

EMC-TRF-01 Rev 1.1 Report No.: GZCR231100125802

Page: 1 of 27

FCC ID: OJFDHRU-G2-23

# TEST REPORT

Application No.: GZCR2311001258AT

Applicant: Corning Optical Communications LLC

Address of Applicant: 840 N McCarthy Blvd Milpitas, CA 95035

Manufacturer: Corning Optical Communications LLC

840 N McCarthy Blvd Milpitas, CA 95035

Comba Network Systems Company Limited

Address of Manufacturer: No.10 Shenzhou Road, Guangzhou Science City, Guangzhou 510663,

Guangdong, P.R.China

**Equipment Under Test (EUT):** 

EUT Name: HRU Digital High Power Amplifier Module supporting WCS

Model No.: dHRU-G2-23
Trade Mark: Corning

Standard(s): 47 CFR Part 2

47 CFR Part 20 47 CFR Part 27

Date of Receipt: 2021-03-09 for the original report GZCR210300001702

2023-11-29 for the report GZCR231100125802

**Date of Test:** 2021-03-11 to 2021-04-03 for the original report GZCR210300001702

2023-12-4 to 2023-12-10 for the report GZCR231100125802

Date of Issue: 2021-04-09 for the original report GZCR210300001702

2023-12-20 for the report GZCR231100125802

Test Result: Pass\*

Ricky Liu Manager

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="https://www.sgs.com/en/Terms-and-Conditions">https://www.sgs.com/en/Terms-and-Conditions</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) 8307 1443, \*\*Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443,

Artention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (66-753) 83071443, or email: CN\_Doccheck@sgs.com

10 No.198. Kezhu Road. Science City. Economic & Technological Development Area. Guanozhou. Guanodono. China 510663 t (86-20) 82155555 www.sgsgroup.com.cn

\$ Co.Ltd. No.198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663
Noralory. 中国・广东・广州高新技术产业开发区科学城科珠路198号 邮编: 510663

<sup>\*</sup> In the configuration tested, the EUT complied with the standards specified above.



EMC-TRF-01 Rev 1.1

Report No.: GZCR231100125802

Page: 2 of 27

	Revision Record						
Version	Report No.	Date	Remark				
01	GZCR231100125802	2023-12-20	Original				

Authorized for issue by:		
	Kevin Zhang	
	Kevin Zhang /Project Engineer	
	Jery Chen	
	Jerry Chan /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 <a href="https://www.sgs.com/en/Terms-and-Conditions">https://www.sgs.com/en/Terms-and-Conditions</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) 8307 1443, or email: CN\_Doccheck@gs.com"

es Co., Ltd. No.198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663 CLaboratory 中国·广东·广州高新技术产业开发区科学城科珠路198号 邮编:510663



EMC-TRF-01 Rev 1.1

Report No.: GZCR231100125802

Page: 3 of 27

# **Test Summary**

### 2.1 WCS (only for downlink: 2350-2360MHz)

Item	Requirement	Method	Result
Out-of-band rejection	KDB935210 D05 v01r04 clause 3.3	KDB935210 D05 v01r04 clause 3.3	PASS
Input-versus-output signal comparison	47 CFR Part 2.1049	KDB935210 D05 v01r04 clause 3.4	PASS
Mean output power and amplifier/booster gain	47 CFR Part 27.50(a)	KDB935210 D05 v01r04 clause 3.5	PASS
Out-of-band/out-of-block (including intermodulation) emissions and spurious esmissions	47 CFR Part 27.53(a)	KDB935210 D05 v01r04 clause 3.6	PASS
Frequency stability	47 CFR Part 27.54	47 CFR Part 2.1055 KDB935210 D05 v01r04 clause 3.7 ANSI C63.26-2015 Clause 5.6	PASS
Radiated spurious emissions	47 CFR Part 2.1053 47 CFR Part 27.53(a)	KDB935210 D05 v01r04 clause 3.8 ANSI C63.26-2015 Clause 5.5	PASS

#### Remark:

According to the declaration from the applicant, the model dHRU-G2-23 in this report GZCR231100125802 and model dHRU-dHPAM-23 in report GZCR210300001702 (FCC ID: OJFDHRU-DHPAM-23) are identical in the electrical circuit design, layout, components used and internal wiring were identical, with only difference on the Model No ..

All test data in this report was copied from report GZCR210300001702.

Furthermore, tests using 100 MHz AWGN signal for 5GNR were supplemented in this 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="https://www.sgs.com/en/Terms-and-Conditions">https://www.sgs.com/en/Terms-and-Conditions</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 Cilent'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@gs.com"

s Co. Ltd. No. 198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663 中国・广东・广州高新技术产业开发区科学城科珠路198号 邮编:510663



