



MINIATURE & HEADWORN MICROPHONES

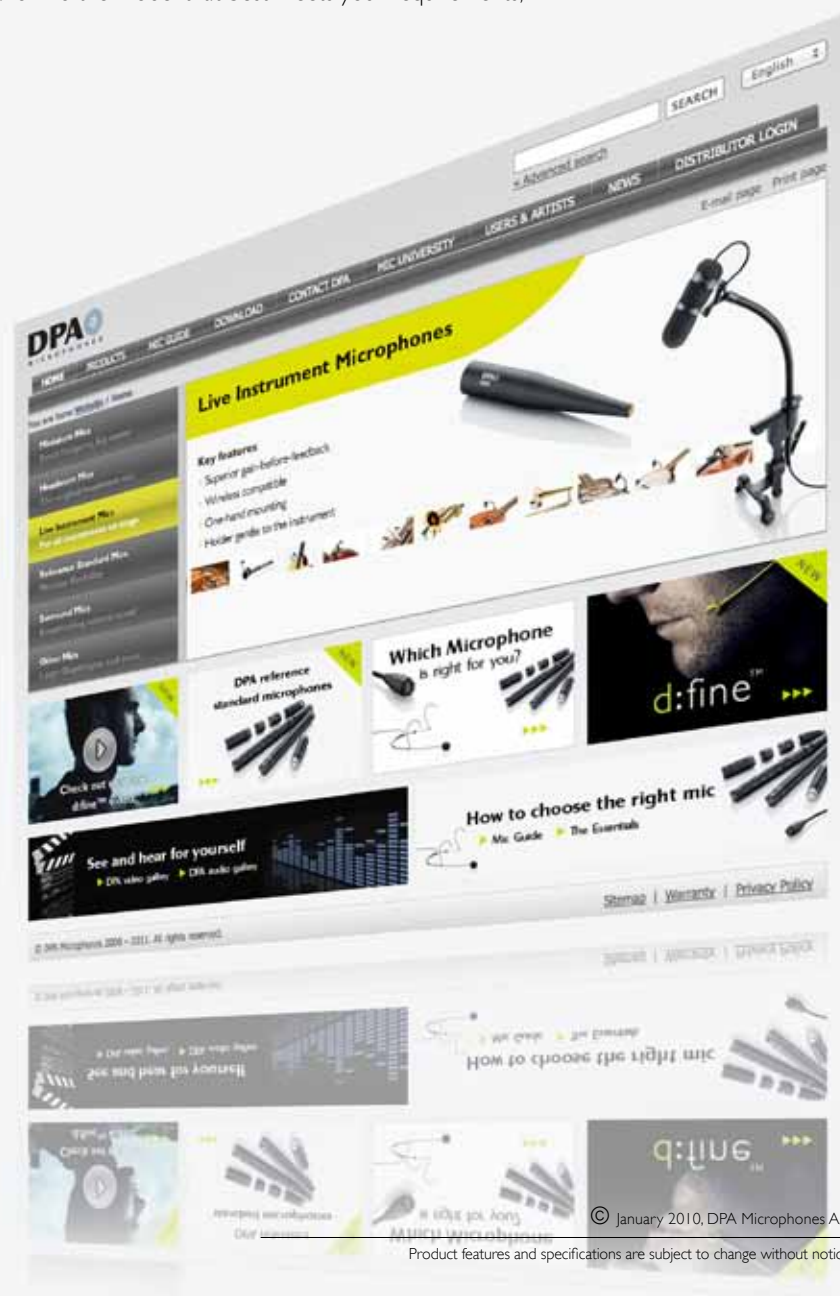
FROM DPA MICROPHONES



To learn more about DPA's miniature microphones and find the model that best meets your requirements, please visit www.dpamicrophones.com.

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Then and now

Since the launch of its first product in 1992, DPA Microphones has firmly established itself as one of the world's preeminent manufacturers of microphones for studio and location recording, broadcast, theater and live sound. Building upon the respected legacy of Brüel & Kjær, DPA's reputation for capturing an extremely natural and open sound – especially noticeable when recording vocals and traditional acoustic instruments – has provided the brand with unprecedented growth over the past two decades.

Universal approach

The same skillful design and “no compromises” approach to manufacturing that are embodied by DPA Microphones have been extended to our line of miniature condenser microphones, ingenious accessories and tailor-made solutions for a wide variety of demanding applications. Form and function are key aspects of our design philosophy and contribute significantly to the continued success of our products.

Headworn or lavalier

DPA's headworn miniature microphones are the mics of choice in live theater and musical productions, as well as for houses of worship and corporate events. For serious recording and sound reinforcement, DPA meets the challenge with exceptional technical specifications and creative mounting accessories for any musical instrument, while the miniature lavalier microphones designed for concealed use in broadcast and film production demonstrate a previously unheard clarity and speech intelligibility.

Professional microphone solutions for any need



H a n d c r a f t e d i n D e n m a r k

DPA 4060, 406 I, 4062 & 4063 Miniature Omnidirectional Microphones

Small footprint, big sound

DPA is without equal when it comes to the 4060 range of miniature omnidirectional condenser microphones. Originally designed for use with wireless systems in theater, television and close-miked instrument applications, the highly unobtrusive capsule is visually smaller than a pencil eraser.

Same yet different

The award-winning DPA 4060 has a very low noise floor, impressive sensitivity and can handle high SPLs. The DPA 406 I, 4062 and 4063 are acoustically identical to the 4060 but have been adjusted to handle higher SPL and to match some of the more sensitive transmitters on the market. The 4063 also features a FET preamp designed to be used with RF systems delivering as low as 3 V to the microphone.

Need a boost?

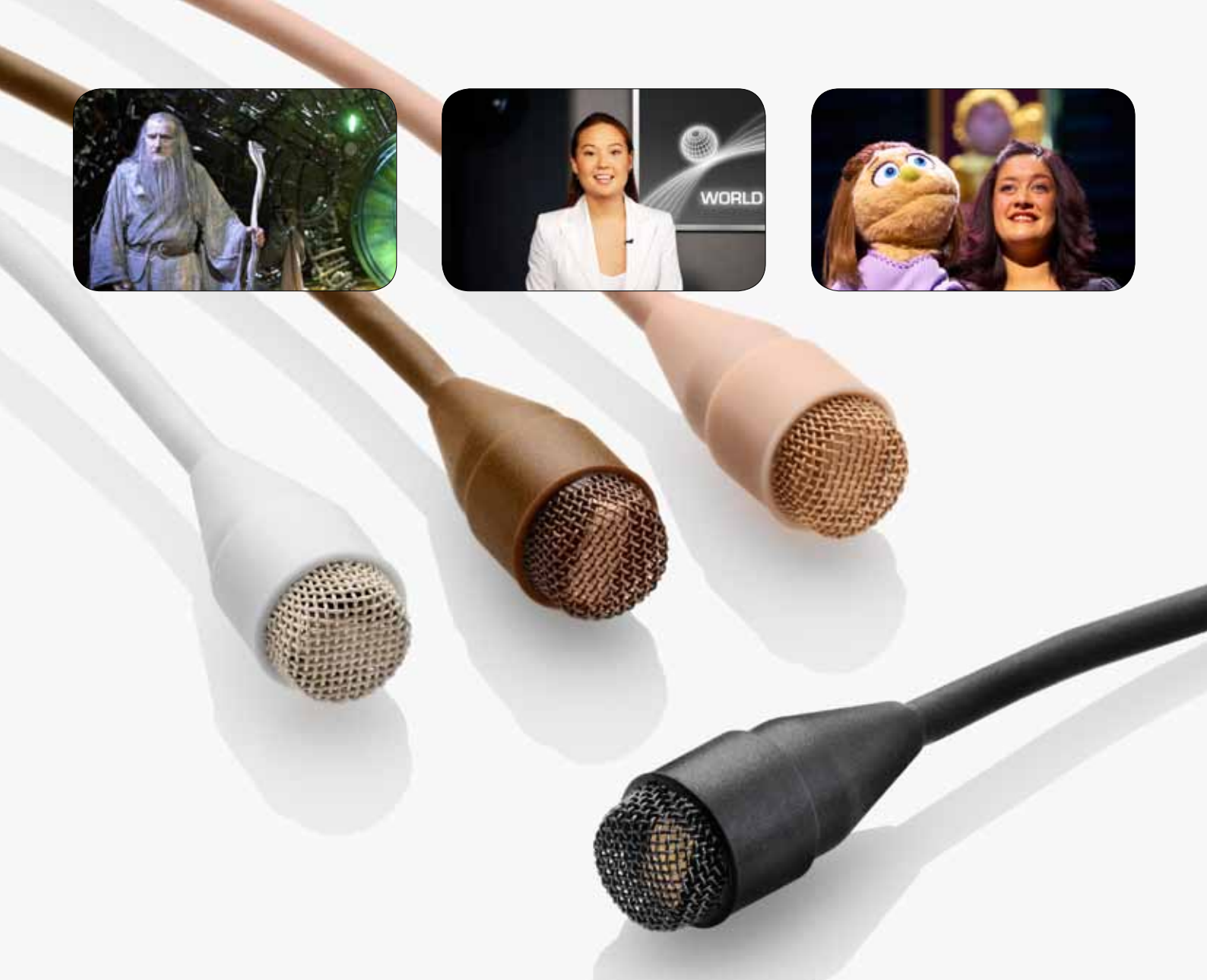
Two different protection grids are supplied and by changing these grids you can acoustically modify the microphones response according to their placement on the body. One gives you a 3 dB of boost in the 8 – 20 kHz range, while the other gives you a 10 dB boost at 12 kHz.

Get connected

The miniatures also have another innovative design feature: the MicroDot connector system. The tiny but rugged connector allows you to securely attach a wide variety of available adapters. This useful feature effectively multiplies your mic inventory since you can use the same microphone element on a variety of transmitters and even with XLR inputs. Choose between our adapter system or a hardwired connector.

Hear everything, see nothing

Because of their small size, these miniature mics exhibit an exceedingly accurate omnidirectional pattern and therefore do not need to be aimed directly at the sound source to achieve quality pickup. Offering great detail and resolution, they have a neutral sonic character and are very natural sounding. On stage, the tiny mics are literally undetectable, being both extremely rugged and reliable, even under the most punishing conditions (high heat, humidity, wind, dust, etc.).



DPA 4060, 4061, 4062 & 4063 Key Features

- Neutral sound character with great detail
- Low noise and high sensitivity
- Large dynamic range
- Fits numerous transmitters

DPA IMK4060 & IMK406I Instrument Microphone Kit

In the zone but out of the way

The 4060 and 406I at the heart of DPA IMK4060 and IMK406I Instrument Microphone Kits represent the perfect combination of sonic purity and versatility. The tiny size and light weight of these mics make them extremely unobtrusive, ensuring that they'll never get in the way of capturing an outstanding performance.

Handle the pressure

Equipped with a MicroDot to XLR adapter and well chosen accessories designed to aid mounting the microphone on, and even in, a wide range of instruments, these kits offer very clean, detailed and natural sound. Capable of handling a robust 144 dB peak before clipping, the microphones can be used even for snare drums, trumpets, guitar and bass speaker cabinets or other high SPL sources.

