Communal Systems -
Installation Options for future Deukom/Satelio Reception

1. Introduction:

Over the recent years, the Astra4A SES5 satellite at orbit position 5.0°EAST increased in popularity and is now the second most used satellite for TV Broadcasting services in Southern Africa. This is because new providers like StarSat South Africa or OpenViewHD offer attractive packages on this satellite.

Today in Southern Africa, almost all communal systems were installed to cater only for the Multichoice DStv signal from Intelsat 20 at 68.5°EAST.

In the past, Deukom used Multichoice as signal distributor that had the advantage that Deukom clients could receive their German channels using the same dish and decoder set-up as DSTV clients. The transmission of German channels on the DTSV platform will however terminate as from the 30th June 2016.

As from the 1st of May 2016, Deukom will make use of the satellite signal of Satelio Namibia broadcasted on Astra4A SES5 at 5.0°EAST. This satellite is also used also by Starsat South Africa and OpenViewHD. Hence any of the StarSat of OpenViewHD accredited installers could be contacted.
The broadcast parameters for the Satelio Service are as follows:

Satellite:	**SES ASTRA 4A**
Orbit Position:	**5.0°EAST**
Frequency:	**12.565 GHz**
Polarisation:	**Vertical**
Modulation:	**DVB-S2 QPSK**
Symbol Rate:	**30.000 kSymb/s**
FEC:	**5/6**

With this guide we want to provide information on how existing communal systems can be upgraded to receive a second satellite, such as Astra4A SES5, without major additional cabling within the existing system. This will allow the Deukom customers to continue viewing German channels also via the new satellite position.

To be able to receive Astra4A SES5 satellite position at 5.0°EAST it is necessary to mount an additional satellite dish of minimum size of **90cm or better 120cm diameter** next to the existing Intelsat 20 at 68.5°EAST satellite dish.

The more households are fed by the communal system the bigger the antenna diameter should be. As orientation; the new dish for Astra4A SES5 satellite should have at minimum the same diameter as the existing Intelsat 20 dish.

This guide is intended for professionals that have experience in the installation of satellite systems.

2. Background on equipment mentioned in this guide and their functions:

- **LNB QUAD:** All four single outputs of the LNB contain all Satellite IF levels prepared for a direct use with a Decoder. Hence, _**no Multiswitch**_ is needed, you can connect the Decoder directly to the LNB output. You are limited to four Decoder on this LNB.
- **LNB OCTO or 8x8:** Same like LNB Quad, but with 8 outputs for 8 users/Decoders.
- **LNB QUATTRO:** Each of these four LNB outputs carries one the four Satellite IF levels of the received satellite. 4 IF Levels mean: 1. Horizontal High Band, 2. Horizontal Low Band, 3. Vertical High Band 3. and 4. Vertical Low Band. Using such LNB requires _**mandatory a Multiswitch**_ to combine the four SAT IF levels for the connected Decoder.
- **Multiswitch:** combines the four SAT IF levels for the connected Decoder.

3. Important Information about DiseqC and new Deukom/Satelio Decoder:

In short the DiseqC function allows users to select what dish they would like to make use of. As new Deukom/Satelio Decoder is able to send a control commands via DiseqC, this is an elegant solution to select if the Astra4A or Intelsat 20 signal should be transmitted from the outside dishes to your decoder over your existing cable.

The magic function is the DiseqC commands, which will offer you via one existing cable two satellites on
- Port "A" or 1: Intelsat 20 and on
- Port "B" or 2: Astra 4A SES5.

The Multichoice DStv Decoder does NOT support DiseqC, therefore the Intelsat 20 signal must be always on Port "A" or "1", which is the default port in case a Decoder doesn´t support DiseqC. In this case the DiseqC switch will pass through the signal on Port 1 or"A".

The new Deukom Decoder supports DiseqC, and can be activated in the Decoder Menu by selecting the option to DiseqC Port "B.
See the screenshot below: Default setting: Open this Menu by pressing
"Menu" -> "Konfiguration" -> "Empfang"
Please change this setting in DiSEqC easy ID: to B, like in the below screenshot.
This assumes Astra 4A is configured on the DiseqC or Multiswitch on B.
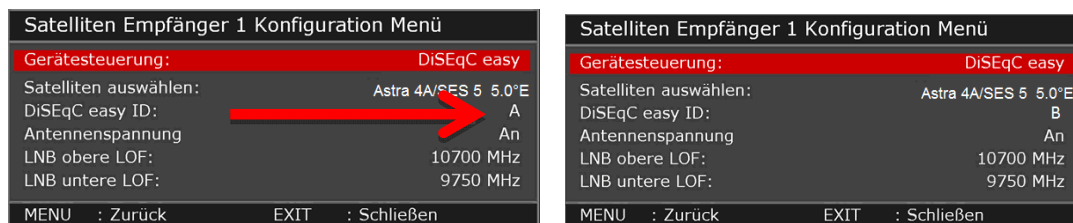

