AC 90-100

COMPLIANCE TABLES

AFS-410

FLIGHT OPERATIONS GROUP

Revised 4/13/2020

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AC 90-100A RNAV 1 approval satisfies all AC 90-100 performance requirements and RNAV substitution requirements.

The navigation database should be obtained from a database supplier holding an FAA Letter of Acceptance (LOA) in accordance with AC 20-153. The operator's supplier (e.g., FMS manufacturer) must have a Type 2 LOA. Database LOA's are listed in the latter spreadsheets.

NOTE: A Type 2 LOA provides recognition of a data supplier's compliance with RTCA/DO-200A and the compatibility of their delivered data with particular avionic systems.

For approvals based solely on GPS, pseudorange step detection and healthword checking are required.

For approvals based on DME/DME/IRU, any Inertial Reference Unit/Inertial Reference System (IRU/IRS) may be used.

This compliance table does not change previous guidance to use GPS in lieu of ADF or DME for the following operations: Determine aircraft position over a DME fix; Fly a DME arc; Navigate to/from an NDB/compass locator; Determine aircraft position over an NDB/compass locator; Determine aircraft position over a fix defined by an NDB/compass locator bearing crossing a VOR/LOC course; or Hold over an NDB/compass locator.

The "Baro-Aiding" column annotates whether the GPS RNAV system is capable of using barometric inputs. It is NOT to be confused with baro-vertical navigation (baro-VNAV). As a manufacturer, input on this line only indicates the system design has a baro-aiding capability. The aircraft operator must confirm this capability is installed.

AC 90-100A RNAV 1 or 2 system approval based on:	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only) [3]	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
GPS	YES[1]	YES[2]	YES	YES[5]
DME/DME/IRU (no GPS)	YES[1]	YES[2]	YES [4]	N/A

Footnotes:

[1]GPS or DME/DME/IRU units may be used to fly "Q" routes without requiring a navigation data base Type 2 Letter of Acceptance. GPS units may be used to fly "T" routes without requiring a navigation data base Type 2 Letter of Acceptance.

[2]RNAV systems must be fully compliant with AC 90-100A. (Refer to AC 90-100A, Appendix 3, paragraph 10.a., Note 2, for information on automatic CF leg capability.)

[3]RNAV substitution in US is based upon AC 90-100A criteria but allows avionics without course to fix (CF) leg capability. For VOR substitution, RNAV system must be fully compliant.

[4]DME/DME/IRU may be used in lieu of VOR/ADF provided that an assessment of the underlying infrastructure has been accomplished.

[5]Input on this line only indicates the system design has a baro-aiding capability. The aircraft operator must confirm this capability is installed.

Table 1: Airbus

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Note: All systems must have an appropriate navigation database and a procedure to inhibit NOTAM'd DME facilities (on test or unreliable)

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Airbus	A300-600 A310 Sperry FMS	404.3914.936	I7	NO	YES	YES	Q route only	YES	YES
Airbus	A300-600 A310 Sperry FMS	404.3914.934	I7	NO	YES	YES	Q route only	YES	YES
Airbus	A300-600 A310 Sperry FMS	405.2510.955	ACARS	NO	YES	YES	Q route only	YES	YES
Airbus	A300-600 A310 Sperry FMS	405.2510.956	I7	NO	YES	YES	Q route only	YES	YES
Airbus	A300-600 A310 Sperry FMS	404.3914.939	I7	NO	YES	YES	Q route only	YES	YES
Airbus	A300-600 A310 Sperry FMS	405.2510-957	Pre-QIP	NO	YES	YES	Q route only	YES	YES
Airbus	A300-600 A310 Sperry FMS	405.2510-964	Pre-QIP	NO	YES	YES	Q route only	YES	YES
Airbus	A300-600 A310 Sperry FMS	405.2510-967	QIP	NO	YES	YES	Q route only	YES	YES
Airbus	A300-600 A310 Sperry FMS	405.2510-970	QIP	NO	YES	YES	Q route only	YES	YES
Airbus	A300-600 A310 Sperry FMS	405.2510-972	GPS	YES	YES	YES	YES	YES	YES

Airbus: Last Update 10/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Airbus	A300-600 A310 Sperry FMS	405.2510-974	GPS	YES	YES	YES	YES	YES	YES
Airbus	A300-600 A310 Sperry FMS	405.2510-976	GPS2	YES	YES	YES	YES	YES	YES
Airbus	A300-600 A310 Sperry FMS	405.2510-978	GPS2	YES	YES	YES	YES	YES	YES
Airbus	A300-600 A310 Sperry FMS	405.2510-980	VNAV	YES	YES	YES	YES	YES	YES
Airbus	A300-600 A310 Sperry FMS	404.3914.935	I7	NO	YES	YES	Q route only	YES	YES
Airbus	A300-600 A310 Sperry FMS	405.2510.953	I7	NO	YES	YES	Q route only	YES	YES
Airbus	A300-600 A310 Sperry FMS	404.3914.938	I7	NO	YES	YES	Q route only	YES	YES
Airbus	A300-600 A310 Sperry FMS	405.2510-958	Pre-QIP	NO	YES	YES	Q route only	YES	YES
Airbus	A300-600 A310 Sperry FMS	405.2510-963	QIP - JAS	NO	YES	YES	Q route only	YES	YES
Airbus	A300-600 A310 Sperry FMS	405.2510-965	Pre-QIP	NO	YES	YES	Q route only	YES	YES
Airbus	A300-600 A310 Sperry FMS	405.2510-968	QIP	NO	YES	YES	Q route only	YES	YES
Airbus	A300-600 A310 Sperry FMS	405.2510-969	QIP - JAS	NO	YES	YES	Q route only	YES	YES

Airbus: Last Update 10/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Airbus	A300-600 A310 Sperry FMS	405.2510-971	QIP	NO	YES	YES	Q route only	YES	YES
Airbus	A300-600 A310 Sperry FMS	405.2510-973	GPS	YES	YES	YES	YES	YES	YES
Airbus	A300-600 A310 Sperry FMS	405.2510-975	GPS	YES	YES	YES	YES	YES	YES
Airbus	A300-600 A310 Sperry FMS	405.2510-977	GPS2	YES	YES	YES	YES	YES	YES
Airbus	A300-600 A310 Sperry FMS	405.2510-979	GPS2	YES	YES	YES	YES	YES	YES
Airbus	A300-600 A310 Sperry FMS	4052510-981	VNAV	YES	YES	YES	YES	YES	YES
Airbus	A300-600 A310 Sperry FMS	405.2510-982	VNAV (MAGVAR update)	YES	YES	YES	YES	YES	YES
Airbus	A300-600 A310 Sperry FMS	4052510-983	VNAV(MAGVAR update)	YES	YES	YES	YES	YES	YES
Airbus	A320 family Honeywell Legacy FMS	B398AAM0411	Std F8C104	YES	YES	YES	YES	YES	YES
Airbus	A320 family Honeywell Legacy FMS	B398AAM0412	Std F8C105	YES	YES	YES	YES	YES	YES
Airbus	A320 family Honeywell Legacy FMS	B398BAM0208	Std F8C104	YES	YES	YES	YES	YES	YES

Airbus: Last Update 10/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Airbus	A320 family Honeywell Legacy FMS	B546BAM0206	Std F8C7	YES	YES	YES	YES	YES	YES
Airbus	A320 family Honeywell Legacy FMS	B398BAM0209	Std F8C105	YES	YES	YES	YES	YES	YES
Airbus	A320 family Honeywell Legacy FMS	B398BCM0108	Std F8I7	YES	YES	YES	YES	YES	YES
Airbus	A320 family Honeywell Legacy FMS	B398BCM0109	Std F8I105	YES	YES	YES	YES	YES	YES
Airbus	A320 family Honeywell Legacy FMS	B546BCM0205	Std F8I7	YES	YES	YES	YES	YES	YES
Airbus	A320 family Honeywell Legacy FMS	B546CCM0104	Std FA8I7	YES	YES	YES	YES	YES	YES
Airbus	A320 family Honeywell Legacy FMS	B546CCM0105	Std FA8I701	YES	YES	YES	YES	YES	YES
Airbus	A320 family Honeywell Legacy FMS	B546CCM0106	Std FA9I702	YES	YES	YES	YES	YES	YES

Airbus: Last Update 10/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Airbus	A320 family Honeywell Legacy FMS	B546CAM0102	Std FA8C7	YES	YES	YES	YES	YES	YES
Airbus	A320 family Honeywell Legacy FMS	B546CAM0103	Std FA8C701	YES	YES	YES	YES	YES	YES
Airbus	A320 family Honeywell Legacy FMS	B546CAM0104	Std FA9C702	YES	YES	YES	YES	YES	YES
Airbus	A320 family Honeywell Pegasus FMS	C13042AA01	Std P1C8	YES	YES	YES	YES	YES	YES
Airbus	A320 family Honeywell Pegasus FMS	C13042AA02	Std P1C9	YES	YES	YES	YES	YES	YES
Airbus	A320 family Honeywell Pegasus FMS	C13042AA03	Std P1C11	YES	YES	YES	YES	YES	YES
Airbus	A320 family Honeywell Pegasus FMS	C13042AA04	Std P1C12	YES	YES	YES	YES	YES	YES
Airbus	A320 family Honeywell Pegasus FMS	C13042BA01	Std P1I8	YES	YES	YES	YES	YES	YES

Airbus: Last Update 10/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Airbus	A320 family Honeywell Pegasus FMS	C13042BA02	Std P1I10	YES	YES	YES	YES	YES	YES
Airbus	A320 family Honeywell Pegasus FMS	C13042BA03	Std P1I11	YES	YES	YES	YES	YES	YES
Airbus	A330/A340 Honeywell Legacy FMS	B490CAM0308	L10CD7	YES	YES	YES	YES	YES	YES
Airbus	A330/A340 Honeywell Legacy FMS	B490BAM0310	L10B7	YES	YES	YES	YES	YES	YES
Airbus	A330/A340 Honeywell Legacy FMS	B490AAM0313	L10A10	YES	YES	YES	YES	YES	YES
Airbus	A330/A340 Honeywell Pegasus FMS	C12858CA01	P1 or P2CD7	YES	YES	YES	YES	YES	YES
Airbus	A330/A340 Honeywell Pegasus FMS	C12858CA02	P2CD8	YES	YES	YES	YES	YES	YES
Airbus	A330/A340 Honeywell Pegasus FMS	C12858BA01	P1 or P2B7	YES	YES	YES	YES	YES	YES

Airbus: Last Update 10/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Airbus	A330/A340 Honeywell Pegasus FMS	C12858BA02	P2B8	YES	YES	YES	YES	YES	YES
Airbus	A330/A340 Honeywell Pegasus FMS	C12858AA01	P1A8	YES	YES	YES	YES	YES	YES
Airbus	A330/A340 Honeywell Pegasus FMS	C12858AA02	P1A9	YES	YES	YES	YES	YES	YES
Airbus	A330/A340 Honeywell Pegasus FMS	C12858AA03	P2A10	YES	YES	YES	YES	YES	YES
Airbus	A330/A340 Honeywell Pegasus FMS	C12858EA03	P2E3	YES	YES	YES	YES	YES	YES
Airbus	A330/A340 Honeywell Pegasus FMS	C12858EA04	P2E4	YES	YES	YES	YES	YES	YES
Airbus	A330/A340 Honeywell Pegasus FMS	C12858EA05	P2E5	YES	YES	YES	YES	YES	YES
Airbus	A330/A340 Honeywell Pegasus FMS	C12858EA07	P2E7	YES	YES	YES	YES	YES	YES

Airbus: Last Update 10/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Airbus	A330/A340 Honeywell Pegasus FMS	C12858BA02	P3B8	YES	YES	YES	YES	YES	YES
Airbus	A330/A340 Honeywell Pegasus FMS	C12858CA02	P3CD8	YES	YES	YES	YES	YES	YES
Airbus	A330/A340 Honeywell Pegasus FMS	C12858EA07	P3E7	YES	YES	YES	YES	YES	YES
Airbus	A320 family Thales FMS	C13043AA01	S1C8	YES	YES	YES	YES	YES	YES
Airbus	A320 family Thales FMS	C13043AA02	S1C10 or S2C10	YES	YES	YES	YES	YES	YES
Airbus	A320 family Thales FMS	C13043AA03	S2C11 or S3C11	YES	YES	YES	YES	YES	YES
Airbus	A320 family Thales FMS	C13043BA01	S1I8	YES	YES	YES	YES	YES	YES
Airbus	A320 family Thales FMS	C13043BA02	S2I9 or S3I9 or S4I9	YES	YES	YES	YES	YES	YES
Airbus	A320 family Thales FMS	C13043BA03	S3I10 or S4I10	YES	YES	YES	YES	YES	YES
Airbus	A320 family Thales FMS	C13043AA03	S4C11	YES	YES	YES	YES	YES	YES
Airbus	A320 family Thales FMS	C13043AA04	S4C12	YES	YES	YES	YES	YES	YES

Airbus: Last Update 10/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Airbus	A320 family Thales FMS	C13043BA04	S4I11	YES	YES	YES	YES	YES	YES
Airbus	A330/A340 Thales FMS	C13039AA01	T1A10	YES	YES	YES	YES	YES	YES
Airbus	A330/A340 Thales FMS	C13039BA01	T1B8 or T2B8	YES	YES	YES	YES	YES	YES
Airbus	A330/A340 Thales FMS	C13039CA01	T1CD8 or T2CD8	YES	YES	YES	YES	YES	YES
Airbus	A330/A340 Thales FMS	C13039EA01	T2E7	YES	YES	YES	YES	YES	YES
Airbus	A330/A340 Thales FMS	C13039AA02	T2A11	YES	YES	YES	YES	YES	YES
Airbus	A380 Honeywell FMS	4090000-905	A380 standard (HNP53XAL01X8001)	YES	YES	YES	YES	YES	YES
Airbus	A300-600 / A310 Smiths FMS	745SUE1A1	LAT C3.0	NO	YES	To be assessed by FAA	Q route only	YES	YES
Airbus	A300-600 / A310 Smiths FMS	745SUE3A2	LAT 3	NO	YES	To be assessed by FAA	Q route only	YES	YES
Airbus	A300-600 / A310 Smiths FMS	745SUE3A2-1	LAT 3 A	NO	YES	To be assessed by FAA	Q route only	YES	YES
Airbus	A300-600 / A310 Smiths FMS	745SUE4B3	PERF 1B	NO	YES	To be assessed by FAA	Q route only	YES	YES
Airbus	A300-600 / A310 Smiths FMS	745SUE4B3-1	PERF 1B +	NO	YES	To be assessed by FAA	Q route only	YES	YES

Airbus: Last Update 10/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Airbus	A300-600 / A310 Smiths FMS	745SUE4B4	PERF 2B	NO	YES	To be assessed by FAA	Q route only	YES	YES
Airbus	A300-600 / A310 Smiths FMS	745SUE4D4	PERF 2D	NO	YES	To be assessed by FAA	Q route only	YES	YES
Airbus	A300-600 / A310 Smiths FMS	745SUE4F4	PERF 2F	NO	YES	To be assessed by FAA	Q route only	YES	YES
Airbus	A300-600 / A310 Smiths FMS	745SUE-5H5	PERF 2H	NO	YES	To be assessed by FAA	Q route only	YES	YES
Airbus	A300-600 / A310 Smiths FMS	745SUE4A3	PERF 1A	NO	YES	To be assessed by FAA	Q route only	YES	YES
Airbus	A300-600 / A310 Smiths FMS	745SUE4A3-1	PERF 1A +	NO	YES	To be assessed by FAA	Q route only	YES	YES
Airbus	A300-600 / A310 Smiths FMS	745SUE4A4	PERF 2A	NO	YES	To be assessed by FAA	Q route only	YES	YES
Airbus	A300-600 / A310 Smiths FMS	745SUE4C4	PERF 2C	NO	YES	To be assessed by FAA	Q route only	YES	YES
Airbus	A300-600 / A310 Smiths FMS	745SUE-5G5	PERF 2G	NO	YES	To be assessed by FAA	Q route only	YES	YES
Airbus	A300 GNLU Collins	822-1155-001	FFCC GNLU-910	YES	NO	Pending FAA	YES	YES	YES
Airbus	A300 GNLU Collins	GNLU-910: 822-1155-100 ND FPI-955: 822-1088-001	B2/B4 GNLU-910	YES	NO	To be assessed by FAA	YES	YES	YES

Table 2: Boeing

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Note: All systems must have an appropriate navigation database and a procedure to inhibit NOTAM'd DME facilities (on test or unreliable)

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
Boeing	B737-300 thru 500	62044-XXX-YY XXX = 401 (U5 SW)/501(U6.0)/502(U6.1)/503(U6.1) YY = 02/03/04 (U3 HW)/06/07/08 (U4E HW)	U1.4 - 1.6 / U5 / U6 Series FMC	N/A	Yes	Yes, given DB supplier compliance to DO-200A	Q route only	YES	YES	NO
Boeing	B737-300 thru 500	171497-05-01 176200-01-01	U7.5 and U8.5 FMC	Yes	Yes	Yes, given DB supplier compliance to DO-200A	YES	YES	YES	NO

Boeing: Last Updated 02/2016

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
Boeing	B737-300 thru 900ER and BBJ	171497-05-01 176200-01-01	U10 Series FMC up through U10.8A	Yes	Yes	Yes, given DB supplier compliance to DO-200A	YES	YES	YES	NO
Boeing	B737-300 thru 900ER and BBJ	171497-05-01 176200-01-01	U11 and U12 Series FMC	Yes	Yes	Yes, given DB supplier compliance to DO-200A	YES	YES	YES	NO
Boeing	P8-A (737-800)	185019-001	555862-17-01	Yes	Yes	Yes, given DB supplier compliance to DO-200A	Yes	Yes	Yes	NO
Boeing	B747-400	4052506-955	3403-HNP-04U-03 BP16A	Yes	Yes	Yes, given DB supplier compliance to DO-200A	YES	YES	YES	NO
Boeing	B747-400NG	4052508-960	HNP55-AL11-9007	Yes	Yes	Yes, given DB supplier	YES	YES	YES	NO

