

FCC RADIO TEST REPORT

FCC ID:2BLHD-AF930

Product: Wireless POS

Trade Mark: N/A

Model No.: AF930

Family Model: N/A

Report No.: S24062804302006

Issue Date: Nov. 01, 2024

Prepared for

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Prepared by

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1 TEST RESULT CERTIFICATION

Applicant's name	Beijing Shenzhou Anfu Technology Co., Ltd
Address	1102, Block A, Longyu center, Huilongguan, Changping District, Beijing
Manufacturer's Name	Beijing Shenzhou Anfu Technology Co., Ltd
Address	1102, Block A, Longyu center, Huilongguan, Changping District, Beijing
Product description	
Product name	Wireless POS
Model and/or type reference	AF930
Family Model	N/A
Sample number	S240628043002
Date of Test	Oct. 18, 2024 ~ Nov. 01, 2024

Measurement Procedure Used:

APPLICABLE STANDARDS	
APPLICABLE STANDARD/ TEST PROCEDURE	TEST RESULT
47 CFR Part 2, Part 22H, Part 24E, Part 27L FCC KDB 971168 D01 Power Meas License Digital Systems v03r01 ANSI C63.26:2015	Complied

This device described above has been tested by Shenzhen NTEK Testing Technology Co., Ltd., and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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The test results of this report relate only to the tested sample identified in this report.

Prepared By: Mary Hu
Mary Hu
(Project Engineer)

Reviewed By: Aaron Cheng
Aaron Cheng
(Supervisor)

Approved By: Alex Li
Alex Li
(Manager)

2 SUMMARY OF TEST RESULTS

FCC Part22H / FCC Part24E / FCC Part27L & ANSI C63.26-2015			
FCC Rule	Test Item	Verdict	Remark
2.1046	Conducted Output Power	PASS**	
24.232	Peak-to-Average Ratio	PASS**	
2.1049	Occupied Bandwidth	PASS**	
2.1051 22.917 24.238 27.53	Band Edge	PASS**	
22.913 24.232 27.50	Effective Radiated Power & Equivalent Isotropic Radiated Power	PASS	
2.1053 22.917 24.238 27.53	Field Strength of Spurious Radiation	PASS	
2.1055 22.355 24.235 27.54	Frequency Stability for Temperature & Voltage	PASS**	
2.1051 22.917 24.238 27.53	Conducted Emission	PASS**	

Remark:

1. "N/A" denotes test is not applicable in this Test Report.
2. All test items were verified and recorded according to the standards and without any deviation during the test.
3. No modifications are made to the EUT during all test items.
4. ** The conducted Test data please refer to the report: S23033100205005 under the WWAN module Z400-H FCC ID: 2A9FT-Z400-H.

3 FACILITIES AND ACCREDITATIONS

3.1 FACILITIES

All measurement facilities used to collect the measurement data are located at 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R. China.

The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.10 and CISPR Publication 22.

3.2 LABORATORY ACCREDITATIONS AND LISTINGS

Site Description

CNAS-Lab.

: The Certificate Registration Number is L5516.

IC-Registration

The Certificate Registration Number is 9270A.

FCC- Accredited

Test Firm Registration Number: 463705.

Designation Number: CN1184

A2LA-Lab.

The Certificate Registration Number is 4298.01

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories.

This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009).

Name of Firm

: Shenzhen NTEK Testing Technology Co., Ltd.

Site Location

: 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R. China.

3.3 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission Test	±3.1dB
2	RF power, conducted	±0.9dB
3	Spurious emissions, conducted	±2.2dB
4	All emissions, radiated(<1G)	±5.2dB
5	All emissions, radiated(>1G)	±5.1dB
6	Temperature	±0.5°C
7	Humidity	±2%
8	Occupied bandwidth	±3.7%

4 GENERAL DESCRIPTION OF EUT

Product Feature and Specification	
Equipment	Wireless POS
Trade Mark	N/A
FCC ID	2BLHD-AF930
Model No.	AF930
Family Model	N/A
Model Difference	N/A
Operating Frequency	☒ GSM850: TX824.2MHz~848.8MHz /RX869.2MHz~893.8MHz; ☒ UMTS FDD Band V: TX826.4MHz~846.6MHz /RX871.4MHz~891.6MHz; ☒ PCS1900: TX1850.2MHz~1909.8MHz /RX1930.2MHz~1989.8MHz; ☒ UMTS FDD Band II: TX1852.4MHz~1907.6MHz /RX1932.4MHz~1987.6MHz; ☒ UMTS-FDD Band IV:TX1710MHz~1755MHz /RX2110MHz~2155MHz
Modulation	☒ GMSK for GSM/GPRS; ☒ 8PSK for EGPRS; ☒ QPSK for UMTS bands;
Power Class	4, tested with power level 5(GSM 850) 1, tested with power level 0(GSM 1900) 3, tested with power control "all 1"(WCDMA Band II/IV/V)
GPRS Class	☒ Multi-Class12 ☒ Only 4 timeslots are used for GPRS/EGPRS
Antenna Type	FPC Antenna
Antenna Gain	GSM 850: -1.84 dBi; PCS 1900: 0.87 dBi; Band II: 0.87 dBi; Band IV: 2.24 dBi ; Band V: -1.84 dBi
Adapter	N/A
Battery	DC 3.7V,5600mAh, 20.72Wh
Power supply	DC 3.7V from battery or DC 5V from type-C port
HW Version	AF930_MAIN_V2.0_1001
SW Version	SZANFU_AF930_V1.14_00_20240102_userdebug

Note: Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.

Revision History

Report No.	Version	Description	Issued Date
S24062804302006	Rev.01	Initial issue of report	Nov. 01, 2024

5 DESCRIPTION OF TEST MODES

During the testing, the EUT was controlled via Rhode & Schwarz Digital Radio Communication Tester (CMU 200 or CMW 500) to ensure max power transmission and proper modulation. Three channels (The low channel, the middle channel and the high channel) were chosen for testing on, GSM/GPRS/EGPRS 850, GSM/GPRS/EGPRS 1900, WCDMA/HSDPA/HSUPA Band II, WCDMA/HSDPA/HSUPA Band IV, WCDMA/HSDPA/HSUPA Band V.

Note: GSM/GPRS/EGPRS 850, GSM/GPRS/EGPRS 1900, WCDMA/HSDPA/HSUPA Band II, WCDMA/HSDPA/HSUPA Band IV, WCDMA/HSDPA/HSUPA Band V modes have been tested during the test. the worst condition (GMSK/RMC12.2k) be recorded in the test report if no other modes test data.

Antenna port conducted and radiated test items were performed according to KDB 971168 D01 Power Meas. License Digital Systems v03r01 with maximum output power.

Radiated measurements were performed with rotating EUT in different three orthogonal test planes to find the maximum emission.

Radiated emissions were investigated as following frequency range:

1. 30 MHz to 10th harmonic for GSM850, WCDMA/HSDPA/HSUPA Band V
2. 30 MHz to 10th harmonic for GSM1900, WCDMA/HSDPA/HSUPA Band II, WCDMA/HSDPA/HSUPA Band IV

All modes and data rates and positions were investigated.

