

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

Report No.: SHCR210900008701 Page: 1 of 26

# **TEST REPORT**

Application No.:	SHCR2109000087AT
FCC ID:	2AL8S-0235C5JX
Applicant:	ZHEJIANG UNIVIEW TECHNOLOGIES CO., LTD
Address of Applicant:	88 JIANGLING ROAD, XIXING TOWN, BINJING DISTRICT, HANGZHOU CITY
Manufacturer:	ZHEJIANG UNIVIEW TECHNOLOGIES CO., LTD
Address of Manufacturer:	88 JIANGLING ROAD, XIXING TOWN, BINJING DISTRICT, HANGZHOU CITY
Factory:	ZHEJIANG UNIVIEW SYSTEMS TECHNOLOGY CO., LTD
Address of Factory:	No.1277 SOUTH QINGFENG SOUTH ROAD,TONGXIANG CITY,JIAXING CITY
Equipment Under Test (EU	Т):
EUT Name:	Face Recognition Access Control Terminal
Model No.:	OET-231H-FC,OET-231H-FC-NB,OET-231H-FC-xxxxxxxx-yyyyyyyy-zzz
	('x' can be 0-9,A-Z,a-z,@, or blank, denoting difference in tinterface; 'y' can be 0-9,A-Z,a-z,@, or blank, denoting difference in tinterface; 'y' can be
	0-9,A-Z,a-z,@, or blank, denoting difference in tinterface;' -' may be blank)
	¤
¤	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 C 15.225
Date of Receipt:	2021-09-07
Date of Test:	2021-10-18 to 2021-11-12
Date of Issue:	2021-11-15
Test Result:	Pass*

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

parlan share

Parlam Zhan Laboratory 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 is
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,

Co.Ltd 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



Report No.: SHCR210900008701 Page: 2 of 26

Revision Record						
Version Description Date Remark						
00 Original		2021-11-15	/			

Authorized for issue by:			
	pichal Nic		
	Micheal Niu / Project Engineer	_	
	Parlam zhan		
	Parlam Zhan / Reviewer	-	



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 is 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. 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, or email: CN.Doccheck@asa.com

d. 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



Report No.: SHCR210900008701 Page: 3 of 26

## 2 Test Summary

Radio Spectrum Technical Requirement				
Item Standard Method		Method	Requirement Re	
Antenna Requirement	47 CFR Part 15, Subpart C 15.225	N/A	47 CFR Part 15, Subpart C 15.203	Pass

Radio Spectrum Matter Part					
Item	Standard	Method	Requirement	Result	
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart C 15.225	ANSI C63.10 (2013) Section 6.2			
20dB Bandwidth	47 CFR Part 15, Subpart C 15.225	ANSI C63.10 (2013) Section 6.9	47 CFR Part 15, Subpart C 15.215	Pass	
Emission Mask	47 CFR Part 15, Subpart C 15.225	R Part 15, ANSI C63.10 (2013) 47 CFR Part 15, Subpart C		N/A	
Frequency tolerance	47 CFR Part 15, Subpart C 15.225	ANSI C63.10 (2013) Section 6.8	47 CFR Part 15, Subpart C 15.225(e)	Pass	
Radiated Emissions(9kHz- 30MHz)	47 CFR Part 15, Subpart C 15.225	ANSI C63.10 (2013) Section 6.4&6.5	47 CFR Part 15, Subpart C 15.225(d) & 15.209	Pass	
Radiated Emissions(30MHz- 1GHz)	47 CFR Part 15, Subpart C 15.225	ANSI C63.10 (2013) Section 6.4&6.5	47 CFR Part 15, Subpart C 15.225(d) & 15.209	Pass	

### Note: Declaration of EUT Family Grouping:

There are series models mentioned in this report and they are the similar in electrical and electronic characters. Only the model OET-231H-FC was tested since their differences are model number.



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 <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com/en/Terms-and-Conditions/Terms-en-Document.aspx">http://www.sgs.com/en/Terms-and-Conditions/Terms-en-Document.aspx</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is 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. Any holder of the isocurent 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, or email: CN.Doccheck@ssg.com</a>

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



## 3 Contents

			Page
1	СО	OVER PAGE	1
2	TE	ST SUMMARY	3
3	со	ONTENTS	4
4	GE	NERAL INFORMATION	5
		DETAILS OF E.U.T DESCRIPTION OF SUPPORT UNITS MEASUREMENT UNCERTAINTY TEST LOCATION TEST FACILITY DEVIATION FROM STANDARDS ABNORMALITIES FROM STANDARD CONDITIONS QUIPMENT LIST	
	6.1	ANTENNA REQUIREMENT	8
7	RA	DIO SPECTRUM MATTER TEST RESULTS	9
	7.1 7.2 7.3 7.4 7.5 7.6	Conducted Emissions at AC Power Line (150kHz-30MHz) 20dB Bandwidth Emission Mask Frequency tolerance Radiated Emissions(9kHz-30MHz) Radiated Emissions(30MHz-1GHz)	
8	TE	ST SETUP PHOTOGRAPHS	26
9	EU	IT CONSTRUCTIONAL DETAILS	



