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TEST REPORT

Test Result:	Pass*
Date of Issue:	2018-12-26
Date of Test:	2018-12-10 to 2018-12-11
Date of Receipt:	2018-12-04
Standard(s) :	47 CFR Part 18
FCC ID:	IKQQUSP
Trade mark:	SCOSCHE
*	Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Model No.:	QUSP, QUSPSR, QUSPSR-SP, QUSPXX-XX(XX can be A-Z or 0-9) 🌲
EUT Name:	Wireless Fast Charging Pad
Equipment Under Test (EUT)):
Address of Factory:	2nd Floor, A4 Building, Block A, Fangxing Science & Tech. Park, Longgang District, Shenzhen, China
Factory:	Shenzhen Powerqi Technology Co., Ltd.
Address of Manufacturer:	1550 Pacific Ave Oxnard California 93033 United States
Manufacturer:	Scosche Industries Inc.
Address of Applicant:	1550 Pacific Ave Oxnard California 93033 United States
Applicant:	Scosche Industries Inc.
Application No.:	SZEM1811010318CR

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

Keny. XM

Keny Xu EMC Laboratory Manager



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Revision Record					
Version	Chapter	Date	Modifier	Remark	
01		2018-12-26		Original	

Authorized for issue by:		
	Peter. Groug	
	Pater Geng /Project Engineer	
	Evic Fu	
	Eric Fu /Reviewer	



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2 Test Summary

Radio Spectrum Matter Part					
Item	Standard	Method	Requirement	Result	
Conducted disturbance	47 CFR Part 18	FCC MP-5	Part 18.307	Pass	
Radiated emission	47 CFR Part 18	FCC MP-5	Part 18.305	Pass	

Remark:

Model No.: QUSP, QUSPSR, QUSPSR-SP, QUSPXX-XX(XX can be A-Z or 0-9)

Only the model QUSP was tested, since the electrical circuit design, layout, components used, internal wiring and functions were identical for the above models, with only difference on packaging and the color of the product housing.



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4 General Information

4.1 Details of E.U.T.

Power supply:	AC/DC adapter,
	Model: HQA8
	Input: AC 100-240V, 50/60Hz
	Output: DC 3.6-6.5V, 3.0A; DC 6.5-9V, 2.0A; DC 9-12V, 1.5A
	For wireless charger:
	Input: DC 5V/2A, 9V/1.67A
	Output: 5W/7.5W/10W
Cable:	USB charging line: 150cm, unshielded
Antenna Type:	Inductive Loop Coil Antenna
Modulation Type:	Load Modulation
Operation Frequency:	110.7kHz to 133.3kHz
Remark:	This device has been tested the worst status of full load and the device has been tested with phone at zero charge, intermediate charge, and full charge.

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
iPhone 8	Apple	A1863	F4GVQ656JC6D
E-charging load	provided by client	N/A	5W/10W



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4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	± 7.25 x 10 ⁻⁸
2	Duty cycle	± 0.37%
3	Occupied Bandwidth	± 3%
4	RF conducted power	± 0.75dB
5	RF power density	± 2.84dB
6	Conducted Spurious emissions	± 0.75dB
_	DE Dedicted newer	± 4.5dB (below 1GHz)
/	RF Radiated power	± 4.8dB (above 1GHz)
0	Redicted Sourious emission test	± 4.5dB (Below 1GHz)
0	Radiated Spundus emission test	± 4.8dB (Above 1GHz)
9	Temperature test	± 1 ℃
10	Humidity test	± 3%
11	Supply voltages	± 1.5%
12	Time	± 3%



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4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.5 Test Facility

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

CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC

Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• VCCI

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

FCC – Designation Number: CN1178

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None



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5 **Equipment List**

Conducted disturbance	•				
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	ChangZhou ZhongYu	GB-88	SEM001-06	2017-05-10	2020-05-09
Measurement Software	AUDIX	e3 V5.4.1221d	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM024-01	2018-07-12	2019-07-11
LISN	Rohde & Schwarz	ENV216	SEM007-01	2018-09-25	2019-09-24
LISN	ETS-LINDGREN	3816/2	SEM007-02	2018-04-02	2019-04-01
EMI Test Receiver	Rohde & Schwarz	ESCI	SEM004-02	2018-04-02	2019-04-01

