

## APPENDIX B: IMPULSE RESPONSES FOR SIGNALS CENTERED AT 2.4 GHz

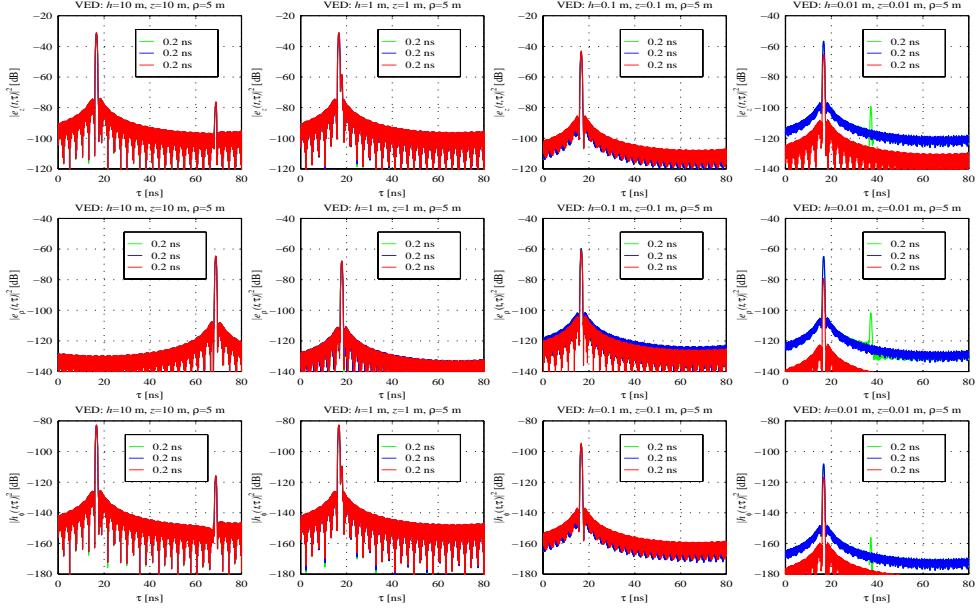


Figure B-1. Near-surface effects on impulse responses of a VED above a concrete half space ( $f_c=2.4$  GHz,  $BW \approx 1$  GHz, threshold=-30 dB). Legends display Sommerfeld, GO + Norton term, and GO approximations to delay spread.

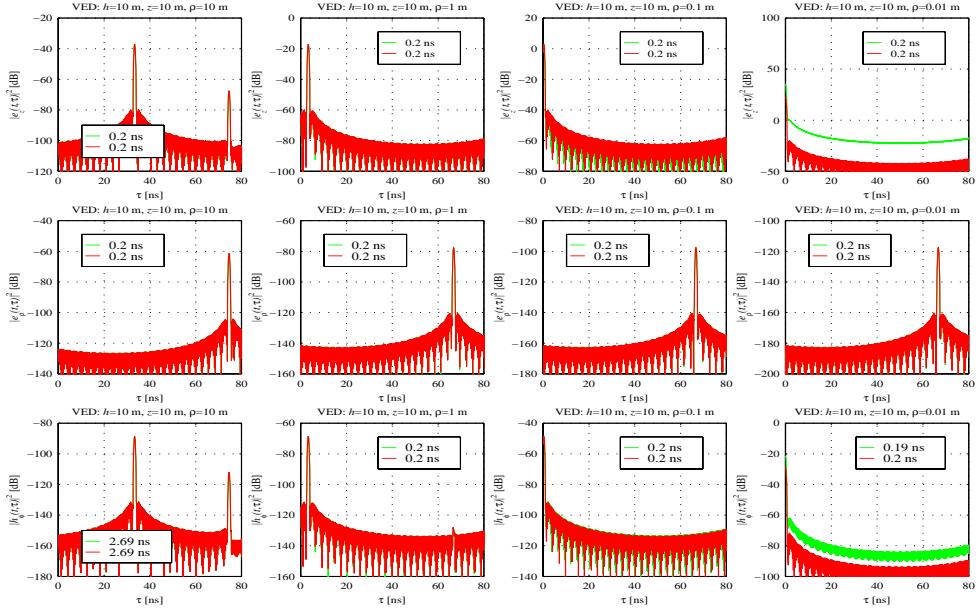


Figure B-2. Near-field effects on impulse responses of a VED above a concrete half space ( $f_c=2.4$  GHz,  $BW \approx 1$  GHz, threshold=-30 dB). Legends display Sommerfeld and GO approximations to delay spread.

