EXHIBIT 15

FREQUENCY STABILITY MEASUREMENTS

Measurements of DTSA frequency stability were performed in accordance with the requirements of §§ 24.235 and 2.1055; procedures and results are described in this exhibit.

Requirements

In general, as required by § 24.235, the frequency stability of broadband PCS equipment "shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block." However, as a GSM-compliant terminal, the stability of the DTSA carrier frequency is accurate to within 0.1 ppm of the received frequency from the base station (J-STD007, Air Interface: Volume 1, Section 7.4.1; and GSM 05.10, "Digital cellular telecommunications system (Phase 2); Radio subsystem synchronization").

Measurements of transmitter frequency stability are described in § 2.1055 and are necessary to obtain a Certification grant of equipment authorization. As required by § 2.1055, these measurements are to be made as follows:

1. Over variations of ambient temperature from -30° to +50° centigrade at intervals of 10° centigrade.
2. Over variations of primary supply voltage from 85 to 115 percent of the nominal line voltage of 120 VAC (variations from 102 VAC to 138 VAC).

In addition, because the DTSA operates from a DC input voltage over a +7 to +14 VDC range, measurements of transmitter frequency stability were also made as follows (as requested by Greg Czumak of the FCC OET):

3. Over variations of DC input voltage from 5.3 VDC to 16.0 VDC (approximately +/- 15% beyond the specified DC input voltage range of +7 to +14 VDC).

Measurement Procedure

Measurements of DTSA frequency stability were performed using the Racal 6103 Digital Radio Test Set. Variation in ambient temperature were accomplished using a Hanse HALT/HASS environmental test chamber; variations in AC and DC input voltages made use of an AC variac powering an Artesyn AC/DC supply (co-located with the DTSA in the Hanse chamber) and a DC power supply, respectively. Specific procedures for both methods of powering the unit were as follows:

DTSA Powered by Artesyn NFN40-7612 AC/DC Power Supply (12 VDC Output)

1. Configure the DTSA:
   - Location — Hanse environmental test chamber (unit and supply)
   - Input voltage — AC input to Artesyn supply powering unit varied during test (Artesyn output = 12.0 VDC)
   - Mode — Speech call selected using the Racal 6103
   - RF Output Power — Maximum level (step 0, 30 dBm nominal) selected using the Racal 6103
   - Frequency — Channel 661 (1880.0 MHz) selected using Racal 6103
2. Set the Hanse Environmental Chamber to -30° C. Soak the DTSA and Artesyn AC/DC supply for ten minutes (powered off) to allow unit to reach a steady state temperature (as measured on the DTSA PCB itself).
3. Set AC line voltage to 120 VAC; this is the input to the Artesyn AC/DC supply which powers the unit; DC input to unit = 12.0 VDC (nominal).
4. Measure and record carrier frequency ten times in succession using the Racal 6103.
5. Set AC line voltage to 102 VAC (85% of nominal 120 VAC line voltage); DC input to unit = 12.0 VDC (nominal).
6. Measure and record carrier frequency ten times in succession using the Racal 6103.
7. Set AC line voltage to 138 VAC (115% of nominal 120 VAC line voltage); DC input to unit = 12.0 VDC (nominal).
8. Measure and record carrier frequency ten times in succession using the Racal 6103.
9. Increase chamber temperature by 10° C. Soak unit for ten minutes to allow unit to reach steady state at new temperature.
10. Repeat steps 3 through 8 until final measurements made at +50 ° C.

DTSA Powered by Variable Output DC Supply

1. Configure the DTSA:
   - Location — Hanse environmental test chamber (unit only)
   - Input voltage — DC input to unit varied during test (5.3 to 16 VDC)
   - Mode — Speech call selected using the Racal 6103
   - RF Output Power — Maximum level (step 0, 30 dBm nominal) selected using the Racal 6103
   - Frequency — Channel 661 (1880.0 MHz) selected using Racal 6103
2. Set the Hanse Environmental Chamber to -30° C. Soak the DTSA for ten minutes (powered off) to allow unit to reach a steady state temperature (as measured on the DTSA PCB itself).
3. Set DC input to unit to 5.3 VDC.
4. Measure and record carrier frequency ten times in succession using the Racal 6103.
11. Set DC input to unit to 16.0 VDC.
12. Measure and record carrier frequency ten times in succession using the Racal 6103.
13. Increase chamber temperature by 10° C. Soak unit for ten minutes to allow unit to reach steady state at new temperature.
14. Repeat steps 3 through 8 until final measurements made at +50 ° C.

Measurement Results

Table E15.1 summarizes the DTSA frequency stability measurements taken in accordance with the preceding procedures. The Maximum Frequency Deviation columns (in Hertz and ppm) show the largest frequency deviations from the desired carrier frequency over the ten measurements made at each combination of temperature, line and DC input voltage. Plots of these results (maximum deviation from desired carrier in Hertz) are presented in Figure E15.1. In all cases, the frequency stability of the DTSA over variations in ambient temperature, and AC (to DC supply) and DC input voltages are sufficient to ensure that the fundamental emission will stay within its authorized frequency block.

Table E15.1. Frequency stability measurement results.

