

PROJECT WORKPLACE

Best Practices For Creating Effective
Video-Enabled Rooms

This document discusses best practice for creating effective video-enabled rooms for conferences.

Topics covered include:

- Lighting
- Whiteboard Placement
- Room Acoustics
- Standard Microphones
- Ceiling Microphones
- Presenter and Whiteboard Microphones
- Table



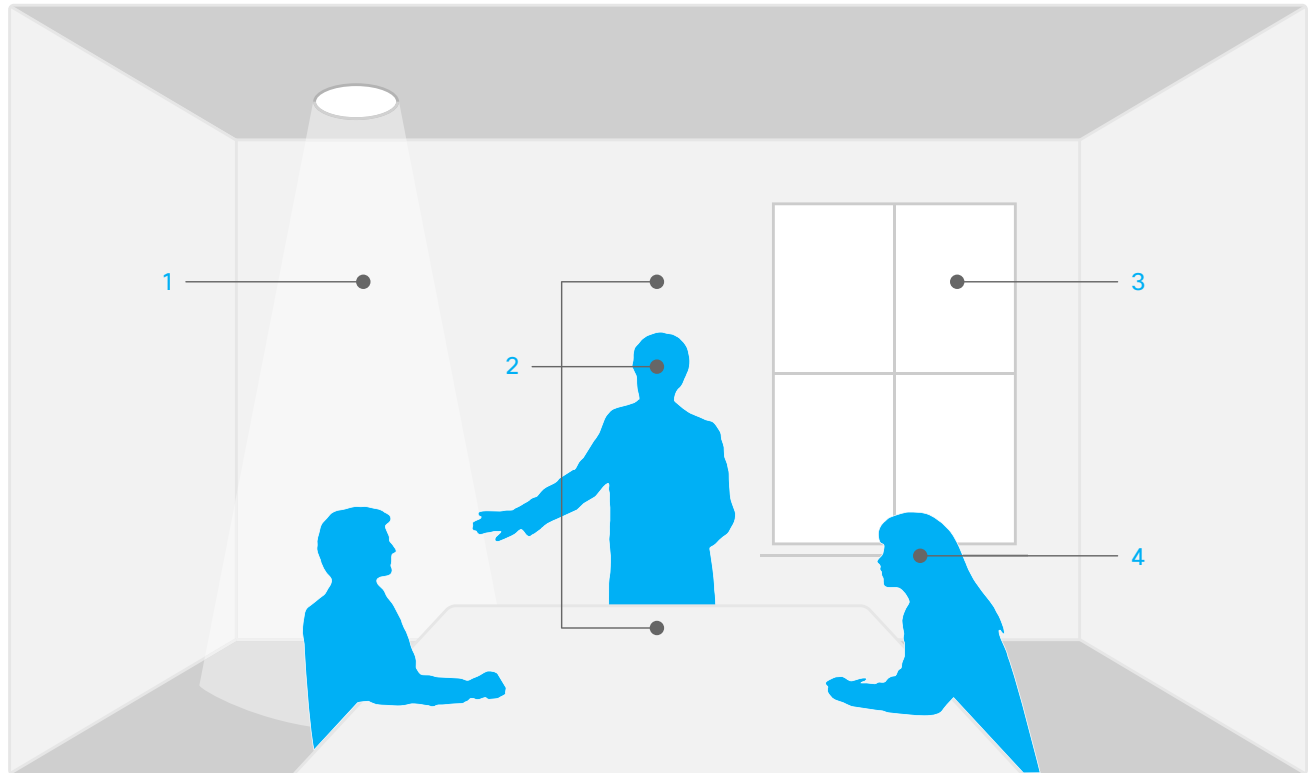
Tips

Generally a good light color temperature is 4000 kelvin, but consider increasing this number if you depend mostly on daylight as your light source. A color-rendering index (CRI) of 80 or better is important. Avoid mixing technologies such as fluorescents and LED because their color profiles differ.



Tips

Neutral gray colors on walls and tables improve color appearance. Avoid completely white walls or tables, a color with reflection value (LRV) of 50 percent is recommended.

