

Exhibit D: User Manual**Operational or User's Manual**

The manual should include instruction, installation, operator, or technical manuals with required 'information to the users'. This manual should include a statement that cautions the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. The manual shall include RF Hazard warning statements, if applicable.

Manual Sections Provided:

D-Series S1 RF Site Installation Guide (May 2026 Draft)

Chapter 1: General Safety Precautions

Chapter 2: D-Series S1 RF Site Description

Chapter 3: Provisioning and Configuration Agent Application

Chapter 4: D-Series S1 RF Site Configuration

Chapter 5: D-Series S1 Base Radio Field Replaceable Units (FRUs) and Parts



ASTRO® 25

INTEGRATED VOICE AND DATA

D-Series S1 RF Site Installation Guide

System Release: 2025.HS, 2025.1, 2024.HS, 2024.1

DRAFT

MAY 2026

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Document History

Version	Description	Date
MN012157A01-A	Original release of the <i>D-Series S1 RF Site Installation Guide</i> for FCC certification.	May 2026

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About D-Series S1 RF Site Installation Guide

This manual provides information on the installation and configuration of the D-Series S1 RF Site.

Related Information

Related Information	Purpose
<i>Provisioning and Configuration Agent User Guide</i>	Provides a description of the Provisioning Manager application, including information on how to tailor this application for system use and how to provision ASTRO® 25 systems with various system-level, user-level, and device-level configuration parameters.
<i>Standards and Guidelines for Communication Sites</i>	Provides standards and guidelines that should be followed when setting up a Motorola Solutions communications site. Also known as R56 manual.

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Chapter 1

General Safety Precautions

FCC/ISED Compliance Guidelines



WARNING: Compliance with FCC/ISED guidelines for human exposure to Electromagnetic Energy (EME) at Transmitter Antenna sites generally requires that personnel working at a site must be aware of the potential for exposure to EME, and can exercise control of exposure by appropriate means, such as adhering to warning sign instructions, using standard operating procedures (work practices), wearing personal protective equipment, or limiting the duration of exposure. For more details and specific guidelines, see "Appendix A: Electromagnetic Energy Information" of the Motorola Solutions *Standards and Guidelines for Communication Sites* manual.

AVERTISSEMENT: Les directives de la FCC/ISDE en matière d'exposition humaine à l'énergie électromagnétique à proximité des antennes émettrices exigent en général que les personnes qui travaillent sur de tels sites soient conscientes du risque d'être exposées à l'énergie électromagnétique et de la possibilité de contrôler les risques d'exposition en respectant strictement les instructions figurant sur les panneaux d'avertissement, en se reportant aux procédures opérationnelles standard (pratiques de travail), en portant un équipement de protection individuelle ou en limitant le temps d'exposition. Pour plus de détails et des lignes directrices précises, consultez l'« Annexe A : Renseignements sur l'énergie électromagnétique » du manuel des normes et lignes directrices relatives aux sites de communications de Motorola Solutions *Standards and Guidelines for Communication Sites*.

Notice to Users (Innovation, Science and Economic Development Canada Canada)

The operation of your Motorola Solutions radio is subject to the Radiocommunications Act and must comply with rules and regulations of the Federal Government's department of Industry Canada. Industry Canada requires that all operators using Private Land Mobile frequencies obtain a radio license before operating their equipment.

Installation guidelines for compliance with RF exposure regulations

This equipment must be installed and operated at a fixed location, in compliance with all applicable code requirements. The antenna installation must comply with all applicable building and safety codes. In order to ensure optimal communication performance and compliance with applicable RF exposure limits, it is recommended that the antenna is installed outside the building hosting this equipment, on the roof or on a tower if at all possible.

It is the licensee or site owner responsibility to establish an RF exposure safety program meeting the applicable regulatory requirements concerning RF exposure of working personnel and the general public, implementing actions such as site survey measurements and computational analysis, signage and barriers, site access restrictions, as needed.

Declaration of Compliance for the Use of Distress and Safety Frequencies

The radio equipment does not employ a modulation other than the internationally adopted modulation for maritime use when it operates on the distress and safety frequencies specified in RSS-182 Section 7.3.

General safety precautions during all phases of operation, service, and repair

Observe the following general safety precautions during all phases of operation, service, and repair of the equipment described in this manual. Follow the safety precautions listed and all other warnings and cautions necessary for the safe operation of all equipment.

Due to the danger of introducing additional hazards, do not install substitute parts or perform any unauthorized modifications of equipment.



NOTE: The installation process requires preparation and knowledge of the site before installation begins. Review installation procedures and precautions in the Motorola Solutions *Standards and Guidelines for Communication Sites* manual before performing any site or component installation.

Always follow all applicable safety procedures, such as Occupational Safety and Health Administration (OSHA) requirements, National Electrical Code (NEC) requirements, local code requirements, and safe working practices. Also, all personnel must practice good judgment. General safety precautions include the following:

- Read and follow all warning notices and instructions marked on the product or included in this manual before installing, servicing, or operating the equipment. Retain these safety instructions for future reference.
- If troubleshooting the equipment while power is on, be aware of the live circuits.
- Do not operate the radio transmitters unless all RF connectors are secure and all connectors are properly terminated.
- Ground all equipment properly in accordance with the Motorola Solutions *Standards and Guidelines for Communication Sites* manual and specified installation instructions for safe operation.
- Slots and openings in the cabinet are provided for ventilation. Do not block or cover openings that protect the devices from overheating.
- Only a qualified technician familiar with similar electronic equipment should service equipment.
- Some equipment components can become hot during operation. Turn off all power to the equipment and wait until sufficiently cool before touching.
- Maintain emergency first aid kits at the site.
- Direct personnel to call in with their travel routes to help ensure their safety while traveling between remote sites.
- Institute a communications routine during certain higher risk procedures where the on-site technician continually updates management or safety personnel of the progress so that help can be dispatched if needed.
- Never store combustible materials in or near equipment racks. The combination of combustible material, heat, and electrical energy increases the risk of a fire safety hazard.
- Equipment installed at the site meeting the requirements of a "restricted access location," per UL 62368-1, is defined as follows: "Access can only be gained by service persons. Access to the equipment is by using a tool or lock and key, or other means of security, and is controlled by the authority responsible for the location."



BURN HAZARD: The metal housing of the product may become extremely hot. Use caution when working around the equipment.

RISQUES DE BRÛLURE: Le boîtier métallique du produit peut devenir extrêmement chaud.

Figure 1: Warning Label on Hot Modules



WARNING: DC input voltage must be no higher than 60 VDC. This maximum voltage includes consideration of the battery charging "float voltage" associated with the intended supply system, regardless of the marked power rating of the equipment. Failure to follow this guideline may result in electric shock.

AVERTISSEMENT: La tension d'entrée CC ne doit pas être supérieure à 60 V CC. Cette tension maximale tient compte de la « tension flottante » de charge de la batterie associée au système d'alimentation prévu, quelle que soit la puissance nominale indiquée sur l'équipement. Le non-respect de cette directive peut entraîner une décharge électrique.



BURN HAZARD: Disconnect power in the cabinet to prevent injury while disconnecting and connecting antennas.

RISQUES DE BRÛLURE: Coupez le courant dans l'armoire pour éviter les blessures lorsque vous débranchez et rebranchez des antennes.



WARNING: This is a class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

AVERTISSEMENT: Ce produit est de classe A. Ce produit peut entraîner des interférences radio dans un environnement résidentiel, auquel cas l'utilisateur peut être tenu de prendre des mesures adéquates.



CAUTION:

All Tx and Rx RF cables outer shields must be grounded per Motorola Solutions *Standards and Guidelines for Communication Sites* manual requirements.

All Tx and Rx RF cables must be connected to a surge protection device according to the Motorola Solutions *Standards and Guidelines for Communication Sites* manual. Do not connect Tx and Rx RF cables directly to an outside antenna.

AVERTISSEMENT: Tous les blindages extérieurs des câbles RF d'émission et de réception doivent être mis à la terre conformément au manuel des normes et lignes directives relatives aux sites de communications de Motorola Solutions. Tous les câbles RF d'émission et de réception doivent être connectés à un dispositif de protection contre les surtensions conformément au manuel des normes et lignes directives relatives aux sites de communications de Motorola Solutions (*Standards and Guidelines for Communication Sites*). Ne connectez pas les câbles RF d'émission et de réception directement sur une antenne extérieure.



IMPORTANT: All equipment must be serviced by Motorola Solutions-trained personnel.

Chapter 2

D-Series S1 RF Site Description

The D-Series S1 Base Radio is available for the following system types:

- ASTRO(R) 25 Repeater Site
- Trunked IP Simulcast Subsystems

Supported frequency bands:

- VHF (136-174MHz)
- UHF R1 (380-435MHz)
- UHF R2 (435-524MHz)

2.1

D-Series S1 Base Radio

A D-Series S1 Base Radio consists of:

- Transceiver (XCVR) module
- Power amplifier module
- Fan module
- Power supply module

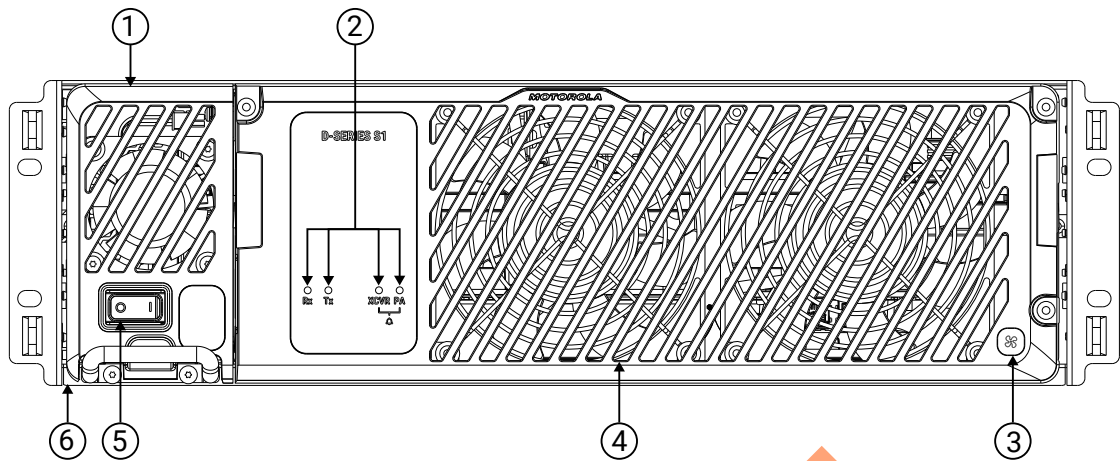
The transceiver module includes the functionality for the exciter and receiver. On-board Ethernet ports are on this module for connecting to the DSC 8500, which acts as the site processor for up to 12 base radios. The power amplifier module amplifies the low-level modulated RF signal from the transceiver module and delivers the amplified signal on the path to the transmit antenna. The power supply module supports the transceiver and power amplifier modules. Radio Frequency Distribution System (RFDS) provides the interface between the transceivers and the site antennas and between the power amplifier and the site antennas.

Card cages are created with a welded and riveted design. Each card cage has a backplane.

Table 1: D-Series S1 Base Radio Modules and Function

D-Series S1 Base Radio Module	Function
Power Supply	Operates from either an AC or DC input and provides the DC operating voltage for the D-Series S1 Base Radio.
Power Amplifier (PA)	Accepts a low-level modulated RF signal from the transceiver module and amplifies it for transmission through the site transmit antenna. Also provides a low-level RF feedback signal to the transceiver module to achieve the required transmitter linearity. Also performs functions related to the fan module.
Transceiver (XCVR)	Provides the control, exciter, and receiver functions for the D-Series S1 Base Radio.
Fan	Provides forced air cooling for the power amplifier and transceiver modules.

