The NEW 8800S expands upon the unprecedented features of the 8800 Series with higher direct input power handling of 125 W; ensuring the 8800S is ready for any test environment.

With its hybrid portable design, the industry’s largest color touch-screen display, ruggedness, internal battery, power accuracy, advanced automated test and alignment, fast VSWR/Return Loss and Cable Fault measurements, the 8800S offers RF professionals a whole new experience in radio test.

**Features**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>13.50 in (W) x 11.54 in (L) x 5.75 in (D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display Size</td>
<td>30.5 cm (12 in)</td>
</tr>
<tr>
<td>Weight</td>
<td>7.71 kg (17 lbs) Base Unit</td>
</tr>
<tr>
<td>Internal Battery</td>
<td>2.5+ Hour at Full Backlight (Optional)</td>
</tr>
<tr>
<td>Rugged</td>
<td>30 G Shock, MIL-STD 28800F Class 3</td>
</tr>
<tr>
<td>Direct Input Power</td>
<td>50 W Continuous, 125 W Cyclical</td>
</tr>
<tr>
<td>In-Line Power Meter</td>
<td>500 W, 4% Accuracy</td>
</tr>
<tr>
<td>Record &amp; Playback</td>
<td>Digital Audio Quality</td>
</tr>
<tr>
<td>Quick Presets</td>
<td>Ultra-Fast Test Setup</td>
</tr>
<tr>
<td>Frequency Lists</td>
<td>Tx Frequency, Tx Level, Rx Frequency</td>
</tr>
<tr>
<td>&quot;Fast Stack&quot;</td>
<td>Instant Access to Multiple Meters</td>
</tr>
<tr>
<td>Tracking Generator</td>
<td>VSWR, Return Loss, Distance-to-Fault, Tuning Duplexers</td>
</tr>
<tr>
<td>LMR System Support</td>
<td>P25, P25 Phase II, DMR, NXDN(^\text{TM})</td>
</tr>
<tr>
<td></td>
<td>dPMR, ARIB T98, AM, FM</td>
</tr>
</tbody>
</table>

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**SPECIFICATIONS**

**RF GENERATOR**

**Port Input Protection**

<table>
<thead>
<tr>
<th>Port</th>
<th>Power Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEN Port</td>
<td>+20 dBm (Input Power Alarm Typical)</td>
</tr>
<tr>
<td>T/R Port</td>
<td>+52 dBm CW (Input Power Alarm Typical)</td>
</tr>
<tr>
<td>T/R Port</td>
<td>&gt;90°C (Temperature Alarm Typical)</td>
</tr>
</tbody>
</table>

**Frequency**

<table>
<thead>
<tr>
<th>Range</th>
<th>Accuracy</th>
<th>Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 MHz to 1000 MHz</td>
<td>Same as timebase</td>
<td>1 Hz</td>
</tr>
<tr>
<td>&lt;2 MHz to 100 kHz Usable Range</td>
<td>±2 dB; ±1.5 dB (Typ)</td>
<td>±3 dB (≤100 dBm)</td>
</tr>
<tr>
<td></td>
<td>±3 dB (≤110 dBm Hold Atten Mode)</td>
<td>1 dB</td>
</tr>
</tbody>
</table>

**Output Level**

<table>
<thead>
<tr>
<th>Port</th>
<th>Range</th>
<th>Accuracy</th>
<th>Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>T/R Port</td>
<td>-50 to -125 dBm</td>
<td>±2 dB; ±1.5 dB (Typ)</td>
<td>0.1 dB (0 to -6 dBm); HOLD ATTEN: ON</td>
</tr>
<tr>
<td>ANT Port</td>
<td>-30 to -90 dBm</td>
<td>±3 dB (&lt;100 dBm)</td>
<td></td>
</tr>
<tr>
<td>GEN Port</td>
<td>-5 to -65 dBm</td>
<td>±3 dB (&lt;110 dBm Hold Atten Mode)</td>
<td></td>
</tr>
</tbody>
</table>

**Port VSWR**

<table>
<thead>
<tr>
<th>Port</th>
<th>VSWR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANT Port</td>
<td>&lt;1.5:1 Typical</td>
</tr>
<tr>
<td>GEN Port</td>
<td>&lt;1.5:1 Typical</td>
</tr>
<tr>
<td>T/R Port</td>
<td>&lt;1.2:1</td>
</tr>
</tbody>
</table>

**SSB Phase Noise**

<table>
<thead>
<tr>
<th>Offset</th>
<th>Noise</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 kHz</td>
<td>-90 dBc/Hz</td>
</tr>
<tr>
<td>1 GHz</td>
<td>-95 dBc/Hz</td>
</tr>
</tbody>
</table>

