

FCC Radio 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 ~ May 08, 2022
Issued Date : Jun. 15, 2022
Report Version : R01
Standard(s) : 47 CFR FCC Part 27 Subpart M
47 CFR FCC Part 2
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.

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TESTING CERT #5123.02

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Declaration

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BTL is not responsible for the sampling stage, so the results only apply to the sample as received.

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-8-2204C233	R00	Original Report.	May 27, 2022	Invalid
BTL-FCCP-8-2204C233	R01	Updated the factory of adapter.	Jun. 15, 2022	Valid

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC Part 27 Subpart M & Part 2			
Standard(s) Section	Test Item	Judgment	Remark
2.1046 27.50(h)(2)	Equivalent Isotropic Radiated Power	PASS	-----
2.1049	Occupied Bandwidth	PASS	-----
2.1051 27.53(m)(4)&(m)(6)	Conducted Spurious Emissions	PASS	-----
2.1047	Modulation Characteristics	PASS	-----
2.1051 27.53(m)(4)&(m)(6)	Band Edge Measurements	PASS	-----
-	Peak To Average Ratio	PASS	Record Only
2.1055 27.54	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	15 ~ 35°C	25 ~ 75%	DC 3.87V	Rick Liao
Occupied Bandwidth	15 ~ 35°C	25 ~ 75%	DC 3.87V	Rick Liao
Conducted Spurious Emissions	15 ~ 35°C	25 ~ 75%	DC 3.87V	Rick Liao
Band Edge	15 ~ 35°C	25 ~ 75%	DC 3.87V	Rick Liao
Peak to Average Ratio	15 ~ 35°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	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 \equiv 2A or 9V \equiv 2A or 10V \equiv 2.25A 2# DC 3.87V, Rated Capacity: 4900mAh		
IMEI No.	864258060052858, 864258060052197, 864258060053328		
Modulation Type	LTE	UL: QPSK,16QAM, 64QAM	
Power Class	LTE Band 7	PC3	
	LTE Band 38	PC3	
	LTE Band 41	PC2	
Max. EIRP	LTE Band 7	25.10	dBm
	LTE Band 38	25.59	dBm
	LTE Band 41	26.48	dBm

Note:

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

2. Channel List:

LTE Band 7					
Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink (MHz)	N _{DL}	Frequency of Downlink (MHz)
Low Range	5	20775	2502.5	2775	2622.5
	10	20800	2505	2800	2625
	15	20825	2507.5	2825	2627.5
	20	20850	2510	2850	2630
Mid Range	5/10/15/20	21100	2535	3100	2655
High Range	5	21425	2567.5	3425	2687.5
	10	21400	2565	3400	2685
	15	21375	2562.5	3375	2682.5
	20	21350	2560	3350	2680

LTE Band 38			
Test Frequency ID	Bandwidth (MHz)	EARFCN	Frequency (UL and DL) (MHz)
Low Range	5	37775	2572.5
	10	37800	2575
	15	37825	2577.5
	20	37850	2580
Mid Range	5/10/15/20	38000	2595
High Range	5	38225	2617.5
	10	38200	2615
	15	38175	2612.5
	20	38150	2610

LTE Band 41			
Test Frequency ID	Bandwidth (MHz)	EARFCN	Frequency (UL and DL) (MHz)
Low Range	5	39675	2498.5
	10	39700	2501
	15	39725	2503.5
	20	39750	2506
Mid Range	5/10/15/20	40620	2593
High Range	5	41565	2687.5
	10	41540	2685
	15	41515	2682.5
	20	41490	2680

3. Table for Filed Antenna:

Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
N/A	N/A	Integral	N/A	1.9	LTE BAND 7
				1.9	LTE BAND 38
				1.9	LTE BAND 41

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 DESCRIPTION OF TEST MODES

Test Modes in the report are described below:

Test Mode	Test Modes Description
LTE/TM1	LTE system, QPSK modulation
LTE/TM2	LTE system, 16QAM modulation
LTE/TM3	LTE system, 64QAM modulation

Note: The test mode(s) are selected according to relevant radio technology specifications.

