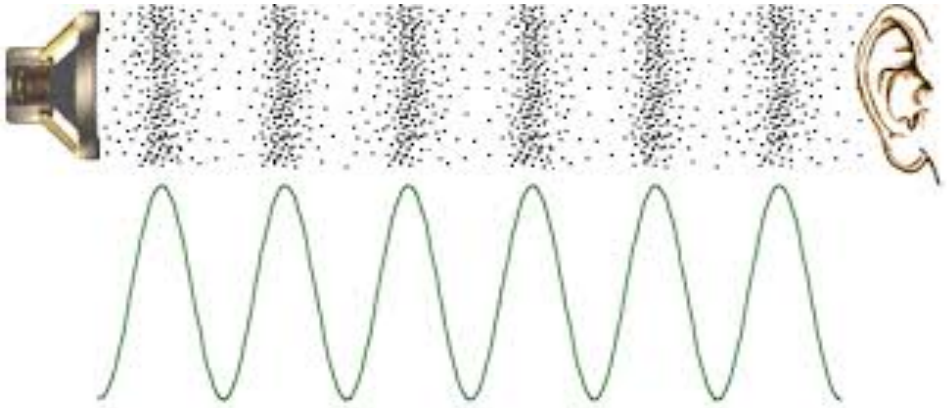
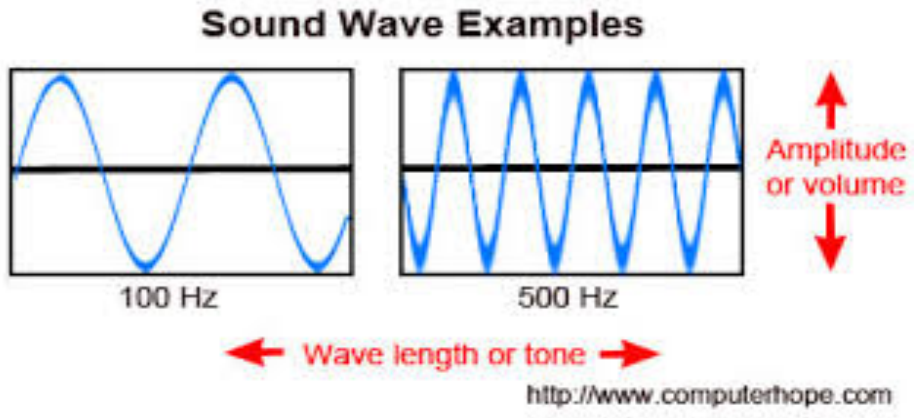
SOUND TECHNIQUES