**Spurious**

<table>
<thead>
<tr>
<th>Harmonics</th>
<th>Non-Harmonics</th>
</tr>
</thead>
<tbody>
<tr>
<td>-30 dBc</td>
<td>-50 dBc Typical</td>
</tr>
<tr>
<td>-40 dBc</td>
<td>-30 dBc Typical</td>
</tr>
<tr>
<td>(-20 kHz offset from carrier; 0 to 1 GHz)</td>
<td></td>
</tr>
</tbody>
</table>

**Residual FM**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Bandwidth</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;20 Hz</td>
<td>300 Hz to 3 kHz</td>
</tr>
<tr>
<td>&lt;4 Hz</td>
<td>Typical &lt;100 MHz</td>
</tr>
<tr>
<td>&lt;6 Hz</td>
<td>Typical &lt;800 MHz</td>
</tr>
<tr>
<td>&lt;11 Hz</td>
<td>Typical &gt;800 MHz</td>
</tr>
</tbody>
</table>

**Residual AM**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Bandwidth</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;0.5%</td>
<td>300 Hz to 3 kHz BW</td>
</tr>
</tbody>
</table>

---

**RF GENERATOR MODULATION**

**RF Generator Modulation Types**

<table>
<thead>
<tr>
<th>Group</th>
<th>Modulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analog</td>
<td>None, FM and AM</td>
</tr>
<tr>
<td>Digital</td>
<td>P25, DMR, dPMR, ARIB T98, NXDN</td>
</tr>
<tr>
<td>DTMF</td>
<td>None, FM and AM</td>
</tr>
<tr>
<td>DCS</td>
<td>None, FM and AM</td>
</tr>
<tr>
<td>Two-Tone Sequential</td>
<td>None, FM and AM</td>
</tr>
<tr>
<td>Tone Remote</td>
<td>None, FM and AM</td>
</tr>
<tr>
<td>Tone Sequential</td>
<td>None, FM and AM</td>
</tr>
</tbody>
</table>

**FM Modulation - Internal (GEN 1, GEN 2)**

**MODULATION FREQUENCY RANGE**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Range</th>
<th>Resolution</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Hz to 20 kHz</td>
<td>Off</td>
<td>±10%</td>
<td>±10% (2 kHz to 50 kHz deviation)</td>
</tr>
<tr>
<td>0 Hz to 100 kHz (GEN 1 and GEN 2 Selectable)</td>
<td>Off</td>
<td>±10%</td>
<td>±10% (2 kHz to 50 kHz deviation)</td>
</tr>
<tr>
<td>300 Hz - 3 kHz</td>
<td>±10%</td>
<td>±10% (2 kHz to 50 kHz deviation)</td>
<td></td>
</tr>
<tr>
<td>1 kHz to 3 kHz</td>
<td>±10%</td>
<td>±10% (2 kHz to 50 kHz deviation)</td>
<td></td>
</tr>
<tr>
<td>5 kHz to 10 kHz</td>
<td>±10%</td>
<td>±10% (2 kHz to 50 kHz deviation)</td>
<td></td>
</tr>
</tbody>
</table>

**FM Modulation - External (MIC, AUDIO IN)**

**MICROPHONE IN**

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Connector Pins</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternate MIC</td>
<td>Pin 2-OPEN, Pin 6-OPEN</td>
</tr>
<tr>
<td>Range 1: 2-15 mVrms (8 mVrms Typical)</td>
<td>Pin 2-OPEN, Pin 6-OPEN</td>
</tr>
<tr>
<td>Range 2: 35-350 mVrms (100 mVrms Typical)</td>
<td>Pin 2-OPEN, Pin 6-OPEN</td>
</tr>
<tr>
<td>Range 3: 3-32 mVrms (20 mVrms Typical)</td>
<td>Pin 2-OPEN, Pin 6-OPEN</td>
</tr>
</tbody>
</table>

**MIC Connector Pins**

<table>
<thead>
<tr>
<th>Frequency Range</th>
<th>MIC Level</th>
<th>MIC Modulation Accuracy</th>
<th>MIC Slope</th>
</tr>
</thead>
<tbody>
<tr>
<td>300 Hz to 3 kHz</td>
<td>Off</td>
<td>±20% (300 Hz to 1.2 kHz)</td>
<td>Positive voltage yields positive deviation</td>
</tr>
<tr>
<td>0 Hz to 80 kHz</td>
<td>Off</td>
<td>±30% (1.2 kHz)</td>
<td>Positive voltage yields positive deviation</td>
</tr>
</tbody>
</table>

