



Circuit Meeting Room Guideline

Version 1.0

Summary

Effective collaboration across spatial and organizational boundaries is an important goal in the day-to-day work of many enterprises. The classic telephone conference – whether as an individual participant dialing into a conference bridge from the workplace or when on the move, or as a team using traditional conference telephones – is being increasingly supplemented by more modern forms that, besides mere voice transmission, also support video communication and web collaboration.

Circuit Meeting Room is an effective and user-friendly video conferencing solution for use in small and medium-sized meeting rooms and conference rooms, as well as in the meeting areas of individual offices, or in home offices.

Compared with simple voice connections from the desk phone in the office or via a mobile phone when on the move, a video conferencing system offers a considerably richer communication experience. To ensure that this added value can be optimally achieved for all users at all times, it is important to include the environment in planning and operation, in addition to the obviously purely technical product properties, as well as to verify the planning from the user's perspective.

To ensure that you get the best possible results with Circuit Meeting Room, we would like to draw your attention to a few important points regarding planning and use.

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Overview – components

First let us look at the solution's components, before examining individual aspects more closely.

- Camera and screen - capture and display, respectively, of the video image (as well as display of screen sharing in the case of web collaboration)
- Speakerphone - capture and reproduction of speech (audio)
- Circuit Meeting Room - combines the connected hardware components and controls them in conjunction with the Circuit Cloud Service
- Network - establishes the connection to the Circuit Cloud
- Participants - as a Circuit user, you can initiate conferences, share contents with others and control the Circuit Meeting Room, whether from your computer or mobile devices, both with colleagues within your enterprise and with external participants.

In the following pages, we will provide you with an overview of the solution and offer support for its concrete implementation in your environment.

1.1. Screen/monitor/projector

The monitor shows the video image of the other conference participants or the active screen sharing session to the persons present in the room, so its size and installation location (viewing angle) are of primary importance:

- When selecting a monitor, take care to ensure that the diagonal display size is large enough (based on the installation location and desk/room size). There are various formulae and guide values in this regard:
Distance to display = min. 1.5 times display width und max. 6 times display width.
- If you are considering using the screen as a base for the camera, then you should not mount it too high, in order to avoid an unfavorable (too high) camera position. If necessary, test your own image before final installation.
- If possible, the screen should be mounted in such a way that direct light is avoided and darkening by means of blinds is also avoided as far as possible.
- Wall brackets for screens should be angle-adjustable so that the screen can be set at an optimal viewing angle.
- If you want to use the VESA mounting option for the Circuit Meeting Room, take care to ensure that there is sufficient depth behind the screen during the planning stage.
- For combined installation of the monitor and Circuit Meeting Room using the VESA option, so-called *thin client* mounts are available on the market - here care must be taken to ensure sufficient load capacity and width to accommodate the PC.

Technology, products

- To display video and screen sharing, any HD video-capable display that has a DisplayPort (DP) can be connected to the Circuit Meeting Room. Devices that only support HDMI can also be used without problems via DP/HDMI adapters or appropriate cables. The resolution for HD video is 1920 * 1080 pixels (aspect ratio 16:9). Devices with a considerably different resolution can only be used with certain constraints (e.g. old projectors with low resolution or 4K displays).
- As voice/audio reproduction takes place exclusively via the speakerphone connected to the Circuit Meeting Room, the audio characteristics of the monitor are not relevant.

User aspects

- Many devices available on the market offer extensive settings options. Please familiarize yourself with the options via the appropriate instructions and manufacturer's information and select the best settings - after carrying out a short test if necessary. As a rule, this concerns the screen resolution and image format, but also preselection or optimization options for the color palette. Unfavorable values can impair operation quite significantly, and lead you in the wrong direction during troubleshooting.
- Projector: In some cases (e.g. when switching to Circuit Meeting Room in already equipped conference rooms) it is, of course, also possible to use modern projectors with the appropriate connections and resolution.

Operation

- Familiarize users with the necessary operating steps for the screen and make this information (how to switch on devices and select the correct video source if necessary, where the remote control is located) available in the room (intranet, lay out printed and laminated copy of a quick reference sheet).

1.2. Camera

- The camera provides the HD video image and should be placed so that the required area is sufficiently covered and that its position cannot be accidentally altered by the user after appropriate adjustment.
- Connection to the Circuit Meeting Room is carried out via a USB cable. *Active USB* cables are required for long distances (USB 2.0: from 5m, USB 3.0: from 3m).
- In the case of some products, the camera and speakerphone are connected via manufacturer-specific cables with a hub that is then connected to the Circuit Meeting Room via a single USB cable. Here manufacturers offer special cables in different lengths as accessories (no USB extension is then necessary).
- The size of the recording area depends on the aperture angle of the particular model. Cameras with a small aperture angle require a greater distance from an object to fully capture it. Examples can be found in section 1.5
- In all cases the camera should have an autofocus.
- High-quality cameras are expensive, but are generally characterized by a higher image quality and offer added features such as manual zoom, a swivel function, and storable settings. A few models also offer functions such as image/motion-dependent zoom functionality.
- Many models have an integrated microphone, but these are not used with the Circuit Meeting Room (see speakerphone).
- It is not advisable to place cameras on the work desk. Firstly, the distance to the person at the very front is generally too short and, secondly, possible jolts will impair the image quality.
- Using accessories available on the market, such as wall brackets, clamp mountings, and tripods, it is possible to achieve good positioning in a wide range of situations. Here attention should be paid to compatibility (e.g. ¼ inch thread for fixation).
- Products from various manufacturers that we at Unify successfully tested on the Circuit Meeting Room can be found on our wiki at [http://wiki.unify.com/wiki/Circuit_Meeting_Room#Accessories .2F Peripherals](http://wiki.unify.com/wiki/Circuit_Meeting_Room#Accessories_.2F_Peripherals)

