# Environmental Noise Study

Site No. Calabasas Park Estate
LA0420
24000 N. Parkway
Calabasas, CA

EBI Project No. 6205003017
May 27, 2015

Prepared for:

at&t

c/o

Prepared by:

EBI Consulting
environmental | engineering | due diligence

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## 1.0 EXECUTIVE SUMMARY

ExteNet proposes to locate an unstaffed wireless telecommunications facility in an underground vault at 24000 N. Parkway in Calabasas, California, herein referred to as LA0420. EBI Consulting was directed to evaluate potential noise impacts of the proposed Radio Remote Units (RRUs) in relation to the County of Los Angeles Noise Control Ordinance, Title 12 of the County Code.

Based on the results of this study, EBI concludes that the Calabasas Park Estate project will not generate any discernable noise. As such, noise fromt the proposed RRU units comply with the County of Los Angeles Noise Control Ordinance, Title 12 of the County Code.

## 2.0 BACKGROUND

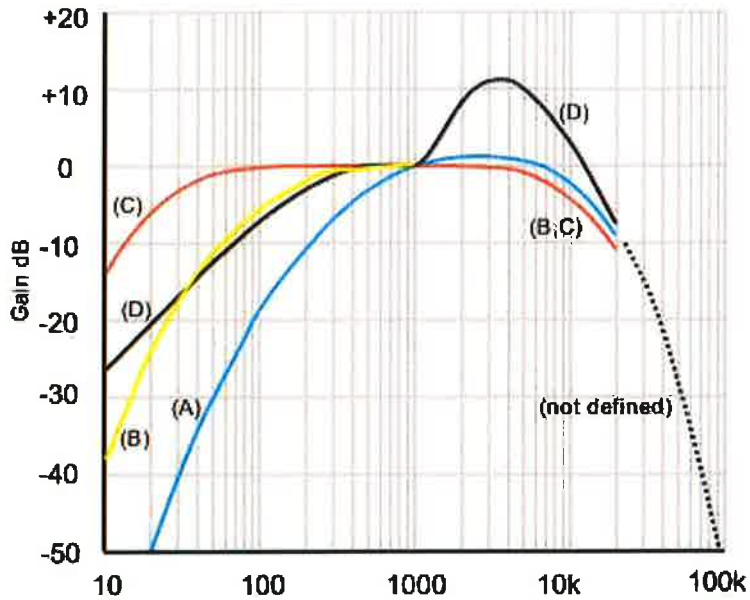
All sounds originate from a source. The sound energy, produced by a source, creates variations in air pressure which travel in all directions much like a wave ripples across the water. The "loudness" or intensity of a sound is a function of the sound pressure level, defined as the ratio of two pressures: the measured sound pressure from the source divided by a reference pressure (i.e. threshold of human hearing). Sould level measurements are most commonly expressed using the decibel (dB) scale. The decibel scale is logarithmic to accommodate the wide range of sound intensities the human ear is capable of responding to. On this scale, the threshold of human hearing is equal to 0 dB, while levels above 140 dB can cause immediate hearing damage.

One property of the decibel scale is that the combined sound pressure level of separate sound sources is not simply the sum of the contributing sources. For example, if the sound of one source of 70 dB is added to another source of 70 dB, the total is only 73 dB, not a doubling to 140 dB. In terms of human perception of sound, a 3 dB difference is the minimum perceptible change for broadband sounds (i.e. sounds that include all frequencies). A difference of 10 dB represents a perceived halving or doubling of loudness.

Environmental sound is commonly expressed in terms of the A-weighted sound level (dBA). The A-weighting is a standard filter to make measured sound levels more nearly approximate the frequency response of the human ear. Table 1 shows the adjustments made at each octave band frequency to contour un-weighted sound levels (dB) to A-weighted sound levels (dBA).

**TABLE 1 - A-WEIGHTED OCTAVE BAND ADJUSTMENT (±dB)**

| Octave Band Center Frequency (Hz) | 32 | 64 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | 16000 |
|---|---|---|---|---|---|---|---|---|---|---|
| A-weighting Adjustment (±dB) | -39.4 | -26.2 | -16.1 | -8.6 | -3.6 | 0.0 | +1.2 | +1.0 | -1.1 | -6.6 |




A-weighting (blue), B (yellow), C (red), and D-weighting (blk)

Environmental sound varies depending on environmental conditions. Some sounds are sharp impulses lasting for short periods of time, while others rise and fall over longer periods of time. There are various measures (metrics) of sound pressure designed for different purposes. The Leq, or equivalent sound level, is the steady-state sound level over a period of time that has the same acoustic energy as the fluctuating sound that was measured over the same period. The Leq is commonly referred to as the average sound level and is calculated automatically by the sound level meter using methods defined in ANSI S1.4-1983[1].

