

Channelized Class B – The Best of Both Worlds, A new Hybrid BDA and Fiber DAS Solution

The City and County of San Francisco, Department of Technology - Radio Shop, recently amended their ERRCS (Emergency Radio Responder Communication System) code requirements for BDAs and Fiber DAS installations with immediate compliance required. This new code change was driven largely to accommodate a higher number of active radio channels as they work to simultaneously maintain two public safety networks during a migration to a new P25 Phase 2 network.

This new San Francisco requirement would not allow the use of a standard ERRCS Class A or Class B BDA product in the market, so the City asked OEMs who manufacture BDAs and Fiber DAS solutions to meet their unusual requirements. Steven Cheng, Comba's Public Safety Product Manager, worked diligently with the City of San Francisco and Comba's R&D team to create a special software version for our Class A BDAs and Fiber DAS that can provide 100kHz and 150kHz filters while complying with the sub 15 μ delay requirement. Comba was able to develop this special software in *less* than a week and have it tested and verified by San Francisco's Radio Shop shortly thereafter. Within a month of this new requirement being enforced, local system integrators were purchasing this new customized product and installing them to comply with San Francisco's code.

These new specialized BDAs and Fiber DAS products are now available nationwide as interest in them has increased beyond the requirements of the City of San Francisco. What makes these products unique are that they combine the features of a Channelized Class A solution into a Wideband Class B architecture.

Public safety BDAs and Fiber DAS solutions are categorized as Class A only if the products filter bandwidths are 75kHz or narrower. As these new solutions have 100kHz and 150kHz wide filters, they cannot be categorized as Class A, so they need to be listed as Class B devices per FCC regulations. However, typically Class B BDAs and Fiber DAS have wideband filters (typically up to 3 wideband filters) – and they are prone to adding noise to the public safety network increasing the noise floor because they pass all RF within a certain frequency range, (voice traffic and other forms of RF) - not just the channels utilized by the jurisdiction.

The features which this new Channelized Class B device offers over typical Class B wideband solutions are:

- Ability to accommodate up to 32 filters per band. These new Comba Channelized Class B devices can accommodate even jurisdictions that have high channel counts, such as Miami-Dade, FL or Orange County, CA.
- With the wider 100kHz or 150kHz filters, it can handle multiple channels within this bandwidth, potentially increasing the overall capability for more than 32 channels per band, by being able to possibly fit more than one channel within a filter. (Note that this is not a guaranteed possibility – will be based on a case by case basis).
- Utilizing either 100kHz or 150kHz filters lowers the group delay to less than 15 μ which works better for TDMA (Time-Division Multiple Access) networks.
- Channelized Uplink Squelch and Channelized (ALC) Automatic Level Control can be applied to each of the filters to have less impact on the noise floor at the donor site and address any potential near-far problems.



These new hybrid Channelized Class B BDAs and Fiber DAS solutions can offer the perfect balance for those AHJ's (Authorities Having Jurisdiction) that have specific requirements to support their public safety network.

Comba's dedication to the public safety in-building communications industry is un-wavering as we look to support the industry by working closely with AHJ's, System Integrators, Architects and Designers to help provide the best overall solution for First Responders.

Public Safety Special Filter BDAs Solution SKUs:

Part Number	Description	List Price (MSRP)	SI Price
RX78SF-B3348-UL	700MHz+800MHz Dual Band Channelized Class B BDA/Repeater, 788-805/758-775MHz, 32CH, 33dBm, 806-824/851-869MHz, 32CH, 33dBm, -48VDC, Supports FirstNET, UL2524 Compliant	\$12,735	\$6,792
RX78SF-B2748-UL	700MHz+800MHz Dual Band Channelized Class B BDA/Repeater, 788-805/758-775MHz, 32CH, 27dBm, 806-824/851-869MHz, 32CH, 27dBm, -48VDC, Supports FirstNET, UL2524 Compliant	\$10,920	\$7,280

Public Safety Special Filter Fiber DAS Solution SKUs:

Part Number	Description	List Price (MSRP)	SI Price
RH7W22-D78B48E8-SF	Public Safety Fiber DAS 700/800MHz Master Unit with 8 optical ports, Channelized Class B 32 Channels per band, -48VDC	\$15,225	\$10,150
RH7W22-D78B48E4-SF	Public Safety Fiber DAS 700/800MHz Master Unit with 4 optical ports, Channelized Class B 32 Channels per band, -48VDC	\$12,225	\$8,150
RH7W22-R78B3348-SF	Public Safety Fiber DAS 700/800MHz Remote Unit, Channelized Class B 32 Channels per band, 2W per band, -48VDC	\$9,525	\$5,080

If you have any questions regarding these new Channelized Class B BDAs or Fiber DAS solutions, please contact your local Comba Telecom, Inc. representative.