Test modes are chosen to be reported as the worst case configuration below:

Test Modes		
Band	For Conducted Test Cases	For Radiated Test Cases
GSM 850/1900	GPRS Link	GPRS Link
WCDMA Band II/IV/V	RMC 12.2k Link	RMC 12.2k Link

Test Frequency and Channels:

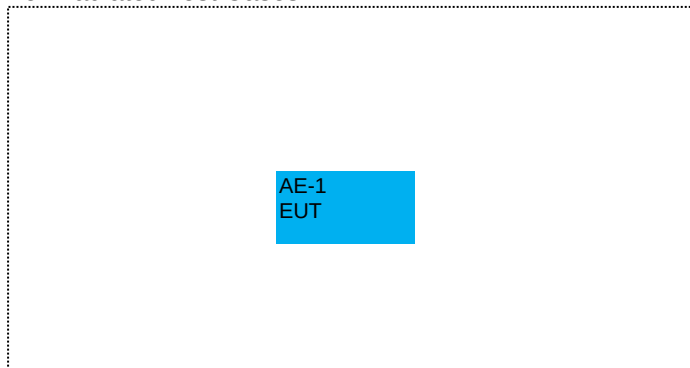
Frequency Band	☒ GSM 850		☒ GSM 1900	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH_H	251	848.8	810	1909.8
CH_M	189	836.4	661	1880.0
CH_L	128	824.2	512	1850.2

Frequency Band	☒ WCDMA Band II		☒ WCDMA Band IV		☒ WCDMA Band V	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH_H	9538	1907.6	1513	1752.6	4233	846.6
CH_M	9400	1880.0	1412	1732.4	4182	836.4
CH_L	9262	1852.4	1312	1712.4	4132	826.4

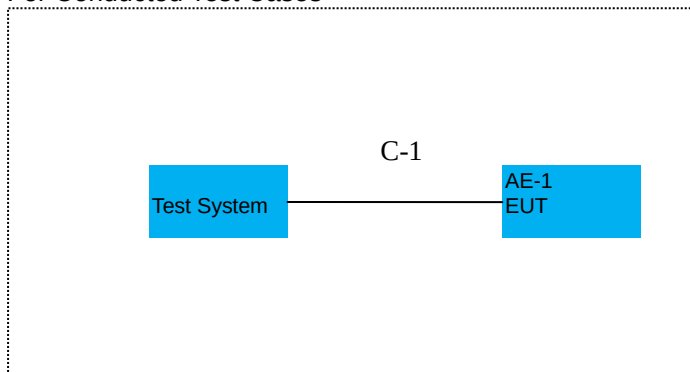
6 SETUP OF EQUIPMENT UNDER TEST

6.1 BLOCK DIAGRAM CONFIGURATION OF TEST SYSTEM

For Radiated Test Cases



For Conducted Test Cases



6.2 SUPPORT EQUIPMENT

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
AE-1	Wireless POS	N/A	AF930	N/A	EUT

Item	Cable Type	Shielded Type	Ferrite Core	Length
C-1	RF Cable***	YES	NO	54cm

Notes:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) “YES” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.
- (4) “***” RF Cable is between the module and the antenna, that’s part of the EUT. Provided by the applicant.

6.3 EQUIPMENTS LIST FOR ALL TEST ITEMS

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Spectrum Analyzer	Agilent	N9020A	MY53280244	2024.04.26	2025.04.25	1 year
2	Spectrum Analyzer	R&S	FSV40	101417	2024.04.26	2025.04.25	1 year
3	Test Receiver	R&S	ESPI7	101318	2024.03.12	2025.03.11	1 year
4	Active Loop Antenna	SCHWARZBECK	FMZB 1519 B	055	2024.05.17	2027.05.16	3 year
5	Log-Periodic Antenna	SCHWARZBECK	VULB 9162	586	2024.05.12	2025.05.11	1 year
6	Broadband Horn Antenna	SCHWARZBECK	BBHA 9120 D	2816	2024.05.18	2027.05.17	3 year
7	Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	803	2024.05.12	2027.05.11	3 year
8	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2024.04.26	2027.04.25	3 year
9	Pre-Amplifier	EMC	EMC051835 SE	980246	2024.01.23	2025.01.22	1 year
10	Low Noise Amplifier	B&Z	BZ-P540-550 850-452727	16476-11729	2024.02.03	2025.02.02	1 year
11	Pre-Amplifier	Sonoma	310N	186604	2024.04.25	2025.04.24	1 year
12	Signal Generator	Keysight	N5183B	MY57280984	2024.05.30	2025.05.29	1 year
13	Wireless Communications Test Set	R&S	CMW500	103917	2024.04.26	2025.04.25	1 year
14	RF Control Unit	MWRFTest	MW200-RFCB	MW201103N TEK	N/A	N/A	N/A

Note: Each piece of equipment is scheduled for calibration once a year except the Test Cable& DC Power Source which is scheduled for calibration every 3 years.

Measurement Software

Item	Manufacturer	Software Name	Software Version	Description
1	MWRFTest	MTS 8200	2.0	RF Conducted Test
2	raditeq	RadiMation	2023.1.3	Radiated Test

7 TEST REQUIREMENTS

7.1 FIELD STRENGTH OF SPURIOUS RADIATION

7.1.1 Applicable Standard

According to FCC KDB 971168 D01 v03r01 Section 7 and ANSI C63.26: 2015 Section 5.5

7.1.2 Conformance Limit

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

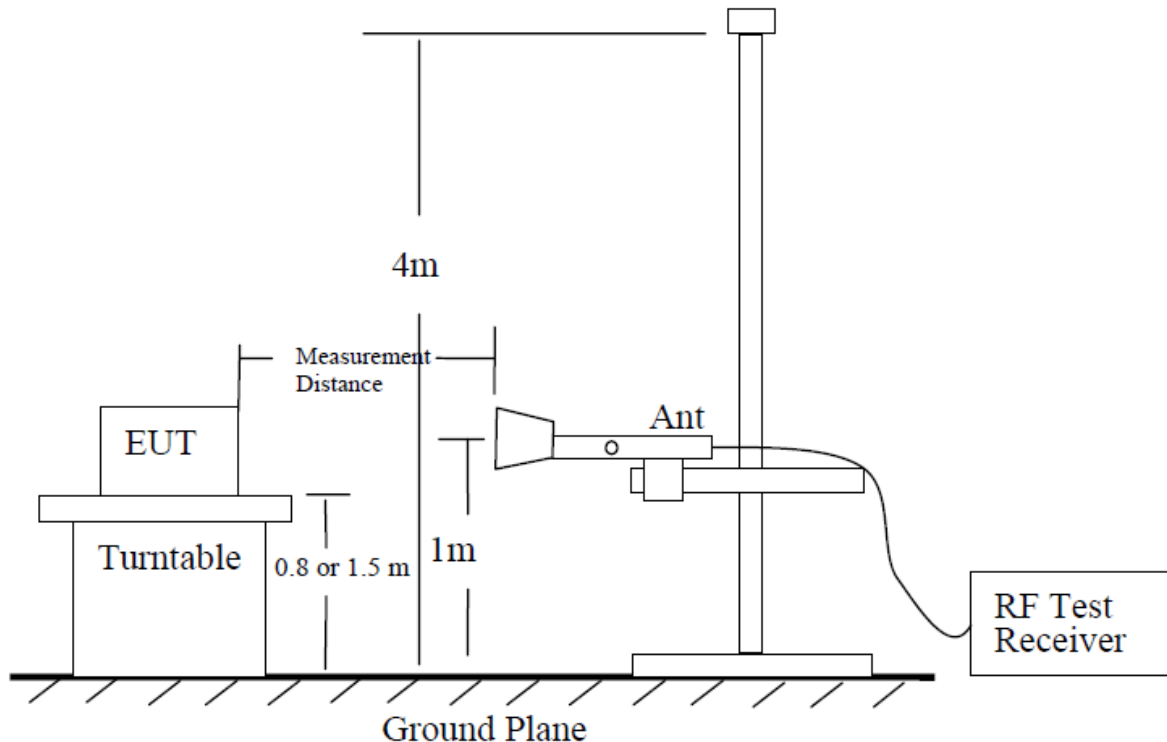
7.1.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.1.4 Test Configuration

According to the ANSI C63.26: 2015 test method, The Receiver or Spectrum was scanned from 9 KHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier that can be as high as 1910 MHz. The resolution bandwidth is set as outlined in Part 24.238, Part 22.917, Part 27.53. The spectrum is scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of WCDMA Band II/IV/V, GSM 850/1900.

