

Chapter 1 Introduction

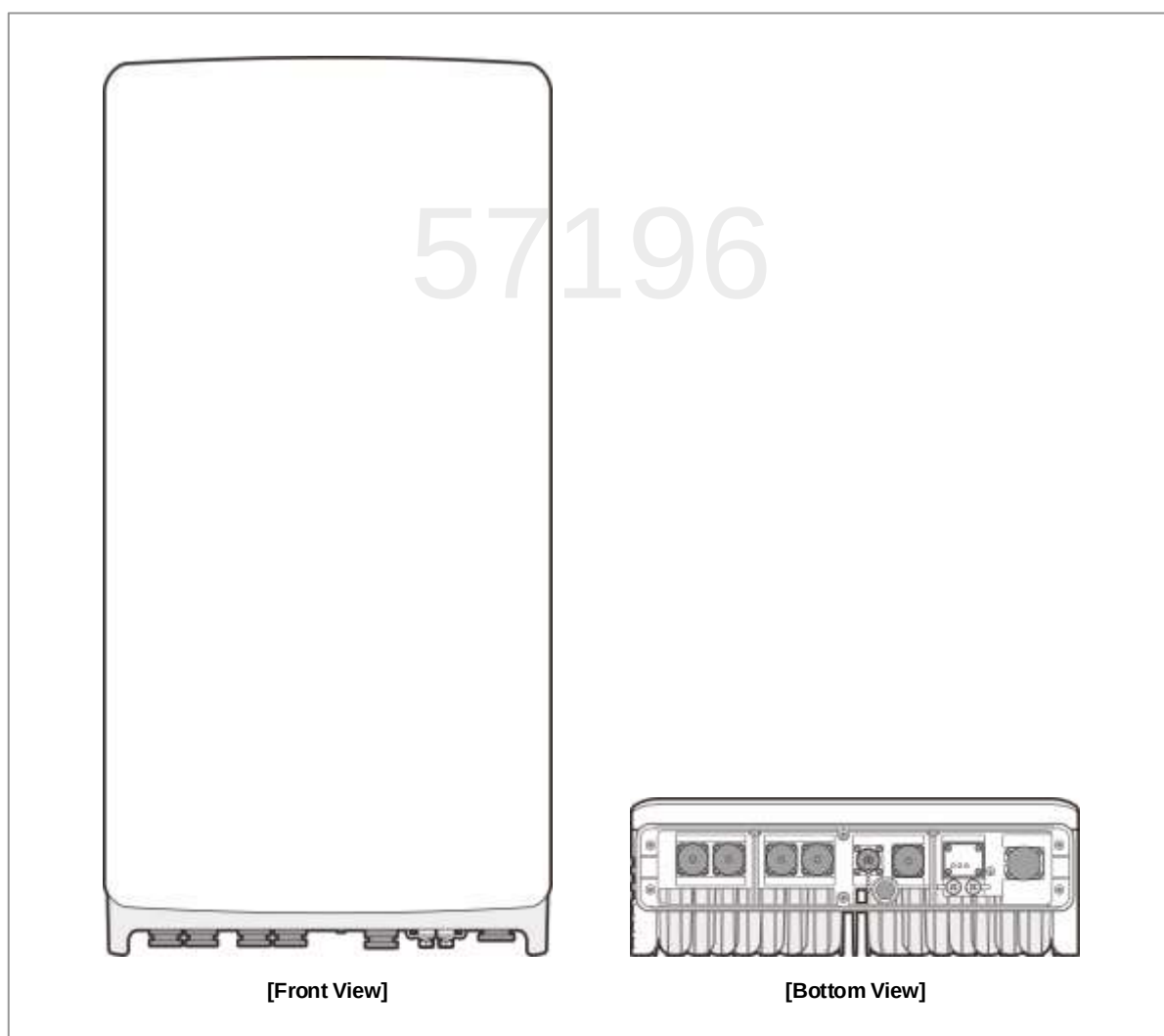
This chapter provides the hardware overview, functional description, and general specification of the product.