Boeing: Last Updated 02/2016

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
			BP3.1			compliance to DO-200A				
Boeing	B747	Only applicable to Boeing 747-400 with CMA 900 Nav System retrofit per Boeing Service Bulletin	(Boeing 747-SL-02-017-B)	Yes	Yes	Yes, given DB supplier compliance to DO-200A	YES	YES	YES	NO
Boeing	B747-8	FMC part number S242T102-552 and on	FMC OPS software HNP55-AL11-9002 or later	Yes	Yes	Yes, given DB supplier compliance to DO-200A	YES	YES	YES	NO
Boeing	B757/767	FMC part numbers S242T102-226 / -330 and on	200K FMC	N/A	Yes	Yes, given DB supplier compliance to DO-200A	Q route only	YES	YES	NO

Boeing: Last Updated 02/2016

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
Boeing	B757/767	FMC part numbers PS4052970-944 and on	1 Meg Non-PIP FMC	N/A	Yes	Yes, given DB supplier compliance to DO-200A	Q route only	YES	YES	NO
Boeing	B757/767	FMC part numbers PS4052970-955 and on; and P/N 4078941-100	PIP Series FMC	N/A	Yes	Yes, given DB supplier compliance to DO-200A	Q route only	YES	YES	NO
Boeing	B767 AWACS	FMC part number PS4078941-100 (for 767 airplanes equipped with	PIP Series FMC	N/A	Yes	Yes, given DB supplier compliance to DO-200A	Q route only	YES	YES	NO

Boeing: Last Updated 02/2016

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
		P/N PS4078941-100 please reference FCOM bulletin CIT-11 R2, FMC Holding Pattern Anomaly, dated 6 July, 2001).								
Boeing	B767-2C (KC-46)	187185-001R	TBD	Yes, civilian GPS only	Yes	Yes, given DB supplier compliance to DO-200A	Yes	Yes	Yes	No
Boeing	B757/767	S242T102-226	4052500-926	PS4052520-126	200K	Yes, given DB supplier compliance to	Q route only	YES	YES	NO

Boeing: Last Updated 02/2016

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
						DO-200A				
Boeing	B757/767	S242T102-227	4052500-927	PS4052520-127	200K	Yes, given DB supplier compliance to DO-200A	Q route only	YES	YES	NO
Boeing	B757/767	S242T102-228	4052500-928	PS4052520-128	200K	Yes, given DB supplier compliance to DO-200A	Q route only	YES	YES	NO
Boeing	B757/767	S242T102-330	4052500-961	PS4052520-161	200K	Yes, given DB supplier compliance to DO-200A	Q route only	YES	YES	NO
Boeing	B757/767	S242T102-331	4052500-962	PS4052520-162	200K	Yes, given DB supplier compliance to DO-200A	Q route only	YES	YES	NO

Boeing: Last Updated 02/2016

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
Boeing	B757/767	S242T102-332	4052500-963	PS4052520-163	200K	Yes, given DB supplier compliance to DO-200A	Q route only	YES	YES	NO
Boeing	B757/767	S242T102-333	4052500-964	PS4052520-164	200K	Yes, given DB supplier compliance to DO-200A	Q route only	YES	YES	NO
Boeing	B757/767	S242T102-450/-451	4052506-940/-941	PS4052970-944	1 MEG NON-PIP	Yes, given DB supplier compliance to DO-200A	Q route only	YES	YES	NO
Boeing	B757/767	S242T102-450/-451	4052506-940/-941	PS4052970-945	1 MEG NON-PIP	Yes, given DB supplier compliance to DO-200A	Q route only	YES	YES	NO
Boeing	B757/767	S242T102-450/-451	4052506-940/-941	PS4052970-946	1 MEG NON-PIP	Yes, given DB supplier	Q route only	YES	YES	NO

Boeing: Last Updated 02/2016

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
						compliance to DO-200A				
Boeing	B757/767	S242T102-451	4052506-941	PS4052970-955	1 MEG PIP	Yes, given DB supplier compliance to DO-200A	Q route only	YES	YES	NO
Boeing	B767 AWACS	S242T102-451	4052506-941	PS4078941-100	1 MEG PIP	Yes, given DB supplier compliance to DO-200A	Q route only	YES	YES	NO
Boeing	B757/767	S242T102-451	4052506-941	PS4052970-956	1 MEG PIP	Yes, given DB supplier compliance to DO-200A	Q route only	YES	YES	NO
Boeing	B757/767	S242T102-451	4052506-941	PS4052970-958	1 MEG PIP	Yes, given DB supplier compliance to DO-200A	Q route only	YES	YES	NO

Boeing: Last Updated 02/2016

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
Boeing	B757/767	S242T102-451	4052506-941	PS4052970-959	1 MEG PIP	Yes, given DB supplier compliance to DO-200A	Q route only	YES	YES	NO
Boeing	B757/767	S242T102-455	4052506-955	All software part numbers	Pegasus	Yes, given DB supplier compliance to DO-200A	Q route only	YES	YES	NO
Boeing	B777	AIMS-1	All models	Yes	Yes	Yes, given DB supplier compliance to DO-200A	YES	YES	YES	NO
Boeing	B777	AIMS-2	All models	Yes	Yes	Yes, given DB supplier compliance to DO-200A	YES	YES	YES	NO

Boeing: Last Updated 02/2016

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
Boeing	B787-8/-9		FMS BP 2A, HNP57-AL11-5009 and on	Yes	Yes	Yes, given DB supplier compliance to DO-200A	YES	YES	YES	YES
Boeing (18 April 2007)	MD-80	4052504-925	Peg	N/A	Yes, if IRU-equipped	Yes, given DB supplier compliance to DO-200A	Q route only	YES	Yes, if IRU-equipped	NO
Boeing (18 April 2007)	MD-80	4052504-927	Peg	Yes	Yes, if IRU-equipped	Yes, given DB supplier compliance to DO-200A	YES	YES	Yes, if IRU-equipped	NO
Boeing (18 April 2007)	MD-90	4073241-901	Peg	N/A	Yes	Yes, given DB supplier compliance to DO-200A	Q route only	YES	YES	NO
Boeing (18 April 2007)	MD-90	4073241-921	Peg	Yes	Yes	Yes, given DB supplier	YES	YES	YES	NO

Boeing: Last Updated 02/2016

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
						compliance to DO-200A				
Boeing (18 April 2007)	MD-10	4073241-901	Peg	Yes	Yes	Yes, given DB supplier compliance to DO-200A	YES	YES	YES	NO
Boeing (18 April 2007)	MD-10	4073241-902	Peg	Yes	Yes	Yes, given DB supplier compliance to DO-200A	YES	YES	YES	NO
Boeing (18 April 2007)	MD-10	4073241-903	Peg	Yes	Yes	Yes, given DB supplier compliance to DO-200A	YES	YES	YES	NO
Boeing (18 April 2007)	MD-11	4059050-920	Peg	Yes	Yes	Yes, given DB supplier compliance to DO-200A	YES	YES	YES	NO

Boeing: Last Updated 02/2016

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
Boeing (18 April 2007)	MD-11	4059050-921	Peg	Yes	Yes	Yes, given DB supplier compliance to DO-200A	YES	YES	YES	NO
Boeing (18 April 2007)	MD-11	4059050-922	Peg	Yes	Yes	Yes, given DB supplier compliance to DO-200A	YES	YES	YES	NO
Boeing (18 April 2007)	717	4081570-901	HW controlled	Yes	Yes	Yes, given DB supplier compliance to DO-200A	YES	YES	YES	NO
Boeing (18 April 2007)	717	4081570-902	HW controlled	Yes	Yes	Yes, given DB supplier compliance to DO-200A	YES	YES	YES	NO
Boeing (18 April 2007)	717	4081570-904	HW controlled	Yes	Yes	Yes, given DB supplier	YES	YES	YES	NO

Boeing: Last Updated 02/2016

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
						compliance to DO-200A				
Boeing (18 April 2007)	717	4081570-905	HW controlled	Yes	Yes	Yes, given DB supplier compliance to DO-200A	YES	YES	YES	NO
Boeing (18 April 2007)	717	4081570-906	HW controlled	Yes	Yes	Yes, given DB supplier compliance to DO-200A	YES	YES	YES	NO
Boeing (18 April 2007)	717	4081570-908	HW controlled	Yes	Yes	Yes, given DB supplier compliance to DO-200A	YES	YES	YES	NO
Boeing (18 April 2007)	717	4081570-909	HW controlled	Yes	Yes	Yes, given DB supplier compliance to DO-200A	YES	YES	YES	

Table 3: Bombardier

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Note: All systems must have an appropriate navigation database and a procedure to inhibit NOTAM'd DME facilities (on test or unreliable)

Manufacturer	Aircraft Type/System	Part Number	Software Version	Approval using GPS (Yes/No)	Approval using DME/DME/IRU (Yes/No)	Database Integrity (Type 2 LOA)	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Bombardier	Learjet 40XR-45XR / Honeywell Primus 1000 with UNS-1E FMS	2017-41-201	SCN 802.5	Yes	No	Yes	Yes	Yes	Yes
Bombardier	Learjet 60XR / Rockwell-Collins PL 21 FMS (FMC-5000)	822-0891-034	Hardware controlled	Yes	No	Yes	Yes	Yes	No
Bombardier	Learjet 70-75 / Garmin G5000 FMS Integrated into displays	011-01910-30	Phase IIB 006-B1606-12	Yes	No	Yes	Yes	Yes	Yes
Bombardier	Challenger 300-350 / Rockwell-Collins PL 21 Advanced FMS 6200	822-2488-100 822-2488-101	Hardware controlled	Yes	Yes	Yes	Yes	Yes	Yes
Bombardier	Challenger 300 / Rockwell-Collins PL 21 FMS 5000	822-0891-010 822-0891-012 822-0891-014 822-0891-017 822-0891-018	Hardware controlled	Yes	No	Yes	Yes	Yes	Yes
Bombardier	Challenger 605-650 / Rockwell-Collins PL 21 Advanced FMS 6200	822-2488-102	Hardware controlled	Yes	Yes	Yes	Yes	Yes	Yes

Bombardier: Last Updated 04/2016

Manufacturer	Aircraft Type/System	Part Number	Software Version	Approval using GPS (Yes/No)	Approval using DME/DME/IRU (Yes/No)	Database Integrity (Type 2 LOA)	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Bombardier	Challenger 605 / Rockwell-Collins PL 21 FMS 6000	822-0868-074 822-0868-075	Hardware controlled	Yes	Yes	Yes	Yes	Yes	Yes
Bombardier	Challenger 604 / Rockwell-Collins PL 4 FMS 6000	822-0868-004 822-0868-010 822-0868-021 822-0868-031	Hardware controlled	Yes	No	Yes	Yes	Yes	Yes
Bombardier	Challenger 604 / Rockwell-Collins PL 4 FMS	822-0868-029 822-0868-030	Hardware controlled	Yes	Yes	Yes	Yes	Yes	Yes
Bombardier	Challenger 604 / Rockwell-Collins PL 4 FMS 6000	822-0868-071 822-0868-072	Hardware controlled	Yes	Yes	Yes	Yes	Yes	Yes
Bombardier	Challenger 604 / Rockwell-Collins PL 4 FMS 6000	822-0868-089 822-0868-090	Hardware controlled	Yes	Yes	Yes	Yes	Yes	Yes
Bombardier	Global 5000-6000 / Rockwell-Collins PL Fusion FMSA-6010	All	All	Yes	No	Yes	Yes	Yes	Yes
Bombardier	Global 5000-6000 Classic / Honeywell Primus 2000XP FMS	All	All	Yes	No	Yes	Yes	Yes	Yes

Bombardier: Last Updated 04/2016

Manufacturer	Aircraft Type/System	Part Number	Software Version	Approval using GPS (Yes/No)	Approval using DME/DME/IRU (Yes/No)	Database Integrity (Type 2 LOA)	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Bombardier	CRJ200/ Rockwell-Collins PL 4 FMS-4200	822-0783-002	Hardware controlled	Yes - if GPS equipped	No	Yes	Yes	Yes	Yes - if GPS equipped
Bombardier	CRJ200/ Rockwell-Collins PL 4 FMS-4200	822-0783-006	Hardware controlled	Yes - if GPS equipped	No	Yes	Yes	Yes	Yes - if GPS equipped
Bombardier	CRJ200/ Rockwell-Collins PL 4 FMS-4200	822-0783-011	Hardware controlled	Yes - if GPS equipped	No	Yes	Yes	Yes	Yes - if GPS equipped
Bombardier	CRJ200/ Rockwell-Collins PL 4 FMS-4200	822-0783-013	Hardware controlled	Yes - if GPS equipped	No	Yes	Yes	Yes	Yes - if GPS equipped
Bombardier	CRJ700/900 Rockwell-Collins PL 4 FMS-4200	822-0783-015	Hardware controlled	Yes - if GPS equipped	No	Yes	Yes	Yes	Yes - if GPS equipped
Bombardier	CRJ700/900/1000/ Rockwell-Collins PL 4 FMS-4200	822-0783-028	Hardware controlled	Yes - if GPS equipped	Yes - if IRU equipped	Yes	Yes	Yes	Yes - if GPS equipped
Bombardier	CRJ700/900/1000/ Rockwell-Collins PL 4 FMS-4200	822-0783-032	Hardware controlled	Yes - if GPS equipped	Yes - if IRU equipped	Yes	Yes	Yes	Yes - if GPS equipped
Bombardier	CRJ700/900/1000/ Rockwell-Collins PL 4 FMS-4200	822-0783-036	Hardware controlled	Yes - if GPS equipped	Yes - if IRU equipped	Yes	Yes	Yes	Yes - if GPS equipped
Bombardier	Dash 8 Q400 / Universal UNS-1Ew	3017-41-221	SCN 1000.1, SCN 1000.5	Yes, with applicable	No	Yes	Yes	Yes	Yes

Bombardier: Last Updated 04/2016

Manufacturer	Aircraft Type/System	Part Number	Software Version	Approval using GPS (Yes/No)	Approval using DME/DME/IRU (Yes/No)	Database Integrity (Type 2 LOA)	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
	FMS			AFM Supplement.					
Bombardier	Dash 8 Q400 / Universal UNS-1E FMS	2017-41-221	SCN 801.2, SCN 801.5, SCN 802.0, SCN 802.2, SCN 802.8, SCN 803.0	Yes, with applicable AFM Supplement.	No	Yes	Yes	Yes	Yes

Table 4: CMC Electronics

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Note 1: Provided that, in the absence of GPS, both DME and inertial navigation modes are available, and the DME infrastructure supports a minimum of three (3) DME facilities.
Note 2: All systems must have an appropriate navigation database and a procedure to inhibit NOTAM'd DME facilities (on test or unreliable)

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
CMC Electronics Inc.	CMA-900	100-601900-4XX Operated with GPS listed below:	169-614147-XXX	YES	YES. Subject to Note 1 above.	Type 2 LOA, 23 April 2006.	YES	YES	YES
CMC Electronics Inc.	CMA-900	245-601650-XXX	69-613855-XXX	YES	YES. Subject to Note 1 above.	Type 2 LOA, 23 April 2006.	YES	YES	YES
CMC Electronics Inc.	CMA-900	100-601600-XXX	169-613751-XXX	YES	YES. Subject to Note 1 above.	Type 2 LOA, 23 April 2006.	YES	YES	YES
CMC Electronics Inc.	CMA-900	100-601900-2XX Operated with GPS listed below.	169-612830-6XX	YES	YES. Subject to Note 1 above.	Type 2 LOA, 23 April 2006.	YES	YES	YES
CMC Electronics Inc.	CMA-900	245-601650-XXX	169-613855-XXX	YES	YES. Subject to Note 1 above.	Type 2 LOA, 23 April 2006.	YES	YES	YES
CMC Electronics Inc.	CMA-900	100-601600-XXX	169-613751-XXX	YES	YES. Subject to Note 1 above.	Type 2 LOA, 23 April 2006.	YES	YES	YES

CMC Electronics: Last Updated 12/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
CMC Electronics Inc	CMA-9000	100-601951-XXX operated with GPS listed below:	169-614876-XXX	YES	YES. Subject to Note 1 above.	Type 2 LOA TCCA April 13, 2013	YES	YES	YES
CMC Electronics Inc.	CMA-9000	CMC: 100-601600-XXX	169-613751-XXX	YES	YES. Subject to Note 1 above.	Type 2 LOA TCCA April 13, 2013	YES	YES	YES
CMC Electronics Inc.	CMA-9000	CMC: 100-601944-XXX	169-614788-XXX	YES	YES. Subject to Note 1 above.	Type 2 LOA TCCA April 13, 2013	YES	YES	YES
CMC Electronics Inc.	CMA-9000	CMC: 245-601650-XXX	169-613850-5XX	YES	YES. Subject to Note 1 above.	Type 2 LOA TCCA April 13, 2013	YES	YES	YES
CMC Electronics Inc.	CMA-9000	CMC: 100-601967-XXX	169-615116-XXX	YES	YES. Subject to Note 1 above.	Type 2 LOA TCCA April 13, 2013	YES	YES	YES
CMC Electronics Inc.	CMA-9000	Honeywell: HG2021G02	169-613751-207	YES	YES. Subject to Note 1 above.	Type 2 LOA TCCA April 13, 2013	YES	YES	YES
CMC Electronics Inc.	CMA-9000	Honeywell: HG2021GD03	169-614788-XXX	YES	YES. Subject to Note 1 above.	Type 2 LOA TCCA April 13, 2013	YES	YES	YES
CMC Electronics Inc.	CMA-9000	Trimble: 24835-10	TA12-CX-0129	YES	YES. Subject to Note 1 above.	Type 2 LOA TCCA April 13, 2013	YES	YES	YES
CMC Electronics Inc.	CMA-9000	Thales: TLS755-01-0101B	Part of HW PN	YES	YES. Subject to Note 1 above.	Type 2 LOA TCCA April 13, 2013	YES	YES	YES