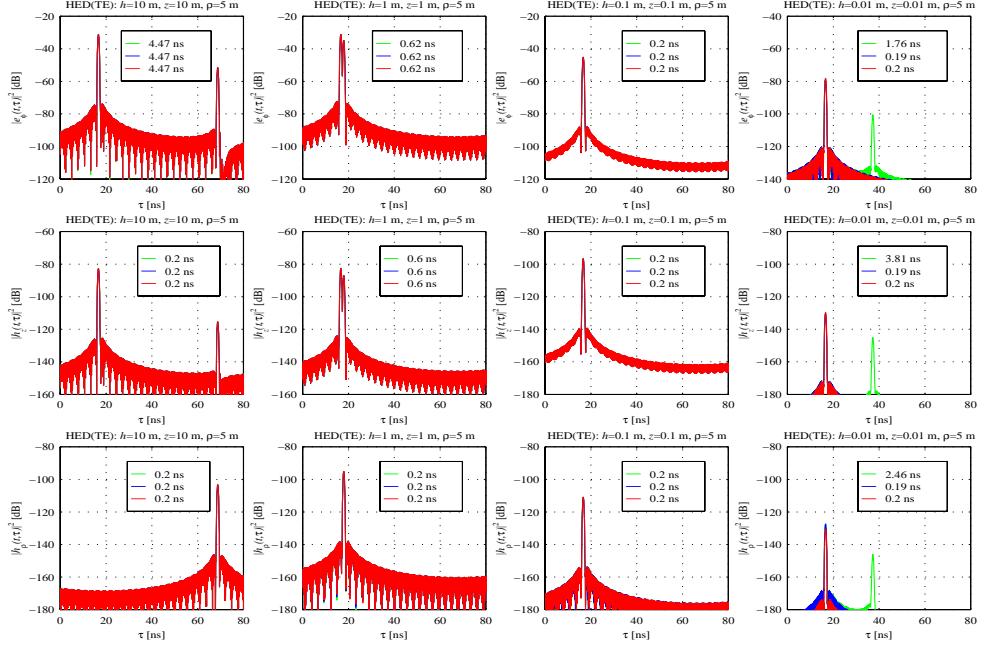


Figure B-3. Near-surface effects on impulse responses of an x-aligned HED above a concrete half space ( $f_c=2.4$  GHz,  $BW \approx 1$  GHz, threshold = -30 dB,  $\varphi=90^\circ$ ). Legends display Sommerfeld, GO + Norton term, and GO approximations to delay spread.

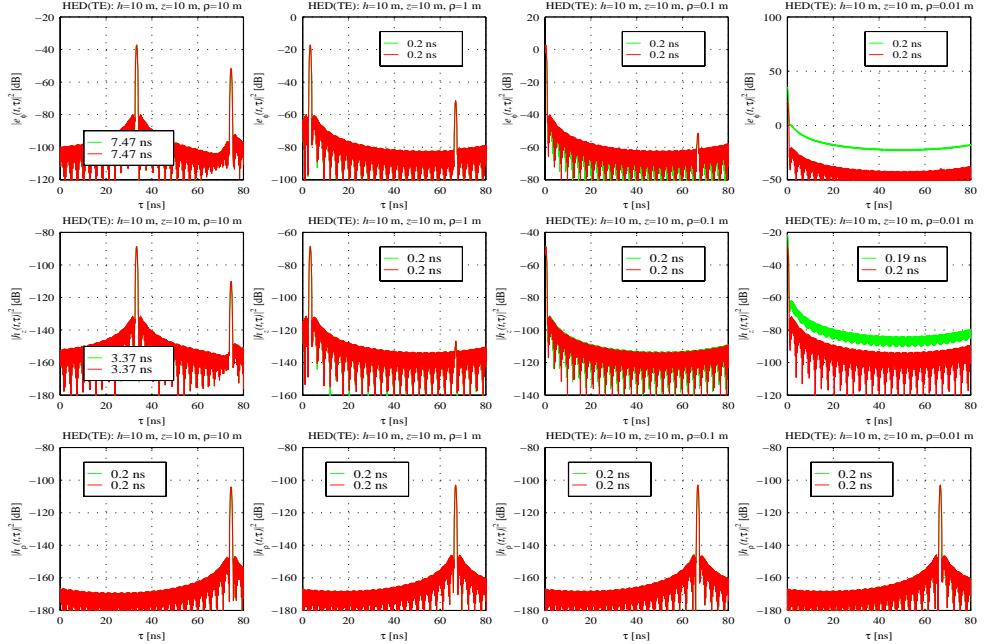


Figure B-4. Near-field effects on impulse responses of an x-directed HED above a concrete half space ( $f_c=2.4$  GHz,  $BW \approx 1$  GHz, threshold = -30 dB,  $\varphi=90^\circ$ ). Legends display Sommerfeld and GO approximations to delay spread.

