Audio Recording Evaluation Protocol

Objective: To systematically evaluate audio recording devices for purchase based on predefined criteria.

Preparation Phase

Device Selection

- Select top two devices from the assessment matrix for in-person evaluation.
- Download measurement software like Room EQ Wizard (REW) or ARTA for testing audio quality.

Setup Arrangements

- Secure rental or demo units of the selected devices, ensuring all necessary components are included, including stands, tripods, and mounting thread adapters as necessary.
- Ensure that microphone is placed at fixed distance and angle from sound source to maintain consistency across recordings, testing different distances and angles for optimal recording quality.

Test Environment

- Set up a controlled test environment that simulates typical use scenarios.

Calibration and Baseline

Initial Calibration

- Perform and record the calibration process to ensure accurate measurements for each participant according to the manufacturer's guidelines; may include setting input levels, checking for background noise, and adjusting as necessary.

Baseline Data Collection

- Collect baseline background noise data?

Quantitative Testing

Resolution and Accuracy Tests

- Conduct tests targeting small, distinct areas to assess the device's resolution and accuracy.
- Capture data such as frequency response, sensitivity, noise floor, distortion, and other relevant parameters.

Speech Recording

- Record a standardized speech passage to assess how clearly and accurately the microphone captures speech
- Record speech at different distances from the microphone to assess its pickup pattern and sensitivity.

Multiple Sound Sources

- Test ability of microphone to clearly record participant audio while background conversation or other noise is occurring.

- Test ability of microphone to clearly record audio with multiple speakers, for example while two participants and a research assistant have a conversation.

Qualitative Testing

User Experience Survey

- After testing, collect participant feedback on their experience with the device.

Compatibility and Integration Test

- Test the device's integration with existing systems, focusing on LSL integration support.

Data Analysis and Scoring

Criteria Scoring

- Score each device against the assessment criteria using collected data and weightings from the matrix.

Strengths and Weaknesses Analysis

- Compile a report detailing each device's strengths and weaknesses based on test results.

Final Evaluation and Decision

Decision Meeting

- Review testing results with stakeholders and make a final purchase decision.

Documentation

- Document the testing process, results, and decision rationale for future reference.

Table 9a: Assessment matrix for audio capture devices (points)

Criteria	Weight	Rode NT-USB+	Blue Yeti X	Audio Technica AT2020USB-X	Shure MV5C
Cost	1	2	2	2	3
Patterns	3	2	3	2	2
Mounting	2	3	2	3	3
Total Score	-	14	15	12	15
1 = below expectations; 2 = meets expectations; 3 = exceeds expectations					

Table 9b: Assessment matrix for audio capture devices (details)

Criteria		Rode NT-USB+	Blue Yeti X	Audio Technica AT2020USB-X	Shure MV5C
Cost	-	$169	$169.99 (on sale for ($139.99)	$129.99	$99
Patterns	-	cardioid	Cardioid, omni, figure 8, stereo	cardioid	cardioid
Mounting	-	1/4" to 5/8” thread adaptor included (universal) with desk mount	Comes with removable desktop stand, can be mounted to boom arm	Comes with desk stand, shock mount compatible with 3/8"-16 and 5/8"-27 threaded stands	Mounting stand included and 1/4 inch 20 thread (standard tri-pod mount) stand adapter
Other comments					

Criteria scoring shall be based on the following parameters. Cost <$100 exceeds expectations; cost >$200 is below expectations; any other cost meets expectations. Patterns more than cardioid exceed expectations; patterns not inclusive of cardioid are below expectations; pattern only cardioid meets expectations. Mounting options built-in tripod with universal tripod mount compatibility exceeds expectations; no built-in tripod mount is below expectations; built-in tripod meets expectations.

The Blue Yeti X has been selected for use.