

# INFO Televes®

BIMONTHLY NEWSLETTER • Nº29 - APRIL 2015

FREE DISTRIBUTION



## THE NEW NEVOSWITCH RANGE, MUCH MORE THAN A DISTRIBUTIONS SYSTEM FOR ANGACOM 2015

The next generation of hybrid networks, the connected home and personalised television will be the core technologies that will summarise the **ANGACOM** proposal, true benchmark in Europe for Broadband, Cable and Satellite sectors. It will take place in **Köln, Germany from 9-11 of June**. Some 17,000 trade visitors will attend the show, featuring 450 exhibitors from 34 countries.

The great novelty Televes will present is the new **NevoSwitch range** of multiswitches, splitters and line amplifiers, fully developed and manufactured in our facilities, including Quad compatible references.

Televes will also launch the new **FiberData solutions** for RfoG hybrid broadband and GPON networks; developed to meet the

needs of cable operators involved in extending fiber optic networks to the end user.

Also available will be **HSeries** field spectrum analysers, new modules for the **T.OX distribution head-ends** and **IPTV solutions** for the hospitality sectors.

Visitors will have a chance to play with the full range of **Hseries meters**, first to incorporate digital processing in portable formats. The new models stand out for their size, ease of use and accuracy. Regarding T.OX headends, the company will present the **new Encoders**, well known and appreciated in international markets for their manufacturing quality, reliability and efficiency in terms of energy consumption per distributed service.

TELEVES WILL PRESENT THE NEW NEVOSWITCH RANGE, AS WELL AS THE NEW FIBERDATA SOLUTIONS FOR RFOG AND GPON NETWORKS.

AND ALSO...



What needs to be done to start making splices again?

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Low Power WiFi solution for hotels.

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Andina Link (Colombia)

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When in Rome, do as the Romans.

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### DID YOU KNOW...

Televes collaborate so university students can communicate with ISS astronauts?

### MADE IN TELEVES

Televes manufactures...  
HDI technology in Printed Circuit Boards (PCBs).

### NEW PRODUCT

LTE filters



Televes S.A.

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### MEETING POINTS

Visit us at:



#### APRIL

11-14 **NABSHOW**  
Las Vegas

USA

#### MAY

21-23 **EVOLVING CONNECTIVITY**  
Birmingham

UK

## CABSAT, Dubai

(Dubai) 10-12 March



Televes continues to position the company in traditional FI, coaxial and fiber optic markets, sharing its vision and strategy for more innovative solutions in the Medicare, IPTV or DS environments.

The stage was shared between **Medicare solutions** for integrated services for hospitals and **Televes Digital Signage** with interactive services for the hospitality sector. New products included the **NevoSwitch** range, fully developed and manufactured in Spain by Televes and the new **T.OX head-end transmodulators and Encoders** to COFDM.

## ANDINA LINK

Cartagena de Indias (Colombia)  
3-5 March



The company presented innovative cable network solutions for buildings, hotels, hospitals and mining sector, as well as solutions for digitization of cable networks, with new **HD Encoders and Transmodulators QAM, DVB-T/T2 and ISDB tb**.

Televes displayed comprehensive solutions for **hybrid RF over data services via RfoG and GPON**. Also available were the revolutionary **H30 QAM and H60 portable meters** with digital processing, solutions for DTH system operators and the Televes system for data over coaxial cable Coax-Data.



## FAQs

What needs to be done to start making splices again?

*Sometimes I'm having problems when splicing fibers.*

### THE EXPERT SAYS

One of the possible causes of failures when splicing is the lack of calibration of the splicer with the type of fibre that is being used with.

The way to fix this is easily resolved by making a periodic calibration of the equipment. Calibration of the splicer is done directly through the splicer's main menu. There are several videos available in Televes' youtube channel to learn how to do this. Use the QR code provided to access them.



**More info in**  
[televes.com](http://televes.com)

Javier Esteban  
Technical Assistant Manager



## ALWAYS AT THE LAST

## Módulos T.OX Twin para Mediaset Premium

Mediaset Premium got a foothold in Italy in 2011 when it started to develop the Hospitality sector after the analogue blackout.

