

Chapter 1 Introduction

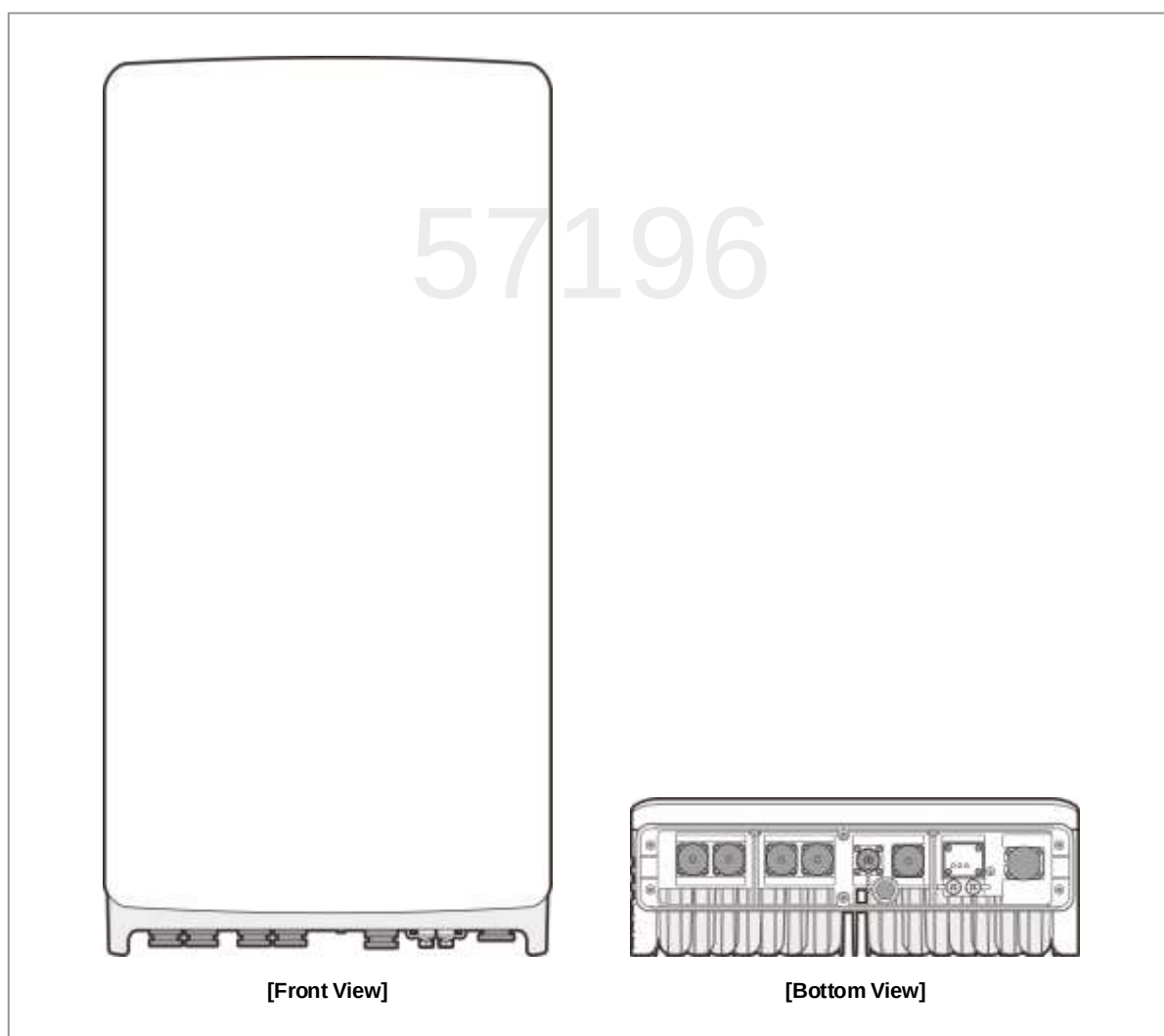
This chapter provides the hardware overview, functional description, and general specification of the product.

Overview

The MT6413-77A is a Massive MIMO Unit (MMU) consisting of digital and radio blocks. The digital block supports the interface with Digital Unit (DU) and the Low-PHY function (functional split option 7-2). The radio block transmits and receives the Radio Frequency (RF) signals with an integrated 64T64R antenna.

The following figure depicts the appearance of the MT6413-77A.

