



# **Spiorad na Mara Offshore Wind Farm**

## **Offshore Project**

### **Environmental Impact Assessment Report**

#### **Appendix 19.10: Noise Limits, Volume 2c**

Document Reference No.: SNM-SNM-PAC-APP-1910

Date: February 2026



## Quality Control Page

Document details	
Document title	Offshore Project Environmental Impact Assessment Report
Document subtitle	Appendix 19.10: Noise Limits
Document Reference No.	SNM-SNM-PAC-APP-1910
Date	February 2026
Version	1.0
Author	WSP
Client Name	Spiorad na Mara Limited

Document history						
Version	Revision	Issued	Checked	Approved	Date	Comments
1.0	A	WSP	WSP	SnM Ltd	February 2026	Final for submission

## Contents

1	Introduction.....	1-1
1.1	Overview .....	1-1
1.2	Purpose of this appendix.....	1-2
2	Noise Limit Methodology.....	2-3
2.2	Properties without a financial involvement (Non-FI) .....	2-3
3	Total Cumulative Noise Level Limits.....	3-4
3.1	Downwind Conditions.....	3-4
3.2	Upwind Conditions.....	3-7
4	Residual Noise Level Limits .....	4-10
4.1	Downwind Conditions.....	4-10
4.2	Upwind Conditions.....	4-13
5	Glossary of Terms and Abbreviations.....	5-16

## List of Tables

Table 5-1	Acronyms and abbreviations.....	5-16
Table 5-2	Glossary .....	5-16

## List of Plates

Plate 3-1:	Measurement Location LT1 Downwind - Total cumulative noise limits, daytime and night-time ( $L_{A90,T}$ , dB(A)).....	3-4
Plate 3-2:	Measurement Location LT2 Downwind - Total cumulative noise limits, daytime and night-time ( $L_{A90,T}$ , dB(A)).....	3-4
Plate 3-3:	Measurement Location LT3 Downwind - Total cumulative noise limits, daytime and night-time ( $L_{A90,T}$ , dB(A)).....	3-5
Plate 3-4:	Measurement Location LT4 Downwind - Total cumulative noise limits, daytime and night-time ( $L_{A90,T}$ , dB(A)).....	3-5
Plate 3-5:	Measurement Location LT5 Downwind - Total cumulative noise limits, daytime and night-time ( $L_{A90,T}$ , dB(A)).....	3-6
Plate 3-6:	Measurement Location LT6 Downwind - Total cumulative noise limits, daytime and night-time ( $L_{A90,T}$ , dB(A)).....	3-6

Plate 3-7: Measurement Location LT1 Upwind - Total cumulative noise limits, daytime and night-time ( $L_{A90,T}$ , dB(A)).....	3-7
Plate 3-8: Measurement Location LT2 Upwind - Total cumulative noise limits, daytime and night-time ( $L_{A90,T}$ , dB(A)).....	3-7
Plate 3-9: Measurement Location LT3 Upwind - Total cumulative noise limits, daytime and night-time ( $L_{A90,T}$ , dB(A)).....	3-8
Plate 3-10: Measurement Location LT4 Upwind - Total cumulative noise limits, daytime and night-time ( $L_{A90,T}$ , dB(A)).....	3-8
Plate 3-11: Measurement Location LT5 Upwind - Total cumulative noise limits, daytime and night-time ( $L_{A90,T}$ , dB(A)).....	3-9
Plate 3-12: Measurement Location LT6 Upwind - Total cumulative noise limits, daytime and night-time ( $L_{A90,T}$ , dB(A)).....	3-9
Plate 4-1: NSR7 (LT6) Downwind – Daytime residual noise limit, ( $L_{A90,T}$ , dB(A)) .....	4-10
Plate 4-2: NSR7 (LT6) Downwind – Night-time residual noise limit, ( $L_{A90,T}$ , dB(A)) .....	4-10
Plate 4-3: NSR8 (LT6) Downwind – Daytime residual noise limit, ( $L_{A90,T}$ , dB(A)) .....	4-11
Plate 4-4: NSR8 (LT6) Downwind – Night-time residual noise limit, ( $L_{A90,T}$ , dB(A)) .....	4-11
Plate 4-5: NSR9 (LT3) Downwind – Daytime residual noise limit, ( $L_{A90,T}$ , dB(A)) .....	4-12
Plate 4-6: NSR9 (LT3) Downwind – Night-time residual noise limit, ( $L_{A90,T}$ , dB(A)) .....	4-12
Plate 4-7: NSR7 (LT6) Upwind – Daytime residual noise limit, ( $L_{A90,T}$ , dB(A)) .....	4-13
Plate 4-8: NSR7 (LT6) Upwind – Night-time residual noise limit, ( $L_{A90,T}$ , dB(A)) .....	4-13
Plate 4-9: NSR8 (LT6) Upwind – Daytime residual noise limit, ( $L_{A90,T}$ , dB(A)) .....	4-14
Plate 4-10: NSR8 (LT6) Upwind – Night-time residual noise limit, ( $L_{A90,T}$ , dB(A)) .....	4-14
Plate 4-11: NSR9 (LT3) Upwind – Daytime residual noise limit, ( $L_{A90,T}$ , dB(A)) .....	4-15
Plate 4-12: NSR9 (LT3) Upwind – Night-time residual noise limit, ( $L_{A90,T}$ , dB(A)) .....	4-15

# 1 INTRODUCTION

## 1.1 OVERVIEW

1.1.1.1 This appendix of the Environmental Impact Assessment Report (EIAR) presents the operational wind turbine generator (WTG) noise level limits relevant to the assessment of offshore airborne noise of the proposed Sporad na Mara Offshore Wind Farm (hereafter referred to as 'the Offshore Project'). This appendix accompanies **Chapter 19: Offshore Airborne Noise, Volume 2a** of the EIAR.

1.1.1.2 This appendix should be read in conjunction with the project description provided in **Chapter 3: Project Description, Volume 1a** and the relevant parts of the following chapters and appendices:

- **Chapter 19, Volume 2a;**
- **Appendix 19.1: Policy, Guidance and Legislative Context, Volume 2c;**
- **Appendix 19.2: Noise Modelling and Prediction, Volume 2c;**
- **Appendix 19.3: Baseline Noise Survey, Volume 2c;**
- **Appendix 19.4: Wind Shear Correction, Volume 2c;**
- **Appendix 19.5: Baseline Noise Conditions - All Wind Directions, Volume 2c;**
- **Appendix 19.6: Baseline Noise Analysis Comparison – Design Option 1 vs Design Option 2, Volume 2c;**
- **Appendix 19.7: Baseline Noise Conditions - Directional Split, Volume 2c;**
- **Appendix 19.8: Existing Wind Turbine Contribution Check, Volume 2c;**
- **Appendix 19.9: Modelled Receptor Noise Levels, Volume 2c;**
- **Appendix 19.11: Cumulative Wind Turbine Noise Assessment, Volume 2c.**

## 1.1.2 PROJECT BACKGROUND

1.1.2.1 Sporad na Mara Limited (hereafter referred to as 'the Applicant') is proposing to develop the Project. The Project is an offshore wind farm (OWF) that will consist of up to 60 fixed-bottom WTGs.

1.1.2.2 The Project will include both offshore and onshore infrastructure. This EIAR supports the application for the offshore components of the Project as outlined in **Chapter 1: Introduction, Volume 1a**. The offshore components of the Project (the Offshore Project) includes all infrastructure and activities located seaward of Mean High Water Springs (MHWS) within the Array Area and Offshore Cable Area of Search (OCAS) (**Figure 1.2: Offshore Project Location, Volume 1b**). Further detailed information is provided in **Chapter 3, Volume 1a**.

1.1.2.3 The Offshore Project is situated off the northwest coast of Isle of Lewis/*Eilean Leòdhais* and the Array Area is located approximately 5-13 km offshore and is approximately 161 km<sup>2</sup> in size. It will

comprise WTGs, foundations, Offshore Cables, Offshore Substation Platform (OSP) (if required), and Landfall. The Array Area combined with the OCAS is defined as the Offshore Project Boundary. The water depths across the Turbine Area range from 37 m-67 m with the southwest corner of the Array Area reaching 72 m. The proposed WTGs and fixed foundations will be located within a Turbine Area of approximately 140 km<sup>2</sup>, within the Array Area.

## 1.2 PURPOSE OF THIS APPENDIX

1.2.1.1 This appendix describes the following:

- Methodology applied to calculate the total cumulative noise level limits;
- Total cumulative noise level limits for downwind and upwind conditions, for each measurement location and for the daytime and night-time periods;
- Residual noise level limits for downwind and upwind conditions, for the closest noise sensitive receptors (NSRs) to the cumulative wind turbine developments and for the daytime and night-time periods.

