Appendix 7-7

Manufacturer Sound Level Data Sheets

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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., lt	d						
Address of Client	No.1699 Xiyou Rd. New & I Hefei, P.R. China	High Technology Industr	rial Development Zone,					
Environment for Test	ATC210014(1) Temperature: 18.5°C; Humidity:48.0%RH; Atmosphere pressure: 1020.9hPa ATC210014(2) Temperature: 11.6°C; 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 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 = 92.2m²;
- 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 = 85.5m²;
- 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 Result											
Table 2 Calculated Transformer Sound Power Level for 1/1 Octave Bands											
Itaana	So	Sound Levels at Octave Band Center Frequencies (dB) Overall Sound Power									
Item	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

Table 3: Calculated	Transformer Sound	Power Level for 1	//3 Octave Band
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	<u>55.9</u>	1000	48.8
50	<u>57.4</u>	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	<u>55.3</u>	4000	28.8
200	<u>57.1</u>	5000	<u>27.6</u>
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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Test Result

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

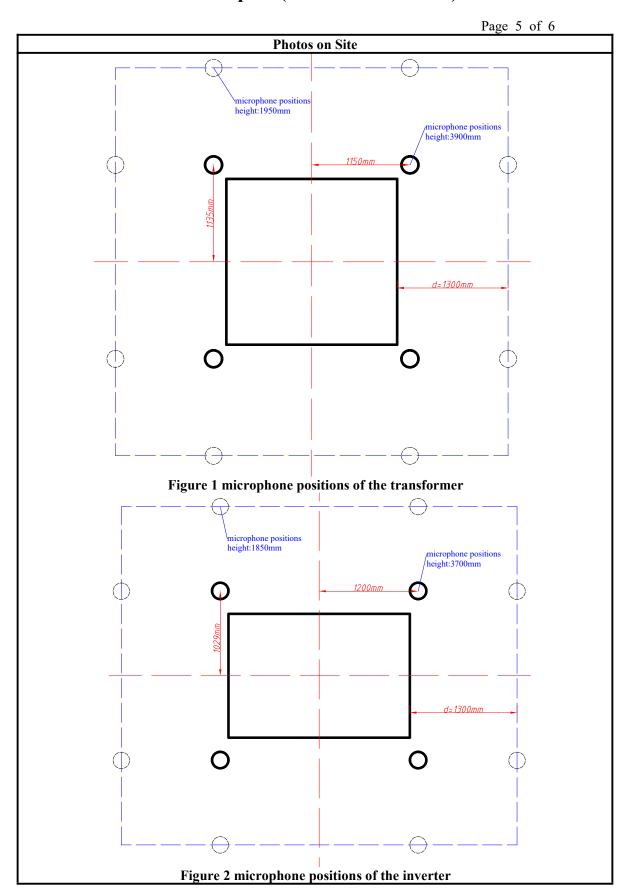
Sound Levels at Octave Band Center Frequencies (dB) Item									Overall Sound Power		
item	31.5	63	125	250	500	1000	2000	4000	8000	(dBA)	(dB)
Inverter	85.5	85.3	86.6	85.9	90.1	81.0	80.3	88.1	80.6	91.9	95.7

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

1/3 Octave Band Center Frequencies/Hz	Sound Power level/dB	Rand Cantar			
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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Figure 3 Image of the tansformer under test



gare : image of the inverter

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