



CURRENT REVISION				
REV	ECO NUMBER	DATE	ORIGINATOR	
P	C54467	3/23/2020	S. Peterson	
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<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">  </div> <div style="text-align: right;"> <p>Gogo LLC 111 North Canal Suite 1500 Chicago, IL 60606</p> <p>Gogo LLC 814 W South Thorndale Avenue Bensenville, IL 60106</p> </div> </div>				
PREPARED BY Scott Peterson		TITLE:		
<p>DOCUMENT APPROVALS ARE ELECTRONIC AND ARE MAINTAINED IN THE CONFIGURATION MANAGEMENT DATABASE SYSTEM (AGILE)</p>		<h2>Supplier Quality Requirements</h2>		
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Revision History

Revision	Date	ECO Number	Change Description	Prepared By
P	3/23/2020	C54467	<ul style="list-style-type: none"> • Section 3 – Added additional ways to document waivers/exceptions • Section 4 – Added new acronyms • Table 1 – Added “X” for B006 to Aircraft Maintenance & Installation, Added B034, B035, & B036 • A004 – Rephrased • A005 – If there are multiple POs, ship against earliest • A008 – Containment due in 10 business days • B001 – Clarified request for OASIS Level 2 access • B002 – Distributors certified to AS6081 & parts tested to AS6171 • B003 – FAI clause rewritten to clarify Gogo requirements • B004 – Changed reference from NCR to Ship Short, added CFE note, added requirement for physical copy of CoC in shipment • B010 – Added requirement to take action when necessary and to submit quarterly process capability reports • B014 – Increased DV submittal to 10 days prior to delivery, DVs now to be submitted in Agile rather than the DV form • B016 – Clarified shelf life marking on containers • B018 – Removed reference to an NCR for Ship Shorts • B019 – Packing List copy to be placed on outside of outermost container and inside the container. Part number, Revision, and Serial Number shall be traceable to the line item • B020 – Added overpacking in suitable containers (i.e. Gaylord), use of “Do Not Stack” cones, identified when pallets are required, and added packing/labeling of unit containers • B021 – Clarified what “design data” needs to be submitted. Clarified ECR vs. ECO statement. • B024 – Removed reference to DV form D20157 • B032 – Merged bullets #3 & 4 into bullet #2 • B033 – Added quarterly submittal and requirement to maintain control of the process • B034 – New clause, LRU Data Delivery • B035 – New clause, Traceability for CFE • B036 – New clause, First Pass Yield 	Scott Peterson


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1 Purpose

This document defines quality assurance requirements for suppliers providing airborne articles and services to Gogo.

2 Scope

This document applies to Gogo approved suppliers of airborne articles; hardware, material, Line Replaceable Units (LRUs), Shop Replaceable Units (SRUs), electrical and mechanical assemblies and sub-assemblies, software, and services. This document is subject to incorporation into contractual documents.

All specifications and documents referred to herein, and identified for use, shall be of the most current revision.

3 Responsibilities

Gogo Aviation Quality is responsible for updating, maintaining, and ensuring compliance to this document.

Gogo Supply Chain and/or Gogo Aviation Quality is responsible for providing this document to potential and current suppliers.

Gogo Suppliers are responsible for implementing requirements defined within this document (as applicable). Any exceptions or waivers to these requirements will be documented and approved by Gogo Aviation Quality on any of the following:


- D14560 Supplier Quality System Survey
- D20569 Supplier Evaluation Form
- Contractual Documents
- A signed letter from Gogo Quality noting the exception or waiver

Suppliers are also responsible for ensuring the competence of personnel performing work and that personnel are aware of their contribution to product or service conformity, product safety, and the importance of ethical behavior.

4 Acronyms and Definitions

These acronyms and definitions apply to this document.


Term	Meaning
Airborne Articles	Production Articles manufactured or procured for installation onto aircraft. (Scope: COTS, Production Article (Active) & Production Article (Passive))
Aircraft Installation Service	Suppliers that provide aircraft installation services for Gogo systems. These suppliers may install or upgrade/modify existing Gogo system installations.
Aircraft Maintenance Service	Suppliers that provide aircraft maintenance support services for Gogo systems. These suppliers troubleshoot, remove and replace Gogo LRUs, and provide general maintenance and repair services for Gogo systems.
ALT	Accelerated Life Testing

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ASL	Approved Supplier List
ATA	Air Transport Association of America
ATP	Acceptance Test Procedure
BOM	Bill of Materials
C of C	Certificate of Conformity
CAA	Civil Aviation Authority
Calibration Service	Services used to ensure/certify calibration of Gogo equipment and tools directly related to airborne article testing/inspection, Gogo system installation or servicing on aircraft. Note: Does not apply to calibration services for developmental engineering efforts or non-aircraft functions, such as ground equipment servicing.
CCA	Circuit Card Assembly
CFE	Customer Furnished Equipment
CMDB	Configuration Management Data Base
COTS	Commercial-Off-The-Shelf. These articles include standard parts and components that are commercially available (i.e. screws, nuts, bolts, rivets, etc.)
Counterfeit Parts	Any parts containing unlawful or unauthorized reproductions, substitutions, or alterations that have been knowingly mismarked, misidentified, or otherwise misrepresented to be an authentic, unmodified part from the original manufacturer, or a source with the express written authority of the original manufacturer, such as an approved aftermarket distributor.
Cp/Cpk	Process capability measurements used to evaluate whether a process is centered and under statistical control
CTS	Component Technical Specification
DFMEA	Design Failure Modes & Effects Analysis
DMSMS	Diminishing Manufacturing Sources and Material Shortages
DSA	Direct Ship Authorization
ERAI	Electronics Resellers Association International
ERP	Enterprise Resource Planning
ESD	Electrostatic Discharge
ESS	Environmental Stress Screening
FAA	Federal Aviation Administration
FAI	First Article Inspection
FAIR	First Article Inspection Report
FMEA	Failure Modes and Effects Analysis
FOD	Foreign Object Debris/Detection/Damage
FPY	First Pass Yield
FRACAS	Failure Reporting Analysis and Corrective Action System
GIDEP	Government-Industry Data Exchange Program
IAW	In Accordance With
ICOP	Independent Industry Controlled Other Party

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LRU	Line Replaceable Unit
LTL	Less Than Load / Less Than Truckload
MRB	Material Review Board
MSA	Measurement System Analysis
MSD	Moisture Sensitive Device
MTBF	Mean Time Between Failure
NAS	National Aerospace Standard
NCR	Nonconformance Report
OCM	Original Component Manufacturer
OEM	Original Equipment Manufacturer
OOT	Out of Tolerance
OTD	On-Time Delivery
PFMEA	Process Failure Modes & Effects Analysis
PMA	Parts Manufacturer Approval
P/N	Part Number
PO	Purchase Order
Production Article (Active)	Suppliers that provide electromechanical built assemblies and/or sub-assemblies (i.e. LRUs, SRUs, circuit card assemblies, etc.) This includes suppliers who perform contract maintenance on LRUs.
Production Article (Passive)	Suppliers that provide mechanical built assemblies and/or sub-assemblies (i.e. Installation kits, wire harnesses/bundles, racks, sheet metal parts, machined parts, radomes, composites, etc.)
QMS	Quality Management System
RCA	Root Cause Analysis
RPN	Risk Priority Number
SC	Structural Component
SCAR	Supplier Corrective Action Request
SCI	Software Configuration Index
SDL	Supplier Disclosure Letter
SDS	Safety Data Sheet
S/N	Serial Number
SRU	Shop Replaceable Unit
Standard Parts	Standard parts are:(a) parts manufactured in complete compliance with an established industry, Agency, competent authority or other Government specification which includes design, manufacturing, test and acceptance criteria, and uniform identification requirements. The specification should include all information necessary to produce and verify conformity of the part. It should be published so that any party may manufacture the part. Examples of specifications are National Aerospace Standards (NAS), Army-Navy Aeronautical Standard (AN), Society of Automotive Engineers (SAE), SAE Sematec, Joint Electron Device Engineering Council, Joint Electron Tube Engineering Council, and American National Standards Institute (ANSI), EN Specifications etc.

