

TABLE 2: USE ONE TABLE FOR EACH ASSESSMENT POSITION TESTED

Date calculation undertaken: Note: for the purposes of this calculation procedure • Assessment position means a position one metre external to the centre point of any door or window to a habitable room of a neighbouring property as measured perpendicular to the plane of the door or window • Habitable room means a room other than a bathroom, shower room, water closet or kitchen • Neighbouring property. Means any building used for any of the purposes of Class C of the Town and Country Planning (Use Classes) Order 1987 (as amended) (includes dwellings, houses, hotels, residential institutions and houses in multiple occupation) In instances where the air source heat pump would be installed on block of flats, neighbouring property includes flats within the same block of flats (excluding the flat of the "owner(s)" of the air source heat pump	
Description of assessment position tested Areas and windows to the rear of 213 Halifax road, Rochdale and its direct neighbour	

Assessment criterion 1
Ground floor rear window of N0 213 Halifax road Rochdale kitchen assumed habitable

Equipment for assessment
Manufacturer- Samsung
Model -Mono HT Quiet Outdoor
Capacity -12KW
Total cubic capacity 0.64m³ (over PD allowances by .04m³)



Step	Instructions	MCS contractor results/ notes
1	From manufacturer's data, obtain the A-weighted sound power level of the heat pump. See 'Note 1: Sound <u>power</u> level'. The highest sound power level specified should be used (the power in "low noise mode" should not be used). <i>Example. Manufacturer's data states the sound power level of the heat pump is 55 dB(A)</i>	STEP 1 RESULT= 59 dBA
2.	Use 'Note 2: Sound pressure level' and 'Note 3: Determination of directivity:ii' below to establish the directivity 'Q' of the heat pump noise. <i>Example. The heat pump is to be installed on the ground and against a single wall hence the directivity (Q) of the heat pump noise is Q4</i>	STEP 2 RESULT= 46 dBA
3.	Measure the distance from the heat pump to the assessment position in metres. <i>Example. Distance between heat pump and assessment position is 4 metres.</i>	STEP 3 RESULT= 10.5m
4.	Use table in 'Note 4: dB distance reduction' below to obtain a dB reduction. <i>Example. 4metres@ Q4 = -17 db.</i>	STEP 4 RESULT= Q4 = both ground and vertical reflectant surface Reduction = -25

5	Establish whether there is a solid barrier between the heat pump and the assessment position using 'Note 5: Barriers between the heat i;1umi;1 and the assessment i;1osition' and note any dB reduction. <i>Example. There is a brick wall between the heat pump and the assessment position Moving less than 25cm enables the assessment position to be seen dB reduction = -5 dB</i>	STEP 5 RESULT= a solid barrier exists between the heat pump and the target fenestration New extension, solid fence, single storey extension to neighbour the target fenestration is visible moving moving more than 25cm thus a reduction of -10 dB
6	Calculate the sound pressure level (see 'Note 2: Sound i;1ressure level') from the heat pump at the assessment position using the following calculation: (STEP 1) + (STEP 4) + (STEP 5) <i>Example (55) + (-17) + (-5)=55 -17- 5=33 dB(A) Lp</i>	STEP 6 RESULT= 59-25-10= 24dB(A) Lp
7.	Background noise level. For the purposes of the MCS Planning Standard for air source heat pumps the background noise level is assumed to be 40 dB(A) Lp. For information see 'Note 6: MCS Planning Standard for air source heat i;1umi;1s background noise level'. <i>Example. Background noise level is 40 dB(A)</i>	STEP 7 RESULT= 40 dB(A)
8.	Determine the difference between STEP 7 background noise level and the heat pump noise level using the following calculation: (STEP 7) - (STEP 6)	STEP 8 RESULT= 24 dB(A) at heat pump 40 dB(A) background =16 dB(A)

