

Headphones specification and user selection guide:

This document outlines the technical and functional specifications for an audio headphone intended for use by office staff within Tx OGE. The headphone should be designed for safe and ergonomic use and to enhance productivity by providing superior sound quality and ease of use for communication tasks such as video conferencing, VoIP calls, and multimedia applications. The headphones will also serve as means of privacy when attending to calls and reduce the overall noise for all employees in an open space environment.

Key to the optimal selection of headphones still relies on user preference. The user will be required to focus on the comfort and ergonomics suited to them however the following minimum requirements will help guide the end user on the optimal technology requirements needed to meet the office environment.

- **Speaker: Active Noise Cancellation (ANC)** technology with a minimum Noise Reduction Rating (NRR) of between 20 - 40 dB to reduce background noise in open-plan offices.
- **Microphone:** Microphone with **active noise cancellation** or background **noise suppression technology** at minimum with unidirectional microphone design (optional) to improve voice pickup and minimize background noise.
 - Flexible mic boom preferred: Rotate the boom up or down and bend it left or right to move it closer to your mouth.
- The following **technical specifications** of the speaker and mic can also serve as a guide for optimal selection of headphones:
 - Speaker Frequency Range: 20 Hz – 20 kHz
 - Speaker Sensitivity Range: (100 dBV/Pa - 120 dBV/Pa) +/- 5 dB
 - Microphone Frequency Range: 100 Hz – 10 kHz
 - Microphone Sensitivity Range: (-30 to -40) dBV/Pa +/- 4 dB
- **Wired headphone** is the preferred requirement designed for office environments with
 - 1m (min) – 2m (max) cable length,
 - USB 2.0 with either Type A or C (USB type A adaptor provided for USB C connector).
- **Inline Controls** (on the cable): Volume up/down, call answer/end, mute.
- It is **compatible** at minimum with **Win10 and later operating systems**, ensuring seamless integration into the office workflow (Leading UC vendor, Meets Microsoft Teams open office requirements)
- **Safety:** Maximum Sound Pressure Level (SPL) protection if specified. Headphones should have a volume limitation feature to prevent exposure to high sound pressure levels that can cause hearing damage. Typically, this is set to a maximum of 80-90 dB.
- **Comfort and Ergonomics (User Preference)**
 - Where possible the user should test the headsets for comfort and fit physically.
 - **Form Factor: Over-the-ear** or **on-ear** depending on user preference with the above minimum requirements met.
 - **Materials:**
 - Lightweight frame,
 - Durable and breathable ear cushions for a comfortable and secure fit with material designed for prolonged use (preferably synthetic leather over cloth)
 - Easy to clean for hygiene.
 - **Lightweight design** (weight less than 250grams).
 - **Headband:** Padded and adjustable for comfort during extended use

Category	Requirement	Check	Comment
Audio (Speaker)	Frequency Response Range: 20 Hz – 20 kHz	Within range	
	Speaker Sensitivity Range:(100 – 120) dBV/Pa	Within range	
	Noise Cancellation Speaker: Active Noise Cancellation (ANC) technology with a minimum Noise Reduction Rating (NRR) of between 20 - 40 dB to reduce background noise in open-plan offices.	ANC (required)	
Microphone	Mic Frequency Range:100 Hz – 10 kHz	Within range	
	Mic Sensitivity Range:(-30 to -45) dBV/Pa	Within range	
	Mic with noise cancellation or background noise suppression technology at minimum with unidirectional mic design (optional) to improve voice pickup and minimize background noise.	Mic ANC (required)	
	Flexible mic boom. Rotate the boom up or down and bend it left or right to move it closer to your mouth.	Mic boom required.	
Connectivity	Wired headphone: 1m (min) – 2m (max) cable length, USB 2.0 A or C (USB type A adaptor provided when USB C connector).	Check Cable length. Check USB type.	
Controls	Inline Controls (on the cable) for volume up/down, call answer/end, mute.	Check	
Compatibility	Compatible Windows 10 and later operating systems. Meets Microsoft Teams open office requirements/certified.	Confirm compatibility. MS Teams certified (preferred)	
Comfort and Ergonomics	Form Factor: Over-the-ear or on-ear depending on user preference with the above minimum requirements met.	User preference	
	Materials: <ul style="list-style-type: none"> - Lightweight frame, - Durable and Breathable ear cushions for a comfortable and secure fit with material designed for prolonged use (preferably synthetic leather over cloth). - Easy to clean for hygiene. 	Check ear cushions material for durability and comfort – user preference	
	Lightweight design (weight less than 250grams) for comfort during prolonged use.	Check under 250g	
	Headband: Padded and adjustable for comfort during extended use	Check	
Safety	Maximum Sound Pressure Level (SPL) protection if available. Headphones should have a volume limitation feature to prevent exposure to high sound pressure levels that can cause hearing damage. Typically, this is set to a maximum of 80-85 dB where possible.	Check if available (can be user managed)	
Environmental	Operating Temp: 0°C to 40°C, Storage Temp: -20°C to 60°C	Typical range	