Antenna Use Cases

This section provides some of the typical use cases for wireless antennas supported on Cisco 1000 and 2000 Series Connected Grid (CGR) routers. This section contains the following:

- Antennas for the 4G Module in CGR 2010 (WAN), page 7
- Antennas for Radio Modules in CGR 1120 (WAN), page 10
- Antennas for Radio Modules in CGR 1240 (WAN and WPAN), page 17

Antennas for the 4G Module in CGR 2010 (WAN)

The following lists the supported antennas for the WAN (backhaul) 4G module in the CGR 2010:

- 4G Module in CGR 2010 Use Case 1, page 7
- 4G Module in CGR 2010 Use Case 2, page 8
- 4G Module in CGR 2010 Use Case 3, page 8
- 4G Module in CGR 2010 Use Case 4, page 9
- 4G Module in CGR 2010 Use Case 5, page 9
- 4G Module in CGR 2010 Use Case 6, page 10

4G Module in CGR 2010 Use Case 1

Table 1 Conduit to antenna

Item	Description
Antenna Arrangement	■ 4G radio module, TNC(f), quantity 2 ■ 20' cable through enclosure through conduit or boot ■ Omnidirectional stick or flat-panel antenna
Internal Cable	RA-TNC(m) to N(m), LMR-400-FR, 20', quantity 2 ■ 37-1378-01 ■ CAB-L400-20-TNC-N
Adapter and/or Lightning Arrestor	None

Item	Description
External Cable	Single cable passes through conduit from inside to outside building.
Antenna	4G omnidirectional stick, standard performance, N(f), quantity 2 ■ 07-1171-01 ■ ANT-4G-OMNI-OUT-N 4G flat-panel antenna, N(f), quantity 1 ■ 07-1172-01 ■ ANT-4G-PNL-OUT-N

4G Module in CGR 2010 Use Case 2

Table 2 Conduit to antenna

Item	Description
Antenna Arrangement	■ 4G radio module, TNC(f), quantity 2 ■ 50' cable through enclosure through conduit or boot ■ Omnidirectional stick or flat-panel antenna
Internal Cable	RA-TNC(m) to N(m), LMR-400-FR, 50', quantity 2 ■ 37-1379-01 ■ CAB-L400-50-TNC-N
Adapter and/or Lightning Arrestor	None
External Cable	Single cable passes through conduit from inside to outside building.
Antenna	4G omnidirectional stick, standard performance, N(f), quantity 2 ■ 07-1171-01 ■ ANT-4G-OMNI-OUT-N 4G flat-panel antenna, N(f), quantity 1 ■ 07-1172-01 ■ ANT-4G-PNL-OUT-N

4G Module in CGR 2010 Use Case 3

Table 3 Antenna on top of enclosure

Item	Description
Antenna Arrangement	■ 4G radio module, TNC(f), quantity 2 ■ Antenna with integrated 15' coaxial
Internal Cable	Antenna mounted to top of metal cabinet, integrated cable runs to 4G module front panel.

Item	Description
Adapter and/or Lightning Arrestor	None
External Cable	None
Antenna	4G, low profile, integrated 15' LMR-195 cable with TNC(m), quantity 2 ■ 07-1165-01 ■ ANT-4G-SR-OUT-TNC

4G Module in CGR 2010 Use Case 4

Table 4 Indoor swivel-mount dipole with 15' extension cable

Item	Description
Antenna Arrangement	■ 4G radio module, TNC(f), quantity 2 ■ 15' coaxial cable with base ■ Swivel-mount dipole
Internal Cable	Single-port antenna stand with 15' cable included, TNC(m) to TNC(m), quantity 2 ■ 07-1054-01 ■ CAB-L195-15-TNC
Adapter and/or Lightning Arrestor	None
External Cable	None
Antenna	4G indoor swivel-mount dipole, 0 dBi, MPN Laird DBA6927C-CS1 or Pulse W1945 ■ 07-1174-01 (was 07-1137-01) ■ ANT-4G-DP-IN-TNC

