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DECREE OF THE MINISTER OF COMMUNICATIONS AND INFORMATICS OF THE REPUBLIC OF INDONESIA NUMBER ... YEAR ...

CONCERNING TECHNICAL STANDARDS FOR NON-CELLULAR LOW POWER WIDE AREA NETWORK TELECOMMUNICATIONS EQUIPMENT

MINISTER OF COMMUNICATIONS AND INFORMATICS OF THE REPUBLIC OF INDONESIA

Considering:

a. That based on the provisions of Article 34 paragraph (1) and Article 37 paragraph (1) of Government Regulation Number 46 of 2021 concerning Post, Telecommunications and Broadcasting, every telecommunications that is manufactured, assembled, and/or submitted for trading and /or used in the territory of the Unitary State of the Republic of Indonesia must meet the technical standards set by the Minister of Communication and Information;
b. That based on the considerations as intended in letter a, it is necessary to stipulate a Decree of the Minister of Communication and Information regarding Technical Standards for Non-cellular Low Power Wide Area Network Telecommunications Equipment;

Remembering:

1. Law Number 36 of 1999 concerning Telecommunications (State Gazette of the Republic of Indonesia of 1999 Number 154, Supplement to State Gazette of the Republic of Indonesia Number 3881) as amended by Law Number 6 of 2023 concerning Stipulation of Government Regulations in Lieu of Laws Number 2 of 2022 concerning Job Creation into Law (State Gazette of the Republic of Indonesia of 2023 Number 41, Supplement to the State Gazette of the Republic of Indonesia Number 6856);
2. Law Number 39 of 2008 concerning State Ministries (State Gazette of the Republic of Indonesia of 2008 Number 166, Supplement to State Gazette of the Republic of Indonesia Number 4916);
3. Government Regulation Number 53 of 2000 concerning the Use of Radio Frequency Spectrum and Satellite Orbits (State Gazette of the Republic of Indonesia of 2000 Number 108, Supplement to the State Gazette of the Republic of Indonesia Number 3981);

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4. Government Regulation Number 46 of 2021 concerning Post, Telecommunications and Broadcasting (State Gazette of the Republic of Indonesia of 2021 Number 56, Supplement to State Gazette of the Republic of Indonesia Number 6658);
5. Presidential Regulation Number 22 of 2023 concerning the Ministry of Communication and Information (State Gazette of the Republic of Indonesia of 2023 Number 51);
6. Regulation of the Minister of Communication and Information Technology Number 16 of 2018 concerning Operational Provisions for Certification of Telecommunications Equipment and/or Equipment (State Gazette of the Republic of Indonesia of 2018 Number 1801);
7. Regulation of the Minister of Communication and Information Technology Number 7 of 2021 concerning the Use of Radio Frequency Spectrum (State Gazette of the Republic of Indonesia of 2021 Number 305);
8. Regulation of the Minister of Communication and Information Technology Number 12 of 2021 concerning the Organization and Work Procedures of the Ministry of Communication and Information Technology (State Gazette of the Republic of Indonesia of 2021 Number 1120);
9. Regulation of the Minister of Communication and Informatics Number 2 of 2023 concerning the Use of Radio Frequency Spectrum Based on Class Permits (State Gazette of the Republic of Indonesia of 2023 Number 329);

DECIDE:

TO STIPULATE: DECREE OF THE MINISTER OF COMMUNICATIONS AND INFORMATICS CONCERNING TECHNICAL STANDARDS FOR NON-CELLULAR LOW POWER WIDE AREA NETWORK TELECOMMUNICATIONS EQUIPMENT.

FIRST : Establish technical standards for non-cellular low power wide area network telecommunications equipment as stated in the Attachment which is an inseparable part of this Ministerial Decree.

SECOND : Non-cellular low power wide area network telecommunications equipment must be permanently factory locked so that it can only work on radio frequency bands as stipulated in this Ministerial Decree.

THIRD : Fulfillment of technical standards for non-cellular low power wide area network telecommunications equipment as intended in the FIRST Dictum regarding non-ionizing radiation is stipulated in a separate Ministerial Decree.

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FOURTH : Fulfillment of technical standards for non-cellular low power wide area network telecommunications equipment as referred to in the FIRST Dictum regarding immunity in electromagnetic compatibility (EMC) requirements is stipulated in a separate Ministerial Decree.

FIFTH : Assessment of the fulfillment of technical standards for non-cellular low power wide area network telecommunications equipment as intended in the FIRST Dictum is carried out through certification of telecommunications equipment and/or telecommunications equipment in accordance with the provisions of statutory regulations.

SIXTH : Test reports for non-cellular low power wide area network telecommunications equipment that have been issued before this Ministerial Decree comes into force, can still be submitted for the certification process for telecommunications equipment and/or telecommunications equipment as long as they do not conflict with this Ministerial Decree.

