

RECOMMENDATION ITU-R BS.1661

“Signal-on-the-air” specifications of the digital system described in Annex 1 to Recommendation ITU-R BS.1514 for digital sound broadcasting in the broadcasting bands below 30 MHz

(Question ITU-R 60/6)

(2003)

The ITU Radiocommunication Assembly,

considering

- a) that Recommendation ITU-R BS.1348 on service requirements for digital sound broadcasting in these bands specifies a series of requirements that are focusing system developers in several countries to overcome the current deficiencies in audio quality and signal robustness and to provide new services;
- b) that Annex 1 to Recommendation ITU-R BS.1514 recommends the system characteristics which meet the service requirements of Recommendation ITU-R BS.1348;
- c) that the work of Joint Rapporteur Group ITU/International Electrotechnical Commission (IEC) resulted in a suitable complement to Recommendation ITU-R BS.1514 on the “signal-on-the-air” specifications;
- d) that IEC prepared an International Standard IEC 62272-1 based on the European Telecommunications Standards Institute (ETSI) TS 101980 (V1.2.1) with an official copyright agreement between ETSI and IEC,

recommends

1 that, when the digital system described in Annex 1 to Recommendation ITU-R BS.1514 is used for broadcasting in the bands below 30 MHz that are allocated to the broadcasting service, the specifications defined in IEC 62272-1, as shown in Annex 1, should be used.

Annex 1**IEC Standard 62272-1**

IEC Standard 62272-1 is available in electronic form at ITU website: http://www.itu.int/md/choice_md.asp?id=R00-WP6E-C-0284!P1!ZIP-E&lang=e&type=sitems. IEC Standard 62272-1 refers to version 2003 only, which is the version approved by administrations of Member States of ITU in application of Resolution ITU-R 1-3 on 11 December 2003. By agreement between ITU and IEC, this version was authorized for use by IEC and accepted by ITU-R for inclusion in this Recommendation. Any subsequent version of IEC Standard 62272-1 which has not been accepted and approved by ITU-R is not part of this Recommendation. For subsequent versions of IEC documents, the reader should consult the IEC website: <http://www.iec.ch/>.

Appendix 1 gives a short introduction to the IEC Standard 62272-1.

Appendix 1 to Annex 1

IEC Standard 62272-1

Introduction to IEC Standard 62272-1

This Standard is based on the technical specification ETSI TS 101980 V1.2.1 (2002) and was prepared by Joint Rapporteur Group ITU/IEC (CA Decision 110/20) which includes TC 103, Transmitting equipment for radiocommunication, the working group dealing with this matter: Document 103/18/NP (Digital radio in the bands below 30 MHz – Part 1: System aspects). The Joint Rapporteur Group has been set up to achieve a double logo standard (ITU and IEC).

This part of IEC 62272-1 describes as follows the frequency bands used for broadcasting below 30 MHz:

- low frequency (LF) band – from 148.5 kHz to 283.5 kHz, in ITU Region 1 only;
- medium frequency (MF) band – from 526.5 kHz to 1 606.5 kHz, in ITU Regions 1 and 3 and from 525 kHz to 1 705 kHz in ITU Region 2;
- high frequency (HF) bands – a set of individual broadcasting bands in the frequency range 2.3 MHz to 27 MHz, generally available on a worldwide basis.

These bands offer unique propagation capabilities that permit the achievement of:

- large coverage areas, whose size and location may be dependent upon the time of day, season of the year or period in the (approximately) 11 year sunspot cycle;
- portable and mobile reception with relatively little impairment caused by the environment surrounding the receiver.

There is thus a desire to continue broadcasting in these bands, especially in the case of international broadcasting where the HF bands offer the only reception possibilities which do not also involve the use of local repeater stations.

However, broadcasting services in these bands:

- use analogue techniques;
- are subject to limited quality;
- are subject to considerable interference as a result of the long-distance propagation mechanisms which prevail in this part of the frequency spectrum and the large number of users.

As a direct result of the above considerations there is a desire to effect a transfer to digital transmission and reception techniques in order to provide the increase in quality which is needed to retain listeners who, increasingly, have a wide variety of other programme reception media possibilities, many of which already offer higher quality and reliability.

In order to meet the need for a digital transmission system suitable for use in all of the bands below 30 MHz, the Digital Radio Mondiale (DRM) consortium was formed in early 1998. The DRM consortium is a non-profit making body which seeks to develop and promote the use of the DRM system worldwide. Its members include broadcasters, network providers, receiver and transmitter manufacturers and research institutes. More information is available from their website (<http://www.drm.org/>).
