

IL Limit Line Proposal

IEEE 802.3dm

September Interim, Hamburg

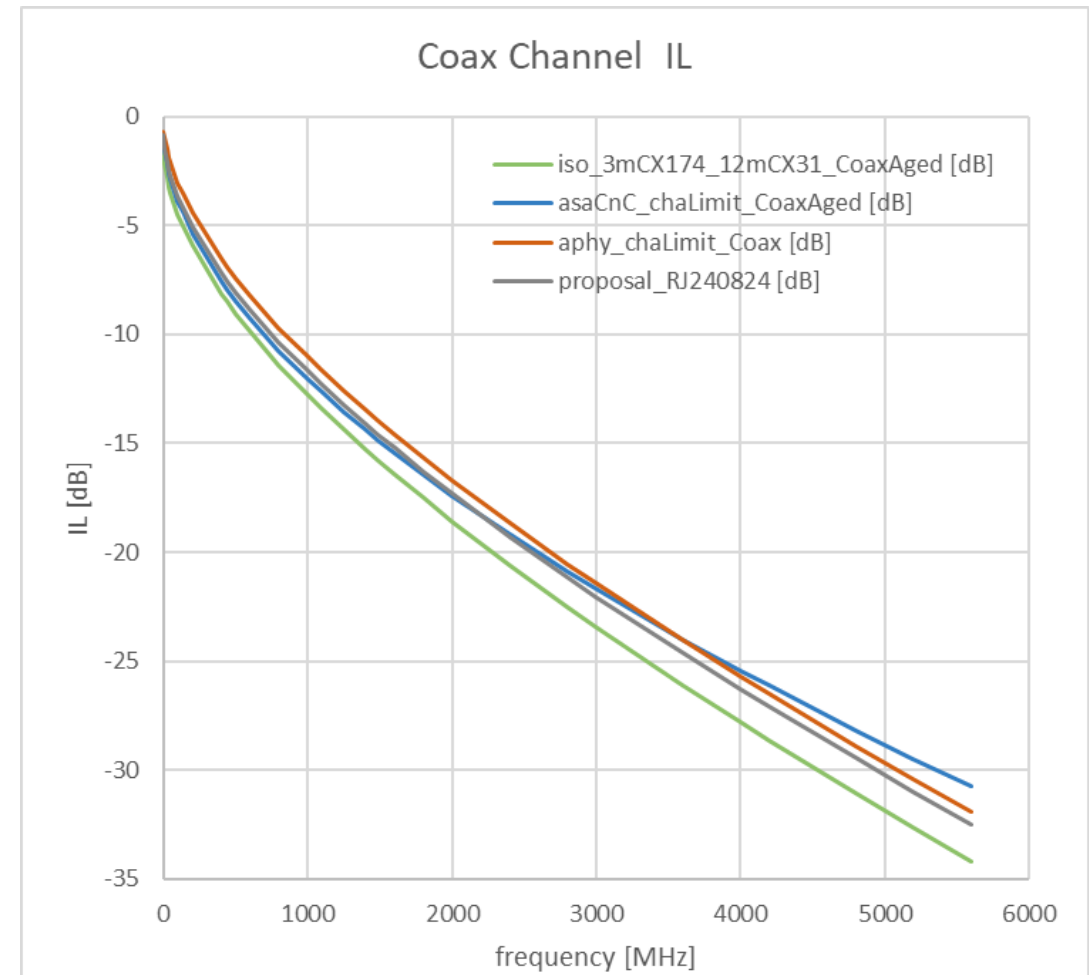
Conrad Zerna (Aviva Links Inc.)

Motivation

- Several limits have been proposed for coax cables ... using several references of other standards
- Let's compare the limits and add some context and history