Radiated emission					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEM001-03	2018-03-31	2021-03-30
Measurement Software	AUDIX	e3 V8.2014-6- 27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM029-01	2018-07-12	2019-07-11
EMI Test Receiver (9kHz-7GHz)	Rohde & Schwarz	ESR	SEM004-03	2018-04-02	2019-04-01
Trilog-Broadband Antenna (30MHz-1GHz)	Schwarzbeck	VULB9168	SEM003-18	2016-06-29	2019-06-28
Pre-amplifier	Sonoma Instrument Co	310N	SEM005-04	2018-04-13	2019-04-12
Active Loop Antenna	ETS-Lindgren	6502	SEM003-08	2017-08-22	2020-08-21

General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-03	2018-09-27	2019-09-26
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2018-09-27	2019-09-26
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2018-09-27	2019-09-26
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2018-04-08	2019-04-07



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6 Radio Spectrum Matter Test Results

6.1 Conducted disturbance

Test Requirement	Part 18.307
Test Method:	FCC MP-5
Limit:	

	Conducted limit (dBµV)			
Frequency of emission (MHz)	Quasi-peak	Average		
0.15-0.5	66 to 56*	56 to 46*		
0.5-5	56	46		
5-30	60	50		

*Decreases with the logarithm of the frequency.

6.1.1 E.U.T. Operation

Operating Environment:

Temperature:	22.4 °C	Humidity:	51.3 % RH	Atmospheric Pressure:	1020	mbar			
Pretest these modes to find the worst case:	a:Charge mode_Keep the EUT charging(5W)								
	b: Charge mode_Keep the EUT charging(7.5W)								
	c: Charge mode_Keep the EUT charging(10W)								
The worst case for final test:	c: Charge mod	e_Keep the	EUT charging(10W)					

6.1.2 Test Setup Diagram





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6.1.3 Measurement Procedure and Data

Test Procedure:

- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a $50\Omega/50\mu$ H + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed on conducted measurement.



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Mode:c; Line:Live Line



Site :	Shielding	Room
Condition:	Line	
Job No. :	10318CR	
Test mode:	с	

		Cable	LISN	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.20	0.02	9.66	21.47	31.15	53.76	-22.61	Average
2	0.20	0.02	9.66	35.40	45.08	63.76	-18.68	QP
3	0.20	0.02	9.66	25.53	35.21	53.58	-18.37	Average
4	0.20	0.02	9.66	34.41	44.09	63.58	-19.49	QP
5	0.53	0.06	9.67	24.23	33.96	46.00	-12.04	Average
6	0.53	0.06	9.67	31.26	40.99	56.00	-15.01	QP
7	1.73	0.14	9.73	20.37	30.24	46.00	-15.76	Average
8	1.73	0.14	9.73	25.70	35.57	56.00	-20.43	QP
9	2.21	0.16	9.72	19.03	28.91	46.00	-17.09	Average
10	2.21	0.16	9.72	25.13	35.01	56.00	-20.99	QP
11	5.48	0.17	9.75	16.58	26.50	50.00	-23.50	Average
12	5.48	0.17	9.75	23.15	33.07	60.00	-26.93	QP



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Mode:c; Line:Neutral Line



Shielding	Room	
Neutral		
10318CR		
с		
	Shielding Neutral 10318CR c	Shielding Room Neutral 10318CR c

		Cable	LISN	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.15	0.01	9.63	14.97	24.61	55.74	-31.13	Average
2	0.15	0.01	9.63	32.32	41.96	65.74	-23.78	QP
3	0.30	0.04	9.64	20.26	29.94	50.19	-20.25	Average
4	0.30	0.04	9.64	28.27	37.95	60.19	-22.24	QP
5	0.69	0.07	9.65	19.69	29.41	46.00	-16.59	Average
6	0.69	0.07	9.65	27.61	37.33	56.00	-18.67	QP
7	1.93	0.16	9.69	14.64	24.49	46.00	-21.51	Average
8	1.93	0.16	9.69	24.61	34.46	56.00	-21.54	QP
9	2.25	0.16	9.68	18.06	27.90	46.00	-18.10	Average
10	2.25	0.16	9.68	26.31	36.15	56.00	-19.85	QP
11	5.51	0.17	9.72	12.53	22.42	50.00	-27.58	Average
12	5.51	0.17	9.72	23.59	33.48	60.00	-26.52	QP



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6.2 Radiated emission

Test Requirement	Part 18.305
Test Method:	FCC MP-5
Measurement Distance:	3m
Limit:	

