4.10 Antenna gain

For simplification, we consider that the Victim link receiver and the Interfering link transmitter are defined using the following assumptions (again 1 km distance between the Interfering link transmitter and the Victim link receiver).

The $iRSS_{unwanted}$ is then:

$$iRSS_{unwanted} = 33\ (dBm) + 11 + Gr - (32.5 + 10\ log(1) + 20\ log(1000)) = -48.5\ dBm + Gr$$

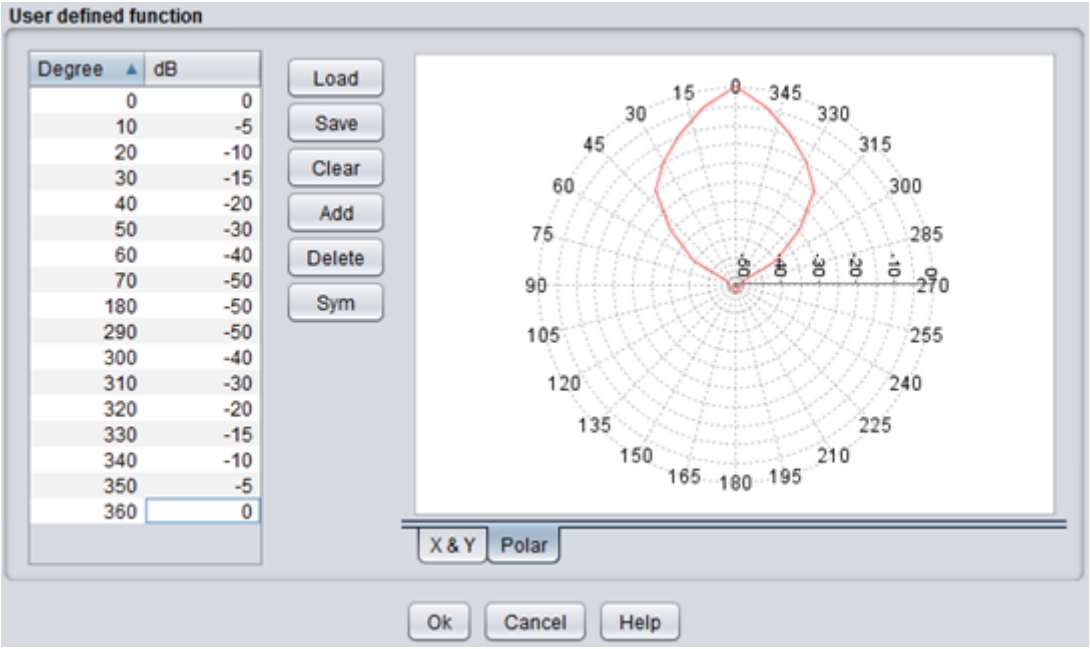

Figure 139: Definition of the antenna gain

In order to investigate the evolution of the iRSS versus the antenna radiation pattern with fixed location of the pairs of transmitters and receivers (i.e. to get random angle arrival and consequently random gain of the antenna radiation pattern), it is possible to rotate artificially the antenna pattern defined in Figure 139 in the azimuth domain. This can be done by rotating the antenna from 0 to 360 by applying a uniform distribution from 0 to 360 deg to the main beam direction (0 deg).

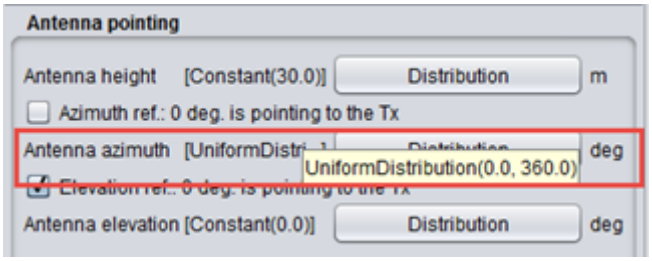

Figure 140: Setting up the rotation in the azimuth domain

The receiver antenna gain extends from 9 dB + (0 to -50 dB) meaning that it varies from +9 dB to -41 dB depending on the azimuth angle (Figure 140), the $iRSS_{unwanted}$ is then :

$$-89.5\ dBm < iRSS_{unwanted} < -39.5\ dBm$$

Results generated by SEAMCAT are presented in Figure 141.

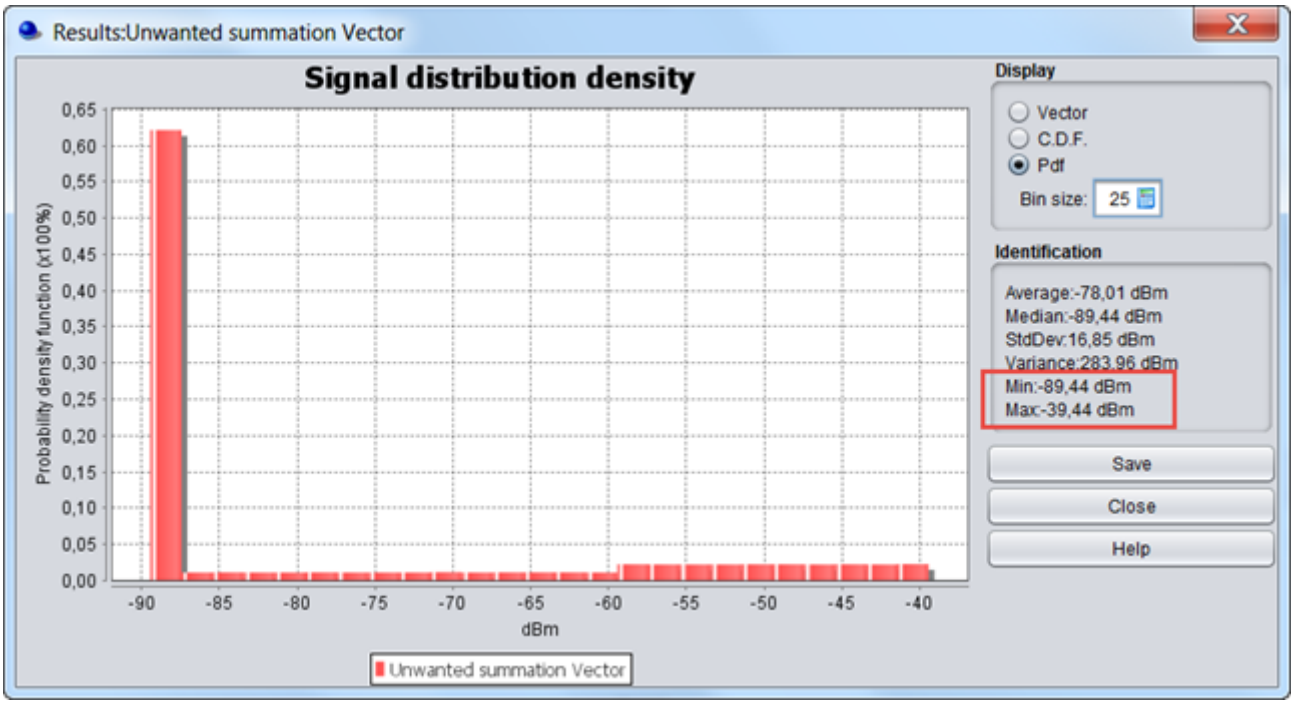

Figure 141: $iRSS_{unwanted}$

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