IMK4060 includes

1 x 4060-BM	Omnidirectional Mic, Black, High-Sens
1 x DAD6001-BC	MicroDot to 3-pin XLR (P48)
1 x DMM0002-B	Double Pin, Black
1 x DMM0007	Universal Surface Mounts, 5 pcs.
1 x DMM0011-B	Magnet Mount, Black
1 x DUA0560	Windscreens, Black, 5 pcs.
2 x MHS6001	Holder for Strings

IMK406I includes

1 x 406I-BM	Omnidirectional Mic, Black, Low-Sens
1 x DAD6001-BC	MicroDot to 3-pin XLR (P48)
1 x DMM0002-B	Double Pin, Black
1 x DMM0007	Universal Surface Mounts, 5 pcs.
1 x DMM0011-B	Magnet Mount, Black
1 x DUA0560	Windscreens, Black, 5 pcs.
2 x MHS6001	Holder for Strings



DPA IMK4060 & IMK4061 Key Features

- Clean and transparent sound
- Accessories for mounting on instruments
- Lightweight
- Various close-miking solutions

DPA SMK4060 & SMK406I Stereo Microphone Kit

Left and right

The SMK4060 and SMK406I Stereo Microphone Kits are cost-effective and flexible live sound and recording solutions ideal for recording studios and discreet mic setups on stage. The SMK4060 features two DPA 4060 high-sensitivity omnidirectional miniature microphones while the SMK406I combines two low-sensitivity DPA 406I mics.

Ready for anything

Offering clean, transparent sound with plenty of headroom, each kit is supplied with two MicroDot to XLR adapters and includes distinctive accessories for mounting the microphones on a wide variety of surfaces, including music stands, instruments, walls, stage floors and piano lids.

SMK4060 includes

2 x 4060-BM	Omnidirectional Mic, Black, High-Sens
2 x BLM6000-B	Boundary Layer Mount, Black
2 x DAD600I-BC	MicroDot to 3-pin XLR (P48)
1 x DMM0007	Universal Surface Mounts
2 x DMM00I I-B	Magnet Mount, Black
1 x DUA0560	Windscreens, Black
2 x MHS600I	Microphone Holder for Strings

SMK406I includes

2 x 406I-BM	Omnidirectional Mic, Black, Low-Sens
2 x BLM6000-B	Boundary Layer Mount, Black
2 x DAD600I-BC	MicroDot to 3-pin XLR (P48)
1 x DMM0007	Universal Surface Mounts
2 x DMM00I I-B	Magnet Mount, Black
1 x DUA0560	Windscreens, Black
2 x MHS600I	Microphone Holder for Strings



DPA SMK4060 & SMK406I Key Features

- Natural and dynamic reproduction
- Discreet solution
- Boundary layer mounting possible
- Close-miking stereo pair solutions

DPA 407I, EMK & FMK Miniature Omnidirectional Microphone with Presence Boost

Television and movie stars

The DPA 407I is an omnidirectional miniature condenser microphone designed for television broadcast and film applications. Its frequency response is customized for maximum vocal clarity in body-worn and concealed applications, with a low-end roll off and presence boost, making this an ideal sounding microphone to use in the field or on the set.

Boost and cut

To achieve optimal speech intelligibility, the inconspicuous 407I features a specially designed fixed microphone grid that provides a soft presence boost of 5 dB at 4 – 6 kHz, for maximum clarity and definition. Furthermore, the low-cut filter is done acoustically at the capsule allowing for greater headroom in the signal path.

DPA 407I Kits

When it is imperative that the microphone be invisible for film or TV production, the FMK407I Film Microphone Kit pairs the 407I with a miniature concealer, tie pods, various pre-cut tape pieces, as well as a windjammer and miniature mesh filter to avoid pops and wind noise.

In the field, on the air

When the microphone may be visible, such as in ENG and EFP applications, the EMK407I ENG/EFP Microphone Kit comes supplied with a variety of pins, clips and holders, a mix of multi-colored windscreens, and both a windjammer and miniature mesh filter. For even greater clarity of speech, the kit includes an XLR adapter that provides 3 dB of attenuation at 800 Hz as a final tonal adjustment for going directly on-air or to track without editing.

EMK407I includes

407I-BM	Omnidirectional Mic with Presence Boost, Black
DAD6024	XLR Adapter with Mid Range Attenuation
DMM0002-B	Double Pin, Black
DMM0005	Holder, Single Pin
DMM0008-B	Clip, Double Lock, Black
DUA0570	Windscreens, Color Mix, 8 pcs
DUA0571	Windjammer, Grey Fur
DUA0572	Mesh

This kit is also available without microphone and adapter as DAK407I-E.

FMK407I includes

407I-BM	Omnidirectional Mic with Presence Boost, Black
ADH0001	Double-sided tape for Tie Pod, 10 pcs.
ADH0003	Mic Tape, 10 pcs.
ADH0004	Double-sided Mic Tape
ADH0002	Double-sided tape for Concealer, 10 pcs.
DMM0009	Concealer
DMM0010	Tie Pod, 3 pcs.
DUA0571	Windjammer, Grey Fur
DUA0572	Mesh

This kit is also available without microphone as DAK407I-F.



DPA 407I, FMK407I & EMK407I Key Features

- Customized for chest mounting
- Mounting accessories for concealing
- Optimal speech intelligibility
- Straight to broadcast without editing

DPA 4080 Miniature Cardioid Microphone, Lavalier

Clarity unquestioned, discretion assured

The DPA 4080 Miniature Cardioid Microphone, Lavalier combines optimum speech intelligibility with a discreet, compact design to create a high-performance lavalier microphone for broadcast, conference and other live performance applications.

Good things come in small packages

Small and discreet, the 4080 sets a new standard for great sound in a sleek design. Sound professionals will appreciate the light weight and the excellent speech reproduction. Because of the flexible and practical mounting solution, the DPA lavalier microphone can easily be turned in all directions and can be worn on either the right or left lapel. The 4080 is delivered with both black and white pop filter.

Highly compatible

A broad range of optional connection adapters is offered for most professional transmitters so that news anchors and conference speakers are free to use their hands and move around without compromising voice quality.

Built to last

The 4080 is supplied with a pre-mounted pop-filter in a durable holder with an integrated shock mount, attached to the DP A clip. All parts of the microphones are manufactured from highly resistant materials and are designed to perform under stress.

Natural performer

The frequency response of the DPA 4080 lavalier is tailored to body-worn applications. Acoustically pre-equalized with a 4 dB presence boost, the 4080 captures the human voice with an unusually high degree of definition, even when the acoustic environment is less than favorable.



DPA 4080 Key Features

- Excellent speech reproduction
- Rejects background noise
- Wear on either right or left lapel
- Fits numerous transmitters

408I Supercardioid Miniature Microphone

IMK408I Instrument Microphone Kit with 408I
SMK408I Stereo Microphone Kit with 408I

The DPA 408I Supercardioid Miniature Microphone is a high quality directional condenser microphone primarily intended to use for ultra-low profile, discreet recordings in the field or as all-round microphone for instrument miking. Each 408I is a complete, integrated system combining microphone, windscreen, shock mount and cable management system.

The IMK408I Instrument Microphone Kit offers the possibility to mount a supercardioid condenser microphone close to or at an instrument with either the enclosed clip or magnet. The 408I combines high isolation on stage with natural sound imaging.

The SMK408I Stereo Microphone Kit combines two selected DPA 408I directional microphones providing a cost-effective and flexible stereo recording solution. To create an optimized stereo pair, the microphones are selected to have identical sensitivity within ± 1 dB at 1 kHz. There are two mounting options included; clip-on and magnet mounts with each being easily interchangeable depending on your optimal setup and situation.

IMK408I includes

- | | |
|-------------|------------------------------------|
| 1 x 408I | Supercardioid Miniature Microphone |
| 1 x DAD4099 | Adapter |
| 1 x DMM0016 | Magnet Mount |

SMK408I includes

- | | |
|-------------|------------------------------------|
| 2 x 408I | Supercardioid Miniature Microphone |
| 2 x DAD4099 | Adapter |
| 2 x DMM0016 | Magnet Mount |



DPA 408I Key Features

- Ultra-low profile field recording
- All-round instrument miking
- Wireless compatible
- High isolation on stage

DPA 4065, 4066 & 4067 Omnidirectional Headbands

Double header

The DPA 4065 and 4066 omnidirectional headband mics use the same tiny microphone element and are acoustically and electrically identical to the popular 4061. Despite their diminutive size, both headsets can handle up to 144 dB SPL before clipping.

For one...

Designed for everyday use on the same performer, the 4065 headband mic offers maximum performance for stage, broadcast and home studio applications. The headband is exceptionally lightweight and easily formed to the individual shape of each performer's head, providing a firm yet comfortable fit.

...and for all

With its highly robust construction and option for left or right mounting, the 4066 headband mic is particularly well-suited for environments where there is a different user every day. Especially popular with theaters on Broadway and West End, the system is designed for actors, public speakers, broadcast hosts, musicians and singers. Quickly and easily adjusted, the 4066 is an extremely lightweight and versatile tool.

Low voltage

The DPA 4067 is a low DC and extra low sensitivity version of the 4066, which it is acoustically identical to. Also, the built-in FET preamp is designed for working with RF systems that supply as low as 3 V to the microphone. The 4067 furthermore features an acoustical 6 dB/octave low cut (-3 dB at 40 Hz).

Moisture-proof design

DPA's headband mics are all equipped with a double vent protection system, sweat stopper on the tube and water resistant materials inside the capsule, which allow the microphones to operate reliably even in high-humidity applications.

Well connected

All miniature mic cables are terminated with DPA's innovative MicroDot connector, which permits connection with most of the professional transmitters on the market via one of DPA's numerous adapter accessories. Special adapters have even been developed for compatibility with systems supplying less than 5 V to the mic.

Blending in

All three of DPA's headband microphones are available in a choice of colors and sizes, and supplied with multiple windscreens. The 4066 and 4067 are each also accompanied by both one high boost and one soft boost miniature grid.



DPA 4065, 4066 & 4067 Key Features

- The standard headband mic for theaters and broadcasters
- Resistant to sweat and wear
- Easy to adjust
- Natural sound capture

DPA 4088 Cardioid Headband

Superior gain-before-feedback

The DPA 4088 is a miniature cardioid headband designed for acoustically demanding live performance environments. In high SPL events and when feedback is a concern, the 4088 will tackle these challenges with ease.

Perfectly natural

With its extremely open, clear and natural sound, the 4088 rarely requires any equalization. You hear the voice – pure and simple – not the microphone. Sound quality, visual elegance and true versatility work together to transform every show into the performance of a lifetime.

Bass in its place

The side address capsule is hidden in a small and ultra-lightweight housing. The bass response is designed for optimal linearity at 2 – 3 centimeters (about 1 inch) from the sound source. This means that the bass roll-off will be more prominent at a greater distance – an important factor when it comes to rejection of background noise and the fight to avoid feedback.

Rugged build

The mechanical design is based on the proven construction quality of the 4066 headband microphone. The headband mount is exactly the same; however, the boom is 3 centimeters longer to match the need for placement at the corner of the mouth.

It is available in three colors: beige, brown, and black, and in three different sizes to fit any head size.



DPA 4088 Key Features

- Fits any head size and shape
- Optimizes gain before feedback
- Integrated pop protection
- High sound pressure level handling

DPA BLM4060 Boundary Layer Microphone

No boundaries

With its elegant design and excellent performance, the BLM4060 Boundary Layer Microphone is the perfect solution for capturing clear, natural speech and vocal sound reinforcement in boardrooms, courtrooms, classrooms and conference facilities. The BLM4060 is a transducer designed to work under optimum conditions when placed on hard, flat surfaces that reflect sound. Featuring a built-in DPA 4060 miniature microphone with an omnidirectional polar pattern, the BLM4060 benefits from the available wide range of connection adapters and power supplies that make it possible to be used with essentially any microphone input.

The microphone element is designed for maximum speech intelligibility and the microphone body consists of a center rubber disc that holds the microphone element mounted in an elegant stainless steel base. The BLM4060 can be easily placed in essentially any position on the surface, even close to the edge. Users will benefit from the special characteristics of the surrounding sound field on which the BLM4060 is mounted: a 6 dB gain of direct sound and only 3 dB gain of the diffuse sound.



