The Great Grid Upgrade

Weston Marsh to East Leicestershire

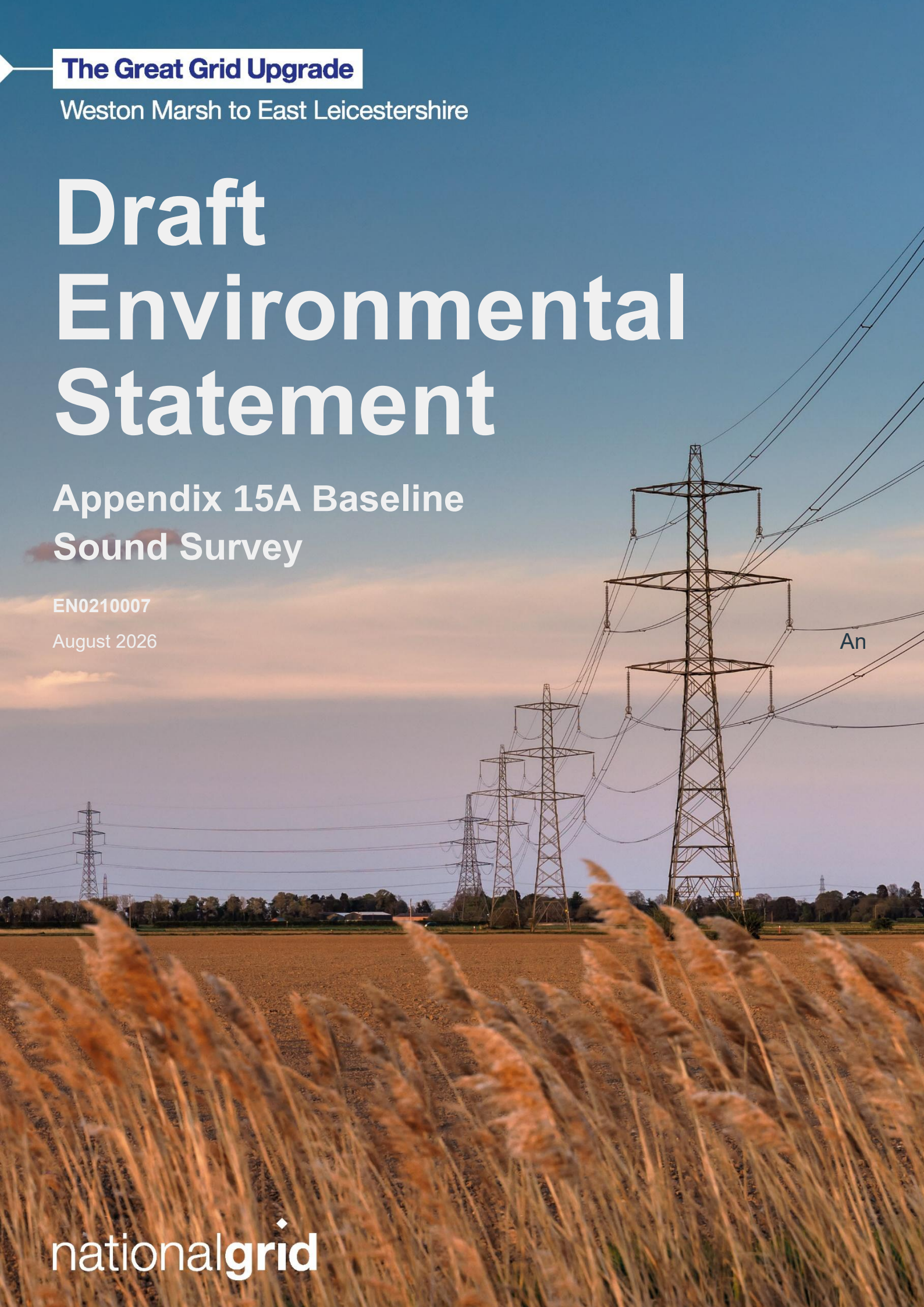
Draft Environmental Statement

Appendix 15A Baseline Sound Survey

EN0210007

August 2026

An



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15A. Baseline Sound Survey

15A.1 Introduction

15A.1.1 The Weston Marsh to East Leicestershire Project ('the Project') comprises new and modified electricity transmission infrastructure, including a new 400 kV overhead transmission line, new 400 kV substations known as WMEL-A and WMEL-B, reconductoring of sections of the existing ZA 400 kV overhead line, and associated realignment works to existing overhead lines and distribution networks.

