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Ordinance for Technical Specifications pertaining to Transmitters  
(Ordinance of the Ministry of Home Affairs No. 18 of June 20, 1981)

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In accordance with the provision of Article 21-2(2) of the Fire Service Act (Act No. 186 of 1948), the Ordinance for Technical Specifications pertaining to Transmitters shall be specified as follows.

#### Purport

Article 1 This Ordinance covers the technical specifications of transmitters used for fire detection and fire alarm systems or gas leak and fire alarm systems (including transmitters of fire detection and fire alarm systems and gas leak and fire alarm systems; the same shall apply hereinafter).

#### Definitions

Article 2 In this Ordinance, the meanings of the terms listed in the following items shall be as prescribed respectively in those items.

(i) Fire detection and fire alarm system: The system that automatically informs the occurrence of fire to the personnel responsible for the fire prevention property and consists of detector, transmitter, P-type, R-type, GP-type, or GR-type control and indicating equipment (transmitters shall be excluded from the configuration of the fire detection and fire alarm system to which the transmitters are not installed). Otherwise, the system is configured from the above system and P-type or T-type manual call point. In addition, the fire detection and fire alarm system includes such system that manually informs the occurrence of fire to the fire fighting organization and consists of M-type manual call point and M-type control and indicating equipment.

(ii) Gas leak and fire alarm systems: The system that detects the leak of the fuel gas (except for the liquefied petroleum gas sold under the liquefied petroleum gas business rules prescribed in Article 2(3) of the Act on the Securing of Safety and the Optimization of Transaction of Liquefied Petroleum Gas (Act No. 149 of 1967)) or the flammable gas naturally generated (hereinafter referred to as “gas”), informs the leak to the personnel responsible for or the users of the fire prevention property, and consists of gas leak detection unit (hereinafter referred to as “gas-leak detector”) and control and indicating equipment, or gas-leak detector, transmitter, control and indicating equipment, and alarm device (except for the system prescribed in items in Article 34-4 of the Regulation for Enforcement of the Fire Service Act (Ordinance of the Ministry of Home Affairs No. 6 of 1961; hereinafter referred to as “Regulation for Enforcement”).

(iii) Detector: The device prescribed in Article 2(i) of the Ordinance for Technical Specifications pertaining to Detectors and Manual Call Points of Fire Detection and Fire Alarm Systems (Ordinance of the Ministry of Home Affairs No. 17 of 1981; hereinafter referred to as “Detectors/Others Technical Specifications Ordinance”).

(iii-ii) Wireless detector: The device prescribed in Article 2(xix-iv) of the Detectors/Others Technical Specifications Ordinance.

(iv) Manual call point: The device prescribed in Article 2(xx) of the Detectors/Others Technical

Specifications Ordinance.

(iv-ii) Wireless manual call point: The device prescribed in Article 2(xxiii-ii) of the Detectors/Others Technical Specifications Ordinance.

(v) Gas-leak detector: The device that detects the gas leak and transmits gas leak signals to the transmitter or control and indicating equipment. Otherwise, the device that detects the gas leak, issues audible alarms, and transmits gas leak signals to the transmitter or control and indicating equipment.

(vi) Transmitter: The device that receives fire detection signals (prescribed in Article 2(xxvii) of the Detectors/Others Technical Specifications Ordinance; the same shall apply hereinafter), fire indication signals, fire reference signals (prescribed in Article 2(xxviii) of the Detectors/Others Technical Specifications Ordinance; the same shall apply hereinafter), gas leak signals, or system actuation signals, and transmits the received signals to the appliances listed below depending on the signal types.

(a) Fire detection signals, fire indication signals, fire reference signals, or gas leak signals: Other transmitter, control and indicating equipment, or fire extinguishing system, etc. (prescribed in Article 2(xxvi) of the Detectors/Others Technical Specifications Ordinance; the same shall apply hereinafter)

(b) System actuation signals: Other transmitter or control and indicating equipment

(vi-ii) Analog type transmitter: The device that receives fire reference signals (including those signals that have reached the level at which the fire indication and fire alarm notice indication, which are processed by the device that determines the temperature or density (hereinafter referred to as “indicted temperature, etc.”) used to provide fire indication and fire alarm notice indication (fire alarm notice indication refers to the indication supplementally informing the personnel of the occurrence of any abnormal phenomena until the fire indication is provided; the same shall apply hereinafter) depending on the level of the subject fire reference signals (hereinafter referred to as “sensitivity setting device”), will be provided; the same shall apply hereinafter), and transmits the subject fire reference signals to other transmitter, control and indicating equipment, or fire extinguishing system, etc.

