

Spotlight on...



Steve Staples

“EoC for Operators” brings Gigabit to every home. An even faster fibre roll-out with Triax EoC



One of our new members TRIAX, worldwide provider of solutions in the field of reception, processing and distribution of data and signals, which includes the reception and distribution of satellite and terrestrial signals as well as IPTV. Steve Staples, Technical Sales Support Manager talked to Broadband Journal about FTTH.

It would appear that by any metric, the FTTH roll-out is achieving great things across the whole industry. Would you agree?

Absolutely. The FTTH roll-out is now really picking up speed. However, it can sometimes stall if, for example, home or building owners do not agree to additional expenses being incurred - often due to extensive cabling works on their MDU residential properties.

It must be a common problem. There is a lot of misinformation out there.

Yes that's right, but TRIAX is able to provide a solution.

For example, once fibre has arrived in the building, many network operators are faced with the question of how the last few metres to the customers' homes can be bridged. If the existing building is not easy to re-cable, the budget is already at a critical range, or if it is a listed building, then the use of the existing coaxial cables is an ideal solution.

There is a lot more of that going on than people think. Most consumers in an MDU environment assume if they have full fibre broadband then it's to their front door.

It can complicate matters. But when it happens, an EoC controller (Ethernet over Coax) is installed near the fibre optic termination, which provides the transition from the fibre optic network, usually GPON, to the in-house coaxial cable network. This uses G.hn technology, which uses the lower frequency range of 2 to 200MHz on the coaxial cable.

Presumably this allows the continued use of both DVB-S and DVB-C?

Precisely; it enables a data rate of up to 1.6Gbit/s on the coaxial cable between the EoC controller and the end points (media converters). Up to 16 end points can be addressed from one controller port. It doesn't matter whether the end points are connected via a star-shaped coaxial distribution or via a tree and branch structure, they'll still connect to the EoC controller.

What about if VHF radio or TV channels below 200MHz are still required?

Then these frequency ranges can be masked out by the in-built electronic notch filtering in the EoC controller. These frequencies will then not be used for data transmission, but it should be noted the achievable data rate will decrease as a result.

Test measurements have shown however, that even if only a frequency range of around 85MHz is available, a symmetrical net data throughput of 550Mbit/s is still possible.

The G.hn signal becomes available in all connected flats.



1-200MHz Return path filter. The return path filter is used to bypass amplifiers in a normal coax based TV network on the data frequency of EoC. This allows the data to have a return path and the TV signal to be amplified

