# CSD DRAFT for consideration by NGEABT SG Architecture AdHoc

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# IEEE 802.3 Criteria for Standards Development (CSD)

The IEEE 802 Criteria for Standards Development (CSD) are defined in Clause 14 of the IEEE 802 LAN/MAN Standards Committee (LMSC) Operations Manual. The criteria include project process requirements ("Managed Objects") and 5 Criteria (5C) requirements. The 5C are supplemented by subclause 7.2 'Five Criteria' of the 'Operating Rules of IEEE Project 802 Working Group 802.3, CSMA/CD LANs'.

# Managed Objects

Describe the plan for developing a definition of managed objects. The plan shall specify one of the following:

    a)   The definitions will be part of this project.

    b)   The definitions will be part of a different project and provide the plan for that project or anticipated future project.

    c)   The definitions will not be developed and explain why such definitions are not needed.

- The definition of protocol independent managed objects, to be included in Clause 30 of IEEE Std 802.3, will be part of this project.

- In addition it is expected that the definition of Simple Network Management Protocol (SNMP) managed objects, written using the Structure of Management Information version 2 (SMIv2), and making reference to the protocol independent managed objects provided by this project, will be added in a future amendment to, or revision of, IEEE Std 802.3.1 IEEE Standard for Management Information Base (MIB) Definitions for Ethernet.

# Coexistence

A WG proposing a wireless project shall demonstrate coexistence through the preparation of a Coexistence Assurance (CA) document unless it is not applicable.

  a) Will the WG create a CA document as part of the WG balloting process as described in Clause 13?

  b) If not, explain why the CA document is not applicable

- A CA document is not applicable because the proposed project is not a wireless project.

# The 5 Critters
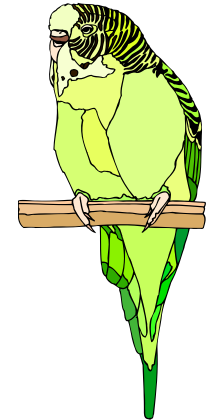


Broad
Market
Potential

Compatibility
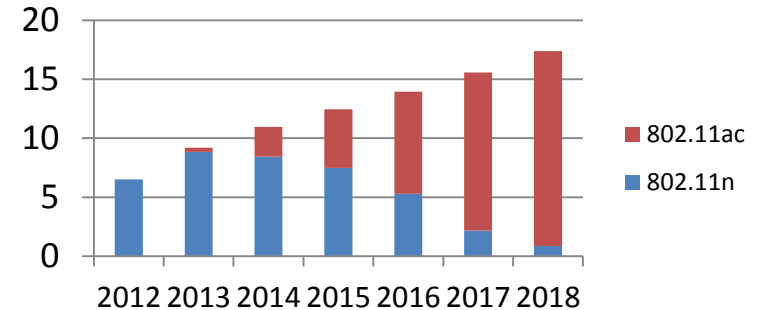
Distinct
Identity

Technical
Feasibility

Economic
Feasibility

# Broad Market Potential

Each proposed IEEE 802 LMSC standard shall have broad market potential. At a minimum, address the following areas:

a) Broad sets of applicability.

b) Multiple vendors and numerous users.

**Enterprise AP Volumes (units, millions)**



- Ethernet is widely deployed for enterprise access.   The most popular BASE-T PHY is 1000BASE-T.

- There is a significant market for higher speed Ethernet BASE-T PHY interfaces beyond 1 Gb/s that operates over ~~installed~~ structured wiring, i.e. Cat 5e, or better, up to 100 meters, that meets the bandwidth needs of 802.11ac based enterprise access point.

- There is a significant market potential for other enterprise clients on ~~installed~~ structured wiring, e.g. high performance compute nodes (e.g. desktops and distributed enterprise servers) on horizontal wires.

- 131 participants attended the "Next Generation Enterprise access BASE-T" Call-For-Interest, 41 individuals representing at least 24 companies indicated that they would support the standardization efforts.  It is anticipated that there will be sufficient participation to effectively complete the standardization process including representatives from end-users, equipment manufacturers and component suppliers.

11/20/14 - What else needs to be here?

