

FCC REPORT

Applicant: OPUS ONE Inc.

Address of Applicant: 3rd FL, 4-7 of 243beon-gil, Unjung-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, Rep of KOREA. (ZIP. 13477)

Equipment Under Test (EUT)

Product Name: F1 Fast Wireless Auto Slide Car Charger

Model No.: OP-AWCF1GL-BK, OP-AWCF1GL-WH, OP-AWCF1GL-BL,
OP-AWCF1GL-PK, OP-AWCF1GL-LT

Trade mark: OPUS ONE

FCC ID: 2AO5QOP-AWCF1GL-BK

Applicable standards: FCC CFR Title 47 Part 15 Subpart B

Date of sample receipt: 28 Oct., 2019

Date of Test: 29 Oct., to 30 Oct., 2019

Date of report issued: 30 Oct., 2019

Test Result: PASS *

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

Authorized Signature:



Bruce Zhang
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

2 Version

Version No.	Date	Description
00	30 Oct., 2019	Original

Tested by:



Date:

30 Oct., 2019

Test Engineer

Reviewed by:



Date:

30 Oct., 2019

Project Engineer

3 Contents

	Page
1 COVER PAGE.....	1
2 VERSION.....	2
3 CONTENTS	3
4 TEST SUMMARY.....	4
5 GENERAL INFORMATION	5
5.1 CLIENT INFORMATION	5
5.2 GENERAL DESCRIPTION OF E.U.T.....	5
5.3 TEST MODE.....	5
5.4 MEASUREMENT UNCERTAINTY.....	5
5.5 DESCRIPTION OF SUPPORT UNITS	6
5.6 RELATED SUBMITTAL(S) / GRANT (s).....	6
5.7 DESCRIPTION OF CABLE USED	6
5.8 ADDITIONS TO, DEVIATIONS, OR EXCLUSIONS FROM THE METHOD	6
5.9 LABORATORY FACILITY.....	6
5.10 LABORATORY LOCATION.....	6
5.11 TEST INSTRUMENTS LIST.....	7
6 TEST RESULTS AND MEASUREMENT DATA	8
6.1 CONDUCTED EMISSION.....	8
6.2 RADIATED EMISSION	9
7 TEST SETUP PHOTO.....	13
8 EUT CONSTRUCTIONAL DETAILS.....	14

4 Test Summary

Test Item	Section in CFR 47	Result
Conducted Emission	Part 15.107	N/A
Radiated Emission	Part 15.109	Pass
Remark:		
1. Pass: The EUT complies with the essential requirements in the standard. 2. N/A: The EUT not applicable of the test item.		
Test Method:	ANSI C63.4:2014	

5 General Information

5.1 Client Information

Applicant:	OPUS ONE Inc.
Address:	3rd FL, 4-7 of 243beon-gil, Unjung-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, Rep of KOREA. (ZIP. 13477)
Manufacturer:	Shenzhen Mgctech Co.,Ltd.
Address:	4F, Bldg B, No.48-12, Fuchengao Industrial Rd., Pinghu Street, Longgang District, Shenzhen, China.

5.2 General Description of E.U.T.

Product Name:	F1 Fast Wireless Auto Slide Car Charger
Model No.:	OP-AWCF1GL-BK, OP-AWCF1GL-WH, OP-AWCF1GL-BL, OP-AWCF1GL-PK, OP-AWCF1GL-LT
Power supply:	Input: 5V, 2A / 9V, 1.67A Output: 10W / 7.5W / 5W
Test Sample Condition:	The test samples were provided in good working order with no visible defects.
Remark:	Model No.: OP-AWCF1GL-BK, OP-AWCF1GL-WH, OP-AWCF1GL-BL, OP-AWCF1GL-PK, OP-AWCF1GL-LT are identical inside, the electrical circuit design, layout, components used and internal wiring, with only difference being model name .

5.3 Test Mode

Operating mode	Detail description
Wireless charging mode	Keep the EUR in Wireless charging mode

The sample was placed 0.8m above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

5.4 Measurement Uncertainty

Parameters	Expanded Uncertainty
Conducted Emission (9kHz ~ 30MHz)	±1.60 dB (k=2)
Radiated Emission (9kHz ~ 30MHz)	±3.12 dB (k=2)
Radiated Emission (30MHz ~ 1000MHz)	±4.32 dB (k=2)
Radiated Emission (1GHz ~ 18GHz)	±5.38 dB (k=2)
Radiated Emission (18GHz ~ 26.5GHz)	±3.36 dB (k=2)

5.5 Description of Support Units

Manufacturer	Description	Model	Serial Number	FCC ID/DoC
Skytek	Wireless charging match load	N/A	N/A	N/A
DEE VAN ENTERPRISECO., LTD	Car Adapter	DSA-18QFBFUSA	N/A	N/A
GS Japan	Lead-acid battery	55D26R-MFZ	8362810610	N/A

5.6 Related Submittal(s) / Grant (s)

This is an original grant, no related submittals and grants.

