Appendix A. Supplementary materials

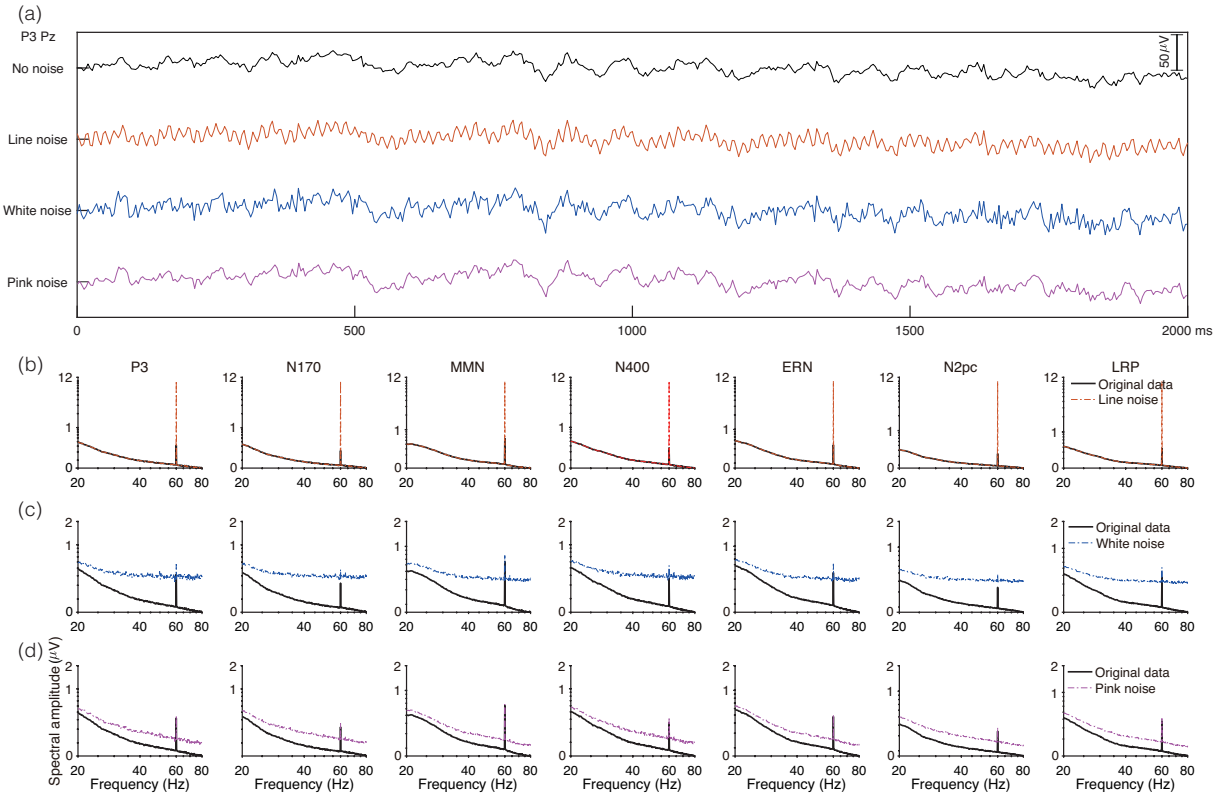

Figure S1: (a) Example of an EEG data segment before and after the addition of three different types of noise (60 Hz line noise, pink noise, and white noise). The data were obtained from the first 2000 ms of the P3 paradigm in Participant 1 at the Pz electrode site. (b, c, d) Grand average EEG amplitude density as a function of frequency for each component in the original data and in the data with added line noise (b), white noise (c), and pink noise (d). Amplitude density was calculated from each individual participant at the electrodes of interest for a given component (see Table 2) and then averaged across participants. Both the amplitude and frequency are on logarithmic scales. The frequency range shown here is limited to 20-80 Hz to make it easier to see the amplitudes at the frequencies where adding noise led to a substantial increase in amplitude. Full amplitude spectra for the original data are shown in Kappenman et al. (2021).

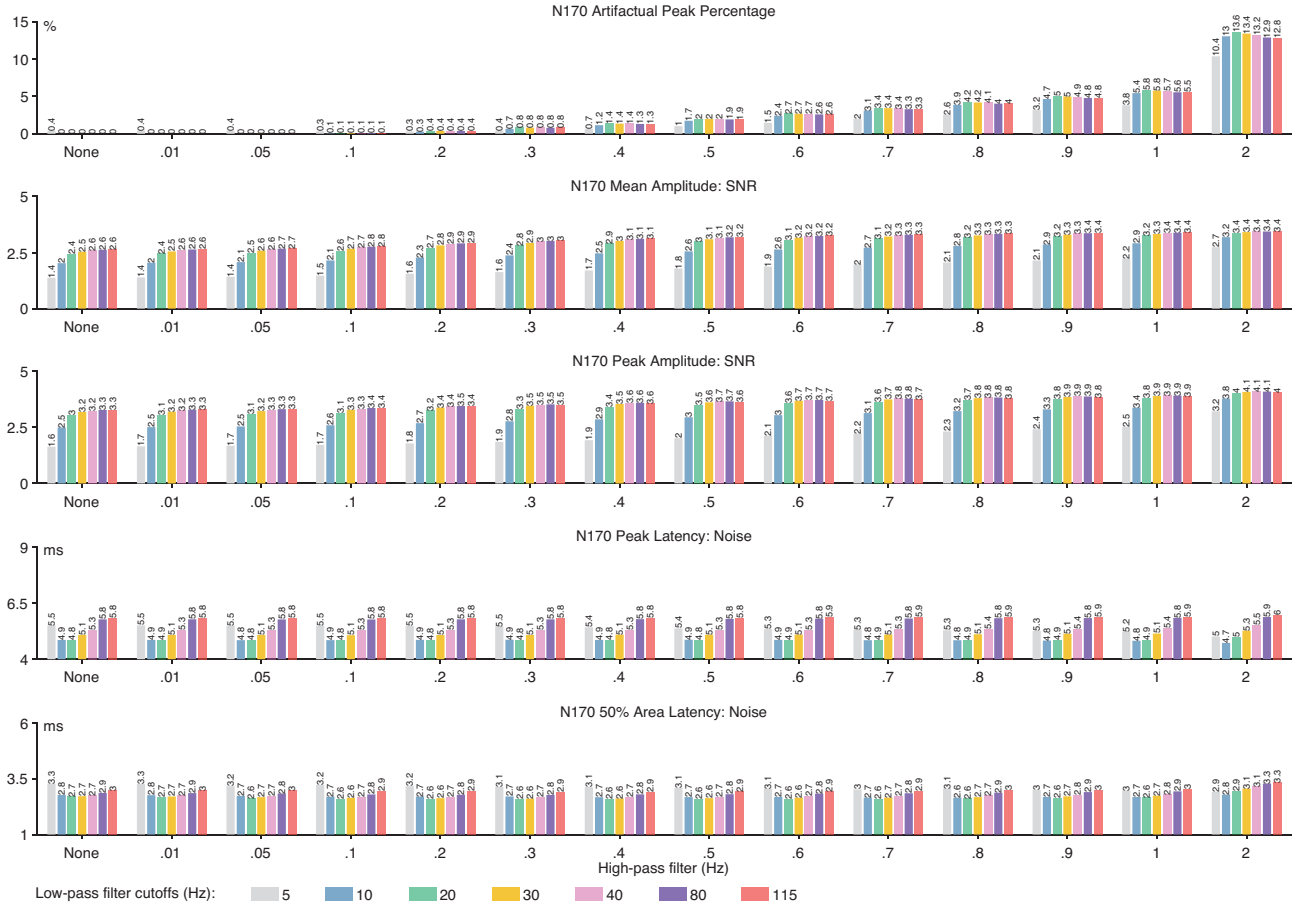

Figure S2: N170 artifactual peak percentage and data quality metrics. Data quality metrics are provided for each of the four scoring methods (mean amplitude, peak amplitude, peak latency and 50% area latency) and for each combination of high-pass filter cutoff frequency (0, 0.01, 0.05, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1, and 2 Hz) and low-pass filter cutoff frequency (5, 10, 20, 30, 40, 80, and 115 Hz). The SNR values are unitless.

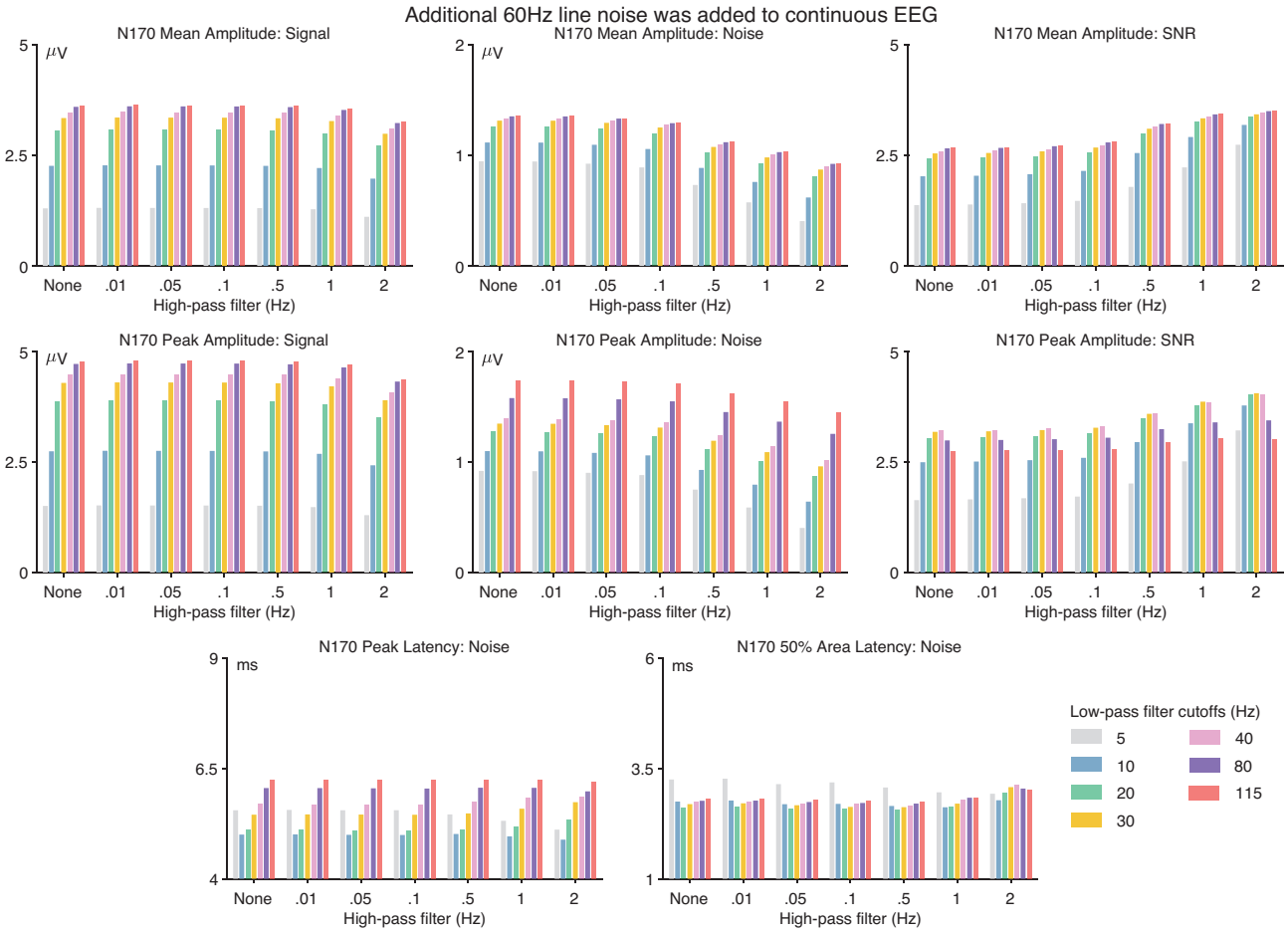

Figure S3: Data quality metrics for the N170 component when 60 Hz line noise (20 μV peak-to-peak amplitude) had been added to the continuous EEG prior to filtering. The format is identical to that of Figure 2 in the main document.

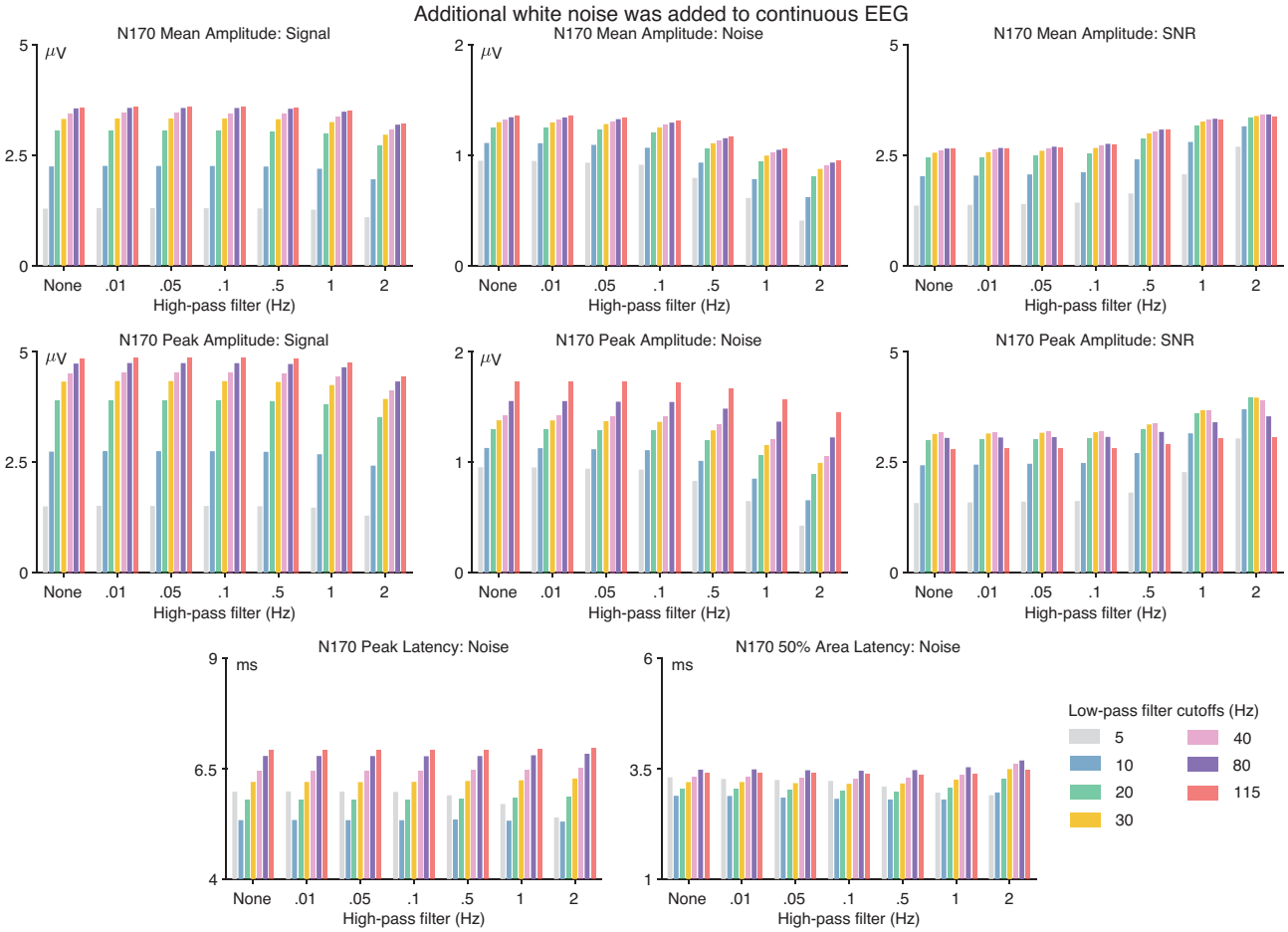

Figure S4: Data quality metrics for the N170 component when white noise (standard deviation = 7.07 μV) had been added to the continuous EEG prior to filtering. The format is identical to that of Figure 2 in the main document.

