



at&t

U-verse Outside Plant Cabinets

U-verse Outside Plant (OSP) Cabinet Certifications

AT&T certifies that Lightspeed cabinets, wiring and equipment have been inspected for and are compliant to the following industry standards:

- Telcordia GR-487-CORE, Generic Requirements for Electronic Equipment Cabinets;
- UL 50: Enclosure Environmental Protection;
- UL 60950: Safety of Information Technology Equipment;
- Telcordia GR-1089, Electromagnetic Compatibility and Electrical Safety - Generic Criteria for Network Telecommunications Equipment

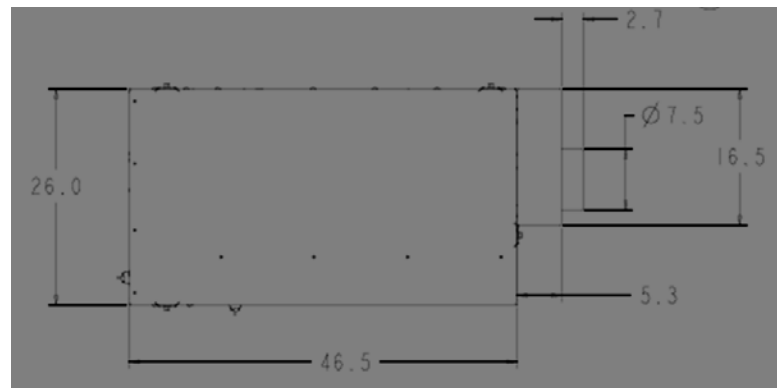
U-verse Cabinet Dimensions

Cabinet Variant	Maximum Customers Served	Color	Cabinet Length (ft)	Cabinet Length (in)	Cabinet Width (ft)	Cabinet Width (in)	Cabinet Height (ft)	Cabinet Height (in)	Cabinet Footprint Cubic (ft)	Cabinet Footprint Overall Measurement (ft)	Cabinet Footprint Overall Measurement (in)
52BP	192	Beige or Green	3.58	42.96	1.75	21.00	4.00	48.00	25.06	9.33	111.96
52B	384	Beige or Green	3.58	42.96	1.75	21.00	5.25	63.00	32.89	10.58	126.96
52E	768	Beige or Green	3.58	42.96	3.42	41.04	5.25	63.00	64.28	12.25	147.00
ALP148	192	Beige or Green	3.00	36.50	2.16	26.10	4.00	48.00	25.92	9.16	110.60
ALP248U	384	Beige or Green	4.17	50.04	2.17	26.04	4.00	48.00	36.20	10.34	124.08
ALP248LAPTS	384	Beige or Green	4.30	51.60	2.17	26.04	4.00	48.00	35.6 (1)	10.47	125.64
ALP448US	384	Beige or Green	4.17	50.04	2.17	26.04	4.00	48.00	36.20	10.34	124.08
ALP448UQ	768	Beige or Green	4.17	50.04	4.75	57.00	4.00	48.00	79.23	12.92	155.04

New placements of the 52BP, 52B, or 52E are limited on to on-hand inventories. The*48 variant replaces the 52* variant

Note (1)

VOLUME
 MAIN CABINET VOLUME
 $26.0' \times 46.5' \times 48' = 58032 \text{ IN}^3$
 PTS VOLUME
 $42.0' \times 16.5' \times 5.3'$
 $- (16.5' - 11.1') \times 142.0' - 29.7' \times 5.3'$
 $+ \pi \times (7.5' / 2)^2 \times 2.7' = 3440 \text{ IN}^3$
 TOTAL VOLUME
 $(58032 + 3440) \text{ IN}^3 / (12 \text{ IN})^3 \times \text{FT}^3$
 $= 35.6 \text{ FT}^3$
 CROSS SECTIONAL AREA FOR WIND LOADING
 MAIN CABINET (LARGEST X-SECTION) AREA
 $46.5' \times 46.5' / 12^2 = 15.5 \text{ FT}^2$
 PTS AREA
 $(42' \times 5.3' + 7.5' \times 2.7') / 12^2 = 1.7 \text{ FT}^2$
 TOTAL XSECTIONAL AREA FOR WIND LOADING
 $15.5 \text{ FT}^2 + 1.7 \text{ FT}^2 = 17.2 \text{ FT}^2$



