

Acoustic Emission for AM0

SG 6.6-170, Rev. 0

Document ID and revision	Status	Date (yyyy-mm-dd)	Language
D2844532_006	Released	2022-11-18	English

Original or translation of

Original

File name

D2844532_006_Standard Acoustic Emission Document, SG 6.6-170, Rev. 0_AM0.pdf

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1. Acoustic Emission

Typical Sound Power Levels

The sound power levels are presented with reference to the code IEC 61400-11 ed. 3.1 (2018) based on hub height. The sound power levels (L_{WA}) presented are valid for the corresponding wind speeds referenced to the hub height.

Wind speed [m/s]	3	4	5	6	7	8	9	10	11	12	Up to cut-out
AM 0	92.0	92.0	94.5	98.4	101.8	104.7	106.0	106.0	106.0	106.0	106.0

Table 1: Acoustic emission, L_{WA} [dB(A) re 1 pW] (10 Hz to 10 kHz)

Low Noise Operations

The Noise Reduction System is an optional module available with the basic SCADA configuration and it therefore requires the presence of a SGRE SCADA system to work. NRS Modes are noise curtailed modes enabled by the Noise Reduction System. The purpose of this system is to limit the noise emitted by any of the functioning turbines and thereby comply with local regulations regarding noise emissions. Noise reduction settings can be tailored to time of day as well as wind direction to offer the most suitable solution for a specific location.

Noise control is achieved through the optimization of active power and rotational speed of the wind turbine. This reduction is dependent on the wind speed. The Noise Reduction System controls the noise settings of each turbine to the most appropriate level at all times, in order to keep the noise emissions within the limits allowed.

The NRS Modes may not be applicable to all tower variants. Please contact Siemens Gamesa for further information.

Typical Sound Power Frequency Distribution

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Typical spectra for L_{WA} in dB(A) re 1 pW for the corresponding centre frequencies are tabulated below for 6, 7, 8, 9, 10, 11 and 12 m/s referenced to hub height.

Wind speed [m/s]	1/1 octave band center frequencies							
	63	125	250	500	1000	2000	4000	8000
6	79.9	86.7	88.9	89.9	93.1	92.8	88.3	76.5
7	83.3	90.1	92.3	93.3	96.5	96.2	91.7	79.9
8	86.2	93.0	95.2	96.2	99.4	99.1	94.6	82.8
9	86.8	94.7	97.1	96.6	100.0	100.8	96.0	84.8
10	86.8	94.7	97.1	96.6	100.0	100.8	96.0	84.8
11	86.5	93.4	96.1	97.9	101.8	99.9	93.3	83.0
12	86.5	93.4	96.1	97.9	101.8	99.9	93.3	83.0

Table 2: Typical 1/1 octave band spectrum for 63 Hz to 8 kHz for AM 0 setting