

Report No.: SHEM200900808801

Page: 1 of 17

TEST REPORT

Application No.: SHEM2009008088CR

FCC ID: 2AGOFRC451A

Applicant: HCS (Suzhou) Limited

Address of Applicant: 19F-20F, Building B-3rd, No.209 Zhuyuan Road, New District, Suzhou,

P.R.China

Manufacturer: HCS (Suzhou) Limited

Address of Manufacturer: 19F-20F, Building B-3rd, No.209 Zhuyuan Road, New District, Suzhou,

P.R.China

Factory: WUJIANG CENTURY BILLION ELECTRONIC TECHNOLOGY CO., LTD

Address of Factory: No.149 West Tun Cun Road Tongli Town Wujiang Suzhou Jiangsu

People's Republic of China 215216

Equipment Under Test (EUT):

EUT Name: Remote Control

Model No.: RC4513101/01BRP,RC451XXXX/XXRP,RC451XXXX/XXBRP("X"=0-

9."B"means packed with battery)¤

Please refer to section 2 of this report which indicates which model was

actually tested and which were electrically identical.

Standard(s): 47 CFR Part 15, Subpart B

Date of Receipt: 2020-09-21

Date of Test: 2020-09-23 to 2020-09-29

Date of Issue: 2020-10-09

Test Result: Pass*

Can Than

Parlam Zhan E&E Section Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. 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. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com/en/Terms-and-Conditions.aspx and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. 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 30 days only.

Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, resemble (ND Nocecheck Company).

NO.588 West Jindu Road,Songjiang District,Shanghai,China 201612 t(86-21) 61915666 f(86-21) 61915678 www.sgsgroup.com.cn 中国・上海・松江区金都西路588号 邮编: 201612 t(86-21) 61915666 f(86-21) 61915678 e sgs.china@sgs.com

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



Report No.: SHEM200900808801

Page: 2 of 17

Revision Record							
Version	Description	Date	Remark				
00	Original	2020-10-09	/				

Authorized for issue by:			
	Michael Mil		
	Micheal Niu / Project Engineer		
	Parlam Zhan		
	Parlam Zhan / Reviewer	-	





Page: 3 of 17

2 Test Summary

Emission Part								
Item	Standard	Method	Requirement	Result				
Radiated Emissions (30MHz-1GHz)	47 CFR Part 15, Subpart B	ANSI C63.4:2014	Class B	Pass				
Radiated Emissions (above 1GHz)	47 CFR Part 15, Subpart B	ANSI C63.4:2014	Class B	Pass				

InternalSource	UpperFrequency
Below 1.705MHz	30MHz
1.705MHz to 108MHz	1GHz
108MHz to 500MHz	2GHz
500MHz to 1GHz	5GHz
Above 1GHz	5th harmonic of the highest frequency or 40GHz, whichever is lower

Declaration of EUT Family Grouping:

Note: There are series models mentioned in this report, and they are the similar in electrical and electronic characters. Only the model RC4513101/01BRP was tested since their differences were the model number and the cosmestic (color /painting/printed).



Report No.: SHEM200900808801

Page: 4 of 17

3 Contents

			Page
1	CO	VER PAGE	1
2	TES	ST SUMMARY	3
3		NTENTS	
4	GE	NERAL INFORMATION	5
	4.1	DETAILS OF E.U.T.	F
	4.2	DESCRIPTION OF SUPPORT UNITS	
	4.3	MEASUREMENT UNCERTAINTY	
	4.4	TEST LOCATION	6
	4.5	TEST FACILITY	6
	4.6	DEVIATION FROM STANDARDS	
	4.7	ABNORMALITIES FROM STANDARD CONDITIONS	6
5	EQ	UIPMENT LIST	7
6	EM	ISSION TEST RESULTS	8
	6.1	RADIATED EMISSIONS (30MHz-1GHz)	8
	6.2	RADIATED EMISSIONS (ABOVE 1GHZ)	
7	PH	OTOGRAPHS	14
	7.1	RADIATED EMISSIONS (30MHz-1GHz) TEST SETUP	
	7.2	RADIATED EMISSIONS (ABOVE 1GHz) TEST SETUP	14
	7.3	EUT CONSTRUCTIONAL DETAILS (EUT PHOTOS)	15