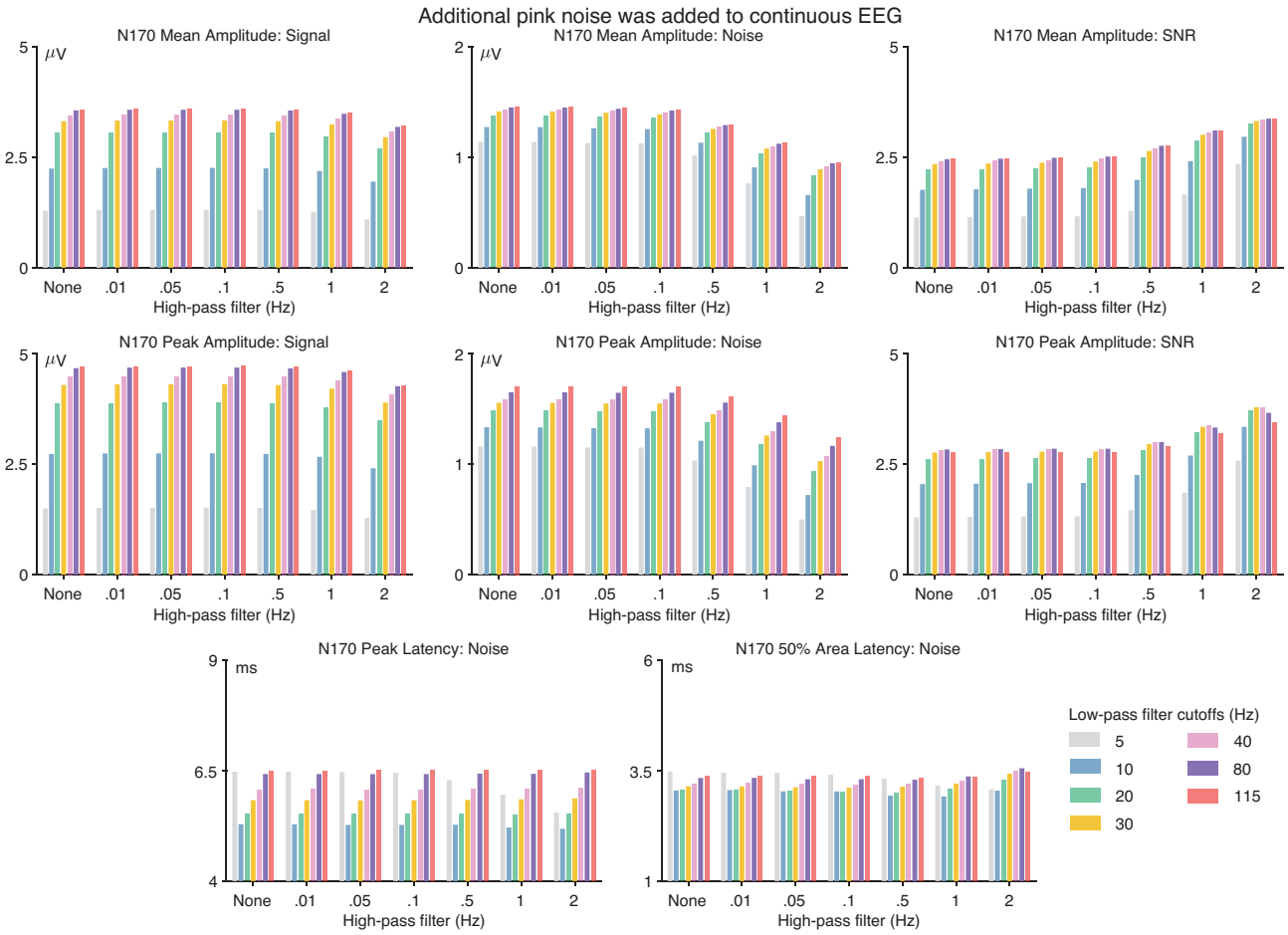

Figure S5: Data quality metrics for the N170 component when pink noise (standard deviation = 7.07 μV) had been added to the continuous EEG prior to filtering. The format is identical to that of Figure 2 in the main document.

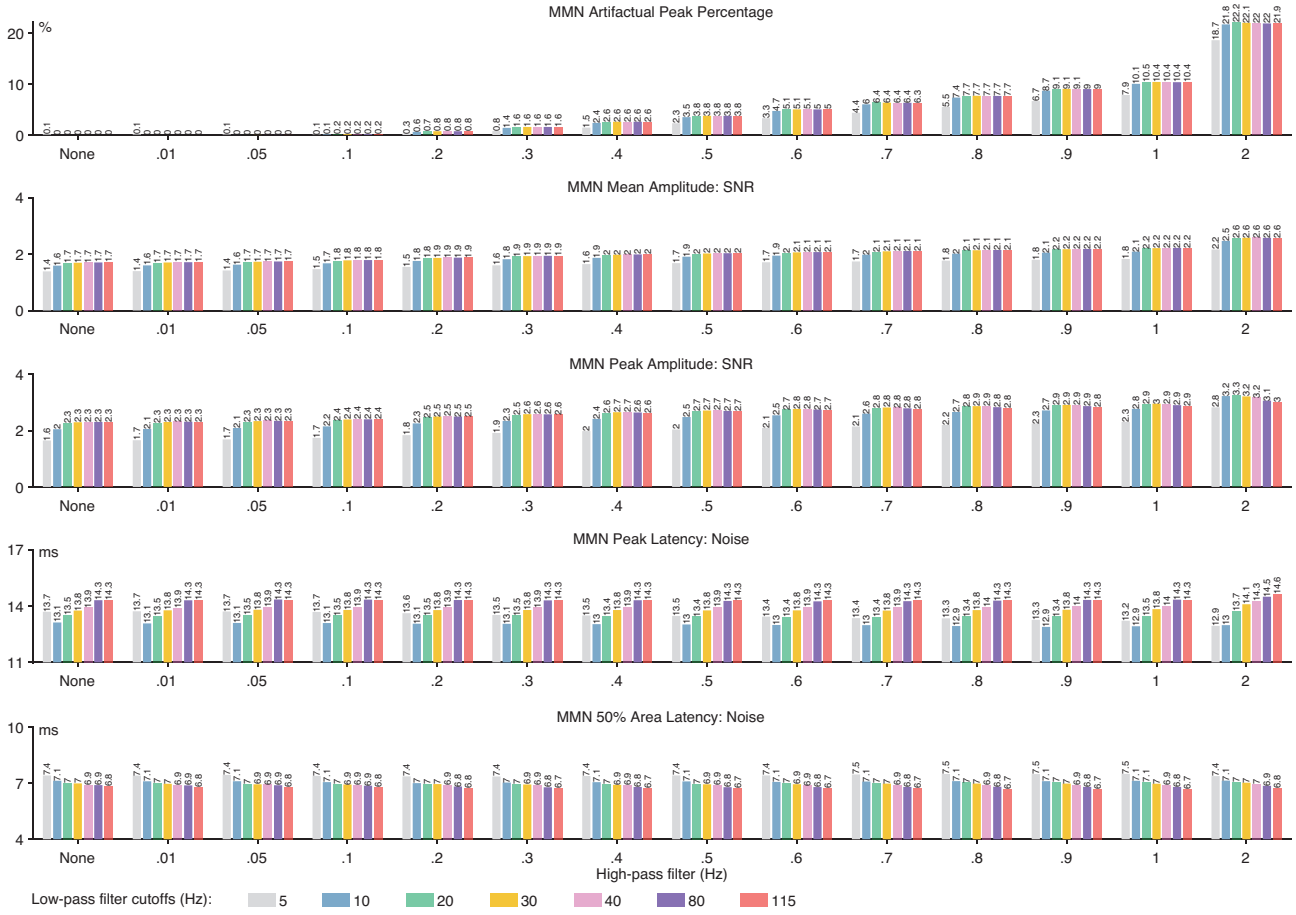

Figure S6: MMN artifactual peak percentage and data quality metrics. Data quality metrics are provided for each of the four scoring methods (mean amplitude, peak amplitude, peak latency and 50% area latency) and for each combination of high-pass filter cutoff frequency (0, 0.01, 0.05, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1, and 2 Hz) and low-pass filter cutoff frequency (5, 10, 20, 30, 40, 80, and 115 Hz). The SNR values are unitless

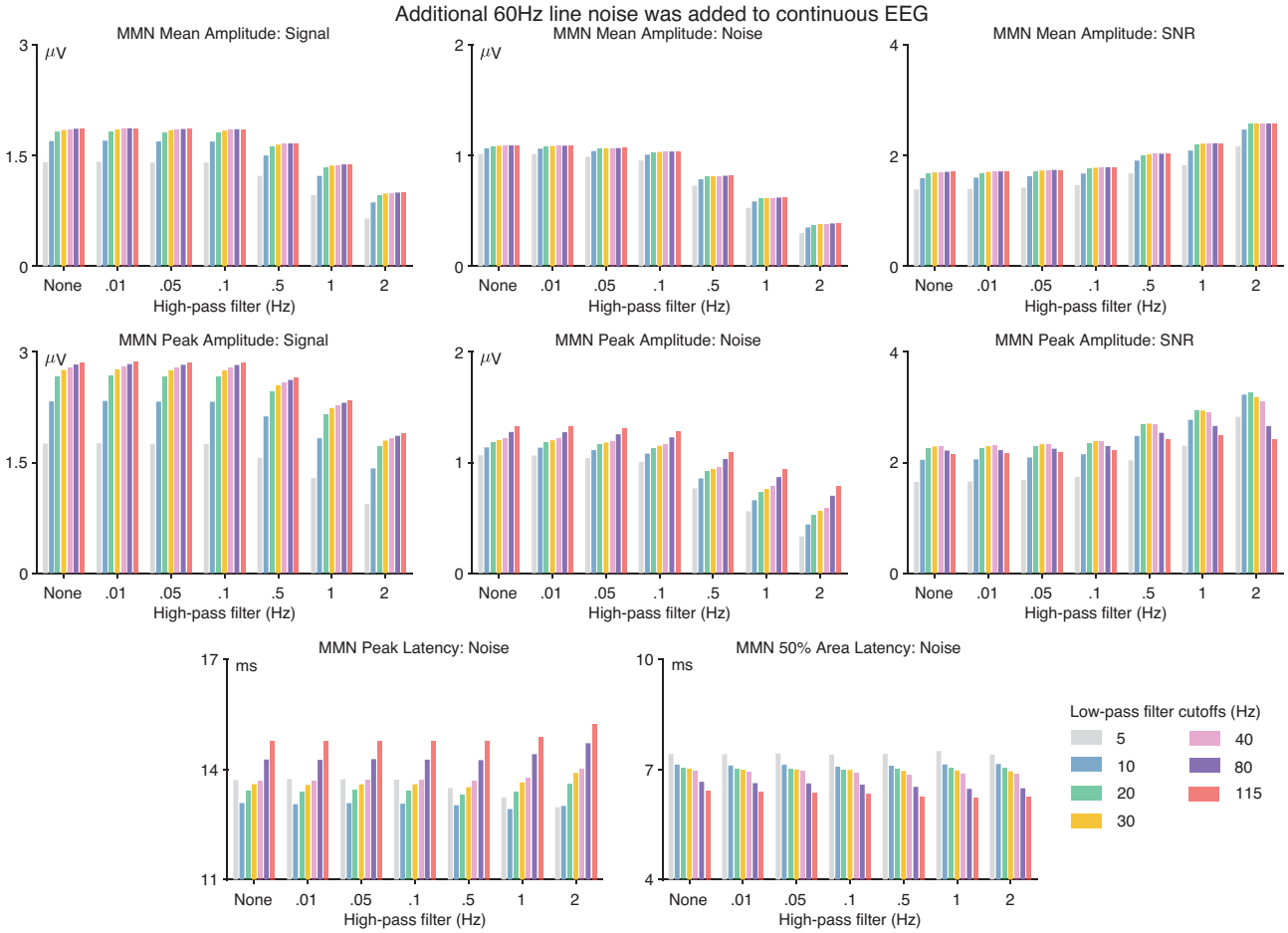

Figure S7: Data quality metrics for the MMN component when 60 Hz line noise (20 μV peak-to-peak amplitude) had been added to the continuous EEG prior to filtering. The format is identical to that of Figure 2 in the main document.