4G Module in CGR 2010 Use Case 5

Table 5 Indoor ceiling mount antenna

Item	Description
Antenna Arrangement	4G radio module, TNC(f), quantity 2
Internal Cable	None. No separate indoor cable, cable is part of antenna.
Adapter and/or Lightning Arrestor	None

Item	Description
External Cable	None. Antenna mounted indoor to ceiling, integrated cable runs to 4G module front panel.
Antenna	4G Indoor, volcano, integrated 15' LMR-195 cable with TNC(m), quantity 2 ■ Laird CMS69273-CS1 ■ 07-1173-01 (was 07-1121-01) ■ ANT-4G-CM-IN-TNC

4G Module in CGR 2010 Use Case 6

Table 6 20' Indoor cable, lightning arrestor, outdoor cable, omnidirectional stick or flat-panel antenna

Item	Description
Antenna Arrangement	4G radio module, TNC(f) - quantity 2
Internal Cable	RA-TNC(m) to N(m), LMR-400-FR, 20', quantity 2 ■ 07- 1158-01 ■ CAB-L400-20-TNC-N
Adapter and/or Lightning Arrestor	N(f)-N(f) MPN H+S 3406, quantity 2 ■ 07-1158-01 ■ CGR-LA-NF-NF
External Cable	RA-N(m) to N(m), LMR-400-DB, 20' ■ 37-1392-01 ■ CAB-L400-20-N-N
Antenna	4G omnidirectional stick, standard performance, N(f), quantity 2 ■ 07-1171-01 ■ ANT-4G-OMNI-OUT-N 4G panel antenna, N(f), quantity 1 ■ 07-1172-01 ■ ANT-4G-PNL-OUT-N

Antennas for Radio Modules in CGR 1120 (WAN)

The following lists the supported CR antennas for the 3G WAN (backhaul) module in the CGR 1120:

- CG Antennas for 3G WAN Module in the CGR 1120 Use Case 1, page 11
- CG Antennas for 3G WAN Module in the CGR 1120 Use Case 2, page 12
- CG Antennas for 3G WAN Module in the CGR 1120 Use Case 3, page 12
- CG Antennas for 3G WAN Module in the CGR 1120 Use Case 4, page 13

- CG Antennas for 3G WAN Module in the CGR 1120 Use Case 5, page 13
- CG Antennas for 3G WAN Module in the CGR 1120 Use Case 6, page 14
- CG Antennas for 3G WAN Module in the CGR 1120 Use Case 7, page 15
- CG Antennas for 3G WAN Module in the CGR 1120 Use Case 8, page 15
- CG Antennas for 3G WAN Module in the CGR 1120 Use Case 9, page 16
- CG Antennas for 3G WAN Module in the CGR 1120 Use Case 10, page 17

CG Antennas for 3G WAN Module in the CGR 1120 Use Case 1

Table 7 3G module, 10', 15', or 20' cable through conduit or building entry panel pass-through, stick omnidirectional or directional flat-panel antenna

Item	Description
Antenna Arrangement	Stick omnidirectional or directional flat-panel antenna
Internal Cable	RA-QMA(m) to N(m), LMR-240-FR, 10', quantity 2 ■ 37-1351-02 ■ CAB-L240-10-Q-N RA-QMA(m) to N(m), LMR-240-FR, 15', quantity 2 ■ 37-1352-02 ■ CAB-L240-15-Q-N RA-QMA(m) to N(m), LMR-240-FR, 20' ■ 37-1353-02 ■ CAB-L240-20-Q-N
Adapter and/or Lightning Arrestor	None
External Cable	Same cable as indoor cable. For example, single cable runs from inside to outside, through a conduit.
Antenna	4G omnidirectional stick, standard perf, N(f), quantity 2 ■ 07-1171-01 ■ ANT-4G-OMNI-OUT-N 3G, 806-960 MHz, 1710 to 2170 MHz, flat-panel antenna, 10/11 dBi, MPN PCTEL FP8241805-10VP, qty 2 ■ 07-1162-01 ■ ANT-3G-PNL-OUT-N

