

OAKLAND INTERNATIONAL AIRPORT

OPERATIONS DIRECTIVE

Subject: Aircraft Engine Maintenance Run-ups/Ground Run-up Enclosure Use Policy
Date: Rev: October 1, 2011
Number: 616.5 (Supercedes all previously dated versions of this directive)

PURPOSE

1. The goal of this policy is to minimize noise impacts upon communities in the vicinity of the airport and to accommodate aircraft operators requiring engine run-ups.
2. It is the intent of Oakland International Airport to utilize the Ground Run-up Enclosure (GRE) to mitigate noise impacts to surrounding communities. Toward that end, Airside Operations staff will require the use of the GRE for certain types of engine run-ups. Refusal to use the GRE for any reason when required or requested may result in a denial of permission to conduct the intended run-up. Use of the GRE must conform to all aspects of the procedures set forth in this directive.

DEFINITIONS

1. **Aircraft Engine Maintenance Run-ups:** operation of aircraft engines for the purpose of assessing engine performance before, during, and after maintenance and/or repairs. Operations NOT INCLUDED as aircraft engine maintenance run-ups are those performed for “warming-up” and routine engine and instrument checks (“pre-flight” run-ups) prior to take-off for all aircraft types.
2. **Revenue Flight:** a commercial airline flight or any other flight, which generates revenue for the aircraft operator.
3. **Emergency Flight:** aircraft serving in an emergency capacity, including but not limited to police, fire, search and rescue, “life-flight” operations, air ambulance, aerial tankers, or transport of emergency supplies and/or personnel.
4. **Special Flight:** aircraft in the service of federal, state and local law enforcement, military, or a mission pertinent to national security.
5. **Non-Compliant Run-Up:** Any Aircraft Engine Maintenance Run-up that does not comply with the provisions contained in this Directive, or that exceeds the noise limits contained in the 1976 Settlement Agreement, Section 6, Subsection D (see details on page 4 of this Directive).

POLICY

1. Aircraft operators must get authorization from Airside Operations prior to conducting any aircraft engine maintenance run-ups, excluding idle power run-ups. Contact Airside Operations at (510) 563-3361.
2. **North Field Aircraft:** All engine maintenance run-ups above idle power must be performed at either the GRE or North Field/Hangar 6 Blast Fence unless authorized by the MOD as described in the following section. Turbojet aircraft weighing above 75,000 pounds must use the GRE at all times, and between 2200 and 0700 hrs local time, engine maintenance run-ups above idle power must be performed at the GRE for all turbojet aircraft, all military/military surplus aircraft, and aircraft in excess of 12,500 pounds.
3. **South Field Aircraft:** All engine maintenance run-ups above idle power for aircraft in excess of 12,500, all turbojet aircraft, and all military/military surplus aircraft normally operating at the South Field complex must be performed at the GRE at all times.
4. The Ground Run-up Enclosure (GRE) is normally available 24/7, year-round.
5. The time limit for engine maintenance run-ups is 90 minutes maximum if another aircraft operator(s) requests the use of the GRE. Conflicts in scheduling of run-ups will be settled by Airside Operations.
6. If the GRE is required for deicing operations, access to the GRE may be delayed. Alternate run-up locations may be authorized for use during deicing operations as necessary.
7. The airport reserves the right to revise this policy at any time.
8. Additional procedures apply for aircraft operators who are under special watch condition. See Airside Operations Administrative Procedures Sect. 7.

ALTERNATE AIRCRAFT ENGINE RUN-UP LOCATIONS

Approved alternate aircraft engine maintenance run-ups locations when the GRE is not available or approved by Airside Operations:

1. North Field/Hangar 6 Blast Fence.
2. Runway 30 aircraft run-up area.
3. Unusual operational circumstances may require Airside Operations to authorize run-ups in other safe and appropriately paved areas on the airport with Operations Superintendent or Manager authorization (i.e. Taxiway W west of Taxiway Y).
4. The Outdoor Test Stand (Test Cell Number 2) located at the North Airport. This area is restricted to daytime operations only, with no runs between 2200 and 0700 local time.

GENERAL PROCEDURES

1. Aircraft operators performing approved idle power engine runs within the South Terminal ramp complex must ensure that appropriate safety measures are undertaken throughout the duration of the idle run. These measures include, but are not be limited to, spotter personnel to alert vehicular and pedestrian traffic to remain clear of intakes, tailpipes, propellers and jet blast.
2. Aircraft operators will contact the FAA control tower and advise the controller of their intentions to perform a run-up, and also verify that they have approval granted by Airside Operations, prior to starting the run-up operation at the assigned location. The aircraft operator will monitor the appropriate ground control frequency during the run-up, and comply with instructions and safety advisories issued by the controller.
3. Aircraft operators will ensure that any operators of ground service vehicles accompanying an aircraft to a run-up location that is only accessible via a movement area have valid movement area driver endorsements and maintain direct radio contact with the FAA control tower. Aircraft under tow may have vehicles that are not in radio contact when being used as wing walkers. In the case of a non-radio equipped vehicle performing wing walker functions, it must remain with the aircraft during the entire time spent on active movement areas and under control of the tug operator. All vehicles associated with the run-up operation must obey instructions provided by Air Traffic Control Tower staff, as well as airport rules and regulations.
4. Aircraft mechanics issued OAK "Visitor" SIDA badges must be escorted to run-up locations that are only accessible via a movement area. They may access run-up locations accessible via non-movement areas (e.g. GRE or North Field/Hangar 6 Blast Fence) without escorts, in accordance with non-movement area driving regulations (e.g use of VSRs).
5. Aircraft operators will notify Airside Operations when a pre-approved run-up will be delayed by more than 30 minutes, or when the run-up is canceled. NOTE: Lapses of time more than 45 minutes between shut-downs and re-starts of the engines being run-up will require an additional approval from Airside Operations.
6. Aircraft Operators will notify Airside Operations when the run-up has been completed and provide actual start and end times, and other information if necessary.

