Antenna Attachment Requirements


A. General:
1. All requirements and notes contained in this document pertain to the attachment of Wi-Fi and Cellular antennas to Company owned facilities. Municipal owned facilities or poles owned by communication companies do not apply. Please contact Company to verify facility ownership.
2. Equipment specifications for each type of proposed wireless device shall be evaluated and approved by Company.
3. All pole locations shall be evaluated and approved by Company prior to antenna installation. All applicable pole attachment contracts shall be executed and approved before antennas will be allowed to attach.
4. Antennas shall be attached to truck accessible poles only.
5. Only one wireless antenna company's equipment shall be allowed per pole. Placement of devices shall not interfere with Company personnel's ability to access and maintain its facilities.
6. Two (2) Caution signs shall be provided by and installed by equipment owner at each wireless antenna attachment location. Please refer to drawings for details.
7. The bottom of any equipment mounted on a pole must meet NESC guidelines for ground clearance (NESC Rule 232B). Mounted equipment requires a clearance from the bottom of the equipment of 15' above roads, streets.
8. Wireless devices attached to Company facilities shall not contain or be connected to back-up batteries.
9. Any work performed on behalf of Customer shall be performed by a qualified, Company approved contractor.
10. Company reserves the right to disconnect electric service to any wireless antenna at any time if established safe approach distances can not be maintained while work is being performed.
11. Antenna installations must meet NEC grounding and bonding requirements.
12. Wireless company must provide a pole loading analysis performed by a professional engineer. The horizontal pole loading (Extreme wind of 130MPH) must be less than or equal to 70%.
13. If a proposed installation does not meet the requirements of the following drawings, then all equipment associated with the antenna installation (including the antenna) shall be located on another structure.

B. Cellular Antennas:
Please see notes on drawings OH-JU-COM003, OH-JU-COM009, AND OH-JU-COM010

C. Wi-Fi Antennas:
1. All Wi-Fi antennas shall transmit in the 2.4 GHz - 5.8 GHz frequency band.
2. All Wi-Fi antennas shall meet IEEE 802.11x standards.
3. EIRP (Equivalent Isotropically Radiated Power) shall not exceed 36 dBm (4.0 W).
4. All Wi-Fi antennas and similar devices (directional antennas, security cameras, etc.) shall be mounted on a single 24” minimum - 48” maximum aluminum streetlight bracket comparable to Company stock code EN000354 or EN013774 (see below table for bracket ordering information).

<table>
<thead>
<tr>
<th>24” Bracket Purchasing Information (EN000354)</th>
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<tbody>
<tr>
<td>Company</td>
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<tr>
<td>Utility Metals</td>
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<td>SALCo</td>
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<td>Maclean Power Sys</td>
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<table>
<thead>
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<th>48” Bracket Purchasing Information (EN013774)</th>
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<td>SALCo</td>
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No.OH-JU-COM001

ENTERGY SERVICES INC.

THIRD PARTY ANTENNA ATTACHMENT REQUIREMENTS

APPROVED BY: JRH     DATE: 03/05/07
CHECKED BY: CRG     SCALE: NONE
DRAWN BY: DAT     CEA NO. 00000

Entergy PLOT 1=32 SH. 1 OF 1

5 06/12/19 General Updates on Periodic Review   ERG  MCC  LWP
4 06/22/18 Added note 12 to limit equipment attachments.   KJM  JRH
3 12/14/16 General review and updates on drawing.   ERG  JRH
2 2/17/15 Revised Drawing numbers and references.   KJM  JRH
1 5/10/07 Added 48” bracket purchasing information to table and to note B. 4.   DAT  JRH

NO. DATE:  REVISION    DRAW: CHECK    APPR.
NOTE:
1. Signs must meet IEEE Standard C95.2 requirements.
2. Wi-Fi Customer to specify approach distance information for sign.

Sample shown is
ELECTROMARK - ES2033

SIGN: CAUTION ANTENNA RADIATION
.024" Curved Aluminum: 14" X 10", Yellow and Black
copy on a White background. Four (4) slots for banding.
Sign shall be preformed by the manufacturer to conform
to the curvature of a utility pole for easy installation.

Sample shown is
ELECTROMARK - ES2032

SIGN: CAUTION RF DEVICE ON POLE
.024" Curved Aluminum: 14" X 10", Yellow and Black
copy on a White background. Four (4) slots for banding.
Sign shall be preformed by the manufacturer to conform
to the curvature of a utility pole for easy installation.

