

FCC Radio Partial Test Report

FCC ID: 2AYGCVNE-N41

This report concerns: Original Grant

Project No. : 2204C233
Equipment : Smart Phone
Brand Name : HONOR
Test Model : VNE-N41
Series Model : N/A
Applicant : Honor Device Co., Ltd.
Address : Shum Yip Sky Park, No. 8089, Hongli West Road, Shenzhen, China
Manufacturer : Honor Device Co., Ltd.
Address : Shum Yip Sky Park, No. 8089, Hongli West Road, Shenzhen, China
Date of Receipt : Apr. 22, 2022
Date of Test : Apr. 25, 2022 ~ Apr. 28, 2022
Issued Date : Jun. 15, 2022
Report Version : R01
Standard(s) : FCC CFR Title 47, Part 15, Subpart E
FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01
ANSI C63.10-2013

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

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TESTING CERT #5123.02

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Declaration

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The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

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REPORT ISSUED HISTORY

Report No.	Version	Description	Issued Date	Note
BTL-FCCP-4-2204C233	R00	Original Report.	May 27, 2022	Invalid
BTL-FCCP-4-2204C233	R01	Updated the factory of adapter.	Jun. 15, 2022	Valid

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC CFR Title 47, Part 15, Subpart E				
Standard(s) Section	Test Item		Judgment	Remark
15.407(a) 15.407(e)	Bandwidth	6 & 26 dB Bandwidth	PASS	-----
		99% Emission Bandwidth		
15.407(a)	Maximum Output Power		Pass	-----
15.407(a)	Power Spectral Density		Pass	-----
15.407(g)	Frequency Stability		Pass	-----
15.407(b) 15.209	Band Edge Measurements		Pass	-----
15.407(b) 15.209	Conducted Spurious Emission		Pass	-----
15.203	Antenna Requirements		PASS	NOTE (2)
15.407(c)	Automatically Discontinue Transmission		PASS	NOTE (3)

Note:

- (1) "N/A" denotes test is not applicable in this test report.
- (2) The device what use a permanently attached antenna were considered sufficient to comply with the provisions of 15.203.
- (3) During no any information transmission, the EUT can automatically discontinue transmission and become standby mode for power saving. the EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.
- (4) For UNII-1 this device was functioned as a
 - ☐ Outdoor access point device
 - ☐ Indoor access point device
 - ☐ Fixed point-to-point access points device
 - ☒ Client device

1.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No. 3 Jinshagang 1st Rd. Shixia, Dalang Town Dongguan City, Guangdong 523792 People's Republic of China.

BTL's Registration Number for FCC: 357015
BTL's Designation Number for FCC: CN1240

1.2 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

The BTL measurement uncertainty as below table:

Test Item	Extended Uncertainty
Transmit Output Power Data	U = 0.56 dB
RF Power Density, Conducted	U = 0.66 dB
Bandwidth	20MHz: U=41.78kHz 40MHz: U=82.12kHz 80MHz: U=163.5kHz
Band Edge Compliance	U = 0.9 dB
Spurious Emissions, Conducted	20MHz~3.6GHz: U=0.92dB 3.6GHz~8.4GHz: U=1.22dB 8.4GHz~13.6GHz: U=1.44dB 8.4GHz~17.1GHz: U=1.58dB 17.1GHz~22GHz: U=1.98dB 22GHz~26.5GHz: U=2.18dB
Frequency Stability	2500MHz: U=41.58Hz 5800MHz: U=82.24Hz
Duty Cycle	U=2.06 %

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

1.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By
Bandwidth	15 ~ 35°C	25 ~ 75%	DC 3.87V	Jesse Wang
Maximum Output Power	15 ~ 35°C	25 ~ 75%	DC 3.87V	Jesse Wang
Power Spectral Density	15 ~ 35°C	25 ~ 75%	DC 3.87V	Jesse Wang
Band Edge Measurements	15 ~ 35°C	25 ~ 75%	DC 3.87V	Jesse Wang
Conducted Spurious Emission	15 ~ 35°C	25 ~ 75%	DC 3.87V	Jesse Wang
Frequency Stability	Normal & Extreme	25 ~ 75%	Normal & Extreme	Jesse Wang