AIRSIDE OPERATIONS ADMINISTRATIVE PROCEDURES

1. Airside Operations personnel will receive and log all requests for aircraft engine maintenance run-ups in the MOD Daily Log, including the attachment of a completed Aircraft Engine Maintenance Run-up Information Form. Personnel will submit forms in accordance with established procedures.
2. Airside Operations personnel will provide information about the Airport's policy on aircraft engine maintenance run-ups to the caller as necessary.

3. The Airside Operations Manager-on-Duty (MOD) must approve or deny requests for run-ups and assign/approve locations for run-ups in accordance with this Directive. The MOD is responsible for ensuring that an MOD Daily Log entry is completed and the Aircraft Engine Maintenance Run-up Information Form is completely filled out and submitted for all run-ups as required by this Directive.
4. The Airside Operations MOD and/or Coordinator will notify Airport 11/12/31 with information about the run-up and ensure that the run-up is verified and properly logged.
5. For all All engine maintenance run-ups above idle power, Airside Operations personnel must respond to the run-up location, observe and report the run-up, check that proper safety precautions are in place, and note when the run-up has ended. The MOD has discretion to cancel/modify this requirement if staffing/workload conditions do not allow a response. A brief summary of the circumstances preventing a response shall be included on the run-up form.
6. Airside Operations personnel will immediately report non-approved and/or unsafe run-ups and take appropriate action as directed by the MOD.
7. **Special Watch Procedure:** The following procedures may be applied to specific aircraft operators in the event that the aircraft operator or airline creates more than one non-compliant aircraft engine run-up noise event within a single calendar year. This procedure will be applied following the second non-compliant noise event within the calendar year. The operator will be warned upon the first non-compliant noise event.
 - a) Aircraft engine maintenance run-ups above idle will be restricted between 2200 hours local time and 0700 hours local time, Monday through Saturday and all day (24 hours) during Sundays and holidays.
 - b) Aircraft engine maintenance run-ups may be performed during the restricted hours if the aircraft is *scheduled* to operate a revenue flight, emergency flight or special flight during those nighttime restriction hours or by 1200 hours local time following the nighttime restriction period.
 - c) The operator must provide flight information documentation (including flight number and normal scheduled departure time) when engine run-up authorization is requested.
 - d) Port staff must ensure that the scheduled departure time meets the stipulations provided above and that the flight information is noted on the Aircraft Engine Maintenance Run-up Form for any aircraft engine maintenance run-ups performed during the **restricted periods**.
 - e) If all requirements itemized above are met, the run-up **must** be performed in the GRE.

INSPECTION AND MAINTENANCE OF GRE

1. **Responsible Parties** - The Port of Oakland **Airport Facilities Maintenance Department** is responsible for the inspection and maintenance of the GRE and will coordinate all scheduled and nonscheduled maintenance requirements for this facility. The Aircraft owner/operator assumes all liability with respect to damages to the GRE or surrounding facilities, or injuries to personnel caused by any portion of the run-up operation. Damages caused to the GRE must be immediately reported to Airside Operations by calling (510) 563-3361.

2. **Daily Inspections** – Airside Operations shall make daily inspections of the GRE facility, looking for housekeeping and obvious maintenance issues. Maintenance and cleanup issues identified, which affect operation of the GRE shall be promptly reported to A/P Facilities for correction via an Airport Facilities Work Order.

NOTE: Airport Management may disapprove, cancel or terminate any aircraft engine maintenance run-up for any reason without prior notice.

Reference Information:

1976 Settlement Agreement, Section 6, Subsection D

6.D “Port shall prohibit aircraft engine test run-ups between the hours of 1900 and 0700 except where the level of noise generated by such testing at the nearest present (as of July 21, 1976) residential property on Bay Farm Island does not exceed 75dBA between the hours of 1900 and 2200 and 70dBA between the hours of 2200 and 0700 the following day.”

Rob Forester
Airside Operations Manager
Oakland International Airport

Attachments:

Attachment A - GRE Use Procedures
Attachment B – Aircraft Engine Maintenance Run-up Information Form
Attachment C – Aerodynamic Usability Windrose Low Bypass Aircraft
Attachment D – Aerodynamic Usability Windrose Medium Bypass Aircraft
Attachment E – Aerodynamic Usability Windrose High Bypass Aircraft
Attachment F – Aerodynamic Usability Windrose B777 Aircraft
Attachment G – Aerodynamic Usability Windrose Turboprop Aircraft
Attachment H – GRE Operations Policy Summary Sheet

Distribution:

Director of Aviation
Assistant Director of Aviation
Airside Operations Superintendents
Airside Operations Supervisors
Airside Operations Specialists
Noise Abatement Office
FAA Control Tower (2)
Senior Airport Properties Representative
Facilities Manager

APPENDIX A.