**AUD IN**

<table>
<thead>
<tr>
<th>Input Range</th>
<th>Levels</th>
<th>Frequency Range</th>
<th>AM/PM Sensitivity</th>
<th>FM Frequency Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 V, 3 V</td>
<td>3 V Range: 150 ohms, 600 ohms, 1 K ohms, High Z</td>
<td>300 Hz to 5 kHz</td>
<td>3 V Range: 1 kHz to 35 mVrms Typical</td>
<td>3 V Range: 1 kHz to 350 mVrms Typical</td>
</tr>
<tr>
<td>30 V Range: High Z</td>
<td>30 V Range: 3 Vrms - 30 Vrms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 V Range: High Z</td>
<td>30 V Range: 3 Vrms - 30 Vrms</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

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### AM Modulation - Internal (GEN 1, GEN 2)

**MODULATION FREQUENCY RANGE**

<table>
<thead>
<tr>
<th>Range</th>
<th>0 Hz to 20 kHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>0.1 Hz</td>
</tr>
<tr>
<td>Accuracy</td>
<td>Timebase ±2 Hz</td>
</tr>
<tr>
<td>Range</td>
<td>Off, 0 to 100% (GEN1 and GEN2 Selectable)</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.1%</td>
</tr>
<tr>
<td>Total Harmonics Distortion</td>
<td>3% (20% to 90% mod, 1000 Hz rate, 300 Hz to 3 kHz BP filter)</td>
</tr>
<tr>
<td>Modulation Accuracy</td>
<td>10% setting, 150 Hz to 5 kHz rate, 10% to 90% modulation</td>
</tr>
</tbody>
</table>

### AM Modulation - External (MIC, AUDIO IN)

**MICROPHINE IN**

Alternate MIC Configurations

<table>
<thead>
<tr>
<th>Range 1</th>
<th>2-15 mVrms (8 mVrms Typical)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connectors</td>
<td>Pin 2-OPEN, Pin 6-GND</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Range 2</th>
<th>35-350 mVrms (100 mVrms Typical)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connectors</td>
<td>Pin 2-GND, Pin 6-OPEN</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Range 3</th>
<th>2-32 mVrms (20 mVrms Typical)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connectors</td>
<td>Pin 2-OPEN, Pin 6-GND</td>
</tr>
</tbody>
</table>

(Range 2 enables a nominal 3 Vdc bias voltage)

**MIC Frequency Range**

300 Hz to 3 kHz

**MIC Modulation**

0% to 80%

**MIC Modulation Accuracy**

±20% (300 Hz to 1.2 kHz), ±30% (>1.2 kHz)

**AUDIO IN**

<table>
<thead>
<tr>
<th>Range</th>
<th>3 V, 3 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 V Range</td>
<td>150 ohms, 600 ohms, 1 K ohms, High Z</td>
</tr>
<tr>
<td>30 V Range</td>
<td>High Z</td>
</tr>
</tbody>
</table>

### AUDIO OUTPUT LEVEL

- **Load Impedance**: 600 ohms
- **Audio Level Out**: 0 Vrms to 1.57 Vrms
- **Resolution**: 0.001 Vrms
- **Accuracy**: ±10% (0.45 Vrms, 30 Hz to 3 kHz)
- **Distortion**: <3% (1 kHz rate, sine 300 Hz to 3 kHz)

### RF RECEIVER

**ANT Port**

+20 dBm (Input Power Alarm Typical)

**T/R Port**

+52 dBm CW

**T/R Port**

+90°C (Temperature Alarm Typical)

**FREQUENCY**

<table>
<thead>
<tr>
<th>Range</th>
<th>2 MHz to 1000 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>2 MHz to 100 MHz (Usable Range)</td>
</tr>
<tr>
<td>Accuracy</td>
<td>Same as Timebase</td>
</tr>
<tr>
<td>Resolution</td>
<td>1 Hz</td>
</tr>
</tbody>
</table>

**Input Amplitude**

- **ANT**: -80 dBm, typical 10 dB SINAD (-110 dBm with preamp)
- **T/R**: -40 dBm, typical 10 dB SINAD

**Minimum Level Receiver Measurements**

- **ANT**: -60 dBm Preamp off, -80 dBm Preamp On, RF Error Meter
- **T/R**: -20 dBm Preamp Off, -40 dBm Preamp ON, RF Error Meter

**DEMOD Meters**

- **ANT**: Distortion, SINAD, Modulation, AF Counter
- **T/R**: Distortion, SINAD, Modulation, AF Counter

