

Standpoint of the National Broadcasting Council regarding the procedures on sound level measurement of advertisements and telesales

Bearing in mind the need for transparency of the procedures on sound level measurement of advertisements and telesales, the National Broadcasting Council (KRRiT) informs that in order to measure the sound level of advertisements and telesales it shall apply recommendations of the European Broadcasting Union (EBU) on measuring and normalising loudness of audio signals, which are contained in the R128-2011 instruction and associated documents. Consequently, the KRRiT deems it necessary to provide broadcasters with some important information concerning the measurement procedure applied by it and a description of a measurement platform with sample equipment.

Technical appendices to the EBU R-128-2011 instruction have been made available in Polish on the EBU's official website under:

<http://tech.ebu.ch/loudness>

In essence, the regulation of 18 December 2012 is aimed at ensuring a sound level of advertisements and telesales which does not exceed the loudness of the show during the program. Differences in the sound levels are only permitted for shows broadcast in real time or which use the busy loop or are aired immediately after the show, where the loudness of advertisements or telesales may vary from the show sound level by not more than 1 LU.

Description of recording & measuring station

The recording & measuring station consists of the following elements:

1. Receiving equipment with the antenna system for the reception of the following programs:
 - a) TV programs distributed by means of digital terrestrial broadcast via multiplex transmission using the DVB-T standard,
 - b) TV programs distributed by means of analogue terrestrial broadcast,

- c) TV programs distributed by means of satellite broadcast,
 - d) TV programs carried by cable and ICT system operators,
 - e) Radio programs distributed by means of analogue terrestrial broadcast,
 - f) Radio terrestrial programs distributed by means of digital terrestrial broadcast,
 - g) Radio programs distributed by means of satellite broadcast,
 - h) Radio programs carried by cable and ICT system operators.
2. Devices for video and audio signal switching from the receiving equipment to the recording and measuring devices with picture monitors and monitor speakers.
 3. A signal interface for audio and video signals with an in-built analogue-digital converter.
 4. A computer with software suitable for show recording in a form of files, and for drafting measurement documentation and reports.
 5. A measuring device for analysing and measuring the sound level of shows in a signal recorded in a file format.
 6. Auxiliary equipment.

Sample equipment of the recording & measuring station

1. Receiving equipment:

- a) television sets adapted to receive programs distributed by means of digital terrestrial multiplex broadcast using the DVB-T standard, with MPEG-4 decoder, supplied with the HDMI signal connection interface, composite video, acoustic stereo output,
- b) set-top boxes receiving programs distributed by means of digital terrestrial multiplex broadcast using the DVB-T standard, with MPEG-4 decoder, supplied with the HDMI signal connection interface, composite video, acoustic stereo output,
- c) digital satellite television decoders for platforms Cyfra+, Platforma N, Cyfrowy Polsat, with the access card, supplied with the HDMI signal connection interface, composite video, acoustic stereo output,

- d) decoders receiving digital programs in a cable network such as, but not limited to, UPC, Netia, Orange, supplied with the HDMI signal connection interface, composite video, acoustic stereo output,
 - e) AM/FM/DAB/DAB+ radio tuners supplied with the acoustic stereo output.
2. The antenna system receiving programs distributed by means of digital terrestrial multiplex broadcast using the DVB-T standard, downlinked from Hotbird and Astra satellites, radio programs distributed in the AM standard and radio programs distributed by means of satellite broadcast and radio programs distributed by means of satellite broadcast¹;
 3. Internet connection – minimum 20 Mb/s;
 4. Amplifier with a set of monitor speakers and headphones;
 5. Audio/video signal switcher;
 6. Audio or audio/video signal interface;
 7. PC computer with an operating system;
 8. Colour laser printer;
 9. Software:
 - a) text editor,
 - b) software for recording and non-linear picture editing,
 - c) software for recording and non-linear sound editing,
 - d) a measuring system in line with EBU Recommendation EBU R-128-2011.

Activities necessary to measure sound levels of shows, advertisements and telesales being a part of the program

1. Connecting the signal receiving device with the recording device considering the chosen show and its transmission format;
2. Selecting the program on the receiving device;
3. Setting the audio configuration parameters to the neutral position;

¹ Repeated as in the original document (translator's note)

4. Activating the signal interface and the recording software, and setting the configuration parameters;
5. Adjusting the audio signal amplification in the receiving equipment and in the signal interface so that the digital meter of the audio sound shows approximately -23 dBFS for the verbal sound signal;
6. Switching the show recording on – the audio signal and potentially the video signal;
7. Editing the files containing the recorded sound (picture) – by separate files containing the sequence of the particular show, advertisement and telesales parts;
8. Running test measurements on the measuring device using the EBU set v03 test files;
9. Measuring the sound level parameters of the subsequent files making up the show as well as those making up the advertisements and telesales;
10. Preparing a copy of the measurement data and drafting a measurement report;
11. Drafting and presenting conclusions on the measurement results in a report format, which should include in particular:
 - a) a description of the recording procedure of shows, advertisements and telesales, including the following information:
 - date and venue of recording,
 - personal details of recording persons,
 - a list of hardware and software of the recording station as well as the configuration parameters of the receiving device and of the analogue-digital converter,
 - title of the recorded show, the broadcaster, broadcasting method, time of the recording start and end, names of files and their formats plus content description,
 - remarks;
 - b) Description of the sound level measurement procedure, including the following information:
 - date and venue of measurement,
 - personal details of measuring persons,

