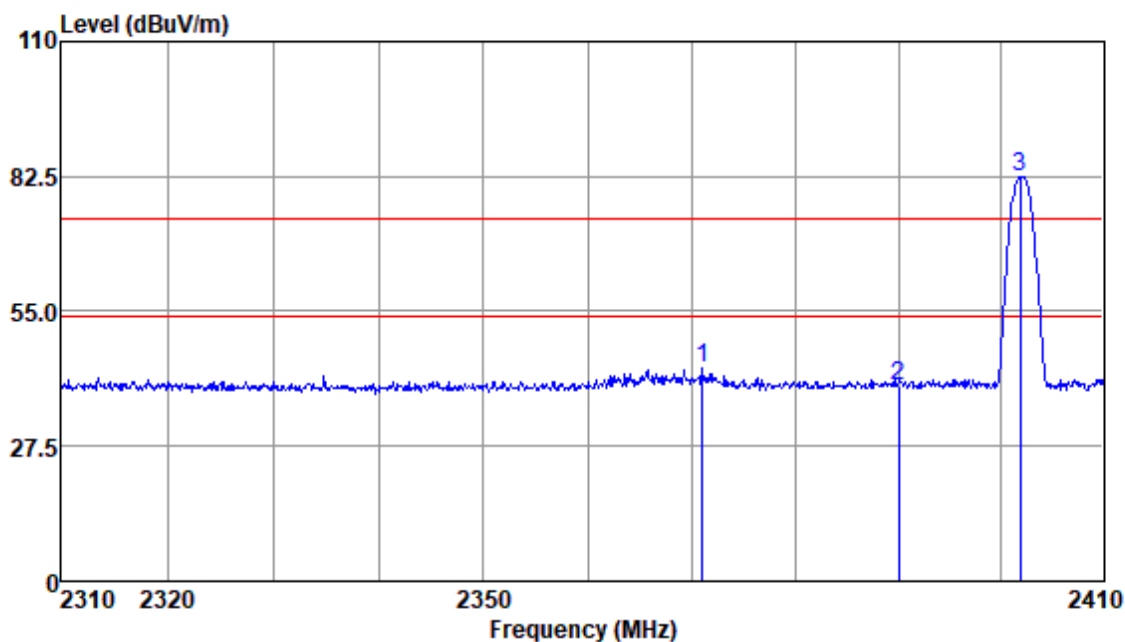
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Test Mode: 00; Polarity: Vertical; Modulation:GFSK; Channel:Low



Antenna Polarity :VERTICAL
EUT/Project :0856HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
2371.00	46.74	28.71	3.32	35.17	43.60	74.00	-30.40	Peak
2390.00	42.86	28.80	3.34	35.18	39.82	74.00	-34.18	Peak
2401.84	85.31	28.85	3.34	35.19	82.31	74.00	8.31	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

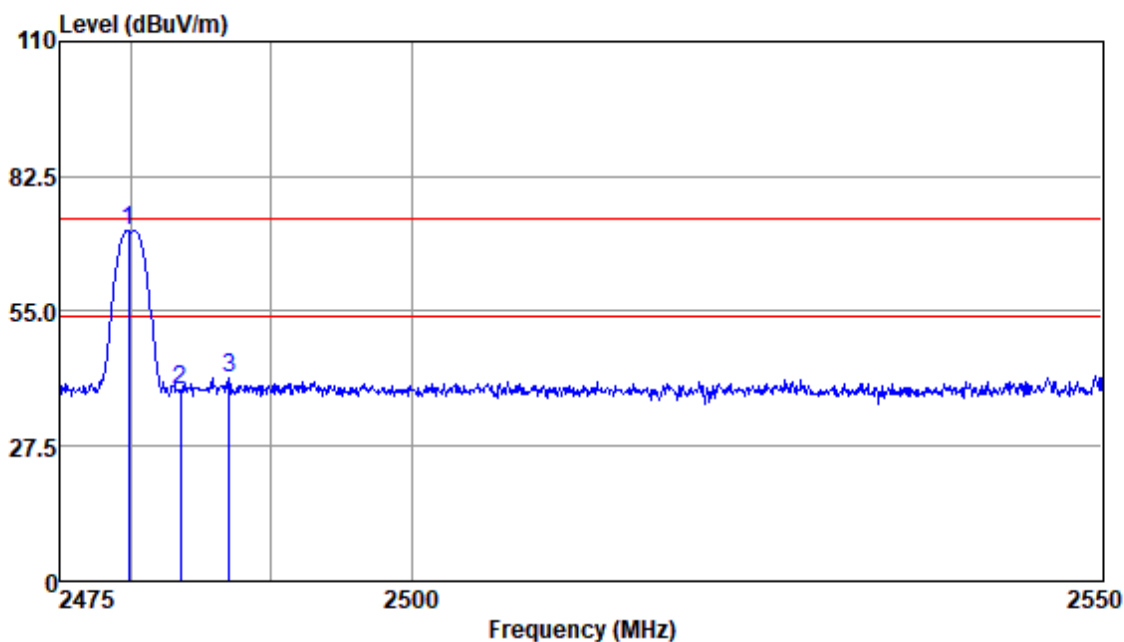
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Test Mode: 00; Polarity: Horizontal; Modulation:GFSK; Channel:High



Antenna Polarity :HORIZONTAL
EUT/Project :0856HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2479.81	74.11	29.08	3.40	35.25	71.34	74.00	-2.66	Peak
2483.50	41.84	29.09	3.36	35.26	39.03	74.00	-34.97	Peak
2487.00	44.20	29.09	3.36	35.26	41.39	74.00	-32.61	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

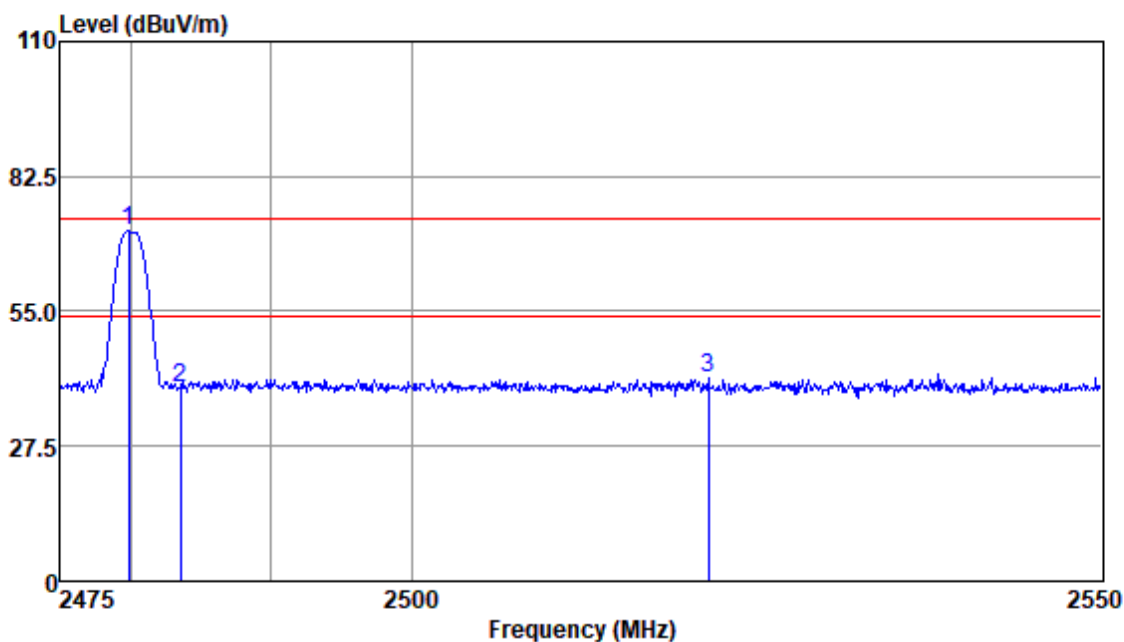
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Test Mode: 00; Polarity: Vertical; Modulation:GFSK; Channel:High



Antenna Polarity :VERTICAL
EUT/Project :0856HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2479.81	74.03	29.08	3.40	35.25	71.26	74.00	-2.74	Peak
2483.50	42.29	29.09	3.36	35.26	39.48	74.00	-34.52	Peak
2521.39	44.07	29.13	3.42	35.30	41.32	74.00	-32.68	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

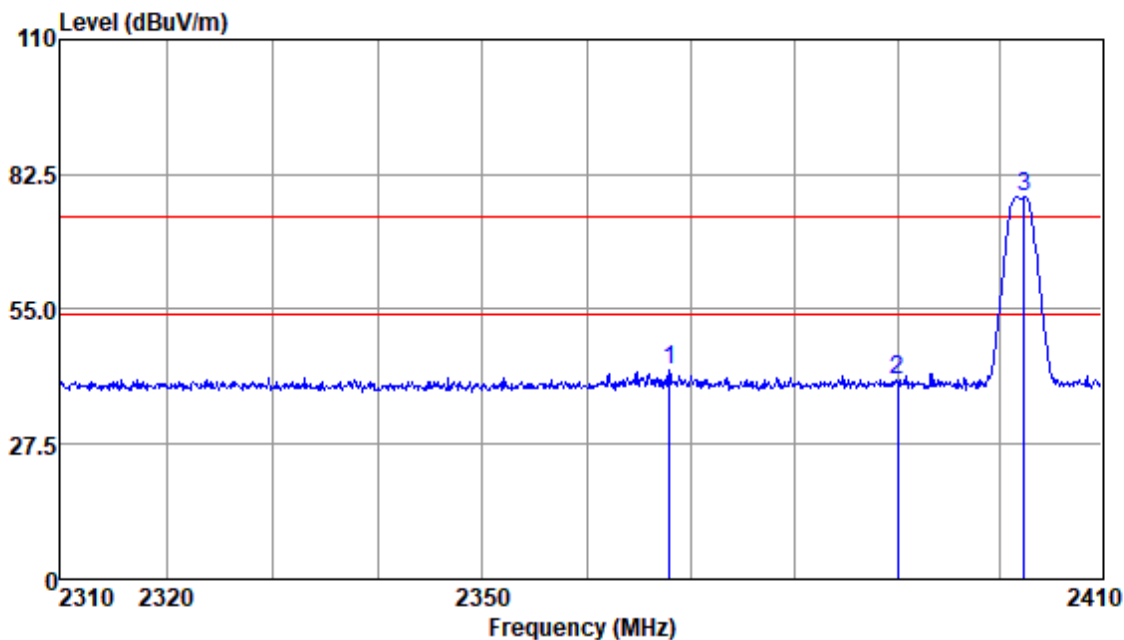
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Test Mode: 01; Polarity: Horizontal; Modulation:GFSK; Channel:Low



Antenna Polarity :HORIZONTAL
EUT/Project :0856HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
2367.99	45.70	28.68	3.31	35.16	42.53	74.00	-31.47	Peak
2390.00	43.53	28.80	3.34	35.18	40.49	74.00	-33.51	Peak
2402.35	80.94	28.85	3.34	35.19	77.94	74.00	3.94	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

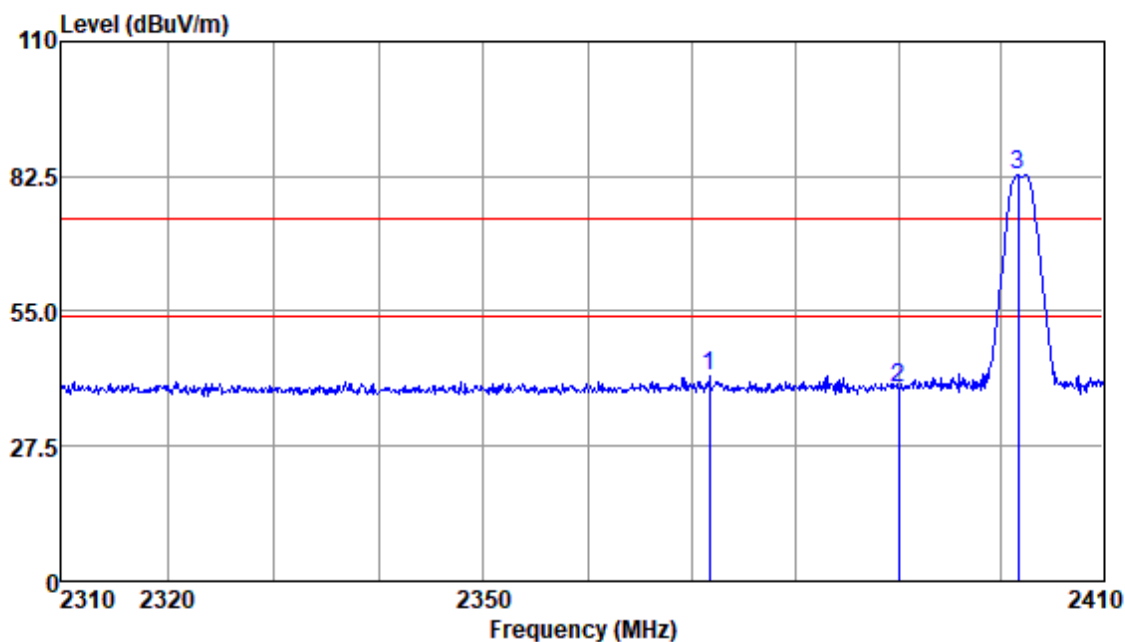
Compliance Certification Services (Kunshan) Inc.

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Test Mode: 01; Polarity: Vertical; Modulation:GFSK; Channel:Low



Antenna Polarity :VERTICAL
EUT/Project :0856HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2371.70	45.04	28.71	3.32	35.17	41.90	74.00	-32.10	Peak
2390.00	42.60	28.80	3.34	35.18	39.56	74.00	-34.44	Peak
2401.64	85.91	28.85	3.34	35.19	82.91	74.00	8.91	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

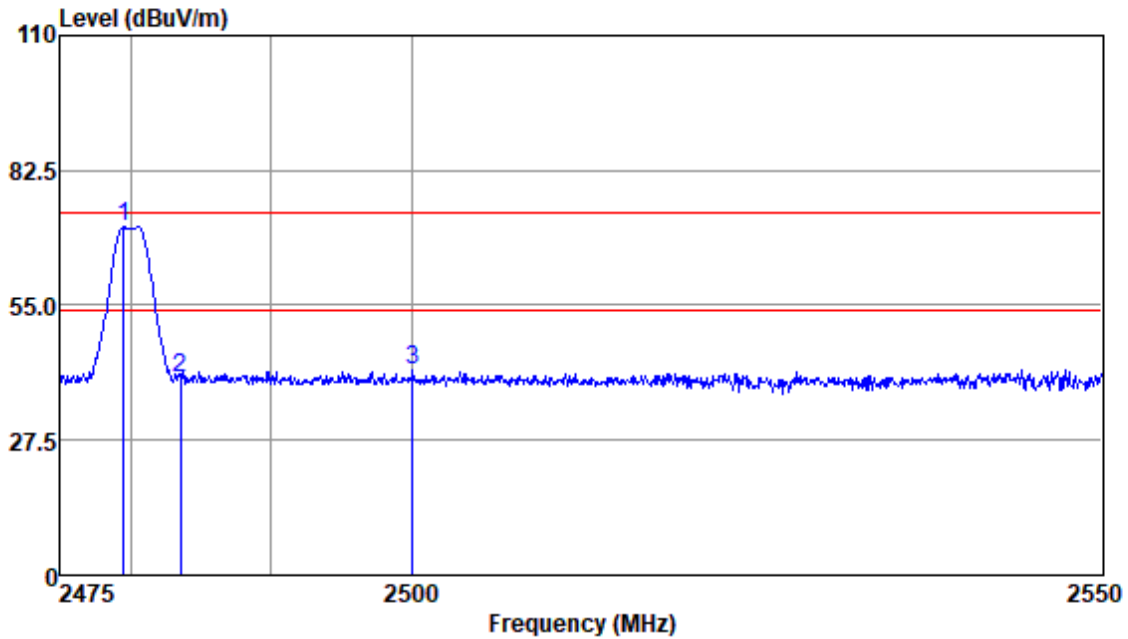
Compliance Certification Services (Kunshan) Inc.