Figure 1. MT6413-77A Appearance



Specifications

The following table displays the main specifications of the MT6413-77A.

Table 2. Specifications of the MT6413-77A

Item		MT6413-77A
Air Technology		5G
Band/Duplex		n77/TDD
OFR		3,700 to 3,980 MHz
IBW		200 MHz
OBW		200 MHz
Carrier Configuration	Ch. BW	NR 20/40/60/80/100 MHz
	Number of carriers (per unit)	2CC
TRX Path Configuration		64T64R
Antenna Configuration		4V16H 192 AE (3 x 1 sub-array)
Conductive Power		320 W
MIMO Capacity		DL 16L, UL 16RX (8L)
Function Split		Opt. 7-2x
Optic Interface		20 km, 25 Gbps × 4 ports
Input Voltage		-48 V DC (-36 to -58 V DC)
Power Consumption ^{a)}		• 882 W @ 40 % room temp • 1,260 W @ 100 % room temp • 1,299 W @ 100 % all temp
Volume / Dimension (W x H x D)		41.1 L / 15.75 x 28.9 x 5.51 in. (400 x 734 x 140 mm)
Weight		57.32 lb (26 kg) or less (without a Bracket)
Operating Temperature ^{b)}		-104 °F to +131 °F (-40 °C to +55 °C), (without solar load)
Cooling Scheme		Natural Convection
Installation		Pole, Wall
Operating Humidity ^{b)}		5% to 100% RH (non-condensing, not to exceed 30 g/m ³ absolute humidity)
Altitude		Telcordia GR-63-CORE, Issue 5, Section 4.1.3
Noise		Telcordia GR-487-CORE, Issue 5, Section 3.34 (45 dBA)
Ingress Protection Rating		IEC 60529 (IP65)
Salt Fog / Salt Spray		Telcordia GR-487-CORE, Issue 5, Section 3.40.1
Wind Resistance		Telcordia GR-487-CORE, Issue 5, Section 3.36
Earthquake		Telcordia GR-63-CORE, Issue 5, Section 4.4.1 (Zone 4)
Vibration		Telcordia GR-63-CORE, Issue 5, Section 4.4.4 / 4.4.5
EMC		FCC Title 47 CFR Part 15 Subpart B

Item	MT6413-77A
Safety	UL 62368-1
RF	FCC Title 47, CFR Part 27



¹⁾ These values are predictive of simulation. When development is completed, measurement data can change by +/- 10%.



²⁾ Temperature and humidity are measured 1.5 m above the floor and 400 mm from the equipment's front panel.

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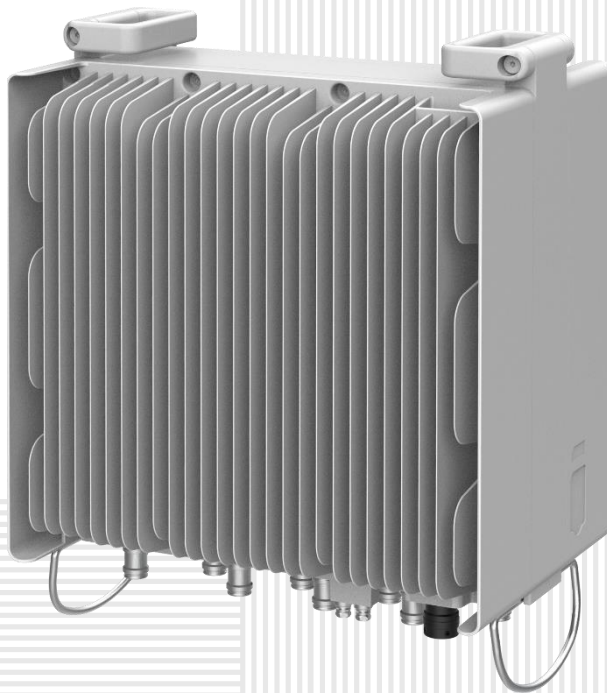
SAMSUNG

AWS/PCS MACRO RADIO

DUAL-BAND AND HIGH POWER
FOR MACRO COVERAGE

Samsung's future proof dual-band radio is designed to help effectively increase the coverage areas in wireless networks. This AWS/PCS 4T4R dual-band radio has 4Tx/4Rx to 2Tx/2Rx RF chains options and a total output power of 320W, making it ideal for macro sites.

