

# Johnson Health Tech. Co., Ltd.

## RF TEST REPORT

**Report Type:**

FCC Part 15C RF report

**Model:**

TOUCH-02-C,  
TOUCH XL-02-C,  
Virtual training-02-C

**REPORT NUMBER:**

221100599SHA-002

**ISSUE DATE:**

August 24, 2023

**DOCUMENT CONTROL NUMBER:**

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**Applicant** : Johnson Health Tech. Co., Ltd.  
No. 999, Sec. 2, Dongda Rd., Daya Dist., Taichung City 428, China.

**Manufacturer** : Same as applicant

**Factory 1** : Same as applicant

**Factory 2** : Johnson Industries (Shanghai) CO., LTD.  
2217 hechen highway, JIADING DISTRICT, Shanghai, China

**FCC ID** : TN7TOUCH-02

### SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:

**47CFR Part 15 (2021):** Radio Frequency Devices (Subpart C)

**ANSI C63.10 (2020):** American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

**PREPARED BY:**

**REVIEWED BY:**



Project Engineer

Eric Li

Reviewer

Wakeyou Wang

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**TEST REPORT**

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**Revision History**

<b>Report No.</b>	<b>Version</b>	<b>Description</b>	<b>Issued Date</b>
221100599SHA-002	Rev. 01	Initial issue of report	August 24, 2023

**TEST REPORT****Measurement result summary**

TEST ITEM	FCC REFERANCE	RESULT
Radiated emissions	15.209	Pass
Conducted emissions	15.207	Pass

Notes: 1: NA =Not Applicable

2: Determination of the test conclusion is based on IEC Guide 115 in consideration of measurement uncertainty.

**TEST REPORT**

**1 GENERAL INFORMATION**

**1.1 Description of Equipment Under Test (EUT)**

Product name:	Fitness Equipment TV Console
Type/Model:	TOUCH-02-C, TOUCH XL-02-C, Virtual training-02-C
Description of EUT:	The EUT is Fitness Equipment TV Console, there are three models, they are the same except model name, display size and rating current. We tested TOUCH XL-02-C as representative and listed the worst results in this report.
Rating:	12Vdc, 2A for TOUCH-02-C 12Vdc, 3A for TOUCH XL-02-C, Virtual training-02-C.
Category of EUT:	Class B
EUT type:	<input checked="" type="checkbox"/> Table top <input type="checkbox"/> Floor standing
Software Version:	/
Hardware Version:	/
Sample received date:	July 14, 2023
Date of test:	July 14, 2023 to July 26, 2023

**1.2 Technical Specification**

Frequency Range:	111kHz – 205kHz
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**TEST REPORT**

**1.3 Description of Test Facility**

Name:	Intertek Testing Services Shanghai
Address:	Building 86, No. 1198 Qinzhou Road (North), Shanghai 200233, P.R. China
Telephone:	86 21 61278200
Telefax:	86 21 54262353

The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L0139
	FCC Accredited Lab Designation Number: CN0175
	IC Registration Lab CAB identifier.: CN0014
	VCCI Registration Lab Registration No.: R-14243, G-10845, C-14723, T-12252
	A2LA Accreditation Lab Certificate Number: 3309.02

**TEST REPORT**

**2 TEST SPECIFICATIONS**

**2.1 Standards or specification**

47CFR Part 15 (2021)  
ANSI C63.10 (2020)

**2.2 Mode of operation during the test**

Within this test report, EUT was tested under all available operation modes and tested under its rating voltage and frequency. Other voltage and frequency are specified if used.

**2.3 Test software list**

Test Items	Software	Manufacturer	Version
Conducted emission	ESxS-K1	R&S	V2.1.0
Radiated emission	ES-K1	R&S	V1.71

**2.4 Test peripherals list**

Item No.	Name	Brand and Model	Description
1	Wireless load	KjB/ZS3012	100% power level
2	Wireless load	KjB/ZS3012	50% power level
3	Wireless load	KjB/ZS3012	0% power level
4			

**2.5 Test environment condition:**

Test items	Temperature	Humidity
Radiated emission	25°C	54% RH
Power line conducted emission	26°C	54% RH