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Test Mode: 01; Polarity: Horizontal; Modulation:GFSK; Channel:High



Antenna Polarity :HORIZONTAL
EUT/Project :0856HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2479.51	73.77	29.08	3.40	35.25	71.00	74.00	-3.00	Peak
2483.50	43.19	29.09	3.36	35.26	40.38	74.00	-33.62	Peak
2500.10	44.47	29.12	3.36	35.27	41.68	74.00	-32.32	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

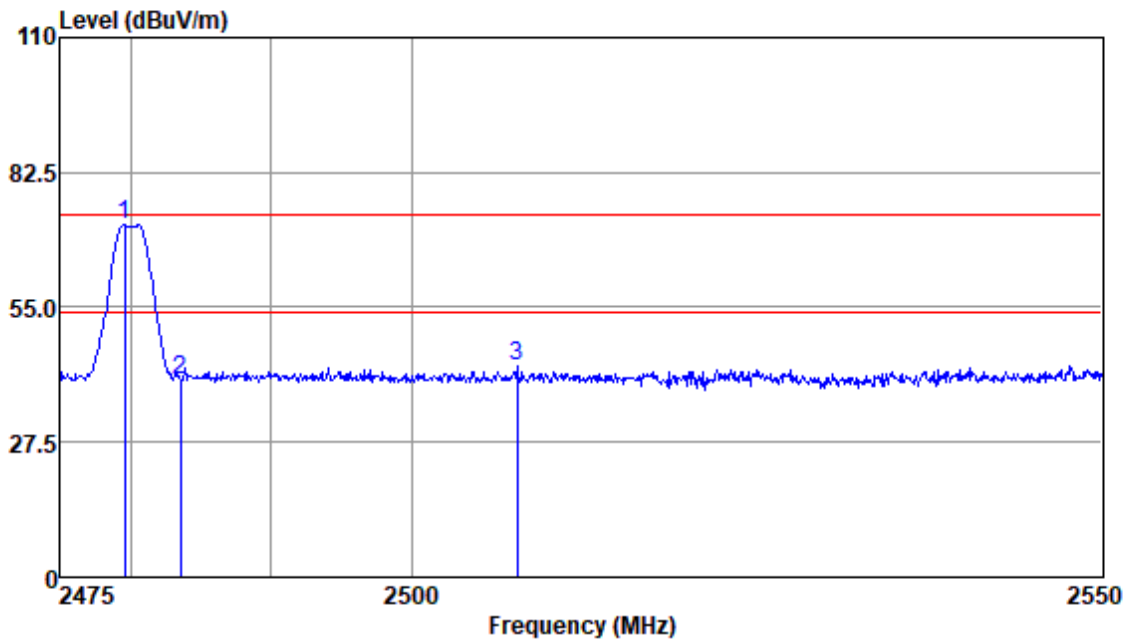
Compliance Certification Services (Kunshan) Inc.

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Test Mode: 01; Polarity: Vertical; Modulation:GFSK; Channel:High



Antenna Polarity :VERTICAL
EUT/Project :0856HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2479.59	74.68	29.08	3.40	35.25	71.91	74.00	-2.09	Peak
2483.50	42.91	29.09	3.36	35.26	40.10	74.00	-33.90	Peak
2507.58	45.69	29.13	3.39	35.28	42.93	74.00	-31.07	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

7.2 Radiated Spurious Emissions Below 1GHz

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2013) Section 6.4,6.5

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
960-1000	500	3

7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C

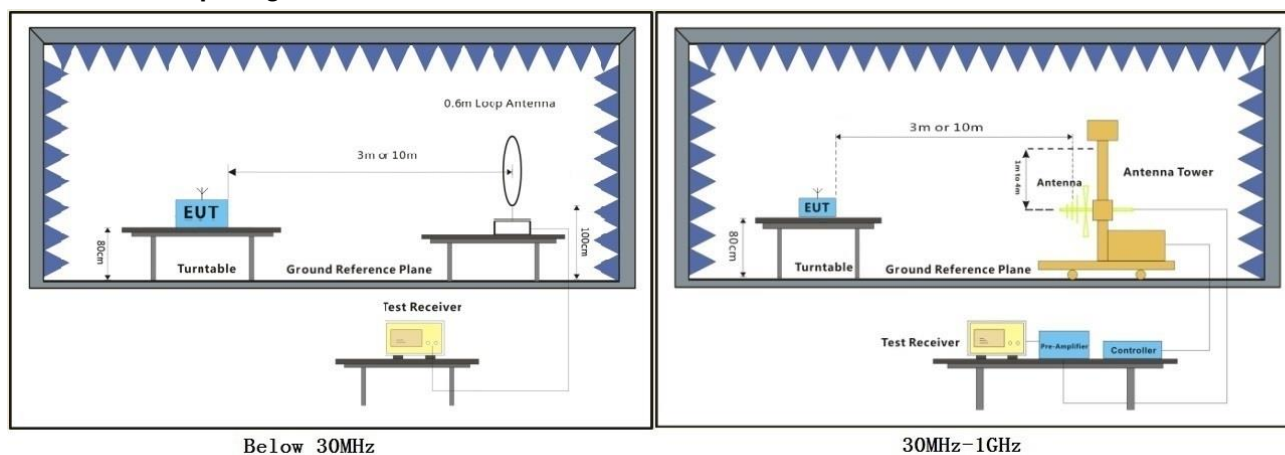
Humidity: 50 % RH

Atmospheric Pressure: 1010 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode(1Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.
Pre-scan	01	TX mode(2Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.

7.2.3 Test Setup Diagram



7.2.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using quasi-peak method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- i. Repeat above procedures until all frequencies measured was complete.

Remark:

1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
2. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

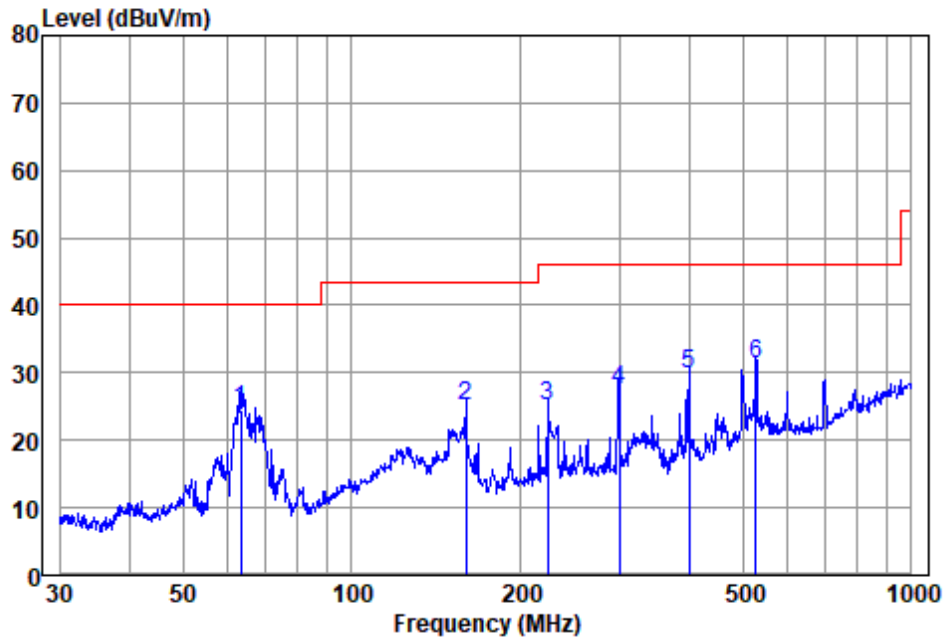
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Test Mode: 00; Polarity: Horizontal



Antenna Polarity :HORIZONTAL
EUT/Project :0856HS
Test mode :00

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	63.313	43.64	12.55	1.61	33.20	24.60	40.00	-15.40	QP
2	159.784	41.85	13.60	2.79	33.00	25.24	43.50	-18.26	QP
3	223.733	44.83	9.98	3.16	32.90	25.07	46.00	-20.93	QP
4	300.367	42.92	13.40	3.86	32.80	27.38	46.00	-18.62	QP
5	400.432	42.44	15.80	4.37	32.80	29.81	46.00	-16.19	QP
6	526.397	40.62	18.42	5.03	32.70	31.37	46.00	-14.63	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

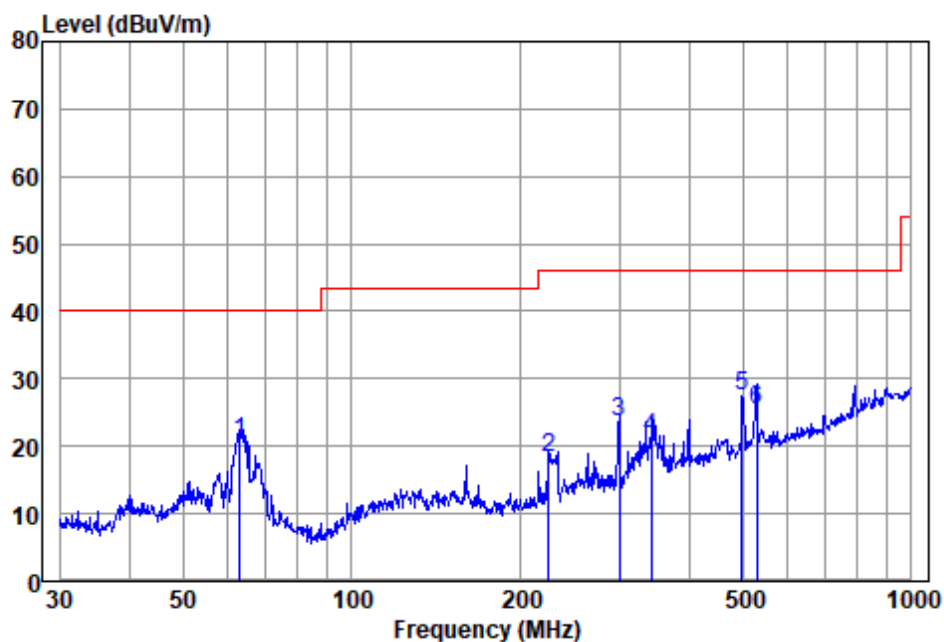
Compliance Certification Services (Kunshan) Inc.

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Test Mode: 00; Polarity: Vertical



Antenna Polarity :VERTICAL
EUT/Project :0856HS
Test mode :00

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	63.092	39.54	12.60	1.60	33.20	20.54	40.00	-19.46	QP
2	224.519	37.98	9.99	3.17	32.90	18.24	46.00	-27.76	QP
3	300.367	39.03	13.40	3.86	32.80	23.49	46.00	-22.51	QP
4	343.180	35.18	14.60	4.11	32.71	21.18	46.00	-24.82	QP
5	497.677	37.15	17.96	4.91	32.70	27.32	46.00	-18.68	QP
6	528.246	34.56	18.46	5.04	32.70	25.36	46.00	-20.64	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

7.3 Radiated Spurious Emissions Above 1GHz

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2013) Section 6.6

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
Above 1000	500	3

7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 26.6 °C

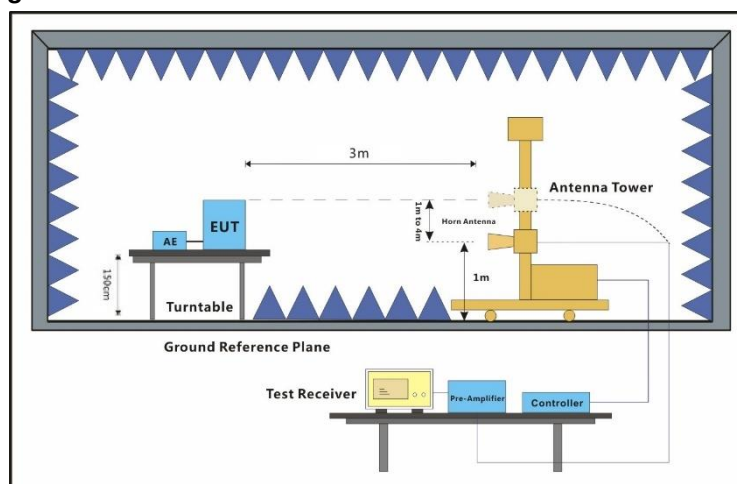
Humidity: 57.9 % RH

Atmospheric Pressure: 1010 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode(1Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.
Final test	01	TX mode(2Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.

7.3.3 Test Setup Diagram



7.3.4 Measurement Procedure and Data

- a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- i. Repeat above procedures until all frequencies measured was complete.

Remark:

1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
2. Scan from 1GHz to 25GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
3. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

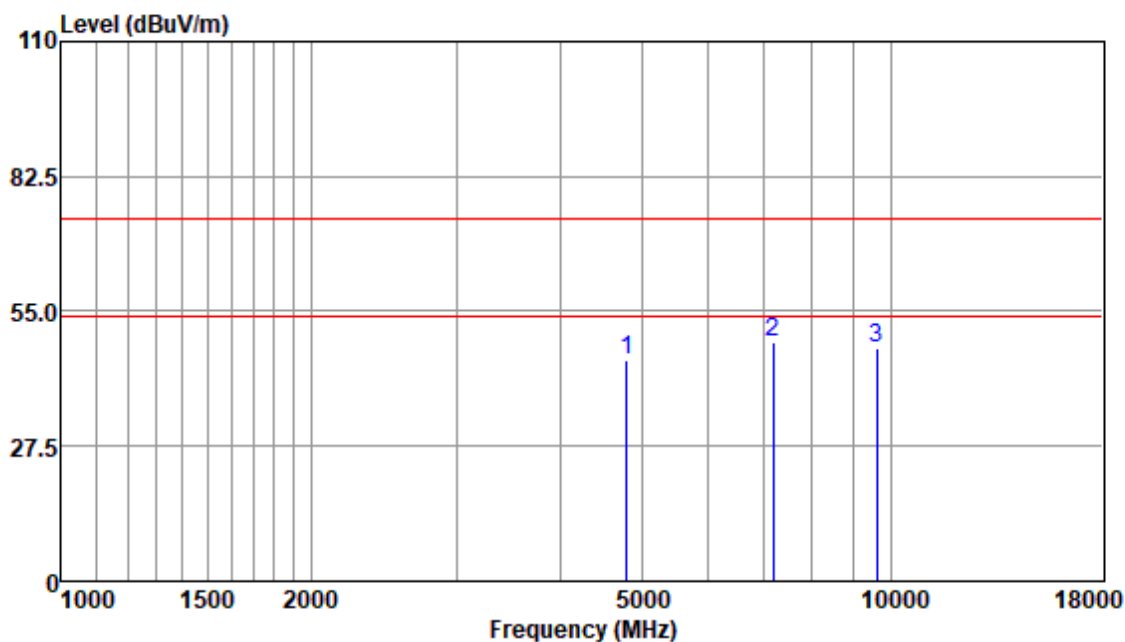
Compliance Certification Services (Kunshan) Inc.

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Test Mode: 00; Polarity: Horizontal; Modulation:GFSK; Channel:Low



Antenna Polarity :HORIZONTAL

EUT/Project :0856HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
-----	-----	-----	-----	-----	-----	-----	-----	-----
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
4804.11	42.86	33.57	5.22	36.79	44.86	74.00	-29.14	Peak
7206.31	40.79	36.24	7.13	35.53	48.63	74.00	-25.37	Peak
9608.43	34.70	37.75	8.66	33.58	47.53	74.00	-26.47	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

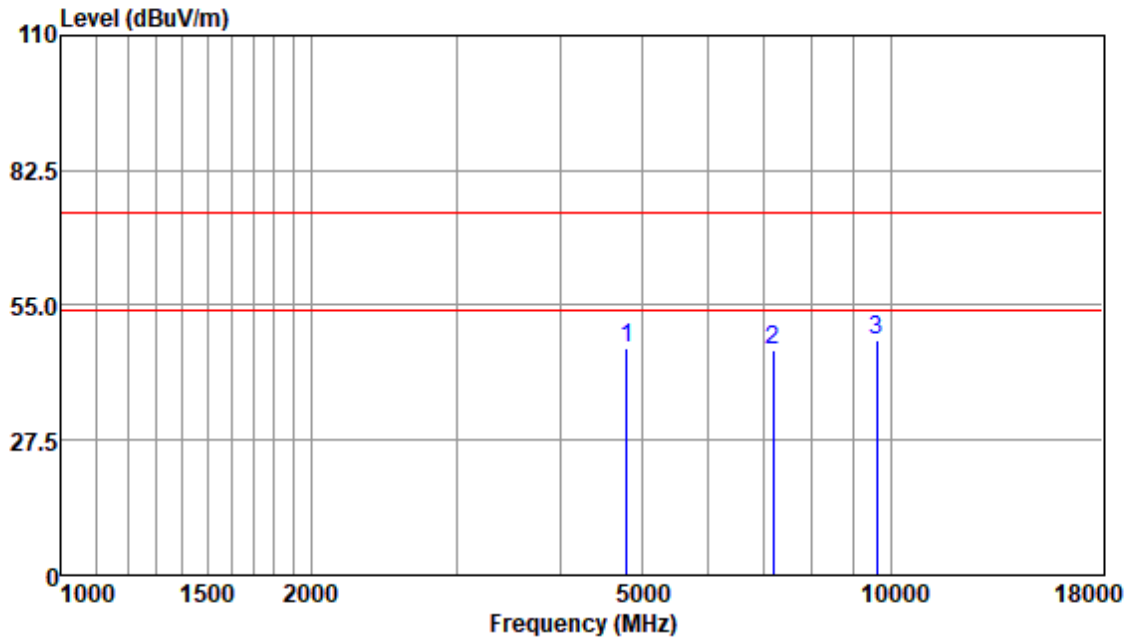
Compliance Certification Services (Kunshan) Inc.

