March 1, 2020

To: City of San Rafael  
Dept. of Public Works  
111 Morphew Street  
San Rafael, CA 94901

Re: Noise Assessment Report for Proposed Electronic Equipment  
5 Sites located within San Rafael City Limits

This letter certifies that after carefully reviewing:

One of five technically and essentially identical sets of permit application documents (Node ID CROWN/SFB005m2 @ 44 Simms St., San Rafael, dated 8/22/19, prepared by SHIFT Engineering LLC., see Appendix) for the proposed scope of work at each node, the list and map of locations as well as the manufacturer’s specifications of the proposed equipment, I have not discovered any equipment in the scope, that will produce audible noise during standby or regular operation.

The proposed scope covers installing small cell wireless antennas and supporting equipment on the existing utility structures in a public right-of-way. The proposed equipment consists of antennas, electrical panels and meters and antenna radiowave amplifiers to be mounted on existing utility and light poles. None of these units have any active cooling systems with motors, fans, pumps, compressors, etc. of any kind.

All cooling is achieved by unaided convection. The manufacturer certifies this equipment to operate silently, see specifications in appendix.

I hope this letter answers all your questions about the potential noise impact for this project, which I evaluate to be zero, please feel free to call or email me for more information.

Sincerely,

W. David Seidel, AIA  
Architect  
CA Lic. C 27516
Short Biography

David Seidel, AIA is the owner of “W. David Seidel, Architect”
His license no. CA C-27516 was issued by the State’s Dept. of Consumer Affairs in 1998. David
received his B.A. with honors in Architecture from the University of California at Berkeley in

His ongoing architecture projects are mostly of the commercial and the residential variety.
His office has been open for twelve years and has $150k in Annual Revenues.
David has 23 years of industry experience and possesses deep experience in design, bidding,
permits and construction administration for projects large and small.

Before launching his office, David has worked at well-known S.F. architecture firms such as
Gensler, Holey Associates, Flad and Associates and EHDD where he was responsible for
leading teams of architects and consultants working on residential, commercial and institutional
buildings.

Soundproofing & Acoustics Consulting

David has helped numerous architects, homeowners, renters, as well as seasoned engineers
and facility managers, to achieve their acoustic or noise control goals.
David combines the following skills and experiences into in-depth expertise as an acoustics and
soundproofing consultant:

- 20 years experience as a licensed architect.
- Two years course work in sound engineering, T.U. Berlin, Germany
- Experience with both residential and commercial project types.
- Track record of successfully completed facilities.

David is outfitted with all required equipment to perform field measurements and recordings of
noise transmission and/or acoustical performance and character of spaces. The use of C.A.R.A.
acoustic design software allows the modeling and fine-tuning of any type and size enclosed
space.

David is registered as a LBE with the S.F. HRC, a copy of the certificate will be attached to the
proposal.

More information and photographs of completed projects can be found at David’s website:

http://www.wdavidseidel.com/Sound.htm
APPENDIX

Map of 5 Proposed Project Sites

List of 5 Proposed Project Sites

Radio Amplifier Specification, Airspan AH4400

Sample permit application documents
Node ID CROWN/SFB005m2 @ 44 Simms St., San Rafael, dated 8/22/19,
prepared by SHIFT Engineering LLC.
<table>
<thead>
<tr>
<th>Crown Node ID</th>
<th>Pole Number</th>
<th>Pole Owner</th>
<th>Pole Type</th>
<th>Number of Amplifiers (Radios) to Deploy</th>
<th>Amplifier/ Radio Equipment Model</th>
<th>Manufacturer</th>
<th>Antenna Type</th>
<th>Antenna Equipment Model</th>
<th>Antenna Manufacturer</th>
<th>Antenna Model</th>
<th>Site Location</th>
<th>Pole Height</th>
<th>Proposed Rad Center (AGL)</th>
<th>Number of Required Antennas at Site</th>
<th>Latitude</th>
<th>Longitude</th>
<th>Site Address</th>
<th>City</th>
<th>State</th>
<th>Zoning Jurisdiction</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFB001m3</td>
<td>120064926</td>
<td>Pacific Gas &amp; Electric Company</td>
<td>Wood</td>
<td>1</td>
<td>Airspan Airspan AH4400 B41 2x20W</td>
<td>External</td>
<td>CCI</td>
<td>SCA360V-E2AB-K</td>
<td>Pole-Mounted</td>
<td>32' 7&quot;</td>
<td>1</td>
<td>37.969112</td>
<td>122.505850</td>
<td>8 Loma Linda Rd</td>
<td>San Rafael</td>
<td>California</td>
<td>San Rafael City</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFB002m2</td>
<td>120051185</td>
<td>Pacific Gas &amp; Electric Company</td>
<td>Wood</td>
<td>1</td>
<td>Airspan Airspan AH4400 B41 2x20W</td>
<td>External</td>
<td>CCI</td>
<td>SCA360V-E2AB-K</td>
<td>Pole-Mounted</td>
<td>42' 3&quot;</td>
<td>1</td>
<td>37.967602</td>
<td>122.499832</td>
<td>3777 Kerner Blvd</td>
<td>San Rafael</td>
<td>California</td>
<td>San Rafael City</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFB003m1</td>
<td>3302</td>
<td>City of San Rafael</td>
<td>Metal Streetlight</td>
<td>1</td>
<td>Airspan Airspan AH4400 B41 2x20W</td>
<td>External</td>
<td>Amphenol</td>
<td>2C4U3MT360X06F04s0</td>
<td>Pole-Mounted</td>
<td>30' 0&quot;</td>
<td>1</td>
<td>37.963922</td>
<td>122.499099</td>
<td>Across from 425 Bahia Way</td>
<td>San Rafael</td>
<td>California</td>
<td>San Rafael City</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFB004m1</td>
<td>120001512</td>
<td>Pacific Gas &amp; Electric Company</td>
<td>Wood</td>
<td>1</td>
<td>Airspan Airspan AH4400 B41 2x20W</td>
<td>External</td>
<td>Amphenol</td>
<td>2C4U3MT360X06F04s0</td>
<td>Pole-Mounted</td>
<td>30' 0&quot;</td>
<td>1</td>
<td>37.972172</td>
<td>122.515749</td>
<td>Across 304 Mission Ave</td>
<td>San Rafael</td>
<td>California</td>
<td>San Rafael City</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFB005m2</td>
<td>120051749</td>
<td>Pacific Gas &amp; Electric Company</td>
<td>Wood</td>
<td>1</td>
<td>Airspan Airspan AH4400 B41 2x20W</td>
<td>External</td>
<td>Amphenol</td>
<td>2C4U3MT360X06F06s0</td>
<td>Pole-Mounted</td>
<td>42' 10&quot;</td>
<td>1</td>
<td>37.957890</td>
<td>122.506809</td>
<td>44 Simms St</td>
<td>San Rafael</td>
<td>California</td>
<td>San Rafael City</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
High Capacity Outdoor LTE-Advanced eNodeB

AirHarmony 4400 is part of Airspan’s carrier-class LTE Advanced small cell eNodeB family. AirHarmony 4400 is a Macro-class product that supports 3GPP’s Long Term Evolution (LTE) eNodeB specifications, providing high-speed data, mobility, Voice over LTE, and broadcast/multicast services in order to meet the demands of the LTE Mobile Carriers.

AirHarmony 4400 is a compact, easy to install Macro-class eNodeB, allowing an operator to deploy LTE broadband services using existing infrastructure or Street Furniture. AirHarmony 4400 has two 20W (43dBm) transmit channels and four receive channels. AirHarmony 4400 supports single or dual carrier up to 2x 20MHz.

Release 10 LTE-Advanced

AirHarmony 4400 supports 3GPP LTE Broadband access technologies; Airspan’s 3GPP LTE implementation is compliant with the 3GPP standards and has interoperable S1 and X2 interfaces and supports commercial GCF tested UE devices, including Smartphones, Dongles and Tablet computers.

The Power of HETNETS

As operators struggle to cope with growing customer demand for higher throughput, they are discovering that layering small base stations into a macro cell coverage area, enables a significant increase in network capacity by filling in coverage gaps and addressing actual traffic distribution where demand is highest. AirHarmony 4400 is ideal for these networks, delivering high data rates where needed most, whether at the macro cell edge or closer to the user base, maximizing coverage and customer satisfaction.

