



RF Exposure evaluation

Report Reference No...... : **GTSR16060030-MPE**

FCC ID..... : **2AIS5-ARKJ01**

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Date of issue.....: Jun. 24, 2016

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Shenzhen, Guangdong

Applicant's name.....: **Beijing Palo Alto Tech Co.,Ltd.**

Address.....: T3-A-31,Wangjing Soho,Chaoyang District,Beijing,China

Test specification

Standard: **47CFR §2.1093(d)/KDB447498 v06**

TRF Originator.....: Shenzhen Global Test Service Co.,Ltd.

Master TRF.....: Dated 2014-12

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Test item description: CoolGlass

Trade Mark: /

Manufacturer: **Beijing Palo Alto Tech Co.,Ltd.**

Model/Type reference.....: ARKJ01

Listed Models: /

Exposure category.....: General population/uncontrolled environment

Hardware Version: PD_M200_S3132E_V1.0

Software Version: BP-A-V2.0

Rating: DC 3.80V

Result.....: **PASS**

TEST REPORT

Test Report No. :	GTSR16060030-MPE	Jun. 24, 2016 Date of issue
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Equipment under Test : CoolGlass

Model /Type : ARKJ01

Listed Models : /

Applicant : **Beijing Palo Alto Tech Co.,Ltd.**

Address : T3-A-31,Wangjing Soho,Chaoyang District,Beijing,China

Manufacturer : **Beijing Palo Alto Tech Co.,Ltd.**

Address : T3-A-31,Wangjing Soho,Chaoyang District,Beijing,China

Test Result:	PASS
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The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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1. SUMMARY

1.1. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

● - supplied by the manufacturer

○ - supplied by the lab

<input type="radio"/>	Adapter	M/N:	HW-050200C3W
<input type="radio"/>		Manufacturer:	HUAWEI

1.2. Note

	Test Standards	Reference Report
Bluetooth-BLE	FCC Part 15 Subpart C	GTSR16060030-BLE
WLAN-2.4	FCC Part 15 Subpart C	GTSR16060030-2.4WLAN
WLAN-5.8	FCC Part 15 Subpart E	GTSR16060030-5.8WLAN
RF Exposure	FCC Per 47 CFR 2.1093(d)	GTSR16060030-MPE

2. TEST ENVIRONMENT

2.1. Address of the test laboratory

Test Site 1: Shenzhen Global Test Service Co.,Ltd.

1F, Building No. 13A, Zhonghaixin Science and Technology City, No.12,6 Road, Ganli Industrial Park, Buji Street, Longgang District, Shenzhen, Guangdong

Test Site 2: Shenzhen CTL Testing Technology Co.,Ltd.

1/F.-A, Baisha Technology Park, No.3011, Shaheji Road, Nanshan District, Shenzhen, Guangdong, China

2.2. Test Facility

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

FCC-Registration No.: 964637

Shenzhen Global Test Service Co.,Ltd EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 964637, Jul 24, 2015.

CNAS-Lab Code: L8169

Shenzhen Global Test Service Co.,Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories. Date of Registration: Dec. 11, 2015. Valid time is until Dec. 10, 2018.

FCC-Registration No.: 970318

Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 970318, December 19, 2013.

2.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

2.4. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 2 " and is documented in the Shenzhen Global Test Service Co.,Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen GTS laboratory is reported:

Test Items	Measurement Uncertainty	Notes
Transmitter power conducted	0.57 dB	(1)

- (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3. Method of measurement

3.1. Applicable Standard

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to §1.1310 and §2.1093 RF exposure requirement

KDB447498 v06: Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.

3.2. Requirement

According to KDB447498 D01 General RF Exposure Guidance v05r01 Section 4.3.1 Standalone SAR test exclusion considerations: "Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Test Exclusion Threshold condition, listed below, is satisfied. These test exclusion conditions are based on source-based time-averaged maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions.²² The minimum test separation distance is determined by the smallest distance from the antenna and radiating structures or outer surface of the device, according to the host form factor, exposure conditions and platform requirements, to any part of the body or extremity of a user or bystander (see 5) of section 4.1). To qualify for SAR test exclusion, the test separation distances applied must be fully explained and justified by the operating configurations and exposure conditions of the transmitter and applicable host platform requirements, typically in the SAR measurement or SAR analysis report, according to the required published RF exposure KDB procedures. When no other RF exposure testing or reporting is required, a statement of justification and compliance must be included in the equipment approval, in lieu of the SAR report, to qualify for the SAR test exclusion. When required, the device specific conditions described in the other published RF exposure KDB procedures must be satisfied before applying these SAR test exclusion provisions; for example, handheld PTT two-way radios, handsets, laptops & tablets etc.²³ "

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f} \text{ (GHz)}] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where:}$$

- f (GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 5) in section 4.1 is applied to determine SAR test exclusion.

