



Question(s): 6, 12/15

Geneva, 16 December 2011

LIAISON STATEMENT**Source:** ITU-T Study Group 15**Title:** LS from ITU-T Q6/15 to IETF CCAMP WG

LIAISON STATEMENT**For action to:** -**For comment to:** IETF CCAMP WG**For information to:** -**Approval:** Agreed to at Study Group 15 meeting (Geneva, 5-16 December 2011)**Deadline:** 1 April 2012

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ITU-T SG15 Q6/15 and Q12/15 would like to thank IETF's CCAMP WG for its Liaison Statement on starting work on enhancing GMPLS's support for Wavelength Switched Optical Network (WSO) equipment to support Flexible Grids.

Q6/15 and Q12/15 would like to inform IETF's CCAMP WG that revised Recommendation ITU-T G.694.1 was consented at the Plenary SG15 Meeting in Geneva, 5-16 December 2011, introducing the concept of a flexible grid. Furthermore a joint meeting was held between Q6, Q7, Q9, Q11, Q12 and Q14 of SG15 to discuss potential follow-up work on the flexible grid within these questions. In order to provide some input to this joint meeting, the Q6/15 Rapporteur and Associate Rapporteur drafted the document, attached as Attachment 1 to this Liaison Statement, containing some specific considerations relevant to the introduction of the flexible grid in revised ITU-T G.694.1.

Furthermore Q6/15 would like to inform IETF's CCAMP WG that also a revised version of Recommendation ITU-T G.697 was consented at this SG15 Plenary Meeting, where some of the parameter encoding was modified to take account of the introduction of a flexible grid in ITU-T G.694.1.

In order support the work in IETF's CCAMP WG both consented ITU-T G.694.1 and ITU-T G.697 are attached.

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As SG15 further progresses with the work on this topic, we would be happy to inform the IETF's CCAMP WG about the progress made. Q6/15 and Q12/15 are looking forward to future exchanges of information with IETF's CCAMP WG.

Attach: Consented ITU-T G.694.1 (TD502/PLEN Rev.2).
Consented ITU-T G.697 (TD505/PLEN Rev.1).

Attachment 1

Question(s):	6, 7, 9, 11, 12, 14	Meeting, date:	Geneva, 5 – 16 December 2011		
Study Group:	15	Working Party:	2	Intended type of document (R-C-TD):	WD6-05
Source:	Q6/15 Rapporteur and Associate Rapporteur				
Title:	Input from Q6/15 on flexible grid in G.694.1 towards joint meeting on flexible grid				
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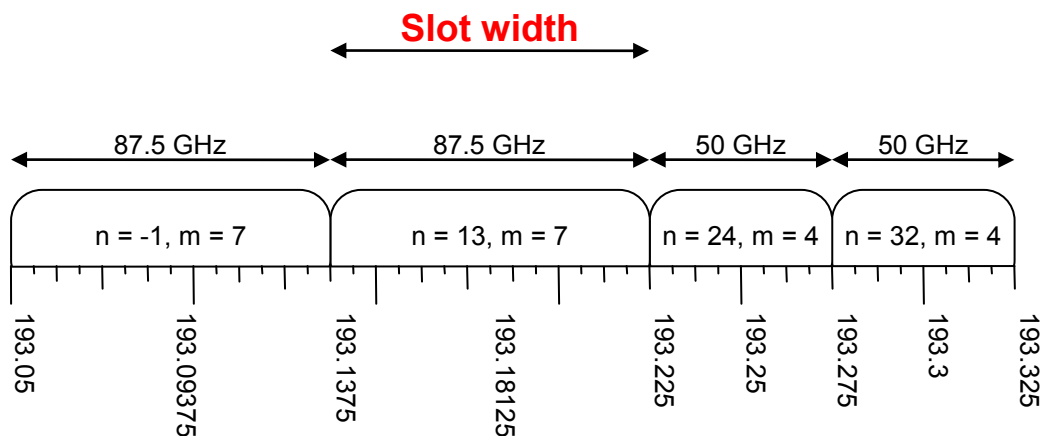
Introduction

During the discussions within the Q6/15 meeting on the documents towards the revision of G.694.1 to include a flexible grid it became evident that it would be useful to provide some statements from the Q6/15 meeting to the joint meeting with Q7, Q9, Q11, Q12 and Q14 on Friday 9 December.

Statements

The flexible grid specification in revised G.694.1, as recorded in TD 502R1 (PLEN), provides:

- Definition of concept of flexible grid;
- Definition of “**frequency slot**”;
- Definition of “**slot width**”, being “The **full width** of a frequency slot in a flexible grid”;
- Introduction of “**nominal central frequency granularity**”, which is 6.25 GHz;
- Introduction of “**slot width granularity**”, which is 12.5 GHz.



This flexible grid specification **intentionally** does **NOT** provide:

- The definition of **slices** (neither numbered nor unnumbered) with a width of 12.5 GHz.
 - Note: In fact slices with a width of 6.25 GHz would be required in order to be combined to form any slot which can be described by the flexible grid. Q6/15 intentionally did not define these either in order not to imply how equipment intended to implement the flexible grid should be constructed.
- The definition of any structure within a frequency slot, for instance it would be incorrect to say a channel requires 3 slots.

- Note: According to G.694.1 this should be described as a channel requiring a slot width of 37.5 GHz ($12.5 \times m$ GHz, with $m = 3$).

Additional considerations

As a result of the contributions towards G.694.1, including C1688R1 (ZTE), concerns were expressed by several Q6/15 participants that apparently a variety of (non-Q6/15) participants seem to think that now that a flexible grid has been defined, there is complete freedom in mixing and matching a variety of bitrates and modulation formats on a single fibre. While it is true that the definition of flexible grid allows this freedom, indiscriminate positioning of the various channels with respect to each other is likely to lead to dramatically impaired system performance compared to a more careful choice of slot positioning / wavelength assignment. Despite the fact that actual results on specifications for mixed bitrate optical interfaces have not yet been achieved within Q6/15, it was expressed that grouping of wavelengths with the same bitrates and modulation formats (possibly with additional “guard bands” between the groups) is expected to be a sensible thing to do in order to minimize unwanted effects like XPM.
