

DOSIMETRIC EVALUATION FOR WALKIE-TALKIES USED BY CHILDREN

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Nowadays, the walkie-talkie is becoming popular again especially with children. The revival of the walkie-talkie can mainly be attributed to the free-of-charge connection. Furthermore, the quality of the connection has been improved by the implementation of better communication protocols, analog as well as digital. In our research we focused on the devices that use the analog PMR446 standard. PMR446 stands for Private Mobile Radio in the frequency band between 446 MHz and 446.1 MHz. In this frequency band eight channels are available to establish a call using frequency modulation or FM. The effective radiated power is limited to 500 mW. Because it is still unclear if children are more vulnerable to electromagnetic radiation, an SAR study for walkie-talkies is certainly warranted [1]. A model has been developed for the walkie-talkie. In [2], [3], and [4] the SAR has been evaluated for the SAM head and for the standard flat phantom.

The presentation will demonstrate the variation of the SAR values for the walkie-talkie placed in front of the face for head models of different ages (3 years and 7 years old, adult). The SAR has been evaluated for typical positions of the walkie-talkie and compared to the SAR values in the adult Visible Human Head phantom and the standard flat phantom. The impact of age dependence of dielectric properties has also been determined and will be presented.

References

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