

RADIO TEST REPORT

For

HAPPINET CORPORATION

PCB module RX (Fork Lift Car)

Test Model: XN-HX3309R

Prepared for : HAPPINET CORPORATION
Address : Komagata CA Bldg., 2-4-5, Komagata, Taitou-ku, Tokyo,
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Date of receipt of test sample : August 04, 2026
Number of tested samples : 2
Sample No. : A260729059-3, A260729059-4
Serial number : Prototype
Date of Test : August 04, 2026 ~ August 13, 2026
Date of Report : August 14, 2026

RADIO TEST REPORT MIC Notice No.88 Appendix No. 43 Second-Generation Low-Power Data Communication System/Wireless LAN System	
Report Reference No. : LCSC08036001EA Date of Issue : August 14, 2026	
Testing Laboratory Name : Guangzhou LCS Compliance Testing Laboratory Ltd. Address : No.44-1, Qianfeng North Road, Shiqi, Panyu District, Guangzhou, Guangdong, China Testing Location/ Procedure... : Full application of Harmonised standards ■ Partial application of Harmonised standards □ Other standard testing method □	
Applicant's Name : HAPPINET CORPORATION Address : Komagata CA Bldg., 2-4-5, Komagata, Taitou-ku, Tokyo, 111-0043, Japan	
Test Specification Standard : MIC Notice No.88 Appendix No.43 TRF Originator..... : Guangzhou LCS Compliance Testing Laboratory Ltd. Master TRF..... : Dated 2011-03	
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Test Item Description. : PCB module RX (Fork Lift Car) Trade Mark : N/A Test Model..... : XN-HX3309R Ratings : Please Refer to Page 6 Result : PASS	

Compiled by:



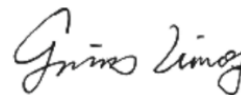
Lifeng Le/ Administrator

Supervised by:



Justin Zhu/ Technique Director

Approved by:



Gavin Liang/ Manager

RADIO -- TEST REPORT**Test Report No. : LCSC08036001EA**August 14, 2026

Date of issue

Test Model..... : XN-HX3309R

EUT..... : PCB module RX (Fork Lift Car)

Applicant..... : HAPPINET CORPORATIONAddress..... : Komagata CA Bldg., 2-4-5, Komagata, Taitou-ku, Tokyo,
111-0043, Japan

Telephone..... : /

Fax..... : /

Manufacturer..... : SHANTOU HEZONG TOYS CO.,LIMITEDAddress..... : 5F, YONGDA BUILDING, HENGAN ROAD, CHENGHAI
DISTRICT, SHANTOU, CHINA.

Telephone..... : /

Fax..... : /

Factory..... : SHANTOU HONGXING TOYS INDUSTRY CO.,LTDAddress..... : YANGDONG INDUSTRIAL ZONE, DONGWAN VILLAGE,
LIANXIA TOWN, CHENGHAI DISTRICT, SHANTOU, CHINA.

Telephone..... : /

Fax..... : /

Test Result**PASS**

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Revision History

Report Version	Issue Date	Revision Content	Revised By
000	August 14, 2026	Initial Issue	---

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1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	: PCB module RX (Fork Lift Car)
Test Model	: XN-HX3309R
Ratings	: Battery: DC 6.0V
Hardware Version	: /
Software Version	: /

2.4G

Frequency Range	: 2407MHz~2477MHz
Channel Number	: 71 Channels
Modulation Type	: GFSK
Declared Antenna Power	: 1.0mW
Antenna Description	: Internal Antenna, 0dBi(Max.)

Note: For a more detailed antenna description, please refer to the antenna specifications or the antenna report provided by the customer.