Model Code RF4439d-25A



Homepage
samsungnetworks.com

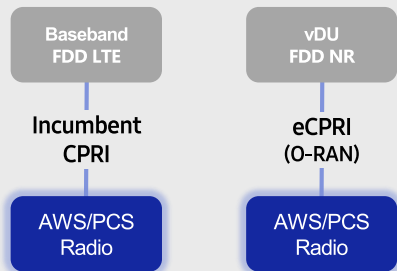


Youtube
www.youtube.com/samsung5g

Points of Differentiation

Continuous Migration

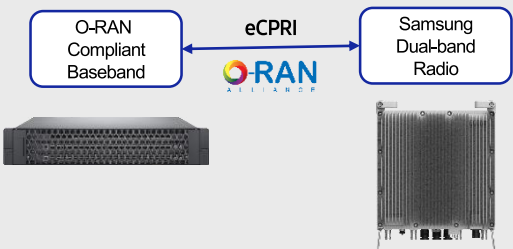
Samsung's AWS/PCS macro radio can support each incumbent CPRI interface as well as advanced eCPRI interfaces. This feature provides installable options for both legacy LTE networks and added NR networks.



O-RAN Compliant

A standardized O-RAN radio can help in implementing cost-effective networks, which are capable of sending more data without compromising additional investments.

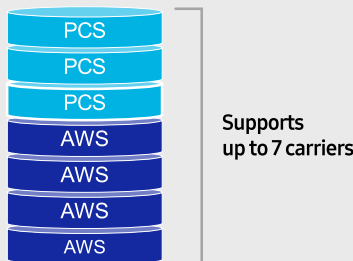
Samsung's state-of-the-art O-RAN technology will help accelerate the effort toward constructing a solid O-RAN ecosystem.



Optimum Spectrum Utilization

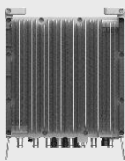
The number of required carriers varies according to site (region). Supporting many carriers is essential for using all frequencies that the operator has available.

The new AWS/PCS dual-band radio can support up to 3 carriers in the PCS (1.9GHz) band and 4 carriers in the AWS (2.1GHz) band, respectively.



Brand New Features in a Compact Size

Samsung's AWS/PCS macro radio offers several features, such as dual connectivity for baseband for both CDU and vDU, O-RAN capability, more carriers and an enlarged PCS spectrum, combined into an incumbent radio volume of 36.8L.



- 2 FH connectivity
- O-RAN capability
- More carriers and spectrum

Same as an incumbent radio volume

Technical Specifications

Item	Specification
Tech	LTE / NR
Brand	B25(PCS), B66(AWS)
Frequency Band	DL: 1930 – 1995MHz, UL: 1850 – 1915MHz DL: 2110 – 2200MHz, UL: 1710 – 1780MHz
RF Power	(B25) 4 × 40W or 2 × 60W (B66) 4 × 60W or 2 × 80W
IBW/OBW	(B25) 65MHz / 30MHz (B66) DL 90MHz, UL 70MHz / 60MHz
Installation	Pole, Wall
Size/ Weight	14.96 x 14.96 x 10.04inch (36.8L) / 74.7lb



Twin Diplexer, 698–803/824–894MHz, DC Sense, 4.3-10

- Automatic dc switching with dc sense
- Convertible mounting brackets
- Stackable in multiples with included hardware
- New 4.3-10 connectors for improved PIM performance and size reduction

General Specifications

Product Family	CBC78
Modularity	2-Twin
Includes	Mounting hardware

Electrical Specifications

Sub-module	1 2	1 2	1 2
Branch	1	1	2
Port Designation	698-803		824-894
License Band	USA 700 USA 750	USA 700 USA 750	CEL 850

Electrical Specifications, Band Pass

Frequency Range	698–803 MHz	698–798 MHz	824–894 MHz
Insertion Loss, typical	0.30 dB	0.20 dB	0.20 dB
Total Group Delay, maximum	45 ns		35 ns
Return Loss, minimum	22 dB		22 dB
Return Loss, typical	24 dB		24 dB
Isolation, minimum	35 dB	50 dB	50 dB
Input Power, RMS, maximum	200 W		200 W
Input Power, PEP, maximum	2 kW		2 kW
3rd Order PIM, minimum	-161 dBc		-161 dBc
3rd Order PIM Test Method	2 x 20 W CW tones		2 x 20 W CW tones

Product Classification

Product Type	Diplexer
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Common Port Electrical Specifications

Composite Power, RMS	250 W
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AIISG Electrical Specifications

