



## MULTIPLE NETWORK ACCESS

### HOW TO STAY TUNED

(joel.ordener@ses-astra.com)

All over the world the number and variety of broadcast and broadband services explode. The huge bandwidth offered by satellites and the possibility to reach millions of users simultaneously offers the potential to create many new services. The access to these offers shall be based on user-friendly satellite receivers.

This paper describes a new feature called "Multiple Network Access" added to the Data Control Application of DVB-S Multimedia Receiver Adapters, which will help with the configuration of these adapters.

#### INTRODUCTION

More and more broadcast and broadband services are using Digital Video Broadcasting technology (DVB) via Satellite (DVB-S). A collection of satellite transponders transmitting these services and located on a single orbital position is seen as a network. Multiple delivery systems like satellites located on different orbital positions define different networks.

The Program Service Information (PSI) data provides information to enable automatic configuration of the receiver to demultiplex and decode the various streams of programs within a multiplex. Additional Service Information (SI) was defined also to provide information on services carried by different multiplexes, and even on other networks. A Service Information table called Network Information Table (NIT) provides a grouping of these different multiplexes and the relevant tuning information.

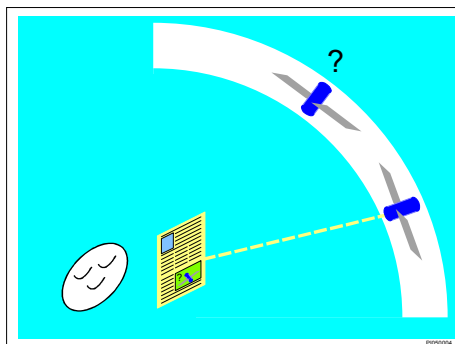
To facilitate the access of services located on different networks, a standard mechanism has been defined enabling the automatic discovery of new networks.

The benefits offered by this new feature are the following:

- Easy satellite transponder discovery on the same or on different orbital positions,
- Introduction of new orbital positions,
- Service migration between transponders on the same or on different orbital positions,
- Network access continuity.

#### EASY SATELLITE TRANSPONDER DISCOVERY ON THE SAME OR ON DIFFERENT ORBITAL POSITIONS

The introduction of new transponders or modifications of tuning parameters of existing transponders are simplified. A transponder scan will discover new transponders on the current and on other orbital positions. A transponder scan will update the tuning parameters of existing transponders.



**Figure 1: Easy Satellite Transponder Discovery on the same or on Different Orbital Positions. Introduction of New Orbital Positions.**



#### INTRODUCTION OF NEW ORBITAL POSITIONS

As soon as a new orbital position is introduced, the DVB-S Multimedia Receiver Adapter is able to receive the new relevant tuning parameters.

Accessing the new orbital position is reduced to:

- The re-pointing of the existing satellite dish,
- The modification of the LNB installation if required,
- The signal distribution topology configuration of the satellite modem.

#### SERVICE MIGRATION BETWEEN TRANSPONDERS ON THE SAME OR ON DIFFERENT ORBITAL POSITIONS

For operational reasons, some services need to be moved from one transponder to another. The "Multiple Network Access" associated to the "Multi-transponder" feature easily handles the migration.

#### NETWORK ACCESS CONTINUITY

If a new transmission standard has to be introduced or if a transponder has to be switched-off, accessing the services carried on that specific transponder may be impossible. The "Multiple Network Access" feature will maintain the end-user "within" the networks providing him with the tuning parameters for old and new transponders.

#### HOW DOES IT WORK?

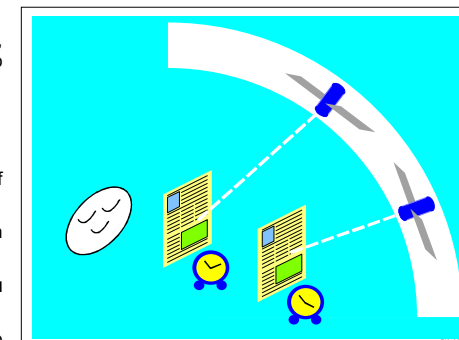
Accessing a given network is based on the Network Information Table (NIT) that conveys information relating to the physical organisation of the different multiplexes and the characteristics of the network itself. A NIT table for other DVB networks in addition to the actual one is transmitted.