5.7 Description of Cable Used

N/A

5.8 Additions to, deviations, or exclusions from the method

No

5.9 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

● **FCC - Designation No.: CN1211**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

● **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

● **CNAS - Registration No.: CNAS L6048**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

● **A2LA - Registration No.: 4346.01**

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. The test scope can be found as below link: <https://portal.a2la.org/scopepdf/4346-01.pdf>

5.10 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road, Bao'an District, Shenzhen, Guangdong, China

Tel: +86-755-23118282, Fax: +86-755-23116366

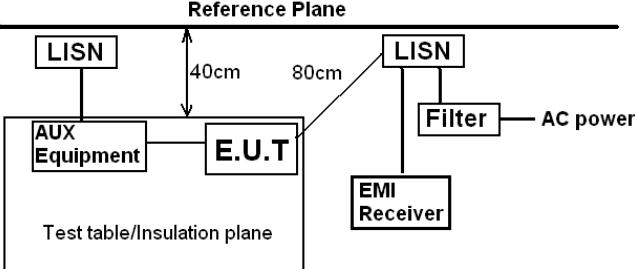
Email: info@ccis-cb.com, Website: <http://www.ccis-cb.com>

5.11 Test Instruments list

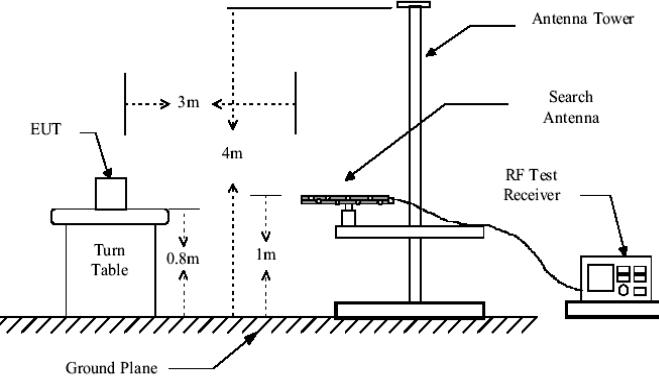
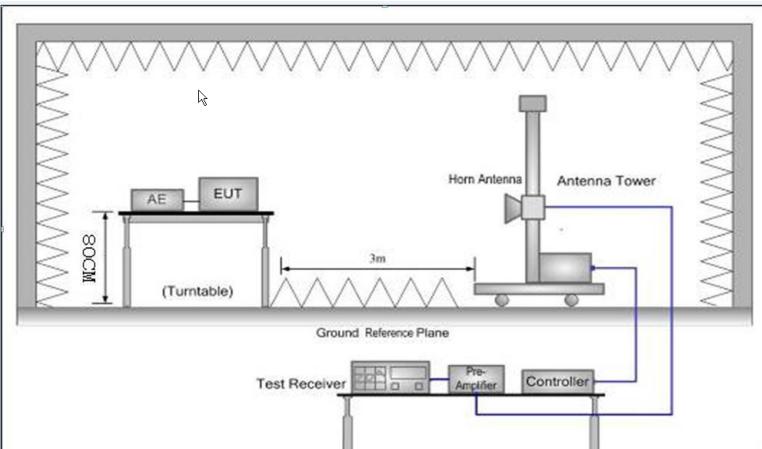
Radiated Emission:					
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
3m SAC	SAEMC	9m*6m*6m	966	07-22-2017	07-21-2020
Loop Antenna	SCHWARZBECK	FMZB1519B	00044	03-18-2019	03-17-2020
BiConiLog Antenna	SCHWARZBECK	VULB9163	497	03-18-2019	03-17-2020
Horn Antenna	SCHWARZBECK	BBHA9120D	916	03-18-2019	03-17-2020
Horn Antenna	SCHWARZBECK	BBHA9120D	1805	06-22-2017	06-21-2020
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170582	11-21-2018	11-20-2019
EMI Test Software	AUDIX	E3	Version: 6.110919b		
Pre-amplifier	HP	8447D	2944A09358	03-18-2019	03-17-2020
Pre-amplifier	CD	PAP-1G18	11804	03-18-2019	03-17-2020
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	03-18-2019	03-17-2020
Spectrum analyzer	Rohde & Schwarz	FSP40	100363	11-21-2018	11-20-2019
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-18-2019	03-17-2020
Cable	ZDECL	Z108-NJ-NJ-81	1608458	03-18-2019	03-17-2020
Cable	MICRO-COAX	MFR64639	K10742-5	03-18-2019	03-17-2020
Cable	SUHNER	SUCOFLEX100	58193/4PE	03-18-2019	03-17-2020