ALP448US – Starter Module

U-verse VRAD Cabinet



Cabinet Variant	Maximum Customers Served	Color	Cabinet Length (ft)	Cabinet Length (in)	Cabinet Width (ft)	Cabinet Width (in)	Cabinet Height (ft)	Cabinet Height (in)	Cabinet Footprint Cubic (ft)	Cabinet Footprint Overall Measurement (ft)	Cabinet Footprint Overall Measurement (in)
ALP448US	384	Beige or Green	4.17	50.04	2.17	26.04	4.00	48.00	36.20	10.34	124.08

U-verse Outside Plant (OSP) Cabinet Weights

Cabinet	Shipping Weight (lbs)	Cabinet Weight (lbs)	Pad Mounted Fully Loaded Cabinet Weight (lbs)	Pad Mounted Fully Loaded Cabinet with Attached PTS (lbs)	Pole Mounted Fully Loaded Cabinet Weight (lbs)
52BP	350	270	728	834	1,244
52B	450	350	939	1,045	1,425
52E	900	700	1,873	1,979	Pad Mount Only
ALP148	405	360	818	924	1,284
ALP248LA	650	575	1,164	1,270	1,630
ALP248E	600	550	1,139	1,245	1,655
ALP448 Strtr Mdl	583	500	1,089	1,195	1,605
ALP448 Quad	1,154	990	1,723	1,829	Pad Mount Only



at&t

U-verse Outside Plant Cabinets Acoustical Performance

Acoustical Points of Reference

dBA	Sound
0	The softest sound a person can hear with normal hearing
10	Normal breathing
20	Whispering at 5 feet
30	Soft whisper
50	Rainfall
60	Normal conversation
110	Shouting in ear
120	Thunder
130	Jackhammer, Power Drill
143	Bicycle horn
150	Firecracker
180	Rocket launching from pad

U-verse Outside Plant (OSP) Cabinet Acoustics - *48 Series

Solar Load	Cabinet	Surrounding Temp °F	Sound Level (dBA) from Cabinet													
			1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	15'	20'	25'	30'
Full	ALP148U	90	65	61	58	56	55	53	52	51	50	49	45	43	41	39
Full	ALP148U	80	65	61	58	56	55	53	52	51	50	49	45	43	41	39
Full	ALP148U	70	55	51	48	46	45	43	42	41	40	39	35	33	31	29
Full	ALP148U	60	55	51	48	46	45	43	42	41	40	39	35	33	31	29
Full	ALP148U	40	54	50	47	45	44	42	41	40	39	38	34	32	30	28
Full	ALP148U	14	54	50	47	45	44	42	41	40	39	38	34	32	30	28
Full	ALP248LAPTS	90	65	61	58	56	55	53	52	51	50	49	45	43	41	39
Full	ALP248LAPTS	80	65	61	58	56	55	53	52	51	50	49	45	43	41	39
Full	ALP248LAPTS	70	56	52	49	47	46	44	43	42	41	40	36	34	32	30
Full	ALP248LAPTS	60	55	51	48	46	45	43	42	41	40	39	35	33	31	29
Full	ALP248LAPTS	40	54	50	47	45	44	42	41	40	39	38	34	32	30	28
Full	ALP248LAPTS	14	54	50	47	45	44	42	41	40	39	38	34	32	30	28
Full	ALP248U	90	65	61	58	56	55	53	52	51	50	49	45	43	41	39
Full	ALP248U	80	65	61	58	56	55	53	52	51	50	49	45	43	41	39
Full	ALP248U	70	56	52	49	47	46	44	43	42	41	40	36	34	32	30
Full	ALP248U	60	55	51	48	46	45	43	42	41	40	39	35	33	31	29
Full	ALP248U	40	54	50	47	45	44	42	41	40	39	38	34	32	30	28
Full	ALP248U	14	54	50	47	45	44	42	41	40	39	38	34	32	30	28
Full	ALP448UQ	90	61	57	54	52	51	49	48	47	46	45	41	39	37	35
Full	ALP448UQ	80	59	55	52	50	49	47	46	45	44	43	39	37	35	33
Full	ALP448UQ	70	56	52	49	47	46	44	43	42	41	40	36	34	32	30
Full	ALP448UQ	60	55	51	48	46	45	43	42	41	40	39	35	33	31	29
Full	ALP448UQ	40	54	50	47	45	44	42	41	40	39	38	34	32	30	28
Full	ALP448UQ	14	54	50	47	45	44	42	41	40	39	38	34	32	30	28
Full	ALP448US	90	61	57	54	52	51	49	48	47	46	45	41	39	37	35
Full	ALP448US	80	59	55	52	50	49	47	46	45	44	43	39	37	35	33
Full	ALP448US	70	56	52	49	47	46	44	43	42	41	40	36	34	32	30
Full	ALP448US	60	55	51	48	46	45	43	42	41	40	39	35	33	31	29
Full	ALP448US	40	54	50	47	45	44	42	41	40	39	38	34	32	30	28
Full	ALP448US	14	54	50	47	45	44	42	41	40	39	38	34	32	30	28