Figure 2: D-Series S1 Base Radio Front View

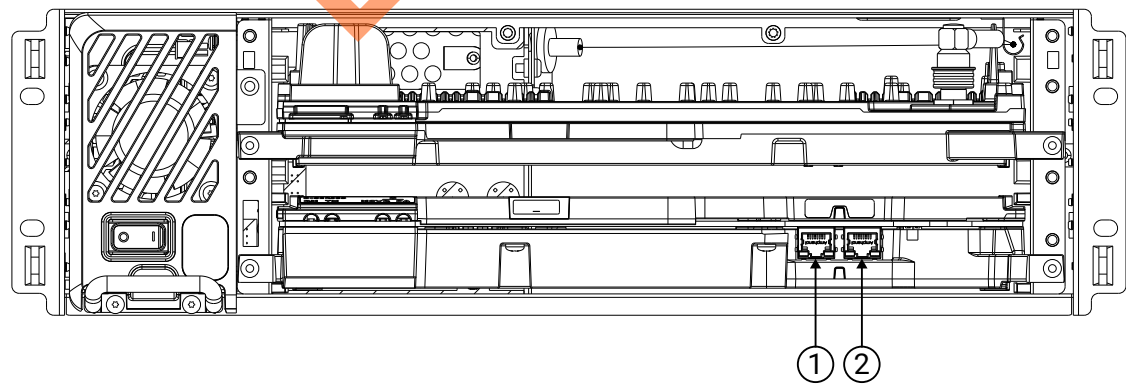


Annotation	Description
1	Power Supply
2	Status LEDs
3	Fan Module LED
4	Fan Module
5	Power Supply On/Off Switch
6	Card Cage

2.1.1
D-Series S1 Base Radio Front Ports

Two service ports are accessible through a drop-down door to the left of the fans. The remaining ports are behind the fan module.

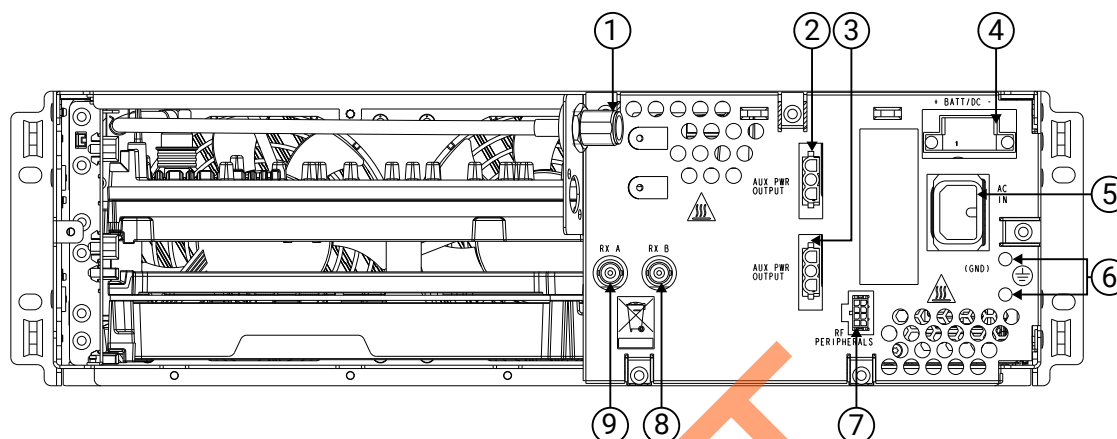
Figure 3: D-Series S1 Front Ports



Port No.	Port	Connects To	Description
1	RJ-45	DSC 8500 Site Processor	LAN Connection to DSC 1
2	RJ-45	DSC 8500 Site Processor	LAN Connection to DSC 2

2.1.2

D-Series S1 Base Radio Rear Ports

Figure 4: D Series S1 Rear Ports

Port No.	Port Type	Connects To	Description
1	Transmit port, N-type	Transmit line	RF coax to transmit antenna.
2 3	Aux Pwr Output	Auxiliary Power Output to DSC 8500	Provides power to the DSC 8500. NOTE: Ports 2 and 3 are identical and interchangeable; either port can connect to either module.
4	DC	DC power supply	Input from and output to a 48 VDC power source. When AC power is not available, the device switches to operate from a DC source if the optional DC power (8AWG; length 9 ft), CA01400AA is ordered and installed. One end connects into the DC port and the other end connects into the DC source. The contacts are 39-83503N02 (AMP #53880-2), the receptacle housings are 15-83502N01 (AMP #53884-1) and the mounting ears are 07-83504N01 (AMP #53887-1). 3084869Y06 cable is used for a positive ground system. 3084869Y02 cable is used for a negative ground system.
5	AC Input		120/240 VAC power source
6	GND		
7	RF Peripherals	RF peripheral sensor ports	Antenna relay and presence detect, external circulator load temperature (external wattmeter not supported).

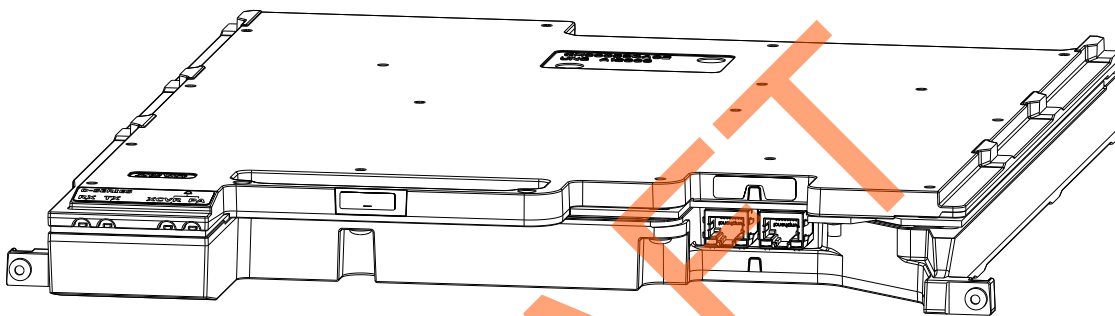
Port No.	Port Type	Connects To	Description
8	BNC	Receive Line (RxB)	RF coax to receive path for antenna A
9	BNC	Receive Line (RxA)	RF coax to receive path for antenna B. This port is used for dual diversity for TDMA.

2.1.3

Transceiver Module

The transceiver (XCVR) module primarily provides the exciter and the receiver functionality to the D-Series S1 Base Radio.

Figure 5: Transceiver Module (Front View)



The exciter on the XCVR RF board provides the transmitter functions for the D-Series S1 Base Radio. The exciter circuitry generates a low-level, modulated RF signal that passes to the power amplifier. It supports various modulation types as well as bandwidths up to 25 kHz, through software programming.

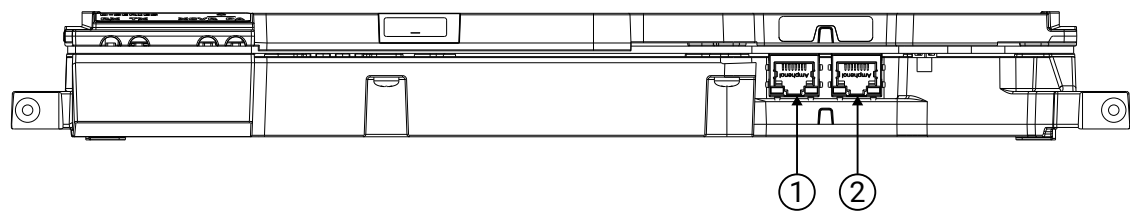
The exciter also provides a controlled output power level to the power amplifier.

The receiver provides either single receiver input or dual (TDMA) receiver inputs for dual diversity. It includes a wide tuning range preselector. The preselector is electronically tuned to the desired receive frequency.

Transceiver External Interfaces

The transceiver external interfaces include two RJ-45 LAN connectors on the front and two backplane connectors on the rear.

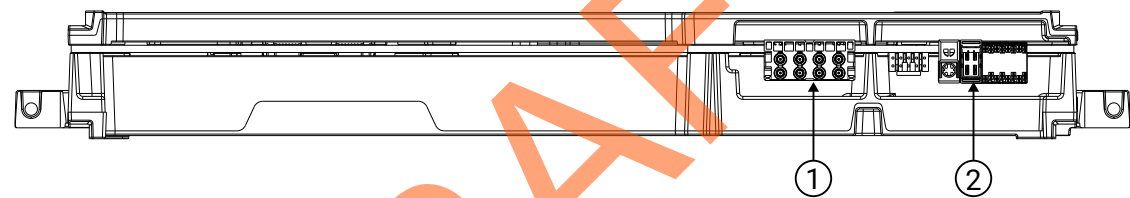
Figure 6: Transceiver Ports (Front)



Annotation	Description
1	RJ-45 LAN Port 1
2	RJ-45 LAN Port 2

The transceiver interconnects to the DSC 8500 with Ethernet ports on the front. The fan module must be removed to access these ports, the cables route through a notch in the side of the fan housing. Though the DSC 8500s are redundant, an alarm is enabled if both are not connected.

Figure 7: Transceiver Ports (Rear)



Annotation	Description
1	RF Connector
2	Digital / Power Connector

The transceiver interconnects to the backplane using a high density combination digital and power connector and an 8-pack RF connector. The connections handle multiple signals including power supply communications, power amplifier communications, fan interface, and peripheral interface.

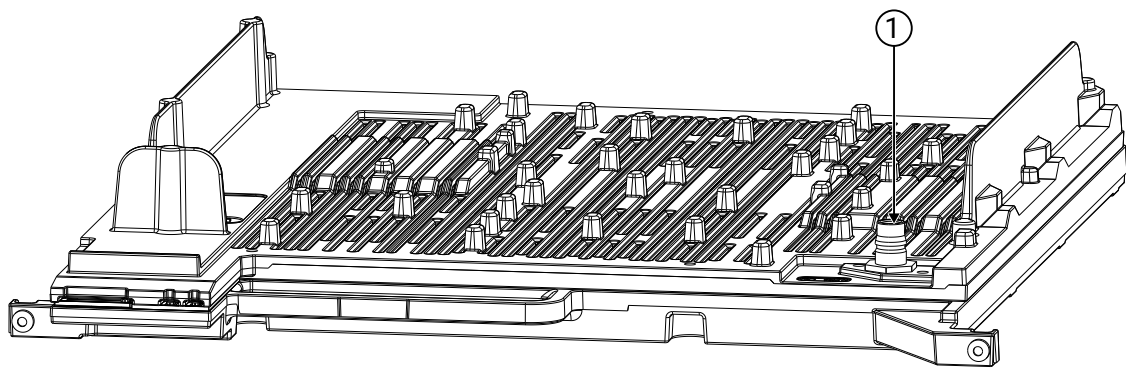
 **NOTE:** The backplane connectors on the XCVR in the D-Series S1 Base Radio are different than the backplane connectors on the XCVR on the GTR 800 Base Radio. These XCVRs are NOT compatible and damage may occur if you attempt to exchange XCVRs between base radios of different type.

2.1.4

Power Amplifier Module

The power amplifier (PA) is a forced convection-cooled RF power amplifier. The PA accepts a low-level modulated RF signal from the transceiver module, and amplifies it for transmission through the site transmit antenna. Also, to complete the Cartesian correction loop (linearization method), it provides a low-level RF feedback signal to the transceiver module to achieve the required transmitter linearity. Transmit power output can be set using PCA.

Figure 8: D-Series S1 Power Amplifier



Annotation	Description
1	RF Output Connector

Power Amplifier Input/Output Connections

There are three electrical connection assemblies on the power amplifier:

- RF output (front QN "quick-N" connector) on the front of the power amplifier module. This is pre-cabled to the rear access connector on the back of the D-Series S1 Base Radio.
- DC power supply/control signal (backplane connection)
- RF input/feedback (backplane connection).

Figure 9: Power Amplifier (Backplane Connections)



Annotation	Description
1	RF In/Feedback
2	DC Power In / Control Signal

 **NOTE:** The rear connectors on the backplane of the power amplifier are different than on the GTR. These power amplifiers are not compatible.