Broadband Access

AirHarmony-4400 supports 3GPP LTE Broadband access technologies; Airspan’s 3GPP LTE implementation is compliant with the 3GPP standards and has interoperable S1 and X2 interfaces and supports commercial GCF tested UE devices, including Smartphones, Dongles and Tablet computers.

Integrated Backhaul

AirHarmony also supports tight integration with iBridge or iRelay, Airspan’s small cell backhaul product. AirHarmony plus iRelay creates a single install process for LTE Access and Backhaul, and enables “Just add Power” plug and play deployment method saving deployment CAPEX and OPEX.
**Physical**

**Dimensions**

<table>
<thead>
<tr>
<th>Variant</th>
<th>Dimensions¹ (H x W x D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Unit w/o filters</td>
<td>509 x 262 x 210 mm / 20.0 x 10.3 x 8.3 inch</td>
</tr>
<tr>
<td>Main Unit with external filters</td>
<td>509 x 262 x 305 mm / 20.0 x 10.3 x 12.0 inch</td>
</tr>
<tr>
<td>Cavity Filter Set (4 filters in 2 sets of 2 filters each)</td>
<td>229 x 120 x 39.0 / 9.01 x 4.72 x 1.53 inch (2 units)</td>
</tr>
</tbody>
</table>

**Weight**

<table>
<thead>
<tr>
<th>Variant</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Unit w/o filters / duplexer</td>
<td>19 Kg / 41.89 Lbs.</td>
</tr>
<tr>
<td>Main Unit with filter set</td>
<td>24 Kg / 52.9 Lbs.</td>
</tr>
<tr>
<td>Universal mounting bracket</td>
<td>3 Kg / 6.6 Lbs.</td>
</tr>
<tr>
<td>Quadruple Filter Set (B41)</td>
<td>6 Kg / 13.2 Lbs.</td>
</tr>
</tbody>
</table>

**Operational Tolerances**

<table>
<thead>
<tr>
<th>Type</th>
<th>Details</th>
<th>Standard Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperature</td>
<td>-40°C to 55°C / -40°F to 131°F</td>
<td>ETSI 300 019 1-4</td>
</tr>
<tr>
<td>Operating humidity</td>
<td>5% - 100% non-condensing</td>
<td>ETSI 300 019 1-4</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-40°C to 70° C / -40°F to 158°F</td>
<td>N/A</td>
</tr>
<tr>
<td>Storage humidity</td>
<td>5% - 100% non-condensing</td>
<td>ETSI 300 019 1-4</td>
</tr>
<tr>
<td>Rain and dust ingress protection</td>
<td>IP66</td>
<td>N/A</td>
</tr>
<tr>
<td>Operational altitude</td>
<td>70-106 kPa as well as:</td>
<td>ETSI 300 019 1-4</td>
</tr>
<tr>
<td>Solar radiation</td>
<td>1120 W/m²</td>
<td>ETSI 300 019 1-4</td>
</tr>
</tbody>
</table>

¹ Dimensions excludes connectors height and protruding screws
Voltages and Amperage Draws

AirHarmony-4400 AC variants support direct connection to AC power source
- Operational Voltage Range: 100VAC~240VAC, 47Hz~63Hz

AirHarmony-4400 DC variants support direct connection to DC power source
- Operational Voltage Range: -40.5 to -57 VDC
- Transient Voltage: +150V (ETR283)

AC power feed is also available, using an AC/DC power converter offered by Airspan.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>TDD</td>
<td>2 x 43</td>
<td>B41</td>
<td>AC</td>
<td>290</td>
<td>405</td>
<td>4.50</td>
<td>60</td>
<td>N/A</td>
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</tbody>
</table>