The DVB-S Multimedia Receiver Adapter builds locally a table (see Figure 4) based on the content of the different NIT tables.

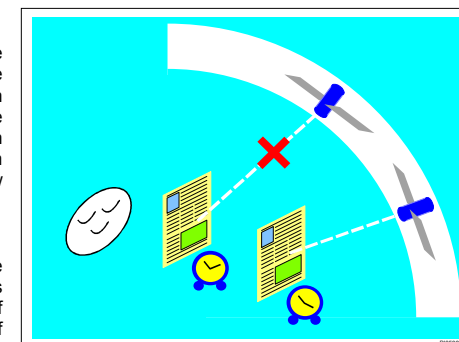
#### IMPLEMENTATION

This automatic discovery mechanism has been successfully implemented and tested with the following devices from TechnoTrend AG:

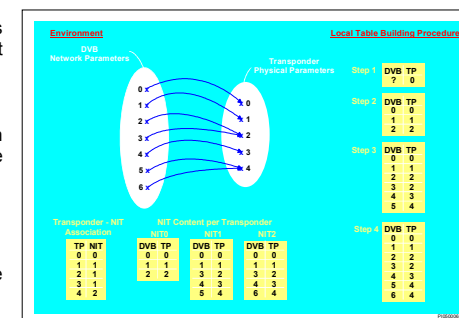
- The TT-PCLine Premium S PCI card,
- The TT-PCLine Budget S PCI card,
- The TT-PCLine USB S external satellite modem.



**Figure 2: Service Migration between Transponders on the same or on Different Orbital Positions.**



**Figure 3: Network Access Continuity.**



**Figure 4: Local Table Building Procedure.**



CONFIGURATION AND USE

After the satellite modem hardware and software installation, a reduced configuration phase is required. The end-user will have to:

- Configure the signal distribution topology of his satellite modem.
- Launch a "Transponder Scan" to build an updated transponder configuration file.

Figure 5 shows some Data Control application dialog windows.

CONCLUSION

This transponder scan mechanism offers to the end-user a way to stay tuned and to get access to new services.

In the satellite broadband world, the usage of this enhancement added to the "Multi-transponder" feature is totally transparent for the end-user making configuring the satellite modem an unpleasant memory.

REFERENCES

- [1] SES ASTRA/TEC/SYE/JO050012q  
Multiple Network Access
- [2] SES ASTRA/SMK/PDM/JO040017I  
Multi-transponder – Implementation  
Guideline for IP Multicast Services

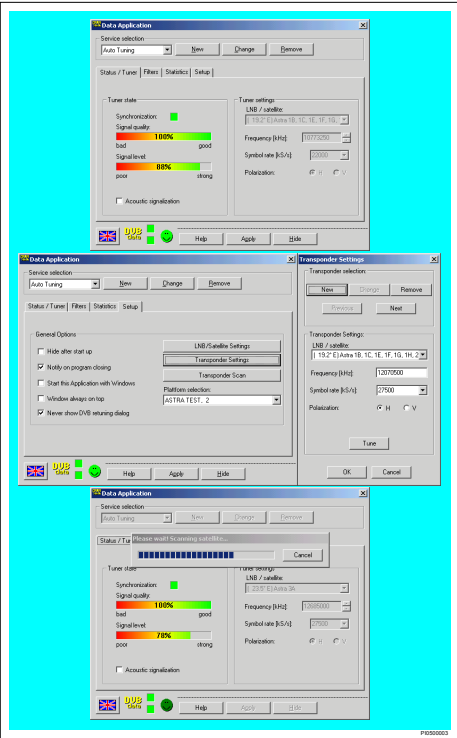


Figure 5: Data Control Application Dialog Windows