DPA BLM4060 Key Features

- Excellent speech pickup
- Easily placed on all surfaces
- Stylish and elegant design
- Ideal choice for conference rooms

4098H Hanging Supercardioid Microphone

Leading condenser microphone designer and manufacturer, Danish DPA Microphones, continues the heritage of sonic excellence with the 4098H Hanging Supercardioid Microphone. Designed to be suspended in environments like churches, performing arts centers, orchestra pits, theaters and TV studios, the 4098H delivers sparkling clear and distinct natural sound for both recording and sound reinforcement of choirs, instrumental or vocal groups, speech or live audiences.

This new microphone represents a breakthrough in discreet, elegant and lightweight design. Extremely low in profile, the integrated gooseneck provides the ability to easily aim the mics, ensuring perfect positioning with minimal visual impact since the optional extension cables are very slim and nearly invisible.

These microphones live up to their pedigree with sound as accurate as DPA's other world-class microphones with clear and natural reproduction, flat response and uniform off-axis rejection combined with excellent gain-before-feedback characteristics for live applications. The 4098H has extremely high rejection of RF interference post the signal balanced XLR connector which offers more than 60 dB common mode rejection.

With its easy to hang and aim design along with its extremely natural sound, the 4098H is truly a hanging microphone without equal.



DPA 4098H Key Features

- Low noise, wide dynamic range
- Can be suspended or mounted in microphone stand
- Excellent gain-before-feedback
- Minimal visual impact, non-reflective surface

Adapters

Limitless connectivity

Have a specific wireless transmitter and bodypack that you prefer to use? No problem. Thanks to the innovative MicroDot connector design and nearly 40 available adapter accessories, DPA's miniature line of microphones can be used with practically every popular wireless system on the market.

Expand your arsenal

The versatile MicroDot solution effectively multiplies your microphone inventory. Using a DPA adapter you can use the same miniature microphone on nearly any professional wireless system available, plus on cable.

We play nice with everyone

DPA has specific adapters for AKG, Audio Ltd., Audio-Technica, Beyerdynamic, Electro-Voice, Lectrosonics, Micron, Mipro, Pastega, Telex ProStar, Ramsa, Samson, Sennheiser, Shure, Sony, Toa, Vega and other systems. Each adapter is guaranteed to perfectly mate to your system of choice.

Optimized XLR adapters

There are also a few varieties of MicroDot to 3-pin XLR adapters, such as the DAD6024, which provides a 3 dB attenuation at 800 Hz for added clarity when a miniature microphone is chest-worn. This electronic modification prevents the loss of presence, intelligibility and definition, as well as minimizes the need for equalization and additional tweaking.



Adapters - Using original DPA adapters, our miniature microphones are currently compatible with the professional transmitters listed below. The model number is typically found on the transmitter.* It is possible to order selected miniature microphone types with fixed connectors, see www.dpamicrophones.com/connectors

Brand / Transmitter	Adapter	Brand / Transmitter	
AKG PT 40	DAD3052	Sabine SW70-T	DAD3053
AKG PT 60	DAD6017*	Samson CT-2	DAD6009
AKG PT 80	DAD6017*	Samson TX-3	DAD6009
AKG PT 81	DAD6017*	Samson UT1 L	DAD6017*
AKG PT 400	DAD6017*	Samson UT4	DAD6009
AKG PT 450	DAD6017*	Samson UT5	DAD6009
AKG PT 4000	DAD6017*	Samson UT6	DAD6009
AKG PT 4500	DAD6017*	Samson VT2L	DAD6017*
AKG DPT700	DAD6017*	Sennheiser BF1053-U	DAD6002
AKG DPT70	DAD6017*	Sennheiser BF1083-U	DAD6002
AKG PT45	DAD6017*	Sennheiser Evolution / G2 Series	DAD6034*
AKG PT470	DAD6017*	Sennheiser SK 50	DAD6003*
Audio Ltd. Tx 2000	DAD6004*	Sennheiser SK 250	DAD6003*
Audio Ltd. Tx 2020	DAD6004*	Sennheiser SK 3063	DAD6003*
Audio Ltd. Tx 2040	DAD6004*	Sennheiser SK 5012	DAD6003*
Audio Ltd. MiniTX	DAD6035	Sennheiser SK 2000	DAD6003*
Audio-Technica ATW-T5 I (1400 ser.)	DAD6022	Shure PGX I	DAD6010*
Audio-Technica ATW-T75 (7000 ser.)	DAD6028	Shure SC I	DAD6010*
Audio-Technica ATW-T10 I (U100)	DAD6021	Shure SLX I	DAD6010*
Audio-Technica ATW-T210	DAD6028	Shure U I	DAD6010*
Audio-Technica ATW-T310	DAD6033	Shure U I L	DAD601 I
Audio-Technica ATW-T70 I	DAD6033	Shure U L X I	DAD6010*
Audio-Technica AEW-T1000	DAD6033	Shure UR I	DAD6010*
Audio-Technica ATW-T1000 D	DAD6033	Shure UR I M Lemo3	DAD6003*
Beyerdynamic TS42	DAD6006	Shure UT I	DAD6010*
Beyerdynamic TS85	DAD6006	Sony DWT-B01 Digital Wireless	DAD3058
Beyerdynamic TS190	DAD6006	Sony Freedom WRT 805	DAD6019*
Beyerdynamic TS500 (Non OPUS)	DAD6026	Sony WRT8	DAD6008*
Beyerdynamic TS600 (Non OPUS)	DAD6026	Sony WRT820	DAD6008*
Beyerdynamic OPUS 100-200	DAD6027	Sony WRT860	DAD6008*
Beyerdynamic OPUS 300	DAD6032	TELEX	DAD6030
Beyerdynamic OPUS 500	DAD6032	Telex ProStar UHF UB12	DAD6020
Beyerdynamic OPUS 600	DAD6032	TOA WM360	DAD3050
Beyerdynamic OPUS 800	DAD6032	TOA WM4300	DAD6010*
Beyerdynamic OPUS 900	DAD6032	TOA WM4310	DAD3050
Electro-Voice CSB-1000 (RE1/RE2)	DAD6030	Trantec S5.5 (UHF)	DAD6036
Lectrosonics M185	DAD6012*	Trantec S5000 Series	DAD6026
Lectrosonics UHF (low level)	DAD6021 *	Trantec SD7000 Digital Wireless	DAD6003*
Lectrosonics LM, SM and UM series	DAD3056*	Vega T-37	DAD6015
Line 6 XD-V70L	DAD6010	Vega T-66	DAD601 I
Micron TX501.x	DAD6013	Vega T-677	DAD601 I
Micron TX502.x	DAD6013	Vega U2020	DAD6015
Micron Explorer Series / TX700	DAD6025	Wiscom MTP30	DAD6003*
Mipro ACT-707T	DAD6032	Wiscom TMA16	DAD6018
Mipro ACT-707TE	DAD6032	Wiscom TMU20	DAD6018
Mipro ACT-707TM	DAD6032	X2 Digital Wireless Systems	DAD6034
Mipro ACT-707TS	DAD6032	XLR adapter with belt clip	DAD6001-BC
Mipro ACT-MT103	DAD6032	XLR adapter with midrange attenuator	DAD6024
Mipro ACT-MT303	DAD6032	XLR adapter with belt clip and low cut	DAD4099
Mipro ACT-MT801	DAD6032	Zaxcom TRX900	DAD3057
Mipro ACT-MT808	DAD6032	Zaxcom TRX900LT	DAD3057
Pastega TMA16	DAD6018		
Pastega TMU20	DAD6018		
Ramsa WX-RP410	DAD3051		

DAD3050



TOA WM360/4310
(for low DC Microphones)
MicroDot to Mini-jack

DAD3051



Ramsa WX-RP410
(for low DC Microphones)
MicroDot to 4-pin Hirose

DAD3052



AKG PT 40
(for low DC Microphones)
MicroDot to TA3F Switchcraft

DAD3053



Sabine SW70-T
(for low DC Microphones)
MicroDot to TA4F Switchcraft

DAD3056



Lectrosonics LM, SM and UM series
(for low DC microphones)
MicroDot to TA5F Switchcraft

DAD3057



Zaxcom TRX900/TRX900TL Series
(for low DC microphones)
MicroDot to Lemo 3-pin

DAD3058



Sony DWT-B01
MicroDot to 4-pin Hirose

DAD4099



MicroDot to XLR Connector
with Belt Clip and Low-Cut Filter

DAD6001-BC



MicroDot to 3-pin XLR (P48)
with belt clip

DAD6002



Sennheiser BF1053-U/BF1083-U
MicroDot to Coax Lemo

DAD6003



Sennheiser SK 50/SK 250/ SK 2000/ SK 3063/SK 5012,
Trantec SD7000 Digital Wireless,
Shure UR1M Lemo3
MicroDot to 3-pin Lemo

DAD6004



Audio Ltd.Tx 2000/Tx 2020/ Tx 2040
MicroDot to 6-pin Lemo

DAD6006



Beyerdynamic TS42/TS85/TS190
MicroDot to 4-pin Binder

DAD6008



Sony WRT8/WRT820/WRT860
MicroDot to 4-pin Hirose

DAD6009



Samson CT-2/TX-3/UT4/UT5/UT6
MicroDot to 6-pin Hirose

DAD6010



Line 6 XD-V70L, Shure PGX1/SC1/SLX1/U1/
ULX1/UR1/UT1, TOA WM4300 MicroDot to
TA4F Switchcraft

DAD6011



Vega T-66/T-677, Shure U1L
MicroDot to 4-pin Lemo Series S

DAD6012



Lectrosonics M185
MicroDot to TA5F Switchcraft

DAD6013



Micron TX501.x/TX502.x
MicroDot to 8-pin Lemo

DAD6015



Vega T-37/U2020
MicroDot to TA4F Switchcraft

DAD6017



AKG PT 60/70/80/81/400/450/470/4000/4500/
DPT 70/700 Samson UT1L/VT2L MicroDot to
TA3F Switchcraft

DAD6018



Wisycorn/Pastega TMA16/TMU20
(3 wire preset)
MicroDot to 3-pin Fischer

DAD6019



Sony Freedom WRT805,
MicroDot to Mini-jack (with thread)

DAD6020



Telex ProStar UHF-UB12
MicroDot to TA4F Switchcraft

DAD6021



AT ATW-T101 (U100), Lectrosonics UHF sys-
tems for low level
MicroDot to TA5F Switchcraft

DAD6022



Audio-Technica ATW-51 (1400 series)
MicroDot to 4-pin Hirose

DAD6024



MicroDot to 3-pin XLR (P48)
w. Midrange Attenuation
MicroDot to XLR

DAD6025



Micron Explorer Series/TX700
MicroDot to 6-pin Lemo Series B

DAD6026



Beyerdynamic TS 500/600, Trantec S5000
MicroDot to 4-pin Lemo

DAD6027



Beyerdynamic OPUS 100-200
MicroDot to Mini-jack

DAD6028



Audio-Technica ATW-T75 (7000 Series)/
ATW-T210
MicroDot to 4-pin Hirose.

DAD6030



Electro-Voice CSB-1000 (RE1/RE2), TELEX
MicroDot to TA4F Switchcraft

DAD6032



Beyerdynamic OPUS 300/500/600/800/900,
Mipro ACT-707T/TE/TM/TS/MT103/303 /801/808
MicroDot to TA4F Switchcraft

DAD6033



Audio-Technica ATW-T310/ATW-T701/
ATW-T1000D/AEW-T1000/
MicroDot to 4-pin Hirose

DAD6034



Sennheiser Evolution/G2 X2 Digital Wireless
Systems
MicroDot to Mini-jack (with thread)

DAD6035



Audio Ltd. Mini TX
MicroDot to 4-pin Lemo
(short version)

DAD6036



Trantec S5.5 (UHF)
MicroDot to TA4F Switchcraft.

Accessories

Something for everyone

Whether you spend most of your time in the studio, on stage, or in the field, DPA is constantly developing forward-thinking new accessory solutions to best meet your needs.

