GX 40 W High-Power Quad-Band DAS Remote Unit

CORNING

features and benefits |

Multi-frequency/ multiservice RF transport platform	Accommodates CDMA, GSM, UMTS, HSPA, LTE, EDGE™, EV-DO technologies, and more Four model-dependent bands per enclosure
Cost-effective high power	Optimizes and reduces the number of antennas required to cover open outdoor areas by offering 46 dBm composite power per frequency band
Operator-grade operation	Advanced signal handling, RF filtering and management ensures operator-grade performance
Unique, space-saving, non-obtrusive design	Blends into the environment and avoids costly tower builds outdoors when covering campus scenarios, parking lots, tunnels, and indoor-adjacent outdoor spaces
Designed to withstand harsh environments	Fully sealed remote unit (RU) enclosure ensures superior performance in harsh environments and worry-free electronics maintenance. Compliant to NEBS OSP Class 4 rated standard
Management and control	Alarm forward to NOC or standard EMS via SNMP, software-controlled output power, and optical link auto gain control

GX products offer scalable, cost-effective 40 W (46 dBm) high-power remote outdoor coverage solutions for Corning distributed antenna systems (DAS).

GX is a fiber-fed, multi-frequency, multioperator remote designed to complement lower power, standard remotes. GX can also be installed as a dedicated solution for new sites, providing complete RF coverage in large open indoor, tunnel, and adjacent outdoor spaces.

Using low-loss fiber optic cabling, GX remote units can distribute multiple BTS signal sources for CELL/ESMR, PCS, 700 LTE, and EAWS to multiple remote locations between 2 to 15 km from the headend to remotes. GX efficiently supports all operator modulations with linear multioperator power amplifier (MCPA) up to 40 W.

GX high-power remote compliments both the Corning® optical network evolution (ONE™) solution and the MA1000/MA2000 platform, sharing a common equipment headend and element management system (EMS) with the other lower-power remotes. GX remotes offer high RF power coverage capabilities with compact design for added spaces savings and weather-resistant enclosures to fit various site needs.

GX Quad-Band Unit | Figure 1

GX 40 W High-Power Quad-Band
DAS Remote Unit

system description |

Figure 2 shows an example of the GX quad-band supporting the CELL/ESMR, PCS, EAWS, and 700 LTE bands deployed alongside low-power Corning® optical network evolution (ONE™) remote access units (RAUs). At the headend, the RF signals, received from the BTS, are conditioned by the headend unit* (HEU), ensuring a constant RF level. The conditioned RF electrical signal is then transferred to the optical central hub (OCH) via a connection[†] to the HEU RF expander module (RIX). The OCH converts the RF signal to an optical signal for transport over low-loss fiber cabling to/from multiple GX remotes.

The GX remotes (and OCH) are managed and controlled via the headend control module (HCM)[‡] installed in the headend chassis, enabling local and remote management and providing single-source, centralized common headend controls of all installed elements.

*HEU supports three service groups and each of these service groups allow connections up to four GX remotes.

†The HEU RIX-to-OCH connection is performed via an ERFCv2 cable which supports up to three OCH UL/DL connections.

