

Test Report

Report No.: MTi210706005-01E4

Date of issue: 2022-07-07

Applicant: ShiftCam Limited

Product: ProGrip

Model(s): PG0001, PG-GP-XX-XX

FCC ID: 2A7IM-PG0001

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>

Instructions

1. This test report shall not be partially reproduced without the written consent of the laboratory.
2. The test results in this test report are only responsible for the samples submitted
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4. This test report is invalid if transferred, altered, or tampered with in any form without authorization.
5. Any objection to this test report shall be submitted to the laboratory within 15 days from the date of receipt of the report.

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Test Result Certification	
Applicant:	ShiftCam Limited
Address:	Unit 10, 7/ F, Goldfield Industrial Centre, 1 Sui Wo Road, Fo Tan, Shatin, NT, Hong Kong
Manufacturer:	ShiftCam Limited
Address:	Unit 10, 7/ F, Goldfield Industrial Centre, 1 Sui Wo Road, Fo Tan, Shatin, NT, Hong Kong
Product description	
Product name:	ProGrip
Trademark:	ShiftCam
Model name:	PG0001
Serial Model:	PG-GP-XX-XX
Standards:	FCC CFR 47 PART 1, § 1.1310
Test method:	KDB 680106 v03r01
Date of Test	
Date of test:	2021-08-09 ~ 2022-07-04
Test result:	Pass

Test Engineer :



(Danny Xu)

Reviewed By :



(Leon Chen)

Approved By :



(Tom Xue)

1 General Description

1.1 Description of the EUT

Product name:	ProGrip
Model name:	PG0001
Series Model:	PG-GP-XX-XX
Model difference:	All the models are the same circuit and RF module, except the Plastic Color and model name.
Electrical rating:	Input: Type C 5V/3A, 9V/2A Output: Type C 5V/3A, 9V/2A, 12V/1.5A Wireless: 5W
Accessories:	1. USB-C to USB-C cable (1.2 m)
RF specification:	
Operation frequency:	transmitter 1: 115 kHz – 205 kHz
Modulation type:	ASK
Antenna type:	Coil Antenna

1.2 Description of test modes

All the test modes were carried out with the EUT in normal operation, the final test mode of the EUT was the worst test mode for emission test, which was shown in this report and defined as:

No.	Emission test modes
Mode 1	Stand-by mode
Mode 2	Wireless output (5W)
The test data only show worst test mode: Mode 2	

1.3 Description of support units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Support equipment list			
Description	Model	Serial No.	Manufacturer
Android phone	S9	R28K34V79NT	Samsung
Adapter	HW-090200CH0	/	Huizhou BYD Electronics Co., Ltd.
Support cable list			
Description	Length (m)	From	To
/	/	/	/

2 Test facilities and accreditations

2.1 Test laboratory

Test laboratory:	Shenzhen Microtest Co., Ltd.
Test site location:	101, No. 7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Telephone:	(86-755)88850135
Fax:	(86-755)88850136
CNAS Registration No.:	CNAS L5868
FCC Registration No.:	448573

3 List of test equipment

No.	Equipment	Manufacturer	Model	Serial No.	Cal. date	Cal. Due
MTI-E115	Electric and Magnetic Field Probe – Analyzer	Narda	EHP-200A	101166	2021/06/02	2024/06/01

4 Test result

4.1.1 Requirement

§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), except in the case of portable devices which shall be evaluated according to the provisions of FCC part 2.1093 of this chapter.

