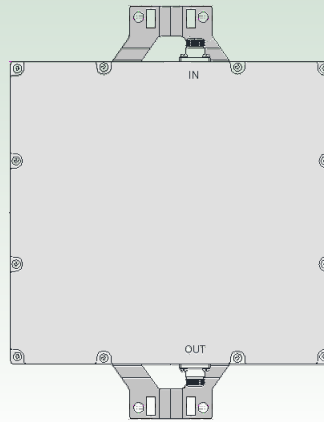


Bandpass Filter Tri-Band Public Safety with FirstNet and Cellular Rejection Model: 95-83L-01-M



DS039403-4
7/25/2024



Need

Minimize interference to Public Safety 700/800MHz communications systems from FirstNet and Cellular systems. These signals can be high power, causing interference with BDA and DAS systems that do not have sharp filtering. Nearby FirstNet band 14 sites can cause interference to wideband BDAs, additionally a BDA may cause interference to a nearby FirstNet site.

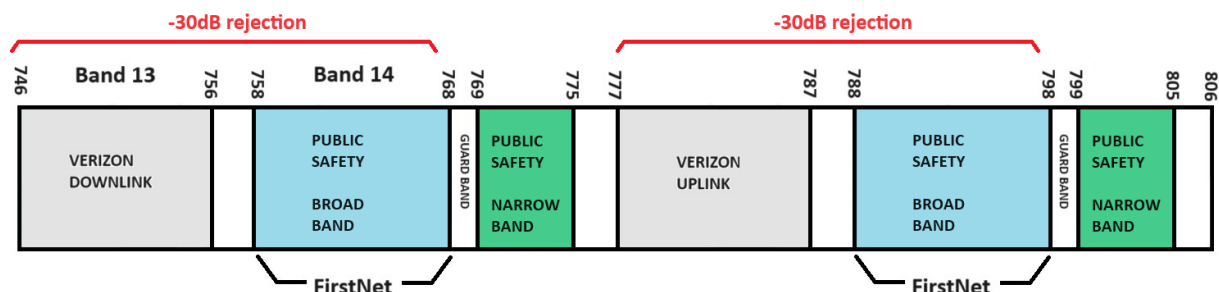
There are many cases where Public Safety DAS systems are seeing interference in 700MHz from FirstNet and Cellular that are located near P25 systems sites. FirstNet seems to be a particular problem because high power FirstNet sites are being implemented.

Solution

In-line Tri-Band filter for Public Safety 700 and 800MHz Uplink and Downlink with rejection of FirstNet and Cellular frequencies. The filters attenuate FirstNet's band 14 while passing the narrowband channels in the 700 and 800 bands.

How it Works and Benefits

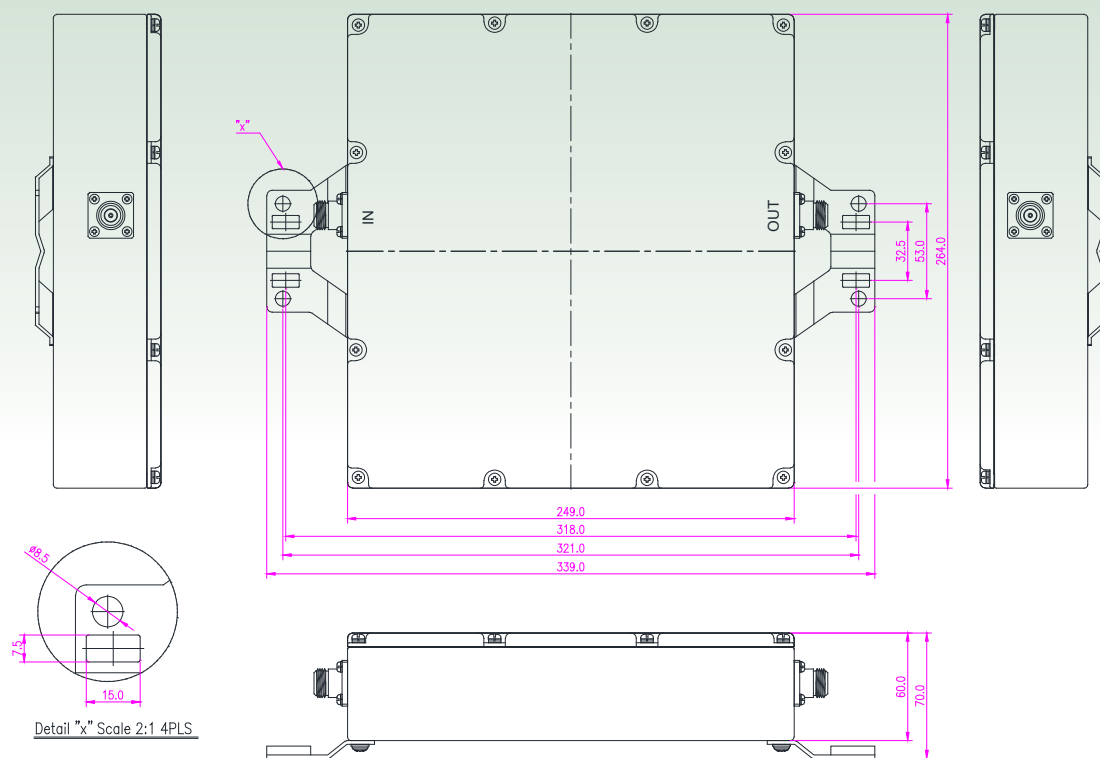
The filter can be installed in-line with BDA and DAS systems in the Donor and/or DAS lines. The filter passes the three major Public Safety frequency bands and will provide a minimum of 30dB reject to the nearby FirstNet and Cellular bands. The filter is small and has low PIM characteristics.