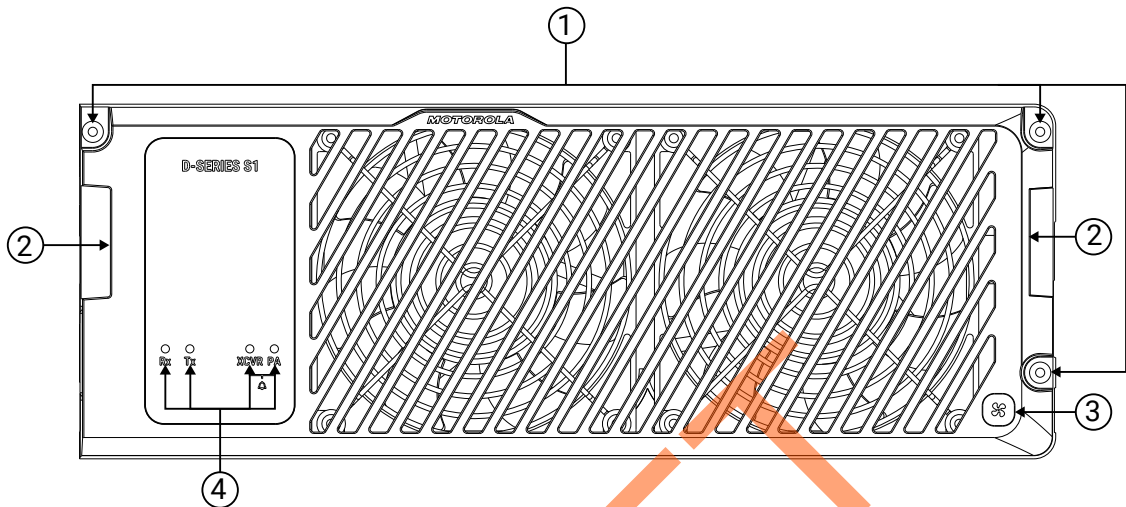
2.1.5
Fan Module

The fan module provides intermittent forced-air cooling for the power amplifier and transceiver modules. The fan module houses two axial fans which deliver airflow across the internal modules. If the fan speed for either fan falls below a threshold, a built-in speed sensor on each fan turns on the red Fan Alarm LED

The fan module connects to the other modules through a 4-pin port on the front of the chassis.

 **NOTE:** The power supply module has its own fan which provides independent airflow.

Figure 10: Fan Module



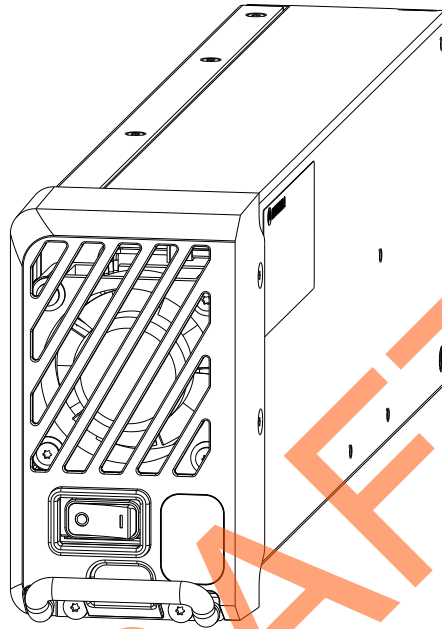
Annotation	Description
1	Screws x 3
2	Finger Pulls
3	Fan Alarm
4	Status LEDs

2.1.6

Power Supply Module

The power supply, with front-to-rear airflow, operates from either an AC or DC input and provides the DC operating voltage for the base radio.

Figure 11: Power Supply Module



When operating from an AC source (90 to 264 VAC, 47-63 Hz), the power supply automatically adjusts to AC input ranges and supplies a steady output.

2.1.7

D-Series S1 Base Radio Specifications

The TIA specifications for the D-Series S1 Base Radio include the following Methods and Performance recommendations:

Phase 1 (includes Linear Simulcast):

- Methods: TIA-102.CAAA-F, "Project 25 Digital C4FM/CQPSK Transceiver Measurement Methods" September 2021
- Performance: TIA-102.CAAB-E, "Project 25 Land Mobile Radio Transceiver Performance Recommendations, Digital Radio Technology, C4FM/CQPSK Modulation", September 2021

Phase 2:

- Methods: TIA-102.CCAA-C, "Project 25 Two-Slot Time Division Multiple Access Transceiver Measurement Methods", July 2022
- Performance: TIA-102.CCAB-B, "Project 25 Two-Slot Time Division Multiple Access Transceiver Performance Recommendations", July 2022.



IMPORTANT: Specifications are subject to change without notice.

2.1.7.1

D-Series S1 Base Radio Specifications for Integrated Voice and Data UHF R1 (380-435 MHz)

Table 2: D-Series S1 Base Radio General Specifications for IV&D UHF R1 (380–435 MHz)

General Specifications	
Model Number	T8956A
Number of Channels (trunked)	1
Size (H x W x D)	133mm x 483mm x 457mm (5.25" x 19" x 18")
Weight	TBD
Temperature Range	-30 to 60 °C (-22 to 140 °F)
Operating:	-40 to 85 °C (-40 to 185 °F)
Storage:	
Operating Altitude	Up to 1800 meters (5900 ft) above mean sea level Above 1800 meters (5900 ft), the derating is 1.5°C/km (0.8 °F/1000 ft)
Power Requirements	AC: 90-264 VAC, 47-63 Hz DC: 43.2-60 VDC
Power Consumption (Transmitting)*	AC:C4FM: TBD W max. H-DQPSK, LSM: TBD W max. DC:C4FM: TBD W max. H-DQPSK, LSM: TBD W max.
Power Consumption (Standby)*	AC: TBD W max. DC: TBD W max.
Power Supply Type	Switching
Input/Output Impedance	50 Ohms
Antenna Connector Types	Tx:N female Rx:BNC female without preselector N female with preselector
Channel Spacing	12.5/25 kHz
Frequency Stability	Repeater Site: Aging: 30 ppb/year Temperature: 10 ppb or GPS Synchronized Simulcast (multisite): GPS Synchronized
Frequency Generation	Synthesized

General Specifications

*D-Series S1 Base Radio consumption only. DSC 8500 Site Processor power consumption is additive to this if power is provided from the D-Series S1 Base Radio. For DSC 8500 Site Processor specifications, see [DSC 8500 Site Processor on page 32](#).

Table 3: D-Series S1 Base Radio Transmitter Specifications for IV&D UHF R1 (380–435 MHz)

Transmitter Specifications

Frequency Range	380–435 MHz
Power Output	2-110 W C4FM 2-100 W LSM, H-DQPSK
Peak Envelope Power	2-110 W C4FM 3.5-182 W LSM, H-DQPSK
Electronic Bandwidth	Full Bandwidth
Modulation	C4FM, LSM, H-DQPSK
Modulation Fidelity	5%
Spurious and Harmonic Emissions Attenuation	90 dB
Emissions Designators	TBD
Adjacent Channel Power Ratio	67 dB
Tx Noise in Rx Band	TBD dBc/Hz
Intermodulation Attenuation	65 dB

 **NOTE:** The output power reference plane is the output connector of the power amplifier. The loss of the transmitter output cable (PA output to back of a D-Series S1 Base Radio) is 3% at 450 MHz. However, the D-Series S1 Base Radio software allows the transmitter output power to be set at 10% above rated value. If more than 70 dB Intermodulation Attenuation is required at a site, an external circulator should be added to the transmitter output.

Table 4: D-Series S1 Base Radio Receiver Specifications for IV&D UHF R1 (380–435 MHz)

Receiver Specifications

Frequency Range	380–435 MHz
Electronic Bandwidth	Full Bandwidth
Modulation	C4FM, H-CPM
Digital Sensitivity 5% Bit Error Rate Static (BER)	C4FM: -118.5 dBm H-CPM: -116.5 dBm
Faded Sensitivity 5% Bit Error Rate (BER)	C4FM: -110.5 dBm
Intermodulation Rejection	85 dB
Digital Adjacent Channel Rejection	60 dB
Spurious and Image Response Rejection	85 dB 100 dB with preselector
Signal Displacement Bandwidth	1 kHz

Receiver Specifications

Intermediate Frequencies	1st:73.35 MHz 2nd:2.16 MHz
Blocking Immunity	100 dB
Conducted Spurious	-57 dBm
Bit Error Rate Floor	0.01%

Table 5: D-Series S1 Base Radio FCC Identification for IV&D UHF R1 (380–435 MHz)**FCC Identification**

Frequency Range	Type	Power Output	Type Acceptance Number
406.1-435 MHz	Transmitter	2-110 W C4FM 2-100 W LSM, H-DQPSK	TBD
380-435 MHz	Receiver	N/A	TBD

Table 6: D-Series S1 Base Radio Industry Canada for IV&D UHF R1 (380–435 MHz)

IC Approval Number	Frequency Range	Type	Power Output	IC Model Number
TBD	Tx: 406.1-430 MHz Rx: 406.1-430MHz	C4FM	Variable 2-110 W	TBD
TBD	Tx: 406.1-430 MHz Rx: 406.1-430MHz	LSM, H-DQPSK	Variable 2-100 W	TBD

2.1.7.2

D-Series S1 Base Radio Specifications for Integrated Voice and Data UHF R2 (435-524 MHz)**Table 7: D-Series S1 Base Radio General Specifications for IV&D UHF R2 (435–524 MHz)****General Specifications**

Model Number	T8955A
Number of Channels (trunked)	1
Size (H x W x D)	133mm x 483mm x 457mm (5.25" x 19" x 18")
Weight	TBD
Temperature Range	-30 to 60 °C (-22 to 140 °F)
Operating:	-40 to 85 °C (-40 to 185 °F)
Storage:	
Operating Altitude	Up to 1800 meters (5900 ft) above mean sea level

General Specifications

	Above 1800 meters (5900 ft), the derating is 1.5°C/km (0.8 °F/1000 ft)
Power Requirements	AC: 90-264 VAC, 47-63 Hz DC: 43.2-60 VDC
Power Consumption (Transmitting)*	AC:C4FM: TBD W max. H-DQPSK, LSM: TBD W max. DC:C4FM: TBD W max. H-DQPSK, LSM: TBD W max.
Power Consumption (Standby)*	AC: TBD W max. DC: TBD W max.
Power Supply Type	Switching
Input/Output Impedance	50 Ohms
Antenna Connector Types	Tx:N female Rx:BNC female without preselector N female with preselector
Channel Spacing	12.5/25 kHz
Frequency Stability	Repeater Site: Aging: 30 ppb/year Temperature: 10 ppb or GPS Synchronized Simulcast (multisite): GPS Synchronized
Frequency Generation	Synthesized
*D-Series S1 Base Radio consumption only. DSC 8500 Site Processor power consumption is additive to this if power is provided from the D-Series S1 Base Radio. For DSC 8500 Site Processor specifications, see DSC 8500 Site Processor on page 32 .	

Table 8: D-Series S1 Base Radio Transmitter Specifications for IV&D UHF R2 (435–524 MHz)

Transmitter Specifications

Frequency Range	435–524 MHz
Power Output	2-110 W C4FM 2-100 W LSM, H-DQPSK
Peak Envelope Power	2-110 W C4FM 3.5-182 W LSM, H-DQPSK
Electronic Bandwidth	Full Bandwidth
Modulation	C4FM, LSM, H-DQPSK
Modulation Fidelity	5%
Spurious and Harmonic Emissions Attenuation	90 dB

Transmitter Specifications

Emissions Designators	TBD
Adjacent Channel Power Ratio	67 dB
Tx Noise in Rx Band	TBD dBc/Hz
Intermodulation Attenuation	65 dB



NOTE: The output power reference plane is the output connector of the power amplifier. The loss of the transmitter output cable (PA output to back of a D-Series S1 Base Radio) is 3% at 450 MHz. However, the D-Series S1 Base Radio software allows the transmitter output power to be set at 10% above rated value. If more than 70 dB Intermodulation Attenuation is required at a site, an external circulator should be added to the transmitter output.