## 2 NOISE LIMIT METHODOLOGY

- 2.1.1.1 The presented noise level limits are for the maximum design scenario i.e. based on the highest hub height from either of the WTG Layout Options under appraisal, which is 198.4 m.
- 2.1.1.2 The total cumulative noise level limits are presented first (Section 3), for all 6 measurement locations (LT1 to LT6), further details on which are given in **Appendix 19.3, Volume 2c**. The total cumulative noise level limit is the maximum allowable noise level at a given location which is not influenced by existing cumulative developments.
- 2.1.1.3 For NSR7 and NSR8, (details of the NSRs are presented in **Chapter 19, Volume 2a**, Table 19-16) where there is the potential that part of the total cumulative noise level limits may be attributed to the existing Baile an Truiseil (BaT) Wind Farm, the residual (sometimes termed 'Residual', 'Remaining Available', or 'Noise Budget' limits) noise level limits are presented in Section 4. These have been calculated by subtracting the predicted noise level of the BaT Wind Farm from the total cumulative noise level limits for Measurement Location LT6.
- 2.1.1.4 For NSR9, where there is the potential that part of the total cumulative noise level limits may be attributed to the existing Horshader Wind Farm, the residual noise level limits are presented in Section 4. These are calculated by subtracting the predicted noise level of the Horshader Wind Farm from the total cumulative noise level limits for Measurement Location LT3.
- 2.1.1.5 All noise level limits have been determined based on NSRs not having a financial involvement in the Offshore Project.
- 2.1.1.6 The total cumulative noise level limits have been determined as follows:

### 2.2 PROPERTIES WITHOUT A FINANCIAL INVOLVEMENT (NON-FI)

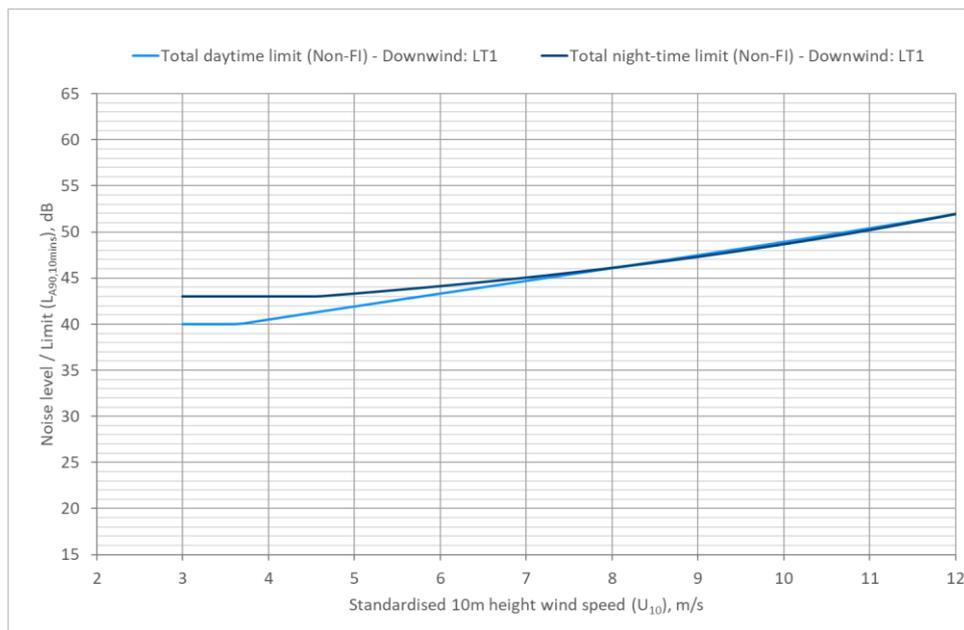
- Daytime (07:00-23:00): The quiet daytime hours background noise level ( $L_{A90}$ ) +5 dB or 40 dB(A), whichever is the higher;
  - Night-time (23:00-07:00): The night-time hours background noise level ( $L_{A90}$ ) +5 dB or 43 dB(A), whichever is the higher.
- 2.2.1.1 The applied background noise levels are those presented in **Appendix 19.7, Volume 2c**, as defined by the polynomial lines of best fit in **Plate 3-1** to **Plate 4-12** of this appendix.
- 2.2.1.2 There are 2 sets of limits presented, the first based on the analysis of the baseline noise data obtained under downwind conditions, and the second based on the analysis of the baseline data obtained under upwind conditions. The downwind and upwind analysis is presented in **Appendix 19.7, Volume 2c**.

### 3 TOTAL CUMULATIVE NOISE LEVEL LIMITS

#### 3.1 DOWNWIND CONDITIONS

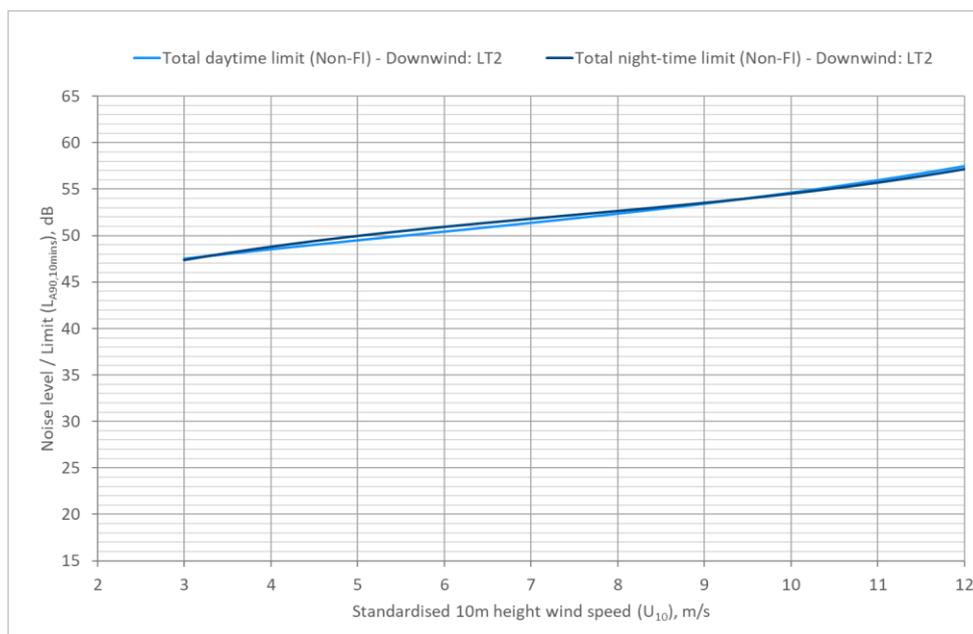
##### 3.1.1 MEASUREMENT LOCATION LT1

Plate 3-1: Measurement Location LT1 Downwind - Total cumulative noise limits, daytime and night-time ( $L_{A90,T}$ , dB(A))



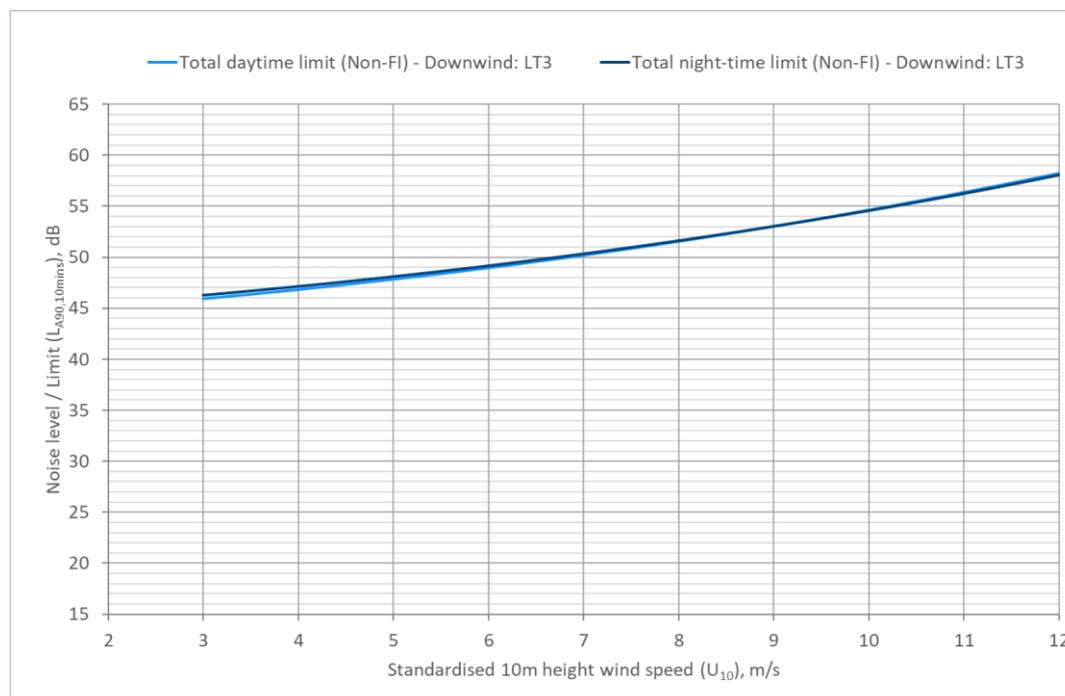
##### 3.1.2 MEASUREMENT LOCATION LT2

Plate 3-2: Measurement Location LT2 Downwind - Total cumulative noise limits, daytime and night-time ( $L_{A90,T}$ , dB(A))



