

INFORMATION NOTE 7

Subject: LINE-UP OF DIGITAL CARRIERS

GENERAL

Verification of compliance with Eutelsat requirements and DVB standards is of paramount importance for the correct operation of digital carriers (e.g. TV broadcasting, Internet backbone, SNG etc.) transmitted by newly-approved earth stations, to ensure the high quality of the signal for the end-user.

To achieve these objectives, Eutelsat strongly recommends the performance of the comprehensive ESOG (Eutelsat Systems Operations Guide) tests, in addition to the standard pre-transmission tests carried out with the Eutelsat Communication System Control Centre (CSC).

DIGITAL LINE-UP

This particular information note applies to all earth stations approved as Standard L which intend to transmit digital carriers, either on a full time basis or for occasional use and/or SNG services.

The pre-transmission line-up performed with the CSC focuses on EIRP, frequency and cross-polar alignment only, in order to ensure correct satellite access.

The aim of the complete line-up is to examine in detail the performance of the new earth station, paying particular attention to establish correct RF performance and to ensure DVB compatibility. A full test description is contained in ESOG Volume II Module 210 - TV Handbook.

This line-up is extremely important as it allows early identification of earth station anomalies which can be corrected in 'real' time, prior to commencement of routine operations. Some of the more common problems identified during the line-up are:

- ◆ DVB violations and/or equipment incompatibilities
- ◆ Modem anomalies
- ◆ Amplitude and group delay distortion and level settings of up-links
- ◆ Sub-system saturation problems
- ◆ HPA spectrum re-growth
- ◆ Inaccurate EIRP settings

Any or a combination of the problems above can lead to substantial performance degradation, making correct reception impossible and at least reducing the available link's margins.

After completion of the line-up procedure, a final report is prepared and distributed to the SUT (Station Under Test). Whenever the results of the line-up show the presence of one or more of the anomalies listed above, Eutelsat will immediately organise together with the operator an action plan to solve the problem.

Eutelsat currently provides this service free of charge, including the required satellite capacity. A normal digital line-up takes approximately five hours to perform and does not require any specialised test equipment at the SUT, other than standard test equipment, e.g. spectrum analyser, output power monitor.

THE AFLENZ SUPPORT CENTRE

Each line-up will be performed under the control and supervision of the Aflenzen Support Centre. Aflenzen is located in the South-East Austria, about 90 km north of Graz.

The Aflenzen Support Centre was established by Eutelsat in 1996 to provide monitoring and off-line support to earth stations up-linking digital carriers.

The centre is equipped with the latest state-of-the-art monitoring equipment including a wide range of antennae from 90 cm to 6.1 m in diameter, as well as a range of consumer grade IRDs. The Centre is staffed round-the-clock by highly qualified professionals in all aspects of the monitoring and in depth verification of digital carriers.

Aflenzen Support Centre will also carry out all preparatory work for the organisation and issue of the test schedule of the line-ups, and this in direct contact with the operators and broadcasters.

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RECOMMENDATION

Eutelsat strongly recommends the performance of a full line-up for new earth stations carrying digital carriers (TV Broadcasting, Internet Backbone, SNG etc.)