15A.1.2 Environmental baseline noise survey has been undertaken to determine the existing noise climate and character around the proposed WMEL-A substation. The survey data presented in this appendix have been used to inform the preliminary assessment of potential construction and operational noise effects reported in the non-statutory Draft Environmental Statement (DES) (referred to in this document as "DES" and non-statutory DES").

15A.1.3 Baseline sound measurements were also proposed for the area surrounding the proposed WMEL-B substation. However, access to the proposed monitoring locations was not available at this time, and measurements could not be undertaken for the DES.

15A.1.4 The baseline survey strategy was informed by the location of nearby noise sensitive receptors and the availability of land access at the time of survey. Where access to proposed monitoring locations had not been agreed (i.e. close to the proposed WMEL-B substation) surveys could not be undertaken at this stage. Further baseline surveys will be undertaken, where practicable, and the results will be used to inform the assessment of this location to be reported in the Environmental Statement (ES).

15A.1.5 This appendix presents the survey methodology, instrumentation, monitoring locations, measurement results and baseline sound levels adopted for the preliminary assessment

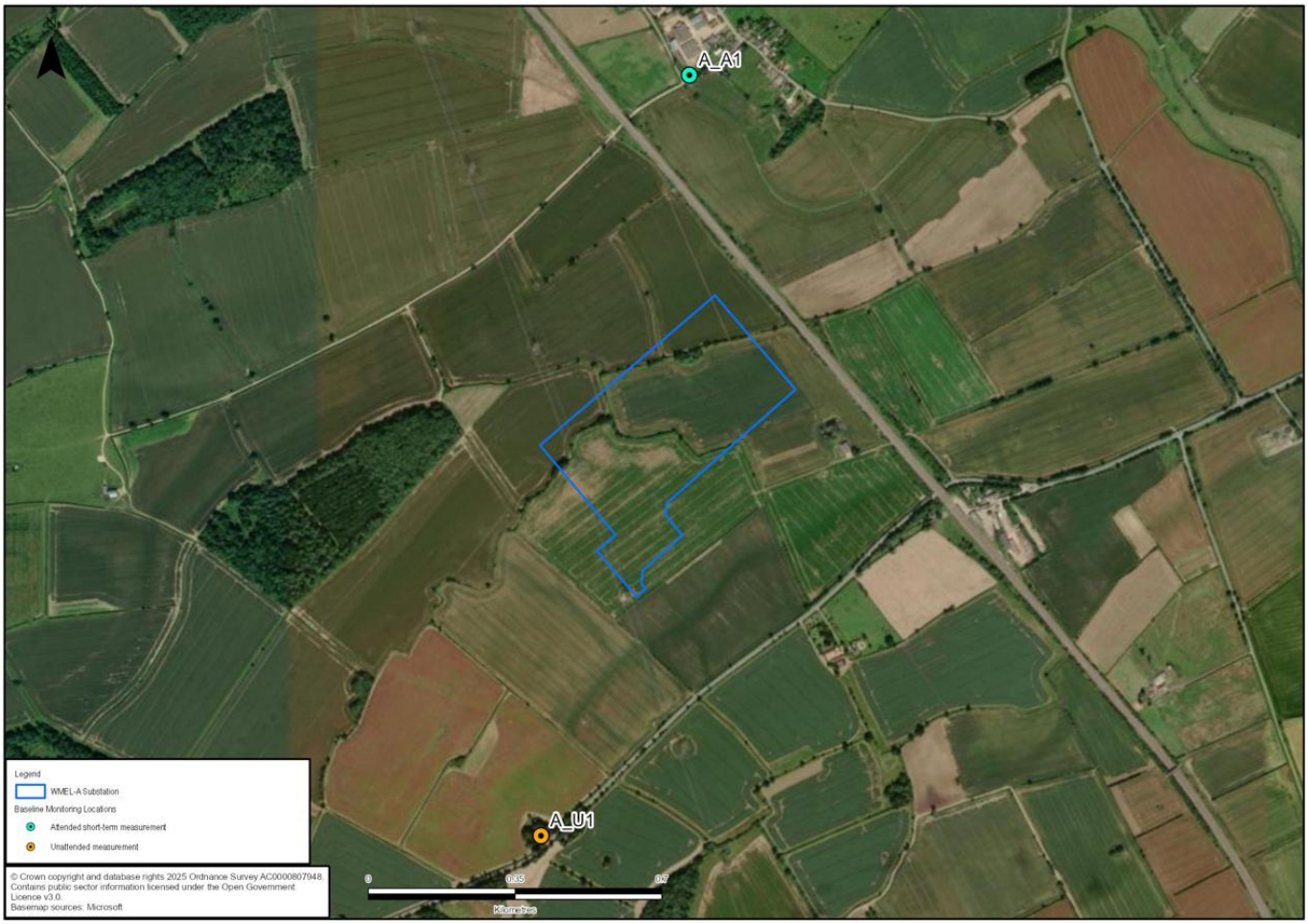
15A.2 Proposed WMEL-A Substation

Site description

15A.2.1 The existing sound environment in the vicinity of the proposed WMEL-A substation is influenced by road traffic, rail traffic and agricultural activity, including the operation of farm machinery. Natural sounds, including bird song, also contribute to the local sound environment at rural receptor locations.

15A.2.2 The baseline monitoring locations are shown on **Image 15A.1**. Attended short-term measurement location is shown in cyan and unattended measurement location is shown in orange. Complementary attended and unattended measurements were undertaken at this location. Attended measurements were used to observe the existing noise climate and character firsthand, whereas the longer unattended measurements were used to determine the suitability of the attended measurements, and the day-to-day and hour-by-hour variation in the local area.