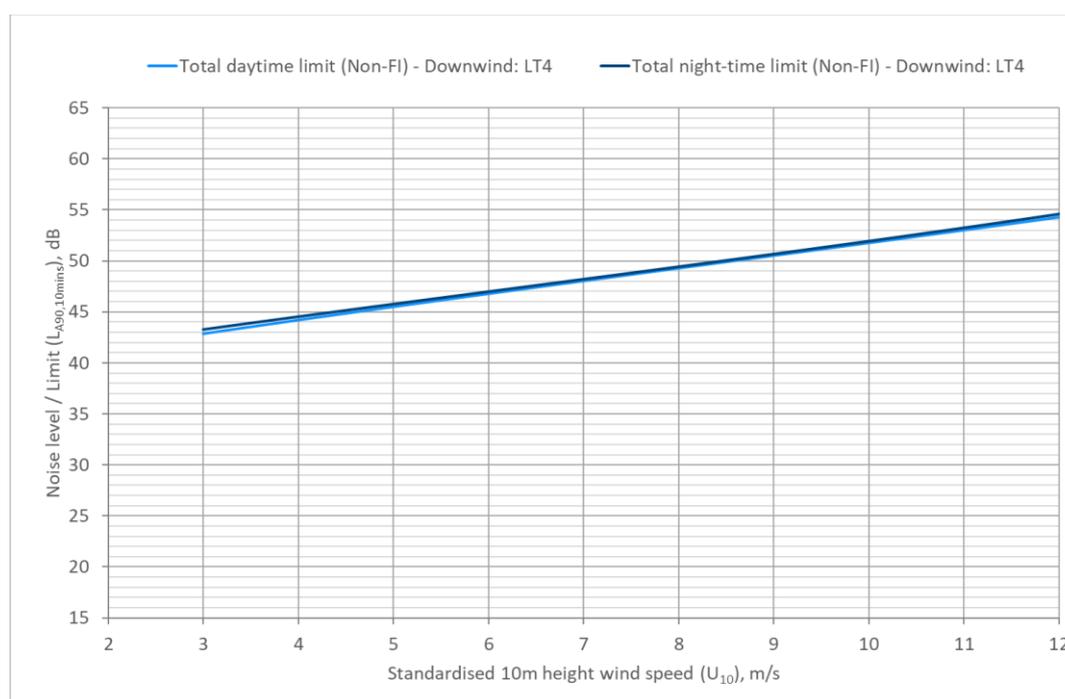
### 3.1.3 MEASUREMENT LOCATION LT3

Plate 3-3: Measurement Location LT3 Downwind - Total cumulative noise limits, daytime and night-time ( $L_{A90,T}$ , dB(A))



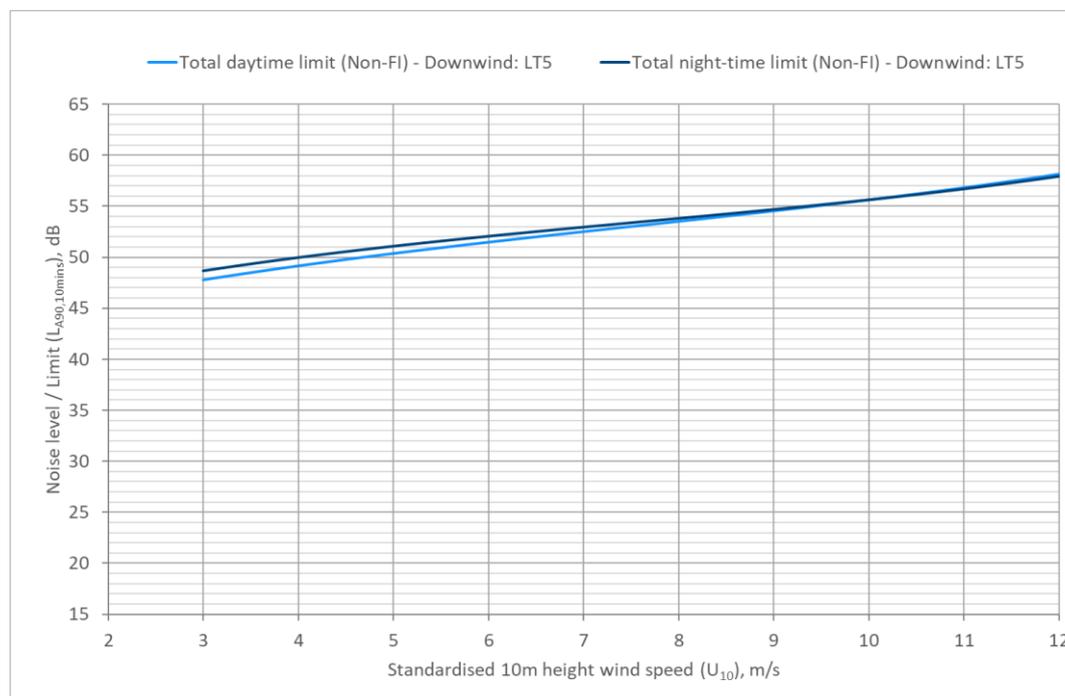
### 3.1.4 MEASUREMENT LOCATION LT4

Plate 3-4: Measurement Location LT4 Downwind - Total cumulative noise limits, daytime and night-time ( $L_{A90,T}$ , dB(A))



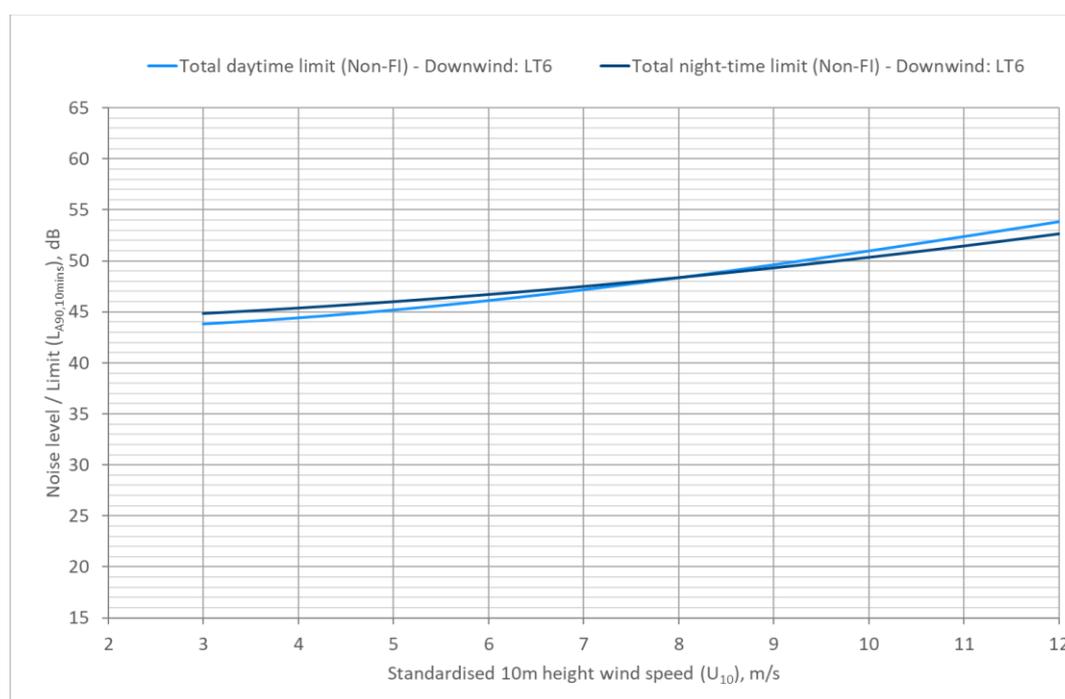
### 3.1.5 MEASUREMENT LOCATION LT5

Plate 3-5: Measurement Location LT5 Downwind - Total cumulative noise limits, daytime and night-time ( $L_{A90,T}$ , dB(A))



### 3.1.6 MEASUREMENT LOCATION LT6

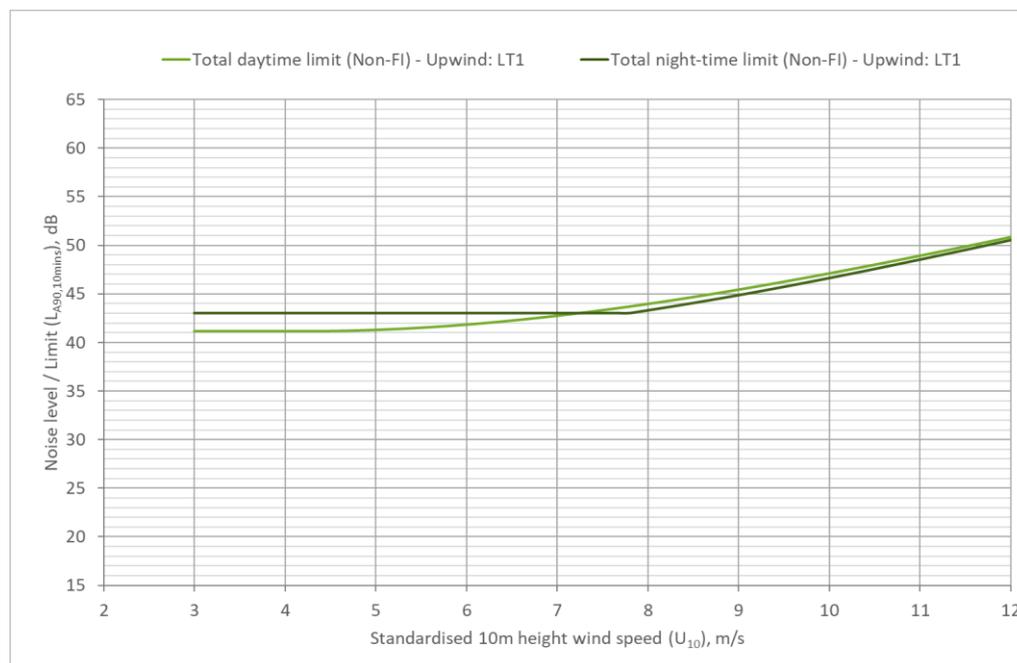
Plate 3-6: Measurement Location LT6 Downwind - Total cumulative noise limits, daytime and night-time ( $L_{A90,T}$ , dB(A))