EMC-TRF-01 Rev 1.1

Report No.: GZCR231100125802

Page: 4 of 27

### **Contents**

		rs Page	
2 T		Summary	
2.1	1	NCS (only for downlink: 2350-2360MHz)	3
3 C	onte	ents	A
4 G	<b>S</b> ono	ral Information	c
4.1		Details of E.U.T.	
4.2		Description of Support Units	
4.3		Feet Environment	
4.4 4.5		Test Configuration	
4.5 4.6		Measurement Uncertainty	
4.6 4.7		Test Location	
4.7		Test Facility Deviation from Standards	
4.9		Abnormalities from Standard Conditions	
5 E	quip	ment List	11
6 R	Radio	Spectrum Matter Test Result for 600MHz Service	14
6.1		Out-of-band rejection	14
6	.1.1	E.U.T. Operation	
6	.1.2	Test Setup.	14
6	.1.3	Measure Data	15
6.2		nput-versus-output signal comparison	16
6	.2.1	E.U.T. Operation	
6	.2.2	Test Setup	16
6	.2.3	Measure Data	17
6.3		Mean output power and amplifier/booster gain	18
6	.3.1	E.U.T. Operation	18
6	.3.2	Test Setup	18
	.3.3	Measure Data	
6.4	(	Out-of-band/out-of-block (including intermodulation) emissions and spurious	20
	.4.1	E.U.T. Operation	
6	.4.2	Test Setup	
	.4.3		
6.5		Frequency stability	
	.5.1	E.U.T. Operation	
	.5.2	Test Setup	
	.5.3	Measure Data	
6.6		Radiated spurious emission	
	.6.1	E.U.T. Operation	
	.6.2	Test Setup	
	.6.3	Test procedure	
6	.6.4	Measure Data	26



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="https://www.sgs.com/en/Terms-and-Conditions">https://www.sgs.com/en/Terms-and-Conditions</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) 8307 1443, or email: CN\_Doccheck@gs.com"

es Co., Ltd. No. 198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663 CLaboratory 中国・广东・广州高新技术产业开发区科学城科珠路198号 邮编: 510663



EMC-TRF-01 Rev 1.1 Report No.: GZCR231100125802

Page: 5 of 27

7	Test Setup Photographs	27	7
---	------------------------	----	---

EUT Constructional Details (EUT Photos) ......27 8



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="https://www.sgs.com/en/Terms-and-Conditions">https://www.sgs.com/en/Terms-and-Conditions</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) 8307 1443, or email: CN\_Doccheck@gs.com"

S Co., Ltd. No. 198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663 Laboratory. 中国・广东・广州高新技术产业开发区科学城科珠路198号 邮编:510663



EMC-TRF-01 Rev 1.1

Report No.: GZCR231100125802

Page: 6 of 27

### 4 General Information

### 4.1 Details of E.U.T.

Details of E.U.T.					
Power Supply:	AC 100-240V, 50/6	0Hz			
Test Voltage:	AC 110V, 60Hz				
Cable:	AC mains (unshield	led, 1.5m)			
Operating Temperature:	-40 to +55 °C				
Operating Humidity:	5 to 95 %				
Frequency Range:	WCS	Uplink:	2305	MHz to 2315MHz	
		Downlink:	2350	MHz to 2360MHz	
Radio System Type:	GSM				
	⊠ 5G NR				
Interface:	RF Port:	2 (4.3-10-	-Female	e, ANT1~ANT2)	
	Optical Port:	1 (SFP+)			
Supported Channel	GSM	200 k	Hz		
Bandwidth:	WCDMA	5MHz	<u>z</u>		
	LTE	1.4 M	Hz	☐ 3 MHz	🛚 5 MHz
			Hz		20 MHz
	5G NR		Z	☐ 10 MHz	X 15 MHz
			Hz		

Band	Technology	Supported Bandwidth	
600MHz Service	4G/5G	5/10MHz	



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="https://www.sgs.com/en/Terms-and-Conditions">https://www.sgs.com/en/Terms-and-Conditions</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) 8307 1443, or email: CN\_Doccheck@gs.com"

Attention: 10 check the authenticity of testing /inspection report a certificate, please contact us at telephone: (86-73) 8307 1443 or email: CN. Doccheck@ags.com

st Co., Ltd., No.198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663 t (86-20) 82155555 www.sgsgroup.com.c

中国・广东・广州高新技术产业开发区科学城科珠路198号 邮编: 510663



EMC-TRF-01 Rev 1.1

Report No.: GZCR231100125802

Page: 7 of 27

**EUT MIMO property:** 2X2 MIMO

Max. 43dB (Downlink) System Gain:

Antenna Type: External Dedicated Antenna

Permission Antenna Gain: 12.5dBi or less Software Version: V01.00.00.04

1. The EUT is a remote unit of a fiber DAS. The fiber DAS are typically Note:

comprised of three components (host unit, fiber-optic expansion unit and

remote unit), which will be interconnected via fiber-optic.

The host unit connects directly to a base station via coaxial cable but cannot connect to antenna for receiving downlink and transmitting uplink. the EUT connects to antenna for transmitting downlink and receiving

uplink. Therefore, only peformed the test for downlink.

2. In additional, the host unit and fiber-optic expansion unit will be used as

support unit for test in the report.

3. ANT1 and ANT2 are MIMO port, and the internal circuit design is identical, the intend output power for antenna ports are identical.

Therefore only perform test at antenna port 1 and record the data in this

report.