Description of the GRE facility and general use considerations

1. **Location and Access** - The GRE is located near the intersection of Taxiways Bravo and Tango, South of the ARFF Building. Aircraft will access the GRE from the adjacent Taxiway Bravo, to the North West of the GRE. Vehicles will access the GRE via the access road through Bravo Gate. Vehicles should park on the paved area Southeast of the GRE.
2. **Physical Dimensions** - The GRE is a three-sided, open structure. Aircraft will face the open end at a heading of 290°. Exterior dimensions are 300' wide by 332' deep. The clear interior opening is 260'-6" wide. One window 3'-2" x 6'-0" is provided in the North-East side of the GRE near the front of the structure to view aircraft operating within the GRE.
3. **Pavement Markings** - Centerline: A 6" wide, yellow line is located in the center of the facility. It is critical that the centerline of aircraft utilizing the GRE be parallel with the centerline of the facility. Nose wheel distance marks are provided for most wide body aircraft expected to utilize the facility. Tail Position: A stripe across the facility located 35' ahead of the jet blast deflector is provided. This stripe extends 10' up the side-walls of the facility and is labeled "No Tail Closer." Engine Position: A stripe across the facility, located 60' ahead of the jet blast deflector is provided. This stripe extends 10' up the side-walls of the facility and is labeled "No Nozzle Closer." Turn around Centerlines: Offset centerlines on each side of the facility centerline are provided to guide power-in aircraft.
4. **Utility Buildings** - Location: On the North-East side of the GRE. Size: 16' wide by 18' deep. Approximately 50 percent of the building is allocated for GRE control equipment. The remaining 50 percent is allocated for restrooms. Access: The control area of the building may be accessed by a 3' by 7' personnel door on the North wall and one 6' x 7' double door on the south wall.
5. **Electrical Systems, Lighting, and Nav aids** - Low-level security lighting is provided within the GRE. The lights are on a photocell and will remain on after dark. **Operational lighting is provided within the GRE, and must be activated by ground crew staff.** These lights are also on a photocell to prevent their use during daylight hours. Obstruction Lights: Nine red obstruction lights are provided along the top of the GRE structure and are continuously lit. Exit Lights: Exit lights are provided over each egress door in the GRE and are also continuously lit. Grounding: A continuous ground is provided for steel GRE structures including the jet blast deflector. Windsock: A lighted windsock is mounted on the Northwest side of the structure near the front of the GRE. Noise Monitoring System: A noise monitor is located at the rear of the facility behind the blast deflector. This monitor is connected to the noise office monitoring system and will log the noise levels and times of all run-ups within the GRE. CCTV Camera System: A closed circuit monitor will allow Airside Operations to determine when the GRE is in use.
6. **Aircraft size limitations** - Power-in, Power-out operations: All aircraft with wingspans up to 125 feet may power into the facility using no more than breakaway thrust. They should follow one of the offset centerlines for turn-around aircraft. Tug in, Power-out operations: Any aircraft

with a wingspan of less than 214 feet may use the facility. Aircraft with wingspans of greater than 125 feet will be backed into the facility with a tug. The provided nose wheel markings should be used. Aircraft may exit the facility using minimum power.

7. ***Aircraft Position*** - Aircraft shall be positioned facing straight out of the facility (parallel to the GRE centerline). Operation of aircraft at any angle other than parallel to the GRE centerline is prohibited. Turn-around Aircraft: Aircraft may enter from either the right or left side of the facility. They shall follow the turn-around centerlines on the pavement. When the nose wheel is inside the turn box, a minimum radius turn shall be fully completed so that the aircraft is facing out of the facility and is parallel to the GRE centerline before conducting high-power run-ups. Tow-in Procedures: All aircraft with wingspans in excess of 125 feet must be towed into the GRE. The aircraft will be towed (pushed backwards) into the GRE and centered on the painted centerline. When exiting the GRE facility, the aircraft must contact FAA-ATCT prior to entering the Taxiway Bravo movement area. All aircraft are permitted to power out of the GRE facility upon completion of the engine run-up testing procedure using minimum power. The aircraft shall be positioned so that no portion of the aircraft extends aft past the "No Tail" line (located 35' ahead of the jet blast deflector). Also, the discharge nozzle of any engine which will be operated during the test must be forward of the "No Engine" line (located 60' ahead of the jet blast deflector). Aircraft shall be positioned as far as is practical into the GRE. Aircraft with designated nose wheel markings must be correctly aligned on the appropriate wheel mark.
8. ***Wing Walkers*** - Airlines shall, at their discretion, use wing walkers when positioning aircraft within the GRE to prevent damage and to assure the aircraft is correctly positioned within the GRE. It is recommended that two wing walkers (one on each side) be present during the tow-in/tow-out or power-in/power-out operations when using the GRE. The wing walkers will give visual direction to the pilot, mechanic, or tow-tractor operator until the aircraft has cleared the operational limits of the GRE. The use of wing walkers is at the discretion of the individual airlines.
9. ***Aerodynamic Considerations*** - Prior to aircraft operation within the GRE, the operators shall determine the usability of the GRE based on the aircraft windrose (see Attachment "A" to this manual). Operators shall lookup the windrose for the test aircraft and compare the wind reported on the current ATIS to determine if a successful test is likely. Operators shall monitor the windsock during testing to ensure the wind speed/direction does not become unfavorable while the test is underway. The operator shall consider wind gusts and changes of direction which would prevent successful testing in conditions which would otherwise be satisfactory. The operator shall closely monitor engine-operating parameters and discontinue the test if parameters exceed engine manufacturer's limits or if variances in parameters indicate unsteady engine operation.
10. ***FOD Inspection*** - Upon arrival at the GRE, but prior to taxiing or pushing in, conduct a visual inspection of the facility to ensure that nothing has been left in the enclosure that will interfere with turn around or the engine run-up. Also inspect the GRE for damage or other hazards. Report any damage or other problems immediately to Airside Operations. Do not continue to use the facility until Airside Operations has given consent.