## 3.2 UPWIND CONDITIONS

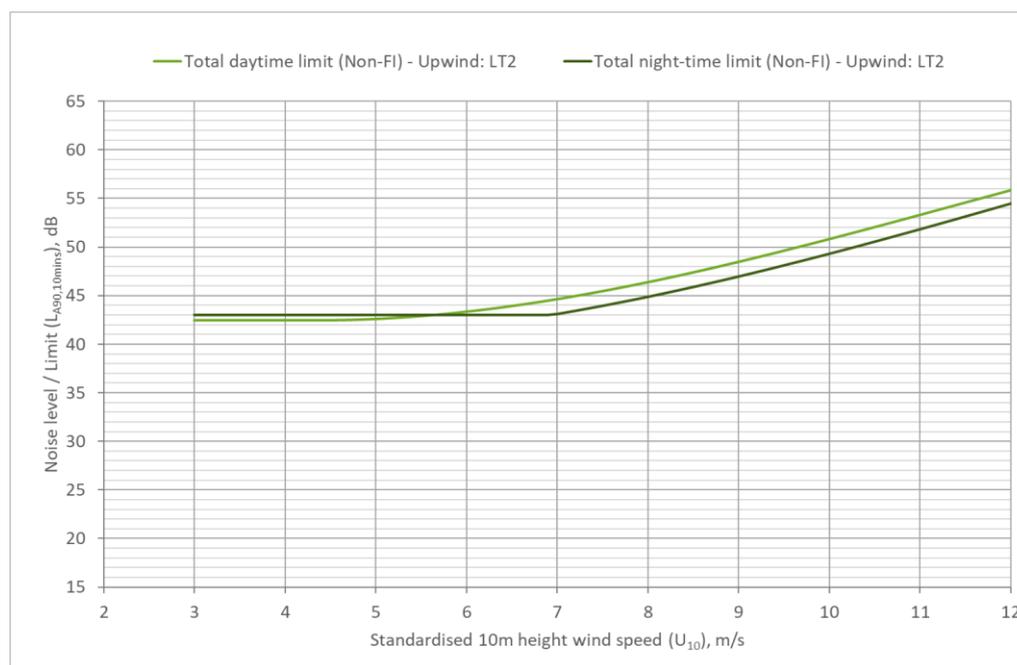
### 3.2.1 MEASUREMENT LOCATION LT1

Plate 3-7: Measurement Location LT1 Upwind - Total cumulative noise limits, daytime and night-time ( $L_{A90,T}$ , dB(A))



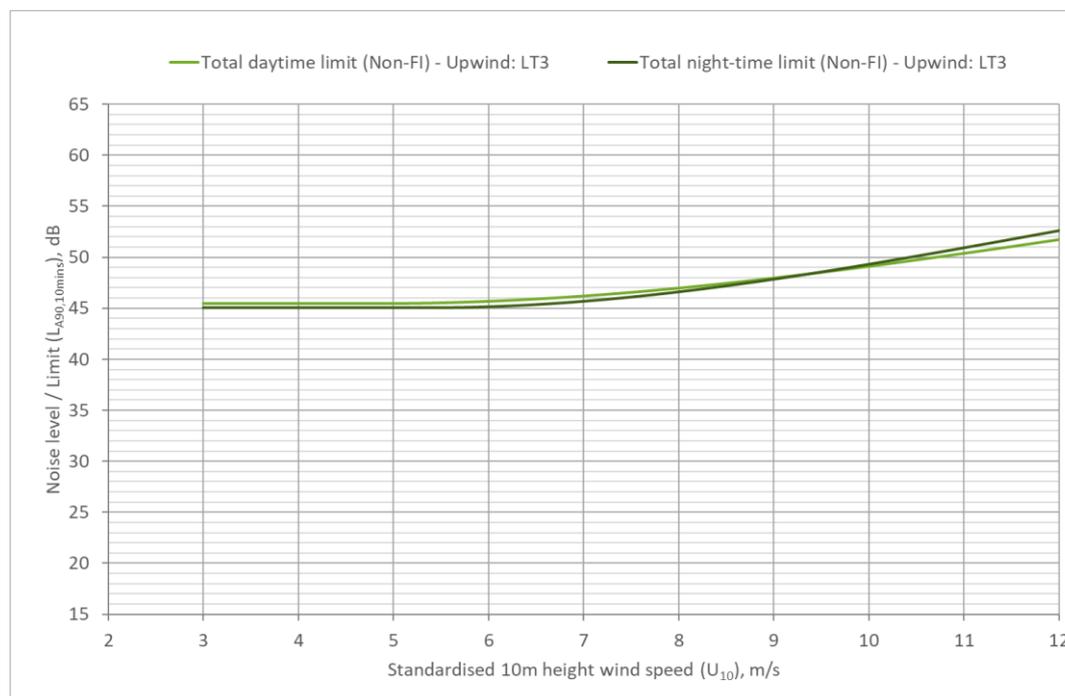
### 3.2.2 MEASUREMENT LOCATION LT2

Plate 3-8: Measurement Location LT2 Upwind - Total cumulative noise limits, daytime and night-time ( $L_{A90,T}$ , dB(A))



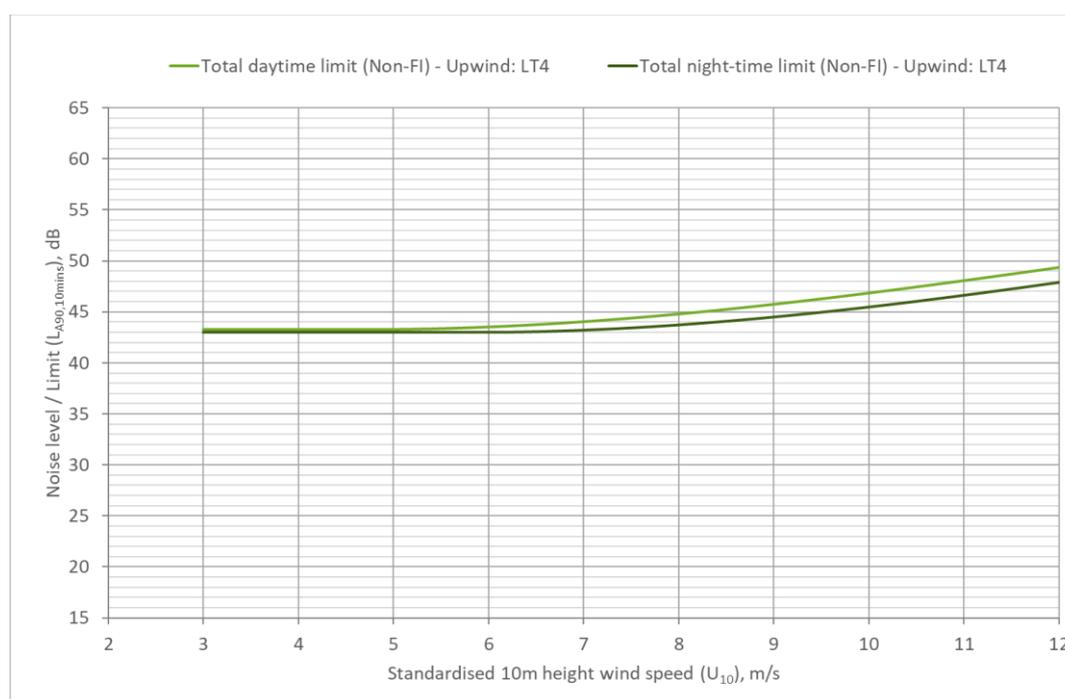
### 3.2.3 MEASUREMENT LOCATION LT3

Plate 3-9: Measurement Location LT3 Upwind - Total cumulative noise limits, daytime and night-time ( $L_{A90,T}$ , dB(A))



