

TEST REPORT

Application No.: KSEM2107001223CR
Applicant: Corning Optical Communications LLC
Address of Applicant: 6 Concord Road, Shrewsbury, MA 01545 United States
Manufacturer: Corning Optical Communications LLC
Address of Manufacturer: 6 Concord Road, Shrewsbury, MA 01545 United States
Factory: Sunwave Communications Co., Ltd
Address of Factory: 581 Houju Avenue, Binjiang District, Hangzhou, China
Equipment Under Test (EUT):
EUT Name: Remote Unit H2RU-OD-2
Model No.: E62-H2
Trade mark: CORNING
FCC ID: OJFE62-HP-7F
Standard(s) : FCC Rules 47 CFR §2.1091
 KDB447498 D01 General RF Exposure Guidance v06
Date of Receipt: 2021-08-08
Date of Test: 2021-08-18 to 2021-10-19
Date of Issue: 2021-10-19

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

Eric Lin
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.



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Revision Record			
Version	Description	Date	Remark
00	Original	2021-10-19	/

Authorized for issue by:			
		<i>Damon Zhou</i>	
		Damon Zhou / Project Engineer	
		<i>Eric Lin</i>	
		Eric Lin / Reviewer	



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3 General Information

3.1 Details of E.U.T.

Product Name:	Remote Unit H2RU-OD-2
Model No.:	E62-H2
Trade Mark:	CORNING
Power Supply:	AC 100~240V 50/60Hz or DC 48V 6.5A
Test Voltage	AC 120V/60Hz
Rated power:	250W
Type of Modulation	LTE
Frequency Band:	Band 12: Downlink 729MHz to 746MHz; Band 13: Downlink 746MHz to 756MHz; Band 14: Downlink 758MHz to 768MHz;
Normal Output Power:	43 ± 2dBm (downlink) for Band 12 & 13 21.6 ± 2dBm (downlink) for Band 14
System Gain:	43 ± 3dB for Band 12 & 13 21 ± 3dBm (downlink) for Band 14
Power Control Method:	ALC
Antenna Type:	External Antenna
Antenna Gain:	Max Antenna Gain 12.5dBi(Provided by manufacturer)

Note:

The antenna gain value is provided by the customer. The test lab will not be responsible for wrong test result due to incorrect information about antenna gain values.



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3.2 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.

3.3 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 (ISED) Canada 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, C-11707, T-11499, G-10216 respectively.

3.4 Deviation from Standards

None

3.5 Abnormalities from Standard Conditions

None



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4 Test Standards and Limits

4.1 FCC Radiofrequency radiation exposure limits:

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b)

Table 1 - Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(i) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*(100)	≤6
3.0-30	1842/f	4.89/f	*(900/f ²)	<6
30-300	61.4	0.163	1.0	<6
300-1,500			f/300	<6
1,500-100,000			5	<6
(ii) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	<30
1.34-30	824/f	2.19/f	*(180/f ²)	<30
30-300	27.5	0.073	0.2	<30
300-1,500			f/1500	<30
1,500-100,000			1.0	<30

f = frequency in MHz. * = Plane-wave equivalent power density.

Friis Formula

Friis transmission formula: $Pd = (Pout * G) / (4 * \pi * R^2)$

Where

Pd = power density in mW/cm²

Pout = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

Pd is the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.



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5 Measurement and Calculation

5.1 Maximum transmit power

The Power Data is based on the RF Test Report KSEM210700122301.

Band Information	Antenna Gain (dBi)	Max E.I.R.P (dBm)	Max E.I.R.P (mW)
LTE Band 12	12.5	45.53	35727.28
LTE Band 13	12.5	45.37	34434.99

Band Information	Antenna Gain (dBi)	Max E.R.P (dBm)	Max E.R.P (mW)
LTE Band 14	12.5	36.96	4965.92

5.2 MPE Calculation

Test Mode	Frequency Band (MHz)	Antenna Gain (dBi)	Max Output Power (dBm)	Max Tune-up tolerance power (dBm)	Max Tune-up tolerance power (mW)	Power Density at R = 430 cm (mW/cm ²)	Power Density Limit S(mW/cm ²)
LTE Band 12	729 - 746	12.5	45.53	48	63095.73	0.4829	0.486
LTE Band 13	746 - 756	12.5	45.37	48	63095.73	0.4829	0.497
LTE Band 14	758 - 768	12.5	45.36	26.6	457.09	0.0035	0.505

Note: Refer to Tune Up Procedure document for EUT Max Conducted Peak Output Power value.

The distancer (9th column) calculated from the Fries transmission formula is far greater than 430 cm separation requirement.

So the limit of LTE Band 12 is $729/1500 = 0.486$ mW/cm²;

LTE Band 13 is $746/1500 = 0.497$ mW/cm²;

LTE Band 14 is $758/1500 = 0.505$ mW/cm²;

The EUT cannot transmit simultaneously. To satisfy RF exposure requirements, a separation distance of 430cm or more should be maintained between this device and persons during device operation. To ensure compliance, operations at closer than this distance is not recommended.

--End of the Report--



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