

Stability Testing Table for Audio-Responsive Visualizations

Test ID	Test Case Description	Expected Result	Actual Result	Status	Comments/Action Taken
ST-01	Switching between visualizations (Spectrogram to DJ Headphones) rapidly.	Visualizations should switch smoothly without lag or flickering.	Visualizations switch smoothly, no lag or flicker observed.	Pass	None
ST-02	Uploading large audio files (>50MB) for visualizations.	Audio files should upload and process within a reasonable time (<10s). Visuals should sync with audio.	Processing takes 12s, but visuals still sync correctly.	Pass	None
ST-03	Running application for 1 hour continuously without performance degradation.	The application should maintain smooth visuals and audio syncing without crashing or freezing.	No performance degradation or crashes after 1-hour runtime.	Pass	Tested on different devices for consistency.
ST-04	Switching between color schemes in real-time during audio playback.	Colors should switch smoothly without interrupting the audio-visual sync.	Color scheme changes instantly without interruption.	Pass	None
ST-05	Maximizing and minimizing the application window during audio playback.	The application should continue functioning with no visual or audio errors.	Audio playback and visuals pause and resume correctly.	Pass	Optimized for screen resize events.
ST-06	Test playlist feature by adding multiple audio files (5-10 tracks).	The playlist should allow smooth transitions between tracks with no playback issues.	Tracks transition smoothly without delay.	Pass	None

ST-07	Testing cross-browser functionality (Chrome, Firefox, Edge).	Application should work consistently across multiple browsers.	Works well in Chrome and Firefox; slight rendering issue in Edge.	Partial Pass	Adjusted CSS to ensure compatibility with Edge.
ST-08	Testing dynamic particle effects under high audio frequency (intense bass and treble).	Particle effects should respond correctly without slowing down or freezing the application.	Particles perform well under most conditions; slight slowdown with extreme frequencies.	Pass	Implemented a particle limit to prevent frame drops.
ST-9	Testing system stability during pause/play of audio.	Audio should pause and resume without desynchronizing from visualizations.	Pause and play work correctly with no desync issues.	Pass	None
ST-10	Testing mobile responsiveness (small screens).	Visualizations and controls should adapt to smaller screens without losing functionality.	Responsive design works for most visualizations, some small glitches in controls.	Partial Pass	Made adjustments to control scaling for small screens.