	<i>Example. 40 dB(A) (background) - 33 dB(A) (heat pump) = 1 dB(A)</i>	
9	Using the table in 'Note 7: Decibel correction' obtain an adjustment figure and then add this to whichever is the higher dB figure from STEP 6 and STEP 7. Round this number <u>up</u> to the nearest whole number.	FINAL RESULT= Adjustment figure is 01 dB and the higher figure is 40 dB(A) $40 + 0.1 = 40.1$ dB(A) Rounded up to 41 dB(A) Final result at this assessment position is 41 dB(A)
10	Is the FINAL RESULT in STEP 9 equal to or lower than the permitted development noise limit of 42.0 dB(A)? If <u>YES</u> - the air source heat pump will comply with the permitted development noise limit for this assessment position and may be permitted development (subject to compliance with other permitted development limitations/conditions and parts of this standard). NOTE - Other assessment <u>positions may</u> also need to be tested. If <u>NO</u> - the air source heat pump will not be permitted development. This installation may still go ahead if planning permission is granted by the local planning authority. <i>Example. 41 dB(A) is equal to or lower than 42.0 dB(A)</i>	Final result is equal to or lower than 42.0 dB(A) YES

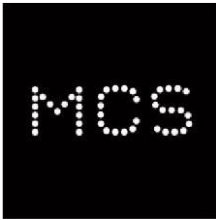


TABLE 2: USE ONE TABLE FOR EACH ASSESSMENT POSITION TESTED

Date calculation undertaken: Note: for the purposes of this calculation procedure • Assessment position means a position one metre external to the centre point of any door or window to a habitable room of a neighbouring property as measured perpendicular to the plane of the door or window • Habitable room means a room other than a bathroom, shower room, water closet or kitchen • Neighbouring property. Means any building used for any of the purposes of Class C of the Town and Country Planning (Use Classes) Order 1987 (as amended) (includes dwellings, houses, hotels, residential institutions and houses in multiple occupation) In instances where the air source heat pump would be installed on block of flats, neighbouring property includes flats within the same block of flats (excluding the flat of the "owner(s)" of the air source heat pump	
Description of assessment position tested Areas and windows to the rear of 213 Halifax road, Rochdale and its direct neighbours	

Assessment criterion 1 First floor rear window of N0 211 Halifax road Rochdale bedroom assumed habitable Equipment for assessment Manufacturer- Samsung Model -Mono HT Quiet Outdoor Capacity -12KW Total cubic capacity 0.64m3 (over PD allowances by .04m3)

Step	Instructions	MCS contractor results/ notes
1	From manufacturer's data, obtain the A-weighted sound power level of the heat pump. See 'Note 1: Sound <u>power</u> level'. The highest sound power level specified should be used (the power in "low noise mode" should not be used). <i>Example. Manufacturer's data states the sound power level of the heat pump is 55 dB(A)</i>	STEP 1 RESULT= 59 dBA
2.	Use 'Note 2: Sound pressure level' and 'Note 3: Determination of directivity:ii' below to establish the directivity 'Q' of the heat pump noise. <i>Example. The heat pump is to be installed on the ground and against a single wall hence the directivity (Q) of the heat pump noise is Q4</i>	STEP 2 RESULT= 46 dBA
3.	Measure the distance from the heat pump to the assessment position in metres. <i>Example. Distance between heat pump and assessment position is 4 metres.</i>	STEP 3 RESULT= 10.5m
4.	Use table in 'Note 4: dB distance reduction' below to obtain a dB reduction. <i>Example. 4metres@ Q4 = -17 db.</i>	STEP 4 RESULT= Q4 = both ground and vertical reflectant surface Reduction = -25

