

The Story of Enhancing a great standard: What's Next After DVB-S2?

DVB standards are used in over a 1 billion devices around the world. DVB-S2 is the most widespread technology from DVB, so updating that standard is not done overnight. And yet, this is exactly what's happening today.

How did this happen? How did our industry come together, and say 'Let's update the DVB-S2 standard!' Let's update a standard that impacts the whole value chain in our industry. Chipset manufacturers, satellite equipment manufacturers, satellite operators, service providers, broadcasters, and of course consumers where to be impacted by this decision.

The world is creating more data the last 3 years than it has done since the dawn of human mankind. The content explosion on the Internet, social media, mobile devices, High definition (HD) and the 4 times bigger UHD TV are will triple the global IP traffic over the next 5 years. We do not live in a world of tera- or petabytes any more. We need to get used to exa- and zetabytes. That is 21 zero's in a row.

Researchers at Newtec found that by increasing the granularity of modulation and coding schemes and better Forward Error Correction (FEC) choices, this would bring us as close to the maximum theoretical Shannon limit as possible. Transponders can be filled to the maximum using small roll-off factors and modulation schemes optimized for linear and non-linear operation.

Already back in September 2011, this research materialized into a number of technologies from Newtec such as Clean Channel Technology®, later completed with Newtec's version of S2 extensions and 72Mbaud wideband. These technologies today prove to boost DVB-S2's performance with up to 37%!

Interoperability is the cornerstone of our industry. In December 2011, Newtec approached Dr. Peter Siebert from DVB with the idea to have our industry work together towards an improvement of DVB-S2. Newtec convinced leading companies including SES Astra, Eutelsat, Cisco, and EBU to start a new project in DVB, enhancing the DVB-S2 standard with up to – a moderate - 30%. Many meetings in the commercial and technical modules followed. Some wanted different technologies for distinct applications. Some preferred to remain proprietary. Some did not want to upgrade millions of settop boxes. Some wanted to postpone.

But good things come to a good end. Very quickly, a broad spectrum of companies contributed to this improvement, in which technologies from Hughes and Newtec seem to have been instrumental to the crystallization of the new standard, today still codenamed DVB-Sx. An above all, the team exceeded expectations; the efficiency gains of DVB-Sx will be close to 40%!

The DVB-Sx specification, still in draft form, is suitable for covering traditional S2 use cases that include consumer and professional applications such as Direct-To-Home, digital video broadcasting, satellite newsgathering and occasional use,

interactive broadband consumer and enterprise applications, and other professional links such as Internet trunking, mobile backhaul and communications on the move

Standards usually take a long time to settle. This one moved forward at warp speed though... in less than 20 months the Sx annex is getting into its final shape. DVB expects that this work will be completed by the end of the year.

Paper remains paper. The real thing happens in space! Thanks to the live tests over satellite from companies like Intelsat, Eutelsat, SES, MEASAT, Ericsson, Sony and many others, confidence has grown that these improvements are real.

At IBC2013, a live sports 4K UHD TV contribution link is run over the Intelsat fleet. This shows that the pre-standard technologies from Newtec are used with confidence, even at high visibility events such as IBC.

Evangelization and interaction with our industry also has started. In panel discussions, presentations and industry surveys around the world, this new standard is catching a lot of attention.

10 years ago our industry moved from DVB-S to S2. Ten years later, our industry is stepping into another big update. These S2 extensions come at the right time making UHD TV contribution and distribution to the homes a reality. Sx will be instrumental to the content tsunami happening on the Internet. Remember the 21 zero's....that's a lot of bytes coming to us.

Looking back, it is remarkable how fast our industry has come together. Technology providers, satellite operators, consumer electronics segment and standardization bodies all pulling the same string. Aiming for the same goal.

This standard will make our industry stronger. And Newtec is proud to be part of that.