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STC	Supplemental Type Certificate
TC	Type Certificate
TO	Transfer Order


5 Supplier Quality Requirements

5.1 Supplier Quality Requirements are comprised of two parts:

- **Part A** – General Requirements (Applicable to all airborne suppliers)
- **Part B** – Product/Service Specific Requirements (Applicability defined in Table 1 – Requirements Compliance Matrix)

Table 1 – Requirements Compliance Matrix

Requirements Compliance Matrix	Supplier Type (See Section 4 for definitions)					
	COTS	Production Article (Active)	Production Article (Passive)	Aircraft Maintenance Service	Aircraft Installation Service	Calibration Service
Part A – All Clauses	X	X	X	X	X	X
Part B – B001 QMS Certification		X	X			
Part B – B002 Counterfeit Parts Prevention Program	X	X	X			
Part B – B003 First Article Inspection		X	X			
Part B – B004 Certificate of Conformity	X	X	X			
Part B – B005 TSO/PMA Certificate and Airworthiness Approval Tag		X	X			
Part B – B006 Foreign Object Debris/Damage Prevention Program		X	X	X	X	
Part B – B007 Electrostatic Discharge Protection Program		X				
Part B – B008 Environmental Stress Screening		X				


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Requirements Compliance Matrix	Supplier Type (See Section 4 for definitions)					
	COTS	Production Article (Active)	Production Article (Passive)	Aircraft Maintenance Service	Aircraft Installation Service	Calibration Service
Part B – B009 Failure Modes & Effects Analysis		X	X			
Part B – B010 Key Characteristics		X	X			
Part B – B011 Measurement System Analysis		X	X			
Part B – B012 Accelerated Testing		X				
Part B – B013 Mean Time Between Failure		X				
Part B – B014 Supplier Request for Deviation/Waiver	X	X	X			
Part B – B015 Sampling Plan		X	X			
Part B – B016 Handling of Sensitive Items	X	X	X			
Part B – B017 Hazardous Material	X	X	X			
Part B – B018 Delivery	X	X	X			
Part B – B019 Packing Slip	X	X	X			
Part B – B020 Packaging, Labeling and Shipping	X	X	X			
Part B – B021 Configuration Change Notification		X	X			
Part B – B022 Direct Ship Authorization		X	X			
Part B – B023 Source Inspection		X	X			


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Requirements Compliance Matrix	Supplier Type (See Section 4 for definitions)					
	COTS	Production Article (Active)	Production Article (Passive)	Aircraft Maintenance Service	Aircraft Installation Service	Calibration Service
Part B – B024 Control of Nonconforming Material	X	X	X	X	X	
Part B – B025 Failure Reporting Analysis & Corrective Action System		X				
Part B – B026 Gogo Owned Tooling & Gauges		X	X	X	X	
Part B – B027 Contract Maintenance Providers		X		X	X	
Part B – B028 Calibration Service						X
Part B – B029 Solder/Solderability of Parts		X	X			
Part B – B030 Special Processes		X	X			
Part B – B031 Prohibited Materials/ Substances	X	X	X			
Part B – B032 Notification of Change		X	X	X	X	
Part B – B033 Structural Components			X			
Part B – B034 LRU Data Delivery		X				
Part B – B035 Traceability for CFE		X	X			
Part B – B036 First Pass Yield Data		X	X			

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Part A – General Requirements

A001 – Quality Management System

The Supplier shall have a Quality Management System (QMS) that complies with the International Organization for Standardization ISO 9001 – Quality Management System Requirements (equivalent or better – i.e. AS9100 series). Independent Industry Controlled Other Party (ICOP) certification/registration is not required.

Note: Aircraft Maintenance/Installation Service suppliers shall have a QMS in accordance with (IAW) CFR 145.211 (Quality Control System) in lieu of ISO QMS requirements.

Note: Clause A001 does not apply to Suppliers required to be accredited IAW Clause B001 per Table 1.

A002 – Evaluation & Approval

The Supplier shall undergo an initial evaluation before inclusion to the Gogo Approved Supplier List (ASL).

The Supplier shall undergo recurring (surveillance) evaluation to maintain an Approved status on the Gogo ASL.


These evaluations may include, but are not limited to, a Quality System Survey review and/or Supplier Evaluation audit and may be completed by either a desktop or on-site assessment. Failure to meet the acceptance criteria of these evaluations may result in conditional approval status, or possible removal/exclusion from the Gogo ASL.

A003 – Right of Facility Access

The Supplier shall allow right of facility access to Gogo, Gogo's customers and governmental regulatory authorities, at any level of the supply chain involved in the order and to all applicable records. The aforementioned parties may conduct on-site process or product audits of the Supplier to ensure the requirements of this document, as well as the requirements of the Gogo Purchase Order, Contract, Statement of Work, drawings and specifications are being met. Refusal to allow on-site access may jeopardize the Supplier's approval status.

A004 – Performance Measurement

Gogo monitors Supplier performance and will provide this information as necessary. Based on the performance information provided, suppliers are expected to take appropriate corrective action to improve their scores when necessary.

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A005 – Purchase Order

The Supplier shall have an approved Purchase Order from Gogo prior to delivery of any articles or services to Gogo. The Supplier may jeopardize their ability to be considered for future opportunities if they proceed without these arrangements.

Note: Verbal/e-mail authorizations are not considered formal agreements. Verbal/e-mail direction may be used to begin work, but a finalized Purchase Order must be in place in order to deliver to Gogo.

The Purchase Order may include part numbers, revisions, prices, quantities, and other requirements that govern the purchase and supply of the parts or services.

Multiple Purchase Orders may be released for the same part number. Suppliers shall deliver product against the earliest requested date regardless of Purchase Order Number, unless directed in writing by Gogo.

Quotations the Supplier provides must include additional costs required to supply the item or service (e.g. delivery, packaging, etc.). Regarding price, Gogo requires the Supplier invoice prices to match negotiated Gogo prices to ensure timely processing.

Changes may be handled on a case by case basis. Invoices which do not match the Purchase Order, or the agreement, may be returned to the Supplier.

A006 – Record Retention

The Supplier shall maintain and control accurate quality records documenting conformance to requirements. Records pertaining to Gogo projects shall be retained for a minimum of 10 years unless otherwise specified in the Purchase Order or contract.

Records shall be readily available for onsite visits by Gogo, Gogo's customers and governmental regulatory authorities.


Upon request, records shall be made available within 3 business days. In the event of airline or regulatory inquiries, an urgent records request may be made and expected to be fulfilled within 24 hours.

Note: Aircraft Maintenance/Installation Service suppliers are excluded from the 10-year record retention requirement. In accordance with CFR 145.219, Aircraft Maintenance Service suppliers must retain records for at least 2 years from the date the article was approved for return to service.

A007 – Sub-Tier Supplier Management

The Supplier shall manage all their sub-tier suppliers or subcontractors in accordance with their agreements. The Supplier must flow down all applicable requirements, including customer requirements, statutory requirements, and regulatory requirements, as applicable.