### 4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Notebook	IBM	T30	S/N78-3VMLX 06/01
IHU/HEU supplied by the applicant	Corning	/	1
DRU supplied by the applicant	Corning	/	1
ODU supplied by the applicant	Corning	dHRU-dHPOM	/
RIU supplied by the manufacturer	Corning	/	/
DCU supplied by the manufacturer	Corning	1	1
DEU supplied by the manufacturer	Corning	/	1



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="https://www.sgs.com/en/Terms-and-Conditions">https://www.sgs.com/en/Terms-and-Conditions</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 Cilent'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@gs.com"

Co., Ltd. No. 198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663 中国・广东・广州高新技术产业开发区科学城科珠路198号 邮编:510663



EMC-TRF-01 Rev 1.1

Report No.: GZCR231100125802

8 of 27 Page:

### **4.3 Test Environment**

Environment Parameter	Selected Values During Test	Selected Values During Test				
Ralative Humidity	Ambient					
Value	Temperature (℃)	Voltage (V)				
TNVN	+20	AC 110V				
TLVL	-40	AC 93.5V				
TLVH	-40	AC 126.5V				
THVL	+50	AC 93.5V				
THVH	+50	AC 126.5V				

VN: Normal Voltage

TN: Normal Teperature

VL: Lower Extreme Voltege

HL: Higher Extreme Voltage

TL: Lower Extreme Teperature

TH: Higher Extreme Teperature



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="https://www.sgs.com/en/Terms-and-Conditions">https://www.sgs.com/en/Terms-and-Conditions</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) 8307 1443, or email: CN\_Doccheck@gs.com"

S Co., Ltd. No. 198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663 t (86-20) 82155555 www.sgsgroup.com.cn

邮编:510663

sgs.china@sgs.com

t (86-20) 82155555



EMC-TRF-01 Rev 1.1

Report No.: GZCR231100125802

Page: 9 of 27

### 4.4 Test Configuration

WCS (only for downlink: 2350-2360MHz)

100 (01	WCS (Only for downlink, 2350-2380MHz)						
RF Ch.	Test Conf.	Test Freq. (MHz)	Test Signal	Remark			
В	DL_1S_B_AWGN	2352.5					
М	DL_1S_M_AWGN	2355		a single test signal			
Т	DL_1S_T_AWGN	2357.5	AWGN				
В	DL_2S_B_AWGN	2352.5, 2357.5	(99% OBW of 4.1MHz)				
Т	DL_2S_T_AWGN	2350.4		two adjacent test signals			
В	DL_1S_B_GSM	2355					
М	DL_1S_M_GSM	2359.6	GSM-TDMA	a single test signal			
Т	DL_1S_T_GSM	2350.4, 2350.8					
В	DL_2S_B_GSM	2359.2, 2359.6					
Т	DL_2S_T_GSM	2352.5		two adjacent test signals			
В	DL_1S_B_AWGN	2400					
М	DL_1S_M_AWGN	2355		a single test signal			
Т	DL_1S_T_AWGN	2310	100MHz AWGN				
В	DL_2S_B_AWGN	2300, 2400					
Т	DL_2S_T_AWGN	2310, 2410		two adjacent test signals			

### 4.5 Measurement Uncertainty

No.	ltem	Measurement Uncertainty
1	Radio Frequency	±5.5 x 10 <sup>-8</sup>
2	RF Conducted power	±0.68dB
3	Conducted Spurious Emissions	±1.04dB
4	RF Radiated Power	±4.5dB (below 1GHz)
4	RF Radiated Fower	±4.8dB (above 1GHz)
5	Radiated Spurious Emission Test	±4.5dB (30MHz-1GHz)
5	Radiated Spurious Emission Test	±4.8dB (1GHz-18GHz)
6	Temperature	±0.4°C
7	Humidity	±1.3%
8	Supply Voltages	±1.5%
9	Time	±3%



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="https://www.sgs.com/en/Terms-and-Conditions">https://www.sgs.com/en/Terms-and-Conditions</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) 8307 1443, or email: CN\_Doccheck@gs.com"

s Co., Ltd. No. 198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663 Claboratory 中国・广东・广州高新技术产业开发区科学城科珠路198号 邮编:510663 t (86-20) 82155555 www.sgsgroup.com.cn t (86-20) 82155555 sgs.china@sgs.com

Member of the SGS Group (SGS SA)



EMC-TRF-01 Rev 1.1 Report No.: GZCR231100125802

> Page: 10 of 27

#### 4.6 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory, 198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District, Guangzhou. China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

#### 4.7 Test Facility

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

#### ACMA

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian/New Zealand Regulatory Compliance Mark (RCM).

#### • SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

#### FCC Recognized Accredited Test Firm(Registration No.: 486818)

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818.

#### • ISED (Registration No.: 4620B, CAB identifier: CN0052)

SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Innovation Science and Economic Development Canada for Wireless Device Testing laboratories to test to Canadian radio equipment requirements. Registration No. 4620B, CAB identifier: CN0052.

#### VCCI (Registration No.: R-12460, C-12584, G-20107 and T-11179)

The 10m Semi-anechoic chamber, 966 Anechoic Chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584, G-20107 and T-11179 respectively.

