

# DATA SHEET

## PARLÉ™ TCM-X

### AVB BEAMTRACKING™ CEILING MICROPHONE

The Parlé™ TCM-X is an AVB low-profile ceiling microphone for use in Tesira® systems. Comprising a network box and a ceiling microphone, each microphone includes Beamtracking™ technology with four 90-degree zones, providing full 360-degree coverage of the meeting space. The TCM-X microphone delivers the same level of performance as our other Beamtracking microphones in a sleek, unobtrusive design that mounts to the ceiling. The TCM-X actively tracks and intelligently mixes conversations from around the table, allowing far-end participants to experience the conversation as they would a face-to-face meeting. Each network box has its own digital signal processing module and comes with an additional RJ-45 connector to add an optional TCM-XEX to the network box. A maximum of two microphones are permitted per network box (one TCM-X or TCM-XA with TCM-XEX). The TCM-X is well suited for a variety of room types and sizes with 10 foot (3 meter) ceilings or lower that require high-quality audio solutions and low profile or unobtrusive microphones.



#### FEATURES

- Low profile circular ceiling microphone that measures 5.90 inches (150 mm) in diameter
- Mounts directly to the ceiling to virtually disappear in room
- Beamtracking technology actively tracks and intelligently mixes conversations
- Four 90-degree zones for full 360-degree room coverage
- Network box includes DSP for Beamtracking
- Single cable connection via category cable
- Beamtracking technology works out-of-box without any lobe aiming or room mapping
- Uses only one channel of AEC per microphone
- LED mute status indicator
- Available in either black or white
- Evaluated to the requirements of UL 2043 and is suitable for use in air handling spaces
- Additional RJ-45 on network box for connection to a TCM-XEX microphone
- CE marked, UL listed, and RoHS compliant
- Covered by Biamp Systems' five-year warranty

#### ARCHITECTS & ENGINEERS SPECIFICATIONS

The Beamtracking™ ceiling microphone shall be designed exclusively for use with Biamp® Tesira® systems. The Beamtracking ceiling microphone shall be comprised of a ceiling mount microphone and a network box. The Beamtracking ceiling microphone shall utilize an AVB/TSN network via an RJ-45 connector for audio networking as well as software configuration and control. The Beamtracking ceiling mount microphone shall contain a sixteen-element digital microphone array, and shall provide four 90-degree zones for 360 degrees of coverage. The Beamtracking ceiling microphone shall offer multidirectional beamforming and automatic signal tracking capabilities. The Beamtracking technology shall operate in conjunction with acoustic echo cancellation technology (AEC) in accordance with U.S. Patent 9659576. The signal processing of the Beamtracking ceiling microphone shall be configurable via the Tesira design software, including but not limited to: signal routing and mixing, equalization, filtering, dynamics, and delay, as well as control, monitoring, and diagnostic tools. The Beamtracking ceiling microphone shall offer simple installation and shall be mountable directly to the ceiling. The Beamtracking ceiling microphone shall be powered by PoE (IEEE 802.3at Class 3, 15.4W). The Beamtracking ceiling microphone shall be suitable for use in air handling spaces in accordance with UL 2043, and shall provide an additional RJ-45 connector to allow connection of one expander TCM-XEX microphone. The Beamtracking ceiling microphone shall be CE marked, UL listed, and compliant with the RoHS directive. Warranty shall be five years. The Beamtracking ceiling microphone shall be Parlé™ TCM-X.

## PARLÉ TCM-X SPECIFICATIONS

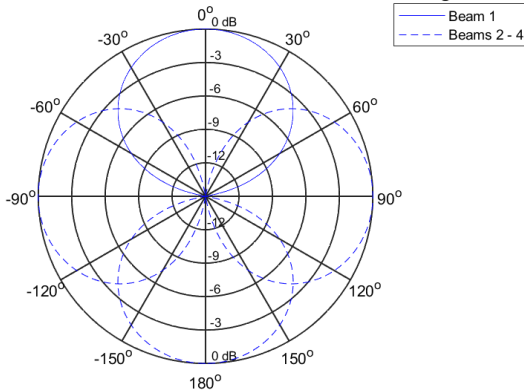
### CEILING MOUNT MICROPHONE

<b>Microphone Technology:</b>	16-Element Digital Array
<b>Frequency Response (150 Hz - 16 kHz):</b>	± 3dB
<b>Polar Pattern:</b>	Active Beamformed
<b>SNR (at 1kHz, 94dB SPL A-Weighted):</b>	> 76dB
<b>Maximum SPL (at &lt; 1% THD):</b>	109dB
<b>Dynamic Range (THD+N &lt; 1%):</b>	92dB, A-Weighted
<b>Indicators:</b>	Mute Indicator (Green/Red LED)
<b>Digital Interface:</b>	Custom/Proprietary
<b>Connector:</b>	RJ-45
<b>Overall Dimensions</b>	
<b>Height (excluding ceiling mount):</b>	0.6 inches (15 mm)
<b>Diameter:</b>	5.90 inches (150 mm)
<b>Weight:</b>	0.7 lbs (340 g)

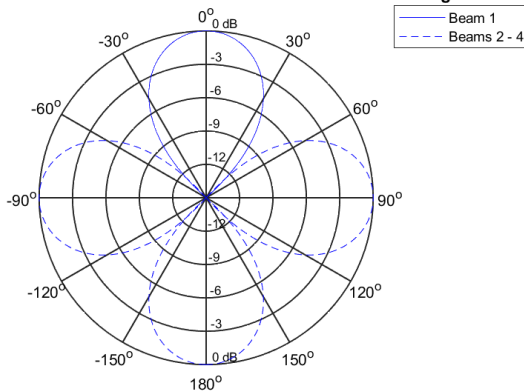
### NETWORK BOX

<b>Connectors:</b>	Three RJ-45: one between TCM-X network box and switch, one between the network box and microphone, the other between TCM-X network box and TCM-XEX
<b>Power:</b>	PoE (IEEE 802.3at Class 3, 15.4W)
<b>Indicators:</b>	Power Indicator (Green/Yellow/Red LED)
<b>Digital Interface:</b>	Custom/Proprietary
<b>Max Distance Between Devices:</b>	330 feet (100 meters) from switch to TCM-X network box; 33 feet (10 meters) between TCM-X network box and TCM-XEX
<b>Overall Dimensions</b>	
<b>Height:</b>	1.2 inches (30 mm)
<b>Width:</b>	6.8 inches (172 mm)
<b>Depth:</b>	5.2 inches (132 mm)
<b>Weight:</b>	1.4 lbs (625 g)

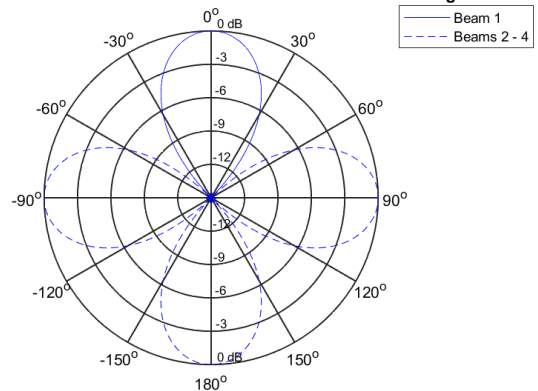
TCM-X Polar Responses at Center of Tracking Zones  
Patterns Shown at 1000Hz at an elevation of 30° from Ceiling



TCM-X Polar Responses at Center of Tracking Zones  
Patterns Shown at 2000Hz at an elevation of 30° from Ceiling



TCM-X Polar Responses at Center of Tracking Zones  
Patterns Shown at 4000Hz at an elevation of 30° from Ceiling



### Environmental

#### Ambient Operating

<b>Temperature Range:</b>	32 - 104° F (0 - 40° C)
<b>Humidity:</b>	0-95% relative humidity (non-condensing)
<b>Altitude:</b>	0-10,000 ft (0-3000m) MSL