1.3. Speakerphone

- Only speakerphones are used with the Circuit Meeting Room for capture and reproduction, as this ensures optimal acoustics (e.g. echo suppression).
- Connection to the Circuit Meeting Room is also carried out via a USB cable.
- There are products available on the market that can be used for large or U-shaped tables (with satellite microphones or as interlinked devices, wired or wireless).
- When using the Circuit Meeting Room, not all functions are relevant or supported, such as the call answering function or Bluetooth interface. Here too, familiarize the user with the relevant product or provide for suitable documentation at the location.
- The room design (especially in relation to sound reverberation) is a crucial factor in determining the achievable voice quality and thus the overall result.
- The devices should be positioned in such a way that the distance to the persons using them is distributed as equally as possible. Some products can be supplemented by satellite microphones or consist of several coupled units.

Products from various manufacturers that we at Unify successfully tested on the Circuit Meeting Room can be found on our wiki at

http://wiki.unify.com/wiki/Circuit_Meeting_Room#Accessories_.2F_Peripherals

1.4. Room

The Circuit Meeting Room is (together with the camera and speakerphone) designed for small and medium-sized meeting rooms. This means that the number of persons in such a room is typically 3 to 8, and seldom more than 10. Irrespective of whether an existing room is enlarged for video conferencing or planned from scratch for this purpose, general aspects such as light, acoustics, and furnishing are to be taken into account in order to achieve an optimal result.

Furnishing:

- Appropriate desks that are mostly rectangular in shape are generally available for work purposes, but special shapes/arrangements are also suitable depending on the room geometry, e.g. trapezoidal or U-shaped desks. This is to be taken into account, if necessary, when planning the speakerphone and cabling.

Lighting:

- Direct sunlight should be avoided (especially in the direction of the display and the camera) and, if necessary, thick roller blinds are to be preferred to simple blinds. The electric interior lighting should cover the entire area captured by the video camera as evenly as possible and disturbances (reflections) on the screen should be avoided. Conference participants require sufficient lighting before/after conferences, as well as during a conference if necessary. The lighting should be tuned to this situation and accordingly easy to adjust/toggle if necessary.
- The color scheme (walls, furniture) should be kept rather neutral, and wall decoration such as posters or paintings should be dispensed with as far as possible so as not to distract the viewer.
- The view into ancillary rooms and corridors should be avoided or reduced so as to avoid distractions on the viewer's side.

Acoustics:

- The acoustics must be suitable for the operation of speakerphones, i.e. sound reverberation should be minimized. Not all rooms used for meetings are automatically suitable for the use of microphones and speakerphones in equal measure. Rooms with smooth floors and ceilings, large glass areas, or perfectly smooth walls are to be avoided, or suitable improvement measures are to be implemented in a timely manner. There are various starting points such as fitted carpets, ceiling sails, panels, or special acoustic pin boards that correspondingly reduce sound reverberation. Parallel surfaces are to be avoided if possible. This also applies to the installation of absorbing elements.
- Extraneous noises of all kinds should be avoided in the rooms – this includes not only shielding against noise from other meeting rooms as well as offices and corridors, but also the avoidance of technical noise sources such as air-conditioning equipment.
- In small rooms too, adequate ventilation or air conditioning plays an important role, ensuring a good and healthy work atmosphere even during long conferences.

Setting up and cabling:

- Before the hardware is set up, the necessary cabling must be planned and provided. This includes the connection to the camera and speakerphone, in addition to the power and LAN connections for the Circuit Meeting Room. If required, and depending on the installation location, active USB cables can also be used here to bridge large distances. Furthermore, if participants are to be integrated via a wireless network, an appropriate wireless site survey must be carried out. As the Circuit Meeting Room does not require direct access by the user, we recommend setting it up in a hidden/protected location (e.g. behind the monitor, installed inside a cabinet, or beneath the desk). It is advisable to lay the cables (especially those for the speakerphone and camera) in cable tunnels to avoid unwanted interference and the risk of resulting malfunctions. Concealed cabling, however, is strongly recommended not just for reliable operation, but also because it helps to ensure that the installation looks functional but unobtrusive.
- The Circuit Meeting Room is designed for permanent operation, but it should nevertheless be installed in such a way that access to the power switch on the device is as uncomplicated as possible in case of need.
- If the Circuit Meeting Room is installed in cabinets and the like, ensure that the environmental conditions for operation are observed:
 - Ambient temperature during operation 10-35 °C (50-95 °F)
 - Relative air humidity during operation 5-85 % (relative air humidity)
- Operating position: Vertical or horizontal
- The Circuit Meeting Room and high-value accessories should be secured using *Kensington locks*.