Page: 5 of 17

4 General Information

4.1 Details of E.U.T.

Power supply: DC 3V By 2*AAA size batteries

Test voltage: DC 3V

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Laptop	Lenovo	ThinkPad X100e	/
Dongle	/	/	/

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty	
1	Conducted Emission	2.6dB (9kHz to 150kHz)	
	at mains port using AMN	2.4dB (150kHz to 30MHz)	
2	Conducted Emission	1.9 dD (0kHz to 20MHz)	
	at mains port using VP	1.8 dB (9kHz to 30MHz)	
3	Conducted Emission	4.2 dD (450kH= to 20MH=)	
3	at telecommunication port using AAN	4.2 dB (150kHz to 30MHz)	
4	Radiated Power	3.2dB	
		4.5dB (30MHz-1GHz)	
5	Radiated Emission	5.1dB (1GHz-6GHz)	
		5.4dB (6GHz-18GHz)	
6	Radiated Disturbance (disturbance current in a LLAS)	2.4dB (9kHz to 30MHz)	

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



Report No.: SHEM200900808801

Page: 6 of 17

4.4 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.

4.5 Test Facility

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

• CNAS (No. CNAS L4354)

CNAS has accredited Compliance Certification Services (Kunshan) Inc. to ISO/IEC 17025:2017 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. 2541.01)

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

• FCC (Designation Number: CN1172)

Compliance Certification Services Inc. has been recognized as an accredited testing laboratory. Designation Number: CN1172.

• ISED (CAB identifier: CN0072)

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory.

CAB Identifier: CN0072.

• VCCI (Member No.: 1938)

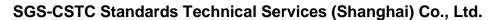
The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-1600, C-1707, T-1499, G-10216 respectively.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None





Page: 7 of 17

5 Equipment List

Radiated Emissions (30MHz-1GHz)								
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date			
EMI Test Receiver	R&S	ESCI	101378	12/19/2019	12/18/2020			
Antenna	TESEQ	CBL 6112D	35403	06/22/2019	06/21/2021			

Radiated Emissions (above 1GHz)									
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date				
Spectrum Analyzer	R&S	FSU26	200789	04/22/2020	04/21/2021				
Amplifier	COM-POWER	PAM-840A	461332	10/24/2019	10/23/2020				
Broad-Band Horn Antenna	SCHWARZBECK	BBHA 9170	9170-515	02/23/2019	02/22/2021				
Amplifier	COM-POWER	PAM-118A	551044	12/19/2019	12/18/2020				
Horn-antenna	SCHWARZBECK	BBHA9120D	266	02/25/2020	02/24/2021				

General used equipment								
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date			
Digital pressure meter	YONGZHI	DYM3-01	SHEM082-1	2018-01-25	2021-01-24			
Temperature&humidity recorder	ShangHai weather meter work	ZJ 1-2B	SHEM042-1~6	2020-09-11	2021-09-10			
Digital Multimeter	FLUKE	17B	SHEM043-3	2020-09-09	2021-09-08			
Autoformer regulator	Guangzhou bao de	TDGC2-5KVA	SHEM150-1	N/A	N/A			
Multi-purpose tong tester	FLUKE	316	SHEM001-1	2019-12-20	2020-12-19			

NO.588 West Jindu Road,Songjiang District,Shanghai,China 201612 中国・上海・松江区金都西路588号 邮编: 201612





Page: 8 of 17

6 Emission Test Results

6.1 Radiated Emissions (30MHz-1GHz)

Test Requirement: 47 CFR Part 15, Subpart B

Test Method: ANSI C63.4:2014 Frequency Range: 30MHz to 1GHz

Measurement Distance: 3m

Limit:

30 MHz - 88 MHz $40.0 (\text{dB}\mu\text{V/m})$ quasi-peak 88 MHz - 216 MHz $43.5 (\text{dB}\mu\text{V/m})$ quasi-peak $46.0 (\text{dB}\mu\text{V/m})$ quasi-peak 960 MHz - 1000 MHz $54.0 (\text{dB}\mu\text{V/m})$ quasi-peak

Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to1000MHz

6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar

Test mode c:IR mode:Pressing the IR Button to keep EUT working continuously with IR function

d:BLE key mode: Establish the communication between EUT and Doogle via BT

function and pressing the BLE key.

e:BLE voice mode: Establish the communication between EUT and Doogle via BT

function and pressing the voice key.

f:IR standby mode:Keep EUT power on and working on IR standby mode.

g:BLE standby mode: Keep EUT power on and working on BLE standby mode.

