8800S

Digital Radio Test Set

Data Sheet

The most important thing we build is trust

Advanced Analog and Digital Radio Test for Both Bench and Field Test Environments

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

Dimensions	13.50 in (W) x 11.54 in (L) x 5.75 in (D) 34.3 cm (W) x 29.3 cm (L) x 14.6 cm (D)
Display Size	30.5 cm (12 in)
Weight	7.71 kg (17 lbs) Base Unit
Internal Battery	2.5+ Hour at Full Backlight (Optional)
Rugged	30 G Shock, MIL-STD 28800F Class 3
Direct Input Power	50 W Continuous, 125 W Cyclical
In-Line Power Meter	500 W, 4% Accuracy
Record & Playback	Digital Audio Quality
Quick Presets	Ultra-Fast Test Setup
Frequency Lists	Tx Frequency, Tx Level; Rx Frequency
"Fast Stack"	Instant Access to Multiple Meters
Tracking Generator	VSWR, Return Loss, Distance-to-Fault, Tuning Duplexers

LMR System Support

P25	P25 Phase II	DMR	NXDN™
dPMR	ARIB T98	AM	FM

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SPECIFICATIONS

RF GENERATOR

Port Input Protection

GEN Port	+20 dBm (Input Power Alarm Typical)
T/R Port	+52 dBm CW (Input Power Alarm Typical)
T/R Port	>+90˚C (Temperature Alarm Typical)

Frequency

Range	2 MHz to 1000 MHz <2 MHz to 100 kHz Usable Range
Accuracy	Same as timebase
Resolution	1 Hz

Output Level

Range	T/R Port: -50 to -125 dBm ANT Port: -30 to -90 dBm GEN Port: -5 to -65 dBm
Accuracy	±2 dB; ±1.5 dB (Typ) ±3 dB (<-100 dBm) ±3 dB (<-110 dBm Hold Atten Mode)
Resolution	1 dB 0.1 dB (0 to -6 dBm); HOLD ATTEN: ON

Port VSWR

ANT Port	<1.5:1 Typical
GEN Port	<1.5:1 Typical
T/R Port	<1.2:1

SSB Phase Noise

-90 dBc/Hz at 20 kHz offset
-95 dBc/Hz at 1 GHz at 20 kHz offset, Typical

Spurious

Harmonics	-30 dBc, -42 dBc Typical
Non-Harmonics	-40 dBc, -50 dBc Typical (±20 kHz offset from carrier; 0 to 1 GHz)

Residual FM

<20 Hz rms in 300 Hz to 3 kHz BW
<4 Hz rms, Typical <100 MHz
<6 Hz rms, Typical <800 MHz
<11 Hz rms, Typical >800 MHz

Residual AM

<0.5% rms in 300 Hz to 3 kHz BW

RF GENERATOR MODULATION

RF Generator Modulation Types

Group	Modulation
Analog	None, FM and AM
Digital	P25, DMR, dPMR, ARIB T98, NXDN
DTMF	None, FM and AM
DCS	None, FM and AM
Two-Tone Sequential	None, FM and AM
Tone Remote	None, FM and AM
Tone Sequential	None, FM and AM

FM Modulation - Internal (GEN 1, GEN 2)

MODULATION FREQUENCY RANGE	
Range	0 Hz to 20 kHz
Resolution	0.1 Hz
Accuracy	Timebase ±2 Hz
FM Deviation Range	Off 0 Hz to 100 kHz (GEN 1 and GEN 2 Selectable)
Total Harmonic Distortion	3% (1000 Hz rate, >2 kHz Deviation, 300 Hz - 3 kHz BP filter)
Resolution	1 Hz
Accuracy	±10% (2 kHz to 50 kHz deviation) 150 Hz to 3 kHz rate

FM Modulation - External (MIC, AUDIO IN)