GRE emergency considerations

1. ***Fire Extinguishing Agents*** - Two fire extinguishers are on-site to handle minor fires when conducting engine ground run-up operations.
2. ***Communication with Fire Station*** – FAA ATCT may be contacted by radio to initiate contact with the Fire Department.
3. ***First-aid Kit*** - A first-aid kit and eyewash are located in the facility for providing immediate care for minor injuries. Notify airside operations to report injuries and/or obtain emergency medical assistance.
4. ***Phone*** - A telephone is located on the outside North wall of the GRE. Emergency contact numbers are listed.

APPENDIX B.



Oakland International Airport
 A division of the Port of Oakland

AIRCRAFT ENGINE MAINTENANCE RUN-UP INFORMATION						
REQUEST DATE:	M	D	Y	REQUEST TIME:	HRS. LOCAL	
CARRIER or OPERATOR	Alaska	Southwest	Allegiant	United	FedEx	Hawaiian
	UPS	JetBlue	US Airways	Kaiser	OTHER:	
CALLER NAME			PHONE			REG. # N _____
MAKE/MODEL OF AIRCRAFT	B737	A320	B727	B767	G-4	OTHER:
	MD80	B757	DC10	MD11	CRJ	
NUMBER OF ENGINES TO BE TESTED			1	2	3	4
ENGINE RUN-UP POWER SETTING	IDLE (UP TO 30%)		MID (30-70%)		HIGH (70-100%)	
LOCATION OF ENGINE RUN-UP	GRE	STADIUM #	GATE #	KILO	LIMA	UPS/TANGO
	Hangar 6 Blast Fence			OTHER:		
PROPOSED START OF ENGINE RUN-UP			TIME:	HRS. LOCAL		
PROPOSED END OF ENGINE RUN-UP			TIME:	HRS. LOCAL		
REVENUE FLIGHT INFORMATION Used Only When Operator is Under Special Watch (see GRE Policy Pg. 4)		Flight No.		Date		Departure Time
ADDITIONAL INFORMATION						
REPORT TAKEN BY			A/P 10 APPROVAL	MOD Name		
ACTUAL START TIME			ACTUAL END TIME			