‡In deployments with the ONE™ solution, GX remotes require an SC-450 interfacing between the OCH and HCM for management capabilities.
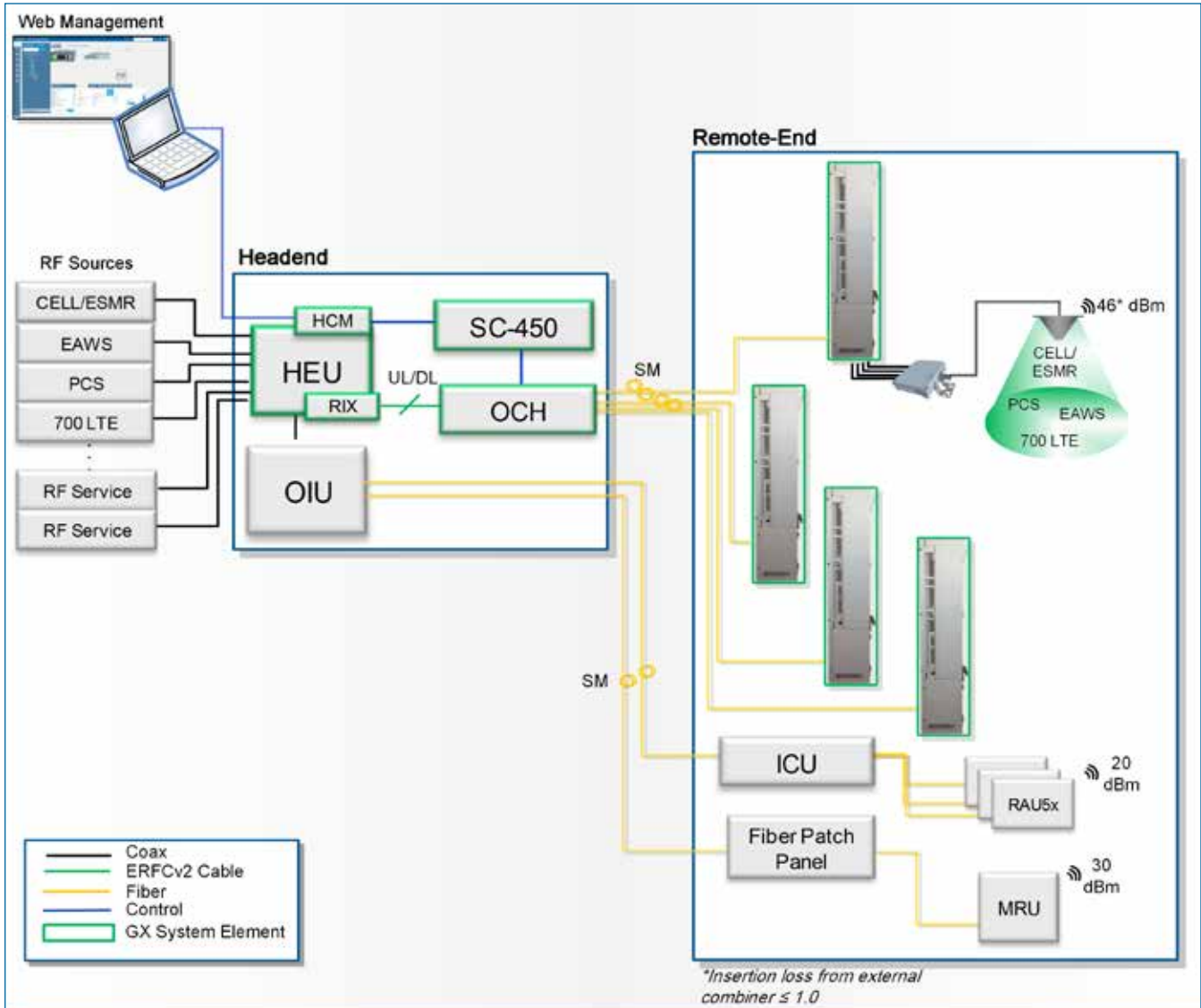
IMPORTANT!

- GX quad-band models GX-E17E85P19L70-40-AC and GX-E17E85P19L70-40-DC do not support coexistence with other GX models. These must be connected to a different HEU and to a different optical module of the OCH.

- Only extended radio interface modules (RIMe) support GX-E17E85P19L70-40-AC and GX-E17E85P19L70-40-DC. See ordering information in this document for relevant part numbers.

Note: GX with EAWS support is supported by HCM v3.0 and higher.

system description | (continued)

Example of GX System Deployment with ONE | Figure 2

system description | (continued)

Figure 3 shows an example of an MA2000 platform deployment with a GX quad-band supporting the CELL/ESMR, PCS, EAWS, and 700 LTE bands deployed alongside a GX supporting the PCS, S800, and AWS bands and an HX mid-power remote.

IMPORTANT! GX quad-band models GX-E17E85P19L70-40-AC and GX-E17E85P19L70-40-DC do not support coexistence with other GX models. These must be connected to two different RIU-4 units or pass through two separate sectors in an RIU-12 as well as a different OCH optical module.

At the headend, the RF signals, received from the BTS, are conditioned by the headend unit* (HEU), ensuring a constant RF level. The conditioned CELL/ESMR, PCS, EAWS,and 700 LTE RF signals are routed through SectorA whereas the PCS, AWS, and S800 servcies are routed through SectorB and transferred to separate optical modules in the optical central hub (OCH). The OCH converts the RF signals to an optical signal for transport over low-loss fiber cabling to/from multiple GX remotes.