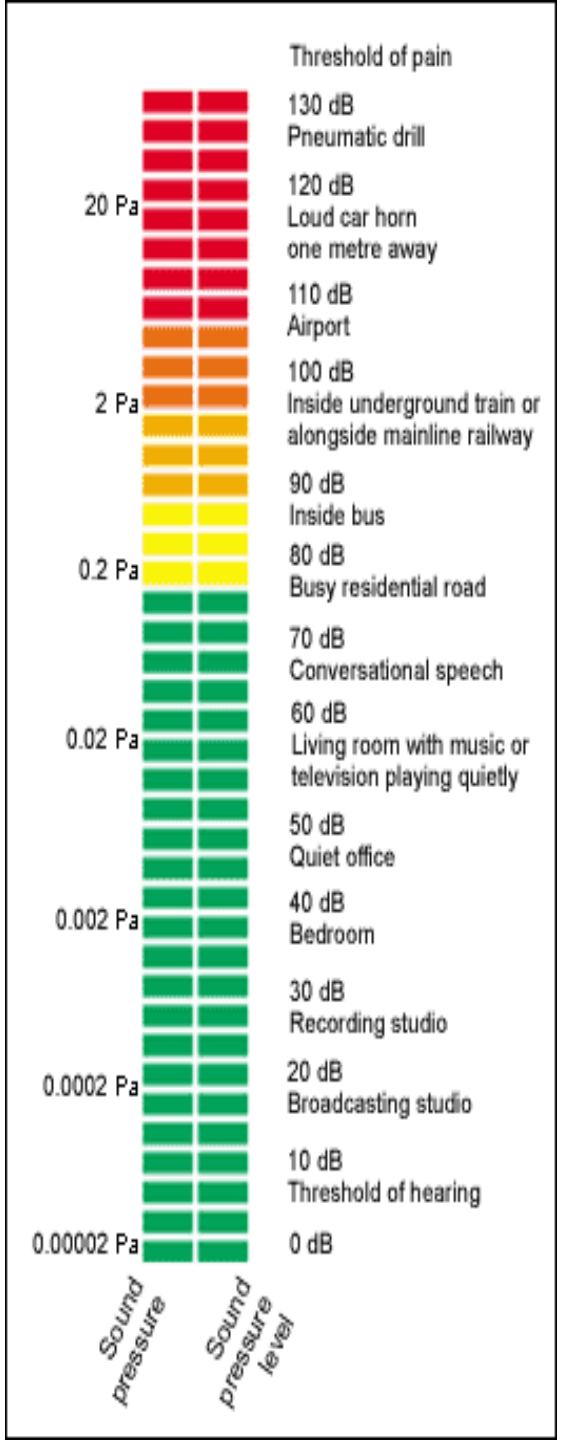
Tutorial # 5 Fieldwork preparations
14 October, 2016

What is sound

- Waves






Threshold of pain
130 dB
Pneumatic drill
20 Pa
120 dB
Loud car horn
one metre away
110 dB
Airport
2 Pa
100 dB
Inside underground train or
alongside mainline railway
90 dB
Inside bus
0.2 Pa
80 dB
Busy residential road
70 dB
Conversational speech
0.02 Pa
60 dB
Living room with music or
television playing quietly
50 dB
Quiet office
0.002 Pa
40 dB
Bedroom
30 dB
Recording studio
0.0002 Pa
20 dB
Broadcasting studio
10 dB
Threshold of hearing
0.00002 Pa
0 dB
Sound pressure
Sound pressure level