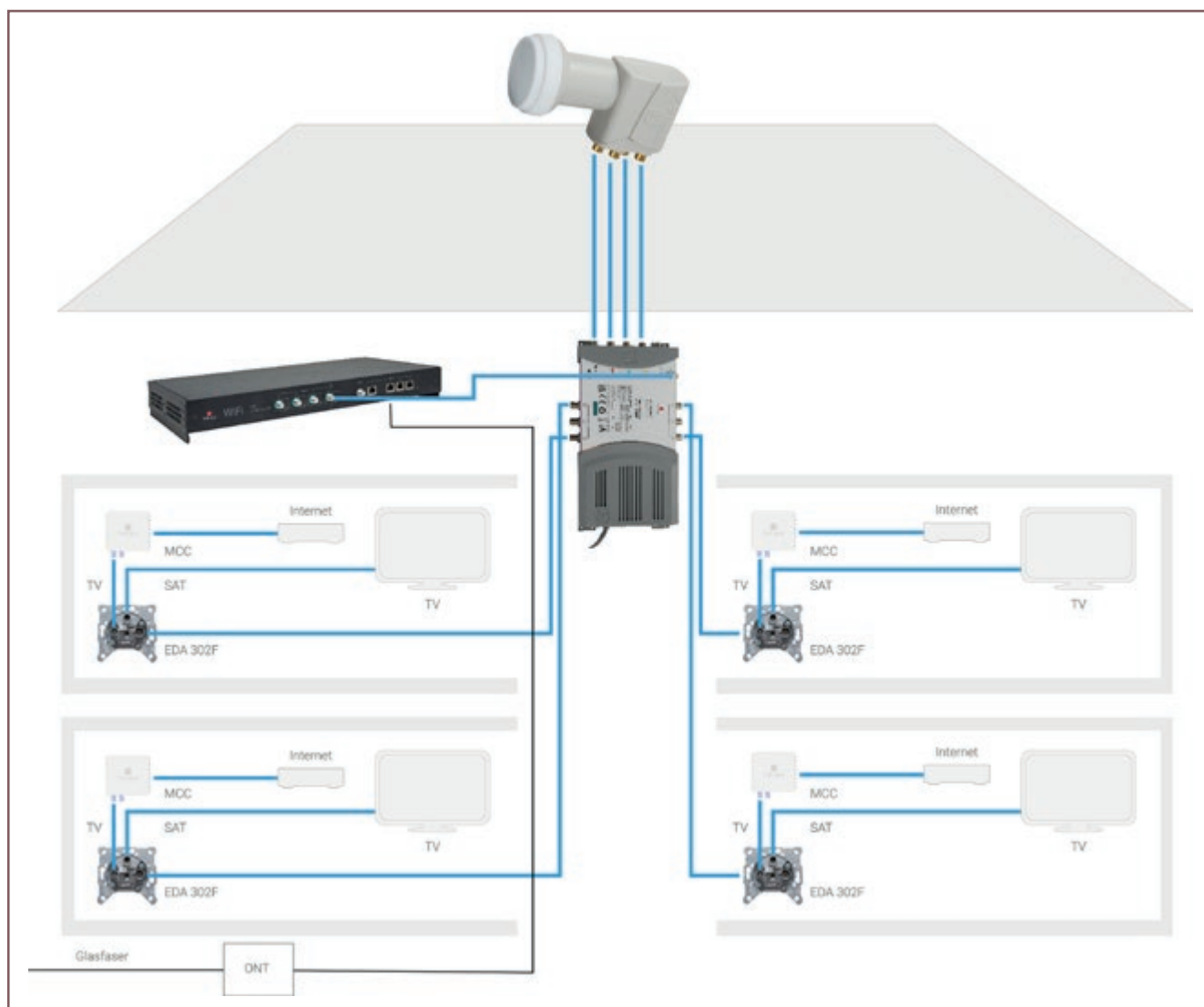


Figure 1: EoC System with DVB-S (Passive Terr)

How do you maximise the performance of the G.hn technology that's available?

Ideally, we would advise that you should try to 'clear' the frequency band up to 200MHz and use connection outlets with built-in filters where possible.

This is best achieved when DVB-S is used for TV, as the lower frequency range is free of TV frequencies due to the technology employed.

How do you do it?

The G.hn signal can be fed into the coaxial network via the passive terrestrial antenna input on a multi-switch and as such, available in all connected flats (Figure 1).

Tell me about the transition from G.hn to Gigabit Ethernet and your EoC system.

It was developed and produced in Denmark and has been used in hotels, hospitals, camp sites and nursing homes for many years. It consists of the controller (see Figure 2), which is available with two as well as four ports, and various types of endpoints that provide the transition from G.hn to Gigabit Ethernet or WLAN.

What about for network operators?

We have the Media Converter Consumer (MCC), which, thanks to its compact construction and modern design, can be easily installed by the end customer in his home (see Figure 3). It's equipped with a Gigabit Ethernet interface for connecting a



Figure 2



Figure 3

router. There is also a coaxial F jack to enable connection to an existing television service. It's also worth mentioning that up to four G.hn ports can be bundled. This means up to 64

end points, for example, Media Converter Consumers, can be connected in one coaxial network and supported.