GX 40 W High-Power Quad-Band DAS Remote Unit

system description | (continued)

Example of GX System Deployment in MA2000 Platform | Figure 3
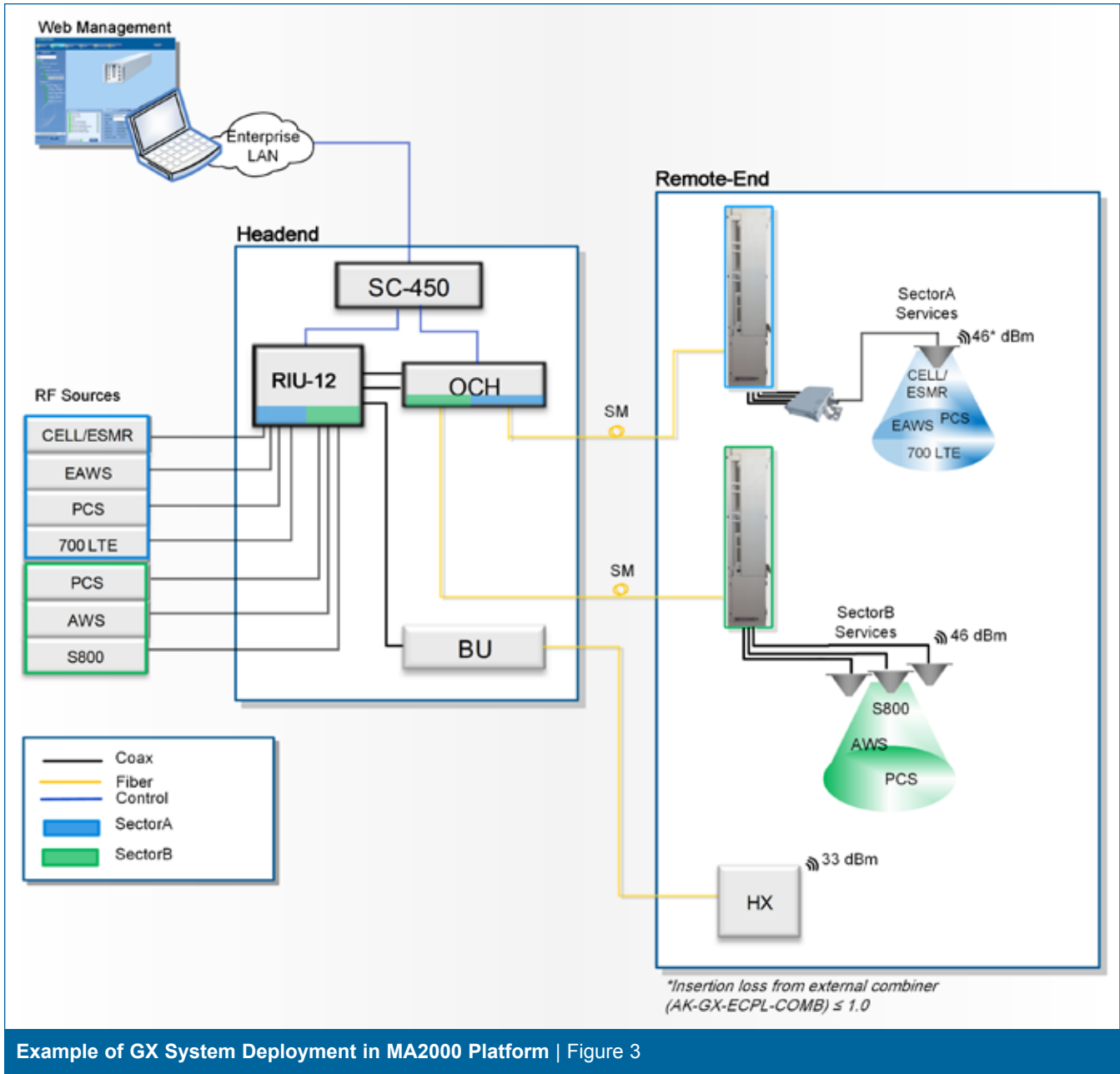
Note: GX with EAWS support is supported by SC-450 v7.4 and higher.

GX 40 W High-Power Quad-Band DAS Remote Unit

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specifications |

Supported Services

Services	Frequency Range (MHz)		
	Band	Uplink (UL)	Downlink (DL)
CDMA/WCDMA*/GSM/LTE	CELL 850 and ESMR	817-849	862-894
LTE	700 MHz	698-716 and 776-787	728-757
CDMA/WCDMA*/GSM/LTE	PCS1900	1850-1915	1930-1995
WCDMA*/HSPA/LTE	EAWS 2100	1710-1780	2110-2180

WCDMA service is based on 3GPP standards. LTE service may be deployed in the future due to frequency refarming planned by the operators.

