„Berlin Ambience techniques“

Description of the 6 Surround ambience microphone setups, the 5 recording locations and the compilation of the audio samples for the listening test

Helmut Wittek, September 2012

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These recordings and listening test preparations were originally compiled for a German VDT-seminar in Berlin in July 2012 named „Ambience in Sports, Film, Live and Music - How do I get it?“

(German: Atmo in Sport, Film, Live und Musik - wie bringe ich's rüber?)

Berlin Ambience techniques

ambience.hauptmikrofon.de

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Berlin Ambience techniques

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

Image Assistant

- Image Assistant 2.1

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Topics

- AES-42 White Paper

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- Berlin ambience techniques
- VDT-Seminar "Atmoaufnahme" (German)
- ORF Surround techniques
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  - Listening test results
- Auro3D
  - Paper (English version, Dec.2011)
  - Paper (German version, Mai 2011)
  - PPT: Microphone techniques for 3D-Audio (ICSA 2011)

Ressources

- The Binaural Sky
- WFS (IRT literature)
- Master theses IRT 2000-2004

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 listening test questionnaire and the audio samples are available for download.

Downloads:

- Detailed Description of Recording setups, venues and listening test (pdf, 3.4 MB)
- Listening test questionnaire
- Audio-Samples (713 MB)

Listening Test in Berlin 2012

- Microphone setup 1: "Omnis
- Microphone setup 2: "Wide
- Microphone setup 3: "IRT-cr
- Microphone setup 4: "ORTF
- Microphone setup 5: "Doubl
- Microphone setup 6: "CMIT

5 ambience recordings:

– Ambience Nr.1: Street square with tramway
– Ambience Nr.2: Supermarket
– Ambience Nr.3: Workshop with machines

www.ambience.hauptmikrofon.de

website with all
downloads and documents

Recording setups and locations

- Recordings with 6 different setups:
  - Omni-Setup
  - Setup with wide cardioids
  - IRT Cross
  - ORTF Surround
  - Double-M/S
  - Double-M/S with shotgun

- Ambience recordings at 5 different locations:
  - Nr.1: Street square with tramway
  - Nr.2: Supermarket
  - Nr.3: Workshop with machines
  - Nr.4: Applause in a room
  - Nr.5: People speaking in a room

