

DBS / ATSC AMPLIFIERS

SEQ409 & SEQ509 Equalizers

SITUATION

The **DIRECTV® SLSP-F SlimLine®** dish with SL5 LNB signals traveling through extended lengths of coax cable have higher loss at high frequencies.

SOLUTION

Models **SEQ409** & **SEQ509** attenuates the lower frequency signals the equivalent of 150 feet of RG-6 coax cable recreating a flat frequency spectrum.

RELATED CONSIDERATIONS

Signals originating from different satellites have power level differences. Model **SEQ409** may be used to attenuate the lower Ka band of the **DIRECTV®** spectrum.

Model **SEQ509** is a 5 x5 version with power indicator LEDs that may be used with the (5) coax distribution systems.

FEATURES

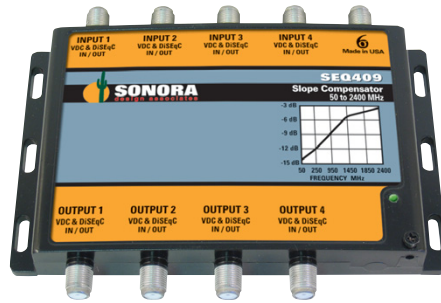
- **DBS Compatibility**5 LNB **DIRECTV®**
- **22 kHz & DC passive**use with line amplifiers
- **Coax Cable Compensation**..... 150 feet **RG-6**
- **Indoor / Outdoor case**..... Die cast Aluminum

APPLICATION NOTES

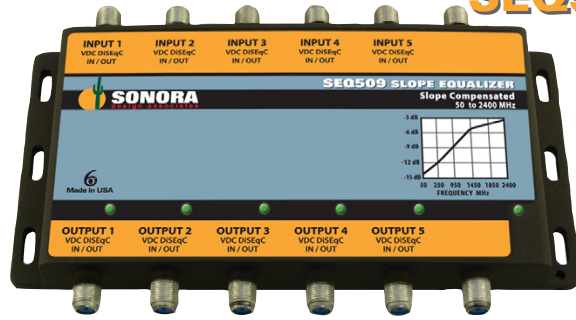
Models **SEQ409** & **SEQ509** provide 12 dB of attenuation at 250 MHz and 3 dB of attenuation at 1850 MHz to equalize coax cable loss.

Equalizing the lower Ka / Ku frequency bands provide for maximum output from amplifiers. The lower Ka band is reduced 7 dB from 250 MHz to 1450 MHz.

Amplifiers produce a higher output with less distortion when presented an equalized input.



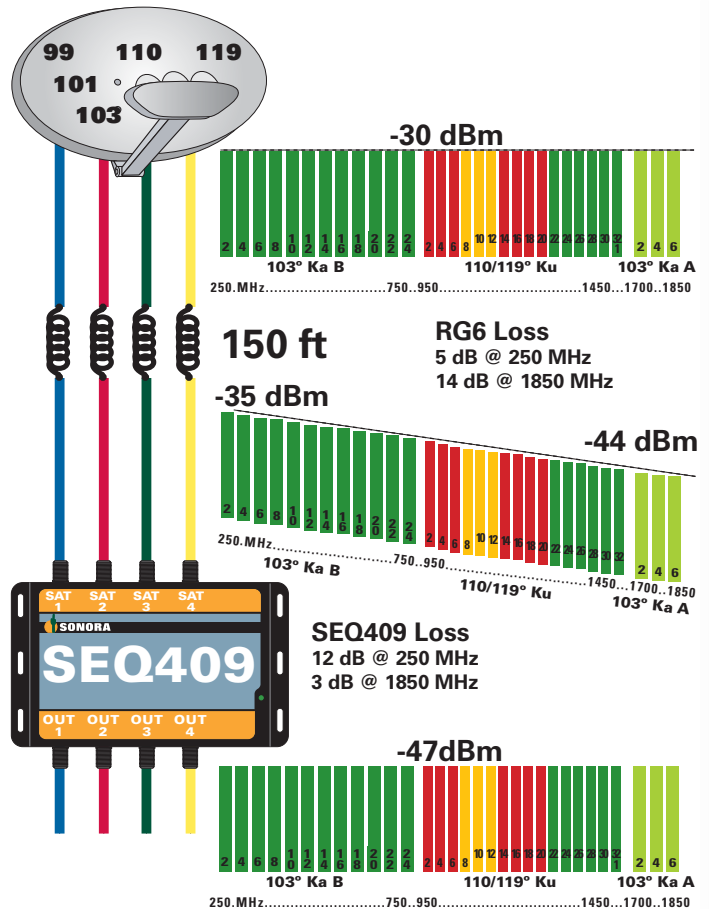
SEQ409



SEQ509

DESCRIPTION

DIRECTV® SL5 SlimLine® 9 dB Ka/Ku slope equalizer.



