TEST REPORT

Application No.:	SZCR2408003370AT
Applicant:	Harman International Industries, Inc.
Address of Applicant:	8500 Balboa Boulevard, Northridge, California, 91329, United States
Manufacturer:	Harman International Industries, Inc.
Address of Manufacturer:	8500 Balboa Boulevard, Northridge, California, 91329, United States
Factory:	Zhong Shan City Richsound Electronic Industrial Ltd.
Address of Factory:	No.16, East Shagang Road, Gangkou, Zhongshan, Guangdong, China.
Equipment Under Test (EUT):	
EUT Name:	Sactionals StealthTech Sound + Charge Center Channel
Model No.:	EE4034
FCC ID:	APILOVESAC
Standard(s) :	47 CFR Part 15, Subpart C 15.247 (only for Radiated Spurious Emissions Above 1GHz)
Date of Receipt:	2024-08-29
Date of Test:	2024-09-11
Date of Issue:	2024-09-13
Test Result:	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

Keny Xu
EMC Laboratory Manager

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·广东·深圳市南山区科技园中区M-10栋1号厂房 邮编:518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2024-09-13		Original

Authorized for issue by:				
		Benson Wang		
		Benson Wang/Project Engineer		
		Eric Fu		
		Eric Fu/Reviewer		

2 Test Summary

Radio Spectrum Matter Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Radiated Spurious Emissions Above 1GHz	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.6	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass

Remark:

Model No.: EE4034

This test report (Ref. No.: SZCR240800337002) is only valid with the original test report

(Ref. No.: SZEM200900949102).

According to the declaration from the applicant, the models in this report and models in original report were identical, only difference on that changed the information of factory and change the supplier of capacitors in match circuit of antenna.

Considering to the difference, pre-scan were performed on the sample in this report to find the items which can be influential to the result in the original test report for fully retest.

Therefore in this report of section 2 were fully retested on model and shown the data in this report, other tests please refer to original report SZEM200900949102.

3 Contents

4 General Information

4.1 Details of E.U.T.

Power supply:	AC 100-240V 50/60Hz
Operation Frequency:	2402MHz to 2480MHz
Bluetooth Version:	V5.0 Dual mode
Modulation Type:	GFSK
Number of Channels:	40
Channel Spacing:	2MHz
Antenna Type:	PIFA Antenna
Antenna Gain:	3dBi

Remark:The information in this section is provided by the applicant or manufacturer, SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
--	--	--	--
The EUT has been tested as an independent unit.			

4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Radiated Spurious Emissions Above 1GHz	± 4.6dB (1-18GHz);± 4.8dB (18-40GHz)

Remark:
The U_{lab} (lab Uncertainty) is less than $U_{cispr/ETSI}$ (CISPR/ETSI Uncertainty), so the test results
– compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
– non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.5 Test Facility

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

• A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• VCCI (Member No. 1937)

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen EMC laboratory have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• FCC –Designation Number: CN1336

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1336. Test Firm Registration Number: 787754.

• Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

5 Equipment List

Radiated Spurious Emissions Above 1GHz					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
3m Fully-Anechoic Chamber	AUDIX	N/A	SEM001-02	2024-05-11	2027-05-10
Signal Analyzer	Rohde & Schwarz	FSV40	SEM008-04	2024-03-15	2025-03-14
Horn Antenna	Rohde&Schwarz	HF907	SEM003-07	2023-07-23	2025-07-22
Microwave system amplifier	Agilent	83017A	SEM005-25	2023-09-19	2024-09-18
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2024-07-06	2025-07-05
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	SEM003-15	2024-08-10	2025-08-09
Pre-Amplifier	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2024-03-15	2025-03-14

General used equipment					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Humidity/ Temperature Indicator	deli	8838	SEM002-32	2024-07-24	2025-07-23
Humidity/ Temperature Indicator	deli	8838	SEM002-33	2024-07-24	2025-07-23
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2024-03-18	2025-03-17

6 Radio Spectrum Matter Test Results

6.1 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
Measurement Distance: 3m

Limit:

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

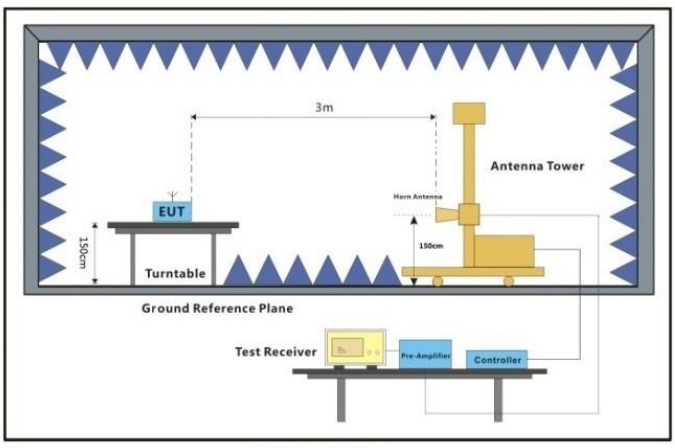
6.1.1 E.U.T. Operation

Operating Environment:
Temperature: 22.9 °C Humidity: 72.8 % RH Atmospheric Pressure: 1020 mbar

6.1.2 Test Mode Description

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

6.1.3 Test Setup Diagram



Above 1GHz

6.1.4 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.

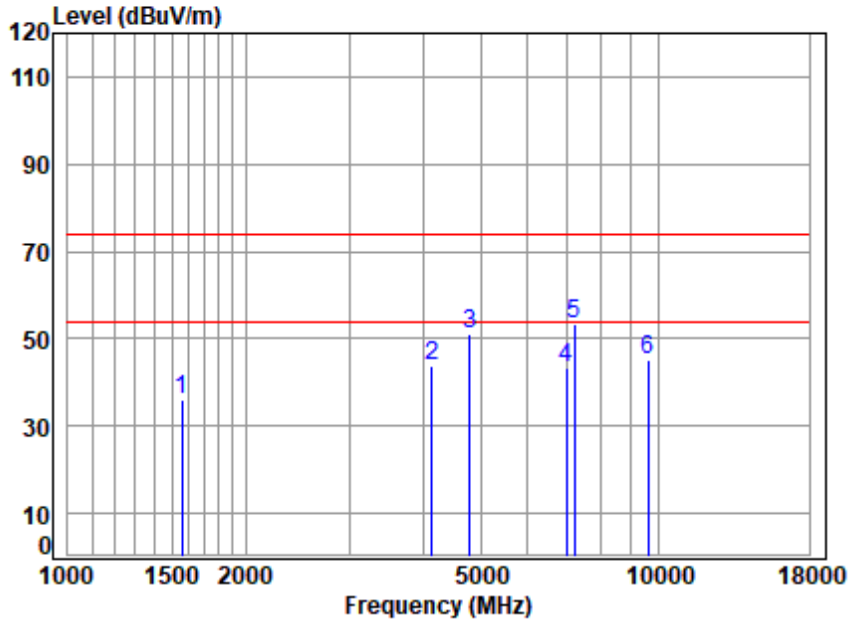
Remark:

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.

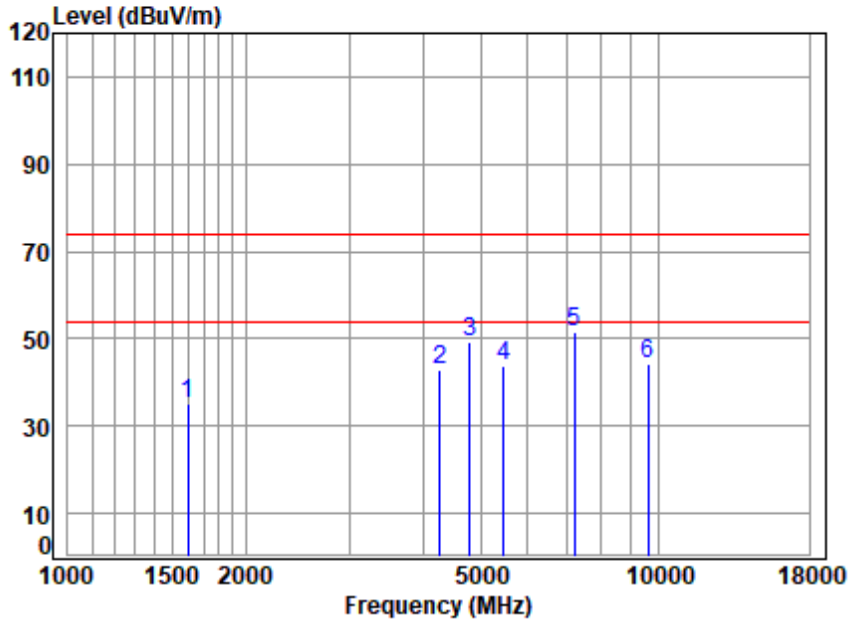
Test Mode: 01; Polarity: Horizontal; Modulation:GFSK; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 03370AT\03371AT
Mode : 2402 TX RSE
: BLE