#### • CBTL (Lab Code: TL129)

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2017, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

#### 4.8 Deviation from Standards

None

#### 4.9 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="https://www.sgs.com/en/Terms-and-Conditions">https://www.sgs.com/en/Terms-and-Conditions</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) 8307 1443, or email: CN.Doccheck@sgs.com").

t (86-20) 82155555 www.sqsqroup.com.cn

S Co. Ltd. No. 198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663 中国・广东・广州高新技术产业开发区科学城科珠路198号 邮编:510663

t (86-20) 82155555 sgs.china@sgs.com



EMC-TRF-01 Rev 1.1

Report No.: GZCR231100125802

Page: 11 of 27

#### **Equipment List** 5

For original test

Conducted Test					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
MXA Signal Analyzer	AgilentTechnologies	N9020A	SEM004-10	2021-03-02	2022-03-01
ESG Vector Signal Generator	Keysight	E4438C	SEM006-03	2021-03-12	2022-03-11
Signal Generator	Rohde & Schwarz	SMB100A	EMC2093	2021-01-09	2022-01-08
MXG Vector Signal Generator (9kHz-6GHz)	Keysight	N5182B	EMC2216	2020-11-04	2021-11-03
6dB Attenuator	HP	8491A	EMC2062	2020-04-15	2022-04-14
MI CABLE	SGS-EMC	0.8M	EMC2136	2019-11-02	2021-11-01
MI CABLE	SGS-EMC	0.8M	EMC2137	2019-11-02	2021-11-01
Temperature Chamber	GZ GongWen Co.Ltd.	GDJW-100	EMC0039	2020-07-01	2021-06-30
High-low temperature control box	GZ GongWen Co.Ltd	GDJW-100	EMC0039	2020-06-29	2021-06-28
Radiated Test					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Chamber cable	HangTianXing	N/A	EMC0542	2019-06-28	2021-06-27
Horn Antenna 1GHz- 18GHz	Rohde & Schwarz	HF906	EMC0518	2018-09-02	2021-09-01
1GHz-26.5 GHz Pre- Amplifier	Agilent	8449B	EMC0521	2021-01-08	2022-01-07
Amplifier	HP	8447F	EMC2065	2020-05-26	2021-05-25
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2020-12-19	2023-12-18
MXE EMI Receiver	Keysight	N9038A	EMC2139	2020-11-13	2021-11-12
EXA Signal Analyzer	Keysight	N9010A	EMC2138	2020-11-13	2021-11-12
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKME SS-ELEKTRONIK	VULB 9168	SEM003-18	2019-02-22	2022-02-22
Test Software E3	Audix	Ver.6.120110a	GZE100-61	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="https://www.sgs.com/en/Terms-and-Conditions">https://www.sgs.com/en/Terms-and-Conditions</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) 8307 1443, or email: CN\_Doccheck@gs.com"

S Co., Ltd. No. 198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663 中国・广东・广州高新技术产业开发区科学城科珠路198号 邮编:510663



EMC-TRF-01 Rev 1.1

Report No.: GZCR231100125802

12 of 27 Page:

#### For supplement test

Conducted test equipment							
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date		
Temperature Chamber	GZ GongWen Co.Ltd.	GDJW-100	EMC0039	2023-06-29	2024-06-28		
MI CABLE	SGS-EMC	0.8M	EMC2137	2023-11-02	2025-11-01		
MI CABLE	SGS-EMC	0.8M	EMC2136	2023-11-02	2025-11-01		
EXA Signal Analyzer (10Hz-44GHz)	Keysight	N9010A	EMC2138	2023-08-23	2024-08-22		
MXA Signal Analyzer (10Hz-50GHz)	KEYSIGHT	N9020B	SEM004-24	2023-03-20	2024-03-19		
4X4 Power Sensor Unit	TST	TSPS2023R	EMC2257	2023-08-23	2024-08-22		
Test Software	TST	V2.0	GZE100-78	N/A	N/A		
ESG vector signal generator (250kHz-6GHz)	Agilent Technologies	E4438C	SEM006-03	2023-02-20	2024-02-19		

Radiated test equipment (30MHz-1GHz)							
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date		
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2022-10-16	2025-10-15		
Coaxial cable	Mirco-COAX UTIFLEX	311A	EMC0540	2023-06-14	2025-06-13		
Amplifier (9kHz-1.3GHz)	HP	8447F	EMC2065	2023-06-14	2024-06-13		
EMI Test Receiver (1Hz- 8GHz)	Rohde & Schwarz	ESW8	EMC2220	2023-05-19	2024-05-18		
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A		
Trilog Broadband Antenna (25MHz-1GHz)	SCHWARZBECK MESS-ELEKTRONIK	VULB 9168	EMC2174	2022-06-19	2025-06-18		
TRILOG Broadband Antenna (25M-2GHz)	SCHWARZBECK	VULB 9168	SEM003-18	2022-03-03	2025-03-02		
EMI Test Receiver (1Hz- 8GHz)	Rohde & Schwarz	ESW8	EMC2220	2023-05-19	2024-05-18		



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="https://www.sgs.com/en/Terms-and-Conditions">https://www.sgs.com/en/Terms-and-Conditions</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) 8307 1443, or email: CN\_Doccheck@gs.com"

S Co., Ltd. No. 198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663 中国・广东・广州高新技术产业开发区科学城科珠路198号 邮编:510663