U-verse Outside Plant (OSP) Cabinet Acoustics - *48 Series

Solar Load	Cabinet	Surrounding Temp °F	Sound Level (dBA) from Cabinet													
			35'	40'	45'	50'	55'	60'	65'	70'	75'	80'	85'	90'	95'	100'
Full	ALP148U	90	38	37	36	35	34	33	33	32	31	31	30	30	29	29
Full	ALP148U	80	38	37	36	35	34	33	33	32	31	31	30	30	29	29
Full	ALP148U	70	28	27	26	25	24	23	23	22	21	21	20	20	19	19
Full	ALP148U	60	28	27	26	25	24	23	23	22	21	21	20	20	19	19
Full	ALP148U	40	27	26	25	24	23	22	22	21	20	20	19	19	18	18
Full	ALP148U	14	27	26	25	24	23	22	22	21	20	20	19	19	18	18
Full	ALP248LAPTS	90	38	37	36	35	34	33	33	32	31	31	30	30	29	29
Full	ALP248LAPTS	80	38	37	36	35	34	33	33	32	31	31	30	30	29	29
Full	ALP248LAPTS	70	29	28	27	26	25	24	24	23	22	22	21	21	20	20
Full	ALP248LAPTS	60	28	27	26	25	24	23	23	22	21	21	20	20	19	19
Full	ALP248LAPTS	40	27	26	25	24	23	22	22	21	20	20	19	19	18	18
Full	ALP248LAPTS	14	27	26	25	24	23	22	22	21	20	20	19	19	18	18
Full	ALP248U	90	38	37	36	35	34	33	33	32	31	31	30	30	29	29
Full	ALP248U	80	38	37	36	35	34	33	33	32	31	31	30	30	29	29
Full	ALP248U	70	29	28	27	26	25	24	24	23	22	22	21	21	20	20
Full	ALP248U	60	28	27	26	25	24	23	23	22	21	21	20	20	19	19
Full	ALP248U	40	27	26	25	24	23	22	22	21	20	20	19	19	18	18
Full	ALP248U	14	27	26	25	24	23	22	22	21	20	20	19	19	18	18
Full	ALP448UQ	90	34	33	32	31	30	29	29	28	27	27	26	26	25	25
Full	ALP448UQ	80	32	31	30	29	28	27	27	26	25	25	24	24	23	23
Full	ALP448UQ	70	29	28	27	26	25	24	24	23	22	22	21	21	20	20
Full	ALP448UQ	60	28	27	26	25	24	23	23	22	21	21	20	20	19	19
Full	ALP448UQ	40	27	26	25	24	23	22	22	21	20	20	19	19	18	18
Full	ALP448UQ	14	27	26	25	24	23	22	22	21	20	20	19	19	18	18
Full	ALP448US	90	34	33	32	31	30	29	29	28	27	27	26	26	25	25
Full	ALP448US	80	32	31	30	29	28	27	27	26	25	25	24	24	23	23
Full	ALP448US	70	29	28	27	26	25	24	24	23	22	22	21	21	20	20
Full	ALP448US	60	28	27	26	25	24	23	23	22	21	21	20	20	19	19
Full	ALP448US	40	27	26	25	24	23	22	22	21	20	20	19	19	18	18
Full	ALP448US	14	27	26	25	24	23	22	22	21	20	20	19	19	18	18



at&t

U-verse Outside Plant Cabinets

Additional Information

U-verse Outside Plant (OSP) Cabinet Conducted and Radiated Emissions

AT&T will deploy, in certain numbers, cabinets and enclosures for U-verse. All U-verse VRAD variants have tested in terms of the Conducted and Radiated Emissions requirements listed in FCC 47 CFR, CH1, 10/1/97 Edition Part 15 Subpart B for Class A Emissions.

