FCC Co-Location Test Report

FCC ID	:	**MCLU97B002**
Equipment	:	**Femto Cell (AIRAVE 4 LTE)**
Model No.	:	**AV100C**
Brand Name	:	**Airspan**
Applicant	:	**Hon Hai Precision Ind. Co., Ltd.**
Address	:	**5F-1, 5 Hsin-An Road, Hsinchu, Science-Based Industrial Park, Taiwan, R.O.C**
Standard	:	**47 CFR FCC Part 24 Subpart E** **47 CFR FCC Part 27 Subpart M**
Received Date	:	**Aug. 08, 2018**
Tested Date	:	**Aug. 08, 2018**

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by: **Approved by:**

Along Chen / Assistant Manager **Gary Chang / Manager**

Testing Laboratory
2732

Table of Contents

Release Record

Report No.	Version	Description	Issued Date
FG880701CO	Rev. 01	Initial issue	Sep. 05, 2018

Summary of Test Results

FCC Rules	Test Items	Measured	Result
2.1053 / 24.238(a) 2.1053 / 27.53(m)(2)	Radiated Emissions	6542.50MHz -44.27 dBm (Margin -31.27dB)	Pass

1 General Description

1.1 Information

1.1.1 Specification of the Equipment under Test (EUT)

CDMA2000 BC1	
Operating Frequency	CDMA2000 BC1 1Tx/2Rx, Voice only, 1930~1990MHz
LTE Band 41	
Operating Frequency	Channel Bandwidth: 5MHz: 2498.5 MHz ~ 2687.5 MHz Channel Bandwidth: 10MHz: 2501.0 MHz ~ 2685.0 MHz Channel Bandwidth: 20MHz: 2506.0 MHz ~ 2680.0 MHz

1.1.2 Antenna Details

Ant. No.	Type	Connector	Gain (dBi)	Remark
1	PIFA	UFL	2.97	For LTE Band 41
2	PIFA	UFL	2.92	For CDMA2000 BC1

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	12Vdc from AC adapter

1.2 The Equipment List

Test Item	Radiated Emission				
Test Site	966 chamber 3 / (03CH03-WS)				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101499	Jan. 03, 2018	Jan. 02, 2019
Receiver	R&S	ESR3	101658	Nov. 20, 2017	Nov. 19, 2018
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-685	Apr. 19, 2018	Apr. 18, 2019
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1206	Jan. 18, 2018	Jan. 17, 2019
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 23, 2017	Nov. 22, 2018
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 13, 2017	Nov. 12, 2018
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Dec. 07, 2017	Dec. 06, 2018
Preamplifier	EMC	EMC02325	980187	Sep. 04, 2017	Sep. 03, 2018
Preamplifier	Agilent	83017A	MY39501309	Sep. 25, 2017	Sep. 24, 2018
Preamplifier	MITEQ	TTA1840-35-HG	1864481	Aug. 31, 2017	Aug. 30, 2018
RF cable-3M	HUBER+SUHNER	SUCOFLEX104	MY22620/4	Nov. 27, 2017	Nov. 26, 2018
RF cable-8M	HUBER+SUHNER	SUCOFLEX104	MY32487/4	Nov. 27, 2017	Nov. 26, 2018
RF cable-1M	HUBER+SUHNER	SUCOFLEX104	MY22624/4	Nov. 27, 2017	Nov. 26, 2018
LF cable-0.8M	EMC	EMC8D-NM-NM-800	EMC8D-NM-NM-800 -001	Nov. 27, 2017	Nov. 26, 2018
LF cable-3M	EMC	EMC8D-NM-NM-3000	131103	Nov. 27, 2017	Nov. 26, 2018
LF cable-13M	EMC	EMC8D-NM-NM-13000	131104	Nov. 27, 2017	Nov. 26, 2018
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

1.3 Test Standards

According to the specification of EUT, the EUT must comply with following standards and KDB documents.

