



# TEST REPORT

## No. I22Z62328-EMC07

for

**Honor Device Co., Ltd.**

**Smart Phone**

**Model Name: RBN-NX1**

**FCC ID: 2AYGCRBN-NX1**

with

**Hardware Version: HN2VNEM**

**Software Version: 6.1.0.9(C900E9R1P1)**

**Issued Date: 2023-01-03**

**Note:**

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of CTTL.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

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## **REPORT HISTORY**

<b>Report Number</b>	<b>Revision</b>	<b>Description</b>	<b>Issue Date</b>
I22Z62328-EMC07	Rev.0	1 <sup>st</sup> edition	2023-01-03

Note: the latest revision of the test report supersedes all previous version.



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## 1. Test Laboratory

### 1.1. Introduction & Accreditation

Telecommunication Technology Labs, CAICT is an ISO/IEC 17025:2017 accredited test laboratory under NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM (NVLAP) with lab code 600118-0 and is also an FCC accredited test laboratory (CN5017), and ISED accredited test laboratory (CN0066). The detail accreditation scope can be found on NVLAP website.

### 1.2. Testing Location

#### Test Location: CTTL (BDA)

Address: No.18A, Kangding Street, Beijing Economic-Technology Development Area, Beijing, P. R. China 100176

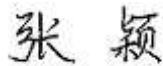
### 1.3. Testing Environment

Normal Temperature: 15-35°C  
Relative Humidity: 20-75%

### 1.4. Project Data

Testing Start Date: 2022-04-27  
Testing End Date: 2022-05-24

### 1.5. Signature



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Zhang Ying

(Prepared this test report)



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An Hui

(Reviewed this test report)



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Shi Suolan

(Approved this test report)



## **2. Client Information**

### **2.1. Applicant Information**

Company Name: Honor Device Co., Ltd.  
Suite 3401,Unit A,Building 6,Shum Yip Sky Park,No.8089,Hongli  
Address /Post: West Road,Xiangmihu Street,Futian District,Shenzhen,Guangdong  
518040,People's Republic of China  
Contact: /  
Email: /  
Telephone: /

### **2.2. Manufacturer Information**

Company Name: Honor Device Co., Ltd.  
Suite 3401,Unit A,Building 6,Shum Yip Sky Park,No.8089,Hongli  
Address /Post: West Road,Xiangmihu Street,Futian District,Shenzhen,Guangdong  
518040,People's Republic of China  
Contact: /  
Email: /  
Telephone: /

### 3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

#### 3.1. About EUT

Description	Smart Phone
Model Name	RBN-NX1
FCC ID	2AYGCRBN-NX1

Note: Components list, please refer to documents of the manufacturer; it is also included in the original test record of CTTL.

#### 3.2. Internal Identification of EUT used during the test

EUT ID*	IMEI	HW Version	SW Version
EUT1 /		/	/
EUT2 /		/	/
EUT3 /		/	/
EUT4 /		/	/

\*EUT ID: is used to identify the test sample in the lab internally.

#### 3.3. Internal Identification of AE used during the test

AE ID*	Name	Model	Manufacturer
AE1-1	Adapter	HN-100225U00	Salcomp
AE1-2	Adapter	HN-100225E00	Salcomp
AE1-3	Adapter	HW-100225U00	Huntkey
AE1-4	Adapter	HW-100225E00	Huntkey
AE1-5	Adapter	HW-100225B00	Huntkey
AE2-1	USB Cable	CUDU01B-HC451-EH	Fuding Precision Components (Shenzhen) Co., Ltd.
AE2-2	USB Cable	AU2-CRO013 HF	Freeport Ji an Electronics Co.,Ltd.
AE2-3	USB Cable	L125UC007-CS-H	Luxshare Precision Industry Co.,Ltd.
AE2-4	USB Cable	2120-00001-0	Guangdong Mingji Hi-Tech Electronics Co.,Ltd.
AE2-5	USB Cable	RY0002	Guangxi Broad Telecommunication Co.,Ltd.
AE3-1	Headset	1293-3283-3.5mm-339	BOLUO COUNTY QUANCHENG ELECTRONIC CO.,LTD.
AE3-2	Headset	EPAB542-2WH05-DH	FOXCONN INTERCONNECT TECHNOLOGY LIMITED
AE3-3	Headset	MEND1532B528A11	Jiangxi Lianchuang Hongsheng Electronic Co., LTD.
AE4-1	Battery	HB496590EFW	SCUD
AE4-2	Battery	HB496590EFW-F	SCUD
AE4-3	Battery	HB496590EFW	NVT
AE4-4	Battery	HB496590EFW-F	NVT