Table 9: D-Series S1 Base Radio Receiver Specifications for IV&D UHF R2 (435–524 MHz)**Receiver Specifications**

Frequency Range	435–524 MHz
Electronic Bandwidth	Full Bandwidth
Modulation	C4FM, H-CPM
Digital Sensitivity 5% Bit Error Rate Static (BER)	C4FM: -118.5 dBm H-CPM: -116.5 dBm
Faded Sensitivity 5% Bit Error Rate (BER)	C4FM: -110.5 dBm
Intermodulation Rejection	85 dB
Digital Adjacent Channel Rejection	60 dB
Spurious and Image Response Rejection	85 dB 100 dB with preselector
Signal Displacement Bandwidth	1 kHz
Intermediate Frequencies	1st: 73.35 MHz 2nd: 2.16 MHz
Blocking Immunity	100 dB
Conducted Spurious	-57 dBm
Bit Error Rate Floor	0.01%

Table 10: D-Series S1 Base Radio FCC Identification for IV&D UHF R2 (435–524 MHz)**FCC Identification**

Frequency Range	Type	Power Output	Type Acceptance Number
435-512 MHz	Transmitter	2-110 W C4FM 2-100 W LSM, H-DQPSK	TBD
435-512 MHz	Receiver	N/A	TBD

Table 11: D-Series S1 Base Radio Industry Canada for IV&D UHF R2 (435–524 MHz)

IC Approval Number	Frequency Range	Type	Power Output	IC Model Number
TBD	Tx: 450-470 MHz Rx: 450-470 MHz	C4FM	Variable 2-110 W	TBD
TBD	Tx: 450-470 MHz Rx: 450-470 MHz	LSM, H-DQPSK	Variable 2-100 W	TBD

2.1.7.3

D-Series S1 Base Radio Specifications for Integrated Voice and Data VHF (136-174 MHz)

Table 12: D-Series S1 Base Radio General Specifications for IV&D VHF (136–174 MHz)

General Specifications	
Model Number	T8976A
Number of Channels (trunked)	1
Size (H x W x D)	133mm x 483mm x 457mm (5.25" x 19" x 18")
Weight	TBD
Temperature Range	-30 to 60 °C (-22 to 140 °F)
Operating:	-40 to 85 °C (-40 to 185 °F)
Storage:	
Operating Altitude	Up to 1800 meters (5900 ft) above mean sea level Above 1800 meters (5900 ft), the derating is 1.5°C/km (0.8 °F/1000 ft)
Power Requirements	AC: 90-264 VAC, 47-63 Hz DC: 43.2-60 VDC
Power Consumption (Transmitting)*	AC:C4FM: TBD W max. H-DQPSK, LSM: TBD W max. DC:C4FM: TBD W max. H-DQPSK, LSM: TBD W max.
Power Consumption (Standby)*	AC:TBD W max. DC:TBD W max.
Power Supply Type	Switching
Input/Output Impedance	50 Ohms
Antenna Connector Types	Tx:N female Rx:BNC female without preselector N female with preselector
Channel Spacing	12.5/15/25/30 kHz
Frequency Stability	Repeater Site:

General Specifications

	Aging: 30 ppb/year
	Temperature: 10 ppb or
	GPS Synchronized
	Simulcast (multisite):
	GPS Synchronized
Frequency Generation	Synthesized
*D-Series S1 Base Radio consumption only. DSC 8500 Site Processor power consumption is additive to this if power is provided from the D-Series S1 Base Radio. For DSC 8500 Site Processor specifications, see DSC 8500 Site Processor on page 32 .	

Table 13: D-Series S1 Base Radio Transmitter Specifications for IV&D VHF (136–174 MHz)

Transmitter Specifications

Frequency Range	136–174 MHz
Power Output	2-100 W C4FM 2-60 W LSM, H-DQPSK
Peak Envelope Power	2-100 W C4FM 3.5-110 W LSM, H-DQPSK
Electronic Bandwidth	Full Bandwidth
Modulation	C4FM, LSM, H-DQPSK
Modulation Fidelity	5%
Spurious and Harmonic Emissions Attenuation	90 dB
Emissions Designators	TBD
Adjacent Channel Power Ratio	67 dB
Tx Noise in Rx Band	TBD dBc/Hz
Intermodulation Attenuation	55 dB

 **NOTE:** The output power reference plane is the output connector of the power amplifier. The loss of the transmitter output cable (PA output to back of a D-Series S1 Base Radio) is 1% at 150 MHz. However, the D-Series S1 Base Radio software allows the transmitter output power to be set at 10% above rated value. If more than 70 dB Intermodulation Attenuation is required at a site, an external circulator should be added to the transmitter output.

Table 14: D-Series S1 Base Radio Receiver Specifications for IV&D VHF (136–174 MHz)

Receiver Specifications

Frequency Range	136–174 MHz
Electronic Bandwidth	Full Bandwidth
Modulation	C4FM, H-CPM
Digital Sensitivity 5% Bit Error Rate Static (BER)	C4FM: -119.5 dBm H-CPM: -117.5 dBm
Faded Sensitivity 5% Bit Error Rate (BER)	C4FM: -111.5 dBm

Receiver Specifications

Intermodulation Rejection	85 dB
Digital Adjacent Channel Rejection	60 dB
Spurious and Image Response Rejection	90 dB 95 dB with preselector
Signal Displacement Bandwidth	1 kHz
Intermediate Frequencies	1st:44.85 MHz 2nd:2.16 MHz
Blocking Immunity	100 dB
Conducted Spurious	-57 dBm
Bit Error Rate Floor	0.01%

Table 15: D-Series S1 Base Radio FCC Identification for IV&D VHF (136–174 MHz)

FCC Identification

Frequency Range	Type	Power Output	Type Acceptance Number
136-174 MHz	Transmitter	2-100 W C4FM 2-60 W LSM, H-DQPSK	TBD
136-174 MHz	Receiver	N/A	TBD

Table 16: D-Series S1 Base Radio Industry Canada for IV&D VHF (136–174 MHz)

IC Approval Number	Frequency Range	Type	Power Output	IC Model Number
TBD	Tx: 138-174 MHz Rx: 138-174 MHz	C4FM	Variable 2-100 W	TBD
TBD	Tx: 138-174 MHz Rx: 138-174 MHz	LSM, H-DQPSK	Variable 2-60 W	TBD

2.1.7.4

Specifications for the D-Series S1 Base Radio Cabinet

Table 17: General Specifications for the D-Series S1 Base Radio Cabinet

Cabinet Version	Specification
Cabinet Version (Option CA02446AA):	31 in. (78.74 cm) 15 Rack Units
Cabinet Version (Option CA02447AA):	47 in. (119.4 cm) 24 Rack Units
Footprint (W x D)	24 in. x 24 in. (609.6 mm x 609.6 mm)
Cabinet Version (Option CA02446AA):	77.6 lb (35.2 kg)
Cabinet Version (Option CA02447AA):	123 lb (55.8 kg)
Cabinet Version (Option CA02446AA):	98.6 lb (44.72 kg)

Cabinet Version	Specification
Cabinet Version (Option CA02447AA):	144 lb (65.32 kg)
Maximum Stack Quantity ¹⁾	2
Cabinet Version (Option CA02446AA):	62 in. (157.48 cm)
Cabinet Version (Option CA02447AA):	94 in. (238.76 cm)
¹⁾ If different size cabinets are being stacked, place the larger cabinet on the bottom. Use a 9/16 in. hexagon head screw with washer and lock nut. The minimum bolt size must not be smaller than 1/2 in.	

Table 18: Environmental Specifications for the D-Series S1 Base Radio Cabinet

Environmental Specifications	
Cabinet without Doors:	-22 to 140 °F (-30 to 60 °C)
Cabinet with Doors:	-22 to 131 °F (-30 to 55 °C)
Temperature Range, Storage	-40 to 185 °F (-40 to 85 °C)
Operating Altitude	Up to 1800 meters (5900 ft) above mean sea level Above 1800 meters (5900 ft), the derating is 1.5 °C/km (0.8 °F/1000 feet) Maximum operational altitude is 5000 meters (16900 ft)

Table 19: Maximum Recommended Ambient Temperature

Number of devices	31 in. 15 RU Cabinet	47 in. 24 RU Cabinet
1	55 °C	55 °C
2	50 °C	55 °C
3	50 °C	55 °C
4	NR	50 °C
5	NR	50 °C
6	n/a	45 °C
7	n/a	NR*
8	n/a	NR*

Ambient air temperature should be measured about 1-2 inches in front of the fan intake.

*NR – Not recommended. Though the cabinet does have enough available space to accommodate this number of chassis, typically some peripherals, RFDS, networking, and other equipment may be colocated and occupy the remaining space. In addition, a few RUs of space for cable egress is recommended at the top of the cabinet so cables do not interfere with the airflow from the equipment. If adding more equipment than shown, validate that the internal cabinet temperature does not exceed the rating of any installed devices.

2.2

DSC 8500 Site Processor

Each D-Series S1 Base Radio requires a connection to a DSC 8500 Site Processor to operate. Generally, deployments will have two DSC 8500 modules, and each D-Series S1 Base Radio connects to both DSC 8500 modules for redundancy. Each pair of redundant DSC 8500 modules can support up to 12 Base Radios.



NOTE: The D-Series S1 Base Radios are considered transceivers with regards to the ports used on the DSC 8500 for connection. No modules should be connected to the Power Amplifier ports on the DSC 8500 in a D-Series S1 Base Radio deployment.

2.2.1

DSC 8500 Physical Description

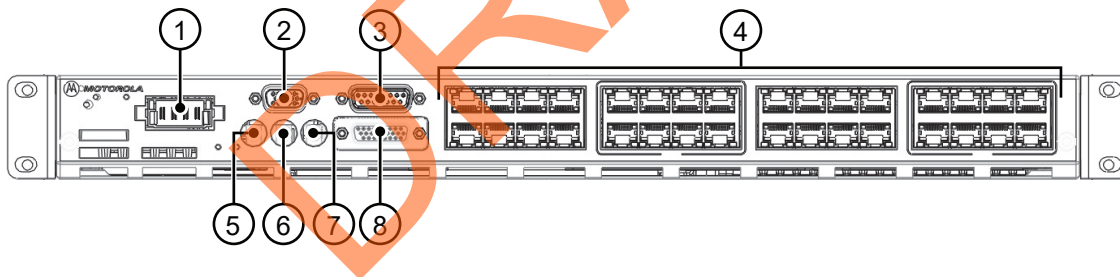
The DSC 8500 provides the station control and DSP operations of the individual RF channels assigned to a given rack/cabinet. Two DSC 8500 processors are required for up to 12 D-Series S1 Base Radios, but a single DSC 8500 can support all RF channels in the rack/cabinet it resides in. This arrangement aids in preventing a single point of failure.

The DSC 8500 also provides the RF Site processor and reference distribution functionality, also ensuring LAN connectivity and switching in the site. It also provides the time reference in the site and can be connected to a GNSS remote receiver or to an external time/frequency reference (TRAK), if already at the site.

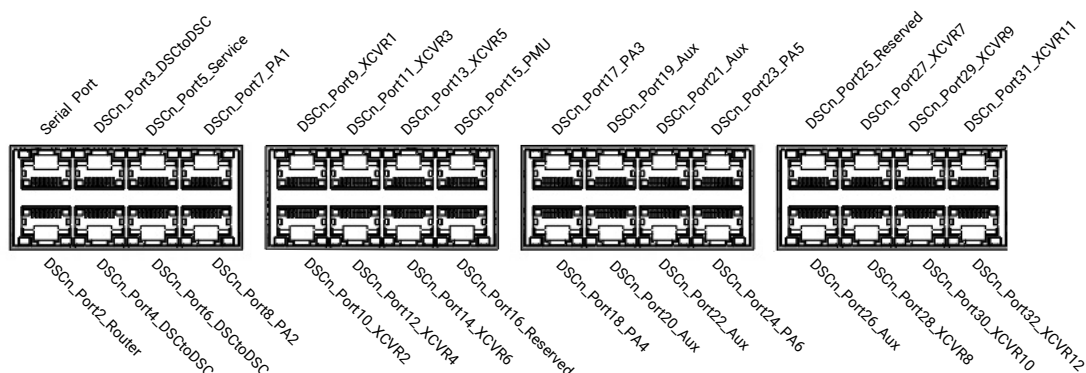
Each DSC 8500 supports 14 digital inputs that can be monitored and configured to send fault management traps to registered fault managers. The 14 digital inputs are the pull to ground type, which can be driven by an open collector device that is capable of sinking 7 mA.