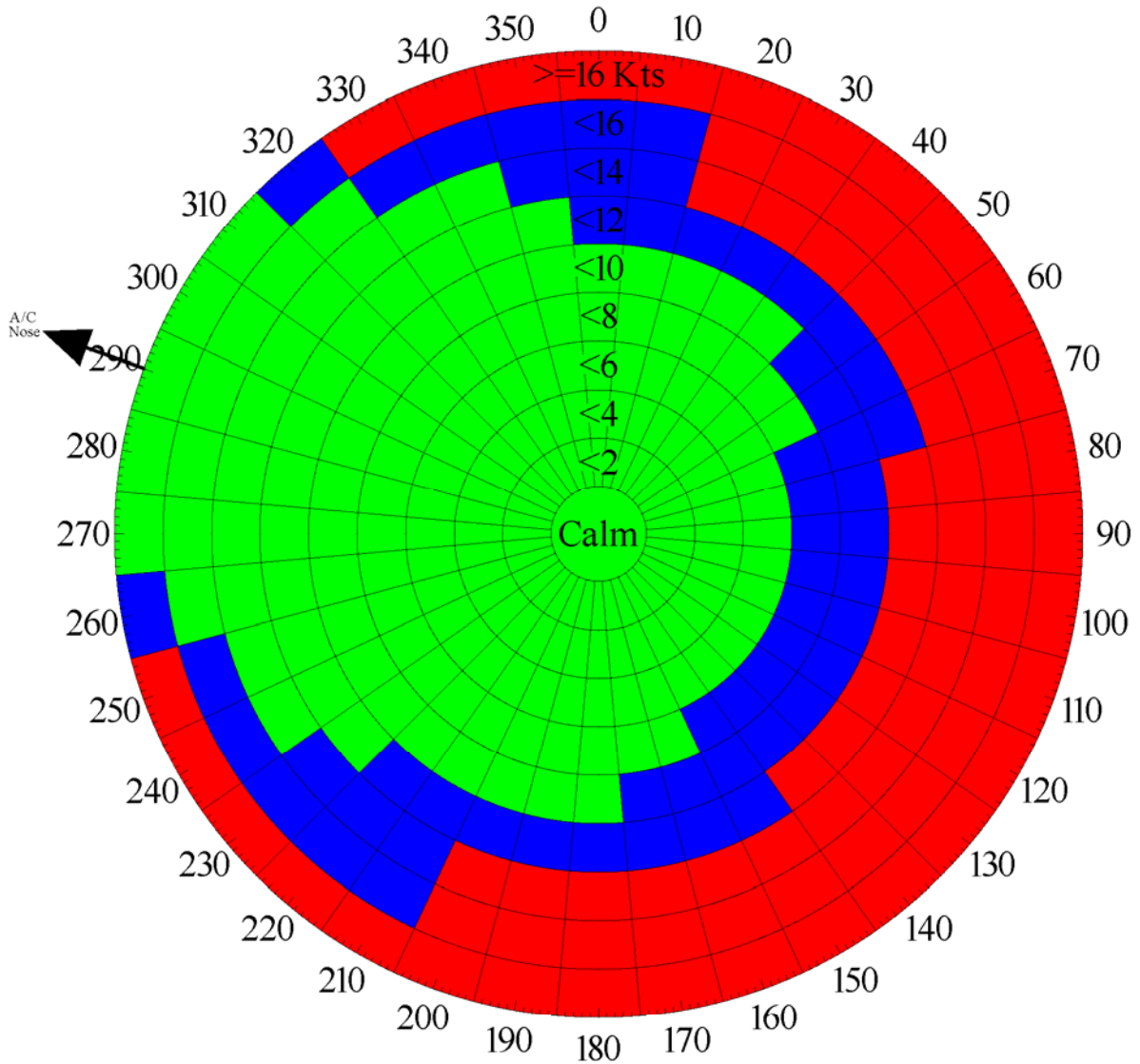
APPENDIX C.

Oakland, California GRE

Aerodynamic Usability Windrose

Aircraft: Low Bypass

(B727, B737-200, etc.)



- High-Power Runs Possible
- High-Power Runs May be Possible (Dependent on Wind Stability & Engine Power Setting)
- High-Power Runs Unlikely

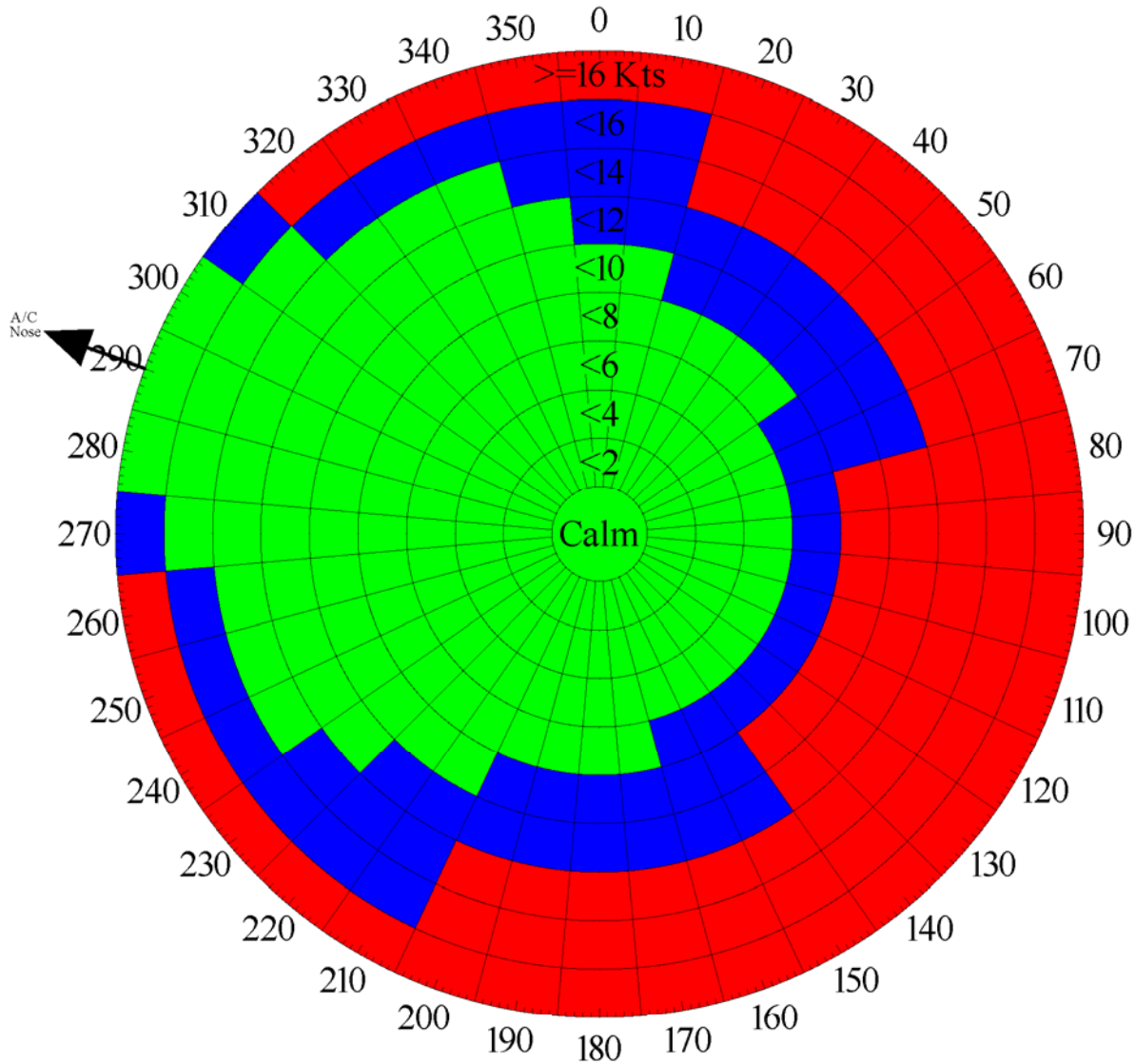
APPENDIX D.