47 CFR FCC Part 24 Subpart E
47 CFR FCC Part 27 Subpart M
ANSI C63.4-2014
ANSI C63.26-2015
FCC KDB 971168 D01 Power Meas License Digital Systems v03r01
FCC KDB 971168 D02 Misc Rev Approv License Devices v02r01
FCC KDB 412172 D01 Determining ERP and EIRP v01r01

1.4 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)

Measurement Uncertainty	
Parameters	**Uncertainty**
Radiated emission ≤ 1GHz	±3.62 dB
Radiated emission > 1GHz	±5.63 dB

2 Test Configuration

2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
Radiated Emissions	03CH03-WS	24°C / 62%	Vincent Yeh

- FCC Designation No.: TW0009
- FCC site registration No.: 207696
- IC site registration No.: 10807C-1

2.2 The Worst Test Modes and Channel Details

Test item	Test Mode	Test Configuration
Radiated Emissions	CDMA2000 BC1+LTE B41	---
NOTE: The selected channel is the maximum power channel of each mode.		

3 Transmitter Test Results

3.1.1 Limit of Radiated Emissions

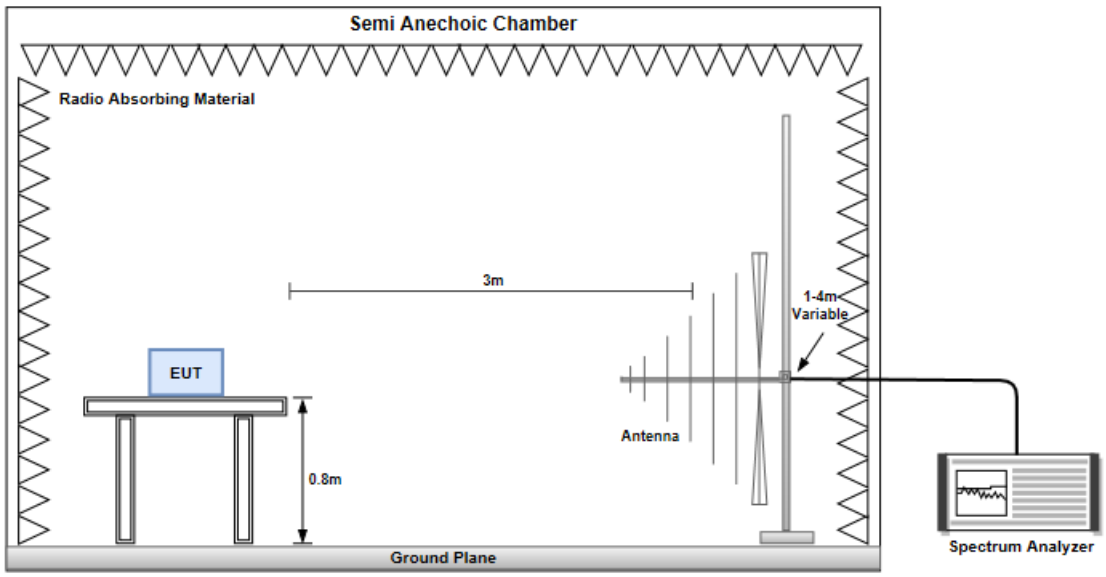
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB equal to -13dBm.

3.1.2 Test Procedures

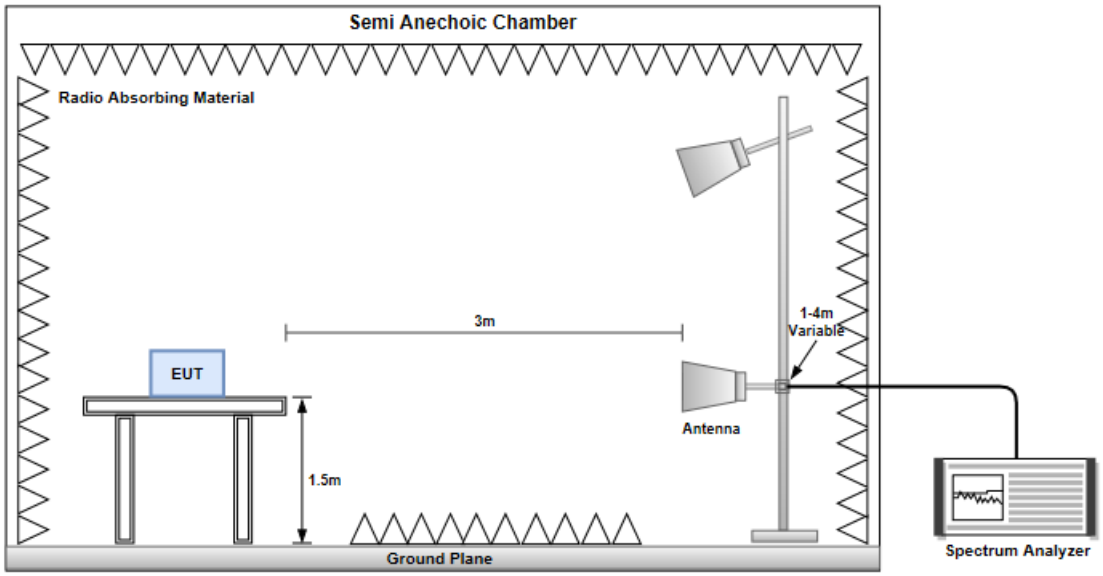
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. For emissions testing at or below 1 GHz, the table height is 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height is 1.5 m.
2. Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m ~ 4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3 m.
3. This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.
4. After finding the max radiated emission, substitution method will be used for getting effective radiated power. EUT will be removed and substitution antenna will be placed at same position. Signal generator will output CW signal to substitution antenna through a RF cable. Rotate turntable and move antenna to find maximum radiated emission. Adjust output power of signal generator to let the maximum radiated emission is same as step 3. Record the output power level.
5. E.I.R.P = output power of step 4 + gain of substitution antenna – cable loss of RF cable.