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Smart Phone
Brand Name	HONOR
Test Model	VNE-N41
Series Model	N/A
Model Difference(s)	N/A
Hardware Version	HN2VNEM
Software Version	4.2.0.55(C900E55R1P1)
Power Source	1# DC voltage supplied from AC adapter. 2# Supplied from battery.
Power Rating	1# I/P: 100-240V~ 50/60Hz 0.75A O/P: 5V === 2A or 9V === 2A or 10V === 2.25A 2# DC 3.87V, Rated Capacity: 4900mAh
Operation Frequency Band(s)	UNII-1: 5150 MHz ~ 5250 MHz UNII-2A: 5250 MHz ~ 5350 MHz UNII-2C: 5470 MHz ~ 5725 MHz UNII-3: 5725 MHz ~ 5850 MHz
Modulation Type	IEEE 802.11a/n/ac: OFDM
Bit Rate of Transmitter	IEEE 802.11a: 54/48/36/24/18/12/9/6 Mbps IEEE 802.11n: up to 150 Mbps IEEE 802.11ac: up to 433.3 Mbps
Maximum Output Power UNII-1	IEEE 802.11a: 16.69 dBm (0.0467 W)
Maximum Output Power UNII-2A	IEEE 802.11a: 16.90 dBm (0.0490 W)
Maximum Output Power UNII-2C	IEEE 802.11a: 17.68 dBm (0.0586 W)
Maximum Output Power UNII-3	IEEE 802.11a: 16.87 dBm (0.0486 W)
Antenna Smart System	SISO

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

2. Channel List:

IEEE 802.11a IEEE 802.11n(HT20) IEEE 802.11ac(VHT20)		IEEE 802.11n(HT40) IEEE 802.11ac(VHT40)		IEEE 802.11ac(VHT80)	
UNII-1		UNII-1		UNII-1	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	38	5190	42	5210
40	5200	46	5230		
44	5220				
48	5240				

IEEE 802.11a IEEE 802.11n(HT20) IEEE 802.11ac(VHT20)		IEEE 802.11n(HT40) IEEE 802.11ac(VHT40)		IEEE 802.11ac(VHT80)	
UNII-2A		UNII-2A		UNII-2A	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
52	5260	54	5270	58	5290
56	5280	62	5310		
60	5300				
64	5320				

IEEE 802.11a IEEE 802.11n(HT20) IEEE 802.11ac(VHT20)		IEEE 802.11n(HT40) IEEE 802.11ac(VHT40)		IEEE 802.11ac(VHT80)	
UNII-2C		UNII-2C		UNII-2C	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
100	5500	102	5510	106	5530
104	5520	110	5550	122	5610
108	5540	118	5590		
112	5560	126	5630		
116	5580	134	5670		
120	5600				
124	5620				
128	5640				
132	5660				
136	5680				
140	5700				

IEEE 802.11a IEEE 802.11n(HT20) IEEE 802.11ac(VHT20)		IEEE 802.11n(HT40) IEEE 802.11ac(VHT40)		IEEE 802.11ac(VHT80)	
UNII-3		UNII-3		UNII-3	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	151	5755	155	5775
153	5765	159	5795		
157	5785				
161	5805				
165	5825				

3. Table for Filed Antenna:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Integrated	N/A	-1

Note: The antenna gain is provided by the manufacturer.