#### Compliance:

FCC Part 15B (USA)  
CE marked (Europe)  
UL and C-UL listed (USA and Canada)  
RoHS Directive (Europe)  
Evaluated to the requirements of UL 2043 and is suitable for use in air handling spaces

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TESDS-376-1907-EN-R1

## DATA SHEET

# PARLÉ™ TCM-XA

## AVB BEAMTRACKING™ CEILING MICROPHONE & POE+ AMPLIFIER

The Parlé™ TCM-XA is an AVB low-profile ceiling microphone and PoE+ (IEEE 802.3at Class 4, 30W) amplifier for use in Tesira® systems. Comprising a network box and a ceiling microphone, each microphone includes Beamtracking™ technology with four 90-degree zones, providing full 360-degree coverage of the meeting space. The TCM-XA microphone delivers Beamtracking performance in a sleek, unobtrusive design that mounts to the ceiling. The TCM-XA actively tracks and intelligently mixes conversations from around the table, allowing far-end participants to experience the conversation as they would a face-to-face meeting. The 2-channel PoE+ amplifier includes an internal limiter, selectable power, and is capable of operating in a burst mode to handle peak signals, providing up to 40 watts (4Ω load) or 30 watts (8Ω load) per channel. Each network box has its own digital signal processing module and comes with an additional RJ-45 connector to add an optional TCM-XEX. A maximum of two microphones are permitted per network box (one TCM-X or TCM-XA with TCM-XEX). The TCM-XA is well suited for a variety of room types and sizes with 10 foot (3 meter) ceilings or lower that require high-quality audio solutions and low profile or unobtrusive microphones.



### FEATURES

- Low profile circular ceiling microphone that measures 5.90 inches (150 mm) in diameter
- Mounts directly to the ceiling to virtually disappear in room
- Beamtracking technology actively tracks and intelligently mixes conversations
- Four 90-degree zones for full 360-degree room coverage
- Network box includes DSP for Beamtracking and a PoE+ amplifier
  - Two channels
  - Burst mode to handle peak signals in accordance with ANSI/CTA-2006-B; supports up to 40 watts (4Ω load) or 30 watts (8Ω load) per channel
  - Software-selectable power vs. channel count
  - Includes internal limiter function
- Uses only one channel of AEC per microphone
- Single cable connection via category cable
- Beamtracking technology works out-of-box without any lobe aiming or room mapping
- LED mute status indicator
- Available in either black or white
- Evaluated to the requirements of UL 2043 and is suitable for use in air handling spaces
- Additional RJ-45 on network box for connection to a TCM-XEX microphone
- CE marked, UL listed, and RoHS compliant
- Covered by Biamp Systems' five-year warranty

### ARCHITECTS & ENGINEERS SPECIFICATIONS

The Beamtracking™ ceiling microphone shall be designed exclusively for use with Biamp® Tesira® systems. The Beamtracking ceiling microphone shall be comprised of a ceiling mount microphone and a network box. The Beamtracking ceiling microphone shall utilize an AVB/TSN network via an RJ-45 connector for audio networking as well as software configuration and control. The Beamtracking ceiling mount microphone shall contain a sixteen-element digital microphone array, and shall provide four 90-degree zones for 360 degrees of coverage. The Beamtracking ceiling microphone shall offer multidirectional beamforming and automatic signal tracking capabilities. The Beamtracking technology shall operate in conjunction with acoustic echo cancellation technology (AEC) in accordance with U.S. Patent 9659576. The signal processing of the Beamtracking ceiling microphone shall be configurable via the Tesira design software, including but not limited to: signal routing and mixing, equalization, filtering, dynamics, and delay, as well as control, monitoring, and diagnostic tools. The Beamtracking ceiling microphone shall offer simple installation and shall be mountable directly to the ceiling. The network box of the Beamtracking ceiling microphone shall provide two output channels of 4 watts of continuous power per channel into a 4-ohm load and an 8-ohm load. The network box of the Beamtracking ceiling microphone shall also provide burst power output of 40 watts per channel into a 4-ohm load, and 30 watts per channel into an 8-ohm load in accordance with ANSI/CTA-2006-B. The Beamtracking ceiling microphone shall be powered by PoE+ (IEEE 802.3at Class 4, 30W). The Beamtracking ceiling microphone shall be suitable for use in air handling spaces in accordance with UL 2043, and shall provide an additional RJ-45 connector to allow connection of one expander TCM-XEX microphone. The Beamtracking ceiling microphone shall be CE marked, UL listed, and compliant with the RoHS directive. Warranty shall be five years. The Beamtracking ceiling microphone shall be Parlé™ TCM-XA.

# PARLÉ TCM-XA SPECIFICATIONS

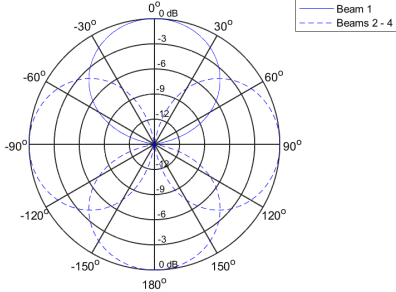
<b>CEILING MOUNT MICROPHONE</b>	
<b>Microphone Technology:</b>	16-Element Digital Array
<b>Frequency Response (150 Hz - 16 kHz):</b>	± 3dB
<b>Polar Pattern:</b>	Active Beamformed
<b>SNR (at 1kHz, 94dB SPL A-Weighted):</b>	> 76dB
<b>Maximum SPL (at &lt; 1% THD):</b>	109dB
<b>Dynamic Range (THD+N &lt; 1%):</b>	92dB, A-Weighted
<b>Indicators:</b>	Mute Indicator (Green/Red LED)
<b>Digital Interface:</b>	Custom/Proprietary
<b>Connector:</b>	RJ-45
<b>Overall Dimensions</b>	
<b>Height (excluding ceiling mount):</b>	0.6 inches (15 mm)
<b>Diameter:</b>	5.90 inches (150 mm)
<b>Weight:</b>	0.7 lbs (340 g)

<b>NETWORK BOX</b>	
<b>Connectors:</b>	Three RJ-45: one between TCM-X network box and switch, one between the network box and microphone, the other between TCM-X network box and TCM-XEX
<b>Power:</b>	PoE+ (IEEE 802.3at Class 4, 30W)
<b>Indicators:</b>	Power Indicator (Green/Yellow/Red LED)
<b>Digital Interface:</b>	Custom/Proprietary
<b>Max Distance Between Devices:</b>	330 feet (100 meters) from switch to TCM-X network box; 33 feet (10 meters) between TCM-X network box and TCM-XEX
<b>Overall Dimensions</b>	
<b>Height:</b>	1.2 inches (30 mm)
<b>Width:</b>	6.8 inches (172 mm)
<b>Depth:</b>	5.2 inches (132 mm)
<b>Weight:</b>	1.5 lbs (680 g)

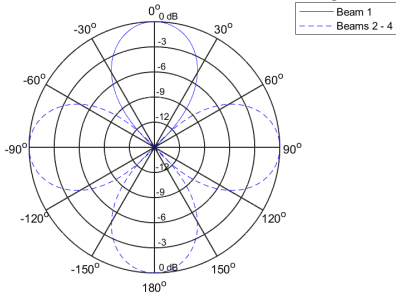
<b>Environmental</b>	
<b>Ambient Operating</b>	
<b>Temperature Range:</b>	32 - 104° F (0 - 40° C)
<b>Humidity:</b>	0-95% relative humidity (non-condensing)
<b>Altitude:</b>	0-10,000 ft (0-3000m) MSL
<b>Compliance:</b>	FCC Part 15B (USA) CE marked (Europe) UL and C-UL listed (USA and Canada) RoHS Directive (Europe) Evaluated to the requirements of UL 2043 and is suitable for use in air handling spaces