The DSC 8500 can be supplemented with an optional rubidium oscillator device to ensure an extended holdover in the event of GNSS signal loss.

Figure 12: DSC 8500 Front Panel



Annotation	Description
1	Power
2	PSU Alarm Inputs
3	GNSS
4	RJ45 ports
5	REF/1PPS IN (QMA connector)
6	10MHz OUT (QMA connector)
7	1PPS OUT (QMA connector)
8	Internal Site Alarm Inputs for General Purpose Fault Management

Figure 13: DSC 8500 RJ45 Ports at D-Series MultiCarrier Site

RJ45 Port	Description
DSCn_Port02_Router	100MbpsFullDuplex
DSCn_Port03_DSCtoDSC to DSCn_Port32_XCVR12	AutoNegotiate

Table 20: DSC 8500 Internal Site Alarm Input Port Pinout Definition

Pin	Function
Pin 1	Reserved
Pin 2	Reserved
Pin 3	Ground
Pin 4	Input Pin13
Pin 5	Input Pin10
Pin 6	Input Pin8
Pin 7	Input Pin6
Pin 8	Input Pin4
Pin 9	Input Pin2
Pin 10	Reserved
Pin 11	Ground
Pin 12	Ground
Pin 13	Input Pin14
Pin 14	Ground
Pin 15	Input Pin9
Pin 16	Input Pin7
Pin 17	Ground
Pin 18	Input Pin1 – Reserved for External Backup Power Supply Control
Pin 19	Reserved

Pin	Function
Pin 20	Ground
Pin 21	Input Pin15
Pin 22	Input Pin12
Pin 23	Input Pin11
Pin 24	Input Pin5
Pin 25	Input Pin3
Pin 26	Input Pin0 – Reserved for External Backup Power Supply Control

Figure 14: Internal Site Alarm Input Pins for External Backup Power Supply Control

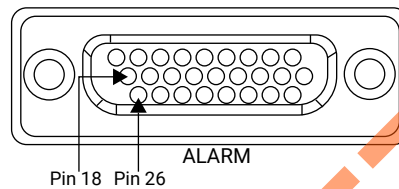
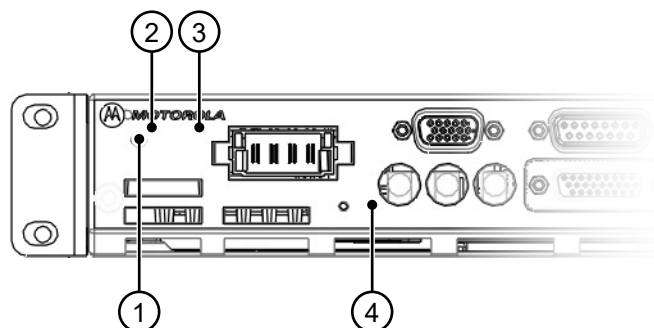


Table 21: DSC 8500 Serial Port Pinout Definition

Pin	Function
Pin 1	No connection
Pin 2	No connection
Pin 3	No connection
Pin 4	Tx
Pin 5	No connection
Pin 6	No connection
Pin 7	Rx
Pin 8	Ground

Figure 15: DSC 8500 Front Panel LEDs and Buttons



Annotation	Description	Status
1	Power button	Powers on and powers off the server board. A 1-second push/hold results in a graceful DSC 8500 shutdown.

Annotation	Description	Status
		A 5-seconds push/hold results in a hard shutdown.
2	Power LED	ON: DSC 8500 board is powered up OFF: DSC 8500 board is powered off
3	Fan LED	GREEN: fans function properly RED: one or more fans failed
4	Status LED	GREEN: DSC 8500 functions properly AMBER: meaning is configurable in the Provisioning and Configuration Agent (PCA) RED: DSC 8500 failure

Table 22: DSC 8500 Physical Parameters

Parameter	Value
Width	441 mm (17.4 in.)
Depth	405.6 mm (15.97 in.)
Height	44.0 mm (1.73 in.)
Weight	7.5 kg (16.5 lb)

2.2.2

DSC 8500 Power Options

The DSC 8500 can receive power in two ways.

The DSC 8500 can be powered by nearby D-Series S1 Base Radios through the rear aux power connection. Each DSC 8500 is provided a Y Cable which connects to the DSC 8500 power connector in the front, and then connects to two different D-Series S1 Base Radios on their rear panel. Each D-Series S1 Base Radio has 2 power outputs, and can support powering 2 DSC 8500s if the second D-Series S1 Base Radio connected to the Y Cables fails.

The DSC 8500 can also be powered directly from 48V DC provided at the site.

For part numbers, see [D-Series S1 Base Radio Field Replaceable Units \(FRUs\) and Parts on page 62](#).

2.3

RFDS Module

The Radio Frequency Distribution System (RFDS) equipment included in your system depends on which options were purchased from Motorola Solutions.



NOTE: If the RTTE option was selected, a duplexer is required for applicable applications.

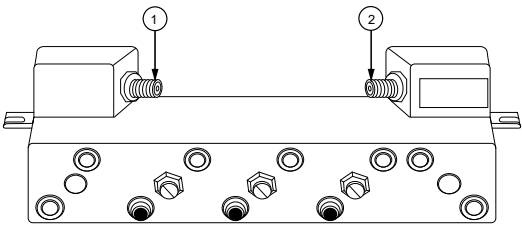
2.3.1

RFDS - Preselector (UHF)

The preselector rejects unwanted signals, including the transmitter signals, from overloading the receiver.

This filter must be included to fulfill TIA102-CAAB Class A spurious response rejection (90 dB). The filter is not required when using a receiver multicoupler system. This filter can be retuned in the field.

Figure 16: Preselector (UHF)

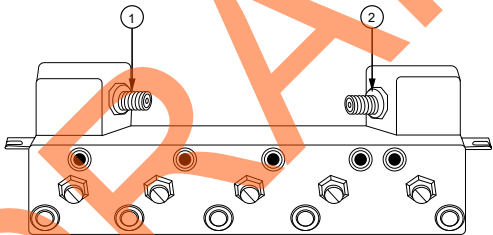


Annotation	Description
1	RF Input (RxInput)
2	RF Output RxA

2.3.2
RFDS - Preselector (VHF)

The preselector rejects unwanted signals, including the transmitter signals, from overloading the receiver. This filter must be included to fulfill TIA102-CAAB Class A spurious response rejection (90 dB). The filter is not required when using a receiver multicoupler system. This filter can be retuned in the field.

Figure 17: Preselector (VHF)

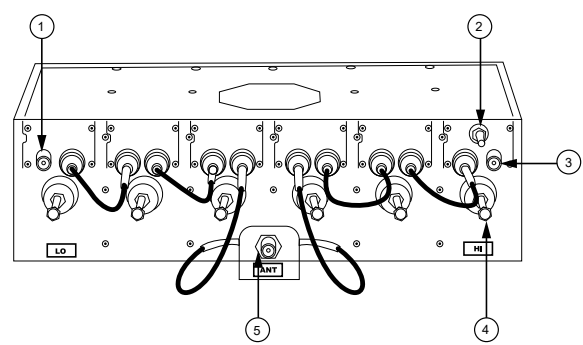


Annotation	Description
1	RF Input (RxInput)
2	RF Output RxA

2.3.3
RFDS – Duplexer (UHF)

This optional filter provides the capability to use a single antenna for both transmitter and receiver. Only one transmitter and receiver can be combined.

Figure 18: Duplexer (UHF)

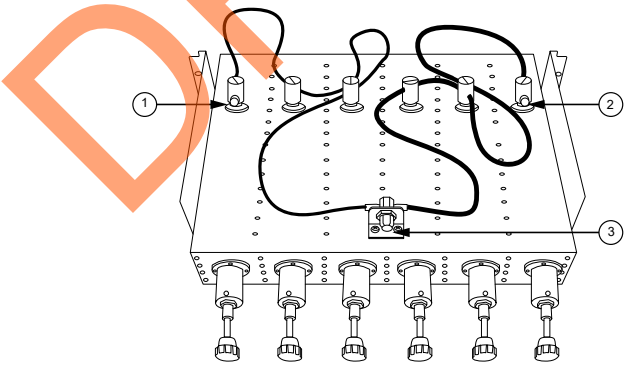


Annotation	Description
1	High Side Frequency
2	Notch Turning Screw
3	LO Side Frequency
4	Resonator Tuning Knob (x6)
5	RF to/from Antenna

2.3.4
RFDS – Duplexer (VHF)

This optional filter provides the capability to use a single antenna for both transmit and receiver. Only one transmitter and receiver can be combined.

Figure 19: Duplexer (VHF)



Annotation	Description
1	Lower Frequency
2	Higher Frequency
3	RT to/from Antenna

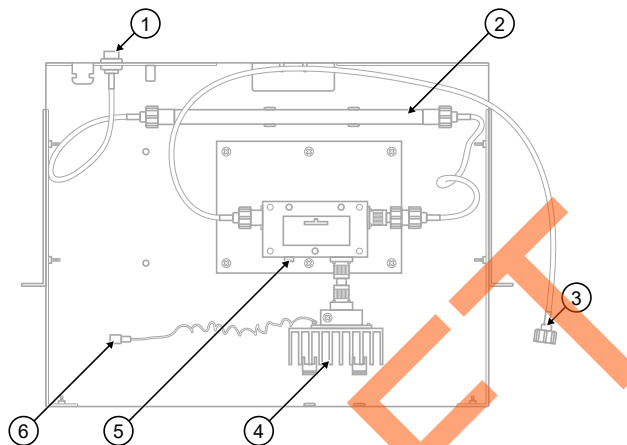
2.3.5

RFDS – External Dual Circulator/Isolator Tray (UHF)

An option for the D-Series S1 Base Radio is an External Dual Circulator module which isolates the D-Series S1 Base Radio from the antenna, thus preventing the transmitter from generating intermodulation.

The circulator load dissipates reflected power. It includes a cable that connects to the RF Peripherals port on the D-Series S1 Base Radio backplane to provide temperature monitoring.

Figure 20: External Dual Circulator/Isolator Tray (UHF)



Annotation	Description
1	RF Out
2	Low Pass Filter
3	RF In
4	Circulator Load
5	External Dual Circulator
6	RF Peripherals Port

2.3.6

RFDS – External Dual Circulator/Isolator Tray (VHF)

An option for the D-Series S1 Base Radio is an External Dual Circulator module which isolates the D-Series S1 Base Radio from the antenna, thus preventing the transmitter from generating intermodulation.

The circulator load dissipates reflected power. It includes a cable that connects to the RF Peripherals port on the D-Series S1 Base Radio backplane to provide temperature monitoring.

2.3.7

Preselector Filter Specifications

Table 23: Preselector Filter Specifications (UHF)

Feature	Preselector Spec Limit (UHF)	Typical
Tuning range	380–433 MHz, 435–470 MHz,	

Feature	Preselector Spec Limit (UHF)	Typical
	470–524 MHz	
Bandwidth	4 MHz	
Insertion loss	2 dB	1.3 dB
VSWR max.	1.9:1	1.5:1
Input Connector	Mini-UHF	
Output Connector	Mini-UHF	

Table 24: Preselector Filter Specifications (VHF)

Feature	Preselector Spec Limit (VHF)	Typical
Tuning range	136–154 MHz, 150–174 MHz	
Bandwidth	4 MHz	
Insertion loss	2.0 dB	1.3 dB
VSWR max.	1.9:1	
Input Connector	Mini-UHF	
Output Connector	Mini-UHF	

2.3.8

Duplexer Specifications

Duplexer Specifications (UHF)



NOTE: For frequencies below 470 MHz, R/T may be as low as 3 MHz. For frequencies above 470 MHz, R/T may be as low as 2 MHz. Such values may result in insertion loss or isolation that do not meet the specifications.