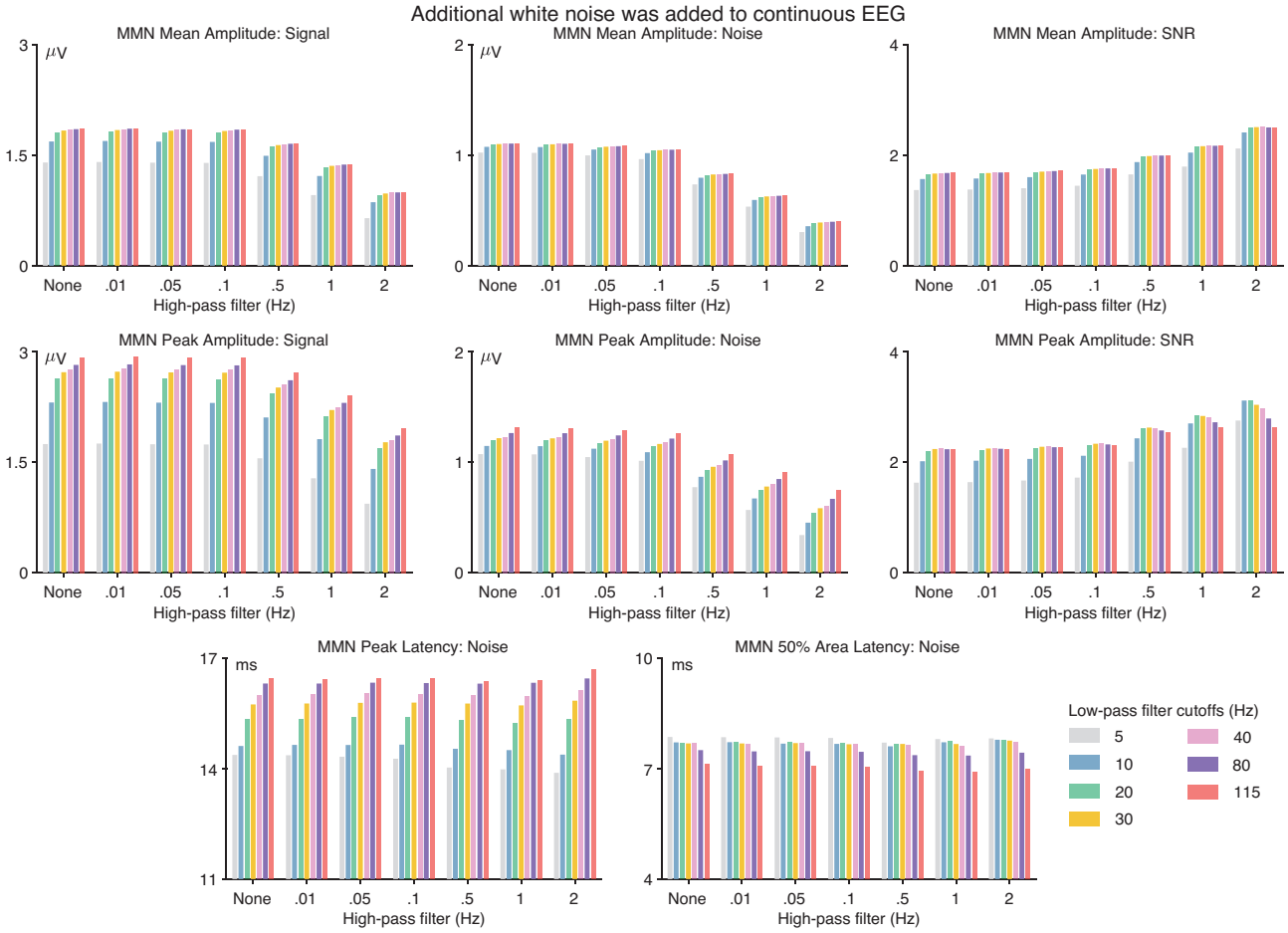

Figure S8: Data quality metrics for the MMN component when white noise (standard deviation = 7.07 μV) had been added to the continuous EEG prior to filtering. The format is identical to that of Figure 2 in the main document.

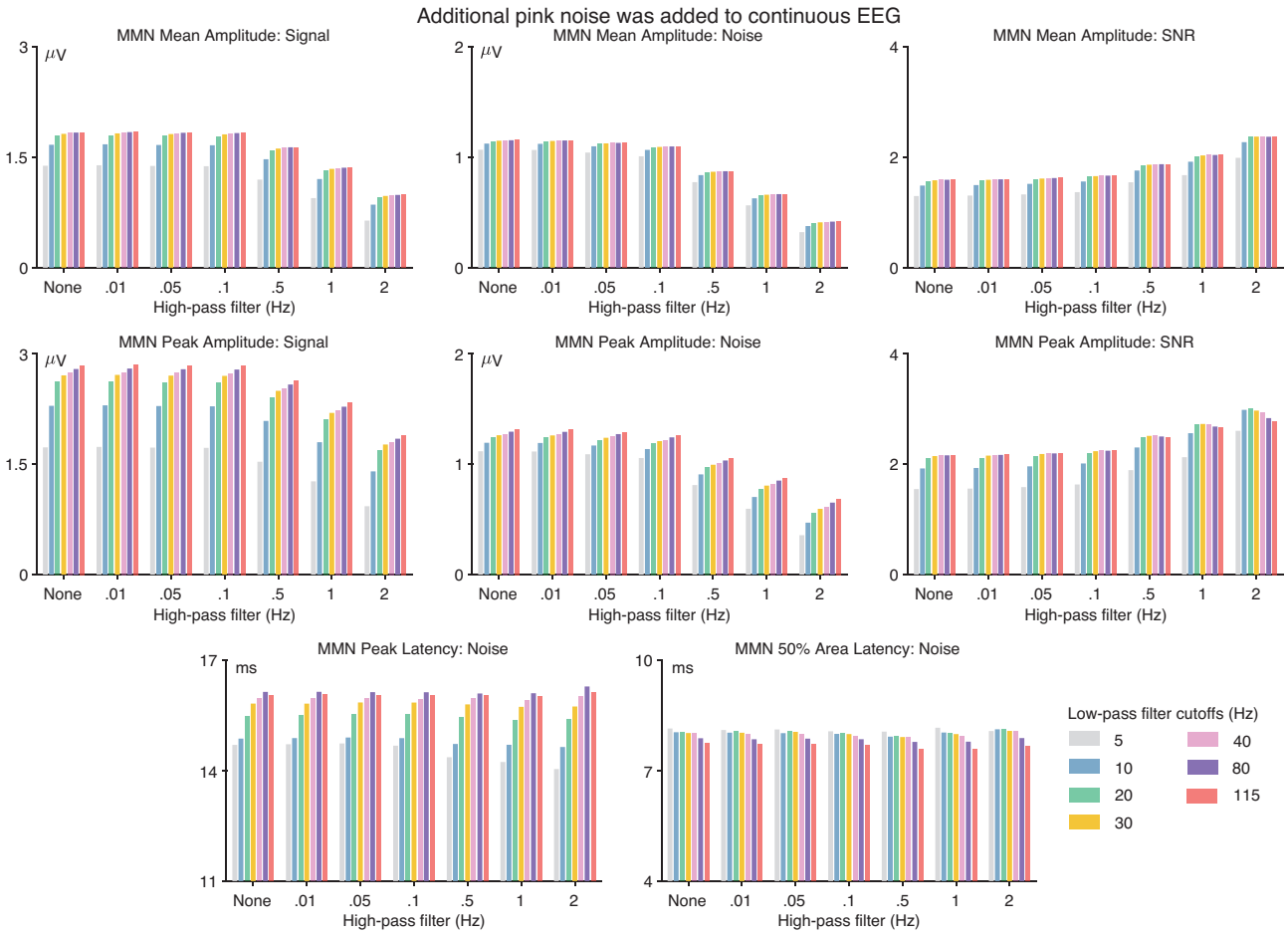

Figure S9: Data quality metrics for the MMN component when pink noise (standard deviation = 7.07 μV) had been added to the continuous EEG prior to filtering. The format is identical to that of Figure 2 in the main document.

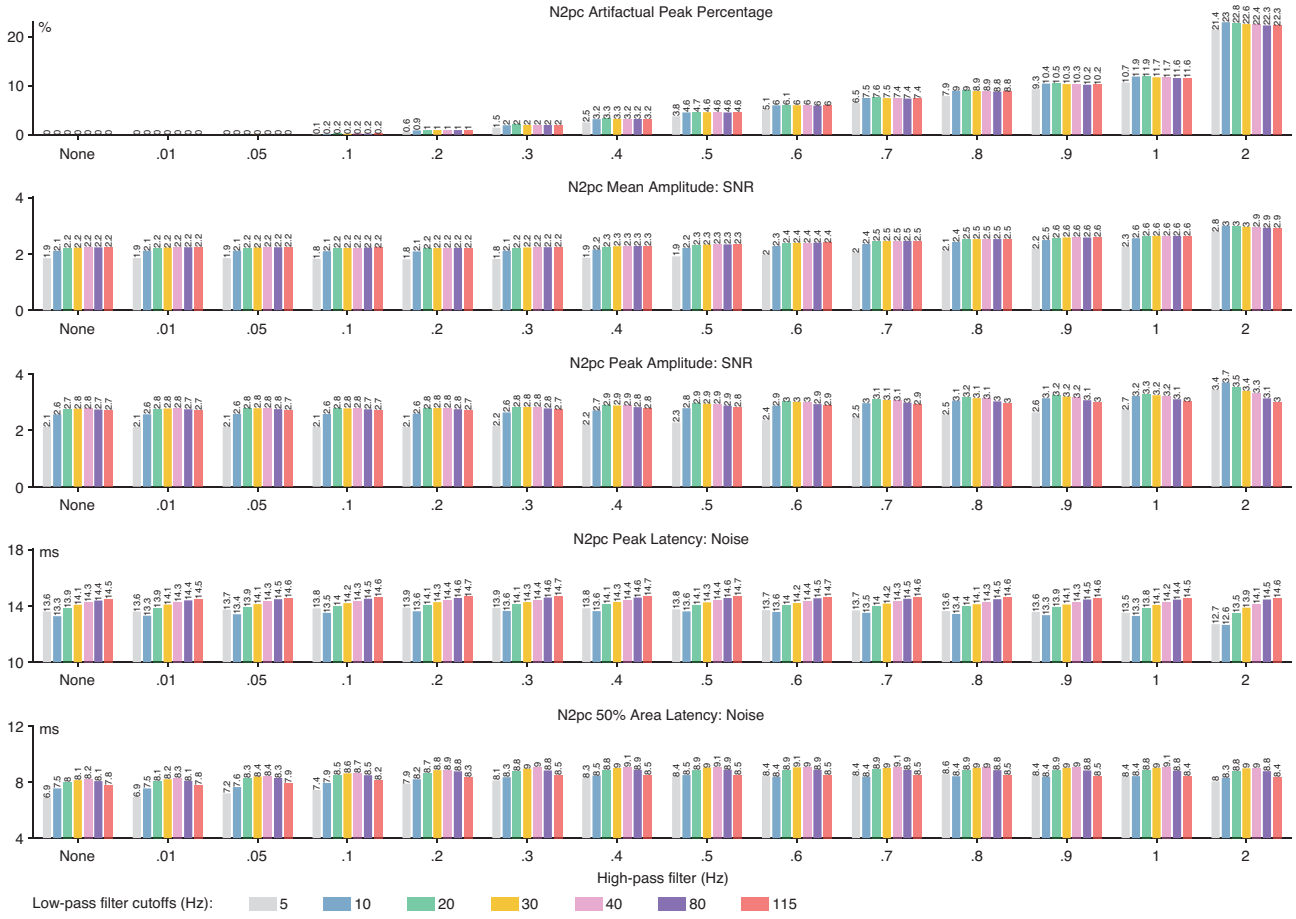

Figure S10: N2pc artifactual peak percentage and data quality metrics. Data quality metrics are provided for each of the four scoring methods (mean amplitude, peak amplitude, peak latency and 50% area latency) and for each combination of high-pass filter cutoff frequency (0, 0.01, 0.05, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1, and 2 Hz) and low-pass filter cutoff frequency (5, 10, 20, 30, 40, 80, and 115 Hz). The SNR values are unitless.

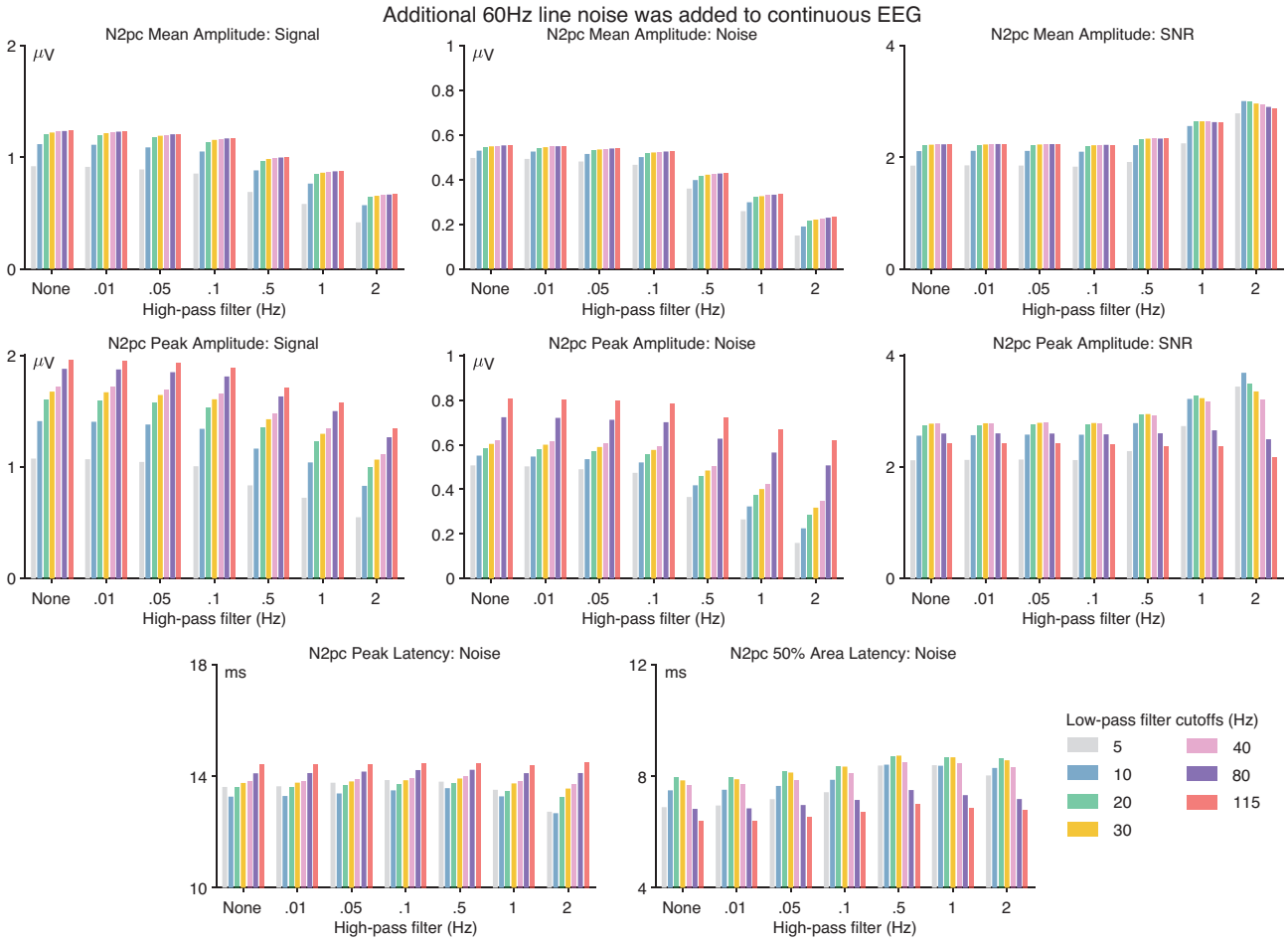

Figure S11: Data quality metrics for the N2pc component when 60 Hz line noise (20 μV peak-to-peak amplitude) had been added to the continuous EEG prior to filtering. The format is identical to that of Figure 2 in the main document.