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Test Mode: 00; Polarity: Vertical; Modulation:GFSK; Channel:Low



Antenna Polarity :VERTICAL

EUT/Project :0856HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4804.11	44.46	33.57	5.22	36.79	46.46	74.00	-27.54	Peak
7206.31	37.86	36.24	7.13	35.53	45.70	74.00	-28.30	Peak
9608.43	35.00	37.75	8.66	33.58	47.83	74.00	-26.17	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

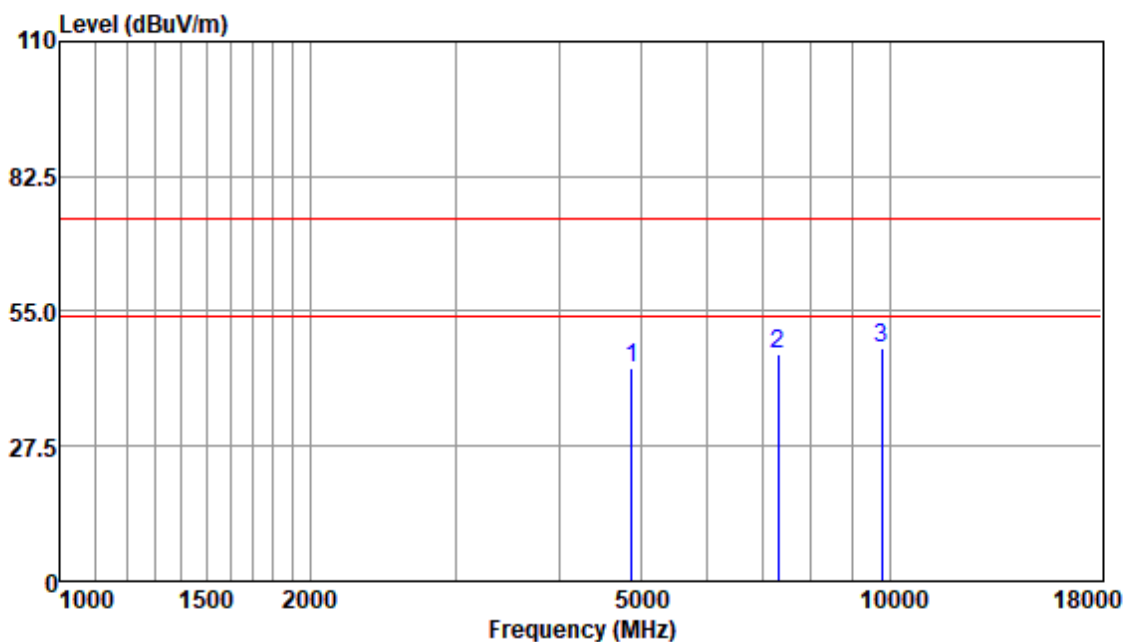
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Test Mode: 00; Polarity: Horizontal; Modulation:GFSK; Channel:middle



Antenna Polarity :HORIZONTAL

EUT/Project :0856HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
-----	-----	-----	-----	-----	-----	-----	-----	-----
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
4880.04	41.42	33.66	5.28	36.81	43.55	74.00	-30.45	Peak
7320.27	37.94	36.33	7.33	35.42	46.18	74.00	-27.82	Peak
9760.37	34.46	37.54	8.84	33.50	47.34	74.00	-26.66	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

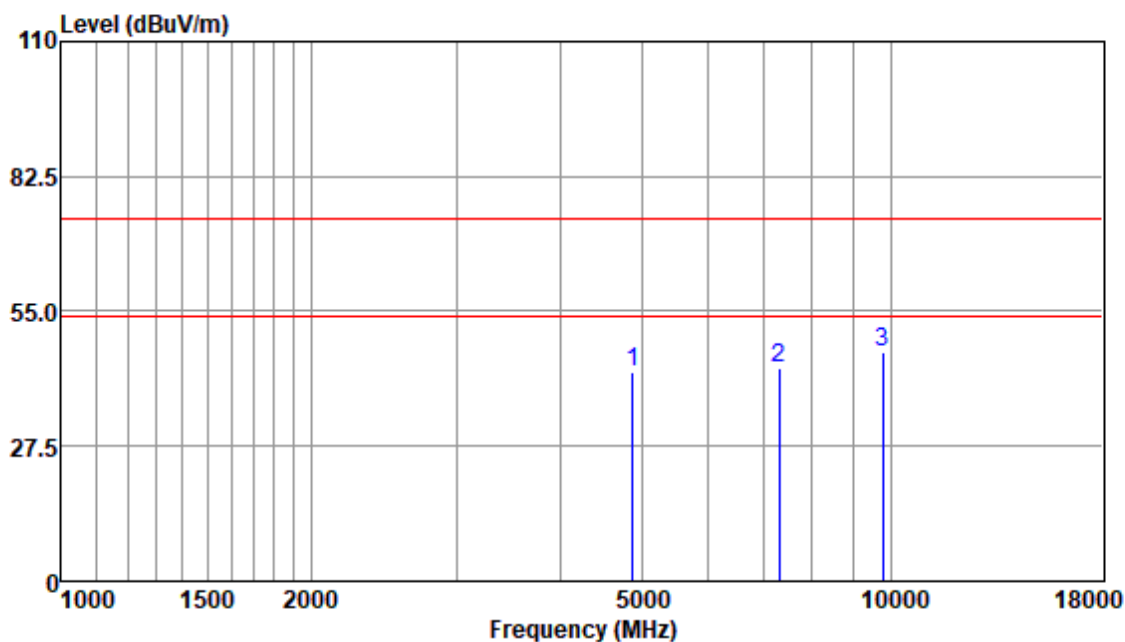
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Test Mode: 00; Polarity: Vertical; Modulation:GFSK; Channel:middle



Antenna Polarity :VERTICAL

EUT/Project :0856HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4880.04	40.30	33.66	5.28	36.81	42.43	74.00	-31.57	Peak
7320.27	35.15	36.33	7.33	35.42	43.39	74.00	-30.61	Peak
9760.37	33.98	37.54	8.84	33.50	46.86	74.00	-27.14	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

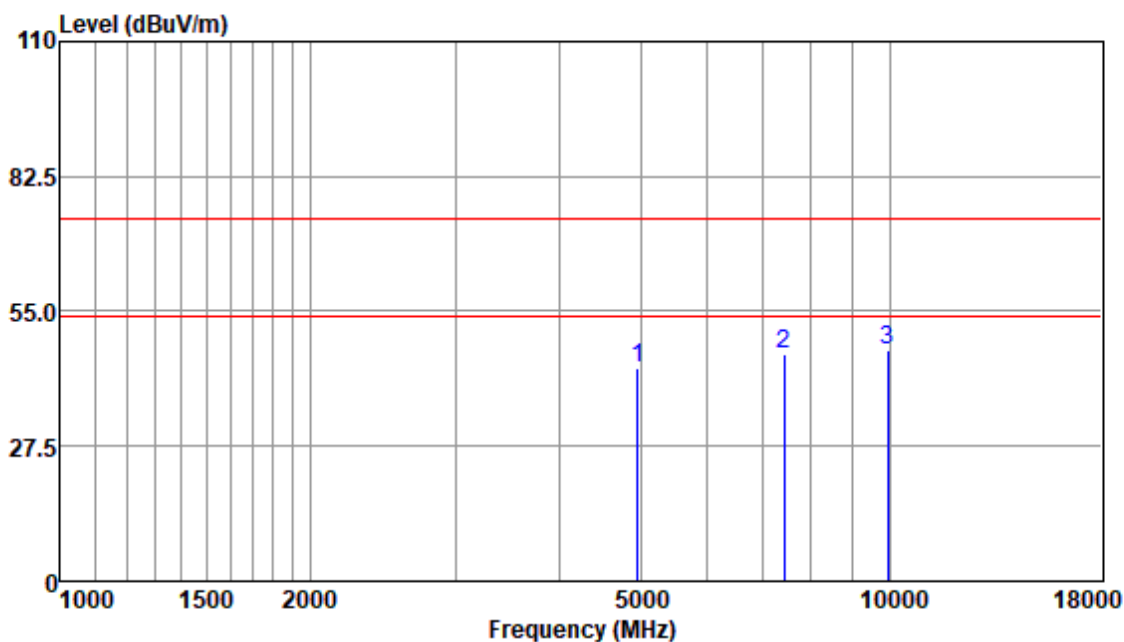
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Test Mode: 00; Polarity: Horizontal; Modulation:GFSK; Channel:High



Antenna Polarity :HORIZONTAL

EUT/Project :0856HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
-----	-----	-----	-----	-----	-----	-----	-----	-----
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
4960.31	41.33	33.65	5.46	36.83	43.61	74.00	-30.39	Peak
7440.91	37.94	36.31	7.43	35.34	46.34	74.00	-27.66	Peak
9920.99	34.15	37.62	8.69	33.41	47.05	74.00	-26.95	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

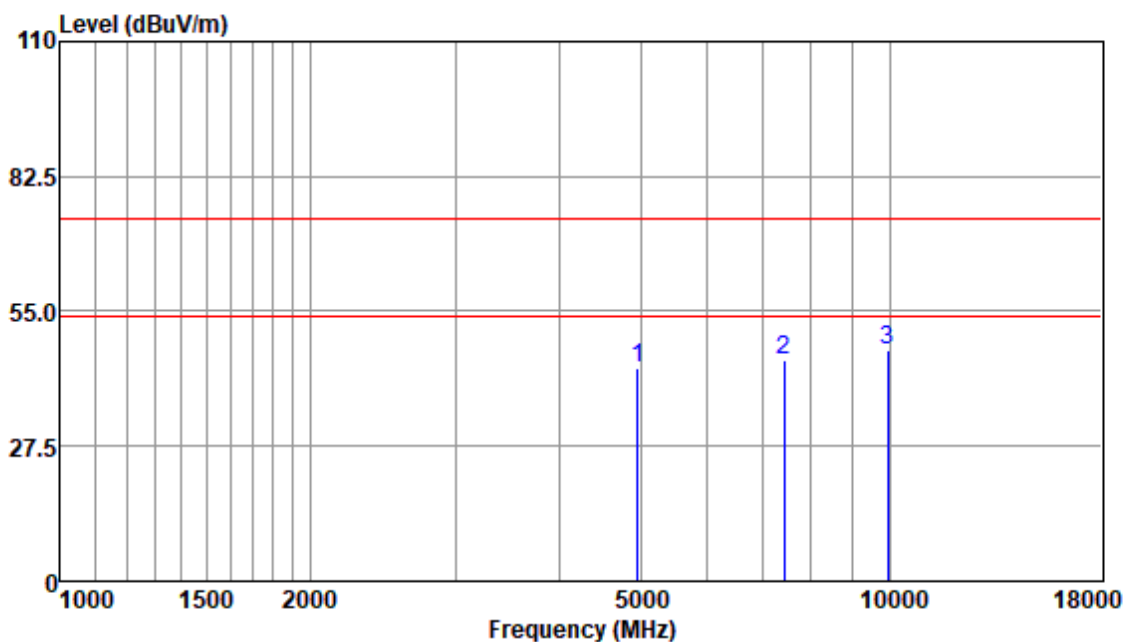
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Test Mode: 00; Polarity: Vertical; Modulation:GFSK; Channel:High



Antenna Polarity :VERTICAL

EUT/Project :0856HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4960.31	41.14	33.65	5.46	36.83	43.42	74.00	-30.58	Peak
7440.91	36.51	36.31	7.43	35.34	44.91	74.00	-29.09	Peak
9920.99	34.39	37.62	8.69	33.41	47.29	74.00	-26.71	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

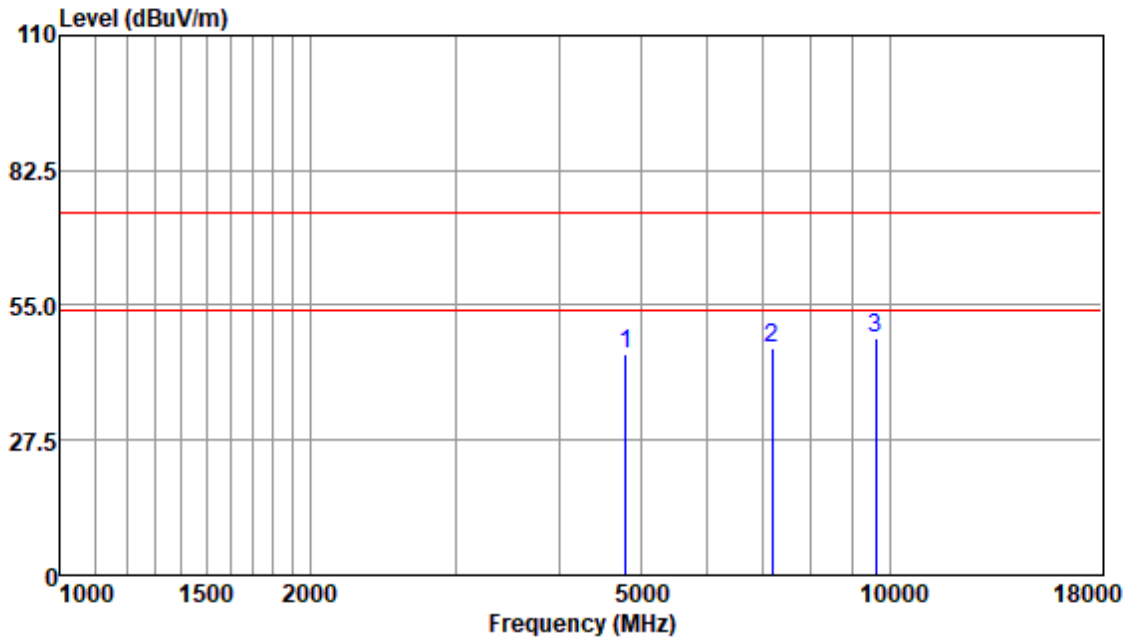
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Test Mode: 01; Polarity: Horizontal; Modulation:GFSK; Channel:Low



Antenna Polarity :HORIZONTAL

EUT/Project :0856HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
4804.11	42.86	33.57	5.22	36.79	44.86	74.00	-29.14	Peak
7206.31	38.53	36.24	7.13	35.53	46.37	74.00	-27.63	Peak
9608.43	35.55	37.75	8.66	33.58	48.38	74.00	-25.62	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

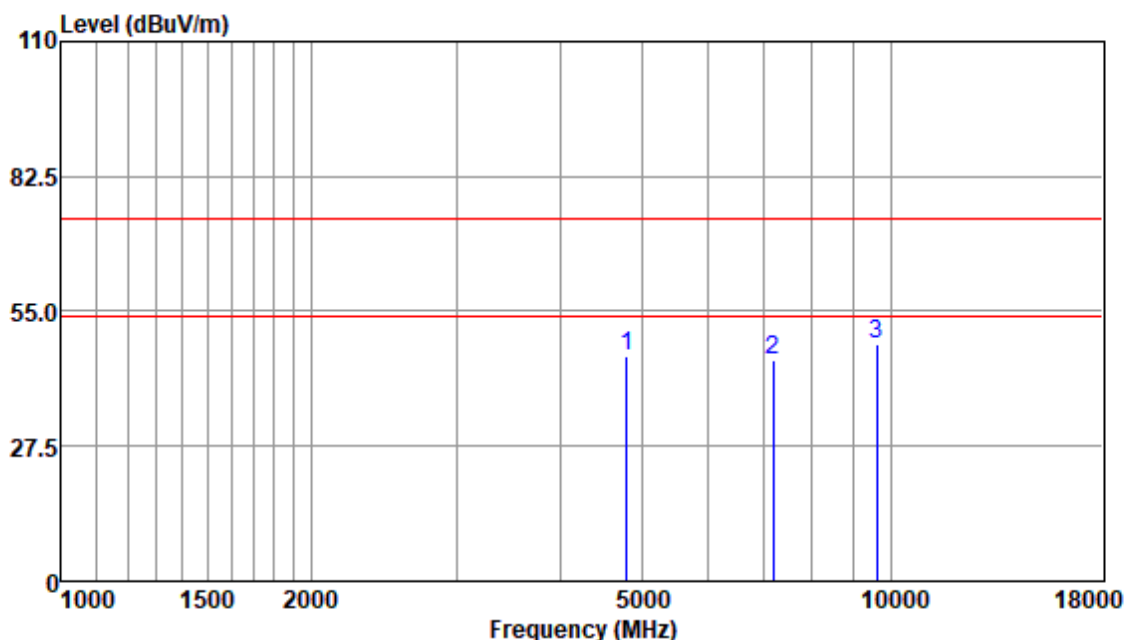
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Test Mode: 01; Polarity: Vertical; Modulation:GFSK; Channel:Low