Recording locations

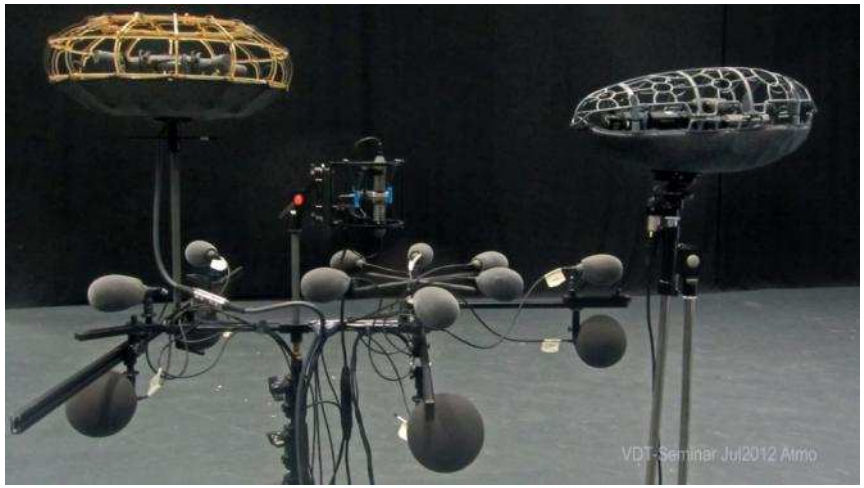
Nr.1: Street square with tramway

Nr.2: Supermarket

Recording locations

Nr.3: Workshop with machines

Recording locations

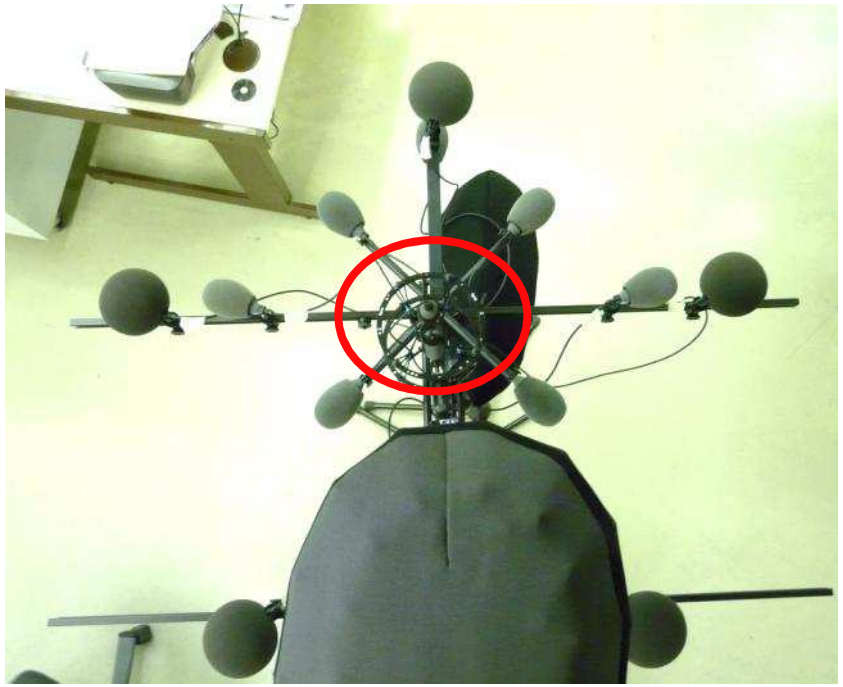


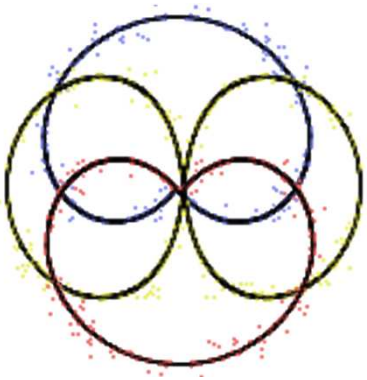
All microphone setups at one place

Nr.4: Applause and people speaking in a room

Ambience microphone setups

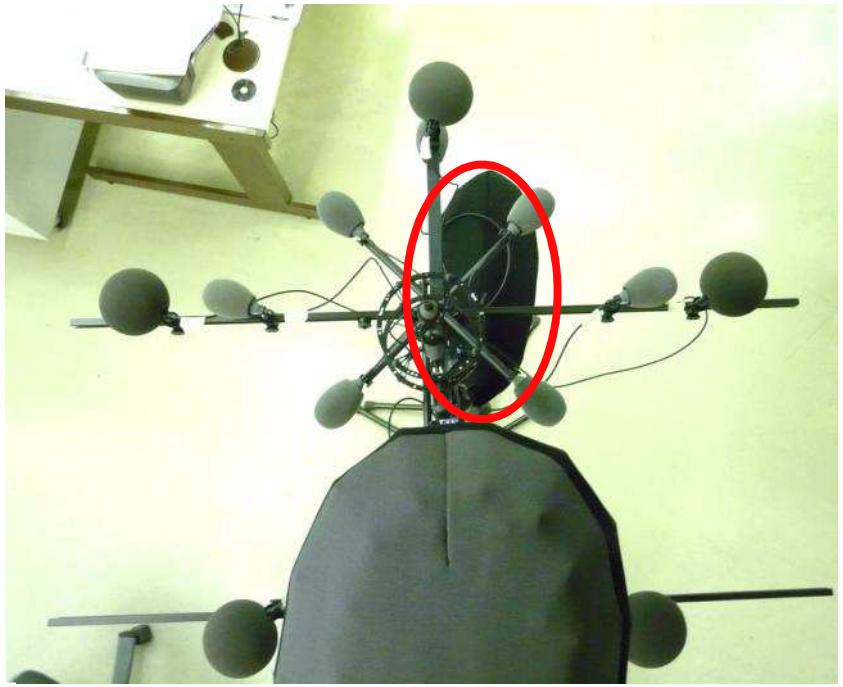
- Double-M/S:
  - 2 * Cardioid SCHOEPS CCM 4V for mid front and mid rear
  - Fig-8: SCHOEPS CCM 8
  - Decoding with the plug-in „SCHOEPS Double MS Tool“ using preset „4ch“ = 4 * supercardioid → this leads to minimal crosstalk and minimal correlation