EMC-TRF-01 Rev 1.1

Report No.: GZCR231100125802

Page: 13 of 27

Radiated test equipment (above 1GHz)						
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date	
1GHz-26.5 GHz Pre- Amplifier	Agilent	8449B	EMC0521	2022-12-16	2023-12-15	
Microwave Broadband Preamplifier (18-40GHz)	SCHWARZBECK	BBV 9721	EMC2172	2023-08-21	2024-08-20	
EMI Test Receiver (10Hz-26.5GHz)	Rohde & Schwarz	ESIB26	EMC0522	2022-12-16	2023-12-15	
EXA Signal Analyzer (10Hz-44GHz)	Keysight	N9010A	EMC2138	2023-08-23	2024-08-22	
Chamber cable (Above 1GHz)	Scoflex	KMKM-8.0m	EMC0545	2022-08-24	2024-08-23	
Chamber Cable (Below 1GHz)	Scoflex	KMKM-8.0m	EMC0546	2022-08-24	2024-08-23	
Trilog Broadband Antenna (25MHz-1GHz)	SCHWARZBECK	VULB 9160	EMC2025	2022-09-07	2025-09-06	
Horn Antenna (1GHz- 18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2022-09-21	2025-09-20	
Horn Antenna 1-18GHz	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2251	2022-02-02	2025-08-01	
Horn Antenna (14- 40GHz)	SCHWARZBECK	BBHA 9170	EMC2041	2023-06-18	2026-06-17	
Broad-Band Horn Antenna (15-40GHz)	Schwarzbeck	BBHA 9170	SEM003-15	2021-7-11	2024-7-10	
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2020-12-20	2023-12-19	
Test Software E3	Audix	Ver.6.120110a	GZE100-61	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="https://www.sgs.com/en/Terms-and-Conditions">https://www.sgs.com/en/Terms-and-Conditions</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) 8307 1443, or email: CN\_Doccheck@gs.com"

t (86-20) 82155555 www.sgsgroup.com.cn es Co., Ltd. No.198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663 CLaboratory 中国·广东·广州高新技术产业开发区科学城科珠路198号 邮编:510663

t (86-20) 82155555 sgs.china@sgs.com



EMC-TRF-01 Rev 1.1 Report No.: GZCR231100125802

Page: 14 of 27

## 6 Radio Spectrum Matter Test Result for 600MHz Service

### 6.1 Out-of-band rejection

Test Requirement: KDB 935210 D05 clause 3.3 Test Method: KDB 935210 D05 clause 3.3

Limit: Within the passband

### 6.1.1 E.U.T. Operation

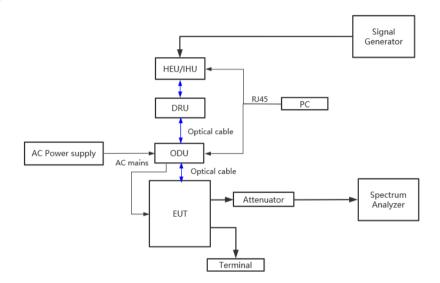
Operating Environment:

Temperature: 24.6 °C Humidity: 59 % RH Atmospheric Pressure: 1020 mbar

Test Mode: Set the EUT to maximum output power and maximum gain.

EUT Configuration: Refer to clause 4.4 in this report.

#### 6.1.2 Test Setup





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="https://www.sgs.com/en/Terms-and-Conditions">https://www.sgs.com/en/Terms-and-Conditions</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) 8307 1443, \*\*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

10 No.198. Kezhu Road. Science City. Economic & Technological Development Area. Guanozhou. Guanodono. China 510663 t (86–20) 82155555 www.sgsgroup.com.c

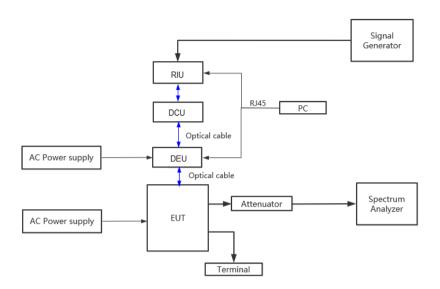
6 Co.Ltd. No.198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663 oralory. 中国・广东・广州高新技术产业开发区科学城科珠路198号 邮编: 510663



EMC-TRF-01 Rev 1.1

Report No.: GZCR231100125802

15 of 27 Page:



#### 6.1.3 Measure Data

Please refer to Appendix-Test Data and Result for report GZCR231100125802



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="https://www.sgs.com/en/Terms-and-Conditions">https://www.sgs.com/en/Terms-and-Conditions</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 Cilent'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@gs.com"

S Co., Ltd. No. 198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663 中国・广东・广州高新技术产业开发区科学城科珠路198号 邮编:510663



EMC-TRF-01 Rev 1.1

Report No.: GZCR231100125802

16 of 27 Page:

### 6.2 Input-versus-output signal comparison

47 CFR Part 2.1049 Test Requirement:

Test Method: KDB 935210 D05 clause 3.4

Limit: Compare the input signal to the output signal to affirm that they are similar

#### 6.2.1 E.U.T. Operation

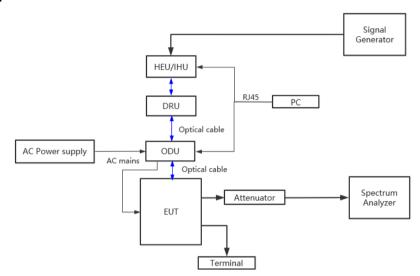
Operating Environment:

24.6 59 % RH Temperature: Humidity: Atmospheric Pressure: 1020 mbar

Test Mode: Set the EUT to maximum output power and maximum gain.