Antenna Polarity :VERTICAL

EUT/Project :0856HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
4804.11	43.84	33.57	5.22	36.79	45.84	74.00	-28.16	Peak
7206.31	37.11	36.24	7.13	35.53	44.95	74.00	-29.05	Peak
9608.43	35.27	37.75	8.66	33.58	48.10	74.00	-25.90	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

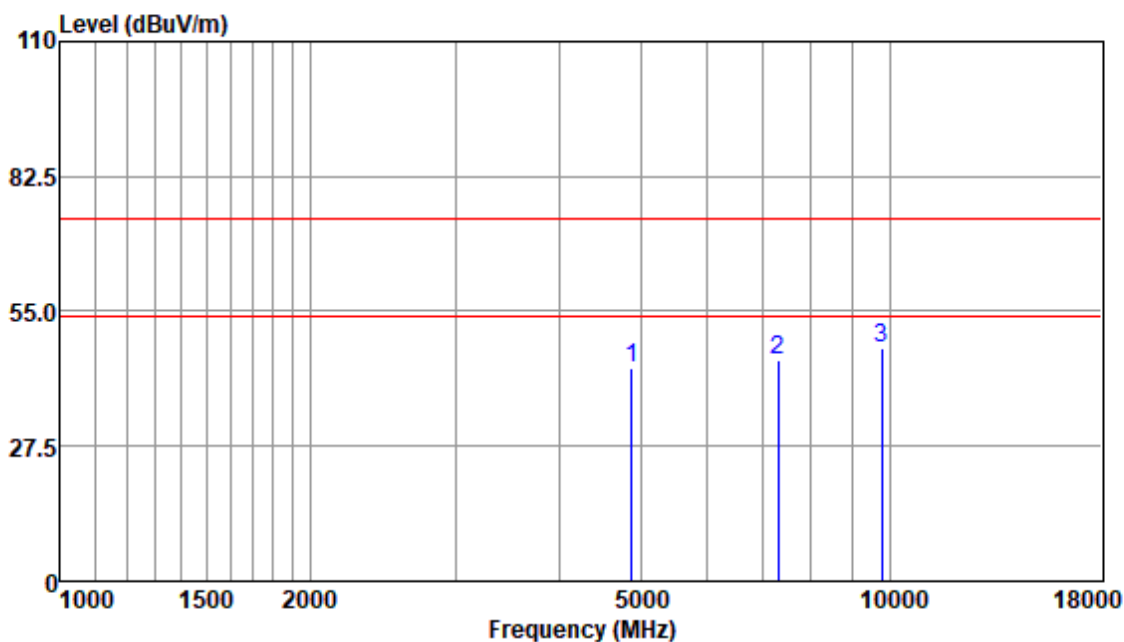
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Test Mode: 01; Polarity: Horizontal; Modulation:GFSK; Channel:middle



Antenna Polarity :HORIZONTAL

EUT/Project :0856HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4880.04	41.43	33.66	5.28	36.81	43.56	74.00	-30.44	Peak
7320.27	37.01	36.33	7.33	35.42	45.25	74.00	-28.75	Peak
9760.37	34.81	37.54	8.84	33.50	47.69	74.00	-26.31	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

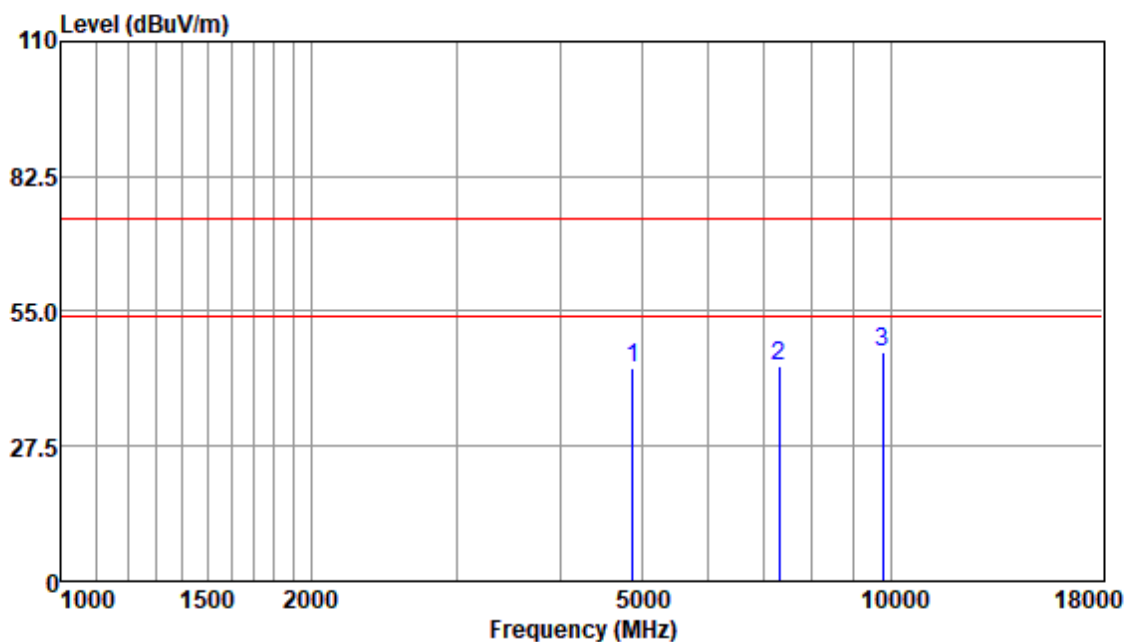
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Test Mode: 01; Polarity: Vertical; Modulation:GFSK; Channel:middle



Antenna Polarity :VERTICAL

EUT/Project :0856HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
4880.04	41.47	33.66	5.28	36.81	43.60	74.00	-30.40	Peak
7320.27	35.77	36.33	7.33	35.42	44.01	74.00	-29.99	Peak
9760.37	33.88	37.54	8.84	33.50	46.76	74.00	-27.24	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

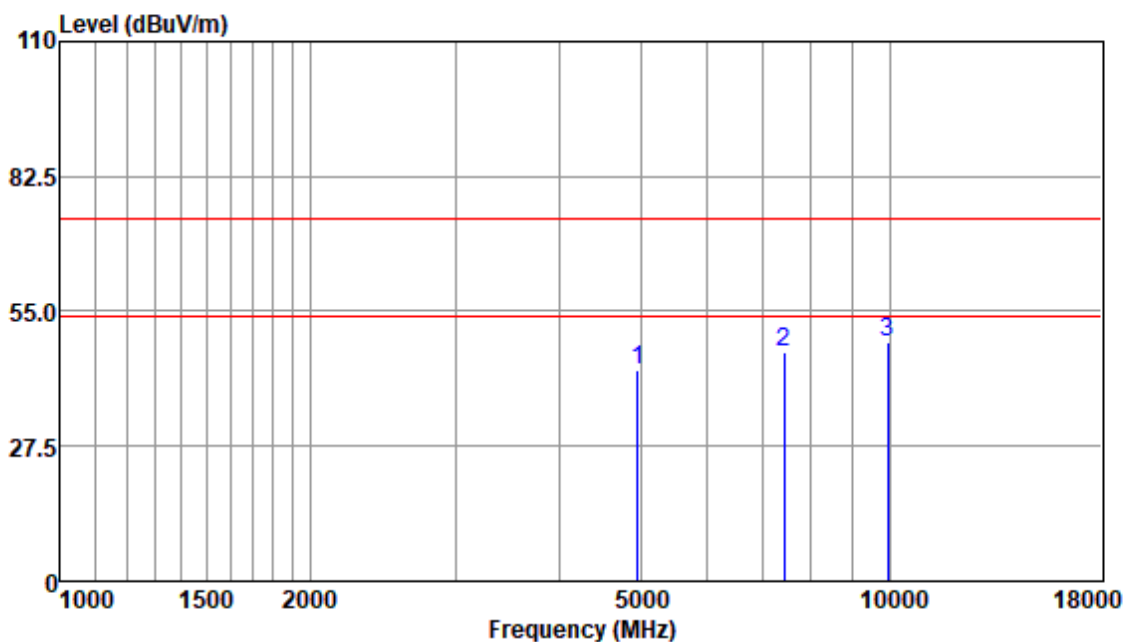
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Test Mode: 01; Polarity: Horizontal; Modulation:GFSK; Channel:High



Antenna Polarity :HORIZONTAL

EUT/Project :0856HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
4960.31	40.82	33.65	5.46	36.83	43.10	74.00	-30.90	Peak
7440.91	38.22	36.31	7.43	35.34	46.62	74.00	-27.38	Peak
9920.99	35.95	37.62	8.69	33.41	48.85	74.00	-25.15	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

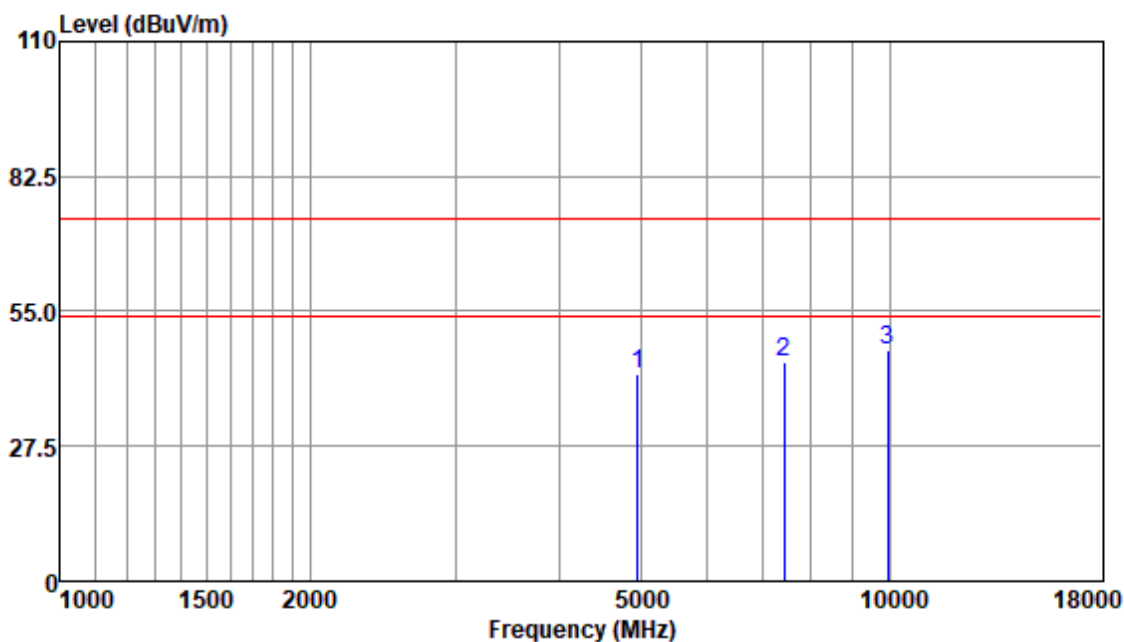
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Test Mode: 01; Polarity: Vertical; Modulation:GFSK; Channel:High



Antenna Polarity :VERTICAL

EUT/Project :0856HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
4960.31	39.96	33.65	5.46	36.83	42.24	74.00	-31.76	Peak
7440.91	36.42	36.31	7.43	35.34	44.82	74.00	-29.18	Peak
9920.99	34.18	37.62	8.69	33.41	47.08	74.00	-26.92	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

7.4 Conducted Peak Output Power

Test Requirement 47 CFR Part 15, Subpart C 15.247(b)(3)

Test Method: ANSI C63.10 (2013) Section 11.9.1

Limit:

Frequency range(MHz)	Output power of the intentional radiator(watt)
902-928	1 for ≥ 50 hopping channels
	0.25 for $25 \leq$ hopping channels < 50
	1 for digital modulation
2400-2483.5	1 for ≥ 75 non-overlapping hopping channels
	0.125 for all other frequency hopping systems
	1 for digital modulation
5725-5850	1 for frequency hopping systems and digital modulation

7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 26.6 °C

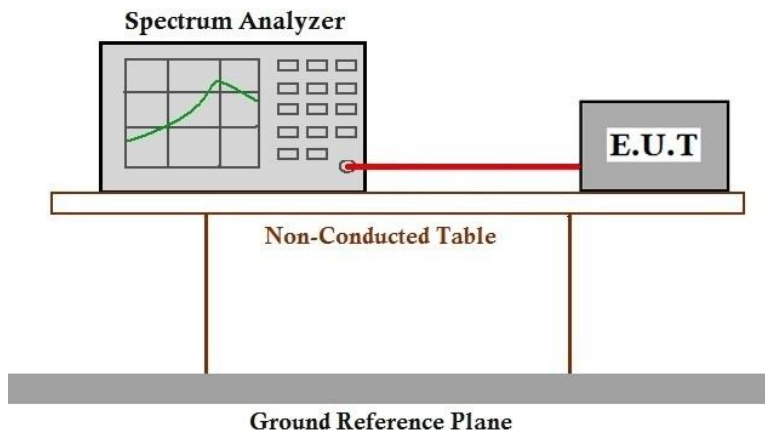
Humidity: 57.9 % RH

Atmospheric Pressure: 1010 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode(1Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.
Final test	01	TX mode(2Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.

7.4.3 Test Setup Diagram



7.4.4 Measurement Procedure and Data

Note: Since the verify power the same operating range bandwidth and smaller power can be covered by the higher power.



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Please Refer to Appendix for Details

7.5 Minimum 6dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.247a(2)

Test Method: ANSI C63.10 (2013) Section 11.8.1

Limit: ≥ 500 kHz

7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 26.6 °C

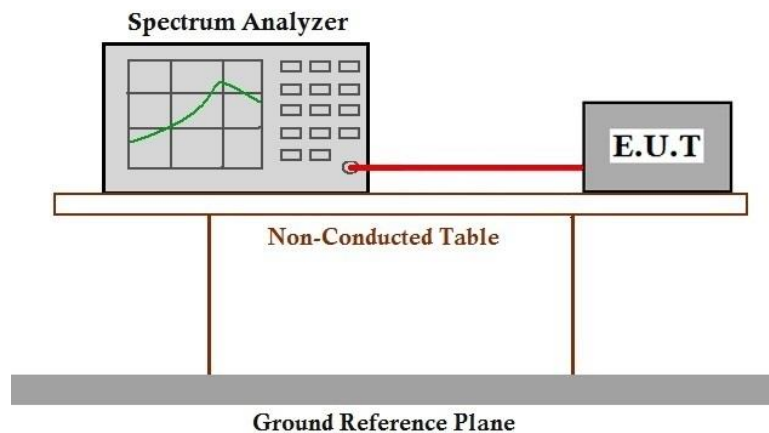
Humidity: 57.8 % RH

Atmospheric Pressure: 1010 mbar

7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode(1Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.
Final test	01	TX mode(2Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.

7.5.3 Test Setup Diagram



7.5.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.6 Power Spectrum Density

Test Requirement 47 CFR Part 15, Subpart C 15.247(e)

Test Method: ANSI C63.10 (2013) Section 11.10.2

Limit:

≤8dBm in any 3 kHz band during any time interval of continuous transmission

7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 26.6 °C

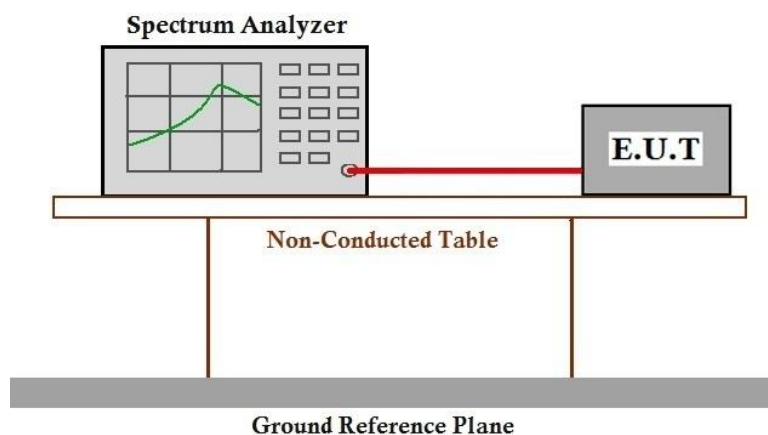
Humidity: 57.8 % RH

Atmospheric Pressure: 1010 mbar

7.6.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode(1Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.
Final test	01	TX mode(2Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.

