EXHIBIT 10

GENERAL MEASUREMENT INFORMATION

This exhibit describes the equipment used to perform the measurements required to obtain a Certification grant of equipment authorization, presents a general measurement set-up, and discusses the amplitude calibration performed to ensure accurate results, for measurements of RF output power, occupied bandwidth, conducted spurious emissions, and frequency stability. A description of the measurement of field strength of radiated emissions and equipment used is detailed in the test report attached as part of Exhibit 14.

The primary equipment used for all but measurements of field strength of radiated emissions is described in the following list, while a tabular summary of all equipment, including serial numbers and calibration dates, is presented in Table E10.1:

- HP437B Average Power Meter with HP8485D Power Sensor (for calibrations)
- HP83752A Signal Generator (for calibrations)
- HP8563E Spectrum Analyzer, with High Stability Time Base and Frequency Counter Options
- Racal 6103 Digital Radio Test Set (with GSM-900 and PCS-1900 options)
- Personal Computer (Dell) to acquire (using HP VEE), process and present results

Table E10.1. Test equipment used to perform required measurements.

Make	Model	Serial Number	Asset	Last Cal	Cal Due
HP	437B	3125U23748	A01583	06APR98	06APR99
HP	8563E	3626A05388	A01569	07APR98	07APR99
HP	83752A	3610A00851	A01573	29APR98	29APR99
HP	8753D	3410A04411	A00247	13APR98	13APR99
FLUKE	79	61200710	A00160	01APR98	01APR99
FLUKE	DAU	6623500	A01689	16APR98	16APR99
RACAL	6103	2212	A01653	29SEP98	29SEP99
HANSE	TVC9	NA	A01334	NA	NA
HANSE	TEMP	NA	A01333	NA	NA
NARDA	4456-2	2-WAY DIVIDER	NA	NA	NA
MINICKTS	ZAPDJ-2	2-WAY SPLITTER	NA	NA	NA
INMET	18S100W-20	20 dB ATTEN	NA	NA	NA
ARTSYN	NFN40-7612	AC/DC SUPPLY	NA	NA	NA
POWERSTAT	L2M226C	VARIAC	A09315	NA	NA
LAMBDA	LLS7040	DC SUPPLY	A00167	NA	NA

General Measurement Set-up

A composite equipment set-up used during measurements of RF output power, occupied bandwidth, conducted spurious emissions (and emissions bandwidth), and frequency stability is presented as Figure E10.1. The RF port of the DTSA is connected, through a power splitter or divider, to both the HP8563E Spectrum Analyzer and Racal 6103 Digital Radio Test Set. The 20 dB pad prevents the RF output from the DTSA from overloading the front-end of the HP8563E Spectrum Analyzer. Because the RF output level of the Racal 6103 was set at -85 dBm, isolation between the Racal and HP8563E was not necessary to prevent RF from the Racal from corrupting the measurements of DTSA conducted spurious emissions.

Measurements of RF output power, occupied and emissions bandwidth, and conducted emissions were performed using the HP8563E. The Racal 6103 was used to configure and control the DTSA for all measurements (to select transmit channel, RF output power level, operating modes, and so forth), and to determine DTSA carrier frequency during frequency stability measurements. Also during frequency stability measurements, the DTSA was powered both by an Artesyn AC-to-DC power supply, which in turn was powered by a Powerstat variac, for variations in AC input, and a Lambda DC supply (not shown), for variations in DC input to the DTSA.