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1560.673	4.70	26.96	61.68	65.87	35.85	74.00	-38.15	peak
2	4133.699	8.36	33.54	61.30	63.18	43.78	74.00	-30.22	peak
3	4804.000	8.00	34.32	61.88	70.54	50.98	74.00	-23.02	peak
4	6995.172	9.53	35.71	62.16	60.35	43.43	74.00	-30.57	peak
5 p	7206.000	9.32	35.70	62.04	70.44	53.42	74.00	-20.58	peak
6	9608.000	11.41	37.42	62.15	58.47	45.15	74.00	-28.85	peak

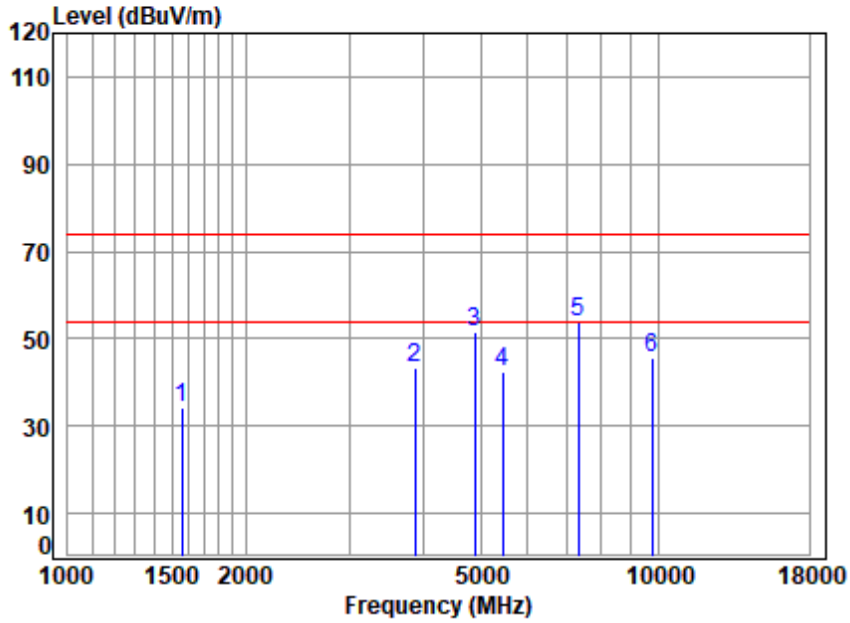
Test Mode: 01; Polarity: Vertical; Modulation:GFSK; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 03370AT\03371AT
Mode : 2402 TX RSE
: BLE

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1597.181	4.78	26.81	61.69	65.04	34.94	74.00	-39.06	peak
2	4267.237	8.18	33.87	61.42	62.40	43.03	74.00	-30.97	peak
3	4804.000	8.00	34.32	61.88	68.88	49.32	74.00	-24.68	peak
4	5471.422	9.23	34.61	62.39	62.33	43.78	74.00	-30.22	peak
5 p	7206.000	9.32	35.70	62.04	68.42	51.40	74.00	-22.60	peak
6	9608.000	11.41	37.42	62.15	57.43	44.11	74.00	-29.89	peak