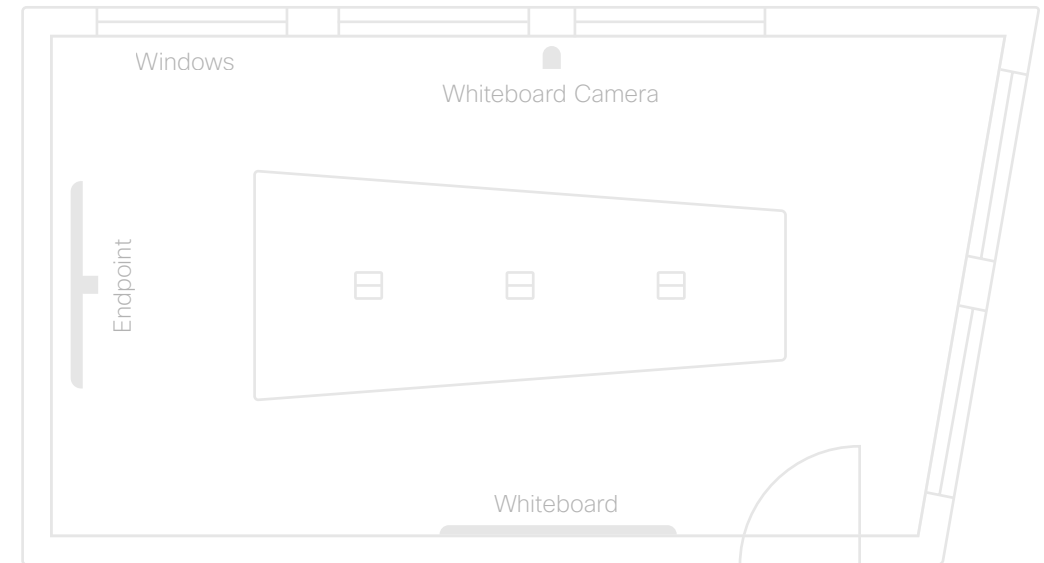
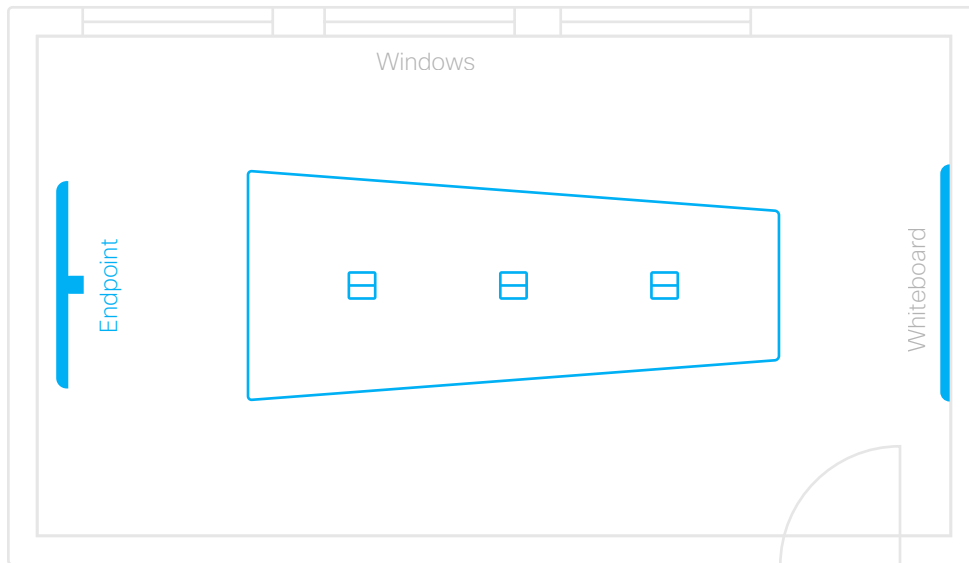


Light Essentials

Be aware that video is sensitive to high contrast levels in the room. Most luminaries are made to avoid glare thus focusing the effect on the work area rather than people's faces.

A common problem is insufficient light on people's faces. A glare-free luminary producing directive light at an angle of 45 degrees is optimal for video, but may be challenging to achieve. Following are some tips on how to improve the lighting situation within a room.