Table 25: Duplexer Specifications (UHF)

Feature	Duplexer Spec Limit (UHF)	Typical	Notes
Frequency range	380–403 MHz, 403–435 MHz, 435–470 MHz, 470–494 MHz, 494–512 MHz		
Insertion loss Tx	1.3 dB	1.1 dB	
Insertion loss Rx	1.3 dB	1.1 dB	
VSWR max.	1.3:1	1.2:1	
Rx isolation below 470 Mhz	100 dB		R/T 5 MHz

Feature	Duplexer Spec Limit (UHF)	Typical	Notes
Rx isolation above 470 Mhz	100 dB		R/T 3 MHz
Tx isolation below 470 Mhz	100 dB		R/T 5 MHz
Tx isolation above 470 Mhz	100 dB		R/T 3 MHz
Antenna Connector	N female		
Rx/Tx Output Connector	N Female		

Duplexer Specifications (VHF)



NOTE: The minimum Tx-Rx spacing may be as low as 1.0 MHz. Such values may result in insertion loss or isolation values that do not meet the specifications.

Table 26: Duplexer Specifications (VHF)

Feature	Duplexer Spec Limit (VHF)	Typical
Frequency range	136–146 MHz, 144–160 MHz, 158–174 MHz	
Insertion loss Tx	1.3 dB	0.7 dB
Insertion loss Rx	1.3 dB	0.7 dB
VSWR max.	1.5:1	1.2:1
Rx isolation	75 dB	80 dB
Tx isolation	75 dB	77 dB
Minimum Tx-Rx Frequency Spacing	1.5 MHz	
Antenna Connector	N female	
Rx/Tx Output Connector	N female	

2.3.9

External Dual Circulator Specifications

Table 27: External Dual Circulator Specifications (UHF)

Feature	External Dual Circulator Spec Limit (UHF)	Typical
Operating Frequency Range	380–435 MHz, 435–470 MHz, 470–524 MHz	
Insertion Loss	1.6 dB	1.2 dB

Feature	External Dual Circulator Spec Limit (UHF)	Typical
Input Return Loss	18 dB	24 dB
Reverse Isolation	40 dB	50 dB
Power (continuous)	200 W	
Harmonic Attenuation <10 GHz)	55 dB	
Input Connector	RF cable with N male	
Output Connector	N female	

Table 28: External Dual Circulator Specifications (VHF)

Feature	External Dual Circulator Spec Limit (VHF)	Typical
Operating Frequency Range	136–146 MHz, 144–160 MHz, 158–174 MHz	
Insertion Loss	1.6 dB	0.7 dB
Input Return Loss	18 dB	25 dB
Reverse Isolation	40 dB	50 dB
Power (continuous)	200 W	
Harmonic Attenuation <10 GHz)	50 dB	
Input Connector	RF cable with N male	
Output Connector	N female	

Chapter 3

Provisioning and Configuration Agent Application

Provisioning and Configuration Agent (PCA) is a web interface for local configuration, status reporting and managing a site.

The PCA application can be used to perform the following actions:

- Configure operating parameters for infrastructure devices.
- Retrieve status and operational information from a device.
- Perform device configuration and servicing tasks through a direct Ethernet connection to the device or over the LAN from the Network Management subsystem.

3.1

PCA Users

Two predefined user accounts are available when you log on to the Provisioning and Configuration Agent (PCA) for the first time:

- **admin**
- **config**

They have initial passwords which you must change during the first login.

The **admin** user can perform the following actions:

- Add and delete local users
- Configure the existing local user accounts
- Configure Account Policies
- Configure security settings for SNMP Config and LDAP
- Define the custom login banner
- Configure a remote syslog server
- Set passwords for DSC 8500 logs

The **admin** user has access to the following menus:

-  – **Users Management**
-  – **Security Settings**
-  – **Help**

User management operations performed by the **admin** user are logged in the local syslog file and forwarded to the remote syslog server, if configured.

The **config** user can configure and modify the existing site parameters.

The **config** user has access to the following menus:

-  – **Configuration**
-  – **Pending Changes**

-  – Export & Import
-  – Services
-  – Help (includes the version information)

You can assign one of the following roles to local users:

- **Network Security Administrator** with the **admin** account privileges
- **System Infrastructure Administrator** with the **config** account privileges
- **System Infrastructure Operator** with read-only access to the site configuration
- **RF Coverage Test Operator** used to run RF coverage tests

3.2

Logging On to the PCA for the First Time

When you log on to the Provisioning and Configuration Agent (PCA) for the first time, you must change the predefined password following the rules of the password policy.

The password policy:

- Minimum password length: 15
- Minimum lowercase letters: 1
- Minimum uppercase letters: 1
- Minimum numeric digits: 1
- Minimum non-alphanumeric characters: 1 [!@#\$%^&<>()+-=]
- Minimum changed characters: 8
- Password reuse history: 5
- Minimum password age: [day] 1
- Maximum password age: [day] 60

Prerequisites:

Obtain:

- Service laptop or the Network Management (NM) Client
- IP address or the host name of the DSC 8500. See [Logon Information on page 44](#).
- *MSI CA Certs* package from *ASTRO Windows Supplemental* media
- Credentials for predefined admin or config users

Install the *MSI CA Certs* package on the service laptop to avoid certificate trust warnings from the web browser.

Procedure:

1. In the address bar of a web browser, enter one of the following:
 - `https://<DSC_IP_address>`
 - `https://<DSC_host_name>`
2. Provide credentials for one of two predefined users.
3. Click **Log in**.
4. In the **Password** field, enter the password assigned to the predefined account you use.

5. In the **New password** field, enter your new password.
The new password must meet the rules defined in the PCA Password Policy.
6. In the **Confirm new password** field, enter your new password.
7. Click **Update password and log in**.
If your password does not follow the Password Policy rules, a message specifying the required changes appears.
8. If you want to change the PCA display mode, from the *<user>* drop-down menu in the right upper corner, select **Light Mode** or **Dark Mode**.

3.2.1

Logon Information

DSC 8500 ASR Site

The IP address can be obtained from the following IP scheme:

10.<Zone_no+100>.<Site_no>.<DSC>

where:

<Zone_no> = Zone Number

<Site_no> = Site Number

<DSC> = DSC 1 = 228, DSC 2 = 229, DSC 3 = 230, DSC 4 = 231, DSC 5=232, DSC 6 = 233

The host name scheme can be obtained from the following host name scheme:

z<ZZ>s<SS>rfe<HH>.site<ss>.zone<z>

where:

<ZZ> is the Zone number, 1-7, 3 digit zero padded

<SS> is the RF Site number 1- 150, 3 digit zero padded

<HH> is the instance number used in host names and aliases, 2 digit zero padded

<ss> is the RF Site number 1- 150, no zero padded

<z> is the Zone number, 1-7

Example: z001s001rfe01.site1.zone1

DSC 8500 Subsite

The IP address can be obtained from the following IP scheme:

101110ZZ.ZZZZPPP.PPPSSSS.SHHHHHH

where:

ZZZZZZ = Zone Number

PPPPPP = Site Number

SSSSSS = Subsite Number

HHHHHH = DSC 1 = 1101000, DSC 2 = 1101001, DSC 3 = 1101010, DSC 4 = 1101011, DSC 5 1101100, DSC 6 = 1101101

The host name can be obtained from the following host name scheme:

z{ZZ}ips{PP}s{RR}rfe{H}.ipss{subsite}.site{prime}.zone{zone}

where:

<ZZ> is the Zone number, 1-7, 2 digit zero padded

<PP> is the RF Site number 1-64, 2 digit zero padded

<RR> is the IP Subsite number 1-64, 2 digit zero padded
<H> is the instance number used in host names and aliases, 1 digit instance
<subsite> is the IP Subsite number 1- 64
<prime> is the Prime Site number 1-64
<zone> is the Zone number, 1-7

Example: z01ips01s01rfe1.ipss1.site1.zone1

3.3

Resetting SNMPv3 Passphrases to Default on DSC 8500

You can use this procedure to reset the SNMPv3 configuration in the Provisioning and Configuration Agent (PCA) if the configured SNMPv3 passphrases are lost.

Prerequisites:

Obtain:

- Service laptop or the Network Management (NM) Client
- IP address or the host name of the DSC 8500. See [Logon Information on page 44](#).
- Credentials for the **Network Security Administrator** account

Install the *MSI CA Certs* package on the service laptop to avoid certificate trust warnings from the web browser.

Procedure:

1. In the address bar of a web browser, enter one of the following:
 - `https://<DSC_IP_address>`
 - `https://<DSC_host_name>`
2. Log on to the PCA as **Network Security Administrator**.
3. From the left-side menu panel, select **Security Settings**.
4. From the **Security Settings** menu, select **SNMP Configuration**.
5. In the **SNMP Configuration** view, select **Factory Defaults**.
6. Click **Redefault All SNMP Users**.
7. Click **Confirm**.

3.4

Setting Up PCA Users and Passwords

You can use this procedure to set up users and passwords in the Provisioning and Configuration Agent (PCA).

Prerequisites: Obtain:

- Service laptop or the Network Management (NM) Client
- IP address or the host name of the DSC 8500. See [Logon Information on page 44](#).
- Credentials for the **Network Security Administrator** account

Procedure:

1. In the address bar of a web browser, enter one of the following:

Chapter 3: Provisioning and Configuration Agent Application

- `https://<DSC_IP_address>`
 - `https://<DSC_host_name>`
2. Log on to the PCA as **Network Security Administrator**.
 3. From the left-side menu panel, select **Users Management**.
 4. In the **Users Management** view, click the  icon.
 5. In the **Add User** pane, perform the following actions:
 - a. In the **Username** field, enter the user name.
 - b. In the **Password** field, enter the user password.
 - c. In the **Confirm password** field, confirm the user password.
 - d. In the **Account locked** position, if you want to lock the user account, set the flag active.
 - e. In the **Password change required** position, if you want to force the password change at the first login, set the flag active.
 - f. In the **Roles** field, from the list of available roles, select the role of the user.
 - g. Click **Apply**.

DRAFT

Chapter 4

D-Series S1 RF Site Configuration

This chapter contains information and procedures required to configure the D-Series S1 RF Site.

4.1

Configuring the D-Series S1 RF Site

Prerequisites:

Obtain:

- Service laptop or the Network Management (NM) Client
- IP address or the host name of the DSC 8500. See [Logon Information on page 44](#).
- Credentials for the **System Infrastructure Administrator** account

Procedure:

1. In the address bar of a web browser, enter one of the following:
 - `https://<DSC_IP_address>`
 - `https://<DSC_host_name>`
2. Log on to the PCA as the **System Infrastructure Administrator**.
3. Configure the system. See [Configuring the System on page 47](#).
4. Configure the band plan. See [Configuring the Band Plan on page 48](#).
5. Configure the zone. See [Configuring the Zone on page 50](#).
6. Configure the site. See [Configuring the Site on page 51](#).
7. Configure the channels. See [Configuring the Channels on page 55](#).

4.1.1

Configuring the System

Procedure:

1. From the left-side menu panel, select **Configuration**.
2. From the **Configuration** menu, select **System**.
3. In the **System** view, provide appropriate values according to your system configuration.
For information on the system parameters, see [System on page 48](#).
4. Click **Apply**.
5. From the left-side menu panel, select **Pending Changes**.
6. Review the changes and apply by clicking **Apply**.

4.1.1.1

System

Table 29: ASR System Field Descriptions

Field	Description	Range	Default
WACN ID	This field is used to assign a unique ID to the network in a Wide Area Communications Network (WACN) system where this site processor is located. Hexadecimal range of values is 00001 through FFFFE with 00001 as the default value.	1..FFFE	1
System ID	This field is used to assign a unique system ID for the communications system where this site processor is located. The possible range of hexadecimal values is 001 (the default) through FFE.	1..FFE	1
Active Band Plan ID	ID of the Band Plan that is currently active.	1..20	1
Active Band Plan Name	This field is used to enter a name or alias (up to 32 alphanumeric characters) for the current active band plan.	size (1 .. 255) List of allowed characters: Blank space, A-Z, a-z, 0-9, !#\$()*+,-./\;:<=>?[]^~`	""

Table 30: Subsite System Field Descriptions

Field	Description	Range	Default
WACN ID	This field is used to assign a unique ID to the network in a Wide Area Communications Network (WACN) system where this site processor is located. Hexadecimal range of values is 00001 through FFFFE with 00001 as the default value.	1..FFFE	1
System ID	This field is used to assign a unique system ID for the communications system where this site processor is located. The possible range of hexadecimal values is 001 (the default) through FFE.	1..FFE	1

4.1.2

Configuring the Band Plan

Procedure:

1. From the left-side menu panel, select **Configuration**.
2. From the **Configuration** menu, select **Band Plan**.
3. In the **Band Plan** view, select the entry you want to configure and click **Edit**.
4. In the **Band Plan** pane, perform the following actions:
 - a. From the **Identifier Enabled** drop-down list, select **Enable**.

b. Provide appropriate values according to you system configuration.

