Type Acceptance Report

TAR 13/21B/19

Gulfstream GVI (G650)

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Executive Summary

New Zealand Type Acceptance has been granted to the Gulfstream Aerospace Corporation Model GVI based on validation of FAA Type Certificate (TC) number T00015AT. There are no special requirements for import.

Applicability is currently limited to the Models and/or serial numbers detailed in Appendix 1, which are now eligible for the issue of an Airworthiness Certificate in the Standard Category in accordance with NZCAR §21.177, subject to any outstanding New Zealand operational requirements being met. (See Section 5 of this report for a review of compliance of the basic type design with the operating Rules.) Additional variants or serial numbers approved under the foreign type certificate can become type accepted after supply of the applicable documentation, in accordance with the provisions of NZCAR §21.43(c).

1. Introduction

This report details the basis on which Type Acceptance Certificate No.13/21B/19 was granted in the Standard Category in accordance with NZCAR Part 21 Subpart B.

Specifically the report aims to:

(a) Specify the foreign type certificate and associated airworthiness design standard used for type acceptance of the model(s) in New Zealand; and

(b) Identify any special conditions for import applicable to any model(s) covered by the Type Acceptance Certificate; and

(c) Identify any additional requirements which must be complied with prior to the issue of a NZ Airworthiness Certificate or for any subsequent operations.

2. ICAO Type Certificate Details

Manufacturer:	Gulfstream Aerospace Corporation
Type Certificate:	T00015AT
Issued by:	Federal Aviation Administration
Model(s):	GVI (G650)
MCTOW	99,600 lb. (45,178 kg)
Max. No. of Seats:	22 (19 passengers)
Noise Standard:	14 CFR Part 36, including amendments 36-1 through 36-28
Engine:	Rolls-Royce Deutschland BR700-725A1-12
	Type Certificate: E.018
	Issued by: European Aviation Safety Agency

3. Type Acceptance Details

The application for New Zealand type acceptance of the GVI (G650) was from the OEM, Gulfstream Aerospace Corporation. The first-of-type example was serial number 6043, registered ZK-KFB.

The GVI is a twin engine, transport category, large cabin, ultra high speed business jet with advanced avionics and flight control system. The cabin height is 6ft5 (1.95m) by 8ft6 (2.59m) wide and there are 16 large panoramic windows. It has a maximum range of 7000nm (12964km) at Mach 0.85 and a maximum operating Mach number of 0.925, with a maximum cruise altitude of 51,000ft. The aircraft has a maximum occupancy of 22, comprising 3 standard positions in the cockpit and up to 19 passengers in the main cabin. The standard aircraft includes advanced systems including an Enhanced Vision System (EVS) II, a Head Up Display, Synthetic Vision Primary Flight Displays (SV-PFD), Triplex Flight Management System, Automatic Emergency Descent Mode, 3-D weather radar, and a fly-by-wire flight control system.

Type Acceptance Certificate No. 13/21B/19 was granted on 30th September 2013 for the Gulfstream GVI (G650) based on validation of FAA Type Certificate T00015AT and STC number ST04252AT-D. (The BR700-725A1-12 engine is covered under Type Acceptance Certificate 10/21B/28.) Specific applicability is limited to the coverage provided by the operating documentation supplied. There are no special requirements for import into New Zealand.

Note: The type design approved under Type Certificate T00015AT is for a GVI green aircraft. This aircraft is released from production with no main cabin interior fit. Gulfstream then apply an Aircraft Service Change. This involves minor changes to display systems that present the G650 logo upon system power up and changes the aircraft data plate to identify the aircraft as a G650. All aircraft interiors are custom fitted by Gulfstream under a generic STC number ST04252AT-D, which is issued under ODA-511131-CE authorization.

4. NZCAR §21.43 Data Requirements

The type data requirements of NZCAR Part 21B Para §21.43 have been satisfied by supply of the following documents:

(1) ICAO Type certificate

FAA Type Certificate Number T00015AT

FAA Type Certificate Data Sheet Number T00015AT at Rev 4 dated 22 August 2013 – Model GVI approved 7 September 2012

(2) Airworthiness design requirements

(i) ***Airworthiness Design Standards:***

The certification basis of the GVI is 14 CFR Part 25 effective 1 February 1965 including amendments 25-1 through 25-120, 25-122, 25-124 and 25-132, including all FAA interpretations, guidance material and policies applicable to these amendments effective on the date of application for the Type Certificate.

Note; Amendment 25-118 was not published and therefore has no applicability. In addition, Gulfstream elected to comply with Amendment 25-124 as it pertains to cockpit voice and flight deck recorders, and Amendment 25-132 as it pertains to wide-spread fatigue damage.

This is an acceptable aircraft certification basis in accordance with NZCAR Part 21B Para §21.41 and Advisory Circular 21-1A, as 14 CFR Part 25 is the standard for Transport Category Airplanes called up under Part 21 Appendix C. The special conditions, equivalent safety findings and exemptions made by the FAA were reviewed and accepted by the CAA. There are no additional special conditions prescribed by the Director under §21.23.

*(ii)****Special Conditions****:*

25-416-SC Enhanced Flight Vision System – Conditions were applied to ensure that the Enhanced Flight Vision System (EFVS) imagery on the Head Up Display (HUD) does not degrade the safety of flight or interfere with the effective use of outside visual references for required pilot tasks during any phase of flight which it is to be used.

25-422-SC Electronic Flight Control System Mode Annunciation – Conditions were applied that Flight Control System mode annunciations were only necessary if the flight control system mode change affected the normal handling, or if the operational characteristics of the aeroplane are significantly changed or degraded.

25-423-SC High Incidence Protection Function – Conditions were applied pertaining to a high incidence protection system that replaces the stall warning system during normal operating conditions, prohibits the airplane from stalling, limits the angle of attack at which the airplane can be flown during normal low speed operations, and cannot be overridden by the flight crew.

25-427-SC Electronic Flight Control System: Control Surface Position Awareness – Some unusual flight conditions, such as those arising from atmospheric conditions, aircraft malfunctions, or engine failures, may result in full or near-full control surface deflection. As there is no direct coupling from the cockpit controller to the control surface, conditions were applied to ensure suitable flight control position annunciation is provided to the flight crew when a flight condition exists in which near full surface authority (not crew commanded) is being utilised. Simple alerting systems

which would annunciate either intended or unexpected control limiting situations must be properly balanced between providing necessary crew awareness and avoiding undesirable nuisance warnings.