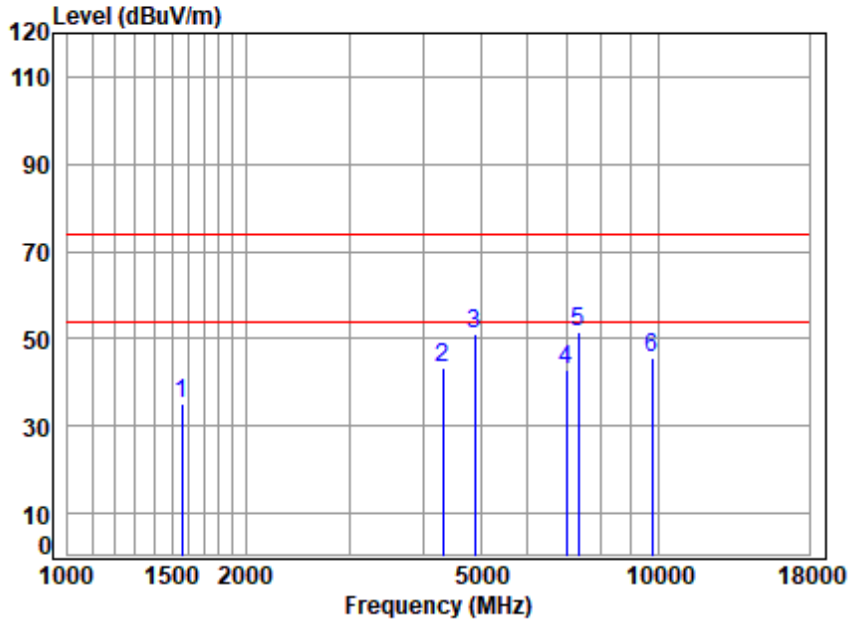
Test Mode: 01; Polarity: Horizontal; Modulation:GFSK; Channel:middle



Site : chamber
Condition: 3m HORIZONTAL
Job No : 03370AT\03371AT
Mode : 2440 TX RSE
: BLE

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1560.673	4.70	26.96	61.68	64.17	34.15	74.00	-39.85	peak
2	3879.027	8.18	33.51	61.20	63.08	43.57	74.00	-30.43	peak
3	4880.000	8.03	34.62	61.94	70.94	51.65	74.00	-22.35	peak
4	5455.631	9.20	34.68	62.38	60.72	42.22	74.00	-31.78	peak
5 p	7320.000	9.21	35.70	61.98	70.77	53.70	74.00	-20.30	peak
6	9760.000	11.32	37.38	62.19	59.09	45.60	74.00	-28.40	peak

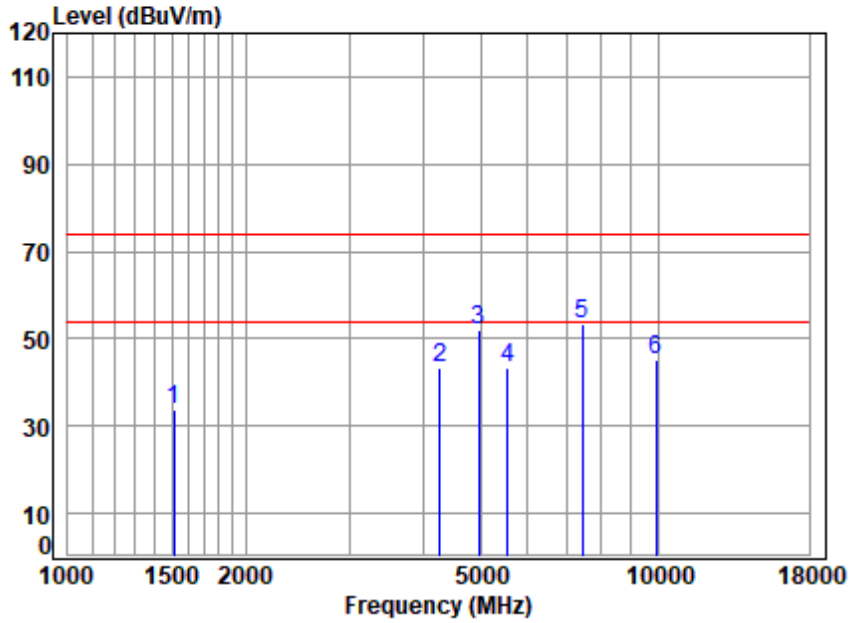
Test Mode: 01; Polarity: Vertical; Modulation:GFSK; Channel:middle



