

neat.

Neat Center Integration Design Guide

Technical Reference for System Designers and Integration Partners



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Document Version: 1.0

Reference Documentation

Before implementing Neat Center, review these essential resources:

- **Network and Firewall Requirements** - Network prerequisites for Neat Center deployment:
<https://support.neat.no/article/network-and-firewall-requirements-for-neat/>
- **How to Set Up Neat Center(s)** - Mounting, powering, pairing, and configuration procedures: *<https://support.neat.no/article/how-to-set-up-neat-center/>*
- **Camera Framing Options for Neat Center** - Dynamic framing and Neat Focus modes, configuration walkthroughs: *<https://support.neat.no/article/camera-framing-options-for-neat-center/>*
- **Using USB Audio with Neat Pro and Neat Board Pro**: *<https://support.neat.no/article/neat-board-pro-and-neat-bar-pro-audio-over-usb/>*

Executive Summary

This document provides positioning and placement guidelines for integrating Neat Center devices into conferencing environments. Neat Center extends the capabilities of front-of-room (FoR) Neat devices, enabling enhanced audio and video coverage for medium to large meeting spaces through dynamic framing technology and multi-camera configurations.

1. System Architecture Overview

1.1 Core Components

The Neat Center ecosystem consists of:

- **Front-of-Room (FoR) Devices:** Neat Bar Gen 2, Neat Bar Pro, Neat Board 50, Neat Board Pro
- **Neat Center:** Companion device with 360° camera array and omnidirectional microphone array
- **Neat Pad:** Control interface and system management device

2. Device Specifications

Neat Center is designed to capture audio from 360 degrees horizontally

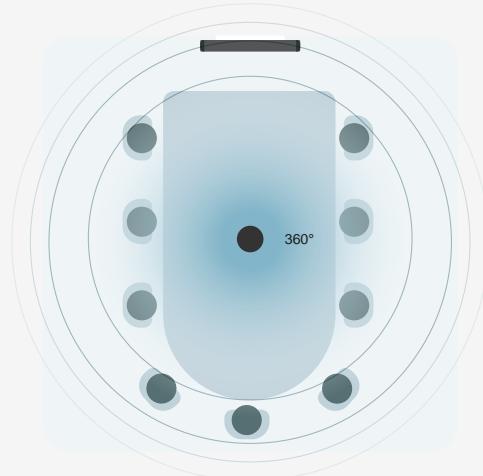
2.1 Neat Center Coverage Specifications

Video Coverage

- **Field of View:** 3x 162° horizontal, 91° vertical (at camera center)
- **Maximum Pickup Range:** 16.4 ft (5 m)

Audio Coverage

- **Pickup Range:** 16.4 ft (5 m)



2.2 Front-of-Room Device Specifications

Neat Bar Pro / Neat Board Pro

- **Camera Pickup Range:** 33 ft (10 m) maximum
- **Horizontal Field of View:** 113° (wide angle lens), 70° (telephoto lens)
- **Microphone Pickup Range:** 33 ft (10 m) maximum

Neat Bar Gen 2 / Neat Board 50

- **Camera Pickup Range:** 15 ft (5 m) maximum
- **Horizontal Field of View:** 113°
- **Microphone Pickup Range:** 15 ft (5 m) maximum

2.3 FoR Device Compatibility Matrix

| Device | Max Centers | Dynamic Framing | Neat Focus | 3rd Party Audio |
|----------------|-------------|-----------------|------------|-----------------|
| Neat Bar* | 1 | Switching only | Yes | No |
| Neat Bar Gen 2 | 2 | Yes | Yes | No |
| Neat Bar Pro | 2 | Yes | Yes | Yes |
| Neat Board 50 | 2 | Yes | Yes | No |
| Neat Board Pro | 2 | Yes | Yes | Yes |

*Neat Bar BYOD only will require Neat Pad to pair with Neat Center.

3. Room Design Guidelines

3.1 Coverage Calculations

Single Center Configuration

Neat Bar Gen 2 + 1 Neat Center:

- **Recommended room depth:** 10-15 ft (3-5 m) from FoR
- **Total coverage area:** Up to 15 ft (5 m) depth
- **Acoustic considerations:** Add Center at 10 ft (3 m) for rooms with poor acoustics

Neat Bar Pro + 1 Neat Center:

- **Recommended room depth:** 15-25 ft (5-7.5 m)
- **Total coverage area:** Up to 33 ft (10 m) depth

Visual example for remote participant view for large meeting room with Neat Bar Pro and 1 Neat Center with dynamic framing:



Dual Center Configuration

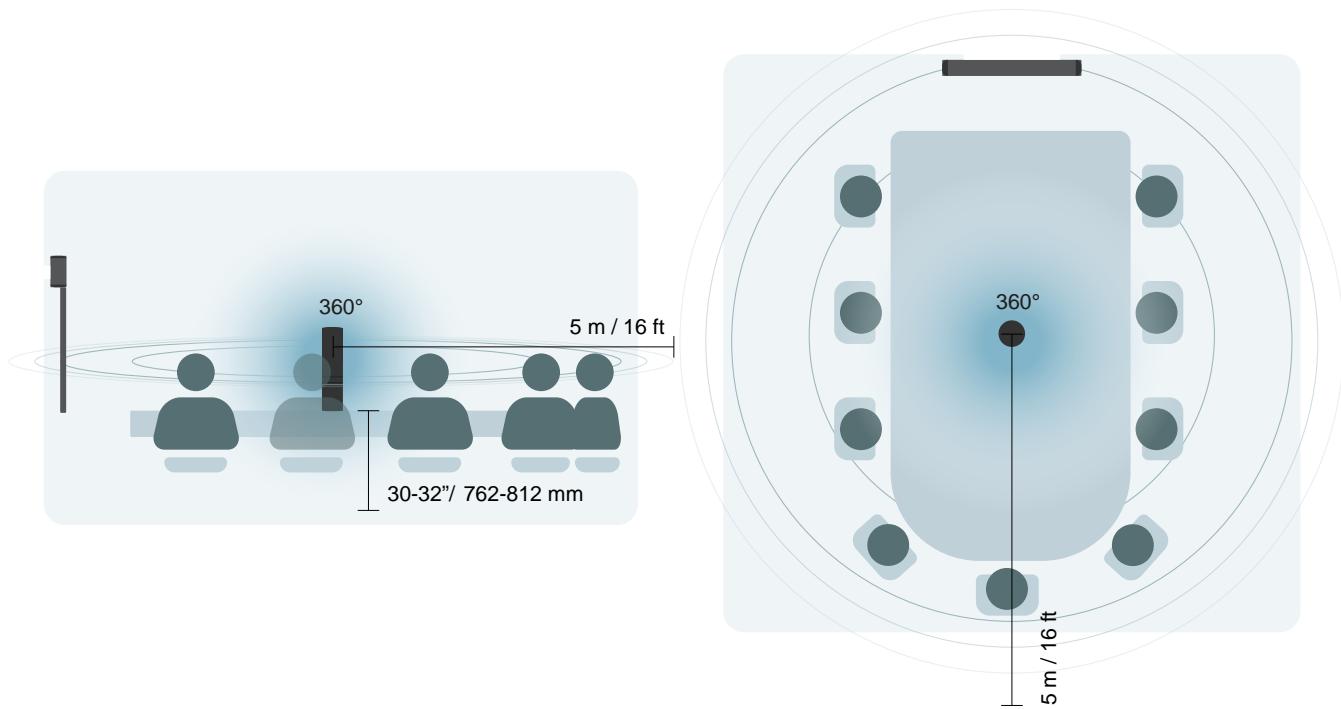
Neat Bar Pro + 2 Neat Centers:

- **Recommended room depth:** 25-42 ft (7.5-13 m)
- **Total coverage area:** Up to 42 ft (13 m) depth
- **Center placement:** Staggered for optimal coverage

3.2 Mounting Specifications

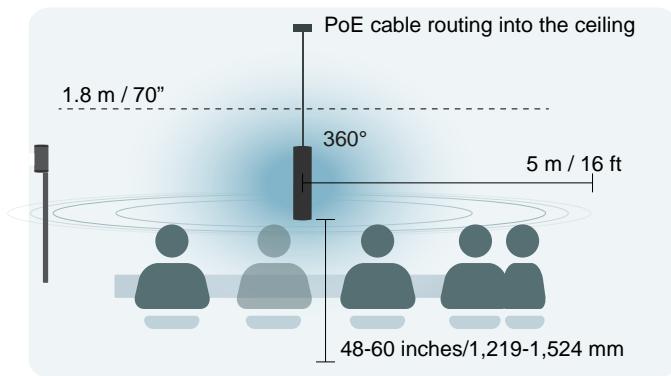
Orientation: Table Mounted - Fixed or Free Standing (Recommended)

- **Height:** Table surface level (30-32"/ 762-812 mm)
- **Position:** Center of conference table
- **Orientation:** LED ring facing up



Camera Mode: Neat Symmetry - Dynamic Framing

- **Recommended Height:** Above seated eye level (48-60"/ 1,219-1,524 mm)
- **Cable Management:** Plenum-rated Cat6 required
- **Performance Note:** Video/audio quality degrades above 70" (1,778 mm). Ensure Neat Center does not obstruct room displays for back of room participants. When using ceiling mounted Nea Centers, installing Neat Bar Gen 2 or Neat Bar Pro above display provides a more natural experience



