

# Performance Measurement Z10020 Band Reject Filter for K2ORS

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Measurements by

Clifton Laboratories

[www.cliftonlaboratories.com](http://www.cliftonlaboratories.com)

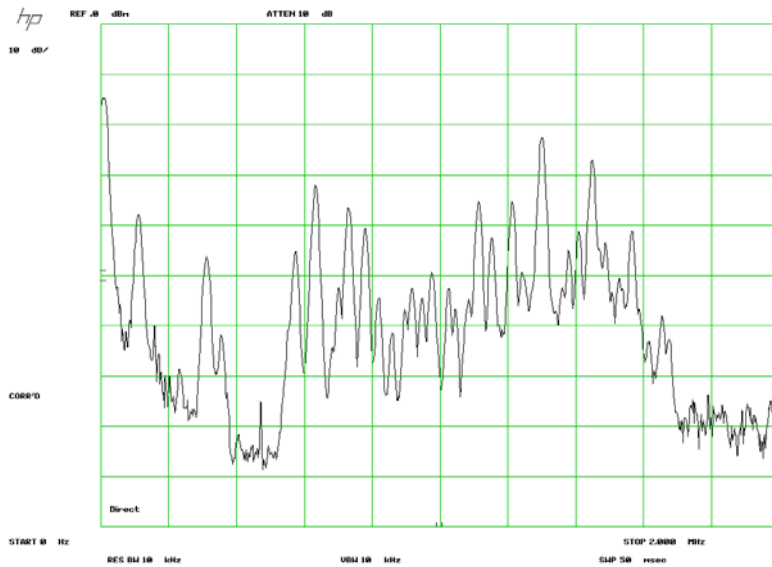
# Z10020 Filter

- Z10020 Band Reject filter reduces signals in the AM medium wave band and passes signals above and below the medium wave band.
- The filters built for K2ORS have a modified lower 3dB point to reduce loss at Non-directional beacon and NAVTEX frequencies.

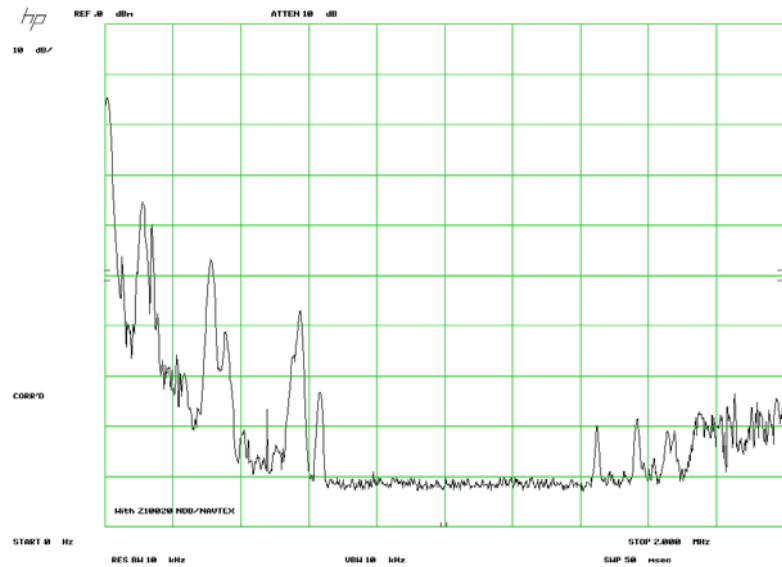


For a view of how effective the filter is, the medium wave band as seen at Clifton Laboratories with and without the filter

