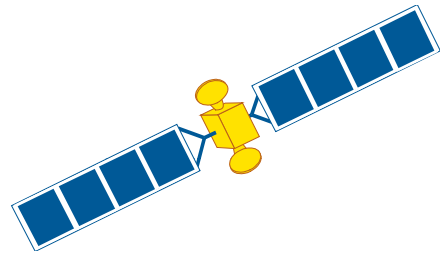




Satellite Operators Panel: Bandwidth Optimization



Enhancement of DVB-S2

Thomas Wrede, Chairman DVB-CM BSS

Geneva, 28 November 2012



Background

- ❑ The current DVB-S2 standard (EN 302 307) dates back to 2005
 - Most advanced modulation and demodulation implementation at that time

- ❑ In recent years users of professional broadcast applications have demanded more spectrum efficient solutions from industry

- ❑ New proprietary DVB-S2 implementations and technology were introduced since about 2011 that considerably outperform the original DVB-S2 standard

- ❑ In the DVB Commercial Module the BSS sub-goup has performed a study mission together with CM-RCS to analyze these potential performance improvements

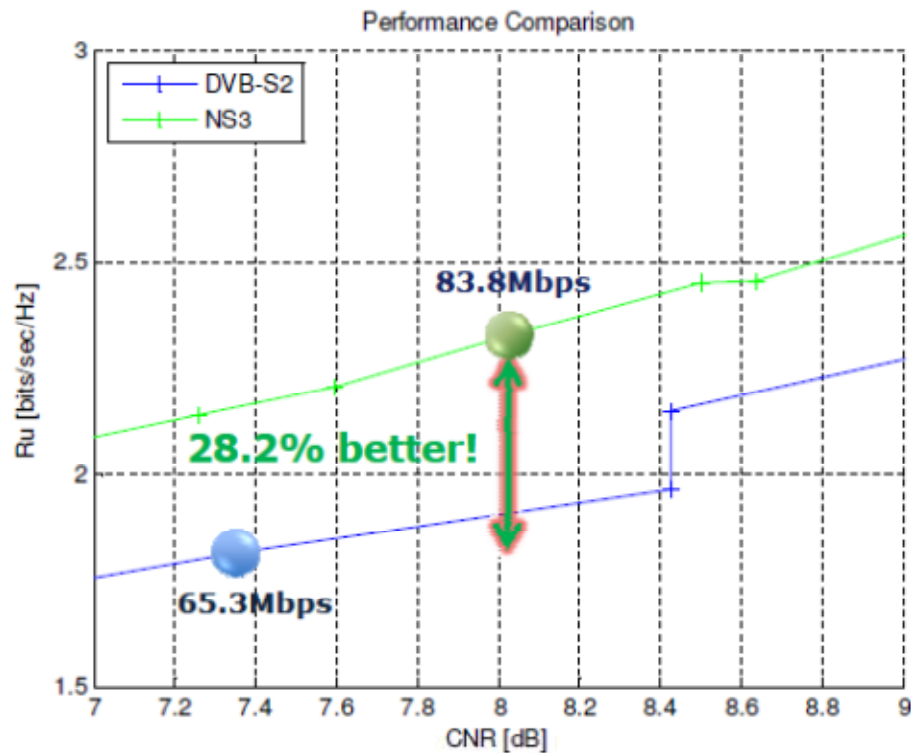
□ Highlights

- Over 20% efficiency gain in a standard DTH satellite transponder
 - Even higher in wideband and under high SNR conditions
- Initial commercial volume drivers are video-, IP contribution/trunking and backhauling services and consumer broadband internet systems
- Video distribution (e.g. UHD TV services) assumed to represent the biggest volume driver beyond 2016
 - Highest bandwidth efficiency required as market enabler

