TEST REPORT

of

FCC CFR 47 part 1, 1.1307(b), 1.1310

FCC ID: 2AHTD-CFX

Equipment Under Test	:	CleanFLEX
Model Name	:	CFX
Applicant	:	Ecube Labs Co., Ltd.
Manufacturer	:	Ecube Labs Co., Ltd.
Date of Receipt	:	2017.09.29
Date of Test(s)	:	2017.11.12 ~ 2018.03.05
Date of Issue	:	2018.04.20

In the configuration tested, the EUT complied with the standards specified above.

Tested By: **Date:** **2018.04.20**

Jinhyoung Cho

Technical Manager: **Date:** **2018.04.20**

Jungmin Yang

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1. General information

1.1. Testing Laboratory

SGS Korea Co., Ltd. (Gunpo Laboratory)
-Wireless Div. 2FL, 10-2, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807
All SGS services are rendered in accordance with the applicable SGS conditions of service available on request and accessible at http://www.sgs.com/en/Terms-and-Conditions.aspx.
Phone No. : +82 31 688 0901
Fax No. : +82 31 688 0921

1.2. Details of applicant

Applicant : Ecube Labs Co., Ltd.
Address : 506, Acetechnotower, 20, Digital-ro 31-gil, Guro-gu, Seoul
Contact Person : Park, Jin
Phone No. : +82 2 2109 0293

1.3. Details of manufacturer

Applicant : Same as applicant
Address : Same as applicant

1.4. Description of EUT

Kind of Product	CleanFLEX
Model Name	CFX
Power Supply	DC 3.6 V
Frequency Range	WCDMA 2: 1 850 ㎒ ~ 1 910 ㎒, WCDMA 5: 824 ㎒ ~ 849 ㎒
Antenna Gain	824 ㎒ ~ 849 ㎒: 1.7 ㏈i, 1 850 ㎒ ~ 1 910 ㎒: 3.0 ㏈i

1.5. Test report revision

Revision	Report number	Date of Issue	Description
0	F690501/RF-RTL012590	2018.04.20	Initial

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2. RF Exposure Evaluation

2.1. Environmental evaluation and exposure limit according to FCC CFR 47 part 1, 1.1307(b), 1.1310

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (㎒)	Electric Field Strength(V/m)	Magnetic Field Strength (A/m)	Power Density (㎽/㎠)	Average Time
(A) Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	*100	6
3.0 – 30	1842/f	4.89/f	*900/f^2	6
30 – 300	61.4	0.163	1.0	6
300 – 1 500	-	-	f/300	6
1 500 – 100 000	-	-	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3 – 1.34	614	1.63	*100	30
1.34 – 30	824/f	2.19/f	*180/f^2	30
30 – 300	27.5	0.073	0.2	30
300 – 1 500	-	-	**f/1500**	**30**
1 500 – 100 000	-	-	**1.0**	**30**

2.1.1. Friis transmission formula: Pd = (Pout*G)/(4*pi*R^2)

Where Pd = power density in ㎽/㎠

Pout = output power to antenna in ㎽

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in ㎝

Pd the limit of MPE, 1 ㎽/㎠. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

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2.1.2. Test Result of RF Exposure Evaluation

Test Item : RF Exposure Evaluation Data
Test Mode : Normal Operation

2.1.3. Output Power into Antenna & RF Exposure Evaluation Distance

WCDMA Band 2
- Maximum tune up tolerance

Channel	Frequency (㎒)	Output Average Power to Antenna (dB m)	Antenna Gain (dB i)	Power Density at 20 ㎝ (㎽/㎠)	Limits (㎽/㎠)
9262	1 852.4	23.5	3.0	0.088 865	1

WCDMA Band 5
- Maximum tune up tolerance

Channel	Frequency (㎒)	Output Average Power to Antenna (dB m)	Antenna Gain (dB i)	Power Density at 20 ㎝ (㎽/㎠)	Limits (㎽/㎠)
4132	826.4	24	1.7	0.073 915	0.550 933

Note :

- The power density Pd (5th column) at a distance of 20 ㎝ calculated from the friis transmission formula is far below the limit of 1 ㎽/㎠.

- End of the Test Report -

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