3.1.3 Test Setup

Radiated Emissions below 1 GHz



Radiated Emissions above 1 GHz



3.1.4 Test Result of Radiated Emissions below 1GHz

Mode		CDMA 2000, Channel: 25 + LTE, BW: 20 MHz, Channel: 41490, 64QAM					
Frequency (MHz)	**Antenna Polarity**	**E.I.R.P (dBm)**	**Limit (dBm)**	**Margin (dB)**	**S.A Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**
30.97	H	-67.81	-13.00	-54.81	-75.77	-53.92	-13.89
61.04	H	-69.39	-13.00	-56.39	-69.46	-60.89	-8.50
235.64	H	-61.84	-13.00	-48.84	-58.31	-65.94	4.10
249.22	H	-58.55	-13.00	-45.55	-55.47	-62.68	4.13
258.92	H	-61.24	-13.00	-48.24	-58.45	-65.35	4.11
623.64	H	-60.60	-13.00	-47.60	-65.96	-64.09	3.49
66.86	V	-68.47	-13.00	-55.47	-65.21	-61.94	-6.53
249.22	V	-55.47	-13.00	-42.47	-57.73	-59.60	4.13
258.92	V	-55.71	-13.00	-42.71	-57.91	-59.82	4.11
287.05	V	-58.63	-13.00	-45.63	-60.59	-62.66	4.03
577.08	V	-59.14	-13.00	-46.14	-66.63	-62.73	3.59
825.40	V	-58.17	-13.00	-45.17	-67.67	-61.22	3.05

Note: EIRP = S.G Power value + Correction factor.

3.1.5 Test Result of Radiated Emissions above 1GHz

Mode		CDMA 2000, Channel: 25 + LTE, BW: 20 MHz,Channel: 41490, 64QAM					
Frequency (MHz)	**Antenna Polarity**	**E.I.R.P (dBm)**	**Limit (dBm)**	**Margin (dB)**	**S.A Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**
4611.25	H	-48.35	-13.00	-35.35	-65.55	-54.46	6.11
6542.50	H	-45.10	-13.00	-32.10	-63.59	-49.76	4.66
4611.25	V	-48.28	-13.00	-35.28	-65.41	-54.39	6.11
6542.50	V	-44.27	-13.00	-31.27	-63.44	-48.93	4.66

Note: EIRP = S.G Power value + Correction factor.

4 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corp (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website http://www.icertifi.com.tw.

Linkou	**Kwei Shan**	**Kwei Shan Site II**
Tel: 886-2-2601-1640	Tel: 886-3-271-8666	Tel: 886-3-271-8640
No. 30-2, Ding Fwu Tsuen, Lin Kou District, New Taipei City, Taiwan, R.O.C.	No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C.	No. 14-1, Lane 19, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C..

If you have any suggestion, please feel free to contact us as below information

Tel: 886-3-271-8666
Fax: 886-3-318-0155
Email: ICC_Service@icertifi.com.tw

==END==