CG Antennas for 3G WAN Module in the CGR 1120 Use Case 2

Table 8 3G module, indoor cable, lightning arrestor, outdoor cable, stick omnidirectional or directional flat-panel antenna

Item	Description
Antenna Arrangement	Stick omnidirectional or directional flat-panel antenna
Internal Cable	RA-QMA(m) to N(m), LMR-240-FR, 10', quantity 2 ■ 37-1351-02 ■ CAB-L240-10-Q-N
Adapter and/or Lightning Arrestor	Lightning arrestor, N(f)-N(f), quantity 2 ■ 07-1158-01 ■ CGR-LA-NF-NF
External Cable	RA-N(m) to N(m), LMR-400-DB, 20', quantity 2 ■ 37-1392-01 ■ CAB-L400-20-N-N RA-N(m)-N(m), LMR-600-DB, 30', quantity 2 ■ 37-1396-01 ■ CAB-L600-30-N-N
Antenna	4G omnidirectional stick, standard perf, N(f), quantity 2 ■ 07-1171-01 ■ ANT-4G-OMNI-OUT-N 3G, 806-960 MHz, 1710 to 2170 MHz, flat-panel antenna, 10/11 dBi, MPN ■ PCTEL FP8241805-10VP, qty 2 ■ 07-1162-01 ■ ANT-3G-PNL-OUT-N

CG Antennas for 3G WAN Module in the CGR 1120 Use Case 3

Table 9 3G module, low-profile antenna with Integrated 15' coaxial cable, mounted to top of utility cabinet roof

Item	Description
Antenna Arrangement	Low-profile antenna mounted on cabinet roof
Internal Cable	None
Adapter and/or Lightning Arrestor	Connector adapter, QMA(m)-TNC(m), MPN H+S 33-QMA-TNC-50-1, quantity 2 ■ 29-7759-01 ■ ANT-ADPTR-Q-TNC

Item	Description
External Cable	None
Antenna	4G low-profile, integrated 15' LMR-195 cable with TNC(m), quantity 2 ■ 07-1165-01 ■ ANT-4G-SR-OUT-TNC ■

CG Antennas for 3G WAN Module in the CGR 1120 Use Case 4

Table 10 GPS antenna with integrated 15' coaxial cable, mounted to top of utility cabinet roof

Item	Description
Antenna Arrangement	GPS antenna mounted to top of utility cabinet roof
Internal Cable	None
Adapter and/or Lightning Arrestor	Connector adapter, QMA(m)-TNC (f), MPN H+S 33-QMA-TNC-50-1, quantity 1 ■ 29-7759-01 ■ ANT-ADPTR-Q-TNC
External Cable	None
Antenna	GPS antenna, integrated 15' LMR-100 cable with RA-TNC(m), quantity 1 ■ 07-1155-01 ■ ANT-GPS-OUT-TNC

CG Antennas for 3G WAN Module in the CGR 1120 Use Case 5

Table 11 WiFi antenna, swivel-mount, mounted directly to CGR 1120 front panel connector

Item	Description
Antenna Arrangement	WiFi antenna, swivel-mount, mounted directly to CGR 1120 front panel connector
Internal Cable	None
Adapter and/or Lightning Arrestor	Connector adapter, QMA(m)-TNC (f), MPN H+S 33-QMA-TNC-50-1, quantity 1 ■ 29-7759-01 ■ 29-7759-01 ■ ANT-ADPTR-Q-TNC

Item	Description
External Cable	None
Antenna	4G indoor swivel-mount dipole, 0 dBi ■ Laird DBA6927C-CS1 or Pulse W1945 ■ 07-1174-01 (was 07-1137-01) ■ ANT-4G-DP-IN-TNC

CG Antennas for 3G WAN Module in the CGR 1120 Use Case 6

Table 12 RF 900 module, indoor cable, lightning arrestor, outdoor cable, omnidirectional stick antenna