Today, Televes Italy announces the strengthening of its leadership due to the Mediaset approval for the T.OX module that allows to decrypt and manage simultaneously all 8 premium channels.



**Also available in:**  
[televes.com/es/content/](http://televes.com/es/content/)

## YOUR PICTURES



### When in Rome, do as Romans

This proverb collects up what any local installer may feel when seeing this picture sent by Roberto Blazquez from Azuaga, Badajoz (Spain). After seeing this set of DAT HD information, we can definitively say that this aerial is the best solution for an optimal signal reception in the area. ■

## Using antiLTE filters

Changes needed to accommodate the new Digital Dividend not only need to be related with frequency migration but with the necessity signals.

Mobile operators, both national and overseas and current LTE deployment trials identify two different conditions which may cause interferences:

**1. HEAD/END EQUIPMENT AFFECTED BY MOBILE TRANSMITTERS (BTS).** Or in other words, being affected by the downlink. Equipment updated to the latest frequency plan (C21-C59) or anti-LTE filters shall be used to protect against these signals

**2. INTERFERENCES ON DVB-T EQUIPMENT CAUSE BY MOBILE TERMINALS** (Or being affected by the uplink). Improve the shielding in the coaxial cable, connectorization and/or use of anti-LTE filters.

Filters are the main characters in this Digital Dividend, whether it's the headend that is being affected or not. In fact, one usual applications of these filters is to adapt the coaxial network to the new operational frequencies.

We can classify the filter's applications or use in:

■ **Prevention:** Previous to harmful signals, carried on at the same time at the Headend's frequencies migration.

■ **Mitigation:** Where it is already an interference affecting the installation.

■ **Adaptación de la red de TV a los nuevos requisitos:** el filtro limita la banda de TV a las nuevas frecuencias establecidas.

Having in mind that we need these filters for more than to eliminate interferences, their features, particularly in the case of H/E's affected by BTS, shall be precise enough not to modify the TV frequency band. This accuracy needs also not to be affected by environmental conditions.

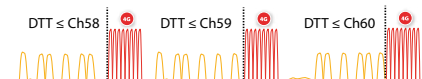
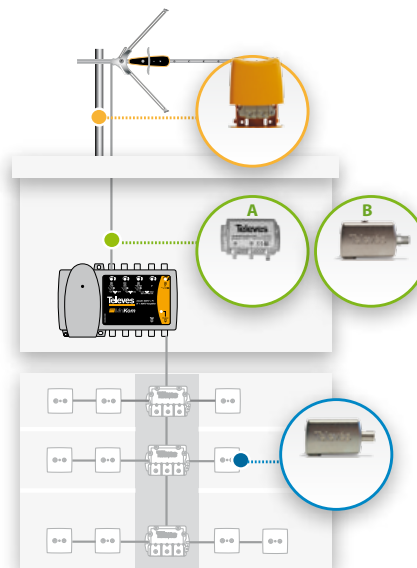
### Choosing the filter

When choosing a filter, we need to evaluate up to 3 different criteria: location, DTT frequencies and degree of affection due to present LTE signals.

■ **Location:** depending on the type of H/E used, the filter shall be installed in the mast, at the amplifier or in every user outlet. The installer shall identify which elements need to be protected against LTE.

■ **Frequency bands:** When possible, it is recommended to use filter with the lowest frequency cut off to maintain LTE interferences away.

■ **Degree of affection:** the important key here is the signal strength different between



#### IN THE MAST

MR	405101		
HR		405402	405401
VHR			

#### IN THE HEADEND

MR	403101(B)		
HR		403402(B)	403401(B)
VHR		403302(A)	403301(A)
UHR		403304(A)	

#### IN THE USER OUTLET

MR	404411		
HR		404401	404412
VHR			

the headend. Filters for H/E equipment are designed to eliminate interferences from the Downlink and leave its operating band as intact as possible.