7.6.3 Test Setup Diagram



7.6.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.7 Conducted Band Edges Measurement

Test Requirement 47 CFR Part 15, Subpart C 15.247(d)
 Test Method: ANSI C63.10 (2013) Section 11.13.3.2

Limit:

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

7.7.1 E.U.T. Operation

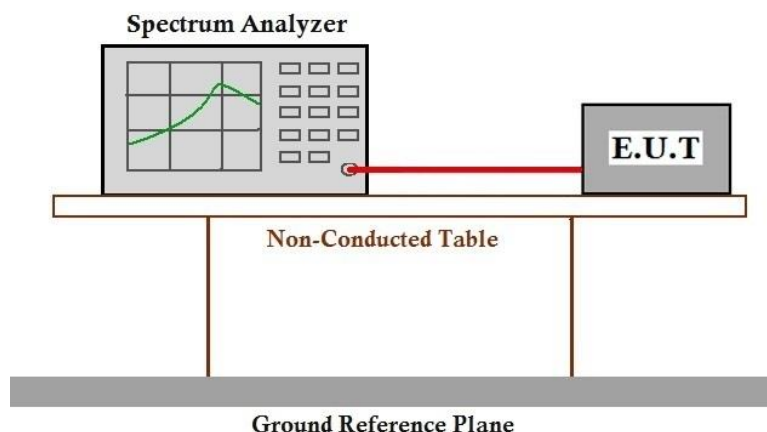
Operating Environment:

Temperature: 26.6 °C Humidity: 57.8 % RH Atmospheric Pressure: 1010 mbar

7.7.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode(1Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.
Final test	01	TX mode(2Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.

7.7.3 Test Setup Diagram



7.7.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.8 Conducted Spurious Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.247(d)

Test Method: ANSI C63.10 (2013) Section 11.11

Limit:

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

7.8.1 E.U.T. Operation

Operating Environment:

Temperature: 26.6 °C

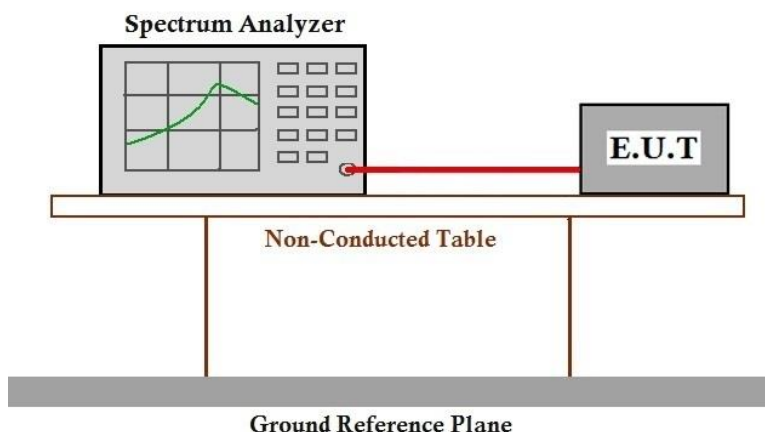
Humidity: 57.8 % RH

Atmospheric Pressure: 1010 mbar

7.8.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode(1Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.
Final test	01	TX mode(2Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.

7.8.3 Test Setup Diagram



7.8.4 Measurement Procedure and Data

Please Refer to Appendix for Details

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7.9 99% Bandwidth

Test Requirement RSS-Gen Section 6.7
Test Method: ANSI C63.10 (2013) Section 6.9.3

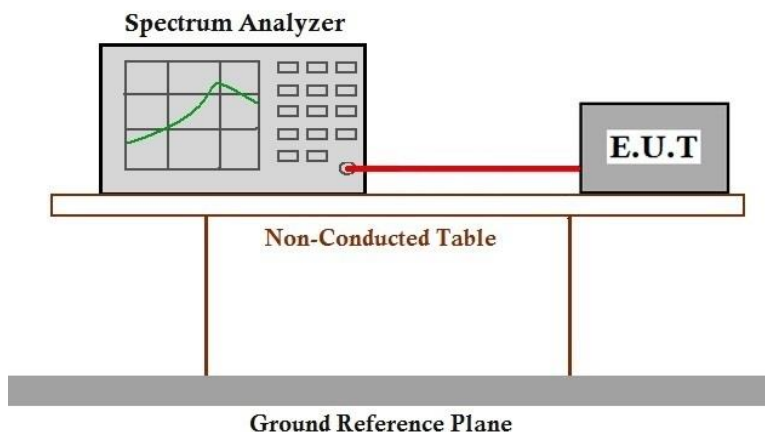
7.9.1 E.U.T. Operation

Operating Environment:
Temperature: 26.6 °C Humidity: 57.8 % RH Atmospheric Pressure: 1010 mbar

7.9.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode(1Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.
Final test	01	TX mode(2Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.

7.9.3 Test Setup Diagram



7.9.4 Measurement Procedure and Data

Please Refer to Appendix for Details

8 Test Setup Photo

Refer to Appendix - Test Setup Photo for KSCR2410002175HS

9 EUT Construnctional Details (EUT Photos)

Refer to Appendix - Photographs of EUT Construnctional Details for KSCR2410002175HS

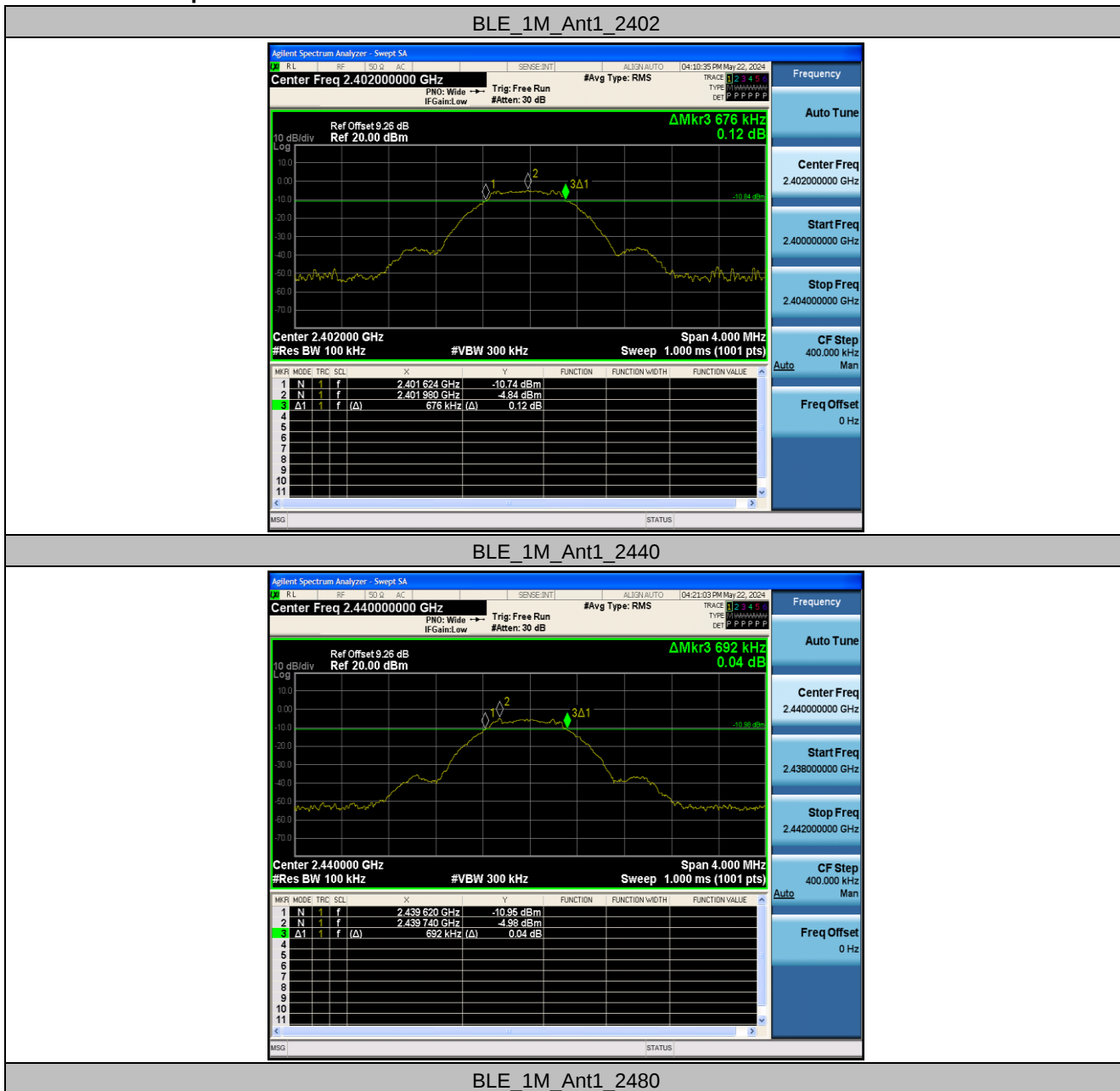
10 Appendix

10.1 Appendix A: DTS Bandwidth

10.1.1 Test Result

Test Mode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.676	2401.624	2402.300	0.5	PASS
		2440	0.692	2439.620	2440.312	0.5	PASS
		2480	0.656	2479.636	2480.292	0.5	PASS
BLE_2M	Ant1	2402	1.320	2401.276	2402.596	0.5	PASS
		2440	1.192	2439.352	2440.544	0.5	PASS
		2480	1.332	2479.316	2480.648	0.5	PASS

10.1.2 Test Graphs

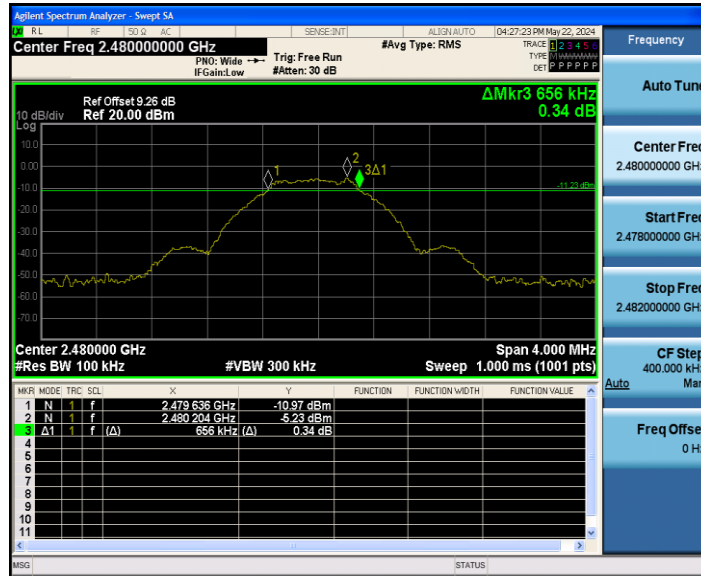


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BLE_2M_Ant1_2402



BLE_2M_Ant1_2440

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BLE_2M_Ant1_2480



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10.2 Appendix B: Occupied Channel Bandwidth

10.2.1 Test Result

Test Mode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0273	2401.4519	2402.4792	---	---
		2440	1.0427	2439.4454	2440.4881	---	---
		2480	1.0300	2479.4550	2480.4850	---	---
BLE_2M	Ant1	2402	2.0561	2400.9344	2402.9905	---	---
		2440	2.0614	2438.9419	2441.0033	---	---
		2480	2.0078	2478.9657	2480.9735	---	---

10.2.2 Test Graphs

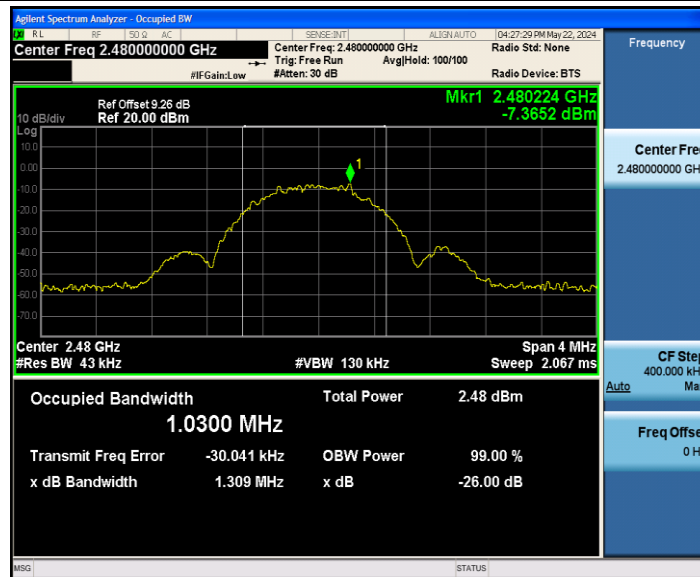


Compliance Certification Services (Kunshan) Inc.

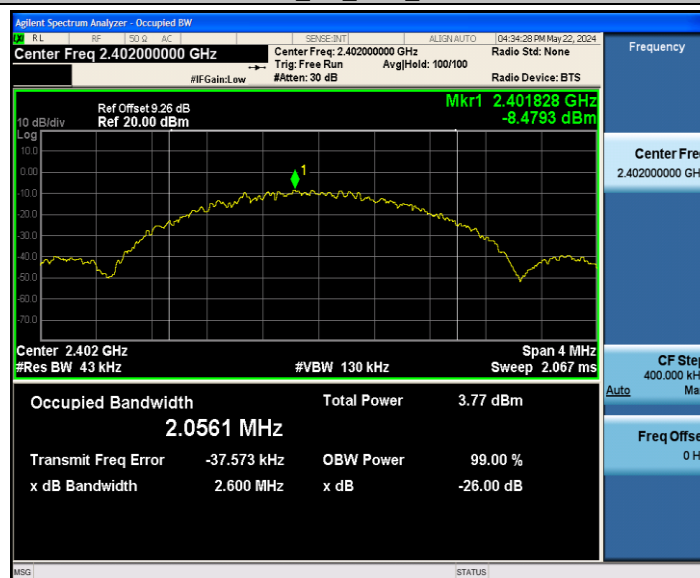
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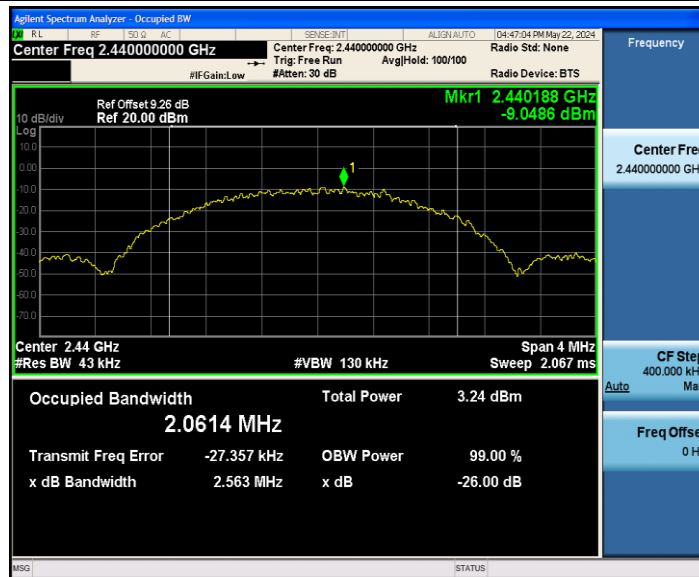
BLE_2M_Ant1_2440

Compliance Certification Services (Kunshan) Inc.