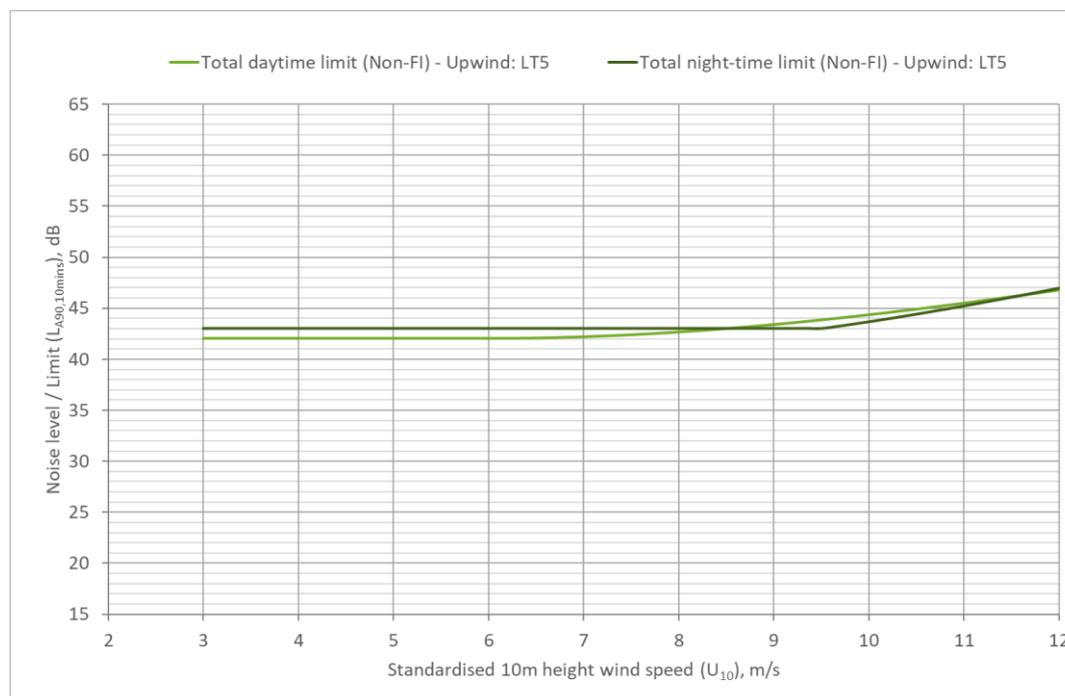
### 3.2.4 MEASUREMENT LOCATION LT4

Plate 3-10: Measurement Location LT4 Upwind - Total cumulative noise limits, daytime and night-time ( $L_{A90,T}$ , dB(A))



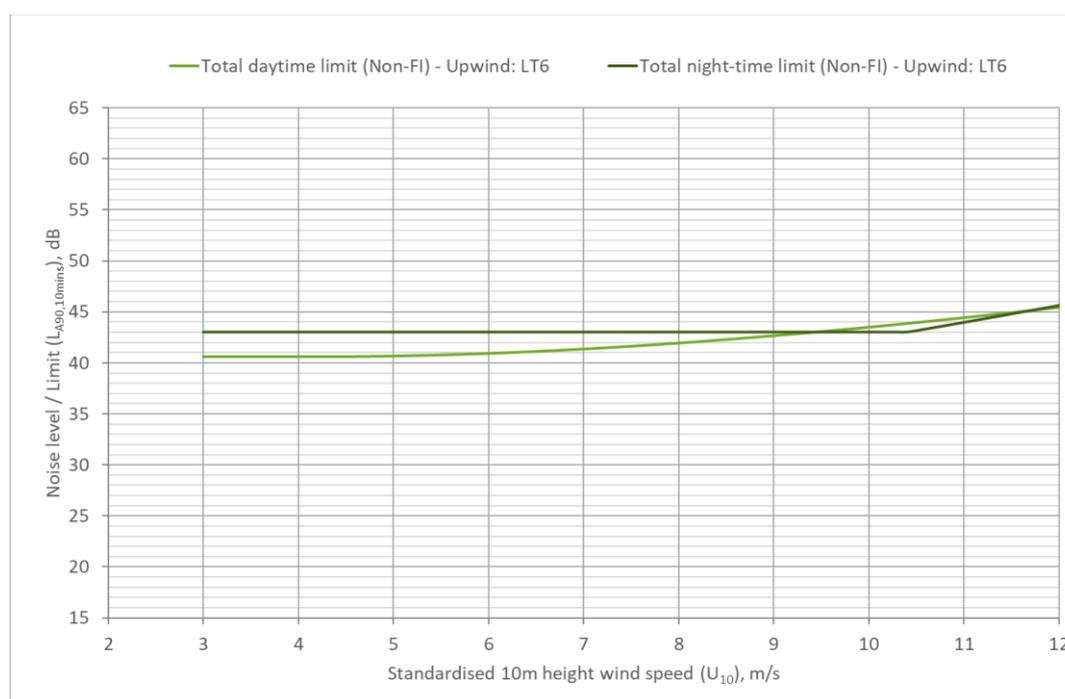
### 3.2.5 MEASUREMENT LOCATION LT5

Plate 3-11: Measurement Location LT5 Upwind - Total cumulative noise limits, daytime and night-time ( $L_{A90,T}$ , dB(A))



### 3.2.6 MEASUREMENT LOCATION LT6

Plate 3-12: Measurement Location LT6 Upwind - Total cumulative noise limits, daytime and night-time ( $L_{A90,T}$ , dB(A))



## 4 RESIDUAL NOISE LEVEL LIMITS

### 4.1 DOWNWIND CONDITIONS

Plate 4-1: NSR7 (LT6) Downwind – Daytime residual noise limit, ( $L_{A90,T}$ , dB(A))

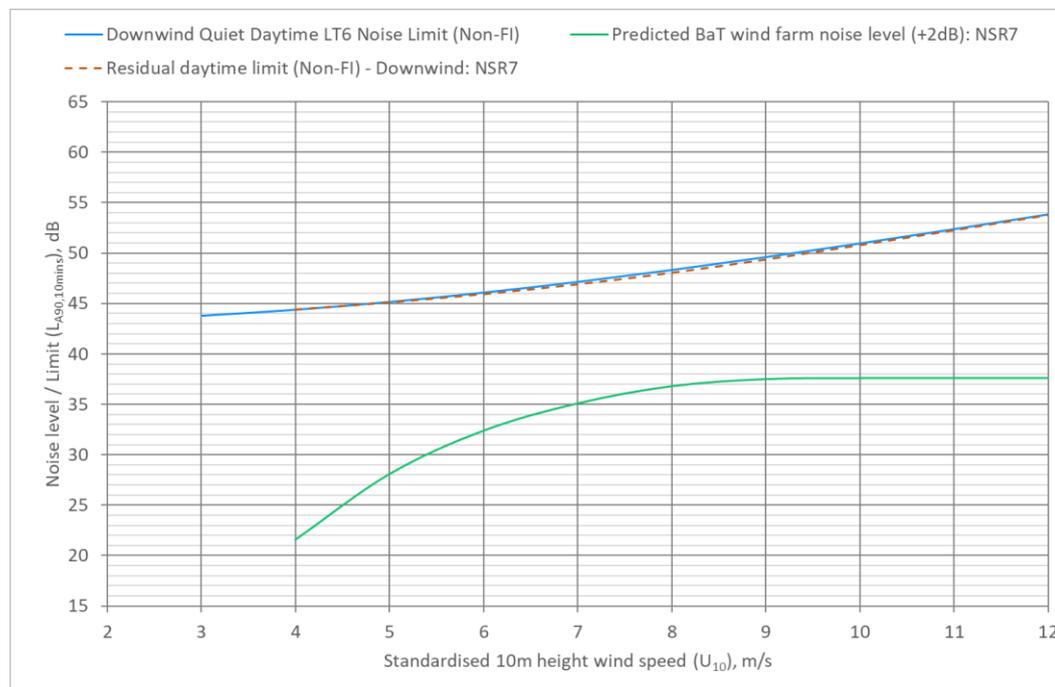


Plate 4-2: NSR7 (LT6) Downwind – Night-time residual noise limit, ( $L_{A90,T}$ , dB(A))

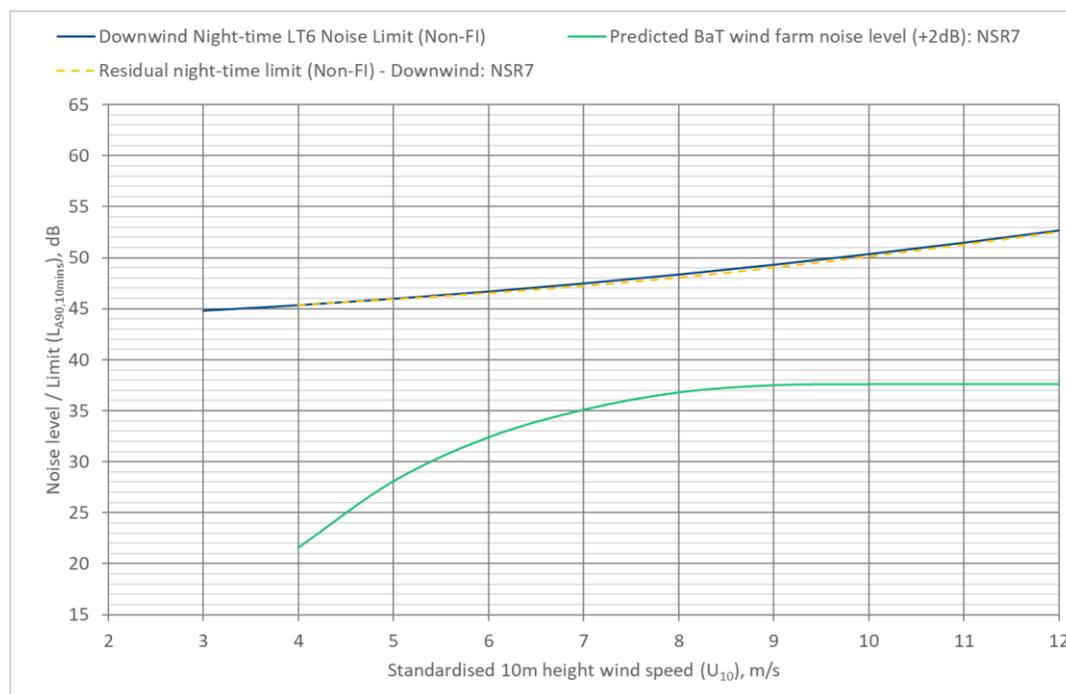


Plate 4-3: NSR8 (LT6) Downwind – Daytime residual noise limit, ( $L_{A90,T}$ , dB(A))

