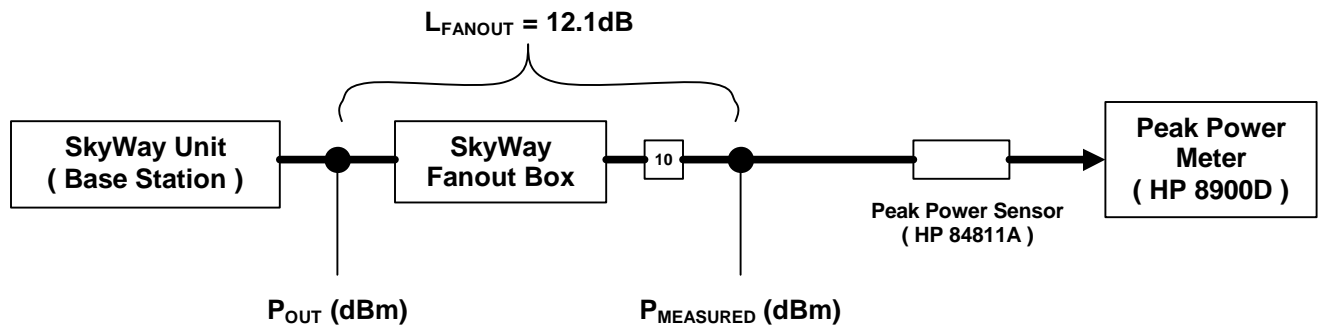The SkyWay Unit will only transmit when attached to a SkyWay specific antenna. This antenna will be modified to present a gain-dependent DC resistance at its input. In order to conduct output power measurements, a test device referred to as a fanout box is connected directly to the antenna port of the device under test. This box can mimic all the antennas implemented with SkyWay, with the user selecting the desired antenna gain through a rotary switch. The fanout box has an RF feed through with minimal loss, allowing the attachment of a measuring device.

Due to the limited input range of the Peak Power Sensor, a 10dB attenuator is installed between it and the fanout box. The loss of the fanout box, 10dB attenuator, and all connectors are measured at the frequency of interest. For our test, this loss was 12.1dB (L_{FANOUT}).

The SkyWay Unit under test was setup via software to act as a base station. The unit was running RF-Data Link Control diagnostic software in continuous single frame transmit mode. This resulted in a continuous output signal for measurement.

$L_{FANOUT} = 12.1dB$

| SkyWay Unit (Base Station) | SkyWay Fanout Box | 10 | | Peak Power Sensor (HP 84811A) | Peak Power Meter (HP 8900D) |

P_{OUT} (dBm) $P_{MEASURED}$ (dBm)

The power as referred to the Antenna port (P_{OUT}) was calculated with the following equation:

$$P_{OUT} = P_{MEASURED} + L_{FANOUT}$$
$$= P_{MEASURED} + 12.1dB$$

By changing the gain setting of the fanout box, the corresponding output power for each antenna (G_{ANT}) is recorded. Under normal operation, the SkyWay unit is attached to the antenna through a 8-foot length of LMR-400. Including end connector losses, this cable had a measured loss (L_{CABLE}) of 1.1dB. The EIRP for the system is calculated with the following equation:

$$EIRP = P_{OUT} - L_{CABLE} + G_{ANT}$$