6 Test results and Measurement Data

6.1 Conducted Emission

Test Requirement:	FCC Part 15 B Section 15.107																	
Test Frequency Range:	150kHz to 30MHz																	
Class / Severity:	Class B																	
Receiver setup:	RBW=9kHz, VBW=30kHz																	
Limit:	<table border="1"> <thead> <tr> <th>Frequency range (MHz)</th> <th colspan="2">Limit (dBμV)</th> </tr> <tr> <th></th> <th>Quasi-peak</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>0.15-0.5</td> <td>66 to 56*</td> <td>56 to 46*</td> </tr> <tr> <td>0.5-5</td> <td>56</td> <td>46</td> </tr> <tr> <td>0.5-30</td> <td>60</td> <td>50</td> </tr> </tbody> </table>			Frequency range (MHz)	Limit (dB μ V)			Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	0.5-30	60	50
Frequency range (MHz)	Limit (dB μ V)																	
	Quasi-peak	Average																
0.15-0.5	66 to 56*	56 to 46*																
0.5-5	56	46																
0.5-30	60	50																
	* Decreases with the logarithm of the frequency.																	
Test setup:	 <p><i>Remark:</i> <i>E.U.T: Equipment Under Test</i> <i>LISN: Line Impedance Stabilization Network</i> <i>Test table height=0.8m</i></p>																	
Test procedure	<ol style="list-style-type: none"> 1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network(L.I.S.N.). They provide a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement. 																	
Test Instruments:	Refer to section 5.11 for details																	
Test mode:	Refer to section 5.3 for details																	
Test results:	The power supply of the EUT is by the car charger, so not need to be tested.																	

6.2 Radiated Emission

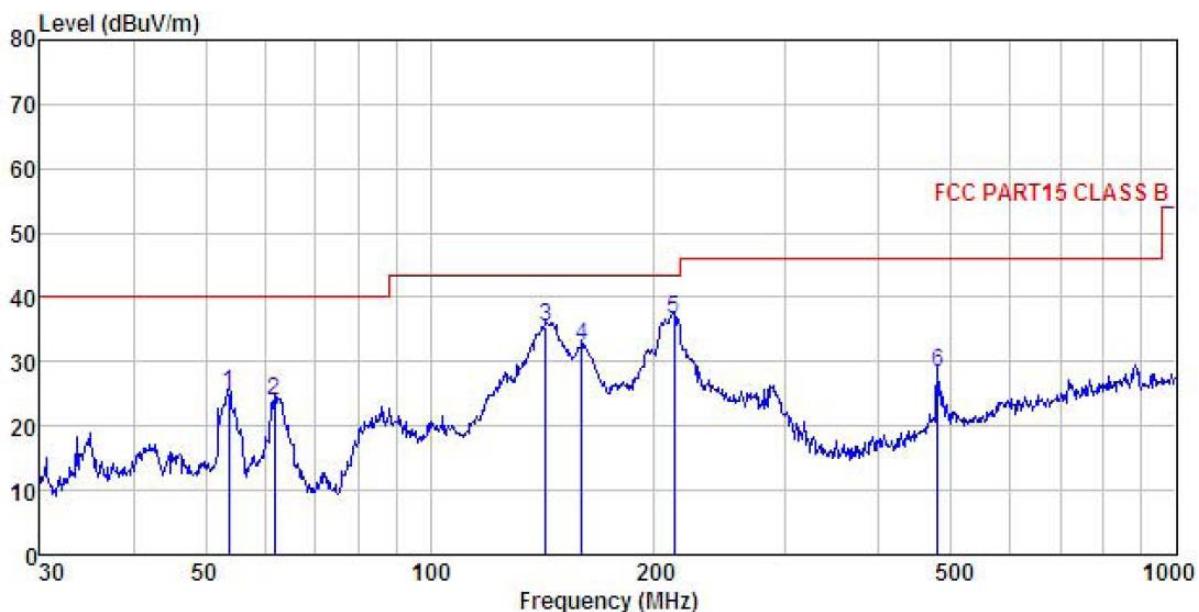
Test Requirement:	FCC Part 15 B Section 15.109													
Test Frequency Range:	30MHz to 6000MHz													
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)													
Receiver setup:	Frequency	Detector	RBW	VBW	Remark									
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value									
	Above 1GHz	Peak	1MHz	3MHz	Peak Value									
Limit:	RMS		1MHz	3MHz	Average Value									
	Frequency	Limit (dBuV/m @3m)		Remark										
	30MHz-88MHz	40.0		Quasi-peak Value										
	88MHz-216MHz	43.5		Quasi-peak Value										
	216MHz-960MHz	46.0		Quasi-peak Value										
	960MHz-1GHz	54.0		Quasi-peak Value										
Test setup:	Above 1GHz													
	Below 1GHz													
														
														
Test Procedure:	<ol style="list-style-type: none"> The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. The antenna height 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. 													