SLIMLINE AMPLIFICATION

99° & 101° Odd (13V)

DIRECTV® model SLIMLINE dish with SL5 LNB signals were used to optimize the design of model LA144a 14 dB gain amplifier and SEQ409 equalizer. The frequency plots on the left show the 13V polarity of the dish after 100 feet of RG-6.

We start with the Ku signals at -38 dBm. The lower Ka signals at -34 dB.

After SEQ409 equalization :

The Ku signals are -44 dBm.

The Ka signals are at -45 dBm Ka.

We have a flat signal for amplification!

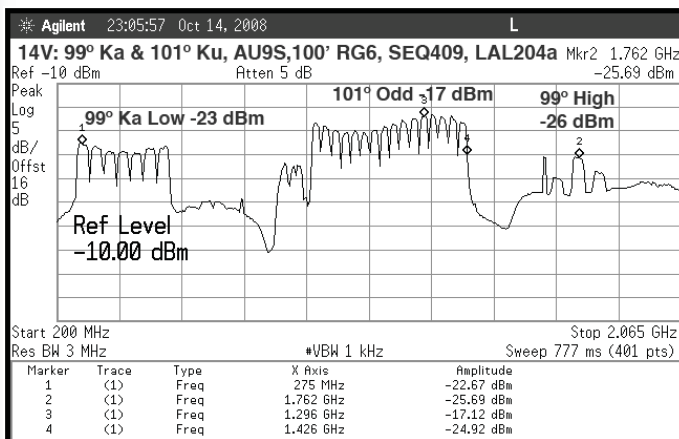
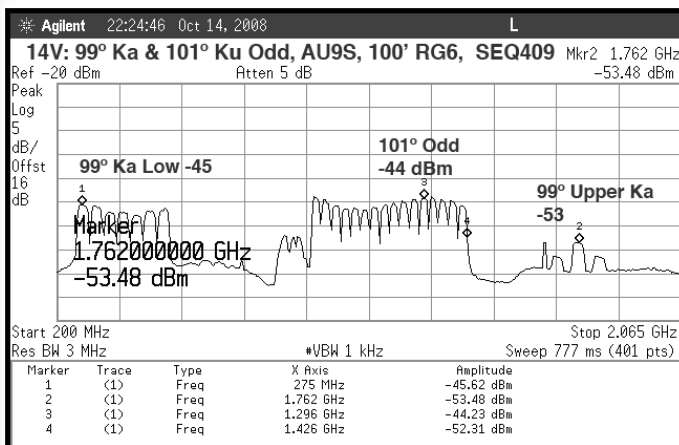
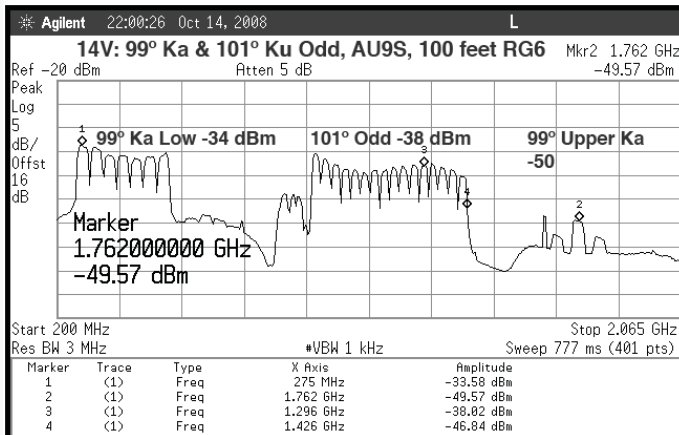
After SEQ409 equalization & LAL204A amplification

The Ku signals are -17 dBm.

