

SR3420 Technical Specification



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This manual applies to SR3420 Version 1.0 or higher.

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1. Preface

1.1. Purpose

The *SR3420 Technical Specification* document provides detailed information on the specifications for the Spirent SR3420 Wireless Network (W-CDMA/GSM).

1.2. Intended Audience

This manual is intended for those who have a working knowledge of Spirent's 8100 wireless products. You should be familiar with Spirent Test Systems and have the relevant 8100-specific product documentation before proceeding.



2. Associated Hardware

2.1. Overview

The SR3420 is a Hardware platform for the Wireless Network Emulator with underlying test functionality to test W-CDMA, GSM, and HSPA-enabled UE. It supports air interfaces in compliance with core technical specifications provided by 3GPP. SR3420 is available in either a 1 SRPM configuration, shown in Figure 3-3, or a 2 SRPM configuration, shown in Figure 3-2. The additional SRPM card supports the Inter RAT test scenarios.

The following chapter identifies the technical specifications and objectives associated with the SR3420 specifications. These requirements are broken up into the sections shown in the table below.

Section	Purpose	Manual
W-CDMA Specifications	Identification of the specific 3GPP W-CDMA capabilities on SR3420.	Refer 8100 UMTS Data Performance Test User Manual. Refer 8100 UMTS Location Test System User Manual.
I/O Specifications	Identification of the required characteristics of the RF Input and RF output of the SR3420.	Refer Section 2.3 below
Infrastructure Specifications	Identification of the required physical characteristics of SR3420, the requirements on the non-RF inputs and outputs, the AC Power input requirements.	Refer to Sections 2.1. and 2.2

3. SR3420 Panel Descriptions and External Interfaces

3.1. Front Panel Description

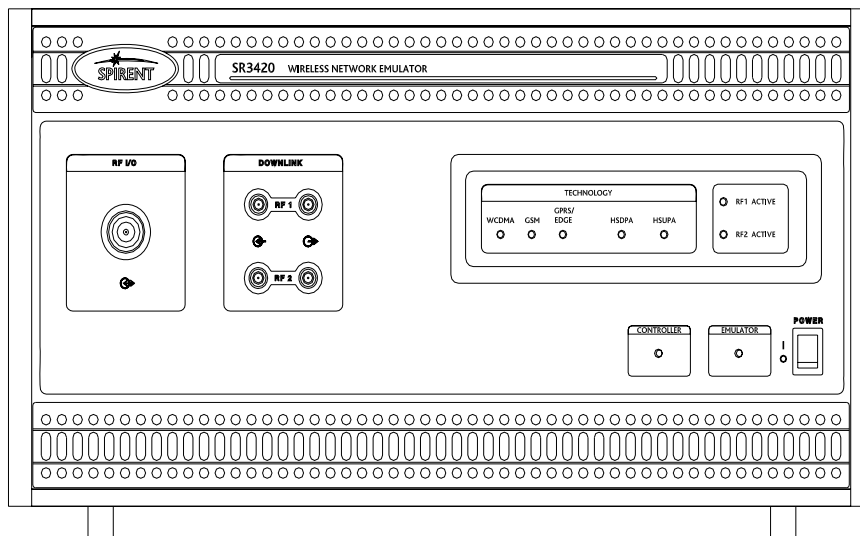


Figure 3-1: SR3420 Front Panel

Front Panel Signal Input/Output Connectors		
Connector	Connector Type	Purpose
Main Input Output	N(F)	Bi-directional Connection to UE for testing.
Downlink Breakout 1 Output	SMA(F)	An output port to provide RF channel 1 DL signal prior to the summation and duplex functions.
Downlink Breakout 1 Input	SMA(F)	An input port to provide the RF channel 1 DL signal to the summer and duplexers in order to receive the signal out of the N connector.
Downlink Breakout 2 Output	SMA(F)	An output port to provide the RF channel 2 DL signal prior to the summation and duplex functions.
Downlink Breakout 2 Input	SMA(F)	An input port to provide the RF channel 2 DL signal to the summer and duplexers.

CAUTION: The RF IN/OUT Duplex Ports can accept a limited power range. Refer to the technical specifications below to ensure the power range does not exceed absolute maximum levels.