ENTERGY SERVICES INC.

EXAMPLE CAUTION SIGNS FOR
WI-FI/CELLULAR EQUIPPED POLES

No. OH-JU-COM002

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APPROVED BY: JRH      DATE: 03/05/07
CHECKED BY: CRG      SCALE: NONE
DRAWN BY: DAT        CEA NO. 00000

0=32 PLOT
SH. 1 OF 1
NOTES:
1. Only clean, tangent, non-equipment poles will be considered for antenna attachments.
2. Company to supply and install connection between Company secondary cable and Customer's service riser. Any additional necessary changes to Company's facilities to be performed by Company at Customer's expense.
3. Cellular antenna, mounting bracket, circuit breaker or fuse box, conduit, weather head, service conductors, and RF Caution signs to be provided and installed by Customer.
4. Two (2) RF Caution Signs, meeting IEEE C95.2, must be installed on cellular antenna equipped poles. One sign shall be installed just under the cellular antenna unit. The second sign shall be installed near the base of the pole with the top of the sign at a minimum of fifty-four (54) inches from ground level. See drawing OH-JU-COM002 for sign design.
5. All equipment (including antenna) shall maintain a minimum of forty (40) inches of separation below all Company conductors, including drip loops.
6. For non-wood poles, banding shall be used to attach cellular antenna and conduit.
7. Antenna communication cable shall be installed in Schedule 80 PVC conduit (two (2) inch maximum diameter). Conduit straps should be installed at top and bottom of every conduit installation and every five (5) feet if conduit length is longer than ten (10) feet.
8. 60 ft. maximum pole height.
9. Minimum separation between uppermost communication cable and antenna shall be based on the manufacturer's Minimum Approach Distance for the antenna configuration installed, multiplied by a safety factor of 3.
10. Meter socket requirement to be determined by Authorities having jurisdiction. If applicable, Customer to provide 100A meter base to accept 120/240v 3 wire service at this location. Customer to supply conduit and service conductor from point of attachment to meter base.
11. See drawing OH-JU-COM001 (Third Party Antenna Attachment Requirements) for additional notes.
12. If a proposed installation does not meet the requirements of the following drawings, then all equipment associated with the antenna installation (including the antenna) shall be located on another structure.
NOTES:
1. Only clean, tangent, non-equipment poles will be considered for antenna attachments.
2. Company to provide connections at weatherhead at Customer's expense. Any additional necessary changes to Company's facilities to be performed by Company at Customer's expense.
3. Wi-Fi antenna, conduit, service conductor, fuse or circuit breaker, 24" minimum - 48" maximum aluminum streetlight bracket, and RF Caution signs to be provided and installed by Customer.
4. Two (2) RF Caution Signs, meeting IEEE C95.2, must be installed on Wi-Fi equipped poles. One sign shall be installed just under the Wi-Fi unit. The second sign shall be installed near the base of the pole with the top of the sign at a minimum of fifty-four (54) inches from ground level. See drawing OH-JU-COM002 for sign design.
5. Antenna and mounting bracket to be mounted on Field Side of pole.
6. All Wi-Fi equipment (including antenna) shall maintain a minimum of forty (40) inches of separation below all Company conductors, including drop loops.
7. All Wi-Fi antennas and similar devices (directional antennas, security cameras, etc.) shall be mounted on a single 24" minimum - 48" maximum aluminum streetlight bracket comparable to Company stock code EN000354 or EN013774 (see table on drawing OH-JU-COM001 for more information).
8. For non-wood poles, stainless steel banding shall be used to attach Wi-Fi antenna and conduit.
9. Antenna service conductor shall be installed in Schedule 80 PVC conduit (two (2) inch maximum diameter). Conduit straps should be installed at top and bottom of every conduit installation and every five (5) feet if conduit length is longer than ten (10) feet.
10. Meter socket socket must be installed electrically before the fuse or circuit breaker.
11. See drawing OH-JU-COM001 (Third Party Antenna Attachment Requirements) for additional notes.
12. If a proposed installation does not meet the requirements of the following drawings, then all equipment associated with the antenna installation (including the antenna) shall be located on another structure.
NOTES:
1. Company to provide connection at weatherhead at Customer's expense. Any additional necessary changes to Company's facilities to be performed by Company at Customer's expense.
2. Wi-Fi antenna, service conductor, fuse or circuit breaker, conduit, 24" minimum - 48" maximum aluminum streetlight bracket, and RF Caution signs to be provided and installed by Customer.
3. Two (2) RF Caution Signs, meeting IEEE C95.2, must be installed on Wi-Fi equipped poles. One sign shall be installed just under the Wi-Fi unit. The second sign shall be installed near the base of the pole with the top of the sign at a minimum of fifty-four (54) inches from ground level. See drawing OH-JU-COM002 for sign design.
4. Antenna and mounting bracket to be mounted on opposite side of pole from streetlight.