SEVENTH : This Ministerial Decree comes into force on the date of stipulation.

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APPENDIX
DECREE OF THE MINISTER OF COMMUNICATIONS AND INFORMATICS OF THE REPUBLIC OF INDONESIA NUMBER ... YEAR ...
CONCERNING TECHNICAL STANDARDS FOR NON-CELLULAR LOW POWER WIDE AREA NETWORK TELECOMMUNICATIONS EQUIPMENT

CHAPTER I
GENERAL PROVISIONS

A. Definition

1. Non-cellular Low Power Wide Area Network Telecommunications Device, hereinafter referred to as non-cellular LPWAN device, is telecommunications equipment with low electrical power consumption and wide coverage that works in radio frequency bands outside the cellular radio frequency band consisting of 2 (two) parts, namely end nodes and gateways.
2. End node non-cellular LPWAN devices are non-cellular LPWAN devices that send signals to and receive signals from non-cellular gateway LPWAN devices.
3. Non-cellular LPWAN gateway device is a non-cellular LPWAN device and its antenna which functions to provide connectivity, management and control of end devices that have backhaul with other technology.
4. Director General is the Director General of Post and Information Resources and Equipment.

B. Abbreviations

1. AC : Alternating Current
2. BS : Base Station
3. CISPR : Comité Internationale Spécial des Perturbations radioelectrotechnique (International Special Committee on Radio Interference, IEC)
4. dB : decibel
5. dBm : decibel milli watt
6. DC : Direct Current
7. EIRP : Equivalent Isotropically Radiated Power
8. EMC : Electromagnetic compatibility
9. EN : European Standard
10. ETSI : European Telecommunications Standards Institute

11. ICNIRP : International Commission on Non-Ionizing Radiation Protection
12. IEC : International Electrotechnical Commission
13. kHz : kilo Hertz
14. LPWAN : Low Power Wide Area Network
15. MHz : Mega Hertz
16. mW : milli Watt
17. RBW : resolution bandwidth
18. RF : Radio Frequency
19. Rx : Receiver
20. SELV : Separated Extra Low Voltage
21. SNI : Standar Nasional Indonesia
22. SS : Subscriber Station
23. Tx : Transmitter

CHAPTER II
TECHNICAL STANDARDS

1. Power Supply Requirements
   Noncellular LPWAN devices can be supplied with AC or DC power. For non-cellular LPWAN devices supplied with AC power, all parameter benchmarks must be met when using a power supply with an AC voltage of 220 V ± 10% and a frequency of 50 Hz ± 2%. When using an external power supply, for example an AC/DC power converter, the external power supply must not impact the ability of the non-cellular LPWAN device to meet all technical parameter benchmarks.

2. Non-Ionizing Radiation Requirements
   Non-ionizing radiation requirements for non-cellular LPWAN devices must comply with ICNIRP guidelines. Value limits and implementation mechanism of obligations for non-ionizing radiation requirements in accordance with the provisions in the THIRD Dictum of this Ministerial Decree.

3. Electrical Safety Requirements
   The electrical safety assessment of non-cellular LPWAN devices must meet the requirements specified in SNI IEC 60950-1:2016, SNI IEC 62368-1:2014, or IEC 62368-1 with the parameters that must be met are:
   a. excessive voltage or strong electricity or strong dielectric; And
   b. leakage current or touch current.

   To assess the safety of non-cellular LPWAN devices using a risk-based approach, the process specified in SNI IEC 62368-1:2014 or IEC 62368-1 that must be carried out is as follows:

a. identification of energy sources in non-cellular LPWAN devices;
b. energy source classification (impact on the body or combustible materials, such as possible injury or ignition);
c. identification of efforts to protect energy sources; And
d. consider the effectiveness of protection efforts by considering the compliance criteria or standards specified in the SNI standard IEC 62368-1:2014 or IEC 62368-1.

4. EMC requirements
   a. Immunity
      The value limits and mechanisms for implementing obligations for immunity requirements are in accordance with the provisions in the FOURTH Dictum of this Ministerial Decree.
   b. Emission
      1) Non-cellular LPWAN devices must comply with SNI CISPR 32:2015, IEC CISPR 32, ETSI 301 489-3, or ETSI EN 301 489-17.
      2) Non-cellular LPWAN devices must be classified as fixed equipment, vehicular equipment, or portable equipment. Fixed equipment is a device that is installed permanently (fixed location permanently) or is powered using an AC power supply. Vehicular equipment is a device that is used in vehicles and supplied with power using the vehicle's main battery. Portable equipment is a device that is used for portable use and has a main power supply in the form of a battery. Vehicular equipment or portable equipment that has the ability to be supplied with AC power must be classified as fixed equipment.
      3) The emission parameters that must be met are:
         a) radiation emissions in enclosures of ancillary equipment that are not integrated with the device must meet the requirements specified in Table A.4 and Table A.5 for class B and Table A.2 and Table A.3 for class A in SNI CISPR 32: 2015;
         b) conduction emissions at DC power ports for fixed equipment and vehicular equipment must meet the requirements specified in Table A.9 in SNI CISPR 32:2015;
         c) conduction emissions at the AC power port for fixed equipment must meet the requirements specified in Table A.9 for class A or Table A.10 for class B in SNI CISPR 32:2015 (equipment with a DC power port powered by an AC power converter /DC only or adapters defined as AC power equipment);
         d) conduction emissions at wired network ports for fixed equipment must meet the requirements specified in Table A.11 for class A or Table A.12 for class B in SNI CISPR 32:2015.
         e) Class A and class B classifications are in accordance with clause 4 of SNI CISPR 32:2015.

