

INSTRUCTION MANUAL
FOR
2210 NAV-COMM RAMP TESTER

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I. PRODUCT DESCRIPTION

The TKM NC 2210 is a NAV-COMM Ramp Tester. It provides test signals for Localizer, Glide Slope, VOR, Marker Beacon and Comm. The signals may be radiated or connected directly to the unit under test. A demodulated signal is available for direct connection to some converters.

The unit has improvements over the NC 2200 which it replaces. The improvements include the following:

- Higher RF power
- Precise localizer and glide slope deflection
- Calibrated VOR bearings at 10 degree increments.
- Crystal controlled modulation frequencies
- Longer battery life
- Internal antenna with adjustable length
- Smaller size

A) SPECIFICATIONS

- LOCALIZER:** 108.1 MHz +/- .003%
 0 +/- 3 dbm at base of antenna.
 Deviation: Centered, +/- .047 DDM, +/- .094 DDM, +/- .15 DDM
 Tone delete: 90 and 150 Hz with undeleted tone at 20%.
- GLIDESLOPE:** 334.7 MHz +/- .003%
 -6 +/- 3 dbm at base of antenna.
 Deviation: Centered, +/- .094 DDM, +/- .188 DDM, +/- .30 DDM
 Tone delete: 90 and 150 Hz with undeleted tone at 40%
- ILS** Both the Localizer and Glide slope signals as above.
 Deviation: Both signals deviated simultaneously.
- VOR** 108.0 MHz +/- .003%
 0 +/- 3 dbm at base of antenna.
 Bearing: Selectable in 10 degree increments.
- MARKER:** 75.0 MHz +/- .003 %
 Modulation: 400, 1300, 3000, 1020 Hz @95% - CW or pulsed.
- COMM:** 118.0 MHz +/- .003%.
 Modulation: 400, 1300, 3000, 1020 Hz @ 30%.
 Transmitter test: -10 to + 10 dbm Go-Nogo. Phones to check modulation.
- SIZE:** 3.8 X 7.4 X 2.3 Inches
- WEIGHT:** 1.3 Lbs.
- POWER:** Internal Battery with over 2 Hours running time.

II. OPERATION

The NC2210 is operated with two selector switches. It also has three LED displays to indicate the selected operating conditions. The FUNCTION switch has 11 positions.

1. Power control: turn off power.
2. LOC: Selects 108.1 MHz RF. (CHANNEL displays 108.1)
3. GS: Selects 334.7 MHz RF. (CHANNEL displays 108.1 for the paired channel)
4. ILS: Selects both 108.1 MHz and 334.7 MHz. (CHANNEL displays 108.1)
5. VOR-0: Selects 108.0 MHz RF. (CHANNEL displays 108.0) Bearing is 0 nominal.
6. VOR-90: Selects 108.0 MHz RF (CHANNEL displays 108.0) Bearing is 90 nominal.
7. VOR-180: Selects 108.0 MHz RF (CHANNEL displays 108.0) Bearing is 180 nominal.
8. VOR-270: Selects 108.0 MHz RF (CHANNEL displays 108.0) Bearing is 270 nominal.
9. MB: Selects 75.0 MHz RF; (CHANNEL displays 75.0)
10. COMM: Selects 118.0 MHz RF. CHANNEL displays 118.0)
11. TX: Transmitter Test. (Channel displays No Power / / / /) (Power / / / /).

The MODULATION SELECT switch has 9 positions. The center position provides the nominal operating conditions.

For localizer, glide slope and ILS the "0" position provides balanced 90 and 150 modulation. "1" provides a .047 DDM for localizer and a .094 DDM for glide slope with 150 greater than 90. "-1" provides the reverse of the 90 and 150 levels. "2" provides .094 and .188 DDM with the 150 greater than 90 and "-2" provides the reverse of the 90 and 150 levels. "3" provides .150 and .300 DDM with the 150 greater than 90 and "-3" provides the reverse of the 90 and 150 levels. "4" provides 150 Hz at 20% for LOC and 40% for Glide Slope. "-4" provides 90 Hz and 20% for LOC and 40% for Glide Slope.

For VOR the selector switch provides -40 to +40 degree bearings in 10 degree steps referred to the nominal bearings selected by the FUNCTION switch.

For MB the selector switch provides 400,1300, 3000 and 1020 Hz CW modulation at 95%. Center position is OFF and negative number selection provides a pulsed modulation.

For COMM the selector switch provides the same signals as for MB but at 30% modulation.

For TX the display is deactivated.

POWER CONSIDERATIONS

The unit contains two five cell NiCad batteries which can power the unit for more than two hours. Even when the unit is operated with the charger activated the batteries will charge. Full battery charge can be obtained in six hours. The unit can be operated when any 12 volt external source such as a car battery is connected.

To indicate a low battery condition the MODULATION display will flash.

OUTPUT SIGNALS

The 2210 has four output signals: Radiated Signal, RF, DMD and PHN.

For the radiated signal, the antenna should be extended to its maximum length. The signal strength should be adequate to test at distances greater than 100 feet.

The RF output provides a sample of the radiated signal at approximately -20 dbm.