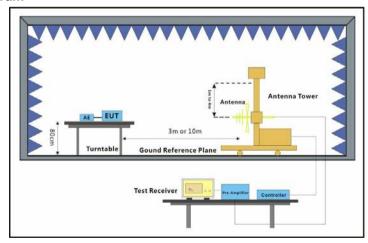
Prescan all the mode and found the worst case

d:BLE key mode: Establish the communication between EUT and Doogle via BT

function and pressing the BLE key.

6.1.2 Test Setup Diagram

mode:



6.1.3 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

Notes:

- 1.Result (dBuV/m) = Reading(dBuV/m) + Correction Factor (dB/m)
- 2.Correction Factor (dB/m)=Antenna Factor (dB/m)+Cable Loss (dB)- Amplifier (dB)

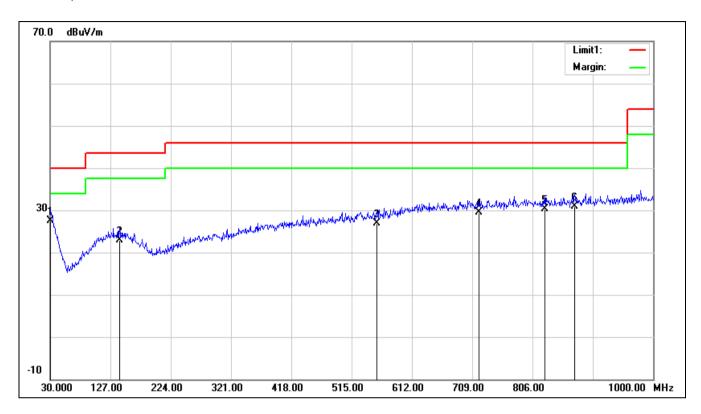
NO.588 West Jindu Road, Songjiang District, Shanghai, China 201612 中国・上海・松江区金都西路588号 邮编: 201612 t(86-21) 61915666 f(86-21) 61915678 www.sgsgroup.com.cn t(86-21) 61915666 f(86-21) 61915678 e sgs.china@sgs.com





Page: 9 of 17

Mode:d; Polarization:Horizontal



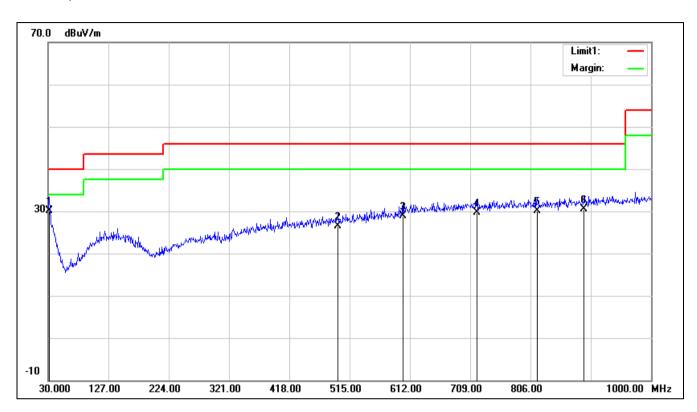
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	30.9700	1.99	25.50	27.49	40.00	-12.51	400	0	QP
2	141.5500	3.01	19.93	22.94	43.50	-20.56	100	217	QP
3	555.7400	0.89	25.99	26.88	46.00	-19.12	200	124	QP
4	719.6700	1.67	27.80	29.47	46.00	-16.53	200	346	QP
5	825.4000	1.98	28.34	30.32	46.00	-15.68	200	259	QP
6	873.9000	2.29	28.60	30.89	46.00	-15.11	100	360	QP