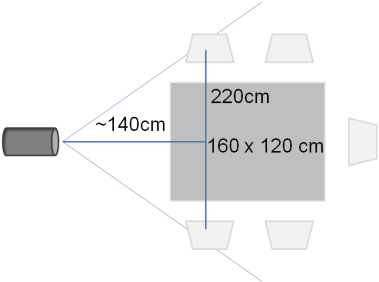
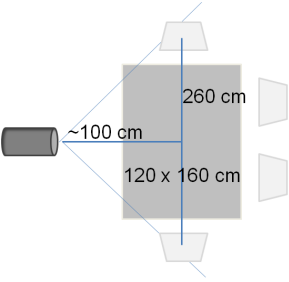
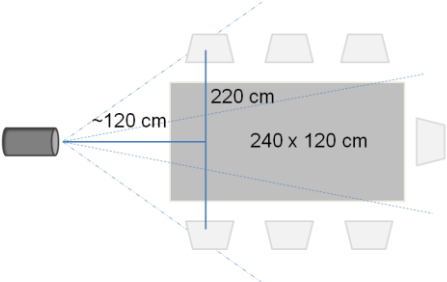
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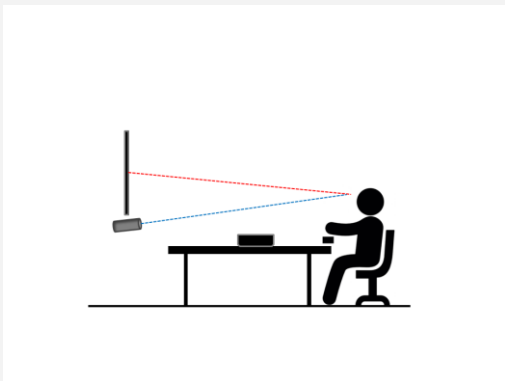
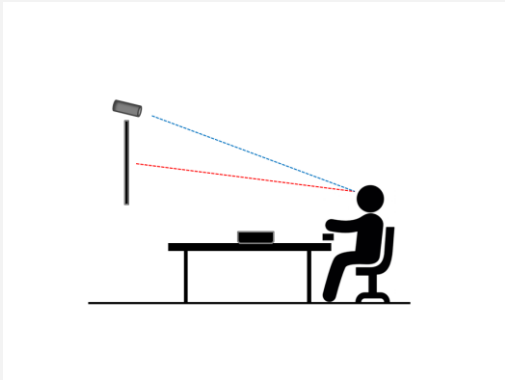
- The Circuit Meeting Room itself is connected to the LAN via Ethernet, and the network connection must be planned in addition to the power supply. Of course, participants on site can take part in conferences via Wi-Fi/WLAN depending on the devices used, as long as the necessary infrastructure is present and appropriate (wireless coverage).
- The required bandwidth is max. 2 MBit/s per transmission direction (video).

1.5. Examples

Exact dimensions depend on many details – the following descriptions are provided by way of example and are intended to serve as a basis for your own practical considerations.

Important variables are the aperture angle of the camera and the dimensions of the desk and seats.

	<p>Desk 160 cm long and 120 cm wide for 5 persons Camera aperture angle approx. 78° Camera distance to first seating position approx. 140 cm</p>
	<p>Desk 120 cm long and 160 cm wide for 4 persons Camera aperture angle approx. 90° Camera distance to first seating position approx. 100 cm</p>
	<p>Desk 240 cm long and 120 cm wide for 7 persons Camera aperture angle max. approx. 90° - - zoom function Camera distance to first seating position approx. 120 cm</p>



Camera position: Small webcam models in particular are designed to be mounted on the top edge of the screen. Here you should take care to ensure that the monitor is not mounted too high, so that conference participants at other locations not restricted to a bird's eye view. The video image should bring the dialog partners together, and under no circumstances unnoticeably create a feeling of being watched.

If the monitor cannot be mounted low enough, it may be advisable to install the camera underneath the monitor.

1.6. Miscellaneous

1.6.1. References

Unify Experts Wiki - Circuit Meeting Room

http://wiki.unify.com/wiki/Circuit_Meeting_Room

Circuit Support - FAQ Circuit Meeting Room

<https://www.circuit.com/unifyportalfaqlist?category=119459>

Unify

<http://www.unify.com>

1.6.2. Abbreviations

HD video High Definition video

LAN..... Local Area Network

SW Software

USB Universal Serial Bus

VESA..... Video Electronics Standards Association

WLAN Wireless Local Area Network

1.6.3. History

Version	Date	Change
1.0	08/17/2017	First release

