FCC RADIO TEST REPORT

FCC ID	:	YY3-1102418
Equipment	:	Wireless Module
Brand Name	:	AirPrime
Model Name	:	EM9191
Applicant	:	Handheld Group AB Handheld Group AB, Kinnegatan 17 A, SE-531 33, Lidköping, Sweden
Manufacturer	:	iBASE 11F, No. 3-1, Yuan Qu Street, Nankang, Taipei, Taiwan, R.O.C.
Standard	:	FCC 47 CFR Part 2, 22(H), 24(E), 27(L)

Equipment: AirPrime EM9191 tested inside of Handheld Group ALGIZ 10XR.

The product was received on Oct. 17, 2022 and testing was performed from Nov. 21, 2022 to Nov. 25, 2022. We, Sporton International Inc. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA-603-E and has been in compliance with the applicable technical standards.

The test results in this partial report apply exclusively to the tested model / sample. Without written approval from Sporton International Inc. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

Sporton International Inc. EMC & Wireless Communications Laboratory

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History of this test report

Report No.	Version	Description	Issue Date
FG261002A	01	Initial issue of report	Mar. 23, 2023

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.2	§2.1046	Conducted Output Power	Pass	-
	§22.913 (a)(5)	Effective Radiated Power (WCDMA Band V)		
	§24.232 (c)	Equivalent Isotropic Radiated Power (WCDMA Band II)		
	§27.50 (d)(4)	Equivalent Isotropic Radiated Power (WCDMA Band IV)		
-	§24.232 (d)	Peak-to-Average Ratio	-	See Note
-	§2.1049 §22.917 (b) §24.238 (b) §27.53 (g)	Occupied Bandwidth (WCDMA Band V) (WCDMA Band II) (WCDMA Band IV)	-	See Note
-	§2.1051 §22.917 (a) §24.238 (a) §27.53 (g)	Band Edge Measurement (WCDMA Band V) (WCDMA Band II) (WCDMA Band IV)	-	See Note
-	§2.1051 §22.917 (a) §24.238 (a) §27.53 (g)	Conducted Emission (WCDMA Band V) (WCDMA Band II) (WCDMA Band IV)	-	See Note
-	§2.1055 §22.355 §24.235 §27.54	Frequency Stability Temperature & Voltage	-	See Note
-	§2.1053 §22.917 (a) §24.238 (a) §27.53 (h)	Field Strength of Spurious Radiation (WCDMA Band V) (WCDMA Band II) (WCDMA Band IV)	-	See Note

Remark: The Original module was performed with an antenna of higher gain, and the antenna was connected to the module in an open environment. The current host platform under application uses an antenna with lower gain and is installed inside the host platform enclosure. The physical restraints introduced by the host platform should have resulted in equal or lower level of radiated emission. Therefore, based on each rule part retest worst band for radiated emission test.

Declaration of Conformity:
The test results (PASS/FAIL) with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers. It's means measurement values may risk exceeding the limit of regulation standards, if measurement uncertainty is include in test results.
Comments and Explanations:
The product specifications of the EUT presented in the report are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: Sheng Kuo

Report Producer: Ruby Zou

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature	
Installed into Host	Equipment Name: ALGIZ 10XR Brand Name: Handheld Group Model Name: ALGIZ 10XR Marketing Name: ALGIZ 10XR
Equipment	Wireless Module
Brand Name	AirPrime
Model Name	EM9191
FCC ID	YY3-1102418
EUT supports Radios application	WCDMA/HSPA/LTE/5G NR/GNSS
EUT Stage	Production Unit

Remark:

1. The above EUT's information was declared by manufacturer.
2. Equipment: AirPrime EM9191 tested inside of Handheld Group ALGIZ 10XR.

1.2 Product Specification of Equipment Under Test

Product Specification is subject to this standard	
Tx Frequency	**WCDMA:** Band V: 826.4 MHz ~ 846.6 MHz Band II: 1852.4 MHz ~ 1907.6 MHz Band IV: 1712.4 MHz ~ 1752.6 MHz
Rx Frequency	**WCDMA:** Band V: 871.4 MHz ~ 891.6 MHz Band II: 1932.4 MHz ~ 1987.6 MHz Band IV: 2112.4 MHz ~ 2152.6 MHz
Maximum Output Power to Antenna	**WCDMA:** Band V: 24.23 dBm Band II: 24.13 dBm Band IV: 24.08 dBm
Antenna Type	PIFA LDS with coaxial cable Antenna
Antenna Gain	Cellular Band: 1.25 dBi PCS Band: 3.89 dBi AWS Band: 2.39 dBi
Type of Modulation	WCDMA: BPSK HSPA: QPSK HSPA+: 16QAM DC-HSDPA: 64QAM

Remark: The above EUT's information was declared by manufacturer. Please refer to Comments and Explanations in report summary.

1.3 Modification of EUT

No modifications made to the EUT during the testing.

1.4 Testing Location

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333
Test Site No.	**Sporton Site No.**
	TH03-HY
Test Engineer	Ivy Yeh
Temperature (℃)	22~24
Relative Humidity (%)	50~53

FCC Designation No.: TW1190

1.5 Applicable Standards

According to the specifications declared by the manufacturer, the EUT must comply with the requirements of the following standards:

- ANSI C63.26-2015
- ANSI / TIA-603-E
- FCC 47 CFR Part 2, 22(H), 24(E), 27(L)
- FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01

Remark:

1. All the test items were validated and recorded in accordance with the standards without any modification during the testing.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.
3. The TAF code is not including all the FCC KDB listed without accreditation.