Page: 10 of 17

Mode:d; Polarization:Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	31.9400	5.22	24.92	30.14	40.00	-9.86	100	74	QP
2	496.5700	1.28	25.15	26.43	46.00	-19.57	100	244	QP
3	600.3600	2.23	26.59	28.82	46.00	-17.18	100	72	QP
4	719.6700	1.95	27.80	29.75	46.00	-16.25	100	171	QP
5	816.6700	1.82	28.29	30.11	46.00	-15.89	100	163	QP
6	892.3300	1.90	28.70	30.60	46.00	-15.40	200	231	QP





Page: 11 of 17

6.2 Radiated Emissions (above 1GHz)

Test Requirement: 47 CFR Part 15, Subpart B

Test Method: ANSI C63.4:2014 Frequency Range: Above 1GHz

Measurement Distance: 3m

Limit:

Above 1GHz 74(dBµV/m) peak, 54(dBµV/m) average

Detector: Peak for pre-scan (1000kHz resolution bandwidth) 1000M to18000MHz

6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar Test mode c:IR mode:Pressing the IR Button to keep EUT working continuously with IR function

d:BLE key mode: Establish the communication between EUT and Doogle via BT

function and pressing the BLE key.

e:BLE voice mode: Establish the communication between EUT and Doogle via BT

function and pressing the voice key.

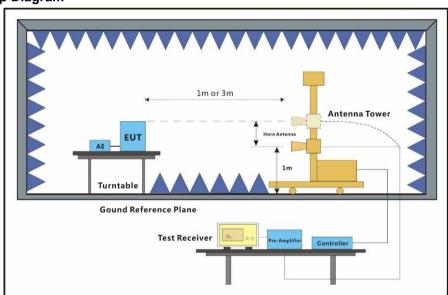
f:IR standby mode:Keep EUT power on and working on IR standby mode.

g:BLE standby mode: Keep EUT power on and working on BLE standby mode.

Prescan all the mode and found the worst case mode:

d:BLE key mode: Establish the communication between EUT and Doogle via BT function and pressing the BLE key.

6.2.2 Test Setup Diagram



6.2.3 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Average measurements were conducted based on the peak sweep graph. The EUT was measured by Horn antenna with 2 orthogonal polarities.

Notes:

- 1.Result (dBuV/m) = Reading(dBuV/m) + Correction Factor (dB/m)
- 2.Correction Factor (dB/m)=Antenna Factor (dB/m)+Cable Loss (dB)- Amplifier (dB)

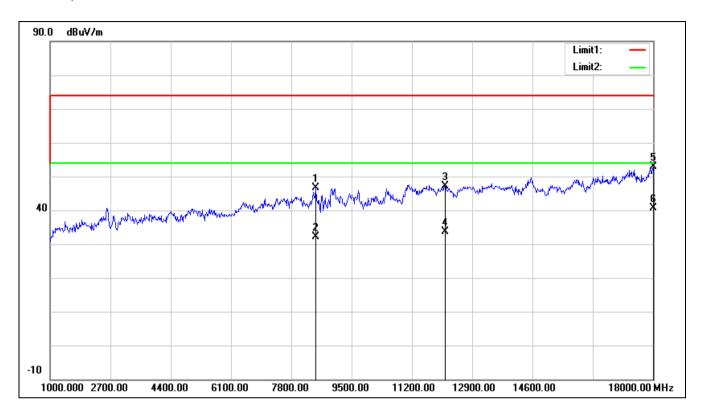
NO.588 West Jindu Road,Songjiang District,Shanghai,China 201612 中国・上海・松江区金都西路588号 邮编: 201612