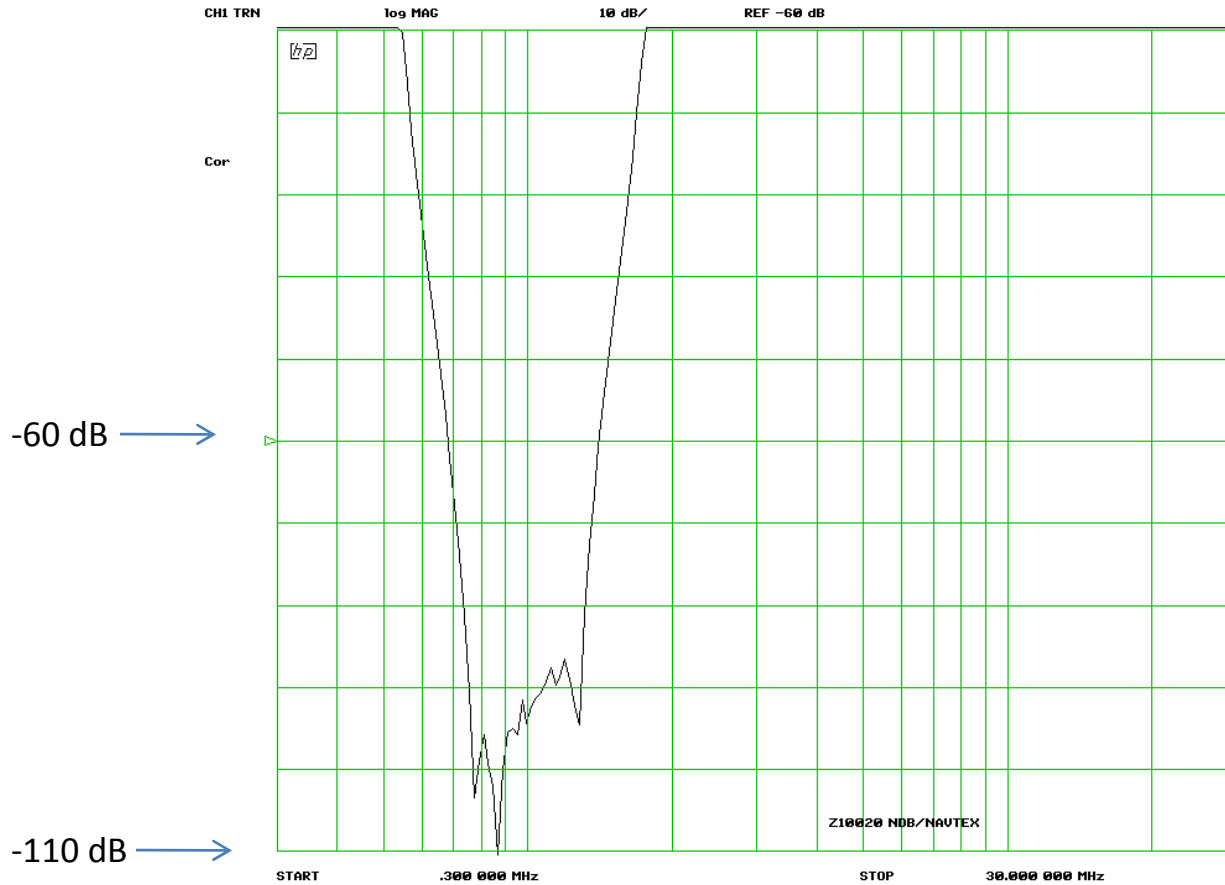
0-2 MHz without filter



0-2 MHz with filter



# Frequency Response 300 KHz – 30 MHz



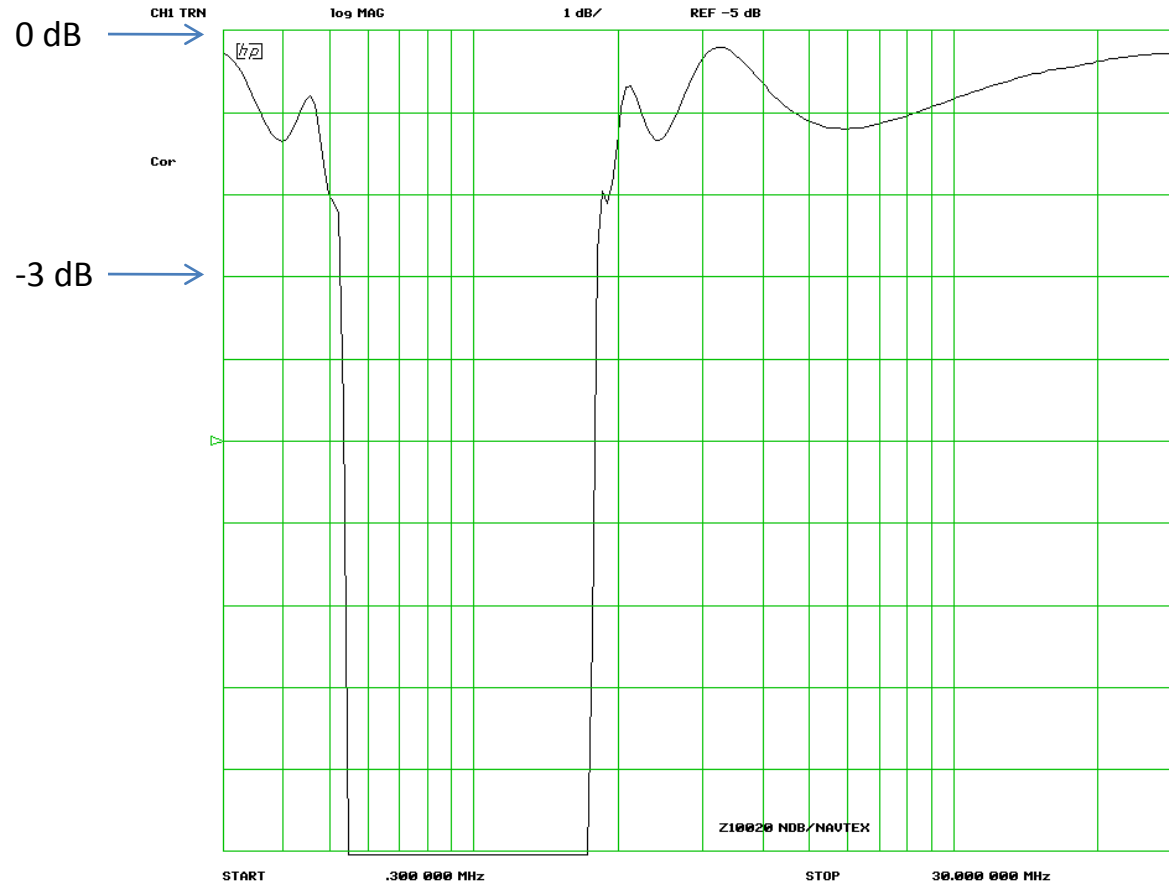
Frequency Axis is log scale

## Loss at Spot Frequencies of Concern

| Frequency (KHz) | Loss (dB) | Frequency (KHz) | Loss (dB) |
|-----------------|-----------|-----------------|-----------|
| 850             | -104      | 1550            | -39       |
