

**Compliance Certification Services (Kunshan) Inc. Shenzhen Branch**

SZCCS-TRF-01 Rev. A/0 Aug01,2022

Report No.: FYCR221100046302

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**TEST REPORT****Application No.:**

FYCR2211000463AT

**Applicant:**

SHANTOU CHENGHAI YILITONG PLASTIC TOY FACTORY

**Address of Applicant:**

NO. 8, HUAIHEYUAN 1ST ROAD, HUADONG TOWNSHIP, LIANXIA TOWN, CHENGHAI DISTRICT SHANTOU 515834 CHINA

**Manufacturer:**

SHANTOU CHENGHAI YILITONG PLASTIC TOY FACTORY

**Address of Manufacturer:**

NO. 8, HUAIHEYUAN 1ST ROAD, HUADONG TOWNSHIP, LIANXIA TOWN, CHENGHAI DISTRICT SHANTOU 515834 CHINA

**Equipment Under Test (EUT):****EUT Name:** SOUND AND LIGHT TOYS SERIES**Model No.:**

383-90, 383-91, 383-92, 383-93, 383-94, 383-95, 383-96, 383-97, 383-98, 383-99, 383-100, 383-101, 383-102, 383-103, 383-104, 383-105, 383-106, 383-107, 383-108, 383-109, 383-110, 383-111, 383-112, 383-113, 383-114, 383-115, 383-116, 383-117, 383-118, 383-119, 383-120, 383-121, 383-122, 383-123, 383-124, 383-125, 383-126, 383-127, 383-128, 383-129, 383-130, 383-131, 383-132, 383-133, 383-134, 383-135, 383-136, 383-137, 383-138, 383-139, 383-140, 383-141, 383-142, 383-143, 383-144, 383-145, 383-146, 383-147, 383-148, 383-149, 383-150, 383-151, 383-152, 383-153, 383-154, 383-155, 383-156, 383-157, 383-158, 383-159, 383-160, 383-161, 383-162, 383-163, 383-164, 383-165, 383-166, 383-167, 383-168, 383-169

♦

Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.

**FCC ID:**

2AXGEYLT13417028996

**Standard(s) :**

47 CFR Part 15, Subpart C 15.227

**Date of Receipt:**

2022-11-16

**Date of Test:**

2022-11-21 to 2023-01-10

**Date of Issue:**

2023-01-13

<b>Test Result:</b>	<b>Pass*</b>
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\* In the configuration tested, the EUT complied with the standards specified above.

Winkey Wang  
EMC Technical Manager

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**Revision Record**

<b>Version</b>	<b>Chapter</b>	<b>Date</b>	<b>Modifier</b>	<b>Remark</b>
01		2023-01-13		Original

**Authorized for issue by:**

		 _____ <b>Tree Zhan/Project Engineer</b>		
		 _____ <b>Winkey Wang/Reviewer</b>		

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**2 Test Summary**

<b>Radio Spectrum Technical Requirement</b>				
<b>Item</b>	<b>Standard</b>	<b>Method</b>	<b>Requirement</b>	<b>Result</b>
Antenna Requirement	47 CFR Part 15, Subpart C 15.227	N/A	47 CFR Part 15, Subpart C 15.203	Pass

<b>Radio Spectrum Matter Part</b>				
<b>Item</b>	<b>Standard</b>	<b>Method</b>	<b>Requirement</b>	<b>Result</b>
20dB Bandwidth	47 CFR Part 15, Subpart C 15.227	ANSI C63.10 (2013) Section 6.9	47 CFR Part 15, Subpart C 15.227	Pass
Field Strength of the Fundamental Signal (15.227(a))		ANSI C63.10 (2013) Section 6.4	47 CFR Part 15, Subpart C 15.227(a)	Pass
Radiated Emissions		ANSI C63.10 (2013) Section 6.4&6.5	47 CFR Part 15, Subpart C 15.227(b) & C 15.209	Pass