\*AE ID: is used to identify the test sample in the lab internally.

### 3.4. EUT set-ups

<b>EUT set-up No.</b>	<b>Combination of EUT and AE</b>	<b>Remarks</b>
Set.1-1	EUT1 + AE1-2 + AE2-1+AE3-1	EUT1+CHANGING+Heaset1
Set.1-2	EUT2 + AE1-2 + AE2-2+AE3-2	EUT2+CHANGING+Heaset2
Set.1-3	EUT3 + AE1-3 + AE2-3+AE3-3	EUT3+CHANGING+Heaset3
Set.1-4	EUT4 + AE1-4 + AE2-4/2-5+AE3-1	EUT4+CHANGING+Heaset1
Set.2-1	EUT1	
Set.2-2	EUT2	
Set.2-3	EUT3	
Set.2-4	EUT4	

Note: Smart Phone RBN-NX1 manufactured by Honor Device Co., Ltd. is a variant model based on VNE-N41 for conformance test. According to the declaration of changes, all the results are cited from the initial model. The report number for initial model is I22Z60667-EMC07.

## **4. Reference Documents**

### **4.1. Documents supplied by applicant**

EUT parameters, referring to Annex A for detailed information, is supplied by the client or manufacturer, which is the basis of testing.

### **4.2. Reference Documents for testing**

The following documents listed in this section are referred for testing.

<b>Reference</b>	<b>Title</b>	<b>Version</b>
FCC Part 22	PUBLIC MOBILE SERVICES	10-1-20 Edition
FCC Part 24	PERSONAL COMMUNICATIONS SERVICES	10-1-20 Edition
ANSI/TIA-603-E	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards	2016
ANSI C63.26	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services	2015
KDB 971168 D01	MEASUREMENT GUIDANCE FOR CERTIFICATION OF LICENSED DIGITAL TRANSMITTERS	v03r01



## 5. Laboratory Environment

**Semi-anechoic chamber** (22.6 meters×13.6 meters×11.0 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 15 %, Max. = 75 %
Shielding effectiveness	0.014MHz - 1MHz, >60dB; 1MHz - 1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4 Ω Ω
Site voltage standing-wave ratio ( $S_{VSWR}$ )	Between 0 and 6 dB, from 1GHz to 18GHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 4000 MHz

## 6. Summary Of Test Result

### GSM850

Items	List	Clause in FCC rules	Verdict
1	Emission Limit	2.1051/22.917	P

### PCS1900

Items	List	Clause in FCC rules	Verdict
1	Emission Limit	2.1051/24.238	P

Terms used in Verdict column

P	Pass. The EUT complies with the essential requirements in the standard.
NP	Not Performed. The test was not performed by CTTL.
NA	Not Applicable. The test was not applicable.
BR	Re-use test data from basic model report.
F	Fail. The EUT does not comply with the essential requirements in the standard.