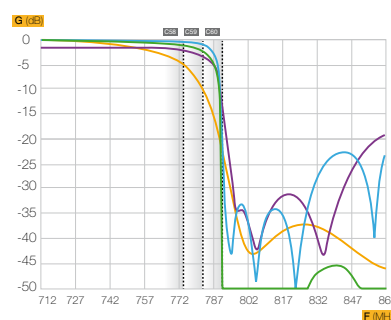


Televes' LTE filters offer a whole range of possibilities: variable rejection at channels 58, 59 or 60. From high stability microcavities filters to LC filter for those less exigent scenarios.

DTT and LTE signals. The more similar they are, the more rejection we will need. If the difference is bigger than 10 dB, rejection shouldn't be as determinant.

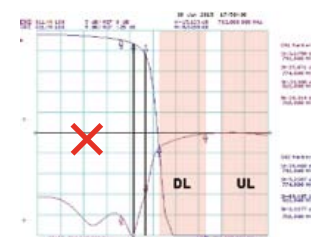
### The cheating filtering graphs

It seems reasonable to think that the frequency response is the key feature of a filter. It even seems reasonable to think that rejection is also a primordial fact.



■ **MR:** MEDIUM REJECTION ■ **HR:** HIGH REJECTION  
■ **VHR:** VERY HIGH REJECTION ■ **UHR:** ULTRA HIGH REJECTION

But we should think twice since, although rejection is quite important, its relevance will highly depend on the interferent signal. In other words, it's worthless to use a 50dB rejection filter in the uplink band if the interfering signals depend on other circumstances, such as not being generated from a BTS or that the entry point of the unwanted signal is not at



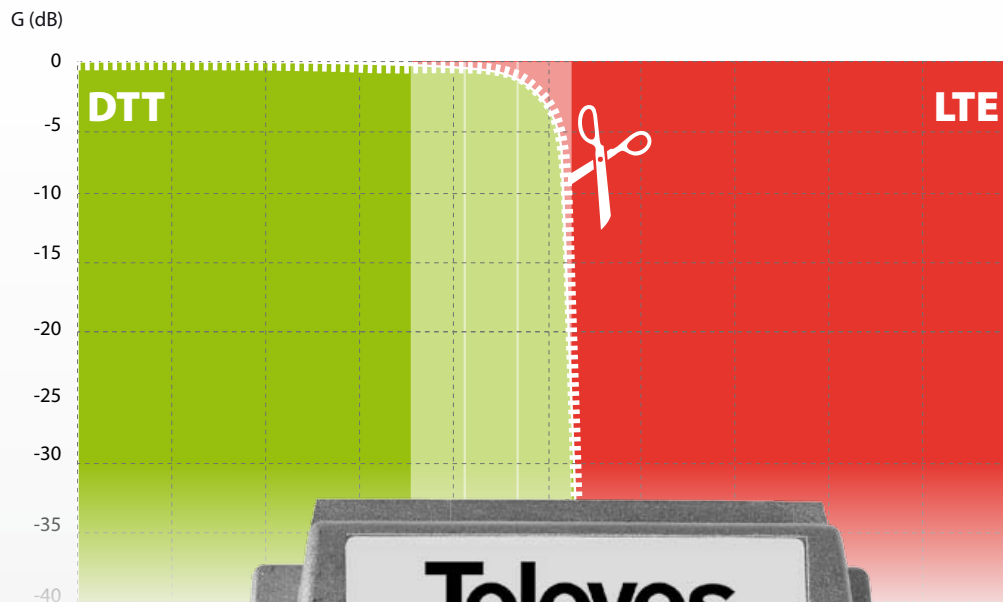
Filter degrading the DTT signal. Unnecessary high rejection on the uplink band.



Filter keeping the DTT intact. Accurate rejection in the uplink band.

Using our Televes' guide "Filters to prevent and mitigate LTE effects", installers will ensure a successful solution for any installation.

**MICROCAVITIES FILTER REF.403304**  
**THE HIGHEST LTE REJECTION**



**Designed to provide the most precise  
frequency cut off at channel 59**

Protect amplification equipment from LTE signals  
The microcavities architecture offers an unbeatable stability against adverse environmental conditions.