Serious attachment

Need just the right holder or mount to keep your miniature microphone in place? Simply take your pick from a wide variety of miniature clips, single and double pins, magnet mounts, universal surface mounts, miniature concealers, tie pods, mic holders for strings, double-sided adhesive pads, and more. Find that “sweet spot” and keep your microphone there.

Calm the storm

Five different colors of tiny foam windscreens sufficiently keep plosives under control, while a windjammer and miniature mesh allow engineers to very effectively reduce wind and handling noise.

Tiny power stations

Numerous options exist for powering DPA's range of miniature microphones. The MMA6000 high quality, two-channel microphone amplifier and power supply box for portable stereo recording is equipped with a pair of MicroDot input connectors, 16-position gain control, and low-cut filter. The aluminum tube-shaped MPS6001 can power a single miniature mic via a standard 1.5V AAA battery or work as a 48 V Phantom Power adapter. And several varieties of ultra-compact MPS series power supplies can provide more than 300 hours of high-fidelity continuous use from a single 9V battery.

Instant modification

For head-worn applications, DPA offers an anodized steel grid that fits over many of its miniature microphones and introduces a 3 dB soft boost between 8 - 20 kHz. Similarly, another grid is also available that provides a 10 dB soft boost around 12 kHz for chest-worn use. These are both offered in a choice of colors.

Options galore

And there are plenty of other accessories available, including a variety of headbands to fit everyone from small children to towering adults, quality coaxial extension cables in a number of lengths, sweat stoppers, headband clips, and MicroDot tools, among others. There are even various accessory kits for specific applications – such as ENG/EFP and film – that conveniently package the most appropriate tools for the job in a sturdy case with a transparent lid.

DMM0001



Miniature Clip

DMM0002-B/W



Miniature Double Pin, Black or White

DMM0003-B/W



Miniature Magnet, Black or White

DMM0004-B/W



Miniature Clip, Small, Black or White

DMM0005



Miniature Holder; Single Pin, 3 pcs.

DMM0007



Universal Surface Mount, 5 pcs.

DMM0008-B/W



Miniature Clip, Double Lock, Black or White

DMM0009



Miniature Concealer for 4071

DMM0010



Tie Pod, 3 pcs.

DMM0011-B/W



Magnet Mount, Black or White

DMM0012



Miniature Concealer for 4060

DMM0014



Clip for 4080

DMM0015



Double Clip for 4080

DMM0016



Magnet Mount for 4080

DMM0017-B/W



Miniature Mic Holder, Black or White

DUA0513



Cable clamp for 4080, 5 pcs.

MHS6001



Microphone Holder for Strings

DUA6001/03/05/17



Miniature Grids, Soft Boost, Black, Beige, White & Brown, 5 pcs.

DUA6002/04/06/18



Miniature Grids, High Boost, Black, Beige, White & Brown, 5 pcs.

DUA0574/75/76



Pop Screens for 4088, Black, Beige & Brown

DUA6019



Protection Cap for 4060/61/62/63/65/66/67/71/73, 25 pcs.

DUA0560/61/62/63/64/66/67/68/70



Windscreens, Black, Red, Blue, Yellow, Green, White, Beige, Brown & Colormix

DUA0571



Windjammer for 4071, Grey Fur

DUA0572



Miniature Mesh for 4071

DUA0577



Windscreen for 4080

DAK4060



Accessory Kit for Miniature Microphones

DAK4071-E



Accessory Kit for Miniature Microphones - ENG/EFP

DAK4071-F



Accessory Kit for Miniature Microphones - Film

ADH0001



Double-sided Tape for Tie Pod, 25 pcs.

ADH0002



Double-sided Tape for Miniature Microphones Concealer, 25 pcs.

ADH0003



Miniature Mic Tape, 25 pcs.

ADH0004/05



Double-sided Mic Tape, 10 pcs.
Double-sided Mic Tape, 50 pcs.

DAO6005



Miniature Microphone Extension Cable, 3.5 m (11.5 ft)

DAO6010



Miniature Microphone Extension Cable, 10 m (32.8 ft)

DAO6020



Miniature Microphone Extension Cable, 20 m (65.6 ft)

DAO6015



Cable for BLM4060, 3 m (10 ft)

DAO6016



Cable for BLM4060, 10 m (32.8 ft)

DAO6017



Cable for BLM4060, 20 m (65.6 ft)

DAO0135



Stereo Mini-jack Plug, 1 m (3 ft)

DAO0136



Stereo Mini-jack Plug - 2 x 1/4 in Mono Jack Plugs, 5 m (16.4 ft)

DAO0137



Stereo Mini-jack Plug - 1/4 in Mono Jack Plug, 5 m (16.4 ft)

DAO0138



Stereo Mini-jack Plug - 2 x male XLR Plugs, 5 m (16.4 ft)

DAO0139



Stereo Mini-jack Plug - Phono L+R Plug, 1 m (3 ft)

MMA6000



Miniature Microphone Amplifier

MPS6001



Miniature Power Supply, 1-channel, 3-pin XLR

MPS6010



Miniature Power Supply, 2-channel, 3-pin XLR

MPS6020



Miniature Power Supply, 2-channel, Phono

MPS6030



Miniature Power Supply, 2-channel, Stereo Mini-jack

MPS6040



Miniature Power Supply, 2-channel,
1/4 in Stereo Jack

MSB6000



Master Sum Box

SSB6000



Stereo Satellite Box

AHM6000



Adjustable Headband Mount, Beige,
small, medium or large

AHM6001



Adjustable Headband Mount, Black,
small, medium or large

MMB4066-B



Miniature Microphone Boom, Omni, Black

MMB4066-C



Miniature Microphone Boom, Omni, Brown

MMB4066-F



Miniature Microphone Boom, Omni, Beige

MMB4088-B



Miniature Microphone Boom,
Cardioid, Black

MMB4088-C



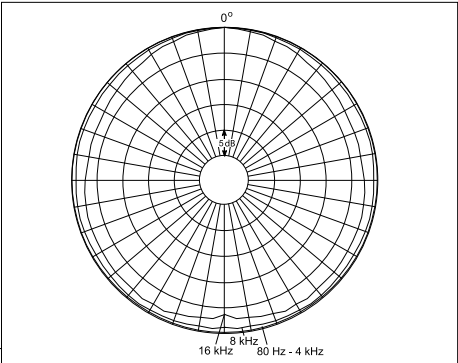
Miniature Microphone Boom,
Cardioid, Brown

MMB4088-F



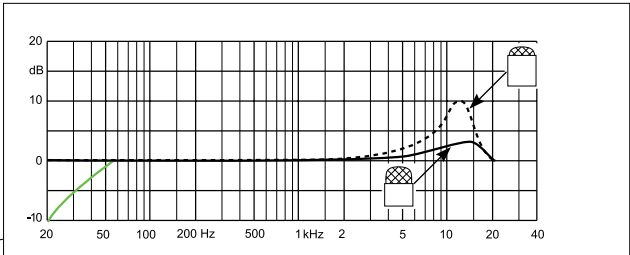
Miniature Microphone Boom,
Cardioid, Beige

Specifications for DPA 4060, 4061, 4062, 4063, 4065, 4066 & 4067



Polar Pattern

Directional characteristics of the 4060 (normalized).



On-Axis Frequency Response of Miniature Microphones

Dotted line is with high boost grid. Solid line is with soft boost grid.
Green line is 4067 below 50 Hz. (4065 only utilizes the soft boost frequency response).

Directional characteristics

Omnidirectional

Principle of operation

Pressure

Cartridge type

Pre-polarized condenser element with vertical diaphragm

Frequency range, ± 2 dB

Soft boost grid: 20 Hz – 20 kHz, 3 dB soft boost at 8 – 20 kHz

High boost grid: 20 Hz – 20 kHz, 10 dB boost at 12 kHz

4067: 50 Hz – 20 kHz, Low-cut: -10 dB at 20 Hz

Sensitivity, nominal ± 3 dB at 1 kHz

4060: 20 mV/Pa; -34 dB re. 1 V/Pa

4061/4063/4065/4066: 6 mV/Pa; -44 dB re. 1 V/Pa

4062/4067: 1 mV/Pa; -60 dB re. 1 V/Pa

Equivalent noise level, A-weighted

4060: Typ. 23 dB(A) re. 20 μ Pa (max. 26 dB(A))

4061/4063/4065/4066: Typ. 26 dB(A) re. 20 μ Pa (max. 28 dB(A))

4062/4067: Typ. 33 dB(A) re. 20 μ Pa (max. 37 dB(A))

Equivalent noise level ITU-R BS.468-4

4060: Typ. 35 dB (max. 38 dB)

4061/4063/4065/4066: Typ. 38 dB (max. 40 dB)

4062/4067: Typ. 45 dB (max. 49 dB)

Polarity

Positively increasing sound pressure produces positive going voltage on MicroDot pin.

S/N ratio, (A-weighted) re. 1 kHz at 1 Pa (94 dB SPL)

4060: 71 dB(A)

4061/4063/4065/4066: 68 dB(A)

4062/4067: 61 dB(A)

Total Harmonic Distortion (THD)

<1% THD up to 123 dB SPL peak

<1% THD up to 120 dB SPL RMS sine

Dynamic range

4060: Typ. 100 dB

4061/4063/4065/4066: Typ. 97 dB

4062/4067: Typ. 90 dB

Max. SPL, peak before clipping

4060:	134 dB
4061/4065/4066:	144 dB
4062/4067:	154 dB
4063:	138 dB

Output impedance

30 – 40 ohm

Cable drive capability

Up to 300 m (984 ft)

Power supply

For wireless systems:

Min. 5 V – max. 50 V through DPA adapter

4063/4067: Min. 3 V – max. 50 V

With DAD6001-BC/DAD6024/DAD4099:

48 V phantom power: ± 4 V for full performance

Connector

MicroDot

Color

4060/4061/4063: Black, beige, brown or white

4062/4066: Black, brown or beige

4065/4067: Black or beige

Dimensions

Weight: 4060/4061/4062/4063: 7.5 g (0.26 oz) incl. cable and MicroDot connector;

4065/4066/4067: 14 g (0.50 oz) incl. cable and MicroDot connector

Microphone diameter: 5.4 mm (0.21 in)

Microphone length: Max. 12.7 mm (0.5 in)

Cable

Cable length:

4060/4061/4062/4063: 1.8 m (5.9 ft)

4065/4066/4067: 1.2 m (3.9 ft)

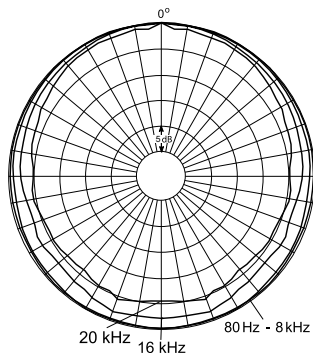
SMK4060/4061: 3 m (11.8 ft)

Cable diameter: 1.6 mm (0.06 in)

Operating temperature range

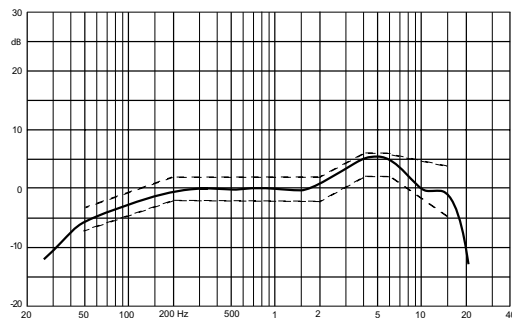
-10 to 45° C (+14 to 113° F)

Specifications for DPA 4071



Polar Pattern

Directional characteristics of DPA 4071 (normalized).



Frequency Response

Typ. on-axis frequency response of DPA 4071 with tolerance field.