Image 15A.1 Measurement locations



Instrumentation

15A.2.3 The instrumentation used to carry out the survey is listed in **Table 15A.1**. The sound level meters (SLMs), microphones and sound pressure level calibrators are Class 1 instruments, conforming to BS EN 61672:2013[1]. The SLM was checked for correct calibration before and after each series of measurements. Pre- and post-measurement calibration checks demonstrated no material drift in instrument calibration during the measurement period.

15A.2.4 All instrumentation is calibrated regularly with full traceable calibration to national and international standards undertaken by a UKAS accredited calibration laboratory.

[1] British Standard Institution (2013). BS EN 61672:2013 Electroacoustics, Sound level meters – Part 1: Specifications, Part 2: Pattern evaluation tests and Part 3: Periodic tests. London: BSI

Table 15A.1 Measurement instrument

Description		Serial number	Item type	Annual calibration date
NL-52	Rion NL-52	00721058	Sound level meter	28 April 2026
	NH-25	22164	Preamplifier	
	UC-59	22046	Microphone	
	NC-75	34824365	Calibrator	
B&K 2250 Kit A	B&K 2250	3007217	Sound level meter	22 July 2025
	B&K ZC-0032	21701	Preamplifier	
	B&K 4189	2920108	Microphone	
	B&K 4231	3014588	Calibrator	

Measurement methodology

15A.2.5 At each location, the L_{Aeq}, L_{A90}, L_{A10} and L_{Amax} metric parameters were measured and recorded. All broadband measurements were A-weighted and used a fast time constant (0.125s).

15A.2.6 At each measurement location, the SLM was mounted on a tripod with the microphone set between 1.2m to 1.5 m above local ground level. All measurements were taken under acoustically free-field conditions, except where otherwise stated. The appropriate windshield for the SLM was fitted to the microphone throughout to minimise wind-induced noise.