40-100Hz

1,000Hz - 5,000Hz

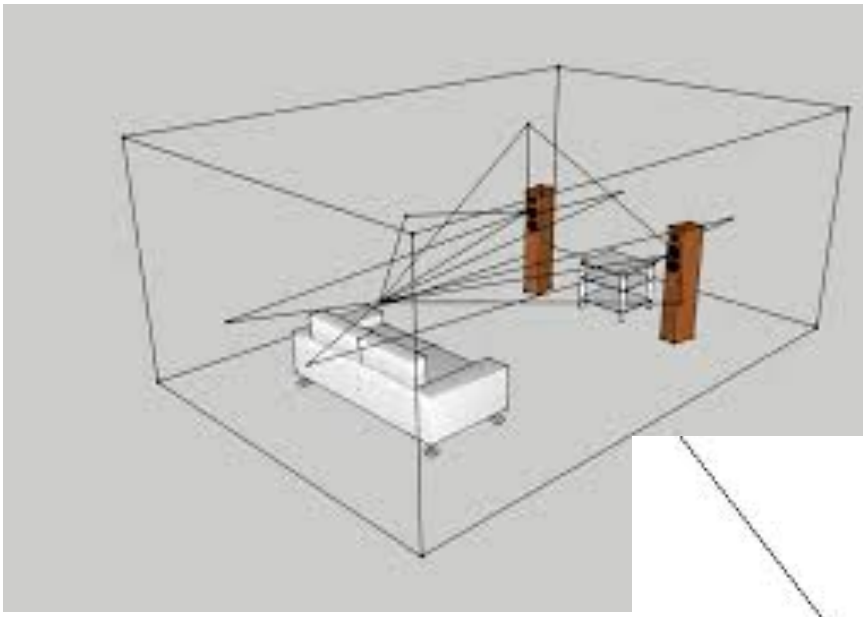
10,000Hz - 15,000Hz

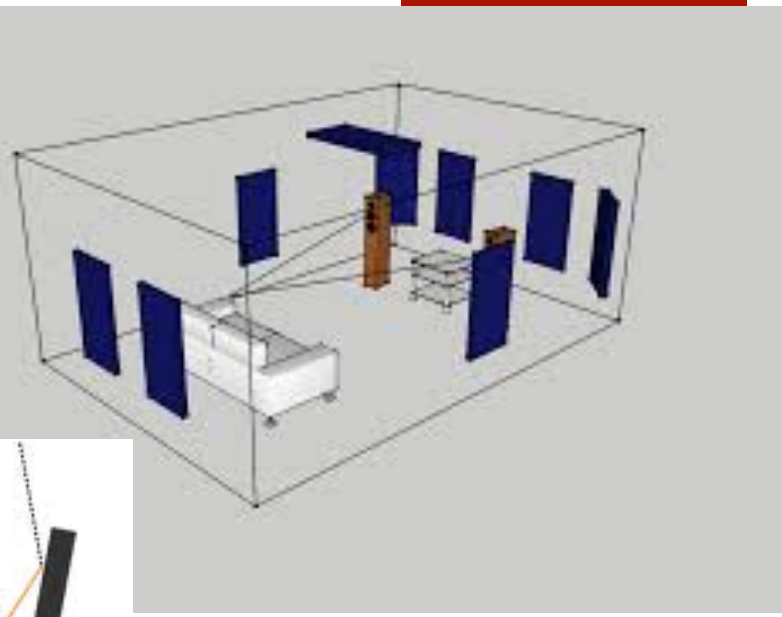
Low Rumble Of A Truck

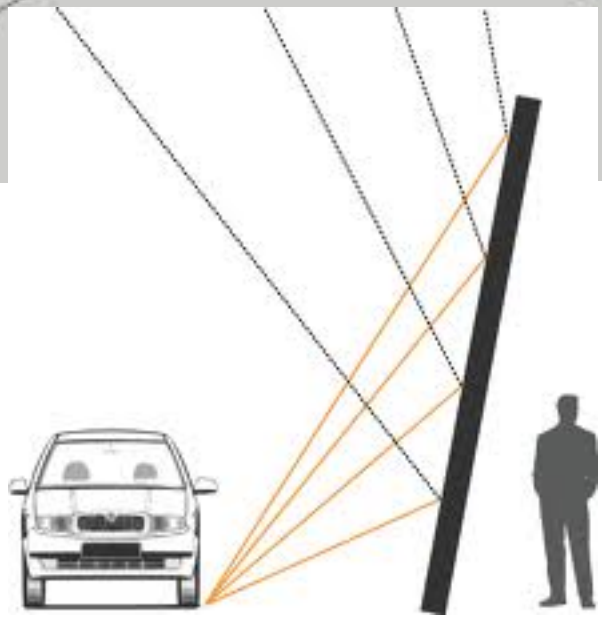
Sound Of A Baby Crying

The Overtones Of A High Pitched Whistle

Acoustics







RECORDING

EQUIPMENT

- Microphones & Cables (characteristics)
- Radio-mike
- Audio-mixer, headphones & boom

- How to handle THE microphone

Basic equipment

- 3 x Microphone:
  - 2x Sennheiser K6 power-source selement Microfoon
  - 1x Sennheiser ME 64 Recording-element Cardioide characteristic
  - 1x Sennheiser ME 66 Recording-element Directional-characteristic
  - Radiomike-set Sennheiser
- 1x Microphone-Shockmount for on camera
- 2x Rycote windjammer Softie (ME 64 & ME 66)
- Headphones (small jack/large Jack)
- Cables (camera-connection)
- 1x short cable(50 cm) Sennheiser-microphone XLR to XLR-plug-in on Camera