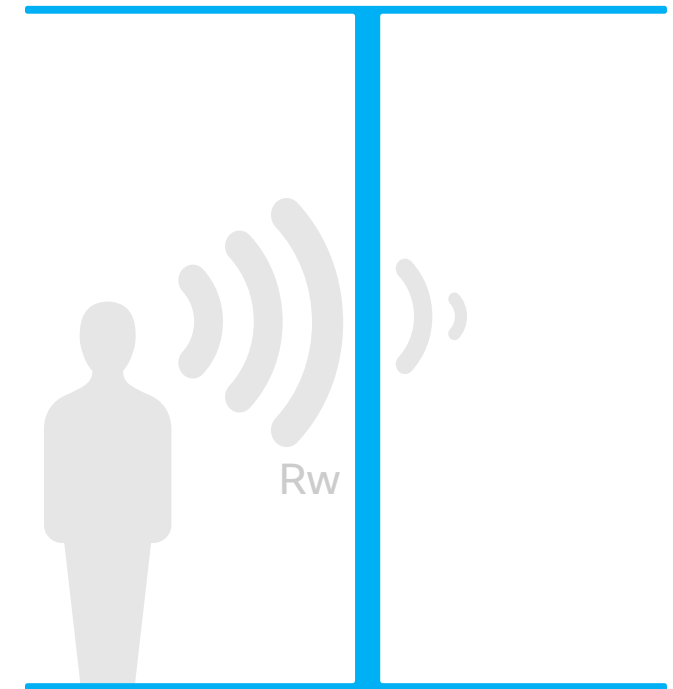
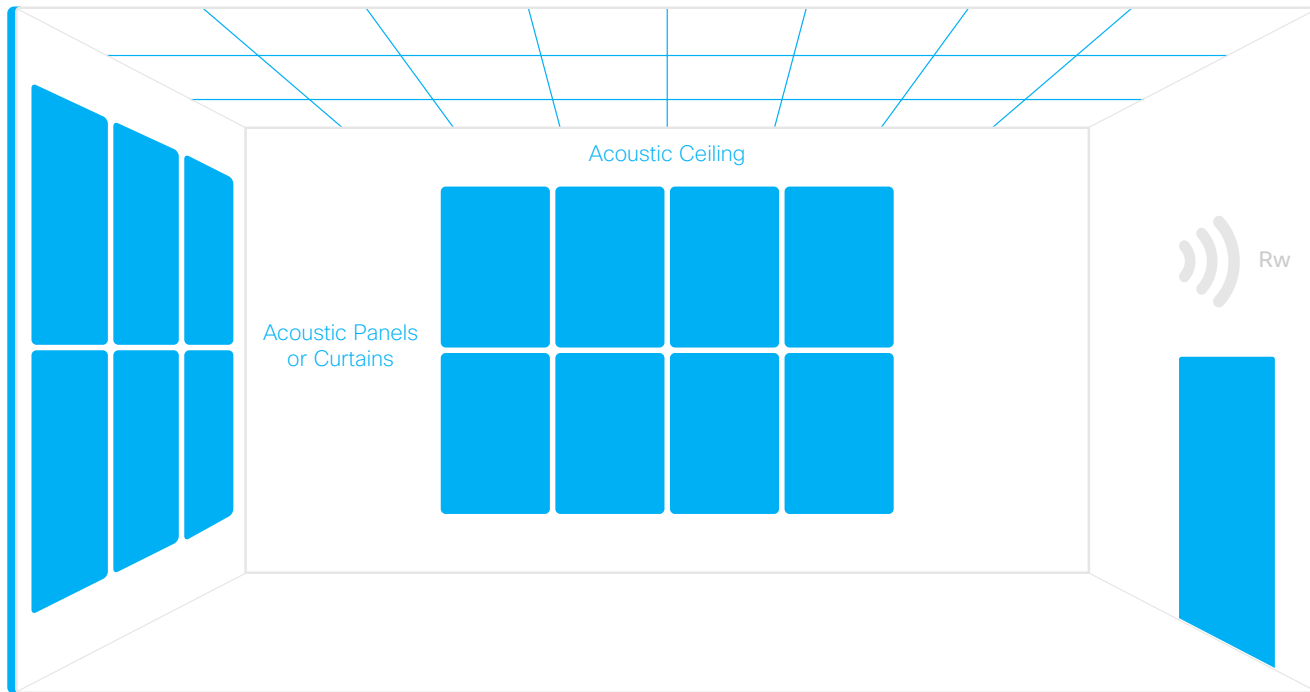
- 1 Avoid illuminating the surrounding walls too much. This only makes the faces appear darker.
- 2 Try to keep the contrast less than 1:1.5. For example, 500 lux on faces implicates maximum 750 lux on the table and surroundings.
- 3 Make sure you can reduce sunlight to a comfortable level.
- 4 Recommended light intensity is 400 to 500 lux on faces.



