

FCC Radio Partial Test Report

FCC ID: 2AYGCLGE-NX9

This report concerns: Original Grant

Project No. : 2203G019
Equipment : Smart Phone
Brand Name : HONOR
Test Model : LGE-NX9
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 : Feb. 14, 2022
Date of Test : Feb. 14, 2022 ~ Apr. 14, 2022
Issued Date : Apr. 21, 2022
Report Version : R00
Standard(s) : 47 CFR FCC Part 24 Subpart E
47 CFR FCC Part 2
ANSI C63.26-2015
ANSI/TIA/EIA-603-E-2016
FCC KDB 971168 D01 Power Meas License Digital Systems v03r01

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

Gabriel Zhu

Prepared by : Gabriel Zhu

Steven Lu

Approved by : Steven Lu



Add: No. 3 Jinshagang 1st Rd. Shixia, Dalang Town Dongguan City, Guangdong 523792

People's Republic of China.

Tel: +86-769-8318-3000

Web: www.newbtl.com

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 is not use in determining the Pass/Fail results.

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REPORT ISSUED HISTORY

Report No.	Version	Description	Issued Date	Note
BTL-FCCP-6-2203G019	R00	Original Report.	Apr. 21, 2022	Valid

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC Part 24 Subpart E & Part 2			
Standard(s) Section	Test Item	Judgment	Remark
2.1046 24.232(c)	Output Power & Equivalent Isotropic Radiated Power	PASS	-----
2.1049	Occupied Bandwidth	PASS	-----
2.1051 24.238(a)	Conducted Spurious Emissions	PASS	-----
2.1047	Modulation Characteristics	PASS	-----
24.238(a)	Band Edge Measurements	PASS	-----
24.232(d)	Peak To Average Ratio	PASS	-----
2.1055 24.235	Frequency Stability	PASS	-----

Note:

(1) "N/A" denotes test is not applicable in this test report.

1.1 TEST FACILITY

The test facilities used to collect the test data of conducted in this report is at the location of Room 108, Building 2, No.1, Yile Road, Songshan Lake Zone, Dongguan City, Guangdong, People's Republic of China.

BTL's Test Firm 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:

Parameter	Uncertainty
Transmit Output Power Output Data	U = 0.40 dB
RF Power Density, Conducted	U = 0.66 dB
Bandwidth	200kHz: U=9.06kHz 1.4MHz: U=9.48kHz 3MHz: U= 10.86kHz 5MHz: U=13.84kHz 10MHz: U=22.32kHz 15MHz: U=31.9kHz 20MHz: U=41.78kHz
Band Edge Compliance	U = 0.9 dB
Spurious Emissions, Conducted	20MHz~3.6GHz: U=0.88dB 3.6GHz~8.4GHz: U=1.08dB 8.4GHz~13.6GHz: U=1.24dB 13.6GHz~22GHz: U=1.34dB 22GHz~26.5GHz: U=1.36dB
Frequency Stability	800MHz: U=24.08Hz 900MHz: U=24.54Hz 1900MHz: U=34.7Hz 2100MHz: U=36.96Hz 2300MHz: U=39.24Hz 2500MHz: U=41.58Hz 2600MHz: U=42.74Hz

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
Output Power & EIRP	19.5 ~ 25°C	25 ~ 75%	DC 3.87V	Rick Liao
Occupied Bandwidth	19.5 ~ 25°C	25 ~ 75%	DC 3.87V	Rick Liao
Conducted Spurious Emissions	19.5 ~ 25°C	25 ~ 75%	DC 3.87V	Rick Liao
Band Edge	19.5 ~ 25°C	25 ~ 75%	DC 3.87V	Rick Liao
Peak to Average Ratio	19.5 ~ 25°C	25 ~ 75%	DC 3.87V	Rick Liao
Frequency Stability	Normal & Extreme	25 ~ 75%	Normal & Extreme	Rick Liao