Site : chamber
Condition: 3m VERTICAL
Job No : 03370AT\03371AT
Mode : 2440 TX RSE
: BLE

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1560.673	4.70	26.96	61.68	65.34	35.32	74.00	-38.68	peak
2	4316.859	8.11	34.13	61.47	62.75	43.52	74.00	-30.48	peak
3	4880.000	8.03	34.62	61.94	70.20	50.91	74.00	-23.09	peak
4	6995.172	9.53	35.71	62.16	59.99	43.07	74.00	-30.93	peak
5 p	7320.000	9.21	35.70	61.98	68.65	51.58	74.00	-22.42	peak
6	9760.000	11.32	37.38	62.19	59.21	45.72	74.00	-28.28	peak

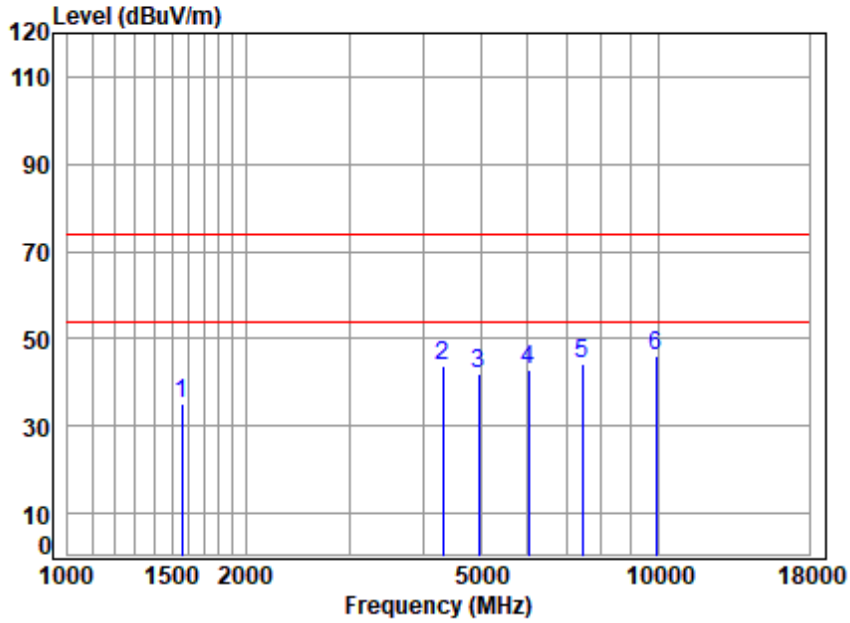
Test Mode: 01; Polarity: Horizontal; Modulation:GFSK; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 03370AT\03371AT
Mode : 2480 TX RSE
: BLE

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1511.833	4.60	26.85	61.66	64.16	33.95	74.00	-40.05	peak
2	4267.237	8.18	33.87	61.42	62.88	43.51	74.00	-30.49	peak
3	4960.000	8.06	34.56	62.01	71.35	51.96	74.00	-22.04	peak
4	5567.137	9.33	34.70	62.46	61.96	43.53	74.00	-30.47	peak
5 p	7440.000	9.09	35.96	61.92	70.38	53.51	74.00	-20.49	peak
6	9920.000	11.23	37.30	62.24	58.74	45.03	74.00	-28.97	peak

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



Site : chamber
Condition: 3m VERTICAL
Job No : 03370AT\03371AT
Mode : 2480 TX RSE
: BLE

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1560.673	4.70	26.96	61.68	65.15	35.13	74.00	-38.87	peak
2	4316.859	8.11	34.13	61.47	63.09	43.86	74.00	-30.14	peak
3	4960.000	8.06	34.56	62.01	61.16	41.77	74.00	-32.23	peak
4	6018.999	9.50	34.94	62.74	61.01	42.71	74.00	-31.29	peak
5	7440.000	9.09	35.96	61.92	60.92	44.05	74.00	-29.95	peak
6 p	9920.000	11.23	37.30	62.24	59.98	46.27	74.00	-27.73	peak

7 Test Setup Photo

Refer to Setup Photo for SZCR2408003370AT

8 EUT Constructional Details (EUT Photos)

Refer to External and Internal Photos for SZCR2408003370AT

- End of the Report -