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4) Emission parameter testing in number 3) is carried out if the non-cellular LPWAN device has the port as referred to in number 3) (if applicable).

5. Radio Frequency Requirements
Non-cellular LPWAN devices must meet the following radio frequency requirements:

Table 1. Radio Frequency Requirements for Non-cellular LPWAN Devices

No.	*Operating Frequency*	*RF OutputPower*	*Bandwidth*	*DutyCycle*	*Maximum Spurious Emission*
1.	433,05 – 434,79 MHz	≤ 16,4 Mw EIRP	≤ 125 kHz	-	Based on table 2
2.	920 – 923 MHz	*End Node*/SS: ≤100 mW EIRP	≤ 250 kHz	Uplink: ≤ 1 %	
		Gateway/BS: ≤ 400 mWEIRP	≤ 250 kHz	Downlink: ≤ 1 %	
3.	2400 – 2483,5 MHz	≤ 1000 Mw EIRP	≤ 1 MHz	-	

Table 2. Spurious Domain Emission Limits

Frequency / *State*	47 MHz to 74 MHz 87,5 MHz to 118 MHz 174 MHz to 230 MHz 470 MHz to 790 MHz	*Other frequencies below*1000 MHz	*Frequencies above* 1000 MHz
Tx mode	-54 dBm	-36 dBm	-30 dBm
Rx and all other mode	-57 dBm	-57 dBm	-47 dBm

6. Filter Requirements
Non-cellular LPWAN gateway devices that work on the operating frequency 920-923 MHz must have a filter (attached or separate to the device) with out-of-band rejection > 50 dB on radio frequencies 915 MHz and 925 MHz.

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CHAPTER III
TESTING METHODS

Test methods for non-cellular LPWAN devices refer to:

1. Electrical Safety Testing Methods
   The test method is in accordance with SNI IEC 60950-1:2016, SNI IEC 62368-1:2014, and/or IEC 62368-1.
   Parameter testing is carried out based on the following assumptions:
   a. the device is continuously supplied with a dedicated external power supply (AC/DC converter or adapter/charger) or with an AC power supply; And
   b. The device operates with SELV in an environment where overvoltage of the telecommunications network is unlikely to occur. SELV refers to a voltage that does not exceed 42.4 V peak or 60 V DC.

2. EMC (Emission) Testing Method
   Test methods comply with ETSI EN 301 489-1, ETSI EN 301 489-3, ETSI EN 301 489-17, SNI IEC CISPR 32:2015, and/or IEC CISPR 32.

3. Radio Frequency Test Method:
   a. RF output power complies with ETSI EN 300 220-1 or ETSI 300 328;
   b. bandwidth according to ETSI EN 300 220-1 or ETSI 300 328;
   c. duty cycle in accordance with ETSI EN 300 220-1;
   d. maximum spurious emissions in accordance with ETSI EN 300 220-1 or ETSI EN 300 328 with RBW values in accordance with Table 3 or in accordance with the RBW values specified in ETSI EN 300 220-1 or ETSI EN 300 328.

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Table 3. RBW Value

Operating Mode	*Frequency Range*	RBW*REF* (see note 1)
Transmit Mode	9 kHz ≤ f < 150 kHz	1 kHz
	150 kHz ≤ f < 30 MHz	10 kHz
	30 MHz ≤ f < (f_C-m)	100 kHz
	(f_C-m) ≤ f < (f_C-n)	10 kHz
	(f_C-n) ≤ f < (f_C-p)	1 kHz
	(f_C+p) < f ≤ (f_C+n)	1 kHz
	(f_C+n) < f ≤ (f_C+m)	10 kHz
	(f_C+m) < f ≤ 1 GHz	100 kHz
	1 GHz < f ≤ 6 GHz	1 MHz

f is *measurement frequency*
f_C is *operating frequency*
m is 10 x Operating Bandwidth or 500 kHz, whichever is greater
n is 4 x Operating Bandwidth, whichever is greater, p is 2.5 x Operating Bandwidth

Note 1:
If the RBW value used in the measurement is different from RBWREF, use bandwidth correction according to ETSI EN 300 220- 1 clause 4.3.10.1.