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Smart Phone		
Brand Name	HONOR		
Test Model	LGE-NX9		
Series Model	N/A		
Model Difference(s)	N/A		
Hardware Version	HN1LGEHM		
Software Version	6.0.0.108(C900E103R1P3)		
Power Source	1# DC voltage supplied from AC adapter. 2# Supplied from battery.		
Power Rating	1# I/P: 100-240V~ 50/60Hz 1.6A O/P: 5V $\overline{\text{---}}$ 2A or 10V $\overline{\text{---}}$ 4A or 20V $\overline{\text{---}}$ 5A Max 2# DC 3.87V, Rated Capacity:4500mAh		
IMEI No.	867843050038442, 867843050038392		
Radio System Type	SA&NSA		
Supported Inter-band EN-DC within FR1	There are all kinds of EN-DC combinations. Please refer to detailed product specifications.		
SCS	15KHz		
Operation Band	n2		
Bandwidth	n2: 5MHz, 10MHz, 15MHz, 20MHz		
Modulation Type	DFT-s-OFDM PI/2 BPSK		
	DFT-s-OFDM QPSK		DFT-s-OFDM QPSK
	DFT-s-OFDM 16QAM		DFT-s-OFDM 16QAM
	DFT-s-OFDM 64QAM		DFT-s-OFDM 64QAM
	DFT-s-OFDM 256QAM		DFT-s-OFDM 256QAM
Max. EIRP	5G NR n2	20.53	dBm

Note:

- LGE-NX9 is subscriber equipment in the GSM/WCDMA/LTE/NR system. The Mobile Phone implements such functions as RF signal receiving/transmitting, NR/LTE/WCDMA and GSM/GPRS/EDGE protocol processing, voice, video MMS service, GPS, AGPS, Wi-Fi etc. dual SIM/single SIM card interface. LGE-NX9 is dual/single SIM smart phone. It also provides Bluetooth module to synchronize data between a PC and the phone, or to use the built-in modem of the phone to access the Internet, or to exchange data with other Bluetooth devices. The device is a dual SIM and single SIM smart phone, Single SIM delete SIM only by software. (Only 5G NR test data include in this report.)

2. Channel List:

5G NR n2 (UL: 1850-1910MHz, DL: 1930-1990MHz)						
Bandwidth	Low Channel	Mid Channel	High Channel	Low Frequency	Mid Frequency	High Frequency
5	370500	376000	381500	1852.5	1880	1907.5
10	371000	376000	381000	1855	1880	1905
15	371500	376000	380500	1857.5	1880	1902.5
20	372000	376000	380000	1860	1880	1900

3. RB allocation:

Bandwidth	50	40	30	25	20	15	10	5
SCS 15KHz CP-OFDM	RB Size/Offset	RB Size/Offset	RB Size/Offset	RB Size/Offset	RB Size/Offset	RB Size/Offset	RB Size/Offset	RB Size/Offset
Edge_1RB_Left	1/0	1/0	1/0	1/0	1/0	1/0	1/0	1/0
Inner_1RB_Left	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
Inner_1RB_Right	1/268	1/214	1/158	1/131	1/104	1/77	1/50	1/23
Edge_1RB_Right	1/269	1/215	1/159	1/132	1/105	1/78	1/51	1/24
Edge_Full_Left	2/0	2/0	2/0	2/0	2/0	2/0	2/0	2/0
Edge_Full_Right	2/268	2/214	2/158	2/131	2/104	2/77	2/50	2/23
Inner_Full	135/67	108/54	80/40	67/33	53/26	39/19	26/13	13/6
Outer_Full	270/0	216/0	160/0	133/0	106/0	79/0	52/0	25/0

Bandwidth	50	40	30	25	20	15	10	5
SCS 15KHz DFT-s-OFDM	RB Size/Offset	RB Size/Offset	RB Size/Offset	RB Size/Offset	RB Size/Offset	RB Size/Offset	RB Size/Offset	RB Size/Offset
Edge_1RB_Left	1/0	1/0	1/0	1/0	1/0	1/0	1/0	1/0
Inner_1RB_Left	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
Inner_1RB_Right	1/268	1/214	1/158	1/131	1/104	1/77	1/50	1/23
Edge_1RB_Right	1/269	1/215	1/159	1/132	1/105	1/78	1/51	1/24
Edge_Full_Left	2/0	2/0	2/0	2/0	2/0	2/0	2/0	2/0
Edge_Full_Right	2/268	2/214	2/158	2/131	2/104	2/77	2/50	2/23
Inner_Full	135/67	108/54	80/40	64/32	50/25	36/18	25/12	12/6
Outer_Full	270/0	216/0	160/0	128/0	100/0	75/0	50/0	25/0

4. Table for Filed Antenna:

Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
N/A	N/A	Integral	N/A	-3.2	5G NR n2

Note: The antenna gain is provided by the manufacturer.