Oakland, California GRE

Aerodynamic Usability Windrose

Aircraft: Medium Bypass

(A319, A320, A321, B737-300+, B747-200, DC-10, etc.)



- High-Power Runs Possible
- High-Power Runs May be Possible (Dependent on Wind Stability & Engine Power Setting)
- High-Power Runs Unlikely

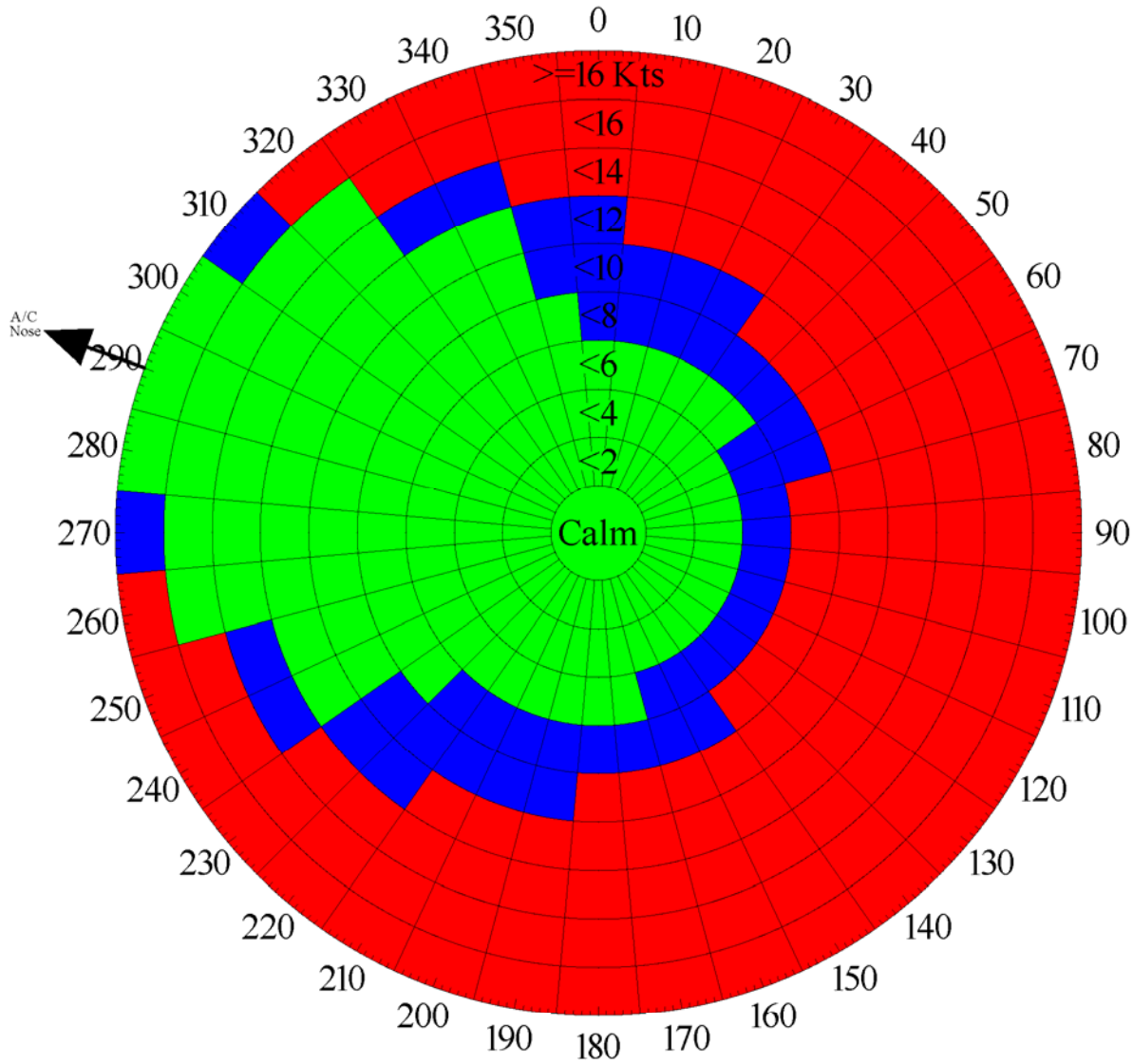
APPENDIX E.

