

**Outroute:**  
 Symbol rate  $\cdot (1+\text{Roll off}) = \text{Outroute BW}$   
 $5.5 \text{ Msps} \cdot (1+0.2) = 6.6 \text{ MHz}$   
**Inroute:**  
 $256 \text{ Ksps Inroute}, \text{Space factor (Roll Off)}=1.41$   
 $256 \text{ Ksps Inroute} = 360 \text{ KHz} = 0.36 \text{ MHz}$

**Up converter center=6352.00 MHz**  
**Down converter center=4127.00 MHz**  
**Satellite Up/Down delta=2225 MHz**  
**IF = 70 MHz**