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 is 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. 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, or email: CN.Doccheck@asa.com

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



 Report No.:
 SHCR210900008701

 Page:
 5 of 26

## 4 General Information

## 4.1 Details of E.U.T.

Power supply:	DC 12V by Adapter
Test voltage:	AC 120V/60Hz
Antenna Type	Loop Antenna
Modulation Type	ASK
Number of Channels	1
Operation Frequency	13.56MHz

## 4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Adapter	ΗΟΙΟΤΟ	ADS-12FG-12N 12012EPG	/
Notebook	Xiaomi	181501-AQ	/

## 4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty		
1	Radio Frequency	8.4 x 10-8		
2	Timeout	2s		
3	Duty cycle	0.4%		
4	Occupied Bandwidth	3%		
5	RF conducted power	0.6dB		
6	RF power density	2.9dB		
7	Conducted Spurious emissions	0.75dB		
8	DE Dedicted newer	5.1dB (Below 1GHz)		
0	RF Radiated power	5.9dB (Above 1GHz)		
		4.2dB (Below 30MHz)		
9	Dedicted Spurious optionics test	4.5dB (30MHz-1GHz)		
9	Radiated Spurious emission test	5.1dB (1GHz-6GHz)		
		5.4dB (6GHz-18GHz)		
10	Temperature test	1°C		
11	Humidity test	3%		
12	Supply voltages	1.5%		
13 Time		3%		

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



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 is
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,
or email: <u>CN.Doccheck@sgs.com</u>

al)Co.,Ltd. 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



Report No.: SHCR210900008701 Page: 6 of 26

## 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-20134, R-11600, C-11707, T-11499, G-10216 respectively.

## 4.6 Deviation from Standards

None

## 4.7 Abnormalities from Standard Conditions

None



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 <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com/en/Terms-and-Conditions/Terms-en-Document.aspx">http://www.sgs.com/en/Terms-and-Conditions/Terms-en-Document.aspx</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is 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 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) 83071443, or email: CN. Doccheck@ess.com</a>

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



 Report No.:
 SHCR210900008701

 Page:
 7 of 26

## 5 Equipment List

Item	Equipment	Manufacturer	Model	Serial Number	Cal Date	Cal. Due Date	
Con	Conducted Emission at Mains Terminals (150kHz-30MHz)						
1	EMI Test Receive	R&S	ESCI	100781	02/01/2021	01/31/2022	
2	LISN	R&S	ENV216	101604	10/12/2021	10/11/2022	
3	LISN	Schwarzbeck	NNLK 8129	8129-143	10/12/2021	10/11/2022	
4	Pulse Limiter	R&S	ESH3-Z2	100609	02/01/2021	01/31/2022	
5	CE test Cable	Thermax	/	14	10/16/2021	10/15/2022	
6	Test Software	Farad	EZ-EMC	CCS-03A1	N.C.R	N.C.R	
RF R	adiated Test						
1	Spectrum Analyzer	R&S	FSV40	101493	10/11/2021	10/10/2022	
2	Signal Generator	Agilent	E8257C	MY43321570	10/18/2021	10/17/2022	
3	Loop Antenna	Schwarzbeck	HXYZ9170	9170-108	02/22/2021	02/21/2022	
4	Bilog Antenna	TESEQ	CBL 6112D	35403	06/21/2021	06/20/2023	
5	Bilog Antenna	SCHWARZBECK	VULB9160	9160-3342	04/13/2021	04/12/2023	
6	Horn-antenna(1-18GHz)	Schwarzbeck	BBHA9120D	267	10/26/2020	10/25/2022	
7	Horn-antenna(1-18GHz)	ETS-LINDGREN	3117	00143290	02/22/2021	02/21/2023	
8	Horn Antenna(18-40GHz)	Schwarzbeck	BBHA9170	BBHA9170171	02/22/2021	02/21/2022	
9	Pre-Amplifier(30MHz~18GHz)	LNA	/	/	04/15/2021	04/14/2022	
10	Amplifier(18~40GHz)	COM-POWER	PAM-840A	461332	10/18/2021	10/17/2022	
11	Low Pass Filter	MICRO-TRONICS	VLFX-950	RV142900829	N.C.R	N.C.R	
12	High Pass Filter	Mini-Circuits	VHF-1200	15542	N.C.R	N.C.R	
13	Filter (5450MHz $\sim$ 5770 MHz $)$	MICRO-TRONICS	BRC50704-01	2	N.C.R	N.C.R	
14	Filter (5690 MHz~5930 MHz)	MICRO-TRONICS	BRC50705-01	4	N.C.R	N.C.R	
15	Filter (5150 MHz~5350 MHz)	MICRO-TRONICS	BRC50703-01	2	N.C.R	N.C.R	
16	Filter (885 MHz~915 MHz)	MICRO-TRONICS	BRM14698	1	N.C.R	N.C.R	
17	Filter (815 MHz~860 MHz)	MICRO-TRONICS	BRM14697	1	N.C.R	N.C.R	
18	Filter (1745 MHz $\sim$ 1910 MHz)	MICRO-TRONICS	BRM14700	1	N.C.R	N.C.R	
19	Filter (1922 MHz $\sim$ 1977 MHz)	MICRO-TRONICS	BRM50715	1	N.C.R	N.C.R	
20	Filter (2550 MHz)	MICRO-TRONICS	HPM13362	5	N.C.R	N.C.R	
21	Filter (1532 MHz~1845 MHz)	MICRO-TRONICS	BRM50713	1	N.C.R	N.C.R	
22	Filter (2.4GHz)	MICRO-TRONICS	BRM50701	5	N.C.R	N.C.R	
23	RE test cable	/	RE01-RE04	/	04/15/2021	04/14/2022	
24	Software	Faratronic	EZ_EMC-v 3A1	N/A	N/A	N/A	