Table 1 to §1.1310(e)(1) - 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)
(i) 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
300-1500			f/300	<6
1500-100000			5	<6
(ii) 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
300-1500			f/1500	<30
1500-100000			1.0	<30

f = frequency in MHz

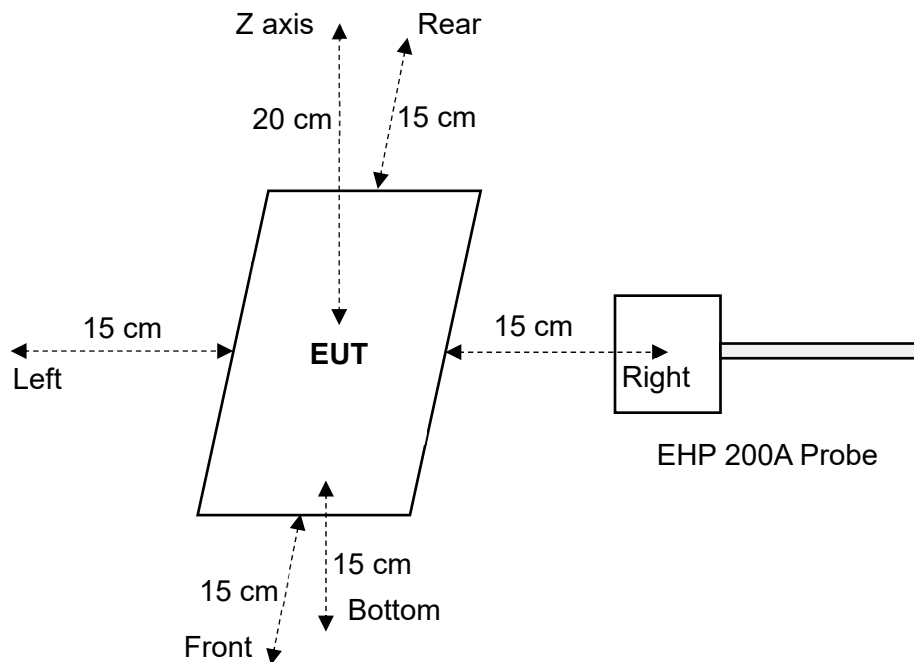
* = Plane-wave equivalent power density

Note 1: Occupational/controlled exposure limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure.

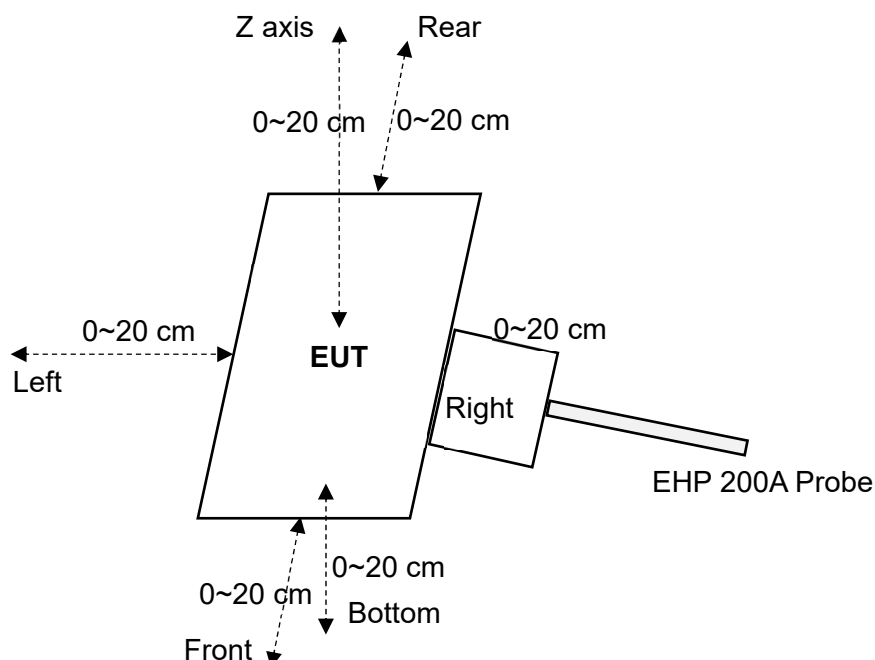
Note 2: General population/uncontrolled exposure limits apply in situations in which the general public may be exposed, or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

4.2 Test setup

For mobile exposure conditions:



For portable exposure conditions:



4.3 Test Procedures

For mobile exposure conditions:

- a. The RF exposure test was performed in anechoic chamber.
- b. E and H-field measurements should be made with the center of the probe at a distance of 15 cm surrounding the EUT and 20 cm above the top surface of the primary/client pair.
- c. The highest emission level was recorded and compared with limit.
- d. The EUT was measured according to the dictates of KDB 680106 v03r01.

