



|                                  |  |                                  |                                   |                                  |                                                 |              |                |              |                         |
|----------------------------------|--|----------------------------------|-----------------------------------|----------------------------------|-------------------------------------------------|--------------|----------------|--------------|-------------------------|
| Applicant                        |  | FRN 26456863                     | FCC File Number                   |                                  | 0162-EX-ST-2018                                 |              |                |              |                         |
| Applicant                        |  | Name Vector Launch Inc.          | FCC Point of Contact              |                                  | Leann Nguyen                                    |              |                |              |                         |
| Applicant                        |  | Date Submitted                   | 12-Feb-18                         |                                  | FCC Date Received                               |              |                |              |                         |
| Applicant                        |  | Date Required                    | 01-Mar-18                         |                                  | FCC Date Approved                               |              |                |              |                         |
| Applicant                        |  | File Number                      | GN-0276-VSS-001 Update            |                                  | Approved Callsign                               |              |                |              |                         |
| FCC POC                          |  | Name                             | Leann Nguyen                      | Title                            | Engineer                                        | Phone        | (202) 418-2482 | Email        | Leann.Nguyen@fcc.gov    |
| FCC POC Agency                   |  | Name                             | Federal Communications Commission | Attn:                            | OET - Leann Nguyen, Anthony Serafini            | Direct Phone | (888) 225-5322 | Fax          | (888) 418-0232          |
| FCC POC Agency                   |  | Street                           | 445 12th Street SW                | City                             | Washington                                      | State        | DC             | Zip Code     | 20554                   |
| Applicant POC1                   |  | Name                             | Michael C Maguire                 | Title                            | Senior Systems Engineer                         | Phone        | (626) 676-7230 | Email        | radio@vector-launch.com |
| Applicant POC2                   |  | Name                             | Carole Leon                       | Title                            | Business Operations Mgr                         | Phone        | (520) 207-9734 | Email        | radio@vector-launch.com |
| Applicant Company                |  | Name                             | Vector Launch Inc.                | Attn:                            | Radio Licensing                                 | Fax          | N/A            |              |                         |
| Applicant Address                |  | Street                           | 824 East 16th Street              | City                             | Tucson                                          | State        | AZ             | Zip Code     | 85719-6603              |
| Applicant Info                   |  | FRN                              | 26456863                          | CAGEC                            | 7MLT0                                           | EIN          | 811784147      | DUNS         | 80264639                |
| Stopbuzzer                       |  | Number                           | +1 (520) 207 9734                 |                                  |                                                 |              |                |              |                         |
| License Type                     |  | Experimental (STA)               |                                   | For                              | Launch Vehicle                                  |              | Series         | Vector-R     |                         |
| Category                         |  | Block-0.003                      |                                   |                                  |                                                 |              |                |              |                         |
| Number of Links                  |  | 3                                |                                   | Reference                        | FCC Table of Frequency Allocations - Note US276 |              |                |              |                         |
| Link 1                           |  | Link 2                           |                                   | Link 3                           |                                                 |              |                |              |                         |
| Telemetry Downlink               |  | Telemetry Downlink               |                                   | Telemetry Downlink               |                                                 |              |                |              |                         |
| Space Telemetry Space Station ER |  | Space Telemetry Space Station ER |                                   | Space Telemetry Space Station ER |                                                 |              |                |              |                         |
| S-Band (TM - Upper)              |  | S-Band (TM - Upper)              |                                   | S-Band (TM - Upper)              |                                                 |              |                |              |                         |
| 2360 - 2390 MHz                  |  | 2360 - 2390 MHz                  |                                   | 2360 - 2390 MHz                  |                                                 |              |                |              |                         |
| Band Edge (Lower)                |  | Band Edge (Lower)                |                                   | Band Edge (Lower)                |                                                 |              |                |              |                         |
| 2360 MHz                         |  | 2360 MHz                         |                                   | 2360 MHz                         |                                                 |              |                |              |                         |
| Band Edge (Upper)                |  | Band Edge (Upper)                |                                   | Band Edge (Upper)                |                                                 |              |                |              |                         |
| 2390 MHz                         |  | 2390 MHz                         |                                   | 2390 MHz                         |                                                 |              |                |              |                         |
| Band 30 MHz                      |  | Band 30 MHz                      |                                   | Band 30 MHz                      |                                                 |              |                |              |                         |
| Center Frequency                 |  | 2364.5 MHz                       |                                   | Center Frequency                 |                                                 |              |                |              |                         |
| Polarization                     |  | RHCP                             |                                   | 2382.5 MHz                       |                                                 |              |                |              |                         |
| Polarization                     |  | RHCP                             |                                   | RHCP                             |                                                 |              |                |              |                         |
| Transmit Power                   |  | 10 W                             |                                   | Transmit Power                   |                                                 |              |                |              |                         |
| 10 W                             |  | 10 W                             |                                   | 10 W                             |                                                 |              |                |              |                         |