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 <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Document at <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Document at <a href="http://www.sgs.com/en/Terms-and-Conditions/Terms-en-Document.aspx">http://www.sgs.com/en/Terms-and-Conditions/Terms-en-Document.aspx</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is 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. 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, or email: CN.Doccheck@asg.com</a>

d. 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



 Report No.:
 SHCR210900008701

 Page:
 8 of 26

## 6 Radio Spectrum Technical Requirement

### 6.1 Antenna Requirement

#### 6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

#### 6.1.2 Conclusion

Standard Requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of an so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

#### EUT Antenna:

The antenna is Loop antenna and no consideration of replacement.

Antenna location: Refer to Appendix (Internal Photos)



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 <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com/en/Terms-and-Conditions/Terms-en-Document.aspx">http://www.sgs.com/en/Terms-and-Conditions/Terms-en-Document.aspx</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is 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. 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, or email: CN.Doccheck@ssc.com</a>

は 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



Report No.: SHCR210900008701 Page: 9 of 26

## 7 Radio Spectrum Matter Test Results

## 7.1 Conducted Emissions at AC Power Line (150kHz-30MHz)

Test Requirement Test Method: Limit:

47 CFR Part 15, Subpart C 15.207 ANSI C63.10 (2013) Section 6.2

	Limit (dBuV)				
Frequency range (MHz)	Quasi-peak	Average			
0.15-0.5	66 to 56*	56 to 46*			
0.5-5	56	46			
5-30	60	50			

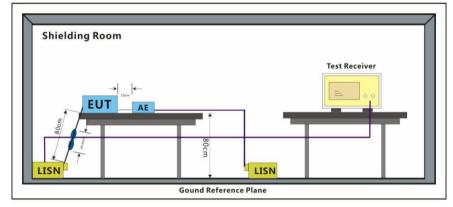
\* Decreases with the logarithm of the frequency.

## 7.1.1 E.U.T. Operation

Operating Environment:

Temperature:	23 °C	Humidity:	45	% RH	Atmospheric Pressure:	1001	mbar
Test mode:	a:TX mode_Ke	ep the EUT	in tra	nsmitting wi	th modulation mode.		

### 7.1.2 Test Setup Diagram





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 <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx">http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is 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. 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, or email: CN.Doccheck@ass.com</a>

MO.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



Report No.: SHCR210900008701 Page: 10 of 26

#### 7.1.3 Measurement Procedure and Data

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 50ohm/50 $\mu$ H + 50hm 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 according to ANSI C63.10 on conducted measurement.

1. LISN=Read Level+ Cable Loss+ LISN Factor



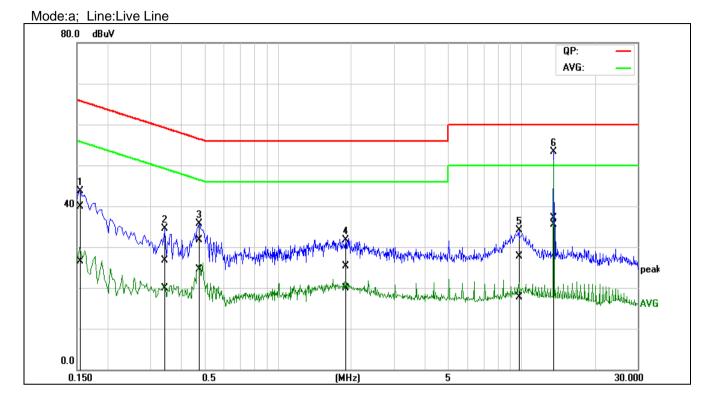
Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com/en/Terms-and-Conditions">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx">http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is 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 relatined for 30 days only. Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 83071443, or email: CN.Doccheck@ssg.com"