Figure 1 - DiseqC Settings

4. Today, standard Multichoice installation in communal systems:

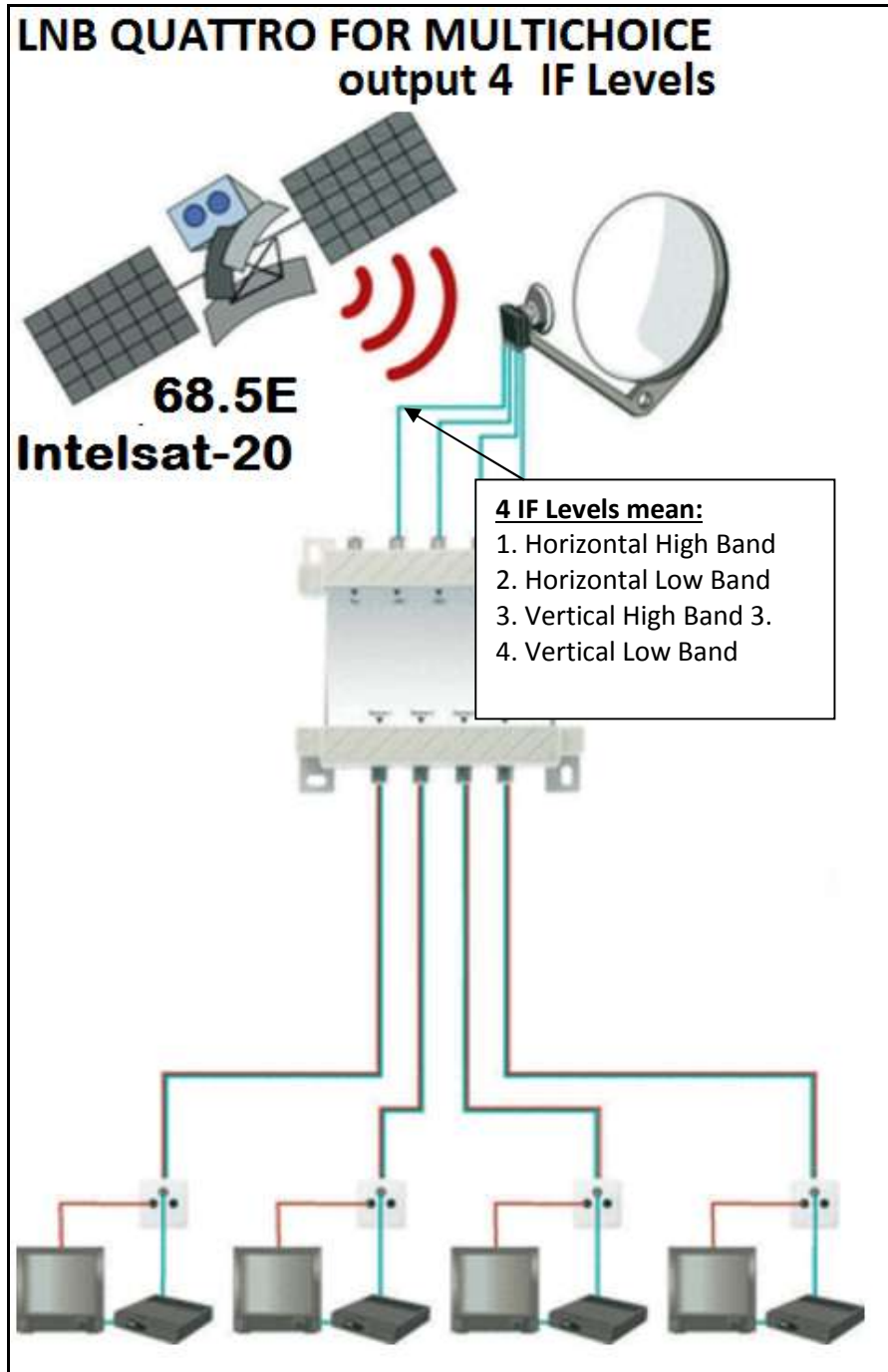The standard setup for most DSTV communal systems is as indicated in the figure below.