Following mode(s) is (were) found to be the worst case(s) and selected for the final test.

LTE BAND 7 MODE					
Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
Output Power & EIRP	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM	1RB/25RB
	20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM	1RB/100RB
Peak To Average Ratio	20775 to 21425	21100	5MHz	QPSK, 16QAM, 64QAM	1RB/25RB
	20850 to 21350	21100	20MHz	QPSK, 16QAM, 64QAM	1RB/100RB
Modulation Characteristics	20775 to 21425	21100	5MHz	QPSK, 16QAM, 64QAM	25RB
	20850 to 21350	21100	20MHz	QPSK, 16QAM, 64QAM	100RB
Occupied Bandwidth	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM, 64QAM	25RB
	20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM, 64QAM	50RB
	20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM, 64QAM	75RB
	20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM, 64QAM	100RB
Band Edge	20775 to 21425	20775, 21425	5MHz	QPSK, 16QAM, 64QAM	1RB/25RB
	20850 to 21350	20850, 21350	20MHz	QPSK, 16QAM, 64QAM	1RB/100RB
Conducted Spurious Emissions	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM	1RB//25RB
	20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM	1RB/100RB
Frequency Stability	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM	25RB
	20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM	100RB

LTE BAND 38 MODE					
Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
Output Power & EIRP	37775 to 38225	37775, 38000, 38225	5MHz	QPSK, 16QAM	1RB/25RB
	37850 to 38150	37850, 38000, 38150	20MHz	QPSK, 16QAM	1RB/100RB
Peak To Average Ratio	37775 to 38225	38000	5MHz	QPSK, 16QAM, 64QAM	1RB/25RB
	37850 to 38150	38000	20MHz	QPSK, 16QAM, 64QAM	1RB/100RB
Modulation Characteristics	37775 to 38225	38000	5MHz	QPSK, 16QAM, 64QAM	25RB
	37850 to 38150	38000	20MHz	QPSK, 16QAM, 64QAM	100RB
Occupied Bandwidth	37775 to 38225	37775, 38000, 38225	5MHz	QPSK, 16QAM, 64QAM	25RB
	37800 to 38200	37800, 38000, 38200	10MHz	QPSK, 16QAM, 64QAM	50RB
	37825 to 38175	37825, 38000, 38175	15MHz	QPSK, 16QAM, 64QAM	75RB
	37850 to 38150	37850, 38000, 38150	20MHz	QPSK, 16QAM, 64QAM	100RB
Band Edge	37775 to 38225	37775, 38225	5MHz	QPSK, 16QAM, 64QAM	1RB/25RB
	37850 to 38150	37850, 38150	20MHz	QPSK, 16QAM, 64QAM	1RB/100RB
Conducted Spurious Emissions	37775 to 38225	37775, 38000, 38225	5MHz	QPSK, 16QAM	1RB//25RB
	37850 to 38150	37850, 38000, 38150	20MHz	QPSK, 16QAM	1RB/100RB
Frequency Stability	37775 to 38225	37775, 38000, 38225	5MHz	QPSK, 16QAM	25RB
	37850 to 38150	37850, 38000, 38150	20MHz	QPSK, 16QAM	100RB