15A.2.7 Attended measurements of 15 minutes duration were made at monitoring locations on 2nd June 2026 over several consecutive hours. Unattended monitoring was undertaken continuously, at 15 minutes measurement intervals, between 2nd June 2026 and 10th June 2026.

15A.2.8 A weather logger was installed at Location A_U1. The meteorological data included wind speed, wind direction and rainfall. Data affected by adverse weather conditions or atypical events should be identified and excluded from the derivation of representative baseline values, where appropriate. No data were excluded from the unattended monitoring data as the weather speed during the entire measurement period was below 5 m/s, with no rainfall or atypical events recorded.

Baseline for assessment

15A.2.9 Baseline sound levels have been derived from the measurement results presented in this appendix to inform the preliminary construction and operational noise assessments for the proposed WMEL-A substation area. These values are presented in **Table 15A.2**.

Table 15A.2 Baseline sound levels adopted for the assessment

Measurement Location	Existing Baseline noise level (dB)			
	For Operational noise assessment		For construction noise assessment	
	Daytime L_{PA90}	Night-time L_{PA90}	Daytime L_{pAeq}	Night-time L_{pAeq}
A_U1	46	35	51	48
A_A1	38	-	54	-

15A.3 Measurement results

Attended measurements – Location A_A1

The summary tables for the measurement location provide an arithmetic average of the individual measurements during each time period for L_{A90} and L_{A10}, a logarithmic average for L_{Aeq} and a range of the values for L_{Amax}.

Location description:	Attended measurement location, positioned near the junction of Post Office Lane and Back Lane, is considered representative of residential properties in the village of Burton Coggles.
Measurement period:	Tuesday 02/06/2026 12:02 to Tuesday 02/06/2026 14:08
Weather conditions:	Average Wind speed: 2.9 m/s Wind direction: NW Summary: Sunny and clear conditions
Environment and observations:	The sound environment during the survey was influenced by agricultural activity associated with Cholmeley Farm, natural sounds including bird song, and rail movements on the nearby railway (dominantly used by London North Eastern Railway (LNER) and East Midlands Railway (EMR). Road traffic on Post Office Lane was observed to be infrequent during the survey period.
Image:	Image 15A.2 Attended Location A_A1

Table 15A.3 Measured sound pressure levels at A_A1

Date	Time		Sound Pressure Level, dB(A) (re 20 µPa)				Comments
	Start [hh:mm]	Duration [hh:mm:ss]	L_{90}	L_{eq}	L_{10}	L_{max}	
02/06/2026	12:02	00:15:00	38	55	50	74	Main source of noise was farm machinery sound from Cholmeley Farm and frequent train passes roughly every minute. The trains form of either 9 coaches or 4 coaches. Extensive bird song audible.
02/06/2026	13:32	00:15:00	38	51	49	72	Farm machinery processes continued to be audible. Three train passes were observed.
02/06/2026	14:08	00:15:00	37	55	53	74	Impulsive sound (banging sounds) associated with activities from the farm. One car pass-by on Post Office Lane and six train passes were observed.

Unattended measurements – Location A_U1

The summary tables for the measurement location provide an arithmetic average of the individual measurements during each time period for L_{A90} and L_{A10}, a logarithmic average for L_{Aeq} and a range of the values for L_{Amax}.

Time history and statistical distributions of measured background sound levels are presented in **Image 15A.5.**

Location description:	Unattended measurement location in the back garden of a property adjacent to the A151.
Measurement period:	Tuesday 02/06/2026 11:12 to Thursday 10/06/2026 10:12
Weather conditions:	Average Wind speed: 1.4 m/s Highest Wind speed: 3.9m/s Wind direction: NW Summary: Sunny and clear conditions
Environment and observations:	Road traffic on the A151 is dominantly contributing to the existing noise climate at this location. The sound level meter was located in the back garden of the property.
Image:	Image 15A.3 Unattended Location A_U1