25-428-SC Single-Occupant Side-Facing Seats – Conditions are applied for single-occupant side-facing seats as the relative forces and injury mechanisms affecting the occupants differ to those of standard forward or aft facing seats. The injury criteria are adjusted appropriately along with the pass/fail criteria. [Note, there is also an Exemption for Side Facing Divan.]

25-429-SC Automatic Speed Protection for Design Dive Speed – Conditions are applied for a high speed protection system that limits nose down pilot authority at speeds above VC/MC, and prevents the airplane from actually flying the manoeuvre required under § 25.335(b)(1).

25-433-SC Design Roll Manoeuvre Requirement for Electronic Flight Controls – Additional flight load conditions are required to account for the effects of an electronic flight control system that provides roll control through pilot inputs to the flight computers, not governed by the traditional control laws for which aileron deflection is proportional to control wheel deflection.

25-434-SC Interaction of Systems and Structures – The effects of systems that may affect the aircraft's structural performance and aeroelastic stability requirements either directly or as a result of system failure or malfunction, are accounted for by the application of conditions nearly identical to those previously required for other transport category aircraft. In some cases, reduced margins are allowed for failure conditions based on system reliability.

25-435-SC Operation Without Normal Electrical Power – Due to the GVI's numerous electrically operated systems whose function is needed for continued safe flight and landing, conditions were added to account for the adverse effects of operation without normal sources of engine and auxiliary power unit generated electrical power. The operation is considered at the critical phase of flight and includes the ability to restart the engines and maintain flight for the maximum diversion time capability being certified. The emergency electrical power systems must be able to power all loads considered essential for continued safe flight and landing.

25-436-SC Electronic Systems Security Isolation or Protection from Unauthorized Passenger Systems Access – The GVI incorporates digital system architectures composed of several connected networks, which may be used for or interfaced with a diverse set of functions. These include flight safety related control, communication and navigation systems, airline business and administrative support, passenger information and entertainment systems. Conditions have been applied to ensure isolation or protection from any adverse effect from any point within the passenger entertainment domain which may have access to, or an effect on the integrity and safety of flight essential systems. This will avoid exploitation of security vulnerabilities which increase risks potentially resulting in unsafe conditions for the aircraft and its occupants.

25-437-SC Electronic Systems Security Protection from Unauthorized External Access – The GVI has connectivity that provides access by external parties to the aircraft computer systems and networks. This connectivity could potentially exploit any security vulnerabilities. Conditions have been applied to prevent unauthorised access to the aircraft systems, preventing the unauthorised modification of aircraft system software and databases.

25-441-SC Limit Engine Torque Loads for Sudden Engine Stoppage – Due to the size, configuration and failure mode of the GVI's high bypass engines, conditions have been added in lieu of 25.361(b) regarding the load factors applied to the engine installations, engine mounts, pylons and adjacent supporting airframe structure. Clarification of the design criteria that applies to the auxiliary power units is included.

25-452-SC Pilot Compartment View Hydrophobic Coatings in Lieu of Windshield Wipers – Conditions are applied to maintain a clear portion of the windshield for both pilots during various precipitation conditions, at different airspeeds and considering lift/drag devices that affect

airflow over the windshield. Current regulations do not necessarily represent the limiting conditions for this new technology of hydrophobic windshield coatings (compared to windshield wipers and blowers).

25-455-SC Rechargeable Lithium-Batteries and Rechargeable Lithium-Battery Systems – Conditions are applied to maintain adequate and appropriate safety standards associated with the installation of rechargeable lithium batteries and rechargeable lithium-battery systems. In lieu of 25.1353(c)(1) through (c)(4) at amendment 25-42 lithium batteries and battery installations must be designed to meet standards which will account for known safety problems including overcharging, over-discharging, and cell-component flammability. Conditions also include the continued airworthiness requirements to ensure availability of electrical power from the batteries when needed.

(iii) ***Equivalent Level of Safety Findings***

A TC8700AT-T-A-5 § 25.331(c) Checked Pitch Manoeuvre – Certain pitch manoeuvre criteria were shown to be compliant with EASA CS 25.331(c), Amdt 2, in lieu of § 25.331(c). Previously, an input of control equal to the positive limit manoeuvring load factor displaced the aircraft in a nose up direction, then in the opposite direction. However, the EASA criteria specifies control input in the form of a sine wave as a baseline control motion, modified to achieve as closely as possible the specified aircraft load factors.

TC8700AT-T-A-6 § 25.341(b) Continuous Gust Design Criteria – Compliance was found with EASA CS 25.341(b), Amdt 2, in lieu of § 25.341(b) in order to accurately account for the distribution of turbulence in the atmosphere, in relation not only to stability augmentation systems, but to include the possibility of primary flight control systems and the aircraft itself exhibiting non-linearities. The EASA criteria require that any significant non-linearities are considered in a realistic or conservative manner.

TC8700AT-T-A-8 § 25.415 Ground Gust – Gulfstream demonstrated compliance with § 25.415 by following the EASA CS 25.415 (based on ARAC recommendation), which protects the flight control system from excessive peak ground wind loads when parked or taxiing downwind. EASA CS 25.415 removes ambiguities and also accounts for dynamic effects, essentially requiring higher control system and control surface design load requirements where appropriate.

TC8700AT-T-A-9 § 25.561(c), 25.721, 25.963(d), 25.994 Structural Integrity of Fuel Tanks for Emergency Landing Conditions and Landing Gear – Gulfstream demonstrated compliance with corresponding EASA CS-25 standards to those listed above, which are criteria developed by ARAC. The alternative standards will ensure that the conditions of landing gear tearing away are considered with a reasonable level of side load condition in addition to the upward and aft loads, that all combinations of gear up landing are addressed, and the emergency landing load factors already used in the operational fleet are achieved.

TC8700AT-T-A-16 § 25.629(d)(9) Failure Criteria Considered Under the Aeroelastic Stability Requirements of §25.629 – The aeroelastic stability requirements include consideration of § 25.671 and § 25.1309, whose ELOS' should be referred to for further discussion of the compensating design features and alternative standards. In demonstrating compliance, Gulfstream complied with the criteria in draft harmonised proposal from ARAC, including AC AMJ 25.671 Final Draft.

