

9 March 2022

MAC201079-02LR3

Attention: Yannis Comino
SLR Consulting Australia Pty Ltd
Suite 2B, 125 Bull Street
Newcastle West NSW 2302

Dear Yannis,

Memorandum: Acoustic Certification Review

McDonald's Operation, 164 Warringah Road, Beacon Hill, NSW.

1 Introduction

Muller Acoustic Consulting Pty Ltd (MAC) has been commissioned by SLR Consulting Australia Pty Ltd (SLR) on behalf of McDonald's Australia Ltd (MCD) to conduct an Acoustic Certification (AC) of modified operating hours for the McDonald's Operation located at 164 Warringah Road, Beacon Hill, NSW (the 'operation'). The AC has been completed as part of the certification process for the operation and is required as part of Condition prescribed by Northern Beaches Council. The Condition from of the Development Consent states that:

a) Throughout the duration of the 24 month trial statements of certification must be obtained from a suitably qualified acoustic consultant and provided to Council in March 2021 and March 2022. These statements are to certify that noise and vibration from the development (including all plant and equipment and general operation noise sources) satisfies the relevant provision of the Protection of the Environment Operations Act 1997 and NSW Noise Policy for Industry. Acoustic monitoring during the trial period from midnight to 6 am period is to be undertaken for 3 periods of 5 consecutive nights (Saturday to Wednesday). The acoustic monitoring will be undertaken during the following times during the 24 month trial: Between 1st December 2020 and 28 February: and between 1st December 2021 and 28 February 2022.

This letter report provides a summary of certification monitoring conducted for the period between 2 December 2021 to 1 March 2022.

2 Methodology

2.1 Unattended Noise Monitoring

2.1.1 Monitoring Methodology

To quantify the ambient noise environment of the area, unattended noise monitoring was conducted at one location representative of the adjacent noise sensitive receivers on Cornish Avenue, Beacon Hill, NSW. The selected monitoring location (M1) is shown in **Figure 1** and is considered representative of surrounding residential receivers as per Fact Sheet B1.1 of the NPI.

The unattended noise survey was conducted in general accordance with the procedures described in Australian Standard AS 1055:2018, "Acoustics – Description and Measurement of Environmental Noise".

The first round of measurements were carried out using one Svantek SV200A directional noise analyser from Thursday 2 December 2021 to Thursday 16 December 2021. The second round of measurements included unattended noise measurements using one 977 noise analyser from Wednesday 6 February 2022 to Tuesday 1 March 2022.

The acoustic instrumentation used carries current NATA calibration and complies with AS/NZS IEC 61672.1-2019-Electroacoustics - Sound level meters - Specifications. Calibration of all instrumentation was checked prior to and following measurements. Drift in calibration did not exceed $\pm 0.5\text{dBA}$. All equipment carried appropriate and current NATA (or manufacturer) calibration certificates.

Data affected by adverse meteorological conditions have been excluded from the results in accordance with methodologies provided in Fact Sheet A4 of the NPI.

FIGURE 1
LOCALITY PLAN
REF: MAC201079



KEY

-  **M1** UNATTENDED MONITORING LOCATION
-  **A1** ATTENDED MONITORING LOCATION
-  **L1** HISTORIC UNATTENDED MONITORING LOCATION
-  **SITE LOCATION**

2.1.2 Unattended Noise Monitoring Results

The results of the long-term unattended noise monitoring are provided in **Table 1** and **Table 2**, with the noise monitoring charts for the unattended monitoring assessment provided in **Attachment A**.

Table 1 Background Noise Monitoring Summary - 2 December 2021 to 16 December 2021

Date	Measured Background Noise Level (LA90) dB ABL			Measured dB LAeq(period)		
	Day	Evening	Night	Day	Evening	Night
Thursday 2 December 2021	56	52	43	68	64	63
Friday 3 December 2021	57	55	43	71	64	62
Saturday 4 December 2021	58	55	44	67	64	62
Sunday 5 December 2021	58	51	41	67	63	63
Monday 6 December 2021	56	51	41	67	64	63
Tuesday 7 December 2021	57	53	43	69	65	63
Wednesday 8 December 2021	59	54	43	69	65	64
Thursday 9 December 2021	58	55	44	68	67	65
Friday 10 December 2021	59	56	45	69	65	63
Saturday 11 December 2021	59	55	45	67	65	62
Sunday 12 December 2021	57	52	42	67	63	63
Monday 13 December 2021	57	51	42	68	64	63
Tuesday 14 December 2021	56	53	41	67	64	63
Wednesday 15 December 2021	56	53	42	68	66	63
Thursday 16 December 2021	58	-	-	68	-	-
M1 – RBL / Leq Overall	57	53	43	68	64	63

Note: Excludes periods of wind or rain affected data. Meteorological data obtained from the Bureau of Meteorology Terry Hills t weather station AWS 33.69 151.22°E 199m AMSL.

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Table 2 Background Noise Monitoring Summary - 16 February 2022 to 28 February 2022

Date	Measured Background Noise Level (LA90) dB ABL			Measured dB LAeq(period)		
	Day	Evening	Night	Day	Evening	Night
Wednesday 16 February 2022	56	53	44	68	65	61
Thursday 17 February 2022	55	55	43	67	66	61
Friday 18 February 2022	56	55	44	67	67	63
Saturday 19 February 2022	56	51	44	65	67	59
Sunday 20 February 2022	56	53	42	65	70	60
Monday 21 February 2022	55	52	42	66	65	62
Tuesday 22 February 2022	57	55	46	68	65	62
Wednesday 23 February 2022	58	55	44	67	65	61
Thursday 24 February 2022	57	57	44	67	67	62
Friday 25 February 2022	58	56	45	68	67	61
Saturday 26 February 2022	58	55	45	67	64	59
Sunday 27 February 2022	55	53	43	65	63	60
Monday 28 February 2022	58	53	43	67	64	61
M1 – RBL / Leq Overall	57	55	44	67	66	61

Note: Excludes periods of wind or rain affected data. Meteorological data obtained from the Bureau of Meteorology Terry Hills t weather station AWS 33.69 151.22°E 199m AMSL.

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

The results for day and evening period on Wednesday 8 December 2021 (highlighted in red) were weather affected and hence are excluded from our assessment.

2.1.3 Road Traffic Noise Assessment

The results of the unattended noise monitoring demonstrate that there is only a minor decrease in ambient noise levels between the day and night periods, which is indicative of continuous traffic noise dominating the project area. This is consistent with the findings of the 2020/2021 unattended noise monitoring assessment.

To verify that the monitored ambient noise levels were dominated by traffic noise from Cornish Avenue and Warringah Road, MAC have reviewed traffic noise data from the RMS Traffic Counter Station #55036, which is located approximately 300m west of the operation. **Table 3** presents the AADT traffic data from the counter station and the calculated day and night flow based on a typical 80/20 split.

Table 3 Warringah Road Traffic Data 2021		
Station #	Eastbound	Westbound
55036	25567	25756
Total Flows	51323	
Split	80% Day (15hr)	20% Night (9hr)
	41058	10264

The United States (US) Environment Protection Agency's road traffic calculation method was used to predict the LAeq noise levels from Warringah Road to the unattended monitoring location. This method is an internationally accepted theoretical traffic noise prediction model. **Table 4** provides the results of the traffic noise assessment.

Table 4 Road Traffic Noise Levels dB LAeq			
Period ¹	Distance to Nearest Receiver (m)	Measured Noise Level	Calculated Traffic Noise
Residential Receivers			
Day	70	66	66
Night		61	61

Note 1: Day LAeq(15hr) 7am to 10pm, Night LAeq(9hr) 10pm to 7am.

The measured LAeq noise levels are consistent with the calculated traffic noise levels further demonstrating that the ambient environment is dominated by road traffic.

2.2 Attended Noise Monitoring

2.2.1 Monitoring Methodology

To supplement the unattended noise assessment and to directly quantify the ambient noise in the community surrounding the operation, attended noise monitoring was undertaken on Thursday 2 December 2021. The attended noise monitoring was conducted at one location, A1 (see Figure 1), using one Svanetek 971 noise analyser to quantify ambient noise levels and establish noise contributions from the operation.

The attended noise survey was conducted in general accordance with the procedures described in Australian Standard AS 1055:2018, "Acoustics – Description and Measurement of Environmental Noise". The acoustic instrumentation used carries current NATA calibration and complies with AS/NZS IEC 61672.1-2019-Electroacoustics - Sound level meters - Specifications. Calibration of all instrumentation was checked prior to and following measurements. Drift in calibration did not exceed $\pm 0.5\text{dBA}$. All equipment carried appropriate and current NATA (or manufacturer) calibration certificates.

The attended measurement was completed during calm and clear meteorological conditions and during typical night-time activities for the operation. The results of the short-term noise measurements and observations are summarised in **Table 5**.

Table 5 Operator-Attended Noise Survey Results- ATT1

Date / Time (hrs)	Descriptor (dBA re 20 µPa)			Meteorology	Description and SPL, dBA
	L _{Amax}	L _{Aeq}	L _{A90}		
01/12/2021 23:57	73	54	45	WD: NNE WS: 0.4m/s Rain: Nil	Distant Traffic 43-53 Passing Traffic 50-73 Service Station 42-43 Operation Mechanical Plant 35-37 Operation Onsite Vehicles 40-57 (60 Secs)
Metric		dB L _{Aeq}		dB L _{Amax}	
Operation Contribution		41		57	
Criteria		43		57	
Compliant		✓		✓	
02/12/2021 00:15	71	55	44	WD: NNE WS: <0.5m/s Rain: Nil	Distant Traffic 43-53 Passing Traffic 50-71 Operation Mechanical Plant 36-38 Operation Onsite Vehicles 42-57 (40 Secs)
Metric		dB L _{Aeq}		dB L _{Aeq}	
Operation Contribution		40		57	
Criteria		43		57	
Compliant		✓		✓	
02/12/2021 00:30	69	53	45	WD: NNE WS: <0.5m/s Rain: Nil	Distant Traffic 50-55 Passing Traffic 52-69 Service Station 48-51 Operation Mechanical Plant 36-38 Operation Onsite Vehicles 43-60 (70 Secs)
Metric		dB L _{Aeq}		dB L _{Aeq}	
Operation Contribution		41		60	
Criteria		43		57	
Compliant		✓		X	
02/12/2021 00:45	77	54	44	WD: NNE WS: <0.5m/s Rain: Nil	Distant Traffic 47-60 Passing Traffic 60-75 Operation Mechanical Plant 36-38 Operation Onsite Vehicles 43-56 (220 Secs)
Metric		dB L _{Aeq}		dB L _{Aeq}	
Operation Contribution		42		56	
Criteria		43		57	
Compliant		✓		✓	

3 Discussion of Monitoring Results

The results of the unattended and attended noise monitoring demonstrate that the dominant noise source in the area is passing traffic along Cornish Avenue and on nearby Warringah Road, with continuous traffic noise audible throughout all monitoring. Other dominant noise sources included local insect noise which was a significant contributing source in the area.

Onsite vehicles were audible although difficult to discern the dominant road traffic noise. Operation mechanical plant was audible throughout all measurements as a continuous background hum. Several door slams were noted at the site, with one instance during the third attended measurement being above the maximum noise trigger levels. It is also noted that the unattended and attended noise monitoring were approximately 10m closer to the operation than either of the closest noise sensitive receivers and does not take into account any intervening boundary fences. MAC have calculated the received noise level for the door slam at the façade of the residential dwelling with the received noise level calculated to be approximately 51dBA which complies with the maximum noise trigger level for the project.

Given the masking effect of the dominant noise sources, the low level noise emissions received at the monitoring location and the additional attenuation from additional distance and intervening barriers the received noise levels at surrounding receivers is not likely to cause disturbance at the dwellings.

4 Conclusion

Muller Acoustic Consulting Pty Ltd (MAC) has been commissioned to conduct an Acoustic Certification (AC) of modified operating hours of the McDonald's Operation located at 164 Warringah Road, Beacon Hill, NSW. The AC has been completed as part of the certification process for the operation.

Unattended and attended noise monitoring has been conducted adjacent to the nearest residential receiver to the operation and with the operation noise contribution found to comply with the applicable project noise trigger levels and maximum trigger levels.

Furthermore, monitoring demonstrates that passing traffic noise dominates the ambient environment with the operation noise emissions masked by traffic noise at the monitoring location.

We trust this certification is satisfactory, however if you have any further questions or would like to discuss, please contact the undersigned.

Yours sincerely



Robin Heaton
Acoustic Engineer
BEng (Hons)
rheaton@mulleracoustic.com



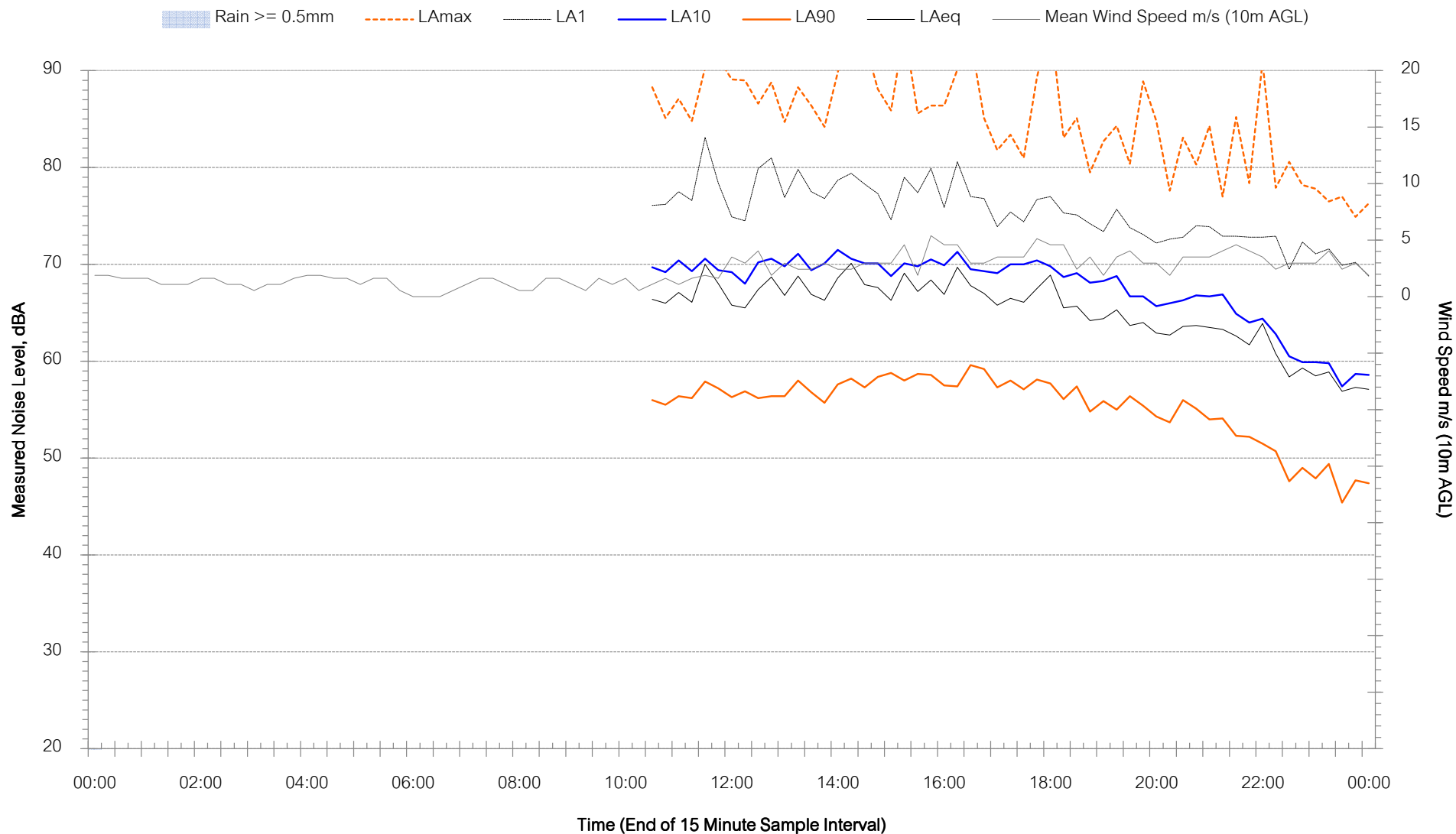
Oliver Muller
Principal Acoustic Scientist
BSc(REM & HGeog)|MAAS
omuller@mulleracoustic.com

