WHAT IS CLAIMED IS:

1. A method comprising:

providing a test signal to a plurality of antenna channels via a test signal line, each of the antenna channels including an amplitude adjustor and a phase adjustor associated with at least one antenna element;

for each of the antenna channels, modulating the test signal to produce a modulated test signal, wherein modulating the test signal colors the test signal and is performed by:

i) controlling the amplitude adjustor of the antenna channel to vary a current amplitude of the test signal between a plurality of amplitude states, and

ii) controlling the phase adjustor of the antenna channel to vary a current phase of the test signal between a plurality of phase states;

receiving, from each of the antenna channels, a received test signal that includes at least the modulated test signal and an unmodulated leaked version of the test signal; and

processing the received test signals received from the antenna channels to determine amplitude and phase errors in the received test signals including errors associated with: i) the modulated test signals associated with the antenna channels, and ii) errors imparted by the unmodulated leaked version of the test signal.

2. The method of claim 1, wherein the test signal is a continuous wave signal.

3. The method of claim 1, wherein the test signal is provided to the antenna channels by a transmitter and the received test signal is received by a receiver, and wherein the unmodulated leaked version of the test signal is leaked from the transmitter to the receiver.

4. The method of claim 1, wherein the modulated test signal has a constant or variable envelope.

5. The method of claim 1, wherein the amplitude and phase of the test signal are varied in accordance with a sequence of symbols.

6. The method of claim 5, wherein the symbols are selected from an alphabet wherein each symbol in the alphabet corresponds to a different respective phase-state and amplitude-state combination.

7. The method of claim 1, wherein the amplitude and phase of the test signal are varied in accordance with a digital modulation constellation.

8. The method of claim 1, wherein the processing the received signal includes calculating an error vector magnitude.

9. The method of claim 8, wherein the amplitude and phase of the test signal are varied in accordance with a sequence of symbols, and wherein the error vector magnitude is calculated for each received symbol.

10. The method of claim 1, wherein the modulated test signals of a plurality of the antenna channels are produced simultaneously.

11. The method of claim 1, wherein the modulated test signals of the antenna channels are produced sequentially.

12. The method of claim 1, wherein a first of the antenna channels is designated as a reference channel, and wherein: i) the amplitude and phase of the test signal provided to the reference channel are varied, and the received test signal is processed to determine amplitude and phase errors associated with the reference channel, and then ii) the amplitude and phase of the test signal provided to one or more of the remaining antenna channels are varied, and the received test signal is processed to determine amplitude and phase errors, relative to the amplitude and phase errors associated with the reference channel, associated with the one or more remaining antenna channels.

13. The method of claim 1, wherein the processing the received signal includes: isolating residual amplitude modulation effects resultant from phase variations imparted by the phase adjustors, and residual frequency modulation effects resultant from amplitude variations imparted by the amplitude adjustors.

14. The method of claim 1, further comprising: for each of the antenna channels, applying a spreading code to the modulated test signal, wherein the spreading codes are mutually orthogonal.

15. A device comprising:

a plurality of antenna channels, each antenna channel including an amplitude adjustor and a phase adjustor associated with at least one antenna element;

a transceiver unit for providing a test signal to the antenna channels via a test signal line and for receiving a received test signal from the antenna channels; and

a processing unit associated with the antenna channels and the transceiver configured to:

for each of the antenna channels, modulate the test signal to produce a modulated test signal, wherein modulating the test signal colors the test signal, and wherein the processing unit modulates the test signal by:

i) controlling the amplitude adjustor of the antenna channel to vary a current amplitude of the test signal between a plurality of amplitude states, and

ii) controlling the phase adjustor of the antenna channel to vary a current phase of the test signal between a plurality of phase states,

wherein the received test signal received by the transceiver unit from each of the antenna channels includes at least the modulated test signal and an unmodulated leaked version of the test signal,

and wherein the processing unit is further configured to:

process the received test signals to determine amplitude and phase errors in the received test signals including errors associated with: i) the modulated test signals associated with the antenna channels, and ii) errors imparted by the unmodulated leaked version of the test signal.