Prepare for Audio-recording

1. Mount microphone, (connect to Input 2)
2. Plug in Headphones
3. Check audio-settings (
4. Input: Line/Mike & Phantom 48V/Battery) &
5. Channel Input : select Internal and 2 or Input 2 and 2)

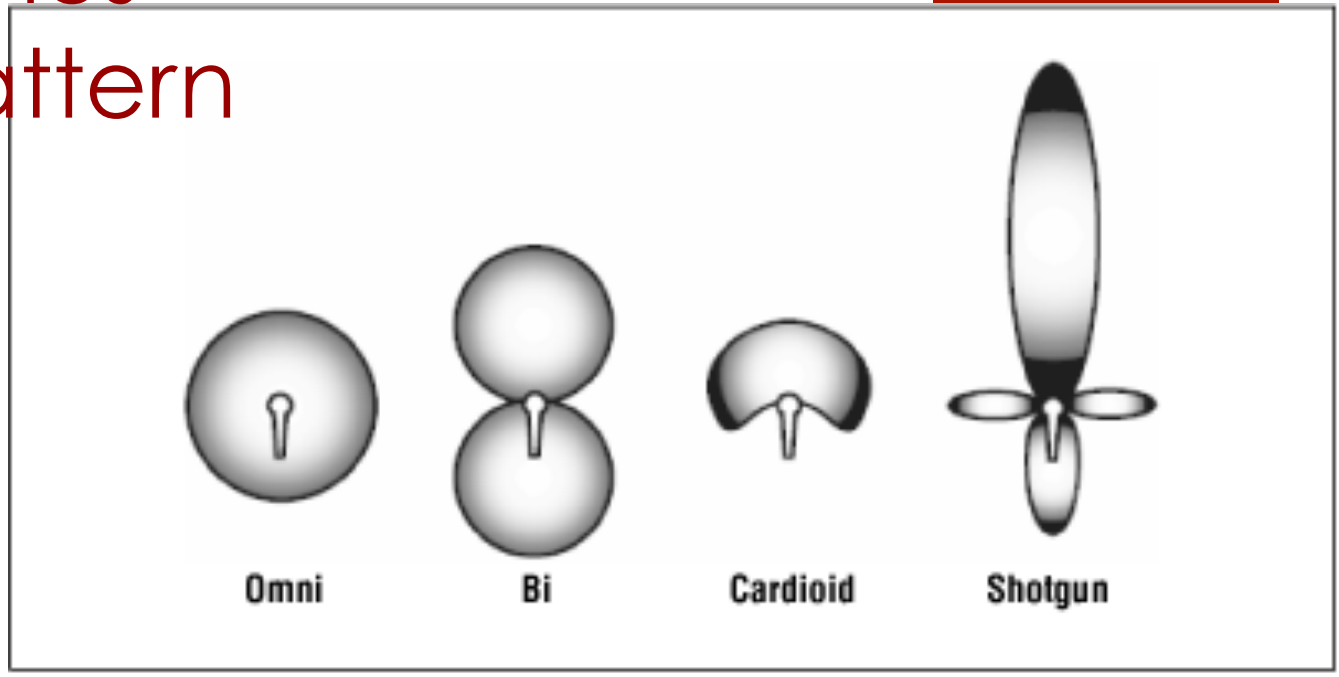
Types of mikes

- dynamic and condenser mikes.