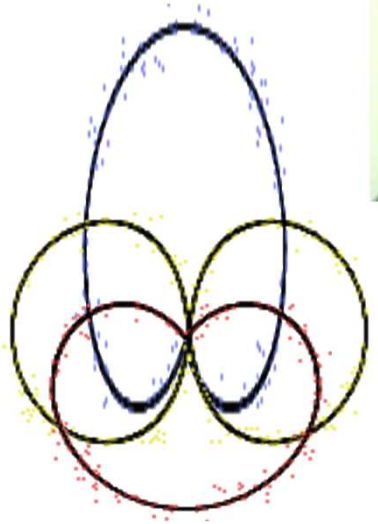




Ambience microphone setups

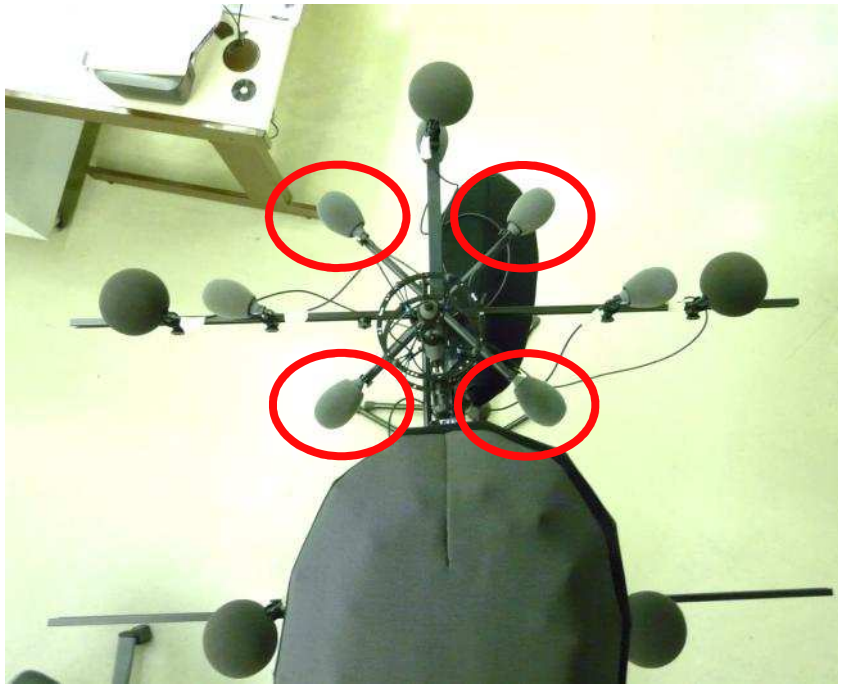
- CMIT Double-M/S:
  - Shotgun SCHOEPS CMIT 5 U for Center and Mid front
  - Cardioid SCHOEPS CCM 4 for Mid rear
  - Fig-8: SCHOEPS CCM 8
  - Routing: Shotgun to C,
    M/S decoding with two M/S-Matrices:
    Shotgun/Fig-8 → L/R
    Cardioid/Fig-8 → Ls/Rs