To the right are the requirements for compliance to the FCC Radiated and Conducted electric field emissions providing testing occurs in an FCC approved 10 meter Open Area Test Site (OATS) and 3 meter Anechoic Chamber.

Radiated emissions compliance was verified through measurement of electric field strength over the frequency range listed above.

All U-verse VRAD variants are compliant with the Radiated Emissions requirements for Electric Fields as defined in FCC 47 CFR, CH1, 10/1/97 Edition Part 15 Subpart B for Class A Emissions. No mitigation required.

<p>The field strength of radiated emissions from the end user terminal (EUT) as determined at a distance as 10 meters, shall not exceed the following amplitudes at the associated frequency listed at right:</p>	<p>Radiated Emission Limits *30 – 88 MHz, 39.1 dBμV/m limit *88 – 216 MHz, 43.5 dBμV/m limit *216 – 960 MHz, 46.4 dBμV/m limit *960 – 1000 MHz, 49.5 dBμV/m limit</p>
<p>Conducted emissions from the EUT into low-voltage ac public utility power lines shall not exceed the levels of voltage amplitudes at the associated frequency listed at right:</p>	<p>Conducted Emissions *45 – 1.7 MHz, 60.1 dBμV limit *1.7 – 30 MHz, 69.5 dBμV limit</p>

U-verse Outside Plant (OSP) Cabinet Medical Appliances (Pacemakers, Implantable Cardioverter/Defibrillators etc)

AT&T's VRAD cabinet variants contain telecommunication equipment that provides services such as , voice, high-speed internet access and digital television services over telephone lines. VRAD cabinets contain no transmitters or wireless devices and therefore pose no risk of interference with medical devices approved for use by the United States Food and Drug Administration, Center for Devices and Radiological Health.

VRAD cabinets have been tested for electromagnetic emission and are compliant with the Code of Federal Regulations (Washington, DC: Federal Communications Commission (FCC)), Title 47, Chapter 1, Part 15. Class A for Digital Device as well as Telcordia's General Requirement (GR) 1089: Electromagnetic Compatibility and Electrical Safety - Generic Criteria for Network Telecommunications Equipment.

The FCC and GR-1089 specify limits on radiated and conducted radio frequency emissions from digital devices. The emissions from devices meeting these standards are orders of magnitude lower than intentional radiators or what is required to interfere with approved medical devices and therefore pose no risk.

In conclusion, U-verse VRAD cabinets meet FCC Title 47, Chapter 1, Part 15 and GR-1089. No risk of interference is posed with medical devices approved for use by the United States Food and Drug Administration, Center for Devices and Radiological Health.

U-verse Outside Plant (OSP) Cabinet Site Selection Guidelines

- Site selection should be selected based on existing plant configurations, economics, permanency, public acceptance, and functional requirements. The final physical location of the cabinet is determined by a field inspection. Some of the factors in evaluating a possible site:
- **Safety and Traffic Flow**
 - If a cabinet is to be located near a street or highway, it should be located away from curves and busy intersections.
 - General standards for determining line of sight issues consist of the following tests: Intersection Sight Distance (ISD) and or Stopping Sight Distance (SSD). ISD is associated with providing enough visual distance to a motorist who wishes to turn onto a roadway from an intersecting street or driveway. The actual distance needed varies by location relative to many factors including roadway width, traffic travel speed, traffic volume and frequency of turn movements. SSD is associated with providing enough travel distance to a motorist to bring his vehicle to a stop in the event that his travel lane becomes blocked. The actual distance will always vary by location and as with ISD relies on may site specific variables.
 - Site selection should be selected based on existing plant configurations, economics, permanency, public acceptance, and functional requirements. The final physical location of the cabinet is determined by a field inspection. Some of the factors in evaluating a possible site:
 - Site location efforts should be aimed at securing a permanent location that will prevent damage to the equipment and possible expensive relocation costs.