**Maximum Input Level Receiver Measurements**

- **ANT**: +10 dBm (Auto, Preamp off)
- **T/R**: +47 dBm CW, FM
- **+41 dBm AM**

**Receiver Demodulation Types**

- AM, FM, DMR, dPMR, ARIB T98, NXDN, P25

### AM Modulation - External (MIC, AUDIO IN)

**IF Bandwidth**

- **FM**: 5 kHz, 6.25 kHz, 8.33 kHz, 10 kHz, 12.5 kHz, 25 kHz, 30 kHz, 100 kHz, 300 kHz
- **AM**: 5 kHz, 6.25 kHz, 8.33 kHz, 10 kHz, 12.5 kHz, 25 kHz, 30 kHz

**Audio Filters Bandwidth**

- **FM**: C-WT BP, CCITT BP, NONE, 15 kHz LP, 300 Hz HP, 5 kHz LP, 5 kHz HP, 5 kHz to 5 kHz BP, 0.3 kHz to 20 kHz BP, 3 kHz LP
- **AM**: C-WT BP, CCITT BP, NONE, 15 kHz LP, 0.3 kHz LP, 0.3 kHz HP, 5 kHz LP, 300 Hz to 5 kHz BP, 0.3 kHz to 20 kHz BP, 3 kHz LP

**Audio Output, Level Sensitivity**

- **FM**: 3 Vrms/kHz Dev/IF BW (kHz, ±15%)
- **AM**: 7 mVrms/% AM, ±15%

**LO EMISSIONS**

<-50 dBc

**RF Frequency Error Meter**

<table>
<thead>
<tr>
<th>Units</th>
<th>Hz, PPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>±200 kHz, ±1000 PPM</td>
</tr>
<tr>
<td>Resolution</td>
<td>1 Hz</td>
</tr>
<tr>
<td>Accuracy</td>
<td>Timebase ±1 Hz</td>
</tr>
</tbody>
</table>

**RSSI (Receive Signal Strength Indicator)**

<table>
<thead>
<tr>
<th>RF Power Within Receiver IF Bandwidth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Units</td>
</tr>
<tr>
<td>Range</td>
</tr>
</tbody>
</table>

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### 8800S Digital Radio Test Set

| RF Level Range | T/R Port (preamp off): -50 dBm to +47 dBm  
|                | ANT Port (preamp off): -90 dBm to +10 dBm  
|                | ANT Port (preamp on): -10 dBm to -10 dBm  
| Resolution     | 0.01 dBm  
| Accuracy       | ±3 dB (1.5 Typical) Normalized  
| Ext Attenuation| -50 to +50 dB, 0.01 dB resolution  

#### RF Power Meter (Broadband RF Power Into T/R Port)

| Maximum Input Level | 50 Watts continuous, +25°C ± 10°C  
|                     | 125 Watts Cyclical (Max "ON" of 30 sec and Min "OFF" for 90 sec) for power levels >50 Watts  
| Alarms              | +49 dBm (Input RF Power Alarm)  
|                     | >=90°C (Temperature Alarm)  
| Meter Range         | +20 to +53 dBm  
| Meter Floor         | 0.10 W ± 0.2 dBm  
| Averaging Range     | 1 to 99  
| Display Units       | Watts, dBm  
| Resolution          | 0.01 W, 0.1 dBm  
| Accuracy            | 10% of reading, (6% Typical)  
| Ext Attenuation     | -50 to +50 dB, 0.01 dB resolution  

#### FM Deviation Meter

| Range             | 500 Hz to ±100 kHz  
| Resolution        | ±1%  
| Accuracy          | ±10% of reading, 500 Hz to 100 kHz Deviation  
|                   | ±5% off reading, 1 kHz to 10 kHz Deviation (150 Hz to 1 kHz rate)  
|                   | ±3% of reading, 1 kHz to 10 kHz Deviation (1 kHz to 1.5 kHz rate)  

#### AM Percent Meter

| Range             | 5% to 100%  
| Modes            | Peak+, Peak-, iPeak-Peak/2, RMS  
| Resolution        | 0.001%  
| Accuracy          | ±5% of reading, 1 kHz rate  
|                   | 30% to 90% modulation, 3 kHz LPF  

#### SINAD Meter

| Measurement Sources | AUD IN, Demod  
| FM: >2 kHz Deviation IF BW set appropriately for received modulation BW  
| AM: >25% Modulation (IF BW set appropriately for received modulation BW)  
| **AUDIO IN PORT**  
| Frequency Range     | 300 Hz to 10 kHz  
| Input Level         | 3 V (Audio Config setup): 0.9 Vp-p to 9 Vp-p  
|                     | 30 V (Audio Config setup): 9 Vp-p to 90 Vp-p  
| Audio Frequency Notch| 1 kHz  
| Reading Range       | 0 dB to 60 dB  
| Resolution          | 0.001 dB  
| Accuracy            | ±1.5 dB, reading >8 dB, <40 dB  