Table 15A.4 Measured sound pressure levels at A_U1

Period	**Sound Pressure Level, dB(A) (re 20 µPa)**			
	L_{90}	**L_{eq}**	**L_{10}**	**L_{max}**
Day (07:00-23:00)	46	51	55	54-89
Night (23:00-07:00)	35	48	47	33-88

Image 15A.4 Time History of measurement for measurement period at A_U1

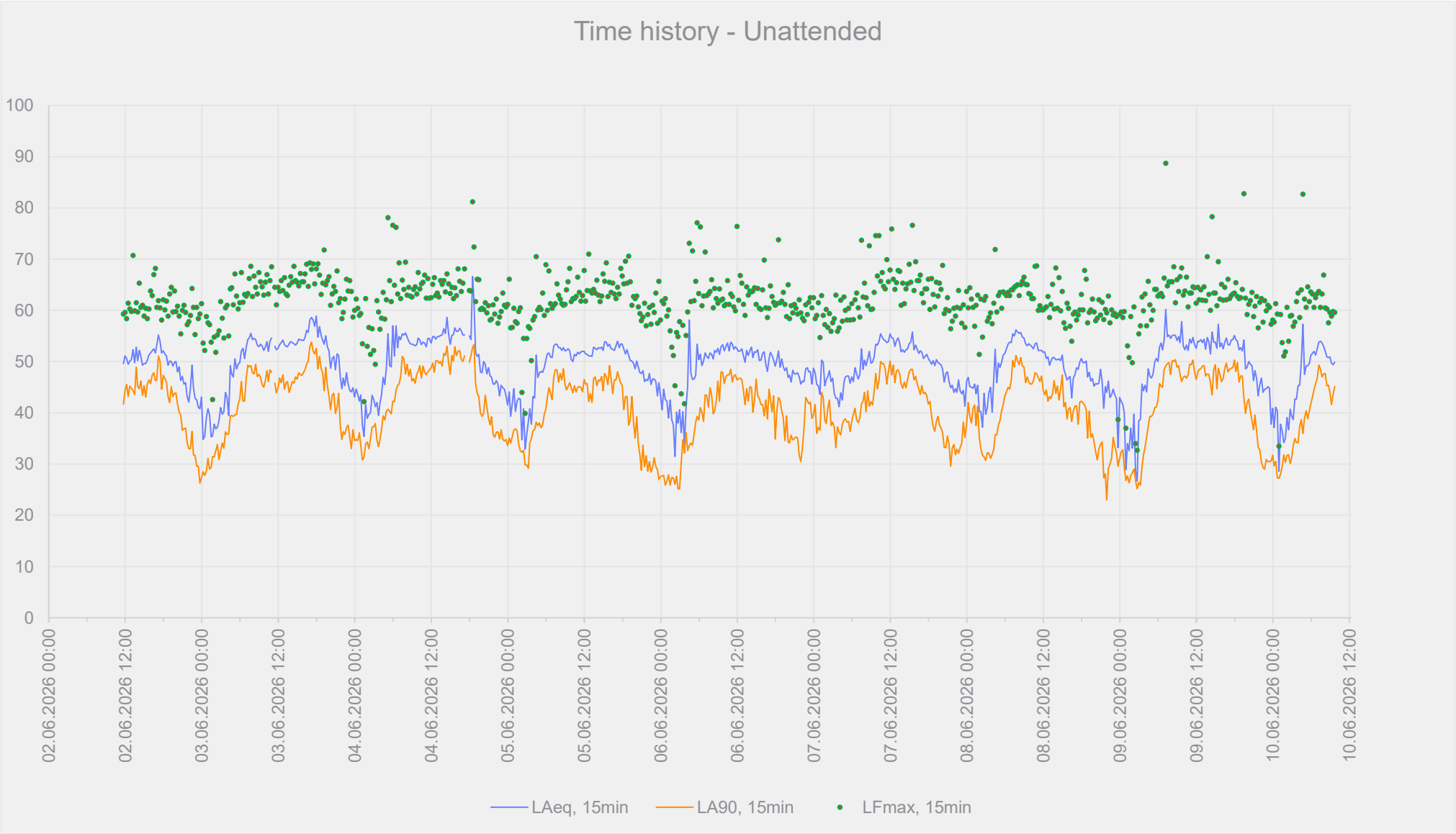


Image 15A.5 Background noise level $L_{A90,T}$ Daytime statistical distribution at A_U1