**Declaration of EUT Family Grouping:**

Model No.: 383-90, 383-91, 383-92, 383-93, 383-94, 383-95, 383-96, 383-97, 383-98, 383-99, 383-100, 383-101, 383-102, 383-103, 383-104, 383-105, 383-106, 383-107, 383-108, 383-109, 383-110, 383-111, 383-112, 383-113, 383-114, 383-115, 383-116, 383-117, 383-118, 383-119, 383-120, 383-121, 383-122, 383-123, 383-124, 383-125, 383-126, 383-127, 383-128, 383-129, 383-130, 383-131, 383-132, 383-133, 383-134, 383-135, 383-136, 383-137, 383-138, 383-139, 383-140, 383-141, 383-142, 383-143, 383-144, 383-145, 383-146, 383-147, 383-148, 383-149, 383-150, 383-151, 383-152, 383-153, 383-154, 383-155, 383-156, 383-157, 383-158, 383-159, 383-160, 383-161, 383-162, 383-163, 383-164, 383-165, 383-166, 383-167, 383-168, 383-169

Only the model 383-90 was tested, since according to the declaration from the applicant, the electrical circuit design, PCB layout, components used, internal wiring and functions were identical for all the above models, with only difference on model No. and color, appearance and packaging.

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**4 General Information****4.1 Details of E.U.T.**

Power supply:	3V DC(1.5V x 2 "AA" Size Batteries) for TX
Operation Frequency	27.145MHz
Modulation Type:	ASK
Antenna Type:	Integral
Antenna Gain:	0dBi

Remark: The information in this section is provided by the applicant or manufacturer, CCS 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
20dB Bandwidth	± 0.3%
Field Strength of the Fundamental Signal (15.227(a))	± 3.1dB (Below 1GHz)
Radiated Spurious Emissions	± 3.1dB (Below 1GHz)
	± 4.4dB (Above 1GHz)

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.

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### 4.4 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc. Shenzhen branch.

Fuyong lab. Xinlong TechnoPark, Fengtang Road, Fuyong Subdistrict, Bao'an, Shenzhen, China

Tel: +86 755 8866 3988 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. 6606.01)**

Compliance Certification Services (Kunshan) Inc. Shenzhen branch is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 6606.01.

- **FCC –Designation Number: CN1322**

Compliance Certification Services (Kunshan) Inc. Shenzhen branch has been recognized as an accredited testing laboratory.

Designation Number: CN1322. Test Firm Registration Number: 718073

- **Innovation, Science and Economic Development Canada**

Compliance Certification Services (Kunshan) Inc. Shenzhen branch has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0129.

IC#: 28189.

### 4.6 Deviation from Standards

None

### 4.7 Abnormalities from Standard Conditions

None

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**5 Equipment List**

<b>20dB Bandwidth</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No.</b>	<b>Inventory No.</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-25	2022/5/30	2023/5/29
Coaxial Cable	CCS	N/A	SEM037-01	2022/5/16	2023/5/15
Measurement Software	TST PASS	TST PASS V2.0	N/A	N/A	N/A

<b>Field Strength of the Fundamental Signal (15.227(a))</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No.</b>	<b>Inventory No.</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
3m Anechoic Chamber	CRT	N/A	SEM001-13	2021/7/13	2024/7/12
Trilog-Broadband Antenna	Schwarzbeck	VULB9168	SEM003-33	2021/9/25	2024/9/24
Loop Antenna	ETS-LINDGREN	6502	SEM003-36	2021/9/26	2024/9/25
MXE EMI receiver	Agilent	N9038A	SEM004-05	2022/7/12	2023/7/11
Pre-amplifier	HP	8447D	SEM005-02	2022/7/12	2023/7/11
Coaxial Cable	CCS	N/A	SEM035-01	2022/5/16	2023/5/15
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A

<b>Radiated Emissions</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No.</b>	<b>Inventory No.</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
3m Anechoic Chamber	CRT	N/A	SEM001-13	2021/7/13	2024/7/12
Trilog-Broadband Antenna	Schwarzbeck	VULB9168	SEM003-33	2021/9/25	2024/9/24
Loop Antenna	ETS-LINDGREN	6502	SEM003-36	2021/9/26	2024/9/25
MXE EMI receiver	Agilent	N9038A	SEM004-05	2022/7/12	2023/7/11
Pre-amplifier	HP	8447D	SEM005-02	2022/7/12	2023/7/11
Coaxial Cable	CCS	N/A	SEM035-01	2022/5/16	2023/5/15
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A

<b>General used equipment</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No.</b>	<b>Inventory No.</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
Humidity/ Temperature Indicator	Mingle	TH607	SEM002-22	2022/7/12	2023/7/11
Humidity/ Temperature Indicator	Mingle	TH607	SEM002-23	2022/7/12	2023/7/11
Barometer	DUMAI	DYM3	SEM002-24	2022/7/12	2023/7/11

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## 6 Radio Spectrum Technical Requirement

### 6.1 Antenna Requirement

#### 6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

#### 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 integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 0dBi.

