



How does my microphone sound like? ... and why?

Helmut Wittek

- The gender question (German)...

Mitreden – der Kirchentag als Diskussionsplattform
Die Teilnehmenden des Kirchentages sind eingeladen, mitzureden, und ihre Meinung deutlich zu machen: über Anwältinnen und Anwälte des Publikums und über Saalmikrofoninnen und -mikrofone, durch lebendige Abstimmungen, bei Planspielen, in Workshops, in World-Cafés, bei Facebook, Twitter und Co. Auch Resolutions können beim Kirchentag beschlossen werden, die Verfahrensregeln dazu finden



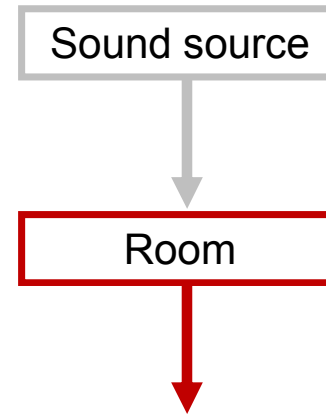
- What makes the sound of the recording:



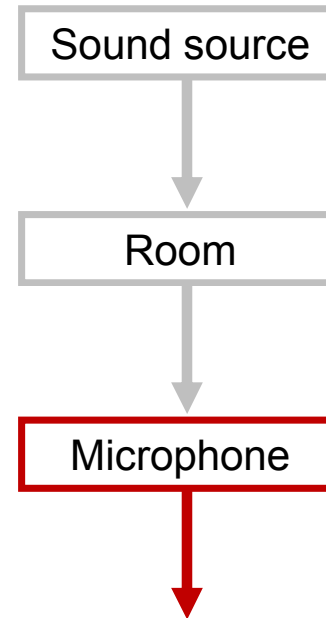
Sound source



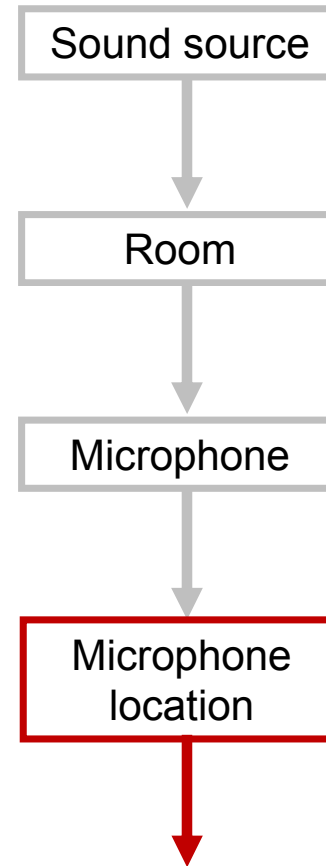
- What makes the sound of the recording:



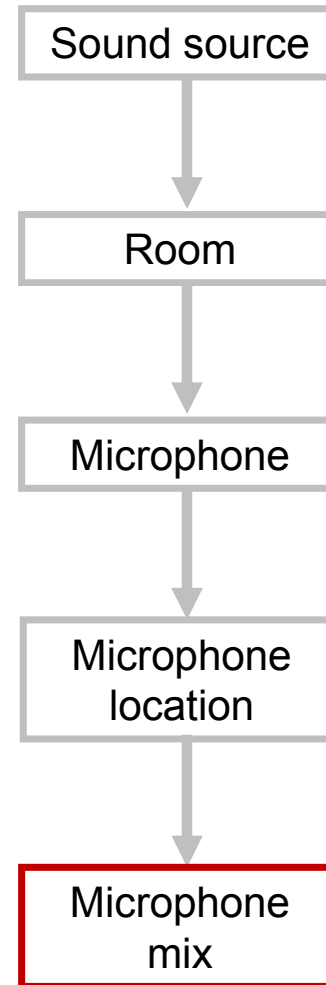
- What makes the sound of the recording:



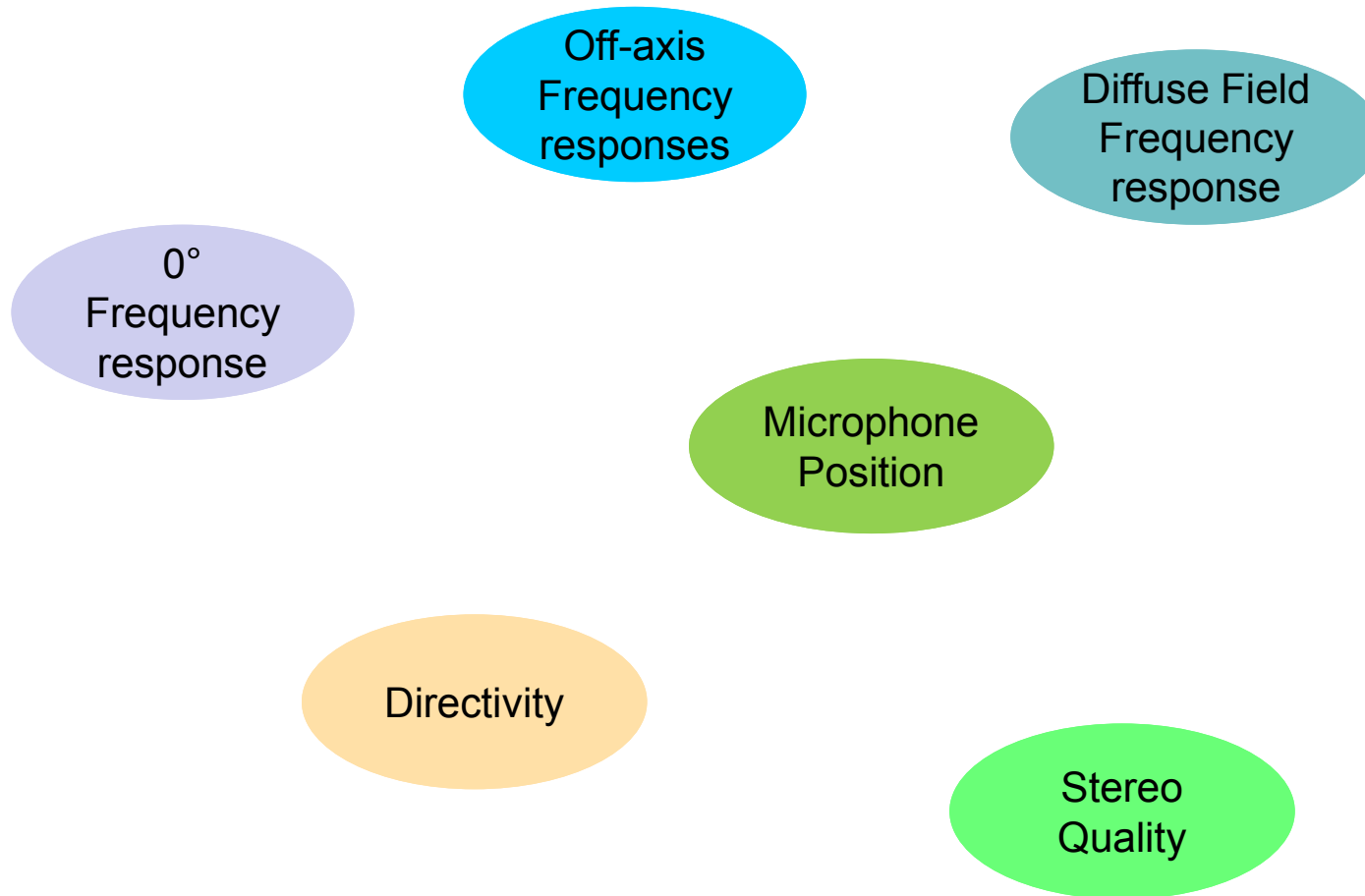
- What makes the sound of the recording:



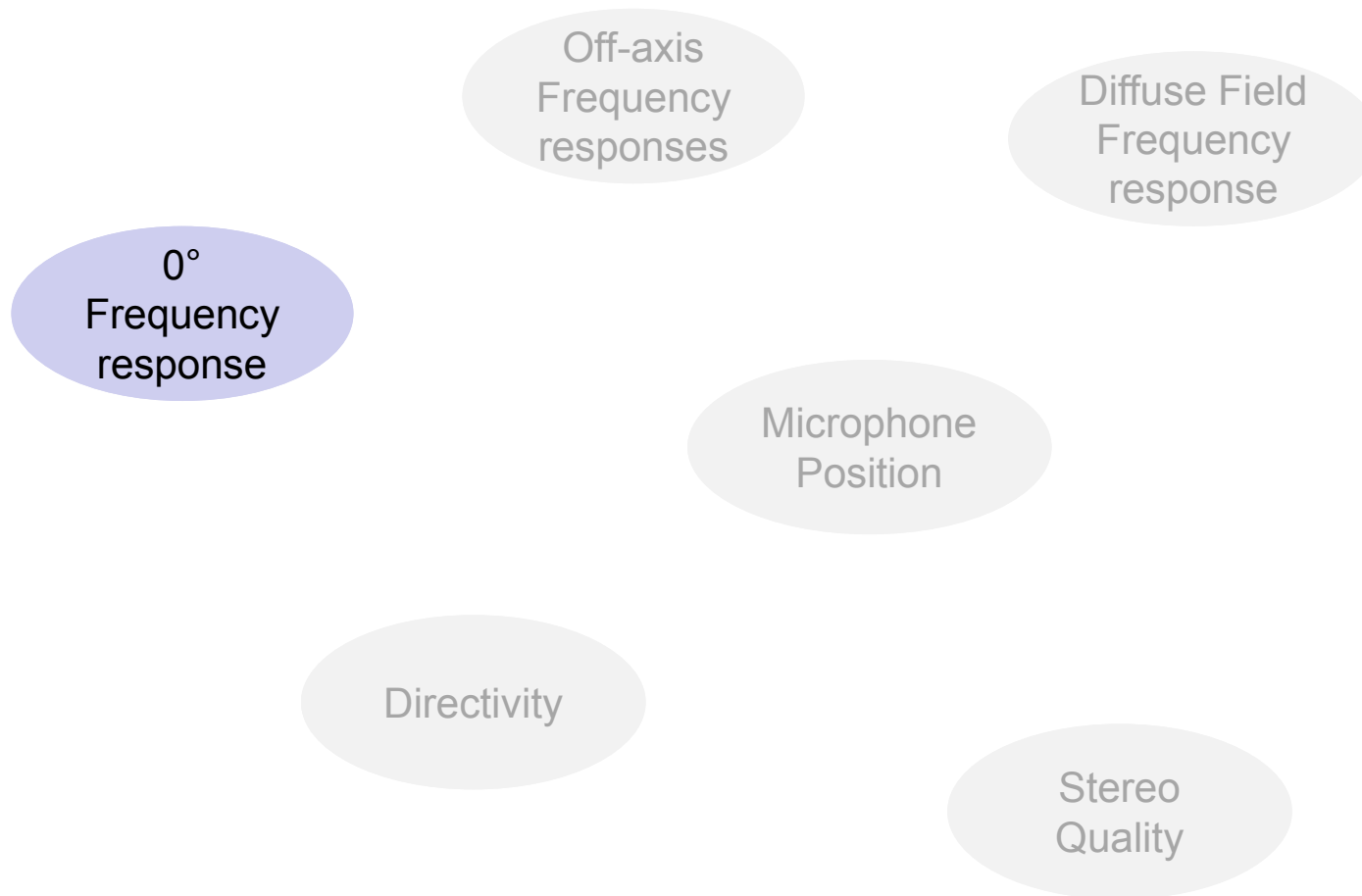
- What makes the sound of the recording:



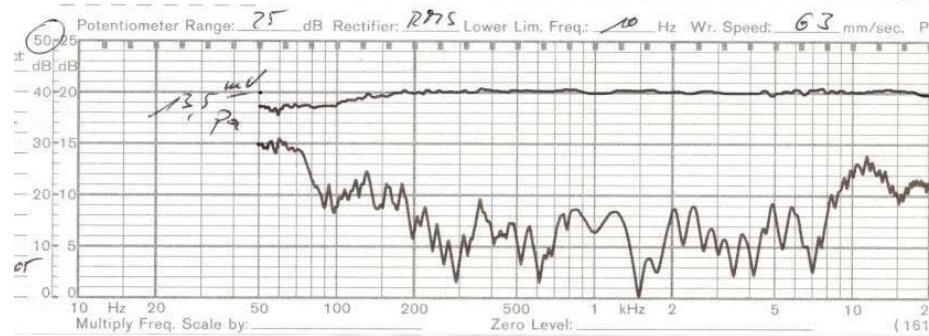
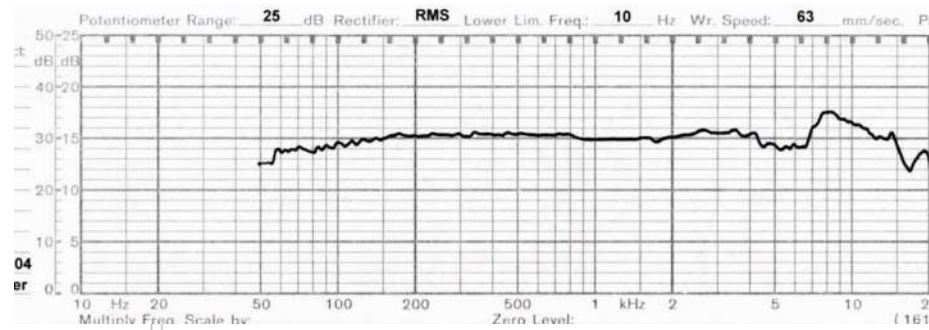
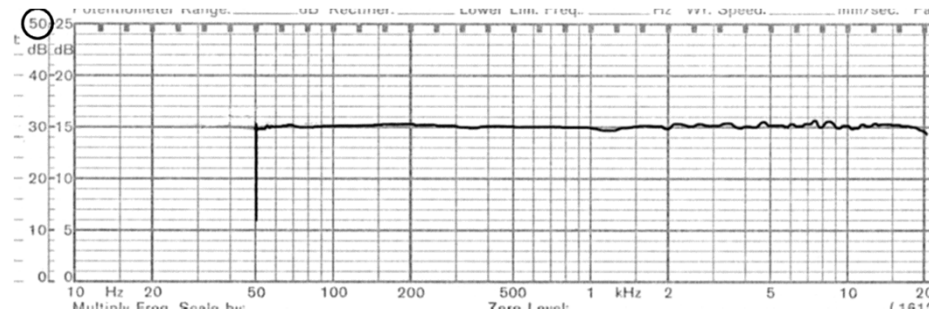
- Technical aspects for the „sound“ of a microphone



- Technical aspects for the „sound“ of a microphone



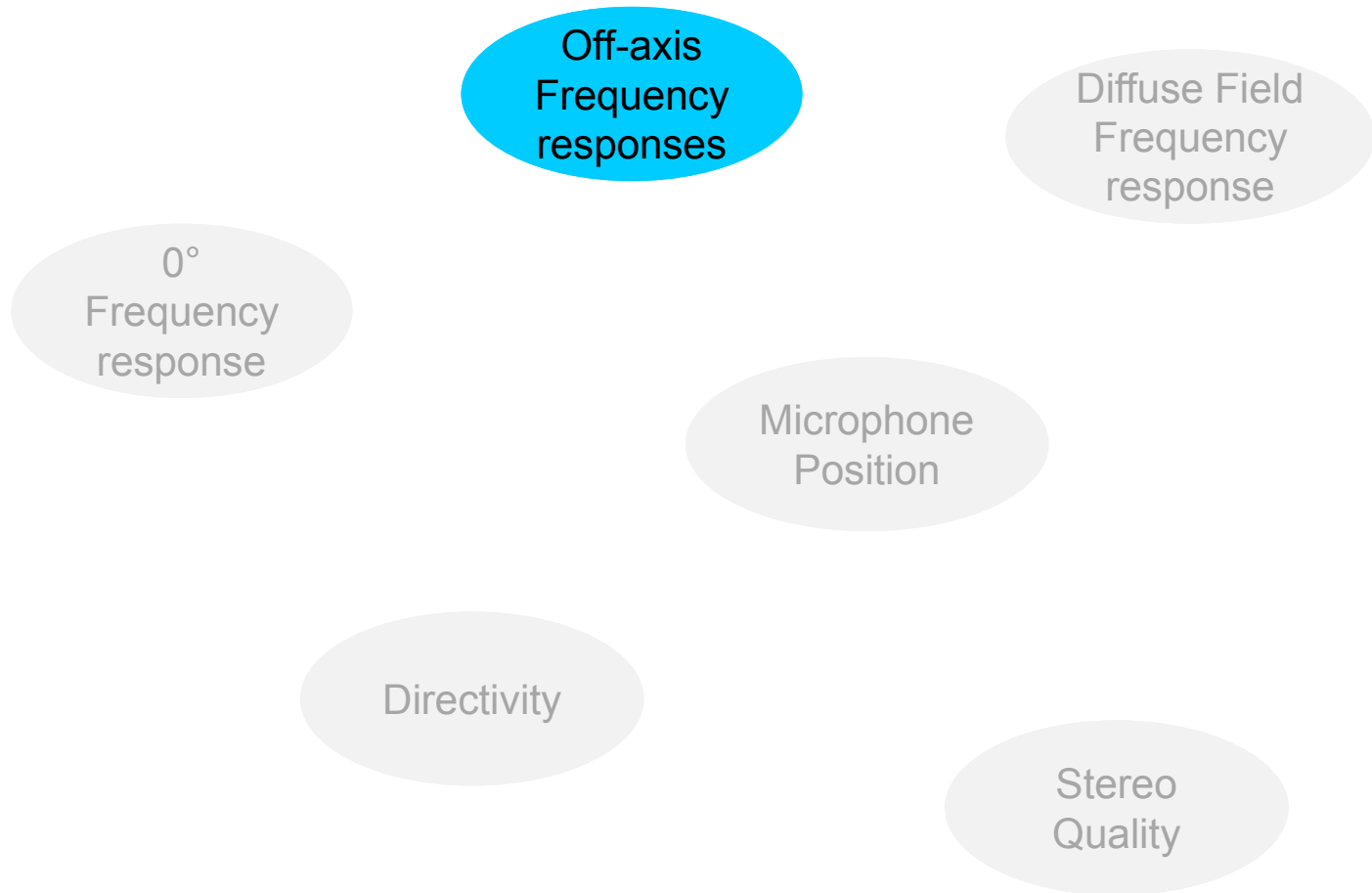
- 0° Frequency response:

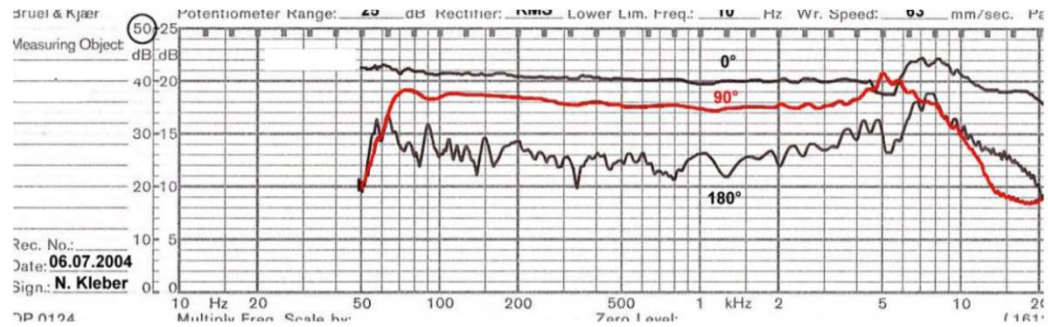


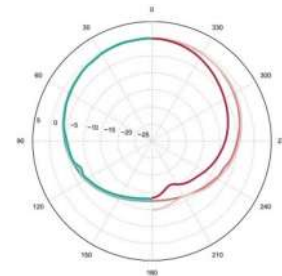
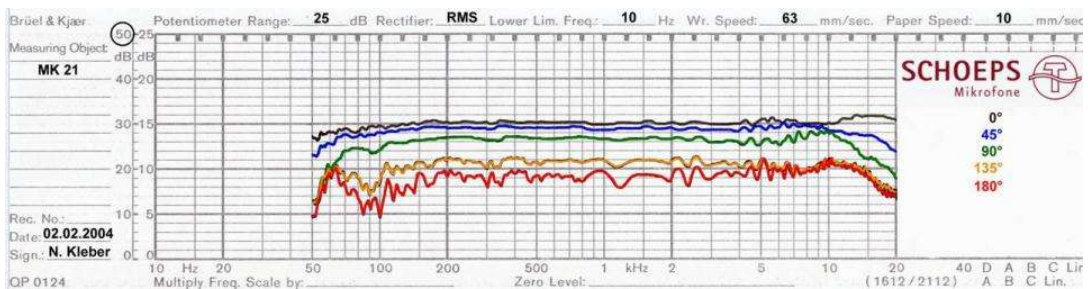
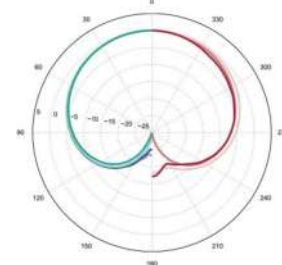
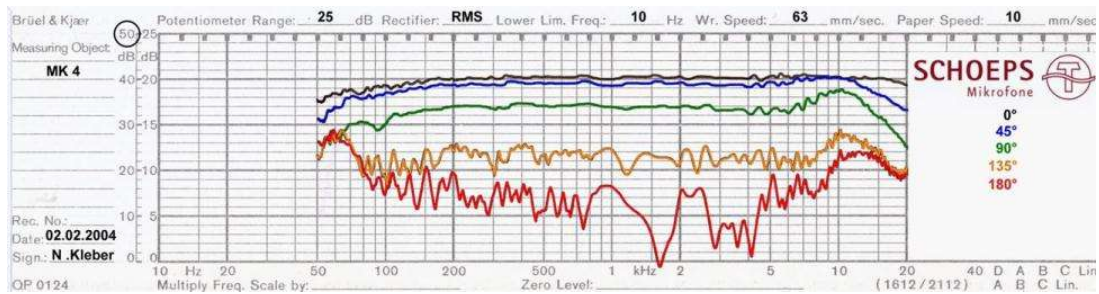
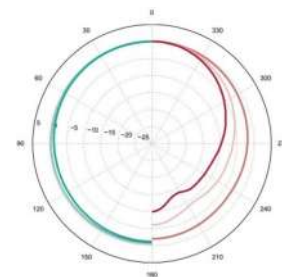
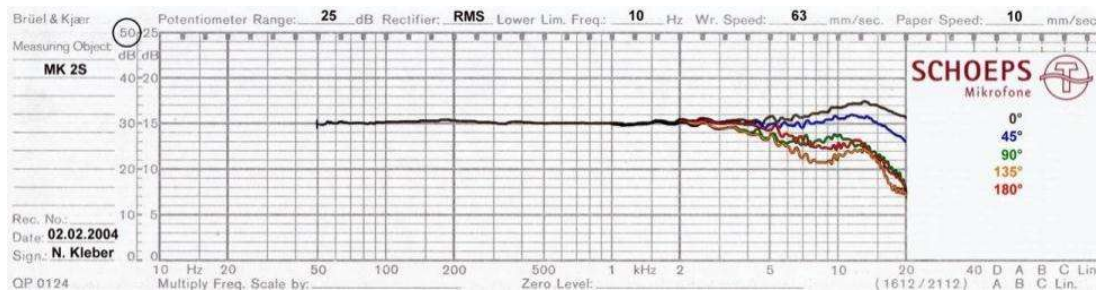
- www.hauptmikrofon.de/audio/micandroom.html



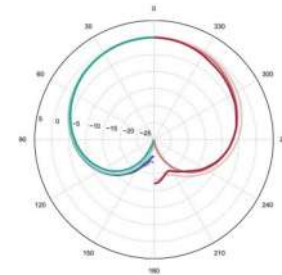
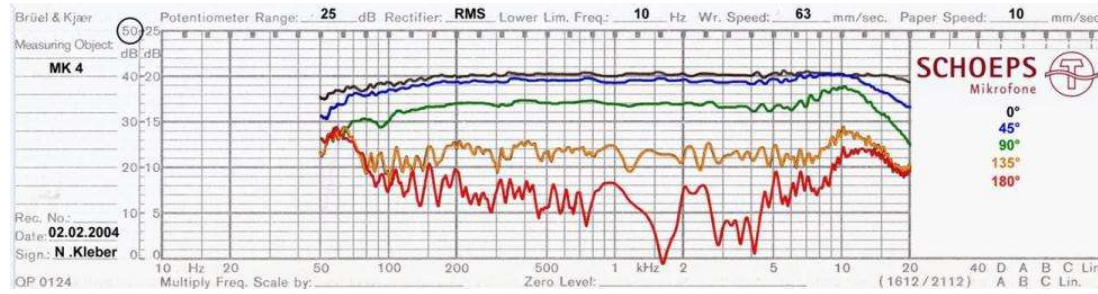
- Technical aspects for the „sound“ of a microphone





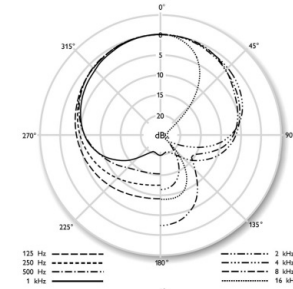
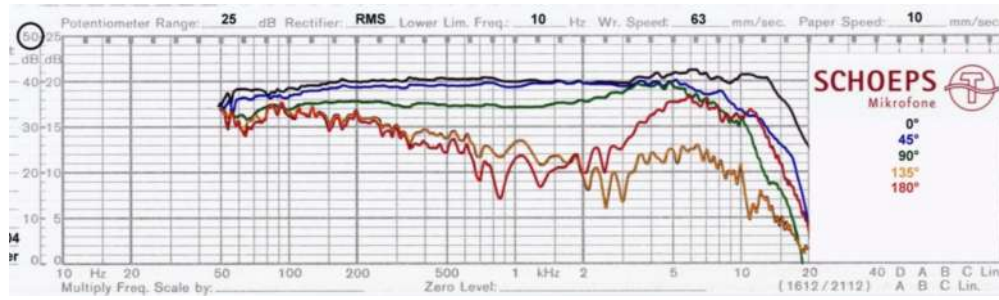