[1] American National Standards Institute, ANSI S1-4-1983, American National Standard Specification for Sound Level Meters, 1983

## 3.0 REGULATORY REQUIREMENTS

County of Los Angeles Noise Control Ordinance, Title 12 of the County Code

The County maintains the health and welfare of its residents with respect to noise through nuisance abatement ordinances and land use planning. The County Noise Control Ordinance, Title 12 of the County Code, was adopted to control unnecessary, excessive, and annoying noise and vibration. It declares that County policy was to maintain quiet in those areas which exhibit low noise levels and to implement programs aimed at reducing noise in those areas within the county where noise levels are above acceptable values. (Section 12.08.010 of the County Code). See table below for Exterior Noise Level.

### Los Angeles County Exterior Noise Standards

| Noise Zone | Designated Noise Zone Land Use (Receptor Property) | Time Interval | Exterior Noise Level (dB) |
|---|---|---|---|
| I | Noise sensitive area, designated to ensure exceptional quiet | Anytime | 45 |
| II | Residentially zoned properties, per County Code Title 22 | 10:00 p.m. to 7:00 a.m. (nighttime) | 45 |
| 7:00 a.m. to 10:00 p.m. (daytime) | | 50 | |
| III | Commercially zoned properties, per County Code Title 22 | 10:00 p.m. to 7:00 a.m. (nighttime) | 55 |
| 7:00 a.m. to 10:00 p.m. (daytime) | | 60 | |
| IV | Industrially zoned properties, per County Code Title 22 | Anytime | 70 |

Source: Section 12.08.390 of the L.A. County Code (a portion of the Noise Control Ordinance)

## 4.0 PROJECT DESCRIPTION

The site Calabasas Park Estate will be located on a light pole. Two (2) Ericsson Model RRU units will be located in an underground vault.

Traditional telecommunications sites are comprised of antennas, connected to equipment cabinets by coaxial cable. Some sites require emergency back-up generators on-site in the event of a power outage. Typical noise-generating equipment on a telecommunitions site includes fans that are used cool the equipment cabinets an generator motors. Distributed Antenna System (DAS) nodes, such as Calabasas Park Estate, employ RRUs to act as transceivers and send the signal to each antenna wirelessly. As such, DAS nodes do not require the use of noise-generating equipment.

## 5.0 STUDY RESULTS

The proposed installation for Calabasas Park Estate does not specify the use or installation of any noise-generating equipment. Neither the antennas nor RRU units have moving parts or require the use of active cooling elements, as they are passively cooled by natural convective flow of air across their cooling fins. Neither the antennas or RRU units emit any discernable noise, as shown in Table 3, below.

**TABLE 3 – ACOUSTIC SOURCES**

| Source Name | Description | Equipment Noise (Sound Power) |
|---|---|---|
| | | dBA |
| Ericsson Model RRU | Radio Remote Unit | 0 |

## 6.0 RESULTS AND CONCLUSIONS

According to information furnished by ExteNet and the analysis outlined above, EBI concludes that the proposed RRU installation at Calabasas Park Estate will not result in any change in ambient noise condidions and will comply with the County of Los Angeles Noise Control Ordinance, Title 12 of the County Code.

## 7.0 LIMITATIONS

This report was prepared for the use of AT&T and Cortel. The conclusions provided by EBI are based solely on the information provided by the client. The observations in this report are valid on the date and time of the investigation. Reported noise levels contained herein are a factor of meteorological and environmental conditions present at the time of the site survey, and represent "typical" site noise levels. Measurement and calculations contained in this report should be considered accurate to within one decibel. Any additional information that becomes available concerning the site should be provided to EBI so that our conclusions may be revised and modified, if necessary. This report has been prepared in accordance with Standard Conditions for Engagement and authorized proposal, both of which are integral parts of this report and has been designed to address the the County of Los Angeles Noise Control Ordinance, Title 12 of the County Code.

## 8.0 REVIEWER CERTIFICATION

I, Cynara Canantella, state that:

- I am an employee of Envirobusiness Inc. (d/b/a EBI Consulting), which provides acoustic survey and compliance services to the wireless communications industry. I have reviewed the data collected during the site survey which is incorporated into this Site Compliance Report such that the information contained in this report is true and accurate to the best of my knowledge.

Sincerely,
**By EBI Consulting**

Cynara Cannatella
Senior Engineer

# APPENDIX A

## EQUIPMENT SPECIFICATIONS

# MRRU

- Specifications2x5 W (max), 0.125x2 W (min)
- Outdoor or Indoor installation
- 2 CPRI ports
- 2 external alarm inputs
- Dimensions: 16.5" x 9.8" x 6.5" (HWD)
- Weight: 10 Kgs/22 lbs, Volume: 11 L
- Temperature range: -40 to +131 F
- Integrated Patch Antenna
  - DC -48V or Integrated AC Power SupplyPower Consumption approx = 100W @ 2x5W

- Recommended Clearance distance:Side-by-side (2 units): preliminary 2".
- Above-below (2 units on top of each other): preliminary 16"
- Top-ceiling: preliminary 16"
- Bottom-floor: preliminary 12"

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