Transmitter Radio Performance

Product Variants

<table>
<thead>
<tr>
<th>Band</th>
<th>Variant</th>
<th>Downlink Freq. (MHz)</th>
<th>Uplink Freq. (MHz)</th>
<th>Dup. Mode</th>
<th>Max Channel BW (MHz)</th>
<th>Dual Carri</th>
<th>Tx / Rx Conf.</th>
<th>Tx Power (dBm)</th>
<th>Power Source</th>
<th>External Duplexers / filters</th>
</tr>
</thead>
<tbody>
<tr>
<td>41</td>
<td>HAR44-EF-U41-B06AP</td>
<td>2496-2690</td>
<td>2496-2690</td>
<td>TDD</td>
<td>20</td>
<td>Yes</td>
<td>2x4</td>
<td>43*</td>
<td>AC</td>
<td>Per Freq. Range</td>
</tr>
</tbody>
</table>

* Product can support either single carrier at 2x20W per carrier or dual carrier at 2x10W per carrier

Filters - AirHarmony 4000 (Manufacturers Specifications)

<table>
<thead>
<tr>
<th>Product Code</th>
<th>HAR44-FLTR-KIT-U41L</th>
<th>HAR44-FLTR-KIT-U41H</th>
<th>HAR44-FLTR-KIT-U41F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freq. range</td>
<td>2496-2568</td>
<td>2618-2690</td>
<td>2496-2690</td>
</tr>
<tr>
<td>Bandwidth</td>
<td>72MHz</td>
<td>72MHz</td>
<td>194MHz</td>
</tr>
<tr>
<td>Insertion Loss</td>
<td>≤1.0dB (Over Temp.)</td>
<td>≤1.0dB (Over Temp.)</td>
<td>≤1.0dB (Over Temp.)</td>
</tr>
<tr>
<td>Passband Ripple</td>
<td>≤0.75dB</td>
<td>≤0.75dB</td>
<td>≤0.75dB</td>
</tr>
<tr>
<td>Return Loss</td>
<td>≥18dB</td>
<td>≥18dB</td>
<td>≥18dB</td>
</tr>
<tr>
<td>Rejection</td>
<td>≥20dB@1---2473MHz</td>
<td>≥100dB@1550---1600MHz</td>
<td>≥20dB@1550---1600MHz</td>
</tr>
<tr>
<td></td>
<td>≥100dB@1550---1600MHz</td>
<td>≥100dB@2710---12750MHz</td>
<td>≥100dB@2710---12750MHz</td>
</tr>
<tr>
<td></td>
<td>≥74dB@824---2025MHz</td>
<td>≥74dB@824---2025MHz</td>
<td>≥74dB@824---2025MHz</td>
</tr>
<tr>
<td></td>
<td>≥54dB@2400---2473MHz</td>
<td>≥54dB@2400---2473MHz</td>
<td>≥54dB@2400---2473MHz</td>
</tr>
<tr>
<td></td>
<td>≥45dB@2618---2690MHz</td>
<td>≥45dB@2496---2568MHz</td>
<td>≥45dB@2496---2568MHz</td>
</tr>
<tr>
<td></td>
<td>≥38dB@4992---5380MHz</td>
<td>≥38dB@4992---5380MHz</td>
<td>≥38dB@4992---5380MHz</td>
</tr>
<tr>
<td></td>
<td>≥38dB@7488---8070MHz</td>
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<td>≥38dB@9984---10760MHz</td>
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<td>≥38dB@12480---13450MHz</td>
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<td>≥38dB@14976---16140MHz</td>
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<tr>
<td></td>
<td>≥38dB@17472---18830MHz</td>
<td>≥38dB@17472---18830MHz</td>
<td>≥38dB@17472---18830MHz</td>
</tr>
<tr>
<td></td>
<td>≥38dB@19968---21520MHz</td>
<td>≥38dB@19968---21520MHz</td>
<td>≥38dB@19968---21520MHz</td>
</tr>
<tr>
<td>Group Delay Variation in Passband</td>
<td>≤40ns</td>
<td>≤40ns</td>
<td>≤40ns</td>
</tr>
</tbody>
</table>
AirHarmony-4400 Datasheet