For portable exposure conditions:

- a. The RF exposure test was performed in anechoic chamber.
- b. Perform H-field measurements for each edge/top surface of the host/client pair at every 2 cm, starting from as close as possible out to 20 cm
- c. The highest emission level was recorded and compared with limit.

4.4 Equipment Approval Considerations item 5 b) of KDB 680106 D01 v03r01

Requirement	Device
1. Power transfer frequency is less than 1 MHz.	Yes. The operating frequencies: 115 kHz – 205 kHz
2. Output power from each primary coil is less than or equal to 15 watts	Yes. The maximum output power: 5W
3. The system may consist of more than one source primary coils, charging one or more clients. If more than one primary coil is present, the coil pairs may be powered on at the same time.	Yes. The EUT have one source primary coils.
4. Client device is placed directly in contact with the transmitter.	Yes. The client device is placed directly in contact with the transmitter.
5. Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).	No. The EUT can be used as potable exposure conditions
6. The aggregate H-field strengths anywhere at or beyond 15 cm surrounding the device, and 20 cm away from the surface from all coils that by design can simultaneously transmit, and while those coils are simultaneously energized, are demonstrated to be less than 50% of the applicable MPE limit.	No. For the portable exposure conditions, the measurement was taken based on the KDB inquiry. See the test result in item 4.5.

4.5 Test results

Test condition 1: Mode 2 (15% battery status of client device) – Setup 1				
Probe Position	Test Distance (cm)	Measurement	H-field (A/m)	
			Limit	Max. Percentage (%)
Z axis	0	0.8587	1.63	88.50%
Left		1.2903		
Right		1.1565		
Front		0.5081		
Rear		0.4807		
Bottom		1.4425		
Z axis	2	0.6511	1.63	68.29%
Left		0.9411		
Right		0.8558		
Front		0.3724		
Rear		0.2928		
Bottom		1.1131		
Z axis	4	0.4919	1.63	51.96%
Left		0.8017		
Right		0.6778		
Front		0.3196		
Rear		0.2196		
Bottom		0.8469		
Z axis	6	0.4495	1.63	48.81%
Left		0.6977		
Right		0.6542		
Front		0.3141		
Rear		0.2754		
Bottom		0.7956		
Z axis	8	0.356	1.63	42.17%
Left		0.6546		
Right		0.5379		
Front		0.156		
Rear		0.2751		
Bottom		0.6873		
Z axis	10	0.355	1.63	36.15%
Left		0.5211		
Right		0.4929		
Front		0.1893		
Rear		0.1867		
Bottom		0.5893		
Z axis	12	0.2567	1.63	30.83%
Left		0.4504		
Right		0.3935		
Front		0.2055		
Rear		0.1534		
Bottom		0.5026		

Test condition 1: Mode 2 (15% battery status of client device) – Setup 1				
Probe Position	Test Distance (cm)	Measurement	H-field (A/m)	
			Limit	Max. Percentage (%)
Z axis	14	0.2381	1.63	24.40%
Left		0.3978		
Right		0.3458		
Front		0.1032		
Rear		0.1067		
Bottom		0.3921		
Z axis	16	0.1251	1.63	16.55%
Left		0.1375		
Right		0.1417		
Front		0.0695		
Rear		0.0603		
Bottom		0.2697		
Z axis	18	0.1532	1.63	9.40%
Left		0.0569		
Right		0.062		
Front		0.0561		
Rear		0.0481		
Bottom		0.1504		
Z axis	20	0.0605	1.63	3.71%
Left		0.0544		
Right		0.0519		
Front		0.0487		
Rear		0.0553		
Bottom		0.0483		