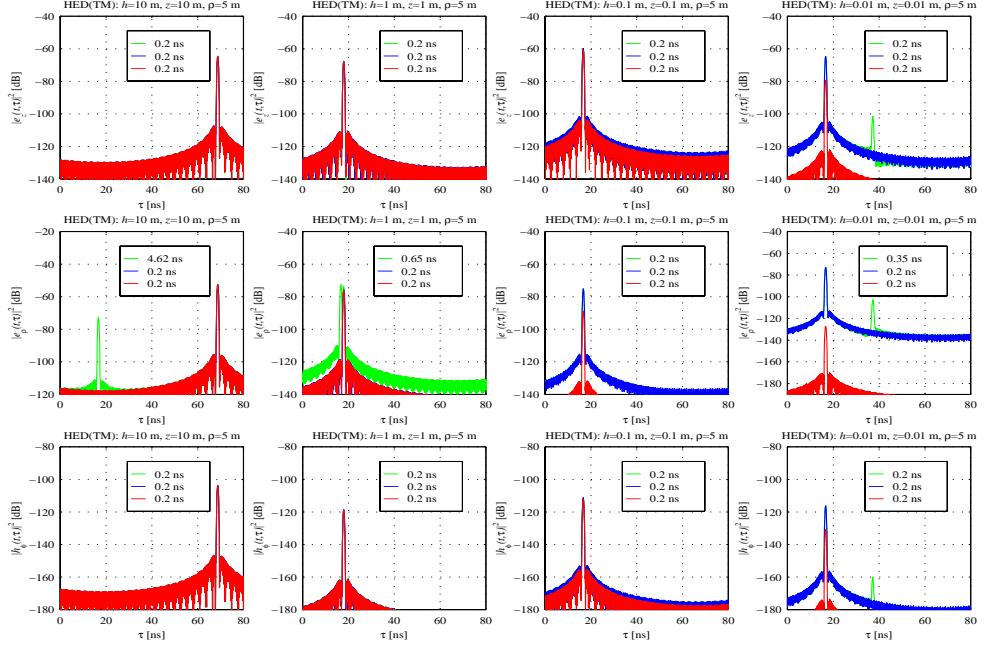


Figure B-5. Near-surface effects on impulse responses of an x-aligned HED above a concrete half space ( $f_c=2.4$  GHz,  $BW\approx 1$  GHz, threshold=-30 dB,  $\varphi=0^\circ$ ). Legends display Sommerfeld, GO + Norton term, and GO approximations to delay spread.

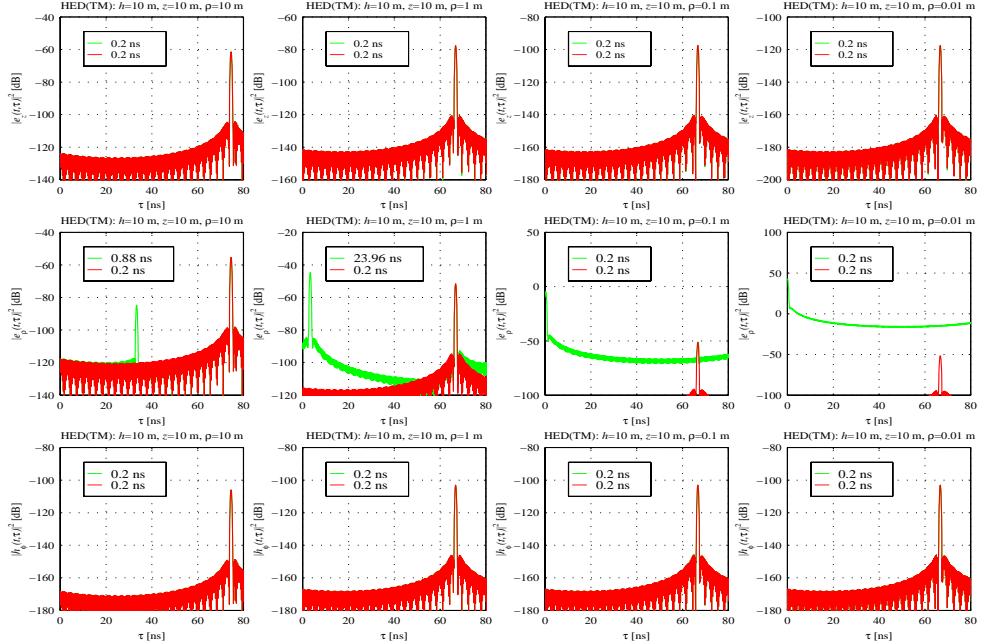


Figure B-6. Near-field effects on impulse responses of an x-aligned HED above a concrete half space ( $f_c=2.4$  GHz,  $BW\approx 1$  GHz, threshold=-30 dB,  $\varphi=0^\circ$ ). Legends display Sommerfeld and GO approximations to delay spread.