CMC Electronics: Last Updated 12/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
CMC Electronics Inc.	CMA-9000	Thales: TLS755-01-0102A	Part of HW PN	YES	YES. Subject to Note 1 above.	Type 2 LOA TCCA April 13, 2013	YES	YES	YES
CMC Electronics Inc.	CMA-9000	Collins: GLU-920	Part of HW PN	YES	YES. Subject to Note 1 above.	Type 2 LOA TCCA April 13, 2013	YES	YES	YES
CMC Electronics Inc.	CMA-9000	100-601951-XXX operated with GPS listed below:	169-616414-XXX	YES	YES. Subject to Note 1 above.	Type 2 LOA TCCA April 13, 2013	YES	YES	YES
CMC Electronics Inc.	CMA-9000	CMC: 100-601600-XXX	169-613751-XXX	YES	YES. Subject to Note 1 above.	Type 2 LOA TCCA April 13, 2013	YES	YES	YES
CMC Electronics Inc.	CMA-9000	CMC: 100-601944-XXX	169-614788-XXX	YES	YES. Subject to Note 1 above.	Type 2 LOA TCCA April 13, 2013	YES	YES	YES
CMC Electronics Inc.	CMA-9000	CMC: 245-601650-XXX	169-613850-5XX	YES	YES. Subject to Note 1 above.	Type 2 LOA TCCA April 13, 2013	YES	YES	YES
CMC Electronics Inc.	CMA-9000	CMC: 100-601967-XXX	169-615116-XXX	YES	YES. Subject to Note 1 above.	Type 2 LOA TCCA April 13, 2013	YES	YES	YES
CMC Electronics Inc.	CMA-9000	Honeywell: HG2021G02	169-613751-207	YES	YES. Subject to Note 1 above.	Type 2 LOA TCCA April 13, 2013	YES	YES	YES
CMC Electronics Inc.	CMA-9000	Honeywell: HG2021GD03	169-614788-XXX	YES	YES. Subject to Note 1 above.	Type 2 LOA TCCA April 13, 2013	YES	YES	YES

CMC Electronics: Last Updated 12/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
CMC Electronics Inc.	CMA-9000	Trimble: 24835-10	TA12-CX-0129	YES	YES. Subject to Note 1 above.	Type 2 LOA TCCA April 13, 2013	YES	YES	YES
CMC Electronics Inc.	CMA-9000	Thales: TLS755-01-0101B	Part of HW PN	YES	YES. Subject to Note 1 above.	Type 2 LOA TCCA April 13, 2013	YES	YES	YES
CMC Electronics Inc.	CMA-9000	Thales: TLS755-01-0102A	Part of HW PN	YES	YES. Subject to Note 1 above.	Type 2 LOA TCCA April 13, 2013	YES	YES	YES
CMC Electronics Inc.	CMA-9000	Collins: GLU-920	Part of HW PN	YES	YES. Subject to Note 1 above.	Type 2 LOA TCCA April 13, 2013	YES	YES	YES
CMC Electronics Inc.	C4X IAS	100-602580-XXX Operated with GPS listed below:	169-615185-XXX	YES	YES. Subject to Note 1 above.	Type 2 LOA TCCA April 13, 2013	YES	YES	YES
CMC Electronics Inc.	C4X IAS	CMC: 245-601738-XXX	169-614432-XXX	YES	YES. Subject to Note 1 above.	Type 2 LOA TCCA April 13, 2013	YES	YES	YES

Table 5: Dassault

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Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Dassault MF900B	Honeywell FMS NZ-920	7004402-987	9402	YES, with the following GPS: Honeywell HG2021GB01; Honeywell HG2021GD02	YES, with the following DME: Collins DME-42 (622-6263-001), (622-6263-003)	YES Honeywell holds a Type 2 LOA.	YES	YES	YES
Dassault MF900B	Honeywell FMS NZ-2000	7018879-01002	NZ4.1A, NZ4.1B, NZ4.1C, NZ4.1D	YES, with the following GPS: Honeywell HG2021GB01; HG2021GD02	YES, with the following DME: Collins DME-42 (622-6263-001), (622-6263-003)	YES Honeywell holds a Type 2 LOA.	YES	YES	YES
Dassault MF900B	Honeywell FMS NZ-2000	7018879-03020	NZ5.2	YES, with the following GPS: Honeywell HG2021GB01, Honeywell HG2021GD02	YES, with the following DME: Collins DME-42 (622-6263-001), (622-6263-003)	YES Honeywell holds a Type 2 LOA.	YES	YES	YES
Dassault F900C / F900EX	Honeywell FMS NZ-2000	--	V4.3,	Yes, with the following GPS: Honeywell HG2021GD02	YES, with the following DME: Collins DME-442 (622-7309-101)	YES Honeywell holds a Type 2 LOA.	YES	YES	YES

Dassault: Last Updated 9/2008

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Dassault F900C / F900EX	Honeywell FMS NZ-2000	--	V4.8,	Yes, with the following GPS: Honeywell HG2021GD02	YES, with the following DME: Collins DME-442 (622-7309-101)	YES Honeywell holds a Type 2 LOA.	YES	YES	YES
Dassault F900C / F900EX	Honeywell FMS NZ-2000	--	V4.9,	Yes, with the following GPS: Honeywell HG2021GD02	YES, with the following DME: Collins DME-442 (622-7309-101)	YES Honeywell holds a Type 2 LOA.	YES	YES	YES
Dassault F900C / F900EX	Honeywell FMS NZ-2000	--	V5.1,	Yes, with the following GPS: Honeywell HG2021GD02	YES, with the following DME: Collins DME-442 (622-7309-101)	YES Honeywell holds a Type 2 LOA.	YES	YES	YES
Dassault F900C / F900EX	Honeywell FMS NZ-2000	--	V5.2,	Yes, with the following GPS: Honeywell HG2021GD02	YES, with the following DME: Collins DME-442 (622-7309-101)	YES Honeywell holds a Type 2 LOA.	YES	YES	YES
Dassault F900C / F900EX	Honeywell FMS NZ-2000	--	V5.2A,	Yes, with the following GPS: Honeywell HG2021GD02	YES, with the following DME: Collins DME-442 (622-7309-101)	YES Honeywell holds a Type 2 LOA.	YES	YES	YES
Dassault F900C / F900EX	Honeywell FMS NZ-2000	--	V5.2B,	Yes, with the following GPS: Honeywell HG2021GD02	YES, with the following DME: Collins DME-442 (622-7309-101)	YES Honeywell holds a Type 2 LOA.	YES	YES	YES

Dassault: Last Updated 9/2008

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Dassault F900C / F900EX	Honeywell FMS NZ-2000	--	V5.2C	Yes, with the following GPS: Honeywell HG2021GD02	YES, with the following DME: Collins DME-442 (622-7309-101)	YES Honeywell holds a Type 2 LOA.	YES	YES	YES
Dassault F900EX EASy / F900DX	Honeywell Primus Epic FMS Proc module PII	7026536-1901	--	YES, with the following GPS module: Honeywell 245-604067-001	YES, with the following DME: Honeywell DM-855 (7510184-855)	YES Honeywell holds a Type 2 LOA.	YES	YES	YES
Dassault F2000	Honeywell FMS NZ-2000	7018879-02003	NZ4.233	YES, with the following GPS (for NZ4.233 to NZ5.1): Honeywell HG2021GD02	YES, with the following DME (for NZ4.233 to NZ5.1): Collins DME-442 (622-7309-101)	YES Honeywell holds a Type 2 LOA.	YES	YES	YES
Dassault F2000	Honeywell FMS NZ-2000	7018879-02003	NZ4.233	YES, with the following GPS (for NZ4.233 to NZ5.1): Honeywell HG2021GD02	YES, with the following DME (for NZ4.233 to NZ5.1): Collins DME-442 (622-7309-101)	YES Honeywell holds a Type 2 LOA.	YES	YES	YES
Dassault F2000	Honeywell FMS NZ-2000	7018879-02004	NZ4.5	YES, with the following GPS (for NZ4.233 to NZ5.1): Honeywell HG2021GD02	YES, with the following DME (for NZ4.233 to NZ5.1): Collins DME-442 (622-7309-101)	YES Honeywell holds a Type 2 LOA.	YES	YES	YES

Dassault: Last Updated 9/2008

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Dassault F2000	Honeywell FMS NZ-2000	7018879-02010	NZ4.5C	YES, with the following GPS (for NZ4.233 to NZ5.1): Honeywell HG2021GD02	YES, with the following DME (for NZ4.233 to NZ5.1): Collins DME-442 (622-7309-101)	YES Honeywell holds a Type 2 LOA.	YES	YES	YES
Dassault F2000	Honeywell FMS NZ-2000	7018879-03018	NZ5.1	YES, with the following GPS (for NZ4.233 to NZ5.1): Honeywell HG2021GD02	YES, with the following DME (for NZ4.233 to NZ5.1): Collins DME-442 (622-7309-101)	YES Honeywell holds a Type 2 LOA.	YES	YES	YES
Dassault F2000	Collins FMS-6100	822-0868-011		YES, with the following GPS module: Collins GPS-4000 or GPS-4000A	NO	YES Collins holds a Type 2 LOA	YES with GPS only	YES with GPS only	YES with GPS only
Dassault F2000	Collins FMS-6100	822-0868-015		YES, with the following GPS module: Collins GPS-4000 or GPS-4000A	NO	YES Collins holds a Type 2 LOA	YES with GPS only	YES with GPS only	YES with GPS only
Dassault F2000	Collins FMS-6100	822-0868-023		YES, with the following GPS module: Collins GPS-4000 or GPS-4000A	NO	YES Collins holds a Type 2 LOA	YES with GPS only	YES with GPS only	YES with GPS only

Dassault: Last Updated 9/2008

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Dassault F2000	Collins FMS-6100	822-0868-028		YES, with the following GPS module: Collins GPS-4000 or GPS-4000A	NO	YES Collins holds a Type 2 LOA	YES with GPS only	YES with GPS only	YES with GPS only
Dassault F2000	Collins FMS-6100	822-0868-041		YES, with the following GPS module: Collins GPS-4000 or GPS-4000A	NO	YES Collins holds a Type 2 LOA	YES with GPS only	YES with GPS only	YES with GPS only
Dassault F2000	Collins FMS-6100	822-0868-055		YES, with the following GPS module: Collins GPS-4000 or GPS-4000A	NO	YES Collins holds a Type 2 LOA	YES with GPS only	YES with GPS only	YES with GPS only
Dassault F2000	Collins FMS-6100	822-0868-057		YES, with the following GPS module: Collins GPS-4000 or GPS-4000A	NO	YES Collins holds a Type 2 LOA	YES with GPS only	YES with GPS only	YES with GPS only
Dassault F2000	Universal UNS-1C	1017-41-021	600.0	YES, with integrated GPS	NO	YES Universal holds a Type 2 LOA.	YES with GPS only	YES with GPS only	YES with GPS only
Dassault F2000	Universal UNS-1C	1017-41-021	600.2	YES, with integrated GPS	NO	YES Universal holds a Type 2 LOA.	YES with GPS only	YES with GPS only	YES with GPS only

Dassault: Last Updated 9/2008

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Dassault F2000	Universal UNS-1C	1017-41-021	601.1	YES, with integrated GPS	NO	YES Universal holds a Type 2 LOA.	YES with GPS only	YES with GPS only	YES with GPS only
Dassault F2000	Universal UNS-1C	1017-41-021	601.2	YES, with integrated GPS	NO	YES Universal holds a Type 2 LOA.	YES with GPS only	YES with GPS only	YES with GPS only
Dassault F2000	Universal UNS-1C	1017-41-021	602.2	YES, with integrated GPS	NO	YES Universal holds a Type 2 LOA.	YES with GPS only	YES with GPS only	YES with GPS only
Dassault F2000	Universal UNS-1C	1017-41-021	603.2	YES, with integrated GPS	NO	YES Universal holds a Type 2 LOA.	YES with GPS only	YES with GPS only	YES with GPS only
Dassault F2000EX	Collins FMS-6100	822-0868-026		YES, with the following GPS module: Collins GPS-4000A	NO	YES Collins holds a Type 2 LOA	YES with GPS only	YES with GPS only	YES with GPS only
Dassault F2000EX	Collins FMS-6100	822-0868-040		YES, with the following GPS module: Collins GPS-4000A	NO	YES Collins holds a Type 2 LOA	YES with GPS only	YES with GPS only	YES with GPS only
Dassault F2000EX	Collins FMS-6100	822-0868-054		YES, with the following GPS module: Collins GPS-4000A	NO	YES Collins holds a Type 2 LOA	YES with GPS only	YES with GPS only	YES with GPS only
Dassault F2000EX	Collins FMS-6100	822-0868-057		YES, with the following GPS module: Collins GPS-4000A	NO	YES Collins holds a Type 2 LOA	YES with GPS only	YES with GPS only	YES with GPS only

Dassault: Last Updated 9/2008

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Dassault F2000EX EASy	Honeywell Primus Epic FMS Proc module PII	7026536-1901	--	YES, with the following GPS module: Honeywell 245-604067-001	YES, with the following DME: Honeywell DM-855 (7510184-855)	YES Honeywell holds a Type 2 LOA.	YES	YES	YES
Dassault F50EX	Honeywell FMS NZ-2000	7018879-02004	NZ4.5	YES, with the following GPS module: Honeywell 245-604067-001	YES, with the following DME: Collins DME-442 (622-7309-101)	YES Honeywell holds a Type 2 LOA.	YES	YES	YES
Dassault F50EX	Honeywell FMS NZ-2000	7018879-3012	NZ5.1	YES, with the following GPS module: Honeywell 245-604067-001	YES, with the following DME: Collins DME-442 (622-7309-101)	YES Honeywell holds a Type 2 LOA.	YES	YES	YES
Dassault F50EX	Universal UNS-1C	1017-41-021,	601.2 602.0 602.4 603.2	YES, with integrated GPS	NO	YES Universal holds a Type 2 LOA.	YES with GPS only	YES with GPS only	YES with GPS only
Dassault F50EX	Collins FMS-6100	822-0868-015	601.2 602.0 602.4 603.2	YES, with the following GPS module: Collins GPS-4000 or GPS-4000A	NO	YES Collins holds a Type 2 LOA	YES with GPS only	YES with GPS only	YES with GPS only

Dassault: Last Updated 9/2008

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Dassault F50EX	Collins FMS-6100	822-0868-026	601.2, 602.0, 602.4, 603.2	YES, with the following GPS module: Collins GPS-4000 or GPS-4000A	NO	YES Collins holds a Type 2 LOA	YES with GPS only	YES with GPS only	YES with GPS only
Dassault F50EX	Collins FMS-6100	822-0868-041	601.2, 602.0, 602.4, 603.2	YES, with the following GPS module: Collins GPS-4000 or GPS-4000A	NO	YES Collins holds a Type 2 LOA	YES with GPS only	YES with GPS only	YES with GPS only
Dassault F50EX	Collins FMS-6100	822-0868-055	601.2, 602.0, 602.4, 603.2	YES, with the following GPS module: Collins GPS-4000 or GPS-4000A	NO	YES Collins holds a Type 2 LOA	YES with GPS only	YES with GPS only	YES with GPS only
Dassault F50EX	Collins FMS-6100	822-0868-057	601.2, 602.0, 602.4, 603.2	YES, with the following GPS module: Collins GPS-4000 or GPS-4000A	NO	YES Collins holds a Type 2 LOA	YES with GPS only	YES with GPS only	YES with GPS only
Dassault F7X	Honeywell Primus Epic FMS Proc module PII	7026536-1901	--	YES, with integrated GPS in Honeywell VIDL-G module (7026207-802)	YES, with the following DME: Honeywell DM-855 (7510184-855)	YES Honeywell holds a Type 2 LOA.	YES	YES	YES

Table 6: Embraer

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Note 1: All systems must have an appropriate navigation database and a procedure to inhibit NOTAM'd DME facilities (on test or unreliable)

Note 2: RNAV systems on newer programs and major TSO updates have AC 90-100A compliance documented in the AFM.

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
Embraer ERJ-135/145 and Legacy	Honeywell FMS NZ2000	7018879-03014 MOD B	5.2B	Yes	Yes (for those a/c equipped with IRS)	Yes, Honeywell has a type 2 LOA	Yes	Yes	Yes	Yes
Embraer ERJ-135/145 and Legacy	Honeywell FMS NZ2000	7018879-03014 MOD C	5.2C	Yes	Yes (for those a/c equipped with IRS)	Yes, Honeywell has a type 2 LOA	Yes	Yes	Yes	Yes
Embraer ERJ-135/145 and Legacy	Honeywell FMS NZ2000	7018879-03014 MOD C	5.2C	Yes	Yes(for those a/c equipped with IRS)	Yes, Honeywell has a type 2 LOA	Yes	Yes	Yes	Yes
Embraer ERJ-135/145 and Legacy	Honeywell FMS NZ2000	7018879-03014 MOD D	5.2D	Yes	Yes (for those a/c equipped with IRS)	Yes, Honeywell has a type 2 LOA	Yes	Yes	Yes	Yes
Embraer ERJ-135/145 and Legacy	Honeywell FMS NZ2000	7018879-03014 MOD E	5.2E	Yes	Yes (for those a/c equipped with IRS)	Yes, Honeywell has a type 2 LOA	Yes	Yes	Yes	Yes
Embraer ERJ-135/145 and Legacy	Honeywell FMS NZ2000	7018879-02006 MOD C	4.8C	Yes	No	Yes, Honeywell has a type 2 LOA	Yes	Yes	Yes	Yes

Embraer: Last Updated 12/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
Embraer ERJ-135/145 and Legacy	Honeywell FMS NZ2000	7018879-02006	4.8A	Yes	No	Yes, Honeywell has a type 2 LOA	Yes	Yes	Yes	Yes
Embraer ERJ-145 (Predictive RAIM with Universal Offline Flight Planning) (1 Oct 2007)	Universal UNS-1K	1116-42-1116	603	Yes	No	Yes, Universal has a type 2 LOA	Yes	Yes	Yes	No
Embraer ERJ-145 (Predictive RAIM with Universal Offline Flight Planning) (1 Oct 2007)	Universal UNS-1K	1116-42-1116 MOD 604	604	Yes	No	Yes, Universal has a type 2 LOA	Yes	Yes	Yes	No
Embraer ERJ 170-100 ERJ 170-200 ERJ 190-100 ERJ 190-200 Lineage	Honeywell Primus Epic FMS	All versions	All versions	Yes	Yes	Yes, Honeywell has a type 2 LOA	Yes	Yes	Yes	Yes

Embraer: Last Updated 12/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
Embraer EMB-500 (Phenom 100) and EMB-505 (Phenom 300)	Gamin G1000	All versions (TSO-C146a based system)	All versions	Yes	No	Yes, Garmin has a type 2 LOA	Yes	Yes	Yes	No