<table>
<thead>
<tr>
<th>Power</th>
<th>OFDM RMS power of 50W and peak power of 400W due to PAPR of 10dB</th>
<th>OFDM RMS power of 50W and peak power of 400W due to PAPR of 10dB</th>
<th>OFDM RMS power of 50W and peak power of 400W due to PAPR of 10dB</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIM</td>
<td>≤-146dBC@2*43dBm</td>
<td>≤-146dBC@2*43dBm</td>
<td>≤-146dBC@2*43dBm</td>
</tr>
<tr>
<td>Input &amp; Output Impedance</td>
<td>50Ω</td>
<td>50Ω</td>
<td>50Ω</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40 to +85°C</td>
<td>-40 to +85°C</td>
<td>-40 to +85°C</td>
</tr>
<tr>
<td>Lightening Surge</td>
<td>Max 6kV Pulsed</td>
<td>Max 6kV Pulsed</td>
<td>Max 6kV Pulsed</td>
</tr>
<tr>
<td>Connectors</td>
<td>DIN 4.1/9.5 Female (4 holes)</td>
<td>DIN 4.1/9.5 Female (4 holes)</td>
<td>DIN 4.1/9.5 Female (4 holes)</td>
</tr>
<tr>
<td>Color</td>
<td>RAL9002</td>
<td>RAL9002</td>
<td>RAL9002</td>
</tr>
</tbody>
</table>

Channel Frequency Resolution
The center frequency is tunable with a 100 KHz resolution

Frequency Stability
The AirHarmony-4400 reference frequency accuracy is better than ±0.05ppm

Modulation & FEC
AirHarmony-4400 supports QPSK, 16QAM and 64QAM modulations on both Downlink and Uplink with all Modulation and Coding Schemes defined in 3GPP TS 36.211

Power
Maximum Configurable Tx Power (per RF port) Per carrier / Single Carrier: 43 dBm (20W)
Maximum Configurable Tx Power (per RF port) Per carrier / Dual Carrier: 40 dBm (10W)
Transmit Power Accuracy: ±1dB in normal conditions
Control Step: 1dB

Transmitter Dynamic Range
The transmitter supports a monotonic power control of 40dB with step size of 1dB

Transmitter Spurious Emissions
AirHarmony-4400 complies with the “Category B” transmitter spurious emissions, as they are defined in TS 36.104

Transmitter Error Vector Magnitude
The AirHarmony 4400 transmitter EVM/RCE is no more than -28dB for all power levels
AirHarmony-4400 Datasheet

Receiver Radio Performance

Rx Noise Figure
AirHarmony-4000 receiver noise figure is 2.9 dB

Receiver Sensitivity Level
The values in the table below are defined for QPSK ⅓ with allocation BW as indicated by TS 36.104

<table>
<thead>
<tr>
<th>Channel Bandwidth (MHz)</th>
<th>Allocation Size (RB)</th>
<th>Reference Sensitivity Level (dBm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>25</td>
<td>-104.5</td>
</tr>
<tr>
<td>10</td>
<td>25</td>
<td>-104.5</td>
</tr>
<tr>
<td>15</td>
<td>25</td>
<td>-104.5</td>
</tr>
<tr>
<td>20</td>
<td>25</td>
<td>-104.5</td>
</tr>
</tbody>
</table>

In Channel Selectivity
AirHarmony-4400 complies with ICS as defined by TS 36.104 for “Wide Area BS”

Adjacent Channel Selectivity
AirHarmony-4400 ACS complies with ACS requirements as defined in TS 36.104 for “Wide Area BS”

Receive Dynamic Range
AirHarmony-4400’s receiver has a dynamic range of 54dB

Maximum Input Signal
The AirHarmony-4400 receiver can receive a maximum on-channel signal of –30dBm

Maximum Input Signal without Damage
The AirHarmony-4400 receiver can tolerate a maximum signal of -10dBm without damage

Receiver Spurious Emission
AirHarmony-4400 complies with the receiver spurious emission as defined by TS 36.104 as well as ETSI EN 301 893

Mobility
AirHarmony-4400 can support Intra and Inter frequency handovers.

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1The receiver sensitivity power level is the minimum mean power received at the antenna connector at which a throughput requirement is being met for a specified reference measurement channel. The AirHarmony 4400 meets the requirements defined for in TS 36.104 for Wide Area Base Stations

2In-channel selectivity (ICS) is a measure of the receiver ability to receive a wanted QPSK½ signal at its assigned resource block locations in the presence of an interfering signal received at a larger power spectral density.

