METHOD FOR MEASURING AND CALCULATING THE ANTENNA POWER OF RADIO EQUIPMENT

(Article 13 of the Ordinance Regulating Radio Equipment)

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The method for measuring and calculating the antenna power of radio equipment shall be stipulated as follows based on the provisions of Article 13 of the Ordinance Regulating Radio Equipment (Radio Regulatory Commission Regulations No. 18 of 1950).

1 After a directional coupler is inserted into the feeder, the power of traveling wave and the power of reflection wave are measured. Then, the antenna power of radio equipment is calculated from the difference between the two.

2 First, the antenna resistance is measured by means of the resistance variation method, substitution method or impedance bridge method. Then, the antenna power of radio equipment is calculated by the product of the value obtained therefrom and the square of the antenna current.

3 When it is inappropriate to measure the antenna power of radio equipment while power is supplied to the antenna circuit, an artificial circuit is used to substitute the power, and then the antenna power of radio equipment is measured.

4 The antenna power of radio equipment is measured by means of the bolometer method.

5 When it is difficult to measure the antenna power of radio equipment by means of the method defined in each item above, it shall be calculated by means of the following method.

(1) When air-cooling type or water-cooling type vacuum tubes are used, the anode loss is measured with a radiator or by a temperature difference in order to calculate the antenna power of radio equipment.

(2) When an antenna having an aperiodic type of feeder is used, characteristic impedance is calculated, and then the antenna power of radio equipment is calculated by the product of the maximum and minimum values of a high-frequency current which flows through an electric wire.

(3) When emissions of a frequency in a range of higher than 3,000 kHz to 23,000 kHz are used, the antenna power of radio equipment is calculated by multiplying a value of the final-step anode by the efficiency specified in the items below. When a communicating device for radio telephony as it is is used for a communicating device for radio telegraphy, the efficiency of radio telephony is applied mutatis mutandis.

a	Final-step C class radio telegraphy	60%
b	Radio telephony using a double sideband	
(a)	Final-step C class final-step anode modulation method	60%
(b)	Final-step C class final-step anode shielding lattice simultaneous modulation method	40%
(c)	Final-step B class low-power modulation method	30%

(d) Final-step C class control lattice modulation method 35 %

(e) Final-step C class suppression lattice modulation method 30%

c Radio telephony using a single sideband

(a) Suppression-carrier low-power modulation method 50%

(b) Additive-carrier low-power modulation method 20%