M.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



 Report No.:
 SHCR210900008701

 Page:
 11 of 26



No.	Frequency	QuasiPeak	Average	Correction	QuasiPeak	Average	QuasiPeak	Average	QuasiPeak	Average	Remark
		reading	reading	factor	result	result	limit	limit	margin	margin	
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.1560	20.50	7.03	19.46	39.96	26.49	65.67	55.67	-25.71	-29.18	Pass
2	0.3454	7.22	0.46	19.48	26.70	19.94	59.07	49.07	-32.37	-29.13	Pass
3	0.4804	12.27	4.94	19.52	31.79	24.46	56.33	46.33	-24.54	-21.87	Pass
4	1.8940	5.67	0.27	19.59	25.26	19.86	56.00	46.00	-30.74	-26.14	Pass
5	9.7431	7.67	-2.20	19.97	27.64	17.77	60.00	50.00	-32.36	-32.23	Pass
6*	13.5719	16.95	15.46	20.09	37.04	35.55	60.00	50.00	-22.96	-14.45	Pass



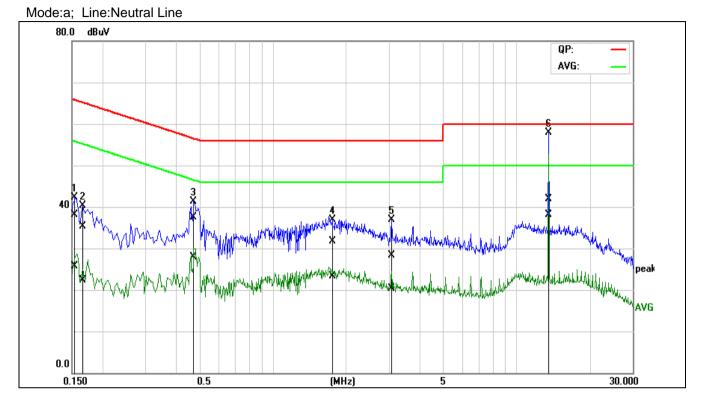
Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com/en/Terms-and-Conditions/Terms-en-Document.aspx">http://www.sgs.com/en/Terms-and-Conditions/Terms-en-Document.aspx</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is 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. 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, or email: CN.Doccheck@ssg.com</a>

M.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



 Report No.:
 SHCR210900008701

 Page:
 12 of 26



No.	Frequency	QuasiPeak	Average	Correction	QuasiPeak	Average	QuasiPeak	Average	QuasiPeak	Average	Remark
		reading	reading	factor	result	result	limit	limit	margin	margin	
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.1539	18.72	6.22	19.42	38.14	25.64	65.78	55.79	-27.64	-30.15	Pass
2	0.1637	15.87	2.97	19.42	35.29	22.39	65.27	55.27	-29.98	-32.88	Pass
3	0.4775	18.05	8.38	19.50	37.55	27.88	56.38	46.38	-18.83	-18.50	Pass
4	1.7295	12.10	3.71	19.56	31.66	23.27	56.00	46.00	-24.34	-22.73	Pass
5	3.1048	8.60	0.66	19.63	28.23	20.29	56.00	46.00	-27.77	-25.71	Pass
6*	13.5718	21.81	17.98	20.08	41.89	38.06	60.00	50.00	-18.11	-11.94	Pass



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 <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com/en/Terms-and-Conditions/Terms-en-Document.aspx">http://www.sgs.com/en/Terms-and-Conditions/Terms-en-Document.aspx</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is 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. 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, or email: CN.Doccheck@ssg.com</a>

は 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



 Report No.:
 SHCR210900008701

 Page:
 13 of 26

## 7.2 20dB Bandwidth

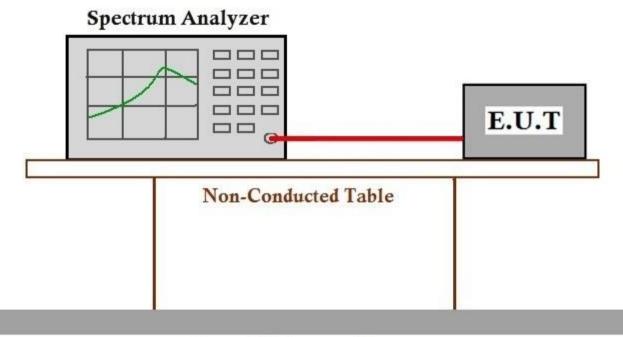
Limit:	N/A
Test Method:	ANSI C63.10 (2013) Section 6.9
Test Requirement	47 CFR Part 15, Subpart C 15.215

#### 7.2.1 E.U.T. Operation

Operating Environment:

Temperature:22 °CHumidity:50 % RHAtmospheric Pressure:1002 mbarTest mode:a:TX mode\_Keep the EUT in transmitting with modulation mode.