The Ka signals are at -23 dBm Ka.

We have a 6 dB pre-emphasized signal for distribution, that in the Ku band, is 21 dB stronger than received from the SL5!

The automatic gain is working. Full gain for the LAL204a is 30 dB. Marker 2 (1750 MHz) at the input to the LAL204a is -53 dBm and the output is -26 dBm. The net gain is 27 dB. Three dB of gain is held in reserve.



SLIMLINE AMPLIFICATION

99° & 101° Even (17V)

DIRECTV® model SLIMLINE dish with SL5 LNB signals were used to optimize the design of model LAL204a automatic gain amplifier and SEQ409 equalizer. The frequency plots on the left show the 17V polarity of the dish after 100 feet of RG-6.

We start with the Ku signals at -39 dBm. The lower Ka signals at -36 dB.

After SEQ409 equalization :

The Ku signals are -45 dBm. The Ka signals are at -47 dBm Ka.

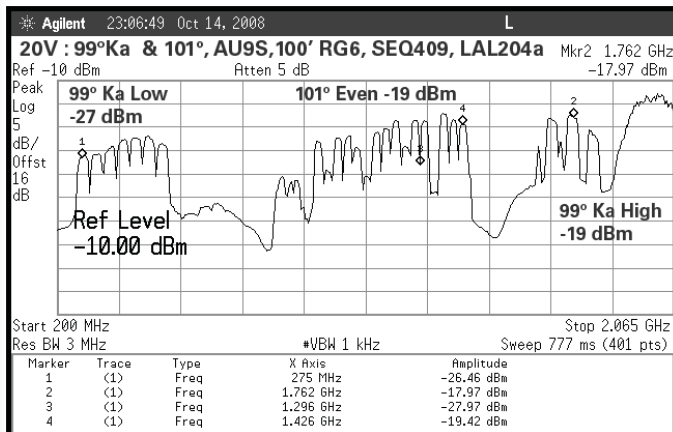
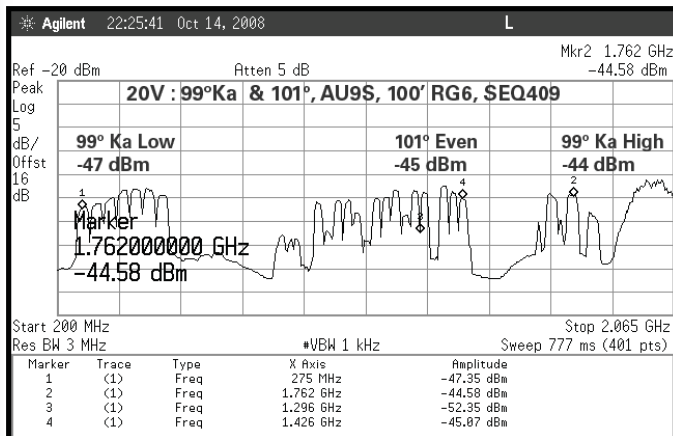
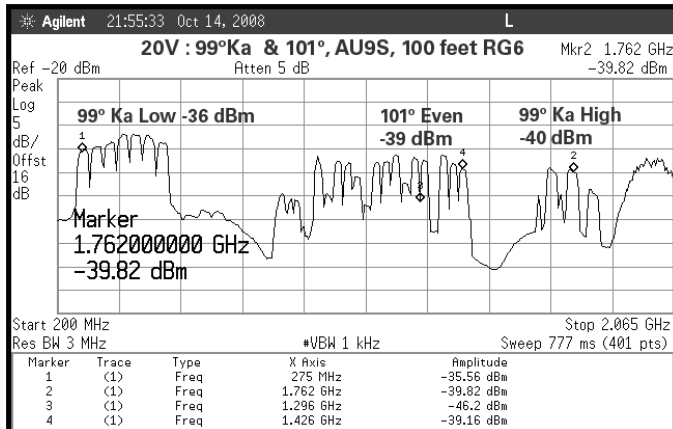
We have a flat signal for amplification!

After SEQ409 equalization & LAL204A amplification

The Ku signals are -19 dBm. The Ka signals are at -27 dBm Ka.

We have a 8 dB pre-emphasized signal for distribution, that in the Ku band, is 20 dB stronger than received from the SL5!

