Appendix 7-7

Manufacturer Sound Level Data Sheets

Acoustic Test Center, Qingdao Branch, Institute of Acoustics, Chinese Academy of Sciences
Test Report

Sample Name	PV Grid-Connected Inverter	**Test Kind**	on-site sample test
Sample Quantity	2	**Model/Type**	SG3600UD-MV
Sample Description	good, without broken	**Receipt Date**	2021-01-27
Sample Number	ATC210014(1-2)	**Test Date**	2021-01-27
Name of Client	Sungrow Power Supply Co., ltd		
Address of Client	No.1699 Xiyou Rd. New & High Technology Industrial Development Zone, Hefei, P.R. China		
Environment for Test	ATC210014(1) Temperature: 18.5℃; Humidity:48.0%RH; Atmosphere pressure: 1020.9hPa ATC210014(2) Temperature: 11.6℃; Humidity:71.0%RH; Atmosphere pressure: 1022.8hPa		
Test Standard	ISO 3746:2010 Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Survey method using an enveloping measurement surface over a reflecting plane		
Test Item	Sound power level		
Location of Test	ATC210014(1) No. 3318, Lianhua Road, Hefei Economic and Technological Development Zone, Anhui Province P.R. China ATC210014(2) No.1699 Xiyou Rd. New & High Technology Industrial Development Zone, Hefei, P.R. China		
Test Conclusion	See Test Result （test seal）		
Note	\		

Approval: **Verification：** **Chief tester：**

Date： **Date：** **Date：**

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Test Report (Continuation Sheet)

Test Condition

1. The PV Grid-Connected Inverter (SG3600UD-MV) is combined by inverter and transformer, sample ATC210014(1) is the transformer，and sample ATC210014(2) is the inverter, they are measured separately;

2. Reference box of the transformer: l_1=2000, l_2=1940mm, l_3=2600mm, and the measurement distance d=1300mm, 12 microphone positions are used as shown in Fig.1 according to Annex C in the ISO 3746-2010, and the measurement surface area S_1 = 92.2m^2;

3. The Transformer is test in a silent room, and its low voltage side was connected to 660V-60Hz power supply(transformer is in no-load state);

4. Reference box of the inverter: l_1=2200mm, l_2=1500mm, l_3=2400mm, the measurement distance d=1300mm, 12 microphone positions are used as shown in Fig.2 according to Annex C in the ISO 3746-2010, and the measurement surface area S_2 = 85.5m^2;

5. The inverter is test in a industrial room and is set to the full load state ;

6. Each microphone position is tested for 30s;

7. The main equipment for testing is shown in Table 1;

8. The microphone was field calibrated before and after the measurements to verify accuracy of the measurements.

Table 1 Main equipment for test

Name	Type\Serial Number	Validity
Sound Calibrator	B&K Type 4231\2725159	2021-09-01
Data Acquisition System	B&K Type 3050-A-060\3050-105837	2021-09-02
Microphone	GRAS 46AE\270180	2021-09-01
Microphone	GRAS 46AE\270292	2021-09-01
Microphone	GRAS 46AE\270293	2021-09-01
Microphone	GRAS 46AE\270299	2021-09-01

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Test Report (Continuation Sheet)

Test Result

Table 2 Calculated Transformer Sound Power Level for 1/1 Octave Bands

Item	Sound Levels at Octave Band Center Frequencies (dB)									Overall Sound Power	
	31.5	63	125	250	500	1000	2000	4000	8000	(dBA)	(dB)
Transformer	67.8	60.5	70.3	72.4	63.5	55.8	43.1	34.1	29.3	65.8	74.5

Table 3: Calculated Transformer Sound Power Level for 1/3 Octave Bands

1/3 Octave Band Center Frequencies/Hz	Sound Power level/dB	1/3 Octave Band Center Frequencies/Hz	Sound Power level/dB
20	62.4	**500**	58.9
25	66.7	**630**	55.7
31.5	60.3	**800**	54.2
40	55.9	**1000**	48.8
50	57.4	**1250**	45.2
63	55.3	**1600**	41.5
80	53.7	**2000**	37.6
100	58.1	**2500**	33.7
125	70.3	**3150**	30.9
160	55.3	**4000**	28.8
200	57.1	**5000**	27.6
250	72.1	**6300**	26.3
315	56.7	**8000**	23.9
400	59.6	**10000**	22.6

Note: The underlined data represent upper bounds to the sound power level of the noise source under test.

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Acoustic Test Center, Qingdao Branch, Institute of Acoustics, Chinese Academy of Sciences
Test Report (Continuation Sheet)

Test Result

Table 4 Calculated Inverter Sound Power Level for 1/1 Octave Bands

Item	Sound Levels at Octave Band Center Frequencies (dB)									Overall Sound Power	
	31.5	63	125	250	500	1000	2000	4000	8000	(dBA)	(dB)
Inverter	85.5	85.3	86.6	85.9	90.1	81.0	80.3	88.1	80.6	91.9	95.7

Table 5 Calculated Inverter Sound Power Level for 1/3 Octave Bands

1/3 Octave Band Center Frequencies/Hz	Sound Power level/dB	1/3 Octave Band Center Frequencies/Hz	Sound Power level/dB
20	70.2	**500**	85.6
25	76.2	**630**	80.6
31.5	81.3	**800**	78.2
40	82.4	**1000**	76.0
50	81.6	**1250**	74.2
63	80.4	**1600**	74.5
80	79.2	**2000**	75.0
100	80.2	**2500**	76.4
125	84.0	**3150**	74.9
160	79.6	**4000**	70.7
200	77.5	**5000**	87.6
250	80.8	**6300**	80.2
315	83.4	**8000**	73.9
400	87.0	**10000**	73.1

Note: Because the sound power of inverter is much larger than the value of the transformer, so the total noise of the transformer and the inverter in the test state is the value of the inverter.

