10.4.4 Adjacent channel scenario - e.i.r.p. max. in-block limit

In the case where the WSDs are not allowed to transmit in the same operating frequency as for the victim DTT device, the WSDs can decide to transmit in the adjacent bands or channels. This scenario is illustrated in Figure 234 In this example the WSDs have sensed that in the channel 6 there is a victim system (here a DTT), therefore the WSDs will choose other channels to transmit.

The maximum permitted in-block and out-of-block e.i.r.p. of autonomous CRs would be specified as a function of the guard band with respect to DTT channels used in the local proximity of the CR. The available guard band would be identified by comparison of the detected DTT signal powers against a fixed detection threshold.

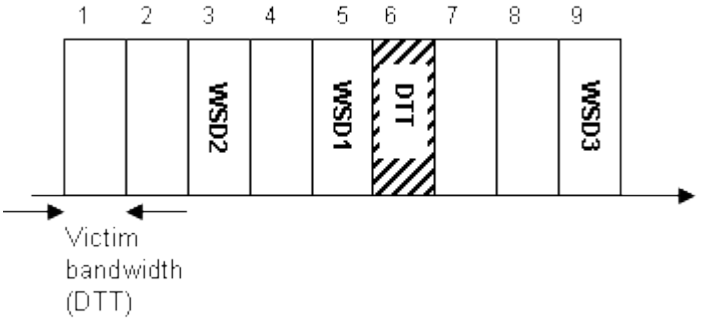

Figure 234: Illustration of WSD1 detecting a victim device in channel 6 and as a consequence decides to operate in channel 3 which is available

The purpose of the SEAMCAT simulation is to investigate the level of interference created by WSDs to the DTT victim device. Therefore the $iRSS_{unwanted}$ and $iRSS_{blocking}$ for a WSD will be computed.

As a reminder, the e.i.r.p. (Equivalent isotropically radiated power) is defined as:

$$e.i.r.p.max = PILT - Lc + GmaxIt \rightarrow VLR \quad \text{(Eq. 66)}$$

where L_c is the cable loss in dB. We will neglect L_c.

Extract the *Tx power = e.i.r.p.* $_{max}$ - $G_{maxIt \rightarrow VLR}$ and calculate the $iRSS_{unwanted}$ and the $iRSS_{blocking}$ from the WSD to the victim DTT device. As a result, the interference calculation can be performed

on the summation of the $iRSS_{unwanted}$ per channel and $iRSS_{blocking}$ per channel in the case where there are multiple active WSDs per channel. The determination of the e.i.r.p. max in-block limit is illustrated in Annex A16.2.

An example of In-block input values (dBm), is presented in Table 49 and Figure 235 illustrates how to set this parameter in SEAMCAT.

Table 49: Example of In-block CR e.i.r.p. max. emission limits as a function of guard band with respect to a victim DTT with channel bandwidth of 8 MHz (source SE43(10)18)

DTT in use at	In-block CR e.i.r.p. $_{max}$ limit (dBm)
co-channel	-¥¥
n ± 1	-12.8
n ± 2	3.2
n ± 3	11.2
n ± 4	16.2
n ± 5	20.2
n - 6	16.2
n + 6	21.2
n ± 7	22.2
n ± 8	23.2
n - 9	4.2
n + 9	23.2
n ± 10	24.2
> *n* ± 11	25.2

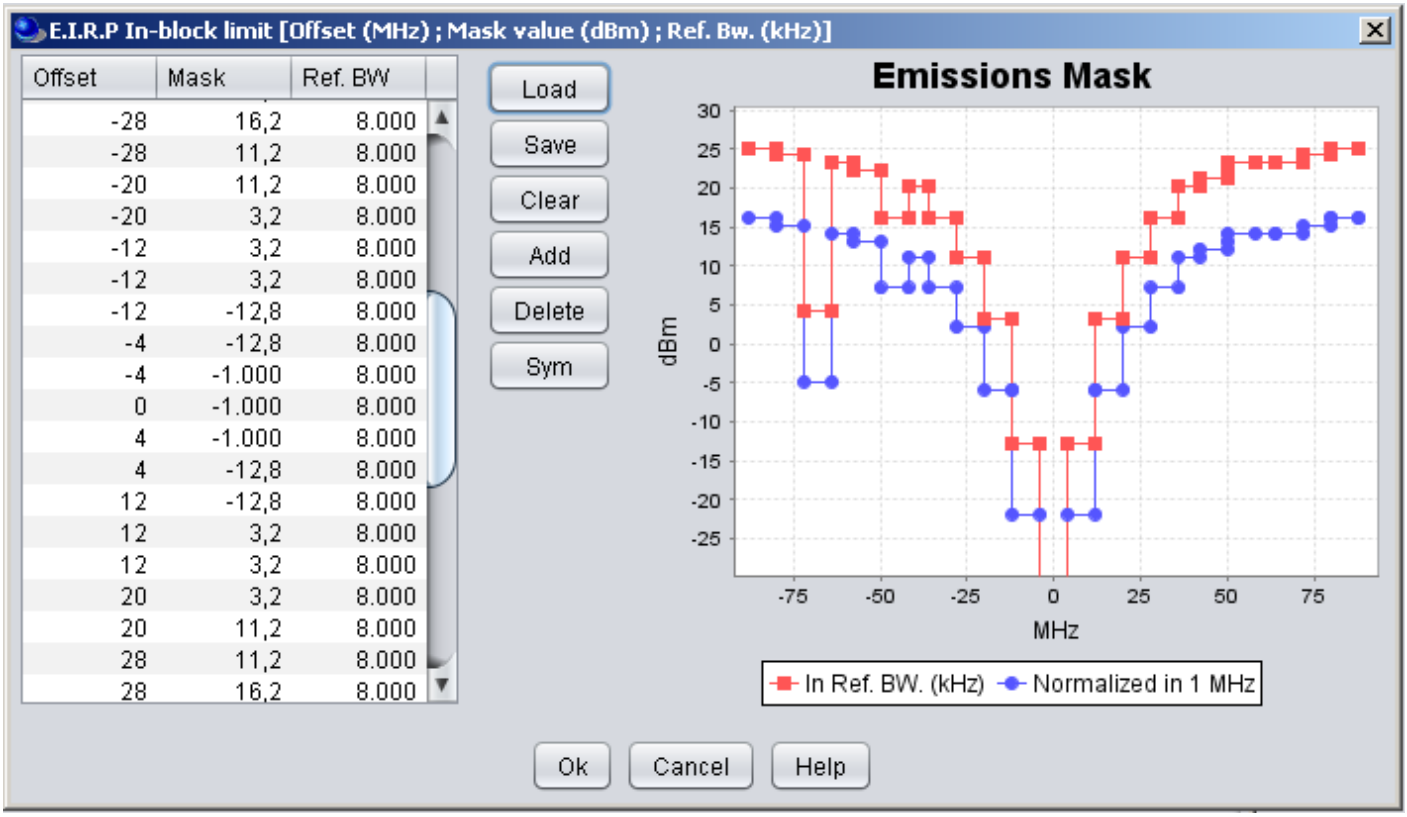

Figure 235: GUI of the In-block CR e.i.r.p. max limit (dBm)

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