5. All Wi-Fi equipment (including antenna) shall maintain a minimum of forty (40) inches of separation below all Company conductors, including drip loops.
6. All Wi-Fi antennas and similar devices (directional antennas, security cameras, etc.) shall be mounted on a single 24" minimum - 48" maximum aluminum streetlight bracket comparable to Company stock code EN000354 or EN013774.
7. For non-wood poles, stainless steel banding shall be used to attach Wi-Fi antenna and conduit.
8. Antenna service conductor shall be installed in Schedule 80 PVC conduit (two (2) inch maximum diameter). Conduit straps should be installed at top and bottom of every conduit installation and every five (5) feet if conduit length is longer than ten (10) feet.
9. Meter socket must be installed electrically before the fuse or circuit breaker.
10. See drawing OH-JU-COM001 (Third Party Antenna Attachment Requirements) for additional notes.
11. If a proposed installation does not meet the requirements of the following drawings, then all equipment associated with the antenna installation (including the antenna) shall be located on another structure.
NOTES:
1. Drawing only applies if streetlight conductor is completely enclosed within pole and streetlight bracket.
2. Company to provide connection at pedestal at Customer's expense. Any additional necessary changes to Company's facilities to be performed by Company at Customer's expense.
3. Wi-Fi antenna, service conductor, fuse or circuit breaker, conduit, 24" minimum - 48" maximum aluminum streetlight bracket, and RF Caution signs to be provided and installed by Customer.
4. Two (2) RF Caution Signs, meeting IEEE C95.2, must be installed on Wi-Fi equipped poles. One sign shall be installed just under the Wi-Fi unit. The second sign shall be installed near the base of the pole with the top of the sign at a minimum of fifty-four (54) inches from ground level. See drawing OH-JU-COM002 for sign design.
5. Antenna and mounting bracket to be mounted on opposite side of from streetlight.
6. All Wi-Fi equipment (including antenna) shall maintain a minimum of forty (40) inches of separation below all Company conductors, including drip loops.
7. All Wi-Fi antennas and similar devices (directional antennas, security cameras, etc.) shall be mounted on a single 24" minimum - 48" maximum aluminum streetlight bracket comparable to Company stock code EN000354 or EN013774.
8. For non-wood poles, stainless steel banding shall be used to attach Wi-Fi antenna and conduit.
9. Antenna service conductor shall be installed in Schedule 80 PVC conduit (two (2) inch maximum diameter). Conduit straps should be installed at top and bottom of every conduit installation and every five (5) feet if conduit length is longer than ten (10) feet.
10. Meter socket must be installed electrically before the fuse or circuit breaker.
11. See drawing OH-JU-COM001 (Third Party Antenna Attachment Requirements) for additional notes.
12. If a proposed installation does not meet the requirements of the following drawings, then all equipment associated with the antenna installation (including the antenna) shall be located on another structure.
NOTES:
1. ANTENNA AND ASSOCIATED MATERIALS, HARDWARE, ETC., INSTALLED ABOVE THE COMMUNICATION WORKERS' SAFETY ZONE, MUST BE INSTALLED BY AN APPROVED CONTRACTOR QUALIFIED TO WORK IN THE SUPPLY SPACE.
2. POLE LOCATIONS MUST BE APPROVED BY ENERGEX. DO NOT INSTALL ANTENNA ON EQUIPMENT POLES SUCH AS CAPACITOR BANKS, RECEIVERS, SWITCHES, U.G. RISERS, ETC. POLE LOCATION MUST BE BUCKET TRUCK ACCESSIBLE.
3. TWO (2) RF CAUTION SIGNS, MEETING Z265.9, MUST BE INSTALLED ON Wi-Fi ANTENNA EQUIPPED POLES. ONE SIGN SHALL BE INSTALLED JUST UNDER THE Wi-Fi ANTENNA UNIT. THE SECOND SIGN SHALL BE INSTALLED NEAR THE BASE OF THE POLE WITH THE TOP OF THE SIGN AT A MINIMUM OF FIFTY-FOUR (54) INCHES FROM THE GROUND LEVEL. SEE DRAWING OH-JU-COM003 FOR SIGN DESIGN.
4. A MINIMUM CLASS 3 POLE IS REQUIRED. POLE HEIGHTS EXCEEDING 407 ABOVE GROUND ARE NOT ALLOWED.
5. ALL ANTENNA DESIGNS MUST BE APPROVED BY ENERGEX.
6. ALL ANTENNAS AND ANXILLARY EQUIPMENT SHALL BE LABELED WITH THE OWNER'S NAME AND CONTACT INFORMATION, INCLUDING AN EMERGENCY CONTACT NUMBER.
7. ANTENNA LOCATIONS CANNOT VIOLATE EXISTING JOINT USE ALLOCATIONS OR AGREEMENTS WITH OTHER JOINT USE PARTIES.
NOTES:
1. Antenna and associated materials, hardware, etc., must be installed above the Communication worker’s safety zone. Must be installed by an approved contractor qualified to work in the supply space.
2. Pole locations must be approved by Entergy. Do not install antenna on equipment poles such as capacitor banks, transformers, switches, U.S. risers, etc. Pole location must be budget truck accessible.
3. Two (2) caution signs, meeting size OSHA, must be installed on WiFi antenna equipped poles. One sign shall be installed just under the WiFi antenna units. The second sign at a minimum of fifty-four (54) inches from the ground level. See drawing OH-JU-CON08 for sign design.
4. A minimum class 3 pole is required. Pole heights exceeding OSHA allowables are not allowed.
5. All Antenna designs must be approved by Entergy.
6. All antennas and auxiliary equipment shall be labeled with the owner’s name and contact information, including an emergency contact number.
7. Antenna locations cannot isolate existing joint use allocations or agreements with other joint use parties.