LNB QUATTRO FOR MULTICHOICE output 4 IF Levels

68.5E Intelsat-20

4 IF Levels mean:
1. Horizontal High Band
2. Horizontal Low Band
3. Vertical High Band 3.
4. Vertical Low Band

Figure 2 – Current communal system setup

4.1 Option 1: Multichoice + Deukom in small communal systems

Use this setup to connect up to four Deukom/Satelio clients in a communal system. No extension for additional Deukom clients is possible with this setup.

The existing RF cable to the subscriber can be used and no additional RF cables to the subscribers decoder is required. The additional hardware as indicated in Figure 2 should be installed next to the existing hardware on the roof.
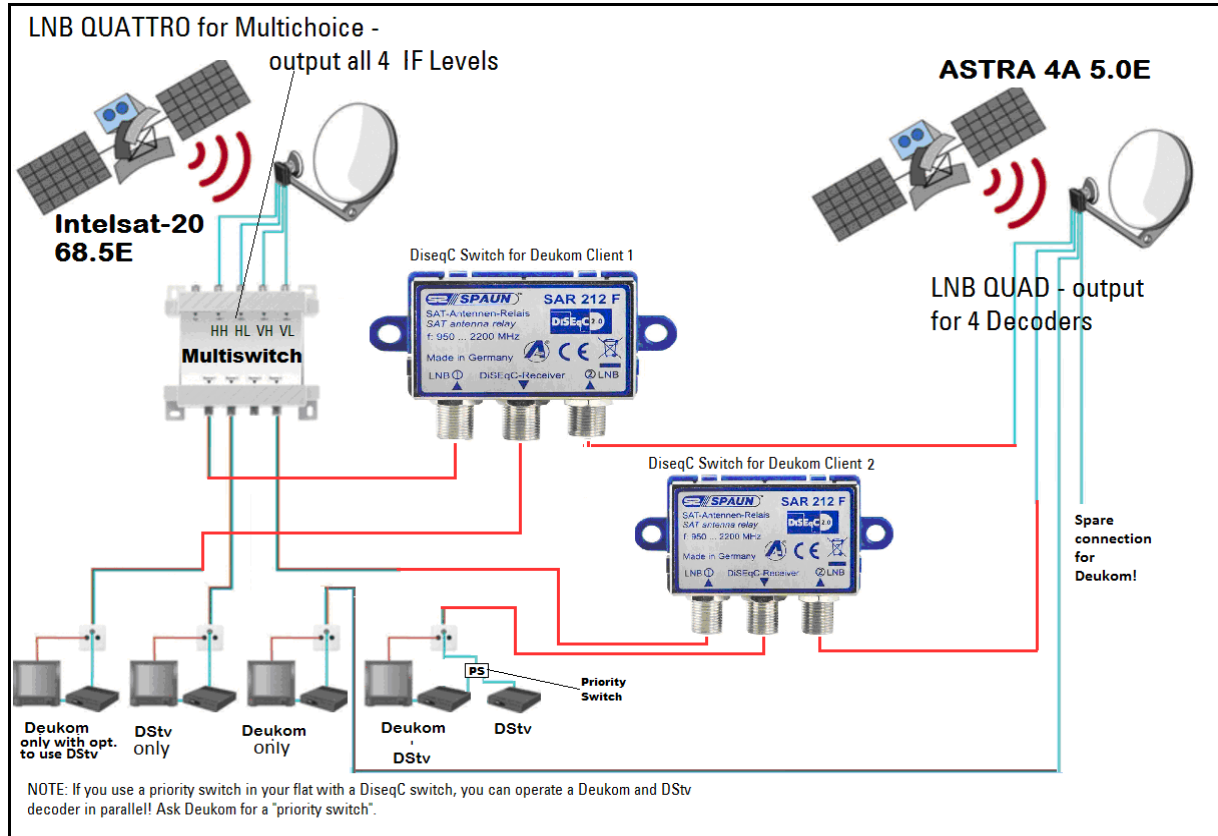

Figure 3 - Multichoice and Deukom for small communal systems – no expansion options

The following equipment can be purchased locally:

- Antenna: http://www.spacetv.co.za/pages/our-products/d100-o-smc-v-2513.php
- LNB Quad: http://www.spacetv.co.za/pages/our-products/lnbfkuqt-2368.php
- Diseq switch for Deukom and DSTV using the existing single coax cable to subscribers flat; one Diseq switch required per client:
- http://www.spacetv.co.za/pages/our-products/sar212f-3029.php

4.2 Option 2: Multichoice + Deukom in small Communal Systems

Use this setup to connect up to four Deukom/Satelio clients in a communal system. Extension for additional Deukom clients is possible with this setup.