Oakland, California GRE

Aerodynamic Usability Windrose

Aircraft: High Bypass

(B747-300+, B757, B767, MD-11, etc.)



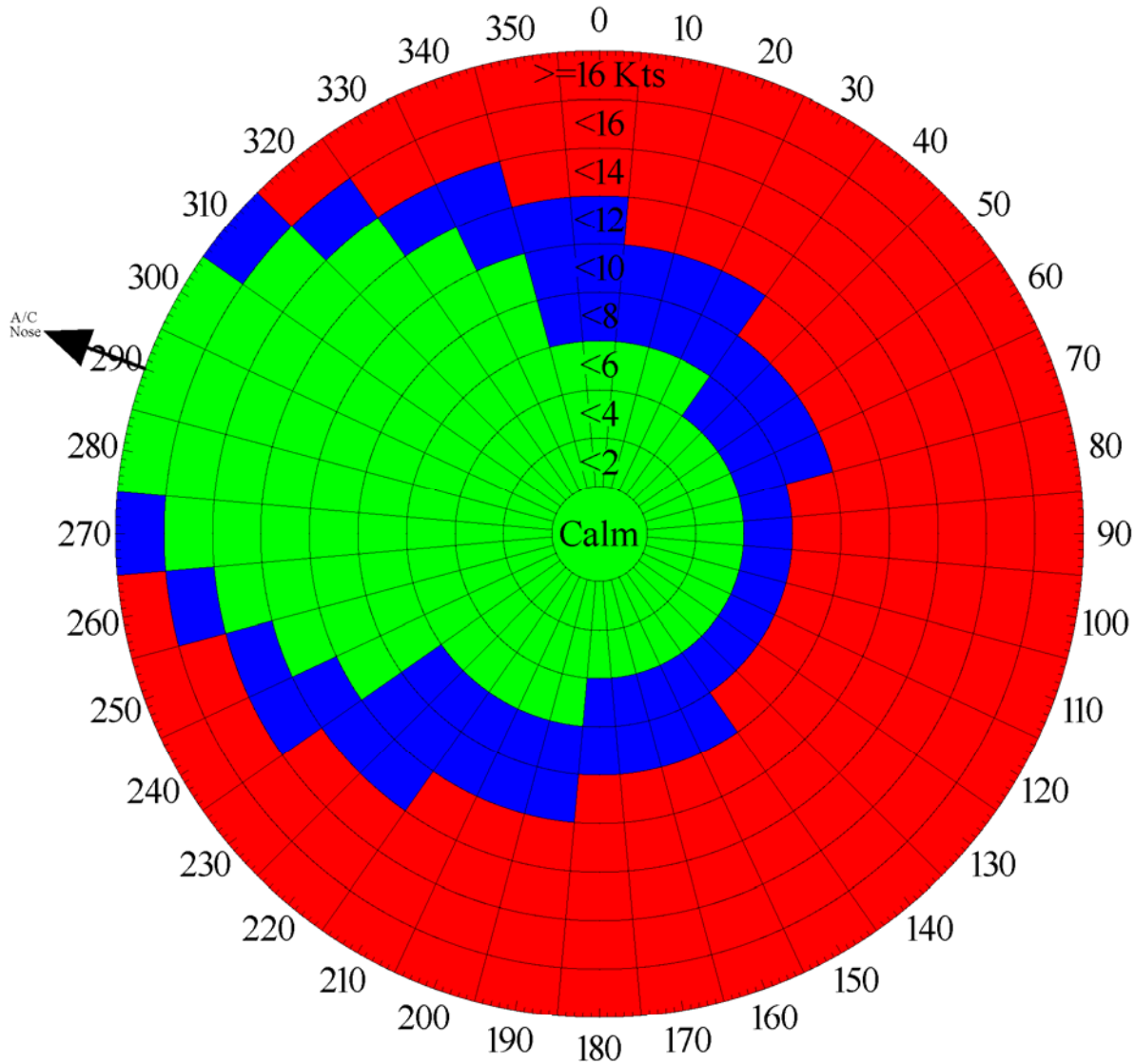
- High-Power Runs Possible
- High-Power Runs May be Possible (Dependent on Wind Stability & Engine Power Setting)
- High-Power Runs Unlikely

APPENDIX F.