# Compatibility

Each proposed IEEE 802 LMSC standard should be in conformance with IEEE Std 802, IEEE 802.1AC, and IEEE 802.1Q. If any variances in conformance emerge, they shall be thoroughly disclosed and reviewed with IEEE 802.1 WG prior to submitting a PAR to the Sponsor

a) Will the proposed standard comply with IEEE Std 802, IEEE Std 802.1AC and IEEE Std 802.1Q?

b) If the answer to a) is "no", supply the response from the IEEE 802.1 WG.

c) Compatibility with IEEE Std 802.3

d) Conformance with IEEE Std 802.3 MAC

e) Managed object definitions compatible with SNMP.

- As an amendment to IEEE Std 802.3, the proposed project shall comply with IEEE Std 802, IEEE Std 802.1AC and IEEE Std 802.1Q.

- As was the case in other IEEE Std 802.3 amendments, this amendment will define new physical layers

- As an amendment to IEEE Std 802.3, the proposed amendment will conform to the full-duplex operating mode of the IEEE 802.3 MAC.

- By using the existing IEEE Std 802.3 MAC protocol, the proposed amendment will maintain compatibility with the installed base of Ethernet nodes.

- The project will include a protocol independent specification of managed objects with SNMP management capability to be provided in the future by an amendment to or revision of IEEE Std 802.3.1.

# Distinct Identity

Each proposed IEEE 802 LMSC standard shall provide evidence of a distinct identity. Identify standards and standards projects with similar scopes and for each one describe why the proposed project is substantially different.

Substantially different from other IEEE 802.3 specifications / solutions

- The proposed amendment will define IEEE 802.3 standard operating at a (*speed between 1G and 10G*) MAC rates.

- There are no existing standards, or projects developing standards, addressing the specification of Ethernet PHY operation over ~~installed~~ Cat 5e and Cat 6 balanced unshielded twisted pair cables with (*up to/at least/watch this space)* 100 meter reach ~~at beyond 1 Gb/s~~ (*speed between 1G and 10G*) speed.

11/20/14 – Will revisit speed language when we have made some more progress on objectives
Distance? "up to", "at least" or "up to at least"? Chris thinks both are appropriate based on how we do PMDs.
review after objectives get settled.
11/25/14 – wordsmithing?

# Technical Feasibility

Each proposed IEEE 802 LMSC standard shall provide evidence that the project is technically feasible within the time frame of the project. At a minimum, address the following items to demonstrate technical feasibility

a) Demonstrated system feasibility.

b) Proven similar technology via testing, modeling, simulation, etc.

c) Confidence in reliability.

- Systems based upon 2.5 Gb/s and 5 Gb/s technology have been demonstrated in operational networks.

- The proposed project will build on the array of Ethernet component and system design experience, and the broad knowledge base of Ethernet network operation.

- ~~Component technology of~~ 10GBASE-T has demonstrated sufficient implementation feasibility in volume production *(xxx units over yyy years)*

- The reliability of components for 1G, and 10G Ethernet has been established in the target environments with a high degree of confidence

> 11/25/14 – reword "Component technology of 10GBASE-T …", Someone to provide 10GBT numbers? – Contribution from someone – get analyst numbers.

# Economic Feasibility

Each proposed IEEE 802 LMSC standard shall provide evidence of economic feasibility. Demonstrate, as far as can reasonably be estimated, the economic feasibility of the proposed project for its intended applications. Among the areas that may be addressed in the cost for performance analysis are the following:

a)   Balanced costs (infrastructure versus attached stations).

b)   Known cost factors.

c)   Consideration of installation costs.

d)   Consideration of operational costs (e.g., energy consumption).

e)   Other areas, as appropriate.

- The cost factors for Ethernet components and systems are well known.
- Prior experience in the development of 10 Gb/s technology for Ethernet, and maturity observed in 1Gb/s technology establishes that the specifications developed by this project will entail a reasonable cost for the resulting performance.
- In consideration of installation costs, the project is expected to use proven and familiar media.
- Network design, installation and maintenance costs are minimized by preserving network architecture, management, and software.
- *These BASE-T PHY interfaces* will maintain a favorable cost balance between the switch and wireless access point and other Ethernet clients on a structured wiring.
- Energy Efficient Ethernet will reduce the operational costs and the environmental footprint

> 11/20/14 – Be careful with higher speed statement, we already have 10/25/40.
> GZ:don't tie the par/csd to closely to objectives language, to hard managing updates. Reach and media types can be tricky to update all over the place.
> 11/25 – reworded – done.