



How To Select a Trap For Premium Channel Control

Before traps can be selected for use in a cable system, certain basic fundamentals must be known; and they include:

1. The number of channels your system is capable of carrying,

Examples:

300 MHz top frequency - 37 downstream channels

450 MHz top frequency - 62 downstream channels

600 MHz top frequency - 87 downstream channels

750 MHz top frequency - 112 downstream channels

860 MHz top frequency - 130 downstream channels

1 GHz top frequency - 154 downstream channels

Channels A-5, A-4, A-3 and FM are excluded from the above examples. The normal channel width is 6 MHz per the NTSC Standards.

2. You must know the number of channels or bandwidth reserved in your system for future growth or expansion. For example: 600 MHz to 1 GHz could be reserved for compressed digital channels, therefore you currently have 87 available channels for your use.

3. You must know the channels that cannot be used due to local interference.

This will determine the number of available channels and their respective frequencies. You can now begin the programming selection for specific channels.

Local broadcasters may insist their channel number be assigned identical to the ones carried by your cable system. If this is the case, these must be assigned first and kept to an acceptable minimum. Low and high bands are generally used in these situations.

Channels bands are defined as follows:

T -7 to T -13	5.75 - 47.75 MHz	Sub low - used for reverse
2 to 6	54.0 to 88.0 MHz	Low Band
FM	88.0 to 108.0 MHz	FM audio spectrum
A-2 to A-1	108.0 to 120.0 MHz	Auxiliary channels
A to I	120.0 to 174.0 MHz	Mid Band channels
7 to 13	174.0 to 216.0 MHz	High Band channels
J to W	216.0 to 300.0 MHz	Super Band channels
AA to 158	300.0 to 1002.0 MHz	Hyper Band channels

The different types of traps available include:

1. Single Channel Negative Trap - video carrier is suppressed; television picture goes to snow.

2. Split tuned single channel negative trap - with a trap adequately sealed to prevent drifting, the poles may be separated between video, color and/or audio to provide adequate trapping; the television pictures go to snow.

3. Tier negative trap - consecutive video carriers are suppressed; television picture goes to snow.

4. Positive filter, discrete jamming - operates on a single channel. Jamming carrier or carriers are added to the channel at the headend. If not decoded, scrambled video and audio will appear at the television set.

5. Positive filter, Side Band Interdiction - similar to the discrete jamming positive filter, the channel is scrambled at the headend, but scrambling is achieved by amplifying the side band video information. If not decoded, scrambled video will appear at the television set and in most cases the audio is removed.

Technical Characteristics of Traps

1. Single channel negative trap - The notch width of the trap increases with frequency and can become objectionable at the higher frequencies; consult the trap specification sheets for best results. The lowest frequency channels are best for traps.

2. Split tuned single channel negative trap - The only traps that can be split tuned are traps such as EAGLE traps that demonstrate excellent sealing characteristics. Split tuning will result in a L.A.S. of 60% of a regularly tuned single channel L.A.S. trap. Consider split tuning only when a single channel trap exhibits excessive L.A.S.

3. Tier negative trap - Tier traps appear as standard tier units, with high pass and low pass characteristics. In a single channel trap, all poles are centered on the video carrier providing a very deep, usually 70 dB, extremely sharp notch. The tier trap differs because it spreads its poles over many channels, subsequently, reducing the notch depth to about 50 dB with wider slopes. For a specific number of poles, the slopes widen with higher frequencies and also widen when the number of trapped channels are increased. In some cases, unusable channels may occur at the slopes.

4. Positive filter, discrete jamming - Discrete jamming carrier or carriers are inserted mid-way between the video and audio; therefore channel limitations occur when the decoding notch excessively lowers the video carrier. See specification sheets.

Pre-emphasis is included in the headend encoder to sharpen the edges of the decoded video.

Positive filters assigned to lower frequencies perform best.

5. Positive filter, Side Band Interdiction - similar to the discrete jamming system, channel limitations are dependent on video loss. See specification sheets.

Side Band Interdiction filters can be used at higher frequencies, because the filter responses are narrower than those of the discrete jamming design.

Because the interdicting and decoding responses are near symmetrical, the result is a cleaner, clearer decoded television picture.

Positive Side Band Interdiction filters assigned to lower frequencies perform best.

Penetration Considerations When Selecting the Type of Traps to be Used

Premium channel suppliers must initially be consulted when determining the restrictions of channel control.