Antenna location: Refer to external photo.



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## 7 Radio Spectrum Matter Test Results

### 7.1 20dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.227

Test Method: ANSI C63.10 (2013) Section 6.9

#### 7.1.1 E.U.T. Operation

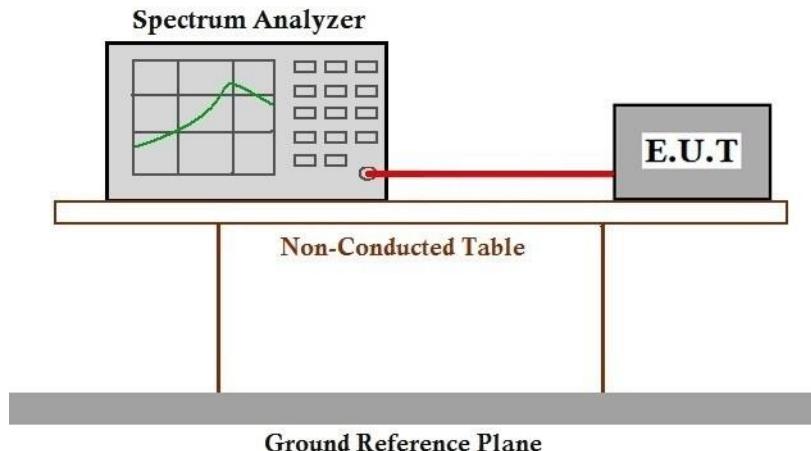
Operating Environment:

Temperature: 26.1 °C      Humidity: 50.4 % RH      Atmospheric Pressure: 1020 mbar

#### 7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in transmitting with modulation mode

#### 7.1.3 Test Setup Diagram



#### 7.1.4 Measurement Procedure and Data



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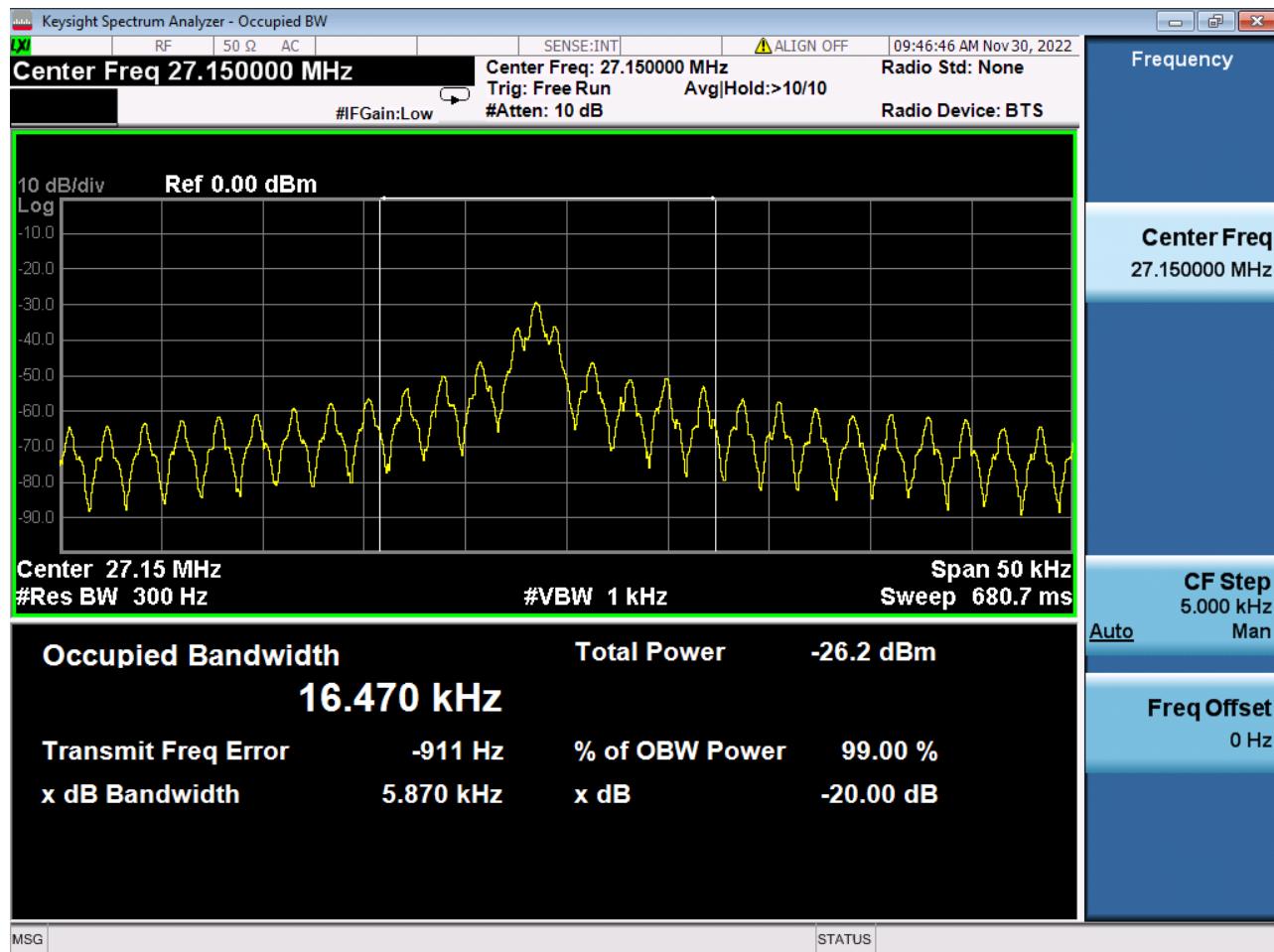
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**7.2 Field Strength of the Fundamental Signal (15.227(a))**

