VIAVI Solutions

Data Sheet

VIAVI 8800SX

Digital Radio Test Set

General Specifications

User Interface			
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		
Rugged	30 G Shock, MIL-STD 28800F Class 3		
Direct Input Power	50 W Continuous, 125 W Cyclical		
Internal Wideband RF Power Sensor **(Part Number 139442 Only)**	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	PTC
Analog Duplex Operation			
1 GHz RF Generator (AM / FM)		1 GHz Receiver (AM / FM)	
Channel Analyzer		Oscilloscope	
DMM		Audio Level Meter	
Distortion Meter		SINAD Meter	
RF Power Meter		Audio Frequency Counter	
DTMF Encode / Decode		DCS Encode / Decode	
RF Frequency Error Meter		In-band Power Meter (RSSI)	
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		

RF Generator (continued)	
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)
Resolution	1 dB 0.1 dB (0 to -6 relative to selected level with 0.1 dB Step 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: -40dBc, -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 Type	
Analog	FM and AM
Digital	P25 (C4FM, H-CPM, H-DQPSK), DMR, dPMR, ARIB T98, NXDN, PTC
DTMF	FM and AM
DCS	FM and AM
Two-Tone Sequential	FM and AM
Tone Remote	FM and AM
Tone Sequential	FM and AM
CTCSS	FM, and AM using modulation generators

RF Generator Modulation (continued)

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:	±5% at 1 kHz rate; 2 kHz to 50 kHz deviation (±1% typical) ±10% at 150 Hz to 3 kHz rate; 2 kHz to 50 kHz deviation

FM Modulation - External (MIC, AUDIO IN)	
Microphone 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 2 enables a nominal 3 Vdc Bias Voltage)
Range 3: 2-32 mVrms (20 mVrms Typical)	Pin 2-OPEN, Pin 6-OPEN
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, 3V
AUD IN Switchable Loads	3 V Range: 150 ohms, 600 ohms, 1K 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	300 Hz to 5 kHz
AUD IN	3 V Range: 1 kHz/35 mVrms Typical 30 V Range: 1 kHz/350 mVrms Typical
AUD IN	Positive voltage yields positive deviation

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	±5% setting @ 1 kHz rate ±10% setting @ 150 Hz to 5 kHz rate 10% to 90% modulation

AM Modulation - External (MIC, AUDIO IN)	
Microphone 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 2 enables a nominal 3 Vdc bias voltage)
Range 3: 2-32 mVrms (20 mVrms Typical)	Pin 2-OPEN, Pin 6-GND
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 30V 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 Hz
Accuracy	Timebase ±2 Hz
Output Level	
Audio Out Port Impedance	<1 ohm
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

RF Receiver (continued)

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 (C4FM, H-CPM, H-DQPSK), PTC	
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
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 (+194°F) (Temperature Alarm)
Meter Range	+20 to +53 dBm
Meter Floor	0.10 W/+20 dBm
Measurement Modes	Average, Maximum, Minimum, Peak
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%
Audio Frequency Counter	
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 K ohms 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

P25 Measurements

Modulation Fidelity	
Range	0 to 10%
Resolution	0.1%
Accuracy	<5.0% of reading (2.5 to 10%)
Symbol Deviation	
Range	1620 to 1980 Hz
Resolution	0.1 Hz
Accuracy	±10 Hz (1620 to 1980 Hz)
Symbol Clock Error	
Range	±12 ppm
Resolution	0.01 ppm
Accuracy	1 ppm (±0.0048 Hz)

DMR Measurements

FSK Error	
Range	0 to 10%
Resolution	0.1%
Accuracy	<5.0% of reading (2.5 to 10%)
Symbol Deviation	
Range	1745 to 2140 Hz
Resolution	0.1 Hz
Accuracy	±10 Hz
Symbol Clock Error	
Range	±12 ppm
Resolution	0.01 ppm
Accuracy	±1 ppm (±0.0048 Hz)

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

Oscilloscope (continued)

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 signal to noise)
Noise Floor	-123 dBm (preamp off) -140 dBm (preamp on) (span 100 kHz), typical
Wide Analyzer	10 kHz to 50 MHz in 1, 2, 5 sequence
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
Ohmeter	
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) (77°F ±50°F)
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.

Volume Control	
Level Range	Scale 0 to 100
Timebase	
Temperature Stability	±0.15 ppm at -20° C to 70° C (-4°F to 158°F)
Aging	0.5 ppm/First Year 0.3 ppm/After First Year
External 10 MHz Reference Input	
External Input Frequency Range	10 MHz ±150 Hz
External Input Level	-10 dBm to +10 dBm
Max Input	+15 dBm
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
External 10 MHz Reference Input: BNC Female
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 (>140°F)
	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 (-40°F to +159.8°F), MIL-PRF-28800F, Class 3
	Note: Battery must not be subjected to temperatures below -20° C, nor above +60° C
8800SX Operation	
DC Operation	-20°C to +50°C (-4°F to 122°F)
AC/DC Power Supply	See AC Input Power Section
Battery Operation	-20°C to approximately +50°C [1, 2] (-4°F to approximately +122°F)
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

1: Battery operation over temperature based on actual temperature rise of battery and instrument usage

2: Battery must not be subjected to temperature below -20° C nor above +60° C

Environmental/Physical (continued)

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 (77°F)
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 (87.8°F) decreasing linearly to 50% RH at +40°C (104°F), Installation Category II, Pollution degree 2
Operating Temperature	0°C to +40°C (32°F to 104°F)
Storage Temperature	-20°C to +85°C (-4°F to +185°F)
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 (32°F and +113°F)
	Charge dead battery (<10% capacity) for 20 minutes before operation on external DC power

