

**MULTIPLE BEAM WIRELESS TELECOMMUNICATION SYSTEM****Abstract**

Disclosed is a multiple-beam transmitting system for use in a wireless telecommunication system, including a radio transmitter assembly, which can be situated at the bottom of a base station tower, and a transmitter subassembly that can be situated atop the base station tower. The radio transmitter assembly is operative to modulate and frequency translate a plurality of input information-bearing signals. The signals are then combined to form a first FDM signal, which can then be routed to the transmitter subassembly via a single FDM cable running up the tower. The transmitter subassembly includes a power splitter for splitting the first FDM signal into a plurality of second FDM signals and a plurality of frequency translators, each for frequency translating one of the second FDM signals. Each frequency translator thereby places at least one of the information-bearing signals within a predetermined translated frequency band. A multiple-beam-antenna radiates a plurality of antenna beams, with each antenna beam transmitting at least one of the information-bearing signals placed by an associated frequency translator within the translated frequency band. A multiple beam receiving system can be employed to receive incoming signals from wireless terminals.