5. The EUT contains following accessory devices:

Object / Part No.	Manufacturer / Trademark	Type / Model Name	Technical Data
Adapter	HONOR Device Co., Ltd.	HN-200500E01	I/P: 100-240V ~50/60Hz, 1.6A O/P: 5V \equiv 2A or 10V \equiv 4A or 20V \equiv 5A Max
		HN-200500U01	
		HN-200500B01	
Battery	Shenzhen Sunwoda Intelligence Technology Co., Ltd.	HB586680EFW	Rated capacity: 4500 mAh Nominal Voltage: +3.87V Charging Voltage: +4.45V
	Scud (Fujian) Electronics Co., Ltd.		

2.2 DESCRIPTION OF TEST MODES

For inter-band EN-DC, the test configurations is same with the SA mode.

5G NR n2				
Test Item	Tested Channel	Channel Bandwidth	Modulation	RB allocation
Output Power & EIRP	Low, Mid, High	5MHz	DFT-s-OFDM: PI/2 BPSK,QPSK, 16QAM	Outer Full Inner 1RB Left Inner 1RB Right Inner Full
	Low, Mid, High	15MHz		
	Low, Mid, High	20MHz		
Peak To Average Ratio	Mid	5MHz	DFT-s-OFDM: PI/2 BPSK,QPSK, 16QAM, 64QAM,256QAM CP-OFDM: QPSK, 16QAM, 64QAM,256QAM	Outer Full
	Mid	15MHz		
	Mid	20MHz		
Modulation Characteristics	Mid	20MHz	DFT-s-OFDM: PI/2 BPSK,QPSK, 16QAM, 64QAM,256QAM CP-OFDM: QPSK, 16QAM, 64QAM,256QAM	Outer Full
Occupied Bandwidth	Low, Mid, High	5MHz	DFT-s-OFDM: PI/2 BPSK,QPSK, 16QAM, 64QAM,256QAM CP-OFDM: QPSK, 16QAM, 64QAM,256QAM	Outer Full
	Low, Mid, High	10MHz		
	Low, Mid, High	15MHz		
	Low, Mid, High	20MHz		
Band Edge	Low, High	5MHz	DFT-s-OFDM: PI/2 BPSK,QPSK, 16QAM, 64QAM,256QAM CP-OFDM: QPSK, 16QAM, 64QAM,256QAM	Edge 1RB Left Edge 1RB Right Outer Full Inner Full
	Low, High	20MHz		
Conducted Spurious Emission	Low, Mid, High	5MHz	CP-OFDM QPSK	Edge 1RB Left Edge 1RB Right Outer Full
	Low, Mid, High	15MHz		
	Low, Mid, High	20MHz		
Frequency Stability	Mid	20MHz	DFT-s-OFDM QPSK	Outer Full

3. TEST RESULT

3.1 OUTPUT POWER MEASUREMENT

3.1.1 LIMIT

Mobile / Portable station are limited to 2 watts e.i.r.p.

3.1.2 TEST PROCEDURE

The testing follows FCC KDB 971168 v03r01 Section 5.

EIRP:

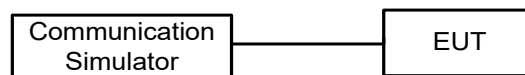
$EIRP = \text{Output Power} + \text{Antenan gain}$

Output Power:

The EUT was set up for the maximum power with GSM, GPRS, EDGE, WCDMA and LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

3.1.3 TEST SETUP LAYOUT

Output Power Measurement



3.1.4 TEST DEVIATION

No deviation

3.1.5 TEST RESULTS

Please refer to the APPENDIX.