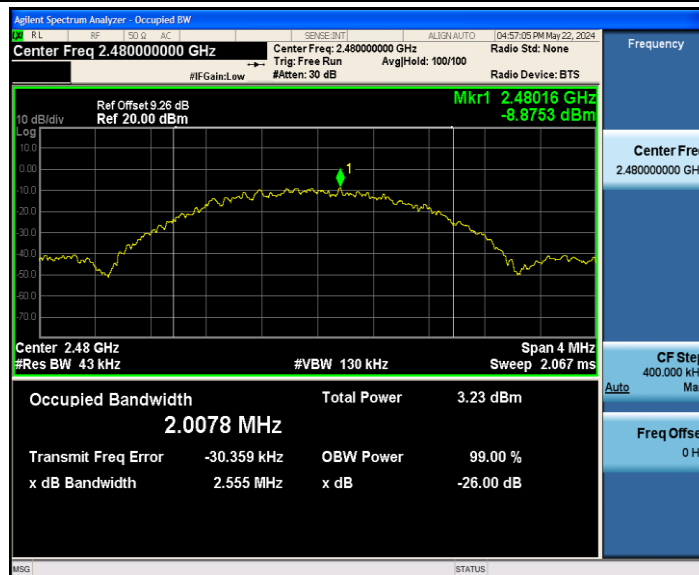
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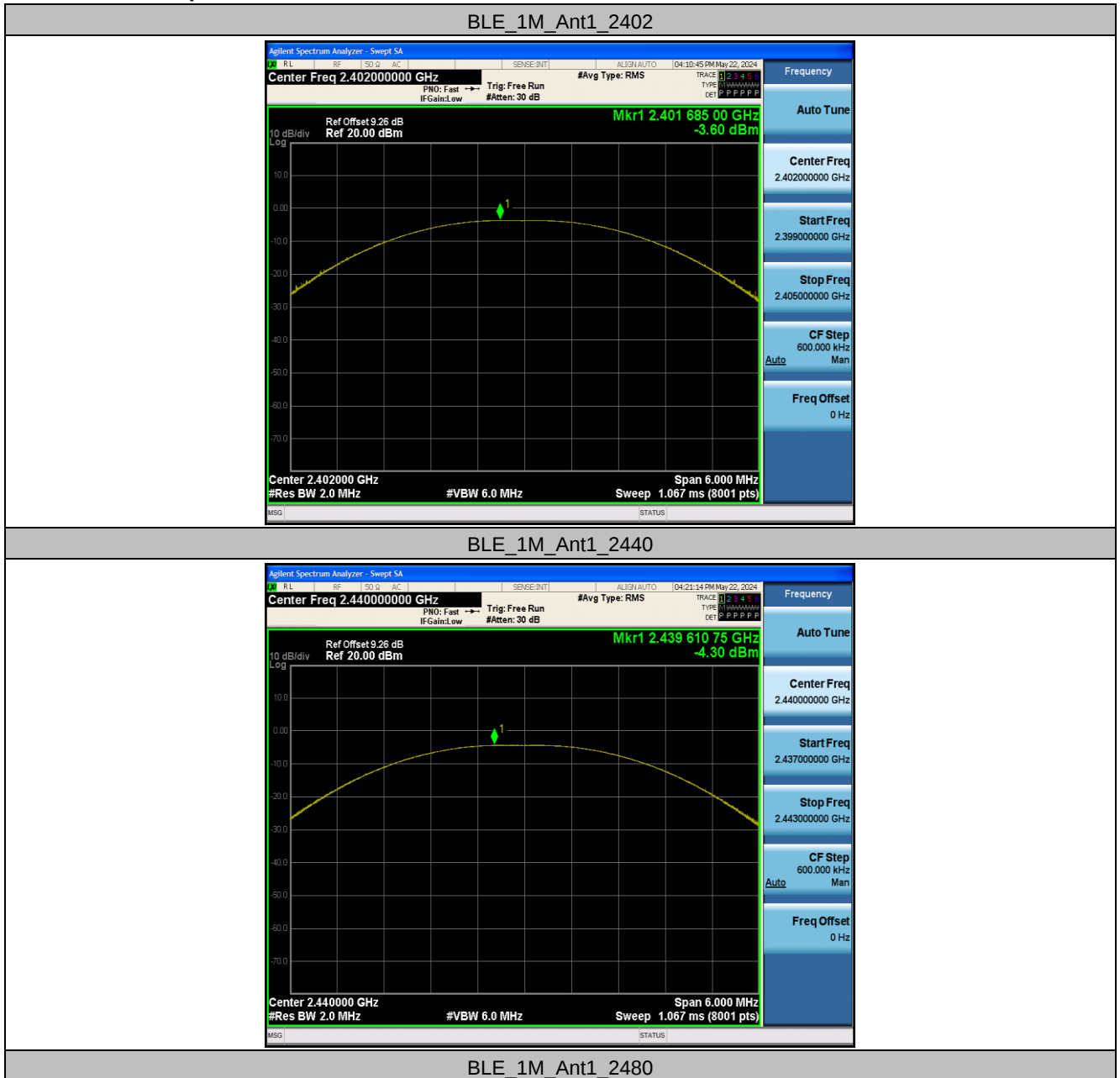
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10.3 Appendix C: Maximum conducted output power

10.3.1 Test Result

Test Mode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-3.60	≤30	PASS
		2440	-4.30	≤30	PASS
		2480	-4.52	≤30	PASS
BLE_2M	Ant1	2402	-3.70	≤30	PASS
		2440	-4.20	≤30	PASS
		2480	-4.51	≤30	PASS

10.3.2 Test Graphs

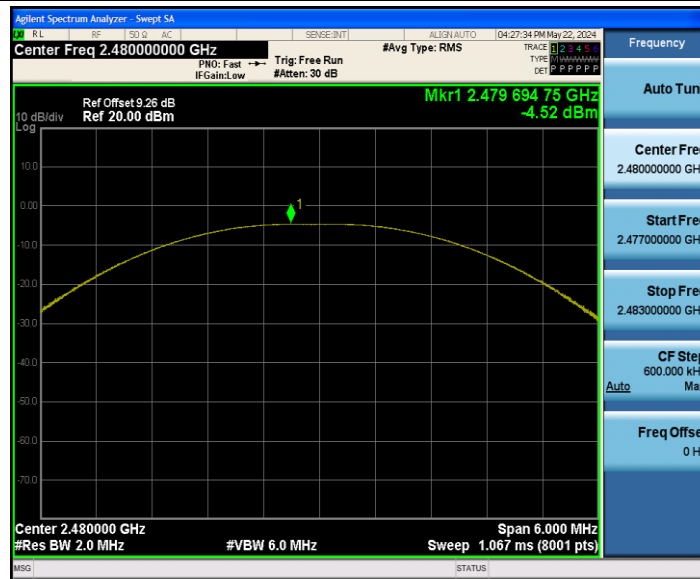


Compliance Certification Services (Kunshan) Inc.

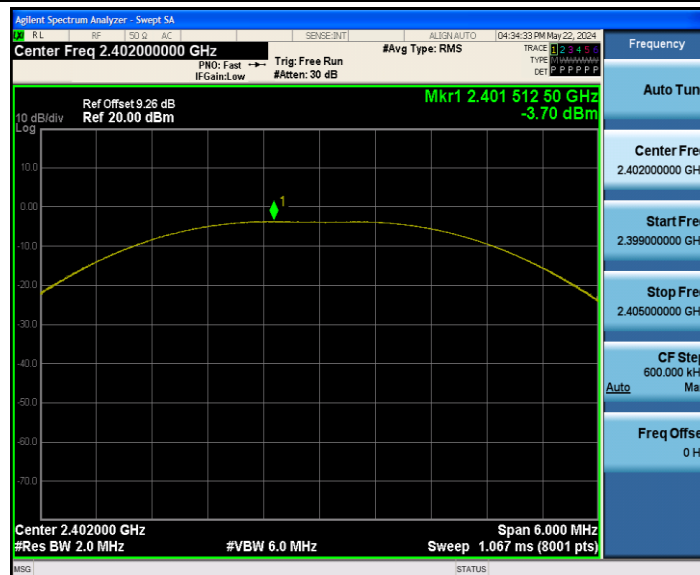
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BLE_2M_Ant1_2402



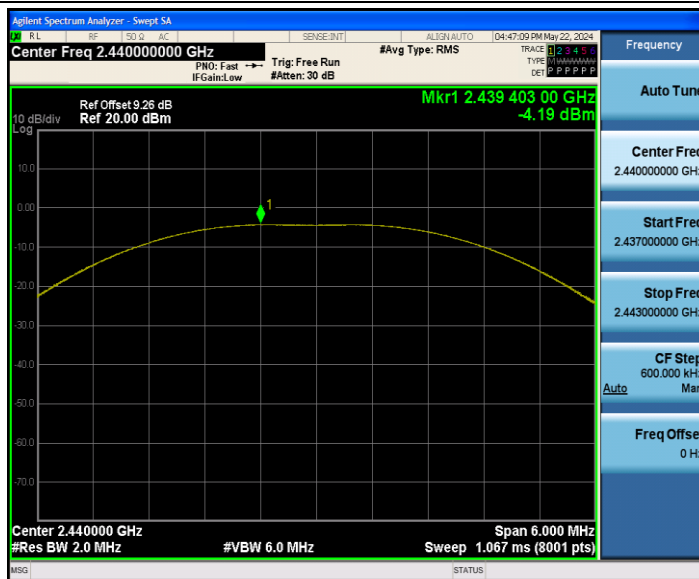
BLE_2M_Ant1_2440

Compliance Certification Services (Kunshan) Inc.

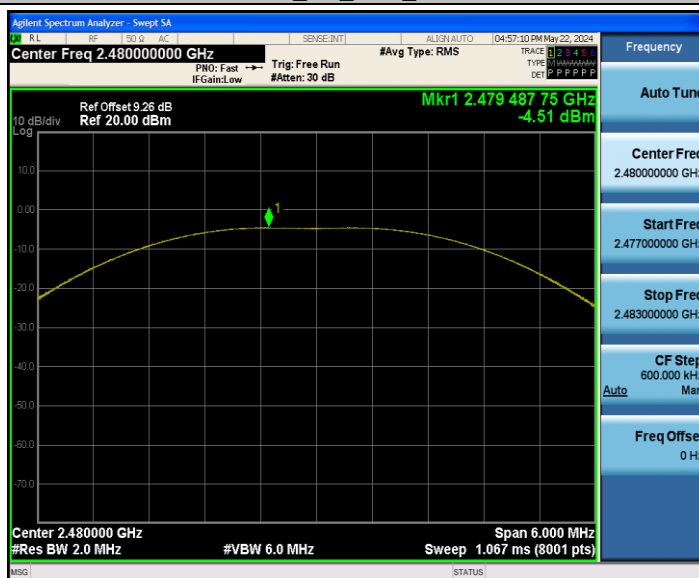
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BLE_2M_Ant1_2480



10.4 Appendix D: Maximum power spectral density

10.4.1 Test Result

Test Mode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-13.25	≤8.00	PASS
		2440	-13.80	≤8.00	PASS
		2480	-14.31	≤8.00	PASS
BLE_2M	Ant1	2402	-17.05	≤8.00	PASS
		2440	-15.36	≤8.00	PASS
		2480	-16.89	≤8.00	PASS

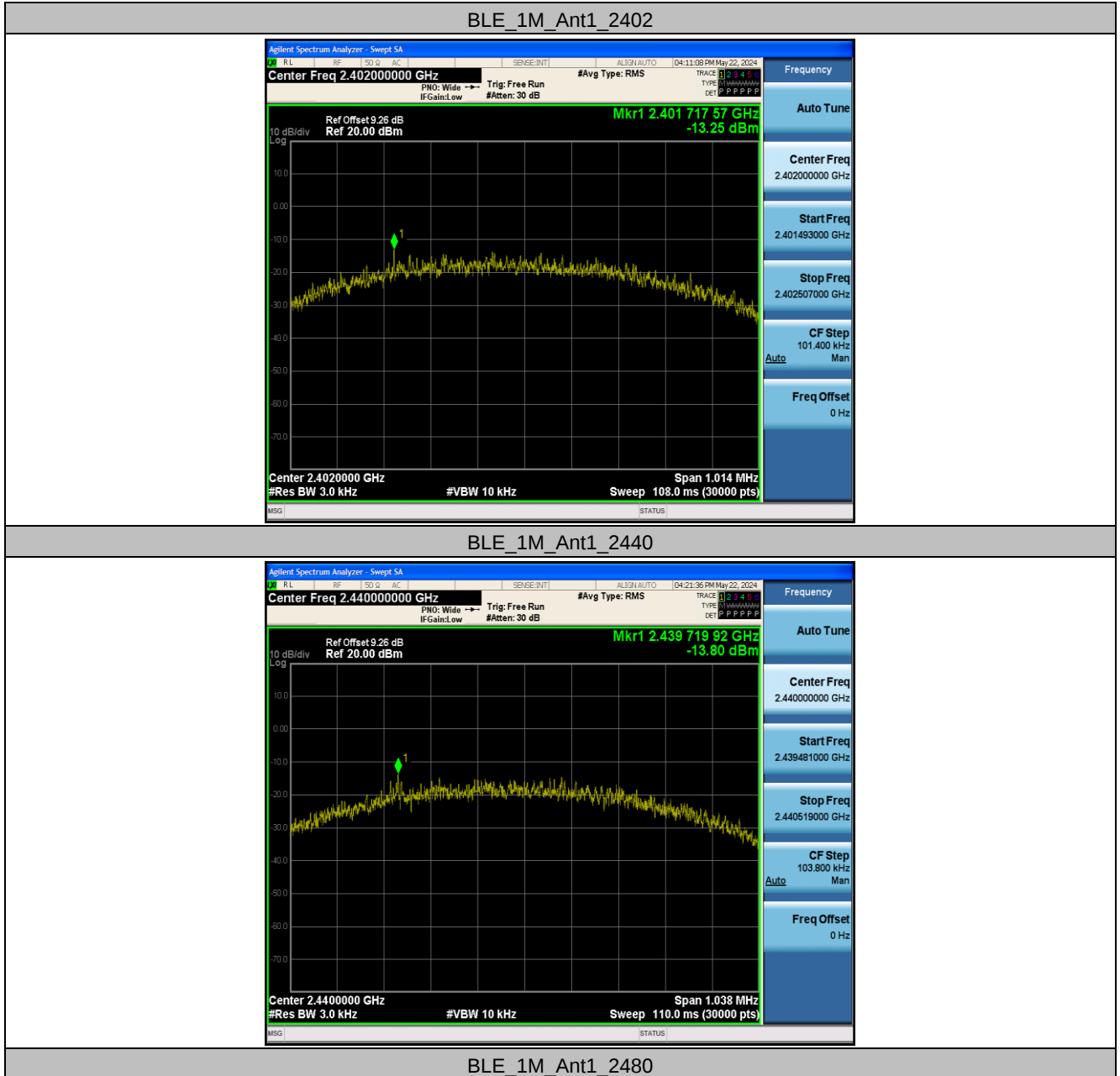
Compliance Certification Services (Kunshan) Inc.

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10.4.2 Test Graphs

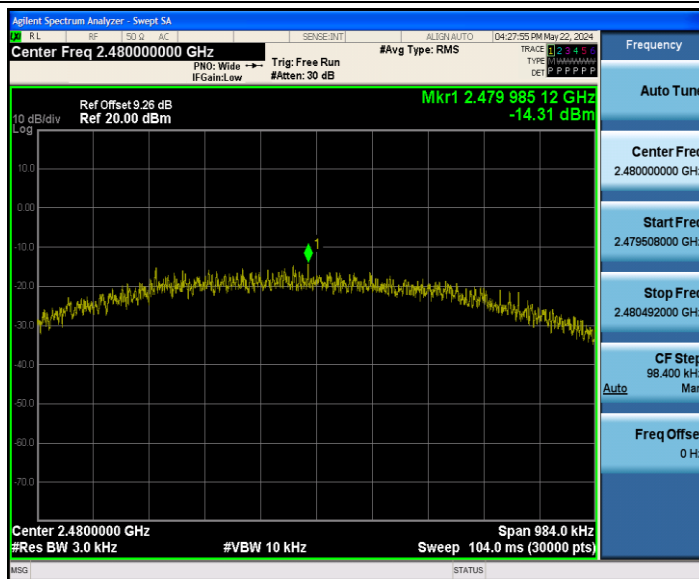


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BLE_2M_Ant1_2402



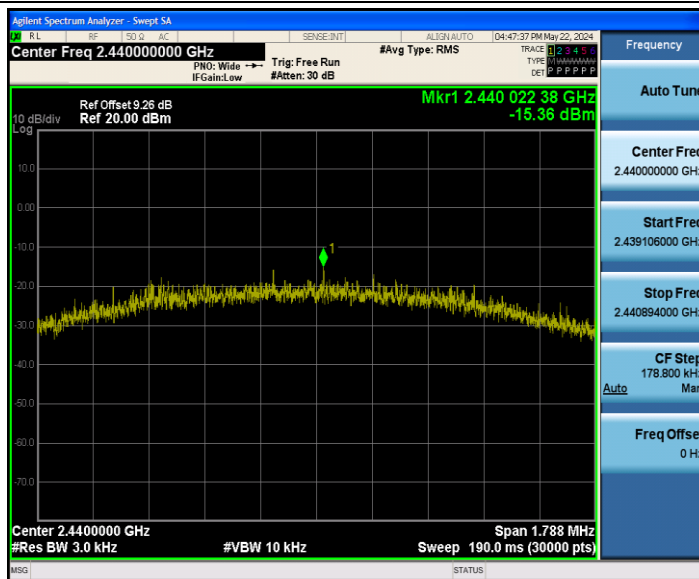
BLE_2M_Ant1_2440

Compliance Certification Services (Kunshan) Inc.

