



# TEST REPORT

## No. I22Z60667-EMC08

for

**Honor Device Co., Ltd.**

**Smart Phone**

**Model Name: VNE-N41**

with

**FCC ID: 2AYGCVNE-N41**

**Hardware Version: HN2VNEM**

**Software Version: 4.2.0.55(C900E55R1P1)**

**Issued Date: 2022-06-15**

**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>
I22Z60667-EMC08	Rev.0	1 <sup>st</sup> edition	2022-06-15

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

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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

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℃

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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An Hui

(Prepared this test report)



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Zhang Ying

(Reviewed this test report)



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Zhang Xia

Deputy Director of the laboratory

(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	VNE-N41
FCC ID	2AYGCVNE-N41

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**

<b>EUT ID*</b>	<b>IMEI</b>	<b>HW Version</b>	<b>SW Version</b>
EUT1	864258060052015/864258060066486	HN2VNEM	4.2.0.55(C900E55R1P1)
EUT2	864258060053864/864258060068334	HN2VNEM	4.2.0.55(C900E55R1P1)
EUT3	864258060054466/864258060068938	HN2VNEM	4.2.0.55(C900E55R1P1)
EUT4	864258060054391/864258060068862	HN2VNEM	4.2.0.55(C900E55R1P1)

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

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

<b>AE ID*</b>	<b>Description</b>	<b>Note</b>
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 (FF)
AE2-2	USB Cable	AU2-CRO013 HF (LJ)
AE2-3	USB Cable	L125UC007-CS-H (LX)
AE2-4	USB Cable	2120-00001-0 (MG)
AE2-5	USB Cable	RY0002 (NB)
AE3-1	Headset	1293-3283-3.5mm-339
AE3-2	Headset	EPAB542-2WH05-DH
AE3-3	Headset	MEND1532B528A11
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



#### **4. Reference Documents**

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

<b>Reference</b>	<b>Title</b>	<b>Version</b>
FCC Part 24	PERSONAL COMMUNICATIONS SERVICES	10-1-20 Edition
FCC Part 27	MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES	10-1-20 Edition
ANSI/TIA-603-E	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards	2016
KDB 971168 D01	MEASUREMENT GUIDANCE FOR CERTIFICATION OF LICENSED DIGITAL TRANSMITTERS	v03r01

## 5. Laboratory Environment

**Semi-anechoic chamber** (22.6 meters X 13.6 meters X 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 M
Ground system resistance	< 4 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

### WCDMA Band II

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

### WCDMA Band V

Items	Test Name	Clause in FCC rules	Verdict
1	Emission Limit	2.1051/27.53	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
H-field Antenna	HFH2-Z2	829324/007	R&S	2022-12-23	1 year
EMI Antenna	VULB9163	9163-482	Schwarzbeck	2022-11-16	1 year
EMI Antenna	3117	00058889	ETS-Lindgren	2022-11-07	1 year
Signal Generator	N5183A	MY49060052	Agilent	2022-07-11	1 year

## **Annex A: Measurement Results**

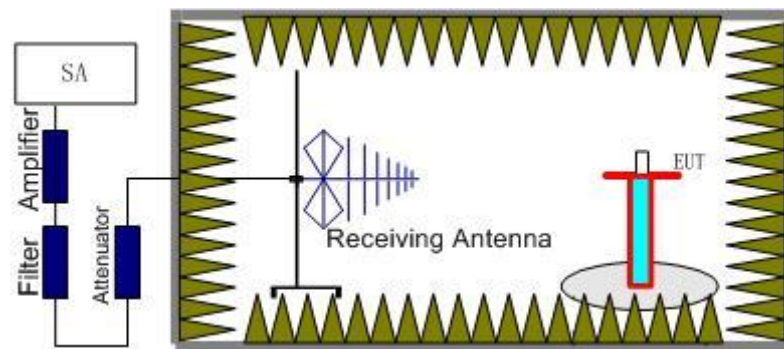
### **A.1 Measurement Method**

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

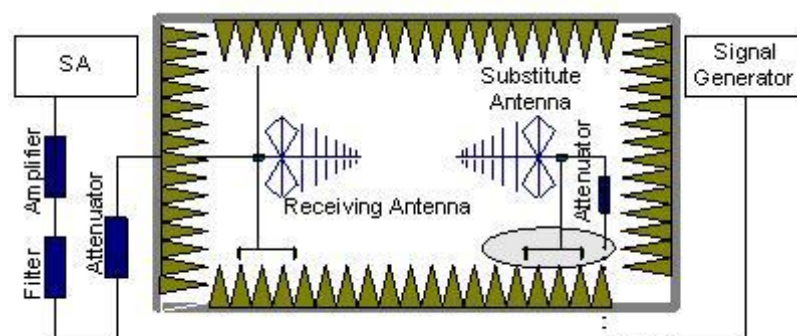
The spectrum was scanned from 9 kHz to the 10th harmonic of the highest frequency generated within the equipment. The resolution bandwidth is set as outlined in Part 24.238, Part 22.917, Part 27.53. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of WCDMA Band II, WCDMA Band V and WCDMA Band IV.

