

HydroCore 1 MW Air-Cooled Module — Acoustic Basis

16 × AG015DSVAJG/AA on a 52' × 8' skid · all cells at rated cooling

95 dBA

Module sound power, Lw (re 1 pW)
16 cells × 83 dBA → +12 dB
Silent Level 3: 83 dBA (−12 dB, 70% capacity at 95°F and 81% capacity at 80°F)

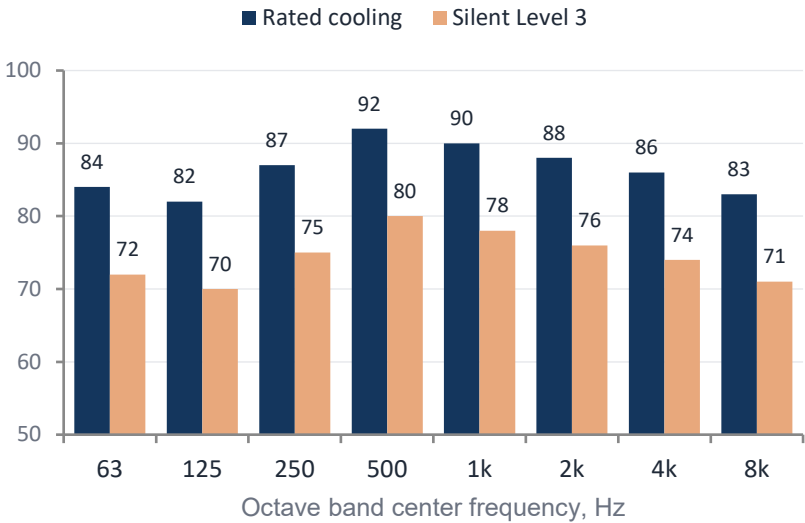
83 dBA

Per cell, Samsung TDB (ISO 3741)
61 dBA SPL @ 1 m front, 1.5 m high

Basis Incoherent sources power-summed at their skid positions; hemispherical spreading over hard ground ($Q = 2$); ISO 9613-2 air absorption at 68°F / 70% RH; no barriers, no directivity credit for vertical fan discharge. Distances measured from the skid centerline (broadside) or from the skid end.

Scaling Each doubling of cells or modules adds 3 dB: an 8-cell skid is 92 dBA / 3 dB lower at every distance; a block of 4 modules is +6 dB. **Turndown** Silent modes 1/2/3 lower SPL by 4/8/12 dB. At 95°F, Levels 1–2 hold full capacity at +27–36% power input; Level 3 gives up 30% capacity at 90% power (TDB p.27). Silent 3 is shown as a night/low-load mitigation case — the design basis remains rated, full-load, all cells on.

Module sound power by octave band, dB



Rated: per-cell spectrum from TDB p.20, scaled +2 dB to Samsung's tabulated 83 dBA; 63 Hz inferred from p.19. Silent 3: rated spectrum less Samsung's tabulated 12 dB reduction (61 → 49 dBA SPL); no part-load Lw is published.

Sound pressure at grade, dBA

Distance	Rated broadside	Rated off end	Silent 3 broadside
25 ft	68	65	56
50 ft	63	60	51
100 ft	57	55	45
200 ft	51	50	39
300 ft	47	46	35
500 ft	42	42	30
1,000 ft	35	35	23

Within ~50 ft the skid behaves as a line source (≈3 dB per doubling); beyond ~200 ft it collapses to a point source (6 dB per doubling) and orientation no longer matters.