5	Establish whether there is a solid barrier between the heat pump and the assessment position using 'Note 5: Barriers between the heat i;1umi;1 and the assessment i;1osition' and note any dB reduction. <i>Example. There is a brick wall between the heat pump and the assessment position Moving less than 25cm enables the assessment position to be seen dB reduction = -5 dB</i>	STEP 5 RESULT= a solid barrier exists between the heat pump and the target fenestration New extension, solid fence, single storey extension to neighbour the target fenestration is visible moving moving more than 25cm thus a reduction of -10 dB
6	Calculate the sound pressure level (see 'Note 2: Sound i;1ressure level') from the heat pump at the assessment position using the following calculation: (STEP 1) + (STEP 4) + (STEP 5) <i>Example (55) + (-17) + (-5)=55 -17- 5=33 dB(A) Lp</i>	STEP 6 RESULT= 59-25-10= 24dB(A) Lp
7.	Background noise level. For the purposes of the MCS Planning Standard for air source heat pumps the background noise level is assumed to be 40 dB(A) Lp. For information see 'Note 6: MCS Planning Standard for air source heat i;1umi;1s background noise level'. <i>Example. Background noise level is 40 dB(A)</i>	STEP 7 RESULT= 40 dB(A)
8.	Determine the difference between STEP 7 background noise level and the heat pump noise level using the following calculation: (STEP 7) - (STEP 6)	STEP 8 RESULT= 24 dB(A) at heat pump 40 dB(A) background =16 dB(A)

	<i>Example. 40 dB(A) (background) - 33 dB(A) (heat pump) = 1 dB(A)</i>	
9	Using the table in 'Note 7: Decibel correction' obtain an adjustment figure and then add this to whichever is the higher dB figure from STEP 6 and STEP 7. Round this number <u>up</u> to the nearest whole number.	FINAL RESULT= Adjustment figure is 01 dB and the higher figure is 40 dB(A) $40 + 0.1 = 40.1$ dB(A) Rounded up to 41 dB(A) Final result at this assessment position is 41 dB(A)
10	Is the FINAL RESULT in STEP 9 equal to or lower than the permitted development noise limit of 42.0 dB(A)? If <u>YES</u> - the air source heat pump will comply with the permitted development noise limit for this assessment position and may be permitted development (subject to compliance with other permitted development limitations/conditions and parts of this standard). NOTE - Other assessment <u>positions may</u> also need to be tested. If <u>NO</u> - the air source heat pump will not be permitted development. This installation may still go ahead if planning permission is granted by the local planning authority. <i>Example. 41 dB(A) is equal to or lower than 42.0 dB(A)</i>	Final result is equal to or lower than 42.0 dB(A) YES

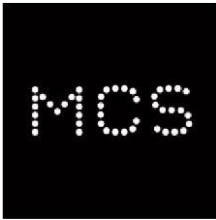


TABLE 2: USE ONE TABLE FOR EACH ASSESSMENT POSITION TESTED

Date calculation undertaken: Note: for the purposes of this calculation procedure • Assessment position means a position one metre external to the centre point of any door or window to a habitable room of a neighbouring property as measured perpendicular to the plane of the door or window • Habitable room means a room other than a bathroom, shower room, water closet or kitchen • Neighbouring property. Means any building used for any of the purposes of Class C of the Town and Country Planning (Use Classes) Order 1987 (as amended) (includes dwellings, houses, hotels, residential institutions and houses in multiple occupation) In instances where the air source heat pump would be installed on block of flats, neighbouring property includes flats within the same block of flats (excluding the flat of the "owner(s)" of the air source heat pump	
Description of assessment position tested Areas and windows to the rear of 213 Halifax road, Rochdale and its direct neighbours	

Assessment criterion 1 Ground floor proposed rear window of N0 213 Halifax road Rochdale bedroom assumed habitable Equipment for assessment Manufacturer- Samsung Model -Mono HT Quiet Outdoor Capacity -12KW Total cubic capacity 0.64m3 (over PD allowances by .04m3)