### 7.2.2 Test Setup Diagram



## **Ground Reference Plane**

7.2.3 Measurement Procedure and Data



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 <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com/en/Terms-and-Conditions/Terms-and-Co

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



20dB bandwidth (kHz)	F∟ (MHz)	Fн (MHz)	Limit(MHz)	Result
0.2634	13.55605	13.5608	13.110 – 14.010	Pass

Test plot as follows:

Spect	rum										
Ref Le Att	vel 8		BµV )dB <b>SWT</b> 2 s		V 10 Hz V 30 Hz Mod	e Sweep					``````````````````````````````````````
⊜1Pk M	ax										
80 dBµ\	,						1[1] 1[1]				0.16 dB 263.40 Hz 42.24 dBµV
70 dBu\	,					IVI	1[1]				42.24 UBDV 154130 MHz
60 dBµ\					Ma						
50 dBµ\											
40 dBµ\	/D	1 42.3	199 dвµV		M¥						
30-d8µ∖	~+	<u> </u>					$\vdash$		<u> </u>	<u> </u>	
20 dBµ\	/										
10 dBµ\	/										
0 dBµV-											
CF 13.	56068	36 MH	z		691	pts				Sp	an 2.0 kHz
Marker											
Туре	Ref		X-value		Y-value	Func	tion		Func	tion Result	t
M1 D1	M1	1	13.56054	13 MHz 13.4 Hz	42.24 dBµ 0.16 c						
M2	IMIT	1	13.560674		62.39 dBµ						
		)[					Me	asuring			<b>4</b>



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 is 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. 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, or email: CN.Doccheck@asa.com

MNO.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



Report No.: SHCR210900008701 Page: 15 of 26

### 7.3 Emission Mask

Test Requirement
Test Method:
Limit:

47 CFR Part 15 Subpart C 15.225(a)&(b)&(C) ANSI C63.10 (2013) Section 6.4

(a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15.848 microvolts/meter at 30 meters.

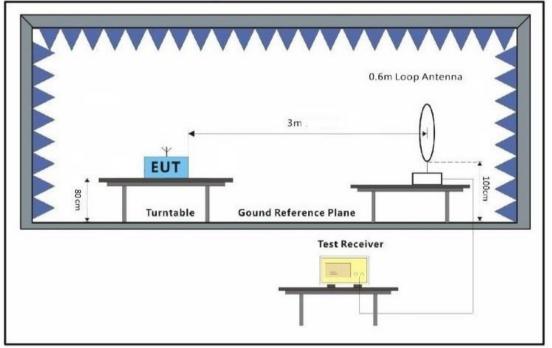
(b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.(c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

(d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in § 15.209.

#### 7.3.1 E.U.T. Operation

Operating Environment:Temperature:22 °CHumidity:50 % RHAtmospheric Pressure:1002 mbarTest mode:a:TX mode\_Keep the EUT in transmitting with modulation mode.

#### 7.3.2 Test Setup Diagram



#### 7.3.3 Measurement Procedure and Data

For testing performed with the loop antenna, the center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane.

Note: The test level of the fundamental signal is below the limit of general spurious emission, so the test item doesn't be performed.





 Report No.:
 SHCR210900008701

 Page:
 16 of 26

## 7.4 Frequency tolerance

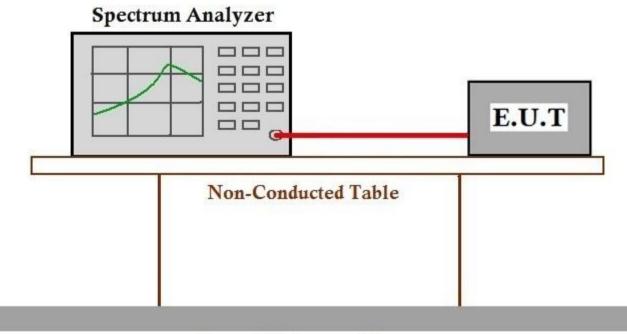
Test Requirement	47 CFR Part 15, Subpart C 15.225(e)
Test Method:	ANSI C63.10 (2013) Section 6.8
Limit:	1.356kHz

#### 7.4.1 E.U.T. Operation

Operating Environment:

Temperature:22 °CHumidity:50 % RHAtmospheric Pressure:1002 mbarTest mode:a:TX mode\_Keep the EUT in transmitting with modulation mode.

