**DECREE OF THE MINISTER OF COMMUNICATION AND INFORMATION TECHNOLOGY OF THE REPUBLIC OF INDONESIA**

**NUMBER : 04/PER/M.KOMINFO/01/2012**

**ON**

**TECHNICAL REQUIREMENTS OF *ETHERNET FIRST MILE* EQUIPMENT**

**BY THE GRACE OF GOD THE ALMIGHTY**

**MINISTER OF COMMUNICATION AND INFORMATION TECHNOLOGY OF THE REPUBLIC OF INDONESIA**

Considering: a. that in accordance with Article 2 paragraph (1) of the Decree of

The Minister of Communication and Information Technology

Number 29/PER/M.KOMINFO/09/2008 on Certification of Telecommunication Tools and Equipment, any telecommunication tool and equipment manufactured, assembled, imported for trade and/or use in the territory of the Republic of Indonesia shall comply with the technical requirements;

b. that owing to the fact that there are no technical requirements yet

for Telecommunication Equipment having the Platform of *Ethernet*, the

Telecommunication Equipment of such Platform could not be imported

yet to Indonesia;

c that based on considerations referred to in points a and b above,

it is considered necessary to ratify a Decree of the Minister of

Communication and Information Technology on Technical Requirements

of *Ethernet First Mile* Equipment.

Bearing in mind: 1. Law of the Republic of Indonesia Number 36 Year 1999 on

Telecommunication (State Gazette of the Republic of Indonesia

Number 154 Year 1999, Additional State Gazette of the Republic of

Indonesia Number 3881);

.

1. Government Regulation of the Republic of Indonesia Number 52 Year 2000 on Provision of Telecommunication (State Gazette of the Republic of Indonesia Number 107 Year 2000, Additional State Gazette of the Republic of Indonesia Number 3980);
2. Decree of the President of the Republic of Indonesia Number 47 Year 2009 on Formation of the Organization of State Ministries of the Republic of Indonesia as amended by the Decree of the President of the Republic of Indonesia Number 76 Year 2011 on Amendment to the Decree of the President of the Republic of Indonesia Number 47 Year 2009 on Formation of the Organization of State Ministries of the Republic of Indonesia;
3. Decree of the President of the Republic of Indonesia Number 24 Year 2010 on Positions, Duties, and Functions of State Ministries of the Republic of Indonesia and Organizational Structure, Duties, and Functions of Echelon I of State Ministries of the Republic of Indonesia, as amended by the Decree of the President of the Republic of Indonesia Number 67 Year 2010 on Amendment to the Decree of the President of the Republic of Indonesia Number 24 Year 2010 on Positions, Duties, and Functions of State Ministries of the Republic of Indonesia and Organizational Structure, Duties, and Functions of Echelon I of State Ministries of the Republic of Indonesia;

1. Decision of the Minister of Communication Number KM. 3 Year 2001 on Technical Requirements of Telecommunication Tools and Equipment;

1. Decree of the Minister of Communication and Information Technology Number 03/PM.Kominfo/5/2005 on Adjustment of Nomenclatures of a Number of Decisions/Decrees of the Minister of Communication which regulate Special Material Contents of in the Field of Post and Telecommunications;
2. Decree of the Minister of Communication and Information Technology Number 29/PER/M.KOMINFO/09/2008 on Certification of Telecommunication Tools and Equipment;
3. Decree of the Minister of Communication and Information Technology Number 17/PER/M.KOMINFO/10/2010 on Organization and Work Method of the Department of Communication and Information Technology;

1. Decree of the Minister of Communication and Information Technology Number 15/PER/M.KOMINFO/06/2011 on Adjustment of Nomenclatures of a Number of Decisions/Decrees of the Minister of Communication and Information Technology which regulate Special Material Contents in the Field of Post and Telecommunication and Decisions/Decrees of the Director General of Post and Telecommunication.

\

**DECIDES**

**To ratify** : **DECREE OF THE MINISTER OF COMMUNICATION AND INFORMATION TECHNOLOGY ON TECHNICAL REQUIREMENTS OF *ETHERNET FIRST MILE* EQUIPMENT**

Article 1

The *Ethernet First Mile* (EFM) equipment shall comply with the technical requirements referred to in the Attachment which is an integral part of this Ministerial Decree.