- http://www.jiscdigitalmedia.ac.uk/guide/microphone-guide/show-hidden

- https://soundphysics.ius.edu/?page_id=1336

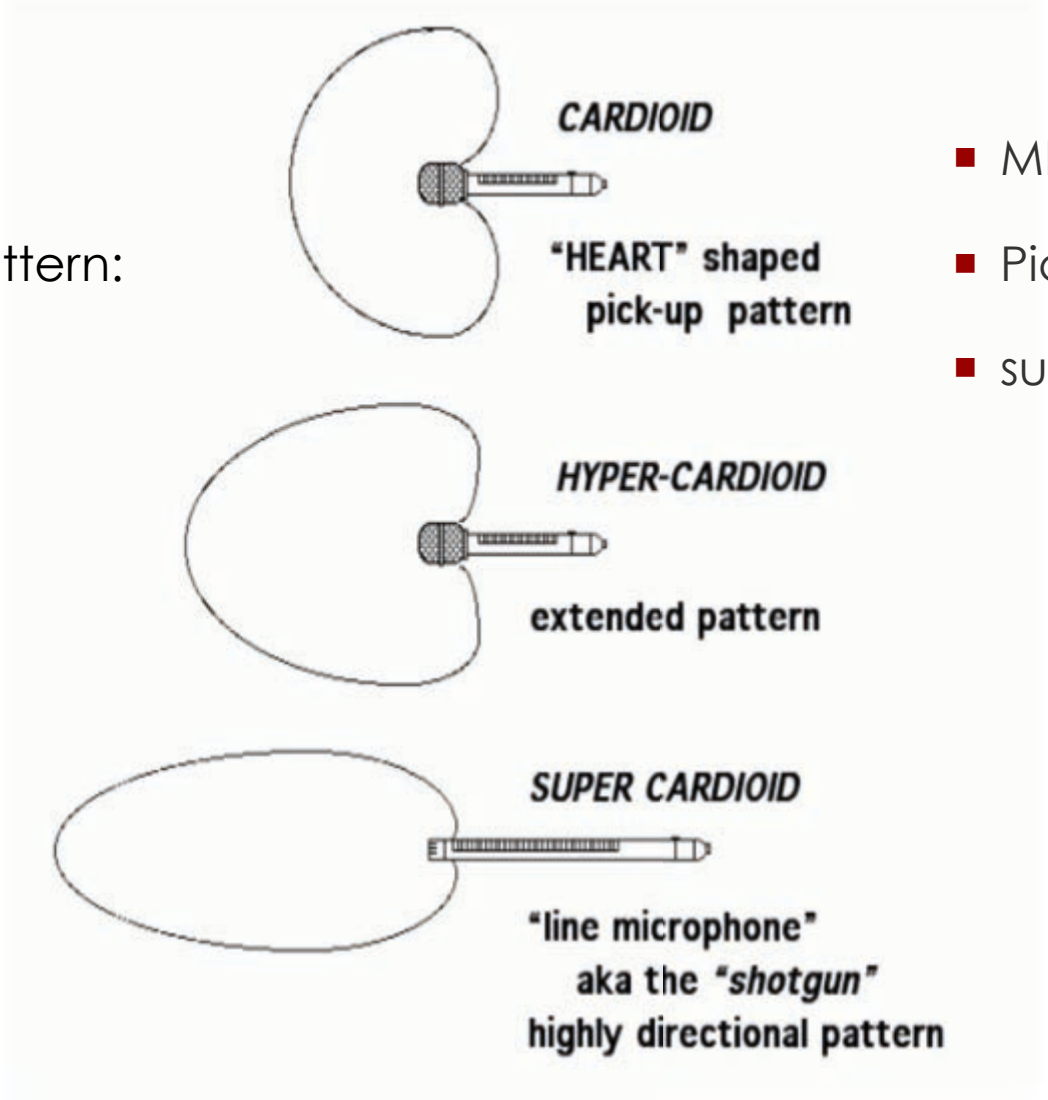
Microphones
Pick up Pattern



- Omni-directional
- Stereo-microphone
- (bi-directional)
- Cardioid –Directional/ Superdirectional
- Shotgun

Pick-up Pattern
K6 + ME 62 & 64

- ME 62
- Pick-up pattern:
- Cardioid



- ME 64
- Pick-up pattern:
- super-cardioid/lobar

Headphone

- Use headphone that covers ears enough mostly exclude environmental sound

- Determine loudness of speakers
- in relation to modulation of
- sound

- Check jack (small/big)

PANASONIC SETTINGS

Sound settings on camera

- Internal/External Mike (1 or 2 ?)
- Channels

- Line/ Mic.
- Phantom/battery

- Menu-ALC

- Low Noise Filter

LINE & MIC

- LINE: audio equipment is connected
- Input level is 0 dBu.