Item	Description
Antenna Arrangement	RF 900 module, indoor cable, lightning arrestor, outdoor cable, omnidirectional stick antenna
Internal Cable	RA-QMA(m) to N(m), LMR-240-FR, 10', quantity 1 ■ 37-1351-02 ■ CAB-L240-10-Q-N
Adapter and/or Lightning Arrestor	Lightning arrestor, N(f)-N(f), quantity 1 ■ 07-1158-01 ■ CGR-LA-NF-NF
External Cable	RA-N(m) to N(m), LMR-400-DB, 20', quantity 1 ■ 37-1392-01 ■ CAB-L400-20-N-N RA-N(m)-N(m), LMR-600-DB, 30', quantity 1 ■ 37-1396-01 ■ CAB-L600-30-N-N
Antenna	900 MHz ISM band, omnidirectional stick, 5 dBi gain, N(f), quantity 1 ■ 07-1163-01 ■ ANT-WPAN-OM-OUT-N

CG Antennas for 3G WAN Module in the CGR 1120 Use Case 7

Table 13 WiMAX module, 2.3 to 2.4 GHz WiMAX, indoor cable, lightning arrestor, outdoor cable, directional flat-panel antenna

Item	Description
Antenna Arrangement	WiMAX module, directional flat-panel antenna
Internal Cable	RA-QMA(m) to N(m), LMR-240-FR, 10', quantity 1 ■ 37-1351-02 ■ CAB-L240-10-Q-N
Adapter and/or Lightning Arrestor	Lightning arrestor, N(f)-N(f), quantity 2 ■ 07-1158-01 ■ CGR-LA-NF-NF
External Cable	RA-N(m) to N(m), LMR-400-DB, 20', quantity 2 ■ 37-1392-01 ■ CAB-L400-20-N-N RA-N(m)-N(m), LMR-600-DB, 30', quantity 2 ■ 37-1396-01 ■ CAB-L600-30-N-N
Antenna	Flat-panel antenna, 2.3 to 2.7 GHz, 17 dBi, N(f), dual-slant, quantity 1 ■ 07-1160-01 ■ ANT-2.X-PNL-OUT-N

CG Antennas for 3G WAN Module in the CGR 1120 Use Case 8

Table 14 WiMAX module, 2.5 to 2.7 GHz WiMAX, indoor cable, lightning arrestor, outdoor cable, directional flat-panel antenna

Item	Description
Antenna Arrangement	WiMAX module, directional flat-panel antenna
Internal Cable	RA-QMA(m) to N(m), LMR-240-FR, 10', quantity 1 ■ 37-1351-02 ■ CAB-L240-10-Q-N
Adapter and/or Lightning Arrestor	Lightning arrestor, N(f)-N(f), quantity 2 ■ 07-1158-01 ■ CGR-LA-NF-NF

Item	Description
External Cable	RA-N(m) to N(m), LMR-400-DB, 20', quantity 2 ■ 37-1392-01 ■ CAB-L400-20-N-N RA-N(m)-N(m), LMR-600-DB, 30', quantity 2 ■ 37-1396-01 ■ CAB-L600-30-N-N
Antenna	Flat-panel antenna, 2.3 to 2.7 GHz, 17 dBi, N(f), dual-slant, quantity 1 ■ 07-1160-01 ■ ANT-2.X-PNL-OUT-N

CG Antennas for 3G WAN Module in the CGR 1120 Use Case 9

Table 15 WiMAX module, 3.3 to 3.6 GHz WiMAX, indoor cable, lightning arrestor, outdoor cable, directional flat-panel antenna

Item	Description
Antenna Arrangement	WiMAX module, directional flat-panel antenna
Internal Cable	RA-QMA(m) to N(m), LMR-240-FR, 10', quantity 1 ■ 37-1351-02 ■ CAB-L240-10-Q-N
Adapter and/or Lightning Arrestor	Lightning arrestor, N(f)-N(f), quantity 2 ■ 07-1158-01 ■ CGR-LA-NF-NF
External Cable	RA-N(m) to N(m), LMR-400-DB, 20', quantity 2 ■ 37-1392-01 ■ CAB-L400-20-N-N RA-N(m)-N(m), LMR-600-DB, 30', quantity 2 ■ 37-1396-01 ■ CAB-L600-30-N-N
Antenna	Flat-panel antenna, 3.3 to 3.8 GHz, 18.5 dBi, N(f), dual-slant, quantity 1 ■ 07-1161-01 ■ ANT-3.X-PNL-OUT-N