<b>AMPLIFIER</b>	
<b>Number of Channels:</b>	2
<b>Connectors:</b>	RJ-45
<b>Amplifier Topology:</b>	Class D
<b>Burst Power Output (per ANSI/CTA-2006-B @ 1kHz):</b>	
<b>4Ω (per channel):</b>	40W
<b>8Ω (per channel):</b>	30W
<b>Continuous Power Output:</b>	
<b>Single Channel Driven (4Ω, 8Ω):</b>	8W
<b>Dual Channel Driven (4Ω, 8Ω):</b>	4W
<b>THD+N (20Hz-20kHz, at continuous power):</b>	< 0.3%
<b>Frequency Response (20Hz-20kHz):</b>	± 1dB
<b>Dynamic Range (20Hz-20kHz BW):</b>	> 85dB
<b>Minimum Operational Load:</b>	4Ω
<b>Intermodulation distortion (SMPTE):</b>	< 0.3%
<b>Cross Talk (channel to channel @ 1kHz):</b>	< -90dB

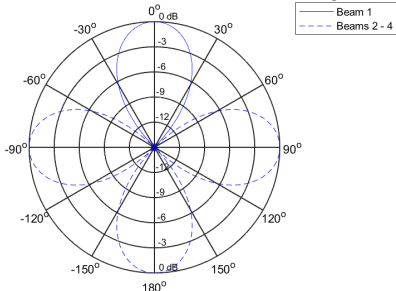
TCM-X Polar Responses at Center of Tracking Zones  
Patterns Shown at 1000Hz at an elevation of 30° from Ceiling



TCM-X Polar Responses at Center of Tracking Zones  
Patterns Shown at 2000Hz at an elevation of 30° from Ceiling



TCM-X Polar Responses at Center of Tracking Zones  
Patterns Shown at 4000Hz at an elevation of 30° from Ceiling



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# DATA SHEET

## PARLÉ™ TCM-XEX

### BEAMTRACKING™ CEILING MICROPHONE

The Parlé™ TCM-XEX is a low-profile ceiling microphone for use in Tesira® and Devio® systems. Each microphone includes Beamtracking™ technology with four 90-degree zones, providing full 360-degree coverage of the meeting space. The TCM-XEX microphone delivers Beamtracking performance in a sleek, unobtrusive design that mounts to the ceiling. The TCM-XEX actively tracks and intelligently mixes conversations from around the table, allowing far-end participants to experience the conversation as they would a face-to-face meeting. In Tesira systems, the TCM-XEX is intended to be used as a second microphone in conjunction with the TCM-X or TCM-XA; it cannot operate as a standalone device. In Devio systems, it functions as a standalone microphone. The TCM-XEX is well suited for a variety of room types and sizes with 10 foot (3 meter) ceilings or lower that require high-quality audio solutions and low profile or unobtrusive microphones.



#### FEATURES

- Must be used with a Parlé TCM-X or TCM-XA microphone in Tesira systems
- Low profile circular ceiling microphone that measures 5.9 inches (150 mm) in diameter
- Mounts directly to the ceiling to virtually disappear in the room
- Beamtracking technology actively tracks and intelligently mixes conversations
- Four 90-degree zones for full 360-degree room coverage
- Uses only one channel of AEC per microphone
- Single cable connection via category cable
- Beamtracking technology works out-of-box without any lobe aiming or room mapping
- LED mute status indicator
- Available in either black or white
- Evaluated to the requirements of UL 2043 and is suitable for use in air handling spaces
- CE marked, UL listed, and RoHS compliant
- Covered by Biamp Systems' five-year warranty

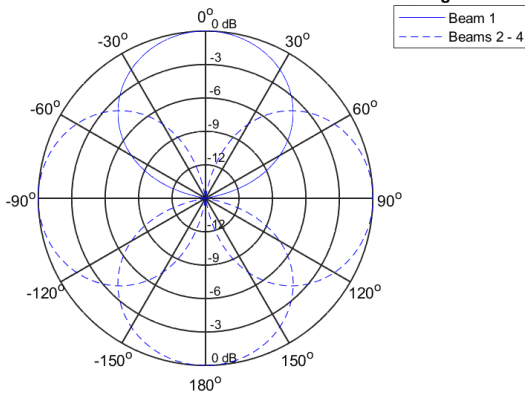
#### ARCHITECTS & ENGINEERS SPECIFICATIONS

The Beamtracking™ ceiling microphone shall be designed exclusively for use with Biamp® Tesira® and Devio® systems. The Beamtracking ceiling microphone shall utilize a proprietary digital protocol via an RJ-45 connector for audio networking. The Beamtracking ceiling mount microphone shall contain a sixteen-element digital microphone array, and shall provide four 90-degree zones for 360 degrees of coverage. The Beamtracking ceiling microphone shall offer multidirectional beamforming and automatic signal tracking capabilities. The Beamtracking technology shall operate in conjunction with acoustic echo cancellation technology (AEC) in accordance with U.S. Patent 9659576. The Beamtracking ceiling microphone shall be suitable for use in air handling spaces in accordance with UL 2043. The Beamtracking ceiling microphone shall be CE marked, UL listed, and compliant with the RoHS directive. Warranty shall be five years. The Beamtracking ceiling microphone shall be Parlé™ TCM-XEX.

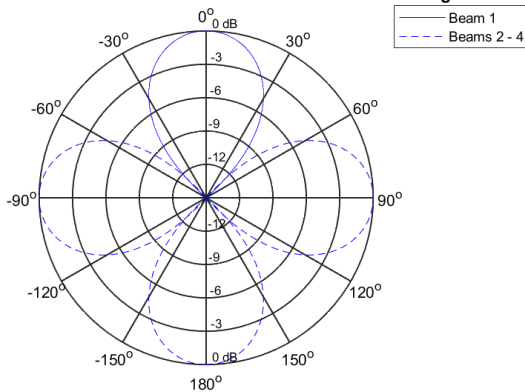
## PARLÉ TCM-XEX SPECIFICATIONS

<b>Microphone Technology:</b>	16-Element Digital Array	<b>Power:</b>	Custom/Proprietary
<b>Frequency Response (150 Hz - 16 kHz):</b>	± 3dB	<b>Max Distance Between Devices:</b>	33 feet (10 meters) between TCM-XEX and DSP host device
<b>Polar Pattern:</b>	Active Beamformed	<b>Environmental</b>	
<b>SNR (at 1kHz, 94dB SPL A-Weighted):</b>	> 76dB	<b>Ambient Operating</b>	
<b>Maximum SPL (at &lt; 1% THD):</b>	109dB	<b>Temperature Range:</b>	32 - 104° F (0 - 40° C)
<b>Dynamic Range (THD+N &lt; 1%):</b>	92dB, A-Weighted	<b>Humidity:</b>	0-95% relative humidity (non-condensing)
<b>Indicators:</b>	Mute Indicator (Green/Red LED)	<b>Altitude:</b>	0-10,000 ft (0-3000m) MSL
<b>Digital Interface:</b>	Custom/Proprietary	<b>Compliance:</b>	FCC Part 15B (USA) CE marked (Europe) UL and C-UL listed (USA and Canada) RoHS Directive (Europe) Evaluated to the requirements of UL 2043 and is suitable for use in air handling spaces
<b>Connector:</b>	RJ-45		
<b>Overall Dimensions</b>			
<b>Height (excluding ceiling mount):</b>	0.6 inches (15 mm)		
<b>Diameter:</b>	5.9 inches (150 mm)		
<b>Weight:</b>	0.7 lbs (340 g)		