TEST CONFIGURATION



7.1.5 Test Procedure

The EUT is configured by emulator to set data modulation and maximum power using WWAN technology.

For 30MHz to 1GHz

1. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) height of turn table. rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
2. The height of antenna is varied from one meter to four meters above the around to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
3. Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP/ERP level.
4. Following C63.26 section 5.5 and 5.2.7

Note: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz. The emission levels were against the limit of frequency range 9 kHz ~ 30 MHz: The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

Above 1GHz

1. In the semi-anechoic chamber, EUT placed on the 1.5 m height of turn table, rotated the table around 360degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
2. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
3. Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP/ERP level.
4. Following C63.26 section 5.5 and 5.2.7.

Note: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz.

7.1.6 Test Results

EUT:	Wireless POS	Model No.:	AF930
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	GPRS 850/1900, WCDMA Band II/IV/V		

■ Radiated Spurious Emission

GSM 850							
Frequency	SG Level	Cable Loss	Antenna Factor	Absolute Level	Limit	Over Limit	Polarity
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dBm)	
Test Results for Channel 128/824.2 MHz							
1648.4	-51.02	2.80	27.50	-26.32	-13	-13.32	Vertical
1648.4	-50.87	2.80	27.50	-26.17	-13	-13.17	Horizontal
2472.6	-50.11	2.91	27.80	-25.22	-13	-12.22	Vertical
2472.6	-50.94	2.91	27.80	-26.05	-13	-13.05	Horizontal
3296.8	-44.06	4.02	29.87	-18.21	-13	-5.21	Vertical
3296.8	-46.3	4.02	29.87	-20.45	-13	-7.45	Horizontal
211.78	-44.86	1.35	17.77	-28.44	-13	-15.44	Vertical
450.65	-49.3	1.77	17.83	-33.24	-13	-20.24	Horizontal
Test Results for Channel 189/836.4 MHz							
1672.8	-53.23	2.80	27.48	-28.55	-13	-15.55	Vertical
1673.2	-47.54	2.80	27.48	-22.86	-13	-9.86	Horizontal
2509.2	-50.71	2.91	27.70	-25.92	-13	-12.92	Vertical
2509.2	-44.41	2.91	27.70	-19.62	-13	-6.62	Horizontal
3345.6	-51.75	4.02	29.82	-25.95	-13	-12.95	Vertical
3345.6	-50.58	4.02	29.82	-24.78	-13	-11.78	Horizontal
193.53	-46.1	1.44	15.26	-32.29	-13	-19.29	Vertical
351.75	-46.39	1.51	17.23	-30.67	-13	-17.67	Horizontal
Test Results for Channel 251/848.8 MHz							
1697.6	-46.25	2.80	27.42	-21.63	-13	-8.63	Vertical
1697.6	-45.69	2.80	27.42	-21.07	-13	-8.07	Horizontal
2546.4	-43.44	2.91	27.68	-18.67	-13	-5.67	Vertical
2546.4	-46.58	2.91	27.68	-21.81	-13	-8.81	Horizontal
3395.2	-53.18	4.02	29.80	-27.40	-13	-14.40	Vertical
3395.2	-50.61	4.02	29.80	-24.83	-13	-11.83	Horizontal
211.35	-46.39	1.74	16.46	-31.67	-13	-18.67	Vertical
326.35	-47.38	1.68	16.21	-32.85	-13	-19.85	Horizontal

GPRS 850

Frequency	SG Level	Cable Loss	Antenna Factor	Absolute Level	Limit	Over Limit	Polarity
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dBm)	
Test Results for Channel 128/824.2 MHz							
1648.4	-49.86	2.80	27.50	-25.16	-13	-12.16	Vertical
1648.4	-51.76	2.80	27.50	-27.06	-13	-14.06	Horizontal
2472.6	-46.49	2.91	27.80	-21.60	-13	-8.60	Vertical
2472.6	-53.43	2.91	27.80	-28.54	-13	-15.54	Horizontal
3296.8	-43.57	4.02	29.87	-17.72	-13	-4.72	Vertical
3296.8	-50.49	4.02	29.87	-24.64	-13	-11.64	Horizontal
199.67	-53.66	1.35	16.91	-38.10	-13	-25.10	Vertical
431.65	-50.46	1.59	17.39	-34.65	-13	-21.65	Horizontal
Test Results for Channel 189/836.4 MHz							
1672.8	-50	2.80	27.48	-25.32	-13	-12.32	Vertical
1673.2	-47.79	2.80	27.48	-23.11	-13	-10.11	Horizontal
2509.2	-47.54	2.91	27.70	-22.75	-13	-9.75	Vertical
2509.2	-43.14	2.91	27.70	-18.35	-13	-5.35	Horizontal
3345.6	-50.33	4.02	29.82	-24.53	-13	-11.53	Vertical
3346.4	-48.8	4.02	29.82	-23.00	-13	-10.00	Horizontal
212.2	-49.94	1.36	17.36	-33.94	-13	-20.94	Vertical
312.7	-51.76	1.32	15.19	-37.90	-13	-24.90	Horizontal
Test Results for Channel 251/848.8 MHz							
1697.6	-46.48	2.80	27.42	-21.86	-13	-8.86	Vertical
1697.6	-44.95	2.80	27.42	-20.33	-13	-7.33	Horizontal
2546.4	-51.36	2.91	27.68	-26.59	-13	-13.59	Vertical
2546.4	-44.78	2.91	27.68	-20.01	-13	-7.01	Horizontal
3395.2	-52.57	4.02	29.80	-26.79	-13	-13.79	Vertical
3395.2	-49.91	4.02	29.80	-24.13	-13	-11.13	Horizontal
204.96	-46.25	1.46	17.68	-30.03	-13	-17.03	Vertical
458.74	-44.01	1.31	15.79	-29.53	-13	-16.53	Horizontal

Remark:

1. Above 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2;
Below 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2 - 2.15.
2. Difference (Over Limit) = Emission Level(dBm) - Limit(dBm)

EGPRS 850

Frequency	SG Level	Cable Loss	Antenna Factor	Absolute Level	Limit	Over Limit	Polarity
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dBm)	
Test Results for Channel 128/824.2 MHz							
1648.4	-44.29	2.80	27.50	-19.59	-13	-6.59	Vertical
1648.4	-48.59	2.80	27.50	-23.89	-13	-10.89	Horizontal
2472.6	-45.21	2.91	27.80	-20.32	-13	-7.32	Vertical
2472.6	-52.76	2.91	27.80	-27.87	-13	-14.87	Horizontal
3296.8	-46.42	4.02	29.87	-20.57	-13	-7.57	Vertical
3296.8	-44.22	4.02	29.87	-18.37	-13	-5.37	Horizontal
189.37	-44.58	1.69	16.60	-29.67	-13	-16.67	Vertical
436.78	-50.34	1.44	17.78	-33.99	-13	-20.99	Horizontal
Test Results for Channel 189/836.4 MHz							
1672.8	-45.99	2.80	27.48	-21.31	-13	-8.31	Vertical
1673.2	-48.51	2.80	27.48	-23.83	-13	-10.83	Horizontal
2509.2	-51.23	2.91	27.70	-26.44	-13	-13.44	Vertical
2509.2	-44.77	2.91	27.70	-19.98	-13	-6.98	Horizontal
3345.6	-44.5	4.02	29.82	-18.70	-13	-5.70	Vertical
3346.4	-47.01	4.02	29.82	-21.21	-13	-8.21	Horizontal
198.40	-49.25	1.54	16.14	-34.66	-13	-21.66	Vertical
275.25	-51.99	1.31	17.24	-36.06	-13	-23.06	Horizontal
Test Results for Channel 251/848.8 MHz							
1697.6	-42.53	2.80	27.42	-17.91	-13	-4.91	Vertical
1697.6	-52.01	2.80	27.42	-27.39	-13	-14.39	Horizontal
2546.4	-46.17	2.91	27.68	-21.40	-13	-8.40	Vertical
2546.4	-45.05	2.91	27.68	-20.28	-13	-7.28	Horizontal
3395.2	-45.27	4.02	29.80	-19.49	-13	-6.49	Vertical
3395.2	-45.15	4.02	29.80	-19.37	-13	-6.37	Horizontal
183.29	-48.12	1.73	15.96	-33.89	-13	-20.89	Vertical
426.54	-48.64	1.35	17.53	-32.46	-13	-19.46	Horizontal