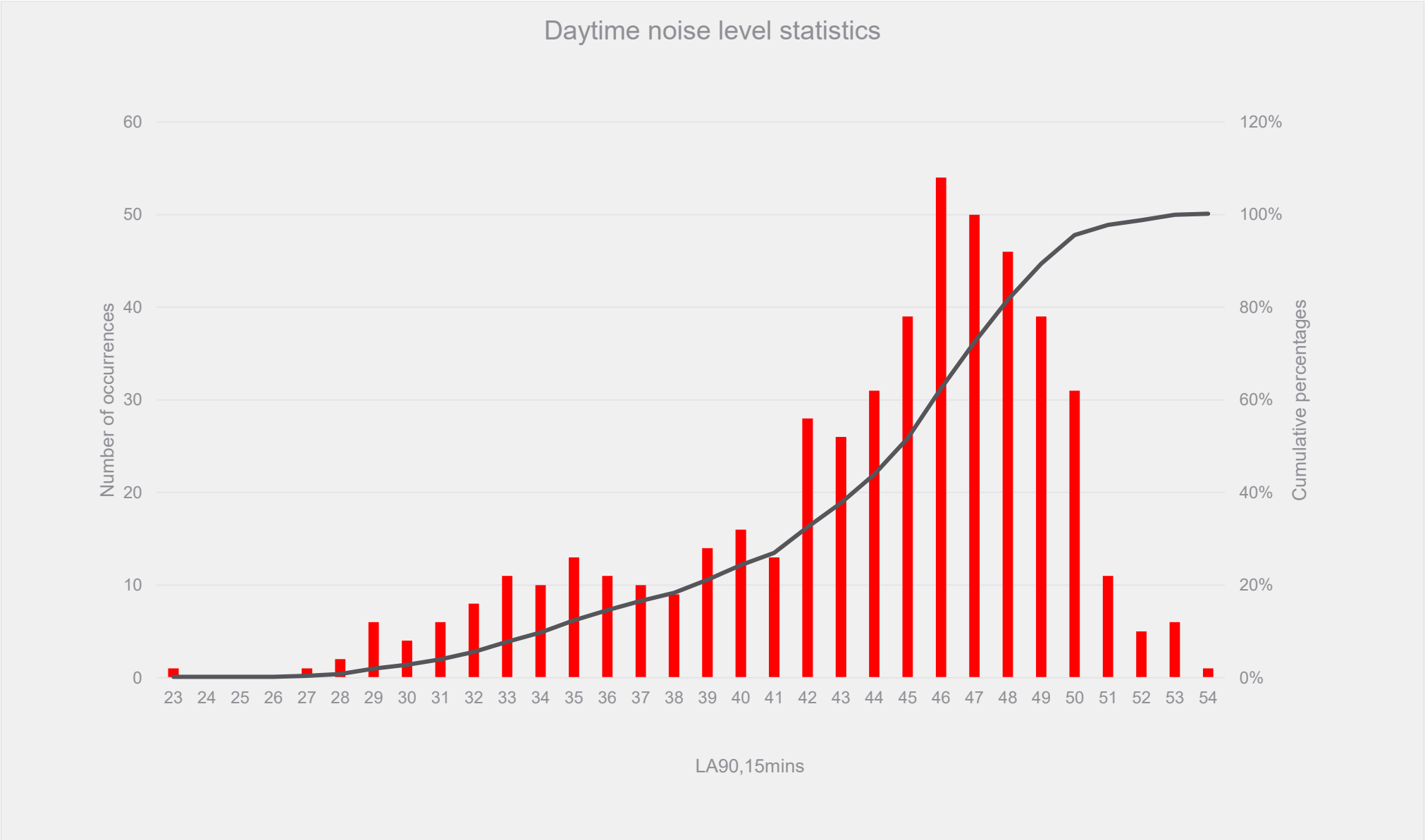


Image 15A.6 Background noise level $L_{A90,T}$ Night-time statistical distribution at A_U1

