Performing sound recordings to capture the musical fingerprint of a bell

1   Requirements

1.1   Required tools

- recording device / smartphone
- pocket rule and chalk for marks
- impact cylinder or pocket clapper with a mass of ca. 2kg,
- documentation sheet, camera, ear protectors

### 1.2   Settings for the recording device / smartphone

- sampling rate of min. 44100Hz, digitalization rate of min. 16Bit
- mono recording
- disable the automatic level adjustment, set the level based on the impact sound level
- saving format for audio recordings: .wav or .aif (no compression)

1.3   Position of the microphone

- secure position in the area of the bell
- no acoustic covering by beams etc.
- documentation of the current microphone position for following sound recordings

1.4   Marking the impact position on the bell

- The marking of the impact points can be done with a sense of proportion.
- Classification of the bell into four quadrants.
- Mark seven impact points on the sound bow at a distance of ca. 15° from the clapper impact.
- Mark two more impact points on the flank (ca. 25% and 50% of the height of the bell from the sound bow).
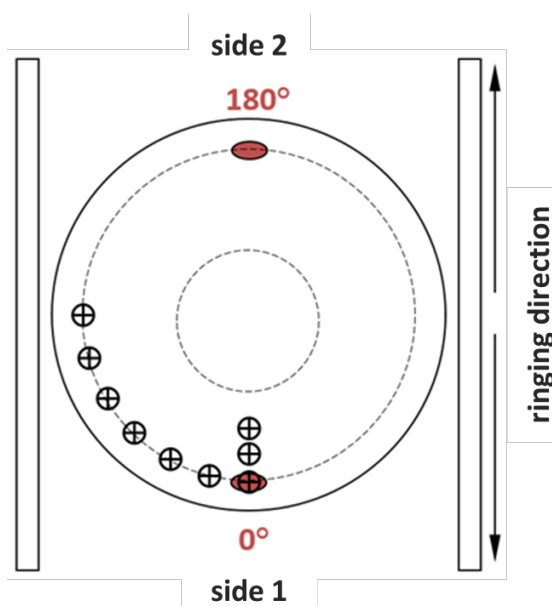
2   Hitting the bell

- The bell has to be in a rest position, no fixation needed.
- The time range between two impacts is <u>at least 10sec</u>.
- No multiple impacts, no persistence of the clapper on the bell.
- Impacts with consistent intensity at the inner side of the bell at the impact height of the clapper, perpendicular to the bell surface
- In case of restricted accessibility or a small bell, the impact can also be done from the outside of the bell (area of the impact ring)
  Caution: Please do not hit on ornaments and inscriptions.

3   Procedure

1. Start the sound recording.
2. Hit the installed clapper on both impact sides.
3. Hit with impact cylinder / pocket clapper on the surrounding marks.
4. Hit with impact cylinder / pocket clapper on the marks at the flank.
5. Stop the recording.

(Please do not interrupt the recording between the steps 2 – 4. For each bell is a separate sound recording afforded.)

4   Documentation

General data:
- name and address of the church
- number of bells and their special features (if there are any)

Details of each bell:
- numbering, dedication, year of foundation, founder, material
- strike tone, diameter, mass (if known)
- analysis of partial tones (if available)
- special features like welding, severe wear, deformations, breakouts etc.
- photographic documentation of the bell

5   Data transfer and contact

Please send the sound files and the documentation to the European competence centre for bells. For more information or if you have any questions, you can reach us using the contact details provided.

Address: University of Applied Sciences Kempten
            ECC-ProBell®
            Bahnhofstr. 61
            D-87435 Kempten
            Germany
Email: info@ecc-probell.de
Phone: +49 831 2523-682