

TECHNICAL STANDARDS

S-METER STANDARDS

In order to make a uniform reporting system on the amateur bands possible, taking into account the widespread use of the 'subjective' S-system, taking into account the large deviations between the characteristics of S-meters on current amateur equipment, the IARU Region 1 recommends the use of the "S"-system for signal strength reporting on the amateur bands, based on the following standards:

- (a) One S-point corresponds to a level difference of 6dB.
- (b) On the bands below 30 MHz a meter deviation of S-9 correspond to an available power of a CW signal generator connected to the receiver input terminals, of -73dBm.
- (c) On the bands above 30 MHz this power shall be -93dBm.

Comments:

1. Signal reporting on the amateur bands at the moment is based on the well-known "subjective" RST system. Although the system is very useful, the availability of modern, sometimes professionally made, receiving equipment, makes the use of a less subjective system for the measurement of the strength of the received signal possible. The system to be chosen, however, must not deviate too much from the "subjective" system.
2. The first, and most important, standard to be recommended will be the definition of a "S"-point. A value of 6dB seems very practical. It corresponds to an already widespread "unofficial" standard and gives the least problems for non-mathematically oriented amateurs.
3. Once having agreed upon the value of one S-point, a second, less important, but very useful recommendation would be the definition of a reference level.

Taking into account the practical situation it will not be possible to define one reference level for all amateur bands. On the HF bands a level of -73dBm (50 μ V over 50 Ohm) does not deviate too much from current practice. On the higher bands, however, where thermal noise is in many cases the limiting factor, a lower level must be chosen and -93dBm (5 μ V over 50 Ohm) seems appropriate.

4. Although the standards given above are based on continuous signals, in real traffic non-continuous signals (i.e. A3j) will be encountered. It, therefore, is necessary to define in more detail the measurement system.

Chapter 10.1.2

5. We hope that the current recommendation will be followed by all equipment manufacturers, so that in a not too distant future one will know how to interpret the strength report of the other station.

Societies should advise as much as possible their members about equipment manufacturers adhering to this recommendation and shall try to avoid publication of receiver design which do not in principle use the recommended standards. Simple means for calibration of at least the 6dB level ratio should be published.

TABLE

S	HF bands dBm (V over 50 ohm)	Bands above 30 MHz dB (V over 50 ohm)
9 + 40 dB	-33 (5millivolt)	-53 (0.5 millivolt)
9 + 30 dB	-43 (1.6 millivolt)	- 63 (0.16 millivolt)
9 + 20 dB	-53 (500 microvolt)	-73 (50 microvolt)
9 + 10 dB	-63 (160 microvolt)	-83 (16 microvolt)
9	-73 (50 microvolt)	-93 (5 microvolt)
8	-79 (25 microvolt)	-99 (2.5 microvolt)
7	-85 (12.6 microvolt)	-105 (1.26 microvolt)
6	-91 (6.3 microvolt)	-111 (0.63 microvolt)
5	-97 (3.2 microvolt)	-117 (0.32 microvolt)
4	-103 (1.6 microvolt)	-123 (0.16 microvolt)
3	-109 (0.8 microvolt)	-129 (0.08 microvolt)
2	-115 (0.4 microvolt)	-135 (0.04 microvolt)
1	-121 (0.21 microvolt)	-141 (0.02 microvolt)