Wi-Fi Antenna—Pole Top Installation
2 or 3 Phase Shielded
Horizontal Tangent

ENTERGY SERVICES, INC.

APPROVED BY: JRH
DATE: 09/06/16
CHECKED BY: KJM
SCALE: N.T.S.
DRAWN BY: ERG

No.OH-JU-COM008

PLOT 1=24 SH.1 OF 1
NOTES:
1. ANTENNA AND ASSOCIATED MATERIALS, HARDWARE, ETC., INSTALLED ABOVE THE COMMUNICATION WORKER'S SAFETY ZONE, MUST BE INSTALLED BY AN APPROVED CONTRACTOR QUALIFIED TO WORK IN THE SUPPLY SPACE.
2. POLE LOCATIONS MUST BE APPROVED BY ENTERGY. DO NOT INSTALL ANTENNA ON EQUIPMENT POLES SUCH AS CAPACITOR BANKS, RECLAMERS, TRANSFORMERS, ETC. POLE LOCATION MUST BE BEETLE TRUCK ACCESSIBLE.
3. TWO (2) CAUTION SIGNS, 6 X 6 INCHES, MUST BE INSTALLED ON.drawString(30,j,30)" Probability Antenna Equipped Poles. The sign shall be installed just under the 6 X 6 INCHES FROM THE GROUND LEVEL, SEE DRAWING ON DRAWER 8 FOR SIGN DESIGN. A MINIMUM CLASS 3 POLE IS REQUIRED. POLE HEIGHTS EXCEEDING THE ABOVE ARE NOT ALLOWED.
4. ALL ANTENNA DESIGNS MUST BE APPROVED BY ENTERGY.
5. ALL ANTENNA AND AUXILIARY EQUIPMENT SHALL BE LABELED WITH THE OWNER'S NAME AND CONTACT INFORMATION, INCLUDING AN EMERGENCY CONTACT NUMBER.
6. ANTENNA LOCATIONS CANNOT ISOLATE EXISTING JUICE USE ALLOCATIONS OR AGREEMENTS WITH OTHER JUICE USE PARTIES.

ENTERGY SERVICES, INC.

Cellular Antenna—Pole Top Installation
2 or 3 Phase Shielded
Horizontal Tangent

APPROVED BY: LMP DATE: 09/12/19
CHECKED BY: MCC SCALE: N.T.S.
DRAWN BY: ERG

No. OH–JU–COM009
PLOT 1=24 SH.1 OF 1