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Globalstar loses 3.1 MHz to Iridium

The FCC announced on November 9, 2007 that it had reduced the Globalstar (GSAT) L-band spectrum from 11.35 MHz to 7.775 MHz (plus 0.95 MHz to be shared with Iridium.)

Frankly speaking, Globalstar's loss of 3.1 MHz did not come as a surprise to those who have watched this regulatory proceeding closely. The FCC had originally divided up the spectrum with the assumption that there would be another service provider sharing the same spectrum with Globalstar. That competitor never materialized.

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The decision is more than fair since Iridium only operates in L-band with its 7.775 MHz of spectrum. Globalstar, however, operates in L-band and S-band. GSAT subscribers transmit from Earth to the satellites in the spectrum from 1610 to 1617.75 MHz. Its satellites beam signals to subscribers in the S-band from 2483.5 to 2500 MHz. Therefore, Globalstar still has three times as much spectrum as Iridium, 7.775 MHz at L-band (plus a shared 0.95 MHz) and an additional 16.5 MHz at S-band for a total of 24.25 MHz (25.2 MHz with the shared portion). Do not be surprised if Iridium would like to have more of the Globalstar spectrum.

What are the implications of the reduced spectrum? Since two-way voice communications require pairs of bands, the reduction in bandwidth reduces the maximum number of subscribers that can be served. In short, the FCC ruling reduces the maximum potential revenues from two-way service by about 30%.

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Today, many Globalstar satellites are not able to use the S-band because these satellites have defective transmitters. Consequently, GSAT is using the L-band for one-way return service. This ruling reduces the maximum number of simultaneous users by 30%.

Implications for Ancillary Terrestrial Component (ATC)

The FCC has authorized Globalstar to operate terrestrial transmitters in 5.5 MHz of the L-band and 5.5 MHz of the S-band allocations for a total of 11 MHz. This license is subject to certain restrictions including having a minimum number of working satellites. Globalstar would like to increase the amount of ATC spectrum and the FCC has begun to study the issue.

The chief responsibility of the FCC is to avoid interference between communication systems. Since ATC would be a new service operating on the ground it could cause problems for other users of this spectrum. The FCC said it would "seek comment on power limits, technical standards and coordination requirements that would allow Globalstar to expand its ATC operations in the S-band."

"Several parties oppose granting Globalstar authority to operate ATC in the 2495-2500 MHz band… that Globalstar shares with the Broadband Radio Service/Educational Broadband Service (BRS/EBS)."

Preliminary analysis by the FCC has led it to conclude "it is not feasible or in the public interest to authorize ATC in the portion of the S-band that Big LEO MSS shares with the fixed and mobile services, at 2495-2500 MHz."

Globalstar may also face an ATC coordination hurdle in L-band. Radio astronomy could be an important ATC issue for Globalstar since it plans to provide ATC services within the radio astronomy band. The FCC noted that "These [National Radio Astronomy] agreements specify the maximum level of unwanted emissions that Iridium [or Globalstar] may emit into the 1610.6-1613.8 MHz radio astronomy band during specific time periods when radio astronomy observations are carried out at specific sites."

Based on these observations it seems that the GSAT spectrum for ATC will be limited to no more than 7.775 MHz in L-band and 11.5 MHz in S-band. The most useful spectrum would be 7.775 MHz X 2 = 15.55 MHz. This is 41% more ATC spectrum than GSAT presently is authorized to use, but it might get less.

What is the real value of ATC spectrum?

ATC Spectrum has no inherent value. It only has worth if someone can build a profitable business by use of the frequencies.

It has long been obvious that ATC spectrum has no inherent value. It only has worth if someone can build a profitable business by use of the frequencies. Over the past few years none of the established wireless operators have bought satellite MSS companies or entered into strategic-investment partnerships with them. So far there is no terrestrial component in ATC. Satellites have been ordered, but procurement of the terrestrial infrastructure is miniscule.

There are many who choose to use cellular metrics to estimate the value of the MSS satellite companies. The key parameter is US$ per MHz-POP. Over the last few years the value of this parameter has been falling in wireless auctions. In 2001 the PCS spectrum auctions were equivalent to almost US$4 per MHz-POP.
In August 2006, there was an AWS auction for 90MHz of spectrum that raised $13 billion with an equivalent value of a little more than $0.50 per MHz-POP. Recently, Norway held an auction for spectrum in the 2.6 GHz band and raised US$0.041 to US$0.053 per MHz-POP.

So the current values for this parameter have dropped by about a factor of 10 in the past year and a factor of 100 since 2001.

Bottom line

It is better to evaluate a company based on its business prospects rather than hypothetical metrics and the vagaries of regulatory policy.

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