

Editorial – Numerical signal reports

When people ask us on the radio for a signal report, it's perfectly acceptable to say that they sound good, clear, loud, or something a little more technically meaningful. In law enforcement or the military, you might hear them say something like "five-five" or "five-by-five". In the world of amateur radio, we like to say "five-nine" for a perfect signal, but what does that mean?

The numbers come from the **RST System**, which stands for "readability, strength, and tone". **Readability** means how clearly understandable the sound is being received, and is rated from "one" to "five", with "five" being the clearest. **Strength** means how strongly the RF signal is being received by your radio, and has little to do with how it sounds. It's rated from "one" to "nine", with "nine" being the strongest signal detectable by your radio.

Many hams confuse the **signal strength** with **audio loudness**, and might offer that report as a reflection of how loud it sounds, and because of sheer usage, we take that confusion for granted. **Tone** refers to the quality of the Morse code dits and dahs. So, if you're not listening to CW, then you simply omit the tone report, and just use the first two. When you hear somebody say "five-nine", they're reporting the best non-CW signal possible.

Another thing about reports is when giving them to people who are talking through a repeater. The "five" can be legit, but the "nine" is simply the strength of the repeater signal. It's probably more accurate to say, "full quieting into the repeater", which means "I can hear you clearly as it's being received by the repeater".

The readability report can only go from "one" to "five", but the signal strength report can go higher.



S-meter

Although "nine" is the strongest signal listed on the RST scale, actual radio signals can be much stronger, and we report them as the number of decibels greater than "nine" or **over nine**. If your radio registers a signal ten times the maximum strength of the RST scale, we say it's coming in at **ten over nine**. If it's a hundred times as strong, we say **twenty over nine** and so forth. This, in turn, has forced us to quantify exactly what a "nine" signal strength report means, and today we calibrate our **S-meters** at 6 dB per whole graduation. This means a strength report of S8 is 6 dB over, or four times the strength, of an S7 signal, for example.

Anything to add? Email editor@utaharc.org

Level	R - Readability	S - Strength	T - Tone (CW only)
1	unreadable	barely perceptible	too rough
2	barely readable	very weak	very harsh
3	readable with difficulty	weak	very rough
4	readable with little difficulty	fair	rough
5	perfectly readable	fairly good	strong ripple
6	N/A	good	definite ripple
7	N/A	moderately strong	trace of ripple
8	N/A	strong	near-perfect tone
9	N/A	very strong	perfect tone