MPE REPORT

FCC ID: 2AF7ECIRCLE2

Date of issue: Apr. 25, 2018

Report Number:	MTi180424E088
Sample Description:	Circle
Model(s):	Circle2
Applicant:	Circle Media Inc.
Address:	1319 SE Martin Luther King Jr. Blvd. Suite 210 Portland, OR 97214, USA
Date of Test:	Mar, 22. 2018 – Apr, 25. 2018

Shenzhen Microtest Co., Ltd.

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TEST RESULT CERTIFICATION

Applicant's name ..... :	**Circle Media Inc.**
Address ..... :	1319 SE Martin Luther King Jr. Blvd. Suite 210 Portland, OR 97214, USA
Manufacture's Name ..... :	**Circle Media Inc.**
Address ..... :	1319 SE Martin Luther King Jr. Blvd. Suite 210 Portland, OR 97214, USA
Product name ..... :	Circle
Trademark:	Circle
Model and/or type reference . :	Circle2
Serial Model ..... :	N/A
RF Exposure Procedures ..... :	KDB 447498 D01 v06

This device described above has been tested by Shenzhen Microtest 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.

Tested by: Demi Mu — Apr. 25, 2018

Reviewed by: Blue.Zheng — Blue Zheng — Apr. 25, 2018

Approved by: Smith Chen — Smith Chen — Apr. 25, 2018

RF EXPOSURE EVALUATION

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) Radiation as specified in §1.1307(b)

Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(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

f = frequency in MHz * = Plane-wave equivalent power density

MPE Calculation Method

Friis transmission formula: $Pd= (Pout*G)\ (4*pi*R^2)$

Where

Pd= Power density in mW/cm2

Pout=output power to antenna in mW

G= Numeric gain of the antenna relative to isotropic antenna

Pi=3.14115926

R= distance between observation point and center of the radiator in cm(20cm)

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

Measurement Result

WIFI:

Operation Frequency: WIFI 802.11b/g/n HT20: 2412-2462MHz,

802.11n HT40: 2422-2452MHz,

Power density limited: 1mW/ cm^2

Antenna Type: Wifi Antenna: PCB antenna;
WIFI antenna gain: 5dBi (ANT A), 5dBi (ANT B),

R=20cm

mW=10^(dBm/10)

antenna gain Numeric=10^(dBi/10)= 10^(5/10)=3.16

Channel Freq. (MHz)	modulation	conducted power		Tune-up power		Max				Antenna		Evaluation result at 20cm			Power density Limits
		(dBm)		(dBm)		tune-up power				Gain		Power density(mW/cm2)			(mW/cm2)
						(dBm)		(mW)		Numeric					
		Ant A	Ant B	Ant A	Ant B	Ant A	Ant B	Ant A	Ant B	Ant A	Ant B	Ant A	Ant B	Sum	
2412	802.11b	15.33	13.53	15±1	14±1	16	15	39.811	31.623	3.16	3.16	0.02503	0.01988	/	1
2437		15.18	14.23	15±1	14±1	16	15	39.811	31.623	3.16	3.16	0.02503	0.01988	/	1
2462		15.26	13.92	15±1	14±1	16	15	39.811	31.623	3.16	3.16	0.02503	0.01988	/	1
2412	802.11g	16.38	15.16	16±1	15±1	17	16	50.119	39.811	3.16	3.16	0.03151	0.02503	/	1
2437		16.42	15.24	16±1	15±1	17	16	50.119	39.811	3.16	3.16	0.03151	0.02503	/	1
2462		16.51	15.12	16±1	15±1	17	16	50.119	39.811	3.16	3.16	0.03151	0.02503	/	1
2412	802.11n H20	18.62	18.67	18±1	19±1	19	20	79.433	100.000	3.16	3.16	0.04994	0.06287	0.11280	1
2437		18.49	19.57	18±1	19±1	19	20	79.433	100.000	3.16	3.16	0.04994	0.06287	0.11280	1
2462		18.54	18.95	18±1	19±1	19	20	79.433	100.000	3.16	3.16	0.04994	0.06287	0.11280	1
2422	802.11n H40	17.07	16.42	17±1	17±1	18	18	63.096	63.096	3.16	3.16	0.03967	0.03967	0.07933	1
2437		17.29	17.21	17±1	17±1	18	18	63.096	63.096	3.16	3.16	0.03967	0.03967	0.07933	1
2452		17.71	17.74	17±1	17±1	18	18	63.096	63.096	3.16	3.16	0.03967	0.03967	0.07933	1

The sum=Power density Ant A/1+Power density Ant b/1

Conclusion:

For the max result : 0.11280≤ 1.0 for 1g SAR, No SAR is required.

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