Can You *Read* Me Now?

The RST code — more than just a signal report.

Steve Sant Andrea, AG1YK

Communication is a two-sided affair. When you send out a CQ you can't know how it is being received by another station far out across the ether. This problem became evident early on in radio. Once a signal leaves the antenna it moves from the clean and orderly environment inside your station to the wild and woolly wilderness of the ionosphere. Signals lose strength as they travel, become mixed with all sorts of noise and our fickle friend the ionosphere can cause all kinds of mischief.

Early in ham radio a number of schemes were devised for a receiving station to quantify how well they were hearing an incoming signal. By the 1930s this makeshift system resulted in what one writer described as "a mixture of plain language questions, QSA, R and T reports, and international abbreviations."[1]

It was in October of 1934 that Arthur Braaten, W2BSR, proposed the RST system (see sidebar) as a simple, less confusing and more accurate method for reporting the usability of a received signal.[2] His system consisted of three elements: readability, strength and tone.

A Measure of *Understanding*

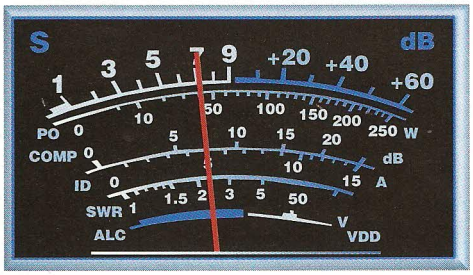
One of the problems with earlier systems was confusion between how readable a signal was and its strength. The readability part of the RST code is used to define how *understandable* a signal is, not how *strong* it is. Readability is meant to describe to the transmitting station how well the receiving operator can understand what he is saying. It is not a matter of signal strength.

"How so," you ask? "If I'm receiving a 20-over signal it should be perfectly readable." It might not be readable if your neighbor's air conditioner is coming in 40-over. If the signal you are receiving is an R1 or R2, then you can't complete the contact regardless of how strong it is.

Signal strength is the second element of the RST system. Using nine steps it describes conditions from "Faint, barely perceptible" to "Extremely strong." The difference between an R1 and an S1 signal is worth considering. We have all been cruising a band, headphones on, listening intently for a certain DXpedition or special event when we come upon a frequency and stop short. You close your eyes and concentrate. You know you hear a signal. It's there down below the rush and rumble of the noise, the faintest trace of organization in the chaos.

From a readability standpoint this signal doesn't exist. Even though you are sure there is a signal there, you can't make out even the slightest scrap of information about it. From the signal strength standpoint, the signal is S1. You know it's there; there just isn't enough of it. Again an S1 or S2 signal is too weak to permit you to complete a basic contact.

"Then why have them at all?" you ask. Well, R and S values of 1 and 2 are useful in situations such as a net, roundtable or scheduled contact. Let's say you contact a DX station on 20 CW and arrange to meet on 40 phone. Down on 40 you can just barely make him out, an RS 21 signal. When you return to 20 meters you report this back to the DX, which lets him know that 40 meters isn't open to your area from his location.



The RST System

Readability

1 Unreadable
2 Barely readable, occasional words distinguishable.
3 Readable with considerable difficulty.
4 Readable with practically no difficulty.
5 Perfectly readable.

Signal Strength

1 Faint signals, barely perceptible.
2 Very weak signals.
3 Weak signals.
4 Fair signals.
5 Fairly good signals.
6 Good signals.
7 Moderately strong signals.
8 Strong signals.
9 Extremely strong signals.

Tone (CW only)

1 Sixty cycle ac or less, very rough and broad.
2 Very rough ac, very harsh and broad.
3 Rough ac tone, rectified but not filtered.
4 Rough note, some trace of filtering.
5 Filtered rectified ac but strongly ripple-modulated.
6 Filtered tone, definite trace of ripple modulation.
7 Near pure tone, trace of ripple modulation.
8 Near perfect tone, slight trace of modulation.
9 Perfect tone, no trace of ripple or modulation of any kind. If the signal has the characteristic steadiness of crystal control, add the letter X. If there is a chirp add the letter "C" and for a click, add "K."

Crystal Clear or For the Birds

The third element is tone. This is used for CW to describe how "clean" the Morse dits and dahs are. Tone is not that meaningful today using modern transmitters. But for those who like to "roll their own," or who like to operate using vintage equipment, the tone of the CW note can vary widely and values below T7 can indicate a problem.

What about digital? The RST code was developed long before the digital modes arrived. Some digital operators have proposed a new system for digital contacts, the RSQ system, replacing T (tone) with Q (quality). For more information go to **www.rsq-info.net**.

The RST system can provide you and the hams you contact with a useful description of the quality of the communications channel between you. For this reason, don't just parrot a "59" or 5NN" report. Take the time to listen and give an honest assessment of the quality of a signal. Be aware that the RST report you receive is telling you much about the usability of that frequency for whatever type of contact you wish to make, whether it is a long ragchew or a quick meteor scatter.

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[1]Lt D. C. Redgrave, KA1NA, "A New System of Signal Reports," *QST*, Aug 1934, p 55.
[2]A. M. Braaten, W2BSR, "A New Standard System of Reporting Signals," *QST*, Oct 1934, pp 18-19, 106, 108.