#### **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 , Part 24.238 and Part 27.53(h) 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	Sweep time (s)
WCDMA Band V	0.03~1	100kHz	300kHz	10
	1-2	1 MHz	3 MHz	2
	2~5	1 MHz	3 MHz	3
	5~8	1 MHz	3 MHz	3
	8~10	1 MHz	3 MHz	3
WCDMA Band II	0.03~1	100kHz	300kHz	10
	1-2	1 MHz	3 MHz	2
	2~5	1 MHz	3 MHz	3
	5~8	1 MHz	3 MHz	3
	8~11	1 MHz	3 MHz	3
	11~14	1 MHz	3 MHz	3
	14~18	1 MHz	3 MHz	3
	18~20	1 MHz	3 MHz	2

## A.4 Measurement Results

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
WCDMA Band V	ANT0	Set.1-1	Low	9KHz -10GHz	Pass
		Set.1-1	Middle	9KHz -10GHz	Pass
		Set.1-1	High	9KHz -10GHz	Pass
	ANT2	Set.1-1	Low	9KHz -10GHz	Pass
		Set.1-1	Middle	9KHz -10GHz	Pass
		Set.1-1	High	9KHz -10GHz	Pass
WCDMA Band II	ANT1	Set.1-1	Low	9KHz -20GHz	Pass
		Set.1-1	Middle	9KHz -20GHz	Pass
		Set.1-1	High	9KHz -20GHz	Pass
	ANT2	Set.1-1	Low	9KHz -20GHz	Pass
		Set.1-1	Middle	9KHz -20GHz	Pass
		Set.1-1	High	9KHz -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 WCDMA Band II (1852.4 MHz, 1880.0MHz and 1907.6MHz) and WCDMA Band V(826.4MHz, 836.6MHz and 846.6MHz). 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 WCDMA Band II, WCDMA Band V and WCDMA Band IV 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.

All mode of operation were investigated and the worst case configuration results are reported in this section.

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.1-1, Ant 2**
**WCDMA BAND II Mode Channel 9262/1852.4MHz**

Frequency (MHz)	P <sub>Mea</sub> (dBm)	Path Loss (dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3685.02	-59.59	6.46	8.46	-57.59	-13.00	44.59	H
5557.02	-58.70	7.19	10.59	-55.30	-13.00	42.30	H
7407.01	-53.07	8.14	12.09	-49.12	-13.00	36.12	V
9246.01	-52.46	9.03	13.25	-48.24	-13.00	35.24	V
11100.01	-49.91	9.84	13.18	-46.57	-13.00	33.57	V
12976.01	-47.86	10.48	13.49	-44.85	-13.00	31.85	V

**WCDMA BAND II Mode Channel 9400/1880MHz**

Frequency (MHz)	P <sub>Mea</sub> (dBm)	Path Loss (dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3750.02	-59.04	6.29	8.55	-56.78	-13.00	43.78	V
5657.02	-58.00	7.27	10.57	-54.70	-13.00	41.70	V
7539.01	-53.98	8.23	12.23	-49.98	-13.00	36.98	V
9389.01	-53.09	9.05	13.33	-48.81	-13.00	35.81	V
11266.01	-49.25	9.79	13.15	-45.89	-13.00	32.89	V
13165.01	-44.55	10.65	13.73	-41.47	-13.00	28.47	V

**WCDMA BAND II Mode Channel 9538/1907.6MHz**

Frequency (MHz)	P <sub>Mea</sub> (dBm)	Path Loss (dB)	Antenna Gain(dBi)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3825.02	-61.19	6.06	8.66	-58.59	-13.00	45.59	V
5745.02	-58.22	7.27	10.55	-54.94	-13.00	41.94	V
7614.01	-54.33	8.04	12.29	-50.08	-13.00	37.08	V
9552.01	-53.11	9.35	13.35	-49.11	-13.00	36.11	V
11470.01	-48.67	9.89	13.11	-45.45	-13.00	32.45	V
13379.01	-43.99	10.57	14.03	-40.53	-13.00	27.53	H

Note: The measurement results showed here are worst cases.

**Set.1-1, Ant 2**
**WCDMA BAND V Mode Channel 4132/826.4MHz**

Frequency (MHz)	P <sub>Mea</sub> (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1637.01	-53.93	3.56	5.25	2.15	-54.39	-13.00	41.39	H
2481.00	-45.95	4.60	6.04	2.15	-46.66	-13.00	33.66	H
3311.02	-60.67	5.29	7.75	2.15	-60.36	-13.00	47.36	V
4137.02	-55.77	6.06	9.04	2.15	-54.94	-13.00	41.94	V
4955.01	-56.90	6.68	9.86	2.15	-55.87	-13.00	42.87	V
5784.01	-56.76	7.21	10.54	2.15	-55.58	-13.00	42.58	V

**WCDMA BAND V Mode Channel 4183/836.6MHz**

Frequency (MHz)	P <sub>Mea</sub> (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1655.01	-53.19	3.57	5.22	2.15	-53.69	-13.00	40.69	H
2522.00	-44.64	4.65	6.14	2.15	-45.30	-13.00	32.30	V
3342.02	-59.79	5.31	7.82	2.15	-59.43	-13.00	46.43	V
4163.02	-57.54	6.12	9.06	2.15	-56.75	-13.00	43.75	V
5025.01	-56.84	6.56	9.94	2.15	-55.61	-13.00	42.61	H
5867.01	-56.06	7.29	10.53	2.15	-54.97	-13.00	41.97	V

**WCDMA BAND V Mode Channel 4233/846.6MHz**

Frequency (MHz)	P <sub>Mea</sub> (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1702.01	-54.47	3.60	5.14	2.15	-55.08	-13.00	42.08	V
2538.00	-44.83	4.66	6.17	2.15	-45.47	-13.00	32.47	H
3387.02	-61.18	5.35	7.93	2.15	-60.75	-13.00	47.75	V
4240.02	-57.21	6.25	9.14	2.15	-56.47	-13.00	43.47	H
5088.01	-56.37	6.74	10.02	2.15	-55.24	-13.00	42.24	V
5945.01	-55.56	7.47	10.51	2.15	-54.67	-13.00	41.67	V

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>	
<hr/> 2020-09-29 through 2021-09-30 <i>Effective Dates</i>	 <hr/> <i>[Signature]</i> For the National Voluntary Laboratory Accreditation Program

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