## 7. Measurement Uncertainty

### Emission Limit

(k=2)

Frequency Range	Uncertainty(dB)
9kHz-30MHz	/
30MHz ≤ f ≤ 1GHz	5.76
1GHz ≤ f ≤ 18GHz	4.69
18GHz ≤ f ≤ 40GHz	3.78

## 8. Test Equipments Utilized

Description	Type	Series Number	Manufacture	Cal Due Date	Calibration Interval
Universal Radio Communication Tester	CMW500	143008	R&S	2022-12-01	1 year
Spectrum Analyzer	E4440A	MY48250642	Agilent	2023-03-10	1 year
EMI Antenna	LB7180-NF	J203001300005	A-INFO	2023-02-23	1 year
Semi-anechoic chamber	FACT10-3.0	/	ETS	2024-03-25	3 years
EMI Antenna	VULB9163	9163-482	Schwarzbeck	2022-11-16	1 year
EMI Antenna	3117	00058889	ETS-Lindgren	2022-11-07	1 year
H-field Antenna	HFH2-Z2	829324/007	R&S	2022-12-23	1 year
Signal Generator	N5183A	MY49060052	Agilent	2022-07-11	1 year

## Annex A: Measurement Results-Emission Limit

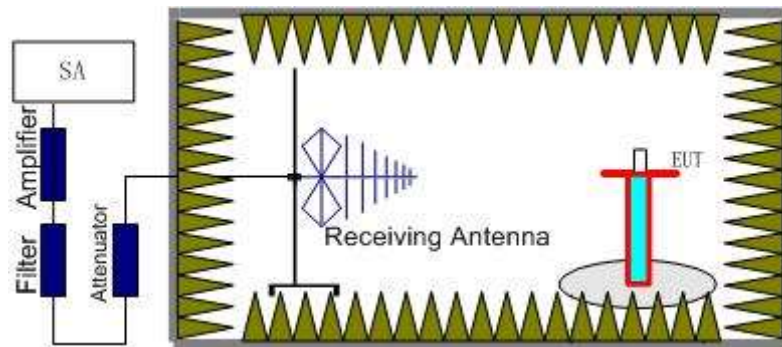
### A.1 Measurement Method

The measurement procedures in TIA-603E-2016 are used.

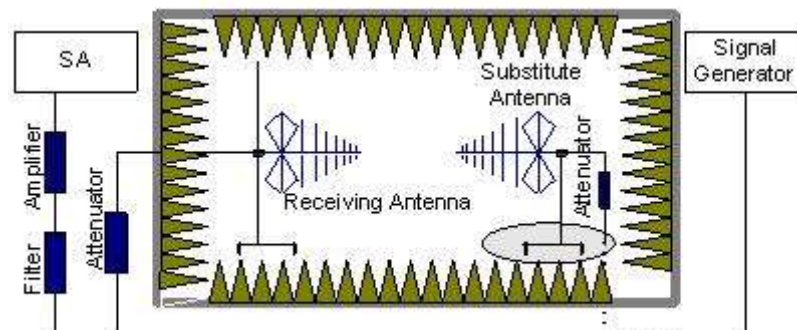
The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment. The resolution bandwidth is set as outlined in Part 24.238 and Part 22.917. The spectrum is scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of PCS1900 and GSM850.

#### The procedure of radiated spurious emissions is as follows:

1. EUT was placed on a 1.5-meter-high non-conductive stand at a 3-meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.5m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic were measured with peak detector.



2. The EUT is then put into continuously transmitting mode at its maximum power level during the test. And the maximum value of the receiver should be recorded as ( $P_r$ ).
3. The EUT shall be replaced by a substitution antenna. The test setup refers to figure below.



In the chamber, a substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power ( $P_{Mea}$ ) is applied to the input of the

substitution antenna and adjusts the level of the signal generator output until the value of the receiver reach the previously recorded ( $P_r$ ). The power of signal source ( $P_{Mea}$ ) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

4. The Path loss ( $P_{pl}$ ) between the Signal Source with the Substitution Antenna and the Substitution Antenna Gain ( $G_a$ ) should be recorded after test.

A amplifier should be connected in for the test.

The Path loss ( $P_{pl}$ ) is the summation of the cable loss and the gain of the amplifier.