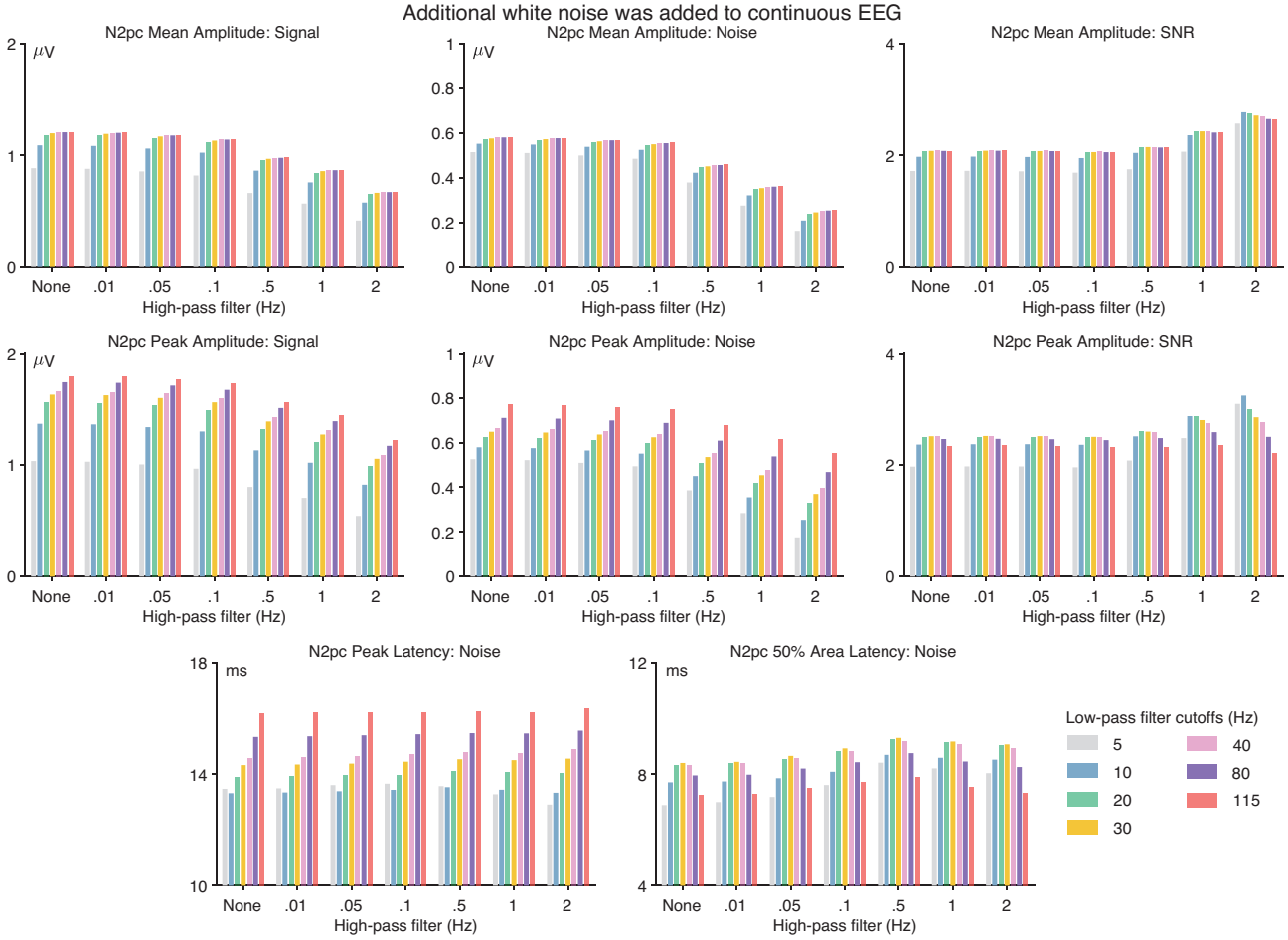

Figure S12: Data quality metrics for the N2pc component when white noise (standard deviation = 7.07 μV) had been added to the continuous EEG prior to filtering. The format is identical to that of Figure 2 in the main document.

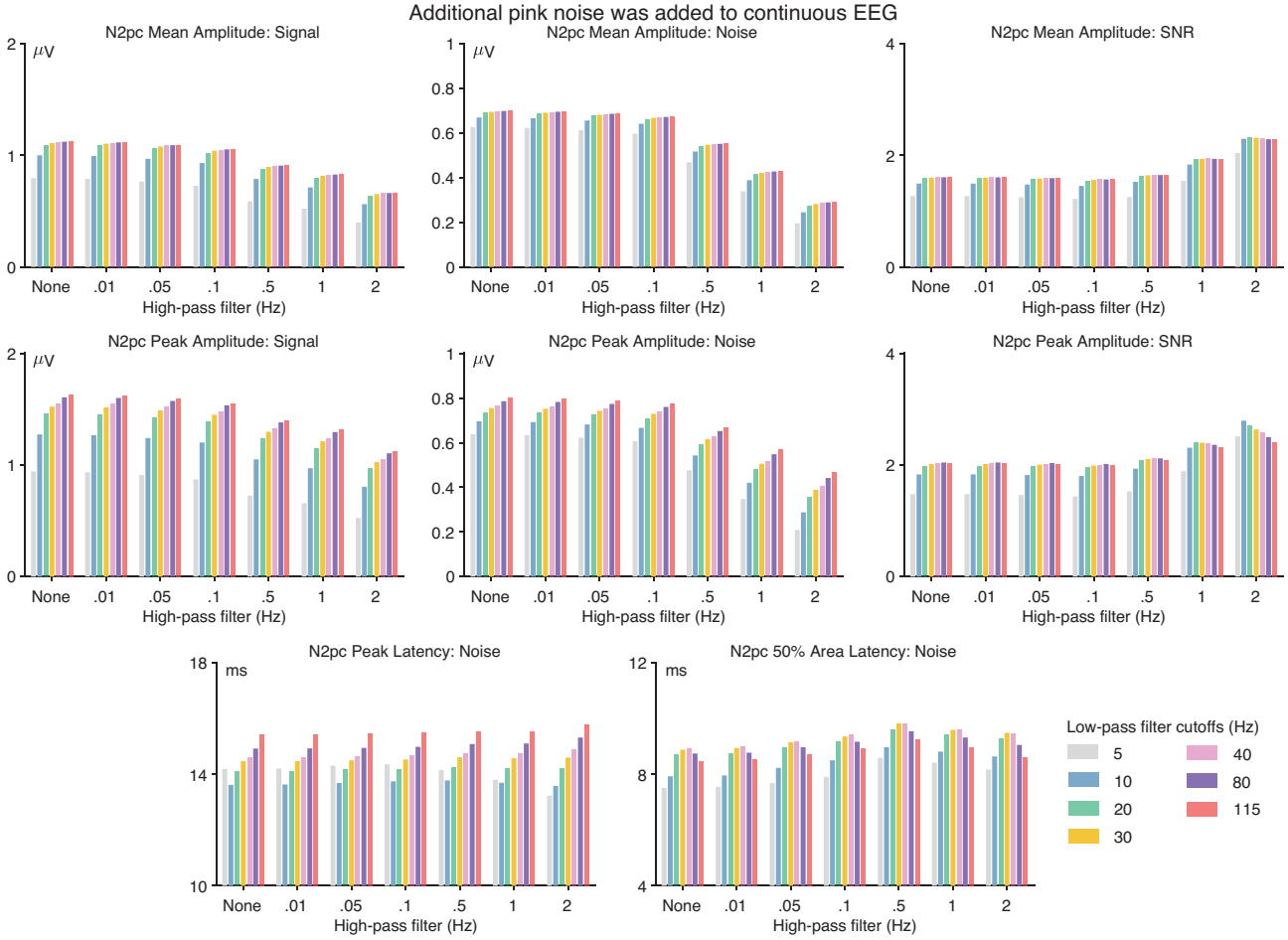

Figure S13: Data quality metrics for the N2pc component when pink noise (standard deviation = 7.07 μV) had been added to the continuous EEG prior to filtering. The format is identical to that of Figure 2 in the main document.

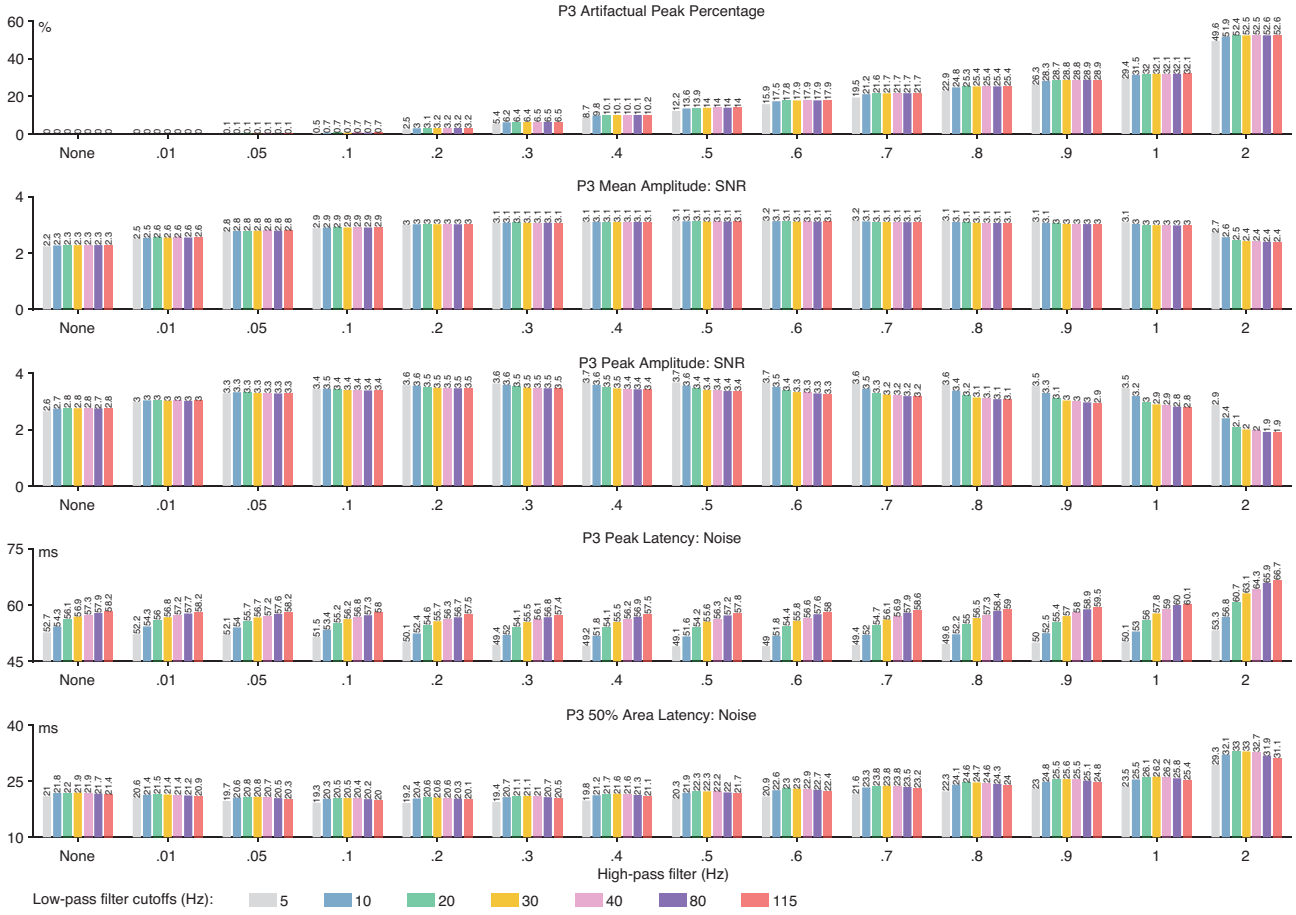

Figure S14: P3 artifactual peak percentage and data quality metrics. Data quality metrics are provided for each of the four scoring methods (mean amplitude, peak amplitude, peak latency and 50% area latency) and for each combination of high-pass filter cutoff frequency (0, 0.01, 0.05, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1, and 2 Hz) and low-pass filter cutoff frequency (5, 10, 20, 30, 40, 80, and 115 Hz). The SNR values are unitless.