The Supplier shall take appropriate action when sub-tier supplier performance poses a risk to Gogo programs.

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A008 – Corrective & Preventive Action

The Supplier should have a Corrective & Preventive Action process in place which includes industry best practice Root Cause Analysis (RCA) problem solving tools (i.e. 8D, DMAIC, 5 Why, Fishbone, etc.).

Supplier Corrective Action Request (SCAR) and Nonconformance Report (NCR): The Supplier shall provide an initial SCAR/NCR containment response within 10 business days of SCAR/NCR issuance, unless otherwise specified in writing by Gogo. It is essential that corrective action be immediately taken by the supplier when any nonconformance is identified at Gogo or any of its customers. When this occurs, Gogo Aviation Quality will inform the supplier of the nonconformance. A SCAR/NCR may be issued for purchased components found to be nonconforming through line rejections, testing failures, failed inspection results, Gogo customer concerns or returns, or obsolete material. Suppliers may jeopardize their ability to be considered for future opportunities if they fail to respond to the SCAR/NCR in a timely manner.

Part B – Product/Service Specific Requirements


B001 – Quality Management System Certification

The Supplier shall have an ICOP QMS certification by an accredited registrar, either ISO 9001 or AS9100 series. The scope of the Supplier's certificate of registration shall adequately cover the product(s) or service(s) being provided by the Supplier.

All suppliers to Gogo who hold third-party certification under the AS9100 series of aerospace quality management system standards (AS9100, AS9110, AS9115, and/or AS9120) must maintain an active profile within the International Aerospace Quality Group – Online Aerospace Suppliers Information System (IAQG-OASIS). These suppliers must grant Level 2 (Audit Results) access to Gogo within their respective OASIS profile upon request. Granting Gogo Level 2 access may preclude the need for regular on-site QMS audits by Gogo Quality. Initial QMS audits may still be required when adding new suppliers to Gogo's Approved Supplier List. Gogo Quality will make the final determination.

Additionally, Supplier shall promptly notify Gogo Aviation Quality (AviationQuality@gogoair.com) of the following:

- Changes in its quality leadership or senior management
- Renewal, surrender, or revocation of certifications
- Adverse changes to product accreditations/approvals (e.g., expired, withdrawn, suspended, downgraded)
- Certification body or regulatory agency findings/nonconformances classified as "Major"

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B002 – Counterfeit Parts Prevention Program

The Supplier shall establish and maintain a counterfeit part prevention plan.

Counterfeit parts are defined as any parts containing unlawful or unauthorized reproductions, substitutions or alterations that have been knowingly mismarked, misidentified, or otherwise misrepresented to be an authentic, unmodified part from the original manufacturer or a source with the express written authority of the original manufacturer, such as an approved aftermarket distributor.


Development of a Counterfeit Part Prevention Plan should utilize AS5553, AS6081, AS6174, or AS6496 as applicable, as a guide to develop and implement the plan. This plan shall focus on detection, prevention, mitigation, disposition, and reporting of suspected or confirmed counterfeit parts or assemblies. The Supplier shall flow down requirements for a counterfeit parts prevention program to their suppliers, as applicable.

When selecting a source of supply, suppliers shall give preferential consideration to Original Component Manufacturer/Original Equipment Manufacturer (OCM/OEM) or their franchised distributors (i.e. OCM/OEM authorized/approved). As may be necessary due to such situations as Diminishing Manufacturing Sources and Material Shortages (DMSMS), suppliers may select an independent distributor (i.e. a broker), however, the independent distributor must be certified to AS6081, or equivalent, and the parts being procured must be certified to have been tested IAW AS6171, or equivalent.

Regardless of the source of supply, documentation shall be retained and made available by Supplier that authenticates unbroken traceability to the applicable Original Component Manufacturer/Original Equipment Manufacturer (OCM/OEM) upon request.

If counterfeit parts/assemblies are furnished under any Gogo PO and are found in any of the delivered goods, the Supplier shall promptly replace such with items acceptable to Gogo. Gogo reserves all rights to report such to third-party monitoring or reporting entities (e.g. Electronics Resellers Association International (ERAI) at www.eraf.com and the Government-Industry Data Exchange Program (GIDEP) at www.gidep.org).

Upon discovery of counterfeit or suspect counterfeit parts, the Supplier shall notify Gogo Aviation Quality (AviationQuality@gogoair.com) and Gogo Supply Chain within one (1) business day. The Supplier must be able to provide the supply chain traceability showing how the counterfeit parts were obtained (this includes the supply chain path from the original manufacturing of the parts through any intermediaries and ultimately to delivery to Gogo).

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B003 – First Article Inspection (FAI)

The supplier shall complete First Article Inspection (FAI), partial (delta) FAIs, and First Article Inspection Reports (FAIR) IAW AS9102 for parts or assemblies ordered by Gogo.


Note: This clause does not apply to:

- **Development and prototype parts that are not considered as part of the first production run.**
- **Unique single run production orders not intended for ongoing production (e.g. out-of-production spares).**
- **Procured standard catalogue items (e.g. MIL Spec hardware), Commercial of the Shelf Hardware (COTS), or deliverable software.**

The supplier shall flow down the requirements of this clause to suppliers or processors who produce design characteristics of the affected parts or assemblies, as applicable.

The supplier shall perform a full FAI or a partial FAI for affected part or assembly characteristics, when any of the following occurs:

- An initial release and manufacture of a new part number
- A change in the design characteristics of an existing part number, affecting fit, form, or function of the part.
 - Reference Only:
Gogo internal procedures identify Agile ECOs dispositioned as “Incompatible” in the *Change Function* field and “Rework” in the *On Order* field as changes that affect fit, form, or function, thus requiring a partial FAI.
 - Gogo internal procedures identify Agile ECOs dispositioned as “Interchangeable” in the *Change Function* field and “Use As Is” in the *On Order* field as changes that do not affect fit, form, or function and therefore do not require a partial FAI.
- A change in manufacturing source(s), process(es), inspection method(s), location of manufacture, tooling, or materials that can potentially affect fit, form, or function.
- A change in numerical control program or translation to another media that can potentially affect fit, form, or function.
- A natural or man-made event, which may adversely affect the manufacturing process.
- An implementation of corrective action required to complete a previous FAI.
- A lapse in production for two years shall require an update for any characteristics that may be impacted by the inactivity. This lapse is from the completion of last production operation to the actual restart of production.

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Acceptable FAIR Forms:

- Forms 1, 2, & 3 as listed in the current revision of AS9102
- Supplier FAI forms
 - Supplier forms are acceptable provided they contain all “Required” and “Conditionally Required” information and have the same field reference numbers as AS9102 Forms 1, 2, & 3.

A “Ballooned” or “Bubble” drawing is the preferred method to show that every design characteristic is accounted for, uniquely identified, and that the inspection results are traceable to each unique identifier.

The supplier shall use a representative item from the first production run of a new part or assembly to verify that the production processes, production documentation, and tooling are able to produce parts and assemblies that meet requirements.

Note: For assemblies, the FAI shall be performed on those design characteristics specified on the assembly drawing.

The Supplier shall record, whenever possible, the variable measurements of all part or assembly level drawing design characteristics, including applicable drawing notes on the FAIR. The FAIR for the part or assembly undergoing the FAI process shall include appropriate documentation/evidence required by AS9102 to ensure conformance with design characteristics shown on the part drawing or the assembly level drawing (i.e. completed route sheets, test data, raw material certifications, special process certifications, etc.). Lower level FAIRs associated with design characteristics of an assembly are not required to be submitted with the assembly’s FAIR, but the lower level FAIR identifier must be recorded in Field 18 of Form 1. All lower level FAIRs must be maintained and made available to Gogo upon request as stated in Clause A006.