(vi-iii) Wireless transmitter: The device that wirelessly transmits or receives fire detection signals, fire indication signals, fire reference signals, or system actuation signals.

(vii) Control and indicating equipment: The device prescribed in Article 2(vii) of the Ordinance for Technical Specifications pertaining to Control and Indicating Equipment (Ordinance of the Ministry of Home Affairs No. 19 of 1981; referred to as “Control and Indicating Equipment Technical Specifications Ordinance” in the next item).

(vii-ii) Wireless control and indicating equipment: The device prescribed in Article 2(xv) of the Control and Indicating Equipment Technical Specifications Ordinance.

(viii) Alarm device: The device that informs the occurrence of gas leak to the personnel responsible for or the users of the fire prevention property.

(ix) Fire indication signal: The signal that has reached the level at which the fire indication, which is processed by the device that fixes the temperature or density used to provide the fire indication depending on the level of the fire reference signals (hereinafter referred to as “sensitivity fixation device”), will be provided.

(x) Gas leak signal: The signal showing the occurrence of gas leak.

(xi) System actuation signal: The signal showing the actuation of fire extinguishing system, etc.

(xii) Automatic test function: The test function supported by the device that is designed for the fire detection and fire alarm system and may automatically verify the proper maintenance of the functions of

the subject system.

(xiii) Remote automatic test function: The test function supported by the device that may verify the proper maintenance of the functions of the detector from the place away from the installation place of the subject detector.

#### Structure and function

Article 3 Structure and functions of transmitters shall meet the following requirements.

(i) The transmitter shall certainly work and permit easy handling, maintenance and inspection, and replacement of accessories.

(ii) The transmitter shall have enough durability.

(iii) The transmitter shall be protected from the intrusion of water.

(iv) The transmitter shall not generate functional degradation because of dust or moisture.

(v) For the portions that might be functionally degraded by corrosion, corrosion preventive measures shall be provided.

(vi) The transmitter shall be contained in a noncombustible or flame-resistant housing.

(vii) The wiring shall have enough current capacity and allow for certain connection.

(viii) The components shall be installed in a certain and loose-free manner to avoid the occurrence of functional degradation.

(ix) The charging part shall be sufficiently protected from easy external access by personnel.

(x) For the transmitter whose rated voltage is more than 60 V, a grounding terminal shall be installed to its metallic housing.

(xi) The transmitter that turns on the local audible alarm equipment shall continue alarm sounding as long as the control and indicating equipment is not operated to stop the local audible alarm equipment.

(xii) The operation mechanism shall not be installed in a manner that might affect fire detection signals, fire indication signals, or fire reference signals, or gas leak signals.

(xiii) The alarm-verification type transmitter shall meet the following requirements.

(a) For the transmitter with the device that adjusts the alarm verification time (refers to the duration between the fire detection signals or fire reference signals (limited to those signals that have reached the level at which the fire indication or fire alarm notice indication are provided) sent from the detector and when the signal reception is initiated after the continued detection; the same shall apply hereinafter), the subject device shall be installed inside the transmitter.

(b) The alarm verification time shall be more than 5 s and not more than 60 s.

(c) When the transmitter detects fire detection signals sent from the manual call point, it shall automatically cancel the alarm verification function.

(xiv) The analog type transmitter with sensitivity setting device shall meet the following requirements.

(a) The nominal received density range for fire reference signals sent from the spot-type analog heat detector shall conform to the provisions in Article 15-3(1) of the Detectors/Others Technical Specifications Ordinance.

(b) The nominal received density range for fire reference signals sent from the spot-type analog smoke detector using ionization or spot-type analog smoke detector using scattered light or transmitted light shall conform to the provisions in Article 17-4(1) of the Detectors/Others Technical Specifications Ordinance.

(c) The nominal received density range for fire reference signals sent from the line-type analog smoke

detector using a transmitted optical beam shall conform to the provisions in Article 17-6(2) of the Detectors/Others Technical Specifications Ordinance.

(d) The sensitivity setting device shall meet the following requirements.