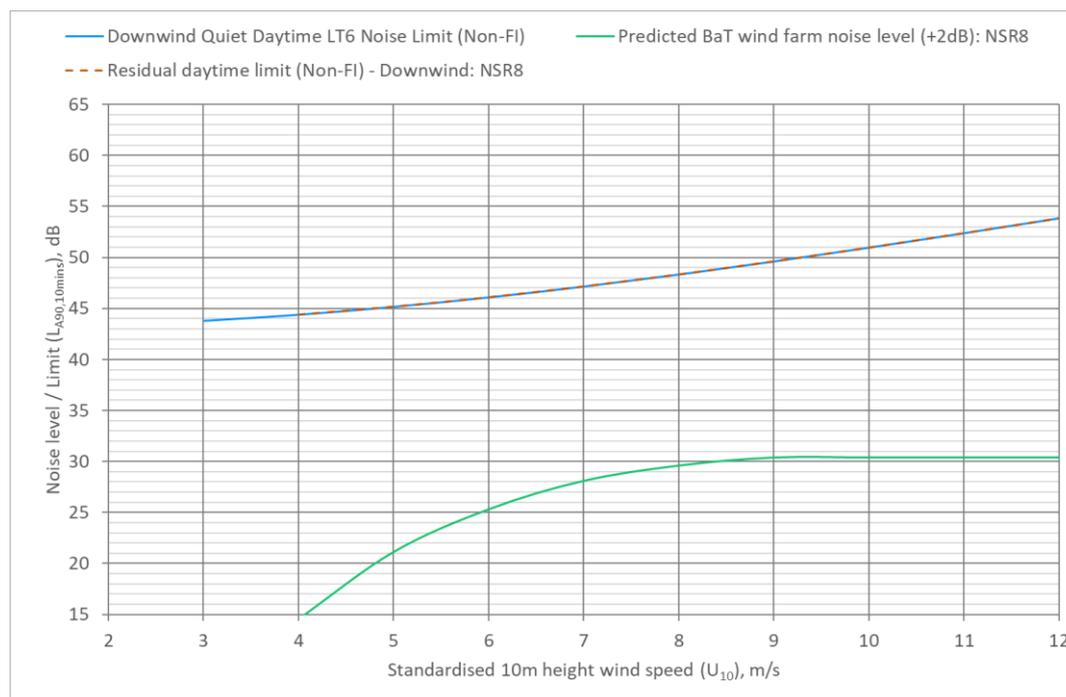


Plate 4-4: NSR8 (LT6) Downwind – Night-time residual noise limit, ( $L_{A90,T}$ , dB(A))

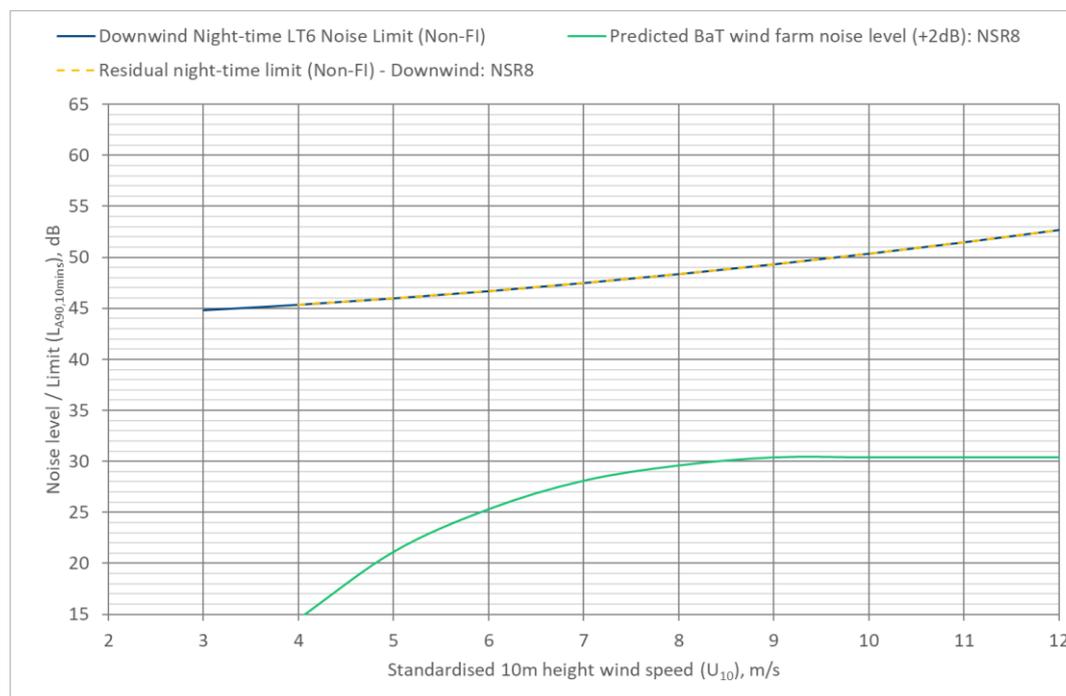


Plate 4-5: NSR9 (LT3) Downwind – Daytime residual noise limit, ( $L_{A90,T}$ , dB(A))

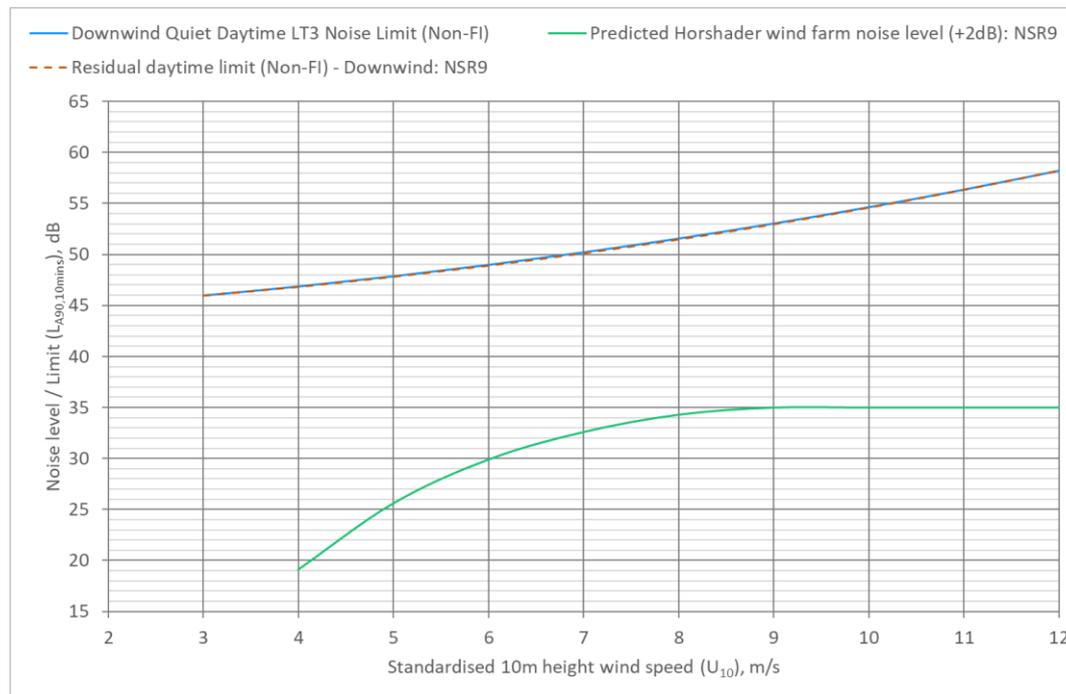
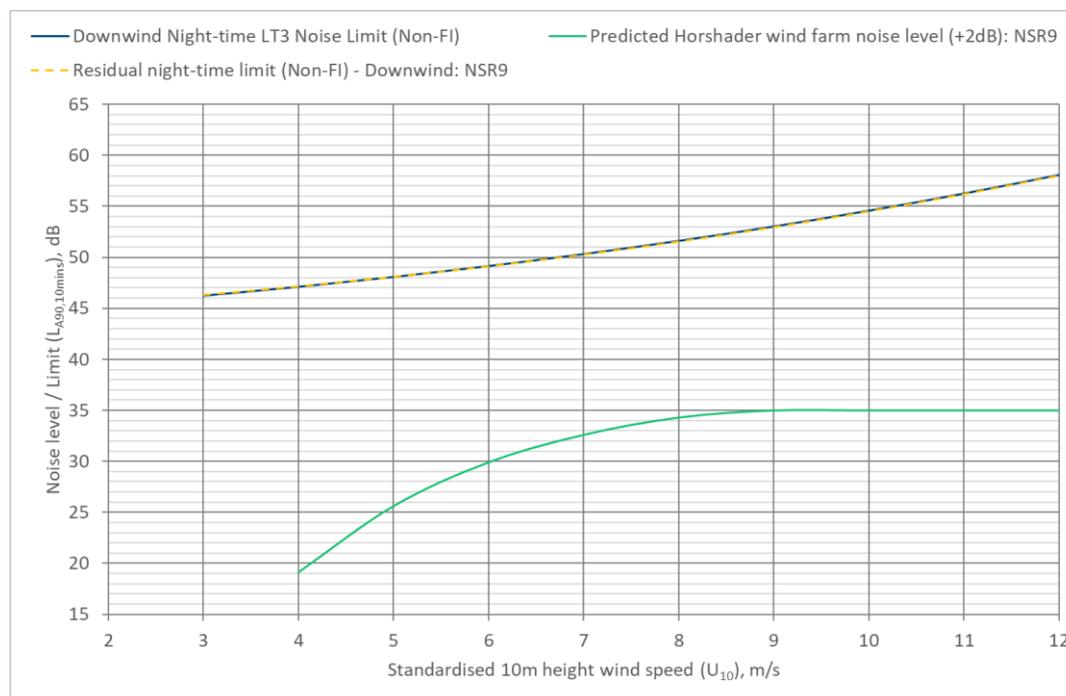