Note: AS9102 requires that non-modified Standard Catalogue Items and Commercial-Off-The-Self items should be listed in Field 15 of Form 1 of the FAIR. However, Form 1, Field 18 is only for FAIR numbers and does not require the C of C number for the catalogue or COTS item to be recorded. Since no C of C number is required to be documented in Field 18 of Form 1 of the FAIR, the C of C is NOT required to be included in the FAIR for supporting documentation.

A representative of the Supplier’s Quality Assurance Department shall sign and date the FAIR report.


Prior to the first shipment of articles related to the FAIR(s), the Supplier shall forward electronic versions of the FAIR(s) to AviationQuality@gogoair.com for review (submittal to an agreed upon, alternate electronic location is acceptable).

Supplier shall also include copies of the FAIR(s) with the first shipment. If the FAIR(s) are large, then only copies of AS9102 Form 1, 2, and 3 shall be placed with the shipment. (Note: the entire FAIR package(s) shall still be submitted electronically).

Additional information for completing FAIRs (links are reference only):

Forms: <http://www.sae.org/iaqg/forms/index.htm>

AS9102 FAQ: <http://www.sae.org/iaqg/publications/faq9102.pdf>

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B004 – Certificate of Conformity (C of C)

The Supplier shall provide a Certificate of Conformity (C of C) for material delivered against a Gogo PO that states that the supplies or services are of the quality specified and are in conformance in all respects with the Gogo Purchase Order (contract) requirements, including specifications, engineering drawings, preservation, packaging, packing, marking requirements, and physical item identification.

The C of C must include, at a minimum, the name of the supplier, the address of the supplier, the part number, the part revision, part serial number (if applicable), lot/batch number (if applicable), the Gogo PO number, shipment quantity, all applicable specifications, the signature and printed name and title of the supplier's authorized quality representative, and the date of execution.

Note: A traceable quality stamp may be used in lieu of a printed name and title; however, a signature is still required.

A manufacturer's C of C or their authorized distributor's C of C shall be provided for orders of standard parts and COTS parts in which the standard part or COTS part is an individual line item on a PO. The manufacturer's C of C is preferred, however, if it cannot be provided, then the authorized distributor's C of C must identify the manufacturer's name, address, and Distributor Cage Code (if distributor has a Cage Code).

C of C's with any disclaimer statements such as "disclaims any responsibility for manufacturing or functional defects" or "to the best of my knowledge" will not be accepted.

Engineering test or Prototype articles must be provided with a C of C that states that the articles are of the quality specified and are in conformance in all respects with the Gogo Purchase Order (contract) requirements.


If a Deviation/Waiver or a Ship Short is granted for articles being provided with the order, the Deviation or Ship Short Number must be noted on the C of C.

If the deliverable item contains any Customer Furnished Equipment (CFE), then the C of C shall provide the traceability requirements defined in Clause B035.

A physical copy of the C of C must be sent with the shipment. A copy of the C of C must be affixed to the outside of the outermost container and an additional copy placed inside.

B005 – TSO/PMA Certificate and Airworthiness Approval Tag

If the Supplier holds National or Civil Aviation Authority (CAA) certification/approval/authorization (e.g., Federal Aviation Administration (FAA) Technical Standard Order Authorization/Parts Manufacturer Approval (PMA)/Type Certification), and if required by the Purchase Order, the Supplier shall provide the original Authorized Release Certificate, FAA Form 8130-3 (Airworthiness Approval Tag) or other CAA equivalent Airworthiness Approval Tag with delivery of each product.

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B006 – Foreign Object Debris/Damage (FOD) Prevention Program

The Supplier shall establish and maintain a FOD prevention program. NAS-412 (National Aerospace Standard, Foreign Object Damage/Foreign Object Debris (FOD) Prevention) or AS9146 (Foreign Object Damage (FOD) Prevention Program – Requirements for Aviation, Space, and Defense Organizations) may be used as a guide to develop the program. The program shall focus on FOD awareness, prevention, detection, housekeeping, and material handling.

Whenever and/or wherever FOD entrapment or foreign objects can migrate, the Supplier shall ensure applicable FOD requirements are flowed down to sub-tier suppliers. Prior to closing inaccessible or obscured areas and compartments during assembly, the Supplier shall inspect for foreign objects/materials and ensure no FOD barriers remain embedded or attached (e.g. protective plugs). The Supplier shall ensure tooling, jigs, fixtures, and test or handling equipment are maintained in a state of cleanliness and repair sufficient to prevent FOD.


By delivering items to Gogo, the Supplier shall be deemed to have certified to Gogo that such items are free from any foreign materials that could result in FOD.

B007 – Electrostatic Discharge (ESD) and Moisture Sensitive Device (MSD) Protection Program

If the Supplier provides electric/electronic parts or assemblies, they shall document and implement an ESD and Moisture Sensitive Device (MSD) Control Program using ANSI/ESD S20.20, “ESD Association Standard for the Development of an Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices)” and IPC/JEDEC J-STD-033, “Standard for Handling, Packing, Shipping and Use of Moisture/Reflow Sensitive Surface Mount Devices” as a guide.

B008 – Environmental Stress Screening (ESS)

Environmental Stress Screening shall be applied to all subject LRUs identified in Gogo document D26952 “Environmental Stress Screening Plan”, Section 2. ESS shall be performed on subject LRUs IAW D26952.

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B009 – Failure Modes & Effects Analysis (FMEA)

Note: Articles in production before 8/31/16 (the release date of Rev J of this document) are excluded from this requirement, unless otherwise agreed to in writing with Gogo.

When supplying items classified as Production Article (Active), or as directed by Gogo, the Supplier shall perform Design Failure Modes & Effects Analysis (DFMEA) on the top level LRU and subsequently on the subsystem level if high risk areas are identified. The DFMEA report shall be submitted to Gogo with identified Risk Priority Number (RPN) values and action plans to address risk items. This shall be completed prior to Critical Design Review (CDR). All submissions shall be sent to GogoReliability@gogoair.com for acceptance.

Refer to MIL-STD-1629 and/or SAE J1739 for additional DFMEA guidance.

When supplying items classified as Production Article (Active) or Production Article (Passive), the Supplier shall perform Process Failure Modes & Effects Analysis (PFMEA) on the assembly processes. The PFMEA report shall be submitted to Gogo with identified RPN values and action plans to address risk items. This shall be completed prior to delivery of the first production article/First Article Inspection (FAI). All submissions shall be sent to GogoReliability@gogoair.com for acceptance.

Refer to SAE J1739 for additional PFMEA guidance.

B010 – Key Characteristics


The Supplier shall identify key attributes or features whose variation have significant influence on product reproducibility, life, or performance that would require specific actions to control the variation. The Key Characteristic could be for the product or process that makes the product. A report/Control Plan (e.g. reference AS9103) shall specify the Key Characteristics and how they will be controlled and actioned (if necessary) along with current process capability measurements (Cp, Cpk) for those characteristics. This shall be completed prior to production with process capability measurements analyzed during product ramp and thereafter.

Process Capability (Cp/Cpk) reports shall be submitted quarterly to AviationQuality@gogoair.com (submittal to an agreed upon, alternate electronic location is acceptable).

Process Capability (Cp/Cpk) raw data shall be made available upon request.