1. The device shall be capable of identifying the detector that determines the indicated temperature, etc. and readily verifying the indicated temperature, etc. provided by the subject detector.
2. The device shall be designed such that at least two operation steps are required to change the indicated temperature, etc.
3. The indicated temperature, etc. shall be provided in temperature for the spot-type analog heat detector and in absorbance index for the spot-type analog smoke detector using ionization, spot-type analog smoke detector using scattered light or transmitted light, and line-type analog smoke detector using a transmitted optical beam. The unit shall be degree or percent.

(xv) The transmitter with the sensitivity fixation device shall meet the following requirements.

(a) The received temperature for fire reference signals sent from the spot-type analog heat detector shall stay within the range specified in Article 15-3(1) of the Detectors/Others Technical Specifications Ordinance and shall be the nominal operating temperature provided in Article 14(1) of that Ordinance.

(b) The received density for fire reference signals sent from the spot-type analog smoke detector using ionization or spot-type analog smoke detector using scattered light or transmitted light shall stay within the range specified in Article 17-4(1) of the Detectors/Others Technical Specifications Ordinance and shall be the nominal operating density provided in Article 17(2) of that Ordinance.

(c) The received density for fire reference signals sent from the line-type analog smoke detector using a transmitted optical beam shall stay within the range specified in Article 17-6(2) of the Detectors/Others Technical Specifications Ordinance and shall be the density calculated by multiplying the neutral density filter performance provided in Article 17-2(3)(i) of that Ordinance by  $2/3$ .

(d) The sensitivity fixation device shall meet the following requirements.

1. The device shall be capable of identifying the detector that fixes the temperature or density that triggers the release of the fire indication, and shall be verifying the subject detector's sensitivity classification that provides the received temperature or density, as well as nominal operation temperature and other parameters, in an easy manner.
2. The sensitivity fixation device with the unit that may select the received temperature or density shall select the temperature and density as long as these parameters conform to the provisions of (a) to (c) above. In addition, the device shall be designed such that at least two operation steps are required to change the received temperature and density.

(xvi) The wireless transmitter shall meet the following requirements.

(a) The wireless system shall be of the wireless system for the small-power security system radio station prescribed in Article 49-17 of the Rule for Radio Equipment (Rule of Radio Regulatory Committee No. 18 of 1950).

(b) The wireless transmitter capable of transmitting electric waves shall meet the following requirements.

1. The field intensity of the signal transmitted from the wireless transmitter shall be not less than the design value at the place 3 m away from the subject device.
2. A wireless system shall transmit a fire detection signal intermittently while receiving the said signal; provided, however, that this requirement shall not apply to wireless systems with the function of verifying the receipt of a fire detection signal from control and indicating equipment or another detector with an

interlocked alarm function or similar function..

3. The device shall be installed that may readily verify the transmission of fire detection signals. However, this shall not apply to the wireless transmitter that relays signals transmitted from the unit prescribed in Article 8(xvi)(d) of the Detectors/Others Technical Specifications Ordinance or the wireless transmitter that may verify such signal transmission via the control and indicating equipment.

4. The device shall be installed that may automatically transmit the signal showing the transmission status of the wireless system to other transmitters or control and indicating equipment at an interval of not more than 168 h. However, this shall not apply to the wireless transmitter that relays signals transmitted from the unit prescribed in Article 8(xvi)(e) of the Detectors/Others Technical Specifications Ordinance or the wireless transmitter that may verify the signal transmission status of that wireless system via the control and indicating equipment.

5. The wireless transmitter shall emit the unique signal that allows distinction from those of other devices.  
(c) The wireless transmitter capable of receiving electric waves shall meet the following requirements.

1. The reception sensitivity (refers to the minimum field intensity allowing the wireless transmitter to receive the signal transmitted from the place 3 m away from it; the same shall apply hereinafter) shall be not more than the design value.

2. When the received signal level becomes equal to or lower than the reception sensitivity, the wireless transmitter shall automatically transmit the signal informing, the fact, to the control and indicating equipment.

3. The wireless transmitter shall receive signals sent from the wireless detector, wireless manual call point, or other wireless transmitter (hereinafter referred to as “wireless detector, etc.” in Item 4 below) and automatically send those signals to the control and indicating equipment.

4. The wireless transmitter with the device that may manually verify the transmission status of the wireless system, such as wireless detector, etc., shall emit signals in accordance with the provision in the next Article when it receives fire detection signals, fire indication signals, or fire reference signals from fire supervisory zone other than the zone currently verified by the subject device.

(d) The transmitter powered by battery shall meet the following requirements.