TC8700AT-T-S-17 § 25.671 Flight Control System Failure Criteria – The requirements of § 25.671 at amdt 25-23 are considered to be improved upon by recommendations from the Flight Controls Harmonisation Working Group ARAC and the draft harmonised AC AMJ 25.1309 ("ARSENAL" version). Gulfstream have complied with these proposed regulations and associated AC guidance in lieu of the existing regulations.

TC8700AT-T-C-1 § 25.807 (g)(1)(2)(3) & (i)(1)(2) Emergency Exits – The GVI incorporates two overwing exits per side in lieu of a single Type III exit. Each has a larger opening area than the standard Type III exit and incorporates the required Type III placarding. Further, multiple

redundant egress paths are incorporated, as well as Type I main entry door (not acceptable for ditching) and optimal exit locations within the pax compartment.

TC8700AT-T-C-10 § 25.809(a) Overwing Emergency Exits - Means for Viewing Likely Areas of Evacuee Ground Contact – The evacuation means from the GVI overwing exits is to slide off the leading edge of the wing, meaning at either overwing exit the exact point of ground contact is not viewable. The requirement to view the area of occupant ground contact from each emergency exit prior to opening the door is compensated by occupants effectively being able to assess the evacuation route by incorporation of large elliptical windows in each overwing exit hatch, the ability to use an alternate evacuation route (further outboard on the wing) and exterior emergency exit lighting.

AT5177AT-T-C-1, Rev. 1 §§ 25.811(d), 25.812(b) Emergency Exit Marking, Locator, and Bulkhead/Divider Signs – The wedge shaped exit locator/marking signs in combination with a separate exit marking sign have been found acceptable based on the passenger cabin aisle length and fuselage diameter. The signs background areas and heights are smaller on the GVI (similar to GV-SP and GIV-X) than those required by the original regulations but illumination levels of the signs were shown to meet the requirements.

TC8700AT-T-C-7 § 25.813(c)(2)(ii) Seat/Furnishing Encroachment Into the Overwing Emergency Exit Openings – The GVI has options to install seats and other furnishings adjacent to the overwing exits which can result in significant obstructions. Via Latin Squares testing the egress capabilities of a pair of overwing emergency exits has been shown to be equal or better than the egress capabilities of a standard, unobstructed Type III emergency exit. Compensating factors include multiple redundant exits, the optimal location of the exits, and a Type I main entry door.

TC8700AT-T-S-28 § 25.831(g) Acceptable High Temperature Physiological Environment During Failure Conditions – Gulfstream has met the intent of the regulation by demonstrating compliance with the ARAC Mechanical Systems Harmonisation Working Group report, showing through analysis that the body core temperature does not exceed the limits defined for failure events of the aircrafts environmental control system.

TC8700AT-T-S-23 § 25.841(b)(6) Cabin Pressurization – High Field Elevation Takeoff and Landing Operations – The regulation requires the cabin pressure altitude not to exceed 8,000ft, but Gulfstream are certifying the aircraft for takeoff and landing at airports with elevations up to 15,000ft. To avoid nuisance cabin altitude warnings the GVI provides various distinct settings based on field elevation. Additionally, the AFM informs pilots that the cabin pressure low warning is reset as a function of the landing field elevation, and requires supplemental oxygen procedures to be followed as necessary.

AT5080AT-T-P-1, Rev. 1 § 25.933 Flight Critical Thrust Reverser – Rather than demonstrate compliance with § 25.933(a)(1)(ii) which is intended to eliminate catastrophic failure due to inflight reverser deployment, the GVI (similar to the GIV-X) thrust reverser compliance is demonstrated by qualitative safety analysis that no single failure can result in catastrophic in-flight reverser deployment. This is supported by an FMEA to assembly level; average risk analysis that deployment will not occur in the G650 fleet life; a specific risk analysis which predicts that at the beginning of each flight the aircraft will continue to meet the "no single failure" criteria and that the risk of catastrophic in-flight deployment is less than $1x10^{-6}$ per flight hour. Compensating design assurance and continued airworthiness features have been shown to provide an equivalent level of protection.

TC8700AT-P-14 §§ 25.1182, 25.1183 Flammable Fluid Carrying Components in Nacelle Areas Behind the Firewall – The thrust reverser assembly contains tertiary hydraulic actuators and their hoses, which have not been shown to meet fire resistance requirements, however the thrust reverser installation provides isolation of the compartment from the engine fire zones via a

combination of a traditional firewall and a novel secondary fire shield. By means of test and representative analysis, an equivalent level of safety has been demonstrated.

TC8700AT-T-P-6 § 25.1203(a) Turbine Engine Tailpipe Fire Detection – In lieu of direct compliance of fire detection within the thrust reversers (which can be considered to act as tailpipe sections), compensating design features are incorporated in the thrust reverser installation. These include minimisation of fire risk from hydraulic fluid coming into contact with electrical wiring or components, the exhaust pipe surface not being an ignition source, only a minimum amount of hydraulic fluid able to leak into the tailpipe zone, firewalls in the aft cowl and pylon sections and a review of in-service data placing the occurrence of tailpipe fires due to hydraulic fluid leakage / ignition in the extremely improbable range.

TC8700AT-T-P-8 § 25.1203(d) Oil Fire Detection System – The oil fire detection function of the BR700-725A1-12 engine control system installed on the GVI model does not allow the crew to check its functioning during flight. However the system ensures that the engine does not overheat in case of an oil fire in the rear bearing chamber. The operating condition of the oil fire detection scheme is continuously monitored by the electronic engine control from power up and corresponding appropriate signals are sent to the crew advisory system. Therefore the intent of the regulation is met.

TC8700AT-T-S-9 §§ 25.1301, 25.1309 Equipment, Systems, and Installation Requirements: Use of ARAC Recommendations – ARAC have recommended changes to improve the existing § 25.1301 and 25.1309, creating a new § 25.1310. The GVI has demonstrated compliance with the clearer FAA/EASA harmonised guidance for this new regulation.

TC8700AT-T-S-37 §§ 25.1303(a)(3), 25.1327, 25.1547 Use of an Electric-Only Direction Indicator Standby Instrumentation – Gulfstream have replaced the non-stabilised magnetic compass literally referred to in the regulations with two electronic standby multifunction controllers (SMC) which utilise an attitude heading reference system (AHRS) and an external magnetometer. The use of an electric only direction indicator places a premium on availability of electrical power so the SMCs, AHRS and magnetometers are powered by the essential buses. To ensure availability of direction information, loss of heading function in the GVI is shown to be extremely improbable for the minimum time duration determined for operation without normal electric power. The sources and logic for the standby direction indicator are further design features enabling this ELOS. According to FAA policy regarding compliance to § 25.1547, with the GVI system, a calibration placard for the SMC is unnecessary.