#### Distortion Meter

| Measurement Sources | AUD IN, Demod  
| FM: >2 kHz Deviation IF BW set appropriately for received modulation BW  
| AM: >25% Modulation (IF BW set appropriately for received modulation BW)  
| **AUDIO IN PORT**  
| Frequency Range     | 300 Hz to 10 kHz  
| Input Level         | 3 V (Audio Config setup): 0.9 Vp-p to 9 Vp-p  
|                     | 30 V (Audio Config setup): 9 Vp-p to 90 Vp-p  
| Audio Frequency Notch| 1 kHz  
| Reading Range       | 0% to 100%  
| Resolution          | 0.001%  
| Accuracy            | ±10% of reading >0.1% Distortion, >1% to <20%  

#### Audio Frequency Counter

| Measurement Sources | AUD IN, Demod  
| FM: 15 Hz to 20 kHz Rate (IF BW set appropriately for received modulation BW)  
| AM: 100 Hz to 10 kHz Rate (IF BW set appropriately for received modulation BW)  
| **AUDIO IN PORT**  
| Frequency Range     | 300 Hz to 20 kHz  
| Input Level         | 3 V (Audio Config setup): 28 mVp-p to 9 Vp-p  
|                     | 30 V (Audio Config setup): 280 mVp-p to 90 Vp-p  
| Frequency Range     | 15 Hz to 20 kHz  
| Resolution          | 0.1 Hz  
| Accuracy            | ±1 Hz  

#### Audio Frequency Level Meter

| Measurement Sources | AUD IN, Scope  
| **INPUT RANGE**  
| Aud In Range       | 3 V, 30 V  
| Scope Range        | 2 VDC, 40 VDC  
| Frequency Range    | 200 Hz to <5 kHz  
| **LOAD SELECTION**  
| Scope              | High Z  
| Aud In             | 3 V Input Range: High Z, 150 ohms, 600 ohms, 1 Kohm  
|                    | 30 V Input Range: 10 K  
| **INPUT LEVEL**  
| Aud In Port        | 3 V Range: 10 mVrms to 3.2 Vrms  
|                    | 30 V Range: 1 V rms to 30 Vrms  
| Scope Port         | 2 VDC Range: 10 mVrms to 1 Vrms  
|                    | 40 VDC Range: 1 Vrms to 28.28 Vrms  
| Display Unit Resolution | dBuV: 0.001 dBuV  
|                    | dBm: 0.001 dBm  
|                    | Watts: 0.001 W  
| Accuracy           | ±5% AUD IN Port  

#### SINAD Meter

| Measurement Sources | AUD IN, Demod  
| FM: >2 kHz Deviation IF BW set appropriately for received modulation BW  
| AM: >25% Modulation (IF BW set appropriately for received modulation BW)  
| **AUDIO IN PORT**  
| Frequency Range     | 300 Hz to 10 kHz  
| Input Level         | 3 V (Audio Config setup): 0.9 Vp-p to 9 Vp-p  
|                     | 30 V (Audio Config setup): 9 Vp-p to 90 Vp-p  
| Audio Frequency Notch| 1 kHz  
| Reading Range       | 0 dB to 60 dB  
| Resolution          | 0.001 dB  
| Accuracy            | ±1.5 dB, reading >8 dB, <40 dB  

#### Audio Frequency Level Meter

| Measurement Sources | AUD IN, Scope  
| **INPUT RANGE**  
| Aud In Range       | 3 V, 30 V  
| Scope Range        | 2 VDC, 40 VDC  
| Frequency Range    | 200 Hz to <5 kHz  
| **LOAD SELECTION**  
| Scope              | High Z  
| Aud In             | 3 V Input Range: High Z, 150 ohms, 600 ohms, 1 Kohm  
|                    | 30 V Input Range: 10 K  
| **INPUT LEVEL**  
| Aud In Port        | 3 V Range: 10 mVrms to 3.2 Vrms  
|                    | 30 V Range: 1 V rms to 30 Vrms  
| Scope Port         | 2 VDC Range: 10 mVrms to 1 Vrms  
|                    | 40 VDC Range: 1 Vrms to 28.28 Vrms  
| Display Unit Resolution | dBuV: 0.001 dBuV  
|                    | dBm: 0.001 dBm  
|                    | Watts: 0.001 W  
| Accuracy           | ±5% AUD IN Port  