CG Antennas for 3G WAN Module in the CGR 1120 Use Case 10

Table 16 WiMAX module, 3.5 to 3.8 GHz WiMAX, indoor cable, lightning arrestor, outdoor cable, directional flat-panel antenna

Item	Description
Antenna Arrangement	WiMAX module, directional flat-panel antenna
Internal Cable	RA-QMA(m) to N(m), LMR-240-FR, 10', quantity 1 ■ 37-1351-02 ■ CAB-L240-10-Q-N
Adapter and/or Lightning Arrestor	Lightning arrestor, N(f)-N(f), quantity 2 ■ 07-1158-01 ■ CGR-LA-NF-NF
External Cable	RA-N(m) to N(m), LMR-400-DB, 20', quantity 2 ■ 37-1392-01 ■ CAB-L400-20-N-N RA-N(m)-N(m), LMR-600-DB, 30', quantity 2 ■ 37-1396-01 – CAB-L600-30-N-N
Antenna	Flat-panel antenna, 3.3 to 3.8 GHz, 18.5 dBi, N(f), dual-slant, quantity 1 ■ 07-1161-01 ■ ANT-3.X-PNL-OUT-N

Antennas for Radio Modules in CGR 1240 (WAN and WPAN)

The following lists the supported CR antennas for the 3G WAN (backhaul) and WPAN modules in the CGR 1240:

- CG Antennas for 3G Backhaul Module in CGR 1240 Use Case 1, page 18
- CG Antennas for 3G Backhaul Module in CGR 1240 Use Case 2, page 18
- CG Antennas for 3G Backhaul Module in CGR 1240 Use Case 3, page 19
- CG Antennas for 3G Backhaul Module in CGR 1240 Use Case 4, page 19
- CG Antennas for 3G Backhaul Module in CGR 1240 Use Case 5, page 20
- CG Antennas for 3G Backhaul Module in CGR 1240 Use Case 6, page 21
- CG Antennas for 3G Backhaul Module in CGR 1240 Use Case 7, page 22
- CG Antennas for 3G Backhaul Module in CGR 1240 Use Case 8, page 22

- CG Antennas for 3G WAN Module in the CGR 1120 Use Case 9, page 16
- CG Antennas for 3G Backhaul Module in CGR 1240 Use Case 10, page 24
- CG Antennas for 3G Backhaul Module in CGR 1240 Use Case 11, page 24
- CG Antennas for 3G Backhaul Module in CGR 1240 Use Case 12, page 25
- CG Antennas for 3G Backhaul Module in CGR 1240 Use Case 13, page 26

CG Antennas for 3G Backhaul Module in CGR 1240 Use Case 1

Table 17 Integrated antenna, 3G module

Item	Description
Antenna Arrangement	Integrated antenna, 3G module
Internal Cable	RA-QMA(m) to RA-MCX (m), LMR-100, 10.5" , quantity 2 ■ 37-1391-01 ■ CAB-L100-10-Q-M
Adapter and/or Lightning Arrestor	None
External Cable	None
Antenna	900 MHz, 3G, 806 to 960 MHz, 1710 to 2700 MHz, monopole antenna, chassis mounted, omnidirectional, quantity 2 ■ 07-1140-02 ■ ANT-MP-INT-OUT-M

CG Antennas for 3G Backhaul Module in CGR 1240 Use Case 2

Table 18 External antenna, 3G module

Item	Description
Antenna Arrangement	External antenna, 3G module
Internal Cable	RA-QMA(m) to RA-MCX (m), LMR-100, 10.5" , quantity 2 ■ 37-1391-01 ■ CAB-L100-10-Q-M
Adapter and/or Lightning Arrestor	Bulkhead adapter, MCX(f) receptacle, N(f), quantity 2 AND Lightning arrestor, DC Pass, N(m)-N(f), quantity 2 ■ CGR-LA-NM-NF