TC8700AT-T-P-7 § 25.1305(c)(6) Fuel Filter Indication System – The lack of a required indicator of excessive pressure drop across the HP filter (located between the fuel flow meter and the combustor) is compensated by the LP filter having prior indication of both an impending bypass and bypass. In-service experience with the same LP/HP filtration system shows that the HP filter is not susceptible to blockage under normal in-service operation, and the maintenance procedure associated with an impending blocked LP filter includes inspecting the HP filter. Furthermore, the HP filter's primary purpose is to provide a final protection for the fuel burners when the LP fuel filter is in bypass mode, which has already been indicated to the crew.

TC8700AT-T-S-38 § 25.1325(c)(1) Pitot Tube Water Evaporation – Positive drainage of moisture as required by the regulation is not provided as the GVI Smart Probe system does not use conventional air data pneumatic tubes routed within the aircraft. However, there are short sections of pneumatic tubing contained within the Smart Probes. An equivalent level of safety is found as the probes contain monitored electric heaters that will prevent or eliminate moisture in the pitot static system, minimising the intrusion of moisture into any of the pressure transducer sensors associated with the three major components of air data provided by the probe.

TC8700AT-T-F-2 § 25.1517 Rough Airspeed Criteria – In lieu of showing compliance to the requirements of § 25.1517, Gulfstream have complied with the use of rough air speed criteria in accordance with EASA CS 25.1517, Amdt 2, which reflects the harmonised final rule recommended by ARAC.

TC8700AT-T-P-9 §§ 25.1549(a)(b)(c), Digital-Only Display of Engine High Pressure Rotor Speed – To demonstrate compliance with § 25.1549 the powerplant instrument ranges and limits "must be marked", which presumes an analogue type display format. The GVI presents the left and right engine high pressure rotor speed (known as N2 or HP) in digital-only format in order to conserve primary display space. To compensate for this, the GVI cockpit display system will continuously display the HP shaft speed indication in normal display mode and whenever there is an exceedance, will display digits/background in colours appropriate to the range (exceedence). The cockpit also includes a visible placard stating the operating limits of powerplant parameters, which when combined with the use of the GVI FADEC system and the HP display, provides a level of safety equivalent to that envisioned when the regulation was promulgated.

TC8700AT-T-P-3 Part 25 subpart E, F, and G, Adoption of Draft Harmonized Rules for APU Certification – Gulfstream has complied with the new 14 CFR 25 Appendix K requirements (defined in an FAA draft NPRM which references the EASA equivalent) rather than the current 14 CFR part 25 subpart E, F and G applicable regulations. This inherently demonstrates an equivalent (or possibly increased) level of safety as it represents a more stringent set of APU installation requirements.

TC8700AT-T-A-20 § 26.21 Widespread Fatigue Damage Limit of Validity (LOV) – The widespread fatigue damage rule became effective on January 14, 2011. The GVI meets the applicability criteria of § 26.21(a) at Amendment 26-25 and as a result requires a LOV of the engineering data supporting the structural maintenance program for the GVI, stated as a number of total accumulated flight cycles or flight hours or both. Further regulations allow an applicant for design changes (but not to new TC programs) to not meet applicable part 26 requirements if they comply with a corresponding amendment of part 25. Both § 25.571 at amdt 25-132 and § 26.21 at amdt 26-5 require the same LOV be established. The GVI has included § 25.571 at amdt 25-132 and by doing so has resulted in a design that provides an ELOS to § 26.21 at amdt 26-5. (Note that if the GVI program involved amending a TC instead of a new design, an ELOS would not be needed.)

(iv) ***Exemptions***

No. 9761, §§ 25.562(a) and 25.785(b) – Relief was granted from the general occupant protection requirements for multiple-place side-facing seats in the passenger compartment because the current regulations do not provide adequate criteria for evaluating them. The FAA considers this exemption to be in the public interest as more transport category airplanes are being configured for private use, not for common carriage, and it does not adversely affect the level of safety provided by the regulations. The exemption is subject to conditions; all injury protection criteria apply, but the HIC assessments are only required for head contact with the seat and/or adjacent structures; body to body contact is not allowed during the tests except for contact during rebound; compliance with thoracic trauma index injury criterion must be substantiated if the torso of an ATD at the forward-most seat place impacts the seat and/or adjacent structure during testing; if the pelvis of an ATD at any seat place impacts seat and/or adjacent structure during testing, pelvic lateral acceleration injury criteria must be substantiated; body-to-wall/furnishing contact must be considered if the seat is installed aft of a structure; where upper torso straps are used for sofa occupants, the tension loads in individual straps must not exceed specified loads; all side-facing seats require end closures or other means to provide occupant retention at any time during testing; certain test parameters must be met such as all seat positions are to be occupied by ATDs for the longitudinal tests.

No. 9940, § 25.1447(c)(1) High Landing Field Elevation (LFE) – Relief is granted from the requirement for passenger oxygen masks to be automatically presented before the cabin-pressure altitude exceeds 15,000 ft, as the GVI plans to operate into and out of airports with altitudes above 14,000 ft (up to 15,000 ft) and wishes to prevent nuisance deployment of the passenger oxygen masks. Therefore the passenger oxygen control system design will has a switch for "normal" automatic passenger mask activation at 14,750 ± 250 ft and a switch for "hi alt" automatic passenger mask activation at 15,750 ± 250 ft. The AFM include high LFE operational procedures.

No. 10188, § 25.813(e) Acoustic and Forward Vestibule Door – An exemption is granted to permit operations not limited to private use, with the installation of an interior door between

passenger seats that are occupiable for takeoff and landing and the forward left hand passenger emergency exit. The GVI design potentially incorporates two doors between the passenger seating areas and the main entry door; the acoustic door (standard equipment to maintain an acceptable acoustic level in the passenger cabin and pilot compartment) and the forward vestibule door (offered on certain interior configurations to provide isolation of the crew rest facilities and/or separation between passenger and crew areas including the galley, crew rest, and cockpit). Compensating features ensure that the design does not diminish a passengers' ability to effectively identify the exit and egress the aircraft. [Note, EASA CS 25.813 regulation is not currently harmonised with § 25.813 and does not restrict these types of door installations. Regardless, the FAA granted the extension of the exemption for operation outside of the USA to allow for operations based within foreign countries, including EU member countries, having bilateral agreements with the USA accepting 14 CFR Part 25 as their airworthiness standard for transport category aircraft, such as New Zealand.]