#### Audio Frequency Counter

| Measurement Sources | AUD IN, Demod  
| FM: 15 Hz to 20 kHz Rate (IF BW set appropriately for received modulation BW)  
| AM: 100 Hz to 10 kHz Rate (IF BW set appropriately for received modulation BW)  
| **AUDIO IN PORT**  
| Frequency Range     | 300 Hz to 20 kHz  
| Input Level         | 3 V (Audio Config setup): 28 mVp-p to 9 Vp-p  
|                     | 30 V (Audio Config setup): 280 mVp-p to 90 Vp-p  
| Frequency Range     | 15 Hz to 20 kHz  
| Resolution          | 0.1 Hz  
| Accuracy            | ±1 Hz  

### 8800S Digital Radio Test Set
### OSCILLOSCOPE

**Source** | SCOPE, AUD IN, Demod  
**Bandwidth** | 5 kHz  

| INPUT IMPEDANCE |  
|-----------------|--------  
| Scope Input     | 2.0 V Range: 5.3 k ohm  
|                 | 40 V Range: 1 M ohm  
| Audio I/O Input | 3 V Range: 150 ohm, 600 ohm, 1 k ohm, High Z  
|                 | 30 V Range: 10 k ohm  

**Coupling**

- Scope: AC, DC and GND  
- Audio In: AC only  
- FM Internal Demod: DC  
- AM Internal Demod: AC

**VERTICAL RANGE**

- Scope, Audio In: 10 mV to 10 V-div in a 1, 2, 5 sequence  
- FM Internal Demod: 0.1 kHz to 50 kHz/div in a 1, 2, 5 sequence  
- AM Internal Demod: 5, 10, 20, 50%/div  
- Vertical Accuracy: 10% of full scale (DC to 5 kHz)  
- Horizontal Sweep: 0.5 ms/div to 0.1 sec/div  
- Horizontal Accuracy: 3% of full scale  
- Trigger Type: Internal (Auto, Normal)  
- Trigger Level: Variable on vertical scale  
- Markers: Two markers  
  - Displays vertical measurement (Voltage, kHz, % modulation)  
  - Displays Delta in time between markers

### CHANNEL ANALYZER

**Range** | 2 MHz to 1 GHz  
**Span** | 10 kHz to 5 MHz (1, 2, 5 steps)  
**Windows** | Hanning, Flat Top, Rectangle  
**Vertical Scale** | 2, 5, 10, 15, 20 dB/div  
**Marker Bandwidth** | 1 kHz to 5 MHz (1, 2, 5 steps)  
**Marker Offset** | ±1 kHz to ±1/2 Span (1, 2, 5 steps)  
**Power Bandwidth (PdB)** |  
**Accuracy** | ±3 dB typical (30 dB signal to noise)  
**Noise Floor** | -140 dBm (preamp on) (span 100 kHz), typical

### Digital Multimeter (DMM)

**AC/DC VOLT METER**

- Range: 200 mV, 2 V, 20 V, 200 V, 2000 V, Auto  
- (150 V RMS to VDC MAX input, Category II)  
- Resolution: 3.5 digits (2000 counts)  
- Accuracy: DC: ±1% FS ±1 count  
  AC: ±5% FS ±1 count  

**AC/DC AMMETER**

- Range: 200 mA, 2 A, 20 A, Auto  
- (20 A range uses optional shunt connected to Voltmeter)  
- Maximum Open Circuit Voltage: 30 V RMS referenced to COMMON or EARTH GROUND, Category I  
- Resolution: 3.5 digits (2000 counts)

### In-Line Power Meter

**RF Measurement Type** | Average Power, Peak, Burst, Crest, CCDF  
**Frequency Range** | 25 MHz to 1 GHz  
**Power Range** | 500 mW to 500 W Average  
**Insertion VSWR** | <1.05  
**Insertion Loss** | <0.05 dB  
**Directivity** | 29 dB up to 50 MHz  
**AVERAGE POWER**

- Average Forward Power Range | 500 mV to 200 W Average  
- Peak/Average Ratio, Max | 12 dB  
- Accuracy, Average Forward Power | ±4% of reading +166 mW  
- Return Loss | 0 to 23 dB  
- VSWR | 1.15 to 99.9

### BURST AVERAGE POWER

- Burst Average Power Range | 13.5 W to 500 W Average  
- Burst Width | 1 µs to 5 ms  
- Repetitions Rate Min | 200 Hz  
- Duty Cycle (D) | 0.001 to 1.0 (D=Burst Width/Period)  
- Accuracy, Burst Average Power | ±6% of reading +0.116/D mW  
- PEAK ENVELOPE POWER

