

Proposed solution to SJH-34 (no assured delivery mechanism for High Media Rate Trade-up).

Solution involves creating a new timer (TPTUAD) within the C-Port that runs after accepting a trade-up request from the Station. The ~~is~~ period ~~of time before this timer expires~~ allows the C-Port to handle any further Registration Request frames from the Station at the current media rate, in keeping with the rest of the registration assured delivery protocol. ~~When the timer expires, After a timeout period longer than the maximum time the Station takes to register,~~ the C-Port changes Media Rate and waits until it sees Link Status from the Station.

Assured delivery is taken to mean that up to four registration retry attempts by the Station will be handled successfully by the C-Port.

I have included the original tradeup state (1132) below, along with my proposed changes and new states.

		EVENT / EVENT & CONDITIONS	ACTIONS / OUTPTS
JK U	1132 Old Trans	<b>FR_REG_REQ(AP_REQ=0006 &amp; PD=0001)</b> & FPMR<2 & AND(PPV(AP_MASK),AP_REQ)=0006 & JS=PREG	JS=PHMRTU; FPEFS=0; TPHMRW=R; TXI_REG_RSP_PDU(AP_RSP=0004)
<u>JU</u> <u>K</u>	<u>1137</u>	<u><b>PS_STATUS.indication(Link_status=Asserted)</b></u> & JS=PHMRTU <u>&lt;&lt; The High Media Rate link has become active after C-Port and Station Trade-up agreement. &gt;&gt;</u>	JS=PREG; TS=PRPT; <u>Set initial conditions; FPTXC=1;</u> <u>FPRPT=1; FPMR=2</u> <u>&lt;&lt; Restart registration as if this is initial entry, but with FPMR indicating 100 Mbit/s (FPMR is now greater than 1) &gt;&gt;</u>
	<u>1141</u>	<u><b>DELETE THIS</b></u> <u>↑Old↑</u> <u>↓New↓</u>	
	1132 Mod	<b>FR_REG_REQ(AP_REQ=0006 &amp; PD=0001)</b> & FPMR<2 & AND(PPV(AP_MASK),AP_REQ)=0006 & JS=PREG << Station is requesting trade-up to High Media Rate and request is accepted by the C-Port >>	JS=PHMRTU; <del>FPEFS=FPRPT=0;</del> S_AP=AP_REQ; S_PD=PD; TPTUAD=R; TPHMRW=R; TXI_REG_RSP_PDU(AP_RSP=0004) << Respond and enter a wait state in case the Station misses this <del>frame</del> response and retransmits its request >>
	New	<b>FR_REG_REQ(AP_REQ=S_AP &amp; PD=S_PD)</b> & JS=PHMRTU & FPMR<2 << Handle the assured delivery mechanism while waiting to trade up to High Media Rate >>	<del>FPEFS=FPRPT=0;</del> TXI_REG_RSP_PDU(AP_RSP=0004)
	New	<b>FR_REG_REQ(AP_REQ&lt;&gt;S_AP)</b> & JS= <del>PHMRTU</del> <del>TUAD</del> & FPMR<2 << Restart registration – Station has changed its Access Protocol request >>	JS=PREG; MS=x; TS=PRPT; Set_initial_conditions; FPRPT=1; SUA=0
	New	<b>FR_REG_REQ(PD&lt;&gt;S_PD)</b> & JS= <del>PHMRTU</del> <del>TUAD</del> & FPMR<2 << Restart registration – Station has changed its Phantom Drive request >>	JS=PREG; MS=x; TS=PRPT; Set_initial_conditions; FPRPT=1; SUA=0
<u>JU</u> <u>K</u>	<u>1137</u> <u>Mod</u>	<u><b>PS_STATUS.indication(Link_status=Asserted)</b></u> & JS=PHMRTU <u>&lt;&lt; The High Media Rate link has become active after C-Port and Station Trade-up agreement. Link is now operating at High Media Rate. &gt;&gt;</u>	JS=PREG; TS=PRPT; <u>Set initial conditions; FPTXC=1;</u> <u>FPRPT=1</u> <u>&lt;&lt; Restart registration as if this is initial entry. &gt;&gt;</u>
	New	<b>TPTUADR=E</b> & JS=PHMRTU << Assured Delivery timer has expired and so C-Port can now change Media Rate >>	<u>Flush queues;</u> PS_CONTROL.request(Initialise, Media_rate=2); <u>FPMR=2</u> <u>&lt;&lt; Switch to the High Media Rate,</u>

		<a href="#">change the Media Rate flag and wait for Link Status &gt;&gt;</a>
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### *New Timer*

**TPTUAD**      Timer, Port Trade-up Assured Delivery

### *Timer values*

The C-Port wait a periode of 4 Registration Request frames (assured delivery)

Registration Request frames are paced using TSREQ [[max 640ms](#)].

Worst case: Station starts registration protocol. C-Port enters JS=PHMRTU on receipt of the first frame. The Registration Response frame transmitted by the C-Port is lost. The Station resends its Registration Request frame and the C-Port retransmits the response frame. This repeats until the Station sends its 4<sup>th</sup> request frame. The total time from the first Registration Request frame until the final C-Port's Registration Response frame is ~~4~~[6240ms](#).

~~Suggested value for timer TPTUAD is 180ms ±10ms.~~

[Maximum time for assured delivery process:4\\*60ms=240ms to 300ms.](#)

## Questions

- [Does the initialise function require a Flush\\_queues operation to make sure a response frame isn't transmitted at HMR? Yes.](#)
- [Is switching back to idles when in JS=PHMRTU a good idea? Yes.](#)
- [Do we need to wait until TS<>TXD before we change speed? No. Flush\\_queues takes care of this.](#)
- [The flag FPMR now becomes active before link status is seen from the station. Does this break anything?](#)