

Target Catalogue

Table 1: Full Catalogue of Targets and Metrics

Function	Metric	Target
Sense Air Quality	Concentration range of sensors	Particulate sensors detect between $0.1 \mu\text{g}/\text{m}^3$ and $1000 \mu\text{g}/\text{m}^3$ ^a Gas sensors detect between 0 ppm and 250 ppm ^b
Measure Air Quality	Accuracy of sensors	Particulate sensors: $\pm 15\%$ ^a Gas sensors: $\pm 3\%$ ^b
Activate Propeller	Reaction time of propeller	6 seconds ^a
Deactivate Propeller	Reaction time of propeller	6 seconds ^a
Modulate Propeller	Reaction time of propeller	6 seconds ^a
Activate Purifier	Reaction time of purifier	6 seconds ^a
Deactivate Purifier	Reaction time of purifier	6 seconds ^a
Modulate Purifier	Reaction time of purifier	6 seconds ^a
Propel Air	Volumetric flowrate of air leaving device per person in room	$40 \text{ ft}^3/\text{min}$ ^c
Circulate Air	Number of air changes per hour	7 ^d
Treat Air	Number of changeable filters needed to clean air	3 filters ^e
Filter Particulates	Minimum diameter of particles the device will filter	$0.1 \mu\text{m}$ ^f
Humidify Air	Allowable range of air humidity	40% to 60% humidity ^g
Dehumidify Air	Allowable range of air humidity	40% to 60% humidity ^g
Sanitize Contaminants	Percent of particulates removed from air by device	99% ^h
Device Portability	Volume of device	Less than 10 ft^3 ⁱ
Device Noise	Noise level	Less than 50 dBA ^j
Energy Consumption	Daily energy consumption of device	80 Watts ^k

Note. Data are from (Honeywell, 2019)^a, (Honeywell, 2012)^b, (Environmental Protection Agency, 1990)^c, (Falke, 2016)^d, (Honeywell, n.d.)^e, (Honeywell, n.d.)^f, (M. Jeremiah Matson, 2020)^g, (Sylvane, n.d.)^h, (Uline, n.d.)ⁱ, (World Health Organization, n.d.)^j, (Blueair, n.d.)^k.

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