Whiteboard Essentials

It is best to have the whiteboard visible in the camera overview. An additional camera allows for greater flexibility, such as focusing on the whiteboard.

- If the room allows for it, place the whiteboard on the wall opposite the endpoint.
- If the whiteboard is on a side wall, place it so that it is visible in the overview and use an additional camera to focus on the whiteboard.
- Point the additional camera directly at and centered on the whiteboard.
- Place the additional camera at least 5 ft (1.5 m) above the floor.

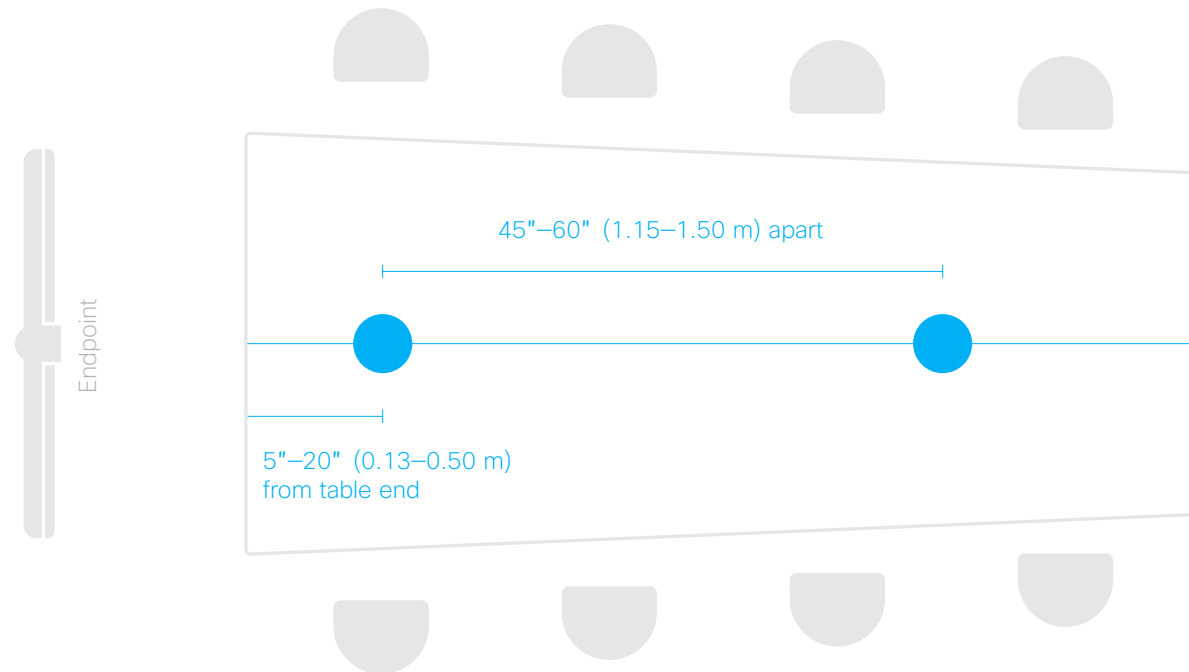


Acoustic Essentials

Video systems usually work fairly well with most types of acoustics, but the experience can be a lot better with a little well-aimed treatment.