4. The EUT contains following accessory devices:

Object / Part No.	Manufacturer / Trademark	Type / Model Name	Technical Data
Adapter	Honor Device Co., Ltd. (Factory: Salcomp)	HN-100225E00	I/P: 100-240V ~50/60Hz, 0.75A O/P: 5V  2A or 9V  2A or 10V  2.25A
		HN-100225U00	
	Honor Device Co., Ltd. (Factory: Huntkey)	HW-100225E00	
		HW-100225U00	
		HW-100225B00	
Battery	Honor Device Co., Ltd. (Manufacturer: SCUD)	HB496590EFW	Rated capacity: 4900 mAh Nominal Voltage: +3.87V Charging Voltage: +4.45V
		HB496590EFW-F	
	Honor Device Co., Ltd. (Manufacturer: SCUD)	HB496590EFW	
		HB496590EFW-F	

2.2 PARAMETERS OF TEST SOFTWARE

UNII-1			
Test Software Version	N/A		
Frequency (MHz)	5180	5200	5240
IEEE 802.11a	14	17	17
IEEE 802.11n(HT20)	14	17	17
IEEE 802.11ac(VHT20)	14	17	17
Frequency (MHz)	5190		5230
IEEE 802.11n(HT40)	12		16
IEEE 802.11ac(VHT40)	12		16
Frequency (MHz)	5210		
IEEE 802.11ac(VHT80)	10.5		

UNII-2A				
Test Software Version	N/A			
Frequency (MHz)	5260	5280	5300	5320
IEEE 802.11a	17	17	17	15
IEEE 802.11n(HT20)	17	17	17	15
IEEE 802.11ac(VHT20)	17	17	17	15
Frequency (MHz)	5270		5310	
IEEE 802.11n(HT40)	16		9	
IEEE 802.11ac(VHT40)	16		9	
Frequency (MHz)	5290			
IEEE 802.11ac(VHT80)	10			

UNII-2C						
Test Software Version	N/A					
Frequency (MHz)	5500	5520	5580	5680	5700	5720
IEEE 802.11a	11	17	17	13	7	17
IEEE 802.11n(HT20)	12	17	17	13	7	17
IEEE 802.11ac(VHT20)	12	17	17	13	7	17
Frequency (MHz)	5510	5550	5630	5670	5710	
IEEE 802.11n(HT40)	10.5	16	16	12	16	
IEEE 802.11ac(VHT40)	10.5	16	16	12	16	
Frequency (MHz)	5530		5610		5690	
IEEE 802.11ac(VHT80)	8		15		15	

UNII-3			
Test Software Version	N/A		
Frequency (MHz)	5745	5785	5825
IEEE 802.11a	17	17	17
IEEE 802.11n(HT20)	17	17	17
IEEE 802.11ac(VHT20)	17	17	17
Frequency (MHz)	5755		5795
IEEE 802.11n(HT40)	16		16
IEEE 802.11ac(VHT40)	16		16
Frequency (MHz)	5775		
IEEE 802.11ac(VHT80)	14		

3. BANDWIDTH

3.1 LIMIT

Section	Test Item	Limit	Frequency Range (MHz)
FCC 15.407(a) FCC 15.407(e)	26 dB Bandwidth	-	5150-5250
	26 dB Bandwidth	-	5250-5350
	26 dB Bandwidth	-	5470-5725
	6 dB Bandwidth	Minimum 500 kHz	5725-5850

3.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below
- b. Spectrum Setting:
For UNII-1, UNII-2A, UNII-2C:

Spectrum Parameter	Setting
Span Frequency	> 26 dB Bandwidth
RBW	Appromiximately 1% of the emission bandwidth
VBW	> RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

For UNII-3:

Spectrum Parameter	Setting
Span Frequency	> 6 dB Bandwidth
RBW	100 kHz
VBW	300 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

- c. Measured the spectrum width with power higher than 26 dB / 6 dB below carrier.

3.3 DEVIATION FROM STANDARD

No deviation.

3.4 TEST SETUP



3.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

3.6 TEST RESULTS

Please refer to the APPENDIX.