Directional characteristics

Omnidirectional

Principle of operation

Pressure

Cartridge type

Pre-polarized condenser element with vertical diaphragm

Frequency range, ± 2 dB

100 Hz – 15 kHz with typ. 5 dB soft boost at 4 – 6 kHz.

Sensitivity, nominal ± 3 dB at 1 kHz

6 mV/Pa; -44 dB re. 1 V/Pa

Equivalent noise level, A-weighted

Typ. 26 dB(A) re. 20 μ Pa (max. 28 dB(A))

Equivalent noise level ITU-R BS.468-4

Typ. 38 dB (max. 40 dB)

S/N ratio, (A-weighted) re. 1 kHz at 1 Pa (94 dB SPL)

68 dB(A)

Total Harmonic Distortion (THD)

<1% up to 123 dB SPL peak

<1% up to 120 dB SPL RMS sine

Dynamic range

Typ. 97 dB

Max. SPL, peak, before clipping

144 dB

Output impedance

30 – 40 ohm

Cable drive capability

Up to 300 m (984 ft)

Power supply

For wireless systems: Min. 5 V – max. 50 V through DPA adapter

With DAD6001-BC/DAD6024/DAD4099:

48 V phantom power ± 4 V for full performance

Connector

MicroDot

Color

Black, beige or white

Dimensions

Microphone length: 17 mm (0.67 in)

Microphone diameter: 5.4 mm (0.21 in)

Weight: 9 g (0.32 oz) incl. cable and MicroDot connector

Cable

Cable length: 1.8 m (5.9 ft)

Cable diameter: 1.6 mm (0.06 in)

Polarity

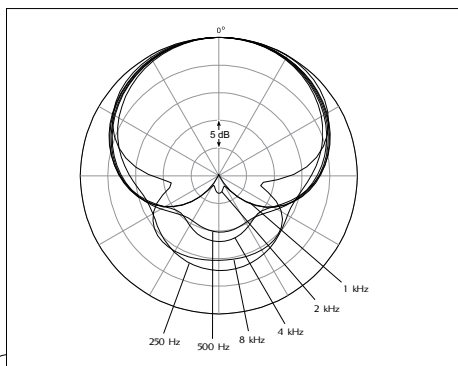
Positively increasing sound pressure produces

positive going voltage on MicroDot pin.

Operating temperature range

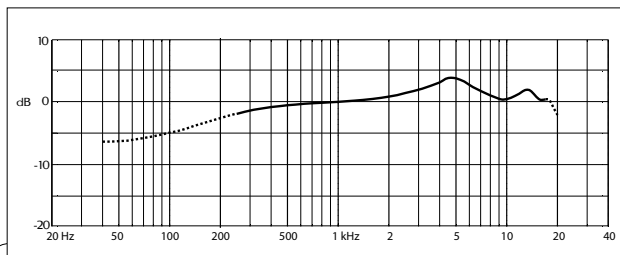
-10 to 45° C (+14 to 113° F)

Specifications for DPA 4080



Polar Pattern

Directional characteristics of 4080 (normalized).



Frequency Response

On-axis response of 4080 measured at 25 cm (10 in).

Directional characteristics

Cardioid

Principle of operation

Pressure gradient

Cartridge type

Pre-polarized condenser element with vertical diaphragm

Frequency range ± 2 dB

250 Hz – 17 kHz with typ. 4 dB soft boost at 4 – 6 kHz (-5 dB at 100 Hz)

Sensitivity, nominal, ± 3 dB at 1 kHz

20 mV/Pa; -34 dB re. 1 V/Pa

Equivalent noise level, A-weighted

Typ. 23 dB(A) re. 20 μ Pa (max. 26 dB(A))

S/N ratio (A-weighted), re. 1 kHz at 1 Pa (94 dB SPL)

Typ. 71 dB (A)

Total Harmonic Distortion (THD)

<1 % up to 123 dB SPL peak

<1 % up to 120 dB SPL RMS sine

Dynamic range

Typ. 100 dB

Max. SPL, peak before clipping

144 dB

Output impedance

30 – 40 ohm

Cable drive capability

Up to 300 m (984 ft)

Power supply

For wireless systems: Min 5 V – max. 50 V through DPA adapter

With DAD6001-BC/DAD6024/DAD4099:

48 V phantom power ± 4 V for full performance

Connector

MicroDot

Dimensions

Microphone length: 30 mm (1.2 in)

Microphone diameter: 10 mm (0.4 in)

Capsule diameter: 5.4 mm (0.2 in)

Weight: 15 g (0.5 oz) incl. cable and MicroDot connector

Cable

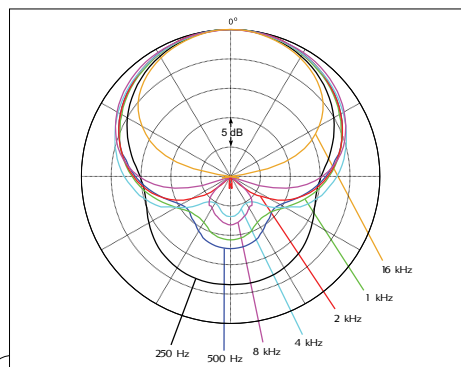
Cable length 1.2 m (4 ft)

Cable diameter: 1.6 mm (0.06 in)

Polarity

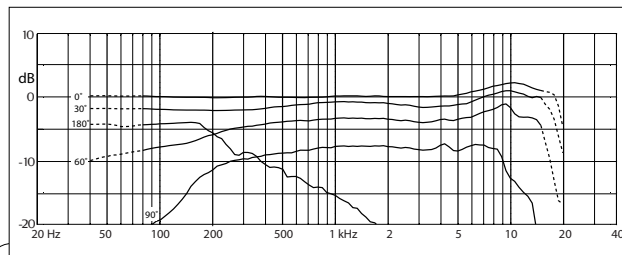
Positively increasing sound pressure produces positive going voltage on MicroDot pin

Specifications for DPA 4081



Polar Pattern

Directional characteristics of 4081 (normalized).



Frequency Response

On-axis response of 4081 measured at 25 cm (10 in).

Directional characteristics

Supercardioid

Principle of operation

Pressure gradient

Cartridge type

Pre-polarized condenser element with vertical diaphragm

Frequency range

20 Hz to 20 kHz

Frequency range, ± 2 dB, 20 cm (7.9 in) distance

80 Hz to 15 kHz with 2 dB soft boost at 10 to 12 kHz

Sensitivity, nominal, ± 3 dB at 1 kHz

6 mV/Pa; -44 dB re. 1 V/Pa

Equivalent noise level, A-weighted

Typ. 23 dB(A) re. 20 μ Pa (max. 26 dB(A))

S/N ratio (A-weighted), re. 1 kHz at 1 Pa (94 dB SPL)

71 dB

Total Harmonic Distortion (THD)

< 1 % up to 123 dB SPL peak, < 1 % up to 120 dB SPL RMS sine

Dynamic range

100 dB

Max. SPL, peak before clipping

142 dB

Output impedance

From MicroDot: 30 to 40 ohm; from DAD6001-BC: 100 ohm

Cable drive capability

300m (984 ft) with DAD6001-BC XLR adapter

Output balance principle

Signal balanced with DAD6001-BC XLR adapter

Common Mode Rejection Ration (CMRR)

> 60 dB at 50 Hz to 15 kHz with DAD6001-BC XLR adapter

Power supply (for full performance)

Min. 5 V to max. 50 V through DPA adapter for wireless systems; 48 V phantom power ± 4 V with DAD6001-BC XLR adapter

Current consumption

1.5 mA (microphone); 3.5 mA with DAD6001-BC XLR adapter

Connector

MicroDot

Color

Black

Weight

10 g (0.35 oz)

Capsule diameter

5.4 mm (0.2 inch)

Cable length

2 mm (6.6 ft)

Polarity

Positively increasing sound pressure produces positive going voltage on MicroDot pin (and pin 2 on DAD6001-BC XLR adapter)

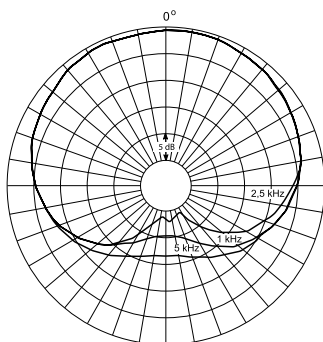
Operating temperature range

-40 °C to 45 °C (-40 °F to 113 °F)

Operating relative humidity

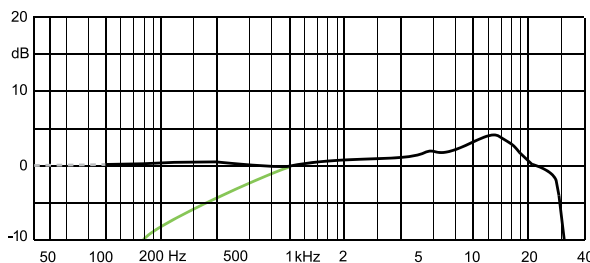
Up to 90 %

Specifications for DPA 4088



Polar Pattern

Directional characteristics of DPA 4088 (normalized).



On-Axis Frequency Response of 4088

Solid line is near field (2 – 3 cm). Green line is far field (more than 30 cm).
Dotted line is typical low frequency in near field (estimated).

Directional characteristics

Cardioid

Principle of operation

Pressure gradient

Cartridge type

Pre-polarized condenser element with vertical diaphragm

Frequency range, ± 2 dB

100 Hz – 20 kHz (4 – 6 dB soft boost at 15 kHz)

Sensitivity, nominal ± 3 dB at 1 kHz

6 mV/Pa; -44 dB re. 1 V/Pa

Equivalent noise level, A-weighted

Typ. 26 dB(A) re. 20 μ Pa (max. 28 dB(A))

Equivalent noise level ITU-R BS.468-4

Typ. 38 dB (max. 40 dB)

S/N ratio, (A-weighted) re. 1 kHz at 1 Pa (94 dB SPL)

68 dB(A)

Total Harmonic Distortion (THD)

<1 % up to 123 dB SPL peak

<1 % up to 120 dB SPL RMS sine

Polarity

Positively increasing sound pressure produces positive going voltage on MicroDot pin.

Dynamic range

Typ. 97 dB

Max. SPL, peak before clipping

144 dB

Output impedance

30 – 40 ohm

Cable drive capability

Up to 300 m (984 ft)

Power supply

For wireless systems: Min. 5 V – max. 50 V through DPA adapter

With DAD6001-BC/DAD6024/DAD4099:

48 V phantom power ± 4 V for full performance

Connector

MicroDot

Color

Black, brown or beige

Dimensions

Weight: 14 g (0.5 oz) incl. cable and MicroDot connector

Microphone diameter: 5.5 mm (0.25 in)

Microphone length: 111 mm (0.5 in)

Cable

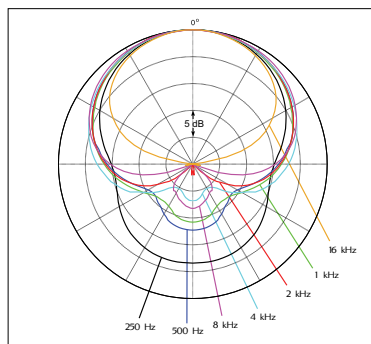
Cable length: 1.2 m (3.9 ft)

Cable diameter: 1.6 mm (0.06 in)

Operating temperature range

-10 to 45° C (+14 to 113° F)

Specifications for DPA 4098H



Polar Pattern

Typical directional characteristics of 4098H (normalized).