LTE BAND 41 MODE					
Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
Output Power & EIRP	39675 to 41565	39675, 40620, 41565	5MHz	QPSK, 16QAM	1RB/25RB
	39750 to 41490	39750, 40620, 41490	20MHz	QPSK, 16QAM	1RB/100RB
Peak To Average Ratio	39675 to 41565	40620	5MHz	QPSK, 16QAM, 64QAM	1RB/25RB
	39750 to 41490	40620	20MHz	QPSK, 16QAM, 64QAM	1RB/100RB
Modulation Characteristics	39675 to 41565	40620	5MHz	QPSK, 16QAM, 64QAM	25RB
	39750 to 41490	40620	20MHz	QPSK, 16QAM, 64QAM	100RB
Occupied Bandwidth	39675 to 41565	39675, 40620, 41565	5MHz	QPSK, 16QAM, 64QAM	25RB
	39700 to 41540	39700, 40620, 41540	10MHz	QPSK, 16QAM, 64QAM	50RB
	39725 to 41515	39725, 40620, 41515	15MHz	QPSK, 16QAM, 64QAM	75RB
	39750 to 41490	39750, 40620, 41490	20MHz	QPSK, 16QAM, 64QAM	100RB
Band Edge	39675 to 41565	39675, 41565	5MHz	QPSK, 16QAM, 64QAM	1RB/25RB
	39750 to 41490	39750, 41490	20MHz	QPSK, 16QAM, 64QAM	1RB/100RB
Conducted Spurious Emissions	39675 to 41565	39675, 40620, 41565	5MHz	QPSK, 16QAM	1RB//25RB
	39750 to 41490	39750, 40620, 41490	20MHz	QPSK, 16QAM	1RB/100RB
Frequency Stability	39675 to 41565	39675, 40620, 41565	5MHz	QPSK, 16QAM	25RB
	39750 to 41490	39750, 40620, 41490	20MHz	QPSK, 16QAM	100RB

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 / ERP:

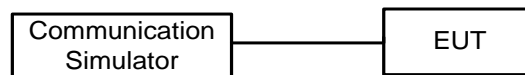
$EIRP = \text{Output Power} + \text{Antenan gain}$

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.

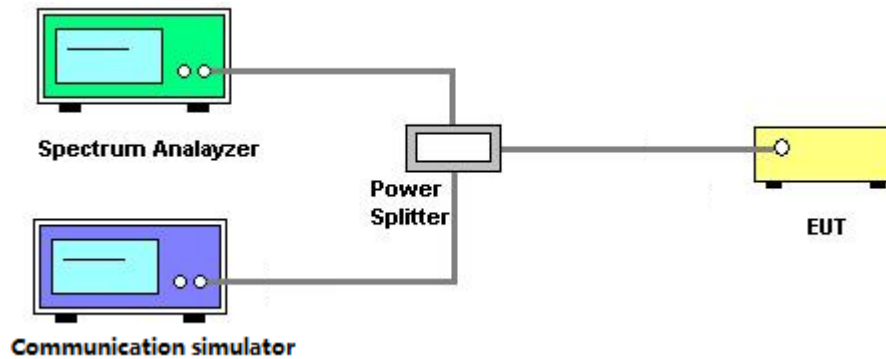
3.2 OCCUPIED BANDWIDTH MEASUREMENT

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

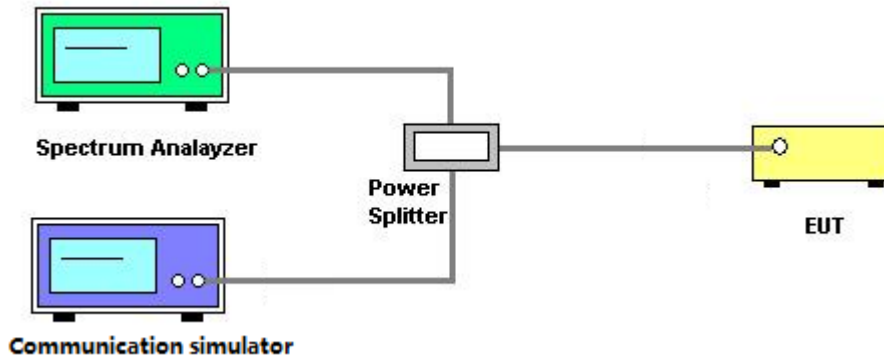
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -13dBm.