1.2. Support Equipment List

Manufacturer	Description	Model	Serial Number	Certificate
---	---	---	---	---

1.3. External I/O Cable

I/O Port Description	Quantity	Cable
---	---	---

1.4. Description of Test Facility

CNAS Registration Number is L11555

A2LA Certificate Number: 5099.01

FCC Designation Number is CN1379

Test Firm Registration Number: 729882

1.5. Test Conditions

Temperature Range	:	21-25℃
Humidity Range	:	45-85%
Pressure Range	:	86-106kPa

1.6. Frequency of Channels

2.4G

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2407	19	2425	37	2443	55	2461
2	2408	20	2426	38	2444	56	2462
3	2409	21	2427	39	2445	57	2463
4	2410	22	2428	40	2446	58	2464
5	2411	23	2429	41	2447	59	2465
6	2412	24	2430	42	2448	60	2466
7	2413	25	2431	43	2449	61	2467
8	2414	26	2432	44	2450	62	2468
9	2415	27	2433	45	2451	63	2469
10	2416	28	2434	46	2452	64	2470
11	2417	29	2435	47	2453	65	2471
12	2418	30	2436	48	2454	66	2472
13	2419	31	2437	49	2455	67	2473
14	2420	32	2438	50	2456	68	2474
15	2421	33	2439	51	2457	69	2475
16	2422	34	2440	52	2458	70	2476
17	2423	35	2441	53	2459	71	2477
18	2424	36	2442	54	2460	---	---

2. TEST METHODOLOGY

2.1. EUT Exercise

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to its specifications, the EUT must comply with the requirements of MIC Notice No.88 Appendix No. 43.

2.2. Measurement Uncertainty

Test Item		MU	Remark
Bandwidth	:	+/- 0.2 E-6	/
Antenna Power	:	+/-0.33dB	/
Frequency Tolerance	:	+/- 0.3 E-6	/
Conducted spurious emission	:	+/-0.13dB	/
DC Power	:	+/-1%	/

- (1). This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

2.3. Table for Parameters of Test Software Setting

During testing, Channel & Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

Power Parameters:

Test Software Version	setup		
Frequency	2407MHz	2442MHz	2477MHz
2.4G	Default	Default	Default

2.4. Description of Test Modes

Tested mode, channel, and data rate information		
Mode	Channel	Frequency (MHz)
2.4G	Low: CH1	2407
	Middle: CH36	2442
	High: CH71	2477
Note: According exploratory test, EUT will have maximum output power in those data rate, so those data rate were used for all test.		

2.5. Test Voltage

POWER SUPPLY VOLTAGE FLUCTUATION TEST

Voltage Fluctuation Test	Normal Voltage	High Voltage +10% of Normal Voltage	Low Voltage -10% of Normal Voltage
Input To EUT	DC 6.0	DC 6.6V	DC 5.4V
Output To RF Module	DC 3.3V	DC 3.3V	DC 3.3V

Note: As the EUT was powered by DC 6.0V, and with the voltage stabilizing circuit used, the chip voltage received floating not exceed $\pm 1\%$ of nominal condition when working on extreme voltage, so all test performed at nominal voltage only.

3. SYSTEM TEST CONFIGURATION

3.1. Justification

The system was configured for testing in engineering mode.

3.2. EUT Exercise Software

N/A.

3.3. Special Accessories

N/A.

3.4. Block Diagram/Schematics

Please refer to the related document.

3.5. Equipment Modifications

Guangzhou LCS Compliance Testing Laboratory Ltd. has not done any modification on the EUT.

4. SUMMARY OF TEST RESULTS

MIC Notice No.88 Appendix No.43 Article 2 Paragraph 1 Item 19-2-2		
Clause	Description of Test (Transmitter Parameters)	Result
3	Frequency Tolerance	PASS
6	Antenna Power	PASS
6	Tolerances for Antenna Power	PASS
4	Transmission Rate	PASS
4	Occupied Frequency Bandwidth	PASS
4	Spread Bandwidth	N/A
13	Dwell Time	N/A
5	Spurious Emissions	PASS
10	Transmission Antenna Gain (EIRP Antenna Power)	N/A
11	Transmission Radiated Angle Width (3dB Beam width)	N/A
12	Interference prevention function	PASS
8	Carrier Sensing function	N/A
Receiver Parameters		
7	Secondary Radiated Emissions	PASS
Note: (1) N/A is an abbreviation for Not Applicable. (2) N/T means this test item is not tested.		