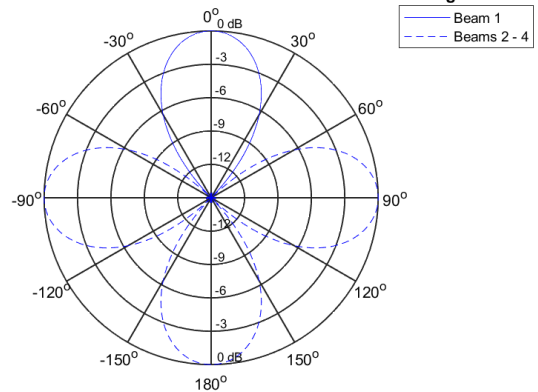
TCM-X Polar Responses at Center of Tracking Zones  
Patterns Shown at 1000Hz at an elevation of 30° from Ceiling



TCM-X Polar Responses at Center of Tracking Zones  
Patterns Shown at 2000Hz at an elevation of 30° from Ceiling



TCM-X Polar Responses at Center of Tracking Zones  
Patterns Shown at 4000Hz at an elevation of 30° from Ceiling



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# DATA SHEET

## PARLÉ™ TTM-X

### AVB BEAMTRACKING™ TABLETOP MICROPHONE

The Parlé™ TTM-X is an AVB low-profile tabletop microphone for use in Tesira systems. Comprising a network box and a tabletop microphone, each microphone includes Beamtracking technology with four 90-degree zones, providing full 360-degree coverage of the meeting space. The TTM-X microphone delivers Beamtracking performance in a sleek, unobtrusive design that sits on or mounts to a conferencing table. The TTM-X actively tracks and intelligently mixes conversations from around the table, allowing far-end participants to experience the conversation as they would a face-to-face meeting. Each network box has its own digital signal processing module and comes with an additional RJ-45 connector to add an optional TTM-XEX. A maximum of two microphones are permitted per network box (one TTM-X with TTM-XEX). The TTM-X is well suited for a variety of room types and sizes that require high-quality audio solutions and low-profile or unobtrusive microphones.



#### FEATURES

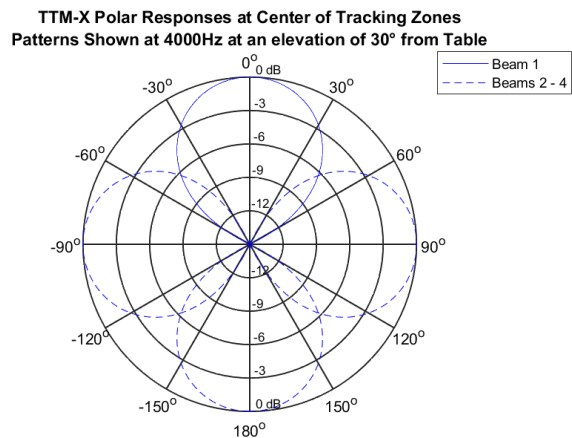
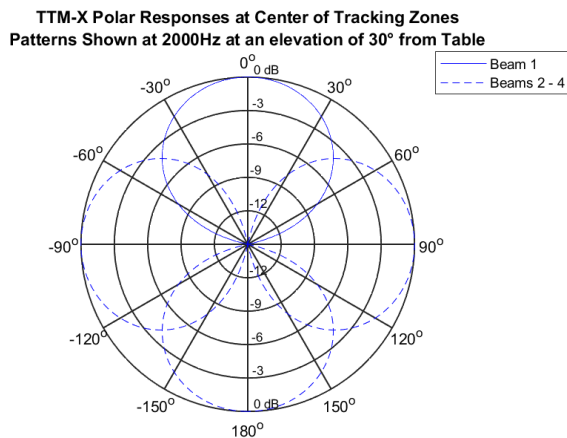
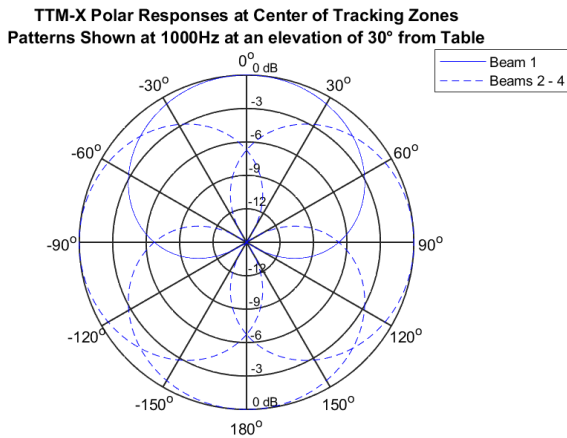
- Low profile circular tabletop microphone that measures 4.3 inches (110 mm) in diameter
- Sits directly on a tabletop to virtually disappear in room
- Beamtracking technology actively tracks and intelligently mixes conversations
- Four 90-degree zones for full 360-degree room coverage
- Network box includes DSP for Beamtracking
- Uses only one channel of AEC per microphone
- Single cable connection via category cable
- Beamtracking technology works out-of-box without any lobe aiming or room mapping
- LED mute status indicator
- Available in either black or white
- Additional RJ-45 on network box for connection to a TTM-XEX microphone
- CE marked, UL listed, and RoHS compliant
- Covered by Biamp Systems' five-year warranty

#### ARCHITECTS & ENGINEERS SPECIFICATIONS

The Beamtracking™ tabletop microphone shall be designed exclusively for use with Biamp® Tesira® systems. The Beamtracking tabletop microphone shall be comprised of a tabletop microphone and a network box. The Beamtracking tabletop microphone shall utilize an AVB/TSN network via an RJ-45 connector for audio networking as well as software configuration and control. The Beamtracking tabletop microphone shall contain a sixteen-element digital microphone array and shall provide four 90-degree zones for 360 degrees of coverage. The Beamtracking tabletop microphone shall offer multidirectional beamforming and automatic signal tracking capabilities. The Beamtracking technology shall operate in conjunction with acoustic echo cancellation technology (AEC) in accordance with U.S. Patent 9659576. The signal processing of the Beamtracking tabletop microphone shall be configurable via the Tesira design software, including but not limited to: signal routing and mixing, equalization, filtering, dynamics, and delay, as well as control, monitoring, and diagnostic tools. The Beamtracking tabletop microphone shall offer simple installation and shall be placed on or mounted directly to the tabletop. The Beamtracking tabletop microphone shall be powered by PoE (IEEE 802.3at Class 3, 15.4W). The Beamtracking tabletop microphone shall provide a second RJ-45 connector to allow connection of one expander TTM-XEX microphone. The Beamtracking ceiling microphone shall be CE marked, UL listed, and compliant with the RoHS directive. Warranty shall be five years. The Beamtracking tabletop microphone shall be Parlé™ TTM-X.