For information on the band plan parameters, see [ASR Trunking Site Band Plan on page 49](#).

5. Click **Apply**.
6. From the left-side menu panel, select **Pending Changes**.
7. Review the changes and apply by clicking **Apply**.

4.1.2.1

ASR Trunking Site Band Plan

Table 31: ASR Trunking Site Band Plan Field Descriptions

Field Name	Description	Range	Default	Units
Band Plan ID Index	Band Plan ID index into frequency band plan table.	1-16	1 - Default for 1st instance of Band Plans.	N/A
Identifier Enabled	Flag to indicate if the frequency band plan table entry is valid or not.	Enable, Disable	Enable - Default for 1st instance of Band Plans.	N/A
Channel Type	This field specifies the channel type of the band plan entry, either FDMA or TDMA.	FDMA, TDMA	FDMA	N/A
Base Frequency [MHz]	Base frequency which corresponds to a band plan element. Used to calculate the channel number of a specific channel.	132.00000..940.99375	851.00625 Default for 1st instance of Band Plans.	MHz
Channel Spacing [kHz]	It is the frequency spacing used by the frequency band plan element. Frequency difference between consecutive channel numbers. (i.e. If channel 1 is 800 MHz, channel 2's frequency would be equal to 800 MHz + Channel Spacing). The Tx/Rx Offset must be divisible by Channel Spacing when frequencies are less than or equal to 524MHz.	2.5 ..127.5	6.25 - Default for 1st instance of Band Plans.	kHz
TX/RX Offset [kHz]	Frequency difference between the set of transmit frequencies and the set of receive frequencies. The actual range on the user screen is -64 MHz to 64 MHz.	-64MHz to 64Mhz	-45MHz	MHz

Field Name	Description	Range	Default	Units
Receive Channel Bandwidth [kHz]	Channel bandwidth of the receiver.  NOTE: This value is not utilized by any existing SC devices. This range is not enforced by the SC, but rather by the manager devices.	12.5	12.5 - Default for 1st instance of Band Plans.	kHz

4.1.3

Configuring the Zone

Procedure:

1. From the left-side menu panel, select **Configuration**.
2. From the **Configuration** menu, select **Zone**.
3. In the **Zone** view, provide appropriate values according to your system configuration.
 For information on the zone parameters, see [Zone on page 50](#).
4. Click **Apply**.
5. From the left-side menu panel, select **Pending Changes**.
6. Review the changes and apply by clicking **Apply**.

4.1.3.1

Zone

Table 32: ASR Trunking Site Zone Field Descriptions

Field	Description	Range	Default	Units
Zone ID	This is the Zone ID which uniquely identifies the zone in which this site resides.	1..7	1	N/A
ZC IP Address 1	The IP address for the first ZC IP address in Primary Core.	N/A	N/A	N/A
ZC IP Address 2	The IP address for the second ZC IP address in Primary Core.	N/A	N/A	N/A
DSR Voice and Mobility Capability	Parameter to enable or disable DSR Voice and Mobility Capability for the site.	enabled, disabled	disabled	N/A
Backup ZC IP Address 1	The IP address for the first ZC IP address in Backup Core.	N/A	N/A	N/A
Backup ZC IP Address 2	The IP address for the second ZC IP address in Backup Core.	N/A	N/A	N/A
Tsub Capable	This parameter configures a site for Tsub fallback operation (i.e., enables	enabled, disabled	enabled	N/A

Field	Description	Range	Default	Units
	a site controller to link up with the Tsub ZC).			
Tsub ZC IP Address 1	NIC1 IP address of the Tsub Zone Controller; needed for SC to establish connectivity to the Tsub ZC when operating in Tsub mode.	N/A	0.0.0.0	N/A
Tsub ZC IP Address 2	NIC2 IP address of the Tsub Zone Controller; needed for SC to establish connectivity to the Tsub ZC when operating in Tsub mode.	N/A	0.0.0.0	N/A
Grant Timeout Timer [msec]	This field is used to set the time period for which an assigned voice channel remains active after access to the channel is granted to a subscriber. If this timer expires before subscriber activity is received, the controller terminates the call.	400... 6500 msec	1000	msec
Fade Timeout Timer [msec]	This field is used to set the time period for which an assigned voice channel remains active without channel activity. If the timeout period expires without detecting activity, the channel is deassigned.	100... 6300 msec	1900	msec

4.1.4

Configuring the Site

Procedure:

1. From the left-side menu panel, select **Configuration**.
2. From the **Configuration** menu, select **Site**.
3. In the **Site** view, provide appropriate values according to your system configuration.
For information on the site parameters, see [Site on page 52](#).
4. Click **Apply**.
5. From the left-side menu panel, select **Pending Changes**.
6. Review the changes and apply by clicking **Apply**.

4.1.4.1

Site

Table 33: ASR Trunking Site – Site Field Description

Field Name	Description	Range	Default	Units
Site ID	This identifies the site.  NOTE: The various types of Site Controllers have different system requirements for the Site ID range.	1..150	1	N/A
Site Name	This is the user name given to the site.	size (0 .. 16) List of allowed characters: Blank space A-Z a-z 0-9 !#\$()*+-.\/\;:<=>?[]^_`	N/A	N/A
Link Debounce Timer [sec]	This timer defines the period of time in seconds between attempts to bring the site link backup.  NOTE: Changing the value of the Link Debounce Timer field from its default value of 3 seconds may affect the site recovery time in a system configured for Dynamic System Resilience (DSR).	3 - 120	3	seconds
Trunking Recovery Timeout Time [sec]	The amount of time that the site waits to enter a trunking state after it has the resources to do so.	1..99	5	seconds
Site Trunking Indication Hold-off Time [sec]	Delays the report of site trunking to subscribers in the site to 'debounce' any temporary transitions to site trunking.	0..129	0	seconds
Priority Monitoring During Site Trunking	This parameter enables or disables Priority Monitor Override, when enabled it allows all talk-groups to be priority monitor capable in Site Trunking.	Enable, Disable	Disable	N/A
Channel Access Holdoff Timer [sec]	Value used to determine how long a subscriber should hold off before registering with the	0..60	12	minutes

Field Name	Description	Range	Default	Units
	system or performing a location update under failure conditions.			
In-Call User Alert Enable	This specifies whether the In-Call User Alert feature is enabled.	Enabled, Disable	Disable	N/A
Site Call Load Capacity Override	This parameter determines if the current Site Call Load Capacity should be fixed based on number of explicit channels or 'overridden' by a user-specified value. - Enabled - Site Call Load Call Capacity is user-specified. - Disable - Site Load Capacity must be configured according to number of explicit channels (refer to help in Site Load Capacity for settings)	Enabled, Disable	Disable	N/A
Site Call Load Capacity	This parameter defines the maximum limit of the number of simultaneous calls (both voice and data) handled by the site. If the Site Load Capacity Override is enabled the user can configure; if disabled by the prime site the parameter must be configured as follows: (# Explicit Chans -> Site Load Capacity) (0->36), (1->24), (2->22), (3->18), (4->16), (5->14), (6 or more -> 12)	10..36	36	N/A
BSI Interval [min]	This parameter specifies the interval of time for when the Base Station Identifier in analog Morse code is transmitted.	10 12 14 16 18 20 25 30 40 50 60	30	minutes
Minimum Repeaters to Trunk	This parameter specifies the minimum number of repeaters required to trunk.	2..28	2	N/A
Zone Core Link Minimum Jitter Buffer [msec]	Specifies the minimum outbound audio jitter buffer time to account for network jitter on the arriving XIS packets.	15, 30, 45, 60, 75		msec
UTC-TAI Value	Specifies current UTC Time and TAI Time offset.	-120...0	-37	seconds

Field Name	Description	Range	Default	Units
Site Type	Read only field, that specifies Site type, defined during installation procedure.	ASR_SITE	ASR_SITE	N/A
Actual Access Code Index	Indicates the Access Code Index value currently active in the station.	(0..15)	0	N/A
Control Channel Slot Time	Defines the length of time allotted to microslots required for each control channel message packet.	1..40	6	microslots
Packet Data Channel Slot Time	Specifies the packet data channel slot time for the displayed channel.	1..40	10	microslots
Astro Fade Tolerance	Sets the number of missed frame syncs that are counted in a row before a call is terminated.	3	3	N/A

Table 34: Subsite – Site Field Description

Field Name	Description	Range	Default	Units
Site ID	This identifies the site.  NOTE: The various types of Site Controllers have different system requirements for the Site ID range.	1..150	1	N/A
Site Name	This is the user name given to the site.	size (0 .. 16) List of allowed characters: Blank space A-Z a-z 0-9 !#\$()*+,-./\;:<=>?[]^_`	N/A	N/A
UTC-TAI Value	Specifies current UTC Time and TAI Time offset.	-120...0	-37	seconds
Site Type	Read only field, that specifies subsite type, defined during installation procedure.	SUBSITE	SUBSITE	N/A
Actual Access Code Index	Indicates the Access Code Index value currently active in the station.	(0..15)	0	N/A
Control Channel Slot Time	Defines the length of time allotted to microslots required for each control channel message packet	1..40	6	microslots

Field Name	Description	Range	Default	Units
Packet Data Channel Slot Time	Specifies the packet data channel slot time for the displayed channel.	1..40	10	microslots
Astro Fade Tolerance	Sets the number of missed frame syncs that are counted in a row before a call is terminated.	3	3	N/A

4.1.5

Configuring the Channels

Procedure:

1. From the left-side menu panel, select **Configuration**.
2. From the **Configuration** menu, select **Channel**.
3. In the **Channel** view, select the entry you want to configure and click **Edit**.
4. In the **Channel** pane, perform the following actions:
 - a. From the **Common Channel Config State** drop-down list, select **configured**.
 - b. Provide appropriate values according to your system configuration.

For information on the channel parameters, see [Channel](#) on page 55.
5. Click **Apply**.
6. From the left-side menu panel, select **Pending Changes**.
7. Review the changes and apply by clicking **Apply**.

