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Stellar Application Note 4
Digital Performance - Carrier Spectral Sidelobes

For high power amplifiers (HPA) used in earth stations for transmitting intermediate rate digital carriers (IDC), the following Eutelsat specification for carrier spectral sidelobes applies:

IESS 203, Iss. 2, Rev. 0, Section 6.3.3.
The maximum peak EIRP density of the spectral sidelobes outside the allocated bandwidth of each transmitted carrier shall be at least 26 dB below the carrier spectral density, measured in a 4 kHz band.

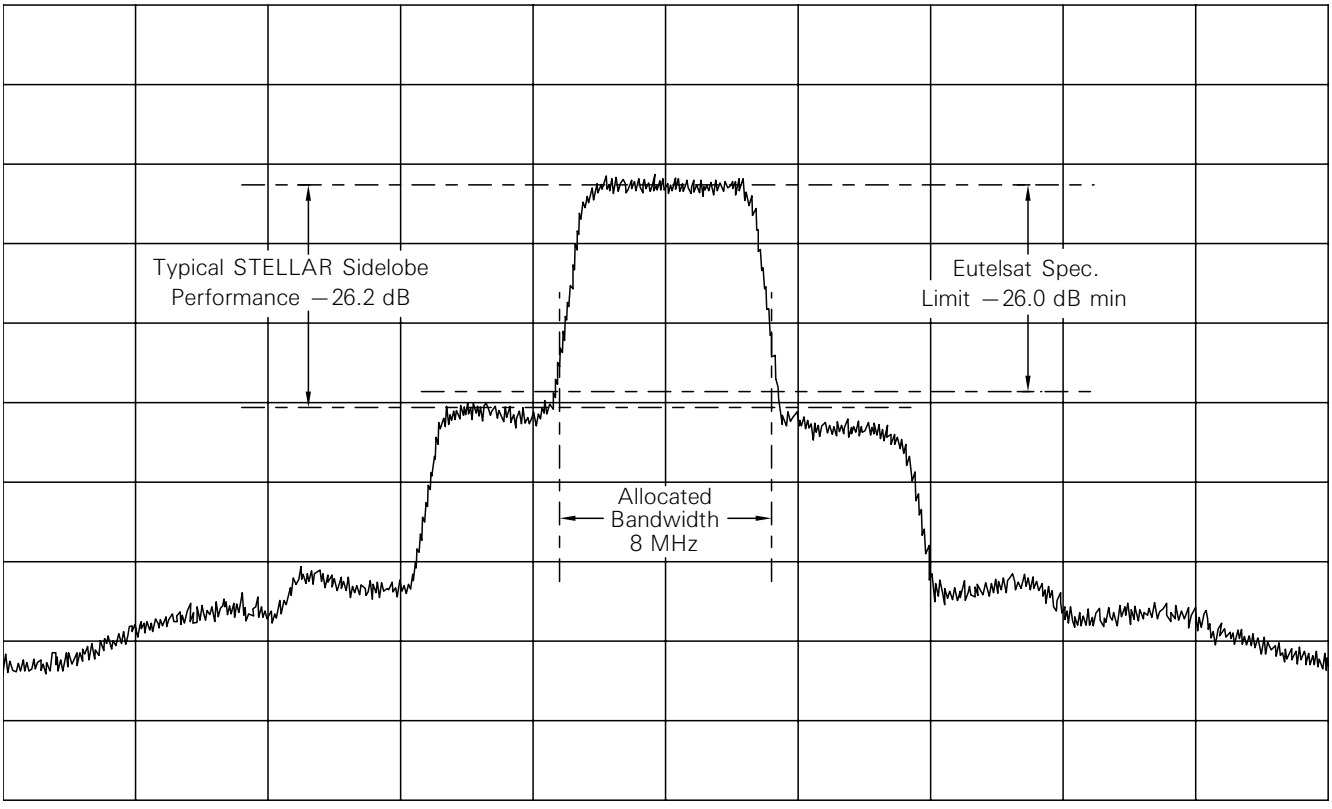
The following spectral plot shows the typical Stellar N63xx Series Antenna Mount HPA spectral sidelobe performance at 3 dB back-off from saturation. The test conditions for the spectral plot are given below:

Modulation type	QPSK
Information bit rate	8448 kbits/s
Overhead bit rate	96 kbits/s
Convolution code rate	$^3/_4$ (or 0.75)
Transmission bit rate	(8448 + 96)/0.75 kbits/s = 11392
Transmission bandwidth	0.6 x 11392 kHz = 6.8 MHz
Satellite allocated bandwidth (including guard bands)	0.7 x 11392 kHz = 8 MHz

- Typical test results show that with only 3 dB of back-off from saturation, the Stellar meets the Eutelsat specification, for carrier spectral sidelobes

TYPICAL STELLAR N63xx SERIES CARRIER SPECTRAL SIDELOBE PERFORMANCE

(Measured with the TWTA backed off 3 dB from saturation)



Horizontal Scale 5 MHz/div
Centre Frequency 14.2 GHz
Resolution Bandwidth 3 kHz
Vertical Scale 10 dB/div

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