FCC Test Report

Report No: FCS202008004W01

Issued for

Applicant:	XIONGLIDA TOYS FACTORY
Address:	NANHUI INDUSTRIAL AREA, CHENGHAI DISTRICT,SHANTOU CITY,GUANGDONG PROVINCE, CHINA
Product Name:	TOY CARS SERIES
Brand Name:	N/A
Model Name:	11811B
Series Model:	11811,11811A,11811C,11811D,11811E,11811F, 11811-1,333,1910ABC,1911ABC,1880ABCD,17705, 1850, 1850ABCDEH
FCC ID:	2AW7L11811B
Issued By: Flux Compliance Service Laboratory Add: Room 105 Floor Bao hao Technology Building 1 NO.15 Gong ye West Road Hi-Tech Industrial, Song shan lake Dongguan Tel: 769-27280901 Fax:769-27280901 http://www.FCS-lab.com	

TEST RESULT CERTIFICATION

Applicant's Name ..... :	XIONGLIDA TOYS FACTORY
Address ..... :	NANHUI INDUSTRIAL AREA, CHENGHAI DISTRICT,SHANTOU CITY,GUANGDONG PROVINCE, CHINA
Manufacture's Name ..... :	XIONGLIDA TOYS FACTORY
Address ..... :	NANHUI INDUSTRIAL AREA, CHENGHAI DISTRICT,SHANTOU CITY,GUANGDONG PROVINCE, CHINA

Product Description

Product Name ..... :	TOY CARS SERIES
Model Name ..... :	11811B
Series Model ..... :	1811,11811A,11811C,11811D,11811E,11811F, 11811-1,333,1910ABC,1911ABC,1880ABCD,17705, 1850, 1850ABCDEH
Test Standards ..... :	FCC Rules and Regulations Part 15 Subpart C, Section 227
Test Procedure ..... :	ANSI C63.10:2013

This device described above has been tested FCS, the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.
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Date of Test.....:

Date (s) of performance of tests .:	12 August. 2020 ~ 24 August. 2020
Date of Issue .....:	24 August. 2020
Test Result .....:	Pass

Tested by : Scott Shen

(Scott Shen)

Reviewed by : Duke Qian

(Duke Qian)

Approved by :

(Kait Chen)

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Revision History

Rev.	Issue Date	Effect Page	Contents
00	24 August. 2020	All	Initial Issue

1. SUMMARY OF TEST RESULTS

FCC Part 15 Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	N/A	--
15.227&15.209&15.205	Radiated Emission	PASS	--
15.215	20dB Bandwidth	PASS	
15.203	Antenna Requirement	PASS	--

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

(2) All tests are according to ANSI C63.10-2013

1.1 TEST FACTORY

Company Name:	Flux Compliance Service Laboratory
Address:	Room 105 Floor Bao hao Technology Building 1 NO.15 Gong ye West Road Hi-Tech Industrial, Song shan lake Dongguan
Telephone:	+86-769-27280901
Fax:	+86-769-27280901
FCC Test Firm Registration Number: 514908 Designation number: CN0127 A2LA accreditation number：5545.01	

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ±**U**, where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**, providing a level of confidence of approximately **95** %.

No.	Item	Uncertainty
1	RF output power, conducted	±0.71dB
2	Unwanted Emissions, conducted	±2.98 dB
3	Conducted Emission (9KHz-150KHz)	±4.13 dB
4	Conducted Emission (150KHz-30MHz)	±4.74 dB
5	All emissions,radiated(<1G) 30MHz-1000MHz	±3.2 dB
6	All emissions,radiated (1GHz -18GHz)	±3.66 dB
7	All emissions,radiated (18GHz -40GHz)	±4.31 dB

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF THE EUT

Product Name	TOY CARS SERIES
Trade Name	11811B
Model Name	11811B
Series Model	1811,11811A,11811C,11811D,11811E,11811F, 11811-1,333,1910ABC,1911ABC,1880ABCD,17705, 1850, 1850ABCDEH
Model Difference	The electrical circuit design, layout, components used and internal wiring for above models are identical, only different in model name and appearance
Frequency	27.145MHZ
Modulation	FSK
Antenna type	Integral antenna
Power Supply	DC 3V(DC 1.5V*2 AA)
Hardware version number	V1.1
Software version number	V1.1
Connecting I/O Port(s)	Please refer to the User's Manual

