

AN FEC SELECTION

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OPTIONS AND PROPOSAL

- **IEEE options (ref: [marris 3by 01a 0115.pdf](#))**
 - #1. USE BASE PAGE
 - #2. USE NEXT PAGES
 - #3. USE BASE PAGE
- **FEEDBACK:**
 - EITHER IEEE OPTION #1 or #3 ARE PREFERRED.
 - OPTION #2 INCONSISTENT WITH EXISTING AN ADVERTISEMENT MECHANISMS, PROVIDES MORE INFORMATION THEN REQUIRED TO MEET OBJECTIVES.
- **PROPSAL:**
 - **USE OPTION #1.**
 - Meets all requirements with fewest bits and simplest approach.
 - Make slight modifications based on feedback.
 - SLIDES PROVIDE UPDATES TO OPTIONS #1 and #3 BASED ON FEEDBACK, AND COMPARISONs.

PHY TYPE DESIGNATION REVIEW

- **IEEE options (ref: [marris 3by 01a 0115.pdf](#))**
 - #1. 25GKR and 25GCR PHY TYPEs
 - FEC SELECTION IS EXPLICIT AND NOT PER PHY TYPE
 - #3. 25GKR and 25GCR-L and 25GCR-S PHY TYPEs
 - FEC SELECTION IS IMPLICIT FOR KR AND CR-L, AND EXPLICIT FOR CR-S
- **FEEDBACK:**
 - EITHER IEEE OPTION #1 or #3 WILL WORK.
 - DESIRE TO HAVE PHY TYPE AND FEC SELECTION RESOLVE IN A **SINGLE PASS** OF CL73 AN.
 - FEC SELECTION IS A DRIVING ISSUE
 - DESIRE TO HAVE **NO** FEC AND **OPTIONAL CL74** FEC MODES for **25GCR**:
 - (Engineered links)
 - DESIRE TO HAVE ALL FEC OPTIONS FOR **25GKR** MODES (None, CL74, CL91):
 - (Engineered links)
 - DESIRE TO HAVE **SEPARATE 25G CL74** FEC SELECTION CONTROLS VS THOSE IN **10GKR** LANE PHYS

PHY TYPE DESIGNATION – IEEE OPTION 1: FEC SELECTION AMMENDMENT

- **PHY TYPE:**
 - 25GKR and 25GCR PHY TYPEs (**2 bits**)
 - Consider only supporting 25G PHY type since the above are mutually exclusive?
- **FEC:**
 - ADD FEC SELECTION FOR **THESE** PHY TYPES, AND MEET FEEDBACK REQUESTS:
 - FEC_REQUEST (**1 bit**)
 - Indicates FEC is required per this LP):
 - FEC_ABILITY_CL91 (**1 bit**)
 - Allows FEC to be enabled if only one LP requests it):
 - FEC_ABILITY_CL74 (**1 bit**)
 - Allows FEC to be enabled if only one LP requests it):
 - HOW RESOLUTION WORKs:
 - If CL91 is required, only advertise CL91, Request FEC.
 - If CL74 is required, advertise CL74 and CL91 (as available), Request FEC.
 - If no FEC is required, advertise CL74 and CL91 (as available), DO NOT Request FEC.
 - *If either LP Requests FEC, and both LPs advertise CL74 **and** CL91, **CL91 is enabled.***
- **TOTAL:**
 - FIVE BITS ADDED TO ABILITIES FIELD IN THE BASE PAGE