# PARLÉ TTM-X SPECIFICATIONS

TABLETOP MICROPHONE		NETWORK BOX	
<b>Microphone Technology:</b>	16-Element Digital Array	<b>Connectors:</b>	Three RJ-45: one between TTM-X network box and switch, one between the network box and microphone, the other between TTM-X network box and TTM-XEX
<b>Frequency Response (150 Hz - 16 kHz):</b>	± 3dB	<b>Power:</b>	PoE (IEEE 802.3at Class 3, 15.4W)
<b>Polar Pattern:</b>	Beamformed	<b>Indicators:</b>	Power Indicator (Green/Yellow/Red LED)
<b>Sensitivity (94dB SPL, 1kHz):</b>	> 74dB	<b>Digital Interface:</b>	Custom/Proprietary
<b>Maximum SPL (at 0.5% THD):</b>	109dB	<b>Max Distance Between Devices:</b>	330 feet (100 meters) from switch to TTM-X network box; 33 feet (10 meters) between TTM-X network box and TTM-XEX
<b>Dynamic Range (THD+N &lt; 10%):</b>	90dB, A-Weighted	<b>Overall Dimensions</b>	
<b>Indicators:</b>	Mute Indicator (Green/Red LED)	<b>Height:</b>	0.9 inches (23 mm)
<b>Digital Interface:</b>	Custom/Proprietary	<b>Width:</b>	4.2 inches (106 mm)
<b>Connector:</b>	RJ-45 (cable length 6.6 feet [2 meters])	<b>Depth:</b>	4.2 inches (106 mm)
<b>Overall Dimensions</b>		<b>Weight:</b>	0.7 lbs (310 g)
<b>Height:</b>	0.7 inches (18 mm)	<b>Environmental</b>	
<b>Diameter:</b>	4.3 inches (110 mm)	<b>Ambient Operating</b>	
<b>Weight:</b>	0.5 lbs (231 g)	<b>Temperature Range:</b>	32 - 104° F (0 - 40° C)
		<b>Humidity:</b>	0-95% relative humidity (non-condensing)
		<b>Altitude:</b>	0-10,000 ft (0-3000m) MSL
		<b>Compliance:</b>	FCC Part 15B (USA) CE marked (Europe) UL and C-UL listed (USA and Canada) RoHS Directive (Europe)



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## PARLÉ™ TTM-XEX

### BEAMTRACKING™ TABLETOP MICROPHONE



The Parlé™ TTM-XEX is a tabletop microphone for use in Tesira® and Devio® systems. Each low-profile microphone includes Beamtracking technology with four 90-degree zones, providing full 360-degree coverage of the meeting space. The TTM-XEX microphone delivers Beamtracking performance in a sleek, unobtrusive design that can be either placed on or mounted to a tabletop. The TTM-XEX actively tracks and intelligently mixes conversations from around the table, allowing far-end participants to experience the conversation as they would a face-to-face meeting. In Tesira systems, the TTM-XEX is intended to be used as a second microphone in conjunction with the TTM-X; it cannot operate as a standalone device. In Devio systems, it functions as a standalone microphone. The TTM-XEX is well suited for a variety of room types and sizes that require high-quality audio solutions and low-profile or unobtrusive microphones.

#### FEATURES

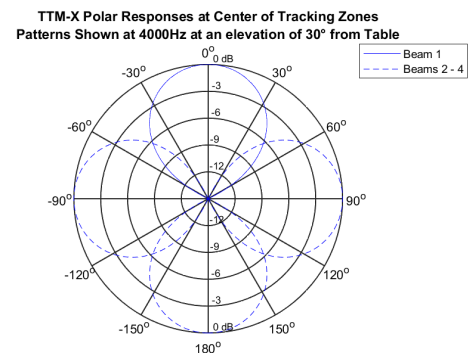
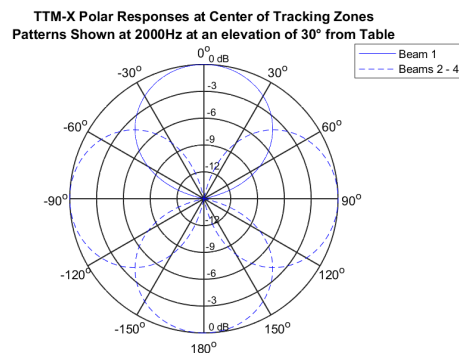
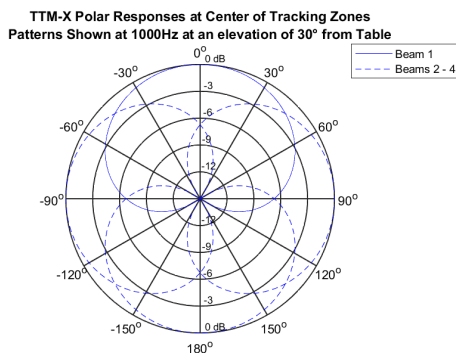
- Must be used with a Parlé TTM-X microphone in Tesira systems
- Low profile circular tabletop mic that measures 4.3 inches (110 mm) in diameter
- Sits directly on a tabletop to virtually disappear in room
- Beamtracking technology actively tracks and intelligently mixes conversations
- Four 90-degree zones for full 360-degree room coverage
- Uses only one channel of AEC per microphone
- Single cable connection via category cable
- Beamtracking technology works out-of-box without any lobe aiming or room mapping
- LED mute status indicator
- Available in either black or white
- CE marked, UL listed, and RoHS compliant
- Covered by Biamp Systems' five-year warranty

## ARCHITECTS & ENGINEERS SPECIFICATIONS

The Beamtracking™ tabletop microphone shall be designed exclusively for use with Biamp® Tesira® and Devio® systems. The Beamtracking tabletop microphone shall utilize a proprietary digital protocol via an RJ-45 connector for audio networking. The Beamtracking tabletop microphone shall contain a sixteen-element digital microphone array, and shall provide four 90-degree zones for 360 degrees of coverage. The Beamtracking tabletop microphone shall offer multidirectional beamforming and automatic signal tracking capabilities. The Beamtracking technology shall operate in conjunction with acoustic echo cancellation technology (AEC) in accordance with U.S. Patent 9659576. The Beamtracking tabletop microphone shall offer simple installation and shall be placed on or mounted to a tabletop. The Beamtracking tabletop microphone shall be CE marked, UL listed, and compliant with the RoHS directive. Warranty shall be five years. The Beamtracking tabletop microphone shall be Parlé™ TTM-XEX.

## PARLÉ TTM-XEX SPECIFICATIONS

<b>Microphone Technology:</b>	16-Element Digital Array	<b>Power:</b>	Custom/Proprietary
<b>Frequency Response (150 Hz - 16 kHz):</b>	± 3dB	<b>Max Distance Between Devices:</b>	33 feet (10 meters) between TTM-XEX and DSP host device
<b>Polar Pattern:</b>	Beamformed	<b>Environmental:</b>	
<b>Sensitivity (94dB SPL, 1kHz):</b>	> 74dB	<b>Ambient Operating Temperature Range:</b>	32 - 104° F (0 - 40° C)
<b>Maximum SPL (at 0.5% THD):</b>	109dB	<b>Humidity:</b>	0-95% relative humidity (non-condensing)
<b>Dynamic Range (THD+N &lt; 10%):</b>	90dB, A-Weighted	<b>Altitude:</b>	0-10,000 ft (0-3000m) MSL
<b>Indicators:</b>	Mute Indicator (Green/Red LED)	<b>Compliance:</b>	FCC Part 15B (USA) CE marked (Europe) UL and C-UL listed (USA and Canada) RoHS Directive (Europe)
<b>Digital Interface:</b>	Custom/Proprietary		
<b>Connector:</b>	RJ-45 (cable length 6.6 feet [2 meters])		
<b>Overall Dimensions</b>			
<b>Height:</b>	0.7 inches (18 mm)		
<b>Diameter:</b>	4.3 inches (110 mm)		
<b>Weight:</b>	0.5 lbs (231 g)		



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TESDS-380-1908-EN-R1

# DATA SHEET

## PARLÉ™ TCM-1

### AVB BEAMTRACKING™ PENDANT MICROPHONE

The Parlé™ TCM-1 is an AVB pendant microphone for use in Tesira® systems. Comprising a pendant microphone and plenum box, each microphone includes Beamtracking™ technology with three 120-degree zones, providing full 360-degree coverage of the meeting space. The TCM-1 microphone actively tracks and intelligently mixes conversations from around the table, allowing far-end conference participants to experience the conversation naturally. The Parlé TCM-1 comes with its own digital signal processing module for Beamtracking, and each plenum box comes with an additional RJ-45 connector for daisy-chain connections. A maximum of three microphones are permitted per daisy chain (one TCM-1 or TCM-1A required, plus up to two TCM-1EX). The TCM-1 is well suited for a variety of room types and sizes that require high-quality audio solutions, such as conference rooms or council chambers.