Remark:

1. Above 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2;
Below 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2 - 2.15.
2. Difference (Over Limit) = Emission Level(dBm) - Limit(dBm)

WCDMA Band V							
Frequency	SG Level	Cable Loss	Antenna Factor	Absolute Level	Limit	Over Limit	Polarity
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dBm)	
Test Results for Channel 4233/846.6MHz							
1693.2	-47.93	2.80	27.50	-23.23	-13	-10.23	Vertical
1693.2	-49.63	2.80	27.50	-24.93	-13	-11.93	Horizontal
2539.8	-44.13	2.91	27.80	-19.24	-13	-6.24	Vertical
2539.8	-45.68	2.91	27.80	-20.79	-13	-7.79	Horizontal
3386.4	-47.07	4.02	29.87	-21.22	-13	-8.22	Vertical
3386.4	-44.39	4.02	29.87	-18.54	-13	-5.54	Horizontal
202.44	-51.44	1.75	15.49	-37.70	-13	-24.70	Vertical
466.68	-47.71	1.37	16.58	-32.50	-13	-19.50	Horizontal
Test Results for Channel 4182/836.4MHz							
1672.8	-47.52	2.80	27.48	-22.84	-13	-9.84	Vertical
1672.8	-44.25	2.80	27.48	-19.57	-13	-6.57	Horizontal
2509.2	-50.34	2.91	27.70	-25.55	-13	-12.55	Vertical
2509.2	-46.38	2.91	27.70	-21.59	-13	-8.59	Horizontal
3345.6	-47.23	4.02	29.82	-21.43	-13	-8.43	Vertical
3345.6	-45.88	4.02	29.82	-20.08	-13	-7.08	Horizontal
208.04	-46.67	1.68	17.84	-30.51	-13	-17.51	Vertical
261.30	-46.6	1.49	16.34	-31.74	-13	-18.74	Horizontal
Test Results for Channel 4132/826.4MHz							
1652.8	-52.24	2.80	27.42	-27.62	-13	-14.62	Vertical
1652.8	-49.96	2.80	27.42	-25.34	-13	-12.34	Horizontal
2479.2	-47.14	2.91	27.68	-22.37	-13	-9.37	Vertical
2479.2	-51.17	2.91	27.68	-26.40	-13	-13.40	Horizontal
3305.6	-47.96	4.02	29.80	-22.18	-13	-9.18	Vertical
3305.6	-53.1	4.02	29.80	-27.32	-13	-14.32	Horizontal
200.34	-47.77	1.36	17.52	-31.61	-13	-18.61	Vertical
290.26	-52.07	1.63	15.02	-38.68	-13	-25.68	Horizontal

Remark:

1. Above 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2;
Below 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2 - 2.15.
2. Difference (Over Limit) = Emission Level(dBm) - Limit(dBm)

GSM 1900

Frequency	SG Level	Cable Loss	Antenna Factor	Absolute Level	Limit	Over Limit	Polarity
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dBm)	
Test Results for Channel 512/1850.2MHz							
3700.4	-51.58	4.04	33.51	-22.11	-13	-9.11	Vertical
3700.4	-49.34	4.04	33.51	-19.87	-13	-6.87	Horizontal
5550.6	-49.57	5.24	35.84	-18.97	-13	-5.97	Vertical
5550.6	-47.18	5.24	35.84	-16.58	-13	-3.58	Horizontal
192.93	-51.80	1.40	15.14	-38.06	-13	-25.06	Vertical
374.37	-49.90	1.45	17.54	-33.81	-13	-20.81	Horizontal
Test Results for Channel 661/1880.0MHz							
3760	-46.33	4.04	33.56	-16.81	-13	-3.81	Vertical
3760	-48.02	4.04	33.56	-18.50	-13	-5.50	Horizontal
5640	-45.84	5.24	35.91	-15.17	-13	-2.17	Vertical
5640	-47.49	5.24	35.91	-16.82	-13	-3.82	Horizontal
209.78	-44.11	1.74	16.40	-29.45	-13	-16.45	Vertical
451.38	-44.12	1.42	15.72	-29.81	-13	-16.81	Horizontal
Test Results for Channel 810/1909.8MHz							
3819.6	-48.36	4.04	34.00	-18.40	-13	-5.40	Vertical
3819.6	-50.64	4.04	34.00	-20.68	-13	-7.68	Horizontal
5729.4	-51.26	5.24	36.04	-20.46	-13	-7.46	Vertical
5729.4	-47.28	5.24	36.04	-16.48	-13	-3.48	Horizontal
181.53	-49.85	1.67	17.51	-34.01	-13	-21.01	Vertical
250.05	-46.7	1.58	17.73	-30.55	-13	-17.55	Horizontal

Remark:

- Above 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2;
Below 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2 - 2.15.
- Difference (Over Limit) = Emission Level(dBm) - Limit(dBm)

GPRS 1900							
Frequency	SG Level	Cable Loss	Antenna Factor	Absolute Level	Limit	Over Limit	Polarity
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dBm)	
Test Results for Channel 512/1850.2MHz							
3700.4	-44.58	4.04	33.51	-15.11	-13	-2.11	Vertical
3700.4	-46.26	4.04	33.51	-16.79	-13	-3.79	Horizontal
5550.6	-49.78	5.24	35.84	-19.18	-13	-6.18	Vertical
5550.6	-52.39	5.24	35.84	-21.79	-13	-8.79	Horizontal
187.23	-51.44	1.66	17.06	-36.05	-13	-23.05	Vertical
276.08	-49.47	1.34	15.54	-35.27	-13	-22.27	Horizontal
Test Results for Channel 661/1880.0MHz							
3760	-45.46	4.04	33.56	-15.94	-13	-2.94	Vertical
3760	-52.76	4.04	33.56	-23.24	-13	-10.24	Horizontal
5640	-50.71	5.24	35.91	-20.04	-13	-7.04	Vertical
5640	-51.52	5.24	35.91	-20.85	-13	-7.85	Horizontal
182.45	-44.99	1.33	16.18	-30.14	-13	-17.14	Vertical
360.20	-48.95	1.60	17.99	-32.56	-13	-19.56	Horizontal
Test Results for Channel 810/1909.8MHz							
3819.6	-51.96	4.04	34.00	-22.00	-13	-9.00	Vertical
3819.6	-48.63	4.04	34.00	-18.67	-13	-5.67	Horizontal
5729.4	-47.29	5.24	36.04	-16.49	-13	-3.49	Vertical
5729.4	-46.94	5.24	36.04	-16.14	-13	-3.14	Horizontal
209.82	-51.19	1.65	17.27	-35.58	-13	-22.58	Vertical
369.88	-44.96	1.39	15.49	-30.87	-13	-17.87	Horizontal

Remark:

- Above 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2;
Below 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2 - 2.15.
- Difference (Over Limit) = Emission Level(dBm) - Limit(dBm)

EGPRS 1900							
Frequency	SG Level	Cable Loss	Antenna Factor	Absolute Level	Limit	Over Limit	Polarity
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dBm)	
Test Results for Channel 512/1850.2MHz							
3700.4	-45.26	4.04	33.51	-15.79	-13	-2.79	Vertical
3700.4	-48.53	4.04	33.51	-19.06	-13	-6.06	Horizontal
5550.6	-47.13	5.24	35.84	-16.53	-13	-3.53	Vertical
5550.6	-46.28	5.24	35.84	-15.68	-13	-2.68	Horizontal
211.11	-46.56	1.41	17.87	-30.10	-13	-17.10	Vertical
339.89	-48.31	1.47	17.45	-32.34	-13	-19.34	Horizontal
Test Results for Channel 661/1880.0MHz							
3760	-44.96	4.04	33.56	-15.44	-13	-2.44	Vertical
3760	-49.78	4.04	33.56	-20.26	-13	-7.26	Horizontal
5640	-45.98	5.24	35.91	-15.31	-13	-2.31	Vertical
5640	-53.08	5.24	35.91	-22.41	-13	-9.41	Horizontal
182.75	-43.77	1.35	15.31	-29.82	-13	-16.82	Vertical
295.32	-51.77	1.48	17.05	-36.20	-13	-23.20	Horizontal
Test Results for Channel 810/1909.8MHz							
3819.6	-46.48	4.04	34.00	-16.52	-13	-3.52	Vertical
3819.6	-46.38	4.04	34.00	-16.42	-13	-3.42	Horizontal
5729.4	-47.16	5.24	36.04	-16.36	-13	-3.36	Vertical
5729.4	-51.57	5.24	36.04	-20.77	-13	-7.77	Horizontal
187.09	-47.45	1.49	17.71	-31.23	-13	-18.23	Vertical
386.25	-49.21	1.55	15.08	-35.68	-13	-22.68	Horizontal

Remark:

1. Above 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2;
Below 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2 - 2.15.
2. Difference (Over Limit) = Emission Level(dBm) - Limit(dBm)

WCDMA Band II

Frequency	SG Level	Cable Loss	Antenna Factor	Absolute Level	Limit	Over Limit	Polarity
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dBm)	
Test Results for Channel 9262/1852.4MHz							
3704.8	-45.14	4.04	33.51	-15.67	-13	-2.67	Vertical
3704.8	-52.33	4.04	33.51	-22.86	-13	-9.86	Horizontal
5557.2	-48.22	5.24	35.84	-17.62	-13	-4.62	Vertical
5557.2	-53.23	5.24	35.84	-22.63	-13	-9.63	Horizontal
210.37	-47.18	1.66	17.47	-31.37	-13	-18.37	Vertical
318.52	-45.54	1.38	16.18	-30.74	-13	-17.74	Horizontal
Test Results for Channel 9400/1880MHz							
3760	-46.26	4.04	33.56	-16.74	-13	-3.74	Vertical
3760	-47.56	4.04	33.56	-18.04	-13	-5.04	Horizontal
5640	-50.12	5.24	35.91	-19.45	-13	-6.45	Vertical
5640	-47.92	5.24	35.91	-17.25	-13	-4.25	Horizontal
204.85	-45.64	1.38	16.34	-30.68	-13	-17.68	Vertical
316.59	-45.73	1.34	16.03	-31.04	-13	-18.04	Horizontal
Test Results for Channel 9538/1907.6MHz							
3815.2	-47.59	4.04	34.00	-17.63	-13	-4.63	Vertical
3815.2	-47.54	4.04	34.00	-17.58	-13	-4.58	Horizontal
5722.8	-46.13	5.24	36.04	-15.33	-13	-2.33	Vertical
5722.8	-48.15	5.24	36.04	-17.35	-13	-4.35	Horizontal
189.26	-49.79	1.51	15.52	-35.78	-13	-22.78	Vertical
255.72	-48.97	1.32	17.18	-33.12	-13	-20.12	Horizontal

Remark:

- Above 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2;
Below 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2 - 2.15.
- Difference (Over Limit) = Emission Level(dBm) - Limit(dBm)

WCDMA Band IV							
Frequency	SG Level	Cable Loss	Antenna Factor	Absolute Level	Limit	Over Limit	Polarity
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dBm)	
Test Results for Channel 1312/1712.4MHz							
3424.8	-46.94	4.02	29.8	-21.16	-13	-8.16	Vertical
3424.8	-44.92	4.02	29.8	-19.14	-13	-6.14	Horizontal
5137.2	-51.95	5.24	35.84	-21.35	-13	-8.35	Vertical
5137.2	-47.14	5.24	35.84	-16.54	-13	-3.54	Horizontal
185.70	-48.61	1.66	15.00	-35.27	-13	-22.27	Vertical
401.77	-50.35	1.58	16.20	-35.73	-13	-22.73	Horizontal
Test Results for Channel 1412/1732.4MHz							
3464.8	-51.1	4.03	30	-25.13	-13	-12.13	Vertical
3464.8	-44.08	4.03	30	-18.11	-13	-5.11	Horizontal
5197.2	-47.29	5.25	35.86	-16.68	-13	-3.68	Vertical
5197.2	-45.62	5.25	35.86	-15.01	-13	-2.01	Horizontal
204.56	-48.8	1.55	16.39	-33.95	-13	-20.95	Vertical
304.80	-51.59	1.32	16.25	-36.66	-13	-23.66	Horizontal
Test Results for Channel 1513/1752.6MHz							
3505.2	-45.66	2.91	27.68	-20.89	-13	-7.89	Vertical
3505.2	-46.01	2.91	27.68	-21.24	-13	-8.24	Horizontal
5257.8	-47.37	5.26	35.86	-16.77	-13	-3.77	Vertical
5257.8	-52.62	5.26	35.86	-22.02	-13	-9.02	Horizontal
178.26	-43.35	1.33	15.78	-28.90	-13	-15.90	Vertical
291.56	-51.46	1.47	17.42	-35.51	-13	-22.51	Horizontal

Remark:

1. Above 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2;
Below 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2 - 2.15.
2. Difference (Over Limit) = Emission Level(dBm) - Limit(dBm)

7.2 EFFECTIVE RADIATED POWER AND EFFECTIVE ISOTROPIC RADIATED POWER

7.2.1 Applicable Standard

According to FCC KDB 971168 D01 v03r01 Section 5.6 and ANSI C63.26: 2015 Section 5.2.5.5

7.2.2 Conformance Limit

The ERP of mobile transmitters must not exceed 7 Watts (Cellular Band) and the EIRP of mobile transmitters are limited to 2 Watts (PCS Band) and the EIRP of mobile transmitters are limited to 1 Watts (AWS Band).

7.2.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.2.4 Test Configuration

For E.R.P and E.I.R.P Measurements. Please refer to the section 7.1.4 in this report.

7.2.5 Test Procedure

For E.R.P and E.I.R.P Measurements. Please refer to the section 7.1.5 in this report.