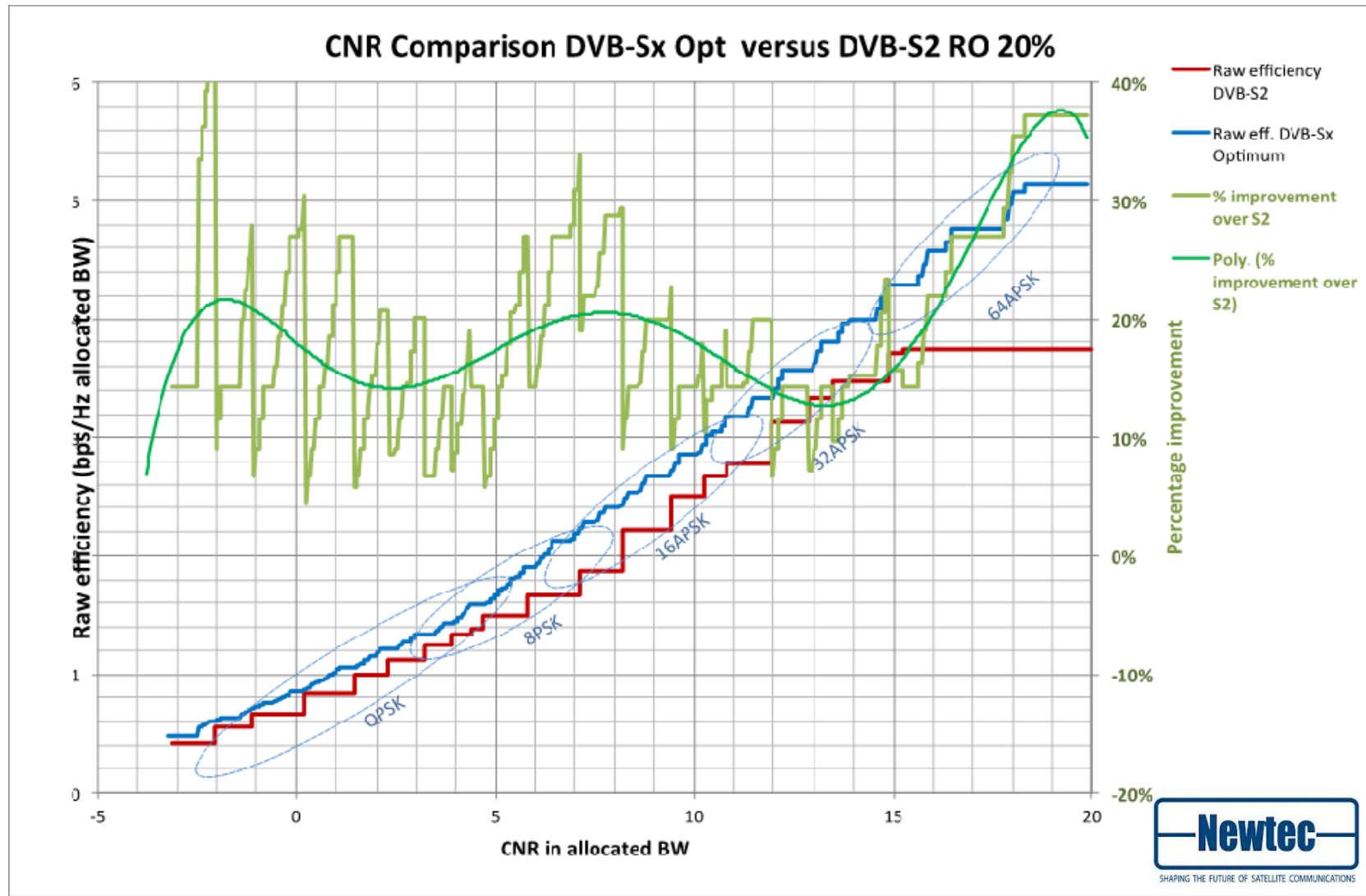
Impressive Efficiency Increase (Novelsat)



Example – 36MHz, CNR ~8dB



Impressive Efficiency Increase (Newtec)



Is the improvement over DVB-S2 relevant?



YES !

20% to over 35% efficiency increase is commercially relevant!

Mandate given to CM-BSS to proceed with Commercial Requirements

Evolutionary enhancements

❑ Lower roll-off

- Whilst DVB-S2 specifies a roll-off of 20%, the non-DVB-S2 compliant modems implement much lower roll-offs (e.g. 5%, 10% and 15%)

❑ New modulation and FEC combinations

- Wider range of MODCODs for low CNR links and for video/IP trunk links achieving Es/No of >22 dB

❑ Wideband transponder support

❑ Logical bonding of satellite transponders

- Assuming multiple tuner front-ends

❑ Manufacturer specific performance tweaks

- Hence a Call for Tender

Actual status of DVB-S2x

- ❑ Commercial Requirements approved at last CM meeting
 - Timeline for technical specification set for September 2013
 - SoC (for UHD TV set top boxes) available in 2015

- ❑ TM-S2 group (Alberto Morello) has started work
 - Call for Tender (CfT) to industry in preparation

- ❑ CM-BSS tasked to lead a study mission with TM-S2 regarding a «revolutionary» enhancement of DVB-S2
 - New framing, new coding, new satellite technologies,
 - Support from industry and ESA

- ❑ Discussion in the DVB about the appropriate name for the new standard
 - DVB-S2 is a very successful standard. Is it time for DVB-S3?
 - Steering Board decided to use DVB-S2x as internal name

Conclusions

DVB-S2x will provide 20% to over 35% efficiency gain

Enabler for UHDTV services and more

The Shannon Limit is still valid

DVB-CM initiated a study mission to eventually come closer.....



Thank You!

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