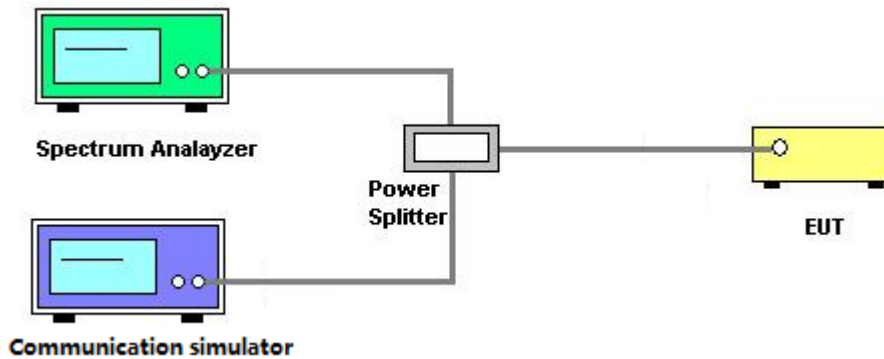
3.2 OCCUPIED BANDWIDTH MEASUREMENT

3.2.1 TEST PROCEDURE

The testing follows FCC KDB 971168 v03r01 Section 4.

1. The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth and 26dB bandwidth.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. $RBW=(1\% \sim 5\%)*EBW$
 $VBW \geq 3* RBW$
4. Set spectrum analyzer with Peak detector.

3.2.2 TEST SETUP LAYOUT



3.2.3 TEST DEVIATION

No deviation

3.2.4 TEST RESULTS

Please refer to the APPENDIX.

3.3 CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

3.3.1 LIMIT

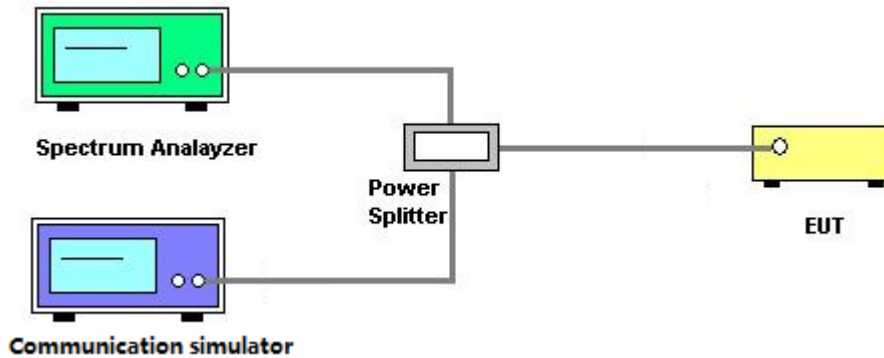
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -13dBm.

3.3.2 TEST PROCEDURES

The testing follows FCC KDB 971168 v03r01 Section 6.

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The band edges of low and high channels for the highest RF powers were measured. Set RBW \geq 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
3. Set spectrum analyzer with Peak detector.
4. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.3.3 TEST SETUP LAYOUT



3.3.4 TEST DEVIATION

No deviation

3.3.5 TEST RESULTS

Please refer to the APPENDIX.

3.4 BAND EDGE MEASUREMENT

3.4.1 LIMIT

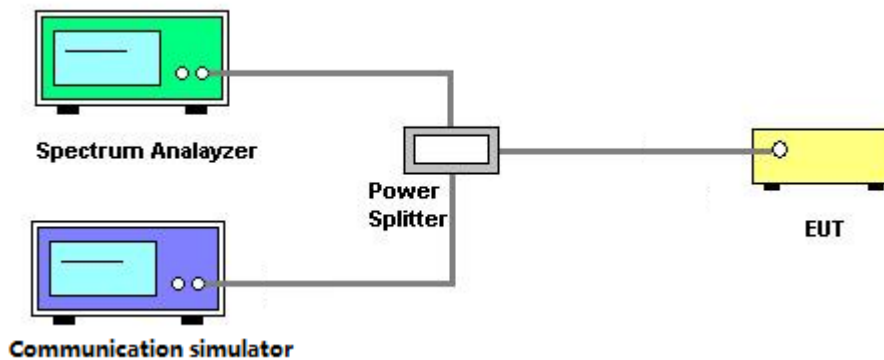
A Power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

3.4.2 TEST PROCEDURES

The testing follows FCC KDB 971168 v03r01 Section 6.

1. All measurements were done at low and high operational frequency range.
2. Record the max trace plot into the test report.