Orientation: Ceiling Mounted - Suspended

- **Maximum Height:** 84" (2.1 m)
- **Recommended Height:** Close to standing eye level (60-72"/ 1.5-1.8 m)
- **Cable Management:** Plenum-rated Cat6 required
- **Performance Note:** Video/audio quality can degrade above 84" (2.1 m)

Camera Mode: Symmetry - Dynamic Framing

- **Maximum Height:** 84" (2.1 m)
- **Recommended Height:** Above standing eye level (60-72"/ 1.5-1.8 m)
- **Cable Management:** Plenum-rated Cat6 required
- **Performance Note:** Video/audio quality can degrade above 84" (2.1 m)
- Wide tables are recommended. Narrow tables may provide an non-optimal experience.
If there is a narrow table present, table placement is recommended.

Neat Bar Pro - Under Display

- **Minimum Height:** 42" (1,067 mm)- Optimized for Eye level, 46" (1,168 mm) - Optimized for not capturing centers in individual frames
- **Maximum Height:** 48" (1,219 mm) due to display viewing degradation

Neat Bar Pro - Above Display

- **Maximum Recommended Height:** 84" (2.1 m)
- **Performance Note:** Video/audio quality degrades above 84" (2.1 m)

3.3 Positioning Requirements

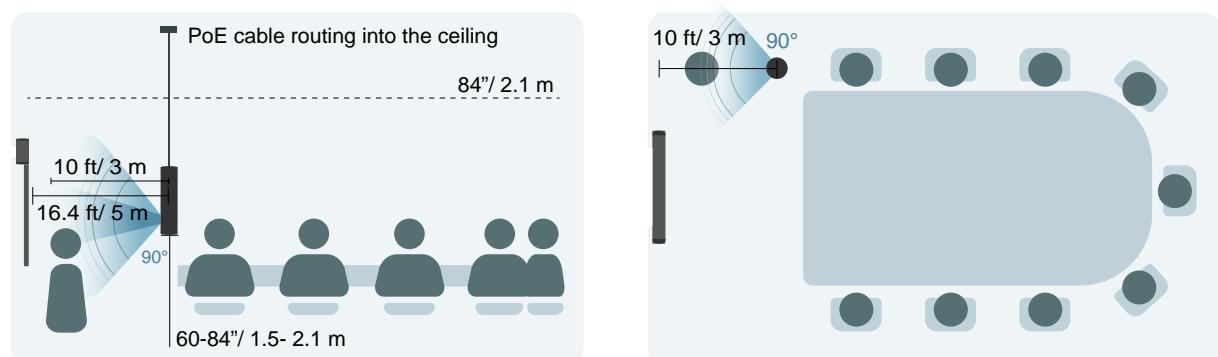
Distance Requirements from main Front of Room Device

Dynamic Framing Mode:

- **Minimum Distance:** No minimum distance requirements
- **Maximum Distance:** 16.4 ft (5 m) from FoR device or another Neat Center
- **Ideal Position:** Centered in the room coverage gap between FoR device and farthest participants

Neat Focus Mode:

- **Minimum Distance:** 5 ft (1.5 m) from FoR device
- **Maximum Distance from FoR:** Not applicable - positioning is based on presenter location
- **Critical Requirement:** Neat Center must be within 16.4 ft (5 m) of participants to be framed
- **Ideal Position:** Aimed directly at presenter area/podium with clear line of sight



Multiple Center Positioning

When deploying two Neat Centers:

- Maintain minimum 3 ft (.9 m) separation between Neat Centers
- Neat Centers should be deployed to ensure no coverage gap between Neat Centers
- Maintain maximum 16.4 ft (5 m) distance between devices

3.4 Acoustic Considerations

Room Characteristics Requiring Center Addition:

- Glass walls or large windows
- High ceilings (>12 ft/ 3.6 m)
- Hard surface ratio >60%
- Reverberation time (RT60) >0.6 seconds
- Background noise level >45 dB SPL

4. Integration with Third-Party Systems

4.1 3rd Party Audio System Integration

Supported Devices: Neat Bar Pro, Neat Board Pro

Connection Method:

- Interface: USB-C port
- Protocol: USB Audio Class 2.0
- Requirement: Must offload both microphones and speakers

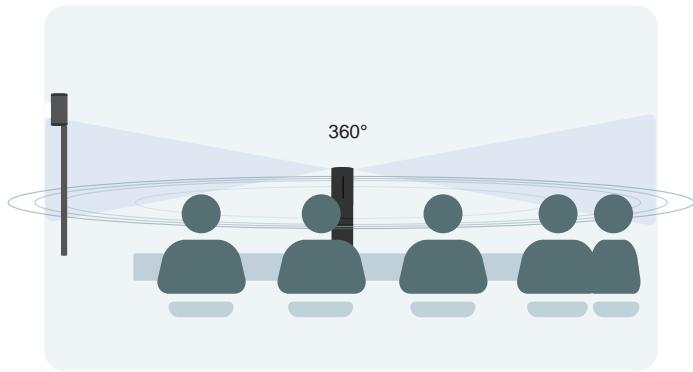
Important Note: Camera functionality, including dynamic framing and Neat Focus modes, is not impacted when utilizing a third-party audio system for microphones and speakers. The video system operates independently of the audio configuration.