Attachment A – Noise Monitoring Charts



Background Noise Levels

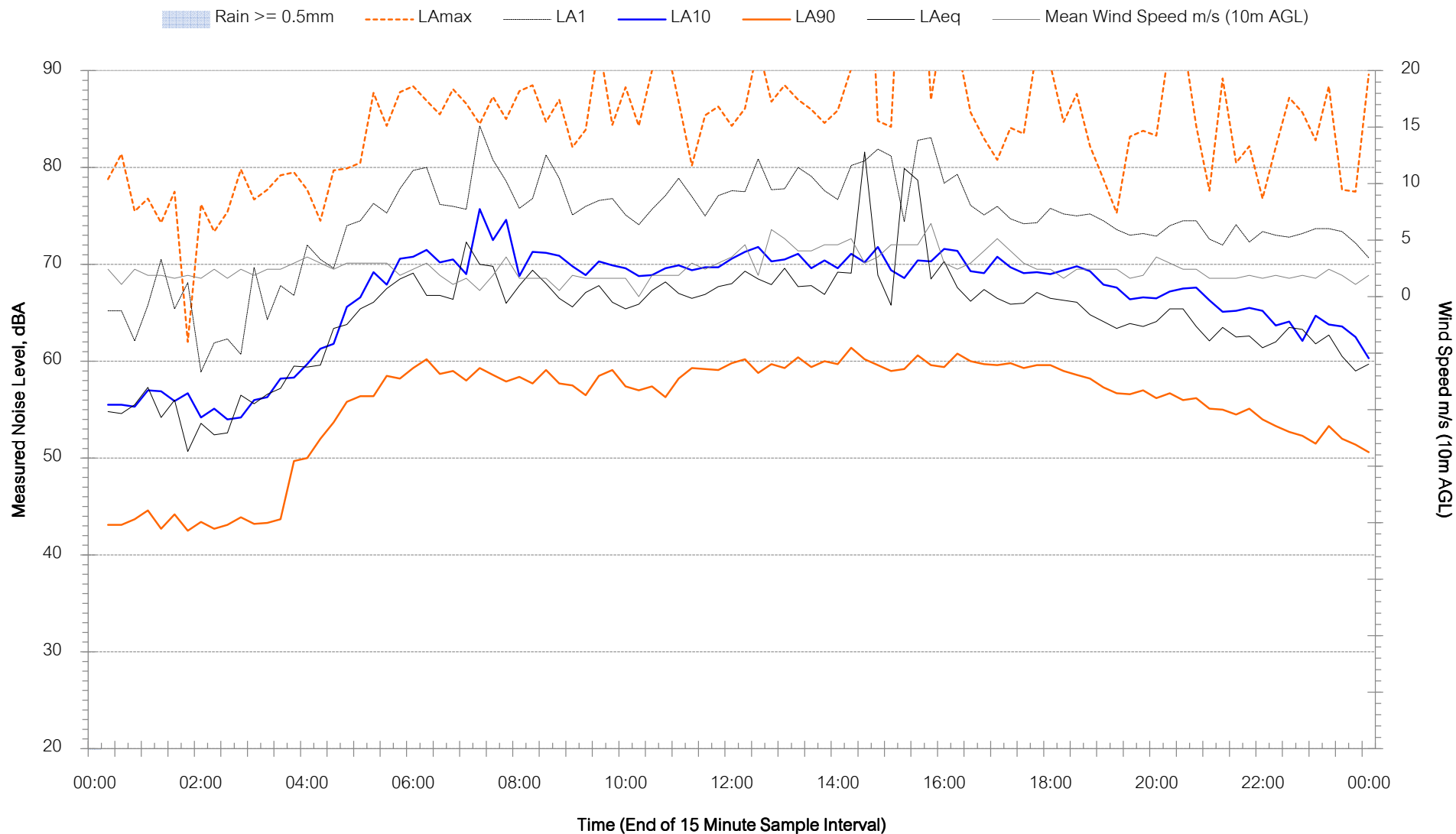
Macdonalds, Beacon Hill - Thursday 2 December 2021





Background Noise Levels

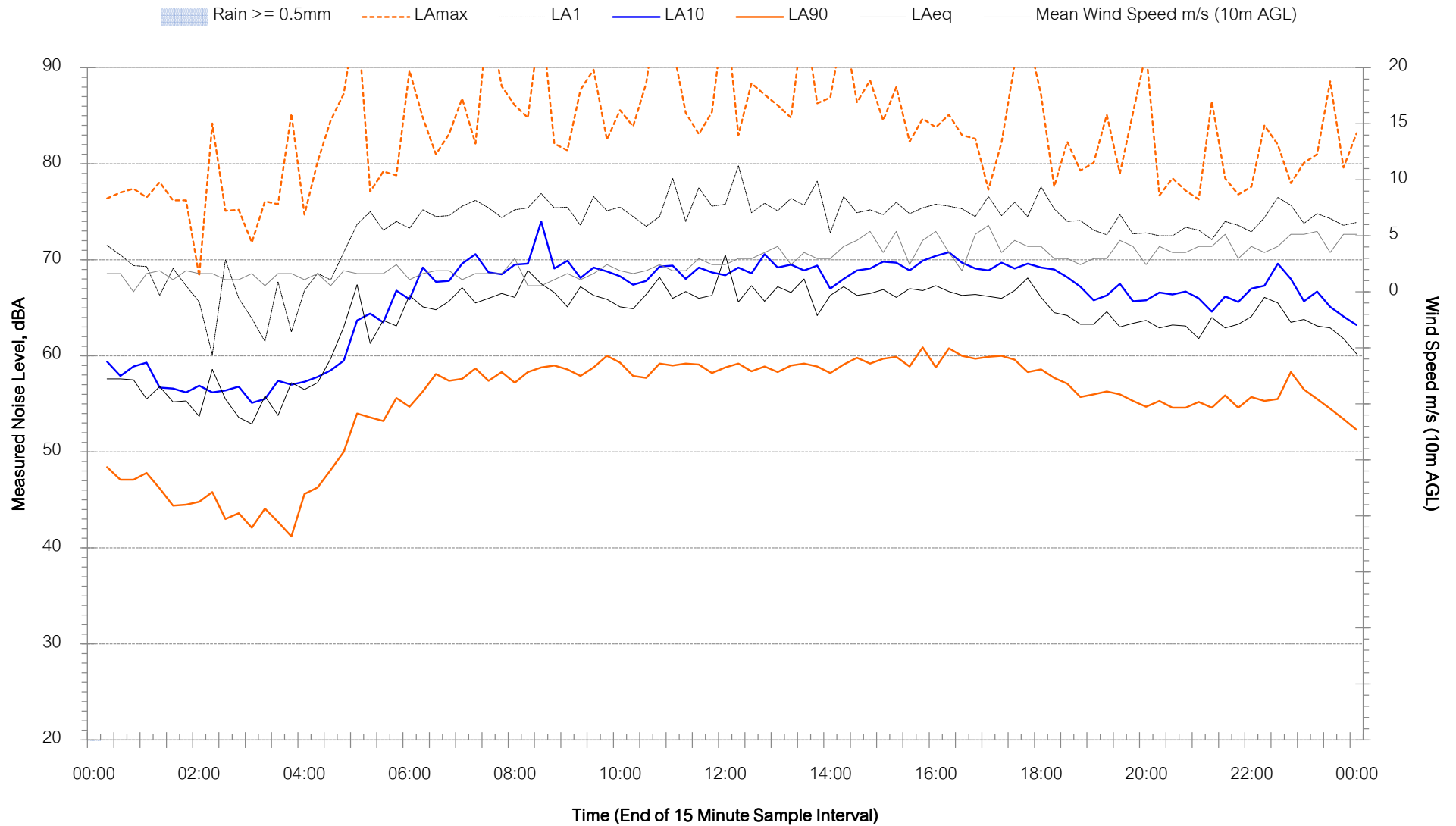
Macdonalds, Beacon Hill - Friday 3 December 2021





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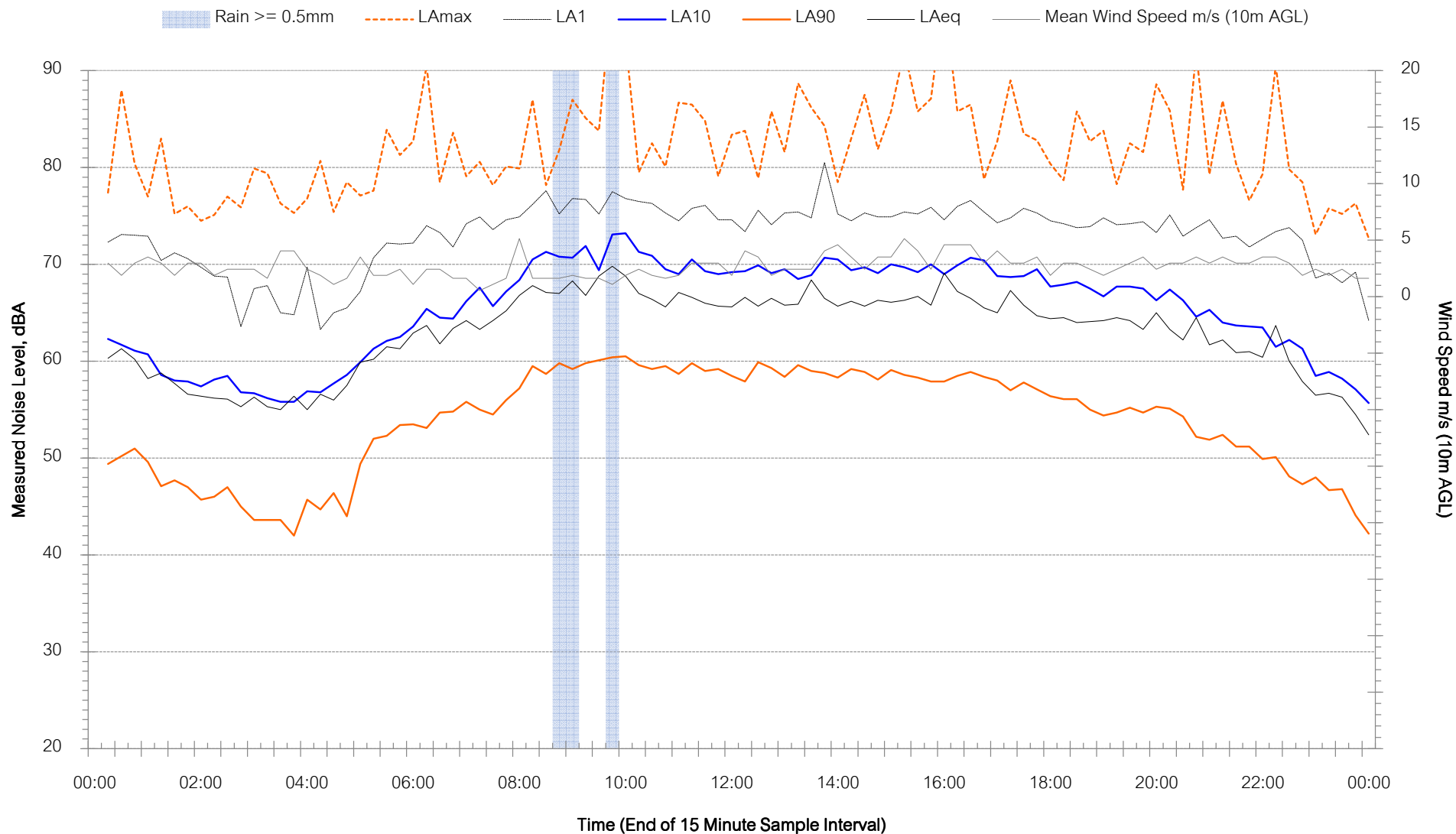
Macdonalds, Beacon Hill - Saturday 4 December 2021





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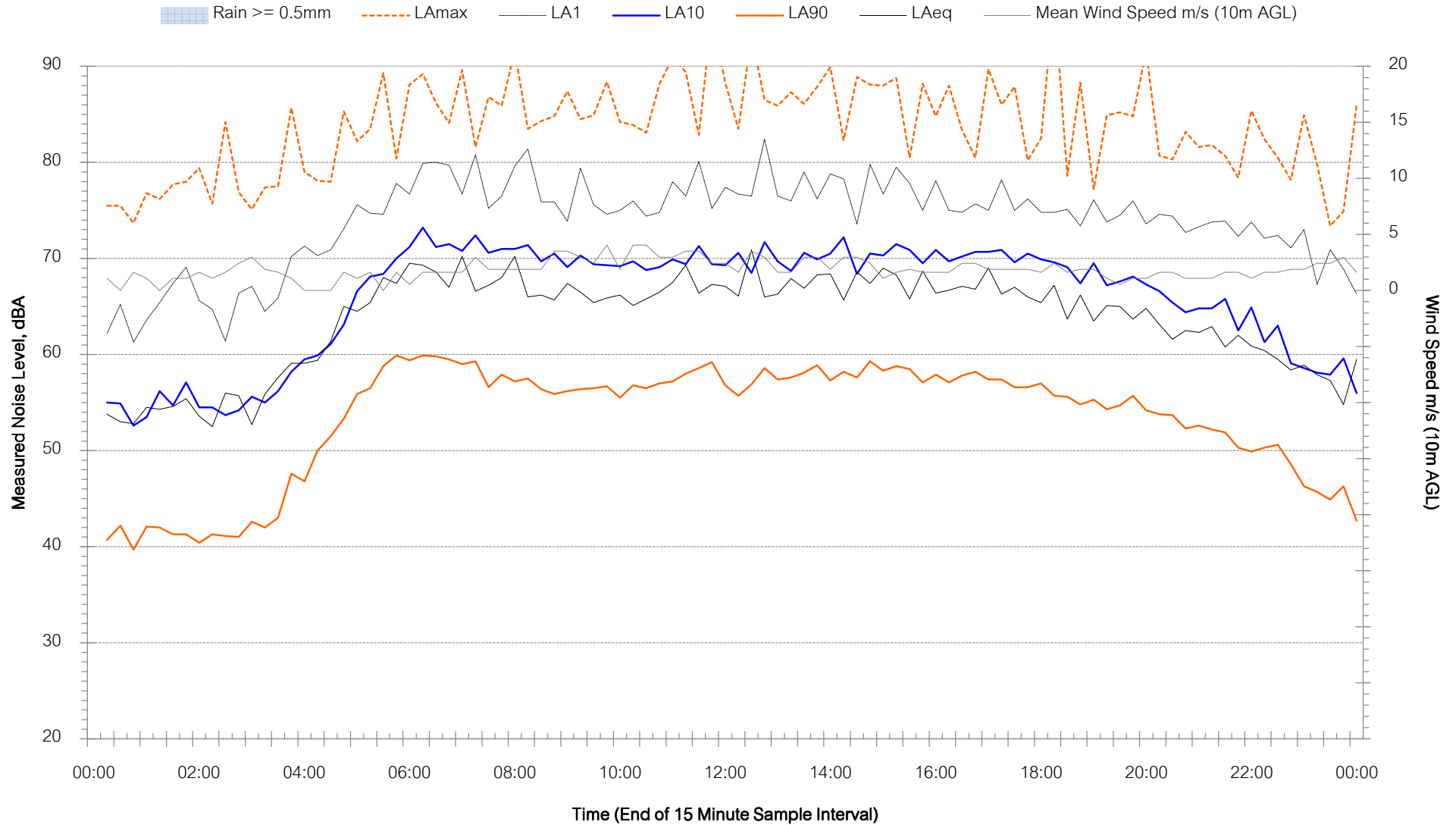
Macdonalds, Beacon Hill - Sunday 5 December 2021





