Products: IFR NAV-750B Nav/Com Signal Generator

SPECIFICATIONS

RF POWER OUT

- Accuracy:
  - ±1.5 dB from -6 dBm to -50 dBm
  - ±2.5 dB from -50 dBm to -120 dBm
- Leakage (With all unused outputs properly terminated): Less than 3~V at 334.700 MHz and 1µV at 108.000 MHz induced in a two-turn one inch diameter (#20 gauge wire) loop, measured one inch away from any surface and into a 50 ohm receiver.

INTERNAL TEMPERATURE CONTROLLED CRYSTAL OSCILLATOR (TCXO)

- Accuracy: Better than ±1 ppm at 15° to 35° C
- After calibration at 25° C: Better than ±3 ppm at 10° to 45° C
- Aging: Less than ±2 ppm/year

CLOCK OSCILLATOR (2.16 MHz)

- Accuracy: ±0.02%

SPECTRAL PURITY

NOTE: All level observed with the NAV-750 output attenuator set to -10 dBm. However, other level may be used for convenience to meet test equipment requirements.

- Harmonics: 30 dB below carrier, maximum, from 108.000 through 335.000 MHz and 20 dB below carrier, maximum, from 70.000 through 79.000 MHz.
- Close-In Noise (Single-sideband Noise):
  - At 108.000 MHz: -99 dBc/Hz in a 1 Hz bandwidth at ±t20 kHz.
  - At 334.700 MHz: -93 dBc/Hz in a 1 Hz bandwidth at ±t20 kHz.
- Harmonic Spurious Noise

NOTE: The NAV-750 phase-lock control frequency is 12.5 kHz

- At 108.00 MHz: 68 dB below carrier at ±12.5 kHz, and 71 dB below carrier at ±t25.0 kHz in 300 Hz resolution bandwidth.
- At 334.700 MHz: 63 dB below carrier at ±2.5 kHz, and 74 dB below carrier at ±25.0 kHz in 300 Hz resolution bandwidth.
- Broadband Noise
  - At 108.000 MHz: 80 dB below carrier at ±100 kHz in 1 kHz resolution bandwidth.
  - At 334.700 MHz: 80 dB below carrier at ±100 kHz in 1 kHz resolution bandwidth.
- Residual FM: (Post-Detection noise bandwidth, 20 Hz to 15 kHz)
  - At 108 000 MHz: ±20 Hz p-p, or less
  - At 334.700 MHz: ±400 Hz p-p, or less

MODULATION

- AM Depth
  - G/S: 0% to 93%
  - VOR, LOC, COMM, & MKR: 0% to 98%
- Accuracy: As listed below, with front panel Modulation controls in CAL position.

NOTE

* Indicates 0-100 meter scale is selected All other on 0-30% Modulation Scale. All values are for single-tone of the indicated frequency. Marker beacon tone maximum modulation depth capability is at least 60% from 70-74 MHz.

TONES

- Distortion (Measured at Sum of Tone Jack or individual Tone Jacks)
  - 9960 Hz - 1.5% Max
  - 30 Hz Var - 0.5% Max
  - 30 Hz Ref - 0.5% Max
  - 1020 Hz - 0.5% Max
  - 90 Hz - 0.4% Max
  - 50 Hz - 0.4% Max
  - 400 Hz - 0.7% Max
  - 1300 Hz - 0.7% Max
  - 3000 Hz - 0.7% Max
- Frequencies:
  - 90 Hz / 150 Hz - These tones are derived from the 2.16 MHz crystal oscillator and therefore reflect the accuracy of the oscillator (±0.02%).
    - 30 Hz Ref
    - 30 Hz Var.
  - 9960 Hz - Phase-locked to 30 Hz Ref. tone which is derived from the 2.16 MHz crystal oscillator.
  - 1020 Hz - ±0.5%
  - 400 Hz - ±0.7%
  - 1300 Hz - ±0.7%
  - 3000 Hz - ±0.7%

NOTE: Tone distortion should increase no more than 0.2% at the DEMOD jack.

DDM ACCURACY (Theoretical – not measured)

- COMPOSITE AUDIO ERROR = Centering Error + .02% DDM Setting (.00025 DDM)
- PERCENTAGE OF MODULATION ERROR

$$\text{DDM setting} = \frac{\left[\text{measured, single-tone, \% of modulation at}\right] \times \left[\text{desired \% of modulation at centering}\right]}{\left[\text{desired \% of modulation at centering}\right]}$$

- TOTAL ERROR = Composite Audio Error + Percentage of Modulation Error
*desired % of modulation at centering for LOCALIZER: 20%
*desired % of modulation at centering for Glide Slope: 40%

VOR SECTION

- Bearing Selection: Twelve preset bearings each 30° Additional +100 and -100 steps from any bearing selected. Bearing control provides continuous bearing adjustment in 0.01° or 0.05° steps.
- Bearing Accuracy:±0.05° on all bearings
- Bearing Monitor: By independent counter; displays bearings to 0.01 resolution. Bearing check at 90° and 270° when selected on MOD Meter.
- VOR Tones: 30 Hz REF and 30 Hz VAR tones derived from 2.16 MHz crystal oscillator. 9960 Hz is frequency locked to the 2.16 MHz crystal oscillator.
- Ident Tone: 1020 Hz tone may be added from 0 to 60% mod.