## FEATURES

- Beamtracking technology actively tracks and intelligently mixes conversations
- Three 120-degree zones for 360 degrees of coverage
- Plenum box includes DSP for Beamtracking
- LED mute status indicator
- Pendant microphone available in either white or black
- User-adjustable mic height
- Easy single-cable installation process
- Optional tile bridge mounting accessory available
- Evaluated to the requirements of UL 2043 and is suitable for use in air handling spaces
- Additional RJ-45 for daisy-chain connection to a TCM-1EX microphone (maximum of three mics per daisy chain; one TCM-1 or TCM-1A and two TCM-1EX)
- CE marked, UL listed, and RoHS compliant
- Covered by Biamp Systems' five-year warranty

## ARCHITECTS & ENGINEERS SPECIFICATIONS

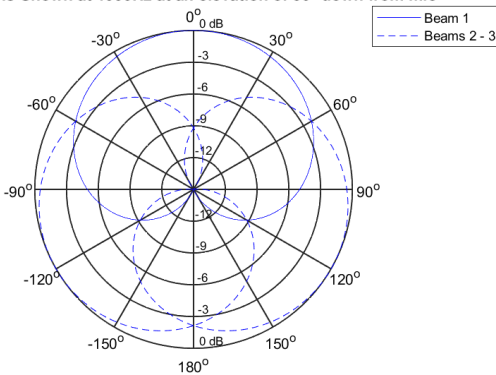
The Beamtracking™ pendant microphone shall be designed exclusively for use with Biamp® Tesira® systems. The Beamtracking pendant microphone shall be comprised of a pendant microphone and plenum box. The Beamtracking pendant microphone shall utilize an AVB/TSN network via an RJ-45 connector for audio networking as well as software configuration and control. The Beamtracking pendant microphone shall contain an eight-element digital microphone array, and shall provide three 120-degree zones for 360 degrees of coverage. The Beamtracking pendant microphone shall offer multidirectional beamforming and automatic signal tracking capabilities. The Beamtracking technology shall operate in conjunction with acoustic echo cancellation technology (AEC) in accordance with U.S. Patent 9659576. The signal processing of the Beamtracking pendant microphone shall be configurable via the Tesira design software, including but not limited to: signal routing and mixing, equalization, filtering, dynamics, and delay, as well as control, monitoring, and diagnostic tools. The Beamtracking pendant microphone shall offer simple installation and microphone height adjustment, and shall be mountable on a ceiling tile or in open-ceiling environments. The Beamtracking pendant microphone shall be powered by PoE (IEEE 802.3at Class 3). The Beamtracking pendant microphone shall be suitable for use in air handling spaces in accordance with UL 2043, and shall provide a second RJ-45 connector to allow up to two additional expander TCM-1EX microphones to be daisy-chained together. The Beamtracking pendant microphone shall be CE marked, UL listed, and compliant with the RoHS directive. Warranty shall be five years. The Beamtracking pendant microphone shall be Parlé™ TCM-1.

## PARLÉ TCM-1 SPECIFICATIONS

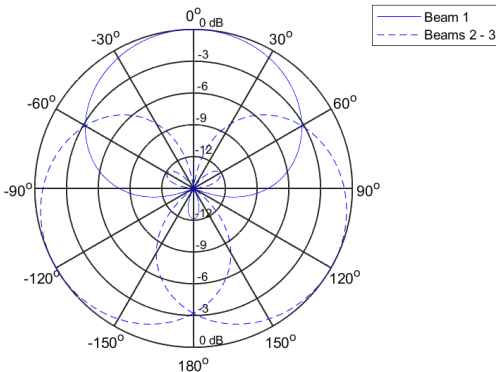
PENDANT MICROPHONE	
<b>Microphone Technology:</b>	8-Element Digital Array
<b>Frequency Response (150 Hz - 16 kHz):</b>	± 3dB
<b>Polar Pattern:</b>	Beamformed
<b>Sensitivity (94dB SPL, 1kHz):</b>	> 70dB
<b>Maximum SPL (at 0.5% THD):</b>	106dB
<b>Dynamic Range (THD+N &lt; 10%):</b>	92dB, A-Weighted
<b>Indicators:</b>	Mute Indicator (Green/Red LED)
<b>Digital Interface:</b>	Custom/Proprietary
<b>Connector:</b>	Custom 2-pin (cable length 10 feet [3 meters])
<b>Overall Dimensions</b>	
<b>Height:</b>	2 inches (51 mm)
<b>Width:</b>	2.5 inches (63 mm)
<b>Depth:</b>	2.5 inches (63 mm)
<b>Weight:</b>	0.4 lbs (0.2 kg)

PLENUM BOX	
<b>Connectors:</b>	Two RJ-45: one between TCM-1 plenum box and switch, the other between TCM-1 plenum box and additional TCM-1EX plenum box; 2-pin 3.5 mm Phoenix connector to TCM-1 microphone
<b>Power:</b>	PoE (IEEE 802.3at Class 3, 15.4W)
<b>Indicators:</b>	Power Indicator (Green/Yellow/Red LED)
<b>Digital Interface:</b>	Custom/Proprietary
<b>Max Distance Between Devices:</b>	330 feet (100 meters) from switch to TCM-1 plenum box; 33 feet (10 meters) for daisy-chained connections between TCM plenum boxes
<b>Overall Dimensions</b>	
<b>Height:</b>	2 inches (51 mm)
<b>Width:</b>	7 inches (178 mm)
<b>Depth:</b>	7.125 inches (181 mm)
<b>Weight:</b>	2.4 lbs (1.1 kg)

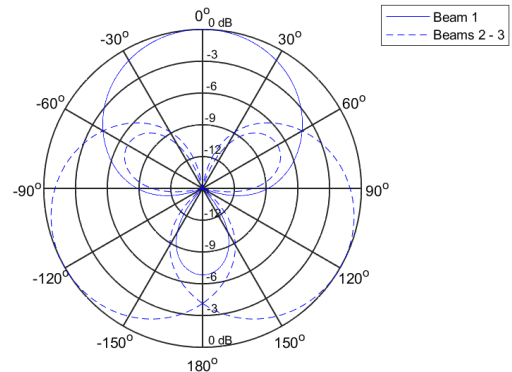
TCM-1 Polar Responses at Center of Tracking Zones  
Patterns Shown at 1000Hz at an elevation of 30° down from mic



TCM-1 Polar Responses at Center of Tracking Zones  
Patterns Shown at 2000Hz at an elevation of 30° down from mic



TCM-1 Polar Responses at Center of Tracking Zones  
Patterns Shown at 4000Hz at an elevation of 30° down from mic



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## DATA SHEET

# PARLÉ™ TCM-1A

## AVB BEAMTRACKING™ PENDANT MICROPHONE & POE+ AMPLIFIER

The Parlé™ TCM-1A is an AVB pendant microphone and PoE+ (IEEE 802.3at Class 4, 30W) amplifier for use in Tesira® systems. Comprising a pendant microphone and plenum box, each microphone includes Beamtracking™ technology with three 120-degree zones, providing full 360-degree coverage of the meeting space. The TCM-1A microphone actively tracks and intelligently mixes conversations from around the table, allowing far-end conference participants to experience the conversation naturally. The 2-channel PoE+ amplifier includes an internal limiter, selectable power, and is also capable of operating in a burst mode to handle peak signals, providing up to 40 watts (4Ω load) or 30 watts (8Ω load) per channel. The TCM-1A comes with its own digital signal processing module for Beamtracking, and each plenum box comes with an additional RJ-45 connector for daisy-chain connections. A maximum of three microphones are permitted per daisy chain (one TCM-1 or TCM-1A required, plus up to two TCM-1EX). The TCM-1A is well suited for a variety of room types and sizes that require high-quality audio solutions, such as conference rooms or council chambers.