4. MAXIMUM OUTPUT POWER

4.1 LIMIT

Section	Test Item	Limit	Frequency Range (MHz)
FCC 15.407(a)	Maximum Output Power	AP device: 1 Watt (30 dBm) Client device: 250 mW (23.98 dBm)	5150-5250
		250 mW (23.98 dBm)	5250-5350
		250 mW (23.98 dBm)	5470-5725
		1 Watt (30dBm)	5725-5850

Note:

- For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
- For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10log B, where B is the 26dB Bandwidth in megahertz.

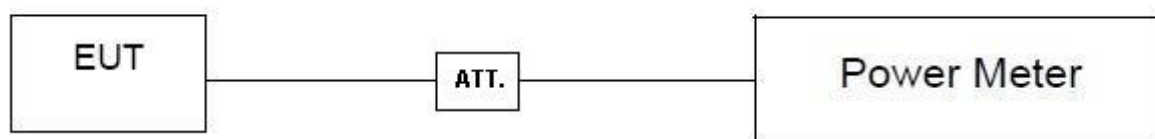
4.2 TEST PROCEDURE

- The EUT was directly connected to the power meter and antenna output port as show in the block diagram below.
- Test test was performed in accordance with method of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

4.3 DEVIATION FROM STANDARD

No deviation.

4.4 TEST SETUP



4.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

4.6 TEST RESULTS

Please refer to the APPENDIX.

5. BAND EDGE MEASUREMENTS & CONDUCTED SPURIOUS EMISSION

5.1 LIMIT

Section	Test Item	Limit	Frequency Range (MHz)
FCC 15.407(b) FCC 15.209	Band Edge Measurements & Conducted Spurious Emission	F<1GHz: §15.209/§ RSS-gen, §8.9 limit (QP). F≥1GHz & out-restricted: <-27dBm/MHz PK e.i.r.p. (exl. 5.15-5.35GHz).	5150-5250
		F<1GHz: §15.209 /RSS-gen, §8.9 limit (QP). F≥1GHz & out-restricted: <-27dBm/MHz PK e.i.r.p. (exl. 5.25-5.35GHz).	5250-5350
		F<1GHz: §15.209/ RSS-gen, §8.9 limit (QP). F≥1GHz & out-restricted: <-27dBm/MHz PK e.i.r.p. (exl. 5.47-5.725GHz).	5470-5725
		F<1GHz: §15.209/ RSS-gen, §8.9 limit (QP) F≥1GHz &out-restricted:(QP) a) 27 dBm/MHz at frequencies from the band edges decreasing linearly to 15.6 dBm/MHz at 5 MHz above or below the band edges; b) 15.6 dBm/MHz at 5 MHz above or below the band edges decreasing linearly to 10 dBm/MHz at 25 MHz above or below the band edges; c) 10 dBm/MHz at 25 MHz above or below the band edges decreasing linearly to -27 dBm/MHz at 75 MHz above or below the band edges; and d) -27 dBm/MHz at frequencies more than 75 MHz above or below the band edges.	5725-5850

5.2 TEST PROCEDURE

The following table is the setting of the receiver:

Spectrum Parameters	Setting
Start ~ Stop Frequency	30 MHz~1000 MHz for RBW 100 kHz

Spectrum Parameters	Setting
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic or 40 GHz, whichever is lower
RBW / VBW (Emission in restricted band)	1 MHz / 3 MHz for PK value 1 MHz / 1/T Hz for AVG value

Receiver Parameters	Setting
Start ~ Stop Frequency	30 MHz~1000 MHz for QP detector
Start ~ Stop Frequency	1 GHz~40 GHz for PK/AVG detector

5.3 DEVIATION FROM STANDARD

No deviation.

5.4 TEST SETUP



5.5 TEST RESULTS

Please refer to the APPENDIX.