**TEST REPORT**

**2.6 Instrument list**

Conducted Emission/Disturbance Power/Tri-loop Test/CDN method					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
<input checked="" type="checkbox"/>	Test Receiver	R&S	ESR7	EC 6194	2024-2-08
<input type="checkbox"/>	Attenuator	Hua Xiang	Ts5-10db-6g	EC 6194-1	2023-12-07
<input checked="" type="checkbox"/>	A.M.N.	R&S	ESH2-Z5	EC 3119	2023-11-09
Radiated Emission					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
<input checked="" type="checkbox"/>	Test Receiver	R&S	ESIB 26	EC 3045	2023-07-18
<input checked="" type="checkbox"/>	TRILOG broadband Antenna	Schwarzbeck	VULB9168	EC6402	2024-02-14
<input checked="" type="checkbox"/>	Pre-amplifier	tonscend	tap01018050	EC 6432-1	2023-12-07
<input checked="" type="checkbox"/>	Horn antenna	tonscend	bha9120d	EC 6432-2	2024-02-15
<input checked="" type="checkbox"/>	Horn antenna	TOYO	HAP18-26W	EC 4792-3	2023-07-29
<input checked="" type="checkbox"/>	Active loop antenna	Schwarzbeck	FMZB1519	EC 5345	2024-06-15
RF test					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
<input checked="" type="checkbox"/>	PXA Signal Analyzer	Keysight	N9030A	EC 5338	2024-03-05
<input type="checkbox"/>	Vector Signal Generator	Agilent	N5182B	EC 5175	2024-03-05
<input type="checkbox"/>	Universal Radio Communication Tester	R&S	CMW500	EC5944	2024-03-05
<input type="checkbox"/>	MXG Analog Signal Generator	Agilent	N5181A	EC 5338-2	2024-03-05
<input type="checkbox"/>	Mobile Test System	Litepoint	lqxl	EC 5176	2024-01-11
<input type="checkbox"/>	Test Receiver	R&S	ESCI 7	EC 4501	2024-03-05
<input checked="" type="checkbox"/>	Climate chamber	GWS	MT3065	EC 6021	2024-03-06
<input type="checkbox"/>	Universal Radio Communication Tester	R&S	CMW500	Ec6209	2023-08-09
Tet Site					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
<input checked="" type="checkbox"/>	Shielded room	Zhongyu	-	EC 2838	2024-01-11
<input type="checkbox"/>	Shielded room	Zhongyu	-	EC 2839	2024-01-11
<input checked="" type="checkbox"/>	Semi-anechoic chamber	Albatross project	-	EC 3048	2024-07-08
Additional instrument					

**TEST REPORT**

Used	Equipment	Manufacturer	Type	Internal no.	Due date
<input checked="" type="checkbox"/>	Thermo-Hygrograph	ZJ1-2A	S.M.I.F.	EC 3783	2024-03-24
<input type="checkbox"/>	Thermo-Hygrograph	ZJ1-2A	S.M.I.F.	EC 5198	2024-03-08
<input checked="" type="checkbox"/>	Thermo-Hygrograph	ZJ1-2A	S.M.I.F.	EC 5199	2024-03-13
<input type="checkbox"/>	Thermo-Hygrograph	ZJ1-2A	S.M.I.F.	EC 5844	2024-03-08
<input type="checkbox"/>	Pressure meter	YM3	Shanghai Mengde	EC 3320	2023-09-13

**TEST REPORT**

**2.7 Measurement uncertainty**

The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement	Frequency	Expanded Uncertainty (k=2)
Conducted emission at mains ports	9kHz ~ 150kHz	3.52 dB
	150kHz ~ 30MHz	3.19 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	4.90 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.02 dB
	6GHz ~ 18GHz	5.28 dB

**TEST REPORT**

**3 Radiated emissions**

**Test result: Pass**

**3.1 Limit**

Frequencies (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

**3.2 Measurement Procedure**

**For Radiated emission below 30MHz:**

- a) The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters chamber room. 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) Both X and Y axes of the antenna are set to make the measurement.
- d) For each suspected emission, the EUT was arranged to its worst case 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 Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

**NOTE:**

- 1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

**For Radiated emission above 30MHz:**

- a) The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meters chamber room for test. 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 height of antenna 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.

**TEST REPORT**

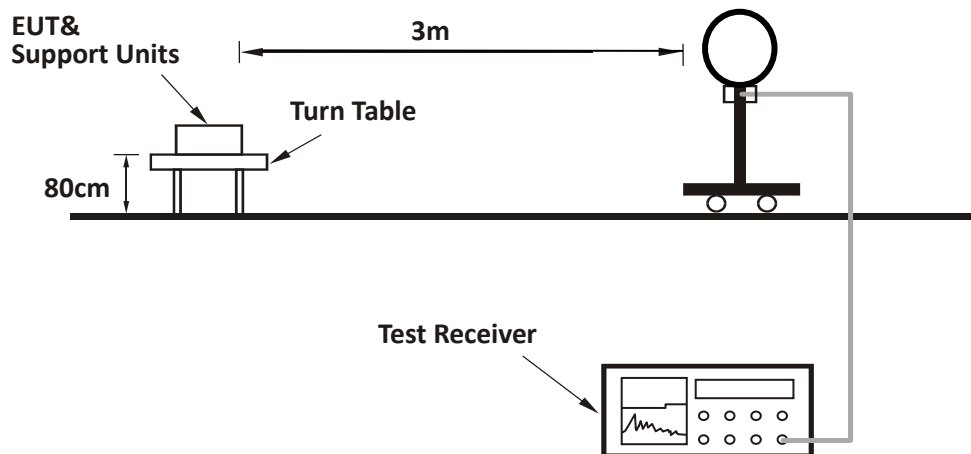
- d) For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e) The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f) The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