### FEATURES

- Beamtracking technology actively tracks and intelligently mixes conversations
- Plenum box includes DSP for Beamtracking and a PoE+ amplifier
  - Two channels; 4 watts continuous power per channel
  - Burst mode to handle peak signals in accordance with ANSI/CTA-2006-B; supports up to 40 watts (4Ω load) or 30 watts (8Ω load) per channel
  - Software-selectable power vs. channel count
  - Includes internal limiter function
- Three 120-degree zones for 360 degrees of coverage
- Pendant microphone available in either white or black
- User-adjustable mic height
- Optional tile bridge mounting accessory available
- Evaluated to the requirements of UL 2043 and is suitable for use in air handling spaces
- Additional RJ-45 for daisy-chain connection to a TCM-1EX microphone (maximum of three mics per daisy chain; one TCM-1 or TCM-1A and two TCM-1EX)
- CE marked, UL listed, and RoHS compliant
- Covered by Biamp Systems' five-year warranty

### ARCHITECTS & ENGINEERS SPECIFICATIONS

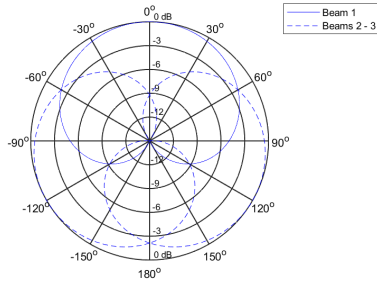
The Beamtracking™ pendant microphone shall be designed exclusively for use with Biamp® Tesira® systems. The Beamtracking pendant microphone shall be comprised of a pendant microphone and plenum box. The Beamtracking pendant microphone shall utilize an AVB/TSN network via an RJ-45 connector for audio networking as well as software configuration and control. The Beamtracking pendant microphone shall contain an eight-element digital microphone array, and shall provide three 120-degree zones for 360 degrees of coverage. The Beamtracking pendant microphone shall offer multidirectional beamforming and automatic signal tracking capabilities. The Beamtracking technology shall operate in conjunction with acoustic echo cancellation technology (AEC) in accordance with U.S. Patent 9659576. The signal processing of the Beamtracking pendant microphone shall be configurable via the Tesira design software, including but not limited to: signal routing and mixing, equalization, filtering, dynamics, and delay, as well as control, monitoring, and diagnostic tools. The plenum box of the Beamtracking pendant microphone shall provide two output channels of 4 watts of continuous power per channel into a 4-ohm load and an 8-ohm load. The plenum box of the Beamtracking pendant microphone shall also provide burst power output of 40 watts per channel into a 4-ohm load, and 30 watts per channel into an 8-ohm load in accordance with ANSI/CTA-2006-B. The Beamtracking pendant microphone shall offer simple installation and microphone height adjustment, and shall be mountable on a ceiling tile or in open-ceiling environments. The Beamtracking pendant microphone shall be powered by PoE+ (IEEE 802.3at Class 4, 30W). The Beamtracking pendant microphone shall be suitable for use in air handling spaces in accordance with UL 2043, and shall provide a second RJ-45 connector to allow up to two additional expander TCM-1EX microphones to be daisy-chained together. The Beamtracking pendant microphone shall be CE marked, UL listed, and compliant with the RoHS directive. Warranty shall be five years. The Beamtracking pendant microphone shall be Parlé™ TCM-1A.



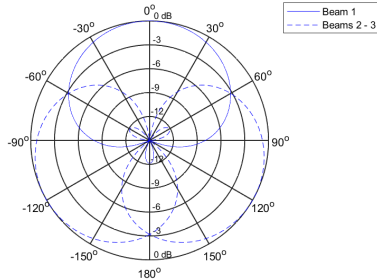
## PARLÉ TCM-1A SPECIFICATIONS

PENDANT MICROPHONE	
<b>Microphone Technology:</b>	8-Element Digital Array
<b>Frequency Response (150 Hz - 16 kHz):</b>	± 3dB
<b>Polar Pattern:</b>	Beamformed
<b>Sensitivity (94dB SPL, 1kHz):</b>	> 70dB
<b>Maximum SPL (at 0.5% THD):</b>	106dB
<b>Dynamic Range (THD+N &lt; 10%):</b>	92dB, A-Weighted
<b>Indicators:</b>	Mute Indicator (Green/Red LED)
<b>Digital Interface:</b>	Custom/Proprietary
<b>Connector:</b>	Custom 2-pin (cable length 10 feet [3 meters])
<b>Overall Dimensions</b>	
<b>Height:</b>	2 inches (51 mm)
<b>Width:</b>	2.5 inches (63 mm)
<b>Depth:</b>	2.5 inches (63 mm)
<b>Weight:</b>	0.4 lbs (0.2 kg)

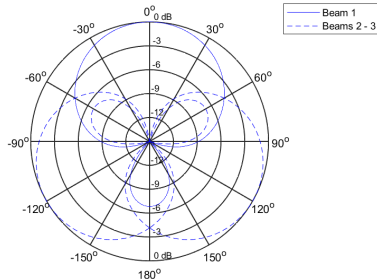
TCM-1 Polar Responses at Center of Tracking Zones  
Patterns Shown at 1000Hz at an elevation of 30° down from mic



TCM-1 Polar Responses at Center of Tracking Zones  
Patterns Shown at 2000Hz at an elevation of 30° down from mic



TCM-1 Polar Responses at Center of Tracking Zones  
Patterns Shown at 4000Hz at an elevation of 30° down from mic



PLENUM BOX	
<b>Connectors:</b>	Two RJ-45: one between TCM-1A plenum box and switch, the other between TCM-1A plenum box and additional TCM-1EX plenum box; 2-pin 3.5 mm Phoenix connector to TCM-1A microphone
<b>Power:</b>	PoE+ (IEEE 802.3at Class 4, 30W)
<b>Indicators:</b>	Power Indicator (Green/Yellow/Red LED) Amp Status Indicator (Green/Yellow/Red LED)
<b>Digital Interface:</b>	Custom/Proprietary
<b>Max Distance Between Devices:</b>	330 feet (100 meters) from switch to TCM-1A plenum box; 33 feet (10 meters) for daisy-chained connections between TCM plenum boxes
<b>Overall Dimensions</b>	
<b>Height:</b>	2 inches (51 mm)
<b>Width:</b>	7 inches (178 mm)
<b>Depth:</b>	7.125 inches (181 mm)
<b>Weight:</b>	2.4 lbs (1.1 kg)
<b>Environmental</b>	
<b>Ambient Operating Temperature Range:</b>	32 - 104° F (0 - 40° C)
<b>Humidity:</b>	0-95% relative humidity (non-condensing)
<b>Altitude:</b>	0-10,000 ft (0-3000m) MSL
<b>Compliance:</b>	
	FCC Part 15B (USA) CE marked (Europe) UL and C-UL listed (USA and Canada) RoHS Directive (Europe) Evaluated to the requirements of UL 2043 and is suitable for use in air handling spaces

<b>Overall Dimensions</b>	
<b>Height:</b>	2 inches (51 mm)
<b>Width:</b>	7 inches (178 mm)
<b>Depth:</b>	7.125 inches (181 mm)
<b>Weight:</b>	2.4 lbs (1.1 kg)

<b>Environmental</b>	
<b>Ambient Operating Temperature Range:</b>	32 - 104° F (0 - 40° C)
<b>Humidity:</b>	0-95% relative humidity (non-condensing)
<b>Altitude:</b>	0-10,000 ft (0-3000m) MSL

<b>Compliance:</b>	
	FCC Part 15B (USA) CE marked (Europe) UL and C-UL listed (USA and Canada) RoHS Directive (Europe) Evaluated to the requirements of UL 2043 and is suitable for use in air handling spaces

