THE 5 CRITERIA (100 Mbit/s over Fibre)

- Show that the proposed solution satisfies the “5 Criteria”
- IEEE 802 5 Criteria

1. Broad Market Potential
2. Compatibility
3. Distinct Identity
4. Technical Feasibility
5. Economic Feasibility

1. BROAD MARKET POTENTIAL

REQUIREMENT:

A standards project authorized by IEEE Project 802 shall have a broad market potential. Specifically, it shall have the potential for:

- Broad Sets of Applicability

RESPONSE:

This standard will support the special need for fibre transmission of Token Ring. The Token Ring market is presently estimated to be more than $2 Billion/year. The following classes of applications have been identified that would benefit from the availability of higher bandwidth technology over fibre:

- Support for longer drive distances
- Support for transmission in noisy environments
- High-Speed transfer of traditional data
- Client/Server Computing
- Databases
- Imaging
- Computer Aided Design and Modeling
-

There are also emerging applications which will benefit from higher throughput with bounded latency including:

- Video and teleconferencing
- Interactive Video training
- Real time control

24 Participants have expressed interest in working on this project.

For: 18 Against: 0 Abstain: 3

REQUIREMENT

- Multiple vendors, numerous users

RESPONSE

As stated above, the Token Ring market exceeds $2 Billion / year. A High Speed Token Ring offering will provide that user base with a technology that allows straightforward bridging and interconnect to the legacy installation with a minimal increase in network complexity. Optical fibre transmission is important for a segment of this marketplace, for the reasons stated in the previous response.

High Speed Token Ring frame format and management compatibilities with existing 802.5 Token Ring applications will ensure a large number of users can seamlessly migrate to this technology

24 participants representing at least 13 companies indicate that they plan to participate in High Speed Token Ring standardization.

For: 18 Against: 0 Abstain: 4

REQUIREMENT:

- Balanced costs (LAN versus attached stations)

RESPONSE:

Since High Speed Token Ring will use much of the same MAC design used in Token Ring and readily available high speed PMD hardware, the costs should be in line with these proven and accepted technologies.

For: 18 Against: 0 Abstain: 4

2. COMPATIBILITY

REQUIREMENT:

IEEE Project 802 defines a family of standards. All standards shall be in conformance with 802.1 Architecture, Management and Interworking.
All LLC and MAC standards shall be compatible with ISO/IEC 10039, MAC Service Definition at the LLC/MAC boundary. Within the LLC Working Group there shall be one LLC standard, including one or more LLC protocols, with a common LLC/MAC interface. Within a MAC Working Group there shall be one MAC standard and one or more Physical Layer standards with a common MAC / Physical Layer interface.
Each standard in the IEEE Project 802 family of standards shall include a definition of managed objects which are compatible with OSI systems management standards.

RESPONSE:

High Speed Token Ring will be based on the 802.5 frame format and therefore will be compatible with the LLC/ MAC interface, and 802.1 interworking. Its scope includes managed objects consistent with 802.1 Management.

There will be a single MAC supporting multiple physical layers.

The High Speed Token Ring proposal is conformant to 802 Functional Requirements.

It is compatible with 802.1 architecture.

For: 19 Against: 0 Abstain: 3

3. DISTINCT IDENTITY

REQUIREMENT:

Each IEEE Project 802 standard shall have a distinct identity.
To achieve this, each authorized project shall be:

- Substantially different from other 802 projects

RESPONSE:

High Speed Token Ring is distinct from other LAN solutions including FDDI, 802.12, and 802.3, because none of these also provide support for all the following capabilities:

- Eight native user priority levels allowing for priority differentiation in bridging and routing across the LAN.
- Variable frame sizes ranging from 22 to 18200 octets.
- Compatibility with present applications designed for 802.5 Token Ring.
- Native source routing support.
- Compatibility with existing Token Ring management applications.
- Allows seamless and inexpensive migration and upgrade path for existing 4/16 Mbit/s Token Ring users.
- Leverage Customers' and Implementers' knowledge and experience base with regard to: Building, managing, and running their networks.

For: 18 Against: 0 Abstain: 4

REQUIREMENT:

- One unique solution per problem

RESPONSE:

High Speed Token Ring is unique since it is the only proposed technology addressing the native 802.5 transport of Token Ring frames at 100 Mbit/s over optical fibre.

For: 17 Against: 0 Abstain: 5

REQUIREMENT:

- Easy for document reader to select relevant specification

RESPONSE:

The PICS Proforma of the standard will clearly identify the relevant specifications supported by conformant product.

For: 18 Against: 0 Abstain: 4

4. TECHNICAL FEASIBILITY

REQUIREMENT:

For a project to be authorized, it shall be able to show its technical feasibility. At a minimum, the proposed project shall show:

- Demonstrated system feasibility

RESPONSE:

Token Ring MAC devices are available today and have a proven track record.

Dedicated Token Ring functionality is also available.

100 Mbit/s PMDs for fibre are available to provide transport for High Speed Token Ring frames.

There are no significant technical obstacles to developing a solution from these subsystems to implement High Speed Token Ring.

For: 18 Against: 0 Abstain: 4

REQUIREMENT:

- Proven technology, reasonable testing

RESPONSE:

The MAC technology is similar to 4 and 16 Mbit/s Token Ring entities.

The PMD hardware will be comparable to that used to deliver Fast Ethernet over fibre.

It is expected that no implementation "breakthroughs" will be required to implement this standard.

For: 19 Against: 0 Abstain: 3

REQUIREMENT:

- Confidence in reliability

RESPONSE:

The reliability of existing Token Ring products and existing 100 Mbit/s fibre PHYs provide adequate confirmation that the High Speed Token Ring over fibre will be reliable.

For: 18 Against: 0 Abstain: 4

5. ECONOMIC FEASIBILITY

REQUIREMENT:

For a project to be authorized, it shall be able to show economic feasibility (so far as can reasonably be estimated), for its intended applications. At a minimum, the proposed project shall show:

- Known cost factors, reliable data

RESPONSE:

High Speed Token Ring over optical fibre will reuse the High Speed Token Ring MAC devices used for copper, together with Ethernet fibre PHY devices. The cost factors of these devices are well known.
The cost factors of the MAC have been discussed in the PAR for High Speed Token Ring over 2 pair cabling.

For: 17 Against: 0 Abstain: 5

REQUIREMENT:

- Reasonable cost for performance

RESPONSE:

High Speed Token Ring over fibre will offer considerably better cost/performance than existing 16/4 Mbit/s Token Ring over fibre.

For: 18 Against: 0 Abstain: 4

REQUIREMENT:

- Consideration of installation costs

RESPONSE:

Provides a graceful upgrade path for existing Token Ring users.

Migration changes will be targeted to the backbone, wiring center equipment, servers, and those work stations requiring higher network bandwidth.

ISO/IEC 11801 compliant wiring plants with fibre cabling will not require modification to support High Speed Token Ring.

For: 17 Against: 0 Abstain: 5