7.2.6 Test Results

EUT:	Wireless POS	Model No.:	AF930
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	GPRS 850/1900, WCDMA Band II/IV/V		

■ Effective Radiated Power

Band	Channel	Frequency (MHz)	Power (dBm)	Antenna gain (dBi)	EIRP power (dBm)	ERP power (dBm)	ERP power (mW)	Verdict
GSM850	128	824.2	32.79	-1.84	30.95	28.8	0.758578	PASS
GSM850	189	836.4	32.63	-1.84	30.79	28.64	0.731139	PASS
GSM850	251	848.8	32.77	-1.84	30.93	28.78	0.755092	PASS
GPRS850 1 Slot	128	824.2	32.74	-1.84	30.9	28.75	0.749894	PASS
GPRS850 1 Slot	189	836.4	32.56	-1.84	30.72	28.57	0.719449	PASS
GPRS850 1 Slot	251	848.8	32.73	-1.84	30.89	28.74	0.748170	PASS
GPRS850 2 Slot	128	824.2	31.95	-1.84	30.11	27.96	0.625173	PASS
GPRS850 2 Slot	189	836.4	31.84	-1.84	30	27.85	0.609537	PASS
GPRS850 2 Slot	251	848.8	31.98	-1.84	30.14	27.99	0.629506	PASS
GPRS850 3 Slot	128	824.2	30.32	-1.84	28.48	26.33	0.429536	PASS
GPRS850 3 Slot	189	836.4	30.15	-1.84	28.31	26.16	0.413048	PASS
GPRS850 3 Slot	251	848.8	30.28	-1.84	28.44	26.29	0.425598	PASS
GPRS850 4 Slot	128	824.2	29.06	-1.84	27.22	25.07	0.321366	PASS
GPRS850 4 Slot	189	836.4	28.86	-1.84	27.02	24.87	0.306902	PASS
GPRS850 4 Slot	251	848.8	28.96	-1.84	27.12	24.97	0.314051	PASS
EGPRS850 1 Slot	128	824.2	27.9	-1.84	26.06	23.91	0.246037	PASS
EGPRS850 1 Slot	189	836.4	27.63	-1.84	25.79	23.64	0.231206	PASS
EGPRS850 1 Slot	251	848.8	27.87	-1.84	26.03	23.88	0.244343	PASS
EGPRS850 2 Slot	128	824.2	26.51	-1.84	24.67	22.52	0.178649	PASS
EGPRS850 2 Slot	189	836.4	26.66	-1.84	24.82	22.67	0.184927	PASS
EGPRS850 2 Slot	251	848.8	26.94	-1.84	25.1	22.95	0.197242	PASS
EGPRS850 3 Slot	128	824.2	24.25	-1.84	22.41	20.26	0.106170	PASS
EGPRS850 3 Slot	189	836.4	24.19	-1.84	22.35	20.2	0.104713	PASS
EGPRS850 3 Slot	251	848.8	24.54	-1.84	22.7	20.55	0.113501	PASS
EGPRS850 4 Slot	128	824.2	22.85	-1.84	21.01	18.86	0.076913	PASS
EGPRS850 4 Slot	189	836.4	22.64	-1.84	20.8	18.65	0.073282	PASS
EGPRS850 4 Slot	251	848.8	22.55	-1.84	20.71	18.56	0.071779	PASS

Band	Channel	Frequency (MHz)	Power (dBm)	Antenna gain (dBi)	EIRP Power (dBm)	EIRP power (mW)	Verdict
GSM1900	512	1850.2	30.25	0.87	31.12	1.294196	PASS
GSM1900	661	1880	30.45	0.87	31.32	1.355189	PASS
GSM1900	810	1909.8	30.35	0.87	31.22	1.324342	PASS
GPRS1900 1 Slot	512	1850.2	30.19	0.87	31.06	1.276439	PASS
GPRS1900 1 Slot	661	1880	30.41	0.87	31.28	1.342765	PASS
GPRS1900 1 Slot	810	1909.8	30.33	0.87	31.2	1.318257	PASS
GPRS1900 2 Slot	512	1850.2	29.28	0.87	30.15	1.035142	PASS
GPRS1900 2 Slot	661	1880	29.44	0.87	30.31	1.073989	PASS
GPRS1900 2 Slot	810	1909.8	29.34	0.87	30.21	1.049542	PASS
GPRS1900 3 Slot	512	1850.2	27.35	0.87	28.22	0.663743	PASS
GPRS1900 3 Slot	661	1880	27.52	0.87	28.39	0.690240	PASS
GPRS1900 3 Slot	810	1909.8	27.42	0.87	28.29	0.674528	PASS
GPRS1900 4 Slot	512	1850.2	26.15	0.87	27.02	0.503501	PASS
GPRS1900 4 Slot	661	1880	26.36	0.87	27.23	0.528445	PASS
GPRS1900 4 Slot	810	1909.8	26.24	0.87	27.11	0.514044	PASS
EGPRS1900 1 Slot	512	1850.2	26.84	0.87	27.71	0.590201	PASS
EGPRS1900 1 Slot	661	1880	27.03	0.87	27.9	0.616595	PASS
EGPRS1900 1 Slot	810	1909.8	26.64	0.87	27.51	0.563638	PASS
EGPRS1900 2 Slot	512	1850.2	25.95	0.87	26.82	0.480839	PASS
EGPRS1900 2 Slot	661	1880	25.6	0.87	26.47	0.443609	PASS
EGPRS1900 2 Slot	810	1909.8	25.52	0.87	26.39	0.435512	PASS
EGPRS1900 3 Slot	512	1850.2	23.55	0.87	24.42	0.276694	PASS
EGPRS1900 3 Slot	661	1880	23.45	0.87	24.32	0.270396	PASS
EGPRS1900 3 Slot	810	1909.8	23.35	0.87	24.22	0.264241	PASS
EGPRS1900 4 Slot	512	1850.2	21.62	0.87	22.49	0.177419	PASS
EGPRS1900 4 Slot	661	1880	21.95	0.87	22.82	0.191426	PASS
EGPRS1900 4 Slot	810	1909.8	22.22	0.87	23.09	0.203704	PASS

Band	Channel	Frequency (MHz)	Power (dBm)	Antenna gain (dBi)	EIRP Power (dBm)	EIRP power (mW)	Verdict
WCDMA Band2	9262	1852.4	24.54	0.87	25.41	0.347536	PASS
WCDMA Band2	9400	1880	24.52	0.87	25.39	0.345939	PASS
WCDMA Band2	9538	1907.6	24.68	0.87	25.55	0.358922	PASS
HSDPA Band2 Subtest1	9262	1852.4	23.6	0.87	24.47	0.279898	PASS
HSDPA Band2 Subtest2	9262	1852.4	23.14	0.87	24.01	0.251768	PASS
HSDPA Band2 Subtest3	9262	1852.4	21.87	0.87	22.74	0.187932	PASS
HSDPA Band2 Subtest4	9262	1852.4	22.11	0.87	22.98	0.198609	PASS
HSDPA Band2 Subtest1	9400	1880	23.58	0.87	24.45	0.278612	PASS
HSDPA Band2 Subtest2	9400	1880	23.2	0.87	24.07	0.255270	PASS
HSDPA Band2 Subtest3	9400	1880	21.82	0.87	22.69	0.185780	PASS
HSDPA Band2 Subtest4	9400	1880	21.7	0.87	22.57	0.180717	PASS
HSDPA Band2 Subtest1	9538	1907.6	23.76	0.87	24.63	0.290402	PASS
HSDPA Band2 Subtest2	9538	1907.6	23.35	0.87	24.22	0.264241	PASS
HSDPA Band2 Subtest3	9538	1907.6	22.21	0.87	23.08	0.203236	PASS
HSDPA Band2 Subtest4	9538	1907.6	22.31	0.87	23.18	0.207970	PASS
HSUPA Band2 Subtest1	9262	1852.4	22.59	0.87	23.46	0.221820	PASS
HSUPA Band2 Subtest2	9262	1852.4	23.55	0.87	24.42	0.276694	PASS
HSUPA Band2 Subtest3	9262	1852.4	21.57	0.87	22.44	0.175388	PASS
HSUPA Band2 Subtest4	9262	1852.4	23.61	0.87	24.48	0.280543	PASS
HSUPA Band2 Subtest5	9262	1852.4	22.28	0.87	23.15	0.206538	PASS
HSUPA Band2 Subtest1	9400	1880	23.41	0.87	24.28	0.267917	PASS
HSUPA Band2 Subtest2	9400	1880	23.37	0.87	24.24	0.265461	PASS
HSUPA Band2 Subtest3	9400	1880	22.11	0.87	22.98	0.198609	PASS
HSUPA Band2 Subtest4	9400	1880	23.58	0.87	24.45	0.278612	PASS
HSUPA Band2 Subtest5	9400	1880	22.88	0.87	23.75	0.237137	PASS
HSUPA Band2 Subtest1	9538	1907.6	23.57	0.87	24.44	0.277971	PASS
HSUPA Band2 Subtest2	9538	1907.6	23.58	0.87	24.45	0.278612	PASS
HSUPA Band2 Subtest3	9538	1907.6	22.56	0.87	23.43	0.220293	PASS
HSUPA Band2 Subtest4	9538	1907.6	23.76	0.87	24.63	0.290402	PASS
HSUPA Band2 Subtest5	9538	1907.6	23.08	0.87	23.95	0.248313	PASS

