CCSMT25
Develop techniques for mastering and restoring audio using critical listening skills

Overview	This standard is about critical listening awareness and aural skills when working with various audio materials. It is also about being aware of various stereo issues that can or cannot be repaired.

This standard is about personal aural skills while listening to fine degrees of difference regarding frequency balance, volume balance, effects usage, dynamics effects (gating & compression) and components of the mix which change over time. You will encounter the differences between listening to stereo and mono programme materials, in addition to problems with phase cancellation effects when listening to poorly mixed stereo materials, or when collapsing a stereo mix down to a mono signal.

You will demonstrate that you can make judgements about tracks which you may be involved in recording or producing.

This standard covers two areas of good listening and analysis practice. The first area is the close study of existing commercial music tracks from the perspective of the analysis of recording techniques and production methodology. The second is a critical evaluation of audio materials which could include instances of bad practice and instances of materials or artefacts that have been added as part of the recording process. Concise identification of either occurrence is essential good hearing exercise and aesthetic judgement. The standard is also designed to allow you to take part in peer review of other work and allow the development of critical analysis skills while part of a co-operative team. While engaged in critical analysis this standard will encourages a positive approach to evaluating audio materials which acknowledges different artistic perspectives and genres.

In all instances of critical listening, you are expected to be able to identify problems and suggest ways of repairing or adjusting the audio materials if required. All types of music are encouraged for critical aural exercises, including classical, pop, jazz, rock, dance etc.

You will make use of both near and far field studio reference monitor speakers and professional quality headphones to evaluate particular audio problems. You will evaluate the differences between mono and stereo signals and in phase and out of phase signals in the signal chain. You will identify bad tuning or pitch performances on a multi-track recording, with a clear and precise location of the source of the problem and the track number of the defective part.

This standard utilises the multi-tasking skills expected of today's recording engineers, editing engineers, mastering engineers, mix engineers and programmers

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Performance criteria

You must be able to:

P1   set up a basic A/B stereo monitoring environment

P2   aurally review the characteristics of pieces of music from differing genres

P3   assess recording and production techniques used for different genres

P4   aurally identify aspects of basic music theory and styles created

P5   aurally evaluate problems during analysis of audio stereo materials

P6   precisely locate areas of audio that have any identifiable problems

P7   use aural observation techniques to identify sonic problems and issues

P8   use authorised solutions for repairing audio problems

P9   mark up/report irresolvable audio problems and the possible causes

P10 show how you transfer audio materials safely and correctly

P11 research digital codecs and the impacts of using high/low bit rate codec's

P12 compare and listen to a known commercial song on all media formats - make a judgement on the best format available

P13 describe the methods and metrics used to make judgements on both codec choices and media formats

P14 reset and tidy all equipment

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Knowledge and understanding

You need to know and understand:

K1   how to set up a basic stereo A/B monitoring system
K2   the recording techniques and instrumentation used in different genres
K3   production considerations used in different genres
K4   audio analysis techniques used
K5   aspects of basic music theory
K6   various common audio problems
K7   permissible solutions for repairing audio problems
K8   a selection of irresolvable audio problems
K9   a series of audio codecs in use
K10   playback qualities of various consumer mediums

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Developed by	Creative & Cultural Skills
Version number	1
Date approved	April 2012
Indicative review date	April 2016
Validity	Current
Status	Original
Originating organisation	Creative & Cultural Skills
Original URN	CCSMT25
Relevant occupations	Mastering engineers; Recording Engineers; recording Producers; mix engineers; assistant engineers; programmers; editing engineers; film scorers; writers; OB/post engineers; tape ops; pre & post production;
Suite	Music Technology
Key words	Breadth, depth; width; space; ambience; energy; image; scope; scale; mono; stereo; pristine;; lo-fi; clarity; tempo; phasing; mix; re-mix; version; texture; transients; HF; LF; bottom end; tonal and tones; colouration; noise; decibel; gain; levels; frequency; re-do; cut ; copy; paste; delete; noise reduction; automated phase reverse; re-fade; EQ; attenuation; tweak frequencies; additive and subtractive EQ'ing; compression; noise gate; peak limitation; distortion; missing audio; noise; phase polarity; glitches; drop-outs; audio spillage/bleeding; imprint; print-through; cross talk; drop outs; clicks; glitch; distortion; in/out phase; noise; level differences; missing instrumentation; crosstalk; bad starts; bad ends; fade in/out problems; mono vs. stereo; Listen; cue; monitor; analyse; rewind; check; specify area; observe through use of professional studio monitoring (2 fields –A/B); professional headphones; stereo; mono; left right speaker cut/mute; sound; music; music technology;