The existing RF cable to the subscriber can be used and no additional RF cable to the subscriber's decoder is required. The additional hardware as indicated in Figure 3 should be installed next to the existing hardware on the roof.

This option can be used as an upgrade to option 1 to connect additional Deukom/Satelio clients. Only a new Multiswitch and LNB on the ASTRA dish needs to be installed. All other components can be reused.
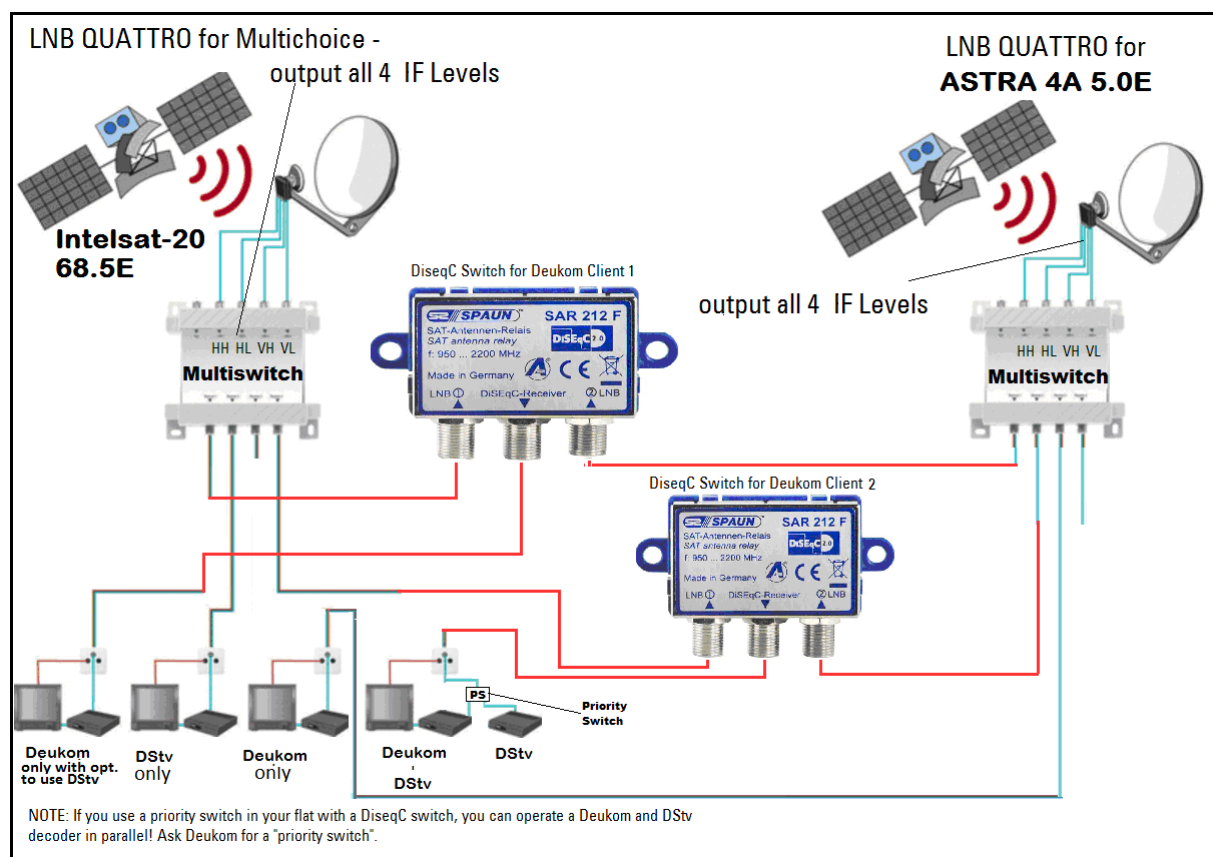

Figure 4 - Multichoice and Deukom for small communal systems – with expansion options

The following equipment can be purchased locally:
- Antenna: http://www.spacetv.co.za/pages/our-products/d100-o-smc-v-2513.php
- LNB Quattro: http://www.spacetv.co.za/pages/our-products/lnbfkuqu-2369.php
- Diseq switch for Deukom and DSTV using the existing single coax cable to subscribers flat; one Diseq switch required per client:
  http://www.spacetv.co.za/pages/our-products/sar212f-3029.php
- Multiswitch with four ports for Decoders and can be cascaded, means later easy upgradeable:
  http://www.spacetv.co.za/pages/our-products/sar411f-3030.php

4.3 Option 3: Multichoice + Deukom in large communal systems

More than four Deukom clients connected to Com. System

This setup is suitable if you have a building with more than four Deukom clients. It recommended changing the old Multiswitch with four inputs to a Multiswitch with minimum 8 inputs for two satellites. Each satellite offers 4 IF levels. This system is scalable.

