These tables accompany the Xiegu G90 transceiver review in the March 2020 issue of *QST*. All measurements were performed by Phil Salas, AD5X. Measured losses are subject to the ±3% accuracy of the NIST-traceable test equipment used.

Table A

Transmit Power and Current vs Power Setting

	1 W/Current	5 W/Current	10 W/Current	15 W/Current	20 W/Current
160M	1.4 W/2.0 A	5.4 W/2.6 A	9.9 W/3.2 A	14.4 W/3.7 A	18.5 W/4.0 A
80M	1.5 W/2.0 A	5.6 W/2.8 A	10.4 W/3.4 A	15.2 W/3.9 A	19.8 W/4.4 A
40M	1.5 W/2.0 A	5.5 W/2.6 A	10.2 W/3.2 A	14.9 W/3.7 A	19.4 W/4.1 A
20M	1.5 W/2.2 A	5.7 W/3.3 A	10.5 W/3.9 A	15.2 W/4.2 A	19.6 W/4.5 A
10M	1.6 W/2.2 A	5.9 W/2.7 A	11.0 W/3.2 A	16.0 W/3.7 A	20.6 W/4.2 A

The precision setup for the following tests is described in the MFJ-994BRT and MFJ-998RT antenna tuner Product Review in the August 2012 issue of *QST*, pp. 47 – 48, as well as a supplemental file for that review on the *QST* in Depth web page (**www. arrl.org/qst-in-depth**).

Table B

G90 ATU Resistive Load and Loss Testing

VSWR/Impedance		160m	80m	40m	20m	10m
10:1/5Ω	Loss (%)	38%	15%	20%	<5%	<5%
8:1/6.25Ω	Loss (%)	28%	14%	18%	<5%	<5%
4:1/12.5Ω	Loss (%)	17%	13%	12%	<5%	<5%
3:1/16.7Ω	Loss (%)	15%	12%	10%	<5%	<5%
2:1/25Ω	Loss (%)	13%	11%	8%	<5%	<5%
1:1/50Ω	Bypass Loss (%)	0	0	0	0	0
2:1/100Ω	Loss (%)	<5%	<5%	<5%	<5%	<5%
3:1/150Ω	Loss (%)	<5%	<5%	<5%	<5%	<5%
4:1/200Ω	Loss (%)	<5%	<5%	<5%	<5%	<5%
8:1/400Ω	Loss (%)	15%	<5%	<5%	12%	14%
10:1/500Ω	Loss (%)	No Tune	43%	41%	40%	No Tune

The ATU is internal to the G90, I could not precisely measure the power into the auto tuner. Therefore my reference power is the bypassed power.

Table C

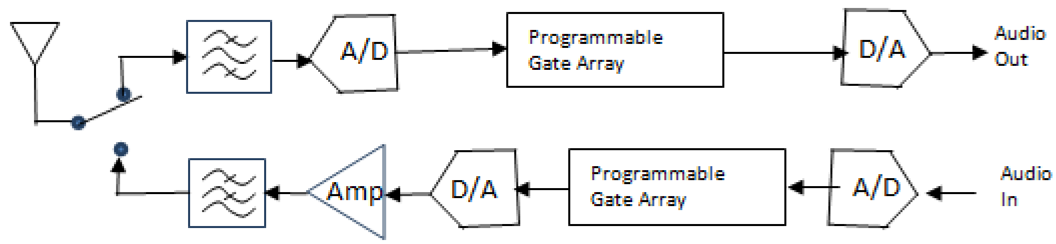
G90 Signal Level and S-Meter readings vs Elecraft XG3 signal level

XG3 Output Level*	G90 Displayed Level	G90 S-Meter Reading
–33 dBm	–34 dBm	S-9 + 60 dB
–73 dBm (S-9)	–74 dBm	S-9
–107 dBm	–109 dBm	S-3

* Elecraft level accuracy specification is ± 1dB at these levels

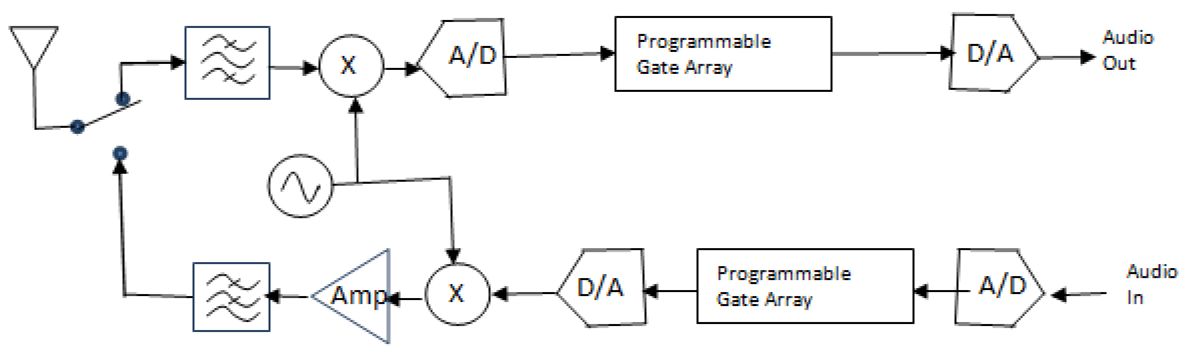
What is a Software Defined Radio (SDR)?

A good definition comes from Wikipedia, which states that it is "a radio communication system where components that have been typically implemented in hardware (e.g. mixers, filters, amplifiers, modulators/demodulators, detectors, etc.) are instead implemented by means of software on a personal computer or embedded system." So ideally an SDR is an all-digital design whereby the RF is directly sampled by a high speed A/D converter and then subsequently processed as shown below.



Direct Sampling SDR Transceiver

However, codecs that can sample at the required high rates are still very expensive. In order to keep costs reasonable, transceivers such as the G90 utilize a downconverting SDR architecture. Here, a limited bandwidth signal is mixed down directly to baseband, where the signal processing occurs — it is a direct conversion transceiver. A simplified block diagram of this approach is shown below.



Direct Conversion SDR Transceiver

So there are always tradeoffs. However, regardless of the SDR architecture, an SDR transceiver will have significantly less hardware complexity and much more future functionality capability than a conventional transceiver.