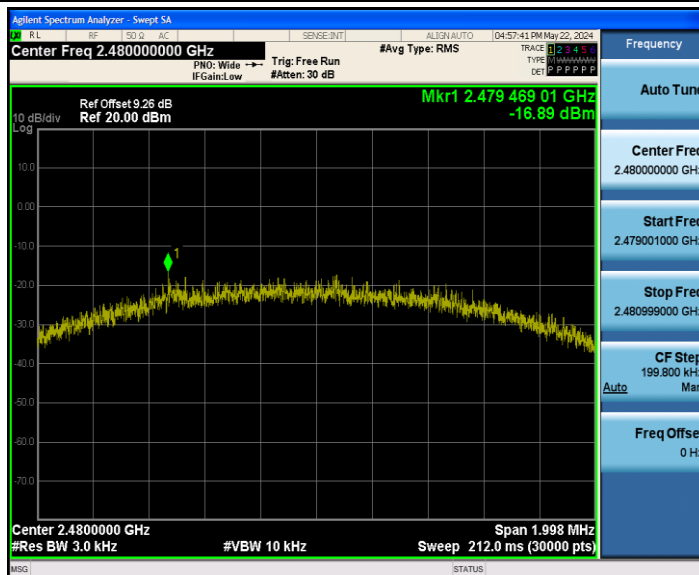
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BLE_2M_Ant1_2480





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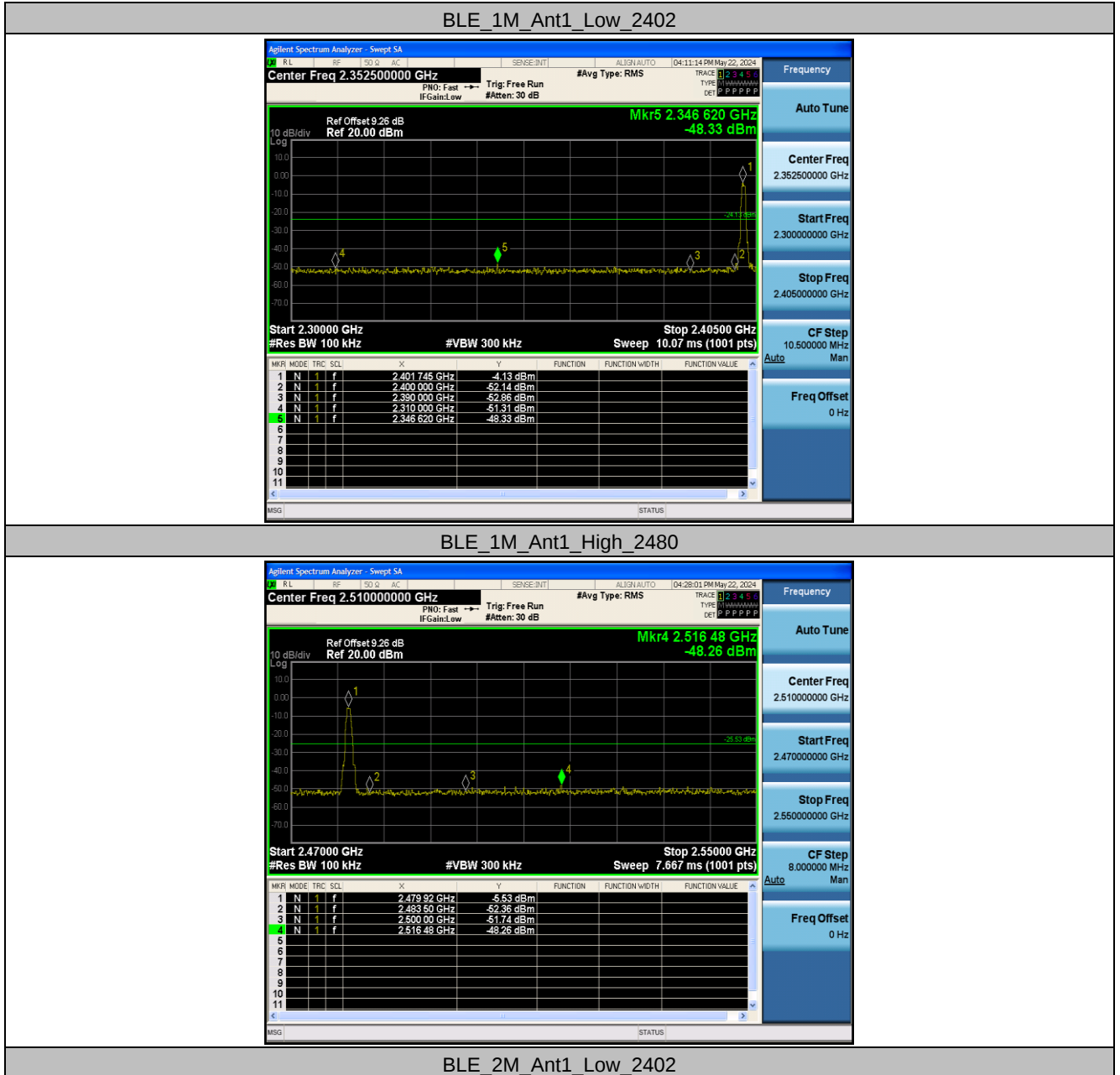
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10.5 Appendix E: Band edge measurements

10.5.1 Test Result

Test Mode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-4.13	-48.33	≤-24.13	PASS
		High	2480	-5.53	-48.26	≤-25.53	PASS
BLE_2M	Ant1	Low	2402	-5.08	-38.69	≤-25.08	PASS
		High	2480	-6.28	-48.47	≤-26.28	PASS

10.5.2 Test Graphs

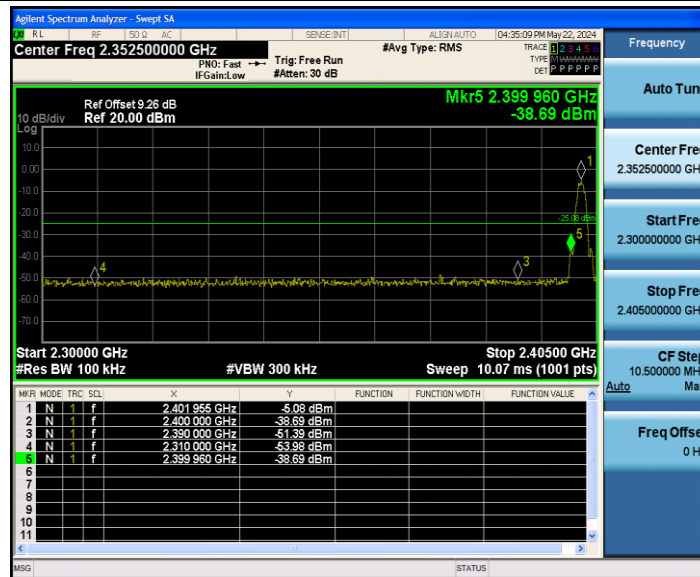


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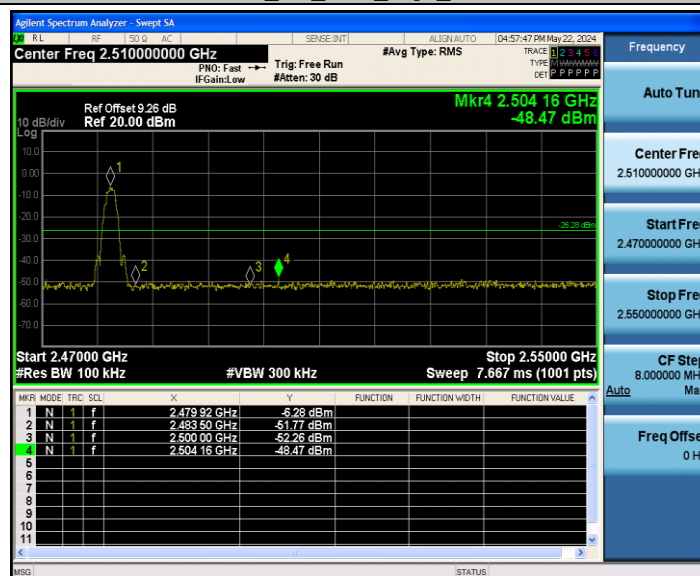
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BLE_2M_Ant1_High_2480



10.6 Appendix F: Conducted Spurious Emission

10.6.1 Test Result

Test Mode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-4.85	-4.85	---	PASS
			30~1000	-4.85	-53.06	≤-24.85	PASS
			1000~26500	-4.85	-41.55	≤-24.85	PASS
		2440	Reference	-5.87	-5.87	---	PASS
			30~1000	-5.87	-60.76	≤-25.87	PASS
			1000~26500	-5.87	-41.37	≤-25.87	PASS
		2480	Reference	-6.22	-6.22	---	PASS
			30~1000	-6.22	-60.56	≤-26.22	PASS
			1000~26500	-6.22	-41.65	≤-26.22	PASS
BLE_2M	Ant1	2402	Reference	-6.20	-6.20	---	PASS
			30~1000	-6.20	-60.48	≤-26.2	PASS
			1000~26500	-6.20	-41.86	≤-26.2	PASS
		2440	Reference	-8.01	-8.01	---	PASS
			30~1000	-8.01	-59.72	≤-28.01	PASS
			1000~26500	-8.01	-41.94	≤-28.01	PASS
		2480	Reference	-6.77	-6.77	---	PASS
			30~1000	-6.77	-60.34	≤-26.77	PASS
			1000~26500	-6.77	-42.08	≤-26.77	PASS

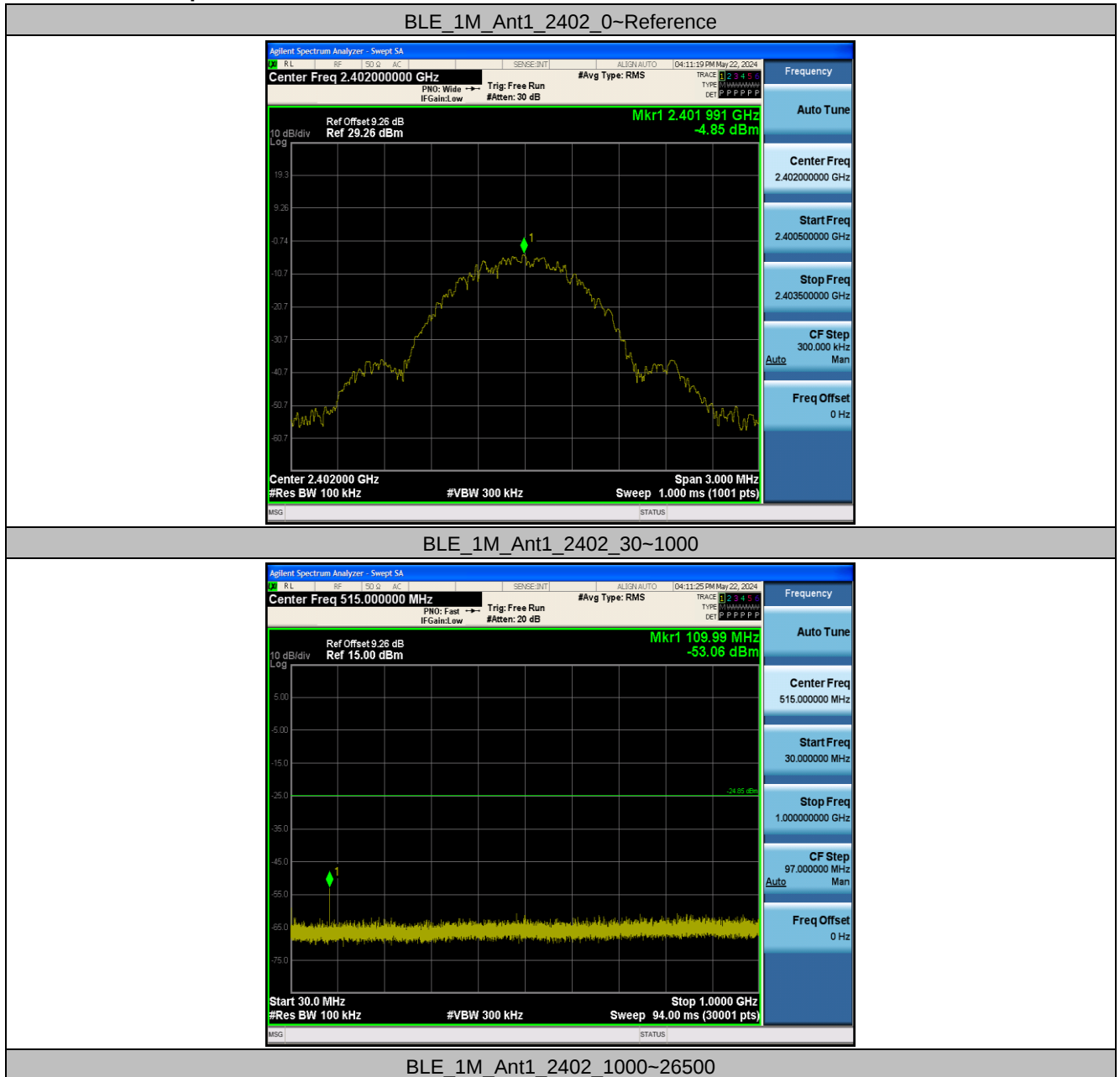
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10.6.2 Test Graphs

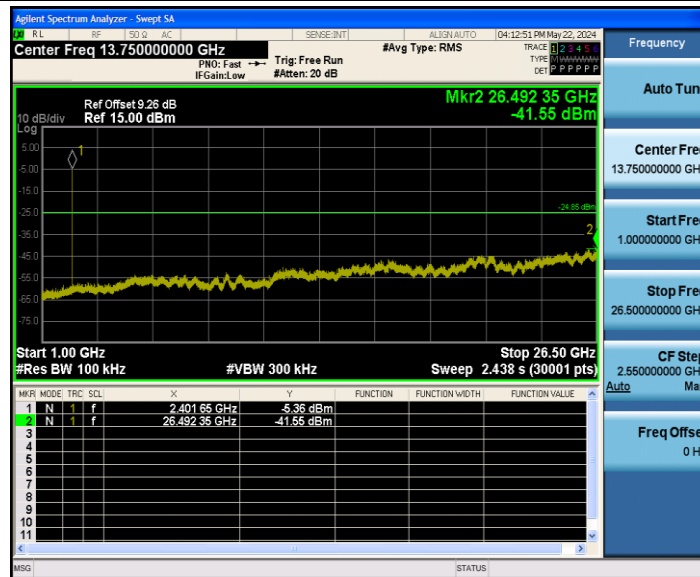


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BLE_1M_Ant1_2440_0~Reference



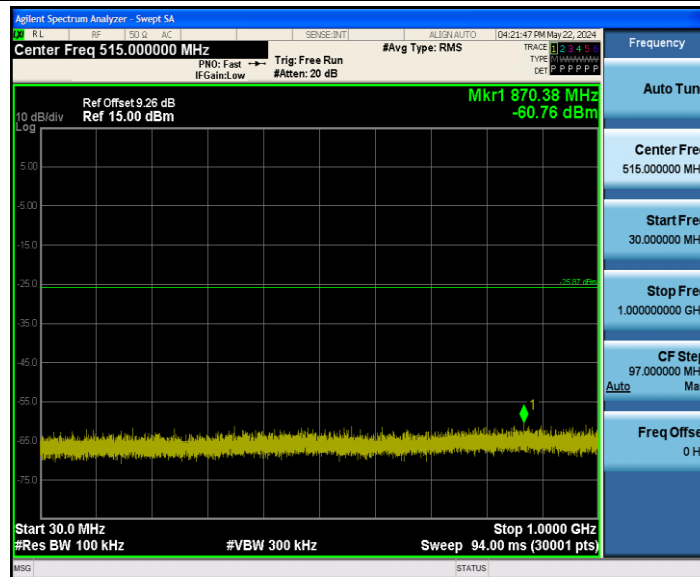
BLE_1M_Ant1_2440_30~1000

Compliance Certification Services (Kunshan) Inc.