The automatic gain is working. Full gain for the LAL204a is 30 dB. Marker 2 (1750 MHz) at the input to the LAL204a is -45 dBm and the output is -18 dBm. The net gain is 27 dB. Three dB of gain is held in reserve.



SLIMLINE AMPLIFICATION

99° & 101° Even (17V)

DIRECTV® model *SLIMLINE* dish with SL5 LNB signals were used to optimize the design of model LAL204a automatic gain amplifier and SEQ409 equalizer. The frequency plots on the left show the 17V polarity of the dish after 100 feet of RG-6.

We start with the Ku signals at -39 dBm. The lower Ka signals at -36 dB.

After SEQ409 equalization :

The Ku signals are -46 dBm. The Ka signals are at -44 dBm Ka.

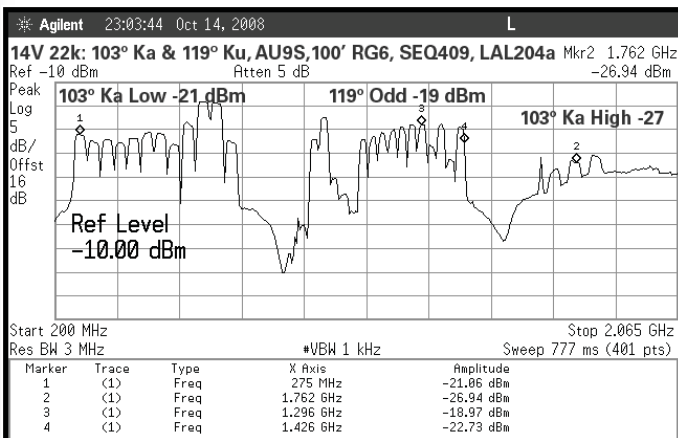
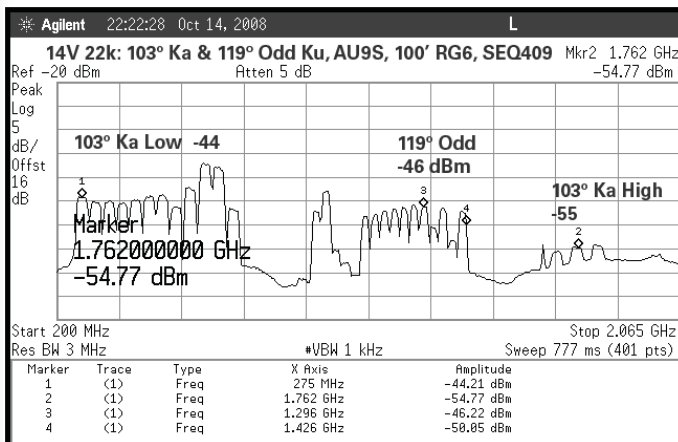
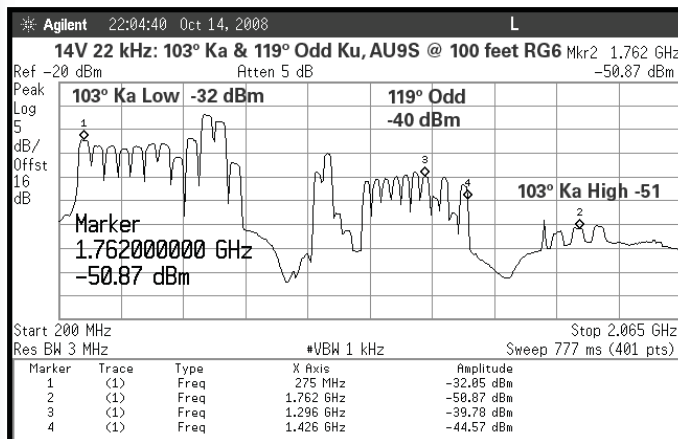
We have a flat signal for amplification!

After SEQ409 equalization & LAL204a amplification The Ku signals are -19 dBm.

The Ka signals are at -21 dBm Ka.

We have a 2 dB pre-emphasized signal for distribution, that in the Ku band, is 21 dB stronger than received from the SL5!

The automatic gain is working. Full gain for the LAL204a is 30 dB. Marker 2 (1750 MHz) at the input to the LAL204a is -55 dBm and the output is -27 dBm. The net gain is 28 dB. Two dB of gain is held in reserve.