## 7.4.2 Test Setup Diagram



## **Ground Reference Plane**

7.4.3 Measurement Procedure and Data



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 <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com/en/Terms-and-Conditions/Terms-and-Co

MO.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



Report No.: SHCR210900008701 Page: 17 of 26

Test Co Temp (℃)	nditions Volt (V DC)	Test Result (MHz)	Deviation (kHz)	Limit (kHz)	Result	
T <sub>nom</sub> (-20)	V <sub>nom</sub> (12)	13.56065	0.65		Pass	
T <sub>nom</sub> (-10)	V <sub>nom</sub> (12)	13.56065	0.65		Pass	
T <sub>nom</sub> (0)	V <sub>nom</sub> (12)	13.56066	0.66		Pass	
T <sub>nom</sub> (10)	V <sub>nom</sub> (12)	13.56067	0.67		Pass	
T <sub>nom</sub> (20)	V <sub>nom</sub> (12)	13.56067	0.67	±0.01%	Pass	
T <sub>nom</sub> (30)	V <sub>nom</sub> (12)	13.56067	0.67	(1.3560kHz)	Pass	
T <sub>nom</sub> (40)	V <sub>nom</sub> (12)	13.56065	0.65		Pass	
T <sub>nom</sub> (50)	V <sub>nom</sub> (12)	13.56066	0.66		Pass	
T (20)	V <sub>min</sub> (10.2)	13.56065	0.65		Pass	
T <sub>nom</sub> (20)	V <sub>max</sub> (13.8)	13.56065	0.65		Pass	

#### Nominal Operation Frequency: 13.56MHz

Note: Deviation (kHz) = (Test Result-13.56MHz)\*1000



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 is 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. 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, or email: CN.Doccheck@asa.com

11. 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



Report No.: SHCR210900008701 Page: 18 of 26

Test Requirement	47 CFR Part 15, Subpart C 15.225(d) & 15.209									
Test Method:	ANSI C63.10 (2013) Section 6.4&6.5									
Limit:										
	Field strength	Limit	Detector	Measurement Distance						
Frequency(MHz)	(microvolts/meter)	(dBuV/m)	Detector	(meters)						
0.009-0.490	2400/F(kHz)	-	-	300						
0.490-1.705	24000/F(kHz)	-	-	30						
1.705-30	30	-	-	30						
30-88	100	40.0	QP	3						
88-216	150	43.5	QP	3						
216-960	200	46.0	QP	3						
960-1000	500	54.0	QP	3						
Above 1000	500	54.0	AV	3						

## 7.5 Radiated Emissions(9kHz-30MHz)

NOTE:

(1) For test distance other than what is specified, but fulfilling the requirements of section 15.31(f) (2) the field strength is calculated by adding additionally an extrapolation factor of 40dB/decade (inverse linear distance for field strength measurements).

So the Distance Extrapolation Factor in dB is 40\*log (D<sub>TEST</sub> / D<sub>SPEC</sub>) where D<sub>TEST</sub> = Test Distance and D<sub>SPEC</sub> = Specified Distance.

Field strength limit  $(dB\mu V/m)@$ test distance= Field strength limit  $(dB\mu V/m)@$ specified distance +Distance Extrapolation Factor

(2) The lower limit shall apply at the transition frequencies.

#### 7.5.1 E.U.T. Operation

Operating Environment:

Temperature:	22 °C	Humidity:	50	% RH	Atmospheric Pressure:	1002	mbar
Test mode:	a:TX mode_Ke	ep the EUT	in tra	nsmitting wit	th modulation mode.		



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 <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com/en/Terms-and-Conditions/Terms-en-Document.aspx">http://www.sgs.com/en/Terms-and-Conditions/Terms-en-Document.aspx</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is 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. 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, or email: CN.Doccheck@sss.com</a>

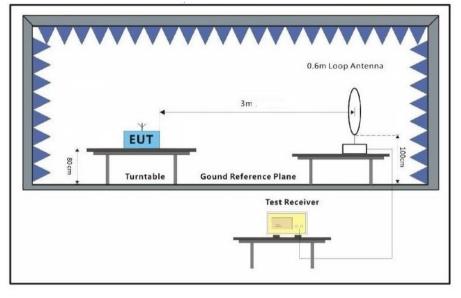
NO.588 West Jindu Road,Songjiang District,Shanghai,China 201612 中国・上海・松江区金都西路588号 邮编: 201612



 Report No.:
 SHCR210900008701

 Page:
 19 of 26

### 7.5.2 Test Setup Diagram



#### 7.5.3 Measurement Procedure and Data

For testing performed with the loop antenna, the center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane.



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 <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com/en/Terms-and-Conditions/Terms-and-Cond