RF Parameters per Service

Notice: *The manufacturer's rated output power of this equipment is for single carrier operation. For situations when multiple carrier signals are present, the rating would have to be reduced by 3.5 dB, especially where the output signal is reradiated and can cause interference to adjacent band users. This power reduction is achieved through input power or gain reduction and not by an attenuator at the output of the device.*

LTE 700 MHz		
RF Parameters	DL	UL
Nominal Bandwidth (MHz)	29	18/11
Mean Output Power (dBm)	46	
Maximum Output Power (dBm) 1 Carrier (Composite)	46	
2 Carriers	43	
4 Carriers	40	
8 Carriers	–	
12 Carriers	–	
24 Carriers	–	
Nominal Passband Gain (dB)	46	50
Mean Gain (dB) *	46	50
Gain Range (dB)†	30	30
Maximum Pin (dBm) at AGC Threshold	0	-54
Maximum Intermod Distortion (dBm)‡	-13	
NF (dB) at Maximum Gain		5
VSWR	1.5:1	
Gain Flatness/Ripple (dB)§	+/- 2.0	

PCS GSM/CDMA/WCDMA/LTE 1900 MHz		
RF Parameters	DL	UL
Nominal Bandwidth (MHz)	65	65
Mean Output Power (dBm)	46	
Maximum Output Power (dBm) 1 Carrier (Composite)	46	
2 Carriers	43	
4 Carriers	40	
8 Carriers	37	
12 Carriers	35	
24 Carriers	32	
Nominal Passband Gain (dB)	46	50
Mean Gain (dB)*	56	50
Gain Range (dB)†	30	30
Maximum Pin (dBm) at AGC Threshold	0	-54
Maximum Intermod Distortion (dBm)‡	-13	
NF (dB) at Maximum Gain		5
VSWR	1.5:1	
Gain Flatness/Ripple (dB)§	+/- 2.0	

*Factory-set mean gain OCH-WDM without RIU (OCH GUI set in "Active Mode"). May be field adjusted using controller system.

†Default conditioner (BTSC) UL Gain = +3 dB

‡Out-of-band and spurious emissions compliant to FCC

§Gain flatness/ripple is specified for the non-duplexed port of the system

GX 40 W High-Power Quad-Band DAS Remote Unit

specifications | (continued)

RF Parameters per Service (continued)

CELL GSM/CDMA/WCDMA/LTE 850 MHZ and ESMR		
RF Parameters	DL	UL
Nominal Bandwidth (MHz)	32	32
Mean Output Power (dBm)	46	
Maximum Output Power (dBm) 1 Carrier (Composite)	46	
2 Carriers	43	
4 Carriers	40	
8 Carriers	–	
12 Carriers	–	
24 Carriers	–	
Nominal Passband Gain (dB)	46	50
Mean Gain (dB) *	46	50
Gain Range (dB)†	30	30
Maximum Pin (dBm) at AGC Threshold	0	-54
Maximum Intermod Distortion (dBm)‡	-13	
NF (dB) at Maximum Gain		5
VSWR	1.5:1	
Gain Flatness/Ripple (dB)§	+/- 2.0	

EAWS CDMA/WCDMA/LTE 2100 MHz		
RF Parameters	DL	UL
Nominal Bandwidth (MHz)	70	70
Mean Output Power (dBm)	46	
Maximum Output Power (dBm) 1 Carrier (Composite)	46	
2 Carriers	43	
4 Carriers	40	
8 Carriers	37	
12 Carriers	35	
24 Carriers	32	
Nominal Passband Gain (dB)	46	50
Mean Gain (dB)*	46	50
Gain Range (dB)†	30	30
Maximum Pin (dBm) at AGC Threshold	0	-54
Maximum Intermod Distortion (dBm)‡	-13	
NF (dB) at Maximum Gain		5
VSWR	1.5:1	
Gain Flatness/Ripple (dB)§	+/- 2.0	

*Factory-set mean gain OCH-WDM without RIU (OCH GUI set in "Active Mode"). May be field adjusted using controller system.

