

# From FM to digital radio

## Coverage calculations

The coverage calculations are based on the Geneva 2006 agreement (GE06).

(<http://www.itu.int/pub/R-ACT-RRC.14-2006/en> )

- Field strength 66 dB $\mu$ V/m, 10 meter above ground level (magl)
- Field strength 54 dB $\mu$ V/m, 1.5 magl (12 dB attenuation from 10 to 1.5 magl)
- Building Penetration Loss: 6-12 dB (wooden/ concrete houses)
- Road coverage 48 dB $\mu$ V/m, 1.5 magl

Reference Planning Configuration 5 (RPC5) for T-DAB is used.

Reference Planning Configuration for T-DAB	RPC 5
Reception Mode	Portable Indoor
Reference Location Probability	95%
Reference, C/N (dB)	15
Minimum field strength ( $E_{med}$ ) <sub>ref</sub> (dB( $\mu$ V/m)) 10 magl	66
Minimum field strength ( $E_{med}$ ) <sub>ref</sub> (dB( $\mu$ V/m)) 1.5 magl	54

Table showing Reference Planning Configuration for T-DAB according to GE06

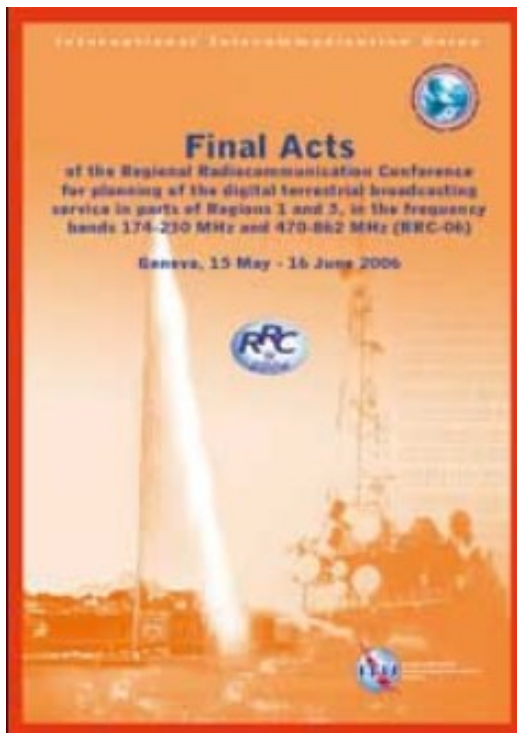
The ITU-recommended propagation model, ITU-R P.1546-5, is used in the calculations.

Additional figure used in presentations:

• <b>White</b>	<b>&lt;42 dB<math>\mu</math>V/m</b>	<b>No coverage</b>
• <b>Bright violet</b>	<b>42 – 48 dB<math>\mu</math>V/m</b>	<b>Car reception / outdoor reception portable receivers</b>
• <b>Dark violet</b>	<b>48 – 54 dB<math>\mu</math>V/m</b>	<b>Indoor reception wooden buildings, rural areas</b>
• <b>Orange</b>	<b>&gt;54 dB<math>\mu</math>V/m</b>	<b>Indoor reception wooden buildings urban areas</b>
• <b>Orange</b>	<b>&gt;60 dB<math>\mu</math>V/m</b>	<b>Indoor reception concrete buildings urban areas</b>

Field strength DAB coverage criteria 1.5 magl. (Based on Geneva 06/ RPC5)

54 dB $\mu$ V/m is the coverage criteria outdoor 1.5 meter above ground level according to GE06



Final Acts of the Regional  
Radiocommunication Conference for  
planning of the digital terrestrial  
broadcasting service in parts of Regions  
1 and 3, in the frequency bands 174-230  
MHz and 470-862 MHz (RRC-06)