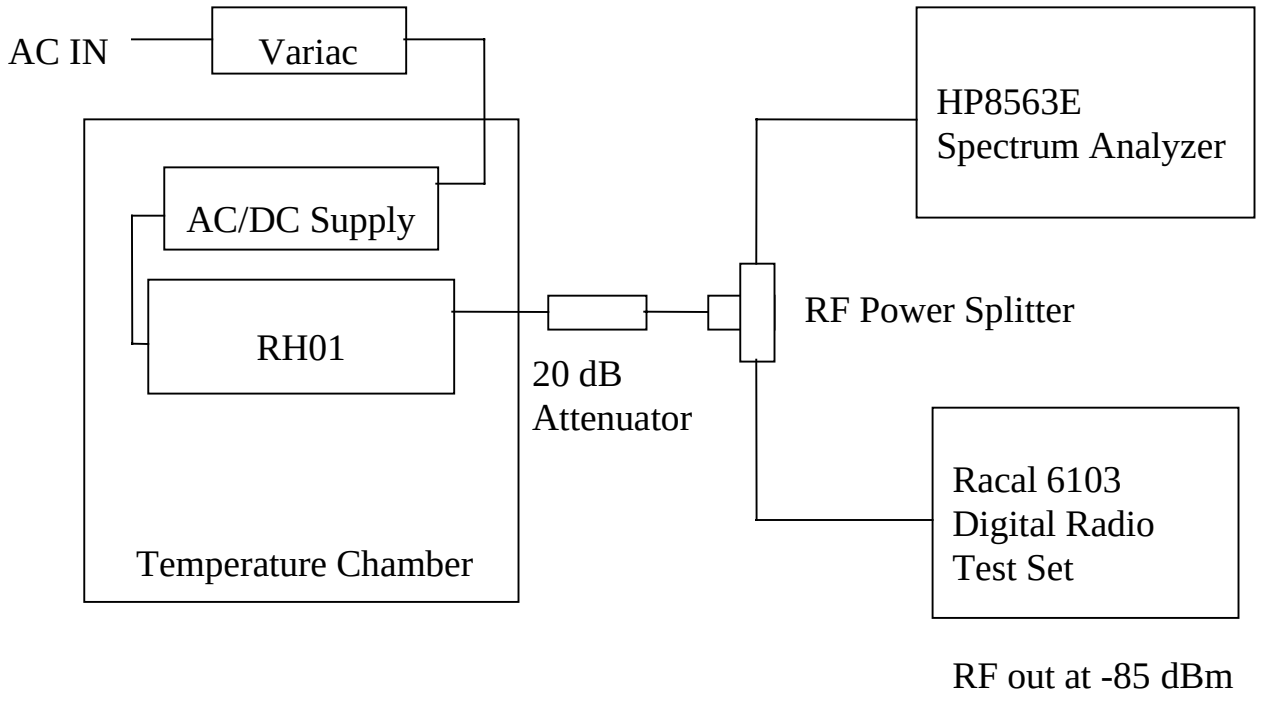

Figure E10.1. General Measurement Set-up (for all but radiated spurious emissions).

Amplitude Calibration of the Measurement System

Because measurements of peak output power (§ 2.1046) and conducted spurious emissions (§ 2.1051) are made absolutely, characterization of diagnostic system signal path (cables, RF power splitter, and attenuator) loss between the RF output connector of the DTSA and the input port of the HP8563E Spectrum Analyzer is necessary prior to making these measurements. For output power measurements, this loss was characterized at the center frequency of each channel at which these measurements were made. In the case of conducted spurious emissions, losses were measured at the center of each span throughout the frequency ranges given in Table E10.2. Separate calibrations were performed for correcting measurements made beyond the lower and upper edge of each of the six PCS license blocks (A – F). Measured path loss data was stored and used to correct all subsequent output power and conducted spurious emissions measurements.

Table E10.2. Diagnostic system loss measurements—frequency ranges and spans.

Frequency Range	Span
10 MHz – 1810 MHz	300 MHz
1810 MHz – 5 MHz below license lower edge	35 to 95 MHz (block dependent)
5 MHz below to 5 MHz beyond license edge	1 MHz
5 MHz beyond license edge – 2000 MHz	130 – 85 MHz (block dependent)
2000 MHz – 20 GHz	300 MHz