3Adjacent Channel Selectivity (ACS) is defined as the measure of the receiver’s ability to receive a wanted signal at its assigned channel frequency in the presence of an adjacent channel signal with a specified center frequency offset of the interfering signal to the band edge of a victim system

4The spurious emissions are the power of emissions generated or amplified in a receiver that appear at the receiver antenna connector
Physical Interfaces
This following defines all external Network and Maintenance equipment interfaces as well as System LED. All interfaces are Weatherproof, supporting IP66 Ingress Protection Rating.

GPS Antenna Port
- Connector Type: TNC Male
- Characteristic Impedance: 50 Ω
- Quantity: 1

RF Antenna Ports
- RF ports on B41:
  - 4 ports located on the top panel and connected directly to the external filters.
  - Filters are sold separately
  - 4xRF ports to the antenna located on the top of the filters
- Connector Type: 4.1-9.5 DIN Female
- Characteristic Impedance: 50 Ω
- Quantity: 4

Antenna Connections – Ports labeled
- Tx/Rx
- Rx
- Ant 1
- Ant 2
- Ant 3
- Ant 4
- Connector Type: SFP Socket with Full AXS sealing connector
- Quantity: 2

Copper Ethernet Port
- Connector Type: RJ45
- Standard: IEEE802.3
- Cable Type: STP Category 5E
- Interface Speed: 100/1000 Base-T
- Communication Mode: Full/Half Duplex with Auto Negotiation
- PoE Output: 2 ports supports PoE out
- Quantity: 2

PoE Port Specification
- Power available at powered device: 25.5 W
- Maximum power delivered: 30 W
- Voltage range delivered: 50.0–57.0 V
- Voltage range (at powered device): 42.0–57.0 V
- Maximum current: 600 mA
- Maximum cable resistance: 12.5 Ω (Category 5 cable)
- Power management: Four power class levels negotiated at initial connection or 0.1 W steps negotiated continuously
- Supported cabling: Category 3 and Category 5

---

2 Each port can supply up to 30W. Total power from the 2 ports can’t exceed 45W
SBA Control

Connector Type: AIGS
Standard: RS485
Controls the SBA direction when mounted remotely
Can also control specific RET antennas control by the AIGS protocol. Contact Airspan sales for further details.

Power Connection AC Variants

Connector Type: Proprietary
Standard: 100VAC~240VAC, 47Hz~63Hz
Cable Length: Various

Power Connection DC Variants

Connector Type: Proprietary
Standard: -48V DC
Cable Length: Various

LED Display

A single tri-color LED (Green/Red/Orange) appears at the bottom of the unit, providing unit status indication.

Mounting

AirHarmony-4400 includes a pole mounting kit with the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical tilting range</td>
<td>0°</td>
</tr>
<tr>
<td>Supported pole diameters</td>
<td>48.3 to 406.4 mm / 1.9 to 16 inch</td>
</tr>
<tr>
<td>Supported wind load</td>
<td>200 km/h / 125 mph</td>
</tr>
</tbody>
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Standard Compliances

<table>
<thead>
<tr>
<th>Standard</th>
<th>EN 301 489-1 V1.9.2 (2011-09) Class B</th>
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<tbody>
<tr>
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<td>EN 301 489-4 V2.2.1 (2015-05)</td>
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<td>ICES-003: 2012 issue 5 class B</td>
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<td>UL 60950-1</td>
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<td>UL 60950-22</td>
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<tr>
<td>ROHS</td>
<td>EU ROHS directive - 2002/95/EC (ROHS) - ROHS6</td>
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<tr>
<td>WEEE</td>
<td>Per the requirements of European directive 2002/96/EC</td>
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<tr>
<td>FCC</td>
<td>Title 47, Part 90 - Band 26</td>
</tr>
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<td>Title 47, Part 27 - Band 41</td>
</tr>
<tr>
<td>Environmental</td>
<td>IEC 60529</td>
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<tr>
<td></td>
<td>IEC 60068</td>
</tr>
<tr>
<td></td>
<td>ETSI EN 300-019-2-4 Operational (non-weather protected equipment)</td>
</tr>
<tr>
<td></td>
<td>ETSI EN 300-019-2-1 Storage (weather protected, not temperature controlled locations)</td>
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### Standard