**Note:**

- 1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
- 2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
- 3. All modes of operation were evaluated and the worst-case emissions were reported

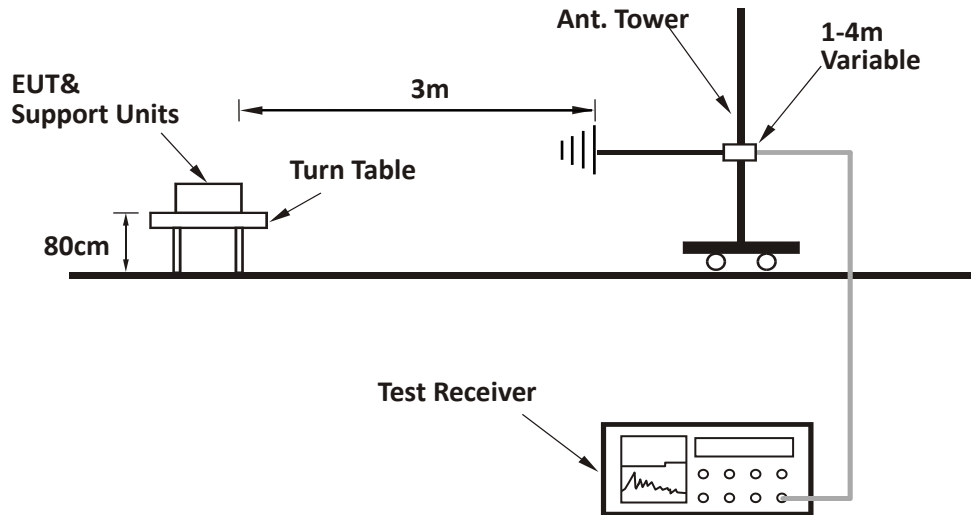
**3.3 Test Configuration**

For Radiated emission below 30MHz:

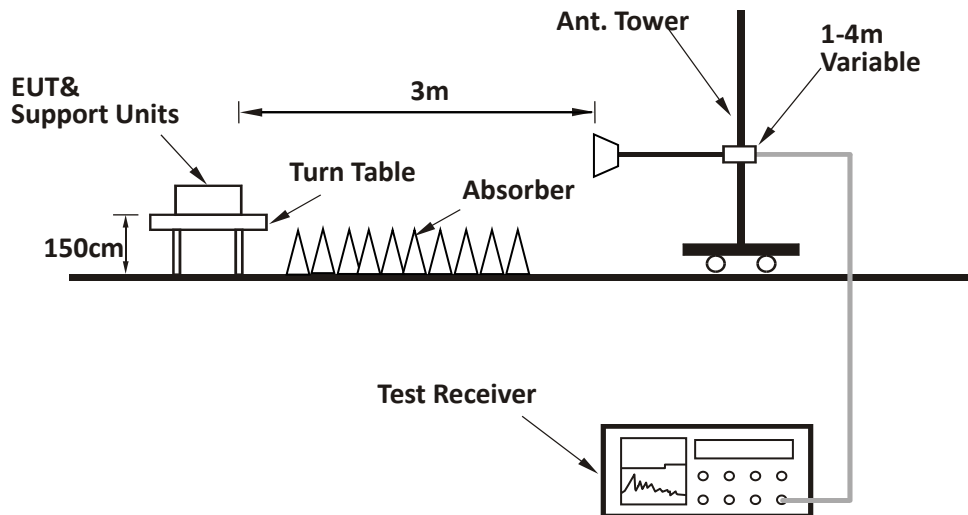


**TEST REPORT**

**For Radiated emission 30MHz to 1GHz:**



**For Radiated emission above 1GHz:**



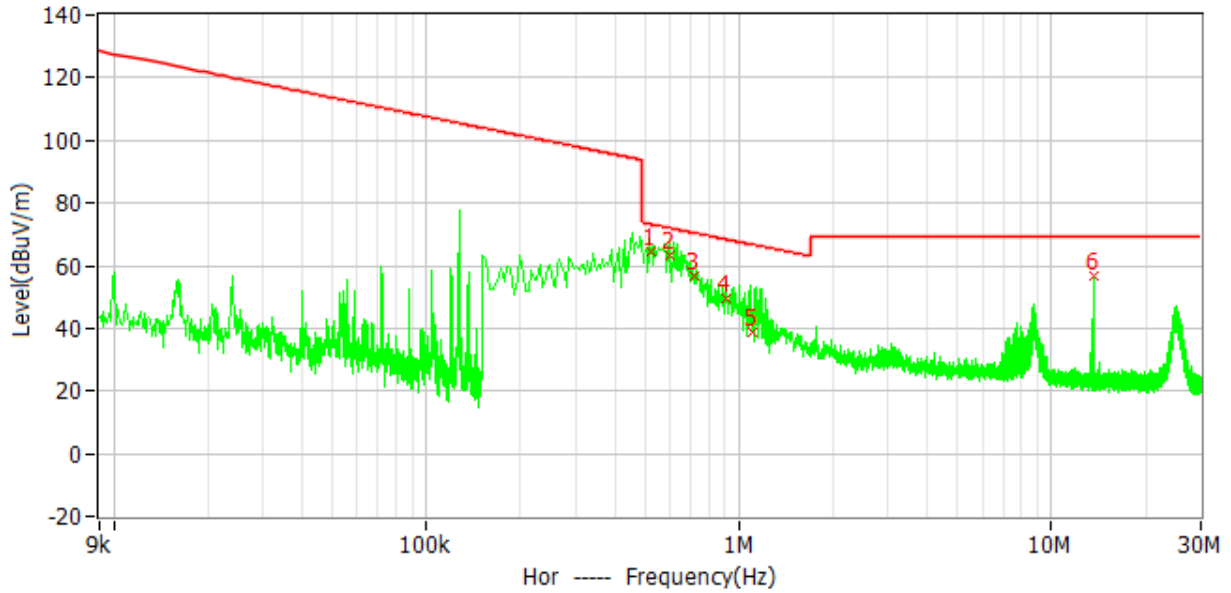
**TEST REPORT**

**3.4 Test Results of Radiated Emissions**

EUT was tested with empty load, half load and full load, the full load is the worst case and we listed the results in the report.

Test data below 30MHz:

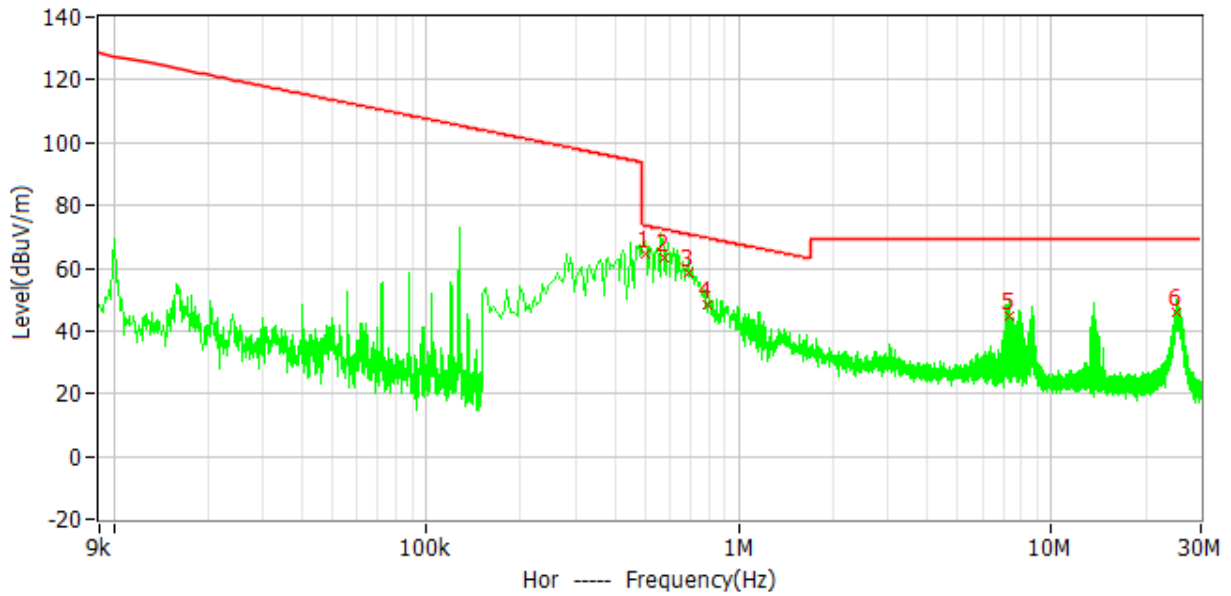
Emission (3m, X)