- Comparison Large \leftrightarrow Small Membrane

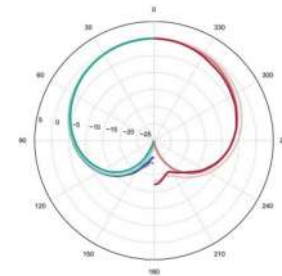
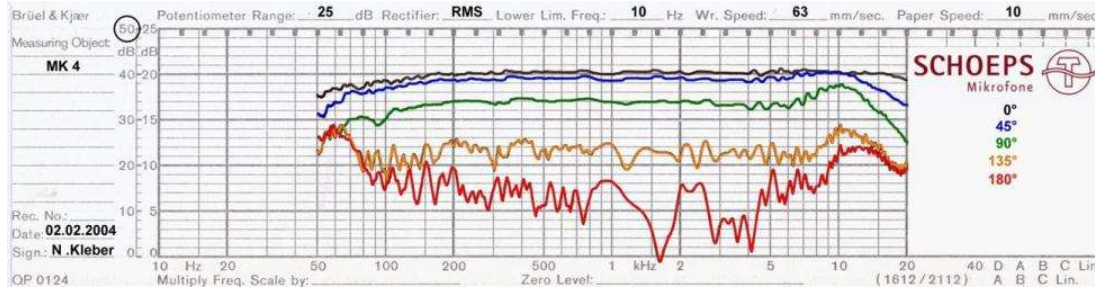


- Comparison Large ↔ Small Membrane

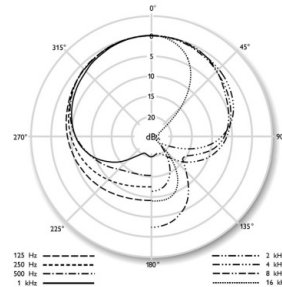
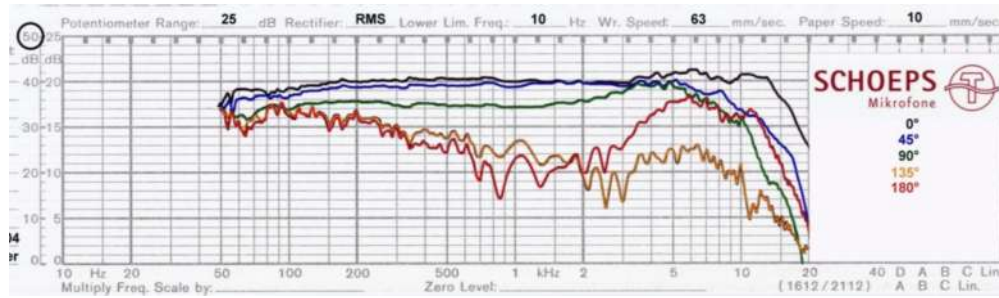
Large Membrane Microphone