| 1030            | -92       | 680             | -60       |
| 1060            | -90       | 830             | -103      |
| 1120            | -88       | 1200            | -88       |
| 1510            | -44       |                 |           |

# Frequency Response

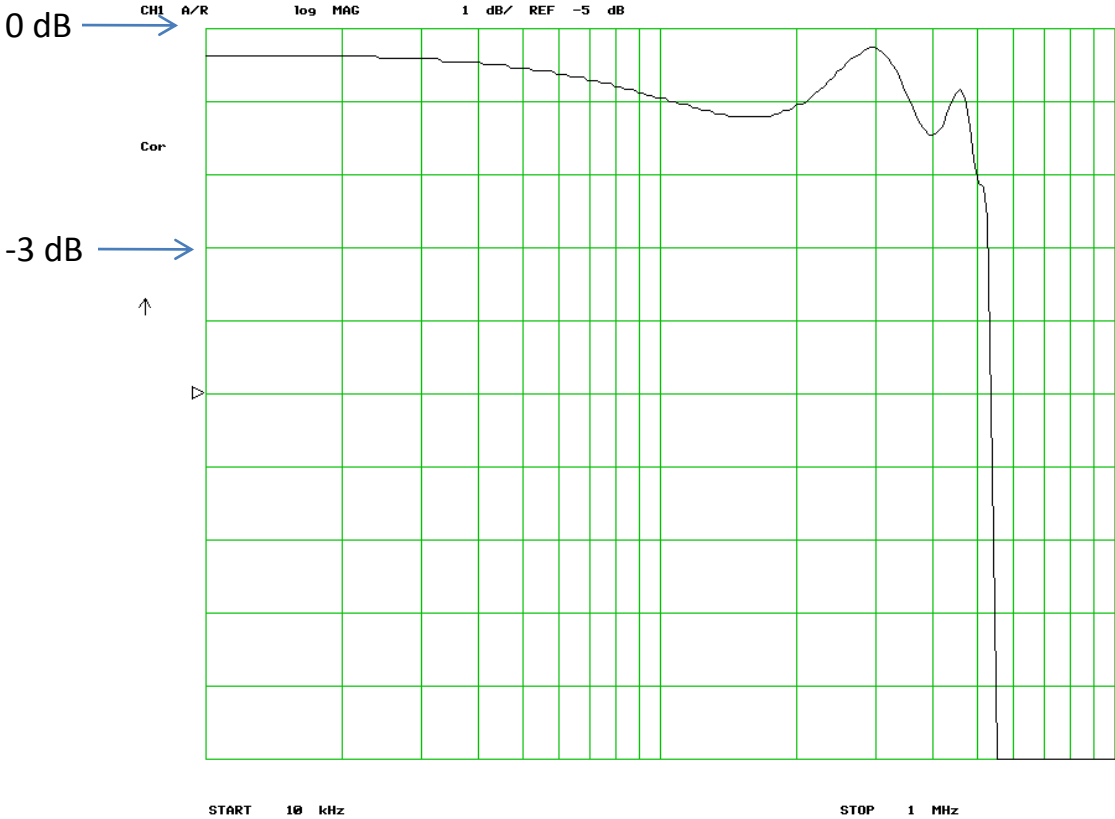
## 300 KHz – 30 MHz – Expanded View of Pass Region