SLIMLINE AMPLIFICATION

103°, 110° & 119° Odd (17V & 22 kHz)

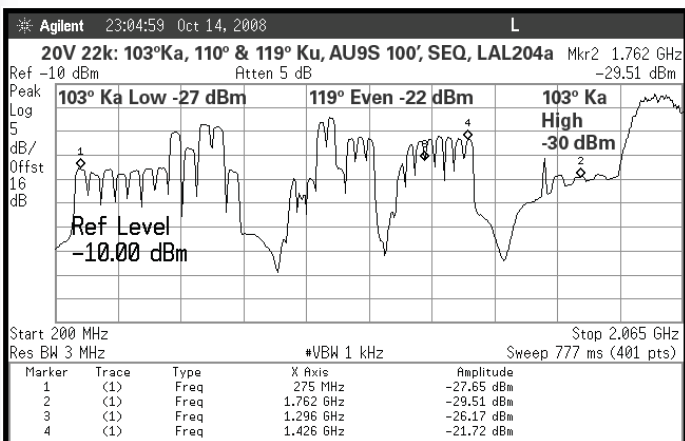
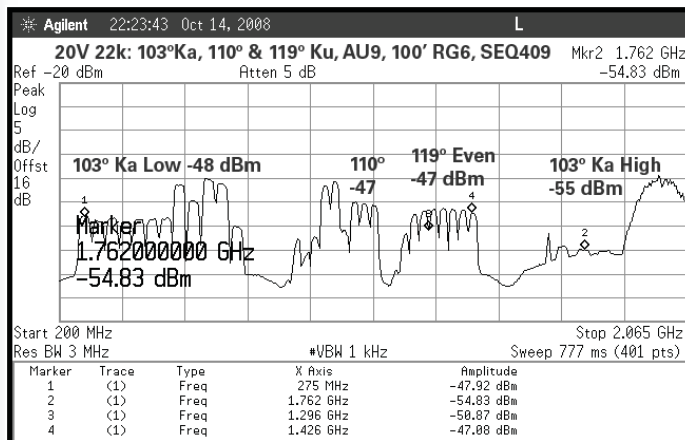
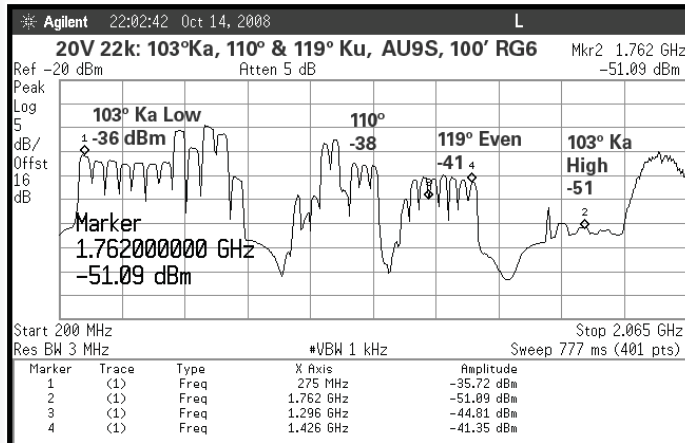
DIRECTV® model *SLIMLINE* dish with SL5 LNB signals were used to optimize the design of model LAL204a automatic gain amplifier and SEQ409 equalizer. The frequency plots on the left show the 17V / 22 kHz polarity of the dish after 100 feet of RG-6.

We start with the 119° Ku signals at -41 dBm. The lower Ka signals at -36 dB.

After SEQ409 equalization :

The Ku signals are -47 dBm.
The Ka signals are at -48 dBm Ka.

We have a flat signal for amplification!



After SEQ409 equalization & LAL204a amplification
The Ku signals are -22 dBm.

The Ka signals are at -27 dBm Ka.

We have a 5 dB pre-emphasized signal for distribution, that in the Ku band, is 19 dB stronger than received from the SL5!

The automatic gain is working. Full gain for the LAL204a is 30 dB. Marker 2 (1750 MHz) at the input to the LAL204a is -55 dBm and the output is -30 dBm. The net gain is 25 dB. Five dB of gain is held in reserve.