Note:

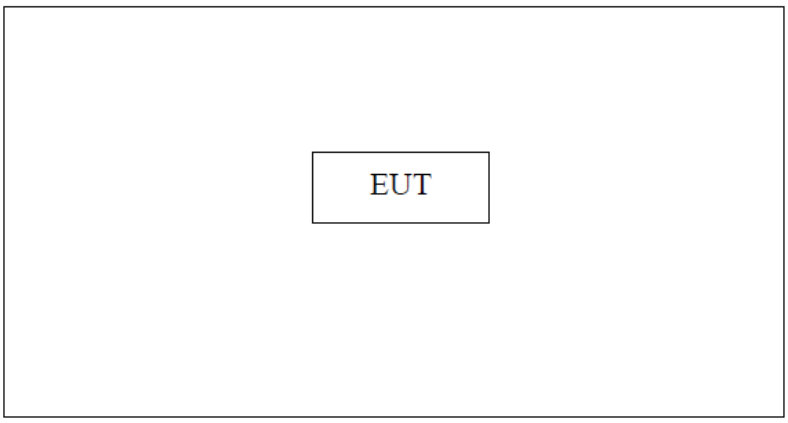
1. For a more detailed features description, please refer to the manufacturer’s specifications or the User's Manual.
2. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
1	N/A	YCC	Integral antenna	N/A	1.00dBi	Antenna

2.2 DESCRIPTION OF THE TEST MODES

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

Configuration and peripherals



Test environment conditions
During the measurement the environmental conditions were within the listed ranges:
Temperature range: 21-25℃
Humidity range: 40-75%
Pressure range: 86-106kPa

2.3 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS

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

Necessary accessories

Item	Equipment	Mfr/Brand	Model/Type No.	Serial No.	Note

Support units

Item	Equipment	Mfr/Brand	Model/Type No.	Serial No.	Note

Note:

(1) The support equipment was authorized by Declaration of Confirmation.

(2) For detachable type I/O cable should be specified the length in cm in『Length』column.

(3) “YES” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.

2.4 EQUIPMENTS LIST

Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Company No.	Last calibration	Calibrated until
EMI Test Receiver	R&S	ESRP 3	FCS-E001	2019.10.31	2020.10.30
Signal Analyzer	R&S	FSV40-N	FCS-E012	2019.10.11	2020.10.10
Active loop Antenna	ZHINAN	ZN30900C	FCS-E013	2019.10.11	2020.10.10
Bilog Antenna	SCHWARZBECK	VULB 9168	FCS-E002	2019.10.26	2020.10.25
Horn Antenna	SCHWARZBECK	BBHA 9120D	FCS-E003	2019.10.31	2020.10.30
SHF-EHF Horn Antenna (18G-40GHz)	A-INFO	LB-180400-KF	FCS-E018	2019.10.31	2020.10.30
Pre-Amplifier(0.1M-3GHz)	EMCI	EM330N	FCS-E004	2019.10.31	2020.10.30
Pre-Amplifier (1G-18GHz)	N/A	TSAMP-0518SE	FCS-E014	2019.10.03	2020.10.02
Pre-Amplifier (18G-40GHz)	TERA-MW	TRLA-0400	FCS-E019	2019.10.08	2020.10.07
Temperature & Humidity	HTC-1	victor	FCS-E005	2019.10.31	2020.10.30

Conduction Test equipment

Kind of Equipment	Manufacturer	Type No.	Company No.	Last calibration	Calibrated until
EMI Test Receiver	R&S	ESPI	FCS-E020	2019.10.11	2020.10.10
LISN	R&S	ENV216	FCS-E007	2019.10.15	2020.10.14
LISN	ETS	3810/2NM	FCS-E009	2019.10.15	2020.10.14
Temperature & Humidity	HTC-1	victor	FCS-E008	2019.10.31	2020.10.30

RF Connected Test

Kind of Equipment	Manufacturer	Type No.	Company No.	Last calibration	Calibrated until
Spectrum Analyzer	Keysight	N9020A	FCS-E015	2019.10.02	2020.10.01
Spectrum Analyzer	Agilent	E4447A	MY50180039	2019.11.08	2020.11.07
Spectrum Analyzer	R&S	FSV-40	101499	2019.10.10	2020.10.09

3 CONDUCTED EMISSION MEASUREMENT

3.1 LIMIT

Operating frequency band. In case the emission fall within the restricted band specified on Part 207(a) limit in the table below has to be followed.