Band	Channel	Frequency (MHz)	Power (dBm)	Antenna gain (dBi)	EIRP Power (dBm)	EIRP power (mW)	Verdict
WCDMA Band4	1312	1712.4	24.57	2.24	26.81	0.479733	PASS
WCDMA Band4	1413	1732.6	24.54	2.24	26.78	0.476431	PASS
WCDMA Band4	1513	1752.6	24.75	2.24	26.99	0.500035	PASS
HSDPA Band4 Subtest1	1312	1712.4	23.61	2.24	25.85	0.384592	PASS
HSDPA Band4 Subtest2	1312	1712.4	23.19	2.24	25.43	0.349140	PASS
HSDPA Band4 Subtest3	1312	1712.4	22.06	2.24	24.3	0.269153	PASS
HSDPA Band4 Subtest4	1312	1712.4	22.24	2.24	24.48	0.280543	PASS
HSDPA Band4 Subtest1	1413	1732.6	23.59	2.24	25.83	0.382825	PASS
HSDPA Band4 Subtest2	1413	1732.6	23.21	2.24	25.45	0.350752	PASS
HSDPA Band4 Subtest3	1413	1732.6	22.17	2.24	24.41	0.276058	PASS
HSDPA Band4 Subtest4	1413	1732.6	22.2	2.24	24.44	0.277971	PASS
HSDPA Band4 Subtest1	1513	1752.6	23.78	2.24	26.02	0.399945	PASS
HSDPA Band4 Subtest2	1513	1752.6	23.4	2.24	25.64	0.366438	PASS
HSDPA Band4 Subtest3	1513	1752.6	22.33	2.24	24.57	0.286418	PASS
HSDPA Band4 Subtest4	1513	1752.6	21.98	2.24	24.22	0.264241	PASS
HSUPA Band4 Subtest1	1312	1712.4	22.24	2.24	24.48	0.280543	PASS
HSUPA Band4 Subtest2	1312	1712.4	23.45	2.24	25.69	0.370681	PASS
HSUPA Band4 Subtest3	1312	1712.4	21.99	2.24	24.23	0.264850	PASS
HSUPA Band4 Subtest4	1312	1712.4	23.58	2.24	25.82	0.381944	PASS
HSUPA Band4 Subtest5	1312	1712.4	22.09	2.24	24.33	0.271019	PASS
HSUPA Band4 Subtest1	1413	1732.6	23.39	2.24	25.63	0.365595	PASS
HSUPA Band4 Subtest2	1413	1732.6	23.3	2.24	25.54	0.358096	PASS
HSUPA Band4 Subtest3	1413	1732.6	22.46	2.24	24.7	0.295121	PASS
HSUPA Band4 Subtest4	1413	1732.6	23.59	2.24	25.83	0.382825	PASS
HSUPA Band4 Subtest5	1413	1732.6	22.91	2.24	25.15	0.327341	PASS
HSUPA Band4 Subtest1	1513	1752.6	23.63	2.24	25.87	0.386367	PASS
HSUPA Band4 Subtest2	1513	1752.6	23.78	2.24	26.02	0.399945	PASS
HSUPA Band4 Subtest3	1513	1752.6	22.18	2.24	24.42	0.276694	PASS
HSUPA Band4 Subtest4	1513	1752.6	23.79	2.24	26.03	0.400867	PASS
HSUPA Band4 Subtest5	1513	1752.6	23.06	2.24	25.3	0.338844	PASS

Band	Channel	Frequency (MHz)	Power (dBm)	Antenna gain (dBi)	EIRP power (dBm)	ERP power (dBm)	ERP power (mW)	Verdict
WCDMA Band5	4132	826.4	24.11	-1.84	22.27	20.12	0.102802	PASS
WCDMA Band5	4182	836.4	24.09	-1.84	22.25	20.1	0.102329	PASS
WCDMA Band5	4233	846.6	23.96	-1.84	22.12	19.97	0.099312	PASS
HSDPA Band5 Subtest1	4132	826.4	23.12	-1.84	21.28	19.13	0.081846	PASS
HSDPA Band5 Subtest2	4132	826.4	22.85	-1.84	21.01	18.86	0.076913	PASS
HSDPA Band5 Subtest3	4132	826.4	21.69	-1.84	19.85	17.7	0.058884	PASS
HSDPA Band5 Subtest4	4132	826.4	21.81	-1.84	19.97	17.82	0.060534	PASS
HSDPA Band5 Subtest1	4182	836.4	23.09	-1.84	21.25	19.1	0.081283	PASS
HSDPA Band5 Subtest2	4182	836.4	22.81	-1.84	20.97	18.82	0.076208	PASS
HSDPA Band5 Subtest3	4182	836.4	21.57	-1.84	19.73	17.58	0.057280	PASS
HSDPA Band5 Subtest4	4182	836.4	21.54	-1.84	19.7	17.55	0.056885	PASS
HSDPA Band5 Subtest1	4233	846.6	23.01	-1.84	21.17	19.02	0.079799	PASS
HSDPA Band5 Subtest2	4233	846.6	22.35	-1.84	20.51	18.36	0.068549	PASS
HSDPA Band5 Subtest3	4233	846.6	21.49	-1.84	19.65	17.5	0.056234	PASS
HSDPA Band5 Subtest4	4233	846.6	21.23	-1.84	19.39	17.24	0.052966	PASS
HSUPA Band5 Subtest1	4132	826.4	21.95	-1.84	20.11	17.96	0.062517	PASS
HSUPA Band5 Subtest2	4132	826.4	23.1	-1.84	21.26	19.11	0.081470	PASS
HSUPA Band5 Subtest3	4132	826.4	21.3	-1.84	19.46	17.31	0.053827	PASS
HSUPA Band5 Subtest4	4132	826.4	23.13	-1.84	21.29	19.14	0.082035	PASS
HSUPA Band5 Subtest5	4132	826.4	21.82	-1.84	19.98	17.83	0.060674	PASS
HSUPA Band5 Subtest1	4182	836.4	22.96	-1.84	21.12	18.97	0.078886	PASS
HSUPA Band5 Subtest2	4182	836.4	22.93	-1.84	21.09	18.94	0.078343	PASS
HSUPA Band5 Subtest3	4182	836.4	21.64	-1.84	19.8	17.65	0.058210	PASS
HSUPA Band5 Subtest4	4182	836.4	23.11	-1.84	21.27	19.12	0.081658	PASS
HSUPA Band5 Subtest5	4182	836.4	22.22	-1.84	20.38	18.23	0.066527	PASS
HSUPA Band5 Subtest1	4233	846.6	22.79	-1.84	20.95	18.8	0.075858	PASS
HSUPA Band5 Subtest2	4233	846.6	22.99	-1.84	21.15	19	0.079433	PASS
HSUPA Band5 Subtest3	4233	846.6	21.9	-1.84	20.06	17.91	0.061802	PASS
HSUPA Band5 Subtest4	4233	846.6	23.02	-1.84	21.18	19.03	0.079983	PASS
HSUPA Band5 Subtest5	4233	846.6	22.41	-1.84	20.57	18.42	0.069502	PASS

Note:

SG Level= Signal generator output

Pcl= cable loss

Ga= Antenna Factor

Peak EIRP(dBm)= SGLevel -Pcl +Ga

ERP(dBm)=EIRP-2.15

7.3 CONDUCTED OUTPUT POWER

7.3.1 Applicable Standard

According to FCC KDB 971168 D01 v03r01 Section 5 and ANSI C63.26: 2015 Section 5.2

7.3.2 Conformance Limit

The ERP of mobile transmitters must not exceed 7 Watts (Cellular Band) and the EIRP of mobile transmitters are limited to 2 Watts (PCS Band) and the EIRP of mobile transmitters are limited to 1 Watts (AWS Band).