<table>
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<td>ETSI EN 300-019-2-2 Transportation (Public Transportation)</td>
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<td>GR-63, Issue 4</td>
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</tbody>
</table>

### IP Rating

|          | IP66                                           |

**Color** – RAL9002

**Export Control Classification Number** – ECCN 5A002
PROJECT NAME: SAN FRANCISCO BAY EXPANSION - 58 SITES
PROJECT ADDRESS: 44 SIMMS ST., SAN RAFAEL, CA 94901
EXIST. PG&E-OWNED WOOD JPA POLE
SF90XS2H0
SFB005m2
SF36XC052

NODE #(#s):

HUB AREA:

COORDINATES:
LAT: 37.95789, LONG: -122.506809

PROJECT DESCRIPTION:
THIS PROJECT WILL CONSIST OF ADDING A NEW POLE-TOP CANISTER ANTENNA AND A SIDE-MOUNTED EQUIPMENT CHASSIS TO THE EXISTING POLE. THE EQUIPMENT CHASSIS WILL CONTAIN THE FOLLOWING:
(1) NEW RADIO UNIT
(1) FIBER ENCLOSURE BOX
(1) ELECTRICAL LOAD CENTER / DISTRIBUTION PANEL
(1) ELECTRICAL POWER METER

HANDICAPPED REQUIREMENTS:
HANDICAPPED ACCESS REQUIREMENTS ARE NOT REQUIRED.

PLUMBING REQUIREMENTS:
FACILITY HAS NO PLUMBING

POWER COMPANY:
PACIFIC GAS AND ELECTRIC (PG&E)
## CAUTION

Keep back 5 FT from this Antenna. FCC RF Public Exposure Limits May Be Exceeded Within This Distance. Call 888-632-0931 for instructions. Qualified Workers: FCC Occupational Limits May Be Exceeded Within This Distance. Site ID #

## NOTICE

POLE WORKERS

There is an antenna operation high on this pole. Please follow guidance on signs near the antenna or call the number below.

Site ID #

888-632-0931

## COAX HANGER DETAIL

**SCALE: 1” = 1'-0”**

- **Coax Cable**
- **Pole Equipment**
- **Aluminum Chassis**
- **Painted Box**
- **Dowel**
- **Screw**
- **Gasket**
- **CONSTRUCTION DETAILS**

## CONCRETE JOINT DETAILS

**SCALE: 1” = 1'-0”**

- **Concrete Joint**
- **Expansion Joint**
- **Control Joint**
- **Template**
- **1/4” Max.**
- **1” 1 1/4” 1 1/2” 2 1/4” 1/4” 3/4” 1/8” Radius**
- **Filling with Joint Sealer**

## RF WARNING SIGNAGE

**SCALE: N.T.S.**

1. **Notes:**
   1. Contractor to install waterproof coating at all connecting Coax to be approved by Crown Castle.

## POLE-TOP EXTENSION / ANTENNA DETAIL

**SCALE: 1” = 1'-0”**

- **Pole Top Extension**
- **Antenna**
- **Aluminum Chassis**
- **Painted Box**
- **CONSTRUCTION DETAILS**

## METER SOCKET W/ LOAD CENTER -

**MUST BE PGE APPROVED**

## STANDOFF BRACKET, TYP. OF (3)

- **5/8” x POLE DIA. GALV. LINE HARDWARE BOLT, WASHER, AND FASTENER - SUPPLIED BY CONTRACTOR, TYP. (3)**

## POWER DISCONNECT

**FIBER PANEL ENCLOSURE**

## RF WARNING SIGNAGE

**SCALE: N.T.S.**

## SAN FRANCISCO BAY EXPANSION - 58 SITES

**CONSTRUCTION DETAILS**

**DRAWN BY: CHECKED BY:**

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**Sheet Title:**

**Sheet Number:**

**Project Name:**

**Scale:** 1”=1'-0”

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**Release Date:** 08.22.19

**Submittals**

**Comment**

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**Appendix Page 16 of 19**
ALL POLE MOUNTED DEVICES, INCLUDING BUT NOT LIMITED TO: ANTENNA MOUNTS AND ANTENNAS, MOUNTING BRACKETS, CABINETS) SHALL BE CONNECTED TO THE TMGB WITH A #6 COPPER STRANDED CABLE.