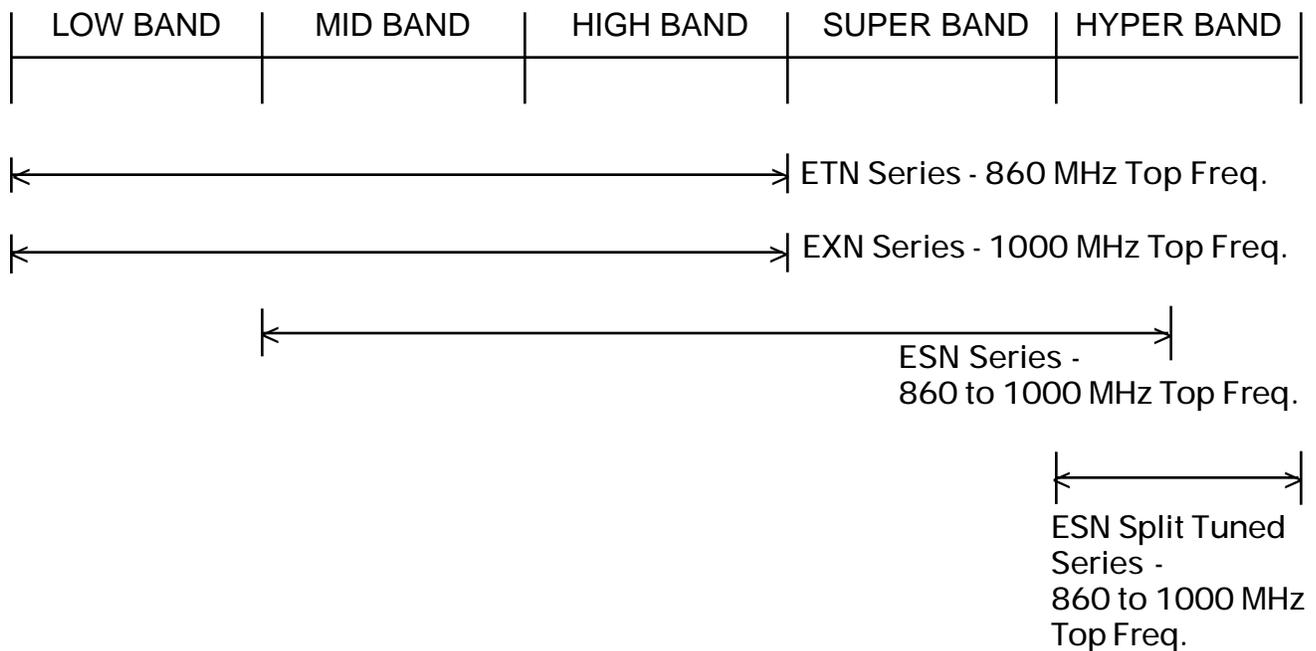
Penetration estimates must be established before any trap selections are made. Consulting near-by systems of similar size may help in determining penetration guidelines.

Use single channel negative traps, including split tuned for anticipated penetration levels of 55% or more.

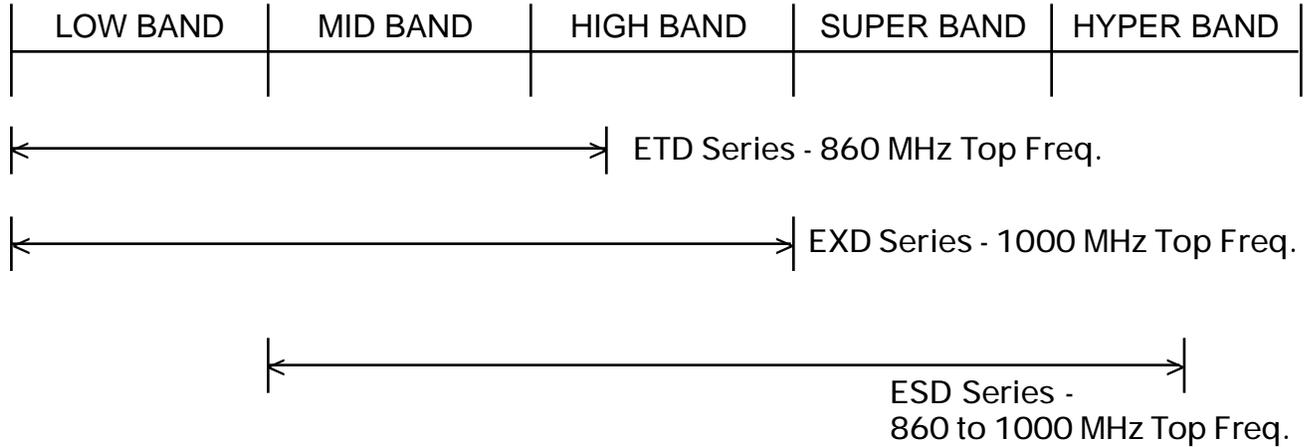
Use single channel positive filters, for expected penetration of 20% or lower.

Use tier trap combinations for individual penetrations of 55 to 20%.

Recommended Usage For EAGLE Single Channel Negative Traps



Recommended Usage For EAGLE Single Channel Positive Filters



Recommended Usage For EAGLE Tier Traps

Because of the variety of tier traps that are currently available and also because of the need to design new or special order configurations, please call your friendly EAGLE Customer Service Representative for a copy of the plot you require.

Recommended Usage For EAGLE Suppression Traps

For subscribers with no sub low return information; use EAGLE 4HP-53 or 4HP-50.
 For subscribers with return information, use EAGLE Trap 8X5NF-A-B. A & B frequencies will be determined by the requirement of the return bandwidth.



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