1. The battery shall be readily replaced with a fresh one.

2. When the battery voltage reaches the lower limit until which the effective operation of the transmitter is ensured, the transmitter shall automatically send the signal informing, the fact, to control and indicating equipment.

(2) Among transmitters whose power is supplied from detectors, control and indicating equipment, or other transmitters, the transmitters listed below shall have the structural and functional designs prescribed respectively in those items.

(i) Transmitter supplying the power to external loads: The circuit that supplies the power shall be equipped with fuses, circuit breakers, or other protection devices. When any of these safety devices works, the transmitter shall automatically send the signal informing the actuation of the safety device to the control and indicating equipment.

(ii) Transmitter whose power is supplied through lines other than the signal circuit lines: The transmitter that emits fire detection signals, fire indication signals, fire reference signals, or gas leak signals to the control and indicating equipment, when the power to the transmitter is terminated, shall automatically send the signal informing the fact to the control and indicating equipment.

(3) Transmitters (except for battery-powered wireless transmitters) whose power is not supplied from detectors, control and indicating equipment, or other transmitters shall have the structure and functions prescribed in the following items.

(i) Fuses, circuit breakers, or other protection devices shall be installed on both lines of the main power supply and one line of the standby power supply. When the main power supply is shut down, the transmitter shall automatically send the signal informing the fact to the control and indicating equipment. When any of the safety devices works, the transmitter shall automatically send the signal informing the actuation of the safety device to the control and indicating equipment.

(ii) The main power supply shall have enough capacity to continuously bear the load that may actuate the lines in five fire supervisory zones (if the number of fire supervisory zones from which the transmitter may receive signals is less than 5, all of these fire supervisory zones) (for the transmitter connected to the local audible alarm equipment, this load is added to the load allowing simultaneous actuation of all local audible alarm equipment connected to that transmitter) or the load used for monitoring, whichever is larger. (For the transmitter having such a function that receives system actuation signals from the fire extinguishing system, etc., the above load is added to the load used to maintain this function.)

(iii) A standby power supply shall be installed. However, this shall not apply to the transmitters used in gas leak and fire alarm systems.

(4) Among transmitters (except for battery-powered wireless transmitters) whose power is not supplied from detectors, control and indicating equipment, or other transmitters, the transmitters that supply the power to the external loads shall have such a structural and functional design that fuses, circuit breakers, or other protection devices are installed and, when any of the safety devices works, the transmitters automatically send the signal informing the actuation of the safety device to the control and indicating equipment.

#### Transmission and reception functions of transmitter

Article 3-2 When transmitters (except for analog type transmitters) receive fire detection signals sent from detectors, manual call points, or other transmitters, fire indication signals sent from other transmitters, or gas leak signals sent from gas-leak detectors or other transmitters as common or unique signals, they shall certainly transmit these signals in accordance with the signal classification.

(2) When the analog type transmitter with sensitivity setting device receives fire reference signals sent from the detector or other transmitter, it shall certainly transmit the signal informing the release of fire indication or fire alarm notice indication prescribed in Article 2(vi-ii). When the analog type transmitter without sensitivity setting device receives fire reference signals sent from the detector or other transmitter, it shall certainly transmit these signals.

(3) Transmitters that receive system actuation signals shall have the following functions.

(i) When system actuation signals are received, the transmitter shall automatically send the signal informing the fact.

(ii) When the transmitter sends the signal specified in the preceding item to the control and indicating equipment, this signal shall be distinguished from the signals prescribed in Paragraphs (1) and (2) above.

(4) When the transmitter receives fire detection signals, fire indication signals, fire reference signals, gas leak signals, or system actuation signals through the lines of two fire supervisory zones simultaneously, it shall certainly execute signal transmission tasks prescribed in Paragraphs (1), (2), and (3) above.

Automatic test function, etc. of transmitter

Article 3-3 Transmitter with automatic test function or remote test function (hereinafter referred to as “automatic test function, etc.”) shall meet the following requirements.

(i) The control function pertaining to the automatic test function, etc. shall meet the following requirements.

(a) Working condition values (refers to values, conditions, and other parameters used as a reference to judge whether troubles exist; the same shall apply hereinafter) shall not be readily set or changed beyond the design range.

(b) When the condition values are changeable, the personnel shall be able to confirm each set value.

(ii) During the test implemented by the automatic test function, etc., the transmitter shall certainly receive fire detection signals, fire indication signals, or fire reference signals sent from the lines of other fire supervisory zones and send the signal as prescribed in the preceding Article.

(2) The transmitter with automatic test function shall meet the following requirements.