(b) The field strength levels of emissions which lie outside the bands specified in §18.301, unless otherwise indicated, shall not exceed the following:

Equipment	Operating	RF Power generated by	Field strength limit	Distance
	frequency	equipment (watts)	(uV/m)	(meters)
Any type unless otherwise	Any ISM	Below 500	25	300
specified (miscellaneous)	frequency	500 or more	25 × SQRT(power/500)	¹ 300
	Any non-ISM	Below 500	15	300
	frequency	500 or more	15 × SQRT(power/500)	¹ 300
Industrial heaters and RF stabilized arc welders	On or below 5,725 MHz Above 5,725 MHz	Any Any	10 (²)	1,600 (²)
Medical diathermy	Any ISM frequency Any non-ISM frequency	Any Any	25 15	300 300
Ultrasonic	Below 490 kHz	Below 500 500 or more	2,400/F(kHz) 2,400/F(kHz) × SQRT (power/500)	300 ³ 300
	490 to 1,600 kHz	Any	24,000/F(kHz)	30
	Above 1,600 kHz	Any	15	30
Induction cooking ranges	Below 90 kHz On or above 90 kHz	Any Any	1,500 300	⁴ 30 ⁴ 30

¹Field strength may not exceed 10 μ V/m at 1600 meters. Consumer equipment operating below 1000 MHz is not permitted the increase in field strength otherwise permitted here for power over 500 watts.

²Reduced to the greatest extent possible.

 3 Field strength may not exceed 10 μ V/m at 1600 meters. Consumer equipment is not permitted the increase in field strength otherwise permitted here for over 500 watts.

⁴Induction cooking ranges manufactured prior to February 1, 1980, shall be subject to the field strength limits for miscellaneous ISM equipment.



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6.2.1 E.U.T. Operation

Operating Environment:

Temperature:25 °CHumidity:51 % RHAtmospheric Pressure:1020 mbarPretest these
modes to find
the worst case:a:Charge mode_Keep the EUT charging(5W)
b: Charge mode_Keep the EUT charging(7.5W)
c: Charge mode_Keep the EUT charging(10W)The worst casec: Charge mode_Keep the EUT charging(10W)

The worst case for final test:

6.2.2 Test Setup Diagram







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6.2.3 Measurement Procedure and Data

Test Procedure:

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter semi-anechoic chamber(30MHz-1000MHz) and 10 meter semi-anechoic chamber(9kHz-30MHz). The table was rotated 360 degrees to determine the position of the highest radiation.
 - b. The EUT was set 10 meters(30MHz-1000MHz) and 10 meter (9kHz-30MHz) away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
 - c. Above 30MHz: The Analyzer/Receiver scanned from 30MHz to 1000MHz.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.
 - d. Below 30MHz: The Analyzer/Receiver scanned from 9kHz to 30MHz.The antenna height is 2 meters above the ground to determine the maximum value of the field strength.
 - e. 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 2 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
 - f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
 - g. 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.
 - h. Repeat above procedures until all frequencies measured was complete.
 - i. Measurement Requirement:

1)This product belongs to non-ISM equipment, the field strength limit is 15uV/m at 300 meter distance.

2)Limit: 20log(15uV/m) +20log (300/3) =23.52+40=63.52dBuV/m at 3 meters distance



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Mode c: 9kHz-150kHz



Condition: 3m Job No. : 10318CR Test Mode: c

		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
-	MU					JD. M/m			
	MHZ	ab	ab/m	aв	abuv	abuv/m	abuv/m	ab	
1	0.02	0.24	16.62	32.55	60.10	44.41	63.52	-19.11	Peak
2 pp	0.04	0.16	13.31	32.56	64.12	45.03	63.52	-18.49	Peak
3	0.12	0.06	11.85	32.56	62.23	41.58	63.52	-21.94	Peak



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Mode c: 150kHz-30MHz



Condition: 3m Job No. : 10318CR Test Mode: c

		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
-									
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 pp	0.16	0.07	11.74	32.56	77.26	56.51	63.52	-7.01	Average
2 pk	0.41	0.10	11.79	32.56	73.35	52.68	63.52	-10.84	Peak
3	0.80	0.19	12.00	32.56	67.23	46.86	63.52	-16.66	Peak



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7 **Photographs**

7.1 Test Setup

Please refer to setup photos.

7.2 EUT Constructional Details (EUT Photos)

Please refer to external and internal photos for details.

- End of the Report -



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