Test condition 2: Mode 2 (50% battery status of client device) – Setup 1				
Probe Position	Test Distance (cm)	Measurement	H-field (A/m)	
			Limit	Max. Percentage (%)
Z axis	0	0.9201	1.63	88.96%
Left		1.3303		
Right		1.1825		
Front		0.5563		
Rear		0.4402		
Bottom		1.4501		
Z axis	2	0.5935	1.63	65.39%
Left		0.9988		
Right		0.8006		
Front		0.3149		
Rear		0.3016		
Bottom		1.0658		
Z axis	4	0.5582	1.63	55.36%
Left		0.7417		
Right		0.6349		
Front		0.3644		
Rear		0.2104		
Bottom		0.9023		
Z axis	6	0.5042	1.63	50.15%
Left		0.6726		
Right		0.6273		
Front		0.307		
Rear		0.2899		
Bottom		0.8174		
Z axis	8	0.4031	1.63	44.77%
Left		0.6659		
Right		0.5628		
Front		0.0973		
Rear		0.2661		
Bottom		0.7297		
Z axis	10	0.3427	1.63	39.83%
Left		0.4997		
Right		0.49		
Front		0.1977		
Rear		0.1218		
Bottom		0.6492		
Z axis	12	0.2504	1.63	30.94%
Left		0.5043		
Right		0.3731		
Front		0.1994		
Rear		0.1244		
Bottom		0.4889		

Test condition 2: Mode 2 (50% battery status of client device) – Setup 1				
Probe Position	Test Distance (cm)	Measurement	H-field (A/m)	
			Limit	Max. Percentage (%)
Z axis	14	0.2138	1.63	23.76%
Left		0.3873		
Right		0.3733		
Front		0.1133		
Rear		0.1478		
Bottom		0.3333		
Z axis	16	0.1424	1.63	17.94%
Left		0.1366		
Right		0.1943		
Front		0.0572		
Rear		0.0511		
Bottom		0.2924		
Z axis	18	0.2047	1.63	12.56%
Left		0.1124		
Right		0.0898		
Front		0.0611		
Rear		0.0516		
Bottom		0.1463		
Z axis	20	0.0534	1.63	4.37%
Left		0.0713		
Right		0.0513		
Front		0.0436		
Rear		0.0507		
Bottom		0.0412		

Test condition 3: Mode 2 (85% battery status of client device) – Setup 1				
Probe Position	Test Distance (cm)	Measurement	H-field (A/m)	
			Limit	Max. Percentage (%)
Z axis	0	0.9644	1.63	85.95%
Left		1.3144		
Right		1.1642		
Front		0.5426		
Rear		0.4475		
Bottom		1.401		
Z axis	2	0.557	1.63	66.74%
Left		0.9403		
Right		0.7503		
Front		0.2883		
Rear		0.3391		
Bottom		1.0879		
Z axis	4	0.6059	1.63	55.64%
Left		0.7495		
Right		0.6707		
Front		0.3623		
Rear		0.1557		
Bottom		0.9069		
Z axis	6	0.4793	1.63	48.66%
Left		0.6865		
Right		0.6328		
Front		0.3327		
Rear		0.27		
Bottom		0.7932		
Z axis	8	0.3749	1.63	44.55%
Left		0.6493		
Right		0.5789		
Front		0.1311		
Rear		0.2673		
Bottom		0.7262		
Z axis	10	0.3423	1.63	37.16%
Left		0.5596		
Right		0.5016		
Front		0.146		
Rear		0.1727		
Bottom		0.6057		
Z axis	12	0.2659	1.63	34.90%
Left		0.5689		
Right		0.3148		
Front		0.2179		
Rear		0.1468		
Bottom		0.5211		