B011 – Measurement System Analysis (MSA)

The Supplier shall perform Measurement System Analysis (MSA) on all measurement systems used for Key Characteristics to determine if they can adequately discriminate between good and bad parts, as well as identify trends in the product or process performance. Measurement systems that are not capable shall have action plans to address measurement error or variation prior to delivery of the first production article/First Article Inspection (FAI).

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B012 – Accelerated Testing

Note: Articles in production before 8/31/16 (the release date of Rev J of this document) are excluded from this requirement, unless otherwise agreed to in writing with Gogo.

Supplier shall perform a Highly Accelerated Life Test (HALT) on their product to determine design margin and potential design weakness(es). The HALT procedure shall be submitted to Gogo prior to Preliminary Design Review (PDR). The HALT report shall be submitted to Gogo prior to the start of Qualification testing. HALT results shall be mutually reviewed by Gogo and the supplier to determine any subsequent need for redesign.

Supplier shall perform an Accelerated Life Test (ALT) on their product to determine potential end-use failure modes and predict the useful life of the product. The ALT procedure shall be submitted to Gogo prior to Critical Design Review (CDR). The ALT report shall be submitted to Gogo prior to the Production Readiness Review (PRR).

All document submissions shall be sent to GogoReliability@gogoair.com for acceptance.

For additional guidance, refer to:

Accelerated Reliability Engineering HALT and HASS, Gregg K. Hobbs, Hobbs Engineering Corporation.

HALT, HASS & HASA Explained: Accelerated Reliability Techniques, Harry W. McLean, ASQ Quality Press.

B013 – Mean Time Between Failure (MTBF)

All Gogo Suppliers shall comply with the MTBF requirements as stated specifically in the contract, exhibits, or statement of work(s). If the requirements are not specified in those parts of the agreement, then Supplier shall comply with the following:


MTBF Analysis & Reporting – The Parties agree as follows: (i) Gogo may, at its discretion, provide periodic reports of Supplier's MTBF performance with respect to the Products; and (ii) Suppliers shall provide Gogo with access and available data required to analyze MTBF of Products for the returned/repaired Products including but not limited to:

Analysis of MTBF; and

Analysis reports including but not limited to summary of warranty returns, confirmation of fault or No Fault Found, root cause analysis, and corrective actions.

Supplier shall provide quarterly electronic reports to Gogo detailing the required information as specified above, throughout the applicable warranty period.

MTBF Remedies - In the event the Products (hardware and software) do not meet the MTBF Guarantee as specified under the terms of this Agreement, Supplier shall provide: (i) within thirty (30) days following Gogo notice, mutually agreed to quantity spares to meet the availability criteria to Gogo on a loan basis until the MTBF Guarantee Values are met; (ii) Immediate technical support for investigation via telephone and e-mail; and (iii) Supplier will work with Gogo to achieve a recovery plan.

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Measured MTBF = Total Flight Hours x Component Quantity / Number of Verified Failures. A “Verified Failure” means a failure corrected by (i) pulling and replacing an LRU which has been verified as a failure or (ii) download of a critical software patch or release to restore functionality. For avoidance of doubt, No Fault Found Products and Product upgrades are not considered a “Verified Failure”.

B014 – Supplier Request for Deviation/Waiver

Note: In accordance with Clause B024, Gogo Suppliers are NOT granted Material Review Board (MRB) authority.

The Supplier’s adherence to approved design data is essential to continued, repeatable quality & reliability.

A Deviation request is used to obtain temporary authorization, prior to manufacture, to depart from a requirement of an item’s current approved configuration. The use of materials/part numbers not explicitly listed on the Bill of Materials (BOM) are prohibited from being used and delivered without Gogo Deviation approval. The deviation shall be for a specific number of units or time period.

A Waiver request is used to obtain authorization to ship an item which is known to depart from a requirement but is considered suitable after repair by an approved method or after a “Use-As-Is” disposition.

Requests for Deviation/Waiver shall be made in Agile (Gogo’s CMDB), at least 10 business days prior to expected delivery. All deviation requests must have substantiation data (e.g. drawing red lines, material specifications, etc.) attached to the Agile deviation submittal.


A copy of the Agile Deviation printout must accompany all shipments of affected product.

The Gogo Deviation Number shall be noted on Supplier’s Certificate of Conformance (reference clause B004).

This clause does not apply to hardware or LRUs acquired for engineering purposes.

B015 – Sampling Plan

In the event a sampling plan is utilized, the sampling process shall be based on the American Society for Quality (ASQ) Zero Acceptance Number Sampling Plan (C=0), Table 1a with an AQL=1.0 or other Gogo accepted methodology.

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B016 – Handling of Sensitive Items

Age (Shelf Life): Upon shipment, shelf life remaining shall meet the minimum shelf life specified on the Purchase Order. If no shelf life is specified, the product shall have a minimum of 6 months or 50% of the shelf life remaining upon shipment, whichever is less.

Note: Expiration dates must be clearly noted on the material. For orders where the procurable item Part Number listed on the PO is age sensitive then the expiration date shall be marked on the item container and packing slip. When the procurable item contains multiple age sensitive items (i.e. a kit), the outermost container must note the most restrictive shelf-life/date of expiration of all applicable items within the container (reference Clause B020).

Light or temperature sensitive: Items which require special storage, such as light or temperature sensitive materials, must be shipped with consideration of this sensitivity and must be clearly identified on the outside of the packaging material, as well as on the packing slip.

Electro-Static Discharge (ESD): Items that are ESD sensitive shall be handled and packaged to prevent ESD damage utilizing MIL-STD-1686, ANSI/ESD S20.20, or EIA/JEDEC JESD625 as a guideline. ESD sensitive items must be shipped in ESD protective packaging and be clearly marked, as well as noted on the packing slip.


Moisture Sensitive Device (MSD): Items that are moisture sensitive shall be handled and packaged to prevent damage utilizing IPC/JEDEC J-STD-033 as a guideline. MSD items must be shipped in MSD protective packaging and be clearly marked, as well as noted on the packing slip.

B017 – Hazardous Material

The Supplier must comply with all local, State, and Federal Health, Safety, and Environmental regulations.

Shipping of all hazardous materials must be prepared in accordance with the appropriate Federal Hazardous Materials Regulations. These regulations can be found in Title 49 of the Code of Federal Regulations (49 CFR). 49 CFR changes periodically and it is the Supplier's responsibility to comply with the most current standard.

The supplier must ensure that the proper Dangerous Goods-Hazardous Materials/Safety Data Sheet (SDS) markings are placed on the shipping or storage containers, and proper documentation is supplied. SDS sheets should be included in initial shipments and upon request.

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B018 – Delivery

Gogo expects suppliers to maintain On-Time Delivery (OTD) performance of 100%. Just-In-Time delivery demands consistent and timely response from the entire supply base.

Short Shipments

Short shipment requests shall be communicated to the appropriate Supply Chain Buyer as soon as the issue is known, but no less than 5 business days prior to expected delivery. These requests will require Gogo approval of the Ship Short condition. Short shipments may result in a price reduction on the PO, require a supplier corrective action plan, and result in poor delivery performance ratings. Subsequent shipments of the parts needed to make the original “ship short” whole, will be at the Supplier’s expense.

The Gogo Ship Short Number shall be noted on Supplier’s Certificate of Conformance (reference clause B004).