(i) The unit that verifies the functions pertaining to the standby power supply shall meet the following requirements.

(a) The unit shall be capable of verifying the operating status of the device prescribed in Article 5(vii)(b) in an easy manner.

(b) When the standby power supply is disordered, the transmitter shall be capable of verifying the abnormal phenomenon readily.

(ii) When any of the following events would occur, the transmitter shall automatically send the signal informing the fact to the control and indicating equipment. However, this shall not apply to the transmitter when the control and indicating equipment connected to it has the test function that may address the current event.

(a) Wire break or short-circuit occurs on the power supply cable between the transmitter and the detector or other transmitter.

(b) The main power supply and circuit, both of which are connected to the transmitter, suffer from voltage trouble, and the power supplied to the detector or the other transmitter is disordered.

(c) The signal processing unit or central processing unit for the transmitter is disordered.

(d) Wire break or short-circuit occurs on the field wiring between the transmitter and terminator.

(iii) When any of the following events would occur, the transmitter shall automatically send the signal informing the fact to the control and indicating equipment within 168 h. However, this shall not apply to the transmitter when the control and indicating equipment connected to it has the test function that may address the current event.

(a) The detector with automatic test function, etc. (such detector as is prescribed in Article 2(xix-iii) of the Detectors/Others Technical Specifications Ordinance; the same shall apply hereinafter) is malfunctioning.

(b) Wire break or short-circuit occurs on the cable pertaining to the line connected to the local audible alarm equipment.

(3) The transmitter with remote test function shall meet the following requirements.

(i) When the detector with automatic test function is malfunctioning, the transmitter shall readily detect the trouble on this detector by using the remote test function. In this case, the transmitter designed to verify the functions of the detector by connecting an external device (refers to the unit having a part of remote test function; the same shall apply hereinafter) shall incorporate the function that may verify the trouble after

the operation of this external device.

(ii) When an external test device is connected to the transmitter, either of the following measures shall be arranged.

(a) Measures not hampering the function of the transmitter (except for the function pertaining to the line of the fire supervisory zone currently tested) when the external test device is connected to the transmitter.

(b) Measures verifying the connection status between the external test device and transmitter at the front panel of the transmitter by means of a blink warning lamp or other means not giving harmful effects to the function of the transmitter, when such connection is continued.

Duration from reception and transmission of signals

Article 4 In transmitters, the duration between the start of signal reception and the start of signal transmission shall not exceed 5 s. However, for the transmitter connected to the control and indicating equipment capable of releasing the fire indication within 5 s from the start of reception of gas leak signals, the aforementioned duration pertaining to the gas leak signals may be extended up to 60 s.

Structure and function of component

Article 5 When any of the components listed in the following items is used for transmitters, the subject component shall have the structural and functional design as prescribed respectively in those items.

(i) Electromagnetic relay

(a) Relays, except for the enclosed type, shall be protected by a cover so that dust will not be accumulated on the contact and movable section.

(b) The contact shall be made of gold-silver alloy or any other material having the performance equivalent to or higher than the alloy. In addition, the contact shall not bear external load.

(ii) Power transformer

(a) The transformer shall conform to the Japanese Industrial Standards (hereinafter referred to as "JIS") C 6436 prescribed in Article 17(1) of the Industrial Standardization Law (Act No. 185 of 1949).

(b) The transformer shall offer enough capacity to withstand the maximum service current continuously applied.

(iii) Electric lamp: When the AC voltage whose level is 130% of the rated voltage of the circuit used is continuously applied to the electric lamp for 20 h, the components shall be free from wire break, extreme luminous flux change, blackening, or extreme current decrease.

(iv) Switch

(a) The switch shall work in a certain and easy manner and have clear cutoff point.

(b) The contact shall be free from the risk of corrosion and withstand the maximum service current.

(v) Electrical measuring instrument

(a) The instrument shall conform to JI C 1102-1 and 1102-2.

(b) The maximum scale of the voltmeter shall range from 140% to 200% of the rated voltage of the circuit used.

(vi) Fuse: The fuse shall conform to JIS C 6575-1 and 6575-2, or 8352.

(vii) Standby power supply

(a) The standby power supply shall be of enclosed storage battery.

(b) Such a device shall be installed that automatically selects the standby power supply in the case of



shutdown of the main power supply and selects the main power supply after it is recovered.

(c) Such a device shall be installed that may readily measure the voltage when the load equivalent to the maximum consuming current is applied.