3.3. Conducted Power Results

BT 4.0

Mode	Channel	Frequency (MHz)	Data rate	Conducted Maximum Output Power (dBm)	
				Peak	Average
GFSK	00	2402	1 Mbps	4.32	3.04
	19	2440	1 Mbps	4.12	2.87
	39	2480	1 Mbps	4.45	3.15

WLAN

Mode	Channel	Frequency (MHz)	Worst case Data rate	Conducted Output Power (dBm)	
				Peak	Average
IEEE 802.11b	1	2412	1Mbps	10.71	7.28
	6	2437	1Mbps	10.26	7.12
	11	2462	1Mbps	10.03	7.45
IEEE 802.11g	1	2412	6Mbps	10.48	7.43
	6	2437	6Mbps	10.07	7.27
	11	2462	6Mbps	9.89	7.29
IEEE 802.11n HT20	1	2412	6.5 Mbps	9.34	4.93
	6	2437	6.5 Mbps	9.59	5.12
	11	2462	6.5 Mbps	9.02	5.33

Mode	Channel	Frequency (MHz)	Worst case Data rate	Conducted Output Power (dBm)	
				Peak	Average
IEEE 802.11a	36	5180	6Mbps	9.34	6.062
	40	5200	6Mbps	9.53	6.401
	48	5240	6Mbps	9.25	6.277
	149	5745	6Mbps	9.11	6.416
	157	5785	6Mbps	9.78	6.399
	165	5825	6Mbps	9.66	6.573
IEEE 802.11ac	36	5180	6Mbps	9.55	6.671
	40	5200	6Mbps	9.04	6.186
	48	5240	6Mbps	9.62	6.606
	149	5745	6Mbps	9.21	6.139
	157	5785	6Mbps	9.69	6.947
	165	5825	6Mbps	9.51	6.531

Manufacturing tolerance

BT 4.0

GFSK (Average)			
Frequency	2402	2440	2480
Target (dBm)	3.0	3.0	3.0
Tolerance \pm (dB)	1.0	1.0	1.0

WLAN

IEEE 802.11b (Average)			
Frequency	2412	2437	2462
Target (dBm)	7.0	7.0	7.0
Tolerance \pm (dB)	1.0	1.0	1.0
IEEE 802.11g (Average)			
Frequency	2412	2437	2462
Target (dBm)	7.0	7.0	7.0
Tolerance \pm (dB)	1.0	1.0	1.0
IEEE 802.11n HT20 (Average)			
Frequency	2412	2437	2462
Target (dBm)	5.0	5.0	5.0
Tolerance \pm (dB)	1.0	1.0	1.0

IEEE 802.11a (Average)			
Frequency	5180	5200	5240
Target (dBm)	6.0	6.0	6.0
Tolerance \pm (dB)	1.0	1.0	1.0
IEEE 802.11a (Average)			
Frequency	5745	5785	5825
Target (dBm)	6.0	6.0	6.0
Tolerance \pm (dB)	1.0	1.0	1.0
IEEE 802.11 ac (Average)			
Frequency	5180	5200	5240
Target (dBm)	6.0	6.0	6.0
Tolerance \pm (dB)	1.0	1.0	1.0
IEEE 802.11 ac (Average)			
Frequency	5745	5785	5825
Target (dBm)	6.0	6.0	6.0
Tolerance \pm (dB)	1.0	1.0	1.0

4. Evaluation Result

4.1 Standalone SAR Test Exclusion

Band/Mode	f (GHz)	Antenna Distance (mm)	RF output power (including tune-up tolerance)		SAR Test Exclusion Threshold	SAR Test Exclusion
			dBm	mW		
BT	2.480	5	4.00	2.512	0.8<3.0	Yes
WLAN-2.4	2.462	5	8.00	6.309	2.0<3.0	Yes
WLAN-5.8	5.850	5	7.00	6.309	2.4<3.0	Yes

4.2 Simultaneous Transmission SAR Test Exclusion

The sample share same WLAN/BT modular and share same antenna, no need consider simultaneous transmission SAR test exclusion.

5. Conclusion

The measurement results comply with the FCC Limit per 47 CFR 2.1093 for the uncontrolled RF Exposure and SAR Exclusion Threshold per KDB 447498 v06.

.....End of Report.....