FREQUENCY (MHz)	Conducted Emissionlimit (dBuV)	
	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

Note:

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

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

3.2 TEST PROCEDURE

The following table is the setting of the receiver

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

a. The EUT was 0.8 meters from the horizontal ground plane and 0.4 meters from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

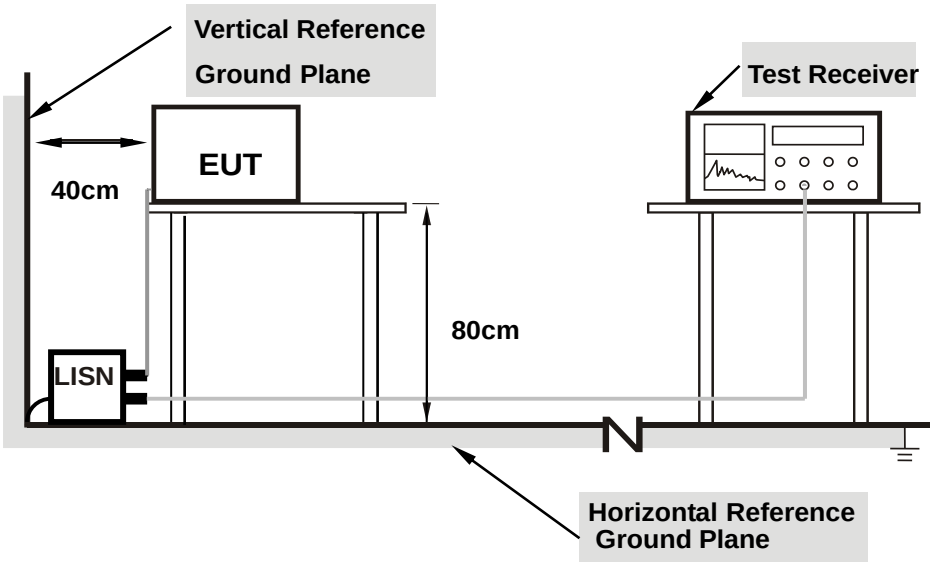
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

d. LISN at least 80 cm from nearest part of EUT chassis.

e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.3 TEST SETUP



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.4 TEST RESULTS

Temperature:	25℃	Relative Humidity:	50%
Test Mode:	FSK	Test Voltage:	DC 3V
Result:	NA		

4. RADIATED EMISSION MEASUREMENT

4.1 LIMIT

In any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the Restricted band specified on Part15.227&209&205 limit in the table and according to ANSI C63.10-2013 below has to be followed

LIMITS OF RADIATED EMISSION MEASUREMENT (0.009mhz - 1000mhz)

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (1GHz-25 GHz)

FREQUENCY (MHz)	(dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	80

LIMITS OF FIELD STRENGTH OF THE FUNDAMENTAL SIGNAL

FREQUENCY (MHz)	(dBuV/m) (at 3M)	
	PEAK	AVERAGE
27.145	100	80

Note: (1) The emission limits shown in the above table are based on measurements employing a CISPR QP detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000MHz.Radiated emissions limits in these three bands are based on measurements employing an average detector

(2) At frequencies below 30MHz, measurement may be performed at a distance closer then that specified, and the limit at closer measurement distance can be extrapolated by below formula:
Limit3m(dBuV/m)= Limit300m(dBuV/m) + 40Log(300m/3m) = Limit300m(dBuV/m) + 80
Limit3m(dBuV/m)= Limit30m(dBuV/m) + 40Log(30m/3m) = Limit30m(dBuV/m) + 40

(3) Limit for this EUT
All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions include fundamental emission shall not exceed FCC 15.231 section (b) limit of comply with FCC 15.209 limit which permit higher emission level.

[Where F is the frequency in MHz, the formulas for calculating the maximum permitted fundamental field strengths are as follows: for the band 130-174 MHz, uV/m at 3 meters = 56.81818(F) - 6136.3636; for the band 260-470 MHz, uV/m at 3 meters = 41.6667(F) - 7083.3333. The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level.]