(d) Lead wires shall be colored for identification. In addition, necessary measures shall be taken to prevent incorrect connection.

(e) The standby power supply shall have the minimum capacity defined in 1. to 3. below in accordance with the classifications specified in those items.

1. Standby power supply for the transmitter used in fire detection and fire alarm system: The capacity capable of continuously supplying the consuming current that may operate the lines of two fire supervisory zones (or the line of the fire supervisory zone for the zone with one line) for 10 min, after 60-min continuous monitoring. (For the transmitter connected to local audible alarm equipment, the subject consuming current is added by the consuming current used to sound all the local audible alarm equipment connected to this transmitter simultaneously. For the transmitter having the function that may receive system actuation signals from the fire extinguishing system, etc. via the signal circuit line going to the terminator, the subject consuming current is added by the consuming current used to maintain the system actuation function.) (If the subject consuming current is lower than the consuming current used for monitoring, the capacity shall be of such level that the consuming current necessary for the monitoring may be continuously supplied for 10 min.)

2. Standby power supply for transmitter used in gas leak and fire alarm systems: The capacity capable of simultaneously maintaining two modes, where one mode is characterized by 1-minute effective operation of two lines and the other mode is characterized by 1-minute monitoring of other lines.

3. Standby power supplies for the transmitters of fire detection and fire alarm system and gas leak and fire alarm system: Capacity specified in sub item 1 above plus capacity specified in sub item 3 above.

(f) The standby power supply installed outside the transmitter shall be contained in a noncombustible or flame-resistant housing. Heat resisting wires shall be used between the transmitter and standby power supply.

#### Accessories

Article 6 Transmitters shall be free from any accessories that might hamper their functions.

#### Power supply voltage fluctuation test

Article 7 Transmitters shall not generate functional degradation if the voltages of the power supplies listed in the following items vary within the ranges respectively specified in those items.

(i) Main power supply: 90% to 110% of the rated voltage (the range between lower and upper voltage fluctuation limits for those transmitters powered by detectors, control and indicating equipment, or other transmitters, or battery-powered wireless transmitters)

(ii) Standby power supply: 85% to 110% of the rated voltage

#### Ambient temperature test

Article 8 Transmitters shall not generate functional degradation when the ambient temperature stays within the range from -10°C to 50°C.

#### Cyclic operation test

Article 9 When transmitters are repeatedly operated for 2000 cycles under rated voltage and current conditions, they shall not generate structural or functional degradation.

#### Insulation resistance test

Article 10 When the insulation resistance of the transmitter is measured with 500-VDC insulation tester at the place between the charging part and metallic housing and the place between the power transformer's railways, this physical quantity shall be not less than 5 M $\Omega$  (not less than 50 M $\Omega$  per line between the charging part and metallic housing for the transmitter having 10 or more connectable lines).

#### Dielectric strength test

Article 11 When 500-Vrms AC voltage whose characteristics are similar to 50-Hz or 60-Hz sine wave is applied between the charging part and metallic housing of the transmitter and the place between the power transformer's railways (1000 VAC for the transmitter whose rated voltage is more than 60 VAC and not more than 150 VAC or 1000 V plus the rated voltage multiplied by 2 for the transmitter whose rated voltage is more than 150 VAC), the transmitter shall maintain such dielectric strength that it can withstand the input voltage for 1 min.

#### Impulse voltage test

Article 12 When the transmitter (except for the wireless transmitter without external wiring) is energized and subjected to the following tests for 15 s, it shall not generate functional degradation.

(i) The voltage of 500 V is applied to the transmitter from the power supply having an internal resistance of 50  $\Omega$  under the conditions: pulse width of 1  $\mu$ s and inter pulse period of 100 Hz.

(ii) The voltage of 500 V is applied to the transmitter from the power supply having an internal resistance of 50  $\Omega$  under the conditions: pulse width of 0.1  $\mu$ s and inter pulse period of 100 Hz.

(iii) The voltage of 220 V is applied to the terminal, which is used to connect the audible device, from the power supply having an internal resistance of 600  $\Omega$  under the conditions: pulse width of 1ms and inter pulse period of 100 Hz.

#### Electromagnetic wave test

Article 12-2 When the electromagnetic wave is irradiated onto the energized wireless transmitter, the device shall not transmit fire detection signals and generate functional degradation. This electromagnetic wave has the field strength of 10 V/m, is amplitude-modulated at 80% by means of a 1-kHz sine wave, and is changed at the rate of not more than 0.0015 decade/s in the frequency ranging from 80 MHz to 1 GHz and from 1.4 to 2 GHz, respectively.