The measurement results are obtained as described below:

$$\text{Power (EIRP)} = P_{Mea} - P_{pl} + G_a$$

5. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.
6. ERP can be calculated from EIRP by subtracting the gain of the dipole,  $ERP = EIRP - 2.15\text{dBi}$ .

## A.2 Measurement Limit

Part 22.917 and Part 24.238 specify that the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power ( $P$ ) by a factor of at least  $43 + 10 \log(P)$  dB.

## A.3 Sweep Table

Working Frequency	Subrange (GHz)	RBW	VBW
850MHz	0.03~1	100KHz	300KHz
	1-2	1 MHz	3 MHz
	2~5	1 MHz	3 MHz
	5~8	1 MHz	3 MHz
	8~10	1 MHz	3 MHz
1900MHz	0.03~1	100KHz	300KHz
	1-2	1 MHz	3 MHz
	2~5	1 MHz	3 MHz
	5~8	1 MHz	3 MHz
	8~11	1 MHz	3 MHz
	11~14	1 MHz	3 MHz
	14~18	1 MHz	3 MHz
	18~20	1 MHz	3 MHz

## A.4 Measurement Results Table

### Explanation of worst-case configuration

The worst-case scenario for all measurements is based on the conducted output power measurement investigation results unless otherwise stated. The test results shown in the following sections represent the worst case emission.

**Measurement Results Table**

Frequency	Antenna NO.	Set-up NO.	Channel	Frequency Range	Result
GSM 850MHz	ANT0	Set.1-1, Set.1-2, Set.1-3, Set.1-4 Set.2-1 Set.2-2, Set.2-3, Set.2-4	Low	30MHz-10GHz	Pass
			Middle	30MHz-10GHz	Pass
			High	30MHz-10GHz	Pass
	ANT2	Set.1-1	Low	30MHz-10GHz	Pass
			Middle	30MHz-10GHz	Pass
			High	30MHz-10GHz	Pass
GSM 1900MHz	ANT1	Set.1-1, Set.1-2, Set.1-3, Set.1-4 Set.2-1 Set.2-2, Set.2-3, Set.2-4	Low	30MHz-20GHz	Pass
			Middle	30MHz-20GHz	Pass
			High	30MHz-20GHz	Pass
	ANT2	Set.1-1	Low	30MHz-20GHz	Pass
			Middle	30MHz-20GHz	Pass
			High	30MHz-20GHz	Pass

Note: All accessory combinations and all antennas were tested, and only the worst results are shown in this report.

Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the PCS1900 band (1850.2 MHz, 1880 MHz and 1909.8 MHz) and GSM850 band (824.2MHz, 836.6MHz, 848.8MHz). It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of the PCS1900 ,GSM850 into any of the other blocks. The equipment must still, however, meet emissions requirements with the carrier at all frequencies over which it is capable of operating and it is the manufacturer's responsibility to verify this.

The range of evaluated frequency is from 9 kHz to the tenth harmonic of the highest fundamental frequency. Measurement value show only up to 6 maximum emissions noted.

**Set.2-1, Ant 0**
**GSM Mode Channel 128/824.2MHz**

Frequency (MHz)	P <sub>Mea</sub> (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1638.01	-53.74	3.56	5.25	2.15	-54.20	-13.00	41.20	H
2474.00	-48.19	4.60	6.02	2.15	-48.92	-13.00	35.90	V
3284.02	-61.01	5.28	7.68	2.15	-60.76	-13.00	47.80	H
4120.02	-56.94	6.04	9.02	2.15	-56.11	-13.00	43.10	V
4960.01	-57.04	6.67	9.86	2.15	-56.00	-13.00	43.00	V
5765.01	-56.48	7.24	10.55	2.15	-55.32	-13.00	42.30	V