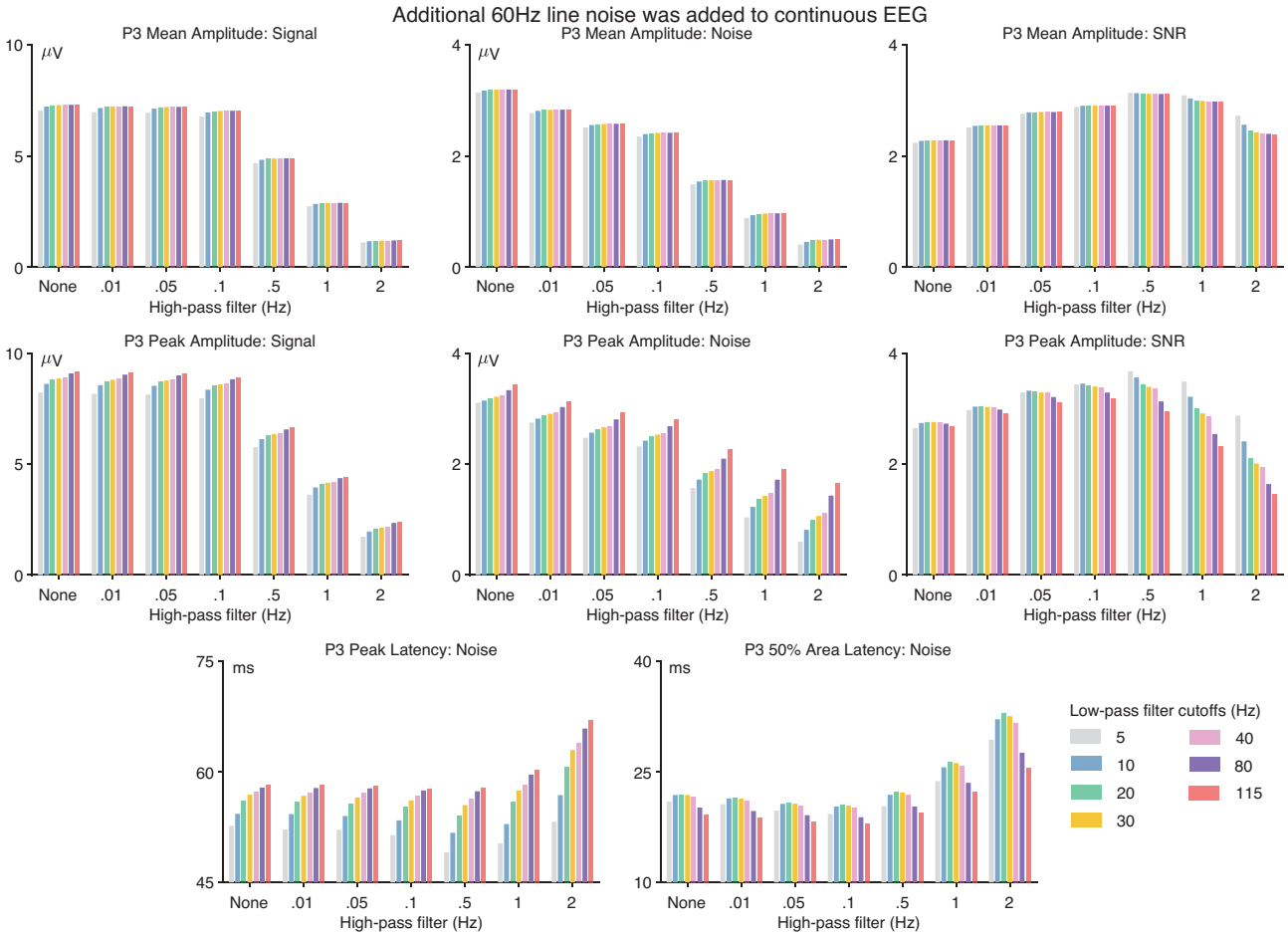

Figure S15: Data quality metrics for the P3 component when 60 Hz line noise (20 µV peak-to-peak amplitude) had been added to the continuous EEG prior to filtering. The format is identical to that of Figure 2 in the main document.

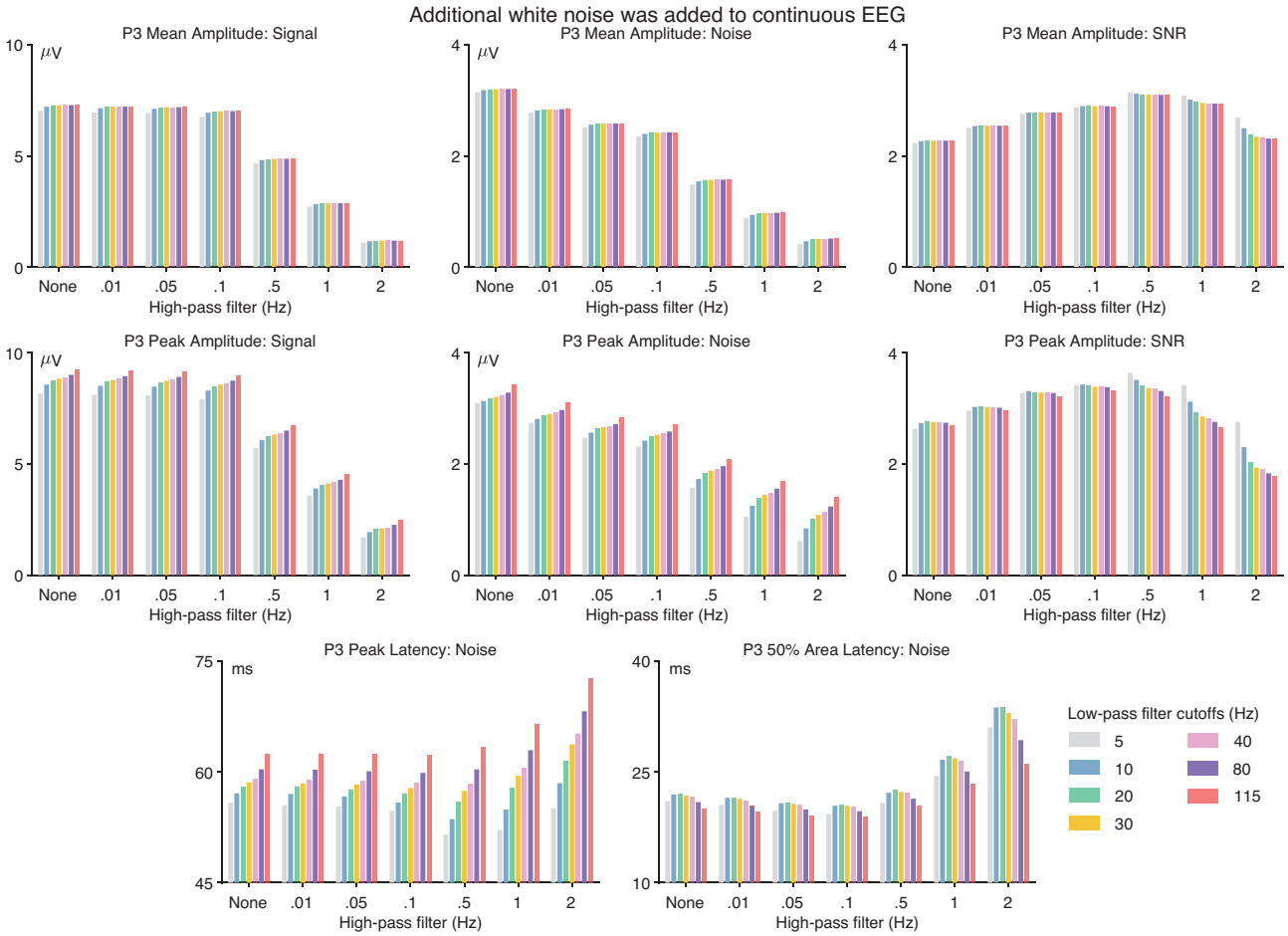

Figure S16: Data quality metrics for the P3 component when white noise (standard deviation = 7.07 μV) had been added to the continuous EEG prior to filtering. The format is identical to that of Figure 2 in the main document.

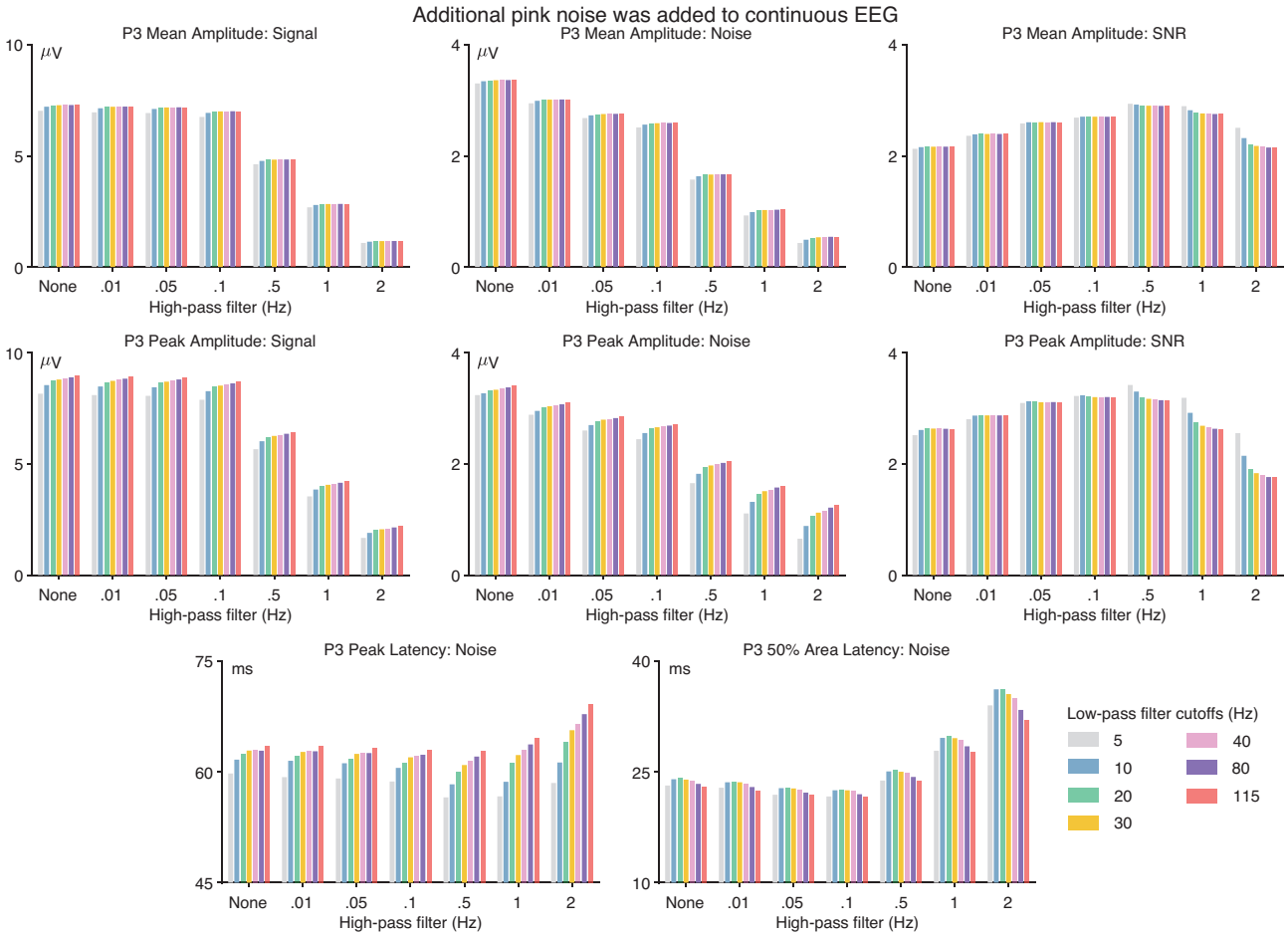

Figure S17: Data quality metrics for the P3 component when pink noise (standard deviation = 7.07 μV) had been added to the continuous EEG prior to filtering. The format is identical to that of Figure 2 in the main document.

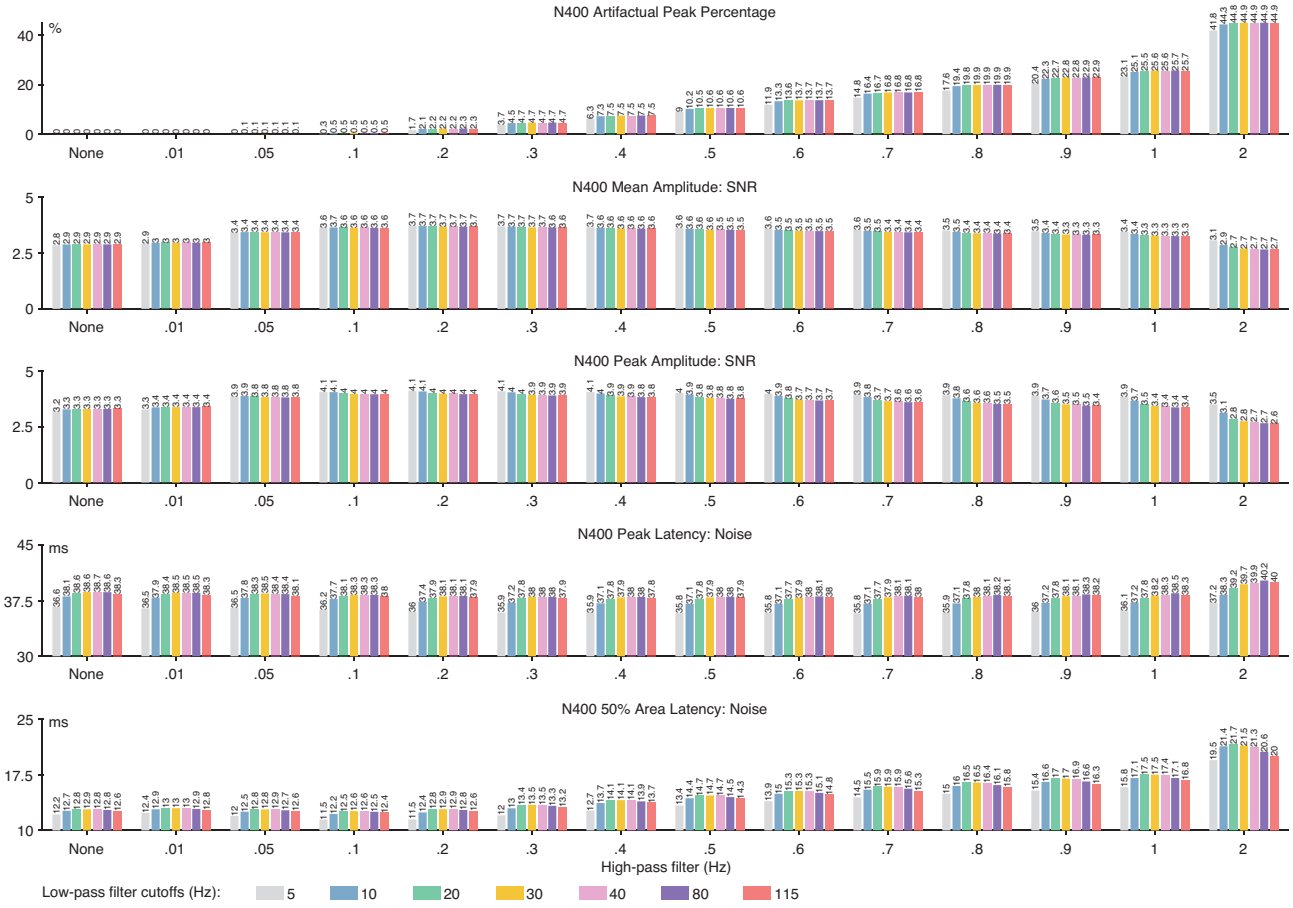

Figure S18: N400 artifactual peak percentage and data quality metrics. Data quality metrics are provided for each of the four scoring methods (mean amplitude, peak amplitude, peak latency and 50% area latency) and for each combination of high-pass filter cutoff frequency (0, 0.01, 0.05, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1, and 2 Hz) and low-pass filter cutoff frequency (5, 10, 20, 30, 40, 80, and 115 Hz). The SNR values are unitless.