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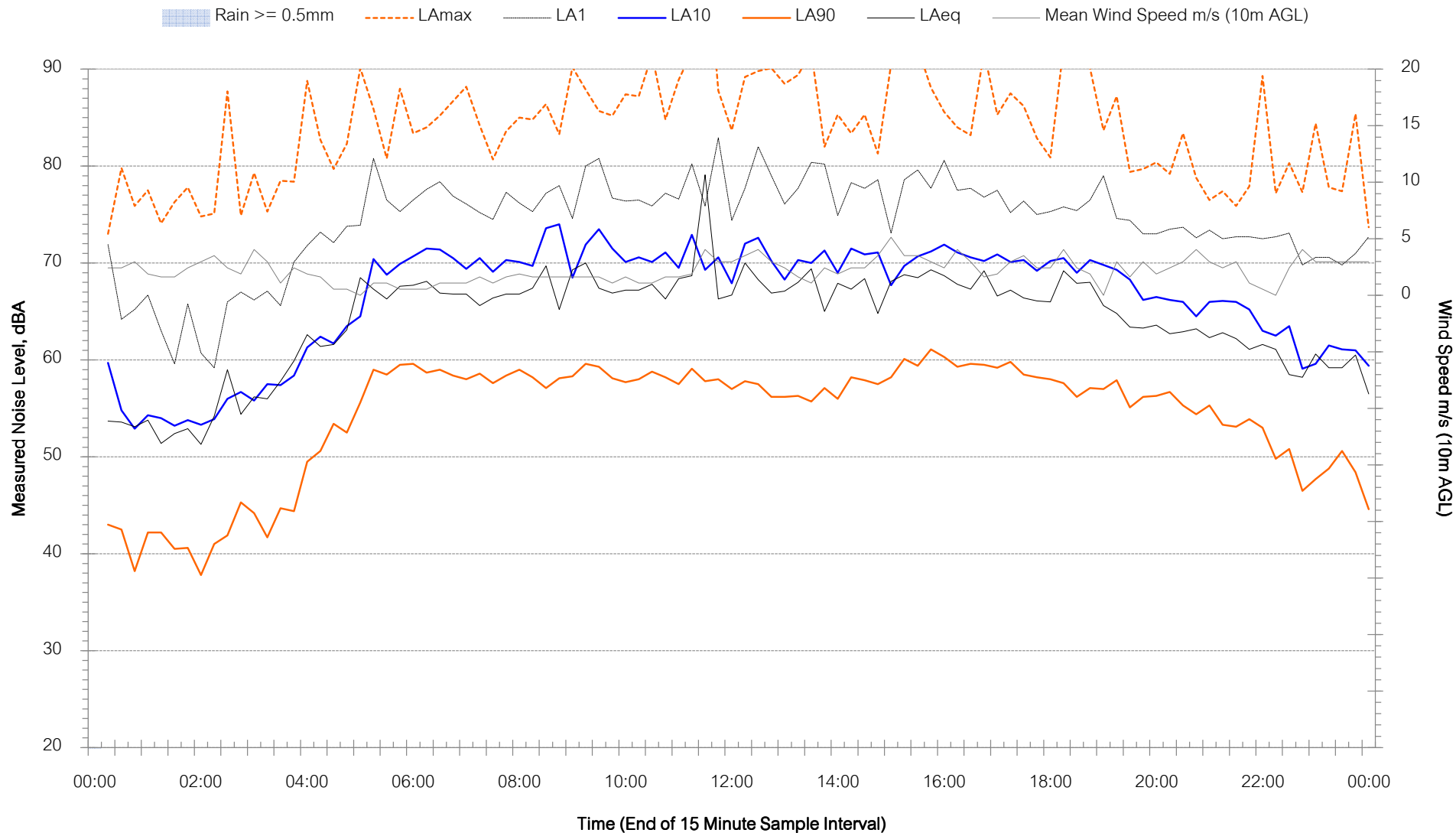
Macdonalds, Beacon Hill - Monday 6 December 2021





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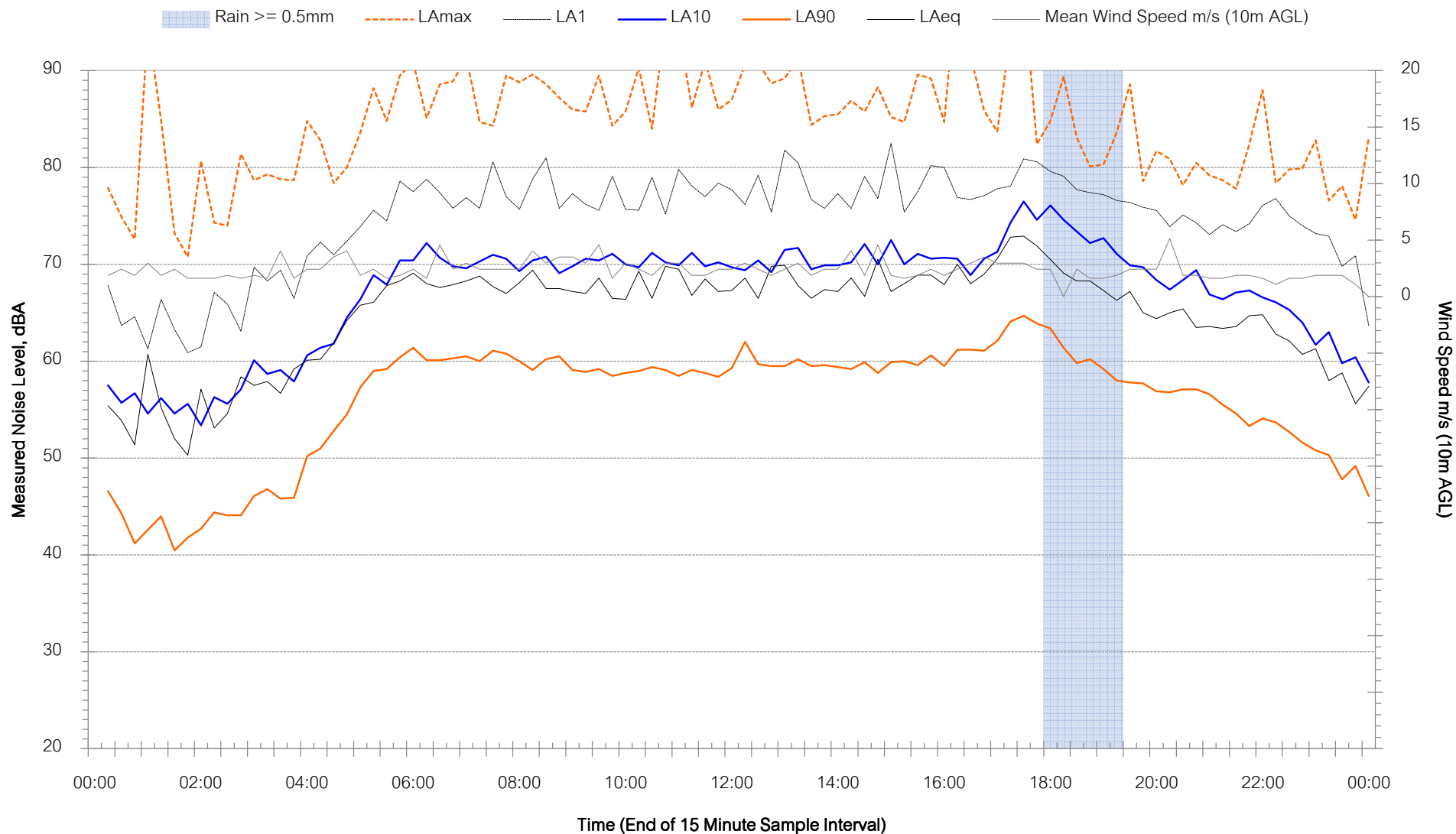
Macdonalds, Beacon Hill - Tuesday 7 December 2021





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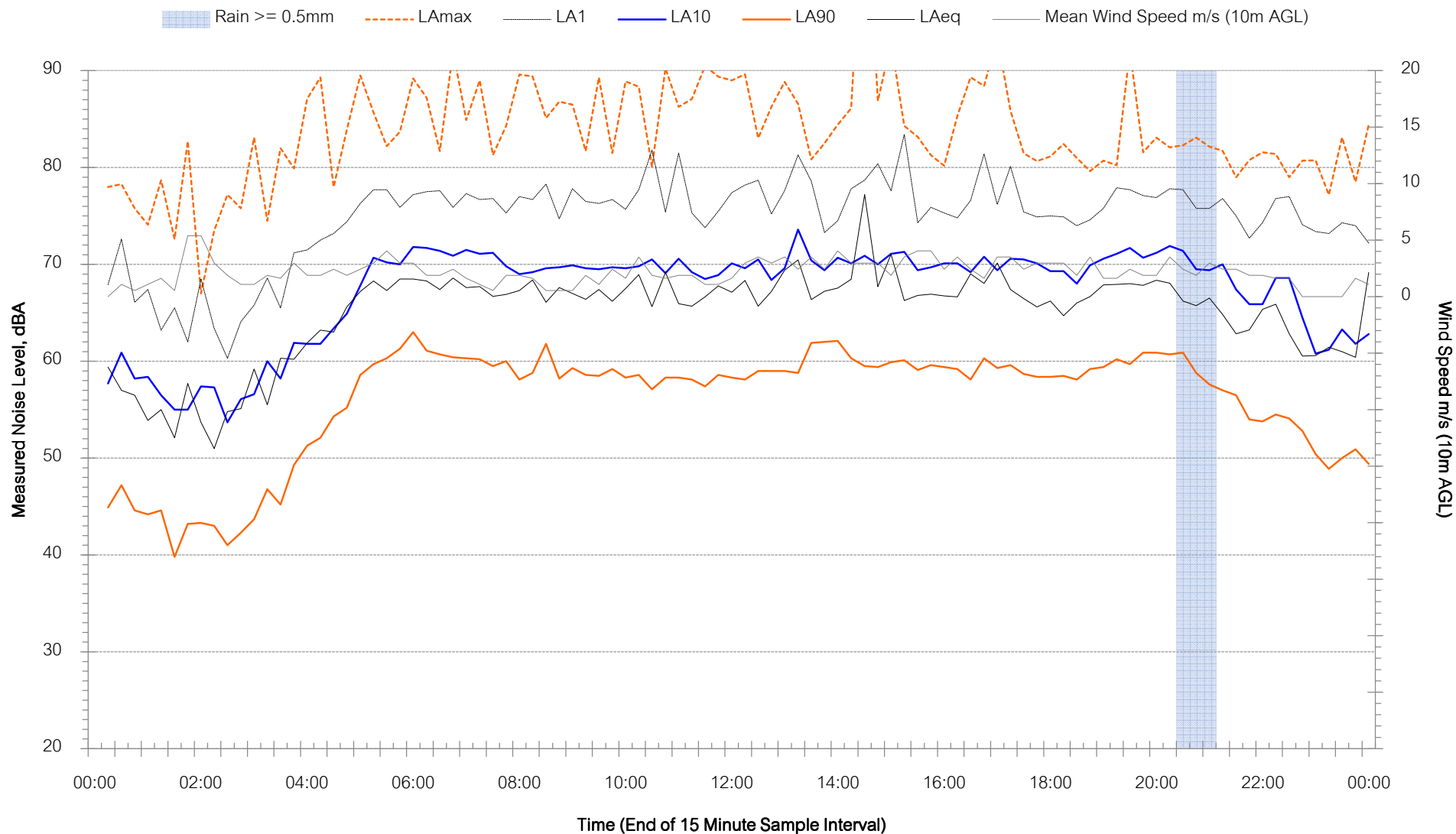
Macdonalds, Beacon Hill - Wednesday 8 December 2021