Article 2

The implementation of testing of EFM equipment shall comply with the parameter of technical requirements referred to in the Attachment which is an integral part of this Ministerial Decree .

Article 3

This Ministerial Decree shall come into force on the date of its promulgation.

In order to make known to every body, instruct the promulgation of this Ministerial Decree by placing it in the State Announcement of the Republic of Indonesia.

Done at: JAKARTA

On : January 31, 2012

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**MINISTER OF COMMUNICATION AND INFORMATION TECHNOLOGY OF THE REPUBLIC OF INDONESIA,**

Signed

**TIFATUL SEMBIRING**

Promulgated at : Jakarta

On : January 31, 2012

**MINISTER OF LAW AND HUMAN RIGHTS**

**OF THE REPUBLIC OF INDONESIA**

Signed

**AMIR SYAMSUDIN**

STATE ANNOUNCEMENT OF THE RFEPUBLIC OF INDONESIA YEAR 2012 NUMBER 132

For copy conform to the original

**HEAD OF BUREAU OF LEGAL AFFAIRS**

Signed

**D. Susilo Hartono**

ATTACHMENT: DECREE OF THE MINISTER OF COMMUNICATION

AND INFORMATION TECHNOLOGY

NUMBER : 04//PER/M.KOMINFO/01/2012 ON TECHNICAL

REQUIREMENTS OF *ETHERNET FIRST MILE* EQUIPMENT

DATE : January 31, 2012

**TECHNICAL REQUIREMENTS OF *ETHERNET FIRST MILE* EQUIPMENT**

The scope of technical requirements of *Ethernet First Mile (EFM)* equipment covers :

CHAPTER I : General Provisions (Definition, configuration, abbreviations, and

terms);

CHAPTER II : Technical Requirements (raw material and construction requirement,

operation requirement, electrical safety and health and EMC

requirements, electrical interface requirement, functional

requirement, and management requirement);

CHAP[TER III : Completeness of Equipment (identity of tools and equipment and

guide for operation of tools and equipment);

CHAPTER IV : Testing (testing implementation, method of sampling, and test

method).

**CHAPTER I**

**GENERAL PROVISIONS**

**1. Definition**

*Ethernert First Mile (EFM)* equipment is the equipment having the platform of Ethernet at the side of access network that functions for transmitting transparent services to *Ethernet* protocol in accordance with IEEE 802.3 series with transmission media of copper cable and or of optical fiber.

**2. Configuration**

****

**Figure 1: Configuration of Equipment of *Ethernet in the First Mile IEEE 802.3 Study Group***

**3. Abbreviations**

|  |  |  |
| --- | --- | --- |
| Ac | : | *Alternating Current* |
| C | : | *Celsius* |
| CFM | : | *Connectivity Fault Management* |
| dB | : | *Decibel* |
| Dc | : | *Direct Current* |
| FCAPS | : | *Fault, Configuration , Accounting, Performance, Security* |
| GUI | : | *Graphical User Interface* |
| HZ | : | *Hertz* |
| HTTP | : | *Hypertext Transfer Protocol* |
| IEC | : | *International Electrotechnical Commission* |
| IEEE | : | *Institute of Electrical and Electronics Engineers* |
| LAG | : | *Link Aggregation Group* |
| MP-BGP | : | *Multi Protocol BGP* |
| OAM | : | *Operation And Maintenance* |
| RS | : | *Recommended Standard* |
| RJ | : | *Register Jack* |
| S | : | *Security* |
| SNMP | : | *Simple Network Management Protocol* |
| STP / RSTP | : | *Spanning Tree Protocol / Rapid Spanning Tree Protocol* |
| V | : | *Voltage* |

**4. Terms**

|  |  |  |
| --- | --- | --- |
| Electromagnetic  Compatibility |  | The capability of an instrument or a system to function satisfactorily within electromagnetic environment without creating electromagnetic disturbance within said environment that cannot be tolerated. |
| FCAPS |  | Fault, Configuration, Accounting, Performance, Security.  These terms represent five items of Network Management that must be made available by computer network managers to be able to monitor and maintain computer network so that the network can function in an optimum manner. |
| Link Aggregation |  | This is a standard language for computer network technology which combines a number of links/trunks/cables/ports in a parallel manner to obtain bigger capacity of bandwidth or for protection by using Ethernet technology. |
| Traffic Classification |  | The process of identifying different applications and the protocol that exist in the network. Various actions such as monitoring,, finding, control, and optimization may then be done in the traffic identified with the end objective to increase network performance. |