Test Requirement 47 CFR Part 15, Subpart C 15.227(a)

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

Measurement Distance: 3m

Limit:

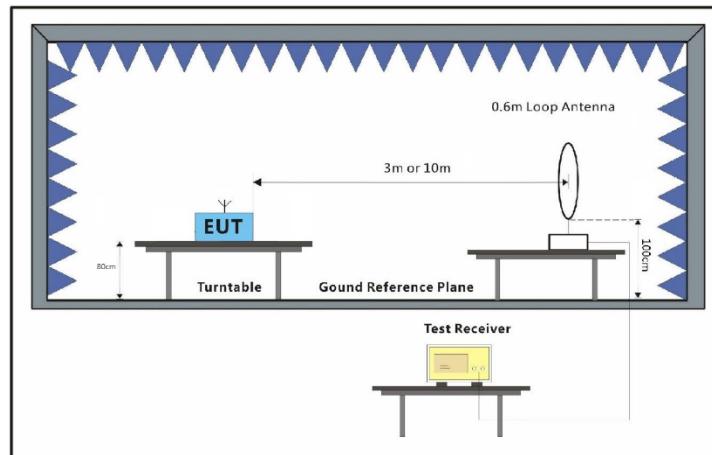
Limit:  $\leq 10000$  microvolts/meter at 3 meters, the emission limit is based on measurement instrumentation employing an average Detector. The provisions in § 15.35 for limiting peak emissions apply.**7.2.1 E.U.T. Operation**

Operating Environment:

Temperature: 22.3 °C      Humidity: 52.9 % RH      Atmospheric Pressure: 1020 mbar

**7.2.2 Test Mode Description**

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in transmitting with modulation mode

**7.2.3 Test Setup Diagram**

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**7.2.4 Measurement Procedure and Data**

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground for below 1Ghz at a 3 meter semi-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, quasi-peak or average method as specified and then reported in a data sheet.
- g. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.

Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

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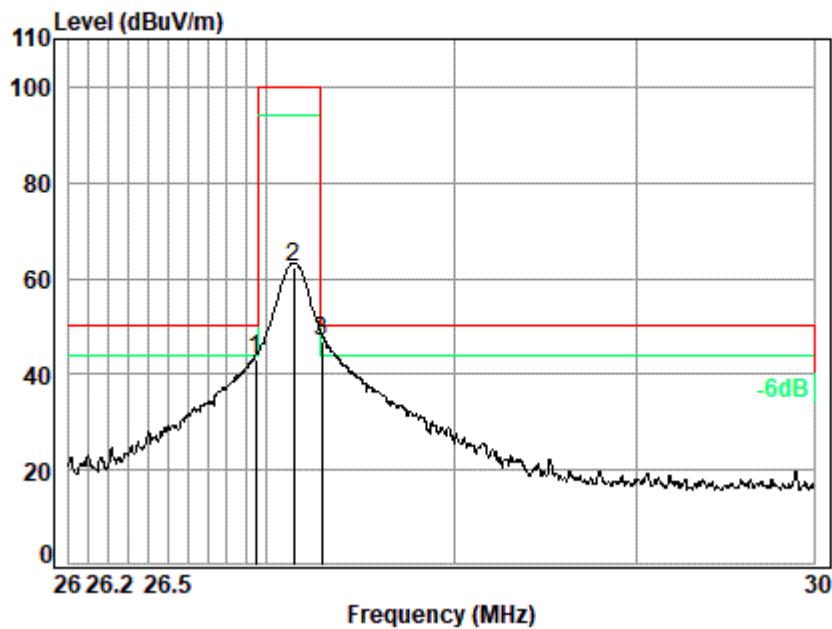
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Test Mode: 00; Polarity: Horizontal



Site : chamber  
Condition: 3m HORIZONTAL  
Job No : 00463AT  
Mode : 00

Freq	Cable	Ant	Preamp	Read	Limit	Over	Over	Remark
	Freq	Loss	Factor	Level				
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	26.951	0.24	16.57	26.04	52.51	43.28	50.00	-6.72 Peak
2	27.148	0.23	16.55	26.04	71.60	62.34	100.00	-37.66 Peak
3	27.292	0.23	16.54	26.04	55.92	46.65	50.00	-3.35 Peak

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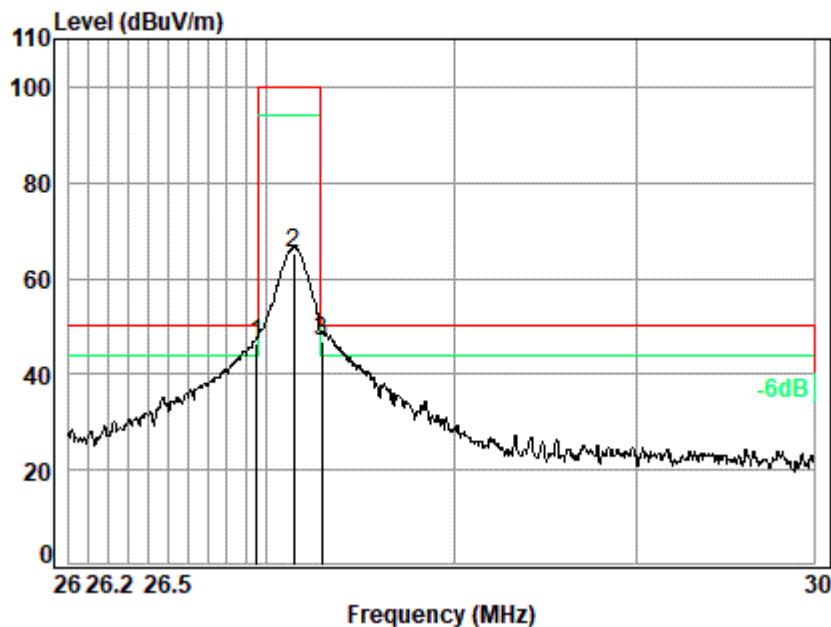
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Test Mode: 00; Polarity: Vertical



Site : chamber  
Condition: 3m VERTICAL  
Job No : 00463AT  
Mode : 00

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark	
	Loss	Factor	Factor	Level				
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	26.955	0.24	16.57	26.04	55.85	46.62	50.00	-3.38 Peak
2	27.148	0.23	16.55	26.04	74.65	65.39	100.00	-34.61 Peak
3	27.292	0.23	16.54	26.04	56.05	46.78	50.00	-3.22 Peak

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**7.3 Radiated Emissions**

Test Requirement 47 CFR Part 15, Subpart C 15.227(b) &amp; C 15.209

Test Method: ANSI C63.10 (2013) Section 6.4&amp;6.5

Measurement Distance: 3m

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

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 and 110-490kHz. Radiated emission limits in these two bands are based on measurements employing an average detector.