**GSM Mode Channel 190/836.6MHz**

Frequency (MHz)	P <sub>Mea</sub> (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1666.01	-54.95	3.58	5.20	2.15	-55.48	-13.00	42.50	V
2526.00	-45.11	4.65	6.15	2.15	-45.76	-13.00	32.80	H
3347.02	-60.19	5.32	7.83	2.15	-59.83	-13.00	46.80	V
4201.02	-57.55	6.21	9.10	2.15	-56.81	-13.00	43.80	H
5022.01	-57.67	6.57	9.93	2.15	-56.46	-13.00	43.50	H
5838.01	-56.48	7.20	10.53	2.15	-55.30	-13.00	42.30	V

**GSM Mode Channel 251/848.8MHz**

Frequency (MHz)	P <sub>Mea</sub> (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1684.01	-54.91	3.59	5.17	2.15	-55.48	-13.00	42.50	H
2530.00	-45.94	4.65	6.15	2.15	-46.59	-13.00	33.60	H
3386.02	-60.39	5.35	7.93	2.15	-59.96	-13.00	47.00	V
4246.02	-56.97	6.24	9.15	2.15	-56.21	-13.00	43.20	H
5100.01	-57.07	6.77	10.04	2.15	-55.95	-13.00	43.00	V
5947.01	-56.11	7.47	10.51	2.15	-55.22	-13.00	42.20	V

Note: The measurement results showed here are worst cases.

**Set.1-3, Ant 1**
**GSM Mode Channel 512/1850.2MHz**

Frequency (MHz)	P <sub>Mea</sub> (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3700.02	-55.39	6.43	8.48	-53.34	-13.00	40.34	H
5542.02	-58.61	7.17	10.59	-55.19	-13.00	42.19	H
7410.01	-54.18	8.14	12.09	-50.23	-13.00	37.23	V
9253.01	-53.06	9.05	13.25	-48.86	-13.00	35.86	V
11093.01	-49.87	9.85	13.18	-46.54	-13.00	33.54	V
12960.01	-48.01	10.48	13.48	-45.01	-13.00	32.01	H

**GSM Mode Channel 661/1880.0MHz**

Frequency (MHz)	P <sub>Mea</sub> (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3760.02	-56.69	6.26	8.56	-54.39	-13.00	41.39	H
5641.02	-57.17	7.27	10.57	-53.87	-13.00	40.87	H
7525.01	-53.61	8.29	12.22	-49.68	-13.00	36.68	V
9397.01	-53.48	9.04	13.34	-49.18	-13.00	36.18	V
11272.01	-49.26	9.83	13.15	-45.94	-13.00	32.94	V
13161.01	-44.32	10.67	13.73	-41.26	-13.00	28.26	V

**GSM Mode Channel 810/1909.8MHz**

Frequency (MHz)	P <sub>Mea</sub> (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3820.02	-59.93	6.08	8.65	-57.36	-13.00	44.36	V
5729.02	-55.68	7.29	10.55	-52.42	-13.00	39.42	H
7638.01	-54.77	8.15	12.31	-50.61	-13.00	37.61	V
9548.01	-53.73	9.37	13.35	-49.75	-13.00	36.75	V
11468.01	-49.53	9.89	13.11	-46.31	-13.00	33.31	V
13360.01	-43.08	10.57	14.00	-39.65	-13.00	26.65	H

Note: The measurement results showed here are worst cases.



## Annex B: Accreditation Certificate

<p>United States Department of Commerce National Institute of Standards and Technology</p>  	
<hr/> <b>Certificate of Accreditation to ISO/IEC 17025:2017</b> <hr/>	
NVLAP LAB CODE: 600118-0	
<b>Telecommunication Technology Labs, CAICT</b> Beijing China	
<i>is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:</i>	
<b>Electromagnetic Compatibility &amp; Telecommunications</b>	
<i>This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).</i>	
2020-09-29 through 2021-09-30 <i>Effective Dates</i>	 For the National Voluntary Laboratory Accreditation Program

\*\*\*END OF REPORT\*\*\*