Delivery Schedules


It is the supplier’s responsibility to ensure goods are received at the required location on or by the date specified on the agreed documents. The acceptable time frame for shipments will be addressed specifically in these documents. Suppliers may be required to provide corrective action plans whenever this requirement is not being met. It is the supplier’s responsibility to inform Gogo Supply Chain personnel immediately of any potential difficulties in meeting shipping requirements. Alternative plans may be available which avoid downtime. Gogo expectation is that all shipping requirements will be adhered to (including during holiday or other supplier shutdown periods), unless prior written arrangements are made.

B019 – Packing Slip

Material shipped shall be identified on a Packing Slip or Bill of Lading. A physical copy of the Packing Slip or Bill of Lading shall be affixed to the outermost container and an additional copy placed inside the container.

The following information must be noted on these documents:

- Shipment Method, Carrier Name, Tracking Information, and Date
- Ship to Address (PO and Packing Slip Ship to Address must match)
- Single Line Item for Each Part Number Shipped
- Part Number, Revision, and Serial Number (as applicable), traceable to the line item
- Description of the Product
- Identification of any Sensitive Item information (see clause B016)
- Purchase Order Number(s) and Line Item Number for each item being shipped
- Order Release Number (if applicable)
- Quantity Ordered, Quantity Shipped, and Unit of Measure
- Number of containers of each part number shipped with the extended quantity noted. (ex. 10 containers @ 100 pieces, total 1000)
- Total number of cartons/skids and weight

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B020 – Packaging, Labeling, and Shipping

Articles supplied to Gogo shall be packaged to prevent loss and to provide physical, chemical, and cleanliness protection to prevent damage to or deterioration of the parts.

Packaging shall meet or exceed the guidelines established per Air Transport Association of America (ATA) Specification 300 Specification for Packaging of Airline Supplies (also known as Airlines for America (A4A)).

Wiring Harness Kits shall be packaged in separate unit containers. Multiple wire harnesses may be placed in the same intermediate container; however, they shall be packaged in such a way to preclude latent damage such as crushed or pinched wiring. Wire harness connectors shall be protected from damage by use of plastic caps (ESD caps required for ESD sensitive harnesses) or other protective means.

Structural kit items shall be packaged in separate unit containers. Multiple structural items may be placed in the same intermediate container; however, they shall be packaged in such a way to preclude damage during shipping such as scratches, dings, gouges, chipped paint, or damage to corrosion preventative finishes.


Sensitive items (age, light, temperature, ESD, and MSD) shall be packaged in accordance with the Sensitive Items clause B016 of this document.

Intermediate Containers contain at least 2-unit containers. Intermediate Containers shall be of cardboard construction at a minimum. If designed to provide shipping protection, Intermediate Containers shall be double walled and palletized for shipping, otherwise Intermediate Containers shall be over packed for shipment in an appropriate double walled shipping container (e.g. Gaylord Box).

Any Less Than Truckload (LTL) shipments and container(s) weighing more than 50 pounds **shall be palletized**.

Suppliers are responsible to ensure shipping containers or pallet loads meet the following criteria:

- Shipping Containers shall meet or exceed ATA Specification 300, Category II (Testing of Category II Shipping Containers is not required)
- Even, level pallet loads (not pyramided)
- Proper securing shall be used to ensure the pallet is stable (e.g. straps, stretch wrapped, corners, boxed, etc.)
- “Do Not Stack” or “No Stack” cones shall be used on top of palletized loads and Gaylord Boxes.
- Containers shall not exceed pallet dimensions (i.e. containers must not overhang the pallet)
- Wood pallets and crates shall be ‘heat-treated’ to protect against wood infesting insects. International pallets require a conformance ID stamp to pass Customs.

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Labeling/Marking of sub-kits, kits, and containers shall be IAW marking requirements listed in the ATA Specification 300 chapter for "Packaging of Kits". The marking must also include Part Number, Part Revision, Serial or Lot number as well the marking required by ATA Specification 300.

- Label exterior containers with the following:
 - Part Number, Revision, & Description
 - Supplier Name
 - Gogo Purchase Order Number
 - Container X of Y (i.e. Container 1 of 4, Container 2 of 4, etc.)
 - Most restrictive shelf-life/date of expiration of all applicable items within the container
 - If shipping to a third-party logistics provider, identify "Gogo" on the label (i.e. Gogo c/o EA Logistics)
- Label each intermediate container (i.e. sub-kit, container, bag) with the following:
 - Supplier name
 - Gogo Purchase Order Number
 - List all Part Numbers (including sub-kit Part Number, if applicable), Revisions, Description, and Quantities in the intermediate container
 - Lot Number or Serial Number
 - Most restrictive shelf-life/date of expiration of all applicable items within the container
- Label each unit container (i.e. container, bag) with the following:
 - Part Number
 - Revision
 - Description
 - Quantity
 - Lot Number or Serial Number (as applicable)
- If Direct Shipping product (reference clause B022), add a label to each crate/skid that includes the following information:
 - Top Level Kit Part Number (provided via Gogo PO update) or LRU Part Number
 - Top Level Kit Serial Number (if provided via Gogo PO update) or LRU Serial Number
 - Gogo Customer (Airline) Purchase Order Number (provided via Gogo PO update)
 - Gogo Customer Transfer Order Number (provided via Gogo PO update)
 - Gogo Purchase Order Number

For questions, please contact your Gogo Supply Chain representative for clarification.

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B021 – Configuration Change Management

Note: Due to contractual, regulatory, and OEM requirements, Gogo is required to review and approve all changes for all components that are used in Gogo systems which are approved for use by Type Certificates (TC) or Supplemental Type Certificates (STC).

Gogo requires that all parts supplied meet drawings and specifications and that NO alternate parts be utilized unless specifically allowed for on the Gogo approved drawing.

The Supplier shall notify Gogo of any proposed design data and/or test procedure/report change (major or minor) to any LRU, production article, or installation design and receive approval from Gogo prior to delivering any product incorporating the change.

These design data and test procedures/reports include but are not limited to the following:


- LRU Outline Drawing and associated 3D model
- Top Level Assembly Drawing(s) / BOM
- Software Configuration Index (SCI) (Firmware changes only)
 - Note: For loadable software, coordinate with Gogo Program Management
- LRU Acceptance Test Procedure (ATP)
- LRU Environmental Stress Screening Procedure (ESS)
- Component Technical Specification (CTS)
- Certification Test Report Analyses
- Qualification Test Reports and Analyses (e.g. Environmental, EMI, Structural, Flammability, Fungus, Similarity Assessments, Safety Assessments)

The Supplier shall submit an ECR in Gogo's Agile Configuration Management system to update design data and test procedures/reports in accordance with D14549 (Procedure, Engineering Change Request) and attach any substantiating evidence (e.g. drawing redlines, BOMs, test reports, similarity assessments, etc.).

If the submitted Change Request is deemed acceptable, a Gogo Engineering Change Order shall be issued by Gogo and fully approved and implemented in Agile prior to the Supplier delivering any product incorporating the change.

Note: Gogo acceptance of the Change Request is not authorization to deliver the proposed change in any product provided to Gogo.

Suppliers are expected to build and deliver item configurations listed on the Purchase Order. Suppliers may utilize a "Use As Is" disposition to allow shipment of earlier item revisions only if allowed by the "On Order" disposition in the applicable Agile ECO. In the event suppliers would like to supply later item revisions, a deviation would be required (reference clause B014).

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B022 – Direct Ship Authorization (DSA)

The Supplier shall receive formal approval from Gogo Aviation Quality, in accordance with D20035, Procedure, Direct Ship Authorization, prior to shipment of any production article(s) shipping to locations other than Gogo's Bensenville, IL facility or any Gogo third party logistics provider. The Gogo PO will identify the required *Ship To* address.