	<ol style="list-style-type: none">4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
Test Instruments:	Refer to section 5.11 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed
Remark:	All of the observed value above 6GHz were the noise floor , which were not recorded

Measurement Data:

Below 1GHz:

Product Name:	F1 Fast Wireless Auto Slide Car Charger	Product Model:	OP-AWCF1GL-BK
Test By:	Carey	Test mode:	PC mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Vertical
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24°C Huni: 57%

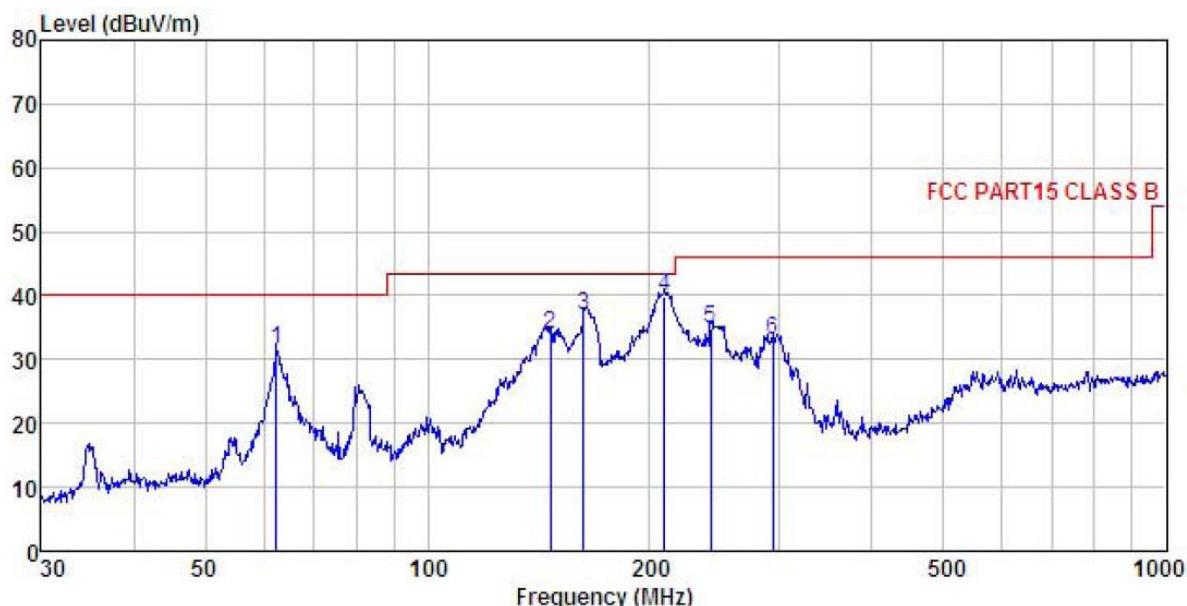


Freq	Read	Antenna	Cable	Preamp	Limit	Over	Over
	Level	Factor	Loss	Factor			
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	53.693	41.85	11.71	1.32	29.81	25.07	40.00 -14.93 QP
2	61.778	41.61	10.74	1.38	29.77	23.96	40.00 -16.04 QP
3	142.824	52.88	9.31	2.43	29.26	35.36	43.50 -8.14 QP
4	159.784	49.65	9.27	2.59	29.13	32.38	43.50 -11.12 QP
5	212.270	51.35	11.15	2.86	28.75	36.61	43.50 -6.89 QP
6	478.846	36.17	17.52	3.44	28.92	28.21	46.00 -17.79 QP

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product Name:	F1 Fast Wireless Auto Slide Car Charger	Product Model:	OP-AWCF1GL-BK
Test By:	Carey	Test mode:	PC mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Horizontal
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24°C Huni: 57%



Freq	Read	Antenna	Cable	Preamp	Limit	Over	Over	
	Freq	Level	Factor	Loss				Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	62.431	49.43	10.45	1.38	29.76	31.50	40.00	-8.50 QP
2	146.888	51.67	9.09	2.47	29.24	33.99	43.50	-9.51 QP
3	162.611	54.17	9.37	2.61	29.11	37.04	43.50	-6.46 QP
4	209.313	54.86	11.04	2.86	28.77	39.99	43.50	-3.51 QP
5	241.676	48.33	12.38	2.82	28.59	34.94	46.00	-11.06 QP
6	293.084	44.97	13.50	2.92	28.46	32.93	46.00	-13.07 QP

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
2. The emission levels of other frequencies are very lower than the limit and not show in test report.