Table 7: Gulfstream

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Note : All systems must have an appropriate navigation database and a procedure to inhibit NOTAM'd DME facilities (on test or unreliable)

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Gulfstream G550 / G500 / G450 / G350	Honeywell FMS Primus Epic (PlaneView)	EB7031236	-00301 and subsequent	YES (TSO-C115B performance and TSO-129 C1) GPS module part number 245-601736	YES, conditional on pilot entry of NOTAM navaids on the FMS NOTAM page	YES	YES	YES	YES
Gulfstream C37B	Honeywell FMS Primus Epic (PlaneView)	EB7031236	-00301 and subsequent	YES (TSO-C115B performance and TSO-129 C1) GPS module part number 245-601736	YES, conditional on pilot entry of NOTAM navaids on the FMS NOTAM page	YES	YES	YES	YES
Gulfstream G-V	Honeywell NZ-2000 (IC-800E version)	7017300-560XX and subsequent	NZ 4.7, 4.7A, 4.7B, 5.0, 5.0A,5.2, 5.2A, 6.0 or later version	YES, TSO -115B performance and C-129 C1, GPS part number HG 2021GB02, HG2021GDO2, HG20221GD03 and 260179591-101	YES, conditional on pilot entry of NOTAM navaids on the FMS NOTAM page	YES	YES	YES	YES

Gulfstream: Last Updated 03/2007

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Gulfstream C37A	Honeywell NZ-2000 (IC-800E version)	7017300-560XX and subsequent	NZ 4.7, 4.7A, 4.7B, 5.0, 5.0A,5.2, 5.2A, 6.0 or later version	YES, TSO -115B performance and C-129 C1, GPS part number HG 2021GB02, HG2021GDO2, HG20221GD03 and 260179591-101	YES, conditional on pilot entry of NOTAM navaids on the FMS NOTAM page	YES	YES	YES	YES
Gulfstream G-IV	Honeywell NZ-900 (NZ-920 version)	7004402-977	NZ 9402	YES, TSO -115B performance and C-129 C1, GPS part number HG 2021GB02, HG2021GDO2, HG20221GD03 and 260179591-101	YES, conditional on pilot entry of NOTAM navaids on the FMS NOTAM page	YES	YES	YES	YES
Gulfstream G-IV	Honeywell FMZ-2000	7018879-0100X	NZ 4.0, 4.0A, 4.0B or 4.1A, 4.1B, 4.1C, 4.1D, 4.1E, 4.1F, 4.1G	YES, TSO -115B performance and C-129 C1, GPS part number HG 2021GB02, HG2021GDO2, HG20221GD03 and 260179591-101	YES, conditional on pilot entry of NOTAM navaids on the FMS NOTAM page	YES	YES	YES	YES

Gulfstream: Last Updated 03/2007

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Gulfstream G-IV	Honeywell FMZ-2000	7018879-030XX	NZ 5.0, 5.0A, 5.0B, 5.0C, 5.0D, 5.2A, 5.2B, 5.2C, 5.2D, 5.2E, 5.4A, 5.4B, 5.4C, 5.7, 6.0, 6.0A or later	YES, TSO -115B performance and C-129 C1, GPS part number HG 2021GB02, HG2021GDO2, HG20221GD03 and 260179591-101	YES, conditional on pilot entry of NOTAM navaids on the FMS NOTAM page	YES	YES	YES	YES
Gulfstream C-20 models A though H	Honeywell FMZ-2000	7018879-030XX	NZ 5.0A, 5.2A, 5.2B, and 5.7A	YES, TSO -115B performance and C-129A with Honeywell GPS unit HG2021GD02 pr Trimble GPS unit model TA-12, part number 24835-10	YES, conditional on pilot entry of NOTAM navaids on the FMS NOTAM page	YES	YES	YES	YES

Gulfstream: Last Updated 03/2007

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Gulfstream G200	Rockwell Collins FMS-6000	822-0868-026 and -043	ALL	YES, with GPS-4000(X) installed and approved for IFR use IAW AC 20-130A and no GPS satellites scheduled to be out of service and the FMS is receiving usable signals. Must obtain predictive RAIM for route/procedure if one or more satellites is out of service	NO	YES	YES	YES	YES

Gulfstream: Last Updated 03/2007

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Gulfstream G200	Rockwell Collins FMS-6100	822-0868-046 and -073	ALL	YES, with GPS-4000(X) installed and approved for IFR use IAW AC 20-130A and no GPS satellites scheduled to be out of service and the FMS is receiving usable signals. Must obtain predictive RAIM for route/procedure if one or more satellites is out of service	NO	YES	YES	YES	YES

Gulfstream: Last Updated 03/2007

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Gulfstream G200	Universal UNS-1C	1017-3X-XXX and subsequent	600.X and subsequent	YES (TSO-115B and TSO-C129A Class A1/B1/C1). Must use Universal Flight Planning Program P/N K12037-6 to obtain predictive RAIM for route/procedure if one or more satellites is out of service.	NO	YES	YES	YES	YES

Gulfstream: Last Updated 03/2007

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Gulfstream G150	Rockwell Collins FMS-6100	822-0868-070, 822-0868-081 and 822-0868-087	ALL	YES, with GPS-4000(X) installed and approved for IFR use IAW AC 20-130A and no GPS satellites scheduled to be out of service and the FMS is receiving usable signals. Must obtain predictive RAIM for route/procedure if one or more satellites is out of service	NO	YES	YES	YES	YES

Gulfstream: Last Updated 03/2007

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Gulfstream G100	Universal UNS-1C	1017-3X-XXX and subsequent	600.X and subsequent	YES (TSO-115B and TSO-C129A Class A1/B1/C1). Must use Universal Flight Planning Program P/N K12037-6 to obtain predictive RAIM for route/procedure if one or more satellites is out of service.	NO	See Universal tab (this spreadsheet)	YES	NO unless FMS software is 802.X or 803.X or higher	YES

Gulfstream: Last Updated 03/2007

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Gulfstream G100	Honeywell (Allied Signal) GNS-XLS	17960-XXXX-XXXX	ALL	See Honeywell GNS-XLS entry stating system ONLY approved for RNAV Q-routes and Obstacle Clearance Departure Procedures. NOT RNAV 1 and RNAV 2 SID/STAR procedures. PreFlight Software version 2.0 for IBM-compatible PCs running Microsoft Windows is available from Honeywell	NO	See Honeywell tab (this spreadsheet)	YES	NO	Yes, but not for VOR substitution

Table 8: Garmin

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Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
Garmin	GPS 155, GPS 165, GNC 300	ALL	ALL	NO, TSO-C129 Class A1. Unable to automatically execute leg transitions and maintain tracks consistent with Course to Fix (CF) and Direct to Fix (DF) legs. No plans to obtain Type 2 LOA for navigation database.	N/A. The listed model does not include any DME/DME navigation function.		YES	NO	Yes, but not for VOR substitution.	YES, altitude source failure displayed on equipment
Garmin	GPS 155XL, GNC 300XL	ALL	ALL	NO, TSO-C129a Class A1. Unable to automatically execute leg transitions and maintain tracks consistent with Course to Fix (CF) and Direct to Fix (DF) legs. No plans to obtain Type 2 LOA for navigation database.	N/A. The listed model does not include any DME/DME navigation function.		YES	NO	Yes, but not for VOR substitution.	YES, altitude source failure displayed on equipment

Garmin: Last Updated 10/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
Garmin	GPS 400, GNC 420, GNC 420A, GNS 430, GNS 430A	ALL	ALL	YES, TSO-C129a Class A1. Type 2 LOA can be viewed at fly.garmin.com under Database Info. System is AC 90-100A compliant when installed and approved for IFR use in accordance with Garmin installation instructions and appllicable Garmin service bulletins and when operated in accordance with the AFM/AFMS. “Predict” software (006-A0072-00) version 2.00 or later may be used to predict GPS Integrity (RAIM) availability for the intended flight as described in AC 90-100A paragraph 10.a.(5). “Predict” software operates on IBM-compatible PCs running Microsoft Windows. “Predict” may be obtained from www.garmin.com by downloading the Free 400 or 500 Series Simulator under the Panel Mount Avionics products. Instructions for using “Predict” also may be downloaded from the Free Simulator page.	N/A. The listed model does not include any DME/DME navigation function.	See Type 2 LOA spreadsheet	YES	YES	YES	YES, altitude source failure displayed on equipment

Garmin: Last Updated 10/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
Garmin	WAAS Series: GPS 400W, GNC 420W, GNC 420AW, GNS 430W, GNS 430AW	ALL	ALL	YES, TSO-C146a Class 3. Type 2 LOA can be viewed at fly.garmin.com under Database Info. System is AC 90-100A compliant when installed and approved for IFR use in accordance with Garmin installation instructions and applicable Garmin service bulletins and when operated in accordance with the AFM/AFMS. For installations that have operating limitations requiring pre-flight RAIM prediction, WAAS Route Planner (and WFDE Prediction) software part number 006-A0154-03 should be used to predict GPS Integrity (RAIM) availability for the intended flight. WAAS NOTAMs (or their absence) and generic prediction tools do not provide an acceptable indication of GPS Integrity availability for this equipment. WAAS Route Planner software operates on PCs running Microsoft Windows, and software and instructions may be obtained from www.garmin.com by downloading the Free 400W/500W Series Trainer under the Software section of the GPS 400W product page.	N/A. The listed model does not include any DME/DME navigation function.	See Type 2 LOA spreadsheet	YES	YES	YES	NO, baro-aiding not required in meeting TSO-C146a FDE availability requirements.

Garmin: Last Updated 10/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
Garmin	CNX80, GNS 480	ALL	ALL	YES, TSO-C146a. Type 2 LOA can be viewed at fly.garmin.com under Database Info. System is AC 90-100A compliant when installed and approved for IFR use in accordance with Garmin installation instructions and applicable Garmin service bulletins and when operated in accordance with the AFM/AFMS. For installations that have operating limitations requiring pre-flight RAIM prediction, WAAS Route Planner (and WFDE Prediction) software part number 006-A0154-02 should be used to predict GPS Integrity (RAIM) availability for the intended flight. WAAS NOTAMs (or their absence) and generic prediction tools do not provide an acceptable indication of GPS Integrity availability for this equipment. WAAS Route Planner software operates on PCs running Microsoft Windows, and software and instructions may be obtained from www.garmin.com by downloading the GNS 480 WAAS Route Planner and 006-A0154-02 WFDE Prediction software under the GNS 480 web page.	N/A. The listed model does not include any DME/DME navigation function.	See Type 2 LOA spreadsheet	YES	YES	YES	NO, baro-aiding not required in meeting TSO-C146a FDE availability requirements.
Garmin	GPS 500, GPS 500 TAWS, GNS	ALL	ALL	YES, TSO-C129a Class A1. Type 2 LOA can be viewed at fly.garmin.com	N/A. The listed model does not	See Type 2 LOA	YES	YES	YES	NO, baro-aiding not required in

Garmin: Last Updated 10/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
	530, GNS 530 TAWS, GNS 530A, GNS 530A TAWS			under Database Info. System is AC 90-100A compliant when installed and approved for IFR use in accordance with Garmin installation instructions and applicable Garmin service bulletins and when operated in accordance with the AFM/AFMS. "Predict" software (006-A0072-00) version 2.00 or later may be used to predict GPS Integrity (RAIM) availability as described in AC 90-100A paragraph 10.a.(5). "Predict" software operates on IBM-compatible PCs running Microsoft Windows. "Predict" may be obtained from www.garmin.com by downloading the Free 400 or 500 Series Simulator under the Panel Mount Avionics products. Instructions for using "Predict" also may be downloaded from the Free Simulator page.	include any DME/DME navigation function.	spreadsheet				meeting TSO-C146a FDE availability requirements.
Garmin	WAAS Series: GPS 500W, GPS 500W TAWS, GNS 530W, GNS 530W TAWS, GNS 530AW, GNS 530AW	ALL	ALL	YES, TSO-C146a Class 3. Type 2 LOA can be viewed at fly.garmin.com under Database Info. System is AC 90-100A compliant when installed and approved for IFR use in accordance with Garmin installation instructions and applicable Garmin service bulletins and when operated in accordance with the AFM/AFMS.	N/A. The listed model does not include any DME/DME navigation function.	See Type 2 LOA spreadsheet	YES	YES	YES	NO, baro-aiding not required in meeting TSO-C146a FDE availability

Garmin: Last Updated 10/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
	TAWS			For installations that have operating limitations requiring pre-flight RAIM prediction, WAAS Route Planner (and WFDE Prediction) software part number 006-A0154-03 should be used to predict GPS Integrity (RAIM) availability for the intended flight. WAAS NOTAMs (or their absence) and generic prediction tools do not provide an acceptable indication of GPS Integrity availability for this equipment. WAAS Route Planner software operates on PCs running Microsoft Windows, and software and instructions may be obtained from www.garmin.com by downloading the Free 400W/500W Series Trainer under the Software section of the GPS 500W product page.						
Garmin	GTN 625, GTN 635, GTN 650, GTN 725, GTN 750	ALL	ALL	YES, TSO-C146c Class 3. Type 2 LOA can be viewed at fly.garmin.com under Database Info. System is AC 90-100A compliant when installed and approved for IFR use in accordance with Garmin installation instructions and applicable Garmin service bulletins and when operated in accordance with the AFM/AFMS. For installations that have operating limitations requiring pre-flight RAIM	N/A. The listed model does not include any DME/DME navigation function.	See Type 2 LOA spreadsheet	YES	YES	YES	NO, baro-aiding not required in meeting TSO-C146a FDE availability

Garmin: Last Updated 10/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
				prediction, WAAS Route Planner (and WFDE Prediction) software part number 006-A0154-01 should be used to confirm the availability of RAIM for the intended flight. WAAS NOTAMs (or their absence) and generic prediction tools do not provide an acceptable indication of GPS Integrity availability for this equipment. WAAS Route Planner software operates on PCs running Microsoft Windows, and software and instructions may be obtained from www.garmin.com by downloading the G1000 WAAS Route Planner Software under the Software section of the G1000 product page.						
Garmin	G1000 Systems	ALL TSO-C129a based systems	ALL	YES, TSO-C129a Class A1. Type 2 LOA can be viewed at fly.garmin.com under Database Info. System is AC 90-100A compliant when installed and approved for IFR use in accordance with Garmin installation instructions and applicable Garmin service bulletins and when operated in accordance with the AFM/AFMS. “Predict” software (006-A0072-00) version 2.00 or later may be used to predict GPS Integrity (RAIM) availability for the intended flight as described in AC 90-100A paragraph 10.a.(5). “Predict”	N/A. The listed model does not include any DME/DME navigation function.	See Type 2 LOA spreadsheet	YES	YES	YES	YES, altitude source failure displayed on equipment

Garmin: Last Updated 10/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
				software operates on IBM-compatible PCs running Microsoft Windows. "Predict" may be obtained from www.garmin.com by downloading the Free 400W/500W Series Trainer under the Software section of the GPS 500W product page.						
Garmin	G1000 (including Embraer Prodigy and Cirrus Perspective), G1000H, G950, and G900X Systems	ALL TSO-C146a based systems	ALL	YES, TSO-C146a Class 3. Type 2 LOA can be viewed at fly.garmin.com under Database Info. System is AC 90-100A compliant when installed and approved for IFR use in accordance with Garmin installation instructions and applicable Garmin service bulletins and when operated in accordance with the AFM/AFMS. For installations that have operating limitations requiring pre-flight RAIM prediction, WAAS Route Planner (and WFDE Prediction) software part number 006-A0154-01 should be used to confirm the availability of RAIM for the intended flight. WAAS NOTAMs (or their absence) and generic prediction tools do not provide an acceptable indication of GPS Integrity availability for this equipment. WAAS Route Planner software operates on PCs running Microsoft Windows, and software and instructions may be	N/A. The listed model does not include any DME/DME navigation function.	See Type 2 LOA spreadsheet	YES	YES	YES	NO, baro-aiding not required in meeting TSO-C146a FDE availability requirements.

Garmin: Last Updated 10/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
				obtained from www.garmin.com by downloading the G1000 WAAS Route Planner Software under the Software section of the G1000 product page.						
Garmin	G2000 (including Cessna Intrinzic Flight Deck), G3000 (including Embraer Prodigy Touch and Cessna Intrinzic Flight Deck), G5000 (including Cessna Intrinzic Flight Deck)	ALL	ALL	YES, TSO-C146c Class 3. Type 2 LOA can be viewed at fly.garmin.com under Database Info. System is AC 90-100A compliant when installed and approved for IFR use in accordance with Garmin installation instructions and applicable Garmin service bulletins and when operated in accordance with the AFM/AFMS. For installations that have operating limitations requiring pre-flight RAIM prediction, WAAS Route Planner (and WFDE Prediction) software part number 006-A0154-01 should be used to confirm the availability of RAIM for the intended flight. WAAS NOTAMs (or their absence) and generic prediction tools do not provide an acceptable indication of GPS Integrity availability for this equipment.	YES, when installed with multi-channel DME(s)	See Type 2 LOA spreadsheet	YES	YES	YES	NO, baro-aiding not required in meeting TSO-C146a FDE availability requirements.

Garmin: Last Updated 10/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
				WAAS Route Planner software operates on PCs running Microsoft Windows, and software and instructions may be obtained from www.garmin.com by downloading the G1000 WAAS Route Planner Software under the Software section of the G1000 product page.						
Originally II Morrow / UPSAT now doing business as Garmin AT	Apollo 2001 Apollo 2101System	ALL	ALL	NO, TSO-C129a but not compliant due to equipment limitation that prevents selection of named departure and/or arrival procedures. No plans to obtain Type 2 LOA for navigation database.	N/A. The listed model does not include any DME/DME navigation function.		YES	NO	Yes, but not for VOR substitution.	YES, altitude source failure displayed on equipment
Originally II Morrow / UPSAT now doing business as Garmin AT	Apollo SL50 Apollo SL60 Apollo SL65	ALL	ALL	NO, TSO-C129a, but not compliant due to equipment limitation that prevents selection of named departure and/or arrival procedures. No plans to obtain Type 2 LOA for navigation database.	N/A. The listed model does not include any DME/DME navigation function.		YES	NO	Yes, but not for VOR substitution.	NO
Originally II Morrow / UPSAT now doing business as Garmin AT	Apollo GX50 Apollo GX60	ALL	ALL	NO, TSO-C129a but not compliant due to equipment limitation that prevents selection of named departure and/or arrival procedures. No plans to obtain Type 2 LOA for navigation database.	N/A. The listed model does not include any DME/DME navigation function.		YES	NO	Yes, but not for VOR substitution.	YES, altitude source failure displayed on equipment
Originally II Morrow / UPSAT now doing business as	Apollo GX55 Apollo GX65	ALL	ALL	NO, TSO-C129a but not compliant due to equipment limitation that prevents selection of named departure and/or arrival procedures. No plans to obtain	N/A. The listed model does not include any DME/DME		YES	NO	Yes, but not for VOR substitution.	NO

Garmin: Last Updated 10/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)	Baro-Aiding (NOT Baro-VNAV). Operator MUST ensure aircraft installation provides capability.
Garmin AT				Type 2 LOA for navigation database.	navigation function.					

