

FCC RF Test Report

(GSM)

Applicant: INFINIX MOBILITY LIMITED

Address of Applicant: FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE
19-25 SHAN MEI STREET FOTAN NT HONGKONG

Equipment Under Test (EUT)

Product Name: Mobile Phone

Model No.: X669

Trade Mark: Infinix

FCC ID: 2AIZN-X669

Applicable Standards: FCC CFR Title 47 Part 2, 22H, 24E

Date of Sample Receipt: 15 Dec., 2022

Date of Test: 16 Dec., 2022 to 09 Jan., 2023


Date of Report Issued: 18 Jan., 2023

Test Result: PASS

Tested by: Mike.OU **Date:** 18 Jan., 2023
Test Engineer

Reviewed by: Wenwen Zhang **Date:** 18 Jan., 2023
Project Engineer

Approved by: Wenwen Zhang **Date:** 18 Jan., 2023
Manager



This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in above the application standard version. Test results reported herein relate only to the item(s) tested.

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1 Version

Version No.	Date	Description
00	18 Jan., 2023	Original

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3 General Information

3.1 Client Information

Applicant:	INFINIX MOBILITY LIMITED
Address:	FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONGKONG
Manufacturer:	INFINIX MOBILITY LIMITED
Address:	FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONGKONG
Factory:	SHENZHEN TECNO TECHNOLOGY CO., LTD.
Address:	101, Building 24, Waijing Industrial Park, Fumin Community, Fucheng Street, Longhua District, Shenzhen City, P.R.China

3.2 General Description of E.U.T.

Product Name:	Mobile Phone	
Model No.:	X669	
Operation Frequency Range:	GSM850:	824.2 MHz - 848.8 MHz
	PCS1900:	1850.2 MHz - 1909.8 MHz
Modulation Type:	<input checked="" type="checkbox"/> Voice(GMSK) <input checked="" type="checkbox"/> GPRS(GMSK) <input checked="" type="checkbox"/> EGPRS(GMSK, 8PSK)	
Antenna Type:	Internal Antenna	
Antenna Gain:	GSM 850:	-6.9 dBi (declare by Applicant)
	PCS1900:	-1.5 dBi (declare by Applicant)
Power Supply:	Rechargeable Li-ion Polymer Battery DC3.85V, 4900mAh	
AC Adapter:	Model: U180XSA Input: AC100-240V, 50/60Hz, 0.6A Output: DC 5.0V, 2.4A or 7.5V, 2.4A 18.0W Max	
Test Sample Condition:	The test samples were provided in good working order with no visible defects.	

3.3 Test Mode and Environment

Test Mode:	
GSM mode:	Keep the EUT communication with simulated station in GSM mode
GPRS mode:	Keep the EUT communication with simulated station in GPRS mode
EGPRS mode:	Keep the EUT communication with simulated station in EGPRS mode
Remark: The EUT has been tested under continuous transmitting mode. Channel Low, Mid and High for each type band with rated data rate were chosen for full testing. The field strength of spurious radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for these modes. Just the worst case position (H mode) shown in report.	
Operating Environment:	
Temperature:	Normal: 15°C ~ 35°C, Extreme: -30°C ~ +55°C
Humidity:	20 % ~ 75 % RH
Atmospheric Pressure:	1008 mbar
Voltage:	Nominal: 3.85 Vdc, Extreme: Low 3.45 Vdc, High 4.40 Vdc

3.4 Description of Test Auxiliary Equipment

Test Equipment	Manufacturer	Model No.	Serial No.
Simulated Station	Anritsu	MT8820C	6201026545

3.5 Measurement Uncertainty

Parameter	Expanded Uncertainty (Confidence of 95%(U = 2Uc(y)))
Radiated Emission (30MHz ~ 1GHz) (3m SAC)	3.8 dB
Radiated Emission (1GHz ~ 18GHz) (3m SAC)	3.6 dB
Radiated Emission (18GHz ~ 40GHz) (3m SAC)	5.34 dB
Note: All the measurement uncertainty value were shown with a coverage k=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.	