Page: 12 of 17

Mode:d; Polarization:Horizontal



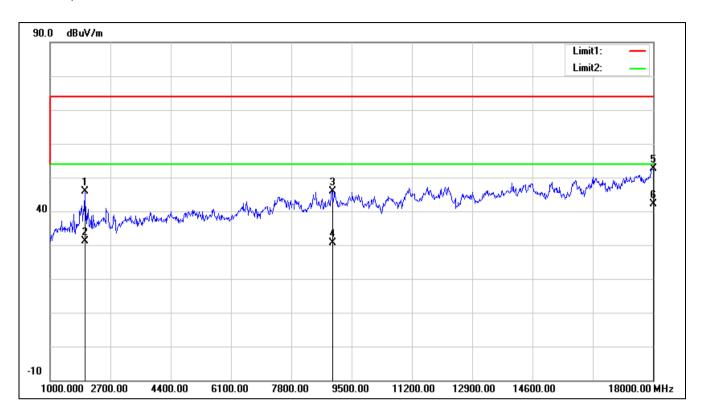
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	8497.000	47.54	-0.93	46.61	74.00	-27.39	200	145	peak
2	8497.000	33.02	-0.93	32.09	54.00	-21.91	200	145	AVG
3	12135.000	40.62	6.62	47.24	74.00	-26.76	200	336	peak
4	12135.000	27.02	6.62	33.64	54.00	-20.36	200	336	AVG
5	18000.000	32.16	20.70	52.86	74.00	-21.14	100	327	peak
6	18000.000	20.02	20.70	40.72	54.00	-13.28	100	327	AVG





Page: 13 of 17

Mode:d; Polarization:Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	1986.000	62.72	-16.73	45.99	74.00	-28.01	200	63	peak
2	1986.000	47.75	-16.73	31.02	54.00	-22.98	200	63	AVG
3	8956.000	46.41	-0.48	45.93	74.00	-28.07	100	135	peak
4	8956.000	31.21	-0.48	30.73	54.00	-23.27	100	135	AVG
5	18000.000	32.03	20.70	52.73	74.00	-21.27	100	87	peak
6	18000.000	21.36	20.70	42.06	54.00	-11.94	100	87	AVG



Page: 14 of 17

7 Photographs

7.1 Radiated Emissions (30MHz-1GHz) Test Setup



7.2 Radiated Emissions (above 1GHz) Test Setup



NO.588 West Jindu Road,Songjiang District,Shanghai,China 201612 中国•上海•松江区金都西路588号 邮编: 201612

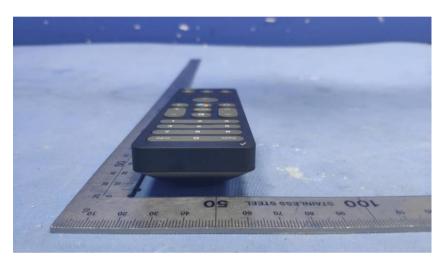


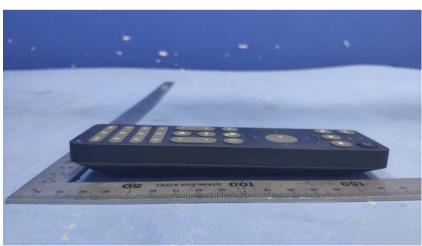


Page: 15 of 17

7.3 EUT Constructional Details (EUT Photos)





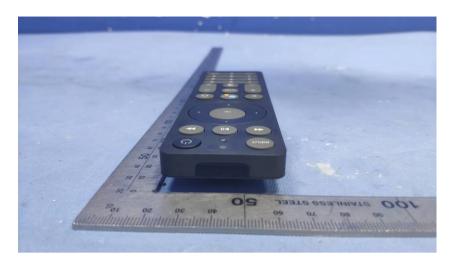


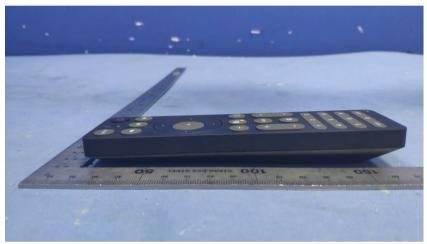
NO.588 West Jindu Road,Songjiang District,Shanghai,China 201612 中国・上海・松江区金都西路588号 邮編: 201612





Report No.: SHEM200900808801 Page: 16 of 17











Page: 17 of 17



- End of the Report -

NO.588 West Jindu Road,Songjiang District,Shanghai,China 201612 中国・上海・松江区金都西路588号 邮編: 201612 $\begin{array}{lll} t(86\text{-}21)\, 61915666 & f(86\text{-}21)61915678 & \text{www.sgsgroup.com.cn} \\ t(86\text{-}21)\, 61915666 & f(86\text{-}21)61915678 & \text{e sgs.china@sgs.com} \\ \end{array}$