Frequency Axis is log scale

# Low Frequency Response

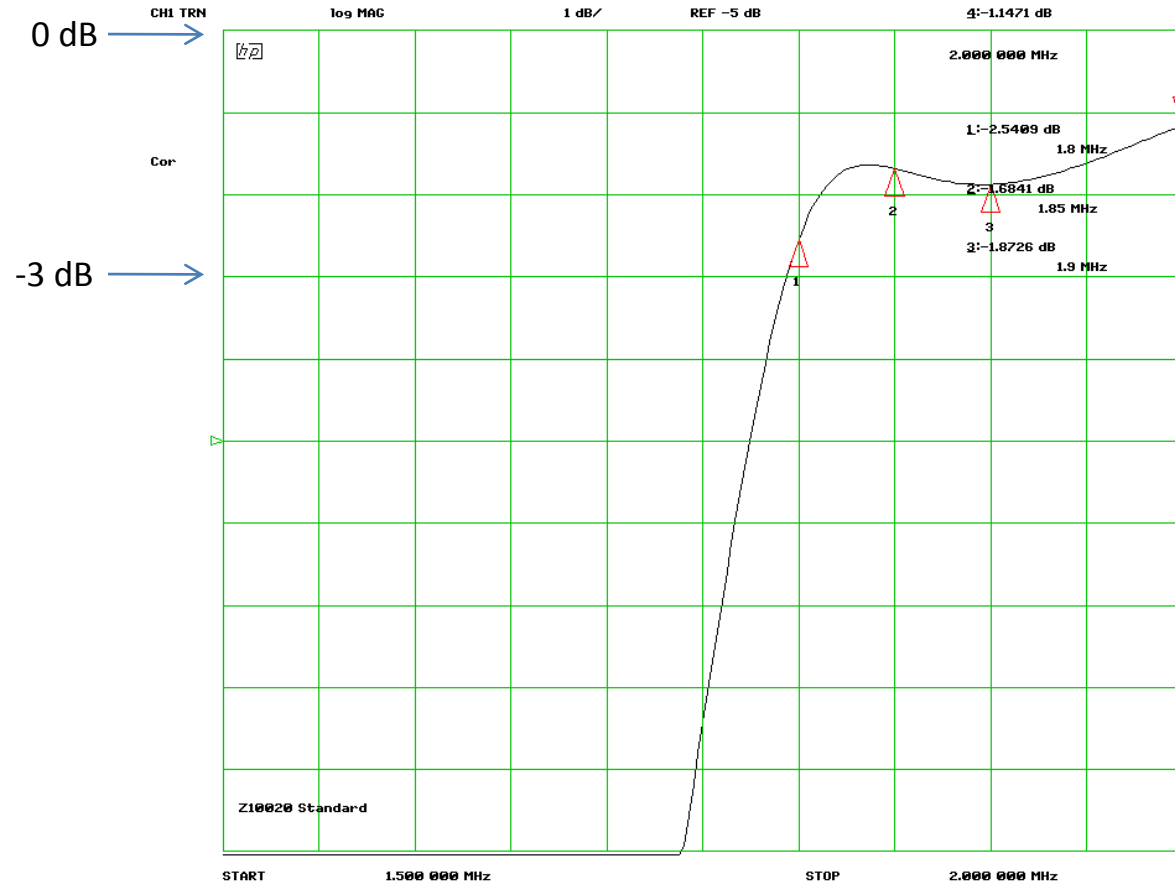
## 10 KHz – 1 MHz – Expanded View of Pass Region