7.3.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.3.4 Test Setup

Please refer to Section 6.1 of this test report.

7.3.5 Test Procedure

Connect the EUT to Universal Radio Communication Tester CMU200 or CMU500 via the antenna connector. A call is set up by the SS according to the generic call set up procedure on a channel with ARFCN in the ARFCN range, power control level set to Max power. The frequency band is set as selected frequency, The RF output of the transmitter was connected to base station simulator. Set EUT at maximum average power by base station simulator. Measure the lowest, middle, and highest channels of the EUT for each bandwidth and different modulation. Measure and record the results in the test report.

7.3.6 Test Results

The maximum conducted power is verified to be the same.

The conducted Test data please refer to the report: S23033100205005 under the WWAN module Z400-H
FCC ID: 2A9FT-Z400-H.

7.4 FREQUENCY STABILITY

7.4.1 Applicable Standard

According to FCC KDB 971168 D01 Section 9.0 and ANSI C63.26: 2015 Section 5.6

7.4.2 Conformance Limit

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ ($\pm 2.5\text{ppm}$) of the center frequency.

7.4.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.4.4 Test Setup

Please refer to Section 6.1 of this test report.

7.4.5 Test Procedure

Connect the EUT to Universal Radio Communication Tester CMU200 or CMU500 via the antenna connector. A call is set up by the SS according to the generic call set up procedure on a channel with ARFCN in the ARFCN range, power control level set to Max power. MS TXPWR_MAX_CCH is set to the maximum value supported by the Power Class of the Mobile under test.

EUT was placed at temperature chamber and connected to an external power supply.

Temperature and voltage condition shall be tested to confirm frequency stability.

For Temperature Variation

1. The testing follows FCC KDB 971168 D01 v03r01 Section 9.0.
2. The EUT was set up in the thermal chamber and connected with the system simulator.
3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
4. With power OFF, the temperature was raised in 10°C steps up to 50°C . The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

For Voltage Variation

1. The testing follows FCC KDB 971168 D01 v03r01 Section 9.0.
2. The EUT was placed in a temperature chamber at $25\pm 5^{\circ}\text{C}$ and connected with the system simulator.
3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
4. The variation in frequency was measured for the worst case.

7.4.6 Test Results

The conducted Test data please refer to the report: S23033100205005 under the WWAN module Z400-H
FCC ID: 2A9FT-Z400-H.

7.5 PEAK-TO-AVERAGE RATIO

7.5.1 Applicable Standard

According to ANSI C63.26: 2015 Section 5.2.3.4 and FCC KDB 971168 D01 Section 5.7

7.5.2 Conformance Limit

The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for more than 0.1 percent of the time or other Commission approved procedure. The measurement must be performed using a signal corresponding to the highest PAPR expected during periods of continuous transmission.

7.5.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.5.4 Test Setup

Please refer to Section 6.1 of this test report.

7.5.5 Test Procedure

The EUT was connected to Spectrum Analyzer and Base Station via power divider.

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.

Set the number of counts to a value that stabilizes the measured CCDF curve.

Set the measurement interval to 1 ms.

Record the maximum PAPR level associated with a probability of 0.1%.

a) Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;

b) Set resolution/measurement bandwidth $\geq$ signal's occupied bandwidth;

c) Set the number of counts to a value that stabilizes the measured CCDF curve;

d) Set the measurement interval as follows:

1) for continuous transmissions, set to 1 ms,

2) for burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize and set the measurement interval to a time that is less than or equal to the burst duration.

e) Record the maximum PAPR level associated with a probability of 0.1%.

7.5.6 Test Results

The conducted Test data please refer to the report: S23033100205005 under the WWAN module Z400-H
FCC ID: 2A9FT-Z400-H.

7.6 26DB BANDWIDTH AND 99% OCCUPIED BANDWIDTH

7.6.1 Applicable Standard

According to FCC KDB 971168 D01 Section 4 and ANSI C63.26: 2015 Section 5.4

7.6.2 Conformance Limit

The occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

7.6.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.6.4 Test Setup

Please refer to Section 6.1 of this test report.

7.6.5 Test Procedure

The testing follows FCC KDB 971168 v03r01 Section 4.

The EUT was connected to Spectrum Analyzer and Base Station via power divider.

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.

The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW.

The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.

Set the detection mode to peak, and the trace mode to max hold.

Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace.

(this is the reference value)

Determine the “-26 dB down amplitude” as equal to (Reference Value – X).

Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “-X dB down amplitude” determined in step 6. If a marker is below this “-X dB down amplitude” value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.

Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

7.6.6 Test Results

The conducted Test data please refer to the report: S23033100205005 under the WWAN module Z400-H
FCC ID: 2A9FT-Z400-H.

7.7 CONDUCTED BAND EDGE

7.7.1 Applicable Standard

According to FCC KDB 971168 D01 Section 6 and ANSI C63.26: 2015 Section 5.7.

7.7.2 Conformance Limit

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB.

7.7.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.7.4 Test Setup

Please refer to Section 6.1 of this test report.

7.7.5 Test Procedure

The testing follows FCC KDB 971168 v03r01 Section 6.

The EUT was connected to Spectrum Analyzer and Base Station via power divider.

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.

The path loss was compensated to the results for each measurement.

The band edges of low and high channels for the highest RF powers were measured.

The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)

$$= P(W) - [43 + 10\log(P)] \text{ (dB)}$$

$$= -13\text{dBm}.$$

7.7.6 Test Results

The conducted Test data please refer to the report: S23033100205005 under the WWAN module Z400-H
FCC ID: 2A9FT-Z400-H.

7.8 CONDUCTED SPURIOUS EMISSION AT ANTENNA TERMINAL

7.8.1 Applicable Standard

According to FCC KDB 971168 D01 Section 6 and ANSI C63.26: 2015 Section 5.7.

7.8.2 Conformance Limit

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $43 + 10 \log(P)$ dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

7.8.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.8.4 Test Setup

Please refer to Section 6.1 of this test report.

7.8.5 Test Procedure

The testing follows FCC KDB 971168 v03r01 Section 6.

The EUT was connected to Spectrum Analyzer and Base Station via power divider.

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.

The path loss was compensated to the results for each measurement.

The middle channel for the highest RF power within the transmitting frequency was measured.

The conducted spurious emission for the whole frequency range was taken.

The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)

$$= P(W) - [43 + 10\log(P)] \text{ (dB)}$$

$$= -13\text{dBm.}$$

7.8.6 Test Results

The conducted Test data please refer to the report: S23033100205005 under the WWAN module Z400-H
FCC ID: 2A9FT-Z400-H.

END OF REPORT