Table 9: Honeywell

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Note: All systems must have an appropriate navigation database and a procedure to inhibit NOTAM'd DME facilities (on test or unreliable)

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Honeywell	FMZ-2000, FMZ-920, Epic FMS, SPZ-8000, Primus 2000, Primus 1000 when using FMZ-2000	ALL	ALL	YES	YES	YES	YES	YES	YES
Honeywell	GNS-XES	17450-0101-0X0X 17450-0203-0X0X	ALL	NO	NO	YES	NO	NO	NO
Honeywell	GNS-XES	17450-0305-0X0X 17450-0307-0X0X 17450-0406-0X0X	ALL	YES	YES	YES	YES	NO	YES
Honeywell	CDU-XLS	CDU-XLS System CDU: 18420-0101-XXXX NMU: 14141-0624-XXXX	ALL	YES	YES	YES	YES	NO	YES
Honeywell	GNS-XLS	17960-0102-0XXX 17960-0203-0XXX	ALL	YES	YES	YES	YES	NO	YES
Honeywell	GNS-XLS	17960-0103-XXXX	ALL	YES	YES	YES	YES	YES	YES
Honeywell	GNS-XLS Enhanced	17960-0204-XXXX	ALL	YES	YES	YES	YES	YES	YES

Honeywell: Last Updated 01/2008

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Honeywell	GNS-XL	18355-0101-XXXX	ALL	YES	YES	YES	YES	NO	YES
Honeywell	GNS-XL	18355-0102-XXXX	ALL	YES	YES	YES	YES	YES	YES
Honeywell	HT9100	81840-03-XXXX	ALL	YES	YES	YES	YES	YES	YES
Honeywell	H1000	82425-00-XXX	ALL	YES	YES	YES	YES	YES	YES
Honeywell	KLN-89B	066-01148-010X	ALL	YES	N/A	NO	YES	NO	Yes, but not for VOR substitution.
Honeywell	KLN-90A	066-04031-0X11	ALL	YES	N/A	NO	YES	NO	Yes, but not for VOR substitution.
Honeywell	KLN-90B	066-04031-XX2X	ALL	YES	N/A	NO	YES	NO	Yes, but not for VOR substitution.
Honeywell	KLN-94	069-01034-XXXX	ALL	YES	N/A	NO	YES	NO	Yes, but not for VOR substitution.
Honeywell	KLN-900	066-04034-XXXX	ALL	YES	N/A	NO	YES	NO	Yes, but not for VOR substitution.
Honeywell	KNS-660 KLS-670	066-4011-XX 066-4018-XX 066-4019-XX 066-4022-XX 066-4030-XX	ALL	NO	N/A	NO	NO	NO	Yes, but not for VOR substitution.
Honeywell	GNS-500	10050-6-5M-XXXX, 10050-8-5M-XXXX	ALL	NO	N/A	NO	NO	NO	NO

Honeywell: Last Updated 01/2008

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Honeywell	GNS-1000	FMC: 30150-0X-0X RPU: 30050-0707-XXXX, 30050-0808-XXXX, GPU: 19100-0101	ALL	NO, Non-TSO GPS, typically approved as part of a multi-sensor TSO-C115 or TSO-C115a FMS	NO	NO	NO	NO	NO
Honeywell	GNS-X	NMU: 14141-0101-XXXX, 14141-0202-XXXX, 14141-0203-XXXX, 14141-0220-XXXX, 14141-0240-XXXX, 14141-0251-XXXX, 14141-0252-XXXX, 14141-0253-XXXX, 14141-0321-XXXX, 14141-0345-XXXX,	ALL	NO	NO	YES	NO	NO	NO

Honeywell: Last Updated 01/2008

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
		14141-0523-XXXX RPU: 30050-0808-XXXX, 30050-0909-XXXX GPU: 19100-0101							

Table 10: Honeywell (DME Systems)

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Manufacturer	DME Systems	Part Number	Software Version	NOTES
Honeywell	RNZ-850, 850B, 851B (Each model contains a DM-850 DME module)	75100100-VAR	All	Marked TSO-C66b but certified to DO-189, post 1989 performance
Honeywell	DM-855	7510184-VAR	All	Certified to TSO-C66c (and meets DO-189, post 1989 performance)
Honeywell	KDM-7000	066-01019-0023, 066-01019-0063	--	Meets TSO-C66c performance

Table 11: Rockwell Collins

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Note: All systems must have an appropriate navigation database and a procedure to inhibit NOTAM'd DME facilities (on test or unreliable)

Manufacturer	RNAV System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Rockwell Collins Pro Line 21 Advanced (28 October 2015)	FMC-6200	822-2488-100 and 822-2488-101 (Bombardier CL-350/300R)	HSCD 946-2720-100 and HSCD 946-2720-101	Yes, per AFM conditions for using GNSS	No	Operator must utilize a navigation database from supplier with a valid Type 2 LOA for the intended operations. Refer to: http://www.rockwellcollins.com/Services_and_Support/Database_and_Software_Updates/Navigation_Databases/Database_Alerts_and_Certifications.aspx	YES	YES	See AFM

Rockwell Collins: Last Updated 10/2015

Manufacturer	RNAV System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Rockwell Collins Pro Line 21 Advanced (28 October 2015)	FMC-6200	822-2488-102 (Bombardier CL-650/605R)	HSCD 946-2720-102	Yes, per AFM conditions for using GNSS	Yes	Operator must utilize a navigation database from supplier with a valid Type 2 LOA for the intended operations. Refer to: http://www.rockwellcollins.com/Services_and_Support/Database_and_Software_Updates/Navigation_Databases/Database_Alerts_and_Certifications.aspx	YES	YES	See AFM
Rockwell Collins Pro Line Fusion ™	Rockwell Collins Pro Line Fusion ™	All Versions of Rockwell Collins Pro Line Fusion ™	All Versions of Rockwell Collins Pro Line Fusion ™	Yes, per AFM conditions for using GNSS	Yes	Operator must utilize a navigation database from supplier with a valid Type 2 LOA for the intended	YES	YES	See AFM

Rockwell Collins: Last Updated 10/2015

Manufacturer	RNAV System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
						operations. Refer to: http://www.rockwellcollins.com/Services_and_Support/Database_and_Software_Updates/Navigation_Databases/Database_Alerts_and_Certifications.aspx			
Rockwell Collins Pro Line 4 & Pro Line 21(2008 and later)	FMS-3000, FMS-4200, FMS-5000, FMS-6000, FMS-6100, AMS-5000	All Versions with LPV capability option for Top Levels CPN 822-0883-XXX, 822-0783-XXX, 822-0891-XXX, 822-0868-XXX	All Versions with LPV capability	Yes, per AFM conditions for using GNSS	Yes (-XXX Versions with LPV capability)	Operator must utilize a navigation database from supplier with a valid Type 2 LOA for the intended operations. Refer to: http://www.rockwellcollins.com/Services_and_Support/Database_and_Softwar	YES	YES	See AFM

Rockwell Collins: Last Updated 10/2015

Manufacturer	RNAV System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
						e_Updates/Navigation_Databases/Database_Alerts_and_Certifications.aspx			
Rockwell Collins Pro Line 4 & Pro Line 21	FMS-3000, FMS-4200, FMS-5000, FMS-6000, FMS-6100, AMS-5000	Versions without LPV capability option for Top Levels CPN 822-0883-XXX, 822-0783-XXX, 822-0891-XXX, 822-0868-XXX (except top level CPN 822-0868-089 and CPN 822-0868-090)	Versions without LPV capability (except SCID 832-4117-094 and SCID 832-4117-095)	"YES, FMS-3000, FMS-4200, FMS-5000, FMS-6000, FMS-6100 and AMS-5000 are capable when installed with GPS-4000() (see Notes 1-3 below) and approved for IFR use in accordance with AC 20-130A. The FMS must be receiving useable GNSS signals. Aircraft must be operated in accordance with AC 90-100A, including use of flight director and/or autopilot. Operator must confirm availability of GPS or WAAS, as appropriate for the installation, for the intended route.	No (-XXX Versions without LPV capability option)	Operator must utilize a navigation database from supplier with a valid Type 2 LOA for the intended operations. Refer to: http://www.rockwellcollins.com/Services_and_Support/Database_and_Software_Updates/Navigation_Databases/Database_Alerts_and_Certifications.aspx	YES	YES	See AFM

Rockwell Collins: Last Updated 10/2015

Manufacturer	RNAV System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
				NOTE 1: For GPS-4000 and GPS-4000A installations, the operator/pilot must confirm GPS RAIM availability for the intended route, in accordance with AC 90-100A, for which Collins provides Collins Tool CPN 832-3443-008, and the FAA provides www.raimprediction.net. NOTE 2: For GPS-4000S (WAAS) installations, the operator/pilot need not confirm RAIM availability if WAAS coverage is confirmed to be available along the entire route of flight.					

Rockwell Collins: Last Updated 10/2015

Manufacturer	RNAV System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Rockwell Collins Pro Line 4	FMS-6000, Bombardier CL-604 and CL-605	CPN 822-0868-089 and CPN 822-0868-090	SCID 832-4117-094 and SCID 832-4117-095	YES, FMS-6000 is capable when installed with GPS-4000() (see Notes 1-3 below) and approved for IFR use in accordance with AC 20-130A. The FMS must be receiving useable GNSS signals. Aircraft must be operated in accordance with AC 90-100A, including use of flight director and/or autopilot. Operator must confirm availability of GPS or WAAS, as appropriate for the installation, for the intended route. NOTE 1: For GPS-4000 and GPS-4000A installations, the operator/pilot must confirm GPS RAIM availability for the intended route, in accordance with AC 90-100A, for which Collins provides Collins Tool CPN 832-3443-008, and the FAA provides www.raimprediction.net. NOTE 2: For GPS-4000S (WAAS) installations, the operator/pilot need not confirm	Contact OEM for AFM Statement	Operator must utilize a navigation database from supplier with a valid Type 2 LOA for the intended operations. Refer to: http://www.rockwellcollins.com/Services_and_Support/Database_and_Software_Updates/Navigation_Databases/Database_Alerts_and_Certifications.aspx	YES	YES	See AFM

Manufacturer	RNAV System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
				RAIM availability if WAAS coverage is confirmed to be available along the entire route of flight. .					

Table 12: Rockwell Collins (DME Systems)

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Manufacturer	DME Systems	Part Number	Software Version	NOTES
Rockwell Collins	DME-42	CPN 622-6263-XXX	--	Certified to TSO-C66b but meeting TSO-C66c accuracy performance
Rockwell Collins	DME-442	CPN 622-7309-XXX	--	Certified to TSO-C66b but meeting TSO-C66c accuracy performance
Rockwell Collins	DME-700	CPN 622-4540-XXX	--	Certified to TSO-C66a but meeting TSO-C66c accuracy performance
Rockwell Collins	DME-900	CPN 822-0329-XXX	--	Certified to TSO-C66a but meeting TSO-C66c accuracy performance

Rockwell Collins: Last Updated 10/2015

Manufacturer	DME Systems	Part Number	Software Version	NOTES
Rockwell Collins	DME-4000	CPN 822-1466-XXX	--	Certified to TSO-C66c
Rockwell Collins	860E-5	622-2921-001/ -002/ -004/ -005/ -006	--	Certified to TSO-C66a but meeting TSO-C66c accuracy performance

Table 13: Universal

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Note 1: All GPS approvals with Universal Flight Planning program (P/N K12037-6) for RAIM prediction. This is available for download at www.uasc.com. Not required for software versions 1000.X and later.

Note 2: Systems containing software versions 603.4 and higher are compliant when utilizing DME/DME/IRU.

Note 3: See Universal LOA spreadsheet for Type 2 LOA.

Note 4: All systems must have an appropriate navigation database and a procedure to inhibit NOTAM'd DME facilities (on test or unreliable)

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity (See Note 3)	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Universal Avionics Systems Corporation	UNS-1B+	1190-XX-211X	601.X, 701.X	Yes	Yes (See Note 2)	Yes	Yes	Yes	Yes
Universal Avionics Systems Corporation	UNS-1B+	1190-XX-211X	602.X, 603.X, 604.X, 702.X, 703.X, 704.X	Yes	Yes (See Note 2)	Yes	Yes	Yes	Yes
Universal Avionics Systems Corporation	UNS-1C	1017-XX-XXXX	601.X, 701.X	Yes	No	Yes	Yes	Yes	Yes
Universal Avionics Systems Corporation	UNS-1C	1017-XX-XXXX	602.X, 603.X, 604.X, 702.X, 703.X, 704.X	Yes	Yes (See Note 2)	Yes	Yes	Yes	Yes

Universal: Last Updated 09/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity (See Note 3)	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Universal Avionics Systems Corporation	UNS-1C	1017-3X-XXXX	705.X	Yes	Yes (See Note 2)	Yes	Yes	No	Yes, but not for VOR substitution.
Universal Avionics Systems Corporation	UNS-1C	1017-4X-XXXX	600.X	Yes	No	No	Yes	No	Yes, but not for VOR substitution.
Universal Avionics Systems Corporation	UNS-1Csp	1019-XX-XXXX	601.X, 701.X	Yes	No	Yes	Yes	Yes	Yes
Universal Avionics Systems Corporation	UNS-1Csp	1019-3X-XXXX	700.X	Yes	No	No	Yes	No	Yes, but not for VOR substitution.
Universal Avionics Systems Corporation	UNS-1Csp	1019-XX-XXXX	602.X, 603.X, 604.X, 702.X, 703.X, 704.X	Yes	Yes (See Note 2)	Yes	Yes	Yes	Yes
Universal Avionics Systems Corporation	UNS-1Csp	1019-4X-XXXX	600.X	Yes	No	No	Yes	No	Yes, but not for VOR substitution.
Universal Avionics Systems Corporation	UNS-1C+	10172-XX-XXX	800.X, 801.X, 900.X, 901.X	Yes	Yes	Yes	Yes	Yes	Yes
Universal Avionics Systems Corporation	UNS-1C+	10172-XX-XXX	802.X, 803.X, 902.X, 903.X	Yes	Yes	Yes	Yes	Yes	Yes
Universal Avionics Systems Corporation	UNS-1Csp+	10192-XX-XXX	800.X, 801.X, 900.X, 901.X	Yes	Yes	Yes	Yes	Yes	Yes

Universal: Last Updated 09/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity (See Note 3)	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Universal Avionics Systems Corporation	UNS-1Csp+	10192-XX-XXX	802.X, 803.X, 902.X, 903.X	Yes	Yes	Yes	Yes	Yes	Yes
Universal Avionics Systems Corporation	UNS-1D	1192-0X-XXX1XX	600.X	Yes	No	No	Yes	No	Yes, but not for VOR substitution.
Universal Avionics Systems Corporation	UNS-1D	1192-X0-11100X	602.X, 603.X, 604.X, 702.X, 703.X, 704.X	Yes	Yes (See Note 2)	Yes	Yes	Yes	Yes
Universal Avionics Systems Corporation	UNS-1D	1192-3X-XXX1XX	700.X	Yes	No	No	Yes	No	Yes, but not for VOR substitution.
Universal Avionics Systems Corporation	UNS-1D	1192-X0-11100X	601.X, 701.X	Yes	Yes (See Note 2)	Yes	Yes	Yes	Yes
Universal Avionics Systems Corporation	UNS-1D+	11922-XX-XXXXXX	800.X, 801.X, 900.X, 901.X	Yes	Yes	Yes	Yes	Yes	Yes
Universal Avionics Systems Corporation	UNS-1D+	11922-X0-XXXX0X	802.X, 803.X, 902.X, 903.X	Yes	Yes	Yes	Yes	Yes	Yes
Universal Avionics Systems Corporation	UNS-1E	2017-XX-XXX	800.X, 801.X, 900.X, 901.X	Yes	Yes	Yes	Yes	Yes	Yes
Universal Avionics Systems Corporation	UNS-1E	2017-XX-XX1	802.X, 803.X, 902.X, 903.X	Yes	Yes	Yes	Yes	Yes	Yes

Universal: Last Updated 09/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity (See Note 3)	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Universal Avionics Systems Corporation	UNS-1Esp	2019-XX-XXX	800.X, 801.X, 900.X, 901.X	Yes	Yes	Yes	Yes	Yes	Yes
Universal Avionics Systems Corporation	UNS-1Esp	2019-XX-X01	802.X, 803.X, 902.X, 903.X	Yes	Yes	Yes	Yes	Yes	Yes
Universal Avionics Systems Corporation	UNS-1Ew	3017-XX-2X1	1000.X, 1100.X 1001.X, 1101.X	Yes	Yes	Yes	Yes	Yes	Yes
Universal Avionics Systems Corporation	UNS-1Espw	3019-XX-201	1000.X, 1100.X 1001.X, 1101.X	Yes	Yes	Yes	Yes	Yes	Yes
Universal Avionics Systems Corporation	UNS-1F	2192-XX-XXXXXX	800.X, 801.X, 900.X, 901.X	Yes	Yes	Yes	Yes	Yes	Yes
Universal Avionics Systems Corporation	UNS-1F	2192-X0-XXXX0X	802.X, 803.X, 902.X, 903.X	Yes	Yes	Yes	Yes	Yes	Yes
Universal Avionics Systems Corporation	UNS-1Fw	3192-X0-11110X	1000.X, 1100.X 1001.X, 1101.X	Yes	Yes	Yes	Yes	Yes	Yes
Universal Avionics Systems Corporation	UNS-1K	1116-XX-111X	601.X, 701.X	Yes	No	Yes	Yes	Yes	Yes
Universal Avionics Systems Corporation	UNS-1K	1116-XX-111X	602.X, 603.X, 604.X, 702.X, 703.X, 704.X	Yes	No	Yes	Yes	Yes	Yes

Universal: Last Updated 09/2015

Manufacturer	System	Part Number	Software Version	Approval using GPS	Approval using DME/DME/IRU	Database Integrity (See Note 3)	Eligible to fly RNAV "Q" or "Tango" route	Eligible to fly RNAV SID/STAR/ODP	Eligible to use RNAV Substitution or RNAV Alternate means of navigation (US only)
Universal Avionics Systems Corporation	UNS-1K+	11162-XX-XXXX	800.X, 801.X, 802.X, 803.X, 900.X, 901.X, 902.X, 903.X	Yes	Yes	Yes	Yes	Yes	Yes
Universal Avionics Systems Corporation	UNS-1L	2116-XX-XXXX	800.X, 801.X, 802.X, 803.X, 900.X, 901.X, 902.X, 903.X	Yes	Yes	Yes	Yes	Yes	Yes
Universal Avionics Systems Corporation	UNS-1Lw	3115-X0-11110X	1000.X, 1100.X 1001.X, 1101.X	Yes	Yes	Yes	Yes	Yes	Yes

LOA 1: CMC Electronics

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Transport Canada | Transports Canada

Ottawa, Ontario
K1A 0N8

Your file Votre référence

NOV 2 - 2006

Our file Notre référence
5012-N1 (2064797v2)

Mr. Brennan
CMC Electronics Inc.
600 Dr. Frederik Philips Boulevard
Ville Saint-Laurent, Quebec
H4M 2S9

Subject: Transport Canada Acknowledgement of an Aeronautical Data Process – Valid Until 04 June 2008

Reference: 1. CMC Electronics Inc. letter dated 25 March 2006.
2. FAA Memorandum (enclosed).