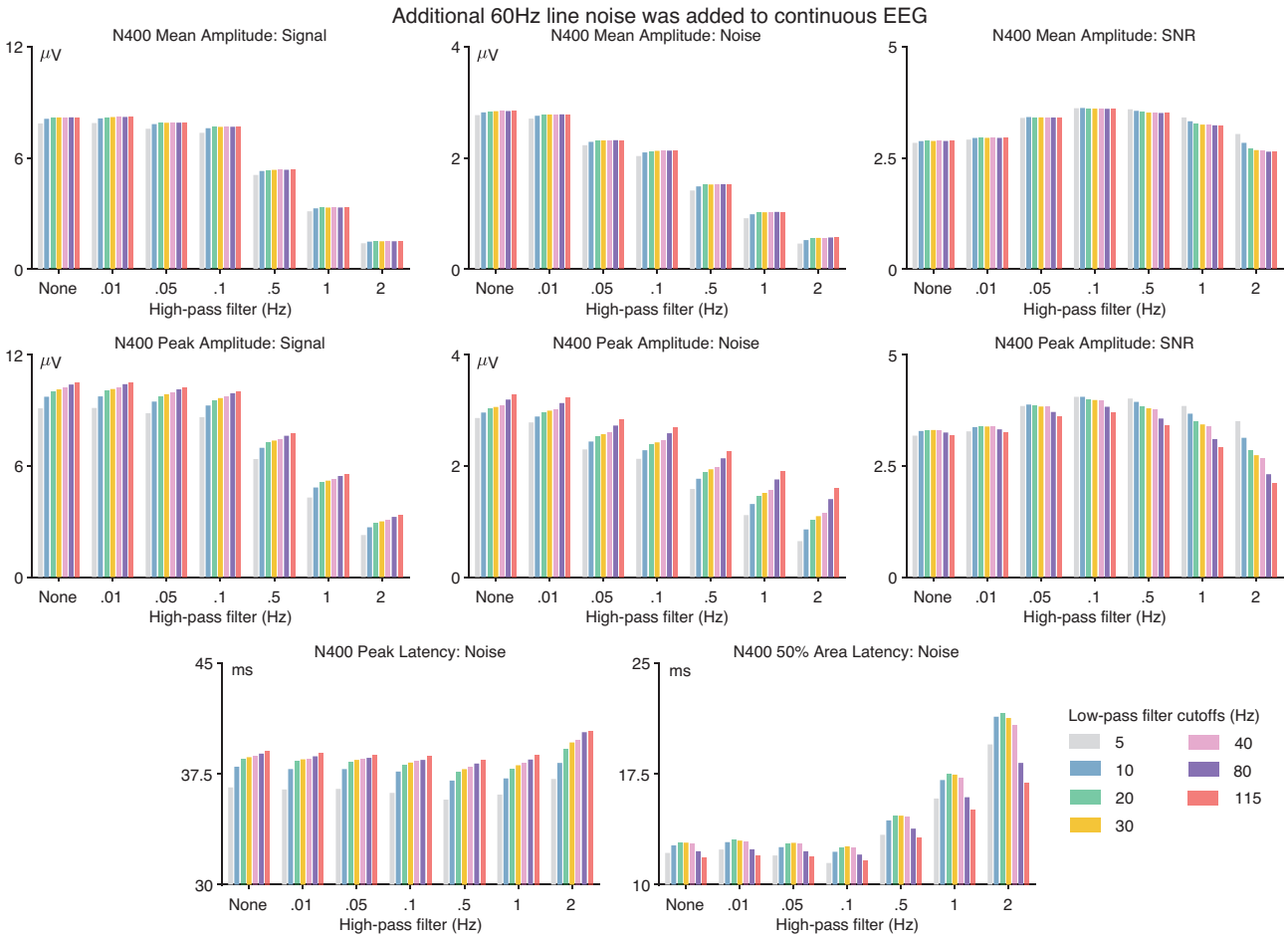

Figure S19: Data quality metrics for the N400 component when white noise (standard deviation = 7.07 μV) had been added to the continuous EEG prior to filtering. The format is identical to that of Figure 2 in the main document.

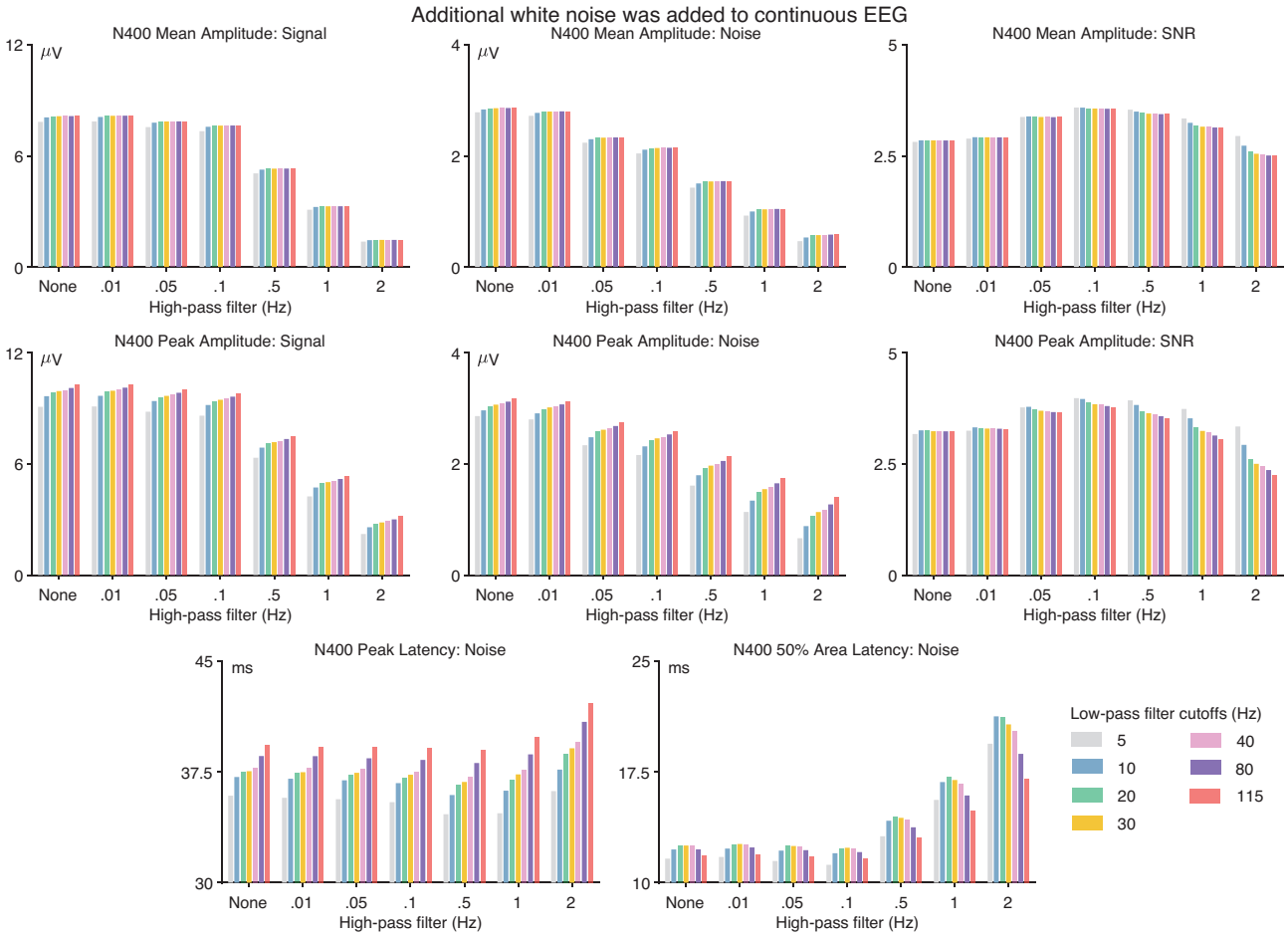

Figure S20: Data quality metrics for the N400 component when white noise (standard deviation = 7.07 μV) had been added to the continuous EEG prior to filtering.

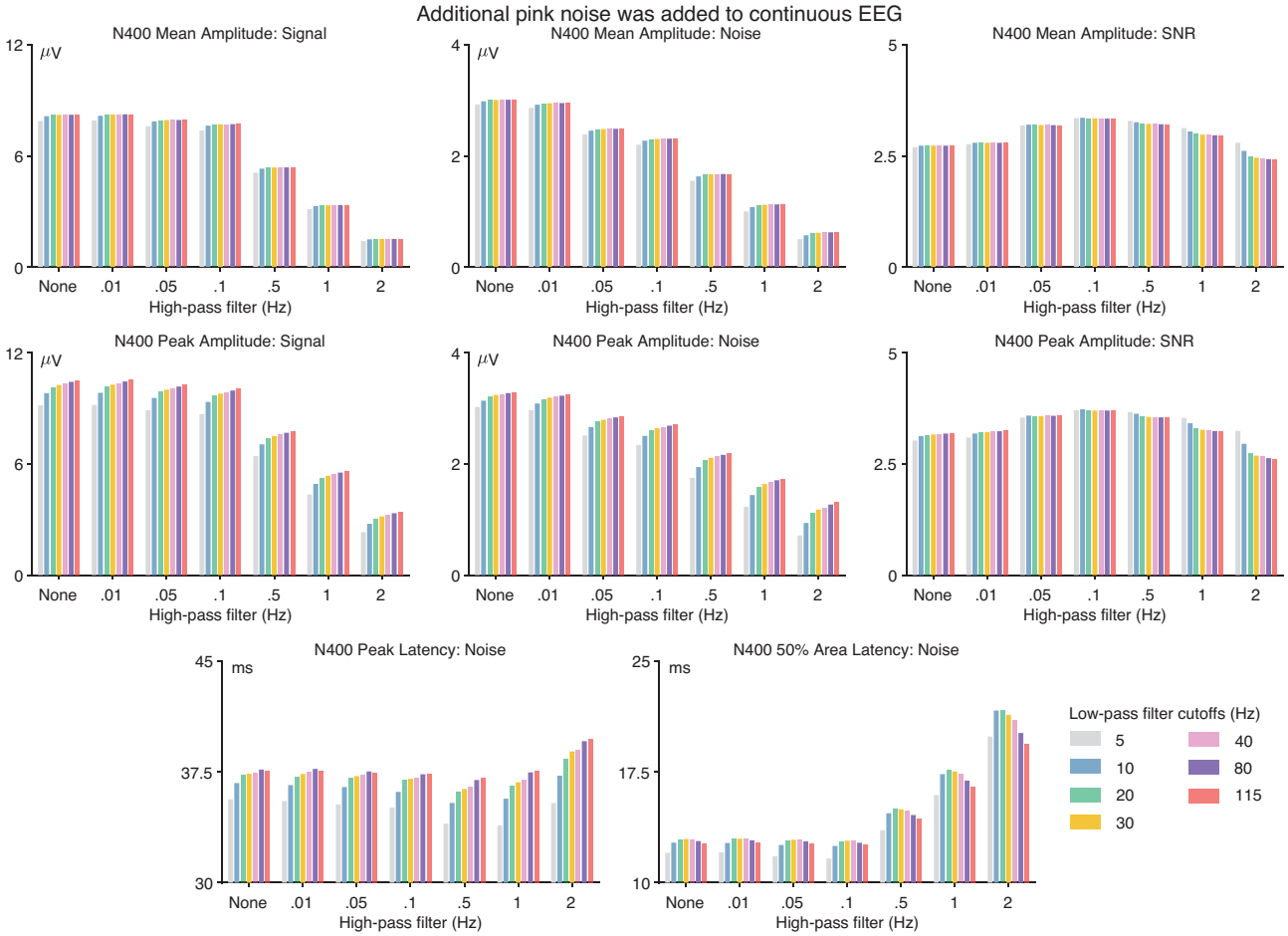

Figure S21: Data quality metrics for the N400 component when pink noise (standard deviation = 7.07 μV) had been added to the continuous EEG prior to filtering. The format is identical to that of Figure 2 in the main document.

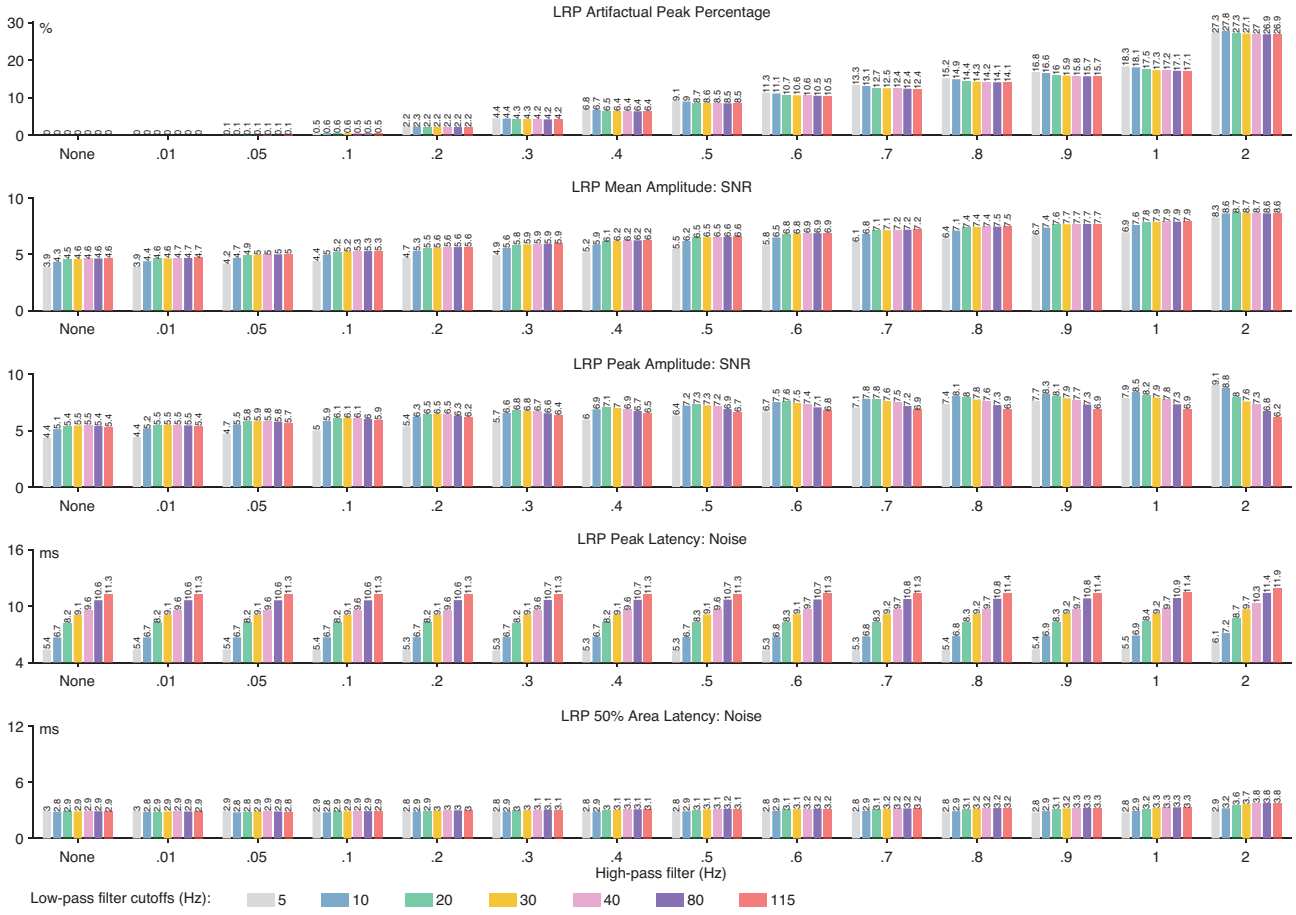

Figure S22: LRP artifactual peak percentage and data quality metrics. Data quality metrics are provided for each of the four scoring methods (mean amplitude, peak amplitude, peak latency and 50% area latency) and for each combination of high-pass filter cutoff frequency (0, 0.01, 0.05, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1, and 2 Hz) and low-pass filter cutoff frequency (5, 10, 20, 30, 40, 80, and 115 Hz). The SNR values unitless.