PHY TYPE DESIGNATION – IEEE OPTION 3: FEC SELECTION AMMENDMENT

- **PHY TYPE:**
 - 25GKR, 25GCR-L, and 25GCR-S PHY TYPEs (**3 bits**)
 - Consider not supporting 25GKR since 25GCR-S PHY type and 25GKR are mutually exclusive?
 - **25GCR-L HAS CL91 AS MANDATORY**
 - **25GKR HAS CL91 AND CL74 AS OPTIONAL**
 - **25GCR-S HAS CL91 AND CL74 AS OPTIONAL**
- **FEC:** ADD FEC SELECTION AS APPLICABLE FOR **THESE** PHY TYPES, AND MEET FEEDBACK REQUESTS
 - **FEC CONTROLS:**
 - **FEC_REQUEST (1 bit)**
 - Applies to **25GKR** and **25GCR-S**
 - **FEC_ABILITY_CL91 (1 bit)**
 - Allows FEC to be enabled if only one LP requests it) (applies to **25GKR**):
 - **FEC_ABILITY_CL74 (1 bit)**
 - Allows FEC to be enabled if only one LP requests it) (applies to **25GCR-S AND 25GKR**):
- **TOTAL:**
 - 6 BITS ADDED TO ABILITIES FIELD IN THE BASE PAGE

MODE COMPARISON (CR)

- **WHICH BITS TO SET IN EACH OPTION FOR EACH MODE (assume all other bits are zero):**
 - **REQUIRE NO FEC:**
 - **1: 25GCR PHY TYPE**
 - **3: 25GCR-S PHY TYPE**
 - **REQUIRE CL74 ONLY:**
 - **1: 25GCR PHY TYPE, FEC_REQ, and FEC_ABILITY_CL74**
 - **3: 25GCR-S PHY TYPE, FEC_REQ, and FEC_ABILITY_CL74**
 - **REQUIRE CL91 ONLY:**
 - **1: 25GCR PHY TYPE, FEC_REQ, and FEC_ABILITY_CL91**
 - **3: 25GCR-L PHY TYPE**
 - **REQUIRE EITHER (ALLOW BOTH):**
 - **1: 25GCR PHY TYPE, FEC_REQ, FEC_ABILITY_CL91, and FEC_ABILITY_CL74**
 - **3: 25GCR-L PHY TYPE, 25GCR-S PHY TYPE, FEC_REQ, and FEC_ABILITY_CL74**
 - **NOTE: *If either LP Requests FEC, and both LPs advertise CL74 and CL91, CL91 is enabled.***

MODE COMPARISON (KR)

- **WHICH BITS TO SET IN EACH OPTION FOR EACH MODE (assume all other bits are zero):**
 - **REQUIRE NO FEC:**
 - **1: 25GKR PHY TYPE**
 - **3: 25GKR PHY TYPE**
 - **REQUIRE CL74 ONLY:**
 - **1: 25GKR PHY TYPE, FEC_REQ, and FEC_ABILITY_CL74**
 - **3: 25GKR PHY TYPE, FEC_REQ, and FEC_ABILITY_CL74**
 - **REQUIRE CL91 ONLY:**
 - **1: 25GKR PHY TYPE, FEC_REQ, and FEC_ABILITY_CL91**
 - **3: 25GKR PHY TYPE , FEC_REQ, and FEC_ABILITY_CL91**
 - **REQUIRE EITHER (ALLOW BOTH):**
 - **1: 25GKR PHY TYPE, FEC_REQ, FEC_ABILITY_CL91, and FEC_ABILITY_CL74**
 - **3: 25GKR PHY TYPE, FEC_REQ, FEC_ABILITY_CL91, and FEC_ABILITY_CL74**
 - **NOTE: *If either LP Requests FEC, and both LPs advertise CL74 and CL91, CL91 is enabled.***

MODE COMPARISON SUMMARY

- **BOTH OPTIONS PROVIDE ALL REQUIRED CAPABILITIES**
- **THE NUMBER AND COMPLEXITY OF BITS TO BE SET FOR EACH MODE WITH EACH OPTION VERY SIMILAR (Identical for KR)**
- **OPTION #1 USES FEWER BITS, AND IS SIMPLER TO DESCRIBE/UNDERSTAND**
 - Greater flexibility in the use of FEC for engineered links; therefore greater BMP

THANK YOU!