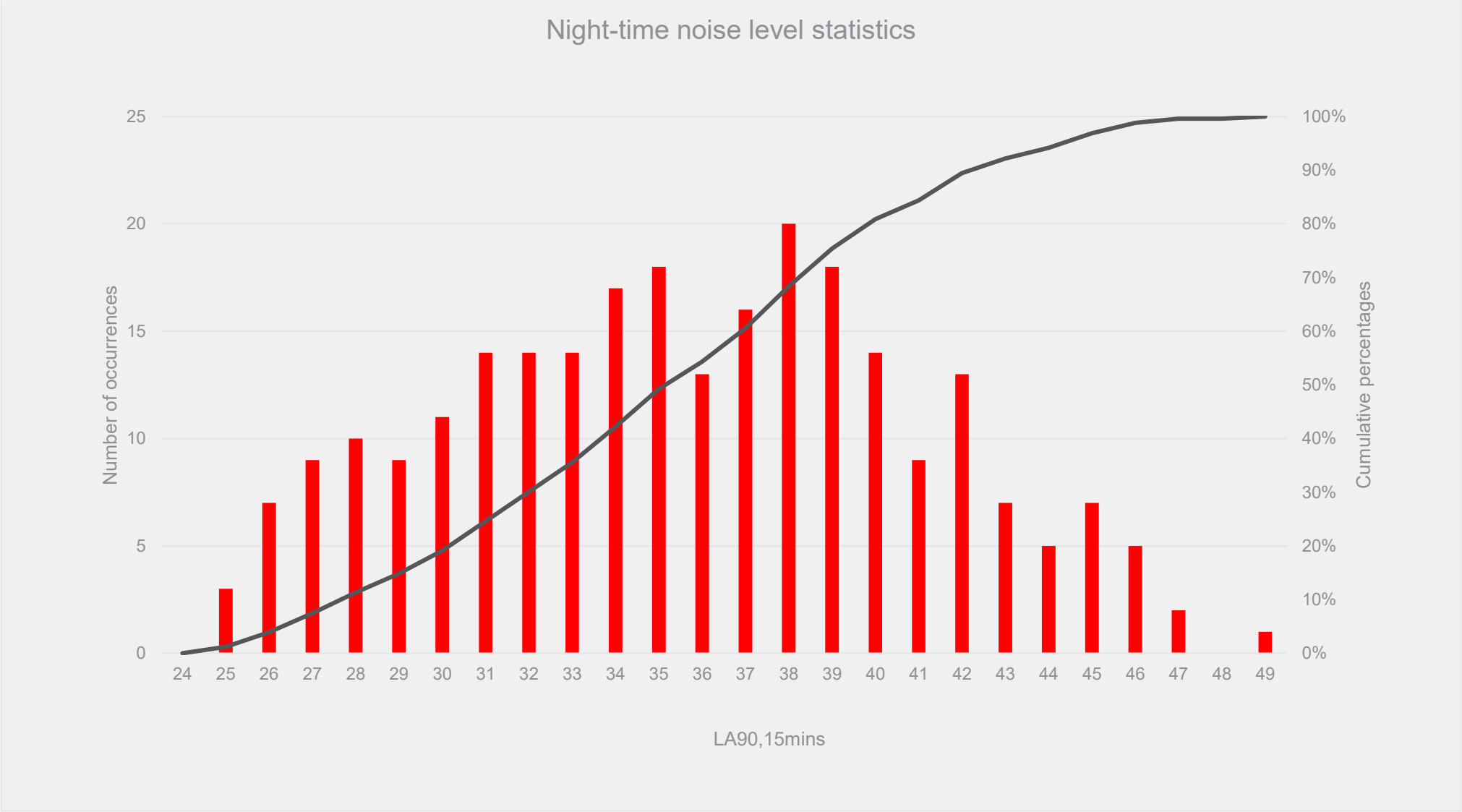
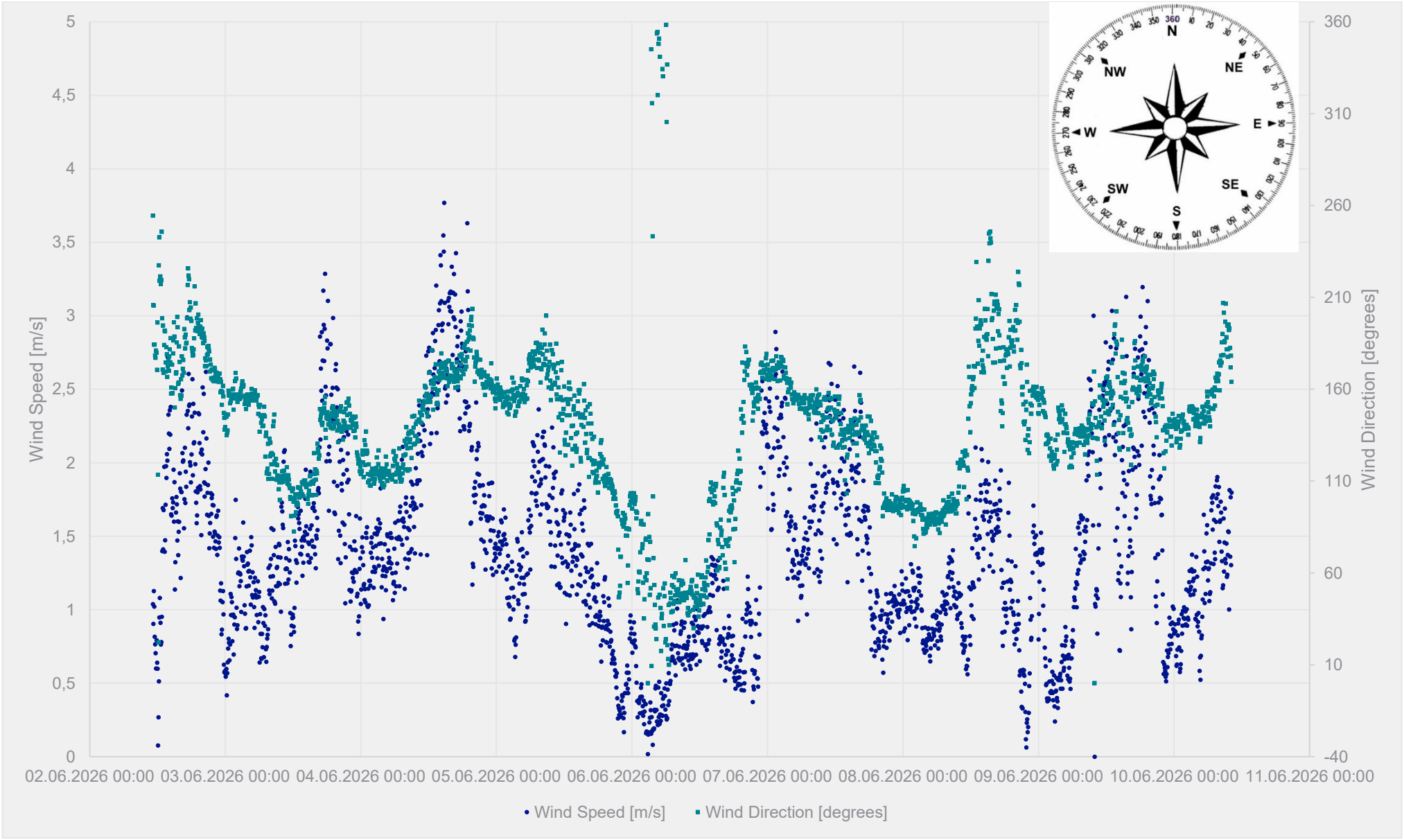


Image 15A.7 Time history of wind speed and direction at A_U1



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