LOC SECTION

- Deviation: ±0.046 DDM, ±0.093 DDM, ±0.155 DDM, ±0.200 DDM, and continuously adjustable ±0.4 DDM. One tone may be deleted while the other is at 20%
- Centering Accuracy: ±0.0001 DDM (±0.85µA)
- Tones: 90 Hz and 150 Hz tones phase-locked to ±0.1° or phase variable at five time the angle selected by the VOR bearing selector. 1020 Hz tone may be added.

GS SECTION

- Deviation: ±0.045 DDM, ±0.091 DDM, ±0.175 DDM, ±0.400 DDM, and continuously adjustable ±0.8 DDM. One tone may be deleted while the other is at 40%
- Centering Accuracy: ±0.001 DDM (±1µA)

Tones: Same as LOC

COMM SECTION

- Modulation: 1020, 400, 1300, 3000 Hz tones 0-60% AM for audio tests. External modulation may also be added.

MARKER BEACON SECTION

- Tones: 1020, 400, 1300, and 3000 Hz
- Modulation: Selectable at 95 ~3% Modulation in CAL position. (Variable 0-98% in UNCAL positions).

RF GENERATOR

- Frequency Range: 70 to 79.9 MHz, 108 to 156 MHz in 25 kHz increments and 329 to 335 MHz.
- Frequency Selection: Manually by thumbwheel switch. Automatically at a variable rate in 25, 50 100, or 200 kHz increments, up in frequency only. Auto channeling stops at 157.950 and 335.975 MHz. External channeling is available via ext. channeling input at rear panel.

- Variable Frequency: 50 kHz minimum at 108 to 156 MHz and ±150 kHz minimum from 329 to 335 MHz. Generator remains phase locked at all fixed and variable frequencies.
- Frequency Accuracy: Controlled by oven crystal to 0.0001%
- Frequency Monitor: By independent counter to 1 kHz or 0.1 kHz resolution. Counter time base: ±0.0001%.
- Remote Function: Frequency in use fed to rear panel as 2 out of 5 channeling and parallel BCD. Remote channeling follows manual or auto selection.
- Modulation Selection: Automatic by frequency selected. VCR mod applied if on any VCR freq. LOC mod applied if on any LOC freq. G/S mod applied if on any LOC freq and LOC/GS switch in GS position or GS freq is selected. Tone frequency selectable for MARKER BEACON operation is 1020, Hz unless 400, 1300, 3000 is selected. Comm Mod is 1020 Hz unless 400, 1300, 3000 is selected.

EXTERNAL MODULATION - May be added to any signal through rear panel jack. (J18) When not used, J-18 must be terminated with 100 ohms or less.

- Impedance (J18): 1K ohm Nominal
- Sensitivity: 9.1V p-p (±0.6V) =90% (MASTER MOD in Cal position)

DEMOD OUTPUT - For any signal at a rear panel jack (J23).

- Impedance (J23): Minimum Resistance: 1K ohms:
- DC Voltage: 3.75V (±0.3V)
- AC Voltage: 2.72V (±0.2v) = 100% Modulation (±0.2V due to difference in sets)

REAR PANEL CONNECTORS

- External Modulation Input
- Composite Tones output
- VOR 30 Hz VAR Tone output
- VOR 9960 Hz FM Tone output
- 1020 Hz Tone output
- VOR 30 Hz REF Tone output
- 150 Hz Tone output
- 90 Hz Tone output
- RF Demod output
- AC Power Input (See power requirements next page)
- External Clock Input
- Remote Channeling Input
- Remote Channeling output
- Remote Frequency output

POWER REQUIREMENTS: 105 to 120 VAC or 220 to 250 VAC, 50 to 400 Hz
(Cooling fan 50/60 Hz only. Optional, dc cooling fan available for 400 Hz operation)

POWER CONSUMPTION: 250 W Maximum 110 W Nominal

SIZE: 7.5" high by 16.75" wide by 18.375" deep.

WEIGHT: Approximately 45 pounds

Photo - IFR NAV-750B

Need Financing?

Manufacturer's List

Aero Express, Inc.
P. O. Box 1212, Lee's Summit, MO 64063
Tollfree: 800-580-2376 | Tel: 816-246-4500 | Fax: 816-246-1452
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