

# DIN EN 12102-1:2018-02 (E)

**Air conditioners, liquid chilling packages, heat pumps, process chillers and dehumidifiers with electrically driven compressors - Determination of the sound power level - Part 1: Air conditioners, liquid chilling packages, heat pumps for space heating and cooling, dehumidifiers and process chillers**

---

<b>Contents</b>		<b>Page</b>
European foreword .....		4
Introduction .....		5
1	Scope .....	7
2	Normative references .....	7
3	Terms, definitions and symbols .....	8
3.1	Terms and definitions .....	8
3.2	Symbols, subscripts and units .....	9
3.2.1	General .....	9
3.2.2	Non ducted units .....	9
3.2.3	Ducted units .....	9
4	Measuring instruments .....	10
5	Operation of the unit .....	11
6	Installation of the unit .....	12
6.1	General .....	12
6.2	Ducted units .....	13
6.2.1	Installation .....	13
6.2.2	Duct end correction .....	14
6.2.3	Bend correction .....	15
6.2.4	Pressure and airflow measurements .....	15
6.2.5	Casing radiated test .....	16
6.3	Wall mounted units .....	16
6.4	Ceiling mounted units .....	16
6.5	Window-type units .....	16
6.6	Multisplit systems .....	16
6.7	Single duct units .....	17
6.7.1	Noise radiated by the casing .....	17
6.7.2	Noise from duct outlet .....	17
7	Acoustic measurement methods .....	17
7.1	Frequency range .....	17
7.2	Method selection .....	17
7.2.1	General .....	17
7.2.2	Target of measurement .....	18
7.3	Diffuse field methods .....	18
7.3.1	General .....	18
7.3.2	Non ducted units .....	18
7.3.3	Ducted units .....	19
7.4	Installation of the free field over a reflecting plane method .....	20
7.4.1	General .....	20
7.4.2	Reference surface .....	20
7.4.3	Measuring surface .....	20

<b>8</b>	<b>Uncertainty of measurement results .....</b>	<b>22</b>
<b>9</b>	<b>Test report .....</b>	<b>22</b>
<b>9.1</b>	<b>General .....</b>	<b>22</b>
<b>9.2</b>	<b>Unit specification .....</b>	<b>22</b>
<b>9.3</b>	<b>Operating conditions, installation and environmental conditions .....</b>	<b>23</b>
<b>9.4</b>	<b>Measurement instruments .....</b>	<b>23</b>
<b>9.5</b>	<b>Measured values and results .....</b>	<b>23</b>
	<b>Annex A (normative) Specific measurement for variable speed units .....</b>	<b>25</b>
<b>A.1</b>	<b>General requirements .....</b>	<b>25</b>
<b>A.2</b>	<b>Test mode .....</b>	<b>25</b>
<b>A.3</b>	<b>Measurements process .....</b>	<b>25</b>
<b>A.4</b>	<b>Additional requirements applying to Ecodesign and Energy labelling regulations .....</b>	<b>25</b>
	<b>Annex B (informative) Typical configurations of air conditioners and heat pumps .....</b>	<b>26</b>
<b>B.1</b>	<b>General .....</b>	<b>26</b>
<b>B.2</b>	<b>Air-to-air units .....</b>	<b>26</b>
<b>B.3</b>	<b>Air-to-water(brine) units .....</b>	<b>28</b>
<b>B.4</b>	<b>Water(brine)-to-water(brine) units .....</b>	<b>29</b>
<b>B.5</b>	<b>Water(brine)-to-air units .....</b>	<b>30</b>
	<b>Annex ZA (informative) Relationship between this European Standard and the ecodesign requirements of Commission Regulation (EU) No 206/2012 aimed to be covered .....</b>	<b>31</b>
	<b>Annex ZB (informative) Relationship between this European Standard and the energy labelling requirements of Commission Delegated Regulation (EU) No 626/2011 aimed to be covered .....</b>	<b>32</b>
	<b>Annex ZC (informative) Relationship between this European Standard and the ecodesign requirements of Commission Regulation (EU) No 813/2013 aimed to be covered .....</b>	<b>33</b>
	<b>Annex ZD (informative) Relationship between this European Standard and the energy labelling requirements of Commission Regulation (EU) No 811/2013 aimed to be covered .....</b>	<b>34</b>
	<b>Bibliography .....</b>	<b>35</b>