Test condition 3: Mode 2 (85% battery status of client device) – Setup 1				
Probe Position	Test Distance (cm)	Measurement	H-field (A/m)	
			Limit	Max. Percentage (%)
Z axis	14	0.2673	1.63	25.50%
Left		0.4157		
Right		0.3263		
Front		0.0687		
Rear		0.1273		
Bottom		0.3514		
Z axis	16	0.1332	1.63	16.29%
Left		0.1272		
Right		0.1678		
Front		0.0526		
Rear		0.0512		
Bottom		0.2656		
Z axis	18	0.177	1.63	10.86%
Left		0.1511		
Right		0.1214		
Front		0.0505		
Rear		0.0845		
Bottom		0.0994		
Z axis	20	0.0437	1.63	3.27%
Left		0.0516		
Right		0.0428		
Front		0.0533		
Rear		0.0508		
Bottom		0.0491		

Test condition 4: Mode 2 (15% battery status of client device) – Setup 2				
Probe Position	Test Distance (cm)	Measurement	H-field (A/m)	
			Limit	Max. Percentage (%)
Z axis	0	0.8495	1.63	86.34%
Left		0.6577		
Right		0.5936		
Front		0.8976		
Rear		0.2569		
Bottom		1.4074		
Z axis	2	0.6544	1.63	71.48%
Left		0.4085		
Right		0.3929		
Front		0.7936		
Rear		0.1698		
Bottom		1.1652		
Z axis	4	0.5039	1.63	50.87%
Left		0.2691		
Right		0.2149		
Front		0.7408		
Rear		0.0966		
Bottom		0.8292		
Z axis	6	0.478	1.63	49.66%
Left		0.1651		
Right		0.1913		
Front		0.5353		
Rear		0.0724		
Bottom		0.8094		
Z axis	8	0.3035	1.63	42.24%
Left		0.122		
Right		0.075		
Front		0.3772		
Rear		0.0651		
Bottom		0.6885		
Z axis	10	0.3271	1.63	39.86%
Left		0.0976		
Right		0.0583		
Front		0.2105		
Rear		0.0506		
Bottom		0.6497		
Z axis	12	0.3223	1.63	32.91%
Left		0.0769		
Right		0.0544		
Front		0.1267		
Rear		0.0483		
Bottom		0.5364		

Test condition 4: Mode 2 (15% battery status of client device) – Setup 2				
Probe Position	Test Distance (cm)	Measurement	H-field (A/m)	
			Limit	Max. Percentage (%)
Z axis	14	0.214	1.63	25.84%
Left		0.0522		
Right		0.0522		
Front		0.0844		
Rear		0.0491		
Bottom		0.4212		
Z axis	16	0.1658	1.63	13.37%
Left		0.0498		
Right		0.0515		
Front		0.0697		
Rear		0.0551		
Bottom		0.2179		
Z axis	18	0.0973	1.63	6.64%
Left		0.0522		
Right		0.0488		
Front		0.0573		
Rear		0.0526		
Bottom		0.1083		
Z axis	20	0.071	1.63	4.36%
Left		0.0469		
Right		0.0488		
Front		0.0516		
Rear		0.0579		
Bottom		0.0566		

Test condition 5: Mode 2 (50% battery status of client device) – Setup 2				
Probe Position	Test Distance (cm)	Measurement	H-field (A/m)	
			Limit	Max. Percentage (%)
Z axis	0	0.8191	1.63	86.95%
Left		0.6544		
Right		0.6428		
Front		0.8676		
Rear		0.3096		
Bottom		1.4173		
Z axis	2	0.6486	1.63	69.99%
Left		0.4498		
Right		0.3568		
Front		0.7807		
Rear		0.1647		
Bottom		1.1408		
Z axis	4	0.5513	1.63	49.52%
Left		0.2168		
Right		0.2281		
Front		0.7599		
Rear		0.0868		
Bottom		0.8072		
Z axis	6	0.518	1.63	47.15%
Left		0.1658		
Right		0.1253		
Front		0.5611		
Rear		0.096		
Bottom		0.7686		
Z axis	8	0.3251	1.63	42.57%
Left		0.1526		
Right		0.0462		
Front		0.3878		
Rear		0.0728		
Bottom		0.6939		
Z axis	10	0.3848	1.63	38.56%
Left		0.1636		
Right		0.078		
Front		0.1672		
Rear		0.0466		
Bottom		0.6286		
Z axis	12	0.3096	1.63	34.56%
Left		0.0961		
Right		0.0485		
Front		0.1503		
Rear		0.0525		
Bottom		0.5634		