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Test Report (Continuation Sheet)

Photos on Site

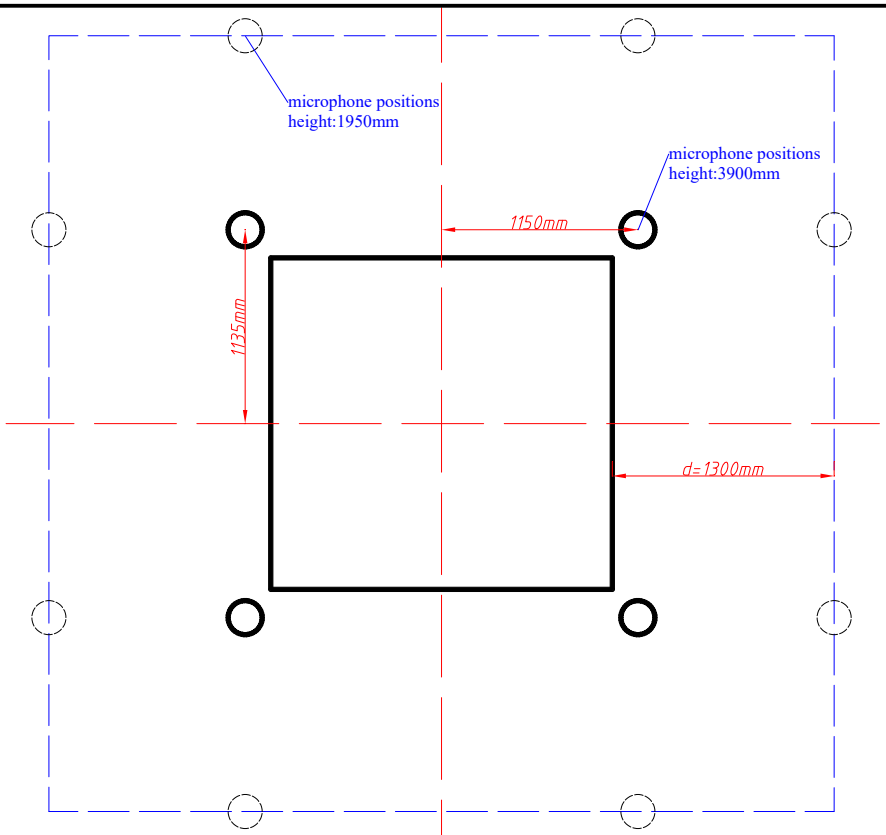

Figure 1 microphone positions of the transformer

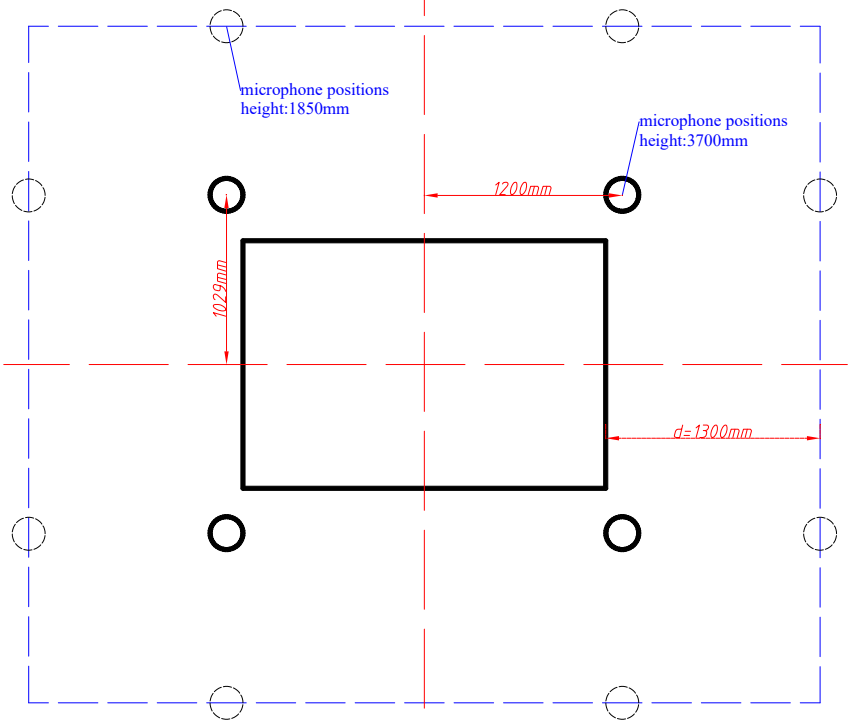

Figure 2 microphone positions of the inverter

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Photos on Site

Figure 3 Image of the tansformer under test

Figure 4 Image of the inverter under test

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