3.6 Additions to, Deviations, or Exclusions from the Method

No

3.7 Laboratory Facility

<p>The test facility is recognized, certified, or accredited by the following organizations:</p> <ul style="list-style-type: none"> ● FCC - Designation No.: CN1211 JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551. ● ISED – CAB identifier.: CN0021 The 3m Semi-anechoic chamber and 10m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1. ● CNAS - Registration No.: CNAS L15527 JianYan Testing Group Shenzhen Co., Ltd. is accredited to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L15527. ● A2LA - Registration No.: 4346.01 This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf
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3.8 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.

Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.

Tel: +86-755-23118282, Fax: +86-755-23116366

Email: info-JYTee@lets.com, Website: <http://jyt.lets.com>

3.9 Test Instruments List

Reference report JYTSZ-R12-2202465, FCC ID: 2AIZN-X669D.

4 Measurement Setup and Procedure

4.1 Test Channel

According to ANSI C63.26-2015 chapter 5.1.2.1 Table 2 requirement, select lowest channel, middle channel, and highest channel in the frequency range in which device operates for testing. The detailed frequency points are as follows:

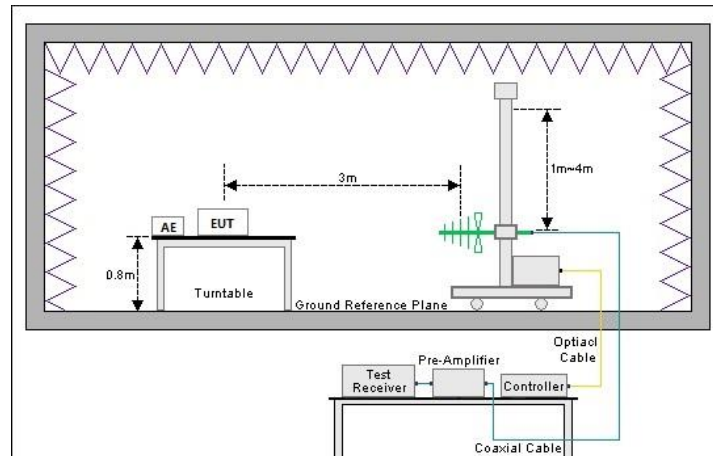
GSM850					
Lowest channel		Middle channel		Highest channel	
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
128	824.2	190	836.6	251	848.8

PCS1900					
Lowest channel		Middle channel		Highest channel	
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
512	1850.2	661	1880.0	810	1909.8

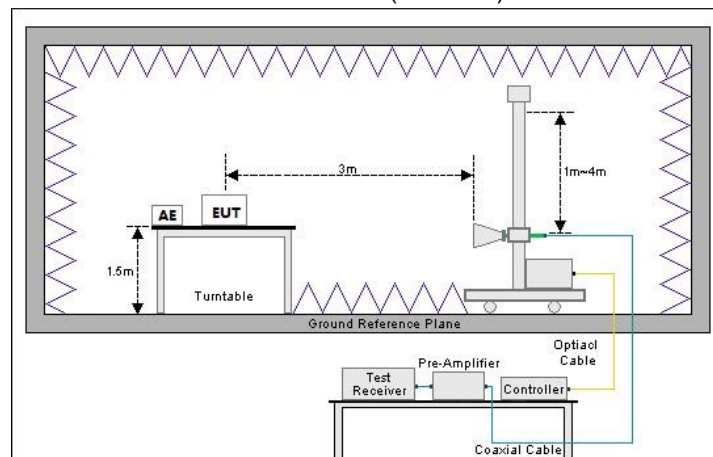
4.2 Test Setup

1) Radiated emission measurement:

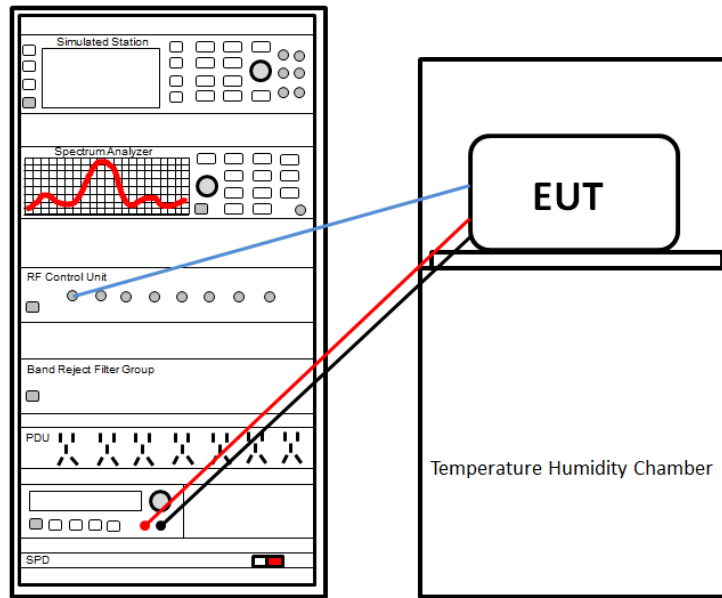
Below 1GHz (3m SAC)



