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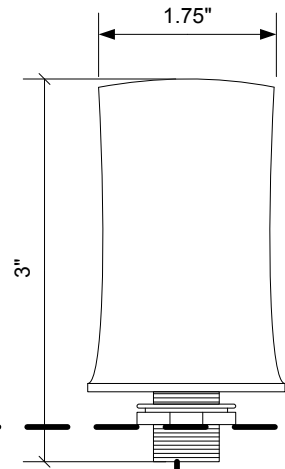
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WiMax MIMO Primary Antenna [ANT#1-4G]

750-2700 MHz 3G Cellular 4G WiMax SM Antenna w/ 1ft SMA-M Cable, 3dBi/5dBi



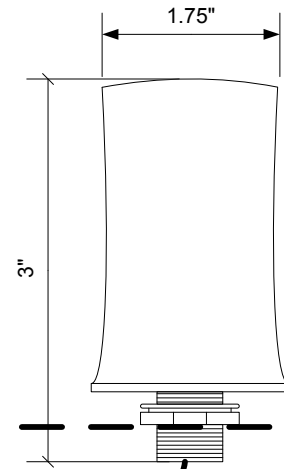
Cellular 3G DualBand Magnet Mount Antenna

12.25"



WiMax MIMO Secondary Antenna [ANT#2-4G]

750-2700 MHz 3G Cellular 4G WiMax SM Antenna w/ 1ft SMA-M Cable, 3dBi/5dBi



NOTE 1.0

Roof of Trailer

Dualband Cellular 3G RF Bidirectional Amplifier, 824-894MHz, 1850-1990MHz, Rfmax=35dBm, FME-Male

LMR400 Cable, N-Male/N-Male, 6.9dB/100ft attenuation @ 2.6GHz (0.7dB for 10ft run)

NOTE 3.0

NOTE 2.0

See Page 2 on integration of 2.4GHz WiFi antennas

PCS/WiMax 3dB Diplexer splits 80-2170 w/ passband loss 0.8dB & 2490-2690 w/ 0.3dB pb loss, N-F

Dual Pigtail w/ TS9-Male to FME-Male Ends

ANT#2: WiMax 2500 MHz MIMO Secondary
ANT#1: - WiMax 2500 MHz MIMO Primary
- CDMA 850/ 1900 MHz
- GPS L1 1575 MHz

MBR1200 Router (may replace with other router that can convert 4G WiMax to LAN/WLAN)



Multi-WAN Router for Load balancing/ Failover, 1U Rack Mount, (Includes support for 3G Cellular USB Modems)

Rfwel
Radio Frequency Wireless Electronics
1616 S. Stapley Dr. Ste 103,
Mesa, AZ, 85204, U.S.A
www.rfwel.com | 480.218.1877

Remote Mobile+Nomadic Wireless Communication System

Section 1: Overview – Showing 5 WAN 3G/4G Backhaul, Backhaul Link-Aggregation Router, WiFi, Cellular & WiMax Antennas & 3G/4G Router
JOB # BWA-40361-1010

DRAWN BY: RT (Engr)	SIZE	LIC NO	DWG NO	REV
APPROVED BY:		AZ ROC # 253407	BW-403611010-001	2A
FREQ(s): 2.4GHz WiFi, 850MHz/1900MHz 3G EVDO RevA, 2600MHz 4G WiMax	SCALE	NO SCALE	FRN: 0018086041	SHEET 1 OF 2