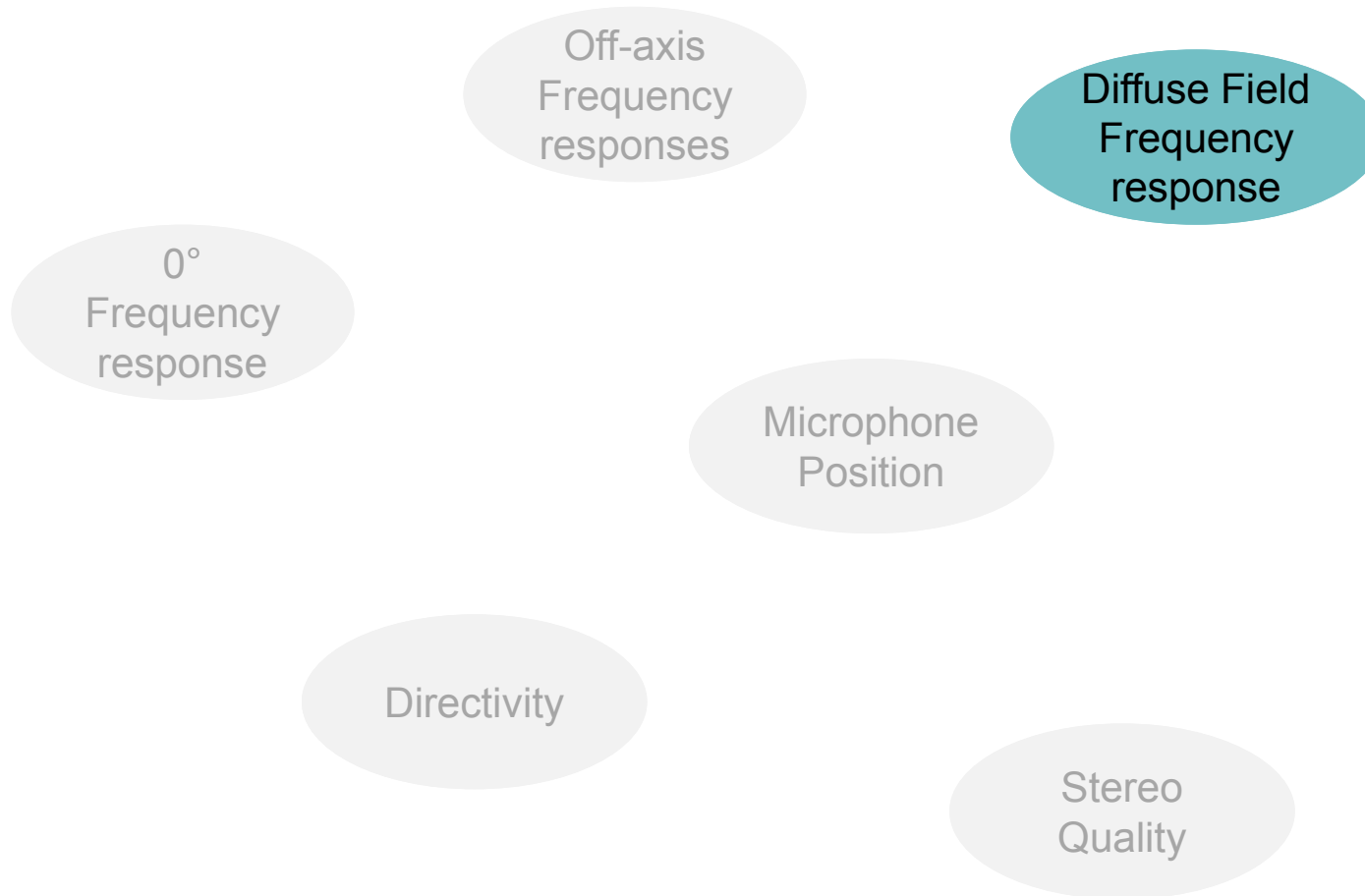
- Comparison Large ↔ Small Membrane



Large Membrane Microphone



- Technical aspects for the „sound“ of a microphone



- Diffuse Field



- Omni



- Wide Cardioid



- Cardioid



- Supercardioid



- Figure-8



- Shotgun



- „Super“-shotgun



- (Half) Supercardioid on boundary layer

Demo: ORF
Richtmikrofone



- Diffuse field-frequency response

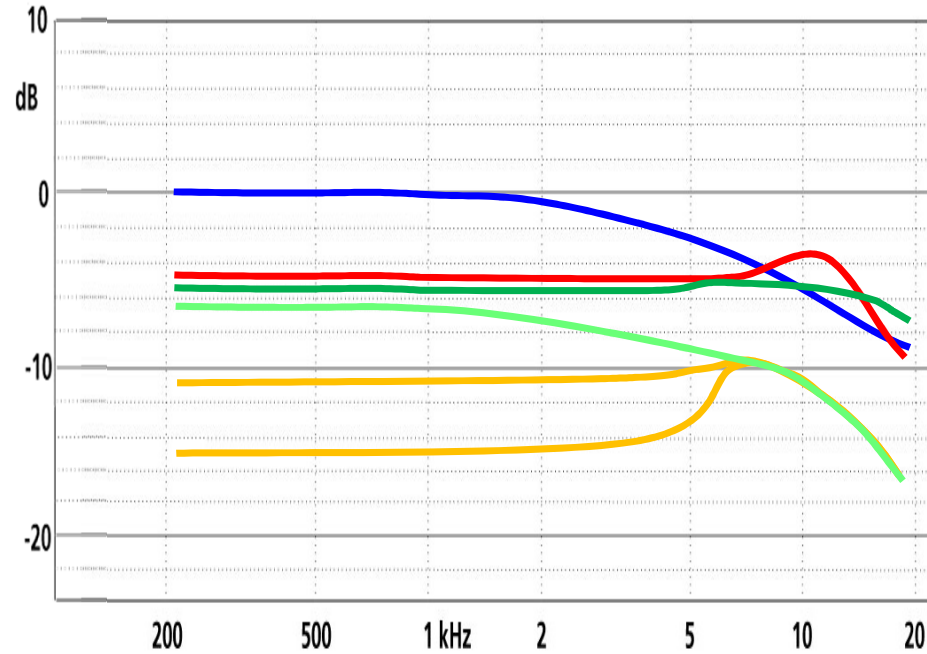
Omni MK 2

Cardioid MK 4

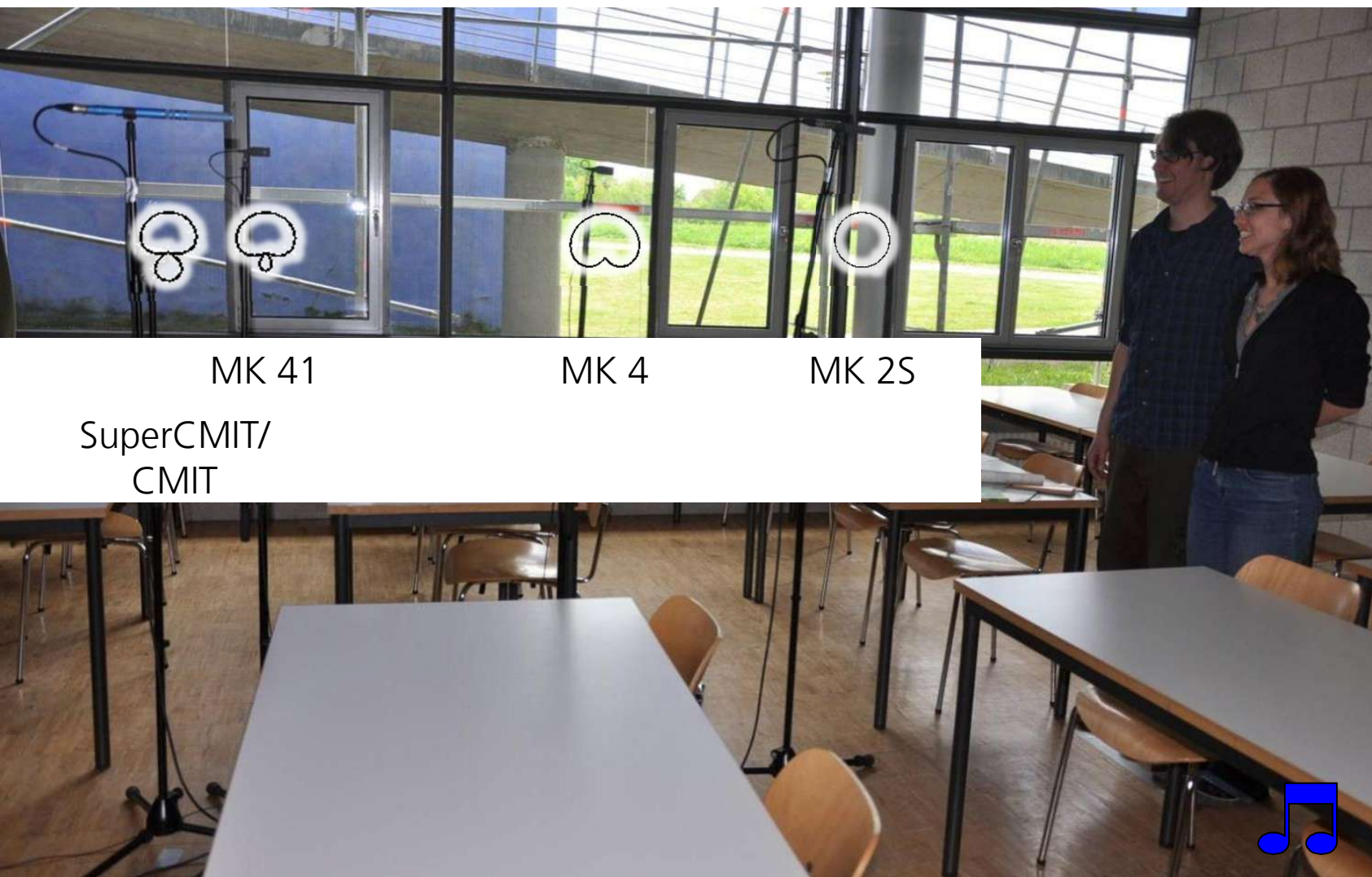
Supercardioid MK 41

Shotgun CMIT 5

Shotgun 2nd order
SuperCMIT



- Same ratio of direct and diffuse field:



MK 41

MK 4

MK 2S

SuperCMIT/
CMIT



SCHOEPS
Mikrofone



- Distance factor

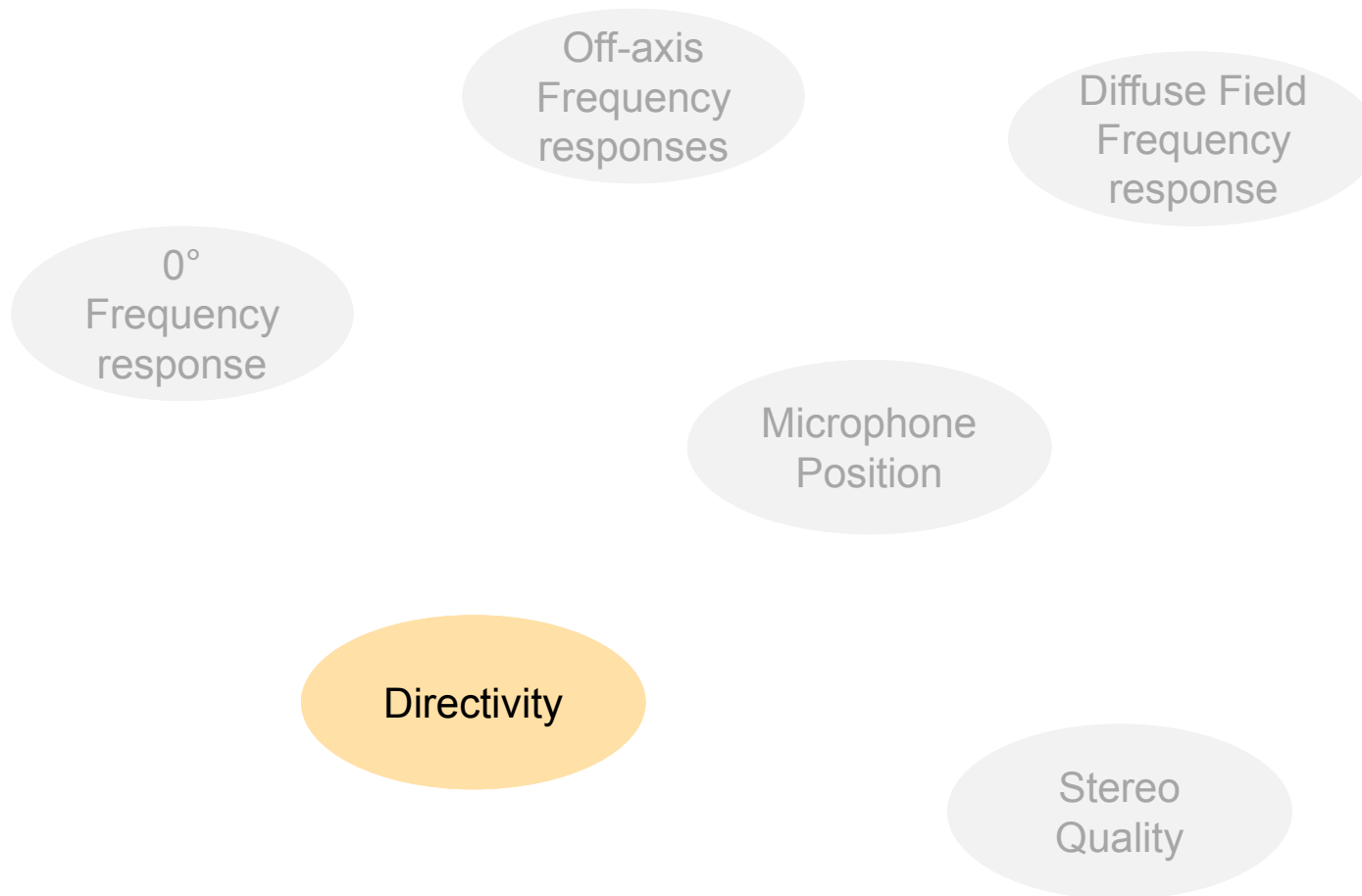


- www.hauptmikrofon.de/audio/micandroom.html



SCHOEPS
Mikrofone 

- Technical aspects for the „sound“ of a microphone





- Omni



- Wide Cardioid



- Cardioid



- Supercardioid



- Figure-8



- Shotgun



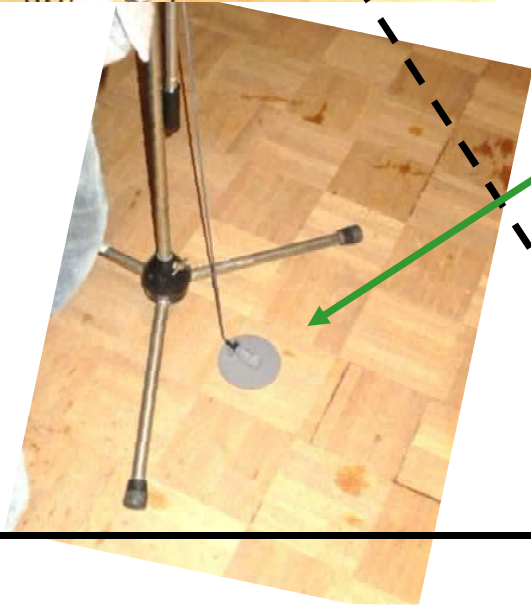
- „Super“-shotgun



- (Half) Supercardioid on boundary layer

Demo: ORF
Richtmikrofone



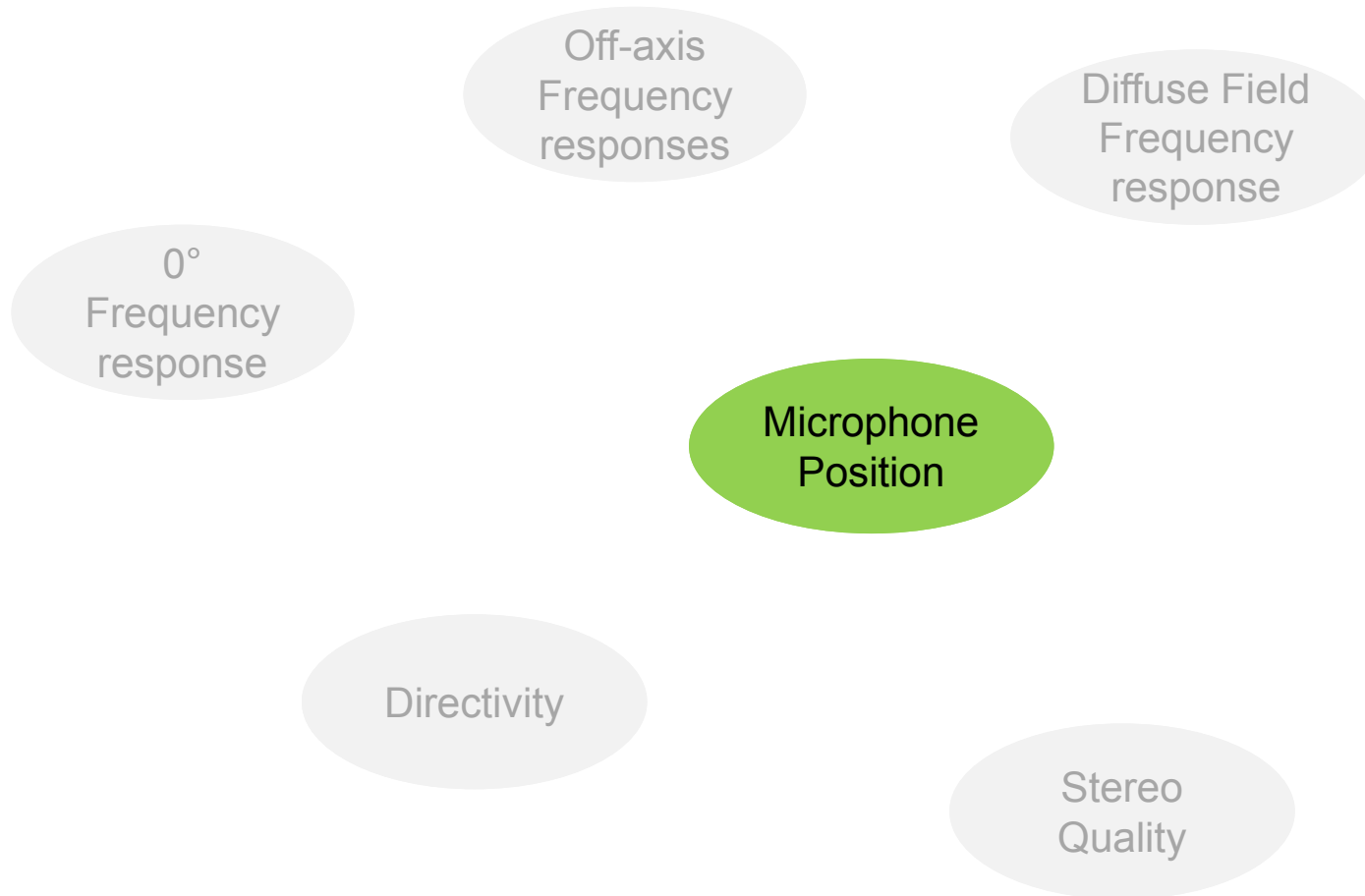


Demo: ORF
Richtmikrofone

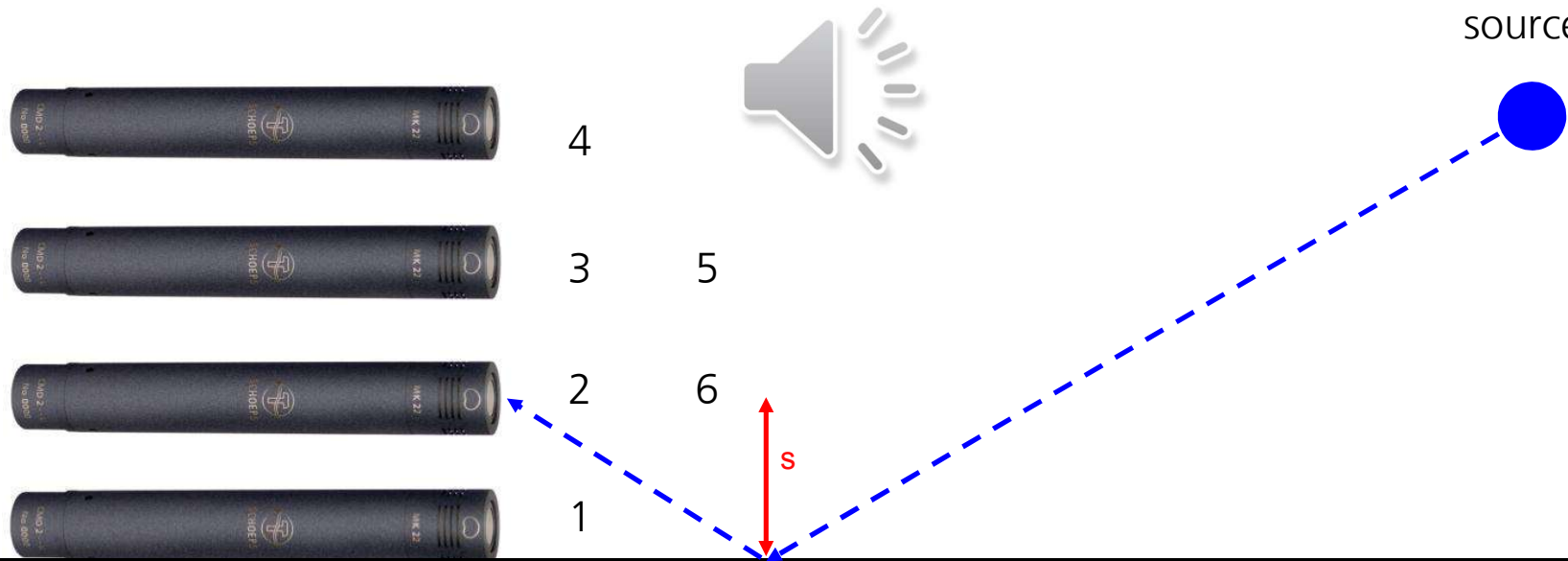
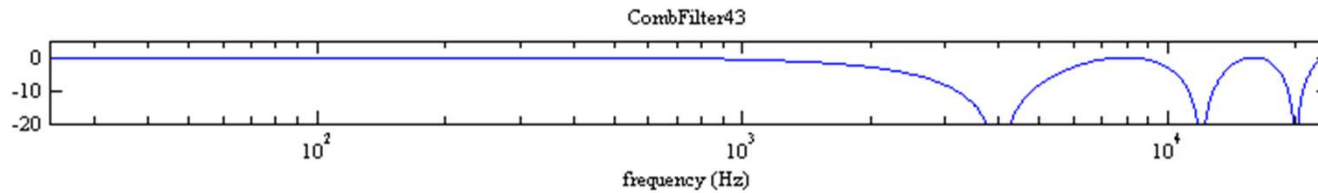