Directional characteristics

Supercardioid

Principle of operation

Pressure gradient

Cartridge type

Pre-polarized condenser

Frequency range

20 Hz to 20 kHz

Frequency range, ± 2 dB, 20 cm (7.9 in) distance

80 Hz to 15 kHz with 3 dB soft boost at 8 to 15 kHz

Sensitivity, nominal, ± 3 dB at 1 kHz

20 mV/Pa; -34 dB re. 1 V/Pa

Equivalent noise level, A-weighted

Typ. 23 dB(A) re. 20 μ Pa (max. 26 dB(A))

Equivalent noise level, ITU-R BS.468-4

Typ. 35 dB (max. 38 dB)

S/N ratio (A-weighted), re. 1 kHz at 1 Pa (94 dB SPL)

71 dB(A)

Total Harmonic Distortion (THD)

<1 % up to 123 dB SPL peak

<1 % up to 120 dB SPL RMS sine

Dynamic range

Typ. 100 dB

Max. SPL, peak before clipping

134 dB

Output impedance

From MicroDot: 30 to 40 ohm

From DAD6001: 100 ohm

Cable drive capability

Up to 300 m (984 ft) with DAD6001 XLR adapter

Output balance principle

Signal balanced with DAD6001 XLR adapter

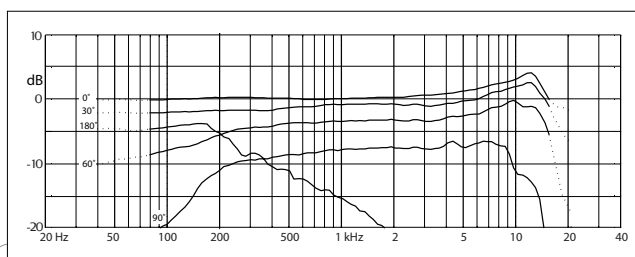
Common Mode Rejection Ratio (CMRR)

> 60 dB from 50 Hz to 15 kHz with DAD6001 XLR adapter

Power supply (for full performance)

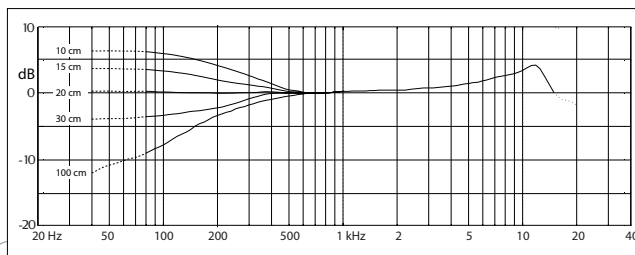
For wireless systems: Min. 5 V to max. 50 V through DPA adapter;

with DAD6001: 48 V phantom power ± 4 V



Frequency Response

Typical on- and off-axis frequency response of 4098H at 20 cm (7.9 in) distance.



Proximity Effect

Proximity effect exhibited by 4098H.

Current consumption

1.5 mA (microphone)

3.5 mA with DAD6001 XLR adapter

Connector

MicroDot

3-pin XLR-M from DAD6001 XLR adapter

Color

Black (4098HB)

White (4098HW)

Weight

5 g (0.18 oz)

Microphone length

154 mm (6 in)

Capsule diameter

5.4 mm (0.2 in)

Microphone diameter

10 mm (0.39 in)

Gooseneck length

95 mm (3.7 in)

Polarity

Positively increasing sound pressure produces positive-going voltage at MicroDot pin (and pin 2 on DAD6001 XLR adapter)

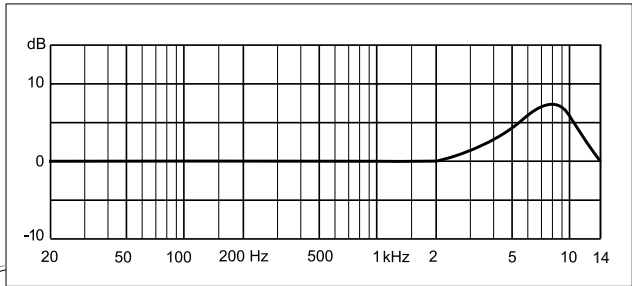
Operating temperature range

-40 °C to +50 °C (-40 °F to 113 °F)

Operating relative humidity (RH)

Up to 90 %

Specifications for DPA BLM4060



On-Axis Frequency Response of BLM4060

Directional characteristics

Omnidirectional, hemisphere

Principle of operation

Pressure

Cartridge type

Pre-polarized condenser element

Frequency range, ± 2 dB

20 Hz – 14 kHz

(with a 7 dB soft boost at 8 KHz)

Sensitivity, nominal ± 3 dB at 1 kHz

20 mV/Pa -34 dB re. 1 V/Pa

Equivalent noise level, A-weighted

Typ. 23 dB(A) re. 20 μ Pa (max. 26 dB(A))

Equivalent noise level ITU-R BS.468-4

Typ. 35 dB (max. 38 dB)

S/N ratio, (A-weighted) re. 1 kHz at Pa (94 dB SPL)

71 dB(A)

Total Harmonic Distortion (THD)

<1% up to 123 dB SPL peak

<1% up to 120 dB SPL RMS sine

Dynamic range

Typ. 100 dB

Max. SPL, peak before clipping

134 dB

Output impedance

From MicroDot: 30 – 40 ohm

From DAD6001: 100 ohm

Cable drive capability

Up to 300 m (984 ft)

Power supply

For wireless systems: Min. 5 V – max. 50 V through DPA adapter

With DAD6001-BC/DAD6024/DAD4099:

48 V phantom power ± 4 V for full performance

Connector

MicroDot/XLR 3-pin

Finish

Black rubber disc mounted in stainless steel base

Dimensions

Diameter: 100 mm (4 in)

Height: 12 mm (0.5 in)

Weight: 240 g (8.5 oz) excl. cable

Cable

Cable length: 3 m (10 ft)

Cable diameter: 1.6 mm (0.06 in)

Cable color: Black

Polarity

Positively increasing sound pressure produces

positive going voltage on MicroDot pin/pin2 on XLR connector

Operating temperature range

-10 to 45° C (+14 to 113° F)



The DPA success

The reason for our success is simple: DPA's ultimate goal is to provide you – whether you're in live sound, recording, theater or broadcast – with the absolute finest possible microphone solutions for your tasks. We take no shortcuts in our design processes nor make any compromises in our manufacturing. As a result, our products are globally praised for their exceptional clarity and transparency, superb specifications, supreme reliability and, above all, pure, uncolored and undistorted sound.

Regardless of whether you are a longtime DPA user or potential new customer, we thank you for your interest in our products and look forward to delighting you beyond your expectations.







WWW.DPAMICROPHONES.COM

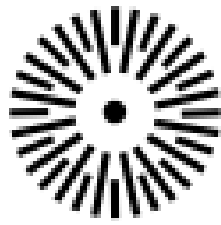


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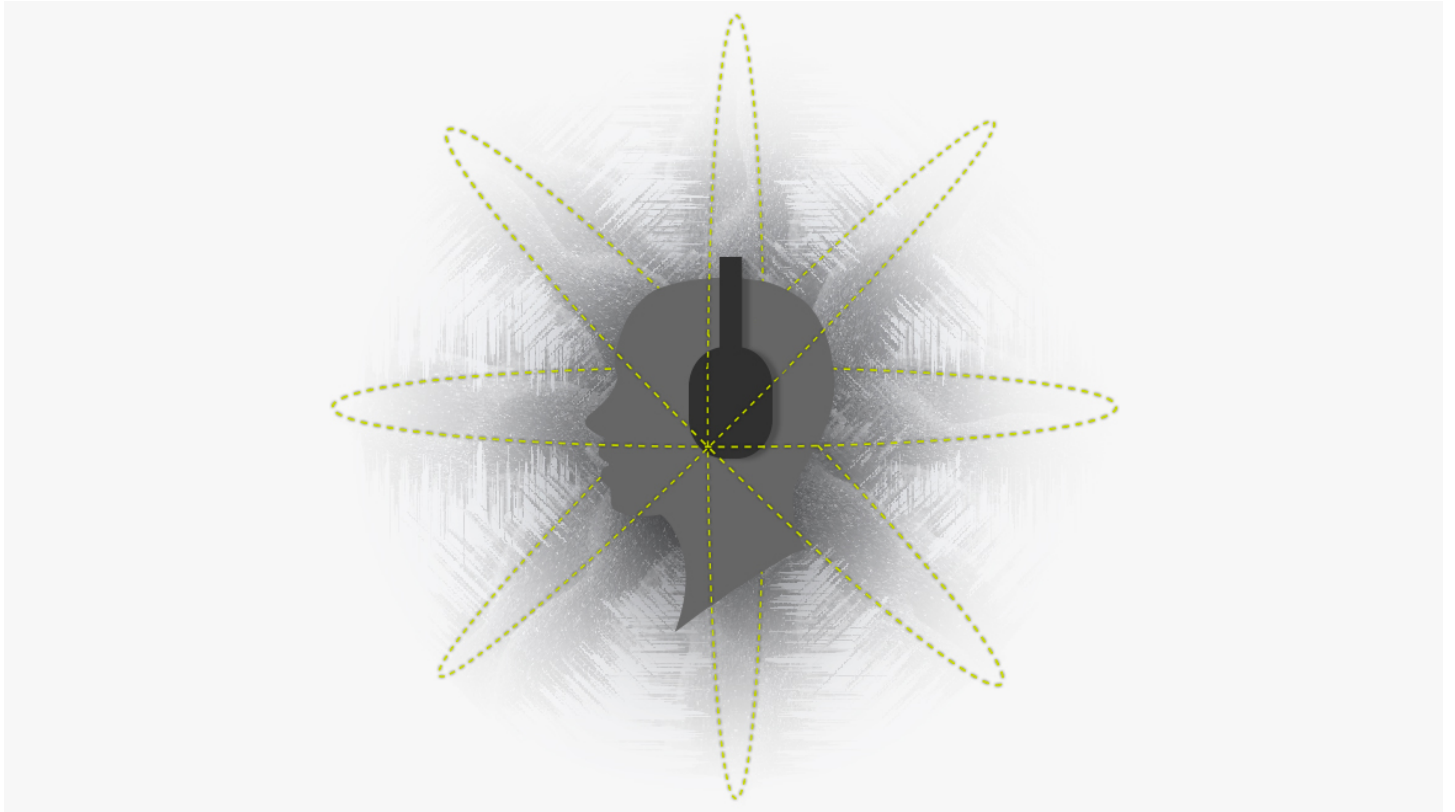
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2019/12/02

TECHNIQUES D'ENREGISTREMENT BINAURAL



La technique d'enregistrement binaural repose sur le principe de placer des microphones sur la tête d'un être humain - ou sur une tête artificielle. La position des microphones est soit juste à l'extérieur de chaque conduit auditif, soit au fond du conduit auditif près du tympan. Lorsque vous reproduisez l'enregistrement et écoutez avec un casque, l'image ressemble beaucoup à « être là ». Cet article explique l'utilisation d'un casque binaural (au lieu d'une solution de tête artificielle), ainsi l'enregistrement sonore binaural a lieu à l'entrée du conduit auditif d'une personne réelle.

La tête affecte la façon dont nous entendons

Nous exprimons l'influence physique de la tête par la soi-disant fonction de transfert liée à la tête ou HRTF en abrégé. Cette fonction de transfert exprime comment la tête, les oreilles (et aussi le torse) affectent la transmission d'un signal acoustique d'une source sonore vers les tympans. La taille et la forme de la tête, la taille et la forme des oreilles et la distance entre les oreilles contribuent à un filtrage du signal acoustique avant qu'il n'atteigne les tympans.

Lorsque le son vient de devant une personne, l'influence est symétrique, c'est-à-dire que le son est le même aux deux oreilles. Cependant, dès que le son se déplace vers l'un des côtés, le son devient différent lorsqu'il atteint chaque oreille. Le niveau, la réponse en fréquence et l'heure d'arrivée diffèrent. Le côté de la tête le plus proche de la source sonore fournit une réflexion qui provoque une accumulation de pression dans la gamme des fréquences moyennes. Sur le côté opposé de la tête, un effet d'ombrage se produit dans la même gamme de fréquences.

HRTF est étroitement lié à la forme individuelle de la tête humaine. Ainsi, les enregistrements binauraux sonnent mieux s'ils sont enregistrés à l'aide de votre HRTF personnel. Cependant, en général, tout le monde ressent un enveloppement beaucoup plus élevé du son environnant, même si le HRTF n'est pas le sien. C'est pourquoi la technique d'enregistrement binaural mérite d'être envisagée à de nombreuses fins.

