

VECTOR

		FCC File Number	0164-EX-ST-2018						
		FCC Point of Contact	Leann Nguyen						
Applicant		FRN 0026456863	FCC Date Received	01-Feb-18	FCC Date Approved				
Applicant		Name Vector Launch Inc.							
Applicant		Date Submitted	01-Feb-18		Approved Callsign				
Applicant		Date Required	01-Jun-18						
Applicant		File Number	GSS-0278-VSS-NEW						
FCC POC		Name	Leann Nguyen	Title	Systems Engineer	Phone	(888) 225-5322	Email	Leann.Nguyen@fcc.gov
FCC POC Agency		Name	Federal Communications Commission Attn: OET -			Direct Phone	(202) 418-2482	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	0026456863	CAGEC	7MLT0	EIN	811784147	DUNS	80264639
Stopbuzzer		Number	+1 (520) 207 9734						
License Type		Experimental (STA)		For	Launch Vehicle	Series	Vector-R	Category	Block-1
Number of Links		4		Reference	FCC Table of Frequency Allocations - Note US276				
Link 1		Link 2		Link 3		Link 4			
Telemetry Downlink		Telemetry Downlink		Telemetry Downlink		Telemetry Downlink			
Space Telemetry Space Station ER		Space Telemetry Space Station ER		Space Telemetry Space Station ER		Space Telemetry Space Station ER			
S-Band (TM - Upper) 2360 - 2390 MHz		S-Band (TM - Upper) 2360 - 2390 MHz		S-Band (TM - Upper) 2360 - 2390 MHz		S-Band (TM - Upper) 2360 - 2390 MHz			
Band Edge (Lower) 2360 MHz		Band Edge (Lower) 2360 MHz		Band Edge (Lower) 2360 MHz		Band Edge (Lower) 2360 MHz			
Band Edge (Upper) 2390 MHz		Band Edge (Upper) 2390 MHz		Band Edge (Upper) 2390 MHz		Band Edge (Upper) 2390 MHz			
Band 30 MHz		Band 30 MHz		Band 30 MHz		Band 30 MHz			
Center Frequency 2364.5 MHz		Center Frequency 2370.5 MHz		Center Frequency 2382.5 MHz		Center Frequency 2382.5 MHz			
Frequency Tolerance 0.0001%		Frequency Tolerance 0.0001%		Frequency Tolerance 0.0001%		Frequency Tolerance 0.0001%			
Antenna Omni		Antenna Omni		Antenna Omni		Antenna Omni			
Polarization RHCP		Polarization RHCP		Polarization RHCP		Polarization RHCP			
Transmit Power 10 W		Transmit Power 20 W		Transmit Power 25 W		Transmit Power 25 W			
Transmit Power 10 dBW		Transmit Power 13 dBW		Transmit Power 14 dBW		Transmit Power 14 dBW			
Antenna Gain 0 dBi		Antenna Gain 0 dBi		Antenna Gain 0 dBi		Antenna Gain 0 dBi			
EIRP 10 dBW		EIRP 13 dBW		EIRP 14 dBW		EIRP 14 dBW			
Data Type Digital		Data Type Digital		Data Type Digital		Data Type Analog			
Modulation SQPSK		Modulation SQPSK		Modulation SQPSK		Modulation FM/NTSC			
Data Rate 128 kbps		Data Rate 256 kbps		Data Rate 5000 kbps					
FEC Type LDPC		FEC Type LDPC		FEC Type LDPC					
Bandwidth Multiplier 0.90		Bandwidth Multiplier 0.90		Bandwidth Multiplier 0.90					
Maximum Approach Velocity 8000 m/s		Maximum Doppler (x 2) 126.192 kHz		Maximum Doppler (x 2) 127.153 kHz		Maximum Doppler (x 2) 127.153 kHz			
Necessary Bandwidth 241.008 kHz		Necessary Bandwidth 356.145 kHz		Necessary Bandwidth 4612.153 kHz		Necessary Bandwidth 5877.153 kHz			
Necessary Bandwidth (Lower) 2364.379 MHz		Necessary Bandwidth (Lower) 2370.322 MHz		Necessary Bandwidth (Lower) 2380.194 MHz		Necessary Bandwidth (Lower) 2379.561 MHz			
Necessary Bandwidth (Upper) 2364.621 MHz		Necessary Bandwidth (Upper) 2370.678 MHz		Necessary Bandwidth (Upper) 2384.806 MHz		Necessary Bandwidth (Upper) 2385.439 MHz			
Power Spectral Density per 4 kHz -4.6 dBW/4 kHz		Power Spectral Density per 4 kHz -4.6 dBW/4 kHz		Power Spectral Density per 4 kHz -16.5 dBW/4 kHz		Power Spectral Density per 4 kHz -17.6 dBW/4 kHz			
Emission Designator 241KG1DCT		Emission Designator 356KG1DCT		Emission Designator 4M61G1DCT		Emission Designator 5M87F8FNN			
Transmitter Manufacturer Quasonix		Transmitter Manufacturer Quasonix		Transmitter Manufacturer Quasonix		Transmitter Manufacturer Emhiser			
Transmitter Manufacturer URL www.quasonix.com		Transmitter Manufacturer URL www.quasonix.com		Transmitter Manufacturer URL www.quasonix.com		Transmitter Manufacturer URL www.emhiser.com			
Transmitter Model Number QSX-VSR2-1100		Transmitter Model Number QSX-VSR2-1100		Transmitter Model Number QSX-VSR2-1100		Transmitter Model Number EVTC-09EBA103			
Launch Site		Name	Wallops VA (WFF-NASA)	Latitude	37.83152053 N	Longitude	-75.49012814 E	Elevation	100 ft
		Inclination (Min)	38°	Inclination (Max)	60°	Altitude (Min)	450 km	Altitude (Max)	800 km
Launch Site		Name	Kodiak AK (PSCA)	Latitude	57.435209 N	Longitude	-152.33948 E	Elevation	0.05 km
		Inclination (Min)	60°	Inclination (Max)	110°	Altitude (Min)	450 km	Altitude (Max)	800 km
Launch Site		Name		Latitude		Longitude		Elevation	
		Inclination (Min)		Inclination (Max)		Altitude (Min)		Altitude (Max)	
Timeline (Typical)		Time	Event	Downrange	Crossrange	Altitude			
		T+00:00:00.0	Liftoff	0.00 km	0.00 km	0.05 km			

T+00:00:59.5	Max Q	3.53 km	0.99 km	10.99 km
T+00:02:32.3	Main Engine Cut-Off (MECO)	96.47 km	28.64 km	99.82 km
T+00:02:34.3	Stage Separation	104.45 km	31.06 km	106.05 km
T+00:02:40.3	Second Stage Ignition	112.41 km	33.48 km	112.15 km
T+00:10:38.9	Second Stage Engine Cut Off (SECO)	1957.53 km	632.75 km	458.87 km