Step	Instructions	MCS contractor results/ notes
1	From manufacturer's data, obtain the A-weighted sound power level of the heat pump. See 'Note 1: Sound <u>power</u> level'. The highest sound power level specified should be used (the power in "low noise mode" should not be used). <i>Example. Manufacturer's data states the sound power level of the heat pump is 55 dB(A)</i>	STEP 1 RESULT= 59 dBA
2.	Use 'Note 2: Sound pressure level' and 'Note 3: Determination of directivity:ii' below to establish the directivity 'Q' of the heat pump noise. <i>Example. The heat pump is to be installed on the ground and against a single wall hence the directivity (Q) of the heat pump noise is Q4</i>	STEP 2 RESULT= 46 dBA
3.	Measure the distance from the heat pump to the assessment position in metres. <i>Example. Distance between heat pump and assessment position is 4 metres.</i>	STEP 3 RESULT= 5.1m To centre pane of adjacent window
4.	Use table in 'Note 4: dB distance reduction' below to obtain a dB reduction. <i>Example. 4metres@ Q4 = -17 db.</i>	STEP 4 RESULT= Q4 = both ground and vertical reflectant surface Reduction = -21

5	Establish whether there is a solid barrier between the heat pump and the assessment position using 'Note 5: Barriers between the heat i;1umi;1 and the assessment i;1osition' and note any dB reduction. <i>Example. There is a brick wall between the heat pump and the assessment position Moving less than 25cm enables the assessment position to be seen dB reduction = -5 dB</i>	STEP 5 RESULT= no solid barrier between the fenestration and heat pump No reduction attenuation
6	Calculate the sound pressure level (see 'Note 2: Sound i;1ressure level') from the heat pump at the assessment position using the following calculation: (STEP 1) + (STEP 4) + (STEP 5) <i>Example (55) + (-17) + (-5)=55 -17- 5=33 dB(A) Lp</i>	STEP 6 RESULT= 59-21= 38dB(A) Lp
7.	Background noise level. For the purposes of the MCS Planning Standard for air source heat pumps the background noise level is assumed to be 40 dB(A) Lp. For information see 'Note 6: MCS Planning Standard for air source heat i;1umi;1s background noise level'. <i>Example. Background noise level is 40 dB(A)</i>	STEP 7 RESULT= 40 dB(A)
8.	Determine the difference between STEP 7 background noise level and the heat pump noise level using the following calculation: (STEP 7) - (STEP 6)	STEP 8 RESULT= 38 dB(A) at heat pump 40 dB(A) background =2 dB(A)

	<i>Example. 40 dB(A) (background) - 33 dB(A) (heat pump) = 1 dB(A)</i>	
9	Using the table in 'Note 7: Decibel correction' obtain an adjustment figure and then add this to whichever is the higher dB figure from STEP 6 and STEP 7. Round this number <u>up</u> to the nearest whole number.	FINAL RESULT= Adjustment figure is 01 dB and the higher figure is 40 dB(A) $40 + 2.1 = 40.1 \text{ dB(A)}$ Rounded up to 42.1 dB(A) Final result at this assessment position is 41 dB(A)
10	Is the FINAL RESULT in STEP 9 equal to or lower than the permitted development noise limit of 42.0 dB(A)? If <u>YES</u> - the air source heat pump will comply with the permitted development noise limit for this assessment position and may be permitted development (subject to compliance with other permitted development limitations/conditions and parts of this standard). NOTE - Other assessment <u>positions may</u> also need to be tested. If <u>NO</u> - the air source heat pump will not be permitted development. This installation may still go ahead if planning permission is granted by the local planning authority.	Final result is equal to or lower than 42.0 dB(A) NO Measures required to protect the ground floor window of the proposed extension recommend triple glazing to achieve no less than 15 dB which will achieve an in room impact of 27dB(A) 27 dB(A) in real terms is half the impact of a domestic refrigerator. Further to this the reported levels of triple glazing is between 35-40dB(RW)

Following the impact assessment of the proposed heat pump it is evidenced that no impact will be present on the surrounding properties.

Minimal impact may be present upon the proposed ground floor flat although this can be mitigated to a near silent impact by introducing triple glazing or should double glazing be incorporated the impact will increase slightly but be within current permitted development limits which should be taken as being the benchmark for planning permission noise control.

Triple glazing impact as low as 2.0 dB(A)
Double glazing impact as low as 12.0 dB(A)