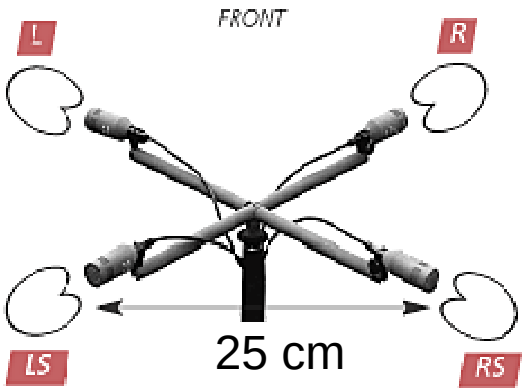




Ambience microphone setups

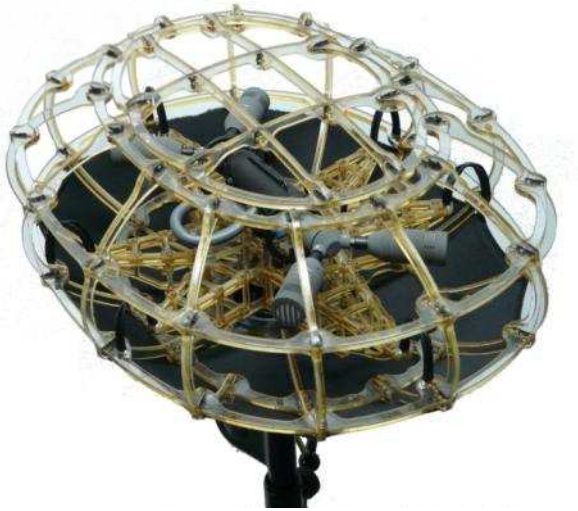
- IRT Cross:
  - 4 * Cardioid SCHOEPS MK 4 or CCM 4
  - Spacing: 25 cm
  - Discrete routing to L/R/Ls/Rs, no C