5. Performance Optimization

5.1 Video Quality Optimization

Factors Affecting Performance:

- Mounting height (lower = better)
- Lighting conditions (500-1000 lux optimal)
- Background contrast
- Participant positioning



Optimization Checklist:

- Mount Neat Centers at or below 70" (1,778 mm) height (dynamic framing) or 84" (2,133 mm) (Neat Focus)
- Ensure uniform lighting (avoid backlight)
- Position participants within 30° of camera center
- Adjust framing boundaries to exclude traffic areas
- Test all camera modes before deployment

5.2 Audio Quality Optimization

Microphone Coverage Pattern:

- **Optimal:** 0-10 ft (0-3 m) from Neat Center
- **Acceptable:** 10-16.4 ft (3-5 m) from Neat Center
- **Degraded:** Beyond 16.4 ft (5 m)

Echo Cancellation Tuning:

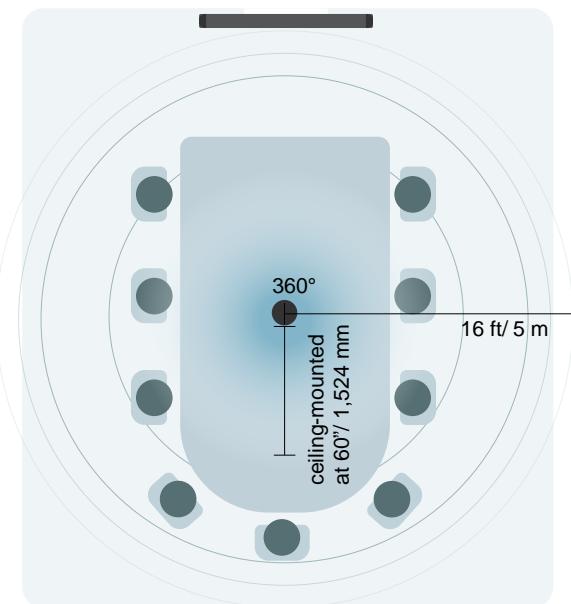
- Room size calibration required
- AEC reference loop verification
- Speaker zone configuration

6. Deployment Scenarios

6.1 Small Conference Room (Up to 16 ft/ 5 m)

Configuration:

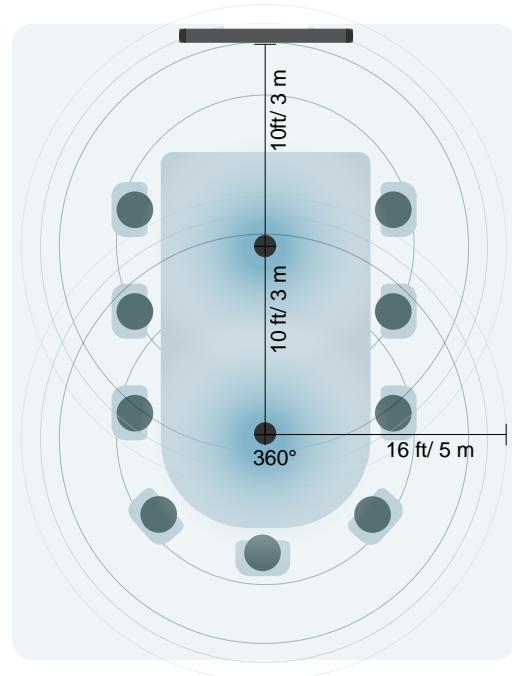
- Neat Bar Gen 2 + 1 Neat Center
- Neat Center on table, centered
- Dynamic framing
- Standard framing boundary



6.3 Large Conference Room (Up to 42 ft/ 12.8 m)

Configuration:

- Neat Bar Pro + 2 Neat Centers
- Neat Centers staggered placement
- Mixed mode (dynamic framing + Neat Focus)
- Custom framing boundaries per zone



6.4 Training Room with Podium

Configuration:

- Any Neat Bar Gen 2 FoR + 1 Neat Center
- Neat Center aimed at podium (Camera A)
- Neat Focus mode, adaptive composition
- Narrow framing boundary for presenter