- MIC: an external microphone is connected
- Input level is -50 dBu.

- Using an external microphone or audio equipment
- ≥ Set [MIC SETUP] to [2ch]. (p. 45)


Panasonic
AVCCAM
IRIS A/M
MENU
FOCUS ASSIST
FOCUS A/M/∞
DISP/MODE CHK
ZEBRA
O.I.S.
COUNTER
BARS
W.B.
RESET
CH1
INT(L)
INPUT1
INPUT2
CH2
INT(R)
INPUT2
AUDIO
DOLBY DIGITAL 5.1 CREATOR
USER1
USER2
USER3
iA
MANU
QUICK START

INPUT/CHANNELS

- CHANNEL 1: Audio from the Internal Microphone or a device connected to audio input terminal 1 (XLR) or from Input 2 is recorded to channel 1
- .
- CHANNEL 2: Audio from Internal Microphone or a device connected to audio input terminal 2 (XLR 3 pin) is recorded to channel 2.

SOUND RECORDING

Kinds of Sound

- Ambient sound/athmos
- Specific sounds made by specific sources (birds, music, trucks etc. etc.)
- Voice subject/cameraperson
- ‘Noise’

4 ways

- Internal Microphones of Camera (usually not applied for high quality output, unless ambient in a wind-free space)
- Mike on Camera
- Radio mike with Lavalier mike
- Recording by soundperson with mixer and handheld Microphone or Boom

Basics of Sound-recording

- Sound-quality determined by :
  - Distance, selection & modulation
- Choice of Microphone
- Point at selected source
- Exclude unwanted sound (direct away from unwanted sounds)
- Avoid ‘noise’ (hand noise or Wind)
- Record Athmos

Mistakes ‘

- Mike not connected/battery finished (always use headphones & check meters.
- Choice of mike (directional/kidney/radio-mike)
- Distance (to far away)
- Direction (not pointed at source) /Camera-moves away from sound

- Automatic/manual modulation
- Voice & Sound (including/excluding)
- Wind- windjammer not okay/Filter off (Low Filter)

Points of attention

- Low frequency sound (wind, machines, speakers etc.)-
- Check windjammer
- Filter/ALC
- (over/under)Modulation (2 Channel level metres)
- No-sound (equipment check, functions/ batteries)

Interview

- Radio mike or mike on camera ?
- Voice of researcher ?
- Distance to person
- Camera on Tripod or handheld
- Exclude Environmental noise by closeness of microphone
- Where to do it ?
- How to prepare the interview (content & technique)?

Basics Sound

- Sound (internal mike settings-external mike will be discussed in tutorial #3) p. 46-47
- Audio input levels RECORD SETUP – 5.1ch MIC LEVEL (p.49)
- ALC (AUTO/SET/SET + ALC) (p.49)
- Headphone & Mike entrances & setting-pannels (headphone level adjustment is playback via Zoom-button)
- Basic Menu settings Sound

Internal Microphone set-up

Microphone setup

Recording setting of the built-in microphone can be adjusted.