5. TEST RESULT

5.1. Frequency Tolerance

5.1.1. Standard Applicable

Tolerance of frequency shall be $\pm 50 \times 10^{-6}$.

5.1.2. Test Procedures

- Set EUT work in test mode as described in clause 2.4.
- Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, set the Spectrum Analyzer as below:

Centre Frequency: The centre frequency of the channel under test.

Resolution BW: 10 KHz.

Video BW: 10 KHz.

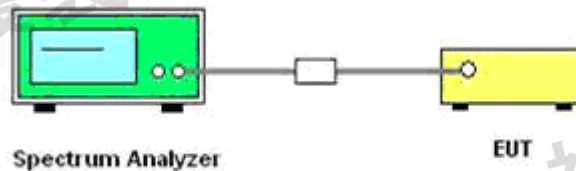
Span: 1MHz.

Detector: Peak.

Trace Mode: Max Hold.

- When the trace is complete, find the peak value of the power envelope and record.

5.1.3. Test Setup Layout



5.1.4. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

5.1.5. Test Result

PASS

Please refer to the Appendix A.1 for 2.4G RF Test Data.

5.2. Antenna Power

5.2.1. Standard Applicable

Type	Limit
DTS	10mW
OFDM OBW<26MHz, DS	10mW/MHz
OFDM OBW 26-40MHz	5mW/MHz
Tolerance	+20%

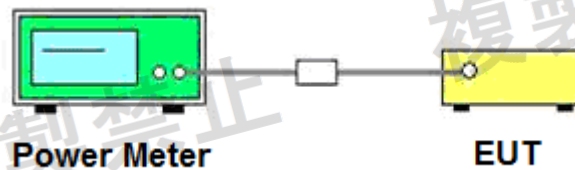
5.2.2. Measuring Instruments

Please refer to section 9 of equipments list in this report.

5.2.2. Test Procedures

- EUT have transmitted continuous maximum power
- Antenna Power Error is definition that actual measure antenna power tolerance between +20 power range that base on manufacturer declare the conducted power density.

5.2.3. Test Setup



5.2.4. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

5.2.5. Test Result

PASS

Please refer to the Appendix A.2 for 2.4G RF Test Data.

5.3. Occupied Frequency Bandwidth

5.3.1. Standard Applicable

Permissible value for occupied bandwidth using the FH system, a hybrid system combining DS and FH systems, or a hybrid system combining FH and OFDM systems shall be 83.5 MHz or less, while necessary bandwidth (minimum occupied bandwidth sufficient to ensure information transmission of required quality at a required transmission rate for the system used under specified conditions for a given emission type) using a system other than any of the above shall be 26 MHz or less.

5.3.2. Test Procedures

- a. Set EUT work in test mode as described in clause 2.4.
- b. Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, set the Spectrum Analyzer as below:

Centre Frequency: The centre frequency of the channel under test.

RBW/VBW= 300KHz/300KHz

Span: Wide enough to cover the complete power envelope of the signal of the EUT.

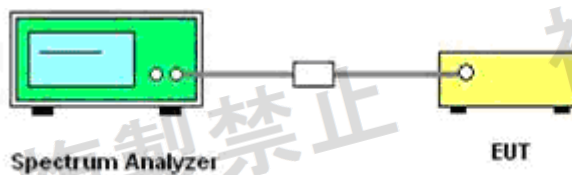
Sweep mode: Continuous sweeping.

Detector: Peak.

Trace Mode: Max Hold.

- c. When the trace is complete, measure the occupied bandwidth (99% bandwidth) with spectrum analyzer's bandwidth measure function.