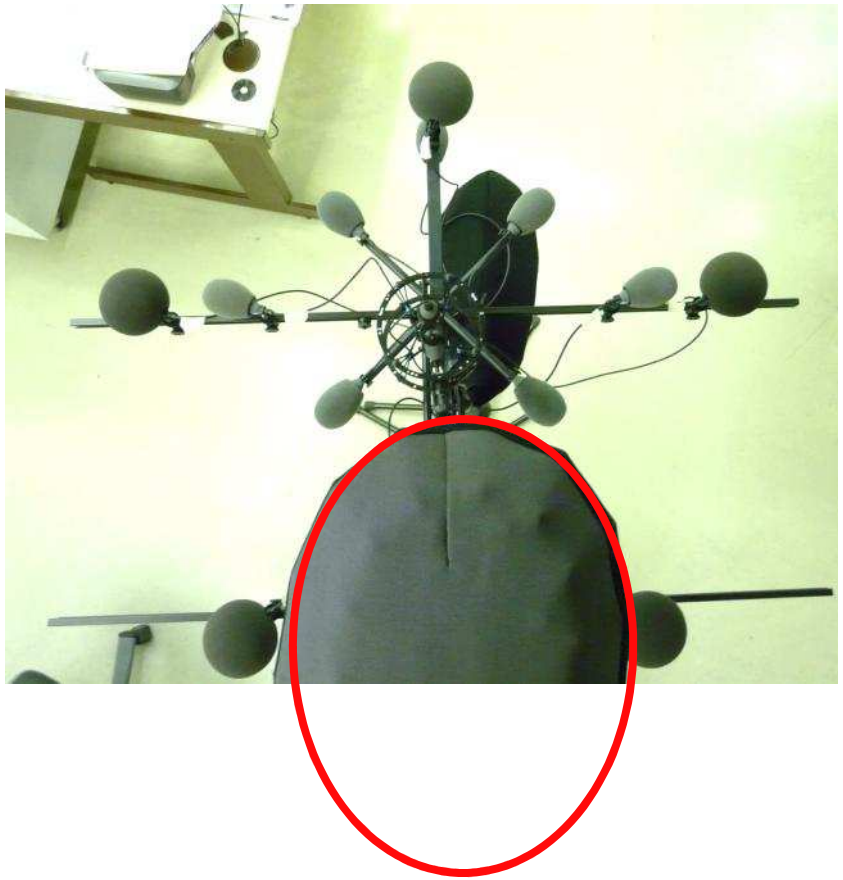




Ambience microphone setups

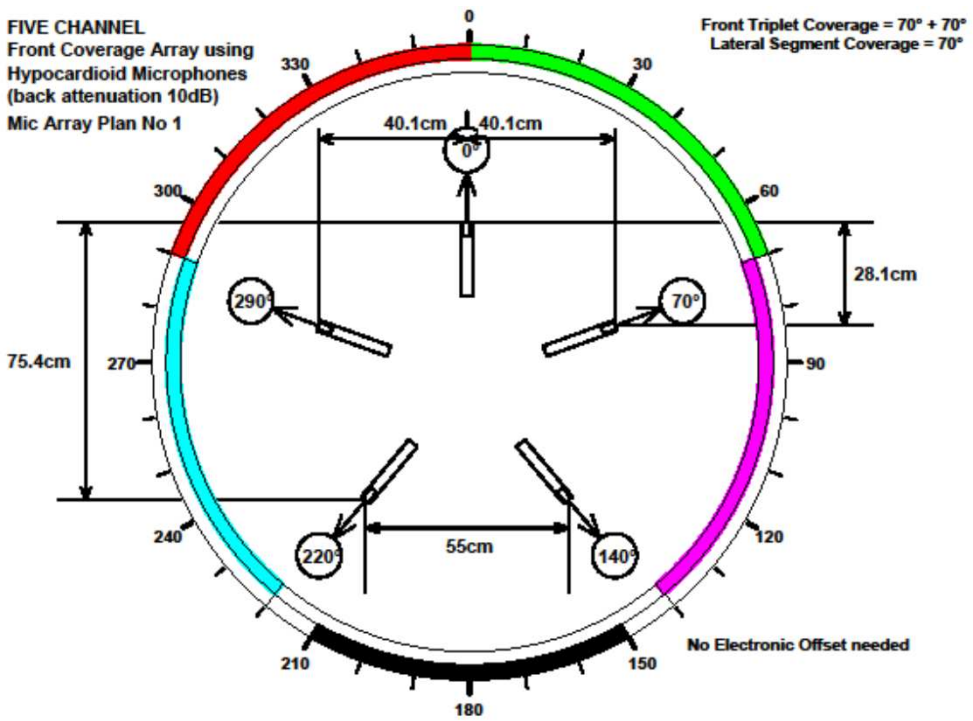
- ORTF Surround:
  - 4 * Supercardioid SCHOEPS CCM 41
  - Front pair: 10cm/100°
  - Side pair: 20cm/80°
  - Discrete routing to L/R/Ls/Rs, no C