No. 10387, § 25.981(a)(3) Fuel Tank Ignition Prevention – An exemption was granted from the requirements as they relate to structural lightning protection on Gulfstream Model GVI airplanes based upon criteria in FAA Policy Memo ANM-112-08-002 Policy on Issuance of Special Conditions and Exemptions Related to Lightning Protection of Fuel Tank Structure, dated 26 May 2009. The GVI has been shown to have fuel tanks with low flammability, manufacturing and airplane maintenance procedures that limit the likelihood of structural failures or defects that could create an ignition source, and any fuel tank explosion resulting from structural failures is found to be extremely improbable.

No. 10614, § 25.901(c) Uncontrollable High Thrust (see TCDS Note 15) – Partial relief was granted for no more than 4 years to allow type certification of the GVI airplanes equipped with Rolls-Royce Deutschland BR700-725A1-12 engines, without showing compliance with regulations as they relate to single point failures resulting in uncontrollable high-thrust conditions. It has been shown that there are no greater risks than those currently known and accepted for comparable airplanes within the current transport fleet.

(v) Additional Design Requirements and Conditions

The FAA included additional information around design requirements and conditions that needed to be considered as part of the type certification approval. Refer to TCDS T00015AT for detailed information on the information topics below:

- Class B Cargo Compartment
- Fire extinguishing and wiring connections
- In flight engine re-start
- Fuel Vent system fuel protection
- Fan blade out wind milling decent profile
- Return landing capability
- Yaw Oscillations.

(vi) Airworthiness Limitations

Airworthiness limitations and time limits are defined in Gulfstream GVI Maintenance Manual:

- Airworthiness Limitations: Chapter 5, 05-10-10
- Time Limits: Chapter 5, 05-10-00

(3) Aircraft Noise and Engine Emission Standards

(i) Environmental Standard

The GVI has been certificated under 14 CFR Part 34, including Amendments 34-1 through 34-4, and 14 CFR Part 36, including Amendments 36-1 through 36-28.

(ii) *Compliance Listing*

Noise compliance is provided in Gulfstream Noise Certification Report GVI, GVI-GER-6654

Part 36 Stage 4:
Lateral: 89.8 EPNdB Approach: 88.3 EPNdb Flyover: 77.5 EPNdB

Emissions Compliance is defined in ICAO Engine Exhaust Emissions Data Bank ID: 11BR011

(4) Certification Compliance Listing

GVI Compliance Checklist for 14 CFR Part 25 – Report No. GVI-GER-1667

GVI Issue Papers:

Issue Paper	Issue Paper Title	Type	Status
A-1	Damage Tolerance Requirements for Metal-to-Metal Bonded Joints	MOC	Closed
A-2	Interaction of Systems and Structures	SC	Closed
A-3	Limit Engine Torque Loads for Sudden Engine Stoppage	SC	Closed
A-4	Design Roll Manoeuvre Requirement	SC	Closed
A-5	Check pitch manoeuvre	ELOS	Closed
A-6	Continuous Gust Design Criteria	ELOS	Closed
A-7	Automatic Speed Protection for Design Dive Speed	SC	Closed
A-8	Ground gust	ELOS	Closed
A-9	Structural Integrity of Fuel Tanks for Emergency Landing Conditions and Landing Gear	ELOS	Closed
A-10	Flutter following the Loss of a Winglet	MOC	Closed
A-11	Protection of Structure in Fire Zones	MOC	Closed
A-12	Composite Material Allowables	MOC	Closed
A-13	Compliance Issues Associated with a High Design Dive Mach Number (Md = 0.99M)	MOC	Closed
A-14	Flammability Substantiation of Electronic Equipment	ELOS	Closed
A-15	Certification of Structural Elements in Systems	MOC	Closed
A-16	Failure Criteria Considered Under the Aeroelastic Stability Requirements of § 25.629	ELOS	Closed
A-17	Certification and Continued Airworthiness of Unbalanced and Mass Balanced Control Surfaces	MOC	Closed
A-18	Aeroelastic Stability Envelopes For Takeoff, Approach, and/or Landing Configurations	MOC	Closed
A-19	Flammability Test Procedures	MOC	Closed
A-20	Widespread Fatigue Damage Limit of Validity	ELOS	Closed
A-21	Freedom from Widespread Fatigue Damage	MOC	Closed
A-22	Material Strength Properties and Material Design Values	IOR	Closed
C-1	Emergency Exits	ELOS	Closed
C-2	Class B Cargo Compartment and Hand Held Fire Extinguishers	KU	Closed
C-3	In-Flight Access to Baggage Compartment	MOC	Closed
C-4	Interior Doors Installed Between Passenger Seats and Exit Doors	ELOS	Closed
C-5	Fiber Optic Viewport at the Main Entry Door	SC	Closed
C-6	Dynamic Test Requirements for Single Place Side-Facing Seats	SC	Closed
C-7	Seat/Furnishing Encroachment Into the Over-wing Emergency Exit Openings	ELOS	Closed