No.	Frequency	Limit dBuV/m	Level dBuV/m	Delta dB	Reading dBuV	Factor dB/m	Detector	Polar
1	521.327kHz	73.3	64.2	-9.1	44.0	20.2	QP	Hor
2	604.500kHz	72.0	63.2	-8.8	43.0	20.2	QP	Hor
3	719.958kHz	70.5	56.6	-13.9	36.5	20.1	QP	Hor
4	907.100kHz	68.5	49.6	-18.9	29.5	20.1	QP	Hor
5	1.109MHz	66.7	38.8	-28.0	18.7	20.1	QP	Hor
6	13.560MHz	69.5	56.5	-13.0	36.0	20.5	QP	Hor

**TEST REPORT**

Emission (3m, Y)

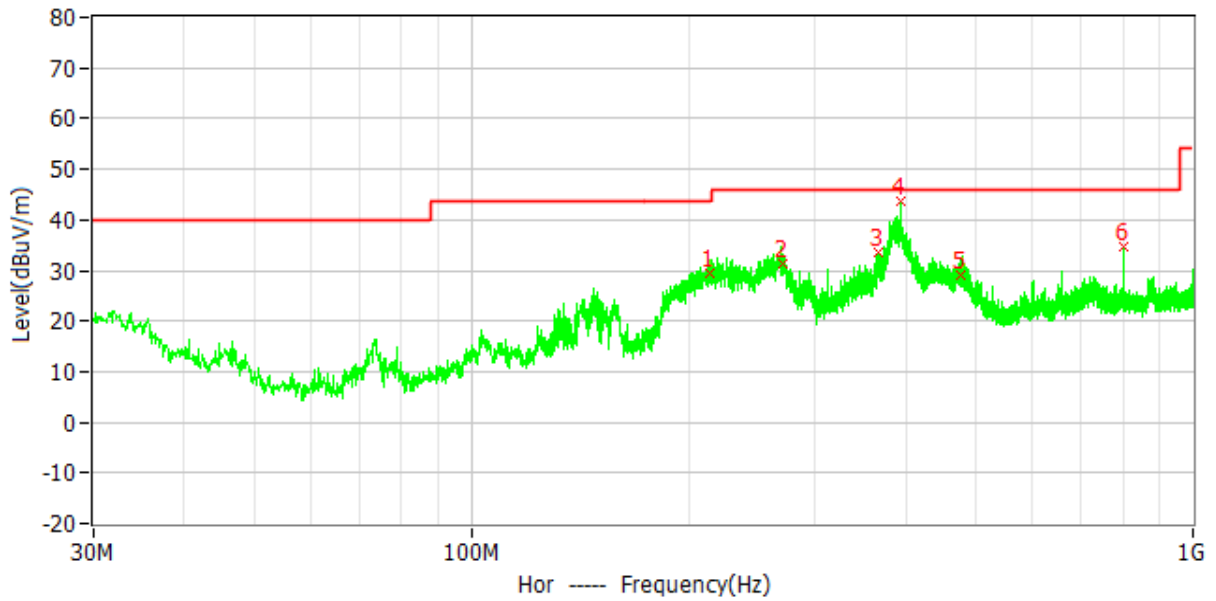


No.	Frequency	Limit dBuV/m	Level dBuV/m	Delta dB	Reading dBuV	Factor dB/m	Detector	Polar
1	502.713kHz	73.6	64.5	-9.0	44.3	20.2	QP	Hor
2	572.639kHz	72.5	63.5	-9.0	43.3	20.2	QP	Hor
3	688.079kHz	70.9	58.4	-12.4	38.2	20.2	QP	Hor
4	789.469kHz	69.7	48.2	-21.5	28.1	20.1	QP	Hor
5	7.339MHz	69.5	44.9	-24.6	24.5	20.4	QP	Hor
6	25.237MHz	69.5	46.2	-23.3	25.5	20.7	QP	Hor