5.3.3. Test Setup Layout



5.3.4. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

5.3.5. Test Result of 99% Spectrum Bandwidth

PASS

Please refer to the Appendix A.3 for 2.4G RF Test Data.

5.4. Spread Bandwidth

5.4.1. Standard Applicable

In spread spectrum systems, spread bandwidth (which refers to a frequency bandwidth with an upper limit and lower limit such that each of the mean powers radiated above the upper frequency limit and below the lower frequency limit is equal to 5 % of the total mean power radiated; this also applies hereafter) shall be 500 kHz or more.

5.4.2. Test Procedures

- Set EUT work in test mode as described in clause 2.4.
- Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, set the Spectrum Analyzer as below:

Centre Frequency: The centre frequency of the channel under test.

RBW/VBW= 300KHz/300KHz

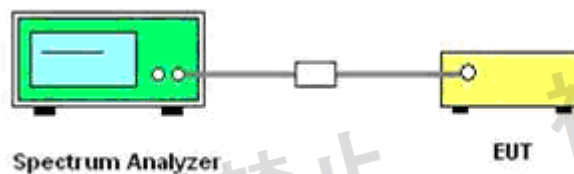
Span: Wide enough to cover the complete power envelope of the signal of the EUT.

Detector: Peak.

Trace Mode: Max Hold.

- When the trace is complete, measure the occupied bandwidth (90% bandwidth) with spectrum analyzer's bandwidth measure function.

5.4.3. Test Setup Layout



5.4.4. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

5.4.5. Test Result of 90% Occupied Bandwidth.

PASS

Please refer to the Appendix A.4 for 2.4G RF Test Data.

5.5. Transmitter Spurious Emissions (conducted)

5.5.1. Standard Applicable

Permissible mean power of spurious emission of each frequency supplied to a feeder, that is, mean power of spurious emission in the 1 MHz bandwidth at frequency f other than frequency band used shall be as follows:

- | | |
|--|---------------------|
| a. 30MHz - 1,000MHz | 2.5 μ W or less |
| b. 1,000MHz - 2,387MHz | 2.5 μ W or less |
| c. 2,387MHz - 2,400MHz and 2,483.5MHz - 2,496.5MHz | 25 μ W or less |
| d. 2,496.5MHz - 13GHz | 2.5 μ W or less |

5.5.2. Test Procedures

- Set EUT work in test mode as described in clause 2.4.
- Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, set the Spectrum Analyzer as below:

Below 1GHz: RBW/VBW= 1MHz / 1MHz

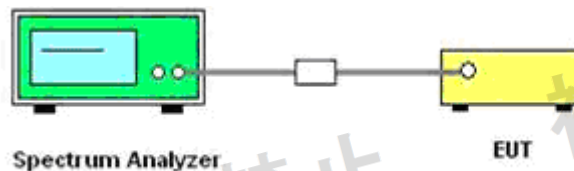
Above 1GHz: RBW/VBW= 1MHz / 1MHz.

Detector: Peak.

Trace Mode: Max Hold.

- All the emissions from 30MHz to 13GHz were measured and record.

5.5.3. Test Setup Layout



5.5.4. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

5.5.5. Test Results

PASS

Please refer to the Appendix A.5 for 2.4G RF Test Data.

Note: SA set to from 2.4965GHz to 13GHz, plot shows from 2.497GHz to 13GHz as of SA's default format.