Plate 4-6: NSR9 (LT3) Downwind – Night-time residual noise limit, ( $L_{A90,T}$ , dB(A))



## 4.2 UPWIND CONDITIONS

Plate 4-7: NSR7 (LT6) Upwind – Daytime residual noise limit, ( $L_{A90,T}$ , dB(A))

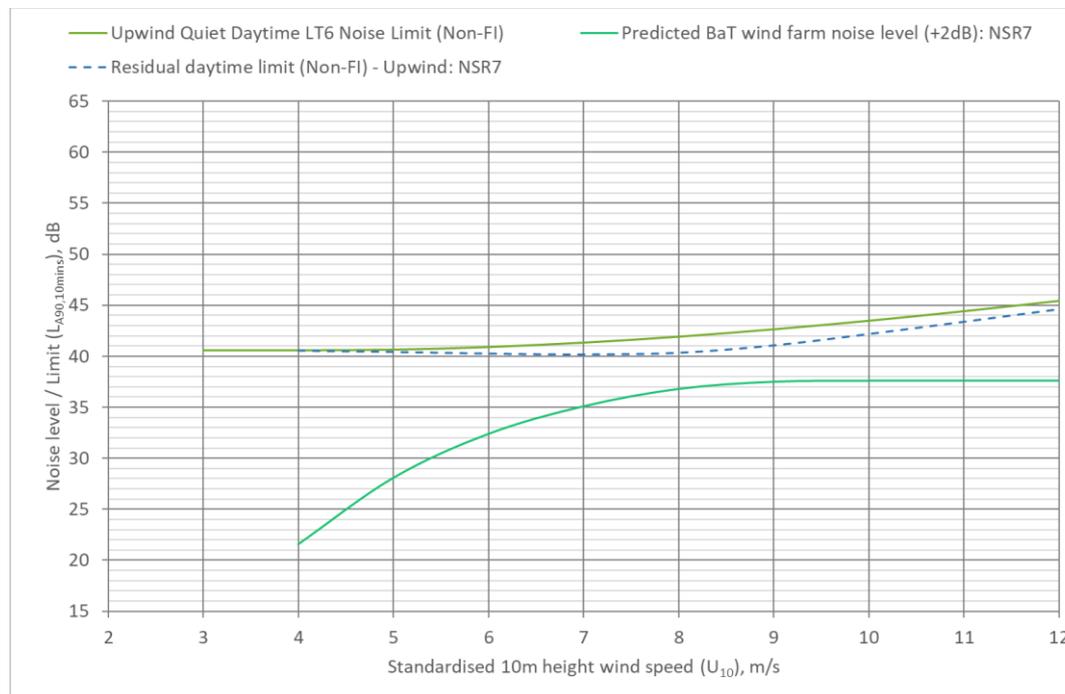


Plate 4-8: NSR7 (LT6) Upwind – Night-time residual noise limit, ( $L_{A90,T}$ , dB(A))

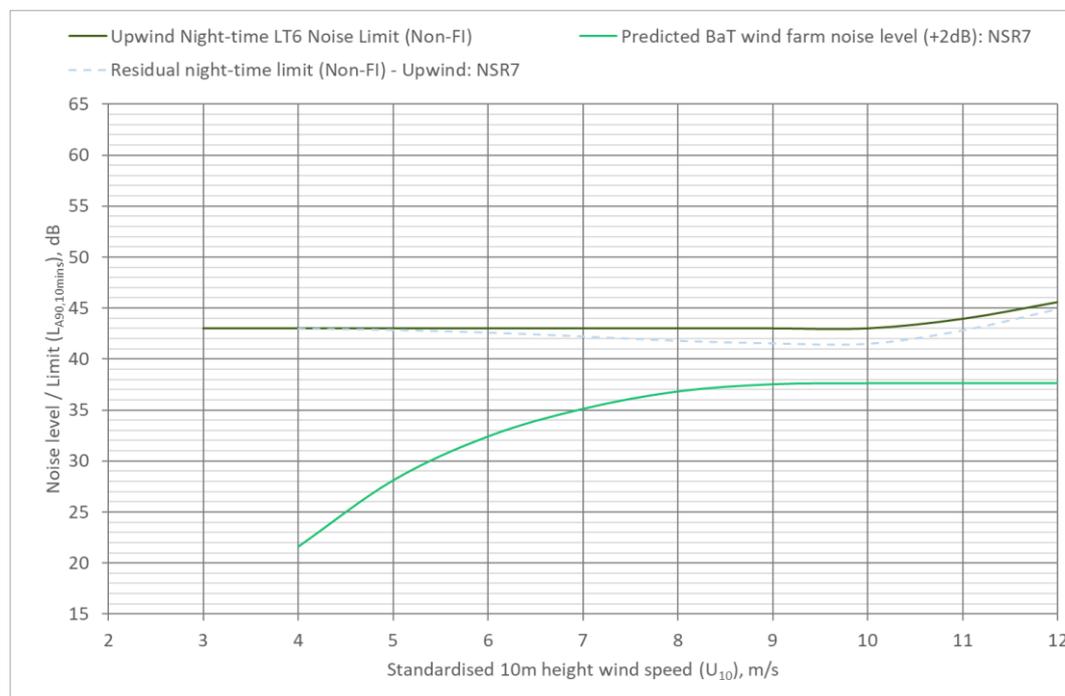


Plate 4-9: NSR8 (LT6) Upwind – Daytime residual noise limit, ( $L_{A90,T}$ , dB(A))

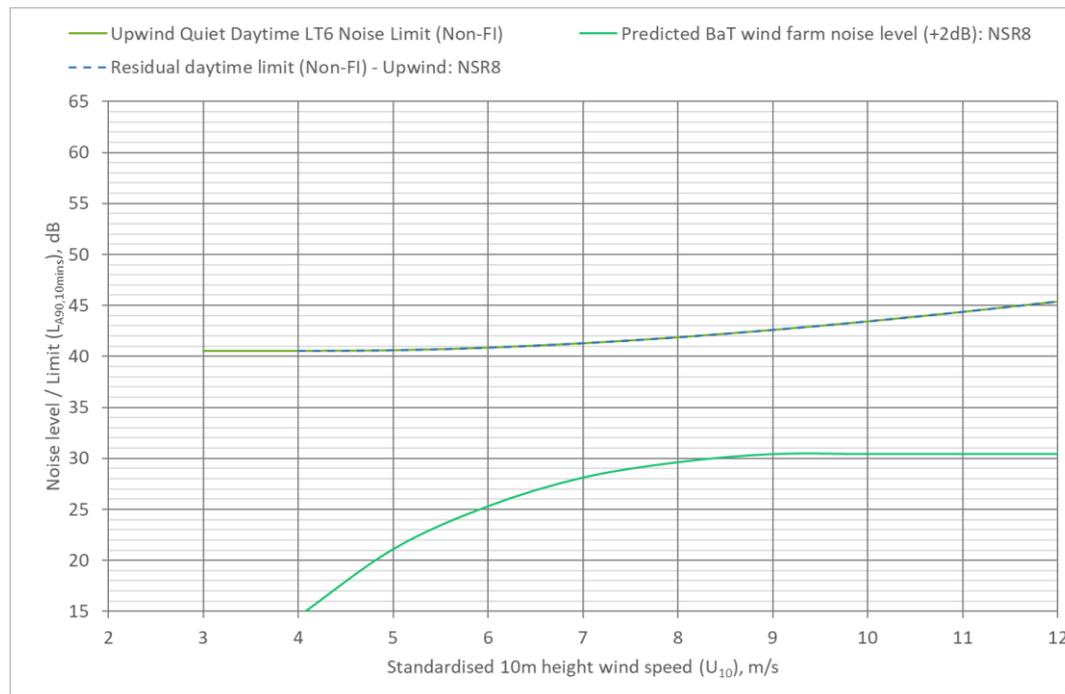


Plate 4-10: NSR8 (LT6) Upwind – Night-time residual noise limit, ( $L_{A90,T}$ , dB(A))