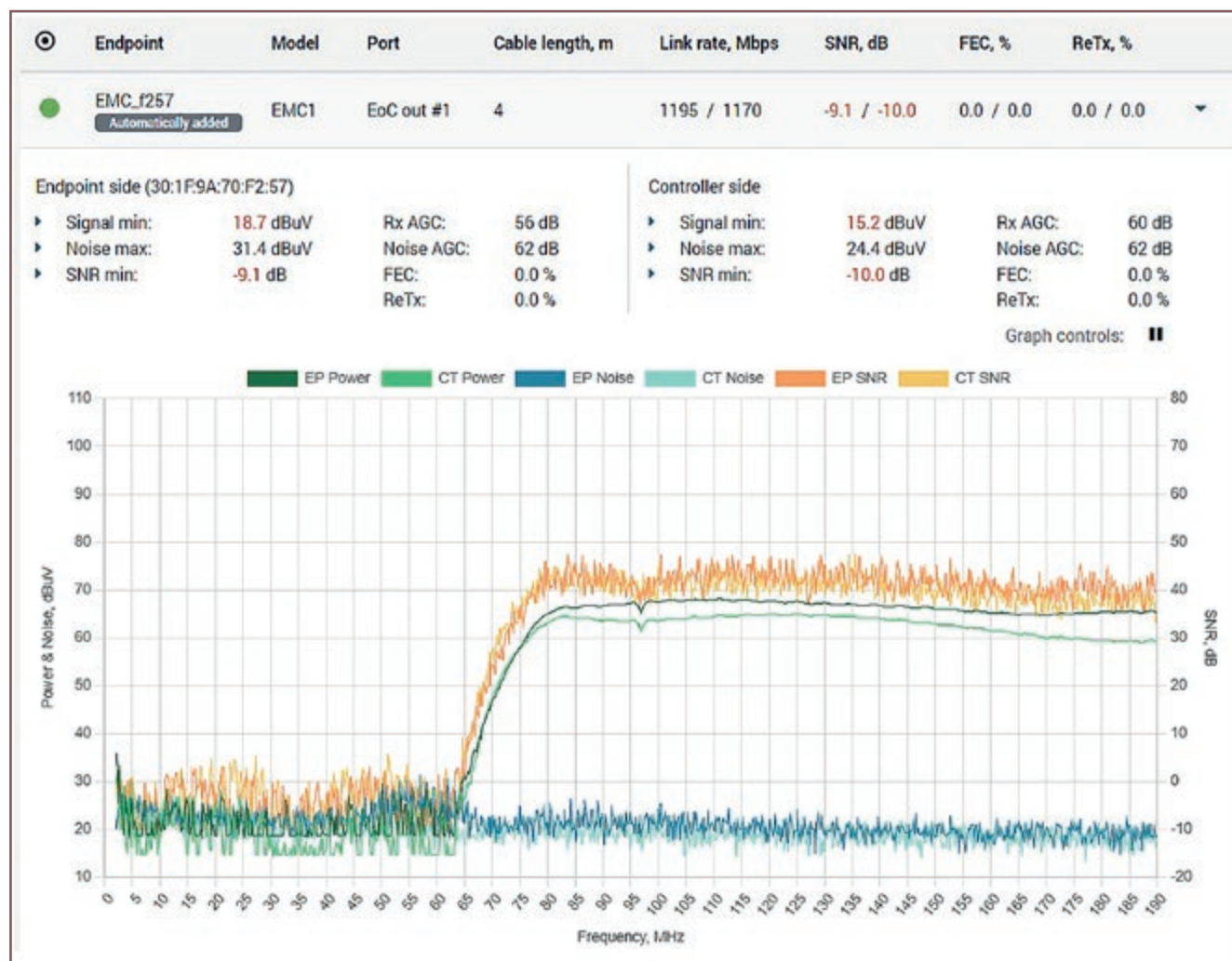


Figure 2

That's quite an advantage over G.fast, where only one terminal can be operated per port, correct? What other advantages are there?

G.hn has three significant advantages over MoCA-Access 2.5. By using the lower frequency range up to 200MHz, it is very robust and copes well with older cable networks, where higher attenuation levels often occur. Since MoCA uses the frequency range from 500MHz, it inevitably comes into conflict with existing TV channels.

What about the lower frequency range?

Well, this offers less potential for conflict since existing FM frequencies will probably no longer be used in the future. If one wants to use the upper frequency range of 1,000MHz and above with MoCA, the existing components in a CATV Network must be replaced, as they are usually only designed up to a frequency of 862MHz or 1,000MHz.

Does TRIAX monitor the transmission quality?

Yes, recently, TRIAX has issued a software update that has been specially designed to meet the requirements of network operators. An example of this is the built-in G.hn Quality Diagnostics. This makes it possible to monitor and graphically display the transmission quality up to the end point.

This now means that network operators can see at a glance where there may be faults on the line or where the transmission quality, due to old network infrastructure or outlets for example, is limited?

At TRIAX we consider it vital that there is visibility throughout the transmission process, otherwise if faults occur, it just creates more work.



For more information, see www.triax.com



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