Test condition 5: Mode 2 (50% battery status of client device) – Setup 2				
Probe Position	Test Distance (cm)	Measurement	H-field (A/m)	
			Limit	Max. Percentage (%)
Z axis	14	0.2597	1.63	23.29%
Left		0.0671		
Right		0.0526		
Front		0.0486		
Rear		0.0686		
Bottom		0.3797		
Z axis	16	0.2254	1.63	14.26%
Left		0.0501		
Right		0.0489		
Front		0.1009		
Rear		0.0472		
Bottom		0.2325		
Z axis	18	0.0805	1.63	6.85%
Left		0.1052		
Right		0.0408		
Front		0.0993		
Rear		0.0633		
Bottom		0.1116		
Z axis	20	0.0526	1.63	5.45%
Left		0.0512		
Right		0.0888		
Front		0.0682		
Rear		0.0631		
Bottom		0.0579		

Test condition 6: Mode 2 (85% battery status of client device) – Setup 2				
Probe Position	Test Distance (cm)	Measurement	H-field (A/m)	
			Limit	Max. Percentage (%)
Z axis	0	0.8049	1.63	85.36%
Left		0.7003		
Right		0.6516		
Front		0.8839		
Rear		0.3407		
Bottom		1.3914		
Z axis	2	0.6936	1.63	70.77%
Left		0.4703		
Right		0.3974		
Front		0.8288		
Rear		0.1676		
Bottom		1.1536		
Z axis	4	0.5638	1.63	47.36%
Left		0.1805		
Right		0.2448		
Front		0.7601		
Rear		0.1366		
Bottom		0.772		
Z axis	6	0.5015	1.63	45.88%
Left		0.1398		
Right		0.0699		
Front		0.5218		
Rear		0.1413		
Bottom		0.7479		
Z axis	8	0.3368	1.63	41.64%
Left		0.1007		
Right		0.0664		
Front		0.447		
Rear		0.1349		
Bottom		0.6788		
Z axis	10	0.4437	1.63	40.85%
Left		0.1467		
Right		0.144		
Front		0.1305		
Rear		0.1079		
Bottom		0.6658		
Z axis	12	0.3041	1.63	33.18%
Left		0.06		
Right		0.0767		
Front		0.1247		
Rear		0.0546		
Bottom		0.5409		

Test condition 6: Mode 2 (85% battery status of client device) – Setup 2				
Probe Position	Test Distance (cm)	Measurement	H-field (A/m)	
			Limit	Max. Percentage (%)
Z axis	14	0.2672	1.63	20.84%
Left		0.0499		
Right		0.0523		
Front		0.078		
Rear		0.1123		
Bottom		0.3397		
Z axis	16	0.2542	1.63	15.60%
Left		0.0422		
Right		0.0508		
Front		0.0614		
Rear		0.0532		
Bottom		0.2221		
Z axis	18	0.0929	1.63	6.94%
Left		0.0862		
Right		0.0826		
Front		0.0646		
Rear		0.0699		
Bottom		0.1131		
Z axis	20	0.0519	1.63	5.07%
Left		0.0565		
Right		0.0598		
Front		0.0826		
Rear		0.0578		
Bottom		0.0686		

Photographs of the test setup

See the APPENDIX - Test Setup Photo.

Photographs of the EUT

See the APPENDIX - EUT Photos.

----End of Report----