Above 1GHz (3m SAC)



2) Conducted test method



4.3 Test Procedure

Test method	Test step
Radiated emission	<p>For below 1GHz:</p> <ol style="list-style-type: none"> The EUT was placed on the tabletop of a rotating table 0.8 m the ground at a 3 m semi anechoic chamber. The measurement distance from the EUT to the receiving antenna is 3 m. EUT works in each mode of operation that needs to be tested , and having the EUT continuously working, respectively on 3 axis (X, Y & Z) and considered typical configuration to obtain worst position. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data. <p>For above 1GHz:</p> <ol style="list-style-type: none"> The EUT was placed on the tabletop of a rotating table 1.5 m the ground at a 3 m fully anechoic room. The measurement distance from the EUT to the receiving antenna is 3 m. EUT works in each mode of operation that needs to be tested , and having the EUT continuously working, respectively on 3 axis (X, Y & Z) and considered typical configuration to obtain worst position. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data.
Conducted test method	<ol style="list-style-type: none"> The GSM antenna port of EUT was connected to the test port of the test system through an RF cable. The EUT is keeping in continuous transmission mode and tested in all modulation modes. Open the test software, prepare a test plan, and control the system through the software. After the test is completed, the test report is exported through the test software.

5 Test Results

5.1 Summary

5.1.1 Clause and Data Summary

This report is revised according to JYTSZ-R12-2202465 report, FCC ID: 2AIZN-X669D issued by Shenzhen Jianyan Testing Group Co., Ltd. Difference: Update model and FCC ID, product appearance color, Remove NFC antenna and NFC chip, and memory chip difference. So no need to retest.

Test items	Standard clause	Test data	Result
RF Exposure (SAR)	Part 1.1307 Part 2.1093	See SAR Report	Pass
RF Output Power	Part 2.1046 Part 22.913 (a)(5) Part 24.232 (c)	Reference report JYTSZ-R12-2202465, FCC ID: 2AIZN-X669D	Pass*
Peak-to-Average Power Ratio	Part 24.232 (d)	Reference report JYTSZ-R12-2202465, FCC ID: 2AIZN-X669D	Pass*
Modulation Characteristics	Part 2.1047	Reference report JYTSZ-R12-2202465, FCC ID: 2AIZN-X669D	Pass*
26dB Emission Bandwidth 99% Occupied Bandwidth	Part 2.1049	Reference report JYTSZ-R12-2202465, FCC ID: 2AIZN-X669D	Pass*
Out of Band Emission at Antenna Terminals	Part 2.1051 Part 22.917 (a) Part 24.238 (a)	Reference report JYTSZ-R12-2202465, FCC ID: 2AIZN-X669D	Pass*
Field Strength of Spurious Radiation	Part 2.1053 Part 22.917 (a) Part 24.238 (a)	Reference report JYTSZ-R12-2202465, FCC ID: 2AIZN-X669D	Pass*
Frequency Stability vs. Temperature	Part 22.355 Part 24.235 Part 2.1055(a)(1)(b)	Reference report JYTSZ-R12-2202465, FCC ID: 2AIZN-X669D	Pass*
Frequency Stability vs. Voltage	Part 22.355 Part 24.235 Part 2.1055(d)(2)	Reference report JYTSZ-R12-2202465, FCC ID: 2AIZN-X669D	Pass*
Remark: 1. Pass*: The test data please refer to report JYTSZ-R12-2202465, FCC ID: 2AIZN-X669D. 2. The cable insertion loss used by "RF Output Power" and other conduction measurement items is 0.5dB (Fundamental Frequency below 1GHz)/1.0dB (Fundamental Frequency above 1GHz) (provided by the customer).			
Test Method:	ANSI/TIA-603-E-2016 ANSI C63.26-2015		