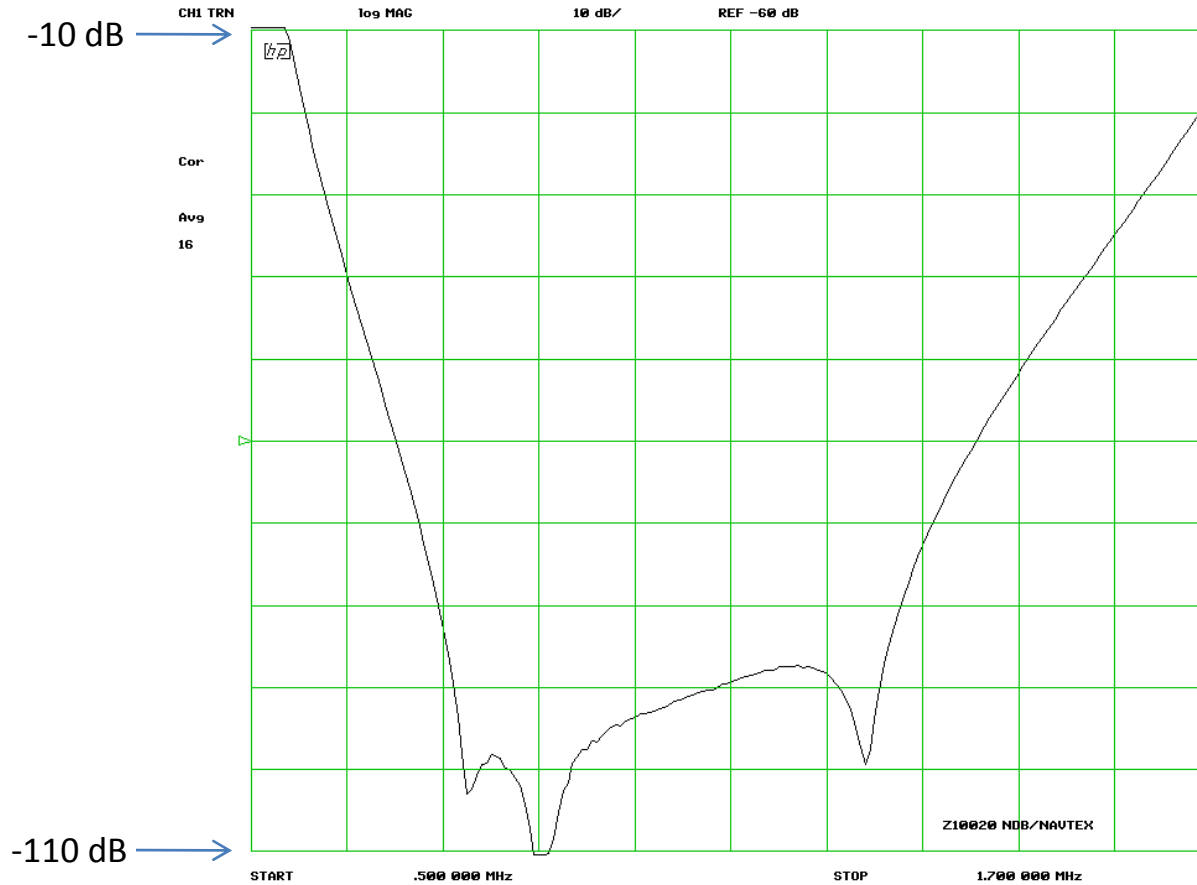
Frequency Axis is log scale

# 160 Meter Band Frequency Response

## 1500 KHz – 2000 KHz – Expanded View of Pass Region

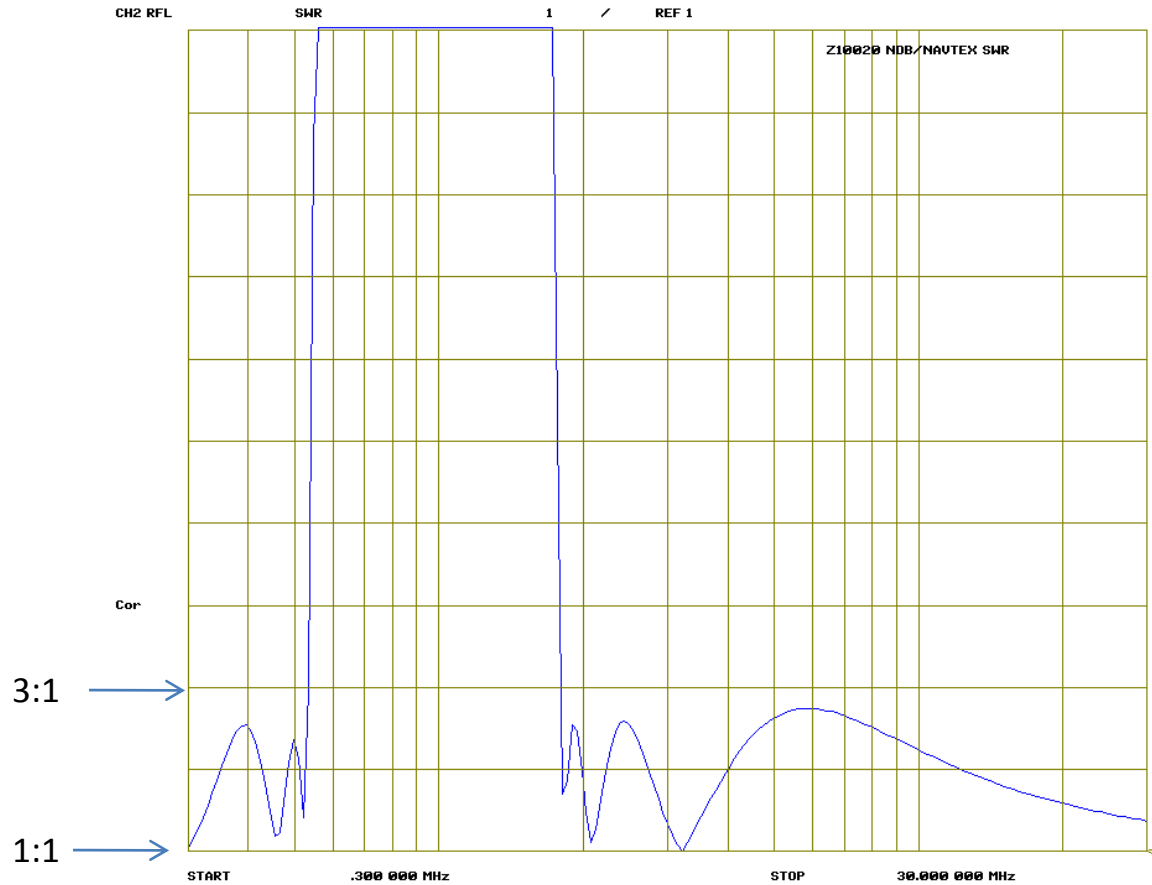


# AM Medium Wave Stop Band 500 KHz – 1700 KHz



# SWR

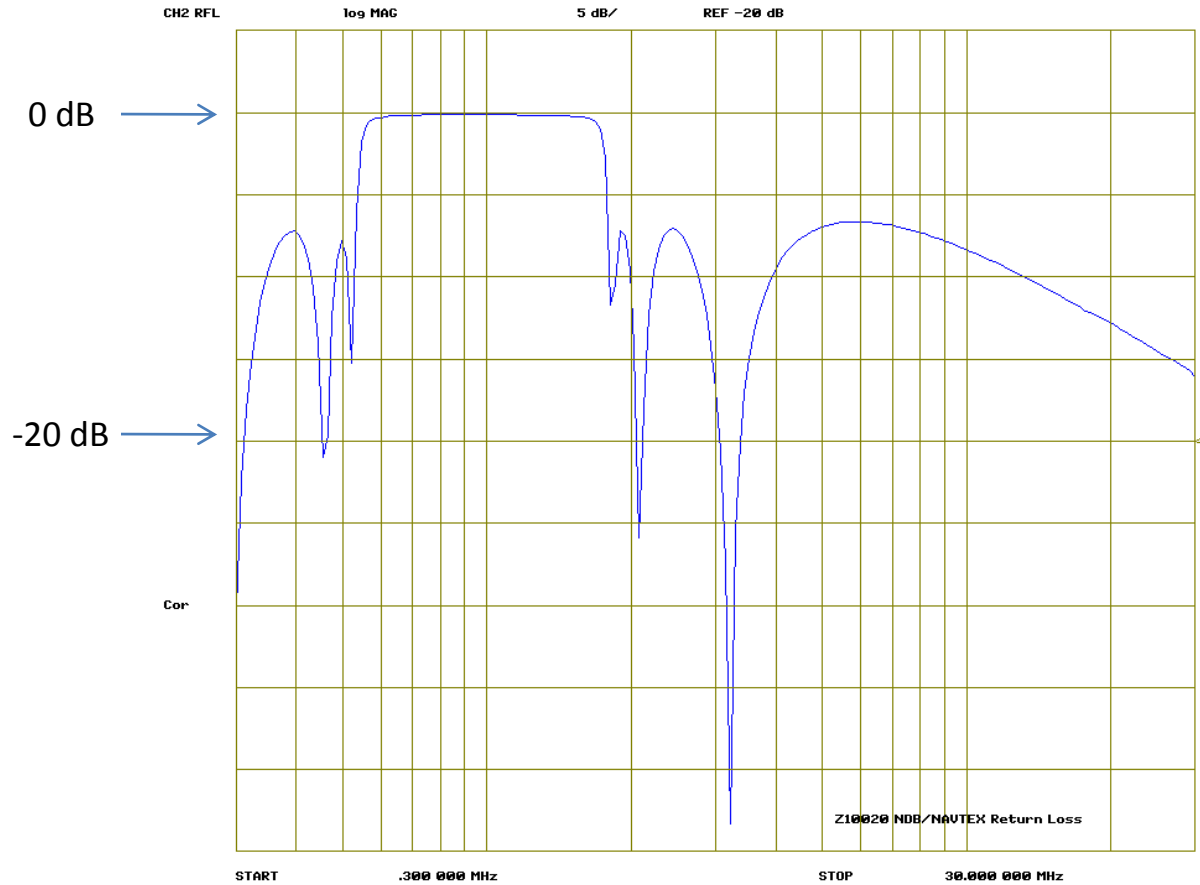