- Peak Envelope Power Range | 13.3 to 1300 W  
- Peak Envelope Power Accuracy | Burst width >200 µs: ±7% of reading, +0.70 W  
  0.5 µs <burst width <200 µs: ±10% of reading, +1.40 W  
  0.5 µs <burst width <1 µs: ±15% of reading, +1.40 W  
  Burst width <0.5 µs: ±20% of reading, +1.40 W  
- CREST FACTOR

- Measurement Range | 500 mW to 300 W, 13.3 W Minimum Peak  
- Accuracy, Crest Factor | Linear Sum of Peak and Average Power Accuracies  
- COMPLEMENTARY CUMULATIVE DISTRIBUTION FUNCTION (CCDF)

- Measurement Range | 0.1 to 100%  
- Threshold Measurement Range | 13.5 to 500 W  
- Measurement Uncertainty | ±0.2%  
- Level Set Accuracy | As Peak Envelope, Power Accuracy ±2.0%

### Speaker Output

**Speaker** | On or Off  
**Output** | 75 dBa min at 0.5 m, 600 to 1800 Hz, max volume  
Speaker disconnects when headphones installed.
Volume Control
Level Range Scale 0 to 100

Timebase
Temperature Stability ±0.15 ppm at -20° C to 70° C
Aging 0.5 ppm/First Year
0.3 ppm/After First Year

Freq-Flex (Externally Referenced Timebase Calibration)
Input Frequency Range 2 MHz to 1000 MHz
Reference Input Port T/R: >-20 dBm
Antenna: >-40 dBm
Freq-Flex Accuracy ±0.5 Hz from external source applied + Stability + Aging
Example: 10 MHz External Input, after Freq-Flex = 10 MHz ± 0.5 Hz = 0.05 ppm + Stability + Aging

I/O Connections
T/R Connector Type: N-Type Female
ANT Connector Type: N-Type Female
GEN Connector Type: N-Type Female
Scope Connector Type: BNC Female
AUD IN Connector Type: BNC Female
AUD OUT Connector Type: BNC Female
Headphone Jack: 3.5 mm Jack
USB Connectors (Qty 3) Type: USB Type A
Ethernet Connector Type: RJ45
DC Power in Connector: 2-position 2.5 mm Jack
GND Connector: Banana
DMM (Qty 3): Banana (Optional)
IN (In-Line Power Meter): N-Type Female (Optional)
OUT (In-Line Power Meter): N-Type Female (Optional)

Front Panel Indicators
SYS Indicator: Green: 88XX Power On/Awake Mode
Blue: 88XX Sleep Mode
Red: 88XX Shutting Down
Green/Red Flashing: Battery Temperature >60° C
Green Flashing: Battery Life <5%
BAT Indicator: Green: Battery at full charge
Amber: Battery is charging

Microphone Connector
6 PIN MIC CONNECTOR
Pin Number Name Characteristic
1 GROUND
2 SPEAKER+ Output 75 dBa min at 0.5 m, 600 to 1800 Hz, max volume
3 PTT Input GND, open (with internal pullup)
4 Mic/Audio Input 0 to 30 mVms, voiced tone (whistle), 300 Hz to 3 kHz
5 MICSEL 1 GND, open with pullup
6 MICSEL 2 GND, open with pullup

Environmental/Physical
Overall Dimensions 34.3 cm (W) x 29.3 cm (L) x 14.6 cm (D)
13.5 in (W), 11.54 in (L) x 5.75 in (D)
Weight 17 lbs (No hardware options installed)
Temperature Storage: -40° C to +71° C, MIL-PRF-28800F, Class 3
Note: Battery must not be subjected to temperatures below -20° C nor above +60° C
8800S OPERATION
DC Operation -20° C to +50° C
AC/DC Power Supply See AC Input Power Section
Battery Operation -20° C to approximately +50° C
Note 1: Battery operation over temperature based on actual temperature rise of battery and instrument usage
Note 2: Battery must not be subjected to temperature below -20° C nor above +60° C
RELATIVE HUMIDITY
Operation 5 to 95%, tested in accordance with MIL-PRF-28800F, Class 3
ALTITUDE
Battery Only Operation 4,600 m (MIL-PRF-28800F, Class 3)
AC Power Supply Operation 3,048 m (MIL-PRF-28800F, Class 3)
SHOCK, FUNCTIONAL
Operation 30 G Shock (Functional Shock), tested in accordance with MIL-PRF-28800F, Class 3
VIBRATION
Operation 5 to 500 Hz random vibrations, tested in accordance with MIL-PRF-28800F, Class 3
BENCH HANDLING
Operation Tested in accordance with MIL-PRF-28800F, Class 3