4.1.5.1

Channel

Table 35: Channel Field Descriptions

Field	Description	Range	Default
Channel Number	The Channel Number is the ID of the Channel in the system.	1..28	1
Common Channel Config State	This field is used to indicate if this channel is configured for use in the site.	configured, unconfigured	unconfigured
ASTRO Classic Data Capable	This field specifies whether the channel is capable of supporting P25 Classic Data.	Enable, Disable	Enable
Reserved Access Data Capable	Specifies whether the channel is capable of supporting Enhanced Data. Setting this parameter to Yes enables the channel to be configured for Enhanced Data.	Yes, No	No
DFB Capable	This field is used to select whether the channel has the capability to use the Dynamic Frequency Blocking feature. When DFB capability is set, the channel cannot	Enable, Disable	Disable

Field	Description	Range	Default
	transmit control, voice, BSI, or failsoft information when the site is operating in site trunking mode. If the site is operating in wide-area trunking mode, the channel can transmit voice information when assigned by the zone controller. This channel is enabled to use the Dynamic Frequency Blocking feature. - When this field is enabled, the following fields are disabled and read only: - BSI Capable - Failsoft Capable - Control Channel Capable (for channels 1 to 4 only) - When this field is disabled: this channel cannot use the Dynamic Frequency Blocking feature.		
BSI Capable	This is the capability for a channel to transmit Base Station Identifier in the analog Morse code. Values: - enabled - indicates this channel can transmit the analog BSI. When this field is enabled, the following fields are disabled and are read-only: - DFB Capable - Control Channel Capable (for channels 1 to 4 only) - disabled - indicates this channel cannot be assigned to transmit the analog BSI.	Enable, Disable	Disable
BSI Callsign	BSI_Callsign is the base station identification signal. This is the assign radio call sign issued for the system by the local licensing authority. This call sign is used in the analog Morse code identifications sent over the air when BSI_capable is enabled. The first 8 characters are also sent over the control channel as part of the MOT_BSI_GRANT control channel message each time the analog BSI is initiated. The first 8 characters are also sent in digital format over the channels when assigned for voice or data.	size (0 .. 20) any upper-case letter or number	""
Failsoft Capable	This field is used to select whether this channel is capable of entering the site failsoft mode when the simulcast subsystem cannot support site trunking.	Enable, Disable	Enable

Field	Description	Range	Default
	The site failsoft feature is a fall-back mechanism that allows the comparator to operate in a standalone state. Enabled (default) - indicates the comparator can enter site failsoft mode if the subsystem cannot support site trunking. Disabled - indicates the comparator cannot enter site failsoft mode.		
Control Channel Capable	For IVD, this field specifies whether or not the channel is capable of being the Control Channel. Only channels 1-4 can be set as control channel capable.	Enable, Disable	Disable
Control Channel Preference Level	This field is used to rank the channels that are enabled as control channel capable. This ranking determines the order the channels are used as a control channel at the site. The range is 1 through 4 with a preference level of 1 as the highest rank and 4 as the lowest preference level.	1-4	4
Protected Capable	This is the capability that protects the channel from being assigned a call unless it is the only channel available.	Enable, Disable	Disable
Voice Capable	This is the capability for a channel to be used for voice: - enabled - indicates this channel can be assigned as a voice channel. - disabled - indicates this channel cannot be assigned as a voice channel.	Enable, Disable	Enable
Sub-Band	This field is used to determine if this channel has the capability to be assigned to sub-band frequencies.	Enable, Disable	Enable
Channel Access Type	This attribute indicates whether the channel is: - FDMAonly - Dynamic Channel - TDMAonly TDMA Only value indicates 2 slot TDMA operability of the channel.	FDMAonly DynamicChannel TDMAonly	FDMAonly
TX Channel Frequency [MHz]	This is the RF Frequency that the D-Series S1 Base Radio transmits.	132..174 380..524 762.00625..775.99375 851.00625..869.99375 935.00625..940.99375	132000000 Hz

Field	Description	Range	Default
RX Channel Frequency [MHz]	This field allows you to enter the receive frequency for this channel.  NOTE: VHF: (136000000..174000000) UHF: (380000000..524000000) 700 MHz: (792006250..805993750) 800 MHz: (806006250..824993750) 900 MHz: (896006250..901993750) Dependency: The Rx Frequency must be even divisible by 5000 or 6250 Hz for UHF/700 MHz/ 800MHz/900MHz and by 2500 or 3125 Hz for VHF. The following VHF Rx Frequencies are also allowed: 154371250.00 Hz 154463750.00 Hz 154471250.00 Hz 154478750.00 Hz 169172000.00 Hz 169807000.00 Hz 173203750.00 Hz 173396250.00 Hz 173435700.00 Hz The Rx Frequency must be within the Rx Minimum Frequency and Rx Maximum Frequency and between the limits listed in the Range above. In the 700 MHz or 800 MHz band, for IV&D, the frequency ranges starts 6250 Hz above the lower limit and end 6250 below the upper limit.	136..174 380..524 792.00625..805.99375 806.00625..824.99375 896.00625..901.99375	136000000 Hz
Channel Assignment Type	The type of assignment CAI packet to be used for this channel. In explicit, both Rx and Tx OTA channel numbers are included in the CAI packet. In implicit, there is only one OTA channel number and a Tx/Rx Offset is applied to the Tx Frequency to determine the Rx Frequency.	implicit, explicit	implicit
RFDS Type	This field specifies the type of the RFDS used for the channel.	MultiCarrier, SingleCarrier	MultiCarrier
Channel Xcvr Mapping	For a Single Carrier, the S1 XCVRs are Statically Allocated. The field user provi-		

Field	Description	Range	Default
	sions the Inventoried Single Carrier S1 XCVR to an RF Channel on the RF Site.  NOTE: In Multicarrier, this field is not available.		
FDMA Tx Band Plan Element	Identifier for the band plan element. This identifies the band plan element used by the channel, encoded as the highest 4 bits of the Txchannel number (Tx channel number of SU) in the CAI packets.	1..16	1
TDMA Tx Band Plan Element	Identifier for the band plan element. This identifies the band plan element used by the channel, encoded as the highest 4 bits of the Tx channel number (Tx channel number of SU) in the CAI packets.  NOTE: Applies for Phase 2.	1..16	3
FDMA Rx Band Plan Element	Band identifier for the element. This identifies the band plan element used by the channel, encoded as the highest 4 bits of the Rx channel number (Rx channel number of SU) in the CAI packets.	1..16	1
TDMA Rx Band Plan Element	Identifier for the band plan element. This identifies the band plan element used by the channel, encoded as the highest 4 bits of the Rx channel number (Rx channel number of SU) in the CAI packets.  NOTE: Applies for Phase 2.	1..16	3
Enhanced Data Max Wait [sub-slots]	Indicates the number of subslots over which an Enhanced Data subscriber is to randomize their first Random Access Reservation Request for a given packet data message(s).	1..8	4
FDMA Tx Modulation Type	Specifies the modulation type for this station transmitter.	ASTRO CAI LSM, ASTRO C4FM	ASTRO C4FM
Serviceability Fault Reporting	Specifies whether the box sends the serviceability air interface fault notifications to the Network Manager.	Enable, Disable	Disable
RTTE Capable	Indicates if the channel is RTTE capable. If Enabled, the D-Series S1 Base Radio uses a Tx deviation compliant with RTTE. Example: The RED (Radio Equipment Directive) Compliance which meets the standards of the European Union Radio Equipment Directive (2014/53/EU).	Enable, Disable	Disable

Field	Description	Range	Default
Single Carrier Tx Power Out Requested [Watts]	Specifies the desired assigned P25 FDMA Channel Target output power from the D-Series S1 Base Radio transmitter.	2..110	2
Single Carrier Phase 2 Tx Power Out Requested [Watts]	Specifies the desired assigned P25 Phase2 TDMA Channel Target output power from the D-Series S1 Base Radio transmitter.	2..110	2
Illegal Carrier Determination	Specifies whether illegal carrier is enabled.	Enable, Disable	Enable
RF Threshold (Illegal Carrier Level) [dBm]	Specifies the dBm level above which the received signal is considered to be an illegal carrier if this station is not assigned to a call.	-124..-50	-90
Threshold Timer (Carrier Malfunction Time) [sec]	Selects the length of time (in seconds) a carrier must exceed the illegal carrier threshold on an unassigned channel before the controller removes the channel from system use.	1..254	50
Rx Dual Branch Receiver Operations	Enables or disables diversity receive.	Enable, Disable	Disable
Rx Branch Imbalance Delta [dB]	Specifies Signal Quality Estimate (SQE) delta in dB(s) between multiple receiver branches used for failure detection.	3..12	10
Rx Branch Imbalance Time to Failure [sec]	Specifies Signal Quality Estimate (SQE) time (in seconds) to failure when Signal Quality Delta difference between branches is met or exceeded.	(0,30..1200)	120

4.1.6

Configuring the Subsite

Procedure:

1. From the left-side menu panel, select **Configuration**.
2. From the **Configuration** menu, select **Subsite**.
3. In the **Subsite** view, select the entry you want to configure and click **Edit**.
4. In the **Subsite** pane, perform the following actions:
 - a. From the **Subsite Configuration** drop-down list, select **configured**.
 - b. Provide appropriate values according to you system configuration.
 For information on the subsite parameters, see [Subsite on page 61](#).
5. Click **Submit**.
6. From the left-side menu panel, select **Pending Changes**.
7. Review the changes and apply by clicking **Apply**.

4.1.6.1

Subsite

Table 36: Subsite Field Description

Field Name	Description	Range	Default	Units
Subsite ID	This identifies the Subsite.  NOTE: The various types of subsite controllers have different system requirements for the site ID range.	1..64	1	N/A
Subsite Configuration	This field is used to indicate if this subsite is configured for use in the site.	Unconfigured, Configured	Unconfigured	N/A
Subsite Name	This field allows you to assign a name or alias to this subsite.	size (0 .. 16) List of allowed characters: Blank space AZ a-z 0-9 !#\$ ()*+,-./\;:<=>? []^_` (excluding !,@,%,&,"')	N/A	N/A

4.2

Setting the Transmitter Power

As part of the site configuration process the channel Tx Power Out must be configured.

Prerequisites: Obtain:

- Service laptop or the Network Management (NM) Client
- IP address or the host name of the DSC 8500. See [Logon Information on page 44](#).
- Credentials for the System Infrastructure Administrator account

Procedure:

1. Log on to the PCA as **System Infrastructure Administrator**.
2. Navigate to **Configuration** → **Channel**.
3. In the **Channel** view, select the channel and click **Edit**.
4. Set the value for **Single Carrier Tx Power Out Requested [Watts]**.
5. Set the value for **Single Carrier Phase 2 Tx Power Out Requested [Watts]**.
6. Click **Apply**.
7. From the left-side menu panel, select **Pending Changes**.
8. Review the changes and apply by clicking **Apply**.

Chapter 5

D-Series S1 Base Radio Field Replaceable Units (FRUs) and Parts

The tables in this section list various elements of the RF site devices and their part numbers.

When ordering Field Replaceable Units (FRUs), provide the FRU Kit Number. When ordering field replaceable parts, provide the part number. Contact Motorola Solutions Centralized Managed Support Operations (CMSO) as needed for numbers not provided here (for cables internal to a D-Series S1 Base Radio, the part numbers are not listed in this documentation, but you can locate the part number on the cable before contacting CMSO).

WARNING: To guard against personal injury and/or damage to equipment, place the D-Series S1 Base Radio in Requested State when performing service. Placing the D-Series S1 Base Radio in Requested State is performed by using either the Unified Event Manager (UEM) or Provisioning and Configuration Agent (PCA). Remember to place the D-Series S1 Base Radio back in normal mode when service is complete.

AVERTISSEMENT: Pour prévenir les blessures ou les dommages à l'équipement, placez la radio de base en mode Service lors de l'entretien. La mise en mode Service d'une radio de base est effectuée à l'aide du gestionnaire d'événements unifiés (UEM) ou de l'agent de provisionnement et de configuration (PCA). N'oubliez pas de remettre la radio de base en mode normal lorsque l'entretien est terminé.

Table 37: D-Series S1 Base Radio Field Replaceable Units - Transceiver Module

Component Type	FRU Kit Number
Transceiver Module (VHF 136–174 MHz)	DLN7037A
Transceiver Module UHF R1, 380–435 MHz)	DLN7036A
Transceiver Module (UHF R2, 435–524 MHz)	DLN7035A

Table 38: D-Series S1 Base Radio Field Replaceable Units - Power Amplifier

Component Type	FRU Kit Number
Power Amplifier Module (VHF, 136–174 MHz)	DLN6897A
Power Amplifier Module UHF R1, 380–435 MHz)	DLN6891A
Power Amplifier Module (UHF R2, 435–524 MHz)	DLN6896A

Table 39: D-Series S1 Base Radio Field Replaceable Units - Power Amplifier Module

Component Type	FRU Kit Number
Power Amplifier Module (VHF, 136–174 MHz)	DLN6897A
Power Amplifier Module UHF R1, 380–435 MHz)	DLN6891A
Power Amplifier Module (UHF R2, 435–524 MHz)	DLN6896A

Table 40: D-Series S1 Base Radio Field Replaceable Units - Fan Kit

Component Type	FRU Kit Number
D-Series S1 Base Radio Field Replaceable Units - Fan Kit	DLN7029A
Fan Kit, Receive Only	DLN7030A

Table 41: D-Series S1 Base Radio Field Replaceable Units - Power Supply

Component Type	FRU Kit Number
AC/48 V DC Power Supply	DLN7029A
Power Supply Fan Module	5985167Y02

Table 42: D-Series S1 Base Radio Field Replaceable Units - Backplane

Component Type	FRU Kit Number
D-Series S1 Backplane	

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