16. The device of claim 15, wherein the device is configured to operate in a first mode and a second mode,

wherein when the device operates in the first mode: the processing unit controls the amplitude and phase adjustors, for each of the antenna channels, to vary the current amplitude and phase of the test signal to produce the modulated test signal associated with each of the antenna channels, and processes the received test signal to determine amplitude and phase errors in the modulated test signal associated with each of the antenna channels, and

wherein when the device operates in the second mode: the transceiver provides a radio frequency (RF) signal to the antenna channels for transmission by the antenna elements or receives an RF signal via the antenna elements, and wherein the processing unit is configured to actuate the amplitude adjustor and the phase adjustor of each antenna channel to adjust a current amplitude and a current phase of the RF signal according to an appropriate one of the amplitude states and an appropriate one of the phase states.

17. The device of claim 15, wherein the device is configured in a configuration selected from a group consisting of: a receiver only for receiving radio frequency signals, as a transmitter only for transmitting radio frequency signals, and as a transceiver for transmitting and receiving radio frequency signals.

18. The device of claim 15, wherein a plurality of transmit paths are provided from the test signal line to output of the antenna channels, and wherein each of the transmit paths is tested separately by passing the test signal to one transmit path at a time.

19. The device of claim 15, wherein a plurality of transmit paths are provided from the test signal line to output of the antenna channels, and wherein the plurality of transmit paths are tested simultaneously by passing the test signal to the plurality of transmit paths.

20. A method comprising:

providing a test signal to each of a plurality of antenna channels via a test signal line, each antenna channel including an amplitude adjustor and a phase adjustor associated with at least one antenna element;

for each of the antenna channels, modulating the test signal provided to the antenna channel to produce a modulated test signal by: i) controlling the amplitude adjustor of the antenna channel to vary a current amplitude of the test signal between a plurality of amplitude states, and ii) controlling the phase adjustor of the antenna channel to vary a current phase of the test signal between a plurality of phase states; and

processing a received test signal received from the antenna channels to determine amplitude and phase errors associated with the modulated test signals associated with the antenna channels,

wherein a first of the antenna channels is designated as a reference channel, and wherein: i) the amplitude and phase of the test signal provided to the reference channel are varied, and the received test signal is processed to determine amplitude and phase errors associated with the reference channel, and then ii) the amplitude and phase of the test signal provided to one or more of the remaining antenna channels are varied, and the received test signal is processed to determine amplitude and phase errors, relative to the amplitude and phase errors associated with the reference channel, associated with the one or more remaining antenna channels.

21. A device comprising:

a plurality of antenna channels, each antenna channel including an amplitude adjustor and a phase adjustor associated with at least one antenna element;

a transceiver unit for providing a test signal to the antenna channels via a test signal line and for receiving a received test signal from the antenna channels; and

a processing unit associated with the antenna channels and the transceiver configured to:

for each antenna channel: control the amplitude adjustor of the antenna channel to vary a current amplitude of the test signal between a plurality of amplitude states, and control the phase adjustor of the antenna channel to vary a current phase of the test signal between a plurality of phase states, to produce a modulated test signal, and

process the received test signal to determine amplitude and phase errors associated with the modulated test signals associated with the antenna channels,

wherein a first of the antenna channels is designated as a reference channel, and wherein: i) the amplitude and phase of the test signal provided to the reference channel are varied, and the processing unit processes the received test signal to determine amplitude and phase errors associated with the reference channel, and then ii) the amplitude and phase of the test signal provided to one or more of the remaining antenna channels are varied, and the processing unit processes the received test signal to determine amplitude and phase errors, relative to the amplitude and phase errors associated with the reference channel, associated with the one or more remaining antenna channels.