## 300 KHz – 30 MHz



Frequency Axis is log scale

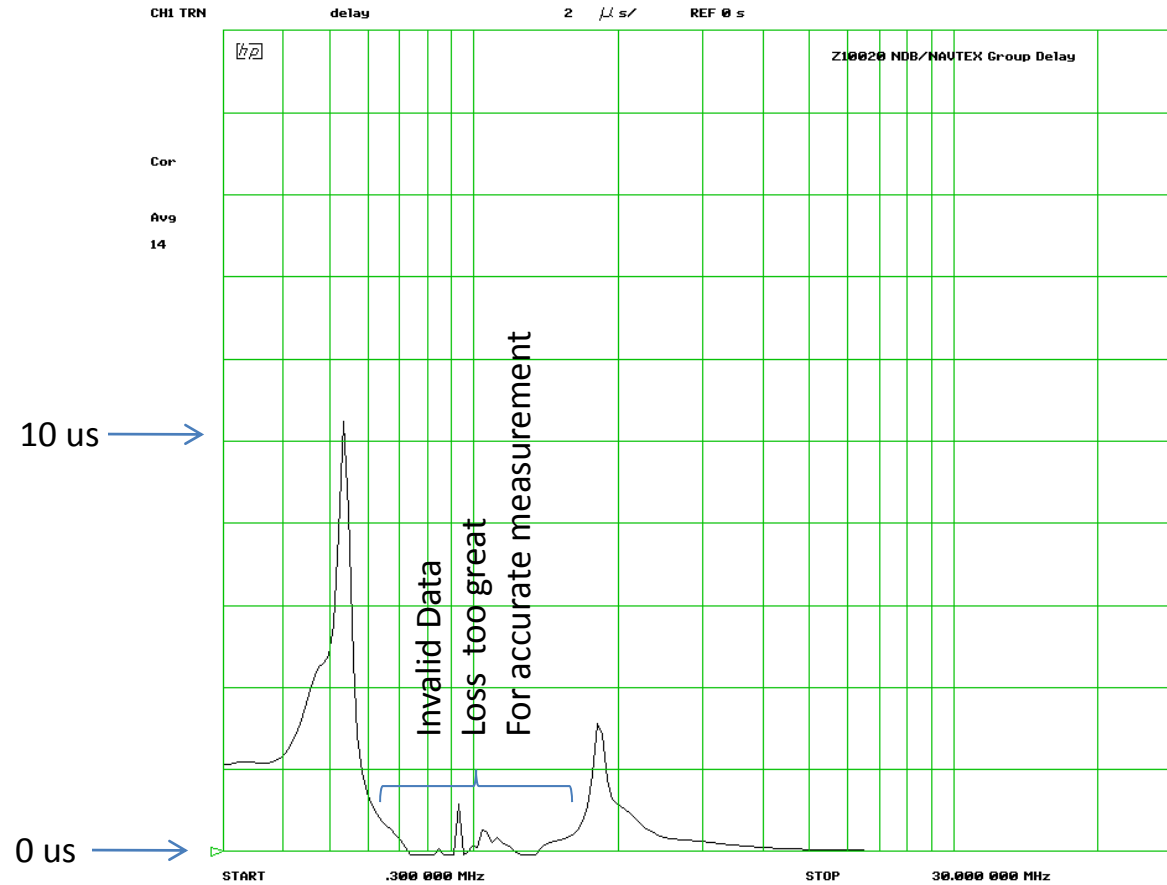
# Return Loss

## 300 KHz – 30 MHz



Frequency Axis is log scale

# Group Delay 300 KHz – 30 MHz

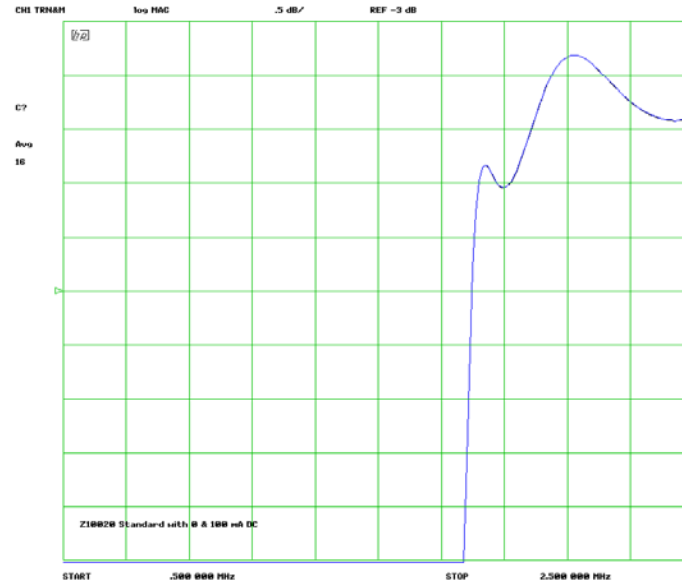