A DSA letter (D19399) from Gogo Aviation Quality will be granted for every approved DSA shipment.

The Supplier shall notify AviationQuality@gogoair.com at least 5 business days in advance of any expected direct shipment.

Any item(s) intended for Engineering test or Prototype development are excluded from this clause.

Standard Hardware as defined in this document is excluded from this clause, however any standard hardware ordered as a standalone line item on a Gogo PO must ship with a C of C compliant with clause B004.

All DSA shipments shall be labeled in accordance with clause B020.

All DSA shipments shall have the entire paperwork package provided with the shipment and scanned and emailed to DSSO@gogoair.com and AviationQuality@gogoair.com. This package shall consist of:


- 8130-3 (as applicable)
- Form 1 (as applicable)
- Supplier issued C of C
- Gogo issued C of C
- Gogo issued DSA Letter (D19399)
- Packing List (Gogo Part Numbers and Serial Numbers shall be listed)
- Gogo Kit Document (i.e. K13114-xxxxx) (as applicable)
- Weights and Dimensions
- Bill of Lading (signed by the carrier and shipper) showing Gogo PO# and Gogo's Customer (Airline) PO#

Note: A Gogo provided C of C for a DSA shipment does not relieve the supplier of their responsibilities to ensure all product conforms to approved documentation and requirements.

B023 – Source Inspection

Gogo reserves the right to conduct Source Inspection at any time as stated on a PO and the supplier is expected to support these inspections. Additionally, Source Inspection is required on Direct Shipments where delegated inspection has not been authorized by Gogo Aviation Quality. For Direct Shipments, Delegated or Source Inspection will be identified on the DSA letter (D19399) issued by Gogo Aviation Quality.

The Supplier shall notify AviationQuality@gogoair.com at least 5 business days in advance of any inspection readiness.

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B024 – Control of Nonconforming Material

Gogo Suppliers **are NOT** granted Material Review Board (MRB) authority to issue “Repair” or “Use-As-Is” dispositions **at any level of the BOM** for products sold to Gogo unless authorized in writing by Gogo.

The Supplier shall have a Control of Nonconforming Material process in place which identifies, controls, and prevents the unintended use or delivery of nonconforming material.

All materials furnished to Gogo shall conform to contractual requirements, approved type design, and specifications. All materials are subject to inspection and acceptance upon receipt.

To obtain Gogo approval to ship unit(s) with known nonconformance(s), utilize the Supplier Request for Deviation Process (refer to clause B014 of this document).

If a nonconformance has been identified on parts already shipped to Gogo, Supplier is required to notify Gogo Aviation Quality (AviationQuality@gogoair.com) immediately via the Supplier Disclosure Letter (SDL) form D20158. Please utilize these forms and follow the instructions found therein for further details and requirements.

A disclosure letter in supplier format may be used as long as the information required on Gogo Form D20158 is captured.


B025 – Failure Reporting Analysis & Corrective Action System (FRACAS)

The Supplier shall provide inputs to the Gogo FRACAS system upon request. This includes but is not limited to responding to failures and/or noncompliances for which the supplier is responsible, identifying the failure mode, containment action(s), RCA, corrective action(s), and preventive action(s). The Supplier shall provide all required objective evidence needed to validate the effectiveness of the corrective action(s) taken.

B026 – Gogo Owned Tooling & Gauges

Unless otherwise agreed upon in writing, all supplies, materials, facilities, tools, jigs, dies, fixtures, patterns, and equipment furnished to the supplier by Gogo for the performance to a Purchase Order, or for which the supplier has been reimbursed by Gogo, shall remain the property of Gogo. The supplier shall bear the risk of loss and damage to such property, normal wear excepted. Such property shall at all times be properly stored and maintained by the supplier, shall be identified as Gogo property, shall not be commingled with the property of the supplier or with that of a third party, shall not be moved from supplier’s premises without Gogo prior written approval, and shall, upon request of Gogo to Supplier, be properly packed and marked in accordance with the requirements of the carrier selected by Gogo to transport such property. In general, the requirements for supplier’s use of Gogo property include:

- Inspection & measuring equipment must be specified in the control plan and be traceable to the inspections performed.
- All inspection & test equipment must be included in a comprehensive calibration program, conducted prior to initial use and at prescribed intervals. Reaction plans must be in place and followed when a piece of inspection/test equipment is deemed out of calibration.

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- Supplier is responsible for the proper use, maintenance, and calibration of all tooling, testing, and inspection equipment.
- All equipment must be clearly identified, including part number, revision level, calibration date, and have a Gogo identification number.
- Records of maintenance shall be kept by the supplier until such time that the part is no longer considered "active" (part remains "active" until tooling scrap authorization is given by Gogo).

Gogo reserves the right to inspect any tooling, testing, and/or inspection measuring equipment at the supplier's location.


B027 – Contract Maintenance Providers

Suppliers (certificated and noncertificated) based in the U.S. performing repair and/or contract maintenance on aircraft or aircraft components (i.e. LRUs) for Gogo and our airline customers are required to participate in a U.S. Department of Transportation anti-drug and alcohol misuse prevention program compliant with CFR Title 14 Part 120, Subparts D, E, and F.

B028 – Calibration Service

Calibration service suppliers shall:

- Have a quality management system accredited to ISO/IEC 17025, General Requirements for the Competence of Testing and Calibration Laboratories and/or ANSI/NCSL Z540, General Requirements for Calibration Laboratories and Measuring and Test Equipment.
- Perform calibration against measurement standards traceable to internationally recognized standards; where no such standards exist, the basis used for calibration or verification shall be recorded.
- Achieve traceability through calibrations by the National Institute of Standards and Technology or other National Measurement Institutes.
- Calibrations shall be per the OEM's specification or of greater accuracy.
- Identify measuring equipment in order to determine its calibration status.
- Protect equipment from damage and deterioration during handling, maintenance, and storage.
- Safeguard equipment from adjustments that would invalidate the measurements result.
- Provide to Gogo a Certificate of Calibration for each piece of measurement equipment, which includes details of equipment type, unique identification, frequency of checks, check method/acceptance criteria, environmental conditions under which the calibration was performed, specifications to which the item was calibrated, the calibration standards used (which are traceable to NIST), date calibrated, due date, and any out-of-tolerance (OOT) conditions, including "before" and "after" calibration data for those devices found OOT.

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B029 – Solder/Solderability of Parts


As applicable, drawing and specification requirements supersede these requirements:

- **Electronic and Circuit Card Assemblies** - Electronic and electronic Circuit Card Assemblies (CCA) shall be soldered to the requirements of IPC J-STD-001, Class 3. The Supplier shall implement and maintain a system that includes adequate process controls to assure conformance to the soldering, cleanliness, acceptance, material handling, storage, and shipping requirements. The item shall meet the cleanliness requirements of IPC J-STD-001, cleanliness designator C-22. Rework, if required, shall be in accordance with IPC 7711/7721.
- **Component & PCB Solderability** - The Supplier (manufacturer or distributor) shall ensure that all parts: leads, lugs, terminal, wires, and terminations cited on this PO shall meet the component solder requirements of IPC J-STD-001 and the solderability requirements of IPC J-STD-002, and Printed Circuit Boards shall meet the solderability requirements of IPC J-STD-003.
- **Pre-Tinning** - Component leads or the like shall be tinned per IPC J-STD-006 and properly cleaned to remove flux residue. Leads shall meet the solderability requirements of IPC J-STD-002, Category 3.
- **Fluxes, Solder, and Solder Paste** - Fluxes, solder alloys, and solder pastes shall meet the IPC J-STD requirements: J-STD-004 for Fluxes, J-STD-005 for Solder Pastes, and J-STD-006 for Solder Alloys.
- **Conformal Coating** - To mitigate the risk of tin whisker growth, conformal coating should be applied to CCAs to the requirements of IPC J-STD-001, Class 3.