5.6. Carrier sensing function

5.6.1. Standard Applicable

Item	Limits
Carrier Sense	Good – EUT stop RF transmission signal after carrier inject to EUT. (On $22.79+Gr-20*\log(f)[dBm]$ (Gr: dBi; f: MHz) or 100mV/m)

5.6.2. Instruments Setting

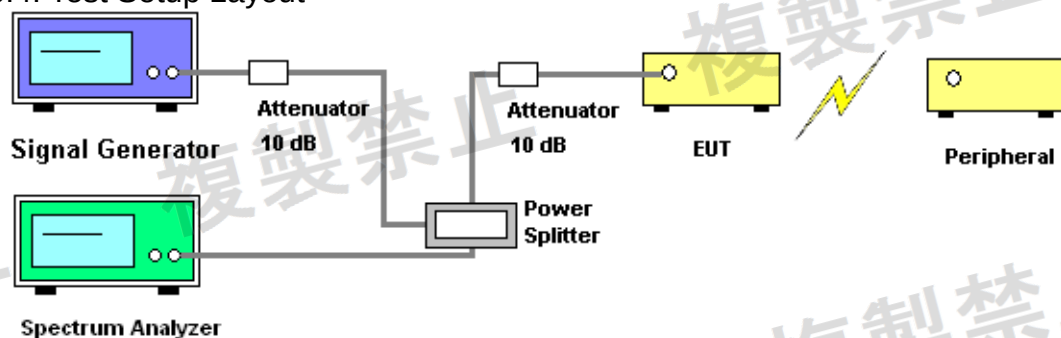
The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
RB / VB	1 MHz
Span	0 MHz
Sweep	Continuous
Detector	Peak
Trigger mode	Video

5.6.3. Test Procedures

1. SSG adjusted the frequency as same as the EUT transmitted signal and emitted the absence of modulation from SSG and power level is (On $22.79+Gr-20*\log(f)[dBm]$ (Gr: dBi; f: MHz). Then turn off the RF signal of SSG.
2. EUT have transmitted the maximum modulation signal and fixed channelize.
3. Setting of SA is following as: RB: 1MHz / VB: 1MHz / SPAN: 50MHz / AT: 10dB / Ref: 0dBm / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: PASS peak.
4. SSG RF Signal On.
5. EUT shall be stop the transmitted any signal and SSG RF Signal Off. Then EUT will be continuous transmitted signal.

5.6.4. Test Setup Layout



5.6.5. EUT Operation during Test

The EUT was programmed to be in normal transmitting mode.

5.6.6. Test Result

Not Applicable.

5.7. Interference prevention function

5.7.1. Standard Applicable

Item	Limits
Identification code	$\geq$ 48 bits

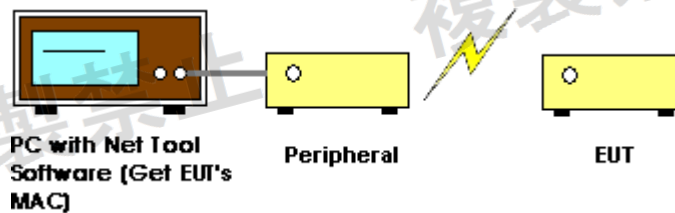
5.7.2. Measuring ID Code Software

PC with NetTool	Setting
MAC IP List	MAC Scan

5.7.3. Test Procedures

- In the case that the EUT has the function of automatically transmitting the identification code: a. Transmit the predetermined identification codes from EUT. b. Check the transmitted identification codes with the demodulator.
- In the case of receiving the identification code: a. Transmit the predetermined identification codes from the counterpart. b. Check if communication is normal. c. Transmit the other signals than predetermined ID codes from the counterpart. d. check if the EUT stops the transmission, or if it displays that identification codes are different from the predetermined ones.

5.7.4. Test Setup Layout



5.7.5. EUT Operation during Test

The EUT was programmed to be in normal transmitting mode.