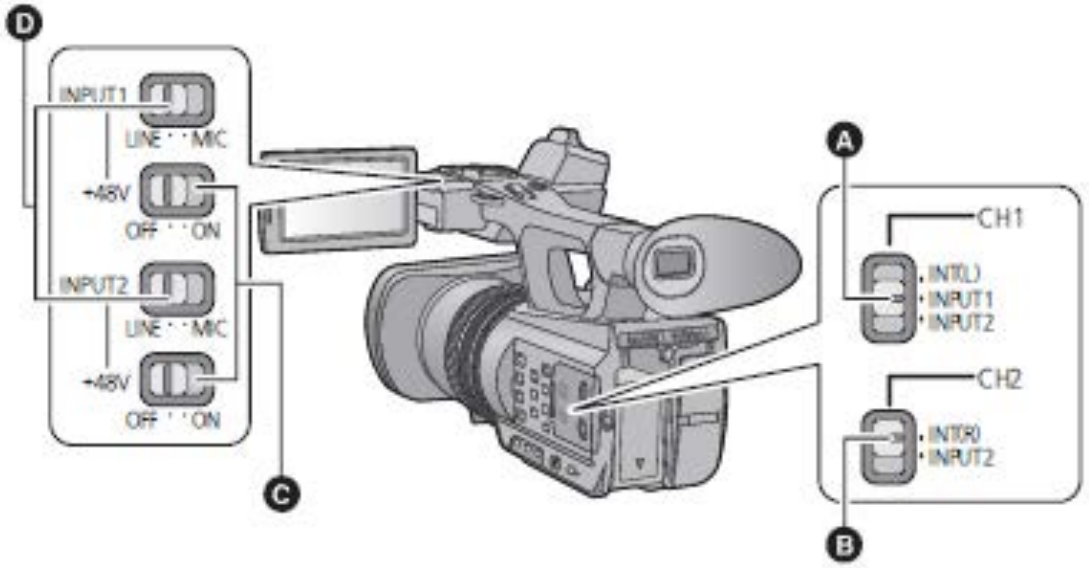
Select the menu.

MENU : **[RECORD SETUP] → [MIC SETUP] → desired setting**

[SURROUND]:	Sound is recorded with 5.1 ch surround microphone.
[ZOOM MIC]:	Sound is recorded with 5.1 ch surround microphone changing the directionality in conjunction with the zoom operation. Sounds near the front of the unit are recorded more clearly if you zoom in (close-up) and surrounding sounds are recorded more realistically if you zoom out (wide angle).
[FOCUS MIC]:	The forward sound is recorded more clearly by enhancing the directionality toward the center for the 5.1 ch surround microphone.
[2ch]:	Sound from two directions is recorded in 2 ch by forward-facing stereo microphones.

Line or Mic ?
Battery or Phantom power

Switching Audio Input



- A CH1 switch
- B CH2 switch
- C INPUT1, 2 (+48V) switches
- D INPUT1, 2 (LINE/MIC) switches

Adjusting the audio input level

■ Adjusting the input level of the built-in microphone (5.1 ch)

- **Set the [MIC SETUP] to anything other than [2ch]. (→ 45)**

1 Select the menu.

MENU: [RECORD SETUP] → [5.1ch MIC LEVEL] → desired setting

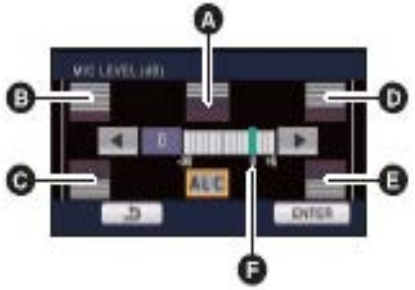
[AUTO]:	ALC is activated, and the recording level is adjusted automatically.
[SET]/[SET+ ALC]:	The desired recording level can be set.

2 (When [SET]/[SET+ ALC] is selected) Touch ◄/► to adjust the microphone input level.

- Touch ALC to activate/disactivate ALC. When ALC is activated, the icon is surrounded by yellow and the amount of sound distortion can be reduced. When ALC is disactivated, natural recording can be performed.
- Adjust the microphone input level so that the last 2 bars of the gain value are not red. (Otherwise, the sound is distorted.) Select a lower setting for microphone input level.

3 Touch [ENTER] to set the microphone input level and then touch [EXIT].

- ALC is displayed on the recording screen when the ALC is turned on.