**TEST REPORT**

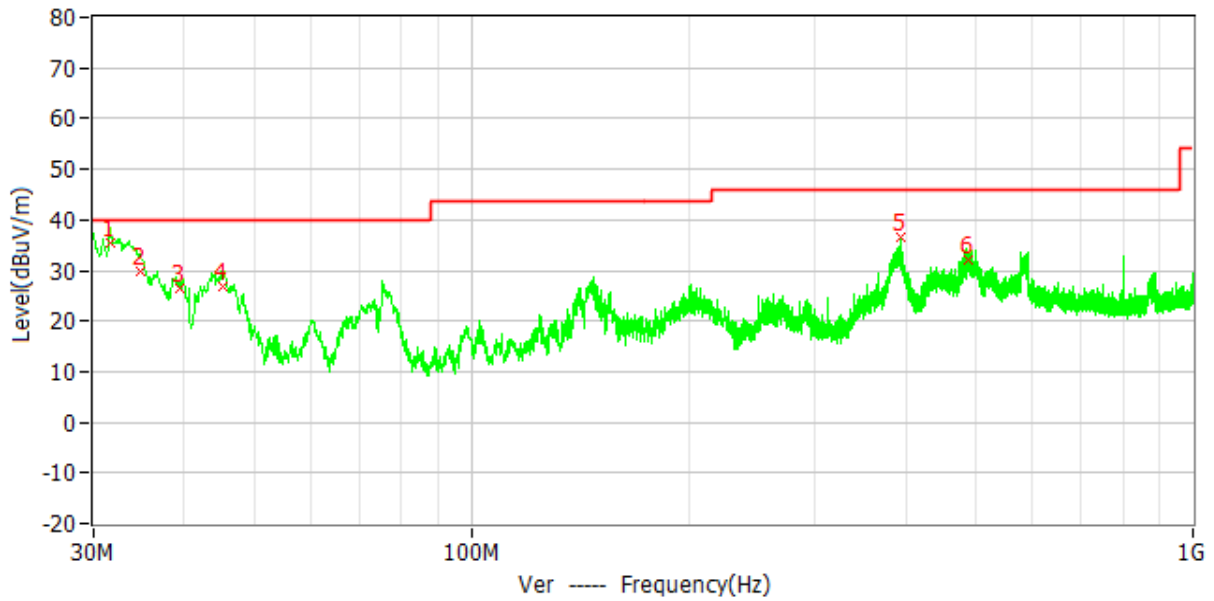
Horizontal



No.	Frequency	Limit dBuV/m	Level dBuV/m	Delta dB	Reading dBuV	Factor dB/m	Detector	Polar
1	214.401MHz	43.5	29.3	-14.2	18.0	11.3	QP	Hor
2	270.147MHz	46.0	31.3	-14.7	15.8	15.5	QP	Hor
3	366.098MHz	46.0	33.6	-12.4	16.0	17.6	QP	Hor
4	393.241MHz	46.0	43.7	-2.3	25.4	18.3	QP	Hor
5	477.431MHz	46.0	29.1	-16.9	9.1	20.0	QP	Hor
6	800.019MHz	46.0	34.6	-11.4	10.9	23.7	QP	Hor

## TEST REPORT

### Vertical



No.	Frequency	Limit dBuV/m	Level dBuV/m	Delta dB	Reading dBuV	Factor dB/m	Detector	Polar
1	31.693MHz	40.0	35.6	-4.4	15.2	20.4	QP	Ver
2	34.876MHz	40.0	29.9	-10.1	11.6	18.3	QP	Ver
3	39.426MHz	40.0	26.5	-13.5	11.0	15.5	QP	Ver
4	45.186MHz	40.0	27.0	-13.0	14.5	12.5	QP	Ver
5	393.241MHz	46.0	36.4	-9.6	18.1	18.3	QP	Ver
6	488.140MHz	46.0	31.9	-14.1	11.7	20.2	QP	Ver

- Remark: 1. Correct Factor = Antenna Factor + Cable Loss (+ Amplifier, for higher than 1GHz), the value was added to Original Receiver Reading by the software automatically.  
 2. Level = Original Receiver Reading + Correct Factor  
 3. Delta = Level - Limit  
 4. If the PK Corrected Reading is lower than AV limit, the AV test can be elided.

**TEST REPORT**

**4 Conducted emissions**

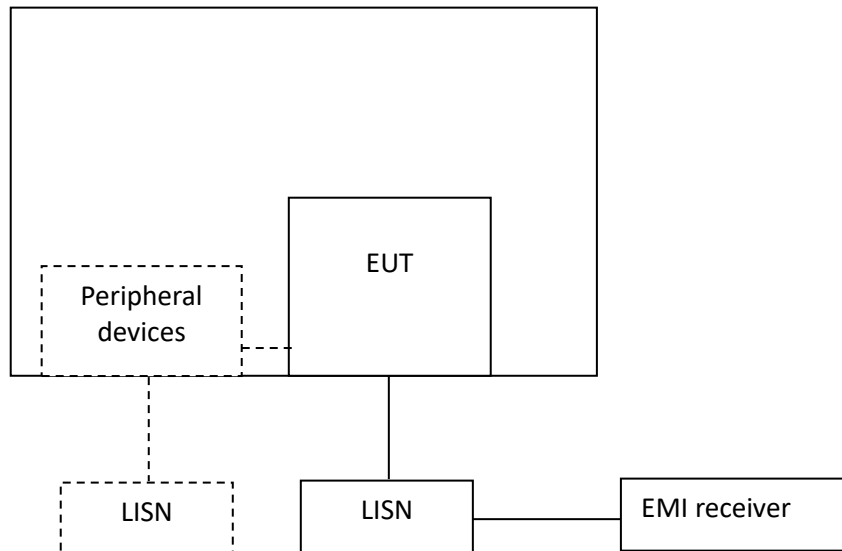
Test result: Pass

**4.1 Limit**

Frequency of Emission (MHz)	Conducted Emissions Limit (dBuV)	
	QP	AV
0.15-0.5	66 to 56*	56 to 46 *
0.5-5	56	46
5-30	60	50

\* Decreases with the logarithm of the frequency.