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 Forecast Planning



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Product transition: ORAN Macro 700/850 (New Filter)

	WxHxD (mm)	WxHxD (in)	Volume	Weight	Power consumption
Macro ORAN LL	380 x 380 x 230	14.96 x 14.96 x 9.05	33.2L	31.9kg	1121W
Macro ORAN LL New Filter	380 x 380 x 260	14.96 x 14.96 x 10.24	37.5L	35.9kg	1230W

Current:

SFG-ARR27201VZ/1900413090 O-RAN 700/850 B13/B5
(RF4440d-13A)

New Filter:

SFG-ARR57201VZ/MMID TBD
Filter (RF4461d-13A)

ORAN 700/850 B13/B5 New

- Dimension Changes / Impacts: Yes
- Timing: ~Q1'2024 (design change required)
- Ancillary Change: No

Item	ORAN Macro RU (RF4440d-13A)		Updated Band 5 Specification Config. #1 (50 dB rejection at 896-901MHz)
Air Interface	LTE, NR(H/W resource ready)		Same as ORAN Macro LL
Band	Band13 (700MHz)	Band5 (850MHz)	
Frequency	DL: 746~756MHz	DL: 889~894MHz	
	UL: 777~787MHz	UL: 824~849MHz	
IBW	10MHz	25MHz	
OBW	10MHz	25MHz	
Carrier Bandwidth	LTE/NR 5*/10MHz	LTE: 5/10MHz NR: 5/10/20MHz	
# of carriers	2C	3C	
Total # of carriers	4 carriers + B13 (SDL) 1 carrier		
RF Chain	4T4R, 2T4R, 2T2R+2T2R bi-sector		
RF Output Power	Total : 320W		
	4 x 40W or 2 x 80W	4 x 40W or 2 x 80W	
Spectrum Analyzer	TX/RX Support		
RX Sensitivity	Typ. -104.5dBm @1Rx (25RBs 5MHz)		
Modulation	256QAM support, (1024QAM with 1~2dB power back-off)		
Input Power	-48VDC (-38VDC to -57VDC)		
Power Consumption	1,121 Watt@ 100% RF load, room temperature		
Size (WHD)	380 x 380 x 230 mm (14.96 x 14.96 x 9.05 inch)		
	380 x 380 x 260 mm (14.96 x 14.96 x 10.24 inch)		
Volume	33.2L		
Weight (W/o Solar Shield & finger guard)	31.9 kg (70.33 lb)		
Operating Temperature	-40°C (-40°F) ~ 55°C (131°F) (Without solar load)		
Cooling	Natural convection		
Unwanted Emission	3GPP 36.104	3GPP 36.104	
	FCC 47 CFR 27.53 c), f)	FCC 47 CFR 22.917	
OOBE Additional Operator Requirement	N/A		
CPRI Cascade	Not supported		
Optic Interface	20km, 2 ports (9.8Gbps x 2), SFP+, single mode, Duplex (Option: Bi-di)		
RET & TMA Interface	AISG 3.0		
Bias-T	4 ports (2 ports per band)		
Mounting Options	Pole, wall		
NB-IoT	2GB+2IB or 4IB	2SA+2GB or 2GB+2IB or 4GB	
PIM Cancellation	Support		
# of antenna port	4		
External Alarm	4		
• Specification is subject to change Fronthaul Interface	Opt. 8 CPRI / Opt. 7-2x selectable (not simultaneous support)		
CPRI compression	Not Support		