B030 – Special Processes

A special process is an operation performed on an item where the resulting output cannot be verified by subsequent monitoring or measurement. Special processes have verifiable controls inherent to the process (i.e. plating, composites, nondestructive testing, etc.). Special processes shall be performed in accordance with specification(s) stated on the drawing and procurement documents.

Special processes should be performed by a Nadcap approved contractor (formerly NADCAP, National Aerospace and Defense Contractors Accreditation Program). The special processor should be approved by Nadcap for the special process on the date which the special process is performed. If a Supplier's sub-tier supplier performs the special process, the Supplier is responsible to flow down the requirements on sub-tier POs. Supplier's utilization of Nadcap approved sources does not relieve the Supplier from the obligations to ensure subcontracted sources are in full compliance with applicable specifications. Certificates of Compliance for special processes which state the Purchase Order number, part number, specification number, specification revision, and the date the special process was performed shall be maintained on file and made available upon Gogo's request.

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B031 – Prohibited Materials/Substances

Note: Articles in production before 3/24/17 (the release date of Rev K of this document) are excluded from this requirement, unless otherwise agreed to in writing with Gogo.


Unless otherwise authorized in writing, Gogo prohibits certain materials/substances being contained in or on the product being supplied by the Supplier. Gogo further prohibits these materials/substances from being used during the following type of activities/processes, including, but not limited to: manufacture, processing (inclusive of Special Processing), assembly, integration, test, inspection, rework/repair, servicing, maintenance, handling, and packaging. This requirement extends throughout Supplier's entire sub-tier supply chain for all items and processes comprising the product being supplied by the Supplier to Gogo and shall be flowed down by Supplier and Supplier's sub-tiers as necessary. In the event of conflict between Gogo's engineering drawing, specification, or this clause, the engineering drawing shall take precedence.

Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)

Supplier shall comply with the European Community (EC) Regulation No. 1907/2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) for the product being provided by the Supplier to Gogo. Upon Gogo's request, the Supplier must provide to Gogo satisfactory supporting evidence demonstrating Supplier's compliance with their obligations with regards to REACH.

Restriction of Hazardous Substances Directive (RoHS)

Supplier shall comply with the European Directive 2002/95/EC on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (commonly referred to as the Restriction of Hazardous Substances Directive or RoHS) for the product/service being provided by the Supplier to Gogo. Upon Gogo's request, the Supplier must provide to Gogo satisfactory supporting evidence demonstrating Supplier's compliance with their obligations with regards to RoHS.

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B032 – Notification of Change

The Supplier shall make Commercially Reasonable Efforts to notify Gogo in writing when any of the following occur:


- Merger/acquisition, relocation, or closure of the Supplier's facility, including manufacturing facilities
- A change in manufacturing source(s) (e.g. from the Supplier to an external provider or from one external provider to another external provider), process(es), inspection method(s), location of manufacture (including Supplier internal transfer of work), tooling, machinery, materials, or major manufacturing facility layout modifications that can potentially affect fit, form, or function.
- Major changes in Enterprise Resource Planning (ERP) system

Upon receipt of written notification from Supplier, Gogo may request, and Supplier shall provide, adequate assurances, including a comprehensive plan, detailing how Supplier intends to meet its performance obligations and delivery of conforming product, and at a minimum, shall include the following.

- Purpose of relocation, work transfer, or other change
- Address of new location (as applicable)
- Risk identification and mitigation plan specific to Gogo's contracted products
- Schedule of move, minimizing impact to Gogo
- Coordinator / Point of Contact for the relocation or work transfer

All notifications shall be provided to: AviationQuality@gogoair.com

Note: Technical Data changes and revisions to be IAW clause B021.

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B033 – Structural Components (SC)

Beginning 01 July 2019 all identified product shipped to Gogo shall be subject to this clause. This clause applies to all product manufactured by the Supplier or their sub-tier. No Exceptions.

A structural component is a component of structure that attaches the Gogo In Flight Connectivity System components to an aircraft's primary structure.

Component parts identified on Gogo's Drawings as the following, are considered Structural Components:

- Doublers
- Triplers
- Lugs
- Intercostals
- Brackets or Fittings
- Gussets
- Adapter Plate
 - For adapter plate dimensional inspection, primary attention shall be given to any Adapter Plate splice area, the center area of the Adapter Plate (area between the antenna mounts) and any component of the Adapter Plate identified as a bracket, splice or crossbar.

For the purposes of this clause, identified Structural Components shall be inspected to confirm that the parts meet the characteristics of length, width, depth, and thickness dimensions listed on Gogo drawings. Inspections may be conducted on 100% of product or using a sampling plan IAW clause B015.

Supplier shall provide current process capability measurements (Cp, Cpk) for those characteristics on a quarterly basis via email to AviationQuality@gogoair.com (submittal to an agreed upon, alternate electronic location is acceptable). Raw data shall be supplied, upon request. Supplier format for results is acceptable but must contain data requested above.


Supplier is expected to utilize the aforementioned data to maintain and adjust, as required, the manufacturing processes utilized in the production of the above listed components in order to maintain a stable process under statistical control.

B034 – LRU Data Delivery Requirements

All new LRUs shipped to Gogo must have the corresponding ATP test data sheet shipped with the unit.

All returned and/or repaired LRUs must have the corresponding ATP test data sheet shipped with the unit, as well as the corresponding Failure Analysis Report (i.e. teardown report, strip report, etc.).

All returned and/or repaired LRU paperwork (i.e. Failure Analysis Report, C of C, 8130-3 (if required)) must reflect the P/N and S/N stated on the repair Purchase Order (PO) or Transfer Order (TO).

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B035 – Traceability Requirements for Customer Furnished Equipment (CFE)

Supplier shall provide traceability on the C of C (reference Clause B004) for any deliverable item containing CFE to the Gogo Lot Number and/or S/N of any CFE being provided back to Gogo in that shipment.

For example, modems provided as CFE shall have the modem S/N and Gogo Lot Number listed on the C of C for the deliverable LRU which it is installed in.

For example, kits sent back for rework as CFE on a Transfer Order (TO) shall list the Gogo Lot Number on the C of C when the kit is shipped back to Gogo.

B036 – First Pass Yield Data

Supplier shall monitor First Pass Yield (FPY) data for all product provided to Gogo and take appropriate corrective action to address performance issues.

- Production Article (Active) (i.e. LRU) suppliers shall monitor FPY by deliverable part number.
- Production Article (Passive) (i.e. kit) suppliers shall monitor FPY by deliverable part number or aggregated by all product provided to Gogo. Supplier shall have the ability to further refine the yield data by product type in order to determine where appropriate corrective actions are needed.


FPY data shall be provided monthly to Gogo, delivered to AviationQuality@gogoair.com or as otherwise directed by Gogo.

6 Related Documents

Document Title	Number
Procedure, Engineering Change Request	D14549
Procedure, Direct Ship Authorization	D20035
Environmental Stress Screening Plan	D26952

7 Forms and Records

Form/Record Title	Number
Form, Direct Ship Authorization Letter	D19399
Form, Supplier Disclosure Letter (SDL)	D20158

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