C-8	Seat/Furnishing Deformation Into the Over-wing Emergency Exit Openings	MOC	Closed
C-10	Over wing exit viewing – (25.809)	MOC	Closed
F-1	Return Landing Capability	MOC	Closed
F-2	Rough Air Speed Criteria	ELOS	Closed
F-3	Takeoff Speed Margin Criteria	ELOS	Closed
F-4	High Incidence Protection Function	SC	Closed
F-5	Electronic Flight Control System: Flight Characteristics Compliance via Handling Qualities Rating Method	MOC	Closed
F-6	Flight Test Considerations for High Mach Number Evaluations	IOR	Closed
F-7	Emergency Egress for Flight Test Crew Members during the GVI Flight Test Program	IOR	Closed
F-8	Prerequisites for FAA Flight Test	IOR	Closed
F-9	Pilot's Non-openable Window	MOC	Closed
F-10	Human Factors Certification Process for the GVI Program	IOR	Closed
F-11	Electronic Flight Control System: Alternate, Direct, and Backup Mode Testing	MOC	Closed
F-12	Pilot-Induced Oscillations	MOC	Closed
G-1	Certification Basis	General	Closed
G-5	Administrative Collector Issue Paper	ACIP	Closed
G-6	Type Design Data in a Digital Format	MOC	Closed
G-7	Qualification Standards for GVI and “Carry-Over” Equipment	MOC	Closed
M-1	Initial Maintenance Program Development Process	MOC	Closed
O-1	Master Minimum Equipment List	MOC	Closed
O-2	Forward Observers Seat and Associated Systems	MOC	Closed
O-3	Pilot Type Rating, Training, Checking and Currency Requirements	MOC	Closed
O-4	Operational Suitability Evaluation	MOC	Closed
O-5	Flight Crew Sleeping Facilities	MOC	Closed
P-1	Management of Fuel Usage and Loading	MOC	Closed
P-2	Fire Extinguishing Plumbing and Wiring Connections	KU	Closed
P-3	Adoption of Draft Harmonized Rules for APU Certification	ELOS	Closed
P-4	Inflight Engine Restart	MOC	Closed
P-5	Fuel Vent System Fire Protection	KU	Closed
P-6	Turbine Engine Tailpipe Fire Detection	ELOS	Closed
P-7	Fuel Filter Indication System	ELOS	Closed
P-8	Oil Fire Detection system	ELOS	Closed
P-9	Digital-Only Display of Engine High Pressure Rotor Speed	ELOS	Closed
P-10	Engine Damage From Wing Ice Caused by Cold Soaked Fuel	MOC	Closed
P-11	Ground Fault Interrupter Protection for Fuel Tank Mounted Fuel Boost Pumps	MOC	Closed
P-12	Fan Blade Out/Windmilling Descent Profile	KU	Closed
P-13	Uncontrollable High Engine Thrust	MOC	Closed
P-14	Flammable Fluid Carrying Components in Nacelle Areas Behind the Firewall	ELOS	Closed
S-1	Time of Arrival Control	MOC	Closed
S-2	Integrated Standby Instrumentation - Standby Multifunction Controller	MOC	Closed
S-3	Achieving Software Structural Coverage at the Object Code Level	MOC	Closed
S-4	Oversight of Suppliers of Airborne Systems and Equipment Containing Software	MOC	Closed
S-5	Aircraft System Security for the Aircraft control Domain and Airline Information Services Domain from Internet and Operator Network Access and Electronic Transmission of Field-Loadable Software Applications and Databases	SC	Closed
S-6	Management of Software Problem Reports	MOC	Closed
S-7	Control Labelling	MOC	Closed
S-8	Isolation or Protection of Aircraft Control Domain and Airline Information Services Domain from the Passenger Information and Entertainment Services Domain	SC	Closed
S-9	Use of ARAC Proposal for 25.1309	ELOS	Closed
S-10	Use of Model-Based Development (MBD) Methods and Tools	MOC	Closed

S-11	Use of Object Oriented Technology (OOT) Methods and Tools	MOC	Closed
S-12	Assurance of Simple and Complex Electronic Hardware (Programmed Logic Devices)	MOC	Closed
S-13	Software Aspects of Airborne Systems & Equipment Certification	MOC	Closed
S-14	Developing Software for Reuse	MOC	Closed
S-15	Operation without normal electrical power	SC	Closed
S-16	Electronic Flight Control System: Control Surface Position Awareness	SC	Closed
S-17	Flight Control System Failure Criteria	ELOS	Closed
S-18	Backup Flight Control Unit (BFCU)	MOC	Closed
S-19	Cursor Control Device	MOC	Closed
S-20	Guidance for Approval of Display Systems and Reversionary Modes	MOC	Closed
S-21	Lithium Ion Battery Installation	SC	Closed
S-22	Runway Excursion Hazard Classification	MOC	Closed
S-23	Cabin Pressurization - High Field Elevation Takeoff and Landing Operations	ELOS	Closed
S-24	Command Signal Integrity	MOC	Closed
S-25	Yaw Oscillations	KU	Closed
S-26	In-flight Ice Detection Advisory	MOC	Closed
S-27	Ice Protection above 35,000 feet	MOC	Closed
S-28	Acceptable High Temperature Physiological Environment During Failure Conditions	ELOS	Closed
S-29	Electric Main Entry Door	MOC	Closed
S-30	Critical Displays and Flight Control in All Attitudes	MOC	Closed
S-31	Certification of an Enhanced Vision System for Use as an Enhanced Flight Vision System	MOC	Closed
S-32	Pilot Compartment View Requirements for the Enhanced Flight Vision System	SC	Closed
S-33	Flight Control computer Mode Change Awareness /Annunciation	SC	Closed
S-34	Solid State Power Controllers	MOC	Closed
S-35	Runway Awareness Advisory System	MOC	Closed
S-36	System Installation and Human Factors on Head-Up Display	MOC	Closed
S-37	Use of an Electric-Only Direction Indicator for Standby Instrumentation	ELOS	Closed
S-38	Pitot-Static System Moisture Control	ELOS	Closed

(5) Flight Manual

FAA Approved Airplane Flight Manual Gulfstream GVI (G650), GAC-AC-G650-OPS-001 Rev 5 or later, CAA Accepted as AIR 3259

(6) Operating Data for Aircraft and Engine

(i) Maintenance Manual:

Gulfstream GVI (G650) Maintenance Manual, Rev 3, including Temporary Revisions R 5-1 and 36-1, or later.
Gulfstream GVI (G650) Systems Description Manual, Rev 1 or later
Gulfstream GVI (G650) Structural Repair Manual, Rev – Basic Issue or later
Gulfstream GVI (G650) Wiring Diagram Manual, Rev 1 or later
Gulfstream GVI (G650) Fault Isolation Manual, Rev 1 or later
Gulfstream GVI (G650) Quick Reference Cards, 31 Aug 12, or later

(ii) Current service Information:

Gulfstream G650 Advanced Information Notice Index (web based)
Gulfstream G650 Aircraft Service Changes (web based)
Gulfstream G650 Customer Service Bulletin (web based)

Data access is available to CAA at www.mygulfstream.com

(iii) Illustrated Parts Catalogue:
Gulfstream GVI (G650) IPC, Rev 1 or later

(7) Agreement from manufacturer to supply updates of data in (5) and (6)

CAA 2171 from Gulfstream Senior Manager dated 19/08/13

(8) Other information

Gulfstream GVI Electrical Loads Analysis (Production Standard), GVI-GER-6818
Gulfstream Maintenance/Operational/Placarding Procedures Manual, doc GVI-0 Initial issue or later
Gulfstream G650 Weight and Balance Manual, rev 3 or later
Gulfstream GVI (G650) Aircraft Operating Manual, rev 3 or later
Gulfstream G650 Performance Handbook, GAC-AC-G650-OPS-0003A, rev 2 or later
Gulfstream G650 Quick Reference Handbook, GAC-AC-G650-OPS-0003, rev 3.1 or later

5. Additional New Zealand Requirements

As noted in Section 3, the final aircraft configuration for the GVI (G650) is defined by FAA TCDS T00015AT representing a green aircraft. The aircraft interior is then completed under FAA STC ST04252AT-D.