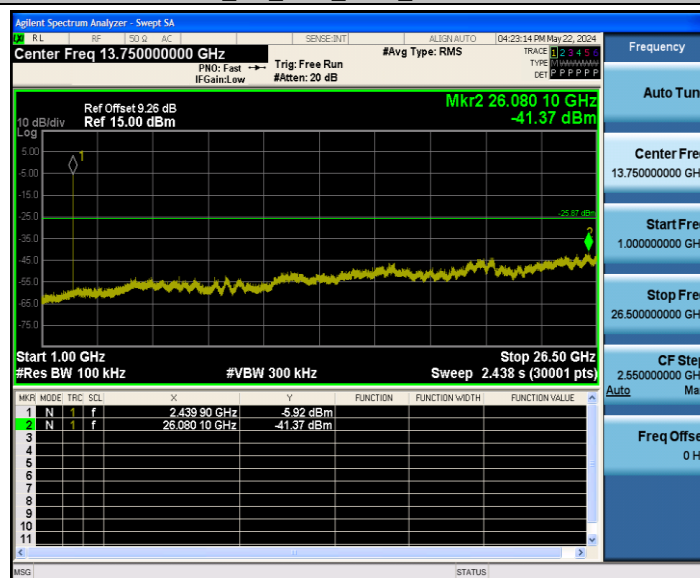
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BLE_1M_Ant1_2440_1000-26500



BLE_1M_Ant1_2480_0-Reference

Compliance Certification Services (Kunshan) Inc.

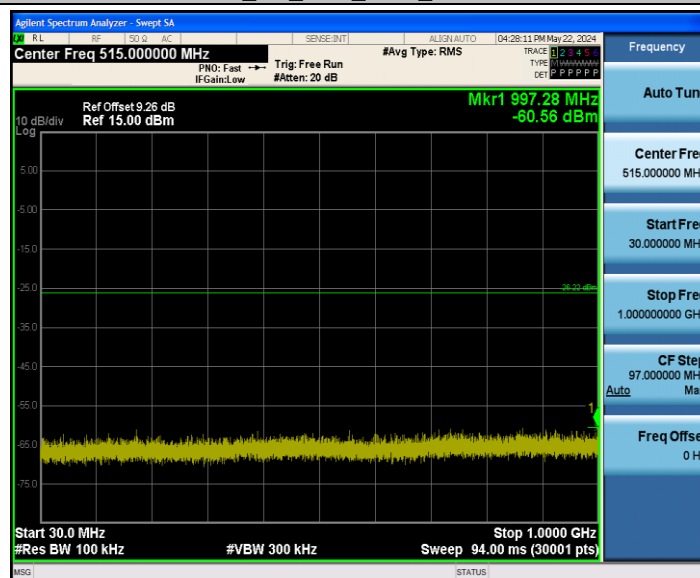
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BLE_1M_Ant1_2480_30~1000



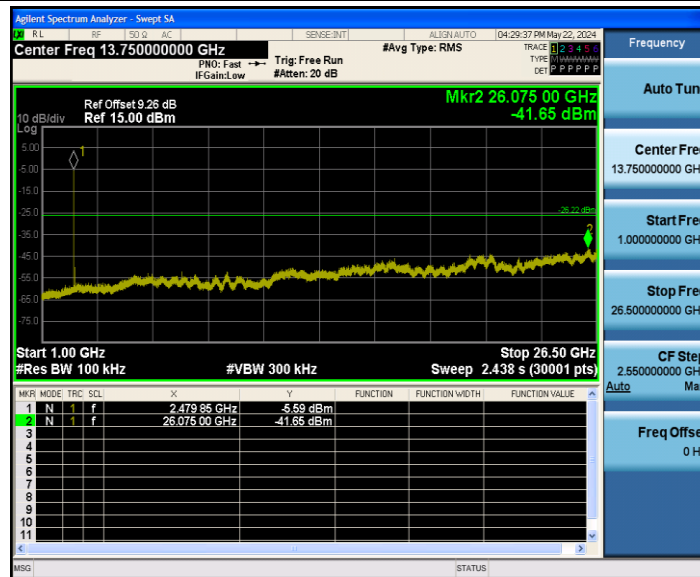
BLE_1M_Ant1_2480_1000~26500

Compliance Certification Services (Kunshan) Inc.

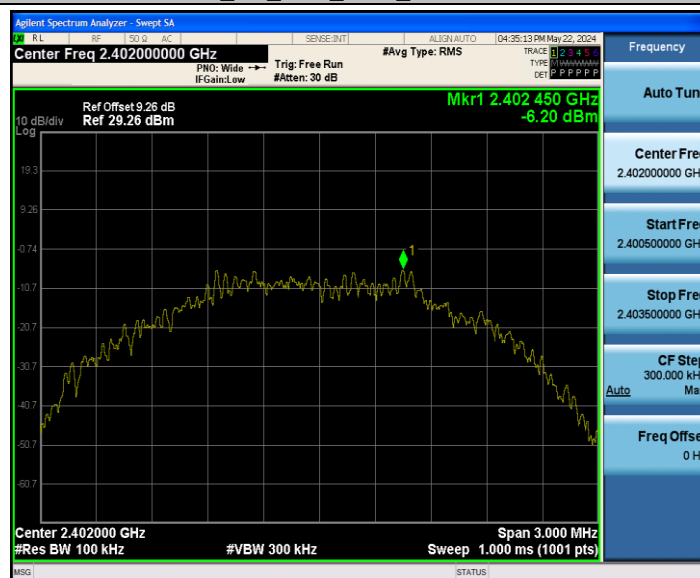
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BLE_2M_Ant1_2402_0~Reference



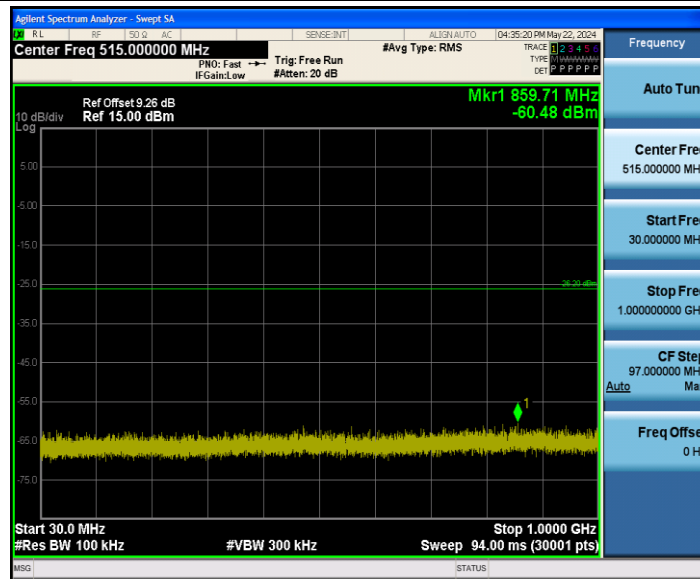
BLE_2M_Ant1_2402_30~1000

Compliance Certification Services (Kunshan) Inc.

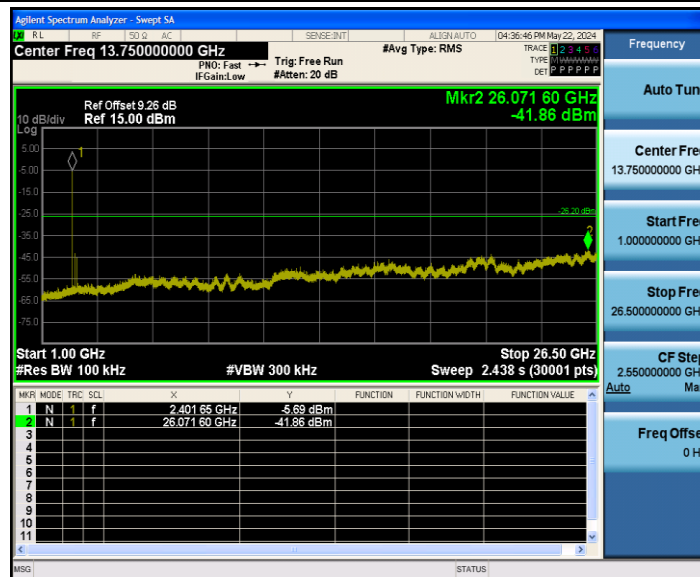
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BLE_2M_Ant1_2402_1000-26500



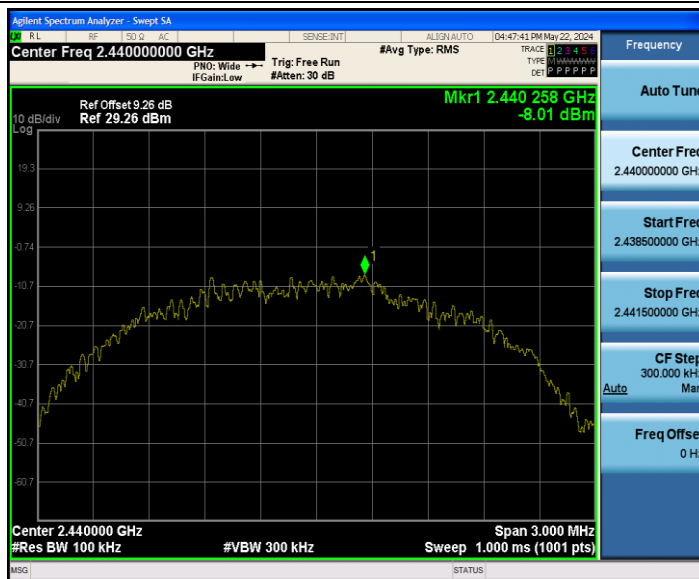
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Compliance Certification Services (Kunshan) Inc.

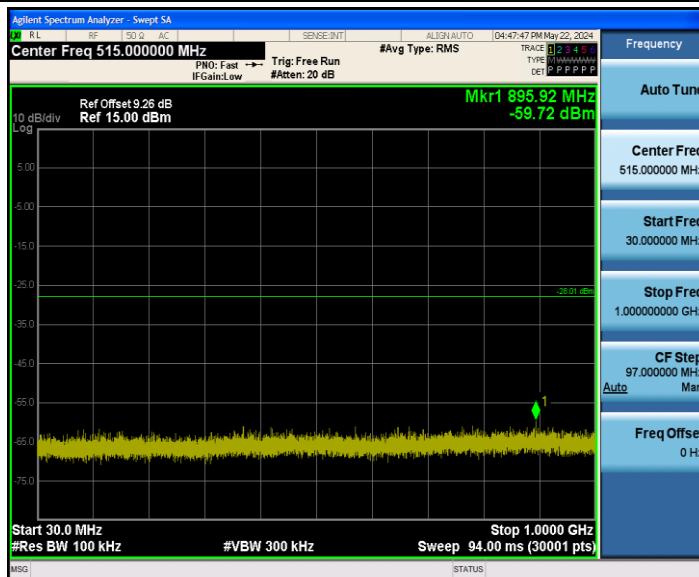
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BLE_2M_Ant1_2440_30~1000



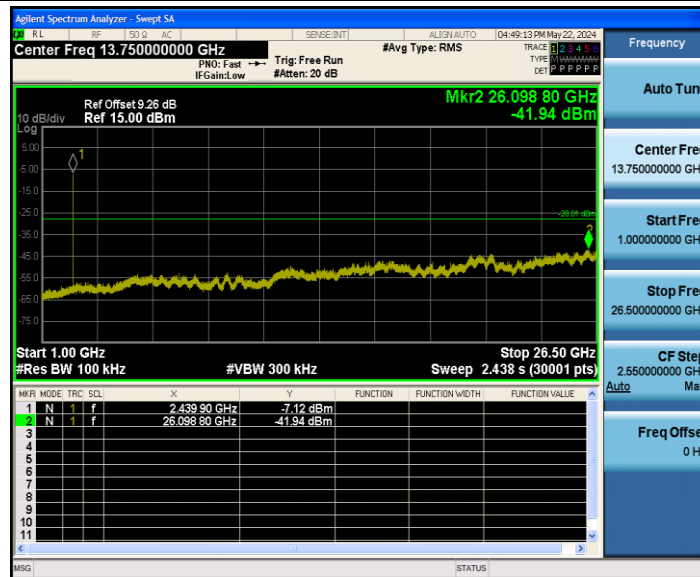
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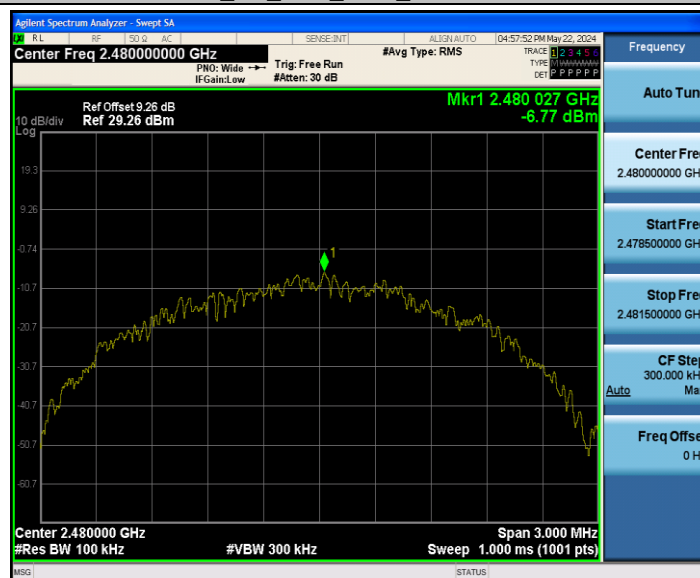
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BLE_2M_Ant1_2480_0~Reference



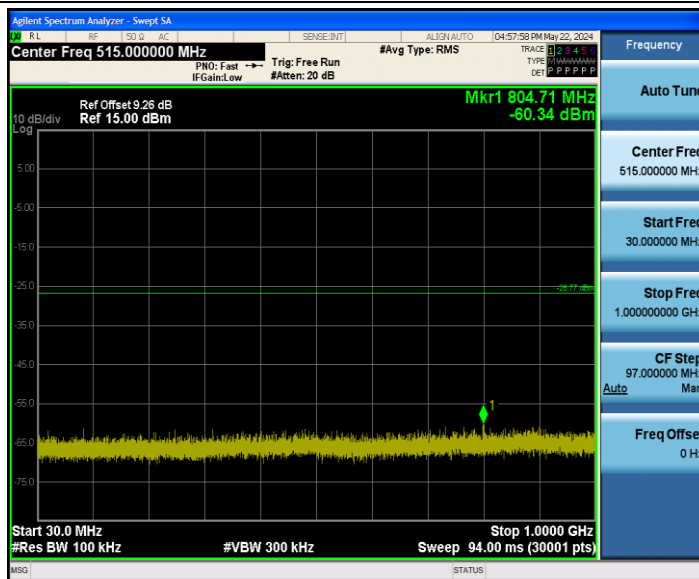
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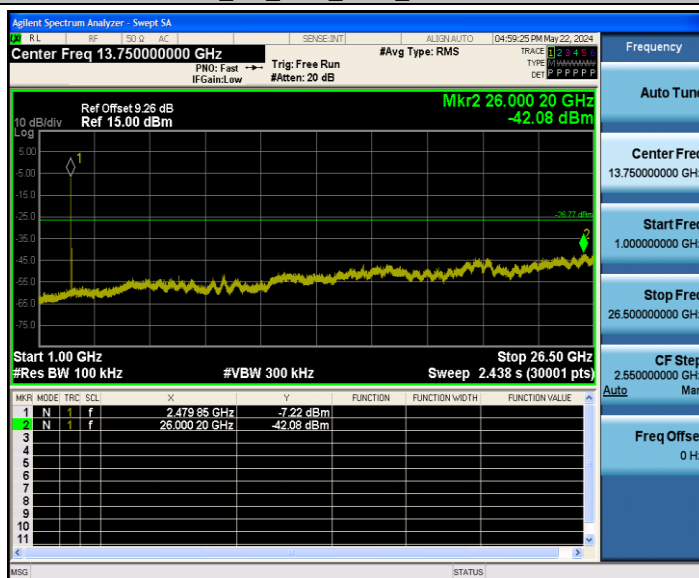
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BLE_2M_Ant1_2480_1000-26500



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