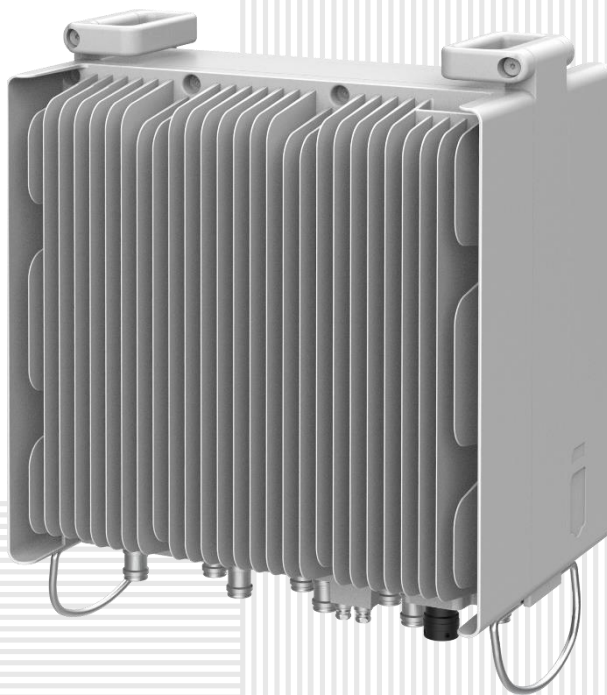
SAMSUNG

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

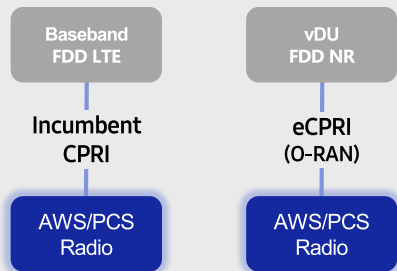


Youtube
www.youtube.com/samsung5g

Points of Differentiation

Continuous Migration

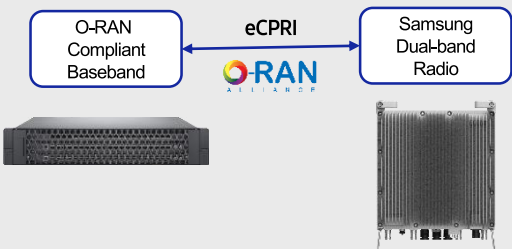
Samsung's AWS/PCS macro radio can support each incumbent CPRI interface as well as advanced eCPRI interfaces. This feature provides installable options for both legacy LTE networks and added NR networks.



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.

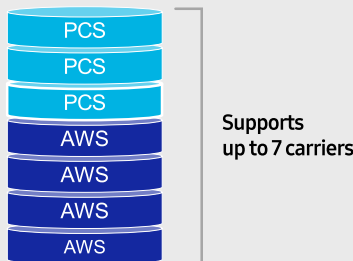
Samsung's state-of-the-art O-RAN technology will help accelerate the effort toward constructing a solid O-RAN ecosystem.



Optimum Spectrum Utilization

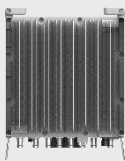
The number of required carriers varies according to site (region). Supporting many carriers is essential for using all frequencies that the operator has available.

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

Hybrid HTTA Connectivity Solutions DC Power and Fiber Distribution

RTH-0306-PFC

Ruggedized, hybrid
breakout solutions for
HTTA applications.



Description

Hybrid Breakout Units are equipped with Senko connectors and are able to support up to 3 RRHs. The closures are designed for quick factory installation.

Features

- Compact, Lightweight Design
- Easy Wiring / Fiber Routing
- Senko connectors
- Ground Terminal provided
- Suitable for pole, wall, frame mounting
- Non-halogenated, non-flame propagating enclosure rated for indoor and outdoor use
- Moisture / pressure equalization vent
- Factory installed Strikesorb over voltage protection modules
- IK 10 Impact Protection
- IP 67 Environmental Rating
- Optional alarm board

SPECIFICATIONS

Hybrid HTTA Connectivity Solutions DC Power and Fiber Distribution

RTH-0306-PFC

Electrical for Strikesorb Modules

Surge Protective Device (SPD) Type per UL 1449 5 th Edition	Type 2 DC SPD
Surge Protective Device (SPD) Class per IEC 61643-11	Class I
Nominal Operating DC Voltage [U_p]	48V
Maximum Continuous Operating DC Voltage [U_{dmcoV}]	75V
Response Time [t_A]	<1 ns
Impulse Discharge Current [I_{imp}] per IEC 61643-11	7.5kA 10/350 μ s
Nominal Discharge Current [I_n] per UL 1449 5 th Edition	20kA 8/20 μ s
Maximum Surge Current Capacity [I_{max}] per NEMA LS-1	60kA 8/20 μ s
Voltage Protection Level [U_p] per IEC 61643-11	<200V
Voltage Protection Rating [VPR] per UL 1449 5 th Edition	330V
Circuit Configuration	-48 VDC Supply-Return; Return-Ground, Per Sector