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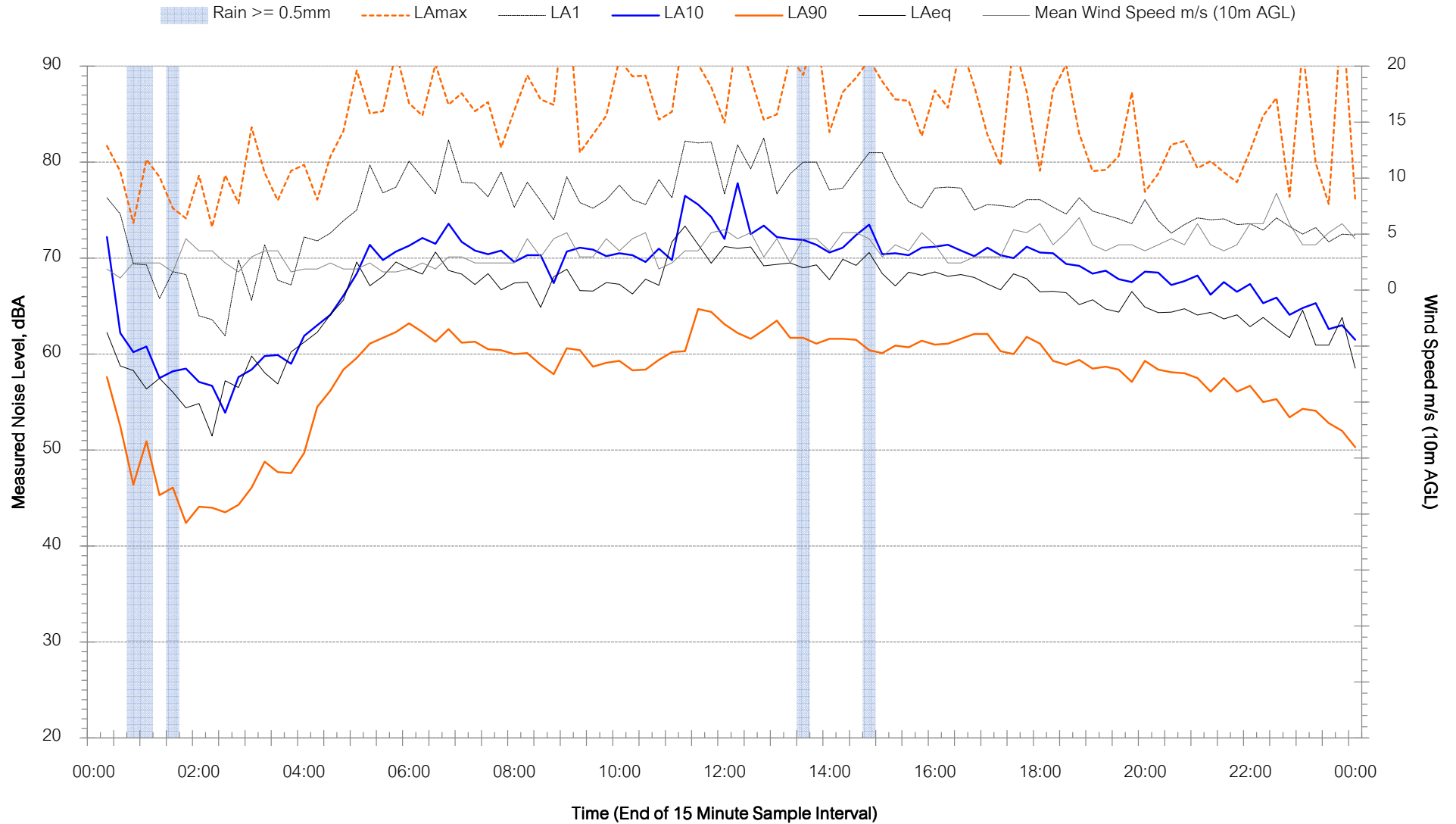
Macdonalds, Beacon Hill - Thursday 9 December 2021





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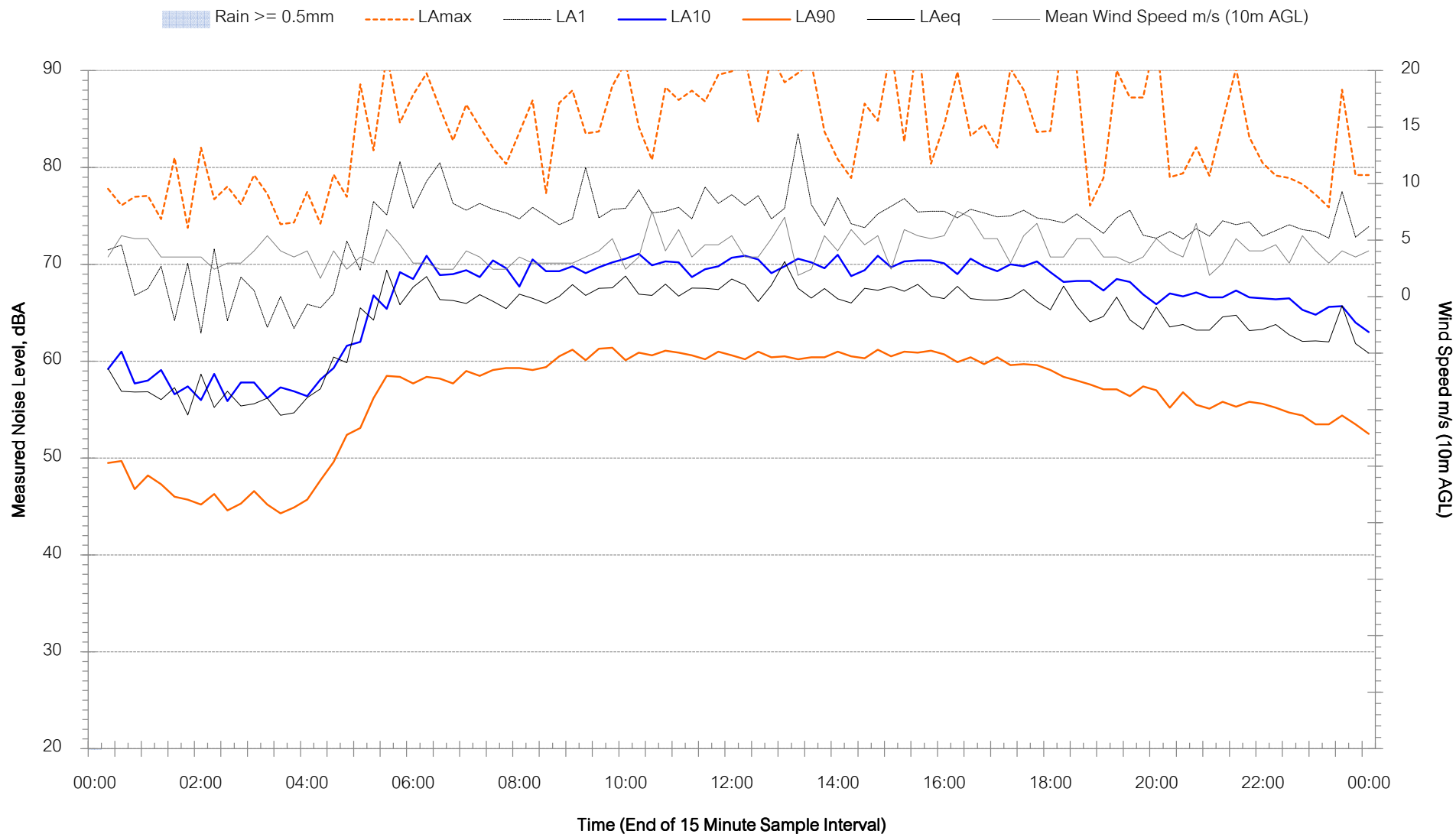
Macdonalds, Beacon Hill - Friday 10 December 2021





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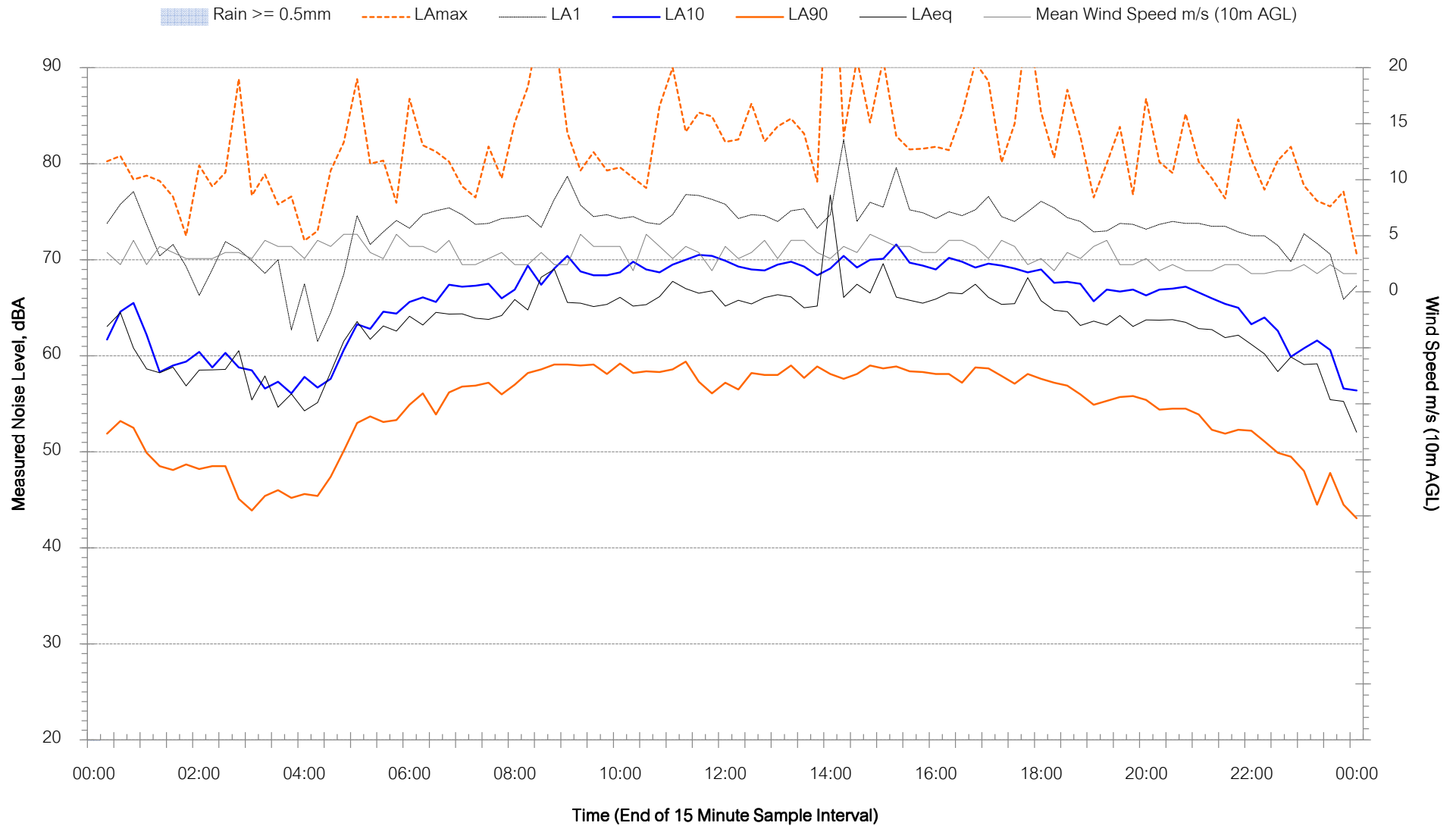
Macdonalds, Beacon Hill - Saturday 11 December 2021





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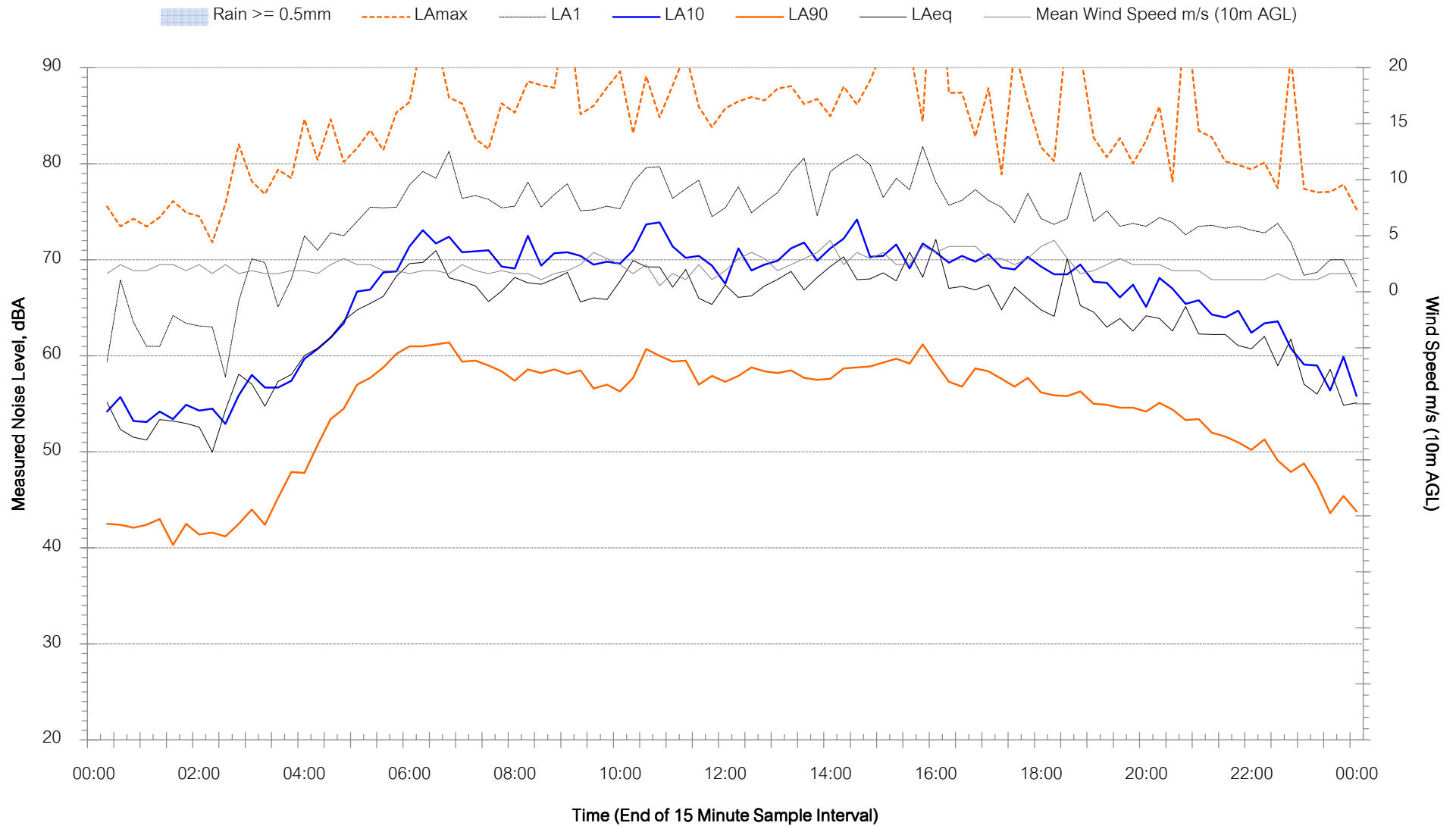
Macdonalds, Beacon Hill - Sunday 12 December 2021