SCHOEPS
Mikrofone 

- Technical aspects for the „sound“ of a microphone



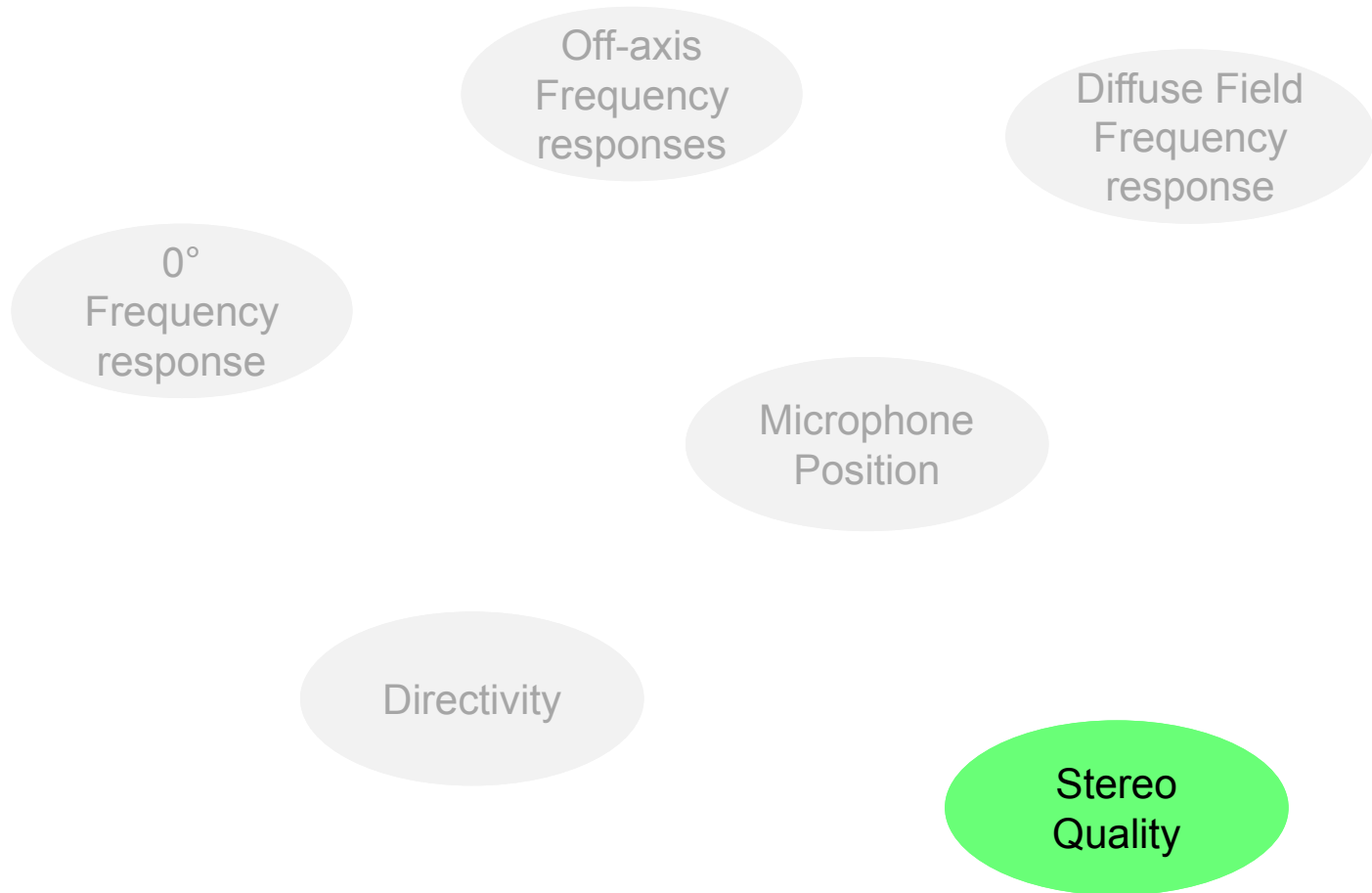
- Comb filtering, boundary layer:



- 1: ... U54
- 2: ... abgesprochen werden
- 3: ... vorgenommen werden
- 4: ... sein muss.
- 5: ... zulässig.
- 6: ... entnommen werden.

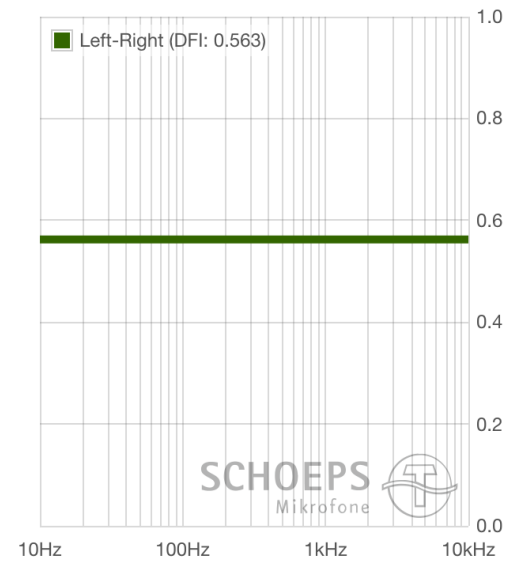
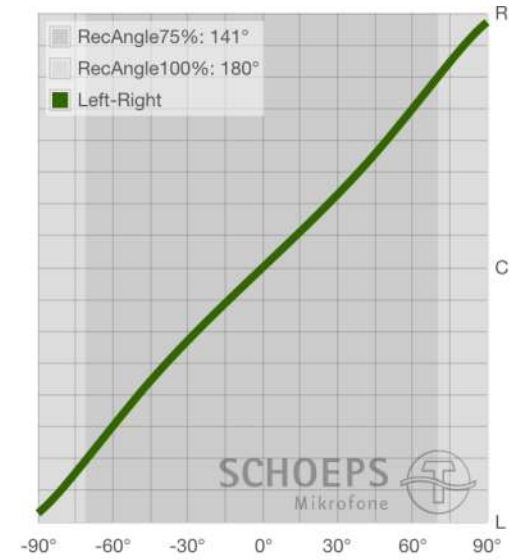


- Technical aspects for the „sound“ of a microphone



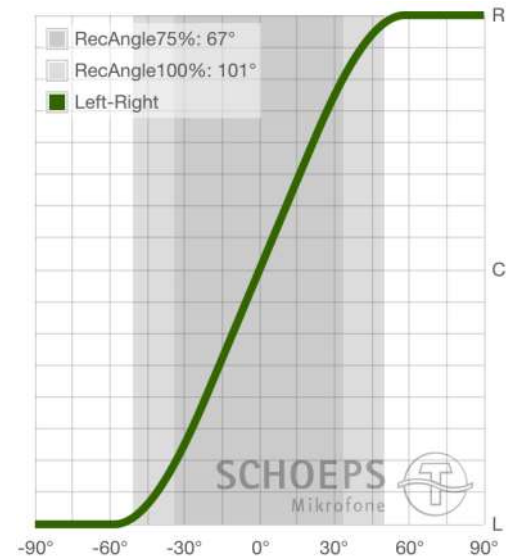
XY

- compact
- “Classical” Cardioid-XY has a small stereo width and a large DFC → it can sound boring
- Can sound much better with supercardioids



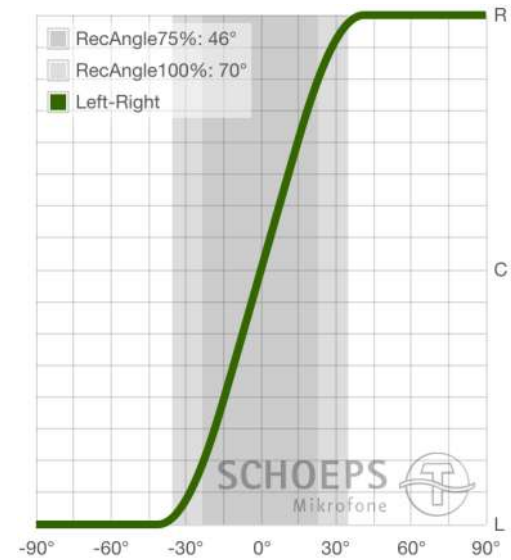
ORTF

- relatively compact
- very good imaging
- open and nice room sound



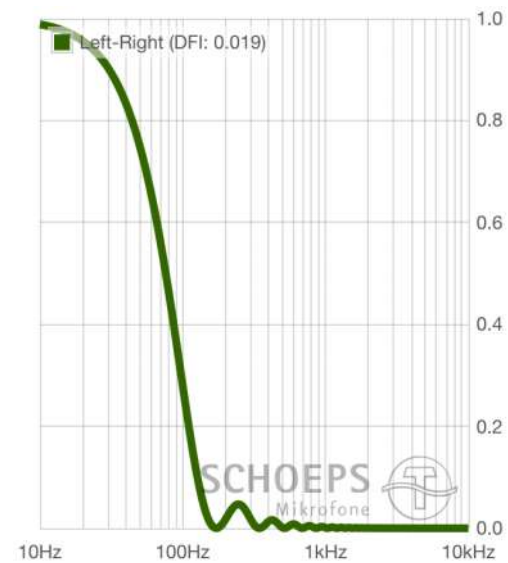
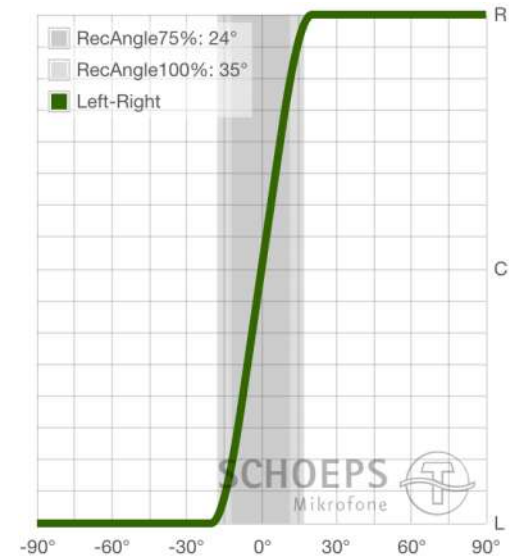
Quasi-ORTF