Bill of Materials			
ITEM	QTY.	RFWEL SKU	DESCRIPTION
1	2	ANTMBSM317678B	750-2700 MHz Cellular, WiFi, WiMax SM Antenna, SMA-M
2	2	ADPSMAFNF	SMA-Female (Jack) / N-Female (Jack) Adapter
3	1	CL301103	Dualband magnet mount cell antenna 5.12 dBi / 6.12 dBi 1, FME-F
4	3	952310	10ft LMR-400 low loss coaxial cable (N-Male/N-Male)
5	3	952302	2ft LMR-400 low loss coaxial cable (N-Male/N-Male)
6	1	CL811201	Direct Connect Dualband amplifier for Cellular/3G, FME-Male
7	1	CL859903	AC/DC 12V Power Supply Adapter for CL811201 amplifier
8	1	BK-67N	Cellular/PCS/WiMax 3dB Diplexer, N-Female
9	3	CL971107	N-Female/ FME-Female Adapter
10	1	PIG_CLR250U_2	Sierra 250U Dual Pigtail (TS9_Male/FME-Male)
11	1	MBR1200	Cradlepoint MBR1200 3G/4G Router
12	1	BPL-580	Peplink Balance 580 5-WAN Load-balancing Router

NOTES:

- 1.0 Provide maximum separation distance between WiMax 4G antennas for best performance.
- 2.0 Note modem primary antenna port labeled "ANT1" is the port connected to PCS/WiMax diplexer. For applications using only one external antenna, plug into the "ANT1" port. Due to potentially significant RF-shielding from vehicle body recommend use of two antennas if using 4G WiMax. If using setup for 3G only DON'T need to have secondary antenna connected. Refer to www.rfwel.com/forums for additional discussion on when MIMO dual antennas are most effective.
- 3.0 Cellular/PCS-WiMax diplexer allows to isolate the 3G path 1900MHz and boost it independently of the 4G path at 2600MHz. The bidirectional amplifier would band-reject the 2500-2700MHz 4G WiMax band if we had connected the wideband antenna (Item#1) directly to the amplifier and the amplifier directly to ANT#1 on 3G/4G modem.

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Remote Mobile+Nomadic Wireless Communication System

Section 2: WiFi Antenna Integration for Internal/External WiFi Clouds
JOB # BWA-40361-1010

DRAWN BY: RT (Engr)	SIZE	LIC NO	DWG NO	REV
APPROVED BY:		AZ ROC # 253407	BW-403611010-001	2A
FREQ(s): 2.4GHz WiFi, 850MHz/1900MHz 3G EVDO RevA, 2600MHz 4G WiMax	SCALE	NO SCALE	FRN: 0018086041	SHEET 2 OF 2

Bill of Materials				
ITEM	QTY.	RFWEL SKU	DESCRIPTION	
13	2	ANTMBSM317678B	700-2700 MHz 2-Way Splitter, N-Female	
14	1	ANT24G6P5D413017	2.4GHz 6.5dBi MIMO Diversity Patch Antenna Indoor/Outdoor	
15	2	PIGMCNM19	19" Pigtail with MC/N-Male connectors	
16	2	VP-24-OD6S	7dBi spring-loaded 2.4GHz WiFi Antenna, N-Male	
17	2	ADPNFNF_BH	N-Female/ N-Female Bulkhead Adapter	