Oakland, California GRE

Aerodynamic Usability Windrose

Aircraft: B777



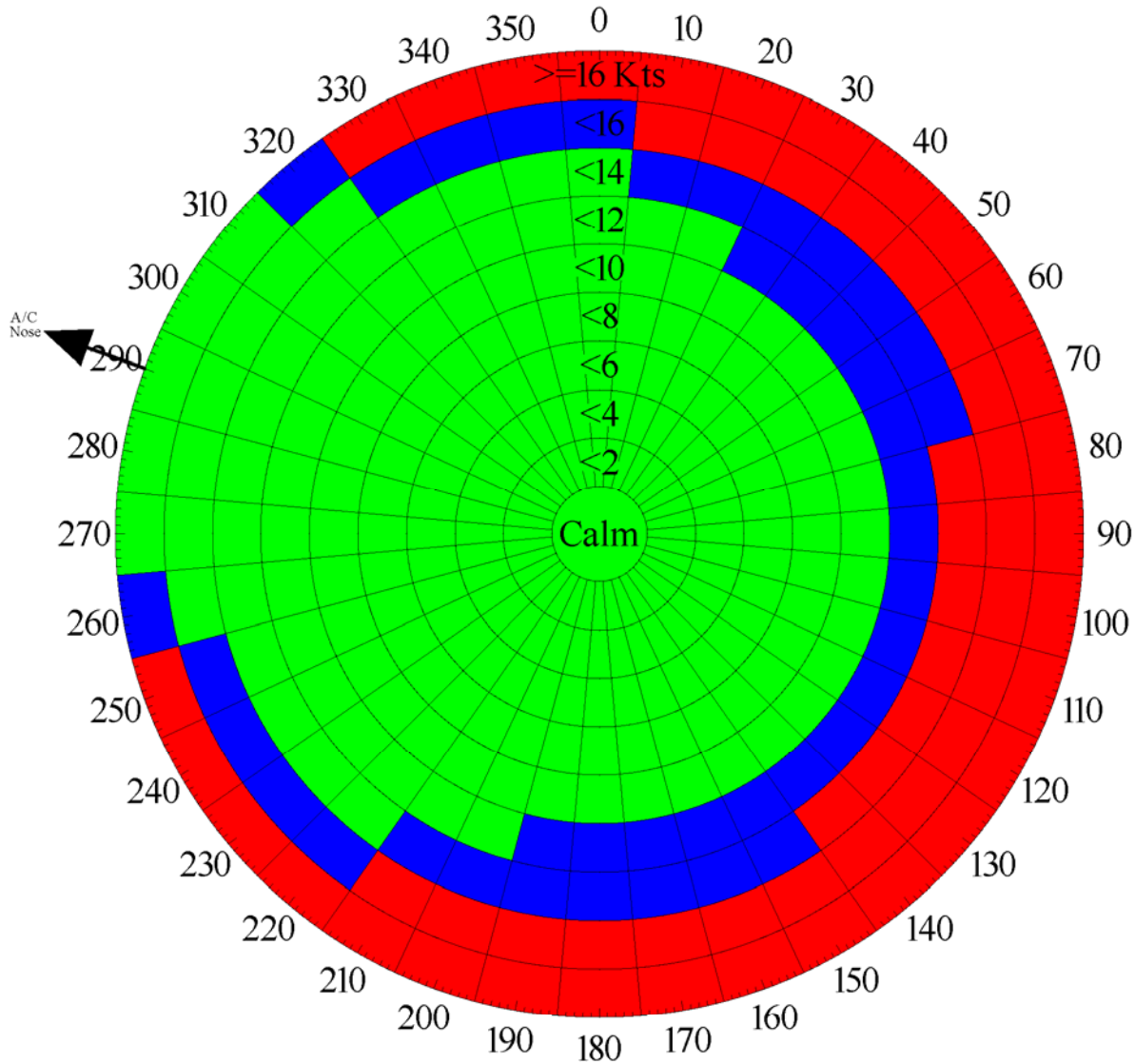
- High-Power Runs Possible
- High-Power Runs May be Possible (Dependent on Wind Stability & Engine Power Setting)
- High-Power Runs Unlikely

APPENDIX G.

Oakland, California GRE

Aerodynamic Usability Windrose

Aircraft: Turboprop



- High-Power Runs Possible
- High-Power Runs May be Possible (Dependent on Wind Stability & Engine Power Setting)
- High-Power Runs Unlikely

APPENDIX H.



Engine Maintenance Run-up Operations

Obtain authorization from Airside Operations prior to conducting any aircraft engine maintenance run-ups, excluding idle power run-ups.

Contact Airside Operations at (510) 563-3361.

Daytime (0700 hrs. to 2200 hrs. local)

North Field Aircraft: All engine maintenance run-ups above idle power must be performed at either the GRE or North Field/Hangar 6 Blast Fence unless an alternate location is authorized by the MOD.

Turbojet aircraft weighing above 75,000 pounds must use the GRE.

South Field Aircraft: All engine maintenance run-ups above idle power for aircraft in excess of 12,500, all turbojet aircraft, and all military/military surplus aircraft normally operating at the South Field complex must be performed at the GRE.

Nighttime (2200 hrs. to 0700 hrs. local)

Between 2200 and 0700 hrs local time, **all** engine maintenance run-ups above idle power **must be performed at the GRE** for aircraft in excess of 12,500 pounds, all turbojet aircraft, and all military/military surplus aircraft.

The Ground Run-up Enclosure (GRE) is normally available 24/7, year-round.

The time limit for engine maintenance run-ups is 90 minutes maximum if another aircraft operator(s) requests the use of the GRE.