Dear Mr. Brennan:

Transport Canada has verified the statement of compliance with FAA AC 20-153 (initial issue) and RTCA/DO-200A made by CMC Electronics Inc. (Reference 1) with regards to their processing of navigation data. Compliance to RTCA/DO-200A is acknowledged by this letter and the standard is included in the approved Quality Program Manual (QPM). This letter has been accepted by the FAA as equivalent to a Type 2 Letter of Acceptance (Reference 2) and is valid until 04 June 2008. CMC must make a request to the Director, Aircraft Certification, Transport Canada Civil Aviation Head Quarters (TCCA HQ) for the re-issuance of the letter that Transport Canada Civil Aviation (TCCA) will evaluate supported by the audit procedures described in section 6 below.

Compatibility has been established with the following Flight Management Systems (FMS), or later Transport Canada approved versions:

CMA-900: H/W 100-601900-202
CMA-900: S/W 169-612830-600 to -604, and -606

CMA-900: H/W 100-601900-402
CMA-900: S/W 169-614147-003, -004, -005, -006 to -010, -100 to -103, -110 to -112, and -120

CMA-3000: H/W 100-601721-000 to -003
CMA-3000: S/W 169-614000-002 to -009

By requesting that the RTCA/DO-200A processes be referenced in the QPM, CMC Electronics acknowledges that failure to conform to the amended QPM enables TCCA to take action which may lead to suspension of the manufacturer's certificate. Similarly, by requesting this letter, CMC Electronics acknowledges that failure to meet the following conditions may lead to the letter being revoked by TCCA.

Canada

The following terms and conditions are applicable to this letter:

1. CMC Electronics must meet the data quality requirements for the receipt of data from other sources and for the delivery of data to their customers as defined in 178-A14634-00x and 178-A14634-100.

2. CMC Electronics must follow the procedures for processing data defined in the DO-200A compliance plan 177-A14634-001 and the navigation database work instructions 9319-1012.

3. Reporting of Failures, Malfunctions, and Defects. CMC Electronics must report to the Director, Aircraft Certification any failure, malfunction, or defect of the aeronautical data produced under this letter that may have a safety effect on operational use of the data. Outside of normal working hours, the Director can be reached by contacting the Civil Aviation Contingency Operations at 1-877-992-6853.

4. Maintain a Quality Management System (QMS). CMC Electronics must maintain a quality management system as described in RTCA/DO-200A, section 2.5 and the Quality Program Manual. Changes to the QMS must be reported to the Quebec Regional Manager, Manufacturing and those that may affect the data quality objectives must be reported before implementation.

5. Design Changes.

   a. The CMC Electronics must submit changes to the data quality requirements, and the data processing standards to TCCA HQ in accordance with procedures described within CMC Electronics' DO-200A compliance plan 177-A14634-001. All major changes must be substantiated and accepted prior to implementation in the same manner as that for the original letter.

   b. Upon receipt of notification from TCCA HQ that an unsafe condition exists in a database product supplied under this letter, CMC Electronics must develop corrective action and submit it to TCCA HQ for approval. CMC Electronics must expedite distribution of the approved corrective action to customers and users.

6. CMC Electronics must perform periodic internal audits as described in RTCA/DO-200A, section 3, and verify compliance in all areas at least once every twelve months. Any major non-conformities as described in RTCA/DO-200A, section 3.4 must be reported to TCCA HQ. Additionally, CMC Electronics must support Transport Canada audits, the next expected approximately three months prior to the expiry of this letter.

7. CMC Electronics must advise their customers of the status of Transport Canada's acknowledgement of their DO-200A process (this letter) as well as the status of Letters of Acceptance (or foreign acceptance, including designation of the foreign authority that acknowledges the foreign source's compliance to RTCA/DO-200A and the means of approval or acceptance) for all previous chain participants (up to, but not including, a State's AIP). The method must be timely to ensure that customers can react to changes in status.

LOA 2: Garmin

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U.S. Department
of Transportation
Federal Aviation
Administration

Small Airplane Directorate
Wichita Aircraft Certification Office
1801 Airport Road, Room 100
Wichita, Kansas 67209

Reply to: L115W-13-198

MAR 1 8 2013

Mr. Robert C. Godsy
GARMIN International Inc.
1200 East 151st Street
Olathe, KS 66062

Subject: Request for new Type 2 Letter of Acceptance (LOA) for Garmin's aeronautical Navigation database process

Reference: 1) Garmin Type 2 LOA letter dated February 11, 2011
2) Garmin E-mail dated 03/14/2013 to Wichita ACO

Dear Mr. Godsy:

TYPE 2 FAA LETTER OF ACCEPTANCE

The FAA has determined that Garmin ("Garmin" refers to Garmin International in Olathe, KS and Garmin AT in Salem, OR except where specifically noted) complies with AC 20-153A and RTCA/DO-200A with regards to their processing of navigation data. This LOA supersedes the previous Type 2 LOA dated February 11, 2011. Compatibility has been established with the avionics systems identified in the List of Applicable Avionics Systems, dated December 17, 2012, or later FAA approved revisions.

The following terms and conditions are applicable to this Letter of Acceptance (LOA):

1. The Garmin International data quality requirements for the receipt of data from other sources, and for the delivery of data to their customers, are defined in Garmin DO-200A Compliant Database (G2CD) documents *G2CD Data Quality Requirements* (005-00210-17) and *G2CD Data Supplier Agreement* (005-00210-21), respectively. The Garmin AT data quality and customer delivery requirements are defined in Garmin AT documents *CNX Series RTCA DO-200A Requirements* (PD2243) and *CNX Series Database Interface* Specification (PD2250), respectively.

2. The Garmin International procedures for processing data are defined in *Aviation Navigation Database Release Procedures* (005-00210-15). The Garmin AT procedures for processing data are defined in the *CNX Series Database Updating Process* (PD2254).

3. Reporting of Failures, Malfunctions and Defects. Garmin must report to the FAA Wichita ACO any failure, malfunction, or defect of the aeronautical data produced under this LOA that may have a safety effect on operational use of the data.

4. Maintain a Quality Management System (QMS). Garmin must maintain a quality management system as described in RTCA/DO-200A, section 2.5. Changes to the QMS that may affect the data quality objectives must be reported to the FAA Kansas City MIDO before implementation.

5. Design Changes.

    a. Garmin must submit minor changes to the data quality requirements, the data processing standards, or the quality management system to the FAA Wichita ACO in accordance with procedures described within Garmin standard operating practice *Aircraft Appliance Approval* (SOP-044). All other changes are considered major, and must be substantiated and accepted prior to implementation in the same manner as that for the original LOA.

    b. Upon receipt of notification by the FAA Wichita ACO / Kansas City MIDO that an unsafe condition exists in a database product supplied under this LOA, Garmin shall develop corrective action and submit it to the FAA Wichita ACO / Kansas City MIDO for approval. Garmin shall expedite distribution of the approved corrective action to customers and users.

6. Garmin must perform periodic internal audits as described in RTCA/DO-200A, section 3, with the maximum time between audits (whether total or incremental) of not more than one year. Any major non-conformities as described in RTCA/DO-200A, section 3.4 must be reported to the FAA Wichita ACO / Kansas City MIDO. Additionally, the FAA may perform periodic audits in accordance with procedures described within Garmin International document *G2CD Quality Management Plan and Procedures* (005-00210-13) or Garmin AT document *RTCA/DO-200A Data Quality Management Plan* (IIM-8418).

7. This LOA applies to navigation databases only, and does not apply to Terrain, Obstacle, or Charting databases. Specifically, the database part numbers covered by this LOA are below in List of Applicable Avionics Systems.

8. This LOA does not apply to any data identified as "Special" by Garmin or its Type 1 data supplier(s). Garmin and its Type 1 data supplier(s) must communicate to their customers any "Special" data included in the previously listed navigation databases that is not subject to Garmin International documents *G2CD Data Quality Requirements* (005-00210-17) and *G2CD Data Supplier Agreement* (005-00210-21) or Garmin AT documents *CNX Series RTCA DO-200A Requirements* (PD2243) and *CNX Series Database Interface Specification* (PD2250), as applicable. For any "Special" data communicated to their customers, the end user must satisfy itself regarding the suitability for the intended use.

9. Garmin must also advise its customers of any data received from its Type 1 data supplier(s) that is excluded from the previously listed navigation databases due to system or software limitations.

10. Garmin must advise their customers of the status of their LOA as well as the status of LOAs (or foreign acceptance, including designation of the foreign authority that acknowledges the foreign source's compliance to RTCA/DO-200A and the means of approval or acceptance) for all previous chain participants (up to, but not including, a State's Aeronautical Information Publication, AIP). The method must be timely to ensure that customers can react to changes in the status of their LOA.

11. This LOA assumes that Garmin's customers will access the Garmin web site for LOA status, flight alerts, "Special" data and data exclusion information.

Margaret Kline

Margaret Kline
Manager,
Wichita Aircraft Certification Office

Cc: Kansas City MIDO

List of Applicable Avionics Systems
March 12, 2013

The following lists identify Garmin avionics systems that utilize navigation databases and the associated databases which are included under this Type 2 LOA.

Garmin Integrated Avionics Family (G1000, G2000, G3000, G5000, Embraer Prodigy, Cirrus Perspective, GDU 620/G500, G900X, G950 systems) using navigation database P/N 006-D0170-():

- GDU 1040
- GDU 1040A
- GDU 1042
- GDU 1043
- GDU 1044
- GDU 1044B
- GDU 1045
- GDU 1200W
- GDU 1240A
- GDU 1400W
- GDU 1500
- GDU 620/G500
- GTC 570
- G900X/G950

Garmin Integrated Avionics Family (G1000, Embraer Prodigy, Cirrus Perspective, GDU 620/G500, G900X, G950 systems) using navigation database P/N 006-D2049-():

- GDU 1040H
- GDU 620/G500

Garmin GNC 400/500 Family using navigation database P/N 006-D0018-():

- GPS 400
- GNC 420
- GNC 420A
- GNS 430
- GNS 430A
- GPS 500
- GPS 500 TAWS
- GNS 530
- GNS 530 TAWS
- GNS 530A
- GNS 530A TAWS

Garmin GNC 400W/500W Family using navigation database P/N 006-D0554-():

- GPS 400W
- GNC 420W
- GNC 420AW
- GNS 430W
- GNS 430AW
- GPS 500W
- GPS 500W TAWS
- GNS 530W
- GNS 530W TAWS
- GNS 530AW
- GNS 530AW TAWS

Garmin GNC 400W/500W Family using navigation database P/N 006-D2050-():

- GPS 400W
- GNC 420W
- GNC 420AW
- GNS 430W
- GNS 430AW
- GPS 500W
- GPS 500W TAWS
- GNS 530W
- GNS 530W TAWS
- GNS 530AW
- GNS 530AW TAWS

Garmin GNS 480 (CNX80) using navigation database P/N 138-0329-():

- GNS 480

Garmin GTN 6xx/7xx Family using navigation database P/N 006-D0170-():

- GTN 625
- GTN 635
- GTN 650
- GTN 725
- GTN 750

Garmin GTN 6xx/7xx Family using navigation database P/N 006- D2049-():

- GTN 625
- GTN 635
- GTN 650
- GTN 725
- GTN 750

LOA 3: Honeywell

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U.S. Department of Transportation

Federal Aviation Administration

Transport Airplane Directorate
Los Angeles Aircraft Certification Office

3960 Paramount Boulevard
Lakewood, California 90712-4137

July 21, 2005

Honeywell International
21111 N. 19th Avenue
Phoenix, Arizona 85027

Dear Mr. Barber:

TYPE 2 FAA LETTER OF ACCEPTANCE
LOA0001LA

The FAA has verified that Honeywell International complies with Advisory Circular 20-153 and RTCA/DO-200A with regards to their processing of navigation data. This data may include tailored data not originating from a state authority. For this data, the end user must satisfy itself for suitability with intended use. Compatibility has been established with the Flight Management Systems (FMS) identified in Document, FMS Part Number Matrix, 6510-153, Revision "—", dated January 3, 2005, or later FAA approved revision.

The following terms and conditions are applicable to this letter of acceptance:

1. Honeywell International data quality requirements for the receipt of data from other sources, and for the delivery of data to their customers, are defined in Honeywell Data Quality Requirements C72-2004-001, C72-2005-001, C72-2005-002 and Compiler Requirements Document 5780-317 through 331, respectively.

2. Honeywell International procedures for processing data are defined in the Honeywell DO-200A Compliance Plan C72-1357-225 and the NavDB Work Instructions 6510-1 through 999.

3. Reporting of Failures, Malfunctions, and Defects. Honeywell International must report to the FAA Los Angeles Aircraft Certification Office (ACO) any failure, malfunction, or defect of the aeronautical data produced under this LOA that may have a safety effect on operational use of the data.

4. Maintain a Quality Management System (QMS). Honeywell International must maintain a quality management system as described in RTCA/DO-200A, section 2.5. Changes to the QMS that may affect the data quality objectives must be reported to the FAA Los Angeles Aircraft Certification Office (ACO) before implementation.

Purpose - Aviation Safety *Professionalism - Technical Excellence* *Pride -Highest Quality*

5. Design Changes.
   a. Honeywell International must submit minor changes to the data quality requirements, the data processing standards, or the quality management system to the FAA Los Angeles Aircraft Certification Office (ACO) in accordance with procedures described within Honeywell DO-200A Compliance Plan C72-1357-225. All other changes are considered major, and must be substantiated and accepted prior to implementation in the same manner as that for the original LOA.
   b. Upon receipt of notification by the FAA Los Angeles Aircraft Certification Office (ACO) that an unsafe condition exists in database product supplied under this LOA, Honeywell International shall develop corrective action and submit it to the FAA Los Angeles Aircraft Certification Office (ACO) for approval. Honeywell International shall expedite distribution of the approved corrective action to customers and users.

6. Honeywell International must perform periodic internal audits as described in RTCA/DO-200A, section 3, with a maximum time between audits (whether total or incremental) of not more than one year. Any major non-conformities as described in RTCA/DO-200A, section 3.4 must be reported to the FAA Los Angeles Aircraft Certification Office (ACO). Additionally, the FAA may perform periodic audits in accordance with procedures described within Honeywell's Supplemental Product Development Quality Assurance Plan for NavDB C67-0210-004.

7. Honeywell Internationalmust advise their customers of the status of their LOA as well as the status of LOAs (or foreign acceptance, including designation of the foreign authority that acknowledges the foreign source's compliance to RTCA/DO-200A and the means of approval or acceptance) for all previous chain participants (up to, but not including, a State's AIP). The method must be timely to ensure that customers can react to changes in the status of their LOA.