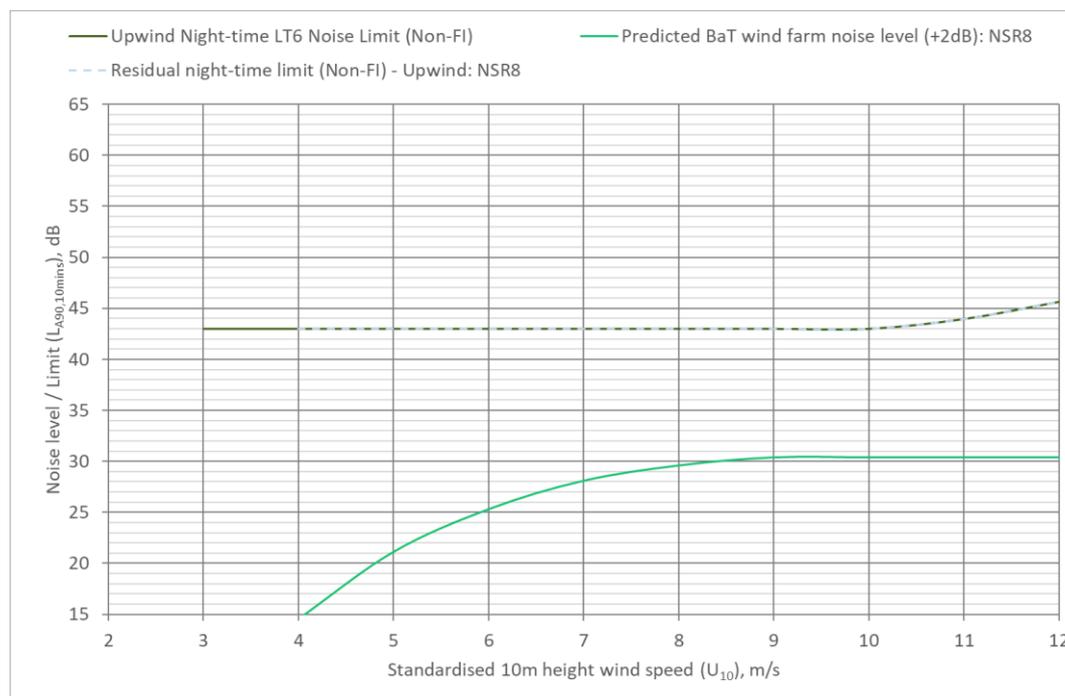


Plate 4-11: NSR9 (LT3) Upwind – Daytime residual noise limit, ( $L_{A90,T}$ , dB(A))

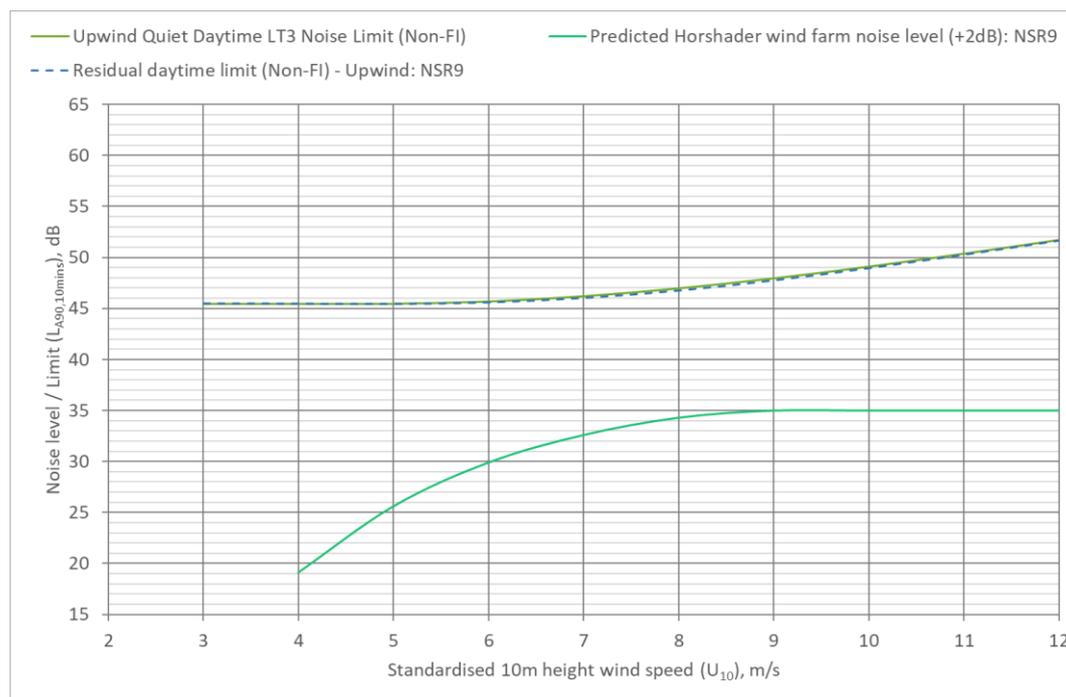
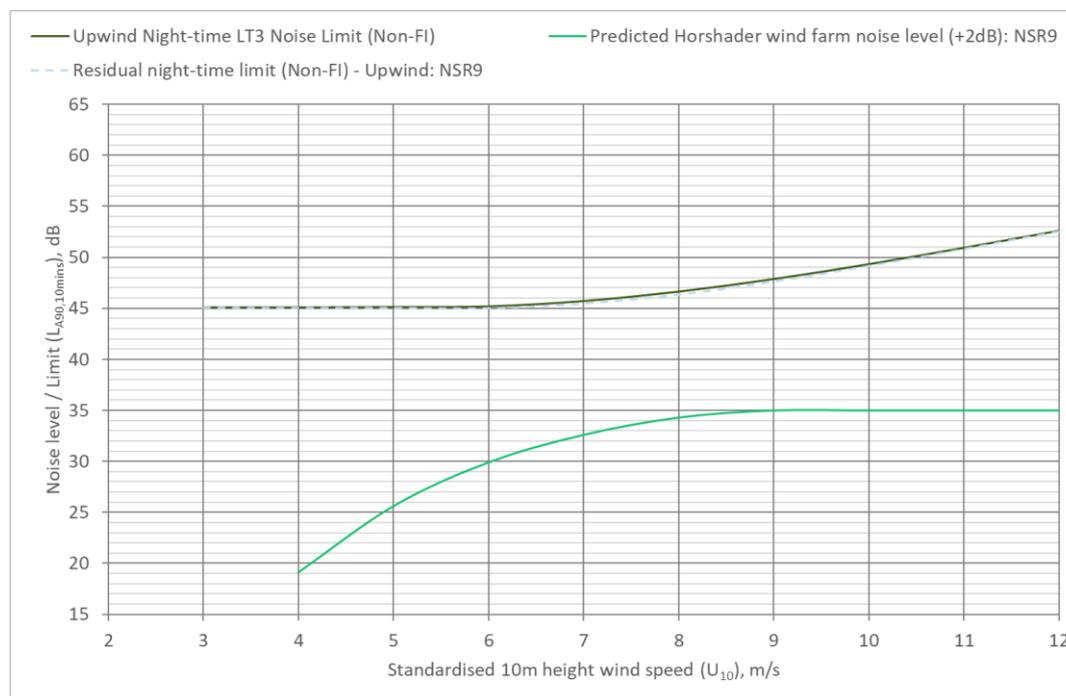


Plate 4-12: NSR9 (LT3) Upwind – Night-time residual noise limit, ( $L_{A90,T}$ , dB(A))



## 5 GLOSSARY OF TERMS AND ABBREVIATIONS

5.1.1.1 A list of key terms and acronyms used in this appendix are provided in **Table 5-1** and **Table 5-2**.

Table 5-1 Acronyms and abbreviations

Term	Definition
BaT	Baile an Truiseil (an existing wind farm)
dB	Decibel
dB(A)	A-weighted decibel
EIAR	Environmental Impact Assessment Report
Non-FI	Non Financially Involved
NSR	Noise Sensitive Receptor
m	metres
m/s	metres per second
MHWS	Mean High Water Springs
OCAS	Offshore Cable Area of Search
OSP	Offshore Substation Platform
OWF	Offshore Wind Farm
WTG	Wind Turbine Generator

Table 5-2 Glossary

Term	Meaning
A-weighting	Frequency weighted sound level, weighted according to the A-scale, which takes into account the increased sensitivity of the human ear at some frequencies.
$L_{A90,T}$	A statistical noise index defined as the level that is exceeded for 90% of the time over the measurement time period T. The 'A' denotes that the level is determined with 'A-weighting' applied.
$U_{10}$	Wind speed at standardised 10 m height