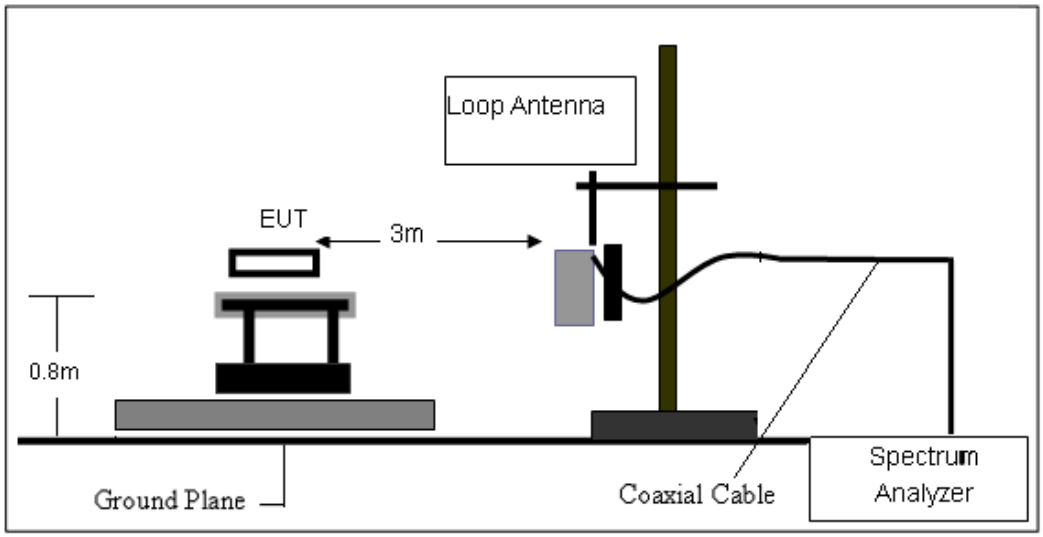
4.2 TEST PROCEDURE

a. The measuring distance of at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz,and above 1GHz.
b. The EUT was placed on the top of a rotating table 0.8 meters (above 1GHz is 1.5 m) above the ground at a 3 meter anechoic chamber test site. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment shall be 0.8 m(above 1GHz is 1.5 m); the height of the test antenna shall vary between 1 m to 4 m. horizontal and vertical polarizations of the antenna are set to make the measurement.
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then QuasiPeak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

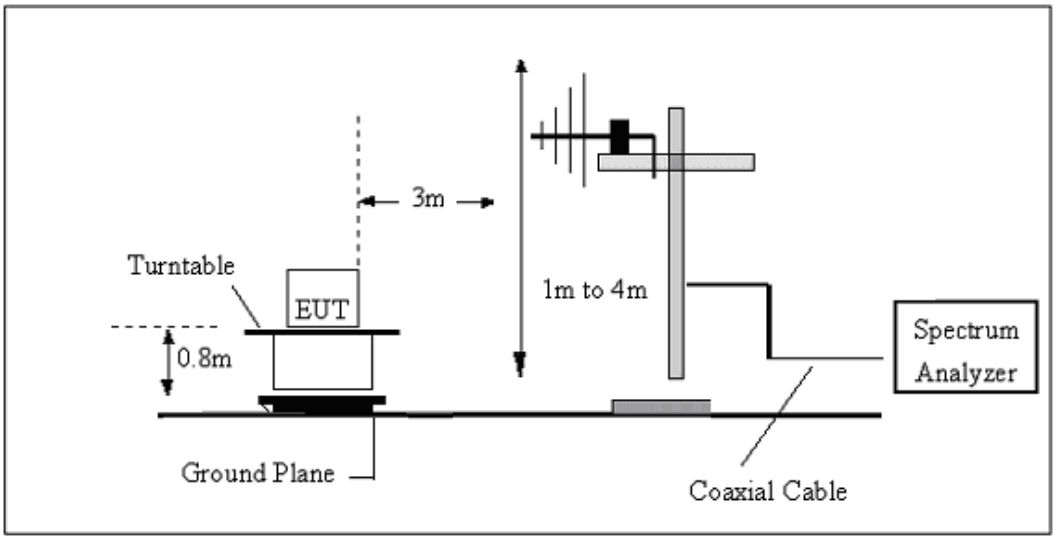
Note:
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