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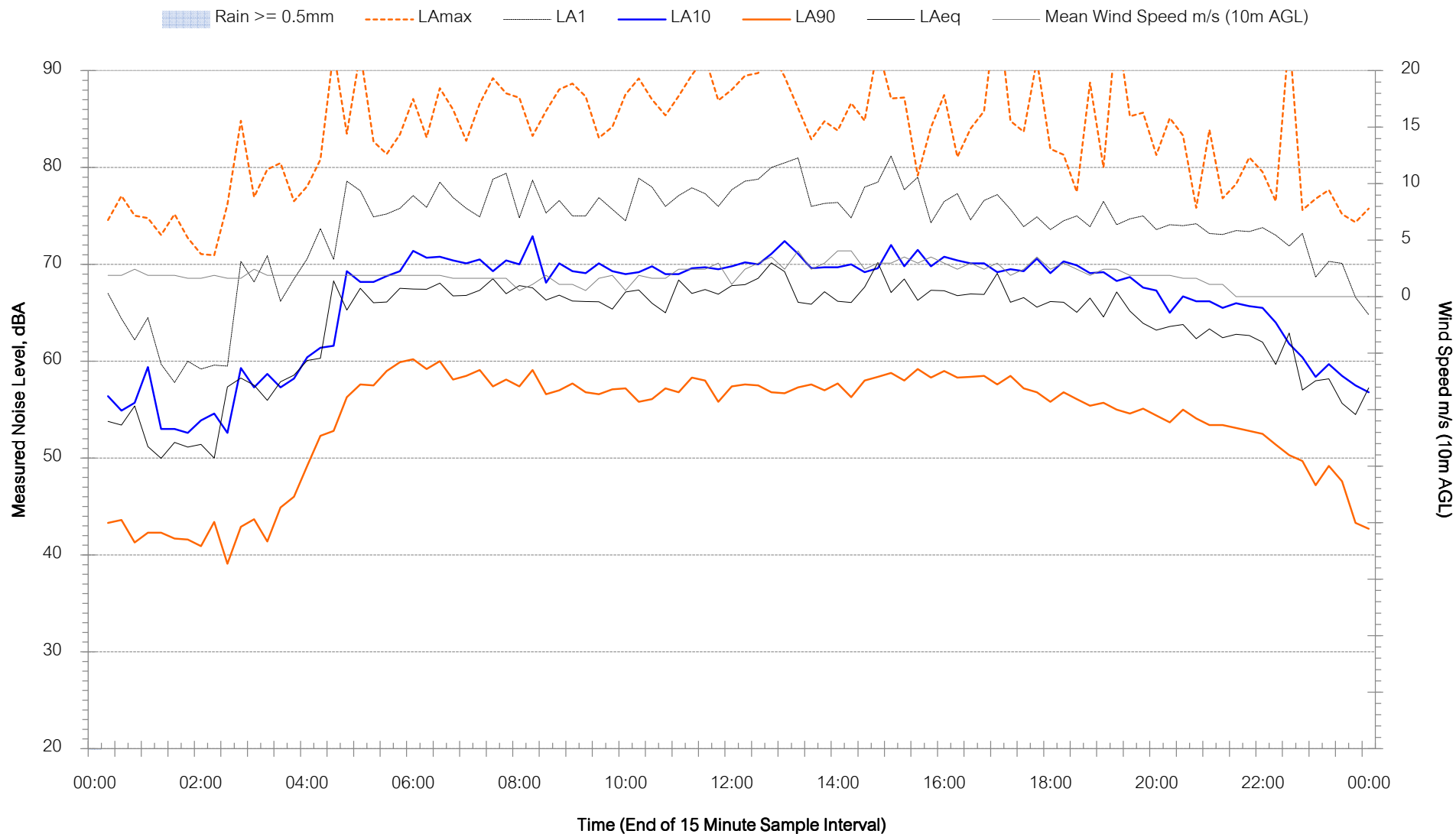
Macdonalds, Beacon Hill - Monday 13 December 2021





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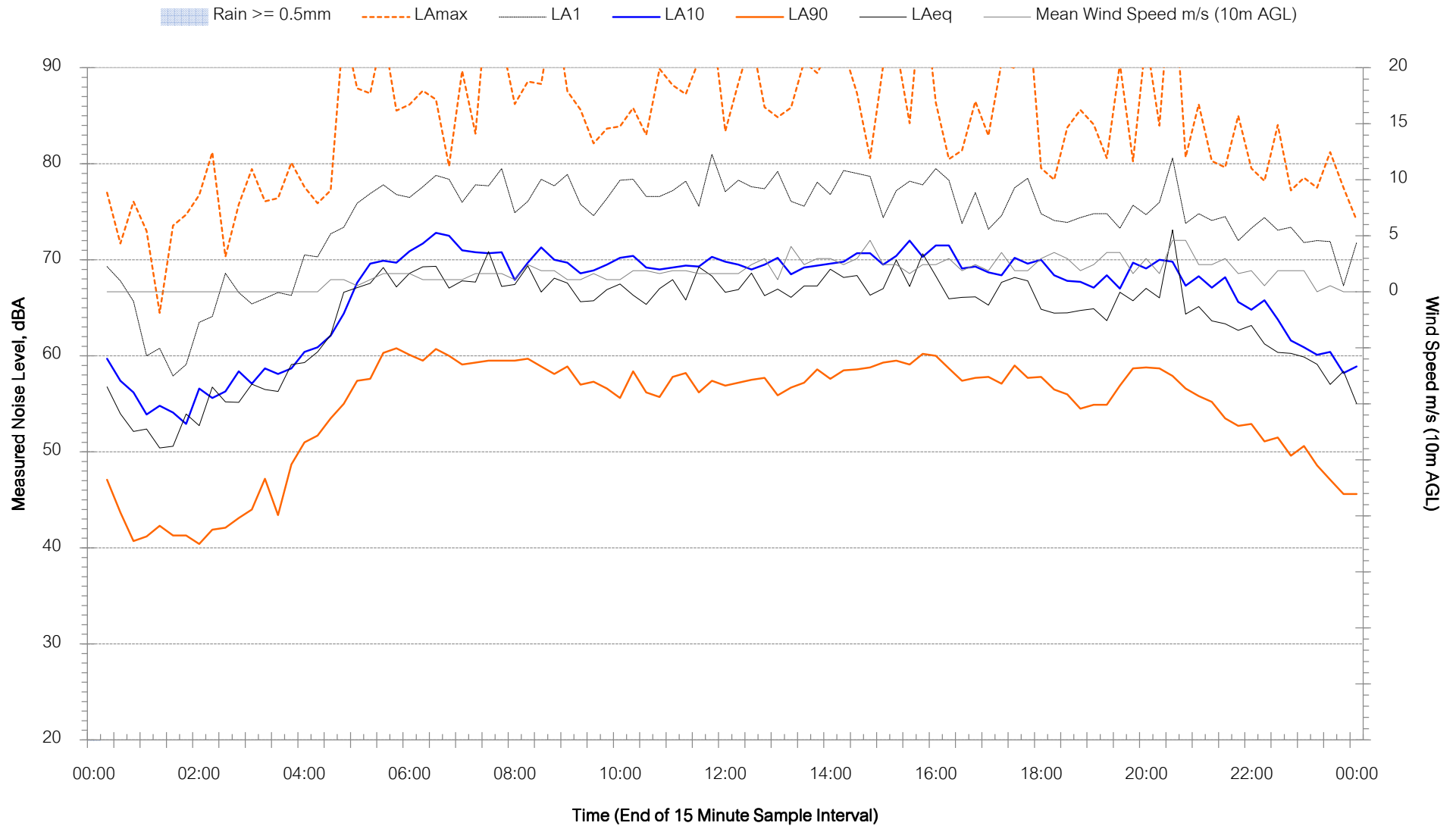
Macdonalds, Beacon Hill - Tuesday 14 December 2021





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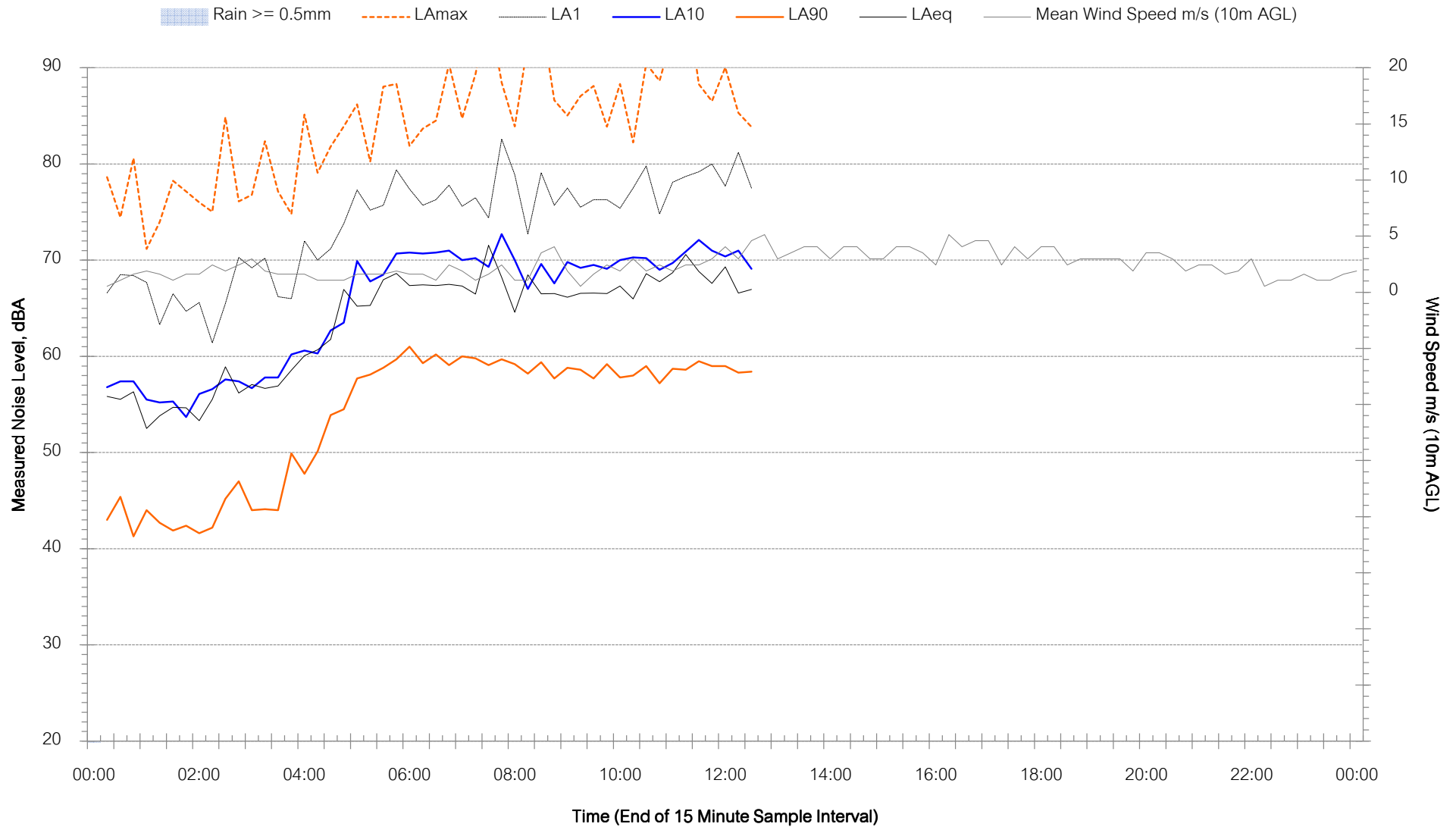
Macdonalds, Beacon Hill - Wednesday 15 December 2021





Background Noise Levels

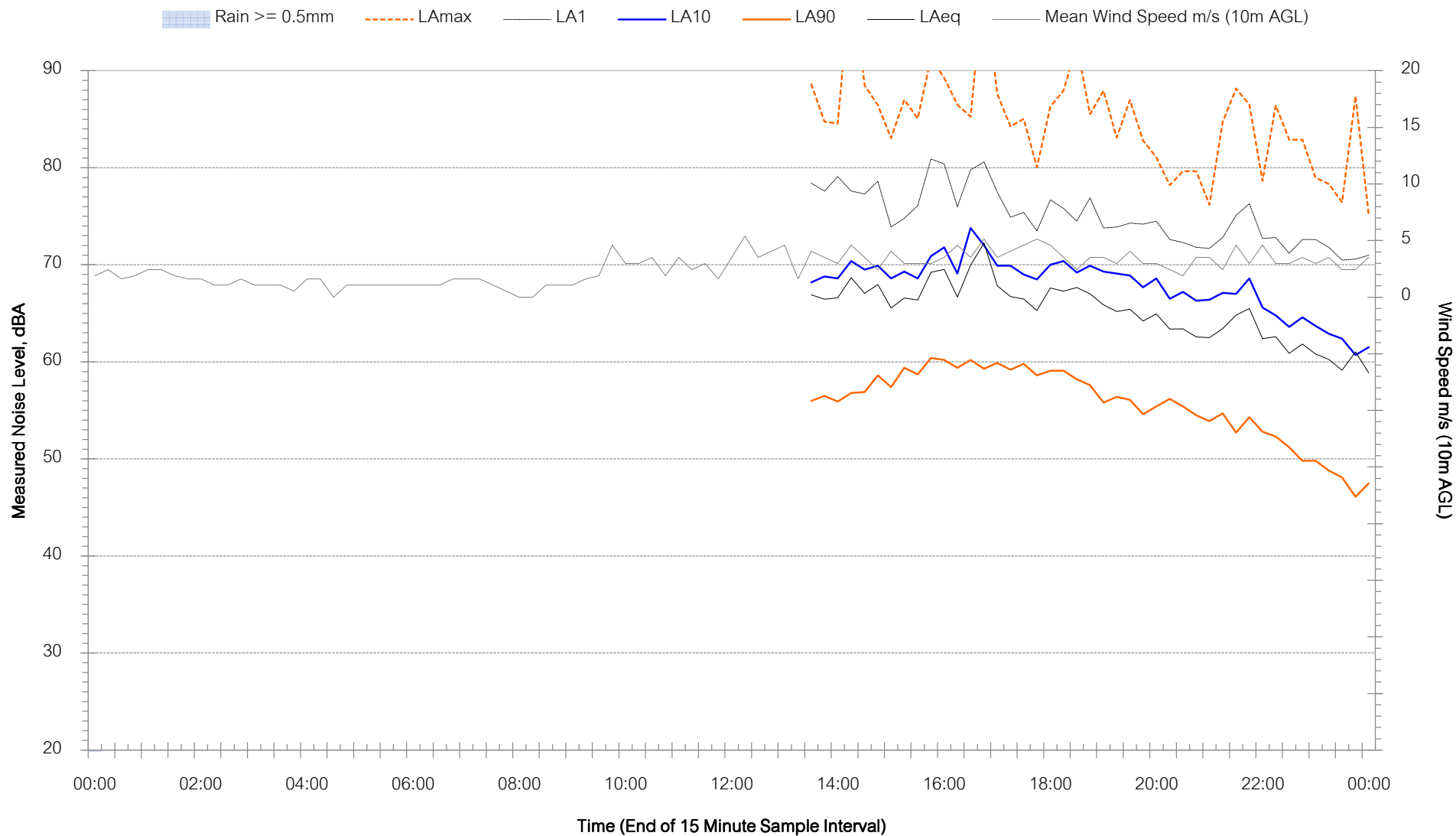
Macdonalds, Beacon Hill - Thursday 16 December 2021