**EUT Configuration:** Refer to clause 4.4 in this report.

#### 6.2.2 Test Setup





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="https://www.sgs.com/en/Terms-and-Conditions">https://www.sgs.com/en/Terms-and-Conditions</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 Cilent'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@gs.com"

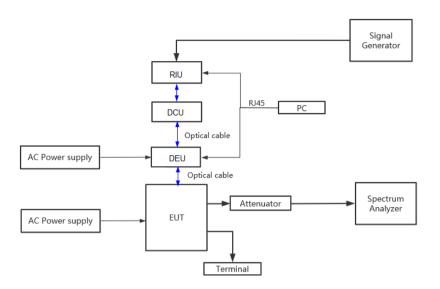
Co., Ltd. No. 198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663 中国・广东・广州高新技术产业开发区科学城科珠路198号 邮编:510663



EMC-TRF-01 Rev 1.1

Report No.: GZCR231100125802

17 of 27 Page:



#### 6.2.3 Measure Data

Please refer to Appendix-Test Data and Result for report GZCR231100125802



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="https://www.sgs.com/en/Terms-and-Conditions">https://www.sgs.com/en/Terms-and-Conditions</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 Cilent'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@gs.com"

es Co., Ltd. No. 198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663 中国・广东・广州高新技术产业开发区科学城科珠路198号 邮编:510663



EMC-TRF-01 Rev 1.1

Report No.: GZCR231100125802

Page: 18 of 27

#### 6.3 Mean output power and amplifier/booster gain

Test Requirement: 47 CFR Part 27.50(a)

Test Method: KDB 935210 D05 clause 3.5

Limit: The average equivalent isotropically radiated power (EIRP) must not exceed

2,000 watts within any 5 megahertz of authorized bandwidth and must not

exceed 400 watts within any 1 megahertz of authorized bandwidth.

The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an

instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for more than 0.1

percent of the time or other Commission approved procedure. The

measurement must be performed using a signal corresponding to the highest

PAPR expected during periods of continuous transmission.

#### 6.3.1 E.U.T. Operation

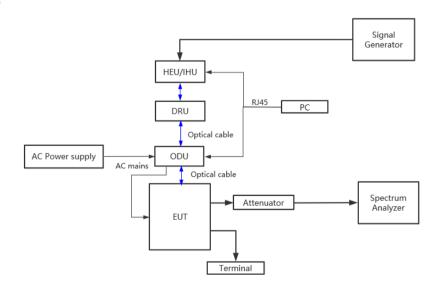
Operating Environment:

Temperature: 24.6 °C Humidity: 59 % RH Atmospheric Pressure: 1020 mbar

Test Mode: Set the EUT to maximum output power and maximum gain.

EUT Configuration: Refer to clause 4.4 in this report.

#### 6.3.2 Test Setup





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="https://www.sgs.com/en/Terms-and-Conditions">https://www.sgs.com/en/Terms-and-Conditions</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) 8307 1443, \*\*Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443,

Attention: To check the authenticity of testing inspection report a certificate, please contact us at telephone. (60-735) 6307 1445, or email: [CN.Doccheck@sgs.com]

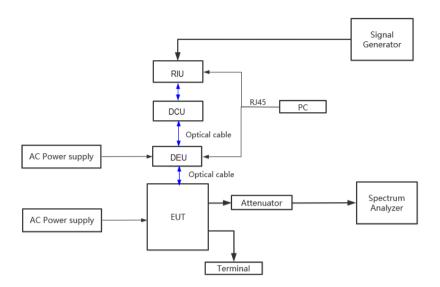
8 Co.Ltd. No.198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663 oralory. 中国・广东・广州高新技术产业开发区科学城科珠路198号 邮编: 510663



EMC-TRF-01 Rev 1.1

Report No.: GZCR231100125802

19 of 27 Page:



#### 6.3.3 Measure Data

Please refer to Appendix-Test Data and Result for report GZCR231100125802



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="https://www.sgs.com/en/Terms-and-Conditions">https://www.sgs.com/en/Terms-and-Conditions</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 Cilent'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@gs.com"

S Co., Ltd. No. 198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663 中国・广东・广州高新技术产业开发区科学城科珠路198号 邮编:510663



EMC-TRF-01 Rev 1.1

Report No.: GZCR231100125802

Page: 20 of 27

### 6.4 Out-of-band/out-of-block (including intermodulation) emissions and spurious

47 CFR Part 27.53(a)(1) Test Requirement:

Test Method: KDB 935210 D05 clause 3.6

Limit: (i) By a factor of not less than 43 + 10 log (P) dB on all frequencies between

> 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, and not less than 75 + 10 log (P)

dB on all frequencies between 2320 and 2345 MHz

(ii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between

2300 and 2305 MHz, 70 + 10 log (P) dB on all frequencies between 2287.5 and

2300 MHz, 72 + 10 log (P) dB on all frequencies between 2285 and 2287.5

MHz, and 75 + 10 log (P) dB below 2285 MHz

(iii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2362.5 MHz, 55 + 10 log (P) dB on all frequencies between 2362.5 and 2365 MHz, 70 + 10 log (P) dB on all frequencies between 2365 and 2367.5

MHz, 72 + 10 log (P) dB on all frequencies between 2367.5 and 2370 MHz, and 75 + 10 log (P) dB above 2370 MHz

(reduce 3.01dB when on 2×2 MIMO mode)

#### 6.4.1 E.U.T. Operation

Operating Environment:

Temperature: Humidity: 59 % RH Atmospheric Pressure: 1020

Test Mode: Set the EUT to maximum output power and maximum gain.

