

MARK-IV DIGITAL Narrowband Signal Booster Programmable Filters Bandwidth & Selectivity Public Safety 800 MHz Band, Analog & Digital Modulations Available in several sub-bands pre or post re-banding



The **CTI MARK-IV DIGITAL NARROWBAND SIGNAL BOOSTER**, model M4-ChOLC, integrates two sets of front-end programmable narrowband filters with output high-power broadband amplifiers, to deliver a Bi-Directional Narrowband Signal Booster.

Fiber-fed models are available, with or without the high-power amplifiers stages.

FCC Rule 90.219(d) requires Signal Boosters to transmit only your licensed frequencies on the uplink over-the-air path ([see June 2005 FCC Clarification Letter](#)).

The **MARK-IV DIGITAL** uplink amplifiers can be specified as truly channelized narrowband filters tuned to transmit only your licensed channels, in compliance with the FCC 90.7 definition for Class-A Signal Booster.

There are no overlap interference effects, since in the uplink path the dominant signal at the base site receiver is always the booster signal (due to higher booster power and directional antenna). In addition, the downlink path filters can be broader for reduced delays to accommodate the digital modulation signals timing constraints in the overlap coverage areas.

The **MARK-IV DIGITAL** is a patent pending design for multi-carrier two-way rebroadcast systems, where significantly high dynamic range is required on a channel-per-channel basis, while delivering lower & flatter group delay.

The filter's bandwidths & selectivity could be specified by the user in order to achieve very narrow filters windows, such as 100 KHz BW for less than 10 uSec delay per filter, or 12.5 KHz BW with 60 dB rejection at 50 KHz offset for less than 30 uSec delay.

For compliance with the FCC Rule 90.219(d) to transmit uplink over-the-air back to the donor sites or repeaters, the uplink path filters selectivity can be set as a TRUE Class-A Signal Booster per FCC 90.7 definition, with less than 110 uSec delay.

Features & Applications:

- Up to 16 fully programmable filters per path, Uplink and Downlink
- Flat group delay ripple (linear phase response), a must to support P25 and any other digital modulation format.
- <-110 dBm input sensitivity per filter-window
- >120 dB Gain per filter-window
- Individual Automatic Gain Control (AGC) per filter, ensures effective recuperation of weak signals from far-end or worst case situations users, despite other strong simultaneous signals on-scene.
- Individual Rx. Threshold level (Squelch) per window, ensures clean output spectrum with no amplified noise if un-active.
- 20 W output compression point (P1dB) highly linear power amplifiers with 60 dBm OIP3 deliver very low in-band Intermodulation products.
- Fiber-fed options, with integrated RF/optic very low-noise transceivers and remote control data link.