4.3 TEST SETUP

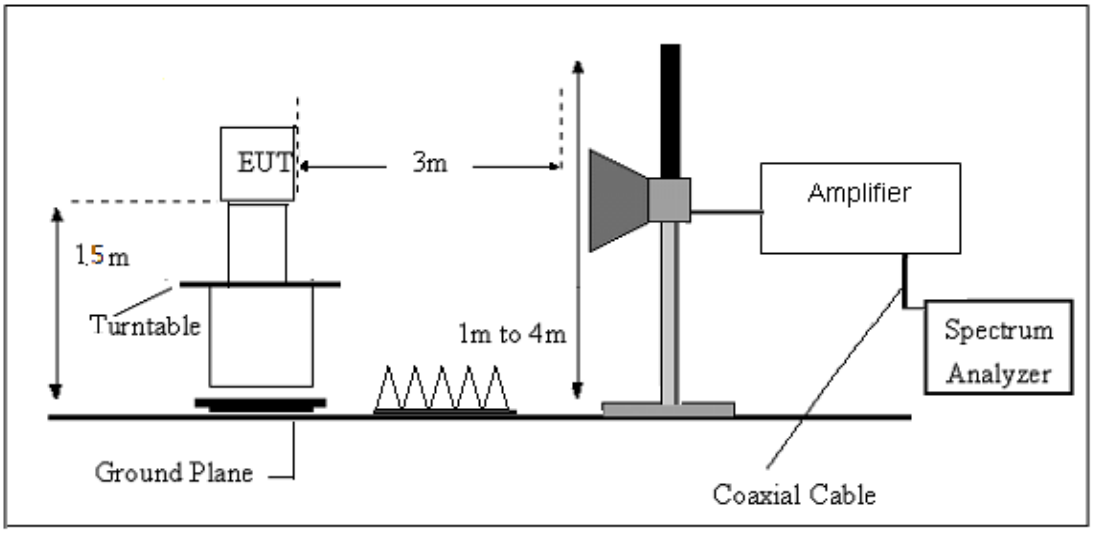
（A）Radiated Emission Test-Up Frequency Below 30MHz



（B）Radiated Emission Test-Up Frequency 30MHz~1GHz



（C）Radiated Emission Test-Up Frequency Above 1GHz

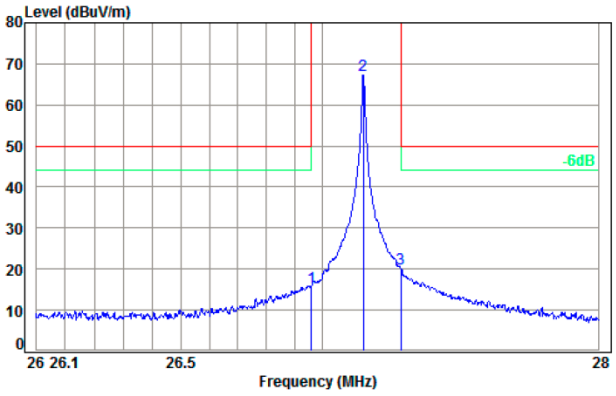


4.4 TEST RESULTS

Temperature:	25℃	Relative Humidity:	60%
Test Mode:	FSK	Test Voltage:	DC 3V

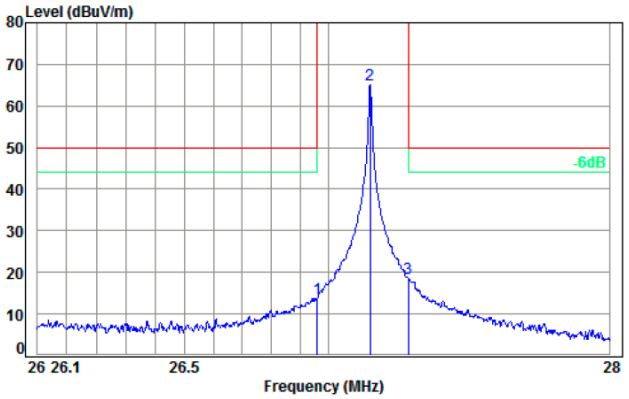
For field strength of the fundamental signal