Item	Description
External Cable	RA-N(m)-N(m), LMR-400-DB, 20', quantity 2 ■ CAB-L400-20-N-N RA-N(m)-N(m), LMR-600-DB, 30', quantity 2 ■ CAB-L600-30-N-N
Antenna	4G omnidirectional stick, standard performance, N(f), quantity 2 ■ ANT-4G-OMNI-OUT-N 3G, 806-960 MHz, 1710 to 2170 MHz, Flat-panel antenna, quantity 2 ■ ANT-3G-PNL-OUT-N

CG Antennas for 3G Backhaul Module in CGR 1240 Use Case 3

Table 19 Integrated antenna, RF900 WPAN module

Item	Description
Antenna Arrangement	Integrated antenna, RF900 WPAN module
Internal Cable	RA-QMA(m) to RA-MCX (m), LMR-100, 17.5" , quantity 1 ■ 37-1380-01 ■ CAB-L100-10-Q-M
Adapter and/or Lightning Arrestor	None
External Cable	None
Antenna	900 MHz, 3G, 806 to 960 MHz, 1710 to 2700 MHz, monopole antenna, chassis mounted, omnidirectional, quantity 1 ■ 07-1140-02 ■ ANT-MP-INT-OUT-M

CG Antennas for 3G Backhaul Module in CGR 1240 Use Case 4

Table 20 External antenna, RF900 WPAN module

Item	Description
Antenna Arrangement	External antenna, RF900 WPAN module
Internal Cable	RA-QMA(m) to RA-MCX (m), LMR-100, 17.5" , quantity 1 ■ 37-1380-01 ■ CAB-L100-17-Q-M

Item	Description
Adapter and/or Lightning Arrestor	Bulkhead adapter, MCX(f) receptacle, N(f), quantity 2 ■ 29-5950-01 AND Lightning arrestor, DC Pass, N(m)-N(f), quantity 2 ■ 07-1091-01 ■ CGR-LA-NM-NF
External Cable	RA-N(m)-N(m), LMR-400-DB, 20', quantity 2 ■ 37-yyyy-01 ■ CAB-L400-20-N-N RA-N(m)-N(m), LMR-600-DB, 30', quantity 2 ■ 37-1396-01 ■ CAB-L600-30-N-N
Antenna	900 MHz ISM Band, omnidirectional stick, N(f), quantity 1 ■ 07-1163-02 ■ ANT-WPAN-OM-OUT-N

CG Antennas for 3G Backhaul Module in CGR 1240 Use Case 5

Table 21 Integrated antenna, WiMAX module, 2.3 GHz WiMAX

Item	Description
Antenna Arrangement	Integrated antenna, WiMAX module, 2.3 GHz WiMAX
Internal Cable	RA-QMA(m) to RA-MCX (m), LMR-100, 17.5" , quantity 1 ■ 37-1380-01 ■ CAB-L100-17-Q-M
Adapter and/or Lightning Arrestor	None
External Cable	None
Antenna	900 MHz, 3G, 806 to 960 MHz, 1710 to 2700 MHz, monopole antenna, chassis mounted, omnidirectional, quantity 2 ■ 07-1140-02 ■ ANT-MP-INT-OUT-M

CG Antennas for 3G Backhaul Module in CGR 1240 Use Case 6

Table 22 External antenna, WiMAX module, 2.3 GHz WiMAX

Item	Description
Antenna Arrangement	External antenna, WiMAX module, 2.3 GHz WiMAX
Internal Cable	RA-QMA(m) to RA-MCX (m), LMR-100, 17.5" , quantity 1 ■ 37-1380-01 ■ CAB-L100-17-Q-M
Adapter and/or Lightning Arrestor	Bulkhead adapter, MCX(f) receptacle, N(f), quantity 2 ■ 29-5950-01 AND Lightning arrestor, DC Pass, N(m)-N(f), quantity 2 ■ 07-1091-01 ■ CGR-LA-NM-NF
External Cable	RA-N(m)-N(m), LMR-400-DB, 20', quantity 2 ■ 37-yyyy-01 ■ CAB-L400-20-N-N RA-N(m)-N(m), LMR-600-DB, 30', quantity 2 ■ 37-1396-01 ■ CAB-L600-30-N-N
Antenna	Flat-panel antenna, 2300 to 2700 MHz, 17 dBi, N(f), dual-slant, quantity 1 ■ 07-1160-01 ■ ANT-2.X-PNL-OUT-N Flat-panel antenna, 2300 to 2700 MHz, 17 dBi, N(f), dual-slant, quantity 1 ■ 07-1160-01 ■ ANT-2.X-PNL-OUT-N 2.3 GHz cavity-notch filter, N(f), dual-slant, quantity 2 ■ 74-10586-01 coaxial cable, LMR-400-DB, quantity 2 ■ 37-0907-01 ■ AIR-CAB005LL-N