**CHAPTER II**

**TECHNICAL REQUIREMENTS**

**1. Raw Material and Construction Requirement**

Raw material and construction requirement of equipment must comply with the following provisions:

a. the equipment is made of strong and solid material commensurate with tropical climate;

b. the components of the equipment are made of high quality material, anti-corrosion, and anti condensation;

c. parts of the equipment which are modular in nature must be arranged well and neatly;

d. must be equipped with measurement and maintenance terminals;

e. interface connector of the equipment :

1) Connector type : RJ 48 and or;

2) Connector type: RJ-45;

f. must be equipped with good cooling system.

**2. Operation Requirement**

a. power supply :

the equipment must function well with the condition :

1) alternating current voltage: 220 Vac ± 10%, 50 Hz ± 6%; and or

2) direct current voltage: - 48 Vdc.

b. environmental condition :

in the environmental condition, the EFM equipment must :

1) operate normally at the temperature: 15o – 40o C;

2) operate normally at the humidity: 10% - 80% anti condensation;

3) total *noise* of the voice issued by the equipment: maximum 65 dB.

**3. Electrical Safety, Health and EMC Requirements**

*Ethernet First Mile* equipment must fulfil :

a) the requirement of electrical safety in accordance with International Standard of IEC 60950-1 or equivalent international standard;

b) Requirement of Health in accordance with International Standard of IEEE Std C95.1, 2005 or equivalent international standard;

c) Requirement of *Electromagnetic Compatibility* in accordance with the prevailing regulations which regulate EMC and/or in accordance with equivalent international standard of EMC.

**4. Electrical Interface Requirement**

The equipment must fulfil one of the following interfaces:

a. Copper (ITU-T G.991.2 rev 2);

b. *Minimum Ethernet* *of 10/100* *Base T* (Decree of the Director General No. 397 Year 2010 on Media Converter on electrical and performance requirement point 3.a.1 and 3.a.2), i.e. :

1) Medium Coaxial

- 1OBASE5 (IEEE 802.3-2008 Section 1 clause 8);

- 1OBASE2 (IEEE 802.3-2008 Section 1 clause 10).

2) Medium Twisted Pair

- 1OBASE-T (IEEE 802.3-2008 Section 1 clause 14);

- 1OOBASE-T (IEEE 802.3-2008 Section 2 clause 21);

- 1OOBASE-TX (IEEE 802.3-2008 Section 2 clause 24 and 25);

- 1OOOBASE-T (IEEE 802.3-2008 Section 3 clause 40);

- 1OOOBASE-TX (IEEE 802.3-2008 Section 3 clause 40);

- 1OGBASE-T (IEEE 802.3-2008 Section 4 clause 50 and 52);

- 1OPASS-TS (IEEE 802.3-2008 Section 5 clause 61 and 62);

- 2BASE-TL (IEEE 802.3-2008 Section 5 clause 61 and 63)

c. *Optical interface*

*1. GEPON*  (refer to Decree of Director General No. 257/ Dirjen / 2008 on Technical Requirements of Telecommunication Tools and Equipment *Passive Optical Network* Based Access Year 2008 on electrical requirement 2.a and ITU-T G.987.2. 2010).

.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Items Unit*** | | | ***Values*** | |
| ***ONT*** | | | ***Transmitter*** | |
| *Nominal Bit Rate* | MBit/s | | 1250 | |
| *Operating Wavelength* | nm | | 1270 - 1360 | |
| *Line Code* | 8b10b | |  | |
| *Maximum reflectance of equipment measures at Tx Wavelength* | dB | | < - 6 | |
| *Minimum ORL of ODN* | dB | | - 32 | |
| *Mean Launched power MIN* | dBm | | - 3 | |
| *Mean Launched power MAX* | dBm | | + 2 | |
| *Launched optical power without input to the transmitter* | dBm | | - 38 | |
| *Extinction ratio* | dB | | > 9 | |
|  |  | | **Type 2** | |
| *MLM Laser – Maximum RMS width* | nm | | N:A | |
| *SLM Laser – Maximum – 20 dB width* | nm | | 1 | |
| *SLM Laser – Minimum side mode suppression ratio* | dB | | 30 | |
|  | **ONT Receiver** | | | |
| *Maximum reflectance of equipment measures at Rx wavelength* | dB | | < - 20 | |
| *Bit Error Rate* | - | | < 10 | |
| *Minimum Sensitivity* | dBm | | - 25 | |
| *Minimum Overload* | | dBm | | 5 |