H



	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	26.96	0.60	23.31	27.67	19.39	15.63	50.00	-34.37
2	27.15	0.60	23.22	27.67	71.12	67.27	100.00	-32.73
3	27.28	0.60	23.15	27.67	23.89	19.97	100.00	-80.03

V



	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	26.96	0.60	23.31	27.67	17.54	13.78	50.00	-36.22
2	27.15	0.60	23.22	27.67	68.89	65.04	100.00	-34.96
3	27.28	0.60	23.15	27.67	22.53	18.61	100.00	-81.39

Note: peak emission were reported

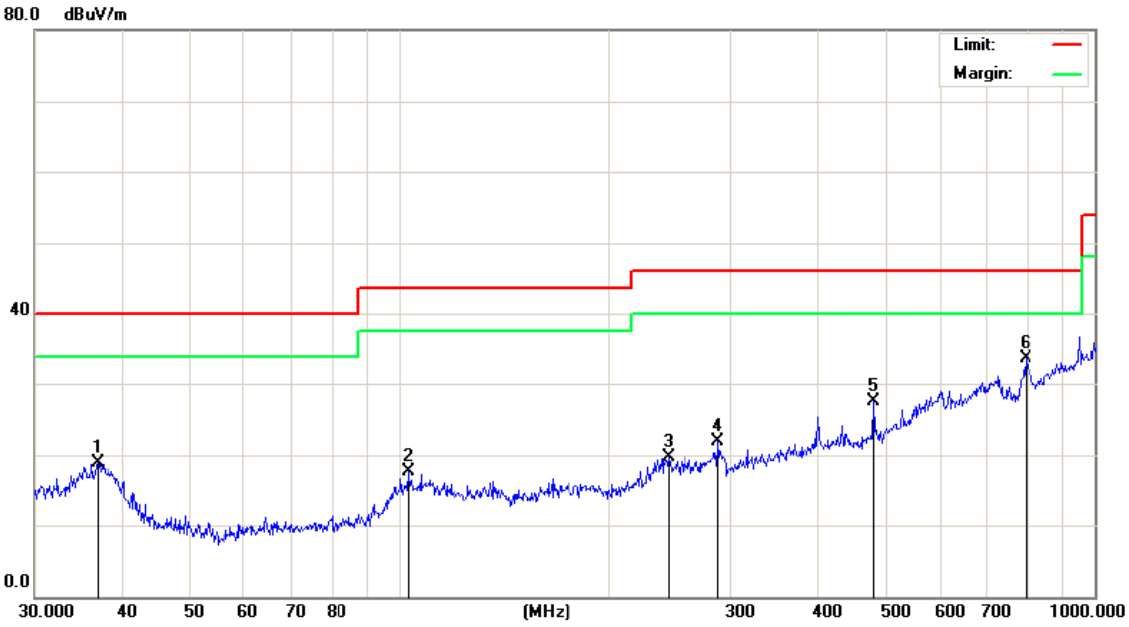
For spurious emission

(9KHz-30MHz)
Test mode： TX(Scan with X-AXIS, Y-AXIS, Z-AXIS, The worst case was recorded)

Antenna polarization: Vertical:						
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Remark
0.0187	36.55	28.15	64.70	121.99	-57.29	Peak
0.2606	39.14	25.16	64.30	99.25	-34.95	Peak
1.1229	45.24	12.36	57.60	66.60	-9.00	Peak
2.1055	55.23	4.17	59.40	69.50	-10.10	Peak
8.8856	49.62	-10.02	39.60	69.50	-29.90	Peak
17.7066	54.61	-15.31	39.30	69.50	-30.20	Peak
Antenna polarization: Horizontal:						
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Remark
0.0504	33.09	26.21	59.30	113.43	-54.13	Peak
0.2404	46.46	17.84	64.30	99.95	-35.65	Peak
0.8627	51.14	10.06	61.20	68.89	-7.69	Peak
2.7408	47.45	0.25	47.70	69.50	-21.80	Peak
9.0677	47.18	-5.98	41.20	69.50	-28.30	Peak
12.2912	47.52	-13.22	34.30	69.50	-35.20	Peak