MIRCOPHONE IN	
Alternate MIC Configurations	MIC Connector Pins
Range 1: 2-15 mVrms (8 mVrmw Typical)	Pin 2-OPEN, Pin 6-GND
Range 2: 35-350 mVrms (100 mVrms Typical)	Pine 2-GND, Pin 6-OPEN
Range 3: 2-32 mVrms (20 mVrms Typical)	Pin 2-OPEN, Pin 6-OPEN
(Range 2 enables a nominal 3 Vdc Bias Voltage)	
MIC Frequency Range	300 Hz to 3 kHz
MIC Level	Off, 0 Hz to 80 kHz
MIC Modulation Accuracy	±20% (300 Hz to 1.2 kHz) ±30% (>1.2 kHz)
MIC Slope	Positive voltage yields positive deviation
AUDIO IN	
AUD IN Input	Range: 30 V, 3 V
AUD IN Switchable Loads	3 V Range: 150 ohms, 600 ohms, 1 K ohms, High Z 30 V Range: High Z
AUD IN Input Levels	3 V Range: 0.05 to 3.2 Vrms 30 V Range: 3 Vrms - 30 Vrms
AUD IN FM Frequency Range	300 Hz to 5 kHz
AUD IN FM Input Level Sensitivity	3 V Range: 1 kHz/35 mVrms Typical 30 V Range: 1 kHz/350 mVrms Typical
AUD IN FM Input Level Slope	Positive voltage yields positive deviation

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COBHAM

AM Modulation - Internal (GEN 1, GEN 2)

MODULATION FREQUENCY RANGE	
Range	0 Hz to 20 kHz
Resolution	0.1 Hz
Accuracy	Timebase ±2 Hz
Range	Off, 0 to 100% (GEN1 and GEN2 Selectable)
Resolution	0.1%
Total Harmonics Distortion	3% (20% to 90% mod, 1000 Hz rate, 300 Hz to 3 kHz BP filter)
Modulation Accuracy	10% setting, 150 Hz to 5 kHz rate 10% to 90% modulation

AM Modulation - External (MIC, AUDIO IN)

MIRCOPHONE IN	
Alternate MIC Configurations	MIC Connector Pins
Range 1: 2-15 mVrms (8 mVrms Typical)	Pin 2-OPEN, Pin 6-GND
Range 2: 35-350 mVrms (100 mVrms Typical)	Pin 2-GND, Pin 6-OPEN
Range 3: 2-32 mVrms (20 mVrms Typical)	Pin 2-OPEN, Pin 6-GND
(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	
AUD IN Input	Range: 30 V, 3 V
AUD IN Switchable Loads	3 V Range: 150 ohm, 600 ohms, 1 K ohms, High Z 30 V Range: High Z
AUD IN Input Levels	3 V Range: 0.05 to 3.2 Vrms
	30 V Range: 3 Vrms - 30 Vrms
AUD IN AM Frequency Range	300 Hz to 5 kHz
AUD IN Level Sensitivity	3 V Range: 1%/35 mVrms Typical (High Z load) 30 V Range: 1%/350 Vrms Typical (High Z load)

AFGEN 1 and AFGEN 2

FREQUENCY	
Range	0.0 Hz to 20.0 kHz
Resolution	0.1 kHz
Accuracy	Timebase ±2 Hz
OUTPUT LEVEL	
Load Impedance	600 ohms
Audio Level Out	0 Vrms to 1.57 Vrms
Resolution	0.001 Vrms
Accuracy	±10%; >100 mVrms, 30 Hz to 3 kHz
Distortion	<3% (1 kHz rate, sine 300 Hz to 3 kHz)

RF RECEIVER

PORT INPUT PROTECTION	
ANT Port	+20 dBm (Input Power Alarm Typical)
T/R Port	+52 dBm CW
T/R Port	>+90˚C (Temperature Alarm Typical)
FREQUENCY	
Range	2 MHz to 1000 MHz <2 MHz to 100 kHz Usable Range
Accuracy	Same as Timebase
Resolution	1 Hz

Input Amplitude

Sensitivity	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: Modulation, Distortion, SINAD, 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 LP, 300 Hz HP, 5 kHz LP, 300 Hz to 5 kHz BP, 300 Hz to 3 kHz BP, 300 Hz 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, 300 Hz to 3 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

Units	Hz, PPM
Range	±200 kHz, ±1000 PPM
Resolution	1 Hz
Accuracy	Timebase ±1 Hz

RSSI (Receive Signal Strength Indicator) RF Power Within Receiver IF Bandwidth

Units	dBm, Watts, microWatts
Range	-120 dBm to +60 dBm

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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): -110 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/+20 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
Meter Type	Peak+, Peak-, (Peak-Peak)/2, RMS
Resolution	0.1 Hz
Accuracy	±10% of reading, 500 Hz to 100 kHz Deviation ±5% of 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-, (Peak-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
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
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%

