

1.2.11 In-band, out-of-band, spurious, unwanted emission

In-band emission is understood as relating to the necessary bandwidth.

The ITU-R Radio Regulations define the followings in Nos. 1.152, 1.144, 1.145 and 1.146:

1.152 Necessary bandwidth: For a given class of emission, the width of the frequency band which is just sufficient to ensure the transmission of information at the rate and with the quality required under specified conditions.

1.144 Out-of-band emission: Emission on a frequency or frequencies immediately outside the necessary bandwidth which results from the modulation process, but excluding spurious emissions.

1.145 Spurious emission: Emission on a frequency or frequencies which are outside the necessary bandwidth and the level of which may be reduced without affecting the corresponding transmission of information. Spurious emissions include harmonic emissions, parasitic emissions, intermodulation products and frequency conversion products, but exclude out-of-band emissions.

1.146 Unwanted emissions: Consist of spurious emissions and out-of-band emissions

These definitions are illustrated in the following figure (see also Figure 1 in ECC Recommendation (02)05 [\[18\]](#)):

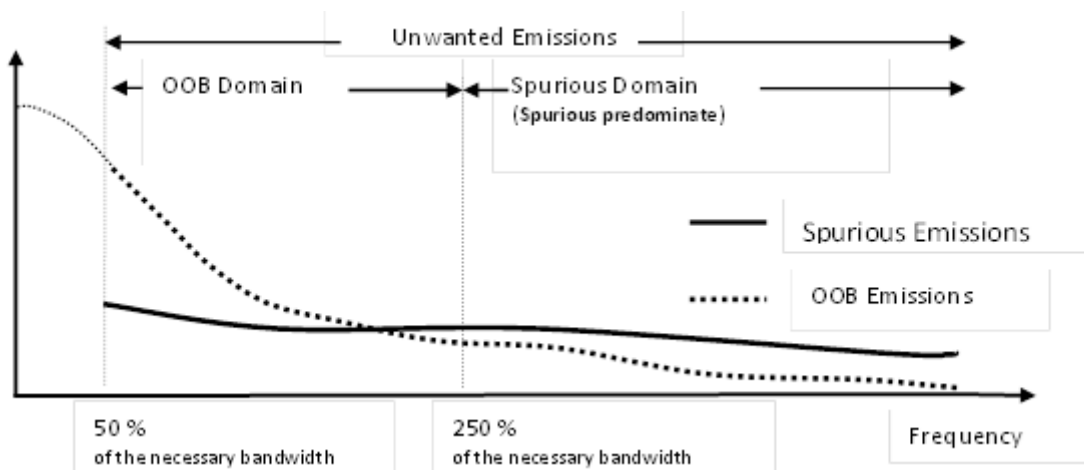


Figure 3:

Illustration of the OOB and Spurious Domains