**4.2 Test Configuration**



**TEST REPORT****4.3 Measurement Procedure**

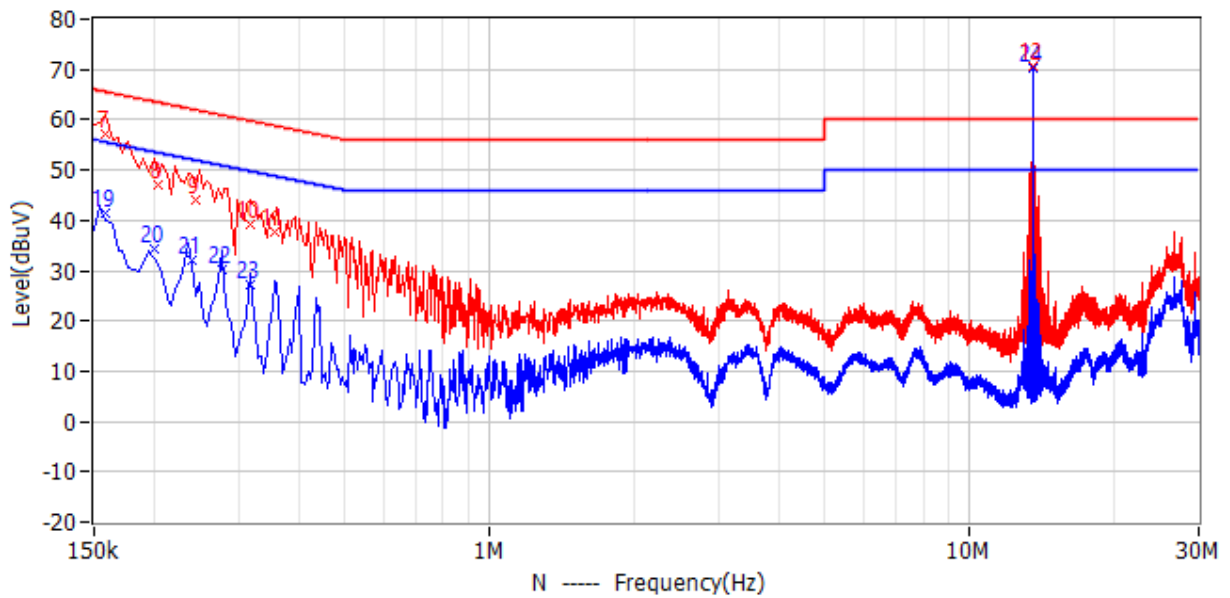
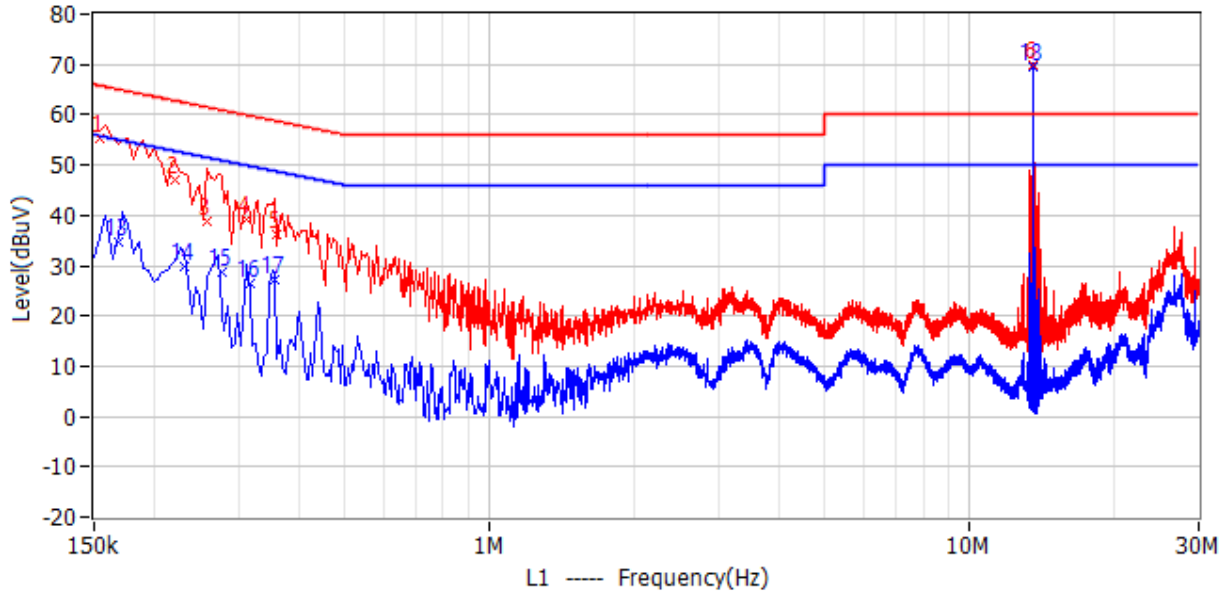
Measured levels of ac power-line conducted emission shall be the emission voltages from the voltage probe, where permitted, or across the 50  $\Omega$  LISN port (to which the EUT is connected), where permitted, terminated into a 50  $\Omega$  measuring instrument. All emission voltage and current measurements shall be made on each current-carrying conductor at the plug end of the EUT power cord by the use of mating plugs and receptacles on the LISN, if used. Equipment shall be tested with power cords that are normally supplied or recommended by the manufacturer and that have electrical and shielding characteristics that are the same as those cords normally supplied or recommended by the manufacturer. For those measurements using a LISN, the 50  $\Omega$  measuring port is terminated by a measuring instrument having 50  $\Omega$  input impedance. All other ports are terminated in 50  $\Omega$  loads.