If further information concerning this project is needed, please contact the FAA's point of contact Mr. Ha A. Nguyen, Project Manager of Los Angeles Aircraft Certification Office. Mr. Nguyen can be reached by telephone at 1-562-627-5335 or by fax at 1-562-627-5210 or by email at ha.nguyen@faa.gov

Sincerely,

Joe Hashemi
Manager, Systems and Equipment Branch

LOA 4: Rockwell Collins

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Commercial Systems
400 Collins Road NE
Cedar Rapids, IA 52498
319.295.5000 Fax 319.295.8757
fmstech@rockwellcollins.com

Rockwell Collins

List of Applicable Flight Management Computer *(FMC)* Part Numbers
January 9, 2007

*Bolded lines indicate that these part numbers have been added since the last previous *List of Applicable FMC Part Numbers* dated April 11, 2006

The following database types will load into the AMS-5000:
(Requirements CPN 815-7162-001 Rev A)

AMS-5000	SCID P/N	FMC P/N	Jeppesen	Lufthansa
Type 3	**832-4118-104**	**822-0891-102**	**X**	**n/a**
Type 3	832-4118-013	822-0891-103	X	n/a
Type 3	**832-4118-005**	**822-0891-003**	**X**	**n/a**
Type 3	832-4118-006	822-0891-004	X	n/a
Type 3	832-4118-009	822-0891-005	X	n/a
Type 3	832-4118-012	822-0891-008	X	n/a

The following database types will load into the FMS-4200:
(Requirements CPN 815-7162-001 Rev A)

FMS-4200	SCID P/N	FMC P/N	Jeppesen	Lufthansa
Type 3	829-7739-008	822-0783-002	X	n/a
Type 3	**832-4119-006**	**822-0783-003**	**X**	**n/a**
Type 3	**832-4119-007**	**822-0783-004**	**X**	**n/a**
Type 3	**832-4119-008**	**822-0783-005**	**X**	**n/a**
Type 3	829-7739-012	822-0783-006	X	n/a
Type 3	829-4119-009	822-0783-007	X	n/a
Type 3	829-7739-020	822-0783-010	X	n/a
Type 3	829-7739-028	822-0783-013	X	n/a
Type 4	**832-4119-010**	**822-0783-008**	**X**	**n/a**
Type 4	**832-4119-011**	**822-0783-009**	**X**	**n/a**
Type 4	832-4119-012	822-0783-011	X	X
Type 4	**832-4119-014**	**822-0783-012**	**X**	**X**
Type 4	**832-4119-013**	**822-0783-014**	**X**	**X**
Type 4	832-4119-016	822-0783-015	X	X
Type 4	**832-4119-017**	**822-0783-016**	**X**	**X**
Type 5	832-4119-019	822-0783-017	X	n/a
Type 5	832-4119-021	822-0783-019	X	n/a
Type 6	832-4119-020	822-0783-018	X	X
Type 6	832-4119-022	822-0783-021	X	X
Type 6	**832-4119-023**	**822-0783-023**	**X**	**X**

The following database types will load into the FMS-3000:

(Requirements CPN 815-7162-001 Rev A)

FMS-3000	SCID P/N	FMC P/N	Jeppesen	Lufthansa
Type 4	832-4120-002	822-0883-701	X	X
Type 4	**832-4120-008**	**822-0883-007**	**X**	**X**
Type 4	**832-4120-013**	**822-0883-012**	**X**	**X**
Type 4	832-4120-016	822-0883-014	X	X
Type 4	832-4120-025	822-0883-022	X	X
Type 4	**832-4120-028**	**822-0883-026**	**X**	**X**
Type 5	832-4120-012	822-0883-005	X	n/a
Type 5	832-4120-018	822-0883-016	X	n/a
Type 5	832-4120-019	822-0883-018	X	n/a
Type 6	832-4120-017	822-0883-015	X	X
Type 6	**832-4120-020**	**822-0883-017**	**X**	**X**
Type 6	**832-4120-021**	**822-0883-019**	**X**	**X**
Type 6	832-4120-022	822-0883-703	X	X
Type 6	832-4120-023	822-0883-020	X	X
Type 6	832-4120-024	822-0883-021	X	X
Type 6	**832-4120-029**	**822-0883-023**	**X**	**X**
Type 6	**832-4120-030**	**822-0883-024**	**X**	**X**
Type 6	**832-4120-026**	**822-0883-025**	**X**	**X**
Type 6	**832-4120-027**	**822-0883-027**	**X**	**X**
Type 6	**832-4120-033**	**822-0883-030**	**X**	**X**
Type 6	**832-4120-031**	**822-0883-032**	**X**	**X**
Type 6	**832-4120-035**	**822-0883-033**	**X**	**X**
Type 6	**832-4120-036**	**822-0883-035**	**X**	**X**
Type 6	**832-4120-037**	**822-0883-036**	**X**	**X**
Type 6	**832-4120-038**	**822-0883-037**	**X**	**X**

The following database types will load into the FMS-3000:

(Requirements CPN 815-7162-001 Rev A)

FMS-3000	SCID P/N	FMC P/N	Jeppesen	Lufthansa
Type 4	832-4120-002	822-0883-701	X	X
Type 4	**832-4120-008**	**822-0883-007**	**X**	**X**
Type 4	**832-4120-013**	**822-0883-012**	**X**	**X**
Type 4	832-4120-016	822-0883-014	X	X
Type 4	832-4120-025	822-0883-022	X	X
Type 4	**832-4120-028**	**822-0883-026**	**X**	**X**
Type 5	832-4120-012	822-0883-005	X	n/a
Type 5	832-4120-018	822-0883-016	X	n/a
Type 5	832-4120-019	822-0883-018	X	n/a
Type 6	832-4120-017	822-0883-015	X	X
Type 6	**832-4120-020**	**822-0883-017**	**X**	**X**
Type 6	**832-4120-021**	**822-0883-019**	**X**	**X**
Type 6	832-4120-022	822-0883-703	X	X
Type 6	832-4120-023	822-0883-020	X	X
Type 6	832-4120-024	822-0883-021	X	X
Type 6	**832-4120-029**	**822-0883-023**	**X**	**X**
Type 6	**832-4120-030**	**822-0883-024**	**X**	**X**
Type 6	**832-4120-026**	**822-0883-025**	**X**	**X**
Type 6	**832-4120-027**	**822-0883-027**	**X**	**X**
Type 6	**832-4120-033**	**822-0883-030**	**X**	**X**
Type 6	**832-4120-031**	**822-0883-032**	**X**	**X**
Type 6	**832-4120-035**	**822-0883-033**	**X**	**X**
Type 6	**832-4120-036**	**822-0883-035**	**X**	**X**
Type 6	**832-4120-037**	**822-0883-036**	**X**	**X**
Type 6	**832-4120-038**	**822-0883-037**	**X**	**X**

The following database types will load into the FMS-5000:

(Requirements CPN 815-7162-001 Rev A)

FMS-5000	SCID P/N	FMC P/N	Jeppesen	Lufthansa
Type 4	832-4118-010	822-0891-006	X	X
Type 4	832-4118-011	822-0891-007	X	X
Type 4	832-4118-015	822-0891-009	X	X
Type 4	832-4118-016	822-0891-010	X	X
Type 4	832-4118-014	822-0891-011	X	X
Type 4	832-4118-017	822-0891-013	X	X
Type 5	832-4118-018	822-0891-012	X	n/a
Type 6	832-4118-020	822-0891-014	X	X
Type 6	832-4118-021	822-0891-015	X	X
Type 6	832-4118-019	822-0891-016	X	X
Type 6	832-4118-022	822-0891-017	X	X
Type 6	832-4118-023	822-0891-018	X	X
Type 6	832-4118-024	822-0891-021	X	X
Type 6	832-4118-027	822-0891-027	X	X

The following database types will load into the FMS-6000/6100:

(Requirements CPN 815-7162-001 Rev A)

FMS-6000/6100	SCID P/N	FMC P/N	Jeppesen	Lufthansa
Type 3	829-7739-008	822-0868-004	X	n/a
Type 3	832-4117-005	822-0868-005	X	n/a
Type 3	832-4117-009	822-0868-006	X	n/a
Type 3	832-4117-010	822-0868-007	X	n/a
Type 3	832-4117-011	822-0868-008	X	n/a
Type 3	832-4117-012	822-0868-009	X	n/a
Type 3	829-7739-012	822-0868-010	X	n/a
Type 3	832-4117-013	822-0868-011	X	n/a
Type 3	832-4117-014	822-0868-016	X	n/a
Type 3	832-4117-017	822-0868-017	X	n/a
Type 3	829-7739-020	822-0868-021	X	n/a
Type 3	829-7739-028	822-0868-031	X	n/a
Type 4	832-4117-018	822-0868-015	X	X
Type 4	832-4117-019	822-0868-018	X	X
Type 4	832-4117-021	822-0868-019	X	X
Type 4	832-4117-020	822-0868-020	X	X
Type 4	832-4117-022	822-0868-022	X	X
Type 4	832-4117-023	822-0868-023	X	X
Type 4	832-4117-032	822-0868-024	X	X
Type 4	832-4117-024	822-0868-025	X	X
Type 4	832-4117-025	822-0868-026	X	X
Type 4	832-4117-026	822-0868-027	X	X
Type 4	832-4117-027	822-0868-028	X	X
Type 4	832-4117-033	822-0868-029	X	X
Type 4	832-4117-034	822-0868-030	X	X
Type 4	832-4117-031	822-0868-032	X	X
Type 4	832-4117-028	822-0868-033	X	X
Type 4	832-4117-035	822-0868-036	X	X
Type 4	832-4117-036	822-0868-037	X	X
Type 4	832-4117-037	822-0868-038	X	X
Type 4	832-4117-038	822-0868-039	X	X
Type 4	832-4117-039	822-0868-040	X	X
Type 4	832-4117-040	822-0868-041	X	X
Type 4	832-4117-042	822-0868-042	X	X
Type 4	832-4117-041	822-0868-043	X	X
Type 4	832-4117-043	822-0868-044	X	X
Type 4	832-4117-045	822-0868-045	X	X
Type 4	832-4117-046	822-0868-046	X	X
Type 4	832-4117-047	822-0868-047	X	X
Type 4	832-4117-048	822-0868-048	X	X
Type 5	832-4117-054	822-0868-049	X	n/a
Type 5	832-4117-055	822-0868-050	X	n/a

Type 5	832-4117-056	822-0868-051	X	n/a
Type 5	832-4117-057	822-0868-052	X	n/a
Type 5	832-4117-058	822-0868-053	X	n/a
Type 5	832-4117-064	822-0868-054	X	n/a
Type 5	832-4117-065	822-0868-055	X	n/a
Type 5	832-4117-071	822-0868-057	X	n/a
Type 5	832-4117-066	822-0868-058	X	n/a
Type 5	832-4117-067	822-0868-062	X	n/a
Type 5	832-4117-072	822-0868-066	X	n/a
Type 6	832-4117-061	822-0868-056	X	X
Type 6	832-4117-060	822-0868-059	X	X
Type 6	832-4117-062	822-0868-060	X	X
Type 6	832-4117-063	822-0868-061	X	X
Type 6	832-4117-068	822-0868-063	X	X
Type 6	832-4117-069	822-0868-064	X	X
Type 6	832-4117-070	822-0868-065	X	X
Type 6	832-4117-080	822-0868-068	X	X
Type 6	832-4117-073	822-0868-069	X	X
Type 6	832-4117-077	822-0868-070	X	X
Type 6	832-4117-074	822-0868-071	X	X
Type 6	832-4117-075	822-0868-072	X	X
Type 6	832-4117-076	822-0868-073	X	X
Type 6	832-4117-084	822-0868-074	X	X
Type 6	832-4117-085	822-0868-075	X	X
Type 6	832-4117-078	822-0868-076	X	X
Type 6	832-4117-079	822-0868-077	X	X
Type 6	832-4117-081	822-0868-078	X	X
Type 6	832-4117-082	822-0868-079	X	X
Type 6	832-4117-083	822-0868-081	X	X
Type 6	832-4117-087	822-0868-083	X	X
Type 6	832-4117-093	822-0868-084	X	X
Type 6	832-4117-088	822-0868-085	X	X
Type 6	832-4117-089	822-0868-086	X	X
Type 6	832-4117-091	822-0868-088	X	X
Type 6	832-4117-090	822-0868-087	X	X
Type 6	832-4117-094	822-0868-089	X	X
Type 6	832-4117-095	822-0868-090	X	X
Type 6	832-4120-039	822-0883-031	X	X

LOA 5: Smiths

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OFP Designation	Smiths Model Number	Smiths Software Part Number
A1.0	E13206BA	G2604AAA01, G2604AAA02
A2.0	E13206BA	G2604AAB01, G2604AAC01, G2604AAD01
A1A.0	E13206BA	G2604AAE01
E4b.0	2907A4	552710-07-01
E4b.1	2907A4	552710-10-01
E6b.0	2907A4	552642-20-01
G1.0	Non Smiths Hardware	552099-11-01, 552099-20-01, 552099-21-01, 552099-25-01
G2.0	Non Smiths Hardware	552392-10-01
G2.1	Non Smiths Hardware	552099-30-01
G3.01	Non Smiths Hardware	552099-40-01
J1.0	2951A	554106-19-01
U1.4	2904A8, 2904A9	549100-03-01
U1.5	2904A10, 2904A11	549397-01-01
U1.6	2904A12, 2904A13	549791-01-01
U5	2904D12, 2904D13, 2904D14, 2904F4, 2904F5, 2904F6	548925-08-01

Smiths LOA

OFP Designation	Smiths Model Number	Smiths Software Part Number
U6.0	2904D15, 2904D16, 2904D17, 2904D18, 2904D19, 2905F7, 2904F8, 2904F9, 2904F10, 2904F11	548926-17-01
U6.1	2904D20, 2904D21, 2904F12, 2904F13	549260-02-01
U6.2	2904D22, 2904D23, 2904F14, 2904F15	549349-02-01
U7.0	2907A, 2907A3, 2904A4	549297-12-01
U7.1	2907A, 2907A3, 2907A4	549297-34-01
U7.2	2907A, 2907A3, 2907A4	549297-38-01
U7.3	2907A, 2907A3, 2907A4	549297-41-01
U7.4	2907A, 2907A3, 2907A4	549297-45-01
U7.5	2907A, 2907A3, 2907A4	549297-45-01
U8.0	2907A, 2907A3, 2907A4	549250-15-01
U8.1	2907A, 2907A3, 2907A4	549250-19-01
U8.3	2907A, 2907A3, 2907A4	549250-22-01
U8.4	2907A, 2907A3, 2907A4	549250-26-01
U8.5	2907A, 2907A3, 2907A4	549250-26-01
U10.0	2907A4	549849-16-01
U10.1	2907A4	549849-20-01
U10.2	2907A4	549849-27-01, 549849-28-01
U10.3	2907A4	549849-37-01
U10.4	2907A4, 2907C1	549849-44-01, 549849-49-01
U10.5	2907A4, 2907C1	549849-57-01
U10.5a	2907A4, 2907C1	549849-64-01
U10.6	2907A4, 2907C1	549849-71-01
V1.0	2907A4	552333-14-01
V1.1	2907A4	552333-17-01

LOA 6: Universal Avionics

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U.S. Department of Transportation

Federal Aviation Administration

Transport Airplane Directorate
Los Angeles Aircraft Certification Office
3960 Paramount Boulevard
Lakewood, California 90712-4137

April 27, 2007

Mr. Robert C. Uhde II
Universal Avionics Systems Corp
3260 E. Universal Way
Tucson AZ 85706

Dear Mr. Uhde:

TYPE 2 FAA LETTER OF ACCEPTANCE
LOA0003LA

The FAA has determined that Universal Avionics System Corporation complies with AC 20-153 and RTCA/DO-200A with regards to their processing of navigation data. Navigation databases may also include customer tailored data not originating from a state authority, such as at private airports/runways and private arrival/departure procedures. The end user has the responsibility to verify the suitability of this data for the intended operation. Compatibility has been established with the Flight Management Systems listed in Appendix A of this letter.

The following terms and conditions are applicable to this letter of acceptance:

1. The Universal Avionics System Corporation data quality requirements for the receipt of data from other sources are defined in Universal Avionics document EP0984B, *Data Requirements for the Jeppesen Source Data for the UASC Navigation Databases*. The Universal Avionics System Corporation data quality requirements for the delivery of data to their customers are defined in EP1654E, *Processing Requirements for the Group 5 Navigation Databases* and EP0994J, *Parts List and Content Requirements for the Navigation Databases*. The end user has the ultimate responsibility to ensure data requirements are met and to verify the navigation data loaded in their FMS is current and valid for the intended operation.
2. The Universal Avionics System Corporation procedures for processing data are defined in EP1852B, RTCA/DO-200A Compliance Plan for the Navigation Databases and EP1350I, Processing Checklist for the Navigation Databases.
3. Reporting of Failures, Malfunctions, and Defects. Universal Avionics Systems Corporation must report to the FAA Los Angeles Aircraft Certification Office any failure, malfunction, or defect of the aeronautical data produced under this LOA that may have a safety effect on operational use of the data.

Universal Avionics LOA

4. Maintain a Quality Management System (QMS). Universal Avionics System Corporation must maintain a quality management system as described in RTCA/DO-200A, section 2.5. Changes to the QMS that may affect the data quality objectives must be reported to the Los Angeles Aircraft Certification Office before implementation.

5. Design Changes

   a. Universal Avionics System Corporation must submit minor changes to the data quality requirements, the data processing standards, or the quality management system to the Los Angeles Aircraft Certification Office in accordance with procedures described within Universal documents EP1852B, *RTCA/DO-200A Compliance Plan for the Navigation Databases,* and EP1262C, *Configuration Management Plan for the Navigation Databases and Processing Software*. All other changes are considered major, and must be substantiated and accepted prior to implementation in the same manner as that for the original LOA.

   b. Upon receipt of notification by the Los Angeles Aircraft Certification Office that an unsafe condition exists in database product supplied under this LOA, Universal Avionics System Corporation shall develop corrective action and submit it to the Los Angeles Aircraft Certification Office for approval. Universal Avionics System Corporation shall expedite distribution of the approved corrective action to customers and users.

6. Universal Avionics System Corporation must perform periodic internal audits as described in RTCA/DO-200A, section 3, with a maximum time between audits (whether total or incremental) of not more than one year. Any major non-conformities as described in RTCA/DO-200A, section 3.4 must be reported to the Los Angeles Aircraft Certification Office. Additionally, the FAA may perform periodic audits in accordance with procedures described within Universal documents EP1852B, RTCA/DO-200A Compliance Plan for the Navigation Databases, and EP0011E, Software Quality Assurance Plan.

7. Universal Avionics System Corporation must advise their customers of the status of their LOA as well as the status of LOAs (or foreign acceptance, including designation of the foreign authority that acknowledges the foreign source's compliance to RTCA/DO-200A and the means of approval or acceptance) for all previous chain participants (up to, but not including, a State's AIP). The method must be timely to ensure that customers can react to changes in the status of their LOA.

If further information concerning this project is needed, please contact the FAA's point of contact Mr. Ha A. Nguyen, Project Manager of Los Angeles Aircraft Certification Office. Mr. Nguyen can be reached by telephone at 1-562-627-5335 or by fax at 1-562-627-5210 or by email at ha.nguyen@faa.gov

Sincerely,

Joe Hashemi
Manager, Systems and Equipment Branch
Los Angeles Aircraft Certification Office

CC: ANM-111, Jeff Myers; AIR-130L, Brad Millers

Appendix A

a. Acceptance of Universal Avionics System Corporation aeronautical data process is provided based on the specification and control of the data quality requirements provided in Table 1, compliance with AC 20-153 and RTCA/DO-200A, and the compatibility of the delivered data with the Flight Management System products listed in Table 2.