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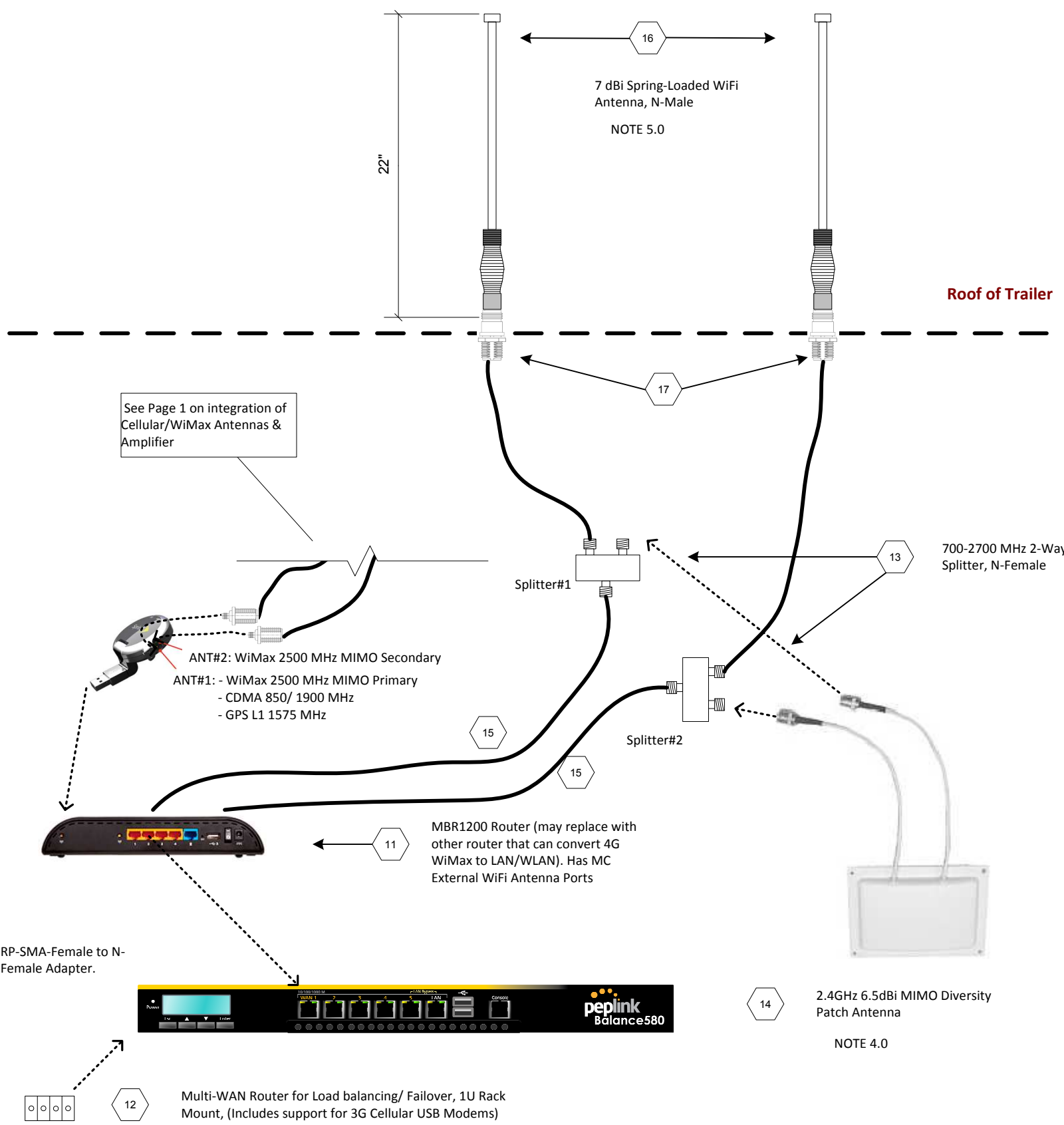
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7 dBi Spring-Loaded WiFi Antenna, N-Male
NOTE 5.0

Roof of Trailer

See Page 1 on integration of Cellular/WiMax Antennas & Amplifier

700-2700 MHz 2-Way Splitter, N-Female

ANT#2: WiMax 2500 MHz MIMO Secondary
ANT#1: - WiMax 2500 MHz MIMO Primary
- CDMA 850/ 1900 MHz
- GPS L1 1575 MHz

MBR1200 Router (may replace with other router that can convert 4G WiMax to LAN/WLAN). Has MC External WiFi Antenna Ports

RP-SMA-Female to N-Female Adapter.

Multi-WAN Router for Load balancing/ Failover, 1U Rack Mount, (Includes support for 3G Cellular USB Modems)

2.4GHz 6.5dBi MIMO Diversity Patch Antenna
NOTE 4.0

NOTES:

4.0 One internal WiFi antenna must be connected to output of Splitter #1 and the other to output of Splitter #2. They cannot be connected to the same splitter.

5.0 One external/outdoor WiFi antenna must be connected to output of Splitter #1 and the other to output of Splitter #2. They cannot be connected to the same splitter.

REMARKS:

A. Unless the vehicle body is such that it severely attenuates RF radiation may likely not need to split RF signal from WiFi antenna port into internal and external antennas. In this case would eliminate Item#13 & Item#14.

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