- Ⓐ Center
- Ⓑ Front left
- Ⓒ Back left
- Ⓓ Front right
- Ⓔ Back right
- Ⓕ Microphone input level

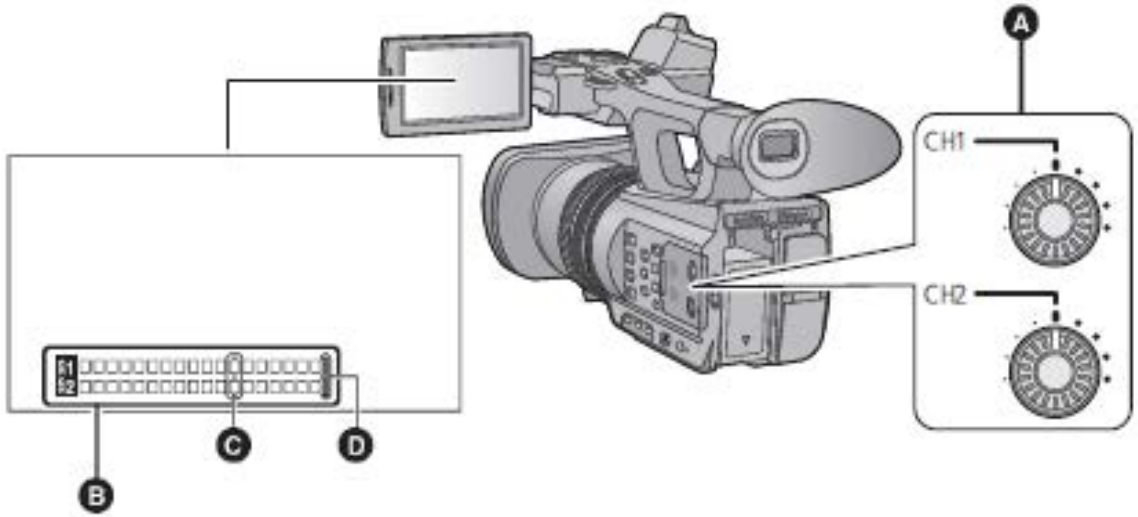
- When [MIC SETUP] is [ZOOM MIC], the volume will be different depending on the zoom rate.
- You cannot record with the audio completely muted.

Adjusting the Input Level of Microphone

■ Adjusting the input level of the built-in microphone (2 ch), external microphone or audio device

- Set [MIC SETUP] to [2ch]. (→ 45)

Adjust the input level operating the Audio control knobs (CH1, CH2)



- A Audio control knobs (CH1, CH2)
- B Audio level meter
- C -12 dB
- D 0 dB

Low Noise Canceler

RECORD SETUP/WINDNOISE CANCELER

[WIND NOISE CANCELER]

[ON]/[OFF]

This will reduce the wind noise coming into the built-in microphones while maintaining the realism.

- **Set the [MIC SETUP] to anything other than [2ch]. (→ 45)**

- You may not see the full effect depending on the recording conditions.

Record Setup/2ch MIC ALC
Audio Limiter Control (ALC)

[2ch MIC ALC]

[ON]/[OFF]

- **Set [MIC SETUP] to [2ch]. (→ 45)**

Distortion of the sound can be reduced when the built-in microphone (2 ch) or external microphone is used by setting to [ON]. (ALC is displayed on the recording screen) It will record with natural sound when set to [OFF].

- Adjust the audio control knobs (CH1, CH2) to adjust the audio input level.

[EXT. MIC GAIN1]

[-50dB]/[-60dB]

Sets the input level of the external microphone connected to the audio input terminal 1 (XLR 3 pin).

[EXT. MIC GAIN2]

[-50dB]/[-60dB]

Sets the input level of the external microphone connected to the audio input terminal 2 (XLR 3 pin).

Checklist when recording SOUND

1. Is the sound going into the camera, and are my levels okay?
2. Are my headphones working properly?
3. Does the level of the headphones correspond with the level of recordings ?
4. Am I using the right microphone(s) and is it the right distance from the subject?
5. If using a boom, is it definitely out of shot?
6. Have I got at least 30 seconds/5 min. wild track (or 'atmos') for each location I am shooting in?
7. Is the sound clean, avoiding excessive wind/background noise?