Accuracy

Measurement Sources	AUD IN, Demod
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 Kohms 30 V Input Range: 10 K
	INPUT LEVEL
Aud In Port	3 V Range: 10 mV rms to 3.2 V rms 30 V Range: 1 V rms to 30 V rms
Scope Port	2.0 VDC Range: 10 mV rms to 1 V rms 40 VDC Range: 1 V rms to 28.28 V rms
Display Unit Resolution	Volts: 0.001 V mV: 0.001 mV dBuV: 0.001 dBuV dBm: 0.001 dBm Watts: 0.001 W
Accuracy	±5% AUD IN Port

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OSCILLOSCOPE

Source	SCOPE, AUD IN, Demod
Bandwidth	5 kHz
	INPUT IMPEDANCE
Scope Input	2.0 V Range: 53 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 Demodulation	0.1 kHz to 50 kHz/div in a 1, 2, 5 sequence
AM Internal Demodulation	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 Band Width (PdB) Accuracy	±3 dB typical (30 dB signl to noise)
Noise Floor	-123 dBm (preamp off) -140 dBm (preamp on) (span 100 kHz), typical

Digital Multimeter (DMM)

	AC/DC VOLTMETER
Range	200 mV, 2 V, 20 V, 200 V, 2000 V, Auto (150 VAC RMS to VDC MAX input, Category II)
Resolution	3.5 digits (2000 counts)
Accuracy	DC: ±1% FS ±1 count AC: ±5% FS ±1 count +25 mV
	AC/DC AMMETER
Range	200 mA, 2 A, 20 A, Auto (20 A range uses optional shunt connected to Voltmeter)
Maximum Open Circuit Input Voltage	30 V RMS referenced to COMMON or EARTH GROUND, Cateogry I
Resolution	3.5 digits (2000 counts)
Accuracy	DC: ±5% FS ±1 count AC: ±5% FS ±1 count
AC Volts Frequency Range	50 Hz to 10 kHz
	OHMMETER
Range	200 ohms, 2 k ohms, 20 k ohms, 200 k ohms, 2 M ohms, 20 M ohms, Auto
Resolution	3.5 digits (2000 counts)
Accuracy	±5% FS ±1 count

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 13.3 W to 1300 W Peak
Insertion VSWR	<1.05
Insertion Loss	<0.05 dB
Directivity	29 dB up to 50 MHz 30 dB from 51 to 1000 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 Maximum accuracy performance at 25°C (±10°C)
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 1 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.

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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 = ±0.5Hz to external input. 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 mVrms, voiced tone (whistle), 300 Hz to 3 kHz
5	MICSEL 1	GND, open with pullup	GND = 3 V DC bias (active Mic) and Mic audio gain of 2 Open = 0 V DC bias and Mic audio gain of 3
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 intrument 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
Emissions and Immunity	MIL-PRF-28800F, Class 3 EN61326-1, Class A EN61000-3-2 EN61000-3-3

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
AC Input Voltage Fluctuation	Less than 10% of the nominal input voltage
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

Supplemental Items

Battery Type	Lithium Ion (Li Ion) battery pack Note: Battery must not be subjected to temperatures below -20° C, nor above +60° C
BATTERY OPERATION TIME	
100% Backlight	2 1/2 hours typical
Minimum Backlight (still viewable)	3 hours typical
Battery Charge Time	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

Cobham 8800S Options and Accessories

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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
113309	8800OPT12 Internal Precision Power Meter (Meter + Sensor)
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

138235	8800OPT300 Simplified Chinese
138237	8800OPT301 Traditional Chinese
138238	8800OPT302 Spanish
138239	8800OPT303 Portuguese
138236	8800OPT304 Malay/Indonesian
138240	8800OPT305 Korean
138241	8800OPT306 Arabic
138242	8800OPT307 Polish
138243	8800OPT308 Russian
138244	8800OPT309 Japanese
138245	8800OPT310 German
138246	8800OPT311 French

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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