*2. Ethernet* (Decree of Director General No.397 Year 2010 on Media Converter on electrical and performance requirement point 3.a.3)

10BASE 1 (10BASE –FP 10BASE-FB 10BASE-FI) (*IEEE 802.3-2008 Section 1 clause 15).*

100BASE-FX (*IEEE 802.3-2008 Section 2 clause 24 and 26)*

100BASE-IX 10 (*IEEE 802.3-2008 Section 5 clause 58 1)*

100BASE-BX 10 (*IEEE 802.3-2008 Section 5 clause 59)*

1000BASE-LX (*IEEE 802.3-2008 Section 5 clause 59)*

1000BASE-SX (*IEEE 802.3-2008 Section 3 clause 38)*

1000BASE-CX (*IEEE 802.3-2008 Section 3 clause 39)*

1000BASE-LX10 (*IEEE 802.3-2008 Section 5 clause 59)*

1000BASE-PX 10 (*IEEE 802.3-2008 Section 5 clause 60)*

1000BASE-PX 20 (*IEEE 802.3-2008 Section 5 clause 60)*

10GBASE-R (*IEEE 802.3-2008 Section 4 clause 49)*

10GBASE-LRM (*IEEE 802.3-2008 Section 5 clause 68)*

10GBASE-KX (*IEEE 802.3-2008 Section 5 clause 71)*

10GBASE-KX4 (*IEEE 802.3-2008 Section 5 clause 71)*

10GBASE- KR (*IEEE 802.3-2008 Section 5 clause 72)*

**5. Functional Requirement**

The equipment must provide the following functions :

a. *Traffic classification;*

b. *Traffic marking;*

c. *Traffic scheduling;*

d. *802. 1d STP, RSTP operation;*

e. *802.3ad Link Aggregation;*

f. *802.3ah OAM;*

g. *802.1ag CFM.*

**6. Management Requirement**

The equipment must be able to :

a. be configurative, at least through one of the kinds of available *management* interfaces using the method of:

1) *serial console* for the type of *management* interface RS-232 and or:

2) *webGUI*  (HTTP / HTTPs) for the type of *Ethernet management* interface;

b. be monitored, through *Ethernet* interface using SNMP protocol or protocol of the same sort;

c. comply with the following FCAPS functions :

*1) Fault Management*

a) *Alarm monitoring;*

b) *Alarm administration;*

c) *Fault detection* and *localization;*

d) *Alarm correlation ;*

e) *Alarm severity, threshold* and *filtering;*

f) *Testing function.*

*2) Performance Management*

a) *Performance data collection;*

b) *Performance data analysis* and *measurement;*

c) *Performance monitoring.*

*3) Configuration Management*

a) *Activate & deactivate network element;*

b) *Network & service configuration;*

c) *Inventory management.*

**CHAPTER III**

**COMPLETENESS OF EQUIPMENT**

The tools and equipment to be tested must be equipped with :

**1. Identity of tools and equipment**

Containing brand, *type/* model, manufacturing country, and serial number;

**2. Operational Guide of tools and equipment**

In Bahasa Indonesia (Indonesian language) and / or in English.

**CHAPTER IV**

**TESTING**

**1. Testing Implementation**

Testing of the equipment is implemented by a Testing Office that has owned accreditation from authorized institution and designated by the Directorate General of Resources and Equipment of Post and Information ‘Technology .

**2. Method of Sampling**

Test material is done by random sampling according to test procedure based on prevailing regulation.

**3. Test Method**

Test method used is in accordance with *Standard Operating Procedure* of the respective Test Offices.

**MINISTER OF COMMUNICATION AND INFORMATION TECHNOLOGY OF THE REPUBLIC OF INDONESIA,**

Signed

**TIFATUL SEMBIRING**