5.7.6. Test Result

EUT ID	Performance index
45:ad:33:f5:73:fc	Good

5.8. Secondary Radiated Emissions

5.8.1. Standard Applicable

The limit on secondary emissions radiated from the receiving equipment within which the function of other radio equipment will not be impaired shall be, in terms of the power of a dummy antenna circuit that has the same electrical constant as the receiving antenna, 4nW or less at a frequency below 1 GHz and 20 nW or less at a frequency of 1 GHz or higher as measured using the circuit

5.8.2. Test Procedures

- Set EUT work in test mode as described in clause 2.4.
- Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, set the Spectrum Analyzer as below:

Resolution BW: 100 KHz for frequency below 1GHz and

1MHz for frequency above 1GHz

Video BW: 100 KHz for frequency below 1GHz and

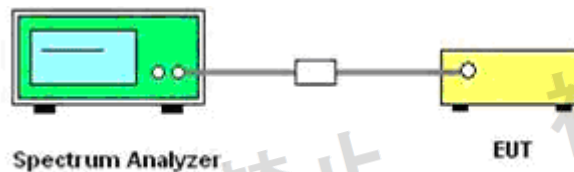
1MHz for frequency above 1GHz

Detector: Peak.

Trace Mode: Max Hold.

- All the emissions from 30MHz to 13GHz were measured and record.

5.8.3. Test Setup



5.8.4. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

5.8.5. Test Results

PASS

Please refer to the Appendix A.6 for 2.4G RF Test Data.

6. PHOTOGRAPHS OF TEST SETUP

Please refer to separated files Appendix B for Test Setup Photographs

7. EXTERNAL PHOTOGRAPHS OF THE EUT

Please refer to separated files Appendix C for External Photos of EUT

8. INTERNAL PHOTOGRAPHS OF THE EUT

Please refer to separated files Appendix D for Internal Photos of EUT

9. LIST OF MEASURING EQUIPMENTS

Item	Equipment	Manufacturer	Model No.	Equipment No.	Cal Date	Due Date
1	Power Meter	Keysight	E4417A	GLCS-E-279	2026-04-07	2027-04-06
2	Power Sensor	Keysight	E9304A	GLCS-E-280	2026-04-07	2027-04-06
3	Power Sensor	Keysight	E9304A	GLCS-E-281	2026-04-07	2027-04-06
4	Spread Spectrum Unit	Tonscend	TS-WF7U2	GLCS-E-364	N/A	N/A
5	Test Software	Tonscend	JS1120-3	GLCS-E-366	N/A	N/A
6	RF Control Unit	Tonscend	JS0806-2	GLCS-E-365	2026-07-15	2027-07-14
7	MXA Signal Analyzer	Keysight	N9020A	GLCS-E-356	2026-07-15	2027-07-14
8	DC Power Supply	Keysight	E3642A	GLCS-E-357	2026-07-15	2027-07-14
9	Signal Analyzer	Keysight	N5172B	GLCS-E-353	2026-07-15	2027-07-14
10	Signal Analyzer	Keysight	N5181A	GLCS-E-354	2026-07-15	2027-07-14
11	WIDEBAND RADIO COMMUNICATION TESTER	Rohde & Schwarz	CMW500	GLCS-E-355	2026-07-15	2027-07-14
12	Oscilloscope	Tektronix	46084A/4609A	GLCS-E-113	2026-05-21	2027-05-20

Note: Calibration by the calibration agencies listed in the table corresponds to paragraph 4 (ii) (c) of Article 24-2 in the Radio Law.

Calibration Agencies: Guangzhou LiSai Metrology & Test Co., Ltd.

☐ (a) Calibration conducted by the National Institute of Information and Communications Technology (NICT) or a designated calibration agency under Article 102-18-1 of the Radio Act.

☐ (b) Calibration conducted based on the regulations of Article 135 or 144 of the Measurement Act.

☒ (c) Calibration conducted in foreign countries, which is equivalent to calibration conducted by the NICT or a designated calibration agency under Article 102-18-1 of the Radio Act.

☐ (d) Calibration, etc. conducted by using measuring instruments and other facilities listed at the bottom of appended table 3 of the Radio Act, which is to have been calibrated as described in (a) through (c) above.

-----THE END OF REPORT-----

TRF-4-E-186 A/0

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