Ambient Temperature (degrees C)	Line (AC) or DC input Voltage	Maximum Frequency Deviation (Hz)	Maximum Frequency Deviation (ppm)
50°	102VAC	-68.5	-0.036
	120VAC	-95.4	-0.051
	138VAC	-74.2	-0.039
	5.3VDC	-131.8	-0.070
	16VDC	-89.1	-0.047
40°	102VAC	-93.8	-0.050
	120VAC	-82.2	-0.044
	138VAC	-87.6	-0.047
	5.3VDC	-160.1	-0.085
	16VDC	-114.9	-0.061
30°	102VAC	-94.9	-0.050
	120VAC	-96.3	-0.051
	138VAC	-93.1	-0.050
	5.3VDC	-173.3	-0.092
	16VDC	-94.8	-0.050
20°	102VAC	-97.0	-0.052
	120VAC	-92.8	-0.049
	138VAC	-77.5	-0.041
	5.3VDC	-171.6	-0.091
	16VDC	-108.3	-0.058
10°	102VAC	-93.0	-0.049
	120VAC	-105.3	-0.056
	138VAC	-76.9	-0.041
	5.3VDC	-170.0	-0.090
	16VDC	-88.8	-0.047

0°	102VAC	-80.5	-0.043
	120VAC	-118.3	-0.063
	138VAC	-105.6	-0.056
	5.3VDC	-190.5	-0.101
	16VDC	-116.1	-0.062
-10°	102VAC	-81.2	-0.043
	120VAC	-81.2	-0.043
	138VAC	-116.0	-0.062
	5.3VDC	-197.6	-0.105
	16VDC	-112.0	-0.060
-20°	102VAC	-141.7	-0.075
	120VAC	-127.3	-0.068
	138VAC	-131.8	-0.070
	5.3VDC	-201.2	-0.107
	16VDC	-133.2	-0.071
-30°	102VAC	-131.8	-0.070
	120VAC	-122.3	-0.065
	138VAC	-88.6	-0.047
	5.3VDC	-426.7	-0.227
	16VDC	-111.5	-0.059

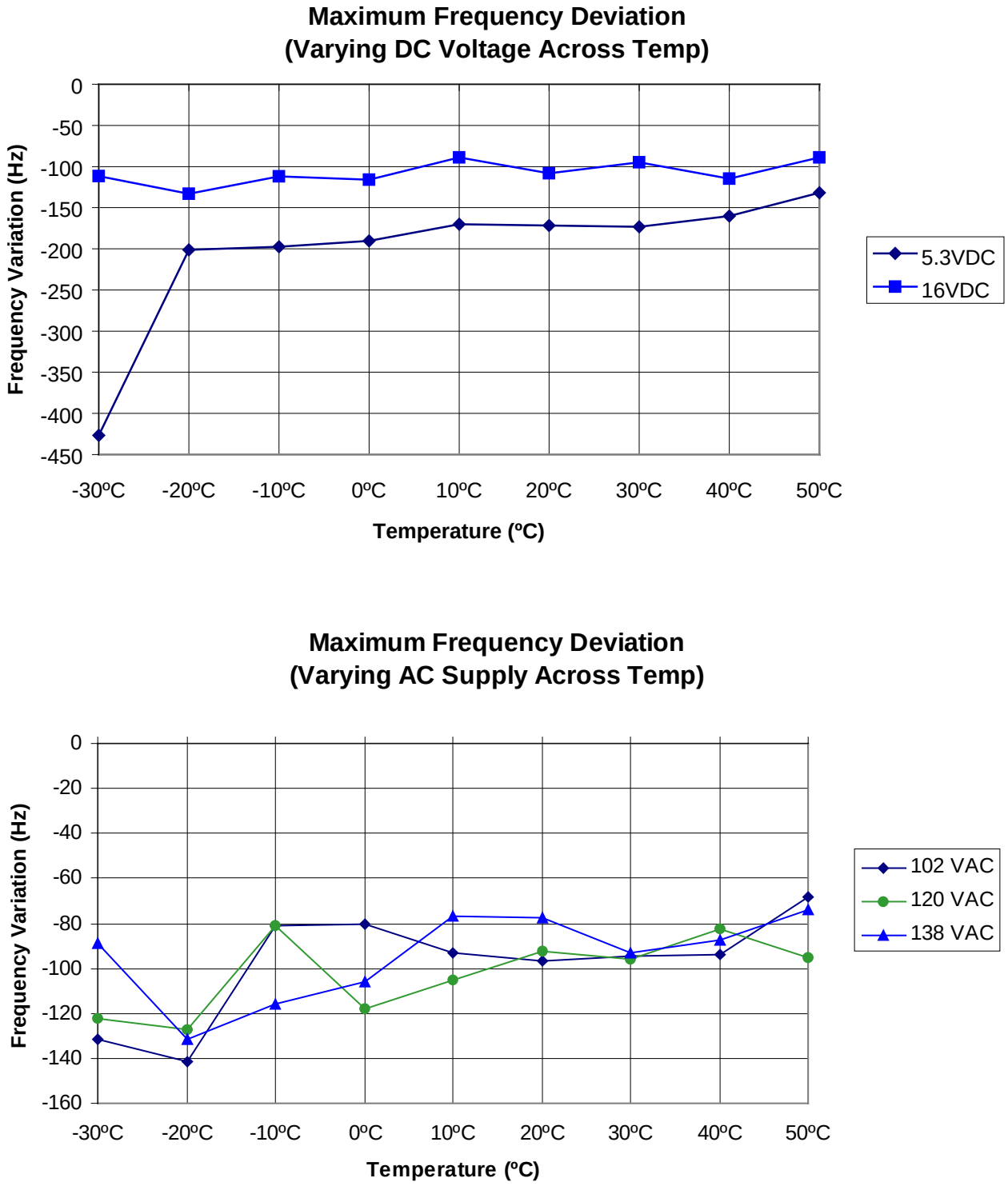

Figure E15.1. Graphical representation of Frequency Stability Results.