Tabletop devices shall be placed on a platform of nominal size 1 m by 1.5 m, raised 80 cm above the reference ground plane. The vertical conducting plane or wall of an RF-shielded (screened) room shall be located 40 cm to the rear of the EUT. Floor-standing devices shall be placed either directly on the reference ground-plane or on insulating material as described in ANSI C63.4. All other surfaces of tabletop or floor-standing EUTs shall be at least 80 cm from any other grounded conducting surface, including the case or cases of one or more LISNs.

The bandwidth of the test receiver is set at 9 kHz.

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4.4 Test Results of Conducted Emissions



**TEST REPORT**

Data:

No.	Frequency	Limit dBuV	Level dBuV	Delta dB	Reading dBuV	Factor dB	Detector	Phase
1	154.500kHz	65.8	55.1	-10.6	48.9	6.2	QP	L1
2	222.000kHz	62.7	47.1	-15.6	40.9	6.2	QP	L1
3	258.000kHz	61.5	38.8	-22.7	32.6	6.2	QP	L1
4	312.000kHz	59.9	39.1	-20.8	32.9	6.2	QP	L1
5	361.500kHz	58.7	36.2	-22.5	30.0	6.2	QP	L1
!6	13.560MHz	60.0	69.9	9.9	63.5	6.4	QP	L1
7	159.000kHz	65.5	57.0	-8.6	50.7	6.3	QP	N
8	204.000kHz	63.4	47.1	-16.4	40.8	6.3	QP	N
9	244.500kHz	61.9	43.9	-18.1	37.7	6.2	QP	N
10	316.500kHz	59.8	39.0	-20.8	32.8	6.2	QP	N
11	357.000kHz	58.8	37.6	-21.2	31.4	6.2	QP	N
!12	13.560MHz	60.0	70.5	10.5	64.1	6.4	QP	N
13	168.000kHz	55.1	34.6	-20.5	28.5	6.1	CAV	L1
14	231.000kHz	52.4	30.0	-22.4	23.8	6.2	CAV	L1
15	276.000kHz	50.9	28.7	-22.3	22.5	6.2	CAV	L1
16	316.500kHz	49.8	26.5	-23.3	20.3	6.2	CAV	L1
17	357.000kHz	48.8	27.3	-21.5	21.1	6.2	CAV	L1
!18	13.560MHz	50.0	69.5	19.5	63.1	6.4	CAV	L1
19	159.000kHz	55.5	41.4	-14.1	35.1	6.3	CAV	N
20	199.500kHz	53.6	34.4	-19.2	28.1	6.3	CAV	N
21	240.000kHz	52.1	32.2	-19.9	26.0	6.2	CAV	N
22	276.000kHz	50.9	30.3	-20.6	24.1	6.2	CAV	N
23	316.500kHz	49.8	27.3	-22.5	21.1	6.2	CAV	N
!24	13.560MHz	50.0	70.2	20.2	63.8	6.4	CAV	N

The 13.56MHz is the RFID frequency

- Remark: 1. Factor = LISN Factor + Cable Loss, the value was added to Original Receiver Reading by the software automatically.  
 2. Level = Reading + Factor  
 3. Delta = Level - Limit  
 4. If the PK Corrected Reading is lower than AV limit, the AV test can be elided.*

\*\*\*\*\* END \*\*\*\*\*