**EUT Configuration:** Refer to clause 4.4 in this 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="https://www.sgs.com/en/Terms-and-Conditions">https://www.sgs.com/en/Terms-and-Conditions</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) 8307 1443.

\*\*Attention: To check the authenticity of testing /inspection report & certificate. please contact us at telephone: (86-755) 8307 1443.

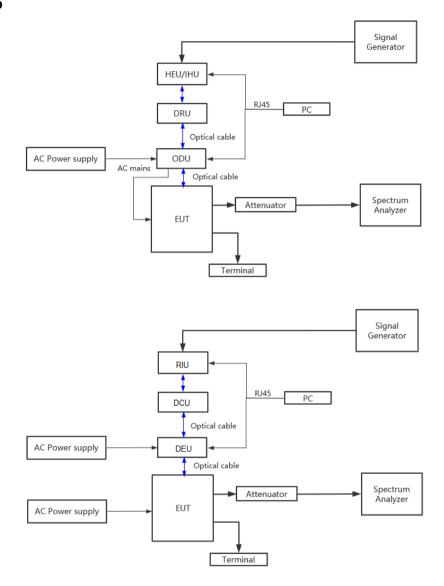


EMC-TRF-01 Rev 1.1

Report No.: GZCR231100125802

21 of 27 Page:

#### 6.4.2 Test Setup



#### 6.4.3 Measurement Record

Please refer to Appendix-Test Data and Result for report GZCR231100125802



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="https://www.sgs.com/en/Terms-and-Conditions">https://www.sgs.com/en/Terms-and-Conditions</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 Cilent'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@gs.com"

s Co., Ltd. No. 198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663 中国・广东・广州高新技术产业开发区科学城科珠路198号 邮编:510663



EMC-TRF-01 Rev 1.1

Report No.: GZCR231100125802

Page: 22 of 27

### 6.5 Frequency stability

Test Requirement: 47 CFR Part 27.54
Test Method: 47 CFR Part 2.1055

KDB 935210 D05 clause 3.7 ANSI C63.26-2015 clause 5.6

Limit: The frequency stability shall be sufficient to ensure that the fundamental

emissions stay within the authorized bands of operation.

#### 6.5.1 E.U.T. Operation

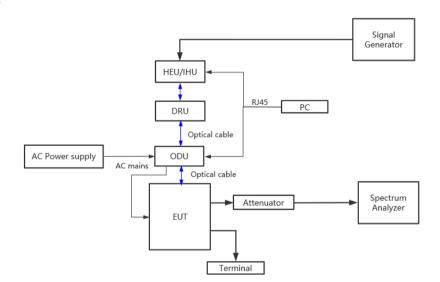
Operating Environment:

Temperature: 24.6 °C Humidity: 59 % RH Atmospheric Pressure: 1020 mbar

Test Mode: Set the EUT to maximum output power and maximum gain.

EUT Configuration: Refer to clause 4.4 in this report.

#### 6.5.2 Test Setup





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="https://www.sgs.com/en/Terms-and-Conditions">https://www.sgs.com/en/Terms-and-Conditions</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) 8307 1443.

\*\*Attention: To check the authenticity of testing /inspection report & certificate. please contact us at telephone: (86-755) 8307 1443.

Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: <u>CN.Doccheck@sss.com</u>

[5] No.198. Kezyl Rod. Ścienec (ib; Economic & Technological Development Area. Guanozhou. Guanodono. China 510663 t (86-20) 82155555 www.sqsgroup.com.cn

6 Co.Ltd. No.198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663 oralory. 中国・广东・广州高新技术产业开发区科学城科珠路198号 邮编: 510663

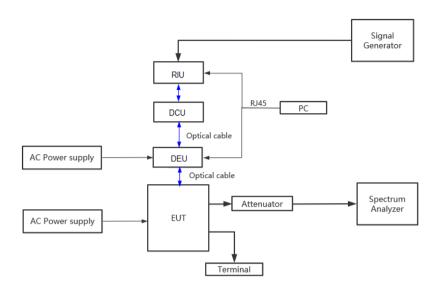
t (86–20) 82155555 sgs.china@sgs.com



EMC-TRF-01 Rev 1.1

Report No.: GZCR231100125802

23 of 27 Page:



#### 6.5.3 Measure Data

Please refer to Appendix-Test Data and Result for report GZCR231100125802



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="https://www.sgs.com/en/Terms-and-Conditions">https://www.sgs.com/en/Terms-and-Conditions</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 Cilent'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@gs.com"

s Co., Ltd. No. 198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663 中国・广东・广州高新技术产业开发区科学城科珠路198号 邮编:510663



EMC-TRF-01 Rev 1.1

Report No.: GZCR231100125802

Page: 24 of 27

### 6.6 Radiated spurious emission

Test Requirement: 47 CFR Part 27.53(a)

Test Method: KDB 935210 D05 clause 3.8

ANSI C63.26-2015 clause 5.6

Limit: (i) By a factor of not less than 43 + 10 log (P) dB on all frequencies between