Specifications

	Parameter	Specification
Electrical	3 Filter Passbands	Passband 1: 799-816 MHz (Uplink) Passband 2: 769-775 MHz (Downlink) Passband 3: 851-861 MHz (Downlink)
	Insertion Loss (in passbands)	2.0 dB max
	Return Loss (in passbands)	19.0 dB min
	Out of Band Rejection	30dBc Min @DC~767MHz 30dBc Min @777~797MHz 30dBc Min @818~849MHz 30dBc Min @863~2200MHz
	RF Power	50 W average, 500 W peak
	PIMD (9th order)	150dBc Min @ 2x43dBm Input
	Impedance (all ports)	50 Ω
Mechanical	Size (filter housing)	9.8 x 10.2 x 2.4 (in) H x W x D 249 x 264 x 60 (mm) H x W x D
	Weight	14.3 lbs. 6.5 kg
	RF Connectors	Input and Output ports: Type N-f
	Connector position	See mechanical outline drawing
	Mounting Points	See mechanical outline drawing
	Finish	Gray Color Powder Coating
Environmental	Temperature Range	-20 to +65°C
	Relative humidity	5 - 95%
	Barometric	55 KPa - 106KPa
	Lightning Protection (all ports)	3kA 10/350us, 8kA 8/20 us
	Enclosure rating	IP67
	RoHS	Compliant

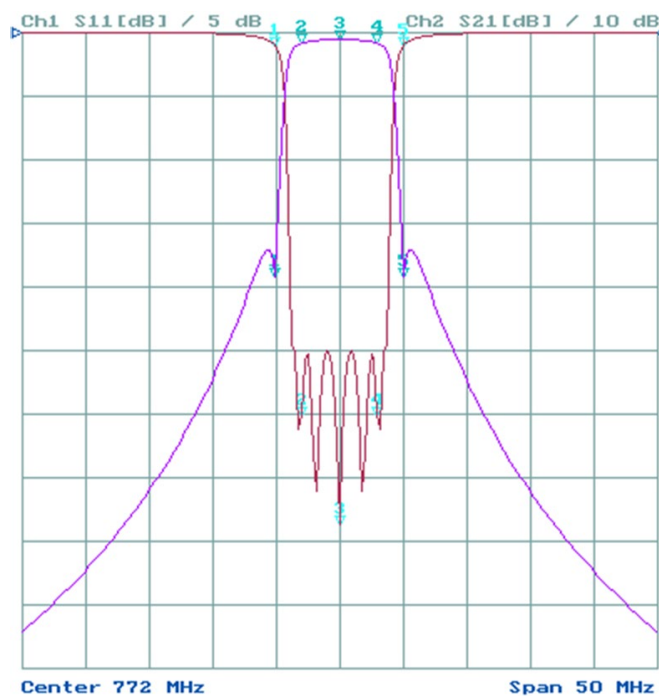
Mechanical Outline



Performance Curves

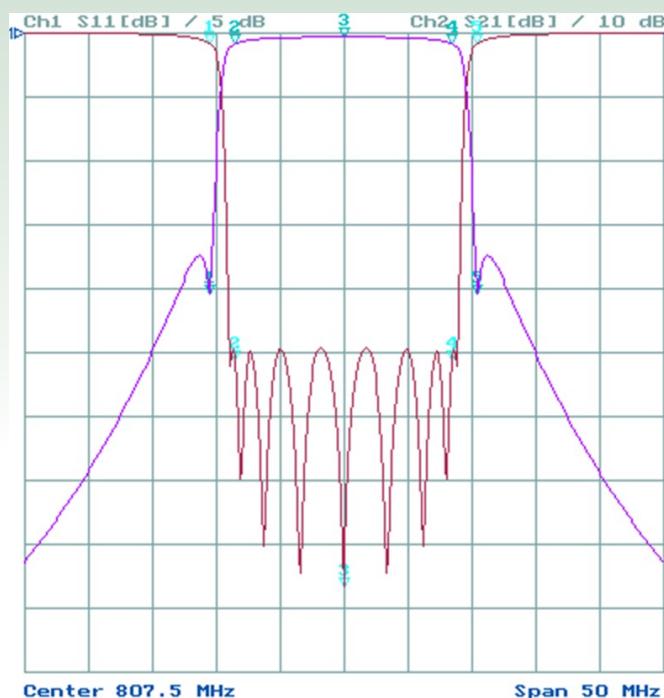
Passband 769-775 MHz

- Marker 1 (767 MHz): -38.5 dB
- Marker 2 (769 MHz): -1.8 dB
- Marker 3 (772 MHz): -1.2 dB
- Marker 4 (775 MHz): -1.8 dB
- Marker 5 (777 MHz): -38.5 dB
- Marker 6 (779 MHz): -97.8 dB



Passband 799-816 MHz

Marker 1 (797 MHz): -40.9 dB
Marker 2 (799 MHz): -1.8 dB
Marker 3 (807.5 MHz): -0.7 dB
Marker 4 (816 MHz): -1.8 dB
Marker 5 (818 MHz): -40.9 dB



Passband 851-861 MHz

Marker 1 (849 MHz): -36.4 dB
Marker 2 (851 MHz): -1.8 dB
Marker 3 (856 MHz): -1.1 dB
Marker 4 (861 MHz): -1.8 dB
Marker 5 (863 MHz): -36.4 dB

