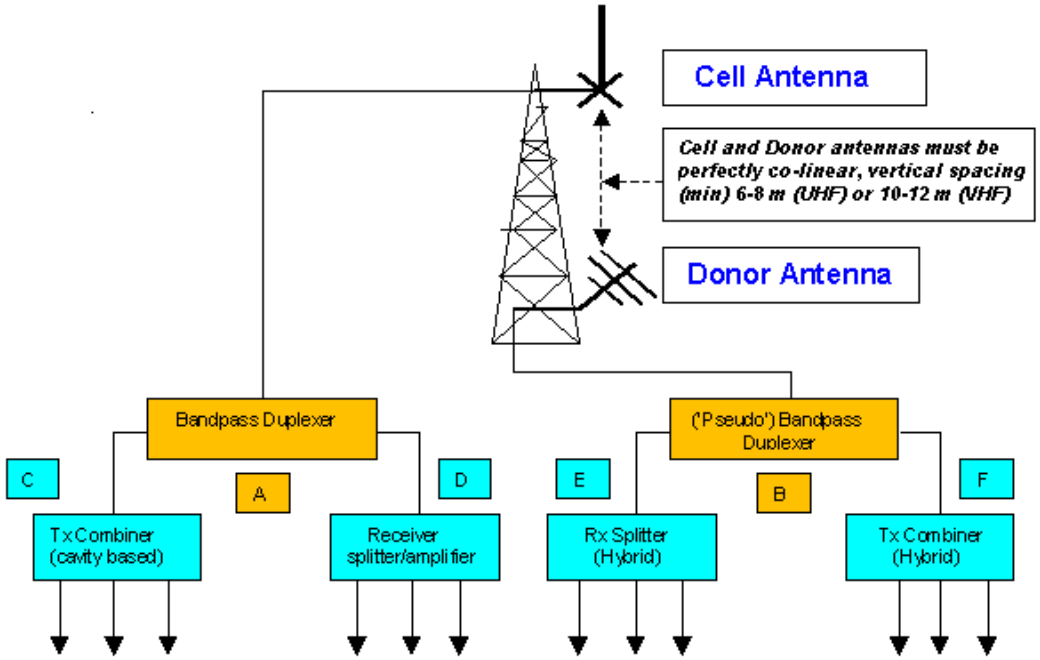
Radio Systems Technologies Pty Ltd ABN 63 127 549 927
P.O. Box 504, Somerville, 3912, Vic, Australia.
Phone: +613 5978 8011 **Fax:** +613 5978 8022
Email: admin@rstradio.com
Web: www.rstradio.com

Typical Cell Extender Antenna System Design Configuration



We recommend a two-antenna system, with a single Cell antenna (usually an omni directional type) mounted at the top of the mast, and a high gain Yagi antenna at the bottom of the mast. Duplexer Item A is usually a full band pass type for optimum output signal performance. Duplexer Item B however can often be a simple low cost mobile ("notch") type duplexer, especially at UHF frequencies, as any possible additional losses due to pass bandwidth limitations are usually of no consequence (since the RF path to the Donor site is normally a high quality straight line of sight path).

It is important that Cell and Donor antennas are installed in a perfectly co-linear position, spaced at the maximum possible distance available on the tower. A minimum spacing of 6 meters at UHF and 10 meters at VHF is recommended.

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Standard radio site combining practice applies to the Cell radio transmitter and receiver combiners, with the Cell transmitter combiner usually cavity based. Donor radio combiner equipment uses hybrid combiner techniques, to a) cover the total frequency spread of the Donor site channels), and b) reduce equipment size and cost. Hybrid combiner and splitters are far more cost effective than cavity based combiner (a typical 3-channel Tx combiner costs around the US$ 500 mark, a 3-channel Rx splitter around the US$ 200 mark). Hybrid combiners and splitters have relatively high pass band losses but, this is generally of no consequence. In fact, these combiner losses often assist in a better overall Site performance.

The above configuration does not necessarily cover possible interference effects from other co-sited transmission equipment. Normal overall Site Engineering practices would need to be applied in addition, to cover such situations.