AISG Carrier	2176 KHz $\pm$ 100 ppm
Insertion Loss, maximum	1.00 dB
Return Loss, minimum	15 dB

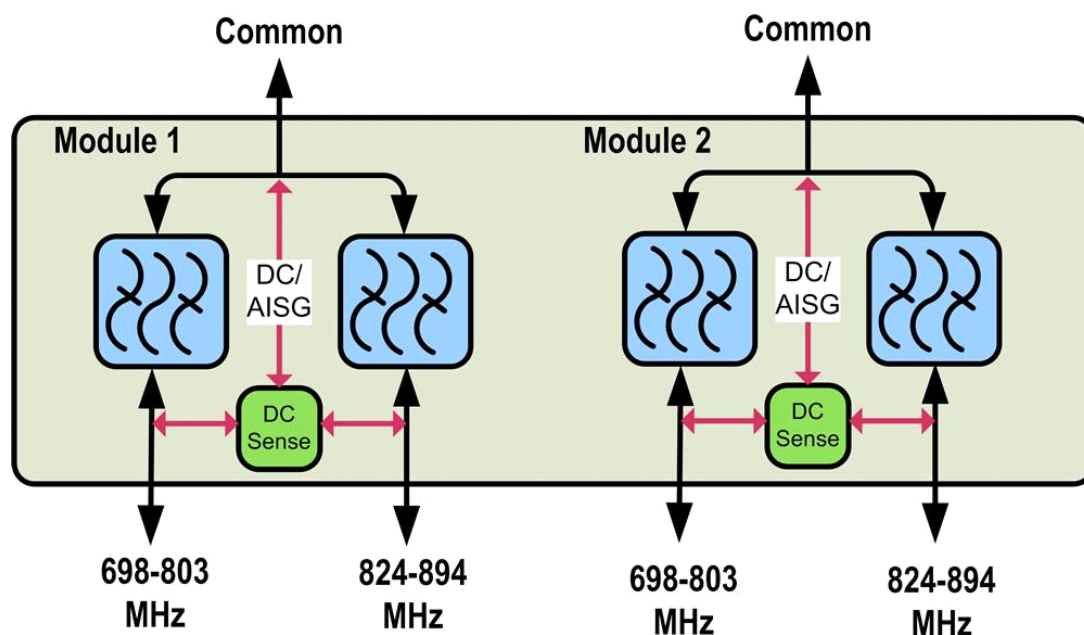
dc Power/Alarm Electrical Specifications

dc/AISG Pass-through Method	Auto sensing
dc/AISG Pass-through Path	See logic table
Lightning Surge Current	10 kA
Lightning Surge Current Waveform	8/20 waveform

Electrical Specifications

Impedance	50 ohm
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Block Diagram



Logic Table

Combining Mode Operation (Ground Based)			
RF Ports Input Voltage			
700 MHz	800 MHz	COMMON	DC/AISG Path Selection
$7 \leq V \leq 30$	$V < 7$	$V < 7$	700 MHz to COMMON "ON" 800 MHz Port "OFF"
$V < 7$	$7 \leq V \leq 30$	$V < 7$	800 MHz to COMMON "ON" 700 MHz "OFF"
$7 \leq V \leq 30$	$7 \leq V \leq 30$	$V < 7$	700 MHz to COMMON "ON" 800 MHz "OFF"
$V < 7$	$V < 7$	$V < 7$	ALL ports OFF

Splitting Mode Operation (Tower Top)			
RF Ports Input Voltage			
700 MHz	800 MHz	COMMON	DC/AISG Path Selection
$V < 7$	$V < 7$	$7 \leq V \leq 30$	700 MHz to COMMON "ON" 800 MHz "OFF"

Mechanical Specifications

RF Connector Interface	4.3-10 Female
RF Connector Interface Body Style	Long neck
Ground Screw Diameter	6.00 mm
Color	Gray
Mount Type	Pole Wall
Mounting Pipe Hardware	Band clamps (2)

Dimensions

Height	162.0 mm 6.4 in
Width	176.0 mm 6.9 in
Depth	121.0 mm 4.8 in
Volume	3.5 L
Weight, without mounting hardware	4.7 kg 10.4 lb
Mounting Hardware Weight	0.5 kg 1.1 lb

Environmental Specifications

Operating Temperature	-40 °C to +65 °C (-40 °F to +149 °F)
Relative Humidity	5%–100%

Outline Drawing