De nombreuses recherches ont été menées sur le son binaural au cours des 30 dernières années. Les chercheurs de l'Université d'Aalborg, au Danemark, ont mené des études approfondies dans les années 90 [1].

Dans la figure suivante, vous pouvez voir deux ensembles de courbes (HRTF). Chaque courbe représente une moyenne sur de nombreux sujets. Les courbes de gauche sont mesurées avec un conduit auditif ouvert. Les courbes à droite montrent les HRTF des sujets avec conduit auditif bloqué.

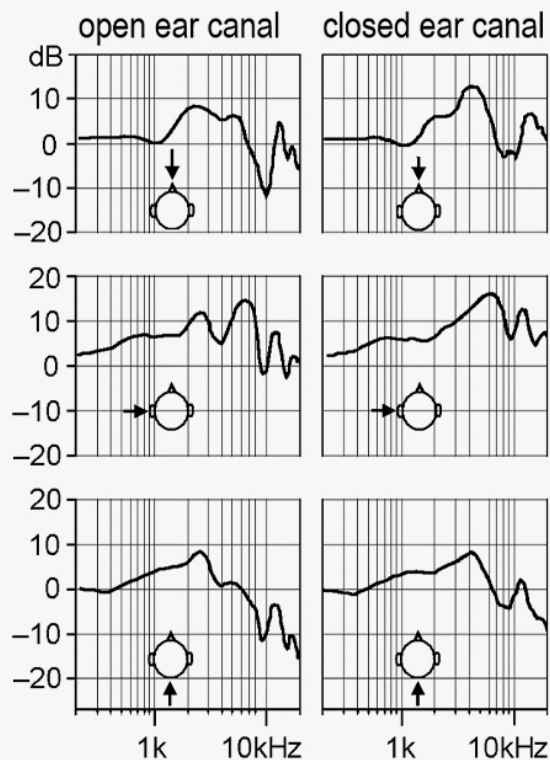


Figure 1 HRTF de sujets humains, conduit auditif ouvert et fermé [1].

L'utilisation d'un casque binaural est très proche du HRTF mesuré avec un conduit auditif bouché (à droite).

Extraits sonores de la pièce : Bon à rien

Cette pièce a été développée par des étudiants de l'École nationale danoise des arts du spectacle. Nanna-Karina Schleimann a créé le design sonore et les compositions musicales.

Dans la pièce, le public se déplace parmi les acteurs. L'ensemble de l'espace théâtral fonctionne comme la scène et des "incidents" mineurs ont lieu ici et là. Nanna a choisi d'utiliser des microphones binauraux pour plusieurs des acteurs et de transmettre les signaux au public à l'aide de récepteurs stéréo et d'écouteurs. De cette manière, le public participe de la manière la plus intime.

La musique a été jouée et mixée en direct sur scène lors des représentations. Les extraits sonores sont des enregistrements

tirés directement d'une performance.



[DPA Microphones](#)

GFN Alex



"GFN Alex": Un acteur parle; un autre acteur écoute (il porte les micros binauraux). Au cours de cette scène, ils ont tous deux mis leur tête dans une boîte en carton. Le public fait maintenant l'expérience d'être également dans cette boîte.



[DPA Microphones](#)

Composition



« Composition » : composition/effets sonores pour une scène.



[DPA Microphones](#)

Pose Paranoia



« Pose Paranoia » : Composition/effets sonores pour une scène.

Up-mix à partir du son binaural

La technique binaurale est conçue pour la lecture avec un casque. Si le son enregistré en binaural est lu par des haut-parleurs, une correction est nécessaire. La correction est essentiellement une HRTF inversée. Comme le HRTF change avec la direction, il est compliqué de concevoir cette fonction inversée. Cependant, un simple filtre se rapproche de la correction idéale. La fonction du filtre est de recréer l'équilibre de timbre pour correspondre au timbre du son reproduit dans les écouteurs.

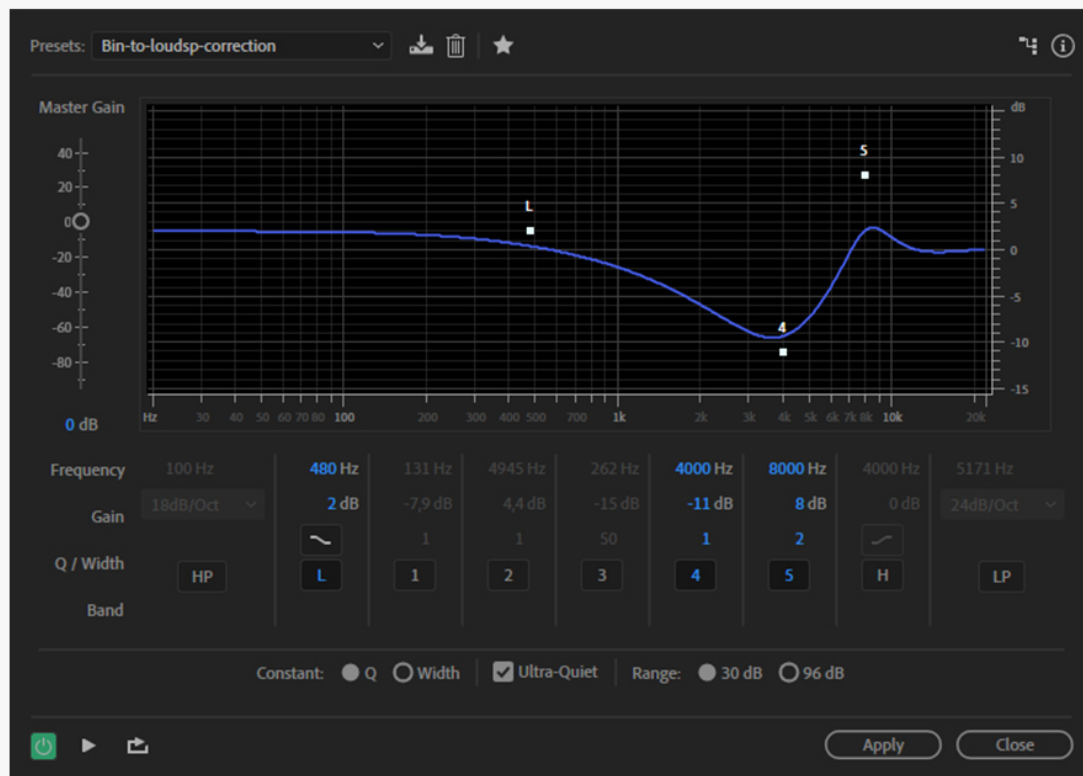


Figure 2 Courbe de filtre proposée pour le mixage ascendant des enregistrements binauraux pour la lecture par haut-parleur.

Dans la figure 2, la courbe de filtre illustrée est créée en appliquant l'égaliseur paramétrique d'Adobe Audition. La plupart des égaliseurs paramétriques peuvent créer une courbe comme celle-ci – ou la fermer.

Réglages :

480 Hz Low Shelf, Gain = +2 dB

Cloche 4 kHz, Gain = -11 dB, Q = 1

Cloche 8 kHz, Gain = +8 dB, Q = 2

Gain principal = 0 dB

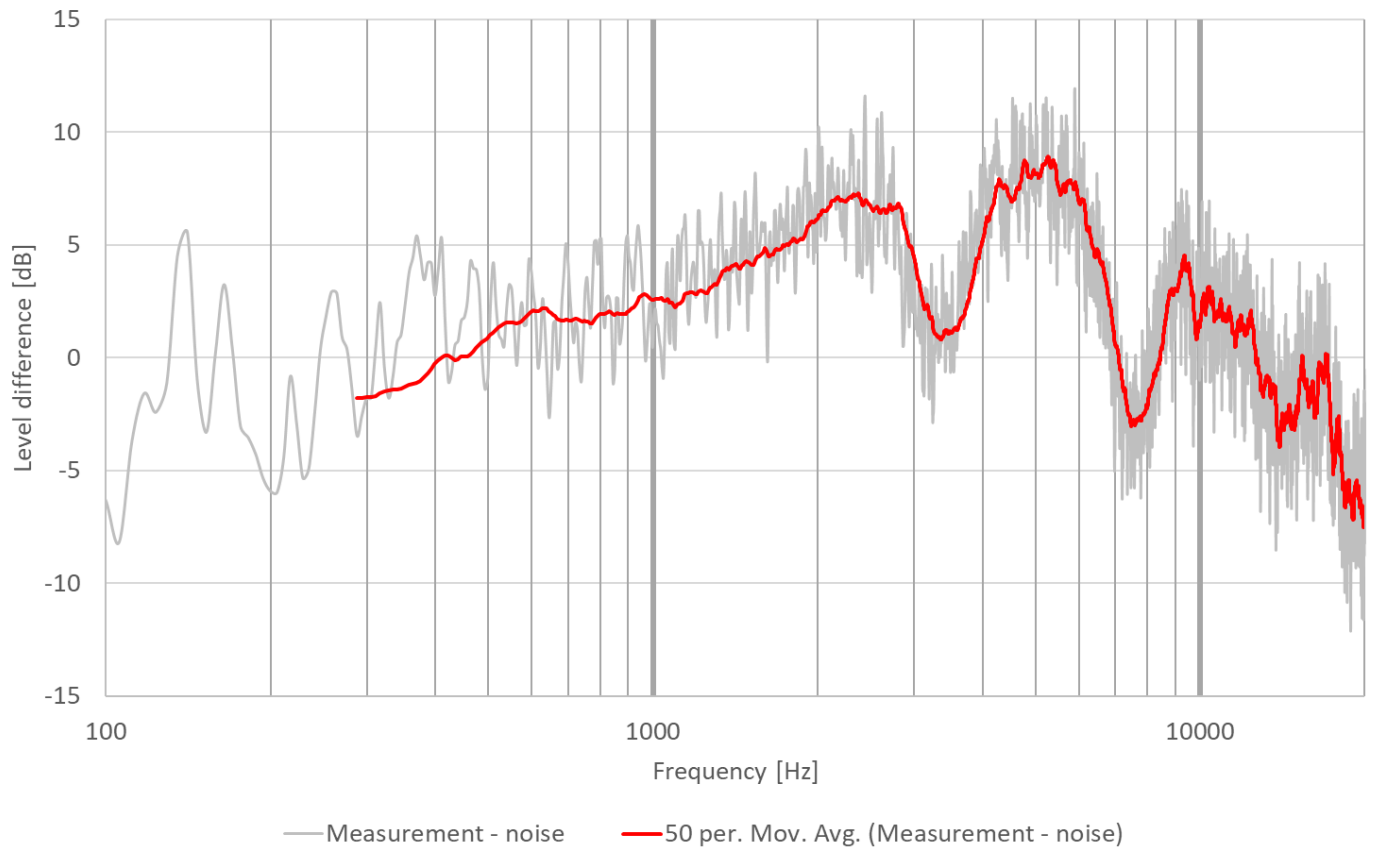
Ainsi, lorsqu'un enregistrement binaural est effectué, il suffit d'ajouter l'égalisation aux deux canaux. L'enregistrement est alors mieux adapté à la reproduction par haut-parleur.

Les HRTF sont individuels, de sorte que vous devrez peut-être utiliser d'autres compensations de filtre que celle indiquée ci-dessus.