The existing RF cable to the subscriber can be used and no additional RF cable to the subscriber's decoder is required. The additional hardware as indicated in Figure 3 should be installed next to the existing hardware on the roof.
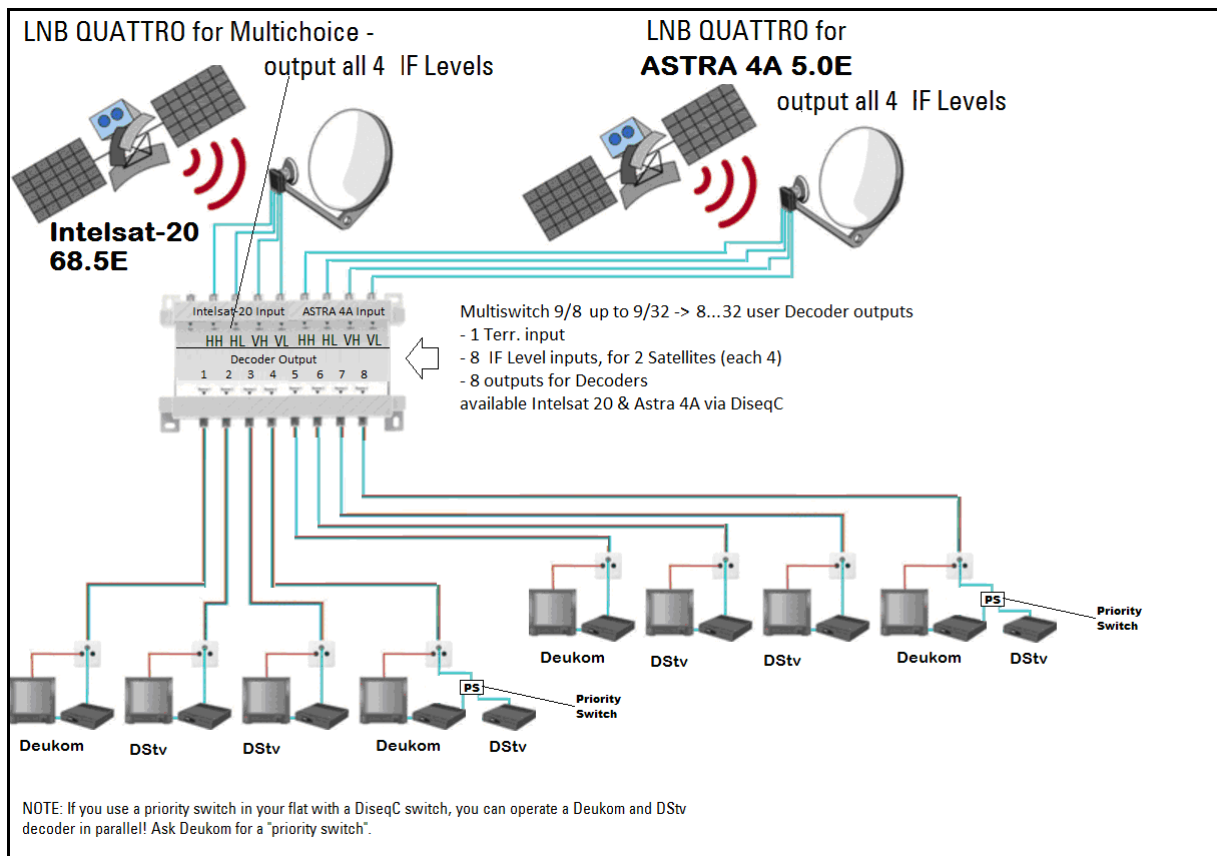

Figure 5 - Multichoice and Deukom for large communal systems

The following equipment can be purchased locally:
- Antenna: http://www.spacetv.co.za/pages/our-products/d100-o-smc-v-2513.php
- LNB Quattro: http://www.spacetv.co.za/pages/our-products/lnbfkuqu-2369.php
- Multiswitch 9/8: http://www.ellies.co.za/ditribution/if_terra/CTMSR908
- Multiswitch 9/16: http://www.ellies.co.za/ditribution/if_terra/CTMSR916
- Multiswitch 9/32: http://www.ellies.co.za/ditribution/if_terra/CTMSR932