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

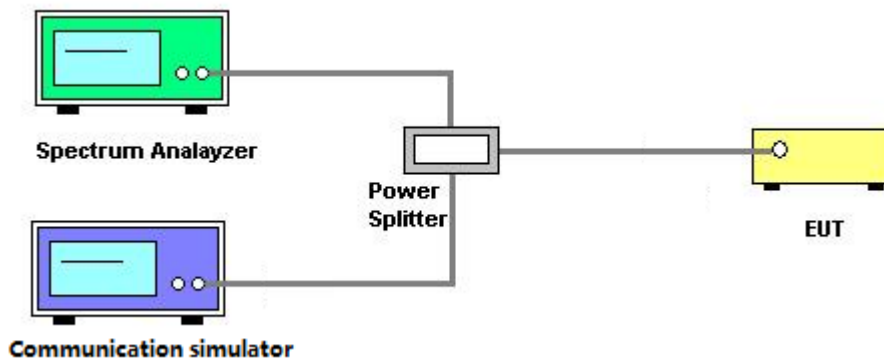
A Power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the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

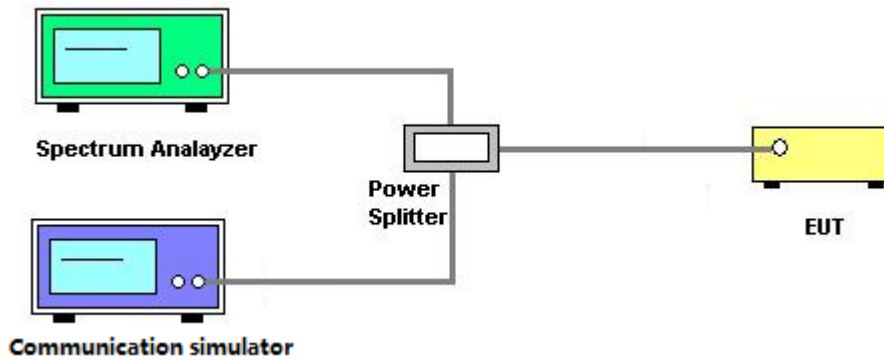
In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

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

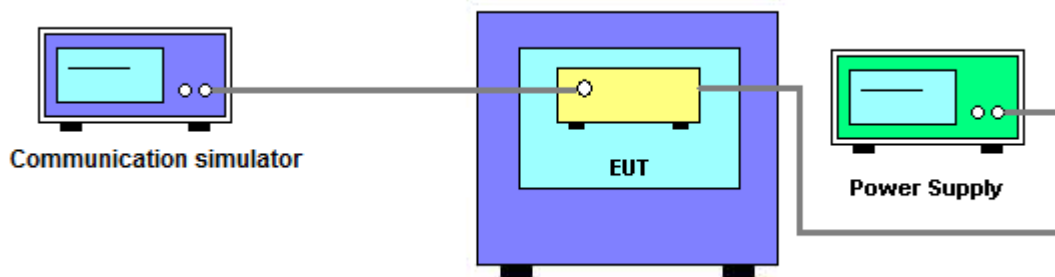
± 1.5 ppm is for base and fixed station. ± 2.5 ppm is for mobile station.

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	Temperature Chamber	WEISS	WKL64/40	56246014990010	May 24, 2022
2	High Speed Power Supply	KEITHLEY	2303	000500E	Dec. 20, 2022
3	Universal Radio Communication Tester	R&S	CMW500	167224	Sep. 27, 2022
4	Universal Radio Communication Tester	R&S	CMW500	169872	Sep. 27, 2022
5	Universal Radio Communication Tester	R&S	CMW500	169873	May 13, 2022
6	Signal Analyzer	R&S	FSW26	102253	May 13, 2022
7	Signal Analyzer	R&S	FSW43	101998	Sep. 26, 2022
8	Vector Signal Generator	R&S	SMW200A	109896	Sep. 27, 2022
9	Vector Signal Generator	R&S	SMW200A	109897	Sep. 27, 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