11. 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

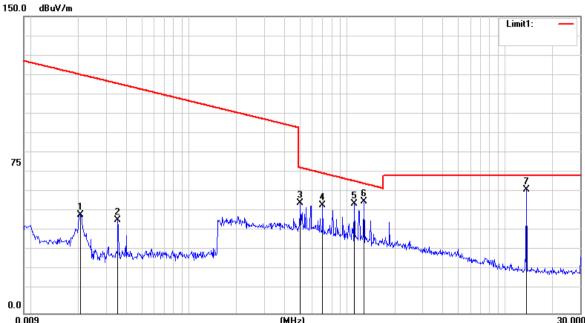


SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

 Report No.:
 SHCR210900008701

 Page:
 20 of 26

#### Horizontal



0.009				(MHZ)		30.000			
Item	Freq.	Read Level	Correct Factor	Result Level@3m	Result Level@SPE C	Limit Line@SPEC	Over Limit	Detector	
(Mark)	(MHz)	(dBµV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)		
1	0.0206	33.88	15.88	49.76	-30.24	40.52	-70.76	QP	
2	0.0354	31.40	15.72	47.12	-32.88	35.96	-68.84	QP	
3	0.5047	41.12	14.41	55.53	15.53	33.54	-18.01	QP	
4	0.6973	40.08	14.39	54.47	14.47	30.74	-16.27	QP	
5	1.1053	40.89	14.35	55.24	15.24	26.75	-11.51	QP	
6	1.2756	42.13	14.33	56.46	16.46	25.51	-9.05	QP	
7	13.6227	49.46	12.99	62.45	22.45	N/A	N/A	Peak	

Note: N/A means this limit is not applicable to the fundamental frequency of 13.56MHz, and its limit refers to 15.225 (a).



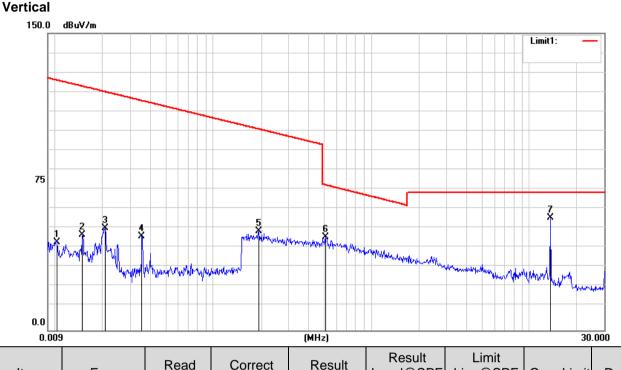
Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Document as at <a href="http://www.sgs.com/en/Terms-and-Conditions/Terms-en-Document.aspx">http://www.sgs.com/en/Terms-and-Conditions/Terms-en-Document.aspx</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is 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. 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, or email: CN.Doccheck@asa.com

d. 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



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

Report No.: SHCR210900008701 Page: 21 of 26



Item	Freq.	Read Level	Correct Factor	Result Level@3m	Result Level@SPE C	Limit Line@SPE C	Over Limit	Detector
(Mark)	(MHz)	(dBµV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	0.0103	28.31	16.00	44.31	-35.69	46.37	-82.06	QP
2	0.0150	32.11	15.94	48.05	-31.95	43.20	-75.15	QP
3	0.0206	35.54	15.88	51.42	-28.58	40.52	-69.10	QP
4	0.0354	31.87	15.72	47.59	-32.41	35.96	-68.37	QP
5	0.1932	35.72	14.45	50.17	-29.83	21.65	-51.48	QP
6	0.5128	32.76	14.44	47.20	7.20	33.41	-26.21	QP
7	13.6227	42.72	13.95	56.67	16.67	N/A	N/A	Peak

Note: N/A means this limit is not applicable to the fundamental frequency of 13.56MHz, and its limit refers to 15.225 (a).



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 <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Document aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document aspx. Attention is drawn to the limitation or electronic formatic to 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. 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, or email: CN.Doccheck@sas.com

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



 Report No.:
 SHCR210900008701

 Page:
 22 of 26

## 7.6 Radiated Emissions(30MHz-1GHz)

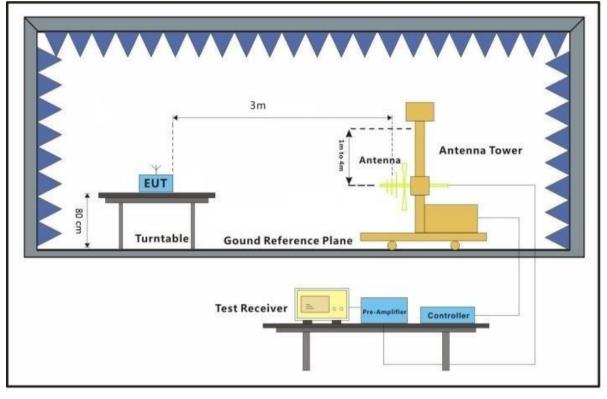
Test Requirement	47 CFR Part 15, Subpart C 15.225(d) & 15.209
Test Method:	ANSI C63.10 (2013) Section 6.4&6.5
Limit:	

Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)	
30MHz-88MHz	100	40.0	Quasi-peak	3	
88MHz-216MHz	150	43.5	Quasi-peak	3	
216MHz-960MHz	200	46.0	Quasi-peak	3	
960MHz-1GHz	500	54.0	Quasi-peak	3	

### 7.6.1 E.U.T. Operation

Operating Environment:Temperature:22 °CHumidity:50 % RHAtmospheric Pressure:1002 mbarTest mode:a:TX mode\_Keep the EUT in transmitting with modulation mode.