Table 1

Item	Description	Doc No.	Rev	Date
1	RTCA/DO-200A Compliance Plan for the Navigation Databases	EP1852B	B	09-April-2007
2	Processing Requirements for the Group 5 Navigation Databases	EP1654E	E	29 Sep 2006
3	Data Requirements for the Jeppesen Source Data for the UASC Navigation Databases	EP0984B	B	29 Sep 2006
4	Test Plan, Procedures, and Results for the Group 5 Navigation Databases	EP0992A	A	01 Oct 2002
5	ARINC 424 Preprocessing Requirements for the Navigation Databases	EP0986C	C	13 Sep 2006
6	Processing Checklist for the Navigation Databases	EP1350I	I	16-Mar-2007
7	Configuration Management Plan for the Navigation Databases and Processing Software	EP1262C	C	09-April-2007
8	Parts List and Content Requirements for the Navigation Databases	EP0994J	J	12-Mar-2007
9	Software Quality Assurance Plan	EP0011E	E	02-Mar-2007

b. Universal Avionics has established compatibility with the following Flight Management Systems with Software Control Number (SCN) 802.x/ 902.x and 803.x/ 903.x, excluding aeronautical database part numbers 802-NFD and 802-AFI. Compilation of data to the compatible format has been accomplished using Universal Avionics System Corporations' aeronautical data process.

Table 2

Item	Description	Part Number
1	UNS-1C+ FMS	10172-XX-XXX
2	UNS-1C/sp+ FMS	10192-XX-XXX
3	UNS-1D+ FMS	11922-X0-XXXX0X
4	UNS-1K+ FMS	11162-XX-XXXX
5	UNS-1E FMS	2017-XX-XX1
6	UNS-1E/Esp FMS	2019-XX-X01
7	UNS-1F FMS	2192-X0-XXXX0X
8	UNS-1L FMS	2116-XX-XXXX

Universal Avionics LOA

Type 2 FAA Letter of Acceptance LOA003LA

Appendix A

TUCSON DOCUMENT CONTROL
RELEASED

FAA APPROVED

SEP 17 2007

Los Angeles
Aircraft Certification Office
INITIALS: HAN

Kenneth Lenger
Created/Revised By:
Kenneth Lenger

Reviewed by:
Robert C. Uhde II

Laura L. Niles
Released By:
Laura L. Niles

Universal Avionics Systems Corporation
3260 E. Universal Way
Tucson, AZ 85706

RPRT-2007-1010
Revision 02, 14-Sep-2007
Type 2 FAA Letter of Acceptance LOA003LA, Appendix A

LOG OF REVISIONS

Rev No.	Revision Date	Description of Changes	Signatories
00	16-Apr-2007	Initial Release	Created/Revised By: Kenneth Lenger Reviewed By: Robert C. Uhde II Released By: Laura L. Niles
01	10-Jul-2007	Table 1, Item 5, EP0986 Rev. C to Rev. D in support of minor process change.	Created/Revised By: Kenneth Lenger Reviewed By: Robert C. Uhde II Released By: Laura L. Niles
02	14-Sep-2007	Table 1: EP0984 Rev. B to Rev. C to support EP2897 EP0994 Rev. J to Rev. M EP1262 Rev. C to Rev. D EP1350 Rev. I to Rev. M EP1654 Rev. E to Rev. G to support EP2897 EP1852 Rev. B to Rev. C to support EP2897 EP2891, *"Tool Qualification Test Procedures for the Group 5 Navigation Databases"* replaces EP0992A, *"Test Plan, Procedures, and Results for the Group 5 Navigation Database"* to provide a technical baseline for the tool qualification plan, EP 2897. EP2897, *"Tool Qualification Plan for the Navigation Databases"* is added to addresses tool qualification findings resulting from the FAA LOA audit. EP2898, *"Tool Requirements for ARINC 424 Tolerance Checking for the Group 5 Navigation Databases"* replaces EP0986D, *"ARINC 424 Preprocessing Requirements for the Navigation Databases"* to update the Universal's current Jeppesen data format (ARINC 424-12/15/17 format) to the latest formats available from Jeppesen which are primarily ARINC 424-18. Table 2: Added four new WAAS FMS models, Item numbers 9, 10, 11, and 12 and reformatted. Table 3: Added compliance to Paragraph 10a of AC 20-153 and	Created/Revised By: Kenneth Lenger Reviewed By: Robert C. Uhde II Released By: Laura L. Niles

Universal Avionics LOA

a. Acceptance of Universal Avionics System Corporation aeronautical data process is provided based on the specification and control of the data quality requirements provided in Table 1, compliance with AC 20-153 and RTCA/DO-200A, and the compatibility of the delivered data with the Flight Management System products listed in Table 2.

Table 1

Document Number	Description
EP0011E 02-Mar-2007	*Software Quality Assurance Plan*
EP0984C 11-Sep-2007	*Data Requirements for the Jeppesen Source Data for the UASC Navigation Databases*
EP0994M 08-Aug-2007	*Parts List and Content Requirements for the Navigation Databases*
EP1262D 11-Sep-2007	*Configuration Management Plan for the Navigation Databases and Processing Software*
EP1350M 11-Sep-2007	*Processing Checklist for the Navigation Databases*
EP1654G 11-Sep-2007	*Processing Requirements for the Group 5 Navigation Databases*
EP1852C 11-Sep-2007	*RTCA/DO-200A Compliance Plan for the Navigation Databases*
EP2891 11-Sep-2007	*Tool Qualification Test Procedures for the Group 5 Navigation Databases*
EP2897 11-Sep-2007	*Tool Qualification Plan for the Navigation Databases*
EP2898 16-Aug-2007	*Tool Requirements for ARINC 424 Tolerance Checking for the Group 5 Navigation Databases*

Universal Avionics LOA

b. Universal Avionics has established compatibility with the following Flight Management Systems, excluding aeronautical database part numbers 802-NFD and 802-AFI. Compilation of data to the compatible format has been accomplished using Universal Avionics System Corporations' aeronautical data process.

Table 2

PART No.	DESCRIPTION	SCN	Approvals
10172-XX-XXX	UNS-1C+ FMS/MMMS	802, 803, 902, 903	TSO-C115b TSO-C129 A1/B1/C1
10192-XX-XXX	UNS-1C/sp+ FMS/MMMS	802, 803, 902, 903	TSO-C115b TSO-C129 A1/B1/C1
11922-X0-XXXX0X	UNS-1D+ FMS/MMMS	802, 803, 902, 903	TSO-C115b TSO-C129 A1/B1/C1
11162-XX-XXXX	UNS-1K+ FMS/MMMS	802, 803, 902, 903	TSO-C115b TSO-C129 A1/B1/C1
2017-XX-XX1	UNS-1E FMS/MMMS	802, 803, 902, 903	TSO-C115b TSO-C129 A1/B1/C1
2019-XX-X01	UNS-1E/Esp FMS/MMMS	802, 803, 902, 903	TSO-C115b TSO-C129 A1/B1/C1
2192-X0-XXXX0X	UNS-1F FMS/MMMS	802, 803, 902, 903	TSO-C115b TSO-C129 A1/B1/C1
2116-XX-XXXX	UNS-1L FMS/MMMS	802, 803, 902, 903	TSO-C115b TSO-C129 A1/B1/C1
3017-XX-2X1	UNS-1Ew FMS/MMMS	1000, 1100	TSO-C115b TSO-C146b Class B
3019-XX-201	UNS-1Espw FMS/MMMS	1000, 1100	TSO-C115b TSO-C146b Class B
3192-X0-11110X	UNS-1Fw FMS/MMMS	1000, 1100	TSO-C115b TSO-C146b Class B
3116- X0-11110X	UNS-1Lw FMS/MMMS	1000, 1100	TSO-C115b TSO-C146b Class B

Universal Avionics LOA

c. Compliance to Paragraph 10a of AC 20-153: Reference UASC report number RPRT-2007-1007, "*Compliance to Paragraph 10a of AC 20-153 for Universal Avionics Systems Corporation (UASC) Flight Management Systems (FMS) Software Control Numbers (SCN) 60X.X/70X.X, 800.X/900.X, 801.X/901.X*"

TABLE 3

PART No.	DESCRIPTION	SCN	Approvals
1017-XX-XXX	UNS-1C FMS/MMMS	601, 701	TSO-C115b TSO-C129 A1/B1/C1
1017-XX-XXX	UNS-1C FMS/MMMS	602, 603, 604, 702, 703, 704	TSO-C115b TSO-C129a A1/B1/C1
1019-XX-XXX	UNS-1Csp FMS/MMMS	601, 701	TSO-C115b TSO-C129 B1/C2
1019-XX-XXX	UNS-1Csp FMS/MMMS	602, 603, 604, 702, 703, 704	TSO-C115b TSO-C129a A1/B1/C1
1116-XX-111X	UNS-1K FMS/MMMS	601, 701	TSO-C115b TSO-C129 A1/B1/C1
1116-XX-111X	UNS-1K FMS/MMMS	602, 603, 604, 702, 703, 704	TSO-C115b TSO-C129a A1/B1/C1
1190-XX-211X	UNS-1B+ FMS/MMMS	601, 701	TSO-C115b TSO-C129 A1/B1/C1
1190-XX-211X	UNS-1B+ FMS/MMMS	602, 603, 604, 702, 703, 704	TSO-C115b TSO-C129a A1/B1/C1
1192-X0-11100X	UNS-1D FMS/MMMS	601, 701	TSO-C115b TSO-C129 A1/B1/C1
1192-X0-11100X	UNS-1D FMS/MMMS	602, 603, 604, 702, 703, 704	TSO-C115b TSO-C129a A1/B1/C1
2017-XX-XXX	UNS-1E FMS/MMMS	800, 801, 900, 901	TSO-C115b TSO-C129a A1/B1/C1
2019-XX-XXX	UNS-1Esp FMS/MMMS	800, 801, 900, 901	TSO-C115b TSO-C129a A1/B1/C1
2116-XX-XXXX	UNS-1L FMS/MMMS	800, 801, 900, 901	TSO-C115b TSO-C129a A1/B1/C1
2192-XX-XXXXXX	UNS-1F FMS/MMMS	800, 801, 900, 901	TSO-C115b TSO-C129a A1/B1/C1
10172-XX-XXX	UNS-1C+ FMS/MMMS	800, 801, 900, 901	TSO-C115b TSO-C129a A1/B1/C1
10192-XX-XXX	UNS-1Csp+ FMS/MMMS	800, 801, 900, 901	TSO-C115b TSO-C129a A1/B1/C1
11162-XX-XXXX	UNS-1K+ FMS/MMMS	800, 801, 900, 901	TSO-C115b TSO-C129a A1/B1/C1
11922-XX-XXXXXX	UNS-1D+ FMS/MMMS	800, 801, 900, 901	TSO-C115b TSO-C129a A1/B1/C1

Universal Avionics LOA

Universal Avionics Systems Corporation
3260 E. Universal Way
Tucson, AZ 85706

RPRT-2007-1007
Revision 00, 14-Sep-2007
Compliance to Paragraph 10a of AC 20-153

Compliance to Paragraph 10a of AC 20-153 for

Universal Avionics Systems Corporation (UASC)

Flight Management Systems (FMS)

Software Control Numbers

(SCN) 60X.X/70X.X, 800.X/900.X, 801.X/901.X

TUCSON DOCUMENT CONTROL
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LOG OF REVISIONS

Rev No.	Revision Date	Description of Changes	Signatories
00	14-Sep-2007	Initial Release	Created/Revised By: Jason K Mason Reviewed By: Kenneth Lenger Released By: Laura L. Niles

Universal Avionics LOA

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Purpose

To establish a Means of Compliance (MOC) to Paragraph 10.a. of AC 20-153 *Acceptance of Data Processes and Associated Navigation Databases* for those FMSs and associated software versions produced outside the DO-200A aeronautical data process. These FMS models and SCNs are not addressed in Universal's current Type 2 Letter of Acceptance, LOA0003LA, for DO-200A compliance.

Based upon the following evidence of compliance, Universal Avionics requests issuance of a Type 2 LOA for compliance to paragraph 10.a of AC 20-153. This requested LOA will be sufficient to meet the data integrity requirement provided in AC 90-100A Appendix 3, paragraph 14 without further FAA approval.

Means of Compliance

Per AC 20-153 Paragraph 10.a. *Requirements for Existing Systems (prior TSOA, TC, or STC approval)*, the data quality requirements for existing systems (TSOA and STC approval) reviewed and approved in accordance with AC 20-115B, RTCA Inc. Document RTCA/DO-178B do not need to be re-approved by the FAA in order to comply with AC 20-153.

Accordingly, compliance is established through the following navigation database documents which have been previously reviewed and approved as part of the software approval process for the FMS models and software versions shown in Table 1 at the end of this document.

The following previously reviewed and approved UASC navigation database documents[1] are provided as evidence of compliance to paragraph 10.a of AC 20-153:

- EP1350[1] *Processing Checklist for the Navigation Databases*. This document provides a checklist for the production of Universal Avionics Systems Corporation (UASC) navigation databases (NavDBs) designed for use on the UASC Flight Management System (FMS) and Navigation Management System (NMS) products. It also provides the means to record the following for each Aeronautical Information Regulation and Control (AIRAC) cycle:
  - Personnel performing tasks requiring certification
  - Information pertaining to the source data file
  - Errors encountered during navigation database processing
- EP0987[1] *Processing Requirements for Group 3 Navigation Databases*. This document describes the processing requirements for Universal Avionics Systems Corporation (UASC) Group 3 navigation databases (NavDBs) for use on UASC Flight Management Systems (FMS), Navigational Management Systems (NMS) and Universal Flight Planning (UFP) products.
- EP1216[1] *Processing Requirements for Group 4 Navigation Databases*. This document describes the Universal Avionics Systems Corporation (UASC) navigation database (NavDB) packing requirements for Group 4 Flight Management Systems (FMS) databases.
- EP0994[1] *Parts List and Content Requirements for the Navigation Databases*. This document identifies the contents of navigation database (NavDB) parts designed for use with Universal Avionics Systems Corporation (UASC) Flight Management System (FMS), Navigation Management System (NMS), and Universal Flight Planning (UFP) products. Each NavDB part number (PN) represents a combination of the database format (as defined by group), the media type, the region, data types, and possible content restrictions. This document is also provided to show SCN traceability to the Group 3 and Group 4 nomenclatures.

[1] These previously accepted documents are revised as required. Please contact UASC for latest revision level and revision date.

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Summary

A means of compliance to the database quality requirements of AC 20-153, paragraph 10.a, is established for the Universal Avionics FMS models and software versions included in Table 1 by previously reviewed and approved navigation database documentation and with additional consideration of the following:

- Universal developed an aeronautical data process and documentation set without the benefit of FAA guidance that has evolved and continuously improved up to the present time. That process, with minor exceptions, was used as a model for the FMS software versions included in LOA0003LA.
- The integrity of Universal's aeronautical databases and processes has been demonstrated over the past 12 years through approximately 400,000 airplane updates to some 4500+ customers world wide, during which time there has not been a single accident or Airworthiness Directive attributable to a Universal generated navigation database error.
- The ultimate responsibility of ensuring that the navigation data meets the quality for its intended application rests with the end-user of that data and typically can be accomplished by comparing the electronic data against paper products.
- The safety and integrity of the Universal's pre-LOA aeronautical data process is established by the sheer number of aeronautical databases and in-service aircraft employing these databases that have successfully operated since 1995 without an incident attributable to a Universal generated navigation database error.

Conclusion

Based upon evidence of previously reviewed and approved navigation database data quality requirements, Universal Avionics requests issuance of a Type 2 LOA for compliance to paragraph 10.a of AC 20-153. This requested LOA will be acceptable and sufficient to meet the data integrity requirement of AC 90-100A Appendix 3, paragraph 14 without further FAA approval.

Universal Avionics LOA

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The table below lists the applicable systems (currently TSO'd with operating software developed to DO-178B) and software levels that fall under the requested Type 2 LOA:

TABLE 1

PART No.	DESCRIPTION	SCN	Approvals
1017-XX-XXX	UNS-1C FMS/MMMS	601, 701	TSO-C115b TSO-C129 A1/B1/C1
1017-XX-XXX	UNS-1C FMS/MMMS	602, 603, 604, 702, 703, 704	TSO-C115b TSO-C129a A1/B1/C1
1019-XX-XXX	UNS-1Csp FMS/MMMS	601, 701	TSO-C115b TSO-C129 B1/C2
1019-XX-XXX	UNS-1Csp FMS/MMMS	602, 603, 604, 702, 703, 704	TSO-C115b TSO-C129a A1/B1/C1
1116-XX-111X	UNS-1K FMS/MMMS	601, 701	TSO-C115b TSO-C129 A1/B1/C1
1116-XX-111X	UNS-1K FMS/MMMS	602, 603, 604, 702, 703, 704	TSO-C115b TSO-C129a A1/B1/C1
1190-XX-211X	UNS-1B+ FMS/MMMS	601, 701	TSO-C115b TSO-C129 A1/B1/C1
1190-XX-211X	UNS-1B+ FMS/MMMS	602, 603, 604, 702, 703, 704	TSO-C115b TSO-C129a A1/B1/C1
1192-X0-11100X	UNS-1D FMS/MMMS	601, 701	TSO-C115b TSO-C129 A1/B1/C1
1192-X0-11100X	UNS-1D FMS/MMMS	602, 603, 604, 702, 703, 704	TSO-C115b TSO-C129a A1/B1/C1
2017-XX-XXX	UNS-1E FMS/MMMS	800, 801, 900, 901	TSO-C115b TSO-C129a A1/B1/C1
2019-XX-XXX	UNS-1Esp FMS/MMMS	800, 801, 900, 901	TSO-C115b TSO-C129a A1/B1/C1
2116-XX-XXXX	UNS-1L FMS/MMMS	800, 801, 900, 901	TSO-C115b TSO-C129a A1/B1/C1
2192-XX-XXXXXX	UNS-1F FMS/MMMS	800, 801, 900, 901	TSO-C115b TSO-C129a A1/B1/C1
10172-XX-XXX	UNS-1C+ FMS/MMMS	800, 801, 900, 901	TSO-C115b TSO-C129a A1/B1/C1
10192-XX-XXX	UNS-1Csp+ FMS/MMMS	800, 801, 900, 901	TSO-C115b TSO-C129a A1/B1/C1
11162-XX-XXXX	UNS-1K+ FMS/MMMS	800, 801, 900, 901	TSO-C115b TSO-C129a A1/B1/C1
11922-XX-XXXXXX	UNS-1D+ FMS/MMMS	800, 801, 900, 901	TSO-C115b TSO-C129a A1/B1/C1

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