5.1.2 Test Limit

Items	Limit																																
RF Output Power	GSM850: 7W ERP PCS1900: 2W EIRP																																
Peak-to-Average Power Ratio	The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB																																
Modulation Characteristics	N/A																																
26dB Emission Bandwidth 99% Occupied Bandwidth	N/A																																
Out of Band Emission at Antenna Terminals Field Strength of Spurious Radiation	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.																																
Frequency Stability vs. Temperature Frequency Stability vs. Voltage	<p>GSM850: Except as otherwise provided in this part, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table C-1 of this section.</p> <p style="text-align: center;">TABLE C-1—FREQUENCY TOLERANCE FOR TRANSMITTERS IN THE PUBLIC MOBILE SERVICES</p> <table border="1" data-bbox="678 913 1444 1104"> <thead> <tr> <th>Frequency range (MHz)</th> <th>Base, fixed (ppm)</th> <th>Mobile >3 watts (ppm)</th> <th>Mobile ≤3 watts (ppm)</th> </tr> </thead> <tbody> <tr> <td>25 to 50</td> <td>20.0</td> <td>20.0</td> <td>50.0</td> </tr> <tr> <td>50 to 450</td> <td>5.0</td> <td>5.0</td> <td>50.0</td> </tr> <tr> <td>450 to 512</td> <td>2.5</td> <td>5.0</td> <td>5.0</td> </tr> <tr> <td>821 to 896</td> <td>1.5</td> <td>2.5</td> <td>2.5</td> </tr> <tr> <td>928 to 929</td> <td>5.0</td> <td>n/a</td> <td>n/a</td> </tr> <tr> <td>929 to 960</td> <td>1.5</td> <td>n/a</td> <td>n/a</td> </tr> <tr> <td>2110 to 2220</td> <td>10.0</td> <td>n/a</td> <td>n/a</td> </tr> </tbody> </table> <p>PCS1900: The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.</p>	Frequency range (MHz)	Base, fixed (ppm)	Mobile >3 watts (ppm)	Mobile ≤3 watts (ppm)	25 to 50	20.0	20.0	50.0	50 to 450	5.0	5.0	50.0	450 to 512	2.5	5.0	5.0	821 to 896	1.5	2.5	2.5	928 to 929	5.0	n/a	n/a	929 to 960	1.5	n/a	n/a	2110 to 2220	10.0	n/a	n/a
Frequency range (MHz)	Base, fixed (ppm)	Mobile >3 watts (ppm)	Mobile ≤3 watts (ppm)																														
25 to 50	20.0	20.0	50.0																														
50 to 450	5.0	5.0	50.0																														
450 to 512	2.5	5.0	5.0																														
821 to 896	1.5	2.5	2.5																														
928 to 929	5.0	n/a	n/a																														
929 to 960	1.5	n/a	n/a																														
2110 to 2220	10.0	n/a	n/a																														

5.2 Test Results

5.2.1 RF Output Power Spot-check.

Band	Channel	PCL	Conducted Power (dBm)	ERP/EIRP (dBm)	ERP/EIRP Limit (dBm)	Verdict
GSM850	128	5	33.18	24.13	38.45	PASS
GSM850	190	5	33.24	24.19	38.45	PASS
GSM850	251	5	32.97	23.92	38.45	PASS
GSM1900	512	0	29.83	28.33	33.00	PASS
GSM1900	661	0	29.81	28.31	33.00	PASS
GSM1900	810	0	29.63	28.13	33.00	PASS