2 Test Configuration of Equipment Under Test

2.1 Test Mode

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

All modes, data rates and positions were investigated.

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

Test Modes	
Band	**Conducted TCs**
WCDMA Band V	■ RMC 12.2Kbps Link
WCDMA Band II	■ RMC 12.2Kbps Link
WCDMA Band IV	■ RMC 12.2Kbps Link

2.2 Frequency List of Low/Middle/High Channels

Frequency List				
Band	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
WCDMA Band V	Channel	4132	4182	4233
	Frequency	826.4	836.4	846.6
WCDMA Band II	Channel	9262	9400	9538
	Frequency	1852.4	1880.0	1907.6
WCDMA Band IV	Channel	1312	1413	1513
	Frequency	1712.4	1732.6	1752.6

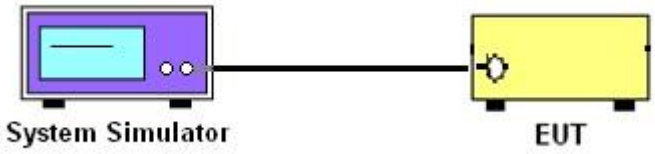
3 Conducted Test Result

3.1 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.1.1 Test Setup

3.1.2 Conducted Output Power



3.1.3 Test Result of Conducted Test

Please refer to Appendix A.

3.2 Conducted Output Power and ERP/EIRP

3.2.1 Description of the Conducted Output Power and ERP/EIRP

A system simulator was used to establish communication with the EUT. Its parameters were set to enforce EUT transmitting at the maximum power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The ERP of mobile transmitters must not exceed 7 Watts for WCDMA Band V

The EIRP of mobile transmitters must not exceed 2 Watts for WCDMA Band II

The EIRP of mobile transmitters must not exceed 1 Watts for WCDMA Band IV

According to KDB 412172 D01 Power Approach,

EIRP = $P_T + G_T – L_C$, ERP = EIRP -2.15, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

3.2.2 Test Procedures

1. The transmitter output port is connected to the system simulator.
2. Set EUT at maximum power through system simulator.
3. Select the lowest, middle, and the highest channels for each band and different modulation.
4. Measure the maximum burst average power for GSM and maximum average power for other modulation signal.

4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Base Station (Measure)	Anritsu	MT8821C	6262116730	LTE	Jun. 15, 2022	Nov. 21, 2022~ Nov. 25, 2022	Jun. 14, 2023	Conducted (TH03-HY)

Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power) & ERP / EIRP

WCDMA Band V Maximum Average Power [dBm] (GT - LC = 1.25 dB)					
Channel	4132	4182	4233	ERP (dBm)	ERP (W)
Frequency	826.4	836.4	846.6		
RMC 12.2K	**24.23**	23.97	23.71	23.33	0.2153
HSDPA Subtest-1	23.03	22.68	22.53		
HSDPA Subtest-2	23.05	22.67	22.51		
HSDPA Subtest-3	22.57	22.18	22.05		
HSDPA Subtest-4	22.49	22.18	22.03		
HSUPA Subtest-1	23.04	22.66	22.51		
HSUPA Subtest-2	20.88	20.50	20.52		
HSUPA Subtest-3	21.89	21.51	21.50		
HSUPA Subtest-4	20.83	20.52	20.53		
HSUPA Subtest-5	22.80	22.50	22.51		
Limit	ERP < 7W			Result	Pass

WCDMA Band II Maximum Average Power [dBm] (GT - LC = 3.89 dB)					
Channel	9262	9400	9538	EIRP (dBm)	EIRP (W)
Frequency	1852.4	1880	1907.6		
RMC 12.2K	24.06	**24.13**	24.00	28.02	0.6339
HSDPA Subtest-1	22.98	22.93	22.84		
HSDPA Subtest-2	23.01	22.96	22.84		
HSDPA Subtest-3	22.50	22.44	22.34		
HSDPA Subtest-4	22.48	22.41	22.32		
HSUPA Subtest-1	22.99	23.00	22.88		
HSUPA Subtest-2	20.98	20.95	20.91		
HSUPA Subtest-3	22.03	21.99	21.87		
HSUPA Subtest-4	21.00	20.99	20.88		
HSUPA Subtest-5	23.00	22.90	22.90		
Limit	EIRP < 2W			Result	Pass

WCDMA Band IV Maximum Average Power [dBm] (GT - LC = 2.39 dB)					
Channel	1312	1413	1513	EIRP (dBm)	EIRP (W)
Frequency	1712.4	1732.6	1752.6		
RMC 12.2K	**24.08**	24.01	23.96	26.47	0.4436
HSDPA Subtest-1	22.95	22.92	22.84		
HSDPA Subtest-2	22.98	22.91	22.88		
HSDPA Subtest-3	22.49	22.43	22.41		
HSDPA Subtest-4	22.48	22.40	22.41		
HSUPA Subtest-1	23.01	22.90	22.85		
HSUPA Subtest-2	20.65	20.51	20.62		
HSUPA Subtest-3	21.63	21.51	21.60		
HSUPA Subtest-4	20.66	20.53	20.61		
HSUPA Subtest-5	22.70	22.50	22.60		
Limit	EIRP < 1W			Result	Pass

———THE END———