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
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 above 1000MHz. Radiated emission limits above 1000MHz is based on measurements employing an average detector.

**7.3.1 E.U.T. Operation**

Operating Environment:

Temperature: 23.2 °C      Humidity: 52.9 % RH      Atmospheric Pressure: 1020 mbar

**7.3.2 Test Mode Description**

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in transmitting with modulation mode



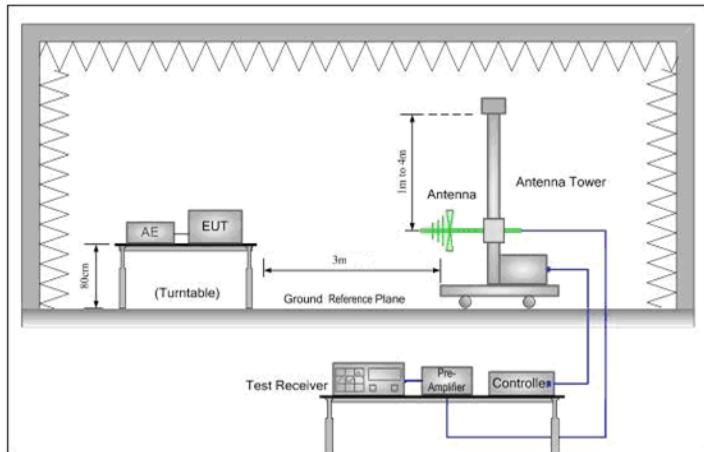
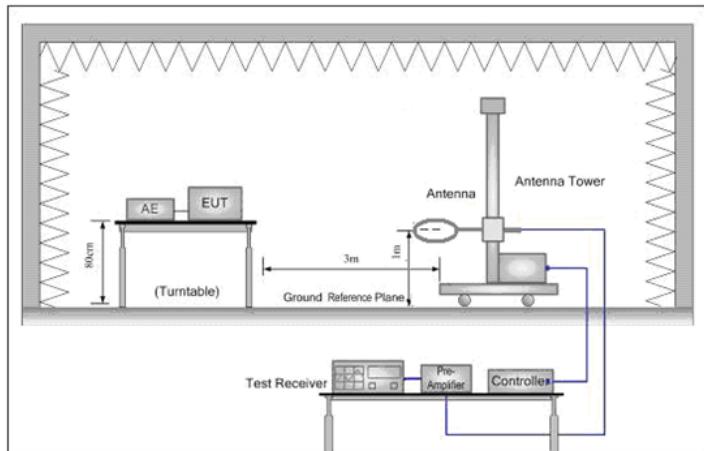
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### 7.3.3 Test Setup Diagram



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**7.3.4 Measurement Procedure and Data**

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground for below 1GHz at a 3 meter semi-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, quasi-peak or average method as specified and then reported in a data sheet.
- g. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.

Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor



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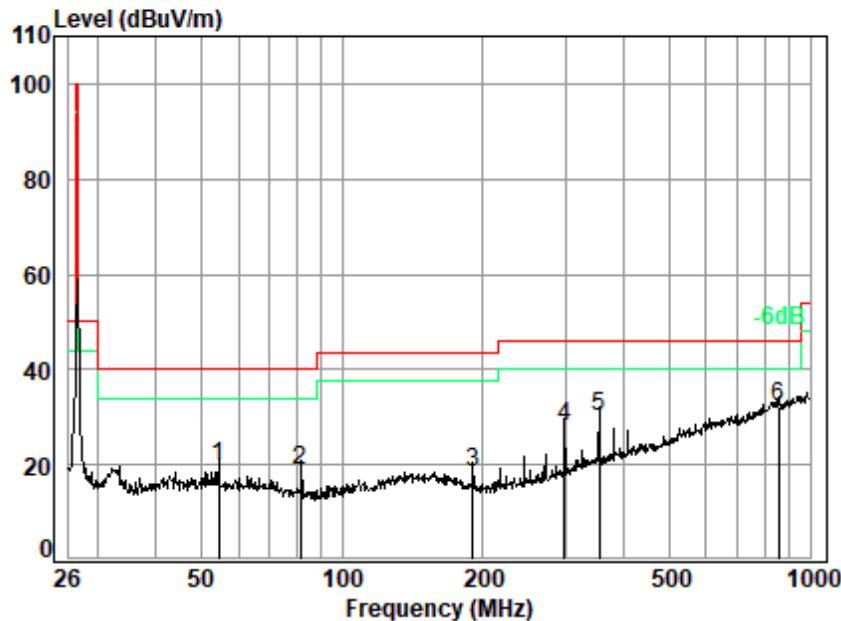
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Test Mode: 00; Polarity: Horizontal