EXPOSED "SHINERS" CONDUCTORS ARE PROHIBITED IF IN EXCESS OF 1/16TH OF AN INCH.

SLOTTED SIDE OF THE CONNECTOR LUG SHOULD BE PLACED ON THE SLOTTED SIDE OF THE BUS BAR.

#2 GROUND SHALL BE ATTACHED DIRECTLY TO THE GROUND ROD VIA CAD WELD.

ALL CONNECTOR LUGS SHALL HAVE TWO (2) COMPRESSIONS PER LUG.

5 OHMS TO GROUND IS REQUIRED FOR ACCEPTANCE. IF 5 OHMS CANNOT BE MET WITH ABOVE REQUIREMENTS, ADDITIONAL GROUND RODS WILL BE ADDED TO THE FIELD UNTIL 5 OHMS IS ACHIEVED.

GROUND ROOD TEST WELL WITH 8'-0" MINIMUM DEPTH MIN. @ 8'-0" OC CLAD TINNED COPPER PER PLAN.

GROUND ROD TEST WELL WITH 8'-0" MINIMUM DEPTH MIN. @ 8'-0" OC CLAD TINNED COPPER PER PLAN.

GROUND ROD TO MGB 6'-0" BRANCH TO PRIMARY BILLING RELAY IN PANEL "A" METER PEDESTAL AND SERVICE RATED NEMA 3R METER. METER NOTES:

1. IF EXISTING IRRIGATION LINES ARE ENCOUNTERED, CONTRACTOR SHALL NOTIFY OWNER PRIOR TO STARTING WORK.

2. VERIFY DEPTH OF EXISTING UTILITY CROSSING POINTS VIA APPROVED POTHOLING METHODS AND NOTIFY OWNER WITHIN 24 HOURS OF ENCOUNTER.

3. USE 1" SCHEDULE 40 PVC CONDUIT AND APPROPRIATE FITTINGS TO ENTER N3R LOAD CENTER.

4. PROVIDE (1) MAIN GROUND FROM THE MAIN GROUND BUS BAR (TMGB) (LOCATION DEFINED BELOW) TO A GROUND ROD AT THE POLE BASE. MAIN GROUND VERTICAL SHALL CONSIST OF A #2 SOLID BARE COPPER CONDUCTOR OR EQUIVALENT EXCEPT WHERE NOTED.

5. PROVIDE (1) MAIN GROUND FROM THE ANTENNA MOUNTING BRACKET AT THE TOP OF THE POLE, TO THE MAIN GROUND BUS BAR (TMGB) (LOCATION DEFINED BELOW). MAIN VERTICAL GROUND SHALL CONSIST OF A #2 SOLID BARE COPPER CONDUCTOR OR EQUIVALENT EXCEPT WHERE NOTED.

6. CONTRACTOR SHALL CONVERT CONDUCTORS TO PANEL LUG APPROVED SIZE WHERE NOTED OTHERWISE.

7. CONTRACTOR TO INSTALL CONNECTOR LUGS WITH 1 1/2" BOLT AND 3/8" NUT PER INSTALLATION INSTRUCTIONS FOR CONNECTOR LUG.

8. PROVIDE COMMON TRIP HANDLES FOR ALL BREAKER AND MINIMUM PANELBOARD. PANEL "A" METER PEDESTAL AND SERVICE RATED NEMA 3R METER.
Instructions for De-Energizing the Site:
1. Call Crown Castle Network operations center 1-888-632-0931
2. Identify RF DISCONNECT BOX
3. Open RF DISCONNECT BOX
4. Open cover for RF Disconnect Breaker
5. Turn RF Disconnect Breaker to the off position to de-energize node
6. To confirm that the site has been de-energized, PG&E crew/technician can remove the single screw on the bottom right cover of the RF Disconnect Breaker and remove the cover to expose the source and load terminals on the switch and then check for no potential between the load terminal and ground to verify that no RF signal can be generated.
7. Notify Crown Castle Network operations center that work is complete