Compliance with the following additional NZ operating requirements has been reviewed and found to be covered by either the original certification requirements, the basic build of the green aircraft, or the supplemental type certificate for GVI (G650) serial number 6043, except as highlighted below. Any subsequent GVI (G650) to be registered in New Zealand with a different interior configuration will require a revision to the Supplemental Type Certificate and further compliance determination.

Civil Aviation Rules Part 26

Subpart B – Additional Airworthiness Requirements

Appendix B – All Aircraft

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
B.1	Marking of Doors and Emergency Exits	14 CFR §25.811 Amdt 25-88 14 CFR §25.813 Amdt 25-116 An Equivalent Safety Finding has been made for §25.811(d) as documented in TAD ELOS Memo No. AT5177AT-T-C-1 *Note 1*
B.2	Crew Protection Requirements – CAM 8 Appx. B # .35	Not Applicable – Agricultural Aircraft only

Appendix C – Air Transport Aeroplanes – More than 9 Pax

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
C.1	Doors and Exits – operable – unobstructed	14 CFR Part 25 §25.809(b) Amdt 25-116 An Equivalent Safety Finding has been made for §25.813(c)(2)(ii) as documented in TAD ELOS Memo No. TC8700AT-T-C-7 *Note 1*
C.2.1	Additional Emergency Exits – per FAR 23.807(b) @ 10.5.93	Not applicable, meets 14 CFR Part 25 requirements
C.2.2	Emergency Exit Evacuation Equipment – Descent means	14 CFR Part 25 §25.810(a) Amdt 25-114
C.2.3	Emergency Exit Interior Marking – Size/self-illuminating	14 CFR Part 25 §25.811 Amdt 25-88 14 CFR Part 25 §25.812 Amdt 25-116 An Equivalent Safety Finding has been made for §25.811(d) as documented in TAD ELOS Memo No. AT5177AT-T-C-1. *Note 1*
C.3.1	Landing Gear Aural Warning – Automatic Flap Linking	14 CFR Part 25 §25.729(e) Amdt 25-72

Note 1: Other aircraft interior configurations require compliance determination on an individual aircraft basis.

Civil Aviation Rules Part 91

Subpart F – Instrument and Equipment Requirements

PARA:	REQUIREMENT:		MEANS OF COMPLIANCE:	
91.505	Seating and Restraints – Safety belt/Shoulder Harness		14 CFR Part 25 §25.785 Amdt 25-88 *Note 1*	
91.507	Pax Information Signs – Smoking, safety belts fastened		14 CFR Part 25 §25.791 Amdt 25-72 *Note 1*	
91.509 Min. VFR	(1) ASI (2) Machmeter (3) Altimeter (4) Magnetic Compass (5) Fuel Contents (6) Engine RPM (7) Oil Pressure	§25.1303(b)(1) Amdt 25-90 §25.1303(c)(2) Amdt 25-90 §25.1303(b)(2) Amdt 25-90 §25.1303(a)(3) Amdt 25-90 See ELOS TC8700AT-T-S-37 §25.1305(a)(2) Amdt 25-115 §25.1305(c)(3) Amdt 25-115 §25.1305(a)(4) Amdt 25-115	(8) Coolant Temp (9) Oil Temperature (10) Manifold Pressure (11) Cylinder Head Temp. (12) Flap Position (13) U/c Position (14) Ammeter/Voltmeter	Not Applicable – Turbofan §25.1305(a)(6) Amdt 25-115 Not Applicable – Turbofan Not Applicable – Turbofan §25.699 Amdt 25-23 §25.729(e) Amdt 25-75 §25.1351(b)(6) Amdt 25-72
91.511 Night	(1)Turn and Slip (2) Position Lights	§25.1303(b)(4) Amdt 25-90 §25.1389 no Amdt	(3) Anti-collision Lights (4) Instrument Lighting	§25.1401 Amdt 25-41 §25.1381 Amdt 25-72
91.513	VFR Communication Equipment		See equipment listed under IFR Communication	
91.517 IFR	(1) Gyroscopic AH (2) Gyroscopic DI (3) Gyro PowerSupply (4) Sensitive Altimeter	§25.1303(b)(5) Amdt 25-90 §25.1303(b)(6) Amdt 25-90 §25.1331(a) Amdt 25-41 §25.1303(b)(2) Amdt 25-90	(5) OAT (6) Time in hr/min/sec (7) ASI/Heated Pitot (8) Rate of Climb/Descent	§25.1303(a)(1) Amdt 25-90 §25.1303(a)(2) Amdt 25-90 §25.1323(h),(i) Amdt 25-109 §25.1303(b)(3) Amdt 25-90
91.519	IFR Communication and Navigation Equipment		Communication: 2 x VHF (SELCAL+ACARS), 1 x VHF via NAV), 2 x HF (SELCAL), 1 x SATCOM Navigation: Honeywell PlaneView Advanced Flight Deck System including as standard: 3 x IRS, 2 x AHRS, 4 x ADS, 2 x GNSS, 3 x NAV (ILS/VOR/DME), 1 x ADF and 3 x FMS.	
91.523 Emrgcy Eqpmt.	(a) More Than 9 pax - First Aid Kits per Table 7 - Fire Extinguishers per Table 8 (b) More than 20 pax - Axe readily accessible to crew (c) More than 61 pax - Portable Megaphones per Table 9		*Operating Rule – Compliance to be determined by Operator* *Operating Rule – Compliance to be determined by Operator* Not applicable – max 19 pax Not applicable – max 19 pax	
91.529	(a) ELT - TSO C126 406 MHz after 22/11/2007		Artex 406 MHz ELT-200 fitted – meets TSO C126	
91.531	Oxygen Indicators - Volume/Pressure/Delivery		(1)(i) & (2): 14 CFR Part 25 §25.1441(c) no Amdt 14 CFR Part 25 §25.1449, no Amdt (1)(ii): 14 CFR Part 25 §25.841(b)(6) Amdt 25-87 An Equivalent Safety Finding has been made for operations at high landing field elevation airports as documented in ELOS Memo No. TC8700AT-T-S-23 See NZ CAA exemption 14/EXE/22 *Note 1*	
91.533	Supplemental Oxygen Unpressurised Aircraft		Not applicable – G650 is a pressurised aircraft	
91.535 Press. A/c	(a)(1) Flight Crew Member On-Demand Mask (2i)Crew Member - Pax Oxygen Mask (2ii) Set of Portable PBE (3) Spare Oxygen Masks/PBE (4) Supplement Oxygen (5) Quantity of Oxygen (greater of i, ii, iii, iv) (b) Oxygen quantity calc accounts for relevant times (c) Above FL250 (1) Quick donning Crew On-Demand Mask (2i) Supplemental O_2 Masks for all Pax/Crew (2ii) Supplemental Mask in Washroom/Toilet (3) 15 min PBE (d) Above FL300 (1)Total Outlets Exceed Pax by 10% (2) Extra Units Uniformly Distributed (3) Automatically Presented Above FL140		(a)(1): 14 CFR Part 25 § 25.1447(c) Amdt 25-116. Quick donning pressure demand masks for each flight crew member in support of operations above 30,000ft as included in part (c) and (d) below. (a)(2)(3): STC ST04252AT-D complies with 14 CFR Part 25 §25.1447 Amdt 25-116 (a)(4)(5)(b)(1)(2): Certified for flight up to and including 51,000ft. Complies with 14 CFR Part 25 §25.841(a)(2) Amdt 25-87 requirements in part via decompression and emergency descent performance analysis. Crew Oxygen System is sized for a flight crew of 3 and the passenger oxygen controller is sized to support maximum 19 passengers plus 10% overage as required by 14 CFR Part 25 §25.1443 (refer to GVI-GER-6528). (c)(1): 14 CFR Part 25 §25.1447(c) Amdt 25-116 as stated above in (a)(1). (c)(2)(3): STC ST04252AT-D complies with 14 CFR Part 25 §25.1447(c) Amdt 25-116 (d)(1)(2): STC ST04252AT-D complies with 14 CFR Part 25 §25.1447(c) Amdt 25-116 (d)(3): 14 CFR Part 25 §25.1447(c)(1) Amdt 25-116. Certified for operation into and out of airports up to and including 15,000ft landing field elevation. As detailed in Part 4 of this	