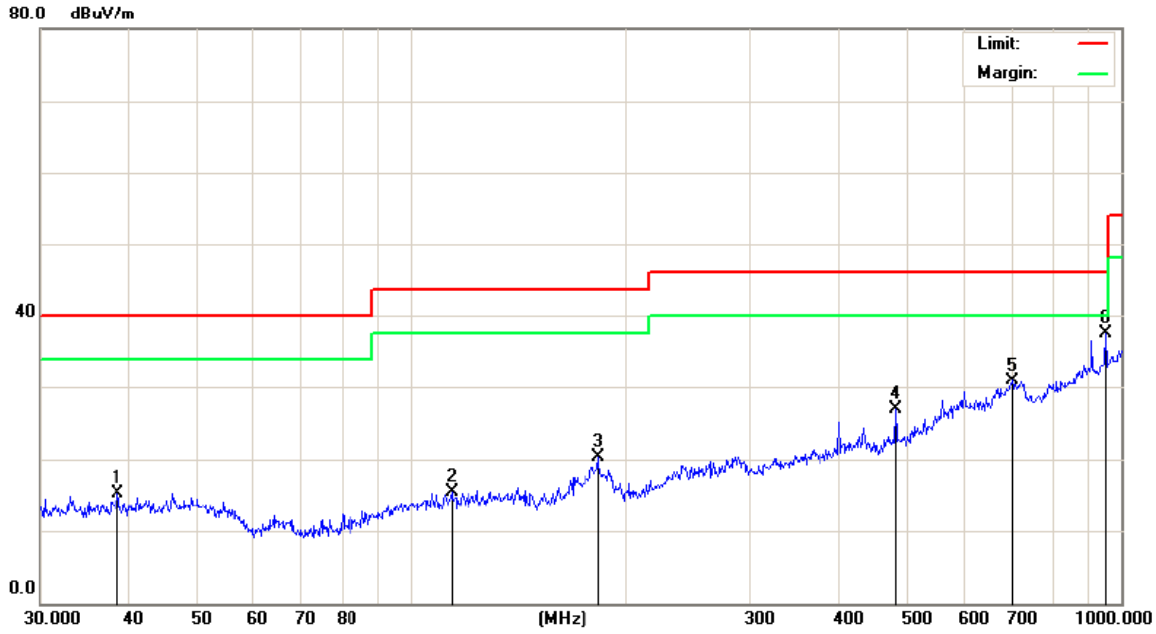
(30MHZ-1000MHZ)

Temperature:	23.7℃	Relative Humidity:	61%
Test Voltage:	DC 3V	Phase:	Horizontal
Test Mode:	FSK		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		36.8953	35.68	-16.72	18.96	40.00	-21.04	QP
2		103.0800	31.44	-13.72	17.72	43.50	-25.78	QP
3		244.2321	31.16	-11.54	19.62	46.00	-26.38	QP
4		287.9904	31.76	-9.85	21.91	46.00	-24.09	QP
5		480.5276	33.40	-5.90	27.50	46.00	-18.50	QP
6	*	796.1830	30.64	3.01	33.65	46.00	-12.35	QP

Temperature:	22.7℃	Relative Humidity:	61%
Test Voltage:	DC 3V	Phase:	Vertical
Test Mode:	FSK		



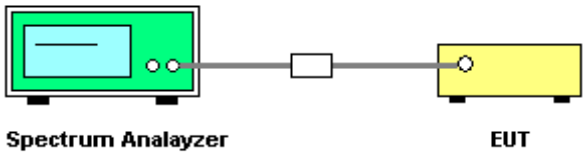
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		38.4809	29.77	-14.48	15.29	40.00	-24.71	QP
2		113.7143	30.66	-15.21	15.45	43.50	-28.05	QP
3		183.2005	30.71	-10.48	20.23	43.50	-23.27	QP
4		480.5276	32.74	-5.90	26.84	46.00	-19.16	QP
5		701.7610	30.61	0.32	30.93	46.00	-15.07	QP
6	*	952.0937	33.74	3.77	37.51	46.00	-8.49	QP

5. 20 DB BANDWIDTH TEST

5.1 TEST PROCEDURE

1. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the EMI receiver or spectrum analyzer shall be between two times and five times the OBW.
2. The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW, unless otherwise specified by the applicable requirement.
3. Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level.
4. Steps 1 through 3 might require iteration to adjust within the specified tolerances