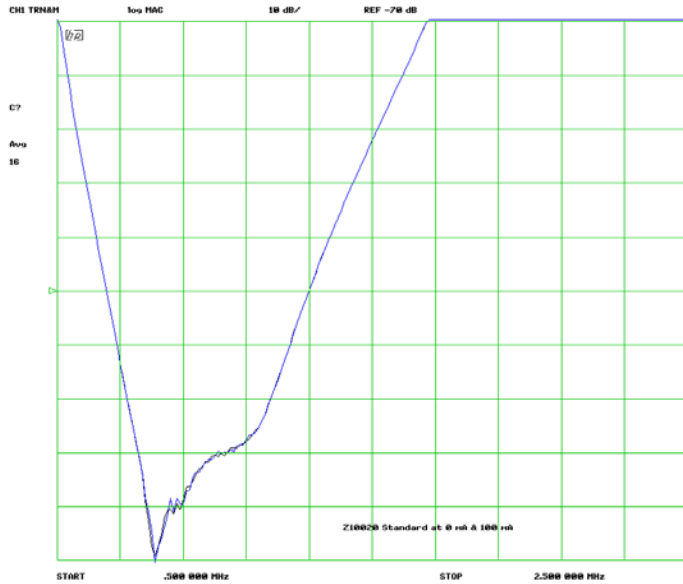


Frequency Axis is log scale

## DC Current Pass

- The Z10020 has DC continuity and the center conductor floats with respect to ground.
- At 100 mA DC current, no change in performance specifications are observable.
- Maximum recommended DC voltage is  $\pm 28$  V.
- Although not specifically tested, AC within the same limits (peak-to-peak) should be satisfactory.

# Measured Data with DC Current



In both plots, blue trace is 0 mA and black trace is 100 mA. The traces are, for all practical purposes, identical