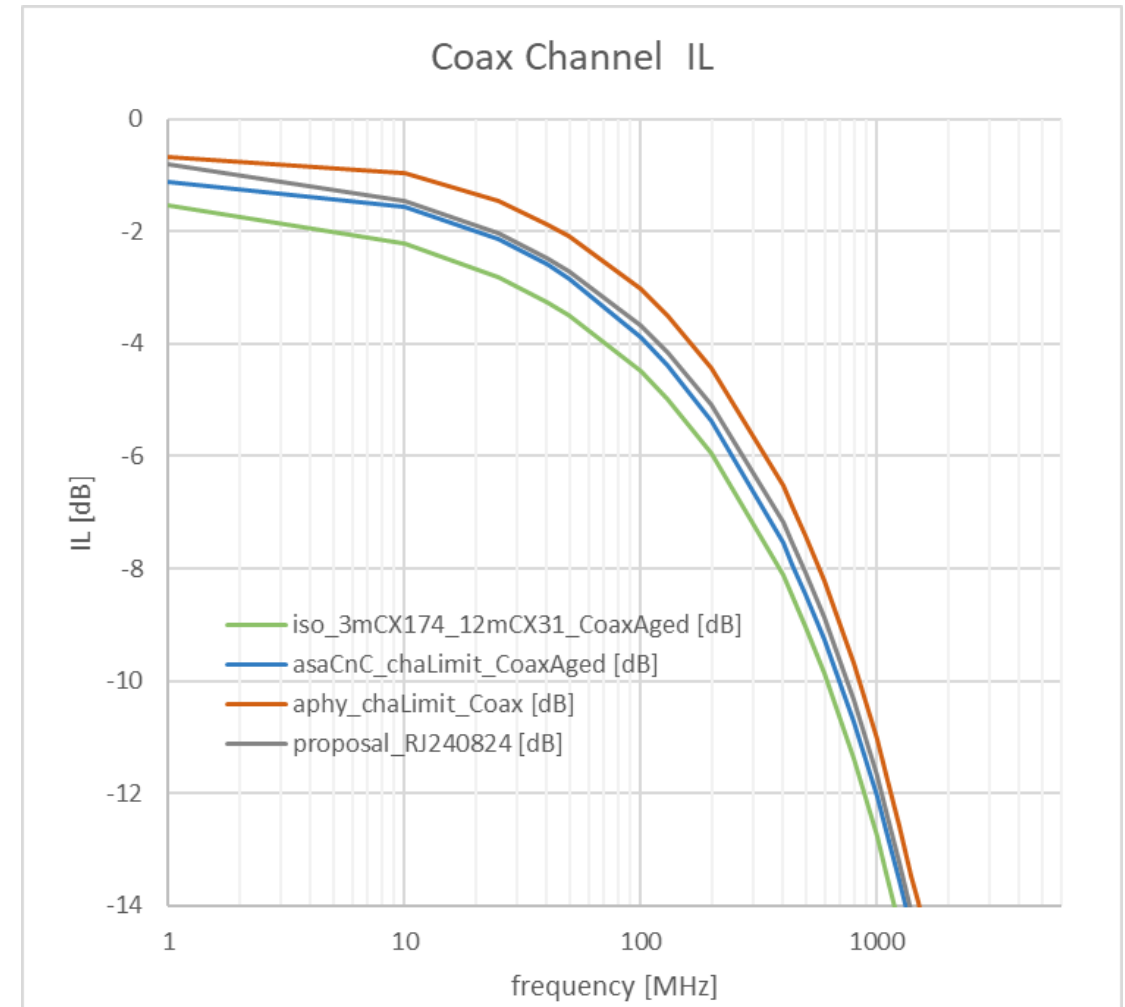
Coax Limit Candidates

- ISO 19642-11
 - Using ISO formulas per meter for CX31 and CX174
 - Including ISO defined aging applied
 - Aging budget is modeled very simple with adding 15% on each frequency point; budget is also with considerable margin
 - Mathematically combined into assumed full assembly with 3m + 12m
 - Adding 5 inline connectors with $0.01*\sqrt{f}$ each
- MIPI A-PHY
 - Covers coax cable harness and connectors