## Televes' greek distributor inaugurates a new facility

Edision, greek Televes' distributor in Greece, has opened a new business premise in Tesalonica.



Mr. Theodoros Samakovlis, owner and president of Edision, housed the event along with the general director Mr. Kolovos Athanasios. Mr. Achilleas Kolovos, commercial directors and Asterios Roupas, operations manager were also present. More than 200 guests enjoyed an interesting evening, where providers as



Televes collaborated in a detailed careful setting.

Edision has edited an interesting video where high technology, as the one represented by Televes, and respect for the local traditions are joint together. ■



### DID YOU KNOW...?

## Televes collaborates so university students can communicate with ISS astronauts?

The digital TV system installed in the ISS allow to add video to the existing audio link with university students of Faculdade de Ciencias e Tecnologia da Universidade Nova Lisboa.

The portuguese tracking station is located in this University, and it's one of the six stations ready to transmit/receive this kind of transmissions.

D-ATV transmission is coded on MPEG2; Televes facilitated the conditions to transmit TV signals, contributing in this manner in a huge a technical and scientific advance in the communications with ISS.



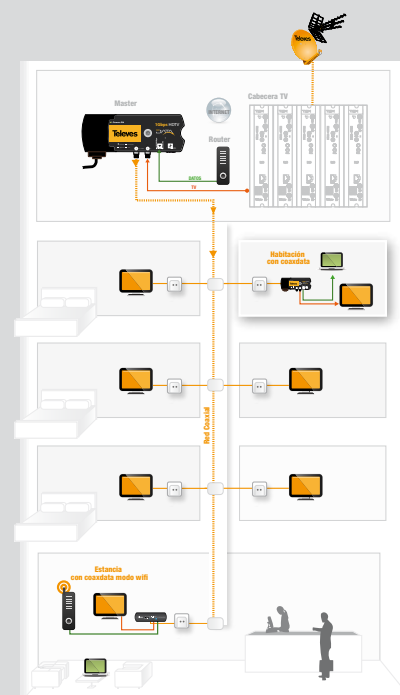
## IDEAS



## Low Power WiFi solution for hotels

One of the key services for hotels is to provide internet access through WiFi.

Ocasionalmente, lack of this service is negatively evaluated by customers. On the other hand, exposure to continuous WiFi signal radiation is becoming increasingly forbidden in many countries and areas. It would appear that the choice between offering WiFi hotspots and preventing guests from related damages reaches a dead-end.



Televes' Coaxdata gateway provides a WiFi hotspot with configurable signal strength. Thus, every guest will have their own WiFi hotspot, away from other points in the facility.





Televes manufactures...



$$\theta \times 45^\circ (= 360^\circ)$$

## HDI technology for Multi Layer Boards (MLB)

The methods and processes for manufacturing printed circuit boards (PCBs) have evolved considerably since its invention in 1936. The rapid pace towards miniaturization leads PCB designers to increase the density of integration. This trend requires manufacturers like Televes to look closely at the methods and processes to evolve in parallel with the technology.

That is the case of multilayer technology. MLB is the stacking of different layers of printed circuit sheets which are bonded by organic material. The difficulty of this technology is not the number of stacked layers, but the diameters of drilling and track widths that are necessary; **they require absolute precision and control in the production processes.**

The need to communicate between layers has increased dramatically. The space available for tracks has decreased, so the use of **blind and buried pathways (HDI)** has become a standard technology of the MLB.

Currently, the Televes product that is most demanding, in regards to the complexity of the PCBs utilized, is the **T.OX Encoder**. It is comprised of two multilayers groups; one made of 6 layers and another of 4 layers. It forces Televes to squeeze the best performance out of our facilities to successfully solder blind and buried paths of as little **as 0.2 microns and crowns of 0.4 microns, as well as connecting inner tracks of 70 microns.**

The product demands such level of detailed quality in the design of the componentry because it is mainly used by content operators, in such demanding markets as the USA, to provide distributed HD content to millions of users.

