8.5 System Electrical Signals

The system's output signal accuracy and stability depend on the online GTF/DTF module. Two versions of the GTF/DTF module are available. One GTF/DTF module is configured with a rubidium oscillator; the other uses an oven-controlled crystal oscillator. The online module's oscillator is the frequency reference for all of the system's frequency and timing output signals. The major difference between the performance of the rubidium and crystal oscillator equipped GTF/DTF modules is the frequency and timing error accumulated while the system operates in the *Coasting* (*Holdover*) mode. During Coasting, the oscillator is not being disciplined by the GPS 1 PPS reference signal, but the oscillator frequency is adjusted for temperature and aging-induced changes, using data learned during factory tests and during operation while locked to GPS.

Note: Time from reference signal (either GPS lock or external input) to time lock or frequency lock (Ready indicator illuminates) is typically 1½ to 2 hours.

Unless otherwise stated, the specifications apply when the system is locked to GPS, is operating in the *Known* mode, the antenna's geodetic position is known within 25 meters, the antenna is in a fixed location, and the internal oscillator has been disciplined for at least 2 days.

8.5.1 System 10 MHz

The online GTF or DTF module generates the system 10 MHz. The signal is made available via the system's bus to other plug-in option modules. For test purposes, a buffered 10 MHz output is provided on the front panel of the GTF module.

Number of Outputs 1
Connector Type ..... SMA female
Frequency ..... 10 MHz
Wave Shape ..... Square
Duty Cycle ..... 50 % (nominal)
Output Drive
High Level ..... ≥ +2.2 V into 50 Ω load (≥ 3.0 V open circuit)
Low Level ..... ≤ +0.5 V into 50 Ω load
Accuracy (24 hour average)
Time Locked ..... < 1E-12
Holdover (Coasting) (After 24 hours)
Rubidium oscillator GTF module online ..... < 5E-11
Crystal oscillator GTF module online ..... < 1E-10

Allan Variance	Rubidium GTF	Crystal GTF
1 Sec	< 3E-11	< 1E-11
10 Sec	< 1E-11	< 1E-11
100 Sec	< 3E-12	< 1E-10

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