| Transmit Power                   |  | 10 dBW                           |                                   | Transmit Power                   |                                                 |              |                |              |                         |
| 10 dBW                           |  | 10 dBW                           |                                   | 10 dBW                           |                                                 |              |                |              |                         |
| Antenna Gain                     |  | 0 dBi                            |                                   | Antenna Gain                     |                                                 |              |                |              |                         |
| 0 dBi                            |  | 0 dBi                            |                                   | 0 dBi                            |                                                 |              |                |              |                         |
| EIRP                             |  | 10 dBW                           |                                   | EIRP                             |                                                 |              |                |              |                         |
| 10 dBW                           |  | 10 dBW                           |                                   | 10 dBW                           |                                                 |              |                |              |                         |
| Data Type                        |  | Digital                          |                                   | Data Type                        |                                                 |              |                |              |                         |
| Modulation                       |  | SOQPSK                           |                                   | Modulation                       |                                                 |              |                |              |                         |
| SOQPSK                           |  | SOQPSK                           |                                   | SOQPSK                           |                                                 |              |                |              |                         |
| Data Rate                        |  | 128 kbps                         |                                   | Data Rate                        |                                                 |              |                |              |                         |
| FEC Type                         |  | LDPC                             |                                   | FEC Type                         |                                                 |              |                |              |                         |
| LDPC                             |  | LDPC                             |                                   | LDPC                             |                                                 |              |                |              |                         |
| Bandwidth Multiplier             |  | 0.90                             |                                   | Bandwidth Multiplier             |                                                 |              |                |              |                         |
| 0.90                             |  | 0.90                             |                                   | 0.90                             |                                                 |              |                |              |                         |
| PSD Bandwidth                    |  | 114.816 kHz                      |                                   | PSD Bandwidth                    |                                                 |              |                |              |                         |
| Power Spectral Density per 4 kHz |  | -4.6 dBW/4 kHz                   |                                   | 4485.000 kHz                     |                                                 |              |                |              |                         |
| -4.6 dBW/4 kHz                   |  | -7.6 dBW/4 kHz                   |                                   | Power Spectral Density per 4 kHz |                                                 |              |                |              |                         |
| Maximum Approach Velocity        |  | 0 m/s                            |                                   | Maximum Doppler ( x 2 )          |                                                 |              |                |              |                         |
| Maximum Doppler ( x 2 )          |  | 0.000 kHz                        |                                   | 0.000 kHz                        |                                                 |              |                |              |                         |
| Necessary BW (including Doppler) |  | 120.0 kHz                        |                                   | Necessary BW (including Doppler) |                                                 |              |                |              |                         |
| 120.0 kHz                        |  | 230.0 kHz                        |                                   | 4490.0 kHz                       |                                                 |              |                |              |                         |
| Necessary Bandwidth (Lower)      |  | 2364.440 MHz                     |                                   | Necessary Bandwidth (Lower)      |                                                 |              |                |              |                         |
| Necessary Bandwidth (Upper)      |  | 2364.560 MHz                     |                                   | 2380.255 MHz                     |                                                 |              |                |              |                         |
| Emission Designator              |  | 120KG1D                          |                                   | Emission Designator              |                                                 |              |                |              |                         |
| 120KG1D                          |  | 230KG1D                          |                                   | 4M49G1D                          |                                                 |              |                |              |                         |
| Transmitter Manufacturer         |  | Quasonix                         |                                   | Transmitter Manufacturer         |                                                 |              |                |              |                         |
| Transmitter Model Number         |  | QXVSH2-1100                      |                                   | Transmitter Model Number         |                                                 |              |                |              |                         |
| QXVSH2-1100                      |  | QXVSH2-1100                      |                                   | QXVSH2-1100                      |                                                 |              |                |              |                         |
| Launch Site                      |  | Name                             | Randsburg CA (FAR)                | Latitude                         | 35-20-53 N                                      |              | Longitude      | 117-48-36 W  |                         |
| Inclination (Min)                |  | Low altitude                     |                                   | Inclination (Max)                | Low altitude                                    |              | Altitude (Min) | Low altitude |                         |
| Launch Site                      |  | Name                             |                                   | Latitude                         |                                                 |              | Longitude      |              |                         |
| Inclination (Min)                |  |                                  |                                   | Inclination (Max)                |                                                 |              | Altitude (Min) |              |                         |
| Launch Site                      |  | Name                             |                                   | Latitude                         |                                                 |              | Longitude      |              |                         |
| Inclination (Min)                |  |                                  |                                   | Inclination (Max)                |                                                 |              | Altitude (Min) |              |                         |