AMPLIFIER	
<b>Number of Channels:</b>	2
<b>Connectors:</b>	4-pin 5.08 mm Phoenix connectors
<b>Amplifier Topology:</b>	Class D
<b>Burst Power Output (per ANSI/CTA-2006-B @ 1kHz):</b>	
<b>4Ω (per channel):</b>	40W
<b>8Ω (per channel):</b>	30W
<b>Continuous Power Output:</b>	
<b>Single Channel Driven, (4Ω, 8Ω):</b>	8W
<b>Dual Channel Driven (4Ω, 8Ω):</b>	4W
<b>THD+N (20Hz-20kHz, at continuous power):</b>	< 0.3%
<b>Frequency Response (20Hz-20kHz):</b>	± 1dB
<b>Dynamic Range (20Hz-20kHz BW):</b>	> 85dB
<b>Minimum Operational Load:</b>	4Ω
<b>Intermodulation distortion (SMPTE):</b>	< 0.3%
<b>Cross Talk (channel to channel @ 1kHz):</b>	< -90dB

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TESDS-363-1907-EN-R1

## DATA SHEET

# PARLÉ™ TCM-1EX

## EXPANSION AVB BEAMTRACKING™ PENDANT MICROPHONE



The Parlé™ TCM-1EX is an expansion AVB pendant microphone for use in Tesira® systems. Comprising a pendant microphone and plenum box, each microphone includes Beamtracking™ technology with three 120-degree zones, providing full 360-degree coverage of the meeting space. The TCM-1EX microphone actively tracks and intelligently mixes conversations from around the table, allowing far-end conference participants to experience the conversation naturally. The Parlé TCM-1EX is intended to be used as a second and third microphone in conjunction with a TCM-1 or TCM-1A; it cannot operate as a standalone device. Each plenum box comes with an additional RJ-45 connector for daisy-chain connections. A maximum of three microphones are permitted per daisy chain (one TCM-1 or TCM-1A required, plus up to two TCM-1EX). The TCM-1EX is well suited for a variety of room types and sizes that require high-quality audio solutions, such as conference rooms or council chambers.

### FEATURES

- Must be used with a Parlé TCM-1 or TCM-1A microphone
- Beamtracking technology actively tracks and intelligently mixes conversations
- Three 120-degree zones for 360 degrees of coverage
- LED mute status indicator
- Pendant microphone available in either white or black
- User-adjustable mic height
- Easy single-cable installation process
- Optional tile bridge mounting accessory available
- Evaluated to the requirements of UL 2043 and is suitable for use in air handling spaces
- Additional RJ-45 for daisy-chain connection to another TCM-1EX microphone (maximum of three mics per daisy chain; one TCM-1 or TCM-1A and two TCM-1EX)
- CE marked, UL listed, and RoHS compliant
- Covered by Biamp Systems' five-year warranty

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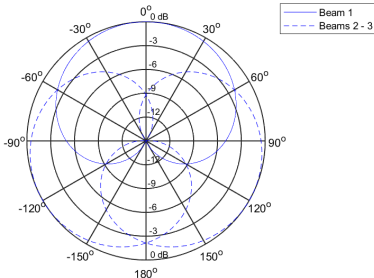
## ARCHITECTS & ENGINEERS SPECIFICATIONS

The expansion Beamtracking™ pendant microphone shall be designed exclusively for use with Biamp® Tesira® systems. The expansion Beamtracking pendant microphone shall be comprised of a pendant microphone and plenum box. The expansion Beamtracking pendant microphone shall utilize a proprietary digital protocol via an RJ-45 connector for audio networking with a TCM-1 or TCM-1A Beamtracking pendant microphone. The expansion Beamtracking pendant microphone shall contain an eight-element digital microphone array, and shall provide three 120-degree zones for 360 degrees of coverage. The expansion Beamtracking pendant microphone shall offer multidirectional beamforming and automatic signal tracking capabilities. The Beamtracking technology shall operate in conjunction with acoustic echo cancellation technology (AEC) in accordance with U.S. Patent 9659576. The signal processing of the expansion Beamtracking pendant microphone shall be configurable via the Tesira design software, including but not limited to: signal routing and mixing, equalization, filtering, dynamics, and delay, as well as control, monitoring, and diagnostic tools. The expansion Beamtracking pendant microphone shall offer simple installation and microphone height adjustment, and shall be mountable on a ceiling tile or in open-ceiling environments. The expansion Beamtracking pendant microphone shall be suitable for use in air handling spaces in accordance with UL 2043, and shall provide a second RJ-45 connector to allow up to three microphones to be daisy-chained together. The expansion Beamtracking pendant microphone shall be CE marked, UL listed, and compliant with the RoHS directive. Warranty shall be five years. The expansion Beamtracking pendant microphone shall be Parlé™ TCM-1EX.

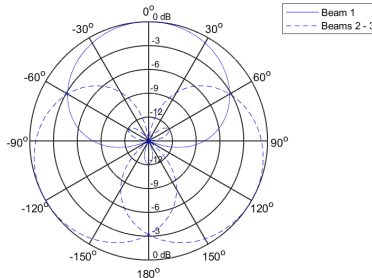
## PARLÉ TCM-1EX SPECIFICATIONS

PENDANT MICROPHONE		PLENUM BOX	
<b>Microphone Technology:</b>	8-Element Digital Array	<b>Connectors:</b>	Two RJ-45: one between TCM-1EX plenum box and TCM-1 or TCM-1A, the other between TCM-1EX plenum box and additional TCM-1EX plenum box; 2-pin 3.5 mm Phoenix connector to TCM-1EX microphone
<b>Frequency Response (150 Hz - 16 kHz):</b>	± 3dB	<b>Power:</b>	Custom/Proprietary
<b>Polar Pattern:</b>	Beamformed	<b>Indicators:</b>	Link Indicator (Green LED)
<b>Sensitivity (94dB SPL, 1kHz):</b>	> 70dB	<b>Digital Interface:</b>	Custom/Proprietary
<b>Maximum SPL (at 0.5% THD):</b>	106dB	<b>Max Distance Between Devices:</b>	33 feet (10 meters) between TCM plenum boxes
<b>Dynamic Range (THD+N &lt; 10%):</b>	92 dB, A-Weighted	<b>Overall Dimensions:</b>	
<b>Indicators:</b>	Mute Indicator (Green/Red LED)	<b>Height:</b>	2 inches (51 mm)
<b>Digital Interface:</b>	Custom/Proprietary	<b>Width:</b>	4 inches (102 mm)
<b>Connector:</b>	Custom 2-pin (cable length 10 feet [3 meters])	<b>Depth:</b>	5.25 inches (133 mm)
<b>Overall Dimensions:</b>		<b>Weight:</b>	0.8 lbs (0.4 kg)
<b>Height:</b>	2 inches (51 mm)	<b>Environmental:</b>	
<b>Width:</b>	2.5 inches (63 mm)	<b>Ambient Operating Temperature Range:</b>	32 - 104° F (0 - 40° C)
<b>Depth:</b>	2.5 inches (63 mm)	<b>Humidity:</b>	0-95% relative humidity (non-condensing)
<b>Weight:</b>	0.4 lbs (0.2 kg)	<b>Altitude:</b>	0-10,000 ft (0-3000m) MSL
		<b>Compliance:</b>	FCC Part 15B (USA) CE marked (Europe) UL and C-UL listed (USA and Canada) RoHS Directive (Europe) Evaluated to the requirements of UL 2043 and is suitable for use in air handling spaces

TCM-1 Polar Responses at Center of Tracking Zones  
Patterns Shown at 1000Hz at an elevation of 30° down from mic



TCM-1 Polar Responses at Center of Tracking Zones  
Patterns Shown at 2000Hz at an elevation of 30° down from mic



TCM-1 Polar Responses at Center of Tracking Zones  
Patterns Shown at 4000Hz at an elevation of 30° down from mic