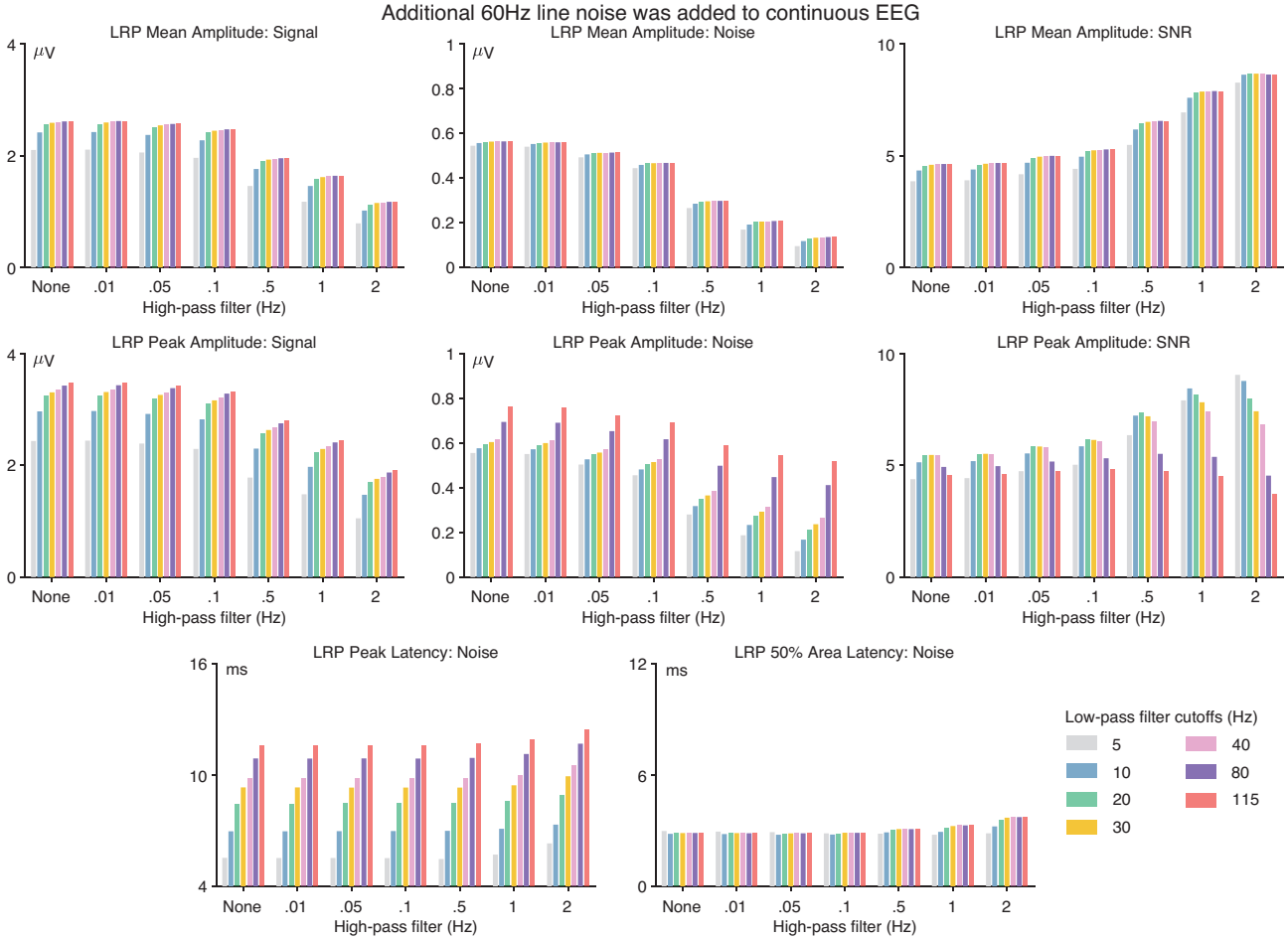

Figure S23: Data quality metrics for the LRP component when 60 Hz line noise (20 μV peak-to-peak amplitude) had been added to the continuous EEG prior to filtering. The format is identical to that of Figure 2 in the main document.

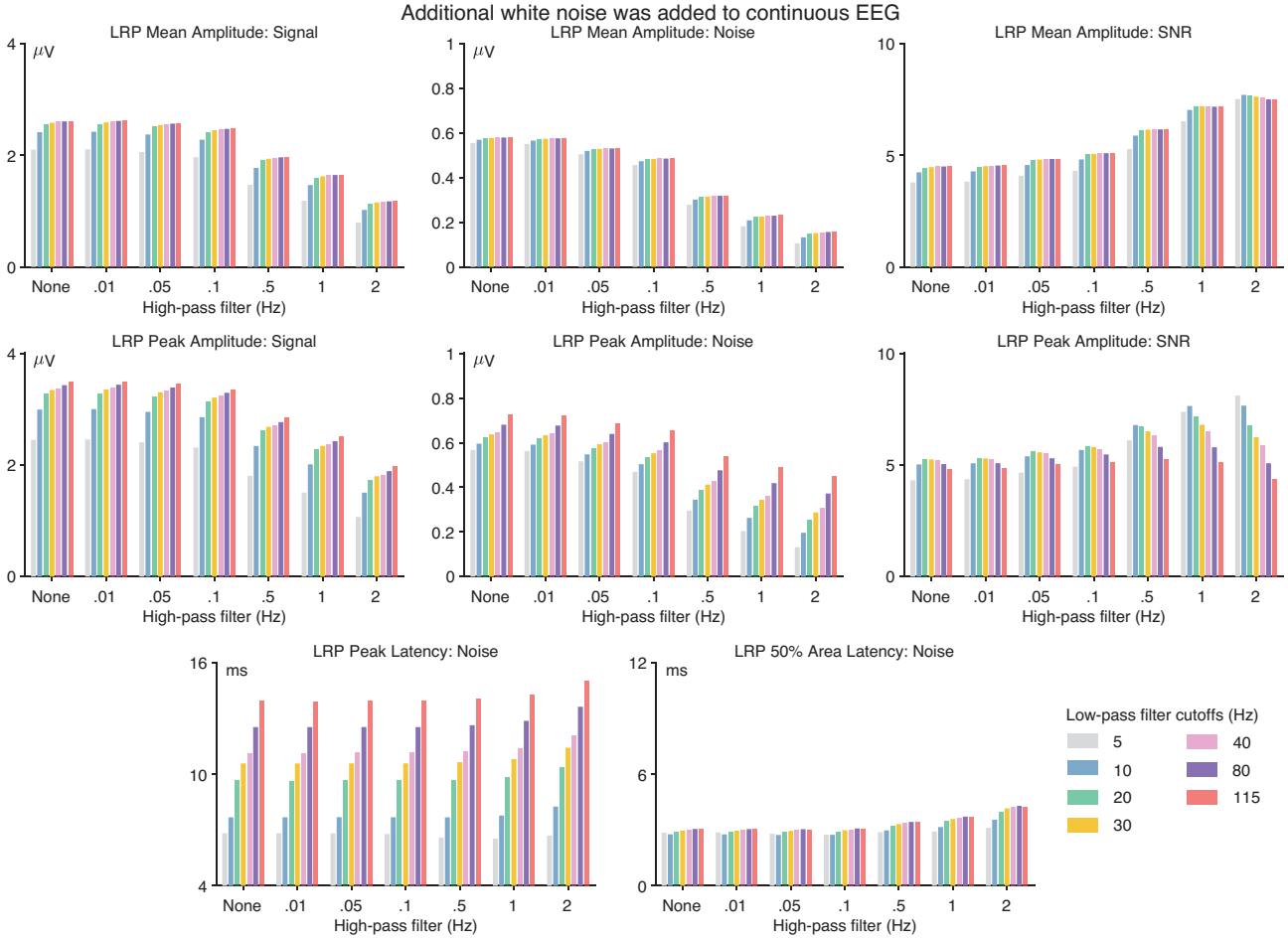

Figure S24: Data quality metrics for the LRP component when white noise (standard deviation = 7.07 μV) had been added to the continuous EEG prior to filtering. The format is identical to that of Figure 2 in the main document.

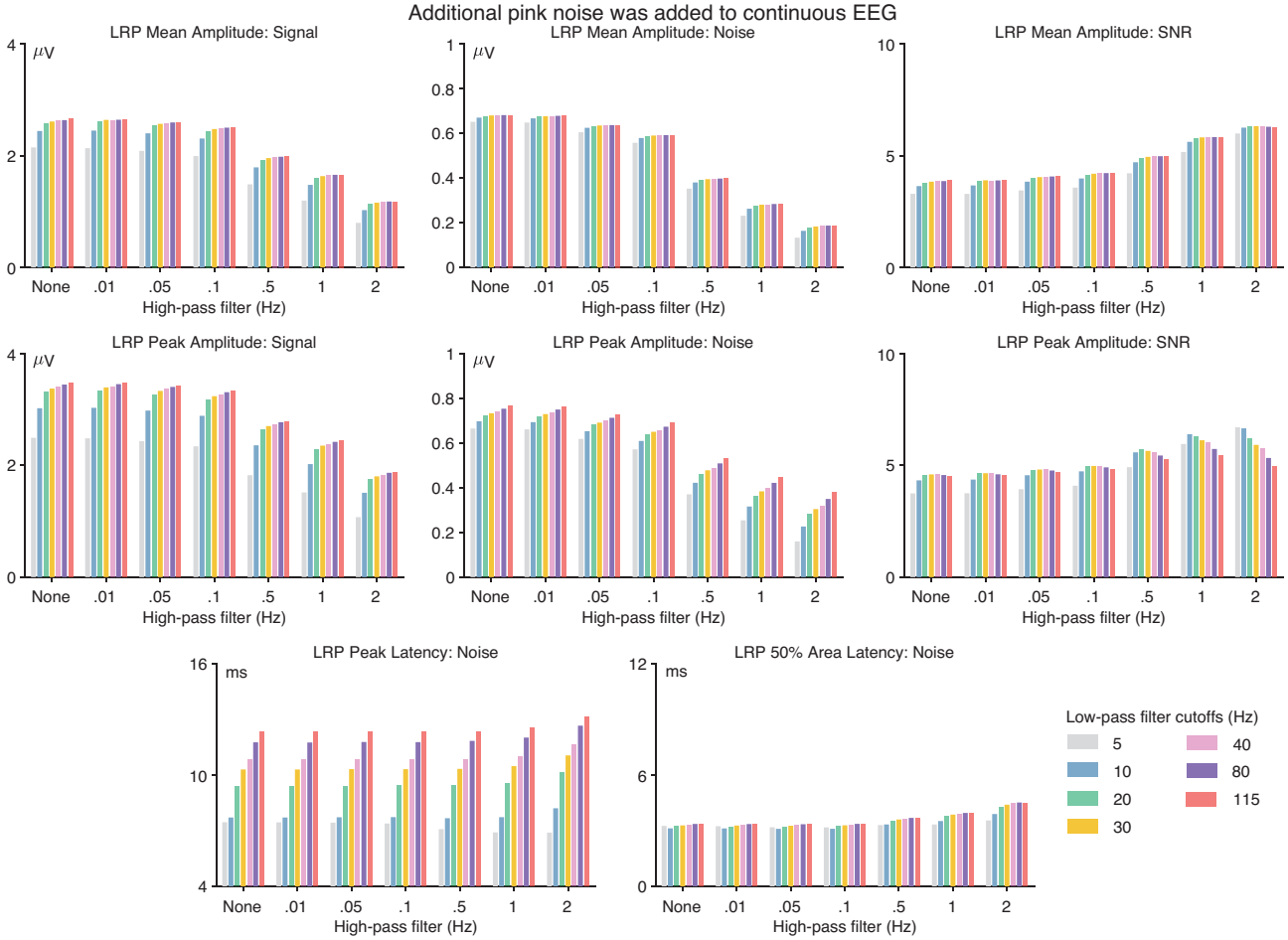

Figure S25: Data quality metrics for the LRP component when pink noise (standard deviation = 7.07 μV) had been added to the continuous EEG prior to filtering. The format is identical to that of Figure 2 in the main document.