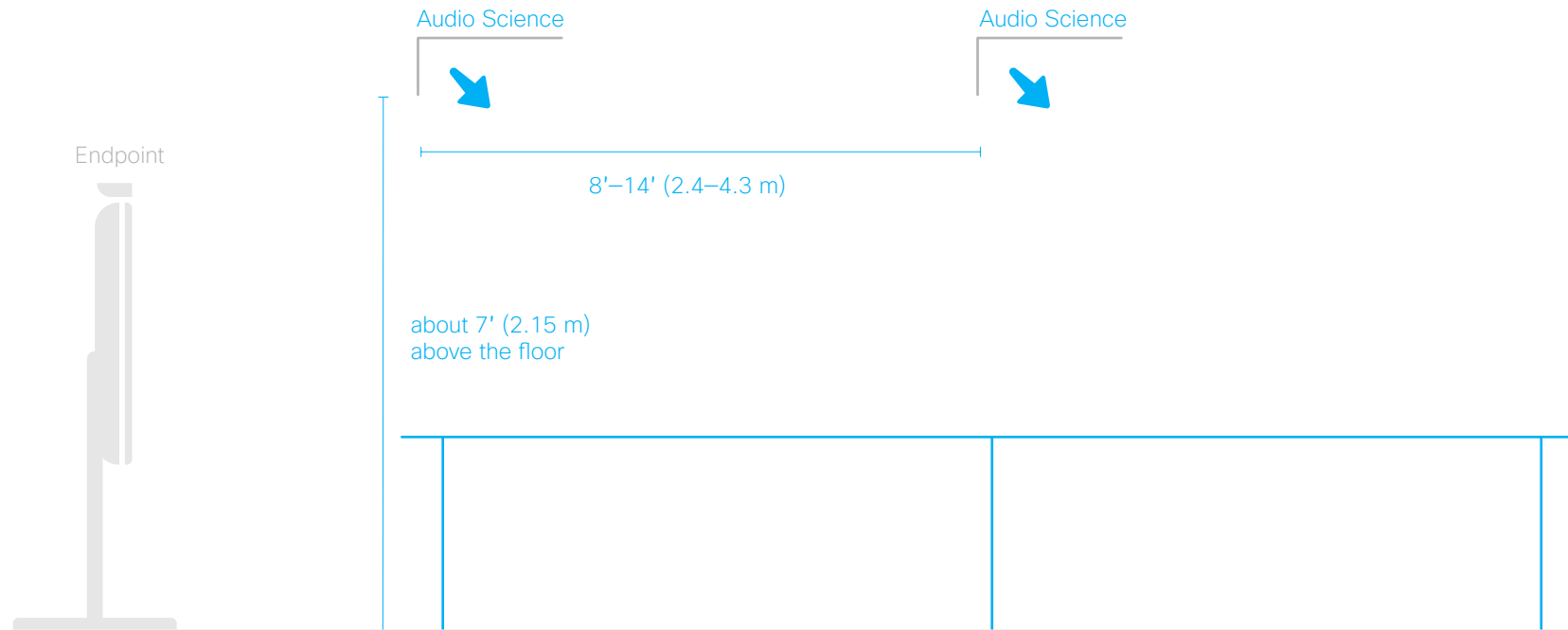
For the optimal experience aim for a reverberation time (RT60) of 0.3 to 0.4 seconds, and ensure that sound absorption is distributed evenly on the walls to avoid flutter echo from parallel walls. Follow these guidelines:

- Use an acoustic ceiling consisting of tiles with an absorption class A or NRC of 0.9 or greater.
- Put acoustic absorption on walls.
 - A good amount to use is approximately 0.5 times the ceiling area (Textile curtains also count as absorption).
 - Place absorption on at least two walls, preferably adjacent walls. Avoid placing it on opposing walls.
 - In order to increase the low frequency absorption, acoustic wall panels should be mounted so that they protrude at least 2 in. (5 cm).
- To avoid eavesdropping as well as disturbance of people located outside the room, we recommend that walls and doors have appropriate sound insulation. The walls should hold a Sound Reduction Index (Rw) of about 48 dB. Doors in the meeting room are recommended to hold an Rw of about 35 dB. For more information on how Rw is defined, see the international standard ISO 717-1.
- For quality microphone pick-up and comfort in the room, the ambient noise level should not exceed 30 dB (A-weighted sound pressure level).



Standard Microphones

- Use Cisco Telepresence omnidirectional microphones along the center line of the table.
- One microphone generally covers four people.
- The microphone closest to the system should be placed approximately 5–20 in (0.13–0.50 m) from the table end.
- Spacing between microphones should be about 45–60 in (1.15–1.50 m), and a maximum of 45 in (1.15 m) from participants.
- The maximum spacing should only be used in acoustically dampened rooms. In less-dampened rooms, the spacing should be decreased.