U-verse Outside Plant (OSP) Cabinet Site Selection Guidelines

- **Functional**

- Unless a cabinet is pole-mounted, it should not be located in an area that is prone to flooding or is constantly damp. Soil maps for the area should be checked for subsurface conditions. Whenever possible, a cabinet should be located in an area that does not require extensive earthwork. Local zoning restrictions should be checked to verify that the cabinet can be used. Sufficient parking and turnaround space should be allowed for the installation and maintenance vehicles, including trailer-mounted motor-generator sets, if required.

- **Walkability and Pedestrian Considerations**

- When VRAD cabinets are located in a sidewalk area, they should be generally placed approximately 18 inches from the curb, leaving a minimum of 36-42 inches of clear sidewalk area for pedestrian use. This meets the requirements of the Americans with Disabilities Act (ADA) by maintaining minimum clearances for pedestrians while still allowing adequate access to vehicles parked in the parking lane. Fire hydrants, streetlights, traffic signal poles, trash receptacles and newspaper racks are also typically located in the area of the sidewalk closest to the curb. Placing cabinets in these locations maximizes the amount of clear sidewalk space for pedestrians.
- At intersections, Communication cabinets, including VRAD cabinets are generally placed downstream of the intersection to not impede the pedestrian's view of oncoming traffic. Every attempt is made to avoid blocking the view of passengers waiting at bus stops.

- **Network Architecture Design Limitation**

- In some cases, the VRAD will need to be placed some distance from the serving area interface (SAI) location

U-verse Outside Plant (OSP) Cabinet Site Selection Guidelines

- **Thermal Site Considerations**

- In all but the coldest of climates, proper site selection can improve the life of the electronics and batteries in the cabinet. This can be done by:
 - **Reducing the cabinet's exposure to the afternoon sun** Peak daily ambient temperature is generally attained between 2 p.m. and 3 p.m. The afternoon sun in combination with the high afternoon ambient temperature results in the maximum temperature rise inside of the cabinet. Situating the cabinet such that it is only exposed to the early morning and/or evening sun will reduce the maximum temperature of the equipment and batteries inside of the cabinet, thus extending their life.
 - **Increasing the cabinet's exposure to wind** The greater the exposure to wind, the cooler the equipment inside will run, again extending equipment life. Solid fences around the cabinet are not desirable since they can block wind but not the overhead sun.
 - **Placing the cabinet away from blacktop surfaces** Blacktop surfaces will collect and radiate heat onto the cabinet. Grass or dirt provides a much cooler, more favorable environment for the cabinet.

- **Electrical Considerations**

- The availability of AC service, need for a power meter, transfer switch, or generator inlet need to be factored into the site requirements. If a power pedestal is required, the size of the concrete pad may need to be larger to accommodate both the cabinet and the pedestal. As a result, the space requirement for the cabinet may also need to be larger.

U-verse Outside Plant (OSP) Cabinet Site Selection Guidelines

- **Vegetation Clearing**

- It is important to minimize the impact U-verse cabinets have on the environment. Consideration should be given to positioning cabinets on the side of the road that will minimize the need for vegetation-clearing.

- **Proximity to Underground Services**

- Cabinets should not be placed in locations in that prevent or inhibit access to underground services (e.g. underground power cables, road crossing conduits, gas pipelines, cable TV or water pipes).

- **Placement of Pole-Mounted VRADs**

- There are no explicit manufacturer restrictions on the placement height of a pole-mounted VRAD. However it must be noted that in GR-487, wind resistance testing occurs with the cabinet mounted between 35"-36" off the ground. As such the policy for Lightspeed VRAD cabinets and enclosures should not be mounted above 36".
- The type of pole used should be strong enough to support the cabinet – engineering considerations should include condition of the pole, wind forces, seismic and other loads on the pole as well as local soil conditions. Based on these considerations, the appropriate Class pole can be used for mounting.
- Cabinets are to be mounted close to the ground so that they can be easily and safely serviced.