Site : chamber

Condition: 3m HORIZONTAL

Job No : 00463AT

Mode : 00

Freq	Cable	Ant	Preamp	Read	Limit	Over	Limit	Remark
	Loss	Factor	Factor	Level				
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	54.344	0.24	17.26	25.96	27.93	19.47	40.00	-20.53 QP
2	81.487	0.51	14.29	25.78	29.79	18.81	40.00	-21.19 QP
3	190.026	0.68	15.51	25.48	27.65	18.36	43.50	-25.14 QP
4	298.783	1.01	18.27	25.40	33.94	27.82	46.00	-18.18 QP
5	353.401	1.53	19.74	25.43	34.34	30.18	46.00	-15.82 QP
6	854.759	2.94	27.64	24.14	25.97	32.41	46.00	-13.59 QP

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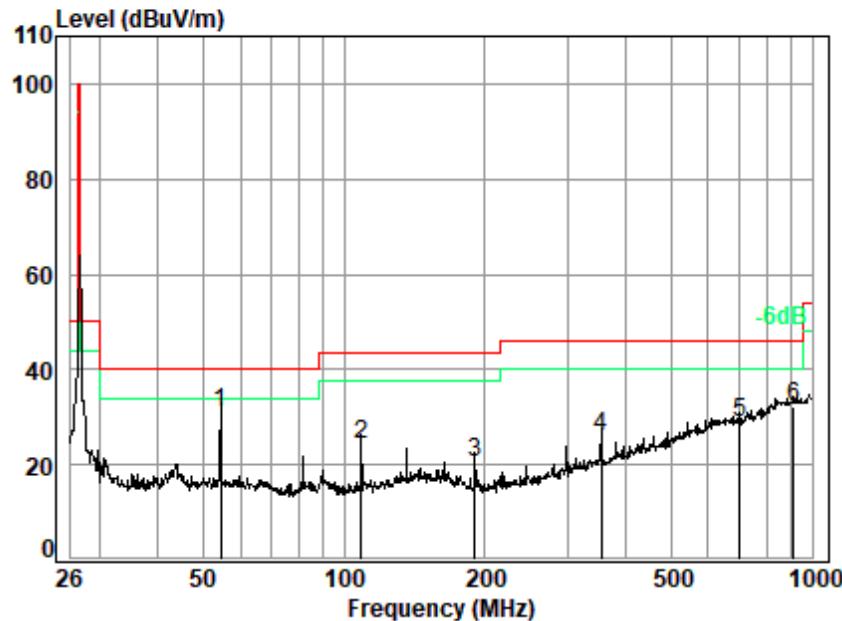
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Test Mode: 00; Polarity: Vertical



Site : chamber

Condition: 3m VERTICAL

Job No : 00463AT

Mode : 00

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark	
	MHz	Loss	Factor	Factor	Level	Level	Line	Limit
	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	54.344	0.24	17.26	25.96	39.56	31.10	40.00	-8.90 QP
2	108.719	0.93	15.22	25.58	33.64	24.21	43.50	-19.29 QP
3	190.026	0.68	15.51	25.48	29.91	20.62	43.50	-22.88 QP
4	353.401	1.53	19.74	25.43	29.92	25.76	46.00	-20.24 QP
5	699.306	1.73	25.62	24.57	25.97	28.75	46.00	-17.25 QP
6	912.797	2.31	28.92	24.08	24.98	32.13	46.00	-13.87 QP

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**8 Test Setup Photo**

Refer to Appendix - Test Setup Photo for FYCR2211000463AT

**9 EUT Constructional Details (EUT Photos)**

Refer to External and Internal Photos for FYCR2211000463AT

- End of the Report -



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