6. POWER SPECTRAL DENSITY

6.1 LIMIT

Section	Test Item	Limit	Frequency Range (MHz)
FCC 15.407(a)	Power Spectral Density	AP device: 17 dBm/MHz Client device: 11 dBm/MHz	5150-5250
		11 dBm/MHz	5250-5350
		11 dBm/MHz	5470-5725
		30 dBm/500 kHz	5725-5850

6.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting:
For UNII-1, UNII-2A, UNII-2C:

Spectrum Parameter	Setting
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RBW	1 MHz.
VBW	3 MHz.
Detector	RMS
Trace average	100 trace
Sweep Time	Auto

For UNII-3:

Spectrum Parameter	Setting
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RBW	100 kHz.
VBW	300 kHz.
Detector	RMS
Trace average	100 trace
Sweep Time	Auto

Note:

- For UNII-3, according to KDB publication 789033 D02 General UNII Test Procedures New Rules v02r01, section II.F.5., it is acceptable to set RBW at 100kHz and VBW at 300kHz if the spectrum analyzer does not have 500 kHz RBW. Then, add $10 \log (500 \text{ kHz}/100 \text{ kHz})$ to the measured result, i.e. 7 dB.
- During the test of U-NII 3 PSD, the measurement result with RBW=100kHz has been added 7 dB by compensating offset. For example, the cable loss is 13 dB, and the final offset is $13 + 7 = 20 \text{ dB}$ when RBW=100kHz is used.

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



6.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

6.6 TEST RESULTS

Please refer to the APPENDIX.

7. FREQUENCY STABILITY

7.1 LIMIT

Section	Test Item	Limit	Frequency Range (MHz)
FCC 15.407(g)	Frequency Stability	An emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.	5150-5250
			5250-5350
			5470-5725
			5725-5850

7.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- Spectrum Setting:

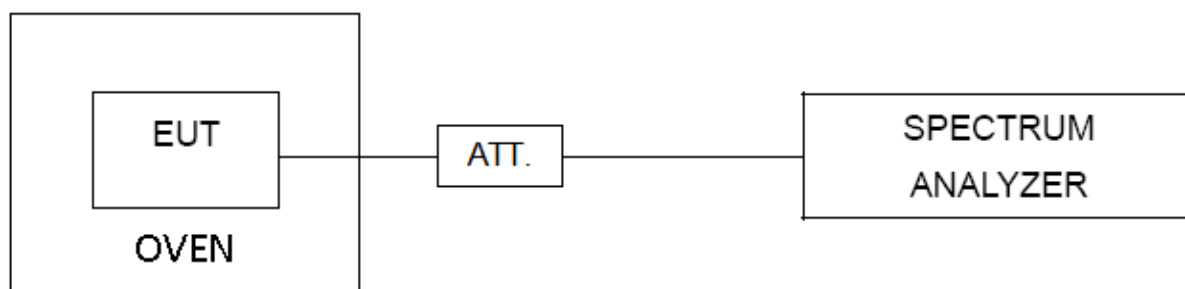
Spectrum Parameter	Setting
Span Frequency	Entire absence of modulation emissions bandwidth
RBW	10 kHz
VBW	10 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

- The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.
- User manual temperature is 0°C~35°C.

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP



7.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

7.6 TEST RESULTS

Please refer to the APPENDIX.

8. MEASUREMENT INSTRUMENTS LIST

Conducted Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Power Meter	R&S	NRX	102795	Sep. 26, 2022
2	Power Sensor	R&S	NRP6A	103126	May 14, 2022
3	Power Sensor	R&S	NRP6A	103127	May 14, 2022
4	Spectrum Analyzer	R&S	FSW43	101625	May 13, 2022
5	Temperature Chamber	WEISS	WKL64/40	56246014990010	May 24, 2022
6	Universal Radio Communication Tester	R&S	CMW500	164699	May 13, 2022
7	Universal Radio Communication Tester	R&S	CMW500	164543	May 13, 2022
8	Vector Signal Generator	R&S	SMW200A	107864	May 13, 2022

Remark: "N/A" denotes no model name, serial no. or calibration specified.

All calibration period of equipment list is one year.

End of Test Report