#### Vibration impact test

Article 12-3 When the tests specified in the following items are implemented for the wireless transmitter installed in the detector, the transmitter shall maintain the proper monitoring status during the test specified in Item (i), and shall not generate functional degradation during the tests specified in Items (ii) and (iii).

(i) With the transmitter energized, the vibration characterized by double amplitude of 1 mm and 1000 cycles per minute is continuously input to it in an arbitrary direction for 10 min.

- (ii) With the transmitter de-energized, the vibration characterized by double amplitude of 4 mm and 1000 cycles per minute is continuously input to it in an arbitrary direction for 60 min.
- (iii) The maximum impact of 50 G is input to the transmitter five times in an arbitrary direction.

#### Test conditions

Article 13 The tests specified in Articles 10 and 11 shall be implemented under the following conditions.

- (i) Temperature: 5°C to 35°C
- (ii) Relative humidity: 45% to 85%

#### Indication

Article 14 The information specified in the following items shall be indicated on all transmitters at easily observable place in such a manner that the subject information may not be readily erased. In this case, encased tags may be attached to the transmitter to indicate the information specified in Items (vi), (xiv), and (xv).

- (i) Term “Transmitter”
- (ii) Model and model code
- (iii) Year of manufacture
- (iv) Manufacturing number
- (v) Name/designation of manufacturer
- (vi) Outline of handling method
- (vii) Number of connectable lines, or detectors and gas-leak detectors
- (viii) Transmitter connected to gas-leak detector: Following indications listed below
  - (a) Standard delay time
  - (b) Types of input and output signals
- (ix) Rated voltage and current of main power supply
- (x) When standby power supply is equipped: Name/designation of manufacturer, type, model name or model code, rated capacity, and rated voltage of the storage battery
- (xi) When the terminator is connected: Type and model name or model code of the terminator
- (xii) Alarm-verification type transmitter: Nominal alarm verification time
- (xiii) Analog type transmitter (limited to the one equipped with sensitivity setting device): Following indications listed below
  - (a) Nominal received temperature range or nominal received density range
  - (b) Information (such as type and set indication temperature) of the analog type detector from which the transmitter receives fire reference signals, and the type of the detector identified by the prescription “provisions then in force shall remain applicable” pursuant to the provision of Article 23(7) of the Regulation for Enforcement
- (xiv) Transmitter with automatic test function: Following indications listed below
  - (a) Outline of the automatic test function supported by the transmitter
  - (b) Type and quantity of the detector with automatic test function, etc.
- (xv) Transmitter with remote test function: Following indications listed below
  - (a) Fire detection and fire alarm system schematic diagram pertaining to remote test function
  - (b) Type and quantity of the detector with automatic test function, etc.

- (c) Transmitter connected to external test device: Model name or model code of the external test device
- (xvi) Wireless transmitter: Following indications listed below
  - (a) Term “Transmission” or “Reception”
  - (b) Model code of the detector, transmitter, or control and indicating equipment from/to which the wireless transmitter may send or receive signals
  - (c) Transmitter powered by battery: Type and voltage of battery
- (2) The information specified in the following items shall be indicated on the components listed in those items at easily observable place in such a manner that the subject information may not be readily erased. For other components, the component code shall be indicated at easily observable place in such a manner that the subject information may not be readily erased.
  - (i) Terminal board: Terminal symbol (terminal symbol, AC or DC, and rated voltage and current in case of terminals used for the power supply or audible device)
  - (ii) Switch or other control: “Open” or “Close” or other operational indication and using method
  - (iii) Fuse holder: Rated current of the fuse used

#### Exemption from standards

Article 15 When the Minister for Internal Affairs and Communications recognizes that the transmitters newly created as a result of technology development activities have the performance equivalent to or higher than those conforming to the provisions prescribed in this Ordinance, judging from their profiles, structures, materials, and performance, the technical standards specified by the Minister for Internal Affairs and Communications shall apply to these new developments notwithstanding the provisions of this Ordinance.