Compliance
EMC
MIL-PRF-28800F, Class 3
EN61326-1, Class A
EN61000-3-2
EN61000-3-3
8800S Digital Radio Test Set

Cobham 8800S Options and Accessories

138803  8800S Digital Radio Test Set

Standard Accessories

- Fuse, 5 A, 32 V, Mini Blade
- Power Supply
- AC Power Cord - USA
- AC Power Cord - China
- AC Power Cord - Europe
- AC Power Cord - UK
- Adapter, N(m) to BNC(f), Qty 3
- Front Cover
- Internal Battery

Options

- 113334  8800OPT01 DMR
- 113335  8800OPT02 dPMR
- 113336  8800OPT03 NXDN
- 113337  8800OPT04 P25
- 113338  8800OPT09 ARIB T98
- 113339  8800OPT10 Tracking Generator
- 113340  8800OPT11 Occupied Bandwidth
- 113342  8800OPT13 External Precision Thru-Line Meter (for use with Bird WPS Sensor)
- 113343  8800OPT14 PTC
- 113344  8800OPT15 AAR Channel Plan
- 138895  8800OPT05 P25 Phase II
- 138525  8800OPT101 Kenwood NXDN Auto-Test
- 138527  8800OPT103 Motorola APX™ Auto-Test
- 138528  8800OPT104 Motorola MOTOTRBO™ Auto-Test

Languages

- 113350  8800OPT300 Simplified Chinese
- 113351  8800OPT301 Traditional Chinese
- 113352  8800OPT302 Spanish
- 113353  8800OPT303 Portuguese
- 113354  8800OPT304 Malay/Indonesian
- 113355  8800OPT305 Korean
- 113356  8800OPT306 Arabic
- 113357  8800OPT307 Polish
- 113358  8800OPT308 Russian
- 113359  8800OPT309 Japanese
- 113360  8800OPT310 German
- 113361  8800OPT311 French

Safety

UL 61018-1
EN61010-1
CSA C22.2 No 61010-1

Reliability

20,000 hours at 25°C

AC Input Power (AC to DC Converter/Charger Unit)

- AC Input Voltage Range: 100 to 250 VAC, 3 A max., 47 Hz - 63 Hz
- Transient Overvoltage: According to Installation Category II

Usage Environment

Indoor use, Maximum Relative Humidity 80% for temperatures up to 31°C decreasing linearly to 50% RH at +40°C, Installation Category II, Pollution degree 2

Operating Temperature

0°C to +40°C

Storage Temperature

-20°C to +85°C

EMI

EN55022 Class B, EN61000-3-2, Class D

Safety

UL 1950, CSA 22.2 No 234 and No 950, IEC 950/EN 60950

DC Input Power

- Voltage Range: 11 to 24 VDC
- Maximum Power: 55 W, 65 W charging Optional Battery
- Typical Power: 30 W
- Fused: 5 A, 32 VDC, Type F

Battery Type

Lithium Ion (Li Ion) battery pack
Note: Battery must not be subjected to temperatures below -20°C or above +60°C

BATTERY OPERATION TIME

- 100% Backlight: 2 1/2 hours typical
- Minimum Backlight (still viewable): 3 hours typical
- 4 hours Unit Power Off Typical
- 4 hours Unit Powered On Typical
Note: Battery to be charged at temperatures between 0°C and +45°C
- Charge dead battery (<10% capacity) for 20 minutes before operation on external DC power

Battery Charge Time

- Typical: 4 hours
- Power Off: 4 hours
- Power On: 3 hours

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8800S Digital Radio Test Set

Accessories
138313 Calibration Certificate - 8800 Series
82560 AC27003 Attenuator - 20 dB/150 W
67076 Spare Internal Battery
114479 External Battery Charger
114477 Hard Transit Case
114478 Soft Carrying Case
114475 Antenna Kit
114348 Precision DTF/VSWR Accessory Kit for 8800
63927 AC25081 Site Survey Software
92793 5017B Bird Power Sensor
114312 Mounting Bracket
112861 Microphone
62404 DC Cord/Cigarette Adapter
63936 AC24009 DMM Test Leads

Extended Warranties
114481 Extended Standard Warranty 36 Months
114482 Extended Standard Warranty 60 Months
114483 Extended Standard Warranty 36 Months with Scheduled Calibration
114484 Extended Standard Warranty 60 Months with Scheduled Calibration

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