TEST REPORT

Application No.:	GZEM1905012601CR
Applicant:	NINGBO DEYE INVERTER TECHNOLOGY Co.,LTD
Address of Applicant:	No.26, YongJiang Road, Beilun, NingBo, 315806, China
Manufacturer:	NINGBO DEYE INVERTER TECHNOLOGY Co.,LTD
Address of Manufacturer:	No.26,YongJiang Road,Beilun,NingBo,315806,China
Factory:	NINGBO DEYE INVERTER TECHNOLOGY Co.,LTD
Address of Factory:	No.26,YongJiang Road,Beilun,NingBo,315806,China
Equipment Under Test (EUT):	
EUT Name:	Grid Support Utility Interactive (Hybrid inverter)
Model No.:	SUN-8K-SG01LP1-US, SUN-8K-SG01LP1-US-B, SUN-7.6K-SG01LP1-US, SUN-7.6K-SG01LP1-US-B, SUN-5K-SG01LP1-US, SUN-5K-SG01LP1-US-B ¤
¤	Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Trade Mark:	NeoVolta
Standard(s):	47 CFR Part 1.1307, Part 1.1310
Date of Receipt:	2018-12-19
Date of Test:	2019-01-30 to 2019-02-14
Date of Issue:	2020-02-18 (for original report GZEM180900012202) 2020-04-25 (for co-license report GZEM180900012202C01)

Test Result:	**Pass**

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

Kobe Jian
EMC Laboratory Manager

SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch Testing Center EEC Laboratory.

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Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2020-02-18		Original
02		2020-04-25		Co-license report: changed applicant & address of applicant, model name and trade mark.

Authorized for issue by:				
Tested By		 **Curry Wu /Project Engineer**		2019-01-30 to 2019-02-14 **Date**
Checked By		 **Ricky Liu /Reviewer**		2020-04-25 **Date**

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2 Test Summary

Radio Spectrum Technical Requirement				
Item	**Standard**	**Method**	**Requirement**	**Result**
RF Exposure	47 CFR Part 1.1307, Part 1.1310	CFR 47 Part 1.1310	CFR 47 Part 1.1310	Pass

¤ Declaration of EUT Family Grouping:

Remark for original report GZEM180900012202

Model No.: NV8000, NV7600, NV5000

According to the declaration from the applicant, the electrical circuit design, layout, components used and internal wiring were identical for all models, with only difference on the model name.

Therefore only one model **NV8000** was tested in this report.

Remark for Co-license report GZEM180900012202C01

This report GZEM180900012202C01 was a supplement report based on original report GZEM180900012202, only changed applicant & address of applicant, model name, trade mark.

According to the declaration from the applicant, the models SUN-8K-SG01LP1-US, SUN-8K-SG01LP1-US-B, SUN-7.6K-SG01LP1-US, SUN-7.6K-SG01LP1-US-B, SUN-5K-SG01LP1-US, SUN-5K-SG01LP1-US-B in this report and the model in original report were identical, only difference being the instruction manual, marking plate and packaging.

Therefore, original report data were kept in this report GZEM180900012202C01.

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4 General Information

4.1 Details of E.U.T.

Test Voltage:	Input DC 50V
	Output AC 120V 60Hz
Antenna Gain	0dBi
Antenna Type	Dedicated antenna
Channel Spacing	5MHz
Modulation Type	802.11b: DSSS (CCK, DQPSK, DBPSK)
	802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Number of Channels	802.11b/g/n(HT20):11
	802.11n(HT40):7
Operation Frequency	802.11b/g/n(HT20): 2412MHz to 2462MHz
	802.11n(HT40): 2422MHz to 2452MHz

4.2 Description of Support Units

The EUT has been tested as an independent unit.

4.3 Measurement Uncertainty

RF

No.	Item	Measurement Uncertainty
1	Radio Frequency	±5.5 x 10^{-8}
2	Duty cycle	±0.57%
3	Occupied Bandwidth	±3%
4	RF Conducted power	±0.68dB
5	RF Power Density	±1.50dB
6	Conducted Spurious Emissions	±1.04dB
7	RF Radiated Power	±4.5dB (below 1GHz)
		±4.8dB (above 1GHz)
8	Radiated Spurious Emission Test	±4.5dB (30MHz-1GHz)
		±4.8dB (1GHz-18GHz)
9	Temperature	±0.4℃
10	Humidity	±1.3%
11	Supply Voltages	±1.5%
12	Time	±3%

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4.4 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

No tests were sub-contracted.

4.5 Test Facility

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

- **NVLAP (Lab Code: 200611-0)**

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

- **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.

- **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.

- **CNAS (Lab Code: L0167)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2018 accreditation criteria for testing laboratories (identical to

ISO/IEC 17025:2017 General Requirements) for the Competence of Testing Laboratories.

- **FCC Recognized 2.948 Listed Test Firm(Registration No.: 282399)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 282399, May 31, 2002.

- **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, Jul 13, 2017.

- **Industry Canada (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-10449 and T-11179)**

The 10m Semi-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-10449 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 17025:2005, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

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4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

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5 Radio Spectrum Technical Requirement

5.1 RF Exposure

5.1.1 Test Requirement:

CFR 47 Part 1.1310

Limit:

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)
(A) 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
(B) 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				

According to IEEE C95.3:2002 section 5.5.1.1, The power density S at a point on the axis at a distance d from a transmitting antenna is given by the Friis free-space transmission formula

$$S = \frac{PG}{4\pi d^2}$$

S = power density (mW/cm^2)
P = the net power delivered to the antenna (mW)
G = gain of the antenna in linear scale
d = distance between observation point and center of the radiator (cm)

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5.1.2 Conclusion

Antenna Gain: 0dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.000 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)	Limit	Result
Lowest	2462	23.72	235.505	0.04685	1.0	PASS

Note: Refer to report No. GZEM180900012201 for EUT test Max Conducted Peak Output Power value.

The distance r calculated from the Fries transmission formula is far greater than 20 cm separation requirement.

--End of Report--

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