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
	(4) Manual Means of Deploying Pax Masks	report, FAA Exemption # 9940 was granted allowing an oxygen deployment altitude in excess of 15,000ft. See NZ CAA exemption 14/EXE/22 (d)(4): 14 CFR Part 25 §25.1447(c)(1) Amdt 25-116 *Note 1*
91.541	SSR Transponder and Altitude Reporting Equipment	Honeywell XS858 Transponder installed
91.543	Altitude Alerting Device - Turbojet or Turbofan	Honeywell PlaneView Advanced Flight Deck System includes altitude alerting function
91.545	Assigned Altitude Indicator	Not Applicable – Altitude Alerting Device fitted
A.15	ELT Installation Requirements	Refer to 91.529 compliance

Note 1: Other aircraft interior configurations require compliance determination on an individual aircraft basis.

Civil Aviation Rules Part 125

Subpart F - Instrument and Equipment Requirements

PARA:	REQUIREMENT:		MEANS OF COMPLIANCE:
125.355	Seating and Restraints		14 CFR Part 25 §25.785 Amdt 25-88 *Note 1*
125.357	Additional Instruments (Powerplant instruments)		14 CFR Part 25 §25.1305 Amdt 25-115
125.359	Night Flight	Landing light Pax compartment	Landing Light: 14 CFR Part 25§25.1383 no Amdt Pax Lighting: 14 CFR Part 25§25.1383 Amdt 25-116 *Note 1*
125.361	IFR Operations	Speed & Alt Spare bulbs/fuses	14 CFR Part 25 §25.1303 Amdt 25-90, secondary system includes dual independent standby and multifunction controller with dual independent AHRS and air data system *Operating Rule – Compliance to be determined by Operator*
125.361	SE IFR Requirements		Not Applicable
125.363	Emergency Equipment (Part 91.523 (a) and (b))		*Operating Rule – Compliance to be determined by Operator*
125.365	Public Address and Crew Member Intercom System		PA: 14 CFR Part 25 §25.1423 Amdt 25-115 *Note 1* Cockpit Audio: 3 Audio Panels are installed
125.367	Cockpit Voice Recorder Appendix B.3 requires TSO C84/C123		14 CFR Part 25 §25.1457 Amdt 25-124, meets TSO C123a
125.369	Flight Data Recorder Appendix B.4 requires TSO C124		14 CFR Part 25 §25.1459 Amdt 25-124, meets TSO C124
125.371	Additional Attitude Indicator (third)		14 CFR Part 25 §25.1303 Amdt 25-90,secondary system includes dual independent standby and multifunction controller with dual independent AHRS
125.373	Weather Radar Appendix B.6 requires TSO C63		Honeywell RDR-4000 Radar System meets TSO C63
125.375	Ground Proximity Warning System Appendix B.7 requires TSO C92		Honeywell EGPWM fitted meets TSO C151a Class A and TSO C92c as applicable
125.377	AEDRS		Not Applicable – Not a single-engine aeroplane
125.379	Terrain Awareness and Warning System (TAWS) Appendix B.9 requires TSO C151a or b		Dual MAU installed in Honeywell Primus system are certified for EGPWM to TSO C151a Class A
125.381	Airborne Collision Avoidance System (ACAS II) Appendix B.10 requires TSO C118/119a or C119b		TCAS 3000 (RT951) installed is certified to TSO C119b

Note 1: Other aircraft interior configurations require compliance determination on an individual aircraft basis.

Attachments

The following documents form attachments to this report:

Three-view drawing

Sign off

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Beth Coughlan	Checked - Ray Harvey
Airworthiness Engineer	Airworthiness Engineer
30th September 2013	30th September 2013

Appendix 1

List of Type Accepted Variants:

Model:	*Applicant:*	*CAA Work Request:*	*Date Granted:*
GVI (G650)	Gulfstream Aerospace Corporation	13/21B/19	30th September 2013

Attachment 1 – Three-view drawing