2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, and not less than  $75 + 10 \log (P)$ 

dB on all frequencies between 2320 and 2345 MHz

(ii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 70 + 10 log (P) dB on all frequencies between 2287.5 and 2300 MHz, 72 + 10 log (P) dB on all frequencies between 2285 and 2287.5

MHz, and 75 + 10 log (P) dB below 2285 MHz

(iii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2362.5 MHz,  $55 + 10 \log (P)$  dB on all frequencies between 2362.5 and 2365 MHz,  $70 + 10 \log (P)$  dB on all frequencies between 2365 and 2367.5 MHz,  $72 + 10 \log (P)$  dB on all frequencies between 2367.5 and 2370 MHz, and

75 + 10 log (P) dB above 2370 MHz

### 6.6.1 E.U.T. Operation

Operating Environment:

Temperature: 25.1 °C Humidity: 59 % RH Atmospheric Pressure: 1010 mbar

Test Mode: Set the EUT to maximum output power and maximum gain (activate MIMO mode

simultaneously).



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="https://www.sgs.com/en/Terms-and-Conditions">https://www.sgs.com/en/Terms-and-Conditions</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) 8307 1443, \*\*Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443,

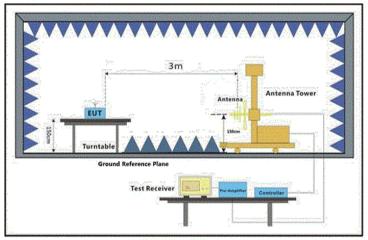


EMC-TRF-01 Rev 1.1

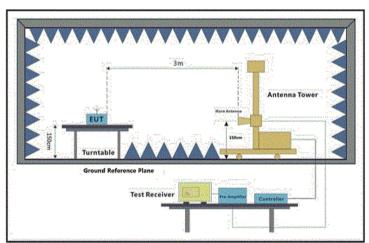
Report No.: GZCR231100125802

Page: 25 of 27

#### 6.6.2 Test Setup



30MHz-1GHz



Above 1GHz



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="https://www.sgs.com/en/Terms-and-Conditions">https://www.sgs.com/en/Terms-and-Conditions</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) 8307 1443, or email: CN\_Doccheck@gs.com"

es Co., Ltd. No. 198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663 中国・广东・广州高新技术产业开发区科学城科珠路198号 邮编:510663

t (86-20) 82155555 www.sgsgroup.com.cn sgs.china@sgs.com t (86-20) 82155555



EMC-TRF-01 Rev 1.1 Report No.: GZCR231100125802

Page: 26 of 27

#### 6.6.3 Test procedure

- 1. Scan from 30MHz to 12.75GHz, find the maximum radiation frequency to measure.
- 2. The technique used to find the Spurious Emissions of the transmitter was the antenna substitution method. Substitution method was performed to determine the actual ERP/EIRP emission levels of the EUT.

Below 1GHz test procedure as below:

- 1) The EUT was powered on and placed on a table in the chamber. The antenna of the transmitter was extended to its maximum length. modulation mode and the measuring receiver shall be tuned to the frequency of the transmitter under test.
- 2) Rotating through 360° the turntable. After the fundamental emission was maximized, a field strength measurement was made.
- 3) Steps 1) and 2) were performed with the EUT and the receive antenna in both vertical and horizontal polarization.
- 4) The transmitter was then removed and replaced with another antenna. The center of the antenna was approximately at the same location as the center of the transmitter.
- 5) A signal at the disturbance was fed to the substitution antenna by means of a non-radiating cable. With both the substitution and the receive antennas horizontally polarized, the receive antenna was raised and lowered to obtain a maximum reading at the test receiver. The level of the signal generator was adjusted until the measured field strength level in step 2) is obtained for this set of conditions.
- 6) The output power into the substitution antenna was then measured.
- 7) Steps 5) and 6) were repeated with both antennas vertically polarized.
- 8) Calculate power in dBm by the following formula:

Level (dBm) = Read Level (dBm) + Correction Factor (dB)

Above 1GHz test procedure as below:

- 1) Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber.
- 2) Calculate power in dBm by the following formula:

Level (dBm) = Read Level (dBm) + Correction Factor (dB)

#### 6.6.4 Measure Data

Please refer to Appendix-Test Data and Result for report GZCR231100125802



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="https://www.sgs.com/en/Terms-and-Conditions">https://www.sgs.com/en/Terms-and-Conditions</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) 8307 1443, \*\*Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443,



EMC-TRF-01 Rev 1.1 Report No.: GZCR231100125802

> 27 of 27 Page:

#### 7 **Test Setup Photographs**

Refer to Appendix - Test Setup Photos for GZCR2311001258AT.

#### **EUT Constructional Details (EUT Photos)** 8

Refer to Appendix - External and Internal Photos for GZCR2311001258AT

--Report End--



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="https://www.sgs.com/en/Terms-and-Conditions">https://www.sgs.com/en/Terms-and-Conditions</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 Cilent'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@gs.com"

s Co., Ltd. No. 198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663 中国・广东・广州高新技术产业开发区科学城科珠路198号 邮编:510663

t (86-20) 82155555

t (86-20) 82155555 www.sgsgroup.com.cn sgs.china@sgs.com