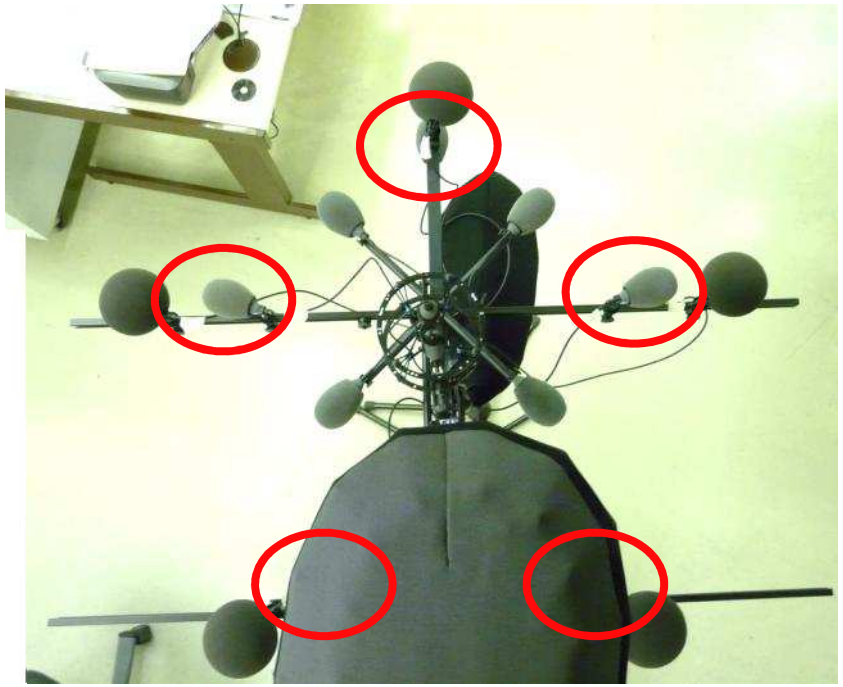




Ambience microphone setups

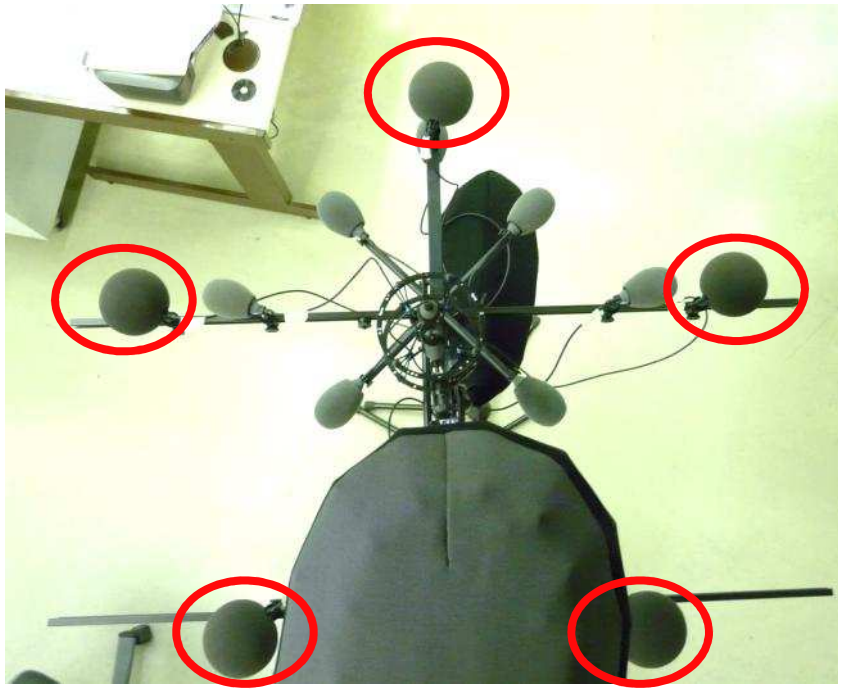
- Setup with wide cardioids after Williams:
  - 5 * wide cardioid SCHOEPS CCM 21
  - Discrete routing to L/C/R/Ls/Rs





Ambience microphone setups

- Omni setup after hauptmikrofon.de/ Image Assistant:
  - 5 * Omni SCHOEPS CCM 2S
  - Spacing: 51 cm
  - Discrete routing to L/C/R/Ls/Rs



Test file editing, mastering

- All microphone signals were recorded to separate tracks without any editing and with constant gain settings
- The levels of the single tracks were adjusted by listening, in order to correct for level deviations of the preamps and the microphone sensitivities
- These filters were used (the same filter was always applied to each channel of one setup):
  - Compensation of the differences of the microphone transfer function (e.g. bass level boost for the pressure gradient microphones)
  - Compensation of the effect of windscreens and fur (slight bass boost, significant high frequency boost)
  - Low cut filter (< 70Hz) to prevent solid borne noise
- The decoding of the two Double M/S setups was adjusted by listening, in order to create a spatial image that was similar to the other setups
- Loudness differences between the six setups on the five locations were equalized by listening

Listening test

Listening test:

- 5 locations, 6 setups → 30 stimuli
- 1 questionnaire per sample
- Duration: ca. 35 min.

All recordings and documents are available for free for download:

ambience.hauptmikrofon.de

→ The repetition of the listening test is possible and desired

→ Please tell me the results!

Helmut Wittek, 03.09.2012
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Listening test: Comparison of 4.0/5.0 ambience microphone setups

Questionnaire

Example Nr. _____

		1	2	3	4	5		Comment
Direction and Distance								
1	precise, high resolution						imprecise, low resolution	
2	balanced						unbalanced	
3	stable						unstable	
4	Good depth						No depth	
Room								
5	Good listener envelopment						no listener envelopment	
6	wide						narrow	
7	Loudspeaker not localizable						Loudspeaker localizable	
8	perfect room impression						bad room impression	
Sound colour and overall quality								
9	Sound color very good						Sound color unsatisfactory	
10	Overall quality very good						Overall quality unsatisfactory	
11	Comment:							