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### Section 1: System Overview

#### MIMO Diversity Antenna [OPTIONAL]

2.3-2.7GHz, 12dBi Omni antenna, N-Female, L=45", mount on 3/4" - 2 1/2" mast

NOTE 2.0

#### MIMO Primary Antenna

NOTE 4.0

2.5-2.7GHz, 16.3dBi Panel antenna, N-Female, 10.4"x10.4"x0.49", mount on 3/4" to 3" OD pole, 30dB F2B

2ft LMR400 Cable, N-Male/N-Male Jumper

Lightning discharge device DC-6GHz, N-Fem, 50Ω, (OPTIONAL)

NOTE 1.0

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Roof

20ft LMR400 Coaxial Cable, N-Male/N-Male, Attenuation = 6.9db/100ft (1.4dB loss for this 20ft run)

In-Building or Weatherized Outdoor Enclosure

4G Modem & Pigtail (N-Female)

WWAN ROUTER (CELL/WIMAX)

WiFi 802.11b/g/n (connect optional high gain outdoor 2.4GHz antennas)

CAT5/6 to Load-balanced LAN Clients



[OPTIONAL] MultiWAN Load-Balancing/Link-Aggregation & Failover Router. Combine Multiple 3G/4G Data Channels



NOTE 3.0

4G MODEM DETAIL



1616 S. Stapley Dr. Ste 103, Mesa, AZ, 85204, U.S.A  
www.rfwel.com | 480.218.1877

### 2.496-2.69GHz 4G WiMax Indoor Coverage Improvement

Outdoor Antenna, WiMax USB Dongle, WiMax Router  
JOB # BWA-40850-xxxx  
Section 1.0: System Overview

DRAWN BY: RT (Engr) APPROVED BY:	SIZE	LIC NO AZ ROC # 253407	DWG NO BW-408500630-001	REV 1A
FREQ(s): 2.4GHz ISM, 2.5-2.7GHz	SCALE NO SCALE	FRN: 0018086041	SHEET 1 OF 1	

Bill of Materials			
ITEM	QTY.	RFWEL SKU	DESCRIPTION
1	1	ARC-PA2516B01	2.5-2.7GHz Wimax panel antenna, 16dBi, N-Female Jack
2	1	RFWAT2P50MNNF	2.3-2.7GHz Wimax Omn-idirectional antenna, 12dBi, N-Female Jack
3	2	952302	2ft LMR-400 low loss coaxial cable (N-Male/N-Male)
4	2	LPNPNF276V	Coax Lightning protector DC-6GHz, IL<0.7dB, 276VDC, N-Fem
5	2	CA3N020	20ft LMR-400 low loss coaxial cable (N-Male/N-Male)
6	2	RFWADPPXU1900NF	Clear 4G USB PXU1900 External Antenna Adapter
7	1	PXU1900	Clear 4G Mobile USB WiMax Modem (Ubee PXU1900)
8	1	MBR1200	CradlePoint MBR1200 Failsafe Cellular/WiMax/WiFi Router
9	1	BPL-380	Peplink Balance 380

#### NOTES:

- 1.0 Ground per NEC-2005 Art820 using 14AWG+ grounding electrode
- 2.0 Separate primary and diversity antennas by at least 2ft (Orient directional panel away from omni-directional antenna to exploit the 30dB Front-to-Back ratio of panel). For best MIMO diversity & coding gain individual RF channels from transmitters to receivers between WiMax Base-Station and Mobile Unit needs to be highly uncorrelated.
- 3.0 If using only one antenna, plug into the primary antenna "ANT1" (see 4G Modem Pic). See www.rfwel.com/forums for a discussion on when MIMO dual antennas are most effective
- 4.0 Orient primary antenna to direction of maximum received signal strength.

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