Coax Limit Candidates

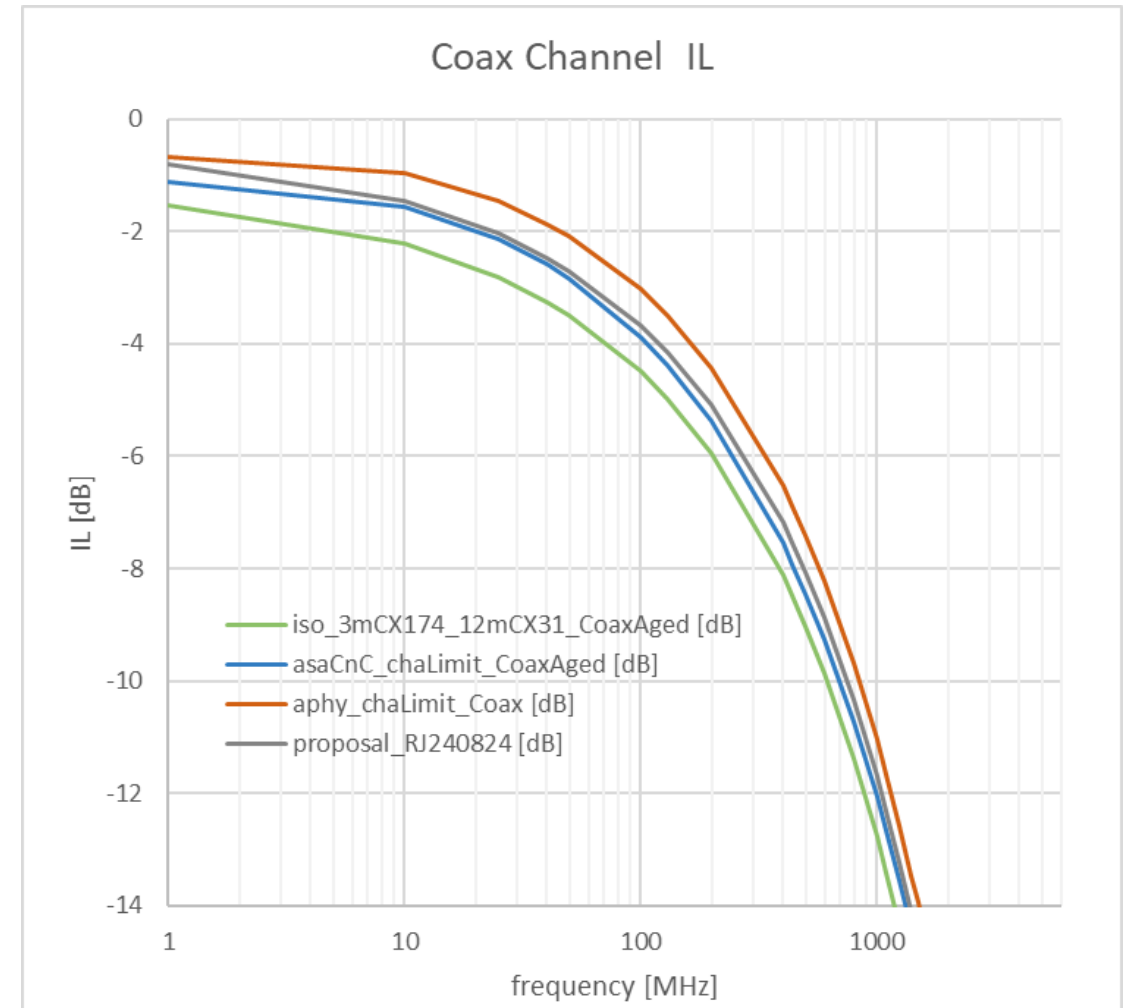
- ASA Cable and Components specification
 - ASA adjusted its coax channel limit line for the test specification
 - ASA CnC limit line is fixing the lower frequency range, allowing real world cable S-Parameter measurements to pass
 - ISO limit line is also covering this phenomenon; the comparatively low level here is due to the simplified aging model of adding a factor of 1.15 everywhere
- RJ240824
 - Proposal from Ragnar in adhoc meeting



Coax Limit Candidates

- ASA Cable and Components specification
 - Coefficients

	asaCnC_chaLimit_ CoaxAged [dB]
a	3.00E-01
1/vf	4.80E-01
vf	3.45E-01
f	8.25E-04



Summary

- Went through the “standardized” reference data for Coax channels
 - ISO 19642-11 well-accepted in the industry, but aging margin a bit overdone
 - MIPI A-PHY coax channel limit is part of an accepted standard
 - ASA has an improved coax channel limit line, that has undergone checks versus cable data of three independent measurements. It will be better suited in practice.
 - Proposal by Ragnar is very close to the latter two limit lines, but probably also leads to issues for real cables in lower frequency range
- **Why invent a new limit line formula??**
PROPOSE TO ACCEPT ASA Cable and Components specification limit line!

Thank You!