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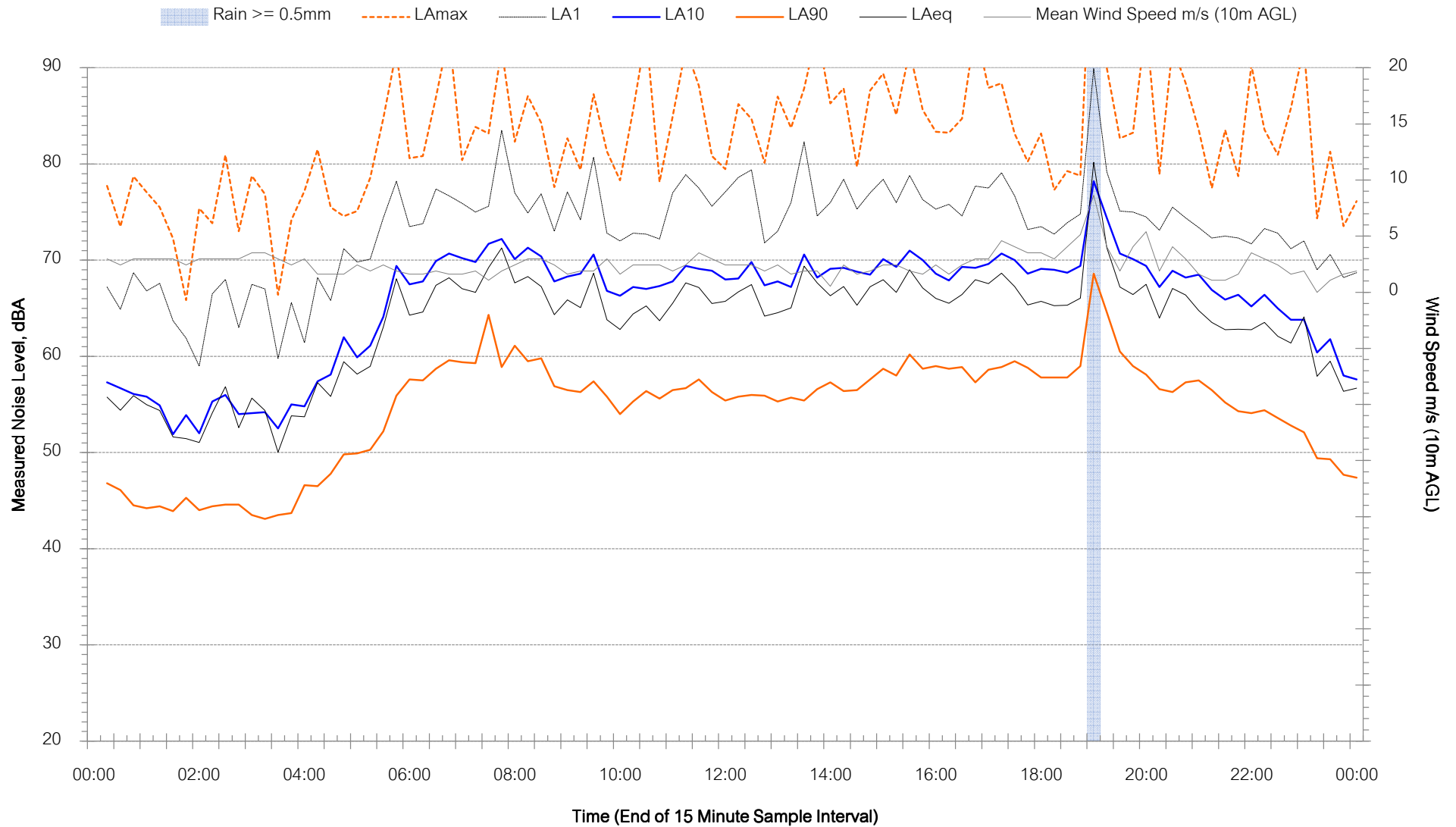
MacDonalds, Beacon Hill - Wednesday 16 February 2022





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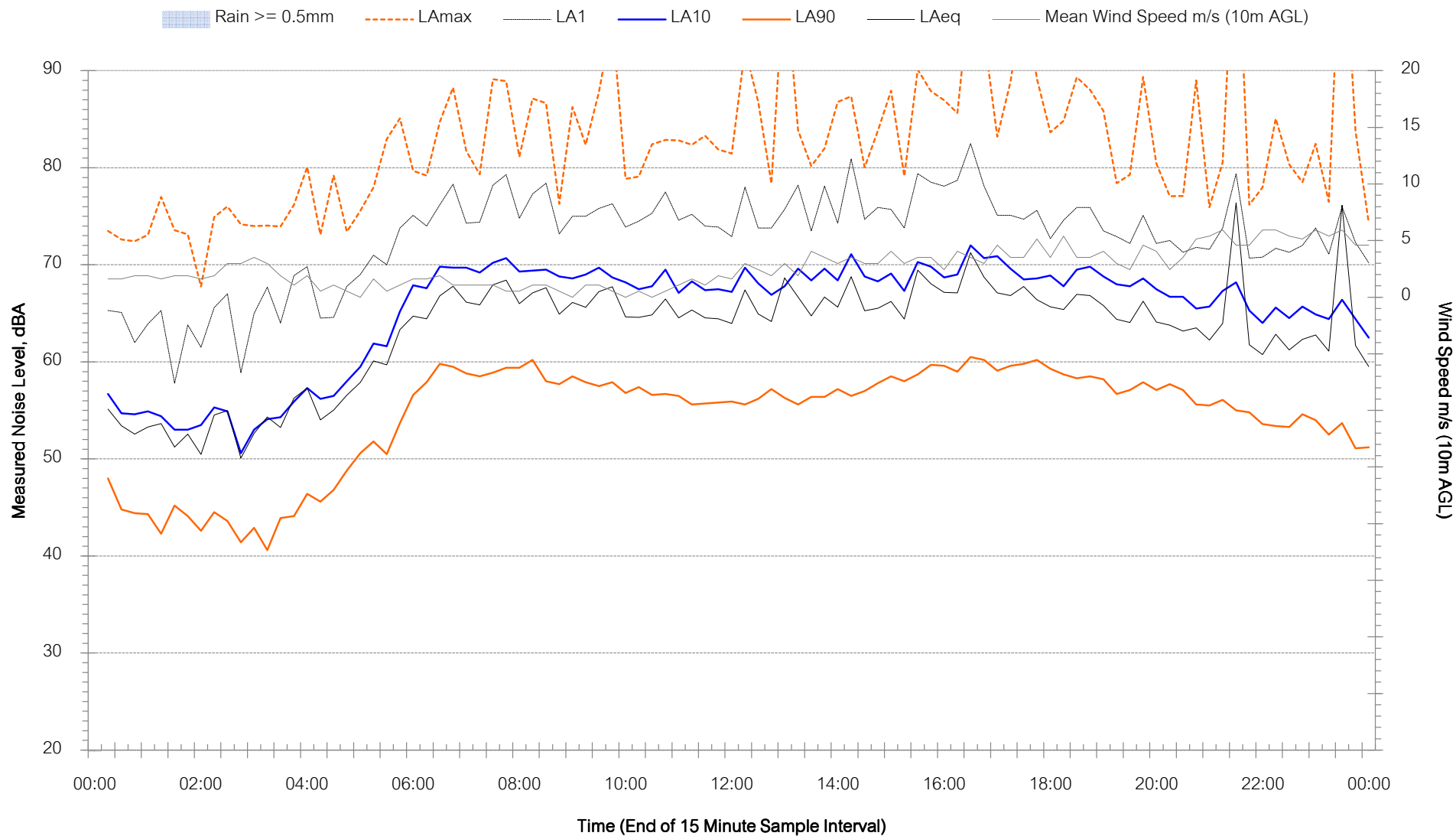
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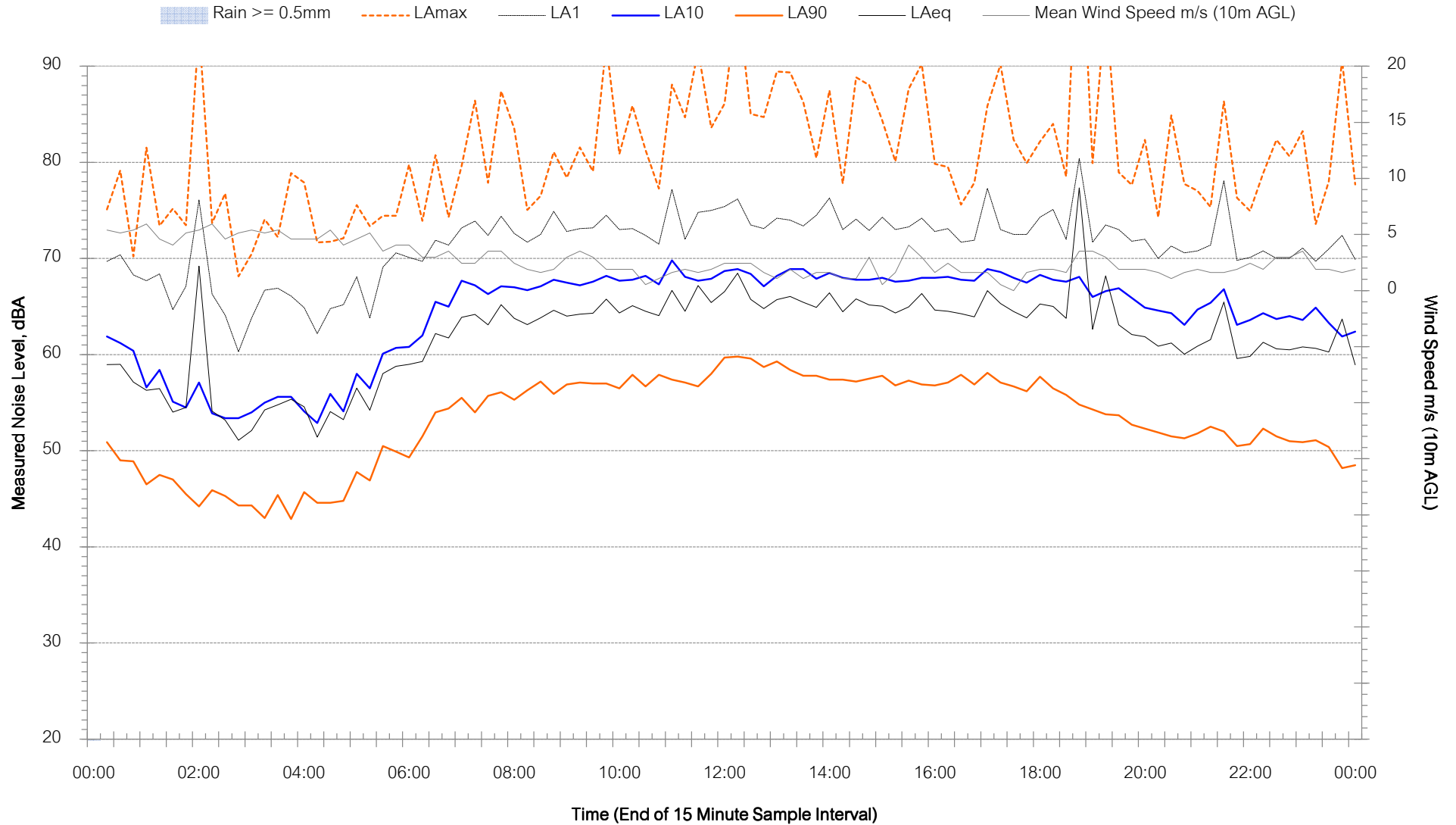
MacDonalds, Beacon Hill - Friday 18 February 2022





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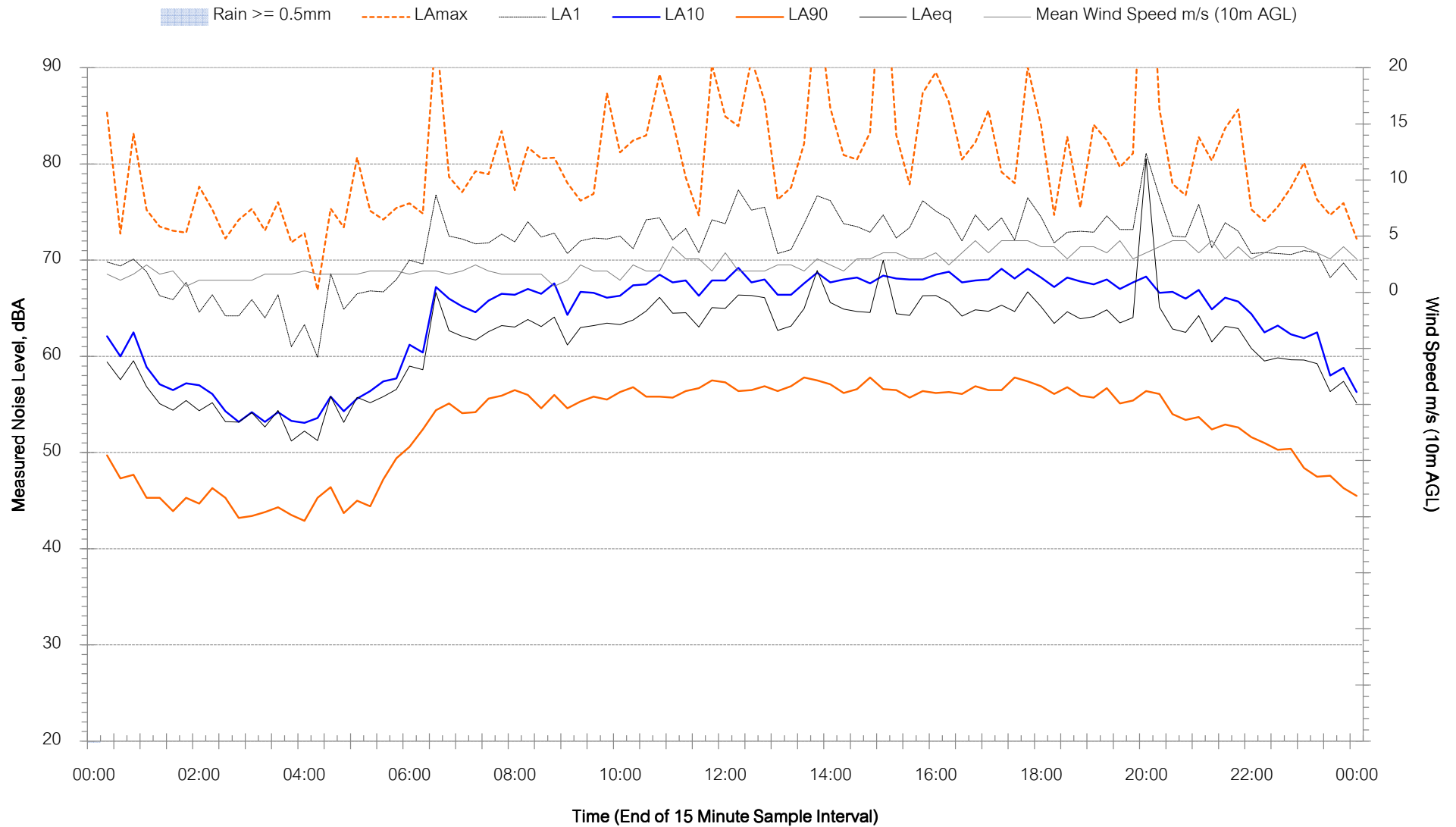
MacDonalds, Beacon Hill - Saturday 19 February 2022