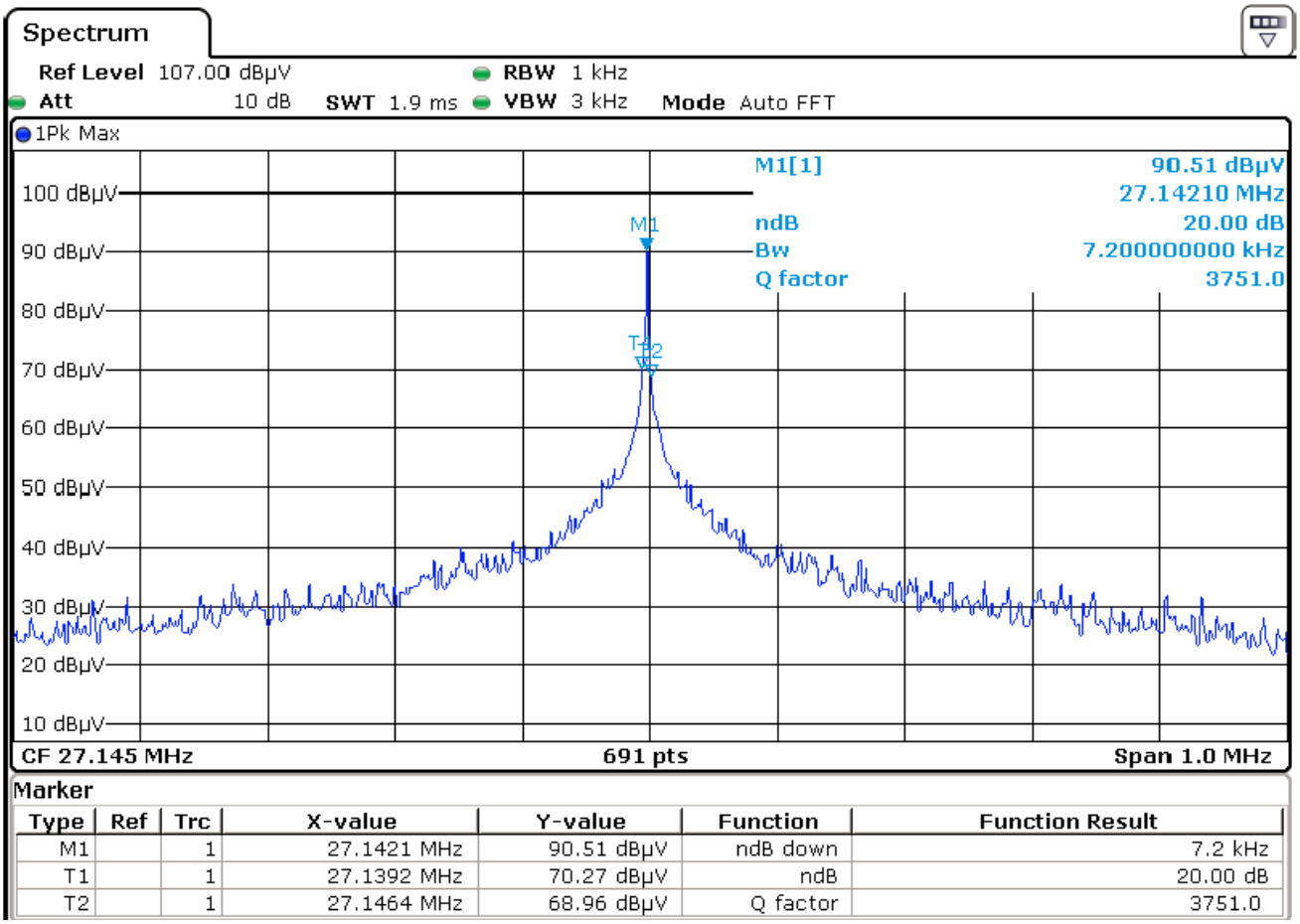
5.2 TEST SETUP



5.3 TEST RESULTS

Temperature:	25℃	Relative Humidity:	50%
Test Mode:	FSK	Test Voltage:	DC 3 V

Frequency	20dB Bandwidth (KHz)	Result
27.145 MHz	7.2KHZ	PASS



6 ANTENNA REQUIREMENT

6.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: 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.

6.2 EUT ANTENNA

The antennas used for this product are Integral antenna and other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is 1dBi.

※※※※※END OF THE REPORT※※※※※