Mechanical & Breakout Unit Specification

Hybrid Ports	3
Max Outer Cable Diameter	1.57" [40mm]
Environmental Ingress Protection (IP) Rating	IP67
Impact Protection	IK10
Enclosure Material	Polycarbonate (PC) UL746C (F1)
Enclosure Operating Temperature	-40 to 167 °F [-40 to 75 °C]
Weight (lb)	TBD 15.87 [7.2 kg] bracket included TBD 10.58 [4.8kg] no bracket included
Enclosure Dimensions (LxWxH)	12.43" x 9.65" x 5.43" [519 x 245 x 148 mm]

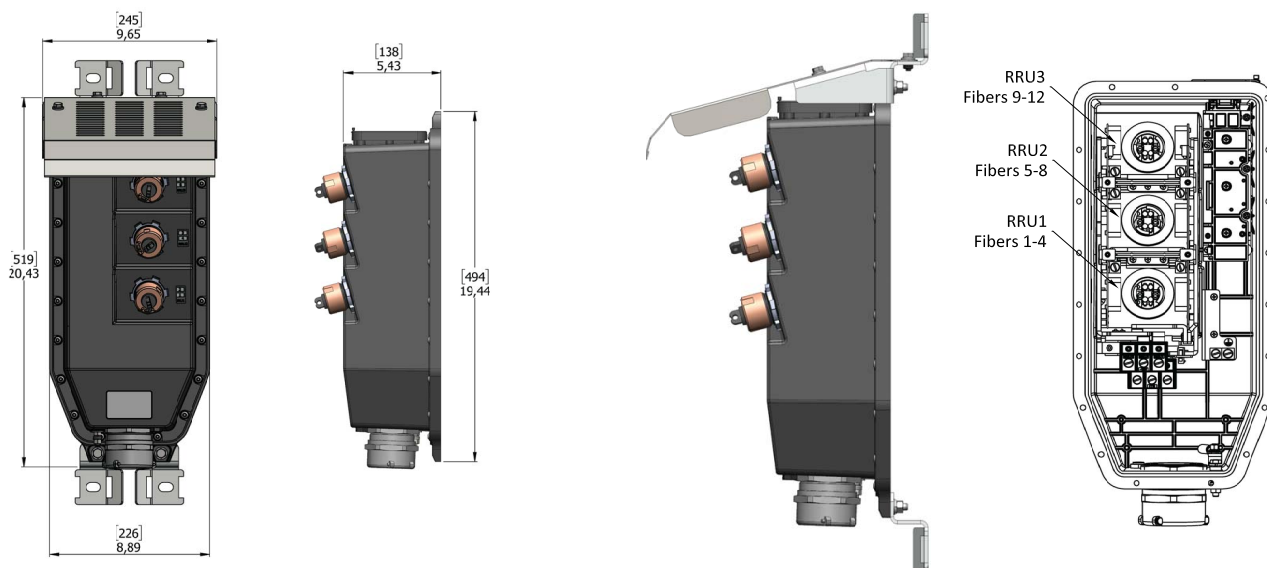
Standards Compliance & Certifications*

Standards	UL 1449 5 th Edition, IEC 61643-11: 2011, EN 61643-11: 2012+A11:2018, IEEE C62.11: 2005, IEEE C62.41: 2002, IEEE C62.45: 2002, NEMA-LS-1
Certifications	UL

Product Diagram

Mounting Bracket Included

inches
[mm]



Cable gland M63

Clamping Range: Ø1.1 - Ø1.57 [Ø28.0 - Ø40.0]

c **RU** **US**

* For Strikesorb Modules

This datasheet is subject to modification without prior notification.

Raycap

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