- a list of hardware and software of the measuring station and configuration parameters of the measuring device,
 - results of the conformity test to verify whether the measuring device reading is consistent with the reference signals,
 - analysis of the file containing the recorded show and the described show, advertisements and telesales sequence as a time function,
 - results of the sound level measurements of particular show parts and the entire show without advertisements and telesales,
 - results of the sound level measurements of individual advertisements and telesales recorded during the recording process,
 - tabularised and graphic presentation of the measurement results of the show, advertisements and telesales recorded during the recording process;
- c) analysis of the sound level measurement results;
- d) presenting the measurement conclusions;
- e) signatures of persons
- who handled the recording and the measurement process,
 - who approved the recording, measurement and conclusion results.

EBU set v03 test files

1. seq-3341-1-16 bit

Tone 1000 Hz, stereo, -23.0 dBFS (peak value for each of the channels); phase-coherent signal in both channels concurrently; duration: 20 seconds

2. seq-3341-2-16 bit

Tone 1000 Hz, stereo, -33.0 dBFS (peak value for each of the channels); phase-coherent signal in both channels concurrently; duration: 20 seconds

3. seq-3341-3-16 bit v02

Tone 1000 Hz, stereo, -36.0 dBFS (peak value for each of the channels); phase-coherent signal in both channels concurrently; duration: 10 seconds; -23.0 dBFS duration: 60 seconds; -36.0 dBFS duration: 10 s.

4. seq-3341-4-16 bit v02

Tone 1000 Hz, stereo, -75.0 dBFS (peak value for each of the channels); phase-coherent signal in both channels concurrently; duration: 10 seconds; -36.0 dBFS duration: 10 seconds; -23.0 dBFS duration: 60 seconds; -36.0 dBFS duration: 10 seconds; -75.0 dBFS duration: 10 seconds

5. seq-3341-5-16 bit v02

Tone 1000 Hz, stereo, -26.0 dBFS duration: 20 seconds; -20.0 dBFS duration: 20 seconds; -26.0 dBFS duration: 20 seconds

6. 1kHz Sine -20 LUFS-16bit

Tone 1000 Hz stereo, -20.0 LUFS; duration: 20 seconds

7. 1kHz Sine -26 LUFS-16bit

Tone 1000 Hz stereo, -26.0 LUFS; duration: 20 seconds

8. 1kHz Sine -40 LUFS-16bit

Tone 1000 Hz stereo, -40 LUFS; duration: 20 seconds

| No. | Test signal | Expected result and acceptable tolerance |
|-----|--|--|
| 1 | Signal 1 kHz, stereo, -23.0 dBFS (peak value for each of the channels, phase-coherent signal in both channels concurrently), duration: 20 s. | I = -23.0 ±0.1 LUFS I = 0.0 ±0.1 LU |
| 2 | Signal 1 kHz, stereo, -33.0 dBFS (peak value for each of the channels, phase-coherent signal in both channels concurrently), duration: 20 s. | I = -33.0 ±0.1 LUFS I = -10.0 ±0.1 LU |
| 3 | Signals 1 kHz, stereo, -36.0 dBFS (peak value for each of the channels, phase-coherent signal in both channels concurrently), duration: 10 s.; -23.0 dBFS, duration: 60s.; -36.0 dBFS; duration: 10 s. | I = -23.0 ±0.1 LUFS I = 0.0 ±0.1 LU |

| | | |
|---|--|--|
| 4 | Signals 1 kHz, stereo, -75.0 dBFS (peak value for each of the channels, phase-coherent signal in both channels concurrently), duration: 10 s.; -36.0 dBFS, duration: 10 s.; -23.0 dBFS, duration: 60s.; -36.0 dBFS, duration: 10 s.; -75.0 dBFS, duration: 10 s. | $I = -23.0 \pm 0.1$ LUFS $I = 0.0 \pm 0.1$ LU |
| 5 | Signals 1 kHz, stereo, -26.0 dBFS (peak value for each of the channels, phase-coherent signal in both channels concurrently), duration: 20 s.; -20.0 dBFS, duration: 20s.; -26.0 dBFS; duration: 20 s. | $I = -23.0 \pm 0.1$ LUFS $I = 0.0 \pm 0.1$ LU |
| 6 | Signal 1 kHz, stereo, -20.0 dBFS (peak value for each of the channels, phase-coherent signal in both channels concurrently), duration: 20 s. | $I = -20.0 \pm 0.1$ LUFS $I = 3.0 \pm 0.1$ LU |
| 7 | Signal 1 kHz, stereo, -26.0 dBFS (peak value for each of the channels, phase-coherent signal in both channels concurrently), duration: 20 s. | $I = -26.0 \pm 0.1$ LUFS $I = -3.0 \pm 0.1$ LU |
| 8 | Signal 1 kHz, stereo, -40.0 dBFS (peak value for each of the channels, phase-coherent signal in both channels concurrently), duration: 20 s. | $I = -40.0 \pm 0.1$ LUFS $I = -17.0 \pm 0.1$ LU |