#### Supplementary Provisions

- (1) This Ordinance shall come into effect as of July 1, 1981.
- (2) For tests pertaining to the transmitters whose application for test has been already made to have the fire equipment tested by the Japan Fire Equipment Inspection Institute at the time of enforcement of this Ordinance, the provisions then in force shall remain applicable.
- (3) For the transmitters that have already got model approvals in accordance with the standards prescribed in the Ordinance for Technical Specifications pertaining to Fire Detection and Fire Alarm Systems (Ordinance of the Ministry of Home Affairs No. 4 of 1969), and the transmitters that have got model approvals based on the results from the tests identified by the prescription “provisions then in force shall remain applicable” as described in the preceding paragraph at the time of enforcement of this Ordinance, their model approvals shall be deemed as those provided in accordance with the standards of this Ordinance.

#### Supplementary Provisions (Ordinance of the Ministry of Home Affairs No. 19 of July 20, 1984)

- (1) This Ordinance shall come into effect as of October 1, 1984.
- (2) For tests pertaining to the transmitters whose application for test has been already made to have the fire equipment tested by the Japan Fire Equipment Inspection Institute at the time of enforcement of this Ordinance, the provisions then in force shall remain applicable.

#### Supplementary Provisions (Ordinance of the Ministry of Home Affairs No. 7 of March 18, 1987)

This Ordinance shall come into effect as of the day of promulgation.

Supplementary Provisions (Ordinance of the Ministry of Home Affairs No. 4 of January 29, 1993)

(1) This Ordinance shall come into effect as of February 1, 1993.

(2) For the transmitters that have already got model approvals at the time of enforcement of this Ordinance, their model approvals shall be deemed as those provided in accordance with the standards prescribed in the amended Ordinance for Technical Specifications pertaining to Transmitters.

Supplementary Provisions (Ordinance of the Ministry of Home Affairs No. 28 of September 13, 1995)

(1) This Ordinance shall come into effect as of October 1, 1995.

(2) For tests pertaining to the transmitters whose application for test has been already made to have the target equipment tested by the Japan Fire Equipment Inspection Institute at the time of enforcement of this Ordinance, the provisions then in force shall remain applicable.

(3) For the transmitters that have already got the model approvals, and the transmitters that have got model approvals based on the results from the tests identified by the prescription “provisions then in force shall remain applicable” as described in the preceding paragraph at the time of enforcement of this Ordinance, their model approvals shall be deemed as those provided in accordance with the standards prescribed in the amended Ordinance for Technical Specifications pertaining to Transmitters.

Supplementary Provisions (Ordinance of the Ministry of Home Affairs No. 24 of April 23, 1997)

(1) This Ordinance shall come into effect as of May 1, 1997.

(2) For tests pertaining to the transmitters whose application for test has been already made to have the target equipment tested by the Japan Fire Equipment Inspection Institute at the time of enforcement of this Ordinance, the provisions then in force shall remain applicable.

(3) For the transmitters that have already got model approvals, and the transmitters that have got model approvals based on the results from the tests identified by the prescription “provisions then in force shall remain applicable” as described in the preceding paragraph at the time of enforcement of this Ordinance, their model approvals shall be deemed as those provided in accordance with the standards prescribed in the amended Ordinance for Technical Specifications pertaining to Transmitters.

Supplementary Provisions (Ordinance of the Ministry of Home Affairs No. 44 of September 14, 2000)

This Ordinance shall come into effect as of the effective date (January 6, 2001) of the Act for Partial Revision of Cabinet Law (Act No. 88 of 1999).

Supplementary Provisions (Ordinance of the Ministry of Internal Affairs and Communications No. 31 of March 26, 2007)

(1) This Ordinance shall come into effect as of the day of promulgation.

(2) For tests pertaining to the transmitters whose application for test has been already made to have the target equipment tested by the Japan Fire Equipment Inspection Institute at the time of enforcement of this Ordinance, the provisions then in force shall remain applicable.

(3) For the transmitters that have already got model approvals, and the transmitters that have got model approvals based on the results from the tests identified by the prescription “provisions then in force shall

remain applicable” as described in the preceding paragraph at the time of enforcement of this Ordinance, their model approvals shall be deemed as those provided in accordance with the standards prescribed in the amended Ordinance for Technical Specifications pertaining to Transmitters.

Supplementary Provisions (Ordinance of the Ministry of Internal Affairs and Communications No. 17 of March 9, 2009)

Effective date

(1) This Ordinance shall come into effect as of the day of promulgation.

Transitional measures

(2) For the transmitters that have already got model approvals at the time of enforcement of this Ordinance, their model approvals shall be deemed as those provided in accordance with the standards prescribed in the amended Ordinance for Technical Specifications pertaining to Transmitters.