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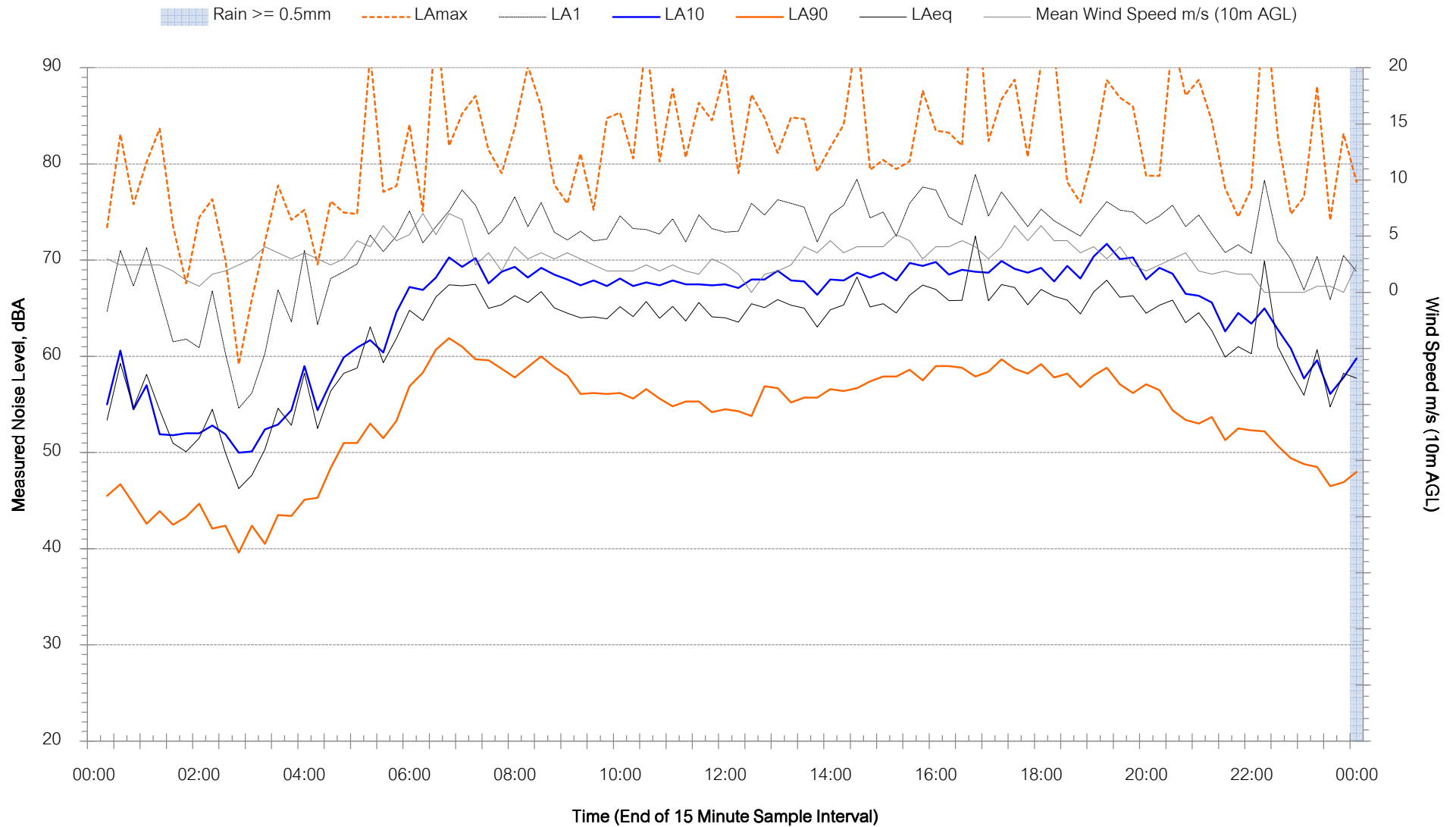
MacDonalds, Beacon Hill - Sunday 20 February 2022





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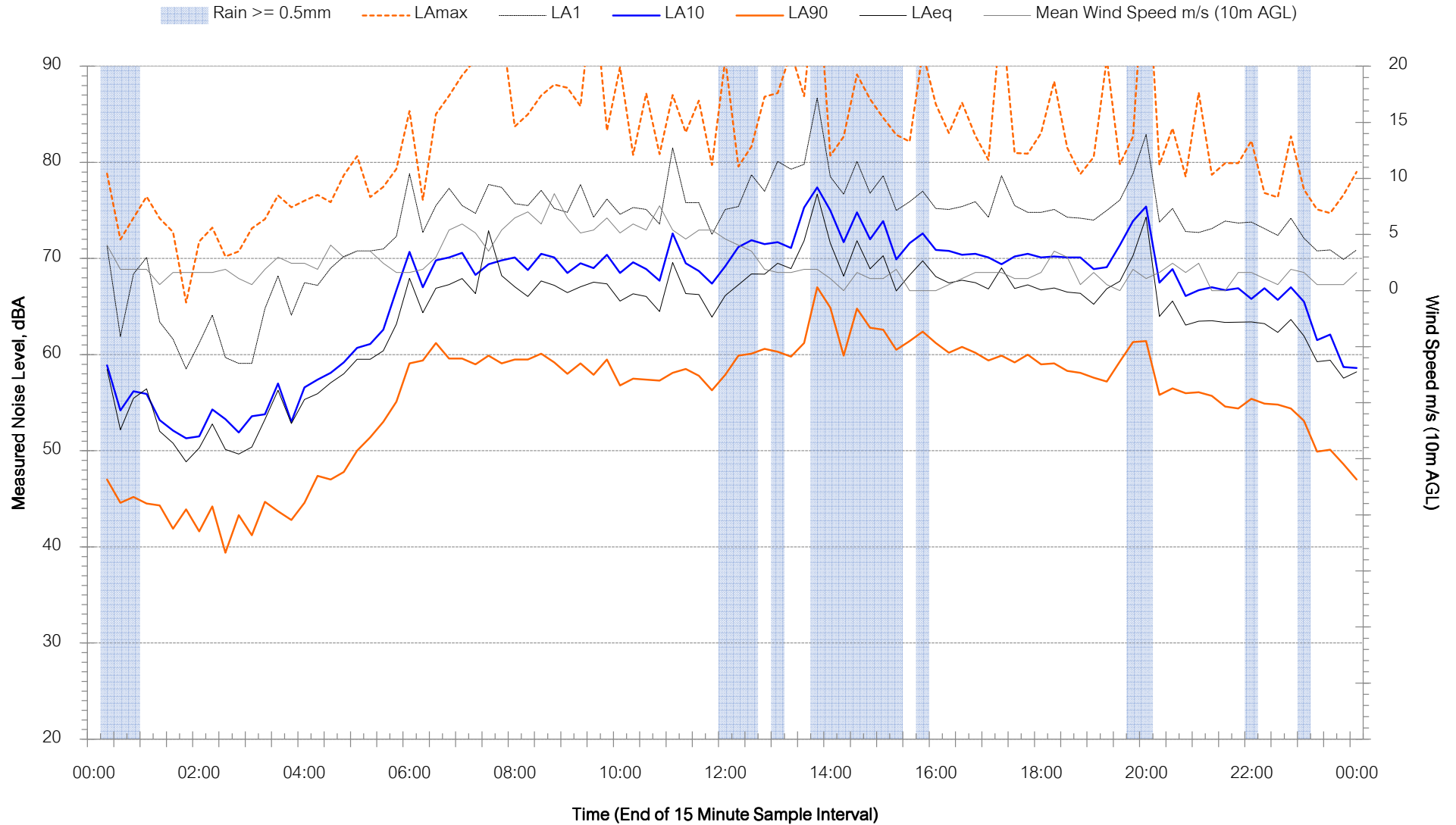
MacDonalds, Beacon Hill - Monday 21 February 2022





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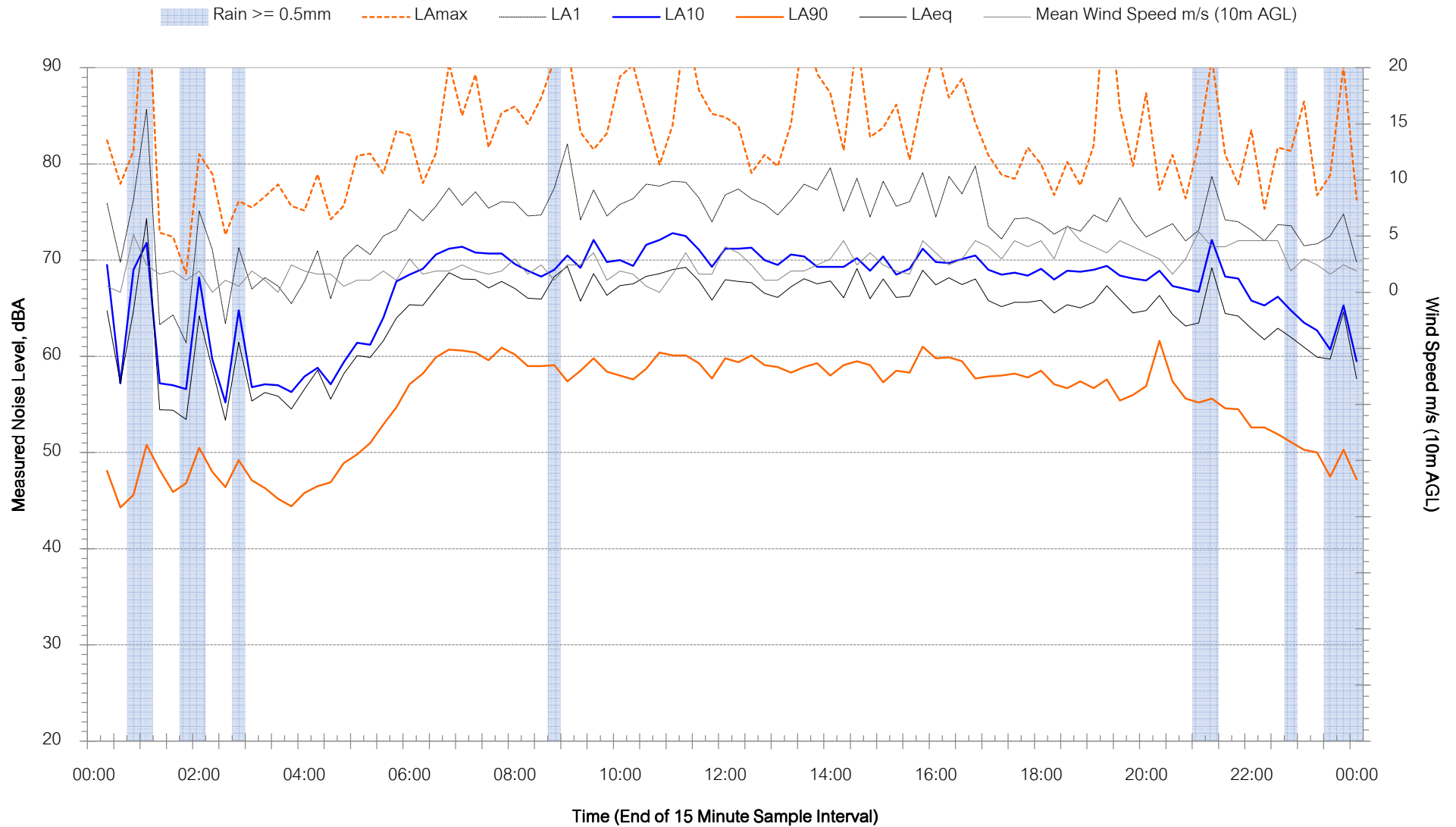
MacDonalds, Beacon Hill - Tuesday 22 February 2022





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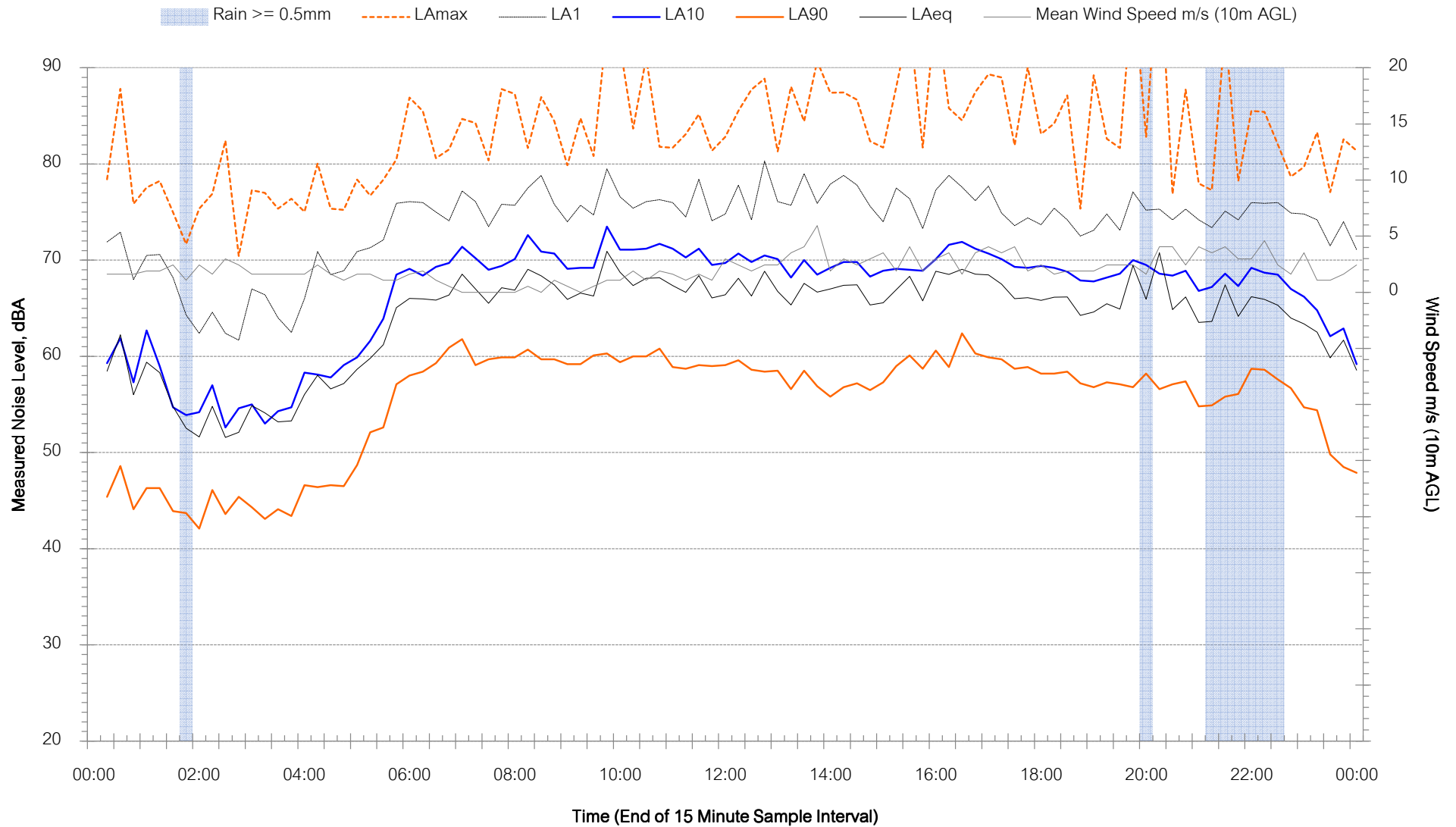
MacDonalds, Beacon Hill - Wednesday 23 February 2022