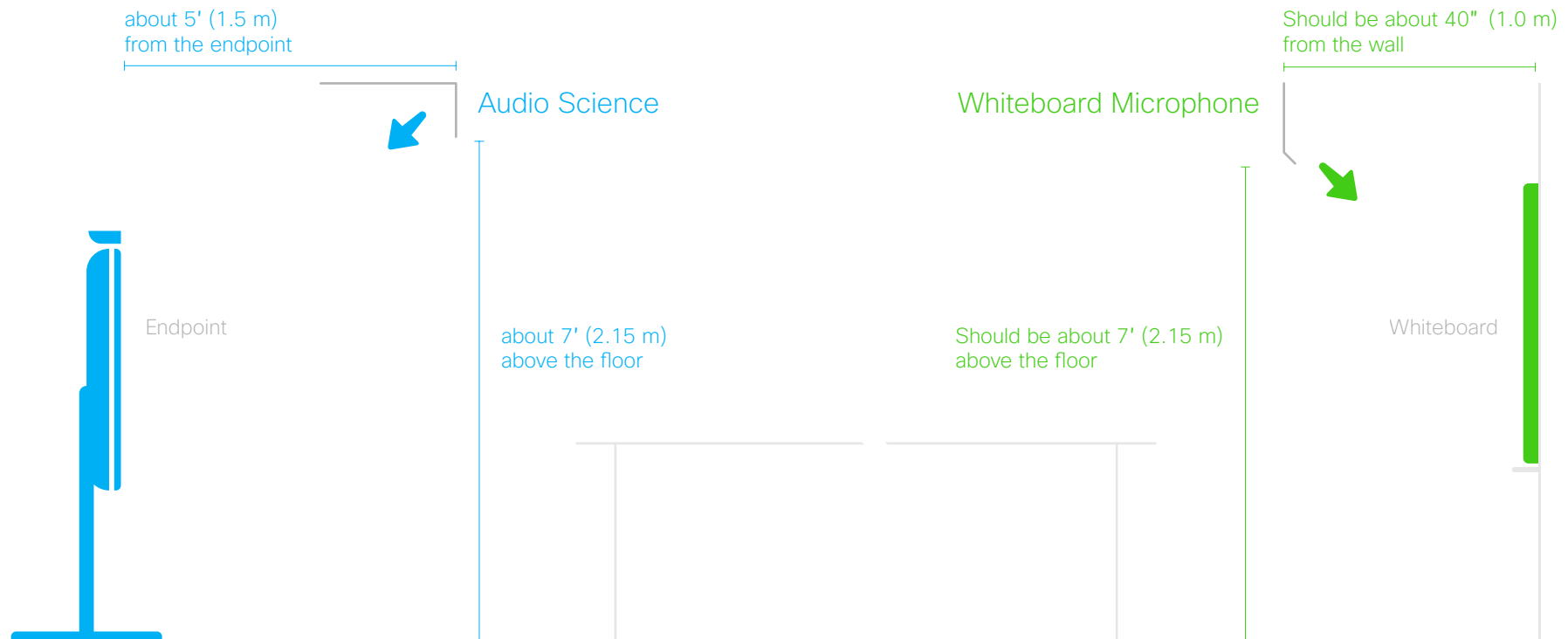


Ceiling Microphones

In some situations you might want to keep the table free of microphones. Cisco provides the ceiling microphone, Audio Science, which can be used in these scenarios.

Following are some guidelines on positioning the microphone correctly:

- It can be used with tables seating 8–14 people.
- Align the Audio Science microphone with the table edge closest to the system. Mount it about 7 ft (2.15 m) above the floor.
- The microphone must face away from the endpoint.
- For longer tables, mount the Audio Science microphones with a spacing of 8–14 ft (2.4–4.3 m).
- The maximum spacing should only be used in acoustically dampened rooms. In less-dampened rooms, the spacing should be decreased.