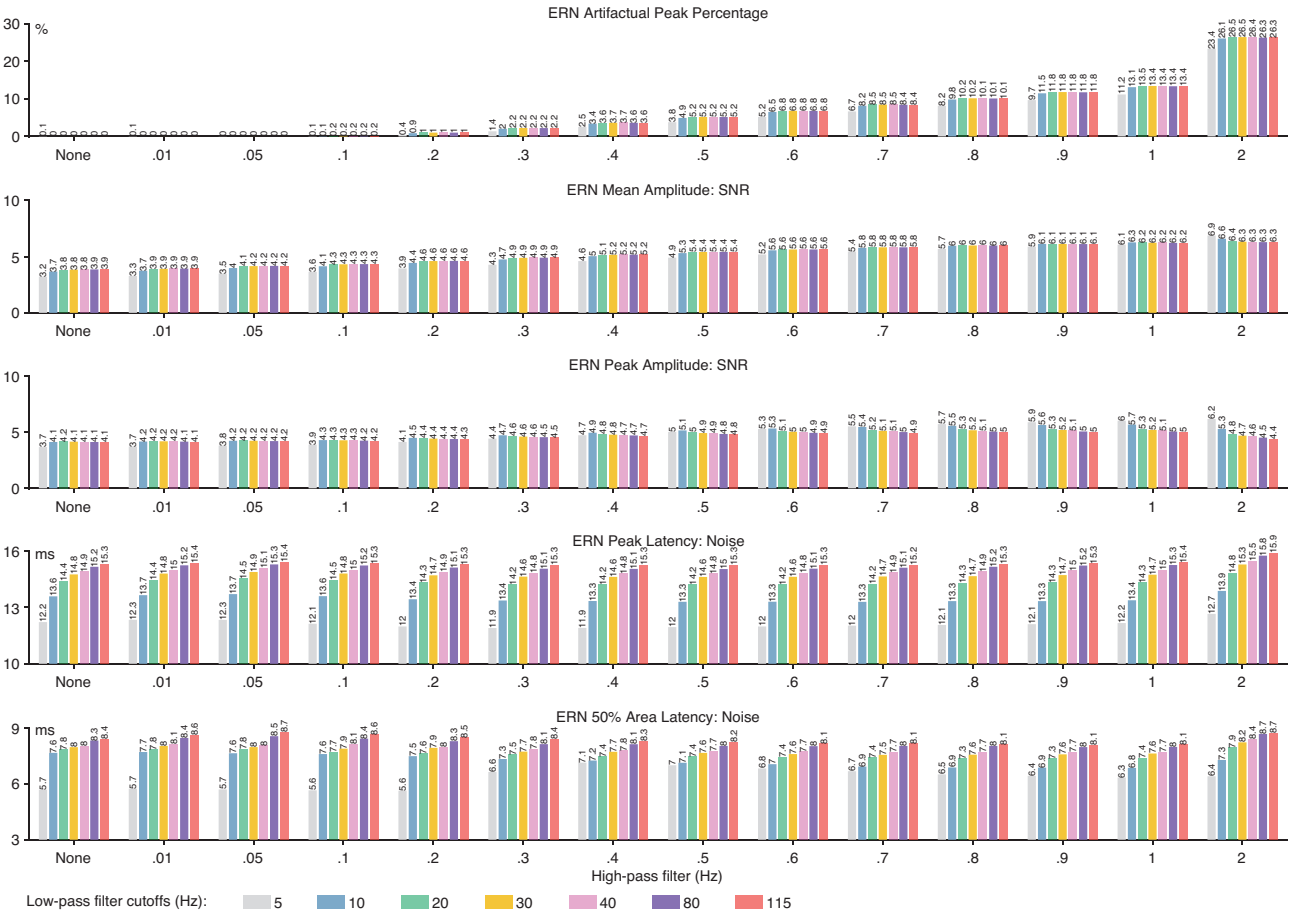

Figure S26: ERN artifactual peak percentage and data quality metrics. Data quality metrics are provided for each of the four scoring methods (mean amplitude, peak amplitude, peak latency and 50% area latency) and for each combination of high-pass filter cutoff frequency (0, 0.01, 0.05, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1, and 2 Hz) and low-pass filter cutoff frequency (5, 10, 20, 30, 40, 80, and 115 Hz). The SNR values are unitless.

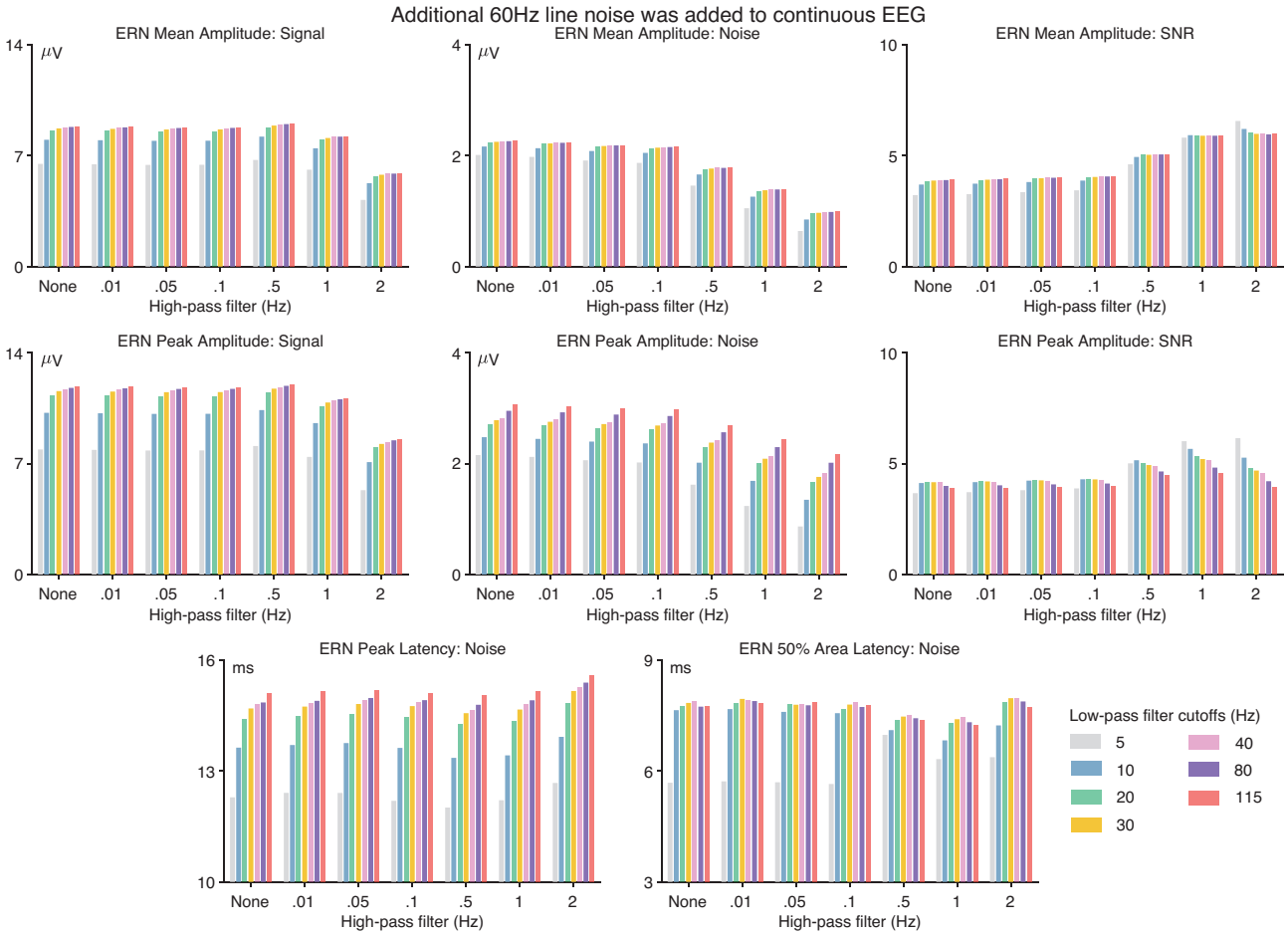

Figure S27: Data quality metrics for the ERN component when 60 Hz line noise (20 μV peak-to-peak amplitude) had been added to the continuous EEG prior to filtering. The format is identical to that of Figure 2 in the main document.

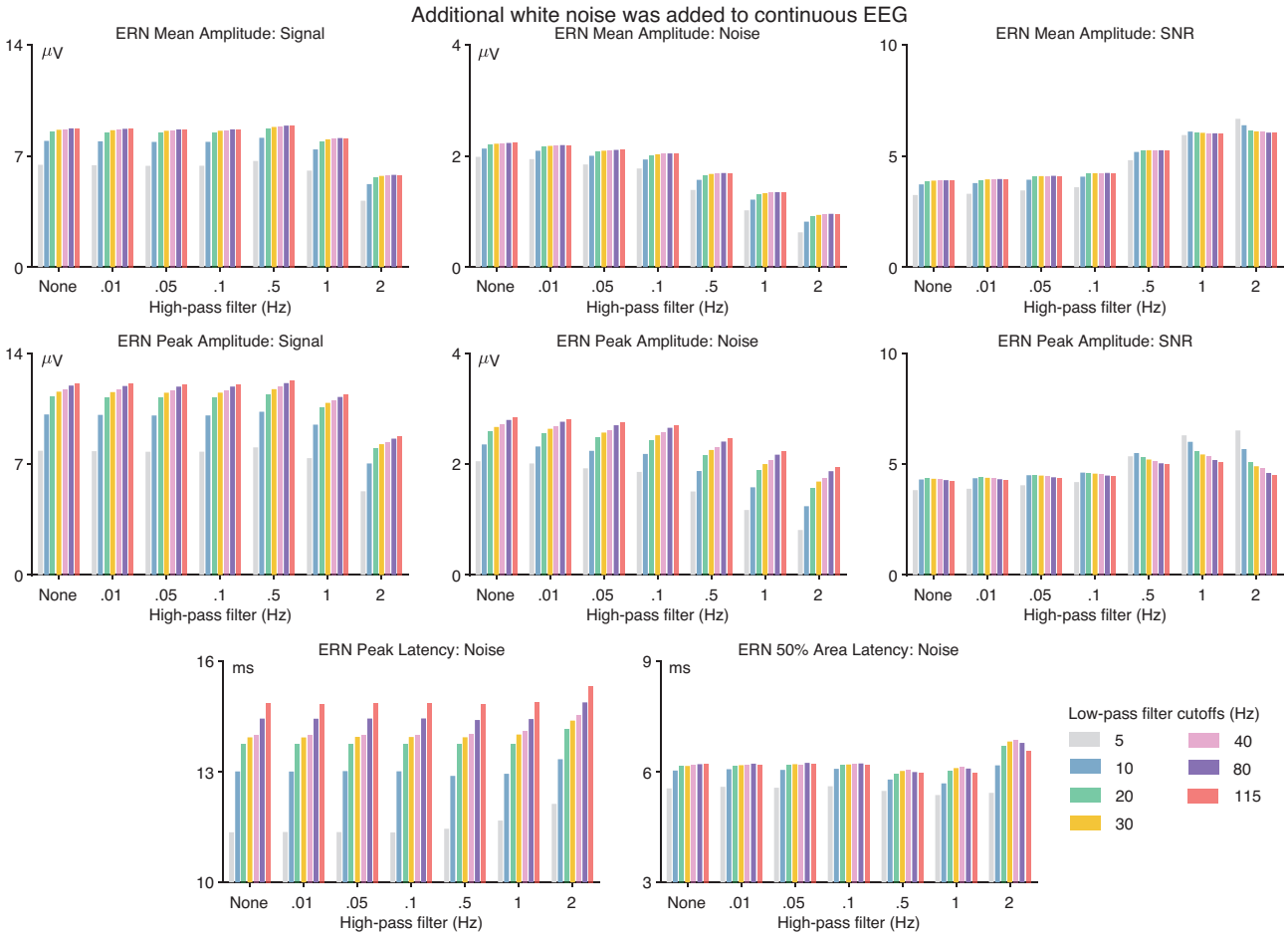

Figure S28: Data quality metrics for the ERN component when white noise (standard deviation = 7.07 μV) had been added to the continuous EEG prior to filtering. The format is identical to that of Figure 2 in the main document.

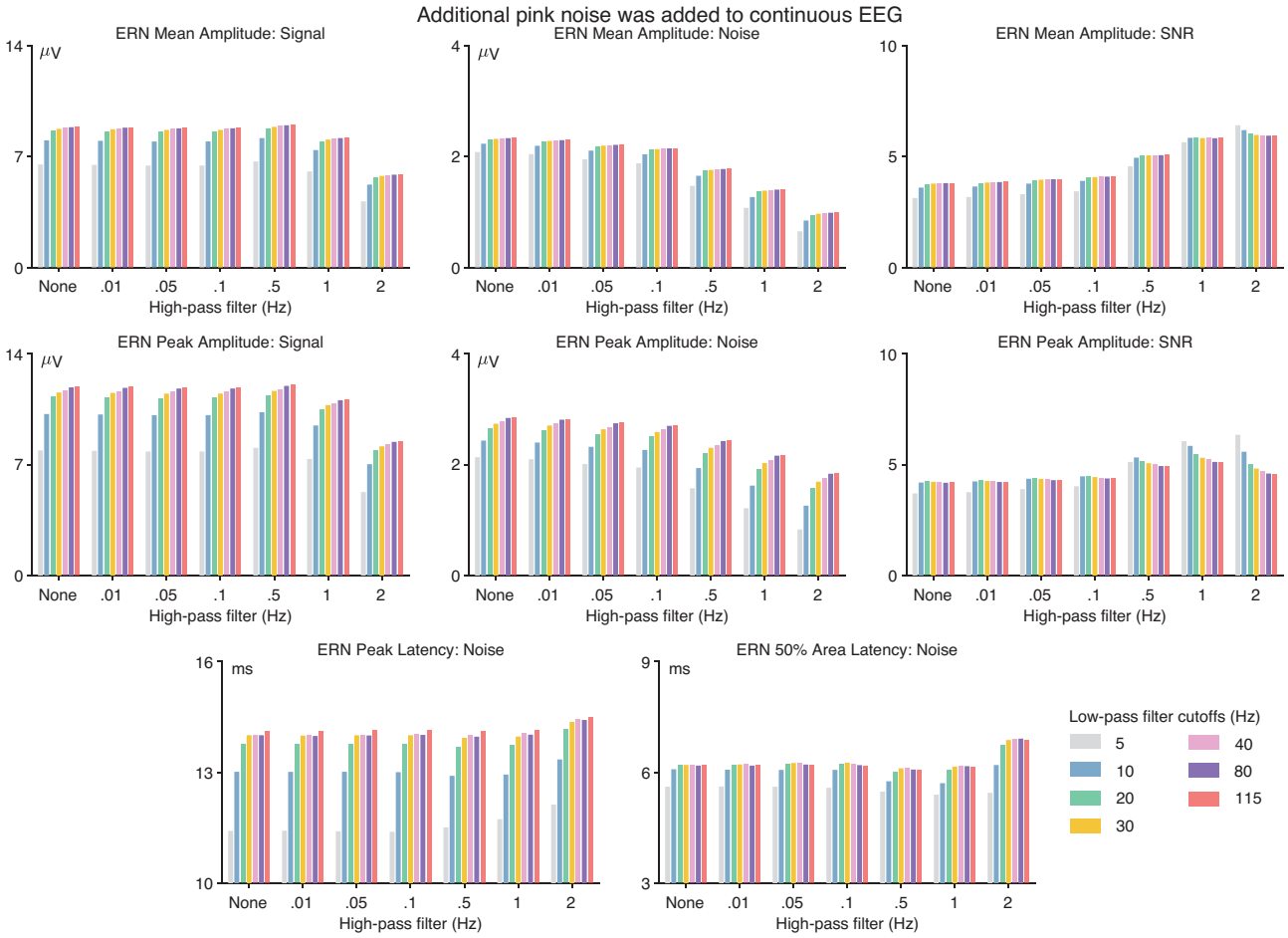

Figure S29: Data quality metrics for the ERN component when pink noise (standard deviation = 7.07 μV) had been added to the continuous EEG prior to filtering. The format is identical to that of Figure 2 in the main document.