CG Antennas for 3G Backhaul Module in CGR 1240 Use Case 7

Table 23 Integrated antenna, WiMAX module, 2.5 GHz WiMAX

Item	Description
Antenna Arrangement	Integrated antenna, WiMAX module, 2.5 GHz WiMAX
Internal Cable	RA-QMA(m) to RA-MCX (m), LMR-100, 17.5" , quantity 1 ■ 37-1380-01 ■ CAB-L100-17-Q-M
Adapter and/or Lightning Arrestor	None
External Cable	None
Antenna	900 MHz, 3G, 806 to 960 MHz, 1710 to 2700 MHz, monopole antenna, chassis mounted, omnidirectional, quantity 2 ■ 07-1140-02 ■ ANT-MP-INT-OUT-M

CG Antennas for 3G Backhaul Module in CGR 1240 Use Case 8

Table 24 External antenna, WiMAX module, 2.5 GHz WiMAX

Item	Description
Antenna Arrangement	External antenna, WiMAX module, 2.5 GHz WiMAX
Internal Cable	RA-QMA(m) to RA-MCX (m), LMR-100, 17.5" , quantity 1 ■ 37-1380-01 ■ CAB-L100-17-Q-M
Adapter and/or Lightning Arrestor	Bulkhead adapter, MCX(f) receptacle, N(f), quantity 2 ■ 29-5950-01 AND Lightning arrestor, DC Pass, N(m)-N(f), quantity 2 ■ 07-1091-01 ■ CGR-LA-NM-NF

Item	Description
External Cable	RA-N(m)-N(m), LMR-400-DB, 20', quantity 2 ■ 37-1392-01 ■ CAB-L400-20-N-N RA-N(m)-N(m), LMR-600-DB, 30', quantity 2 ■ 37-1396-01 ■ CAB-L600-30-N-N
Antenna	Flat-panel antenna, 2300 to 2700 MHz, 17 dBi, N(f), dual-slant, quantity 1 ■ 07-1160-01 ■ ANT-2.X-PNL-OUT-N

CG Antennas for 3G Backhaul Module in CGR 1240 Use Case 9

Table 25 External antenna, WiMAX module, 1.8 GHz WiMAX

Item	Description
Antenna Arrangement	External antenna, WiMAX module, 1.8 GHz WiMAX
Internal Cable	RA-QMA(m) to RA-MCX (m), LMR-100, 17.5" , quantity 2 ■ 37-1380-01 ■ CAB-L100-17-Q-M
Adapter and/or Lightning Arrestor	Bulkhead adapter, MCX(f) receptacle, N(f), quantity 2 ■ 29-5950-01 AND Lightning arrestor, DC Pass, N(m)-N(f), quantity 2 ■ 07-1091-01 ■ CGR-LA-NM-NF

Item	Description
External Cable	RA-N(m)-N(m), LMR-400-DB, 20', quantity 2 ■ 37-yyyy-01 ■ CAB-L400-20-N-N RA-N(m)-N(m), LMR-600-DB, 30', quantity 2 ■ 37-yyyy-01 ■ CAB-L600-30-N-N
Antenna	Flat-panel antenna, 1800 to 1830 MHz, 15 dBi, N(f), dual-slant, quantity 1 ■ 07-1159-01 ■ ANT-1.8-PNL-OUT-N