Additional Microphones

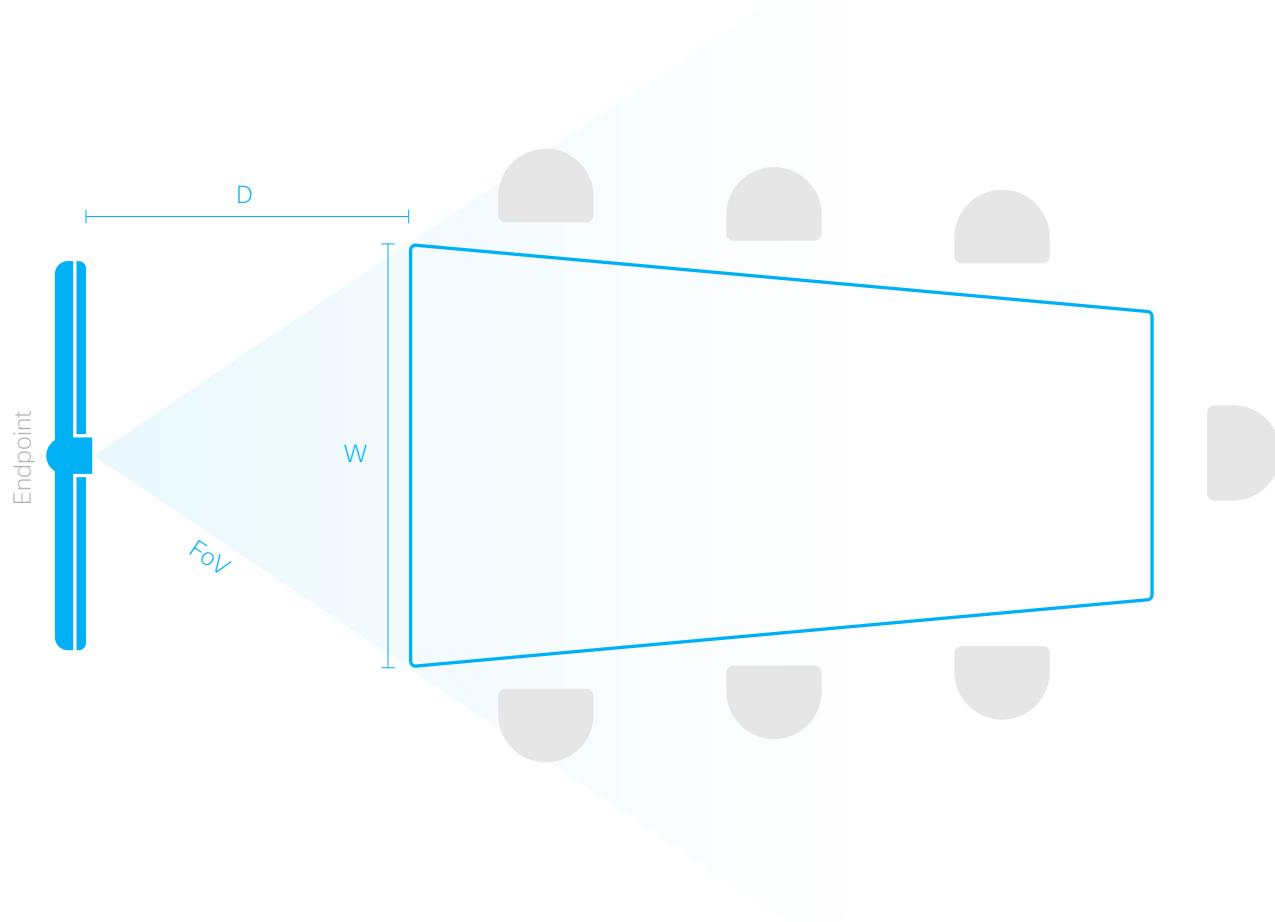
In scenarios with an active presenter who could be moving around, an additional ceiling microphone can be used to capture the speaker's voice.

Presenter Microphones

- To capture the voice of the presenter, it is recommended to use an Audio Science microphone.
- The microphone must face where the presenter will be.
- It should be mounted well above the floor, about 7 ft (2.15 m). Distance to the endpoint should be about 5 ft (1.5 m).

Whiteboard Microphones

- As an alternative to Audio Science, a directional microphone suspended from the ceiling could be used.
- It should be mounted about 7 ft (2.15 m) above the floor and 40 in (1.0 m) from the wall.



Table

- To enable everyone at the table to see the screen, the table width should be slightly wider than the system/ screen(s).
- The Field of View (FoV) of the cameras dictates that the distance (D) between table and system should not be less than 0.7 times the width (W) of the table front.
- We recommend using a slightly slanted table when there are three or more participants seated on the long side of a table. It should be wider on the end closest to the system so that everyone can see the screen and be seen on camera.

For more information about scenarios
and setup, please visit:

www.cisco.com/web/telepresence/projectworkplace.html