



Application Brief – AGC and ALC in IBUCs

Satellite operators regulate many points of technical performance in uplinks that use their bandwidth. The objective of course is to mitigate interference between users and manage their most valuable asset of bandwidth. In many instances, L-band Block Upconverters are not compliant with respect to gain variation.

Gain variation over temperature describes the difference in gain measurements between the maximum and minimum temperature extremes. The IBUC includes features for managing output levels to keep variation well within acceptable limits. Digital temperature compensation is employed to maintain a tight specification for gain variation over temperature. In addition, the user can enable AGC or ALC through any of the management interfaces (NMS, web browser, handheld unit).

AGC – Automatic Gain Control – The IBUC maintains constant gain through the RF unit by measuring and comparing input level and output level. If the input level to the BUC is intentionally raised or lowered, the output level will also move lower with it since the gain is constant. The IBUC AGC circuit maintains gain level to within 1 dB peak-to-peak.

In other operations the user may prefer **Automatic Level Control (ALC)** which keeps the output power constant to within 1dB p-p even if the input level changes. An example would be in the case of long cable runs exposed to broad ambient temperature variations. The IBUC monitors input levels and output levels, compensating for variations by adjusting gain. Unlike other BUCs, the IBUC actually includes an additional gain stage for this compensation.

Make sure your sites are compliant with your satellite operator's requirements. Specify power control for your RF units. Terrasat BUCs have been tested and accepted by all major satellite operators.