- Flexible recording angle
- good imaging
- open room sound



A/B

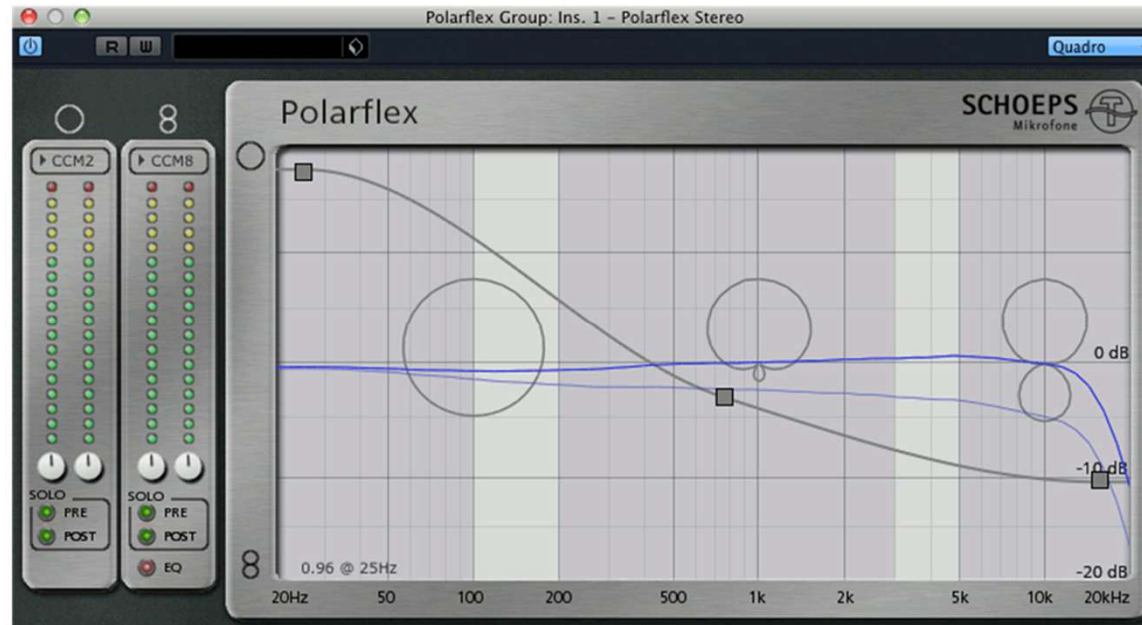
- Not compact, $d \geq 40$ cm
- Often preferred sound colour
- Open room sound
- Average imaging quality



- Variable Diffuse field

e.g. Polarflex technique

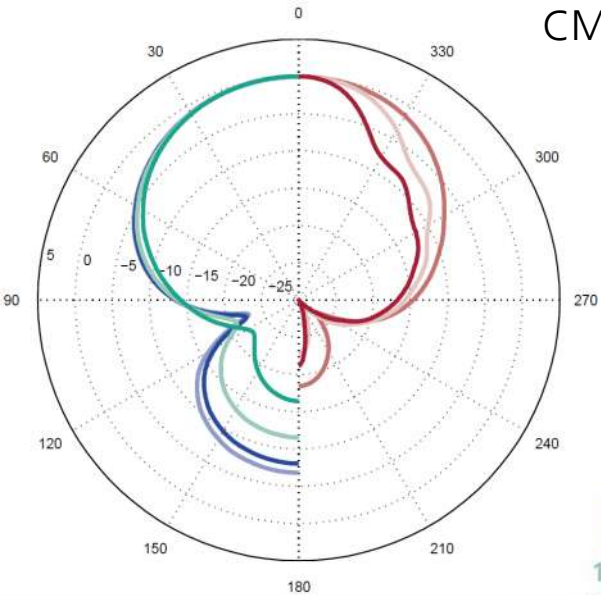
- Mix Omni and Fig-8 in three frequency bands
- Variation of the diffuse field response



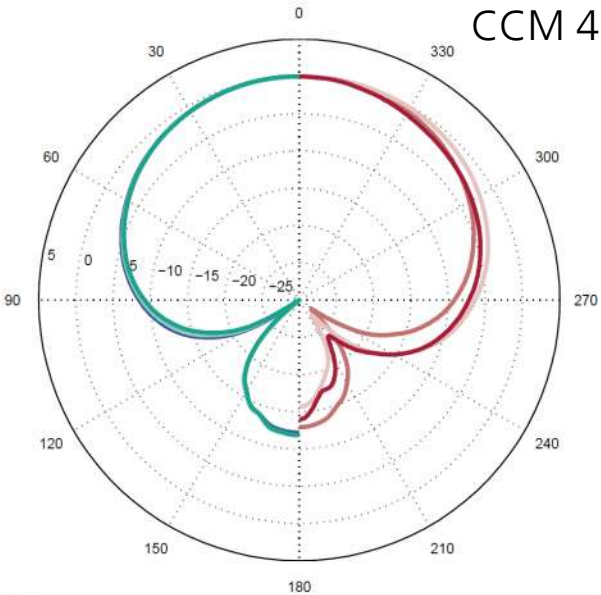
Shotgun or supercardioid?



Shotgun or supercardioid?



CMT 5



CCM 41

250
500
1000
2000 Hz
4
8
16 kHz



- Microphone Showroom: www.schoeps.de/showroom

Schoeps Microphone Showroom

SCHOEPS
Microphone Showroom

now playing: Ensemble (AB)

Equipment used:

- Stagetec Nexus preamps and converters
- Magix Sequoia 9
- No equalization, reverb or compression

INTERACTION
INFORMATION

English
Deutsch
Français



- Psychological aspects for the „sound“ of a microphone



Kriterium „klingt voller“

Rang	Farbe
1.	Braun
2.	Grau
	Blau
4.	Schwarz
	Weiß
6.	Rot
	Grün



Ref: „Einfluss der Mikrofonfarbe auf die klangliche Beurteilung“, HdM 2009, Kim Kristin Schucker



hauptmikrofon.de

forum on sound engineering

3D-Audio

New multichannel sound formats extending 5.1 with height channels are adding the third dimension to recordings. They provide a much wider range of spatial sound effects and allow more realism of spatial reproduction in terms of direct sound, early and late reflections, reverberation and ambience sound.

Image Assistant

- Image Assistant 2.1

Main

- News
- Helmut Wittek
 - Publications
- Günther Theile
 - Publications

Stereo and Surround

- Sample Player
- Berlin Ambience Techniques
- ORF Surround techniques
 - Download DVD image
 - Listening test results

3D-Audio

- 3D Audio
 - Paper (English, 2013)
 - 3D-Audio Powerpoint

Resources

- AES-42 White Paper
- VDT-Seminar "Atmoaufnahme" (German)
- The Binaural Sky
- WFS (IRT literature)

Microphone and Room (Sound Demo)

Written by Administrator

How is the "sound" of a microphone created?

We know that every microphone has its distinct signature, depending on its responses in the free and the diffuse field and some other properties like nonlinearities and the proximity effect.



An analysis of this signature is allowed by the following recordings. We have recorded a male speaker with 8 microphones in 6 different rooms, simultaneously! This was done by repeating the recording in each room very similarly.

Now, you have the chance not only to switch between the microphones in one room, but also to switch between rooms using the same signal and microphone. The parameter "room" has been isolated! Note which influence the room has and how the different microphones translate the room.

Last Updated on Thursday, 07 May 2015 08:16

[Read more...](#)

Tutorial Stereo, 5.1, 3D-Audio

Written by Administrator

The slides of my tutorial "Main Microphone techniques for Stereo, 5.1 and 3D-Audio" are available for download.

Die slides zum Vortrag zum Tutorial "Main Microphone techniques for Stereo, 5.1 and 3D-Audio" sind nun zum Download verfügbar.

Last Updated on Tuesday, 12 May 2015 07:55

[Read more...](#)

Berlin Ambience techniques

Written by Administrator

Berlin Ambience techniques, July 2012

At the occasion of the VDT seminar "Ambience recording" in Berlin (July 2012) a collection of 5 simultaneous recordings with 6 different surround ambience microphone setups was produced. These test samples enable a direct comparison between the different setups (and recording principles) and therefore a very precise assessment of the properties of the recording techniques in different recording locations.

Furthermore, the test samples enable a blindfolded listening test, as any loudness differences between the setups were equalized. For a repetition of the listening test, the detailed test and recording description, the

3D-Audio

Written by Administrator

New multichannel sound formats extending 5.1 with height channels are