Ordering Information

Versions and Options

Order Number	Description
142820	8800SX Radio Test Set
	Standard Accessories
	Fuse, 5 A, 32 V, Mini Blade
	Power Supply
	AC Power Cord
	AC Power Cord - China
	AC Power Cord - Europe
	AC Power Cord - UK
	Adapter, N(m) to BNC(f), Qty 3
	Front Cover
	Internal Battery
139942	8800SX Radio Test Set with Internal Wideband Power Sensor
	Standard Accessories
	Internal Bird 5017D Wideband Power Sensor
	Fuse, 5 A, 32 V, Mini Blade
	Power Supply
	AC Power Cord
	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
140215	8800OPT06 DMR Repeater Test (Requires Opt01)
113335	8800OPT02 dPMR
113336	8800OPT03 NXDN
113337	8800OPT04 P25 Conventional
138895	8800OPT05 P25 Phase II (Requires Opt04)
113338	8800OPT09 ARIB T98
142131	8800OPT162 TETRA Base Station
113339	8800OPT10 Tracking Generator
113340	8800OPT11 Occupied Bandwidth
113342	8800OPT13 External Bird 5017D Wideband Power Sensor Support (Requires Power Sensor)
113343	8800OPT14 PTC
113344	8800OPT15 AAR Channel Plan
139836	8800OPT20 R&S Power Sensor Support (NRT-Z14)
139837	8800OPT21 SINAD Selectable Notch Filters
139838	8800OPT22 SNR Meter

Auto-Test and Alignments	
DMR Radios	
138528	8800OPT104 Motorola MOTOTRBO Series Auto-Test and Alignment Software (Requires Opt01)
139314	8800OPT108 Hytera DMR Series Auto-Test and Alignment Software (Requires Opt01 and Opt22)
139313	8800OPT109 Hytera DMR Repeater Auto-Test and Alignment Software (Requires Opt01 and Opt108)
141179	8800OPT113 Tait DMR Series Auto-Test ONLY (Requires OPT01)
NXDN Radios	
138525	8800OPT101 Kenwood NEXEDGE Series Auto-Test and Alignment Software (Requires Opt03)
P25 Radios	
139319	8800OPT114 BK Technologies KNG Series Auto-Test and Alignment Software (Requires Opt04)
139320	8800OPT115 EF Johnson Viking Series Auto-Test and Alignment Software (Requires Opt04)
139317	8800OPT111 L3Harris P25 Series Auto-Test and Alignment Software (Requires Opt04)
141180	8800OPT117 L3Harris XL Series Auto-Test and Alignment Software (Requires Opt04)
138526	8800OPT102 Kenwood 5x20 Series Auto-Test and Alignment Software (Requires Opt04)
140913	8800OPT118 Kenwood Viking 5/6/7000 Series Auto-Test and Alignment Software (Requires Opt04)
138527	8800OPT103 Motorola APX Series Auto-Test and Alignment Software (Requires Opt04)
140868	8800OPT128 Motorola APX 8000 Auto-Test and Alignment Software (Requires Opt04 and Opt103)
140900	8800OPT129 Motorola APX "B" Auto-Test and Alignment Software (Requires Opt04 and Opt103)
139315	8800OPT105 Motorola ASTRO® 25 XTS® / XTL™ Auto-Test and Alignment Software (Requires Opt04)
8800OPT130	8800OPT130 Motorola APX NEXT™ Series Auto-Test and Alignment Software (Requires Opt04 and Opt103)
139318	8800OPT112 Tait P25 Series Auto-Test ONLY (Requires OPT04)
Multi-Protocol Radios	
141178	8800OPT107 Kenwood NX-3000 / 5000 Series Auto-Test and Alignment Software (Requires Opt01, Opt03, or Opt04 depending on radio digital technology selected)

Languages	
113356	8800OPT306 Arabic
113350	8800OPT300 Chinese (Simplified)
113351	8800OPT301 Chinese (Traditional)
113361	8800OPT311 French
113360	8800OPT310 German
139625	8800OPT312 Italian
113359	8800OPT309 Japanese
113355	8800OPT305 Korean
113354	8800OPT304 Malay / Indonesian
113357	8800OPT307 Polish
113358	8800OPT308 Russian
113352	8800OPT302 Spanish
Optional Accessories	
114477	Case, Hard Transit
114478	Case, Soft-Sided Carrying
82556	Attenuator (6 dB / 150 W), 1.5 GHz
140227	Attenuator (40 dB / 2 W), 18 GHz Type N
67076	Battery, Spare, Internal
114479	8800 External Battery Charger
114348	8800 Precision DTF / VSWR Accessory Kit (Requires Opt10)
92793	External Bird 5017D Wideband Power Sensor (Requires Opt13)
114312	8800 Rackmount Kit
112861	8800 Microphone
114475	8800 Antenna Kit
62404	8800 DC Power Cord / Cigarette Adapter
63936	AC24009 DMM Test Leads
112277	10 Amp Current Shunt, 0.01 Ohm
67411	Scope Probe Kit
141707	8800 Balanced to Unbalanced Audio Adapter
63351	RF Cable for AutoAlignment (COAX ASSY, RG223,36.0,BNC,M,ST / BNC,M,ST)
Care Plans	
8800-5	5 Yr Total HW Warranty + Standard Calibrations - SILVER-5
8800-3	3 Yr Total HW Warranty + Standard Calibrations - SILVER-3
8800-HWO	1 Yr Extended HW Warranty only BRONZE-2
Calibration Certificates	
138313	8800 Calibration Certificate (ISO 9001)

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