†Default conditioner (BTSC) UL Gain = +3 dB

‡Out-of-band and spurious emissions compliant to FCC

§Gain flatness/ripple is specified for the non-duplexed port of the system

Supported Services

Frequency Range (MHz)	Typical Coupling* (dB)
700	-50.0
850	-50.0
1900	-50.0
EAWS	-50.0

*Depending on the band, the actual coupling value may slightly vary

GX 40 W High-Power Quad-Band DAS Remote Unit

specifications | (continued)

Optical Specifications

Maximum Optical Budget	6 dBo
Optical Return Loss	> 50 dB
Optical Loss per Mated-pair Connectors	0.5 dB (maximum)
Optical Connector	OptiTap® fiber optic waterproof connector
Optical Automatic Gain Control Range	-2 to -10 dBm
Fiber Type	Single-mode: 9/125 µm
Wavelength	1310 nm, 1550 nm + WDM

Physical Specifications

Ports	• Corning OptiTap fiber optic waterproof connector • RF DIN female connectors
Power	AC Input: VAC 100-240/47-63 Hz DC Input: VDC (-40) to (-57) Maximum power consumption: 1450 W
Physical Dimensions	Weight: 154 lb (70 kg) Mounting: Wall mounting and pole mounting Dimensions (H x W x D): 53.15 x 8.9 x 12.4 in (1350 x 226.06 x 314.96 mm)
Cooling Feature	Active heat dissipation (fan)

Environmental Specifications

Operating Temperature	-40 to +70°C (-40 to +158°F)
Humidity	≤ 95%
Enclosure	NEBS OSP Class 4 rated (enclosure protected from elements and waterproofing)

GX 40 W High-Power Quad-Band
DAS Remote Unit

ordering information |

GX Remote Units

Services Supported	Part Number	Description
EAWS/ESMR/CELL/PCS/LTE 700 40 W	GX-E17E85P19L70-40	GX Quad-Service EAWS, ESMR/CELL, PCS, and LTE 700 MHz solution with 40 W output power supporting local AC powering.
	GX-E17E85P19L70-40-DC	GX Quad-Service EAWS, ESMR/CELL, PCS, and LTE 700 MHz solution with 40 W output power supporting remote DC powering.

Optical Central Hub (OCH) - GX International products

Part Number	Description
OCH-4-WDM	Optical Central Hub for SISO services, supporting four SISO remote units, single-mode (WDM)
OCH-8-WDM	Optical Central Hub for SISO or MIMO services, supporting eight SISO or four MIMO remote units, SMF (WDM)

RIMe Modules

Note: GX remotes deployed with the Corning® optical network evolution (ONE™) solution are supported by extended radio interface modules (RIMe) only.

Part Number	Description
RIMe-L70	Extended Radio Interface Module with support for the LTE 700 MHz band; RF Input: -11 to 37 dBm
RIMe-E80	Extended Radio Interface Module with support for the CELL/ESMR 800 MHz bands; RF Input: -11 to 37 dBm
RIMe-A17	Extended Radio Interface Module with support for the AWS1 + AWS3 1700 MHz bands; RF Input: -11 to 37 dBm
RIMe-P19	Extended Radio Interface Module with support for the PCS 2300 MHz band; RF Input: -11 to 37 dBm

ordering information | (continued)

Accessories

Part Number	Description
AK-GX-ECPL-COMB	GX Accessorized 4-to-1 External Multiplexer supporting EAWS band
AK-GX-QUAD-PWR-CABLE	GX AC Electrical Power Cable for US GX quad-band remote
AK-GX-QUAD-ELEC-ADP-AC	AC Electrical Junction Adapter IP67 rated
AK-3COUPLER-DINM-DINF	Male DIN-Type to Female DIN-Type Coupler with QMA port, quantity of three
AK-RIU4-OCH-CABLES	Accessory Kit Cables for RIU4 to OCH, four QMA to QMA R/A cables 1 m
AK-GX-FILT-850-PS	GX Accessory Kit for 800 band external cavity filter to reject Public Safety
AK-GX-QUAD-BRKT-INDOOR	GX Accessory Kit including bracket for wooden pole-mounting option
AK-GX-QUAD-BRKT-WDPOLE	GX Accessory Kit including bracket with ground support for indoor concrete wall mounting option
ERFCV2-OCH	Extender Cable for RIX-to-OCH connection, supports three pairs of uplink and downlink QMA connections to the OCH

OptiTap® Cables

Part Number	Description
434401EB4R2005M-P	OptiTap® to SC APC 5 m
434401EB4R2030M-P	OptiTap to SC APC 30 m
434401EB4R2100M-P	OptiTap to SC APC 100 m
434401UB4H3005M-P	OptiTap to SC APC Cable Assembly, indoor/outdoor, riser rated 5 m
434401UB4H3030M-P	OptiTap to SC APC Cable Assembly, indoor/outdoor, riser rated 30 m
434401UB4H3100M-P	OptiTap to SC APC Cable Assembly, indoor/outdoor, riser rated 100 m OptiTap to SC APC cable

Note: The listed OptiTap cables are available on demand within a week of the order. Custom length cables require longer lead times. For more information, contact your Corning account manager.

notes |

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notes |

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