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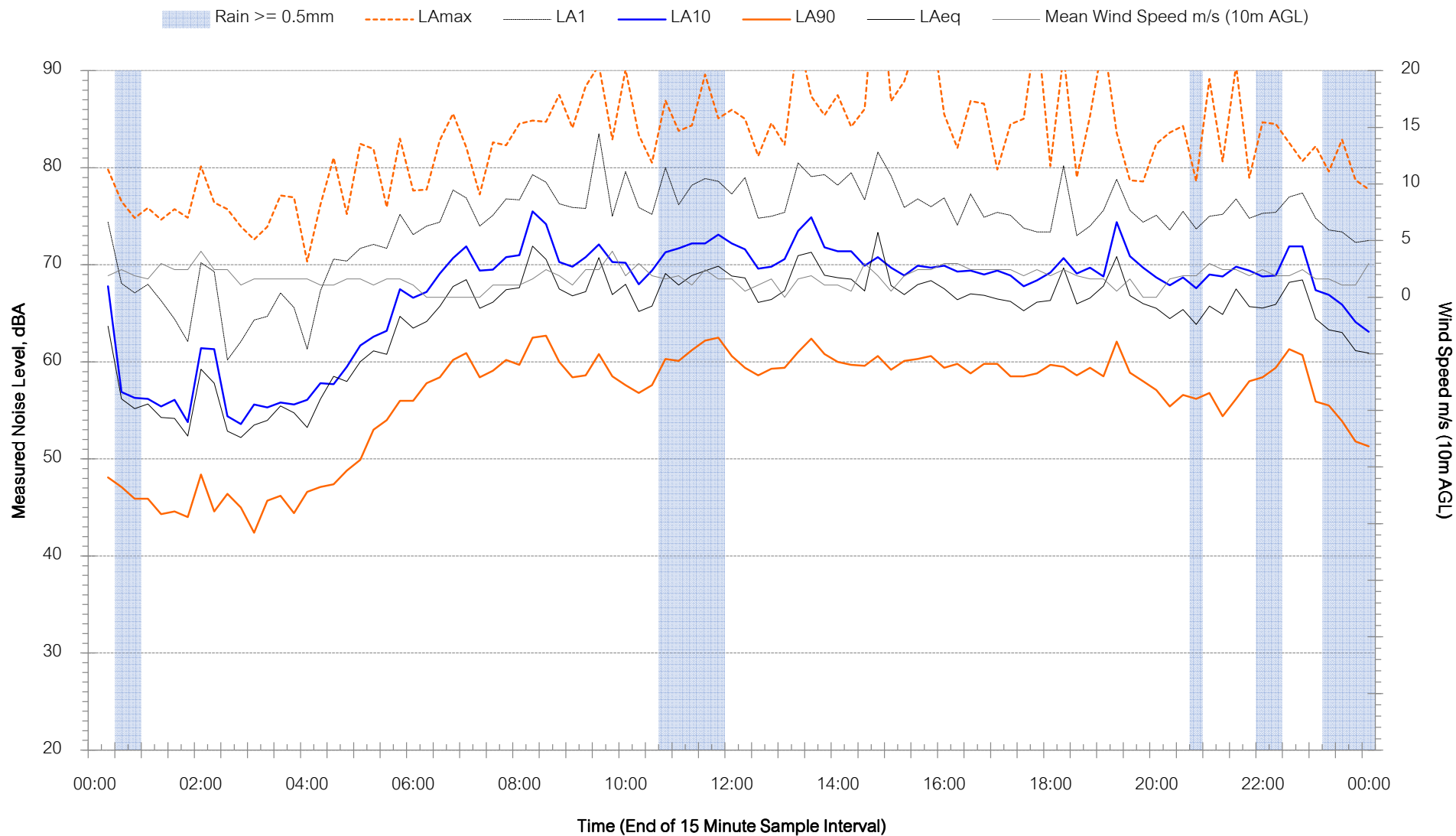
MacDonalds, Beacon Hill - Thursday 24 February 2022





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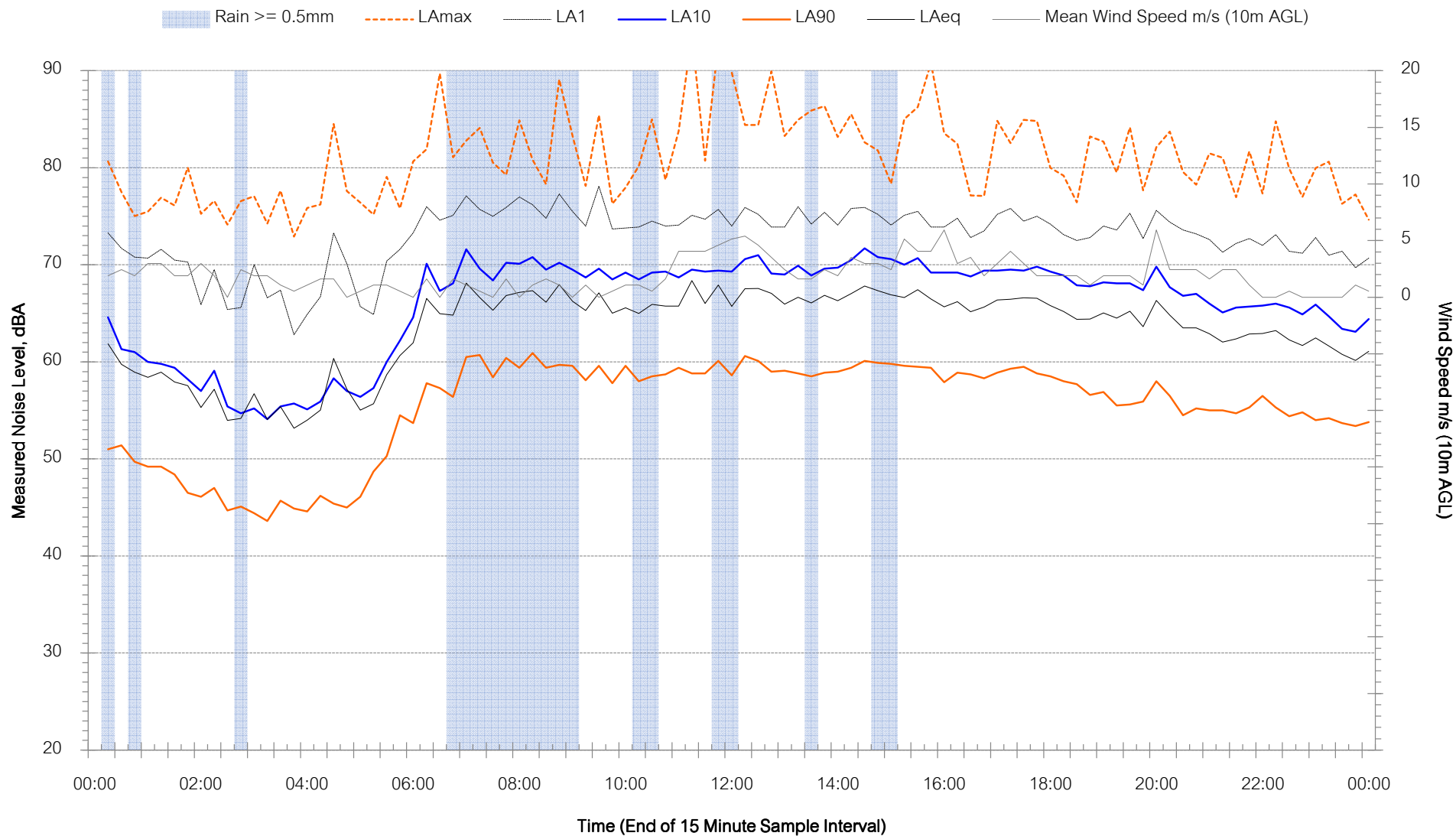
MacDonalds, Beacon Hill - Friday 25 February 2022





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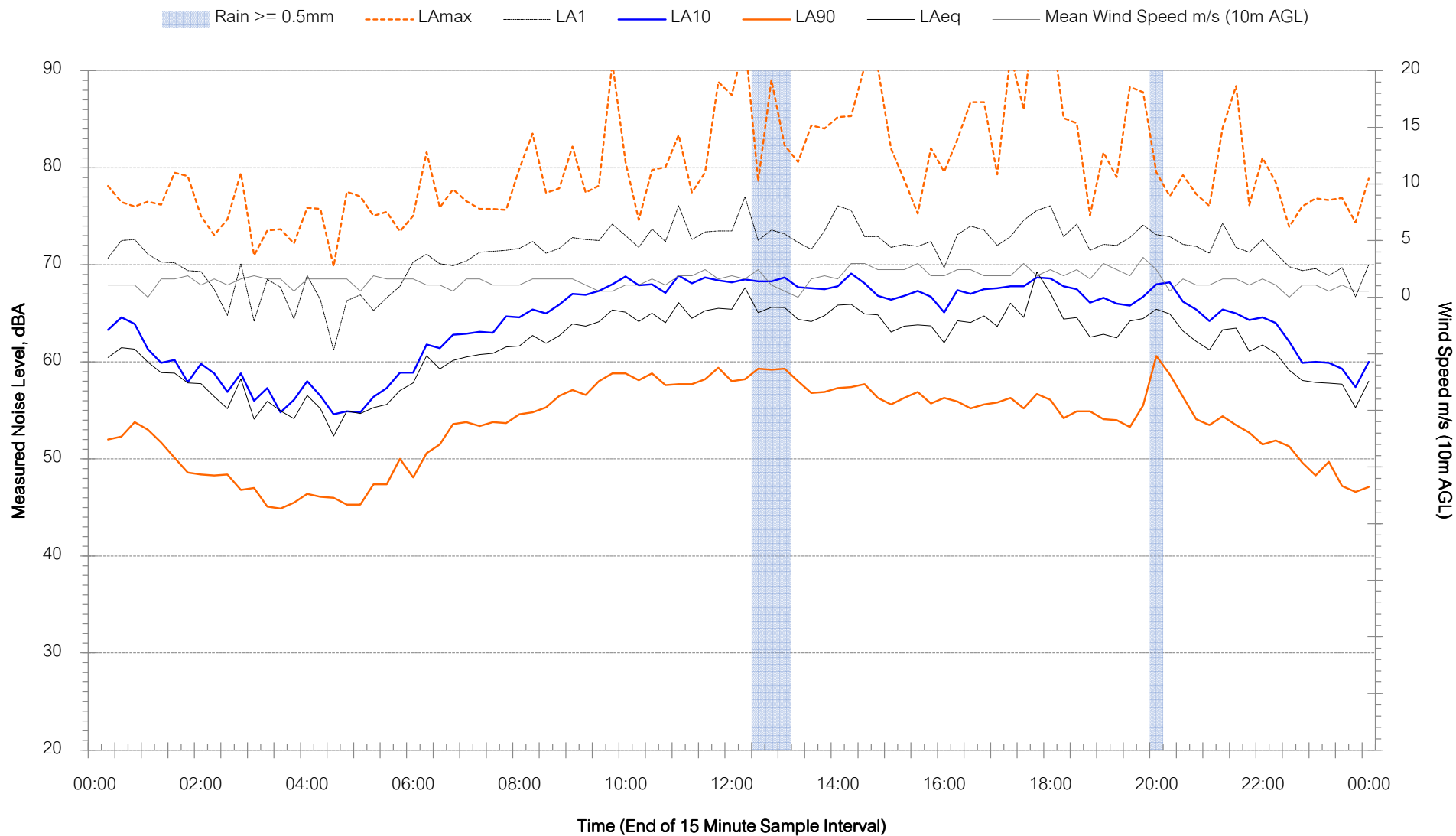
MacDonalds, Beacon Hill - Saturday 26 February 2022





Background Noise Levels

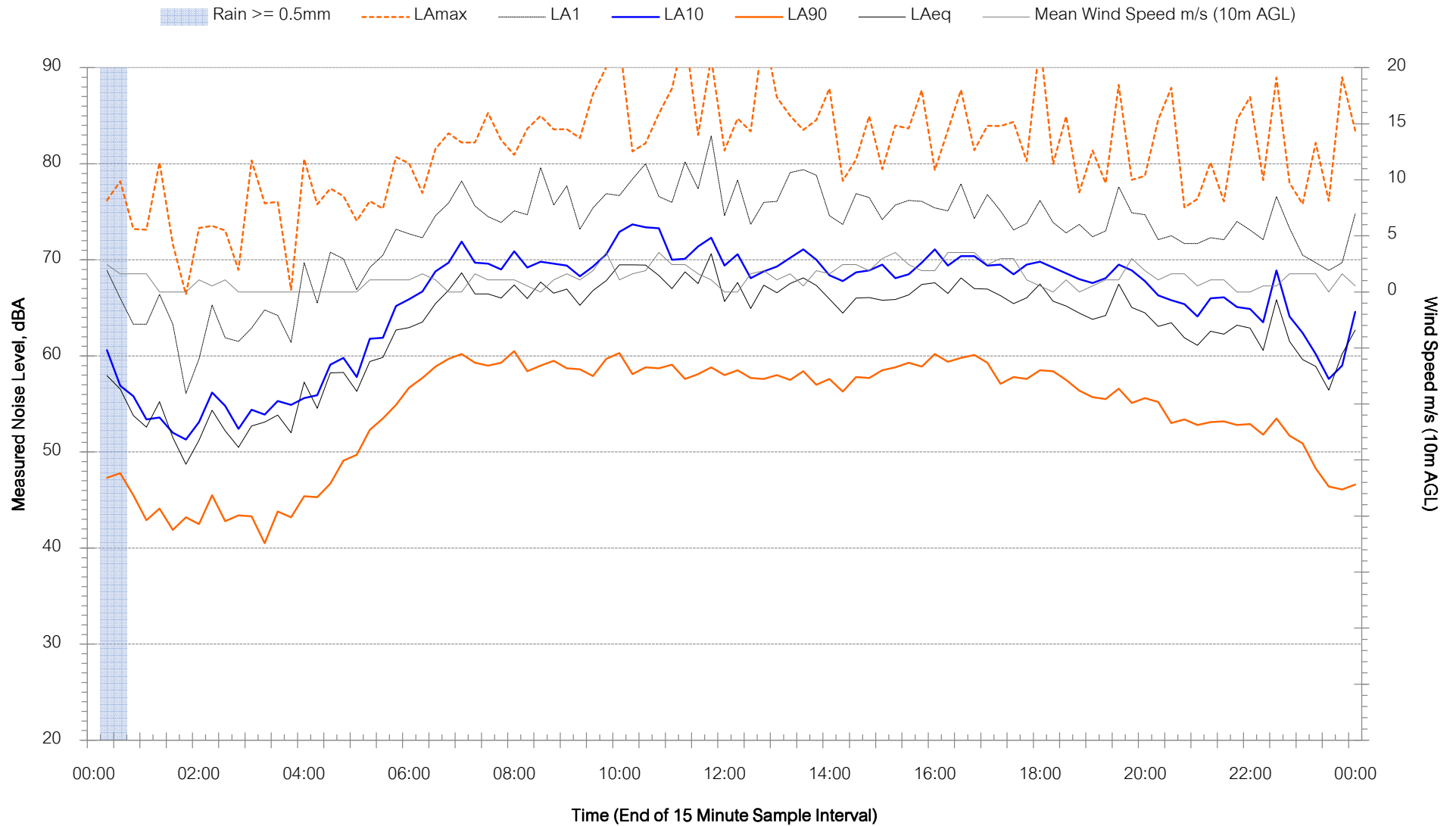
MacDonalds, Beacon Hill - Sunday 27 February 2022





Background Noise Levels

MacDonalds, Beacon Hill - Monday 28 February 2022





Background Noise Levels

MacDonalds, Beacon Hill - Tuesday 1 March 2022