Front Panel Controls and Indicators	
①	POWER Switch The Power switch is located in the bottom right hand corner of the front panel.
②	EMULATOR LED The Emulator LED is located to the left of the power switch. Blinking Green Indicator means Systems is Booting up. Solid Green Indicator means that the SR3420 is powered on and has booted successfully.
③	CONTROLLER LED The Controller LED is located to the left of the Emulator LED and indicates that the controller application has successfully connected to the SR3420.

3.2. Rear Panel Description

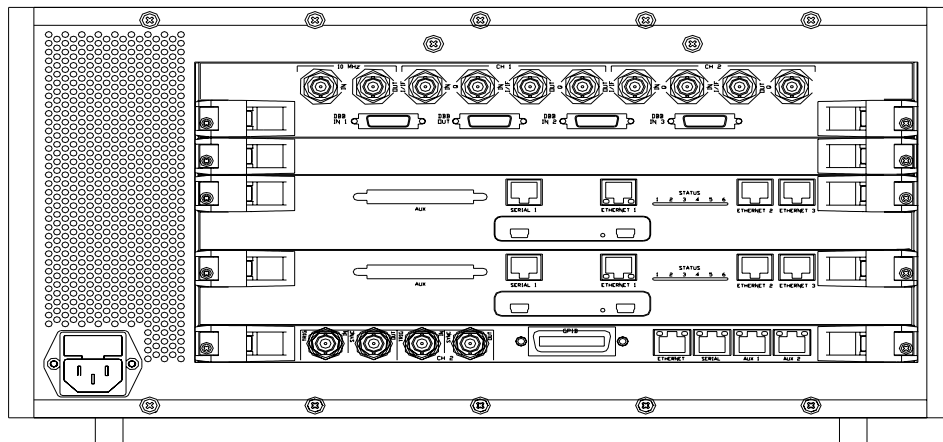


Figure 3-2: SR3420 Rear Panel (2 SRPM)

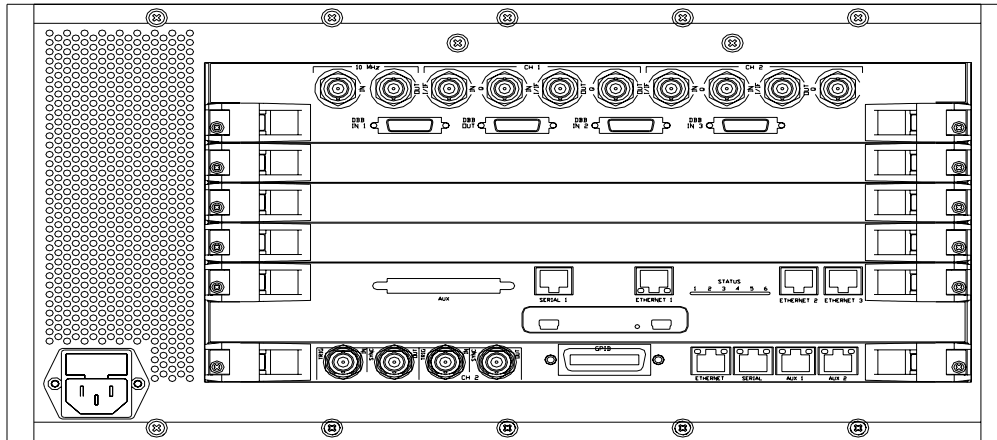


Figure 3-3: SR3420 Rear Panel (1 SRPM)

Rear Panel Connectors	
①	AC Power Receptacle The AC universal power receptacle is located on the lower left corner of the rear panel.
②	ETHERNET 3 RJ-45 Type Connector - The Ethernet port (labelled Ethernet 3) supports TCP/IP. It is recommended that a Category 5 Ethernet cable be used. Green Indicator means Systems is Booting up. Solid Green Indicator means that the SR3420 is powered on and has booted successfully.

3.2.1. Rear Panel I/O Connections

This section provides Rear Panel RF Input/Output connections of SR3420. These connections are used by module applications controlling SR3420 functionality.