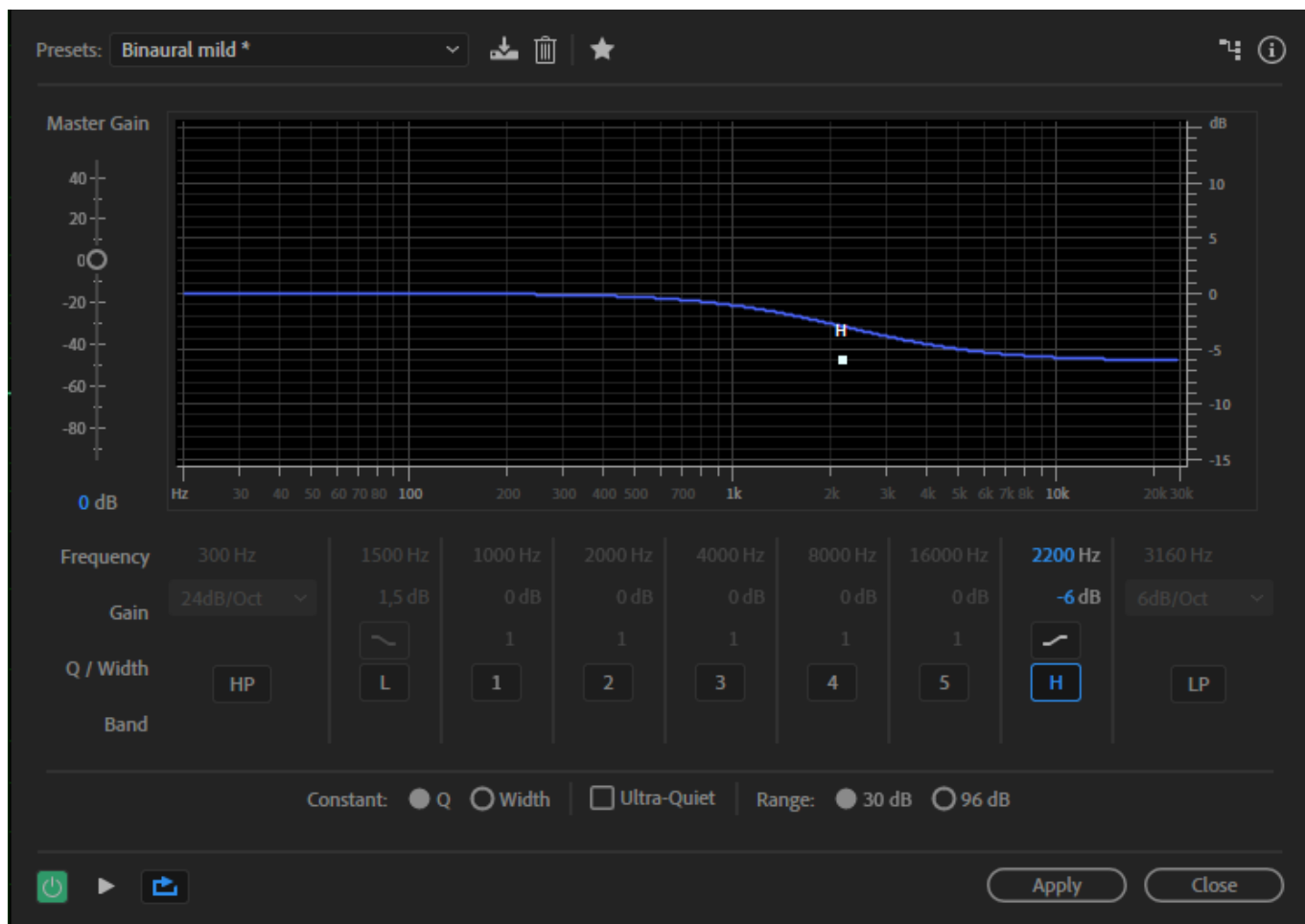
La courbe ci-dessous est enregistrée dans un espace très réverbérant donc le champ sonore est plutôt diffus. La source sonore est un bruit rose reproduit par un haut-parleur. Un microphone omnidirectionnel (DPA 4060) enregistre le son diffus en un point pendant une minute. Ensuite, le microphone omnidirectionnel est remplacé par une personne portant un DPA 4560 et le son est enregistré (sur deux canaux) pendant une minute. Une analyse FFT (taille FFT = 8K) est effectuée. Les spectres gauche et droit de l'enregistrement binaural du casque sont moyennés. Les données spectrales mesurées de l'omni sont ensuite soustraites des données spectrales moyennées de l'enregistrement binaural. La courbe montre plus ou moins l'effet de la tête (en termes de fréquence) lorsqu'elle se trouve dans un champ sonore diffus.

Mettre le casque sur une autre personne donnera un résultat légèrement différent.

Measurement in reverberant space



Si vous travaillez avec l'acquisition d'effets sonores, vous pouvez laisser le signal non égalisé jusqu'à ce que vous le mettiez dans le mixage, pour garder le signal aussi propre que possible aussi longtemps que possible. Ou vous pouvez appliquer une égalisation "moins agressive" comme la mise en rayon.



Il s'agit

d'une courbe de compensation "légère", une étagère de -6 dB à partir de 2,2 kHz.

Applications

Il existe de nombreuses applications où la technique binaurale peut offrir de nouvelles expériences sonores intéressantes. Voici quelques-uns:

Baladodiffusion

Parler ou interviewer tout en portant le casque binaural ajoute une toute nouvelle dimension à un podcast. L'auditeur découvrira le monde environnant du point de vue (acoustique) du podcasteur. Les discussions de groupe fourniront beaucoup plus de résolution spatiale et d'intelligibilité par rapport aux autres techniques.

Acquisition d'effets sonores

Les concepteurs sonores sont toujours à la recherche de sons passionnants. Dans les situations où l'acte d'enregistrement doit être discret (le microphone ne doit pas être vu), une solution de casque binaural peut être utilisée. Une fois enregistré, vous pouvez corriger le timbre pour répondre à l'objectif.

L'enregistrement binaural est ce qui se rapproche le plus de la réalité - expérimenter ce que les oreilles entendent réellement.

Enregistrement actif mains libres

Que diriez-vous d'enregistrer tout en dansant dans le défilé du carnaval brésilien ? Ou enregistrer la cascade de Gullfoss en Islande tout en ressentant la puissance de l'eau qui tombe tout autour de vous ? Ces types d'enregistrements orientés vers l'action sont faciles à réaliser avec un casque binaural. Il permet aux utilisateurs de capturer un son réaliste dans pratiquement toutes les situations et il le fait discrètement.

Analyser les paysages sonores

D'un point de vue scientifique, les paysages sonores des villes, des rues, des parcs, des terrains de jeux, des marchés, etc. font l'objet d'analyses. Dans un contexte environnemental, le paysage sonore nous aide à comprendre l'écologie acoustique d'un lieu. Nous pouvons commencer à comprendre comment les sons interagissent les uns avec les autres. L'application de techniques binaurales peut apporter une dimension émotionnelle à ces types d'analyse.

Son pour l'industrie du jeu

La plupart des joueurs portent des casques, ce qui en fait l'application idéale pour les enregistrements binauraux. Les enregistrements de scènes réelles réalisés de cette manière sont mélangés dans le mixage final, offrant une expérience audio très réaliste via un casque.

Son pour AR/VR

Le son pour la réalité virtuelle et la réalité augmentée est basé sur l'audio binaural. Le son est capté en utilisant votre tête pour le casque ou peut-être en plaçant le casque sur un mannequin ou une tête artificielle.

Pièces de théâtre, y compris la narration binaurale

Le théâtre moderne cherche à présenter des pièces à un public de plusieurs façons, impliquant parfois de nouvelles technologies stimulantes. De plus en plus d'écouteurs, d'appareils mobiles, de Bluetooth, de Wi-Fi, de capture de mouvement, de systèmes audio 3D, etc. se retrouvent dans le théâtre pour offrir des expériences augmentées.

En équipant les acteurs de casques binauraux et le public d'écouteurs, vous transportez l'expérience du public directement sur scène. De nouvelles dimensions sont ajoutées et cela peut devenir une expérience très intime.

Documentation des systèmes de sonorisation

Les concepteurs du son, les ingénieurs du son et les ingénieurs système peuvent bénéficier de la documentation des performances d'un système à l'aide d'enregistrements binauraux. En utilisant la musique de référence (ou bruit rose) sur votre système PA/SR, un utilisateur peut se déplacer d'une position à une autre, commentant la position et l'expérience tout en enregistrant toute la session.

Cela offre la possibilité d'évaluer les performances d'un système de sonorisation donné dans différents lieux.

Évaluation acoustique des salles de concert et de la musique live

Comme pour tester la conception sonore d'un lieu, les événements qui s'y déroulent peuvent être enregistrés de manière binaurale. Encore une fois, l'écoute de différentes positions dans une salle ou dans un stade peut fournir des échantillons sonores pour l'évaluation - et améliorer votre souvenir de l'événement.

Enregistrer un groupe

Les musiciens peuvent enregistrer le groupe pour avoir une idée très précise de l'ambiance de l'ensemble, de la façon dont vous jouez et de la façon dont vous vous positionnez dans le mix.

Expériences psycho-acoustiques

Dans la recherche psycho-acoustique, l'application des techniques binaurales est assez courante. Les enregistrements binauraux peuvent fournir beaucoup plus de détails que les autres techniques.

Exposition sonore des écouteurs

Les comparaisons d'écouteurs (sur l'oreille) peuvent être effectuées en utilisant les microphones binauraux sous les coussinets des écouteurs.

Micro-casque binaural 4560 CORE de DPA

Le microphone casque binaural 4560 CORE est, dans son essence, une paire sélectionnée de microphones omnidirectionnels miniatures 4060 CORE qui sont montés sur deux crochets d'oreille (comme le montre le type de casque 4266 Flex). Les microphones sont une paire stéréo ; deux 4060 triés sur le volet, sélectionnés sur une sensibilité de $\pm 1,5$ dB. Le casque est conçu de manière ergonomique pour s'adapter confortablement et facilement. Il s'adapte à toutes les tailles d'oreilles et à toutes les formes de tête tout en se fixant solidement et à peine visible. Des bonnettes anti-vent en mousse sont fournies avec les microphones pour sécuriser la position dans l'oreille et pour offrir un certain amortissement du bruit du vent.

À certaines fins (plus scientifiques), il est courant de calibrer les microphones appliqués dans le casque binaural. La procédure la plus simple consiste à utiliser un calibreur acoustique qui produit une fréquence et un SPL connus, généralement 1000 Hz/94 dB SPL. Ou utilisez un pistonphone (typiquement 250 Hz/114 dB SPL).

Un insert spécial qui s'adapte à tous les calibreurs avec une ouverture de 1" est disponible auprès de DPA : inserts de calibreur DWA1011 pour 4060s (qui est le type de microphone utilisé pour le microphone casque binaural 4560 CORE).

Si vous n'avez pas de calibreur, il est possible d'organiser les microphones proches les uns des autres devant un haut-parleur et utiliser le bruit à bande étroite pour calibrer les microphones.

Enregistrements haute résolution avec interface audio numérique MMA-A

DPA propose un outil spécial pour vos enregistrements binauraux, l'interface audio numérique MMA-A. Connectez le 4560 via les connecteurs MicroDot du MMA-A. (Si le microphone marqué en blanc est à votre oreille gauche, connectez le connecteur à manchon blanc à "L" qui est le canal gauche d'un signal stéréo).

Connectez ensuite l'interface à un iPhone. Dans l'App Store, téléchargez l'application "DPA MMA-A". Une fois installé, dans la section MODE, choisissez STEREO. Si vous enregistrez à l'extérieur, vous pouvez activer le FILTRE coupe-bas (en appuyant sur un, les deux canaux sont activés en mode STEREO).



Utilisez votre logiciel d'enregistrement stéréo préféré sur l'iPhone. Le MMA-A prend en charge l'enregistrement jusqu'à 24 bits/96 kHz. Vous préférez peut-être utiliser un périphérique d'enregistrement USB, comme votre ordinateur portable. Le

MMA-A prend également en charge cette solution.

Les références

[1] Moller, Henrik; Friis Sørensen, Michael ; Hammershøi, Dorte ; Jensen, Clemen Boje : Fonctions de transfert liées à la tête des sujets humains. *J. Audio Eng. Soc.*, vol 43, n° 5, mai 1995.

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