3.4.3 TEST SETUP LAYOUT



3.4.4 TEST DEVIATION

No deviation

3.4.5 TEST RESULTS

Please refer to the APPENDIX.

3.5 PEAK TO AVERAGE RATIO MEASUREMENT

3.5.1 LIMIT

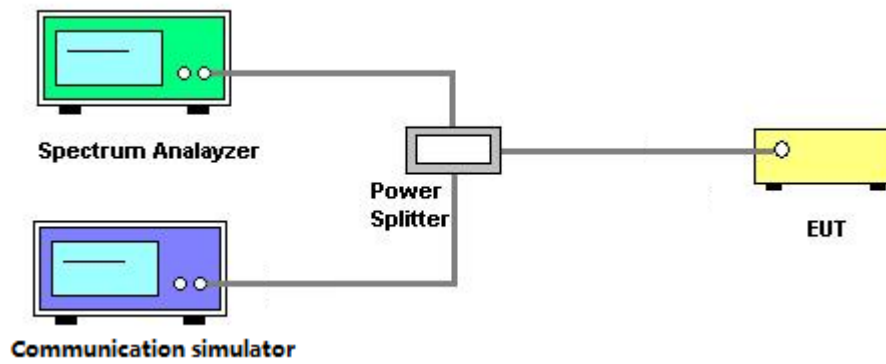
In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

3.5.2 TEST PROCEDURES

The testing follows FCC KDB 971168 v03r01 Section 5.7.

1. Set resolution/measurement bandwidth \geq signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1%.

3.5.3 TEST SETUP LAYOUT



3.5.4 TEST DEVIATION

No deviation

3.5.5 TEST RESULTS

Please refer to the APPENDIX.

3.6 FREQUENCY STABILITY MEASUREMENT

3.6.1 LIMIT

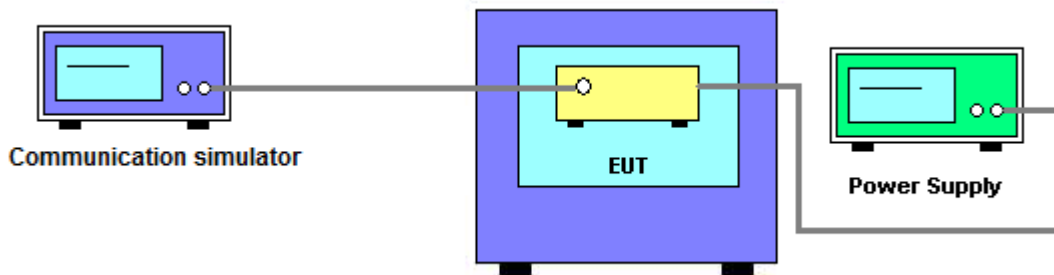
± 1.5 ppm is for base and fixed station. ± 2.5 ppm is for mobile station.

3.6.2 TEST PROCEDURES

The testing follows FCC KDB 971168 v03r01 Section 9.

1. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
2. EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
3. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the $\pm 0.5^{\circ}\text{C}$ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.
4. The frequency error was recorded frequency error from the communication simulator.

3.6.3 TEST SETUP LAYOUT



3.6.4 TEST DEVIATION

No deviation

3.6.5 TEST RESULTS

Please refer to the APPENDIX.

4. LIST OF MEASUREMENT EQUIPMENTS

Conducted Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Universal Radio Communication Tester	keysight	E7515B	MY60192688	Sep. 26, 2022
2	Universal Radio Communication Tester	Starpoint	SP9500	20643	Oct. 26, 2022
3	Universal Radio Communication Tester	Starpoint	SP9500	20648	Oct. 26, 2022
4	Universal Radio Communication Tester	Starpoint	SP9500	20545	Sep. 28, 2022
5	Signal Analyzer	R&S	FSW26	102415	Sep. 26, 2022
6	Signal Analyzer	R&S	FSW43	101998	Sep. 26, 2022
7	Vector Signal Generator	R&S	SMW200A	109896	Sep. 27, 2022
8	Temperature Chamber	JINGIE	HWS-150LPS	202107122018	Sep. 24, 2022
9	DC Power Supply	ITECH	IT6512CW	A2105008278	May 26, 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