CG Antennas for 3G Backhaul Module in CGR 1240 Use Case 10

Table 26 Integrated antenna, WiMAX module, 3.3 to 3.6 GHz WiMAX

Item	Description
Antenna Arrangement	Integrated antenna, WiMAX module, 3.3 to 3.6 GHz WiMAX
Internal Cable	RA-QMA(m) to RA-MCX (m), LMR-100, 17.5" , quantity 2 ■ 37-1380-01 ■ CAB-L100-17-Q-M
Adapter and/or Lightning Arrestor	None
External Cable	None
Antenna	3.6 GHz WiMAX, 3.3 to 3.8 GHz, monopole antenna, chassis mounted, omnidirectional, quantity 2 ■ 07-1142-02 ■ ANT-WM-INT-OUT-M

CG Antennas for 3G Backhaul Module in CGR 1240 Use Case 11

Table 27 External antenna, WiMAX module, 3.3 to 3.6 GHz WiMAX

Item	Description
Antenna Arrangement	External antenna, WiMAX module, 3.3 to 3.6 GHz WiMAX
Internal Cable	RA-QMA(m) to RA-MCX (m), LMR-100, 17.5" , quantity 2 ■ 37-1380-01 ■ CAB-L100-17-Q-M

Item	Description
Adapter and/or Lightning Arrestor	Bulkhead adapter, MCX(f) receptacle, N(f), quantity 2 ■ 29-5950-01 AND Lightning arrestor, DC pass, N(m)-N(f), quantity 2 ■ 07-1091-01 ■ CGR-LA-NM-NF
External Cable	RA-N(m)-N(m), LMR-400-DB, 20', quantity 2 ■ 37-1392-01 ■ CAB-L400-20-N-N RA-N(m)-N(m), LMR-600-DB, 30', quantity 2 ■ 37-1396-01 ■ CAB-L600-30-N-N
Antenna	Flat-panel antenna, 3300 to 3800 MHz, 18.5 dBi, N(f), dual-slant, quantity 1 ■ 07-1161-01 ■ ANT-3.X-PNL-OUT-N

CG Antennas for 3G Backhaul Module in CGR 1240 Use Case 12

Table 28 Integrated antenna, WiMAX module, 3.5 to 3.8 GHz WiMAX

Item	Description
Antenna Arrangement	Integrated antenna, WiMAX module, 3.5 to 3.8 GHz WiMAX
Internal Cable	RA-QMA(m) to RA-MCX (m), LMR-100, 17.5" , quantity 2 ■ 37-1380-01 ■ CAB-L100-17-Q-M
Adapter and/or Lightning Arrestor	None
External Cable	None
Antenna	3.6 GHz WiMAX, 3.3 to 3.8 GHz, monopole antenna, chassis mounted, omnidirectional, quantity 2 ■ 07-1142-02 ■ ANT-WM-INT-OUT-M

CG Antennas for 3G Backhaul Module in CGR 1240 Use Case 13

Table 29 External antenna, WiMAX module, 3.5 to 3.8 GHz WiMAX

Item	Description
Antenna Arrangement	External antenna, WiMAX module, 3.5 to 3.8 GHz WiMAX
Internal Cable	RA-QMA(m) to RA-MCX (m), LMR-100, 17.5" , quantity 2 ■ 37-1380-01 ■ CAB-L100-17-Q-M
Adapter and/or Lightning Arrestor	Bulkhead adapter, MCX(f) receptacle, N(f), quantity 2 ■ 29-5950-01 AND Lightning arrestor, DC pass, N(m)-N(f), quantity 2 ■ 07-1091-01 ■ CGR-LA-NM-NF
External Cable	RA-N(m)-N(m), LMR-400-DB, 20', quantity 2 ■ 37-yyyy-01 ■ CAB-L400-20-N-N RA-N(m)-N(m), LMR-600-DB, 30', quantity 2 ■ 37-1396-01 ■ CAB-L600-30-N-N
Antenna	Flat-panel antenna, 3300 to 3800 MHz, 18.5 dBi, N(f), dual-slant, quantity 1 ■ 07-1161-01 ■ ANT-3.X-PNL-OUT-N