Band	Channel	PCL	Slot	Conducted Power (dBm)	ERP/EIRP (dBm)	ERP/EIRP Limit (dBm)	Verdict
GPRS850	128	5	1	33.19	24.14	38.45	PASS
GPRS850	128	5	2	31.17	22.12	38.45	PASS
GPRS850	128	5	3	29.37	20.32	38.45	PASS
GPRS850	128	5	4	27.38	18.33	38.45	PASS
GPRS850	190	5	1	33.21	24.16	38.45	PASS
GPRS850	190	5	2	31.18	22.13	38.45	PASS
GPRS850	190	5	3	29.40	20.35	38.45	PASS
GPRS850	190	5	4	27.42	18.37	38.45	PASS
GPRS850	251	5	1	32.96	23.91	38.45	PASS
GPRS850	251	5	2	31.04	21.99	38.45	PASS
GPRS850	251	5	3	29.24	20.19	38.45	PASS
GPRS850	251	5	4	27.28	18.23	38.45	PASS
GPRS1900	512	0	1	29.84	28.34	33.00	PASS
GPRS1900	512	0	2	27.30	25.80	33.00	PASS
GPRS1900	512	0	3	25.71	24.21	33.00	PASS
GPRS1900	512	0	4	23.73	22.23	33.00	PASS
GPRS1900	661	0	1	29.80	28.30	33.00	PASS
GPRS1900	661	0	2	27.25	25.75	33.00	PASS
GPRS1900	661	0	3	25.66	24.16	33.00	PASS
GPRS1900	661	0	4	23.68	22.18	33.00	PASS
GPRS1900	810	0	1	29.60	28.10	33.00	PASS
GPRS1900	810	0	2	26.96	25.46	33.00	PASS

GPRS1900	810	0	3	25.40	23.90	33.00	PASS
GPRS1900	810	0	4	23.46	21.96	33.00	PASS

Band	Channel	PCL	Slot	Conducted Power (dBm)	ERP/EIRP (dBm)	ERP/EIRP Limit (dBm)	Verdict
EGPRS850	128	8	1	26.17	17.12	38.45	PASS
EGPRS850	128	8	2	25.12	16.07	38.45	PASS
EGPRS850	128	8	3	23.22	14.17	38.45	PASS
EGPRS850	128	8	4	21.03	11.98	38.45	PASS
EGPRS850	190	8	1	26.26	17.21	38.45	PASS
EGPRS850	190	8	2	25.24	16.19	38.45	PASS
EGPRS850	190	8	3	23.32	14.27	38.45	PASS
EGPRS850	190	8	4	21.08	12.03	38.45	PASS
EGPRS850	251	8	1	26.20	17.15	38.45	PASS
EGPRS850	251	8	2	25.14	16.09	38.45	PASS
EGPRS850	251	8	3	23.20	14.15	38.45	PASS
EGPRS850	251	8	4	21.00	11.95	38.45	PASS
EGPRS1900	512	2	1	25.89	24.39	33.00	PASS
EGPRS1900	512	2	2	24.09	22.59	33.00	PASS
EGPRS1900	512	2	3	22.40	20.90	33.00	PASS
EGPRS1900	512	2	4	20.40	18.90	33.00	PASS
EGPRS1900	661	2	1	25.91	24.41	33.00	PASS
EGPRS1900	661	2	2	24.47	22.97	33.00	PASS
EGPRS1900	661	2	3	22.75	21.25	33.00	PASS
EGPRS1900	661	2	4	20.88	19.38	33.00	PASS
EGPRS1900	810	2	1	26.10	24.60	33.00	PASS
EGPRS1900	810	2	2	24.76	23.26	33.00	PASS
EGPRS1900	810	2	3	22.99	21.49	33.00	PASS
EGPRS1900	810	2	4	21.17	19.67	33.00	PASS

Remark: EIRP (dBm) = Conducted power (dBm) + Antenna Gain (dBi). (For GSM1900)

ERP (dBm) = EIRP (dBm) - 2.15 (dB). (For GSM850)

5.2.2 Radiated spurious emissions Spot-check.

GSM850						
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1673.20	-48.03	-11.47	-59.50	-13.00	46.50	Vertical
2509.80	-46.26	-6.40	-52.66	-13.00	39.66	Vertical
3346.40	-46.45	-4.96	-51.41	-13.00	38.41	Vertical
1673.20	-47.01	-11.39	-58.40	-13.00	45.40	Horizontal
2509.80	-39.87	-6.70	-46.57	-13.00	33.57	Horizontal
3346.40	-47.16	-5.17	-52.33	-13.00	39.33	Horizontal
PCS1900						
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3760.00	-48.01	-1.05	-49.06	-13.00	36.06	Vertical
5640.00	-46.32	7.11	-39.21	-13.00	26.21	Vertical
3760.00	-47.32	-1.55	-48.87	-13.00	35.87	Horizontal
5640.00	-39.63	4.44	-35.19	-13.00	22.19	Horizontal

-----End of report-----