### 7.6.2 Test Setup Diagram





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 is
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,
or email: CN.Doccheck@sgs.com

Ltt. 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



Report No.: SHCR210900008701 Page: 23 of 26

#### 7.6.3 Measurement Procedure and Data

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground for below 1GHz at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. 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. 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 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. 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.

g. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.

Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor



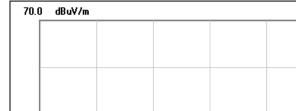
Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com/en/Terms-and-Conditions/Terms-en-Document.aspx">http://www.sgs.com/en/Terms-and-Conditions/Terms-en-Document.aspx</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is 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) 83071443, or email: CN Docetacek@esas.com</a>

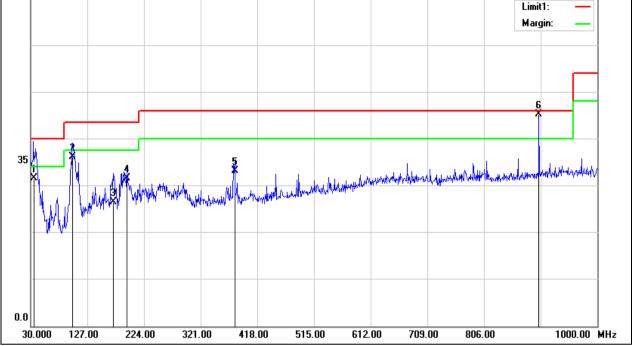
M. NO.588 West Jindu Road,Songjiang District,Shanghai,China 201612 中国・上海・松江区金都西路588号 邮编: 201612



Horizontal

Report No.: SHCR210900008701 Page: 24 of 26





No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	35.6750	8.85	22.70	31.55	40.00	-8.45	101	46	QP
2	101.7800	17.59	18.57	36.16	43.50	-7.34	100	325	QP
3	171.6200	8.13	18.46	26.59	43.50	-16.91	200	276	QP
4	194.9000	14.88	16.65	31.53	43.50	-11.97	200	219	QP
5	379.2000	10.17	23.08	33.25	46.00	-12.75	200	322	QP
6	899.9970	16.53	28.67	45.20	46.00	-0.80	100	58	QP



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 <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com/en/Terms-and-Conditions/Terms-and-Conditions/Terms-a-Document.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com/en/Terms-and-Conditions/Terms-a-Document.aspx">http://www.sgs.com/en/Terms-and-Conditions/Terms-a-Document.aspx</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is 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 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, or email: CN.Doccheck@sas.com</a>

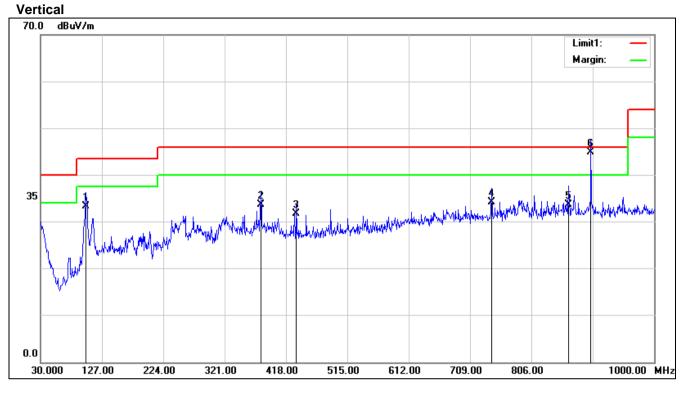
NO.588 West Jindu Road, Songjiang District, Shanghai, China 201612 中国・上海・松江区金都西路588号 邮编: 201612



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

 Report No.:
 SHCR210900008701

 Page:
 25 of 26



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	101.7800	14.74	18.57	33.31	43.50	-10.19	100	335	QP
2	378.2300	10.56	23.06	33.62	46.00	-12.38	100	216	QP
3	434.4900	7.75	24.08	31.83	46.00	-14.17	100	144	QP
4	742.9500	6.69	27.48	34.17	46.00	-11.83	100	43	QP
5	864.2000	5.42	28.25	33.67	46.00	-12.33	100	72	QP
6	899.9895	16.29	28.67	44.96	46.00	-1.04	102	75	QP



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 <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com/en/Terms-and-Conditions/Terms-en-Document.aspx">http://www.sgs.com/en/Terms-and-Conditions/Terms-en-Document.aspx</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is 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. 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, or email: CN.Doccheck@ssg.com</a>

d. 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:

26 of 26

## 8 Test Setup Photographs

Refer to the < Test Setup photos-FCC>.

## 9 EUT Constructional Details

Refer to the < External Photos > & < Internal Photos >.

- End of the Report -



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 <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com/en/Terms-and-Conditions/Terms-and-Cond

11. 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