

GY

**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GY/T 331-2020

**High-definition television sound recognition and calibration
signal technical requirements
(English Translation)**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

Please note that certain contents of this document may involve patents. The issuing agency of this document is not responsible for identifying these patents.

This standard is under the jurisdiction of the National Radio, Film and Television Standardization Technical Committee (SAC/TC 239).

Drafting organizations of this standard. China Central Radio and Television General Station, National Radio and Television Planning Institute.

1 Scope

This standard specifies the technical requirements for audio identification and calibration signals required in the production and broadcasting of high-definition television programs and transmission link testing.

This standard applies to the production, exchange, broadcasting and transmission of high-definition television programs.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this document.

For undated references, the latest version (including all amendments) applies to this document.

GY/T 192-2003 Full-scale level of digital audio equipment GY/T 313-2017 High Definition Television Program Recording Specification

3 Abbreviations

The following abbreviations apply to this document.

GLITS Grignard calibration to identify tone sequences BLITS Blackline surround sound calibration recognizes pitch sequence

4.1.1 Signal type

Two-channel stereo test signal.

4.1.2 Schematic diagram of signal video

The video schematic diagram of the stereo recognition and calibration signal is shown in Figure 1, and the content location diagram is shown in Figure 2.

Figure 1 Schematic diagram of stereo recognition and calibration signal video

Figure 2 The position of the video content of the stereo recognition and calibration signal

See Table 1 for the illustration of the position map of the stereo recognition and calibration signal video content.

4.1.3.1 Channel content information

The channel content information includes three parts. identification signal, calibration signal and sound and picture synchronization test signal (see Figure 3).

- a) Recognition signal. The English voice broadcast content of this channel is.
- b) Calibration signal. CH1 to CH4 are all sine wave signals with a frequency of 1kHz and an amplitude of -20dBFS.
- c) Sound and picture synchronization test signal. GLITS signal, see A.1.

4.1.3.2 Schematic diagram of channel content

Figure 3 shows a schematic diagram of the channel content of the stereo recognition and calibration signal.

Figure 3 Schematic diagram of stereo recognition and calibration signal channel content

4.1.4 How to use signals

The signal is played cyclically with a cycle of 28s. The test is carried out in the order of first identification and then calibration, and after the identification and calibration of each channel is completed Sound and picture synchronization test.

CH1 to CH4 are identified and calibrated in sequence. The test time of each channel lasts for 4s. The first 2s is the identification signal, and the last 2s is the calibration signal, complete the process of identification and calibration lasts 16s (0s~16s).

The four channels are paired in pairs according to the odd and even channels, and the GLITS signal and Timing Circle signal of three cycles are used at the same time, and the Scroll Bar the signal is for reference, and the sound and picture synchronization test is carried out. The test process lasts for 12s (16s~28s), see Appendix A.

4.2.1 Signal type

Eight-channel surround sound test signal.

4.2.2 Schematic diagram of signal video

The video schematic diagram of the surround sound recognition and calibration signal is shown in Figure 4, and the content location diagram is shown in Figure 5.

Figure 4 Schematic diagram of surround sound recognition and calibration signal video

Figure 5 Video content location map of surround sound recognition and calibration signal

See Table 2 for the illustration of the video content location diagram of the surround sound recognition and calibration signal.

4.2.3.1 Channel content information

The channel content information includes three parts. identification signal, calibration signal and sound and picture synchronization test signal (see Figure 6).

- a) Recognition signal. The English voice broadcast content of this channel is.
- b) Calibration signal. According to the BLITS signal, CH1 and CH2 are sine wave signals with a frequency of 880 Hz and an amplitude of -20 dBFS. CH3 is a frequency of 1320Hz, Sine wave signal with amplitude -20dBFS. CH4 is a sine wave signal with a frequency of 82.5 Hz and an amplitude of -20 dBFS. CH5 and CH6 have a frequency of 660 Hz, Sine wave signal with amplitude -20dBFS. CH7 and CH8 are sine wave signals with a frequency of 1kHz and an amplitude of -20dBFS. At this time, CH1 to CH6 are for a sine wave signal with a frequency of 2kHz and an amplitude of -26dBFS, see Appendix B.
- c) Sound and picture synchronization test signal. GLITS signal, see A.1.

4.2.3.2 Schematic diagram of channel content

See Figure 6 for a schematic diagram of surround sound recognition and calibration signal channel content.

Figure 6 Schematic diagram of surround sound recognition and calibration signal channel content

4.2.4.1 Overview

The signal is played cyclically with a cycle of 44s. The test is carried out in the order of first identification and then calibration, and after the identification and calibration of each channel is completed Sound and picture synchronization test. Refer to Appendix B for surround sound recognition and calibration signal usage instructions.

4.2.4.2 Using stereo and surround sound separation production method

CH1 to CH8 are identified and calibrated in sequence. The test time of each channel lasts for 4s. The first 2s is the identification signal, and the last 2s is the calibration signal, complete the identification and calibration process lasts 32s (0s~32s).

The eight channels are paired in pairs according to the odd and even channels, and the GLITS signal and Timing Circle signal of three cycles are used at the same time, and the Scroll Bar the signal is for reference, and the sound and picture synchronization test is carried out. The test process lasts for 12s (32s~44s), see Appendix A.

4.2.4.3 The method of downmixing stereo production using surround sound CH1 to CH6 are identified and calibrated in sequence. The test time of each channel lasts for 4s. The first 2s is the identification signal, and the last 2s is the calibration signal (0s~ 24s), and