Connection Purpose	Connector Type	Purpose
10 MHz IN	BNC	10 MHz Reference Input
10 MHz OUT	BNC	10 MHz Reference Output
CH1 IF IN	BNC	An input port to provide the channel 1 DL signal at IF, Intended for future use to insert the SR5500 fading into the DL
CH1 IF OUT	BNC	An output port to provide the channel 1 DL signal at IF to the UDC, Intended for future use to insert the SR5500 fading into the DL
CH2 IF IN	BNC	An input port to provide the channel 2 DL signal at IF, Intended for future use to insert the SR5500 fading into the DL
CH2 IF OUT	BNC	An output port to provide the channel 2 DL signal at IF. Intended for future use to insert the SR5500 fading into the DL

Connection Purpose	Connector Type	Purpose
CH1 TRIG IN	BNC	Certain external timing events on may be used to trigger events.
CH 2 TRIG IN	BNC	Certain external timing events may be used to trigger events.
CH1 SYNC OUT	BNC	Certain timing events driven from the BBIO, SRPM or SCB may be relayed to this port. Also known as Trigger Out
CH2 SYNC OUT	BNC	Certain timing events driven from the BBIO, SRPM or SCB may be relayed to this port. Also known as Trigger Out
GPIB	GPIB	RESERVED, there is no intended use for this port in the future
ETHERNET 2 (SRPM1)	RJ45	RESERVED(Loopback connection to ETHERNET)
ETHERNET 2(SRPM2)	RJ45	RESERVED(Loopback connection to AUX2)
ETHERNET	RJ45	RESERVED(SRPM1 Ethernet Connection)
SERIAL	RJ45	Maintenance Aid Port
AUX1	RJ45	RESERVED (Currently Not Used)
AUX2	RJ45	RESERVED (SRPM2 Ethernet Connection)

3.3. SR3420 Operating Bands

3.3.1. Supported Bands (FDD Only)

Operating Band	UL Frequencies UE Transmit, Node B Receive	DL Frequencies UE receive, Node B Transmit
I	1920 – 1980 MHz	2110 – 2170 MHz
II	1850 – 1910 MHz	1930 – 1990 MHz
IV	1710 – 1755 MHz	2110 – 2155 MHz
V	824 – 849 MHz	869 – 894 MHz
VI	830 – 840 MHz	875 – 855 MHz
VII	2500 – 2570 MHz	2620 – 2690 MHz
VIII	880 – 915 MHz	925 – 960 MHz
IX	1749 – 1784 MHz	1844 – 1879 MHz

3.3.2. Supported GSM Bands

Operating Band	UL Frequencies UE Transmit, Node B Receive	DL Frequencies UE receive, Node B Transmit
GSM 850	824 - 849 MHz	869 - 894 MHz
P-GSM 900	890 - 915 MHz	935 - 960 MHz
DCS 1800	1710 - 1785 MHz	1805 - 1880 MHz
PCS 1900	1850 - 1910 MHz	1930 - 1990 MHz

3.4. Input / Output and Environment Characteristics

3.4.1. Input/Output Characteristics

Input / Output Characteristics	
System Frequency Accuracy	±1 ppm.
Output level range	-20 to -110 dBm
Output resolution	0.1 dB
Output level accuracy	± 1 dB
Duplex port VSWR	1.5:1 or better
RF Breakout VSWR (output and input)	2.0:1 or better
Input range supported	-60 to +30 dBm
Input damage level	+33 dBm rms.
In-band spurious emissions	-40 dBc maximum
Out of band spurious emissions	-10 dBc maximum (in the range of 400-2700 MHz)
Harmonics of the desired signal	-20 dBc. Or better

3.4.2. Environment Characteristics

Environment Characteristics	
Power Requirements	Voltage 85-250 VAC (auto sensing) Frequency 47-63 Hz Power 700 Watt (maximum) Fuse Type 15 Amp, 250 Volt slow-blow fuse Number of Fuses 2 Fuse Location Conductor Hot conductor, Neutral
Operating Environment	Temperature 0 to 40 degrees C Humidity 10% to 90%, non condensing

Environment Characteristics	
Dimensions and Weight	Height 8.75 inches Width 16.88 inches Depth 21 inches Weight 65 pounds
10 MHz Reference Requirements	External 10 MHz Reference Input Connector Type 50 BNC connector (rear) Input Level Range 0 dBm +/- 2 dB Input Level PPM from 10 MHz < 2 PPM Internal 10 MHz Reference Connector Type 50 BNC connector (rear) Output Level Range 0 dBm Type OCXO Accuracy < 1 PPM